



JACOB

NO.1 IN PIPEWORK SYSTEMS

THE CATALOGUE

**NEW
PRODUCTS
ON
PAGE 7**





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

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

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

1	GENERAL INFORMATION	5	
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... backwards and forwards

Navigating the chapters is easy and intuitive.

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

The chapter section symbols to the right can be clicked on, allowing easy navigation within a chapter.



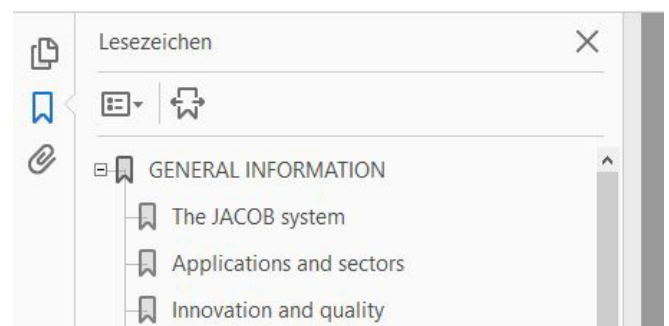
GENERAL INFORMATION

The JACOB system

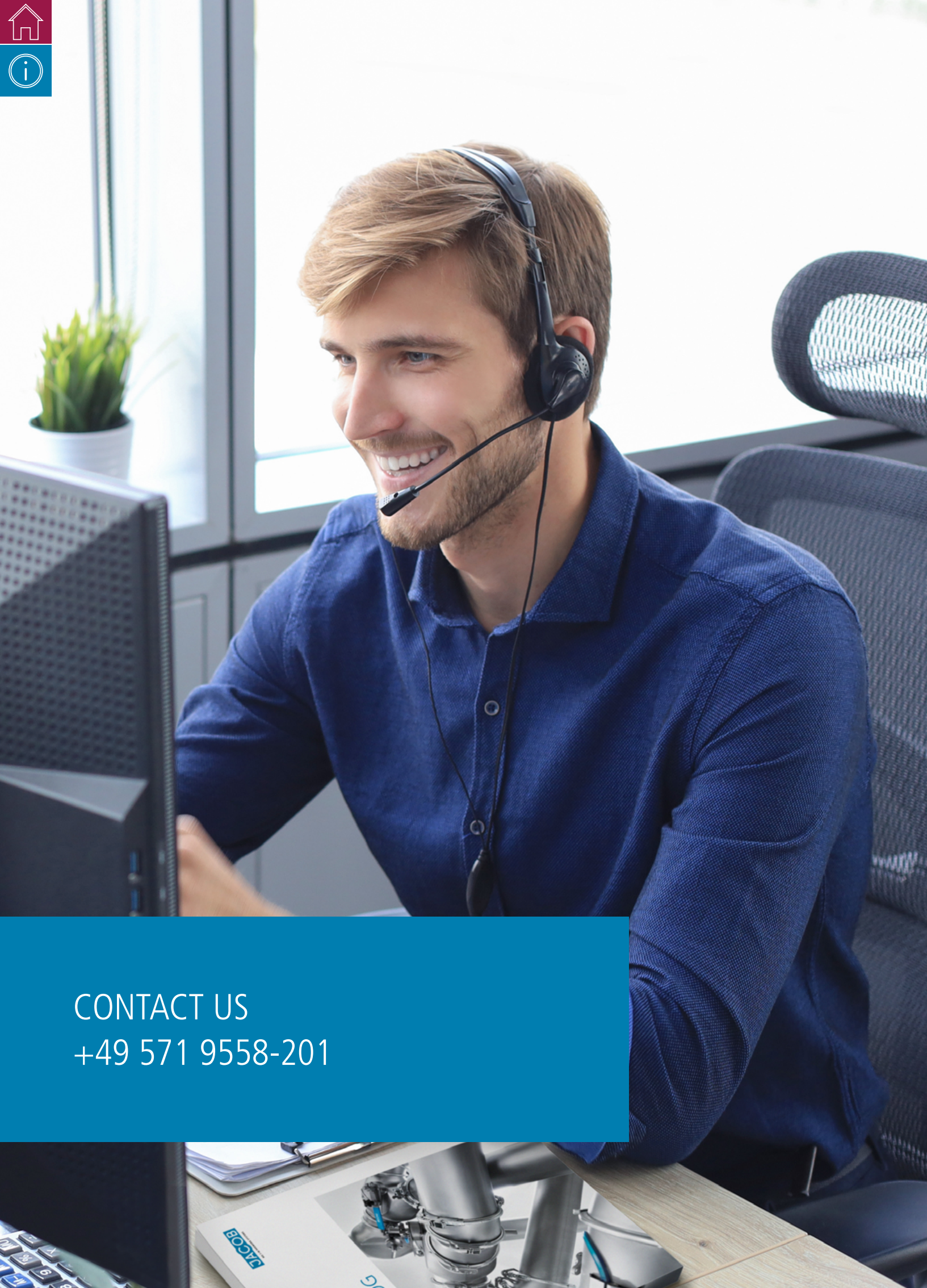


... using bookmarks

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







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.



LINKEDIN

Stay up to date: Our LINKEDIN 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.



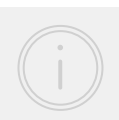
NO.1 IN PIPEWORK SYSTEMS



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



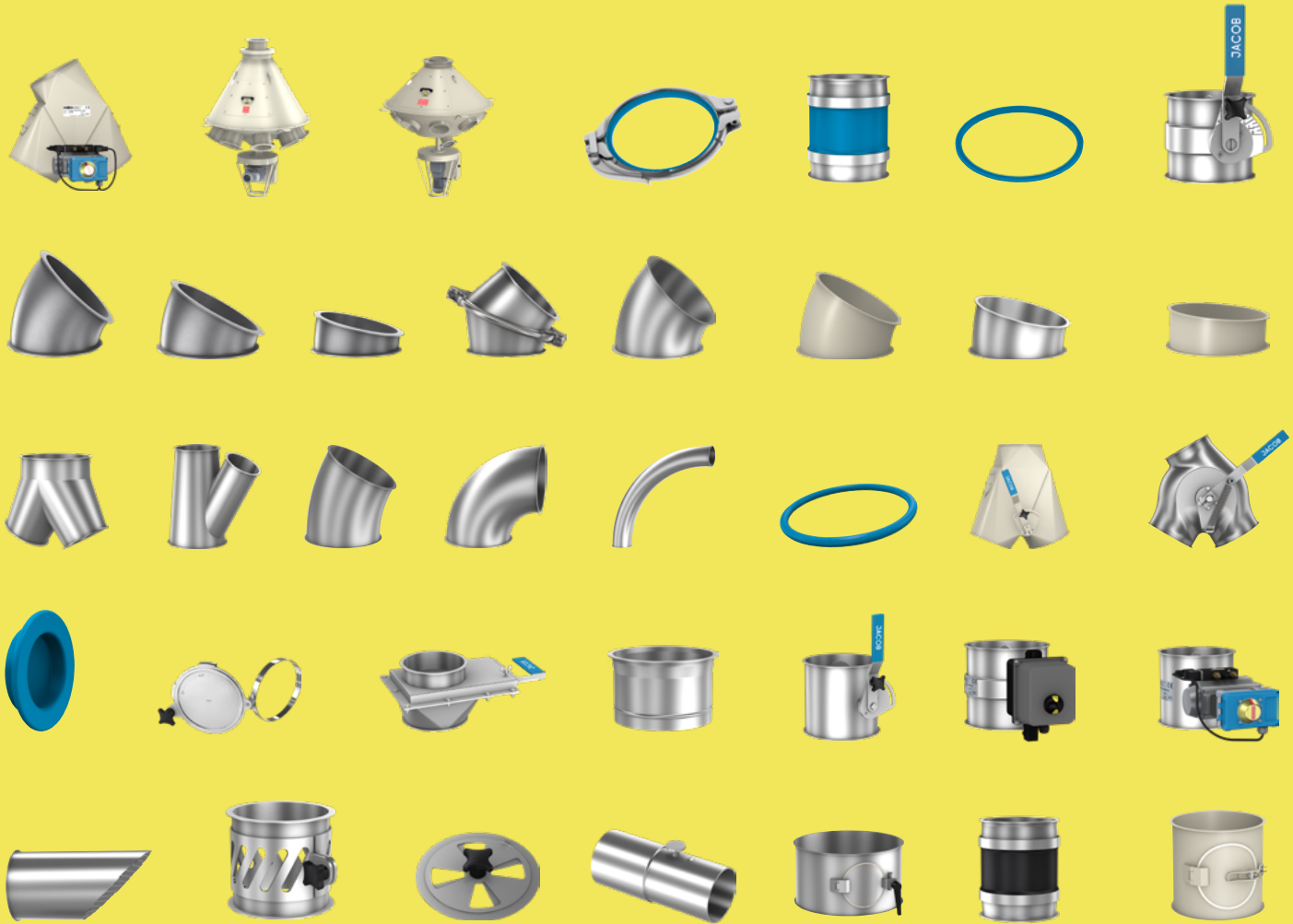
GENERAL INFORMATION

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GENERAL INFORMATION

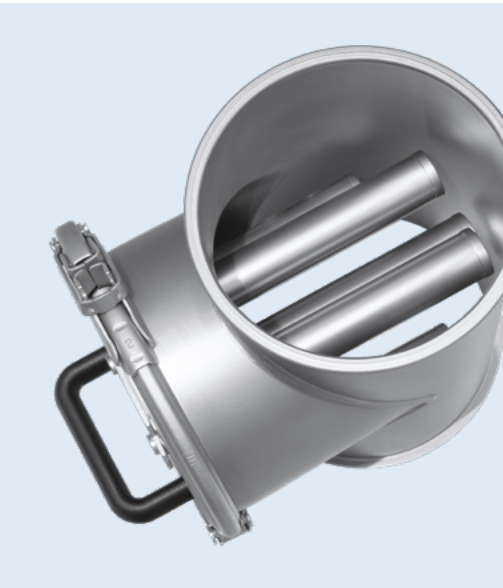
The JACOB system



JACOB DIVERSITY

- More than 8,500 different standard parts
- Diameter 60 – 1600 mm
- Wall thicknesses from 1 to 3 mm
- Stainless steel, blasted
- Mild steel: powder-coated or hot-dip galvanised





MAGNETIC SEPARATOR – THE INTELLIGENT SAFETY SOLUTION

Removes ferrous impurities quickly and easily from free-flowing bulk goods and exhaust air with low delivery pressure. Suitable for all sectors where ferrous metals need to be removed from the product flow.

- **Strong magnets** – up to nine neodymium rod magnets with 10,000 G remove even the smallest iron particles.
- **Easy to clean** – simply remove the magnets from the casing, and all the iron parts and particles fall off the casing.
- **Improved food safety** – combine the magnetic separator with seals from JACOB's DETECTABLE DESIGN series of products.

For the product specification, [see page 113](#)



JACOB AND BFM® – A PERFECT FIT!

The modular BFM® compensator made of highly resistant polyurethane absorbs oscillations and vibrations. It can be optimally combined with JACOB's tried-and-tested pull-ring system. Neither welding nor tools are required for the installation.

- **Connectors can be replaced thanks to the modular design**
- **Quick assembly and disassembly for maintenance and cleaning**
- **Suitable for foodstuffs:** Complies with FDA and EC 1935/2004

For product specification, [see page 87](#)



JACBOX – MOBILE FLANGING, FLEXIBLE AND SIMPLE

With the JacBox at your disposal, you now have a professional mobile solution that allows you to quickly and easily produce lipped ends on site, and to JACOB's quality standard.

- **No re-tooling** – pipes from 80 to 315 mm in diameter can be flanged
- **Comfortable mobility** – castors and ergonomic handles for easy manoeuvring
- **Easy power supply** – can be operated from a standard household socket
- **Efficient ergonomics** – it only takes one person to flange the pipes
- **Highest quality** – produces lipped ends to JACOB's recognised standard.

For further information, go to <https://www.jacob-group.com/uk/products/jacbox/>

All the new products
at a glance:





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 website

[WEBSITE: WWW.JACOB-GROUP.COM](http://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
- S235JR (1.0038) to DIN EN 10025

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.

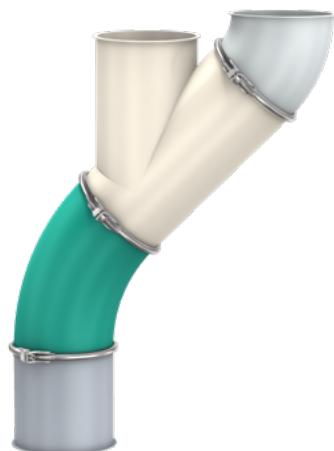
Available on request

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: 25%
- 2 mm pipework: 21%
- 3 mm pipework: 19%

Extra costs for final outside paint topcoat > DN 630 mm and for multi-way distributors, cyclones and silencers 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:

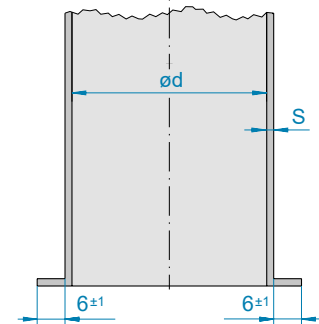
- Pipe diameter and roundness – DIN EN 10296-1
- Lengths – DIN ISO 2768-1 – tolerance class V
- Angle tolerance $\pm 1^\circ$
- The wall thickness of drawn or ground partial areas may differ
- JACOB flanges similar to DIN 24154-2 (see chapter 11, page 227, for JACOB flange dimensions)
- Internal diameter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

The JACOB flange system

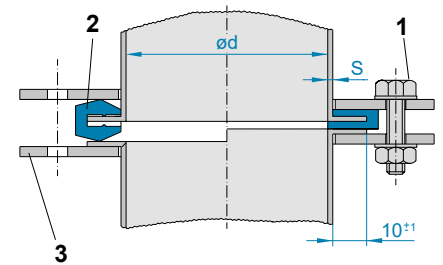


DN (mm)	ND (inch)	Lip width		Loose flange	Welded flange	10 bar shock explosion proof
		6 mm	10 mm			
60	2¼	■		□	□	
80	3	■		□	□	■
100	4	■		□	□	■
120	5	■		□	□	■
140	5½	■		□	□	
150	6	■		□	□	■
175	7	■		□	□	■
200	8	■		□	□	■
224	9	■		□	□	
250	10	■		□	□	■
280	11	■		□	□	
300	12	■		□	□	■
315	12½	■		□	□	□
350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

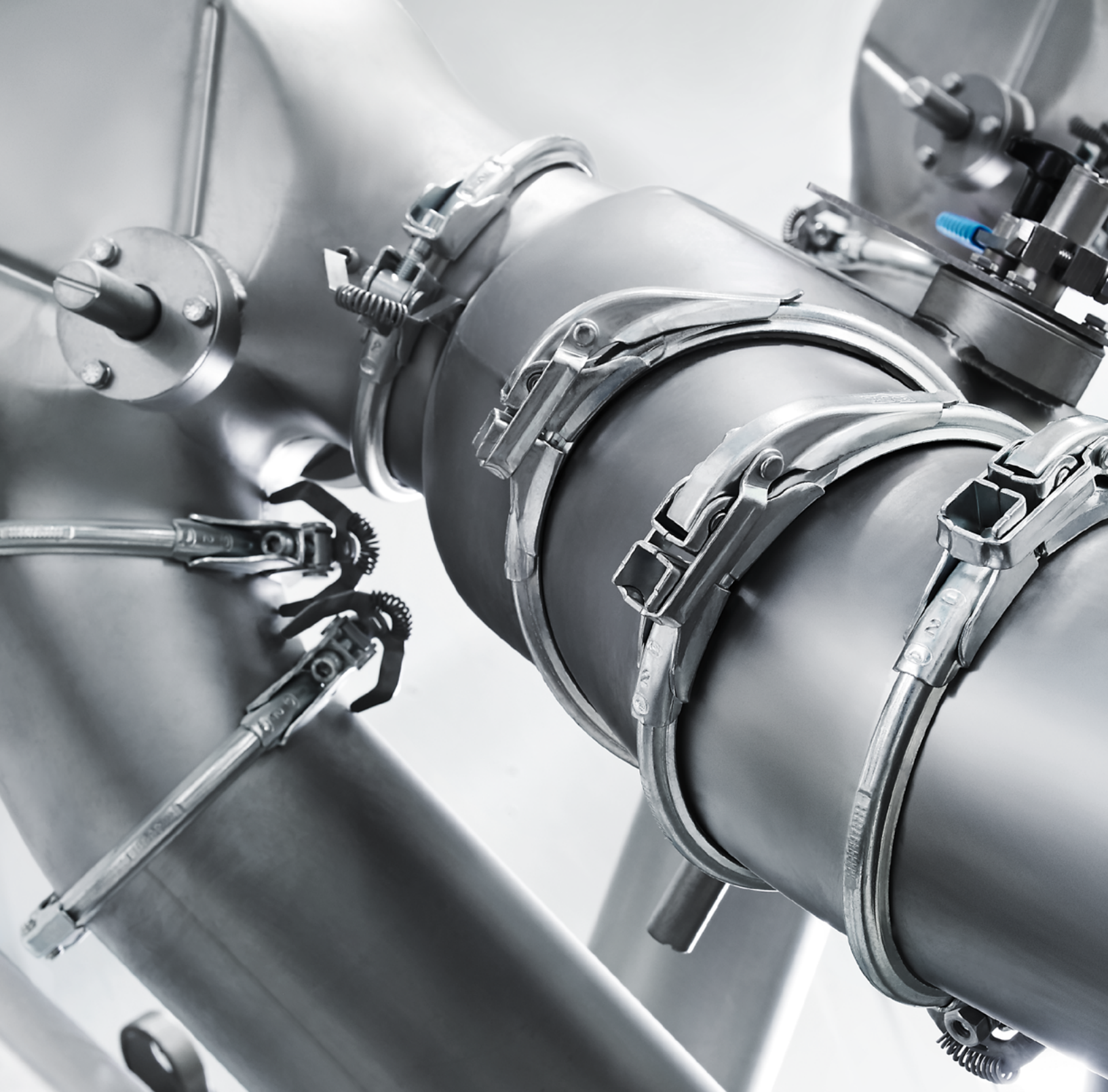
The secret of JACOB's exceptional quality lies in our expertise, which we have built up over more than 65 years' experience with modular pipework systems. JACOB has a large number of in-house developed and self-built tools for accurately producing pressed components, such as drawn bends, valves and pull-rings. 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.



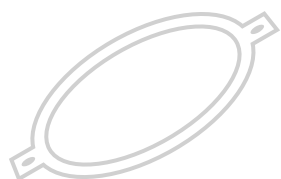
THE WHOLE WORLD

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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Pull-rings with mastic sealant	34	
Accessories	35	



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 EG 1935/2004*	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	

*Please note that the seals comply to a limited extent with the current recommendations of the German Federal Institute for Risk Assessment (BfR). Use according to category 4 is permitted for dry, non-fatty foodstuffs that are subsequently washed, peeled or otherwise cleaned.

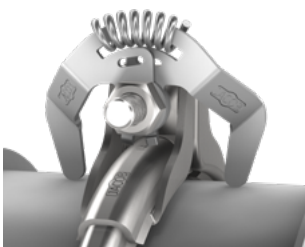
Refer to the technical information at the beginning of this chapter and in the installation instructions (see next page) for more details. The temperatures given indicate the permanent temperature resistance. U-shaped seals must be tested by the user to ensure they are sufficiently resistant to the working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

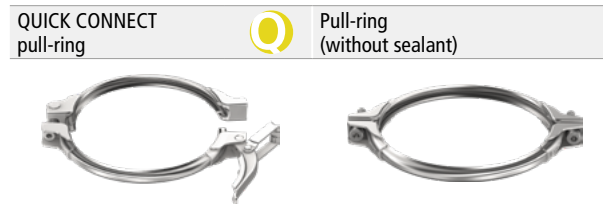
To meet the different requirements of every system, JACOB offers a comprehensive and wide-ranging standard range which covers most requirements.

U-shaped seals

Pipe component B	Profile for 1 mm wall thickness			Profile for 2 and 3 mm wall thickness			
	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



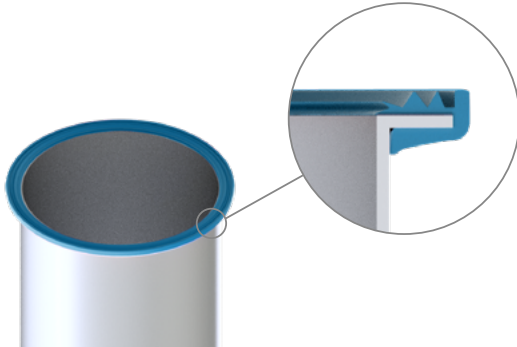
Refer to page 28 for more technical information on pull-rings.

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

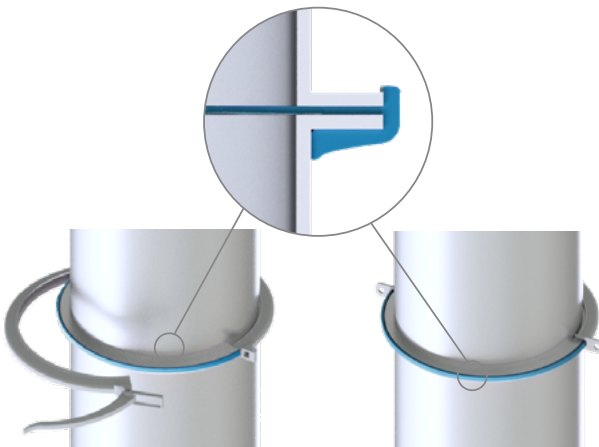
Note: To connect JACOB pipe components with a 6 mm lip. A U-shaped seal and a pull-ring are needed for each connection. You need a 6 mm hexagon cap screwdriver to mount the pull-rings.



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 fitted
- The profiled side must face the pipe component that is being connected
- To fit the seal, we recommend starting at the place where the joint is



Step 2

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

QUICK CONNECT pull-ring

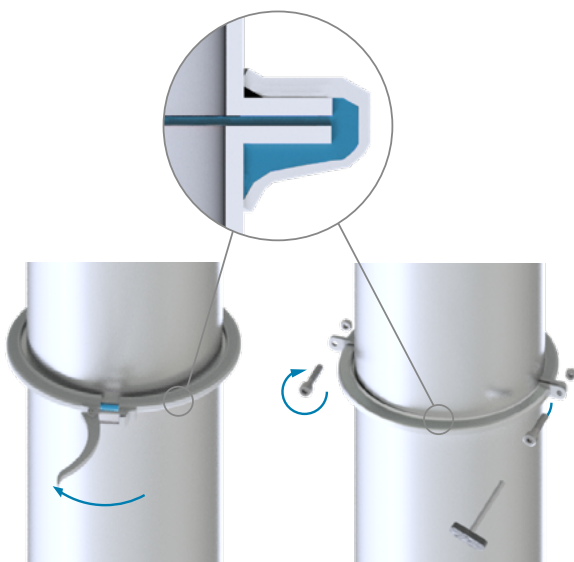
First, attach the pull-ring half without the toggle clip

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

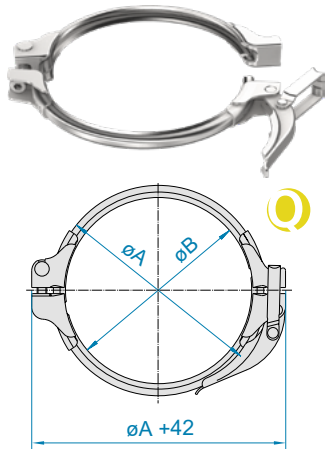
- Tighten the bolts evenly with a torque of 10 Nm

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



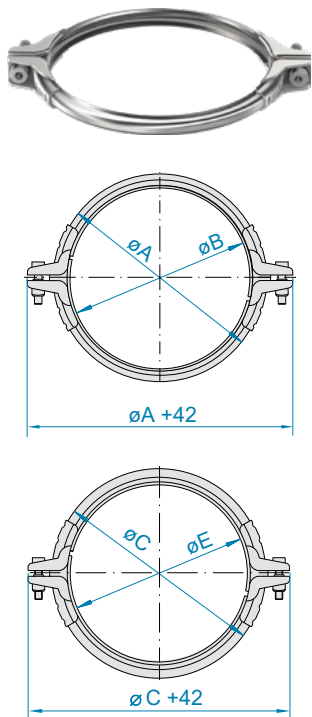
QUICK CONNECT PULL-RINGS : クイックコネクトプルリング

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	12083903
100	123	103	0.37	12102903	12103903
120	143	123	0.40	12122903	12123903
140	159	139	0.45	12142903	12143903
150	173	153	0.47	12152903	12153903
175	198	178	0.49	12172903	12173903
200	223	203	0.51	12202903	12203903
224	243	223	0.55	12222903	12223903
250	273	253	0.58	12252903	12253903
280	301	281	0.61	12282903	12283903
300	323	303	0.62	12302903	12303903
315	336	316	0.63	12312903	12313903
350	373	353	0.68	12352903	12353903
400	423	403	0.74	12402903	12403903
450	472	450	0.79	12452903	12453903



PULL-RINGS WITHOUT SEALANT : 両ねじ留プルリング

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

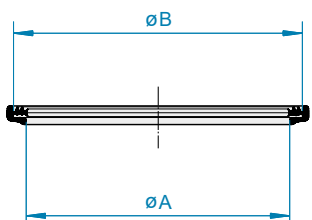
Pull-rings for 3 mm wall thickness

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	12063383				
80	101	80	0.31	12082383	12083383				
100	125	104	0.33	12102383	12103383				
120	145	124	0.36	12122383	12123383	151	126	12122926	12123926
140	161	140	0.37	12142383	12143383				
150	175	154	0.39	12152383	12153383	181	156	12152926	12153926
175	200	179	0.42	12172383	12173383	206	181	12172926	12173926
200	225	204	0.45	12202383	12203383	231	206	12202926	12203926
224	245	224	0.47	12222383	12223383				
250	275	254	0.51	12252383	12253383	281	256	12252926	12253926
280	302	281	0.55	12282383	12283383				
300	325	304	0.57	12302383	12303383	331	306	12302926	12303926
315	337	316	0.58	12312383	12313383				
350	375	354	0.63	12352383	12353383	381	356	12352926	12353926
400	425	404	0.68	12402383	12403383	431	406	12402926	12403926
450	478	450	0.73	12452383	12453383				
500	524	500	0.78	12502383	12503383				
560	586	560	0.83	12562383	12563383				
630	656	632	0.90	12632383	12633383				

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 : U型シールガスケット

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	Silicone blue	EPDM black	FKM reddish brown
			Item no.	Item no.	Item no.	Item no.	Item no.
60	57	69	100669517	1006795109	10067951091	1006895159	100699519
80	81	93	100869517	1008795109	10087951091	1008895159	100899519
100	103	115	101069517	1010795109	10107951091	1010895159	101099519
120	123	135	101269517	1012795109	10127951091	1012895159	101299519
140	139	151	101469517	1014795109	10147951091	1014895159	101499519
150	153	165	101569517	1015795109	10157951091	1015895159	101599519
175	178	190	101769517	1017795109	10177951091	1017895159	101799519
200	203	215	102069517	1020795109	10207951091	1020895159	102099519
224	223	235	102269517	1022795109	10227951091	1022895159	102299519
250	253	265	102569517	1025795109	10257951091	1025895159	102599519
280	280	292	102869517	1028795109	10287951091	1028895159	102899519
300	303	315	103069517	1030795109	10307951091	1030895159	103099519
315	315	327	103169517	1031795109	10317951091	1031895159	103199519
350	353	365	103569517	1035795109	10357951091	1035895159	103599519
400	403	415	104069517	1040795109	10407951091	1040895159	104099519
450	450	470	104569517	1045795109	10457951091	1045895159	104599519
500	500	516	105069517	1050795109	10507951091	1050895159	105099519
560	560	578	105669517	1056795109	10567951091	1056895159	105699519
630	632	648	106369517	1063795109	10637951091	1063895159	106399519

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	Silicone blue	EPDM black	FKM reddish brown
			Item no.	Item no.	Item no.	Item no.	Item no.
80	81	93	100869527	1008795209	10087952091	1008895259	100893869
100	103	115	101069527	1010795209	10107952091	1010895259	101093869
120	123	135	101269527	1012795209	10127952091	1012895259	101293869
140	139	151	101469527	1014795209	10147952091	1014895259	101493869
150	153	165	101569527	1015795209	10157952091	1015895259	101593869
175	178	190	101769527	1017795209	10177952091	1017895259	101793869
200	203	215	102069527	1020795209	10207952091	1020895259	102093869
224	223	235	102269527	1022795209	10227952091	1022895259	102293869
250	253	265	102569527	1025795209	10257952091	1025895259	102593869
280	280	292	102869527	1028795209	10287952091	1028895259	102893869
300	303	315	103069527	1030795209	10307952091	1030895259	103093869
315	315	327	103169527	1031795209	10317952091	1031895259	103193869
350	353	365	103569527	1035795209	10357952091	1035895259	103593869
400	403	415	104069527	1040795209	10407952091	1040895259	104093869
450	450	470	104569527	1045795209	10457952091	1045895259	104593869
500	500	516	105069527	1050795209	10507952091	1050895259	105093869
560	560	578	105669527	1056795209	10567952091	1056895259	105693869
630	632	648	106369527	1063795209	10637952091	1063895259	106393869

VULCANISED AND MORE TEAR-RESISTANT QUALITY.

