



JACOB

NO.1 IN PIPEWORK SYSTEMS

THE CATALOGUE





THE PDF CATALOGUE GIVES YOU A FAST ROUTE...



... to the table of contents

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

... to our products

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

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... backwards and forwards

Navigating the chapters is easy and intuitive.

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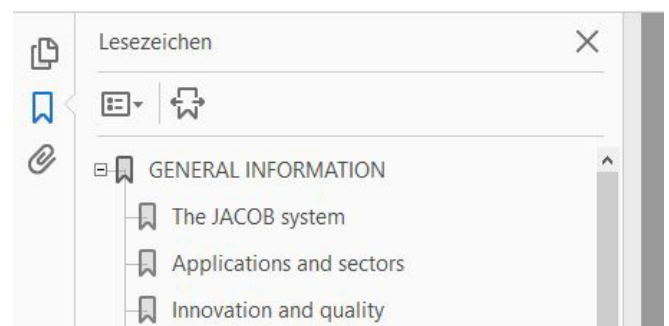
GENERAL INFORMATION

The JACOB system

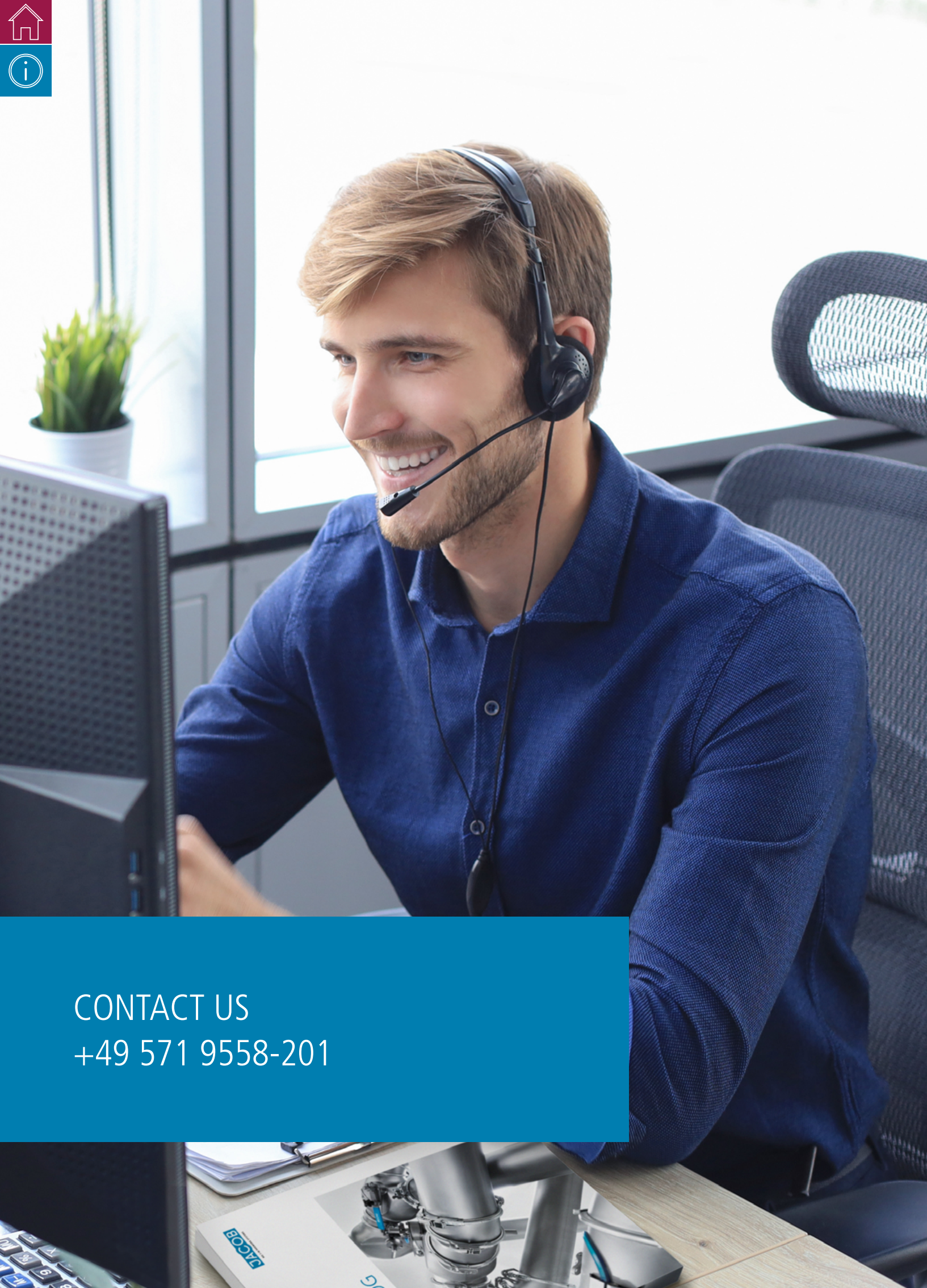


... using bookmarks

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CONTACT US
+49 571 9558-201





EFFICIENT SALES

A warehouse with over 1 million articles ensures that our standard parts are available at any time. Within a very short time if sent by express. Thanks to our ultra-modern production processes, we also manufacture individual parts to your specification. This guarantees great planning and project reliability for your pipework system.



CUSTOMER SERVICE

Do you have any questions about planning your pipework system? Or about the right material to use? Or about the performance of particular components? No matter what you need before, during and after the purchase of a JACOB pipework system – our customer service is always on hand to help you!



A DIRECT PERSONAL LINK

Our team is available to give you their personal attention. Please don't hesitate to call us if you have any questions, criticisms or suggestions which you would like to share with us, or if you need support or would like to place an order – we will be pleased to assist you in person.



FACEBOOK

Stay up to date: Our Facebook page informs you regularly about news, trade fair appearances and much more. It's also an uncomplicated way to get in touch with us. We look forward to your posts!



YOUTUBE CHANNEL

On JACOB's YouTube channel you will find numerous videos about our products and innovations from our company. Our explanatory videos inform you quickly and easily about how our modular pipework system works and what advantages our products have.



THE INFORMATIVE WEBSITE

It's worth a visit: Have a look at our website. No matter whether you want to find out what's new or are looking for technical background information about JACOB products – you will find what you are looking for on www.jacob-group.com



THE WHOLE WORLD

JACOB is proud to have such a big global team behind it. With our subsidiaries and reps, we are on the ground worldwide and so are just as globally present as you are.



NO.1 IN PIPEWORK SYSTEMS



Order number key



Worldwide presence



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THERE ARE THREE FACTORS WHICH ARE
DECISIVE FOR JACOB'S SUCCESS:
INNOVATION – QUALITY – SERVICE

DEAR CUSTOMERS AND PARTNERS,

Since Friedrich Jacob founded our factory over 95 years ago, the company has stood for great products and a dedicated workforce. We are rightly proud of this. Today, there are three factors which are still decisive for JACOB's success: Innovation – Quality – Service.

It was on the basis of an **innovation** that JACOB was founded in the first place. The idea was to no longer manufacture pipework on an individual basis, but to mass-produce components to form a modular system. Even today, the company is shaped by innovations: These range from fast and reliable connections with QUICK CONNECT, hygienic transport with FOOD GRADE and reliable protection from contamination through DETECTABLE DESIGN – the advances we make are for the benefit of our customers. And we have plenty of other ideas as well!

For us, **quality** means first and foremost the quality of our products. Using the most modern production methods and perfectly coordinated materials, we ensure that our pipework systems do exactly what the name JACOB suggests. But quality for us also means the pragmatism and dependability that comes with a family run enterprise.

Our service means that we are always there for our customers. We want to make our products as accessible and easy to handle as possible – from placing an order to servicing them. One example of this is our online shop. This not only offers all the features of a modern e-commerce shop but also has numerous convenience features that are tailored to your needs and simplify and speed up your order. Another example is our logistics centre which makes us even faster and more reliable than ever. Service for us also means being there on the ground wherever our customers need us. We are therefore have 40 agencies and five subsidiaries all over the world.

JACOB would be pleased to support you with your projects. No matter whether you order from this catalogue or from our online shop (www.jacob-shop.com): JACOB is and remains your dependable partner.



Patrick Jacob



Klaudine Gericke



JACOB – WHEN INNOVATION, QUALITY
AND SERVICE RESULT IN PERFECTION



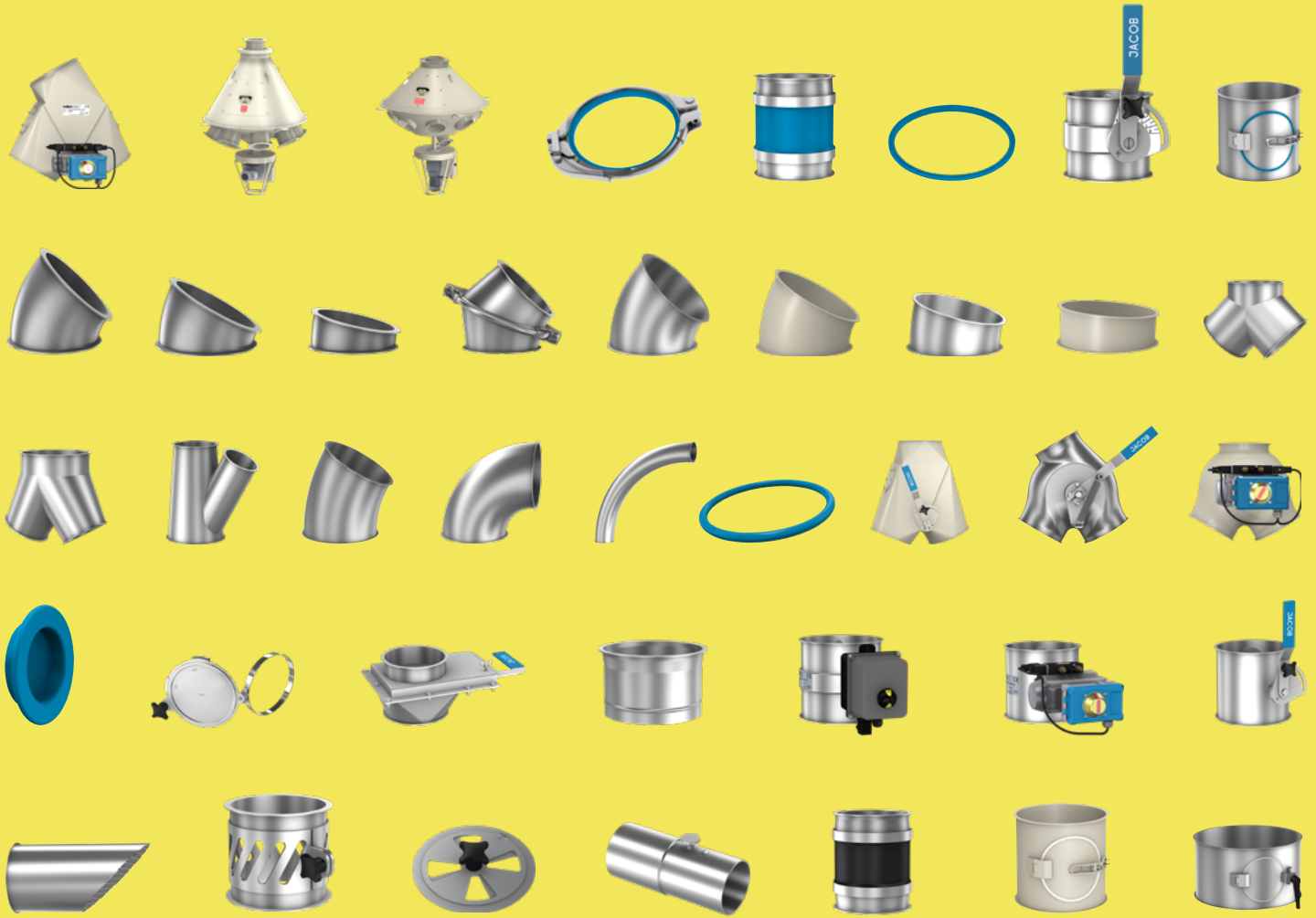
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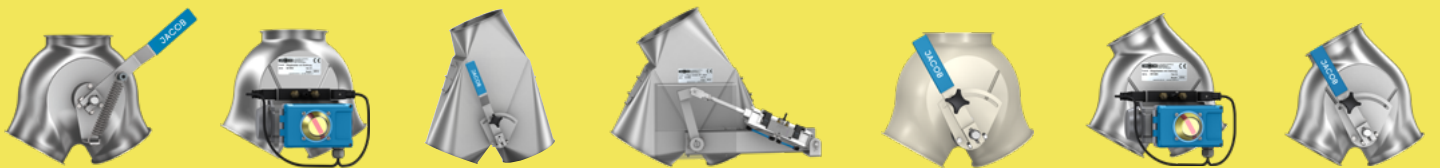
GENERAL INFORMATION

The JACOB system



JACOB DIVERSITY

- Over 8,500 unique standard products
- Diameter 60 – 1600 mm
- Wall thicknesses from 1 to 3 mm
- Stainless steel: shotblasted
- Mild steel: powder-coated or hot-dip galvanised







GENERAL INFORMATION

The JACOB system



Explanatory video
modular
pipework system

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 more than 95 years' experience. International customer support, excellent service and round-the-clock availability. The result is perfect modular pipe systems and satisfied customers throughout the world.

THE DIFFERENCE

Other pipe systems are specially produced for a 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.

THE PRINCIPLE

The pipe components have a machine-lipped end turned out at right angles. The U-shaped seal is fitted over one of these lipped ends. A pull-ring is used to join the two pipe components together. This is either attached with two bolts or – if a QUICK CONNECT pull-ring is used – in one easy movement. 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 pipe 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.



THE DIVERSITY

JACOB components can be used to configure even the most complex pipe systems. Our range of products comprises of 8,500 standardised parts. And if that's not enough, we are pleased to manufacture customised parts for you, which will allow you, for example, to connect our pipe system to your existing systems and machines.

FLEXIBILITY AND INSTALLATION-FRIENDLY

Our pipe system guarantees the utmost flexibility due to its modular design. Existing systems can be freely expanded and modified.

Our pull-ring system can be assembled and dismantled in a matter of seconds. This reduces downtime, saves assembly costs and enables your installations to be cleaned efficiently.

DELIVERY CAPABILITY

We currently store over 1,000,000 parts in our logistics centre. We have additional warehouses at our subsidiary companies and agencies and so offer you fast availability of € 15,000,000 worth of parts throughout the world. Pipe diameters of up to DN 400 mm can normally be dispatched straight from our logistics centre in Porta Westfalica.

QUALITY

We offer you a pipe 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 invest continually in new production technologies, machinery and processes to expand our quality leadership on an ongoing basis.



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 appreciated in the following sectors due to their high quality, tightness and their flexibility:

CONVEYING BULK GOODS

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

DUST EXTRACTION AND EXHAUST AIR

Metal-working	Food, beverage and tobacco	Chemicals, pharmaceuticals, plastics
Degreasing systems	Dusts	Dusts
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
Plastic	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

Foreign particles in a product are not acceptable in many sectors. 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 factor.



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](#).



TOUGH PERFORMERS – 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](#).

NEW!
PIPEWORK IN 1/1.5 MM
WALL THICKNESS NOW
ALSO SHOCK EXPLOSION
PROOF TO 1 BAR

EXPLOSION PROTECTION AND ELECTROSTATIC CONTINUITY

JACOB pipework systems, if configured accordingly, are shock explosion proof to 1 bar, 3 bar and 10 bar. 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



JACOB
www.jacob-pipe.com

SEARCH Knowledge

APPLICATIONS PRODUCTS COMPANY DOWNLOADS

NO. 1 IN PIPEWORK SYSTEMS

JACOB - WHEN INNOVATION, QUALITY AND SERVICE RESULT IN PERFECTION

LEARN MORE ABOUT THE JACOB SYSTEM



JACOB pipe systems – Leading the way in bulk goods handling, dust-extraction and ventilation

JACOB is No. 1 for modular pipework systems in Europe. Conveying pipe systems for bulk goods handling, as well as dust extraction and ventilation systems for environmental applications (cooling air/exhaust air) all fall within the large scope of JACOB pipe systems. Whether with our modular series-manufactured products or individual custom-specific products – JACOB offers solutions for numerous areas of application.

There is a system behind what JACOB does: top quality standards, an outstanding innovation spirit and an unsurpassable choice of materials. Profound



JACOB website

WEBSITE: WWW.JACOB-GROUP.COM

Information

Relevant information about our products, applications and our company is right at your fingertips thanks to the intuitive design of our website.

Downloads

Download all the documents that are important for your project in the downloads section.

You will find them all here – from catalogues and product brochures to dimension sheets and CAD models for our products. Our CAD library download module has been completely redesigned to make it easy to find STP files and compile them individually for your project.

Knowledge

Go to the FAQ section to find answers to all types of questions about orders, deliveries and invoices. You will also find answers to technical questions, such as about resistance to pressure shocks, leakage and other conditions.

www.jacob-group.com



GENERAL INFORMATION

Materials and finishing





MATERIALS

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

Pipework and press-formed components in mild steel

Mainly the following materials:

- DD11 (1.0332) to DIN EN 10111
- DD13 (1.0335) to DIN EN 10111
- DC01 (1.0330) to DIN EN 10130
- DC04 (1.0338) to DIN EN 10130

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

Flanges and mounting brackets in structural grade carbon steel

S235JR (1.0038) to DIN EN 10025-2

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

Pipework and press-formed components in stainless steel

Suitable for moderate to medium 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, A 666
- 1.4307 (X2CrNi18-9), AISI 304L, ASTM A240, A480, A 666

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.

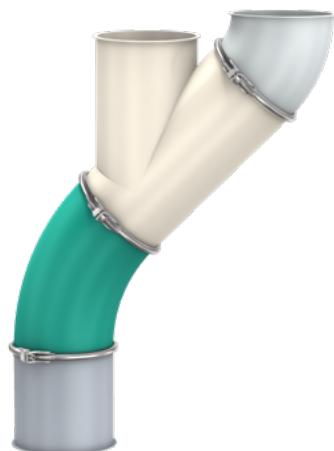
Available on request

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

Primarily for use 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 time on request. Other materials that are not explicitly mentioned can also be offered after examining their processability.



FINISHING

To prevent damage due to corrosion in mild steels, our components are protected to enable them to withstand the general ambient conditions. JACOB has different product groups to offer for this purpose for the stainless 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 – 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 pipework > DN 630 mm
- Inner and outer priming
- Coating thickness: average layer thickness 45 µm
- Colour similar to RAL 7032 (pebble grey)
- Inside and outside optically covered as temporary corrosion protection

More colours:

- Choose from more than 3,000 colour and effect variations
- Final outside painting of pipe components and pressed components in a coating thickness of approx. 80 µm

Options:

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



Costs:

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

- 1 and 1.5 mm pipework: 16%
- 2 mm pipework: 12%
- 3 mm pipework: 10%

Extra costs for special colour or quality outside paint topcoat > DN 630 mm on request.

Minimum price for final paint topcoat €60.00 (fixed price), extra cost for shut-off valves, distributors and two-way valves:

DN	Shut-off valves, two-way distributors/ two-way valves, non-return valves	Pipe regulators, Outlet gates
	€	€
60 to 175	19.40	33.50
200 to 300	25.10	38.30
350 to 400	30.40	44.10
from 450 upwards	38.30	52.50

Corrosion protection through hot-dip galvanisation

- Pipe components described as “galvanised” are all hot-dip galvanised
- Hot-dip galvanising to DIN EN ISO 1461
- Average layer thickness (minimum values) depends 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 galvanisation, irregularities may occur in the colour and structure of the surface

Corrosion protection through electro galvanisation

- E.g. for pull-rings, air regulators, ball joints and other accessories
- 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 its top quality. We have the right type of connection in our range for virtually all applications involving bulk goods conveying, air and dust exhaust extraction, and low-pressure conveying: from the JACOB pull-ring system and loose flange system to welded-on flanged pipework.

Nominal diameters and dimensions are given in millimetres.

Inside diameter The JACOB pull-ring system



DN (mm)	ND (inch)	Ø d with a wall thickness of				Lip width 6 mm	QUICK CONNECT pull-ring	Pull-ring without sealant	Pull-ring with sealant	Pull ring one-part 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	■	■	■	■	
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:

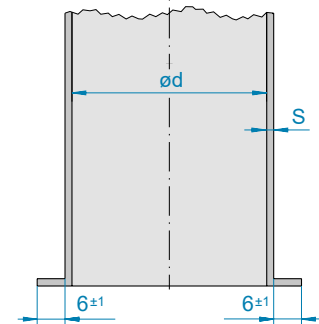
- Pipe diameter and roundness – DIN EN 10296-1
- Lengths and angles – DIN ISO 2768-1 – tolerance class V
- Exception: Pipe bends, segments and spouts with a gradient, angle tolerance $\pm 1^\circ$
- The wall thickness of drawn or ground partial areas may differ
- JACOB flanges similar to DIN 24154-2 (see chapter 11, page 227, for JACOB flange dimensions)
- Internal diameter ($\varnothing d$) differs for certain products

The JACOB flange system

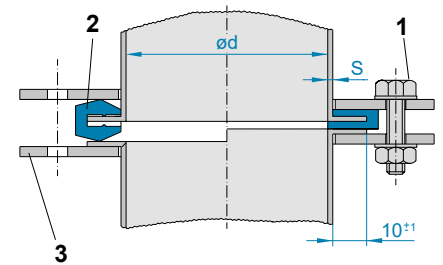


DN (mm)	ND (inch)	Lip width		Loose flange	Welded flange	10 bar shock explosion proof
		6 mm	10 mm			
60	2¼	■		□	□	
80	3	■		□	□	■
100	4	■		□	□	■
120	5	■		□	□	■
140	5½	■		□	□	
150	6	■		□	□	■
175	7	■		□	□	■
200	8	■		□	□	■
224	9	■		□	□	
250	10	■		□	□	■
280	11	■		□	□	
300	12	■		□	□	■
315	12½	■		□	□	□
350	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 a 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 227, for dimensions)

S = Wall thickness
 Ød = Internal diameter



GENERAL INFORMATION
History and international





OUR FAMILY-OWNED ENTERPRISE

Our business has been in the family since it was founded in 1924. This makes JACOB particularly flexible and so is able to work in partnership and react fast to customers' needs and the demands of the market. Our company stands out with its clear values and sense of responsibility. We are conscious of the fact that JACOB owes its existence and success to its workforce. This is why we are committed to all the people who work at JACOB, in the same way that they are dedicated to the company.

OUR HISTORY

Even in the nineteen-fifties, JACOB turned its focus to the manufacture of pipework systems and developed a modular system which is distinguished by its connections using flanged lips, U-shaped seals and pull-rings. We have continued to perfect this principle right up to today and have become market leaders in our industry.

OUR EXPERTISE

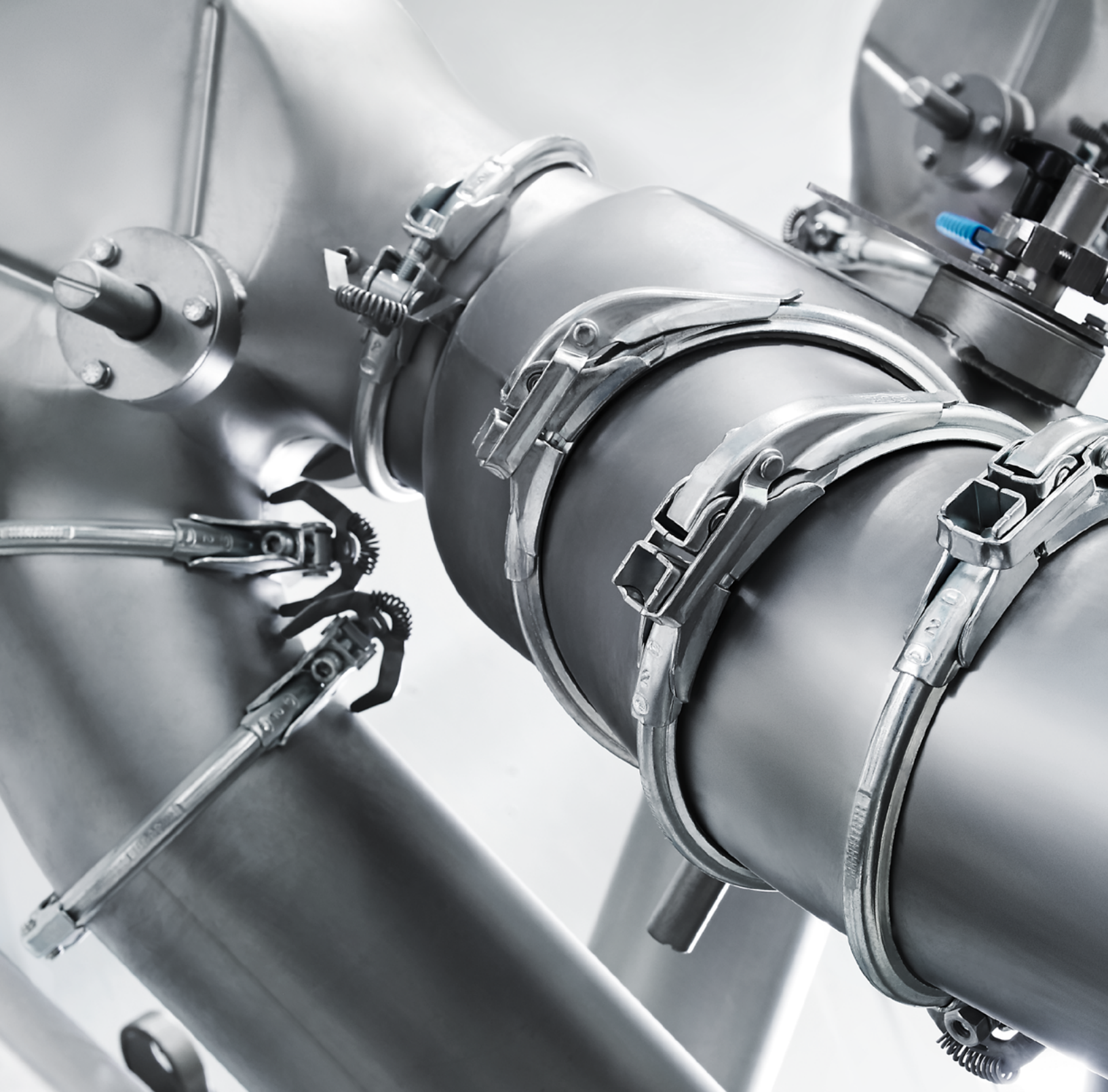
The secret of JACOB's exceptional quality lies in our expertise, which we have built up over more than 65 years' experience with modular pipework systems. JACOB has a large number of in-house developed and self-built tools for accurately producing pressed components, such as drawn bends, valves and pull-rings. Added to this, we have designed and built our own machines for the lip flanging process and high-performance automated manufacturing. In tandem with our innovative development department, we are therefore able to guarantee flawless engineering and a consistently high standard of quality.



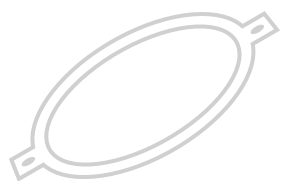
THE WHOLE WORLD

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.





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



THE PULL-RING SYSTEM


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Explanatory video

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	■	■	■	■
175	■	■	■	■
200	■	■	■	■
224	■	■	■	
250	■	■	■	
280	■	■	■	
300	■	■	■	
315	■	■	■	
350	■	■	■	
400	■	■	■	
450	□	□	■	
500		□	■	
560		□	■	
630		□	■	

1) Use in conjunction with U-shaped gasket

■ Standard

□ Optional, use depends on application

Pull-rings made of mild steel are electro-galvanised in the standard quality. 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 gasket

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 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 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 through an ideal 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	FOOD GRADE: EC 1935/2004 plus FDA	FDA	FOOD GRADE: EC 1935/2004 plus 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

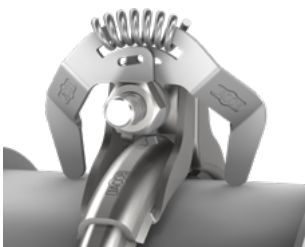
Refer to the technical information at the beginning of this chapter and in the installation instructions (see next page) for more details. The temperatures given indicate the permanent temperature resistance. U-shaped seals must be tested by the user to ensure they are sufficiently resistant to the working conditions. 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 continuity.

Suitable for retrofitting to our pull-ring system without welding and 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.

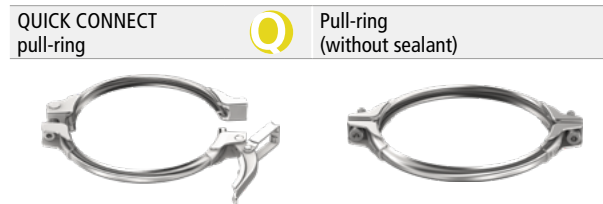
To meet the different requirements of every system, JACOB offers a comprehensive and wide-ranging standard range which covers most requirements.

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 29 for more technical information on pull-rings.

Pull-rings



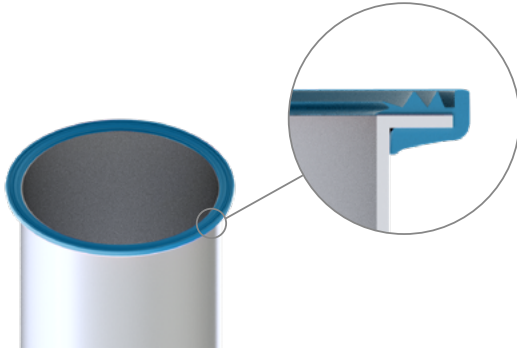
Refer to page 28 for more technical information on pull-rings.

GENERAL INSTALLATION INFORMATION ON CREATING LEAK-PROOF CONNECTIONS

- Repair damaged lipped ends (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 roughly every 4 metres. If there are several short pipe components in the pipeline, the interval between supports should be reduced
- Attach branch pipes so that they do not generate any tension 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

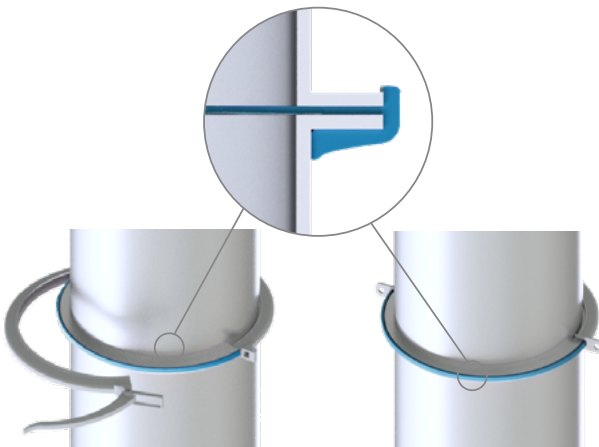
Note: To connect JACOB pipe components with a 6 mm lip. A U-shaped seal and a pull-ring are needed for each connection. You need a 6 mm hexagon cap screwdriver to mount the pull-rings.



Step 1

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

- The U-shaped seal must be slightly stretched to enable it to be attached
- The profiled side must face the pipe component that is being connected



Step 2

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

QUICK CONNECT pull-ring

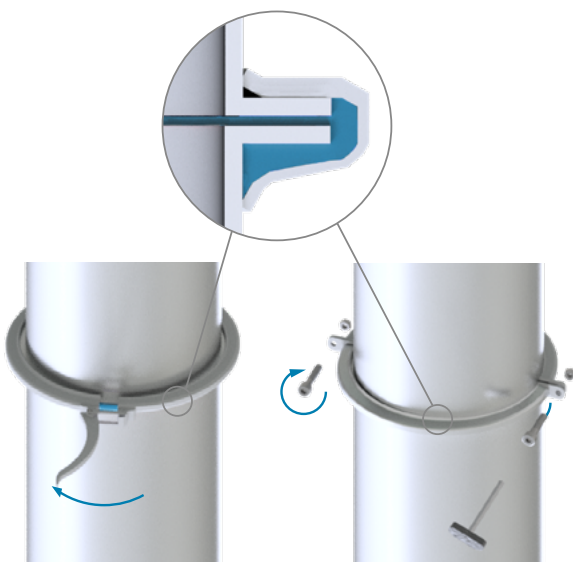
First, attach the pull-ring half without the toggle clip

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 is 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 on top, and the connecting points of the pull-ring halves are 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.

N.B.:

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 (such as due to vibration) tighten the bolt with a 10 Nm torque on the mounting face

Two-part pull-ring

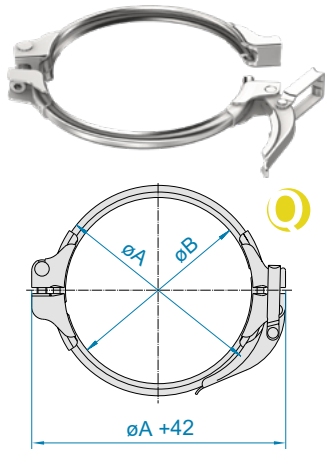
- Tighten the bolts evenly with a torque of 10 Nm

N.B.: 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 connection of up to 3 bar over-pressure.



THE PULL-RING SYSTEM

Pull-rings



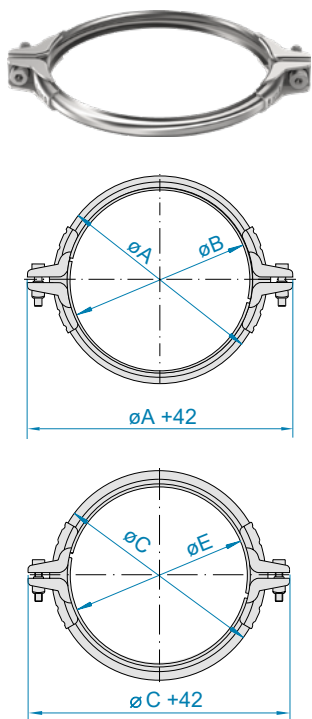
QUICK CONNECT PULL-RINGS

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	9,70	12083903	21,60
100	123	103	0.37	12102903	9,70	12103903	21,60
120	143	123	0.40	12122903	10,00	12123903	22,30
140	159	139	0.45	12142903	10,20	12143903	23,10
150	173	153	0.47	12152903	10,20	12153903	23,10
175	198	178	0.49	12172903	10,90	12173903	23,70
200	223	203	0.51	12202903	11,60	12203903	24,60
224	243	223	0.55	12222903	14,40	12223903	27,90
250	273	253	0.58	12252903	14,40	12253903	27,90
280	301	281	0.61	12282903	15,80	12283903	29,10
300	323	303	0.62	12302903	15,80	12303903	29,10
315	336	316	0.63	12312903	19,60	12313903	35,50
350	373	353	0.68	12352903	23,30	12353903	40,70
400	423	403	0.74	12402903	29,20	12403903	51,70
450	472	450	0.79	12452903	36,30	12453903	61,40



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 pipe-work 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

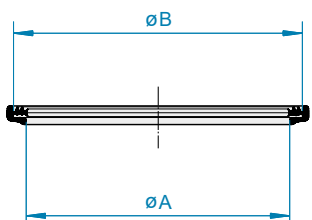
Pull-rings for 3 mm wall thickness

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	7,40	12063383	20,90						
80	101	80	0.31	12082383	7,40	12083383	20,90						
100	125	104	0.33	12102383	7,40	12103383	20,90						
120	145	124	0.36	12122383	7,60	12123383	21,50	151	126	12122926	7,80	12123926	22,20
140	161	140	0.37	12142383	8,50	12143383	22,80						
150	175	154	0.39	12152383	8,50	12153383	22,80	181	156	12152926	8,70	12153926	23,40
175	200	179	0.42	12172383	10,20	12173383	24,70	206	181	12172926	10,40	12173926	25,50
200	225	204	0.45	12202383	11,00	12203383	25,70	231	206	12202926	11,50	12203926	26,40
224	245	224	0.47	12222383	11,60	12223383	28,50						
250	275	254	0.51	12252383	11,60	12253383	28,50	281	256	12252926	12,00	12253926	29,70
280	302	281	0.55	12282383	14,50	12283383	33,00						
300	325	304	0.57	12302383	14,50	12303383	33,00	331	306	12302926	14,90	12303926	33,90
315	337	316	0.58	12312383	16,10	12313383	33,70						
350	375	354	0.63	12352383	17,00	12353383	34,40	381	356	12352926	17,50	12353926	35,60
400	425	404	0.68	12402383	19,50	12403383	35,60	431	406	12402926	19,80	12403926	36,70
450	478	450	0.73	12452383	23,70	12453383	38,70						
500	524	500	0.78	12502383	28,00	12503383	40,30						
560	586	560	0.83	12562383	32,90	12563383	42,60						
630	656	632	0.90	12632383	37,40	12633383	45,00						

QUICK CONNECT

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 pipe-work 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 is recommended for a 2 mm pipework system
- 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	Ø A	Ø B	NBR grey		Silicone beige F		Silicone blue F D		EPDM black		FKM reddish brown F	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	69	100669517	1,50	1006795109	2,50	10067951091	4,50	1006895159	2,50	100699519	9,20
80	81	93	100869517	1,60	1008795109	2,70	10087951091	4,80	1008895159	2,70	100899519	9,80
100	103	115	101069517	1,90	1010795109	2,80	10107951091	5,30	1010895159	2,80	101099519	11,30
120	123	135	101269517	2,00	1012795109	2,90	10127951091	5,70	1012895159	2,90	101299519	12,40
140	139	151	101469517	2,10	1014795109	3,10	10147951091	6,20	1014895159	3,10	101499519	13,90
150	153	165	101569517	2,10	1015795109	3,10	10157951091	6,50	1015895159	3,10	101599519	14,40
175	178	190	101769517	2,30	1017795109	3,40	10177951091	7,20	1017895159	3,40	101799519	14,90
200	203	215	102069517	2,70	1020795109	3,50	10207951091	7,60	1020895159	3,50	102099519	16,20
224	223	235	102269517	2,90	1022795109	4,00	10227951091	8,10	1022895159	4,00	102299519	19,50
250	253	265	102569517	2,90	1025795109	4,00	10257951091	8,60	1025895159	4,00	102599519	21,40
280	280	292	102869517	3,00	1028795109	4,40	10287951091	9,30	1028895159	4,40	102899519	23,40
300	303	315	103069517	3,10	1030795109	4,40	10307951091	9,80	1030895159	4,40	103099519	24,80
315	315	327	103169517	3,20	1031795109	4,80	10317951091	10,00	1031895159	4,80	103199519	26,00
350	353	365	103569517	3,50	1035795109	4,80	10357951091	10,90	1035895159	4,80	103599519	28,40
400	403	415	104069517	4,00	1040795109	5,50	10407951091	12,00	1040895159	5,50	104099519	31,60
450	450	470	104569517	4,60	1045795109	6,50	10457951091	13,00	1045895159	6,50	104599519	35,10
500	500	516	105069517	5,50	1050795109	6,90	10507951091	14,30	1050895159	6,90	105099519	38,60
560	560	578	105669517	6,60	1056795109	7,60	10567951091	15,90	1056895159	7,60	105699519	42,60
630	632	648	106369517	7,00	1063795109	8,70	10637951091	16,40	1063895159	8,70	106399519	47,80

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

DN	Ø A	Ø B	NBR grey		Silicone beige F		Silicone blue F D		EPDM black		FKM reddish brown F	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	81	93	100869527	1,60	1008795209	2,70	10087952091	4,80	1008895259	2,70	100893869	9,80
100	103	115	101069527	1,90	1010795209	2,80	10107952091	5,30	1010895259	2,80	101093869	11,30
120	123	135	101269527	2,00	1012795209	2,90	10127952091	5,70	1012895259	2,90	101293869	12,40
140	139	151	101469527	2,10	1014795209	3,10	10147952091	6,20	1014895259	3,10	101493869	13,90
150	153	165	101569527	2,10	1015795209	3,10	10157952091	6,50	1015895259	3,10	101593869	14,40
175	178	190	101769527	2,30	1017795209	3,40	10177952091	7,20	1017895259	3,40	101793869	14,90
200	203	215	102069527	2,70	1020795209	3,50	10207952091	7,60	1020895259	3,50	102093869	16,20
224	223	235	102269527	2,90	1022795209	4,00	10227952091	8,10	1022895259	4,00	102293869	19,50
250	253	265	102569527	2,90	1025795209	4,00	10257952091	8,60	1025895259	4,00	102593869	21,40
280	280	292	102869527	3,00	1028795209	4,40	10287952091	9,30	1028895259	4,40	102893869	23,40
300	303	315	103069527	3,10	1030795209	4,40	10307952091	9,80	1030895259	4,40	103093869	24,80
315	315	327	103169527	3,20	1031795209	4,80	10317952091	10,00	1031895259	4,80	103193869	26,00
350	353	365	103569527	3,50	1035795209	4,80	10357952091	10,90	1035895259	4,80	103593869	28,40
400	403	415	104069527	4,00	1040795209	5,50	10407952091	12,00	1040895259	5,50	104093869	31,60
450	450	470	104569527	4,60	1045795209	6,50	10457952091	13,00	1045895259	6,50	104593869	35,10
500	500	516	105069527	5,50	1050795209	6,90	10507952091	14,30	1050895259	6,90	105093869	38,60
560	560	578	105669527	6,60	1056795209	7,60	10567952091	15,90	1056895259	7,60	105693869	42,60
630	632	648	106369527	7,00	1063795209	8,70	10637952091	16,40	1063895259	8,70	106393869	47,80

VULCANISED AND MORE TEAR-RESISTANT QUALITY.

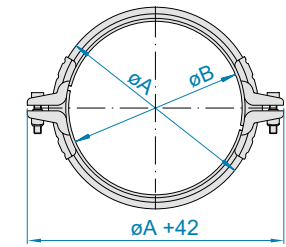
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

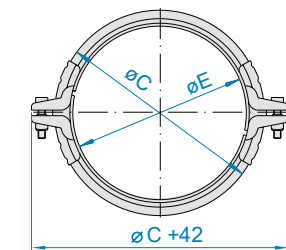


THE PULL-RING SYSTEM

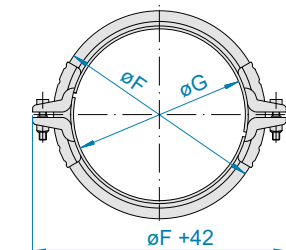
Pull-rings with mastic sealant



for 1 mm



for 2 mm



for 3 mm

PULL-RING WITH SEALANT

3050

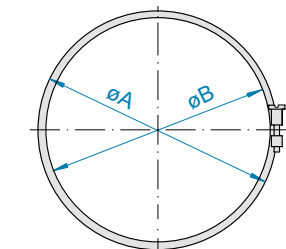
- All versions electro-galvanised
- Pull-rings for 1 mm also suitable for connecting 1 mm to 1.5 mm or 2 mm thick pipe components
- Pull-rings for 2 mm also suitable for connecting 2 mm to 1.5 mm thick pipe components
- In larger diameters, pull-rings for 3 mm are used for all wall thicknesses

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	6,20	100	80	11082382	6,30				
100	121	102	0.26	11102381	6,20	123	103	11102382	6,30				
120	141	122	0.28	11122381	6,90	143	123	11122382	7,40	145	124	11122383	8,10
140	157	138	0.30	11142381	7,40	159	139	11142382	8,10				
150	171	152	0.33	11152381	7,40	173	153	11152382	8,10	175	154	11152383	9,10
175			0.34	11172382	8,60	198	178	11172382	8,60	200	179	11172383	10,90
200			0.38	11202382	9,10	223	203	11202382	9,10	225	204	11202383	11,70
224			0.40	11222382	9,40	243	223	11222382	9,40	244	223	11222383	12,30
250			0.42	11252382	10,00	275	254	11252382	10,00	275	254	11252383	12,30
280			0.47	11282382	11,90	302	281	11282382	11,90				
300			0.50	11302382	11,90	325	304	11302382	11,90	325	304	11302383	16,20
315			0.53	11312383	16,60	337	316	11312383	16,60				
350			0.68	11352383	17,70			11352383	17,70	375	354	11352383	17,70
400			0.75	11402383	20,60			11402383	20,60	423	402	11402383	20,60
450			0.81	11452383	24,10			11452383	24,10	473	452	11452383	24,10
500			0.88	11502383	27,80			11502383	27,80	523	502	11502383	27,80
560			0.95					11562383	32,90	583	562	11562383	32,90
630			1.05					11632383	37,50	653	632	11632383	37,50

ONE-PART PULL-RINGS WITH SEALANT

3055



Product similar to picture

- All versions 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	5,60
100	119	102	0.05	11102372	5,60
120	139	122	0.06	11122372	5,90
150	169	152	0.07	11152372	6,50
175	194	177	0.08	11172372	6,90
200	219	202	0.09	11202372	7,90



EARTHING BRIDGES WITHOUT CONTACT CAPS

1400

- Engineered by JACOB for electrostatic continuity
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 32 and 34)
- 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	35,00



EARTHING BRIDGES WITH CONTACT CAPS

- Engineered by JACOB for electrostatic continuity
- Patented and tested
- Recommended in conjunction with the two-part pull-ring with or without sealant (pages 32 and 34)
- 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	41,00



ALLEN KEYS

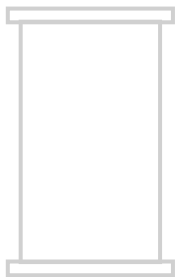
4030

- 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	3,70
Size 6 for two-part pull-rings	10002362	4,00



JACOB PIPES – THE SOUND BASIS
FOR YOUR PIPEWORK SYSTEM



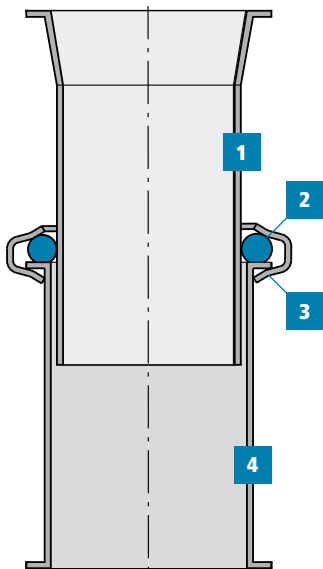
PIPES

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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 20 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 before or the pipe after the push-in pipe. In vertical pipework, the pipe under the push-in pipe must be supported. Use 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
(cf. chapter 2)
- 4 Straight pipe



Push-in pipe installation instructions



RING SEALS FOR PUSH-IN PIPES

- Tear-resistant, 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)	F
grey white	beige		blue		black	red	
EC 1935/2004	FOOD GRADE: EC 1935/2004 plus FDA		FOOD GRADE: EC 1935/2004 plus FDA		FDA	FOOD GRADE: EC 1935/2004 plus 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		vulcanised	vulcanised	
			metal-detectable		electrostatically conductive		



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.

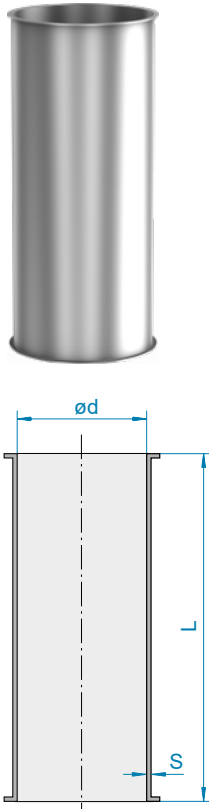
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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 colours available on request
- Lengths of 2 m up to 12 m available on request



PIPES 2000 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	1984	4.30	11061010*	23,80				
80	76	1984	7.80	11081010	24,20	12081010	41,80		
100	99	1984	10.15	11101010	24,70	12101010	42,80		
120	119	1984	11.85	11121010	27,90	12121010	45,60	13121010	63,10
140	135	1984	13.15	11141010	33,40	12141010	52,70		
150	149	1984	15.05	11151010	32,90	12151010	51,90	13151010	74,90
175	174	1984	17.25	11171010	38,00	12171010	59,20	13171010	86,30
200	199	1984	19.25	11201010	42,30	12201010	65,90	13201010	96,80
224	219	1984	21.65	11221010	49,90	12221010	70,90		
250	249	1984	24.45	11251010	49,90	12251010	70,90	13251010	114,00
280	278	1984	27.40	11281010	57,00				
300	299	1984	29.05	11301010	57,00	12301010	84,60	13301010	134,00
315	313	1984	31.00	11311010	65,70				
350	349	1984	34.50	11351010	71,20	12351010	109,00	13351010	153,00
400	398	1984	39.40	11401010	103,00	12401010	153,00	13401010	200,50
450	448	1984	44.30	11451010	121,50	12451010	201,50	13451010	249,00
500	498	1984	49.30	11501010	129,50	12501010	219,50	13501010	282,00
560	558	1984	56.20			12561010	243,50	13561010	322,50
630	628	1988	64.00			12631010	276,00	13631010	362,50


*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*	34,40			11063010*	76,10		
80	76	1984	7.80	11082010	35,00	12082010	59,70	11083010	91,20		
100	99	1984	10.15	11102010	35,40	12102010	60,50	11103010	91,90	12103010	152,00
120	119	1984	11.85	11122010	39,50	12122010	67,40	11123010	104,50	12123010	175,50
140	135	1984	13.15	11142010	47,00	12142010	81,20	11143010	121,50		
150	149	1984	15.05	11152010	46,60	12152010	79,90	11153010	121,50	12153010	207,50
175	174	1984	17.25	11172010	54,60	12172010	94,20	11173010	133,50	12173010	231,00
200	199	1984	19.25	11202010	62,90	12202010	107,50	11203010	148,00	12203010	275,00
224	219	1984	21.65	11222010	69,30	12222010	118,50	11223010	164,00		
250	249	1984	24.45	11252010	69,30	12252010	118,50	11253010	164,00	12253010	314,50
280	278	1984	27.40	11282010	82,60			11283010	199,50		
300	299	1984	29.05	11302010	82,60	12302010	142,00	11303010	199,50	12303010	368,50
315	313	1984	31.00	11312010	94,70			11313010	212,50		
350	349	1984	34.50	11352010	101,50			11353010	218,00	12353010	390,00
400	398	1984	39.40	11402010	134,00			11403010	275,50	12403010	452,00
450	448	1984	44.30	11452010	156,50			11453010	322,50	12453010	503,00
500	498	1984	49.30	11502010	173,50			11503010	377,00	12503010	596,00
560	558	1984	56.20			12562010	381,50			12563010	638,50
630	628	1988	64.00			12632010	428,50			12633010	698,00

*1.5 mm

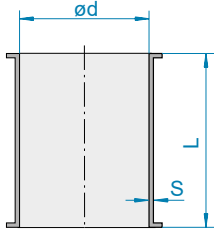
 FOOD GRADE
EG/EC 1935/2004 plus FDA

 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*	15,10				
80	76	984	3.80	11081020	15,30	12081020	21,40		
100	99	984	4.95	11101020	15,50	12101020	21,70		
120	119	984	5.85	11121020	17,60	12121020	23,90	13121020	35,40
140	135	984	6.55	11141020	21,50	12141020	30,90		
150	149	984	7.25	11151020	21,20	12151020	30,30	13151020	43,60
175	174	984	8.55	11171020	22,90	12171020	31,90	13171020	47,50
200	199	984	9.45	11201020	25,90	12201020	35,10	13201020	53,60
224	219	984	10.75	11221020	28,50	12221020	38,90		
250	249	984	12.05	11251020	28,50	12251020	38,90	13251020	64,80
280	278	984	13.70	11281020	31,00				
300	299	984	14.25	11301020	31,00	12301020	43,80	13301020	70,60
315	313	984	14.40	11311020	37,10				
350	349	984	16.55	11351020	42,20	12351020	56,00	13351020	78,80
400	398	984	18.95	11401020	50,60	12401020	78,60	13401020	103,00
450	448	984	21.65	11451020	60,60	12451020	103,00	13451020	129,50
500	498	984	24.60	11501020	65,20	12501020	117,50	13501020	147,00
560	558	984	28.10			12561020	126,00	13561020	168,50
630	628	984	29.85			12631020	143,50	13631020	189,50


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

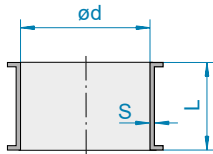
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	984	2.10	11062020*	20,50			11063020*	43,20		
80	76	984	3.80	11082020	21,00	12082020	32,10	11083020	48,60		
100	99	984	4.95	11102020	21,10	12102020	32,50	11103020	48,90	12103020	78,70
120	119	984	5.85	11122020	21,70	12122020	33,50	11123020	55,10	12123020	93,00
140	135	984	6.55	11142020	25,60	12142020	39,30	11143020	63,80		
150	149	984	7.25	11152020	25,40	12152020	38,70	11153020	63,80	12153020	108,50
175	174	984	8.55	11172020	33,40	12172020	51,50	11173020	71,10	12173020	126,50
200	199	984	9.45	11202020	36,80	12202020	56,60	11203020	78,00	12203020	143,50
224	219	984	10.75	11222020	38,00	12222020	58,70	11223020	90,20		
250	249	984	12.05	11252020	38,00	12252020	58,70	11253020	90,20	12253020	163,50
280	278	984	13.70	11282020	44,50			11283020	107,50		
300	299	984	14.25	11302020	44,50	12302020	68,60	11303020	107,50	12303020	191,00
315	313	984	14.40	11312020	53,30			11313020	118,50		
350	349	984	16.55	11352020	58,60			11353020	126,50	12353020	209,00
400	398	984	18.95	11402020	68,50			11403020	163,50	12403020	251,50
450	448	984	21.65	11452020	81,20			11453020	178,00	12453020	270,00
500	498	984	24.60	11502020	90,30			11503020	200,00	12503020	311,50
560	558	984	28.10			12562020	205,00			12563020	354,50
630	628	984	29.85			12632020	220,50			12633020	393,00

*1.5 mm

 FOOD GRADE
EG/EC 1935/2004 plus FDA

 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*	10,20				
80	76	486	1.90	11081030	10,30	12081030	12,00		
100	99	486	2.55	11101030	10,60	12101030	12,30		
120	119	486	2.90	11121030	11,10	12121030	14,30	13121030	21,00
140	135	486	3.25	11141030	13,80	12141030	16,90		
150	149	486	3.65	11151030	13,80	12151030	16,90	13151030	25,70
175	174	486	4.35	11171030	14,60	12171030	19,30	13171030	27,80
200	199	486	4.85	11201030	15,40	12201030	21,50	13201030	31,00
224	219	486	5.30	11221030	15,60	12221030	23,30		
250	249	486	5.95	11251030	15,60	12251030	23,30	13251030	36,10
280	278	486	6.80	11281030	17,60				
300	299	486	7.25	11301030	17,60	12301030	26,40	13301030	39,30
315	313	486	7.70	11311030	21,20				
350	349	486	8.45	11351030	24,60	12351030	31,50	13351030	44,10
400	398	486	9.55	11401030	28,90	12401030	42,20	13401030	56,60
450	448	486	10.75	11451030	34,50	12451030	53,10	13451030	66,90
500	498	486	12.05	11501030	36,30	12501030	61,30	13501030	79,30
560	558	486	14.10			12561030	67,30	13561030	89,40
630	628	486	15.80			12631030	75,80	13631030	101,50


*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*	12,60			11063030*	24,70		
80	76	486	1.90	11082030	12,70	12082030	17,50	11083030	26,10		
100	99	486	2.55	11102030	13,20	12102030	18,00	11103030	26,30	12103030	41,20
120	119	486	2.90	11122030	13,50	12122030	18,50	11123030	30,50	12123030	47,20
140	135	486	3.25	11142030	18,00	12142030	24,60	11143030	34,60		
150	149	486	3.65	11152030	18,00	12152030	24,70	11153030	34,60	12153030	56,20
175	174	486	4.35	11172030	19,90	12172030	27,40	11173030	39,30	12173030	64,50
200	199	486	4.85	11202030	20,50	12202030	32,60	11203030	42,70	12203030	72,20
224	219	486	5.30	11222030	21,10	12222030	33,60	11223030	48,60		
250	249	486	5.95	11252030	21,10	12252030	33,60	11253030	48,60	12253030	86,80
280	278	486	6.80	11282030	25,50			11283030	57,10		
300	299	486	7.25	11302030	25,50	12302030	40,50	11303030	57,10	12303030	98,70
315	313	486	7.70	11312030	30,60			11313030	66,00		
350	349	486	8.45	11352030	32,50			11353030	69,80	12353030	110,50
400	398	486	9.55	11402030	36,90			11403030	96,10	12403030	142,00
450	448	486	10.75	11452030	44,70			11453030	102,00	12453030	163,50
500	498	486	12.05	11502030	47,10			11503030	107,00	12503030	186,50
560	558	486	14.10			12562030	116,50			12563030	217,00
630	628	486	15.80			12632030	128,00			12633030	232,00

*1.5 mm

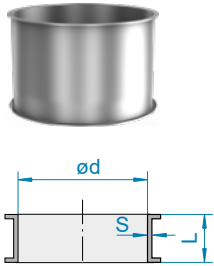
 **FOOD GRADE**
EG/EC 1935/2004 plus FDA

 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*	7,10				
80	76	200	0.70	11081040	7,20	12081040	7,50		
100	99	200	1.00	11101040	7,30	12101040	7,80		
120	119	200	1.20	11121040	7,80	12121040	8,50	13121040	14,10
140	135	200	1.40	11141040	9,00	12141040	10,80		
150	149	200	1.50	11151040	9,00	12151040	10,80	13151040	17,00
175	174	200	1.80	11171040	10,10	12171040	12,10	13171040	18,50
200	199	200	2.05	11201040	10,70	12201040	12,80	13201040	21,60
224	219	200	2.20	11221040	11,00	12221040	13,90		
250	249	200	2.55	11251040	11,00	12251040	13,90	13251040	24,20
280	278	200	2.90	11281040	11,10				
300	299	200	2.95	11301040	11,10	12301040	16,20	13301040	25,70
315	313	200	3.30	11311040	13,60				
350	349	200	3.70	11351040	14,70	12351040	21,10	13351040	30,60
400	398	200	4.10	11401040	17,20	12401040	24,50	13401040	33,40


*1.5 mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

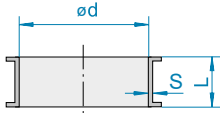
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	200	0.45	11062040*	8,70			11063040*	13,70		
80	76	200	0.70	11082040	8,80	12082040	10,60	11083040	14,80		
100	99	200	1.00	11102040	8,90	12102040	10,70	11103040	14,90	12103040	20,80
120	119	200	1.20	11122040	9,40	12122040	11,20	11123040	16,90	12123040	25,70
140	135	200	1.40	11142040	12,10	12142040	15,80	11143040	20,10		
150	149	200	1.50	11152040	12,10	12152040	16,10	11153040	20,10	12153040	31,00
175	174	200	1.80	11172040	13,30	12172040	17,40	11173040	22,30	12173040	32,80
200	199	200	2.05	11202040	14,10	12202040	18,40	11203040	24,10	12203040	36,40
224	219	200	2.20	11222040	14,50	12222040	19,10	11223040	26,50		
250	249	200	2.55	11252040	14,50	12252040	19,10	11253040	26,50	12253040	43,00
280	278	200	2.90	11282040	16,20			11283040	31,00		
300	299	200	2.95	11302040	16,20	12302040	26,00	11303040	31,00	12303040	49,20
315	313	200	3.30	11312040	19,30			11313040	32,70		
350	349	200	3.70	11352040	21,70			11353040	33,70	12353040	56,60
400	398	200	4.10	11402040	23,60			11403040	54,20	12403040	77,50

*1.5 mm

 FOOD GRADE
EG/EC 1935/2004 plus FDA

 Shock explosion proof tested up to 1 bar

 Shock explosion proof tested up to 3 bar



PIPES 50 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	50	0.12	11061050*	4,90				
80	76	50	0.15	11081050	5,10	12081050	5,20		
100	99	50	0.30	11101050	5,20	12101050	5,30		
120	119	50	0.40	11121050	5,50	12121050	5,70	13121050	9,40
140	135	50	0.45	11141050	6,20	12141050	6,60		
150	149	50	0.50	11151050	6,20	12151050	6,60	13151050	11,60
175	174	50	0.55	11171050	6,60	12171050	7,00	13171050	12,30
200	199	50	0.60	11201050	7,20	12201050	7,40	13201050	13,30
224	219	50	0.65	11221050	7,40	12221050	7,80		
250	249	50	0.75	11251050	7,40	12251050	7,80	13251050	14,70
280	278	50	0.90	11281050	8,40				
300	299	50	0.90	11301050	8,40	12301050	9,20	13301050	16,20
315	313	50	1.00	11311050	10,10				


*1.5mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

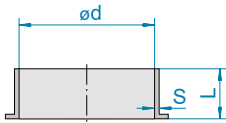
DN	Ø d	L	kg	1 mm galvanised		2 mm galvanised		1 mm stainless steel 		2 mm stainless steel 	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	50	0.12					11063050*	8,10		
80	76	50	0.15	11082050	6,30	12082050	7,30	11083050	8,70		
100	99	50	0.30	11102050	6,50	12102050	7,50	11103050	8,80	12103050	10,30
120	119	50	0.40	11122050	6,70	12122050	8,00	11123050	9,10	12123050	11,10
140	135	50	0.45	11142050	7,80	12142050	8,90	11143050	9,80	12143050	12,30
150	149	50	0.50	11152050	7,80	12152050	8,90	11153050	9,80	12153050	12,30
175	174	50	0.55	11172050	8,40	12172050	9,80	11173050	11,10	12173050	13,90
200	199	50	0.60	11202050	9,00	12202050	10,50	11203050	12,20	12203050	15,20
224	219	50	0.65	11222050	9,40	12222050	10,80	11223050	14,40	12223050	17,80
250	249	50	0.75	11252050	9,40	12252050	10,80	11253050	14,40	12253050	17,80
280	278	50	0.90	11282050	10,60			11283050	18,50		
300	299	50	0.90	11302050	10,60	12302050	12,90	11303050	18,50	12303050	19,00
315	313	50	1.00	11312050	12,70			11313050	19,40		

*1.5mm

 FOOD GRADE
EG/EC 1935/2004 plus FDA

 Shock explosion proof tested
up to 1 bar

 Shock explosion proof tested
up to 3 bar



WELDING ENDS 55 MM, FLANGED ON ONE SIDE

1020

- Flanged on one side with a 6 mm lip
- 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*	4,60				
80	76	55	0.15	12080060	4,90				
100	99	55	0.35	12100060	5,10			12102060	8,90
120	119	55	0.40	12120060	5,50	13120060	8,10	12122060	9,90
140	135	55	0.45	12140060	6,30			12142060	10,50
150	149	55	0.45	12150060	6,30	13150060	8,30	12152060	10,50
175	174	55	0.55	12170060	6,60	13170060	9,30	12172060	11,00
200	199	55	0.60	12200060	7,10	13200060	9,80	12202060	11,60
224	219	55	0.70	12220060	7,30			12222060	12,80
250	249	55	0.75	12250060	7,30	13250060	10,20	12252060	12,80
280	276	55	0.80	12280060	8,80				
300	299	55	0.85	12300060	8,80	13300060	11,60	12302060	14,50
315	311	55	0.90	12310060	9,00				
350	349	55	1.05	12350060	9,20	13350060	12,50		
400	398	55	1.15	12400060	10,20	13400060	13,70		
450	448	55	1.40	12450060	11,70	13450060	15,60		
500	498	55	1.55	12500060	13,30	13500060	17,50		
560	558	55	1.70	12560060	14,70	13560060	19,60		
630	628	55	1.90	12630060	16,70	13630060	22,80		

* 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	4,90					11063060*	6,80
80	76	55	0.15	11081060	5,10	12081060	5,20			12083060	9,60
100	99	55	0.35			12101060	5,30			12103060**	10,10
120	119	55	0.40			12121060	5,70	13121060	8,30	12123060	10,90
140	135	55	0.45			12141060	6,60			12143060	11,70
150	149	55	0.45			12151060	6,60	13151060	8,50	12153060**	11,70
175	174	55	0.55			12171060	7,10	13171060	9,70	12173060	13,80
200	199	55	0.60			12201060	7,40	13201060	10,00	12203060**	15,40
224	219	55	0.70			12221060	7,60			12223060	17,60
250	249	55	0.75			12251060	7,60	13251060	10,50	12253060**	17,60
280	276	55	0.80							12283060	19,00
300	299	55	0.85			12301060	9,30	13301060	12,00	12303060	19,00
315	311	55	0.90							12313060	19,90
350	349	55	1.05			12351060	9,80	13351060	12,80	12353060	20,90
400	398	55	1.15			12401060	10,70	13401060	14,10	12403060	23,10
450	448	55	1.40			12451060	12,40	13451060	16,20	12453060	28,40
500	498	55	1.55			12501060	13,90	13501060	18,00	12503060	32,70
560	558	55	1.70			12561060	15,50	13561060	20,30	12563060	37,00
630	628	55	1.90			12631060	17,80	13631060	23,40	12633060	41,10

* 1.5 mm

** Internal diameter Ød differs by: +1 mm



PUSH-IN PIPES

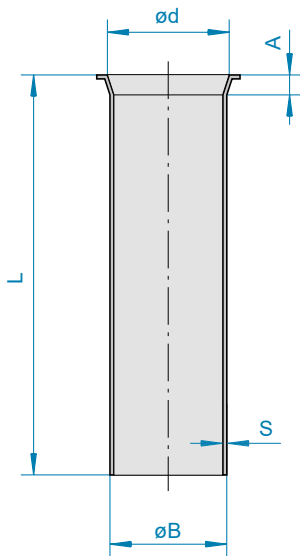
Push-in pipes in 1 to 3 mm wall thickness

For combining with:

- QUICK CONNECT pull-ring or pull-ring without sealant for 1 and 2 mm pipework (page 32)
- Ring seal (page 49)

PUSH-IN PIPES 1000 MM

1030



Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1 mm powder-coated		1.5 mm powder-coated	
						Item no.	€	Item no.	€
60	57	34	54	990	2.20			11061110	25,00
80	77	34	74	990	2.70	11081110	26,00		
100	100	34	96	990	3.50			11101110	26,20
120	120	34	116	990	4.30			11121110	29,80
140	136	34	132	990	4.60			11141110	37,00
150	150	34	146	990	5.40			11151110	37,00
175	175	34	171	990	6.20			11171110	41,50
200	200	34	196	990	7.00			11201110	45,10
224	220	34	216	990	7.60			11221110	55,80
250	250	34	246	990	8.80			11251110	55,80
280	277	34	272	990	10.00			11281110	61,30
300	300	34	296	990	10.70			11301110	61,30
315	312	34	307	990	11.30			11311110	70,50
350	350	50	346	990	12.40			11351110	75,70
400	399	50	396	990	14.20			11401110	95,10

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	L	kg	1.5 mm galvanised		1 mm stainless steel F	1.5 mm stainless steel F	2 mm stainless steel F
						Item no.	€	Item no.	€	Item no.
60	57	34	54	990	2.20	11062110	31,90		11063110	64,40
80	77	34	74	990	2.70	11082110*	33,50	11083110	75,60	
100	100	34	96	990	3.50	11102110	33,70	11103110	76,10	12103110** 110,50
120	120	34	116	990	4.30	11122110	37,00	11123110	79,80	12123110 126,50
140	136	34	132	990	4.60	11142110	42,80	11143110	92,60	
150	150	34	146	990	5.40	11152110	42,80	11153110	92,60	12153110 146,50
175	175	34	171	990	6.20	11172110	52,40	11173110	103,00	12173110 170,50
200	200	34	196	990	7.00	11202110	56,80	11203110	118,50	12203110 190,00
224	220	34	216	990	7.60	11222110	68,50	11223110	136,00	
250	250	34	246	990	8.80	11252110	68,50	11253110	136,00	12253110 217,50
280	277	34	272	990	10.00	11282110	80,30		11283110	158,50
300	300	34	296	990	10.70	11302110	80,30	11303110	158,50	12303110 250,50
315	312	34	307	990	11.30	11312110	92,30		11313110	173,50
350	350	50	346	990	12.40	11352110	103,00	11353110	191,50	12353110 258,00
400	399	50	396	990	14.20	11402110	126,50	11403110	206,00	12403110 311,50

* 1 mm

** Ø B = 92 mm



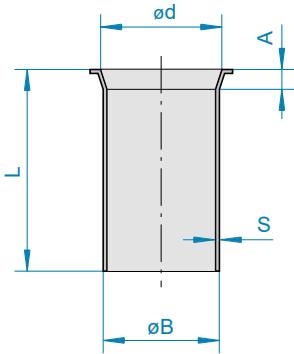
Push-in pipe installation instructions

F FOOD GRADE
EC 1935/2004 plus FDA compliant



PUSH-IN PIPES 500 MM




1030



Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø B	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	17,60		
80	77	34	74	492	1.40	11081120	18,40				
100	100	34	96	492	1.80			11101120	18,70		
120	120	34	116	492	2.10			11121120	19,80		
140	136	34	132	492	2.45			11141120	22,90		
150	150	34	146	492	2.65			11151120	22,90	13151120	39,50
175	175	34	171	492	3.10			11171120	28,20	13171120	44,50
200	200	34	196	492	3.50			11201120	29,00	13201120	51,50
224	220	34	216	492	3.90			11221120	35,10		
250	250	34	246	492	4.50			11251120	35,10	13251120	57,50
280	277	34	272	492	5.00			11281120	38,90		
300	300	34	296	492	5.40			11301120	38,90	13301120	64,20
315	312	34	307	492	5.70			11311120	44,70		
350	350	50	346	492	6.20			11351120	45,40		
400	399	50	396	492	7.20			11401120	56,50		

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	Ø 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.	€	Item no.	€
60	57	34	54	492	1.10	11062120	21,20			11063120	35,40		
80	77	34	74	492	1.40	11082120*	22,00	11083120	41,10				
100	100	34	96	492	1.80	11102120	22,30	11103120	41,30			12103120**	58,60
120	120	34	116	492	2.10	11122120	23,80	11123120	46,00			12123120	67,70
140	136	34	132	492	2.45	11142120	26,30	11143120	51,00				
150	150	34	146	492	2.65	11152120	26,30	11153120	51,00			12153120	78,60
175	175	34	171	492	3.10	11172120	31,80	11173120	56,60			12173120	89,20
200	200	34	196	492	3.50	11202120	33,70	11203120	65,80			12203120	99,50
224	220	34	216	492	3.90	11222120	42,00	11223120	74,20				
250	250	34	246	492	4.50	11252120	42,00	11253120	74,20			12253120	118,50
280	277	34	272	492	5.00	11282120	47,10			11283120	84,30		
300	300	34	296	492	5.40	11302120	47,10	11303120	84,30			12303120	136,00
315	312	34	307	492	5.70	11312120	54,30			11313120	92,70		
350	350	50	346	492	6.20	11352120	59,10	11353120	96,70			12353120	170,50
400	399	50	396	492	7.20	11402120	72,50	11403120	100,50			12403120	194,50

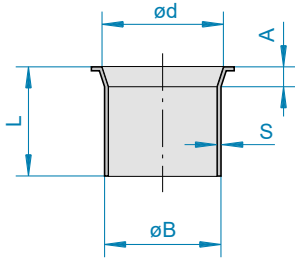
* 1 mm

** Ø B = 92 mm



PIPES

Push-in pipes



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	16,10
80	77	34	74	200	0.60	11081130	16,40		
100	100	34	96	200	0.75			11101130	16,90
120	120	34	116	200	0.85			11121130	17,50
140	136	34	132	200	0.95			11141130	20,50
150	150	34	146	200	1.10			11151130	20,50
175	175	34	171	200	1.30			11171130	25,00
200	200	34	196	200	1.50			11201130	28,30
224	220	34	216	200	1.55			11221130	31,90
250	250	34	246	200	1.90			11251130	31,90
280	277	34	272	200	2.10			11281130	35,60
300	300	34	296	200	2.45			11301130	35,60
315	312	34	307	200	2.50			11311130	41,00

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	19,30		11063130	20,80	
80	77	34	74	200	0.60	11082130*	20,20	11083130	24,20		
100	100	34	96	200	0.75	11102130	20,50	11103130	24,20	12103130**	35,00
120	120	34	116	200	0.85	11122130	21,40	11123130	26,40	12123130	37,40
140	136	34	132	200	0.95	11142130	25,40	11143130	28,90		
150	150	34	146	200	1.10	11152130	25,40	11153130	28,90	12153130	44,80
175	175	34	171	200	1.30	11172130	29,40	11173130	31,90	12173130	46,40
200	200	34	196	200	1.50	11202130	32,40	11203130	36,70	12203130	51,40
224	220	34	216	200	1.55	11222130	37,80	11223130	40,80		
250	250	34	246	200	1.90	11252130	37,80	11253130	40,80	12253130	60,60
280	277	34	272	200	2.10	11282130	43,20		11283130	46,10	
300	300	34	296	200	2.45	11302130	43,20	11303130	46,10	12303130	68,90
315	312	34	307	200	2.50	11312130	49,90		11313130	50,90	

* 1 mm

** $\varnothing B = 92$ mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

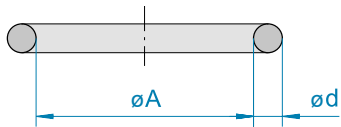
Ring seals / pipes with spigots



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 with a 3 mm wall thickness



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

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 F D		EPDM black		FKM red F	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	7	53	100661557	1,30	1006715509	4,10	10067155091	4,70	1006815559	4,10	100691559	26,20
80	9	68	100861557	1,50	1008715509	4,10	10087155091	5,40	1008815559	4,10	100891559	29,10
100	9	87	101061557	1,80	1010715509	4,50	10107155091	6,20	1010815559	4,50	101091559	29,10
120	9	106	101261557	2,00	1012715509	4,70	10127155091	7,00	1012815559	4,70	101291559	30,50
140	9	121	101461557	2,10	1014715509	4,90	10147155091	7,50	1014815559	4,90	101491559	31,70
150	9	138	101561557	2,10	1015715509	5,10	10157155091	8,10	1015815559	5,10	101591559	31,70
175	9	162	101761557	2,50	1017715509	5,60	10177155091	9,10	1017815559	5,60	101791559	32,80
200	9	186	102061557	2,80	1020715509	5,90	10207155091	9,70	1020815559	5,90	102091559	33,30
224	9	205	102261557	3,00	1022715509	6,20	10227155091	10,40	1022815559	6,20	102291559	34,10
250	9	233	102561557	3,10	1025715509	6,80	10257155091	11,60	1025815559	6,80	102591559	35,60
280	9	258	102861557	3,40	1028715509	7,30	10287155091	12,50	1028815559	7,30	102891559	37,70
300	9	281	103061557	3,70	1030715509	7,30	10307155091	13,30	1030815559	7,30	103091559	40,10
315	9	293	103161557	3,90	1031715509	7,70	10317155091	13,70	1031815559	7,70	103191559	41,70
350	9	328	103561557	4,00	1035715509	7,70	10357155091	15,00	1035815559	7,70	103591559	45,80
400	9	376	104061557	4,40	1040715509	8,30	10407155091	16,90	1040815559	8,30	104091559	52,20

3

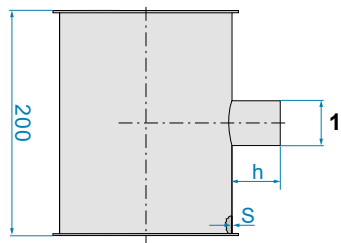


PIPES 200 MM WITH SPIGOTS

1035

- For installation of sensors on site
- Spigot length
 - 1/2 inch: h = 34 mm
 - 1 inch: h = 43 mm
 - 1 1/2 inch: h = 48 mm
- Special lengths and other spigots available on request

2 mm powder-coated, length 200 mm



1 Spigot with inner thread

DN	$\varnothing d$	Spigot 1/2 inch		Spigot 1 inch		Spigot 1 1/2 inch	
		Item no.	€	Item no.	€	Item no.	€
60	57	110610400901*	33,50	110610400902*	37,90		
80	76	120810400901	34,10	120810400902	38,30	120810400903	48,30
100	99	121010400901	34,40	121010400902	38,60	121010400903	48,60
120	119	121210400901	35,10	121210400902	39,50	121210400903	49,20
140	136	121410400901	37,30	121410400902	41,70	121410400903	51,60
150	149	121510400901	37,30	121510400902	41,70	121510400903	51,60
175	174	121710400901	38,60	121710400902	42,90	121710400903	52,90
200	199	122010400901	39,50	122010400902	43,70	122010400903	53,70
224	220	122210400901	40,50	122210400902	44,80	122210400903	54,70
250	249	122510400901	40,50	122510400902	44,80	122510400903	54,70
280	276	122810400901	42,60	122810400902	47,00	122810400903	56,90
300	299	123010400901	42,60	123010400902	47,00	123010400903	56,90

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

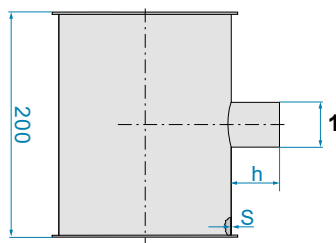
D DETECTABLE DESIGN
Metal-detectable

Shock explosion proof tested
up to 3 bar



PIPES

Ring seals



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*	41,90	110620400902*	50,10		
80	76	120820400901	43,90	120820400902	52,00	120820400903	66,40
100	99	121020400901	44,10	121020400902	52,10	121020400903	66,50
120	119	121220400901	44,70	121220400902	52,80	121220400903	67,00
140	136	121420400901	49,20	121420400902	57,40	121420400903	71,60
150	149	121520400901	49,30	121520400902	57,50	121520400903	71,80
175	174	121720400901	50,70	121720400902	58,80	121720400903	73,00
200	199	122020400901	51,80	122020400902	59,80	122020400903	74,10
224	220	122220400901	52,40	122220400902	60,60	122220400903	74,80
250	249	122520400901	52,40	122520400902	60,60	122520400903	74,80
280	276	122820400901	59,40	122820400902	67,40	122820400903	81,50
300	299	123020400901	59,40	123020400902	67,40	123020400903	81,50

*1.5 mm

2 mm stainless steel, length 200 mm

DN	Ø d	Spigot ½ inch	F	Spigot 1 inch	F	Spigot 1½ inch	F
		Item no.	€	Item no.	€	Item no.	€
60	57	110630400901*	46,10	110630400902*	54,10		
80	76	120830400901	53,30	120830400902	61,30	120830400903	75,10
100	99	121030400901	53,30	121030400902	61,30	121030400903	75,10
120	119	121230400901	58,30	121230400902	66,20	121230400903	80,10
140	136	121430400901	63,70	121430400902	71,40	121430400903	85,40
150	149	121530400901	63,70	121530400902	71,40	121530400903	85,40
175	174	121730400901	65,50	121730400902	73,30	121730400903	87,20
200	199	122030400901	69,10	122030400902	77,00	122030400903	90,80
224	220	122230400901	75,60	122230400902	83,40	122230400903	97,30
250	249	122530400901	75,60	122530400902	83,40	122530400903	97,30
280	276	122830400901	82,00	122830400902	89,80	122830400903	104,00
300	299	123030400901	82,00	123030400902	89,80	123030400903	104,00

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



3



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



THE RANGE OF PIPE BENDS

Technical information	54	
Segments	56	
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Adjustable elbows	67	
Pipe ball joints	67	



SEGMENTS AND BENDS

Perfect flow properties pay off! If the product flow is ideally guided through direction-changing elements, the flow resistance, and so also the wear, are significantly reduced. This results in: energy savings, longer maintenance intervals, shorter downtimes and so lower costs. We achieve this with our innovative manufacturing technology. We produce bends from pressed half shells or pressed segments. 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.

