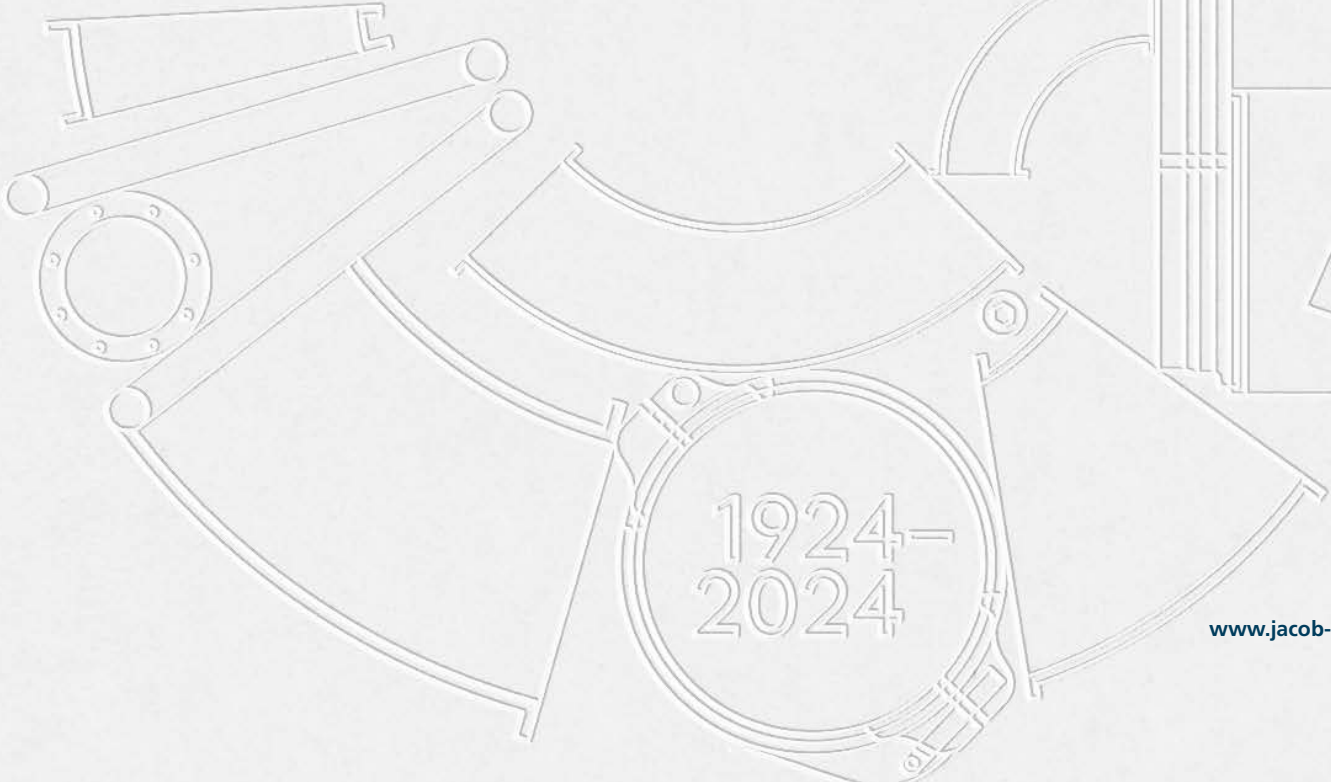
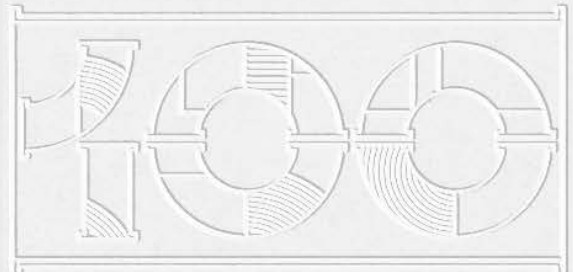




JACOB

NO. 1 IN PIPEWORK SYSTEMS

PRODUCT CATALOGUE



1924-
2024

www.jacob-group.com



THE PDF CATALOGUE GIVES YOU A FAST ROUTE...



... to the table of contents

Just one click away from our table of contents: The doorway to our range of products – your one-stop shop for modular pipework systems. Try it out!

... to our products

Quickly find your product of choice: To save you the page-turning, we have made the table of contents “clickable”.

This way, you can quickly find what you are looking for.

1	GENERAL INFORMATION	5	
2	THE PULL-RING SYSTEM	21	
3	PIPES	31	

... backwards and forwards

Navigating the chapters is easy and intuitive.

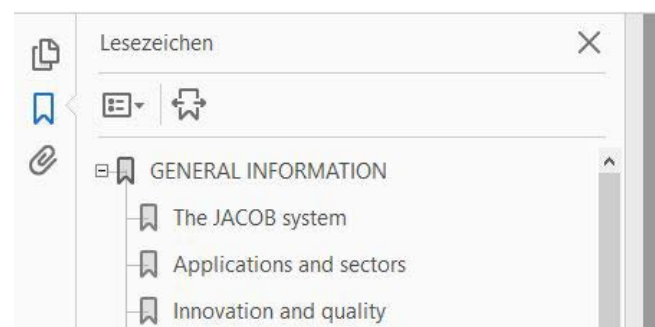
The chapter icons on every left-hand page lead you back to the table of contents for the chapter.

The chapter section symbols on every right-hand page can be clicked on, allowing easy navigation within a chapter.



... using bookmarks

You can move directly to any chapter or page using the structure tree.







NO.1 IN PIPEWORK SYSTEMS



Order number key



Global presence



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A WHOLE CENTURY OF JACOB —
BECAUSE SUCCESS IS ENSURED
BY PEOPLE

Klaudine Gericke and Patrick Jacob

DEAR CUSTOMERS AND BUSINESS PARTNERS,

JACOB has maintained its reputation for high-quality products and exceptionally committed people throughout the 100 years since Friedrich Jacob founded the company – and this fills us with pride. From our modest beginnings, we have grown to become market leaders in our industry, whilst always remaining faithful to our key values.

Our founder Friedrich Jacob grew up in a mill, so it is no wonder that he became fascinated by the mechanics and operations of windmills and watermills as a boy. He took this youthful preoccupation further to pursue a degree in engineering and nurture his ambition to design and modernise mills. It was in 1924 that Friedrich then laid the foundation for today's JACOB Group. At first, the company produced square wooden pipes that were used for conveying flour and grain in gravity systems. Later, in the 1950s, JACOB shifted its focus to the manufacture of pipework systems made of steel. With the aim of providing the highest level of flexibility for its customers, the company developed the modular pipework system for which it soon became internationally renowned. The anniversary catalogue you see before you reflects the results of our unrelenting product development process, which always strives to support our customers in the best possible way.

JACOB is now a globally active company. And it is still family owned. Although our roots are in Porta Westfalica, we also have a strong international team at our disposal, thanks to our various subsidiaries. We are fully aware that it is the commitment of our employees that breathes life into JACOB and makes us successful, and this is why we are just as committed to them as they are to the company.

We look forward to a strong future. We continue to develop and improve our expertise and ourselves, and utilise the benefits of digitalisation so that we can always offer our customers the superior quality and excellent service they have come to expect.

A whole century of JACOB – this makes us very proud.



Patrick Jacob



Klaudine Gericke



WHEN IT COMES TO SECURE CONNECTIONS,
WE ARE YOUR IDEAL PARTNER



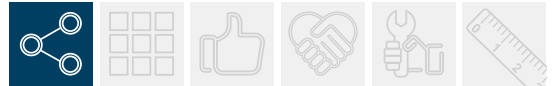
GENERAL INFORMATION

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JACOB'S DIVERSITY

- More than 8,500 different standard products
- Diameters from 60 to 1,600 mm
- Wall thicknesses of 1 to 3 mm
- Stainless steel, shotblasted
- Mild steel, powder-coated or hot-dip galvanised



Modular pipework
explanatory video

THE JACOB SYSTEM

There's a system behind what JACOB does: top quality standards, an outstanding innovative spirit and an uncompromising choice of materials. Profound knowledge of the industry, customer orientation, and expertise based on 100 years of experience. International customer support, excellent service and round-the-clock availability. The result is perfect modular pipework systems and satisfied customers across the globe.

THE PRINCIPLE

Other pipework systems are specially produced for a specific project and welded together on site. JACOB has come up with a far more efficient way: Standard modular parts with lipped ends are fitted with a U-shaped seal and joined together with a pull-ring. This system is fast, tight and flexible. For special applications, JACOB also supplies its pipes with a welded flange or a loose flange connection.

RELIABILITY

Anyone who thinks that this easy connection principle is second-rate compared to welded pipework systems is mistaken. These connections can be used at differential pressures of up to 0.5 bar and form a condensation leak-proof seal, making them ideally suited for extracting oil mist. There are even special versions of JACOB pipework systems that are up to 10 bar shock explosion proof.

QUALITY

We offer you a pipework system of the very highest quality. We develop and build key elements of our machinery, such as flanging machines, ourselves in order to guarantee the outstanding leaktightness and longevity of our products. We use high-performance, automated manufacturing systems and invest continually in new production technologies, machinery and processes. In tandem with our innovative development department, we are therefore able to guarantee flawless engineering and a consistently high standard of quality.

LOCATIONS

JACOB is a globally active company which supports its customers all over the world with its six subsidiaries, in Germany, France, Italy, the UK, the Czech Republic and the USA, and a presence in some 40 countries. We are able to count reputable customers from all sectors of industry both in Germany and abroad among our long-standing and satisfied customers. Expanding this leading position and building on the confidence that our customers place in us is our goal.



BULK GOODS HANDLING

Gravity chute systems



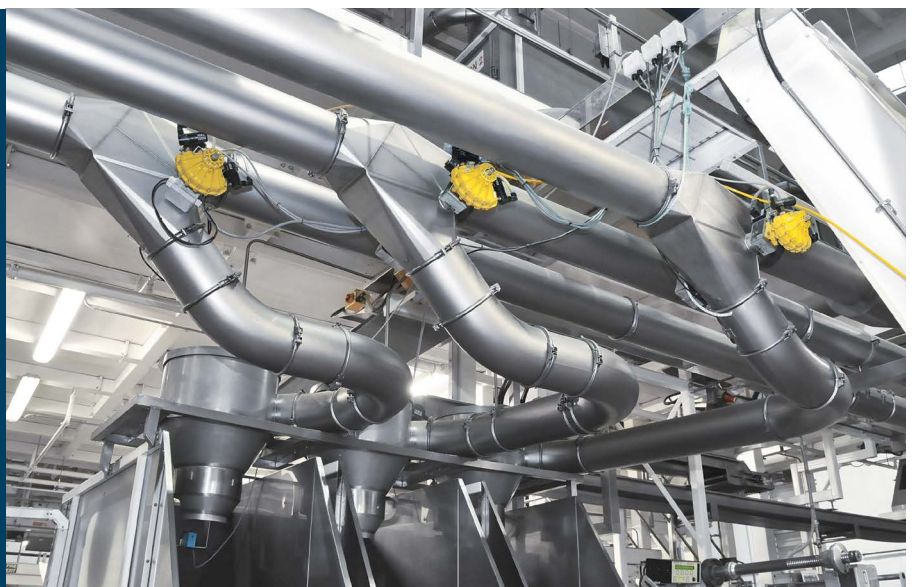
DUST EXTRACTION AND EXHAUST AIR

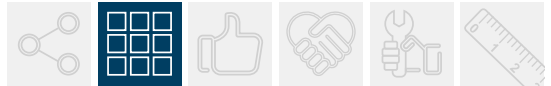
Environmental technology



LOW PRESSURE CONVEYING

Product and air conveying





APPLICATIONS AND SECTORS

JACOB pipework systems are condensation leak-proof and the materials and workmanship are of outstanding quality. These properties make them the perfect choice for numerous applications and sectors.

The JACOB pipework system offers flexibility in use in virtually every sector, from conveying sensitive foodstuffs or pharmaceutical products, or conveying granulates in the chemical or plastics industry, right up to extracting dust or oil mist in the automotive or metal-working industry.

All sectors which involve conveying raw materials and products or extracting contaminated air will benefit from installation-friendly JACOB pipework systems. They are particularly valued in the following sectors due to their high quality, tightness and their flexibility:

CONVEYING BULK GOODS

Grains in any form	Food, beverages and tobacco	Chemicals, pharmaceuticals, plastics
Grain	Spices	Polyamides
Concentrated feed	Coffee	Intermediate products
Seeds	Sugar	Pharmaceuticals
	Rice	Granulates
	Animal feed and pet food	
	Baked goods/pasta products	

DUST EXTRACTION AND EXHAUST AIR

Metal-working	Food, beverages and tobacco	Chemicals, pharmaceuticals, plastics
Degreasing systems	Dust	Dust
Oil mist	Fumes	Lacquers
Welding fumes		Fumes
Grind dusts		
Solvent recovery		

LOW PRESSURE CONVEYING

Recycling	Wood and paper	Chemicals	Air conditioning
Electronics	Paper	Polystyrene	Printing companies
Plastics	Wood	PU foam	Cleanrooms
Glass	Wood shavings		Cereal cooling
Paper	Pellets		Sealing air lines
	Cellulose		
	Biomass		



GENERAL INFORMATION
Innovation and quality





FOOD GRADE LINE

JACOB sets standards in food safety. Our new FOOD GRADE line of products complies with both the European EC 1935/2004 regulations and the American FDA guidelines. All components that come into contact with food are made exclusively of high grade stainless steels. In addition, we use adhesive-free vulcanized U-shaped seals and ring seals: They are more resistant to chemicals, temperature and tearing than glued rings.



THE DETECTABLE DESIGN LINE

In many sectors, foreign particles in a product are not acceptable. Up to now, it was practically impossible to trace gaskets and seals, or even just parts of them, in the product flow. JACOB has succeeded in incorporating miniscule particles in the compound that the gaskets or seals are made of. If gaskets or seals get into the product flow, such as during maintenance work, these can now be reliably detected by metal detectors and then removed. This makes the DETECTABLE DESIGN line an indispensable safety asset.



THE QUICK CONNECT PRINCIPLE

JACOB pipework systems take less time to install than conventional systems. Using the QUICK CONNECT pull-ring makes it even quicker, however. It only takes a few quick turns of the hand to join two sections of pipe together or to separate them again. This is a great advantage! This is particularly the case with pipework systems that require to be dismantled regularly for cleaning and maintenance. You will find our QUICK CONNECT pull-rings in [chapter 2](#).

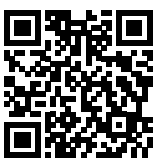


DURABLE DESIGN

The new wear protection range from JACOB makes your pipework system extremely resistant. This allows you to extend the service life and the cost-effectiveness of your industrial plants. This range uses standard pipe components from our modular system. Depending on the requirement, these are lined with different polyurethane compounds. This ensures that the full modularity is maintained. Our range of products is described in [chapter 14](#).

EXPLOSION PROTECTION AND ELECTROSTATIC POTENTIAL EQUALISATION

JACOB pipework systems, if configured accordingly, are shock explosion proof to 1 bar, 3 bar and 10 bar over-pressure. This is an important safety factor, particularly when conveying solids and gases that have a tendency to explode. To ensure that this does not happen, JACOB pipework systems can be installed in such a way that they are completely electrostatically conductive. Please refer to the "Knowledge" section of our website for detailed information about this.



www.jacob-group.com/knowledge



SERVICE

Your satisfaction is
our motivation



We want to make our products as accessible and easy to handle as possible – from planning through to assembly.

PLANNING

In the download section of our website, you will find our CAD library and digital documentation for all our products.

As a driver of innovation, we are also exploring new avenues in the field of augmented reality. Our 3D Pipe Planner is a digital pipe planning app controlled via Microsoft HoloLens. This allows you to plan your pipework at your own premises, without any laborious measuring or planning – saving you time and money.

CONSULTING

No matter what you need before, during or after the purchase of your pipework system – we are here to help. From our customer care and field staff to our technical team, we attend to your needs right from the start. With its subsidiaries and representatives the JACOB Group is on the ground worldwide, and thus is just as globally present as you are. Also, our Customer Order Fulfilment staff ensure optimised and realistic scheduling. You will have an overview of your delivery times, capacities and production planning at all times. For larger projects, you will even have the exclusive support of a personal contact partner from our Large-scale Project Control department.



ORDERING

We also offer various systems for digital data connectivity. This allows us to exchange data according to your individual needs, to prevent errors, and save time in the ordering process.

DELIVERY

Discover the advantages of our large storage and logistics centre, and our international footprint, with subsidiaries and representatives in 42 countries. With our first-class infrastructure and more than 1,300,000 finished products available for delivery, we are able to ship urgent orders quickly and easily, within just one to two days. The collective shipping option allows us to save on freight costs, reduce CO₂ emissions, and thus offer you cost-efficient solutions. We also offer you the option of temporarily storing your project components in safe and protected conditions until you actually need them on site. You can rely on our logistics expertise to meet your requirements without fail and to optimise your processes.



THE JACBOX – ELECTRIC FLANGING MACHINE

Mobile, flexible and easy – the JacBox is a professional system that allows you to produce lip edges quickly and easily, whenever and wherever you need them on site.

- **No retooling** – creates lip edges on pipes from 80 to 315 mm in diameter
- **Conveniently mobile** – with castors and ergonomic handles for easy pushing
- **Easy power supply** – the unit can be operated via a standard household power outlet
- **Efficient ergonomics** – flanging can be undertaken by a single person
- **The highest quality** – lip edges are created to JACOB's usual high quality standard

You can rent the JacBox on a flexible basis. It is available for long-term or short-term use. Reserve a JacBox for your projects, now.

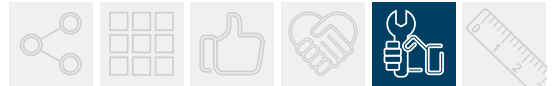


JACOB JacBox



GENERAL INFORMATION
Materials and special finishes





MATERIALS

High-grade materials, perfect workmanship: This is the basis for the distinctive quality of our products.

Pipework and press-formed components in mild steel

Mainly the following materials:

- DD11 (1.0332) in compliance with DIN EN 10111
- DD13 (1.0335) in compliance with DIN EN 10111
- DC01 (1.0330) in compliance with DIN EN 10130
- DC04 (1.0338) in compliance with DIN EN 10130
- S235JR (1.0038) in compliance with DIN EN 10025

Corrosion protection by powder coating, spray priming or galvanising

Flanges and mounting brackets in structural grade mild steel

S235JR (1.0038) to DIN EN 10025-2

Corrosion protection through powder-coating, priming (spray painting) or hot-dip galvanising

Pipework and press-formed components in stainless steel

Suitable for mildly and moderately corrosive environmental conditions (CRC 2 to DIN EN 1993-1-4).

Primarily for use in the food industry. Mainly the following materials:

- 1.4301 (X5CrNi18-10), AISI 304, ASTM A240, A480, A666
- 1.4307 (X2CrNi18-9), AISI 304L, ASTM A240, A480, A666

To restore the corrosion resistance and to create a uniform surface finish, these materials are stainless steel shotblasted as standard. Temperature-resistant to 300°C.

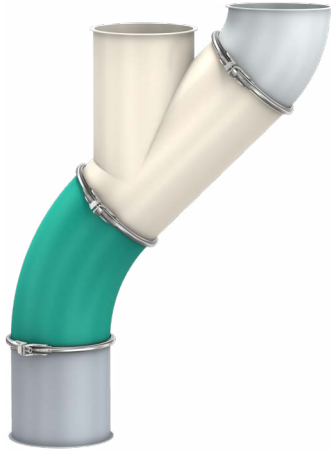
Available on request

Stainless steels for particularly corrosive environmental conditions (CRC 3 to DIN EN 1993-1-4).

Primarily used in the chemical and pharmaceutical industry.

- 1.4404 (X2CrNiMo17-12-2) AISI 316L, ASTM A 240
- 1.4571 (X6CrNiMoTi17-12-2), AISI 316Ti, ASTM A 240

As standard, components are pickled in a bath and passivated by storing in the open air to restore their corrosion resistance. Prices and delivery times on request. Other materials that are not specifically mentioned can also be offered, after their suitability has been examined.



FINISHING

To prevent damage due to corrosion in mild steels, our components are protected to enable them to withstand the general ambient conditions. In this respect, JACOB offers different product groups for the mild steel modular pipework system: powder-coated, spray primed or galvanised components.

Corrosion protection through powder-coating or spray priming

Powder-coating:

- Pretreatment: Thin film iron phosphate coating
- Powder-coating primer from DN 60 to 630 mm
- Glossy (gloss level 70 to 90, 60° measuring angle)
- Smooth polyester resin binder-based powder-coating
- Its constituents comply with the Food and Drug Administration (FDA) requirements of regulation 21 CFR 175.300 for direct contact with food
- Temperature resistance: from -60°C to +120°C
- Electrostatically conductive
- Colour similar to RAL 7032 (pebble grey)
- Coating thickness on the outside: average layer thickness 55 µm
- Coating thickness on the inside: optically covered as temporary corrosion protection

Priming (spray painted):

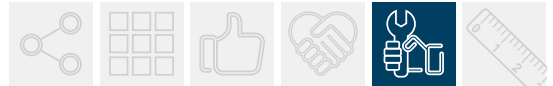
- Generally used with pipe components > DN 630 mm
- Inner and outer priming
- Average coating thickness: 45 µm
- Colour similar to RAL 7032 (pebble grey)
- Coating thickness on the outside and inside: optically covered as temporary corrosion protection

More colours:

- Choose from more than 3,000 colour and effect variants
- Final painting of the outside of pipe components and press-formed components, with a coating thickness of approx. 80 µm

Options:

- Structured coatings and high-gloss effects
- UV protection
- Inner coating free from spray mist is possible at additional cost with spray priming



Costs:

Additional costs for external powder-coating (DN 60–DN 630 mm):

- 1.0 and 1.5 mm pipe components: 25 %
- 2 mm pipe components: 21 %
- 3 mm pipe components: 19 %

Additional costs for final coating of paint > DN 630 mm and multi-way distributors, cyclones, and silencers, on request.

Minimum price for paint topcoat is 60 € (fixed price); additional costs for throttle valves, distributors and two-way valves:

DN	Throttle valves, two-way distributors / two-way valves, non-return valves	Pipe slide gates, outlet slide gates
	€	€
60 to 175	23.10	39.90
200 to 300	29.90	45.60
350 to 400	36.20	52.50
From 450	45.60	62.50

Corrosion protection through hot-dip galvanising

- Pipe components described as “galvanised” are always hot-dip galvanised
- Hot-dip galvanising to DIN EN ISO 1461
- Average layer thicknesses (minimum values) depend on the thickness of the steel:
 - < 1.5 mm: 45 µm
 - ≥ 1.5 mm to ≤ 3 mm: 55 µm
 - > 3 mm to ≤ 6 mm: 70 µm
- Temperature-resistant to 200°C
- During hot-dip galvanising, irregularities may occur in the colour and structure of the surface

Corrosion protection through electro-galvanisation

- For pull-rings, air flow control gates, pipe ball joints, and other accessories, for example
- Galvanisation according to DIN EN ISO 19598 (Fe//Zn8//An//T0) colourless to iridescent colour
- Layer thickness approx. 10 µm
- Temperature-resistant to 120°C



GENERAL INFORMATION

Types of connection and dimensions

OUR CONNECTIONS AND DIMENSIONS


Our modular pipework system is distinguished by its diversity and top quality. We have the right type of connection in our range for virtually all applications involving bulk goods conveying, exhaust air, dust extraction, and low-pressure conveying: from the JACOB pull-ring system and loose flange system to pipework with welded-on flanges.

The nominal diameters and dimensions in the catalogue are given in mm.

Inside diameter

The JACOB pull-ring system



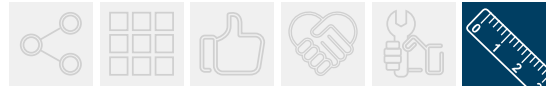
DN (mm)	DN (inch)	Ø d with a wall thickness of				Lip width 6 mm	QUICK CONNECT pull-ring 	Pull-ring without sealant	Pull-ring with sealant	One-part pull-ring with sealant
		S = 1 mm	S = 1.5 mm	S = 2 mm	S = 3 mm					
60	2¼	57				■		■		
80	3	78	77	76		■	■	■	■	
100	4	100	100	99		■	■	■	■	
120	5	120	120	119	118	■	■	■	■	
140	5½	136	136	135		■	■	■		
150	6	150	150	149	148	■	■	■	■	
160	6⅓	159	159	159		■	■	■		
175	7	175	175	174	173	■	■	■	■	
200	8	200	200	199	198	■	■	■	■	
224	9	220	220	219		■	■	■		
250	10	250	250	249	248	■	■	■		
280	11	278	277	276		■	■	■		
300	12	300	300	299	298	■	■	■		
315	12½	313	312	311		■	■	■		
350	14	350	350	349	348	■	■	■		
400	16	400	399	398	396	■	■	■		
450	18	450	449	448	446	■	□	□	■	
500	20	500	499	498	496	■		□	■	
560	22		559	558	556	■		□	■	
630	25		629	628	626	■		□	■	
710	28			707	705					
800	31½			797	795					
900	35½			897	895					
1000	39			997	995					
1120	44			1117	1115					
1250	49			1247	1245					
1400	55				1398					
1600	63				1598					

DN = nominal diameter

■ Standard

□ Optional – use depends on application





Tolerances:

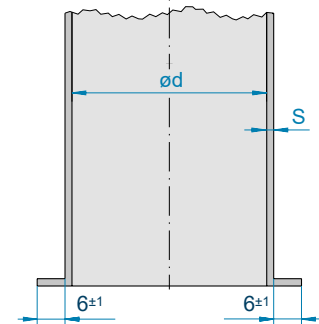
- Pipe diameter and roundness – DIN EN 10296-1
- Lengths – DIN ISO 2768-1 – tolerance class V
- Angle tolerance $\pm 1^\circ$
- In the case of drawn or ground partial areas, the wall thickness may differ
- JACOB flanges similar to DIN 24154-2 (see chapter 11, page 219 for dimensions of JACOB flanges)
- Internal diameter ($\varnothing d$) differs for certain products

The JACOB flange system

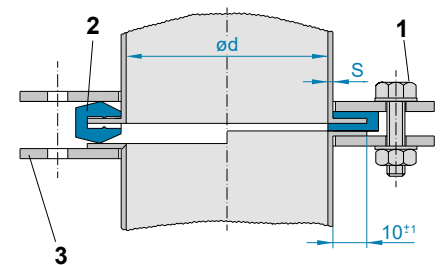


DN (mm)	DN (inch)	Lip width		Loose flange	Fixed flange welded-on	10 bar shock explosion proof
		6 mm	10 mm			
60	2¼	■		□	□	
80	3	■		□	□	■
100	4	■		□	□	■
120	5	■		□	□	■
140	5½	■		□	□	
150	6	■		□	□	■
160	6⅓	■		□	□	
175	7	■		□	□	■
200	8	■		□	□	■
224	9	■		□	□	
250	10	■		□	□	■
280	11	■		□	□	
300	12	■		□	□	■
315	12½	■		□	□	□
350	14		■	■	□	□
400	16		■	■	□	□
450	18		■	■	□	□
500	20		■	■	□	□
560	22		■	■	□	□
630	25		■	■	□	□
710	28		■	■	□	
800	31½		■	■	□	
900	35½		■	■	□	
1000	39		■	■	□	
1120	44		■	■	□	
1250	49		■	■	□	
1400	55				■	
1600	63				■	

DN = nominal diameter
 ■ Standard
 □ Optional – use depends on application
 ■ Price on request



JACOB pipework system with lip for pull-ring connection

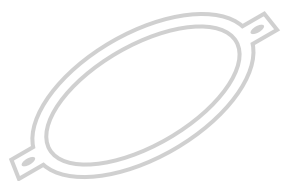


JACOB loose flange system
 1 Mounting bolts
 2 U-shaped seal for 10 mm lip
 3 Loose flange similar to DIN 24154-2 (see chapter 11, page 219 for dimensions)







S = Wall thickness
 Ø d = Internal diameter



JACOB PULL-RING SYSTEM:
EASY TO INSTALL, MAXIMUM TIGHTNESS



THE PULL-RING SYSTEM


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Pull-rings with sealant	28	
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Explanatory video on the pull-ring system

PULL-RINGS



DN	QUICK CONNECT pull-ring ¹⁾ 	Pull-ring without sealant ¹⁾	Pull-ring with sealant	One-part pull-ring with sealant
60		■		
80	■	■	■	■
100	■	■	■	■
120	■	■	■	■
140	■	■	■	
150	■	■	■	■
160	■	■	■	
175	■	■	■	■
200	■	■	■	■
224	■	■	■	
250	■	■	■	
280	■	■	■	
300	■	■	■	
315	■	■	■	
350	■	■	■	
400	■	■	■	
450	□	□	■	
500		□	■	
560		□	■	
630		□	■	

1) Use in conjunction with U-shaped seal
 ■ Standard
 □ Optional – use depends on application

Pull-rings made of mild steel are electro-galvanised in the standard version. Stainless steel pull-rings are stainless steel shotblasted. Electrolytic polishing or ball-polishing is also available on request.



Details of leakage values for the pull-ring system with U-shaped seal

QUICK CONNECT PULL-RINGS AND PULL-RINGS WITHOUT SEALANT

Highlights: The JACOB pull-ring system is very easy to assemble and gives the pipework system its high stability and leak-tightness due to its high-quality construction. Both pull-rings have been tested in conjunction with JACOB U-shaped seals. The air leakage per connection, measured at a differential pressure of 0.5 bar – e.g. with a diameter of 300 mm – is far below the maximum admissible values of DIN EN 12237, class D.

Application: Up to a diameter of DN 300 mm, our pull-ring system with a U-shaped seal, if configured accordingly, is condensation leak-proof and so is ideal for applications such as extracting oil mist. As a rule, our pull-ring connections with a U-shaped seal can be used for conveying bulk goods and for ventilation systems at over-pressures of up to 50,000 Pa (500 mbar, 5,000 mm WG). Vacuum applications are possible on request, depending on the product selected.

PULL-RINGS WITH FACTORY-FITTED MASTIC SEALANT

Application: The elastic sealant in the pull-ring is EC 1935/2004 compliant and can be used in contact with food product in the temperature range between -40°C and +100°C.

This pull-ring is used for bulk goods conveyed by gravity and for ventilation systems with low differential pressures and without condensates. For higher demands concerning sealing properties and the resistance of the connection, pull-rings with U-shaped seals should be preferred.

U-SHAPED SEALS

Our U-shaped seals combine an ideal profile with the perfect choice of materials.

The benefits:

- Tear-resistant, compliant with food regulations (FOOD GRADE) and resistant to many aggressive chemicals thanks to vulcanisation
- Maximum tightness due to the individual profile
- Resistant to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)



NBR	Silicone	F	Silicone	F D	EPDM	Viton (FKM)
grey white	beige		blue		black	reddish brown
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant		FOOD GRADE: EC 1935/2004 plus FDA compliant		FDA EC 1935/2004*	
-20°C to +100°C	-60°C to +250°C		-60°C to +250°C		-30°C to +120°C	-18°C to +230°C
glued	vulcanised		vulcanised		vulcanised	vulcanised
			metal-detectable		electrostatically conductive	

* Please note that the seals meet the currently valid recommendations of the German Federal Institute for Risk Assessment (BfR) to a limited extent. Category 4 applications for dry, non-fatty foodstuffs that are subsequently washed, peeled or otherwise cleaned are permissible.

Refer to the technical information at the beginning of this chapter and in the installation instructions (see next page) for more details. The temperatures given indicate the permanent temperature resistance. U-shaped seals must be tested by the user to ensure they are sufficiently resistant to the specific working conditions and conveyed goods. Our team would be pleased to assist you with selecting the right U-shaped seal. We can send you samples on request.

EARTHING BRIDGES

The innovative solution from JACOB for electrostatic potential equalisation.

Suitable for retrofitting to our pull-ring system without welding or drilling. The stainless steel earthing bridge can be used as an alternative to the earthing wire or the conductive EPDM U-shaped seal. Please observe the installation instructions.

Both versions of earthing bridge have been tested by DEKRA EXAM GmbH, a specialist unit for explosion protection.



Without contact caps



With contact caps

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THE PULL-RING SYSTEM

Installation instructions



Installation instructions for the pull-ring system

INSTALLATION OF PULL-RING CONNECTIONS WITH A U-SHAPED SEAL

Pull-rings are used in conjunction with U-shaped seals to connect pipe components and pressed components with a 6 mm lip. The use of different U-shaped seal profiles enables the same pull-ring to be used with 1 to 2 mm thick pipe components and pressed components.

JACOB includes various U-shaped seals and pull-rings in its range, to cover the various types of application.

U-shaped seals

	Profile for 1 mm wall thickness			Profile for 2 and 3 mm wall thickness			
	NBR, silicone, Viton	EPDM conductive		NBR, silicone, Viton, EPDM conductive For 3 mm wall thickness, the use of U-shaped seals made of NBR or silicone is recommended. Only in conjunction with the pull-ring for 3 mm pipework.			
Pipe component B	Wall thickness pipe component A			Wall thickness pipe component A		Wall thickness pipe component A	
	1 mm	1.5 mm	2 mm	1.5 mm	2 mm	2 mm	3 mm
1 mm	■	■	■				
1.5 mm	■	■			■		
2 mm	■			■	■		■
3 mm						■	■

Refer to page 23 for more technical information on U-shaped seals.

Pull-rings

QUICK CONNECT pull-ring		Pull-ring (without sealant)

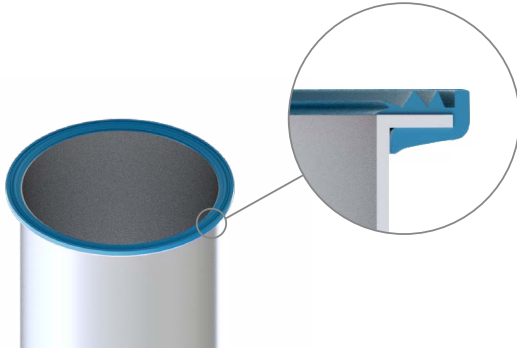
Refer to page 22 for more technical information on pull-rings.

GENERAL INSTALLATION INFORMATION ON CREATING LEAK-PROOF CONNECTIONS

- Repair damaged lipped ends (e.g. align)
- Eliminate any unevenness from the lipped end
- Assemble the pipework tension-free
- Ensure when fitting the pull-ring that the U-shaped seal does not form any loops
- Support horizontal pipework at roughly 4 metre intervals. If there are several short pipe components in the pipeline, the interval between supports should be reduced
- Attach branch pipes such that they do not generate any torque in the main pipeline
- Tighten the bolts of two-part pull-rings evenly on both sides
- Re-tighten the pull-rings after 24 hours to ensure they are as leak-proof as possible

INSTALLATION OF PULL-RING CONNECTIONS WITH A U-SHAPED SEAL

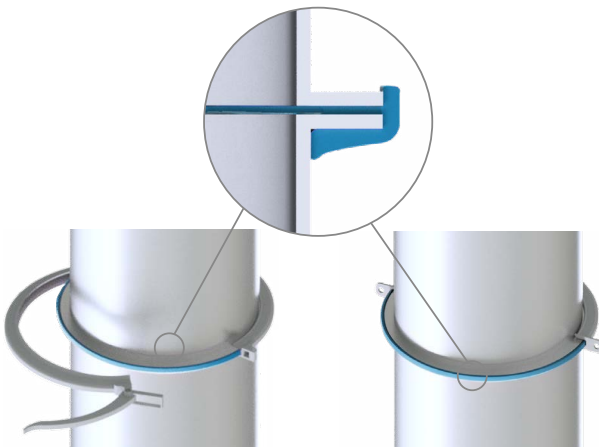
Note: To connect JACOB pipe components with a 6 mm lip. A U-shaped seal and a pull-ring are needed for each connection. You need a 6 mm hexagon cap screwdriver to mount the pull-rings.



Step 1

Fit a U-shaped seal over one of the lipped pipe ends.

- The U-shaped seal must be slightly stretched to enable it to be fitted
- The profiled side must face the pipe component that is being connected
- To fit the U-shaped seal, we recommend starting at the place where the joint is



Step 2

Position the connecting pipe and slide one half of the pull-ring over the lipped pipe end.

QUICK CONNECT pull-ring

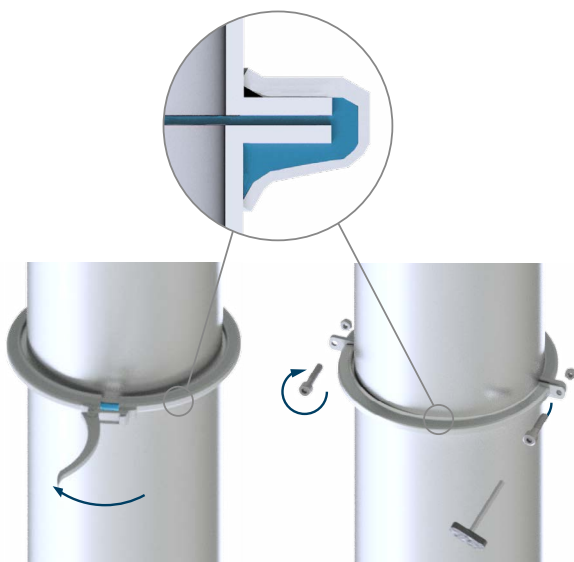
First, attach the pull-ring half without the toggle clip

Two-part pull-ring

We recommend separating the two halves of the pull-ring beforehand

Ensure that the pipe components are properly aligned and the U-shaped seal stays in the right position.

Note: We recommend that when fitting horizontal pipelines where condensate occurs, any points at which the U-shaped seal is glued should be positioned at the top, and the connecting points of the pull-ring halves should be horizontal. This ensures the maximum possible tightness at the lowest point of the connection.



Step 3

Press the second pull-ring half onto the lipped pipe ends.

Attention:

When closing the pull-ring, the U-shaped seal must not form any loops.

QUICK CONNECT pull-ring

- Place the clasp over the closing hook and close the clip
- To prevent the connection from loosening accidentally (due to vibration, for example) tighten the bolt with a 10 Nm torque on the mounting face

Two-part pull-ring

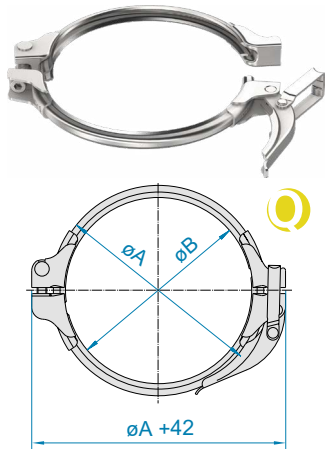
- Tighten the bolts evenly, on alternating sides, with a torque of 10 Nm

Attention: A bolt tightening torque of 10 Nm is necessary for the QUICK CONNECT pull-ring, or 25 Nm for the two-part pull-ring, for shock explosion proof connections of up to 3 bar over-pressure.



THE PULL-RING SYSTEM

Pull-rings



QUICK CONNECT PULL-RINGS

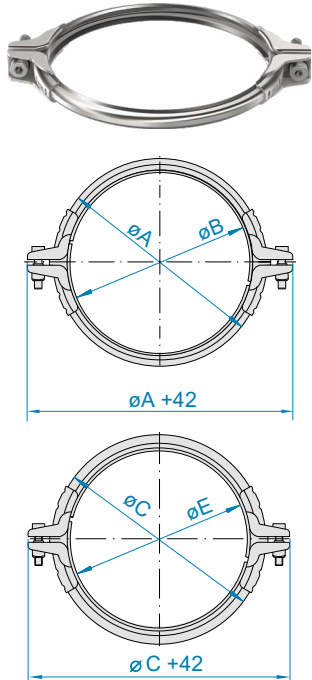
3085

- Pull-rings for use in conjunction with U-shaped seal for 1 and 2 mm pipework system
- Up to DN 300 mm, shock explosion proof to 3 bar

- Please also read and take into account the technical information given at the beginning of this chapter

Pull-rings for 1 and 2 mm wall thickness

DN	Ø A	Ø B	kg	Electro-galvanised		Stainless steel	
				Item no.	€	Item no.	€
80	100	80	0.35	12082903	11.10	12083903	24.80
100	123	103	0.37	12102903	11.20	12103903	25.30
120	143	123	0.40	12122903	11.60	12123903	26.20
140	159	139	0.45	12142903	11.70	12143903	26.80
150	173	153	0.47	12152903	11.80	12153903	27.10
160	184	164	0.48	12162903	12.60	12163903	27.80
175	198	178	0.49	12172903	12.60	12173903	27.80
200	223	203	0.51	12202903	13.30	12203903	28.90
224	243	223	0.55	12222903	16.60	12223903	32.60
250	273	253	0.58	12252903	16.70	12253903	32.70
280	301	281	0.61	12282903	18.10	12283903	34.10
300	323	303	0.62	12302903	18.20	12303903	34.20
315	336	316	0.63	12312903	22.50	12313903	41.40
350	373	353	0.68	12352903	26.10	12353903	47.70
400	423	403	0.74	12402903	33.40	12403903	53.50
450	472	450	0.79	12452903	38.40	12453903	62.20



PULL-RINGS WITHOUT SEALANT

3060

- Pull-rings for use in conjunction with U-shaped seal for 1 and 2 mm pipework system
- From DN 80 to 300 mm, shock explosion proof to 3 bar

- Pull-ring for 3 mm wall thickness, in conjunction with U-shaped seal made of NBR or silicone for 2 mm pipework system
- Please also read and take into account the technical information given at the beginning of this chapter

Pull-rings for 1 and 2 mm wall thickness

Pull-rings for 3 mm wall thickness

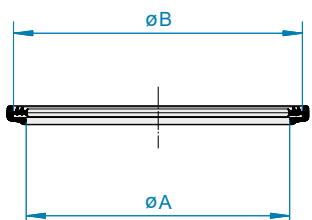
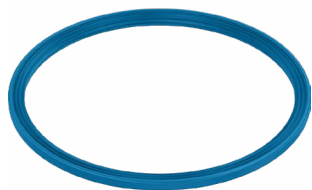
DN	Ø A	Ø B	kg	Electro-galvanised		Stainless steel		Ø C	Ø E	Electro-galvanised		Stainless steel	
				Item no.	€	Item no.	€			Item no.	€	Item no.	€
60	81	60	0.30	12062383	8.20	12063383	22.80						
80	101	80	0.31	12082383	8.30	12083383	23.00						
100	125	104	0.33	12102383	8.50	12103383	23.10						
120	145	124	0.36	12122383	8.60	12123383	24.00	151	126	12122926	10.90	12123926	24.50
140	161	140	0.37	12142383	9.50	12143383	24.90						
150	175	154	0.39	12152383	9.60	12153383	25.30	181	156	12152926	11.10	12153926	25.80
160	177	158	0.40	12162383	11.60	12163383	27.30						
175	200	179	0.42	12172383	11.60	12173383	27.30	206	181	12172926	12.20	12173926	28.10
200	225	204	0.45	12202383	12.50	12203383	28.50	231	206	12202926	13.50	12203926	29.20
224	245	224	0.47	12222383	13.00	12223383	31.10						
250	275	254	0.51	12252383	13.10	12253383	31.50	281	256	12252926	14.50	12253926	32.70
280	302	281	0.55	12282383	16.20	12283383	35.30						
300	325	304	0.57	12302383	16.30	12303383	36.20	331	306	12302926	17.00	12303926	37.50
315	337	316	0.58	12312383	18.10	12313383	37.30						
350	375	354	0.63	12352383	19.10	12353383	38.20	381	356	12352926	19.70	12353926	39.30
400	425	404	0.68	12402383	21.90	12403383	39.30	431	406	12402926	22.20	12403926	40.50
450	478	450	0.73	12452383	26.50	12453383	43.10						
500	524	500	0.78	12502383	31.20	12503383	44.50						
560	586	560	0.83	12562383	36.60	12563383	46.90						
630	656	632	0.90	12632383	41.60	12633383	50.20						

Shock-explosion proof



■ Pull-rings used in conjunction with the pipe components and U-shaped seals indicated in the catalogue are shock explosion proof tested up to 1 bar and/or 3 bar.

U-shaped seals



U-SHAPED SEALS

3070

- For use in conjunction with JACOB pull-rings and pipework system with a 6 mm lip
- **U-shaped seals for 1 mm pipework system**, also for connecting 1 mm to 1.5 mm, 1 mm to 2 mm, and 1.5 mm to 1.5 mm thick pipe components
- **U-shaped seals for 2 mm pipework system**, also for connecting 2 mm to 1.5 mm thick pipe components
- For 3 mm thick pipe components, the use of U-shaped seals made of NBR or silicone for 2 mm pipework is recommended
- Please also read and take into account the technical information given at the beginning of this chapter

2

U-shaped seals for 1 mm pipework system

DN	ØA	ØB	NBR grey		Silicone beige F		Silicone blue F D		EPDM black		Viton reddish brown	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	69	100669517	1.90	1006795109	3.10	10067951091	5.60	1006895159	3.10	100699519	12.30
80	81	93	100869517	2.00	1008795109	3.30	10087951091	5.90	1008895159	3.30	100899519	13.20
100	103	115	101069517	2.30	1010795109	3.50	10107951091	6.50	1010895159	3.50	101099519	15.10
120	123	135	101269517	2.40	1012795109	3.60	10127951091	7.00	1012895159	3.60	101299519	16.60
140	139	151	101469517	2.60	1014795109	3.80	10147951091	7.60	1014895159	3.80	101499519	18.70
150	153	165	101569517	2.60	1015795109	3.80	10157951091	8.00	1015895159	3.80	101599519	19.30
160	163	175	101669517	2.80	1016795109	4.10	10167951091	8.80	1016895159	4.10	101699519	20.00
175	178	190	101769517	2.80	1017795109	4.10	10177951091	8.80	1017895159	4.10	101799519	20.00
200	203	215	102069517	3.30	1020795109	4.30	10207951091	9.30	1020895159	4.30	102099519	21.70
224	223	235	102269517	3.60	1022795109	4.90	10227951091	9.90	1022895159	4.90	102299519	26.20
250	253	265	102569517	3.60	1025795109	4.90	10257951091	10.60	1025895159	4.90	102599519	28.60
280	280	292	102869517	3.70	1028795109	5.30	10287951091	11.30	1028895159	5.30	102899519	31.30
300	303	315	103069517	3.80	1030795109	5.30	10307951091	12.00	1030895159	5.30	103099519	33.30
315	315	327	103169517	3.90	1031795109	5.90	10317951091	12.20	1031895159	5.90	103199519	34.90
350	353	365	103569517	4.30	1035795109	5.90	10357951091	13.30	1035895159	5.90	103599519	38.00
400	403	415	104069517	4.90	1040795109	6.80	10407951091	14.70	1040895159	6.80	104099519	42.40
450	450	470	104569517	5.70	1045795109	8.00	10457951091	15.90	1045895159	8.00	104599519	47.10
500	500	516	105069517	6.80	1050795109	8.50	10507951091	17.50	1050895159	8.50	105099519	51.90
560	560	578	105669517	8.10	1056795109	9.30	10567951091	19.50	1056895159	9.30	105699519	57.20
630	632	648	106369517	8.60	1063795109	10.70	10637951091	20.00	1063895159	10.70	106399519	64.20

VULCANISED AND MORE TEAR-RESISTANT QUALITY.

U-shaped seals for 2 mm pipe system, NBR and silicone also suitable for 3 mm pipe system

DN	ØA	ØB	NBR grey		Silicone beige F		Silicone blue F D		EPDM black		Viton reddish brown	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	81	93	100869527	2.00	1008795209	3.30	10087952091	5.90	1008895259	3.30	100893869	13.20
100	103	115	101069527	2.30	1010795209	3.50	10107952091	6.50	1010895259	3.50	101093869	15.10
120	123	135	101269527	2.40	1012795209	3.60	10127952091	7.00	1012895259	3.60	101293869	16.60
140	139	151	101469527	2.60	1014795209	3.80	10147952091	7.60	1014895259	3.80	101493869	18.70
150	153	165	101569527	2.60	1015795209	3.80	10157952091	8.00	1015895259	3.80	101593869	19.30
160	163	175	101669527	2.80	1016795209	4.10	10167952091	8.80	1016895259	4.10	101693869	20.00
175	178	190	101769527	2.80	1017795209	4.10	10177952091	8.80	1017895259	4.10	101793869	20.00
200	203	215	102069527	3.30	1020795209	4.30	10207952091	9.30	1020895259	4.30	102093869	21.70
224	223	235	102269527	3.60	1022795209	4.90	10227952091	9.90	1022895259	4.90	102293869	26.20
250	253	265	102569527	3.60	1025795209	4.90	10257952091	10.60	1025895259	4.90	102593869	28.60
280	280	292	102869527	3.70	1028795209	5.30	10287952091	11.30	1028895259	5.30	102893869	31.30
300	303	315	103069527	3.80	1030795209	5.30	10307952091	12.00	1030895259	5.30	103093869	33.30
315	315	327	103169527	3.90	1031795209	5.90	10317952091	12.20	1031895259	5.90	103193869	34.90
350	353	365	103569527	4.30	1035795209	5.90	10357952091	13.30	1035895259	5.90	103593869	38.00
400	403	415	104069527	4.90	1040795209	6.80	10407952091	14.70	1040895259	6.80	104093869	42.40
450	450	470	104569527	5.70	1045795209	8.00	10457952091	15.90	1045895259	8.00	104593869	47.10
500	500	516	105069527	6.80	1050795209	8.50	10507952091	17.50	1050895259	8.50	105093869	51.90
560	560	578	105669527	8.10	1056795209	9.30	10567952091	19.50	1056895259	9.30	105693869	57.20
630	632	648	106369527	8.60	1063795209	10.70	10637952091	20.00	1063895259	10.70	106393869	64.20

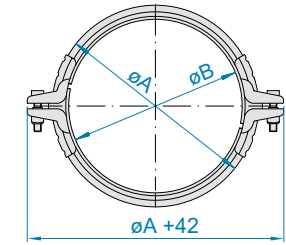
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

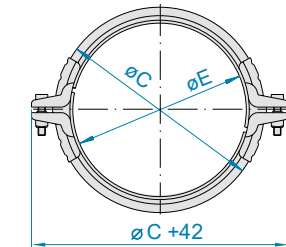


THE PULL-RING SYSTEM

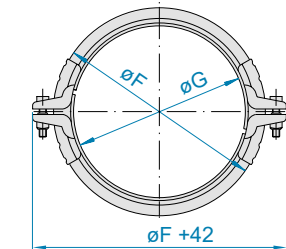
Pull-rings with sealant



for 1 mm



for 2 mm



for 3 mm

PULL-RINGS WITH SEALANT

3050

- All versions electro-galvanised
- Pull-rings for 1 mm also suitable for connecting 1 mm to 1.5 mm or 2 mm thick pipe components

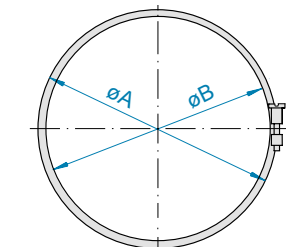
- Pull-rings for 2 mm also suitable for connecting 2 mm to 1.5 mm thick pipe components
- In larger diameters, pull-rings for 3 mm are used for all wall thicknesses

Pull-rings for 1, 2 and 3 mm wall thickness

DN	Ø A	Ø B	kg	For 1 mm pipework system		Ø C	Ø E	For 2 mm pipework system		Ø F	Ø G	For 3 mm pipework system	
				Item no.	€			Item no.	€			Item no.	€
80	99	80	0.23	11082381	7.10	100	80	11082382	7.60				
100	121	102	0.26	11102381	7.40	123	103	11102382	7.70				
120	141	122	0.28	11122381	7.80	143	123	11122382	8.30	145	124	11122383	9.80
140	157	138	0.30	11142381	8.20	159	139	11142382	9.10				
150	171	152	0.33	11152381	8.70	173	153	11152382	9.30	175	154	11152383	10.70
160			0.33	11162382	10.30	177	158	11162382	10.30	178	158	11162383	11.80
175			0.34	11172382	10.30	198	178	11172382	10.30	200	179	11172383	11.80
200			0.38	11202382	11.10	223	203	11202382	11.10	225	204	11202383	13.00
224			0.40	11222382	11.50	243	223	11222382	11.50	244	223	11222383	13.90
250			0.42	11252382	12.10	275	254	11252382	12.10	275	254	11252383	15.00
280			0.47	11282382	14.30	302	281	11282382	14.30				
300			0.50	11302382	14.50	325	304	11302382	14.50	325	304	11302383	17.40
315			0.53	11312383	18.50	337	316	11312383	18.50				
350			0.68	11352383	19.70			11352383	19.70	375	354	11352383	19.70
400			0.75	11402383	22.90			11402383	22.90	423	402	11402383	22.90
450			0.81	11452383	26.80			11452383	26.80	473	452	11452383	26.80
500			0.88	11502383	30.90			11502383	30.90	523	502	11502383	30.90
560			0.95					11562383	36.60	583	562	11562383	36.60
630			1.05					11632383	41.70	653	632	11632383	41.70

ONE-PART PULL-RINGS WITH SEALANT

3055



Product similar to picture

- All versions electro-galvanised

- Pull-rings for 1 mm also suitable for connecting 1 mm to 1.5 mm thick pipe components

Pull-rings for 1 mm wall thickness

DN	Ø A	Ø B	kg	1 mm	
				Item no.	€
80	97	80	0.04	11082372	6.60
100	119	102	0.05	11102372	6.60
120	139	122	0.06	11122372	6.90
150	169	152	0.07	11152372	7.60
175	194	177	0.08	11172372	8.00
200	219	202	0.09	11202372	9.10



EARTHING BRIDGES WITHOUT CONTACT CAPS

1400

- Engineered by JACOB for electrostatic potential equalisation
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 26 and 28)
- Recommended for use in conjunction with galvanised pipe components or stainless steel surfaces
- Please also read and take into account the technical information given at the beginning of this chapter

Item no.	€/pack of ten
11003792	40.90



EARTHING BRIDGES WITH CONTACT CAPS

- Engineered by JACOB for electrostatic potential equalisation
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 26 and 28)
- Contact caps made of electrostatically conductive EPDM
- Recommended for use in conjunction with powder-coated pipe components in JACOB standard RAL 7032 (pebble grey), electrostatically conductive
- Please also read and take into account the technical information given at the beginning of this chapter

Item no.	€/pack of ten
11003793	47.90



ALLEN KEYS

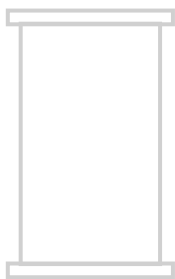
4030

- Size 5 Allen key for assembling one-part pull-ring
- Size 6 Allen key for assembling QUICK CONNECT pull-ring, pull-ring without sealant and pull-ring with sealant

	Item no.	€
Size 5 for one-part pull-rings	10002361	20.80
Size 6 for two-part pull-rings	10002362	7.80



JACOB PIPES –
THE SOUND BASIS FOR YOUR PIPEWORK SYSTEM



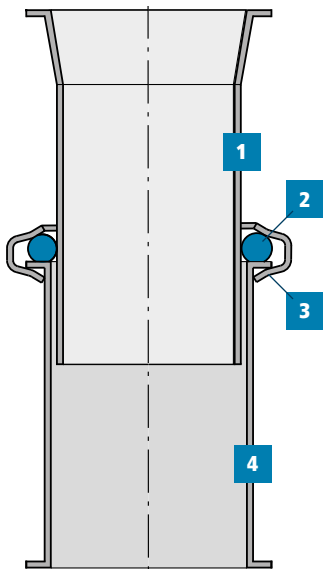
PIPES

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WELDED PIPES

The cornerstone of the modular pipework system – our certification according to the DIN EN ISO 3834-3 welding quality management system and automated welding processes guarantee top serial production quality. Straight pipes are available in diameters ranging from 60 to 630 mm with a 6 mm lip in various materials with a wall thickness of 1 to 3 mm. Please refer to chapter 1, on page 18 for information on inside diameters. At your request we manufacture customised special lengths, supply pipes with flanges, or produce finishes to your specification as far as technically possible – from special colours to pickled stainless steel.



PUSH-IN PIPES

The easy solution for creating special lengths on site within a modular system. Push-in pipes are available in different lengths and are fitted with a ring seal. They are inserted into a welded pipe as far as required and then fixed in place with a pull-ring. The push-in pipe should be inserted at least 50 mm into the straight pipe, and the minimum length that is bridged is 45 mm. The easiest way of creating a special length – without sawing, welding or lip flanging!

This connection is **not** shock explosion proof. Admissible over-pressure 100 mbar (1000 mm WG, 10,000 Pa).

Push-in pipes are not telescopic pipes that can be adjusted during operation. When push-in pipes are installed horizontally, support must be provided directly on the pipe upstream or the pipe downstream of the push-in pipe. In vertical pipework, the pipe under the push-in pipe must be supported. The use of these pipes in pipework conveying foodstuffs is not recommended. Please also read and take into account our push-in pipe installation instructions.

- 1 Push-in pipe
- 2 Ring seal
- 3 Standard pull-ring
(see chapter 2)
- 4 Straight pipe



Push-in pipe installation instructions



RING SEALS FOR PUSH-IN PIPES

- Tear-resistant, compliant with food regulations (FOOD GRADE) and resistant to many aggressive chemicals thanks to vulcanisation
- Resistance to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)



NBR	Silicone	F	Silicone	F D	EPDM	Viton (FKM)
grey white	beige		blue		black	reddish brown
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant		FOOD GRADE: EC 1935/2004 plus FDA compliant		FDA	
-20°C to +100°C	-60°C to +250°C		-60°C to +250°C		-30°C to +120°C	-18°C to +230°C
glued	vulcanised		vulcanised metal-detectable		vulcanised electrostatically conductive	vulcanised



PIPES WITH SPIGOTS

The ideal solution for incorporating sensors in the modular pipework system.

JACOB offers 200 mm long pipe components as standard with a 6 mm lip, made of various materials, with different spigots. Special lengths and other spigots are available on request.

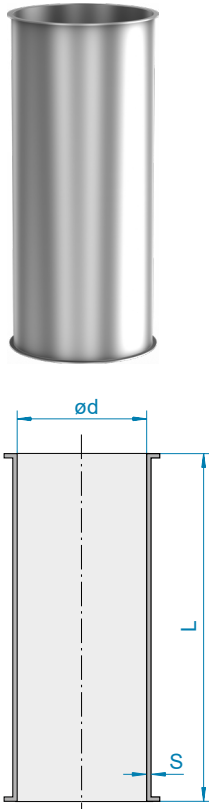
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



WELDED PIPES

- L = actual length
- Ø d = internal diameter of 2 mm parts
- All pipes with a 6 mm lip
- Special lengths and special colours available on request
- Lengths of 2 m up to 12 m available on request



PIPES 2000 MM

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Powder-coated (dimensions for 2 mm pipework)


DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	1984	4.30	11061010*	26.50				
80	76	1984	7.80	11081010	27.00	12081010	46.60		
100	99	1984	10.15	11101010	27.50	12101010	49.20		
120	119	1984	11.85	11121010	31.10	12121010	52.40	13121010	72.50
140	135	1984	13.15	11141010	37.20	12141010	60.60		
150	149	1984	15.05	11151010	36.70	12151010	59.70	13151010	86.10
160	159	1984	16.50	11161010	42.40	12161010	68.00		
175	174	1984	17.25	11171010	42.40	12171010	68.00	13171010	99.10
200	199	1984	19.25	11201010	47.10	12201010	75.70	13201010	111.50
224	219	1984	21.65	11221010	55.70	12221010	81.50		
250	249	1984	24.45	11251010	55.70	12251010	81.50	13251010	131.00
280	278	1984	27.40	11281010	63.60	12281010	97.20		
300	299	1984	29.05	11301010	63.60	12301010	97.20	13301010	154.50
315	313	1984	31.00	11311010	73.30	12311010	119.50		
350	349	1984	34.50	11351010	79.40	12351010	125.50	13351010	176.50
400	398	1984	39.40	11401010	115.00	12401010	176.50	13401010	231.00
450	448	1984	44.30	11451010	135.50	12451010	232.00	13451010	286.00
500	498	1984	49.30	11501010	144.50	12501010	252.50	13501010	324.00
560	558	1984	56.20			12561010	280.00	13561010	371.00
630	628	1988	64.00			12631010	317.50	13631010	416.50


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	1984	4.30	11062010*	39.50			11063010*	84.50		
80	76	1984	7.80	11082010	40.20	12082010	69.30	11083010	101.50	12083010	170.00
100	99	1984	10.15	11102010	40.70	12102010	70.30	11103010	102.00	12103010	171.00
120	119	1984	11.85	11122010	45.40	12122010	78.20	11123010	116.50	12123010	197.50
140	135	1984	13.15	11142010	54.00	12142010	94.20	11143010	135.50	12143010	233.00
150	149	1984	15.05	11152010	53.50	12152010	92.70	11153010	135.50	12153010	233.00
160	159	1984	16.50	11162010	62.80	12162010	109.50	11163010	149.00	12163010	259.50
175	174	1984	17.25	11172010	62.80	12172010	109.50	11173010	149.00	12173010	259.50
200	199	1984	19.25	11202010	72.30	12202010	125.00	11203010	164.50	12203010	308.50
224	219	1984	21.65	11222010	79.60	12222010	138.00	11223010	182.50	12223010	353.00
250	249	1984	24.45	11252010	79.60	12252010	138.00	11253010	182.50	12253010	353.00
280	278	1984	27.40	11282010	94.90	12282010	165.00	11283010	221.50	12283010	413.50
300	299	1984	29.05	11302010	94.90	12302010	165.00	11303010	221.50	12303010	413.50
315	313	1984	31.00	11312010	109.00	12312010	215.00	11313010	236.00	12313010	431.50
350	349	1984	34.50	11352010	117.50	12352010	223.00	11353010	242.50	12353010	437.50
400	398	1984	39.40	11402010	154.50	12402010	285.00	11403010	306.00	12403010	507.00
450	448	1984	44.30	11452010	180.50	12452010	335.00	11453010	358.50	12453010	564.00
500	498	1984	49.30	11502010	200.00	12502010	398.50	11503010	418.50	12503010	668.00
560	558	1984	56.20			12562010	442.50			12563010	716.00
630	628	1988	64.00			12632010	497.50			12633010	782.00

*1.5 mm

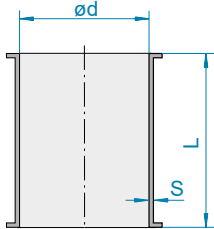
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested up to 1 bar

 Shock explosion proof tested up to 3 bar



PIPES 1000 MM



Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	984	2.10	11061020*	16.80				
80	76	984	3.80	11081020	17.00	12081020	23.80		
100	99	984	4.95	11101020	17.30	12101020	25.00		
120	119	984	5.85	11121020	19.60	12121020	27.40	13121020	40.70
140	135	984	6.55	11141020	24.00	12141020	35.40		
150	149	984	7.25	11151020	23.60	12151020	34.80	13151020	50.10
160	159	984	8.30	11161020	25.50	12161020	36.70		
175	174	984	8.55	11171020	25.50	12171020	36.70	13171020	54.50
200	199	984	9.45	11201020	28.90	12201020	40.40	13201020	61.70
224	219	984	10.75	11221020	31.80	12221020	44.70		
250	249	984	12.05	11251020	31.80	12251020	44.70	13251020	74.50
280	278	984	13.70	11281020	34.60	12281020	50.30		
300	299	984	14.25	11301020	34.60	12301020	50.30	13301020	81.20
315	313	984	14.40	11311020	41.40	12311020	59.70		
350	349	984	16.55	11351020	47.00	12351020	64.40	13351020	90.60
400	398	984	18.95	11401020	56.40	12401020	90.30	13401020	119.00
450	448	984	21.65	11451020	67.60	12451020	119.00	13451020	149.00
500	498	984	24.60	11501020	72.70	12501020	135.50	13501020	169.00
560	558	984	28.10			12561020	145.00	13561020	194.00
630	628	984	29.85			12631020	165.00	13631020	218.00

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

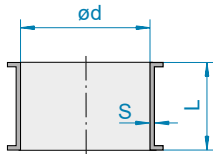
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	984	2.10	11062020*	23.50			11063020*	47.90		
80	76	984	3.80	11082020	24.10	12082020	37.20	11083020	54.00	12083020	87.50
100	99	984	4.95	11102020	24.20	12102020	37.70	11103020	54.30	12103020	88.20
120	119	984	5.85	11122020	25.00	12122020	38.80	11123020	61.20	12123020	104.50
140	135	984	6.55	11142020	29.40	12142020	45.60	11143020	70.90	12143020	122.00
150	149	984	7.25	11152020	29.20	12152020	44.80	11153020	70.90	12153020	122.00
160	159	984	8.30	11162020	38.30	12162020	59.80	11163020	79.00	12163020	142.50
175	174	984	8.55	11172020	38.30	12172020	59.80	11173020	79.00	12173020	142.50
200	199	984	9.45	11202020	42.20	12202020	65.70	11203020	86.60	12203020	161.50
224	219	984	10.75	11222020	43.60	12222020	68.20	11223020	100.50	12223020	184.00
250	249	984	12.05	11252020	43.60	12252020	68.20	11253020	100.50	12253020	184.00
280	278	984	13.70	11282020	51.10	12282020	79.60	11283020	120.00	12283020	214.50
300	299	984	14.25	11302020	51.10	12302020	79.60	11303020	120.00	12303020	214.50
315	313	984	14.40	11312020	61.20	12312020	105.00	11313020	132.00	12313020	226.00
350	349	984	16.55	11352020	67.40	12352020	113.50	11353020	141.00	12353020	234.50
400	398	984	18.95	11402020	78.70	12402020	151.50	11403020	181.50	12403020	282.50
450	448	984	21.65	11452020	93.30	12452020	182.50	11453020	198.00	12453020	303.00
500	498	984	24.60	11502020	104.00	12502020	209.00	11503020	222.00	12503020	349.00
560	558	984	28.10			12562020	238.00			12563020	397.50
630	628	984	29.85			12632020	256.00			12633020	440.50

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar



PIPES 500 MM



1010

Powder-coated (dimensions for 2 mm pipework)


DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	486	1.03	11061030*	11.40				
80	76	486	1.90	11081030	11.50	12081030	13.40		
100	99	486	2.55	11101030	11.80	12101030	14.20		
120	119	486	2.90	11121030	12.40	12121030	16.40	13121030	24.10
140	135	486	3.25	11141030	15.40	12141030	19.40		
150	149	486	3.65	11151030	15.40	12151030	19.40	13151030	29.50
160	159	486	4.20	11161030	16.30	12161030	22.20		
175	174	486	4.35	11171030	16.30	12171030	22.20	13171030	31.90
200	199	486	4.85	11201030	17.20	12201030	24.60	13201030	35.60
224	219	486	5.30	11221030	17.40	12221030	26.70		
250	249	486	5.95	11251030	17.40	12251030	26.70	13251030	41.50
280	278	486	6.80	11281030	19.60	12281030	30.30		
300	299	486	7.25	11301030	19.60	12301030	30.30	13301030	45.10
315	313	486	7.70	11311030	23.60	12311030	33.10		
350	349	486	8.45	11351030	27.40	12351030	36.10	13351030	50.60
400	398	486	9.55	11401030	32.20	12401030	48.50	13401030	65.00
450	448	486	10.75	11451030	38.50	12451030	61.00	13451030	77.00
500	498	486	12.05	11501030	40.50	12501030	70.50	13501030	91.10
560	558	486	14.10			12561030	77.40	13561030	103.00
630	628	486	15.80			12631030	87.10	13631030	117.50


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	486	1.03	11062030*	14.50			11063030*	27.40		
80	76	486	1.90	11082030	14.60	12082030	20.30	11083030	29.00	12083030	45.80
100	99	486	2.55	11102030	15.20	12102030	20.80	11103030	29.20	12103030	46.10
120	119	486	2.90	11122030	15.50	12122030	21.40	11123030	33.80	12123030	52.90
140	135	486	3.25	11142030	20.60	12142030	28.50	11143030	38.30	12143030	63.10
150	149	486	3.65	11152030	20.60	12152030	28.60	11153030	38.30	12153030	63.10
160	159	486	4.20	11162030	22.80	12162030	31.80	11163030	43.60	12163030	72.30
175	174	486	4.35	11172030	22.80	12172030	31.80	11173030	43.60	12173030	72.30
200	199	486	4.85	11202030	23.50	12202030	37.80	11203030	47.40	12203030	80.90
224	219	486	5.30	11222030	24.20	12222030	38.90	11223030	54.00	12223030	97.30
250	249	486	5.95	11252030	24.20	12252030	38.90	11253030	54.00	12253030	97.30
280	278	486	6.80	11282030	29.30	12282030	46.90	11283030	63.50	12283030	111.00
300	299	486	7.25	11302030	29.30	12302030	46.90	11303030	63.50	12303030	111.00
315	313	486	7.70	11312030	35.10	12312030	61.50	11313030	73.30	12313030	119.50
350	349	486	8.45	11352030	37.30	12352030	68.00	11353030	77.50	12353030	124.00
400	398	486	9.55	11402030	42.40	12402030	84.50	11403030	107.00	12403030	159.50
450	448	486	10.75	11452030	51.30	12452030	102.90	11453030	114.00	12453030	184.00
500	498	486	12.05	11502030	54.10	12502030	119.80	11503030	119.50	12503030	209.00
560	558	486	14.10			12562030	135.50			12563030	243.50
630	628	486	15.80			12632030	149.00			12633030	260.50

*1.5 mm

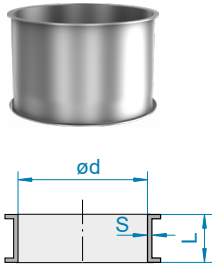
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof
tested up to 1 bar

 Shock explosion proof
tested up to 3 bar



PIPES 200 MM



Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11061040*	7.90				
80	76	200	0.70	11081040	8.00	12081040	8.40		
100	99	200	1.00	11101040	8.10	12101040	8.90		
120	119	200	1.20	11121040	8.70	12121040	9.80	13121040	16.20
140	135	200	1.40	11141040	10.00	12141040	12.40		
150	149	200	1.50	11151040	10.00	12151040	12.40	13151040	19.50
160	159	200	1.80	11161040	11.30	12161040	13.90		
175	174	200	1.80	11171040	11.30	12171040	13.90	13171040	21.30
200	199	200	2.05	11201040	11.90	12201040	14.70	13201040	24.70
224	219	200	2.20	11221040	12.30	12221040	15.90		
250	249	200	2.55	11251040	12.30	12251040	15.90	13251040	27.80
280	278	200	2.90	11281040	12.40	12281040	18.60		
300	299	200	2.95	11301040	12.40	12301040	18.60	13301040	29.50
315	313	200	3.30	11311040	15.20	12311040	22.50		
350	349	200	3.70	11351040	16.40	12351040	24.20	13351040	35.10
400	398	200	4.10	11401040	19.20	12401040	28.10	13401040	38.30
450	448	200	5.00	11451040	28.00	12451040	36.50	13451040	49.50
500	498	200	5.20	11501040	35.30	12501040	41.90	13501040	54.30
560	558	200	7.50			12561040	51.10	13561040	66.50
630	628	200	7.80			12631040	62.10	13631040	80.90

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

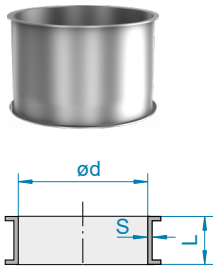
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11062040*	10.00			11063040*	15.20		
80	76	200	0.70	11082040	10.10	12082040	12.30	11083040	16.40	12083040	23.20
100	99	200	1.00	11102040	10.30	12102040	12.40	11103040	16.50	12103040	23.30
120	119	200	1.20	11122040	10.80	12122040	12.90	11123040	18.70	12123040	28.80
140	135	200	1.40	11142040	13.90	12142040	18.30	11143040	22.30	12143040	34.70
150	149	200	1.50	11152040	13.90	12152040	18.60	11153040	22.30	12153040	34.70
160	159	200	1.80	11162040	15.30	12162040	20.20	11163040	24.80	12163040	36.70
175	174	200	1.80	11172040	15.30	12172040	20.20	11173040	24.80	12173040	36.70
200	199	200	2.05	11202040	16.20	12202040	21.30	11203040	26.70	12203040	40.80
224	219	200	2.20	11222040	16.60	12222040	22.20	11223040	29.40	12223040	48.10
250	249	200	2.55	11252040	16.60	12252040	22.20	11253040	29.40	12253040	48.10
280	278	200	2.90	11282040	18.60	12282040	30.10	11283040	34.40	12283040	55.20
300	299	200	2.95	11302040	18.60	12302040	30.10	11303040	34.40	12303040	55.20
315	313	200	3.30	11312040	22.20	12312040	38.30	11313040	36.30	12313040	60.90
350	349	200	3.70	11352040	25.00	12352040	42.50	11353040	37.40	12353040	63.50
400	398	200	4.10	11402040	27.10	12402040	48.30	11403040	60.20	12403040	86.90
450	448	200	5.00	11452040	38.50	12452040	54.00	11453040	68.40	12453040	95.20
500	498	200	5.20	11502040	45.60	12502040	61.80	11503040	73.20	12503040	106.50
560	558	200	7.50			12562040	69.50			12563040	122.50
630	628	200	7.80			12632040	78.50			12633040	142.00

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar



PIPES 100 MM

1010

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11061044*	7.10				
80	76	100	0.37	11081044	7.20	12081044	7.60		
100	99	100	0.53	11101044	7.30	12101044	8.10		
120	119	100	0.63	11121044	7.90	12121044	8.90	13121044	14.60
140	135	100	0.74	11141044	9.00	12141044	10.00		
150	149	100	0.79	11151044	9.00	12151044	10.00	13151044	17.60
160	159	100	0.90	11161044	10.20	12161044	11.20		
175	174	100	0.95	11171044	10.20	12171044	11.20	13171044	19.20
200	199	100	1.08	11201044	10.80	12201044	11.80	13201044	22.30
224	219	100	1.16	11221044	11.10	12221044	12.80		
250	249	100	1.35	11251044	11.10	12251044	12.80	13251044	25.10
280	276	100	1.53	11281044	11.20	12281044	14.90		
300	299	100	1.56	11301044	11.20	12301044	14.90	13301044	26.60
315	311	100	1.74	11311044	13.70	12311044	19.20		
350	349	100	1.95	11351044	15.90	12351044	20.60	13351044	31.60
400	398	100	2.17	11401044	17.30	12401044	23.90	13401044	34.50
450	448	100	2.64	11451044	25.20	12451044	31.10	13451044	44.60
500	498	100	2.75	11501044	31.80	12501044	35.70	13501044	48.90
560	558	100	3.96			12561044	43.50	13561044	59.90
630	628	100	4.12			12631044	52.80	13631044	72.90



*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11062044*	9.00			11063044*	13.00		
80	76	100	0.37	11082044	9.10	12082044	9.80	11083044	13.90	12083044	17.40
100	99	100	0.53	11102044	9.30	12102044	10.00	11103044	14.10	12103044	17.50
120	119	100	0.63	11122044	9.80	12122044	10.40	11123044	15.90	12123044	21.60
140	135	100	0.74	11142044	12.60	12142044	14.70	11143044	19.00	12143044	26.10
150	149	100	0.79	11152044	12.60	12152044	14.90	11153044	19.00	12153044	26.10
160	159	100	0.90	11162044	13.80	12162044	16.20	11163044	21.10	12163044	27.60
175	174	100	0.95	11172044	13.80	12172044	16.20	11173044	21.10	12173044	27.60
200	199	100	1.08	11202044	14.60	12202044	17.10	11203044	22.70	12203044	30.60
224	219	100	1.16	11222044	15.00	12222044	17.80	11223044	25.00	12223044	36.10
250	249	100	1.35	11252044	15.00	12252044	17.80	11253044	25.00	12253044	36.10
280	276	100	1.53	11282044	16.80	12282044	24.10	11283044	29.30	12283044	41.40
300	299	100	1.56	11302044	16.80	12302044	24.10	11303044	29.30	12303044	41.40
315	311	100	1.74	11312044	20.00	12312044	32.60	11313044	30.90	12313044	45.70
350	349	100	1.95	11352044	22.50	12352044	36.20	11353044	31.80	12353044	47.70
400	398	100	2.17	11402044	26.40	12402044	41.10	11403044	51.20	12403044	65.20
450	448	100	2.64	11452044	34.70	12452044	45.90	11453044	58.20	12453044	71.40
500	498	100	2.75	11502044	41.10	12502044	52.60	11503044	62.30	12503044	79.90
560	558	100	3.96			12562044	59.10			12563044	91.90
630	628	100	4.12			12632044	66.80			12633044	106.50

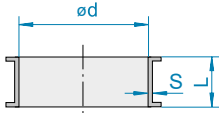
*1.5 mm

 FOOD GRADE
EC 1935/2004 plus FDA compliant

-  Shock explosion proof tested up to 1 bar
-  Shock explosion proof tested up to 3 bar



PIPES 50 MM



Powder-coated (dimensions for 2 mm pipework)


DN	Ød	L	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	50	0.12	11061050*	5.50				
80	76	50	0.15	11081050	5.70	12081050	5.80		
100	99	50	0.30	11101050	5.80	12101050	6.10		
120	119	50	0.40	11121050	6.10	12121050	6.60	13121050	10.80
140	135	50	0.45	11141050	6.90	12141050	7.60		
150	149	50	0.50	11151050	6.90	12151050	7.60	13151050	13.30
160	159	50	0.52	11161050	7.40	12161050	8.00		
175	174	50	0.55	11171050	7.40	12171050	8.00	13171050	14.20
200	199	50	0.60	11201050	8.00	12201050	8.50	13201050	15.30
224	219	50	0.65	11221050	8.20	12221050	8.90		
250	249	50	0.75	11251050	8.20	12251050	8.90	13251050	16.80
280	278	50	0.90	11281050	9.40	12281050	10.60		
300	299	50	0.90	11301050	9.40	12301050	10.60	13301050	18.60
315	313	50	1.00	11311050	11.30	12311050	15.60		
350	349	50	1.10	11351050	15.40	12351050	18.40	13351050	23.80
400	398	50	1.80	11401050	17.00	12401050	23.30	13401050	30.20
450	448	50	1.40	11451050	23.00	12451050	27.10	13451050	35.20
500	498	50	1.50	11501050	27.50	12501050	30.50	13501050	39.50
560	558	50	1.70			12561050	34.10	13561050	44.40
630	628	50	1.90			12631050	41.40	13631050	53.80


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ød	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	50	0.12	11062050*	6.90			11063050*	8.90		
80	76	50	0.15	11082050	7.20	12082050	8.40	11083050	9.70	12083050	11.40
100	99	50	0.30	11102050	7.50	12102050	8.60	11103050	9.80	12103050	11.50
120	119	50	0.40	11122050	7.70	12122050	9.10	11123050	10.10	12123050	12.40
140	135	50	0.45	11142050	8.90	12142050	10.30	11143050	10.90	12143050	13.80
150	149	50	0.50	11152050	8.90	12152050	10.30	11153050	10.90	12153050	13.80
160	159	50	0.52	11162050	9.70	12162050	11.30	11163050	12.30	12163050	15.60
175	174	50	0.55	11172050	9.70	12172050	11.30	11173050	12.30	12173050	15.60
200	199	50	0.60	11202050	10.40	12202050	12.00	11203050	13.60	12203050	17.00
224	219	50	0.65	11222050	10.80	12222050	12.40	11223050	15.90	12223050	19.90
250	249	50	0.75	11252050	10.80	12252050	12.40	11253050	15.90	12253050	19.90
280	278	50	0.90	11282050	12.10	12282050	14.80	11283050	20.60	12283050	21.30
300	299	50	0.90	11302050	12.10	12302050	14.80	11303050	20.60	12303050	21.30
315	313	50	1.00	11312050	14.60	12312050	18.50	11313050	21.50	12313050	29.50
350	349	50	1.10	11352050	19.90	12352050	23.40	11353050	27.10	12353050	33.30
400	398	50	1.80	11402050	25.40	12402050	29.00	11403050	34.40	12403050	42.20
450	448	50	1.40	11452050	29.40	12452050	34.10	11453050	40.00	12453050	48.80
500	498	50	1.50	11502050	35.40	12502050	38.40	11503050	46.50	12503050	55.00
560	558	50	1.70			12562050	42.90			12563050	61.90
630	628	50	1.90			12632050	52.00			12633050	75.00

*1.5 mm

 FOOD GRADE
EC 1935/2004 plus FDA compliant

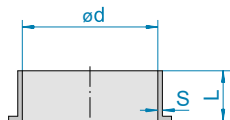
 Shock explosion proof
tested up to 1 bar

 Shock explosion proof
tested up to 3 bar



PIPES

Welding ends



WELDING ENDS 55 MM, WITH LIP AT ONE END

1020

- With a 6 mm lip at one end
- For connection to existing pipe systems or machinery on site

Steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	2 mm steel uncoated		3 mm steel uncoated		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€
60	57	55	0.14	11060060*	5.10			11062060	9.80
80	76	55	0.15	12080060	5.60			12082060	10.30
100	99	55	0.35	12100060	5.90			12102060	10.40
120	119	55	0.40	12120060	6.40	13120060	9.20	12122060	11.50
140	135	55	0.45	12140060	7.20			12142060	12.10
150	149	55	0.45	12150060	7.20	13150060	9.50	12152060	12.10
160	159	55	0.50	12160060	7.60			12162060	12.70
175	174	55	0.55	12170060	7.60	13170060	10.70	12172060	12.70
200	199	55	0.60	12200060	8.10	13200060	11.30	12202060	13.50
224	219	55	0.70	12220060	8.40			12222060	14.80
250	249	55	0.75	12250060	8.40	13250060	11.70	12252060	14.80
280	276	55	0.80	12280060	10.10			12282060	16.80
300	299	55	0.85	12300060	10.10	13300060	13.30	12302060	16.80
315	311	55	0.90	12310060	10.40			12312060	23.80
350	349	55	1.05	12350060	10.60	13350060	14.40	12352060	24.80
400	398	55	1.15	12400060	11.70	13400060	15.70	12402060	28.20
450	448	55	1.40	12450060	13.50	13450060	17.90	12452060	32.50
500	498	55	1.55	12500060	15.30	13500060	20.10	12502060	35.80
560	558	55	1.70	12560060	16.80	13560060	22.50	12562060	39.50
630	628	55	1.90	12630060	19.20	13630060	26.20	12632060	44.50

*1.5 mm

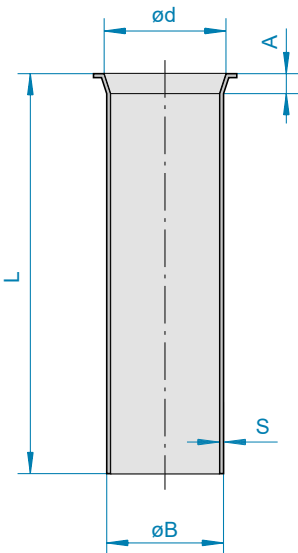
Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	55	0.14	11061060	5.50					11063060*	7.50
80	76	55	0.15	11081060	5.70	12081060	6.00			12083060	10.80
100	99	55	0.35			12101060	6.10			12103060**	11.30
120	119	55	0.40			12121060	6.60	13121060	9.50	12123060	12.20
140	135	55	0.45			12141060	7.60			12143060	13.10
150	149	55	0.45			12151060	7.60	13151060	9.80	12153060**	13.10
160	159	55	0.50			12161060	8.10			12163060	15.50
175	174	55	0.55			12171060	8.10	13171060	11.10	12173060	15.50
200	199	55	0.60			12201060	8.50	13201060	11.50	12203060**	17.20
224	219	55	0.70			12221060	8.70			12223060	19.70
250	249	55	0.75			12251060	8.70	13251060	12.00	12253060**	19.70
280	276	55	0.80			12281060	10.70			12283060	21.30
300	299	55	0.85			12301060	10.70	13301060	13.80	12303060	21.30
315	311	55	0.90			12311060	11.30			12313060	22.30
350	349	55	1.05			12351060	11.30	13351060	14.70	12353060	23.40
400	398	55	1.15			12401060	12.30	13401060	16.20	12403060	25.80
450	448	55	1.40			12451060	14.30	13451060	18.60	12453060	31.80
500	498	55	1.55			12501060	15.90	13501060	20.60	12503060	36.60
560	558	55	1.70			12561060	17.80	13561060	23.30	12563060	41.50
630	628	55	1.90			12631060	20.40	13631060	26.90	12633060	46.00

* 1.5 mm

** Internal diameter Ød differs by: +1 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



Push-in pipe installation instructions

PUSH-IN PIPES

Push-in pipes in 1 to 3 mm wall thickness

For combining with:

- QUICK CONNECT pull-ring or pull-ring without sealant for 1 and 2 mm pipework (page 26)
- Ring seal (page 44)

PUSH-IN PIPES 1000 MM

1030

Powder-coated (dimensions for 1.5 mm pipework)

DN	ød	A	øB	L	kg	1 mm powder-coated		1.5 mm powder-coated	
						Item no.	€	Item no.	€
60	57	34	54	990	2.20			11061110	27.90
80	77	34	74	990	2.70	11081110	29.00		
100	100	34	96	990	3.50			11101110	29.20
120	120	34	116	990	4.30			11121110	33.20
140	136	34	132	990	4.60			11141110	41.20
150	150	34	146	990	5.40			11151110	41.20
160	159	34	155	990	6.00			11161110	46.30
175	175	34	171	990	6.20			11171110	46.30
200	200	34	196	990	7.00			11201110	50.30
224	220	34	216	990	7.60			11221110	62.20
250	250	34	246	990	8.80			11251110	62.20
280	277	34	272	990	10.00			11281110	68.40
300	300	34	296	990	10.70			11301110	68.40
315	312	34	307	990	11.30			11311110	78.60
350	350	50	346	990	12.40			11351110	84.40
400	399	50	396	990	14.20			11401110	106.00

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	ød	A	øB	L	kg	1.5 mm galvanised		1 mm stainless steel		1.5 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	34	54	990	2.20	11062110	36.70			11063110	71.60		
80	77	34	74	990	2.70	11082110*	38.50	11083110	83.90				
100	100	34	96	990	3.50	11102110	38.70	11103110	84.50			12103110**	124.00
120	120	34	116	990	4.30	11122110	42.50	11123110	88.60			12123110	142.50
140	136	34	132	990	4.60	11142110	49.20	11143110	103.00				
150	150	34	146	990	5.40	11152110	49.20	11153110	103.00			12153110**	164.50
160	159	34	155	990	6.00	11162110	60.20	11163110	115.00			12163110	191.50
175	175	34	171	990	6.20	11172110	60.20	11173110	115.00			12173110	191.50
200	200	34	196	990	7.00	11202110	65.40	11203110	132.00			12203110	213.50
224	220	34	216	990	7.60	11222110	78.70	11223110	151.50				
250	250	34	246	990	8.80	11252110	78.70	11253110	151.50			12253110	244.00
280	277	34	272	990	10.00	11282110	92.30			11283110	176.50		
300	300	34	296	990	10.70	11302110	92.30	11303110	176.50			12303110	281.50
315	312	34	307	990	11.30	11312110	106.00			11313110	193.00		
350	350	50	346	990	12.40	11352110	119.00	11353110	213.00			12353110	289.50
400	399	50	396	990	14.20	11402110	145.50	11403110	229.00			12403110	349.00

* 1 mm

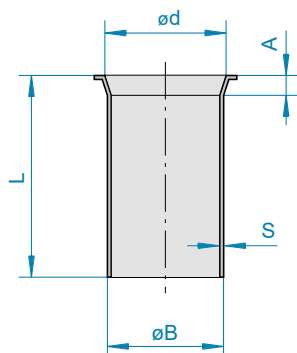
**øB differs: øB = 92 mm with DN 100, øB = 139 mm with DN 150

FOOD GRADE
EC 1935/2004 plus FDA compliant



PIPES

Push-in pipes



PUSH-IN PIPES 500 MM


1030

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ød	A	ØB	L	kg	1 mm powder-coated		1.5 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
60	57	34	54	492	1.10			11061120	19.60		
80	77	34	74	492	1.40	11081120	20.50				
100	100	34	96	492	1.80			11101120	20.80		
120	120	34	116	492	2.10			11121120	22.10		
140	136	34	132	492	2.45			11141120	25.50		
150	150	34	146	492	2.65			11151120	25.50	13151120**	45.40
160	159	34	155	492	3.10			11161120	31.40		
175	175	34	171	492	3.10			11171120	31.40	13171120	51.10
200	200	34	196	492	3.50			11201120	32.30	13201120	59.20
224	220	34	216	492	3.90			11221120	39.10		
250	250	34	246	492	4.50			11251120	39.10	13251120	66.10
280	277	34	272	492	5.00			11281120	43.40		
300	300	34	296	492	5.40			11301120	43.40	13301120	73.80
315	312	34	307	492	5.70			11311120	49.80		
350	350	50	346	492	6.20			11351120	50.60		
400	399	50	396	492	7.20			11401120	63.00		

** ØB differs: ØB = 139 mm with DN 150

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ød	A	ØB	L	kg	1.5 mm galvanised		1 mm stainless steel 		1.5 mm stainless steel 		2 mm stainless steel 	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	34	54	492	1.10	11062120	24.30			11063120	39.30		
80	77	34	74	492	1.40	11082120*	25.30	11083120	45.60				
100	100	34	96	492	1.80	11102120	25.60	11103120	45.80			12103120**	65.70
120	120	34	116	492	2.10	11122120	27.30	11123120	51.10			12123120	76.00
140	136	34	132	492	2.45	11142120	30.20	11143120	56.70				
150	150	34	146	492	2.65	11152120	30.20	11153120	56.70			12153120**	88.10
160	159	34	155	492	3.10	11162120	36.60	11163120	62.80			12163120	100.00
175	175	34	171	492	3.10	11172120	36.60	11173120	62.80			12173120	100.00
200	200	34	196	492	3.50	11202120	38.70	11203120	73.10			12203120	111.50
224	220	34	216	492	3.90	11222120	48.30	11223120	82.40				
250	250	34	246	492	4.50	11252120	48.30	11253120	82.40			12253120	133.50
280	277	34	272	492	5.00	11282120	54.10			11283120	93.60		
300	300	34	296	492	5.40	11302120	54.10	11303120	93.60			12303120	152.50
315	312	34	307	492	5.70	11312120	62.50			11313120	103.00		
350	350	50	346	492	6.20	11352120	67.90	11353120	107.50			12353120	191.50
400	399	50	396	492	7.20	11402120	83.30	11403120	112.50			12403120	218.50

* 1 mm

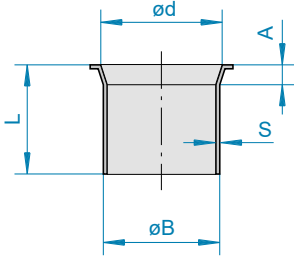
** ØB differs: ØB = 92 mm with DN 100, ØB = 139 mm with DN 150

 FOOD GRADE
EC 1935/2004 plus FDA compliant



PUSH-IN PIPES 200 MM

1030



Powder-coated (dimensions for 1.5 mm pipework)

DN	$\varnothing d$	A	$\varnothing B$	L	kg	1 mm powder-coated		1.5 mm powder-coated	
						Item no.	€	Item no.	€
60	57	34	54	200	0.41			11061130	17.90
80	77	34	74	200	0.60	11081130	18.30		
100	100	34	96	200	0.75			11101130	18.80
120	120	34	116	200	0.85			11121130	19.50
140	136	34	132	200	0.95			11141130	22.80
150	150	34	146	200	1.10			11151130	22.80
160	159	34	155	200	1.30			11161130	27.90
175	175	34	171	200	1.30			11171130	27.90
200	200	34	196	200	1.50			11201130	31.50
224	220	34	216	200	1.55			11221130	35.60
250	250	34	246	200	1.90			11251130	35.60
280	277	34	272	200	2.10			11281130	39.70
300	300	34	296	200	2.45			11301130	39.70
315	312	34	307	200	2.50			11311130	45.70

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	$\varnothing d$	A	$\varnothing B$	L	kg	1.5 mm galvanised		1 mm stainless steel	1.5 mm stainless steel	2 mm stainless steel
						Item no.	€	Item no.	€	Item no.
60	57	34	54	200	0.41	11062130	22.20		11063130	23.00
80	77	34	74	200	0.60	11082130*	23.20	11083130	26.80	
100	100	34	96	200	0.75	11102130	23.50	11103130	26.80	12103130** 39.20
120	120	34	116	200	0.85	11122130	24.50	11123130	29.30	12123130 41.90
140	136	34	132	200	0.95	11142130	29.20	11143130	32.10	
150	150	34	146	200	1.10	11152130	29.20	11153130	32.10	12153130** 50.20
160	159	34	155	200	1.30	11162130	33.80	11163130	35.40	12163130 52.10
175	175	34	171	200	1.30	11172130	33.80	11173130	35.40	12173130 52.10
200	200	34	196	200	1.50	11202130	37.20	11203130	40.70	12203130 57.70
224	220	34	216	200	1.55	11222130	43.40	11223130	45.20	
250	250	34	246	200	1.90	11252130	43.40	11253130	45.20	12253130 68.00
280	277	34	272	200	2.10	11282130	49.60		11283130	51.20
300	300	34	296	200	2.45	11302130	49.60	11303130	51.20	12303130 77.30
315	312	34	307	200	2.50	11312130	57.30		11313130	56.60

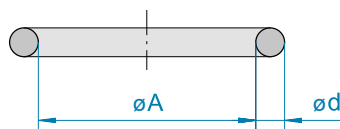
* 1 mm

** $\varnothing B$ differs: $\varnothing B = 92$ mm with DN 100, $\varnothing B = 139$ mm with DN 150



PIPES

Ring seals



FOR USE IN CONJUNCTION WITH PUSH-IN PIPE AND PULL-RING.