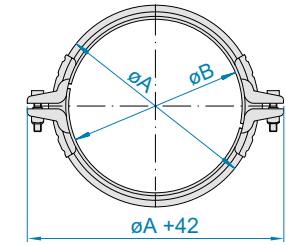
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

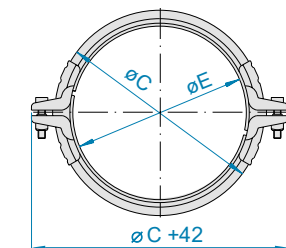


THE PULL-RING SYSTEM

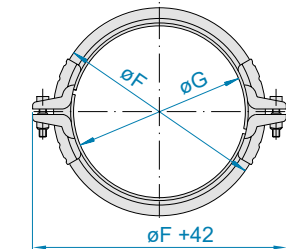
Pull-rings with mastic sealant



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

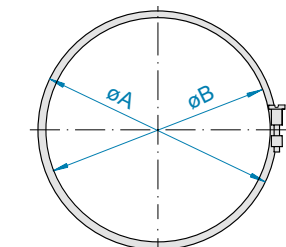
ONE-PART PULL-RINGS WITH SEALANT

3055

- 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
100	119	102	0.05	11102372
120	139	122	0.06	11122372
150	169	152	0.07	11152372
175	194	177	0.08	11172372
200	219	202	0.09	11202372



Product similar to picture



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.
11003792



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.
11003793



ALLEN KEYS

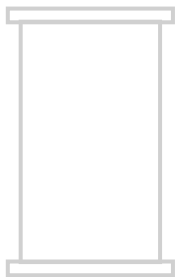
4030

- 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
Size 6 for two-part pull-rings	10002362



JACOB PIPES – THE SOUND BASIS
FOR YOUR PIPEWORK SYSTEM



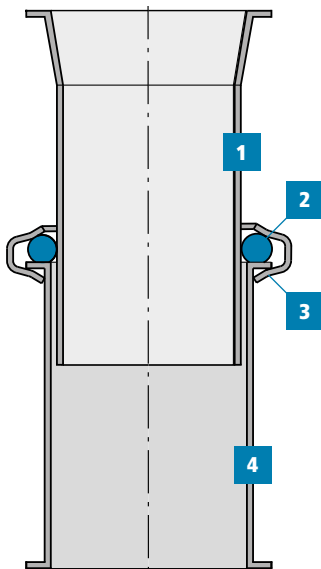
PIPES

Technical information	38	
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Ring seals	49	
Pipes with spigots	49	



WELDED PIPE

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.

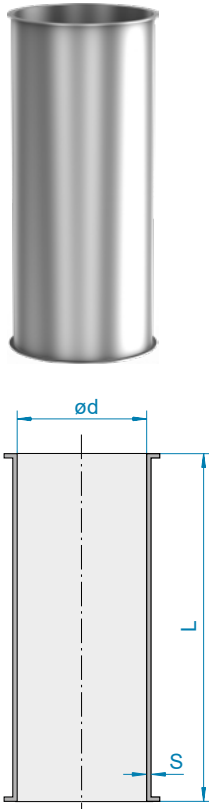
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



WELDED PIPES : 直管

- 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 : 直管(L2000)



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*		
80	76	1984	7.80	11081010	12081010	
100	99	1984	10.15	11101010	12101010	
120	119	1984	11.85	11121010	12121010	13121010
140	135	1984	13.15	11141010	12141010	
150	149	1984	15.05	11151010	12151010	13151010
175	174	1984	17.25	11171010	12171010	13171010
200	199	1984	19.25	11201010	12201010	13201010
224	219	1984	21.65	11221010	12221010	
250	249	1984	24.45	11251010	12251010	13251010
280	278	1984	27.40	11281010		
300	299	1984	29.05	11301010	12301010	13301010
315	313	1984	31.00	11311010		
350	349	1984	34.50	11351010	12351010	13351010
400	398	1984	39.40	11401010	12401010	13401010
450	448	1984	44.30	11451010	12451010	13451010
500	498	1984	49.30	11501010	12501010	13501010
560	558	1984	56.20		12561010	13561010
630	628	1988	64.00		12631010	13631010


*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*		11063010*	
80	76	1984	7.80	11082010	12082010	11083010	
100	99	1984	10.15	11102010	12102010	11103010	12103010
120	119	1984	11.85	11122010	12122010	11123010	12123010
140	135	1984	13.15	11142010	12142010	11143010	
150	149	1984	15.05	11152010	12152010	11153010	12153010
175	174	1984	17.25	11172010	12172010	11173010	12173010
200	199	1984	19.25	11202010	12202010	11203010	12203010
224	219	1984	21.65	11222010	12222010	11223010	
250	249	1984	24.45	11252010	12252010	11253010	12253010
280	278	1984	27.40	11282010		11283010	
300	299	1984	29.05	11302010	12302010	11303010	12303010
315	313	1984	31.00	11312010		11313010	
350	349	1984	34.50	11352010		11353010	12353010
400	398	1984	39.40	11402010		11403010	12403010
450	448	1984	44.30	11452010		11453010	12453010
500	498	1984	49.30	11502010		11503010	12503010
560	558	1984	56.20		12562010		12563010
630	628	1988	64.00		12632010		12633010

*1.5 mm

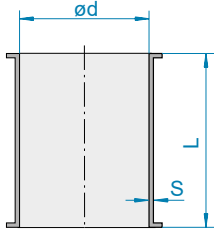
 FOOD GRADE
EG/EC 1935/2004 plus FDA

 Shock explosion proof tested
up to 1 bar

 Shock explosion proof tested
up to 3 bar



PIPES 1000 MM : 直管(L1000)



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*		
80	76	984	3.80	11081020	12081020	
100	99	984	4.95	11101020	12101020	
120	119	984	5.85	11121020	12121020	13121020
140	135	984	6.55	11141020	12141020	
150	149	984	7.25	11151020	12151020	13151020
175	174	984	8.55	11171020	12171020	13171020
200	199	984	9.45	11201020	12201020	13201020
224	219	984	10.75	11221020	12221020	
250	249	984	12.05	11251020	12251020	13251020
280	278	984	13.70	11281020		
300	299	984	14.25	11301020	12301020	13301020
315	313	984	14.40	11311020		
350	349	984	16.55	11351020	12351020	13351020
400	398	984	18.95	11401020	12401020	13401020
450	448	984	21.65	11451020	12451020	13451020
500	498	984	24.60	11501020	12501020	13501020
560	558	984	28.10		12561020	13561020
630	628	984	29.85		12631020	13631020

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

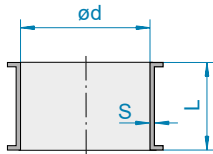
DN	Ø d	L	kg	1 mm galvanised	2 mm galvanised	1 mm stainless steel	2 mm stainless steel
				Item no.	Item no.	Item no.	Item no.
60	57	984	2.10	11062020*		11063020*	
80	76	984	3.80	11082020	12082020	11083020	
100	99	984	4.95	11102020	12102020	11103020	12103020
120	119	984	5.85	11122020	12122020	11123020	12123020
140	135	984	6.55	11142020	12142020	11143020	
150	149	984	7.25	11152020	12152020	11153020	12153020
175	174	984	8.55	11172020	12172020	11173020	12173020
200	199	984	9.45	11202020	12202020	11203020	12203020
224	219	984	10.75	11222020	12222020	11223020	
250	249	984	12.05	11252020	12252020	11253020	12253020
280	278	984	13.70	11282020		11283020	
300	299	984	14.25	11302020	12302020	11303020	12303020
315	313	984	14.40	11312020		11313020	
350	349	984	16.55	11352020		11353020	12353020
400	398	984	18.95	11402020		11403020	12403020
450	448	984	21.65	11452020		11453020	12453020
500	498	984	24.60	11502020		11503020	12503020
560	558	984	28.10		12562020		12563020
630	628	984	29.85		12632020		12633020

*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 : 直管(L500)



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*		
80	76	486	1.90	11081030	12081030	
100	99	486	2.55	11101030	12101030	
120	119	486	2.90	11121030	12121030	13121030
140	135	486	3.25	11141030	12141030	
150	149	486	3.65	11151030	12151030	13151030
175	174	486	4.35	11171030	12171030	13171030
200	199	486	4.85	11201030	12201030	13201030
224	219	486	5.30	11221030	12221030	
250	249	486	5.95	11251030	12251030	13251030
280	278	486	6.80	11281030		
300	299	486	7.25	11301030	12301030	13301030
315	313	486	7.70	11311030		
350	349	486	8.45	11351030	12351030	13351030
400	398	486	9.55	11401030	12401030	13401030
450	448	486	10.75	11451030	12451030	13451030
500	498	486	12.05	11501030	12501030	13501030
560	558	486	14.10		12561030	13561030
630	628	486	15.80		12631030	13631030


*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*		11063030*	
80	76	486	1.90	11082030	12082030	11083030	
100	99	486	2.55	11102030	12102030	11103030	12103030
120	119	486	2.90	11122030	12122030	11123030	12123030
140	135	486	3.25	11142030	12142030	11143030	
150	149	486	3.65	11152030	12152030	11153030	12153030
175	174	486	4.35	11172030	12172030	11173030	12173030
200	199	486	4.85	11202030	12202030	11203030	12203030
224	219	486	5.30	11222030	12222030	11223030	
250	249	486	5.95	11252030	12252030	11253030	12253030
280	278	486	6.80	11282030		11283030	
300	299	486	7.25	11302030	12302030	11303030	12303030
315	313	486	7.70	11312030		11313030	
350	349	486	8.45	11352030		11353030	12353030
400	398	486	9.55	11402030		11403030	12403030
450	448	486	10.75	11452030		11453030	12453030
500	498	486	12.05	11502030		11503030	12503030
560	558	486	14.10		12562030		12563030
630	628	486	15.80		12632030		12633030

*1.5 mm

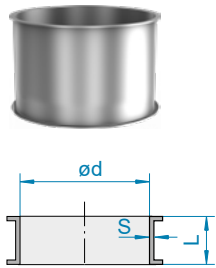
 FOOD GRADE
EG/EC 1935/2004 plus FDA

 Shock explosion proof tested up to 1 bar

 Shock explosion proof tested up to 3 bar



PIPES 200 MM : 直管(L200)



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*		
80	76	200	0.70	11081040	12081040	
100	99	200	1.00	11101040	12101040	
120	119	200	1.20	11121040	12121040	13121040
140	135	200	1.40	11141040	12141040	
150	149	200	1.50	11151040	12151040	13151040
175	174	200	1.80	11171040	12171040	13171040
200	199	200	2.05	11201040	12201040	13201040
224	219	200	2.20	11221040	12221040	
250	249	200	2.55	11251040	12251040	13251040
280	278	200	2.90	11281040		
300	299	200	2.95	11301040	12301040	13301040
315	313	200	3.30	11311040		
350	349	200	3.70	11351040	12351040	13351040
400	398	200	4.10	11401040	12401040	13401040

*1.5 mm

Galvanised and stainless steel (dimensions for 2 mm pipework)

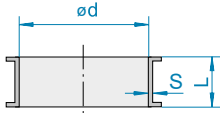
DN	Ø d	L	kg	1 mm galvanised	2 mm galvanised	1 mm stainless steel	2 mm stainless steel
				Item no.	Item no.	Item no.	Item no.
60	57	200	0.45	11062040*		11063040*	
80	76	200	0.70	11082040	12082040	11083040	
100	99	200	1.00	11102040	12102040	11103040	12103040
120	119	200	1.20	11122040	12122040	11123040	12123040
140	135	200	1.40	11142040	12142040	11143040	
150	149	200	1.50	11152040	12152040	11153040	12153040
175	174	200	1.80	11172040	12172040	11173040	12173040
200	199	200	2.05	11202040	12202040	11203040	12203040
224	219	200	2.20	11222040	12222040	11223040	
250	249	200	2.55	11252040	12252040	11253040	12253040
280	278	200	2.90	11282040		11283040	
300	299	200	2.95	11302040	12302040	11303040	12303040
315	313	200	3.30	11312040		11313040	
350	349	200	3.70	11352040		11353040	12353040
400	398	200	4.10	11402040		11403040	12403040

*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 : 直管(L50)



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*		
80	76	50	0.15	11081050	12081050	
100	99	50	0.30	11101050	12101050	
120	119	50	0.40	11121050	12121050	13121050
140	135	50	0.45	11141050	12141050	
150	149	50	0.50	11151050	12151050	13151050
175	174	50	0.55	11171050	12171050	13171050
200	199	50	0.60	11201050	12201050	13201050
224	219	50	0.65	11221050	12221050	
250	249	50	0.75	11251050	12251050	13251050
280	278	50	0.90	11281050		
300	299	50	0.90	11301050	12301050	13301050
315	313	50	1.00	11311050		


*1.5mm


Galvanised and stainless steel (dimensions for 2 mm pipework)

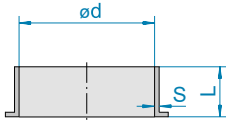
DN	Ø d	L	kg	1 mm galvanised	2 mm galvanised	1 mm stainless steel 	2 mm stainless steel 
				Item no.	Item no.	Item no.	Item no.
60	57	50	0.12			11063050*	
80	76	50	0.15	11082050	12082050	11083050	
100	99	50	0.30	11102050	12102050	11103050	12103050
120	119	50	0.40	11122050	12122050	11123050	12123050
140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

*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 : 溶接管

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*		
80	76	55	0.15	12080060		
100	99	55	0.35	12100060		12102060
120	119	55	0.40	12120060	13120060	12122060
140	135	55	0.45	12140060		12142060
150	149	55	0.45	12150060	13150060	12152060
175	174	55	0.55	12170060	13170060	12172060
200	199	55	0.60	12200060	13200060	12202060
224	219	55	0.70	12220060		12222060
250	249	55	0.75	12250060	13250060	12252060
280	276	55	0.80	12280060		
300	299	55	0.85	12300060	13300060	12302060
315	311	55	0.90	12310060		
350	349	55	1.05	12350060	13350060	
400	398	55	1.15	12400060	13400060	
450	448	55	1.40	12450060	13450060	
500	498	55	1.55	12500060	13500060	
560	558	55	1.70	12560060	13560060	
630	628	55	1.90	12630060	13630060	

* 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			11063060*
80	76	55	0.15	11081060	12081060		12083060
100	99	55	0.35		12101060		12103060**
120	119	55	0.40		12121060	13121060	12123060
140	135	55	0.45		12141060		12143060
150	149	55	0.45		12151060	13151060	12153060**
175	174	55	0.55		12171060	13171060	12173060
200	199	55	0.60		12201060	13201060	12203060**
224	219	55	0.70		12221060		12223060
250	249	55	0.75		12251060	13251060	12253060**
280	276	55	0.80				12283060
300	299	55	0.85		12301060	13301060	12303060
315	311	55	0.90				12313060
350	349	55	1.05		12351060	13351060	12353060
400	398	55	1.15		12401060	13401060	12403060
450	448	55	1.40		12451060	13451060	12453060
500	498	55	1.55		12501060	13501060	12503060
560	558	55	1.70		12561060	13561060	12563060
630	628	55	1.90		12631060	13631060	12633060

* 1.5 mm

** Internal diameter Ød differs by: +1 mm



PUSH-IN PIPES : プッシュインパイプ

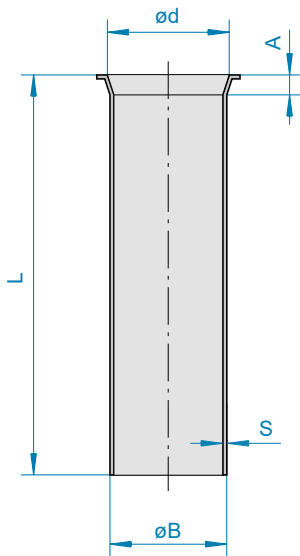
Push-in pipes in 1 to 3 mm wall thickness

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 : プッシュインパイプ(L1000)

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
80	77	34	74	990	2.70	11081110	
100	100	34	96	990	3.50		11101110
120	120	34	116	990	4.30		11121110
140	136	34	132	990	4.60		11141110
150	150	34	146	990	5.40		11151110
175	175	34	171	990	6.20		11171110
200	200	34	196	990	7.00		11201110
224	220	34	216	990	7.60		11221110
250	250	34	246	990	8.80		11251110
280	277	34	272	990	10.00		11281110
300	300	34	296	990	10.70		11301110
315	312	34	307	990	11.30		11311110
350	350	50	346	990	12.40		11351110
400	399	50	396	990	14.20		11401110

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	990	2.20	11062110		11063110	
80	77	34	74	990	2.70	11082110*	11083110		
100	100	34	96	990	3.50	11102110	11103110		12103110**
120	120	34	116	990	4.30	11122110	11123110		12123110
140	136	34	132	990	4.60	11142110	11143110		
150	150	34	146	990	5.40	11152110	11153110		12153110**
175	175	34	171	990	6.20	11172110	11173110		12173110
200	200	34	196	990	7.00	11202110	11203110		12203110
224	220	34	216	990	7.60	11222110	11223110		
250	250	34	246	990	8.80	11252110	11253110		12253110
280	277	34	272	990	10.00	11282110		11283110	
300	300	34	296	990	10.70	11302110	11303110		12303110
315	312	34	307	990	11.30	11312110		11313110	
350	350	50	346	990	12.40	11352110	11353110		12353110
400	399	50	396	990	14.20	11402110	11403110		12403110

* 1 mm

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



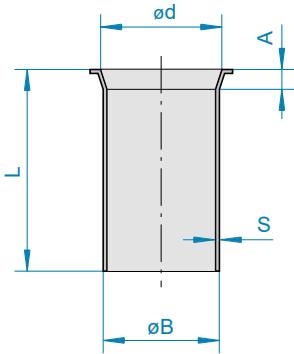
Push-in pipe installation instructions

FOOD GRADE
EC 1935/2004 plus FDA compliant



PUSH-IN PIPES 500 MM : プッシュインパイプ(L500)

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	
80	77	34	74	492	1.40	11081120		
100	100	34	96	492	1.80		11101120	
120	120	34	116	492	2.10		11121120	
140	136	34	132	492	2.45		11141120	
150	150	34	146	492	2.65		11151120	13151120**
175	175	34	171	492	3.10		11171120	13171120
200	200	34	196	492	3.50		11201120	13201120
224	220	34	216	492	3.90		11221120	
250	250	34	246	492	4.50		11251120	13251120
280	277	34	272	492	5.00		11281120	
300	300	34	296	492	5.40		11301120	13301120
315	312	34	307	492	5.70		11311120	
350	350	50	346	492	6.20		11351120	
400	399	50	396	492	7.20		11401120	

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

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		11063120	
80	77	34	74	492	1.40	11082120*	11083120		
100	100	34	96	492	1.80	11102120	11103120		12103120**
120	120	34	116	492	2.10	11122120	11123120		12123120
140	136	34	132	492	2.45	11142120	11143120		
150	150	34	146	492	2.65	11152120	11153120		12153120**
175	175	34	171	492	3.10	11172120	11173120		12173120
200	200	34	196	492	3.50	11202120	11203120		12203120
224	220	34	216	492	3.90	11222120	11223120		
250	250	34	246	492	4.50	11252120	11253120		12253120
280	277	34	272	492	5.00	11282120		11283120	
300	300	34	296	492	5.40	11302120	11303120		12303120
315	312	34	307	492	5.70	11312120		11313120	
350	350	50	346	492	6.20	11352120	11353120		12353120
400	399	50	396	492	7.20	11402120	11403120		12403120

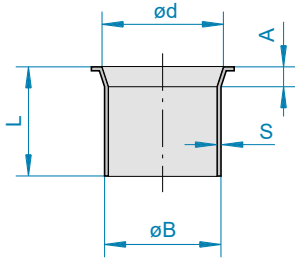
* 1 mm

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



PIPES

Push-in pipes






PUSH-IN PIPES 200 MM : プッシュインパイプ(L200)

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
80	77	34	74	200	0.60	11081130	
100	100	34	96	200	0.75		11101130
120	120	34	116	200	0.85		11121130
140	136	34	132	200	0.95		11141130
150	150	34	146	200	1.10		11151130
175	175	34	171	200	1.30		11171130
200	200	34	196	200	1.50		11201130
224	220	34	216	200	1.55		11221130
250	250	34	246	200	1.90		11251130
280	277	34	272	200	2.10		11281130
300	300	34	296	200	2.45		11301130
315	312	34	307	200	2.50		11311130

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.	Item no.
60	57	34	54	200	0.41	11062130		11063130	
80	77	34	74	200	0.60	11082130*	11083130		
100	100	34	96	200	0.75	11102130	11103130		12103130**
120	120	34	116	200	0.85	11122130	11123130		12123130
140	136	34	132	200	0.95	11142130	11143130		
150	150	34	146	200	1.10	11152130	11153130		12153130**
175	175	34	171	200	1.30	11172130	11173130		12173130
200	200	34	196	200	1.50	11202130	11203130		12203130
224	220	34	216	200	1.55	11222130	11223130		
250	250	34	246	200	1.90	11252130	11253130		12253130
280	277	34	272	200	2.10	11282130		11283130	
300	300	34	296	200	2.45	11302130	11303130		12303130
315	312	34	307	200	2.50	11312130		11313130	

* 1 mm

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

 FOOD GRADE
EC 1935/2004 plus FDA compliant

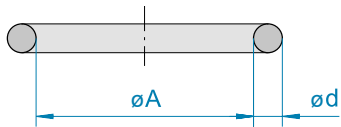
Ring seals / pipes with spigots



RING SEALS FOR PUSH-IN PIPES : リングシール (プッシュインパイプ専用)

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	ø d	ø 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	1006715509	10067155091	1006815559	100691559
80	9	68	100861557	1008715509	10087155091	1008815559	100891559
100	9	87	101061557	1010715509	10107155091	1010815559	101091559
120	9	106	101261557	1012715509	10127155091	1012815559	101291559
140	9	121	101461557	1014715509	10147155091	1014815559	101491559
150	9	138	101561557	1015715509	10157155091	1015815559	101591559
175	9	162	101761557	1017715509	10177155091	1017815559	101791559
200	9	186	102061557	1020715509	10207155091	1020815559	102091559
224	9	205	102261557	1022715509	10227155091	1022815559	102291559
250	9	233	102561557	1025715509	10257155091	1025815559	102591559
280	9	258	102861557	1028715509	10287155091	1028815559	102891559
300	9	281	103061557	1030715509	10307155091	1030815559	103091559
315	9	293	103161557	1031715509	10317155091	1031815559	103191559
350	9	328	103561557	1035715509	10357155091	1035815559	103591559
400	9	376	104061557	1040715509	10407155091	1040815559	104091559

3

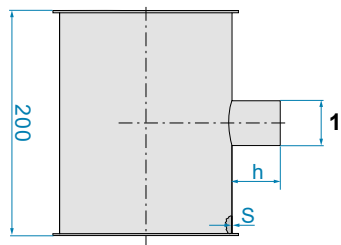


PIPES 200 MM WITH SPIGOTS

1035

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

2 mm powder-coated, length 200 mm



1 Spigot with inner thread

DN	ø d	Spigot ½ inch	Spigot 1 inch	Spigot 1½ inch
		Item no.	Item no.	Item no.
60	57	110610400901*	110610400902*	
80	76	120810400901	120810400902	120810400903
100	99	121010400901	121010400902	121010400903
120	119	121210400901	121210400902	121210400903
140	136	121410400901	121410400902	121410400903
150	149	121510400901	121510400902	121510400903
175	174	121710400901	121710400902	121710400903
200	199	122010400901	122010400902	122010400903
224	220	122210400901	122210400902	122210400903
250	249	122510400901	122510400902	122510400903
280	276	122810400901	122810400902	122810400903
300	299	123010400901	123010400902	123010400903

*1.5 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

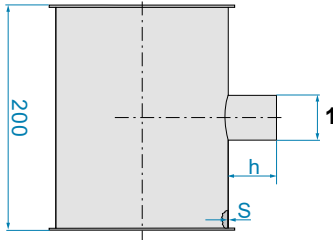
D DETECTABLE DESIGN
Metal-detectable

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*	110620400902*	
80	76	120820400901	120820400902	120820400903
100	99	121020400901	121020400902	121020400903
120	119	121220400901	121220400902	121220400903
140	136	121420400901	121420400902	121420400903
150	149	121520400901	121520400902	121520400903
175	174	121720400901	121720400902	121720400903
200	199	122020400901	122020400902	122020400903
224	220	122220400901	122220400902	122220400903
250	249	122520400901	122520400902	122520400903
280	276	122820400901	122820400902	122820400903
300	299	123020400901	123020400902	123020400903

*1.5 mm

2 mm stainless steel, length 200 mm

DN	Ø d	Spigot ½ inch	Spigot 1 inch	Spigot 1½ inch
		Item no.	Item no.	Item no.
60	57	110630400901*	110630400902*	
80	76	120830400901	120830400902	120830400903
100	99	121030400901	121030400902	121030400903
120	119	121230400901	121230400902	121230400903
140	136	121430400901	121430400902	121430400903
150	149	121530400901	121530400902	121530400903
175	174	121730400901	121730400902	121730400903
200	199	122030400901	122030400902	122030400903
224	220	122230400901	122230400902	122230400903
250	249	122530400901	122530400902	122530400903
280	276	122830400901	122830400902	122830400903
300	299	123030400901	123030400902	123030400903

*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

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Adjustable elbows	67	
Pipe ball joints	67	



THE RANGE OF PIPE BENDS

Technical information

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.