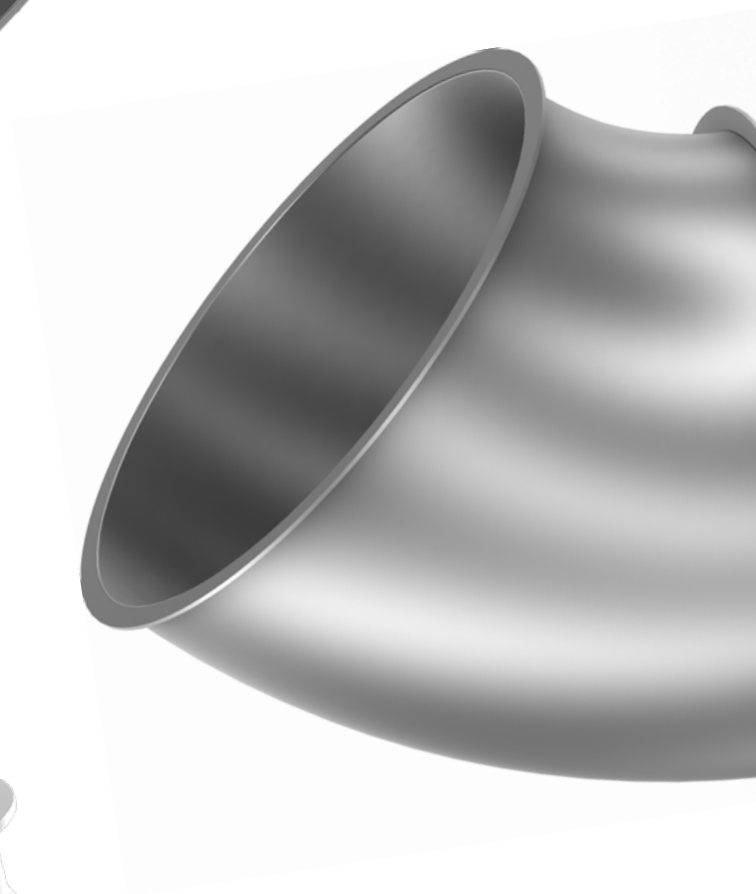
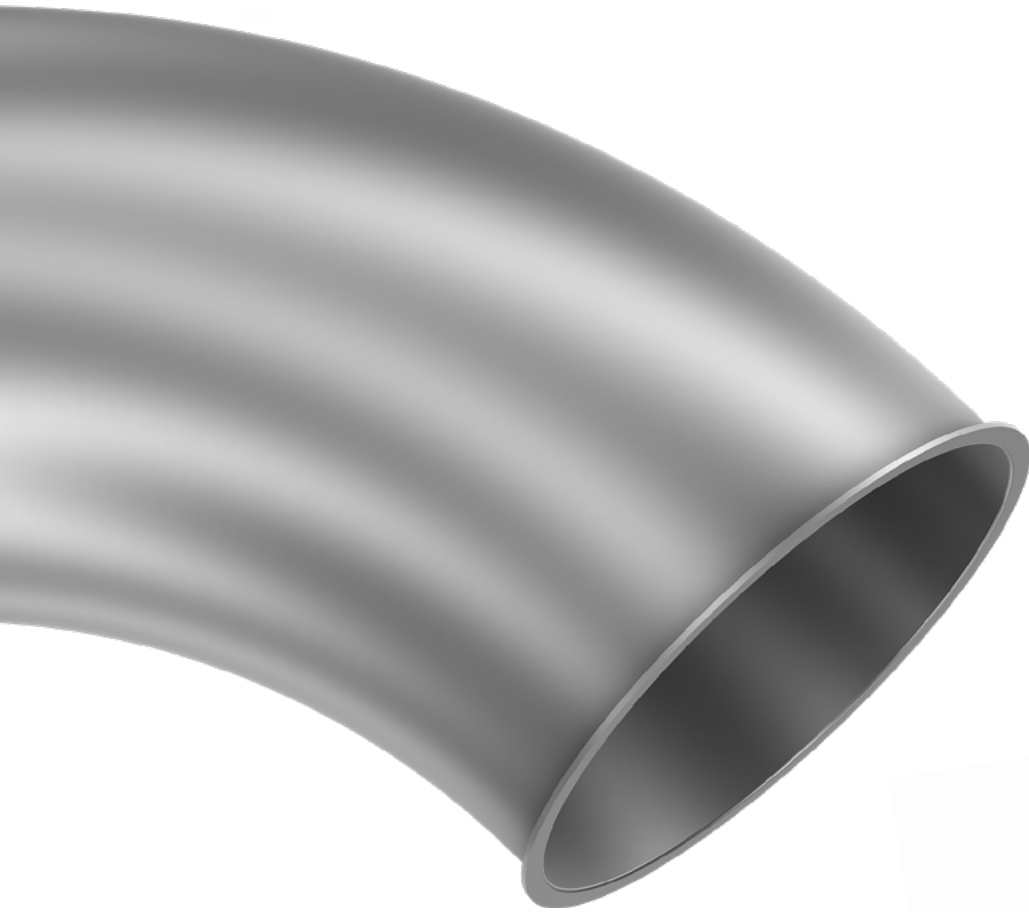
Are you looking for the right angle or radius for your application? No problem with the JACOB pipework system! Whether by using our flexible adjustable elbows and pipe ball joints or by counter-rotating two segments: a wide range of different angles can easily be achieved with parts from our standard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

The unique JACOB flexibility makes it possible to implement numerous special requirements that our customers request: from bends with welded-on flanges to a wide range of special colours – this is no problem at all with our unique in-depth production range.

Overview of segment and bend versions

DN	Segments		Bends			
	5°	15°, 30°, 45°	R = 1D 90°	R = 2D 30°	R = 2D 90°, 60°, 45°	Long radius 15°, 30°, 45°, 60°, 90°
60	■	■	■	■	■	
80–120	■	■	■	■	■	■
140	■	■	■	■	■	
150–200	■	■	■	■	■	■
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 long radius, drawn from pipes with longitudinally welded pipes

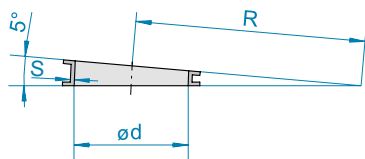


4



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	6,30				
100	99	320	0.20	11101300	6,30	12101300	7,50		
120	119	360	0.25	11121300	6,50	12121300	8,20	13121300	17,30
140	135	460	0.35	11141300*	7,00				
150	149	500	0.45	11151300	7,00	12151300	9,70	13151300	19,10
175	174	560	0.55	11171300	9,90	12171300	12,10	13171300	23,60
200	199	690	0.65	11201300	10,70	12201300	12,60	13201300	25,40
224	219	560	0.70	11221300*	13,60				
250	249	635	0.75	11251300	13,60	12251300	16,60	13251300	29,20
280	276	560	0.90	11281300*	24,10				
300	299	625	0.95	11301300	21,90	12301300	24,20	13301300	34,10
315	311	600	0.95	11311300*	26,40				
350	349	350	0.80	11351300*	28,90	12351300	34,50	13351300	41,00
400	398	400	0.95	11401300*	31,40	12401300	43,30	13401300	47,30
450	448	450	1.40	11451300*	39,30	12451300	45,20	13451300	57,90
500	498	500	1.45	11501300*	45,50	12501300	51,50	13501300	61,50
560	558	560	1.60			12561300	58,60	13561300	74,70
630	628	630	2.15			12631300	70,40	13631300	86,70

*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	7,10			11083300	17,30		
100	99	320	0.20	11102300	7,10	12102300	9,10	11103300	17,30	12103300	19,40
120	119	360	0.25	11122300	7,80	12122300	10,30	11123300	19,60	12123300	22,00
140	135	460	0.35	11142300*	8,20	12142300	11,10	11143300*	20,60		
150	149	500	0.45	11152300	8,20	12152300	11,10	11153300	20,60	12153300	30,20
175	174	560	0.55	11172300	11,90	12172300	16,20	11173300	26,60	12173300	38,00
200	199	690	0.65	11202300	12,40	12202300	17,00	11203300	29,80	12203300	42,20
224	219	560	0.70	11222300*	17,00	12222300	23,20	11223300*	38,50		
250	249	635	0.75	11252300	17,00	12252300	23,20	11253300	38,70	12253300	53,40
280	276	560	0.90	11282300*	31,90			11283300*	68,20		
300	299	625	0.95	11302300	23,70	12302300	32,60	11303300	45,70	12303300	68,50
315	311	600	0.95	11312300*	34,50			11313300*	70,00		
350	349	350	0.80	11352300*	35,40			11353300	75,80	12353300	80,30
400	398	400	0.95	11402300*	40,40			11403300	84,60	12403300	101,50
450	448	450	1.40	11452300*	48,20			11453300	95,80	12453300	108,00
500	498	500	1.45	11502300*	53,30			11503300	107,00	12503300	119,50
560	558	560	1.60			12562300	70,60			12563300	140,50
630	628	630	2.15			12632300	84,50			12633300	167,00

*1.5 mm

FOOD GRADE
EG/EC 1935/2004 plus FDA

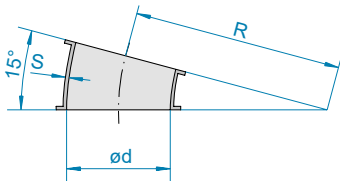
Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

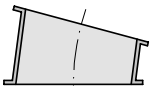


SEGMENTS 15°

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*	18,00				
80	76	130	0.10	11081310	6,40				
100	99	130	0.20	11101310	6,40	12101310	7,50		
120	119	155	0.30	11121310	6,70	12121310	8,20	13121310	17,80
140	135	185	0.30	11141310*	7,20				
150	149	250	0.55	11151310	7,20	12151310	9,90	13151310	19,60
175	174	280	0.75	11171310	10,10	12171310	12,10	13171310	24,10
200	199	270	0.80	11201310	10,70	12201310	12,60	13201310	26,10
224	219	220	0.55	11221310*	13,70				
250	249	310	1.05	11251310	13,70	12251310	16,60	13251310	30,60
280	276	280	1.25	11281310*	24,20				
300	299	310	1.30	11301310	22,60	12301310	24,20	13301310	35,10
315	311	315	1.60	11311310*	26,60				
350	349	350	1.75	11351310*	29,90	12351310	34,50	13351310	45,10
400	398	400	2.35	11401310*	32,40	12401310	43,30	13401310	50,50
450	448	450	2.95	11451310*	40,50	12451310	45,20	13451310	61,30
500	498	500	3.50	11501310*	46,90	12501310	51,50	13501310	65,50
560	558	560	4.40			12561310	58,60	13561310	79,40
630	628	630	5.60			12631310	70,40	13631310	91,90

*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 F		2 mm stainless steel F	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.10	11062310*	19,70			11063310*	38,00		
80	76	130	0.10	11082310	7,20			11083310	17,30		
100	99	130	0.20	11102310	7,20	12102310	9,90	11103310	17,30	12103310	19,40
120	119	155	0.30	11122310	7,80	12122310	10,80	11123310	19,60	12123310	22,00
140	135	185	0.30	11142310*	8,20	12142310	11,10	11143310*	20,60		
150	149	250	0.55	11152310	8,20	12152310	11,10	11153310	20,60	12153310	30,40
175	174	280	0.75	11172310	11,90	12172310	16,20	11173310	26,60	12173310	38,50
200	199	270	0.80	11202310	12,40	12202310	17,00	11203310	29,80	12203310	43,10
224	219	220	0.55	11222310*	17,00	12222310	23,20	11223310*	43,10		
250	249	310	1.05	11252310	17,00	12252310	23,20	11253310	43,10	12253310	54,80
280	276	280	1.25	11282310*	32,00			11283310*	69,00		
300	299	310	1.30	11302310	23,70	12302310	32,60	11303310	46,80	12303310	70,00
315	311	315	1.60	11312310*	34,70			11313310*	71,30		
350	349	350	1.75	11352310*	35,40			11353310	76,60	12353310	82,20
400	398	400	2.35	11402310*	41,60			11403310	85,50	12403310	104,00
450	448	450	2.95	11452310*	49,80			11453310	96,80	12453310	110,00
500	498	500	3.50	11502310*	54,70			11503310	108,00	12503310	123,00
560	558	560	4.40			12562310	70,60			12563310	143,50
630	628	630	5.60			12632310	84,50			12633310	171,00

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

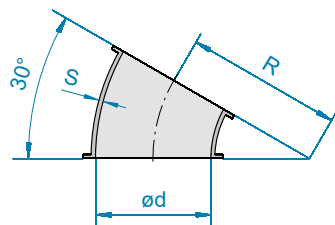
Shock explosion proof tested
up to 1 bar

Shock explosion proof tested
up to 3 bar

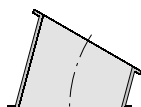


THE RANGE OF PIPE BENDS

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	100	0.10	11081320	7,00				
100	99	95	0.30	11101320	7,00	12101320	8,30		
120	119	110	0.40	11121320	7,30	12121320	8,70	13121320	18,90
140	135	140	0.45	11141320*	8,50				
150	149	175	0.70	11151320	8,50	12151320	11,10	13151320	20,10
175	174	208	1.05	11171320	11,60	12171320	16,10	13171320	24,80
200	199	180	1.05	11201320	11,80	12201320	16,10	13201320	26,80
224	219	195	0.95	11221320*	15,20				
250	249	230	1.55	11251320	15,20	12251320	19,70	13251320	33,30
280	276	283	2.30	11281320*	25,70				
300	299	230	1.90	11301320	23,70	12301320	25,90	13301320	39,50
315	311	315	2.95	11311320*	30,90				
350	349	350	3.30	11351320*	35,90	12351320	40,10	13351320	49,50
400	398	400	4.10	11401320*	38,90	12401320	50,90	13401320	64,20
450	448	450	5.60	11451320*	45,90	12451320	53,60	13451320	66,70
500	498	500	6.60	11501320*	51,90	12501320	58,00	13501320	75,50
560	558	560	8.50			12561320	69,20	13561320	88,80
630	628	630	10.50			12631320	79,50	13631320	103,00

*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	100	0.10	11082320	7,50			11083320	18,70		
100	99	95	0.30	11102320	7,50	12102320	10,50	11103320	18,70	12103320	22,50
120	119	110	0.40	11122320	8,10	12122320	10,90	11123320	20,30	12123320	26,50
140	135	140	0.45	11142320*	9,40	12142320	13,20	11143320*	23,10		
150	149	175	0.70	11152320	9,40	12152320	13,20	11153320	23,10	12153320	34,50
175	174	208	1.05	11172320	15,10	12172320	20,70	11173320	31,70	12173320	49,30
200	199	180	1.05	11202320	15,30	12202320	21,10	11203320	33,10	12203320	52,20
224	219	195	0.95	11222320*	20,20	12222320	27,90	11223320*	43,60		
250	249	230	1.55	11252320	20,20	12252320	27,90	11253320	43,60	12253320	65,40
280	276	283	2.30	11282320*	36,30			11283320*	76,10		
300	299	230	1.90	11302320	26,60	12302320	36,90	11303320	49,90	12303320	78,30
315	311	315	2.95	11312320*	39,30			11313320*	78,60		
350	349	350	3.30	11352320*	41,40			11353320	84,10	12353320	95,40
400	398	400	4.10	11402320*	48,20			11403320	97,70	12403320	122,00
450	448	450	5.60	11452320*	55,10			11453320	112,00	12453320	129,00
500	498	500	6.60	11502320*	62,20			11503320	122,00	12503320	140,00
560	558	560	8.50			12562320	82,90			12563320	165,50
630	628	630	10.50			12632320	95,30			12633320	191,00

*1.5 mm

FOOD GRADE
EG/EC 1935/2004 plus FDA

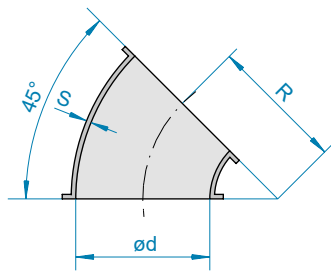
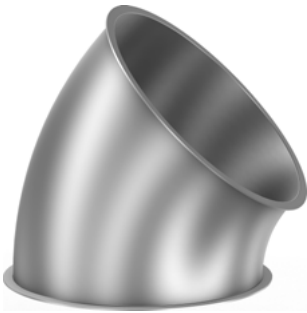
Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

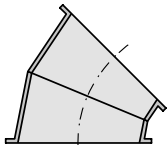


SEGMENTS 45°

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	80	0.15	11081330	7,50				
100	99	83	0.35	11101330	7,50	12101330	8,70		
120	119	88	0.50	11121330	8,30	12121330	10,00	13121330	20,10
140	135	112	0.50	11141330*	9,30				
150	149	150	0.90	11151330	9,30	12151330	12,30	13151330	22,80
175	174	160	1.20	11171330*	12,90	12171330	17,20	13171330	26,30
200	199	195	1.55	11201330*	14,50	12201330	19,90	13201330	30,30
224	219	155	1.10	11221330*	18,40				
250	249	195	1.95	11251330*	18,40	12251330	23,20	13251330	39,10
280	276	280	3.55	11281330*	65,40				
300	299	205	2.50	11301330*	27,40	12301330	31,70	13301330	46,60
315	311	315	4.30	11311330*	66,60				
350	349	350	4.90	11351330*	72,50	12351330	88,80	13351330	99,20
400	398	400	6.50	11401330*	83,30	12401330	99,50	13401330	123,00
450	448	450	8.15	11451330*	92,70	12451330	115,00	13451330	142,50
500	498	500	10.00	11501330*	109,00	12501330	127,50	13501330	156,00
560	558	560	12.40			12561330	154,00	13561330	189,00
630	628	630	16.10			12631330	187,50	13631330	225,50


*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	80	0.15	11082330	8,20			11083330	19,80		
100	99	83	0.35	11102330	8,20	12102330	11,10	11103330	19,80	12103330	25,40
120	119	88	0.50	11122330	8,90	12122330	12,40	11123330	23,20	12123330	31,00
140	135	112	0.50	11142330*	9,70	12142330	13,40	11143330*	28,40		
150	149	150	0.90	11152330	9,70	12152330	13,40	11153330	28,40	12153330	42,10
175	174	160	1.20	11172330*	15,20	12172330	21,00	11173330*	36,90	12173330	59,70
200	199	195	1.55	11202330*	21,10	12202330	28,90	11203330*	46,30	12203330	66,10
224	219	155	1.10	11222330*	24,10	12222330	32,90	11223330*	53,80		
250	249	195	1.95	11252330*	24,10	12252330	32,90	11253330*	53,80	12253330	83,00
280	276	280	3.55	11282330*	78,80			11283330*	131,00		
300	299	205	2.50	11302330*	35,30	12302330	44,30	11303330*	69,70	12303330	115,00
315	311	315	4.30	11312330*	80,00			11313330*	134,50		
350	349	350	4.90	11352330*	86,70			11353330*	152,50	12353330	186,00
400	398	400	6.50	11402330*	97,20			11403330*	195,00	12403330	218,00
450	448	450	8.15	11452330*	108,00			11453330*	219,00	12453330	255,00
500	498	500	10.00	11502330*	127,50			11503330*	248,50	12503330	279,50
560	558	560	12.40			12562330	179,50			12563330	332,00
630	628	630	16.10			12632330	217,00			12633330	397,00

*1.5 mm

 FOOD GRADE
EG/EC 1935/2004 plus FDA

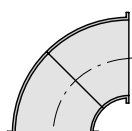
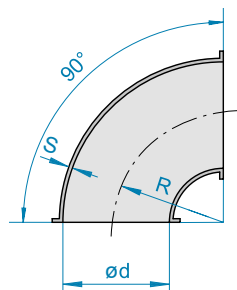
 Shock explosion proof tested
up to 1 bar

 Shock explosion proof tested
up to 3 bar

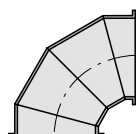


THE RANGE OF PIPE BENDS

Bends



■ 2 pressed segments 45°



■ 4 lobster back segments:
2 x 30° / 2 x 15°

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	32,80				
100	100	100	0.43	11101339	32,80				
120	120	120	1.00	11121339	41,30				
140	136	125	1.20			11141339	48,70		
150	150	150	0.92	11151339	48,70				
175	174	175	2.00			11171339	57,40		
200	200	200	2.42			11201339	58,40		
224	220	165	2.60			11221339	88,50		
250	250	250	4.00			11251339	88,50		
280	277	280	5.00			11281339	155,50		
300	300	210	5.00			11301339	108,50		
315	312	315	6.20			11311339	159,50		
350	350	350	8.00			11351339	171,50		
400	399	400	10.00			11401339	207,00		
450	449	450	13.00			11451339	221,50		
500	499	500	16.00			11501339	259,50		
560	558	560	26.00					12561339	286,50
630	628	630	23.00					12631339	336,00

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 F		2 mm stainless steel F	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
80	77	80	0.40	11082339	37,30			11083339	69,90		
100	100	100	0.43	11102339	37,30			11103339	71,90		
120	120	120	1.00	11122339	45,20			11123339	82,20		
140	136	125	1.20			11142339	54,20	11143339*	126,00		
150	150	150	0.92	11152339	54,20			11153339	126,00		
175	174	175	2.00			11172339	67,50	11173339*	130,50		
200	200	200	2.42			11202339	70,90	11203339*	153,50		
224	220	165	2.60			11222339	105,00	11223339*	173,50		
250	250	250	4.00			11252339	105,00	11253339*	173,50		
280	277	280	5.00			11282339	173,50	11283339*	286,50		
300	300	210	5.00			11302339	132,00	11303339*	202,00		
315	312	315	6.20			11312339	178,00	11313339*	297,50		
350	350	350	8.00			11352339	192,50	11353339*	327,50		
400	399	400	10.00			11402339	234,00	11403339*	379,50		
450	449	450	13.00			11452339	244,50	11453339*	445,00		
500	499	500	16.00			11502339	287,00	11503339*	507,00		
560	558	560	26.00					12562339*	355,50	12563339	593,00
630	628	630	23.00					12632339*	409,50	12633339	655,50

*2 mm

*1.5 mm

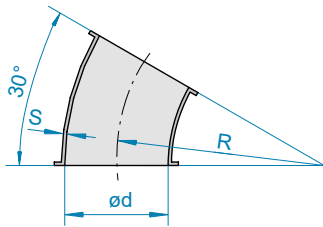
F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof tested
up to 3 bar

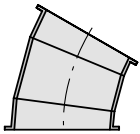


BENDS R = 2D, 30°

1230



1 pressed segment 30°





3 lobster back segments:
1 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		3 mm powder-coated	
				Item no.	€	Item no.	€	Item no.	€
60	57	120	0.25	11061343	19,30				
80	76	160	0.35	11081343*	18,90	12081343	20,10		
100	99	200	0.60	11101343*	20,10	12101343	20,30		
120	119	240	0.80	11121343	23,70	12121343	29,00	13121343	43,20
140	135	280	1.00	11141343	30,30	12141343	36,30		
150	149	300	1.25	11151343	30,30	12151343	36,30	13151343	50,60
175	174	350	1.65	11171343	35,90	12171343	39,30	13171343	55,70
200	199	400	2.10	11201343	39,90	12201343	47,50	13201343	62,40
224	219	448	2.65	11221343	50,30	12221343	57,40		
250	249	500	3.50	11251343	50,30	12251343	57,40	13251343	80,90
280	276	560	4.40	11281343	87,40				
300	299	600	4.60	11301343	70,30	12301343	79,30	13301343	91,10
315	311	630	5.50	11311343	97,40				
350	349	700	6.35			12351343	85,00	13351343	98,80
400	398	800	8.50			12401343	100,50	13401343	111,00
450	448	900	10.70			12451343	127,50	13451343	144,50
500	498	1000	13.20			12501343	146,00	13501343	168,50
560	558	1120	15.90			12561343	173,50	13561343	203,50
630	628	1260	19.00			12631343	224,00	13631343	241,50


*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		11062343	21,00			11063343*	40,10		
80	76	160	0.35	11082343*	20,20	12082343	23,40	11083343	41,50		
100	99	200	0.60	11102343*	21,10	12102343	24,40	11103343	41,70	12103343	57,90
120	119	240	0.80	11122343	23,90	12122343	31,60	11123343	62,90	12123343	84,60
140	135	280	1.00	11142343	31,50	12142343	41,60	11143343	77,70	12143343	108,50
150	149	300	1.25	11152343	31,50	12152343	41,60	11153343	77,70	12153343	108,50
175	174	350	1.65	11172343	37,00	12172343	44,60	11173343*	84,10	12173343	119,00
200	199	400	2.10	11202343	45,30	12202343	54,50	11203343*	99,10	12203343	142,50
224	219	448	2.65	11222343	56,80	12222343	68,50	11223343*	126,50		
250	249	500	3.50	11252343	56,80	12252343	68,50	11253343*	126,50	12253343	171,50
280	276	560	4.40	11282343	95,70			11283343*	149,50		
300	299	600	4.60	11302343	79,30	12302343	95,00	11303343*	148,50	12303343	174,50
315	311	630	5.50	11312343	107,00			11313343*	166,50		
350	349	700	6.35			12352343	102,00			12353343	178,00
400	398	800	8.50			12402343	121,00			12403343	188,00
450	448	900	10.70	11452343	134,00					12453343	261,50
500	498	1000	13.20	11502343	160,50					12503343	296,00
560	558	1120	15.90	11562343	183,00					12563343	381,50
630	628	1260	19.00	11632343	227,50					12633343	449,50

*1 mm

*1.5 mm

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

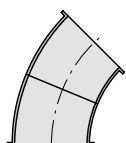
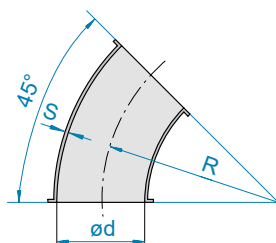
 Shock explosion proof tested up to 1 bar

 Shock explosion proof tested up to 3 bar

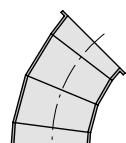


THE RANGE OF PIPE BENDS

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	20,80				
80	76	160	0.50	11081344*	21,70	12081344	27,20		
100	99	200	0.85	11101344*	23,90	12101344	27,40		
120	119	240	1.15	11121344	27,50	12121344	32,10	13121344	54,50
140	135	280	1.45	11141344	35,60	12141344	42,40		
150	149	300	1.80	11151344	35,60	12151344	42,40	13151344	62,40
175	174	350	2.25	11171344	41,10	12171344	47,80	13171344	69,30
200	199	400	3.00	11201344	44,80	12201344	51,50	13201344	75,80
224	219	448	3.90	11221344	60,00	12221344	72,80		
250	249	500	4.80	11251344	60,00	12251344	72,80	13251344	109,00
280	276	560	6.55	11281344	121,00				
300	299	600	7.20	11301344	104,00	12301344	115,00	13301344	141,50
315	311	630	8.15	11311344	136,50				
350	349	700	9.80			12351344	120,50	13351344	149,00
400	398	800	12.70			12401344	153,00	13401344	181,00
450	448	900	16.00			12451344	182,50	13451344	207,00
500	498	1000	19.80			12501344	206,00	13501344	243,00
560	558	1120	23.90			12561344	242,50	13561344	291,50
630	628	1260	29.60			12631344	274,00	13631344	354,50

*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	0.40	11062344	24,30			11063344*	40,40		
80	76	160	0.50	11082344*	26,40	12082344	30,90	11083344	55,00		
100	99	200	0.85	11102344*	28,00	12102344	31,20	11103344	55,90	12103344	82,30
120	119	240	1.15	11122344	30,70	12122344	36,50	11123344	66,00	12123344	94,80
140	135	280	1.45	11142344	39,30	12142344	48,10	11143344	89,70	12143344	130,50
150	149	300	1.80	11152344	39,30	12152344	48,10	11153344	89,70	12153344	130,50
175	174	350	2.25	11172344	45,40	12172344	54,30	11173344*	104,00	12173344	154,00
200	199	400	3.00	11202344	50,50	12202344	58,30	11203344*	113,50	12203344	167,00
224	219	448	3.90	11222344	68,80	12222344	83,80	11223344*	162,50		
250	249	500	4.80	11252344	68,80	12252344	83,80	11253344*	162,50	12253344	236,50
280	276	560	6.55	11282344	134,00			11283344*	204,50		
300	299	600	7.20	11302344	114,50	12302344	137,50	11303344*	207,50	12303344	264,50
315	311	630	8.15	11312344	149,50			11313344*	227,00		
350	349	700	9.80			12352344	144,50			12353344	271,50
400	398	800	12.70			12402344	184,50			12403344	305,00
450	448	900	16.00	11452344	191,00					12453344	368,00
500	498	1000	19.80	11502344	213,00					12503344	443,50
560	558	1120	23.90	11562344	238,50					12563344	545,00
630	628	1260	29.60	11632344	293,50					12633344	648,00

*1 mm

*1.5 mm

FOOD GRADE
EG/EC 1935/2004 plus FDA

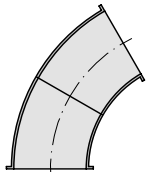
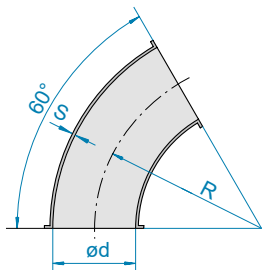
Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

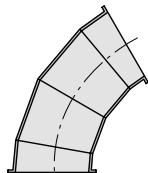


BENDS R = 2D, 60°

1250



2 pressed segments 30°



4 lobster back segments:
2 x 20° / 2 x 10°

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	22,70				
80	76	160	0.65	11081346*	31,90	12081346	32,10		
100	99	200	1.10	11101346*	32,40	12101346	32,60		
120	119	240	1.50	11121346	36,20	12121346	46,80	13121346	64,20
140	135	280	2.05	11141346	44,80	12141346	52,30		
150	149	300	2.40	11151346	44,80	12151346	52,30	13151346	71,10
175	174	350	3.15	11171346	49,60	12171346	57,90	13171346	77,60
200	199	400	4.10	11201346	56,50	12201346	74,50	13201346	93,20
224	219	448	5.20	11221346	105,50	12221346	118,50		
250	249	500	6.90	11251346	105,50	12251346	118,50	13251346	167,50
280	276	560	8.80	11281346	156,50				
300	299	600	9.30	11301346	138,50	12301346	160,50	13301346	192,50
315	311	630	10.80	11311346	175,50				
350	349	700	13.00			12351346	167,00	13351346	200,00
400	398	800	16.90			12401346	193,00	13401346	246,50
450	448	900	21.30			12451346	229,00	13451346	279,50
500	498	1000	26.40			12501346	264,00	13501346	315,00
560	558	1120	31.90			12561346	339,00	13561346	400,00
630	628	1260	37.90			12631346	404,50	13631346	456,00

*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	25,50			11063346*	44,80		
80	76	160	0.65	11082346*	32,70	12082346	36,80	11083346	70,40		
100	99	200	1.10	11102346*	34,60	12102346	37,30	11103346	71,00	12103346	96,60
120	119	240	1.50	11122346	36,90	12122346	52,90	11123346	100,50	12123346	145,00
140	135	280	2.05	11142346	45,70	12142346	59,40	11143346	115,00	12143346	155,00
150	149	300	2.40	11152346	45,70	12152346	59,40	11153346	115,00	12153346	155,00
175	174	350	3.15	11172346	60,00	12172346	65,60	11173346*	125,00	12173346	173,50
200	199	400	4.10	11202346	67,00	12202346	84,10	11203346*	153,00	12203346	214,00
224	219	448	5.20	11222346	114,50	12222346	137,00	11223346*	221,50		
250	249	500	6.90	11252346	114,50	12252346	137,00	11253346*	221,50	12253346	345,50
280	276	560	8.80	11282346	171,50			11283346*	284,00		
300	299	600	9.30	11302346	162,50	12302346	191,00	11303346*	289,00	12303346	350,50
315	311	630	10.80	11312346	192,50			11313346*	317,00		
350	349	700	13.00			12352346	200,00			12353346	359,00
400	398	800	16.90			12402346	231,00			12403346	418,00
450	448	900	21.30	11452346	261,00					12453346	551,00
500	498	1000	26.40	11502346	293,50					12503346	594,00
560	558	1120	31.90	11562346	337,50					12563346	706,00
630	628	1260	37.90	11632346	369,50					12633346	829,00

*1 mm

*1.5 mm

FOOD GRADE
EG/EC 1935/2004 plus FDA

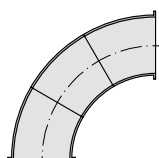
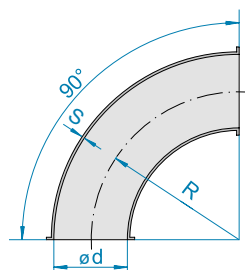
Shock explosion proof tested
up to 1 bar

Shock explosion proof tested
up to 3 bar

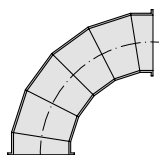


THE RANGE OF PIPE BENDS

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	23,00				
80	76	160	0.95	11081349*	34,10	12081349	38,00		
100	99	200	1.55	11101349*	34,70	12101349	38,70		
120	119	240	2.20	11121349	42,50	12121349	48,30	13121349	85,00
140	135	280	3.05	11141349	53,80	12141349	64,70		
150	149	300	3.50	11151349	53,80	12151349	64,70	13151349	100,00
175	174	350	4.60	11171349	57,70	12171349	72,70	13171349	105,00
200	199	400	6.10	11201349	65,40	12201349	87,90	13201349	146,00
224	219	448	7.80	11221349	132,50	12221349	155,50		
250	249	500	9.70	11251349	132,50	12251349	155,50	13251349	255,00
280	276	560	12.70	11281349	224,50				
300	299	600	13.50	11301349	191,00	12301349	214,00	13301349	298,50
315	311	630	16.30	11311349	251,50				
350	349	700	19.60			12351349	232,00	13351349	309,00
400	398	800	25.00			12401349	270,00	13401349	345,00
450	448	900	32.00			12451349	364,50	13451349	423,50
500	498	1000	39.30			12501349	411,50	13501349	495,00
560	558	1120	47.90			12561349	473,50	13561349	520,00
630	628	1260	56.90			12631349	542,50	13631349	658,50

*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 F	2 mm stainless steel F		
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
60	57	120	0.75	11062349	26,40			11063349*	46,80		
80	76	160	0.95	11082349*	38,60	12082349	42,90	11083349	82,90		
100	99	200	1.55	11102349*	39,50	12102349	44,10	11103349	82,90	12103349	124,50
120	119	240	2.20	11122349	47,30	12122349	55,20	11123349	105,50	12123349	155,00
140	135	280	3.05	11142349	57,40	12142349	73,00	11143349	146,50	12143349	214,50
150	149	300	3.50	11152349	57,40	12152349	73,00	11153349	146,50	12153349	214,50
175	174	350	4.60	11172349	67,80	12172349	82,20	11173349*	164,00	12173349	239,00
200	199	400	6.10	11202349	82,30	12202349	99,20	11203349*	181,00	12203349	265,50
224	219	448	7.80	11222349	153,00	12222349	178,50	11223349*	342,50		
250	249	500	9.70	11252349	153,00	12252349	178,50	11253349*	342,50	12253349	462,00
280	276	560	12.70	11282349	247,00			11283349*	436,50		
300	299	600	13.50	11302349	238,50	12302349	254,50	11303349*	455,00	12303349	476,50
315	311	630	16.30	11312349	276,00			11313349*	487,00		
350	349	700	19.60			12352349	277,50			12353349	497,50
400	398	800	25.00			12402349	325,00			12403349	591,00
450	448	900	32.00	11452349	398,00					12453349	752,00
500	498	1000	39.30	11502349	449,50					12503349	900,50
560	558	1120	47.90	11562349	516,50					12563349	1080,00
630	628	1260	56.90	11632349	580,00					12633349	1238,00

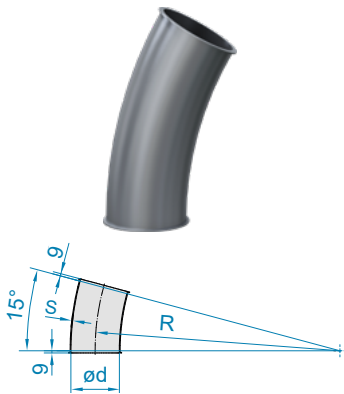
*1 mm

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

Shock explosion proof tested
up to 1 bar

Shock explosion proof tested
up to 3 bar



BENDS LONG RADIUS, 15°

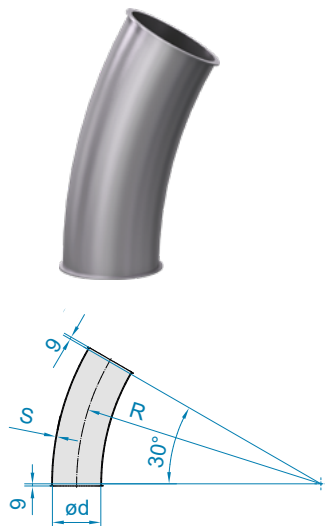
1262

- 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	3.40	120813511	129,00	120833511	142,50	
100	99	500	4.10	121013511	164,50	121033511	213,00	
120	119	600	5.70	121213511	175,50	121233511	219,50	
150	149	750	13.50	131513511*	213,00	121533511	257,00	
175	175	875	12.40	131713511*	329,50	121733511	419,50	
200	199	1000	26.20	132013511*	345,50	132033511*	507,50	
250	249	1000	32.80	132513511*	410,50	132533511*	761,50	
300	299	1200	46.40	133013511*	624,50	133033511*	1057,00	

*3 mm



BENDS LONG RADIUS, 30°

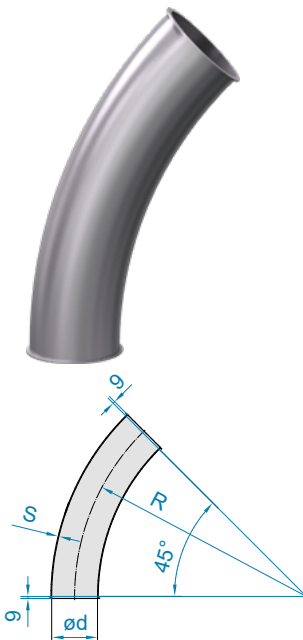
1264

- 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	3.40	120813531	143,00	120833531	168,50	
100	99	500	4.10	121013531	184,50	121033531	243,50	
120	119	600	5.70	121213531	200,00	121233531	266,00	
150	149	750	13.50	131513531*	256,00	121533531	309,50	
175	175	875	12.40	131713531*	393,50	121733531	513,00	
200	199	1000	26.20	132013531*	409,00	132033531*	628,00	
250	249	1000	32.80	132513531*	473,50	132533531*	935,50	
300	299	1200	46.40	133013531*	719,50	133033531*	1300,00	

*3 mm



BENDS LONG RADIUS, 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	3.40	120813541	180,50	120833541	208,50	
100	99	500	4.10	121013541	211,50	121033541	288,50	
120	119	600	5.70	121213541	235,00	121233541	342,00	
150	149	750	13.50	131513541*	325,00	121533541	396,50	
175	175	875	12.40	131713541*	493,50	121733541	667,50	
200	199	1000	26.20	132013541*	509,50	132033541*	834,00	
250	249	1000	32.80	132513541*	565,00	132533541*	1230,00	
300	299	1200	46.40	133013541*	858,50	133033541*	1705,00	

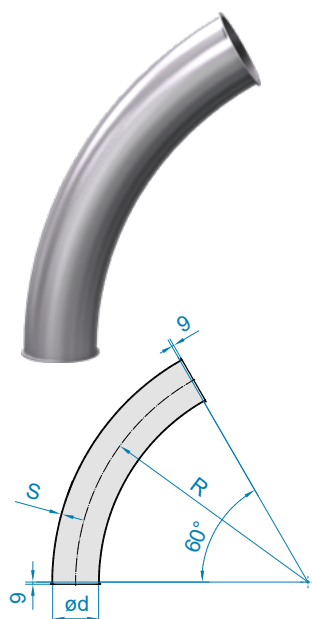
*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THE RANGE OF PIPE BENDS

Bends



BENDS LONG RADIUS, 60°

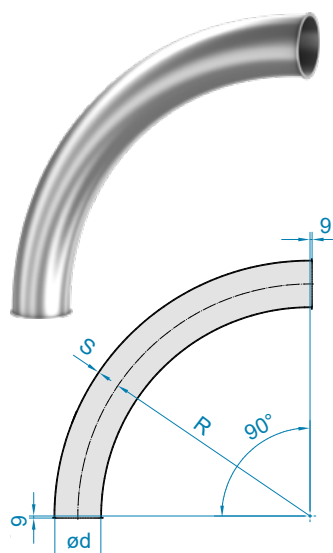
1268

- 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	2.00	120813561	205,50	120833561	220,00	
100	99	500	3.70	121013561	249,00	121033561	332,50	
120	119	600	4.80	121213561	260,00	121233561	374,50	
150	149	750	10.50	131513561*	375,50	121533561	453,00	
175	175	875	16.40	131713561*	553,50	121733561	721,50	
200	199	1000	21.30	132013561*	581,00	132033561*	1039,00	
250	249	1000	27.20	132513561*	602,50	132533561*	1521,00	
300	299	1200	38.60	133013561*	1092,00	133033561*	2137,00	

*3 mm



BENDS LONG RADIUS, 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

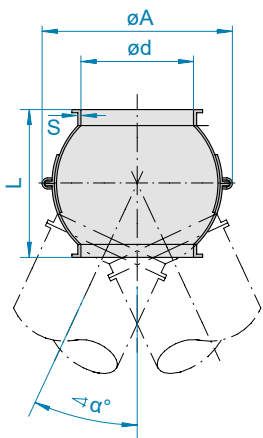
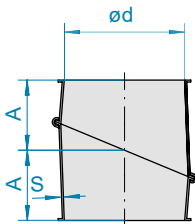
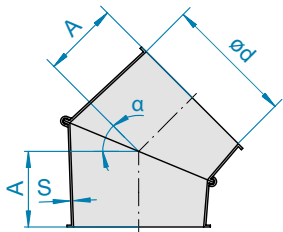
Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated		2 mm stainless steel		F
				Item no.	€	Item no.	€	
80	76	500	2.10	120813591	246,50	120833591	290,00	
100	99	500	4.10	121013591	337,50	121033591	445,00	
120	119	600	5.80	121213591	365,00	121233591	485,50	
150	149	750	13.50	131513591*	448,50	121533591	541,50	
175	175	875	18.30	131713591*	660,50	121733591	862,00	
200	199	1000	23.80	132013591*	660,50	132033591*	1086,00	
250	249	1000	29.50	132513591*	891,00	132533591*	1588,00	
300	299	1200	42.60	133013591*	1314,00	133033591*	2188,00	

*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°	1.5	1110133503	43,80	1110133502	44,80	1110333501	63,20
120	120	60	45°	1.6	1112133503	45,30	1112133502	46,30	1112333501	65,40
150	150	80	45°	2.4	1115133503	48,80	1115133502	49,90	1115333501	76,70
175	175	100	45°	3.0	1117133503	56,90	1117133502	57,90	1117333501	90,70
200	200	120	45°	3.5	1120133503	60,60	1120133502	61,80	1120333501	100,50
250	250	140	45°	4.6	1125133503	70,90	1125133502	72,10	1125333501	128,00



4

PIPE BALL JOINTS

2125

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	Ø A	α	L	kg	2 mm electro-galvanised		2 mm stainless steel	
						Item no.	€	Item no.	€
100	99	150	25°	130	1.50	12102730	77,30	12103730	153,50
120	119	150	15°	115	1.60	12122730	81,00	12123730	199,50
150	149	200	18°	160	2.35	12152730	109,00	12153730	222,00
175	174	250	25°	200	3.70	12172730	153,00	12173730	314,00
200	199	250	15°	170	3.50	12202730	162,00	12203730	326,50
250	249	300	16°	190	4.60	12252730	170,50	12253730	378,50

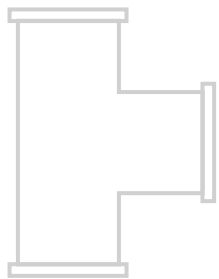
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



JACOB BRANCH PIECES: ALMOST EVERYTHING
AVAILABLE IN STANDARD QUALITY, EVERYTHING
ELSE AT THE CUSTOMER'S REQUEST





BRANCH PIECES

Technical information	70	
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Symmetrical forks	78	



BRANCH PIECES

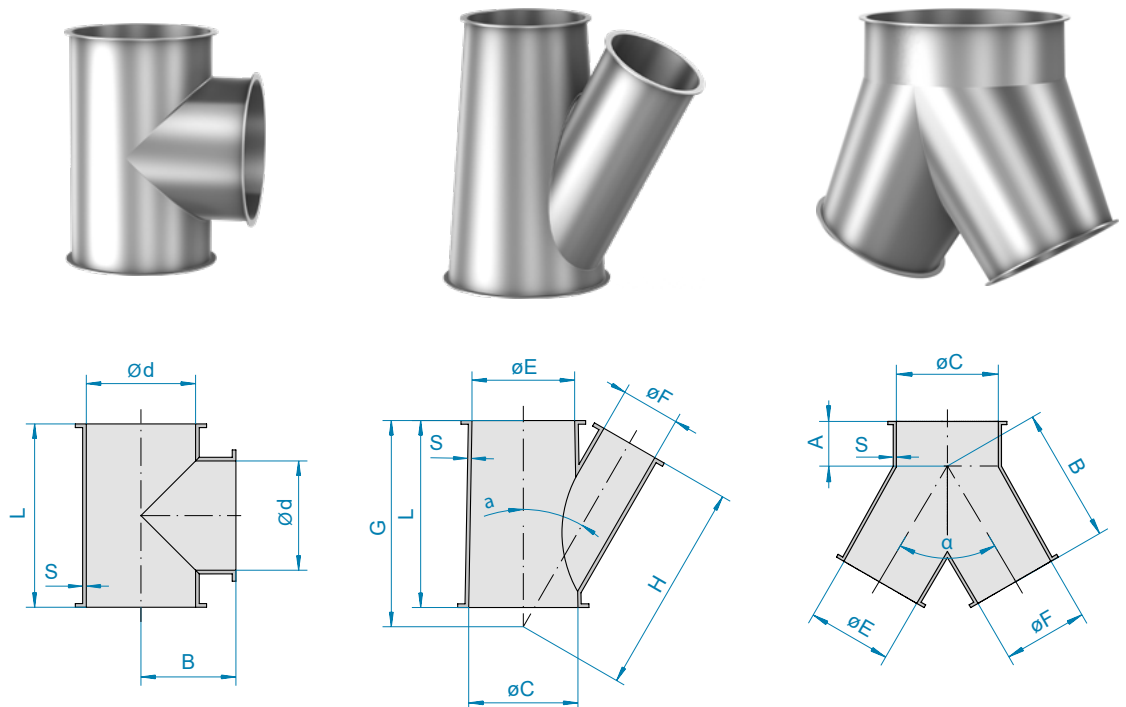
Branch pieces turn a straightforward pipe into a complex pipework system. They are therefore key elements during planning and implementation.

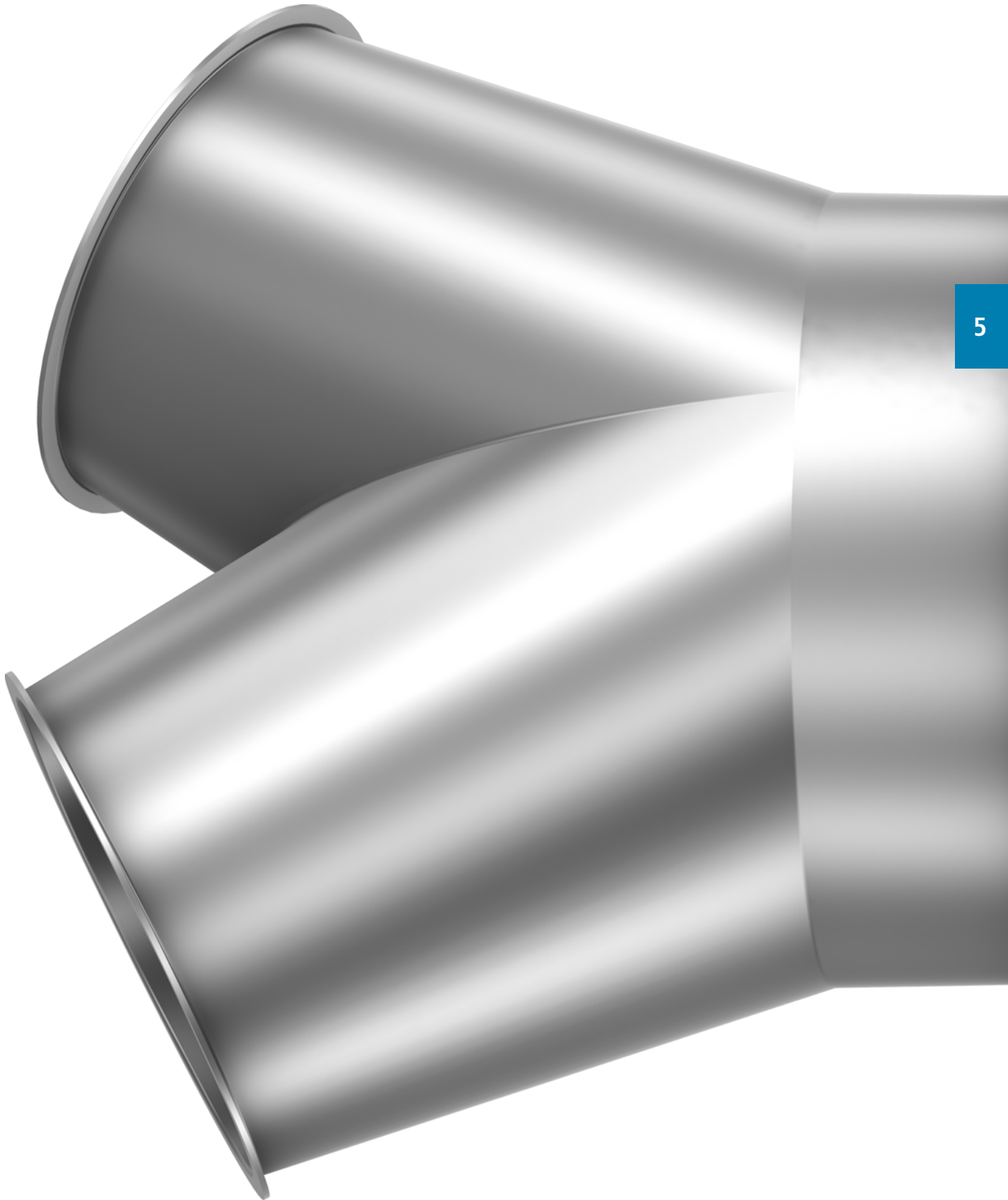
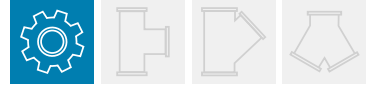
To meet the particular requirements of each system, JACOB offers a comprehensive and wide-ranging standard range which covers most requirements. If this does not meet your particular needs, we also manufacture individual parts to customers' specification. This is possible due to up-to-the-minute technologies, such as fully-automated laser welding equipment, which can carry out precise customised and small-scale production as well as on an industrial scale.

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

T-PIECES, FORKS AND SYMMETRICAL FORKS ACCORDING TO YOUR INDIVIDUAL 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 time on request.



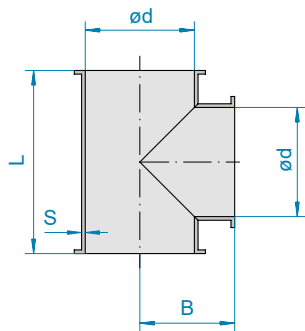


5



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	38,70			11062240	43,80		
80	77	70	150	0.60	11081240	39,10			11082240	43,80		
100	100	100	200	1.00	11101240	39,50			11102240	44,10		
120	120	110	220	1.20	11121240	41,00			11122240	46,50		
140	136	120	240	1.40	11141240	51,10			11142240	60,00		
150	150	125	250	1.65	11151240	51,10			11152240	60,00		
175	175	137.5	275	2.05	11171240	57,90			11172240	63,00		
200	200	150	300	2.55	11201240	61,50			11202240	76,60		
224	220	162.5	325	2.90	11221240	80,50			11222240	100,50		
250	250	175	350	3.50	11251240	80,50			11252240	100,50		
280	277	190	380	4.30	11281240	97,80			11282240	118,50		
300	300	200	400	4.70	11301240	97,80			11302240	118,50		
315	312	210	420	5.30	11311240	117,50			11312240	143,00		
350	350	275	550	8.10	11351240	135,00			11352240	152,50		
400	399	300	600	9.90	11401240	159,50			11402240	180,50		
450	449	325	650	12.75	11451240	177,50			11452240	201,50		
500	499	350	700	14.10	11501240	212,00			11502240	241,00		
560	558	380	760	22.15			12561240	234,00			12562240	265,00
630	628	415	830	26.80			12631240	265,00			12632240	294,50

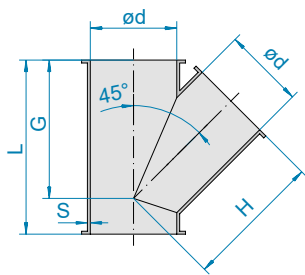
Stainless steel (dimensions for 1.5 mm pipework)

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	93,60		
80	77	70	150	0.60	11083240	93,80		
100	100	100	200	1.00	11103240	94,30	12103240	115,50
120	120	110	220	1.20	11123240	98,70	12123240	124,00
140	136	120	240	1.40	11143240	115,00		
150	150	125	250	1.65	11153240	115,00	12153240	164,00
175	175	137.5	275	2.05	11173240	162,00	12173240	214,00
200	200	150	300	2.55	11203240	172,00	12203240	229,50
224	220	162.5	325	2.90	11223240	186,50		
250	250	175	350	3.50	11253240	186,50	12253240	241,00
280	277	190	380	4.30	11283240	200,00		
300	300	200	400	4.70	11303240	200,00	12303240	294,00
315	312	210	420	5.30	11313240	220,00		
350	350	275	550	8.10	11353240	237,00	12353240	350,50
400	399	300	600	9.90	11403240	260,00	12403240	397,00
450	449	325	650	12.75	11453240	283,50	12453240	445,00
500	499	350	700	14.10	11503240	306,50	12503240	505,50
560	558	380	760	22.15			12563240	538,00
630	628	415	830	26.80			12633240	584,50

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

Forks



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	Ø d	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	34,80				
80	77	123	137	160	0.75	11081220	35,10				
100	100	177	176	215	1.15	11101220	35,30				
120	120	187	185	240	1.20	11121220	37,70	12121220	42,90	13121220	63,10
140	136	216	219	280	1.60	11141220	45,60	12141220	50,50	13141220	72,20
150	150	234	231	300	2.10	11151220	45,60	12151220	50,50	13151220	72,20
175	175	269	266	340	2.20	11171220	54,00	12171220	66,90	13171220	80,10
200	200	309	306	390	4.10	11201220	67,30	12201220	77,20	13201220	85,10
224	220	334	336	420	5.70	11221220	79,00	12221220	103,00	13221220	121,50
250	250	358	352	450	5.40	11251220	79,00	12251220	103,00	13251220	121,50
280	277	400	400	500	6.90	11281220	98,00				
300	300	418	412	520	7.80	11301220	98,00	12301220	129,00	13301220	161,50
315	312	450	450	560	8.70	11311220	119,50				
350	349	498	472	615	15.00	11351220	138,50	12351220	153,00	13351220	217,00
400	398	557	533	685	17.75	11401220	175,00	12401220	210,00	13401220	303,50
450	448	662	623	800	22.80	11451220	215,50	12451220	246,00	13451220	356,00
500	498	701	674	850	27.20	11501220	253,50	12501220	269,50	13501220	394,00
560	558	789	786	950	38.00			12561220	311,50	13561220	455,50
630	628	885	890	1060	48.00			12631220	369,00	13631220	537,50

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	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.	€	Item no.	€
60	57	115	115	145	0.50	11062220	37,50			11063220*	63,70		
80	77	123	137	160	0.75	11082220	37,50			11083220	63,70		
100	100	177	176	215	1.15	11102220	37,80	12102220	45,40	11103220	63,90	12103220	100,50
120	120	187	185	240	1.20	11122220	41,60	12122220	49,80	11123220	82,70	12123220	120,00
140	136	216	219	280	1.60	11142220	51,60	12142220	60,00	11143220	115,00	12143220	173,00
150	150	234	231	300	2.10	11152220	51,60	12152220	60,00	11153220	115,00	12153220	173,00
175	175	269	266	340	2.20	11172220	65,00	12172220	84,30	11173220	143,00	12173220	200,50
200	200	309	306	390	4.10	11202220	76,00	12202220	91,70	11203220	154,00	12203220	256,00
224	220	334	336	420	5.70	11222220	90,20	12222220	124,50	11223220	205,00	12223220	296,00
250	250	358	352	450	5.40	11252220	90,20	12252220	124,50	11253220	205,00	12253220	296,00
280	277	400	400	500	6.90	11282220	114,50			11283220*	234,50		
300	300	418	412	520	7.80	11302220	114,50	12302220	158,00	11303220	234,50	12303220	405,50
315	312	450	450	560	8.70	11312220	140,00			11313220*	248,00		
350	349	498	472	615	15.00	11352220	166,50			11353220*	261,50	12353220	485,50
400	398	557	533	685	17.75	11402220	207,00			11403220*	366,00	12403220	535,50
450	448	662	623	800	22.80	11452220	251,00			11453220*	435,00	12453220	620,50
500	498	701	674	850	27.20	11502220	294,00			11503220*	476,50	12503220	699,50
560	558	789	786	950	38.00	11562220	342,00					12563220	778,50
630	628	885	890	1060	48.00	11632220	411,00					12633220	860,00

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

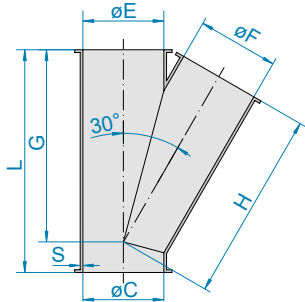
Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

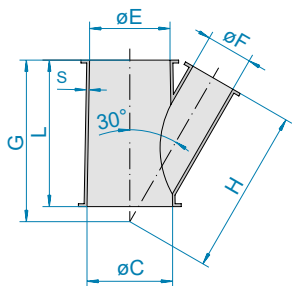


BRANCH PIECES

Forks



Fork 30°



Conical fork 30°

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

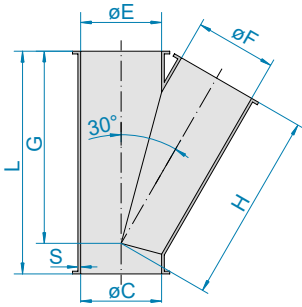
FORKS 30°

1060/1080

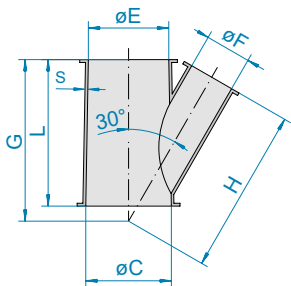
- Diameters C, E, F = nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions
- Other combinations of diameter, angles and wall thickness available on request
- DN 224 – 315 mm shock explosion proof up to 3 bar with 2 mm wall thickness

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	37,50				
80-60-60	170	170	200	0.95	11081255	37,70				
80-80-80	209	216	240	1.32	11081230	37,80				
100-80-80	237	236	250	1.25	11101255	61,50				
100-100-80	239	248	250	1.35	11101258	69,10				
100-100-100	262	248	300	1.70	11101230	38,00	12101230	42,00		
120-80-80	258	259	255	1.35	11121286	69,10				
120-100-80	260	261	255	1.45	11121257	66,60				
120-100-100	267	267	290	1.75	11121255	74,20				
120-120-80	256	258	250	1.50	11121258	71,30				
120-120-120	299	296	340	2.20	11121230	41,70	12121230	45,60	13121230	75,10
140-100-100	290	292	300	1.95	11141255	81,00				
140-120-80	274	278	255	1.65	11141257	75,10				
140-120-100	291	293	300	2.00	11141256	76,50				
140-140-80	275	284	255	1.70	11141258	75,70				
140-140-140	336	334	390	2.80	11141230	49,50				
150-100-100	291	294	290	2.10	11151254	72,10				
150-120-100	293	296	290	2.05	11151256	81,40				
150-120-120	323	324	340	2.45	11151255	87,90				
150-140-80	286	292	255	1.75	11151287	79,20				
150-150-80	282	288	250	1.85	11151258	78,80				
150-150-150	355	350	410	3.05	11151230	49,50	12151230	60,50	13151230	88,80
175-120-120	343	347	340	2.70	11171285	92,70				
175-140-120	344	348	340	2.70	11171286	99,50				
175-150-80	302	311	250	1.90	11171258	80,40				
175-150-100	315	321	290	2.40	11171257	86,60				
175-150-120	345	349	340	2.80	11171256	96,50				
175-150-150	375	373	410	3.80	11171255	106,50				
175-175-175	392	383	450	4.00	11171230	65,10	12171230	78,30	13171230	98,30
200-140-140	387	401	390	3.60	11201285	108,00				
200-150-120	365	373	340	2.70	11201286	102,50				
200-150-150	395	396	410	5.00	11201255	109,00				
200-175-100	336	346	290	2.70	11201258	94,40				
200-175-120	366	374	340	3.10	11201257	100,50				
200-175-150	396	398	410	4.10	11201256	114,50				
200-200-80	330	348	255	2.50	11201253	85,60				
200-200-100	348	358	300	3.00	11201254	95,80				
200-200-200	463	457	530	5.60	11201230	81,50	12201230	97,50	13201230	110,50
224-150-150	410	424	410	4.00	11221255	118,50				
224-175-140	406	423	390	4.00	11221256	116,50				
224-200-100	364	377	300	3.00	11221258	106,00				
224-200-120	384	395	340	3.30	11221257	112,00				
224-224-224	510	510	580	6.90	11221230	90,80				