RING SEALS FOR PUSH-IN PIPES

3020

- Use in conjunction with push-in pipes and QUICK CONNECT pull-ring or pull-ring without sealant
- The use of silicone ring seals is recommended for a 3 mm wall thickness

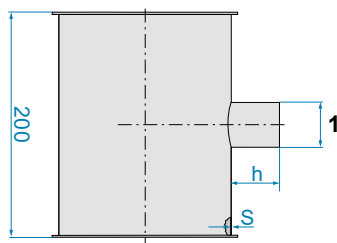
Ring seals to seal push-in pipes from 1 to 3 mm wall thickness

DN	$\varnothing d$	$\varnothing A$	NBR grey		Silicone beige F		Silicone blue B		EPDM black		Viton reddish brown	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	7	53	100661557	1.60	1006715509	5.00	10067155091	5.80	1006815559	5.00	100691559	35.10
80	9	68	100861557	1.90	1008715509	5.00	10087155091	6.60	1008815559	5.00	100891559	39.00
100	9	87	101061557	2.20	1010715509	5.60	10107155091	7.60	1010815559	5.60	101091559	39.00
120	9	106	101261557	2.40	1012715509	5.80	10127155091	8.60	1012815559	5.80	101291559	41.00
140	9	121	101461557	2.60	1014715509	6.00	10147155091	9.20	1014815559	6.00	101491559	42.50
150	9	138	101561557	2.60	1015715509	6.20	10157155091	9.90	1015815559	6.20	101591559	42.50
160	9	149	101661557	3.10	1016715509	6.90	10167155091	11.10	1016815559	6.90	101691559	44.00
175	9	162	101761557	3.10	1017715509	6.90	10177155091	11.10	1017815559	6.90	101791559	44.00
200	9	186	102061557	3.50	1020715509	7.20	10207155091	11.90	1020815559	7.20	102091559	44.60
224	9	205	102261557	3.70	1022715509	7.60	10227155091	12.70	1022815559	7.60	102291559	45.70
250	9	233	102561557	3.80	1025715509	8.30	10257155091	14.20	1025815559	8.30	102591559	47.80
280	9	258	102861557	4.10	1028715509	8.90	10287155091	15.30	1028815559	8.90	102891559	50.60
300	9	281	103061557	4.60	1030715509	8.90	10307155091	16.20	1030815559	8.90	103091559	53.80
315	9	293	103161557	4.80	1031715509	9.50	10317155091	16.80	1031815559	9.50	103191559	56.00
350	9	328	103561557	4.90	1035715509	9.50	10357155091	18.30	1035815559	9.50	103591559	61.50
400	9	376	104061557	5.30	1040715509	10.10	10407155091	20.70	1040815559	10.10	104091559	70.10

PIPES 200 MM WITH SPIGOTS

1035

- For installation of sensors on site
- Spigot length
 - G ½ inch: h = circa 31 mm
 - G 1 inch: h = circa 40 mm
 - G 1½ inch: h = circa 44 mm
- Special lengths and other spigots available on request



1 Spigot with inner thread

2 mm powder-coated, length 200 mm

DN	$\varnothing d$	Spigot ½ inch		Spigot 1 inch		Spigot 1½ inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110610400901*	37.30	110610400902*	42.20		
80	76	120810400901	39.10	120810400902	43.90	120810400903	55.40
100	99	121010400901	39.50	121010400902	44.40	121010400903	55.90
120	119	121210400901	40.40	121210400902	45.40	121210400903	56.60
140	136	121410400901	42.80	121410400902	47.90	121410400903	59.30
150	149	121510400901	42.80	121510400902	47.90	121510400903	59.30
160	159	121610400901	44.40	121610400902	49.30	121610400903	60.80
175	174	121710400901	44.40	121710400902	49.30	121710400903	60.80
200	199	122010400901	45.40	122010400902	50.20	122010400903	61.80
224	220	122210400901	46.50	122210400902	51.40	122210400903	62.90
250	249	122510400901	46.50	122510400902	51.40	122510400903	62.90
280	276	122810400901	48.90	122810400902	54.00	122810400903	65.50
300	299	123010400901	48.90	123010400902	54.00	123010400903	65.50

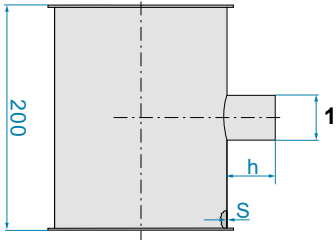
*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

Shock explosion proof
tested up to 3 bar

Pipes with spigots



1 Spigot with inner thread

2 mm galvanised, length 200 mm

DN	Ø d	Spigot ½ inch		Spigot 1 inch		Spigot 1½ inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110620400901*	48.20	110620400902*	57.70		
80	76	120820400901	51.00	120820400902	60.30	120820400903	77.10
100	99	121020400901	51.20	121020400902	60.50	121020400903	77.20
120	119	121220400901	51.90	121220400902	61.40	121220400903	77.70
140	136	121420400901	57.10	121420400902	66.60	121420400903	83.10
150	149	121520400901	57.20	121520400902	66.70	121520400903	83.30
160	159	121620400901	58.90	121620400902	68.30	121620400903	84.80
175	174	121720400901	58.90	121720400902	68.30	121720400903	84.80
200	199	122020400901	60.10	122020400902	69.40	122020400903	86.00
224	220	122220400901	60.80	122220400902	70.40	122220400903	86.80
250	249	122520400901	60.80	122520400902	70.40	122520400903	86.80
280	276	122820400901	68.90	122820400902	78.20	122820400903	94.60
300	299	123020400901	68.90	123020400902	78.20	123020400903	94.60

*1.5 mm

2 mm stainless steel, length 200 mm

DN	Ø d	Spigot ½ inch	Spigot 1 inch	Spigot 1½ inch			
		Item no.	€	Item no.	€	Item no.	€
60	57	110630400901*	51.20	110630400902*	60.10		
80	76	120830400901	59.80	120830400902	68.80	120830400903	84.30
100	99	121030400901	59.80	121030400902	68.80	121030400903	84.30
120	119	121230400901	65.40	121230400902	74.20	121230400903	89.90
140	136	121430400901	71.50	121430400902	80.10	121430400903	95.80
150	149	121530400901	71.50	121530400902	80.10	121530400903	95.80
160	159	121630400901	73.50	121630400902	82.20	121630400903	97.70
175	174	121730400901	73.50	121730400902	82.20	121730400903	97.70
200	199	122030400901	77.50	122030400902	86.30	122030400903	102.00
224	220	122230400901	84.80	122230400902	93.50	122230400903	109.50
250	249	122530400901	84.80	122530400902	93.50	122530400903	109.50
280	276	122830400901	91.90	122830400902	101.00	122830400903	117.00
300	299	123030400901	91.90	123030400902	101.00	123030400903	117.00

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



THE JACOB RANGE OF BENDS:
HIGHEST EFFICIENCY,
MAXIMUM OPTIMISATION OF FLOW



THE RANGE OF PIPE BENDS

Technical information	48	
Segments	50	
Bends	54	
Adjustable elbows	61	
Pipe ball joints	61	



SEGMENTS AND BENDS

Perfect flow properties pay off! If the product flow is guided optimally through direction-changing elements, the flow resistance, and therefore also the wear, are significantly reduced. This results in: Energy savings, longer maintenance intervals, shorter downtimes and thus lower costs. We achieve this with our innovative manufacturing technology. We produce bends from pressed half shells or pressed segments, depending on the diameter. Automated production stages, particularly during welding, ensure a uniformly high level of quality.

Maximum flexibility for planning and implementation: from bends for restricted spaces with a radius of $R = 1D$ up to drawn bends with a large radius. All parts have a 6 mm lip and can be combined with all JACOB pipework using our pull-ring system.

Are you looking for the right angle or radius for your application? No problem with the JACOB pipework system! Whether by using our flexible elbows and pipe ball joints or by counter-rotating two segments: a wide range of different angles can easily be achieved with parts from our standard range. We can also produce special radius pieces on request.

JACOB's unique flexibility makes it possible to implement numerous special requirements at the customer's request: from bends with welded-on flanges to a wide range of special colours – this is no problem at all with our unique vertical integration.

Overview of segment and bend versions

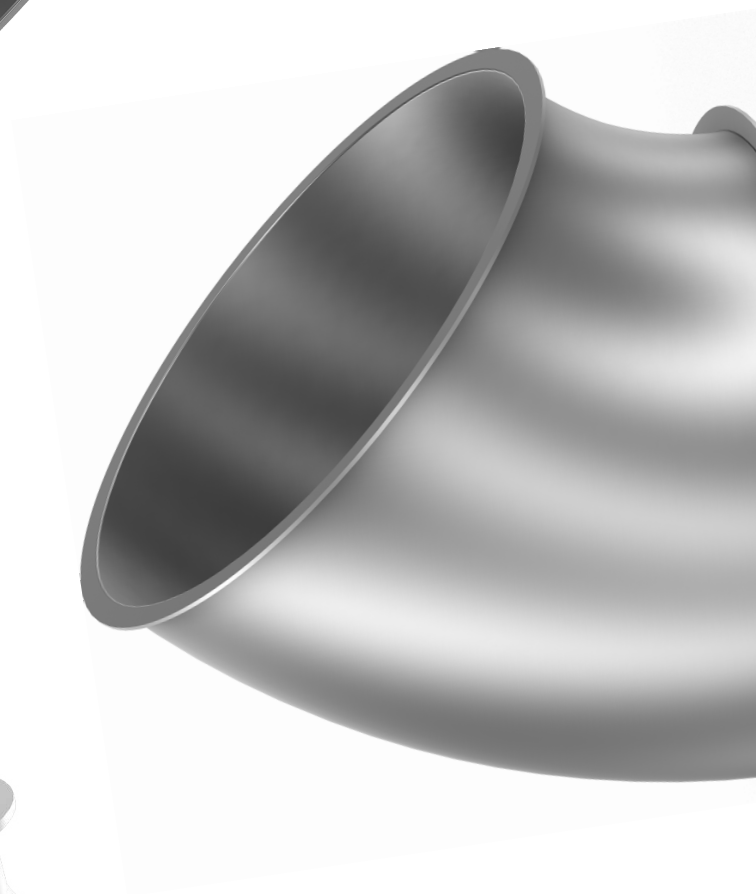
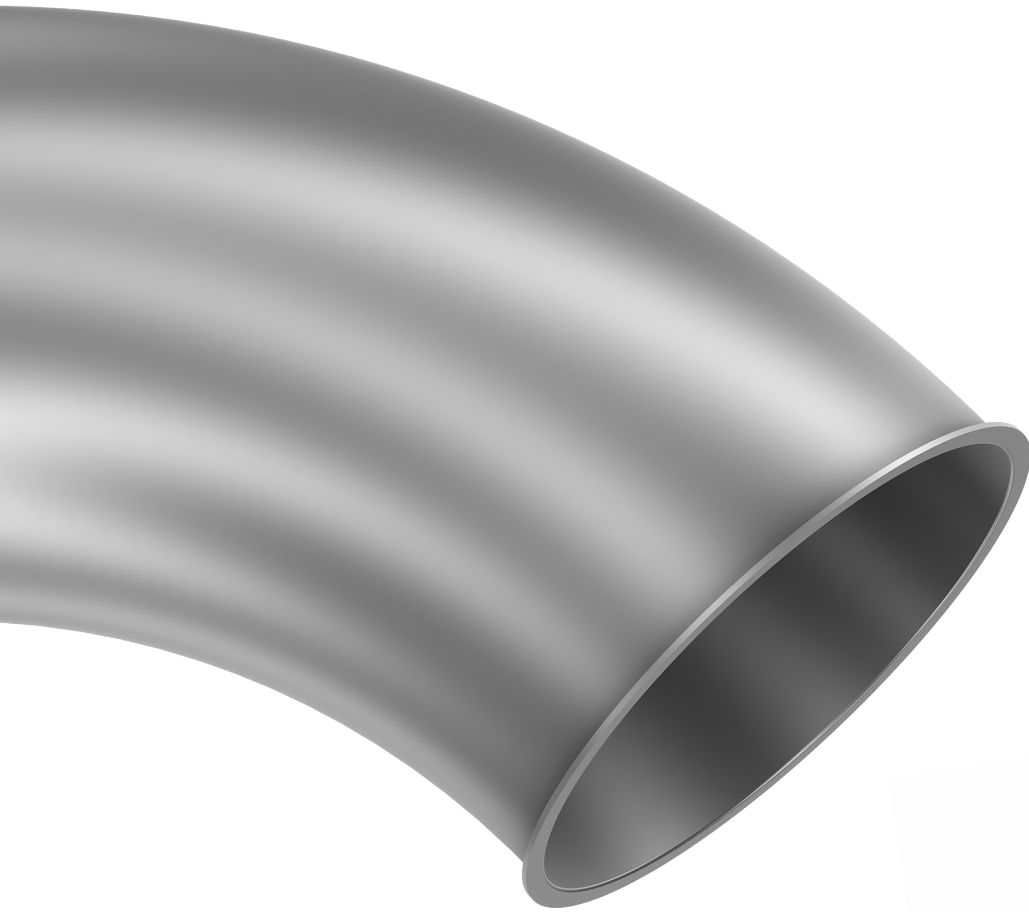
DN	Segments		Bends			
	5°	15°, 30°, 45°	R = 1D 90°	R = 2D 30°	R = 2D 90°, 60°, 45°	Large radii 15°, 30°, 45°, 60°, 90°
60	■	■	■	■	■	
80–120	■	■	■	■	■	■
140	■	■	■	■	■	
150	■	■	■	■	■	■
160	■	■	■	■	■	
175	■	■	■	■	■	■
200	■	■	■	■	■	■
224	■	■	■	■	■	
250	■	■	■	■	■	■
280	■	■	■	■	■	
300	■	■	■	■	■	■
315	■	■	■	■	■	
350–400	■	■	■	■	■	
450–630	■	■	■	■	■	

■ Lobster back version, segments/bends made up of one or more lobster back segments with a straight back

■ Pressed segment version, pressed segments and bends

■ Pressed segments and bends, bends made up of several pressed segments

■ Bends with larger radii, drawn from longitudinally welded pipes

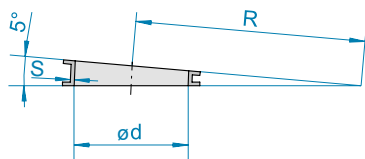


4



THE RANGE OF PIPE BENDS

Segments



SEGMENTS 5°

1110

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	310	0.10	11081300	7.50				
100	99	320	0.20	11101300	7.50	12101300	9.10		
120	119	360	0.25	11121300	7.70	12121300	9.90	13121300	21.00
140	135	500	0.35	11141300*	8.30				
150	149	530	0.45	11151300	8.30	12151300	11.80	13151300	23.20
160	159	300	0.50	11161300*	11.80				
175	174	560	0.55	11171300	11.80	12171300	14.70	13171300	28.60
200	199	650	0.65	11201300	12.70	12201300	15.20	13201300	30.80
224	219	610	0.70	11221300*	16.20				
250	249	550	0.75	11251300	16.20	12251300	20.10	13251300	35.40
280	276	560	0.90	11281300*	28.60				
300	299	625	0.95	11301300	26.10	12301300	29.30	13301300	41.30
315	311	600	0.95	11311300*	31.40				
350	349	350	0.80	11351300*	34.40	12351300	41.80	13351300	49.80
400	398	420	0.95	11401300*	37.30	12401300	52.60	13401300	57.40
450	448	450	1.40	11451300*	46.80	12451300	54.90	13451300	70.20
500	498	500	1.45	11501300*	54.20	12501300	62.50	13501300	74.60
560	558	560	1.60			12561300	71.20	13561300	90.70
630	628	630	2.15			12631300	85.50	13631300	105.50

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	310	0.10	11082300	8.70			11083300	20.00		
100	99	320	0.20	11102300	8.70	12102300	11.10	11103300	20.00	12103300	22.60
120	119	360	0.25	11122300	9.50	12122300	12.60	11123300	22.60	12123300	25.60
140	135	500	0.35	11142300*	9.90	12142300	13.60	11143300*	23.70		
150	149	530	0.45	11152300	9.90	12152300	13.60	11153300	23.70	12153300	35.10
160	159	300	0.50	11162300*	14.40			11163300*	30.60		
175	174	560	0.55	11172300	14.40	12172300	19.90	11173300	30.60	12173300	44.20
200	199	650	0.65	11202300	15.00	12202300	20.80	11203300	34.30	12203300	49.00
224	219	610	0.70	11222300*	20.70	12222300	28.40	11223300*	44.30		
250	249	550	0.75	11252300	20.70	12252300	28.40	11253300	44.50	12253300	62.20
280	276	560	0.90	11282300*	38.70			11283300*	78.70		
300	299	625	0.95	11302300	28.70	12302300	39.90	11303300	52.70	12303300	79.80
315	311	600	0.95	11312300*	41.80			11313300*	80.60		
350	349	350	0.80	11352300*	43.00			11353300	87.30	12353300	93.50
400	398	420	0.95	11402300*	48.90			11403300	97.50	12403300	118.50
450	448	450	1.40	11452300*	58.60			11453300	111.00	12453300	126.00
500	498	500	1.45	11502300*	64.70			11503300	123.50	12503300	139.50
560	558	560	1.60			12562300	86.50			12563300	163.50
630	628	630	2.15			12632300	103.50			12633300	195.00

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

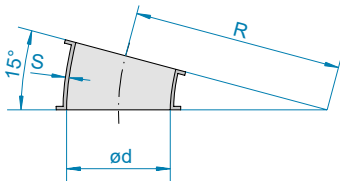
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

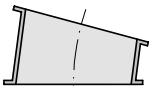


SEGMENTS 15°

1120



1 pressed segment 15°



1 lobster back segment 15°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.10	11061310*	21.40				
80	76	105	0.10	11081310	7.60				
100	99	120	0.20	11101310	7.60	12101310	9.10		
120	119	140	0.30	11121310	8.00	12121310	9.90	13121310	21.60
140	135	185	0.30	11141310*	8.50				
150	149	240	0.55	11151310	8.50	12151310	12.00	13151310	23.80
160	159	160	0.60	11161310*	12.00				
175	174	280	0.75	11171310	12.00	12171310	14.70	13171310	29.20
200	199	270	0.80	11201310	12.70	12201310	15.20	13201310	31.60
224	219	220	0.55	11221310*	16.30				
250	249	275	1.05	11251310	16.30	12251310	20.10	13251310	37.10
280	276	280	1.25	11281310*	28.70				
300	299	310	1.30	11301310	26.90	12301310	29.30	13301310	42.60
315	311	315	1.60	11311310*	31.60				
350	349	350	1.75	11351310*	35.60	12351310	41.80	13351310	54.80
400	398	400	2.35	11401310*	38.60	12401310	52.60	13401310	61.40
450	448	450	2.95	11451310*	48.10	12451310	54.90	13451310	74.40
500	498	500	3.50	11501310*	55.80	12501310	62.50	13501310	79.50
560	558	560	4.40			12561310	71.20	13561310	96.30
630	628	630	5.60			12631310	85.50	13631310	111.50

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.10	11062310*	23.90			11063310*	43.70		
80	76	105	0.10	11082310	8.80			11083310	20.00		
100	99	120	0.20	11102310	8.80	12102310	12.10	11103310	20.00	12103310	22.60
120	119	140	0.30	11122310	9.50	12122310	13.20	11123310	22.60	12123310	25.60
140	135	185	0.30	11142310*	9.90	12142310	13.60	11143310*	23.70		
150	149	240	0.55	11152310	9.90	12152310	13.60	11153310	23.70	12153310	35.30
160	159	160	0.60	11162310*	14.40			11163310*	30.60		
175	174	280	0.75	11172310	14.40	12172310	19.90	11173310	30.60	12173310	44.70
200	199	270	0.80	11202310	15.00	12202310	20.80	11203310	34.30	12203310	50.20
224	219	220	0.55	11222310*	20.70	12222310	28.40	11223310*	49.70		
250	249	275	1.05	11252310	20.70	12252310	28.40	11253310	49.70	12253310	63.80
280	276	280	1.25	11282310*	38.80			11283310*	79.60		
300	299	310	1.30	11302310	28.70	12302310	39.90	11303310	53.90	12303310	81.40
315	311	315	1.60	11312310*	42.00			11313310*	82.20		
350	349	350	1.75	11352310*	43.00			11353310	88.30	12353310	95.70
400	398	400	2.35	11402310*	50.50			11403310	98.50	12403310	121.50
450	448	450	2.95	11452310*	60.40			11453310	112.00	12453310	128.50
500	498	500	3.50	11502310*	66.40			11503310	124.50	12503310	143.50
560	558	560	4.40			12562310	86.50			12563310	167.50
630	628	630	5.60			12632310	103.50			12633310	199.50

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

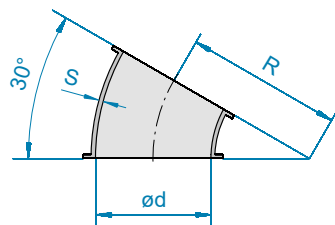
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

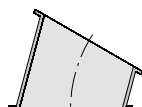


THE RANGE OF PIPE BENDS

Segments



1 pressed segment 30°



1 lobster back segment 30°

SEGMENTS 30°

1130

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	85	0.10	11081320	8.30				
100	99	85	0.30	11101320	8.30	12101320	10.00		
120	119	100	0.40	11121320	8.70	12121320	10.50	13121320	22.90
140	135	140	0.45	11141320*	10.20				
150	149	165	0.70	11151320	10.20	12151320	13.50	13151320	24.40
160	159	160	0.85	11161320*	13.70				
175	174	208	1.05	11171320	13.70	12171320	19.50	13171320	30.00
200	199	175	1.05	11201320	14.10	12201320	19.50	13201320	32.40
224	219	195	0.95	11221320*	18.10				
250	249	224	1.55	11251320	18.10	12251320	23.90	13251320	40.40
280	276	283	2.30	11281320*	30.60				
300	299	230	1.90	11301320	28.20	12301320	31.40	13301320	47.90
315	311	315	2.95	11311320*	36.70				
350	349	350	3.30	11351320*	42.70	12351320	48.60	13351320	60.10
400	398	400	4.10	11401320*	46.30	12401320	61.80	13401320	78.00
450	448	450	5.60	11451320*	54.70	12451320	65.00	13451320	81.00
500	498	500	6.60	11501320*	61.80	12501320	70.40	13501320	91.60
560	558	560	8.50			12561320	84.00	13561320	108.00
630	628	630	10.50			12631320	96.50	13631320	125.50

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	85	0.10	11082320	9.10			11083320	21.50		
100	99	85	0.30	11102320	9.10	12102320	12.80	11103320	21.50	12103320	26.20
120	119	100	0.40	11122320	9.80	12122320	13.40	11123320	23.40	12123320	30.80
140	135	140	0.45	11142320*	11.40	12142320	16.20	11143320*	26.60		
150	149	165	0.70	11152320	11.40	12152320	16.20	11153320	26.60	12153320	40.10
160	159	160	0.85	11162320*	18.40			11163320*	36.50		
175	174	208	1.05	11172320	18.40	12172320	25.30	11173320	36.50	12173320	57.40
200	199	175	1.05	11202320	18.60	12202320	25.90	11203320	38.20	12203320	60.80
224	219	195	0.95	11222320*	24.50	12222320	34.20	11223320*	50.30		
250	249	224	1.55	11252320	24.50	12252320	34.20	11253320	50.30	12253320	76.10
280	276	283	2.30	11282320*	44.00			11283320*	87.80		
300	299	230	1.90	11302320	32.20	12302320	45.10	11303320	57.50	12303320	91.10
315	311	315	2.95	11312320*	47.70			11313320*	90.60		
350	349	350	3.30	11352320*	50.30			11353320	97.00	12353320	111.50
400	398	400	4.10	11402320*	58.60			11403320	113.00	12403320	142.50
450	448	450	5.60	11452320*	66.90			11453320	129.50	12453320	150.50
500	498	500	6.60	11502320*	75.60			11503320	141.00	12503320	163.00
560	558	560	8.50			12562320	101.50			12563320	192.50
630	628	630	10.50			12632320	117.50			12633320	222.50

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

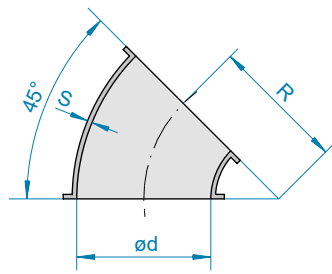
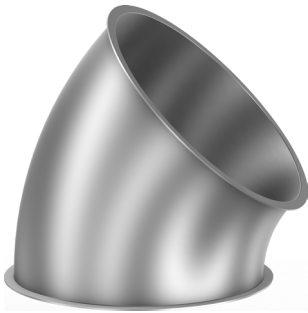
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

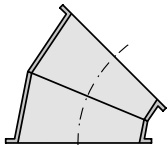


SEGMENTS 45°

1140



1 pressed segment 45°





2 lobster back segments:
2x22.5°

Powder-coated (dimensions for 2 mm pipework)


DN	Ø d	R	kg	1 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	76	74	0.15	11081330	8.90				
100	99	78	0.35	11101330	8.90	12101330	10.50		
120	119	85	0.50	11121330	9.80	12121330	12.10	13121330	24.40
140	135	112	0.50	11141330*	11.10				
150	149	137	0.90	11151330	11.10	12151330	14.90	13151330	27.60
160	159	160	1.00	11161330*	15.40				
175	174	175	1.20	11171330*	15.40	12171330	20.90	13171330	31.90
200	199	190	1.55	11201330*	17.20	12201330	24.10	13201330	36.70
224	219	160	1.10	11221330*	21.90				
250	249	195	1.95	11251330*	21.90	12251330	28.20	13251330	47.50
280	276	280	3.55	11281330*	77.90				
300	299	205	2.50	11301330*	32.60	12301330	38.40	13301330	56.50
315	311	315	4.30	11311330*	79.30				
350	349	350	4.90	11351330*	86.30	12351330	108.00	13351330	121.00
400	398	400	6.50	11401330*	99.10	12401330	121.00	13401330	150.00
450	448	450	8.15	11451330*	110.50	12451330	140.00	13451330	173.50
500	498	500	10.00	11501330*	130.00	12501330	155.00	13501330	189.50
560	558	560	12.40			12561330	187.50	13561330	229.50
630	628	630	16.10			12631330	227.50	13631330	274.00


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	76	74	0.15	11082330	9.90			11083330	22.80		
100	99	78	0.35	11102330	9.90	12102330	13.60	11103330	22.80	12103330	29.50
120	119	85	0.50	11122330	10.70	12122330	15.10	11123330	26.80	12123330	36.10
140	135	112	0.50	11142330*	11.80	12142330	16.40	11143330*	32.70		
150	149	137	0.90	11152330	11.80	12152330	16.40	11153330	32.70	12153330	48.90
160	159	160	1.00	11162330*	18.50			11163330*	42.40		
175	174	173	1.20	11172330*	18.50	12172330	25.70	11173330*	42.40	12173330	69.50
200	199	190	1.55	11202330*	25.60	12202330	35.30	11203330*	53.30	12203330	76.90
224	219	160	1.10	11222330*	29.20	12222330	40.30	11223330*	62.00		
250	249	195	1.95	11252330*	29.20	12252330	40.30	11253330*	62.00	12253330	96.50
280	276	280	3.55	11282330*	95.60			11283330*	151.50		
300	299	205	2.50	11302330*	42.80	12302330	54.30	11303330*	80.30	12303330	134.00
315	311	315	4.30	11312330*	97.00			11313330*	155.50		
350	349	350	4.90	11352330*	105.50			11353330*	176.00	12353330	217.00
400	398	400	6.50	11402330*	118.50			11403330*	225.00	12403330	254.00
450	448	450	8.15	11452330*	131.50			11453330*	252.50	12453330	297.00
500	498	500	10.00	11502330*	155.00			11503330*	286.50	12503330	325.50
560	558	560	12.40			12562330	220.00			12563330	386.00
630	628	630	16.10			12632330	266.50			12633330	462.00

*1.5 mm

 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

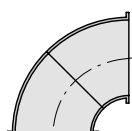
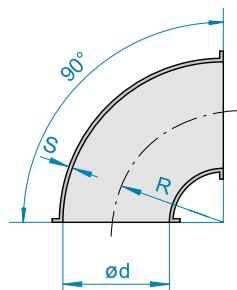
 Shock explosion proof
tested up to 1 bar

 Shock explosion proof
tested up to 3 bar

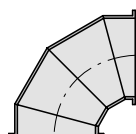


THE RANGE OF PIPE BENDS

Bends



■ 2 pressed segments 45°



■ 4 lobster back segments: 2x30°/2x15°

BENDS R = 1D, 90°



1220

- DN 140, 224 and 300 mm R ≠ 1 D

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	R	kg	1 mm powder-coated		1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
80	77	80	0.40	11081339	37.90				
100	100	100	0.43	11101339	37.90				
120	120	120	1.00	11121339	47.70				
140	136	125	1.20			11141339	56.30		
150	150	150	0.92	11151339	56.30				
160	159	160	1.55			11161339	66.30		
175	174	175	2.00			11171339	66.30		
200	200	200	2.42			11201339	67.50		
224	220	165	2.60			11221339	102.50		
250	250	250	4.00			11251339	102.50		
280	277	280	5.00			11281339	180.00		
300	300	210	5.00			11301339	125.50		
315	312	315	6.20			11311339	184.50		
350	350	350	8.00			11351339	198.50		
400	399	400	10.00			11401339	239.00		
450	449	450	13.00			11451339	256.00		
500	499	500	16.00			11501339	300.00		
560	558	560	26.00					12561339	341.50
630	628	630	23.00					12631339	400.50


Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	R	kg	1 mm galvanised		1.5 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	77	80	0.40	11082339	44.30			11083339	79.00		
100	100	100	0.43	11102339	44.30			11103339	81.30		
120	120	120	1.00	11122339	53.90			11123339	92.90		
140	136	125	1.20			11142339	64.60	11143339*	143.00		
150	150	150	0.92	11152339	64.60			11153339	143.00		
160	159	320	1.55			11162339	80.40	11163339*	147.50		
175	174	175	2.00			11172339	80.40	11173339*	147.50		
200	200	200	2.42			11202339	84.40	11203339*	174.00		
224	220	165	2.60			11222339	125.50	11223339*	196.50		
250	250	250	4.00			11252339	125.50	11253339*	196.50		
280	277	280	5.00			11282339	207.00	11283339*	324.50		
300	300	210	5.00			11302339	157.50	11303339*	229.00		
315	312	315	6.20			11312339	212.00	11313339*	336.50		
350	350	350	8.00			11352339	229.50	11353339*	370.50		
400	399	400	10.00			11402339	279.00	11403339*	429.00		
450	449	450	13.00			11452339	291.00	11453339*	503.00		
500	499	500	16.00			11502339	342.00	11503339*	573.00		
560	558	560	26.00			12562339*	427.50			12563339	677.00
630	628	630	23.00			12632339*	492.00			12633339	748.00

*2 mm

*1.5 mm

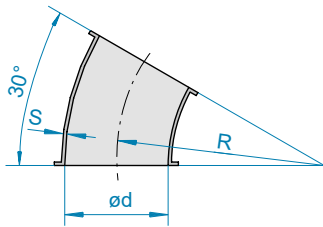
 **FOOD GRADE**
EC 1935/2004 plus FDA compliant

 Shock explosion proof
tested up to 3 bar

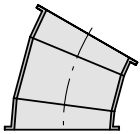


BENDS R = 2D, 30°

1230



1 pressed segment 30°



3 lobster back segments: 1x 15°/2x 7.5°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.25	11061343	22.30				
80	76	160	0.35	11081343*	21.80	12081343	23.90		
100	99	200	0.60	11101343*	23.20	12101343	24.10		
120	119	240	0.80	11121343	27.40	12121343	34.50	13121343	51.40
140	135	280	1.00	11141343	35.00	12141343	43.20		
150	149	300	1.25	11151343	35.00	12151343	43.20	13151343	60.30
160	159	320	1.50	11161343	41.40				
175	174	350	1.65	11171343	41.40	12171343	46.80	13171343	66.30
200	199	400	2.10	11201343	46.10	12201343	56.50	13201343	74.30
224	219	448	2.65	11221343	58.10	12221343	68.40		
250	249	500	3.50	11251343	58.10	12251343	68.40	13251343	96.30
280	276	560	4.40	11281343	101.00				
300	299	600	4.60	11301343	81.20	12301343	94.40	13301343	108.50
315	311	630	5.50	11311343	112.50				
350	349	700	6.35			12351343	101.50	13351343	118.00
400	398	800	8.50			12401343	120.50	13401343	132.50
450	448	900	10.70			12451343	152.00	13451343	172.50
500	498	1000	13.20			12501343	174.00	13501343	201.00
560	558	1120	15.90			12561343	207.00	13561343	242.50
630	628	1260	19.00			12631343	267.00	13631343	287.50

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.25	11062343	24.90			11063343*	45.30
80	76	160	0.35	11082343*	24.00	12082343	28.10	11083343	46.80
100	99	200	0.60	11102343*	25.10	12102343	29.30	11103343	47.20
120	119	240	0.80	11122343	28.40	12122343	38.00	11123343	71.10
140	135	280	1.00	11142343	37.40	12142343	50.00	11143343	87.90
150	149	300	1.25	11152343	37.40	12152343	50.00	11153343	87.90
160	159	320	1.50	11162343	44.00			11163343*	95.10
175	174	350	1.65	11172343	44.00	12172343	53.60	11173343*	95.10
200	199	400	2.10	11202343	54.00	12202343	65.50	11203343*	112.50
224	219	448	2.65	11222343	67.70	12222343	82.40	11223343*	143.50
250	249	500	3.50	11252343	67.70	12252343	82.40	11253343*	143.50
280	276	560	4.40	11282343	114.00			11283343*	169.00
300	299	600	4.60	11302343	94.40	12302343	114.50	11303343*	168.00
315	311	630	5.50	11312343	128.00			11313343*	188.50
350	349	700	6.35			12352343	123.00		12353343
400	398	800	8.50			12402343	145.50		12403343
450	448	900	10.70	11452343	160.00				12453343
500	498	1000	13.20	11502343	191.50				12503343
560	558	1120	15.90	11562343	218.00				12563343
630	628	1260	19.00	11632343	271.00				12633343

*1 mm

*1.5 mm

FOOD GRADE
EC 1935/2004 plus FDA compliant

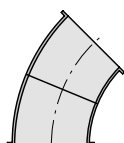
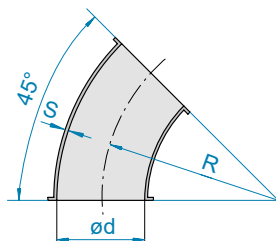
Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

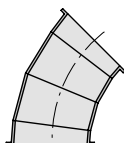


THE RANGE OF PIPE BENDS

Bends



2 pressed segments 22.5°



4 lobster back segments: 2 x 15° / 2 x 7.5°

BENDS R = 2D, 45°

1240

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.40	11061344	24.00				
80	76	160	0.50	11081344*	25.10	12081344	32.30		
100	99	200	0.85	11101344*	27.60	12101344	32.60		
120	119	240	1.15	11121344	31.70	12121344	38.20	13121344	64.90
140	135	280	1.45	11141344	41.10	12141344	50.50		
150	149	300	1.80	11151344	41.10	12151344	50.50	13151344	74.30
160	159	320	2.00	11161344	47.50				
175	174	350	2.25	11171344	47.50	12171344	56.90	13171344	82.50
200	199	400	3.00	11201344	51.80	12201344	61.40	13201344	90.20
224	219	448	3.90	11221344	69.30	12221344	86.60		
250	249	500	4.80	11251344	69.30	12251344	86.60	13251344	130.00
280	276	560	6.55	11281344	140.00				
300	299	600	7.20	11301344	120.50	12301344	137.00	13301344	169.00
315	311	630	8.15	11311344	158.00				
350	349	700	9.80			12351344	144.00	13351344	177.50
400	398	800	12.70			12401344	182.50	13401344	215.50
450	448	900	16.00			12451344	217.50	13451344	246.50
500	498	1000	19.80			12501344	245.50	13501344	289.50
560	558	1120	23.90			12561344	289.00	13561344	347.00
630	628	1260	29.60			12631344	326.50	13631344	422.00

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.40	11062344	28.90			11063344*	45.60		
80	76	160	0.50	11082344*	31.40	12082344	37.10	11083344	62.20		
100	99	200	0.85	11102344*	33.20	12102344	37.40	11103344	63.20	12103344	93.90
120	119	240	1.15	11122344	36.50	12122344	43.90	11123344	74.60	12123344	108.50
140	135	280	1.45	11142344	46.80	12142344	57.90	11143344	101.50	12143344	149.50
150	149	300	1.80	11152344	46.80	12152344	57.90	11153344	101.50	12153344	149.50
160	159	320	2.00	11162344	54.10			11163344*	118.00		
175	174	350	2.25	11172344	54.10	12172344	65.30	11173344*	118.00	12173344	176.00
200	199	400	3.00	11202344	60.20	12202344	70.10	11203344*	128.50	12203344	191.00
224	219	448	3.90	11222344	81.90	12222344	101.00	11223344*	184.00		
250	249	500	4.80	11252344	81.90	12252344	101.00	11253344*	184.00	12253344	270.00
280	276	560	6.55	11282344	160.00			11283344*	231.50		
300	299	600	7.20	11302344	136.50	12302344	165.50	11303344*	235.00	12303344	302.50
315	311	630	8.15	11312344	178.00			11313344*	257.00		
350	349	700	9.80			12352344	174.00			12353344	310.00
400	398	800	12.70			12402344	222.00			12403344	348.50
450	448	900	16.00	11452344	227.50					12453344	420.00
500	498	1000	19.80	11502344	253.50					12503344	506.50
560	558	1120	23.90	11562344	284.50					12563344	622.00
630	628	1260	29.60	11632344	349.50					12633344	739.50

*1 mm

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

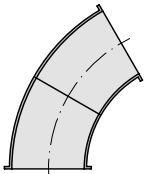
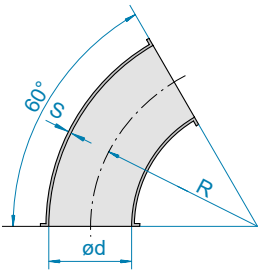
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

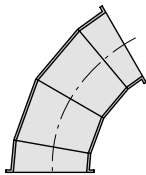


BENDS $R = 2D$, 60°

1250



2 pressed segments 30°



4 lobster back segments: $2 \times 20^\circ / 2 \times 10^\circ$

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.50	11061346	26.20				
80	76	160	0.65	11081346*	36.80	12081346	38.20		
100	99	200	1.10	11101346*	37.40	12101346	38.80		
120	119	240	1.50	11121346	41.80	12121346	55.70	13121346	76.50
140	135	280	2.05	11141346	51.80	12141346	62.30		
150	149	300	2.40	11151346	51.80	12151346	62.30	13151346	84.70
160	159	320	2.80	11161346	57.30				
175	174	350	3.15	11171346	57.30	12171346	69.00	13171346	92.40
200	199	400	4.10	11201346	65.30	12201346	88.70	13201346	111.00
224	219	448	5.20	11221346	122.00	12221346	141.50		
250	249	500	6.90	11251346	122.00	12251346	141.50	13251346	200.00
280	276	560	8.80	11281346	181.00				
300	299	600	9.30	11301346	160.00	12301346	191.50	13301346	229.50
315	311	630	10.80	11311346	203.00				
350	349	700	13.00			12351346	199.50	13351346	238.00
400	398	800	16.90			12401346	230.00	13401346	293.50
450	448	900	21.30			12451346	272.50	13451346	333.00
500	498	1000	26.40			12501346	314.50	13501346	375.00
560	558	1120	31.90			12561346	404.00	13561346	476.00
630	628	1260	37.90			12631346	481.50	13631346	543.00

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.50	11062346	30.40			11063346*	50.60		
80	76	160	0.65	11082346*	38.90	12082346	44.20	11083346	79.70		
100	99	200	1.10	11102346*	41.10	12102346	44.80	11103346	80.30	12103346	110.50
120	119	240	1.50	11122346	43.90	12122346	63.70	11123346	114.50	12123346	166.00
140	135	280	2.05	11142346	54.40	12142346	71.40	11143346	130.00	12143346	177.50
150	149	300	2.40	11152346	54.40	12152346	71.40	11153346	130.00	12153346	177.50
160	159	320	2.80	11162346	71.40			11163346*	141.50		
175	174	350	3.15	11172346	71.40	12172346	78.90	11173346*	141.50	12173346	198.00
200	199	400	4.10	11202346	79.80	12202346	101.50	11203346*	173.50	12203346	245.00
224	219	448	5.20	11222346	136.50	12222346	165.00	11223346*	251.00		
250	249	500	6.90	11252346	136.50	12252346	165.00	11253346*	251.00	12253346	394.50
280	276	560	8.80	11282346	204.50			11283346*	321.50		
300	299	600	9.30	11302346	193.50	12302346	230.00	11303346*	327.00	12303346	400.50
315	311	630	10.80	11312346	229.50			11313346*	359.00		
350	349	700	13.00			12352346	240.50			12353346	410.00
400	398	800	16.90			12402346	278.00			12403346	477.50
450	448	900	21.30	11452346	311.00					12453346	629.00
500	498	1000	26.40	11502346	349.50					12503346	678.00
560	558	1120	31.90	11562346	402.00					12563346	805.50
630	628	1260	37.90	11632346	440.00					12633346	946.00

*1 mm

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

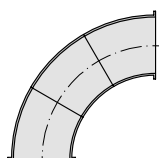
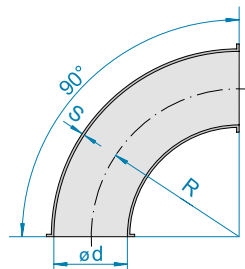
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

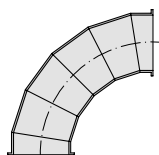


THE RANGE OF PIPE BENDS

Bends



3 pressed segments 30°



6 lobster back segments: 4 x 18° / 2 x 9°

BENDS R = 2D, 90°

1260

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.75	11061349	26.60				
80	76	160	0.95	11081349*	39.40	12081349	45.10		
100	99	200	1.55	11101349*	40.10	12101349	46.10		
120	119	240	2.20	11121349	49.10	12121349	57.40	13121349	101.50
140	135	280	3.05	11141349	62.20	12141349	77.10		
150	149	300	3.50	11151349	62.20	12151349	77.10	13151349	119.00
160	159	320	4.00	11161349	66.70				
175	174	350	4.60	11171349	66.70	12171349	86.50	13171349	125.50
200	199	400	6.10	11201349	75.60	12201349	105.00	13201349	174.00
224	219	448	7.80	11221349	153.00	12221349	185.50		
250	249	500	9.70	11251349	153.00	12251349	185.50	13251349	304.00
280	276	560	12.70	11281349	259.50				
300	299	600	13.50	11301349	221.00	12301349	255.00	13301349	355.50
315	311	630	16.30	11311349	290.50				
350	349	700	19.60			12351349	276.00	13351349	368.00
400	398	800	25.00			12401349	322.00	13401349	410.50
450	448	900	32.00			12451349	434.00	13451349	504.00
500	498	1000	39.30			12501349	490.00	13501349	589.00
560	558	1120	47.90			12561349	563.50	13561349	619.00
630	628	1260	56.90			12631349	645.50	13631349	783.50

*1 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.75	11062349	31.40			11063349*	52.90		
80	76	160	0.95	11082349*	45.90	12082349	51.50	11083349	93.70		
100	99	200	1.55	11102349*	47.00	12102349	53.00	11103349	93.70	12103349	142.50
120	119	240	2.20	11122349	56.30	12122349	66.40	11123349	120.00	12123349	177.50
140	135	280	3.05	11142349	68.40	12142349	87.80	11143349	166.00	12143349	245.50
150	149	300	3.50	11152349	68.40	12152349	87.80	11153349	166.00	12153349	245.50
160	159	320	4.00	11162349	80.70			11163349*	185.50		
175	174	350	4.60	11172349	80.70	12172349	98.80	11173349*	185.50	12173349	273.50
200	199	400	6.10	11202349	97.90	12202349	119.50	11203349*	205.00	12203349	303.50
224	219	448	7.80	11222349	182.50	12222349	215.00	11223349*	387.50		
250	249	500	9.70	11252349	182.50	12252349	215.00	11253349*	387.50	12253349	527.00
280	276	560	12.70	11282349	294.00			11283349*	493.50		
300	299	600	13.50	11302349	284.50	12302349	306.00	11303349*	514.50	12303349	544.00
315	311	630	16.30	11312349	328.50			11313349*	550.50		
350	349	700	19.60			12352349	334.00			12353349	567.50
400	398	800	25.00			12402349	390.50			12403349	674.50
450	448	900	32.00	11452349	473.50					12453349	858.50
500	498	1000	39.30	11502349	535.00					12503349	1028.00
560	558	1120	47.90	11562349	614.50					12563349	1233.00
630	628	1260	56.90	11632349	690.00					12633349	1413.00

*1 mm

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar



BENDS WITH LARGE RADII, 15°

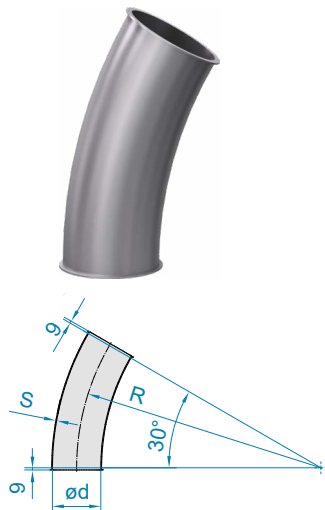
1262

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	0.70	120813511	154.00	120833511	163.00	
100	99	500	0.85	121013511	196.00	121033511	243.50	
120	119	600	1.60	121213511	209.00	121233511	251.00	
150	149	750	1.70	131513511*	253.50	121533511	293.50	
175	175	875	2.40	131713511*	392.00	121733511	479.00	
200	199	1000	4.50	132013511*	411.50	132033511*	579.00	
250	249	1000	5.60	132513511*	488.50	132533511*	868.50	
300	299	1200	7.90	133013511*	743.00	133033511*	1207.00	

*3 mm



BENDS LARGE RADII, 30°

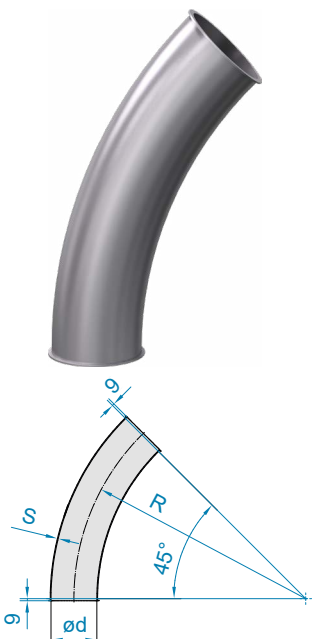
1264

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	1.20	120813531	170.50	120833531	192.50	
100	99	500	1.50	121013531	220.00	121033531	278.00	
120	119	600	2.15	121213531	238.00	121233531	304.00	
150	149	750	3.25	131513531*	305.00	121533531	353.50	
175	175	875	4.40	131713531*	468.50	121733531	586.00	
200	199	1000	8.50	132013531*	487.00	132033531*	717.00	
250	249	1000	10.60	132513531*	563.50	132533531*	1067.00	
300	299	1200	15.10	133013531*	856.50	133033531*	1483.00	

*3 mm



BENDS LARGE RADII, 45°

1266

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	1.70	120813541	215.00	120833541	238.00	
100	99	500	2.20	121013541	252.00	121033541	330.00	
120	119	600	3.10	121213541	280.00	121233541	390.50	
150	149	750	4.75	131513541*	387.00	121533541	452.50	
175	175	875	6.40	131713541*	587.50	121733541	762.00	
200	199	1000	12.50	132013541*	606.50	132033541*	951.50	
250	249	1000	15.60	132513541*	672.00	132533541*	1404.00	
300	299	1200	22.30	133013541*	1022.00	133033541*	1946.00	

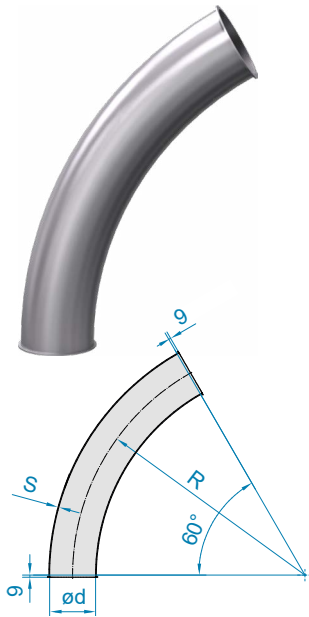
*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THE RANGE OF PIPE BENDS

Bends



BENDS LARGE RADII, 60°

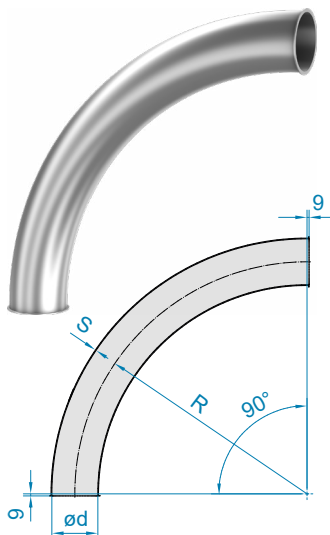
1268

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	2.20	120813561	245.00	120833561	251.50	
100	99	500	2.90	121013561	296.50	121033561	379.50	
120	119	600	4.10	121213561	309.50	121233561	427.50	
150	149	750	6.30	131513561*	447.00	121533561	517.50	
175	175	875	8.50	131713561*	659.00	121733561	823.00	
200	199	1000	16.50	132013561*	691.00	132033561*	1186.00	
250	249	1000	20.60	132513561*	717.00	132533561*	1735.00	
300	299	1200	29.50	133013561*	1299.00	133033561*	2438.00	

*3 mm



BENDS LARGE RADII, 90°

1270

- DN 80 mm R = 6.25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	3.10	120813591	293.50	120833591	331.50	
100	99	500	3.80	121013591	402.00	121033591	508.00	
120	119	600	5.30	121213591	434.50	121233591	554.00	
150	149	750	8.00	131513591*	533.50	121533591	618.00	
175	175	875	12.50	131713591*	786.00	121733591	983.50	
200	199	1000	27.30	132013591*	786.00	132033591*	1240.00	
250	249	1000	34.10	132513591*	1060.00	132533591*	1812.00	
300	299	1200	48.10	133013591*	1564.00	133033591*	2496.00	

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Adjustable elbows / pipe ball joints

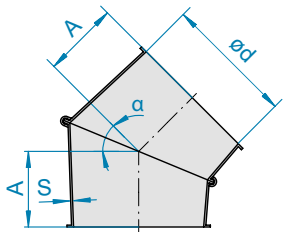


ADJUSTABLE ELBOWS

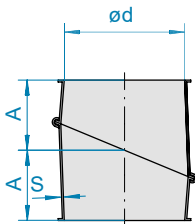
1145

- Version with galvanised pull-ring and U-shaped seal
- Pre-assembled in the factory
- 2 segments can also be adjusted by counter-rotating

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)



DN	Ø d	A	α	kg	1.5 mm powder-coated with NBR		1.5 mm powder-coated with EPDM		1.5 mm stainless steel with silicone, blue	
					Item no.	€	Item no.	€	Item no.	€
100	100	70	55°	1.50	1110133503	53.20	1110133502	54.30	1110333501	72.90
120	120	60	45°	1.60	1112133503	55.00	1112133502	56.20	1112333501	75.40
150	150	80	45°	2.40	1115133503	59.30	1115133502	60.50	1115333501	88.40
175	175	100	45°	3.00	1117133503	69.10	1117133502	70.20	1117333501	105.00
200	200	120	45°	3.50	1120133503	73.60	1120133502	75.00	1120333501	116.50
250	250	140	45°	4.60	1125133503	86.10	1125133502	87.60	1125333501	147.50



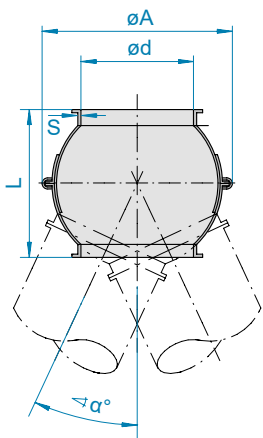
PIPE BALL JOINTS

2125

- Only suitable for coarse-grained bulk goods



Galvanised and stainless steel (dimensions for 2 mm pipework)



DN	Ø d	ØA	α	L	kg	2 mm electro-galvanised		2 mm stainless steel	
						Item no.	€	Item no.	€
100	99	150	25°	130	1.50	12102730	93.80	12103730	177.50
120	119	150	15°	115	1.60	12122730	98.30	12123730	230.00
150	149	200	18°	160	2.35	12152730	132.50	12153730	256.50
175	174	250	25°	200	3.70	12172730	186.00	12173730	362.00
200	199	250	15°	170	3.50	12202730	197.00	12203730	376.50
250	249	300	16°	190	4.60	12252730	207.50	12253730	436.00



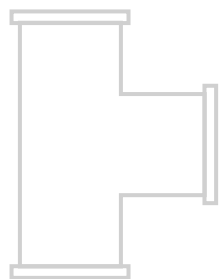
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



JACOB BRANCH PIECES:
STANDARD OR BESPOKE, YOU CHOOSE.





BRANCH PIECES

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BRANCH PIECES

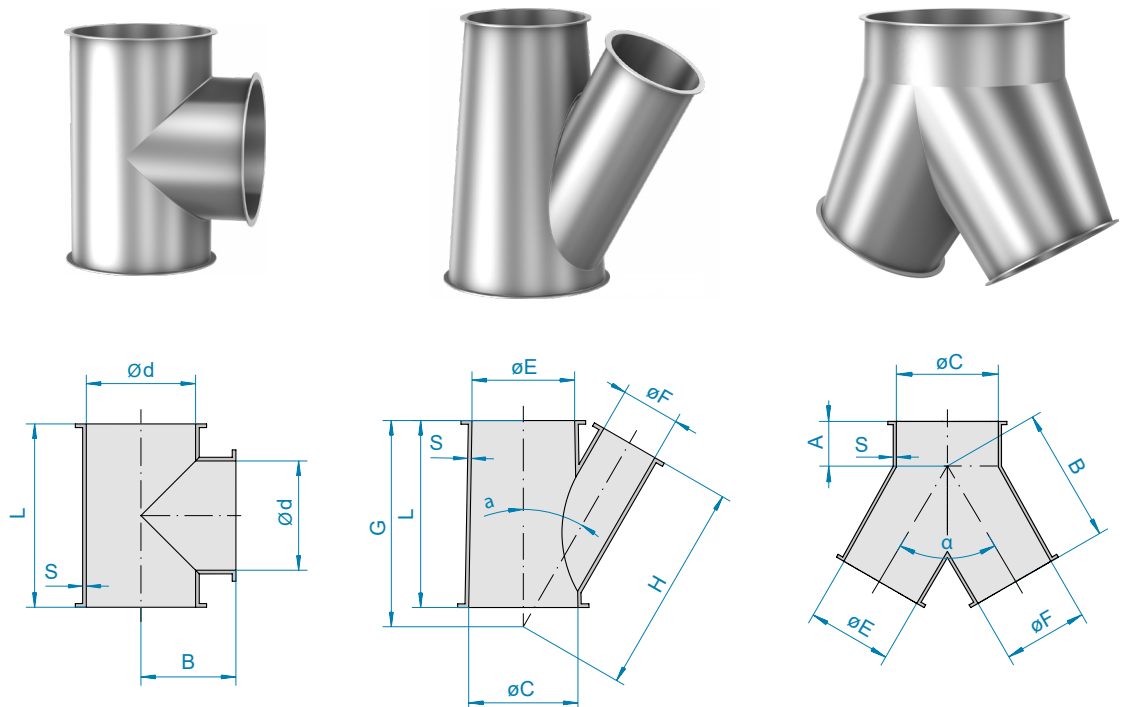
Branch pieces turn a straightforward pipe into a complex pipework system. They are therefore key elements in planning and implementation.

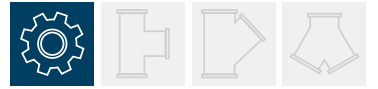
To meet the particular requirements of each system, JACOB offers a comprehensive and broad standard range which covers most requirements. If necessary, we can also manufacture individual parts to the customer's specification. This is possible due to up-to-the-minute technologies, such as fully-automated laser welding equipment, which can carry out precise customised and small-scale production as well as production on an industrial scale.

We can therefore manufacture your own individual branch piece – including a wide range of special colours as well as different flanges, special lengths and individual angles.

T-PIECES, FORKS AND SYMMETRICAL FORKS ACCORDING TO YOUR SPECIFIED DIMENSIONS

We manufacture forks, T-pieces and symmetrical forks to your specifications, if you inform us of the dimensions of the material and the wall thickness you require. Prices and delivery times on request.



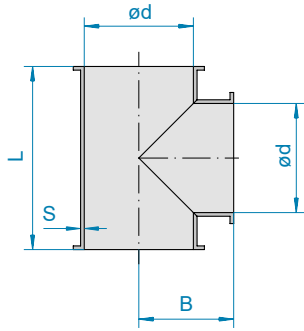


5



BRANCH PIECES

T-pieces



T-PIECES 90°

1070

- Other combinations of diameter and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	60	130	0.55	11061240	46.10			11062240	53.20		
80	77	70	150	0.60	11081240	46.50	12081240	55.30	11082240	53.20	12082240	63.80
100	100	100	200	1.00	11101240	47.00	12101240	55.80	11102240	53.50	12102240	64.20
120	120	110	220	1.20	11121240	48.70	12121240	58.40	11122240	56.40	12122240	67.70
140	136	120	240	1.40	11141240	60.90	12141240	73.10	11142240	72.80	12142240	87.40
150	150	125	250	1.65	11151240	60.90	12151240	73.10	11152240	72.80	12152240	87.40
160	159	130	260	2.86	11161240	69.00	12161240	82.80	11162240	76.50	12162240	91.80
175	175	137.5	275	2.05	11171240	69.00	12171240	82.80	11172240	76.50	12172240	91.80
200	200	150	300	2.55	11201240	73.20	12201240	87.90	11202240	93.00	12202240	112.00
224	220	162.5	325	2.90	11221240	95.90	12221240	125.50	11222240	122.50	12222240	155.50
250	250	175	350	3.50	11251240	95.90	12251240	125.50	11252240	122.50	12252240	155.50
280	277	190	380	4.30	11281240	117.00	12281240	159.50	11282240	144.00	12282240	195.00
300	300	200	400	4.70	11301240	117.00	12301240	159.50	11302240	144.00	12302240	195.00
315	312	210	420	5.30	11311240	140.50	12311240	190.00	11312240	174.00	12312240	235.00
350	350	275	550	8.10	11351240	161.50	12351240	221.50	11352240	185.50	12352240	245.00
400	399	300	600	9.90	11401240	190.00	12401240	245.50	11402240	219.50	12402240	265.50
450	449	325	650	12.75	11451240	211.50	12451240	261.00	11452240	245.00	12452240	285.00
500	499	350	700	14.10	11501240	252.50	12501240	272.50	11502240	293.00	12502240	301.00
560	558	380	760	22.15			12561240	284.50			12562240	324.50
630	628	415	830	26.80			12631240	322.00			12632240	361.00

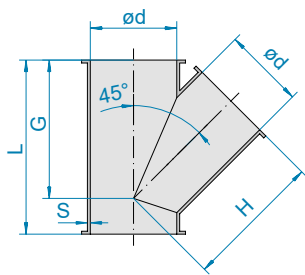
Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	B	L	kg	1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
60	57	60	130	0.55	11063240	108.00		
80	77	70	150	0.60	11083240	108.50	12083240	133.50
100	100	100	200	1.00	11103240	109.00	12103240	134.50
120	120	110	220	1.20	11123240	114.50	12123240	144.50
140	136	120	240	1.40	11143240	133.00	12143240	191.00
150	150	125	250	1.65	11153240	133.00	12153240	191.00
160	159	130	260	2.86	11163240	187.00	12163240	249.00
175	175	137.5	275	2.05	11173240	187.00	12173240	249.00
200	200	150	300	2.55	11203240	198.50	12203240	267.50
224	220	162.5	325	2.90	11223240	215.00	12223240	249.00
250	250	175	350	3.50	11253240	215.00	12253240	280.50
280	277	190	380	4.30	11283240	230.50	12283240	342.50
300	300	200	400	4.70	11303240	230.50	12303240	342.50
315	312	210	420	5.30	11313240	253.50	12313240	388.00
350	350	275	550	8.10	11353240	273.50	12353240	408.00
400	399	300	600	9.90	11403240	299.50	12403240	462.00
450	449	325	650	12.75	11453240	327.00	12453240	518.00
500	499	350	700	14.10	11503240	353.50	12503240	588.00
560	558	380	760	22.15			12563240	626.00
630	628	415	830	26.80			12633240	680.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar

T-pieces



FORKS 45°

1050

- Other combinations of diameters available on request
- Conical forks available on request
- From DN 350 mm, dimensions for 2 mm pipework
- DN 224 – 315 mm shock explosion proof up to 3 bar with 2 mm wall thickness

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ød	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
60	57	115	115	145	0.50	11061220	40.20				
80	77	123	137	160	0.75	11081220	40.50	12081220	47.80		
100	100	177	176	215	1.15	11101220	40.80	12101220	48.10		
120	120	187	185	240	1.20	11121220	43.50	12121220	51.10	13121220	75.10
140	136	216	219	280	1.60	11141220	52.70	12141220	60.20		
150	150	234	231	300	2.10	11151220	52.70	12151220	60.20	13151220	85.90
160	159	251	251	320	3.60	11161220	62.40	12161220	79.70		
175	175	269	266	340	2.20	11171220	62.40	12171220	79.70	13171220	95.40
200	200	309	306	390	4.10	11201220	77.70	12201220	92.00	13201220	101.50
224	220	334	336	420	5.70	11221220	91.30	12221220	123.00		
250	250	358	352	450	5.40	11251220	91.30	12251220	123.00	13251220	145.00
280	277	400	400	500	6.90	11281220	113.50	12281220	154.00		
300	300	418	412	520	7.80	11301220	113.50	12301220	154.00	13301220	192.50
315	312	450	450	560	8.70	11311220	138.00	12311220	165.50		
350	349	498	472	615	15.00	11351220	160.00	12351220	182.50	13351220	259.00
400	398	557	533	685	17.75	11401220	202.50	12401220	250.00	13401220	361.50
450	448	662	623	800	22.80	11451220	249.00	12451220	293.00	13451220	424.00
500	498	701	674	850	27.20	11501220	293.00	12501220	321.00	13501220	469.00
560	558	789	786	950	38.00			12561220	371.00	13561220	542.50
630	628	885	890	1060	48.00			12631220	439.50	13631220	640.00

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ød	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel	2 mm stainless steel
						Item no.	€	Item no.	€	Item no.	€
60	57	115	115	145	0.50	11062220	44.60			11063220*	72.10
80	77	123	137	160	0.75	11082220	44.60	12082220	53.50	11083220	72.10
100	100	177	176	215	1.15	11102220	44.90	12102220	54.50	11103220	72.30
120	120	187	185	240	1.20	11122220	49.40	12122220	59.80	11123220	93.50
140	136	216	219	280	1.60	11142220	61.50	12142220	72.10	11143220	130.00
150	150	234	231	300	2.10	11152220	61.50	12152220	72.10	11153220	130.00
160	159	251	251	320	3.60	11162220	77.40	12162220	101.50	11163220	162.00
175	175	269	266	340	2.20	11172220	77.40	12172220	101.50	11173220	162.00
200	200	309	306	390	4.10	11202220	90.40	12202220	110.50	11203220	174.50
224	220	334	336	420	5.70	11222220	107.50	12222220	150.00	11223220	232.00
250	250	358	352	450	5.40	11252220	107.50	12252220	150.00	11253220	232.00
280	277	400	400	500	6.90	11282220	136.50	12282220	190.00	11283220*	265.50
300	300	418	412	520	7.80	11302220	136.50	12302220	190.00	11303220	265.50
315	312	450	450	560	8.70	11312220	167.00	12312220	233.80	11313220*	280.50
350	349	498	472	615	15.00	11352220	198.50	12352220	277.90	11353220*	296.00
400	398	557	533	685	17.75	11402220	246.50	12402220	345.00	11403220*	413.50
450	448	662	623	800	22.80	11452220	299.50	12452220	419.00	11453220*	492.00
500	498	701	674	850	27.20	11502220	350.00	12502220	490.80	11503220*	538.50
560	558	789	786	950	38.00			12562220	570.00		
630	628	885	890	1060	48.00			12632220	684.80		

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

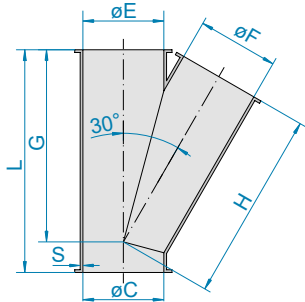
Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

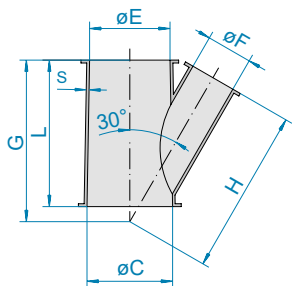


BRANCH PIECES

T-pieces



Fork 30°



Conical fork 30°

Shock explosion proof tested up to 3 bar

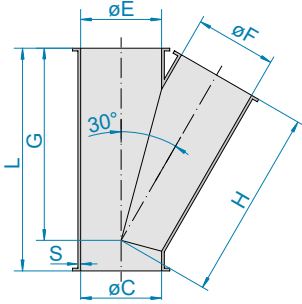
FORKS 30°

1060/1080

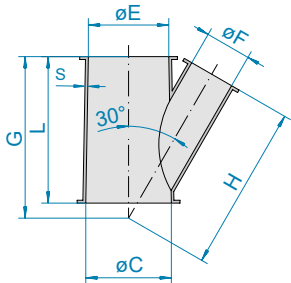
- Diameters C, E, F = nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions
- Other combinations of diameter, angles and wall thickness available on request
- DN 224 – 315 mm shock explosion proof up to 3 bar with 2 mm wall thickness

Powder-coated (dimensions for 1.5 mm pipework)

DN C - E - F	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€	Item no.	€
60-60-60	170	170	200	0.80	11061230	43.30				
80-60-60	170	170	200	0.95	11081255	43.50				
80-80-80	209	216	240	1.32	11081230	43.60				
100-80-80	237	236	250	1.25	11101255	71.10				
100-100-80	239	248	250	1.35	11101258	79.80				
100-100-100	262	248	300	1.70	11101230	43.90	12101230	50.00		
120-80-80	258	259	255	1.35	11121286	79.80				
120-100-80	260	261	255	1.45	11121257	76.90				
120-100-100	267	267	290	1.75	11121255	85.70				
120-120-80	256	258	250	1.50	11121258	82.40				
120-120-120	299	296	340	2.20	11121230	48.10	12121230	54.30	13121230	89.40
140-100-100	290	292	300	1.95	11141255	93.60				
140-120-80	274	278	255	1.65	11141257	86.80				
140-120-100	291	293	300	2.00	11141256	88.40				
140-140-80	275	284	255	1.70	11141258	87.50				
140-140-140	336	334	390	2.80	11141230	57.20	12141230	72.10		
150-100-100	291	294	290	2.10	11151254	83.30				
150-120-100	293	296	290	2.05	11151256	94.00				
150-120-120	323	324	340	2.45	11151255	101.50				
150-140-80	286	292	255	1.75	11151287	91.50				
150-150-80	282	288	250	1.85	11151258	91.00				
150-150-150	355	350	410	3.05	11151230	57.20	12151230	72.10	13151230	106.00
160-120-120	393	393	450	2.70	11161285	107.50				
160-140-80	382	390	360	2.68	11161258	92.90				
160-140-120	393	393	450	2.79	11161286	115.00				
160-150-100	393	393	450	2.46	11161257	100.00				
160-150-120	393	393	450	2.86	11161256	111.50				
160-150-150	393	393	450	3.62	11161255	123.00				
160-160-160	393	393	450	4.00	11161230	75.20	12161230	93.20		
175-120-120	343	347	340	2.70	11171285	107.50				
175-140-120	344	348	340	2.70	11171286	115.00				
175-150-80	302	311	250	1.90	11171258	92.90				
175-150-100	315	321	290	2.40	11171257	100.00				
175-150-120	345	349	340	2.80	11171256	111.50				
175-150-150	375	373	410	3.80	11171255	123.00				
175-160-100	335	343	320	2.60	11171267	105.00				
175-160-120	355	360	360	3.02	11171266	112.00				
175-160-150	395	396	430	3.80	11171268	128.00				
175-175-175	392	383	450	4.00	11171230	75.20	12171230	93.20	13171230	117.50
200-140-140	387	401	390	3.60	11201285	125.00				
200-150-120	365	373	340	2.70	11201286	118.50				
200-150-150	395	396	410	5.00	11201255	126.00				
200-160-100	394	403	360	3.19	11201268	109.00				
200-160-120	374	380	360	3.22	11201267	116.50				
200-160-150	415	416	430	4.04	11201266	132.50				
200-175-100	336	346	290	2.70	11201258	109.00				
200-175-120	366	374	340	3.10	11201257	116.50				



Fork 30°



Conical fork 30°

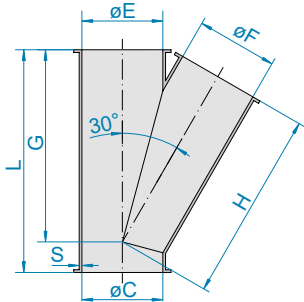
Shock explosion proof tested up to 3 bar

DN C - E - F	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€	Item no.	€
200-175-150	396	398	410	4.10	11201256	132.50				
200-200-80	330	348	255	2.50	11201253	98.90				
200-200-100	348	358	300	3.00	11201254	111.00				
200-200-200	463	457	530	5.60	11201230	94.10	12201230	116.50	13201230	132.00
224-150-150	410	424	410	4.00	11221255	137.00				
224-160-140	444	447	430	4.20	11221266	135.00				
224-175-140	406	423	390	4.00	11221256	135.00				
224-200-100	364	377	300	3.00	11221258	122.50				
224-200-120	384	395	340	3.30	11221257	129.50				
224-224-224	510	510	580	6.90	11221230	105.00	12221230	132.00		
250-200-150	438	446	410	4.60	11251286	149.00				
250-200-160	448	453	430	4.76	11251266	154.50				
250-200-175	453	455	450	5.80	11251256	154.50				
250-200-200	503	513	530	6.10	11251255	165.50				
250-224-120	409	424	340	4.20	11251288	140.00				
250-224-140	433	455	390	4.40	11251287	148.00				
250-250-80	374	398	255	2.90	11251253	118.00				
250-250-100	392	409	300	3.50	11251254	120.50				
250-250-250	547	544	620	8.00	11251230	105.00	12251230	132.00	13251230	189.00
280-280-280	610	610	690	10.00	11281230	130.00	12281230	165.50		
300-224-224	575	584	580	7.70	11301285	195.50				
300-250-140	475	493	390	4.90	11301288	164.00				
300-250-150	476	495	410	5.30	11301258	160.00				
300-250-160	471	483	410	5.90	11301267	165.50				
300-250-175	496	505	450	5.90	11301257	165.50				
300-250-200	546	563	530	7.10	11301256	182.00				
300-250-250	587	580	620	8.70	11301255	198.50				
300-300-80	417	448	255	3.30	11301253	126.50				
300-300-100	435	459	300	4.10	11301254	134.00				
300-300-300	640	640	720	11.25	11301230	130.00	12301230	165.50	13301230	239.00
315-315-315	690	690	780	12.70	11311230	160.00	12311230	221.50		
350-250-250	627	627	620	9.60	11351255	246.00				
350-300-150	524	546	410	6.10	11351288	231.00				
350-300-200	590	613	530	7.90	11351257	231.00				
350-300-224	619	636	580	8.90	11351286	258.50				
350-300-250	630	630	620	9.90	11351256	259.50				
350-350-350	728	717	820	14.40	11351230	191.50	12351230	239.00	13351230	348.50
400-300-250	670	677	620	10.40	11401256	269.50				
400-300-300	721	724	720	12.40	11401255	289.00				
400-350-175	583	609	450	7.40	11401288	264.00				
400-350-224	663	686	580	10.20	11401287	292.00				
400-400-400	826	825	925	18.65	11401230	248.50	12401230	296.50	13401230	432.50
450-350-300	764	774	720	14.80	11451256	311.00				
450-350-350	809	811	820	17.50	11451255	328.50				
450-400-200	676	713	530	10.70	11451258	324.00				
450-400-250	716	730	620	12.80	11451257	345.00				
450-450-450	945	930	1050	23.60	11451230	309.50	12451230	361.00	13451230	527.50
500-400-350	853	861	820	18.20	11501256	425.00				
500-400-400	909	914	925	22.70	11501255	446.00				
500-450-224	749	786	580	13.00	11501288	399.50				
500-450-300	810	827	720	17.00	11501257	395.00				
500-500-500	1038	1027	1150	28.80	11501230	369.50	12501230	399.00	13501230	580.50
560-560-560	1180	1175	1300	54.00			12561230	455.50	13561230	667.50
630-630-630	1301	1304	1430	64.00			12631230	486.50	13631230	713.50