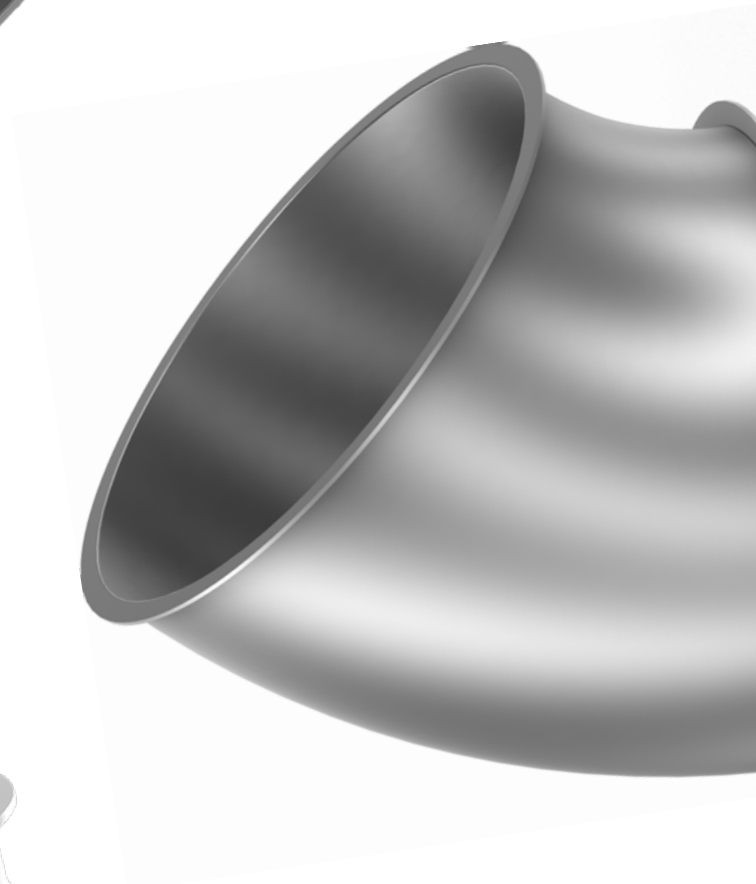
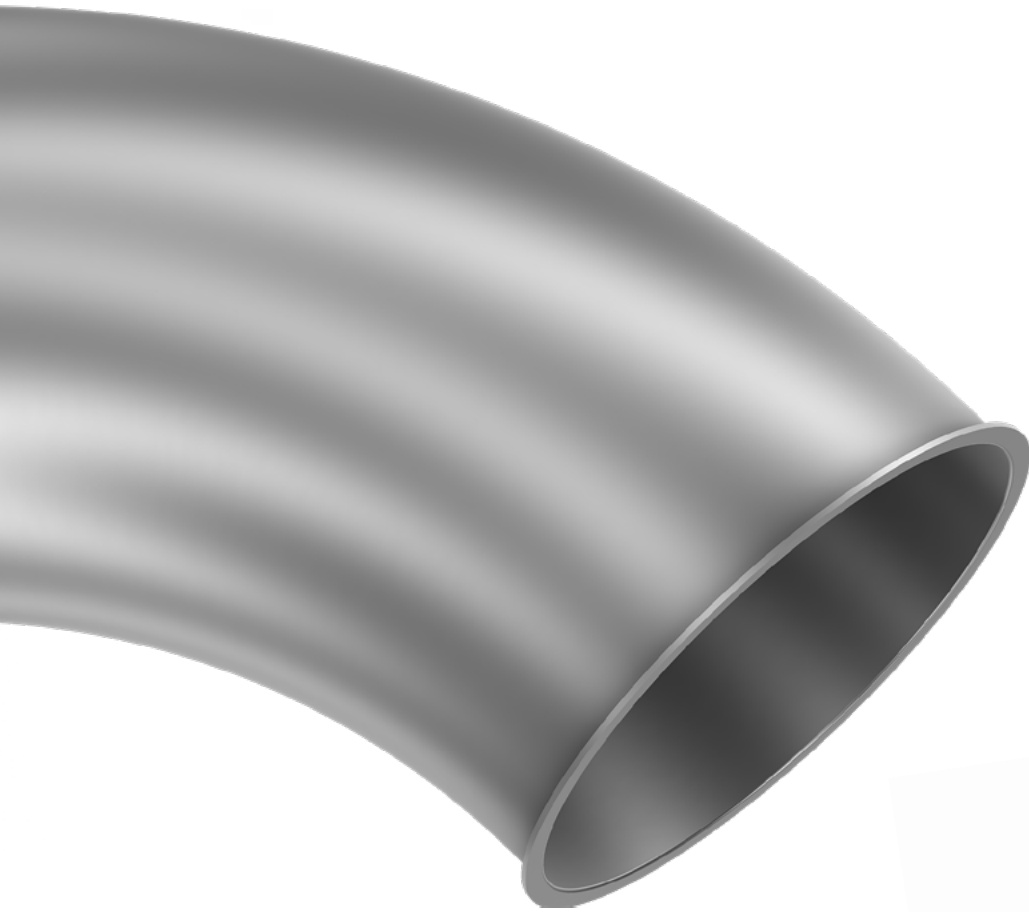
Are you looking for the right angle or radius for your application? No problem with the JACOB pipework system! Whether by using our flexible adjustable elbows and pipe ball joints or by counter-rotating two segments: a wide range of different angles can easily be achieved with parts from our standard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

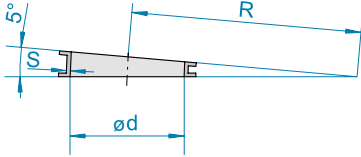


4



THE RANGE OF PIPE BENDS

Segments



SEGMENTS 5° : セグメント 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		
100	99	320	0.20	11101300	12101300	
120	119	360	0.25	11121300	12121300	13121300
140	135	460	0.35	11141300*		
150	149	500	0.45	11151300	12151300	13151300
175	174	560	0.55	11171300	12171300	13171300
200	199	690	0.65	11201300	12201300	13201300
224	219	560	0.70	11221300*		
250	249	635	0.75	11251300	12251300	13251300
280	276	560	0.90	11281300*		
300	299	625	0.95	11301300	12301300	13301300
315	311	600	0.95	11311300*		
350	349	350	0.80	11351300*	12351300	13351300
400	398	400	0.95	11401300*	12401300	13401300
450	448	450	1.40	11451300*	12451300	13451300
500	498	500	1.45	11501300*	12501300	13501300
560	558	560	1.60		12561300	13561300
630	628	630	2.15		12631300	13631300

*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.
80	76	310	0.10	11082300		11083300	
100	99	320	0.20	11102300	12102300	11103300	12103300
120	119	360	0.25	11122300	12122300	11123300	12123300
140	135	460	0.35	11142300*	12142300	11143300*	
150	149	500	0.45	11152300	12152300	11153300	12153300
175	174	560	0.55	11172300	12172300	11173300	12173300
200	199	690	0.65	11202300	12202300	11203300	12203300
224	219	560	0.70	11222300*	12222300	11223300*	
250	249	635	0.75	11252300	12252300	11253300	12253300
280	276	560	0.90	11282300*		11283300*	
300	299	625	0.95	11302300	12302300	11303300	12303300
315	311	600	0.95	11312300*		11313300*	
350	349	350	0.80	11352300*		11353300	12353300
400	398	400	0.95	11402300*		11403300	12403300
450	448	450	1.40	11452300*		11453300	12453300
500	498	500	1.45	11502300*		11503300	12503300
560	558	560	1.60		12562300		12563300
630	628	630	2.15		12632300		12633300

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

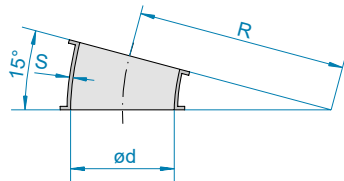
Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

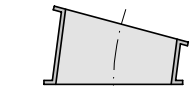


SEGMENTS 15° : セグメント 15°

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*		
80	76	130	0.10	11081310		
100	99	130	0.20	11101310	12101310	
120	119	155	0.30	11121310	12121310	13121310
140	135	185	0.30	11141310*		
150	149	250	0.55	11151310	12151310	13151310
175	174	280	0.75	11171310	12171310	13171310
200	199	270	0.80	11201310	12201310	13201310
224	219	220	0.55	11221310*		
250	249	310	1.05	11251310	12251310	13251310
280	276	280	1.25	11281310*		
300	299	310	1.30	11301310	12301310	13301310
315	311	315	1.60	11311310*		
350	349	350	1.75	11351310*	12351310	13351310
400	398	400	2.35	11401310*	12401310	13401310
450	448	450	2.95	11451310*	12451310	13451310
500	498	500	3.50	11501310*	12501310	13501310
560	558	560	4.40		12561310	13561310
630	628	630	5.60		12631310	13631310

*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*		11063310*	
80	76	130	0.10	11082310		11083310	
100	99	130	0.20	11102310	12102310	11103310	12103310
120	119	155	0.30	11122310	12122310	11123310	12123310
140	135	185	0.30	11142310*	12142310	11143310*	
150	149	250	0.55	11152310	12152310	11153310	12153310
175	174	280	0.75	11172310	12172310	11173310	12173310
200	199	270	0.80	11202310	12202310	11203310	12203310
224	219	220	0.55	11222310*	12222310	11223310*	
250	249	310	1.05	11252310	12252310	11253310	12253310
280	276	280	1.25	11282310*		11283310*	
300	299	310	1.30	11302310	12302310	11303310	12303310
315	311	315	1.60	11312310*		11313310*	
350	349	350	1.75	11352310*		11353310	12353310
400	398	400	2.35	11402310*		11403310	12403310
450	448	450	2.95	11452310*		11453310	12453310
500	498	500	3.50	11502310*		11503310	12503310
560	558	560	4.40		12562310		12563310
630	628	630	5.60		12632310		12633310

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

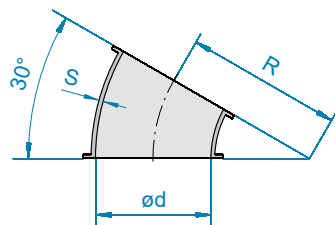
Light blue box: Shock explosion proof tested up to 1 bar

Dark blue box: Shock explosion proof tested up to 3 bar

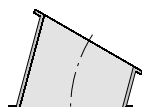


THE RANGE OF PIPE BENDS

Segments



1 pressed segment 30°



1 lobster back segment 30°

SEGMENTS 30° : セグメント 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		
100	99	95	0.30	11101320	12101320	
120	119	110	0.40	11121320	12121320	13121320
140	135	140	0.45	11141320*		
150	149	175	0.70	11151320	12151320	13151320
175	174	208	1.05	11171320	12171320	13171320
200	199	180	1.05	11201320	12201320	13201320
224	219	195	0.95	11221320*		
250	249	230	1.55	11251320	12251320	13251320
280	276	283	2.30	11281320*		
300	299	230	1.90	11301320	12301320	13301320
315	311	315	2.95	11311320*		
350	349	350	3.30	11351320*	12351320	13351320
400	398	400	4.10	11401320*	12401320	13401320
450	448	450	5.60	11451320*	12451320	13451320
500	498	500	6.60	11501320*	12501320	13501320
560	558	560	8.50		12561320	13561320
630	628	630	10.50		12631320	13631320


*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		11083320	
100	99	95	0.30	11102320	12102320	11103320	12103320
120	119	110	0.40	11122320	12122320	11123320	12123320
140	135	140	0.45	11142320*	12142320	11143320*	
150	149	175	0.70	11152320	12152320	11153320	12153320
175	174	208	1.05	11172320	12172320	11173320	12173320
200	199	180	1.05	11202320	12202320	11203320	12203320
224	219	195	0.95	11222320*	12222320	11223320*	
250	249	230	1.55	11252320	12252320	11253320	12253320
280	276	283	2.30	11282320*		11283320*	
300	299	230	1.90	11302320	12302320	11303320	12303320
315	311	315	2.95	11312320*		11313320*	
350	349	350	3.30	11352320*		11353320	12353320
400	398	400	4.10	11402320*		11403320	12403320
450	448	450	5.60	11452320*		11453320	12453320
500	498	500	6.60	11502320*		11503320	12503320
560	558	560	8.50		12562320		12563320
630	628	630	10.50		12632320		12633320

*1.5 mm

 FOOD GRADE
EG/EC 1935/2004 plus FDA

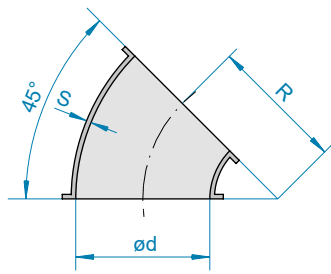
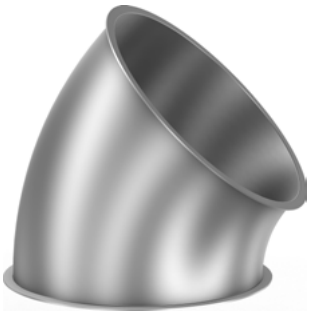
 Shock explosion proof tested up to 1 bar

 Shock explosion proof tested up to 3 bar

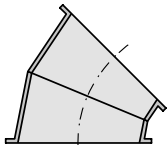


SEGMENTS 45° : セグメント 45°

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		
100	99	83	0.35	11101330	12101330	
120	119	88	0.50	11121330	12121330	13121330
140	135	112	0.50	11141330*		
150	149	150	0.90	11151330	12151330	13151330
175	174	160	1.20	11171330*	12171330	13171330
200	199	195	1.55	11201330*	12201330	13201330
224	219	155	1.10	11221330*		
250	249	195	1.95	11251330*	12251330	13251330
280	276	280	3.55	11281330*		
300	299	205	2.50	11301330*	12301330	13301330
315	311	315	4.30	11311330*		
350	349	350	4.90	11351330*	12351330	13351330
400	398	400	6.50	11401330*	12401330	13401330
450	448	450	8.15	11451330*	12451330	13451330
500	498	500	10.00	11501330*	12501330	13501330
560	558	560	12.40		12561330	13561330
630	628	630	16.10		12631330	13631330

*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		11083330	
100	99	83	0.35	11102330	12102330	11103330	12103330
120	119	88	0.50	11122330	12122330	11123330	12123330
140	135	112	0.50	11142330*	12142330	11143330*	
150	149	150	0.90	11152330	12152330	11153330	12153330
175	174	160	1.20	11172330*	12172330	11173330*	12173330
200	199	195	1.55	11202330*	12202330	11203330*	12203330
224	219	155	1.10	11222330*	12222330	11223330*	
250	249	195	1.95	11252330*	12252330	11253330*	12253330
280	276	280	3.55	11282330*		11283330*	
300	299	205	2.50	11302330*	12302330	11303330*	12303330
315	311	315	4.30	11312330*		11313330*	
350	349	350	4.90	11352330*		11353330*	12353330
400	398	400	6.50	11402330*		11403330*	12403330
450	448	450	8.15	11452330*		11453330*	12453330
500	498	500	10.00	11502330*		11503330*	12503330
560	558	560	12.40		12562330		12563330
630	628	630	16.10		12632330		12633330

*1.5 mm

FOOD GRADE
EG/EC 1935/2004 plus FDA

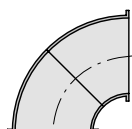
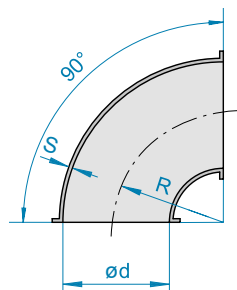
Shock explosion proof tested
up to 1 bar

Shock explosion proof tested
up to 3 bar

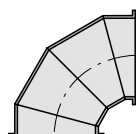


THE RANGE OF PIPE BENDS

Bends



2 pressed segments 45°



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

BENDS R = 1D, 90° : 曲管 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		
100	100	100	0.43	11101339		
120	120	120	1.00	11121339		
140	136	125	1.20		11141339	
150	150	150	0.92	11151339		
175	174	175	2.00		11171339	
200	200	200	2.42		11201339	
224	220	165	2.60		11221339	
250	250	250	4.00		11251339	
280	277	280	5.00		11281339	
300	300	210	5.00		11301339	
315	312	315	6.20		11311339	
350	350	350	8.00		11351339	
400	399	400	10.00		11401339	
450	449	450	13.00		11451339	
500	499	500	16.00		11501339	
560	558	560	26.00			12561339
630	628	630	23.00			12631339

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		11083339	
100	100	100	0.43	11102339		11103339	
120	120	120	1.00	11122339		11123339	
140	136	125	1.20		11142339	11143339*	
150	150	150	0.92	11152339		11153339	
175	174	175	2.00		11172339	11173339*	
200	200	200	2.42		11202339	11203339*	
224	220	165	2.60		11222339	11223339*	
250	250	250	4.00		11252339	11253339*	
280	277	280	5.00		11282339	11283339*	
300	300	210	5.00		11302339	11303339*	
315	312	315	6.20		11312339	11313339*	
350	350	350	8.00		11352339	11353339*	
400	399	400	10.00		11402339	11403339*	
450	449	450	13.00		11452339	11453339*	
500	499	500	16.00		11502339	11503339*	
560	558	560	26.00		12562339*		12563339
630	628	630	23.00		12632339*		12633339

*2 mm

*1.5 mm

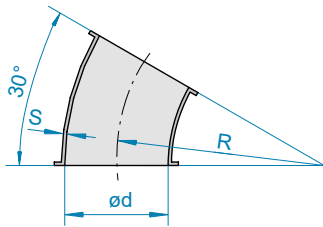
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

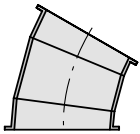


BENDS R = 2D, 30° : 曲管 R=2D 30°

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		
80	76	160	0.35	11081343*	12081343	
100	99	200	0.60	11101343*	12101343	
120	119	240	0.80	11121343	12121343	13121343
140	135	280	1.00	11141343	12141343	
150	149	300	1.25	11151343	12151343	13151343
175	174	350	1.65	11171343	12171343	13171343
200	199	400	2.10	11201343	12201343	13201343
224	219	448	2.65	11221343	12221343	
250	249	500	3.50	11251343	12251343	13251343
280	276	560	4.40	11281343		
300	299	600	4.60	11301343	12301343	13301343
315	311	630	5.50	11311343		
350	349	700	6.35		12351343	13351343
400	398	800	8.50		12401343	13401343
450	448	900	10.70		12451343	13451343
500	498	1000	13.20		12501343	13501343
560	558	1120	15.90		12561343	13561343
630	628	1260	19.00		12631343	13631343

*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		11062343		11063343*	
80	76	160	0.35	11082343*	12082343	11083343	
100	99	200	0.60	11102343*	12102343	11103343	12103343
120	119	240	0.80	11122343	12122343	11123343	12123343
140	135	280	1.00	11142343	12142343	11143343	12143343
150	149	300	1.25	11152343	12152343	11153343	12153343
175	174	350	1.65	11172343	12172343	11173343*	12173343
200	199	400	2.10	11202343	12202343	11203343*	12203343
224	219	448	2.65	11222343	12222343	11223343*	
250	249	500	3.50	11252343	12252343	11253343*	12253343
280	276	560	4.40	11282343		11283343*	
300	299	600	4.60	11302343	12302343	11303343*	12303343
315	311	630	5.50	11312343		11313343*	
350	349	700	6.35		12352343		12353343
400	398	800	8.50		12402343		12403343
450	448	900	10.70	11452343			12453343
500	498	1000	13.20	11502343			12503343
560	558	1120	15.90	11562343			12563343
630	628	1260	19.00	11632343			12633343

*1 mm

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

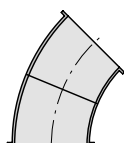
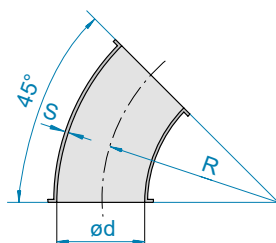
Shock explosion proof tested
up to 1 bar

Shock explosion proof tested
up to 3 bar

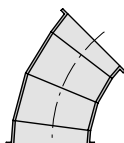


THE RANGE OF PIPE BENDS

Bends



2 pressed segments 22.5°



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

BENDS R = 2D, 45° : 曲管 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		
80	76	160	0.50	11081344*	12081344	
100	99	200	0.85	11101344*	12101344	
120	119	240	1.15	11121344	12121344	13121344
140	135	280	1.45	11141344	12141344	
150	149	300	1.80	11151344	12151344	13151344
175	174	350	2.25	11171344	12171344	13171344
200	199	400	3.00	11201344	12201344	13201344
224	219	448	3.90	11221344	12221344	
250	249	500	4.80	11251344	12251344	13251344
280	276	560	6.55	11281344		
300	299	600	7.20	11301344	12301344	13301344
315	311	630	8.15	11311344		
350	349	700	9.80		12351344	13351344
400	398	800	12.70		12401344	13401344
450	448	900	16.00		12451344	13451344
500	498	1000	19.80		12501344	13501344
560	558	1120	23.90		12561344	13561344
630	628	1260	29.60		12631344	13631344

*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		11063344*	
80	76	160	0.50	11082344*	12082344	11083344	
100	99	200	0.85	11102344*	12102344	11103344	12103344
120	119	240	1.15	11122344	12122344	11123344	12123344
140	135	280	1.45	11142344	12142344	11143344	12143344
150	149	300	1.80	11152344	12152344	11153344	12153344
175	174	350	2.25	11172344	12172344	11173344*	12173344
200	199	400	3.00	11202344	12202344	11203344*	12203344
224	219	448	3.90	11222344	12222344	11223344*	
250	249	500	4.80	11252344	12252344	11253344*	12253344
280	276	560	6.55	11282344		11283344*	
300	299	600	7.20	11302344	12302344	11303344*	12303344
315	311	630	8.15	11312344		11313344*	
350	349	700	9.80		12352344		12353344
400	398	800	12.70		12402344		12403344
450	448	900	16.00	11452344			12453344
500	498	1000	19.80	11502344			12503344
560	558	1120	23.90	11562344			12563344
630	628	1260	29.60	11632344			12633344

*1 mm

*1.5 mm

FOOD GRADE
EG/EC 1935/2004 plus FDA

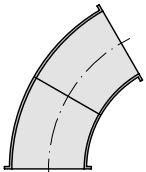
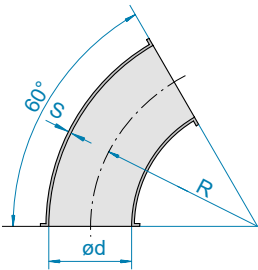
Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

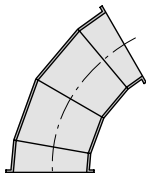


BENDS R = 2D, 60° : 曲管 R=2D 60°

1250



2 pressed segments 30°



4 lobster back segments:
2x20°/2x10°

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		
80	76	160	0.65	11081346*	12081346	
100	99	200	1.10	11101346*	12101346	
120	119	240	1.50	11121346	12121346	13121346
140	135	280	2.05	11141346	12141346	
150	149	300	2.40	11151346	12151346	13151346
175	174	350	3.15	11171346	12171346	13171346
200	199	400	4.10	11201346	12201346	13201346
224	219	448	5.20	11221346	12221346	
250	249	500	6.90	11251346	12251346	13251346
280	276	560	8.80	11281346		
300	299	600	9.30	11301346	12301346	13301346
315	311	630	10.80	11311346		
350	349	700	13.00		12351346	13351346
400	398	800	16.90		12401346	13401346
450	448	900	21.30		12451346	13451346
500	498	1000	26.40		12501346	13501346
560	558	1120	31.90		12561346	13561346
630	628	1260	37.90		12631346	13631346

*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	0.50	11062346		11063346*	
80	76	160	0.65	11082346*	12082346	11083346	
100	99	200	1.10	11102346*	12102346	11103346	12103346
120	119	240	1.50	11122346	12122346	11123346	12123346
140	135	280	2.05	11142346	12142346	11143346	12143346
150	149	300	2.40	11152346	12152346	11153346	12153346
175	174	350	3.15	11172346	12172346	11173346*	12173346
200	199	400	4.10	11202346	12202346	11203346*	12203346
224	219	448	5.20	11222346	12222346	11223346*	
250	249	500	6.90	11252346	12252346	11253346*	12253346
280	276	560	8.80	11282346		11283346*	
300	299	600	9.30	11302346	12302346	11303346*	12303346
315	311	630	10.80	11312346		11313346*	
350	349	700	13.00		12352346		12353346
400	398	800	16.90		12402346		12403346
450	448	900	21.30	11452346			12453346
500	498	1000	26.40	11502346			12503346
560	558	1120	31.90	11562346			12563346
630	628	1260	37.90	11632346			12633346

*1 mm

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

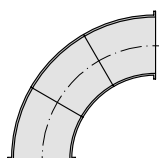
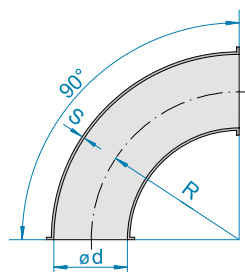
Shock explosion proof tested
up to 1 bar