■ Fork 30°



Conical fork 30°

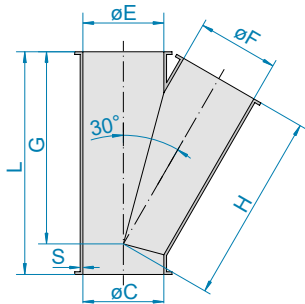
DN C - E - F	G	H	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€	Item no.	€
250-200-150	438	446	410	4.60	11251286	129,00				
250-200-175	453	455	450	5.80	11251256	133,50				
250-200-200	503	513	530	6.10	11251255	143,00				
250-224-120	409	424	340	4.20	11251288	121,00				
250-224-140	433	455	390	4.40	11251287	128,00				
250-250-80	374	398	255	2.90	11251253	102,00				
250-250-100	392	409	300	3.50	11251254	104,00				
250-250-250	547	544	620	8.00	11251230	90,80	12251230	110,50	13251230	158,50
280-280-280	610	610	690	10.00	11281230	112,50				
300-224-224	575	584	580	7.70	11301285	169,00				
300-250-140	475	493	390	4.90	11301288	142,00				
300-250-150	476	495	410	5.30	11301258	138,50				
300-250-175	496	505	450	5.90	11301257	143,00				
300-250-200	546	563	530	7.10	11301256	157,50				
300-250-250	587	580	620	8.70	11301255	171,50				
300-300-80	417	448	255	3.30	11301253	109,50				
300-300-100	435	459	300	4.10	11301254	116,00				
300-300-300	640	640	720	11.25	11301230	112,50	12301230	138,50	13301230	200,50
315-315-315	690	690	780	12.70	11311230	138,50				
350-250-250	627	627	620	9.60	11351255	213,00				
350-300-150	524	546	410	6.10	11351288	200,00				
350-300-200	590	613	530	7.90	11351257	200,00				
350-300-224	619	636	580	8.90	11351286	223,50				
350-300-250	630	630	620	9.90	11351256	224,50				
350-350-350	728	717	820	14.40	11351230	165,50	12351230	200,50	13351230	292,50
400-300-250	670	677	620	10.40	11401256	233,00				
400-300-300	721	724	720	12.40	11401255	250,00				
400-350-175	583	609	450	7.40	11401288	228,50				
400-350-224	663	686	580	10.20	11401287	252,50				
400-400-400	826	825	925	18.65	11401230	215,00	12401230	249,00	13401230	363,50
450-350-300	764	774	720	14.80	11451256	269,00				
450-350-350	809	811	820	17.50	11451255	284,50				
450-400-200	676	713	530	10.70	11451258	280,50				
450-400-250	716	730	620	12.80	11451257	298,50				
450-450-450	945	930	1050	23.60	11451230	268,00	12451230	303,00	13451230	443,00
500-400-350	853	861	820	18.20	11501256	368,00				
500-400-400	909	914	925	22.70	11501255	386,00				
500-450-224	749	786	580	13.00	11501288	346,00				
500-450-300	810	827	720	17.00	11501257	342,00				
500-500-500	1038	1027	1150	28.80	11501230	320,00	12501230	335,00	13501230	487,50
560-560-560	1180	1175	1300	54.00			12561230	383,00	13561230	561,00
630-630-630	1301	1304	1430	64.00			12631230	408,50	13631230	600,00

■ Shock explosion proof tested up to 3 bar

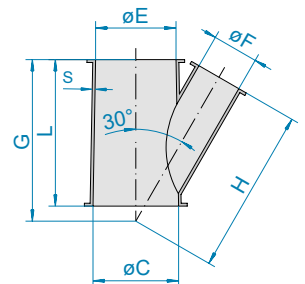


BRANCH PIECES

Forks



Fork 30°



Conical fork 30°

F FOOD GRADE
EG/EC 1935/2004 plus FDA

Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

FORKS 30°

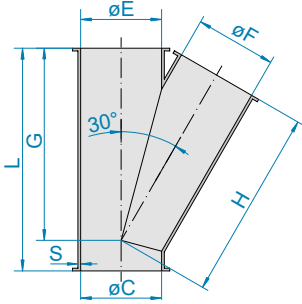
1060/1080

- 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

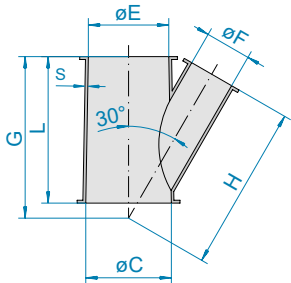
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

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	42,30			11063230*	78,90		
80-60-60	170	170	200	0.95	11082255	43,90			11083255*	78,60		
80-80-80	209	216	240	1.32	11082230	44,20			11083230	78,90		
100-80-80	237	236	250	1.25	11102255	69,40			11103255	130,00	12103255	166,50
100-100-80	239	248	250	1.35	11102258	77,20			11103258	135,50	12103258	170,00
100-100-100	262	248	300	1.70	11102230	44,50	12102230	51,50	11103230	79,10	12103230	129,00
120-80-80	258	259	255	1.35	11122286	77,20			11123286	135,50	12123286	168,50
120-100-80	260	261	255	1.45	11122257	75,50			11123257	137,00	12123257	170,50
120-100-100	267	267	290	1.75	11122255	83,10			11123255	156,00	12123255	198,50
120-120-80	256	258	250	1.50	11122258	79,40			11123258	142,50	12123258	180,00
120-120-120	299	296	340	2.20	11122230	48,70	12122230	55,90	11123230	99,40	12123230	148,50
140-100-100	290	292	h300	1.95	11142255	91,90			11143255	170,00	12143255	230,00
140-120-80	274	278	255	1.65	11142257	84,00			11143257	153,50	12143257	193,50
140-120-100	291	293	300	2.00	11142256	86,40			11143256	151,00	12143256	187,50
140-140-80	275	284	255	1.70	11142258	84,90			11143258	149,50	12143258	186,50
140-140-140	336	334	390	2.80	11142230	57,90	12142230	74,50	11143230	137,00		
150-100-100	291	294	290	2.10	11152254	88,40			11153254	159,00		
150-120-100	293	296	290	2.05	11152256	91,40			11153256	163,50	12153256	209,00
150-120-120	323	324	340	2.45	11152255	98,80			11153255	185,50	12153255	236,00
150-140-80	286	292	255	1.75	11152287	88,30			11153287	162,50	12153287	201,00
150-150-80	282	288	250	1.85	11152258	88,20			11153258	153,50	12153258	193,50
150-150-150	355	350	410	3.05	11152230	57,90	12152230	74,50	11153230	137,00	12153230	211,00
175-120-120	343	347	340	2.70	11172285	105,50			11173285	193,50	12173285	242,00
175-140-120	344	348	340	2.70	11172286	112,50			11173286	200,50	12173286	251,50
175-150-80	302	311	250	1.90	11172258	90,40			11173258	162,50	12173258	205,50
175-150-100	315	321	290	2.40	11172257	97,20			11173257	176,50	12173257	223,50
175-150-120	345	349	340	2.80	11172256	108,50			11173256	193,50	12173256	245,50
175-150-150	375	373	410	3.80	11172255	120,00			11173255	223,00	12173255	284,50
175-175-175	392	383	450	4.00	11172230	72,30	12172230	91,20	11173230	162,50	12173230	261,50
200-140-140	387	401	390	3.60	11202285	124,00			11203285	230,00	12203285	285,50
200-150-120	365	373	340	2.70	11202286	117,00			11203286	209,50	12203286	261,00
200-150-150	395	396	410	5.00	11202255	124,00			11203255	230,00	12203255	293,00
200-175-100	336	346	290	2.70	11202258	106,00			11203258	189,00	12203258	239,50
200-175-120	366	374	340	3.10	11202257	112,50			11203257	205,00	12203257	261,00
200-175-150	396	398	410	4.10	11202256	129,50			11203256	230,00	12203256	292,50
200-200-80	330	348	255	2.50	11202253	91,00			11203253	225,50	12203253	267,50
200-200-100	348	358	300	3.00	11202254	103,50			11203254	237,00	12203254	294,50
200-200-200	463	457	530	5.60	11202230	102,50	12202230	129,00	11203230	217,00	12203230	304,50
224-150-150	410	424	410	4.00	11222255	135,50			11223255	252,50	12223255	316,00
224-175-140	406	423	390	4.00	11222256	134,00			11223256	237,00	12223256	295,50
224-200-100	364	377	300	3.00	11222258	120,00			11223258	209,50	12223258	260,50
224-200-120	384	395	340	3.30	11222257	128,00			11223257	233,00	12223257	289,50
224-224-224	510	510	580	6.90	11222230	120,00	12222230	152,50	11223230	254,50		

*1.5 mm



Fork 30°



Conical fork 30°

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.	€
250-200-150	438	446	410	4.60	11252286	149,00			11253286	262,00	12253286	327,00
250-200-175	453	455	450	5.80	11252256	151,00			11253256	262,00	12253256	334,50
250-200-200	503	513	530	6.10	11252255	161,50			11253255	297,00	12253255	378,50
250-224-120	409	424	340	4.20	11252288	137,50			11253288	236,50	12253288	295,50
250-224-140	433	455	390	4.40	11252287	151,00			11253287	270,00	12253287	336,50
250-250-80	374	398	255	2.90	11252253	108,50			11253253	231,00		
250-250-100	392	409	300	3.50	11252254	112,50			11253254	242,00	12253254	330,50
250-250-250	547	544	620	8.00	11252230	120,00	12252230	152,50	11253230	254,50	12253230	361,00
280-280-280	610	610	690	10.00	11282230	153,00			11283230*	303,00		
300-224-224	575	584	580	7.70	11302285	197,50			11303285	368,50	12303285	459,50
300-250-140	475	493	390	4.90	11302288	160,50			11303288	275,50	12303288	344,00
300-250-150	476	495	410	5.30	11302258	155,50			11303258	279,50	12303258	346,00
300-250-175	496	505	450	5.90	11302257	161,50			11303257	287,50	12303257	366,50
300-250-200	546	563	530	7.10	11302256	179,00			11303256	312,50	12303256	399,50
300-250-250	587	580	620	8.70	11302255	194,50			11303255	356,50	12303255	456,00
300-300-80	417	448	255	3.30	11302253	114,50			11303253	234,00		
300-300-100	435	459	300	4.10	11302254	124,00			11303254	246,00	12303254	338,00
300-300-300	640	640	720	11.25	11302230	153,00	12302230	191,00	11303230	303,00	12303230	458,00
315-315-315	690	690	780	12.70	11312230	187,50			11313230*	333,50		
350-250-250	627	627	620	9.60	11352255	241,00			11353255*	443,00	12353255	566,00
350-300-150	524	546	410	6.10	11352288	235,00			11353288	415,00	12353288	518,50
350-300-200	590	613	530	7.90	11352257	225,00			11353257*	405,00	12353257	517,00
350-300-224	619	636	580	8.90	11352286	255,00			11353286*	443,50	12353286	554,00
350-300-250	630	630	620	9.90	11352256	254,50			11353256*	445,50	12353256	569,50
350-350-350	728	717	820	14.40	11352230	197,00			11353230*	355,00	12353230	598,00
400-300-250	670	677	620	10.40	11402256	262,00			11403256*	459,50	12403256	586,00
400-300-300	721	724	720	12.40	11402255	282,00			11403255*	519,00	12403255	663,50
400-350-175	583	609	450	7.40	11402288	267,00			11403288	472,00	12403288	589,00
400-350-224	663	686	580	10.20	11402287	294,50			11403287*	534,50	12403287	666,00
400-400-400	826	825	925	18.65	11402230	250,50			11403230*	397,00	12403230	637,50
450-350-300	764	774	720	14.80	11452256	303,00			11453256*	532,00	12453256	679,50
450-350-350	809	811	820	17.50	11452255	321,00			11453255*	588,50	12453255	758,50
450-400-200	676	713	530	10.70	11452258	315,00			11453258*	554,50	12453258	709,00
450-400-250	716	730	620	12.80	11452257	337,00			11453257*	604,50	12453257	772,50
450-450-450	945	930	1050	23.60	11452230	309,00			11453230*	538,00	12453230	678,50
500-400-350	853	861	820	18.20	11502256	414,00			11503256*	727,50	12503256	929,50
500-400-400	909	914	925	22.70	11502255	434,00			11503255*	803,50	12503255	1029,00
500-450-224	749	786	580	13.00	11502288	406,00			11503288*	722,00	12503288	901,50
500-450-300	810	827	720	17.00	11502257	385,00			11503257*	692,00	12503257	882,00
500-500-500	1038	1027	1150	28.80	11502230	361,00			11503230*	593,00	12503230	782,00
560-560-560	1180	1175	1300	54.00	11562230	423,00					12563230	898,00
630-630-630	1301	1304	1430	64.00	11632230	463,50					12633230	955,50

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

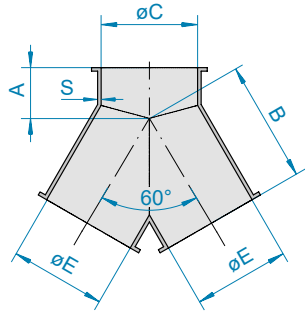
Shock explosion proof tested
up to 1 bar

Shock explosion proof tested
up to 3 bar

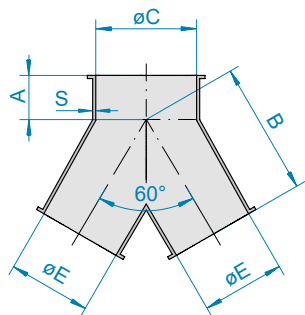


BRANCH PIECES

Symmetrical forks



■ Symmetrical fork 60°



■ Conical symmetrical fork 60°

F FOOD GRADE
EG/EC 1935/2004 plus FDA

■ 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

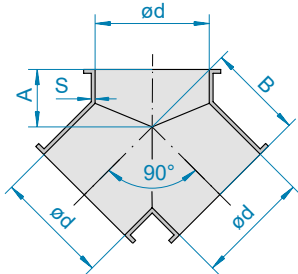
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

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	76,10	11082270	91,70
100-80-80	40	130	100	77	0.85	11101275	64,70	11102275	71,20
100-100-100	50	120	100	100	1.00	11101270	80,30	11102270	96,40
120-100-100	50	150	120	100	1.25	11121275	66,60	11122275	73,70
120-120-120	50	150	120	120	1.50	11121270	84,50	11122270	102,50
140-100-100	50	150	136	100	1.25	11141275	68,40	11142275	75,50
140-140-140	70	165	136	136	2.00	11141270	88,30	11142270	110,00
150-100-100	50	170	150	100	1.40	11151276	68,40	11152276	75,50
150-120-120	50	170	150	120	1.65	11151275	70,50	11152275	77,70
150-150-150	75	175	150	150	2.20	11151270	88,30	11152270	110,00
175-120-120	50	200	175	120	2.00	11171276	75,80	11172276	88,20
175-175-175	80	210	175	175	3.10	11171270	100,50	11172270	117,00
200-140-140	60	200	200	136	2.35	11201276	94,90	11202276	98,70
200-150-150	60	200	200	150	2.50	11201275	94,90	11202275	98,70
200-200-200	90	240	200	200	4.00	11201270	112,00	11202270	126,00
224-150-150	60	220	220	150	2.65	11221275	135,50	11222275	141,50
224-224-224	90	275	220	220	5.00	11221270	128,50	11222270	137,50
250-200-200	60	250	250	200	3.50	11251275	168,50	11252275	181,00
250-250-250	100	300	250	250	6.20	11251270	138,50	11252270	152,00
300-224-224	70	300	300	220	4.80	11301276	180,50	11302276	197,50
300-300-300	120	360	300	300	8.90	11301270	151,00	11302270	173,50
350-250-250	70	300	350	250	5.30	11351275	197,00	11352275	204,50
400-300-300	70	350	399	300	6.20	11401275	215,00	11402275	222,00
450-350-350	80	400	449	350	9.20	11451275	232,50	11452275	248,00
500-400-400	80	450	499	399	11.40	11501275	249,00	11502275	267,00

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	122,00		
100-80-80	40	130	100	77	0.85	11103275	120,00	12103275	152,00
100-100-100	50	120	100	100	1.00	11103270	127,50	12103270	171,00
120-100-100	50	150	120	100	1.25	11123275	128,00	12123275	161,00
120-120-120	50	150	120	120	1.50	11123270	159,00	12123270	182,50
140-100-100	50	150	136	100	1.25	11143275	143,50	12143275	178,00
140-140-140	70	165	136	136	2.00	11143270	174,50	12143270	204,50
150-100-100	50	170	150	100	1.40	11153276	143,50	12153276	178,00
150-120-120	50	170	150	120	1.65	11153275	148,00	12153275	185,00
150-150-150	75	175	150	150	2.20	11153270	174,50	12153270	204,50
175-120-120	50	200	175	120	2.00	11173276	159,00	12173276	198,00
175-175-175	80	210	175	175	3.10	11173270	188,00	12173270	221,50
200-140-140	60	200	200	136	2.35	11203276	205,00	12203276	265,50
200-150-150	60	200	200	150	2.50	11203275	205,00	12203275	265,50
200-200-200	90	240	200	200	4.00	11203270	205,00	12203270	239,50
224-150-150	60	220	220	150	2.65	11223275	256,50	12223275	330,00
224-224-224	90	275	220	220	5.00	11223270	218,50	12223270	258,50
250-200-200	60	250	250	200	3.50	11253275	308,50	12253275	403,00
250-250-250	100	300	250	250	6.20	11253270	232,50	12253270	281,50
300-224-224	70	300	300	220	4.80	11303276	350,50	12303276	438,50
300-300-300	120	360	300	300	8.90	11303270	257,00	12303270	322,00
350-250-250	70	300	350	250	5.30	11353275*	391,00	12353275	505,50
400-300-300	70	350	399	300	6.20	11403275*	421,50	12403275	566,50
450-350-350	80	400	449	350	9.20	11453275*	455,00	12453275	584,00
500-400-400	80	450	499	399	11.40	11503275*	486,00	12503275	616,50

*1.5 mm



SYMMETRICAL FORKS 90°




1100


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

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


DN	Ø d	A	B	kg	1.5 mm powder-coated		3 mm powder-coated		1.5 mm galvanised	
					Item no.	€	Item no.	€	Item no.	€
80	77	40	80	0.55	11081260	60,90			11082260	63,20
100	100	60	100	0.85	11101260	60,90			11102260	63,20
120	120	75	110	1.10	11121260	63,30	13121260	75,90	11122260	67,20
140	136	75	120	1.30	11141260	65,70			11142260	69,50
150	150	75	125	1.45	11151260	65,70	13151260	86,60	11152260	69,50
175	175	75	140	1.75	11171260	77,00	13171260	101,00	11172260	82,30
200	200	90	170	2.50	11201260	93,80	13201260	125,50	11202260	100,50
224	220	100	190	3.00	11221260	123,00			11222260	133,00
250	250	100	200	3.50	11251260	123,00	13251260	162,50	11252260	133,00
300	300	120	220	4.40	11301260	171,00	13301260	214,00	11302260	180,50
350	350	120	250	5.65	11351260	187,50			11352260	210,00
400	399	150	270	7.00	11401260	201,50			11402260	228,50
450	449	150	300	8.45	11451260	219,00			11452260	245,50
500	499	175	325	10.20	11501260	236,50			11502260	264,00

Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	kg	1 mm stainless steel 		1.5 mm stainless steel 		2 mm stainless steel 	
					Item no.	€	Item no.	€	Item no.	€
80	77	40	80	0.55	11083260	112,50				
100	100	60	100	0.85	11103260	112,50			12103260	148,00
120	120	75	110	1.10	11123260	118,50			12123260	154,50
140	136	75	120	1.30	11143260	124,50			12143260	161,00
150	150	75	125	1.45	11153260	124,50			12153260	161,00
175	175	75	140	1.75	11173260	147,50			12173260	189,50
200	200	90	170	2.50	11203260	181,50			12203260	229,50
224	220	100	190	3.00	11223260	232,50			12223260	299,50
250	250	100	200	3.50	11253260	232,50			12253260	377,50
300	300	120	220	4.40	11303260	333,00			12303260	434,00
350	350	120	250	5.65			11353260	372,50	12353260	482,50
400	399	150	270	7.00			11403260	402,00	12403260	518,50
450	449	150	300	8.45			11453260	443,00	12453260	557,50
500	499	175	325	10.20			11503260	485,00	12503260	597,00

 FOOD GRADE
EG/EC 1935/2004 plus FDA

 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

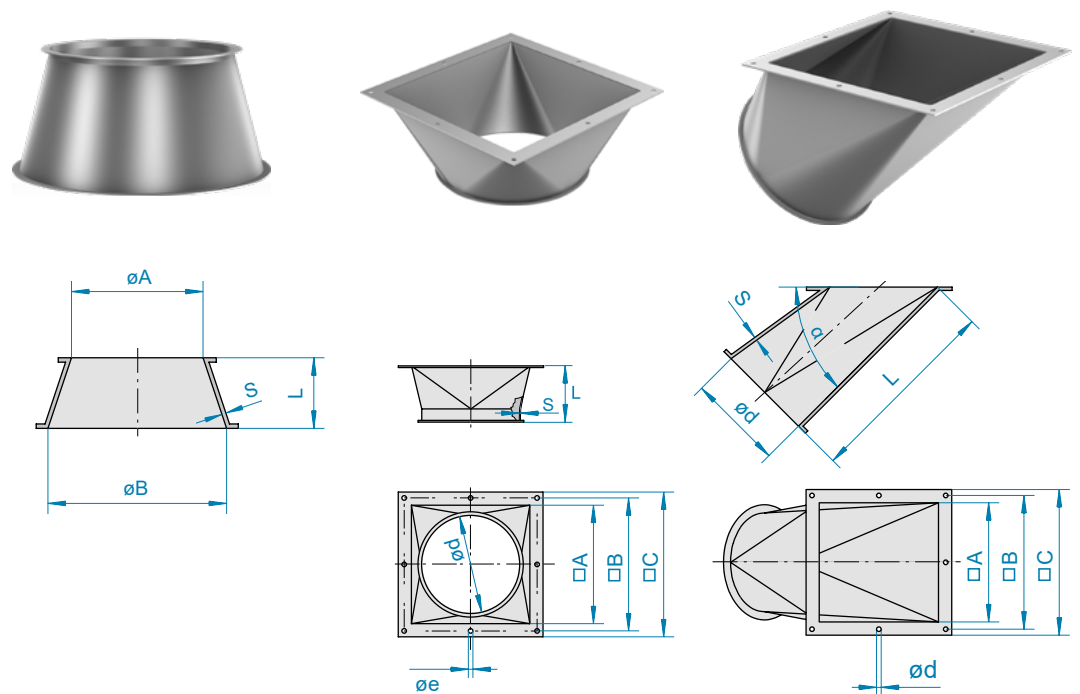
Technical information

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 right from batch sizes of 1. These special components have one thing in common with all lines from this large-scale production: the same consistently high quality.

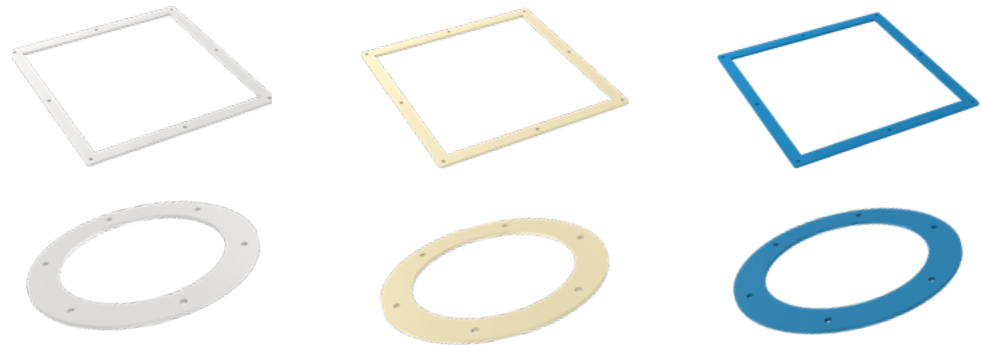
CONE PIECES AND TRANSITION PIECES TO YOUR INDIVIDUAL MEASUREMENTS

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





FLAT GASKETS



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	
-30°C to +80°C	-30°C to +230°C		-60°C to +200°C	
			metal-detectable	

Our flat gaskets 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



COMPENSATORS

Material: Conductive EPDM, black

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



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

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

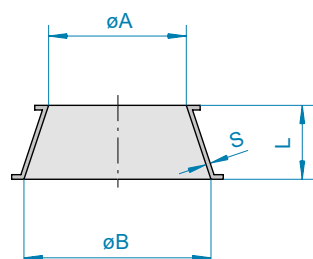
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TRANSITION PIECES AND ADAPTERS

Cone pieces



CONE PIECES

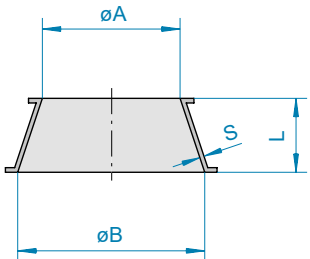
1330

- 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	Ø A	Ø B	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
60- 80	57	77	60	0.17	11001488	12,90		
60-100	57	100	100	0.25	11001492	13,20		
80-100	77	100	100	0.35	11001450	13,30		
80-120	77	120	80	0.35	11001478	14,90		
80-140	77	136	120	0.55	11001479	15,20		
80-150	77	150	140	0.65	11001489	16,10		
100-120	100	120	60	0.30	11001451	14,50		
100-140	100	136	100	0.50	11001459	16,60		
100-150	100	150	95	0.50	11001452	14,90		
100-175	100	175	120	0.70	11001464	16,90		
100-200	100	200	120	0.75	11001453	20,80		
100-250	100	250	200	1.45	11001454	24,50		
120-140	120	136	100	0.55	11001466	18,80		
120-150	120	150	150	0.85	11001455	15,40	13001455	44,20
120-175	120	175	100	0.65	11001456	17,20	13001456	46,00
120-200	120	200	120	0.80	11001457	21,20	13001457	49,50
120-250	120	250	150	1.20	11001458	22,00	13001458	51,30
140-150	136	150	100	0.60	11001467	19,20		
140-175	136	175	100	0.65	11001468	21,70		
140-200	136	200	150	1.05	11001469	23,70		
150-175	150	175	100	0.60	11001460	17,40	13001460	40,10
150-200	150	200	100	0.75	11001461	17,00	13001461	47,80
150-224	150	220	150	1.15	11001472	25,90		
150-250	150	250	150	1.10	11001462	22,00	13001462	51,30
150-300	150	300	200	1.85	11001463	28,70	13001463	58,50
175-200	175	200	100	0.80	11001465	18,40	13001465	53,30
175-224	175	220	100	0.85	11001473	24,80		
200-224	200	220	100	0.85	11001474	25,90		
200-250	200	250	120	1.10	11001470	21,20	13001470	55,60
200-300	200	300	150	1.55	11001471	27,70	13001471	59,40
224-250	220	250	100	1.00	11001476	28,30		
224-300	220	300	150	1.60	11001477	33,20		
250-280	250	277	120	1.30	11001960	31,10		
250-300	250	300	150	1.65	11001475	27,70	13001475	63,70
250-350	250	350	200	2.20	11001484	41,90	13001484	75,70
280-300	277	300	100	1.22	11001961	32,60		
300-315	300	312	100	1.30	11001962	41,40		
300-350	300	350	200	2.55	11001480	46,40	13001480	80,40
300-400	300	399	200	2.75	11001481	52,20	13001481	87,00
315-350	312	350	120	1.65	11001963	45,10		
350-400	350	399	200	2.95	11001482	59,10	13001482	94,40
350-450	350	449	200	3.15	11001483	60,60	13001483	102,50

Shock explosion proof tested up to 3 bar



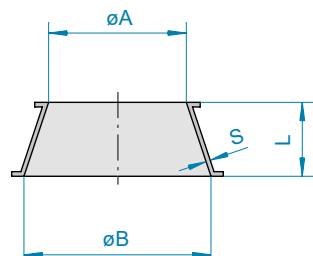
DN	$\varnothing A$	$\varnothing B$	L	kg	1.5 mm powder-coated		3 mm powder-coated	
					Item no.	€	Item no.	€
400-450	399	449	200	3.40	11001485	64,80	13001485	112,00
400-500	399	499	250	4.40	11001486	68,40	13001486	119,50
450-500	449	499	200	3.70	11001487	78,40	13001487	133,50
450-560	448	558	250	6.70	12001495*	80,80	13001495	147,00
500-560	498	558	250	7.00	12001496*	85,20	13001496	163,00
500-630	498	628	300	8.90	12001497*	94,40	13001497	186,50
560-630	558	628	300	9.50	12001498*	109,50	13001498	210,00

*2 mm



TRANSITION PIECES AND ADAPTERS

Cone pieces



CONE PIECES

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- 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

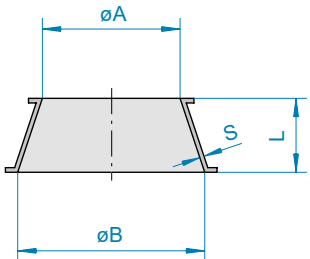
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø A	Ø B	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*	19,20		
60-100	57	100	100	0.25	11002492	15,30			11003492	19,80		
80-100	77	100	100	0.35	11002450	15,40			11003450	20,10		
80-120	77	120	80	0.35	11002478	16,40			11003478	21,50		
80-140	77	136	120	0.55	11002479	16,40			11003479	21,50		
80-150	77	150	140	0.65	11002489	18,70			11003489	22,50		
100-120	100	120	60	0.30	11002451	16,10			11003451	20,10	12003451	24,60
100-140	100	136	100	0.50	11002459	19,40			11003459	22,80		
100-150	100	150	95	0.50	11002452	17,10			11003452	23,50	12003452	33,60
100-175	100	175	120	0.70	11002464	18,90			11003464	24,30	12003464	37,70
100-200	100	200	120	0.75	11002453	23,40			11003453	27,60	12003453	39,90
100-250	100	250	200	1.45	11002454	25,00			11003454	28,30	12003454	41,30
120-140	120	136	100	0.55	11002466	21,70			11003466	24,70		
120-150	120	150	150	0.85	11002455	17,30			11003455	25,00	12003455	33,90
120-175	120	175	100	0.65	11002456	19,20			11003456	27,90	12003456	41,00
120-200	120	200	120	0.80	11002457	23,70			11003457	34,40	12003457	49,00
120-250	120	250	150	1.20	11002458	24,40			11003458	39,60	12003458	60,80
140-150	136	150	100	0.60	11002467	22,40			11003467	25,60		
140-175	136	175	100	0.65	11002468	25,40			11003468	28,80		
140-200	136	200	150	1.05	11002469	27,80			11003469	31,60		
150-175	150	175	100	0.60	11002460	20,10			11003460	25,60	12003460	35,70
150-200	150	200	100	0.75	11002461	20,70			11003461	29,10	12003461	42,30
150-224	150	220	150	1.15	11002472	32,50			11003472	36,90		
150-250	150	250	150	1.10	11002462	25,70			11003462	39,60	12003462	51,40
150-300	150	300	200	1.85	11002463	33,20			11003463	42,60	12003463	59,70
175-200	175	200	100	0.80	11002465	21,70			11003465	30,30	12003465	41,60
175-224	175	220	100	0.85	11002473	30,20			11003473	45,00		
200-224	200	220	100	0.85	11002474	31,00			11003474	36,90	12003474	50,40
200-250	200	250	120	1.10	11002470	25,60			11003470	39,60	12003470	57,00
200-300	200	300	150	1.55	11002471	33,20			11003471	49,50	12003471	77,00
224-250	220	250	100	1.00	11002476	34,10			11003476	40,60		
224-300	220	300	150	1.60	11002477	40,10			11003477	48,50	12003477	84,60
250-280	250	277	120	1.30	11002960	36,30			11003960*	53,70		
250-300	250	300	150	1.65	11002475	31,60			11003475	49,80	12003475	77,80
250-350	250	350	200	2.20	11002484	50,40			11003484	62,80	12003484	90,40
280-300	277	300	100	1.22	11002961	38,00			11003961*	55,90		
300-315	300	312	100	1.30	11002962	48,30			11003962*	65,70		
300-350	300	350	200	2.55	11002480	59,40			11003480	67,00	12003480	96,50
300-400	300	399	200	2.75	11002481	63,70			11003481	71,00	12003481	106,00

F FOOD GRADE
EG/EC 1935/2004 plus FDA

Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar



DN	Ø A	Ø B	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.	€
*1.5 mm												
315-350	312	350	120	1.65	11002963	52,40			11003963*	67,90		
350-400	350	399	200	2.95	11002482	67,90			11003482	73,70	12003482	102,00
350-450	350	449	200	3.15	11002483	72,10			11003483	80,20	12003483	120,00
400-450	399	449	200	3.40	11002485	74,00			11003485	87,70	12003485	117,00
400-500	399	499	250	4.40	11002486	80,50			11003486	98,10	12003486	146,50
450-500	449	499	200	3.70	11002487	81,90			11003487	109,50	12003487	152,00
450-560	448	558	250	6.70			12002495	88,30			12003495	180,00
500-560	498	558	250	7.00			12002496	92,90			12003496	194,00
500-630	498	628	300	8.90			12002497	102,50			12003497	210,50
560-630	558	628	300	9.50			12002498	119,50			12003498	227,00

*1.5 mm



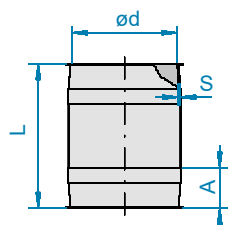
TRANSITION PIECES AND ADAPTERS

Compensators/connecting flanges



Conductive 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	Ø 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*	51,60	11082707*	53,40	11083707*	60,80	11083171*	128,50	
100	99	55	2	200	1.00	12101707	52,90	12102707	54,90	12103707	62,20	12103171	155,00	
120	119	55	2	200	1.16	12121707	56,20	12122707	58,20	12123707	68,20	12123171	171,00	
140	135	55	2	200	1.30	12141707	60,10	12142707	62,20	12143707	71,30	12143171	181,00	
150	149	55	2	200	1.42	12151707	61,40	12152707	63,50	12153707	73,30	12153171	190,50	
175	174	55	2	200	1.65	12171707	65,00	12172707	67,50	12173707	78,40	12173171	194,50	
200	199	55	2	200	1.88	12201707	67,50	12202707	70,00	12203707	83,60	12203171	228,50	
224	219	55	2	200	2.06	12221707	73,30	12222707	75,80	12223707	90,40	12223171	236,00	
250	249	55	2	200	2.34	12251707	76,60	12252707	79,80	12253707	94,30	12253171	261,50	
300	299	55	2	200	2.80	12301707	82,50	12302707	85,70	12303707	100,50	12303171	302,50	

*1 mm



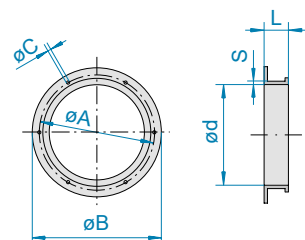
AVAILABLE IN THE DETECTABLE DESIGN LINE.



CONNECTING FLANGES

1310

- For combining with a counter flange for connecting flanges and a flat gasket for counter flanges (see page 89)
- Not suitable for combining with flanges similar to DIN 24154-2



E = No. of holes

Powder-coated (dimensions for 1.5 mm pipework)

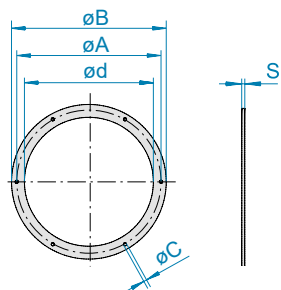
DN	Ø d	Ø A	Ø B	C	E	L	kg	1.5 mm powder-coated		3 mm powder-coated	
								Item no.	€	Item no.	€
80	77	108	123	6	6	35	0.27	11081431	8,40		
100	100	130	150	6	6	28	0.23	11101431	8,40		
120	120	150	170	6	6	28	0.28	11121431	8,70	13121431	31,80
150	150	180	202	6	6	36	0.40	11151431	12,80	13151431	34,70
175	175	205	228	6	6	40	0.49	11171431	18,00	13171431	36,80
200	200	230	250	6	6	37	0.52	11201431	19,00	13201431	38,20
250	250	280	300	6	6	48	0.75	11251431	21,20	13251431	46,60

Galvanised and stainless steel

DN	Ø d	Ø A	Ø 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	8,50	11083431	26,60	
100	100	130	150	6	6	28	0.23	11102431	8,50	11103431	26,60	
120	120	150	170	6	6	28	0.28	11122431	9,00	11123431	30,40	
150	150	180	202	6	6	36	0.40	11152431	12,90	11153431	36,90	
175	175	205	228	6	6	40	0.49	11172431	18,80	11173431	45,50	
200	200	230	250	6	6	37	0.52	11202431	20,50	11203431	54,40	
250	250	280	300	6	6	48	0.75	11252431	23,60	11253431	66,20	

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



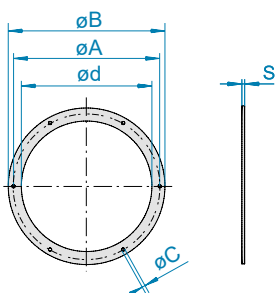
E = No. of holes

COUNTER FLANGES FOR ROUND CONNECTING FLANGES

1311

- Counter flange to match connecting flange (see page 88)
- For use in conjunction with a square flat gasket (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	6,20	10083710	22,00
100	105	130	155	6	6	5	0.40	10100710	6,60	10103710	24,70
120	125	150	175	6	6	5	0.46	10120710	7,50	10123710	25,70
150	155	180	205	6	6	5	0.55	10150710	8,20	10153710	30,90
175	180	205	230	6	6	5	0.63	10170710	8,90	10173710	32,60
200	205	230	255	6	6	5	0.71	10200710	9,90	10203710	36,40
250	255	280	305	6	6	5	0.86	10250710	12,70	10253710	42,10



E = No. of holes

FLAT GASKETS FOR COUNTER FLANGES (ROUND) FOR CONNECTING FLANGES

1312

- Flat gasket to match connecting flange (page 88) 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	78	108	122	6	6	3	10086731	10,50	10087731	11,40	1008773101	13,50
100	99	130	155	6	6	3	10106731	11,10	10107731	12,10	1010773101	16,00
120	119	150	175	6	6	3	10126731	11,90	10127731	12,50	1012773101	15,00
150	149	180	205	6	6	3	10156731	12,10	10157731	12,80	1015773101	18,80
175	174	205	230	6	6	3	10176731	13,30	10177731	14,20	1017773101	22,80
200	199	230	255	6	6	3	10206731	14,00	10207731	15,00	1020773101	26,70
250	249	280	305	6	6	3	10256731	15,10	10257731	16,30	1025773101	36,00

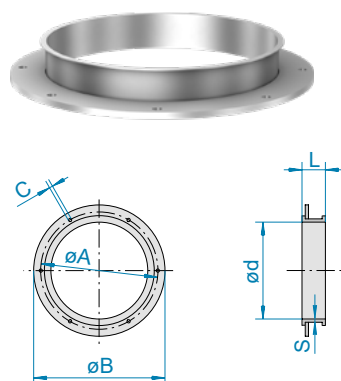
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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 pipe components
- Lipped end for combining with flange similar to DIN 24154-2 (see chapter 11, page 227, for dimensions) and U-shaped seal
- Up to DN 350, in combination with U-shaped seal for 6 mm lip (see page 33)
- From DN 350, in combination with U-shaped seal for 10 mm lip or flat gasket (see page 230/231)

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	8,40				
80	77	118	142	9.5	4	50	0.62	11081432	14,20				
100	100	139	165	9.5	4	50	0.70	11101432	14,70				
120	120	165	185	9.5	4	50	0.84	11121432	16,10				
140	136	182	212	11.5	8	50	1.06	11141432	16,60				
150	150	200	225	11.5	8	50	1.18	11151432	18,00				
175	175	219	250	11.5	8	50	1.34	11171432	19,10				
200	200	241	275	11.5	8	50	1.48	11201432	19,90				
224	220	265	295	11.5	8	50	1.65	11221432	22,90				
250	250	292	325	11.5	8	50	1.82	11251432	22,90				
280	277	332	363	11.5	8	50	2.07	11281432	26,30				
300	300	366	395	11.5	8	50	2.31	11301432	26,30			13301432	30,90
315	312	366	398	11.5	8	50	2.48	11311432	30,20				
350	350	405	436	11.5	8	50	2.93	11351432	31,80			13351432	35,30
400	399	448	485	11.5	12	50	3.57	11401432	38,00			13401432	42,30
450	448	497	535	11.5	12	50	5.52			12451432	43,60	13451432	48,80
500	498	551	585	11.5	12	50	5.98			12501432	52,10	13501432	58,20
560	558	629	665	14.0	16	50	6.73			12561432	77,60	13561432	112,00
630	628	698	735	14.0	16	50	7.86			12631432	84,10	13631432	128,00

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	A	B	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	8,50			11063432	26,60		
80	77	118	142	9.5	4	50	0.62	11082432	15,10			11083432	34,80		
100	100	139	165	9.5	4	50	0.70	11102432	15,70			11103432	37,80		
120	120	165	185	9.5	4	50	0.84	11122432	16,60			11123432	40,70		
140	136	182	212	11.5	8	50	1.06	11142432	16,90			11143432	44,50		
150	150	200	225	11.5	8	50	1.18	11152432	19,10			11153432	48,00		
175	175	219	250	11.5	8	50	1.34	11172432	20,80			11173432	52,00		
200	200	241	275	11.5	8	50	1.48	11202432	21,50			11203432	57,50		
224	220	265	295	11.5	8	50	1.65	11222432	24,60			11223432	69,90		
250	250	292	325	11.5	8	50	1.82	11252432	24,60			11253432	69,90		
280	277	332	363	11.5	8	50	2.07	11282432	28,10			11283432	105,00		
300	300	366	395	11.5	8	50	2.31	11302432	28,10			11303432	105,00		
315	312	366	398	11.5	8	50	2.48	11312432	32,50			11313432	109,00		
350	350	405	436	11.5	8	50	2.93	11352432	34,10			11353432	111,00		
400	399	448	485	11.5	12	50	3.57	11402432	40,50			11403432	124,00		
450	448	497	535	11.5	12	50	5.52			12452432	47,40			12453432	149,00
500	498	551	585	11.5	12	50	5.98			12502432	55,40			12503432	166,50
560	558	629	665	14.0	16	50	6.73			12562432	83,00			12563432	217,50
630	628	698	735	14.0	16	50	7.86			12632432	90,00			12633432	238,00

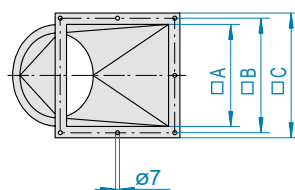
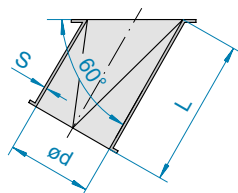
F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ DN 350 to 630 mm with 10 mm lip.
Combination with U-shaped seal for
10 mm lip (refer to page 230)



TRANSITION PIECES AND ADAPTERS

Transition pieces / counter flanges



E = No. of holes

SPOUTS FROM SQUARE TO ROUND / 60°

1290

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

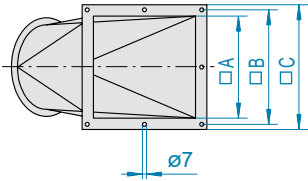
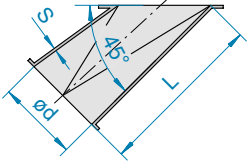
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

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	190	0.75	11081410	42,00			11082410	45,50
100	100	120	140	160	7	190	0.90	11101410	42,00			11102410	45,50
120	120	140	164	180	7	215	1.20	11121410	44,20	13121410	66,60	11122410	45,90
150	150	180	202	220	7	260	1.80	11151410	51,60	13151410	78,20	11152410	54,70
175	175	200	225	245	7	275	2.25	11171410	67,40	13171410	101,00	11172410	68,50
200	200	250	270	290	7	265	2.40	11201410	71,00	13201410	106,50	11202410	84,90
250	250	300	325	345	7	345	4.05	11251410	90,30	13251410	137,00	11252410	96,50
300	300	350	375	395	7	475	6.60	11301410	102,00	13301410	153,50	11302410	107,50

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	190	0.75	11083410	73,20		
100	100	120	140	160	7	190	0.90	11103410	73,20	12103410	95,80
120	120	140	164	180	7	215	1.20	11123410	79,10	12123410	105,00
150	150	180	202	220	7	260	1.80	11153410	90,50	12153410	122,00
175	175	200	225	245	7	275	2.25			12173410	142,50
200	200	250	270	290	7	265	2.40			12203410	175,50
250	250	300	325	345	7	345	4.05			12253410	253,00
300	300	350	375	395	7	475	6.60			12303410	275,00

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 gasket
- Lipped on one side for use with 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	32,50			11082420	34,20
100	100	120	140	160	7	180	0.75	11101420	32,50			11102420	34,20
120	120	140	164	180	7	190	0.90	11121420	37,80	13121420	60,60	11122420	40,10
150	150	180	202	220	7	295	1.95	11151420	54,20	13151420	75,60	11152420	59,20
175	175	200	225	245	7	300	2.40	11171420	66,40	13171420	95,30	11172420	72,30
200	200	250	270	290	7	325	2.75	11201420	68,40	13201420	102,00	11202420	80,30
250	250	300	325	345	7	395	4.65	11251420	85,20	13251420	126,50	11252420	91,80
300	300	350	375	395	7	450	5.55	11301420	95,60	13301420	146,50	11302420	101,00

Stainless steel (dimensions for 1.5 mm pipework)

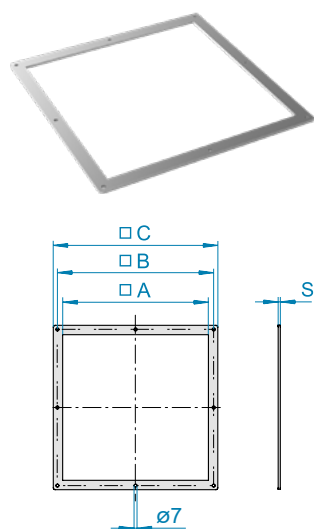
DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel		2 mm stainless steel	
								Item no.	€	Item no.	€
80	77	100	120	140	7	160	0.60	11083420	68,10		
100	100	120	140	160	7	180	0.75	11103420	68,10	12103420	83,40
120	120	140	164	180	7	190	0.90	11123420	72,30	12123420	93,40
150	150	180	202	220	7	295	1.95	11153420	82,50	12153420	108,00
175	175	200	225	245	7	300	2.40			12173420	125,00
200	200	250	270	290	7	325	2.75			12203420	157,00
250	250	300	325	345	7	395	4.65			12253420	229,00
300	300	350	375	395	7	450	5.55			12303420	237,00

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

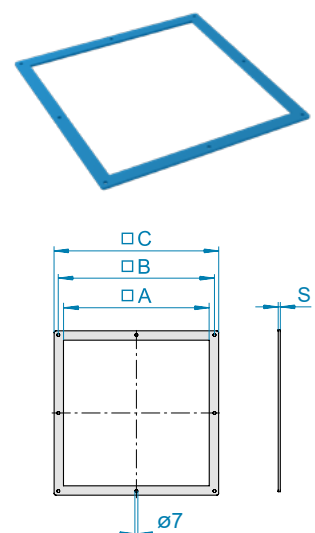
- Counter flange to match spouts from square to round
- For use in conjunction with a square flat gasket

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	7,40	10083714	26,40
100	120	140	160	8	5	0.44	10100714	8,10	10103714	29,50
120	140	164	180	8	5	0.50	10120714	9,10	10123714	30,90
150	180	202	220	8	5	0.63	10150714	9,80	10153714	36,90
175	200	225	245	8	5	0.79	10170714	10,60	10173714	39,20
200	250	270	290	8	5	0.85	10200714	12,80	10203714	43,60
250	300	325	345	8	5	1.14	10250714	16,60	10253714	50,50
300	350	375	395	8	5	1.30	10300714	20,50	10303714	63,00

FLAT GASKETS FOR SPOUTS FROM SQUARE TO ROUND

1302

- Flat gasket 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 F D	
						Item no.	€	Item no.	€	Item no.	€
80	100	120	140	8	3	10086732	11,30	10087732	12,10	1008773201	16,00
100	120	140	160	8	3	10106732	11,90	10107732	12,50	1010773201	17,20
120	140	164	180	8	3	10126732	12,30	10127732	13,00	1012773201	18,70
150	180	202	220	8	3	10156732	12,80	10157732	13,70	1015773201	24,70
175	200	225	245	8	3	10176732	14,40	10177732	15,20	1017773201	26,60
200	250	270	290	8	3	10206732	18,70	10207732	19,80	1020773201	33,20
250	300	325	345	8	3	10256732	23,30	10257732	24,80	1025773201	44,00
300	350	375	395	8	3	10306732	27,20	10307732	28,90	1030773201	50,30

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



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	6,20	10053162	9,30
60	10062162	6,20	10063162	9,50
80	10082162	6,40	10083162	9,70
100	10102162	7,40	10103162	11,10
120	10122162	7,80	10123162	11,60
140	10142162	9,10	10143162	13,50
150	10152162	9,70	10153162	14,70
175	10172162	11,60	10173162	17,10
200	10202162	13,10	10203162	19,40
224	10222162	24,40	10223162	31,60
250	10252162	25,50	10253162	33,30
280	10282162	26,50	10283162	34,50
300	10302162	27,10	10303162	35,20
315	10312162	28,40	10313162	36,90



HOSE CLAMPS

3165

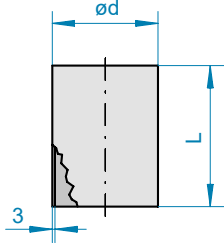
- For fixing flexible sleeves

DN	Stainless steel	
	Item no.	€
60	10063163	8,60
80	10083163	10,40
100	10103163	11,90
120	10123163	12,10
140	10143163	12,60
150	10153163	12,60
175	10173163	13,50
200	10203163	13,80
224	10223163	14,70
250	10253163	14,70
300	10303163	15,90



TRANSITION PIECES AND ADAPTERS

Flexible hoses and accessories



FLEXIBLE SLEEVES FOR HOSE CONNECTIONS

1345

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

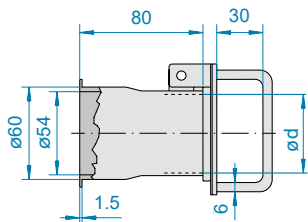
DN	Ø d	L	kg	Conductive EPDM black	
				Item no.	€
60	60	200	0.19	100681705	50,90
80	80	200	0.21	100881705	52,00
100	100	200	0.26	101081705	53,10
120	125	200	0.32	101281705	56,60
140	140	200	0.37	101481705	60,10
150	150	200	0.40	101581705	62,60
175	175	200	0.46	101781705	68,00
200	200	200	0.53	102081705	72,90
224	225	200	0.59	102281705	78,20
250	250	200	0.66	102581705	84,20
300	300	200	0.79	103081705	94,30



HOSE SOCKETS

3175

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



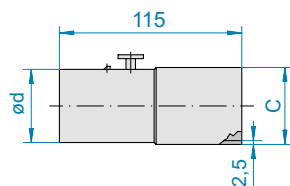
DN	Electro-galvanised		Stainless steel	
	Item no.	€	Item no.	€
60	10062860	59,20	10063860	180,00
80	10082860	137,00		



HOSE PLUGS

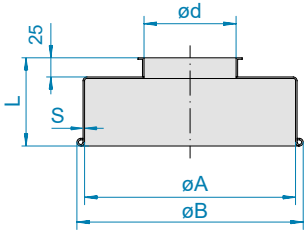
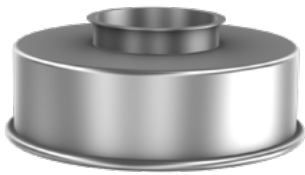
3180

- 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	35,60		
50	50	100628650	35,60	100638650	117,00
80	80	100828650	48,80		

Bagging spouts and accessories



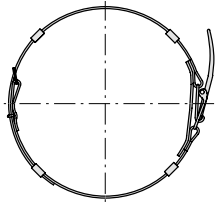
BAGGING SPOUTS

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	52,10	11082585	65,00	11083585	138,00
100	100	275	295	115	11101585	52,10	11102585	65,00	11103585	138,00
120	120	275	295	115	11121585	54,20	11122585	67,40	11123585	140,00
150	150	275	295	115	11151585	60,40	11152585	75,20	11153585	146,50
175	175	275	295	115	11171585	72,50	11172585	89,70	11173585	153,00
200	200	275	295	115	11201585	82,10	11202585	107,50	11203585	166,50
250	250	275	295	115	11251585	104,50	11252585	136,50	11253585	191,00
300	300	300	311	115	11301585	173,00	11302585	224,50	11303585	261,00

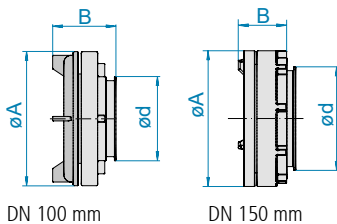


BAG CLAMPS

4010

- Made from leather for bagging spout
- Bag clamp no. 10080581 can be used for bagging spout with 80-300 mm diameter
- For attachment on site

DN min / max	Item no.	€
250-320	10080581	41,40
420-500	10080582	58,00



PNEUMATIC FILL AND VACUUM COUPLINGS

1460

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

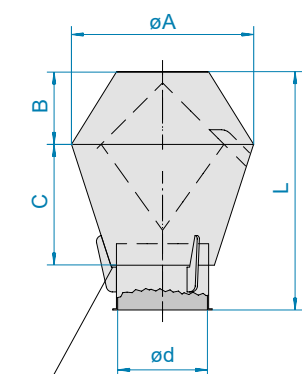
DN	Ø d	Ø A	B	kg	Aluminium	
					Item no.	€
100	113	182	85	1.26	10100870	45,50
150	164	215	91	3.02	10150870	210,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Jet caps and rain caps



Revolving water outlet

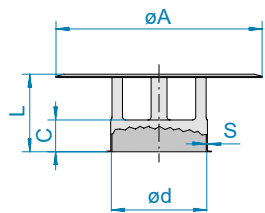
JET CAPS

1430

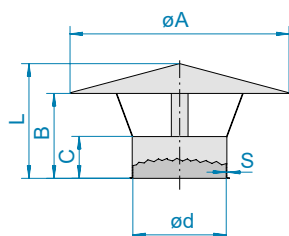
- From DN 350 mm, with welded flange similar to DIN 24154-2 (see chapter 11, page 227, for dimensions), but without counter-flange (see chapter 11 for suitable flanges)

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	221,00	12083805	374,00
100	99	230	110	152	325	3.40	12102805	221,00	12103805	383,50
120	119	260	125	169	355	5.20	12122805	270,00	12123805	422,00
140	135	310	130	222	415	6.60	12142805	274,50	12143805	469,00
150	149	310	130	200	390	7.40	12152805	274,50	12153805	469,00
175	174	360	160	237	460	9.50	12172805	347,50	12173805	593,00
200	199	460	200	322	620	12.50	12202805	414,50	12203805	706,00
224	219	515	235	368	695	14.50	12222805	478,50	12223805	825,50
250	249	515	235	322	650	18.80	12252805	478,50	12253805	825,50
280	276	570	245	305	566	18.00	12282805	555,50	12283805	944,50
300	299	575	255	335	680	18.50	12302805	555,50	12303805	944,50
315	311	590	255	327	680	20.00	12312805	583,50	12313805	991,50
350	349	645	275	448	848	25.50	12352805	604,00	12353805	1027,00
400	398	715	295	480	915	29.50	12402805	699,50	12403805	1189,00
450	448	820	320	588	1040	49.50	12452805	794,50	12453805	1394,00
500	498	870	320	588	1040	53.50	12502805	896,50	12503805	1615,00
560	558	990	372	703	1208	71.00	12562805	995,50	12563805	1847,00
630	628	1140	442	776	1434	95.00	12632805	1135,00	12633805	2101,00
710	707	1290	502	901	1627	118.00	12712805	1716,00	12713805	2832,00
800	797	1440	520	1020	1790	142.00	12802805	1973,00	12803805	3396,00



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

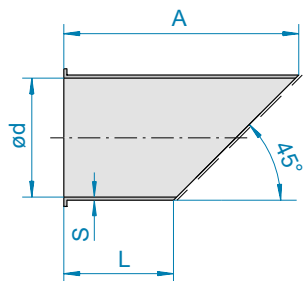
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	ø d	Ø 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	77,90			11083850	104,00		
100	100	225		50	102	0.90	11102850	81,10			11103850	126,00		
120	120	270		50	112	1.30	11122850	84,50			11123850	148,50		
140	136	325		50	122	1.70	11142850	92,80			11143850	170,50		
150	150	325		50	127	1.80	11152850	92,80			11153850	170,50		
175	175	375		50	140	2.30	11172850	98,00			11173850	191,00		
200	200	425		50	152	2.90	11202850	105,50			11203850	214,00		
224	220	525	205	106	275	6.10	11222850	128,50			11223850	257,00		
250	250	525	205	106	275	6.40	11252850	128,50			11253850	257,00		
280	277	596	220	106	300	6.60	11282850	150,50			11283850	302,50		
300	300	625	230	156	315	6.20	11302850	150,50			11303850	302,50		
315	312	655	230	106	320	10.54	11312850	202,50			11313850	408,00		
350	350	750	300	156	395	14.70	11352850	241,00			11353850	466,50		
400	399	850	320	156	435	15.20	11402850	272,50			11403850	583,00		
450	448	950	340	150	470	22.00			12452850	297,50			12453850	741,50
500	498	1050	410	200	550	27.70			12502850	323,50			12503850	832,00
560	558	1150	435	200	590	27.00			12562850	350,00			12563850	888,00
630	628	1300	470	200	645	32.00			12632850	380,00			12633850	934,00



TRANSITION PIECES AND ADAPTERS

Air outlet pipes and perforated sheet metal



AIR OUTLET PIPES 45°

1450

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

Galvanised (dimensions for 1.5 mm)

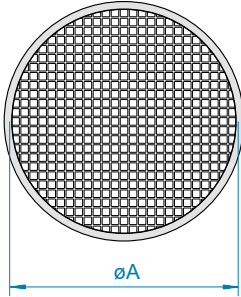
DN	Ø d	A	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11082880*	76,00		
100	100	300	200	1.20	11102880	76,00		
120	120	320	200	1.50	11122880	89,90		
140	136	340	200	1.90	11142880	105,50		
150	150	350	200	2.20	11152880	105,50		
175	175	375	200	2.60	11172880	116,00		
200	200	400	200	3.20	11202880	125,50		
224	220	424	200	3.70	11222880	140,00		
250	250	450	200	4.40	11252880	140,00		
280	277	480	200	5.40	11282880	165,50		
300	300	500	200	6.00	11302880	165,50		
315	312	515	200	7.20	11312880	192,50		
350	350	550	200	8.20	11352880	237,00		
400	399	600	200	10.20	11402880	284,00		
450	449	650	200	12.40	11452880	343,00		
500	499	700	200	14.90	11502880	393,00		
560	558	760	200	23.70			11562880	460,50
630	628	830	200	29.20			11632880	514,00

*1 mm

Stainless steel (dimensions for 1.5 mm)

DN	Ø d	A	L	kg	1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€
80	77	280	200	0.90	11083880	104,00		
100	100	300	200	1.20	11103880	104,00		
120	120	320	200	1.50	11123880	128,00		
140	136	340	200	1.90	11143880	148,00		
150	150	350	200	2.20	11153880	148,00		
175	175	375	200	2.60	11173880	162,00		
200	200	400	200	3.20	11203880	177,50		
224	220	424	200	3.70	11223880	195,50		
250	250	450	200	4.40	11253880	195,50		
280	277	480	200	5.40	11283880*	237,50		
300	300	500	200	6.00	11303880	237,50		
315	312	515	200	7.20	11313880*	268,50		
350	350	550	200	8.20	11353880	322,00		
400	399	600	200	10.20	11403880	399,50		
450	449	650	200	12.40	11453880	458,00		
500	499	700	200	14.90	11503880	529,50		
560	558	760	200	23.70			12563880	631,50
630	628	830	200	29.20			12633880	756,00

*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	16,40
100	114	0.05	11103716	16,40
120	134	0.05	11123716	19,20
140	150	0.05	11143716	19,90
150	164	0.10	11153716	19,90
175	189	0.10	11173716	21,10
200	214	0.11	11203716	23,10
224	238	0.11	11223716	26,70
250	264	0.11	11253716	26,70
280	294	0.13	11283716	28,60
300	314	0.14	11303716	32,60
315	326	0.15	11313716	35,70
350	364	0.15	11353716	39,60
400	414	0.15	11403716	48,30

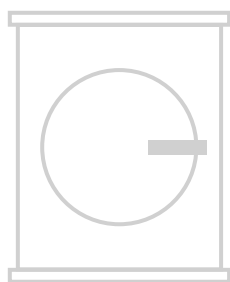


DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.



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



INSPECTION PIPE COMPONENTS

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Plexiglass pipes	112	



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 the complete surrounding area. Like all other pipework elements, the inspection pipe components are manufactured to the same high JACOB standard of quality.

SEALS FOR INSPECTION PIPES 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 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

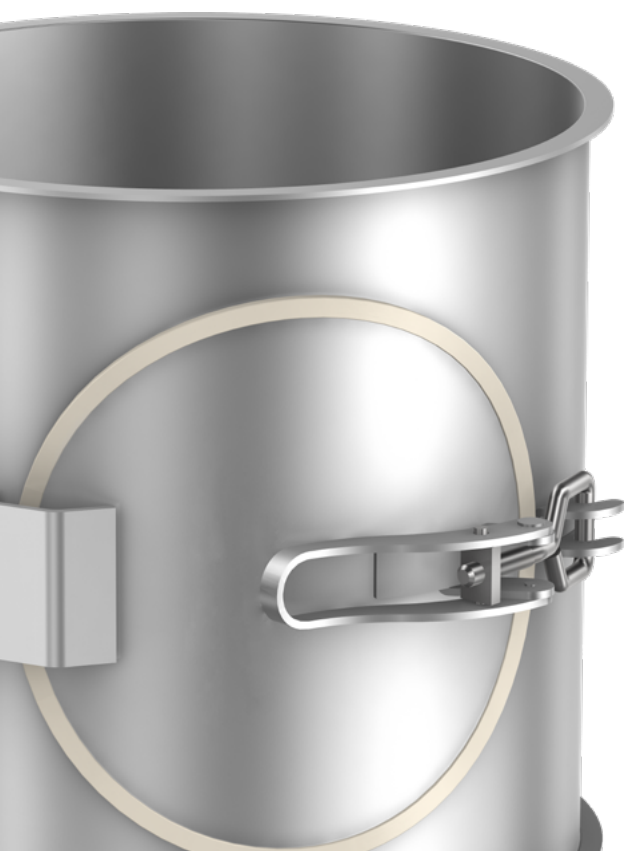
Rubber covers for inspection T-pieces



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

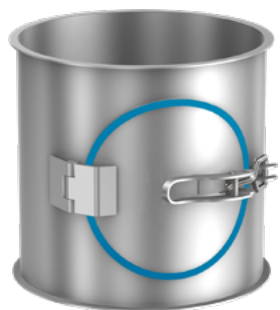


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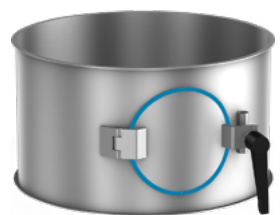


INSPECTION PIPE COMPONENTS

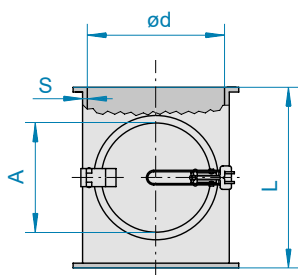
Inspection pipes



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 materials 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	46,80			11082190	55,50
100	100	115	200	1.25	11101190	46,80			11102190	55,50
120	120	115	200	1.45	11121190	48,70	13121190	74,30	11122190	58,20
140	136	115	200	1.55	11141190	51,30			11142190	62,40
150	150	115	200	1.65	11151190	51,30	13151190	78,60	11152190	62,40
175	175	115	200	1.85	11171190	53,80	13171190	79,40	11172190	65,10
200	200	115	200	2.00	11201190	55,40	13201190	83,00	11202190	66,60
224	220	115	200	2.25	11221190	58,30			11222190	72,20
250	250	115	200	2.40	11251190	58,30	13251190	86,50	11252190	72,20
280	277	115	200	2.60	11281190	61,00			11282190	75,10
300	300	115	200	2.65	11301190	61,00	13301190	88,70	11302190	75,10
315	312	115	200	2.85	11311190	70,30			11312190	86,40
350	350	115	200	3.20	11351190	78,40	13351190	104,00	11352190	95,70
400	399	115	200	3.55	11401190	83,20	13401190	113,00	11402190	104,00

Stainless steel (dimensions for 1.5 mm pipework)

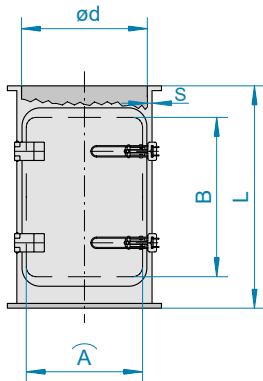
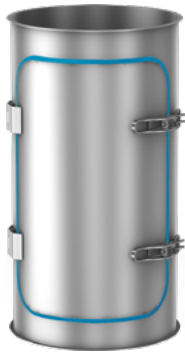
DN	Ø d	A	L	kg	1 mm stainless steel		1.5 mm stainless steel		2 mm stainless steel	
					Item no.	€	Item no.	€	Item no.	€
80	77	80	200	1.05	11083190	99,20				
100	100	115	200	1.25	11103190	99,20			12103190	121,00
120	120	115	200	1.45	11123190	101,50			12123190	123,50
140	136	115	200	1.55	11143190	105,00				
150	150	115	200	1.65	11153190	105,00			12153190	129,00
175	175	115	200	1.85	11173190	109,00			12173190	133,50
200	200	115	200	2.00	11203190	114,50			12203190	142,00
224	220	115	200	2.25	11223190	122,00				
250	250	115	200	2.40	11253190	122,00			12253190	153,50
280	277	115	200	2.60			11283190	133,00		
300	300	115	200	2.65	11303190	133,00			12303190	172,00
315	312	115	200	2.85			11313190	146,50		
350	350	115	200	3.20	11353190	153,50			12353190	195,50
400	399	115	200	3.55	11403190	171,00			12403190	223,50



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 materials 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	147,00			11202195	178,50
224	220	224	350	486	5.20	11221195	157,50			11222195	193,00
250	250	224	350	486	5.85	11251195	157,50			11252195	193,00
280	277	224	350	486	6.60	11281195	167,50			11282195	202,50
300	300	350	350	486	7.00	11301195	167,50			11302195	202,50
315	312	350	350	486	7.35	11311195	175,50			11312195	214,00
350	350	350	350	486	8.40	11351195	176,50			11352195	217,00
400	399	350	350	486	9.10	11401195	188,00			11402195	231,00
450	448	500	350	486	11.60			12451195	200,50	12452195*	257,00
500	498	500	350	486	12.80			12501195	216,00	12502195*	276,00
560	558	500	350	486	14.30			12561195	232,00	12562195*	306,00
630	628	500	350	486	16.00			12631195	250,50	12632195*	325,50

*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	273,50		
224	220	224	350	486	5.20	11223195	293,50		
250	250	224	350	486	5.85	11253195	293,50		
280	277	224	350	486	6.60	11283195	311,00		
300	300	350	350	486	7.00	11303195	311,00		
315	312	350	350	486	7.35	11313195	321,50		
350	350	350	350	486	8.40	11353195	330,50		
400	399	350	350	486	9.10	11403195	347,00		
450	448	500	350	486	11.60			12453195	371,00
500	498	500	350	486	12.80			12503195	398,00
560	558	500	350	486	14.30			12563195	426,50
630	628	500	350	486	16.00			12633195	462,00



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

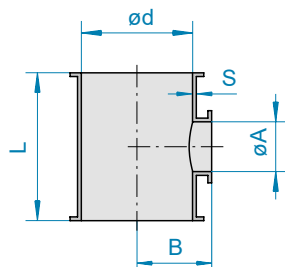
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION PIPE COMPONENTS

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)

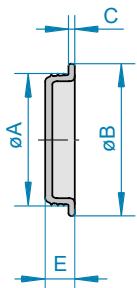
DN	$\varnothing d$	$\varnothing A$	B	L	kg	1.5 mm powder-coated		2 mm powder-coated		3 mm powder-coated	
						Item no.	€	Item no.	€	Item no.	€
100	100	100	79	165	0.75	11101200	22,00				
120	120	100	89	165	0.80	11121200	23,20			13121200	39,50
150	150	120	100	198	1.20	11151200	27,70			13151200	45,10
175	175	150	114	225	1.55			12171200	39,50	13171200	48,40
200	200	150	125	225	1.80	11201200	34,70	12201200	44,20	13201200	61,80
250	250	150	150	225	2.20	11251200	45,40	12251200	58,30	13251200	75,80
300	300	150	177	225	2.55	11301200	54,30	12301200	61,40	13301200	85,20

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	$\varnothing d$	$\varnothing A$	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	24,70	11103200	53,50	12103200	62,80
120	120	100	89	165	0.80	11122200	26,50	11123200	56,10	12123200	67,30
150	150	120	100	198	1.20	11152200	33,30	11153200	65,80	12153200	86,20
175	175	150	114	225	1.55	11172200	36,00	11173200	87,20	12173200	112,50
200	200	150	125	225	1.80	11202200	43,30	11203200	90,20	12203200	121,00
250	250	150	150	225	2.20	11252200	55,90	11253200	100,50	12253200	128,00
300	300	150	177	225	2.55	11302200	65,70	11303200	106,00	12303200	154,50

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	$\varnothing A$	$\varnothing B$	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	5,50
100	101	121	5	21	0.15	10106203	7,30	1010520309	5,70
120	121	141	5	22	0.20	10126203	8,20	1012520309	7,20
150	151	171	6	24	0.35	10156203	11,10	1015520309	7,40
175	176	197	6	29	0.45	10176203	16,60	1017520309	11,10
200	201	221	6	26	0.60	10206203	22,50	1020520309	14,50
250	251	271	7	30	0.90	10256203	31,30	1025520309	19,40
300	301	321	7	32	1.35	10306203	40,60	1030520309	26,90

Silicone

DN	$\varnothing A$	$\varnothing B$	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	24,40	1008720301	35,50
100	102	121	5	21	0.15	10107203	25,50	1010720301	36,70
120	123	141	5	22	0.20	10127203	28,20	1012720301	39,40
150	151	171	6	24	0.35	10157203	36,80	1015720301	49,00
175	176	197	6	25	0.45	10177203	47,40	1017720301	61,80
200	202	221	6	26	0.60	10207203	61,10	1020720301	77,60
250	252	271	7	30	0.90	10257203	94,30	1025720301	123,50
300	302	321	7	32	1.35	10307203	97,70	1030720301	129,00

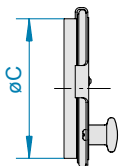
ADDITIONAL RUBBER COVER LOCKS

3040

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

Electro-galvanised

DN	$\varnothing C$	kg	2 mm electro-galvanised	Item no.	€
100	100	0.30	for inspection T-pieces DN 100 and 120 mm	11102210	24,20
120	120	0.35	for inspection T-pieces DN 150 mm	11122210	24,80
150	150	0.55	for inspection T-pieces DN 175 to 300 mm	11152210	30,90



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION PIPE COMPONENTS

Plexiglass pipes



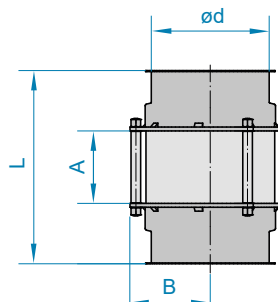
PLEXIGLASS PIPES WITH SOCKETS AND ROD SPACERS

1390

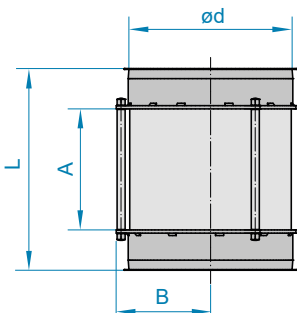
- Including sockets with a lip
- NEW: with rod spacers for a stronger construction
- Temperature-resistant to 70°C
- Plexiglass pipes must not be installed in load bearing situations
- DN 60 to 150 mm and DN 200 mm made of seamless plexiglass
- DN 175 and 250 mm with glued plexiglass, foodstuff compliant 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	65,00	11082725	75,40	11083725	85,80
100	100	75	72	200	0.90	11101725	65,00	11102725	75,40	11103725	85,80
120	120	75	83	200	1.10	11121725	70,10	11122725	79,40	11123725	92,40
150	150	75	97	200	1.30	11151725	72,20	11152725	82,70	11153725	96,70
175	175	100	104	200	1.50	11171725	102,00	11172725	113,00	11173725	123,50
200	200	150	117	250	1.90	11201725	104,50	11202725	115,00	11203725	130,50
250	250	150	142	250	2.30	11251725	144,00	11252725	153,50	11253725	174,50

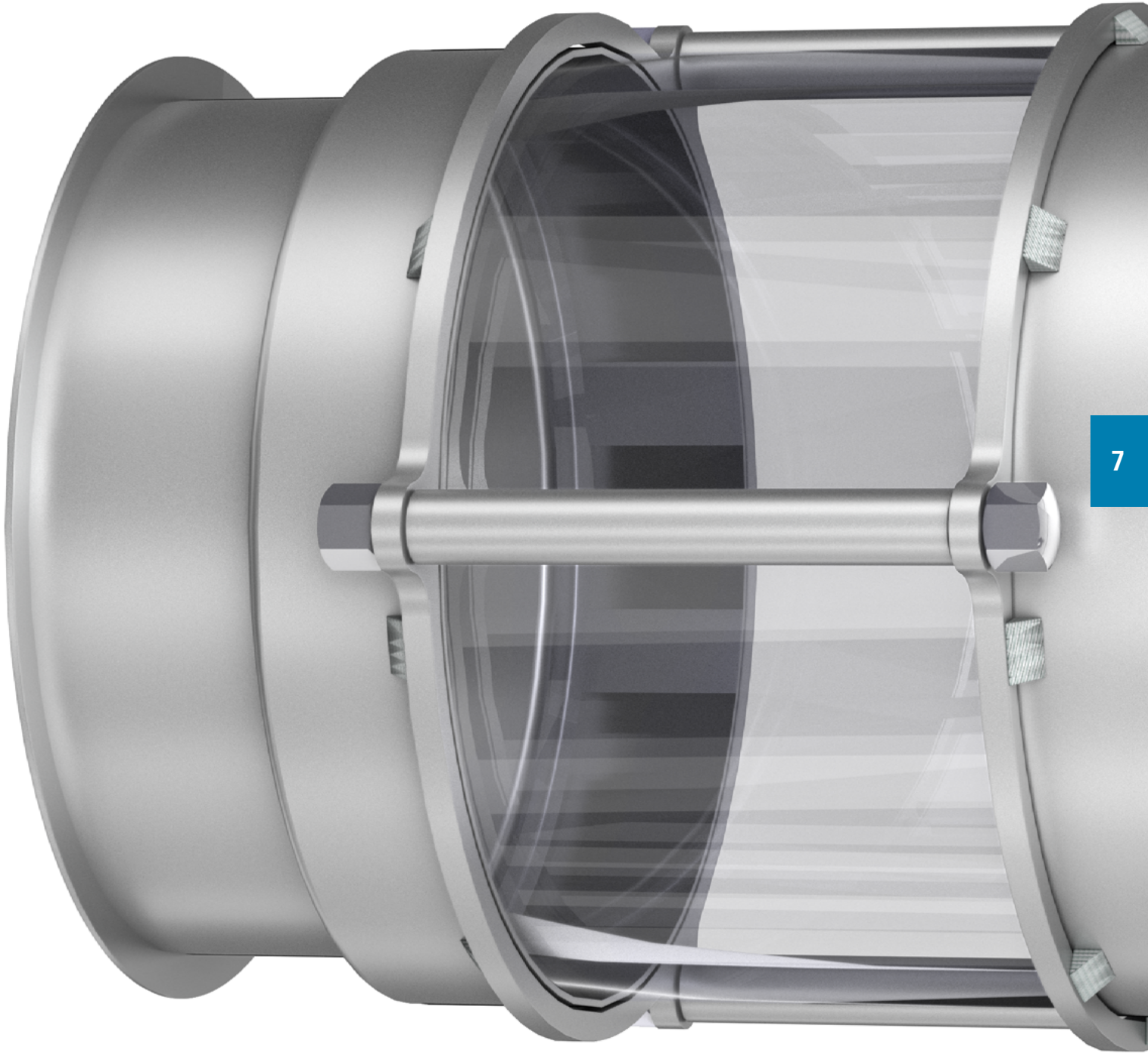


DN 80 to 150 mm



DN 175 to 250 mm

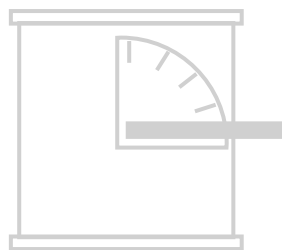
F FOOD GRADE
EC 1935/2004 plus FDA compliant



7



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



CONTROL VALVES

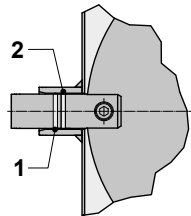
Technical information	116	
Throttle valves	118	
Throttle valves with seal	123	
Adjustable blank-off covers and air bleeds	128	
Non-return valves	129	
Air and pipe slide gates	129	
Silo/Redler outlet slide gates	133	



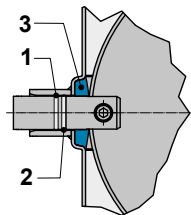
THROTTLE VALVES

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 actuator. 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



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

THROTTLE VALVES WITHOUT SEAL WHEN CLOSED

- Diameters of 60 – 400 mm
- Hand-operated, made of powder-coated, galvanised and stainless steel
- Pneumatically operated with a rotary actuator, and electrically operated with an electric motor, in powder-coated and stainless steel
- Both shafts are sealed with an O-ring made of Viton and a conductive EPDM seal to discharge charges on the inner flap 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

THROTTLE VALVES WITH SEAL WHEN CLOSED

- 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 discharge charges on the inner flap 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
- 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

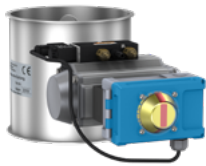
Throttle valves with a seal: Inner valve seal made of silicone rubber

O-ring EPDM	O-ring Viton	Valve seal made of silicone rubber	F
black	green	opaque	
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	



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 227, 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 a 5/2-way spring-return valve (1 coil) with manual air switch, 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 switches 4 to 250 V with spring-free gold contacts for SPS controls and suitable for amperages up to 5 A. Solenoid valve and limit switch 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 under tension 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 remote controlling, or as a continuously adjustable actuator, are available at additional cost.