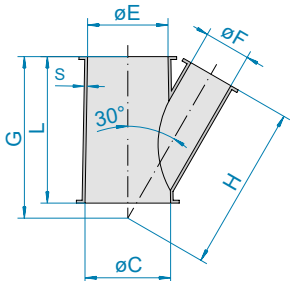


BRANCH PIECES

T-pieces



Fork 30°



Conical fork 30°

FORKS 30°

1060/1080

- Other combinations of diameter, angles and wall thickness available on request
- Diameters C, E, F: Nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions
- DN 224 – 315 mm shock explosion proof up to 3 bar with 2 mm wall thickness

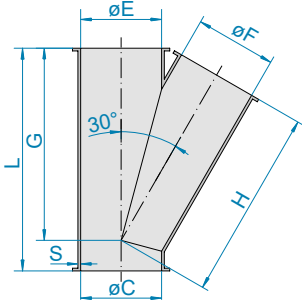
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN C - E - F	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel F		2 mm stainless steel F	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60-60-60	170	170	200	0.80	11062230	50.40			11063230*	89.20		
80-60-60	170	170	200	0.95	11082255	52.20			11083255*	88.90		
80-80-80	209	216	240	1.32	11082230	52.60			11083230	89.20		
100-80-80	237	236	250	1.25	11102255	82.60			11103255	147.00	12103255	190.50
100-100-80	239	248	250	1.35	11102258	92.00			11103258	154.00	12103258	194.50
100-100-100	262	248	300	1.70	11102230	52.90	12102230	61.90	11103230	89.40	12103230	147.50
120-80-80	258	259	255	1.35	11122286	92.00			11123286	154.00	12123286	192.50
120-100-80	260	261	255	1.45	11122257	89.90			11123257	155.50	12123257	195.00
120-100-100	267	267	290	1.75	11122255	98.90			11123255	177.00	12123255	226.50
120-120-80	256	258	250	1.50	11122258	94.50			11123258	161.50	12123258	206.00
120-120-120	299	296	340	2.20	11122230	58.00	12122230	67.20	11123230	112.50	12123230	169.50
140-100-100	290	292	300	1.95	11142255	109.50			11143255	192.50	12143255	263.00
140-120-80	274	278	255	1.65	11142257	100.00			11143257	174.00	12143257	221.00
140-120-100	291	293	300	2.00	11142256	103.00			11143256	171.50	12143256	214.00
140-140-80	275	284	255	1.70	11142258	101.50			11143258	169.00	12143258	213.00
140-140-140	336	334	390	2.80	11142230	69.00	12142230	89.50	11143230	155.50	12143230	241.00
150-100-100	291	294	290	2.10	11152254	105.50			11153254	180.00	12153254	235.50
150-120-100	293	296	290	2.05	11152256	109.00			11153256	185.00	12153256	239.00
150-120-120	323	324	340	2.45	11152255	118.00			11153255	210.00	12153255	269.50
150-140-80	286	292	255	1.75	11152287	105.50			11153287	184.00	12153287	230.00
150-150-80	282	288	250	1.85	11152258	105.00			11153258	174.00	12153258	221.00
150-150-150	355	350	410	3.05	11152230	69.00	12152230	89.50	11153230	155.50	12153230	241.00
160-120-120	393	393	450	2.70	11162285	126.00			11163285	219.00	12163285	276.50
160-140-80	382	390	360	2.68	11162258	132.50			11163258	194.00	12163258	253.00
160-140-120	393	393	450	2.79	11162286	134.00			11163286	227.00	12163286	287.00
160-150-100	393	393	450	2.46	11162257	116.50			11163257	200.00	12163257	255.00
160-150-120	393	393	450	2.86	11162256	129.50			11163256	219.00	12163256	280.50
160-150-150	393	393	450	3.62	11162255	143.50			11163255	252.50	12163255	325.00
160-160-160	393	393	450	4.00	11162230	86.10	12162230	110.00	11163230	184.00	12163230	298.50
175-120-120	343	347	340	2.70	11172285	126.00			11173285	219.00	12173285	276.50
175-140-120	344	348	340	2.70	11172286	134.00			11173286	227.00	12173286	287.50
175-150-80	302	311	250	1.90	11172258	108.00			11173258	184.00	12173258	235.00
175-150-100	315	321	290	2.40	11172257	116.50			11173257	200.00	12173257	255.00
175-150-120	345	349	340	2.80	11172256	129.50			11173256	219.00	12173256	280.50
175-150-150	375	373	410	3.80	11172255	143.50			11173255	252.50	12173255	325.00
175-160-100	335	343	320	2.60	11172267	145.50			11173267	206.50	12173267	291.00
175-160-120	355	360	360	3.02	11172266	146.50			11173266	225.50	12173266	298.00
175-160-150	395	396	430	3.80	11172268	147.00			11173268	258.50	12173268	315.00
175-175-175	392	383	450	4.00	11172230	86.10	12172230	110.00	11173230	184.00	12173230	298.50
200-140-140	387	401	390	3.60	11202285	148.00			11203285	260.00	12203285	326.00
200-150-120	365	373	340	2.70	11202286	140.00			11203286	237.00	12203286	298.00
200-150-150	395	396	410	5.00	11202255	148.00			11203255	260.00	12203255	334.50
200-160-100	394	403	360	3.19	11202268	126.50			11203268	214.00	12203268	274.00
200-160-120	374	380	360	3.22	11202267	134.00			11203267	232.00	12203267	298.00
200-160-150	415	416	430	4.04	11202266	154.50			11203266	260.00	12103266	334.00
200-175-100	336	346	290	2.70	11202258	126.50			11203258	214.00	12203258	274.00
200-175-120	366	374	340	3.10	11202257	134.00			11203257	232.00	12203257	298.00
200-175-150	396	398	410	4.10	11202256	154.50			11203256	260.00	12203256	334.00

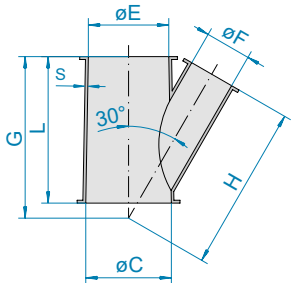
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar



Fork 30°



Conical fork 30°

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 1 bar

Shock explosion proof
tested up to 3 bar

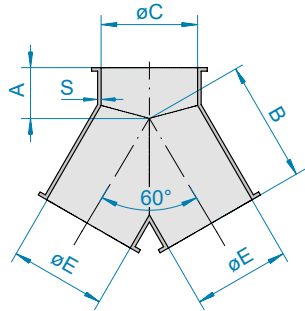
DN C - E - F	G	H	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel F		2 mm stainless steel F	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
200-200-80	330	348	255	2.50	11202253	108.50			11203253	255.00	12203253	305.50
200-200-100	348	358	300	3.00	11202254	124.00			11203254	268.50	12203254	336.50
200-200-200	463	457	530	5.60	11202230	122.50	12202230	155.50	11203230	246.00	12203230	348.00
224-150-150	410	424	410	4.00	11222255	162.00			11223255	286.00	12223255	361.00
224-160-140	444	447	430	4.20	11222266	160.00			11223266	268.50	12223266	337.50
224-175-140	406	423	390	4.00	11222256	160.00			11223256	268.50	12223256	337.50
224-200-100	364	377	300	3.00	11222258	143.50			11223258	237.00	12223258	297.50
224-200-120	384	395	340	3.30	11222257	152.50			11223257	263.50	12223257	331.00
224-224-224	510	510	580	6.90	11222230	143.50	12222230	184.00	11223230	288.00	12223230	412.00
250-200-150	438	446	410	4.60	11252286	177.50			11253286	296.50	12253286	373.50
250-200-160	448	453	430	4.76	11252266	180.50			11253266	296.50	12253266	382.00
250-200-175	453	455	450	5.80	11252256	180.50			11253256	296.50	12253256	382.00
250-200-200	503	513	530	6.10	11252255	192.50			11253255	336.00	12253255	432.50
250-224-120	409	424	340	4.20	11252288	164.00			11253288	268.00	12253288	337.50
250-224-140	433	455	390	4.40	11252287	180.50			11253287	305.50	12253287	384.00
250-250-80	374	398	255	2.90	11252253	129.50			11253253	261.00	12253253	370.50
250-250-100	392	409	300	3.50	11252254	134.00			11253254	274.00	12253254	377.50
250-250-250	547	544	620	8.00	11252230	143.50	12252230	184.00	11253230	288.00	12253230	412.00
280-280-280	610	610	690	10.00	11282230	182.50	12282230	230.00	11283230*	343.00	12283230	523.00
300-224-224	575	584	580	7.70	11302285	235.00			11303285	417.00	12303285	524.50
300-250-140	475	493	390	4.90	11302288	191.50			11303288	311.50	12303288	393.00
300-250-150	476	495	410	5.30	11302258	185.50			11303258	316.00	12303258	395.00
300-250-160	471	483	410	5.90	11302267	192.50			11303267	325.50	12303267	418.50
300-250-175	496	505	450	5.90	11302257	192.50			11303257	325.50	12303257	418.50
300-250-200	546	563	530	7.10	11302256	213.50			11303256	353.50	12303256	456.00
300-250-250	587	580	620	8.70	11302255	231.50			11303255	403.00	12303255	520.50
300-300-80	417	448	255	3.30	11302253	136.50			11303253	265.00	12303253	381.50
300-300-100	435	459	300	4.10	11302254	148.00			11303254	278.00	12303254	386.00
300-300-300	640	640	720	11.25	11302230	182.50	12302230	230.00	11303230	343.00	12303230	523.00
315-315-315	690	690	780	12.70	11312230	223.50	12312230	291.00	11313230*	377.50	12313230	662.50
350-250-250	627	627	620	9.60	11352255	287.00			11353255*	501.00	12353255	646.00
350-300-150	524	546	410	6.10	11352288	280.00			11353288	469.00	12353288	592.00
350-300-200	590	613	530	7.90	11352257	268.00			11353257*	458.00	12353257	590.00
350-300-224	619	636	580	8.90	11352286	304.00			11353286*	501.50	12353286	632.50
350-300-250	630	630	620	9.90	11352256	303.50			11353256*	503.50	12353256	650.00
350-350-350	728	717	820	14.40	11352230	234.50	12352230	342.00	11353230*	401.50	12353230	682.50
400-300-250	670	677	620	10.40	11402256	312.00			11403256*	519.50	12403256	668.50
400-300-300	721	724	720	12.40	11402255	335.50			11403255*	587.00	12403255	757.50
400-350-175	583	609	450	7.40	11402288	318.50			11403288	533.50	12403288	672.50
400-350-224	663	686	580	10.20	11402287	350.50			11403287*	604.50	12403287	760.00
400-400-400	826	825	925	18.65	11402230	298.50	12402230	425.00	11403230*	448.50	12403230	727.50
450-350-300	764	774	720	14.80	11452256	361.00			11453256*	601.00	12453256	775.50
450-350-350	809	811	820	17.50	11452255	382.50			11453255*	665.50	12453255	865.50
450-400-200	676	713	530	10.70	11452258	375.00			11453258*	627.00	12453258	809.00
450-400-250	716	730	620	12.80	11452257	401.50			11453257*	683.50	12453257	881.50
450-450-450	945	930	1050	23.60	11452230	368.00	12452230	575.00	11453230*	608.50	12453230	774.50
500-400-350	853	861	820	18.20	11502256	492.50			11503256*	822.00	12503256	1061.00
500-400-400	909	914	925	22.70	11502255	517.00			11503255*	908.00	12503255	1175.00
500-450-224	749	786	580	13.00	11502288	483.50			11503288*	816.00	12503288	1029.00
500-450-300	810	827	720	17.00	11502257	458.50			11503257*	782.00	12503257	1007.00
500-500-500	1038	1027	1150	28.80	11502230	429.50	12502230	575.00	11503230*	670.50	12503230	892.50
560-560-560	1180	1175	1300	54.00			12562230	642.00			12563230	1025.00
630-630-630	1301	1304	1430	64.00			12632230	736.00			12633230	1090.00

*1.5 mm

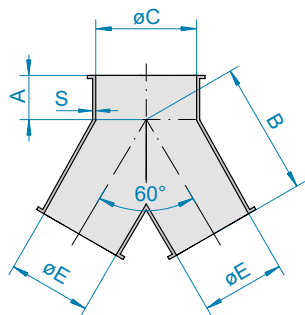


BRANCH PIECES

Symmetrical forks



■ Symmetrical fork 60°



■ Conical symmetrical fork 60°

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof
tested up to 1 bar

■ Shock explosion proof
tested up to 3 bar

SYMMETRICAL FORKS 60°

1090/1095

- Other combinations of diameter, angles and wall thickness available on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN C - E - E	A	B	Ø C	Ø E	kg	1.5 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€
80- 80- 80	40	120	77	77	0.80	11081270	87.90	11082270	109.50
100- 80- 80	40	130	100	77	0.85	11101275	74.80	11102275	84.80
100-100-100	50	120	100	100	1.00	11101270	92.80	11102270	115.00
120-100-100	50	150	120	100	1.25	11121275	76.90	11122275	87.80
120-120-120	50	150	120	120	1.50	11121270	97.60	11122270	122.50
140-100-100	50	150	136	100	1.25	11141275	79.00	11142275	89.90
140-140-140	70	165	136	136	2.00	11141270	102.00	11142270	131.50
150-100-100	50	170	150	100	1.40	11151276	79.00	11152276	89.90
150-120-120	50	170	150	120	1.65	11151275	81.40	11152275	92.50
150-150-150	75	175	150	150	2.20	11151270	102.00	11152270	131.50
160-160-160	75	180	159	159	1.33	11161270	116.50	11162270	140.00
175-120-120	50	200	175	120	2.00	11171276	87.60	11172276	105.00
175-175-175	80	210	175	175	3.10	11171270	116.50	11172270	140.00
200-140-140	60	200	200	136	2.35	11201276	110.00	11202276	118.00
200-150-150	60	200	200	150	2.50	11201275	110.00	11202275	118.00
200-200-200	90	240	200	200	4.00	11201270	129.50	11202270	150.50
224-150-150	60	220	220	150	2.65	11221275	156.50	11222275	169.00
224-224-224	90	275	220	220	5.00	11221270	148.50	11222270	164.00
250-200-200	60	250	250	200	3.50	11251275	195.00	11252275	215.50
250-250-250	100	300	250	250	6.20	11251270	160.00	11252270	181.50
300-224-224	70	300	300	220	4.80	11301276	208.50	11302276	235.00
300-300-300	120	360	300	300	8.90	11301270	174.50	11302270	207.00
315-315-315	150	350	312	312	4.93	11311270	210.50	11312270	227.50
350-250-250	70	300	350	250	5.30	11351275	227.50	11352275	244.00
400-300-300	70	350	399	300	6.20	11401275	248.50	11402275	264.50
450-350-350	80	400	449	350	9.20	11451275	268.50	11452275	295.00
500-400-400	80	450	499	399	11.40	11501275	287.50	11502275	318.50

Stainless steel (dimensions for 1.5 mm pipework)

DN C - E - E	A	B	Ø C	Ø E	kg	1 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
80- 80- 80	40	120	77	77	0.80	11083270	138.50		
100- 80- 80	40	130	100	77	0.85	11103275	136.00	12103275	174.00
100-100-100	50	120	100	100	1.00	11103270	144.50	12103270	195.50
120-100-100	50	150	120	100	1.25	11123275	145.00	12123275	184.00
120-120-120	50	150	120	120	1.50	11123270	180.00	12123270	208.50
140-100-100	50	150	136	100	1.25	11143275	162.50	12143275	203.50
140-140-140	70	165	136	136	2.00	11143270	197.50	12143270	234.00
150-100-100	50	170	150	100	1.40	11153276	162.50	12153276	203.50
150-120-120	50	170	150	120	1.65	11153275	167.50	12153275	211.50
150-150-150	75	175	150	150	2.20	11153270	197.50	12153270	234.00
160-160-160	75	180	159	159	1.33	11163270	213.00	12163270	253.00
175-120-120	50	200	175	120	2.00	11173276	180.00	12173276	226.00
175-175-175	80	210	175	175	3.10	11173270	213.00	12173270	253.00
200-140-140	60	200	200	136	2.35	11203276	232.00	12203276	303.50
200-150-150	60	200	200	150	2.50	11203275	232.00	12203275	303.50
200-200-200	90	240	200	200	4.00	11203270	232.00	12203270	274.00
224-150-150	60	220	220	150	2.65	11223275	290.50	12223275	377.00
224-224-224	90	275	220	220	5.00	11223270	247.50	12223270	295.00
250-200-200	60	250	250	200	3.50	11253275	349.00	12253275	460.50



■ Symmetrical fork 60°

DN C - E - E	A	B	Ø C	Ø E	kg	1 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
250-250-250	100	300	250	250	6.20	11253270	263.00	12253270	321.50
300-224-224	70	300	300	220	4.80	11303276	396.50	12303276	501.00
300-300-300	120	360	300	300	8.90	11303270	291.00	12303270	367.50
315-315-315	150	350	312	312	4.93	11313270	426.00	12313270	548.00
350-250-250	70	300	350	250	5.30	11353275*	442.00	12353275	577.00
400-300-300	70	350	399	300	6.20	11403275*	476.50	12403275	646.50
450-350-350	80	400	449	350	9.20	11453275*	514.50	12453275	666.50
500-400-400	80	450	499	399	11.40	11503275*	549.50	12503275	703.50

*1.5 mm

SYMMETRICAL FORKS 90°

1100

- Other combinations of diameter, angles and wall thickness available on request

Powder-coated and galvanized (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanized	
					Item no.	€	Item no.	€	Item no.	€
80	77	40	80	0.55	11081260	70.40			11082260	75.20
100	100	60	100	0.85	11101260	70.40			11102260	75.20
120	120	75	110	1.10	11121260	73.10	13121260	90.30	11122260	80.10
140	136	75	120	1.30	11141260	75.90			11142260	82.70
150	150	75	125	1.45	11151260	75.90	13151260	103.00	11152260	82.70
160	159	75	130	1.60	11161260	88.90			11162260	97.90
175	175	75	140	1.75	11171260	88.90	13171260	121.00	11172260	97.90
200	200	90	170	2.50	11201260	108.50	13201260	150.00	11202260	120.50
224	220	100	190	3.00	11221260	142.50			11222260	158.50
250	250	100	200	3.50	11251260	142.50	13251260	193.50	11252260	158.50
300	300	120	220	4.40	11301260	197.50	13301260	255.00	11302260	215.00
315	312	120	230	4.83	11311260	201.50			11312260	235.50
350	350	120	250	5.65	11351260	216.50			11352260	250.00
400	399	150	270	7.00	11401260	233.00			11402260	272.00
450	449	150	300	8.45	11451260	253.00			11452260	292.50
500	499	175	325	10.20	11501260	273.50			11502260	314.50

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	kg	1 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
80	77	40	80	0.55	11083260	127.50		
100	100	60	100	0.85	11103260	127.50	12103260	169.00
120	120	75	110	1.10	11123260	134.50	12123260	177.00
140	136	75	120	1.30	11143260	141.00	12143260	184.00
150	150	75	125	1.45	11153260	141.00	12153260	184.00
160	159	75	130	1.60	11163260	167.00	12163260	217.00
175	175	75	140	1.75	11173260	167.00	12173260	217.00
200	200	90	170	2.50	11203260	205.50	12203260	262.50
224	220	100	190	3.00	11223260	263.00	12223260	342.00
250	250	100	200	3.50	11253260	263.00	12253260	431.00
300	300	120	220	4.40	11303260	376.50	12303260	495.50
315	312	120	230	4.83	11313260*	401.00	12313260	521.50
350	350	120	250	5.65	11353260*	421.50	12353260	550.50
400	399	150	270	7.00	11403260*	455.00	12403260	592.00
450	449	150	300	8.45	11453260*	501.00	12453260	636.50
500	499	175	325	10.20	11503260*	548.50	12503260	681.00

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof
tested up to 1 bar

■ Shock explosion proof
tested up to 3 bar



JACOB TRANSITION PIECES AND ADAPTERS:
CONNECTING YOUR MACHINES
WITH OUR PIPEWORK SYSTEM



TRANSITION PIECES AND ADAPTERS

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TRANSITION PIECES AND ADAPTERS

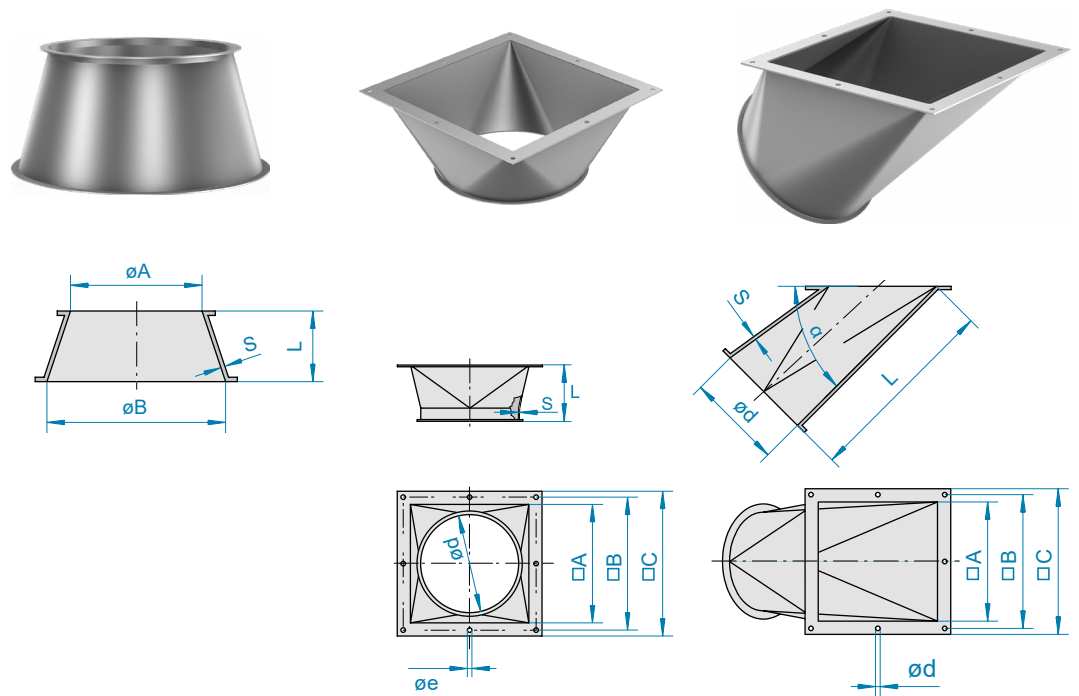
Technical information

JACOB TRANSITION PIECES AND ADAPTERS

How to be well-connected: With our comprehensive range of cone pieces, transition pieces and adapters, we create the connection between your JACOB pipework system and your machinery. And since nothing is as individual as these transition pieces, we can manufacture them to your specification, even from a batch size of 1. These special components have one thing in common with their large-scale production cousins: the same consistently high quality.

CONE PIECES AND TRANSITION PIECES TO YOUR INDIVIDUAL MEASUREMENTS

We manufacture cone pieces and transition pieces to your specification if you inform us of the dimensions, the material and the wall thickness you require. Prices and delivery times on request



FLAT SEALS



NBR	Silicone	F Silicone	FD
grey white	beige	blue	
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	
-30°C to +80°C	-30°C to +230°C	-60°C to +200°C	metal-detectable

- F** FOOD GRADE
EC 1935/2004 plus FDA compliant
- D** DETECTABLE DESIGN
Metal-detectable

Our flat seals for connecting pipe components with welded-on flanges or transition pieces:

- More tear-proof and FOOD GRADE
- Metal-detectable (DETECTABLE DESIGN)
- Other materials available on request



BFM COMPENSATOR WITH JACOB LIP

- FOOD GRADE: EC 1935/2004 plus FDA. Furthermore, thanks to the special design of the compensator, there are no corners in which food can be caught.
- Temperature resistance: -25 to 110°C
- Each compensator comprises two spigots and one connector
- Spigot: 83 mm long with 6 mm lip for pull-ring connection, stainless steel 304 L
- Stainless steel 316 L available on request
- Connector: Seeflex 040 E model, thermoplastic ether-based polyurethane coating, wall thickness: 0.9 mm
- Quick assembly and disassembly for maintenance and cleaning
- For information on calculating the connector length, go to: <https://www.jacob-group.com/uk/products/transition-pieces-adapters/bfm-compensator/>



COMPENSATORS

Material: EPDM, black

- Temperature resistance: -30°C to +100°C
- Permissible differential pressure: 0.1 bar
- Not suitable for contact with food

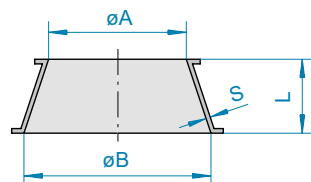
Compensator connections made of VA, material 1.4301, with press-formed sleeve made of extruded polyurethane, transparent/opaque, 1 mm thick.

- FOOD GRADE: EC 1935/2004 plus FDA compliant
- Temperature resistance: -20°C to +90°C



TRANSITION PIECES AND ADAPTERS

Cone pieces



CONE PIECES

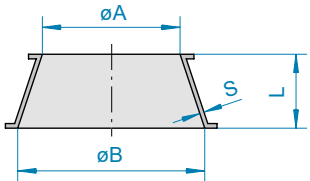
1330

- Diameter A + B = internal diameter with wall thickness of 1.5 mm
- Cone end partly cylindrical
- From DN 450 to 560 mm, dimensions for 2 mm pipework
- More diameter combinations and special lengths available on request
- DN 315 shock explosion proof up to 3 bar with 1.5 mm wall thickness

Powder-coated (dimensions for 1.5 mm pipework)

DN	ØA	ØB	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
60-80	57	77	60	0.17	11001488	14.90		
60-100	57	100	100	0.25	11001492	15.20		
80-100	77	100	100	0.35	11001450	15.40		
80-120	77	120	80	0.35	11001478	17.20		
80-140	77	136	120	0.55	11001479	17.60		
80-150	77	150	140	0.65	11001489	18.60		
80-160	77	159	160	0.65	11001974	18.60		
100-120	100	120	60	0.30	11001451	16.70		
100-140	100	136	100	0.50	11001459	19.20		
100-150	100	150	95	0.50	11001452	17.20		
100-160	100	159	120	0.70	11001978	19.50		
100-175	100	175	120	0.70	11001464	19.50		
100-200	100	200	120	0.75	11001453	24.00		
100-250	100	250	200	1.45	11001454	28.30		
120-125	120	125	100	0.50	11001493	21.70		
120-140	120	136	100	0.55	11001466	21.70		
120-150	120	150	150	0.85	11001455	17.80	13001455	52.60
120-160	120	159	80	0.65	11001979	19.90		
120-175	120	175	100	0.65	11001456	19.90	13001456	54.80
120-200	120	200	120	0.80	11001457	24.50	13001457	58.90
120-250	120	250	150	1.20	11001458	25.40	13001458	61.10
140-150	136	150	100	0.60	11001467	22.20		
140-175	136	175	100	0.65	11001468	25.10		
140-200	136	200	150	1.05	11001469	27.40		
150-160	150	159	100	0.55	11001982	20.10		
150-175	150	175	100	0.60	11001460	20.10	13001460	47.70
150-200	150	200	100	0.75	11001461	19.60	13001461	56.90
150-224	150	220	150	1.15	11001472	29.90		
150-250	150	250	150	1.10	11001462	25.40	13001462	61.10
150-300	150	300	200	1.85	11001463	33.10	13001463	69.70
160-200	159	200	80	0.80	11001983	21.20		
175-180	175	180	100	0.75	11001494	28.60		
175-200	175	200	100	0.80	11001465	21.20	13001465	63.40
175-224	175	220	100	0.85	11001473	28.60		
200-224	200	220	100	0.85	11001474	29.90		
200-250	200	250	120	1.10	11001470	24.50	13001470	66.20
200-300	200	300	150	1.55	11001471	32.00	13001471	70.70
224-250	220	250	100	1.00	11001476	32.70		
224-300	220	300	150	1.60	11001477	38.30		
250-280	250	277	120	1.30	11001960	35.90		
250-300	250	300	150	1.65	11001475	32.00	13001475	75.90

Shock explosion proof tested up to 3 bar



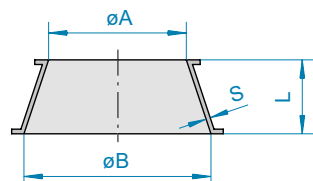
DN	ØA	ØB	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
250-350	250	350	200	2.20	11001484	48.40	13001484	90.10
280-300	277	300	100	1.22	11001961	37.60		
300-315	300	312	100	1.30	11001962	47.80		
300-350	300	350	200	2.55	11001480	53.60	13001480	95.80
300-400	300	399	200	2.75	11001481	60.30	13001481	104.00
315-350	312	350	120	1.65	11001963	52.10		
350-400	350	399	200	2.95	11001482	68.30	13001482	112.50
350-450	350	449	200	3.15	11001483	70.00	13001483	122.50
400-450	399	449	200	3.40	11001485	74.90	13001485	133.50
400-500	399	499	250	4.40	11001486	79.00	13001486	143.00
450-500	449	499	200	3.70	11001487	90.60	13001487	159.50
450-560	448	558	250	6.70	12001495*	96.20	13001495	175.00
500-560	498	558	250	7.00	12001496*	101.50	13001496	194.00
500-630	498	628	300	8.90	12001497*	112.50	13001497	222.50
560-630	558	628	300	9.50	12001498*	130.50	13001498	250.00

*2 mm



TRANSITION PIECES AND ADAPTERS

Cone pieces / compensators



CONE PIECES

1330

- Diameter A + B = internal diameter with wall thickness of 1.5 mm
- Cone end partly cylindrical
- From DN 450 to 560 mm, dimensions for 2 mm pipework
- More diameter combinations and special lengths available on request
- DN 315 shock explosion proof up to 3 bar with 1.5 mm wall thickness

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

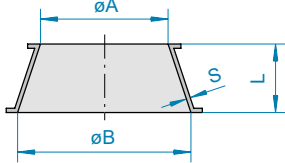
DN	ØA	ØB	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
60-80	57	77	60	0.17					11003488*	21.70		
60-100	57	100	100	0.25	11002492	18.20			11003492	22.40		
80-100	77	100	100	0.35	11002450	18.40			11003450	22.70		
80-120	77	120	80	0.35	11002478	19.50			11003478	24.20		
80-140	77	136	120	0.55	11002479	19.50			11003479	24.20		
80-150	77	150	140	0.65	11002489	22.30			11003489	25.40		
80-160	77	159	160	0.65	11002974	22.40			11003974	25.40		
100-120	100	120	60	0.30	11002451	19.20			11003451	22.70	12003451	28.10
100-140	100	136	100	0.50	11002459	23.10			11003459	25.80		
100-150	100	150	95	0.50	11002452	20.30			11003452	26.50	12003452	38.30
100-160	100	159	120	0.70	11002978	22.50			11003978	27.40	12003978	43.00
100-175	100	175	120	0.70	11002464	22.50			11003464	27.40	12003464	43.00
100-200	100	200	120	0.75	11002453	27.80			11003453	31.10	12003453	45.50
100-250	100	250	200	1.45	11002454	29.80			11003454	31.90	12003454	47.20
120-125	120	125	100	0.50	11002493	25.90			11003493	27.80		
120-140	120	136	100	0.55	11002466	25.90			11003466	27.80		
120-150	120	150	150	0.85	11002455	20.50			11003455	28.30	12003455	38.70
120-160	120	159	80	0.65	11002979	22.90			11003979	31.50	12003979	46.70
120-175	120	175	100	0.65	11002456	22.90			11003456	31.50	12003456	46.70
120-200	120	200	120	0.80	11002457	28.20			11003457	38.80	12003457	56.00
120-250	120	250	150	1.20	11002458	29.00			11003458	44.70	12003458	69.50
140-150	136	150	100	0.60	11002467	26.70			11003467	28.90		
140-175	136	175	100	0.65	11002468	30.30			11003468	32.60		
140-200	136	200	150	1.05	11002469	33.00			11003469	35.60		
150-160	150	159	100	0.55	11002982	23.90			11003982	28.90	12003982	40.70
150-175	150	175	100	0.60	11002460	23.90			11003460	28.90	12003460	40.70
150-200	150	200	100	0.75	11002461	24.60			11003461	32.90	12003461	48.20
150-224	150	220	150	1.15	11002472	38.70			11003472	41.70		
150-250	150	250	150	1.10	11002462	30.60			11003462	44.70	12003462	58.70
150-300	150	300	200	1.85	11002463	39.50			11003463	48.10	12003463	68.20
160-200	159	200	80	0.80	11002983	25.90			11003983	34.20	12003983	47.50
175-180	175	180	100	0.75	11002494	35.90			11003494	50.90	12003494	47.50
175-200	175	200	100	0.80	11002465	25.90			11003465	34.20	12003465	47.50
175-224	175	220	100	0.85	11002473	35.90			11003473	50.90		
200-224	200	220	100	0.85	11002474	36.80			11003474	41.70	12003474	57.60
200-250	200	250	120	1.10	11002470	30.50			11003470	44.70	12003470	65.10
200-300	200	300	150	1.55	11002471	39.50			11003471	56.00	12003471	87.90
224-250	220	250	100	1.00	11002476	40.50			11003476	45.80		
224-300	220	300	150	1.60	11002477	47.70			11003477	54.90	12003477	96.50
250-280	250	277	120	1.30	11002960	43.20			11003960*	60.80		
250-300	250	300	150	1.65	11002475	37.50			11003475	56.30	12003475	88.90
250-350	250	350	200	2.20	11002484	60.10			11003484	71.00	12003484	103.50
280-300	277	300	100	1.22	11002961	45.10			11003961*	63.20		
300-315	300	312	100	1.30	11002962	57.40			11003962*	74.30		
300-350	300	350	200	2.55	11002480	70.70			11003480	75.80	12003480	110.50
300-400	300	399	200	2.75	11002481	75.90			11003481	80.30	12003481	121.50

*1.5 mm

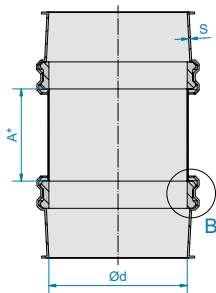
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested up to 1 bar

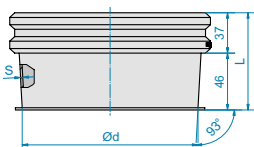
Shock explosion proof tested up to 3 bar



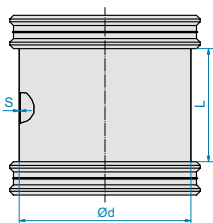
BFM compensator



BFM compensator Seeflex



Spigot



Connector

F FOOD GRADE
EC 1935/2004 plus FDA compliant

DN	ØA	ØB	L	kg	1.5 mm galvanised		2 mm galvanised		1 mm stainless steel F		2 mm stainless steel F	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
315-350	312	350	120	1.65	11002963	62.40			11003963*	76.80		
350-400	350	399	200	2.95	11002482	80.90			11003482	83.40	12003482	117.00
350-450	350	449	200	3.15	11002483	85.80			11003483	90.70	12003483	137.50
400-450	399	449	200	3.40	11002485	88.10			11003485	99.20	12003485	134.00
400-500	399	499	250	4.40	11002486	95.90			11003486	111.50	12003486	167.50
450-500	449	499	200	3.70	11002487	97.50			11003487	124.00	12003487	174.00
450-560	448	558	250	6.70			12002495	106.50			12003495	206.00
500-560	498	558	250	7.00			12002496	112.00			12003496	222.00
500-630	498	628	300	8.90			12002497	124.00			12003497	240.50
560-630	558	628	300	9.50			12002498	144.00			12003498	259.50

*1.5 mm

COMPENSATORS

1349

- Easy connection with the JACOB pull-ring system
- Food-grade standard, to FDA and EC 1935/2004
- Other lengths, diameters and materials available on request

- Each BFM compensator comprises one connector and two spigots. The components must be ordered individually.
- Recommended for static applications and slight vibration: A (distance between the spigots) should ideally equal the length L of the connector - 10 mm

BFM spigot with JACOB lip (2 spigots needed)

DN	L	kg	2 mm Stainless steel F	
			Item no.	€
100	83	0.40	1210317200	182.50
150	83	0.80	1215317200	188.50
200	83	1.00	1220317200	204.00
250	83	1.20	1225317200	234.00
300	83	1.40	1230317200	261.50
350	83	1.60	1235317200	294.00
400	83	1.90	1240317200	330.50



BFM connector

DN	L	kg	Seeflex 040 E F		DN	L	kg	Seeflex 040 E F		DN	L	kg	Seeflex 040 E F	
			Item no.	€				Item no.	€				Item no.	€
100					100	150	0.40	1210317215	125.50	100	250	0.70	1210317225	148.50
150	80	0.35	1215317205	132.00	150	150	0.60	1215317215	149.50	150	250	1.10	1215317225	181.00
200	80	0.40	1220317205	153.50	200	150	0.80	1220317215	168.00	200	250	1.30	1220317225	216.00
250	80	0.50	1225317205	175.50	250	150	1.00	1225317215	192.00	250	250	1.50	1225317225	251.50
300	80	0.70	1230317205	201.50	300	150	1.20	1230317215	220.50	300	250	1.70	1230317225	283.00
350	80	0.80	1235317205	223.50	350	150	1.40	1235317215	245.50	350	250	1.90	1235317225	328.50
400	80	1.00	1240317205	273.50	400	150	1.60	1240317215	307.50	400	250	2.10	1240317225	385.50
100	100	0.30	1210317210	120.50	100	200	0.60	1210317220	130.50	100				
150	100	0.40	1215317210	140.00	150	200	0.90	1215317220	159.00	150				
200	100	0.50	1220317210	161.00	200	200	1.00	1220317220	176.50	200				
250	100	0.70	1225317210	185.00	250	200	1.20	1225317220	202.50	250				
300	100	0.80	1230317210	213.00	300	200	1.40	1230317220	232.00	300				
350	100	0.90	1235317210	236.00	350	200	1.60	1235317220	259.00	350				
400	100	1.10	1240317210	288.00	400	200	1.90	1240317220	315.00	400				

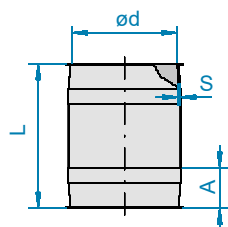


TRANSITION PIECES AND ADAPTERS

Compensators/connecting flanges



EPDM, black AU, transparent



COMPENSATORS

1348

- Please also read and take into account the technical information given at the beginning of this chapter

Powder-coated, galvanised and stainless steel

DN	$\varnothing d$	A	S	L	kg	2 mm powder-coated (EPDM, black)		2 mm galvanised (EPDM, black)		2 mm stainless steel (EPDM, black)		2 mm stainless steel (AU, transparent) F	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	78	55	1	200	0.52	11081707*	60.30	11082707*	62.40	11083707*	71.10	11083171*	198.00
100	99	55	2	200	1.00	12101707	61.90	12102707	64.20	12103707	72.80	12103171	203.50
120	119	55	2	200	1.16	12121707	65.80	12122707	68.10	12123707	79.80	12123171	212.50
140	135	55	2	200	1.30	12141707	70.30	12142707	72.80	12143707	83.30	12143171	222.00
150	149	55	2	200	1.42	12151707	71.80	12152707	74.20	12153707	85.70	12153171	223.50
175	174	55	2	200	1.65	12171707	76.00	12172707	78.90	12173707	91.70	12173171	228.00
200	199	55	2	200	1.88	12201707	78.90	12202707	81.80	12203707	97.70	12203171	267.50
224	219	55	2	200	2.06	12221707	85.70	12222707	88.60	12223707	106.00	12223171	305.50
250	249	55	2	200	2.34	12251707	89.60	12252707	93.20	12253707	110.50	12253171	308.50
300	299	55	2	200	2.80	12301707	96.50	12302707	100.50	12303707	118.00	12303171	374.00

*1 mm



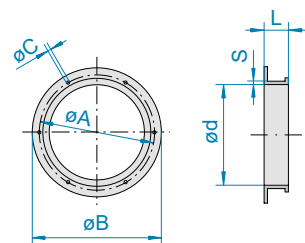
AVAILABLE IN THE DETECTABLE DESIGN LINE.



CONNECTING FLANGES

1310

- For combining with a counter flange for connecting flanges and a flat seal for counter flanges (see page 83)
- Not suitable for combining with flanges similar to DIN 24154-2



E = No. of holes

Powder-coated (dimensions for 1.5 mm pipework)

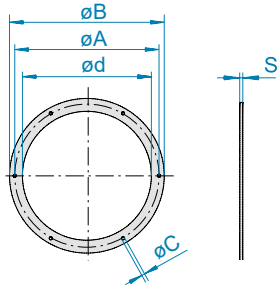
DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated	
								Item no.	€	Item no.	€
80	77	108	123	6	6	35	0.27	11081431	9.70		
100	100	130	150	6	6	28	0.23	11101431	9.70		
120	120	150	170	6	6	28	0.28	11121431	10.00	13121431	37.90
150	150	180	202	6	6	36	0.40	11151431	14.80	13151431	41.20
175	175	205	228	6	6	40	0.49	11171431	20.80	13171431	43.80
200	200	230	250	6	6	37	0.52	11201431	21.90	13201431	45.40
250	250	280	300	6	6	48	0.75	11251431	24.50	13251431	55.50

Galvanised and stainless steel

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	C	E	L	kg	1.5 mm galvanised		1.5 mm stainless steel F	
								Item no.	€	Item no.	€
80	77	108	123	6	6	35	0.27	11082431	10.20	11083431	30.00
100	100	130	150	6	6	28	0.23	11102431	10.20	11103431	30.00
120	120	150	170	6	6	28	0.28	11122431	10.70	11123431	34.30
150	150	180	202	6	6	36	0.40	11152431	15.40	11153431	41.70
175	175	205	228	6	6	40	0.49	11172431	22.40	11173431	51.50
200	200	230	250	6	6	37	0.52	11202431	24.40	11203431	61.60
250	250	280	300	6	6	48	0.75	11252431	28.10	11253431	74.80

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



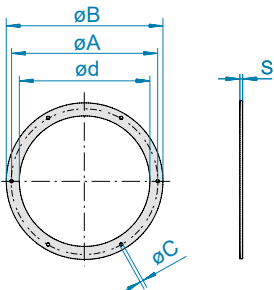
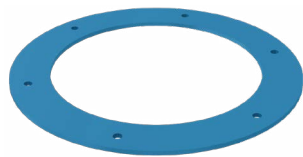
E = No. of holes

COUNTER FLANGES FOR CONNECTING FLANGES, ROUND

1311

- Counter flange to match connecting flange (see page 82)
- For use in conjunction with a flat seal (see below)

DN	Ø d	Ø A	Ø B	Ø C	E	S	kg	Steel S235 JR (ST 37-2)		Stainless steel 1.4301 F	
								Item no.	€	Item no.	€
80	82	108	122	6	6	5	0.25	10080710	9.90	10083710	25.00
100	105	130	155	6	6	5	0.40	10100710	10.80	10103710	31.90
120	125	150	175	6	6	5	0.46	10120710	11.90	10123710	36.90
150	155	180	205	6	6	5	0.55	10150710	15.20	10153710	39.80
175	180	205	230	6	6	5	0.63	10170710	22.70	10173710	41.60
200	205	230	255	6	6	5	0.71	10200710	24.90	10203710	43.60
250	255	280	305	6	6	5	0.86	10250710	27.20	10253710	48.30



E = No. of holes

FLAT SEALS FOR COUNTER FLANGES (ROUND) FOR CONNECTING FLANGES

1312

- Flat seal to match connecting flange (page 82) and counter flange (see above)
- Please also read and take into account the technical information given at the beginning of this chapter
- Not suitable for combining with flanges similar to DIN 24154-2

DN	Ø d	Ø A	Ø B	Ø C	E	S	NBR grey white		Silicone beige F		Silicone blue F D	
							Item no.	€	Item no.	€	Item no.	€
80	83	108	122	6	6	3	10086731	12.90	10087731	13.90	1008773101	16.60
100	103	130	155	6	6	3	10106731	13.60	10107731	14.80	1010773101	19.60
120	123	150	175	6	6	3	10126731	14.60	10127731	15.30	1012773101	18.30
150	153	180	205	6	6	3	10156731	14.80	10157731	15.70	1015773101	23.00
175	178	205	230	6	6	3	10176731	16.20	10177731	17.40	1017773101	27.90
200	203	230	255	6	6	3	10206731	17.10	10207731	18.30	1020773101	32.70
250	253	280	305	6	6	3	10256731	18.50	10257731	19.90	1025773101	44.00

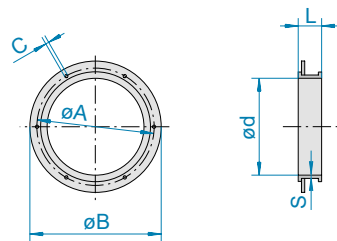
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TRANSITION PIECES AND ADAPTERS

Connecting flanges



E = No. of holes

CONNECTING FLANGE WITH LOOSE FLANGE

1315

- From DN 450 mm, dimensions for 2 mm pipework
- Flanged end for combining with flange similar to DIN 24154-2 (see chapter 11, page 219, for dimensions) and U-shaped seal
- From DN 350, in combination with U-shaped seal for 6 mm lip (page 27) or flat seals (page 222)
- From DN 350, in combination with U-shaped seal for 10 mm lip or flat seal (page 222)

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	Ø B	Ø C	E	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
								Item no.	€	Item no.	€	Item no.	€
60	57	102	128	9.5	4	50	0.51	11061432	10.30				
80	77	118	142	9.5	4	50	0.62	11081432	17.40				
100	100	139	165	9.5	4	50	0.70	11101432	18.00				
120	120	165	185	9.5	4	50	0.84	11121432	19.70				
140	136	182	212	11.5	8	50	1.06	11141432	20.30				
150	150	200	225	11.5	8	50	1.18	11151432	22.10				
160	159	200	232	11.5	8	50	0.65	11161432	23.30				
175	175	219	250	11.5	8	50	1.34	11171432	23.30				
200	200	241	275	11.5	8	50	1.48	11201432	24.40				
224	220	265	295	11.5	8	50	1.65	11221432	28.10				
250	250	292	325	11.5	8	50	1.82	11251432	28.10				
280	277	332	363	11.5	8	50	2.07	11281432	32.20				
300	300	366	395	11.5	8	50	2.31	11301432	32.20			13301432	37.90
315	312	366	398	11.5	8	50	2.48	11311432	36.90				
350	350	405	436	11.5	8	50	2.93	11351432	38.90			13351432	43.20
400	399	448	485	11.5	12	50	3.57	11401432	46.50			13401432	51.80
450	448	497	535	11.5	12	50	5.52			12451432	53.40	13451432	59.80
500	498	551	585	11.5	12	50	5.98			12501432	63.90	13501432	71.30
560	558	629	665	14.0	16	50	6.73			12561432	95.10	13561432	137.50
630	628	698	735	14.0	16	50	7.86			12631432	103.00	13631432	157.50

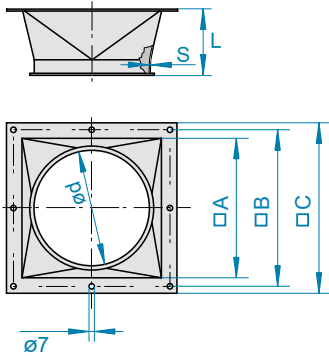
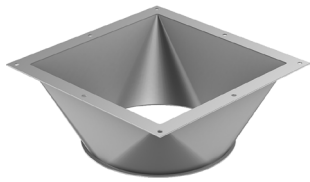
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	Ø B	Ø C	E	L	kg	1.5 mm galvanised		2 mm galvanised		1.5 mm stainless steel F		2 mm stainless steel F	
								Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	102	128	9.5	4	50	0.51	11062432	10.50			11063432	31.50		
80	77	118	142	9.5	4	50	0.62	11082432	18.70			11083432	41.20		
100	100	139	165	9.5	4	50	0.70	11102432	19.40			11103432	44.70		
120	120	165	185	9.5	4	50	0.84	11122432	20.50			11123432	48.20		
140	136	182	212	11.5	8	50	1.06	11142432	20.90			11143432	52.80		
150	150	200	225	11.5	8	50	1.18	11152432	23.60			11153432	57.00		
160	159	200	232	11.5	8	50	0.65	11162432	25.70			11163432	61.70		
175	175	219	250	11.5	8	50	1.34	11172432	25.70			11173432	61.70		
200	200	241	275	11.5	8	50	1.48	11202432	26.60			11203432	68.20		
224	220	265	295	11.5	8	50	1.65	11222432	30.40			11223432	82.80		
250	250	292	325	11.5	8	50	1.82	11252432	30.40			11253432	82.80		
280	277	332	363	11.5	8	50	2.07	11282432	34.80			11283432	124.50		
300	300	366	395	11.5	8	50	2.31	11302432	34.80			11303432	124.50		
315	312	366	398	11.5	8	50	2.48	11312432	40.20			11313432	129.50		
350	350	405	436	11.5	8	50	2.93	11352432	42.10			11353432	132.00		
400	399	448	485	11.5	12	50	3.57	11402432	50.00			11403432	147.00		
450	448	497	535	11.5	12	50	5.52			12452432	58.70			12453432	177.00
500	498	551	585	11.5	12	50	5.98			12502432	68.50			12503432	197.50
560	558	629	665	14.0	16	50	6.73			12562432	103.00			12563432	258.00
630	628	698	735	14.0	16	50	7.86			12632432	111.50			12633432	282.50

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ DN 350 to 630 mm with 10 mm lip.
Combination with U-shaped seal for 10 mm lip (refer to page 222)

Transition pieces / counter flanges



E = No. of holes

SPOUTS FROM SQUARE TO ROUND

1280

- Special models and individual flange dimensions on request
- For use in conjunction with a square flat seal
- Lipped at one end for use with the JACOB pull-ring system

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	8	50	0.36	11081400	22.10			11082400	23.40
100	100	120	140	160	8	60	0.45	11101400	22.10			11102400	23.40
120	120	140	164	180	8	70	0.63	11121400	23.70	13121400	56.90	11122400	25.30
150	150	180	202	220	8	85	0.90	11151400	24.80	13151400	56.90	11152400	29.80
175	175	200	225	245	8	145	1.50	11171400	50.30	13171400	80.10	11172400	53.00
200	200	250	270	290	8	115	1.80	11201400	50.40	13201400	81.40	11202400	53.00
250	250	300	325	345	8	150	2.70	11251400	97.80	13251400	147.50	11252400	105.50
300	300	350	375	395	8	210	3.90	11301400	110.00	13301400	166.00	11302400	121.00

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	8	50	0.36	11083400	54.70		
100	100	120	140	160	8	60	0.45	11103400	54.70	12103400	67.90
120	120	140	164	180	8	70	0.63	11123400	58.20	12123400	91.60
150	150	180	202	220	8	85	0.90	11153400	71.00	12153400	101.00
175	175	200	225	245	8	145	1.50			12173400	126.00
200	200	250	270	290	8	115	1.80			12203400	149.00
250	250	300	325	345	8	150	2.70			12253400	211.00
300	300	350	375	395	8	210	3.90			12303400	228.50

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

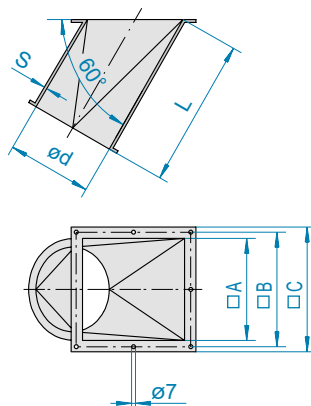
Transition pieces / counter flanges



SPOUTS FROM SQUARE TO ROUND / 60°

1290

- Other gradients and individual flange dimensions on request
- For use in conjunction with a square flat seal
- Lipped at one end for use with the JACOB pull-ring system



E = No. of holes

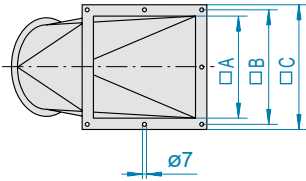
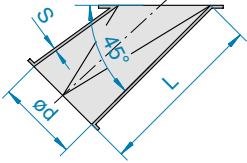
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	7	190	0.75	11081410	60.10			11082410	65.80
100	100	120	140	160	7	190	0.90	11101410	60.10			11102410	65.80
120	120	140	164	180	7	215	1.20	11121410	63.40	13121410	96.30	11122410	66.30
150	150	180	202	220	7	260	1.80	11151410	73.90	13151410	113.00	11152410	79.20
175	175	200	225	245	7	275	2.25	11171410	96.60	13171410	146.50	11172410	99.00
200	200	250	270	290	7	265	2.40	11201410	102.00	13201410	154.00	11202410	123.00
250	250	300	325	345	7	345	4.05	11251410	129.50	13251410	198.50	11252410	140.00
300	300	350	375	395	7	475	6.60	11301410	146.50	13301410	222.50	11302410	156.00

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	7	190	0.75	11083410	105.00		
100	100	120	140	160	7	190	0.90	11103410	105.00	12103410	138.50
120	120	140	164	180	7	215	1.20	11123410	113.50	12123410	152.00
150	150	180	202	220	7	260	1.80	11153410	130.00	12153410	176.50
175	175	200	225	245	7	275	2.25			12173410	206.50
200	200	250	270	290	7	265	2.40			12203410	254.00
250	250	300	325	345	7	345	4.05			12253410	366.00
300	300	350	375	395	7	475	6.60			12303410	397.50

F FOOD GRADE
EC 1935/2004 plus FDA compliant



E = No. of holes

SPOUTS FROM SQUARE TO ROUND / 45 °

1300

- Other gradients and individual flange dimensions on request
- For use in conjunction with a square flat seal
- Lipped at one end for use with the JACOB pull-ring system

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
								Item no.	€	Item no.	€	Item no.	€
80	77	100	120	140	7	160	0.60	11081420	46.60			11082420	49.40
100	100	120	140	160	7	180	0.75	11101420	46.60			11102420	49.40
120	120	140	164	180	7	190	0.90	11121420	54.20	13121420	87.70	11122420	58.00
150	150	180	202	220	7	295	1.95	11151420	77.70	13151420	109.50	11152420	85.60
175	175	200	225	245	7	300	2.40	11171420	95.10	13171420	138.00	11172420	104.50
200	200	250	270	290	7	325	2.75	11201420	98.10	13201420	148.00	11202420	116.50
250	250	300	325	345	7	395	4.65	11251420	122.50	13251420	183.00	11252420	133.00
300	300	350	375	395	7	450	5.55	11301420	137.50	13301420	212.00	11302420	146.50

Stainless steel (dimensions for 1.5 mm pipework)

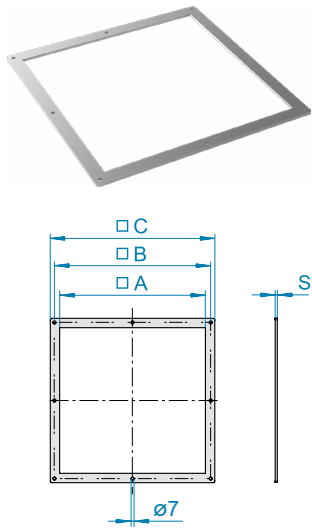
DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	7	160	0.60	11083420	97.60		
100	100	120	140	160	7	180	0.75	11103420	97.60	12103420	121.00
120	120	140	164	180	7	190	0.90	11123420	103.50	12123420	135.50
150	150	180	202	220	7	295	1.95	11153420	118.50	12153420	156.50
175	175	200	225	245	7	300	2.40			12173420	181.00
200	200	250	270	290	7	325	2.75			12203420	227.50
250	250	300	325	345	7	395	4.65			12253420	331.50
300	300	350	375	395	7	450	5.55			12303420	343.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Transition pieces / counter flanges



E = No. of holes

COUNTER FLANGES FOR SPOUTS FROM SQUARE TO ROUND

1301

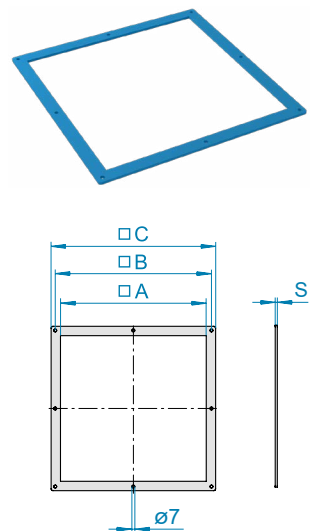
- Counter flange to match spouts from square to round
- For use in conjunction with a square flat seal

DN	A	B	C	E	S	kg	Steel S235 JR (ST 37-2)		Stainless steel 1.4301 F	
							Item no.	€	Item no.	€
80	100	120	140	8	5	0.38	10080714	14.70	10083714	23.40
100	120	140	160	8	5	0.44	10100714	16.40	10103714	27.80
120	140	164	180	8	5	0.50	10120714	18.10	10123714	35.60
150	180	202	220	8	5	0.63	10150714	19.30	10153714	40.00
175	200	225	245	8	5	0.79	10170714	20.40	10173714	42.30
200	250	270	290	8	5	0.85	10200714	27.20	10203714	55.60
250	300	325	345	8	5	1.14	10250714	28.30	10253714	61.20
300	350	375	395	8	5	1.30	10300714	30.60	10303714	91.20

FLAT SEALS FOR SPOUTS FROM SQUARE TO ROUND

1302

- Flat seal to match square to round spout and counter flange for spout
- Please also read and take into account the technical information given at the beginning of this chapter

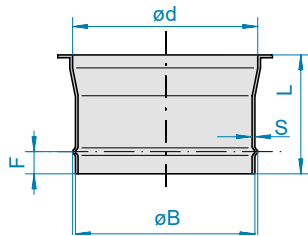


E = No. of holes

DN	A	B	C	E	S	NBR grey white		Silicone beige F		Silicone blue FD	
						Item no.	€	Item no.	€	Item no.	€
80	100	120	140	8	3	10086732	13.80	10087732	14.80	1008773201	19.60
100	120	140	160	8	3	10106732	14.60	10107732	15.30	1010773201	21.00
120	140	164	180	8	3	10126732	15.00	10127732	15.90	1012773201	22.90
150	180	202	220	8	3	10156732	15.70	10157732	16.80	1015773201	30.20
175	200	225	245	8	3	10176732	17.60	10177732	18.60	1017773201	32.60
200	250	270	290	8	3	10206732	22.90	10207732	24.20	1020773201	40.60
250	300	325	345	8	3	10256732	28.50	10257732	30.40	1025773201	53.90
300	350	375	395	8	3	10306732	33.20	10307732	35.40	1030773201	61.60

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



HOSE CONNECTIONS

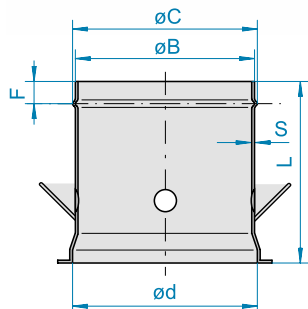
1340

- For use in conjunction with PU hose and special hose clamp

Powder-coated, galvanised and stainless steel (dimensions for 1 mm pipework)

DN	$\varnothing d$	$\varnothing B$	$\varnothing C$	F	S	L	kg	1 mm powder-coated		1 mm galvanised		1 mm stainless steel	
								Item no.	€	Item no.	€	Item no.	€
60-50	57	50	51	10	1.5	80	0.20	110614990*	12.70	110624990*	16.30	110634990*	22.50
60	57	60	61	15	1.5	80	0.20	11061499*	12.20	11062499*	15.40	11063499*	21.60
80	78	78	80	15	1	88	0.20	11081499	14.30	11082499	18.10	11083499	25.20
100	100	95	100	15	1	100	0.25	11101499*	14.30	11102499*	18.10	11103499	25.20
120	120	122	125	15	1	100	0.30	11121499	15.50	11122499	18.80	11123499	27.00
140	136	138	140	15	1	100	0.35	11141499	16.70	11142499	20.30	11143499	29.20
150	150	145	150	20	1	100	0.40	11151499*	16.70	11152499*	20.30	11153499	29.20
160	159	161	163	20	1	100	0.42	11161499	18.20	11162499	22.30	11163499	32.10
175	175	177	180	20	1	100	0.45	11171499	18.20	11172499	22.30	11173499	32.10
200	200	198	200	20	1	100	0.50	11201499	19.20	11202499	22.90	11203499	33.70
224	220	222	225	20	1	100	0.57	11221499	20.10	11222499	24.40	11223499	35.30
250	250	248	250	20	1	100	0.65	11251499	20.10	11252499	24.40	11253499	35.30
280	278	276	278	20	1	100	0.76	11281499	29.40	11282499	33.10	11283499	44.30
300	300	298	300	20	1	100	0.84	11301499	23.70	11302499	26.60	11303499	41.30
315	313	315	317	20	1	100	0.86	11311499	32.80	11312499	37.10	11313499	50.30

*1.5 mm



HOSE CONNECTIONS WITH COLLAR (CONDENSATE SEPARATOR)

1341

- For use with PU hose and special hose clamp
- With outlet cone and 4 drilled holes $\varnothing d = 10$ mm for the recirculation of condensate.

Powder-coated, galvanised and stainless steel (dimensions for 1.5 mm pipework)

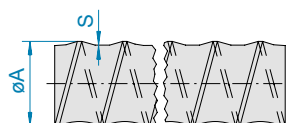
DN	$\varnothing d$	$\varnothing B$	$\varnothing C$	F	S	L	kg	1.5 mm powder-coated		1.5 mm galvanised		1.5 mm stainless steel	
								Item no.	€	Item no.	€	Item no.	€
80	77	78	80	15	1.5	150	0.4	110814991	69.70	110824991	81.70	110834991	92.80
100	100	95	100	15	1.5	150	0.5	111014991	71.20	111024991	84.00	111034991	95.70
120	120	122	125	15	1.5	150	0.6	111214991	79.50	111224991	92.10	111234991	106.00
140	136	138	140	15	1.5	150	0.7	111414991	92.00	111424991	105.50	111434991	121.00
150	150	145	150	20	1.5	150	0.8	111514991	92.00	111524991	106.50	111534991	122.50
160	159	161	163	20	1.5	150	1.2	111614991	99.20	111624991	114.00	111634991	133.00
175	175	177	180	20	1.5	150	0.9	111714991	99.20	111724991	114.00	111734991	133.00
200	200	198	200	20	1.5	150	1.0	112014991	107.50	112024991	124.50	112034991	143.50
224	220	222	225	20	1.5	150	1.15	112214991	114.00	112224991	132.00	112234991	152.50
250	250	248	250	20	1.5	150	1.3	112514991	116.50	112524991	135.00	112534991	157.50
280	277	276	278	20	1.5	150	1.5	112814991	126.50	112824991	145.00	112834991	174.50
300	300	298	300	20	1.5	150	1.7	113014991	128.00	113024991	147.50	113034991	175.00
315	312	315	317	20	1.5	150	1.8	113114991	136.00	113124991	171.00	113134991	187.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Flexible hoses and accessories



PU HOSES

3160

- Material: Polyether polyurethane with spring steel wire
- Properties: highly abrasion resistant, oil and fuel resistant, inside largely smooth, transparent
- Temperature range: -40°C to +100°C
- Not suitable for conveying water vapour
- Suitable for short-term contact with foodstuffs without fatty substances (max. 4 hours, max. +40°C)
- FOOD GRADE: EC 1935/2004 plus FDA compliant
- Pressure resistance on request
- Bending radius: Minimum R = 1 D or larger

Lengths 1, 2, 3 and 5 m (sold by whole metres only)

DN	ØA	S	kg/m	Length 1 m		Length 2 m		Length 3 m	
				Item no.	€	Item no.	€	Item no.	€
50	58	0.7	0.41	10050165910	22.50	10050165920	45.00	10050165930	67.80
60	68	0.7	0.49	10060165910	23.00	10060165920	46.30	10060165930	69.50
80	88	0.7	0.76	10080165910	31.60	10080165920	63.30	10080165930	94.90
100	110	0.7	0.95	10100165910	41.00	10100165920	82.20	10100165930	123.50
120	129	0.7	1.12	10120165910	50.50	10120165920	101.50	10120165930	152.00
140	149	0.7	1.38	10140165910	53.20	10140165920	107.00	10140165930	161.50
150	161	0.7	1.48	10150165910	58.80	10150165920	118.00	10150165930	177.50
160	169	0.7	1.19	10160165910	64.10	10160165920	128.50	10160165930	193.50
175	185	0.7	1.85	10170165910	64.10	10170165920	128.50	10170165930	193.50
200	214	0.7	2.30	10200165910	71.00	10200165920	143.00	10200165930	214.50
224	235	0.7	2.55	10220165911	81.00	10220165921	163.00	10220165930	244.50
250	260	0.7	3.02	10250165911	99.90	10250165920	201.50	10250165930	300.50
280	290	0.7	3.16	10280165911	104.50	10280165921	208.50	10280165930	314.00
300	310	0.7	3.20	10300165910	111.00	10300165920	222.00	10300165930	332.50
315	325	0.7	3.40	10310165911	117.00	10310165920	234.00	10310165930	350.00

Length 10 m (sold by whole metres only)

DN	ØA	S	kg/m	Length 10 m	
				Item no.	€
50	58	0.7	0.41	100501659110	227.00
60	68	0.7	0.49	100601659110	232.00
80	88	0.7	0.76	100801659110	317.00
100	110	0.7	0.95	101001659110	411.00
120	129	0.7	1.12	101201659110	505.50
140	149	0.7	1.38	101401659110	534.00
150	161	0.7	1.48	101501659110	587.00
160	169	0.7	1.19	101601659110	640.00
175	185	0.7	1.85	101701659110	640.00
200	214	0.7	2.30	102001659110	708.00
224	235	0.7	2.55	102201659110	809.00
250	260	0.7	3.02	102501659110	998.00
280	290	0.7	3.16	102801659110	1043.00
300	310	0.7	3.20	103001659110	1107.00
315	325	0.7	3.40	103101659110	1165.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



SPECIAL HOSE CLAMPS

3170

- For use in conjunction with hose connections and JACOB PU hose

DN	Galvanised		Stainless steel	
	Item no.	€	Item no.	€
50	10052162	7.20	10053162	10.90
60	10062162	7.20	10063162	11.10
80	10082162	7.40	10083162	11.30
100	10102162	8.70	10103162	13.00
120	10122162	9.10	10123162	13.60
140	10142162	10.70	10143162	15.80
150	10152162	11.30	10153162	17.10
160	10162162	13.60	10163162	20.00
175	10172162	13.60	10173162	20.00
200	10202162	15.30	10203162	22.70
224	10222162	28.50	10223162	36.90
250	10252162	29.80	10253162	38.90
280	10282162	30.90	10283162	40.30
300	10302162	31.70	10303162	41.10
315	10312162	33.10	10313162	43.00



HOSE CLAMPS

3165

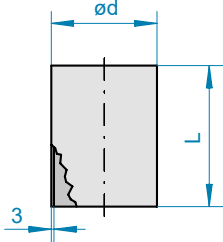
- For fixing flexible sleeves

DN	Stainless steel	
	Item no.	€
60	10063163	10.00
80	10083163	12.10
100	10103163	13.90
120	10123163	14.10
140	10143163	14.70
150	10153163	14.70
160	10163163	15.80
175	10173163	15.80
200	10203163	16.10
224	10223163	17.10
250	10253163	17.10
300	10303163	18.60



TRANSITION PIECES AND ADAPTERS

Flexible hoses and accessories



SLEEVES FOR HOSE CONNECTIONS

1345

- Material: EPDM, black
- Electrostatically conductive
- Temperature resistance: -30°C to +120°C
- Pressure resistance on request

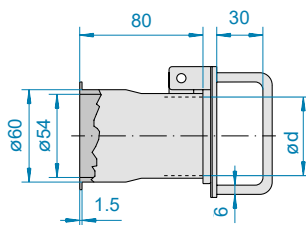
DN	Ø d	L	kg	EPDM, black	
				Item no.	€
60	60	200	0.19	1006817051	59.50
80	80	200	0.21	1008817051	60.80
100	100	200	0.26	1010817051	62.10
120	125	200	0.32	1012817051	66.20
140	140	200	0.37	1014817051	70.30
150	150	200	0.40	1015817051	73.20
160	160	200	0.42	1016817051	79.40
175	175	200	0.46	1017817051	79.40
200	200	200	0.53	1020817051	85.20
224	225	200	0.59	1022817051	91.40
250	250	200	0.66	1025817051	98.50
300	300	200	0.79	1030817051	110.50



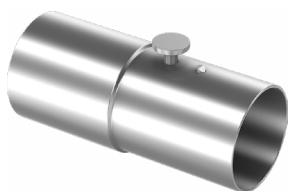
HOSE SOCKETS

3175

- With cover for hose plug
- The version with 80 mm diameter differs from the illustration



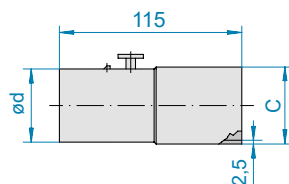
DN	Electro-galvanised		Stainless steel	
	Item no.	€	Item no.	€
60	10062860	74.00	10063860	242.00
80	10082860	163.50		



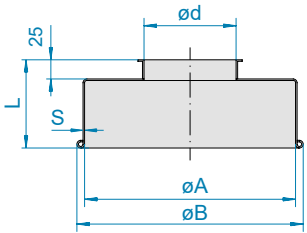
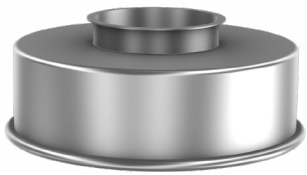
HOSE PLUGS

3180

- 45 mm and 50 mm diameters are suitable for 60 mm hose socket



DN	C	Electro-galvanised		Stainless steel	
		Item no.	€	Item no.	€
45	45	100628651	61.40		
50	50	100628650	63.30	100638650	183.50
80	80	100828650	87.00		



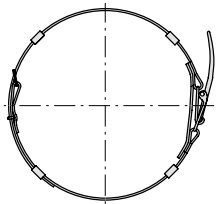
BAGGING SPOUTS

1350

- For use in conjunction with a bag clamp

Powder-coated, galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	Ø B	L	1.5 mm powder-coated		1.5 mm galvanised		1.5 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€
80	77	275	295	115	11081585	62.60	11082585	78.10	11083585	158.00
100	100	275	295	115	11101585	62.60	11102585	78.10	11103585	158.00
120	120	275	295	115	11121585	65.20	11122585	81.00	11123585	160.50
150	150	275	295	115	11151585	72.70	11152585	90.40	11153585	167.50
175	175	275	295	115	11171585	87.10	11172585	108.00	11173585	175.00
200	200	275	295	115	11201585	98.60	11202585	129.50	11203585	190.50
250	250	275	295	115	11251585	126.00	11252585	164.00	11253585	218.50
300	300	300	311	115	11301585	208.00	11302585	270.00	11303585	298.00



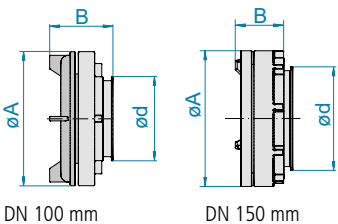
BAG CLAMPS

4010

- Made from leather for bagging spout
- Bag clamp item no. 10080581 can be used for bagging spouts with 80–300 mm diameter

- For attachment on site

DN min / max	Item no.	€
250-320	10080581	48.40
420-500	10080582	67.80



PNEUMATIC FILL AND VACUUM COUPLINGS

1460

- Pressure coupling, aluminium
- Sealing cap, plastic
- Chain, galvanised steel
- With 6 mm lip for connecting to the JACOB pull-ring system

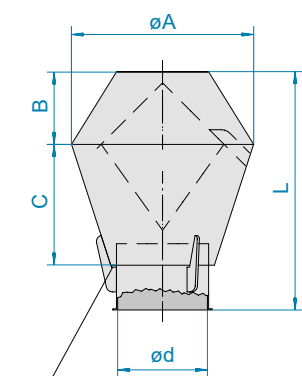
DN	Ø d	Ø A	B	kg	Aluminium	
					Item no.	€
100	113	182	85	1.26	10100870	77.20
150	164	215	91	3.02	10150870	301.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Jet caps and rain caps



Revolving water outlet

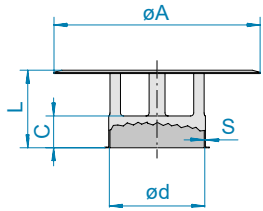
JET CAPS

1430

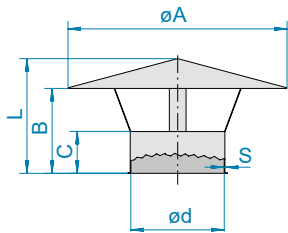
- From DN 350 mm, with welded flange similar to DIN 24154-2 (see chapter 11, page 219, for dimensions), but without counter flange (see chapter 11 for suitable flanges)

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	Ø A	B	C	L	kg	2 mm galvanised		2 mm stainless steel	
							Item no.	€	Item no.	€
80	76	230	110	188	360	3.20	12082805	266.00	12083805	427.00
100	99	230	110	152	325	3.40	12102805	266.00	12103805	438.00
120	119	260	125	169	355	5.20	12122805	324.50	12123805	481.50
140	135	310	130	222	415	6.60	12142805	330.00	12143805	535.50
150	149	310	130	200	390	7.40	12152805	330.00	12153805	535.50
160	159	313	130	195	395	7.60	12162805	417.50	12163805	677.00
175	174	360	160	237	460	9.50	12172805	417.50	12173805	677.00
200	199	460	200	322	620	12.50	12202805	498.50	12203805	805.50
224	219	515	235	368	695	14.50	12222805	575.00	12223805	942.00
250	249	515	235	322	650	18.80	12252805	575.00	12253805	942.00
280	276	570	245	305	566	18.00	12282805	667.50	12283805	1078.00
300	299	575	255	335	680	18.50	12302805	667.50	12303805	1078.00
315	311	590	255	327	680	20.00	12312805	701.00	12313805	1132.00
350	349	645	275	448	848	25.50	12352805	726.00	12353805	1184.00
400	398	715	295	480	915	29.50	12402805	840.00	12403805	1370.00
450	448	820	320	588	1040	49.50	12452805	954.50	12453805	1606.00
500	498	870	320	588	1040	53.50	12502805	1077.00	12503805	1860.00
560	558	990	372	703	1208	71.00	12562805	1197.00	12563805	2128.00
630	628	1140	442	776	1434	95.00	12632805	1364.00	12633805	2421.00
710	707	1290	502	901	1627	118.00	12712805	2289.00	12713805	3806.00
800	797	1440	520	1020	1790	142.00	12802805	2632.00	12803805	4563.00



Version DN 80 to 200 mm



Version from DN 224 mm

RAIN CAPS

1440

- Take local building regulations into account, alternatively use a jet cap

Galvanised and stainless steel (dimensions for 2 mm pipework)

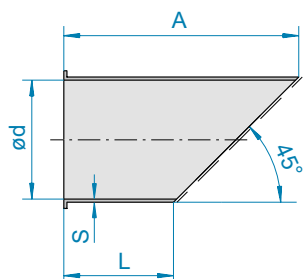
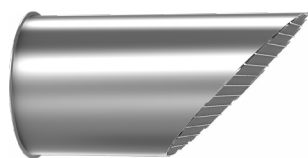
DN	$\varnothing d$	$\varnothing A$	B	C	L	kg	1.5 mm galvanised		2 mm galvanised		1.5 mm stainless steel		2 mm stainless steel	
							Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	77	180		50	92	0.60	11082850	92.80			11083850	118.00		
100	100	225		50	102	0.90	11102850	96.60			11103850	143.00		
120	120	270		50	112	1.30	11122850	101.00			11123850	168.00		
140	136	325		50	122	1.70	11142850	110.50			11143850	193.00		
150	150	325		50	127	1.80	11152850	110.50			11153850	193.00		
160	159	350		50	132	1.90	11162850	117.00			11163850	216.50		
175	175	375		50	140	2.30	11172850	117.00			11173850	216.50		
200	200	425		50	152	2.90	11202850	126.00			11203850	242.00		
224	220	525	205	106	275	6.10	11222850	153.00			11223850	291.00		
250	250	525	205	106	275	6.40	11252850	153.00			11253850	291.00		
280	277	596	220	106	300	6.60	11282850	180.00			11283850	342.50		
300	300	625	230	156	315	6.20	11302850	180.00			11303850	342.50		
315	312	655	230	106	320	10.54	11312850	241.50			11313850	461.50		
350	350	750	300	156	395	14.70	11352850	287.00			11353850	527.00		
400	399	850	320	156	435	15.20	11402850	324.50			11403850	658.50		
450	448	950	340	150	470	22.00			12452850	357.50			12453850	846.50
500	498	1050	410	200	550	27.70			12502850	388.50			12503850	949.50
560	558	1150	435	200	590	27.00			12562850	420.50			12563850	1014.00
630	628	1300	470	200	645	32.00			12632850	457.00			12633850	1066.00



TRANSITION PIECES AND ADAPTERS

Air outlet pipes and perforated sheet metal

1450



AIR OUTLET PIPES 45°

- With bird-guard, mesh size 20 x 20 x 2 mm

Galvanised (dimensions for 1.5 mm)

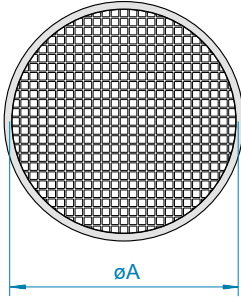
DN	Ød	A	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11082880*	90.40		
100	100	300	200	1.20	11102880	90.40		
120	120	320	200	1.50	11122880	107.00		
140	136	340	200	1.90	11142880	126.00		
150	150	350	200	2.20	11152880	126.00		
160	159	360	200	1.79	11162880	138.00		
175	175	375	200	2.60	11172880	138.00		
200	200	400	200	3.20	11202880	150.00		
224	220	424	200	3.70	11222880	167.00		
250	250	450	200	4.40	11252880	167.00		
280	277	480	200	5.40	11282880	197.00		
300	300	500	200	6.00	11302880	197.00		
315	312	515	200	7.20	11312880	229.50		
350	350	550	200	8.20	11352880	282.50		
400	399	600	200	10.20	11402880	338.50		
450	449	650	200	12.40	11452880	408.50		
500	499	700	200	14.90	11502880	468.00		
560	558	760	200	23.70			11562880	553.50
630	628	830	200	29.20			11632880	618.00

*1 mm

Stainless steel (dimensions for 1.5 mm)

DN	Ød	A	L	kg	1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11083880	118.00		
100	100	300	200	1.20	11103880	118.00		
120	120	320	200	1.50	11123880	145.00		
140	136	340	200	1.90	11143880	167.50		
150	150	350	200	2.20	11153880	167.50		
160	159	360	200	1.79	11163880	183.50		
175	175	375	200	2.60	11173880	183.50		
200	200	400	200	3.20	11203880	201.00		
224	220	424	200	3.70	11223880	221.00		
250	250	450	200	4.40	11253880	221.00		
280	277	480	200	5.40	11283880*	269.00		
300	300	500	200	6.00	11303880	269.00		
315	312	515	200	7.20	11313880*	304.00		
350	350	550	200	8.20	11353880	364.50		
400	399	600	200	10.20	11403880	451.50		
450	449	650	200	12.40	11453880	518.00		
500	499	700	200	14.90	11503880	598.50		
560	558	760	200	23.70			12563880	720.50
630	628	830	200	29.20			12633880	862.50

*1 mm



PERFORATED SHEET METAL

1380

- With NBR U-shaped seal for 2 mm
- 69% free space, hole size 10 x 10 mm
- NBR: Temperature resistance: -20°C to +100°C, food grade standard, in accordance with EC 1935/2004
- On request: Silicone seal, temperature resistance -60°C to +250°C
- FOOD GRADE: EC 1935/2004 plus FDA compliant

DN	Ø A	kg	1 mm stainless steel	
			Item no.	€
80	92	0.01	11083716	19.10
100	114	0.05	11103716	19.10
120	134	0.05	11123716	22.50
140	150	0.05	11143716	23.20
150	164	0.10	11153716	23.20
160	174	0.10	11163716	24.70
175	189	0.10	11173716	24.70
200	214	0.11	11203716	27.00
224	238	0.11	11223716	31.10
250	264	0.11	11253716	31.10
280	294	0.13	11283716	33.40
300	314	0.14	11303716	38.00
315	326	0.15	11313716	41.70
350	364	0.15	11353716	46.30
400	414	0.15	11403716	56.50



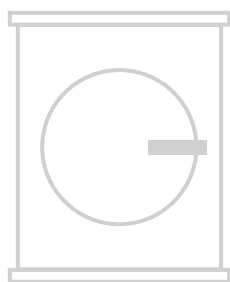
DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

6

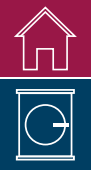


JACOB INSPECTION PIPE COMPONENTS:
CLEANING AND MAINTENANCE
IN NEXT TO NO TIME



INSPECTION AND CLEANING

Technical information	100	
Inspection pipes	102	
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Plexiglass pipes	106	
Magnetic separator	107	



INSPECTION PIPE COMPONENTS

Control is better: Inspection pipe components allow you to keep an eye on the inside of your JACOB pipework system too. Special pipe components provide unhindered access and let you carry out inspections, maintenance and cleaning without having to dismantle whole sections of pipework. Like all other pipework elements, the inspection pipe components are manufactured to the same high JACOB standard of quality.

SEALS FOR INSPECTION PIPE COMPONENTS AND RUBBER COVERS

Seals for inspection pipes



NBR	Silicone F	Silicone F D
grey white	beige	blue
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C
glued	vulcanised	vulcanised
		metal-detectable

Seals for use with cleaning pipes



EPDM (sponge rubber)	Foam silicone F	Foam silicone F D
light grey	white	blue
	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-35°C to +110°C	-60°C to +180°C	-60°C to +180°C
glued	vulcanised	vulcanised
		metal-detectable

Rubber covers for inspection T-pieces



NBR	TPE F	Silicone F	Silicone F D
dark grey	white	silicone, translucent	blue
	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-30°C to +90°C	-30°C to +100°C	-60°C to +200°C	-60°C to +200°C
			metal-detectable

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



MAGNETIC SEPARATOR

For free-flowing bulk goods and exhaust air with low delivery pressure

- Strong magnets: up to nine neodymium rod magnets remove even the smallest iron particles from bulk goods and exhaust air. Maximum magnetic induction (G) – on the surface of the pipe (+/- 10 %): 10,000 Gauss.
- Compact and robust: comprises several rod magnets in a protective stainless-steel casing, a JACOB T-piece and a pull-ring connection with a DETECTABLE DESIGN seal.
- Easy to clean: pull the separator out of the pipework system, remove the magnets from the casing, and all the iron parts and particles will simply fall off the casing.
- Improved food safety
- Combine the magnetic separator with seals from JACOB's DETECTABLE DESIGN series of products.