Shock explosion proof tested
up to 3 bar

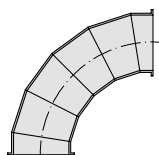


THE RANGE OF PIPE BENDS

Bends



3 pressed segments 30°



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

BENDS R = 2D, 90° : 曲管 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		
80	76	160	0.95	11081349*	12081349	
100	99	200	1.55	11101349*	12101349	
120	119	240	2.20	11121349	12121349	13121349
140	135	280	3.05	11141349	12141349	
150	149	300	3.50	11151349	12151349	13151349
175	174	350	4.60	11171349	12171349	13171349
200	199	400	6.10	11201349	12201349	13201349
224	219	448	7.80	11221349	12221349	
250	249	500	9.70	11251349	12251349	13251349
280	276	560	12.70	11281349		
300	299	600	13.50	11301349	12301349	13301349
315	311	630	16.30	11311349		
350	349	700	19.60		12351349	13351349
400	398	800	25.00		12401349	13401349
450	448	900	32.00		12451349	13451349
500	498	1000	39.30		12501349	13501349
560	558	1120	47.90		12561349	13561349
630	628	1260	56.90		12631349	13631349

*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		11063349*	
80	76	160	0.95	11082349*	12082349	11083349	
100	99	200	1.55	11102349*	12102349	11103349	12103349
120	119	240	2.20	11122349	12122349	11123349	12123349
140	135	280	3.05	11142349	12142349	11143349	12143349
150	149	300	3.50	11152349	12152349	11153349	12153349
175	174	350	4.60	11172349	12172349	11173349*	12173349
200	199	400	6.10	11202349	12202349	11203349*	12203349
224	219	448	7.80	11222349	12222349	11223349*	
250	249	500	9.70	11252349	12252349	11253349*	12253349
280	276	560	12.70	11282349		11283349*	
300	299	600	13.50	11302349	12302349	11303349*	12303349
315	311	630	16.30	11312349		11313349*	
350	349	700	19.60		12352349		12353349
400	398	800	25.00		12402349		12403349
450	448	900	32.00	11452349			12453349
500	498	1000	39.30	11502349			12503349
560	558	1120	47.90	11562349			12563349
630	628	1260	56.90	11632349			12633349

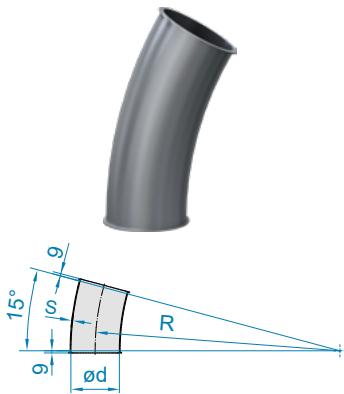
*1 mm

*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°

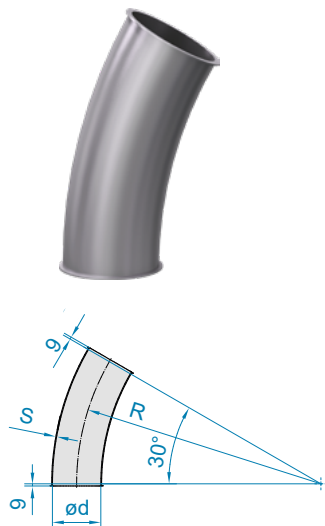
1262

- 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	120833511	
100	99	500	4.10	121013511	121033511	
120	119	600	5.70	121213511	121233511	
150	149	750	13.50	131513511*	121533511	
175	175	875	12.40	131713511*	121733511	
200	199	1000	26.20	132013511*	132033511*	
250	249	1000	32.80	132513511*	132533511*	
300	299	1200	46.40	133013511*	133033511*	

*3 mm



BENDS LONG RADIUS, 30°

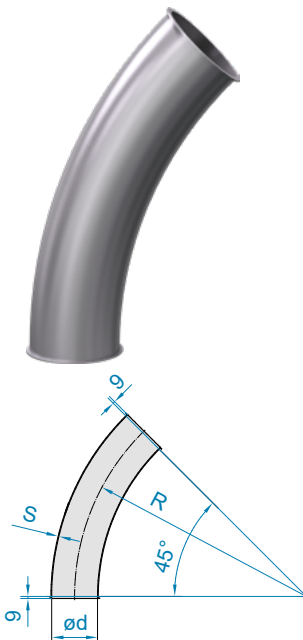
1264

- 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	120833531	
100	99	500	4.10	121013531	121033531	
120	119	600	5.70	121213531	121233531	
150	149	750	13.50	131513531*	121533531	
175	175	875	12.40	131713531*	121733531	
200	199	1000	26.20	132013531*	132033531*	
250	249	1000	32.80	132513531*	132533531*	
300	299	1200	46.40	133013531*	133033531*	

*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	120833541	
100	99	500	4.10	121013541	121033541	
120	119	600	5.70	121213541	121233541	
150	149	750	13.50	131513541*	121533541	
175	175	875	12.40	131713541*	121733541	
200	199	1000	26.20	132013541*	132033541*	
250	249	1000	32.80	132513541*	132533541*	
300	299	1200	46.40	133013541*	133033541*	

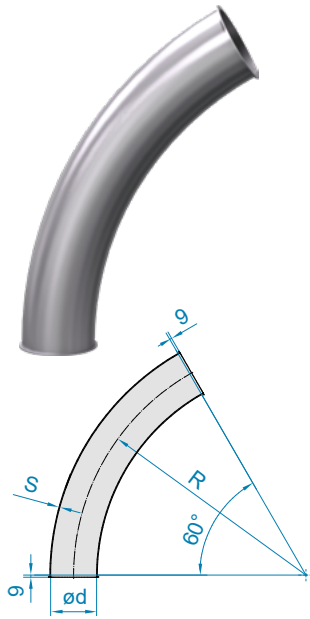
*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THE RANGE OF PIPE BENDS

Bends



BENDS LONG RADIUS, 60° : 曲管

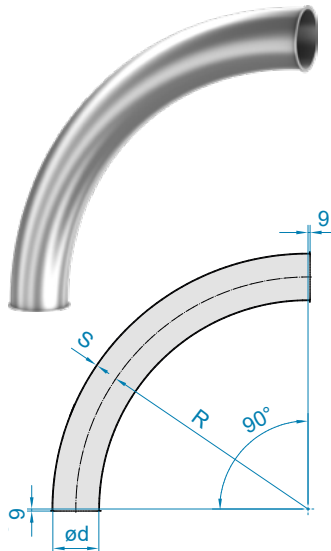
1268

- 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	120833561	
100	99	500	3.70	121013561	121033561	
120	119	600	4.80	121213561	121233561	
150	149	750	10.50	131513561*	121533561	
175	175	875	16.40	131713561*	121733561	
200	199	1000	21.30	132013561*	132033561*	
250	249	1000	27.20	132513561*	132533561*	
300	299	1200	38.60	133013561*	133033561*	

*3 mm



BENDS LONG RADIUS, 90° : 曲管

1270

- DN 80 mm R = 6,25D
- DN 100, 120, 150, 175 and 200 mm R = 5D
- DN 250 and 300 mm R = 4D

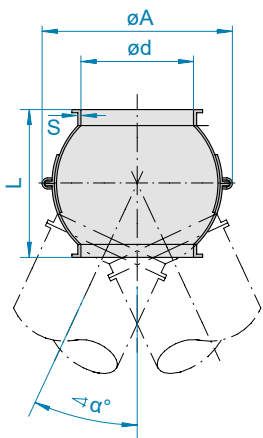
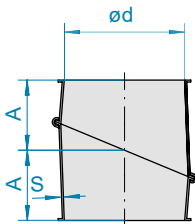
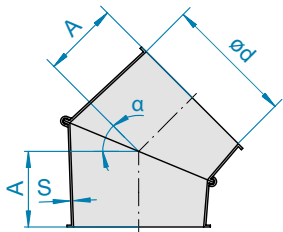
Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	2 mm powder-coated	2 mm stainless steel	F
				Item no.	Item no.	
80	76	500	2.10	120813591	120833591	
100	99	500	4.10	121013591	121033591	
120	119	600	5.80	121213591	121233591	
150	149	750	13.50	131513591*	121533591	
175	175	875	18.30	131713591*	121733591	
200	199	1000	23.80	132013591*	132033591*	
250	249	1000	29.50	132513591*	132533591*	
300	299	1200	42.60	133013591*	133033591*	

*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	FD
					Item no.	Item no.	Item no.	
100	100	70	55°	1.5	1110133503	1110133502	1110333501	
120	120	60	45°	1.6	1112133503	1112133502	1112333501	
150	150	80	45°	2.4	1115133503	1115133502	1115333501	
175	175	100	45°	3.0	1117133503	1117133502	1117333501	
200	200	120	45°	3.5	1120133503	1120133502	1120333501	
250	250	140	45°	4.6	1125133503	1125133502	1125333501	

4

PIPE BALL JOINTS

2125

- Only suitable for coarse-grained bulk goods

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	F
						Item no.	Item no.	
100	99	150	25°	130	1.50	12102730	12103730	
120	119	150	15°	115	1.60	12122730	12123730	
150	149	200	18°	160	2.35	12152730	12153730	
175	174	250	25°	200	3.70	12172730	12173730	
200	199	250	15°	170	3.50	12202730	12203730	
250	249	300	16°	190	4.60	12252730	12253730	

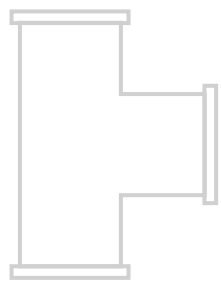
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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	
T-pieces	72	
Forks	73	
Symmetrical forks	78	



BRANCH PIECES

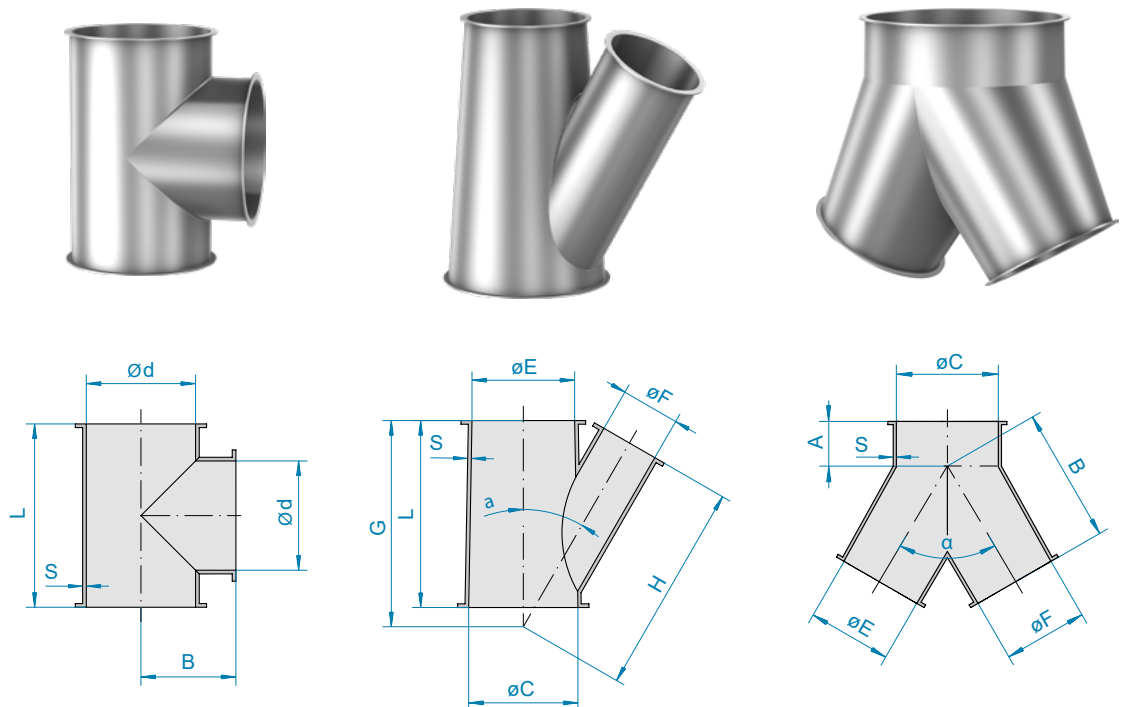
Branch pieces turn a straightforward pipe into a complex pipework system. They are therefore key elements during planning and implementation.

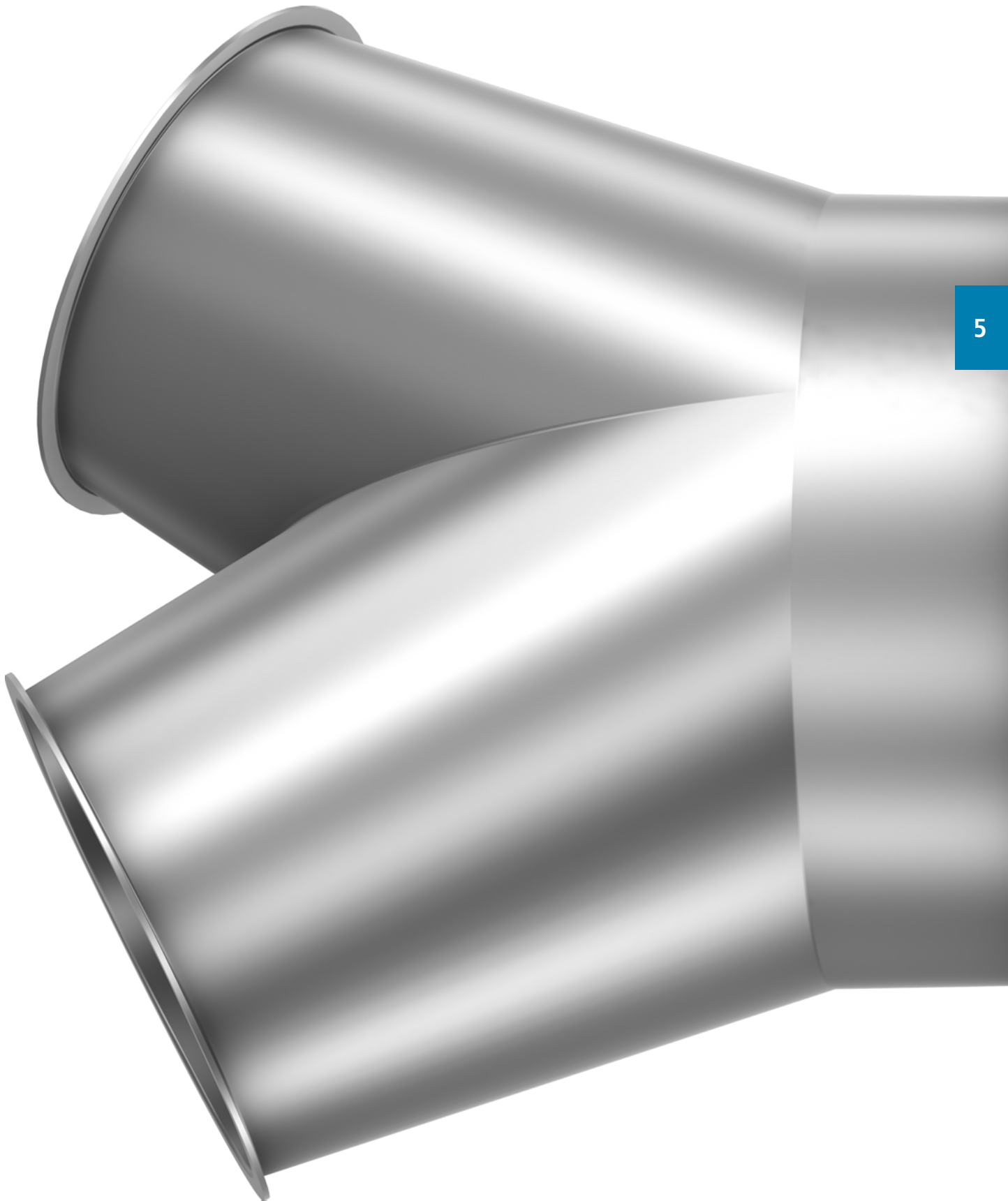
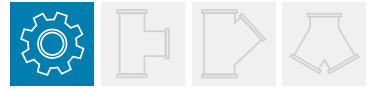
To meet the particular requirements of each system, JACOB offers a comprehensive and wide-ranging standard range which covers most requirements. If this does not meet your particular needs, we also manufacture individual parts to customers' specification. This is possible due to up-to-the-minute technologies, 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.



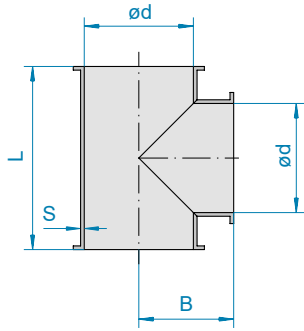


5



BRANCH PIECES

T-pieces



T-PIECES 90° : T管

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		11062240	
80	77	70	150	0.60	11081240		11082240	
100	100	100	200	1.00	11101240		11102240	
120	120	110	220	1.20	11121240		11122240	
140	136	120	240	1.40	11141240		11142240	
150	150	125	250	1.65	11151240		11152240	
175	175	137.5	275	2.05	11171240		11172240	
200	200	150	300	2.55	11201240		11202240	
224	220	162.5	325	2.90	11221240		11222240	
250	250	175	350	3.50	11251240		11252240	
280	277	190	380	4.30	11281240		11282240	
300	300	200	400	4.70	11301240		11302240	
315	312	210	420	5.30	11311240		11312240	
350	350	275	550	8.10	11351240		11352240	
400	399	300	600	9.90	11401240		11402240	
450	449	325	650	12.75	11451240		11452240	
500	499	350	700	14.10	11501240		11502240	
560	558	380	760	22.15		12561240		12562240
630	628	415	830	26.80		12631240		12632240

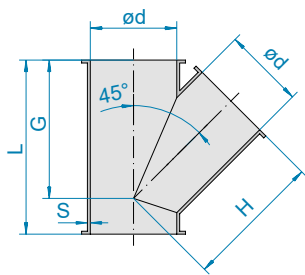
Stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	B	L	kg	1.5 mm stainless steel	F	2 mm stainless steel	F
					Item no.		Item no.	
60	57	60	130	0.55	11063240			
80	77	70	150	0.60	11083240			
100	100	100	200	1.00	11103240		12103240	
120	120	110	220	1.20	11123240		12123240	
140	136	120	240	1.40	11143240			
150	150	125	250	1.65	11153240		12153240	
175	175	137.5	275	2.05	11173240		12173240	
200	200	150	300	2.55	11203240		12203240	
224	220	162.5	325	2.90	11223240			
250	250	175	350	3.50	11253240		12253240	
280	277	190	380	4.30	11283240			
300	300	200	400	4.70	11303240		12303240	
315	312	210	420	5.30	11313240			
350	350	275	550	8.10	11353240		12353240	
400	399	300	600	9.90	11403240		12403240	
450	449	325	650	12.75	11453240		12453240	
500	499	350	700	14.10	11503240		12503240	
560	558	380	760	22.15			12563240	
630	628	415	830	26.80			12633240	

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

Forks



FORKS 45° : Y管 片開 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		
80	77	123	137	160	0.75	11081220		
100	100	177	176	215	1.15	11101220		
120	120	187	185	240	1.20	11121220	12121220	13121220
140	136	216	219	280	1.60	11141220	12141220	13141220
150	150	234	231	300	2.10	11151220	12151220	13151220
175	175	269	266	340	2.20	11171220	12171220	13171220
200	200	309	306	390	4.10	11201220	12201220	13201220
224	220	334	336	420	5.70	11221220	12221220	13221220
250	250	358	352	450	5.40	11251220	12251220	13251220
280	277	400	400	500	6.90	11281220		
300	300	418	412	520	7.80	11301220	12301220	13301220
315	312	450	450	560	8.70	11311220		
350	349	498	472	615	15.00	11351220	12351220	13351220
400	398	557	533	685	17.75	11401220	12401220	13401220
450	448	662	623	800	22.80	11451220	12451220	13451220
500	498	701	674	850	27.20	11501220	12501220	13501220
560	558	789	786	950	38.00		12561220	13561220
630	628	885	890	1060	48.00		12631220	13631220

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 F	2 mm stainless steel F
						Item no.	Item no.	Item no.	Item no.
60	57	115	115	145	0.50	11062220		11063220*	
80	77	123	137	160	0.75	11082220		11083220	
100	100	177	176	215	1.15	11102220	12102220	11103220	12103220
120	120	187	185	240	1.20	11122220	12122220	11123220	12123220
140	136	216	219	280	1.60	11142220	12142220	11143220	12143220
150	150	234	231	300	2.10	11152220	12152220	11153220	12153220
175	175	269	266	340	2.20	11172220	12172220	11173220	12173220
200	200	309	306	390	4.10	11202220	12202220	11203220	12203220
224	220	334	336	420	5.70	11222220	12222220	11223220	12223220
250	250	358	352	450	5.40	11252220	12252220	11253220	12253220
280	277	400	400	500	6.90	11282220		11283220*	
300	300	418	412	520	7.80	11302220	12302220	11303220	12303220
315	312	450	450	560	8.70	11312220		11313220*	
350	349	498	472	615	15.00	11352220		11353220*	12353220
400	398	557	533	685	17.75	11402220		11403220*	12403220
450	448	662	623	800	22.80	11452220		11453220*	12453220
500	498	701	674	850	27.20	11502220		11503220*	12503220
560	558	789	786	950	38.00	11562220			12563220
630	628	885	890	1060	48.00	11632220			12633220

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

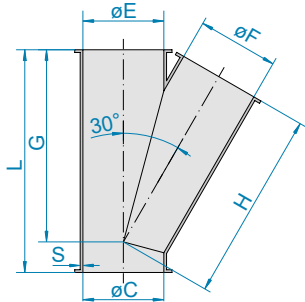
Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar

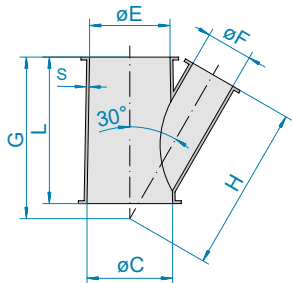


BRANCH PIECES

Forks



Fork 30°



Conical fork 30°

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

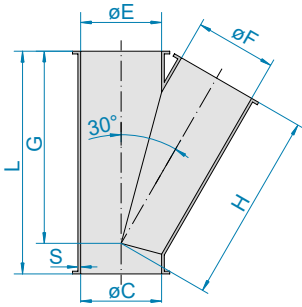
FORKS 30° : Y管 片開 30° 粉体塗装管

1060/1080

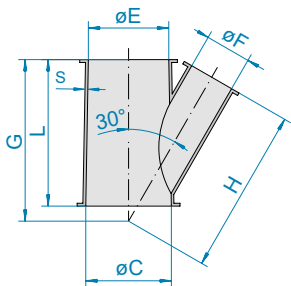
- Diameters C, E, F = nominal diameters, for inside diameters see chapter 1, Connecting systems and dimensions
- Other combinations of diameter, angles and wall thickness available on request
- DN 224 – 315 mm shock explosion proof up to 3 bar with 2 mm wall thickness

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		
80-60-60	170	170	200	0.95	11081255		
80-80-80	209	216	240	1.32	11081230		
100-80-80	237	236	250	1.25	11101255		
100-100-80	239	248	250	1.35	11101258		
100-100-100	262	248	300	1.70	11101230	12101230	
120-80-80	258	259	255	1.35	11121286		
120-100-80	260	261	255	1.45	11121257		
120-100-100	267	267	290	1.75	11121255		
120-120-80	256	258	250	1.50	11121258		
120-120-120	299	296	340	2.20	11121230	12121230	13121230
140-100-100	290	292	300	1.95	11141255		
140-120-80	274	278	255	1.65	11141257		
140-120-100	291	293	300	2.00	11141256		
140-140-80	275	284	255	1.70	11141258		
140-140-140	336	334	390	2.80	11141230		
150-100-100	291	294	290	2.10	11151254		
150-120-100	293	296	290	2.05	11151256		
150-120-120	323	324	340	2.45	11151255		
150-140-80	286	292	255	1.75	11151287		
150-150-80	282	288	250	1.85	11151258		
150-150-150	355	350	410	3.05	11151230	12151230	13151230
175-120-120	343	347	340	2.70	11171285		
175-140-120	344	348	340	2.70	11171286		
175-150-80	302	311	250	1.90	11171258		
175-150-100	315	321	290	2.40	11171257		
175-150-120	345	349	340	2.80	11171256		
175-150-150	375	373	410	3.80	11171255		
175-175-175	392	383	450	4.00	11171230	12171230	13171230
200-140-140	387	401	390	3.60	11201285		
200-150-120	365	373	340	2.70	11201286		
200-150-150	395	396	410	5.00	11201255		
200-175-100	336	346	290	2.70	11201258		
200-175-120	366	374	340	3.10	11201257		
200-175-150	396	398	410	4.10	11201256		
200-200-80	330	348	255	2.50	11201253		
200-200-100	348	358	300	3.00	11201254		
200-200-200	463	457	530	5.60	11201230	12201230	13201230
224-150-150	410	424	410	4.00	11221255		
224-175-140	406	423	390	4.00	11221256		
224-200-100	364	377	300	3.00	11221258		
224-200-120	384	395	340	3.30	11221257		
224-224-224	510	510	580	6.90	11221230		



■ Fork 30°



Conical fork 30°

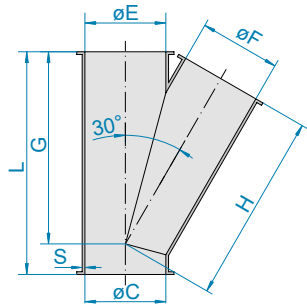
DN C - E - F	G	H	L	kg	1.5 mm powder-coated	2 mm powder-coated	3 mm powder-coated
					Item no.	Item no.	Item no.
250-200-150	438	446	410	4.60	11251286		
250-200-175	453	455	450	5.80	11251256		
250-200-200	503	513	530	6.10	11251255		
250-224-120	409	424	340	4.20	11251288		
250-224-140	433	455	390	4.40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

■ Shock explosion proof tested up to 3 bar

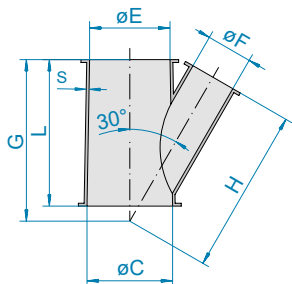


BRANCH PIECES

Forks



Fork 30°



Conical fork 30°

FORKS 30° : Y管 片開 30° 亜鉛メッキ & SUS

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)