Electrically operated AIR TORQUE adjustable drives (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.



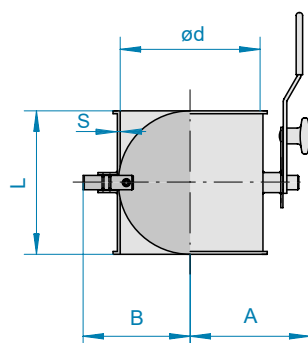
EXPLOSION PROTECTION

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



THROTTLE VALVES, HAND-OPERATED

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

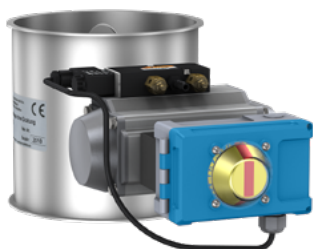
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

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	54,60		
80	77	90	74	100	0.90	11081566	56,80	11082566	75,80
100	100	101	85	100	1.10	11101566	60,10	11102566	77,90
120	120	124	103	120	1.90	11121560	72,10	11122560	90,30
140	136	132	111	140	2.20	11141560	79,70	11142560	97,10
150	150	139	118	150	2.40	11151560	79,70	11152560	97,10
175	175	152	130	175	3.00	11171560	97,40	11172560	107,50
200	200	164	143	200	3.50	11201560	106,00	11202560	117,00
224	220	174	153	200	3.90	11221560	137,00	11222560	153,00
250	250	189	168	200	4.50	11251560	137,00	11252560	153,00
280	277	203	181	200	5.00	11281560	147,50	11282560	168,50
300	300	214	193	200	5.50	11301560	150,50	11302560	171,00
315	312	220	199	200	6.50	11311560*	164,50	11312560*	188,50
350	350	239	218	200	7.50	11351560*	171,00	11352560*	194,50
400	399	264	242	200	9.00	11401560*	189,00	11402560*	216,00

*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	109,50		
80	77	90	74	100	0.90	11083566	138,50		
100	100	101	85	100	1.10	11103566	138,50	12103566	147,50
120	120	124	103	120	1.90	11123560	149,50	12123560	160,50
140	136	132	111	140	2.20	11143560	172,50		
150	150	139	118	150	2.40	11153560	172,50	12153560	182,50
175	175	152	130	175	3.00	11173560	195,50	12173560	212,50
200	200	164	143	200	3.50	11203560	237,50	12203560	248,50
224	220	174	153	200	3.90	11223560	286,50		
250	250	189	168	200	4.50	11253560	286,50	12253560	304,00
280	277	203	181	200	5.00			12283560	344,00
300	300	214	193	200	5.50	11303560	325,50	12303560	344,00
315	312	220	199	200	6.50			12313560	349,50
350	350	239	218	200	7.50			11353560	349,50
400	399	264	242	200	9.00			11403560	408,00



THROTTLE VALVES WITH PNEUMATIC ROTARY ACTUATOR

2095

- 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.	€



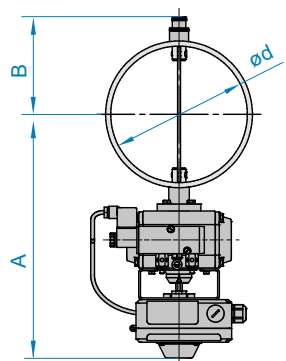
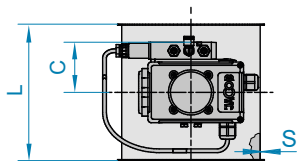
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

60	57	280	63	79	60	3.30	5662060344	615,50	6662060344	728,00
80	77	303	87	79	100	3.60	5662080344	627,50	6662080344	759,00
100	100	315	99	79	100	3.90	5662100344	627,50	6662100344	759,50
120	120	325	109	79	120	4.30	5852120344	631,50	6852120344	768,50
140	136	333	117	79	140	4.70	5852140344	639,00	6852140344	777,50
150	150	340	124	79	150	5.00	5852150344	639,00	6852150344	777,50
175	175	352	136	84	175	6.60	5852170344	661,50	6852170344	824,50
200	200	364	149	84	200	7.40	5852200344	676,00	6852200344	849,50
224	220	374	159	84	200	7.90	5852220344	708,50	6852220344	920,50
250	250	388	174	84	200	8.60	5852250344	708,50	6852250344	920,50
280	277	403	188	84	200	9.10	5852280344	723,50	6852280344	955,00
300	300	414	199	84	200	9.80	5852300344	726,50	6852300344	955,00
315	312	422	205	84	200	10.20	5852310344*	740,50	6852310344*	960,50
350	350	460	224	84	200	10.90	5852350344*	759,50	6852350344*	1008,00
400	399	485	248	84	200	12.30	5852400344*	796,50	6852400344*	1061,00

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

60	57	280	63	79	60	3.30	5662060345	615,50	6662060345	728,00
80	77	303	87	79	100	3.60	5662080345	627,50	6662080345	759,00
100	100	315	99	79	100	3.90	5662100345	627,50	6662100345	759,50
120	120	325	109	79	120	4.30	5852120345	631,50	6852120345	768,50
140	136	333	117	79	140	4.70	5852140345	639,00	6852140345	777,50
150	150	340	124	79	150	5.00	5852150345	639,00	6852150345	777,50
175	175	352	136	84	175	6.60	5852170345	661,50	6852170345	824,50
200	200	364	149	84	200	7.40	5852200345	676,00	6852200345	849,50
224	220	374	159	84	200	7.90	5852220345	708,50	6852220345	920,50
250	250	388	174	84	200	8.60	5852250345	708,50	6852250345	920,50
280	277	403	188	84	200	9.10	5852280345	723,50	6852280345	955,00
300	300	414	199	84	200	9.80	5852300345	726,50	6852300345	955,00
315	312	422	205	84	200	10.20	5852310345*	740,50	6852310345*	960,50
350	350	460	224	84	200	10.90	5852350345*	759,50	6852350345*	1008,00
400	399	485	248	84	200	12.30	5852400345*	796,50	6852400345*	1061,00

*2 mm



F FOOD GRADE
EC 1935/2004 plus FDA compliant



CONTROL VALVES

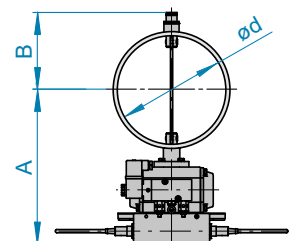
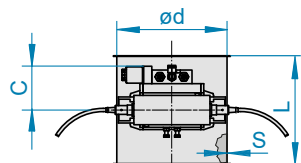
Throttle valves



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	Ø d	A	B	C	L	kg	1.5 mm powder-coated		1.5 mm stainless steel		F
							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	766,00	66620603455	879,00
80	77	303	87	79	100	3.60	56620803455	777,50	66620803455	909,50
100	100	315	99	79	100	3.90	56621003455	777,50	66621003455	910,00
120	120	325	109	79	120	4.30	58521203455	782,00	68521203455	919,00
140	136	333	117	79	140	4.70	58521403455	789,50	68521403455	928,50
150	150	340	124	79	150	5.00	58521503455	789,50	68521503455	928,50
175	175	352	136	84	175	6.60	58521703455	812,00	68521703455	975,50
200	200	364	149	84	200	7.40	58522003455	826,00	68522003455	1000,00
224	220	374	159	84	200	7.90	58522203455	859,00	68522203455	1071,00
250	250	388	174	84	200	8.60	58522503455	859,00	68522503455	1071,00
280	277	403	188	84	200	9.10	58522803455	874,00	68522803455	1106,00
300	300	414	199	84	200	9.80	58523003455	877,50	68523003455	1106,00
315	312	422	205	84	200	10.20	58523103455*	891,00	68523103455*	1111,00
350	350	460	224	84	200	10.90	58523503455*	910,00	68523503455*	1158,00
400	399	485	248	84	200	12.30	58524003455*	947,50	68524003455*	1213,00

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

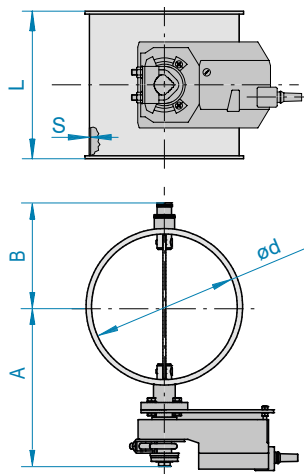


Valve actuator, make BELIMO, voltage 230 V AC

60	57	145	63	60	3.60	5662060551	458,00	6662060551	592,00
80	77	166	87	100	3.90	5662080551	462,50	6662080551	619,50
100	100	179	99	100	4.20	5662100551	462,50	6662100551	620,50
120	120	189	109	120	4.60	5852120551	467,00	6852120551	628,50
140	136	197	117	140	5.00	5852140551	477,50	6852140551	643,00
150	150	204	124	150	5.20	5852150551	477,50	6852150551	643,00
175	175	216	136	175	5.60	5852170551	526,50	6852170551	726,00
200	200	229	149	200	6.40	5852200551	542,50	6852200551	751,00
224	220	239	159	200	6.80	5852220551	599,00	6852220551	811,00
250	250	254	174	200	7.40	5852250551	599,00	6852250551	811,00
280	277	403	188	200	8.10	5852280551	620,50	6852280551	866,50
300	300	277	199	200	8.70	5852300551	623,00	6852300551	866,50

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

60	57	145	63	60	3.60	5662060552	458,00	6662060552	592,00
80	77	166	87	100	3.90	5662080552	462,50	6662080552	619,50
100	100	179	99	100	4.20	5662100552	462,50	6662100552	620,50
120	120	189	109	120	4.60	5852120552	467,00	6852120552	628,50
140	136	197	117	140	5.00	5852140552	477,50	6852140552	643,00
150	150	204	124	150	5.20	5852150552	477,50	6852150552	643,00
175	175	216	136	175	5.60	5852170552	526,50	6852170552	726,00
200	200	229	149	200	6.40	5852200552	542,50	6852200552	751,00
224	220	239	159	200	6.80	5852220552	599,00	6852220552	811,00
250	250	254	174	200	7.40	5852250552	599,00	6852250552	811,00
280	277	403	188	200	8.10	5852280552	620,50	6852280552	866,50
300	300	277	199	200	8.70	5852300552	623,00	6852300552	866,50

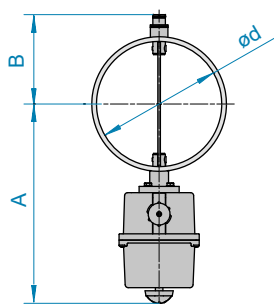
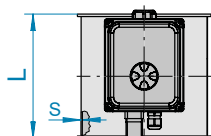


F FOOD GRADE
EC 1935/2004 plus FDA compliant



CONTROL VALVES

Throttle valves



THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE DRIVE

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

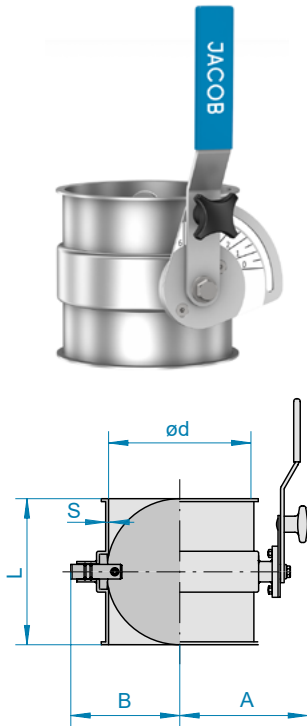
60	57	240	63	60	2.80	5662060773	661,50	6662060773	774,50	
80	77	250	75	100	3.00	5662080773	663,50	6662080773	802,50	
100	99	262	85	100	3.20	5662100773	663,50	6662100773	802,50	
120	119	277	103	120	3.70	5852120773	667,00	6852120773	812,50	
140	135	285	111	140	4.00	5852140773	677,00	6852140773	821,50	
150	149	293	118	150	4.20	5852150773	677,00	6852150773	821,50	
175	174	305	131	175	4.70	5852170773	700,50	6852170773	872,00	
200	199	317	143	200	5.30	5852200773	716,00	6852200773	898,00	
224	219	327	153	200	5.70	5852220773	751,00	6852220773	973,00	
250	249	342	168	200	6.30	5852250773	751,00	6852250773	973,00	
280	276	357	182	200	6.80	5852280773	766,00	6852280773	1011,00	
300	299	368	193	200	7.30	5852300773	769,00	6852300773	1011,00	
315	311	374	199	200	8.40	5852310773*	783,00	6852310773*	1015,00	
350	349	393	218	200	9.40	5852350773*	789,50	6852350773*	1036,00	
400	398	418	242	200	10.80	5852400773*	807,00	6852400773*	1093,00	

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

60	57	240	63	60	2.80	5662060774	661,50	6662060774	774,50	
80	77	250	75	100	3.00	5662080774	663,50	6662080774	802,50	
100	99	262	85	100	3.20	5662100774	663,50	6662100774	802,50	
120	119	277	103	120	3.70	5852120774	667,00	6852120774	812,50	
140	135	285	111	140	4.00	5852140774	677,00	6852140774	821,50	
150	149	293	118	150	4.20	5852150774	677,00	6852150774	821,50	
175	174	305	131	175	4.70	5852170774	700,50	6852170774	872,00	
200	199	317	143	200	5.30	5852200774	716,00	6852200774	898,00	
224	219	327	153	200	5.70	5852220774	751,00	6852220774	973,00	
250	249	342	168	200	6.30	5852250774	751,00	6852250774	973,00	
280	276	357	182	200	6.80	5852280774	766,00	6852280774	1011,00	
300	299	368	193	200	7.30	5852300774	769,00	6852300774	1011,00	
315	311	374	199	200	8.40	5852310774*	783,00	6852310774*	1015,00	
350	349	393	218	200	9.40	5852350774*	789,50	6852350774*	1036,00	
400	398	418	242	200	10.80	5852400774*	807,00	6852400774*	1093,00	

*2 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES, HAND-OPERATED

2080

- Silicone rubber seal
- Temperature resistance: -60°C to +180°C
- 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*	127,50	12083577	227,50	
100	99	133	93	100	2.20	12101577	127,50	12103577	227,50	
120	119	143	103	120	2.60	12121577	132,00	12123577	242,00	
140	135	151	111	140	2.90	12141577	143,50	12143577	264,50	
150	149	158	116	150	3.20	12151577	143,50	12153577	264,50	
175	174	170	131	175	3.90	12171577	167,00	12173577	305,00	
200	199	183	143	200	4.60	12201577	185,00	12203577	332,50	
224	219	193	153	200	5.10	12221577	230,50	12223577	417,00	
250	249	208	168	200	5.80	12251577	230,50	12253577	417,00	
280	276	222	182	200	6.40	12281577	246,50	12283577	446,50	
300	299	233	193	200	7.22	12301577	252,50	12303577	457,50	
315	311	272	220	200	10.50	12311577	328,00	12313577	502,50	
350	349	291	239	200	12.00	12351577	374,50	12353577	543,00	
400	398	316	264	200	14.20	12401577	420,00	12403577	650,00	

*1.5 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

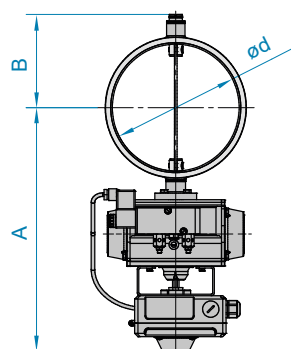
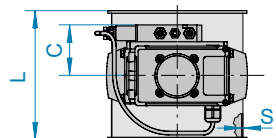
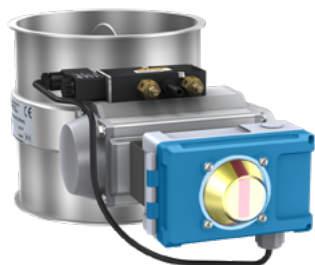
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



CONTROL VALVES

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	681,50	6772080344	823,50
100	99	315	99	79	100	3.90	5772100344	681,50	6772100344	823,50
120	119	325	109	79	120	4.30	5772120344	687,00	6772120344	830,50
140	135	333	117	79	140	4.70	5772140344	696,50	6772140344	844,00
150	149	340	124	79	150	5.00	5772150344	696,50	6772150344	844,00
175	174	352	136	84	175	6.60	5772170344	718,50	6772170344	895,50
200	199	385	149	84	200	7.40	5772200344	734,50	6772200344	920,50
224	219	395	159	84	200	7.90	5772220344	770,00	6772220344	995,50
250	249	410	174	84	200	8.60	5772250344	770,00	6772250344	995,50
280	276	413	188	84	200	9.60	5772280344	784,00	6772280344	1019,00
300	299	439	199	84	200	9.80	5772300344	789,50	6772300344	1029,00
315	311	455	220	84	200	14.10	5772310344	863,50	6772310344	1076,00
350	349	474	239	84	200	18.20	5772350344	909,00	6772350344	1116,00
400	399	499	264	84	200	20.70	5772400344	953,00	6772400344	1224,00

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

80	76	303	87	79	100	3.60	5772080345	681,50	6772080345	823,50
100	99	315	99	79	100	3.90	5772100345	681,50	6772100345	823,50
120	119	325	109	79	120	4.30	5772120345	687,00	6772120345	830,50
140	135	333	117	79	140	4.70	5772140345	696,50	6772140345	844,00
150	149	340	124	79	150	5.00	5772150345	696,50	6772150345	844,00
175	174	352	136	84	175	6.60	5772170345	718,50	6772170345	895,50
200	199	385	149	84	200	7.40	5772200345	734,50	6772200345	920,50
224	219	395	159	84	200	7.90	5772220345	770,00	6772220345	995,50
250	249	410	174	84	200	8.60	5772250345	770,00	6772250345	995,50
280	276	413	188	84	200	9.60	5772280345	784,00	6772280345	1019,00
300	299	439	199	84	200	9.80	5772300345	789,50	6772300345	1029,00
315	311	455	220	84	200	14.10	5772310345	863,50	6772310345	1076,00
350	349	474	239	84	200	18.20	5772350345	909,00	6772350345	1116,00
400	399	499	264	84	200	20.70	5772400345	953,00	6772400345	1224,00

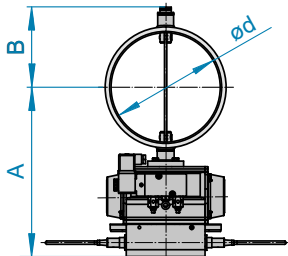
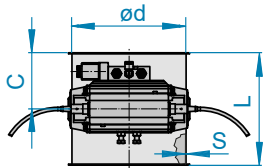


DETECTABLE DESIGN

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	833,00	67720803455	974,50
100	99	315	99	79	100	3.90	57721003455	833,00	67721003455	974,50
120	119	325	109	79	120	4.30	57721203455	837,50	67721203455	980,50
140	135	333	117	79	140	4.70	57721403455	846,00	67721403455	995,00
150	149	340	124	79	150	5.00	57721503455	846,00	67721503455	995,00
175	174	352	136	84	175	6.60	57721703455	869,00	67721703455	1046,00
200	199	385	149	84	200	7.40	57722003455	885,00	67722003455	1071,00
224	219	395	159	84	200	7.90	57722203455	920,50	67722203455	1146,00
250	249	410	174	84	200	8.60	57722503455	920,50	67722503455	1146,00
280	276	413	188	84	200	9.60	57722803455	934,00	67722803455	1170,00
300	299	439	199	84	200	9.80	57723003455	941,00	67723003455	1181,00



DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



CONTROL VALVES

Throttle valves with seal




THROTTLE VALVES WITH ELECTRICALLY-OPERATED VALVE ACTUATOR

2100

- Switch-over time for 90°: approx. 150 seconds
- Limit switch indication 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)

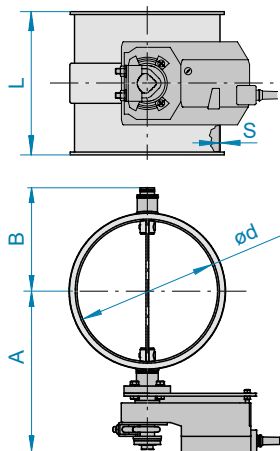
DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm stainless steel		
						Item no.	€	Item no.	€	

Valve actuator, make BELIMO, voltage 230 V AC

80	76	166	86	100	3.90	5772080551	514,50	6772080551	645,00
100	99	179	98	100	4.20	5772100551	514,50	6772100551	678,50
120	119	189	108	120	4.60	5772120551	520,00	6772120551	684,50
140	135	197	116	140	5.00	5772140551	529,50	6772140551	699,50
150	149	204	123	150	5.20	5772150551	529,50	6772150551	699,50
175	174	216	135	175	5.80	5772170551	552,50	6772170551	740,00
200	199	229	148	200	6.60	5772200551	570,00	6772200551	768,00


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

80	76	166	86	100	3.90	5772080552	514,50	6772080552	678,50
100	99	179	98	100	4.20	5772100552	514,50	6772100552	678,50
120	119	189	108	120	4.60	5772120552	520,00	6772120552	684,50
140	135	197	116	140	5.00	5772140552	529,50	6772140552	699,50
150	149	204	123	150	5.20	5772150552	529,50	6772150552	699,50
175	174	216	135	175	5.80	5772170552	552,50	6772170552	740,00
200	199	229	148	200	6.60	5772200552	570,00	6772200552	768,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 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.	€

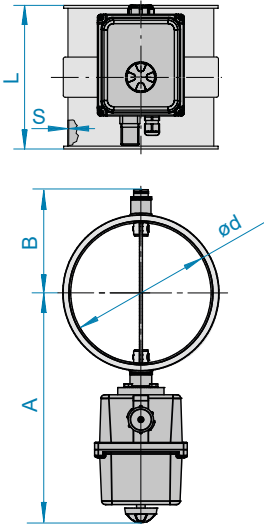


Adjustable actuator, make AIR TORQUE, voltage 230 V AC

80	77	256	82	100	3.40	5772080773	721,50	6772080773	871,00
100	99	267	93	100	3.70	5772100773	721,50	6772100773	871,00
120	119	277	103	120	4.10	5772120773	727,00	6772120773	879,00
140	135	285	111	140	4.50	5772140773	736,00	6772140773	892,00
150	149	293	118	150	4.80	5772150773	736,00	6772150773	892,00
175	174	305	131	175	5.40	5772170773	760,50	6772170773	947,50
200	199	317	143	200	6.20	5772200773	777,50	6772200773	973,00
224	219	327	153	200	6.60	5772220773	880,50	6772220773	1118,00
250	249	342	168	200	7.30	5772250773	880,50	6772250773	1118,00
280	276	356	182	200	8.00	5772280773	895,50	6772280773	1156,00
300	299	368	193	200	8.60	5772300773	901,00	6772300773	1168,00
315	311	386	220	200	11.60	5772310773	975,00	6772310773	1213,00
350	349	405	239	200	13.00	5772350773	1020,00	6772350773	1254,00
400	398	430	264	200	15.00	5772400773	1065,00	6772400773	1360,00

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

80	77	256	82	100	3.40	5772080774	721,50	6772080774	871,00
100	99	267	93	100	3.70	5772100774	721,50	6772100774	871,00
120	119	277	103	120	4.10	5772120774	727,00	6772120774	879,00
140	135	285	111	140	4.50	5772140774	736,00	6772140774	892,00
150	149	293	118	150	4.80	5772150774	736,00	6772150774	892,00
175	174	305	131	175	5.40	5772170774	760,50	6772170774	947,50
200	199	317	143	200	6.20	5772200774	777,50	6772200774	973,00
224	219	327	153	200	6.60	5772220774	880,50	6772220774	1118,00
250	249	342	168	200	7.30	5772250774	880,50	6772250774	1118,00
280	276	356	182	200	8.00	5772280774	895,50	6772280774	1156,00
300	299	368	193	200	8.60	5772300774	901,00	6772300774	1168,00
315	311	386	220	200	11.60	5772310774	975,00	6772310774	1213,00
350	349	405	239	200	13.00	5772350774	1020,00	6772350774	1254,00
400	398	430	264	200	15.00	5772400774	1065,00	6772400774	1360,00



DETECTABLE DESIGN
Metal-detectable

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

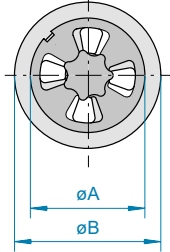
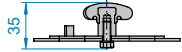


CONTROL VALVES

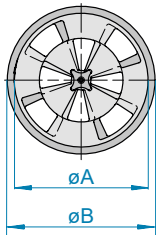
Adjustable blank-off covers and air bleeds

ADJUSTABLE BLANK-OFF COVERS

2030



DN 80 to 200 mm



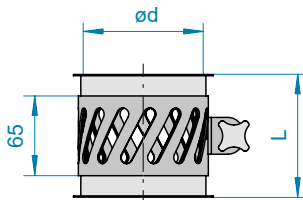
DN 224 to 300 mm

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	39,80	11083522	53,90	
100	90	115	0.19	17	11101522	39,80	11103522	53,90	
120	110	135	0.25	21	11121522	42,40	11123522	59,70	
140	126	151	0.30	25	11141522	44,30	11143522	62,60	
150	140	165	0.34	26	11151522	44,30	11153522	62,60	
175	165	190	0.44	29	11171522	48,80	11173522	81,60	
200	190	215	0.56	31	11201522	55,80	11203522	88,20	
224	210	235	0.65	31	11221522	62,70	11223522	97,30	
250	240	265	0.81	33	11251522	62,70	11253522	97,30	
280	270	292	0.97	34	11281522	74,10	11283522	102,00	
300	290	315	1.12	35	11301522	79,10	11303522	105,00	

AIR BLEEDS

2040

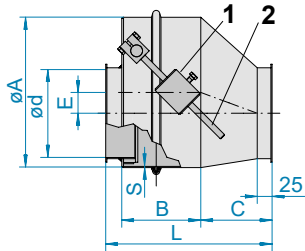


Powder-coated and stainless steel

DN	Ø d	L	kg	1 mm powder-coated		1 mm stainless steel		F
				Item no.	€	Item no.	€	
80	78	100	0.39	11081523	72,30	11083523	83,10	
100	100	100	0.47	11101523	77,40	11103523	88,90	
120	120	100	0.55	11121523	82,60	11123523	94,70	
140	136	100	0.61	11141523	91,80	11143523	105,50	
150	150	100	0.67	11151523	91,80	11153523	105,50	
175	175	100	0.76	11171523	106,50	11173523	123,00	
200	200	100	0.88	11201523	116,50	11203523	134,00	

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Adjustable blank-off covers and air bleeds/ Air and pipe slide gates



- 1 Lever arm adjustable 360°
- 2 Adjustable weight on lever arm

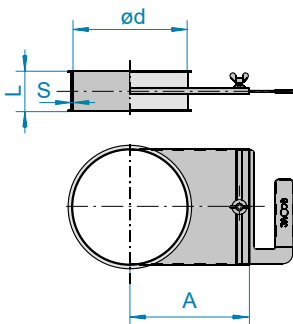
NON-RETURN VALVES

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	514,00	12083575	855,50	
100	99	175	115	90	22.5	230	4.90	12101575	530,00	12103575	881,50	
120	119	200	130	100	25	255	6.25	12121575	547,50	12123575	891,00	
150	149	250	135	120	35	280	8.30	12151575	581,50	12153575	965,00	
175	174	300	150	140	47.5	315	10.50	12171575	610,50	12173575	1014,00	
200	199	300	185	140	35	350	11.60	12201575	647,00	12203575	1074,00	
250	249	350	225	165	35	415	15.10	12251575	700,00	12253575	1172,00	
300	299	450	260	195	55	480	22.70	12301575	768,50	12303575	1260,00	



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)

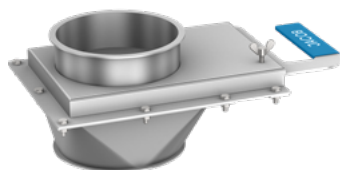
DN	$\varnothing d$	A	L	kg	2 mm powder-coated		2 mm stainless steel		F
					Item no.	€	Item no.	€	
100	99	100	70	1.10	12101610	57,70	12103610	148,50	
120	119	120	70	1.40	12121610	60,00	12123610	159,00	
150	149	150	70	2.00	12151610	73,00	12153610	207,50	
175	174	180	70	2.75	12171610	88,80	12173610	236,00	
200	199	200	70	3.10	12201610	103,00	12203610	254,50	
250	249	250	70	4.60	12251610	150,50	12253610	391,50	
300	299	300	70	7.10	12301610	156,00	12303610	407,00	

F FOOD GRADE
EC 1935/2004 plus FDA compliant



CONTROL VALVES

Air and pipe slide gates

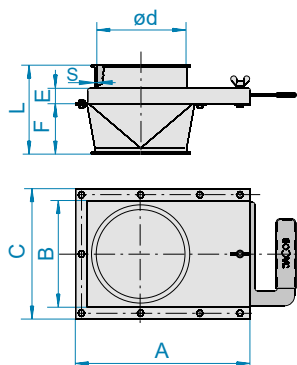


PIPE SLIDE GATES, HAND-OPERATED

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	158,50		
100	99	225	120	160	28	60	108	2.05			12101620	165,00
120	119	251	140	180	28	70	138	3.00			12121620	167,00
150	149	295	180	220	25	85	152	4.20			12151620	175,00
175	174	320	200	245	28	145	212	5.80			12171620	217,00
200	199	410	250	290	26	115	182	7.60			12201620	238,00
250	249	432	300	345	30	150	217	9.50			12251620	287,00
300	299	512	350	395	30	210	277	13.50			12301620	327,00

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	175,00		
100	99	225	120	160	28	60	108	2.05			12102620	185,50
120	119	251	140	180	27	70	138	3.00			12122620	197,00
150	149	295	180	220	25	85	152	4.20			12152620	222,00
175	174	320	200	245	28	145	212	5.80			12172620	264,50
200	199	410	250	290	26	115	182	7.60			12202620	295,50
250	249	432	300	345	30	150	217	9.50			12252620	337,00
300	299	512	350	395	30	210	277	13.50			12302620	391,00

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	363,00		
100	99	225	120	160	28	60	108	2.05			12103620	387,00
120	119	251	140	180	27	70	138	3.00			12123620	392,00
150	149	295	180	220	25	85	152	4.20			12153620	435,00
175	174	320	200	245	28	145	212	5.80			12173620	511,50
200	199	410	250	290	26	115	182	7.60			12203620	566,50
250	249	432	300	345	30	150	217	9.50			12253620	626,00
300	299	512	350	395	30	210	277	13.50			12303620	699,50



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

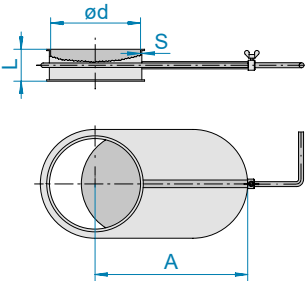
D DETECTABLE DESIGN
Metal-detectable



AIR FLOW CONTROL GATES



- Only for air pipelines

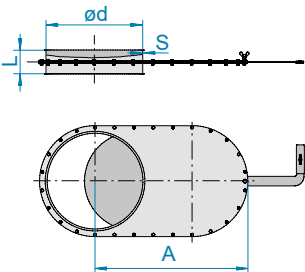


DN 80 to 300 mm

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	40,20		
100	100	175	58	1.10	11101525	40,20		
120	120	205	58	1.30	11121525	42,80		
140	136	242	70	1.70	11141525	58,20		
150	150	250	70	1.80	11151525	58,20		
175	175	290	70	2.55	11171525	103,00		
200	200	335	70	3.40	11201525	107,50		
224	220	392	70	3.90	11221525	125,50		
250	250	410	100	4.60	11251525	125,50		
300	299	485	100	7.90			12301525	140,00

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



DN 350 to 500 mm

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	51,00			11083525	112,00	
100	100	175	58	1.10	11102525	51,00			11103525	112,00	
120	120	205	58	1.30	11122525	55,90			11123525	117,50	
140	136	242	70	1.70	11142525	72,50			11143525	164,00	
150	150	250	70	1.80	11152525	72,50			11153525	164,00	
175	175	290	70	2.55	11172525	114,00			11173525	208,50	
200	200	335	70	3.40	11202525	117,50			11203525	229,50	
224	220	392	70	3.90	11222525	136,50			11223525	284,50	
250	250	410	100	4.60	11252525	136,50			11253525	284,50	
300	299	485	100	7.90				12302525	175,50	12303525*	325,50
350	349	560	100	15.50				12352525	296,00	12353525*	530,50
400	398	636	100	18.80				12402525	355,00	12403525*	629,00
450	448	710	100	22.50				12452525	426,00	12453525*	761,00
500	498	795	100	28.80				12502525	478,00	12503525*	861,00

* 2 mm

F FOOD GRADE
EC 1935/2004 plus FDA
compliant



CONTROL VALVES

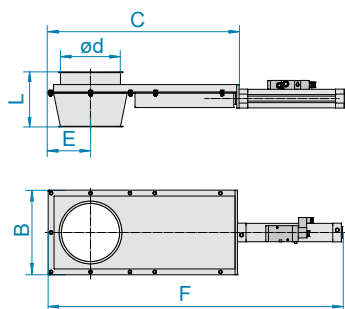
Air and pipe slide gates



PIPE SLIDE GATES, PNEUMATICALLY OPERATED

2290

- Including cylinder, make FESTO
- 5/2-way solenoid valve (1-coil) with auxiliary hand operation and 2 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	Ø d	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	873,00	6622100121	1219,00
120	119	180	360	90	618	138	6.90	5622120121	905,50	6622120121	1286,00
150	149	225	505	110	782	152	9.20	5602150221	957,50	6602150221	1365,00
175	174	250	555	123	882	212	11.00	5602170221	998,00	6602170221	1437,00
200	199	295	645	148	1055	182	19.90	5602200221	1077,00	6602200221	1553,00
250	249	350	780	173	1210	217	22.20	5602250221	1159,00	6602250221	1689,00
300	299	400	880	198	1360	277	28.40	5602300221	1265,00	6602300221	1782,00

Control voltage 24 V DC

100	99	160	320	80	578	108	5.90	5622100123	873,00	6622100123	1219,00
120	119	180	360	90	618	138	6.90	5622120123	905,50	6622120123	1286,00
150	149	225	505	110	782	152	9.20	5602150223	957,50	6602150223	1365,00
175	174	250	555	123	882	212	11.00	5602170223	998,00	6602170223	1437,00
200	199	295	645	148	1055	182	19.90	5602200223	1077,00	6602200223	1553,00
250	249	350	780	173	1210	217	22.20	5602250223	1159,00	6602250223	1689,00
300	299	400	880	198	1360	277	28.40	5602300223	1265,00	6602300223	1782,00

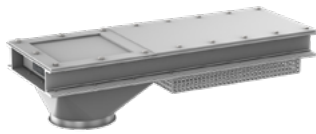


DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

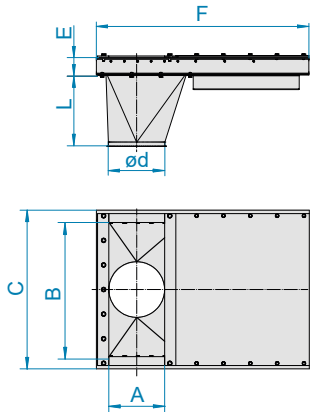
D DETECTABLE DESIGN
Metal-detectable



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 limit switches, potential-free
- Slide plate runs on ball bearings in a U-frame
- Steel, primed, powder coating 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)

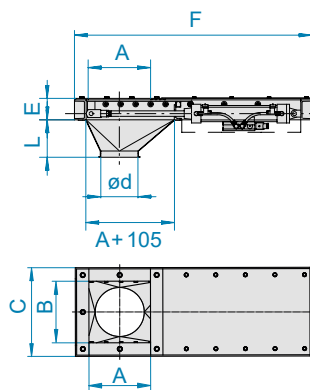
DN	Ø d	A	B	C	E	F	L	kg	Without spout		With 2 mm spout	
									Item no.	€	Item no.	€

Control voltage 230 V AC

200	199	200	600	710	86	852	360	65	5710200121	1489,00	5712200121	1718,00
250	249	250	600	710	86	952	320	73	5710250121	1530,00	5712250121	1767,00
300	299	300	600	710	86	1052	270	78	5710300121	1587,00	5712300121	1838,00

Control voltage 24 V DC

200	199	200	600	710	86	852	360	65	5710200123	1489,00	5712200123	1718,00
250	249	250	600	710	86	952	320	73	5710250123	1530,00	5712250123	1767,00
300	299	300	600	710	86	1052	270	78	5710300123	1587,00	5712300123	1838,00



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

150	149	200	200	310	86	852	150	40	5760150121	1399,00	5762150121	1556,00
200	199	250	250	360	86	952	150	46	5760200121	1427,00	5762200121	1614,00
250	249	300	300	410	86	1052	150	52	5760250121	1502,00	5762250121	1685,00

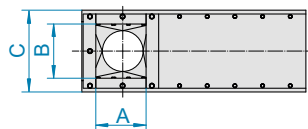
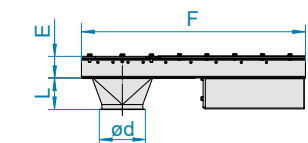
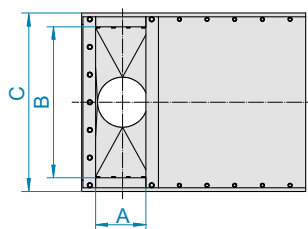
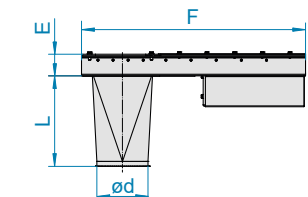
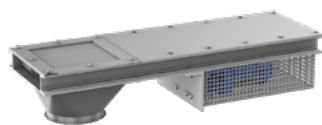
Control voltage 24 V DC

150	149	200	200	310	86	852	150	40	5760150123	1399,00	5762150123	1556,00
200	199	250	250	360	86	952	150	46	5760200123	1427,00	5762200123	1614,00
250	249	300	300	410	86	1052	150	52	5760250123	1502,00	5762250123	1685,00



CONTROL VALVES

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 coating on request
- For shutting off granular bulk goods without over-pressure in the pipework system
- FOOD GRADE version, powder coating 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	1960,00	57122005	2168,00
250	249	250	600	710	86	995	320	91	57102505	1977,00	57122505	2194,00
300	299	300	600	710	86	1145	270	103	57103005	1992,00	57123005	2241,00

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	1823,00	57621505	1980,00
200	199	250	250	354	71	1082	150	64	57602005	1859,00	57622005	2029,00
250	249	300	300	404	71	1232	150	54	57602505	1914,00	57622505	2095,00





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



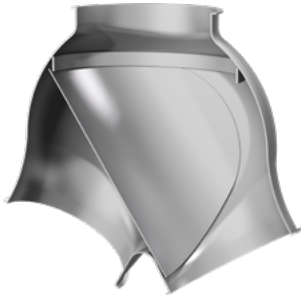
TWO-WAY DIVERTERS

Technical information	138	
Two-way valves with inlet collar	144	
Two-way valves with seal	150	
Two-way distributors	156	



TWO-WAY DIVERTERS

Technical information



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



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

JACOB TWO-WAY DIVERTERS

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

JACOB two-way diverters

	Two-way valves with inlet collar	Two-way valves with seal	Two-way distributors
Application	Gravity conveying bulk goods	Gravity conveying bulk goods Ventilation systems up to 0.1 bar	Gravity conveying 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 flanged pipework, 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°

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 227, 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:

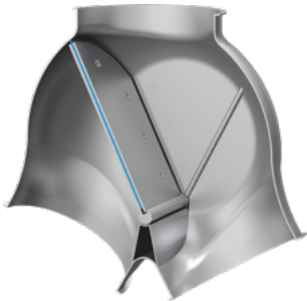
- Hand-operated, DN > 200 mm with additional lever lock, DN 350 and 400 mm without tension spring
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic cylinder, make FESTO (refer also to actuators)

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 plus FDA.



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



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

TWO-WAY VALVES WITH SEAL

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 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 an inlet collar.

Inner flap 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
opaque		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 plus FDA.

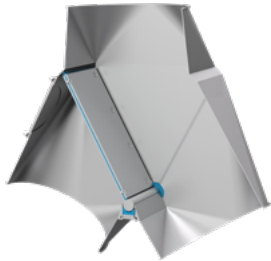
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

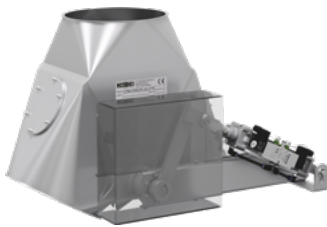


TWO-WAY DIVERTERS

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



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 227, for dimensions)
- Angle between outlets 45° or 60°
- The use of pneumatic actuators is recommended as they hold the inner valve 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 ports 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 cylinder, DN 100 to 630 mm, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic cylinder, DN 100 to 630mm, 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
opaque	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 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)

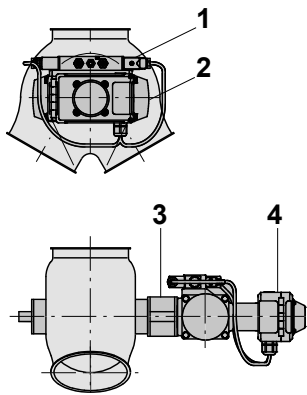
EXPLOSION PROTECTION FOR TWO-WAY DIVERTERS

Outside area: Depending on the add-on part, ATEX versions for the surroundings of the two-way diverters 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.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



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

ACTUATORS FOR TWO-WAY DIVERTERS

Version fitted with pneumatic 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, in 24 V DC or in 230 V AC
- The solenoid valve is bolted directly to the actuator in accordance with Namur specification
- Complete with 2 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 switches with spring-free gold contacts, 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

Version fitted with pneumatic cylinder

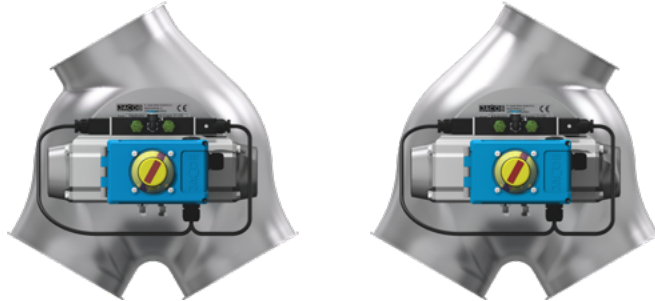
- Cylinder, make FESTO, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation; fitted to the cylinder with a hose connection and available in 24 V DC or in 230 V AC with connection sockets, IP 65
- Complete with 2 exhaust throttles for speed adjustment and a hose connection for compressed air (angle 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 position via 2 potential-free limit switches with LEDs, which are positioned on the cylinder. With 2 m free cable end. 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





Installation of the actuator in asymmetrical components

With asymmetric components, the actuation is positioned on the right-hand side as standard according to the illustration. Installation on the left-hand side is possible at no extra charge at the customer's request.



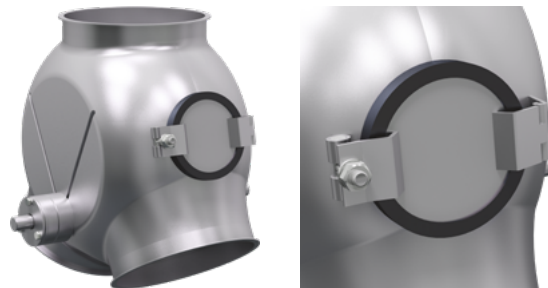
Standard: Actuator unit on right-hand side Optional: Actuator unit on left-hand side

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: €97.40
- Extra charge for stainless steel: €124.50



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: € 39.90
- Extra charge for stainless steel: € 47.20





Limit switches

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

- Siemens 3SE 5232-OHD03
- Pepperl & Fuchs type NBB 5-18GM50-E2
- Pepperl & Fuchs type NCB 5-18GM40-N0, ATEX Zone 21
- ATEX limit switch IFM IG 513A, ATEX Zone 22



Gear-motor

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

YOUR INDIVIDUAL TWO-WAY DIVERTERS

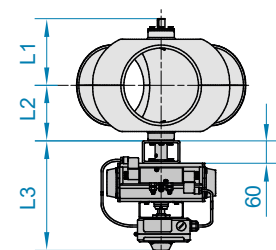
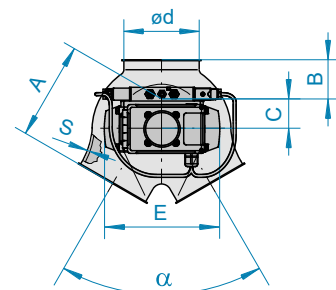
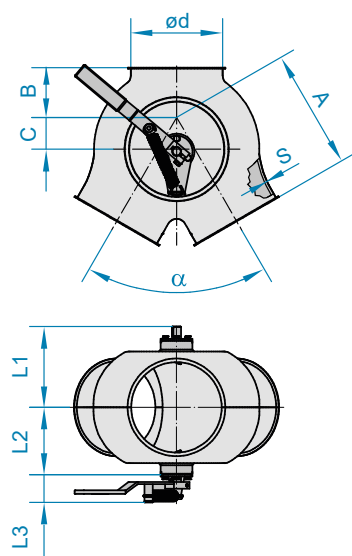
JACOB two-way diverters are available not only in a comprehensive standard range but also in a wide range of special versions:

- 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. Inlet and outlets can also be produced specially to match the diameter of connecting pipes
- Stainless steel in a pickled and passivated version
- Over 3,000 special colours (refer to chapter 1, Materials)
- ATEX-version: with terminal box or limit switch box, other inductive limit switches
- Viton shaft seal
- Fitting of inspection opening in small diameters on request (refer also to Technical information and accessories)
- Other inner flap 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 DIVERTERS

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	155,50			12103502	368,50	
120	60°	160	50	54	129	99	60	12121502	165,00			12123502	395,50	
150	60°	200	80	60	146	116	60	12151502	180,50	13151502	253,50	12153502	517,00	
175	60°	218	63	75	159	129	60	12171505	224,50	13171505	312,50	12173505	637,00	
200	60°	265	110	70	178	148	60	12201505	281,00	13201505	364,50	12203505	723,00	
250	60°	305	115	82	199	169	60	12251505	373,00	13251505	487,00	12253505	999,00	
300	60°	385	145	110	225	195	60	12301502	515,00	13301502	604,00	12303502	1188,00	
350	50°	520	95	185	345	300	90	12351505	1003,00	13351505	1301,00	12353505	2290,00	
400	50°	580	105	195	378	333	90	12401505	1158,00	13401505	1490,00	12403505	2632,00	

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	215	129	88	297	5582100244	756,00			6582100244	956,50	
120	60°	160	50	54	215	129	99	297	5582120244	763,50			6582120244	981,00	
150	60°	200	80	60	215	146	116	297	5582150244	764,50	5583150244	831,00	6582150244	1113,00	
175	60°	218	63	75	215	159	129	297	5582170144	838,50	5583170144	928,00	6582170144	1246,00	
200	60°	265	110	70	290	178	148	302	5582200144	892,00	5583200144	987,00	6582200144	1329,00	
250	60°	305	115	82	290	199	169	302	5582250144	988,00	5583250144	1146,00	6582250144	1586,00	
300	60°	385	145	110	290	225	195	302	5582300244	1110,00	5583300244	1227,00	6582300244	1755,00	
350	50°	520	95	185	310	345	300	312	5582350144	1736,00	5583350144	1999,00	6582350144	2783,00	
400	50°	580	105	195	310	378	333	312	5582400144	1879,00	5583400144	2176,00	6582400144	3078,00	

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

100	60°	135	50	41	215	129	88	297	5582100245	756,00			6582100245	956,50	
120	60°	160	50	54	215	129	99	297	5582120245	763,50			6582120245	981,00	
150	60°	200	80	60	215	146	116	297	5582150245	764,50	5583150245	831,00	6582150245	1113,00	
175	60°	218	63	75	215	159	129	297	5582170145	838,50	5583170145	928,00	6582170145	1246,00	
200	60°	265	110	70	290	178	148	302	5582200145	892,00	5583200145	987,00	6582200145	1329,00	
250	60°	305	115	82	290	199	169	302	5582250145	988,00	5583250145	1146,00	6582250145	1586,00	
300	60°	385	145	110	290	225	195	302	5582300245	1110,00	5583300245	1227,00	6582300245	1755,00	
350	50°	520	95	185	310	345	300	312	5582350145	1736,00	5583350145	1999,00	6582350145	2783,00	
400	50°	580	105	195	310	378	333	312	5582400145	1879,00	5583400145	2176,00	6582400145	3078,00	

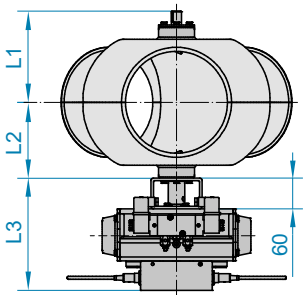
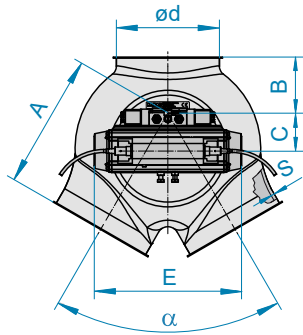
F FOOD GRADE
EC 1935/2004 plus FDA compliant



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

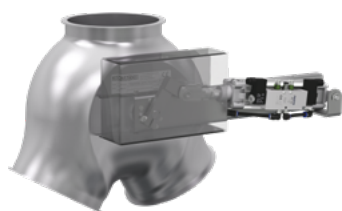
100	60°	135	50	41	216	118	88	203	55821002455	944,00			65821002455	1145,00	
120	60°	160	50	54	216	129	99	203	55821202455	951,50			65821202455	1170,00	
150	60°	200	80	60	216	146	116	203	55821502455	952,50	55831502455	1019,00	65821502455	1303,00	
175	60°	218	63	75	216	159	129	203	55821701455	1027,00	55831701455	1116,00	65821701455	1435,00	
200	60°	265	110	70	290	178	148	220	55822001455	1081,00	55832001455	1177,00	65822001455	1517,00	
250	60°	305	115	82	290	199	169	220	55822501455	1177,00	55832501455	1334,00	65822501455	1773,00	
300	60°	385	145	110	290	225	195	220	55823002455	1300,00	55833002455	1414,00	65823002455	1943,00	
350	50°	520	95	185	310	345	300	230	55823501455	1925,00	55833501455	2187,00	65823501455	2970,00	
400	50°	580	105	195	310	378	333	230	55824001455	2067,00	55834001455	2364,00	65824001455	3267,00	

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY DIVERTERS

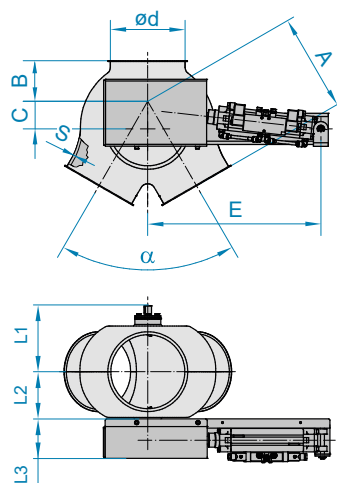
Two-way valves with inlet collar



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

2155

- Control with 5/2-way solenoid valve (2-coil) and 2 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	756,00			6582100221	956,50
120	60°	160	50	54	440	129	99	88	5582120221	763,50			6582120221	981,00
150	60°	200	80	60	440	146	116	88	5582150221	764,50	5583150221	831,00	6582150221	1113,00
175	60°	218	63	75	440	159	129	88	5582170121	838,50	5583170121	928,00	6582170121	1246,00
200	60°	265	110	70	470	178	148	88	5582200121	892,00	5583200121	987,00	6582200121	1329,00
250	60°	305	115	82	470	199	169	88	5582250121	988,00	5583250121	1146,00	6582250121	1586,00
300	60°	385	145	110	470	225	195	88	5582300221	1110,00	5583300221	1227,00	6582300221	1755,00
350	50°	520	95	185	470	345	300	90	5582350121	1736,00	5583350121	1999,00	6582350121	2783,00
400	50°	580	105	195	470	378	333	90	5582400121	1879,00	5583400121	2176,00	6582400121	3078,00

Cylinder, make FESTO, control voltage 24 V DC

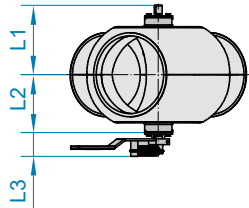
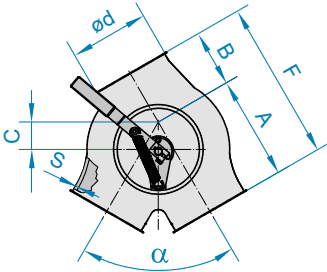
100	60°	135	56	41	440	129	88	88	5582100223	756,00			6582100223	956,50
120	60°	160	50	54	440	129	99	88	5582120223	763,50			6582120223	981,00
150	60°	200	80	60	440	146	116	88	5582150223	764,50	5583150223	831,00	6582150223	1113,00
175	60°	218	63	75	440	159	129	88	5582170123	838,50	5583170123	928,00	6582170123	1246,00
200	60°	265	110	70	470	178	148	88	5582200123	892,00	5583200123	987,00	6582200123	1329,00
250	60°	305	115	82	470	199	169	88	5582250123	988,00	5583250123	1146,00	6582250123	1586,00
300	60°	385	145	110	470	225	195	88	5582300223	1110,00	5583300223	1227,00	6582300223	1755,00
350	50°	520	95	185	470	345	300	90	5582350123	1736,00	5583350123	1999,00	6582350123	2783,00
400	50°	580	105	195	470	378	333	90	5582400123	1879,00	5583400123	2176,00	6582400123	3078,00

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	155,50			12103512	368,50	
120	60°	160	70	54	230	129	99	60	12121512	165,00			12123512	395,50	
150	60°	200	100	60	300	146	116	60	12151512	180,50	13151512	253,50	12153512	517,00	
175	60°	218	90	75	308	159	129	60	12171517	224,50	13171517	312,50	12173517	637,00	
200	60°	265	145	70	410	178	148	60	12201517	281,00	13201517	364,50	12203517	723,00	
250	60°	305	155	82	460	199	169	60	12251517	373,00	13251517	487,00	12253517	999,00	
300	60°	385	190	110	575	225	195	60	12301512	515,00	13301512	604,00	12303512	1188,00	
350	50°	520	150	185	670	345	300	90	12351515	1003,00	13351515	1301,00	12353515	2290,00	
400	50°	580	170	195	750	378	333	90	12401515	1158,00	13401515	1490,00	12403515	2632,00	

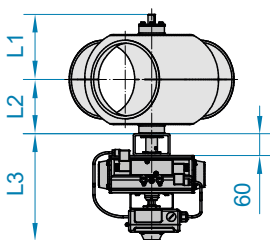
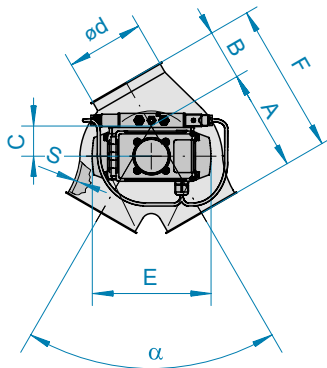
TWO-WAY VALVES WITH INLET COLLAR, ASYMMETRICAL, FITTED WITH PNEUMATIC ROTARY ACTUATOR

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	252	200	82	88	282	5592100244	756,00			6592100244	956,50	
120	60°	160	70	54	252	230	90	99	282	5592120244	763,50			6592120244	981,00	
150	60°	200	100	60	252	300	146	116	282	5592150244	764,50	5593150244	831,00	6592150244	1113,00	
175	60°	218	90	75	252	308	159	129	282	5592170144	838,50	5593170144	928,00	6592170144	1246,00	
200	60°	265	145	70	308	410	178	148	302	5592200144	892,00	5593200144	987,00	6592200144	1329,00	
250	60°	305	156	82	308	460	199	169	302	5592250144	988,00	5593250144	1146,00	6592250144	1586,00	
300	60°	385	190	110	308	575	225	195	302	5592300244	1110,00	5593300244	1227,00	6592300244	1755,00	
350	50°	520	150	185	342	670	325	300	334	5592350144	1736,00	5593350144	1999,00	6592350144	2783,00	
400	50°	580	170	195	342	750	350	333	334	5592400144	1879,00	5593400144	2176,00	6592400144	3078,00	

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

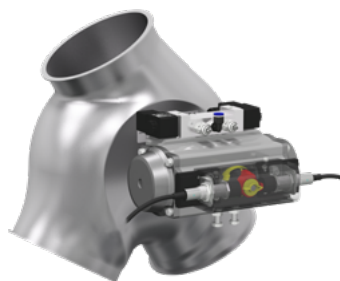
100	60°	135	65	41	252	200	82	88	282	5592100245	756,00			6592100245	956,50	
120	60°	160	70	54	252	230	90	99	282	5592120245	763,50			6592120245	981,00	
150	60°	200	100	60	252	300	146	116	282	5592150245	764,50	5593150245	831,00	6592150245	1113,00	
175	60°	218	90	75	252	308	159	129	282	5592170145	838,50	5593170145	928,00	6592170145	1246,00	
200	60°	265	145	70	308	410	178	148	302	5592200145	892,00	5593200145	987,00	6592200145	1329,00	
250	60°	305	156	82	308	460	199	169	302	5592250145	988,00	5593250145	1146,00	6592250145	1586,00	
300	60°	385	190	110	308	575	225	195	302	5592300245	1110,00	5593300245	1227,00	6592300245	1755,00	
350	50°	520	150	185	342	670	325	300	334	5592350145	1736,00	5593350145	1999,00	6592350145	2783,00	
400	50°	580	170	195	342	750	350	333	334	5592400145	1879,00	5593400145	2176,00	6592400145	3078,00	

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY DIVERTERS

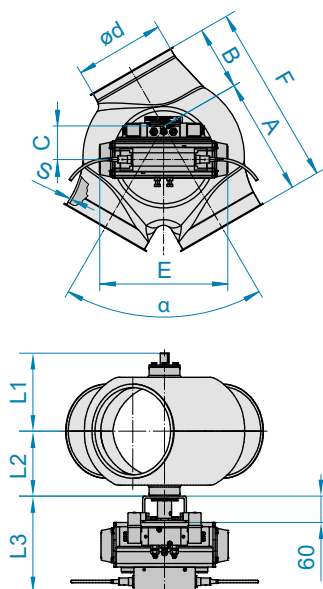
Two-way valves with inlet collar



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

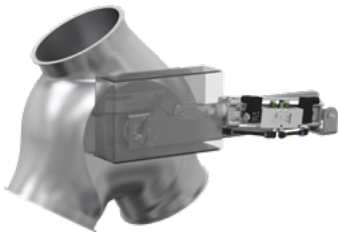


DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated		3 mm powder-coated		2 mm stainless steel		F
										Item no.	€	Item no.	€	Item no.	€	

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

100	60°	135	65	41	216	200	118	88	203	55921002455	944,00			65921002455	1145,00	
120	60°	160	70	54	216	230	129	99	203	55921202455	951,50			65921202455	1170,00	
150	60°	200	100	60	216	300	146	116	203	55921502455	952,50	55931502455	1019,00	65921502455	1303,00	
175	60°	218	90	75	216	308	159	129	203	55921701455	1027,00	55931701455	1116,00	65921701455	1435,00	
200	60°	265	145	70	290	410	178	148	220	55922001455	1081,00	55932001455	1177,00	65922001455	1517,00	
250	60°	305	155	82	290	460	199	169	220	55922501455	1177,00	55932501455	1334,00	65922501455	1773,00	
300	60°	385	190	110	290	575	225	195	220	55923002455	1300,00	55933002455	1414,00	65923002455	1943,00	
350	50°	520	150	185	310	670	345	300	230	55923501455	1925,00	55933501455	2187,00	65923501455	2970,00	
400	50°	580	170	195	310	750	378	333	230	55924001455	2067,00	55934001455	2364,00	65924001455	3267,00	

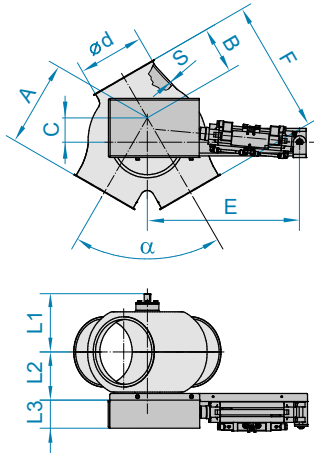
F FOOD GRADE
EC 1935/2004 plus FDA compliant



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

2165

- Control with 5/2-way solenoid valve (2-coil) and 2 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		
										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	756,00			6592100221	956,50	
120	60°	160	70	54	440	230	90	99	88	5592120221	763,50			6592120221	981,00	
150	60°	200	100	60	440	300	146	116	88	5592150221	764,50	5593150221	831,00	6592150221	1113,00	
175	60°	218	90	75	440	308	159	129	88	5592170121	838,50	5593170121	928,00	6592170121	1246,00	
200	60°	265	145	70	470	410	178	148	88	5592200121	892,00	5593200121	987,00	6592200121	1329,00	
250	60°	305	156	82	470	460	199	169	88	5592250121	988,00	5593250121	1146,00	6592250121	1586,00	
300	60°	385	190	110	470	575	225	195	88	5592300221	1110,00	5593300221	1227,00	6592300221	1755,00	
350	50°	520	150	185	470	670	325	300	90	5592350121	1736,00	5593350121	1999,00	6592350121	2783,00	
400	50°	580	170	195	470	750	350	333	90	5592400121	1879,00	5593400121	2176,00	6592400121	3078,00	

Cylinder, make FESTO, control voltage 24 V DC

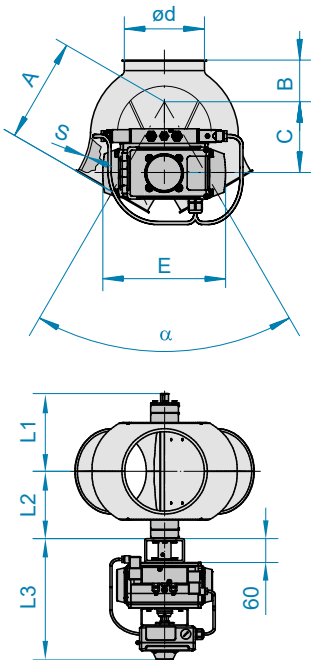
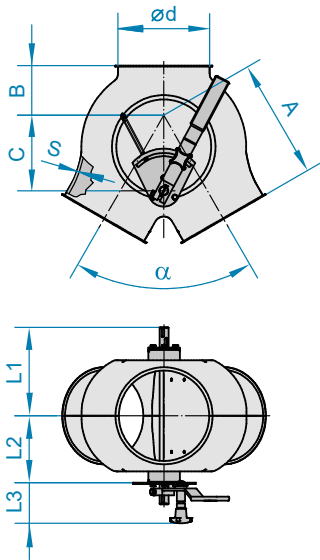
100	60°	135	65	41	440	200	82	88	88	5592100223	756,00			6592100223	956,50	
120	60°	160	70	54	440	230	90	99	88	5592120223	763,50			6592120223	981,00	
150	60°	200	100	60	440	300	146	116	88	5592150223	764,50	5593150223	831,00	6592150223	1113,00	
175	60°	218	90	75	440	308	159	129	88	5592170123	838,50	5593170123	928,00	6592170123	1246,00	
200	60°	265	145	70	470	410	178	148	88	5592200123	892,00	5593200123	987,00	6592200123	1329,00	
250	60°	305	156	82	470	460	199	169	88	5592250123	988,00	5593250123	1146,00	6592250123	1586,00	
300	60°	385	190	110	470	575	225	195	88	5592300223	1110,00	5593300223	1227,00	6592300223	1755,00	
350	50°	520	150	185	470	670	325	300	90	5592350123	1736,00	5593350123	1999,00	6592350123	2783,00	
400	50°	580	170	195	470	750	350	333	90	5592400123	1879,00	5593400123	2176,00	6592400123	3078,00	

FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY DIVERTERS

Two-way valves with seal



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

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	351,50			121035037	528,00	
120	60°	160	50	112	148	96	88	12121503	351,50			121235037	528,00	
150	60°	200	80	136	168	119	88	12151503	372,50	13151503	430,00	121535037	643,00	
175	60°	218	63	170	198	147	88	12171506	433,00	13171506	472,00	121735067	869,00	
200	60°	265	110	167	199	150	88	12201506	433,00	13201506	472,00	122035067	869,00	
250	60°	305	115	215	220	171	88	12251506	441,50	13251506	540,00	122535067	1070,00	
300	60°	385	145	260	264	213	88	12301503	541,00	13301503	657,00	123035037	1248,00	



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	193	140	110	265	5542100244	864,00			65421002744	1112,00	
120	60°	160	50	112	193	148	118	265	5542120244	864,00			65421202744	1112,00	
150	60°	200	80	136	193	168	138	265	5542150244	883,50	5543150244	941,50	65421502744	1227,00	
175	60°	218	63	170	193	198	168	265	5542170144	967,00	5543170144	1014,00	65421701744	1482,00	
200	60°	265	110	167	225	199	169	275	5542200144	967,00	5543200144	1014,00	65422001744	1482,00	
250	60°	305	115	215	225	220	190	275	5542250144	976,00	5543250144	1089,00	65422501744	1677,00	
300	60°	385	145	260	225	264	234	275	5542300244	1070,00	5543300244	1192,00	65423002744	1852,00	

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

100	60°	135	50	87	193	140	110	265	5542100245	864,00			65421002745	1112,00	
120	60°	160	50	112	193	148	118	265	5542120245	864,00			65421202745	1112,00	
150	60°	200	80	136	193	168	138	265	5542150245	883,50	5543150245	941,50	65421502745	1227,00	
175	60°	218	63	170	193	198	168	265	5542170145	967,00	5543170145	1014,00	65421701745	1482,00	
200	60°	265	110	167	225	199	169	275	5542200145	967,00	5543200145	1014,00	65422001745	1482,00	
250	60°	305	115	215	225	220	190	275	5542250145	976,00	5543250145	1089,00	65422501745	1677,00	
300	60°	385	145	260	225	264	234	275	5542300245	1070,00	5543300245	1192,00	65423002745	1852,00	



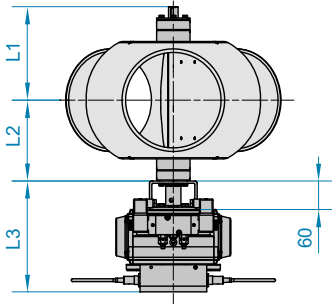
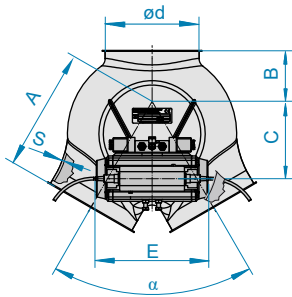
AVAILABLE IN THE DETECTABLE DESIGN LINE.