Explanatory video on magnetic separator



7

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

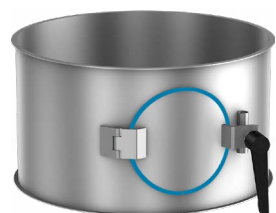


INSPECTION AND CLEANING

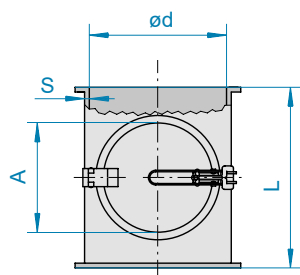
Inspection pipes



DN 80 to 315 mm



DN 350 to 400 mm



INSPECTION PIPES

2010

- Galvanised and powder-coated in standard range with NBR seal
- Stainless steel in standard range with silicone seal
- Other seals available on request
- Reinforced shock explosion proof version up to 3 bar on request

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€
80	77	80	200	1.05	11081190	54.10			11082190	66.10
100	100	115	200	1.25	11101190	54.10			11102190	66.10
120	120	115	200	1.45	11121190	56.30	13121190	88.50	11122190	69.30
140	136	115	200	1.55	11141190	59.30			11142190	74.30
150	150	115	200	1.65	11151190	59.30	13151190	93.60	11152190	74.30
160	159	115	200	1.75	11161190	62.20			11162190	77.50
175	175	115	200	1.85	11171190	62.20	13171190	94.50	11172190	77.50
200	200	115	200	2.00	11201190	64.00	13201190	98.80	11202190	79.30
224	220	115	200	2.25	11221190	67.40			11222190	85.90
250	250	115	200	2.40	11251190	67.40	13251190	103.00	11252190	85.90
280	277	115	200	2.60	11281190	70.50			11282190	89.40
300	300	115	200	2.65	11301190	70.50	13301190	106.00	11302190	89.40
315	312	115	200	2.85	11311190	81.20			11312190	103.00
350	350	115	200	3.20	11351190	90.60	13351190	124.50	11352190	114.00
400	399	115	200	3.55	11401190	96.10	13401190	135.00	11402190	124.50

Stainless steel (dimensions for 1.5 mm pipework)

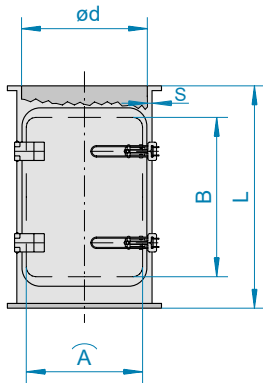
DN	Ø d	A	L	kg	1 mm stainless steel		1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€
80	77	80	200	1.05	11083190	112.50				
100	100	115	200	1.25	11103190	112.50			12103190	138.50
120	120	115	200	1.45	11123190	115.50			12123190	141.00
140	136	115	200	1.55	11143190	119.00				
150	150	115	200	1.65	11153190	119.00			12153190	147.50
160	159	115	200	1.15	11163190	123.50			12163190	152.50
175	175	115	200	1.85	11173190	123.50			12173190	152.50
200	200	115	200	2.00	11203190	129.50			12203190	162.50
224	220	115	200	2.25	11223190	138.50				
250	250	115	200	2.40	11253190	138.50			12253190	175.50
280	277	115	200	2.60			11283190	150.50		
300	300	115	200	2.65	11303190	150.50			12303190	196.50
315	312	115	200	2.85			11313190	166.00		
350	350	115	200	3.20	11353190	174.00			12353190	223.50
400	399	115	200	3.55	11403190	194.00			12403190	255.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



CLEANING PIPES

2020

- Galvanised and powder-coated in standard range with EPDM (sponge rubber) seal
- Stainless steel with foam silicone seal
- Other seals available on request
- Not recommended for extracting exhaust air containing condensates

Powder-coated and galvanised (dimensions for 1.5 mm pipework)

DN	$\varnothing d$	\widehat{A}	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€	Item no.	€
200	200	224	350	486	4.70	11201195	170.00			11202195	212.50
224	220	224	350	486	5.20	11221195	182.00			11222195	230.00
250	250	224	350	486	5.85	11251195	182.00			11252195	230.00
280	277	224	350	486	6.60	11281195	193.50			11282195	241.50
300	300	350	350	486	7.00	11301195	193.50			11302195	241.50
315	312	350	350	486	7.35	11311195	203.00			11312195	255.00
350	350	350	350	486	8.40	11351195	204.00			11352195	259.00
400	399	350	350	486	9.10	11401195	217.50			11402195	275.00
450	448	500	350	486	11.60			12451195	239.00	12452195*	309.00
500	498	500	350	486	12.80			12501195	257.00	12502195*	332.00
560	558	500	350	486	14.30			12561195	276.00	12562195*	368.00
630	628	500	350	486	16.00			12631195	298.50	12632195*	391.50

*2 mm

Stainless steel (dimensions for 1.5 mm pipework)

DN	$\varnothing d$	\widehat{A}	B	L	kg	1.5 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
200	200	224	350	486	4.70	11203195	309.50		
224	220	224	350	486	5.20	11223195	332.00		
250	250	224	350	486	5.85	11253195	332.00		
280	277	224	350	486	6.60	11283195	351.50		
300	300	350	350	486	7.00	11303195	351.50		
315	312	350	350	486	7.35	11313195	364.00		
350	350	350	350	486	8.40	11353195	373.50		
400	399	350	350	486	9.10	11403195	392.50		
450	448	500	350	486	11.60			12453195	423.50
500	498	500	350	486	12.80			12503195	454.00
560	558	500	350	486	14.30			12563195	487.00
630	628	500	350	486	16.00			12633195	527.00



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

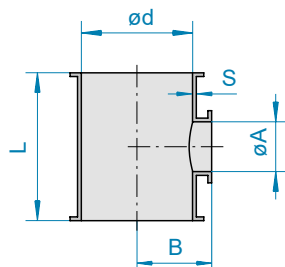
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION AND CLEANING

Inspection T-pieces



INSPECTION T-PIECES

1040

- For use in conjunction with a rubber cover
- Alternatively: Combined with a blank off cover and JACOB pull-ring
- Refer to dimension A to select the right rubber cover or blank off cover

Powder-coated (dimensions for 1.5 mm pipework)

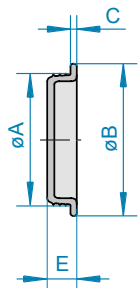
DN	Ø d	Ø A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
100	100	100	79	165	0.75	11101200	25.40				
120	120	100	89	165	0.80	11121200	26.80			13121200	47.00
150	150	120	100	198	1.20	11151200	32.00			13151200	53.70
175	175	150	114	225	1.55			12171200	47.00	13171200	57.70
200	200	150	125	225	1.80	11201200	40.10	12201200	52.60	13201200	73.60
250	250	150	150	225	2.20	11251200	52.50	12251200	69.40	13251200	90.20
300	300	150	177	225	2.55	11301200	62.70	12301200	73.10	13301200	101.50

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	B	L	kg	1.5 mm galvanised		1 mm stainless steel	F	2 mm stainless steel	F
						Item no.	€	Item no.	€	Item no.	€
100	100	100	79	165	0.75	11102200	29.30	11103200	60.60	12103200	71.80
120	120	100	89	165	0.80	11122200	31.50	11123200	63.40	12123200	76.80
150	150	120	100	198	1.20	11152200	39.60	11153200	74.40	12153200	98.40
175	175	150	114	225	1.55	11172200	42.80	11173200	98.60	12173200	128.50
200	200	150	125	225	1.80	11202200	51.50	11203200	102.00	12203200	138.50
250	250	150	150	225	2.20	11252200	66.60	11253200	114.50	12253200	146.50
300	300	150	177	225	2.55	11302200	78.20	11303200	120.50	12303200	177.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Rubber covers



RUBBER COVERS

3030

- For use in conjunction with inspection T-pieces or JACOB pipework in the appropriate diameter
- To select the right rubber cover, please refer to dimension A of the inspection T-piece
- Refer to the beginning of the chapter for more information on materials

NBR and TPE

DN	ØA	ØB	C	E	kg	NBR (-30°C to +90°C)		TPE (-30°C to +100°C)	
						Item no.	€	Item no.	€
80	79	99	5	20	0.10			1008520309	7.00
100	101	121	5	21	0.15	10106203	9.20	1010520309	7.20
120	121	141	5	22	0.20	10126203	10.30	1012520309	9.10
150	151	171	6	24	0.35	10156203	14.10	1015520309	9.30
175	176	197	6	29	0.45	10176203	21.00	1017520309	14.10
200	201	221	6	26	0.60	10206203	28.60	1020520309	18.30
250	251	271	7	30	0.90	10256203	39.70	1025520309	24.60
300	301	321	7	32	1.35	10306203	51.50	1030520309	34.10

Silicone

DN	ØA	ØB	C	E	kg	Silicone (-60°C to +200°C)		Silicone (blue) (-60°C to +200°C)	
						Item no.	€	Item no.	€
80	79	99	5	20	0.10	10087203	30.90	1008720301	45.00
100	102	121	5	21	0.15	10107203	32.40	1010720301	46.50
120	123	141	5	22	0.20	10127203	35.70	1012720301	49.90
150	151	171	6	24	0.35	10157203	46.70	1015720301	62.20
175	176	197	6	25	0.45	10177203	60.20	1017720301	78.40
200	202	221	6	26	0.60	10207203	77.60	1020720301	98.50
250	252	271	7	30	0.90	10257203	120.50	1025720301	157.00
300	302	321	7	32	1.35	10307203	124.00	1030720301	164.50

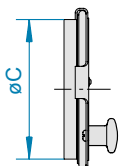
ADDITIONAL RUBBER COVER LOCKS

3040

- For use in conjunction with inspection T-pieces and rubber covers

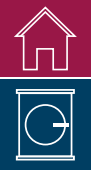
Electro-galvanised

DN	ØC	kg	2 mm electro-galvanised	Item no.	€
100	100	0.30	for inspection T-pieces DN 100 and 120 mm	11102210	28.20
120	120	0.35	for inspection T-pieces DN 150 mm	11122210	28.90
150	150	0.55	for inspection T-pieces DN 175 to 300 mm	11152210	36.00



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION AND CLEANING

Plexiglass pipes



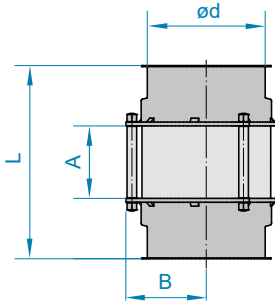
PLEXIGLASS PIPES WITH SPIGOTS AND ROD SPACERS

1390

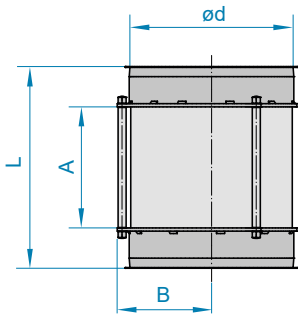
- Including spigots with a lip
- NEW: with rod spacers for a stronger construction
- Temperature-resistant to 70°C
- Plexiglass pipes must never be installed in load bearing situations
- DN 60 to 150 mm and DN 200 mm made of seamless plexiglass
- DN 175 and 250 mm with glued plexiglass, foodstuff compliant in accordance with FDA

Powder-coated, galvanised and stainless steel (dimensions for 1 mm pipework)

DN	Ø d	A	B	L	kg	1 mm powder-coated		1 mm electro-galvanised		1 mm stainless steel	
						Item no.	€	Item no.	€	Item no.	€
80	78	75	62	200	0.80	11081725	83.30	11082725	97.10	11083725	103.00
100	100	75	72	200	0.90	11101725	89.20	11102725	103.00	11103725	110.50
120	120	75	83	200	1.10	11121725	96.20	11122725	110.50	11123725	119.00
150	150	75	97	200	1.30	11151725	103.50	11152725	117.50	11153725	128.00
175	175	100	104	200	1.50	11171725	144.50	11172725	158.50	11173725	178.50
200	200	150	117	250	1.90	11201725	150.00	11202725	163.50	11203725	185.00
250	250	150	142	250	2.30	11251725	156.50	11252725	170.00	11253725	193.00



DN 80 to 150 mm



DN 175 to 250 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Magnetic separator



MAGNETIC SEPARATOR

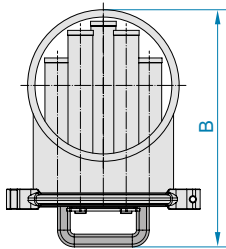
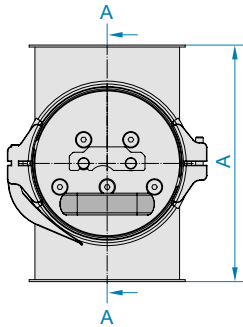
2025

- Strong magnets with 10,000 G, neodymium magnet N35
- Improved food safety
- Other diameters available on request
- For further T-piece dimensions, see also chapter 5
- Comprises several rod magnets in a protective stainless-steel casing, a T-piece and a pull-ring connection with a DETECTABLE DESIGN seal

Magnetic separator (dimensions for 1.5 mm T-piece)

DN	Ø d	A	B	M*	kg	Number of rods	1.5 mm Stainless steel	
							Item no.	€
100	100	200	205	17	4.5	3	1110324003	1534.00
150	150	250	260	22	8.5	5	1115324005	2458.00
200	200	300	310	22	14.0	7	1120324007	3528.00
250	250	350	360	22	20.0	9	1125324009	4749.00
300	300	400	410	22	26.5	9	1130324009	5560.00
315	312	420	425	22	27.0	9	1131324009	5754.00

*Minimum spacing between the rod magnets

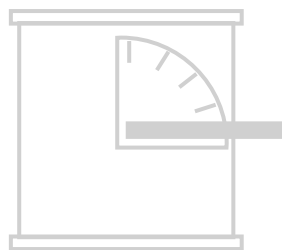


F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



AIR FLOW AND PRODUCT TRANSPORT
TO SUIT YOUR SYSTEM: PERFECTLY REGULATED
AT ALL TIMES



THROTTLE VALVES AND REGULATORS

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Non-return valves	123	
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Silo / Redler outlet slide gates	127	



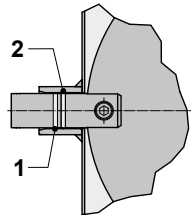
THROTTLE VALVES AND REGULATORS

Technical information

THROTTLE VALVES

JACOB throttle valves and regulators precisely control the air flow and product transport and can be flexibly incorporated in our pull-ring system thanks to their lipped ends.

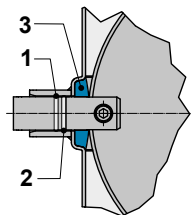
We have a wide portfolio of standard products – from manually adjustable throttle valves and pneumatic rotary actuators to electrically operated adjustable actuators. Other actuators and larger diameters are available on request. We reserve the right to alter design specifications.



Cross-section of throttle valve without seal, valve open
1 EPDM
2 Viton

THROTTLE VALVES WITHOUT INNER VALVE SEAL

- Diameters of 60 – 400 mm
- Hand-operated, made of powder-coated, galvanised and stainless steel
- Fitted with pneumatic rotary actuator, and electrically operated with an electric motor, powder-coated and stainless steel
- Both shafts are sealed with an O-ring made of Viton and a conductive EPDM seal to ensure that any electrostatic charges on the inner flap are discharged to the housing
- Neither of the O-ring seals are in contact with the product
- FOOD GRADE stainless steel version dually compliant for contact with food in accordance with EC 1935/2004 plus FDA
- Versions with a diameter over 350 mm are alternatively available with loose flanges. Refer to chapter 11 for details



Cross-section of throttle valve with seal, valve open
1 EPDM
2 Viton
3 Silicone rubber

THROTTLE VALVES WITH INNER VALVE SEAL

- Diameters of 80 – 400 mm
- Hand-operated, pneumatically operated with a rotary actuator, and electrically operated with an electric motor, powder-coated and stainless steel
- The standard quality with an inner valve seal is made of silicone rubber
- Both shafts are sealed with an O-ring made of Viton and a conductive EPDM seal to ensure that any electrostatic charges on the inner flap are discharged to the housing
- Neither of the O-ring seals are in contact with the product
- FOOD GRADE stainless steel version dually compliant with EC 1935/2004 plus FDA for contact with food, including all parts in contact with foodstuffs and any sealing materials and glues used
- Please refer to chapter 11 for information on special throttle valve versions with a seal in diameters of over 400 mm

Throttle valves with and without a seal: Shafts are sealed with O-ring seals

Throttle valves with a seal: Inner flap seal made of silicone rubber

O-ring EPDM	O-ring Viton	Valve seal made of silicone rubber	F
black	green	transparent	
not in contact with the product	not in contact with the product	FOOD GRADE: EC 1935/2004 plus FDA compliant	
-40°C to +150°C	-20°C to +200°C	-60°C to +180°C	
conductive		vulcanised	

F FOOD GRADE
EC 1935/2004 plus FDA compliant



Special versions available – prices on request

- Housing available in various types of stainless steel, such as 1.4571
- Versions for higher temperatures on request
- Actuation possible 100 mm away from the housing for higher temperature protection
- Actuators, solenoid valves and limit switches according to customers' specifications
- Larger diameters available on request
- Versions with loose flanges or welded flanges, e.g. similar to DIN 24154-2 (see chapter 11, page 219, for dimensions)
- Special colours
- Other actuators on request

ACTUATORS FOR THROTTLE VALVES



Pneumatic AIR TORQUE rotary actuators (IP 65)

Required air pressure 5 bar. Switch-over time for 90° < 3 seconds. On the rotary actuator there is a 5/2-way spring-return solenoid valve (1 coil) with auxiliary hand operation, with an angle push-in fitting for an 8 x 1 PU hose. Standard version of throttle valve defaults to closed when the current is cut.

2 potential-free micro limit switches 4-250 V with spring-free gold contacts for PLC controls and suitable for amperages up to 5 A, in a limit switch box on the drive. Solenoid valve and limit switches wired on terminals in a limit switch box.



Electrically operated BELIMO valve actuators (IP 42)

Overload proof, in standard version without limit switches. The valve remains energised in the respective end position. Consumption approx. 4 watt. Switch-over time for 90° approx. 150 seconds. Valves larger than DN 300 mm without a seal and larger than DN 200 mm with a seal are not fitted with a BELIMO actuator as standard. Larger diameters available on request. Flexibly adjustable limit switches for switching off and position feedback, or as a continuously adjustable actuator, are available at additional cost.



Electrically operated AIR TORQUE adjustable actuator (IP 65)

1-phase, with emergency hand operation. Switch-over time for 90° for throttle valves without a seal approx. 11 to 12 seconds, throttle valves with a seal approx. 12 to 23 seconds, 2 limit switches integrated in the actuator. Prices for additional limit switch, potentiometer or position controller on request.



EXPLOSION PROTECTION

Throttle valves without a seal, pipe slide gates, outlet slide gates

Outside area: Depending on the add-on part, ATEX versions for the surroundings of the valves in Zone 1, 2 and Zone 21, 22 are available at additional cost.

Inside area: Inside use is permitted if the operating conditions for ATEX **Zone 0/20** are adhered to.

Throttle valve with seal made of silicone

Outside area: Depending on the add-on part, ATEX versions for the surroundings of the valves in Zone 1, 2 and Zone 21, 22 are available at additional cost.

Inside area: Inside use is permitted if the operating conditions for ATEX **Zone 20** are adhered to.

Processes that generate strong electrostatic charges are prohibited. Versions for use in gas atmospheres are available on request.

TECHNICAL DOCUMENTATION

Our comprehensive technical documentation on throttle valves and slide gates is always kept up-to-date and is available on our website for you to download.



Documentation – JACOB



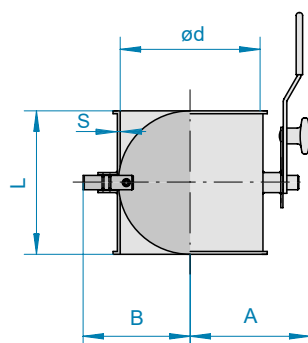
THROTTLE VALVES AND REGULATORS

Throttle valves

2070

THROTTLE VALVES, HAND-OPERATED

- Larger diameters available on request
- Refer to chapter 11 for version with loose flange
- For manual continuous flow regulation



Powder-coated and galvanised (dimensions for 1.5 mm pipework)

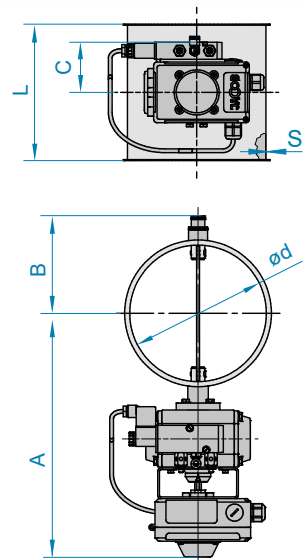
DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm galvanised	
						Item no.	€	Item no.	€
60	57	79	63	60	0.70	11061566	62.80		
80	77	90	74	100	0.90	11081566	65.40	11082566	88.10
100	100	101	85	100	1.10	11101566	69.20	11102566	90.50
120	120	124	103	120	1.90	11121560	83.00	11122560	105.00
140	136	132	111	140	2.20	11141560	91.60	11142560	113.00
150	150	139	118	150	2.40	11151560	91.60	11152560	113.00
160	159	144	123	160	2.70	11161560	112.00	11162560	125.00
175	175	152	130	175	3.00	11171560	112.00	11172560	125.00
200	200	164	143	200	3.50	11201560	122.50	11202560	136.50
224	220	174	153	200	3.90	11221560	158.00	11222560	178.00
250	250	189	168	200	4.50	11251560	158.00	11252560	178.00
280	277	203	181	200	5.00	11281560	170.00	11282560	196.00
300	300	214	193	200	5.50	11301560	173.50	11302560	198.50
315	312	220	199	200	6.50	11311560*	189.50	11312560*	219.50
350	350	239	218	200	7.50	11351560*	197.00	11352560*	226.00
400	399	264	242	200	9.00	11401560*	217.50	11402560*	251.50

*2 mm

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm stainless steel		2 mm stainless steel	
						Item no.	€	Item no.	€
60	57	79	63	60	0.70	11063566	123.50		
80	77	90	74	100	0.90	11083566	156.50		
100	100	101	85	100	1.10	11103566	156.50	12103566	166.00
120	120	124	103	120	1.90	11123560	168.00	12123560	180.50
140	136	132	111	140	2.20	11143560	194.00		
150	150	139	118	150	2.40	11153560	194.00	12153560	205.50
160	159	144	123	160	2.70	11163560	220.00	12163560	239.00
175	175	152	130	175	3.00	11173560	220.00	12173560	239.00
200	200	164	143	200	3.50	11203560	267.00	12203560	279.50
224	220	174	153	200	3.90	11223560	322.00		
250	250	189	168	200	4.50	11253560	322.00	12253560	342.00
280	277	203	181	200	5.00			12283560	387.00
300	300	214	193	200	5.50	11303560	366.50	12303560	387.00
315	312	220	199	200	6.50			12313560	393.00
350	350	239	218	200	7.50			11353560	393.00
400	399	264	242	200	9.00			11403560	459.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR

2095

- Control with 5/2-way solenoid valve (1-coil)
- 2 mechanical limit switches and solenoid valve wired in a limit switch box
- Switch-over time for 90°: < 3 seconds
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	C	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
							Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

60	57	280	63	79	60	3.30	5662060344	701.00	6662060344	823.50
80	77	303	87	79	100	3.60	5662080344	714.50	6662080344	858.50
100	100	315	99	79	100	3.90	5662100344	714.50	6662100344	859.00
120	120	325	109	79	120	4.30	5852120344	719.00	6852120344	869.50
140	136	333	117	79	140	4.70	5852140344	727.50	6852140344	879.50
150	150	340	124	79	150	5.00	5852150344	727.50	6852150344	879.50
160	159	345	123	79	160	5.30	5852160344	753.00	6852160344	933.00
175	175	352	136	84	175	6.60	5852170344	753.00	6852170344	933.00
200	200	364	149	84	200	7.40	5852200344	770.00	6852200344	961.00
224	220	374	159	84	200	7.90	5852220344	806.50	6852220344	1042.00
250	250	388	174	84	200	8.60	5852250344	806.50	6852250344	1042.00
280	277	403	188	84	200	9.10	5852280344	823.50	6852280344	1081.00
300	300	414	199	84	200	9.80	5852300344	827.50	6852300344	1081.00
315	312	422	205	84	200	10.20	5852310344*	843.00	6852310344*	1087.00
350	350	460	224	84	200	10.90	5852350344*	864.50	6852350344*	1141.00
400	399	485	248	84	200	12.30	5852400344*	906.50	6852400344*	1201.00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

60	57	280	63	79	60	3.30	5662060345	701.00	6662060345	823.50
80	77	303	87	79	100	3.60	5662080345	714.50	6662080345	858.50
100	100	315	99	79	100	3.90	5662100345	714.50	6662100345	859.00
120	120	325	109	79	120	4.30	5852120345	719.00	6852120345	869.50
140	136	333	117	79	140	4.70	5852140345	727.50	6852140345	879.50
150	150	340	124	79	150	5.00	5852150345	727.50	6852150345	879.50
160	159	345	123	79	160	5.30	5852160345	753.00	6852160345	933.00
175	175	352	136	84	175	6.60	5852170345	753.00	6852170345	933.00
200	200	364	149	84	200	7.40	5852200345	770.00	6852200345	961.00
224	220	374	159	84	200	7.90	5852220345	806.50	6852220345	1042.00
250	250	388	174	84	200	8.60	5852250345	806.50	6852250345	1042.00
280	277	403	188	84	200	9.10	5852280345	823.50	6852280345	1081.00
300	300	414	199	84	200	9.80	5852300345	827.50	6852300345	1081.00
315	312	422	205	84	200	10.20	5852310345*	843.00	6852310345*	1087.00
350	350	460	224	84	200	10.90	5852350345*	864.50	6852350345*	1141.00
400	399	485	248	84	200	12.30	5852400345*	906.50	6852400345*	1201.00

*2 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES AND REGULATORS

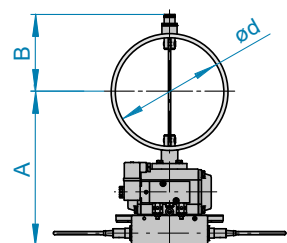
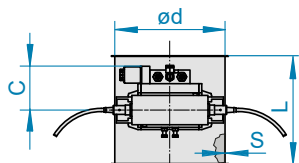
Throttle valves



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2095

- Switch-over time for 90°: < 3 seconds
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC
- Without terminal box
- Terminal box and limit switch box on request
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request
- Version with earthing lugs
- Please also read and take into account the technical information given at the beginning of this chapter



Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

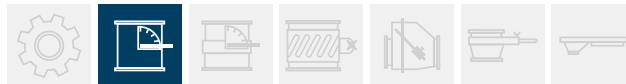
DN	$\varnothing d$	A	B	C	L	kg	1.5 mm powder-coated		1.5 mm stainless steel	
							Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

60	57	280	63	79	60	3.30	56620603455	872.00	66620603455	994.50
80	77	303	87	79	100	3.60	56620803455	885.00	66620803455	1029.00
100	100	315	99	79	100	3.90	56621003455	885.00	66621003455	1030.00
120	120	325	109	79	120	4.30	58521203455	890.00	68521203455	1040.00
140	136	333	117	79	140	4.70	58521403455	899.00	68521403455	1051.00
150	150	340	124	79	150	5.00	58521503455	899.00	68521503455	1051.00
160	159	345	123	79	160	5.30	58521603455	924.00	68521603455	1104.00
175	175	352	136	84	175	6.60	58521703455	924.00	68521703455	1104.00
200	200	364	149	84	200	7.40	58522003455	940.50	68522003455	1131.00
224	220	374	159	84	200	7.90	58522203455	977.50	68522203455	1212.00
250	250	388	174	84	200	8.60	58522503455	977.50	68522503455	1212.00
280	277	403	188	84	200	9.10	58522803455	994.50	68522803455	1252.00
300	300	414	199	84	200	9.80	58523003455	999.00	68523003455	1252.00
315	312	422	205	84	200	10.20	58523103455*	1015.00	68523103455*	1257.00
350	350	460	224	84	200	10.90	58523503455*	1036.00	68523503455*	1310.00
400	399	485	248	84	200	12.30	58524003455*	1079.00	68524003455*	1373.00

*2 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES WITH ELECTRICALLY-OPERATED VALVE ACTUATOR

2105

- Switch-over time for 90°: approx. 150 seconds
- Limit switch position feedback at additional cost
- With external control voltage 0 to 10 V DC on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

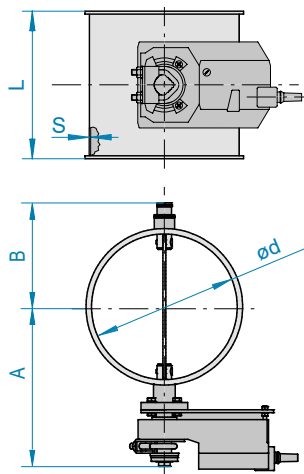
DN	Ød	A	B	L	kg	1.5 mm powder-coated		1.5 mm stainless steel		F
						Item no.	€	Item no.	€	

Valve actuator, make BELIMO, voltage 230 V AC

60	57	145	63	60	3.60	5662060551	521.50	6662060551	670.00
80	77	166	87	100	3.90	5662080551	526.50	6662080551	701.00
100	100	179	99	100	4.20	5662100551	526.50	6662100551	702.50
120	120	189	109	120	4.60	5852120551	532.00	6852120551	711.00
140	136	197	117	140	5.00	5852140551	544.00	6852140551	727.50
150	150	204	124	150	5.20	5852150551	544.00	6852150551	727.50
160	159	209	123	160	5.40	5852160551	599.50	6852160551	821.50
175	175	216	136	175	5.60	5852170551	599.50	6852170551	821.50
200	200	229	149	200	6.40	5852200551	618.00	6852200551	850.00
224	220	239	159	200	6.80	5852220551	682.00	6852220551	918.00
250	250	254	174	200	7.40	5852250551	682.00	6852250551	918.00
280	277	403	188	200	8.10	5852280551	706.50	6852280551	980.50
300	300	277	199	200	8.70	5852300551	709.00	6852300551	980.50

Valve actuator, make BELIMO, voltage 24 V DC/AC

60	57	145	63	60	3.60	5662060552	521.50	6662060552	670.00
80	77	166	87	100	3.90	5662080552	526.50	6662080552	701.00
100	100	179	99	100	4.20	5662100552	526.50	6662100552	702.50
120	120	189	109	120	4.60	5852120552	532.00	6852120552	711.00
140	136	197	117	140	5.00	5852140552	544.00	6852140552	727.50
150	150	204	124	150	5.20	5852150552	544.00	6852150552	727.50
160	159	209	123	160	5.40	5852160552	599.50	6852160552	821.50
175	175	216	136	175	5.60	5852170552	599.50	6852170552	821.50
200	200	229	149	200	6.40	5852200552	618.00	6852200552	850.00
224	220	239	159	200	6.80	5852220552	682.00	6852220552	918.00
250	250	254	174	200	7.40	5852250552	682.00	6852250552	918.00
280	277	403	188	200	8.10	5852280552	706.50	6852280552	980.50
300	300	277	199	200	8.70	5852300552	709.00	6852300552	980.50

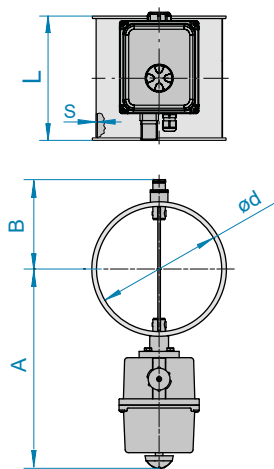


F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES AND REGULATORS

Throttle valves



THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE ACTUATOR

2107

- Adjustable actuator, make AIR TORQUE
- Including 2 limit switches
- Switch-over time for 90°: approx. 11–12 seconds
- ATEX version on request
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm powder-coated		1.5 mm stainless steel		F
						Item no.	€	Item no.	€	

Adjustable actuator, make AIR TORQUE, voltage 230 V AC

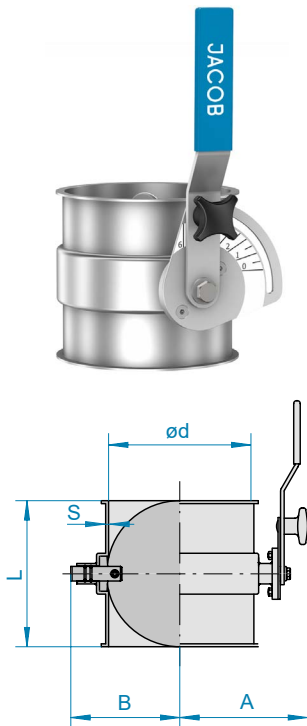
60	57	240	63	60	2.80	5662060773	753.00	6662060773	876.50
80	77	250	75	100	3.00	5662080773	755.50	6662080773	908.00
100	99	262	85	100	3.20	5662100773	755.50	6662100773	908.00
120	119	277	103	120	3.70	5852120773	759.50	6852120773	919.50
140	135	285	111	140	4.00	5852140773	771.00	6852140773	929.50
150	149	293	118	150	4.20	5852150773	771.00	6852150773	929.50
160	159	297	123	160	4.50	5852160773	797.50	6852160773	986.50
175	174	305	131	175	4.70	5852170773	797.50	6852170773	986.50
200	199	317	143	200	5.30	5852200773	815.00	6852200773	1016.00
224	219	327	153	200	5.70	5852220773	855.00	6852220773	1101.00
250	249	342	168	200	6.30	5852250773	855.00	6852250773	1101.00
280	276	357	182	200	6.80	5852280773	872.00	6852280773	1144.00
300	299	368	193	200	7.30	5852300773	875.50	6852300773	1144.00
315	311	374	199	200	8.40	5852310773*	891.00	6852310773*	1149.00
350	349	393	218	200	9.40	5852350773*	899.00	6852350773*	1172.00
400	398	418	242	200	10.80	5852400773*	918.50	6852400773*	1237.00

Adjustable actuator, make AIR TORQUE, voltage 24 V DC/AC

60	57	240	63	60	2.80	5662060774	753.00	6662060774	876.50
80	77	250	75	100	3.00	5662080774	755.50	6662080774	908.00
100	99	262	85	100	3.20	5662100774	755.50	6662100774	908.00
120	119	277	103	120	3.70	5852120774	759.50	6852120774	919.50
140	135	285	111	140	4.00	5852140774	771.00	6852140774	929.50
150	149	293	118	150	4.20	5852150774	771.00	6852150774	929.50
160	159	297	123	160	4.50	5852160774	797.50	6852160774	986.50
175	174	305	131	175	4.70	5852170774	797.50	6852170774	986.50
200	199	317	143	200	5.30	5852200774	815.00	6852200774	1016.00
224	219	327	153	200	5.70	5852220774	855.00	6852220774	1101.00
250	249	342	168	200	6.30	5852250774	855.00	6852250774	1101.00
280	276	357	182	200	6.80	5852280774	872.00	6852280774	1144.00
300	299	368	193	200	7.30	5852300774	875.50	6852300774	1144.00
315	311	374	199	200	8.40	5852310774*	891.00	6852310774*	1149.00
350	349	393	218	200	9.40	5852350774*	899.00	6852350774*	1172.00
400	398	418	242	200	10.80	5852400774*	918.50	6852400774*	1237.00

*2 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES, HAND-OPERATED

2080

- Silicone rubber seal
- Powder-coated: Temperatures from -20 to +120°C permissible
- Stainless steel: Temperatures from 20 to +150°C permissible
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel		F
						Item no.	€	Item no.	€	
80	77	121	83	100	1.80	12081577*	147.00	12083577	256.00	
100	99	133	93	100	2.20	12101577	147.00	12103577	256.00	
120	119	143	103	120	2.60	12121577	152.00	12123577	272.50	
140	135	151	111	140	2.90	12141577	165.50	12143577	298.00	
150	149	158	116	150	3.20	12151577	165.50	12153577	298.00	
160	159	162	123	160	3.50	12161577	192.50	12163577	343.00	
175	174	170	131	175	3.90	12171577	192.50	12173577	343.00	
200	199	183	143	200	4.60	12201577	213.00	12203577	374.00	
224	219	193	153	200	5.10	12221577	265.50	12223577	469.00	
250	249	208	168	200	5.80	12251577	265.50	12253577	469.00	
280	276	222	182	200	6.40	12281577	284.00	12283577	502.00	
300	299	233	193	200	7.22	12301577	290.50	12303577	514.50	
315	311	272	220	200	10.50	12311577	377.50	12313577	565.00	
350	349	291	239	200	12.00	12351577	430.50	12353577	610.50	
400	398	316	264	200	14.20	12401577	483.00	12403577	730.50	

*1.5 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

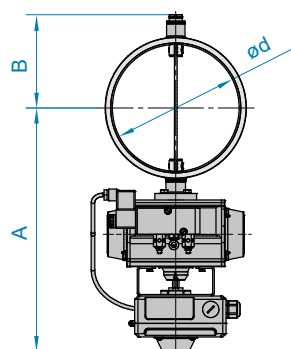
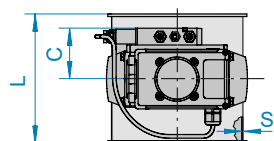
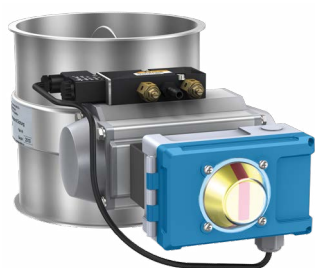
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES AND REGULATORS

Throttle valves with seal



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR

2090

- 5/2-way solenoid valve (1 coil)
- 2 mechanical limit switches and solenoid valve wired in a limit switch box
- Switch-over time for 90°: < 3 seconds
- Silicone rubber seal
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	L	kg	2 mm powder-coated		2 mm stainless steel		F
							Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

80	76	303	87	79	100	3.60	5772080344	776.00	6772080344	932.00
100	99	315	99	79	100	3.90	5772100344	776.00	6772100344	932.00
120	119	325	109	79	120	4.30	5772120344	782.00	6772120344	940.00
140	135	333	117	79	140	4.70	5772140344	793.00	6772140344	955.00
150	149	340	124	79	150	5.00	5772150344	793.00	6772150344	955.00
160	159	347	123	79	160	5.30	5772160344	818.00	6772160344	1013.00
175	174	352	136	84	175	6.60	5772170344	818.00	6772170344	1013.00
200	199	385	149	84	200	7.40	5772200344	836.00	6772200344	1042.00
224	219	395	159	84	200	7.90	5772220344	876.50	6772220344	1127.00
250	249	410	174	84	200	8.60	5772250344	876.50	6772250344	1127.00
280	276	413	188	84	200	9.60	5772280344	892.50	6772280344	1153.00
300	299	439	199	84	200	9.80	5772300344	899.00	6772300344	1165.00
315	311	455	220	84	200	14.10	5772310344	983.00	6772310344	1217.00
350	349	474	239	84	200	18.20	5772350344	1035.00	6772350344	1263.00
400	399	499	264	84	200	20.70	5772400344	1085.00	6772400344	1385.00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

80	76	303	87	79	100	3.60	5772080345	776.00	6772080345	932.00
100	99	315	99	79	100	3.90	5772100345	776.00	6772100345	932.00
120	119	325	109	79	120	4.30	5772120345	782.00	6772120345	940.00
140	135	333	117	79	140	4.70	5772140345	793.00	6772140345	955.00
150	149	340	124	79	150	5.00	5772150345	793.00	6772150345	955.00
160	159	347	123	79	160	5.30	5772160345	818.00	6772160345	1013.00
175	174	352	136	84	175	6.60	5772170345	818.00	6772170345	1013.00
200	199	385	149	84	200	7.40	5772200345	836.00	6772200345	1042.00
224	219	395	159	84	200	7.90	5772220345	876.50	6772220345	1127.00
250	249	410	174	84	200	8.60	5772250345	876.50	6772250345	1127.00
280	276	413	188	84	200	9.60	5772280345	892.50	6772280345	1153.00
300	299	439	199	84	200	9.80	5772300345	899.00	6772300345	1165.00
315	311	455	220	84	200	14.10	5772310345	983.00	6772310345	1217.00
350	349	474	239	84	200	18.20	5772350345	1035.00	6772350345	1263.00
400	399	499	264	84	200	20.70	5772400345	1085.00	6772400345	1385.00

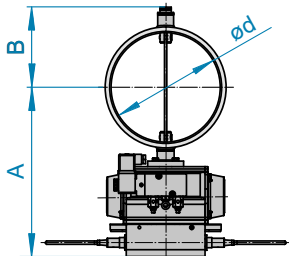
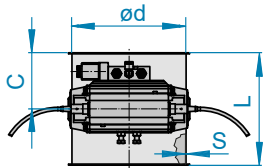


DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2090

- Switch-over time for 90°: <3 seconds
- Silicone rubber seal
- Use is permitted if the operating conditions for ATEX **Zone 20** inside and **Zone 22** outside are adhered to
- Control with 5/2-way solenoid valve and 2 inductive limit switches 24 V DC
- Without terminal box
- Terminal box and limit switch box on request
- Throttle valve defaults to closed when current is cut
- Larger diameters available on request
- Version with earthing lugs
- >DN 300 mm on request
- Please also read and take into account the technical information given at the beginning of this chapter

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	L	kg	2 mm powder-coated		2 mm stainless steel		F
							Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

80	76	303	87	79	100	3.60	57720803455	948.00	67720803455	1103.00
100	99	315	99	79	100	3.90	57721003455	948.00	67721003455	1103.00
120	119	325	109	79	120	4.30	57721203455	953.00	67721203455	1110.00
140	135	333	117	79	140	4.70	57721403455	963.00	67721403455	1126.00
150	149	340	124	79	150	5.00	57721503455	963.00	67721503455	1126.00
160	159	264	123	79	160	5.30	57721603455	989.00	67721603455	1184.00
175	174	352	136	84	175	6.60	57721703455	989.00	67721703455	1184.00
200	199	385	149	84	200	7.40	57722003455	1007.00	67722003455	1212.00
224	219	395	159	84	200	7.90	57722203455	1048.00	67722203455	1297.00
250	249	410	174	84	200	8.60	57722503455	1048.00	67722503455	1297.00
280	276	413	188	84	200	9.60	57722803455	1063.00	67722803455	1324.00
300	299	439	199	84	200	9.80	57723003455	1071.00	67723003455	1337.00



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

8

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES AND REGULATORS

Throttle valves with seal



THROTTLE VALVES WITH ELECTRICALLY-OPERATED VALVE ACTUATOR

2100

- Switch-over time for 90°: approx. 150 seconds
- Limit switch position feedback at additional cost
- With external control voltage 0 to 10 V DC on request
- Silicone rubber seal

Powder-coated and stainless steel (dimensions for 2 mm pipework)

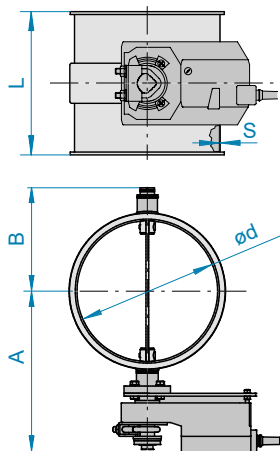
DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel		F
						Item no.	€	Item no.	€	

Valve actuator, make BELIMO, voltage 230 V AC

80	76	166	86	100	3.90	5772080551	586.00	6772080551	730.00
100	99	179	98	100	4.20	5772100551	586.00	6772100551	767.50
120	119	189	108	120	4.60	5772120551	592.00	6772120551	774.50
140	135	197	116	140	5.00	5772140551	603.00	6772140551	791.50
150	149	204	123	150	5.20	5772150551	603.00	6772150551	791.50
160	159	209	123	160	5.50	5772160551	629.50	6772160551	837.00
175	174	216	135	175	5.80	5772170551	629.50	6772170551	837.00
200	199	229	148	200	6.60	5772200551	649.00	6772200551	869.00

Valve actuator, make BELIMO, voltage 24 V DC/AC

80	76	166	86	100	3.90	5772080552	586.00	6772080552	767.50
100	99	179	98	100	4.20	5772100552	586.00	6772100552	767.50
120	119	189	108	120	4.60	5772120552	592.00	6772120552	774.50
140	135	197	116	140	5.00	5772140552	603.00	6772140552	791.50
150	149	204	123	150	5.20	5772150552	603.00	6772150552	791.50
160	159	209	123	160	5.50	5772160552	629.50	6772160552	837.00
175	174	216	135	175	5.80	5772170552	629.50	6772170552	837.00
200	199	229	148	200	6.60	5772200552	649.00	6772200552	869.00



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE ACTUATOR

2102

- Including 2 limit switches
- Switch-over time for 90°: approx. 12-22 seconds
- ATEX version on request
- Silicone rubber seal
- Larger diameters available on request

Powder-coated and stainless steel (dimensions for 2 mm pipework)

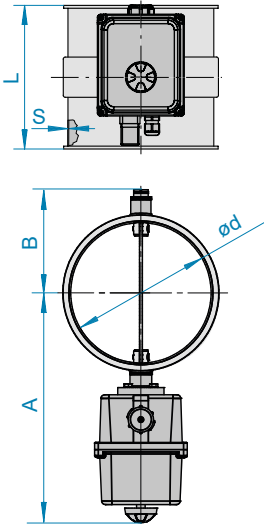
DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel	
						Item no.	€	Item no.	€

Adjustable actuator, make AIR TORQUE, voltage 230 V AC

80	77	256	82	100	3.40	5772080773	821.00	6772080773	985.50
100	99	267	93	100	3.70	5772100773	821.00	6772100773	985.50
120	119	277	103	120	4.10	5772120773	828.00	6772120773	994.50
140	135	285	111	140	4.50	5772140773	837.50	6772140773	1010.00
150	149	293	118	150	4.80	5772150773	837.50	6772150773	1010.00
160	159	298	123	160	5.10	5772160773	865.50	6772160773	1072.00
175	174	305	131	175	5.40	5772170773	865.50	6772170773	1072.00
200	199	317	143	200	6.20	5772200773	885.00	6772200773	1101.00
224	219	327	153	200	6.60	5772220773	1003.00	6772220773	1265.00
250	249	342	168	200	7.30	5772250773	1003.00	6772250773	1265.00
280	276	356	182	200	8.00	5772280773	1019.00	6772280773	1308.00
300	299	368	193	200	8.60	5772300773	1026.00	6772300773	1322.00
315	311	386	220	200	11.60	5772310773	1110.00	6772310773	1373.00
350	349	405	239	200	13.00	5772350773	1161.00	6772350773	1419.00
400	398	430	264	200	15.00	5772400773	1213.00	6772400773	1538.00

Adjustable actuator, make AIR TORQUE, voltage 24 V DC/AC

80	77	256	82	100	3.40	5772080774	821.00	6772080774	985.50
100	99	267	93	100	3.70	5772100774	821.00	6772100774	985.50
120	119	277	103	120	4.10	5772120774	828.00	6772120774	994.50
140	135	285	111	140	4.50	5772140774	837.50	6772140774	1010.00
150	149	293	118	150	4.80	5772150774	837.50	6772150774	1010.00
160	159	298	123	160	5.10	5772160774	865.50	6772160774	1072.00
175	174	305	131	175	5.40	5772170774	865.50	6772170774	1072.00
200	199	317	143	200	6.20	5772200774	885.00	6772200774	1101.00
224	219	327	153	200	6.60	5772220774	1003.00	6772220774	1265.00
250	249	342	168	200	7.30	5772250774	1003.00	6772250774	1265.00
280	276	356	182	200	8.00	5772280774	1019.00	6772280774	1308.00
300	299	368	193	200	8.60	5772300774	1026.00	6772300774	1322.00
315	311	386	220	200	11.60	5772310774	1110.00	6772310774	1373.00
350	349	405	239	200	13.00	5772350774	1161.00	6772350774	1419.00
400	398	430	264	200	15.00	5772400774	1213.00	6772400774	1538.00



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

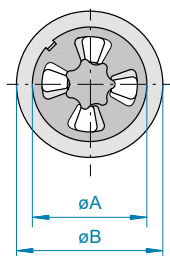
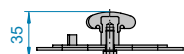


THROTTLE VALVES AND REGULATORS

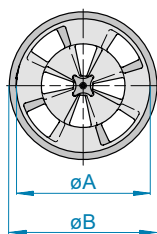
Adjustable blank-off covers and air bleeds

ADJUSTABLE BLANK-OFF COVERS

2030



DN 80 to 200 mm



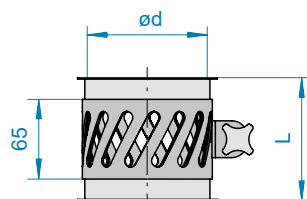
DN 224 to 300 mm

Powder-coated and stainless steel

DN	Ø A	Ø B	kg	Opening surfaces %	1.5 mm powder-coated		1.5 mm stainless steel		F
					Item no.	€	Item no.	€	
80	70	92	0.14	12	11081522	45.90	11083522	59.20	
100	90	115	0.19	17	11101522	45.90	11103522	59.20	
120	110	135	0.25	21	11121522	48.90	11123522	65.50	
140	126	151	0.30	25	11141522	51.20	11143522	68.70	
150	140	165	0.34	26	11151522	51.20	11153522	68.70	
175	165	190	0.44	29	11171522	56.40	11173522	89.50	
200	190	215	0.56	31	11201522	64.50	11203522	96.80	
224	210	235	0.65	31	11221522	72.40	11223522	107.00	
250	240	265	0.81	33	11251522	72.40	11253522	107.00	
280	270	292	0.97	34	11281522	85.60	11283522	112.00	
300	290	315	1.12	35	11301522	91.40	11303522	115.50	

AIR BLEEDS

2040

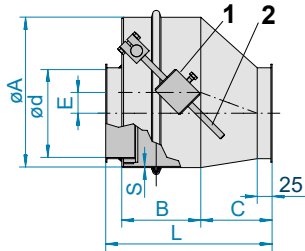


Powder-coated and stainless steel

DN	Ø d	L	kg	1 mm powder-coated		1 mm stainless steel		F
				Item no.	€	Item no.	€	
80	78	100	0.39	11081523	83.50	11083523	91.20	
100	100	100	0.47	11101523	89.40	11103523	97.50	
120	120	100	0.55	11121523	95.40	11123523	104.00	
140	136	100	0.61	11141523	106.00	11143523	116.00	
150	150	100	0.67	11151523	106.00	11153523	116.00	
175	175	100	0.76	11171523	123.00	11173523	135.00	
200	200	100	0.88	11201523	135.00	11203523	147.00	

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Non-return valves



1 Lever arm adjustable through 360°

2 Adjustable weight on lever arm

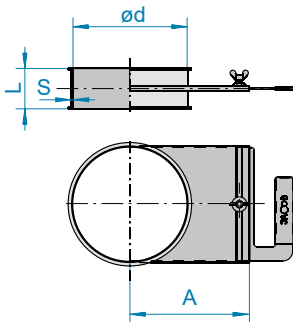
NON-RETURN VALVES

2060

- Lever arm and weights adjustable
- Powder-coated: Grey NK-SBR inner seal from -40°C to +70°C, grey NBR U-shaped seal
- Stainless steel: Transparent silicone inner seal from -60°C to +230°C, beige silicone U-shaped seal

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	$\varnothing d$	$\varnothing A$	B	C	E	L	kg	2 mm powder-coated		2 mm stainless steel F	
								Item no.	€	Item no.	€
80	76	150	95	90	20	210	4.30	12081575	618.00	12083575	995.00
100	99	175	115	90	22.5	230	4.90	12101575	642.50	12103575	1025.00
120	119	200	130	100	25	255	6.25	12121575	664.00	12123575	1036.00
150	149	250	135	120	35	280	8.30	12151575	705.50	12153575	1122.00
175	174	300	150	140	47.5	315	10.50	12171575	741.00	12173575	1179.00
200	199	300	185	140	35	350	11.60	12201575	784.50	12203575	1249.00
250	249	350	225	165	35	415	15.10	12251575	849.00	12253575	1364.00
300	299	450	260	195	55	480	22.70	12301575	932.00	12303575	1466.00



PIPE REGULATOR GATES

2110

- Only for granular products
- Only for installation in inclined pipelines with the operating mechanism facing upwards

Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	$\varnothing d$	A	L	kg	2 mm powder-coated		2 mm stainless steel F	
					Item no.	€	Item no.	€
100	99	100	70	1.10	12101610	67.10	12103610	170.00
120	119	120	70	1.40	12121610	69.70	12123610	181.50
150	149	150	70	2.00	12151610	84.80	12153610	237.00
175	174	180	70	2.75	12171610	103.50	12173610	269.00
200	199	200	70	3.10	12201610	120.00	12203610	290.50
250	249	250	70	4.60	12251610	175.00	12253610	447.00
300	299	300	70	7.10	12301610	181.50	12303610	464.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES AND REGULATORS

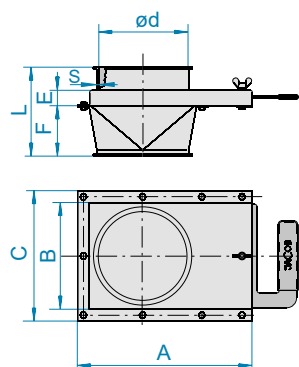
Air and pipe slide gates



PIPE SLIDE GATES, HAND-OPERATED

2120

- Stainless steel: Silicone slide plate seal
- Powder-coated and galvanised version: Felt seal
- Stainless steel version: temperature resistant from -60°C to +250°C and FOOD GRADE: compliant with EC 1935/2004 plus FDA



Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm powder-coated		2 mm powder-coated	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11081620	184.50		
100	99	225	120	160	28	60	108	2.05			12101620	192.00
120	119	251	140	180	28	70	138	3.00			12121620	194.00
150	149	295	180	220	25	85	152	4.20			12151620	203.50
175	174	320	200	245	28	145	212	5.80			12171620	252.50
200	199	410	250	290	26	115	182	7.60			12201620	276.50
250	249	432	300	345	30	150	217	9.50			12251620	334.00
300	299	512	350	395	30	210	277	13.50			12301620	379.50

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm galvanised		2 mm galvanised	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11082620	205.50		
100	99	225	120	160	28	60	108	2.05			12102620	217.50
120	119	251	140	180	27	70	138	3.00			12122620	231.00
150	149	295	180	220	25	85	152	4.20			12152620	260.50
175	174	320	200	245	28	145	212	5.80			12172620	310.00
200	199	410	250	290	26	115	182	7.60			12202620	346.50
250	249	432	300	345	30	150	217	9.50			12252620	395.50
300	299	512	350	395	30	210	277	13.50			12302620	459.00

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	C	E	F	L	kg	1 mm stainless steel F		2 mm stainless steel F	
									Item no.	€	Item no.	€
80	78	225	120	160	28	103	153	1.85	11083620	414.00		
100	99	225	120	160	28	60	108	2.05			12103620	441.50
120	119	251	140	180	27	70	138	3.00			12123620	447.50
150	149	295	180	220	25	85	152	4.20			12153620	496.00
175	174	320	200	245	28	145	212	5.80			12173620	583.50
200	199	410	250	290	26	115	182	7.60			12203620	646.00
250	249	432	300	345	30	150	217	9.50			12253620	713.50
300	299	512	350	395	30	210	277	13.50			12303620	797.50



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

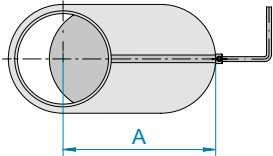
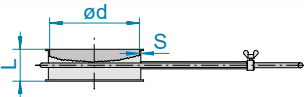


AIR FLOW CONTROL GATES

2050



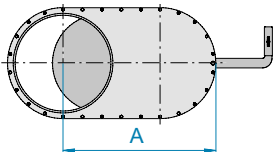
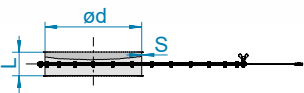
- Only for air pipelines



DN 80 to 300 mm

Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
80	78	148	50	0.75	11081525	48.00		
100	100	175	58	1.10	11101525	48.00		
120	120	205	58	1.30	11121525	51.20		
140	136	242	70	1.70	11141525	69.70		
150	150	250	70	1.80	11151525	69.70		
160	159	275	70	4.50	11161525	124.00		
175	175	290	70	2.55	11171525	124.00		
200	200	335	70	3.40	11201525	129.00		
224	220	392	70	3.90	11221525	150.50		
250	250	410	100	4.60	11251525	150.50		
300	299	485	100	7.90			12301525	167.50



DN 350 to 500 mm

■ Screw-fixed version

Electro-galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	L	kg	1.5 mm electro-galvanised		2 mm electro-galvanised		1.5 mm stainless steel	F
					Item no.	€	Item no.	€	Item no.	
80	78	148	50	0.75	11082525	61.60				
100	100	175	58	1.10	11102525	61.60				
120	120	205	58	1.30	11122525	67.60				
140	136	242	70	1.70	11142525	87.60				
150	150	250	70	1.80	11152525	87.60				
160	159	275	70	4.50	11162525	138.00				
175	175	290	70	2.55	11172525	138.00				
200	200	335	70	3.40	11202525	142.50				
224	220	392	70	3.90	11222525	165.50				
250	250	410	100	4.60	11252525	165.50				
300	299	485	100	7.90			12302525	212.00	12303525*	377.00
350	349	560	100	15.50			12352525	357.50	12353525*	614.50
400	398	636	100	18.80			12402525	428.50	12403525*	728.50
450	448	710	100	22.50			12452525	514.50	12453525*	881.00
500	498	795	100	28.80			12502525	577.50	12503525*	996.50

*2 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES AND REGULATORS

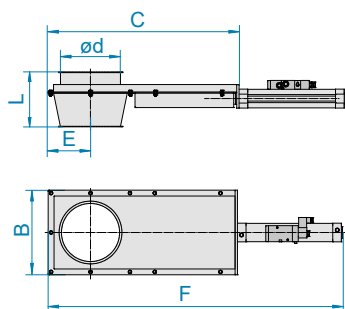
Air and pipe slide gates



PIPE SLIDE GATES, PNEUMATICALLY OPERATED

2290

- Including cylinder, make FESTO
- 5/2-way solenoid valve (1-coil) with auxiliary hand operation and 2 magnetic limit switches, potential-free
- ATEX version on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- Slide gate closes when the electricity supply is cut
- Stainless steel: Silicone slide plate seal: -60°C to +250°C
- Powder-coated version: Felt seal
- Other cylinders available on request
- Other diameters available on request



Pipe slide gates, including cylinder, powder-coated and stainless steel

DN	Ød	B	C	E	F	L	kg	2 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	
Control voltage 230 V AC												
100	99	160	320	80	578	108	5.90	5622100121	1020.00	6622100121	1391.00	
120	119	180	360	90	618	138	6.90	5622120121	1058.00	6622120121	1468.00	
150	149	225	505	110	782	152	9.20	5602150221	1118.00	6602150221	1558.00	
175	174	250	555	123	882	212	11.00	5602170221	1165.00	6602170221	1640.00	
200	199	295	645	148	1055	182	19.90	5602200221	1258.00	6602200221	1773.00	
250	249	350	780	173	1210	217	22.20	5602250221	1353.00	6602250221	1927.00	
300	299	400	880	198	1360	277	28.40	5602300221	1477.00	6602300221	2034.00	

Control voltage 24 V DC

100	99	160	320	80	578	108	5.90	5622100123	1020.00	6622100123	1391.00	
120	119	180	360	90	618	138	6.90	5622120123	1058.00	6622120123	1468.00	
150	149	225	505	110	782	152	9.20	5602150223	1118.00	6602150223	1558.00	
175	174	250	555	123	882	212	11.00	5602170223	1165.00	6602170223	1640.00	
200	199	295	645	148	1055	182	19.90	5602200223	1258.00	6602200223	1773.00	
250	249	350	780	173	1210	217	22.20	5602250223	1353.00	6602250223	1927.00	
300	299	400	880	198	1360	277	28.40	5602300223	1477.00	6602300223	2034.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

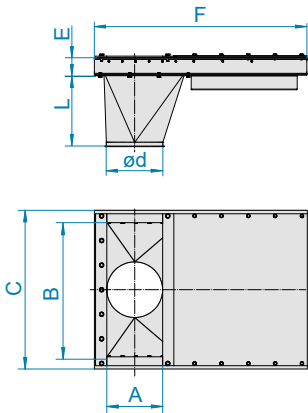
D DETECTABLE DESIGN
Metal-detectable



SILO / REDLER OUTLET SLIDE GATES, PNEUMATICALLY OPERATED

2300/2305

- Including cylinder, make FESTO
- 5/2-way solenoid valve (1-coil) with auxiliary hand operation and 2 magnetic limit switches, potential-free
- Slide plate runs on ball bearings in a U-frame
- Steel, primed, powder-coated on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- Slide gate closes when the electricity supply is cut
- FOOD GRADE version, powder coating, ATEX version or other cylinders on request
- Other dimensions available on request



Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

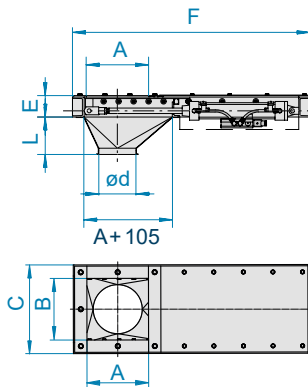
DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€

Control voltage 230 V AC

200	199	200	600	710	86	852	360	65	5710200121	1671.00	5712200121	1927.00
250	249	250	600	710	86	952	320	73	5710250121	1717.00	5712250121	1983.00
300	299	300	600	710	86	1052	270	78	5710300121	1780.00	5712300121	2061.00

Control voltage 24 V DC

200	199	200	600	710	86	852	360	65	5710200123	1671.00	5712200123	1927.00
250	249	250	600	710	86	952	320	73	5710250123	1717.00	5712250123	1983.00
300	299	300	600	710	86	1052	270	78	5710300123	1780.00	5712300123	2061.00



Silo outlet slide gates, primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€

Control voltage 230 V AC

150	149	200	200	310	86	852	150	40	5760150121	1569.00	5762150121	1745.00
200	199	250	250	360	86	952	150	46	5760200121	1601.00	5762200121	1811.00
250	249	300	300	410	86	1052	150	52	5760250121	1685.00	5762250121	1891.00

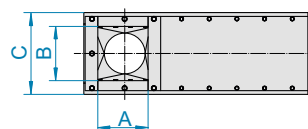
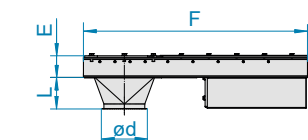
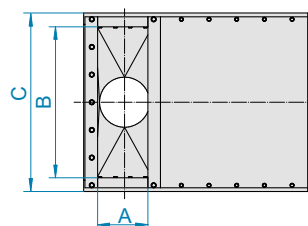
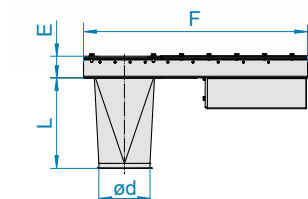
Control voltage 24 V DC

150	149	200	200	310	86	852	150	40	5760150123	1569.00	5762150123	1745.00
200	199	250	250	360	86	952	150	46	5760200123	1601.00	5762200123	1811.00
250	249	300	300	410	86	1052	150	52	5760250123	1685.00	5762250123	1891.00



THROTTLE VALVES AND REGULATORS

Silo / Redler outlet slide gates



SILO / REDLER OUTLET SLIDE GATES, ELECTRICALLY-OPERATED

2310/2315

- Including worm-gear motor 380/400 V, 50 Hz and 2 mechanical limit switches
- Slide plate runs on ball bearings in a U-frame
- Steel, primed, powder-coated on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- FOOD GRADE version, powder-coated or ATEX version available on request
- Other dimensions available on request

Redler outlet slide gates (cross-slide), primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
200	199	200	600	710	86	845	360	88	57102005	2198.00	57122005	2432.00
250	249	250	600	710	86	995	320	91	57102505	2218.00	57122505	2461.00
300	299	300	600	710	86	1145	270	103	57103005	2234.00	57123005	2514.00

Silo outlet slide gates, primed steel, colour RAL 7032 (dimensions including spout)

DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€
150	149	200	200	304	71	932	150	54	57601505	2045.00	57621505	2221.00
200	199	250	250	354	71	1082	150	64	57602005	2086.00	57622005	2276.00
250	249	300	300	404	71	1232	150	54	57602505	2147.00	57622505	2350.00





THE RIGHT WAY FOR YOUR PRODUCT:
JACOB TWO-WAY DISTRIBUTORS FOR
EVERY APPLICATION



TWO-WAY DISTRIBUTORS

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Two-way valves with inlet collar	138	
Two-way valves with seal	144	
Two-way distributors	150	



TWO-WAY DISTRIBUTORS

Technical information



Cross-section: Two-way valves with inlet collar 60°, symmetrical

JACOB TWO-WAY DISTRIBUTORS

JACOB has various types of two-way distributors available to meet your requirements: From bulk goods conveying by gravity to pneumatic low pressure conveying, JACOB's portfolio includes just the right solution for distributing your product.

JACOB two-way distributors

	Two-way valves with inlet collar	Two-way valves with seal	Two-way distributors
Application	Gravity conveying of bulk goods	Gravity conveying of bulk goods Ventilation systems up to 0.1 bar	Gravity conveying of bulk goods Ventilation systems up to 0.3 bar (version with more powerful actuator necessary from 0.1 bar upwards)
Seal	No inner flap seal	Standard range inner flap seal NBR or silicone No seal below shaft	Standard inner flap seal in NBR or silicone Standard shaft seal in silicone
Diameters and angles	DN 100 to 300 mm pressed component with lip, angle: 60° DN 350 and 400 mm from pipework with welded flanges, angle: 50°	DN 100 to 300 mm pressed component with lip, angle: 60°	DN 100 to 300 mm with lip, angle: 60° or 45° DN 350 to 630 mm with welded flanges: Angle: 60° or 45°



Documentation – JACOB

TECHNICAL DOCUMENTATION

Our comprehensive technical documentation on 2-way distributors is always kept up-to-date and is available on our website for you to download.



Example: Two-way valves with inlet collar 60°, symmetrical, hand-operated



Example: Two-way valves with inlet collar 50°, symmetrical, construction DN > 300 mm with welded flanges, pneumatically operated with a rotary actuator

TWO-WAY VALVES WITH INLET COLLAR

Construction: symmetrical and asymmetrical

Diameters and versions: DN 100 to 400 mm

DN 100 to 300 mm:

- Component pressed in tool (consisting of 2 half shells)
- Angle between outlets 60°
- With 6 mm lip for pull-ring connection
- Shaft seal with NBR double V-ring seal

DN > 300 mm:

- Angle between outlets 50°
- Inlets and outlets with welded flanges similar to DIN 24154-2 (see chapter 11, page 219, for dimensions), but without counter flange
- Shafts with ball bearings with Viton O-ring seal

Materials: 2 and 3 mm powder-coated, 2 mm stainless steel

Actuation:

- Hand-operated, DN > 200 mm with additional lever lock, DN 350 and 400 mm without tension spring
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic with cylinder, make FESTO (refer also to actuators)

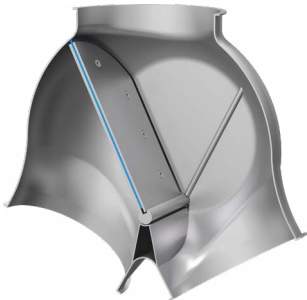
Modularity: With 6 mm lip for pull-ring connection up to DN 300 mm. Installation dimensions are identical to two-way valves with a seal.



Applications: For gravity conveying of free-flowing – without backlog – non-glutinous, granular bulk goods. With powdery products, especially with over-pressure or under-pressure in the closed outlet, there could be leakages in the closed outlet. Only limited use in ventilation plants is recommended due to the absence of an inner flap seal. The product flow is by the inlet collar directing the product towards the centre of the flap, and in the outlet by covering the U-shaped inner flap towards the next pipe that follows.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 and FDA.

TWO-WAY VALVES WITH SEAL



Cross-section: Two-way valves with seal 60°, symmetrical



Example: Two-way valves with seal 60°, symmetrical, pneumatically operated with a rotary actuator

Construction: symmetrical and asymmetrical

Diameters and versions: DN 100 to 300 mm

- Component pressed in tool (consisting of 2 half shells)
- Angle between outlets 60°
- On the side with formed beads to increase tightness, (except DN 175 mm)
- For hand-operated two-way valves, shaft sealing with NBR double V-ring seal
- For two-way valves with rotary actuator or cylinder: Shafts with ball bearings with Viton O-ring seal
- Two-way distributors should be used for diameters > DN 300 mm

Materials: 2 and 3 mm powder-coated, 2 mm stainless steel

Actuation:

- Hand-operated, with lever lock, can also be locked in intermediate position (increased seal wear is likely)
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic with cylinder, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection.

Installation dimensions are identical to two-way valves with inlet collar.

Inner valve seal:

- Powder-coated two-way valves, standard version with intermediate NBR seal on 3-part inner flap
- Stainless steel two-way valves, standard version with intermediate silicone seal on 3-part inner flap

Silicone	F	NBR	F
transparent		grey white	
-60°C to +180°C		-30°C to +80°C	
FOOD GRADE: EC 1935/2004 plus FDA compliant		FOOD GRADE: EC 1935/2004 plus FDA compliant	
Thickness: 3 or 4 mm		Thickness: 3 or 4 mm	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

Applications: For gravity conveying of free-flowing bulk goods and in ventilation plants up to 0.1 bar. There is no seal underneath the shaft, so that in the case of higher tightness requirements towards the closed outlet the two-way distributor should be used.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 and FDA.

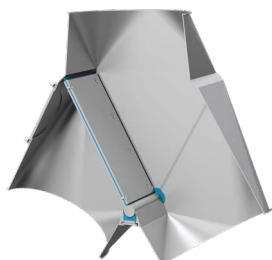
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Technical information



Cross-section: Two-way distributor 60° up to DN 300 mm, symmetrical



Example: Two-way distributor 60°, DN 300 mm, symmetrical, pneumatically operated with cylinder



Example: Two-way distributor 60° DN > 300 mm, symmetrical, pneumatically operated with cylinder and welded-on flanges



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

TWO-WAY DISTRIBUTORS

Construction: symmetrical and asymmetrical

Diameters and versions:

- DN 100 to 630 mm
- DN > 300 mm: Inlets and outlets with welded flanges similar to DIN 24154-2 (see chapter 11, page 219, for dimensions)
- Angle between outlets 45° or 60°
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Below the shaft there is a silicone seal that can be re-adjusted from outside
- Shafts with ball bearings and a silicone flat ring-seal
- From DN 250-630 mm with inspection openings on both outlets for inspection purposes

Materials: up to DN 400 mm: 2 mm powder-coated and stainless steel, from DN 450 mm: 3 mm powder-coated and stainless steel

Actuation:

- Hand-operated, DN 100-300 mm with lever lock, can also be locked in intermediate positions (increased seal wear)
- Fitted with pneumatic with rotary actuator, DN 100 to 630 mm, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic with cylinder, DN 100 to 630 mm, make FESTO (refer also to actuators)

Modularity: With 6 mm lip for pull-ring connection up to DN 300 mm.

Inner valve seal: 3-part straight inner flap with intermediate silicone seal.

Other seal qualities on request (e.g.: NBR or EPDM)

Silicone F	NBR F
transparent	grey white
-60°C to +180°C	-30°C to +80°C
FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
Thickness: 3 or 4 mm	Thickness: 3 or 4 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

Applications: For gravity conveying of free-flowing bulk goods and for ventilation plants up to 0.3 bar (if more powerful actuators are fitted). The 45° version is recommended for sensitive bulk goods or for products with bad flow properties.

FOOD GRADE: All metal components and sealing materials in stainless steel that are in contact with products are compliant with EC 1935/2004 and FDA.

Special feature: All two-way distributors have an inner valve which can be dismantled without removing the distributor from the pipework system (for cleaning or to replace the seals)

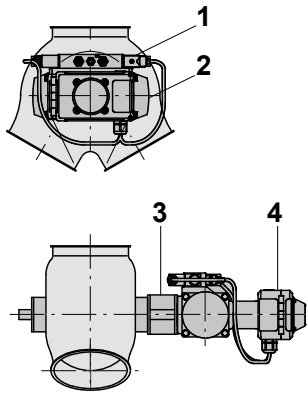
EXPLOSION PROTECTION FOR TWO-WAY DISTRIBUTORS

Outside area: Depending on the add-on part, ATEX versions for the surroundings of the two-way distributors in Zone 1, 2 and Zone 21, 22 are available at additional cost.

Inside area: Inside use is permitted if the operating conditions for ATEX **Zone 0/20** are adhered to.



ACTUATORS FOR TWO-WAY DISTRIBUTORS



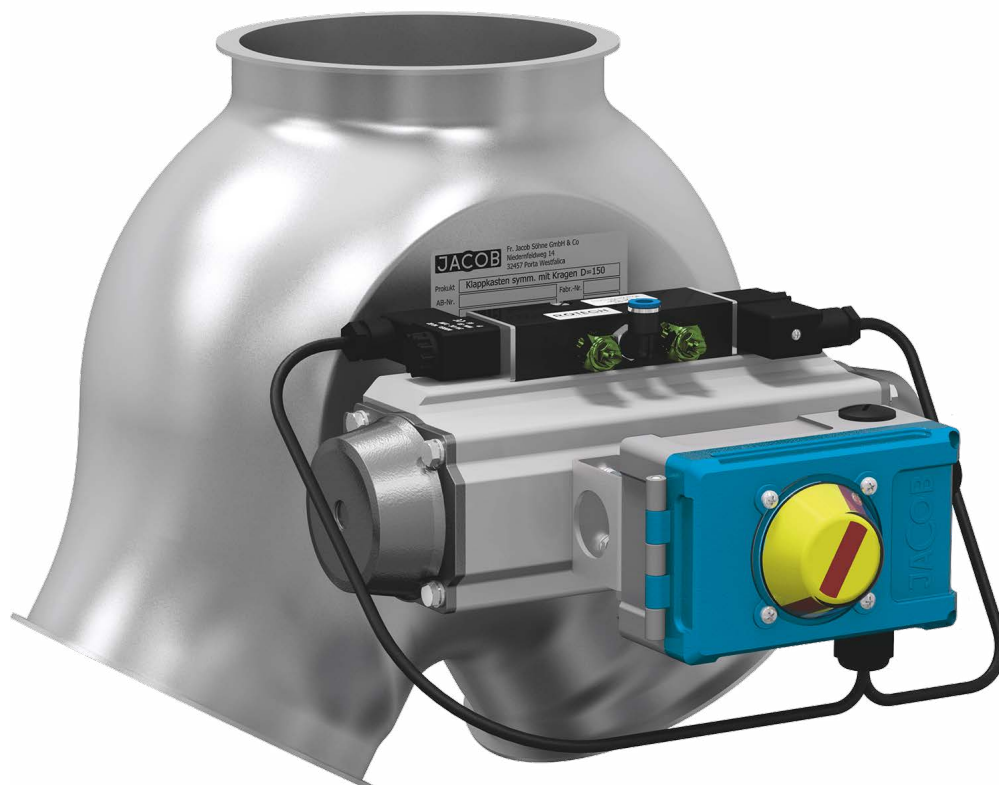
- 1 Solenoid valve
- 2 Rotary actuator
- 3 Panel
- 4 Limit switch box

Pneumatically operated version with rotary actuator

- Rotary actuator, make AIR TORQUE, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation, as 24 V DC or 230 V AC versions
- The solenoid valve is bolted directly to the actuator in accordance with Namur specification
- Complete with two exhaust throttles for speed adjustment and compressed air connection (angle push-in fitting) for an 8 x 1 PVC hose
- Required air pressure: min. 5 bar to max. 7 bar
- In case of power failure, the selected valve position remains unchanged
- Information on positions via 2 potential-free micro limit switches with gold contacts, spring-free, suitable for PLC. Switching range 4-250 V AC/DC at 0.1 A
- Solenoid valve and limit switch are wired into terminals in the limit switch box that is positioned on the actuator. Protection category IP 65
- ATEX version:
 - Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
 - Designed for Zone 22 outside
 - Without terminal box
 - Terminal box or limit switch box on request
 - ATEX version supplied with earthing lugs as standard

Pneumatically operated version with cylinder

- Cylinder, make FESTO, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation; fitted to the cylinder with a hose connection and available as 24 V DC or 230 V AC versions with connection sockets, IP 65
- Complete with exhaust throttle, speed adjustment and a hose connection for compressed air (push-in fitting) for an 8 x 1 PVC hose
- Required air pressure: 5 bar to max. 7 bar
- In case of power failure, the selected valve position remains unchanged
- Information on positions via 2 potential-free magnetic limit switches which are positioned on the cylinder, with LED display. With free cable end, 2 m long. 24 V version: Switching range 12-30 V DC at 500 mA, 230 V version: Switching range 4-230 V AC/DC at 120 mA. Protection category IP 67
- Standard version without terminal box, without wiring, with protective device made of polycarbonate



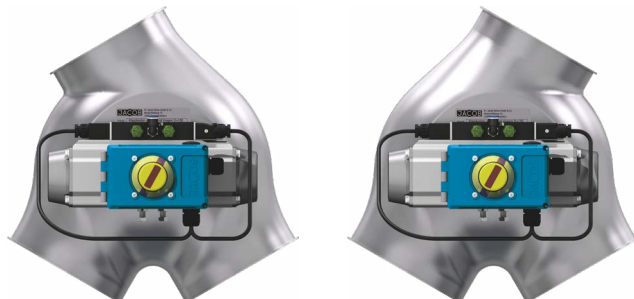


TWO-WAY DISTRIBUTORS

Technical information

Installation of the actuator in asymmetric components

With asymmetric components, the actuator is positioned on the right-hand side as standard – as shown in the illustration. Installation on the left-hand side is possible at no extra charge at the customer's request.



Standard: Actuator unit on right-hand side

Optional: Actuator unit on left-hand side

ACCESSORIES AND SPECIAL VERSIONS

Inspection openings

Installation of an inspection opening with a diameter of 115 mm possible for inspection purposes on all two-way valves from 150 mm upwards. Upwards of DN 250 mm, two-way distributors are fitted with two inspection openings as standard.

- Extra charge for powder-coating: € 120.50
- Extra charge for stainless steel: € 153.50



Manual cord device

For two-way valves with inlet collar, hand-operated up to DN 200 mm. The lever is available with an additionally screwed-on switch device for cord or chain operation.

- Extra charge for powder-coating: € 41.30
- Extra charge for stainless steel: € 48.90





Limit switches

Two limit switches positioned on a base plate opposite to the actuator side, with protective cover, without terminal box

Extra charge for version	Powder-coated	Stainless steel
	€	€
Siemens 3SE 5232-OHD03	140.50	163.50
Pepperl & Fuchs type NBB 5-18GM50-E2	171.00	193.00
Pepperl & Fuchs type NCB 5-18GM40-N0, ATEX Zone 21	190.50	213.50
ATEX limit switch IFM IG 513A, ATEX Zone 22	248.00	271.00



Gear motor

Prices for electrically-operated two-way distributors with gear motor or cylinder actuator and pneumatic actuators and limit switches in ex-proof version on request.