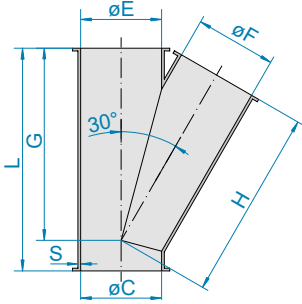
DN C - E - F	G	H	L	kg	1.5 mm galvanised	2 mm galvanised	1 mm stainless steel F	2 mm stainless steel F
					Item no.	Item no.	Item no.	Item no.
60-60-60	170	170	200	0.80	11062230		11063230*	
80-60-60	170	170	200	0.95	11082255		11083255*	
80-80-80	209	216	240	1.32	11082230		11083230	
100-80-80	237	236	250	1.25	11102255		11103255	12103255
100-100-80	239	248	250	1.35	11102258		11103258	12103258
100-100-100	262	248	300	1.70	11102230	12102230	11103230	12103230
1120-80-80	258	259	255	1.35	11122286		11123286	12123286
120-100-80	260	261	255	1.45	11122257		11123257	12123257
120-100-100	267	267	290	1.75	11122255		11123255	12123255
120-120-80	256	258	250	1.50	11122258		11123258	12123258
120-120-120	299	296	340	2.20	11122230	12122230	11123230	12123230
140-100-100	290	292	h300	1.95	11142255		11143255	12143255
140-120-80	274	278	255	1.65	11142257		11143257	12143257
140-120-100	291	293	300	2.00	11142256		11143256	12143256
140-140-80	275	284	255	1.70	11142258		11143258	12143258
140-140-140	336	334	390	2.80	11142230	12142230	11143230	12143230
150-100-100	291	294	290	2.10	11152254		11153254	12153254
150-120-100	293	296	290	2.05	11152256		11153256	12153256
150-120-120	323	324	340	2.45	11152255		11153255	12153255
150-140-80	286	292	255	1.75	11152287		11153287	12153287
150-150-80	282	288	250	1.85	11152258		11153258	12153258
150-150-150	355	350	410	3.05	11152230	12152230	11153230	12153230
175-120-120	343	347	340	2.70	11172285		11173285	12173285
175-140-120	344	348	340	2.70	11172286		11173286	12173286
175-150-80	302	311	250	1.90	11172258		11173258	12173258
175-150-100	315	321	290	2.40	11172257		11173257	12173257
175-150-120	345	349	340	2.80	11172256		11173256	12173256
175-150-150	375	373	410	3.80	11172255		11173255	12173255
175-175-175	392	383	450	4.00	11172230	12172230	11173230	12173230
200-140-140	387	401	390	3.60	11202285		11203285	12203285
200-150-120	365	373	340	2.70	11202286		11203286	12203286
200-150-150	395	396	410	5.00	11202255		11203255	12203255
200-175-100	336	346	290	2.70	11202258		11203258	12203258
200-175-120	366	374	340	3.10	11202257		11203257	12203257
200-175-150	396	398	410	4.10	11202256		11203256	12203256
200-200-80	330	348	255	2.50	11202253		11203253	12203253
200-200-100	348	358	300	3.00	11202254		11203254	12203254
200-200-200	463	457	530	5.60	11202230	12202230	11203230	12203230
224-150-150	410	424	410	4.00	11222255		11223255	12223255
224-175-140	406	423	390	4.00	11222256		11223256	12223256
224-200-100	364	377	300	3.00	11222258		11223258	12223258
224-200-120	384	395	340	3.30	11222257		11223257	12223257
224-224-224	510	510	580	6.90	11222230	12222230	11223230	12223230

*1.5 mm

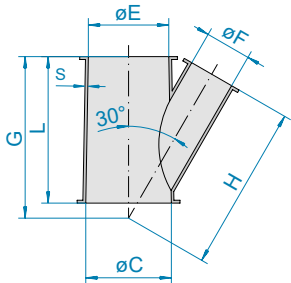
F FOOD GRADE
EG/EC 1935/2004 plus FDA

Shock explosion proof tested up to 1 bar

Shock explosion proof tested up to 3 bar



■ Fork 30°



Conical fork 30°

DN C - E - F	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.
250-200-150	438	446	410	4.60	11252286		11253286	12253286
250-200-175	453	455	450	5.80	11252256		11253256	12253256
250-200-200	503	513	530	6.10	11252255		11253255	12253255
250-224-120	409	424	340	4.20	11252288		11253288	12253288
250-224-140	433	455	390	4.40	11252287		11253287	12253287
250-250-80	374	398	255	2.90	11252253		11253253	
250-250-100	392	409	300	3.50	11252254		11253254	12253254
250-250-250	547	544	620	8.00	11252230	12252230	11253230	12253230
280-280-280	610	610	690	10.00	11282230		11283230*	
300-224-224	575	584	580	7.70	11302285		11303285	12303285
300-250-140	475	493	390	4.90	11302288		11303288	12303288
300-250-150	476	495	410	5.30	11302258		11303258	12303258
300-250-175	496	505	450	5.90	11302257		11303257	12303257
300-250-200	546	563	530	7.10	11302256		11303256	12303256
300-250-250	587	580	620	8.70	11302255		11303255	12303255
300-300-80	417	448	255	3.30	11302253		11303253	
300-300-100	435	459	300	4.10	11302254		11303254	12303254
300-300-300	640	640	720	11.25	11302230	12302230	11303230	12303230
315-315-315	690	690	780	12.70	11312230		11313230*	
350-250-250	627	627	620	9.60	11352255		11353255*	12353255
350-300-150	524	546	410	6.10	11352288		11353288	12353288
350-300-200	590	613	530	7.90	11352257		11353257*	12353257
350-300-224	619	636	580	8.90	11352286		11353286*	12353286
350-300-250	630	630	620	9.90	11352256		11353256*	12353256
350-350-350	728	717	820	14.40	11352230		11353230*	12353230
400-300-250	670	677	620	10.40	11402256		11403256*	12403256
400-300-300	721	724	720	12.40	11402255		11403255*	12403255
400-350-175	583	609	450	7.40	11402288		11403288	12403288
400-350-224	663	686	580	10.20	11402287		11403287*	12403287
400-400-400	826	825	925	18.65	11402230		11403230*	12403230
450-350-300	764	774	720	14.80	11452256		11453256*	12453256
450-350-350	809	811	820	17.50	11452255		11453255*	12453255
450-400-200	676	713	530	10.70	11452258		11453258*	12453258
450-400-250	716	730	620	12.80	11452257		11453257*	12453257
450-450-450	945	930	1050	23.60	11452230		11453230*	12453230
500-400-350	853	861	820	18.20	11502256		11503256*	12503256
500-400-400	909	914	925	22.70	11502255		11503255*	12503255
500-450-224	749	786	580	13.00	11502288		11503288*	12503288
500-450-300	810	827	720	17.00	11502257		11503257*	12503257
500-500-500	1038	1027	1150	28.80	11502230		11503230*	12503230
560-560-560	1180	1175	1300	54.00	11562230			12563230
630-630-630	1301	1304	1430	64.00	11632230			12633230

*1.5 mm

F FOOD GRADE
EG/EC 1935/2004 plus FDA

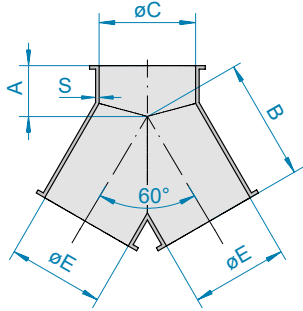
■ Shock explosion proof tested
up to 1 bar

■ Shock explosion proof tested
up to 3 bar

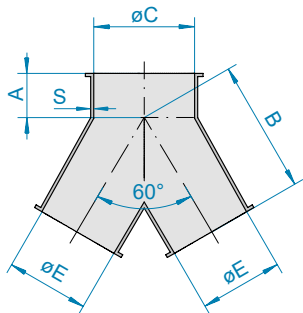


BRANCH PIECES

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° : Y管 兩開 60°

1090/1095

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

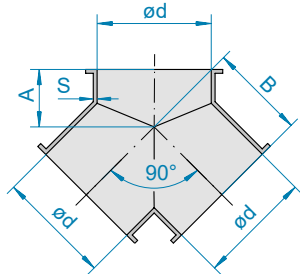
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

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	11082270
100-80-80	40	130	100	77	0.85	11101275	11102275
100-100-100	50	120	100	100	1.00	11101270	11102270
120-100-100	50	150	120	100	1.25	11121275	11122275
120-120-120	50	150	120	120	1.50	11121270	11122270
140-100-100	50	150	136	100	1.25	11141275	11142275
140-140-140	70	165	136	136	2.00	11141270	11142270
150-100-100	50	170	150	100	1.40	11151276	11152276
150-120-120	50	170	150	120	1.65	11151275	11152275
150-150-150	75	175	150	150	2.20	11151270	11152270
175-120-120	50	200	175	120	2.00	11171276	11172276
175-175-175	80	210	175	175	3.10	11171270	11172270
200-140-140	60	200	200	136	2.35	11201276	11202276
200-150-150	60	200	200	150	2.50	11201275	11202275
200-200-200	90	240	200	200	4.00	11201270	11202270
224-150-150	60	220	220	150	2.65	11221275	11222275
224-224-224	90	275	220	220	5.00	11221270	11222270
250-200-200	60	250	250	200	3.50	11251275	11252275
250-250-250	100	300	250	250	6.20	11251270	11252270
300-224-224	70	300	300	220	4.80	11301276	11302276
300-300-300	120	360	300	300	8.90	11301270	11302270
350-250-250	70	300	350	250	5.30	11351275	11352275
400-300-300	70	350	399	300	6.20	11401275	11402275
450-350-350	80	400	449	350	9.20	11451275	11452275
500-400-400	80	450	499	399	11.40	11501275	11502275

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	
100-80-80	40	130	100	77	0.85	11103275	12103275
100-100-100	50	120	100	100	1.00	11103270	12103270
120-100-100	50	150	120	100	1.25	11123275	12123275
120-120-120	50	150	120	120	1.50	11123270	12123270
140-100-100	50	150	136	100	1.25	11143275	12143275
140-140-140	70	165	136	136	2.00	11143270	12143270
150-100-100	50	170	150	100	1.40	11153276	12153276
150-120-120	50	170	150	120	1.65	11153275	12153275
150-150-150	75	175	150	150	2.20	11153270	12153270
175-120-120	50	200	175	120	2.00	11173276	12173276
175-175-175	80	210	175	175	3.10	11173270	12173270
200-140-140	60	200	200	136	2.35	11203276	12203276
200-150-150	60	200	200	150	2.50	11203275	12203275
200-200-200	90	240	200	200	4.00	11203270	12203270
224-150-150	60	220	220	150	2.65	11223275	12223275
224-224-224	90	275	220	220	5.00	11223270	12223270
250-200-200	60	250	250	200	3.50	11253275	12253275
250-250-250	100	300	250	250	6.20	11253270	12253270
300-224-224	70	300	300	220	4.80	11303276	12303276
300-300-300	120	360	300	300	8.90	11303270	12303270
350-250-250	70	300	350	250	5.30	11353275*	12353275
400-300-300	70	350	399	300	6.20	11403275*	12403275
450-350-350	80	400	449	350	9.20	11453275*	12453275
500-400-400	80	450	499	399	11.40	11503275*	12503275

*1.5 mm



SYMMETRICAL FORKS 90° : Y管 兩開 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		11082260
100	100	60	100	0.85	11101260		11102260
120	120	75	110	1.10	11121260	13121260	11122260
140	136	75	120	1.30	11141260		11142260
150	150	75	125	1.45	11151260	13151260	11152260
175	175	75	140	1.75	11171260	13171260	11172260
200	200	90	170	2.50	11201260	13201260	11202260
224	220	100	190	3.00	11221260		11222260
250	250	100	200	3.50	11251260	13251260	11252260
300	300	120	220	4.40	11301260	13301260	11302260
350	350	120	250	5.65	11351260		11352260
400	399	150	270	7.00	11401260		11402260
450	449	150	300	8.45	11451260		11452260
500	499	175	325	10.20	11501260		11502260

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		
100	100	60	100	0.85	11103260		12103260
120	120	75	110	1.10	11123260		12123260
140	136	75	120	1.30	11143260		12143260
150	150	75	125	1.45	11153260		12153260
175	175	75	140	1.75	11173260		12173260
200	200	90	170	2.50	11203260		12203260
224	220	100	190	3.00	11223260		12223260
250	250	100	200	3.50	11253260		12253260
300	300	120	220	4.40	11303260		12303260
350	350	120	250	5.65		11353260	12353260
400	399	150	270	7.00		11403260	12403260
450	449	150	300	8.45		11453260	12453260
500	499	175	325	10.20		11503260	12503260

 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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BFM COMPENSATOR, P. 87



TRANSITION PIECES AND ADAPTERS

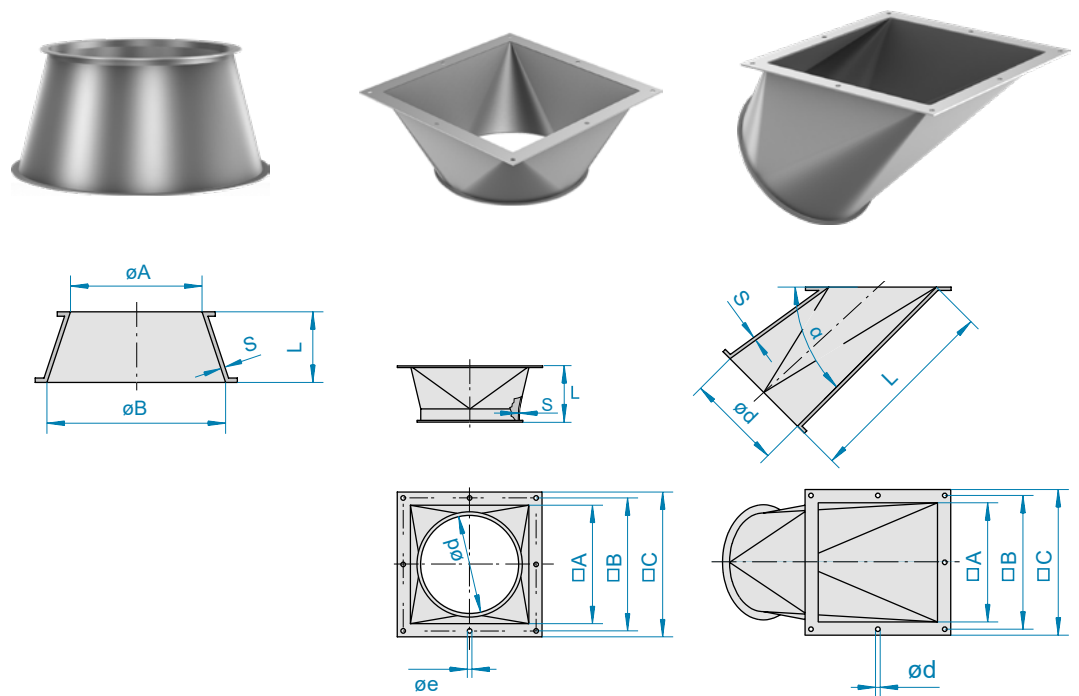
Technical information

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	

F FOOD GRADE
EG/EC 1935/2004
plus FDA compliant

D DETECTABLE DESIGN
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



BFM COMPENSATOR WITH JACOB LIP

NEW

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



COMPENSATORS

Material: Conductive EPDM, black

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



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

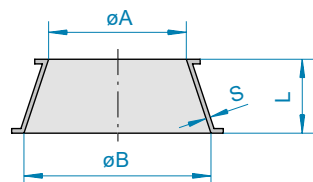
- FOOD GRADE: EC 1935/2004 plus FDA compliant
- Temperature resistance: -20°C to +90°C

F FOOD GRADE
EG/EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Cone pieces



CONE PIECES : テーパー管 粉体塗装管

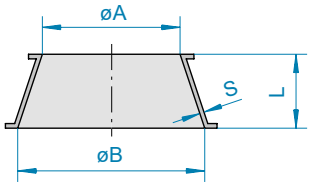
1330

- 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	
60-100	57	100	100	0.25	11001492	
80-100	77	100	100	0.35	11001450	
80-120	77	120	80	0.35	11001478	
80-140	77	136	120	0.55	11001479	
80-150	77	150	140	0.65	11001489	
100-120	100	120	60	0.30	11001451	
100-140	100	136	100	0.50	11001459	
100-150	100	150	95	0.50	11001452	
100-175	100	175	120	0.70	11001464	
100-200	100	200	120	0.75	11001453	
100-250	100	250	200	1.45	11001454	
120-140	120	136	100	0.55	11001466	
120-150	120	150	150	0.85	11001455	13001455
120-175	120	175	100	0.65	11001456	13001456
120-200	120	200	120	0.80	11001457	13001457
120-250	120	250	150	1.20	11001458	13001458
140-150	136	150	100	0.60	11001467	
140-175	136	175	100	0.65	11001468	
140-200	136	200	150	1.05	11001469	
150-175	150	175	100	0.60	11001460	13001460
150-200	150	200	100	0.75	11001461	13001461
150-224	150	220	150	1.15	11001472	
150-250	150	250	150	1.10	11001462	13001462
150-300	150	300	200	1.85	11001463	13001463
175-200	175	200	100	0.80	11001465	13001465
175-224	175	220	100	0.85	11001473	
200-224	200	220	100	0.85	11001474	
200-250	200	250	120	1.10	11001470	13001470
200-300	200	300	150	1.55	11001471	13001471
224-250	220	250	100	1.00	11001476	
224-300	220	300	150	1.60	11001477	
250-280	250	277	120	1.30	11001960	
250-300	250	300	150	1.65	11001475	13001475
250-350	250	350	200	2.20	11001484	13001484
280-300	277	300	100	1.22	11001961	
300-315	300	312	100	1.30	11001962	
300-350	300	350	200	2.55	11001480	13001480
300-400	300	399	200	2.75	11001481	13001481
315-350	312	350	120	1.65	11001963	
350-400	350	399	200	2.95	11001482	13001482
350-450	350	449	200	3.15	11001483	13001483

Shock explosion proof tested up to 3 bar



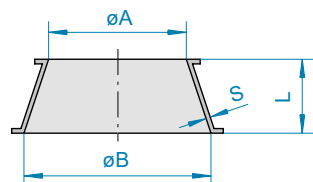
DN	Ø A	Ø B	L	kg	1.5 mm powder-coated	3 mm powder-coated
					Item no.	Item no.
400-450	399	449	200	3.40	11001485	13001485
400-500	399	499	250	4.40	11001486	13001486
450-500	449	499	200	3.70	11001487	13001487
450-560	448	558	250	6.70	12001495*	13001495
500-560	498	558	250	7.00	12001496*	13001496
500-630	498	628	300	8.90	12001497*	13001497
560-630	558	628	300	9.50	12001498*	13001498

*2 mm



TRANSITION PIECES AND ADAPTERS

Cone pieces



CONE PIECES : テーパー管 亜鉛メッキ & SUS

1330

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

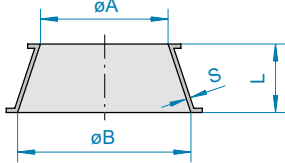
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	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*	
60-100	57	100	100	0.25	11002492		11003492	
80-100	77	100	100	0.35	11002450		11003450	
80-120	77	120	80	0.35	11002478		11003478	
80-140	77	136	120	0.55	11002479		11003479	
80-150	77	150	140	0.65	11002489		11003489	
100-120	100	120	60	0.30	11002451		11003451	12003451
100-140	100	136	100	0.50	11002459		11003459	
100-150	100	150	95	0.50	11002452		11003452	12003452
100-175	100	175	120	0.70	11002464		11003464	12003464
100-200	100	200	120	0.75	11002453		11003453	12003453
100-250	100	250	200	1.45	11002454		11003454	12003454
120-140	120	136	100	0.55	11002466		11003466	
120-150	120	150	150	0.85	11002455		11003455	12003455
120-175	120	175	100	0.65	11002456		11003456	12003456
120-200	120	200	120	0.80	11002457		11003457	12003457
120-250	120	250	150	1.20	11002458		11003458	12003458
140-150	136	150	100	0.60	11002467		11003467	
140-175	136	175	100	0.65	11002468		11003468	
140-200	136	200	150	1.05	11002469		11003469	
150-175	150	175	100	0.60	11002460		11003460	12003460
150-200	150	200	100	0.75	11002461		11003461	12003461
150-224	150	220	150	1.15	11002472		11003472	
150-250	150	250	150	1.10	11002462		11003462	12003462
150-300	150	300	200	1.85	11002463		11003463	12003463
175-200	175	200	100	0.80	11002465		11003465	12003465
175-224	175	220	100	0.85	11002473		11003473	
200-224	200	220	100	0.85	11002474		11003474	12003474
200-250	200	250	120	1.10	11002470		11003470	12003470
200-300	200	300	150	1.55	11002471		11003471	12003471
224-250	220	250	100	1.00	11002476		11003476	
224-300	220	300	150	1.60	11002477		11003477	12003477
250-280	250	277	120	1.30	11002960		11003960*	
250-300	250	300	150	1.65	11002475		11003475	12003475
250-350	250	350	200	2.20	11002484		11003484	12003484
280-300	277	300	100	1.22	11002961		11003961*	
300-315	300	312	100	1.30	11002962		11003962*	
300-350	300	350	200	2.55	11002480		11003480	12003480
300-400	300	399	200	2.75	11002481		11003481	12003481

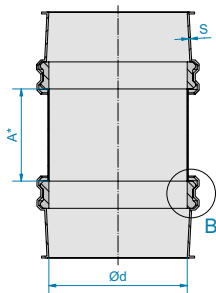
F FOOD GRADE
EG/EC 1935/2004 plus FDA

Shock explosion proof tested up to 1 bar

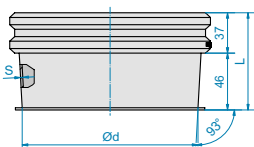
Shock explosion proof tested up to 3 bar



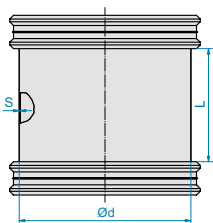
BFM compensator



BFM compensator Seeflex



Spigot



Connector

F FOOD GRADE
EC 1935/2004 plus FDA compliant

DN	Ø A	Ø B	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.	
*1.5 mm										
315-350	312	350	120	1.65	11002963		11003963*			
350-400	350	399	200	2.95	11002482		11003482		12003482	
350-450	350	449	200	3.15	11002483		11003483		12003483	
400-450	399	449	200	3.40	11002485		11003485		12003485	
400-500	399	499	250	4.40	11002486		11003486		12003486	
450-500	449	499	200	3.70	11002487		11003487		12003487	
450-560	448	558	250	6.70		12002495			12003495	
500-560	498	558	250	7.00		12002496			12003496	
500-630	498	628	300	8.90		12002497			12003497	
560-630	558	628	300	9.50		12002498			12003498	

*1.5 mm

COMPENSATORS

NEW

1349

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

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

BFM spigot with JACOB lip (2 spigots needed)

DN	L	kg	2 mm Stainless steel	F
Item no.				
100	83	0.40	1210317200*	
150	83	0.80	1215317200	
200	83	1.00	1220317200	
250	83	1.20	1225317200	
300	83	1.40	1230317200	
350	83	1.60	1235317200	
400	83	1.90	1240317200	

*1.5 mm

BFM connector

DN	L	kg	Seeflex 040 E	F	DN	L	kg	Seeflex 040 E	F	DN	L	kg	Seeflex 040 E	F
Item no.					Item no.					Item no.				
100					100	150	0.40	1210317215		100	250	0.70	1210317225	
150	80	0.35	1215317205		150	150	0.60	1215317215		150	250	1.10	1215317225	
200	80	0.40	1220317205		200	150	0.80	1220317215		200	250	1.30	1220317225	
250	80	0.50	1225317205		250	150	1.00	1225317215		250	250	1.50	1225317225	
300	80	0.70	1230317205		300	150	1.20	1230317215		300	250	1.70	1230317225	
350	80	0.80	1235317205		350	150	1.40	1235317215		350	250	1.90	1235317225	
400	80	1.00	1240317205		400	150	1.60	1240317215		400	250	2.10	1240317225	
100	100	0.30	1210317210		100	200	0.60	1210317220		100				
150	100	0.40	1215317210		150	200	0.90	1215317220		150				
200	100	0.50	1220317210		200	200	1.00	1220317220		200				
250	100	0.70	1225317210		250	200	1.20	1225317220		250				
300	100	0.80	1230317210		300	200	1.40	1230317220		300				
350	100	0.90	1235317210		350	200	1.60	1235317220		350				
400	100	1.10	1240317210		400	200	1.90	1240317220		400				





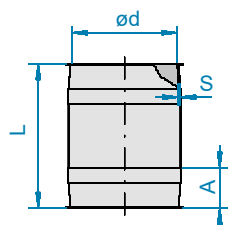
TRANSITION PIECES AND ADAPTERS

Compensators/connecting flanges



EPDM, black

AU, transparent



COMPENSATORS : コンペンセーター

1348

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

Powder-coated, galvanised and stainless steel

DN	$\varnothing d$	A	S	L	kg	2 mm powder-coated (EPDM, black)	2 mm galvanised (EPDM, black)	2 mm stainless steel (EPDM, black)	2 mm stainless steel (AU, transparent)	F
						Item no.	Item no.	Item no.	Item no.	
80	78	55	1	200	0.52	11081707*	11082707*	11083707*	11083171*	
100	99	55	2	200	1.00	12101707	12102707	12103707	12103171	
120	119	55	2	200	1.16	12121707	12122707	12123707	12123171	
140	135	55	2	200	1.30	12141707	12142707	12143707	12143171	
150	149	55	2	200	1.42	12151707	12152707	12153707	12153171	
175	174	55	2	200	1.65	12171707	12172707	12173707	12173171	
200	199	55	2	200	1.88	12201707	12202707	12203707	12203171	
224	219	55	2	200	2.06	12221707	12222707	12223707	12223171	
250	249	55	2	200	2.34	12251707	12252707	12253707	12253171	
300	299	55	2	200	2.80	12301707	12302707	12303707	12303171	

*1 mm



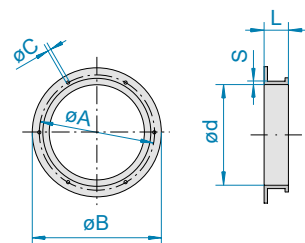
AVAILABLE IN THE DETECTABLE DESIGN LINE.