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
- Two-way valves 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	210	140	110	220	55421002455	1052,00			654210027455	1301,00	
120	60°	160	50	112	210	148	118	220	55421202455	1052,00			654212027455	1301,00	
150	60°	200	80	136	210	168	138	220	55421502455	1072,00	55431502455	1130,00	654215027455	1414,00	
175	60°	218	63	170	210	198	168	220	55421701455	1155,00	55431701455	1202,00	654217017455	1670,00	
200	60°	265	110	167	241	199	169	233	55422001455	1155,00	55432001455	1202,00	654220017455	1670,00	
250	60°	305	115	215	241	220	190	233	55422501455	1165,00	55432501455	1278,00	654225017455	1865,00	
300	60°	385	145	260	241	245	215	233	55423002455	1259,00	55433002455	1380,00	654230027455	2040,00	



DETECTABLE
DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

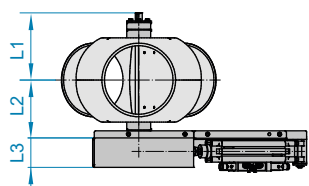
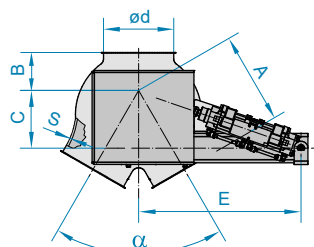
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

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 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	50	87	440	140	110	88	5542100221	902,50			65421002721	1151,00	
120	60°	160	50	112	440	148	118	88	5542120221	902,50			65421202721	1151,00	
150	60°	200	80	136	440	168	138	88	5542150221	922,50	5543150221	979,50	65421502721	1265,00	
175	60°	218	63	170	440	198	168	88	5542170121	1006,00	5543170121	1052,00	65421701721	1521,00	
200	60°	265	110	167	470	199	169	88	5542200121	1006,00	5543200121	1052,00	65422001721	1521,00	
250	60°	305	115	215	470	220	190	88	5542250121	1015,00	5543250121	1128,00	65422501721	1717,00	
300	60°	385	145	260	470	264	234	88	5542300221	1108,00	5543300221	1231,00	65423002721	1892,00	

Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	50	87	440	140	110	88	5542100223	902,50			65421002723	1151,00	
120	60°	160	50	112	440	148	118	88	5542120223	902,50			65421202723	1151,00	
150	60°	200	80	136	440	168	138	88	5542150223	922,50	5543150223	979,50	65421502723	1265,00	
175	60°	218	63	170	440	198	168	88	5542170123	1006,00	5543170123	1052,00	65421701723	1521,00	
200	60°	265	110	167	470	199	169	88	5542200123	1006,00	5543200123	1052,00	65422001723	1521,00	
250	60°	305	115	215	470	220	190	88	5542250123	1015,00	5543250123	1128,00	65422501723	1717,00	
300	60°	385	145	260	470	264	234	88	5542300223	1108,00	5543300223	1231,00	65423002723	1892,00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

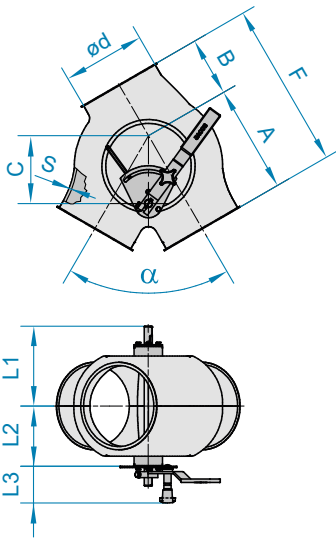
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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		F
									Item no.	€	Item no.	€	Item no.	€	
100	60°	135	65	87	200	140	88	88	12101513	351,50			121035137	528,00	
120	60°	160	70	112	230	148	96	88	12121513	351,50			121235137	528,00	
150	60°	200	100	136	300	168	119	88	12151513	372,50	13151513	430,00	121535137	643,00	
175	60°	218	90	170	308	198	149	88	12171516	433,00	13171516	472,00	121735167	869,00	
200	60°	265	145	167	410	199	150	88	12201516	433,00	13201516	472,00	122035167	869,00	
250	60°	305	155	215	460	220	171	88	12251516	441,50	13251516	540,00	122535167	1070,00	
300	60°	385	190	260	575	264	197	88	12301513	541,00	13301513	657,00	123035137	1248,00	



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		F
										Item no.	€	Item no.	€	Item no.	€	

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

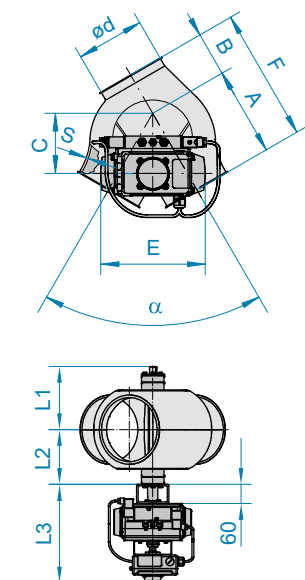
100	60°	135	65	87	193	200	140	110	265	5552100244	864,00			65521002744	1112,00	
120	60°	160	70	112	193	230	148	118	265	5552120244	864,00			65521202744	1112,00	
150	60°	200	100	136	193	300	168	138	265	5552150244	883,50	5553150244	941,50	65521502744	1227,00	
175	60°	218	90	170	193	308	198	168	275	5552170144	967,00	5553170144	1014,00	65521701744	1482,00	
200	60°	265	145	167	225	410	199	169	275	5552200144	967,00	5553200144	1014,00	65522001744	1482,00	
250	60°	305	155	215	225	460	220	190	275	5552250144	976,00	5553250144	1089,00	65522501744	1677,00	
300	60°	385	190	260	225	575	264	234	275	5552300244	1070,00	5553300244	1192,00	65523002744	1852,00	

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

100	60°	135	65	87	193	200	140	110	265	5552100245	864,00			65521002745	1112,00	
120	60°	160	70	112	193	230	148	118	265	5552120245	864,00			65521202745	1112,00	
150	60°	200	100	136	193	300	168	138	265	5552150245	883,50	5553150245	941,50	65521502745	1227,00	
175	60°	218	90	170	193	308	198	168	275	5552170145	967,00	5553170145	1014,00	65521701745	1482,00	
200	60°	265	145	167	225	410	199	169	275	5552200145	967,00	5553200145	1014,00	65522001745	1482,00	
250	60°	305	155	215	225	460	220	190	275	5552250145	976,00	5553250145	1089,00	65522501745	1677,00	
300	60°	385	190	260	225	575	264	234	275	5552300245	1070,00	5553300245	1192,00	65523002745	1852,00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

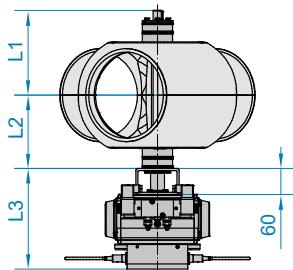
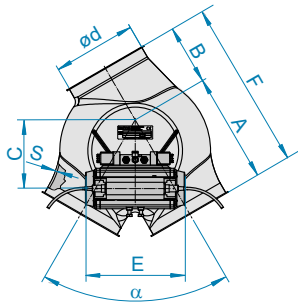
Two-way valves with seal



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
- Two-way valves 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	210	200	140	110	220	55521002455	1052,00			655210027455	1301,00
120	60°	160	70	112	210	230	148	118	220	55521202455	1052,00			655212027455	1301,00
150	60°	200	100	136	210	300	168	138	220	55521502455	1072,00	55531502455	1130,00	655215027455	1414,00
175	60°	218	90	170	210	308	198	168	220	55521701455	1155,00	55531701455	1202,00	655217017455	1670,00
200	60°	265	145	167	241	410	199	169	233	55522001455	1155,00	55532001455	1202,00	655220017455	1670,00
250	60°	305	155	215	241	460	220	190	233	55522501455	1165,00	55532501455	1278,00	655225017455	1865,00
300	60°	385	190	260	241	575	245	215	233	55523002455	1259,00	55533002455	1380,00	655230027455	2040,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

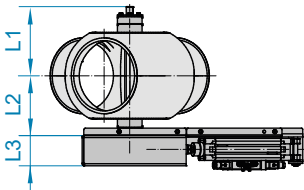
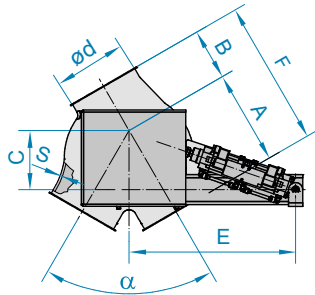
D DETECTABLE DESIGN
Metal-detectable



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

2205

- Control with 5/2-way solenoid valve (2-coil) and 2 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	902,50			65521002721	1151,00
120	60°	160	70	112	440	230	148	118	88	5552120221	902,50			65521202721	1151,00
150	60°	200	100	136	440	300	168	138	88	5552150221	922,50	5553150221	979,50	65521502721	1265,00
175	60°	218	90	170	440	308	198	168	88	5552170121	1006,00	5553170121	1052,00	65521701721	1521,00
200	60°	265	145	167	470	410	199	169	88	5552200121	1006,00	5553200121	1052,00	65522001721	1521,00
250	60°	305	155	215	470	460	220	190	88	5552250121	1015,00	5553250121	1128,00	65522501721	1717,00
300	60°	385	190	260	470	575	264	234	88	5552300221	1108,00	5553300221	1231,00	65523002721	1892,00

Cylinder, make FESTO, control voltage 24 V DC

100	60°	135	65	87	440	200	140	110	88	5552100223	902,50			65521002723	1151,00
120	60°	160	70	112	440	230	148	118	88	5552120223	902,50			65521202723	1151,00
150	60°	200	100	136	440	300	168	138	88	5552150223	922,50	5553150223	979,50	65521502723	1265,00
175	60°	218	90	170	440	308	198	168	88	5552170123	1006,00	5553170123	1052,00	65521701723	1521,00
200	60°	265	145	167	470	410	199	169	88	5552200123	1006,00	5553200123	1052,00	65522001723	1521,00
250	60°	305	155	215	470	460	220	190	88	5552250123	1015,00	5553250123	1128,00	65522501723	1717,00
300	60°	385	190	260	470	575	264	234	88	5552300223	1108,00	5553300223	1231,00	65523002723	1892,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

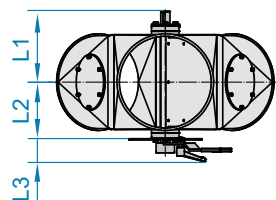
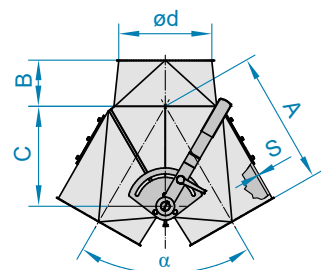
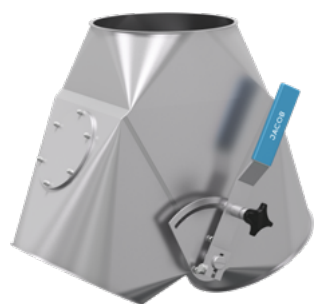
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

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

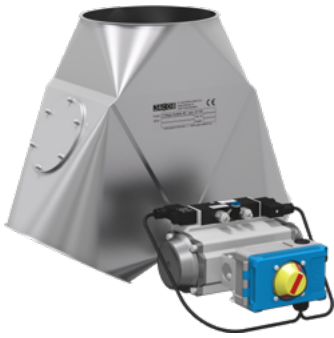
DN	α	A	B	C	L1	L2	L3	2 mm powder-coated		2 mm stainless steel	
								Item no.	€	Item no.	€
100	60°	220	65	128	117	82	75	12101508	1175,00	12103508	1932,00
120	60°	240	70	145	127	92	75	12121508	1175,00	12123508	1932,00
150	60°	250	75	168	142	107	75	12151508	1213,00	12153508	1980,00
200	60°	300	105	218	164	132	75	12201508	1264,00	12203508	2039,00
250	60°	370	130	277	205	160	75	12251508	1303,00	12253508	2081,00
300	60°	435	150	326	230	185	75	12301508	1422,00	12303508	2179,00



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

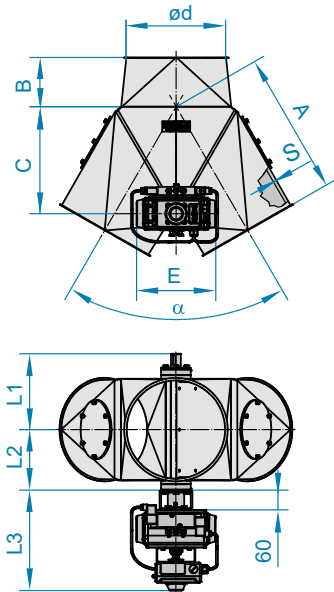
D DETECTABLE DESIGN
Metal-detectable



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	193	117	82	265	5982100144	1621,00	6982100144	2364,00
120	60°	240	70	145	193	127	92	265	5982120144	1621,00	6982120144	2364,00
150	60°	250	75	168	193	142	107	302	5982150144	1657,00	6982150144	2407,00
200	60°	300	105	218	225	164	132	311	5982200144	1791,00	6982200144	2542,00
250	60°	370	130	277	271	205	160	334	5982250144	1910,00	6982250144	2665,00
300	60°	435	150	326	271	230	185	334	5982300144	1945,00	6982300144	2853,00
350	60°	500	185	377	402	255	210	354	5982350144	2233,00	6982350144	3167,00
400	60°	600	205	427	402	280	235	354	5982400144	2649,00	6982400144	3673,00
450	60°	650	225	474	486	301	261	392	5983450144*	3018,00	6983450144*	4319,00
500	60°	700	250	574	486	326	286	392	5983500144*	3294,00	6983500144*	4828,00
560	60°	800	300	592	486	437	357	392	5983560144*	4338,00	6983560144*	5584,00
630	60°	900	350	662	486	472	392	392	5983630144*	5126,00	6983630144*	6500,00

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

100	60°	220	65	128	193	117	82	265	5982100145	1621,00	6982100145	2364,00
120	60°	240	70	145	193	127	92	265	5982120145	1621,00	6982120145	2364,00
150	60°	250	75	168	193	142	107	302	5982150145	1657,00	6982150145	2407,00
200	60°	300	105	218	225	164	132	311	5982200145	1791,00	6982200145	2542,00
250	60°	370	130	277	271	205	160	334	5982250145	1910,00	6982250145	2665,00
300	60°	435	150	326	271	230	185	334	5982300145	1945,00	6982300145	2853,00
350	60°	500	185	377	402	255	210	354	5982350145	2233,00	6982350145	3167,00
400	60°	600	205	427	402	280	235	354	5982400145	2649,00	6982400145	3673,00
450	60°	650	225	474	486	301	261	392	5983450145*	3018,00	6983450145*	4319,00
500	60°	700	250	574	486	326	286	392	5983500145*	3294,00	6983500145*	4828,00
560	60°	800	300	592	486	437	357	392	5983560145*	4338,00	6983560145*	5584,00
630	60°	900	350	662	486	472	392	392	5983630145*	5126,00	6983630145*	6500,00

*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 DIVERTERS

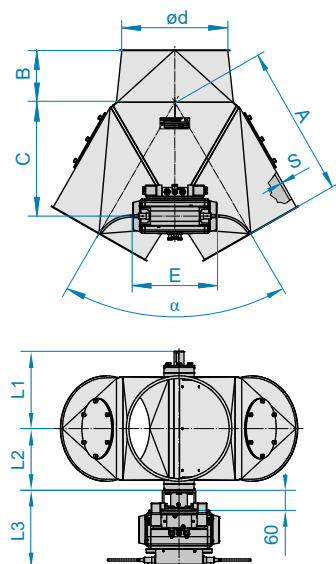
Two-way distributors



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	210	117	82	220	59821001455	1809,00	69821001455	2553,00
120	60°	240	70	145	210	127	92	220	59821201455	1809,00	69821201455	2553,00
150	60°	250	75	168	245	142	107	233	59821501455	1843,00	69821501455	2597,00
200	60°	300	105	218	245	164	132	233	59822001455	1979,00	69822001455	2730,00
250	60°	370	130	277	260	205	160	245	59822501455	2098,00	69822501455	2853,00
300	60°	435	150	326	260	230	185	245	59823001455	2132,00	69823001455	3041,00
350	60°	500	185	377	345	255	210	272	59823501455	2422,00	69823501455	3356,00
400	60°	600	205	427	345	280	235	272	59824001455	2837,00	69824001455	3861,00
450	60°	650	225	474	260	450	302	302	59834501455*	3206,00	69834501455*	4507,00
500	60°	700	250	524	260	475	327	302	59835001455*	3482,00	69835001455*	5016,00
560	60°	800	300	592	260	505	357	302	59835601455*	4525,00	69835601455*	5771,00
630	60°	900	350	662	260	540	392	302	59836301455*	5314,00	69836301455*	6688,00

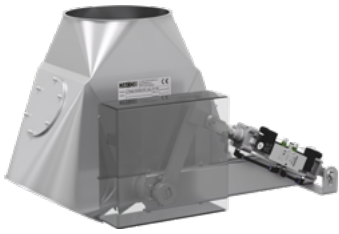
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

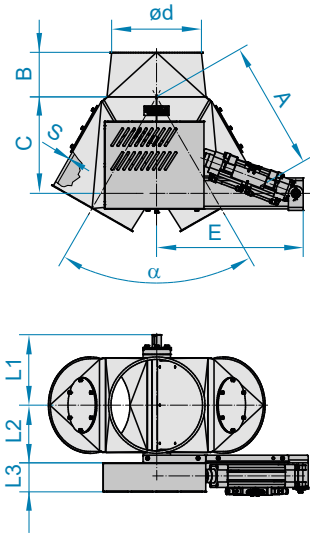
D DETECTABLE DESIGN
Metal-detectable



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

2275

- Control with 5/2-way solenoid valve (2-coil) and 2 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	1686,00	6982100121	2428,00
120	60°	240	70	145	440	127	92	88	5982120121	1686,00	6982120121	2428,00
150	60°	250	75	168	470	142	107	88	5982150121	1719,00	6982150121	2471,00
200	60°	300	105	218	470	164	132	88	5982200121	1855,00	6982200121	2606,00
250	60°	370	130	277	470	205	160	90	5982250121	1976,00	6982250121	2728,00
300	60°	435	150	326	470	230	185	90	5982300121	2008,00	6982300121	2915,00
350	60°	500	185	377	490	255	210	110	5982350121	2306,00	6982350121	3239,00
400	60°	600	205	427	490	280	235	110	5982400121	2734,00	6982400121	3754,00
450	60°	650	225	474	540	301	261	110	5983450121*	3117,00	6983450121*	4414,00
500	60°	700	250	574	540	326	286	110	5983500121*	3399,00	6983500121*	4938,00
560	60°	800	300	592	540	437	357	110	5983560121*	4475,00	6983560121*	5709,00
630	60°	900	350	662	540	472	392	110	5983630121*	5289,00	6983630121*	6645,00

Cylinder, make FESTO, control voltage 24 V DC

100	60°	220	65	128	440	117	82	88	5982100123	1686,00	6982100123	2428,00
120	60°	240	70	145	440	127	92	88	5982120123	1686,00	6982120123	2428,00
150	60°	250	75	168	470	142	107	88	5982150123	1719,00	6982150123	2471,00
200	60°	300	105	218	470	164	132	88	5982200123	1855,00	6982200123	2606,00
250	60°	370	130	277	470	205	160	90	5982250123	1976,00	6982250123	2728,00
300	60°	435	150	326	470	230	185	90	5982300123	2008,00	6982300123	2915,00
350	60°	500	185	377	490	255	210	110	5982350123	2368,00	6982350123	3239,00
400	60°	600	205	427	490	280	235	110	5982400123	2734,00	6982400123	3754,00
450	60°	650	225	474	540	301	261	110	5983450123*	3117,00	6983450123*	4414,00
500	60°	700	250	574	540	326	286	110	5983500123*	3399,00	6983500123*	4938,00
560	60°	800	300	592	540	437	357	110	5983560123*	4475,00	6983560123*	5709,00
630	60°	900	350	662	540	472	392	110	5983630123*	5289,00	6983630123*	6645,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

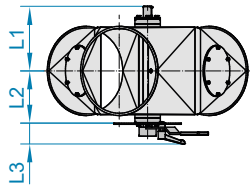
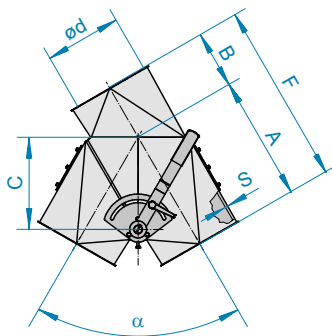
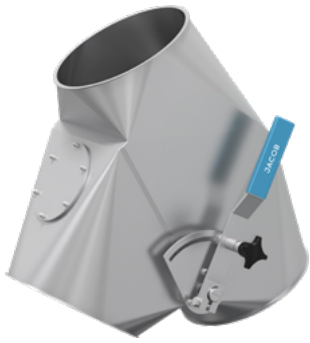
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

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	1175,00	12103509	1932,00	
120	60°	240	110	145	350	127	92	75	12121509	1175,00	12123509	1932,00	
150	60°	250	115	168	365	142	107	75	12151509	1213,00	12153509	1980,00	
200	60°	300	140	218	440	164	132	75	12201509	1264,00	12203509	2039,00	
250	60°	370	170	277	540	205	160	75	12251509	1303,00	12253509	2081,00	
300	60°	435	200	326	635	230	185	75	12301509	1422,00	12303509	2179,00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

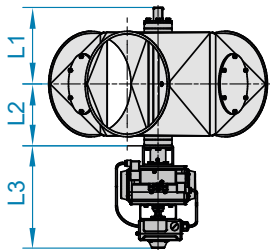
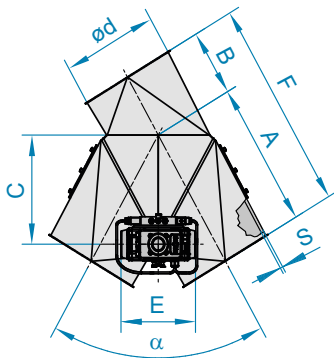
D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DISTRIBUTORS 60°, 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		F
										Item no.	€	Item no.	€	

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

100	60°	220	100	128	193	320	117	82	265	5992100144	1621,00	6992100144	2364,00
120	60°	240	110	145	193	350	127	92	265	5992120144	1621,00	6992120144	2364,00
150	60°	250	115	168	193	365	142	107	302	5992150144	1657,00	6992150144	2407,00
200	60°	300	140	218	225	440	164	132	311	5992200144	1791,00	6992200144	2542,00
250	60°	370	170	277	271	540	205	160	334	5992250144	1910,00	6992250144	2665,00
300	60°	435	200	326	271	635	230	185	334	5992300144	1945,00	6992300144	2853,00
350	60°	500	230	377	402	730	255	210	354	5992350144	2233,00	6992350144	3167,00
400	60°	600	250	427	402	850	280	235	354	5992400144	2649,00	6992400144	3673,00
450	60°	650	270	474	486	920	301	256	392	5993450144*	3018,00	6993450144*	4319,00
500	60°	700	300	542	486	1000	326	288	392	5993500144*	3294,00	6993500144*	4828,00
560	60°	800	350	592	486	1150	437	357	392	5993560144*	4338,00	6993560144*	5584,00
630	60°	900	400	662	486	1300	472	392	392	5993630144*	5126,00	6993630144*	6500,00

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

100	60°	220	100	128	193	320	117	82	265	5992100145	1621,00	6992100145	2364,00
120	60°	240	110	145	193	350	127	92	265	5992120145	1621,00	6992120145	2364,00
150	60°	250	115	168	193	365	142	107	302	5992150145	1657,00	6992150145	2407,00
200	60°	300	140	218	225	440	164	132	311	5992200145	1791,00	6992200145	2542,00
250	60°	370	170	277	271	540	205	160	334	5992250145	1910,00	6992250145	2665,00
300	60°	435	200	326	271	635	230	185	334	5992300145	1945,00	6992300145	2853,00
350	60°	500	230	377	402	730	255	210	354	5992350145	2233,00	6992350145	3167,00
400	60°	600	250	427	402	850	280	235	354	5992400145	2649,00	6992400145	3673,00
450	60°	650	270	474	486	920	301	256	392	5993450145*	3018,00	6993450145*	4319,00
500	60°	700	300	542	486	1000	326	288	392	5993500145*	3294,00	6993500145*	4828,00
560	60°	800	350	592	486	1150	437	357	392	5993560145*	4338,00	6993560145*	5584,00
630	60°	900	400	662	486	1300	472	392	392	5993630145*	5126,00	6993630145*	6500,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

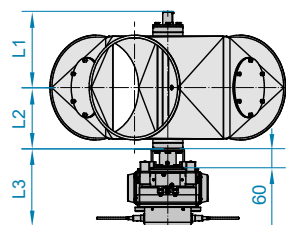
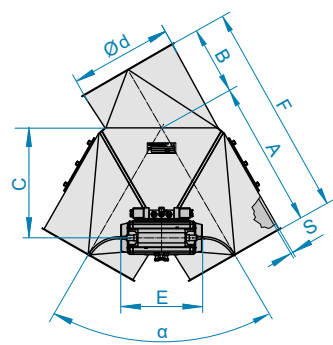
Two-way distributors



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		F
										Item no.	€	Item no.	€	

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

100	60°	220	100	128	210	320	117	82	220	59921001455	1809,00	69921001455	2553,00
120	60°	240	110	145	210	350	127	92	220	59921201455	1809,00	69921201455	2553,00
150	60°	250	115	168	245	365	142	107	233	59921501455	1843,00	69921501455	2597,00
200	60°	300	140	218	245	440	164	132	233	59922001455	1979,00	69922001455	2730,00
250	60°	370	170	277	260	540	205	160	245	59922501455	2098,00	69922501455	2853,00
300	60°	435	200	326	260	635	230	185	245	59923001455	2132,00	69923001455	3041,00
350	60°	500	230	377	345	730	255	210	272	59923501455	2422,00	69923501455	3356,00
400	60°	600	250	427	345	850	280	235	272	59924001455	2837,00	69924001455	3861,00
450	60°	650	270	474	260	920	450	302	302	59934501455*	3206,00	69934501455*	4507,00
500	60°	700	300	524	260	1000	475	327	302	59935001455*	3482,00	69935001455*	5016,00
560	60°	800	350	592	260	1150	505	357	302	59935601455*	4525,00	69935601455*	5771,00
630	60°	900	400	662	260	1300	540	392	302	59936301455*	5314,00	69936301455*	6688,00

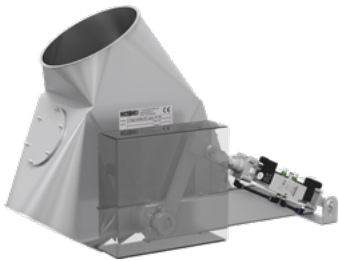
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

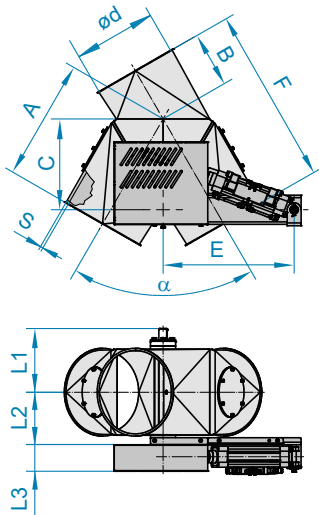
D DETECTABLE DESIGN
Metal-detectable



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

2285

- Control with 5/2-way solenoid valve (2-coil) and 2 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	1686,00	6992100121	2428,00
120	60°	240	110	145	440	350	127	92	88	5992120121	1686,00	6992120121	2428,00
150	60°	250	115	168	470	365	142	107	88	5992150121	1719,00	6992150121	2471,00
200	60°	300	140	218	470	440	164	132	88	5992200121	1855,00	6992200121	2606,00
250	60°	370	170	277	470	540	205	160	90	5992250121	1976,00	6992250121	2728,00
300	60°	435	200	326	470	635	230	185	90	5992300121	2008,00	6992300121	2915,00
350	60°	500	230	377	490	730	255	210	110	5992350121	2306,00	6992350121	3239,00
400	60°	600	250	427	490	850	280	235	110	5992400121	2734,00	6992400121	3754,00
450	60°	650	270	474	540	920	301	256	110	5993450121*	3117,00	6993450121*	4414,00
500	60°	700	300	542	540	1000	326	288	110	5993500121*	3399,00	6993500121*	4938,00
560	60°	800	350	592	540	1150	437	357	110	5993560121*	4475,00	6993560121*	5709,00
630	60°	900	400	662	540	1300	472	392	110	5993630121*	5289,00	6993630121*	6645,00

Cylinder, make FESTO, control voltage 24V DC

100	60°	220	100	128	440	320	117	82	88	5992100123	1686,00	6992100123	2428,00
120	60°	240	110	145	440	350	127	92	88	5992120123	1686,00	6992120123	2428,00
150	60°	250	115	168	470	365	142	107	88	5992150123	1719,00	6992150123	2471,00
200	60°	300	140	218	470	440	164	132	88	5992200123	1855,00	6992200123	2606,00
250	60°	370	170	277	470	540	205	160	90	5992250123	1976,00	6992250123	2728,00
300	60°	435	200	326	470	635	230	185	90	5992300123	2008,00	6992300123	2915,00
350	60°	500	230	377	490	730	255	210	110	5992350123	2306,00	6992350123	3239,00
400	60°	600	250	427	490	850	280	235	110	5992400123	2734,00	6992400123	3754,00
450	60°	650	270	474	540	920	301	256	110	5993450123*	3117,00	6993450123*	4414,00
500	60°	700	300	542	540	1000	326	288	110	5993500123*	3399,00	6993500123*	4938,00
560	60°	800	350	592	540	1150	437	357	110	5993560123*	4475,00	6993560123*	5709,00
630	60°	900	400	662	540	1300	472	392	110	5993630123*	5289,00	6993630123*	6645,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

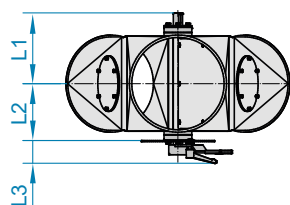
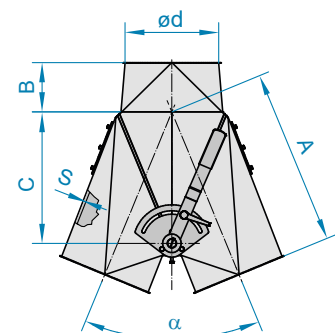
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

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		F
								Item no.	€	Item no.	€	
100	45°	260	65	165	117	82	75	12101518	1286,00	12103518	2112,00	
120	45°	280	70	185	127	92	75	12121518	1286,00	12123518	2112,00	
150	45°	315	75	225	142	107	75	12151518	1321,00	12153518	2158,00	
175	45°	350	90	255	151	119	75	12171518	1379,00	12173518	2221,00	
200	45°	400	105	289	164	132	75	12201518	1379,00	12203518	2221,00	
250	45°	480	130	356	205	160	75	12251518	1421,00	12253518	2265,00	
300	45°	570	160	426	230	185	75	12301518	1549,00	12303518	2374,00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

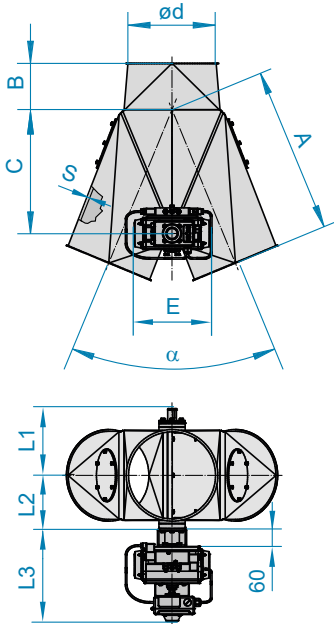
D DETECTABLE DESIGN
Metal-detectable



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	193	117	82	265	5922100144	1812,00	6922100144	2621,00
120	45°	280	70	185	193	127	107	265	5922120144	1812,00	6922120144	2621,00
150	45°	315	75	225	193	142	107	265	5922150144	1842,00	6922150144	2658,00
175	45°	350	90	255	225	150	119	275	5922170144	1995,00	6922170144	2809,00
200	45°	400	105	289	225	164	132	311	5922200144	1995,00	6922200144	2809,00
250	45°	480	130	356	342	205	160	334	5922250144	2129,00	6922250144	2947,00
300	45°	570	160	426	342	230	185	334	5922300144	2159,00	6922300144	3157,00
350	45°	618	185	495	402	238	208	354	5922350144	2496,00	6922350144	3524,00
400	45°	698	205	558	402	263	233	354	5922400144	2961,00	6922400144	4084,00
450	45°	800	225	624	486	450	302	392	5923450144*	3374,00	6923450144*	4801,00
500	45°	880	250	686	486	475	327	392	5923500144*	3682,00	6923500144*	5369,00

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

100	45°	260	65	165	193	117	82	265	5922100145	1812,00	6922100145	2621,00
120	45°	280	70	185	193	127	107	265	5922120145	1812,00	6922120145	2621,00
150	45°	315	75	225	193	142	107	265	5922150145	1842,00	6922150145	2658,00
175	45°	350	90	255	225	150	119	275	5922170145	1995,00	6922170145	2809,00
200	45°	400	105	289	225	164	132	311	5922200145	1995,00	6922200145	2809,00
250	45°	480	130	356	342	205	160	334	5922250145	2129,00	6922250145	2947,00
300	45°	570	160	426	342	230	185	334	5922300145	2159,00	6922300145	3157,00
350	45°	618	185	495	402	238	208	354	5922350145	2496,00	6922350145	3524,00
400	45°	698	205	558	402	263	233	354	5922400145	2961,00	6922400145	4084,00
450	45°	800	225	624	486	450	302	392	5923450145*	3374,00	6923450145*	4801,00
500	45°	880	250	686	486	475	327	392	5923500145*	3682,00	6923500145*	5369,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

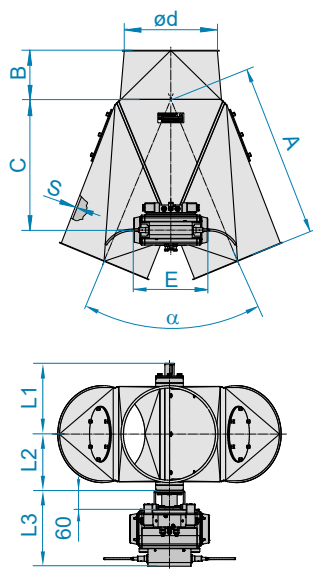
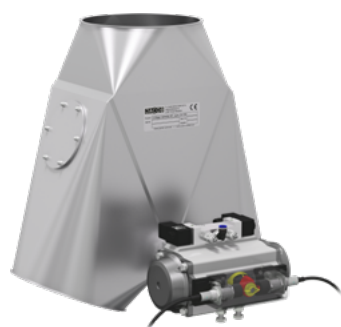
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

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		F
									Item no.	€	Item no.	€	

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

100	45°	260	65	165	210	117	82	220	59221001455	2000,00	69221001455	2809,00
120	45°	280	70	185	210	127	92	220	59221201455	2000,00	69221201455	2809,00
150	45°	315	75	225	245	142	107	233	59221501455	2030,00	69221501455	2846,00
175	45°	350	90	255	245	151	119	233	59221701455	2183,00	69221701455	2998,00
200	45°	400	105	289	245	164	132	233	59222001455	2183,00	69222001455	2998,00
250	45°	480	130	356	260	205	160	245	59222501455	2317,00	69222501455	3136,00
300	45°	570	160	426	260	230	185	245	59223001455	2346,00	69223001455	3345,00
350	45°	618	185	495	345	238	210	272	59223501455	2685,00	69223501455	3712,00
400	45°	698	205	558	345	263	235	272	59224001455	3149,00	69224001455	4272,00
450	45°	800	225	624	260	450	302	302	59234501455*	3562,00	69234501455*	4989,00
500	45°	880	250	700	260	475	327	302	59235001455*	3870,00	69235001455*	5556,00

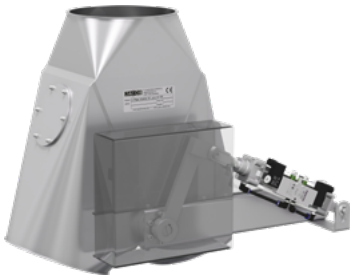
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

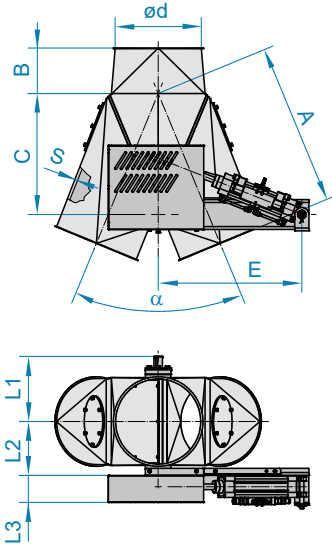
D DETECTABLE DESIGN
Metal-detectable



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

2235

- Standard version: Right-side mounting
- Control with 5/2-way solenoid valve (2-coil) and 2 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	1875,00	6922100121	2685,00
120	45°	280	70	185	440	127	92	88	5922120121	1875,00	6922120121	2685,00
150	45°	315	75	225	470	142	107	88	5922150121	1905,00	6922150121	2722,00
175	45°	350	90	255	470	150	119	88	5922170121	2058,00	6922170121	2873,00
200	45°	400	105	289	470	164	132	88	5922200121	2058,00	6922200121	2873,00
250	45°	480	130	356	470	205	160	90	5922250121	2194,00	6922250121	3011,00
300	45°	570	160	426	470	230	185	90	5922300121	2223,00	6922300121	3221,00
350	45°	618	185	495	490	238	208	110	5922350121	2578,00	6922350121	3639,00
400	45°	698	205	558	490	263	233	110	5922400121	3059,00	6922400121	4218,00
450	45°	800	205	624	540	450	302	110	5923450121*	3485,00	6923450121*	4962,00
500	45°	880	250	686	540	475	327	110	5923500121*	3803,00	6923500121*	5545,00

Cylinder, make FESTO, control voltage 24 V DC

100	45°	260	65	165	440	117	82	88	5922100123	1875,00	6922100123	2685,00
120	45°	280	70	185	440	127	92	88	5922120123	1875,00	6922120123	2685,00
150	45°	315	75	225	470	142	107	88	5922150123	1905,00	6922150123	2722,00
175	45°	350	90	255	470	150	119	88	5922170123	2058,00	6922170123	2873,00
200	45°	400	105	289	470	164	132	88	5922200123	2058,00	6922200123	2873,00
250	45°	480	130	356	470	205	160	90	5922250123	2194,00	6922250123	3011,00
300	45°	570	160	426	470	230	185	90	5922300123	2223,00	6922300123	3221,00
350	45°	618	185	495	490	238	208	110	5922350123	2578,00	6922350123	3639,00
400	45°	698	205	558	490	263	233	110	5922400123	3059,00	6922400123	4218,00
450	45°	800	205	624	540	450	302	110	5923450123*	3485,00	6923450123*	4962,00
500	45°	880	250	686	540	475	327	110	5923500123*	3803,00	6923500123*	5545,00

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

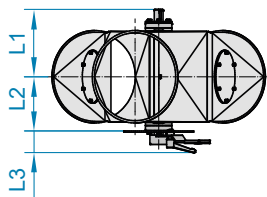
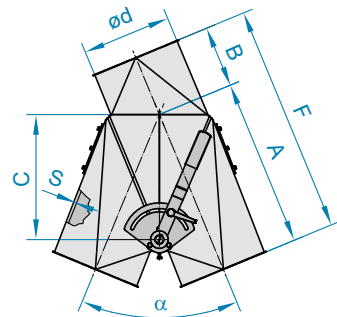
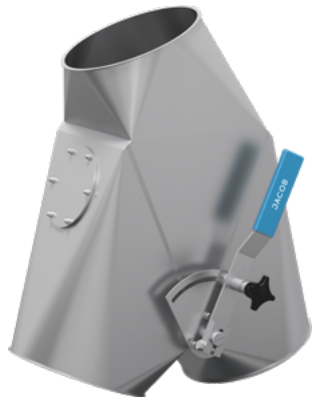
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

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	1286,00	12103519	2112,00	
120	45°	280	110	185	390	127	92	75	12121519	1286,00	12123519	2112,00	
150	45°	315	115	225	430	142	107	75	12151519	1321,00	12153519	2158,00	
175	45°	350	125	255	475	151	119	75	12171519	1379,00	12173519	2221,00	
200	45°	400	140	289	540	164	132	75	12201519	1379,00	12203519	2221,00	
250	45°	480	170	356	650	205	160	75	12251519	1421,00	12253519	2265,00	
300	45°	570	210	426	780	230	185	75	12301519	1549,00	12303519	2374,00	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

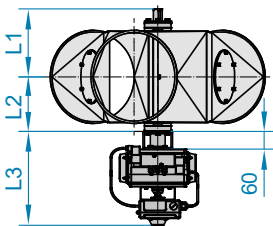
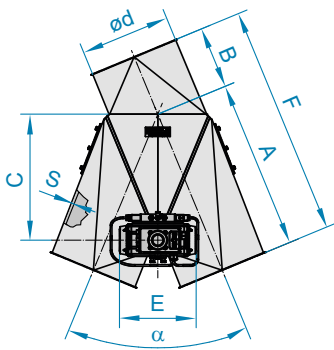
D DETECTABLE DESIGN
Metal-detectable



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		F
										Item no.	€	Item no.	€	

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

100	45°	260	100	165	193	360	117	82	265	5912100144	1812,00	6912100144	2621,00
120	45°	280	110	185	193	390	127	92	265	5912120144	1812,00	6912120144	2621,00
150	45°	315	115	225	193	430	142	107	265	5912150144	1842,00	6912150144	2658,00
175	45°	350	125	255	225	475	151	119	275	5912170144	1995,00	6912170144	2809,00
200	45°	400	140	289	225	540	164	132	311	5912200144	1995,00	6912200144	2809,00
250	45°	480	170	356	342	650	205	160	334	5912250144	2129,00	6912250144	2947,00
300	45°	570	210	426	342	780	230	185	334	5912300144	2159,00	6912300144	3157,00
350	45°	618	230	495	402	848	238	208	354	5912350144	2496,00	6912350144	3524,00
400	45°	698	250	558	402	948	263	233	354	5912400144	2961,00	6912400144	4084,00
450	45°	800	270	624	486	1070	450	302	392	5913450144*	3374,00	6913450144*	4801,00
500	45°	880	300	686	486	1180	475	327	392	5913500144*	3682,00	6913500144*	5369,00

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

100	45°	260	100	165	193	360	117	82	265	5912100145	1812,00	6912100145	2621,00
120	45°	280	110	185	193	390	127	92	265	5912120145	1812,00	6912120145	2621,00
150	45°	315	115	225	193	430	142	107	265	5912150145	1842,00	6912150145	2658,00
175	45°	350	125	255	225	475	150	119	275	5912170145	1995,00	6912170145	2809,00
200	45°	400	140	289	225	540	164	132	311	5912200145	1995,00	6912200145	2809,00
250	45°	480	170	356	342	650	205	160	334	5912250145	2129,00	6912250145	2947,00
300	45°	570	210	426	342	780	230	185	334	5912300145	2159,00	6912300145	3157,00
350	45°	618	230	495	402	848	238	208	354	5912350145	2496,00	6912350145	3524,00
400	45°	698	250	558	402	948	263	233	354	5912400145	2961,00	6912400145	4084,00
450	45°	800	270	624	486	1070	450	302	392	5913450145*	3374,00	6913450145*	4801,00
500	45°	880	300	686	486	1180	475	327	392	5913500145*	3682,00	6913500145*	5369,00

*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 DIVERTERS

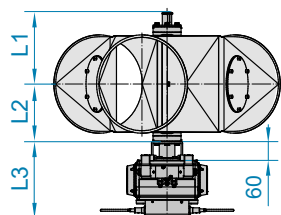
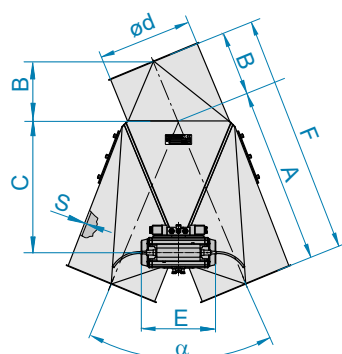
Two-way distributors



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	210	360	117	82	220	59121001455	2000,00	69121001455	2809,00
120	45°	280	110	185	210	390	127	92	220	59121201455	2000,00	69121201455	2809,00
150	45°	315	115	225	245	430	142	107	233	59121501455	2030,00	69121501455	2846,00
175	45°	350	125	255	245	475	151	119	233	59121701455	2183,00	69121701455	2998,00
200	45°	400	140	289	245	540	164	132	233	59122001455	2183,00	69122001455	2998,00
250	45°	480	170	356	260	650	205	160	245	59122501455	2317,00	69122501455	3136,00
300	45°	570	210	426	260	780	230	185	245	59123001455	2346,00	69123001455	3345,00
350	45°	618	230	495	345	848	238	210	272	59123501455	2685,00	69123501455	3712,00
400	45°	698	250	558	345	948	263	235	272	59124001455	3149,00	69124001455	4272,00
450	45°	800	270	624	260	1070	450	302	302	59134501455*	3562,00	69134501455*	4989,00
500	45°	880	300	700	260	1180	475	327	302	59135001455*	3870,00	69135001455*	5556,00

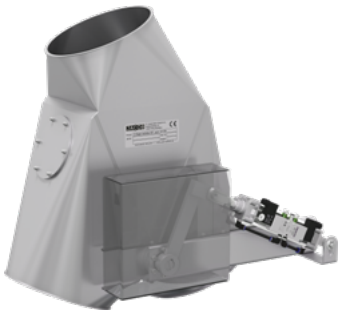
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

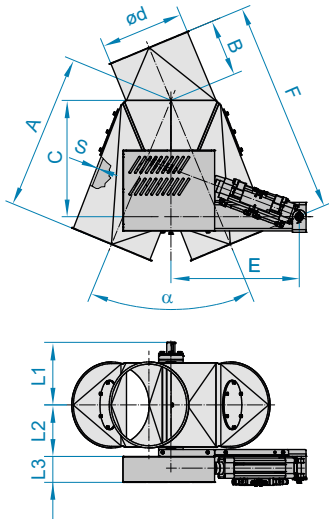
D DETECTABLE DESIGN
Metal-detectable



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

2245

- Control with 5/2-way solenoid valve (2-coil) and 2 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	1875,00	6912100121	2685,00
120	45°	280	110	185	440	390	127	92	88	5912120121	1875,00	6912120121	2685,00
150	45°	315	115	225	470	430	142	107	88	5912150121	1905,00	6912150121	2722,00
175	45°	350	125	255	470	475	150	119	88	5912170121	2058,00	6912170121	2873,00
200	45°	400	140	289	470	540	164	132	88	5912200121	2058,00	6912200121	2873,00
250	45°	480	170	356	470	650	205	160	90	5912250121	2194,00	6912250121	3011,00
300	45°	570	210	426	470	780	230	185	90	5912300121	2223,00	6912300121	3221,00
350	45°	618	230	495	490	848	238	208	110	5912350121	2578,00	6912350121	3639,00
400	45°	698	250	558	490	948	263	233	110	5912400121	3059,00	6912400121	4218,00
450	45°	800	270	624	540	1070	450	302	110	5913450121*	3485,00	6913450121*	4962,00
500	45°	880	300	686	540	1180	475	327	110	5913500121*	3803,00	6913500121*	5545,00

Cylinder, make FESTO, control voltage 24 V DC

100	45°	260	100	165	440	360	117	82	88	5912100123	1875,00	6912100123	2685,00
120	45°	280	110	185	440	390	127	92	88	5912120123	1875,00	6912120123	2685,00
150	45°	315	115	225	470	430	142	107	88	5912150123	1905,00	6912150123	2722,00
175	45°	350	125	255	470	475	150	119	88	5912170123	2058,00	6912170123	2873,00
200	45°	400	140	289	470	540	164	132	88	5912200123	2058,00	6912200123	2873,00
250	45°	480	170	356	470	650	205	160	90	5912250123	2194,00	6912250123	3011,00
300	45°	570	210	426	470	780	230	185	90	5912300123	2223,00	6912300123	3221,00
350	45°	618	230	495	490	848	238	208	110	5912350123	2578,00	6912350123	3639,00
400	45°	698	250	558	490	948	263	233	110	5912400123	3059,00	6912400123	4218,00
450	45°	800	270	624	540	1070	450	302	110	5913450123*	3485,00	6913450123*	4962,00
500	45°	880	300	686	540	1180	475	327	110	5913500123*	3803,00	6913500123*	5545,00

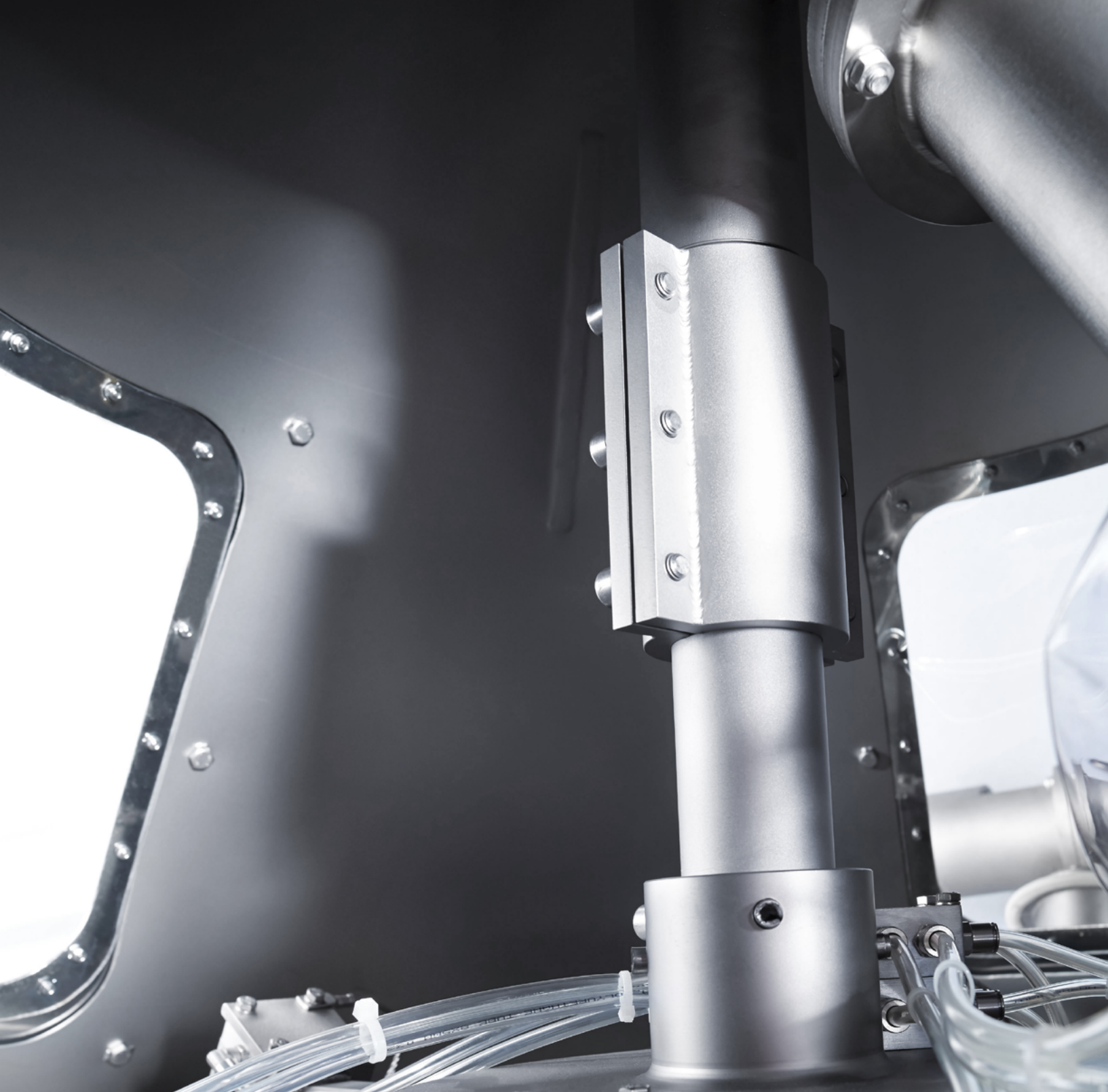
*3 mm



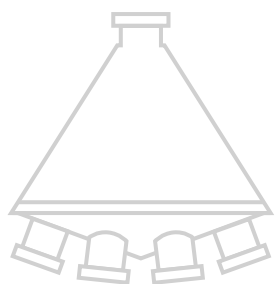
AVAILABLE IN THE DETECTABLE DESIGN LINE.

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

Technical information

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.



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. Turn-head distributor must not 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
- JACOB FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- 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. Turn-head distributor must not 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
- JACOB FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- 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 operating pressure min. 6 bar. Turn-head distributor must not 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
- JACOB FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- 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 chromium-nickel 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 operating pressure min. 6 bar. Swivel pipe switch must not 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
- FOOD GRADE: Product-contacting parts made of stainless steel available at additional cost
- Second inspection door available on demand
- ATEX versions on request
- Wear protection lining
- Other drives

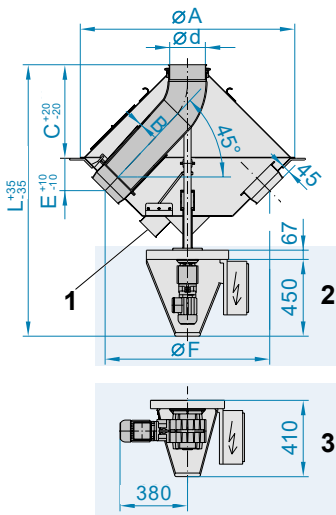


10



MULTI-WAY DISTRIBUTORS

Turn-head distributors



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

TURN-HEAD DISTRIBUTORS 45°

2320

- 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 %
- 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	365	138	626	1358	77	8	5104104501	5095,00	5106104501	5302,00
120	118	800	4.0	355	155	590	1348	79	12	5104124501	5115,00	5106124501	5393,00
150	148	800	4.5	340	155	590	1333	80	25	5104154501	5195,00	5106154501	5482,00
175	173	1200	5.4	520	173	940	1576	134	45	5104174501	5770,00	5106174501	5999,00
200	198	1200	6.3	510	183	920	1568	141	65	5104204501	5864,00	5106204501	6156,00
250	248	1200	6.3	485	219	850	1540	155	100	5104254501	6556,00	5106254501	6813,00
300	298	1200	7.1	480	212	860	1538	165	150	5104304501	7142,00	5106304501	7838,00

8 outlets

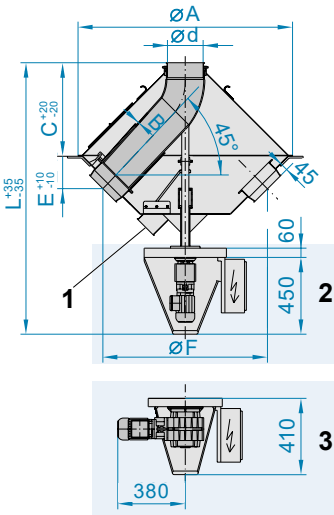
DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5108104501	5553,00
120	118	800	4.0	355	155	590	1348	79	12	5108124501	5591,00
150	148	1200	4.5	535	155	974	1593	129	25	5108154501	6097,00
175	173	1200	5.4	520	173	940	1576	134	45	5108174501	6294,00
200	198	1200	6.3	510	183	920	1568	141	65	5108204501	6474,00
250	248	1600	6.3	685	219	1250	1945	248	100	5108254501	8420,00
300	298	1600	7.1	680	212	1260	1940	260	150	5108304501	9979,00

10 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	365	138	626	1358	77	8	5110104501	5825,00
120	118	1200	4.0	550	155	974	1608	120	12	5110124501	6366,00
150	148	1200	4.5	535	155	974	1593	129	25	5110154501	6525,00
175	173	1200	5.4	520	173	940	1576	134	45	5110174501	6591,00
200	198	1200	6.3	510	183	920	1568	141	65	5110204501	6784,00
250	248	1600	6.3	685	219	1250	1945	248	100	5110254501	8737,00
300	298	1600	7.1	680	212	1260	1940	260	150	5110304501	10298,00

12 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	5112104501	6459,00
120	118	1200	4.0	550	155	974	1608	120	12	5112124501	6652,00
150	148	1200	4.5	535	155	974	1593	129	25	5112154501	6819,00
175	173	1600	5.4	720	173	1340	1980	240	45	5112174501	8810,00
200	198	1600	6.3	710	183	1320	1970	250	65	5112204501	8975,00
250	248	2280	6.3	1035	219	1930	2230	410	100	5112254501	12587,00
300	298	2280	7.1	1010	212	1945	2205	430	150	5112304501	14517,00



- 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	7065,00
120	118	1200	4.0	550	155	974	1608	120	12	5114124501	7090,00
150	148	1600	4.5	735	155	1373	1957	230	25	5114154501	8975,00
175	173	1600	5.4	720	173	1340	1980	240	45	5114174501	9116,00
200	198	1600	6.3	710	183	1320	1970	250	65	5114204501	9301,00
250	248	2280	6.3	1035	219	1930	2230	410	100	5114254501	12894,00
300	298	2280	7.1	1010	212	1945	2205	430	150	5114304501	15120,00

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	7221,00
120	118	1600	4.0	750	155	1374	1972	225	12	5116124501	8926,00
150	148	1600	4.5	735	155	1373	1957	230	25	5116154501	9203,00
175	173	1600	5.4	720	173	1340	1980	240	45	5116174501	9433,00
200	198	2280	6.3	1060	183	2000	2255	400	65	5116204501	12755,00
250	248	2280	6.3	1035	219	1930	2230	410	100	5116254501	13229,00

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	7526,00
120	118	1600	4.0	750	155	1374	1972	225	12	5118124501	9393,00
150	148	1600	4.5	735	155	1373	1957	230	25	5118154501	9504,00
175	173	2280	5.4	1070	173	2022	2255	382	45	5118174501	12980,00
200	198	2280	6.3	1060	183	2000	2255	400	65	5118204501	13037,00

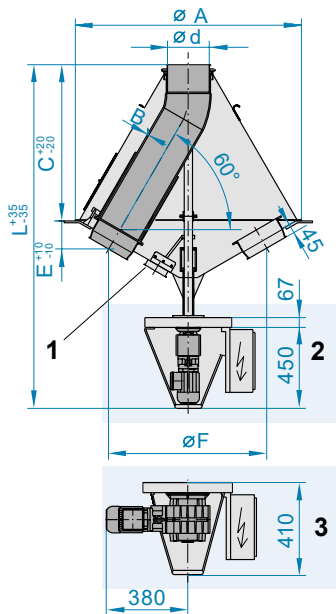
20 outlets

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	9650,00
120	118	1600	4.0	750	155	1374	1972	225	12	5120124501	9735,00
150	148	2280	4.5	1085	155	2057	2240	362	25	5120154501	12786,00
175	173	2280	5.4	1070	173	2022	2255	382	45	5120174501	13304,00
200	198	2280	6.3	1060	183	2000	2255	400	65	5120204501	13357,00



MULTI-WAY DISTRIBUTORS

Turn-head distributors



- 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	5553,00	5106106001	5588,00
120	118	800	4.0	570	120	540	1498	84	6	5104126001	5619,00	5106126001	5719,00
150	148	800	4.5	545	125	520	1473	85	12	5104156001	5635,00	5106156001	5754,00
175	173	1200	5.4	860	130	875	1898	153	22	5104176001	5850,00	5106176001	6077,00
200	198	1200	6.3	835	135	855	1873	153	32	5104206001	5983,00	5106206001	6183,00
250	248	1200	6.3	790	150	805	1688	167	50	5104256001	6763,00	5106256001	7752,00
300	298	1200	7.1	745	160	770	1643	182	75	5104306001	7999,00	5106306001	8646,00

8 outlets

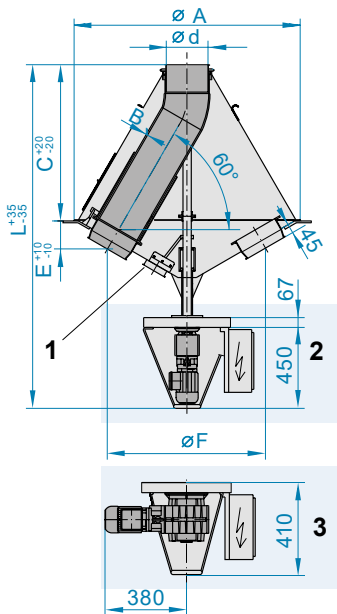
DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	800	3.6	590	112	560	1518	82	4	5108106001	5904,00
120	118	800	4.0	570	120	540	1498	84	6	5108126001	5930,00
150	148	1200	4.5	880	125	910	1918	140	12	5108156001	6241,00
175	173	1200	5.4	860	130	875	1898	153	22	5108176001	6366,00
200	198	1200	6.3	835	135	855	1873	153	32	5108206001	6510,00
250	248	1600	6.3	1140	150	1205	2158	267	50	5108256001	8591,00
300	298	1600	7.1	1095	160	1170	2113	287	75	5108306001	10107,00

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	6234,00
120	118	1200	4.0	905	120	930	1943	134	6	5110126001	6569,00
150	148	1200	4.5	880	125	910	1918	140	12	5110156001	6580,00
175	173	1200	5.4	860	130	875	1898	153	22	5110176001	6742,00
200	198	1600	6.3	1185	135	1255	2303	265	32	5110206001	8613,00
250	248	1600	6.3	1140	150	1205	2158	267	50	5110256001	8788,00
300	298	2280	7.1	1700	160	1850	2918	460	75	5110306001	12330,00

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	6868,00
120	118	1200	4.0	905	120	930	1943	134	6	5112126001	7057,00
150	148	1200	4.5	880	125	910	1918	140	12	5112156001	7244,00
175	173	1600	5.4	1210	130	1275	2328	250	22	5112176001	8852,00
200	198	1600	6.3	1185	135	1255	2303	265	32	5112206001	9067,00
250	248	2280	6.3	1745	150	1885	2963	435	50	5112256001	12634,00
300	298	2280	7.1	1700	160	1850	2918	460	75	5112306001	14565,00



- 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	925	112	950	1963	127	4	5114106001	7221,00
120	118	1200	4.0	905	120	930	1943	134	6	5114126001	7445,00
150	148	1600	4.5	1230	125	1310	2348	240	12	5114156001	8983,00
175	173	1600	5.4	1210	130	1275	2328	250	22	5114176001	9144,00
200	198	1600	6.3	1185	135	1255	2303	265	32	5114206001	9356,00
250	248	2280	6.3	1745	150	1885	2963	435	50	5114256001	12941,00
300	298	2280	7.1	1700	160	1850	2918	460	75	5114306001	15181,00

16 and 18 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	16 outlets		18 outlets	
										Item no.	€	Item no.	€
100	98	1200	3.6	925	112	950	1963	127	4	5116106001	7484,00	5118106001	7814,00
120	118	1600	4.0	1255	120	1330	2373	235	6	5116126001	9194,00	5118126001	9433,00
150	148	1600	4.5	1230	125	1310	2348	240	12	5116156001	9281,00	5118156001	9576,00
175	173	2280	5.4	1815	130	1954	3133	405	22	5116176001	12356,00	5118176001	13037,00
200	198	2280	6.3	1790	135	1937	3108	430	32	5116206001	12810,00	5118206001	13136,00
250	248	2280	6.3	1745	150	1885	2963	435	50	5116256001	13262,00		

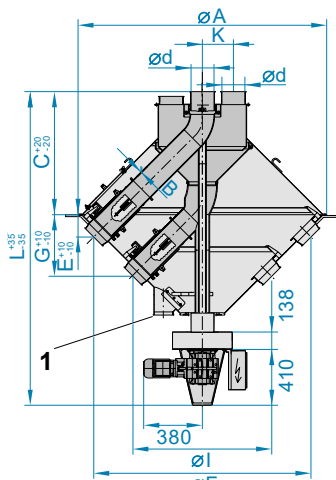
20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.	€
100	98	1600	3.6	1275	112	1350	2393	227	4	5120106001	9834,00
120	118	1600	4.0	1255	120	1330	2373	235	6	5120126001	9885,00
150	148	2280	4.5	1835	125	2019	3153	380	12	5120156001	12948,00
175	173	2280	5.4	1815	130	1954	3133	405	22	5120176001	13359,00
200	198	2280	6.3	1790	135	1937	3108	430	32	5120206001	13455,00



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	21951,00	52101245	22523,00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52081545	22242,00	52101545	22788,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52081745	24502,00	52101745	24942,00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52082045	25284,00	52102045	25685,00
250	248	2280	6.3	1110	210	1960	530	1325	290	2900	577	100	52082545	26282,00	52102545	26681,00

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	23090,00
150	148	1600	4.5	810	160	1370	395	895	190	2210	350	25	52121545	23115,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52121745	25321,00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52122045	26088,00

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	23661,00	52161245	24284,00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52141545	25163,00	52161545	25804,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52141745	25702,00	52161745	26203,00
200	198	2280	6.3	1135	180	2020	475	1435	240	2375	562	65	52142045	26485,00	52162045	26910,00

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	26058,00	52201245	26334,00
150	148	2280	4.5	1160	160	2075	395	1595	190	2400	540	25	52181545	26370,00	52201545	26934,00
175	173	2280	5.4	1145	170	2040	430	1515	215	2385	550	45	52181745	26709,00		



DOUBLE TURN-HEAD DISTRIBUTORS 60°

2350

- 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 %
- 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

2x8 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	1285	115	1325	265	805	160	2420	350	6	52081260	22153,00
150	148	1600	4.5	1255	120	1310	305	680	190	2390	355	12	52081560	22443,00
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52081760	25112,00
200	198	2280	6.3	1825	135	1960	365	1170	240	3160	580	32	52082060	25838,00
250	248	2280	6.3	1765	155	1890	425	1000	290	3100	597	50	52082560	26891,00

2x10 and 2x12 outlets

DN	Ø d	Ø A	B	C	E	Ø F	G	I	K	L	kg	t/h	2 x 10 outlets		2 x 12 outlets	
													Item no.	€	Item no.	€
120	118	1600	4.0	1285	115	1325	265	805	160	2420	350	6	52101260	22835,00	52121260	23400,00
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52101560	24719,00	52121560	25048,00
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52101760	25558,00	52121760	25923,00
200	198	2280	6.3	1825	135	1960	365	1170	240	3160	580	32	52102060	26127,00	52122060	26620,00

2x14 and 2x16 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	2280	4.0	1890	115	2025	265	1505	160	3225	545	6	52141260	25303,00	52161260	25911,00
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52141560	25387,00	52161560	26182,00
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52141760	26402,00	52161760	26786,00

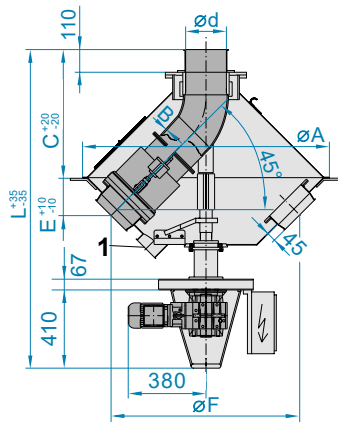
2x18 and 2x20 outlets

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	1890	115	2025	265	1505	160	3225	545	6	52181260	26485,00	52201260	27034,00
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52181560	26794,00	52201560	27275,00



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

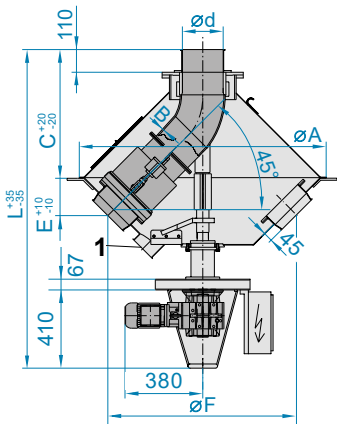
DN	Ø d	Ø A	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	€	Item no.	€
100	98	1200	5.0	643	138	1014	1617	54041045	12109,00	54061045	12502,00
120	118	1200	5.0	621	155	980	1595	54041245	12270,00	54061245	12555,00
150	148	1200	5.6	640	155	980	1614	54041545	12360,00	54061545	12643,00
175	173	1200	5.4	622	173	944	1596	54041745	12555,00	54061745	12762,00
200	198	1200	6.3	626	183	924	1600	54042045	12762,00	54062045	12892,00
250	248	1600	6.3	784	219	1252	1960	54042545	13653,00	54062545	14175,00
300	298	1600	7.1	817	219	1252	1993	54043045	14939,00	54063045	16244,00

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	12655,00
120	118	1200	5.0	621	155	980	1595	54081245	12799,00
150	148	1200	5.6	640	155	980	1614	54081545	12970,00
175	173	1200	5.4	622	173	944	1596	54081745	13042,00
200	198	1200	6.3	626	183	924	1600	54082045	13102,00
250	248	1600	6.3	784	219	1252	1960	54082545	16109,00
300	298	1600	7.1	817	219	1252	1993	54083045	16965,00

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	12851,00
120	118	1200	5.0	621	155	980	1595	54101245	13095,00
150	148	1200	5.6	640	155	980	1614	54101545	13223,00
175	173	1200	5.4	622	173	944	1596	54101745	13301,00
200	198	1600	6.3	826	183	1324	2002	54102045	15948,00
250	248	1600	6.3	784	219	1252	1960	54102545	16455,00



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	13181,00
120	118	1200	5.0	621	155	980	1595	54121245	13355,00
150	148	1200	5.6	640	155	980	1614	54121545	13529,00
175	173	1600	5.4	822	173	1344	1998	54121745	16301,00
200	198	1600	6.3	826	183	1324	2002	54122045	16516,00

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	13477,00
120	118	1200	5.0	621	155	980	1595	54141245	13622,00
150	148	1600	5.6	840	155	1380	2016	54141545	16336,00
175	173	1600	5.4	822	173	1344	1998	54141745	16618,00

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	13771,00
120	118	1600	5.0	821	155	1380	1997	54161245	16523,00
150	148	1600	5.6	840	155	1380	2016	54161545	16687,00
175	173	1600	5.4	822	173	1344	1998	54161745	17018,00

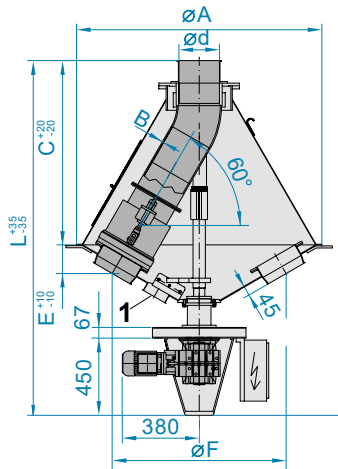
18 and 20 outlets

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	15725,00	54201045	15975,00
120	118	1600	5.0	821	155	1380	1997	54181245	16884,00	54201245	17161,00



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	12486,00	54061060	12713,00
120	118	1200	5.0	946	120	932	1865	54041260	12799,00	54061260	12992,00
150	148	1200	5.6	939	125	914	1858	54041560	12831,00	54061560	13004,00
175	173	1200	5.4	910	135	880	1829	54041760	13301,00	54061760	13641,00
200	198	1200	6.3	910	140	862	1829	54042060	13467,00	54062060	13802,00
250	248	1600	6.3	1215	155	1210	2250	54042560	13994,00	54062560	14318,00
300	298	1600	7.1	1196	165	1176	2231	54043060	16425,00	54063060	17482,00

8 outlets

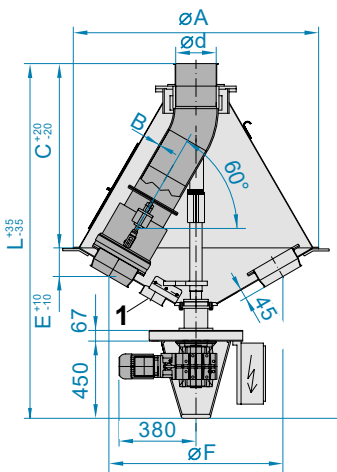
DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54081060	13022,00
120	118	1200	5.0	946	120	932	1865	54081260	13524,00
150	148	1200	5.6	939	125	914	1858	54081560	13667,00
175	173	1200	5.4	910	135	880	1829	54081760	14017,00
200	198	1200	6.3	910	140	862	1829	54082060	14375,00
250	248	1600	6.3	1215	155	1210	2250	54082560	16536,00
300	298	1600	7.1	1196	165	1176	2231	54083060	18137,00

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	13562,00
120	118	1200	5.0	946	120	932	1865	54101260	13951,00
150	148	1200	5.6	939	125	914	1858	54101560	14057,00
175	173	1200	5.4	910	135	880	1829	54101760	14594,00
200	198	1600	6.3	1256	140	1262	2291	54102060	16721,00
250	248	1600	6.3	1215	155	1210	2250	54102560	17137,00
300	298	2280	7.1	1785	165	1856	3016	54103060	20471,00

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	14048,00
120	118	1200	5.0	946	120	932	1865	54121260	14366,00
150	148	1600	5.6	1285	125	1314	2320	54121560	16225,00
175	173	1600	5.4	1257	135	1280	2292	54121760	17040,00
200	198	1600	6.3	1256	140	1262	2291	54122060	17196,00
250	248	2280	6.3	1804	155	1890	3035	54122560	20562,00
300	298	2280	7.1	1785	165	1856	3016	54123060	22020,00



1 Spillage outlet

14 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54141060	14553,00
120	118	1200	5.0	946	120	932	1865	54141260	14763,00
150	148	1600	5.6	1285	125	1314	2320	54141560	16683,00
175	173	1600	5.4	1257	135	1280	2292	54141760	17348,00
200	198	2280	6.3	1845	140	1942	3076	54142060	20739,00
250	248	2280	6.3	1804	155	1890	3035	54142560	21046,00
300	298	2280	7.1	1785	165	1856	3016	54143060	23322,00

16 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.	€
100	98	1200	5.0	970	112	958	1889	54161060	14860,00
120	118	1600	5.0	1293	120	1332	2328	54161260	16690,00
150	148	1600	5.6	1285	125	1314	2320	54161560	17050,00
175	173	2280	5.4	1845	135	1960	3076	54161760	20960,00
200	198	2280	6.3	1845	140	1942	3076	54162060	21136,00
250	248	2280	6.3	1804	155	1890	3035	54162560	21645,00

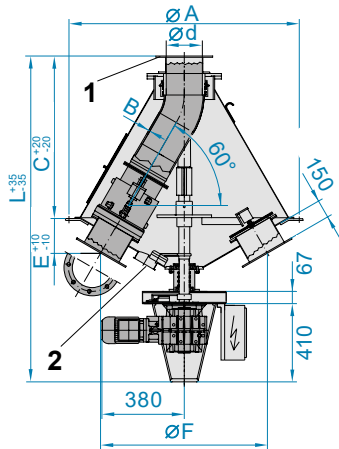
18 and 20 outlets

DN	Ø d	Ø A	B	C	E	Ø F	L	18 outlets		20 outlets	
								Item no.	€	Item no.	€
100	98	1600	5.0	1316	112	1358	2351	54181060	16708,00	54201060	16981,00
120	118	1600	5.0	1293	120	1332	2328	54181260	17029,00	54201260	17300,00
150	148	2280	5.6	1874	125	1994	3105	54181560	21054,00	54201560	21307,00
175	173	2280	5.4	1845	135	1960	3076	54181760	21126,00	54201760	21530,00
200	198	2280	6.3	1845	140	1942	3076	54182060	21248,00	54202060	21698,00



MULTI-WAY DISTRIBUTORS

Swivel pipe switches



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

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 axial-free (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	15005,00	53060860	15822,00
100	99	1200	8.0	970	203	1064	1889	53041060	15033,00	53061060	15861,00
120	118	1200	8.0	946	211	1038	1865	53041260	15515,00	53061260	16394,00
150	148	1200	10.0	939	216	1020	1858	53041560	16360,00	53061560	17252,00
200	197	1200	11.0	910	231	968	1829	53042060	20273,00	53062060	21361,00

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	16678,00
100	99	1200	8.0	970	203	1064	1889	53081060	16714,00
120	118	1200	8.0	946	211	1038	1865	53081260	17325,00
150	148	1200	10.0	939	216	1020	1858	53081560	18228,00
200	197	1200	11.0	910	231	968	1829	53082060	22433,00

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	17522,00	53120860	18363,00
100	99	1200	8.0	970	203	1064	1889	53101060	17730,00	53121060	18437,00
120	118	1200	8.0	946	211	1038	1865	53101260	18207,00	53121260	19115,00
150	148	1200	10.0	939	216	1020	1858	53101560	19157,00		
200	197	1600	11.0	1256	231	1368	2291	53102060	23519,00	53122060	24639,00

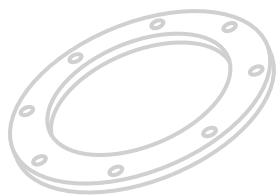
14 outlets

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	19210,00
100	99	1200	8.0	970	203	1064	1889	53141060	19300,00





THE WHOLE JACOB DIVERSITY –
WITH LOOSE AND WELDED FLANGES



THE FLANGE RANGE

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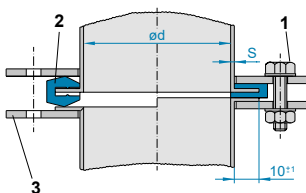


FOR LARGE DIAMETERS: FLANGES

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' range of flanges provides the ideal solution for this purpose.