YOUR INDIVIDUAL TWO-WAY DISTRIBUTOR

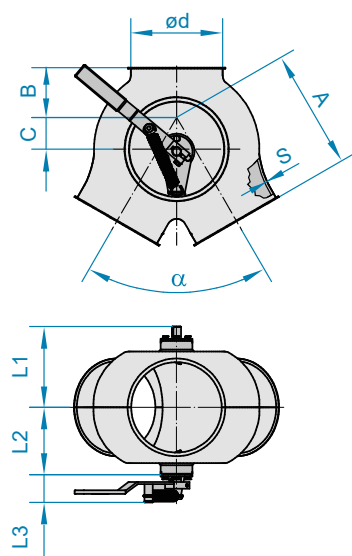
JACOB two-way distributors are available not only in a comprehensive standard range but also in a wide range of special versions:

- Electrical actuation
- Other materials
- Rotary actuators or cylinders at the customer's request
- Lining with a wide range of different wear protection materials (refer to chapter 14 for information on lined two-way valves with an inlet collar)
- Welded flanges: in JACOB standard (refer to chapter 11 for dimensions) or with customers' own dimensions. In this case, outlets and, if necessary, inlets are supplied in a longer version. Extended lengths can also be produced with a conical form to match the diameter of connecting pipes
- Stainless steel in a pickled and passivated version
- More than 3,000 special colours (refer to chapter 1, Materials)
- ATEX version: with terminal box or limit switch box, further inductive limit switches
- Viton shaft seal
- Fitting of inspection opening in smaller diameters on request (refer also to Technical information and accessories)
- Other inner valve seals for two-way valves with seal or two-way distributors
- More powerful actuators for use with differential pressures of up to 0.3 bar for two-way valves with seal or two-way distributors



TWO-WAY DISTRIBUTORS

Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, HAND-OPERATED

2130

- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	Item no.	€	
100	60°	135	50	41	118	88	60	12101502	179.00			12103502	414.50	
120	60°	160	50	54	129	99	60	12121502	190.50			12123502	444.50	
150	60°	200	80	60	146	116	60	12151502	208.00	13151502	291.50	12153502	581.50	
175	60°	218	63	75	159	129	60	12171505	258.50	13171505	359.50	12173505	716.00	
200	60°	265	110	70	178	148	60	12201505	323.50	13201505	419.50	12203505	812.50	
250	60°	305	115	82	199	169	60	12251505	429.00	13251505	560.00	12253505	1123.00	
300	60°	385	145	110	225	195	60	12301502	592.00	13301502	694.50	12303502	1336.00	
350	50°	520	95	185	345	300	90	12351505	1154.00	13351505	1496.00	12353505	2573.00	
400	50°	580	105	195	378	333	90	12401505	1331.00	13401505	1713.00	12403505	2958.00	

TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2150



- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

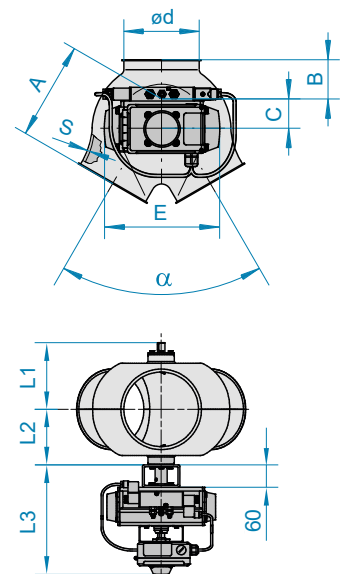
DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	135	50	41	216	129	88	286	5582100244	852.50			6582100244	1072.00	
120	60°	160	50	54	216	129	99	286	5582120244	860.50			6582120244	1100.00	
150	60°	200	80	60	216	146	116	286	5582150244	861.50	5583150244	936.50	6582150244	1248.00	
175	60°	218	63	75	216	159	129	286	5582170144	945.50	5583170144	1046.00	6582170144	1396.00	
200	60°	265	110	70	291	178	148	303	5582200144	1006.00	5583200144	1113.00	6582200144	1490.00	
250	60°	305	115	82	291	199	169	303	5582250144	1114.00	5583250144	1292.00	6582250144	1777.00	
300	60°	385	145	110	291	225	195	303	5582300244	1252.00	5583300244	1383.00	6582300244	1967.00	
350	50°	520	95	185	335	345	300	316	5582350144	1958.00	5583350144	2253.00	6582350144	3118.00	
400	50°	580	105	195	335	378	333	316	5582400144	2118.00	5583400144	2453.00	6582400144	3449.00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	50	41	216	129	88	286	5582100245	852.50			6582100245	1072.00	
120	60°	160	50	54	216	129	99	286	5582120245	860.50			6582120245	1100.00	
150	60°	200	80	60	216	146	116	286	5582150245	861.50	5583150245	936.50	6582150245	1248.00	
175	60°	218	63	75	216	159	129	286	5582170145	945.50	5583170145	1046.00	6582170145	1396.00	
200	60°	265	110	70	291	178	148	303	5582200145	1006.00	5583200145	1113.00	6582200145	1490.00	
250	60°	305	115	82	291	199	169	303	5582250145	1114.00	5583250145	1292.00	6582250145	1777.00	
300	60°	385	145	110	291	225	195	303	5582300245	1252.00	5583300245	1383.00	6582300245	1967.00	
350	50°	520	95	185	335	345	300	316	5582350145	1958.00	5583350145	2253.00	6582350145	3118.00	
400	50°	580	105	195	335	378	333	316	5582400145	2118.00	5583400145	2453.00	6582400145	3449.00	



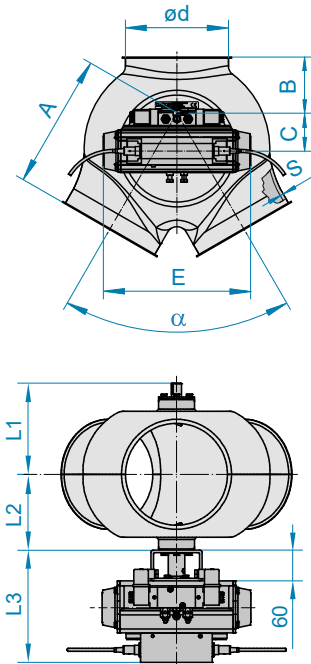
F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2150

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	135	50	41	216	118	88	203	55821002455	1064.00			65821002455	1283.00	
120	60°	160	50	54	216	129	99	203	55821202455	1073.00			65821202455	1311.00	
150	60°	200	80	60	216	146	116	203	55821502455	1074.00	55831502455	1149.00	65821502455	1461.00	
175	60°	218	63	75	216	159	129	203	55821701455	1158.00	55831701455	1259.00	65821701455	1608.00	
200	60°	265	110	70	291	178	148	220	55822001455	1219.00	55832001455	1327.00	65822001455	1700.00	
250	60°	305	115	82	291	199	169	220	55822501455	1327.00	55832501455	1505.00	65822501455	1986.00	
300	60°	385	145	110	291	225	195	220	55823002455	1465.00	55833002455	1594.00	65823002455	2177.00	
350	50°	520	95	185	335	345	300	233	55823501455	2170.00	55833501455	2465.00	65823501455	3327.00	
400	50°	580	105	195	335	378	333	233	55824001455	2331.00	55834001455	2664.00	65824001455	3660.00	

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TWO-WAY DISTRIBUTORS

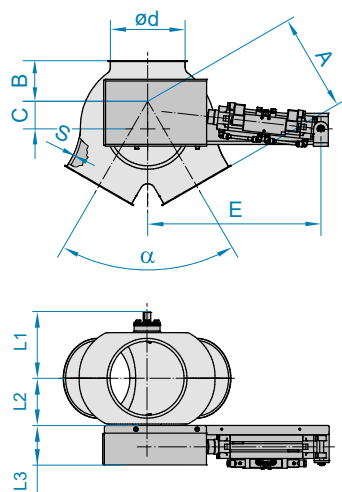
Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, SYMMETRICAL, FITTED WITH CYLINDER

2155

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	56	41	440	129	88	88	5582100221	852.50			6582100221	1072.00
120	60°	160	50	54	440	129	99	88	5582120221	860.50			6582120221	1100.00
150	60°	200	80	60	440	146	116	88	5582150221	861.50	5583150221	936.50	6582150221	1248.00
175	60°	218	63	75	440	159	129	88	5582170121	945.50	5583170121	1046.00	6582170121	1396.00
200	60°	265	110	70	470	178	148	88	5582200121	1006.00	5583200121	1113.00	6582200121	1490.00
250	60°	305	115	82	470	199	169	88	5582250121	1114.00	5583250121	1292.00	6582250121	1777.00
300	60°	385	145	110	470	225	195	88	5582300221	1252.00	5583300221	1383.00	6582300221	1967.00
350	50°	520	95	185	470	345	300	90	5582350121	1958.00	5583350121	2253.00	6582350121	3118.00
400	50°	580	105	195	470	378	333	90	5582400121	2118.00	5583400121	2453.00	6582400121	3449.00

Cylinder, make FESTO, control voltage 24 V DC

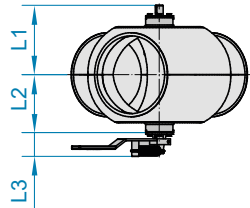
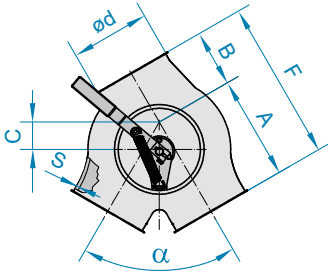
100	60°	135	56	41	440	129	88	88	5582100223	852.50			6582100223	1072.00
120	60°	160	50	54	440	129	99	88	5582120223	860.50			6582120223	1100.00
150	60°	200	80	60	440	146	116	88	5582150223	861.50	5583150223	936.50	6582150223	1248.00
175	60°	218	63	75	440	159	129	88	5582170123	945.50	5583170123	1046.00	6582170123	1396.00
200	60°	265	110	70	470	178	148	88	5582200123	1006.00	5583200123	1113.00	6582200123	1490.00
250	60°	305	115	82	470	199	169	88	5582250123	1114.00	5583250123	1292.00	6582250123	1777.00
300	60°	385	145	110	470	225	195	88	5582300223	1252.00	5583300223	1383.00	6582300223	1967.00
350	50°	520	95	185	470	345	300	90	5582350123	1958.00	5583350123	2253.00	6582350123	3118.00
400	50°	580	105	195	470	378	333	90	5582400123	2118.00	5583400123	2453.00	6582400123	3449.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, HAND-OPERATED

2140



- Standard version: Right-side mounting

- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	
100	60°	135	65	41	200	118	88	60	12101512	179.00			12103512	414.50	
120	60°	160	70	54	230	129	99	60	12121512	190.50			12123512	444.50	
150	60°	200	100	60	300	146	116	60	12151512	208.00	13151512	291.50	12153512	581.50	
175	60°	218	90	75	308	159	129	60	12171517	258.50	13171517	359.50	12173517	716.00	
200	60°	265	145	70	410	178	148	60	12201517	323.50	13201517	419.50	12203517	812.50	
250	60°	305	155	82	460	199	169	60	12251517	429.00	13251517	560.00	12253517	1123.00	
300	60°	385	190	110	575	225	195	60	12301512	592.00	13301512	694.50	12303512	1336.00	
350	50°	520	150	185	670	345	300	90	12351515	1154.00	13351515	1496.00	12353515	2573.00	
400	50°	580	170	195	750	378	333	90	12401515	1331.00	13401515	1713.00	12403515	2958.00	

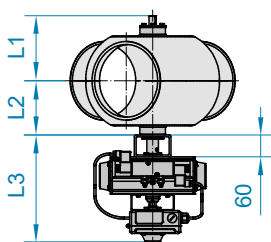
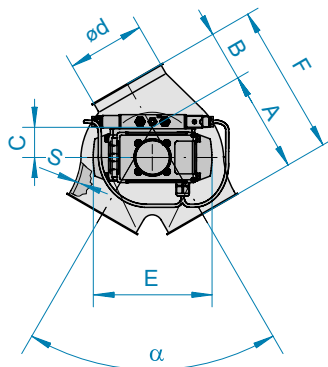
TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2160



- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Standard version: Right-side mounting
- Completely wired in limit switch box

- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	135	65	41	216	200	82	88	286	5592100244	852.50			6592100244	1072.00	
120	60°	160	70	54	216	230	90	99	286	5592120244	860.50			6592120244	1100.00	
150	60°	200	100	60	216	300	146	116	286	5592150244	861.50	5593150244	936.50	6592150244	1248.00	
175	60°	218	90	75	216	308	159	129	286	5592170144	945.50	5593170144	1046.00	6592170144	1396.00	
200	60°	265	145	70	291	410	178	148	303	5592200144	1006.00	5593200144	1113.00	6592200144	1490.00	
250	60°	305	156	82	291	460	199	169	303	5592250144	1114.00	5593250144	1292.00	6592250144	1777.00	
300	60°	385	190	110	291	575	225	195	303	5592300244	1252.00	5593300244	1383.00	6592300244	1967.00	
350	50°	520	150	185	335	670	325	300	316	5592350144	1958.00	5593350144	2253.00	6592350144	3118.00	
400	50°	580	170	195	335	750	350	333	316	5592400144	2118.00	5593400144	2453.00	6592400144	3449.00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	65	41	216	200	82	88	286	5592100245	852.50			6592100245	1072.00	
120	60°	160	70	54	216	230	90	99	286	5592120245	860.50			6592120245	1100.00	
150	60°	200	100	60	216	300	146	116	286	5592150245	861.50	5593150245	936.50	6592150245	1248.00	
175	60°	218	90	75	216	308	159	129	286	5592170145	945.50	5593170145	1046.00	6592170145	1396.00	
200	60°	265	145	70	291	410	178	148	303	5592200145	1006.00	5593200145	1113.00	6592200145	1490.00	
250	60°	305	156	82	291	460	199	169	303	5592250145	1114.00	5593250145	1292.00	6592250145	1777.00	
300	60°	385	190	110	291	575	225	195	303	5592300245	1252.00	5593300245	1383.00	6592300245	1967.00	
350	50°	520	150	185	335	670	325	300	316	5592350145	1958.00	5593350145	2253.00	6592350145	3118.00	
400	50°	580	170	195	335	750	350	333	316	5592400145	2118.00	5593400145	2453.00	6592400145	3449.00	

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EC 1935/2004 plus FDA compliant



TWO-WAY DISTRIBUTORS

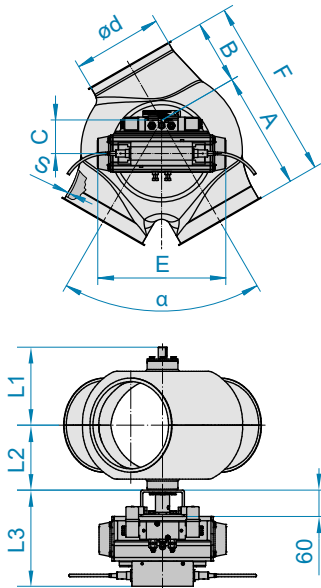
Two-way valves with inlet collar



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2160

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs

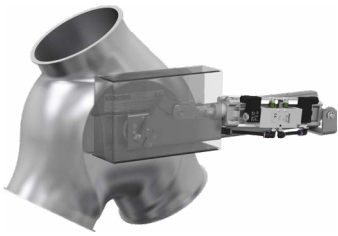


DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	135	65	41	216	200	118	88	203	55921002455	1064.00			65921002455	1283.00
120	60°	160	70	54	216	230	129	99	203	55921202455	1073.00			65921202455	1311.00
150	60°	200	100	60	216	300	146	116	203	55921502455	1074.00	55931502455	1149.00	65921502455	1461.00
175	60°	218	90	75	216	308	159	129	203	55921701455	1158.00	55931701455	1259.00	65921701455	1608.00
200	60°	265	145	70	291	410	178	148	220	55922001455	1219.00	55932001455	1327.00	65922001455	1700.00
250	60°	305	155	82	291	460	199	169	220	55922501455	1327.00	55932501455	1505.00	65922501455	1986.00
300	60°	385	190	110	291	575	225	195	220	55923002455	1465.00	55933002455	1594.00	65923002455	2177.00
350	50°	520	150	185	335	670	345	300	233	55923501455	2170.00	55933501455	2465.00	65923501455	3327.00
400	50°	580	170	195	335	750	378	333	233	55924001455	2331.00	55934001455	2664.00	65924001455	3660.00

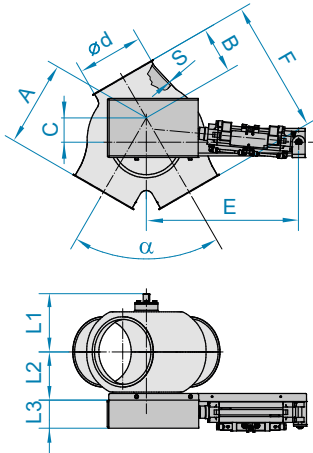
F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH CYLINDER

2165

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	65	41	440	200	82	88	88	5592100221	852.50			6592100221	1072.00
120	60°	160	70	54	440	230	90	99	88	5592120221	860.50			6592120221	1100.00
150	60°	200	100	60	440	300	146	116	88	5592150221	861.50	5593150221	936.50	6592150221	1248.00
175	60°	218	90	75	440	308	159	129	88	5592170121	945.50	5593170121	1046.00	6592170121	1396.00
200	60°	265	145	70	470	410	178	148	88	5592200121	1006.00	5593200121	1113.00	6592200121	1490.00
250	60°	305	156	82	470	460	199	169	88	5592250121	1114.00	5593250121	1292.00	6592250121	1777.00
300	60°	385	190	110	470	575	225	195	88	5592300221	1252.00	5593300221	1383.00	6592300221	1967.00
350	50°	520	150	185	470	670	325	300	90	5592350121	1958.00	5593350121	2253.00	6592350121	3118.00
400	50°	580	170	195	470	750	350	333	90	5592400121	2118.00	5593400121	2453.00	6592400121	3449.00

Cylinder, make FESTO, control voltage 24 V DC

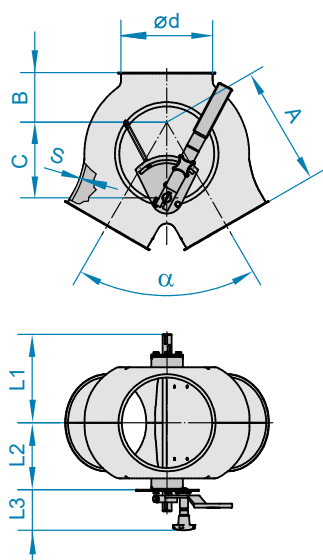
100	60°	135	65	41	440	200	82	88	88	5592100223	852.50			6592100223	1072.00
120	60°	160	70	54	440	230	90	99	88	5592120223	860.50			6592120223	1100.00
150	60°	200	100	60	440	300	146	116	88	5592150223	861.50	5593150223	936.50	6592150223	1248.00
175	60°	218	90	75	440	308	159	129	88	5592170123	945.50	5593170123	1046.00	6592170123	1396.00
200	60°	265	145	70	470	410	178	148	88	5592200123	1006.00	5593200123	1113.00	6592200123	1490.00
250	60°	305	156	82	470	460	199	169	88	5592250123	1114.00	5593250123	1292.00	6592250123	1777.00
300	60°	385	190	110	470	575	225	195	88	5592300223	1252.00	5593300223	1383.00	6592300223	1967.00
350	50°	520	150	185	470	670	325	300	90	5592350123	1958.00	5593350123	2253.00	6592350123	3118.00
400	50°	580	170	195	470	750	350	333	90	5592400123	2118.00	5593400123	2453.00	6592400123	3449.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY DISTRIBUTORS

Two-way valves with seal



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, HAND-OPERATED

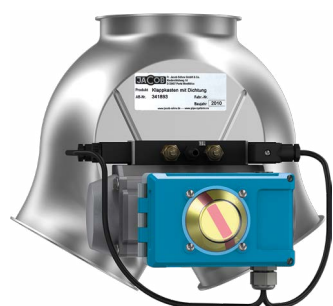
2170

- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	Item no.	€	
100	60°	135	50	87	140	88	88	12101503	404.50			121035037	594.00	
120	60°	160	50	112	148	96	88	12121503	404.50			121235037	594.00	
150	60°	200	80	136	168	119	88	12151503	428.50	13151503	494.50	121535037	723.00	
175	60°	218	63	170	198	147	88	12171506	498.00	13171506	543.00	121735067	976.50	
200	60°	265	110	167	199	150	88	12201506	498.00	13201506	543.00	122035067	976.50	
250	60°	305	115	215	220	171	88	12251506	508.00	13251506	620.50	122535067	1203.00	
300	60°	385	145	260	264	213	88	12301503	622.50	13301503	755.50	123035037	1403.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2190

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

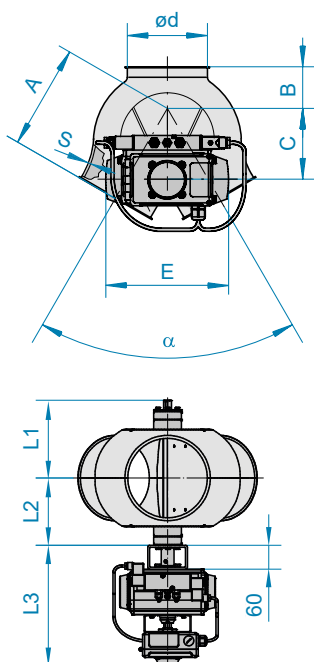
100	60°	135	50	87	203.5	140	110	303	5542100244	974.00			65421002744	1247.00	
120	60°	160	50	112	203.5	148	118	303	5542120244	974.00			65421202744	1247.00	
150	60°	200	80	136	203.5	168	138	303	5542150244	996.50	5543150244	1062.00	65421502744	1376.00	
175	60°	218	63	170	203.5	198	168	303	5542170144	1091.00	5543170144	1144.00	65421701744	1661.00	
200	60°	265	110	167	241	199	169	316	5542200144	1091.00	5543200144	1144.00	65422001744	1661.00	
250	60°	305	115	215	241	220	190	316	5542250144	1101.00	5543250144	1228.00	65422501744	1880.00	
300	60°	385	145	260	241	264	234	316	5542300244	1207.00	5543300244	1344.00	65423002744	2076.00	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	50	87	203.5	140	110	303	5542100245	974.00			65421002745	1247.00	
120	60°	160	50	112	203.5	148	118	303	5542120245	974.00			65421202745	1247.00	
150	60°	200	80	136	203.5	168	138	303	5542150245	996.50	5543150245	1062.00	65421502745	1376.00	
175	60°	218	63	170	203.5	198	168	303	5542170145	1091.00	5543170145	1144.00	65421701745	1661.00	
200	60°	265	110	167	241	199	169	316	5542200145	1091.00	5543200145	1144.00	65422001745	1661.00	
250	60°	305	115	215	241	220	190	316	5542250145	1101.00	5543250145	1228.00	65422501745	1880.00	
300	60°	385	145	260	241	264	234	316	5542300245	1207.00	5543300245	1344.00	65423002745	2076.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.



F FOOD GRADE
EC 1935/2004 plus FDA compliant

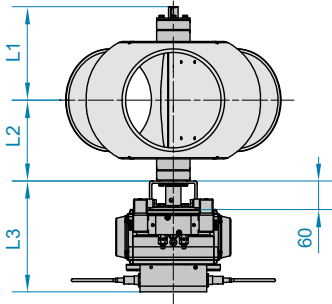
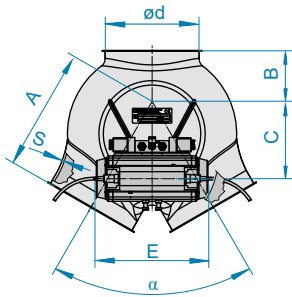
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2190

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Terminal box available on request
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	135	50	87	203.5	140	110	220	55421002455	1186.00			654210027455	1459.00	
120	60°	160	50	112	203.5	148	118	220	55421202455	1186.00			654212027455	1459.00	
150	60°	200	80	136	203.5	168	138	220	55421502455	1209.00	55431502455	1274.00	654215027455	1585.00	
175	60°	218	63	170	203.5	198	168	220	55421701455	1302.00	55431701455	1356.00	654217017455	1871.00	
200	60°	265	110	167	241	199	169	233	55422001455	1302.00	55432001455	1356.00	654220017455	1871.00	
250	60°	305	115	215	241	220	190	233	55422501455	1313.00	55432501455	1441.00	654225017455	2090.00	
300	60°	385	145	260	241	245	215	233	55423002455	1419.00	55433002455	1556.00	654230027455	2286.00	



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

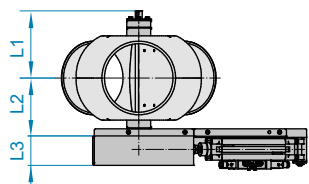
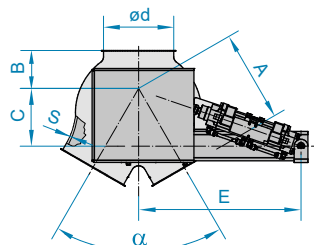
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way valves with seal



TWO-WAY VALVES WITH SEAL, SYMMETRICAL, FITTED WITH CYLINDER

2195

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	50	87	440	140	110	88	5542100221	1018.00			65421002721	1291.00
120	60°	160	50	112	440	148	118	88	5542120221	1018.00			65421202721	1291.00
150	60°	200	80	136	440	168	138	88	5542150221	1040.00	5543150221	1104.00	65421502721	1418.00
175	60°	218	63	170	440	198	168	88	5542170121	1135.00	5543170121	1186.00	65421701721	1704.00
200	60°	265	110	167	470	199	169	88	5542200121	1135.00	5543200121	1186.00	65422001721	1704.00
250	60°	305	115	215	470	220	190	88	5542250121	1145.00	5543250121	1272.00	65422501721	1924.00
300	60°	385	145	260	470	264	234	88	5542300221	1250.00	5543300221	1388.00	65423002721	2120.00

Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	50	87	440	140	110	88	5542100223	1018.00			65421002723	1291.00
120	60°	160	50	112	440	148	118	88	5542120223	1018.00			65421202723	1291.00
150	60°	200	80	136	440	168	138	88	5542150223	1040.00	5543150223	1104.00	65421502723	1418.00
175	60°	218	63	170	440	198	168	88	5542170123	1135.00	5543170123	1186.00	65421701723	1704.00
200	60°	265	110	167	470	199	169	88	5542200123	1135.00	5543200123	1186.00	65422001723	1704.00
250	60°	305	115	215	470	220	190	88	5542250123	1145.00	5543250123	1272.00	65422501723	1924.00
300	60°	385	145	260	470	264	234	88	5542300223	1250.00	5543300223	1388.00	65423002723	2120.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

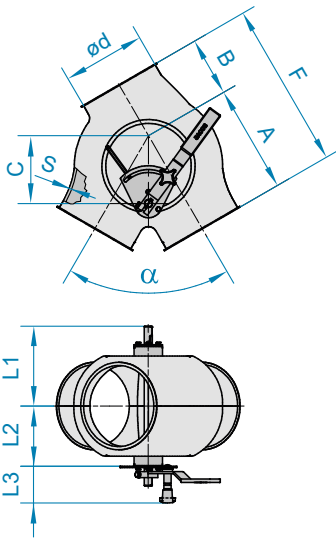
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, HAND-OPERATED

2180



- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

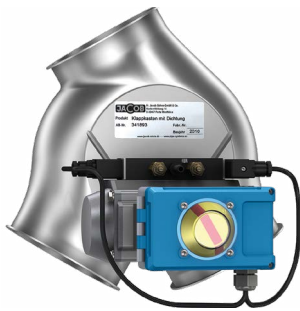
DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€	Item no.	€
100	60°	135	65	87	200	140	88	88	12101513	404.50			121035137	594.00
120	60°	160	70	112	230	148	96	88	12121513	404.50			121235137	594.00
150	60°	200	100	136	300	168	119	88	12151513	428.50	13151513	494.50	121535137	723.00
175	60°	218	90	170	308	198	149	88	12171516	498.00	13171516	543.00	121735167	976.50
200	60°	265	145	167	410	199	150	88	12201516	498.00	13201516	543.00	122035167	976.50
250	60°	305	155	215	460	220	171	88	12251516	508.00	13251516	620.50	122535167	1203.00
300	60°	385	190	260	575	264	197	88	12301513	622.50	13301513	755.50	123035137	1403.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2200



- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

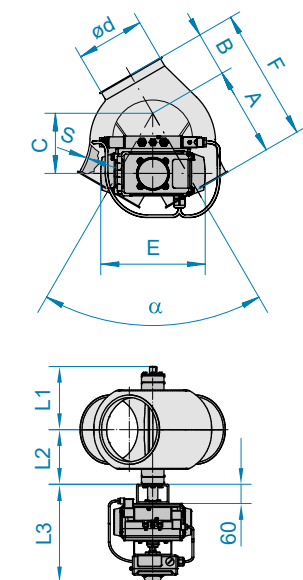
100	60°	135	65	87	203.5	200	140	110	303	5552100244	974.00			65521002744	1247.00
120	60°	160	70	112	203.5	230	148	118	303	5552120244	974.00			65521202744	1247.00
150	60°	200	100	136	203.5	300	168	138	303	5552150244	996.50	5553150244	1062.00	65521502744	1376.00
175	60°	218	90	170	203.5	308	198	168	303	5552170144	1091.00	5553170144	1144.00	65521701744	1661.00
200	60°	265	145	167	241	410	199	169	316	5552200144	1091.00	5553200144	1144.00	65522001744	1661.00
250	60°	305	155	215	241	460	220	190	316	5552250144	1101.00	5553250144	1228.00	65522501744	1880.00
300	60°	385	190	260	241	575	264	234	316	5552300244	1207.00	5553300244	1344.00	65523002744	2076.00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	135	65	87	203.5	200	140	110	303	5552100245	974.00			65521002745	1247.00
120	60°	160	70	112	203.5	230	148	118	303	5552120245	974.00			65521202745	1247.00
150	60°	200	100	136	203.5	300	168	138	303	5552150245	996.50	5553150245	1062.00	65521502745	1376.00
175	60°	218	90	170	203.5	308	198	168	303	5552170145	1091.00	5553170145	1144.00	65521701745	1661.00
200	60°	265	145	167	241	410	199	169	316	5552200145	1091.00	5553200145	1144.00	65522001745	1661.00
250	60°	305	155	215	241	460	220	190	316	5552250145	1101.00	5553250145	1228.00	65522501745	1880.00
300	60°	385	190	260	241	575	264	234	316	5552300245	1207.00	5553300245	1344.00	65523002745	2076.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

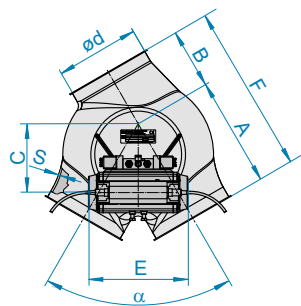
Two-way valves with seal



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2200

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Terminal box available on request
- Standard version: Right-side mounting
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



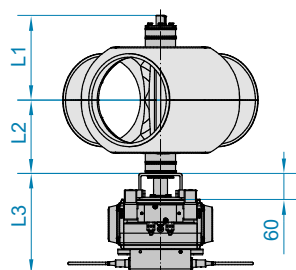
DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	135	65	87	203.5	200	140	110	220	55521002455	1186.00			655210027455	1459.00	
120	60°	160	70	112	203.5	230	148	118	220	55521202455	1186.00			655212027455	1459.00	
150	60°	200	100	136	203.5	300	168	138	220	55521502455	1209.00	55531502455	1274.00	655215027455	1585.00	
175	60°	218	90	170	203.5	308	198	168	220	55521701455	1302.00	55531701455	1356.00	655217017455	1871.00	
200	60°	265	145	167	241	410	199	169	233	55522001455	1302.00	55532001455	1356.00	655220017455	1871.00	
250	60°	305	155	215	241	460	220	190	233	55522501455	1313.00	55532501455	1441.00	655225017455	2090.00	
300	60°	385	190	260	241	575	245	215	233	55523002455	1419.00	55533002455	1556.00	655230027455	2286.00	

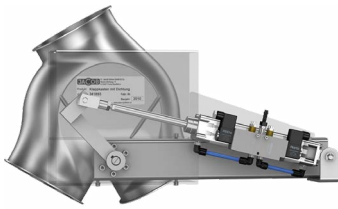


AVAILABLE IN THE DETECTABLE DESIGN LINE.



F FOOD GRADE
EC 1935/2004 plus FDA compliant

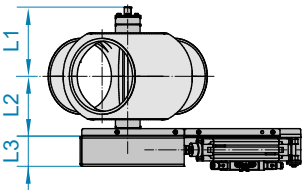
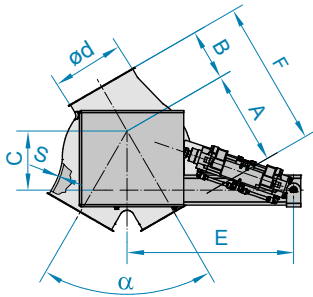
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY VALVES WITH SEAL, ASYMMETRICAL, FITTED WITH CYLINDER

2205

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	135	65	87	440	200	140	110	88	5552100221	1018.00			65521002721	1291.00	
120	60°	160	70	112	440	230	148	118	88	5552120221	1018.00			65521202721	1291.00	
150	60°	200	100	136	440	300	168	138	88	5552150221	1040.00	5553150221	1104.00	65521502721	1418.00	
175	60°	218	90	170	440	308	198	168	88	5552170121	1135.00	5553170121	1186.00	65521701721	1704.00	
200	60°	265	145	167	470	410	199	169	88	5552200121	1135.00	5553200121	1186.00	65522001721	1704.00	
250	60°	305	155	215	470	460	220	190	88	5552250121	1145.00	5553250121	1272.00	65522501721	1924.00	
300	60°	385	190	260	470	575	264	234	88	5552300221	1250.00	5553300221	1388.00	65523002721	2120.00	

Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	65	87	440	200	140	110	88	5552100223	1018.00			65521002723	1291.00	
120	60°	160	70	112	440	230	148	118	88	5552120223	1018.00			65521202723	1291.00	
150	60°	200	100	136	440	300	168	138	88	5552150223	1040.00	5553150223	1104.00	65521502723	1418.00	
175	60°	218	90	170	440	308	198	168	88	5552170123	1135.00	5553170123	1186.00	65521701723	1704.00	
200	60°	265	145	167	470	410	199	169	88	5552200123	1135.00	5553200123	1186.00	65522001723	1704.00	
250	60°	305	155	215	470	460	220	190	88	5552250123	1145.00	5553250123	1272.00	65522501723	1924.00	
300	60°	385	190	260	470	575	264	234	88	5552300223	1250.00	5553300223	1388.00	65523002723	2120.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

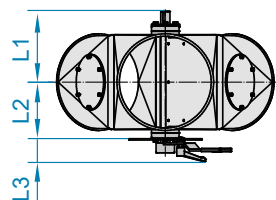
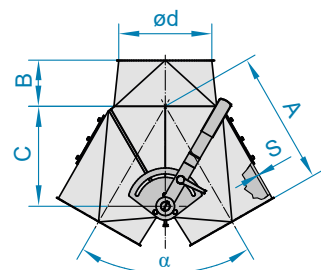
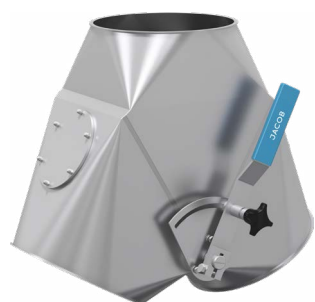
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way distributors



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, HAND-OPERATED

2250

- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
								Item no.	€	Item no.	€	
100	60°	220	65	128	117	82	75	12101508	1351.00	12103508	2172.00	
120	60°	240	70	145	127	92	75	12121508	1351.00	12123508	2172.00	
150	60°	250	75	168	142	107	75	12151508	1395.00	12153508	2226.00	
200	60°	300	105	218	164	132	75	12201508	1453.00	12203508	2291.00	
250	60°	370	130	277	205	160	75	12251508	1498.00	12253508	2339.00	
300	60°	435	150	326	230	185	75	12301508	1635.00	12303508	2449.00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

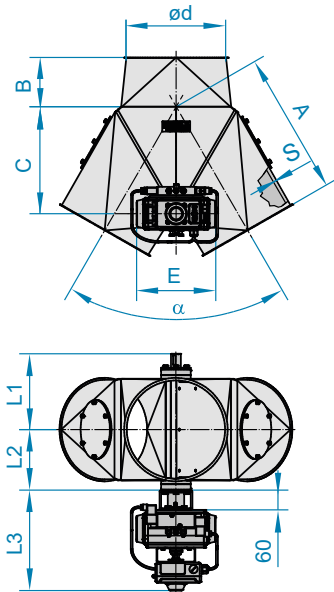
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2270

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	220	65	128	203.5	117	82	303	5982100144	1827.00	6982100144	2649.00
120	60°	240	70	145	203.5	127	92	303	5982120144	1827.00	6982120144	2649.00
150	60°	250	75	168	203.5	142	107	303	5982150144	1868.00	6982150144	2697.00
200	60°	300	105	218	241	164	132	316	5982200144	2019.00	6982200144	2848.00
250	60°	370	130	277	259	205	160	328	5982250144	2153.00	6982250144	2986.00
300	60°	435	150	326	259	230	185	328	5982300144	2193.00	6982300144	3197.00
350	60°	500	185	377	333	255	210	358	5982350144	2517.00	6982350144	3548.00
400	60°	600	205	427	333	280	235	358	5982400144	2986.00	6982400144	4114.00
450	60°	650	225	474	422.5	301	261	397	5983450144*	3401.00	6983450144*	4838.00
500	60°	700	250	574	422.5	326	286	397	5983500144*	3712.00	6983500144*	5409.00
560	60°	800	300	592	422.5	437	357	397	5983560144*	4889.00	6983560144*	6255.00
630	60°	900	350	662	422.5	472	392	397	5983630144*	5776.00	6983630144*	7281.00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	220	65	128	203.5	117	82	303	5982100145	1827.00	6982100145	2649.00
120	60°	240	70	145	203.5	127	92	303	5982120145	1827.00	6982120145	2649.00
150	60°	250	75	168	203.5	142	107	303	5982150145	1868.00	6982150145	2697.00
200	60°	300	105	218	241	164	132	316	5982200145	2019.00	6982200145	2848.00
250	60°	370	130	277	259	205	160	328	5982250145	2153.00	6982250145	2986.00
300	60°	435	150	326	259	230	185	328	5982300145	2193.00	6982300145	3197.00
350	60°	500	185	377	333	255	210	358	5982350145	2517.00	6982350145	3548.00
400	60°	600	205	427	333	280	235	358	5982400145	2986.00	6982400145	4114.00
450	60°	650	225	474	422.5	301	261	397	5983450145*	3401.00	6983450145*	4838.00
500	60°	700	250	574	422.5	326	286	397	5983500145*	3712.00	6983500145*	5409.00
560	60°	800	300	592	422.5	437	357	397	5983560145*	4889.00	6983560145*	6255.00
630	60°	900	350	662	422.5	472	392	397	5983630145*	5776.00	6983630145*	7281.00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

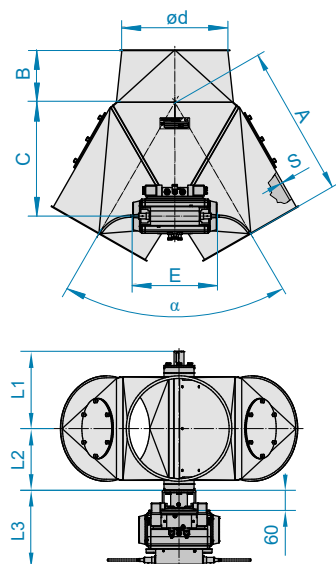
Two-way distributors



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2270

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	220	65	128	203.5	117	82	220	59821001455	2040.00	69821001455	2861.00
120	60°	240	70	145	203.5	127	92	220	59821201455	2040.00	69821201455	2861.00
150	60°	250	75	168	203.5	142	107	233	59821501455	2078.00	69821501455	2909.00
200	60°	300	105	218	241	164	132	233	59822001455	2231.00	69822001455	3059.00
250	60°	370	130	277	259	205	160	245	59822501455	2364.00	69822501455	3197.00
300	60°	435	150	326	259	230	185	245	59823001455	2403.00	69823001455	3407.00
350	60°	500	185	377	333	255	210	275	59823501455	2730.00	69823501455	3760.00
400	60°	600	205	427	333	280	235	275	59824001455	3198.00	69824001455	4326.00
450	60°	650	225	474	422.5	450	302	314	59834501455*	3614.00	69834501455*	5049.00
500	60°	700	250	524	422.5	475	327	314	59835001455*	3924.00	69835001455*	5619.00
560	60°	800	300	592	422.5	505	357	314	59835601455*	5099.00	69835601455*	6464.00
630	60°	900	350	662	422.5	540	392	314	59836301455*	5989.00	69836301455*	7492.00

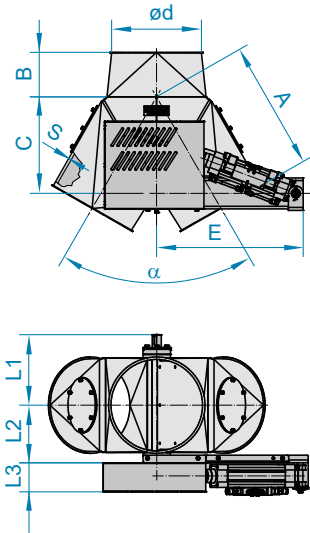
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, SYMMETRICAL, FITTED WITH CYLINDER

2275

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Other cylinders are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	

Cylinder, make FESTO, control voltage 230 V AC

100	60°	220	65	128	440	117	82	88	5982100121	1901.00	6982100121	2721.00
120	60°	240	70	145	440	127	92	88	5982120121	1901.00	6982120121	2721.00
150	60°	250	75	168	470	142	107	88	5982150121	1938.00	6982150121	2768.00
200	60°	300	105	218	470	164	132	88	5982200121	2091.00	6982200121	2920.00
250	60°	370	130	277	470	205	160	90	5982250121	2228.00	6982250121	3057.00
300	60°	435	150	326	470	230	185	90	5982300121	2264.00	6982300121	3266.00
350	60°	500	185	377	490	255	210	110	5982350121	2600.00	6982350121	3629.00
400	60°	600	205	427	490	280	235	110	5982400121	3082.00	6982400121	4206.00
450	60°	650	225	474	540	301	261	110	5983450121*	3513.00	6983450121*	4945.00
500	60°	700	250	574	540	326	286	110	5983500121*	3830.00	6983500121*	5532.00
560	60°	800	300	592	540	437	357	110	5983560121*	5043.00	6983560121*	6395.00
630	60°	900	350	662	540	472	392	110	5983630121*	5960.00	6983630121*	7443.00

Cylinder, make FESTO, control voltage 24 V DC

100	60°	220	65	128	440	117	82	88	5982100123	1901.00	6982100123	2721.00
120	60°	240	70	145	440	127	92	88	5982120123	1901.00	6982120123	2721.00
150	60°	250	75	168	470	142	107	88	5982150123	1938.00	6982150123	2768.00
200	60°	300	105	218	470	164	132	88	5982200123	2091.00	6982200123	2920.00
250	60°	370	130	277	470	205	160	90	5982250123	2228.00	6982250123	3057.00
300	60°	435	150	326	470	230	185	90	5982300123	2264.00	6982300123	3266.00
350	60°	500	185	377	490	255	210	110	5982350123	2670.00	6982350123	3629.00
400	60°	600	205	427	490	280	235	110	5982400123	3082.00	6982400123	4206.00
450	60°	650	225	474	540	301	261	110	5983450123*	3513.00	6983450123*	4945.00
500	60°	700	250	574	540	326	286	110	5983500123*	3830.00	6983500123*	5532.00
560	60°	800	300	592	540	437	357	110	5983560123*	5043.00	6983560123*	6395.00
630	60°	900	350	662	540	472	392	110	5983630123*	5960.00	6983630123*	7443.00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

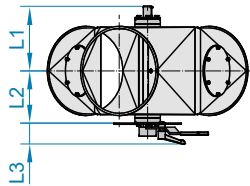
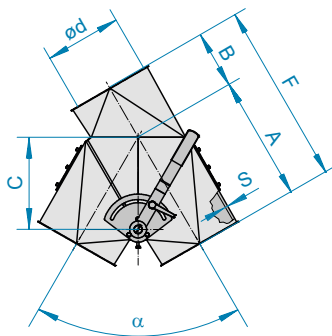
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way distributors



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, HAND-OPERATED

2260

- Standard version: Right-side mounting
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	
100	60°	220	100	128	320	117	82	75	12101509	1351.00	12103509	2172.00	
120	60°	240	110	145	350	127	92	75	12121509	1351.00	12123509	2172.00	
150	60°	250	115	168	365	142	107	75	12151509	1395.00	12153509	2226.00	
200	60°	300	140	218	440	164	132	75	12201509	1453.00	12203509	2291.00	
250	60°	370	170	277	540	205	160	75	12251509	1498.00	12253509	2339.00	
300	60°	435	200	326	635	230	185	75	12301509	1635.00	12303509	2449.00	



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

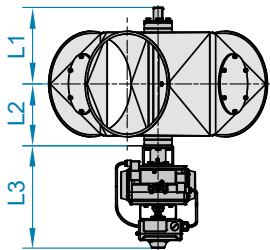
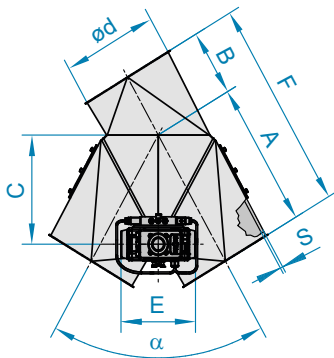
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2280

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Other rotary actuators are available. Prices on request
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	220	100	128	203.5	320	117	82	303	5992100144	1827.00	6992100144	2649.00
120	60°	240	110	145	203.5	350	127	92	303	5992120144	1827.00	6992120144	2649.00
150	60°	250	115	168	203.5	365	142	107	303	5992150144	1868.00	6992150144	2697.00
200	60°	300	140	218	241	440	164	132	316	5992200144	2019.00	6992200144	2848.00
250	60°	370	170	277	259	540	205	160	328	5992250144	2153.00	6992250144	2986.00
300	60°	435	200	326	259	635	230	185	328	5992300144	2193.00	6992300144	3197.00
350	60°	500	230	377	333	730	255	210	358	5992350144	2517.00	6992350144	3548.00
400	60°	600	250	427	333	850	280	235	358	5992400144	2986.00	6992400144	4114.00
450	60°	650	270	474	422.5	920	301	256	397	5993450144*	3401.00	6993450144*	4838.00
500	60°	700	300	542	422.5	1000	326	288	397	5993500144*	3712.00	6993500144*	5409.00
560	60°	800	350	592	422.5	1150	437	357	397	5993560144*	4889.00	6993560144*	6255.00
630	60°	900	400	662	422.5	1300	472	392	397	5993630144*	5776.00	6993630144*	7281.00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	60°	220	100	128	203.5	320	117	82	303	5992100145	1827.00	6992100145	2649.00
120	60°	240	110	145	203.5	350	127	92	303	5992120145	1827.00	6992120145	2649.00
150	60°	250	115	168	203.5	365	142	107	303	5992150145	1868.00	6992150145	2697.00
200	60°	300	140	218	241	440	164	132	316	5992200145	2019.00	6992200145	2848.00
250	60°	370	170	277	259	540	205	160	328	5992250145	2153.00	6992250145	2986.00
300	60°	435	200	326	259	635	230	185	328	5992300145	2193.00	6992300145	3197.00
350	60°	500	230	377	333	730	255	210	358	5992350145	2517.00	6992350145	3548.00
400	60°	600	250	427	333	850	280	235	358	5992400145	2986.00	6992400145	4114.00
450	60°	650	270	474	422.5	920	301	256	397	5993450145*	3401.00	6993450145*	4838.00
500	60°	700	300	542	422.5	1000	326	288	397	5993500145*	3712.00	6993500145*	5409.00
560	60°	800	350	592	422.5	1150	437	357	397	5993560145*	4889.00	6993560145*	6255.00
630	60°	900	400	662	422.5	1300	472	392	397	5993630145*	5776.00	6993630145*	7281.00

*3 mm



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

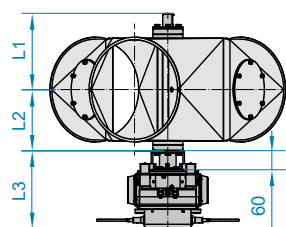
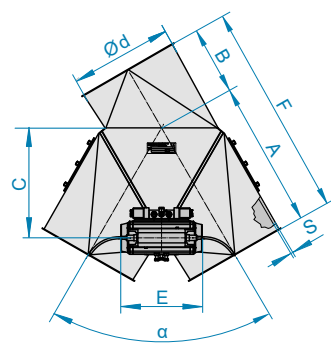
Two-way distributors



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2280

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Shaft and inner flap with seal
- Standard version: Right-side mounting
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	60°	220	100	128	203.5	320	117	82	220	59921001455	2040.00	69921001455	2861.00
120	60°	240	110	145	203.5	350	127	92	220	59921201455	2040.00	69921201455	2861.00
150	60°	250	115	168	203.5	365	142	107	233	59921501455	2078.00	69921501455	2909.00
200	60°	300	140	218	241	440	164	132	233	59922001455	2231.00	69922001455	3059.00
250	60°	370	170	277	259	540	205	160	245	59922501455	2364.00	69922501455	3197.00
300	60°	435	200	326	259	635	230	185	245	59923001455	2403.00	69923001455	3407.00
350	60°	500	230	377	333	730	255	210	275	59923501455	2730.00	69923501455	3760.00
400	60°	600	250	427	333	850	280	235	275	59924001455	3198.00	69924001455	4326.00
450	60°	650	270	474	422.5	920	450	302	314	59934501455*	3614.00	69934501455*	5049.00
500	60°	700	300	524	422.5	1000	475	327	314	59935001455*	3924.00	69935001455*	5619.00
560	60°	800	350	592	422.5	1150	505	357	314	59935601455*	5099.00	69935601455*	6464.00
630	60°	900	400	662	422.5	1300	540	392	314	59936301455*	5989.00	69936301455*	7492.00

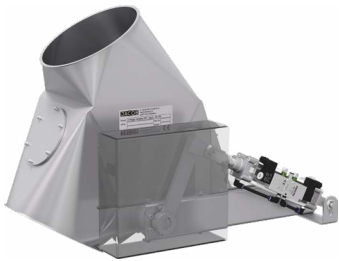
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

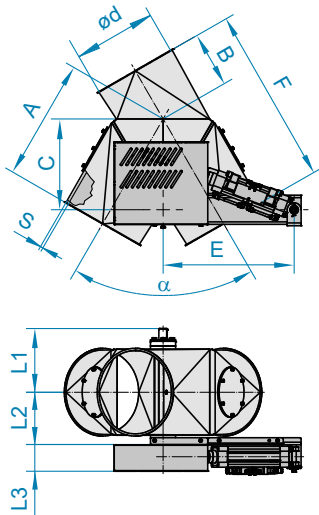
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, ASYMMETRICAL, FITTED WITH CYLINDER

2285

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Standard version: Right-side mounting
- Other cylinders are available. Prices on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€

Cylinder, make FESTO, control voltage 230 V AC

100	60°	220	100	128	440	320	117	82	88	5992100121	1901.00	6992100121	2721.00
120	60°	240	110	145	440	350	127	92	88	5992120121	1901.00	6992120121	2721.00
150	60°	250	115	168	470	365	142	107	88	5992150121	1938.00	6992150121	2768.00
200	60°	300	140	218	470	440	164	132	88	5992200121	2091.00	6992200121	2920.00
250	60°	370	170	277	470	540	205	160	90	5992250121	2228.00	6992250121	3057.00
300	60°	435	200	326	470	635	230	185	90	5992300121	2264.00	6992300121	3266.00
350	60°	500	230	377	490	730	255	210	110	5992350121	2600.00	6992350121	3629.00
400	60°	600	250	427	490	850	280	235	110	5992400121	3082.00	6992400121	4206.00
450	60°	650	270	474	540	920	301	256	110	5993450121*	3513.00	6993450121*	4945.00
500	60°	700	300	542	540	1000	326	288	110	5993500121*	3830.00	6993500121*	5532.00
560	60°	800	350	592	540	1150	437	357	110	5993560121*	5043.00	6993560121*	6395.00
630	60°	900	400	662	540	1300	472	392	110	5993630121*	5960.00	6993630121*	7443.00

Cylinder, make FESTO, control voltage 24 V DC

100	60°	220	100	128	440	320	117	82	88	5992100123	1901.00	6992100123	2721.00
120	60°	240	110	145	440	350	127	92	88	5992120123	1901.00	6992120123	2721.00
150	60°	250	115	168	470	365	142	107	88	5992150123	1938.00	6992150123	2768.00
200	60°	300	140	218	470	440	164	132	88	5992200123	2091.00	6992200123	2920.00
250	60°	370	170	277	470	540	205	160	90	5992250123	2228.00	6992250123	3057.00
300	60°	435	200	326	470	635	230	185	90	5992300123	2264.00	6992300123	3266.00
350	60°	500	230	377	490	730	255	210	110	5992350123	2600.00	6992350123	3629.00
400	60°	600	250	427	490	850	280	235	110	5992400123	3082.00	6992400123	4206.00
450	60°	650	270	474	540	920	301	256	110	5993450123*	3513.00	6993450123*	4945.00
500	60°	700	300	542	540	1000	326	288	110	5993500123*	3830.00	6993500123*	5532.00
560	60°	800	350	592	540	1150	437	357	110	5993560123*	5043.00	6993560123*	6395.00
630	60°	900	400	662	540	1300	472	392	110	5993630123*	5960.00	6993630123*	7443.00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

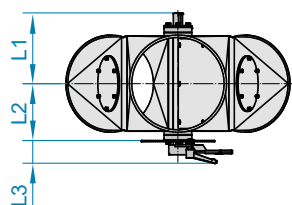
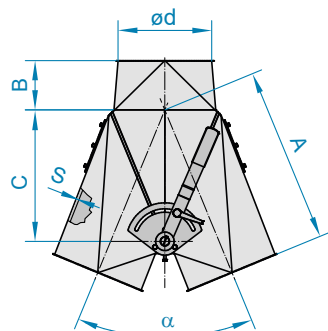
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way distributors



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, HAND-OPERATED

2210

- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€
100	45°	260	65	165	117	82	75	12101518	1479.00	12103518	2374.00
120	45°	280	70	185	127	92	75	12121518	1479.00	12123518	2374.00
150	45°	315	75	225	142	107	75	12151518	1520.00	12153518	2425.00
175	45°	350	90	255	151	119	75	12171518	1586.00	12173518	2496.00
200	45°	400	105	289	164	132	75	12201518	1586.00	12203518	2496.00
250	45°	480	130	356	205	160	75	12251518	1634.00	12253518	2545.00
300	45°	570	160	426	230	185	75	12301518	1781.00	12303518	2667.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

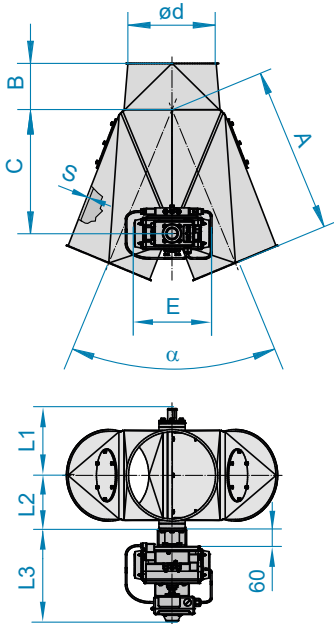
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2230

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Shaft and inner flap with seal
- Other rotary actuators are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	45°	260	65	165	203.5	117	82	303	5922100144	2043.00	6922100144	2936.00
120	45°	280	70	185	203.5	127	107	303	5922120144	2043.00	6922120144	2936.00
150	45°	315	75	225	203.5	142	107	303	5922150144	2077.00	6922150144	2978.00
175	45°	350	90	255	241	150	119	316	5922170144	2249.00	6922170144	3147.00
200	45°	400	105	289	241	164	132	316	5922200144	2249.00	6922200144	3147.00
250	45°	480	130	356	259	205	160	328	5922250144	2399.00	6922250144	3301.00
300	45°	570	160	426	259	230	185	328	5922300144	2433.00	6922300144	3537.00
350	45°	618	185	495	333	238	208	358	5922350144	2813.00	6922350144	3948.00
400	45°	698	205	558	333	263	233	358	5922400144	3337.00	6922400144	4575.00
450	45°	800	225	624	422.5	450	302	397	5923450144*	3803.00	6923450144*	5379.00
500	45°	880	250	686	422.5	475	327	397	5923500144*	4150.00	6923500144*	6014.00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	45°	260	65	165	203.5	117	82	303	5922100145	2043.00	6922100145	2936.00
120	45°	280	70	185	203.5	127	107	303	5922120145	2043.00	6922120145	2936.00
150	45°	315	75	225	203.5	142	107	303	5922150145	2077.00	6922150145	2978.00
175	45°	350	90	255	241	150	119	316	5922170145	2249.00	6922170145	3147.00
200	45°	400	105	289	241	164	132	316	5922200145	2249.00	6922200145	3147.00
250	45°	480	130	356	259	205	160	328	5922250145	2399.00	6922250145	3301.00
300	45°	570	160	426	259	230	185	328	5922300145	2433.00	6922300145	3537.00
350	45°	618	185	495	333	238	208	358	5922350145	2813.00	6922350145	3948.00
400	45°	698	205	558	333	263	233	358	5922400145	3337.00	6922400145	4575.00
450	45°	800	225	624	422.5	450	302	397	5923450145*	3803.00	6923450145*	5379.00
500	45°	880	250	686	422.5	475	327	397	5923500145*	4150.00	6923500145*	6014.00

*3 mm



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

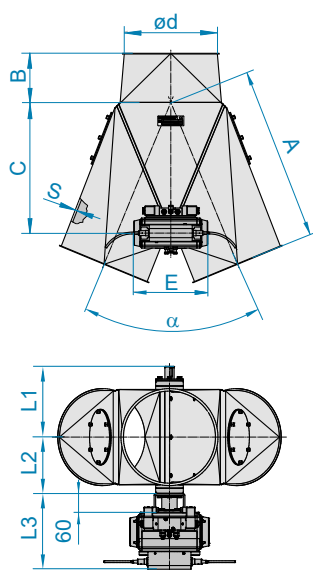
Two-way distributors



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2230

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- DN > 300 mm with welded flanges
- Shaft and inner flap with seal
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		
									Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	45°	260	65	165	203.5	117	82	220	59221001455	2254.00	69221001455	3147.00
120	45°	280	70	185	203.5	127	92	220	59221201455	2254.00	69221201455	3147.00
150	45°	315	75	225	203.5	142	107	233	59221501455	2288.00	69221501455	3188.00
175	45°	350	90	255	241	151	119	233	59221701455	2461.00	69221701455	3358.00
200	45°	400	105	289	241	164	132	233	59222001455	2461.00	69222001455	3358.00
250	45°	480	130	356	259	205	160	245	59222501455	2612.00	69222501455	3514.00
300	45°	570	160	426	259	230	185	245	59223001455	2645.00	69223001455	3747.00
350	45°	618	185	495	333	238	210	375	59223501455	3026.00	69223501455	4159.00
400	45°	698	205	558	333	263	235	375	59224001455	3549.00	69224001455	4785.00
450	45°	800	225	624	422.5	450	302	314	59234501455*	4014.00	69234501455*	5589.00
500	45°	880	250	700	422.5	475	327	314	59235001455*	4362.00	69235001455*	6224.00

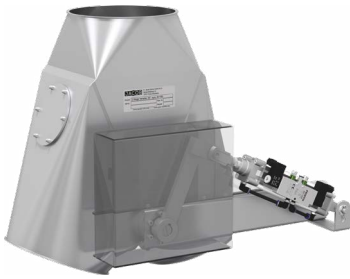
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

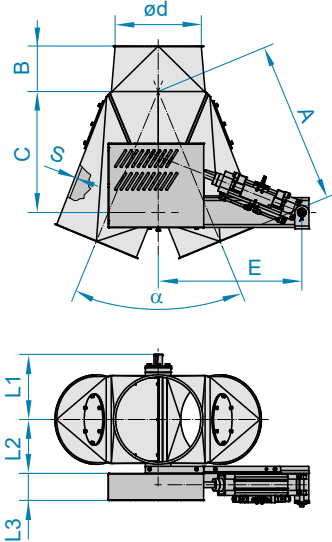
DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, SYMMETRICAL, FITTED WITH CYLINDER

2235

- Standard version: Right-side mounting
- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Shaft and inner flap with seal
- Other cylinders are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
									Item no.	€	Item no.	€

Cylinder, make FESTO, control voltage 230 V AC

100	45°	260	65	165	440	117	82	88	5922100121	2114.00	6922100121	3008.00
120	45°	280	70	185	440	127	92	88	5922120121	2114.00	6922120121	3008.00
150	45°	315	75	225	470	142	107	88	5922150121	2148.00	6922150121	3049.00
175	45°	350	90	255	470	150	119	88	5922170121	2320.00	6922170121	3218.00
200	45°	400	105	289	470	164	132	88	5922200121	2320.00	6922200121	3218.00
250	45°	480	130	356	470	205	160	90	5922250121	2473.00	6922250121	3374.00
300	45°	570	160	426	470	230	185	90	5922300121	2506.00	6922300121	3608.00
350	45°	618	185	495	490	238	208	110	5922350121	2906.00	6922350121	4077.00
400	45°	698	205	558	490	263	233	110	5922400121	3447.00	6922400121	4725.00
450	45°	800	205	624	540	450	302	110	5923450121*	3928.00	6923450121*	5559.00
500	45°	880	250	686	540	475	327	110	5923500121*	4286.00	6923500121*	6211.00

Cylinder, make FESTO, control voltage 24 V DC

100	45°	260	65	165	440	117	82	88	5922100123	2114.00	6922100123	3008.00
120	45°	280	70	185	440	127	92	88	5922120123	2114.00	6922120123	3008.00
150	45°	315	75	225	470	142	107	88	5922150123	2148.00	6922150123	3049.00
175	45°	350	90	255	470	150	119	88	5922170123	2320.00	6922170123	3218.00
200	45°	400	105	289	470	164	132	88	5922200123	2320.00	6922200123	3218.00
250	45°	480	130	356	470	205	160	90	5922250123	2473.00	6922250123	3374.00
300	45°	570	160	426	470	230	185	90	5922300123	2506.00	6922300123	3608.00
350	45°	618	185	495	490	238	208	110	5922350123	2906.00	6922350123	4077.00
400	45°	698	205	558	490	263	233	110	5922400123	3447.00	6922400123	4725.00
450	45°	800	205	624	540	450	302	110	5923450123*	3928.00	6923450123*	5559.00
500	45°	880	250	686	540	475	327	110	5923500123*	4286.00	6923500123*	6211.00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

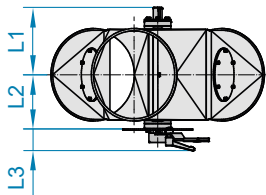
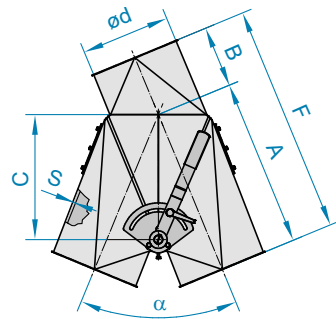
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

Two-way distributors



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, HAND-OPERATED

2220

- Standard version: Right-side mounting
- Shaft and inner flap with seal
- The use of pneumatic actuators is recommended as they hold the inner flap better in the end position
- Please also read and take into account the technical information given at the beginning of this chapter

DN	α	A	B	C	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel F	
									Item no.	€	Item no.	€
100	45°	260	100	165	360	117	82	75	12101519	1479.00	12103519	2374.00
120	45°	280	110	185	390	127	92	75	12121519	1479.00	12123519	2374.00
150	45°	315	115	225	430	142	107	75	12151519	1520.00	12153519	2425.00
175	45°	350	125	255	475	151	119	75	12171519	1586.00	12173519	2496.00
200	45°	400	140	289	540	164	132	75	12201519	1586.00	12203519	2496.00
250	45°	480	170	356	650	205	160	75	12251519	1634.00	12253519	2545.00
300	45°	570	210	426	780	230	185	75	12301519	1781.00	12303519	2667.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

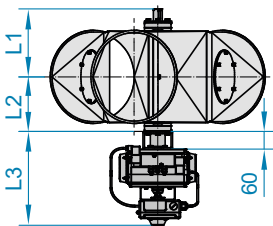
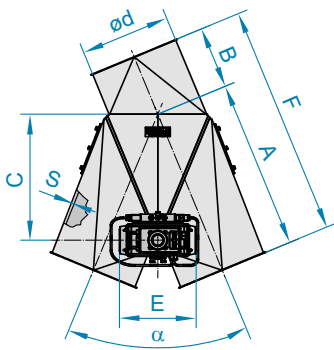
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

2240

- Control with 5/2-way solenoid valve (2-coil) and 2 limit switches
- Completely wired in limit switch box
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- Other rotary actuators are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€

Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	45°	260	100	165	203.5	360	117	82	303	5912100144	2043.00	6912100144	2936.00
120	45°	280	110	185	203.5	390	127	92	303	5912120144	2043.00	6912120144	2936.00
150	45°	315	115	225	203.5	430	142	107	303	5912150144	2077.00	6912150144	2978.00
175	45°	350	125	255	241	475	151	119	316	5912170144	2249.00	6912170144	3147.00
200	45°	400	140	289	241	540	164	132	316	5912200144	2249.00	6912200144	3147.00
250	45°	480	170	356	259	650	205	160	328	5912250144	2399.00	6912250144	3301.00
300	45°	570	210	426	259	780	230	185	328	5912300144	2433.00	6912300144	3537.00
350	45°	618	230	495	333	848	238	208	358	5912350144	2813.00	6912350144	3948.00
400	45°	698	250	558	333	948	263	233	358	5912400144	3337.00	6912400144	4575.00
450	45°	800	270	624	422.5	1070	450	302	397	5913450144*	3803.00	6913450144*	5379.00
500	45°	880	300	686	422.5	1180	475	327	397	5913500144*	4150.00	6913500144*	6014.00

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC

100	45°	260	100	165	203.5	360	117	82	303	5912100145	2043.00	6912100145	2936.00
120	45°	280	110	185	203.5	390	127	92	303	5912120145	2043.00	6912120145	2936.00
150	45°	315	115	225	203.5	430	142	107	303	5912150145	2077.00	6912150145	2978.00
175	45°	350	125	255	241	475	150	119	316	5912170145	2249.00	6912170145	3147.00
200	45°	400	140	289	241	540	164	132	316	5912200145	2249.00	6912200145	3147.00
250	45°	480	170	356	259	650	205	160	328	5912250145	2399.00	6912250145	3301.00
300	45°	570	210	426	259	780	230	185	328	5912300145	2433.00	6912300145	3537.00
350	45°	618	230	495	333	848	238	208	358	5912350145	2813.00	6912350145	3948.00
400	45°	698	250	558	333	948	263	233	358	5912400145	3337.00	6912400145	4575.00
450	45°	800	270	624	422.5	1070	450	302	397	5913450145*	3803.00	6913450145*	5379.00
500	45°	880	300	686	422.5	1180	475	327	397	5913500145*	4150.00	6913500145*	6014.00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS

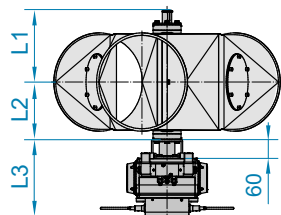
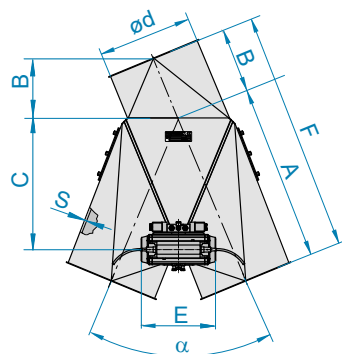
Two-way distributors



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR, ATEX

2240

- Control with 5/2-way solenoid valve (2-coil) and 2 inductive limit switches 24 V DC
- Standard version: Right-side mounting
- Use is permitted if the operating conditions for ATEX **Zone 0/20** inside and **Zone 22** outside are adhered to
- Without terminal box: available on request
- Shaft and inner flap with seal
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter
- Version with earthing lugs



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	

Pneumatic rotary actuator, make AIR TORQUE, control voltage 24 V DC, ATEX version

100	45°	260	100	165	203.5	360	117	82	220	59121001455	2254.00	69121001455	3147.00
120	45°	280	110	185	203.5	390	127	92	220	59121201455	2254.00	69121201455	3147.00
150	45°	315	115	225	203.5	430	142	107	233	59121501455	2288.00	69121501455	3188.00
175	45°	350	125	255	241	475	151	119	233	59121701455	2461.00	69121701455	3358.00
200	45°	400	140	289	241	540	164	132	233	59122001455	2461.00	69122001455	3358.00
250	45°	480	170	356	259	650	205	160	245	59122501455	2612.00	69122501455	3514.00
300	45°	570	210	426	259	780	230	185	245	59123001455	2645.00	69123001455	3747.00
350	45°	618	230	495	333	848	238	210	375	59123501455	3026.00	69123501455	4159.00
400	45°	698	250	558	333	948	263	235	375	59124001455	3549.00	69124001455	4785.00
450	45°	800	270	624	422.5	1070	450	302	314	59134501455*	4014.00	69134501455*	5589.00
500	45°	880	300	700	422.5	1180	475	327	314	59135001455*	4362.00	69135001455*	6224.00

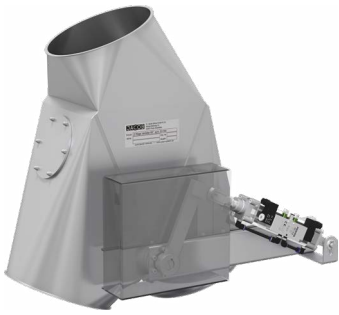
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

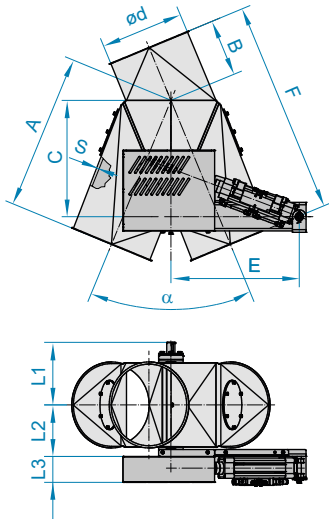
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, FITTED WITH CYLINDER

2245

- Control with 5/2-way solenoid valve (2-coil) and 2 magnetic limit switches on the cylinder
- Standard version: Right-side mounting
- Shaft and inner flap with seal
- Other cylinders are available. Prices on request
- DN > 300 mm with welded flanges
- Please also read and take into account the technical information given at the beginning of this chapter



DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
										Item no.	€	Item no.	€

Cylinder, make FESTO, control voltage 230 V AC

100	45°	260	100	165	440	360	117	82	88	5912100121	2114.00	6912100121	3008.00
120	45°	280	110	185	440	390	127	92	88	5912120121	2114.00	6912120121	3008.00
150	45°	315	115	225	470	430	142	107	88	5912150121	2148.00	6912150121	3049.00
175	45°	350	125	255	470	475	150	119	88	5912170121	2320.00	6912170121	3218.00
200	45°	400	140	289	470	540	164	132	88	5912200121	2320.00	6912200121	3218.00
250	45°	480	170	356	470	650	205	160	90	5912250121	2473.00	6912250121	3374.00
300	45°	570	210	426	470	780	230	185	90	5912300121	2506.00	6912300121	3608.00
350	45°	618	230	495	490	848	238	208	110	5912350121	2906.00	6912350121	4077.00
400	45°	698	250	558	490	948	263	233	110	5912400121	3447.00	6912400121	4725.00
450	45°	800	270	624	540	1070	450	302	110	5913450121*	3928.00	6913450121*	5559.00
500	45°	880	300	686	540	1180	475	327	110	5913500121*	4286.00	6913500121*	6211.00

Cylinder, make FESTO, control voltage 24 V DC

100	45°	260	100	165	440	360	117	82	88	5912100123	2114.00	6912100123	3008.00
120	45°	280	110	185	440	390	127	92	88	5912120123	2114.00	6912120123	3008.00
150	45°	315	115	225	470	430	142	107	88	5912150123	2148.00	6912150123	3049.00
175	45°	350	125	255	470	475	150	119	88	5912170123	2320.00	6912170123	3218.00
200	45°	400	140	289	470	540	164	132	88	5912200123	2320.00	6912200123	3218.00
250	45°	480	170	356	470	650	205	160	90	5912250123	2473.00	6912250123	3374.00
300	45°	570	210	426	470	780	230	185	90	5912300123	2506.00	6912300123	3608.00
350	45°	618	230	495	490	848	238	208	110	5912350123	2906.00	6912350123	4077.00
400	45°	698	250	558	490	948	263	233	110	5912400123	3447.00	6912400123	4725.00
450	45°	800	270	624	540	1070	450	302	110	5913450123*	3928.00	6913450123*	5559.00
500	45°	880	300	686	540	1180	475	327	110	5913500123*	4286.00	6913500123*	6211.00

*3 mm



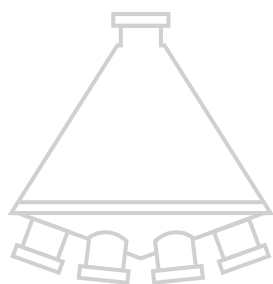
AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant


D DETECTABLE DESIGN
Metal-detectable



JACOB MULTI-WAY DISTRIBUTORS –
FOR FLEXIBLE DISTRIBUTION OF YOUR
BULK GOODS



MULTI-WAY DISTRIBUTORS

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MULTI-WAY DISTRIBUTORS

JACOB multi-way distributors are the compact solution for conveying bulk goods to many different machines or silos in the course of the production process. JACOB has a range of multi-way distributors with up to 2 x 20 outlets available in its standard portfolio in order to meet a variety of requirements.



Documentation – JACOB

TECHNICAL DOCUMENTATION

Our comprehensive technical documentation on multi-way distributors is always kept up-to-date and is available on our website for you to download.

TURN-HEAD DISTRIBUTORS 45° AND 60°



Versions and applications

Primed steel version. For distributing granular bulk goods, such as grain, by gravity without over-pressure inside the pipework system and with no demand for dust-tightness internally.

Feeding from the top through the turn-pipe towards the required outlet inside a closed casing.

Rotary pipe seal pressed on with two pressure springs. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, motor current 380-400 volt, 3-phase, 50 Hz.

2.3 rpm	1.2 rpm
DN 100 mm, 4-18 outlets	DN 100 mm, 20 outlets
DN 120 mm, 4-14 outlets	DN 120 mm, 16-20 outlets
DN 150 mm, 4-12 outlets	DN 150 mm, 14-20 outlets
DN 175 mm, 4-10 outlets	DN 175 mm, 12-20 outlets
DN 200 mm, 4-10 outlets	DN 200 mm, 12-20 outlets
	DN 250 mm, 4-16 outlets
	DN 300 mm, 4-14 outlets

Positioning with mechanical limit switches, wired on terminals in a connection box. The turn-head distributor must never be operated when transporting material.

Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- Product-contacting parts made of stainless steel available at additional cost
- Second inspection door, with limit switches if required
- Deliverable in blue silicone, metal-detectable
- ATEX versions on request
- Wear protection lining
- Other drives



DOUBLE TURN-HEAD DISTRIBUTORS 45° AND 60°

Versions and applications

Primed steel version. For distributing granular bulk goods, such as grain, by gravity without over-pressure inside the pipework system and with no demand for dust-tightness internally.

Feeding from the top through two counter-rotating turn-pipes towards the required outlet inside a closed casing.

Rotary pipe seal pressed on with two pressure springs. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, wired on terminals in a connection box. The turn-head distributor must never be operated when transporting material.

Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- Product-contacting parts made of stainless steel available at additional cost
- Second inspection door, with limit switches if required
- ATEX versions on request
- Wear protection lining
- Other drives

TURN-HEAD DISTRIBUTORS 45° AND 60°, DUST-TIGHT VERSION

Versions and applications

Primed steel version. For distributing bulk goods by gravity up to a maximum of 1 bar over-pressure inside the pipework system.

Feeding from the top through the turn-pipe towards the required outlet inside a closed casing.

Sealing of the turn-pipe outlet by means of pneumatic pressing onto outlet sleeve.

Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, solenoid valve and pressure controller wired on terminals in a connecting box.

Necessary minimum operating pressure: 6 bar.

The turn-head distributor must never be operated when transporting material.

Please indicate control voltage when ordering.



Your individual turn-head distributor

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Other mounting positions
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- Product-contacting parts made of stainless steel available at additional cost
- Second inspection door, with limit switches if required
- Seals in DETECTABLE DESIGN line: Blue silicone, metal-detectable
- ATEX versions on request
- Wear protection lining
- Other drives
- Cover to blank off outlets that are not in use

SWIVEL PIPE SWITCHES

Versions and applications

Housing made of primed steel. Parts in contact with the products are also available in stainless steel.

For pneumatic conveying of bulk goods. Over-pressure inside the pipework system up to diameter 150 mm max. 3 bar, diameter 200 and 250 mm max. 2 bar. Necessary minimum operating pressure: 6 bar. Swivel pipe switch must never be operated when transporting material.

Feeding from the top through the swivel pipe towards the required outlet inside a closed casing. Sealing of swivel pipe outlet by means of pneumatic pressing-on of the telescopic pipe onto the outlet sleeve, outlets not in use pneumatically blanked off. Support by means of four lugs fixed to the lower funnel circumference according to data sheet.

Electrically operated with a gear motor, 1.2 rpm, motor current 380-400 volt, 3-phase, 50 Hz. Positioning with mechanical limit switches, solenoid valve and pressure controller wired on terminals in a connecting box.

Please indicate control voltage when ordering.