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)

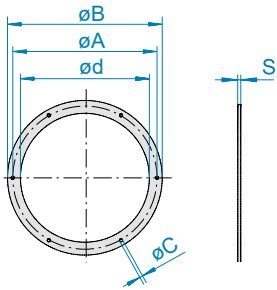
DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	C	E	L	kg	1.5 mm powder-coated	3 mm powder-coated
								Item no.	Item no.
80	77	108	123	6	6	35	0.27	11081431	
100	100	130	150	6	6	28	0.23	11101431	
120	120	150	170	6	6	28	0.28	11121431	13121431
150	150	180	202	6	6	36	0.40	11151431	13151431
175	175	205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

Galvanised and stainless steel

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

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



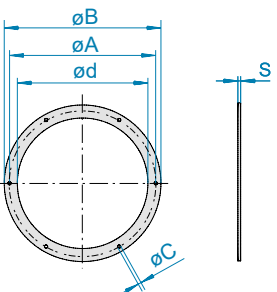
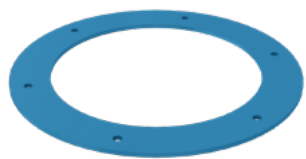
E = No. of holes

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	10083710	
100	105	130	155	6	6	5	0.40	10100710	10103710	
120	125	150	175	6	6	5	0.46	10120710	10123710	
150	155	180	205	6	6	5	0.55	10150710	10153710	
175	180	205	230	6	6	5	0.63	10170710	10173710	
200	205	230	255	6	6	5	0.71	10200710	10203710	
250	255	280	305	6	6	5	0.86	10250710	10253710	



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	10087731		1008773101	
100	99	130	155	6	6	3	10106731	10107731		1010773101	
120	119	150	175	6	6	3	10126731	10127731		1012773101	
150	149	180	205	6	6	3	10156731	10157731		1015773101	
175	174	205	230	6	6	3	10176731	10177731		1017773101	
200	199	230	255	6	6	3	10206731	10207731		1020773101	
250	249	280	305	6	6	3	10256731	10257731		1025773101	

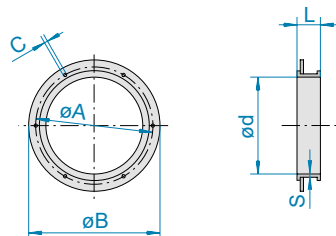
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	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		
80	77	118	142	9.5	4	50	0.62	11081432		
100	100	139	165	9.5	4	50	0.70	11101432		
120	120	165	185	9.5	4	50	0.84	11121432		
140	136	182	212	11.5	8	50	1.06	11141432		
150	150	200	225	11.5	8	50	1.18	11151432		
175	175	219	250	11.5	8	50	1.34	11171432		
200	200	241	275	11.5	8	50	1.48	11201432		
224	220	265	295	11.5	8	50	1.65	11221432		
250	250	292	325	11.5	8	50	1.82	11251432		
280	277	332	363	11.5	8	50	2.07	11281432		
300	300	366	395	11.5	8	50	2.31	11301432		13301432
315	312	366	398	11.5	8	50	2.48	11311432		
350	350	405	436	11.5	8	50	2.93	11351432		13351432
400	399	448	485	11.5	12	50	3.57	11401432		13401432
450	448	497	535	11.5	12	50	5.52		12451432	13451432
500	498	551	585	11.5	12	50	5.98		12501432	13501432
560	558	629	665	14.0	16	50	6.73		12561432	13561432
630	628	698	735	14.0	16	50	7.86		12631432	13631432

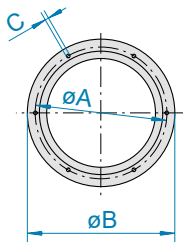
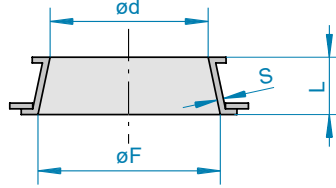
Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	$\varnothing d$	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		11063432	
80	77	118	142	9.5	4	50	0.62	11082432		11083432	
100	100	139	165	9.5	4	50	0.70	11102432		11103432	
120	120	165	185	9.5	4	50	0.84	11122432		11123432	
140	136	182	212	11.5	8	50	1.06	11142432		11143432	
150	150	200	225	11.5	8	50	1.18	11152432		11153432	
175	175	219	250	11.5	8	50	1.34	11172432		11173432	
200	200	241	275	11.5	8	50	1.48	11202432		11203432	
224	220	265	295	11.5	8	50	1.65	11222432		11223432	
250	250	292	325	11.5	8	50	1.82	11252432		11253432	
280	277	332	363	11.5	8	50	2.07	11282432		11283432	
300	300	366	395	11.5	8	50	2.31	11302432		11303432	
315	312	366	398	11.5	8	50	2.48	11312432		11313432	
350	350	405	436	11.5	8	50	2.93	11352432		11353432	
400	399	448	485	11.5	12	50	3.57	11402432		11403432	
450	448	497	535	11.5	12	50	5.52		12452432		12453432
500	498	551	585	11.5	12	50	5.98		12502432		12503432
560	558	629	665	14.0	16	50	6.73		12562432		12563432
630	628	698	735	14.0	16	50	7.86		12632432		12633432

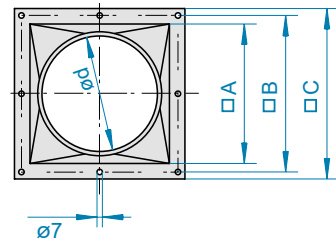
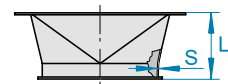
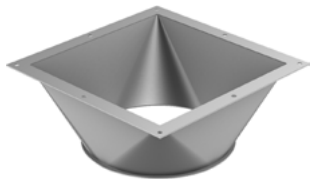
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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

Adapters / transition pieces



E = No. of holes



E = No. of holes

ADAPTERS WITH LOOSE FLANGE

1320

- Galvanised: DN 120–125 mm, DN 150–160 mm, DN 300–280 mm with welded-on flange
- Powder-coated and stainless steel: 300–280 with welded-on flange
- Lipped end for combining with flange similar to DIN 24154-2 (see chapter 11, page 227, for dimensions) and U-shaped seal for 6 mm lip (see page 33)

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

DN	$\varnothing d$	$\varnothing A$	$\varnothing B$	$\varnothing C$	$\varnothing F$	L	E	kg	1.5 mm powder-coated	1.5 mm galvanised	1 mm stainless steel	F
									Item no.	Item no.	Item no.	
120-125	120	165	185	9,5	126	50	4	0.95	11001441	11002441	11003441	
150-160	150	200	232	11,5	161	50	8	1.30	11001443	11002443	11003443	
175-180	175	219	250	11,5	181	50	8	1.45	11001445	11002445	11003445	
250-280	250	332	363	11,5	282	50	8	3.05	11001446	11002446	11003446	
300-280	300	332	363	11,5	282	50	8	3.10	11001447	11002447	11003447	
300-315	300	366	398	11,5	317	50	8	3.50	11001448	11002448	11003448	

SPOUTS FROM SQUARE TO ROUND

1280

- Special models 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	$\varnothing d$	A	B	C	E	L	kg	1.5 mm powder-coated	3 mm powder-coated	1.5 mm galvanised
								Item no.	Item no.	Item no.
80	77	100	120	140	8	50	0.36	11081400		11082400
100	100	120	140	160	8	60	0.45	11101400		11102400
120	120	140	164	180	8	70	0.63	11121400	13121400	11122400
150	150	180	202	220	8	85	0.90	11151400	13151400	11152400
175	175	200	225	245	8	145	1.50	11171400	13171400	11172400
200	200	250	270	290	8	115	1.80	11201400	13201400	11202400
250	250	300	325	345	8	150	2.70	11251400	13251400	11252400
300	300	350	375	395	8	210	3.90	11301400	13301400	11302400

Stainless steel (dimensions for 1.5 mm pipework)

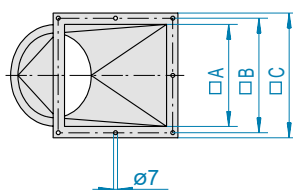
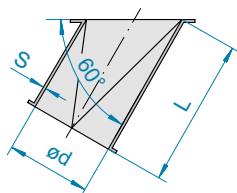
DN	$\varnothing d$	A	B	C	E	L	kg	1.5 mm stainless steel	2 mm stainless steel
								Item no.	Item no.
80	77	100	120	140	8	50	0.36	11083400	
100	100	120	140	160	8	60	0.45	11103400	12103400
120	120	140	164	180	8	70	0.63	11123400	12123400
150	150	180	202	220	8	85	0.90	11153400	12153400
175	175	200	225	245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

F FOOD GRADE
EC 1935/2004 plus FDA compliant



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

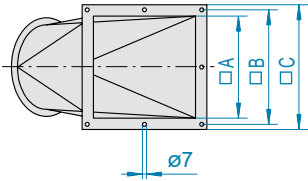
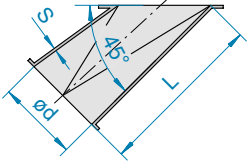
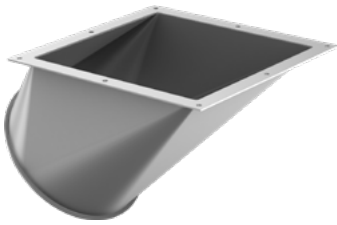
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

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		11082410
100	100	120	140	160	7	190	0.90	11101410		11102410
120	120	140	164	180	7	215	1.20	11121410	13121410	11122410
150	150	180	202	220	7	260	1.80	11151410	13151410	11152410
175	175	200	225	245	7	275	2.25	11171410	13171410	11172410
200	200	250	270	290	7	265	2.40	11201410	13201410	11202410
250	250	300	325	345	7	345	4.05	11251410	13251410	11252410
300	300	350	375	395	7	475	6.60	11301410	13301410	11302410

Stainless steel (dimensions for 1.5 mm pipework)

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

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		11082420
100	100	120	140	160	7	180	0.75	11101420		11102420
120	120	140	164	180	7	190	0.90	11121420	13121420	11122420
150	150	180	202	220	7	295	1.95	11151420	13151420	11152420
175	175	200	225	245	7	300	2.40	11171420	13171420	11172420
200	200	250	270	290	7	325	2.75	11201420	13201420	11202420
250	250	300	325	345	7	395	4.65	11251420	13251420	11252420
300	300	350	375	395	7	450	5.55	11301420	13301420	11302420

Stainless steel (dimensions for 1.5 mm pipework)

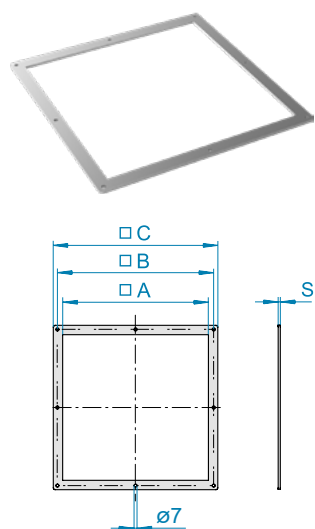
DN	Ø d	A	B	C	E	L	kg	1.5 mm stainless steel	2 mm stainless steel
								Item no.	Item no.
80	77	100	120	140	7	160	0.60	11083420	
100	100	120	140	160	7	180	0.75	11103420	12103420
120	120	140	164	180	7	190	0.90	11123420	12123420
150	150	180	202	220	7	295	1.95	11153420	12153420
175	175	200	225	245	7	300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

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

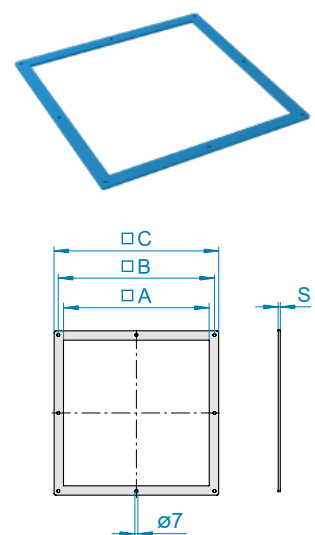
- Counter flange to match spouts from square to round
- For use in conjunction with a square flat gasket

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	10083714	
100	120	140	160	8	5	0.44	10100714	10103714	
120	140	164	180	8	5	0.50	10120714	10123714	
150	180	202	220	8	5	0.63	10150714	10153714	
175	200	225	245	8	5	0.79	10170714	10173714	
200	250	270	290	8	5	0.85	10200714	10203714	
250	300	325	345	8	5	1.14	10250714	10253714	
300	350	375	395	8	5	1.30	10300714	10303714	

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

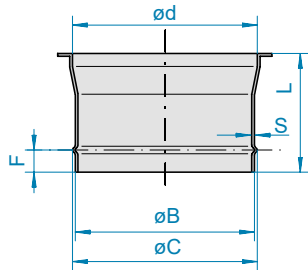


E = No. of holes

DN	A	B	C	E	S	NBR grey white	Silicone, beige	Silicone, blue	F	D
						Item no.	Item no.	Item no.		
80	100	120	140	8	3	10086732	10087732	1008773201		
100	120	140	160	8	3	10106732	10107732	1010773201		
120	140	164	180	8	3	10126732	10127732	1012773201		
150	180	202	220	8	3	10156732	10157732	1015773201		
175	200	225	245	8	3	10176732	10177732	1017773201		
200	250	270	290	8	3	10206732	10207732	1020773201		
250	300	325	345	8	3	10256732	10257732	1025773201		
300	350	375	395	8	3	10306732	10307732	1030773201		

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



HOSE CONNECTIONS : ホースアダプタ

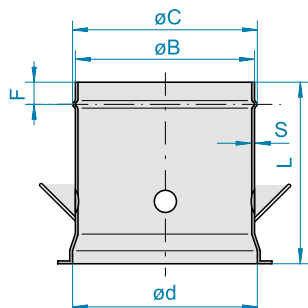
1340

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

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

DN	$\varnothing d$	$\varnothing B$	$\varnothing C$	F	S	L	kg	1 mm powder-coated	1 mm galvanised	1 mm stainless steel	
								Item no.	Item no.	Item no.	
60-50	57	50	51		1	80	0.20	110614990*	110624990*	110634990*	
60	57	60	61		1	80	0.20	11061499 *	11062499 *	11063499 *	
80	78	78	80	15	1	88	0.20	11081499	11082499	11083499	
100	100	95	100	15	1	100	0.25	11101499 *	11102499 *	11103499	
120	120	122	125	15	1	100	0.30	11121499	11122499	11123499	
140	136	138	140	15	1	100	0.35	11141499	11142499	11143499	
150	150	145	150	20	1	100	0.40	11151499 *	11152499 *	11153499	
175	175	177	180	20	1	100	0.45	11171499	11172499	11173499	
200	200	198	200	20	1	100	0.50	11201499	11202499	11203499	
224	220	222	225	20	1	100	0.57	11221499	11222499	11223499	
250	250	248	250	20	1	100	0.65	11251499	11252499	11253499	
280	278	276	278	20	1	100	0.76	11281499	11282499	11283499	
300	300	298	300	20	1	100	0.84	11301499	11302499	11303499	
315	313	315	317	20	1	100	0.86	11311499	11312499	11313499	

*1.5 mm



HOSE CONNECTIONS WITH COLLAR (CONDENSATE SEPARATOR)

1341

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

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

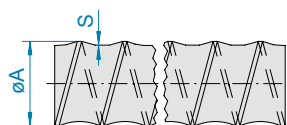
DN	$\varnothing d$	$\varnothing B$	$\varnothing C$	F	S	L	kg	1.5 mm pulverbeschichtet	1.5 mm verzinkt	1.5 mm Chromnickelstahl	
								Art.-Nr.	Art.-Nr.	Art.-Nr.	
80	77	78	80	15	1.5	150	0.4	110814991	110824991	110834991	
100	100	95	100	15	1.5	150	0.5	111014991	111024991	111034991	
120	120	122	125	15	1.5	150	0.6	111214991	111224991	111234991	
140	136	138	140	15	1.5	150	0.7	111414991	111424991	111434991	
150	150	145	150	20	1.5	150	0.8	111514991	111524991	111534991	
175	175	177	180	20	1.5	150	0.9	111714991	111724991	111734991	
200	200	198	200	20	1.5	150	1.0	112014991	112024991	112034991	
224	220	222	225	20	1.5	150	1.15	112214991	112224991	112234991	
250	250	248	250	20	1.5	150	1.3	112514991	112524991	112534991	
280	277	276	278	20	1.5	150	1.5	112814991	112824991	112834991	
300	300	298	300	20	1.5	150	1.7	113014991	113024991	113034991	
315	312	315	317	20	1.5	150	1.8	113114991	113124991	113134991	

FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Flexible hoses and accessories



PU HOSES : PUホース

3160

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

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

DN	Ø A	S	kg/m	Length 1 m	Length 2 m	Length 3 m	Length 5 m
				Item no.	Item no.	Item no.	Item no.
50	58	0.7	0.41	10050165910	10050165920	10050165930	10050165950
60	68	0.7	0.49	10060165910	10060165920	10060165930	10060165950
80	88	0.7	0.76	10080165910	10080165920	10080165930	10080165950
100	110	0.7	0.95	10100165910	10100165920	10100165930	10100165950
120	129	0.7	1.12	10120165910	10120165920	10120165930	10120165950
140	149	0.7	1.38	10140165910	10140165920	10140165930	10140165950
150	161	0.7	1.48	10150165910	10150165920	10150165930	10150165950
175	185	0.7	1.85	10170165910	10170165920	10170165930	10170165950
200	214	0.7	2.30	10200165910	10200165920	10200165930	10200165950
224	235	0.7	2.55	10220165911	10220165921	10220165930	10220165950
250	260	0.7	3.02	10250165911	10250165920	10250165930	10250165950
280	290	0.7	3.16	10280165911	10280165921	10280165930	10280165950
300	310	0.7	3.20	10300165910	10300165920	10300165930	10300165950
315	325	0.7	3.40	10310165911	10310165920	10310165930	10310165950

Lengths 7, 9, 10 and 15 m (sold by whole metres only)

DN	Ø A	S	kg/m	Length 7 m	Length 9 m	Length 10 m	Length 15 m
				Item no.	Item no.	Item no.	Item no.
50	58	0.7	0.41	10050165970	10050165990	100501659110	100501659115
60	68	0.7	0.49	10060165970	10060165990	100601659110	100601659115
80	88	0.7	0.76	10080165970	10080165990	100801659110	100801659115
100	110	0.7	0.95	10100165970	10100165990	101001659110	101001659115
120	129	0.7	1.12	10120165970	10120165990	101201659110	101201659115
140	149	0.7	1.38	10140165970	10140165990	101401659110	101401659115
150	161	0.7	1.48	10150165970	10150165990	101501659110	101501659115
175	185	0.7	1.85	10170165970	10170165990	101701659110	101701659115
200	214	0.7	2.30	10200165970	10200165990	102001659110	102001659115
224	235	0.7	2.55	10220165970	10220165990	102201659110	102201659115
250	260	0.7	3.02	10250165970	10250165990	102501659110	102501659115
280	290	0.7	3.16	10280165970	10280165990	102801659110	102801659115
300	310	0.7	3.20	10300165970	10300165990	103001659110	103001659115
315	325	0.7	3.40	10310165970	10310165990	103101659110	103101659115

F FOOD GRADE
EC 1935/2004 plus FDA compliant



SPECIAL HOSE CLAMPS : ホースクランプ(PUホース専用)

3170

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

DN	Galvanised	Stainless steel
	Item no.	Item no.
50	10052162	10053162
60	10062162	10063162
80	10082162	10083162
100	10102162	10103162
120	10122162	10123162
140	10142162	10143162
150	10152162	10153162
175	10172162	10173162
200	10202162	10203162
224	10222162	10223162
250	10252162	10253162
280	10282162	10283162
300	10302162	10303162
315	10312162	10313162



HOSE CLAMPS

3165

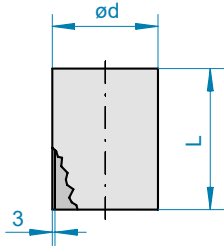
- For fixing flexible sleeves

DN	Stainless steel
	Item no.
60	10063163
80	10083163
100	10103163
120	10123163
140	10143163
150	10153163
175	10173163
200	10203163
224	10223163
250	10253163
300	10303163



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

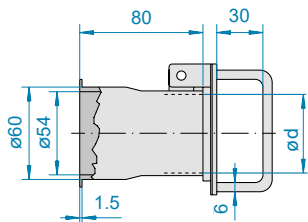
DN	Ø d	L	kg	Conductive EPDM black
				Item no.
60	60	200	0.19	100681705
80	80	200	0.21	100881705
100	100	200	0.26	101081705
120	125	200	0.32	101281705
140	140	200	0.37	101481705
150	150	200	0.40	101581705
175	175	200	0.46	101781705
200	200	200	0.53	102081705
224	225	200	0.59	102281705
250	250	200	0.66	102581705
300	300	200	0.79	103081705



HOSE SOCKETS

3175

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



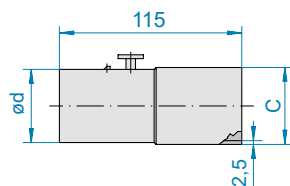
DN	Electro-galvanised	Stainless steel
	Item no.	Item no.
60	10062860	10063860
80	10082860	



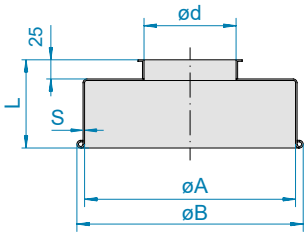
HOSE PLUGS

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	
50	50	100628650	100638650
80	80	100828650	



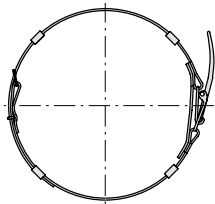
BAGGING SPOUTS

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	F
					Item no.	Item no.	Item no.	
80	77	275	295	115	11081585	11082585	11083585	
100	100	275	295	115	11101585	11102585	11103585	
120	120	275	295	115	11121585	11122585	11123585	
150	150	275	295	115	11151585	11152585	11153585	
175	175	275	295	115	11171585	11172585	11173585	
200	200	275	295	115	11201585	11202585	11203585	
250	250	275	295	115	11251585	11252585	11253585	
300	300	300	311	115	11301585	11302585	11303585	

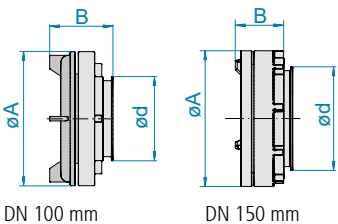
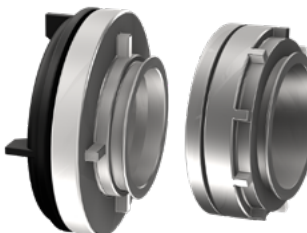


BAG CLAMPS

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
420-500	10080582



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

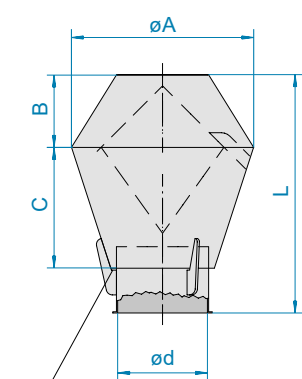
DN	Ø d	Ø A	B	kg	Aluminium
					Item no.
100	113	182	85	1.26	10100870
150	164	215	91	3.02	10150870

F FOOD GRADE
EC 1935/2004 plus FDA compliant



TRANSITION PIECES AND ADAPTERS

Jet caps and rain caps



Revolving water outlet

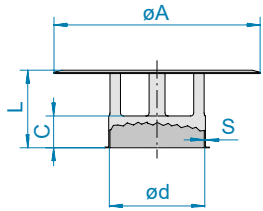
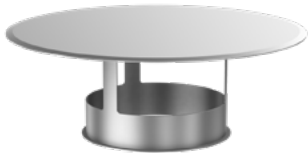
JET CAPS

1430

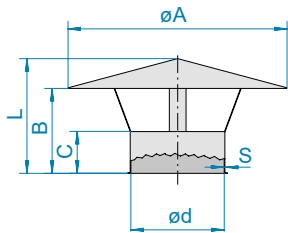
- From DN 350 mm, with welded flange similar to DIN 24154-2 (see chapter 11, page 227, for dimensions), but without counter-flange (see chapter 11 for suitable flanges)

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



Version DN 80 to 200 mm



Version from DN 224 mm

RAIN CAPS

1440

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

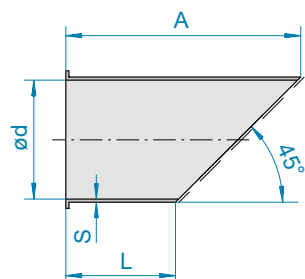
Galvanised and stainless steel (dimensions for 2 mm pipework)

DN	$\varnothing d$	$\varnothing A$	B	C	L	kg	1.5 mm galvanised	2 mm galvanised	1.5 mm stainless steel	2 mm stainless steel
							Item no.	Item no.	Item no.	Item no.
80	77	180		50	92	0.60	11082850		11083850	
100	100	225		50	102	0.90	11102850		11103850	
120	120	270		50	112	1.30	11122850		11123850	
140	136	325		50	122	1.70	11142850		11143850	
150	150	325		50	127	1.80	11152850		11153850	
175	175	375		50	140	2.30	11172850		11173850	
200	200	425		50	152	2.90	11202850		11203850	
224	220	525	205	106	275	6.10	11222850		11223850	
250	250	525	205	106	275	6.40	11252850		11253850	
280	277	596	220	106	300	6.60	11282850		11283850	
300	300	625	230	156	315	6.20	11302850		11303850	
315	312	655	230	106	320	10.54	11312850		11313850	
350	350	750	300	156	395	14.70	11352850		11353850	
400	399	850	320	156	435	15.20	11402850		11403850	
450	448	950	340	150	470	22.00		12452850		12453850
500	498	1050	410	200	550	27.70		12502850		12503850
560	558	1150	435	200	590	27.00		12562850		12563850
630	628	1300	470	200	645	32.00		12632850		12633850



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)

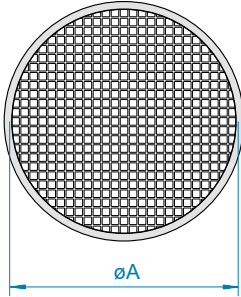
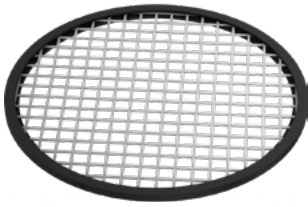
DN	Ø d	A	L	kg	1.5 mm galvanised	2 mm galvanised
					Item no.	Item no.
80	77	280	200	0.90	11082880*	
100	100	300	200	1.20	11102880	
120	120	320	200	1.50	11122880	
140	136	340	200	1.90	11142880	
150	150	350	200	2.20	11152880	
175	175	375	200	2.60	11172880	
200	200	400	200	3.20	11202880	
224	220	424	200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

*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	
100	100	300	200	1.20	11103880	
120	120	320	200	1.50	11123880	
140	136	340	200	1.90	11143880	
150	150	350	200	2.20	11153880	
175	175	375	200	2.60	11173880	
200	200	400	200	3.20	11203880	
224	220	424	200	3.70	11223880	
250	250	450	200	4.40	11253880	
280	277	480	200	5.40	11283880*	
300	300	500	200	6.00	11303880	
315	312	515	200	7.20	11313880*	
350	350	550	200	8.20	11353880	
400	399	600	200	10.20	11403880	
450	449	650	200	12.40	11453880	
500	499	700	200	14.90	11503880	
560	558	760	200	23.70		12563880
630	628	830	200	29.20		12633880

*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

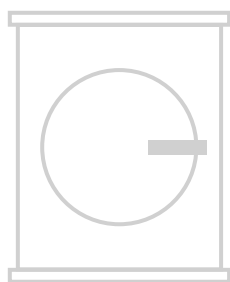
DN	Ø A	kg	1 mm stainless steel
			Item no.
80	92	0.01	11083716
100	114	0.05	11103716
120	134	0.05	11123716
140	150	0.05	11143716
150	164	0.10	11153716
175	189	0.10	11173716
200	214	0.11	11203716
224	238	0.11	11223716
250	264	0.11	11253716
280	294	0.13	11283716
300	314	0.14	11303716
315	326	0.15	11313716
350	364	0.15	11353716
400	414	0.15	11403716



AVAILABLE IN THE DETECTABLE DESIGN LINE.