IMPLEMENTATION

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 gasket 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 227 for dimensions)

S = Wall thickness

Ød = Internal diameter

Mild steel:

DN 350-630 mm:

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

DN 710-1250 mm:

- Corrosion protection: Surface spray-primed in colour RAL 7032 (pebble grey) or galvanised
- Priming coat is not conductive
- Electrostatic continuity 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 350-1250 mm:

- Version with galvanised loose flanges
- Alternatively: Loose flanges in shotblasted stainless steel
- Surface shotblasted
- 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 U-shaped seals and ring 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 through an 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 DESIGNline)

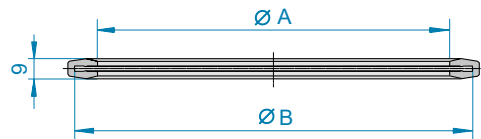


U-shaped seals for loose flange system with 10 mm lip



NBR	Silicone F	Silicone F D	EPDM	Viton (FKM) F
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		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

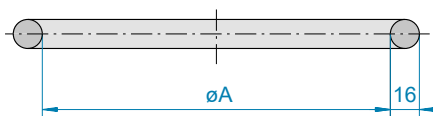
A U-shaped seal (chapter 2) must be used for pipe components with a loose flange diameter of up to 350 mm and a 6 mm lip

Ring seals for push-in pipes with a flange connection



NBR	Silicone F	Silicone F D	EPDM	Viton (FKM) F
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		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
- Temperatures apply for adhesive-free silicone seals up to DN 1000 mm

Seals for 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



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

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. 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, 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

THROTTLE VALVES

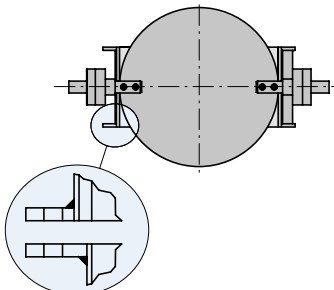
- Diameters: DN 350 to 1250 mm
- DN 350 to 800 mm available with loose flange similar to DIN 24154-2 (see page 227 for dimensions)
- From DN 900 mm, 3 mm wall thickness with welded-on flanges similar to DIN 24154-2 (see page 227 for dimensions)
- Shafts with ball bearings and sealed with Viton O-rings
- 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 227 for dimensions), but without counter-flange (see drawing)
- Version with pneumatic or electric actuator

INSTALLATION INFORMATION

- Mounting bolts in installation kit: see page 226
- Bolt torque: M 10 = 40 Nm, M 12 = 60 Nm



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

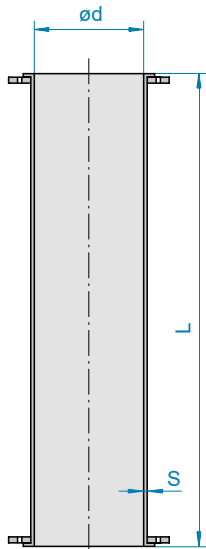


Installation instructions for loose flange connections



THE FLANGE RANGE

Welded pipes



The pipe length and diameter DN are nominal dimensions, the actual length is indicated in 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	102,00	22351010	140,50	21352010	145,00	22352010	217,00
400	398	1976	46.20	21401010	138,50	22401010	188,50	21402010	183,00	22402010	277,00
450	448	1976	52.10	21451010	160,00	22451010	239,50	21452010	211,00	22452010	343,00
500	498	1976	57.90	21501010	170,50	22501010	260,00	21502010	231,00	22502010	378,00
560	558	1976	64.70			22561010	293,00			22562010	454,00
630	628	1980	75.00			22631010	328,00			22632010	516,00
710	707	1980	84.00			22711010	451,50			22712010	599,50
800	797	1980	100.00			22801010	522,50			22802010	692,50
900	897	1980	108.92			229910104090	588,50			229920104090	868,00
1000	998	1980	121.14			229910104100	660,50			229920104100	1030,00
1120	1118	1980	146.60			229910104112	795,50			229920104112	1214,00
1250	1248	1980	163.46			229910104125	904,00			229920104125	1367,00

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	1976	40.60	21353010	260,00	22353010	432,50	213530103	351,50	223530103	524,00
400	398	1976	46.20	21403010	323,50	22403010	500,00	214030103	429,50	224030103	605,50
450	448	1976	52.10	21453010	375,00	22453010	556,00	214530103	483,50	224530103	664,50
500	498	1976	57.90	21503010	433,50	22503010	652,50	215030103	542,00	225030103	761,00
560	558	1976	64.70			22563010	709,00			225630103	918,50
630	628	1980	75.00			22633010	783,50			226330103	981,50
710	707	1980	84.00			22713010	820,50			227130103	1026,00
800	797	1980	100.00			22803010	972,50				
900	897	1980	108.92			229930104090	1140,00				
1000	998	1980	121.14			229930104100	1312,00				
1120	1118	1980	146.60			229930104112	1521,00				
1250	1248	1980	163.46			229930104125	1744,00				

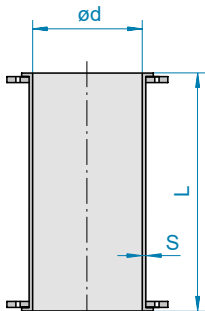
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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 in 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	72,90	22351020	86,70	21352020	102,00	22352020	144,50
400	398	976	25.30	21401020	85,80	22401020	114,00	21402020	118,50	22402020	167,50
450	448	976	29.40	21451020	98,60	22451020	142,00	21452020	135,50	22452020	205,00
500	498	976	33.20	21501020	106,00	22501020	158,50	21502020	148,00	22502020	226,00
560	558	976	36.60			22561020	175,50			22562020	277,50
630	628	976	45.00			22631020	195,50			22632020	308,00
710	707	980	48.00			22711020	237,50			22712020	342,50
800	797	980	56.00			22801020	273,50			22802020	402,50
900	897	980	63.63			229910204090	337,50			229920204090	500,50
1000	998	980	70.77			229910204100	438,00			229920204100	663,00
1120	1118	980	90.20			229910204112	559,50			229920204112	815,00
1250	1248	980	100.53			229910204125	611,00			229920204125	893,50

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	976	22.70	21353020	169,00	22353020	251,00	213530203	260,50	223530203	342,50
400	398	976	25.30	21403020	211,50	22403020	299,50	214030203	317,50	224030203	405,50
450	448	976	29.40	21453020	231,50	22453020	322,00	214530203	340,00	224530203	430,50
500	498	976	33.20	21503020	256,50	22503020	368,00	215030203	365,00	225030203	476,50
560	558	976	36.60			22563020	425,50			225630203	634,00
630	628	976	45.00			22633020	478,50			226330203	678,00
710	707	980	48.00			22713020	521,50			227130203	727,00
800	797	980	56.00			22803020	629,00				
900	897	980	63.63			229930204090	733,00				
1000	998	980	70.77			229930204100	858,50				
1120	1118	980	90.20			229930204112	1004,00				
1250	1248	980	100.53			229930204125	1126,00				

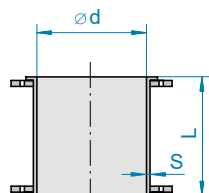
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 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 in L

PIPES 500 MM

6010

Powder-coated and galvanised (dimensions for 2 mm pipework)

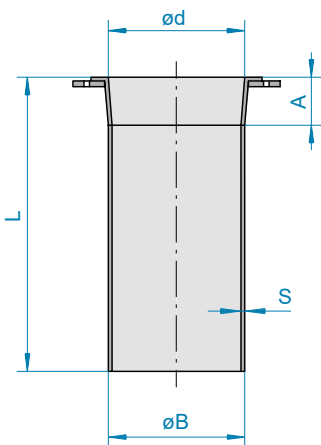
DN	ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	478	14.60	21351030	55,40	22351030	62,20	21352030	75,60	22352030	99,00
400	398	478	16.30	21401030	64,00	22401030	77,40	21402030	86,10	22402030	113,00
450	448	478	18.50	21451030	72,50	22451030	91,20	21452030	98,40	22452030	138,50
500	498	478	20.60	21501030	76,90	22501030	102,00	21502030	104,50	22502030	147,00
560	558	478	22.60			22561030	116,50			22562030	189,00
630	628	478	25.40			22631030	128,50			22632030	215,50
710	707	480	32.00			22711030	168,50			22712030	268,50
800	797	480	36.00			22801030	202,50			22802030	316,50
900	897	480	40.98			229910304090	248,00			229920304090	365,50
1000	998	480	45.60			229910304100	321,00			229920304100	473,50
1120	1118	480	62.00			229910304112	409,50			229920304112	586,50
1250	1248	480	69.07			229910304125	457,00			229920304125	650,00

Stainless steel (dimensions for 2 mm pipework)

DN	ø d	L	kg	1 mm stainless steel with galvanised loose flanges				2 mm stainless steel with stainless steel shotblasted loose flange			
				1 mm		2 mm		1 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	478	14.60	21353030	112,00	22353030	153,00	213530303	204,50	223530303	245,00
400	398	478	16.30	21403030	145,00	22403030	190,00	214030303	250,50	224030303	295,50
450	448	478	18.50	21453030	154,50	22453030	215,50	214530303	263,00	224530303	325,00
500	498	478	20.60	21503030	163,50	22503030	242,50	215030303	272,00	225030303	351,00
560	558	478	22.60			22563030	286,50			225630303	496,50
630	628	478	25.40			22633030	317,50			226330303	516,50
710	707	480	32.00			22713030	362,00			227130303	567,50
800	797	480	36.00			22803030	440,00				
900	897	480	40.98			229930304090	522,50				
1000	998	480	45.60			229930304100	629,00				
1120	1118	480	62.00			229930304112	774,00				
1250	1248	480	69.07			229930304125	857,50				

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	91,00	22351110	106,50	21352110	125,50	22352110	156,50
400	399	50	394	986	22.00	21401110	113,00	22401110	133,00	21402110	151,50	22402110	189,50
450	448	50	444	986	29.45	21451110	135,50	22451110	152,00	21452110	169,50	22452110	241,00
500	498	50	494	986	29.40	21501110	152,50	22501110	176,00	21502110	179,50	22502110	262,50
560	558	50	554	986	32.00			22561110	205,00			22562110	287,50
630	628	50	624	986	36.00			22631110	221,00			22632110	301,50
710	707	50	703	986	42.00			22711110	245,50			22712110	351,50
800	797	100	792	986	40.00			22801110	311,00			22802110	402,50

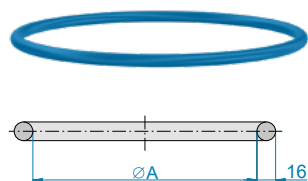
Stainless steel (dimensions for 1 mm pipework)

DN	Ø d	A	Ø B	L	kg	1 mm stainless steel with galvanised loose flanges		2 mm stainless steel with galvanised loose flange	
						Item no.	€	Item no.	€
350	350	50	345	986	18.00	21353110	213,00	22353110	279,50
400	399	50	394	986	22.00	21403110	230,00	22403110	336,50
450	448	50	444	986	29.45	21453110	239,00	22453110	352,00
500	498	50	494	986	29.40	21503110	267,00	22503110	396,50
560	558	50	554	986	32.00			22563110	438,00
630	628	50	624	986	36.00			22633110	496,50
710	707	50	703	986	42.00			22713110	579,50
800	797	100	792	986	40.00			22803110	666,00



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

Use for 1-3 mm pipework system

DN	Ø A	kg	NBR grey		Silicone beige		Silicone blue		EPDM black		FKM black	
			Item no.	€	Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	327	0.34	203561177	22,80	2035711709	39,60	20357117091	50,40	2035811759	24,70	203591179	87,70
400	373	0.38	204061177	22,80	2040711709	41,20	20407117091	53,20	2040811759	25,40	204091179	100,00
450	421	0.42	204561177	25,50	2045711709	44,90	20457117091	57,20	2045811759	27,30	204591179	112,50
500	468	0.48	205061177	27,10	2050711709	48,90	20507117091	63,70	2050811759	28,90	205091179	125,00
560	524	0.54	205661177	29,40	2056711709	53,80	20567117091	69,90	2056811759	31,20	205691179	141,00
630	591	0.60	206361177	32,70	2063711709	59,50	20637117091	77,50	2063811759	34,20	206391179	158,00
710	666	0.69	207161177	35,20	2071711709	65,40	20717117091	85,20	2071811759	36,70	207191179	176,00
800	761	0.78	208061177	43,30	2080711709	78,20	20807117091	99,40	2080811759	40,20	208091179	188,00



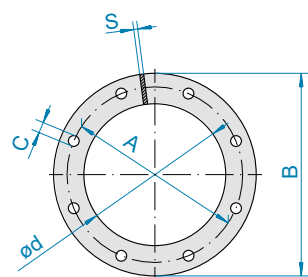
FLANGES FOR PUSH-IN PIPES

6040

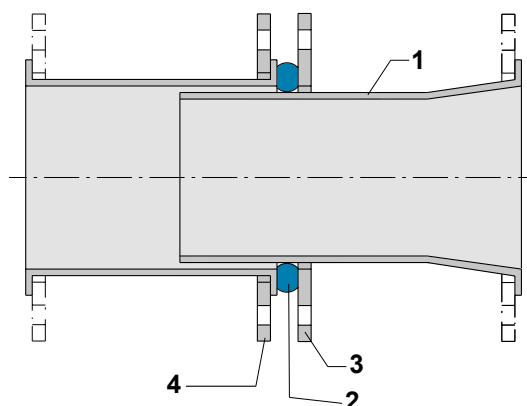
- Use in conjunction with ring seal for push-in pipe and standard pipe with loose flange
- Use 50 mm long mounting bolts

Powder-coated, galvanised and stainless steel

DN	Ø 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	31,70	20352724	39,70	20353724	60,90
400	398	448	488	11.5	12	8	3.88	20401724	36,00	20402724	44,80	20403724	67,90
450	448	497	538	11.5	12	8	4.33	20451724	39,70	20452724	49,90	20453724	76,90
500	498	551	588	11.5	12	8	4.77	20501724	48,10	20502724	60,50	20503724	84,40
560	556	629	656	14	16	8	5.86	20561724	80,60	20562724	96,70	20563724	158,00
630	626	698	726	14	16	8	6.56	20631724	89,90	20632724	107,50	20633724	175,00
710	705	775	805	14	16	8	7.34	20711724	120,50	20712724	157,50	20713724	207,50
800	795	861	895	14	24	8	8.16	20801724	146,00	20802724	196,00	20803724	242,00



E = No. of holes

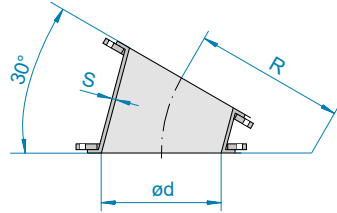


- 1 Push-in pipe
- 2 Ring seal for push-in pipe
- 3 Flange for push-in pipe
- 4 Straight pipe with loose flange

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	66,60	22351320	70,90
400	398	500	11.20	21401320	74,10	22401320	86,00
450	448	563	14.40	21451320	84,10	22451320	91,70
500	498	625	17.10	21501320	92,60	22501320	98,50
560	558	700	17.00			22561320	119,00
630	628	788	26.00			22631320	132,50
710	707	888	30.00			22711320	171,00
800	797	1000	38.00			22801320	262,00
900	897	1126	43.88			229913204090	342,50
1000	998	1250	51.89			229913204100	426,00
1120	1118	1400	73.28			229913204112	553,50
1250	1248	1563	86.79			229913204125	660,00

Galvanised (dimensions for 2 mm pipework)

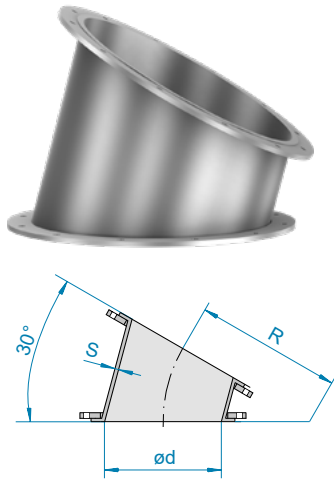
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	438	9.40	21352320	84,50	22352320	94,60
400	398	500	11.20	21402320	97,40	22402320	116,00
450	448	563	14.40	21452320	109,00	22452320	130,50
500	498	625	17.10	21502320	120,00	22502320	145,00
560	558	700	17.00			22562320	155,50
630	628	788	26.00			22632320	183,00
710	707	888	30.00			22712320	212,50
800	797	1000	38.00			22802320	336,50
900	897	1126	43.88			229923204090	470,00
1000	998	1250	51.89			229923204100	601,00
1120	1118	1400	73.28			229923204112	764,50
1250	1248	1563	86.79			229923204125	908,50

Shock explosion proof tested up to 3 bar



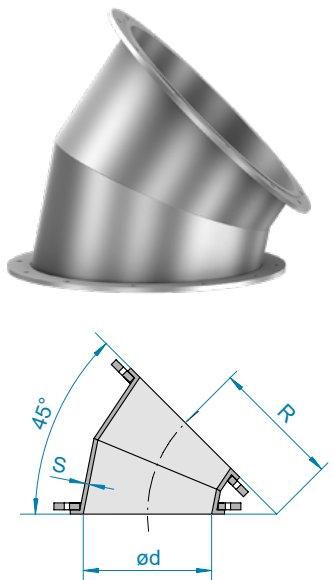
THE FLANGE RANGE

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		
				1.5 mm			2 mm		
				Item no.	€	Item no.	€	Item no.	€
350	349	438	9.40	21353320	126,50	22353320	138,50	223533203	230,00
400	398	500	11.20	21403320	147,00	22403320	170,50	224033203	275,50
450	448	563	14.40	21453320	164,50	22453320	182,00	224533203	290,00
500	498	625	17.10	21503320	177,50	22503320	196,00	225033203	304,50
560	558	700	17.00			22563320	236,00	225633203	445,00
630	628	788	26.00			22633320	277,00	226333203	476,00
710	707	888	30.00			22713320	318,50	227133203	524,00
800	797	1000	38.00			22803320	393,50		
900	897	1126	43.88			229933204090	540,00		
1000	998	1250	51.89			229933204100	708,50		
1120	1118	1400	73.28			229933204112	885,50		
1250	1248	1563	86.79			229933204125	1076,00		



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	103,50	22351330	120,00
400	398	400	13.30	21401330	119,00	22401330	135,00
450	448	450	16.40	21451330	132,00	22451330	153,00
500	498	500	19.00	21501330	150,50	22501330	168,50
560	558	560	21.00			22561330	203,50
630	628	630	27.00			22631330	239,00
710	707	710	34.00			22711330	273,00
800	797	800	42.00			22801330	306,00
900	897	900	51.53			229913304090	400,00
1000	998	1000	61.30			229913304100	512,00
1120	1118	1120	85.15			229913304112	660,50
1250	1248	1250	101.59			229913304125	809,50

2 lobster back segments 22.5°

F FOOD GRADE
EC 1935/2004 plus FDA compliant



Shock explosion proof tested up to 3 bar




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	130,00	22352330	148,00
400	398	400	13.30	21402330	147,00	22402330	167,50
450	448	450	16.40	21452330	162,50	22452330	184,50
500	498	500	19.00	21502330	185,00	22502330	211,00
560	558	560	21.00			22562330	251,50
630	628	630	27.00			22632330	305,00
710	707	710	34.00			22712330	334,50
800	797	800	42.00			22802330	377,00
900	897	900	51.53			229923304090	527,50
1000	998	1000	61.30			229923304100	691,00
1120	1118	1120	85.15			229923304112	894,50
1250	1248	1250	101.59			229923304125	1090,00

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, shotblasted 			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	350	11.40	21353330	195,00	22353330	228,50	213533303	286,00	223533303	319,50
400	398	400	13.30	21403330	243,00	22403330	266,00	214033303	349,00	224033303	371,00
450	448	450	16.40	21453330	271,50	22453330	307,00	214533303	379,50	224533303	415,50
500	498	500	19.00	21503330	304,50	22503330	335,00	215033303	413,00	225033303	443,50
560	558	560	21.00			22563330	403,00			225633303	612,50
630	628	630	27.00			22633330	482,50			226333303	681,00
710	707	710	34.00			22713330	511,50			227133303	717,50
800	797	800	42.00			22803330	553,00				
900	897	900	51.53			229933304090	713,50				
1000	998	1000	61.30			229933304100	929,50				
1120	1118	1120	85.15			229933304112	1179,00				
1250	1248	1250	101.59			229933304125	1453,00				

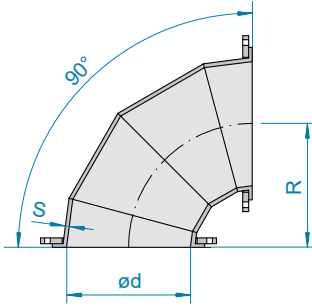
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

Segments and bends



4 lobster back segments:
2x30°/2x15°

BENDS R = 1 D, 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

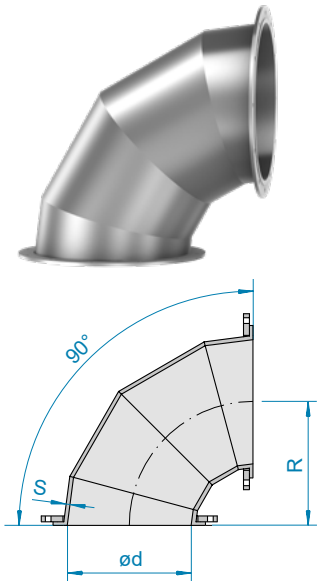
Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	350	16.00	21351339	202,50	22351339	212,00
400	398	400	20.40	21401339	242,00	22401339	252,50
450	448	450	24.40	21451339	260,00	22451339	282,50
500	498	500	24.60	21501339	300,50	22501339	312,50
560	558	560	36.00			22561339	336,00
630	628	630	46.00			22631339	387,50
710	707	710	56.00			22711339	448,50
800	797	800	66.00			22801339	541,00
900	897	900	82.77			229913394090	660,50
1000	998	1000	99.85			229913394100	848,50
1120	1118	1120	133.45			229913394112	1083,00
1250	1248	1250	161.74			229913394125	1366,00

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	235,00	22352339	245,50
400	398	400	20.40	21402339	283,50	22402339	295,50
450	448	450	24.40	21452339	298,50	22452339	330,50
500	498	500	24.60	21502339	345,00	22502339	374,00
560	558	560	36.00			22562339	428,00
630	628	630	46.00			22632339	497,50
710	707	710	56.00			22712339	578,50
800	797	800	66.00			22802339	706,50
900	897	900	82.77			229923394090	880,50
1000	998	1000	99.85			229923394100	1119,00
1120	1118	1120	133.45			229923394112	1437,00
1250	1248	1250	161.74			229923394125	1801,00

Shock explosion proof tested up to 3 bar



4 lobster back segments:
2x30°/2x15°

Stainless steel (dimensions for 2 mm pipework)

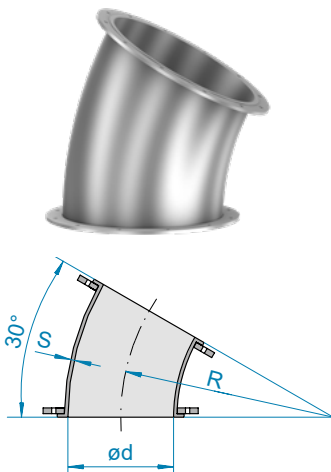
DN	Ø d	R	kg	Stainless steel with galvanised loose flanges F				Stainless steel with stainless steel loose flange, shotblasted F			
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	350	16.00	21353339	369,50	22353339	386,50	213533393	461,50	223533393	477,50
400	398	400	20.40	21403339	428,50	22403339	446,50	214033393	533,50	224033393	552,50
450	448	450	24.40	21453339	497,50	22453339	520,50	214533393	606,00	224533393	629,00
500	498	500	24.60	21503339	563,00	22503339	589,50	215033393	672,00	225033393	698,00
560	558	560	36.00			22563339	663,50			225633393	872,50
630	628	630	46.00			22633339	741,00			226333393	940,00
710	707	710	56.00			22713339	861,00			227133393	1066,00
800	797	800	66.00			22803339	1016,00			228033393	1310,00
900	897	900	82.77			229933394090	1220,00				
1000	998	1000	99.85			229933394100	1544,00				
1120	1118	1120	133.45			229933394112	1982,00				
1250	1248	1250	161.74			229933394125	2441,00				

BENDS R = 2 D, 30°

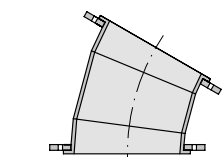
6130

- 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	116,00
400	398	800	15.20			22401343	136,50
450	448	900	19.00	21451343	157,50	22451343	165,50
500	498	1000	28.00	21501343	177,50	22501343	187,00
560	558	1120	28.00			22561343	223,00
630	628	1260	34.00			22631343	276,00
710	707	1420	42.00			22711343	325,00
800	797	1600	50.50			22801343	414,00
900	897	1800	60.57			229913434090	519,00
1000	998	2000	72.45			229913434100	658,00
1120	1118	2240	99.08			229913434112	843,00
1250	1248	2500	118.94			229913434125	1023,00

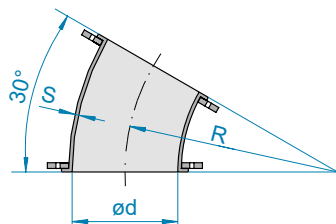
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

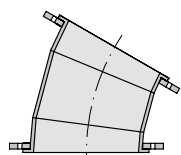


THE FLANGE RANGE

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	146,00
400	398	800	15.20			22402343	171,00
450	448	900	19.00	21452343	188,00	22452343	230,50
500	498	1000	23.00	21502343	217,50	22502343	255,50
560	558	1120	28.00			22562343	298,50
630	628	1260	34.00			22632343	370,50
710	707	1420	42.00			22712343	425,50
800	797	1600	50.50			22802343	538,00
900	897	1800	60.57			229923434090	682,00
1000	998	2000	72.45			229923434100	887,50
1120	1118	2240	99.08			229923434112	1137,00
1250	1248	2500	118.94			229923434125	1398,00

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, shotblasted					
				1.5 mm		2 mm		1.5 mm		2 mm	
				Item no.	€	Item no.	€	Item no.	€	Item no.	€
350	349	700	13.20		22353343	220,50	213533433	304,00	223533433	312,50	
400	398	800	15.20		22403343	236,50	214033433	337,00	224033433	342,00	
450	448	900	19.00	21453343	286,00	22453343	314,50	214533433	394,50	224533433	422,50
500	498	1000	23.00	21503343	318,00	22503343	352,00	215033433	426,50	225033433	460,50
560	558	1120	28.00			22563343	452,00			225633433	661,00
630	628	1260	34.00			22633343	534,50			226333433	734,00
710	707	1420	42.00			22713343	631,00			227133433	836,00
800	797	1600	50.50			22803343	732,00				
900	897	1800	60.57			229933434090	871,00				
1000	998	2000	72.45			229933434100	1089,00				
1120	1118	2240	99.08			229933434112	1378,00				
1250	1248	2500	118.94			229933434125	1708,00				

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof tested
up to 3 bar



BENDS $R = 2 D, 45^\circ$

6140

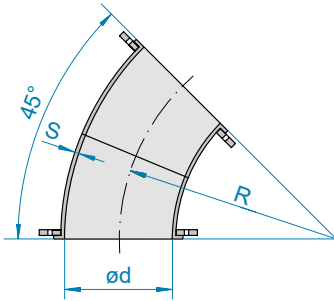
- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

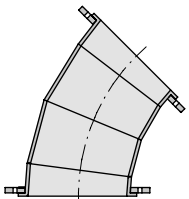
DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	€	Item no.	€
350	349	700	17.12			22351344	151,50
400	398	800	20.00			22401344	188,50
450	448	900	24.20	21451344	206,00	22451344	221,00
500	498	1000	29.50	21501344	228,00	22501344	247,00
560	558	1120	37.00			22561344	292,00
630	628	1260	39.20			22631344	326,00
710	707	1420	54.00			22711344	368,00
800	797	1600	72.76			22801344	459,50
900	897	1800	81.66			229913444090	611,00
1000	998	2000	98.48			229913444100	804,00
1120	1118	2240	131.72			229913444112	1016,00
1250	1248	2500	159.59			229913444125	1239,00

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	188,00
400	398	800	20.00			22402344	233,50
450	448	900	24.20	21452344	244,50	22452344	294,00
500	498	1000	29.50	21502344	270,00	22502344	328,50
560	558	1120	37.00			22562344	380,00
630	628	1260	39.20			22632344	427,00
710	707	1420	54.00			22712344	491,50
800	797	1600	72.76			22802344	597,00
900	897	1800	81.66			229923444090	774,50
1000	998	2000	98.48			229923444100	1063,00
1120	1118	2240	131.72			229923444112	1391,00
1250	1248	2500	159.59			229923444125	1686,00



■ 2 pressed segments 22.5°



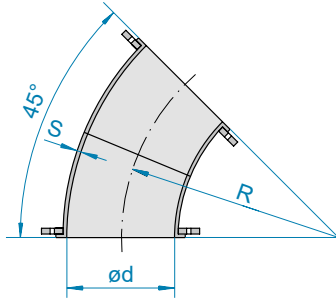
■ 4 lobster back segments:
2 x 15° / 2 x 7.5°

■ Shock explosion proof tested up to 3 bar

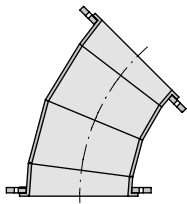


THE FLANGE RANGE

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 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	17.12		22353344	314,00	213533443	357,00	223533443	405,50	
400	398	800	20.00		22403344	353,50	214033443	417,00	224033443	459,00	
450	448	900	24.20	21453344	381,50	22453344	420,50	214533443	489,50	224533443	529,00
500	498	1000	29.50	21503344	450,00	22503344	500,00	215033443	558,00	225033443	608,50
560	558	1120	37.00		22563344	615,50			225633443	824,50	
630	628	1260	39.20		22633344	734,00			226333443	932,50	
710	707	1420	54.00		22713344	864,50			227133443	1070,00	
800	797	1600	72.76		22803344	1004,00					
900	897	1800	81.66		229933444090	1196,00					
1000	998	2000	98.48		229933444100	1494,00					
1120	1118	2240	131.72		229933444112	1865,00					
1250	1248	2500	159.59		229933444125	2281,00					

F FOOD GRADE
EC 1935/2004 plus FDA compliant

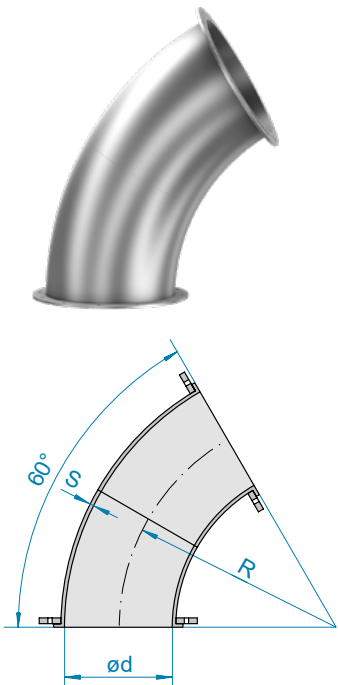
■ Shock explosion proof tested
up to 3 bar



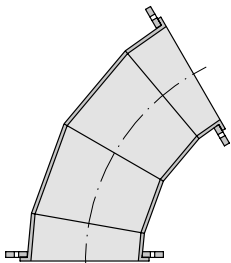
BENDS $R = 2 D$, 60°

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	197,50
400	398	800	23.80			22401346	228,00
450	448	900	29.40	21451346	251,50	22451346	267,00
500	498	1000	36.00	21501346	292,00	22501346	304,50
560	558	1120	45.00			22561346	388,50
630	628	1260	56.00			22631346	456,00
710	707	1420	69.00			22711346	509,50
800	797	1600	84.00			22801346	611,00
900	897	1800	103.12			229913464090	789,50
1000	998	2000	124.97			229913464100	1014,00
1120	1118	2240	164.95			229913464112	1294,00
1250	1248	2500	200.97			229913464125	1582,00

Galvanised (dimensions for 2 mm pipework)

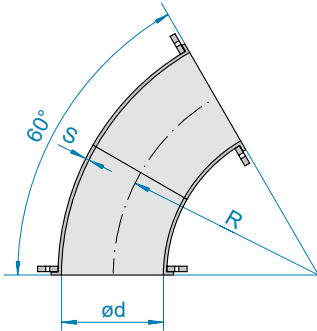
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	19.40			22352346	243,00
400	398	800	23.80			22402346	280,50
450	448	900	29.40	21452346	315,00	22452346	364,50
500	498	1000	36.00	21502346	351,50	22502346	434,00
560	558	1120	45.00			22562346	512,00
630	628	1260	56.00			22632346	594,50
710	707	1420	69.00			22712346	687,00
800	797	1600	84.00			22802346	859,00
900	897	1800	103.12			229923464090	1074,00
1000	998	2000	124.97			229923464100	1398,00
1120	1118	2240	164.95			229923464112	1764,00
1250	1248	2500	200.97			229923464125	2154,00

■ Shock explosion proof tested up to 3 bar

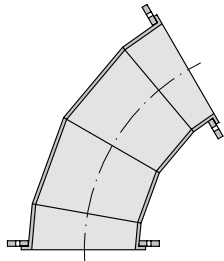


THE FLANGE RANGE

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	401,00	213533463	446,50	223533463	493,00	
400	398	800	23.80		22403346	466,50	214033463	521,50	224033463	572,00	
450	448	900	29.40	21453346	549,00	22453346	603,50	214533463	657,50	224533463	712,00
500	498	1000	36.00	21503346	594,50	22503346	650,50	215033463	703,00	225033463	758,50
560	558	1120	45.00		22563346	776,50			225633463	986,00	
630	628	1260	56.00		22633346	914,00			226333463	1113,00	
710	707	1420	69.00		22713346	1079,00			227133463	1285,00	
800	797	1600	84.00		22803346	1350,00					
900	897	1800	103.12		229933464090	1607,00					
1000	998	2000	124.97		229933464100	1908,00					
1120	1118	2240	164.95		229933464112	2406,00					
1250	1248	2500	200.97		229933464125	2954,00					

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



BENDS $R = 2 D, 90^\circ$

6160

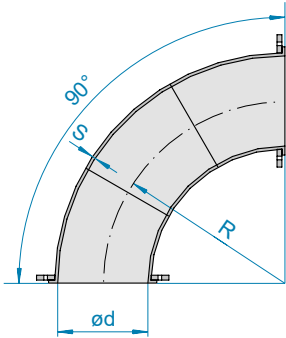


- Both sides with loose flange
- DN 1400 and 1600 mm on request

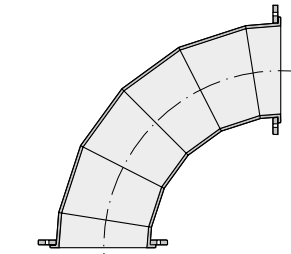
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

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	262,50
400	398	800	31.80			22401349	306,00
450	448	900	41.50	21451349	384,00	22451349	403,00
500	498	1000	48.60	21501349	431,50	22501349	452,00
560	558	1120	62.00			22561349	522,50
630	628	1260	68.80			22631349	594,50
710	707	1420	94.00			22711349	702,00
800	797	1600	120.00			22801349	878,00
900	897	1800	145.24			229913494090	1113,00
1000	998	2000	176.95			229913494100	1434,00
1120	1118	2240	230.14			229913494112	1818,00
1250	1248	2500	282.16			229913494125	2235,00



3 pressed segments 30°



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

Galvanised (dimensions for 2 mm pipework)

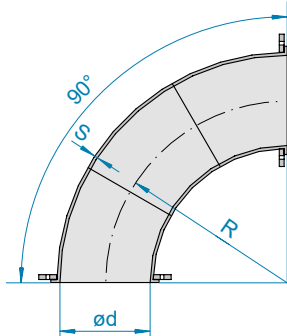
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	€	Item no.	€
350	349	700	25.20			22352349	320,00
400	398	800	31.80			22402349	374,00
450	448	900	41.50	21452349	451,50	22452349	487,00
500	498	1000	48.60	21502349	507,00	22502349	602,50
560	558	1120	62.00			22562349	735,00
630	628	1260	68.80			22632349	818,50
710	707	1420	94.00			22712349	942,50
800	797	1600	120.00			22802349	1160,00
900	897	1800	145.24			229923494090	1473,00
1000	998	2000	176.95			229923494100	1910,00
1120	1118	2240	230.14			229923494112	2472,00
1250	1248	2500	282.16			229923494125	3034,00

Shock explosion proof tested
up to 3 bar

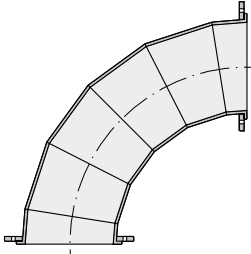


THE FLANGE RANGE

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	540,00
400	398	800	31.80			22403349	639,00
450	448	900	41.50	21453349	751,50	22453349	805,50
500	498	1000	48.60	21503349	892,50	22503349	956,00
560	558	1120	62.00			22563349	1150,00
630	628	1260	68.80			22633349	1324,00
710	707	1420	94.00			22713349	1523,00
800	797	1600	120.00			22803349	1817,00
900	897	1800	145.24			229933494090	2235,00
1000	998	2000	176.95			229933494100	2807,00
1120	1118	2240	230.14			229933494112	3444,00
1250	1248	2500	282.16			229933494125	4246,00

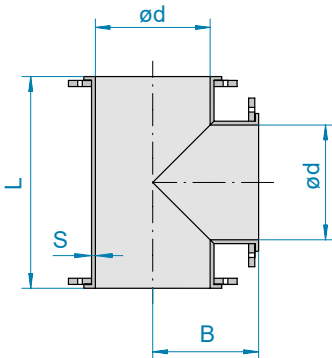
Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

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	617,00	223533493	631,50
400	398	800	32.00	214033493	727,00	224033493	745,00
450	448	900	41.00	214533493	860,00	224533493	913,50
500	498	1000	50.00	215033493	1001,00	225033493	1065,00
560	558	1120	62.00			225633493	1360,00
630	628	1260	76.00			226333493	1523,00
710	707	1420	94.00			227133493	1729,00
800	797	1600	120.00			228033493	2111,00

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 – 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	181,00	22351240	194,50
400	398	300	600	24.00	21401240	212,50	22401240	228,50
450	448	325	650	27.20	21451240	234,50	22451240	253,50
500	498	350	700	32.20	21501240	273,00	22501240	294,50
560	558	380	760	40.00			22561240	308,00
630	628	415	830	46.40			22631240	342,50
710	707	460	910	58.00			22711240	411,50
800	797	500	1000	64.00			22801240	513,50
900	897	550	1100	77.87			229912404090	623,00
1000	998	600	1200	90.84			229912404100	746,50
1120	1118	660	1320	124.06			229912404112	930,50
1250	1248	725	1450	145.46			229912404125	1121,00

Galvanised (dimensions for 2 mm pipework)

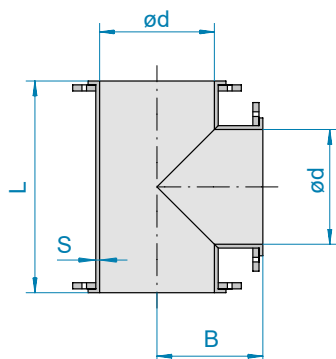
DN	Ø d	B	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
350	349	275	550	19.80	21352240	217,00	22352240	232,50
400	398	300	600	24.00	21402240	255,50	22402240	266,00
450	448	325	650	27.20	21452240	282,50	22452240	292,50
500	498	350	700	32.20	21502240	327,50	22502240	338,00
560	558	380	760	40.00			22562240	373,50
630	628	415	830	46.40			22632240	426,00
710	707	460	910	58.00			22712240	511,00
800	797	500	1000	64.00			22802240	602,00
900	897	550	1100	77.87			229922404090	806,00
1000	998	600	1200	90.84			229922404100	1009,00
1120	1118	660	1320	124.06			229922404112	1262,00
1250	1248	725	1450	145.46			229922404125	1484,00

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	300,50	22353240	413,50	213532403	437,00	223532403	550,00
400	398	300	600	24.00	21403240	332,00	22403240	469,00	214032403	490,50	224032403	628,00
450	448	325	650	27.20	21453240	363,00	22453240	524,00	214532403	524,50	224532403	686,00
500	498	350	700	32.20	21503240	391,00	22503240	590,00	215032403	553,00	225032403	751,50
560	558	380	760	40.00			22563240	643,50			225632403	957,00
630	628	415	830	46.40			22633240	712,50			226332403	1012,00
710	707	460	910	58.00			22713240	797,50			227132403	1107,00
800	797	500	1000	64.00			22803240	894,50				
900	897	550	1100	77.87			229932404090	947,50				
1000	998	600	1200	90.84			229932404100	1128,00				
1120	1118	660	1320	124.06			229932404112	1394,00				
1250	1248	725	1450	145.46			229932404125	1685,00				

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

 Shock explosion proof tested
up to 3 bar



FORKS AND CONICAL FORKS 30°

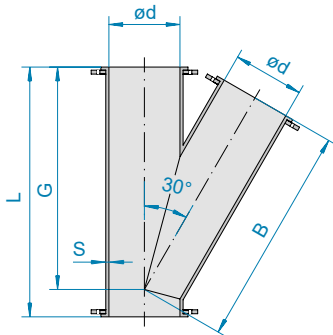
6080



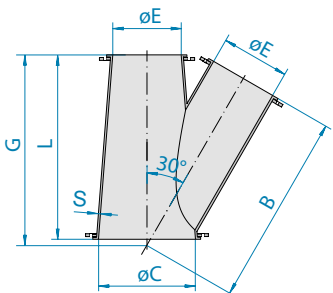
- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 and 630 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, 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	249,00	22351255	262,50
350- 350- 350	349	817			828	920	27.75	21351230	221,50	22351230	257,00
400- 300- 300		824	399	300	821	720	20.40	21401255	292,00	22401255	299,00
400- 400- 400	398	925			926	1025	38.80	21401230	278,50	22401230	312,50
450- 350- 350		911	449	350	909	920	36.40	21451255	347,50	22451255	406,00
450- 450- 450	448	1030			1045	1150	48.00	21451230	337,50	22451230	373,00
500- 400- 400		1014	499	399	1009	1025	44.00	21501255	456,00	22501255	527,50
500- 500- 500	498	1127			1138	1250	56.00	21501230	395,50	22501230	409,50
560- 400- 400		1071	558	399	1059	1025	47.60			22561255	551,50
560- 560- 560	558	1275			1280	1400	72.00			22561230	473,00
630- 450- 450		1213	628	448	1195	1150	58.80			22631255	647,50
630- 630- 630	628	1404			1401	1530	84.60			22631230	504,50
710- 500- 500		1327	707	498	1311	1250	72.00			22711255	724,00
710- 710- 710	707	1665			1660	1800	116.00			22711230	674,00
800- 560- 560		1507	797	558	1481	1400	87.00			22801255	926,50
800- 800- 800	797	1823			1818	1970	140.00			22801230	856,00
900- 900- 900	897	2030			2020	2200	165.60			229912304090	1056,00
1000-1000-1000	998	2190			2205	2400	194.60			229912304100	1310,00
1120-1120-1120	1118	2480			2490	2700	258.70			229912304112	1590,00
1250-1250-1250	1248	2710			2715	2950	308.46			229912304125	1894,00



Fork 30°



Conical fork 30°

Shock explosion proof tested up to 3 bar



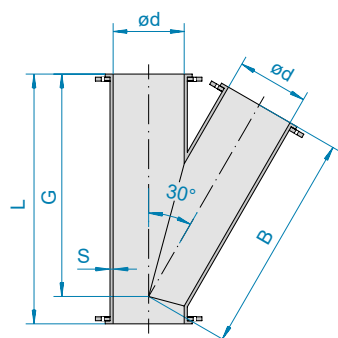
THE FLANGE RANGE

Branch pieces

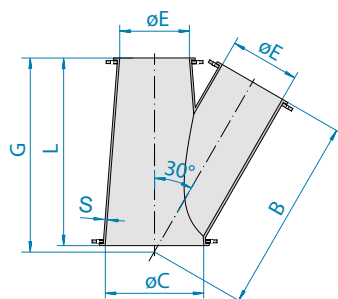


Galvanised (dimensions for 2 mm pipework)

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	294,00	22352255	309,00
350- 350- 350	349	817			828	920	27.75	21352230	271,50	22352230	310,50
400- 300- 300		824	399	300	821	720	20.40	21402255	343,00	22402255	352,00
400- 400- 400	398	925			926	1025	38.80	21402230	335,00	22402230	379,50
450- 350- 350		911	449	350	909	920	36.40	21452255	408,50	22452255	501,00
450- 450- 450	448	1030			1045	1150	48.00	21452230	402,00	22452230	454,50
500- 400- 400		1014	499	399	1009	1025	44.00	21502255	533,00	22502255	651,50
500- 500- 500	498	1127			1138	1250	56.00	21502230	461,00	22502230	492,00
560- 400- 400		1071	558	399	1059	1025	47.60			22562255	683,00
560- 560- 560	558	1275			1280	1400	72.00			22562230	579,00
630- 450- 450		1213	628	448	1195	1150	58.80			22632255	806,00
630- 630- 630	628	1404			1401	1530	84.60			22632230	615,00
710- 500- 500		1327	707	498	1311	1250	72.00			22712255	894,00
710- 710- 710	707	1665			1660	1800	116.00			22712230	818,50
800- 560- 560		1507	797	558	1481	1400	87.00			22802255	1210,00
800- 800- 800	797	1823			1818	1970	140.00			22802230	1084,00
900- 900- 900	897	2030			2020	2200	165.60			229922304090	1506,00
1000-1000-1000	998	2190			2205	2400	194.60			229922304100	1909,00
1120-1120-1120	1118	2480			2490	2700	258.70			229922304112	2386,00
1250-1250-1250	1248	2710			2715	2950	308.46			229922304125	2843,00

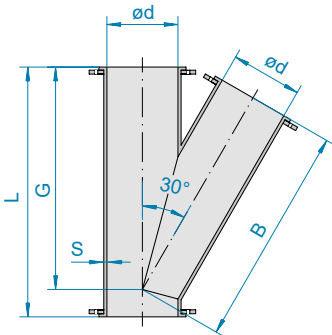


Fork 30°

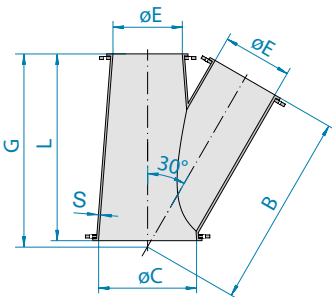


Conical fork 30°

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	Ø d	B	Ø C	Ø E	G	L	kg	Stainless steel with galvanized loose flanges 			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350- 250- 250		727	350	250	727	620	15.60	21353255	498,00	22353255	620,50
350- 350- 350	349	817			828	920	27.75	21353230	439,00	22353230	681,50
400- 300- 300		824	399	300	821	720	20.40	21403255	583,00	22403255	726,50
400- 400- 400	398	925			926	1025	38.80	21403230	492,50	22403230	732,50
450- 350- 350		911	449	350	909	920	36.40	21453255	685,00	22453255	861,50
450- 450- 450	448	1030			1045	1150	48.00	21453230	645,00	22453230	786,00
500- 400- 400		1014	499	399	1009	1025	44.00	21503255	914,50	22503255	1142,00
500- 500- 500	498	1127			1138	1250	56.00	21503230	709,50	22503230	899,50
560- 400- 400		1071	558	399	1059	1025	47.60			22563255	1165,00
560- 560- 560	558	1275			1280	1400	72.00			22563230	1041,00
630- 450- 450		1213	628	448	1195	1150	58.80			22633255	1322,00
630- 630- 630	628	1404			1401	1530	84.60			22633230	1125,00
710- 500- 500		1327	707	498	1311	1250	72.00			22713255	1470,00
710- 710- 710	707	1665			1660	1800	116.00			22713230	1299,00
800- 560- 560		1507	797	558	1481	1400	87.00			22803255	1650,00
800- 800- 800	797	1823			1818	1970	140.00			22803230	1645,00
900- 900- 900	897	2030			2020	2200	165.60			229932304090	2023,00
1000-1000-1000	998	2190			2205	2400	194.60			229932304100	2369,00
1120-1120-1120	1118	2480			2490	2700	258.70			229932304112	2922,00
1250-1250-1250	1248	2710			2715	2950	308.46			229932304125	3494,00


Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	Stainless steel with stainless steel loose flange, shotblasted 			
								1.5 mm		2 mm	
								Item no.	€	Item no.	€
350-250-250		727	350	250	727	620	15.60	213532553	544,00	223532553	666,50
350-350-350	349	817			828	920	28.00	213532303	576,00	223532303	819,00
400-300-300		824	399	300	821	720	20.00	214032553	636,50	224032553	779,50
400-400-400	398	925			926	1025	39.40	214032303	651,00	224032303	891,00
450-350-350		911	449	350	909	920	38.20	214532553	830,50	224532553	1008,00
450-450-450	448	1030			1045	1150	48.00	214532303	807,50	224532303	948,00
500-400-400		1014	499	399	1009	1025	44.00	215032553	1075,00	225032553	1303,00
500-500-500	498	1127			1138	1250	61.00	215032303	872,00	225032303	1061,00
560-400-400		1071	558	399	1059	1025	47.60			225632553	1375,00
560-560-560	558	1275			1280	1400	75.00			225632303	1356,00
630-450-450		1213	628	448	1195	1150	57.00			226332553	1529,00
630-630-630	628	1404			1401	1530	84.50	226332303*	1424,00	236332303*	1855,00
710-500-500		1327	707	498	1311	1250	72.00			227132553	1681,00
710-710-710	707	1665			1660	1800	113.00	227132303*	1605,00	237132303*	2186,00

* 2 mm

* 3 mm

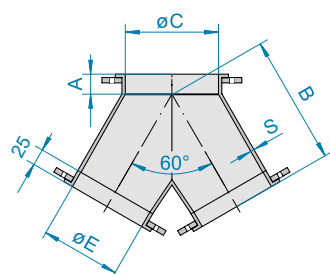
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

Branch pieces



SYMMETRICAL FORKS 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

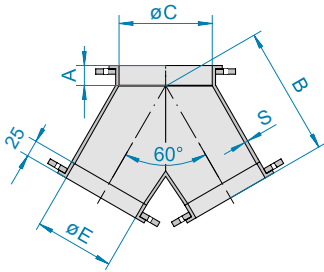
Powder-coated (dimensions for 2 mm pipework)

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	224,00	22351275	240,00
400- 300- 300	70	350	399	300	12.00	21401275	244,50	22401275	264,50
450- 350- 350	80	425	449	350	23.00	21451275	306,50	22451275	352,00
500- 400- 400	80	475	499	399	33.50	21501275	329,50	22501275	394,00
560- 400- 400	80	550	558	399	37.00			22561275	480,00
630- 450- 450	150	600	628	448	40.40			22631275	590,50
710- 500- 500	200	650	707	498	47.60			22711275	731,50
800- 560- 560	200	700	797	558	59.00			22801275	915,50
900- 630- 630	210	850	897	628	74.40			229912754090	1153,00
1000- 710- 710	220	930	998	707	87.96			229912754100	1391,00
1120- 800- 800	220	1040	1118	797	110.30			229912754112	1671,00
1250- 900- 900	220	1130	1248	897	128.22			229912754125	1967,00

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	249,00	22352275	258,00
400- 300- 300	70	350	399	300	12.00	21402275	272,50	22402275	280,50
450- 350- 350	80	425	449	350	23.00	21452275	328,00	22452275	380,00
500- 400- 400	80	475	499	399	33.50	21502275	364,00	22502275	432,50
560- 400- 400	80	550	558	399	37.00			22562275	535,50
630- 450- 450	150	600	628	448	40.40			22632275	667,50
710- 500- 500	200	650	707	498	47.60			22712275	838,00
800- 560- 560	200	700	797	558	59.00			22802275	1063,00
900- 630- 630	210	850	897	628	74.40			229922754090	1355,00
1000- 710- 710	220	930	998	707	87.96			229922754100	1657,00
1120- 800- 800	220	1040	1118	797	110.30			229922754112	1997,00
1250- 900- 900	220	1130	1248	897	128.22			229922754125	2358,00

Shock explosion proof tested up to 3 bar



Stainless steel with galvanized loose flanges (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	Stainless steel with galvanized loose flanges F			
						1.5 mm		2 mm	
						Item no.	€	Item no.	€
350- 250- 250	70	300	350	250	11.35	21353275	454,50	22353275	570,00
400- 300- 300	70	350	399	300	12.00	21403275	495,00	22403275	603,50
450- 350- 350	80	425	449	350	23.00	21453275	572,50	22453275	698,00
500- 400- 400	80	475	499	399	33.50	21503275	630,00	22503275	781,00
560- 400- 400	80	550	558	399	37.00			22563275	897,50
630- 450- 450	150	600	628	448	40.40			22633275	1041,00
710- 500- 500	200	650	707	498	47.60			22713275	1219,00
800- 560- 560	200	700	797	558	59.00			22803275	1440,00
900- 630- 630	210	850	897	628	74.40			229932754090	1800,00
1000- 710- 710	220	930	998	707	87.96			229932754100	2156,00
1120- 800- 800	220	1040	1118	797	110.30			229932754112	2571,00
1250- 900- 900	220	1130	1248	897	128.22			229932754125	3031,00

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	500,50	223532753	615,50
400-300-300	70	350	399	300	11.76	214032753	547,50	224032753	656,50
450-350-350	80	425	449	350	32.90	214532753	718,00	224532753	843,00
500-400-400	80	475	499	399	27.40	215032753	789,50	225032753	941,00
560-400-400	80	550	558	399	37.00			225632753	1108,00
630-450-450	150	600	628	448	41.00			226332753	1249,00
710-500-500	200	650	707	498	47.60			227132753	1429,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

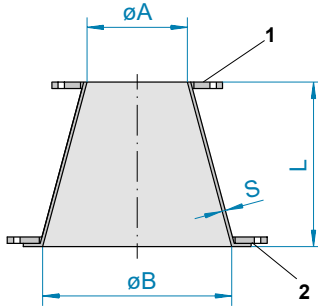
Transition pieces and adapters



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 227 for dimensions)
- 2 With loose flange similar to DIN 24154-2 (see page 227 for dimensions)

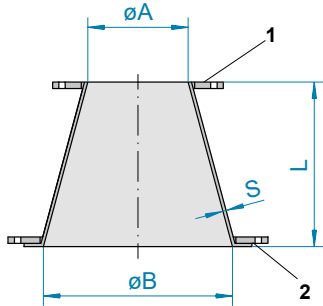
Powder-coated (dimensions for 2 mm pipework)

DN	Ø A	Ø B	L	kg	1.5 mm powder-coated		2 mm powder-coated	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21001480	61,50	22001480	71,00
300- 400	299	398	200	7.40	21001481	67,80	22001481	78,40
350- 400	349	398	200	10.00	21001482	113,00	22001482	132,00
350- 450	349	448	200	11.20	21001483	116,00	22001483	134,00
400- 450	398	448	200	11.80	21001485	126,50	22001485	147,00
400- 500	398	498	250	13.40	21001486	138,50	22001486	160,00
450- 500	448	498	200	14.20	21001487	144,00	22001487	165,50
450- 560	448	558	250	16.60			22001495	169,50
500- 560	498	558	250	17.40			22001496	199,00
500- 630	498	628	300	19.60			22001497	220,50
560- 630	558	628	300	21.80			22001498	229,00
630- 710	628	707	300	24.40			22001499	267,00
710- 800	707	797	300	28.00			22001500	307,00
900- 800	897	799	300	31.21			229918104090	364,50
1000- 900	998	899	300	34.83			229918114100	425,00
1120-1000	1118	1000	300	44.21			229918124112	507,00
1250-1120	1248	1120	300	55.14			229918134125	586,50

Galvanised (dimensions for 2 mm pipework)

DN	Ø A	Ø B	L	kg	1.5 mm galvanised		2 mm galvanised	
					Item no.	€	Item no.	€
300- 350	299	349	200	6.80	21002480	76,00	22002480	87,60
300- 400	299	398	200	7.40	21002481	84,00	22002481	96,60
350- 400	349	398	200	10.00	21002482	141,50	22002482	163,00
350- 450	349	448	200	11.20	21002483	145,00	22002483	166,50
400- 450	398	448	200	11.80	21002485	157,50	22002485	180,50
400- 500	398	498	250	13.40	21002486	171,00	22002486	196,00
450- 500	448	498	200	14.20	21002487	177,50	22002487	203,50
450- 560	448	558	250	16.60			22002495	221,50
500- 560	498	558	250	17.40			22002496	262,50
500- 630	498	628	300	19.60			22002497	289,00
560- 630	558	628	300	21.80			22002498	302,50
630- 710	628	707	300	24.40			22002499	351,50
710- 800	707	797	300	28.00			22002500	399,50
900- 800	897	799	300	31.21			229928104090	460,50
1000- 900	998	899	300	34.83			229928114100	536,50
1120-1000	1118	1000	300	44.21			229928124112	644,50
1250-1120	1248	1120	300	55.14			229928134125	724,00

Shock explosion proof tested up to 3 bar



- 1 With welded stainless steel flange similar to DIN 24154-2 (see page 227 for dimensions)
- 2 With loose flange similar to DIN 24154-2 (see page 227 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	83,40	22003480	100,50
300- 400	299	398	200	7.40	21003481	90,60	22003481	108,50
350- 400	349	398	200	10.00	21003482	189,50	22003482	227,50
350- 450	349	448	200	11.20	21003483	198,50	22003483	237,00
400- 450	398	448	200	11.80	21003485	219,50	22003485	262,00
400- 500	398	498	250	13.40	21003486	232,00	22003486	278,00
450- 500	448	498	200	14.20	21003487	249,00	22003487	299,00
450- 560	448	558	250	16.60			22003495	322,00
500- 560	498	558	250	17.40			22003496	359,00
500- 630	498	628	300	19.60			22003497	369,50
560- 630	558	628	300	21.80			22003498	423,00
630- 710	628	707	300	24.40			22003499	496,00
710- 800	707	797	300	28.00			22003500	565,50
900- 800	897	799	300	31.21			229938104090	664,00
1000- 900	998	899	300	34.83			229938114100	774,50
1120-1000	1118	1000	300	44.21			229938124112	889,50
1250-1120	1248	1120	300	55.14			229938134125	1014,00

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	129,50	220034803	147,50
300-400	299	398	200	7.40	210034813	144,50	220034813	162,00
350-400	349	398	200	10.00	210034823	242,50	220034823	280,50
350-450	349	448	200	11.00	210034833	253,00	220034833	291,50
400-450	398	448	200	11.80	210034853	274,00	220034853	317,00
400-500	398	498	250	13.40	210034863	285,50	220034863	331,50
450-500	448	498	200	14.20	210034873	303,50	220034873	353,50
450-560	448	558	250	16.60			220034953	427,00
500-560	498	558	250	17.40			220034963	463,50
500-630	498	628	300	19.60			220034973	469,00
560-630	558	628	300	21.80			220034983	523,00
630-710	628	707	300	24.40			220034993	598,50

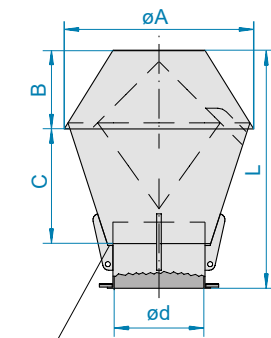
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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 227 for dimensions)

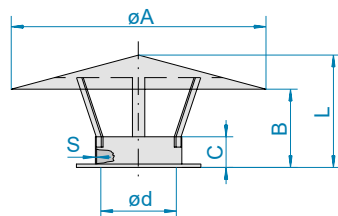
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	Ø A	B	C	L	kg	2 mm galvanised		2 mm stainless steel		F
							Item no.	€	Item no.	€	
350	349	645	275	448	865	33.00	12352805	604,00	12353805	1027,00	
400	398	715	295	480	915	42.00	12402805	699,50	12403805	1189,00	
450	448	820	320	588	1040	51.00	12452805	794,50	12453805	1394,00	
500	498	870	320	588	1040	61.50	12502805	896,50	12503805	1615,00	
560	558	990	372	703	1208	81.50	12562805	995,50	12563805	1847,00	
630	628	1140	442	776	1434	112.00	12632805	1135,00	12633805	2101,00	
710	707	1290	502	901	1627	138.00	12712805	1716,00	12713805	2832,00	
800	797	1440	520	1020	1790	164.00	12802805	1973,00	12803805	3396,00	
900	897	1550	600	1150	2150	260.00	239928055090 *	2775,00	239938055090 *	3930,00	
1000	998	1800	700	1330	2400	328.00	239928055100 *	3217,00	239938055100 *	4558,00	
1120	1118	1825	1120	1100	2370	421.00	239928055112 *	3507,00	239938055112 *	5085,00	
1250	1248	1955	1190	1150	2470	452.00	239928055125 *	3963,00	239938055125 *	5613,00	

*3 mm

RAIN CAPS

6190



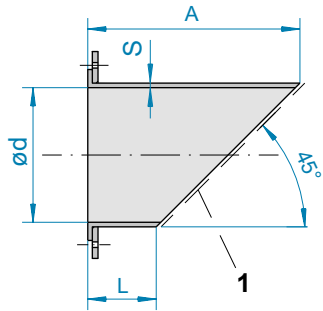
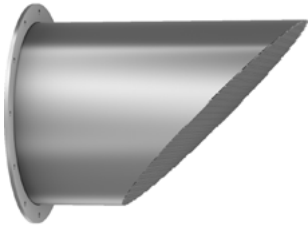
- With loose flange up to DN 1000 mm
- DN 1120 mm: 3 mm wall thickness, with welded flange similar to DIN 24154-2 (see page 227 for dimensions)
- From DN 1250 mm, we recommend the use of jet caps
- Take local building regulations into account, alternatively use a jet cap
- DN 710 – 1120 available in stainless steel only

Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	Ø A	B	C	L	kg	2 mm galvanised		2 mm Stainless steel with galvanised loose flanges	F	2 mm stainless steel with stainless steel loose flange, shotblasted	F
							Item no.	€	Item no.	€	Item no.	€
350	349	750	300	150	395	23.70	22352850	262,50	22353850	487,50	223538503	533,50
400	398	850	320	150	435	16.80	22402850	297,50	22403850	608,00	224038503	661,00
450	448	950	340	150	470	25.90	22452850	325,00	22453850	768,50	224538503	822,00
500	498	1050	410	200	550	31.50	22502850	352,00	22503850	860,00	225038503	914,50
560	558	1150	435	200	590	34.00	22562850	386,00	22563850	924,00	225638503	1029,00
630	628	1300	470	200	645	42.00	22632850	424,00	22633850	977,00	226338503	1077,00
710	707	1400	500	250	700	52.00			22713850	1125,00	227138503	1229,00
800	797	1500	530	250	760	59.92			22803850	1352,00	228038503	1499,00
900	897	1800	550	250	793	87.20			229938504090	1648,00		
1000	998	2000	600	250	870	103.20			229938504100	2256,00		
1120	1118	2240	650	300	950	186.90					239938505112 *	2618,00

*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 20 x 20
- 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	258,00		
400	399	600	200	10.80	21402880	309,00		
450	449	650	200	12.30	21452880	370,50		
500	499	700	200	10.60	21502880	421,50		
560	558	760	200	22.00			22562880	493,50
630	628	830	200	26.00			22632880	554,50
710	707	910	200	30.00			22712880	655,00
800	797	1000	200	36.00			22802880	772,50
900	897	1100	200	58.80			239928804090*	940,00
1000	998	1200	200	69.12			239928804100*	1122,00
1120	1118	1320	200	90.75			239928804112*	1323,00
1250	1248	1450	200	107.40			239928804125*	1548,00

*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	343,00		
400	399	600	200	10.80	21403880	424,00		
450	449	650	200	12.30	21453880	484,00		
500	499	700	200	10.60	21503880	557,50		
560	558	760	200	22.00			22563880	666,50
630	628	830	200	26.00			22633880	798,50
710	707	910	200	30.00			22713880	962,50
800	797	1000	200	36.00			22803880	1155,00
900	897	1100	200	58.80			239938804090*	1418,00
1000	998	1200	200	69.12			239938804100*	1685,00
1120	1118	1320	200	90.75			239938804112*	1977,00
1250	1248	1450	200	107.40			239938804125*	2319,00

*3 mm



THE FLANGE RANGE

Transition pieces and adapters / Cleaning pipes

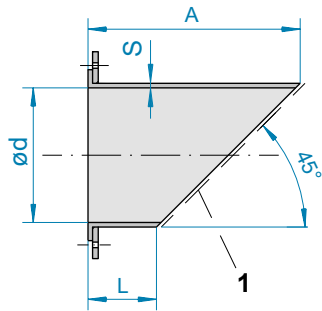


AIR OUTLET PIPES 45°

6200

Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	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	389,00		
400	399	600	200	10.80	214038803	477,00		
450	448	650	200	12.30	214538803	538,50		
500	498	700	200	10.60	215038803	612,50		
560	558	760	200	22.00			225638803	772,00
630	628	830	200	26.00			226338803	898,00
710	707	910	200	30.00			227138803	1065,00
800	797	1000	200	36.00			228038803	1303,00



1 Bird-guard
mesh size: 20x20 x 2 mm



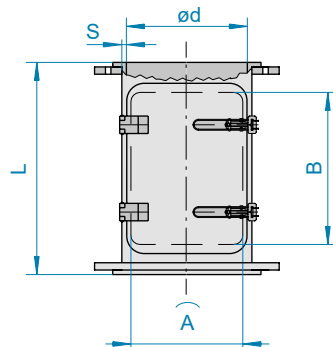
CLEANING PIPES

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

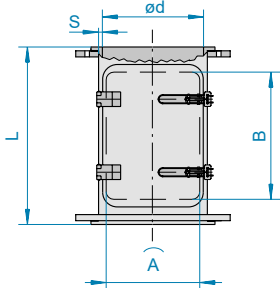
Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	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	207,50		
400	399	350	350	478	15.90	21401195	223,00		
450	448	500	350	478	20.00			22451195	239,00
500	498	500	350	478	21.60			22501195	257,00
560	558	500	350	478	25.00			22561195	281,00
630	628	500	350	478	30.00			22631195	302,50
710	707	500	350	478	34.00			22711195	358,00
800	797	500	350	478	38.00			22801195	435,00
900	897	500	350	478	41.48			229911954090	527,50
1000	998	500	350	478	46.10			229911954100	641,50
1120	1118	500	350	478	62.50			229911954112	753,00
1250	1248	500	350	478	69.57			229911954125	846,00



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	260,50		
400	399	350	350	478	15.90	21402195	280,50		
450	448	500	350	478	20.00			22452195	310,50
500	498	500	350	478	21.60			22502195	333,50
560	558	500	350	478	25.00			22562195	378,00
630	628	500	350	478	30.00			22632195	413,50
710	707	500	350	478	34.00			22712195	493,50
800	797	500	350	478	38.00			22802195	602,50
900	897	500	350	478	41.48			229921954090	719,00
1000	998	500	350	478	46.10			229921954100	850,50
1120	1118	500	350	478	62.50			229921954112	973,50
1250	1248	500	350	478	69.57			229921954125	1106,00

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	373,00		
400	399	350	350	478	15.90	21403195	395,50		
450	448	500	350	478	20.00			22453195	424,00
500	498	500	350	478	21.60			22503195	454,00
560	558	500	350	478	25.00			22563195	497,00
630	628	500	350	478	30.00			22633195	547,50
710	707	500	350	478	34.00			22713195	653,00
800	797	500	350	478	38.00			22803195	775,50
900	897	500	350	478	41.48			229931954090	927,50
1000	998	500	350	478	46.10			229931954100	1081,00
1120	1118	500	350	478	62.50			229931954112	1248,00
1250	1248	500	350	478	69.57			229931954125	1356,00

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	464,00		
400	399	350	350	478	15.60	214031953	501,00		
450	448	500	350	478	16.00			224531953	532,50
500	498	500	350	478	23.00			225031953	562,50
560	558	500	350	478	29.50			225631953	706,00
630	628	500	350	478	34.80			226331953	746,50
710	707	500	350	478	38.50			227131953	858,50



AVAILABLE IN THE DETECTABLE DESIGN LINE.