Your individual swivel pipe switch

We have numerous versions available on request to meet the requirements of your particular system:

- Proximity switches
- Other mounting positions
- Additional electric pressing and position control of the turn-pipe outlet position with proximity switches, affixed in the lower funnel
- Product-contacting parts made of stainless steel available at additional cost
- Second inspection door, with limit switches if required
- ATEX versions on request
- Wear protection lining
- Other drives

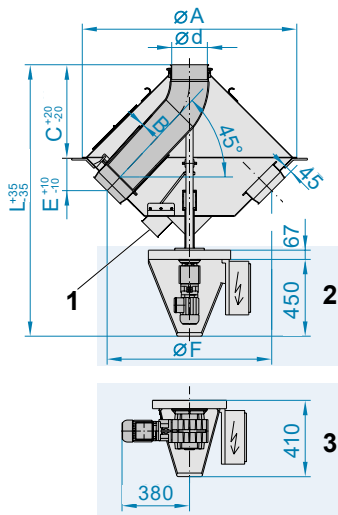


10



MULTI-WAY DISTRIBUTORS

Turn-head distributor



- 1 Spillage outlet
- 2 Gear motor 2.3 rpm
- 3 Gear motor 1.2 rpm

TURN-HEAD DISTRIBUTOR 45°

2320

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 750 kg/m^3 , with a moisture content of max. 15 %
- A = 800 mm: Spillage outlet = DN 100 mm
- A > 800 mm: Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	$\varnothing d$	$\varnothing A$	B	C	E	$\varnothing F$	L	kg	t/h	4 outlets		6 outlets	
										Item no.	€	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5104104501	5675.00	5106104501	5906.00
120	118	800	4.0	355	155	590	1348	79	12	5104124501	5697.00	5106124501	6007.00
150	148	800	4.5	340	155	590	1333	80	25	5104154501	5786.00	5106154501	6107.00
175	173	1200	5.4	520	173	940	1576	134	45	5104174501	6427.00	5106174501	6681.00
200	198	1200	6.3	510	183	920	1568	141	65	5104204501	6531.00	5106204501	6856.00
250	248	1200	6.3	485	219	850	1540	155	100	5104254501	7302.00	5106254501	7589.00
300	298	1200	7.1	480	212	860	1538	165	150	5104304501	7955.00	5106304501	8729.00

8 outlets

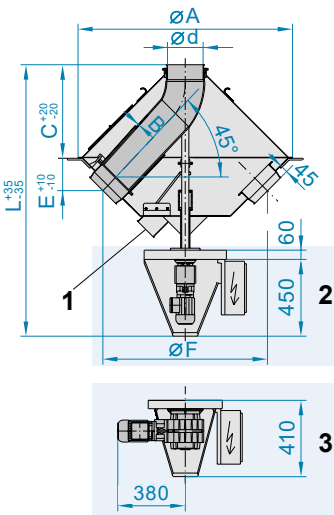
DN	$\varnothing d$	$\varnothing A$	B	C	E	$\varnothing F$	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5108104501	6185.00
120	118	800	4.0	355	155	590	1348	79	12	5108124501	6227.00
150	148	1200	4.5	535	155	974	1593	129	25	5108154501	6791.00
175	173	1200	5.4	520	173	940	1576	134	45	5108174501	7011.00
200	198	1200	6.3	510	183	920	1568	141	65	5108204501	7211.00
250	248	1600	6.3	685	219	1250	1945	248	100	5108254501	9378.00
300	298	1600	7.1	680	212	1260	1940	260	150	5108304501	11114.00

10 outlets

DN	$\varnothing d$	$\varnothing A$	B	C	E	$\varnothing F$	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5110104501	6488.00
120	118	1200	4.0	550	155	974	1608	120	12	5110124501	7091.00
150	148	1200	4.5	535	155	974	1593	129	25	5110154501	7268.00
175	173	1200	5.4	520	173	940	1576	134	45	5110174501	7341.00
200	198	1200	6.3	510	183	920	1568	141	65	5110204501	7556.00
250	248	1600	6.3	685	219	1250	1945	248	100	5110254501	9731.00
300	298	1600	7.1	680	212	1260	1940	260	150	5110304501	11470.00

12 outlets

DN	$\varnothing d$	$\varnothing A$	B	C	E	$\varnothing F$	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5112104501	7194.00
120	118	1200	4.0	550	155	974	1608	120	12	5112124501	7409.00
150	148	1200	4.5	535	155	974	1593	129	25	5112154501	7595.00
175	173	1600	5.4	720	173	1340	1980	240	45	5112174501	9813.00
200	198	1600	6.3	710	183	1320	1970	250	65	5112204501	9996.00
250	248	2280	6.3	1035	219	1930	2230	410	100	5112254501	14019.00
300	298	2280	7.1	1010	212	1945	2205	430	150	5112304501	16168.00



- 1 Spillage outlet
- 2 Gear motor 2.3 rpm
- 3 Gear motor 1.2 rpm

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5114104501	7869.00
120	118	1200	4.0	550	155	974	1608	120	12	5114124501	7897.00
150	148	1600	4.5	735	155	1373	1957	230	25	5114154501	9996.00
175	173	1600	5.4	720	173	1340	1980	240	45	5114174501	10153.00
200	198	1600	6.3	710	183	1320	1970	250	65	5114204501	10359.00
250	248	2280	6.3	1035	219	1930	2230	410	100	5114254501	14361.00
300	298	2280	7.1	1010	212	1945	2205	430	150	5114304501	16839.00

16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5116104501	8043.00
120	118	1600	4.0	750	155	1374	1972	225	12	5116124501	9942.00
150	148	1600	4.5	735	155	1373	1957	230	25	5116154501	10251.00
175	173	1600	5.4	720	173	1340	1980	240	45	5116174501	10506.00
200	198	2280	6.3	1060	183	2000	2255	400	65	5116204501	14205.00
250	248	2280	6.3	1035	219	1930	2230	410	100	5116254501	14733.00

18 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	560	138	1009	1616	116	8	5118104501	8383.00
120	118	1600	4.0	750	155	1374	1972	225	12	5118124501	10461.00
150	148	1600	4.5	735	155	1373	1957	230	25	5118154501	10585.00
175	173	2280	5.4	1070	173	2022	2255	382	45	5118174501	14456.00
200	198	2280	6.3	1060	183	2000	2255	400	65	5118204501	14519.00

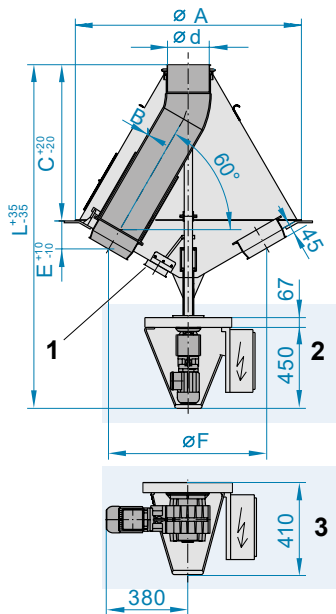
20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1600	3.6	760	138	1408	1983	220	8	5120104501	10748.00
120	118	1600	4.0	750	155	1374	1972	225	12	5120124501	10843.00
150	148	2280	4.5	1085	155	2057	2240	362	25	5120154501	14240.00
175	173	2280	5.4	1070	173	2022	2255	382	45	5120174501	14817.00
200	198	2280	6.3	1060	183	2000	2255	400	65	5120204501	14876.00



MULTI-WAY DISTRIBUTORS

Turn-head distributor



- 1 Spillage outlet
- 2 Gear motor 2.3 rpm
- 3 Gear motor 1.2 rpm

TURN-HEAD DISTRIBUTORS 60°

2330

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 500 kg/m³, with a moisture content of max. 15 %
- A = 800 mm: Spillage outlet = DN 100 mm
- A > 800 mm: Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	4 outlets		6 outlets	
										Item no.	€	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5104106001	6185.00	5106106001	6224.00
120	118	800	4.0	570	120	540	1498	84	6	5104126001	6259.00	5106126001	6370.00
150	148	800	4.5	545	125	520	1473	85	12	5104156001	6276.00	5106156001	6409.00
175	173	1200	5.4	860	130	875	1898	153	22	5104176001	6516.00	5106176001	6768.00
200	198	1200	6.3	835	135	855	1873	153	32	5104206001	6664.00	5106206001	6887.00
250	248	1200	6.3	790	150	805	1688	167	50	5104256001	7533.00	5106256001	8634.00
300	298	1200	7.1	745	160	770	1643	182	75	5104306001	8909.00	5106306001	9630.00

8 outlets

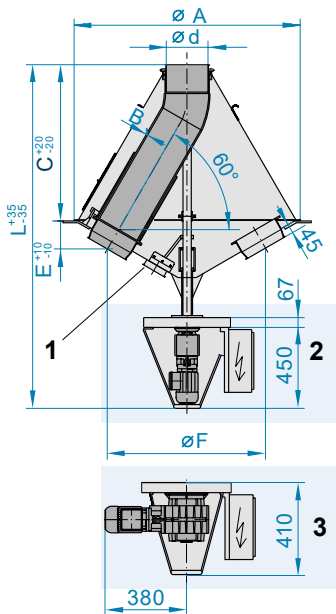
DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5108106001	6576.00
120	118	800	4.0	570	120	540	1498	84	6	5108126001	6605.00
150	148	1200	4.5	880	125	910	1918	140	12	5108156001	6952.00
175	173	1200	5.4	860	130	875	1898	153	22	5108176001	7091.00
200	198	1200	6.3	835	135	855	1873	153	32	5108206001	7251.00
250	248	1600	6.3	1140	150	1205	2158	267	50	5108256001	9568.00
300	298	1600	7.1	1095	160	1170	2113	287	75	5108306001	11257.00

10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5110106001	6943.00
120	118	1200	4.0	905	120	930	1943	134	6	5110126001	7317.00
150	148	1200	4.5	880	125	910	1918	140	12	5110156001	7329.00
175	173	1200	5.4	860	130	875	1898	153	22	5110176001	7509.00
200	198	1600	6.3	1185	135	1255	2303	265	32	5110206001	9593.00
250	248	1600	6.3	1140	150	1205	2158	267	50	5110256001	9788.00
300	298	2280	7.1	1700	160	1850	2918	460	75	5110306001	13733.00

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5112106001	7649.00
120	118	1200	4.0	905	120	930	1943	134	6	5112126001	7860.00
150	148	1200	4.5	880	125	910	1918	140	12	5112156001	8069.00
175	173	1600	5.4	1210	130	1275	2328	250	22	5112176001	9859.00
200	198	1600	6.3	1185	135	1255	2303	265	32	5112206001	10098.00
250	248	2280	6.3	1745	150	1885	2963	435	50	5112256001	14071.00
300	298	2280	7.1	1700	160	1850	2918	460	75	5112306001	16222.00



- 1 Spillage outlet
- 2 Gear motor 2.3 rpm
- 3 Gear motor 1.2 rpm

14 outlets

DN	Ød	ØA	B	C	E	ØF	L	kg	t/h	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5114106001	8043.00
120	118	1200	4.0	905	120	930	1943	134	6	5114126001	8293.00
150	148	1600	4.5	1230	125	1310	2348	240	12	5114156001	10005.00
175	173	1600	5.4	1210	130	1275	2328	250	22	5114176001	10184.00
200	198	1600	6.3	1185	135	1255	2303	265	32	5114206001	10420.00
250	248	2280	6.3	1745	150	1885	2963	435	50	5114256001	14413.00
300	298	2280	7.1	1700	160	1850	2918	460	75	5114306001	16908.00

16 and 18 outlets

DN	Ød	ØA	B	C	E	ØF	L	kg	t/h	16 outlets		18 outlets	
										Item no.	€	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5116106001	8336.00	5118106001	8703.00
120	118	1600	4.0	1255	120	1330	2373	235	6	5116126001	10240.00	5118126001	10506.00
150	148	1600	4.5	1230	125	1310	2348	240	12	5116156001	10337.00	5118156001	10666.00
175	173	2280	5.4	1815	130	1954	3133	405	22	5116176001	13761.00	5118176001	14519.00
200	198	2280	6.3	1790	135	1937	3108	430	32	5116206001	14267.00	5118206001	14630.00
250	248	2280	6.3	1745	150	1885	2963	435	50	5116256001	14770.00		

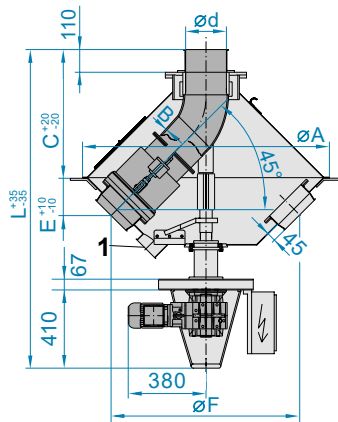
20 outlets

DN	Ød	ØA	B	C	E	ØF	L	kg	t/h	Item no.	€
100	98	1600	3.6	1275	112	1350	2393	227	4	5120106001	10952.00
120	118	1600	4.0	1255	120	1330	2373	235	6	5120126001	11010.00
150	148	2280	4.5	1835	125	2019	3153	380	12	5120156001	14421.00
175	173	2280	5.4	1815	130	1954	3133	405	22	5120176001	14878.00
200	198	2280	6.3	1790	135	1937	3108	430	32	5120206001	14986.00



MULTI-WAY DISTRIBUTORS

Turn-head distributors, dust-tight version



1 Spillage outlet

TURN-HEAD DISTRIBUTORS, DUST-TIGHT 45°

2360

- All dimensions are approximate
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet

- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

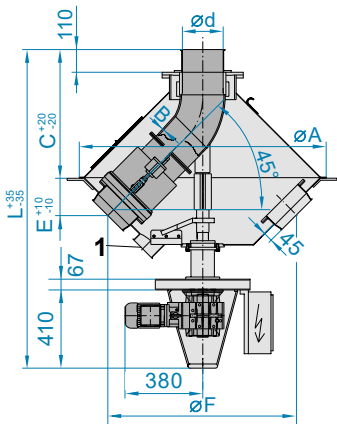
DN	Ø d	Ø A	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54041045	13486.00	54061045	13924.00
120	118	1200	5.0	621	155	980	1595	54041245	13665.00	54061245	13983.00
150	148	1200	5.6	640	155	980	1614	54041545	13765.00	54061545	14082.00
175	173	1200	5.4	622	173	944	1596	54041745	13983.00	54061745	14214.00
200	198	1200	6.3	626	183	924	1600	54042045	14214.00	54062045	14359.00
250	248	1600	6.3	784	219	1252	1960	54042545	15206.00	54062545	15787.00
300	298	1600	7.1	817	219	1252	1993	54043045	16638.00	54063045	18092.00

8 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54081045	14095.00
120	118	1200	5.0	621	155	980	1595	54081245	14254.00
150	148	1200	5.6	640	155	980	1614	54081545	14446.00
175	173	1200	5.4	622	173	944	1596	54081745	14526.00
200	198	1200	6.3	626	183	924	1600	54082045	14592.00
250	248	1600	6.3	784	219	1252	1960	54082545	17941.00
300	298	1600	7.1	817	219	1252	1993	54083045	18895.00

10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54101045	14313.00
120	118	1200	5.0	621	155	980	1595	54101245	14585.00
150	148	1200	5.6	640	155	980	1614	54101545	14727.00
175	173	1200	5.4	622	173	944	1596	54101745	14814.00
200	198	1600	6.3	826	183	1324	2002	54102045	17762.00
250	248	1600	6.3	784	219	1252	1960	54102545	18326.00



1 Spillage outlet

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54121045	14680.00
120	118	1200	5.0	621	155	980	1595	54121245	14874.00
150	148	1200	5.6	640	155	980	1614	54121545	15068.00
175	173	1600	5.4	822	173	1344	1998	54121745	18155.00
200	198	1600	6.3	826	183	1324	2002	54122045	18394.00

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54141045	15009.00
120	118	1200	5.0	621	155	980	1595	54141245	15171.00
150	148	1600	5.6	840	155	1380	2016	54141545	18194.00
175	173	1600	5.4	822	173	1344	1998	54141745	18508.00

16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54161045	15338.00
120	118	1600	5.0	821	155	1380	1997	54161245	18403.00
150	148	1600	5.6	840	155	1380	2016	54161545	18585.00
175	173	1600	5.4	822	173	1344	1998	54161745	18953.00

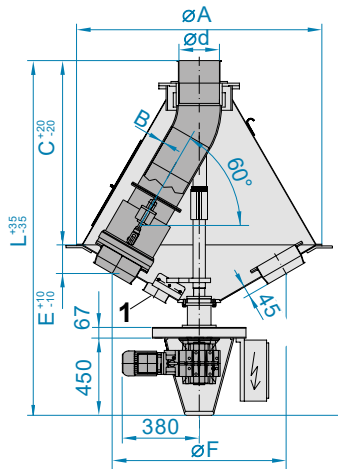
18 and 20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	18 outlets		20 outlets	
								Item no.	€	Item no.	€
100	98	1600	5.0	843	138	1414	2019	54181045	17514.00	54201045	17792.00
120	118	1600	5.0	821	155	1380	1997	54181245	18805.00	54201245	19113.00



MULTI-WAY DISTRIBUTORS

Turn-head distributors, dust-tight version



1 Spillage outlet

TURN-HEAD DISTRIBUTORS, DUST-TIGHT 60°

2370

- All dimensions are approximate
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
100	98	1200	5.0	970	112	958	1889	54041060	13907.00	54061060	14159.00
120	118	1200	5.0	946	120	932	1865	54041260	14254.00	54061260	14469.00
150	148	1200	5.6	939	125	914	1858	54041560	14290.00	54061560	14484.00
175	173	1200	5.4	910	135	880	1829	54041760	14814.00	54061760	15193.00
200	198	1200	6.3	910	140	862	1829	54042060	14999.00	54062060	15372.00
250	248	1600	6.3	1215	155	1210	2250	54042560	15585.00	54062560	15946.00
300	298	1600	7.1	1196	165	1176	2231	54043060	18293.00	54063060	19471.00

8 outlets

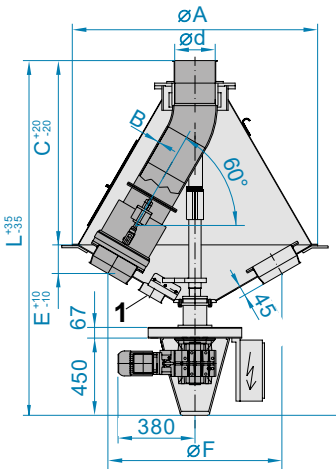
DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54081060	14503.00
120	118	1200	5.0	946	120	932	1865	54081260	15063.00
150	148	1200	5.6	939	125	914	1858	54081560	15221.00
175	173	1200	5.4	910	135	880	1829	54081760	15611.00
200	198	1200	6.3	910	140	862	1829	54082060	16010.00
250	248	1600	6.3	1215	155	1210	2250	54082560	18417.00
300	298	1600	7.1	1196	165	1176	2231	54083060	20200.00

10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54101060	15105.00
120	118	1200	5.0	946	120	932	1865	54101260	15537.00
150	148	1200	5.6	939	125	914	1858	54101560	15656.00
175	173	1200	5.4	910	135	880	1829	54101760	16253.00
200	198	1600	6.3	1256	140	1262	2291	54102060	18623.00
250	248	1600	6.3	1215	155	1210	2250	54102560	19086.00
300	298	2280	7.1	1785	165	1856	3016	54103060	22799.00

12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54121060	15646.00
120	118	1200	5.0	946	120	932	1865	54121260	16000.00
150	148	1600	5.6	1285	125	1314	2320	54121560	18070.00
175	173	1600	5.4	1257	135	1280	2292	54121760	18977.00
200	198	1600	6.3	1256	140	1262	2291	54122060	19151.00
250	248	2280	6.3	1804	155	1890	3035	54122560	22901.00
300	298	2280	7.1	1785	165	1856	3016	54123060	24524.00



1 Spillage outlet

14 outlets

DN	Ød	ØA	B	C	E	ØF	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54141060	16208.00
120	118	1200	5.0	946	120	932	1865	54141260	16443.00
150	148	1600	5.6	1285	125	1314	2320	54141560	18581.00
175	173	1600	5.4	1257	135	1280	2292	54141760	19321.00
200	198	2280	6.3	1845	140	1942	3076	54142060	23097.00
250	248	2280	6.3	1804	155	1890	3035	54142560	23440.00
300	298	2280	7.1	1785	165	1856	3016	54143060	25974.00

16 outlets

DN	Ød	ØA	B	C	E	ØF	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54161060	16550.00
120	118	1600	5.0	1293	120	1332	2328	54161260	18588.00
150	148	1600	5.6	1285	125	1314	2320	54161560	18989.00
175	173	2280	5.4	1845	135	1960	3076	54161760	23343.00
200	198	2280	6.3	1845	140	1942	3076	54162060	23540.00
250	248	2280	6.3	1804	155	1890	3035	54162560	24107.00

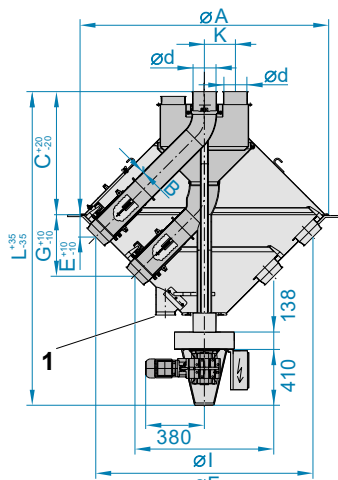
18 and 20 outlets

DN	Ød	ØA	B	C	E	ØF	L	18 outlets		20 outlets	
								Item no.	€	Item no.	€
100	98	1600	5.0	1316	112	1358	2351	54181060	18608.00	54201060	18912.00
120	118	1600	5.0	1293	120	1332	2328	54181260	18965.00	54201260	19267.00
150	148	2280	5.6	1874	125	1994	3105	54181560	23448.00	54201560	23730.00
175	173	2280	5.4	1845	135	1960	3076	54181760	23529.00	54201760	23978.00
200	198	2280	6.3	1845	140	1942	3076	54182060	23664.00	54202060	24165.00



MULTI-WAY DISTRIBUTORS

Double turn-head distributors



1 Spillage outlet

DOUBLE TURN-HEAD DISTRIBUTORS 45°

2340

- All dimensions are approximate
- Standard values for flow rates for granular products with a bulk density of 750 kg/m³, with a moisture content of max. 15 %
- Lower funnel circumference according to data sheet
- Spillage outlet DN 120 mm
- Please also read and take into account the technical information given at the beginning of this chapter

2 x 8 and 2 x 10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 8 outlets		2 x 10 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52081245	24447.00	52101245	25085.00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52081545	24772.00	52101545	25379.00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52081745	27288.00	52101745	27778.00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52082045	28159.00	52102045	28606.00
250	248	2280	6.3	1110	210	1960	530	1325	290	2900	577	100	52082545	29271.00	52102545	29715.00

2 x 12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52121245	25716.00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52121545	25743.00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52121745	28201.00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52122045	29055.00

2 x 14 and 2 x 16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 14 outlets		2 x 16 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	820	150	1375	345	990	160	2220	345	12	52141245	26351.00	52161245	27046.00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52141545	28025.00	52161545	28738.00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52141745	28624.00	52161745	29183.00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52142045	29497.00	52162045	29969.00

2 x 18 and 2 x 20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 18 outlets		2 x 20 outlets	
													Item no.	€	Item no.	€
120	118	2280	4.0	1170	150	2075	345	1690	160	2410	532	12	52181245	29021.00	52201245	29328.00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52181545	29369.00	52201545	29997.00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52181745	29746.00		

Swivel pipe switches



SWIVEL PIPE SWITCHES 60°

2340

- All dimensions are approximate
- Inlet and outlets with welded-on flanges according to DIN EN 1092-1, PN 10, 10 mm thick
- Hole pattern off-axis (without counter flange)
- Spillage outlet = DN 120 mm
- Lower funnel circumference according to data sheet
- Please also read and take into account the technical information given at the beginning of this chapter

4 and 6 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
80	80	1200	5.0	998	193	1096	1917	53040860	16712.00	53060860	17621.00
100	99	1200	8.0	970	203	1064	1889	53041060	16742.00	53061060	17665.00
120	118	1200	8.0	946	211	1038	1865	53041260	17279.00	53061260	18258.00
150	148	1200	10.0	939	216	1020	1858	53041560	18220.00	53061560	19214.00
200	197	1200	11.0	910	231	968	1829	53042060	22578.00	53062060	23791.00

8 outlets

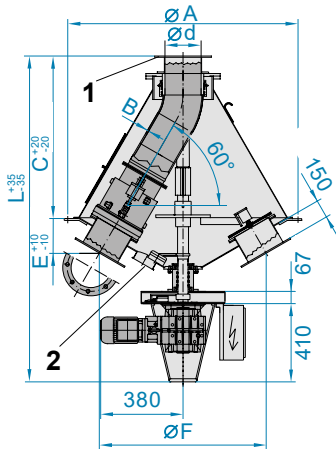
DN	Ø d	Ø A	B	C	E	Ø F	L	8 outlets	
								Item no.	€
80	80	1200	5.0	998	193	1096	1917	53080860	18574.00
100	99	1200	8.0	970	203	1064	1889	53081060	18614.00
120	118	1200	8.0	946	211	1038	1865	53081260	19296.00
150	148	1200	10.0	939	216	1020	1858	53081560	20301.00
200	197	1200	11.0	910	231	968	1829	53082060	24983.00

10 and 12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	10 outlets		12 outlets	
								Item no.	€	Item no.	€
80	80	1200	5.0	998	193	1096	1917	53100860	19515.00	53120860	20452.00
100	99	1200	8.0	970	203	1064	1889	53101060	19747.00	53121060	20533.00
120	118	1200	8.0	946	211	1038	1865	53101260	20278.00	53121260	21288.00
150	148	1200	10.0	939	216	1020	1858	53101560	21335.00		
200	197	1600	11.0	1256	231	1368	2291	53102060	26193.00	53122060	27440.00

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	14 outlets	
								Item no.	€
80	80	1200	5.0	998	193	1096	1917	53140860	21395.00
100	99	1200	8.0	970	203	1064	1889	53141060	21495.00

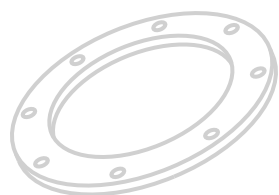


1 Inlet and outlets with welded-on flanges according to DIN 1092-1, PN 10

2 Spillage outlet



COMPLETE JACOB DIVERSITY –
WITH LOOSE AND WELDED FLANGES



THE FLANGE RANGE

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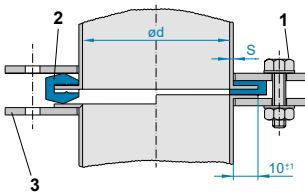
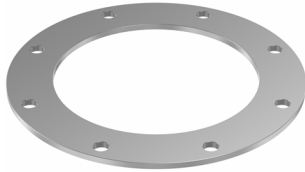


FOR LARGE DIAMETERS: FLANGES

The whole world of JACOBS diversity is also available with a flange connection. Larger diameters with a high level of tightness are available in particular for large ventilation systems extracting dust, oil mist or other condensates. JACOBS's range of flanges provides the ideal solution for this purpose.

THE VERSIONS

JACOBS flanged pipework is available in wall thicknesses from 1 to 3 mm. Pipe components and press-formed components for loose flange connections from DN 350 to 1250 mm are provided with a 10 mm lip. The flanges are pre-fitted and are connected with a U-shaped seal and nuts and bolts. The U-shaped seal for loose flanges is fitted over one of the lipped ends. A flat seal can be used as an alternative to a U-shaped seal. The flanges are then bolted to each other. Pipework with welded flanges available on request.



JACOBS loose flange system
1 Mounting bolts
2 U-shaped seal for 10 mm lip
3 Loose flange similar to DIN 24154-2
(see page 219 for dimensions)
 S = Wall thickness
 $\varnothing d$ = Internal diameter

Mild steel:

DN 350 to 630 mm:

- Surface powder-coated, conductive, RAL 7032 (pebble grey) or galvanised
- Electrostatic potential equalisation can be achieved through the use of the EPDM U-shaped seal or the earthing lug with earthing wire

DN 710 to 1250 mm:

- Corrosion protection: Surface spray-primed in colour RAL 7032 (pebble grey) or galvanised
- Priming coat is not conductive
- Electrostatic potential equalisation enabled through the use of earthing lugs in conjunction with earthing wire
- Welded flanges on request

DN 1400 to 1600 mm on request:

- Version with 3 mm wall thickness
- With welded-on flanges
- Surface spray-primed in colour RAL 7032 (pebble grey) or galvanised

All mass-produced parts made of mild steel are delivered with earthing lugs to safeguard the loose flanges.

Stainless steel:

DN 350 to 1250 mm:

- Version with galvanised loose flanges
- Alternatively: Loose flanges in shotblasted stainless steel
- Surface shotblasted with stainless steel
- Welded flanges on request

DN 1400 to 1600 mm on request:

- Version with 3 mm wall thickness
- With welded-on stainless steel flanges
- All stainless steel parts $>DN$ 1250 mm are pickled and passivated

Refer to chapter 1, Materials and processing, for more information on materials and tolerances.

See chapter 1, Connecting systems and dimensions, for an overview of internal diameters.

SEALS

JACOBS has seals in a variety of materials to obtain the best possible seal even with the loose flange system.

- Tear-resistant, FOOD GRADE and resistant to many aggressive chemicals thanks to vulcanisation
- Maximum tightness due to the ideal profile
- Resistance to a broad range of substances due to large selection of materials available
- Metal-detectable and FOOD GRADE thanks to special materials (DETECTABLE DESIGN line)

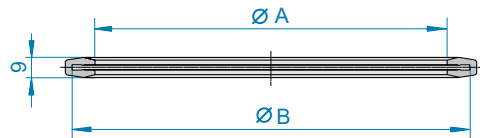


U-shaped seals for loose flange system with 10 mm lip



NBR	Silicone	F Silicone	F D Silicone	EPDM	Viton (FKM)
grey white	beige	blue		black	reddish brown
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant			
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C		-30°C to +120°C	-18°C to +230°C
glued	vulcanised	vulcanised		vulcanised	vulcanised
		metal-detectable		electrostatically conductive	

Profile for loose flange pipework with a 10 mm lip



Use for 1–3 mm pipework system

For connecting:

- 2 pipe components with loose flange from > DN 350 mm with 10 mm lip
- Pipe component with a welded flange in conjunction with a pipe component with a loose flange

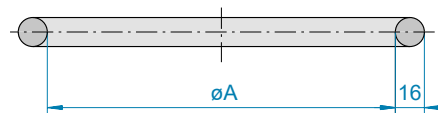
A U-shaped seal (chapter 2) must be used for pipe components with a loose flange with a diameter of up to 350 mm and a 6 mm lip

Ring seals for push-in pipes with a flange connection



NBR	Silicone	F Silicone	F D Silicone	EPDM	Viton (FKM)
grey white	beige	blue		black	black
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant			
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C		-30°C to +120°C	-18°C to +230°C
glued	vulcanised	vulcanised		vulcanised	vulcanised
		metal-detectable		electrostatically conductive	

Profile diameter: 16 mm



Use for 1–3 mm pipework system

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



Flat seals for loose flanges and welded flanges



NBR	Silicone F	Silicone F D	EPDM
grey white	transparent	blue	black
EC 1935/2004 up to DN 1000 mm	FOOD GRADE: EC 1935/2004 and FDA up to DN 1000 mm	FOOD GRADE: EC 1935/2004 and FDA up to DN 1000 mm	
-30°C to +80°C	-60°C to +230°C	-60°C to +200°C	-40°C to +100°C
Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm	Adhesive-free up to DN 1000 mm
from DN 1120 mm glued, from segments	from DN 1120 mm glued, from segments	from DN 1120 mm glued, from segments	from DN 1120 mm glued, from segments
		metal-detectable	electrostatically conductive

- Thickness: DN 350 to 800 mm: 3 mm, DN 900 to 1600 mm: 4 mm
- Specified temperatures apply for adhesive-free silicone seals up to DN 1000 mm

Seals for use with cleaning pipes

- In stainless steel version, door sealed with silicone seal (beige)
- Alternatively, also available in DETECTABLE DESIGN line with blue silicone seal
- In version with powder-coated or galvanised surfaces, door sealed with NBR seal



EPDM	Silicone F	Silicone F D
grey white	beige	blue
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA compliant	FOOD GRADE: EC 1935/2004 plus FDA compliant
-20°C to +100°C	-60°C to +250°C	-60°C to +250°C
glued	vulcanised	vulcanised
		metal-detectable

APPLICATIONS

Use in the area of bulk goods conveying and ventilation systems at over-pressures of 50,000 Pa (500 mbar, 5000 mm WG). DN 900 to 1250 mm with loose flanges are only recommended for use in air applications. In the case of higher tightness requirements, we recommend welded-on flanges from diameters of 900 mm.

Pipes in 1 mm wall thickness and cleaning pipes for ventilation systems up to 100 mbar, over-pressure can be used.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



EXPLOSION PROTECTION

Flanged pipework was tested in the following configuration up to 3 bar over-pressure:

Pipes	2 mm thick up to DN 800 mm
Segments 5° to 45°	2 mm thick up to DN 800 mm
Bends 30° to 90°	2 mm thick up to DN 800 mm
T-pieces	2 mm thick up to DN 500 mm, 3 mm thick up to DN 800 mm
Forks 30° and 45°	2 mm thick up to DN 500 mm, 3 mm thick up to DN 630 mm
Cone pieces	2 mm thick up to DN 630 mm, 3 mm thick up to DN 800 mm
Symmetrical forks 60°	2 mm thick up to DN 500 mm, 3 mm thick up to DN 800 mm
Symmetrical forks 90°	3 mm thick up to DN 630 mm

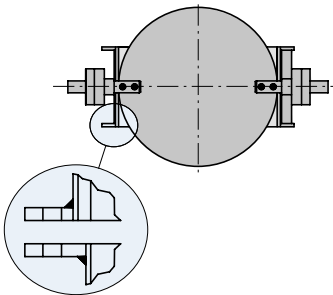
- For shock explosion proof pipe connections, bolt quality 8.8 is required
- Bolt torque: M 10 = 40 Nm, M 12 = 60 Nm

Cleaning pipes are not available in a shock explosion proof version. Alternatively, inspection pipes (diameter of opening 115 mm) up to DN 630 mm pipe diameter can be delivered in a special version.

YOUR INDIVIDUAL PIPEWORK SYSTEM

We can supply your individual pipework system on request. Prices on request.

- JACOB pipework system with welded-on flanges
- Over 3,000 special colours
- Earthing lugs on request
- Additional diameters and wall thicknesses
- Stainless steel with pickled and passivated surface, including up to a diameter of 1250 mm
- Stainless steel in other steel qualities, e.g. 1.4571 or AISI 316Ti with flanges in pickled and passivated stainless steel
- 3 mm pipes and pressed components on request, stainless steel only available with welded-on flanges



Special version: Throttle valve from DN 400 mm with glued silicone seal
 – Without cross-section constriction
 – Shaft with ball bearings and sealed with a Viton O-ring

THROTTLE VALVES

- Diameters: DN 350 to 1250 mm
- DN 350 to 800 mm delivered with loose flange similar to DIN 24154-2 (see page 219 for dimensions)
- From DN 900 mm, 3 mm wall thickness with welded-on flanges similar to DIN 24154-2 (see page 219 for dimensions)
- Shafts with ball bearings and sealed with Viton O-rings
- DN 350 and 400 mm also available with 6 mm lip, see chapter 8

Special versions available – prices on request

- From DN 400 mm to DN 1000 mm with glued silicone inner flap seal and welded-on flanges similar to DIN 24154-2 (see page 219 for dimensions), but without counter flange (see drawing)
- Version with pneumatic or electric actuator

INSTALLATION INFORMATION

- Mounting bolts in installation kit: see page 220
- Bolt torque: M 10 = 40 Nm, M 12 = 60 Nm

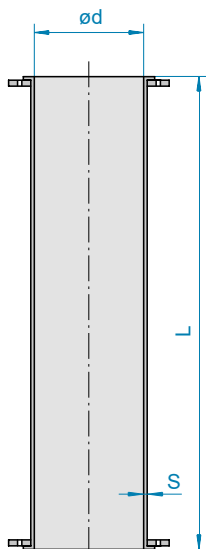


Installation instructions for loose flange connections



THE FLANGE RANGE

Welded pipes



The pipe length and diameter DN are nominal dimensions, the actual length is indicated as L

PIPES 2000 MM

6010

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm
- powder-coated, from DN 710 mm spray-primed

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	1976	40.60	21351010	120.50	22351010	167.50	21352010	172.50	22352010	260.50
400	398	1976	46.20	21401010	163.50	22401010	224.50	21402010	217.50	22402010	332.50
450	448	1976	52.10	21451010	188.50	22451010	285.00	21452010	251.00	22452010	411.50
500	498	1976	57.90	21501010	201.00	22501010	309.00	21502010	275.00	22502010	453.50
560	558	1976	64.70			22561010	348.50			22562010	544.50
630	628	1980	75.00			22631010	390.00			22632010	619.00
710	707	1980	84.00			22711010	571.50			22712010	772.00
800	797	1980	100.00			22801010	661.50			22802010	892.00
900	897	1980	108.92			229910104090	745.00			229920104090	1118.00
1000	998	1980	121.14			229910104100	836.00			229920104100	1327.00
1120	1118	1980	146.60			229910104112	1007.00			229920104112	1564.00
1250	1248	1980	163.46			229910104125	1145.00			229920104125	1760.00

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shotblasted			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	1976	40.60	21353010	301.50	22353010	506.00	213530103	407.50	223530103	613.00
400	398	1976	46.20	21403010	375.00	22403010	584.50	214030103	498.00	224030103	708.00
450	448	1976	52.10	21453010	435.00	22453010	650.00	214530103	560.50	224530103	776.50
500	498	1976	57.90	21503010	502.50	22503010	762.50	215030103	628.00	225030103	890.00
560	558	1976	64.70			22563010	829.00			225630103	1074.00
630	628	1980	75.00			22633010	916.00			226330103	1147.00
710	707	1980	84.00			22713010	1084.00			227130103	1354.00
800	797	1980	100.00			22803010	1284.00				
900	897	1980	108.92			229930104090	1505.00				
1000	998	1980	121.14			229930104100	1732.00				
1120	1118	1980	146.60			229930104112	2008.00				
1250	1248	1980	163.46			229930104125	2302.00				

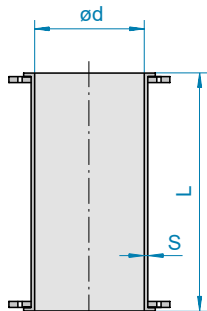
FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



PIPES 1000 MM

6010



The pipe length and diameter DN are nominal dimensions, the actual length is indicated as L

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	976	22.70	21351020	85.90	22351020	103.00	21352020	121.50	22352020	173.50
400	398	976	25.30	21401020	101.00	22401020	135.50	21402020	141.00	22402020	201.50
450	448	976	29.40	21451020	116.50	22451020	169.00	21452020	161.50	22452020	246.00
500	498	976	33.20	21501020	125.00	22501020	188.50	21502020	176.50	22502020	271.00
560	558	976	36.60			22561020	208.50			22562020	333.00
630	628	976	45.00			22631020	232.50			22632020	369.50
710	707	980	48.00			22711020	301.00			22712020	441.50
800	797	980	56.00			22801020	346.50			22802020	518.50
900	897	980	63.63			229910204090	427.50			229920204090	645.00
1000	998	980	70.77			229910204100	554.50			229920204100	854.00
1120	1118	980	90.20			229910204112	708.50			229920204112	1050.00
1250	1248	980	100.53			229910204125	773.00			229920204125	1151.00

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	Stainless steel with galvanised loose flanges F				Stainless steel with stainless steel loose flange, shotblasted F			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	976	22.70	21353020	196.50	22353020	293.50	213530203	302.50	223530203	401.00
400	398	976	25.30	21403020	245.50	22403020	350.50	214030203	368.00	224030203	474.00
450	448	976	29.40	21453020	268.50	22453020	376.50	214530203	394.00	224530203	503.50
500	498	976	33.20	21503020	297.50	22503020	430.50	215030203	423.00	225030203	557.50
560	558	976	36.60			22563020	498.00			225630203	741.00
630	628	976	45.00			22633020	559.50			226330203	793.00
710	707	980	48.00			22713020	688.50			227130203	960.00
800	797	980	56.00			22803020	830.50				
900	897	980	63.63			229930204090	967.50				
1000	998	980	70.77			229930204100	1133.00				
1120	1118	980	90.20			229930204112	1325.00				
1250	1248	980	100.53			229930204125	1487.00				

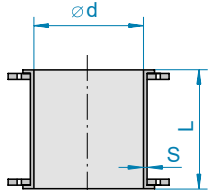
F FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

Welded pipes



The pipe length and diameter DN are nominal dimensions, the actual length is indicated as L

PIPES 500 MM

6010

Powder-coated and galvanised (dimensions for 2 mm pipework)

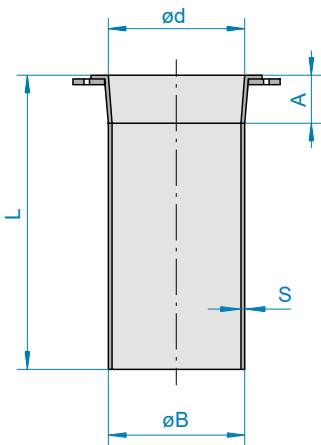
DN	Ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	478	14.60	21351030	65.30	22351030	73.90	21352030	89.90	22352030	119.00
400	398	478	16.30	21401030	75.40	22401030	92.00	21402030	102.50	22402030	135.50
450	448	478	18.50	21451030	85.30	22451030	108.50	21452030	117.50	22452030	166.50
500	498	478	20.60	21501030	90.60	22501030	121.50	21502030	124.50	22502030	177.00
560	558	478	22.60			22561030	139.00			22562030	227.00
630	628	478	25.40			22631030	153.00			22632030	259.00
710	707	480	32.00			22711030	213.50			22712030	346.50
800	797	480	36.00			22801030	256.50			22802030	408.00
900	897	480	40.98			229910304090	314.00			229920304090	471.00
1000	998	480	45.60			229910304100	406.50			229920304100	610.00
1120	1118	480	62.00			229910304112	518.50			229920304112	755.50
1250	1248	480	69.07			229910304125	578.50			229920304125	837.50

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	L	kg	1 mm stainless steel with galvanised loose flanges F				2 mm stainless steel with stainless steel shotblasted loose flange F			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	478	14.60	21353030	130.00	22353030	179.50	213530303	237.00	223530303	286.50
400	398	478	16.30	21403030	168.50	22403030	222.50	214030303	290.50	224030303	346.00
450	448	478	18.50	21453030	179.50	22453030	252.50	214530303	305.00	224530303	380.50
500	498	478	20.60	21503030	190.00	22503030	284.00	215030303	315.50	225030303	410.50
560	558	478	22.60			22563030	335.00			225630303	580.50
630	628	478	25.40			22633030	371.50			226330303	604.00
710	707	480	32.00			22713030	478.00			227130303	749.50
800	797	480	36.00			22803030	580.50				
900	897	480	40.98			229930304090	690.00				
1000	998	480	45.60			229930304100	830.50				
1120	1118	480	62.00			229930304112	1022.00				
1250	1248	480	69.07			229930304125	1132.00				

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



PUSH-IN PIPES 1000 MM

6020

- For information on push-in pipe applications, see chapter 3
- One side with loose flange
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Use in conjunction with ring seal and flange for push-in pipe

Powder-coated and galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	Ø B	L	kg	1.5 mm powder-coated		2 mm powder-coated		1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	350	50	345	986	18.00	21351110	107.50	22351110	127.00	21352110	149.50	22352110	188.00
400	399	50	394	986	22.00	21401110	133.50	22401110	158.50	21402110	180.50	22402110	227.50
450	448	50	444	986	29.45	21451110	159.50	22451110	181.00	21452110	202.00	22452110	289.50
500	498	50	494	986	29.40	21501110	179.50	22501110	209.00	21502110	213.50	22502110	315.00
560	558	50	554	986	32.00			22561110	244.00			22562110	345.00
630	628	50	624	986	36.00			22631110	262.50			22632110	362.00
710	707	50	703	986	42.00			22711110	311.00			22712110	453.00
800	797	100	792	986	40.00			22801110	393.50			22802110	518.50

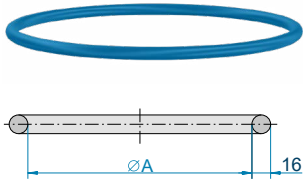
Stainless steel (dimensions for 1 mm pipework)

DN	Ø d	A	Ø B	L	kg	1 mm stainless steel with galvanised loose flanges		2 mm stainless steel with galvanised loose flanges	
						Item no.	€	Item no.	€
350	350	50	345	986	18.00	21353110	247.00	22353110	327.00
400	399	50	394	986	22.00	21403110	267.00	22403110	394.00
450	448	50	444	986	29.45	21453110	277.00	22453110	411.50
500	498	50	494	986	29.40	21503110	310.00	22503110	464.00
560	558	50	554	986	32.00			22563110	512.50
630	628	50	624	986	36.00			22633110	580.50
710	707	50	703	986	42.00			22713110	765.00
800	797	100	792	986	40.00			22803110	879.00



THE FLANGE RANGE

Push-in pipes and accessories



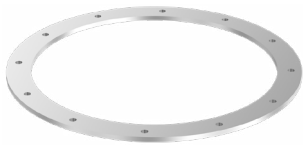
RING SEALS FOR PUSH-IN PIPES WITH A FLANGE CONNECTION

6030

- Usable for 1-3 mm pipework system
- Use in conjunction with push-in pipe and flange for push-in pipe
- Protect pipework against axial displacement
- Admissible differential pressure: approx. 50 mbar
- Please also read and take into account the technical information given at the beginning of this chapter

Ring seal for 1-3 mm pipework system

DN	$\varnothing A$	kg	NBR grey		Silicone beige F		Silicone blue F D		EPDM black		Viton black	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	327	0.34	203561177	27.90	2035711709	48.50	20357117091	61.80	2035811759	30.20	203591179	118.00
400	373	0.38	204061177	27.90	2040711709	50.40	20407117091	65.20	2040811759	31.00	204091179	134.50
450	421	0.42	204561177	31.20	2045711709	55.00	20457117091	70.10	2045811759	33.40	204591179	151.50
500	468	0.48	205061177	33.10	2050711709	59.90	20507117091	78.00	2050811759	35.40	205091179	168.00
560	524	0.54	205661177	35.90	2056711709	65.90	20567117091	85.60	2056811759	38.10	205691179	190.00
630	591	0.60	206361177	40.00	2063711709	72.90	20637117091	94.90	2063811759	41.80	206391179	212.50
710	666	0.69	207161177	43.00	2071711709	80.10	20717117091	104.50	2071811759	44.90	207191179	236.50
800	761	0.78	208061177	53.00	2080711709	95.80	20807117091	122.00	2080811759	49.10	208091179	252.50

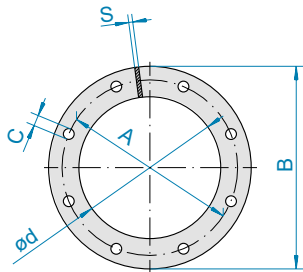


FLANGES FOR PUSH-IN PIPES

6040

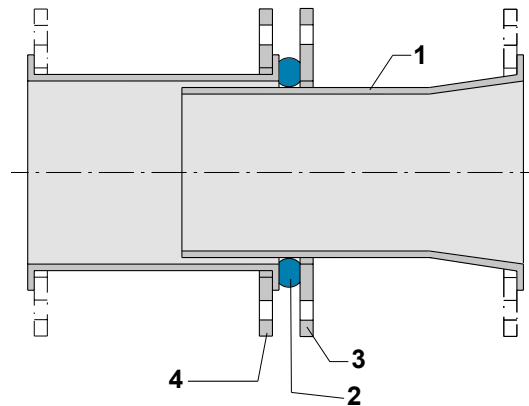
- Use in conjunction with ring seal for push-in pipe and standard pipe with loose flange
- Use 50 mm long mounting bolts

Powder-coated, galvanised and stainless steel



E = No. of holes

DN	$\varnothing d$	A	B	C	E	S	kg	Powder-coated		Galvanised		Stainless steel	
								Item no.	€	Item no.	€	Item no.	€
350	348	405	438	11.5	8	8	3.46	20351724	42.40	20352724	53.10	20353724	80.00
400	398	448	488	11.5	12	8	3.88	20401724	48.10	20402724	60.00	20403724	89.20
450	448	497	538	11.5	12	8	4.33	20451724	53.10	20452724	66.80	20453724	101.00
500	498	551	588	11.5	12	8	4.77	20501724	64.40	20502724	80.90	20503724	111.00
560	556	629	656	14	16	8	5.86	20561724	108.00	20562724	130.00	20563724	207.50
630	626	698	726	14	16	8	6.56	20631724	121.00	20632724	144.00	20633724	230.00
710	705	775	805	14	16	8	7.34	20711724	161.50	20712724	211.00	20713724	272.50
800	795	861	895	14	24	8	8.16	20801724	195.50	20802724	262.50	20803724	318.50

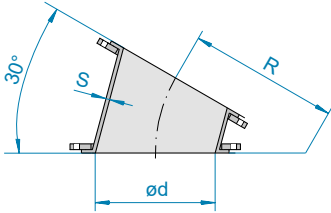


- 1 Push-in pipe
- 2 Ring seal for push-in pipe
- 3 Flange for push-in pipe
- 4 Straight pipe with loose flange

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

Segments and bends



SEGMENTS 30°

6100

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	438	9.40	21351320	81.60	22351320	87.70
400	398	500	11.20	21401320	90.80	22401320	106.50
450	448	563	14.40	21451320	103.00	22451320	113.50
500	498	625	17.10	21501320	113.50	22501320	122.00
560	558	700	17.00			22561320	147.50
630	628	788	26.00			22631320	164.00
710	707	888	30.00			22711320	225.00
800	797	1000	38.00			22801320	343.50
900	897	1126	43.88			229913204090	449.50
1000	998	1250	51.89			229913204100	559.00
1120	1118	1400	73.28			229913204112	726.00
1250	1248	1563	86.79			229913204125	865.50

Galvanised (dimensions for 2 mm pipework)

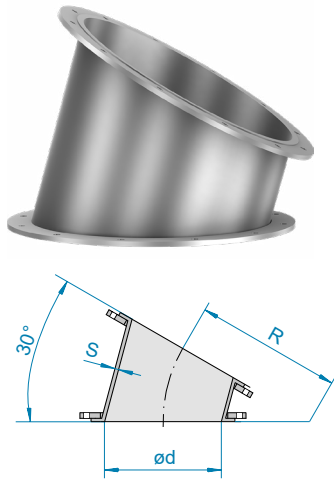
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	438	9.40	21352320	104.50	22352320	118.50
400	398	500	11.20	21402320	121.00	22402320	145.00
450	448	563	14.40	21452320	135.50	22452320	163.00
500	498	625	17.10	21502320	148.50	22502320	181.50
560	558	700	17.00			22562320	194.00
630	628	788	26.00			22632320	229.00
710	707	888	30.00			22712320	283.50
800	797	1000	38.00			22802320	449.50
900	897	1126	43.88			229923204090	627.00
1000	998	1250	51.89			229923204100	802.00
1120	1118	1400	73.28			229923204112	1020.00
1250	1248	1563	86.79			229923204125	1213.00

■ Shock explosion proof tested up to 3 bar



THE FLANGE RANGE

Segments and bends



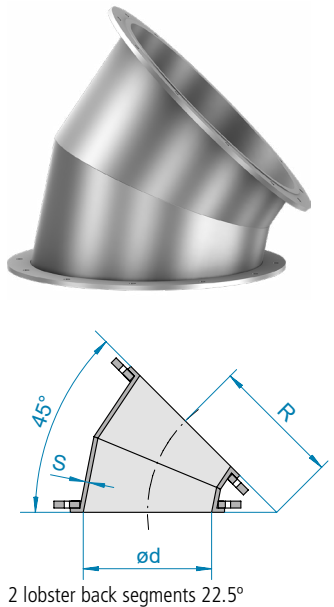
Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges		F	Stainless steel with stainless steel loose flange, shotblasted		F
				1.5 mm			2 mm		
				Item no.	€	Item no.	€	Item no.	€
350	349	438	9.40	21353320	150.50	22353320	166.00	223533203	275.50
400	398	500	11.20	21403320	174.50	22403320	204.00	224033203	330.00
450	448	563	14.40	21453320	195.50	22453320	218.00	224533203	347.50
500	498	625	17.10	21503320	211.00	22503320	235.00	225033203	364.50
560	558	700	17.00			22563320	282.50	225633203	532.50
630	628	788	26.00			22633320	331.50	226333203	569.50
710	707	888	30.00			22713320	428.50	227133203	704.00
800	797	1000	38.00			22803320	529.50		
900	897	1126	43.88			229933204090	725.50		
1000	998	1250	51.89			229933204100	952.00		
1120	1118	1400	73.28			229933204112	1190.00		
1250	1248	1563	86.79			229933204125	1447.00		

SEGMENTS 45°

6110

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

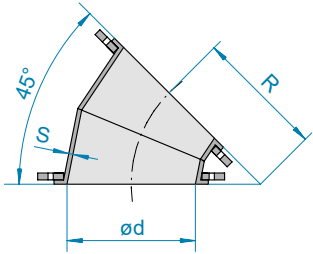


Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	350	11.40	21351330	127.00	22351330	148.50
400	398	400	13.30	21401330	146.50	22401330	167.00
450	448	450	16.40	21451330	162.00	22451330	189.50
500	498	500	19.00	21501330	185.00	22501330	208.50
560	558	560	21.00			22561330	252.00
630	628	630	27.00			22631330	296.00
710	707	710	34.00			22711330	358.00
800	797	800	42.00			22801330	401.50
900	897	900	51.53			229913304090	524.50
1000	998	1000	61.30			229913304100	671.50
1120	1118	1120	85.15			229913304112	866.00
1250	1248	1250	101.59			229913304125	1062.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



2 lobster back segments 22.5°

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	350	11.40	21352330	161.50	22352330	185.00
400	398	400	13.30	21402330	182.00	22402330	209.00
450	448	450	16.40	21452330	201.00	22452330	230.50
500	498	500	19.00	21502330	229.00	22502330	263.50
560	558	560	21.00			22562330	314.50
630	628	630	27.00			22632330	380.50
710	707	710	34.00			22712330	446.50
800	797	800	42.00			22802330	503.00
900	897	900	51.53			229923304090	704.00
1000	998	1000	61.30			229923304100	922.00
1120	1118	1120	85.15			229923304112	1194.00
1250	1248	1250	101.59			229923304125	1454.00

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges F				Stainless steel with stainless steel loose flange, shot-blasted F			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	350	11.40	21353330	231.50	22353330	274.00	213533303	339.00	223533303	382.50
400	398	400	13.30	21403330	288.00	22403330	318.50	214033303	413.50	224033303	444.00
450	448	450	16.40	21453330	322.00	22453330	367.50	214533303	450.00	224533303	497.00
500	498	500	19.00	21503330	361.00	22503330	401.00	215033303	490.00	225033303	530.50
560	558	560	21.00			22563330	482.00			225633303	733.00
630	628	630	27.00			22633330	577.00			226333303	814.50
710	707	710	34.00			22713330	688.00			227133303	964.00
800	797	800	42.00			22803330	743.00				
900	897	900	51.53			229933304090	959.00				
1000	998	1000	61.30			229933304100	1249.00				
1120	1118	1120	85.15			229933304112	1585.00				
1250	1248	1250	101.59			229933304125	1952.00				

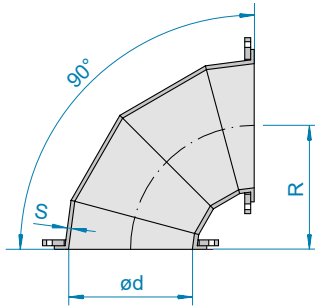
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

Segments and bends



4 lobster back segments:
2x30°/2x15°

BENDS R = 1D, 90°

6120

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

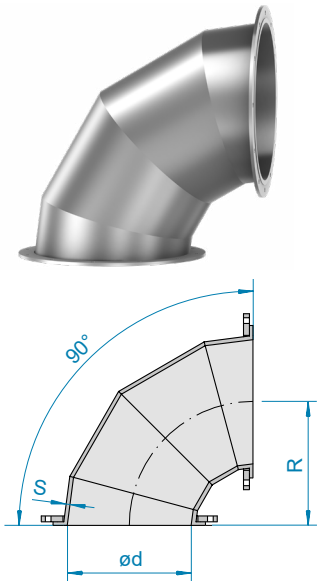
Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	350	16.00	21351339	241.50	22351339	257.50
400	398	400	20.40	21401339	288.50	22401339	307.00
450	448	450	24.40	21451339	309.50	22451339	343.00
500	498	500	24.60	21501339	358.00	22501339	379.50
560	558	560	36.00			22561339	408.00
630	628	630	46.00			22631339	470.00
710	707	710	56.00			22711339	588.50
800	797	800	66.00			22801339	709.50
900	897	900	82.77			229913394090	866.00
1000	998	1000	99.85			229913394100	1113.00
1120	1118	1120	133.45			229913394112	1421.00
1250	1248	1250	161.74			229913394125	1791.00

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	350	16.00	21352339	282.50	22352339	301.00
400	398	400	20.40	21402339	341.00	22402339	362.00
450	448	450	24.40	21452339	358.50	22452339	405.00
500	498	500	24.60	21502339	414.50	22502339	458.00
560	558	560	36.00			22562339	524.50
630	628	630	46.00			22632339	609.50
710	707	710	56.00			22712339	772.00
800	797	800	66.00			22802339	943.00
900	897	900	82.77			229923394090	1175.00
1000	998	1000	99.85			229923394100	1493.00
1120	1118	1120	133.45			229923394112	1917.00
1250	1248	1250	161.74			229923394125	2403.00

Shock explosion proof
tested up to 3 bar



4 lobster back segments:
2x30°/2x15°

Stainless steel (dimensions for 2 mm pipework)

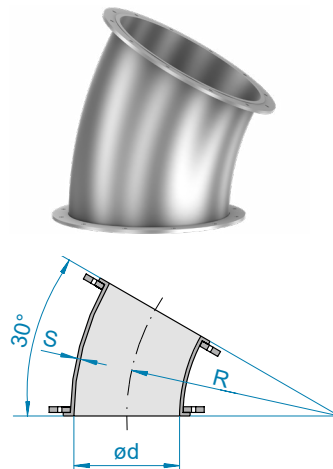
DN	Ø d	R	kg	Stainless steel with galvanised loose flanges				Stainless steel with stainless steel loose flange, shot-blasted			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	350	16.00	21353339	425.50	22353339	454.00	213533393	532.00	223533393	560.50
400	398	400	20.40	21403339	493.50	22403339	524.50	214033393	615.00	224033393	649.00
450	448	450	24.40	21453339	573.00	22453339	611.00	214533393	698.00	224533393	739.00
500	498	500	24.60	21503339	649.00	22503339	692.00	215033393	774.50	225033393	819.50
560	558	560	36.00			22563339	779.00			225633393	1025.00
630	628	630	46.00			22633339	870.00			226333393	1104.00
710	707	710	56.00			22713339	1157.00			227133393	1433.00
800	797	800	66.00			22803339	1366.00			228033393	1760.00
900	897	900	82.77			229933394090	1640.00				
1000	998	1000	99.85			229933394100	2075.00				
1120	1118	1120	133.45			229933394112	2663.00				
1250	1248	1250	161.74			229933394125	3280.00				

BENDS R = 2D, 30°

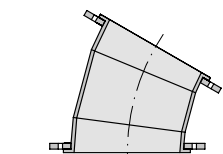
6130

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)



1 pressed segment 30°



3 lobster back segments:
1x15°/2x7.5°

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	13.20			22351343	141.00
400	398	800	15.20			22401343	166.00
450	448	900	19.00	21451343	188.00	22451343	201.00
500	498	1000	28.00	21501343	211.50	22501343	227.00
560	558	1120	28.00			22561343	271.00
630	628	1260	34.00			22631343	335.00
710	707	1420	42.00			22711343	426.50
800	797	1600	50.50			22801343	543.00
900	897	1800	60.57			229913434090	681.00
1000	998	2000	72.45			229913434100	862.50
1120	1118	2240	99.08			229913434112	1105.00
1250	1248	2500	118.94			229913434125	1342.00

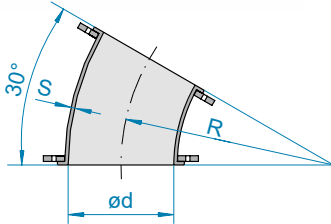
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar

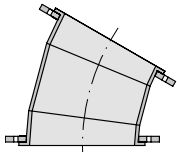


THE FLANGE RANGE

Segments and bends



■ 1 pressed segment 30°



■ 3 lobster back segments:
1 x 15° / 2 x 7.5°

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	13.20			22352343	179.00
400	398	800	15.20			22402343	210.00
450	448	900	19.00	21452343	226.50	22452343	282.50
500	498	1000	23.00	21502343	261.50	22502343	313.00
560	558	1120	28.00			22562343	365.50
630	628	1260	34.00			22632343	454.00
710	707	1420	42.00			22712343	567.50
800	797	1600	50.50			22802343	718.00
900	897	1800	60.57			229923434090	910.00
1000	998	2000	72.45			229923434100	1185.00
1120	1118	2240	99.08			229923434112	1518.00
1250	1248	2500	118.94			229923434125	1865.00

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges F				Stainless steel with stainless steel loose flange, shotblasted F			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	13.20			22353343	259.00	213533433	357.00	223533433	367.00
400	398	800	15.20			22403343	278.00	214033433	396.00	224033433	401.50
450	448	900	19.00	21453343	330.00	22453343	370.00	214533433	455.00	224533433	496.50
500	498	1000	23.00	21503343	366.50	22503343	413.50	215033433	491.50	225033433	541.00
560	558	1120	28.00			22563343	531.00			225633433	776.00
630	628	1260	34.00			22633343	627.50			226333433	861.50
710	707	1420	42.00			22713343	848.00			227133433	1124.00
800	797	1600	50.50			22803343	984.00				
900	897	1800	60.57			229933434090	1171.00				
1000	998	2000	72.45			229933434100	1464.00				
1120	1118	2240	99.08			229933434112	1853.00				
1250	1248	2500	118.94			229933434125	2296.00				

F FOOD GRADE
EC 1935/2004 plus FDA compliant

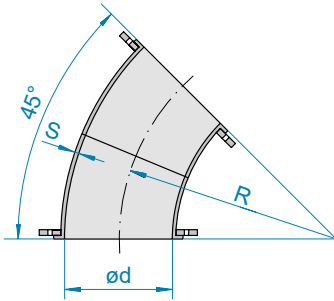
■ Shock explosion proof
tested up to 3 bar



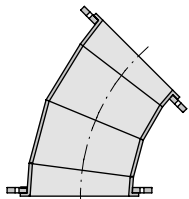
BENDS R = 2D, 45°

6140

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed



■ 2 pressed segments 22.5°



■ 4 lobster back segments:
2 x 15° / 2 x 7.5°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	17.12			22351344	184.50
400	398	800	20.00			22401344	229.00
450	448	900	24.20	21451344	245.50	22451344	268.50
500	498	1000	29.50	21501344	271.50	22501344	300.00
560	558	1120	37.00			22561344	354.50
630	628	1260	39.20			22631344	395.50
710	707	1420	54.00			22711344	483.00
800	797	1600	72.76			22801344	603.00
900	897	1800	81.66			229913444090	801.00
1000	998	2000	98.48			229913444100	1055.00
1120	1118	2240	131.72			229913444112	1333.00
1250	1248	2500	159.59			229913444125	1625.00

Galvanised (dimensions for 2 mm pipework)

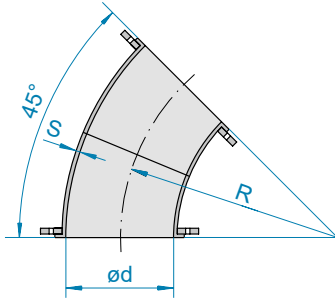
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	17.12			22352344	230.50
400	398	800	20.00			22402344	286.50
450	448	900	24.20	21452344	294.00	22452344	360.50
500	498	1000	29.50	21502344	324.50	22502344	402.50
560	558	1120	37.00			22562344	465.50
630	628	1260	39.20			22632344	523.00
710	707	1420	54.00			22712344	656.00
800	797	1600	72.76			22802344	797.00
900	897	1800	81.66			229923444090	1034.00
1000	998	2000	98.48			229923444100	1418.00
1120	1118	2240	131.72			229923444112	1856.00
1250	1248	2500	159.59			229923444125	2250.00

■ Shock explosion proof
tested up to 3 bar

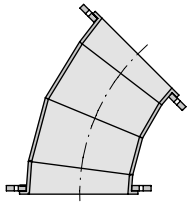


THE FLANGE RANGE

Segments and bends



■ 2 pressed segments 22.5°



■ 4 lobster back segments:
2x 15° / 2x 7.5°

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges		Stainless steel with stainless steel loose flange, shot-blasted					
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	17.12		22353344	368.50	213533443	419.00	223533443	476.00	
400	398	800	20.00		22403344	415.50	214033443	490.00	224033443	539.00	
450	448	900	24.20	21453344	440.00	22453344	493.50	214533443	564.00	224533443	621.50
500	498	1000	29.50	21503344	518.50	22503344	587.00	215033443	643.00	225033443	714.50
560	558	1120	37.00		22563344	723.00			225633443	968.00	
630	628	1260	39.20		22633344	861.50			226333443	1095.00	
710	707	1420	54.00		22713344	1163.00			227133443	1438.00	
800	797	1600	72.76		22803344	1349.00					
900	897	1800	81.66		229933444090	1608.00					
1000	998	2000	98.48		229933444100	2008.00					
1120	1118	2240	131.72		229933444112	2506.00					
1250	1248	2500	159.59		229933444125	3065.00					

FOOD GRADE
EC 1935/2004 plus FDA compliant

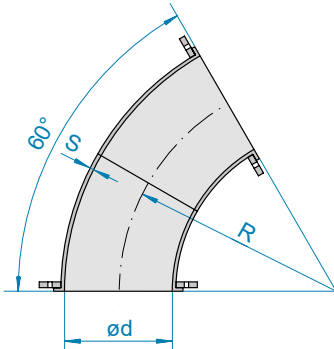
Shock explosion proof
tested up to 3 bar



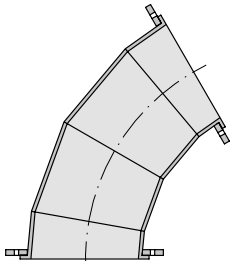
BENDS $R = 2D, 60^\circ$

6150

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed



■ 2 pressed segments 30°



■ 4 lobster back segments:
 $2 \times 20^\circ / 2 \times 10^\circ$

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	19.40			22351346	240.00
400	398	800	23.80			22401346	277.00
450	448	900	29.40	21451346	300.00	22451346	324.00
500	498	1000	36.00	21501346	348.00	22501346	369.50
560	558	1120	45.00			22561346	471.50
630	628	1260	56.00			22631346	553.50
710	707	1420	69.00			22711346	668.00
800	797	1600	84.00			22801346	801.00
900	897	1800	103.12			229913464090	1036.00
1000	998	2000	124.97			229913464100	1329.00
1120	1118	2240	164.95			229913464112	1696.00
1250	1248	2500	200.97			229913464125	2074.00

Galvanised (dimensions for 2 mm pipework)

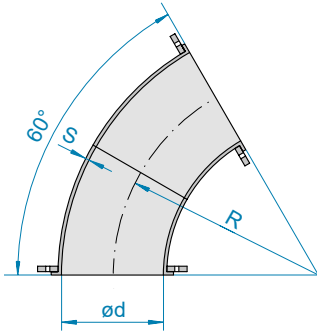
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	19.40			22352346	298.00
400	398	800	23.80			22402346	343.50
450	448	900	29.40	21452346	379.00	22452346	446.50
500	498	1000	36.00	21502346	423.00	22502346	532.00
560	558	1120	45.00			22562346	627.00
630	628	1260	56.00			22632346	728.00
710	707	1420	69.00			22712346	916.50
800	797	1600	84.00			22802346	1146.00
900	897	1800	103.12			229923464090	1433.00
1000	998	2000	124.97			229923464100	1865.00
1120	1118	2240	164.95			229923464112	2353.00
1250	1248	2500	200.97			229923464125	2873.00

■ Shock explosion proof
tested up to 3 bar

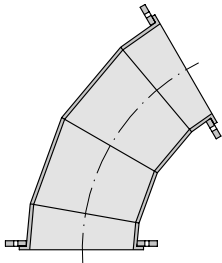


THE FLANGE RANGE

Segments and bends



2 pressed segments 30°



4 lobster back segments:
2 x 20° / 2 x 10°

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges F		Stainless steel with stainless steel loose flange, shotblasted F					
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	19.40		22353346	471.00	213533463	524.50	223533463	579.00	
400	398	800	23.80		22403346	548.00	214033463	612.50	224033463	672.00	
450	448	900	29.40	21453346	632.50	22453346	708.50	214533463	757.50	224533463	836.00
500	498	1000	36.00	21503346	685.00	22503346	764.00	215033463	810.00	225033463	890.50
560	558	1120	45.00		22563346	911.50			225633463	1158.00	
630	628	1260	56.00		22633346	1073.00			226333463	1307.00	
710	707	1420	69.00		22713346	1450.00			227133463	1728.00	
800	797	1600	84.00		22803346	1814.00					
900	897	1800	103.12		229933464090	2160.00					
1000	998	2000	124.97		229933464100	2564.00					
1120	1118	2240	164.95		229933464112	3233.00					
1250	1248	2500	200.97		229933464125	3969.00					

F FOOD GRADE
EC 1935/2004 plus FDA compliant

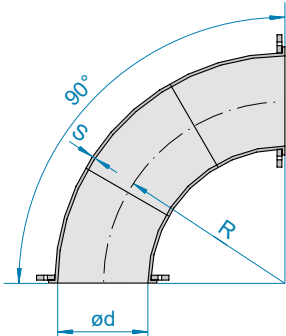
Shock explosion proof
tested up to 3 bar



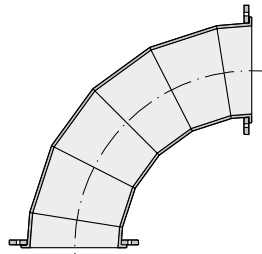
BENDS $R = 2D, 90^\circ$

6160

- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed



■ 3 pressed segments 30°



■ 6 lobster back segments:
4 x 18° / 2 x 9°

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	25.20			22351349	319.00
400	398	800	31.80			22401349	371.50
450	448	900	41.50	21451349	457.50	22451349	489.00
500	498	1000	48.60	21501349	513.50	22501349	548.50
560	558	1120	62.00			22561349	634.00
630	628	1260	68.80			22631349	721.00
710	707	1420	94.00			22711349	920.50
800	797	1600	120.00			22801349	1152.00
900	897	1800	145.24			229913494090	1460.00
1000	998	2000	176.95			229913494100	1880.00
1120	1118	2240	230.14			229913494112	2383.00
1250	1248	2500	282.16			229913494125	2930.00

Galvanised (dimensions for 2 mm pipework)

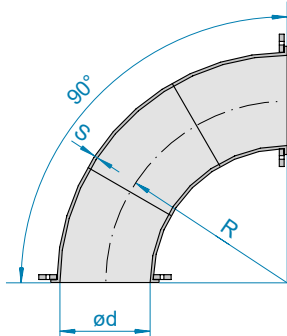
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	25.20			22352349	392.00
400	398	800	31.80			22402349	458.00
450	448	900	41.50	21452349	543.00	22452349	596.50
500	498	1000	48.60	21502349	609.50	22502349	738.00
560	558	1120	62.00			22562349	900.00
630	628	1260	68.80			22632349	1003.00
710	707	1420	94.00			22712349	1258.00
800	797	1600	120.00			22802349	1548.00
900	897	1800	145.24			229923494090	1965.00
1000	998	2000	176.95			229923494100	2549.00
1120	1118	2240	230.14			229923494112	3298.00
1250	1248	2500	282.16			229923494125	4047.00

■ Shock explosion proof
tested up to 3 bar

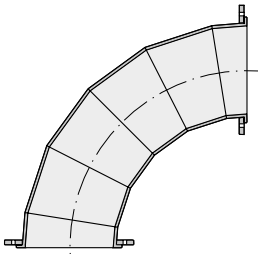


THE FLANGE RANGE

Segments and bends



3 pressed segments 30°



6 lobster back segments:
4 x 18° / 2 x 9°

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges F			
				1.5 mm		2 mm	
				Item no.	€	Item no.	€
350	349	700	25.20			22353349	634.00
400	398	800	31.80			22403349	750.50
450	448	900	41.50	21453349	866.00	22453349	945.50
500	498	1000	48.60	21503349	1029.00	22503349	1122.00
560	558	1120	62.00			22563349	1350.00
630	628	1260	68.80			22633349	1554.00
710	707	1420	94.00			22713349	2047.00
800	797	1600	120.00			22803349	2441.00
900	897	1800	145.24			229933494090	3003.00
1000	998	2000	176.95			229933494100	3772.00
1120	1118	2240	230.14			229933494112	4627.00
1250	1248	2500	282.16			229933494125	5705.00

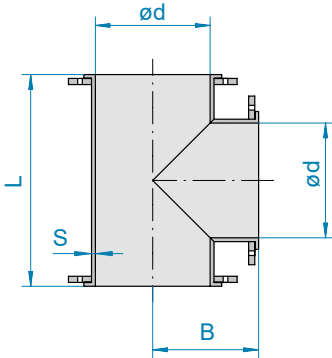
Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with stainless steel loose flange, shotblasted F			
				1.5 mm		2 mm	
				Item no.	€	Item no.	€
350	349	700	26.00	213533493	724.50	223533493	741.50
400	398	800	32.00	214033493	853.50	224033493	875.00
450	448	900	41.00	214533493	990.50	224533493	1072.00
500	498	1000	50.00	215033493	1154.00	225033493	1251.00
560	558	1120	62.00			225633493	1597.00
630	628	1260	76.00			226333493	1788.00
710	707	1420	94.00			227133493	2324.00
800	797	1600	120.00			228033493	2836.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar

Branch pieces



T-PIECES

6060

- With loose flange on all sides
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- DN 560 to 800 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
350	349	275	550	19.80	21351240	222.00	22351240	241.00
400	398	300	600	24.00	21401240	260.50	22401240	282.50
450	448	325	650	27.20	21451240	287.50	22451240	313.50
500	498	350	700	32.20	21501240	334.50	22501240	364.50
560	558	380	760	40.00			22561240	381.00
630	628	415	830	46.40			22631240	423.50
710	707	460	910	58.00			22711240	540.00
800	797	500	1000	64.00			22801240	673.50
900	897	550	1100	77.87			229912404090	817.00
1000	998	600	1200	90.84			229912404100	978.50
1120	1118	660	1320	124.06			229912404112	1221.00
1250	1248	725	1450	145.46			229912404125	1470.00

Galvanised (dimensions for 2 mm pipework)

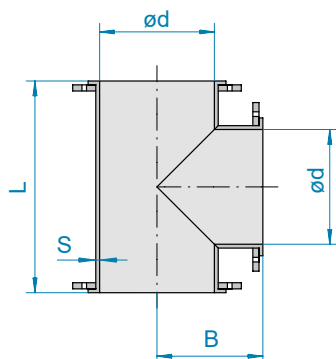
DN	Ø d	B	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
350	349	275	550	19.80	21352240	268.50	22352240	290.50
400	398	300	600	24.00	21402240	316.00	22402240	332.00
450	448	325	650	27.20	21452240	349.50	22452240	365.00
500	498	350	700	32.20	21502240	405.00	22502240	422.00
560	558	380	760	40.00			22562240	466.00
630	628	415	830	46.40			22632240	532.00
710	707	460	910	58.00			22712240	682.00
800	797	500	1000	64.00			22802240	803.00
900	897	550	1100	77.87			229922404090	1075.00
1000	998	600	1200	90.84			229922404100	1347.00
1120	1118	660	1320	124.06			229922404112	1684.00
1250	1248	725	1450	145.46			229922404125	1981.00

■ Shock explosion proof tested up to 3 bar



THE FLANGE RANGE

Branch pieces



Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	B	L	kg	Stainless steel with galvanised loose flanges		Stainless steel with stainless steel loose flange, shotblasted					
					1.5 mm		2 mm		1.5 mm		2 mm	
					Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	275	550	19.80	21353240	356.50	22353240	495.00	213532403	518.00	223532403	657.50
400	398	300	600	24.00	21403240	394.00	22403240	561.00	214032403	581.50	224032403	751.50
450	448	325	650	27.20	21453240	430.50	22453240	627.00	214532403	621.50	224532403	820.50
500	498	350	700	32.20	21503240	463.50	22503240	706.00	215032403	655.50	225032403	899.00
560	558	380	760	40.00			22563240	769.50			225632403	1145.00
630	628	415	830	46.40			22633240	852.50			226332403	1211.00
710	707	460	910	58.00			22713240	1072.00			227132403	1489.00
800	797	500	1000	64.00			22803240	1202.00				
900	897	550	1100	77.87			229932404090	1274.00				
1000	998	600	1200	90.84			229932404100	1516.00				
1120	1118	660	1320	124.06			229932404112	1873.00				
1250	1248	725	1450	145.46			229932404125	2265.00				

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



FORKS AND CONICAL FORKS 30°

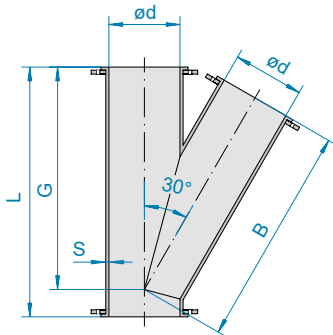
6080



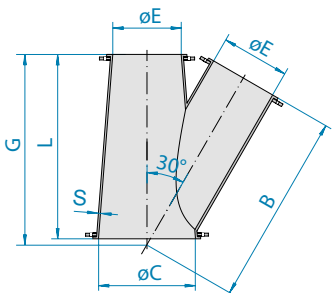
- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 and 630 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	1.5 mm powder-coated		2 mm powder-coated	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21351255	293.50	22351255	317.00
350- 350- 350	349	817			828	920	27.75	21351230	261.00	22351230	311.00
400- 300- 300		824	399	300	821	720	20.40	21401255	344.50	22401255	361.00
400- 400- 400	398	925			926	1025	38.80	21401230	328.50	22401230	378.00
450- 350- 350		911	449	350	909	920	36.40	21451255	409.50	22451255	490.50
450- 450- 450	448	1030			1045	1150	48.00	21451230	398.00	22451230	450.50
500- 400- 400		1014	499	399	1009	1025	44.00	21501255	537.50	22501255	637.00
500- 500- 500	498	1127			1138	1250	56.00	21501230	466.00	22501230	494.50
560- 400- 400		1071	558	399	1059	1025	47.60			22561255	666.00
560- 560- 560	558	1275			1280	1400	72.00			22561230	571.00
630- 450- 450		1213	628	448	1195	1150	58.80			22631255	782.00
630- 630- 630	628	1404			1401	1530	84.60			22631230	609.50
710- 500- 500		1327	707	498	1311	1250	72.00			22711255	949.50
710- 710- 710	707	1665			1660	1800	116.00			22711230	883.50
800- 560- 560		1507	797	558	1481	1400	87.00			22801255	1215.00
800- 800- 800	797	1823			1818	1970	140.00			22801230	1123.00
900- 900- 900	897	2030			2020	2200	165.60			229912304090	1385.00
1000-1000-1000	998	2190			2205	2400	194.60			229912304100	1717.00
1120-1120-1120	1118	2480			2490	2700	258.70			229912304112	2084.00
1250-1250-1250	1248	2710			2715	2950	308.46			229912304125	2483.00



Fork 30°



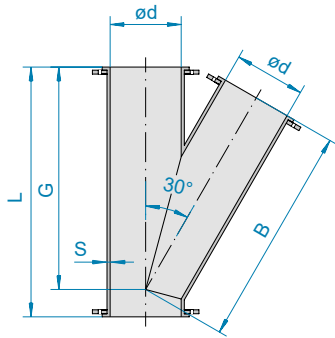
Conical fork 30°

Shock explosion proof tested up to 3 bar

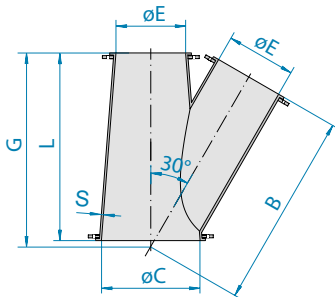


THE FLANGE RANGE

Branch pieces



■ Fork 30°

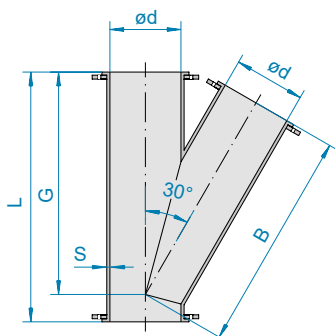


Conical fork 30°

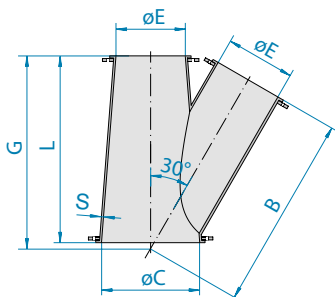
Galvanised (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	1.5 mm galvanised		2 mm galvanised	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21352255	350.00	22352255	376.50
350- 350- 350	349	817			828	920	27.75	21352230	323.50	22352230	379.00
400- 300- 300		824	399	300	821	720	20.40	21402255	408.50	22402255	429.00
400- 400- 400	398	925			926	1025	38.80	21402230	399.00	22402230	462.50
450- 350- 350		911	449	350	909	920	36.40	21452255	486.50	22452255	611.00
450- 450- 450	448	1030			1045	1150	48.00	21452230	479.00	22452230	554.00
500- 400- 400		1014	499	399	1009	1025	44.00	21502255	634.00	22502255	794.00
500- 500- 500	498	1127			1138	1250	56.00	21502230	548.50	22502230	600.00
560- 400- 400		1071	558	399	1059	1025	47.60			22562255	832.50
560- 560- 560	558	1275			1280	1400	72.00			22562230	705.50
630- 450- 450		1213	628	448	1195	1150	58.80			22632255	982.00
630- 630- 630	628	1404			1401	1530	84.60			22632230	749.50
710- 500- 500		1327	707	498	1311	1250	72.00			22712255	1193.00
710- 710- 710	707	1665			1660	1800	116.00			22712230	1092.00
800- 560- 560		1507	797	558	1481	1400	87.00			22802255	1615.00
800- 800- 800	797	1823			1818	1970	140.00			22802230	1447.00
900- 900- 900	897	2030			2020	2200	165.60			229922304090	2009.00
1000-1000-1000	998	2190			2205	2400	194.60			229922304100	2546.00
1120-1120-1120	1118	2480			2490	2700	258.70			229922304112	3182.00
1250-1250-1250	1248	2710			2715	2950	308.46			229922304125	3792.00

■ Shock explosion proof tested up to 3 bar



Fork 30°



Conical fork 30°

Stainless steel with galvanized loose flanges (dimensions for 2 mm pipework)

DN	$\varnothing d$	B	$\varnothing C$	$\varnothing E$	G	L	kg	Stainless steel with galvanized loose flanges F			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21353255	568.50	22353255	725.00
350- 350- 350	349	817			828	920	27.75	21353230	501.50	22353230	796.50
400- 300- 300		824	399	300	821	720	20.40	21403255	665.50	22403255	849.00
400- 400- 400	398	925			926	1025	38.80	21403230	562.00	22403230	856.00
450- 350- 350		911	449	350	909	920	36.40	21453255	781.50	22453255	1007.00
450- 450- 450	448	1030			1045	1150	48.00	21453230	736.00	22453230	918.50
500- 400- 400		1014	499	399	1009	1025	44.00	21503255	1044.00	22503255	1335.00
500- 500- 500	498	1127			1138	1250	56.00	21503230	809.50	22503230	1051.00
560- 400- 400		1071	558	399	1059	1025	47.60			22563255	1361.00
560- 560- 560	558	1275			1280	1400	72.00			22563230	1217.00
630- 450- 450		1213	628	448	1195	1150	58.80			22633255	1544.00
630- 630- 630	628	1404			1401	1530	84.60			22633230	1315.00
710- 500- 500		1327	707	498	1311	1250	72.00			22713255	1975.00
710- 710- 710	707	1665			1660	1800	116.00			22713230	1746.00
800- 560- 560		1507	797	558	1481	1400	87.00			22803255	2218.00
800- 800- 800	797	1823			1818	1970	140.00			22803230	2211.00
900- 900- 900	897	2030			2020	2200	165.60			229932304090	2719.00
1000-1000-1000	998	2190			2205	2400	194.60			229932304100	3184.00
1120-1120-1120	1118	2480			2490	2700	258.70			229932304112	3926.00
1250-1250-1250	1248	2710			2715	2950	308.46			229932304125	4695.00

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	$\varnothing d$	B	$\varnothing C$	$\varnothing E$	G	L	kg	Stainless steel with stainless steel loose flange, shotblasted F			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350-250-250		727	350	250	727	620	15.60	213532553	621.00	223532553	779.00
350-350-350	349	817			828	920	28.00	213532303	657.50	223532303	957.00
400-300-300		824	399	300	821	720	20.00	214032553	726.00	224032553	911.00
400-400-400	398	925			926	1025	39.40	214032303	743.00	224032303	1041.00
450-350-350		911	449	350	909	920	38.20	214532553	947.50	224532553	1178.00
450-450-450	448	1030			1045	1150	48.00	214532303	921.50	224532303	1108.00
500-400-400		1014	499	399	1009	1025	44.00	215032553	1226.00	225032553	1523.00
500-500-500	498	1127			1138	1250	61.00	215032303	995.00	225032303	1240.00
560-400-400		1071	558	399	1059	1025	47.60			225632553	1607.00
560-560-560	558	1275			1280	1400	75.00			225632303	1585.00
630-450-450		1213	628	448	1195	1150	57.00			226332553	1787.00
630-630-630	628	1404			1401	1530	84.50	226332303*	1664.00	236332303*	2167.00
710-500-500		1327	707	498	1311	1250	72.00			227132553	2259.00
710-710-710	707	1665			1660	1800	113.00	227132303*	2157.00	237132303*	2937.00

*2 mm

*3 mm

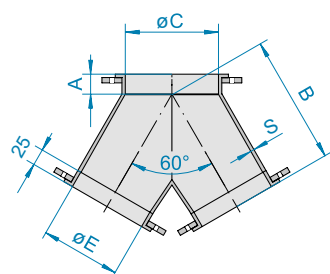
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

Branch pieces



CONICAL SYMMETRICAL FORK 60°

6090

- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 to 800 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request

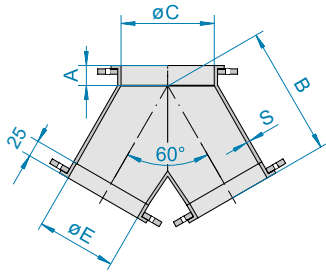
Powder-coated (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	1.5 mm powder-coated		2 mm powder-coated	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21351275	264.00	22351275	290.00
400- 300- 300	70	350	399	300	12.00	21401275	288.50	22401275	319.50
450- 350- 350	80	425	449	350	23.00	21451275	361.50	22451275	425.00
500- 400- 400	80	475	499	399	33.50	21501275	388.50	22501275	476.00
560- 400- 400	80	550	558	399	37.00			22561275	580.00
630- 450- 450	150	600	628	448	40.40			22631275	713.00
710- 500- 500	200	650	707	498	47.60			22711275	959.00
800- 560- 560	200	700	797	558	59.00			22801275	1201.00
900- 630- 630	210	850	897	628	74.40			229912754090	1512.00
1000- 710- 710	220	930	998	707	87.96			229912754100	1823.00
1120- 800- 800	220	1040	1118	797	110.30			229912754112	2191.00
1250- 900- 900	220	1130	1248	897	128.22			229912754125	2579.00

Galvanised (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21352275	296.50	22352275	315.00
400- 300- 300	70	350	399	300	12.00	21402275	324.50	22402275	342.00
450- 350- 350	80	425	449	350	23.00	21452275	390.50	22452275	463.00
500- 400- 400	80	475	499	399	33.50	21502275	433.00	22502275	527.50
560- 400- 400	80	550	558	399	37.00			22562275	652.50
630- 450- 450	150	600	628	448	40.40			22632275	813.50
710- 500- 500	200	650	707	498	47.60			22712275	1118.00
800- 560- 560	200	700	797	558	59.00			22802275	1418.00
900- 630- 630	210	850	897	628	74.40			229922754090	1808.00
1000- 710- 710	220	930	998	707	87.96			229922754100	2210.00
1120- 800- 800	220	1040	1118	797	110.30			229922754112	2664.00
1250- 900- 900	220	1130	1248	897	128.22			229922754125	3145.00

Shock explosion proof tested up to 3 bar



Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	Stainless steel with galvanised loose flanges F			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21353275	519.00	22353275	666.50
400- 300- 300	70	350	399	300	12.00	21403275	565.00	22403275	705.50
450- 350- 350	80	425	449	350	23.00	21453275	653.50	22453275	815.50
500- 400- 400	80	475	499	399	33.50	21503275	719.00	22503275	912.50
560- 400- 400	80	550	558	399	37.00			22563275	1049.00
630- 450- 450	150	600	628	448	40.40			22633275	1217.00
710- 500- 500	200	650	707	498	47.60			22713275	1639.00
800- 560- 560	200	700	797	558	59.00			22803275	1935.00
900- 630- 630	210	850	897	628	74.40			229932754090	2418.00
1000- 710- 710	220	930	998	707	87.96			229932754100	2898.00
1120- 800- 800	220	1040	1118	797	110.30			229932754112	3455.00
1250- 900- 900	220	1130	1248	897	128.22			229932754125	4072.00

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	Stainless steel with stainless steel loose flange, shotblasted F			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350-250-250	70	300	350	250	14.37	213532753	571.50	223532753	719.50
400-300-300	70	350	399	300	11.76	214032753	624.50	224032753	767.50
450-350-350	80	425	449	350	32.90	214532753	819.50	224532753	985.00
500-400-400	80	475	499	399	27.40	215032753	901.00	225032753	1100.00
560-400-400	80	550	558	399	37.00			225632753	1296.00
630-450-450	150	600	628	448	41.00			226332753	1460.00
710-500-500	200	650	707	498	47.60			227132753	1921.00

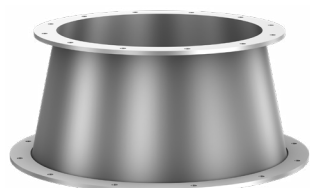
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

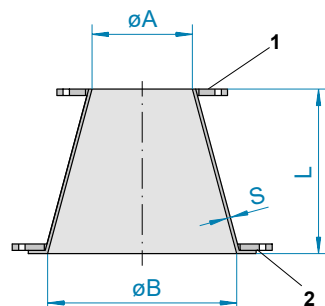
Transition pieces and adapters



CONE PIECES

6170

- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 630 to 710 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request



- 1 With welded flange similar to DIN 24154-2 (see page 219 for dimensions)
- 2 With loose flange similar to DIN 24154-2 (see page 219 for dimensions)

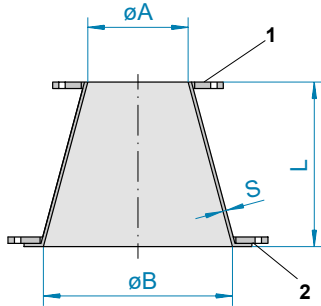
Powder-coated (dimensions for 2 mm pipework)

DN	øA	øB	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21001480	72.50	22001480	85.70
300- 400	299	398	200	7.40	21001481	79.90	22001481	94.70
350- 400	349	398	200	10.00	21001482	133.50	22001482	159.50
350- 450	349	448	200	11.20	21001483	137.00	22001483	162.50
400- 450	398	448	200	11.80	21001485	150.00	22001485	178.00
400- 500	398	498	250	13.40	21001486	163.50	22001486	193.50
450- 500	448	498	200	14.20	21001487	170.00	22001487	200.00
450- 560	448	558	250	16.60			22001495	205.00
500- 560	498	558	250	17.40			22001496	240.50
500- 630	498	628	300	19.60			22001497	266.50
560- 630	558	628	300	21.80			22001498	277.00
630- 710	628	707	300	24.40			22001499	350.50
710- 800	707	797	300	28.00			22001500	402.50
800- 900	897	799	300	31.21			229918104090	478.00
900-1000	998	899	300	34.83			229918114100	557.50
1000-1120	1118	1000	300	44.21			229918124112	664.50
1120-1250	1248	1120	300	55.14			229918134125	769.00