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



INSPECTION AND CLEANING

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Plexiglass pipes	112	
Magnetic separator	NEW 113	

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



MAGNTIC SEPARATOR

NEW

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

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



Explanatory video
magnetic separator



7

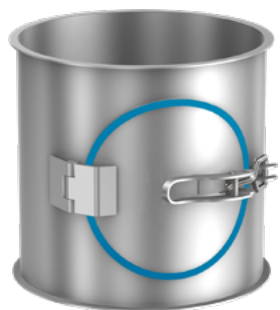
F FOOD GRADE
EG/EC 1935/2004
plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

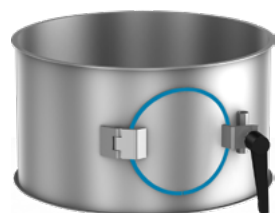


INSPECTION AND CLEANING

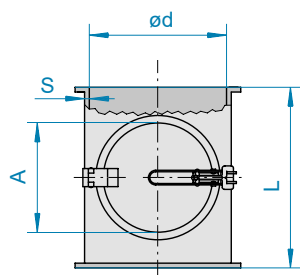
Inspection pipes



DN 80 to 315 mm



DN 350 to 400 mm



INSPECTION PIPES

2010

- Galvanised and powder-coated in standard range with NBR seal
- Stainless steel in standard range with silicone seal
- Other 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		11082190
100	100	115	200	1.25	11101190		11102190
120	120	115	200	1.45	11121190	13121190	11122190
140	136	115	200	1.55	11141190		11142190
150	150	115	200	1.65	11151190	13151190	11152190
175	175	115	200	1.85	11171190	13171190	11172190
200	200	115	200	2.00	11201190	13201190	11202190
224	220	115	200	2.25	11221190		11222190
250	250	115	200	2.40	11251190	13251190	11252190
280	277	115	200	2.60	11281190		11282190
300	300	115	200	2.65	11301190	13301190	11302190
315	312	115	200	2.85	11311190		11312190
350	350	115	200	3.20	11351190	13351190	11352190
400	399	115	200	3.55	11401190	13401190	11402190

Stainless steel (dimensions for 1.5 mm pipework)

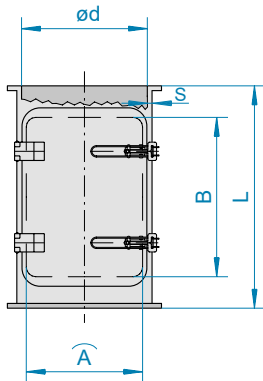
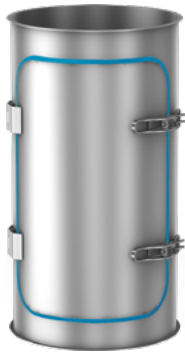
DN	Ø d	A	L	kg	1 mm stainless steel	1.5 mm stainless steel	2 mm stainless steel
					Item no.	Item no.	Item no.
80	77	80	200	1.05	11083190		
100	100	115	200	1.25	11103190		12103190
120	120	115	200	1.45	11123190		12123190
140	136	115	200	1.55	11143190		
150	150	115	200	1.65	11153190		12153190
175	175	115	200	1.85	11173190		12173190
200	200	115	200	2.00	11203190		12203190
224	220	115	200	2.25	11223190		
250	250	115	200	2.40	11253190		12253190
280	277	115	200	2.60		11283190	
300	300	115	200	2.65	11303190		12303190
315	312	115	200	2.85		11313190	
350	350	115	200	3.20	11353190		12353190
400	399	115	200	3.55	11403190		12403190



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		11202195
224	220	224	350	486	5.20	11221195		11222195
250	250	224	350	486	5.85	11251195		11252195
280	277	224	350	486	6.60	11281195		11282195
300	300	350	350	486	7.00	11301195		11302195
315	312	350	350	486	7.35	11311195		11312195
350	350	350	350	486	8.40	11351195		11352195
400	399	350	350	486	9.10	11401195		11402195
450	448	500	350	486	11.60		12451195	12452195*
500	498	500	350	486	12.80		12501195	12502195*
560	558	500	350	486	14.30		12561195	12562195*
630	628	500	350	486	16.00		12631195	12632195*

*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	
224	220	224	350	486	5.20	11223195	
250	250	224	350	486	5.85	11253195	
280	277	224	350	486	6.60	11283195	
300	300	350	350	486	7.00	11303195	
315	312	350	350	486	7.35	11313195	
350	350	350	350	486	8.40	11353195	
400	399	350	350	486	9.10	11403195	
450	448	500	350	486	11.60		12453195
500	498	500	350	486	12.80		12503195
560	558	500	350	486	14.30		12563195
630	628	500	350	486	16.00		12633195

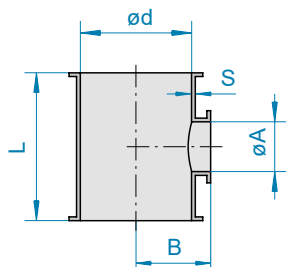


DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION T-PIECES



1040

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

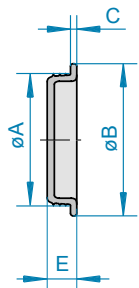
Powder-coated (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	B	L	kg	1.5 mm powder-coated	2 mm powder-coated	3 mm powder-coated
						Item no.	Item no.	Item no.
100	100	100	79	165	0.75	11101200		
120	120	100	89	165	0.80	11121200		13121200
150	150	120	100	198	1.20	11151200		13151200
175	175	150	114	225	1.55		12171200	13171200
200	200	150	125	225	1.80	11201200	12201200	13201200
250	250	150	150	225	2.20	11251200	12251200	13251200
300	300	150	177	225	2.55	11301200	12301200	13301200

Galvanised and stainless steel (dimensions for 1.5 mm pipework)

DN	Ø d	Ø A	B	L	kg	1.5 mm galvanised	1 mm stainless steel 	2 mm stainless steel 
						Item no.	Item no.	Item no.
100	100	100	79	165	0.75	11102200	11103200	12103200
120	120	100	89	165	0.80	11122200	11123200	12123200
150	150	120	100	198	1.20	11152200	11153200	12153200
175	175	150	114	225	1.55	11172200	11173200	12173200
200	200	150	125	225	1.80	11202200	11203200	12203200
250	250	150	150	225	2.20	11252200	11253200	12253200
300	300	150	177	225	2.55	11302200	11303200	12303200

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	Ø A	Ø 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				
100	101	121	5	21	0.15	10106203		1008520309	
120	121	141	5	22	0.20	10126203		1010520309	
150	151	171	6	24	0.35	10156203		1012520309	
175	176	197	6	29	0.45	10176203		1015520309	
200	201	221	6	26	0.60	10206203		1017520309	
250	251	271	7	30	0.90	10256203		1020520309	
300	301	321	7	32	1.35	10306203		1025520309	
								1030520309	

Silicone

DN	Ø A	Ø 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		1008720301	
100	102	121	5	21	0.15	10107203		1010720301	
120	123	141	5	22	0.20	10127203		1012720301	
150	151	171	6	24	0.35	10157203		1015720301	
175	176	197	6	25	0.45	10177203		1017720301	
200	202	221	6	26	0.60	10207203		1020720301	
250	252	271	7	30	0.90	10257203		1025720301	
300	302	321	7	32	1.35	10307203		1030720301	

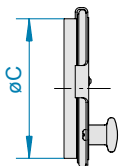
ADDITIONAL RUBBER COVER LOCKS

3040

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

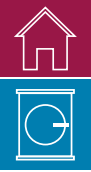
Electro-galvanised

DN	Ø C	kg	2 mm electro-galvanised	Item no.
100	100	0.30	for inspection T-pieces DN 100 and 120 mm	11102210
120	120	0.35	for inspection T-pieces DN 150 mm	11122210
150	150	0.55	for inspection T-pieces DN 175 to 300 mm	11152210



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



INSPECTION AND CLEANING

Plexiglass pipes



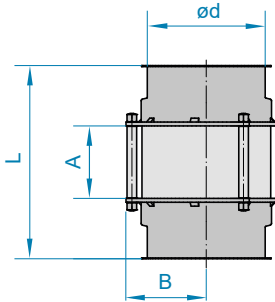
PLEXIGLASS PIPES WITH SOCKETS AND ROD SPACERS : インサイトグラス

1390

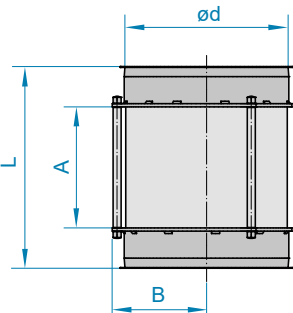
- Including sockets with a lip
- NEW: with rod spacers for a stronger construction
- Temperature-resistant to 70°C
- Plexiglass pipes must not be installed in load bearing situations
- DN 60 to 150 mm and DN 200 mm made of seamless plexiglass
- DN 175 and 250 mm with glued plexiglass, foodstuff compliant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



DN 80 to 150 mm



DN 175 to 250 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Magnetic separator



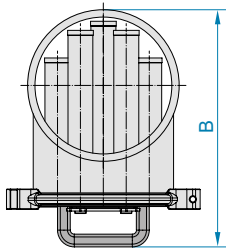
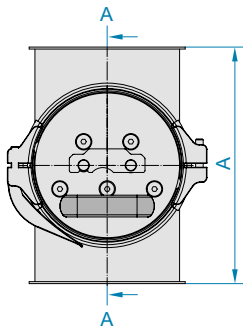
MAGNETIC SEPARATOR

NEW

2025

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

Magnetic separator (dimensions for 1.5 mm T-piece)



DN	Ø d	A	B	M*	kg	Number of rods	1.5 mm Stainless steel	
							F	D
							Item no.	
100	100	200	205	17	4.5	3		1110324003
150	150	250	260	22	8.5	5		1115324005
200	200	300	310	22	14.0	7		1120324007
250	250	350	360	22	20.0	9		1125324009
300	300	400	410	22	26.5	9		1130324009

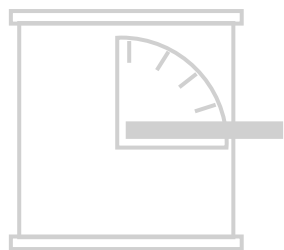
*Minimum spacing between the rod magnets

F FOOD GRADE
EG/EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



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



CONTROL VALVES

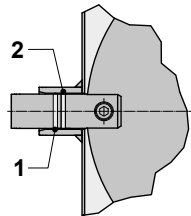
Technical information	116	
Throttle valves	118	
Throttle valves with seal	123	
Adjustable blank-off covers and air bleeds	128	
Non-return valves	129	
Air and pipe slide gates	129	
Silo/Redler outlet slide gates	133	



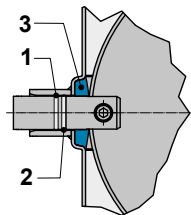
THROTTLE VALVES

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

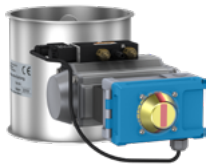
O-ring EPDM	O-ring Viton	Valve seal made of silicone rubber	F
black	green	opaque	
not in contact with the product	not in contact with the product	FOOD GRADE: EC 1935/2004 plus FDA compliant	
-40°C to +150°C	-20°C to +200°C	-60°C to +180°C	
conductive		vulcanised	



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.

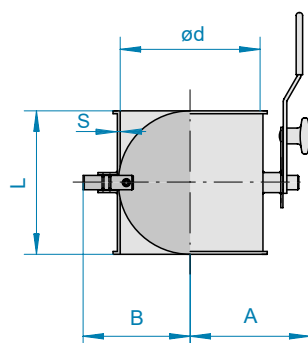
Throttle valve with seal made of silicone

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 : スロットルバルブ(手動 シール無)

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



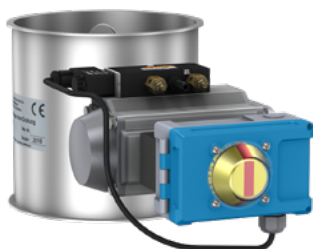
Powder-coated and galvanised (dimensions for 1.5 mm pipework)

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	
80	77	90	74	100	0.90	11081566	11082566
100	100	101	85	100	1.10	11101566	11102566
120	120	124	103	120	1.90	11121560	11122560
140	136	132	111	140	2.20	11141560	11142560
150	150	139	118	150	2.40	11151560	11152560
175	175	152	130	175	3.00	11171560	11172560
200	200	164	143	200	3.50	11201560	11202560
224	220	174	153	200	3.90	11221560	11222560
250	250	189	168	200	4.50	11251560	11252560
280	277	203	181	200	5.00	11281560	11282560
300	300	214	193	200	5.50	11301560	11302560
315	312	220	199	200	6.50	11311560*	11312560*
350	350	239	218	200	7.50	11351560*	11352560*
400	399	264	242	200	9.00	11401560*	11402560*

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



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	F
							Item no.	Item no.	

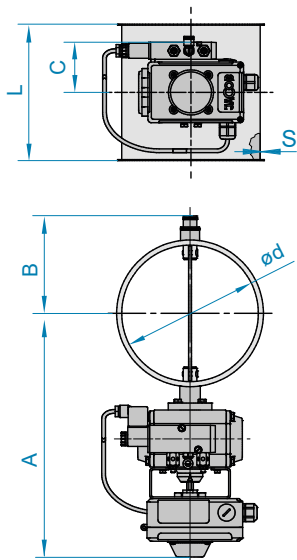
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

60	57	280	63	79	60	3.30	5662060344	6662060344
80	77	303	87	79	100	3.60	5662080344	6662080344
100	100	315	99	79	100	3.90	5662100344	6662100344
120	120	325	109	79	120	4.30	5852120344	6852120344
140	136	333	117	79	140	4.70	5852140344	6852140344
150	150	340	124	79	150	5.00	5852150344	6852150344
175	175	352	136	84	175	6.60	5852170344	6852170344
200	200	364	149	84	200	7.40	5852200344	6852200344
224	220	374	159	84	200	7.90	5852220344	6852220344
250	250	388	174	84	200	8.60	5852250344	6852250344
280	277	403	188	84	200	9.10	5852280344	6852280344
300	300	414	199	84	200	9.80	5852300344	6852300344
315	312	422	205	84	200	10.20	5852310344*	6852310344*
350	350	460	224	84	200	10.90	5852350344*	6852350344*
400	399	485	248	84	200	12.30	5852400344*	6852400344*

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

60	57	280	63	79	60	3.30	5662060345	6662060345
80	77	303	87	79	100	3.60	5662080345	6662080345
100	100	315	99	79	100	3.90	5662100345	6662100345
120	120	325	109	79	120	4.30	5852120345	6852120345
140	136	333	117	79	140	4.70	5852140345	6852140345
150	150	340	124	79	150	5.00	5852150345	6852150345
175	175	352	136	84	175	6.60	5852170345	6852170345
200	200	364	149	84	200	7.40	5852200345	6852200345
224	220	374	159	84	200	7.90	5852220345	6852220345
250	250	388	174	84	200	8.60	5852250345	6852250345
280	277	403	188	84	200	9.10	5852280345	6852280345
300	300	414	199	84	200	9.80	5852300345	6852300345
315	312	422	205	84	200	10.20	5852310345*	6852310345*
350	350	460	224	84	200	10.90	5852350345*	6852350345*
400	399	485	248	84	200	12.30	5852400345*	6852400345*

*2 mm



F FOOD GRADE
EC 1935/2004 plus FDA compliant



CONTROL VALVES

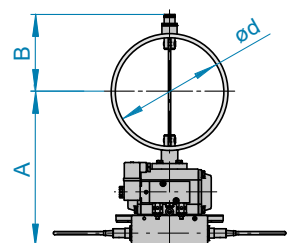
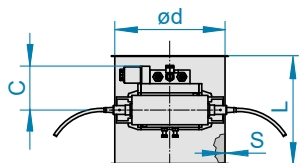
Throttle valves



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	66620603455
80	77	303	87	79	100	3.60	56620803455	66620803455
100	100	315	99	79	100	3.90	56621003455	66621003455
120	120	325	109	79	120	4.30	58521203455	68521203455
140	136	333	117	79	140	4.70	58521403455	68521403455
150	150	340	124	79	150	5.00	58521503455	68521503455
175	175	352	136	84	175	6.60	58521703455	68521703455
200	200	364	149	84	200	7.40	58522003455	68522003455
224	220	374	159	84	200	7.90	58522203455	68522203455
250	250	388	174	84	200	8.60	58522503455	68522503455
280	277	403	188	84	200	9.10	58522803455	68522803455
300	300	414	199	84	200	9.80	58523003455	68523003455
315	312	422	205	84	200	10.20	58523103455*	68523103455*
350	350	460	224	84	200	10.90	58523503455*	68523503455*
400	399	485	248	84	200	12.30	58524003455*	68524003455*

*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.

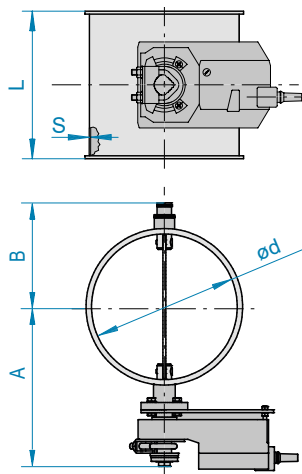


Valve actuator, make BELIMO, voltage 230 V AC

60	57	145	63	60	3.60	5662060551	6662060551
80	77	166	87	100	3.90	5662080551	6662080551
100	100	179	99	100	4.20	5662100551	6662100551
120	120	189	109	120	4.60	5852120551	6852120551
140	136	197	117	140	5.00	5852140551	6852140551
150	150	204	124	150	5.20	5852150551	6852150551
175	175	216	136	175	5.60	5852170551	6852170551
200	200	229	149	200	6.40	5852200551	6852200551
224	220	239	159	200	6.80	5852220551	6852220551
250	250	254	174	200	7.40	5852250551	6852250551
280	277	403	188	200	8.10	5852280551	6852280551
300	300	277	199	200	8.70	5852300551	6852300551

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

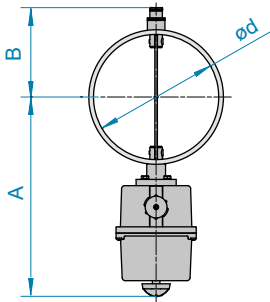
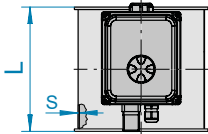
60	57	145	63	60	3.60	5662060552	6662060552
80	77	166	87	100	3.90	5662080552	6662080552
100	100	179	99	100	4.20	5662100552	6662100552
120	120	189	109	120	4.60	5852120552	6852120552
140	136	197	117	140	5.00	5852140552	6852140552
150	150	204	124	150	5.20	5852150552	6852150552
175	175	216	136	175	5.60	5852170552	6852170552
200	200	229	149	200	6.40	5852200552	6852200552
224	220	239	159	200	6.80	5852220552	6852220552
250	250	254	174	200	7.40	5852250552	6852250552
280	277	403	188	200	8.10	5852280552	6852280552
300	300	277	199	200	8.70	5852300552	6852300552





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	6662060773
80	77	250	75	100	3.00	5662080773	6662080773
100	99	262	85	100	3.20	5662100773	6662100773
120	119	277	103	120	3.70	5852120773	6852120773
140	135	285	111	140	4.00	5852140773	6852140773
150	149	293	118	150	4.20	5852150773	6852150773
175	174	305	131	175	4.70	5852170773	6852170773
200	199	317	143	200	5.30	5852200773	6852200773
224	219	327	153	200	5.70	5852220773	6852220773
250	249	342	168	200	6.30	5852250773	6852250773
280	276	357	182	200	6.80	5852280773	6852280773
300	299	368	193	200	7.30	5852300773	6852300773
315	311	374	199	200	8.40	5852310773*	6852310773*
350	349	393	218	200	9.40	5852350773*	6852350773*
400	398	418	242	200	10.80	5852400773*	6852400773*

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

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

*2 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



THROTTLE VALVES, HAND-OPERATED : スロットルバルブ(手動 シール付)

2080

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

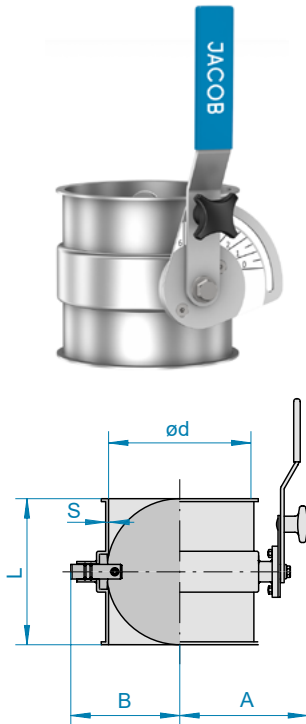
Powder-coated and stainless steel (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	2 mm powder-coated	2 mm stainless steel	F
						Item no.	Item no.	
80	77	121	83	100	1.80	12081577*	12083577	
100	99	133	93	100	2.20	12101577	12103577	
120	119	143	103	120	2.60	12121577	12123577	
140	135	151	111	140	2.90	12141577	12143577	
150	149	158	116	150	3.20	12151577	12153577	
175	174	170	131	175	3.90	12171577	12173577	
200	199	183	143	200	4.60	12201577	12203577	
224	219	193	153	200	5.10	12221577	12223577	
250	249	208	168	200	5.80	12251577	12253577	
280	276	222	182	200	6.40	12281577	12283577	
300	299	233	193	200	7.22	12301577	12303577	
315	311	272	220	200	10.50	12311577	12313577	
350	349	291	239	200	12.00	12351577	12353577	
400	398	316	264	200	14.20	12401577	12403577	

*1.5 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.



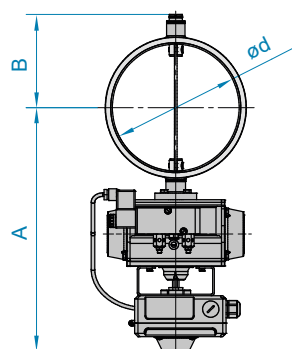
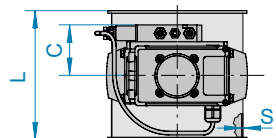
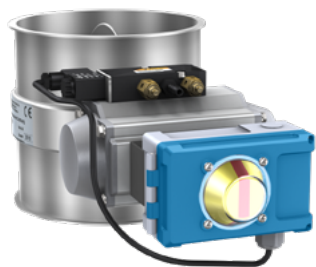
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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	6772080344
100	99	315	99	79	100	3.90	5772100344	6772100344
120	119	325	109	79	120	4.30	5772120344	6772120344
140	135	333	117	79	140	4.70	5772140344	6772140344
150	149	340	124	79	150	5.00	5772150344	6772150344
175	174	352	136	84	175	6.60	5772170344	6772170344
200	199	385	149	84	200	7.40	5772200344	6772200344
224	219	395	159	84	200	7.90	5772220344	6772220344
250	249	410	174	84	200	8.60	5772250344	6772250344
280	276	413	188	84	200	9.60	5772280344	6772280344
300	299	439	199	84	200	9.80	5772300344	6772300344
315	311	455	220	84	200	14.10	5772310344	6772310344
350	349	474	239	84	200	18.20	5772350344	6772350344
400	399	499	264	84	200	20.70	5772400344	6772400344

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

80	76	303	87	79	100	3.60	5772080345	6772080345
100	99	315	99	79	100	3.90	5772100345	6772100345
120	119	325	109	79	120	4.30	5772120345	6772120345
140	135	333	117	79	140	4.70	5772140345	6772140345
150	149	340	124	79	150	5.00	5772150345	6772150345
175	174	352	136	84	175	6.60	5772170345	6772170345
200	199	385	149	84	200	7.40	5772200345	6772200345
224	219	395	159	84	200	7.90	5772220345	6772220345
250	249	410	174	84	200	8.60	5772250345	6772250345
280	276	413	188	84	200	9.60	5772280345	6772280345
300	299	439	199	84	200	9.80	5772300345	6772300345
315	311	455	220	84	200	14.10	5772310345	6772310345
350	349	474	239	84	200	18.20	5772350345	6772350345
400	399	499	264	84	200	20.70	5772400345	6772400345

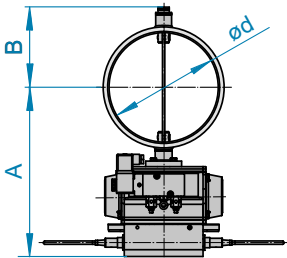
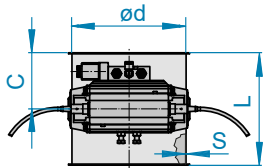


DETECTABLE DESIGN

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	67720803455
100	99	315	99	79	100	3.90	57721003455	67721003455
120	119	325	109	79	120	4.30	57721203455	67721203455
140	135	333	117	79	140	4.70	57721403455	67721403455
150	149	340	124	79	150	5.00	57721503455	67721503455
175	174	352	136	84	175	6.60	57721703455	67721703455
200	199	385	149	84	200	7.40	57722003455	67722003455
224	219	395	159	84	200	7.90	57722203455	67722203455
250	249	410	174	84	200	8.60	57722503455	67722503455
280	276	413	188	84	200	9.60	57722803455	67722803455
300	299	439	199	84	200	9.80	57723003455	67723003455



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)

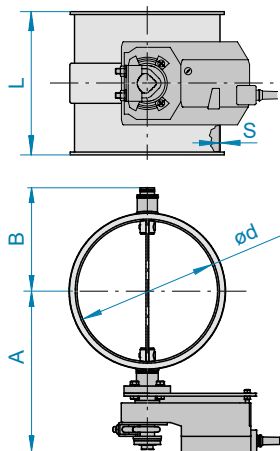
DN	Ø d	A	B	L	kg	2 mm powder-coated	2 mm stainless steel	F
						Item no.	Item no.	