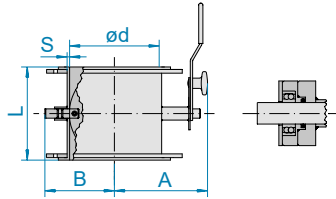
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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
- Both sides with loose flange
- From DN 900 mm: 3 mm wall thickness, with welded flange similar to DIN 24154-2 (see page 227 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)

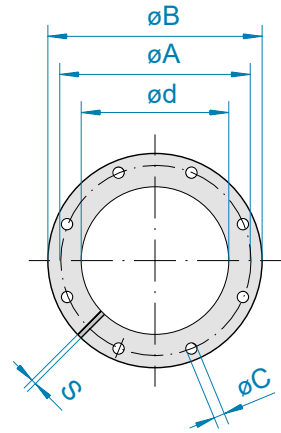
DN	Ø d	A	B	L	kg	2 mm powder-coated		2 mm galvanised	
						Item no.	€	Item no.	€
350	349	240	233	200	14.00	22351560	205,50		
400	398	265	258	200	16.20	22401560	230,50		
450	458	396	365	200	26.50	22451560	477,00		
500	498	421	391	200	29.60	22501560	529,00		
560	558	451	421	200	36.00	22561560	564,50		
630	628	486	456	200	41.00	22631560	611,50		
710	707	525	495	200	46.00	22711560	722,00		
800	797	570	540	200	52.00	22801560	873,50		
900	897	620	590	200	65.00	239915605090*	1409,00	239925605090*	1664,00
1000	998	670	640	200	83.00	239915605100*	1685,00	239925605100*	2137,00
1120	1118	810	675	200	104.00	239915605112*	2273,00	239925605112*	2689,00
1250	1248	875	740	200	123.00	239915605125*	2674,00	239925605125*	3159,00

*3 mm

DN	Ø d	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	398,50	223535603	490,00
400	398	265	258	200	16.20	22403560	462,00	224035603	567,50
450	458	396	365	200	26.50	22453560	648,00	224535603	756,50
500	498	421	391	200	29.60	22503560	742,00	225035603	851,00
560	558	451	421	200	36.00	22563560	866,00	225635603	1075,00
630	628	486	456	200	41.00	22633560	993,00	226335603	1192,00
710	707	525	495	200	46.00	22713560	1136,00	227135603	1344,00
800	797	570	540	200	52.00	22803560	1365,00		
900	897	620	590	200	65.00			239935605090*	2346,00
1000	998	670	640	200	83.00			239935605100*	2899,00
1120	1118	810	675	200	104.00			239935605112*	3586,00
1250	1248	875	740	200	123.00			239935605125*	4220,00

*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

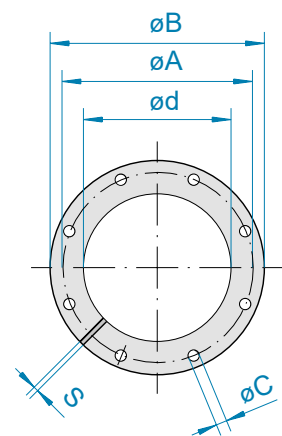
Powder-coated and galvanised

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	E	S	kg	Powder-coated		Galvanised	
								Item no.	€	Item no.	€
60	62	102	128	9.5	4	5	0.40	10061711	6,20		
80	82	118	142	9.5	4	5	0.40	10081711	6,30	10082711	7,30
100	105	139	165	9.5	4	5	0.46	10101711	6,70	10102711	8,10
120	125	165	185	9.5	4	5	0.57	10121711	7,60	10122711	8,80
140	142	182	212	11.5	8	5	0.73	10141711	7,60	10142711	9,80
150	155	200	225	11.5	8	5	0.78	10151711	7,80	10152711	9,90
160	162	200	232	11.5	8	5	0.82	10161711	13,50	10162711	15,40
175	180	219	250	11.5	8	5	0.93	10171711	8,40	10172711	10,80
200	205	241	275	11.5	8	5	0.99	10201711	8,50	10202711	11,10
224	225	265	295	11.5	8	5	1.10	10221711	13,60	10222711	16,90
250	255	292	325	11.5	8	5	1.21	10251711	9,80	10252711	13,30
280	283	332	363	11.5	8	8	2.51	10281711	18,90	10282711	24,10
300	305	366	395	11.5	8	8	3.00	10301711	12,60	10302711	18,40
315	318	366	398	11.5	8	8	2.98	10311711	20,70	10312711	26,60
350	356	405	436	11.5	8	8	3.10	10351711	12,90	10352711	19,10
400	405	448	485	11.5	12	8	3.44	10401711	15,20	10402711	22,30
450	455	497	535	11.5	12	8	3.90	10451711	16,40	10452711	24,20
500	505	551	585	11.5	12	8	4.13	10501711	17,60	10502711	26,10
560	565	629	665	14	16	8	5.90	10561711	21,70	10562711	33,20
630	635	698	735	14	16	8	6.60	10631711	22,90	10632711	40,80
710	715	775	815	14	16	8	7.40	10711711	31,20	10712711	44,20
800	805	861	905	14	24	8	7.95	10801711	48,30	10802711	65,70
900	904	958	1004	14	24	8	9.17	109917110090	62,00	109927110090	87,80
1000	1005	1067	1105	14	24	8	10.20	109917110100	78,80	109927110100	119,50
1120	1125	1200	1245	18	32	10	16.90	109917110112	108,50	109927110112	156,00
1250	1255	1337	1375	18	32	10	18.80	109917110125	121,50	109927110125	173,00
1400	1405	1475	1525	18	32	10	21.00	109917110140	132,00	109927110140	191,00
1600	1605	1675	1725	18	40	10	23.80	109917110160	143,50	109927110160	211,00



THE FLANGE RANGE

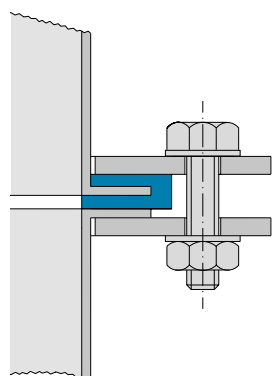
Flanges, seals and installation kit



E = No. of holes

Stainless steel

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	E	S	kg	Stainless steel	
								Item no.	€
60	62	102	128	9.5	4	5	0.40	10063711	20,70
80	82	118	142	9.5	4	5	0.40	10083711	22,90
100	105	139	165	9.5	4	5	0.46	10103711	25,60
120	125	165	185	9.5	4	5	0.57	10123711	26,60
140	142	182	212	11.5	8	5	0.73	10143711	29,90
150	155	200	225	11.5	8	5	0.78	10153711	31,90
160	162	200	232	11.5	8	5	0.82	10163711	33,90
175	180	219	250	11.5	8	5	0.93	10173711	33,80
200	205	241	275	11.5	8	5	0.99	10203711	37,70
224	225	265	295	11.5	8	5	1.10	10223711	54,70
250	255	292	325	11.5	8	5	1.21	10253711	43,60
280	283	332	363	11.5	8	8	2.51	10283711	52,80
300	305	366	395	11.5	8	8	3.00	10303711	63,40
315	318	366	398	11.5	8	8	2.98	10313711	66,00
350	356	405	436	11.5	8	8	3.10	10353711	64,40
400	405	448	485	11.5	12	8	3.44	10403711	74,60
450	455	497	535	11.5	12	8	3.90	10453711	77,80
500	505	551	585	11.5	12	8	4.13	10503711	79,60
560	565	629	665	14	16	8	5.90	10563711	138,00
630	635	698	735	14	16	8	6.60	10633711	140,00
710	715	775	815	14	16	8	7.40	10713711	147,00
800	805	861	905	14	24	8	7.95	10803711	211,00
900	904	958	1004	14	24	8	9.17	109937110090	234,50
1000	1005	1067	1105	14	24	8	10.20	109937110100	260,50
1120	1125	1200	1245	18	32	10	16.90	109937110112	312,50
1250	1255	1337	1375	18	32	10	18.80	109937110125	364,00
1400	1405	1475	1525	18	32	10	21.00	109937110140	392,50
1600	1605	1675	1725	18	40	10	23.80	109937110160	403,50



INSTALLATION KIT FOR JACOB FLANGES

1510

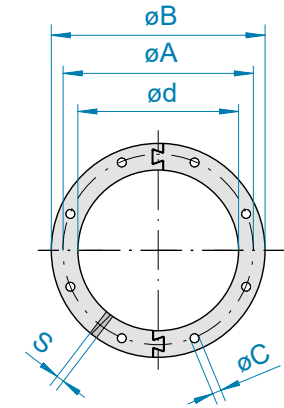
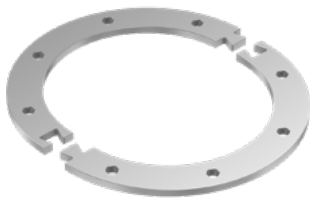
- Installation kit consisting of bolts, nuts and two washers per bolt
- Quantity to match the number of holes and flange thicknesses
- Bolts in compliance with DIN EN ISO 4017 (formerly DIN 933)
- Washers in compliance with DIN EN ISO 7090 (formerly DIN 125), 2 each per bolt
- Nuts in compliance with DIN EN ISO 4032 (formerly DIN 934)

Galvanised bolts, nuts and washers

DN	Bolts	Number	Item no.	€
60- 120	M 8 x 30	4	10062788	1,60
140- 250	M 10 x 35	8	10142788	4,40
280- 350	M 10 x 40	8	10282788	4,80
400- 500	M 10 x 40	12	10402788	6,30
560- 710	M 12 x 45	16	10562788	8,30
800-1000	M 12 x 45	24	10802788	12,20
1120-1400	M 16 x 50	32	109927880112	22,30
1600	M 16 x 50	40	109927880160	31,40



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 227

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	9,80	10082713	10,60
100	105	139	165	9.5	4	8	0.46	10101713	11,90	10102713	12,80
120	125	165	185	9.5	4	8	0.57	10121713	12,90	10122713	14,20
140	142	182	212	11.5	8	8	0.73	10141713	16,40	10142713	18,00
150	155	200	225	11.5	8	8	1.25	10151713	22,60	10152713	23,00
175	180	219	250	11.5	8	8	1.50	10171713	25,00	10172713	25,60
200	205	241	275	11.5	8	8	1.60	10201713	26,00	10202713	27,80
224	225	265	295	11.5	8	8	1.76	10221713	29,60	10222713	30,80
250	255	292	325	11.5	8	8	1.94	10251713	32,40	10252713	33,30
280	283	332	363	11.5	8	8	2.51	10281713	44,60	10282713	47,80
300	305	366	395	11.5	8	8	3.00	10301713	44,60	10302713	47,80
315	318	366	398	11.5	8	8	3.10	10311713	45,30	10312713	49,30
350	356	405	436	11.5	8	8	3.20	10351713	45,50	10352713	49,80
400	405	448	485	11.5	12	8	3.44	10401713	49,30	10402713	56,60

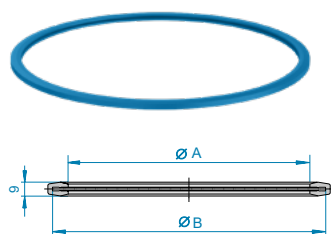
Stainless steel

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	23,70
100	105	139	165	9.5	4	8	0.46	10103713	28,60
120	125	165	185	9.5	4	8	0.57	10123713	31,90
140	142	182	212	11.5	8	8	0.73	10143713	40,20
150	155	200	225	11.5	8	8	1.25	10153713	55,40
175	180	219	250	11.5	8	8	1.50	10173713	62,00
200	205	241	275	11.5	8	8	1.60	10203713	68,50
224	225	265	295	11.5	8	8	1.76	10223713	73,50
250	255	292	325	11.5	8	8	1.94	10253713	81,60
280	283	332	363	11.5	8	8	2.51	10283713	119,50
300	305	366	395	11.5	8	8	3.00	10303713	119,50
315	318	366	398	11.5	8	8	3.10	10313713	121,00
350	356	405	436	11.5	8	8	3.20	10353713	121,50
400	405	448	485	11.5	12	8	3.44	10403713	139,50



THE FLANGE RANGE

Flanges, seals and installation kit



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 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

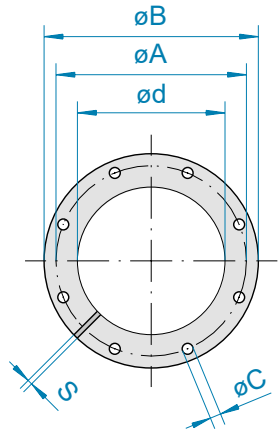
DN	Ø A	Ø B	kg	NBR grey white		Silicone beige F		Silicone blue F D	
				Item no.	€	Item no.	€	Item no.	€
350	353	373	0.11	103567177	6,60	1035771709	8,80	10357717091	12,40
400	403	423	0.13	104067177	7,40	1040771709	10,10	10407717091	13,90
450	453	473	0.15	104567177	8,20	1045771709	11,00	10457717091	15,10
500	503	523	0.17	105067177	9,30	1050771709	12,00	10507717091	16,80
560	561	581	0.18	105667177	10,10	1056771709	13,40	10567717091	18,70
630	631	651	0.21	106367177	11,30	1063771709	14,80	10637717091	20,80
710	711	731	0.24	107167177	12,90	1071771709	16,40	10717717091	23,10
800	801	821	0.26	108067177	20,30	1080771709	26,20	10807717091	36,60

EPDM and Viton

DN	Ø A	Ø B	kg	EPDM black		Viton reddish brown F	
				Item no.	€	Item no.	€
350	353	373	0.11	1035871759	8,80	103597179	50,40
400	403	423	0.13	1040871759	10,10	104097179	57,00
450	453	473	0.15	1045871759	11,00	104597179	63,80
500	503	523	0.17	1050871759	12,00	105097179	70,10
560	561	581	0.18	1056871759	13,40	105697179	77,90
630	631	651	0.21	1063871759	14,80	106397179	87,70
710	711	731	0.24	1071871759	16,40	107197179	97,50
800	801	821	0.26	1080871759	26,20	108097179	108,50

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



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

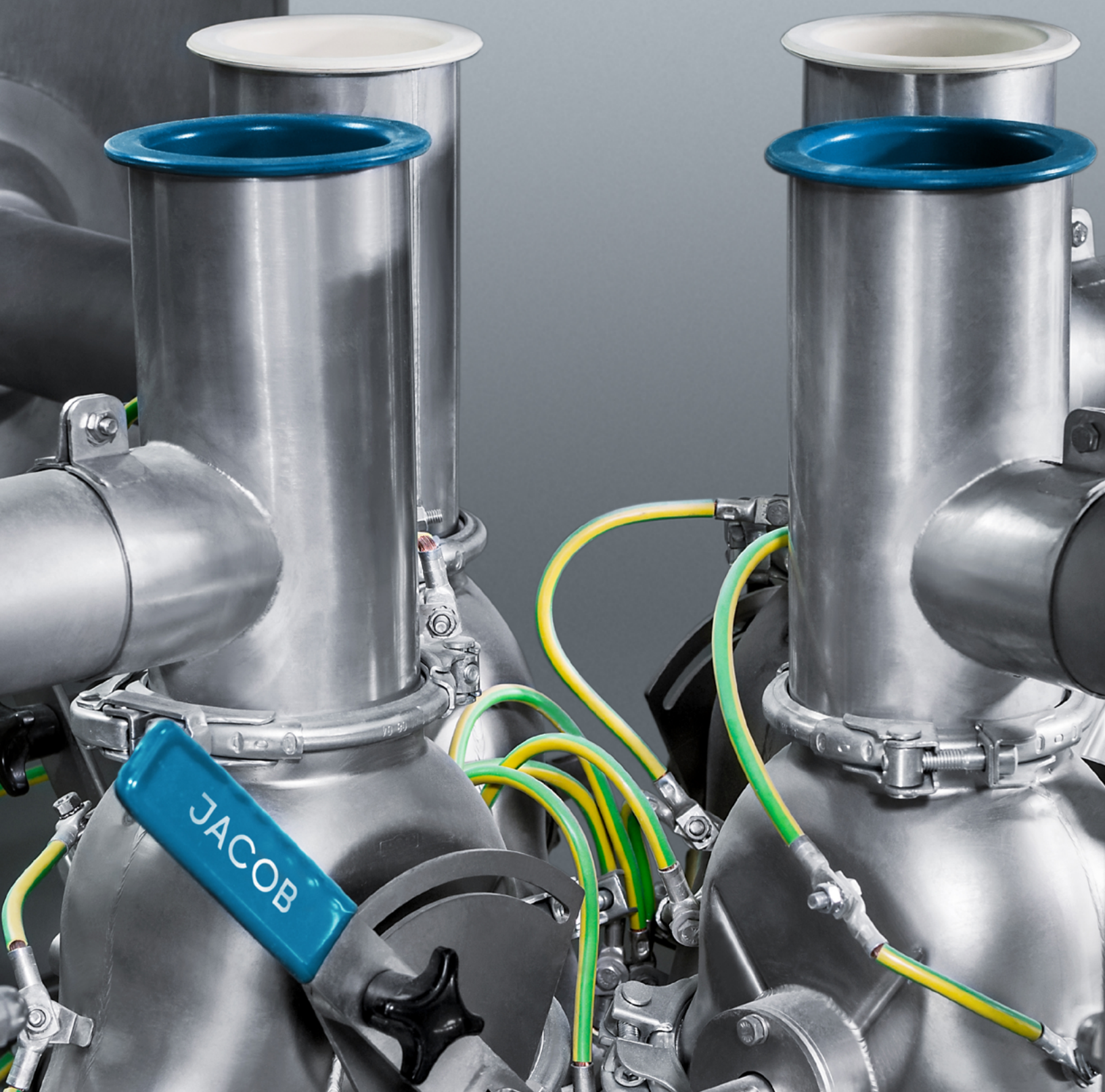
DN	ø d	ø A	ø B	ø C	E	S	kg	NBR grey white		Silicone transparent F		Silicone blue F D	
								Item no.	€	Item no.	€	Item no.	€
350	355	405	435	11.5	8	3	0.20	10356718	27,10	10357718	33,90	1035771801	56,60
400	400	448	484	11.5	12	3	0.24	10406718	29,70	10407718	38,90	1040771801	78,40
450	450	497	534	11.5	12	3	0.26	10456718	32,70	10457718	41,60	1045771801	85,10
500	500	551	584	11.5	12	3	0.28	10506718	37,40	10507718	48,70	1050771801	103,50
560	560	629	664	14	16	3	0.38	10566718	41,30	10567718	61,40	1056771801	131,50
630	630	698	734	14	16	3	0.42	10636718	50,10	10637718	66,90	1063771801	149,00
710	710	775	814	14	16	3	0.52	10716718	57,30	10717718	87,80	1071771801	198,50
800	800	861	904	14	24	3	0.56	10806718	71,30	10807718	125,50	1080771801	242,00
900	897	958	1004	14	24	4	1.51	109967180090	163,50	109977180090	193,50	10997718009001	471,00
1000	998	1067	1105	14	24	4	1.68	109967180100	195,00	109977180100	205,00	10997718010001	475,50
1120	1118	1200	1245	18	32	4	2.79	109967180112	221,50	109977180112	257,00	10997718011201	481,00
1250	1248	1337	1375	18	32	4	3.10	109967180125	267,00	109977180125	268,50	10997718012501	485,50
1400	1398	1475	1525	18	32	4	3.47	109967180140	274,00	109977180140	282,00	10997718014001	490,00
1600	1598	1675	1725	18	40	4	3.93	109967180160	281,00	109977180160	299,00	10997718016001	496,00

EPDM

DN	ø d	ø A	ø B	ø C	E	S	kg	EPDM black	
								Item no.	€
350	355	405	435	11.5	8	3	0.20	10358718	10,90
400	400	448	484	11.5	12	3	0.24	10408718	12,80
450	450	497	534	11.5	12	3	0.26	10458718	14,20
500	500	551	584	11.5	12	3	0.28	10508718	16,20
560	560	629	664	14	16	3	0.38	10568718	20,50
630	630	698	734	14	16	3	0.42	10638718	24,70
710	710	775	814	14	16	3	0.52	10718718	30,80
800	800	861	904	14	24	3	0.56	10808718	39,30
900	897	958	1004	14	24	4	1.51	109987180090	85,10
1000	998	1067	1105	14	24	4	1.68	109987180100	100,50
1120	1118	1200	1245	18	32	4	2.79	109987180112	124,50
1250	1248	1337	1375	18	32	4	3.10	109987180125	135,50
1400	1398	1475	1525	18	32	4	3.47	109987180140	141,00
1600	1598	1675	1725	18	40	4	3.93	109987180160	147,00

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



FIXING COMPONENTS AND ACCESSORIES

Technical information	234	
Flanging tools	236	
Spray paint and paint tin	236	
Earthing wires and earthing lugs	237	
Pipe clamps	238	
Assembly accessories	240	
Blank-off cover	241	



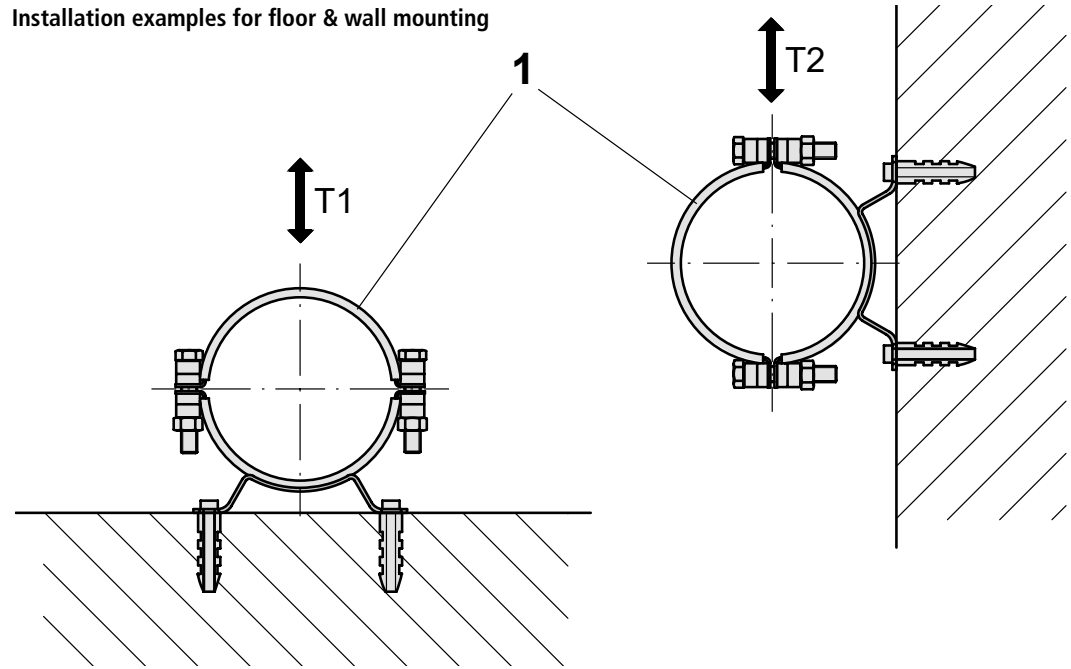
JACOB ACCESSORIES

Your pipework system entirely from one source and easily installed with our accessories, from the flanging tools for cutting exact lengths on site right up to pipe clamps.

INSTALLATION EXAMPLES OF PIPE CLAMPS FOR FLOOR AND WALL MOUNTING

Whether for floor or wall mounting – JACOB has the right pipe clamps in its range.

Installation examples for floor & wall mounting



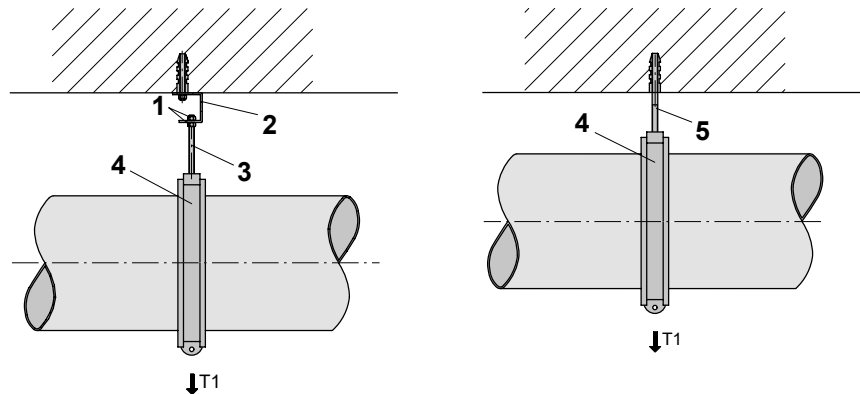
- 1 Pipe clamps for wall mounting with rubber insert
- T1 Load with a deformation of 5 mm
- T2 Load with a deformation of 10 mm

For details of loads, refer to the tables on pages 238 and 239



Installation examples for ceiling mounting

- 1 Hexagon nuts metric
- 2 Fixing clips
- 3 Threaded bolt metric
- 4 Pipe clamps for wall mounting with rubber insert
- 5 Hanger bolt metric
- T1 Load with a deformation of 5 mm



For details of loads, refer to the tables on pages 238 and 239



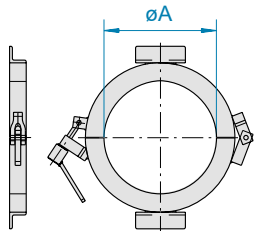
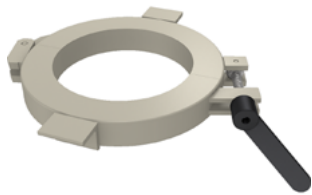
EARTHING WIRE

Creates electrostatic continuity through connecting two pipe components with an earthing lug using a JACOBS earthing wire. Alternatively, the earthing bridge (see chapter 2) can be used to create electrostatic continuity.



FIXING COMPONENTS AND ACCESSORIES

Flanging tools / spray paint and paint tin



Operating instructions for flanging tools

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

DN	Ø A	kg	Powder-coated	
			Item no.	€
60	58	3.10	10061740	167,50
80	80	3.30	10081740	167,50
100	103	3.60	10101740	189,00
120	123	4.70	10121740	224,50
140	139	5.20	10141740	255,50
150	153	5.60	10151740	255,50
175	178	6.40	10171740	271,50
200	203	6.80	10201740	304,00
224	223	7.30	10221740	356,00
250	253	8.75	10251740	356,00
280	283	9.10	10281740	393,00
300	303	9.35	10301740	393,00
315	318	9.80	10311740	412,50
350	353	10.30	10351740	494,50
400	403	12.00	10401740	546,50
450	453	14.50	10451740	953,50
500	503	17.00	10501740	1046,00

SPRAY PAINT AND PAINT TIN

4040/4050



- Spray paint for re-touching powder-coated (RAL 7032) or galvanised pipework
- 1 kg paint and paintbrush for powder-coated pipework (RAL 7032)
- N.B.: Paint is a hazardous substance – separate packaging provided!
- Non-conductive

Paint and zinc spray

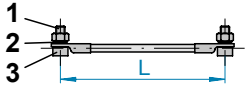
RAL 7032		Galvanised	
Item no.	€	Item no.	€
100019900	14,80	100029900	14,80

1 kg paint and paintbrush

RAL 7032	
Item no.	€
100019910	17,60



Earthing wires and earthing lugs



- 1 Hexagon nut metric M 6, A2
- 2 Toothed lock washer M 6.4, A2
- 3 Hexagon bolt metric M 6 x 16, A2

EARTHING WIRE 16 MM²

1420

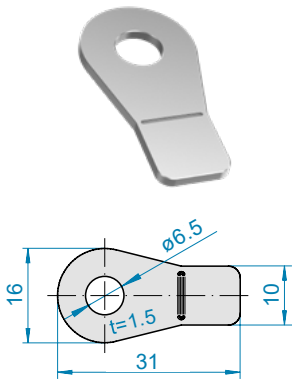
- To create electrostatic continuity
- For use in conjunction with pipework with earthing lugs
- Including hexagon nut M6, A2, toothed lock washer 6.4, A2 and hexagon bolt M6 x 16, A2

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	18,10	1000079610	22,90	1000079705	22,30	1000079805	24,10

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

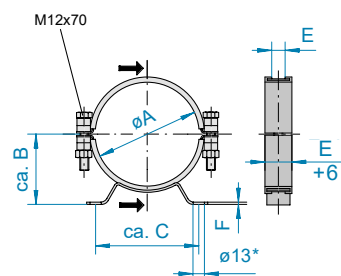
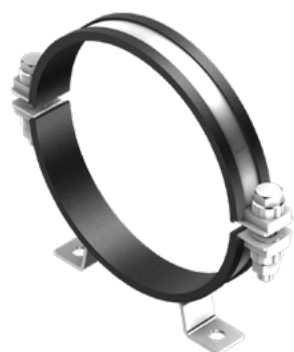


Earthing lug, loose		Earthing lug, spot-welded	
Item no.	€/pack of ten	Item no.	€
1100379020	8,50	11003791	3,10



FIXING COMPONENTS AND ACCESSORIES

Pipe clamps



*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

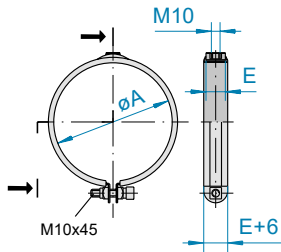
DN	Ø A	B	C	E	F	Load (kN)		kg	Electro-galvanised		Stainless steel	
						T1	T2		Item no.	€	Item no.	€
60	60	50	100	20x1	2			0.20	10062780	20,90	10063780	48,20
80	80	64	138	30x2.5	3	2.0	1.0	0.70	10082780	22,20	10083780	50,70
100	102	75	138	30x2.5	3	2.5	1.0	0.80	10102780	23,10	10103780	52,20
120	123	86	138	30x2.5	3	2.5	1.0	0.85	10122780	24,60	10123780	56,70
140	139	94	138	30x2.5	3	2.5	1.0	0.85	10142780	24,80	10143780	64,60
150	153	101	148	30x2.5	3	3.0	1.2	0.95	10152780	25,50	10153780	64,60
175	178	113	148	30x2.5	3	3.0	1.2	1.00	10172780	27,40	10173780	71,40
200	203	126	148	30x2.5	3	3.0	1.2	1.05	10202780	28,10	10203780	75,70
224	223	136	148	30x2.5	3	3.0	1.2	1.10	10222780	30,20	10223780	82,60
250	253	151	230	30x2.5	3	3.0	1.2	1.25	10252780	32,20	10253780	82,60
280	280	166	230	30x2.5	3	3.0	1.2	1.40	10282780	33,00	10283780	85,70
300	303	176	230	30x2.5	3	3.0	1.2	1.40	10302780	35,10	10303780	90,90
315	315	182	230	30x2.5	3	3.0	1.2	1.40	10312780	36,60	10313780	95,40
350	353	204	260	30x3	4	3.5	1.2	1.55	10352780	53,30	10353780	112,50
400	402	228	260	30x3	4	3.5	1.2	2.10	10402780	60,60	10403780	119,00
450	452	254	300	30x3	4	4.5	1.5	2.95	10452780	68,60	10453780	147,00
500	502	279	300	30x3	4	4.5	1.5	3.05	10502780	79,50	10503780	164,50
560	562	309	350	30x3	4	5.0	1.7	4.00	10562780	88,60	10563780	185,50
630	632	344	350	30x3	4	5.0	1.7	5.00	10632780	110,50	10633780	231,50
710	712	385	350	40x4	5			5.50	10712780	128,50	10713780	376,00
800	800	450	350	40x4	5			6.50	10802780	139,00	10803780	441,00



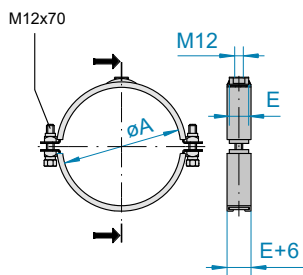
PIPE CLAMPS FOR CEILING MOUNTING

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



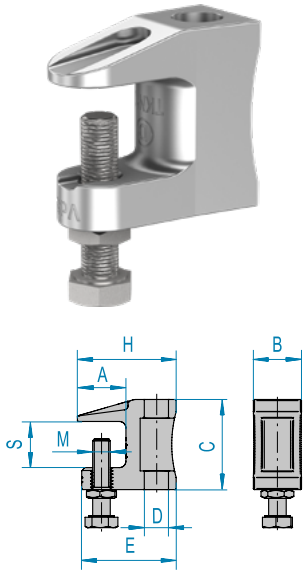
DN 315 to 800 mm

DN	Ø A	E	Load (kN)	kg	Electro-galvanised		Stainless steel	
					Item no.	€	Item no.	€
60	60	20x1.0	0.11		10062770	7,80	10063770	21,90
80	80	25x1.5	2.0	0.20	10082770	8,20	10083770	23,20
100	102	25x1.5	2.0	0.24	10102770	9,40	10103770	23,90
120	123	25x1.5	2.0	0.27	10122770	10,50	10123770	24,80
140	139	25x1.5	2.0	0.29	10142770	11,40	10143770	25,30
150	153	25x1.5	2.0	0.31	10152770	11,40	10153770	25,70
175	178	25x1.5	2.0	0.34	10172770	13,00	10173770	26,10
200	203	25x1.5	2.0	0.37	10202770	13,50	10203770	27,80
224	223	25x1.5	2.0	0.41	10222770	14,20	10223770	29,40
250	253	25x1.5	2.0	0.44	10252770	14,20	10253770	30,20
280	280	25x1.5	2.0	0.51	10282770	14,80	10283770	31,40
300	303	25x1.5	2.0	0.60	10302770	15,80	10303770	33,60
315	315	30x2.5	2.0	1.25	10312770	16,40	10313770	35,20
350	353	30x2.5	3.0	1.31	10352770	45,80	10353770	112,00
400	402	30x2.5	3.0	1.42	10402770	47,30	10403770	118,50
450	452	30x2.5	3.0	1.60	10452770	48,50	10453770	121,00
500	502	30x2.5	3.0	1.66	10502770	51,10	10503770	125,00
560	562	30x2.5	3.0	1.79	10562770	53,40	10563770	137,50
630	632	30x2.5	3.0	1.80	10632770	55,60	10633770	153,50
710	712	30x2.5	2.50		10712770	61,70	10713770	158,00
800	802	30x2.5	3.50		10802770	77,40	10803770	201,00



FIXING COMPONENTS AND ACCESSORIES

Assembly accessories

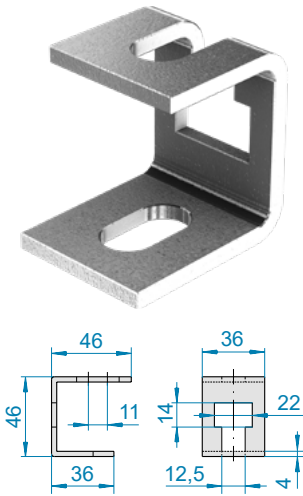


BEARING CLAMPS

3190

- For fixing pipes to steel girders (no welding or drilling required)
- Galvanised cast-iron bearing clamps (clamping width 0-20 mm)
- Bearing clamps, V2A (clamping width 0-16 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		V2A	
								Item no.	€/pack of ten	Item no.	€
0-20	23	21	42	11	41	44	10	1008277610	27,80		
0-16	21.5	21	38	11	34	41.5	10			10083776	24,60



FIXING CLIPS

3110

- Electro galvanised
- Load 3.0 kN with a deformation of 5 mm

Item no.	€/pack of ten
1008277110	26,50



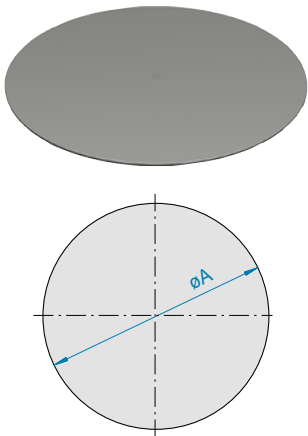
Hanger bolt metric

HANGER BOLTS METRIC

3120/3140/3150/3130

Article		Electro-galvanised		Stainless steel	
		Item no.	€	Item no.	€
Threaded bolts metric 1000 mm long	M 10	10082772	2,90	10083772	7,00
	M 12	10102772	3,00	10103772	8,80
Hexagon nuts metric DIN EN ISO 4032	M 10	10082774	0,10	10083774	0,20
	M 12	10102774	0,10	10103774	0,20
Twin nuts 30 mm long	M 10	10082775	1,60	10083775	3,50
	M 12	10102775	1,80	10103775	3,70
Hanger bolts metric M 10 x 100 mm	M 10	10082773	0,80	10083773	2,30
	M 12	10102773	1,00	10103773	3,20

Blank-off cover



BLANK-OFF COVER

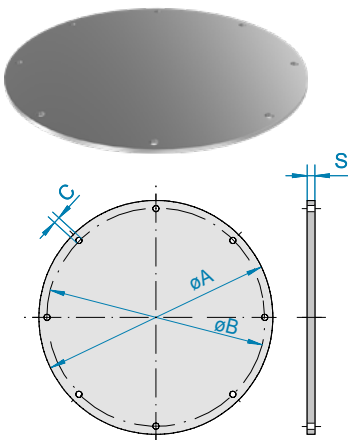
1370

- 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	Ø A	kg	1.5 mm stainless steel	F	2 mm stainless steel	F
			Item no.	€	Item no.	€
60	70	0.04	110637151	5,10		
80	92	0.05	110837151	6,60		
100	114	0.10	111037151	6,80		
120	134	0.10	111237151	7,40		
140	150	0.15	111437151	8,80		
150	164	0.15	111537151	8,80		
175	189	0.20	111737151	10,00		
200	214	0.30	112037151	11,40		
224	234	0.30	112237151	13,00		
250	264	0.45	112537151	13,00		
280	292	0.83	112837151	14,40		
300	314	0.55	113037151	14,40		
315	327	1.10	113137151	15,90		
350	364	1.60			123537151	35,90
400	414	1.50			124037151	48,10
450	464	1.50			124537151	58,30
500	514	3.25			125037151	71,20
560	574	4.05			125637151	89,10
630	644	5.15			126337151	113,50

Blank-off cover for flange connections



E = No. of holes

DN	Ø A	Ø B	C	E	S	kg	Stainless steel	F
							Item no.	€
350	435	405	11.5	8	6	7.00	20353723	126,50
400	484	448	11.5	12	6	8.70	20403723	154,50
450	534	497	11.5	12	6	10.60	20453723	186,50
500	584	551	11.5	12	6	12.70	20503723	219,00
560	664	629	14.0	16	6	16.30	20563723	280,50
630	734	698	14.0	16	6	20.00	20633723	339,50
710	814	775	14.0	16	6	24.50	20713723	411,50
800	904	861	14.0	24	6	30.30	20803723	504,50
900	1004	958	14.0	24	6	37.30	209937230090	616,50
1000	1105	1067	14.0	24	6	45.20	209937230100	740,50
1120	1245	1200	18.0	32	6	57.30	209937230112	935,00
1250	1375	1337	18.0	32	6	69.90	209937230125	1266,00

F FOOD GRADE
EC 1935/2004 plus FDA compliant



JACOB SILENCERS AND CYCLONES –
COMPLETE THE FUNCTIONALITY
OF THE JACOB MODULAR SYSTEM



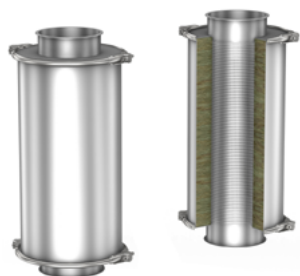
SILENCERS AND CYCLONES

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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 to 630 mm. They are made in a variety of materials with a wall thickness of 2 mm. The ends are lipped and are alternately 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 larger diameters are manufactured with a material thickness of 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.

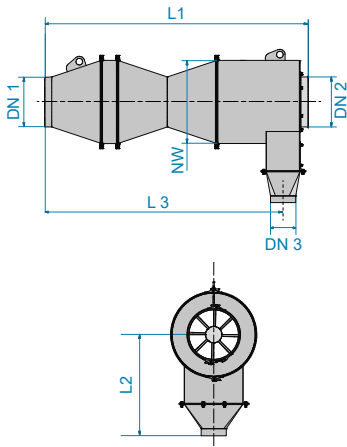
The advantages for you:

- 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



Explanatory video about horizontal cyclone

DETAILS ABOUT ARTICLES AND PRICES AVAILABLE ON REQUEST FROM: sales@jacob-rohre.de

HORIZONTAL CYCLONE

The patented horizontal cyclone from JACOB fits in almost every pipe system. Its design makes it easy to integrate in straight pipes. This makes it the first choice when retrofitting a cyclone. But it also proves its worth in new performance 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 in your system as required:

- As a pre-filter, to clean the air of dust particles, for example, and thus extend the life of filter systems
- To separate large-volume, low-density particles, such as in the medical industry

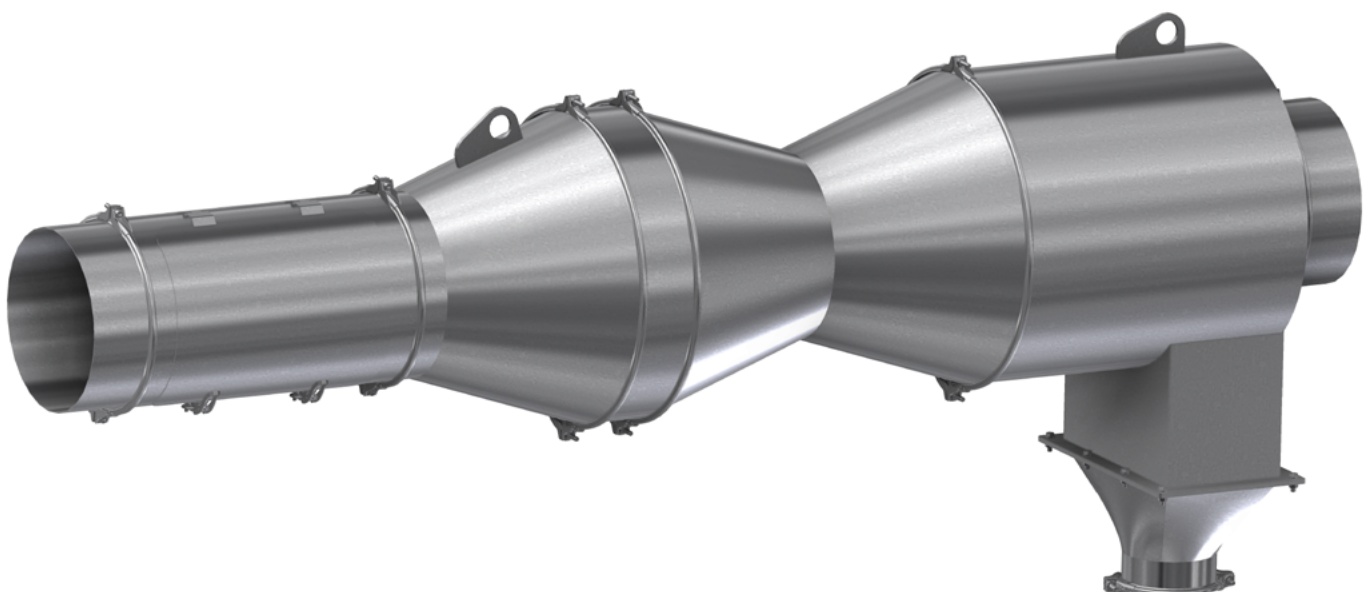
The advantages for you:

- 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

Technical data (dimensions for 2.0 mm material thickness) Powder-coated, galvanised or stainless-steel versions

DN 1	DN 2	DN 3	NW	L 1	L 2	L 3	Volumetric flow m³/h	Pressure loss Pa
80	80	80	125	480	205	405	360	1050
100	100	80	180	600	240	515	560	1050
120	120	80	200	700	270	610	810	1050
150	150	80	255	850	360	750	1270	1050
175	175	150	300	975	395	865	1730	1050
200	200	150	355	1100	430	980	2260	1050
224	224	150	400	1200	460	1075	2830	1050
250	250	150	400	1350	550	1215	3510	1050
300	300	150	500	1600	620	1450	5080	1050
350	350	150	560	1850	690	1680	6900	1050
400	400	350	630	2095	810	1910	9050	1050
450	450	350	720	2345	880	2145	11450	1050
500	500	350	800	2595	950	2375	14100	1050
560*	560*	350*	1000	2900	1080	2660	17730	1050
630*	630*	350*	1000	3250	1180	2990	22450	1050
710*	710*	350*	1255	3655	1290	3365	28500	1050
800*	800*	350*	1400	4585	1515	4260	36200	1050

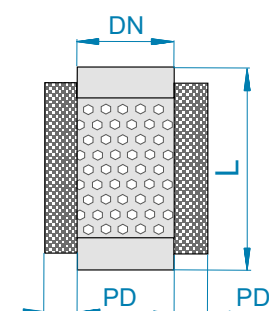
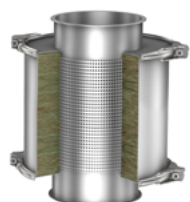
*3 mm





SILENCERS, DAMPING LENGTH 400 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)
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	362,00			4200805022500	395,00		
100	4201005012500	370,50			4201005022500	411,00		
120	4201205012500	384,00			4201205022500	429,00		
140	4201405012500	414,00			4201405022500	464,00		
150	4201505012500	435,00			4201505022500	489,00		
175	4201705012500	487,00			4201705022500	547,00		
200	4202005012500	530,00			4202005022500	597,00		
224	4202205012500	578,00			4202205022500	652,50		
250	4202505012500	621,50			4202505022500	707,00		
300	4203005012500	683,00			4203005022500	787,50		
350	4203505012500	741,50	4203505012503	813,00	4203505022500	864,50	4203505022503	951,00
400	4204005012500	811,00	4204005012503	895,50	4204005022500	951,00	4204005022503	1033,00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200805032500	514,50		
100	4201005032500	540,00		
120	4201205032500	562,50		
140	4201405032500	599,00		
150	4201505032500	633,50		
175	4201705032500	689,00		
200	4202005032500	749,00		
224	4202205032500	811,50		
250	4202505032500	870,50		
300	4203005032500	957,50		
350	4203505032500	1041,00	4203505032503	1132,00
400	4204005032500	1135,00	4204005032503	1238,00



SILENCERS, DAMPING LENGTH 900 MM

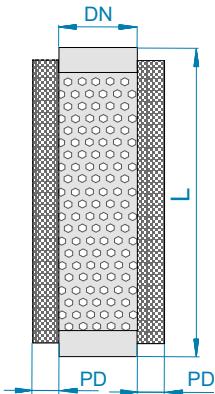
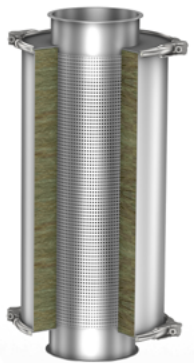
1470/6470

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	405,50			4200810022500	475,50		
100	4201010012500	418,00			4201010022500	500,00		
120	4201210012500	435,00			4201210022500	525,50		
140	4201410012500	474,00			4201410022500	573,50		
150	4201510012500	495,50			4201510022500	599,50		
175	4201710012500	559,00			4201710022500	670,00		
200	4202010012500	599,50			4202010022500	726,50		
224	4202210012500	651,00			4202210022500	785,00		
250	4202510012500	698,50			4202510022500	847,50		
300	4203010012500	769,50			4203010022500	940,50		
350	4203510012500	839,00	4203510012503	910,00	4203510022500	1035,00	4203510022503	1119,00
400	4204010012500	923,00	4204010012503	1005,00	4204010022500	1141,00	4204010022503	1244,00
450	4204510012500	983,50	4204510012503	1078,00	4204510022500	1228,00	4204510022503	1346,00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
80	4200810032500	622,00		
100	4201010032500	652,50		
120	4201210032500	687,00		
140	4201410032500	735,00		
150	4201510032500	774,00		
175	4201710032500	855,00		
200	4202010032500	921,00		
224	4202210032500	988,50		
250	4202510032500	1064,00		
300	4203010032500	1172,00		
350	4203510032500	1284,00	4203510032503	1374,00
400	4204010032500	1416,00	4204010032503	1517,00
450	4204510032500	1526,00	4204510032503	1643,00



PD = insulation thickness

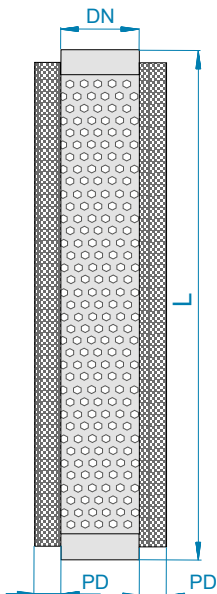
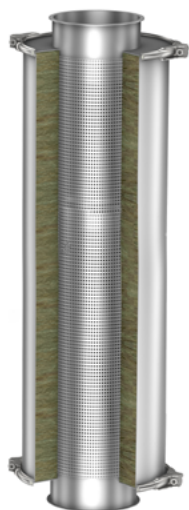


SILENCERS AND CYCLONES

Silencers

SILENCERS, DAMPING LENGTH 1400 MM

1470/6470



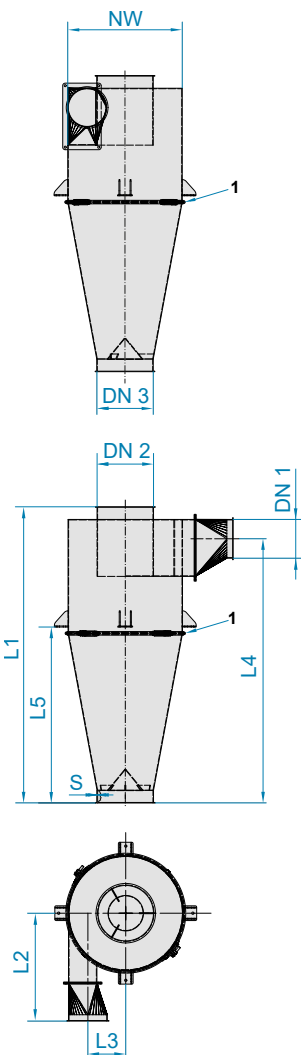
PD = insulation thickness

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	560,50			4201515022500	707,00		
175	4201715012500	627,00			4201715022500	789,50		
200	4202015012500	673,00			4202015022500	847,50		
224	4202215012500	728,50			4202215022500	921,00		
250	4202515012500	778,50			4202515022500	983,50		
300	4203015012500	863,00			4203015022500	1100,00		
350	4203515012500	940,50	4203515012503	1012,00	4203515022500	1209,00	4203515022503	1295,00
400	4204015012500	1027,00	4204015012503	1111,00	4204015022500	1326,00	4204015022503	1427,00
450	4204515012500	1096,00	4204515012503	1193,00	4204515022500	1432,00	4204515022503	1547,00
500	4205015012500	1383,00	4205015012503	1494,00	4205015022500	1947,00	4205015022503	2081,00
560	4205615012500	1432,00	4205615012503	1553,00	4205615022500	1999,00	4205615022503	2144,00
630	4206315012500	1553,00	4206315012503	1688,00	4206315022500	2199,00	4206315022503	2368,00

DN	2 mm stainless steel, with lipped end		2 mm stainless steel, with loose flange	
	Item no.	€	Item no.	€
150	4201515032500	921,00		
175	4201715032500	1016,00		
200	4202015032500	1092,00		
224	4202215032500	1180,00		
250	4202515032500	1262,00		
300	4203015032500	1401,00		
350	4203515032500	1531,00	4203515032503	1667,00
400	4204015032500	1677,00	4204015032503	1779,00
450	4204515032500	1816,00	4204515032503	1934,00
500	4205015032500	2075,00	4205015032503	2290,00
560	4205615032500	2244,00	4205615032503	2432,00
630	4206315032500	2475,00	4206315032503	2664,00



- 1 Connection between top and bottom section of cyclone:
- Pull-ring connection
NW 250-630 mm
 - Welded flanges
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	925	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	799,50	4203002512255	999,50	4202002522255	982,50	4203002522255	1200,00
300	4202003012255	898,50	4203003012255	1122,00	4202003022255	1104,00	4203003022255	1348,00
350	4202003512255	986,50	4203003512255	1232,00	4202003522255	1213,00	4203003522255	1480,00
400	4202004012255	1014,00	4203004012255	1268,00	4202004022255	1248,00	4203004022255	1524,00
450	4202004512255	1099,00	4203004512255	1372,00	4202004522255	1352,00	4203004522255	1646,00
500	4202005012255	1178,00	4203005012255	1473,00	4202005022255	1450,00	4203005022255	1766,00
560	4202005612255	1262,00	4203005612255	1577,00	4202005622255	1552,00	4203005622255	1893,00
630	4202006312255	1361,00	4203006312255	1700,00	4202006322255	1674,00	4203006322255	2041,00
710	4202007112255	1463,00	4203007112255	1831,00	4202007122255	1801,00	4203007122255	2197,00
800	4202008012255	1975,00	4203008012255	2467,00	4202008022255	2428,00	4203008022255	2960,00
900	4202009012255	2112,00	4203009012255	2637,00	4202009022255	2594,00	4203009022255	3163,00
1000	4202010012255	2632,00	4203010012255	3287,00			4203010022255	3946,00

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	1575,00	4202002542255	1969,00
300	4202003032255	1864,00	4202003042255	2336,00
350	4202003532255	2153,00	4202003542255	2694,00
400	4202004032255	2347,00	4202004042255	2935,00
450	4202004532255	2542,00	4202004542255	3177,00
500	4202005032255	2729,00	4202005042255	3409,00
560	4202005632255	2912,00	4202005642255	3639,00
630	4202006332255	3099,00	4202006342255	3872,00
710	4202007132255	3293,00	4202007142255	4114,00
800	4202008032255	3995,00	4202008042255	4995,00
900	4202009032255	5024,00	4202009042255	6279,00
1000	4202010032255	6052,00	4202010042255	7564,00



SILENCERS AND CYCLONES

Cyclones



Product similar to picture

Technical data

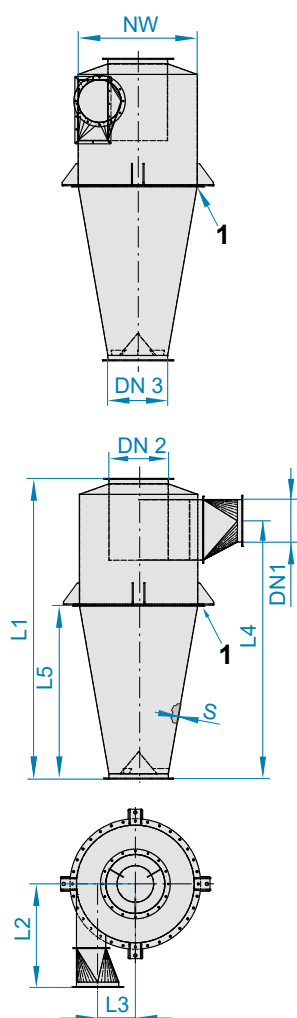
NW	DN1	DN2	DN3	L1	L2	L3	L4	L5	Volumetric flow (m³/h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
1120	400	560	560	2900	987	362	2449	1650	8862	1003	>19
1250	450	630	630	3250	1097	402	2774	1900	11216	998	>21
1400	500	710	710	3650	1217	452	3149	2130	14246	980	>22
1600	560	800	800	4100	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

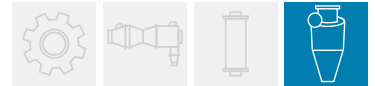
NW	2 mm powder-coated		3 mm powder-coated		3 mm galvanised	
	Item no.	€	Item no.	€	Item no.	€
1120	4202011212255	2942,00	4203011212255	3677,00	4203011222255	4412,00
1250	4202012512255	3456,00	4203012512255	4319,00	4203012522255	5182,00
1400			4203014012255	5968,00	4203014022255	7162,00
1600			4203016012255	6983,00		
1800			4203018012255	7762,00		
2000			4203020012255	9081,00		
2300			4203023012255	9896,00		

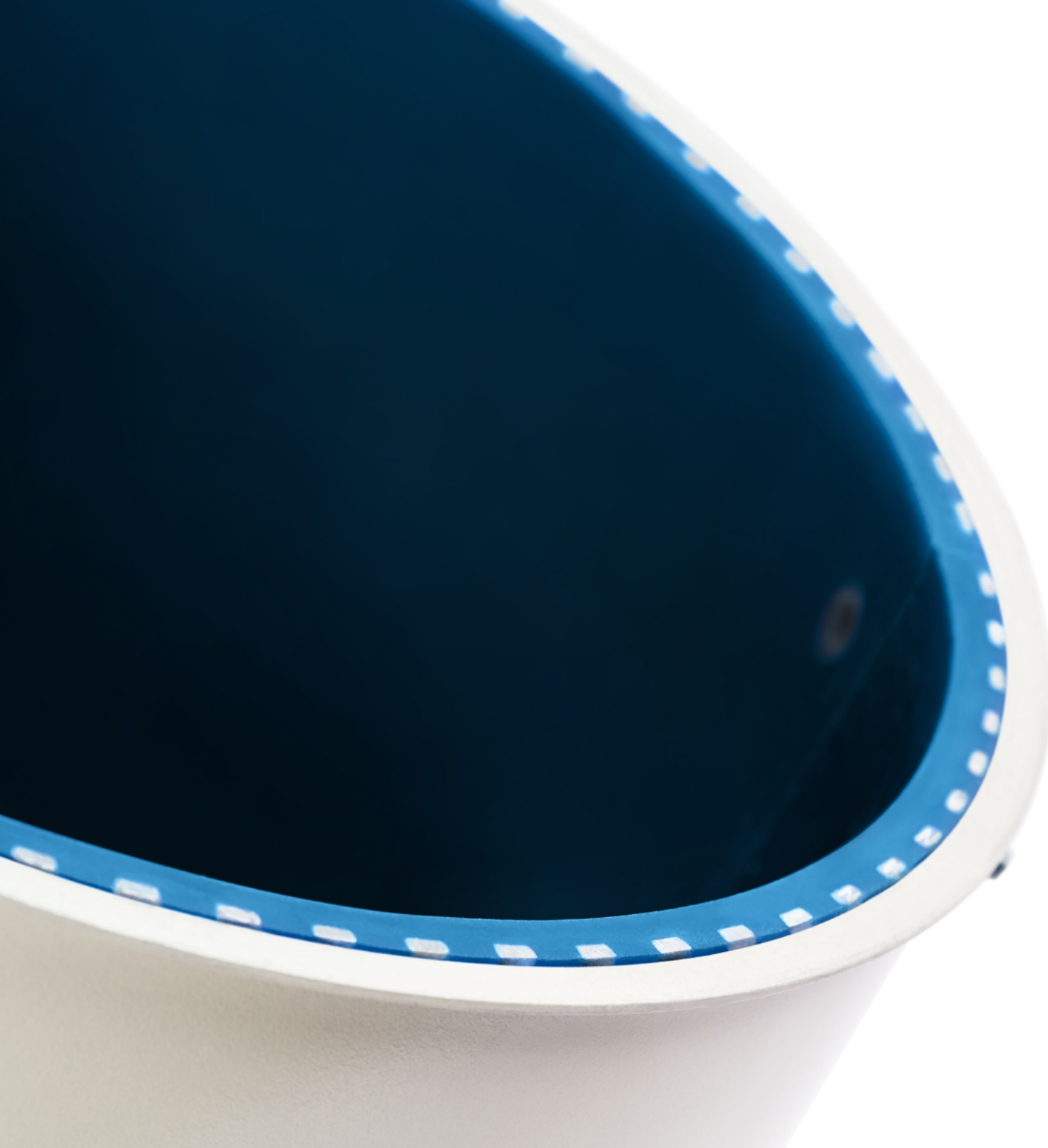
Inlets and outlets with welded-on flanges, stainless steel, pickled and passivated

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	7007,00	4203011232255	8758,00	4202011242255	8758,00	4203011242255	10944,00
1250	4202012532255	8229,00	4203012532255	10287,00	4202012542255	10285,00	4203012542255	12857,00
1400			4203014032255	13220,00			4203014042255	16524,00
1600			4203016032255	14142,00			4203016042255	17674,00
1800			4203018032255	16543,00			4203018042255	20679,00
2000			4203020032255	19358,00			4203020042255	24194,00
2300			4203023032255	22263,00			4203023042255	27826,00

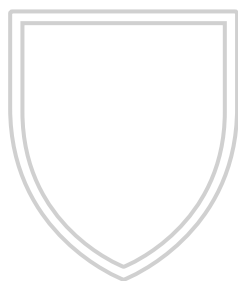


- 1 Connection between top and bottom section with JACOB flanges
- DN 1, 2 and 3 with welded flanges; flanges welded off-radius
 - Dimensions of JACOB flanges see chapter 12
 - From a nominal diameter of 2000 mm: three-part cyclone





GREATER EFFICIENCY WITH THE
JACOB WEAR PROTECTION RANGE



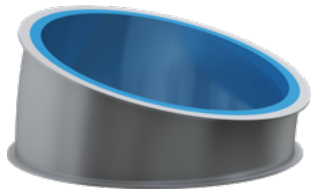
WEAR PROTECTION LINING

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Two-way valves with inlet collar	261	
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WEAR PROTECTION LINING

Technical information



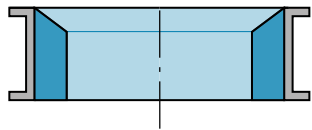
DURABLE DESIGN – WEAR PROTECTION RANGE

A broad spectrum of applications in industry and agriculture causes high wear in pipework systems. In view of this, we have developed the new modular wear protection range: DURABLE DESIGN.

The wear protection 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 A hardness	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 through 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 concentrate 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.



Your benefits with DURABLE DESIGN

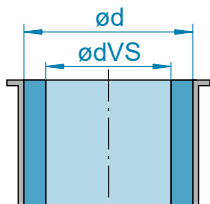
- Wear protection in a modular system
- Perfect for combining with JACOB pull-ring system
- Flexibly replaceable
- Wide product spectrum, wear protection possible with various materials from DN 100 mm
- Easy to assemble
- Longer lasting when conveying abrasive materials
- Choice of 6 different materials 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	Ø d	Ø 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	Ø d	Ø 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

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.

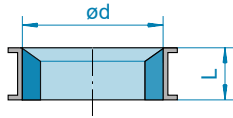
Product range	PU ochre and Kryptane red (glued)	Blue Ox, Kryptane green, Rhino Hyde blue and Kryptane blue (bolted)
DN > 350 mm on request		
Inlet piece 50 mm	DN 100–350	DN 150–350
Pipes 50–1000 mm	DN 100–350	DN 150–350
Pipes 2000 mm	DN 100–350	–
Segments 5°–30°	DN 100–350	DN 150–350
Segments 45°	DN 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 flange 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

FDA-certified, universally usable and high quality.