Galvanised (dimensions for 2 mm pipework)

DN	øA	øB	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21002480	90.40	22002480	107.00
300- 400	299	398	200	7.40	21002481	100.00	22002481	118.00
350- 400	349	398	200	10.00	21002482	169.00	22002482	199.00
350- 450	349	448	200	11.20	21002483	173.00	22002483	203.50
400- 450	398	448	200	11.80	21002485	188.00	22002485	220.00
400- 500	398	498	250	13.40	21002486	204.00	22002486	239.00
450- 500	448	498	200	14.20	21002487	211.50	22002487	248.50
450- 560	448	558	250	16.60			22002495	270.50
500- 560	498	558	250	17.40			22002496	320.00
500- 630	498	628	300	19.60			22002497	352.50
560- 630	558	628	300	21.80			22002498	369.00
630- 710	628	707	300	24.40			22002499	469.00
710- 800	707	797	300	28.00			22002500	533.00
800- 900	897	799	300	31.21			229928104090	614.50
900-1000	998	899	300	34.83			229928114100	716.00
1000-1120	1118	1000	300	44.21			229928124112	860.00
1120-1250	1248	1120	300	55.14			229928134125	948.00

■ Shock explosion proof tested up to 3 bar



- 1 With welded stainless steel flange similar to DIN 24154-2 (see page 219 for dimensions)
- 2 With loose flange similar to DIN 24154-2 (see page 219 for dimensions)

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	$\varnothing A$	$\varnothing B$	L	kg	Stainless steel with galvanised loose flanges F			
					1.5 mm		2 mm	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21003480	95.20	22003480	118.00
300- 400	299	398	200	7.40	21003481	103.50	22003481	127.50
350- 400	349	398	200	10.00	21003482	217.00	22003482	266.00
350- 450	349	448	200	11.20	21003483	226.50	22003483	277.00
400- 450	398	448	200	11.80	21003485	251.00	22003485	306.50
400- 500	398	498	250	13.40	21003486	265.00	22003486	325.50
450- 500	448	498	200	14.20	21003487	284.50	22003487	349.50
450- 560	448	558	250	16.60			22003495	376.50
500- 560	498	558	250	17.40			22003496	419.50
500- 630	498	628	300	19.60			22003497	432.50
560- 630	558	628	300	21.80			22003498	494.50
630- 710	628	707	300	24.40			22003499	667.00
710- 800	707	797	300	28.00			22003500	760.00
800- 900	897	799	300	31.21			229938104090	892.50
900-1000	998	899	300	34.83			229938114100	1041.00
1000-1120	1118	1000	300	44.21			229938124112	1196.00
1120-1250	1248	1120	300	55.14			229938134125	1364.00

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	$\varnothing A$	$\varnothing B$	L	kg	Stainless steel with stainless steel loose flange, shotblasted F			
					1.5 mm		2 mm	
					Item no.	€	Item no.	€
300-350	299	349	200	6.80	210034803	148.50	220034803	173.00
300-400	299	398	200	7.40	210034813	165.50	220034813	190.00
350-400	349	398	200	10.00	210034823	277.00	220034823	328.00
350-450	349	448	200	11.00	210034833	289.00	220034833	340.50
400-450	398	448	200	11.80	210034853	313.00	220034853	371.00
400-500	398	498	250	13.40	210034863	326.00	220034863	388.00
450-500	448	498	200	14.20	210034873	347.00	220034873	413.00
450-560	448	558	250	16.60			220034953	499.00
500-560	498	558	250	17.40			220034963	542.00
500-630	498	628	300	19.60			220034973	548.00
560-630	558	628	300	21.80			220034983	611.00
630-710	628	707	300	24.40			220034993	804.50

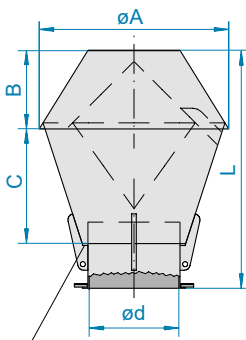
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof
tested up to 3 bar



THE FLANGE RANGE

Transition pieces and adapters



Revolving water outlet

JET CAPS

1430

- With welded flange similar to DIN 24154-2 (see page 219 for dimensions)

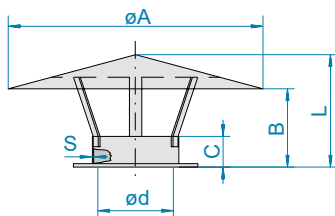
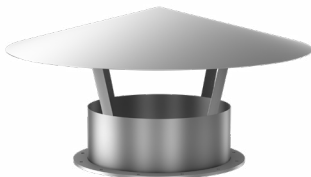
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ød	ØA	B	C	L	kg	2 mm galvanised		2 mm stainless steel	
							Item no.	€	Item no.	€
350	349	645	275	448	865	33.00	12352805	726.00	12353805	1184.00
400	398	715	295	480	915	42.00	12402805	840.00	12403805	1370.00
450	448	820	320	588	1040	51.00	12452805	954.50	12453805	1606.00
500	498	870	320	588	1040	61.50	12502805	1077.00	12503805	1860.00
560	558	990	372	703	1208	81.50	12562805	1197.00	12563805	2128.00
630	628	1140	442	776	1434	112.00	12632805	1364.00	12633805	2421.00
710	707	1290	502	901	1627	138.00	12712805	2289.00	12713805	3806.00
800	797	1440	520	1020	1790	164.00	12802805	2632.00	12803805	4563.00
900	897	1550	600	1150	2150	260.00	239928055090 *	3702.00	239938055090 *	5280.00
1000	998	1800	700	1330	2400	328.00	239928055100 *	4291.00	239938055100 *	6124.00
1120	1118	1825	1120	1100	2370	421.00	239928055112 *	4591.00	239938055112 *	6832.00
1250	1248	1955	1190	1150	2470	452.00	239928055125 *	5286.00	239938055125 *	7541.00

*3 mm

RAIN CAPS

6190



- With loose flange up to DN 1000 mm
- DN 1120 mm: 3 mm wall thickness, with welded flange similar to DIN 24154-2 (see page 219 for dimensions)

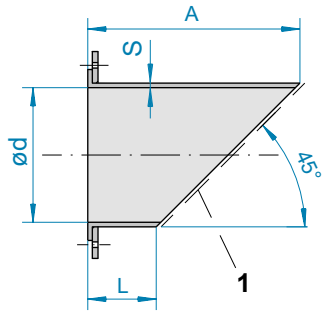
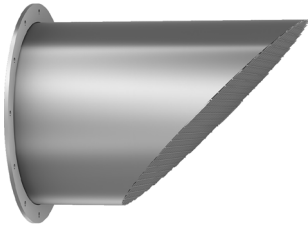
- From DN 1250 mm, we recommend the use of jet caps
- Take local building regulations into account, alternatively use a jet cap
- DN 710 – 1120 available in stainless steel only

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ød	ØA	B	C	L	kg	2 mm galvanised		2 mm Stainless steel with galvanised loose flanges	2 mm stainless steel with stainless steel loose flange shotblasted		
							Item no.	€	Item no.	€	Item no.	€
350	349	750	300	150	395	23.70	22352850	315.50	22353850	561.50	223538503	615.00
400	398	850	320	150	435	16.80	22402850	357.50	22403850	700.50	224038503	762.00
450	448	950	340	150	470	25.90	22452850	390.50	22453850	885.00	224538503	947.00
500	498	1050	410	200	550	31.50	22502850	423.50	22503850	990.50	225038503	1054.00
560	558	1150	435	200	590	34.00	22562850	464.00	22563850	1065.00	225638503	1186.00
630	628	1300	470	200	645	42.00	22632850	509.50	22633850	1126.00	226338503	1241.00
710	707	1400	500	250	700	52.00			22713850	1513.00	227138503	1652.00
800	797	1500	530	250	760	59.92			22803850	1818.00	228038503	2015.00
900	897	1800	550	250	793	87.20			229938504090	2214.00		
1000	998	2000	600	250	870	103.20			229938504100	3031.00		
1120	1118	2240	650	300	950	186.90					239938505112 *	3518.00

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



1 Bird-guard

AIR OUTLET PIPES 45°

6200


- Bird-guard: Material thickness 2 mm, mesh size 20x20
- One side with loose flange
- DN 1400 and 1600 mm on request

Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
350	350	550	200	9.20	21352880	310.00		
400	399	600	200	10.80	21402880	371.50		
450	449	650	200	12.30	21452880	445.50		
500	499	700	200	10.60	21502880	506.50		
560	558	760	200	22.00			22562880	593.00
630	628	830	200	26.00			22632880	666.50
710	707	910	200	30.00			22712880	874.00
800	797	1000	200	36.00			22802880	1031.00
900	897	1100	200	58.80			239928804090 *	1254.00
1000	998	1200	200	69.12			239928804100 *	1497.00
1120	1118	1320	200	90.75			239928804112 *	1766.00
1250	1248	1450	200	107.40			239928804125 *	2065.00

*3 mm

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

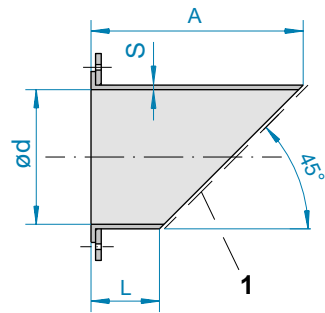
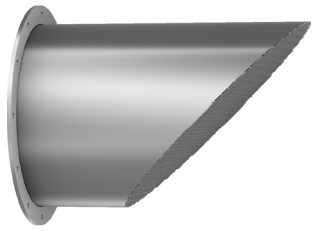
DN	Ø d	A	L	kg	Stainless steel with galvanised loose flanges 			
					1 mm		2 mm	
					Item no.	€	Item no.	€
350	350	550	200	9.20	21353880	395.50		
400	399	600	200	10.80	21403880	489.00		
450	449	650	200	12.30	21453880	558.00		
500	499	700	200	10.60	21503880	642.50		
560	558	760	200	22.00			22563880	768.00
630	628	830	200	26.00			22633880	919.50
710	707	910	200	30.00			22713880	1294.00
800	797	1000	200	36.00			22803880	1552.00
900	897	1100	200	58.80			239938804090 *	1906.00
1000	998	1200	200	69.12			239938804100 *	2265.00
1120	1118	1320	200	90.75			239938804112 *	2656.00
1250	1248	1450	200	107.40			239938804125 *	3116.00

*3 mm



THE FLANGE RANGE

Transition pieces and adapters/Cleaning pipes



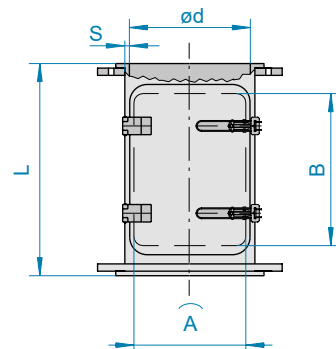
1 Bird-guard
mesh size: 20x20 x 2 mm

AIR OUTLET PIPES 45°

6200

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ød	A	L	kg	Stainless steel with stainless steel loose flange, shotblasted			
					1 mm		2 mm	
					Item no.	€	Item no.	€
350	350	550	200	9.20	213538803	448.00		
400	399	600	200	10.80	214038803	549.50		
450	448	650	200	12.30	214538803	620.50		
500	498	700	200	10.60	215038803	706.00		
560	558	760	200	22.00			225638803	889.50
630	628	830	200	26.00			226338803	1035.00
710	707	910	200	30.00			227138803	1432.00
800	797	1000	200	36.00			228038803	1752.00



CLEANING PIPES

6050

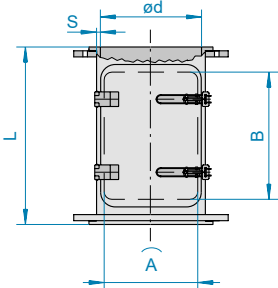
- For seals, please also read and take into account the technical information given at the beginning of this chapter
- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Not recommended for extracting exhaust air containing condensates

Powder-coated (dimensions for 2 mm pipework)

DN	Ød	A	B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21351195	245.00		
400	399	350	350	478	15.90	21401195	263.00		
450	448	500	350	478	20.00			22451195	289.00
500	498	500	350	478	21.60			22501195	311.00
560	558	500	350	478	25.00			22561195	339.50
630	628	500	350	478	30.00			22631195	365.50
710	707	500	350	478	34.00			22711195	469.50
800	797	500	350	478	38.00			22801195	570.50
900	897	500	350	478	41.48			229911954090	692.00
1000	998	500	350	478	46.10			229911954100	841.50
1120	1118	500	350	478	62.50			229911954112	987.50
1250	1248	500	350	478	69.57			229911954125	1109.00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Cleaning pipes



Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	1.5 mm galvanised		2 mm galvanised	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21352195	310.00		
400	399	350	350	478	15.90	21402195	334.00		
450	448	500	350	478	20.00			22452195	379.00
500	498	500	350	478	21.60			22502195	406.50
560	558	500	350	478	25.00			22562195	461.00
630	628	500	350	478	30.00			22632195	504.00
710	707	500	350	478	34.00			22712195	658.50
800	797	500	350	478	38.00			22802195	804.00
900	897	500	350	478	41.48			229921954090	959.00
1000	998	500	350	478	46.10			229921954100	1135.00
1120	1118	500	350	478	62.50			229921954112	1299.00
1250	1248	500	350	478	69.57			229921954125	1476.00

Stainless steel with galvanised loose flanges (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	Stainless steel with galvanised loose flanges F			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	21353195	425.50		
400	399	350	350	478	15.90	21403195	451.50		
450	448	500	350	478	20.00			22453195	496.00
500	498	500	350	478	21.60			22503195	531.00
560	558	500	350	478	25.00			22563195	581.00
630	628	500	350	478	30.00			22633195	640.00
710	707	500	350	478	34.00			22713195	877.50
800	797	500	350	478	38.00			22803195	1042.00
900	897	500	350	478	41.48			229931954090	1247.00
1000	998	500	350	478	46.10			229931954100	1453.00
1120	1118	500	350	478	62.50			229931954112	1677.00
1250	1248	500	350	478	69.57			229931954125	1823.00

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	Stainless steel with stainless steel loose flange, shotblasted F			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350	350	350	350	478	14.50	213531953	530.00		
400	399	350	350	478	15.60	214031953	572.00		
450	448	500	350	478	16.00			224531953	622.50
500	498	500	350	478	23.00			225031953	657.50
560	558	500	350	478	29.50			225631953	825.00
630	628	500	350	478	34.80			226331953	872.50
710	707	500	350	478	38.50			227131953	1154.00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

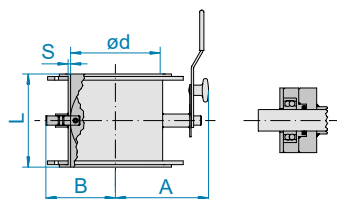
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THE FLANGE RANGE

Throttle valves



■ Additionally with ball bearings and Viton O-ring seal

THROTTLE VALVES

6180

- Special version available with glued silicone inner seal up to DN 800 mm, no cross-section constriction, prices on request
- Version with pneumatic or electric actuator, on request
- Both sides with loose flange
- From DN 900 mm: 3 mm wall thickness, with welded flange similar to DIN 24154-2 (see page 219 for dimensions)
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated, galvanised and stainless steel (dimensions for 2 mm pipework)

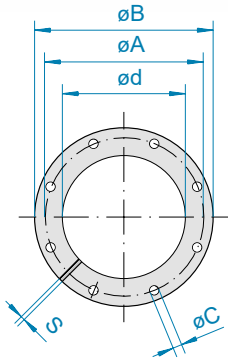
DN	Ød	A	B	L	kg	2 mm powder-coated		2 mm galvanised	
						Item no.	€	Item no.	€
350	349	240	233	200	14.00	22351560	242.50		
400	398	265	258	200	16.20	22401560	272.00		
450	458	396	365	200	26.50	22451560	562.00		
500	498	421	391	200	29.60	22501560	623.00		
560	558	451	421	200	36.00	22561560	665.00		
630	628	486	456	200	41.00	22631560	720.50		
710	707	525	495	200	46.00	22711560	919.00		
800	797	570	540	200	52.00	22801560	1112.00		
900	897	620	590	200	65.00	239915605090 *	1794.00	239925605090 *	2155.00
1000	998	670	640	200	83.00	239915605100 *	2145.00	239925605100 *	2768.00
1120	1118	810	675	200	104.00	239915605112 *	2893.00	239925605112 *	3482.00
1250	1248	875	740	200	123.00	239915605125 *	3403.00	239925605125 *	4091.00

*3 mm

DN	Ød	A	B	L	kg	2 mm Stainless steel with galvanised loose flanges		2 mm stainless steel with stainless steel loose flange, shotblasted	
						Item no.	€	Item no.	€
350	349	240	233	200	14.00	22353560	461.00	223535603	567.00
400	398	265	258	200	16.20	22403560	534.50	224035603	656.50
450	458	396	365	200	26.50	22453560	749.50	224535603	874.50
500	498	421	391	200	29.60	22503560	858.00	225035603	984.50
560	558	451	421	200	36.00	22563560	1002.00	225635603	1244.00
630	628	486	456	200	41.00	22633560	1149.00	226335603	1379.00
710	707	525	495	200	46.00	22713560	1504.00	227135603	1779.00
800	797	570	540	200	52.00	22803560	1808.00		
900	897	620	590	200	65.00			239935605090 *	3105.00
1000	998	670	640	200	83.00			239935605100 *	3837.00
1120	1118	810	675	200	104.00			239935605112 *	4746.00
1250	1248	875	740	200	123.00			239935605125 *	5585.00

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



E = No. of holes

FLANGES

1360

- Similar to DIN 24154-2
- For nominal diameters DN 120, 150, 175, 300 and 350 mm, the hole diameter and number of holes have been adapted to the next higher standard diameter (120=125, 150=160, 175=180, 300=315, 350=355 mm)
- DN 60 mm is not a standard diameter; the dimensions are adapted to DIN 24154-2
- For nominal diameters 80, 100, 140, 160, 200, 224, 250, 400, 450, 500, 560, 630, 710 and 800 the pitch circle diameter, the hole diameter and the number of holes conform to DIN 24154-2

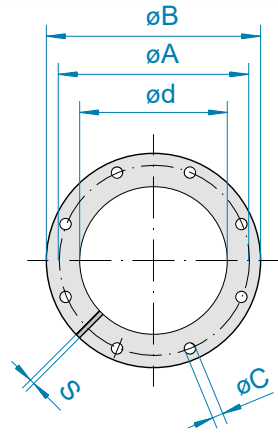
Powder-coated and galvanised

DN	Ø d	Ø A	Ø B	Ø C	E	S	kg	Powder-coated		Galvanised	
								Item no.	€	Item no.	€
60	62	102	128	9.5	4	5	0.40	10061711	7.00		
80	82	118	142	9.5	4	5	0.40	10081711	8.70	10082711	9.60
100	105	139	165	9.5	4	5	0.46	10101711	9.90	10102711	11.20
120	125	165	185	9.5	4	5	0.57	10121711	10.20	10122711	13.00
140	142	182	212	11.5	8	5	0.73	10141711	10.50	10142711	13.50
150	155	200	225	11.5	8	5	0.78	10151711	10.80	10152711	13.80
160	162	200	232	11.5	8	5	0.82	10161711	11.10	10162711	13.90
175	180	219	250	11.5	8	5	0.93	10171711	11.20	10172711	14.20
200	205	241	275	11.5	8	5	0.99	10201711	11.70	10202711	14.50
224	225	265	295	11.5	8	5	1.10	10221711	14.20	10222711	15.30
250	255	292	325	11.5	8	5	1.21	10251711	15.30	10252711	16.20
280	283	332	363	11.5	8	8	2.51	10281711	20.70	10282711	22.10
300	305	366	395	11.5	8	8	3.00	10301711	22.10	10302711	22.80
315	318	366	398	11.5	8	8	2.98	10311711	23.20	10312711	24.10
350	356	405	436	11.5	8	8	3.10	10351711	24.50	10352711	25.30
400	405	448	485	11.5	12	8	3.44	10401711	24.80	10402711	27.30
450	455	497	535	11.5	12	8	3.90	10451711	25.50	10452711	27.60
500	505	551	585	11.5	12	8	4.13	10501711	26.30	10502711	29.60
560	565	629	665	14	16	8	5.90	10561711	32.30	10562711	36.80
630	635	698	735	14	16	8	6.60	10631711	36.00	10632711	47.40
710	715	775	815	14	16	8	7.40	10711711	41.20	10712711	55.70
800	805	861	905	14	24	8	7.95	10801711	56.10	10802711	71.70
900	904	958	1004	14	24	8	9.17	109917110090	72.00	109927110090	94.60
1000	1005	1067	1105	14	24	8	10.20	109917110100	91.60	109927110100	131.00
1120	1125	1200	1245	18	32	10	16.90	109917110112	125.00	109927110112	177.00
1250	1255	1337	1375	18	32	10	18.80	109917110125	138.00	109927110125	244.50



THE FLANGE RANGE

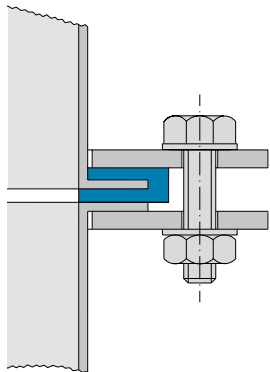
Throttle valves



E = No. of holes

Stainless steel

DN	Ø d	Ø A	Ø B	Ø C	E	S	kg	Stainless steel	
								Item no.	€
60	62	102	128	9.5	4	5	0.40	10063711	24.10
80	82	118	142	9.5	4	5	0.40	10083711	26.60
100	105	139	165	9.5	4	5	0.46	10103711	28.50
120	125	165	185	9.5	4	5	0.57	10123711	32.90
140	142	182	212	11.5	8	5	0.73	10143711	35.50
150	155	200	225	11.5	8	5	0.78	10153711	36.10
160	162	200	232	11.5	8	5	0.82	10163711	37.20
175	180	219	250	11.5	8	5	0.93	10173711	37.80
200	205	241	275	11.5	8	5	0.99	10203711	38.40
224	225	265	295	11.5	8	5	1.10	10223711	41.70
250	255	292	325	11.5	8	5	1.21	10253711	43.50
280	283	332	363	11.5	8	8	2.51	10283711	68.70
300	305	366	395	11.5	8	8	3.00	10303711	72.80
315	318	366	398	11.5	8	8	2.98	10313711	81.80
350	356	405	436	11.5	8	8	3.10	10353711	84.80
400	405	448	485	11.5	12	8	3.44	10403711	92.50
450	455	497	535	11.5	12	8	3.90	10453711	103.50
500	505	551	585	11.5	12	8	4.13	10503711	111.00
560	565	629	665	14	16	8	5.90	10563711	162.00
630	635	698	735	14	16	8	6.60	10633711	175.50
710	715	775	815	14	16	8	7.40	10713711	179.50
800	805	861	905	14	24	8	7.95	10803711	218.50
900	904	958	1004	14	24	8	9.17	109937110090	234.00
1000	1005	1067	1105	14	24	8	10.20	109937110100	290.00
1120	1125	1200	1245	18	32	10	16.90	109937110112	324.00
1250	1255	1337	1375	18	32	10	18.80	109937110125	345.00



INSTALLATION KIT FOR JACOB FLANGES

1510

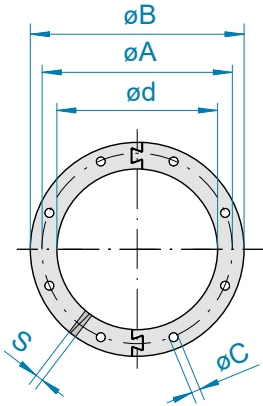
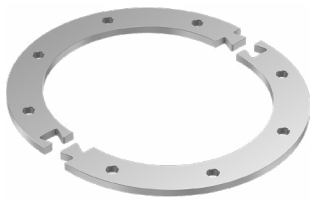
- Installation kit consisting of bolts, nuts and two washers per bolt
- To match the number of holes and flange thicknesses
- Bolts in compliance with DIN EN ISO 4017 (formerly DIN 933)
- Washers in compliance with DIN EN ISO 7090 (formerly DIN 125), 2 each per bolt
- Nuts in compliance with DIN EN ISO 4032 (formerly DIN 934)

Galvanised bolts, nuts and washers

DN	Bolts	Number	Item no.	€
60- 120	M 8x30	4	10062788	1.90
140- 250	M 10x35	8	10142788	5.10
280- 350	M 10x40	8	10282788	5.60
400- 500	M 10x40	12	10402788	7.30
560- 710	M 12x45	16	10562788	9.70
800-1000	M 12x45	24	10802788	14.20
1120-1250	M 16x50	32	109927880112	26.00



Installation instructions for loose flange connections



E = No. of holes

FLANGES 2-PART

1362

• Similar to DIN 24154-2

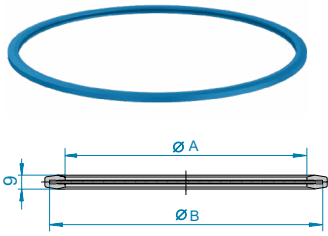
• Refer to comments regarding flanges on page 219

Powder-coated and galvanised

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	E	S	kg	Powder-coated		Galvanised	
								Item no.	€	Item no.	€
80	82	118	142	9.5	4	8	0.40	10081713	20.30	10082713	21.20
100	105	139	165	9.5	4	8	0.46	10101713	21.00	10102713	21.90
120	125	165	185	9.5	4	8	0.57	10121713	21.50	10122713	22.40
140	142	182	212	11.5	8	8	0.73	10141713	25.50	10142713	26.40
150	155	200	225	11.5	8	8	1.25	10151713	35.80	10152713	36.70
175	180	219	250	11.5	8	8	1.50	10171713	43.30	10172713	44.40
200	205	241	275	11.5	8	8	1.60	10201713	49.60	10202713	50.80
224	225	265	295	11.5	8	8	1.76	10221713	51.70	10222713	52.80
250	255	292	325	11.5	8	8	1.94	10251713	54.00	10252713	55.10
280	283	332	363	11.5	8	8	2.51	10281713	55.00	10282713	56.70
300	305	366	395	11.5	8	8	3.00	10301713	60.40	10302713	62.10
315	318	366	398	11.5	8	8	3.10	10311713	93.40	10312713	95.10
350	356	405	436	11.5	8	8	3.20	10351713	96.90	10352713	98.60
400	405	448	485	11.5	12	8	3.44	10401713	101.00	10402713	103.00

Stainless steel

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	E	S	kg	Stainless steel	
								Item no.	€
80	82	118	142	9.5	4	8	0.40	10083713	54.10
100	105	139	165	9.5	4	8	0.46	10103713	55.90
120	125	165	185	9.5	4	8	0.57	10123713	57.30
140	142	182	212	11.5	8	8	0.73	10143713	70.80
150	155	200	225	11.5	8	8	1.25	10153713	93.70
175	180	219	250	11.5	8	8	1.50	10173713	113.50
200	205	241	275	11.5	8	8	1.60	10203713	130.00
224	225	265	295	11.5	8	8	1.76	10223713	135.50
250	255	292	325	11.5	8	8	1.94	10253713	141.00
280	283	332	363	11.5	8	8	2.51	10283713	145.00
300	305	366	395	11.5	8	8	3.00	10303713	192.00
315	318	366	398	11.5	8	8	3.10	10313713	243.00
350	356	405	436	11.5	8	8	3.20	10353713	252.00
400	405	448	485	11.5	12	8	3.44	10403713	262.00



U-SHAPED SEALS FOR 10 MM LIP FLANGE

6210

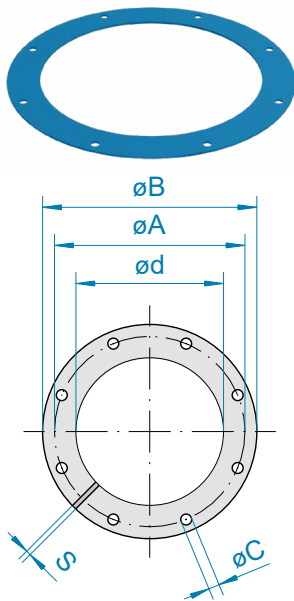
- Please also read and take into account the technical information given at the beginning of this chapter
- Profile for loose flange pipework with a 10 mm lip
- Use for 1-3 mm pipework system
- A U-shaped seal (chapter 2) must be used for pipe components with a loose flange of diameter of up to 350 mm and a 6 mm lip
- For connecting:
 - 2 pipe components with loose flange from DN 350 mm with 10 mm lip
 - A pipe component with a welded flange in conjunction with a pipe component with a loose flange

NBR and silicone

DN	$\varnothing A$	$\varnothing B$	kg	NBR grey white		Silicone beige		Silicone blue	
				Item no.	€	Item no.	€	Item no.	€
350	353	373	0.11	103567177	8.10	1035771709	10.80	10357717091	15.10
400	403	423	0.13	104067177	9.00	1040771709	12.30	10407717091	17.00
450	453	473	0.15	104567177	10.00	1045771709	13.50	10457717091	18.50
500	503	523	0.17	105067177	11.30	1050771709	14.70	10507717091	20.60
560	561	581	0.18	105667177	12.30	1056771709	16.30	10567717091	22.90
630	631	651	0.21	106367177	13.80	1063771709	18.10	10637717091	25.50
710	711	731	0.24	107167177	15.80	1071771709	20.00	10717717091	28.20
800	801	821	0.26	108067177	24.80	1080771709	32.00	10807717091	44.80

EPDM and Viton

DN	$\varnothing A$	$\varnothing B$	kg	EPDM black		Viton reddish brown	
				Item no.	€	Item no.	€
350	353	373	0.11	1035871759	10.80	103597179	67.70
400	403	423	0.13	1040871759	12.30	104097179	76.50
450	453	473	0.15	1045871759	13.50	104597179	85.60
500	503	523	0.17	1050871759	14.70	105097179	94.20
560	561	581	0.18	1056871759	16.30	105697179	104.50
630	631	651	0.21	1063871759	18.10	106397179	118.00
710	711	731	0.24	1071871759	20.00	107197179	131.50
800	801	821	0.26	1080871759	32.00	108097179	146.00



E = No. of holes

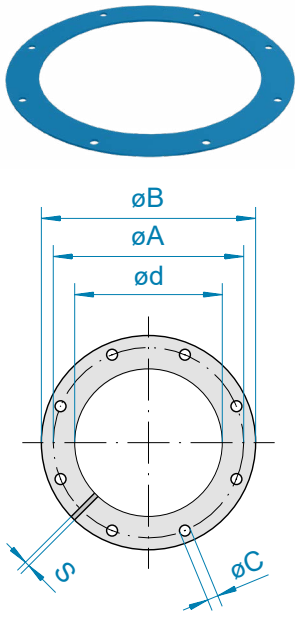
FLAT SEALS FOR LOOSE FLANGES AND WELDED FLANGES

6220

- Similar to DIN 24154-2
- Please also read and take into account the technical information given at the beginning of this chapter

NBR and silicone

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	E	S	kg	NBR grey white		Silicone transparent		Silicone blue	
								Item no.	€	Item no.	€	Item no.	€
60	62	102	128	9.5	4	3	0.06	10066718	5.90	10067718	7.20	1006771801	11.60
80	82	118	142	9.5	4	3	0.06	10086718	6.90	10087718	8.90	1008771801	14.30
100	105	139	165	9.5	4	3	0.08	10106718	8.50	10107718	10.70	1010771801	17.20
120	125	165	185	9.5	4	3	0.09	10126718	10.00	10127718	12.70	1012771801	20.40
140	142	182	212	11.5	8	3	0.11	10146718	13.90	10147718	15.30	1014771801	24.50
150	155	200	225	11.5	8	3	0.12	10156718	13.90	10157718	16.20	1015771801	26.00
160	162	200	232	11.5	8	3	0.13	10166718	14.60	10167718	17.10	1016771801	27.40
175	180	219	250	11.5	8	3	0.14	10176718	16.00	10177718	19.30	1017771801	30.90
200	205	241	275	11.5	8	3	0.16	10206718	18.30	10207718	21.90	1020771801	35.10
224	225	265	295	11.5	8	3	0.17	10226718	23.70	10227718	31.20	1022771801	50.00
250	255	292	325	11.5	8	3	0.19	10256718	23.70	10257718	31.20	1025771801	50.00
280	283	332	363	11.5	8	3	0.20	10286718	28.00	10287718	35.40	1028771801	58.60



E = No. of holes

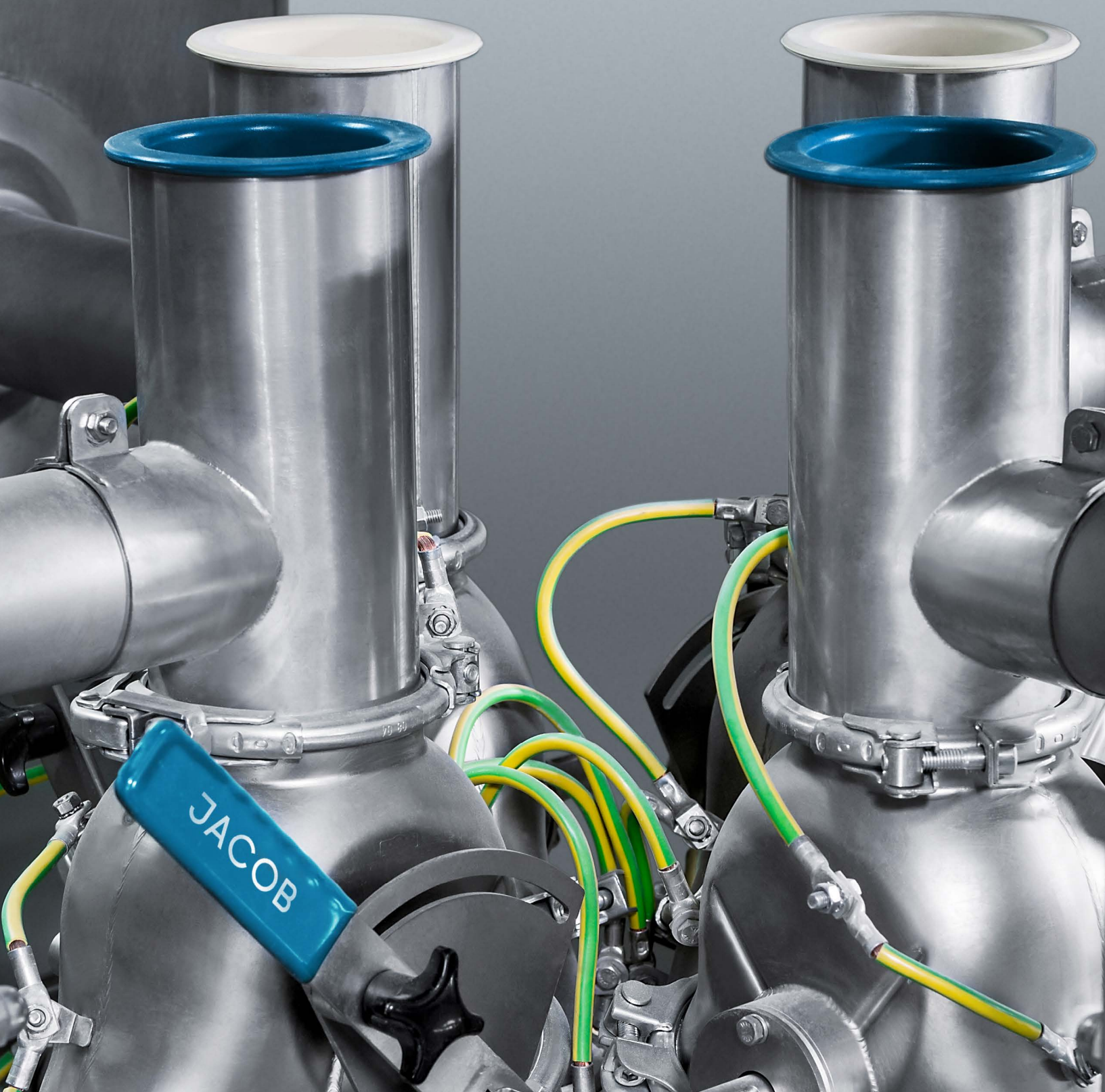
NBR and silicone

DN	Ød	ØA	ØB	ØC	E	S	kg	NBR grey white		Silicone transparent		Silicone blue	
								Item no.	€	Item no.	€	Item no.	€
300	305	366	395	11.5		3	0.30	10306718	32.20	10307718	40.10	1030771801	64.20
315	318	366	398	11.5		3	0.27	10316718	33.10	10317718	41.50	1031771801	66.40
350	355	405	435	11.5	8	3	0.20	10356718	33.10	10357718	41.50	1035771801	69.30
400	400	448	484	11.5	12	3	0.24	10406718	36.40	10407718	47.60	1040771801	96.00
450	450	497	534	11.5	12	3	0.26	10456718	40.00	10457718	51.00	1045771801	104.50
500	500	551	584	11.5	12	3	0.28	10506718	45.70	10507718	59.70	1050771801	127.00
560	560	629	664	14	16	3	0.38	10566718	50.50	10567718	75.20	1056771801	161.50
630	630	698	734	14	16	3	0.42	10636718	61.40	10637718	81.90	1063771801	182.50
710	710	775	814	14	16	3	0.52	10716718	70.20	10717718	107.50	1071771801	243.00
800	800	861	904	14	24	3	0.56	10806718	87.30	10807718	154.50	1080771801	296.50
900	897	958	1004	14	24	4	1.51	109967180090	200.50	109977180090	237.00	10997718009001	577.00
1000	998	1067	1105	14	24	4	1.68	109967180100	239.00	109977180100	251.00	10997718010001	582.50
1120	1118	1200	1245	18	32	4	2.79	109967180112	271.50	109977180112	315.00	10997718011201	589.00
1250	1248	1337	1375	18	32	4	3.10	109967180125	327.00	109977180125	329.00	10997718012501	594.50

EPDM

DN	Ød	ØA	ØB	ØC	E	S	kg	EPDM black	
								Item no.	€
60	62	102	128	9.5	4	3	0.06	10068718	4.60
80	82	118	142	9.5	4	3	0.06	10088718	5.20
100	105	139	165	9.5	4	3	0.08	10108718	6.10
120	125	165	185	9.5	4	3	0.09	10128718	7.00
140	142	182	212	11.5	8	3	0.11	10148718	9.70
150	155	200	225	11.5	8	3	0.12	10158718	9.70
160	162	200	232	11.5	8	3	0.13	10168718	10.40
175	180	219	250	11.5	8	3	0.14	10178718	11.20
200	205	241	275	11.5	8	3	0.16	10208718	12.50
224	225	265	295	11.5	8	3	0.17	10228718	15.80
250	255	292	325	11.5	8	3	0.19	10258718	15.80
280	283	332	363	11.5	8	3	0.20	10288718	18.20
300	305	366	395	11.5	8	3	0.30	10308718	20.50
315	318	366	398	11.5	8	3	0.27	10318718	20.70
350	355	405	435	11.5	8	3	0.20	10358718	13.30
400	400	448	484	11.5	12	3	0.24	10408718	15.70
450	450	497	534	11.5	12	3	0.26	10458718	17.40
500	500	551	584	11.5	12	3	0.28	10508718	19.80
560	560	629	664	14	16	3	0.38	10568718	25.10
630	630	698	734	14	16	3	0.42	10638718	30.20
710	710	775	814	14	16	3	0.52	10718718	37.70
800	800	861	904	14	24	3	0.56	10808718	48.00
900	897	958	1004	14	24	4	1.51	109987180090	104.50
1000	998	1067	1105	14	24	4	1.68	109987180100	123.50
1120	1118	1200	1245	18	32	4	2.79	109987180112	152.50
1250	1248	1337	1375	18	32	4	3.10	109987180125	166.50

- F** FOOD GRADE
EC 1935/2004 plus FDA compliant
- D** DETECTABLE DESIGN
Metal-detectable



JACOB FIXING COMPONENTS AND
ACCESSORIES – THE QUICK AND EASY WAY
TO INSTALL YOUR PIPEWORK SYSTEM



ASSEMBLY AND ACCESSORIES

Technical information	226	
Lip flanging	228	
Spray paint and paint in a tin	229	
Earthing wires and earthing lugs	229	
Pipe clamps	230	
Assembly accessories	232	
Blank-off cover	233	



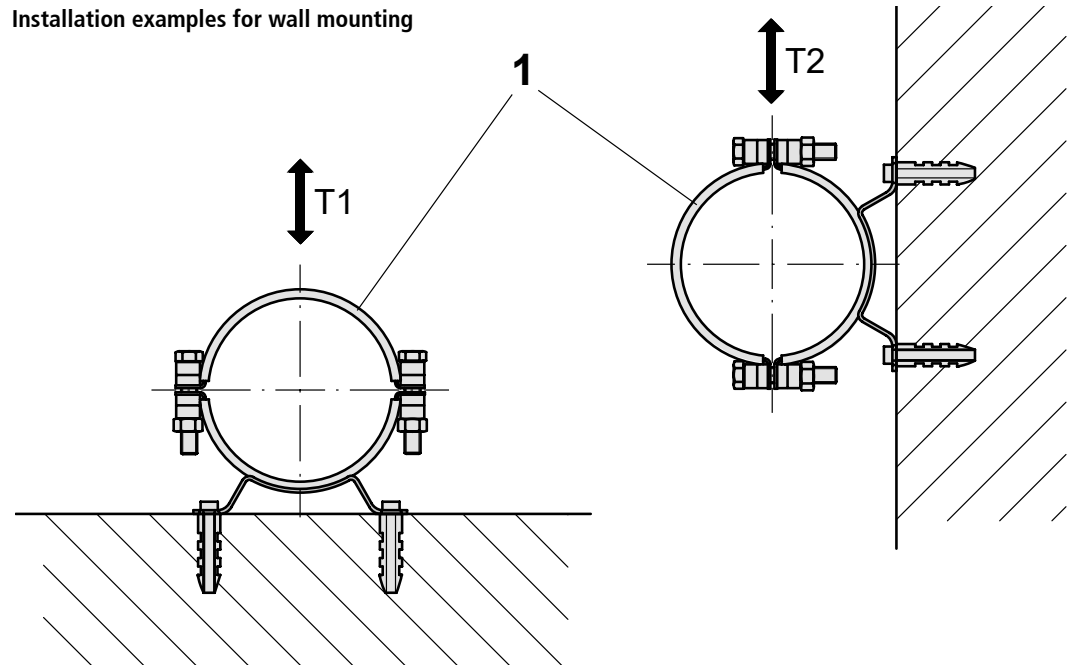
JACOB ASSEMBLY

Your pipework system comes entirely from one source and is easily installed with our accessories, from the flanging tools for creating exact pipe lengths on site right through to pipe clamps.

INSTALLATION EXAMPLES OF PIPE CLAMPS FOR CEILING AND WALL MOUNTING

Whether for ceiling or wall mounting – JACOB has the right pipe clamps in its range.

Installation examples for wall mounting



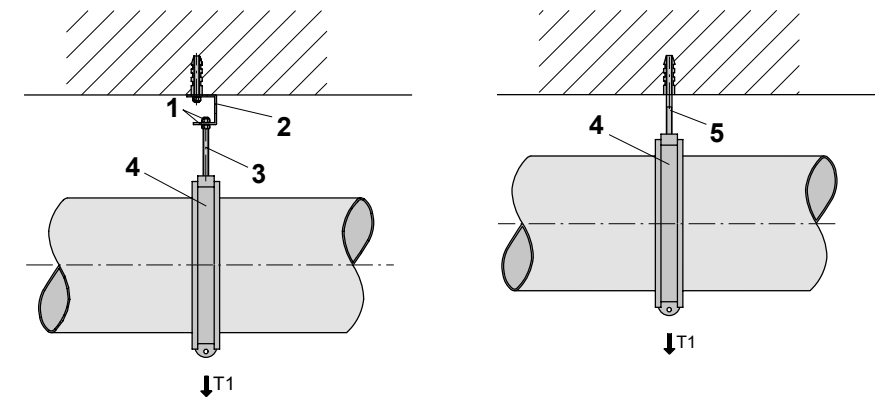
1 Pipe clamps for wall mounting with insert

T1 Load with a deformation of 5 mm

T2 Load with a deformation of 10 mm

For details of loads, refer to the tables on pages 230 and 231

Installation examples for ceiling mounting



1 Hexagon nuts, metric

2 Fixing clips

3 Threaded bolt, metric

4 Pipe clamps for wall mounting with insert

5 Hanger bolt, metric

T1 Load with a deformation of 5 mm

For details of loads, refer to the tables on pages 230 and 231



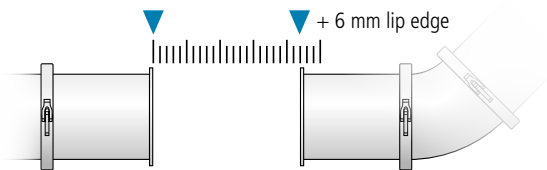
EARTHING WIRE

Establishes electrostatic continuity by connecting two pipe components with an earthing lug using a JACOB earthing wire. Alternatively, the earthing bridge (see chapter 2) can be used to establish electrostatic continuity.

JACOB'S ELECTRIC FLANGING MACHINE

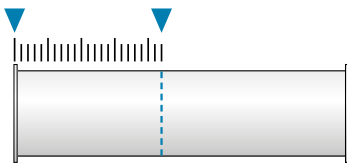
- With the JacBox, you can create lip edges, quickly and easily, to JACOB's usual high quality standard
- Lip edges measuring up to 1.5 mm for stainless steel and up to 2.0 mm for mild steel are possible
- Pipes from 80 to 315 mm in diameter
- Universal compatibility thanks to 230 volt power supply

**YOU CAN NOW RENT
THE JACBOX ON A
FLEXIBLE BASIS.**



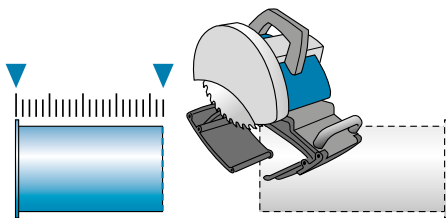
Step 1

Determine the required length



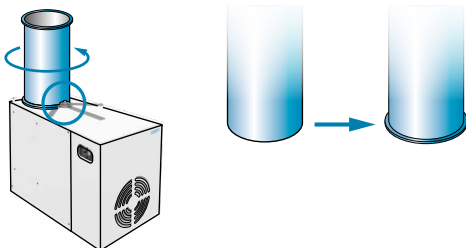
Step 2

Measure and mark the pipes



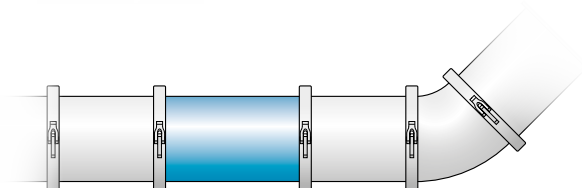
Step 3

Cut the pipes to length cleanly using a special pipe saw



Step 4

Use the JacBox to flange the pipe ends



Step 5

Connect the pipes securely with a tightly sealed pull-ring connection



ASSEMBLY AND ACCESSORIES

Lip flanging



THE JACBOX ELECTRIC FLANGING MACHINE

- With the JacBox, you can create lip edges, quickly and easily, to JACOB's usual high quality standard
- Create lip edges on pipes, which can be made of various materials, with various wall thicknesses, and diameters from 80 to 315 mm
- Conveniently mobile – with castors and ergonomic handles for easy pushing
- Easy power supply – can be operated via a standard household power outlet
- Efficient ergonomics – flanging can be undertaken by a single person

YOU CAN NOW RENT THE JACBOX ON A FLEXIBLE BASIS.



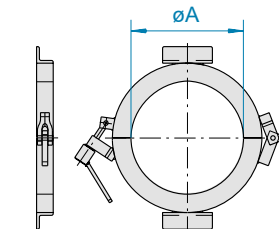
JACOB JacBox



FLANGING TOOLS

4020

- To create exact lengths on site
- Please also read and take into account our operating instructions
- From DN 80 to 175 mm only 1 angle piece welded
- From DN 200 to 400 mm 2 angle pieces welded



Operating instructions for flanging tools

DN	ØA	kg	Powder-coated	
			Item no.	€
60	58	3.10	10061740	196.00
80	80	3.30	10081740	196.00
100	103	3.60	10101740	221.00
120	123	4.70	10121740	262.50
140	139	5.20	10141740	299.00
150	153	5.60	10151740	299.00
160	163	6.00	10161740	317.50
175	178	6.40	10171740	317.50
200	203	6.80	10201740	355.50
224	223	7.30	10221740	416.00
250	253	8.75	10251740	416.00
280	283	9.10	10281740	459.50
300	303	9.35	10301740	459.50
315	318	9.80	10311740	482.50
350	353	10.30	10351740	578.00
400	403	12.00	10401740	638.50
450	453	14.50	10451740	1115.00
500	503	17.00	10501740	1223.00



SPRAY PAINT AND PAINT IN A TIN

4040/4050

- Spray paint for re-touching powder-coated (RAL 7032) or galvanised pipework
- 1 kg of paint with paintbrush for powder-coated pipework (RAL 7032)
- Note: Paint is a hazardous substance – separate packaging provided!
- Non-conductive
- Non food grade

Paint and zinc spray

RAL 7032		Galvanised	
Item no.	€	Item no.	€
100019900	22.60	100029900	22.60



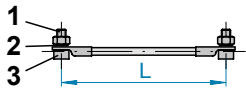
1 kg of paint, with paintbrush

RAL 7032	
Item no.	€
100019910	42.80



EARTHING WIRES, 16 MM²

1420



- To establish electrostatic continuity
For use in conjunction with pipework with earthing lugs
- Including hexagon nut M6, A2, toothed lock washer 6.4, A2 and hexagon bolt M6 x 16, A2

- 1 Hexagon nut, metric M6, A2
- 2 Toothed lock washer M6.4, A2
- 3 Hexagon bolt, metric M6 x 16, A2

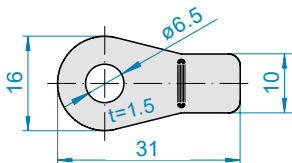
L = 120 mm		L = 230 mm		L = 330 mm		L = 430 mm	
Item no.	€/pack of ten	Item no.	€/pack of ten	Item no.	€/pack of five	Item no.	€/pack of five
1000079510	21.10	1000079610	26.70	1000079705	26.00	1000079805	28.10



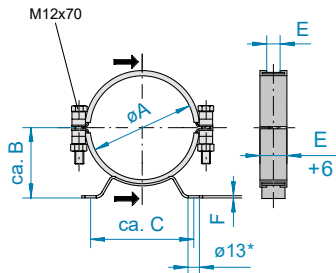
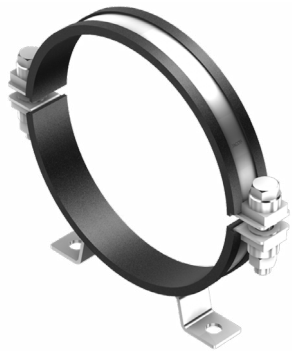
EARTHING LUGS

1415/1410

- To create electrostatic continuity in conjunction with the earthing wire
- Material 1.4301, material thickness 1.5 mm
- Available as a loose earthing lug for installation on site
- Including application through spot welding to pipework



Earthing lug, loose		Earthing lug, spot-welded	
Item no.	€/pack of ten	Item no.	€
1100379020	10.00	11003791	6.90



*DN 60: Hole diameter 7 mm

PIPE CLAMPS FOR WALL MOUNTING

3100

- With EPDM insert, -40°C to +120°C
- Silicone insert, -60°C to +170°C, on request
- Refer to the beginning of the chapter for installation examples of ceiling mounting

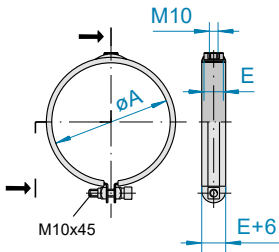
DN	ØA	B	C	E	F	Load (kN)		kg	Electro galvanised		Stainless steel	
						T1	T2		Item no.	€	Item no.	€
60	60	50	100	20x1	2			0.20	10062780	24.20	10063780	56.10
80	80	64	138	30x2.5	3	2.0	1.0	0.70	10082780	25.80	10083780	59.00
100	102	75	138	30x2.5	3	2.5	1.0	0.80	10102780	26.80	10103780	60.80
120	123	86	138	30x2.5	3	2.5	1.0	0.85	10122780	28.60	10123780	66.00
140	139	94	138	30x2.5	3	2.5	1.0	0.85	10142780	28.80	10143780	75.20
150	153	101	148	30x2.5	3	3.0	1.2	0.95	10152780	29.60	10153780	75.20
160	163	98.3	148	30x2.5	3	3.0	1.2	1.00	10162780	31.80	10163780	83.10
175	178	113	148	30x2.5	3	3.0	1.2	1.00	10172780	31.80	10173780	83.10
200	203	126	148	30x2.5	3	3.0	1.2	1.05	10202780	32.70	10203780	88.10
224	223	136	148	30x2.5	3	3.0	1.2	1.10	10222780	35.10	10223780	96.10
250	253	151	230	30x2.5	3	3.0	1.2	1.25	10252780	37.40	10253780	96.10
280	280	166	230	30x2.5	3	3.0	1.2	1.40	10282780	38.40	10283780	99.70
300	303	176	230	30x2.5	3	3.0	1.2	1.40	10302780	40.80	10303780	106.00
315	315	182	230	30x2.5	3	3.0	1.2	1.40	10312780	42.50	10313780	111.00
350	353	204	260	30x3	4	3.5	1.2	1.55	10352780	62.00	10353780	131.50
400	402	228	260	30x3	4	3.5	1.2	2.10	10402780	70.50	10403780	138.50
450	452	254	300	30x3	4	4.5	1.5	2.95	10452780	79.80	10453780	171.50
500	502	279	300	30x3	4	4.5	1.5	3.05	10502780	92.50	10503780	191.50
560	562	309	350	30x3	4	5.0	1.7	4.00	10562780	103.00	10563780	216.00
630	632	344	350	30x3	4	5.0	1.7	5.00	10632780	128.50	10633780	269.50
710	712	385	350	40x4	5			5.50	10712780	150.00	10713780	437.00
800	800	450	350	40x4	5			6.50	10802780	162.00	10803780	513.00



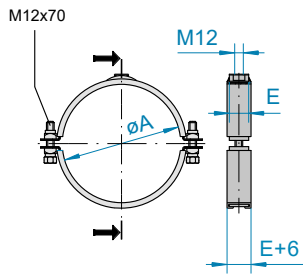
PIPE CLAMPS FOR CEILING MOUNTING

3090

- With EPDM insert, -40°C to +120°C
- Silicone insert, -60°C to +170°C, on request
- Refer to the beginning of the chapter for installation examples of ceiling mounting



DN 60 to 300 mm



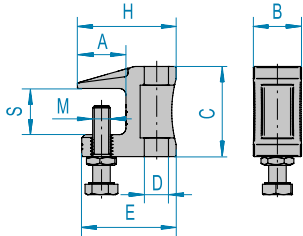
DN 315 to 800 mm

DN	ØA	E	Load (kN)	kg	Electro galvanised		Stainless steel	
					Item no.	€	Item no.	€
60	60	20x1.0		0.11	10062770	9.10	10063770	25.50
80	80	25x1.5	2.0	0.20	10082770	9.60	10083770	26.90
100	102	25x1.5	2.0	0.24	10102770	10.90	10103770	27.80
120	123	25x1.5	2.0	0.27	10122770	12.20	10123770	28.80
140	139	25x1.5	2.0	0.29	10142770	13.20	10143770	29.40
150	153	25x1.5	2.0	0.31	10152770	13.20	10153770	29.90
160	163	25x1.5	2.0	0.32	10162770	15.10	10163770	30.40
175	178	25x1.5	2.0	0.34	10172770	15.10	10173770	30.40
200	203	25x1.5	2.0	0.37	10202770	15.70	10203770	32.40
224	223	25x1.5	2.0	0.41	10222770	16.50	10223770	34.10
250	253	25x1.5	2.0	0.44	10252770	16.50	10253770	35.10
280	280	25x1.5	2.0	0.51	10282770	17.20	10283770	36.50
300	303	25x1.5	2.0	0.60	10302770	18.30	10303770	39.00
315	315	30x2.5	2.0	1.25	10312770	19.00	10313770	40.90
350	353	30x2.5	3.0	1.31	10352770	53.30	10353770	131.00
400	402	30x2.5	3.0	1.42	10402770	55.00	10403770	138.00
450	452	30x2.5	3.0	1.60	10452770	56.40	10453770	141.00
500	502	30x2.5	3.0	1.66	10502770	59.40	10503770	146.00
560	562	30x2.5	3.0	1.79	10562770	62.20	10563770	160.50
630	632	30x2.5	3.0	1.80	10632770	64.80	10633770	178.50
710	712	30x2.5		2.50	10712770	71.80	10713770	184.50
800	802	30x2.5		3.50	10802770	90.00	10803770	234.50



ASSEMBLY AND ACCESSORIES

Assembly accessories

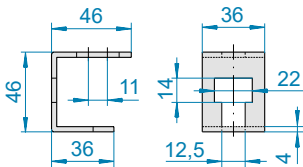
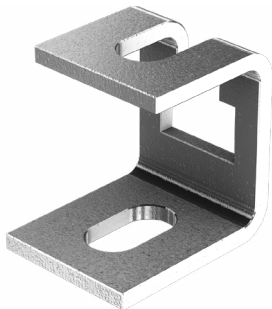


BEARING CLAMPS

3190

- For fixing pipes to steel girders (no welding or drilling required)
- Galvanised cast-iron bearing clamps (clamping width 0 to 20 mm)
- Bearing clamps, V2A (clamping width 0 to 16 mm)
- Fully equipped for the suspension of DN 60 to DN 300 pipes, size of through hole: M10

S	A	B	C	D	E	H	M	Cast iron, galvanised	
								Item no.	€/ pack of ten
0-20	23	21	42	11	41	44	10	1008277610	41.70



FIXING CLIPS

3110

- Electro galvanised
- Load 3.0 kN with a deformation of 5 mm

Item no.	€/pack of ten
1008277110	38.90



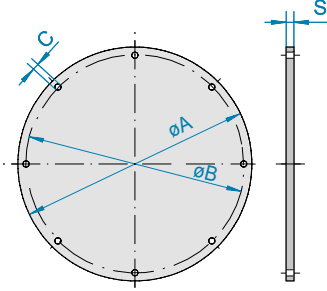
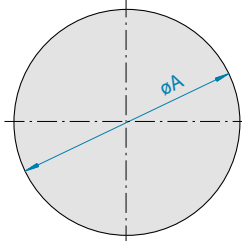
Hanger bolt, metric

HANGER BOLTS, METRIC

3120/3140/3150/3130

Item		Electro galvanised	
		Item no.	€
Threaded bolts, metric 1000 mm long	M 10	10082772	6.70
	M 12	10102772	7.20
Hexagon nuts, metric DIN EN ISO 4032	M 10	10082774	0.30
	M 12	10102774	0.30
Twin nuts 30 mm long	M 10	10082775	2.30
	M 12	10102775	2.70
Hanger bolts, metric M 10 x 100 mm	M 10	10082773	1.70
	M 12	10102773	1.90

Blank-off cover



E = No. of holes

F FOOD GRADE
EC 1935/2004 plus FDA compliant



BLANK-OFF COVER

1370

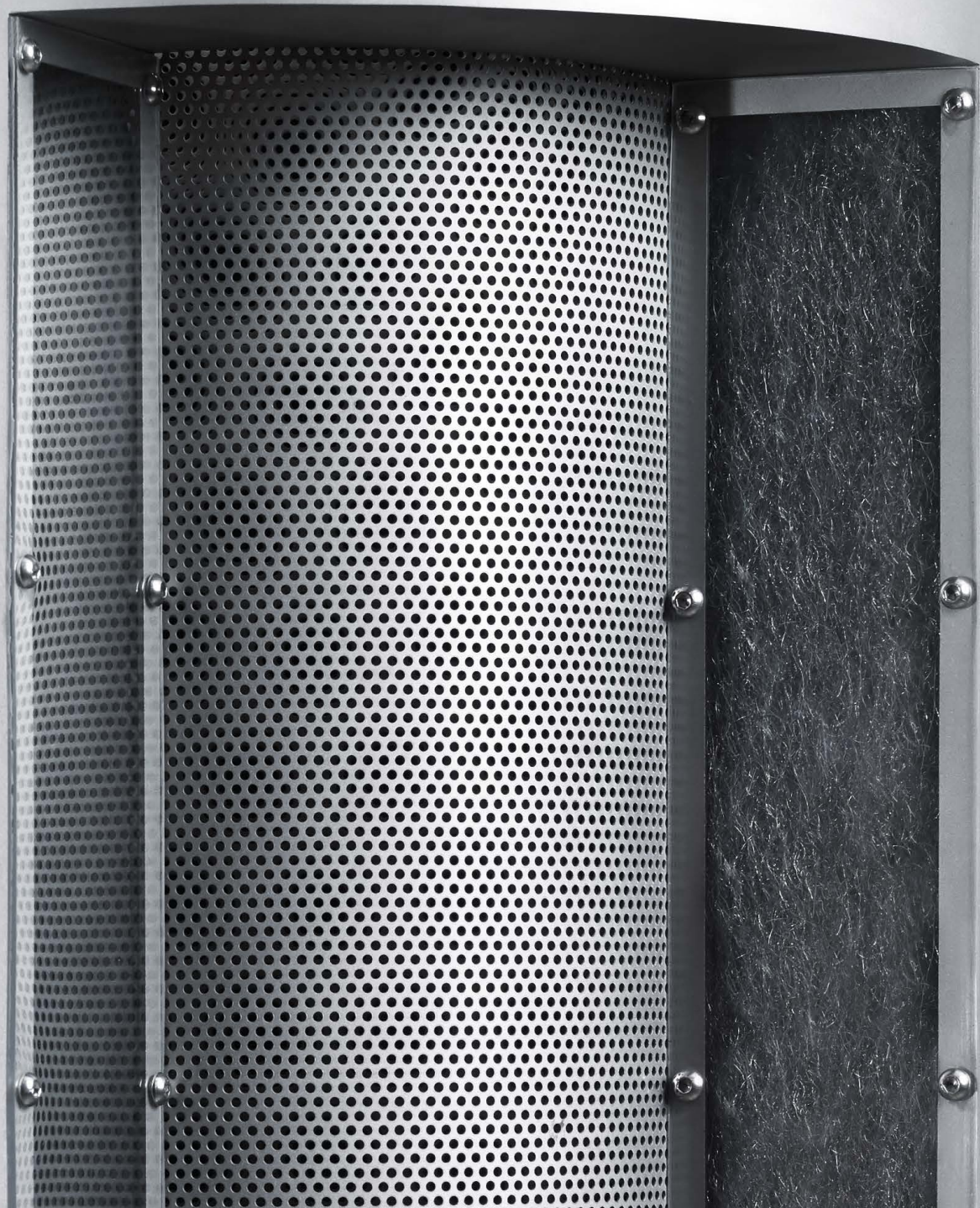
- For permanently closing off a pipe system
- For use in conjunction with U-shaped seal and pull-ring
- From DN 350 mm, also available for flange connections
- Pressure range restricted, particularly in the case of large diameters

Blank-off covers for pull-ring connections

DN	ØA	kg	1.5 mm stainless steel	F	2 mm stainless steel	F
			Item no.	€	Item no.	€
60	70	0.04	110637151	6.90		
80	92	0.05	110837151	9.00		
100	114	0.10	111037151	9.20		
120	134	0.10	111237151	10.00		
140	150	0.15	111437151	10.80		
150	164	0.15	111537151	12.00		
160	172	0.24	111637151	13.60		
175	189	0.20	111737151	13.60		
200	214	0.30	112037151	15.50		
224	234	0.30	112237151	16.70		
250	264	0.45	112537151	17.70		
280	292	0.83	112837151	17.80		
300	314	0.55	113037151	19.60		
315	327	1.10	113137151	21.60		
350	364	1.60			123537151	48.80
400	414	1.50			124037151	65.40
450	464	1.50			124537151	79.30
500	514	3.25			125037151	96.80
560	574	4.05			125637151	100.50
630	644	5.15			126337151	137.50

Blank-off cover for flange connections

DN	ØA	ØB	C	E	S	kg	Stainless steel	
							Item no.	€
350	435	405	11.5	8	6	7.00	20353723	245.00
400	484	448	11.5	12	6	8.70	20403723	261.50
450	534	497	11.5	12	6	10.60	20453723	268.00
500	584	551	11.5	12	6	12.70	20503723	311.50
560	664	629	14.0	16	6	16.30	20563723	423.00
630	734	698	14.0	16	6	20.00	20633723	612.00
710	814	775	14.0	16	6	24.50	20713723	867.50
800	904	861	14.0	24	6	30.30	20803723	1023.00
900	1004	958	14.0	24	6	37.30	209937230090	1112.00
1000	1105	1067	14.0	24	6	45.20	209937230100	1213.00
1120	1245	1200	18.0	32	6	57.30	209937230112	1279.00
1250	1375	1337	18.0	32	6	69.90	209937230125	1408.00



JACOB SILENCERS AND CYCLONES –
COMPLETE THE FUNCTIONALITY OF THE
JACOB MODULAR SYSTEM



SILENCERS AND CYCLONES

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Silencers	238	
Cyclones	241	
Horizontal cyclone	243	



SILENCERS AND CYCLONES

Technical information



SILENCERS

In pipework systems, noticeable noise cannot be avoided. To get your production systems to whisper, we offer silencers with JACOB-compatible elements in our standard range. Silencers are available in lengths of 500, 1000 and 1500 mm and in diameters of 80-630 mm. They are made in a variety of materials with a wall thickness of 2 mm. The ends are lipped but are also available with a loose flange connection from a diameter of 350 mm. The sound-absorbing material applied on the inside consists of non-inflammable mineral wool with a non-woven glass covering. As a component of the JACOB modular pipework system, the silencers are easy to disassemble and assemble for cleaning or to replace the mineral wool.

We are pleased to accommodate special customer requirements. If desired, we can also assist you in selecting the right design variant and the correct dimensions for your acoustic insulation.

The advantages for you:

- Easy to incorporate in the JACOB modular system
- Broad range of standard products with a variety of different diameters, materials and damping lengths
- Replaceable insulation through the use of our pull-ring system
- Accommodation of special customer requirements, such as special lengths
- Special colours
- Mineral wool heat-resistant to 200°C



CYCLONES

Utilising centrifugal force, cyclones within a pipework system ensure that solid particles are separated out. Cyclones are often used in industry to recover raw materials from the production process or generally to remove solid particles before recirculating the air. The range of applications is therefore accordingly wide. Our cyclones are used in the timber, plastics and tobacco industries, for example. Our standard cyclones are available in diameters ranging from 250 to 1000 mm with lipped connections, and with diameters from 1120 to 2300 mm with welded-on flanges. For diameters up to 1250 mm, the material thickness can be 2 or 3 mm, and for larger diameters the material thickness is 3 mm. Cyclones are available in powder-coated, galvanised or stainless steel versions. Please note that cyclones are passive components. The way they work depends on the volumetric flow, the pressure loss and the material load and particle size.

The nominal diameters refer to the diameter of the cyclone body. The size of the cyclone inlet can be dimensioned with a diameter of between 80 and 900 mm.

The volumetric flow indicated applies for a flow velocity of approx. 20-24 m/sec in the pipe system at the cyclone connection.

The separation rate and pressure loss were determined based on a material load of 1 kg/m³.

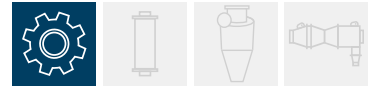
We custom-build cyclones according to your individual requirements and we also help you to select the right cyclone for the job. Further models and diameters are available on request. Please call us for further information.

The advantages for you:

- Easy to incorporate in the JACOB modular system
- Easy maintenance through modular design
- Also available in stainless steel for contact with food
- Accommodation of special customer requirements
- Special colours
- Leg supports on request



Explanatory video about cyclones



HORIZONTAL CYCLONE

The patented horizontal cyclone from JACOB fits in almost every pipe system. Its design makes it easy to integrate in straight pipelines. This makes it the first choice when retrofitting a cyclone. But it also proves its worth in new pipework systems, where it reliably cleans the airflow of particles and sparks.

These horizontal cyclones belong to the JACOB modular pipework system. They can be integrated within your system as required:

- As a pre-filter, to clean the air of dust particles, and thus extend the life of filter systems
- To separate large-volume, low-density particles, such as in the medical industry

The advantages for you:

- Their elongated form is easy to integrate in straight pipes
- Their modular design makes light work of replacing worn components
- As passive components they do not require their own power supply
- Proven JACOB quality

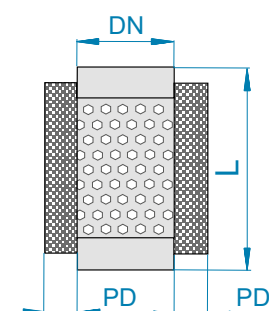
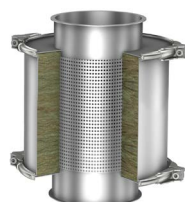


Explanatory video about horizontal cyclone



SILENCERS AND CYCLONES

Silencers



PD = insulation thickness

SILENCERS, DAMPING LENGTH 400 MM

1470/6470

Technical data

DN	L	PD	Volumetric flow at v_{\max} (m ³ /h)	Air speed v_{\max} (m/s)	Damping at 250 Hz D_e (dB)	Acoustic power L_W (A)	Pressure loss (Pa)
80	486	100	250	15	18	32	17
100	486	100	400	15	15	34	14
120	486	100	600	15	13	35	11
140	486	100	800	15	12	36	10
150	486	100	900	15	11	37	9
175	486	100	1200	15	10	38	8
200	486	100	1700	15	9	40	7
224	486	100	2100	15	9	41	6
250	486	100	2600	15	7	42	5
300	486	100	3800	15	6	43	5
350	486	100	5100	15	5	44	4
400	486	100	6700	15	5	46	3

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	4200805012500	429.00			4200805022500	472.50		
100	4201005012500	439.00			4201005022500	491.50		
120	4201205012500	455.00			4201205022500	513.50		
140	4201405012500	490.50			4201405022500	555.00		
150	4201505012500	515.00			4201505022500	585.00		
175	4201705012500	577.00			4201705022500	654.50		
200	4202005012500	627.50			4202005022500	713.50		
224	4202205012500	684.50			4202205022500	780.00		
250	4202505012500	736.50			4202505022500	845.50		
300	4203005012500	809.00			4203005022500	942.00		
350	4203505012500	878.50	4203505012503	972.00	4203505022500	1034.00	4203505022503	1148.00
400	4204005012500	960.00	4204005012503	1071.00	4204005022500	1137.00	4204005022503	1247.00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200805032500	584.50		
100	4201005032500	613.00		
120	4201205032500	639.00		
140	4201405032500	680.00		
150	4201505032500	719.50		
175	4201705032500	782.50		
200	4202005032500	850.50		
224	4202205032500	921.50		
250	4202505032500	988.50		
300	4203005032500	1088.00		
350	4203505032500	1183.00	4203505032503	1298.00
400	4204005032500	1289.00	4204005032503	1419.00



SILENCERS, DAMPING LENGTH 900 MM

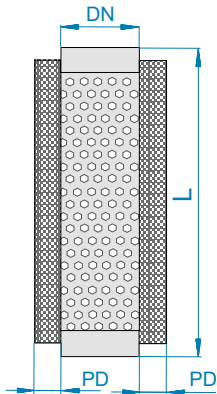
1470/6470

Technical data

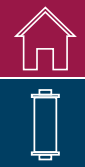
DN	L	PD	Volumetric flow at v_{max} (m ³ /h)	Air speed v_{max} (m/s)	Damping at 250 Hz D_e (dB)	Acoustic power L_w (A)	Pressure loss (Pa)
80	984	100	270	15	37	32	38
100	984	100	400	15	30	34	31
120	984	100	600	15	25	35	26
140	984	100	800	15	24	36	22
150	984	100	900	15	22	37	20
175	984	100	1200	15	21	38	18
200	984	100	1700	15	18	40	15
224	984	100	2100	15	17	41	14
250	984	100	2600	15	15	42	12
300	984	100	3800	15	13	43	10
350	984	100	5100	15	12	44	9
400	984	100	6700	15	11	46	8
450	984	100	8500	15	8	47	7

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	4200810012500	480.50			4200810022500	569.00		
100	4201010012500	495.00			4201010022500	597.50		
120	4201210012500	515.00			4201210022500	628.50		
140	4201410012500	561.50			4201410022500	686.00		
150	4201510012500	586.50			4201510022500	716.50		
175	4201710012500	662.00			4201710022500	801.00		
200	4202010012500	709.50			4202010022500	868.50		
224	4202210012500	771.00			4202210022500	938.50		
250	4202510012500	827.00			4202510022500	1014.00		
300	4203010012500	911.00			4203010022500	1124.00		
350	4203510012500	993.00	4203510012503	1088.00	4203510022500	1238.00	4203510022503	1351.00
400	4204010012500	1093.00	4204010012503	1202.00	4204010022500	1364.00	4204010022503	1501.00
450	4204510012500	1165.00	4204510012503	1289.00	4204510022500	1468.00	4204510022503	1625.00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200810032500	706.50		
100	4201010032500	741.00		
120	4201210032500	780.50		
140	4201410032500	834.50		
150	4201510032500	879.00		
175	4201710032500	970.50		
200	4202010032500	1046.00		
224	4202210032500	1123.00		
250	4202510032500	1209.00		
300	4203010032500	1332.00		
350	4203510032500	1458.00	4203510032503	1575.00
400	4204010032500	1608.00	4204010032503	1740.00
450	4204510032500	1733.00	4204510032503	1883.00



PD = insulation thickness

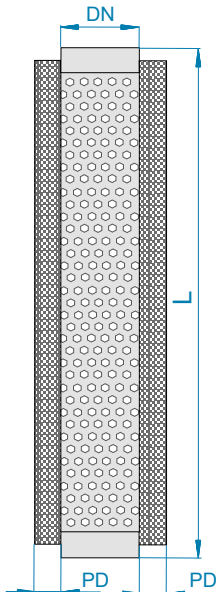
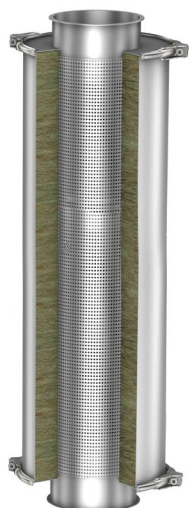


SILENCERS AND CYCLONES

Silencers

SILENCERS, DAMPING LENGTH 1400 MM

1470/6470



PD = insulation thickness

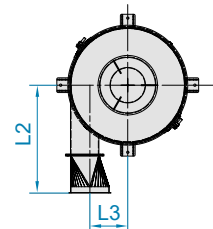
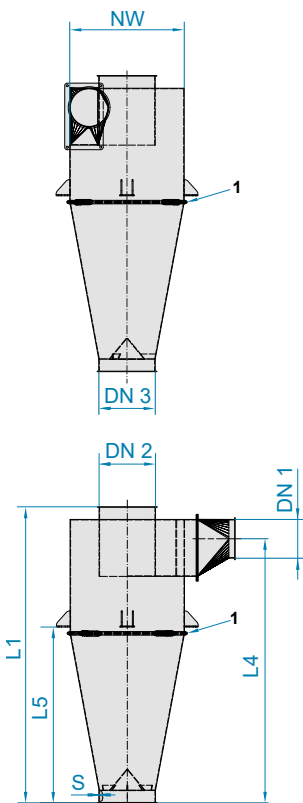
Technical data

DN	L	PD	Volumetric flow at v_{max} (m ³ /h)	Air speed v_{max} (m/s)	Damping at 250 Hz D_e (dB)	Acoustic power L_W (A)	Pressure loss (Pa)
150	1484	100	900	15	34	37	32
175	1484	100	1200	15	32	38	27
200	1484	100	1700	15	27	40	24
224	1484	100	2100	15	26	41	21
250	1484	100	2600	15	23	42	19
300	1484	100	3800	15	30	43	16
350	1484	100	5100	15	18	44	14
400	1484	100	6700	15	16	46	12
450	1484	100	8500	15	13	47	11
500	1484	100	10600	15	12	48	10
560	1484	100	13300	15	12	49	9
630	1484	100	15800	15	11	50	8

DN	2 mm, primed, with lipped end		2 mm, primed, with welded-on flange		2 mm, hot-dip galvanised, with lipped end		2 mm, hot-dip galvanised, with welded-on flange	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
150	4201515012500	664.00			4201515022500	845.50		
175	4201715012500	742.50			4201715022500	944.00		
200	4202015012500	797.00			4202015022500	1014.00		
224	4202215012500	862.50			4202215022500	1101.00		
250	4202515012500	921.50			4202515022500	1176.00		
300	4203015012500	1022.00			4203015022500	1315.00		
350	4203515012500	1114.00	4203515012503	1210.00	4203515022500	1446.00	4203515022503	1564.00
400	4204015012500	1216.00	4204015012503	1328.00	4204015022500	1586.00	4204015022503	1723.00
450	4204515012500	1298.00	4204515012503	1426.00	4204515022500	1713.00	4204515022503	1867.00
500	4205015012500	1638.00	4205015012503	1787.00	4205015022500	2328.00	4205015022503	2512.00
560	4205615012500	1695.00	4205615012503	1857.00	4205615022500	2389.00	4205615022503	2588.00
630	4206315012500	1838.00	4206315012503	2019.00	4206315022500	2628.00	4206315022503	2858.00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
150	4201515032500	1046.00		
175	4201715032500	1154.00		
200	4202015032500	1241.00		
224	4202215032500	1341.00		
250	4202515032500	1434.00		
300	4203015032500	1592.00		
350	4203515032500	1739.00	4203515032503	1912.00
400	4204015032500	1904.00	4204015032503	2040.00
450	4204515032500	2062.00	4204515032503	2218.00
500	4205015032500	2356.00	4205015032503	2626.00
560	4205615032500	2548.00	4205615032503	2788.00
630	4206315032500	2810.00	4206315032503	3053.00

Cyclones



- 1 Connection between top and bottom section of cyclone:
- Pull-ring connection
NW 250-630 mm
 - Flange connection
NW 710-2300 mm
 - From DN 710 mm
with a domed cover

CYCLONES

1480/6480

- Please also read and take into account the technical information given at the beginning of this chapter
- Up to NW 1800 mm powder-coated
- NW 2000 and 2300 mm spray-primed

Technical data

NW	DN 1	DN 2	DN 3	L1	L2	L3	L4	L5	Volumetric flow (m³/h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
250	80	120	120	650	262	87	560	375	407	1020	>10
300	100	150	150	800	302	102	699	475	636	1012	>10
350	120	175	175	924	347	117	814	550	865	924	>12
400	140	200	200	1050	386	131	931	625	1130	980	>12
450	150	224	224	1170	426	151	1044	695	1418	984	>13
500	175	250	250	1300	471	164	1161	775	1766	980	>13
560	200	280	280	1450	516	181	1299	865	2216	980	>14
630	224	300	300	1550	576	204	1389	895	2543	975	>15
710	250	350	350	1800	647	232	1474	1040	3462	978	>16
800	280	400	400	2050	717	262	1710	1200	4522	980	>18
900	300	450	450	2300	802	302	1949	1350	5723	980	>18
1000	350	500	500	2550	887	327	2174	1500	7065	980	>19

Inlets and outlets with 6 mm lip, powder-coated in RAL 7032 and galvanised

NW	2 mm powder-coated		3 mm powder-coated		2 mm galvanised		3 mm galvanised	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
250	4202002512255	946.50	4203002512255	1184.00	4202002522255	1175.00	4203002522255	1434.00
300	4202003012255	1064.00	4203003012255	1329.00	4202003022255	1320.00	4203003022255	1612.00
350	4202003512255	1169.00	4203003512255	1459.00	4202003522255	1451.00	4203003522255	1769.00
400	4202004012255	1201.00	4203004012255	1501.00	4202004022255	1492.00	4203004022255	1822.00
450	4202004512255	1302.00	4203004512255	1625.00	4202004522255	1617.00	4203004522255	1968.00
500	4202005012255	1395.00	4203005012255	1744.00	4202005022255	1733.00	4203005022255	2111.00
560	4202005612255	1494.00	4203005612255	1867.00	4202005622255	1856.00	4203005622255	2263.00
630	4202006312255	1612.00	4203006312255	2013.00	4202006322255	2001.00	4203006322255	2440.00
710	4202007112255	1732.00	4203007112255	2168.00	4202007122255	2154.00	4203007122255	2626.00
800	4202008012255	2338.00	4203008012255	2920.00	4202008022255	2902.00	4203008022255	3538.00
900	4202009012255	2500.00	4203009012255	3121.00	4202009022255	3100.00	4203009022255	3780.00
1000	4202010012255	3115.00	4203010012255	3891.00			4203010022255	4717.00

Inlets and outlets with 6 mm lip, stainless steel, shotblasted or pickled and passivated

NW	2 mm 1.4301 (304) shotblasted		2 mm 1.4571 (316Ti) pickled and passivated	
	Item no.	€	Item no.	€
250	4202002532255	1789.00	4202002542255	2268.00
300	4202003032255	2117.00	4202003042255	2690.00
350	4202003532255	2445.00	4202003542255	3103.00
400	4202004032255	2665.00	4202004042255	3380.00
450	4202004532255	2886.00	4202004542255	3659.00
500	4202005032255	3098.00	4202005042255	3926.00
560	4202005632255	3306.00	4202005642255	4190.00
630	4202006332255	3518.00	4202006342255	4459.00
710	4202007132255	3739.00	4202007142255	4738.00
800	4202008032255	4535.00	4202008042255	5752.00
900	4202009032255	5703.00	4202009042255	7230.00
1000	4202010032255	6869.00	4202010042255	8711.00



SILENCERS AND CYCLONES

Cyclones



Product similar to picture

Technical data

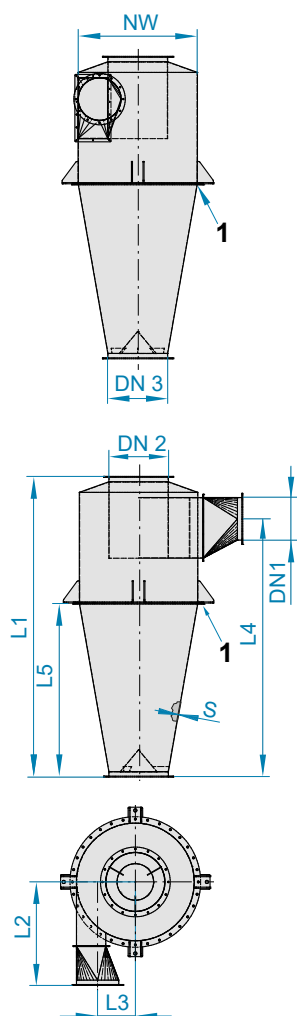
NW	DN 1	DN 2	DN 3	L1	L2	L3	L4	L5	Volumetric flow (m ³ /h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
1120	400	560	560	2900	987	362	2449	1650	8862	1003	>19
1250	450	630	630	3250	1097	402	2774	1900	11216	998	>21
1400	500	710	710	3650	1217	452	3149	2130	14246	980	>22
1600	560	800	800	4100	1387	522	3569	2400	18086	980	>24
1800	630	900	900	4600	1552	587	4034	2700	22891	980	>25
2000	710	1000	1000	5100	1717	647	4493	3000	28260	980	>28
2300	800	1120	1120	5850	1967	752	5198	3450	37374	980	>29

Inlets and outlets with welded-on flanges, powder-coated in RAL 7032 and galvanised

NW	2 mm powder-coated		3 mm powder-coated		3 mm galvanised	
	Item no.	€	Item no.	€	Item no.	€
1120	4202011212255	3516.00	4203011212255	4395.00	4203011222255	5324.00
1250	4202012512255	4130.00	4203012512255	5162.00	4203012522255	6253.00
1400			4203014012255	7132.00	4203014022255	8642.00
1600			4203016012255	8345.00		
1800			4203018012255	9276.00		
2000			4203020012255	10852.00		
2300			4203023012255	11826.00		

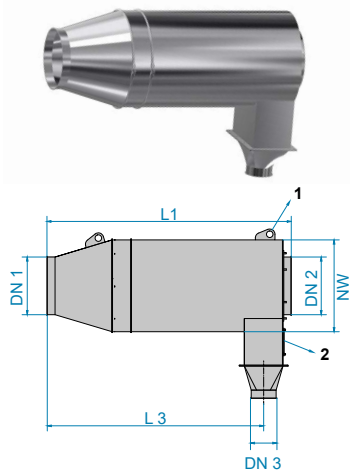
Inlets and outlets with welded-on flanges, stainless steel, pickled and passivated

NW	2 mm 1.4301 (304) pickled and passivated		3 mm 1.4301 (304) pickled and passivated		2 mm 1.4571 (316Ti) pickled and passivated		3 mm 1.4571 (316Ti) pickled and passivated	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
1120	4202011232255	8031.00	4203011232255	10037.00	4202011242255	10133.00	4203011242255	12661.00
1250	4202012532255	9431.00	4203012532255	11789.00	4202012542255	11899.00	4203012542255	14875.00
1400			4203014032255	15150.00			4203014042255	19117.00
1600			4203016032255	16207.00			4203016042255	20448.00
1800			4203018032255	18958.00			4203018042255	23924.00
2000			4203020032255	22184.00			4203020042255	27990.00
2300			4203023032255	25512.00			4203023042255	32193.00

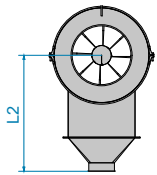


- 1 Connection between top and bottom section with JACOB flanges
- DN 1, 2 and 3 with welded flanges; hole pattern off-axis
 - Dimensions of JACOB flanges see chapter 12
 - From a nominal diameter of 2000 mm: three-part cyclone

Horizontal cyclone



- 1 From NW 500, two transport lugs
- 2 From NW 500, there is an inspection opening here



Connection type:

- Pull-ring connection
NW 120 to 630 mm
- Flange connection
NW 710 to 1400 mm
- From DN 500
with inspection opening

HORIZONTAL CYCLONE

1481

- Please also read and take into account the technical information given at the beginning of this chapter

**Technical data (dimensions for 2.0 mm material thickness)
available with powder coating or in stainless steel**

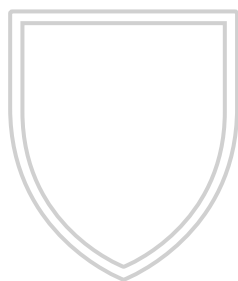
NW	DN 1	DN 2	DN 3	L 1	L 2	L 3	Volumetric flow m ³ /h	Pressure loss Pa
120	80	80	80	404	206	324	360	1050
175	100	100	80	496	239	408	560	1050
200	120	120	80	576	267	484	810	1050
250	150	150	80	696	359	594	1270	1050
300	175	175	150	796	394	686	1730	1050
350	200	200	150	896	429	777	2260	1050
400-1	224	224	150	976	457	850	2830	1050
400-2	250	250	150	1096	549	960	3510	1050
500	300	300	150	1296	619	1143	5080	1050
560	350	350	150	1496	689	1327	6900	1050
630	400	400	350	1692	807	1506	9050	1050
710	450	450	350	1892	877	1689	11450	1050
800	500	500	350	2092	947	1873	14100	1050
1000-1	560*	560*	350*	2332	1081	2092	17730	1050
1000-2	630*	630*	350*	2612	1179	2349	22450	1050
1250	710*	710*	350*	2932	1291	2642	28500	1050
1400	800*	800*	350*	3292	1517	2972	36200	1050

*3 mm

DN1	2 mm powder-coated		2 mm Stainless steel	
	Item no.	€	Item no.	€
80	4201200812270	1287.00	4201200832270	2502.00
100	4201801012270	1450.00	4201801032270	2820.00
120	4202001212270	1566.00	4202001232270	3047.00
150	4202501512270	1778.00	4202501532270	3459.00
175	4203001712270	2000.00	4203001732270	3890.00
200	4203502012270	2142.00	4203502032270	4166.00
224	4204002212270	2263.00	4204002232270	4401.00
250	4204002512270	2301.00	4204002532270	4478.00
300	4205003012270	2917.00	4205003032270	5674.00
350	4205603512270	3221.00	4205603532270	6267.00
400	4206304012270	3610.00	4206304032270	7021.00
450	4207204512270	4470.00	4207204532270	8694.00
500	4208005012270	5233.00	4208005032270	10182.00
560	4210005612270	7698.00	4210005632270	14973.00
630	4210006312270	10210.00	4210006332270	19862.00
710	4212507112270	11292.00	4212507132270	21970.00
800	4214008012270	12347.00	4214008032270	23791.00



GREATER EFFICIENCY WITH THE
JACOB WEAR PROTECTION RANGE



WEAR PROTECTION

Technical information	246	
Inlet pieces	248	
Pipes	248	
Segments	250	
Forks	252	
Cone pieces	252	
Two-way valves with inlet collar	253	
Cast-iron pipework	254	
Special range hot-dip galvanised 3 mm	256	



WEAR PROTECTION

Technical information



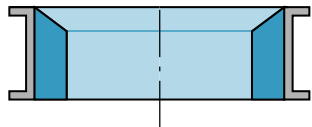
DURABLE DESIGN – WEAR PROTECTION RANGE

Wide ranging applications in industry and agriculture are associated with high wear in pipework systems. In view of this, we developed the modular wear protection range DURABLE DESIGN.