WEAR PROTECTION LINING

Inlet pieces / Pipes



L = 50 mm

INLET PIECE 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	53,30	121514000951	56,80	121514000950	64,20
200	122014000952	55,90	122014000951	60,70	122014000950	70,40
250	122514000952	58,10	122514000951	63,90	122514000950	76,30
300	123014000952	61,70	123014000951	68,60	123014000950	83,30
350	123514000952	69,10	123514000951	77,30	123514000950	94,40

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	56,30	121524000951	59,70	121524000950	67,30
200	122024000952	60,10	122024000951	64,60	122024000950	74,60
250	122524000952	62,20	122524000951	68,10	122524000950	80,20
300	123024000952	66,60	123024000951	73,60	123024000950	88,20
350	123524000952	73,20	123524000951	81,30	123524000950	98,50



PIPES – WEAR PROTECTION

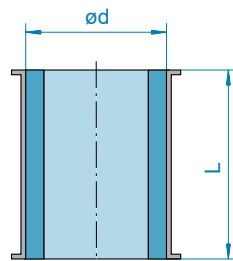
1492

200 mm long, 2 mm powder-coated

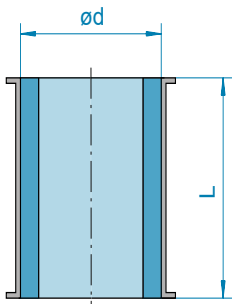
DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121510400952	78,60	121510400951	92,40	121510400950	123,00
200	122010400952	87,80	122010400951	106,50	122010400950	146,50
250	122510400952	95,80	122510400951	119,50	122510400950	169,00
300	123010400952	105,50	123010400951	134,00	123010400950	192,50
350	123510400952	119,00	123510400951	151,50	123510400950	220,00

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	85,50	121520400951	99,30	121520400950	129,50
200	122020400952	95,20	122020400951	114,00	122020400950	153,50
250	122520400952	103,00	122520400951	126,50	122520400950	175,50
300	123020400952	119,00	123020400951	147,00	123020400950	206,00
350	123520400952	139,00	123520400951	171,50	123520400950	239,00



200 mm long: L = 200 mm
 500 mm long: L = 486 mm
 1000 mm long: L = 984 mm



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	131,00	121510300951	166,00	121510300950	239,00
200	122010300952	154,00	122010300951	200,00	122010300950	298,00
250	122510300952	173,00	122510300951	231,00	122510300950	352,50
300	123010300952	194,00	123010300951	262,00	123010300950	410,00
350	123510300952	217,00	123510300951	297,00	123510300950	468,50

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	112,00	121520300951	126,50	121520300950	155,00
200	122020300952	169,00	122020300951	214,50	122020300950	313,00
250	122520300952	187,00	122520300951	244,00	122520300950	366,50
300	123020300952	212,50	123020300951	281,00	123020300950	428,50
350	123520300952	255,00	123520300951	334,50	123520300950	506,50

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	229,00	121510200951	297,50	121510200950	444,50
200	122010200952	267,00	122010200951	359,00	122010200950	555,50
250	122510200952	305,00	122510200951	419,50	122510200950	665,00
300	123010200952	345,00	123010200951	482,50	123010200950	776,50
350	123510200952	393,50	123510200951	554,00	123510200950	897,00

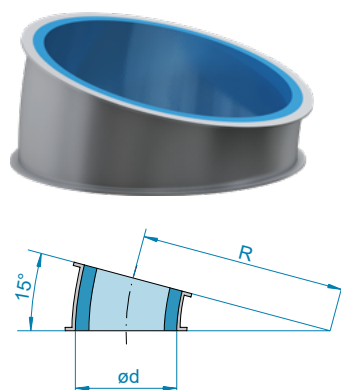
1000 mm long, 2 mm galvanised

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121520200952	190,50	121520200951	225,00	121520200950	298,50
200	122020200952	296,00	122020200951	388,00	122020200950	584,00
250	122520200952	331,50	122520200951	446,00	122520200950	690,50
300	123020200952	377,50	123020200951	515,00	123020200950	809,50
350	123520200952	458,50	123520200951	618,50	123520200950	962,50



WEAR PROTECTION LINING

Segments



SEGMENTS – WEAR PROTECTION

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	63,50	121513000951	67,90	121513000950	77,30
200	690	122013000952	71,30	122013000951	78,50	122013000950	93,80
250	635	122513000952	78,40	122513000951	87,00	122513000950	105,00
300	625	123013000952	91,60	123013000951	102,50	123013000950	125,50
350	350	123513000952	103,00	123513000951	112,50	123513000950	133,50

5°, 2 mm galvanised

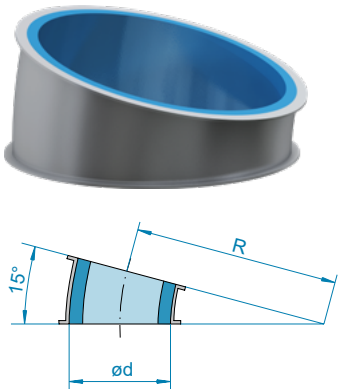
DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	500	121523000952	65,60	121523000951	70,00	121523000950	79,40
200	690	122023000952	77,10	122023000951	84,20	122023000950	99,50
250	635	122523000952	87,10	122523000951	95,50	122523000950	114,50
300	625	123023000952	103,00	123023000951	114,00	123023000950	137,50
350	350	123523000952	104,50	123523000951	114,50	123523000950	134,50

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	81,80	121513100951	88,20	121513100950	102,50
200	270	122013100952	90,00	122013100951	99,80	122013100950	121,50
250	310	122513100952	101,00	122513100951	115,00	122513100950	145,50
300	310	123013100952	117,00	123013100951	136,00	123013100950	173,50
350	350	123513100952	139,50	123513100951	163,50	123513100950	214,50

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	83,50	121523100951	90,10	121523100950	104,50
200	270	122023100952	95,60	122023100951	105,50	122023100950	127,50
250	310	122523100952	110,00	122523100951	124,50	122523100950	153,50
300	310	123023100952	128,50	123023100951	147,00	123023100950	185,50
350	350	123523100952	140,50	123523100951	164,50	123523100950	215,50



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	117,50	121513200951	128,00	121513200950	148,00
200	180	122013200952	130,50	122013200951	145,50	122013200950	175,50
250	230	122513200952	147,50	122513200951	170,00	122513200950	217,00
300	230	123013200952	165,50	123013200951	195,00	123013200950	257,00
350	350	123513200952	207,50	123513200951	252,50	123513200950	349,00

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	120,00	121523200951	130,00	121523200950	150,00
200	180	122023200952	138,00	122023200951	152,00	122023200950	182,50
250	230	122523200952	158,50	122523200951	180,00	122523200950	227,50
300	230	123023200952	180,00	123023200951	209,50	123023200950	271,50
350	350	123523200952	209,00	123523200951	254,50	123523200950	350,50

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	149,50	121513300951	160,50	121513300950	182,00
200	195	122013300952	171,00	122013300951	188,00	122013300950	225,00
250	195	122513300952	181,50	122513300951	203,00	122513300950	250,00
300	205	123013300952	200,50	123013300951	229,50	123013300950	289,00
350	350	123513300952	314,50	123513300951	369,00	123513300950	486,00

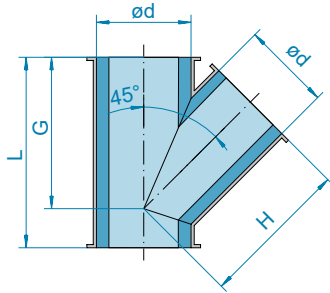
45°, 2 mm galvanised

DN	R	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
		Item no.	€	Item no.	€	Item no.	€
150	150	121523300952	151,50	121523300951	162,00	121523300950	183,00
200	195	122023300952	182,50	122023300951	199,50	122023300950	236,50
250	195	122523300952	194,50	122523300951	215,50	122523300950	262,00
300	205	123023300952	218,00	123023300951	245,50	123023300950	305,00
350	350	123523300952	311,50	123523300951	366,50	123523300950	483,50



WEAR PROTECTION LINING

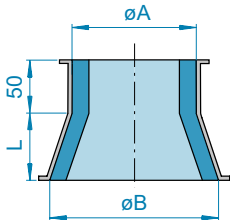
Forks/Cone pieces



See chapter 5 for fork dimensions



Product similar to picture



FORKS – WEAR PROTECTION

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	305,00	121512200951	347,00	121512200950	437,00
200	122012200952	387,00	122012200951	460,50	122012200950	619,00
250	122512200952	456,00	122512200951	554,50	122512200950	766,00
300	123012200952	551,00	123012200951	692,00	123012200950	995,00
350	123512200952	675,50	123512200951	881,00	123512200950	1323,00

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	317,50	121522200951	359,50	121522200950	449,50
200	122022200952	405,50	122022200951	479,00	122022200950	638,00
250	122522200952	482,50	122522200951	581,50	122522200950	793,00
300	123022200952	589,00	123022200951	729,50	123022200950	1033,00
350	123522200952	691,00	123522200951	897,00	123522200950	1338,00

CONE PIECES – WEAR PROTECTION

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*	205,50	110014610951*	222,00	110014610950*	257,00
150-250	150	110014620952*	222,50	110014620951*	247,50	110014620950*	299,00
150-300	200	110014630952*	256,00	110014630951*	296,00	110014630950*	384,50
200-250	120	120014700952	222,00	120014700951	246,00	120014700950	298,50
200-300	150	120014710952	244,00	120014710951	279,00	120014710950	352,00
250-300	150	120014750952	248,00	120014750951	284,00	120014750950	363,00
250-350	200	120014840952	271,00	120014840951	309,50	120014840950	394,00
300-350	200	120014800952	303,00	120014800951	360,50	120014800950	483,00

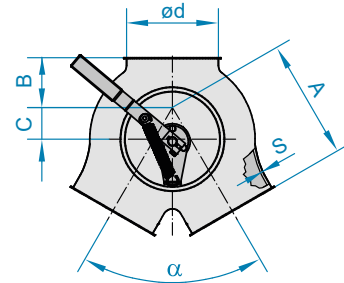
*1.5 mm

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*	210,00	110024610951*	227,00	110024610950*	262,00
150-250	150	110024620952*	227,50	110024620951*	252,50	110024620950*	304,00
150-300	200	110024630952*	246,00	110024630951*	286,50	110024630950*	374,50
200-250	120	120024700952	227,50	120024700951	251,50	120024700950	304,00
200-300	150	120024710952	252,50	120024710951	285,50	120024710950	359,50
250-300	150	120024750952	253,00	120024750951	289,50	120024750950	367,50
250-350	200	120024840952	280,50	120024840951	319,50	120024840950	402,00
300-350	200	120024800952	319,50	120024800951	377,00	120024800950	500,00

*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	450,00	121515120951	473,50	121515120950	523,00
200	122015170952	609,50	122015170951	651,50	122015170950	741,50
250	122515170952	762,50	122515170951	825,00	122515170950	962,00
300	123015120952	990,50	123015120951	1084,00	123015120950	1282,00
350	123515150952	1644,00	123515150951	1742,00	123515150950	1952,00

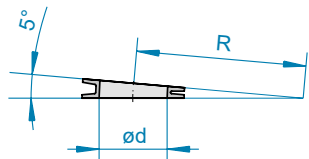
Symmetrical 60°, hand-operated, 2 mm powder-coated

DN	Lined with Blue Ox		Lined with Kryptane green		Lined with Rhino Hyde blue	
	Item no.	€	Item no.	€	Item no.	€
150	121515020952	400,50	121515020951	416,50	121515020950	451,00
200	122015050952	545,00	122015050951	570,00	122015050950	622,50
250	122515050952	718,00	122515050951	778,50	122515050950	909,00
300	123015020952	931,50	123015020951	1011,00	123015020950	1180,00
350	123515050952	1607,00	123515050951	1707,00	123515050950	1920,00

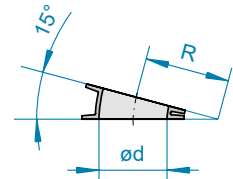


WEAR PROTECTION LINING

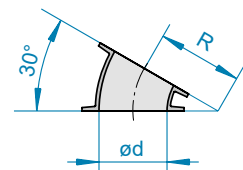
Cast-iron pipework



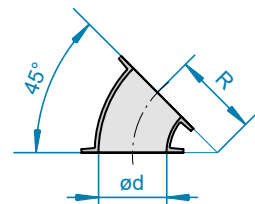
Cast-iron segment 5°



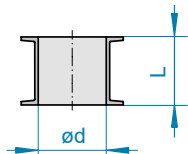
Cast-iron segment 15°



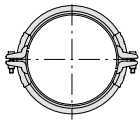
Cast-iron segment 30°



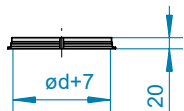
Cast-iron segment 45°



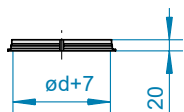
Cast-iron pipes



Pull-rings for cast-iron pipework



Angle flanges



Angle flanges, 1 cut

CAST-IRON PIPEWORK

1160/1170/1180/1190/1150/1200/7000/1210

- Cast-iron pipework made from modular spheroidal graphite cast iron
- 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	46,80
150	148	600	17151300	46,80	250	17151310	53,20
200	198	690	17201300	66,00	270	17201310	72,20
250	248	635	17251300	78,30	310	17251310	84,60
300	298	625	17301300	81,40	310	17301310	97,10

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	59,50			
150	148	175	17151320	59,50	150	17151330	66,00
200	198	180	17201320	78,30	195	17201330	97,10
250	248	230	17251320	136,00	195	17251330	152,00
300	298	230	17301320	152,00	205	17301330	161,50

Cast-iron pipes and pull-rings

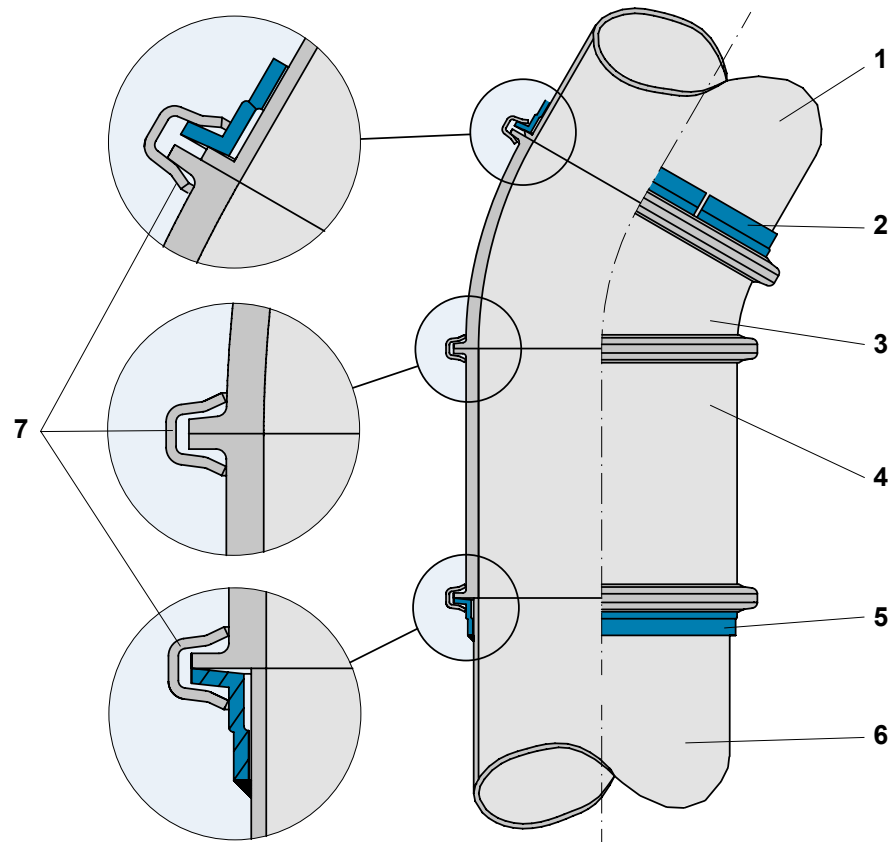
DN	Ø d	L	Cast-iron pipes		Pull-rings for cast-iron pipework, galvanised, with mastic sealant	
			Item no.	€	Item no.	€
120	118	150	17121040	78,00	17122382	11,60
150	148	150	17151040	84,20	17152382	13,30
200	198	200	17201040	151,50	17202382	14,30
250	248	250	17251040	161,00	17252382	16,60
300	298	300	17301040	210,50	17302382	18,50

Angle flanges

DN	Ø d	Angle flanges for welding-on on site		Angle flanges, 1 cut	
		Item no.	€	Item no.	€
120	118	33121705	6,20	17121705	7,80
150	148	33151705	6,60	17151705	7,80
200	198	33201705	8,70	17201705	8,80
250	248	33251705	11,00	17251705	9,20
300	298	33301705	12,50	17301705	10,20



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 LINING

Special range hot-dip galvanised 3 mm



PIPEWORK SYSTEM HOT-DIP GALVANISED 3 MM

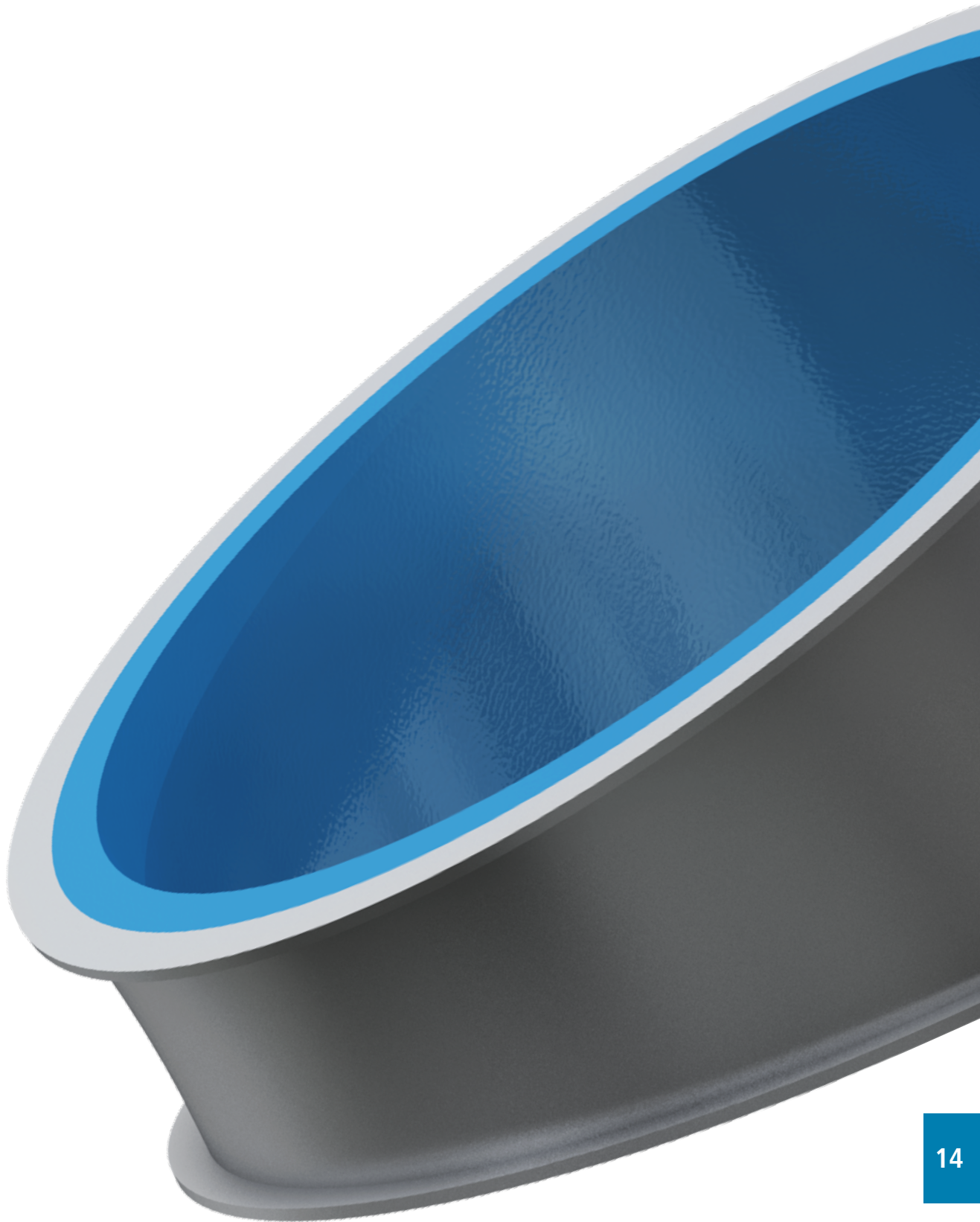
7200/7210/7220/7230/7240/7250/7260/7270/7280/7290/7300/7310/7320

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 fast and provide a tight seal due to the use of our proven pull-ring system. The hot-dip galvanised pipe components and pressed 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 like grains or pellets.

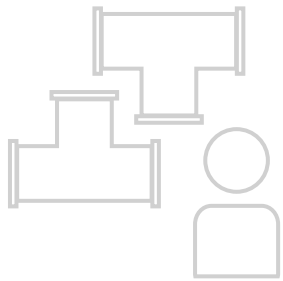
Please refer to chapter 2 for technical information and instructions for assembling the JACOB pull-ring system.

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	141,50	13252010	162,50	13302010	189,00
Welded pipes 1000 mm long	13202020	74,90	13252020	85,10	13302020	99,20
Welded pipes 500 mm long	13202030	42,20	13252030	49,20	13302030	54,80
Segments 5°	13202300	29,80	13252300	36,60	13302300	40,10
Segments 15°	13202310	29,80	13252310	36,60	13302310	40,10
Segments 30°	13202320	35,00	13252320	43,50	13302320	46,30
Segments 45°	13202330	38,60	13252330	50,30	13302330	59,60
Cone pieces 200-250	13002470	67,50				
Cone pieces 200-300	13002471	71,80				
Cone pieces 250-300			13002475	72,90		
Forks 45°	13202220	99,30	13252220	142,50	13302220	187,00
Connecting flanges with loose flange drilled similarly to DIN 24154-2 (see chapter 11, page 227, for dimensions)	13202432	27,20	13252432	31,90	13302432	36,80
Spouts without a gradient from square to round	13202400	72,30	13252400	132,00	13302400	147,00
Spouts with a 45° gradient from square to round	13202420	115,50	13252420	140,00	13302420	160,50
Inspection T-pieces without a rubber cover	13202200	78,20	13252200	95,60	13302200	108,00
Two-way valves with inlet collar, symmetrical, hand-operated	13202505	491,00	13252505	615,00	13302502	741,00
Two-way valves with inlet collar, asymmetrical, hand-operated	13202517	491,00	13252517	615,00	13302512	741,00



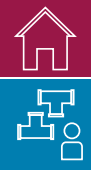


JACOB MANUFACTURING TECHNOLOGY:
TOP QUALITY CUSTOMISED PRODUCT SOLUTIONS



SPECIAL MANUFACTURE

Technical information	268	
Special parts	270	
Special range shock explosion proof to 10 bar	274	



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

ADAPTERS / SYSTEMS

- Adapters for connection to the JACOB system
- Connector system with guide rings

EXHAUST AIR

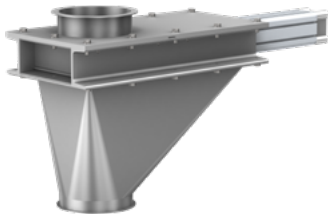
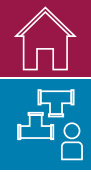
- Air outlets for roofs
- Air inlet / outlet hoods
- Air quality / air conditioning and ventilation

MATERIALS AND SPECIAL FINISHES

- Innovative powder coating
- Special colours
- Grinding or electrolytic polishing

PIPE LENGTHS OF UP TO 12 M

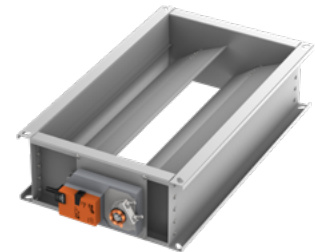




DISTRIBUTORS / THROTTLE VALVES

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.



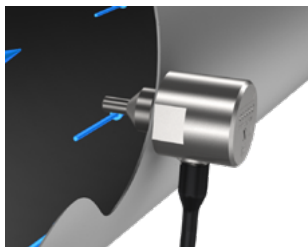
Louvre valve

The louvre valve is mostly used in pipes that carry hot air. The valve is available with either one or several louvre flaps. Louvre flaps with larger dimensions of 1000 mm or more are used in industrial halls, for example. The size of the valve required depends on the hot air flow capacity. The valve can withstand temperatures of up to 320°C.



Square two-way valves

The square two-way valve is an extension of the design-optimised two-way distributor unit (see chapter 9). It is used in many industries, including for processing granular materials and distributing bulk goods.



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 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

Pressure changes through alteration of the speed in a constricted section allow the volumetric flow to be determined. One example of use is in waste management, where other measurement methods are unsuitable due to the presence of aggressive gases.

WEAR PROTECTION AND NON-STICK PROTECTION



Wear protection linings

Besides 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.



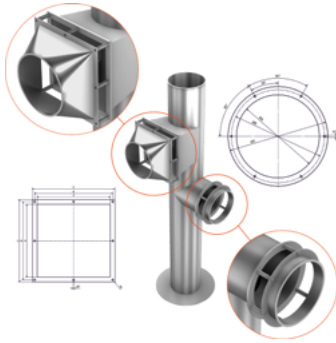
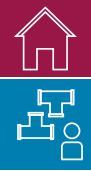
Baffle boxes/pipes

Baffle boxes can be installed to reduce the speed of abrasive or sensitive bulk goods as they fall, and so lessen their abrasive effect. This increases the lifetime of the pipework and reduces wear on the product. Typically, baffle boxes are installed just upstream of direction changes in gravity-flow downpipes.



Non-stick protection coating

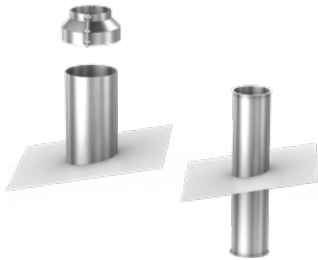
The addition of a non-stick coating improves the flow properties of dry products that do not tend to flow freely. Examples of these are coffee powder varieties with a high oil content, or products used in the manufacture and recycling of car tyres. This type of coating is typically used in the food industry, mechanical engineering applications, polymer processing and the printing and paper industry. Other lining materials are available on request.



ADAPTERS / SYSTEMS

Adapters for connection to the JACOB system

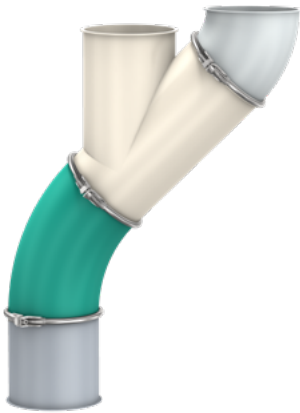
Do you require special transitions or adapter connections for the JACOB pipework system? We have a wide range of adapters and transitions available as standard components. Special customer-specific solutions can also be produced if required. Please refer to chapter 6 of this catalogue for details of 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.



MATERIALS 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

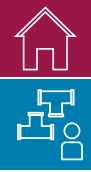
At our customers' request, we also offer electrolytic polishing or grinding of our stainless steel pipework.

PIPE LENGTHS

Pipe lengths of up to 12 m

We produce special pipes up to 12 m in length in diameters of DN 60-300 mm and in different materials with a wall thickness of 1-3 mm. We normally supply pipes in lengths of 6-12 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

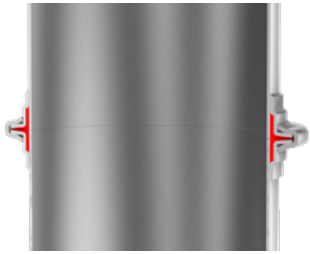
Special range shock explosion proof to 10 bar



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 $R = 2 D$, 30° to 90°
- Pipe components connected with special pull-ring for angle flange
- The seal is incorporated in the pipework
- Mastic sealant approved for food use in accordance with NSF, commodities directive 2002/72/EC, temperature resistance -40°C to +90°C
- 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	13,00		
100	32102382	13,30		
120	32122382	14,20		
150			32152382	14,90
175			32172382	15,80
200			32202382	16,20
250			32252382	20,70
300			32302382	23,10



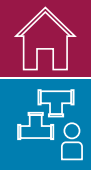
WELDED PIPES

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	82,90			32081020	53,40		
100	32101010	86,70			32101020	56,60		
120	32121010	95,80			32121020	64,90		
150	32151010	107,50	33151010	146,00	32151020	74,80	33151020	98,10
175	32171010	120,50	33171010	164,50	32171020	82,10	33171020	107,50
200	32201010	130,50	33201010	178,00	32201020	100,50	33201020	133,00
250	32251010	157,50	33251010	211,50	32251020	102,00	33251020	139,00
300	32301010	182,00	33301010	244,50	32301020	114,50	33301020	154,00

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	40,20			32081040	34,10		
100	32101030	42,50			32101040	36,00		
120	32121030	49,90			32121040	41,80		
150	32151030	55,20	33151030	70,00	32151040	48,70	33151040	58,50
175	32171030	62,20	33171030	78,10	32171040	51,30	33171040	62,00
200	32201030	65,50	33201030	82,70	32201040	53,10	33201040	64,30
250	32251030	76,40	33251030	95,40	32251040	61,60	33251040	74,30
300	32301030	83,90	33301030	104,50	32301040	68,30	33301040	81,90



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	20,20		
100	32101060	21,40		
120	32121060	24,10		
150	32151060	26,30	33151060	31,60
175	32171060	27,70	33171060	33,20
200	32201060	28,70	33201060	34,70
250	32251060	32,60	33251060	39,10
300	32301060	36,20	33301060	43,60



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	133,00		
100	32101200	149,50		
120	32121200	166,50		
150	32151200	182,50	33151200	199,00
175	32171200	194,00	33171200	213,00
200	32201200	214,00	33201200	234,50
250	32251200	245,50	33251200	269,50
300	32301200	265,00	33301200	291,00





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	103,50			32081220	101,50		
100	32101230	109,00			32101220	102,50		
120	32121230	123,00			32121220	118,50		
150	32151230	153,00	33151230	184,50	32151220	142,00	33151220	166,50
175	32171230	185,00	33171230	217,50	32171220	170,50	33171220	197,50
200	32201230	216,00	33201230	259,50	32201220	196,00	33201220	230,00
250	32251230	277,50	33251230	330,00	32251220	250,50	33251220	287,50
300	32301230	358,00	33301230	393,00	32301220	295,50	33301220	347,00



BENDS R = 2 D

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	45,20			32081344	55,10		
100	32101343	48,80			32101344	58,70		
120	32121343	61,60			32121344	65,20		
150	32151343	73,60	33151343	91,90	32151344	82,70	33151344	103,50
175	32171343	80,50	33171343	101,50	32171344	91,10	33171344	114,50
200	32201343	92,20	33201343	116,00	32201344	98,30	33201344	124,00
250	32251343	106,50	33251343	134,00	32251344	129,00	33251344	162,50
300	32301343	147,50	33301343	185,00	32301344	188,00	33301344	234,50

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	59,40			32081349	69,20		
100	32101346	62,50			32101349	72,90		
120	32121346	80,50			32121349	87,30		
150	32151346	91,90	33151346	115,50	32151349	111,50	33151349	140,00
175	32171346	102,50	33171346	128,50	32171349	124,00	33171349	154,00
200	32201346	121,00	33201346	152,00	32201349	144,00	33201349	179,00
250	32251346	192,50	33251346	240,00	32251349	239,00	33251349	298,50
300	32301346	243,00	33301346	302,50	32301349	357,00	33301349	446,00



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"); 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.
- (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.

2. Conclusion of the Contract; Contract Documents

- (1) Our offers are subject to confirmation and non-binding unless they are explicitly specified as binding. 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.
- (2) 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.
- (3) 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. The tolerances stated in our catalogues and offers apply.
- (4) For components manufactured according to drawings, specifications, samples, specifications and / or other documents of the Purchaser, the tolerances stated in our catalogues and offers for these components also apply.
- (5) **Our salespersons are not authorised to make further agreements or give assurances which exceed the content of the written contract or these T&C.**
- (6) 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® 2010 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) 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.

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

- (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) 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.
- (3) In case we are prevented from adhering to agreed delivery dates as a result of 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 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 becomes impossible as a result thereof, our obligation to supply will become null and void and claims for damages be excluded. 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 month, 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.
- (4) Article 5 (3) 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.
- (5) 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.

- (6) 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.
- (7) 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.
- (8) 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.
- (9) 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.

6. Delivery and transfer of risk

- (1) Unless stated otherwise in the order confirmation, deliveries are made FCA (pursuant to Incoterms® 2010 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) 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. If delivery 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.
- (3) Unless provided otherwise, the type of packaging will be left to our reasonable discretion. Packaging costs shall be borne by the Purchaser. The transport boxes we use as standard packaging are not designed to be stacked. Special packaging (for instance with strengthened supports to allow the transport boxes to be stacked, but no more than two high) is subject to special agreement and/or the Purchaser's request (with the submission of the order, at the latest).
- (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) Transport packaging is taken back at our place of business during regular business hours.

7. Retention of Title

- (1) We reserve title to the goods delivered until receipt of all payments deriving from the business relation with the Purchaser.
- (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. 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.
- (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 inspection 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. 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) If the goods are ultimately delivered to a consumer (sale of consumer goods according to § 474 BGB (German Civil Code)), the special statutory provisions in §§ 445a, 445b, 478 subs. 1 BGB (German Civil Code) remain unaffected in all cases. In all other cases, the special provisions governing recourse to the supplier do not apply.
- (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.
- (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. Our right to refuse to provide subsequent performance on the conditions provided for by law remains unaffected.

- b) We will bear the expenses necessary for subsequent performance, including but not limited to the cost of transport, labour, material and tolls, provided that the goods actually prove to be defective. If the Purchaser's request for defect remedy proves to be unjustified, we are entitled to claim from the Purchaser compensation of the costs incurred by us as a result of the unjustified request. If the Purchaser was aware of the defect already upon installation/assembly or if the installation/assembly was not carried out in accordance with the designated and / or intended use of the goods, we will not bear the expenses for the de-installation/disassembly of the defective product nor the expenses for its reinstallation/reassembly as part of our obligation to provide subsequent performance. This also applies if the Purchaser, prior to the installation/assembly, failed to recognize the defect by gross negligence, unless we have fraudulently concealed the defect or given a special warranty ("Garantie").
- 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.

10. 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.

11. 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.
- (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.

12. 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.

13. 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.

14. 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.

15. 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 <https://www.jacob-rohre.de/datenschutzinweis/>.
- (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.

16. 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.

Wir liefern unter Geltung unserer „Allgemeinen Lieferungs- und Zahlungsbedingungen“.

(Siehe auch unter www.jacob-rohre.de oder auch auf Anforderung.)

We deliver in accordance with our 'General Terms and Conditions of Delivery and Payment'.

(Please visit also www.jacob-uk.com or also request a copy from us.)

Nous effectuons nos livraisons en tenant compte de « nos conditions générales de vente et de paiement ».

(Voir aussi sur le site www.jacob-dosatec.fr ou aussi sur demande.)

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1. Allgemeines – Geltungsbereich

- (1) Unsere Lieferungen, Leistungen und Angebote erfolgen ausschließlich aufgrund dieser Allgemeinen Lieferungs- und Zahlungsbedingungen (nachfolgend „AGB“); entgegenstehende oder von unseren Lieferungs- und Zahlungsbedingungen abweichende Bedingungen des Bestellers erkennen wir nicht an, es sei denn, wir hätten ausdrücklich schriftlich ihrer Geltung zugestimmt. Unsere AGB gelten auch dann, wenn wir in Kenntnis entgegenstehender oder von unseren AGB abweichender Bedingungen des Bestellers die Lieferung an den Besteller vorbehaltlos ausführen.
- (2) Unsere AGB gelten nur gegenüber Unternehmern (§ 14 BGB), juristischen Personen des öffentlichen Rechts und öffentlich-rechtlichen Sondervermögen.

2. Vertragsabschluss; Vertragsunterlagen

- (1) Unsere Angebote sind freibleibend und unverbindlich, sofern sie nicht ausdrücklich als verbindlich gekennzeichnet sind. Die Bestellung der Ware durch den Besteller gilt als verbindliches Vertragsangebot. Sofern sich aus der Bestellung nichts anderes ergibt, sind wir berechtigt, dieses Vertragsangebot innerhalb einer Woche nach seinem Zugang bei uns anzunehmen. Während dieser Frist ist der Besteller an seine Bestellung gebunden. Der Vertrag gilt als geschlossen, wenn wir diesen bestätigt haben (Auftragsbestätigung). Sofortige Lieferung ersetzt die Auftragsbestätigung.
- (2) Der Besteller hat die Richtigkeit und Vollständigkeit unserer Auftragsbestätigung unverzüglich zu überprüfen und uns Abweichungen von seiner Bestellung unverzüglich mitzuteilen. Nimmt der Besteller unsere Lieferung bei Abweichungen gegenüber seiner Bestellung vorbehaltlos an, gelten die Abweichungen als durch den Besteller genehmigt.
- (3) Die in unseren Katalogen und Angeboten angegebenen Leistungsmerkmale, wie Abbildungen, Zeichnungen etc. sind nur als annähernd zu betrachten. Diese Informationen stellen insbesondere keine Garantien oder Zusicherungen dar und befreien den Besteller nicht von eigenen Prüfungen und Versuchen. Es gelten die in unseren Katalogen und Angeboten angegebenen Toleranzen.
- (4) Auch bei nach Zeichnungen, Spezifikationen, Mustern, Vorgaben und / oder sonstigen Unterlagen des Bestellers gefertigten Bauteilen, gelten die in unseren Katalogen und Angeboten zu diesen Bauteilen angegebenen Toleranzen.
- (5) Unsere Verkaufsgestellten sind nicht befugt, Nebenabreden zu treffen oder Zusicherungen zu geben, die über den Inhalt des schriftlichen Vertrags oder dieser AGB hinausgehen.
- (6) Der Besteller haftet für die Richtigkeit, Genauigkeit und Vollständigkeit der von ihm gelieferten Bestellsunterlagen und Bestellangaben, insbesondere in Zeichnungen sowie für technische Daten und Muster. Mündliche Angaben, auch über Änderungen sowie Ergänzungen der zur Verfügung gestellten Unterlagen und Daten bedürfen der schriftlichen Bestätigung.

3. Preise; Zahlungsbedingungen

- (1) Unsere Preise sind EURO-Preise. Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, gelten unsere Preise FCA ab unserem Werk in Porta-Westfalica (gemäß Incoterms® 2010 bzw. der aktuellen Fassung) zuzüglich der Verpackungskosten und der jeweils geltenden Mehrwertsteuer.
- (2) Unsere Preise schließen Aufstellungs-, Inbetriebnahme- und Montagekosten sowie Verpackung, Fracht, Porto und Versicherungskosten nicht ein.
- (3) Wir behalten uns das Recht vor, unsere Preise angemessen zu ändern, wenn bei Verträgen, bei denen zwischen Abschluss des Vertrages und Lieferung oder der letzten Teillieferung mehr als drei Monate liegen, von uns nicht zu vertretende Kostenerhöhungen oder Kostensenkungen, insbesondere aufgrund von Materialkosten, der Erhöhung von Rohstoffpreisen, Hilfsstoffpreisen, Löhnen und Gehältern, Fracht oder öffentlichen Abgaben, eintreten. Dabei werden wir Kostensenkungen und Kostenerhöhungen gegeneinander saldieren. Die Änderung dieser Kosten werden wir dem Besteller auf Verlangen nachweisen.
- (4) Über die Bestellung hinausgehende Lieferungen und Leistungen werden, nach Abstimmung mit dem Besteller, gesondert berechnet.
- (5) Zahlungen sind unbar und ohne jeden Abzug spesenfrei zu leisten. Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, sind unsere Rechnungen innerhalb von 30 Tagen ab Rechnungsdatum und Zugang der Rechnung zur Zahlung fällig. Soweit Vorkasse vereinbart ist, beginnt die Lieferfrist erst nach Eingang des vollständigen Rechnungsbetrages zu laufen.

- (6) Wir sind berechtigt, trotz anders lautender Bestimmungen des Bestellers, Zahlungen zunächst auf dessen ältere Schulden anzurechnen, und werden den Besteller über die Art der erfolgten Verrechnung informieren. Sind bereits Kosten und Zinsen entstanden, so sind wir berechtigt, die Zahlung zunächst auf die Kosten, dann auf die Zinsen und zuletzt auf die Hauptleistung anzurechnen.
- (7) Eine Zahlung gilt erst dann als erfolgt, wenn wir über den Betrag verfügen können.
- (8) Bei Zahlungsverzug des Bestellers gelten die gesetzlichen Regelungen in vollem Umfang.
- (9) Der Besteller ist nicht berechtigt, Zahlungen wegen Gegenansprüchen zurückzuhalten oder mit Gegenansprüchen aufzurechnen, es sei denn, dass diese von uns anerkannt, unbestritten oder rechtskräftig festgestellt sind. Gegenrechte des Bestellers aus demselben Vertrag wegen Mängeln, Nichtleistung und / oder unfertiger bzw. unvollständiger Leistung bleiben hiervon unberührt.

4. Serienlieferungen, Langfrist- und Abrufverträge

- (1) Unbefristete Verträge sind mit einer Frist von 3 Monaten zum Monatsende ordentlich kündbar, wenn nicht etwas anderes vereinbart ist.
- (2) Bei Lieferverträgen auf Abruf sind uns, wenn nichts anderes vereinbart ist, verbindliche Mengen mindestens 3 Monate vor dem Liefertermin durch Abruf mitzuteilen. Mehrkosten, die durch einen verspäteten Abruf oder nachträgliche Änderungen des Abrufs hinsichtlich der Zeit oder Menge durch den Besteller verursacht sind, gehen zu seinen Lasten.

5. Lieferfristen

- (1) Soweit nicht ausdrücklich etwas anderes vereinbart wird, sind Angaben zu Lieferzeiten nur annähernd. Eine Lieferfrist beginnt erst, wenn sämtliche Einzelheiten der Ausführung klargestellt und beide Teile über die Bedingungen des Auftrags einig sind. Vereinbarte Liefertermine werden entsprechend herausgeschoben. Jede Änderung der Leistung nach Bestellsannahme verlängert die Lieferfrist angemessen.
- (2) Die Einhaltung unserer Lieferverpflichtung setzt weiter die rechtzeitige und ordnungsgemäße Erfüllung der Verpflichtungen des Bestellers voraus. Die Einrede des nicht erfüllten Vertrages bleibt vorbehalten. Des Weiteren sind wir berechtigt, die Lieferung aufzuschieben, solange der Besteller fällige Zahlungsverpflichtungen aus vorangegangenen Lieferungen unberechtigterweise nicht erfüllt hat.
- (3) Werden wir an der rechtzeitigen Lieferung durch höhere Gewalt, von uns nicht zu vertretende Arbeitskämpfe, behördliche Maßnahmen, Energie- oder Rohstoffknappheit, Transportengpässe oder -hindernisse, Betriebsbehinderungen z.B. durch Feuer, Wasser und / oder Maschinenschaden oder andere von uns nicht zu vertretende Störungen im Betriebsablauf bei uns oder unseren Vorlieferanten / Subunternehmern, die nachweislich von erheblichem Einfluss sind, gehindert, sind wir verpflichtet, den Besteller unverzüglich zu informieren. In diesen Fällen sind wir berechtigt, die Lieferzeit um die Dauer des Ereignisses der höheren Gewalt oder der Störung hinauszuschieben, soweit wir unserer obenstehenden Informationsverpflichtung nachgekommen sind. Wird die Lieferung dadurch unmöglich, so entfällt unter Ausschluss von Schadenersatz unsere Lieferverpflichtung. Weist der Besteller nach, dass die nachträgliche Erfüllung infolge der Verzögerung für ihn ohne Interesse ist, kann er unter Ausschluss weitergehender Ansprüche vom Vertrag zurücktreten. Dauert das Ereignis höherer Gewalt oder der Störung länger als drei Monate an, so können wir hinsichtlich des noch nicht erfüllten Teils vom Vertrag zurücktreten, wenn wir unserer vorstehenden Informationsverpflichtung nachgekommen sind und soweit wir nicht das Beschaffungsrisiko oder eine Liefergarantie übernommen haben.
- (4) Ziffer 5 (3) gilt entsprechend, soweit wir vor Abschluss des Vertrages mit dem Besteller ein kongruentes Deckungsgeschäft abgeschlossen haben, das uns bei ordnungsgemäßer Durchführung die Erfüllung unserer vertraglichen Lieferverpflichten gegenüber dem Besteller ermöglicht hätte, und wir von unserem Lieferanten nicht, nicht richtig und/oder nicht rechtzeitig beliefert werden und wir dies nicht zu vertreten haben.
- (5) Geraten wir in Verzug, so ist der Besteller berechtigt, schriftlich eine angemessene Nachfrist zu setzen, und nach deren ergebnislosen Ablauf vom Vertrag zurückzutreten. Der Nachfristsetzung bedarf es nicht, wenn wir die Leistung ernsthaft und endgültig verweigern oder es sich bei dem zugrunde liegenden Vertrag um ein Fixgeschäft im Sinne von § 323 Abs. 2 Nr. 2 BGB oder § 376 HGB handelt oder besondere Umstände vorliegen, die unter Abwägung der beiderseitigen Interessen

den sofortigen Rücktritt rechtfertigen.

- (6) Auf Schadensersatz haften wir nur nach Maßgabe der Ziffer 10 dieser AGB. Für den Rücktritt gelten die gesetzlichen Bestimmungen.
- (7) Ist eine Abnahme vereinbart, hat die Abnahme bei uns unverzüglich nach gemeldeter Abnahmebereitschaft zu erfolgen, wenn nicht etwas anderes vereinbart ist. Die Kosten der Abnahme gehen zu Lasten des Bestellers.
- (8) Kommt der Besteller in Annahmeverzug oder wird die Lieferung aus Gründen, die der Besteller zu vertreten hat, verzögert, sind wir berechtigt, Ersatz des daraus entstehenden Schadens einschließlich Mehraufwendungen ersetzt zu verlangen. In diesen Fällen werden wir die Produkte auf Risiko des Bestellers lagern und dem Besteller die Lagerung in Rechnung stellen. Wir sind berechtigt, für die durch die Lagerung entstehenden Kosten pauschal 0,1 % des Nettovertragspreises pro beendetem Werktag, insgesamt aber nicht mehr als 5% des Nettovertragspreises, zu berechnen. Weitergehende Ansprüche behalten wir uns vor. Dem Besteller bleibt das Recht vorbehalten, nachzuweisen, dass uns gar kein oder ein wesentlich geringerer Schaden entstanden ist.
- (9) Teillieferungen bleiben vorbehalten, soweit diese dem Besteller unter Berücksichtigung seiner Interessen zumutbar sind.

6. Lieferung und Gefahrübergang

- (1) Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, erfolgt die Lieferung FCA ab unserem Werk in Porta Westfalica (gemäß Incoterms® 2010 oder der jeweils geltenden Fassung). Dies gilt auch dann, wenn wir ausnahmsweise die Transportkosten übernommen oder für den Besteller verauslagt haben.
- (2) Sofern Versendung vereinbart wurde, geht die Gefahr des zufälligen Untergangs und der zufälligen Verschlechterung der Sache auf den Besteller über, wenn wir die Sache an den Spediteur, Frachtführer oder sonst zur Ausführung der Versendung bestimmten Dritten übergeben haben. Dies gilt auch dann, wenn die Lieferung durch unsere eigenen Fahrzeuge erfolgt oder wir die Transportkosten übernommen oder für den Besteller verauslagt haben. Verzögert sich Lieferung aus Gründen, dessen Ursache beim Besteller liegt, geht die Gefahr von dem Tag an auf den Besteller über, an dem die Ware versandbereit ist und wir dies dem Besteller angezeigt haben.
- (3) Soweit nichts anderes vereinbart ist, steht die Verpackung in unserem pflichtgemäßen Ermessen. Die Kosten der Verpackung trägt der Besteller. Die Transportkisten unserer Standardverpackung sind nicht für eine Stapelverstaung ausgelegt. Eine besondere Verpackung (etwa eine zusätzliche Transportverstärkung, welche ein max. doppelstöckiges Stapeln der Transportkisten erlaubt) erfolgt nur nach besonderer Vereinbarung und / oder auf Wunsch des Bestellers (den dieser spätestens in seiner Bestellung anzugeben hat).
- (4) Soweit der Besteller nicht rechtzeitig erklärt, wie die Versendung der Ware erfolgen soll, werden wir einen Beförderungsvertrag mit einem Spediteur auf Kosten des Bestellers schließen. In diesem Fall steht die Wahl des Transportwegs und der Versandart in unserem Ermessen, es sei denn, es wurde etwas anderes vereinbart. Soweit der Besteller eine Transportversicherung wünscht, hat er uns darauf hinzuweisen; diese wird dann durch uns nach pflichtgemäßem Ermessen zu Gunsten des Bestellers abgeschlossen. Die insoweit anfallenden Kosten trägt der Besteller, auch wenn wir ansonsten ausnahmsweise die Transportkosten übernommen haben.
- (5) Transportverpackungen nehmen wir an unserem Geschäftssitz innerhalb der üblichen Geschäftszeiten zurück.

7. Eigentumsvorbehalt

- (1) Wir behalten uns das Eigentum an den gelieferten Waren bis zum Eingang aller Zahlungen aus der Geschäftsverbindung mit dem Besteller vor.
- (2) Die Vorbehaltsware darf vom Besteller ohne unsere ausdrückliche schriftliche Zustimmung vor vollständiger Bezahlung der gesicherten Forderungen weder an Dritte verpfändet noch zur Sicherheit übereignet werden. Bei Pfändungen oder sonstigen Eingriffen Dritter hat uns der Besteller unverzüglich schriftlich zu benachrichtigen. Soweit wir gegen den Dritten klagen, die Klage erfolgreich war und der Dritte nicht in der Lage ist, uns die gerichtlichen oder außergerichtlichen Kosten einer Klage zu erstatten, haftet der Besteller für die uns entstandenen Kosten.
- (3) Bei vertragswidrigem Verhalten des Bestellers – insbesondere Zahlungsverzug – sind wir berechtigt, nach den gesetzlichen Vorschriften vom Vertrag zurückzutreten und die Vorbehaltsware heraus zu verlangen.

- (4) Der Besteller ist bis zur vollständigen Bezahlung der Vorbehaltsware verpflichtet, uns jederzeit über den Standort der Vorbehaltsware informiert zu halten.
- (5) Der Besteller ist berechtigt, die gelieferten Waren im ordentlichen Geschäftsgang weiter zu verkaufen; er tritt uns jedoch bereits jetzt alle Forderungen in Höhe des Faktura-Endbetrages (einschließlich MwSt.) unserer Forderungen ab, die ihm aus der Weiterveräußerung gegen seine Abnehmer oder Dritte erwachsen, und zwar unabhängig davon, ob die Kaufsache ohne oder nach Verarbeitung weiter verkauft worden ist. Zur Einziehung dieser Forderung bleibt der Besteller auch nach der Abtretung ermächtigt. Unsere Befugnis, die Forderung selbst einzuziehen, bleibt hiervon unberührt. Wir verpflichten uns jedoch, die Forderung nicht einzuziehen, solange keine Wechsel- und Scheckproteste vorkommen, der Besteller seinen Zahlungsverpflichtungen aus den vereinnahmten Erlösen nachkommt, nicht in Zahlungsverzug ist und kein Antrag auf Eröffnung des Insolvenzverfahrens über sein Vermögen gestellt ist. Ist dies aber der Fall, können wir verlangen, dass der Besteller uns die abgetretenen Forderungen und deren Schuldner bekannt gibt, alle zum Einzug erforderlichen Angaben macht, die dazugehörigen Unterlagen aushändigt und den Schuldner (Dritten) die Abtretung mitteilt.
- (6) Die Verarbeitung oder Umbildung der von uns gelieferten Vorbehaltsware durch den Besteller wird stets für uns vorgenommen. Wird die von uns gelieferte Vorbehaltsware mit anderen, uns nicht gehörenden Gegenständen / Stoffen verarbeitet, so erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes der Vorbehaltsware zu den anderen verarbeiteten Gegenständen / Stoffen zur Zeit der Verarbeitung. Für die durch Verarbeitung entstehende Sache gilt im Übrigen das gleiche wie für die unter Vorbehalt gelieferte Ware.
- (7) Wird die von uns gelieferte Vorbehaltsware mit anderen, uns nicht gehörenden Gegenständen / Stoffen untrennbar vermischt oder dergestalt verbunden, dass sie wesentliche Bestandteile einer einheitlichen Sache werden, so erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes der Vorbehaltsware zu den anderen vermischten oder verbundenen Gegenständen / Stoffen zum Zeitpunkt der Verbindung oder Vermischung. Erfolgt die Verbindung oder Vermischung in der Weise, dass die Sache des Bestellers als Hauptsache anzusehen ist, so gilt bereits jetzt als vereinbart, dass der Besteller uns anteilmäßig Miteigentum überträgt. Der Besteller verwahrt das so entstandene Miteigentum für uns. Für die durch Verbindung oder Vermischung entstandene Sache gilt im Übrigen das Gleiche wie für die unter Vorbehalt gelieferte Ware.
- (8) Der Besteller ist verpflichtet, die Vorbehaltsware pfleglich zu behandeln. Er ist verpflichtet, diese auf eigene Kosten ausreichend zum Neuwert zu versichern, insbesondere gegen Feuer, Wasserschäden und Diebstahl. Sofern Wartungs- und Inspektionsarbeiten erforderlich sind, muss der Besteller diese auf eigene Kosten rechtzeitig durchführen.
- (9) Für den Fall des Untergangs oder der Beschädigung der Vorbehaltsware tritt der Besteller in diesem Zusammenhang bestehende etwaige Ansprüche auf Versicherungsleistungen in Höhe des Faktura-Endbetrages (einschließlich Mehrwertsteuer) unserer Forderungen in Ansehung des Liefergegenstandes als zusätzliche Sicherheit im Voraus an uns ab.
- (10) Sind bei Lieferungen in das Ausland im Einfuhrstaat zur Wirksamkeit des vorstehend geregelten Eigentumsvorbehalts oder der in den vorangegangenen Absätzen bezeichneten sonstigen Rechte unsererseits bestimmte Maßnahmen und / oder Erklärungen durch den Besteller erforderlich, so hat der Besteller uns hierauf schriftlich oder in Textform unverzüglich hinzuweisen und diese Maßnahmen und / oder Erklärungen auf seine eigenen Kosten unverzüglich durchzuführen bzw. abzugeben. Lässt das Recht des Einfuhrstaates einen Eigentumsvorbehalt nicht zu, ist der Besteller verpflichtet, uns auf seine Kosten unverzüglich andere geeignete Sicherheiten an der gelieferten Ware oder sonstige Sicherheiten nach billigem Ermessen (§ 315 BGB) zu verschaffen.
- (11) Wir verpflichten uns, die uns zustehenden Sicherheiten auf Verlangen des Bestellers insoweit freizugeben, als der realisierbare Wert unserer Sicherheiten die zu sichernden Forderungen um mehr als 10 % übersteigt; die Auswahl der freizugebenden Sicherheiten obliegt uns.

8. Eigentumserwerb durch Be- oder Verarbeitung uns zur Verfügung gestellter Gegenstände

- (1) Übergibt uns der Besteller einen Gegenstand zur Be- oder Verarbeitung oder zur Reparatur und bleibt der Besteller auch nach der Be- oder Verarbeitung oder Reparatur Alleineigentümer des be- oder verarbeiteten bzw. reparierten Gegenstands, so gilt bereits jetzt als vereinbart, dass der Besteller uns anteilmäßig Miteigentum



im Verhältnis des Wertes unserer Be- oder Verarbeitung oder Reparatur (Faktura-Endbetrag, einschließlich MwSt.) zum Wert des zur Verfügung gestellten Gegenstandes überträgt.

- (2) Wird der Gegenstand bei der Be- oder Verarbeitung oder Reparatur mit uns gehörenden Gegenständen / Stoffen vermischt oder dergestalt verbunden, dass sie wesentliche Bestandteile einer einheitlichen Sache werden, so erwerben wir das Miteigentum an der neuen Sache im Verhältnis des Wertes unserer Gegenstände / Stoffe zu dem Wert des zur Verfügung gestellten Gegenstandes des Bestellers zum Zeitpunkt der Verbindung oder Vermischung.
- (3) Erfolgt die Verbindung oder Vermischung in der Weise, dass die Sache des Bestellers als Hauptsache anzusehen ist, so gilt bereits jetzt als vereinbart, dass der Besteller uns anteilmäßig Miteigentum im Verhältnis des Wertes unserer Be- oder Verarbeitung bzw. unserer Reparatur (Faktura-Endbetrag, einschließlich MwSt.) zum Wert des zur Verfügung gestellten Gegenstandes zum Zeitpunkt der Verbindung oder Vermischung überträgt.
- (4) Für Sachen des Bestellers, an denen wir nach den vorstehenden Bedingungen Miteigentum erworben haben, gelten insoweit die Bestimmungen der Ziffer 7 dieser AGB entsprechend. Zur Klarstellung: Wir übertragen das nach den vorstehenden Bedingungen erworbene Miteigentum an den Besteller mit Lieferung der Sache gemäß den Regelungen in Ziffer 7 dieser AGB.

9. Gewährleistung – Haftung für Pflichtverletzungen

- (1) Für die Rechte des Bestellers bei Sach- und Rechtsmängeln (einschließlich Falsch- und Minderlieferung) gelten die gesetzlichen Bestimmungen, wenn nachfolgend nichts anderes bestimmt ist.
- (2) Bei der Endlieferung der Ware an einen Verbraucher (Verbrauchsgüterkauf im Sinne des § 474 BGB), bleiben die gesetzlichen Sondervorschriften der §§ 445a, 445b, 478 Abs. 1 BGB immer unberührt. In allen anderen Fällen, finden die Sondervorschriften zum Lieferantenregress keine Anwendung.
- (3) Sofern wir nach Zeichnungen, Spezifikationen, Mustern, Vorgaben und / oder sonstigen Unterlagen des Bestellers leisten, trägt dieser das Risiko der Eignung für den vorgesehenen Verwendungszweck.
- (4) Bearbeiten wir Teile des Bestellers in dessen Auftrag, ist der Besteller verpflichtet, zu prüfen, ob sich die Teile für die gewünschte Bearbeitung eignen. Führt eine Bearbeitung von Teilen, die der Besteller an uns sendet, aus Gründen, die wir nicht zu vertreten haben, nicht zum Erfolg, übernehmen wir für etwaige Schäden des Bestellers keine Haftung. Darüber hinaus sind uns die für die Bearbeitung bereits angefallenen Kosten zu ersetzen. Gegebenenfalls erforderliche Nacharbeiten werden wir dem Besteller in Rechnung stellen.
- (5) Die Gewährleistungsrechte des Bestellers setzen voraus, dass dieser seinen nach § 377 HGB geschuldeten Untersuchungs- und Rügeobliegenheiten ordnungsgemäß nachgekommen ist. Handelt es sich bei dem Vertragsverhältnis zwischen uns und dem Besteller um einen Werkvertrag, findet § 377 HGB entsprechende Anwendung. Mängelrügen sind schriftlich an unsere Kundendienstleitung zu richten.
- (6) Wurde mit dem Besteller eine Abnahme oder eine Erstmusterprüfung vereinbart, ist die Rüge von Mängeln ausgeschlossen, die der Besteller bei sorgfältiger Abnahme oder Erstmusterprüfung hätte feststellen können.
- (7) Uns ist Gelegenheit zu geben, einen gerügten Mangel an Ort und Stelle zu überprüfen.
- (8) Werden unsere Betriebs- oder Wartungsanweisungen nicht befolgt, eigenmächtige Änderungen an den Produkten vorgenommen und / oder Teile ausgewechselt, so bestehen für die daraus entstehenden Folgen keine Gewährleistungsansprüche. Dies gilt auch bei fehlerhaftem Einbau oder Aufbau, schlechter Instandhaltung, fehlerhafter Behandlung oder Lagerung, für von uns nicht ausgeführte unsachgemäße Reparaturen, Änderungen sowie von uns nicht zu vertretende chemische, elektrochemische oder elektrische Einflüsse sowie Witterungs- oder anderen Naturreinflüsse.
- (9) Ist die gelieferte Ware oder das hergestellte Werk mangelhaft, so stehen dem Besteller die gesetzlichen Rechte nach folgender Maßgabe zu:
 - a) Wir sind zunächst berechtigt, nach unserer Wahl entweder den Mangel zu beseitigen oder dem Besteller mangelfreie Ware zu liefern bzw. im Falle eines Werkvertrages ein neues Werk herzustellen (Nacherfüllung). Der Besteller hat uns hierfür die zur Nacherfüllung erforderliche Zeit und Gelegenheit zu geben. Unser Recht, die Nacherfüllung unter den gesetzlichen Voraussetzungen zu verweigern, bleibt

unberührt.

- b) Die zum Zweck der Nacherfüllung erforderlichen Aufwendungen, insbesondere Transport-, Wege-, Arbeits- und Materialkosten, tragen wir, wenn tatsächlich ein Mangel vorliegt. Stellt sich das Mängelbeseitigungsverlangen des Bestellers als unberechtigt heraus, können wir die hieraus entstandenen Kosten vom Besteller ersetzt verlangen. Die Nacherfüllung beinhaltet weder die Aufwendungen für den Ausbau der mangelhaften Sache noch die für den erneuten Einbau, wenn der Besteller den Mangel beim Einbau bereits kannte oder der Einbau nicht bestimmungsgemäß erfolgte. Dies gilt auch dann, wenn der Besteller den Mangel vor dem Einbau grob fahrlässig nicht erkannt hat, es sei denn wir haben den Mangel arglistig verschwiegen oder eine Garantie übernommen.
 - c) Im Falle der Ersatzlieferung bzw. Neuherstellung bei Werkverträgen hat uns der Besteller die mangelhafte Ware auf unser Verlangen zurückzugeben.
 - d) Wir sind berechtigt, die Nacherfüllung davon abhängig zu machen, dass der Besteller den für die gelieferte Ware vereinbarten Preis bezahlt. Der Besteller ist jedoch berechtigt, einen angemessenen Teil des Preises zurückzuhalten.
 - e) Schlägt die Nacherfüllung fehl, so ist der Besteller nach seiner Wahl berechtigt, vom Vertrag zurückzutreten oder eine Minderung des vereinbarten Preises zu verlangen. Bei einem unerheblichen Mangel besteht jedoch kein Rücktrittsrecht.
 - f) Ansprüche des Bestellers auf Schadensersatz bzw. Ersatz vergeblicher Aufwendungen bestehen nur nach Maßgabe von Ziffer 10 dieser AGB.
- (10) Für die Verjährungsfristen gilt Ziffer 11 dieser AGB.

10. Haftungsausschlüsse und –begrenzungen

- (1) Vorbehaltlich der Regelung der Ziffer 10 (2) haften wir auf Schadensersatz – bei vertraglichen, außervertraglichen oder sonstigen Schadensersatzansprüchen, gleich aus welchem Rechtsgrund, insbesondere wegen Mängeln, Verzug und Unmöglichkeit, Verschulden bei Vertragsverhandlungen und Delikt – nur bei Vorsatz und / oder grober Fahrlässigkeit, ein-schließlich Vorsatz und / oder grober Fahrlässigkeit unserer Vertreter oder Erfüllungsgehilfen. Darüber hinaus haften wir auch bei einfacher Fahrlässigkeit, einschließlich einfacher Fahrlässigkeit unserer Vertreter und Erfüllungsgehilfen, für Schäden aus der Verletzung einer wesentlichen Vertragspflicht, d.h. einer Pflicht, deren Erfüllung die ordnungsgemäße Durchführung des Vertrages erst ermöglicht und auf deren Erfüllung der Besteller daher regelmäßig vertrauen darf (Kardinalpflicht). Soweit uns keine vorsätzliche Pflichtverletzung angelastet wird, ist die Schadensersatzhaftung jedoch auf den vorhersehbaren, typischerweise eintretenden Schaden begrenzt.
- (2) Von den in Ziffer 10 (1) geregelten Haftungsausschlüssen und -beschränkungen unberührt bleiben Ansprüche für Schäden aus der Verletzung des Lebens, des Körpers und der Gesundheit sowie Ansprüche des Bestellers nach dem Produkthaftungsgesetz, den gesetzlichen Sondervorschriften bei Endlieferung der Ware an einen Verbraucher und anderen zwingenden gesetzlichen Haftungsregelungen. Die vorstehenden Haftungsausschlüsse bzw. -beschränkungen gelten außerdem nicht, soweit wir einen Mangel arglistig verschwiegen haben oder soweit wir aus der Übernahme einer Garantie oder wegen der Übernahme des Beschaffungsrisikos haften.
- (3) Die Ziffern 10 (1) bis 10 (2) gelten auch, wenn der Besteller anstelle eines Anspruchs auf Ersatz des Schadens statt der Leistung Ersatz nutzloser Aufwendungen verlangt.
- (4) Soweit die Schadensersatzhaftung uns gegenüber ausgeschlossen oder eingeschränkt ist, gilt dies auch im Hinblick auf die persönliche Schadensersatzhaftung unserer Angestellten, Arbeitnehmer, Mitarbeiter, Vertreter und Erfüllungsgehilfen, die auf demselben Rechtsgrund beruhen.

11. Verjährung

- (1) Ansprüche des Bestellers aus Sach- und Rechtsmängeln verjähren innerhalb von 12 Monaten ab Ablieferung der Ware.
- (2) Zwingende Verjährungsvorschriften bleiben unberührt. Die in Ziffer 11 (1) genannte Verjährungserleichterung gilt nicht für Ansprüche wegen der Verletzung von Leben, Körper oder Gesundheit, für Ansprüche aufgrund von Vorsatz und / oder grober Fahrlässigkeit und für Ansprüche aufgrund der Übernahme einer Garantie oder der Übernahme des Beschaffungsrisikos. Unberührt bleiben auch die längeren Verjährungsfristen nach § 438 Abs. 1 Nr. 1 BGB (dingliche Rechte eines Dritten), §§ 438 Abs. 1 Nr. 2, 634a Abs. 1 Nr. 2 BGB (Bauwerke, Baustoffe und Bauteile sowie Planungsleistungen für ein Bauwerk), §§ 438 Abs. 3, 634a Abs. 3

BGB (Arglist). Ist der letzte Vertrag in der Lieferkette ein Verbrauchsgüterkauf i.S.d. § 474 BGB (d.h. bei Endlieferung der Ware an einen Verbraucher), bleiben auch die Verjährungsfristen gemäß § 445b BGB unberührt.

- (3) Die sich nach den Ziffern 11 (1) und 11 (2) für Ansprüche wegen Sach- und Rechtsmängeln ergebenden Verjährungsfristen gelten entsprechend für konkurrierende vertragliche und außervertragliche Schadensersatzansprüche des Bestellers, die auf einem Mangel der Vertragsware beruhen. Wenn jedoch im Einzelfall die Anwendung der gesetzlichen Verjährungsregeln zu einer früheren Verjährung der konkurrierenden Ansprüche führen sollte, gilt für die konkurrierenden Ansprüche die gesetzliche Verjährungsfrist. Die gesetzlichen Verjährungsfristen nach dem Produkthaftungsgesetz bleiben in jedem Fall unberührt.
- (4) Soweit gemäß Ziffer 11 (1) bis 11 (3) die Verjährung von Ansprüchen uns gegenüber verkürzt wird, gilt diese Verkürzung entsprechend für etwaige Ansprüche des Bestellers gegen unsere gesetzlichen Vertreter, Angestellten, Mitarbeiter, Beauftragten sowie Verrichtungs- und Erfüllungsgehilfen, die auf demselben Rechtsgrund beruhen.

12. Rücktritts- / Kündigungsrechte

- (1) Wegen einer Pflichtverletzung unsererseits, die nicht in einem Mangel besteht, ist der Besteller nur dann berechtigt, vom Vertrag zurückzutreten, wenn wir die Pflichtverletzung zu vertreten haben.
- (2) Handelt es sich bei dem Vertrag um einen Werkvertrag oder einen Werklieferungsvertrag über bewegliche, nicht vertretbare Sachen, ist das freie Kündigungsrecht des Bestellers (§§ 651, 649 BGB) ausgeschlossen.

13. Schutz- und Urheberrechte

- (1) Sofern nichts anderes vereinbart ist, sind wir verpflichtet, die Lieferung lediglich im Land des Lieferortes frei von gewerblichen Schutzrechten und Urheberrechten Dritter – nachfolgend Schutzrechte genannt – zu erbringen.
- (2) Sofern ein Dritter wegen der Verletzung von Schutzrechten durch von uns erbrachte, vertragsgemäß genutzte Lieferungen gegen den Besteller berechnete Ansprüche erhebt, haften wir gegenüber dem Besteller wie folgt: Wir werden nach unserer Wahl und auf unsere Kosten für die betreffenden Lieferungen entweder ein Nutzungsrecht erwirken, sie so ändern, dass das Schutzrecht nicht verletzt wird oder austauschen. Ist uns dies nicht zu angemessenen Bedingungen möglich, stehen dem Besteller die gesetzlichen Rücktritts- oder Minderungsrechte nach Maßgabe von Ziffer 8 dieser AGB zu. Unsere Schadensersatzpflicht richtet sich nach Ziff. 10 dieser AGB, die Verjährung nach Ziffer 11 dieser AGB. Die vorstehend genannten Verpflichtungen bestehen für uns nur, soweit der Besteller uns über die vom Dritten geltend gemachten Ansprüche unverzüglich schriftlich verständigt.
- (3) Ansprüche des Bestellers bestehen nicht, soweit er selbst die Schutzrechtsverletzung zu vertreten hat. Ansprüche des Bestellers sind insbesondere ausgeschlossen, soweit die Schutzrechtsverletzung auf speziellen Vorgaben des Bestellers beruht, durch eine von uns nicht voraussehbare Anwendung oder dadurch verursacht wird, dass die Lieferung vom Besteller verändert oder zusammen mit nicht von uns gelieferten Produkten eingesetzt wird und wir die Schutzrechtsverletzung nicht zu vertreten haben.

14. Geheimhaltung

An unseren Abbildungen, Zeichnungen, Kalkulationen und sonstigen Unterlagen behalten wir uns Eigentums- und Urheberrechte vor. Dies gilt auch für solche schriftlichen Unterlagen, die als „vertraulich“ bezeichnet sind. Vor ihrer Weitergabe an Dritte bedarf der Besteller unserer ausdrücklichen schriftlichen Zustimmung. Er hat auf unser Verlangen diese Unterlagen vollständig an uns, einschließlich etwaiger Kopien, zurückzugeben, wenn sie von ihm im ordnungsgemäßen Geschäftsgang nicht mehr benötigt werden oder wenn Verhandlungen nicht zum Abschluss eines Vertrages führen.

15. Kommunikation mit dem Besteller

- (1) Wir verarbeiten personenbezogene Daten, die wir im Rahmen von Lieferungen, Leistungen und Angeboten erheben, ausschließlich unter Einhaltung der anwendbaren datenschutzrechtlichen Vorgaben. Informationen nach Maßgabe der Artikel 13, 14 Datenschutzgrundverordnung (EU) Nr. 2016/679 über diese Verarbeitung personenbezogener Daten sind abrufbar unter <https://www.jacob-rohre.de/datenschutzhinweis/>.

- (2) Der Besteller ist im Fall einer Übermittlung von personenbezogenen Daten an uns verpflichtet, die betroffenen Personen rechtzeitig nach Maßgabe des Artikel 14 Datenschutzgrundverordnung (EU) Nr. 2016/679 über die Datenverarbeitung durch uns zu informieren; wir sehen von einer Information der betroffenen Person ab.

16. Schlussbestimmungen

- (1) Eine Übertragung der Vertragsrechte und -pflichten auf Dritte durch den Besteller ist nur mit unserem schriftlichem Einverständnis zulässig. Dies gilt nicht, soweit die Übertragung auf ein verbundenes Unternehmen im Sinne des § 15 Aktiengesetz erfolgt.
- (2) Sofern sich aus der Auftragsbestätigung nichts anderes ergibt, ist Erfüllungsort für Lieferungen und Zahlungen unser Geschäftssitz in Porta/Westfalica.
- (3) Für das Vertragsverhältnis gilt das Recht der Bundesrepublik Deutschland. Die Anwendung des UN-Kaufrechts (CISG -Convention on Contracts for the International Sale of Goods) ist ausgeschlossen.
- (4) Sofern der Besteller Kaufmann, juristische Person des öffentlichen Rechts oder öffentlich-rechtliches Sondervermögen ist, ist der Gerichtsstand für alle sich aus dem Vertragsverhältnis ergebenden Streitigkeiten einschließlich Scheck-, Wechsel- und Urkundenprozessen der für unseren Firmensitz, Porta Westfalica, zuständige Gerichtsort. Wir sind jedoch berechtigt, den Käufer auch an seinem Wohnsitzgericht zu verklagen.
- (5) Bei Abweichungen zwischen der deutschen und einer übersetzten Fassung dieser AGB, hat stets die deutsche Fassung Vorrang.
- (6) Sollte eine Bestimmung in diesen AGB oder eine Bestimmung im Rahmen sonstiger Vereinbarungen unwirksam sein oder werden, so wird hiervon die Wirksamkeit aller sonstigen Bestimmungen oder Vereinbarungen nicht berührt.

Alle Marken, Produktbezeichnungen und Logos gehören ausschließlich den jeweiligen Inhabern. Die Verwendung von Unternehmens- und Produktbezeichnungen sowie Marken in diesem Katalog erfolgt ausschließlich zur Identifizierung der jeweiligen Produkte bzw. Unternehmen.

- RHINO HYDE ist zugunsten der Tandem Products Inc. in den USA und/oder anderen Ländern als Marke eingetragen.
- KRYPTANE und BLUE OX sind zugunsten der Argonic Inc. in den USA und/oder anderen Ländern als Marke eingetragen.
- FESTO ist zugunsten der Festo AG & Co. KG in den USA und/oder anderen Ländern als Marke eingetragen.
- AIR TORQUE ist zugunsten der Air Torque S.P.A. in verschiedenen Ländern als Marke eingetragen.

Die oben genannten Marken können auch als nicht registrierte Zeichen in den USA und/oder anderen Ländern geschützt sein. Alle anderen in diesem Katalog genannten Marken sind zugunsten der jeweiligen Inhaber geschützt.



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FR. JACOB SÖHNE GMBH & CO. KG

Niedernfeldweg 14
32457 Porta Westfalica
Germany
www.jacob-group.de

SALES GERMANY

T +49 571 9558-200
vertrieb@jacob-rohre.de
www.jacob-shop.com

INTERNATIONAL SALES

T +49 571 9558-201
sales@jacob-rohre.de

JACOB DOSATEC SARL

7, rue Louis Armand
95600 Eaubonne
France
T +33 1 39594758
infos@jacob-dosatec.fr

JACOB (UK) LIMITED

Unit 2, Laundry Bank
Church Stretton SY6 6PH
United Kingdom
T +44 1694 722841
sales@jacob-uk.com

EUROTUBI S.R.L.

Via Bassa, 27
46020 Borgocarbonara (Mantova)
Italy
T +39 0386 41997
info@eurotubi.it

JACOB TUBING L.P.

3948 Willow Lake Blvd.
Memphis, TN 38118
USA
T +1 901 5661110
info@jacob-tubing.com

JACOB-SYSTEMS S.R.O.

Vavreckova 7074
760 01 Zlin
Czech Republic
T +420 721 936 860
info@jacob-group.cz