The wear protection lining is glued or bolted in the standard range and consists of a polyurethane base. The materials differ however in their various properties. The products are combined with our modular pipework system.

In the standard range, we offer diameters DN 150 mm to 350 mm with bolted wear protection and diameters DN 100 mm to 350 mm with glued wear protection. Larger diameters than 350 are generally available on request. Polyurethane offers the advantage that it has a flexible yet wear-resistant structure. As a result, it absorbs the impact energy from deflections in particular and thereby extends the lifetime.

DURABLE DESIGN is frequently used in industry, e.g. for conveying cement, lime, sand, grit, concrete or mineral wool, and in agriculture, e.g. for conveying grain, soya, maize or barley.



Thanks to the modular JACOB system, you can simply replace worn pipe components with lined ones from the DURABLE DESIGN line. You can still use pull-rings and seals from the standard range. To ensure optimal product flow, we have an inlet piece (see drawing) in our range with a chamfered lining which is fixed particularly securely in place. It is recommended that this piece is fitted at every place where lined pipework begins.

**ELECTROSTATICALLY
DISSIPATIVE WEAR
PROTECTION –
DEKRA CERTIFIED**

Version	Glued wear protection		Bolted wear protection		
Pipework diameter	From DN 100 mm		From DN 150 mm		
Wear protection material	PU ochre	Kryptane red	Blue Ox	Kryptane green	Kryptane blue
Material thickness	6 mm	6 mm	6.5 mm	6 mm	6 mm
Expanded metal	–	–	■	■	■
Food grade	–	–	–	■	–
Temperature resistance	-20°C to +80°C	-20°C to +80°C	-20°C to +80°C	-20°C to +80°C	-30°C to +80°C
Shore hardness A	70	80	85	83	83
Electrostatic conductivity	–	–	–	–	■
Application	For high impact wear due to coarse products without sharp edges.	With high sliding and impact wear cause by fine-grained products up to 5 mm, both dry and wet, at an angle of incidence of up to about 30°.	Mainly for the grain and concentrated feed industry, for light to medium wear.	For high sliding and impact wear due to coarse products up to 50 mm. For a higher angle of incidence of 30 to 60°.	For high sliding and impact wear, such as in the grain and concentrated feed industry, for conveying products with increased dust content.
Feature	Flexible use, suitable for light and medium wear.	Low friction coefficient, consequently no caking of the products and good sliding properties.	Focus on grain and concentrated feed.	Universal use, good resistance including to coarse and sharp-edged products.	Flame-resistant and electrically conductive (in installed state DEKRA tested), good antifriction properties.

F FOOD GRADE
EC 1935/2004 plus FDA compliant



Your benefits with DURABLE DESIGN

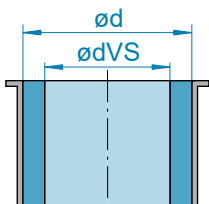
- Wear protection in a modular system
- Perfect for combining with the JACOB pull-ring system
- Flexibly replaceable
- Wide product spectrum, wear protection possible with various materials from DN 100 mm
- Easy to assemble
- Longer lasting when conveying abrasive materials
- Choice of 6 different materials in the standard range
- Other linings available on request

Technical data

For the DURABLE DESIGN wear protection range, JACOB uses pipe components from the modular system which are lined with different materials:

JACOB pipework system with a lip for pull-ring connection

- Wall thicknesses of 1.5 and 2 mm in the standard range. Other wall thicknesses are available on enquiry.
- Powder-coated RAL 7032 in the standard range
- Special colours, galvanised pipe components or stainless steel on request
- Bolted wear protection: DN 150–350 mm in the standard range, DN >350 mm on request
- Glued wear protection: DN 100–350 mm in the standard range, DN >350 mm on request



Internal diameter 1.5 mm pipe components with wear protection lining

DN	$\varnothing d$	$\varnothing dVS$		
		Material thickness		
		approx. 6 mm	approx. 6.5 mm	approx. 8 mm
150	150	138	137	134
200	200	188	187	184
250	250	238	237	234
300	300	288	287	284
350	350	338	337	334

Internal diameter 2 mm pipe components with wear protection lining

DN	$\varnothing d$	$\varnothing dVS$		
		Material thickness		
		approx. 6 mm	approx. 6.5 mm	approx. 8 mm
150	149	137	136	133
200	199	187	186	183
250	249	237	236	233
300	299	287	286	283
350	349	337	336	333

All internal diameters (dVS) are approximate dimensions

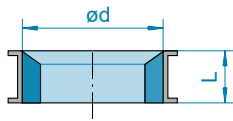
F
From DN 150 mm
Rhino Hyde blue
8 mm
■
■
-20°C to +80°C
85
–
Recommended application: For conveying bulk goods without sharp edges, with high sliding and impact wear.
Food grade, universally usable and high quality.

Product range DN > 350 mm on request	PU ochre and Kryptane red (glued)	Blue Ox, Kryptane green, Rhino Hyde blue and Kryptane blue (bolted)
Inlet piece 50 mm	DN 100–350	DN 150–350
Pipes 50–1000 mm	DN 100–350	DN 150–350
Pipes 2000 mm	DN 100–350	–
Segments 5°–30°	DN 100–350	DN 150–350
Segments 45°	DN 100–350	DN 150–350 Special segment (with straight back)
Bends R = 1D, 90°	DN 100–350	–
Bends R = 2D, 30°–90°	DN 100–350	–
Push-in pipes 200–1000 mm	DN 100–350	–
Forks 30° and 45°	DN 100–350	DN 150–350
Symmetrical forks 60° and 90°	DN 100–350	DN 150–350
Cone pieces	DN 100–350	Special cone (with 50 mm connecting flange) DN 150–350
Connecting flanges with loose flange	DN 100–350	DN 150–350
Adapters with loose flange	DN 100–350	–
Spouts from square to round	DN 100–350	DN 150–350
Spouts from square to round 45° and 60°	DN 100–350	DN 150–350
Two-way valves with inlet collar, hand-operated	–	DN 150–350



WEAR PROTECTION

Inlet pieces / Pipes



L = 50 mm

INLET PIECES – WEAR PROTECTION LINING

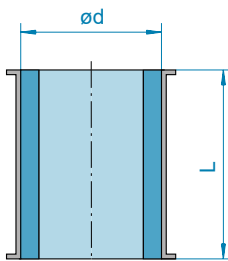
1490

50 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121514000952	60.10	121514000951	64.20	121514000950	72.50
200	122014000952	63.10	122014000951	68.50	122014000950	79.50
250	122514000952	65.60	122514000951	72.10	122514000950	86.00
300	123014000952	69.60	123014000951	77.40	123014000950	93.90
350	123514000952	77.90	123514000951	87.20	123514000950	106.50

50 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121524000952	64.20	121524000951	68.00	121524000950	76.60
200	122024000952	68.50	122024000951	73.60	122024000950	84.90
250	122524000952	70.80	122524000951	77.60	122524000950	91.40
300	123024000952	75.90	123024000951	83.80	123024000950	100.50
350	123524000952	83.40	123524000951	92.60	123524000950	112.50



200 mm long: L = 200 mm
 500 mm long: L = 486 mm
 1000 mm long: L = 984 mm

PIPES – WEAR PROTECTION LINING

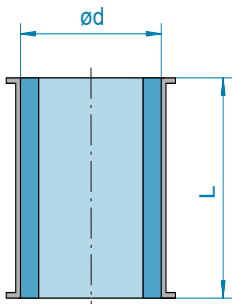
1492

200 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510400952	88.70	121510400951	104.50	121510400950	139.00
200	122010400952	99.00	122010400951	120.50	122010400950	165.50
250	122510400952	108.00	122510400951	135.50	122510400950	191.00
300	123010400952	119.50	123010400951	152.00	123010400950	217.50
350	123510400952	135.00	123510400951	171.50	123510400950	248.50

200 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520400952	97.40	121520400951	113.50	121520400950	148.00
200	122020400952	108.50	122020400951	130.50	122020400950	175.50
250	122520400952	118.00	122520400951	144.50	122520400950	200.50
300	123020400952	136.00	123020400951	167.50	123020400950	235.00
350	123520400952	159.00	123520400951	195.50	123520400950	272.50



200 mm long: L = 200 mm
 500 mm long: L = 486 mm
 1000 mm long: L = 984 mm

500 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510300952	148.00	121510300951	187.50	121510300950	270.00
200	122010300952	174.00	122010300951	225.50	122010300950	336.00
250	122510300952	195.50	122510300951	260.50	122510300950	398.00
300	123010300952	219.00	123010300951	295.50	123010300950	462.50
350	123510300952	245.50	123510300951	335.00	123510300950	528.50

500 mm long, 2 mm galvanised

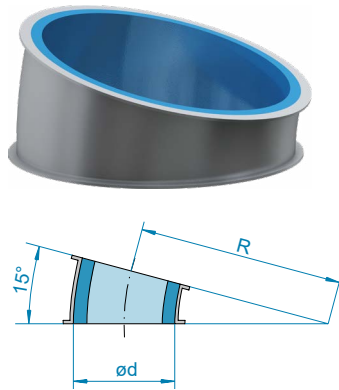
DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520300952	127.50	121520300951	144.50	121520300950	177.00
200	122020300952	193.00	122020300951	244.50	122020300950	357.00
250	122520300952	213.00	122520300951	278.00	122520300950	417.50
300	123020300952	242.00	123020300951	320.00	123020300950	488.00
350	123520300952	290.50	123520300951	381.00	123520300950	576.50

1000 mm long, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510200952	258.50	121510200951	335.50	121510200950	501.50
200	122010200952	301.50	122010200951	405.00	122010200950	626.50
250	122510200952	344.50	122510200951	473.50	122510200950	749.50
300	123010200952	389.00	123010200951	544.00	123010200950	875.50
350	123510200952	444.00	123510200951	625.00	123510200950	1011.00

1000 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520200952	217.50	121520200951	256.00	121520200950	340.00
200	122020200952	337.00	122020200951	442.00	122020200950	665.00
250	122520200952	377.50	122520200951	508.00	122520200950	786.00
300	123020200952	430.00	123020200951	586.50	123020200950	921.50
350	123520200952	522.00	123520200951	704.00	123520200950	1096.00



SEGMENTS – WEAR PROTECTION LINING

1494/1496/1498/1500

5°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	500	121513000952	75.60	121513000951	80.80	121513000950	92.10
200	690	122013000952	84.90	122013000951	93.50	122013000950	112.00
250	635	122513000952	93.40	122513000951	104.00	122513000950	125.50
300	625	123013000952	109.50	123013000951	122.50	123013000950	150.00
350	350	123513000952	123.00	123513000951	134.50	123513000950	159.50

5°, 2 mm galvanised

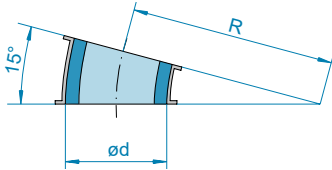
DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	500	121523000952	78.90	121523000951	84.10	121523000950	95.50
200	690	122023000952	92.70	122023000951	101.50	122023000950	120.00
250	635	122523000952	105.00	122523000951	115.50	122523000950	138.00
300	625	123023000952	124.50	123023000951	137.50	123023000950	165.50
350	350	123523000952	126.00	123523000951	138.00	123523000950	160.50

15°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	250	121513100952	97.40	121513100951	105.50	121513100950	122.50
200	270	122013100952	107.50	122013100951	119.00	122013100950	145.50
250	310	122513100952	121.00	122513100951	137.50	122513100950	173.50
300	310	123013100952	139.50	123013100951	162.50	123013100950	207.00
350	350	123513100952	166.50	123513100951	195.00	123513100950	256.00

15°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	250	121523100952	100.50	121523100951	108.50	121523100950	126.00
200	270	122023100952	115.50	122023100951	127.00	122023100950	154.00
250	310	122523100952	133.00	122523100951	150.00	122523100950	185.00
300	310	123023100952	155.00	123023100951	177.00	123023100950	223.50
350	350	123523100952	169.00	123523100951	198.00	123523100950	257.00



30°, 2 mm powder-coated

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	175	121513200952	140.00	121513200951	152.50	121513200950	176.50
200	180	122013200952	156.00	122013200951	173.50	122013200950	209.50
250	230	122513200952	176.00	122513200951	202.50	122513200950	258.50
300	230	123013200952	197.50	123013200951	232.50	123013200950	306.00
350	350	123513200952	247.50	123513200951	301.00	123513200950	415.50

30°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	175	121523200952	144.50	121523200951	156.50	121523200950	180.50
200	180	122023200952	166.50	122023200951	183.50	122023200950	219.50
250	230	122523200952	191.00	122523200951	216.50	122523200950	274.00
300	230	123023200952	216.50	123023200951	252.50	123023200950	326.50
350	350	123523200952	252.00	123523200951	306.00	123523200950	418.00

45°, 2 mm powder-coated

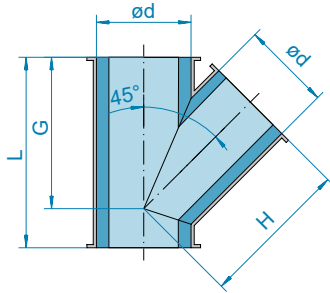
DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	150	121513300952	178.00	121513300951	192.00	121513300950	217.00
200	195	122013300952	204.00	122013300951	224.00	122013300950	268.00
250	195	122513300952	216.50	122513300951	242.00	122513300950	297.50
300	205	123013300952	239.50	123013300951	273.50	123013300950	344.00
350	350	123513300952	375.00	123513300951	439.50	123513300950	578.50

45°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	150	121523300952	182.50	121523300951	195.00	121523300950	220.00
200	195	122023300952	219.50	122023300951	240.00	122023300950	284.50
250	195	122523300952	234.00	122523300951	259.00	122523300950	315.50
300	205	123023300952	262.50	123023300951	295.50	123023300950	367.00
350	350	123523300952	375.00	123523300951	440.50	123523300950	576.00



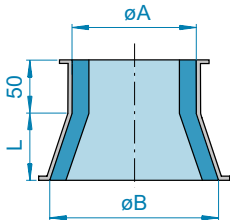
WEAR PROTECTION Forks / Cone pieces



See chapter 5 for fork dimensions



Product similar to picture



FORKS – WEAR PROTECTION LINING

1502

45°, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121512200952	356.50	121512200951	405.50	121512200950	510.50
200	122012200952	452.50	122012200951	538.00	122012200950	723.00
250	122512200952	533.00	122512200951	648.00	122512200950	894.50
300	123012200952	644.00	123012200951	808.00	123012200950	1162.00
350	123512200952	789.00	123512200951	1029.00	123512200950	1545.00

45°, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121522200952	375.00	121522200951	424.00	121522200950	530.00
200	122022200952	478.50	122022200951	565.00	122022200950	752.50
250	122522200952	569.00	122522200951	686.00	122522200950	935.00
300	123022200952	695.00	123022200951	860.50	123022200950	1219.00
350	123522200952	815.00	123522200951	1058.00	123522200950	1578.00

CONE PIECES – WEAR PROTECTION LINING

1504

2 mm powder-coated

DN	L	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150-200	100	110014610952*	233.00	110014610951*	252.00	110014610950*	291.50
150-250	150	110014620952*	252.50	110014620951*	280.50	110014620950*	339.00
150-300	200	110014630952*	290.50	110014630951*	335.50	110014630950*	436.00
200-250	120	120014700952	259.50	120014700951	287.50	120014700950	348.50
200-300	150	120014710952	285.00	120014710951	326.00	120014710950	411.50
250-300	150	120014750952	290.00	120014750951	332.50	120014750950	424.00
250-350	200	120014840952	317.00	120014840951	361.50	120014840950	460.50
300-350	200	120014800952	354.50	120014800951	421.00	120014800950	564.00

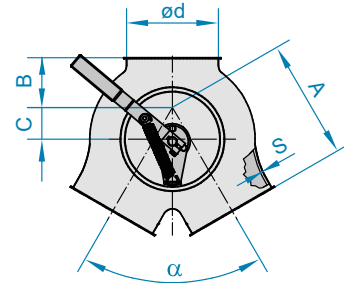
*1.5 mm

2 mm galvanised

DN	L	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150-200	100	110024610952*	245.50	110024610951*	265.50	110024610950*	306.00
150-250	150	110024620952*	266.00	110024620951*	295.50	110024620950*	355.50
150-300	200	110024630952*	287.50	110024630951*	335.00	110024630950*	437.50
200-250	120	120024700952	269.00	120024700951	297.00	120024700950	359.00
200-300	150	120024710952	298.50	120024710951	337.00	120024710950	424.00
250-300	150	120024750952	299.00	120024750951	342.00	120024750950	433.50
250-350	200	120024840952	331.00	120024840951	377.00	120024840950	474.50
300-350	200	120024800952	377.00	120024800951	445.00	120024800950	589.50

*1.5 mm

Two-way valves with inlet collar



Inlet and inner flap lined

Refer to chapter 9 for dimensions of two-way valve with inlet collar

TWO-WAY VALVES WITH INLET COLLAR – WEAR PROTECTION LINING

1506

- For gravity-flow pipe systems for coarse bulk goods

Asymmetrical 60°, hand-operated, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121515120952	508.00	121515120951	534.50	121515120950	590.50
200	122015170952	688.00	122015170951	735.00	122015170950	837.00
250	122515170952	860.50	122515170951	931.00	122515170950	1086.00
300	123015120952	1118.00	123015120951	1224.00	123015120950	1447.00
350	123515150952	1856.00	123515150951	1966.00	123515150950	2202.00

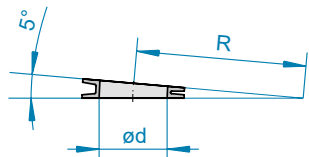
Symmetrical 60°, hand-operated, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121515020952	452.50	121515020951	470.00	121515020950	509.00
200	122015050952	615.50	122015050951	643.50	122015050950	703.00
250	122515050952	810.00	122515050951	878.50	122515050950	1026.00
300	123015020952	1051.00	123015020951	1141.00	123015020950	1332.00
350	123515050952	1814.00	123515050951	1926.00	123515050950	2166.00

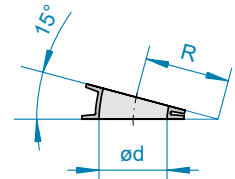


WEAR PROTECTION

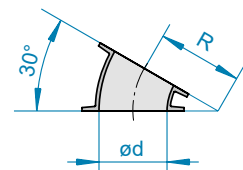
Cast-iron pipework



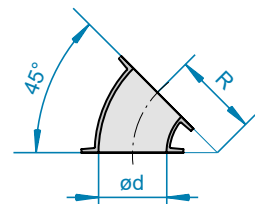
Cast-iron segment 5°



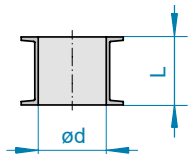
Cast-iron segment 15°



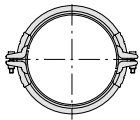
Cast-iron segment 30°



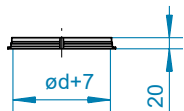
Cast-iron segment 45°



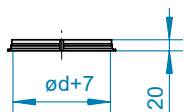
Cast-iron pipes



Pull-rings for cast-iron pipework



Angle flanges



Angle flanges, 1 cut

CAST-IRON PIPEWORK

1160/1170/1180/1190/1150/1200/7000/1210

- 7.5 mm wall thickness
- Powder-coated (RAL 7032)
- Internal diameters correspond to 3 mm thick pipework
- Connection using pull-rings for cast-iron pipes with sealant
- Combination with JACOB pipework with lip using angle flanges

Cast-iron segments 5° and 15°

DN	Ø d	R	Cast-iron segments 5°		R	Cast-iron segments 15°	
			Item no.	€		Item no.	€
120	118				155	17121310	61.30
150	148	600	17151300	79.20	250	17151310	79.60
200	198	690	17201300	81.80	270	17201310	84.40
250	248	635	17251300	91.40	310	17251310	94.10
300	298	625	17301300	95.60	310	17301310	108.00

Cast-iron segments 30° and 45°

DN	Ø d	R	Cast-iron segments 30°		R	Cast-iron segments 45°	
			Item no.	€		Item no.	€
120	118	110	17121320	69.50			
150	148	175	17151320	81.30	150	17151330	83.40
200	198	180	17201320	91.20	195	17201330	108.00
250	248	230	17251320	151.50	195	17251330	169.50

Cast-iron pipes and pull-rings

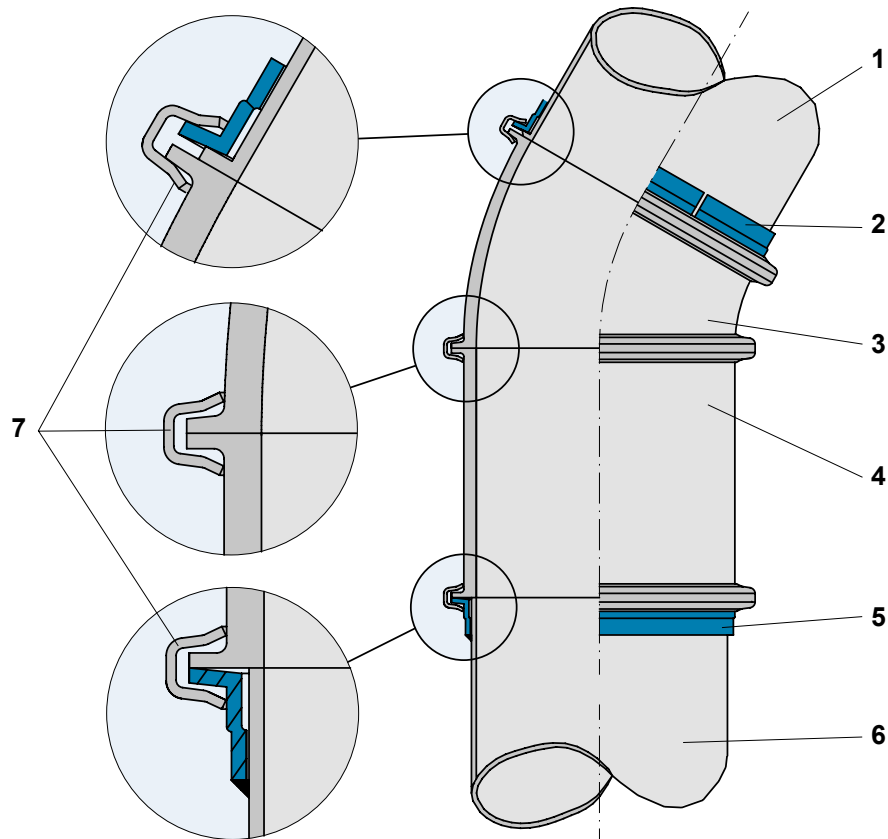
DN	Ø d	L	Cast-iron pipes		Pull-rings for cast-iron pipework, galvanised, with mastic sealant	
			Item no.	€	Item no.	€
120	118	150	17121040	91.10	17122382	14.30
150	148	150	17151040	106.50	17152382	15.50
200	198	200	17201040	177.00	17202382	16.60
250	248	250	17251040	206.00	17252382	18.70
300	298	300	17301040	292.50	17302382	20.80

Angle flanges

DN	Ø d	Angle flanges for welding-on on site		Angle flanges, 1 cut	
		Item no.	€	Item no.	€
120	118	33121705	7.20	17121705	8.40
150	148	33151705	8.40	17151705	9.50
200	198	33201705	10.40	17201705	11.60
250	248	33251705	14.50	17251705	15.60
300	298	33301705	18.10	17301705	19.30



INCORPORATING CAST-IRON PIPE COMPONENTS INTO THE MODULAR PIPEWORK SYSTEM



- 1 Steel pipe with lip
- 2 Angle flange (1 cut)
- 3 Cast-iron segment
- 4 Cast-iron pipe
- 5 Angle flange welded-on
- 6 Steel pipe
- 7 Pull-rings for cast-iron pipework

- Angle flange, 1 cut, is rotated on behind the lipped end of the existing JACOB pipe component and connected to the cast-iron pipe with the pull-ring for cast-iron pipes.
- Alternatively: Use of an angle flange for welding-on on site. One pipe end without a lip is necessary to enable the angle flange to be fitted. This can be created when connecting pipes are shortened, for example.



WEAR PROTECTION

Special range hot-dip galvanised 3 mm



PIPEWORK SYSTEM HOT-DIP GALVANISED 3 MM

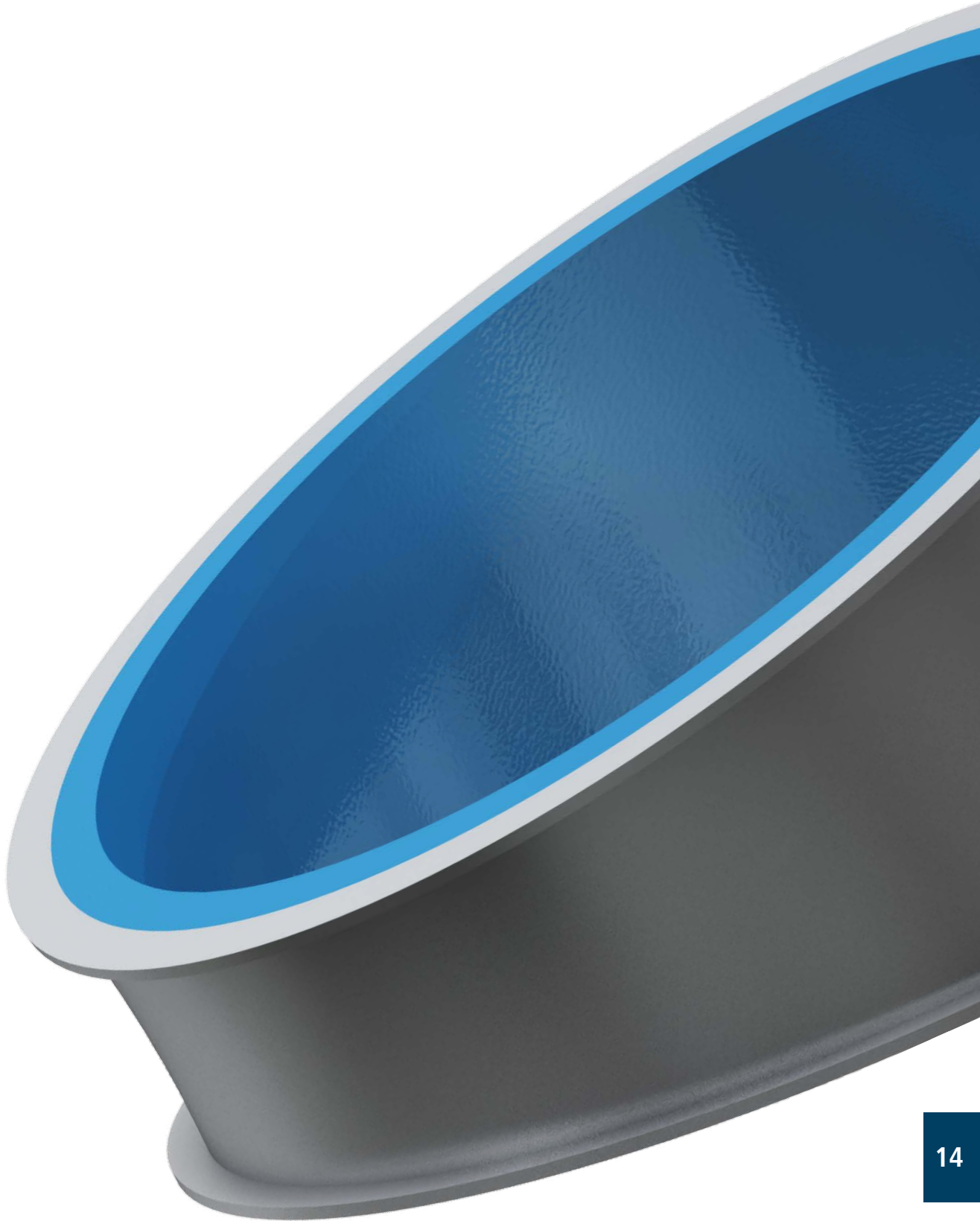
7200/7210/7220/7230/7240/7250/7260/7270/7280/7290/7300/7310/7320

The hot-dip galvanised pipework system that JACOB delivers from stock is specially designed for conveying bulk goods in outdoor areas. It is particularly suitable for conveying goods with abrasive characteristics.

The components can be mounted quickly and provide a tight seal due to the use of our proven pull-ring system. The hot-dip galvanised pipe components and press-formed components are available in the popular diameters DN 200, 250 and 300 mm. With a wall thickness of 3 mm, the system remains installation-friendly yet is still suitable for abrasive bulk goods, such as coarse-grained products such as grains or pellets.

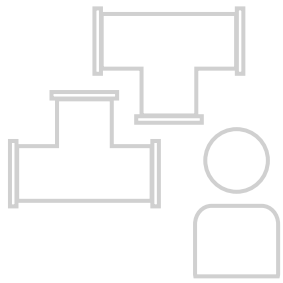
Please refer to chapter 2 for technical information and instructions for assembling the JACOB pull-ring system.

Hot-dip galvanised range All pipework with 6 mm lip for pull-ring system	DN 200 mm		DN 250 mm		DN 300 mm	
	Item no.	€	Item no.	€	Item no.	€
Welded pipes 2000 mm long	13202010	164.50	13252010	188.50	13302010	220.00
Welded pipes 1000 mm long	13202020	86.90	13252020	98.80	13302020	115.50
Welded pipes 500 mm long	13202030	48.90	13252030	57.10	13302030	63.60
Segments 5°	13202300	36.50	13252300	44.80	13302300	49.10
Segments 15°	13202310	36.50	13252310	44.80	13302310	49.10
Segments 30°	13202320	42.80	13252320	53.30	13302320	56.70
Segments 45°	13202330	47.20	13252330	61.70	13302330	73.00
Cone pieces 200-250	13002470	81.10				
Cone pieces 200-300	13002471	86.30				
Cone pieces 250-300			13002475	87.70		
Forks 45°	13202220	119.50	13252220	171.50	13302220	225.00
Connecting flanges with loose flange drilled similarly to DIN 24154-2 (see chapter 11, page 219, for dimensions)	13202432	32.70	13252432	38.30	13302432	44.20
Spouts without a gradient, from square to round	13202400	90.20	13252400	165.50	13302400	184.00
Spouts with a 45° gradient, from square to round	13202420	169.00	13252420	205.00	13302420	234.50
Inspection T-pieces without a rubber cover	13202200	94.00	13252200	115.00	13302200	130.00
Two-way valves with inlet collar, symmetrical, hand-operated	13202505	570.50	13252505	714.50	13302502	860.00
Two-way valves with inlet collar, asymmetrical, hand-operated	13202517	570.50	13252517	714.50	13302512	860.00



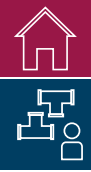


JACOB MANUFACTURING TECHNOLOGY:
TOP QUALITY CUSTOMISED PRODUCT SOLUTIONS



SPECIAL MANUFACTURE

Technical information	260	
Special parts	262	
Special range shock explosion proof to 10 bar	266	



SPECIAL PART MANUFACTURE

JACOB manufacturing technology stands not only for top quality mass-produced standard parts but also for top quality special part manufacture. From manufacturing product variants and small-lot production right up to made-to-order production to customers' drawings: You can depend on the comprehensive expertise and many years of experience of our technicians, design engineers and production staff. We also invest in production equipment on an ongoing basis to guarantee the highest possible quality using modern technology.

Take advantage of our professional expertise, providing you with advice and solutions that are tailored to your specific product requirements. We guarantee integration and compatibility with our modular system. For you, this means: mass-produced standard products and special manufacture from a single source, which is the No. 1 for modular pipework systems. This chapter merely shows a small selection of our manufacturing capabilities for special parts and customised solutions. We would be pleased to fulfil your specific requests on an individual basis.

Individual product solutions: Variant manufacture, small-lot manufacture, made-to-order manufacture to customers' drawings

DISTRIBUTORS/THROTTLE VALVES

- Dust-tight slide gate
- Louvre valve
- Square two-way valve

MEASUREMENT TECHNOLOGY AND ACTUATORS

- Preparation and integration for measurement technology
- Actuators and limit switches
- Venturi tube

WEAR PROTECTION AND NON-STICK PROTECTION

- Wear protection linings
- Baffle boxes/pipes
- Non-stick protection
- Fall brake

ADAPTERS / SYSTEMS

- Adapters for connection to the JACOB system
- Connector system with guide rings

EXHAUST AIR

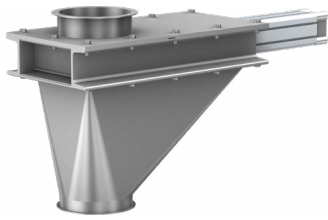
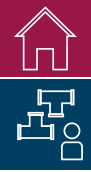
- Air outlets for roofs
- Air inlet / outlet hoods
- Air quality / air conditioning and ventilation

MATERIALS AND SPECIAL FINISHES

- Innovative powder-coating
- Special colours
- Grinding or electrolytic polishing

PIPE LENGTHS OF UP TO 12 M

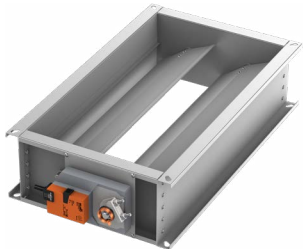




DISTRIBUTORS / THROTTLE VALVES

Dust-tight slide gate

The range of products in the valve and gate catalogue (see chapter 8) has been extended with the addition of the sealed slide gate. This slide valve is sealed to prevent dust from leaking out. It is used for floury or granular goods in gravity-flow pipe systems.



Louvre valve

Our louvre valves are mostly used in pipes that convey hot air. A wide variety of versions is available including multi-part versions and single flaps. Larger versions, i.e. DN 1000 mm and larger, tend to be used in industrial halls, in particular. These units withstand temperatures of up to 320°C, which makes them reliable even in challenging environments.



Square two-way valve

The square two-way valve is used in various industrial applications, and particularly in gravity-flow conveying systems. It has proven its worth in a wide range of production processes, thanks to its versatility and robust design. There are many different versions of the symmetrical and asymmetrical square two-way valves to choose from. Customised adjustments can be made, to the angle of splay or the connection dimensions, for example. Wear protection linings can also be provided, with various materials to choose from. This flexibility allows you to adapt the square two-way valve to meet the specific requirements of your production environment and to ensure that your bulk goods are conveyed with the greatest efficiency.



MEASUREMENT TECHNOLOGY AND ACTUATORS

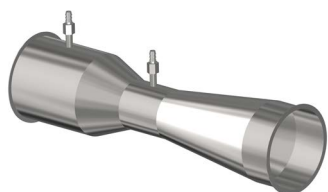
Preparation and integration of measurement technology

Our modular pipework system makes it possible to integrate various types of measurement technology. At the customer's request, we can prepare our modular pipework system for the integration of measurement systems, to measure pressure, temperature or flow rate, for example. We install adapters, transition pieces, spigots or other special connection systems in order to facilitate the installation of measurement devices on site. To enable our customers to integrate measurement technology in a modular system as standard, in chapter 3 we offer pipes in 200 mm lengths in a variety of materials and with various spigots.



Actuators and limit switches

With regard to automatic control technology, we offer a wide selection of tried-and-tested drives for two-way distributors and valves (see chapter 9) and for throttle valves (see chapter 8). Whether electrically or pneumatically driven: Our pipework system components can be fitted with many different brands of drive thanks to the DIN EN ISO attachment system. The same applies to a wide range of different mechanical or inductive limit switches.



Venturi tube

The Venturi tube is a precision instrument used for measuring the volumetric flow of air in industrial systems. The Venturi effect makes it possible to calculate the volumetric flow by measuring the change in pressure in the constricted section. The Venturi tube is reliable and efficient, and is used in many industries to facilitate the precise control and optimisation of processes. Measuring instruments can also be supplied, if necessary. The Venturi tube comes into its own, for example, in difficult environments such as in waste disposal, where traditional measuring instruments are unsuitable due to the presence of aggressive gases.

WEAR PROTECTION AND NON-STICK PROTECTION



Wear protection linings

In addition to the JACOB wear protection range (chapter 14), we have numerous materials available in a range of thicknesses for lining our products (from DN 100 mm). Examples of these materials are PUR, Linatex, ceramic, Correx and Philan. With many materials, you have the choice between layer thicknesses of 2, 4, 6 and 8 mm. Thicker layers are possible on request. We are also happy to fulfil special requirements, such as for food grade quality, electrostatic conductivity or higher temperature resistance.



Baffle pipe

Baffle pipes can be installed to reduce the speed of abrasive or sensitive bulk goods as they fall, and so reduce their abrasive effect. This extends the service life of the pipework and reduces wear on the product. Typically, baffle pipes are installed just upstream of where pipes change direction to flow down a vertical pipe.



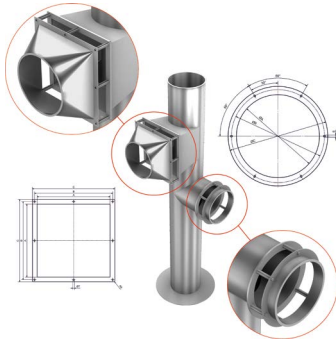
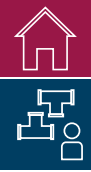
Non-stick protection coating

The addition of a non-stick coating improves the flow properties of dry products that do not tend to flow freely. This type of coating is typically used in the food industry, mechanical engineering applications, polymer processing and the printing and paper industry. Examples of these are coffee powder varieties with a high oil content, or products used in the manufacture and recycling of car tyres. Various lining materials are available on request.



Fall brake

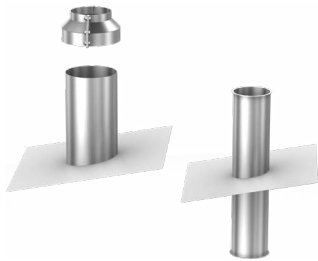
In systems that convey bulk goods, a fall brake is used to reduce the velocity of the goods as they fall down the pipe. This extends the service life of the pipework and reduces wear on the product. The fall brakes can be manufactured with various different angles, to meet specific requirements.



ADAPTERS / SYSTEMS

Adapters for connection to the JACOB system

Do you require special transitions or adapter connections for the JACOB pipework system? We have a wide range of adapters and transitions available as standard components. Special customer-specific solutions can also be produced if required. Please refer to chapter 6 of this catalogue for details of standardised adapters and transitions. These include connecting flanges, together with loose flanges, used as spouts for connecting square sections to round pipes, or used as single round or square flanges for connecting to machine inlets or outlets.



EXHAUST AIR

Air outlets for roofs

The roof air outlet is used as a connection element for on-roof exhaust components. It consists of a pipe with a circular roof sealing plate. The roof outlets are available in stainless steel and can also be surface-coated if required.



SURFACES AND SPECIAL FINISHES

Innovative powder-coating

JACOB uses an ultra-modern, automated powder-coating system in order to ensure superior and uniform product quality. The advantages of our standard powder coating (similar to RAL 7032) are:

- Electrostatically conductive
- Its constituents comply with the requirements of the Food and Drug Administration (FDA)
- Coating thickness on the outside: average layer thickness 55 µm
- Coating thickness on the inside: optically covered as temporary corrosion protection
- Optimum surface quality and long service life due to three-stage pretreatment
- Temperature resistance: from -60°C to +120°C

3,000 special colours

JACOB can provide powder coatings on request in any colour from the wide RAL spectrum. In this case, the products are first coated with our standard RAL 7032 powder coating and then powder coated again in the colour of your choice. This creates a layer thickness of at least 80 µm. We also offer further special features on request. These include high-gloss effects.

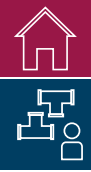
Grinding or electrolytic polishing

At our customers' request, we also offer electrolytic polishing or grinding of our stainless steel pipework.

PIPE LENGTHS

Pipe lengths of up to 12 m

We produce special pipes up to 12 m in length in diameters of DN 60 to 300 mm and in different materials with a wall thickness of 1 to 3 mm. We normally supply pipes in lengths of 6 to 12 m with untreated and unlipped ends. Pipes of up to 6 m in length can optionally be supplied with lipped ends for quick assembly with JACOB pull-rings. For pipes of up to 12 m in length, we also offer special connections on request.



SPECIAL MANUFACTURE

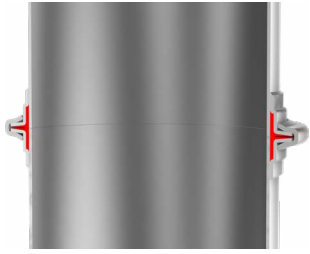
Special range shock explosion proof to 10 bar



SHOCK EXPLOSION PROOF PIPEWORK SYSTEM 10 BAR

Particularly exacting demands for up to 10 bar shock explosion resistance are met by the special range certified by DEKRA EXAM GmbH and/or the Forschungsgesellschaft für angewandte Systemsicherheit und Arbeitsmedizin (FSA) (Research Society for Applied System Security and Occupational Medicine).

We have dimension sheets available to aid your planning and design work. Test reports are available on request.



DN 80 to 300 mm

Pipework with angle flange, shock explosion proof to 10 bar:

- Pipe components DN 80, 100, 120, 150, 175, 200, 250 and 300 mm with angle flange
- Depending on the diameter, available with 2 and/or 3 mm wall thickness
- Straight pipes up to 2000 mm in length, inspection T-pieces with end cover in reinforced version, forks 30° and 45° and bends $R = 2D$, 30° to 90°
- Pipe components connected with special pull-ring for angle flange
- The seal is incorporated in the pipework
- The pull-ring bolts must be tightened to a torque of 25 Nm to meet 10 bar certified shock explosion resistance
- Earthing lugs are spot-welded to all angle flange pipework

DN 350 to 630 mm:

DN 350 to 630 mm with welded-on special flanges for 10 bar shock explosion resistance available on request



PULL-RINGS FOR ANGLE FLANGE PIPEWORK

7010

- 10 bar shock explosion proof
- Electro galvanised
- The pull-ring bolts must be tightened to a torque of 25 Nm to meet 10 bar certified shock explosion resistance

Pull-rings for angle flange

DN	Pull-ring for angle flange			
	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32082382	14.70		
100	32102382	15.70		
120	32122382	16.00		
150			32152382	16.80
175			32172382	17.80
200			32202382	20.00
250			32252382	23.40
300			32302382	26.00



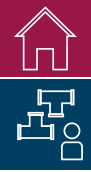
WELDED PIPES

7020

- With angle flange
- Powder-coated

DN	1996 mm long				996 mm long			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081010	95.20			32081020	61.50		
100	32101010	99.70			32101020	65.00		
120	32121010	110.50			32121020	74.60		
150	32151010	124.00	33151010	168.00	32151020	86.00	33151020	113.50
175	32171010	139.00	33171010	189.00	32171020	94.30	33171020	124.00
200	32201010	150.00	33201010	205.00	32201020	116.00	33201020	153.00
250	32251010	181.50	33251010	243.00	32251020	118.00	33251020	160.00
300	32301010	209.00	33301010	281.00	32301020	132.00	33301020	177.50

DN	498 mm long				212 mm long			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081030	46.10			32081040	39.10		
100	32101030	48.80			32101040	41.40		
120	32121030	57.30			32121040	48.00		
150	32151030	63.50	33151030	80.40	32151040	56.00	33151040	67.30
175	32171030	71.50	33171030	89.80	32171040	59.00	33171040	71.30
200	32201030	75.30	33201030	95.00	32201040	61.00	33201040	73.90
250	32251030	87.80	33251030	110.00	32251040	70.80	33251040	85.40
300	32301030	96.50	33301030	120.50	32301040	78.50	33301040	94.10



SPECIAL MANUFACTURE

Special range shock explosion proof to 10 bar



WELDING ENDS

7030

- With angle flange
- Powder-coated

DN	60 mm long			
	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32081060	23.20		
100	32101060	24.50		
120	32121060	27.60		
150	32151060	30.20	33151060	36.20
175	32171060	31.80	33171060	38.10
200	32201060	33.00	33201060	39.80
250	32251060	37.50	33251060	44.90
300	32301060	41.60	33301060	50.10



INSPECTION T-PIECES

7040

- With angle flange pull-ring and end cover
- Powder-coated

DN	2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€
80	32081200	158.50		
100	32101200	178.00		
120	32121200	198.50		
150	32151200	217.50	33151200	237.00
175	32171200	231.00	33171200	253.50
200	32201200	255.00	33201200	279.50
250	32251200	292.50	33251200	321.00
300	32301200	315.50	33301200	346.50





FORKS

7050/7052

- With angle flange
- Powder-coated

DN	30° powder-coated				45° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081230	124.00			32081220	121.50		
100	32101230	130.00			32101220	122.50		
120	32121230	147.00			32121220	141.50		
150	32151230	182.50	33151230	220.00	32151220	169.50	33151220	198.50
175	32171230	221.00	33171230	259.50	32171220	203.50	33171220	235.00
200	32201230	257.00	33201230	309.00	32201220	233.50	33201220	274.00
250	32251230	330.50	33251230	393.00	32251220	298.50	33251220	342.50
300	32301230	426.50	33301230	468.00	32301220	352.00	33301220	413.00



BENDS R = 2D

7060/7062/7064/7066/7068

- With angle flange
- Powder-coated

DN	30° powder-coated				45° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081343	53.90			32081344	65.60		
100	32101343	58.10			32101344	69.90		
120	32121343	73.40			32121344	77.60		
150	32151343	87.70	33151343	109.50	32151344	98.40	33151344	124.00
175	32171343	95.90	33171343	121.50	32171344	108.50	33171344	136.50
200	32201343	110.00	33201343	138.00	32201344	117.50	33201344	148.00
250	32251343	127.00	33251343	160.00	32251344	154.00	33251344	193.50
300	32301343	175.50	33301343	221.00	32301344	224.00	33301344	279.50

DN	60° powder-coated				90° powder-coated			
	2 mm wall thickness		3 mm wall thickness		2 mm wall thickness		3 mm wall thickness	
	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	32081346	70.70			32081349	82.40		
100	32101346	74.40			32101349	86.80		
120	32121346	95.90			32121349	104.00		
150	32151346	109.50	33151346	137.50	32151349	133.00	33151349	167.00
175	32171346	122.50	33171346	153.00	32171349	148.00	33171349	184.00
200	32201346	144.50	33201346	181.50	32201349	171.50	33201349	213.50
250	32251346	229.50	33251346	286.00	32251349	285.00	33251349	355.50
300	32301346	289.50	33301346	360.50	32301349	425.00	33301349	531.00



1. General Information

- (1) Our deliveries, services and offers are made exclusively on the basis of these General Terms and Conditions of Delivery and Payment (in the following "T&C"). Unless otherwise agreed, the T&C apply in the version valid at the time of the Purchaser's order or, in any case, in the version last notified to the Purchaser in writing as a framework agreement also for similar future contracts without our need to refer to them again in each individual case. We do not recognise any terms and conditions of the Purchaser which contradict or deviate from our T&C unless we have expressly agreed to their validity in writing. Our T&C also apply if we deliver to the Purchaser without any reservations although we are aware of Purchaser's terms and conditions which contradict or deviate from our T&C unless we have expressly agreed to their validity in writing. Our T&C also apply if we deliver to the Purchaser without any reservation although we are aware of Purchaser's terms and conditions which contradict or deviate from our T&C or if the Purchaser refers to its general terms and conditions within the scope of the order and we do not expressly object.
- (2) Our T&C apply to entrepreneurs (§ 14 German Civil Code – BGB), legal entities under public law and special funds under public law ("öffentlich-rechtliches Sondervermögen") only.
- (3) Individual agreements (e.g. framework supply agreements, quality assurance agreements) and specifications in our order confirmation take precedence over these T&C. In any case, commercial clauses are interpreted in accordance with the Incoterms issued by the International Chamber of Commerce in Paris (ICC) in the version valid at the time of conclusion of the contract.
- (4) Legally relevant declarations and notifications of the Purchaser with regard to the contract (e.g. setting of deadlines, notification of defects, withdrawal or reduction) are to be made in writing. Written form in terms of these T&C includes written and text form (e.g. letter, e-mail, fax). Legal formal requirements and further proof, in particular in the case of doubts about the legitimacy of the declarant, remain unaffected.
- (5) References to the statutory law only have clarifying significance. Even without such clarification, the statutory law therefore applies unless it is expressly amended or excluded in these T&C.

2. Conclusion of the Contract; Contract Documents

- (1) Our offers are subject to confirmation and non-binding unless they are explicitly specified as binding. This also applies if we have provided the Purchaser with samples, catalogs, other product descriptions or documents – also in electronic form – to which we reserve property rights and copyrights.
- (2) The Purchaser's order of goods is viewed as a binding offer to contract. Unless otherwise stated in the order, we are entitled to accept this offer to contract within one week of receipt. During this period the Purchaser is bound to his order. The contract is deemed to be concluded upon our confirmation (order confirmation). In case of immediate delivery, our delivery replaces the order confirmation.
- (3) The Purchaser must check our order confirmation without undue delay to ensure that it is correct and complete and must inform us of any discrepancies between the order and the order confirmation without undue delay. In the event of discrepancies from his order, the discrepancies are deemed to be approved by the Purchaser if the Purchaser accepts our delivery without reservation.
- (4) Performance characteristics specified in catalogues and orders such as figures, drawings etc. are to be considered an approximation only. In particular, such information represents no guarantees or assurances („Zusicherungen“) and do not relieve the Purchaser from its duty to execute own tests or examinations.
- (5) The tolerances specified in our catalogs and offers for these components also apply to components manufactured according to drawings, specifications, samples, requirements and/or other documents of the purchaser.
- (6) Our salespersons are not authorised to make further agreements or give assurances which exceed the content of the written contract or these T&C.
- (7) The Purchaser is liable for the correctness, accuracy and completeness of his order data and all of his order documents, especially those relating to drawings as well as for technical data and samples. Verbal specifications, including those relating to amendments and modifications of the documentation and data provided, require written confirmation.

3. Prices; Terms of Payment

- (1) Our prices are EURO prices. Unless stated otherwise in the order confirmation, our prices are FCA (pursuant to Incoterms® 2020 or in their respective version valid in time) ex our works in Porta Westfalica plus packaging costs and the then applicable value-added tax.
- (2) Our prices do not include installation, commissioning and assembly costs nor packaging, freight, postage and insurance costs.
- (3) We reserve the right to adjust our prices adequately in case cost increases or decreases occur which are not attributable to us, especially due to materials costs, the increase in raw or auxiliary materials prices, wages and salaries, freight or public charges, if there is an interval of more than three months between the date of conclusion of the contract and delivery or the last partial delivery. In this case, costs decreases and increases will be netted. We will produce evidence of these cost changes upon the Purchaser's request.
- (4) Deliveries and services in excess of the order will be – after consultation with the Purchaser – invoiced separately.
- (5) Payments are to be conducted cashless and free of charge without any deductions. Unless indicated otherwise in the order confirmation, our invoices are due and payable within 14 days after the invoice date and receipt of the invoice. In case prepayment has been agreed upon, the deadline for delivery begins to start only after receipt of the full invoice amount.
- (6) Despite dissenting provisions by the Purchaser, we are entitled to offset the Purchaser's payments first with older claims due against the Purchaser; we will inform the Purchaser of any type of offsetting. In case any costs and interests have already occurred, we are entitled to offset the payment first with the costs, then the interests and the main service at last.
- (7) Payments are only considered settled if we can dispose of the amount.
- (8) Upon expiry of the payment deadline, the Purchaser shall be in default. In case of the Purchaser's default in payment, the statutory provisions are fully applicable.
- (9) The Purchaser is not entitled to withhold payments based on counter-claims or offset counter-claims unless these counter-claims have been recognised by us, are undisputed or have been established by a final non-appealable court decision (res judicata). However, counter-claims of the Purchaser existing or arising under the same contract for defects or non-performance and/or unfinished or incomplete performance remain unaffected.
- (10) If, after conclusion of the contract, it becomes apparent (e.g. through termination of the trade credit insurance or application for the opening of insolvency proceedings) that our claim to the purchase price is jeopardized by the Purchaser's inability to pay, we are entitled in accordance with the statutory provisions to refuse performance and - if necessary after setting a deadline – to withdraw from the contract (§ 321 BGB).

4. Serial Deliveries, Long-term and Call-off Contracts

- (1) Unlimited contracts are subject to ordinary termination giving three months' notice prior to the end of a calendar month, unless provided otherwise.
- (2) In case of call-off contracts, unless provided otherwise, binding quantities are to be notified at least 3 months prior to the delivery date by call-offs. Additional costs arising as a result of delayed call-offs or subsequent amendments to a call-off regarding time or quantity by the Purchaser will be borne by the latter.

5. Time of Delivery, Delay in Delivery; Force Majeure

- (1) Unless explicitly provided otherwise, any indicated delivery times are approximate only. Any delivery deadline only starts to run if all details of execution have been clarified and both parties have mutually agreed on the conditions of the order. Any agreed delivery date will be postponed accordingly. Any change made to the scope of services will result in a corresponding extension of the delivery period once the order has been accepted.
- (2) If advance payment has been contractually agreed, compliance with the delivery deadline is dependent on the timely payment of the advance payment. In the event of late payment of the advance payment, the delivery period is extended accordingly.
- (3) Fulfilment of our delivery obligations further requires timely and proper fulfilment of the Purchaser's obligations. The defence of non-performance remains reserved. In addition, we are entitled to postpone delivery as long as the Purchaser has failed to fulfil due payment obligations arising out of previous deliveries without justification.

- (4) In case we are prevented from adhering to agreed delivery or performance dates as a result of for e.g. force majeure, labour disputes, governmental action, energy or raw material shortages, transport bottlenecks or hindrances, operational hindrances, for example due to fire, water and/or machine defects, for which we are not responsible, or other disruptions in the flow of operations either at our premises or those of suppliers or subcontractors for which we are not responsible and which can be proven to have a significant impact, we are obliged to inform the other party without undue delay ("unverzöglich"). In such cases we are entitled to extend the delivery/performance period by the period of the event of force majeure or the disruption if we have informed the Purchaser pursuant to the above information obligation. If delivery or performance becomes impossible as a result thereof, our obligation to perform lapses to the exclusion of any compensation for damages. If the Purchaser proves that subsequent performance of the contract is of no interest to him as a result of the delay, he may withdraw from the contract, any further claims being excluded. If the event of force majeure or the disruption lasts longer than three months, we may withdraw from the contract in view of any part of the contract which has not yet been performed, provided that we have informed the Purchaser pursuant to the above information obligation and have not assumed the risk of procurement ("Beschaffungsrisiko") or a delivery guarantee. Force majeure is any external event caused by elementary forces of nature or by actions of third parties, which is unforeseeable according to human insight and experience, which cannot be prevented or rendered harmless by economically acceptable means even by the utmost care reasonably to be expected in the circumstances and which is also not to be accepted by us due to its frequency.
- (5) Article 5 (4) applies mutatis mutandis if and to the extent that we have, prior to conclusion of the contract with the Purchaser, entered into a covering transaction which – if properly executed – would have enabled us to fulfil our contractual obligations in our relationship with the Purchaser and have not been supplied by our suppliers in conformity with the contract and/or due time with no fault on our part.
- (6) In case we are in default, the Purchaser may specify an additional period for performance in writing and, if said period elapsed to no avail, withdraw from the contract. An additional period for performance is not required if we seriously and finally refuse to perform the contract or if the underlying contract is a fixed-date transaction ("Fixgeschäft") according to Section 323 para. 2 No. 2 of the German Civil Code (BGB) or Section 376 of the German Commercial Code (HGB) or if special circumstances exist which, taking into account the interests of both parties, justify immediate withdrawal from the contract.
- (7) We are liable for damages in accordance with Article 10 of these T&C only. The Purchaser's right to withdraw from the contract is governed by statutory provisions.
- (8) If an acceptance inspection of the delivered goods has been agreed, the acceptance inspection has to be performed at our factory immediately after we have informed the Purchaser that the goods are ready for acceptance, unless otherwise agreed. The Purchaser will bear the costs of the acceptance inspection.
- (9) If the Purchaser is in default of acceptance or if the delivery is delayed for reasons which are attributable to the Purchaser, we will be entitled to claim compensation of any damage incurred as a result thereof, including additional expenses, if any. In these cases, we will store the goods at the Purchaser's risk and invoice the Purchaser for such storage. We are entitled to charge for the storage a flat fee of 0.1 % of the net price agreed in the contract for each completed working day ("Werktag") but not more than 5 % in total of the net price agreed in the contract. We reserve the right to assert further claims. The Purchaser reserves the right to prove that we incurred no damage or a substantially smaller damage than the foregoing flat fee.
- (10) We reserve the right to make partial deliveries if and to the extent that they are reasonably acceptable for the Purchaser, also considering the Purchaser's interests.
- (3) In case shipment has been agreed, the risk of incidental loss or incidental deterioration of the goods passes to the Purchaser at the time the goods have been handed over to the carrier, freight forwarder or any other third party entrusted with the execution of shipment. This also applies if shipment is performed by our own vehicles, if we have assumed the transport costs or if we have advanced the costs on behalf of the Purchaser or in the case of partial delivery. If dispatch or handover is delayed for reasons attributable to the Purchaser, the risk will pass to the Purchaser at the time the goods are ready for dispatch and we have notified the Purchaser thereof.
- (4) Provided that the Purchaser does not announce in due time how the goods shall be delivered, we will conclude a transport contract with a carrier at the Purchaser's expense. In this case the choice of the transportation route and the shipping method is at our discretion, unless provided otherwise. The Purchaser shall point out to us if transport insurance is desired; if so, transport insurance will be concluded at our reasonable discretion in favour of the Purchaser. Any costs incurred in this respect shall be borne by the Purchaser, even if we have exceptionally assumed the remaining transport costs.
- (5) We are entitled to make partial deliveries insofar as this is reasonable for the Purchaser, taking into account his interests.
- (6) If the Purchaser is in default of acceptance or if the delivery is delayed for reasons for which the Purchaser is responsible, we are entitled to demand compensation for the resulting damage including additional expenses. In such cases, we store the products at the risk of the Purchaser and invoice the Purchaser for storage.

7. Retention of Title

- (1) We reserve title to the goods sold until full payment of all our present and future claims arising from the purchase contract and an ongoing business relationship (secured claims).
- (2) Prior to complete payment of the secured claims, goods subject to reservation of title must neither be pledged to third parties nor assigned by way of security by the Purchaser without our explicit written consent. In the case of pledges or other third party intervention, the Purchaser must notify us immediately in writing so that we can file a lawsuit (pursuant to § 771 ZPO). If we bring an action against the third party and to the extent that the action was successful and the third party is unable to reimburse us for the judicial and extra-judicial costs incurred by us, the Purchaser will be liable for such costs.
- (3) If the Purchaser acts contrary to the contract – in particular delayed payment – we are entitled to rescind the contract in accordance with the statutory regulation and to reclaim the reserved goods.
- (4) The Purchaser is obliged to notify us at all times of the location of the goods subject to retention of title until the reserved goods have been paid for in full.
- (5) The Purchaser is entitled to resell the goods delivered within the ordinary course of business. He herewith assigns to us, however, all claims amounting to the final invoice amount (including value-added tax) of our claims which accrue from the resale vis-à-vis its customers or third parties, irrespective of whether the goods purchased have been sold again with or without further processing. After such assignment the Purchaser also remains entitled to collect this claim. Our right to collect this claim ourselves remains unaffected thereby. However, we undertake not to collect the claim provided that no bill or cheque protests are raised, the Purchaser fulfils his payment obligations out of the proceeds received, the Purchaser is not in default of payment and, in particular, no application to initiate insolvency proceedings with regard to the Purchaser's assets has been filed. If this is the case, however, we may demand that the Purchaser notifies us of the claims assigned and their debtors, provides all details necessary for their collection, delivers the relevant documents and informs the debtors (third parties) of said assignment.
- (6) The processing or conversion by the Purchaser of the goods supplied subject to reservation of title is always deemed to be performed for us and on our behalf. If the goods supplied subject to reservation of title are processed with other items/materials not belonging to us, we acquire co-ownership of the new article in a ratio of the value of the goods subject to reservation of title to the other processed items/materials at the time of processing. In all other respects, the provisions applicable to the goods supplied subject to reservation of title also apply mutatis mutandis to the articles resulting from such processing.

6. Delivery and transfer of risk

- (1) Unless stated otherwise in the order confirmation, deliveries are made FCA (pursuant to Incoterms® 2020 or in their respective version valid in time) ex our works in Porta Westfalica. This also applies if we have exceptionally assumed the transport costs or paid them in advance on behalf of the Purchaser.
- (2) At the request and expense of the Purchaser, the goods are shipped to another destination (sale by delivery to a place other than the place of performance). Unless otherwise agreed, we are entitled to determine the type of shipment (in particular transport company, shipping route, packaging) ourselves.



- (7) If the goods supplied subject to reservation of title are mixed or joined inseparably with other items/materials not belonging to us in such a way that they become major components of a uniform article, we acquire co-ownership of the new article in a ratio of the value of the goods subject to reservation of title to the other mixed or joined items/materials at the time of the joining or mixing. If the goods and other items/materials are joined or mixed in such a way that the Purchaser's article is to be regarded as the main item, it is already agreed here and now that the Purchaser transfers pro-rata co-ownership to us. The Purchaser will keep the jointly held property thus produced in safe custody for us. Furthermore, the same will apply to the article resulting from such joining or mixing as to the goods supplied subject to reservation of title.
- (8) The Purchaser is obliged to treat the goods subject to reservation of title carefully. He is obliged to adequately insure such at his own expense, in particular against fire, water damage and theft at replacement value. The Purchaser is obliged to perform any necessary service and replacement work in good time and at its own expense.
- (9) In the event of loss or damage to the goods subject to reservation of title, the Purchaser hereby assigns to us any claims to insurance payments existing in this connection in the amount of the final invoice (including value-added tax) of our claims with respect to the object of delivery by way of additional security in advance.
- (10) In case of deliveries abroad, if certain measures and/or declarations by either party are necessary to ensure the effectiveness of the above mentioned reservation of title and/or certain other rights referred to in the paragraphs above, the Purchaser is obliged to inform us accordingly in writing or in text form and to take all necessary measures and/or make all necessary declarations without undue delay at its own expense. If the law of the country of import does not permit reservation of title to the delivered goods, the Purchaser is obliged to provide without undue delay ("unverzüglich") another appropriate security interest in the goods delivered or any other equivalent collateral based on equitable discretion (Section 315 German Civil Code (BGB) at its own expense.
- (11) We undertake to release, at Purchaser's request, the securities due to us if the realizable value of our securities exceeds the claims to be secured by more than 10%; we reserve the right to select of the securities to be released.

8. Acquisition of Ownership through Machining, Processing or Repair of Items Provided to us

- (1) If the Purchaser delivers to us an item for machining or processing or repair and if the Purchaser remains sole owner of the machined, processed or repaired item also after machining, processing or repair, it is already agreed here and now that the Purchaser assigns to us pro-rata co-ownership in a ratio of the value of our machining, processing or repair work (final invoice amount including value-added tax) to the value of the item made available at the time of processing.
- (2) If the item is mixed or joined during machining, processing or repair with items/materials belonging to us in such a way that they become essential components of a uniform article, we will acquire co-ownership of the new article in a ratio of the value of our items/materials to the value of the Purchaser's item made available at the time of joining or mixing.
- (3) If joining or mixing takes place in such a way that the Purchaser's article is to be regarded as the main item, it is already agreed here and now that the Purchaser transfers pro-rata co-ownership to us in a ratio of the value of our machining, processing or repair work (final invoice amount including value-added tax) to the value of the item made available at the time of joining or mixing.
- (4) The provisions of Article 7 of these T&C apply mutatis mutandis to items of the Purchaser in which we have acquired co-ownership in accordance with the above provisions. For clarification: we will transfer the co-ownership we have acquired pursuant to the above terms and conditions to the Purchaser on delivery of the item in accordance with the provisions set forth in Article 7 of these T&C.

9. Packaging

- (1) Unless agreed otherwise, the packaging is at our discretion. The costs of packaging are borne by the Purchaser. The transport boxes of our standard packaging are not designed for stacking. Special packaging (e.g. additional transport reinforcement which allows max. double-stacking of the transport crates) must only be provided upon special agreement and / or at the request of the Purchaser (which the Purchaser must specify in its order at the latest).

- (2) The packaging of our products (including transport packaging, sales packaging and outer packaging) must be disposed of properly. For this reason, we are legally obligated under Section 15 (1) of the German Packaging Act (VerpackG) to organize and monitor the proper return and recycling of our packaging.
- (3) In the interest of an efficient and careful use of resources, in particular to avoid unnecessary transport routes, the Purchaser undertakes, on our behalf and in accordance with the applicable law, to dispose of the packaging of the products delivered by us (including transport packaging, sales packaging and outer packaging) properly and at its own expense.
- (4) Upon request, the Purchaser provides us with evidence of the proper disposal of the packaging of the products delivered by us without undue delay and in a suitable form and shall cooperate to the required extent in packaging law procedures of the competent authorities.
- (5) The Purchaser undertakes to use the products delivered by us directly in its business or to process them further or to deliver them to further processing companies so that the packaging of the respective products is not regarded as waste at a private end user or at comparable points of accumulation in accordance with § 3 para. 11 VerpackG. Insofar as the Purchaser does not (or no longer) fulfill the aforementioned obligation for products delivered to it, it undertakes to inform us immediately in text form.

10. Warranty – Liability for Infringement of Obligations

- (1) The statutory provisions apply to the rights of the Purchaser with respect to defects in quality or title (including incorrect delivery and short delivery) unless nothing to the contrary is determined in the following.
- (2) In any case, the special statutory provisions on the reimbursement of expenses in the event of final delivery of the newly manufactured goods to a consumer (supplier recourse pursuant to Sections 478, 445a, 445b or Sections 445c, 327 (5), 327u BGB) remain unaffected, unless an equivalent compensation has been agreed, e.g. within the framework of a quality assurance agreement. (3) In case we have to perform a contract in accordance with drawings, specifications, specimens, figures and/or other documents supplied by the Purchaser, the latter has to bear the risk of the suitability for the intended use.
- (4) If parts of the Purchaser are processed on behalf of the Purchaser, the Purchaser is obliged to examine whether the parts are suitable for the requested processing. If processing of parts sent by the Purchaser is not successful due to reasons beyond our control and responsibility, we will accept no responsibility for any damages caused. The Purchaser will still be required to pay for the costs already incurred for the processing. We will invoice the Purchaser for any necessary reworking costs.
- (5) The Purchaser's right to warranty claims under this contract requires the Purchaser to duly discharge his obligations of inspection and notification of defects in accordance with Section 377 of the German Commercial Code (HGB). If the contractual relationship between us and the Purchaser constitutes a contract for work and services ("Werkvertrag"), Section 377 of the German Commercial Code (HGB) shall apply mutatis mutandis. Notices of defects have to be addressed to our Customer Service Department in writing. In the case of goods intended for installation or other further processing, an inspection must in any case be carried out at the latest before installation or processing.
- (6) If an acceptance inspection or an initial specimen inspection has been agreed with the Purchaser, a complaint about defects which the Purchaser could have detected during a careful acceptance or initial specimen inspection is excluded.
- (7) We must be given the opportunity to examine on site any defect complained about.
- (8) If our operating and maintenance instructions are not followed, unauthorised modifications are carried out in the products and/or parts are exchanged, warranty claims for the consequences so caused are excluded. The foregoing applies also to incorrect installation or removal, poor maintenance, incorrect handling or storage, improper repairs not carried out by us, alterations as well as chemical, electrochemical or electrical influences for which we are not responsible as well as weather-induced or other natural causes.
- (9) If the delivered goods or the work created is defective, the Purchaser is entitled to the statutory rights as follows:
 - a) We are first entitled to either remedy the defect or to supply the Purchaser with

goods free of defect as we so choose or, in case a contract for work and services has been agreed upon, to produce a new work (subsequent performance ("Nacherfüllung"). The Purchaser must allow the time necessary for and give the opportunity to subsequent performance. If the type of subsequent performance chosen by us is unreasonable for the Purchaser in the individual case, the Purchaser may reject it. Our right to refuse to provide subsequent performance on the conditions provided for by law remains unaffected.

- b) We will bear or reimburse the expenses necessary for subsequent performance, in particular transport, travel, labor and material costs and, if applicable, dismantling and installation costs, in accordance with the statutory law and these T&C, if the goods actually prove to be defective. If the Purchaser's request to remedy the defect turns out to be unjustified, we are entitled to demand reimbursement of the costs incurred from the Purchaser if the Purchaser knew or negligently did not know that there was actually no defect. The supplementary performance does not include the expenses for the removal of the defective item or for the renewed installation if the Purchaser was already aware of the defect at the time of installation or if the installation was not carried out in accordance with the intended purpose. This also applies if the Purchaser failed to recognize the defect prior to installation due to gross negligence, unless we fraudulently concealed the defect or assumed a guarantee.
 - c) In the event of replacement delivery or, in case a contract for works and services has been agreed upon, new production, the Purchaser must return the defective goods to us on request.
 - d) We are entitled to make the subsequent performance contingent on the Purchaser paying the price agreed for the goods delivered. The Purchaser is entitled, however, to withhold an appropriate part of the price.
 - e) If the subsequent performance fails, the Purchaser is entitled to withdraw from the contract or to request a reduction in the agreed purchase price as he so chooses. However, there is no right of withdrawal in case of minor defects.
 - f) Claims of the Purchaser for compensation of damages or replacement of expenses only apply in accordance with the provisions of Article 10 of these T&C.
- (10) The limitation periods are governed by Article 11 of these T&C.

11. Exclusions and Limitations of Liability

- (1) Subject to the provisions of Article 10 (2), we are only liable for damages – in the case of contractual, non-contractual or other claims for damages, irrespective of the legal reason, in particular due to defects, default and impossibility, culpa in contrahendo and tort – in case of wilful intent and/or gross negligence, including wilful intent and/or gross negligence on the part of our representatives or vicarious agents. In addition, we are also liable in case of mild negligence, including mild negligence of our representatives and vicarious agents, for damages arising from the infringement of an essential contractual duty, i.e. a duty, the satisfaction of which makes the due implementation of the contract possible in the first place and which the Purchaser can therefore usually expect to be satisfied by us (cardinal duty). If and to the extent that we are not liable for wilfully infringing a duty, the liability for damages will, however, be restricted to the foreseeable, typical damage.
- (2) Claims for damages arising from an injury of life or limb or health as well as claims of the Purchaser pursuant to the German Product Liability Act and the special statutory provisions governing ultimate delivery of the goods to a consumer as well as other mandatory statutory liability regulations remain unaffected by the exclusions and limitations of liability set out in Article 10 (1). The above exclusions and limitations do neither apply insofar as we have fraudulently concealed a defect or insofar as we are liable because of the assumption of a guarantee or of the risk of procurement ("Beschaffungsrisiko").
- (3) Articles 10 (1) and 10 (2) also apply if the Purchaser demands replacement of useless applications instead of a claim to compensation of damages.
- (4) Insofar as our liability of damages is excluded or limited, this also applies with regard to personal liability for damages of our employees, representatives and vicarious agents which is based on the same legal reason.

12. Statute of Limitations

- (1) Claims of the Purchaser arising from defects in quality and title become time-barred after expiry of 12 months from delivery (hand-over) of the goods. If acceptance has been agreed, the limitation period shall commence upon acceptance.

- (2) Mandatory provisions on the statute of limitations remain unaffected. Therefore, Article 11 (1) shall not apply to claims for injury of life, limb or health, to claims based on wilful intent and gross negligence and to claims based on the assumption of a warranty or the risk of procurement ("Beschaffungsrisiko"). The longer limitation periods pursuant to Section 438 (1) No. 1 of the German Civil Code (BGB) – third party rights in rem; Sections 438 (1) Nr. 2, 634a (1) No. 2 of the German Civil Code (BGB) – constructions (Bauwerke), construction materials and construction components as well as planning services for a construction and Sections 438 (3), 634a (3) of the German Civil Code (BGB) – fraudulent concealment remain unaffected. If the ultimate contract in the supply chain pertains to a sale of consumer goods according to § 474 of the German Civil Code (BGB) (i.e. if the goods are ultimately delivered to a consumer), the limitation periods stipulated in § 445b of the German Civil Code (BGB) remain unaffected, too.
- (3) The limitation periods resulting from Articles 11 (1) and 11 (2) for claims due to defects in quality and title apply mutatis mutandis to competing contractual or non-contractual claims for damages of the Purchaser which are based on a defect to the contractual goods. If, however, in an individual case the application of the statutory limitation rules lead to an earlier statutory limitation of the competing claims, the statutory period of limitation applies to the competing claims. In any case, the statutory periods of limitation pursuant to the German Product Liability Act remain unaffected.
- (4) Insofar as the limitation period for claims against us is shortened pursuant to Articles 11 (1) to 11 (3), this applies mutatis mutandis to any claims of the Purchaser against our statutory representatives, employees, authorised representatives and vicarious agents which are based on the same legal reason.

13. Right of Withdrawal - Right of Termination

- (1) The Purchaser is only entitled to withdraw from the contract for a breach of duty on our part other than a defect if we can be made responsible for such breach of duty.
- (2) In case a contract for works and services under which we are obliged to bring about a particular result ("Werkvertrag") or a contract for work and services under which we are obliged to supply the Purchaser with movable things to be produced or manufactured ("Werklieferungsvertrag") has been agreed upon, the Purchaser's right to freely terminate the contract according to Sections 651, 649 of the German Civil Code (BGB) is excluded.

14. Industrial property rights and Copyrights

- (1) Unless provided otherwise, we are required to perform delivery free of third party industrial property rights and/or copyrights (hereinafter referred to as industrial property rights) only in the country in which the place of original delivery is located.
- (2) If a third party raises legitimate claims against the Purchaser for breach of industrial property rights by goods delivered by us and used in accordance with the contract, we are liable vis-à-vis the Purchaser as follows:

We will, at our option and cost, either secure a right of use of the deliveries concerned, or modify them so as to ensure that they will not infringe upon such property rights or exchange such deliveries. In case neither option can be reasonably demanded from us, the Purchaser may cancel the contract or reduce the remuneration pursuant to the statutory provisions and Article 8 of these T&C. Our obligation to pay damages is determined by Article 10 of these T&C, the statute of limitations by Article 11 of these T&C. The above obligations apply to us only provided that the Purchaser has notified us of the claims asserted by third parties immediately in writing.

- (3) Claims by the Purchaser are excluded to the extent he himself is responsible for the infringement of the industrial property right. Claims by the Purchaser are excluded in particular if the infringement of the industrial property right is caused by the Purchaser's special requirements or is caused by a use which we could not foresee or because the delivery is changed by the Purchaser or is used together with products that we did not deliver and if we are not responsible for the infringement.

15. Non-Disclosure

We reserve property rights and copyrights in figures, drawings, calculations and other documents. This also applies to written documents which are marked as "confidential". The Purchaser requires our explicit written consent before passing on such to third parties. Upon request, the Purchaser has to return these documents to us completely, including any copies which may have been made, if they are no longer needed during the ordinary course of business or if negotiations do not lead to the conclusion of a contract.



16. Communication with the Purchaser

- (1) We process personal data, which we collect within the scope of deliveries, services and offers, exclusively in compliance with the applicable data protection law regulations. Information pursuant to Articles 13, 14 of the EU General Data Protection Regulation No. 2016/679 on this processing of personal data can be found at www.jacob-rohre.de/datenschutzhinweis/.
- (2) In the event that personal data is transmitted to us, the Purchaser is obliged to inform the persons concerned in good time about the data processing by us in accordance with Article 14 of the EU General Data Protection Regulation No. 2016/679. We refrain from providing information to the person concerned.

17. Final Provisions

- (1) A transfer of the contractual rights and obligations to third parties by the Purchaser is only admissible with our written approval. This does not apply if the contractual rights and obligations are transferred to an affiliated company within the meaning of Section 15 German Stock Corporation Act (AktG).
- (2) Unless otherwise stated in the order confirmation, place of performance for payments and delivery is Porta Westfalica.
- (3) The law of the Federal Republic of Germany shall apply to the contractual relationship. The application of the UN sales law (CISG - United Nations Convention on Contracts for the International Sale of Goods) is excluded.
- (4) If the Purchaser is a merchant, legal entity under public law or a special fund under public law ("öffentlich-rechtliches Sondervermögen") as defined by German law, the place of jurisdiction for all disputes arising out of the contractual relationship including legal proceedings relating to cheques, bills of exchange and deeds shall be the venue competent at our registered office, Porta Westfalica. We are, however, also entitled to bring legal action against the Purchaser before the court having jurisdiction at its place of residence.
- (5) In case of discrepancies between the German and a translated version of these T&C, the German version always prevails.
- (6) Should any individual provision of these T&C or any individual provision of any other agreement be or become void or illegal, the validity of the remaining provisions or agreements is in no way affected.

We deliver in accordance with our 'General Terms and Conditions of Delivery and Payment'. (Please visit also www.jacob-group.com/uk or also request a copy from us.)

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