Valve actuator, make BELIMO, voltage 230 V AC

80	76	166	86	100	3.90	5772080551	6772080551
100	99	179	98	100	4.20	5772100551	6772100551
120	119	189	108	120	4.60	5772120551	6772120551
140	135	197	116	140	5.00	5772140551	6772140551
150	149	204	123	150	5.20	5772150551	6772150551
175	174	216	135	175	5.80	5772170551	6772170551
200	199	229	148	200	6.60	5772200551	6772200551

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

80	76	166	86	100	3.90	5772080552	6772080552
100	99	179	98	100	4.20	5772100552	6772100552
120	119	189	108	120	4.60	5772120552	6772120552
140	135	197	116	140	5.00	5772140552	6772140552
150	149	204	123	150	5.20	5772150552	6772150552
175	174	216	135	175	5.80	5772170552	6772170552
200	199	229	148	200	6.60	5772200552	6772200552



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



THROTTLE VALVES WITH ELECTRICALLY-OPERATED ADJUSTABLE ACTUATOR

2102

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

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

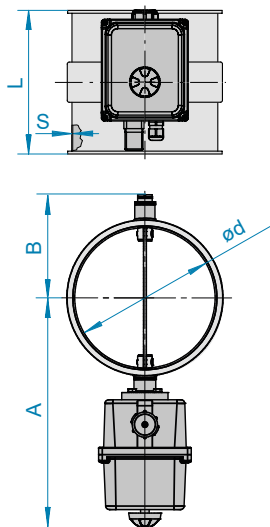
DN	Ø d	A	B	L	kg	2 mm powder-coated	2 mm stainless steel	F
						Item no.	Item no.	

Adjustable actuator, make AIR TORQUE, voltage 230 V AC

80	77	256	82	100	3.40	5772080773	6772080773
100	99	267	93	100	3.70	5772100773	6772100773
120	119	277	103	120	4.10	5772120773	6772120773
140	135	285	111	140	4.50	5772140773	6772140773
150	149	293	118	150	4.80	5772150773	6772150773
175	174	305	131	175	5.40	5772170773	6772170773
200	199	317	143	200	6.20	5772200773	6772200773
224	219	327	153	200	6.60	5772220773	6772220773
250	249	342	168	200	7.30	5772250773	6772250773
280	276	356	182	200	8.00	5772280773	6772280773
300	299	368	193	200	8.60	5772300773	6772300773
315	311	386	220	200	11.60	5772310773	6772310773
350	349	405	239	200	13.00	5772350773	6772350773
400	398	430	264	200	15.00	5772400773	6772400773

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

80	77	256	82	100	3.40	5772080774	6772080774
100	99	267	93	100	3.70	5772100774	6772100774
120	119	277	103	120	4.10	5772120774	6772120774
140	135	285	111	140	4.50	5772140774	6772140774
150	149	293	118	150	4.80	5772150774	6772150774
175	174	305	131	175	5.40	5772170774	6772170774
200	199	317	143	200	6.20	5772200774	6772200774
224	219	327	153	200	6.60	5772220774	6772220774
250	249	342	168	200	7.30	5772250774	6772250774
280	276	356	182	200	8.00	5772280774	6772280774
300	299	368	193	200	8.60	5772300774	6772300774
315	311	386	220	200	11.60	5772310774	6772310774
350	349	405	239	200	13.00	5772350774	6772350774
400	398	430	264	200	15.00	5772400774	6772400774



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

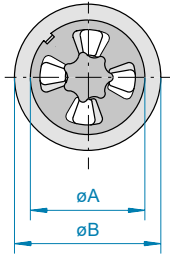
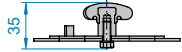


CONTROL VALVES

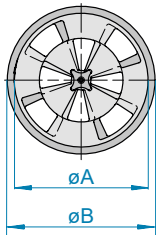
Adjustable blank-off covers and air bleeds

ADJUSTABLE BLANK-OFF COVERS

2030



DN 80 to 200 mm



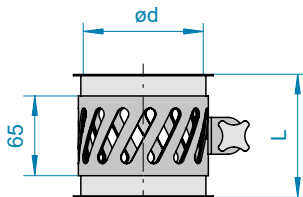
DN 224 to 300 mm

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	11083522	
100	90	115	0.19	17	11101522	11103522	
120	110	135	0.25	21	11121522	11123522	
140	126	151	0.30	25	11141522	11143522	
150	140	165	0.34	26	11151522	11153522	
175	165	190	0.44	29	11171522	11173522	
200	190	215	0.56	31	11201522	11203522	
224	210	235	0.65	31	11221522	11223522	
250	240	265	0.81	33	11251522	11253522	
280	270	292	0.97	34	11281522	11283522	
300	290	315	1.12	35	11301522	11303522	

AIR BLEEDS

2040

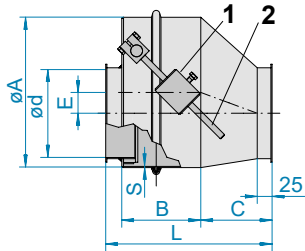


Powder-coated and stainless steel

DN	Ø d	L	kg	1 mm powder-coated	1 mm stainless steel	F
				Item no.	Item no.	
80	78	100	0.39	11081523	11083523	
100	100	100	0.47	11101523	11103523	
120	120	100	0.55	11121523	11123523	
140	136	100	0.61	11141523	11143523	
150	150	100	0.67	11151523	11153523	
175	175	100	0.76	11171523	11173523	
200	200	100	0.88	11201523	11203523	

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

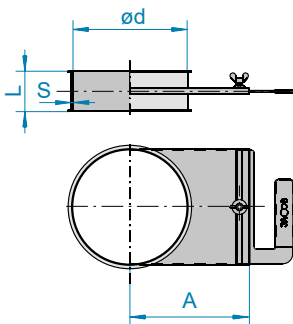
- Lever arm and weights adjustable
- Powder-coated: Grey NK-SBR inner seal from -40°C to +70°C, grey NBR U-shaped seal
- Stainless steel: Transparent silicone inner seal from -60°C to +230°C, beige silicone U-shaped seal

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	12083575	
100	99	175	115	90	22.5	230	4.90	12101575	12103575	
120	119	200	130	100	25	255	6.25	12121575	12123575	
150	149	250	135	120	35	280	8.30	12151575	12153575	
175	174	300	150	140	47.5	315	10.50	12171575	12173575	
200	199	300	185	140	35	350	11.60	12201575	12203575	
250	249	350	225	165	35	415	15.10	12251575	12253575	
300	299	450	260	195	55	480	22.70	12301575	12303575	

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)

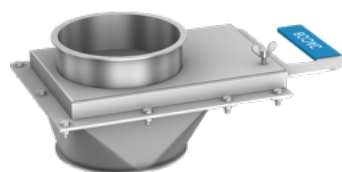
DN	$\varnothing d$	A	L	kg	2 mm powder-coated	2 mm stainless steel	F
					Item no.	Item no.	
100	99	100	70	1.10	12101610	12103610	
120	119	120	70	1.40	12121610	12123610	
150	149	150	70	2.00	12151610	12153610	
175	174	180	70	2.75	12171610	12173610	
200	199	200	70	3.10	12201610	12203610	
250	249	250	70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

F FOOD GRADE
EC 1935/2004 plus FDA compliant



CONTROL VALVES

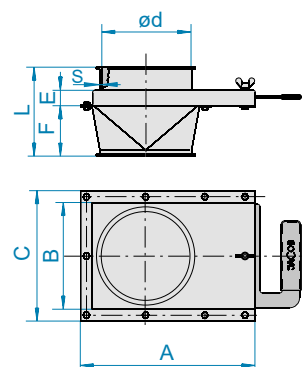
Air and pipe slide gates



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

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

Stainless steel (dimensions for 2 mm pipework)

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



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

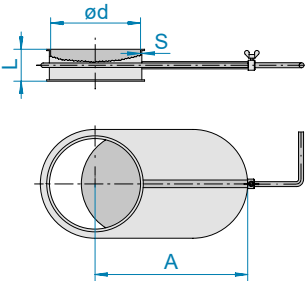
D DETECTABLE DESIGN
Metal-detectable



AIR FLOW CONTROL GATES



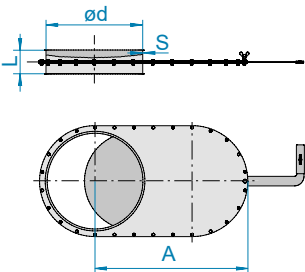
- Only for air pipelines



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	
100	100	175	58	1.10	11101525	
120	120	205	58	1.30	11121525	
140	136	242	70	1.70	11141525	
150	150	250	70	1.80	11151525	
175	175	290	70	2.55	11171525	
200	200	335	70	3.40	11201525	
224	220	392	70	3.90	11221525	
250	250	410	100	4.60	11251525	
300	299	485	100	7.90		12301525



DN 350 to 500 mm

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

DN	Ø d	A	L	kg	1.5 mm electro-galvanised	2 mm electro-galvanised	1.5 mm stainless steel	F
					Item no.	Item no.	Item no.	
80	78	148	50	0.75	11082525		11083525	
100	100	175	58	1.10	11102525		11103525	
120	120	205	58	1.30	11122525		11123525	
140	136	242	70	1.70	11142525		11143525	
150	150	250	70	1.80	11152525		11153525	
175	175	290	70	2.55	11172525		11173525	
200	200	335	70	3.40	11202525		11203525	
224	220	392	70	3.90	11222525		11223525	
250	250	410	100	4.60	11252525		11253525	
300	299	485	100	7.90		12302525	12303525*	
350	349	560	100	15.50		12352525	12353525*	
400	398	636	100	18.80		12402525	12403525*	
450	448	710	100	22.50		12452525	12453525*	
500	498	795	100	28.80		12502525	12503525*	

* 2 mm

F FOOD GRADE
EC 1935/2004 plus FDA
compliant



CONTROL VALVES

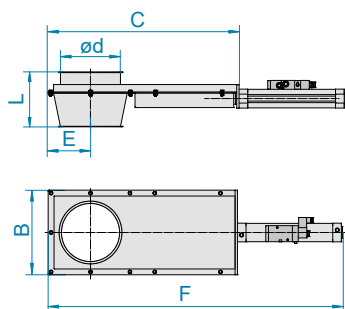
Air and pipe slide gates



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	6622100121	
120	119	180	360	90	618	138	6.90	5622120121	6622120121	
150	149	225	505	110	782	152	9.20	5602150221	6602150221	
175	174	250	555	123	882	212	11.00	5602170221	6602170221	
200	199	295	645	148	1055	182	19.90	5602200221	6602200221	
250	249	350	780	173	1210	217	22.20	5602250221	6602250221	
300	299	400	880	198	1360	277	28.40	5602300221	6602300221	

Control voltage 24 V DC

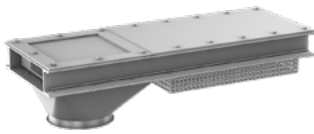
100	99	160	320	80	578	108	5.90	5622100123	6622100123	
120	119	180	360	90	618	138	6.90	5622120123	6622120123	
150	149	225	505	110	782	152	9.20	5602150223	6602150223	
175	174	250	555	123	882	212	11.00	5602170223	6602170223	
200	199	295	645	148	1055	182	19.90	5602200223	6602200223	
250	249	350	780	173	1210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



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

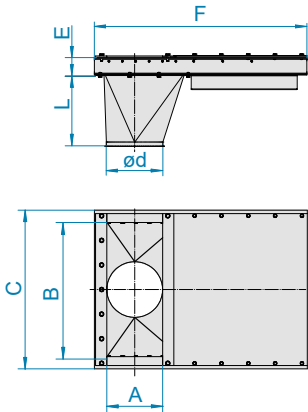
D DETECTABLE DESIGN
Metal-detectable



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)

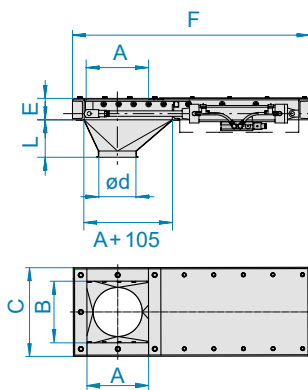
DN	Ø d	A	B	C	E	F	L	kg	Without spout	With 2 mm spout
									Item no.	Item no.

Control voltage 230 V AC

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

Control voltage 24 V DC

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



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	5762150121
200	199	250	250	360	86	952	150	46	5760200121	5762200121
250	249	300	300	410	86	1052	150	52	5760250121	5762250121

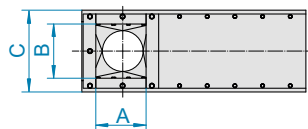
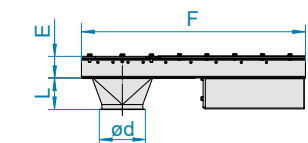
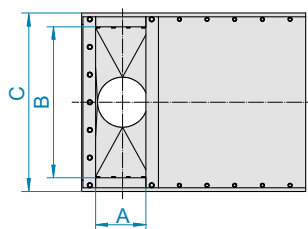
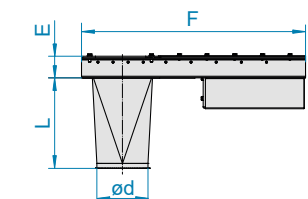
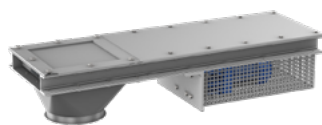
Control voltage 24 V DC

150	149	200	200	310	86	852	150	40	5760150123	5762150123
200	199	250	250	360	86	952	150	46	5760200123	5762200123
250	249	300	300	410	86	1052	150	52	5760250123	5762250123



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	57122005
250	249	250	600	710	86	995	320	91	57102505	57122505
300	299	300	600	710	86	1145	270	103	57103005	57123005

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	57621505
200	199	250	250	354	71	1082	150	64	57602005	57622005
250	249	300	300	404	71	1232	150	54	57602505	57622505





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



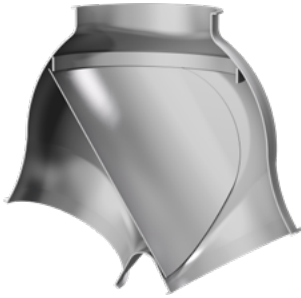
TWO-WAY DIVERTERS

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:

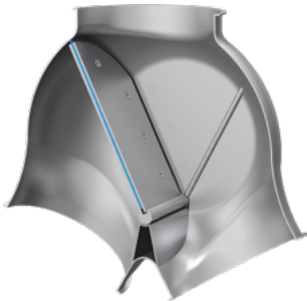
- Hand-operated, DN > 200 mm with additional lever lock, DN 350 and 400 mm without tension spring
- Fitted with pneumatic rotary actuator, make AIR TORQUE (refer also to actuators)
- Fitted with pneumatic cylinder, make FESTO (refer also to actuators)

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.

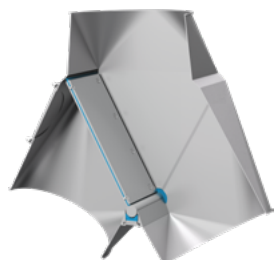
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable

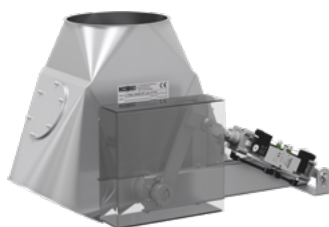


TWO-WAY DIVERTERS

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)

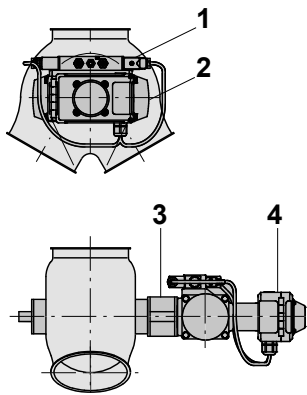
EXPLOSION PROTECTION FOR TWO-WAY DIVERTERS

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

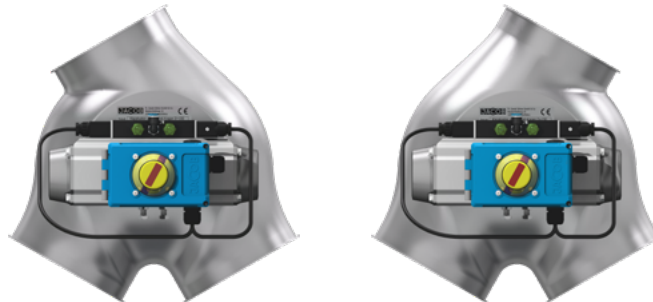
- Cylinder, make FESTO, other makes are available on request
- With 5/2-way solenoid valve (2-coil) with auxiliary hand operation; fitted to the cylinder with a hose connection and available in 24 V DC or in 230 V AC with connection sockets, IP 65
- Complete with 2 exhaust throttles for speed adjustment 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.



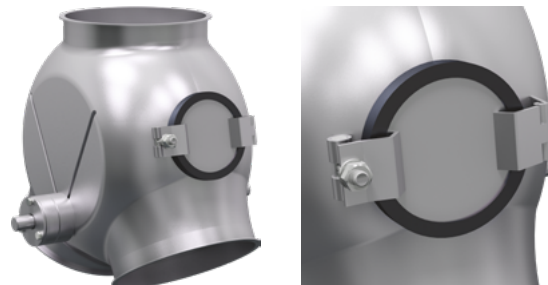
Standard: Actuator unit on right-hand side Optional: Actuator unit on left-hand side

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



Manual cord device

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

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





Limit switches

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

- 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

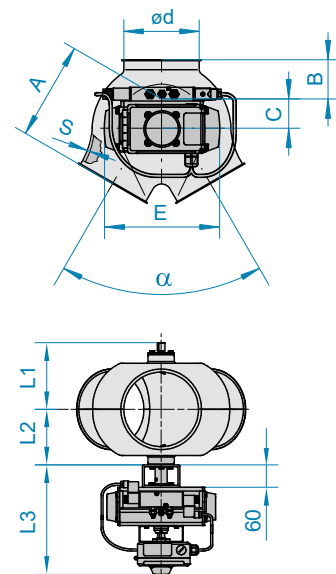
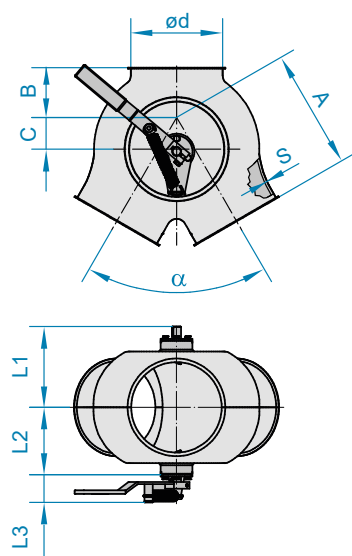
JACOB two-way diverters are available not only in a comprehensive standard range but also in a wide range of special versions:

- 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		12103502	
120	60°	160	50	54	129	99	60	12121502		12123502	
150	60°	200	80	60	146	116	60	12151502	13151502	12153502	
175	60°	218	63	75	159	129	60	12171505	13171505	12173505	
200	60°	265	110	70	178	148	60	12201505	13201505	12203505	
250	60°	305	115	82	199	169	60	12251505	13251505	12253505	
300	60°	385	145	110	225	195	60	12301502	13301502	12303502	
350	50°	520	95	185	345	300	90	12351505	13351505	12353505	
400	50°	580	105	195	378	333	90	12401505	13401505	12403505	

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

2150

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

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

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

100	60°	135	50	41	216	129	88	286	5582100244		6582100244	
120	60°	160	50	54	216	129	99	286	5582120244		6582120244	
150	60°	200	80	60	216	146	116	286	5582150244	5583150244	6582150244	
175	60°	218	63	75	216	159	129	286	5582170144	5583170144	6582170144	
200	60°	265	110	70	291	178	148	303	5582200144	5583200144	6582200144	
250	60°	305	115	82	291	199	169	303	5582250144	5583250144	6582250144	
300	60°	385	145	110	291	225	195	303	5582300244	5583300244	6582300244	
350	50°	520	95	185	335	345	300	316	5582350144	5583350144	6582350144	
400	50°	580	105	195	335	378	333	316	5582400144	5583400144	6582400144	

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

100	60°	135	50	41	216	129	88	286	5582100245		6582100245	
120	60°	160	50	54	216	129	99	286	5582120245		6582120245	
150	60°	200	80	60	216	146	116	286	5582150245	5583150245	6582150245	
175	60°	218	63	75	216	159	129	286	5582170145	5583170145	6582170145	
200	60°	265	110	70	290	178	148	303	5582200145	5583200145	6582200145	
250	60°	305	115	82	290	199	169	303	5582250145	5583250145	6582250145	
300	60°	385	145	110	290	225	195	303	5582300245	5583300245	6582300245	
350	50°	520	95	185	310	345	300	316	5582350145	5583350145	6582350145	
400	50°	580	105	195	310	378	333	316	5582400145	5583400145	6582400145	

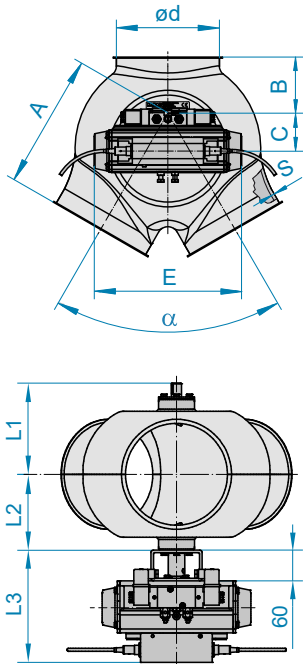
F FOOD GRADE
EC 1935/2004 plus FDA compliant



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

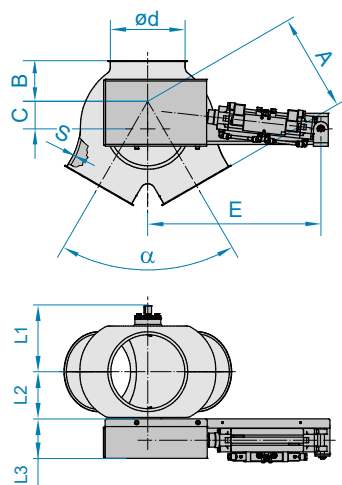
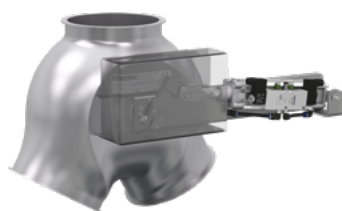
100	60°	135	50	41	216	118	88	203	55821002455		65821002455	
120	60°	160	50	54	216	129	99	203	55821202455		65821202455	
150	60°	200	80	60	216	146	116	203	55821502455	55831502455	65821502455	
175	60°	218	63	75	216	159	129	203	55821701455	55831701455	65821701455	
200	60°	265	110	70	291	178	148	220	55822001455	55832001455	65822001455	
250	60°	305	115	82	291	199	169	220	55822501455	55832501455	65822501455	
300	60°	385	145	110	291	225	195	220	55823002455	55833002455	65823002455	
350	50°	520	95	185	335	345	300	233	55823501455	55833501455	65823501455	
400	50°	580	105	195	335	378	333	233	55824001455	55834001455	65824001455	

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

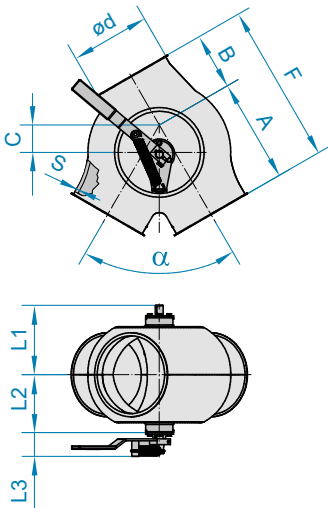
DN	α	A	B	C	E	L1	L2	L3	2 mm powder-coated	3 mm powder-coated	2 mm stainless steel	F
									Item no.	Item no.	Item no.	
Cylinder, make FESTO, control voltage 230 V AC												
100	60°	135	56	41	440	129	88	88	5582100221		6582100221	
120	60°	160	50	54	440	129	99	88	5582120221		6582120221	
150	60°	200	80	60	440	146	116	88	5582150221	5583150221	6582150221	
175	60°	218	63	75	440	159	129	88	5582170121	5583170121	6582170121	
200	60°	265	110	70	470	178	148	88	5582200121	5583200121	6582200121	
250	60°	305	115	82	470	199	169	88	5582250121	5583250121	6582250121	
300	60°	385	145	110	470	225	195	88	5582300221	5583300221	6582300221	
350	50°	520	95	185	470	345	300	90	5582350121	5583350121	6582350121	
400	50°	580	105	195	470	378	333	90	5582400121	5583400121	6582400121	
Cylinder, make FESTO, control voltage 24 V DC												
100	60°	135	56	41	440	129	88	88	5582100223		6582100223	
120	60°	160	50	54	440	129	99	88	5582120223		6582120223	
150	60°	200	80	60	440	146	116	88	5582150223	5583150223	6582150223	
175	60°	218	63	75	440	159	129	88	5582170123	5583170123	6582170123	
200	60°	265	110	70	470	178	148	88	5582200123	5583200123	6582200123	
250	60°	305	115	82	470	199	169	88	5582250123	5583250123	6582250123	
300	60°	385	145	110	470	225	195	88	5582300223	5583300223	6582300223	
350	50°	520	95	185	470	345	300	90	5582350123	5583350123	6582350123	
400	50°	580	105	195	470	378	333	90	5582400123	5583400123	6582400123	

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		12103512	
120	60°	160	70	54	230	129	99	60	12121512		12123512	
150	60°	200	100	60	300	146	116	60	12151512	13151512	12153512	
175	60°	218	90	75	308	159	129	60	12171517	13171517	12173517	
200	60°	265	145	70	410	178	148	60	12201517	13201517	12203517	
250	60°	305	155	82	460	199	169	60	12251517	13251517	12253517	
300	60°	385	190	110	575	225	195	60	12301512	13301512	12303512	
350	50°	520	150	185	670	345	300	90	12351515	13351515	12353515	
400	50°	580	170	195	750	378	333	90	12401515	13401515	12403515	

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

2160



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

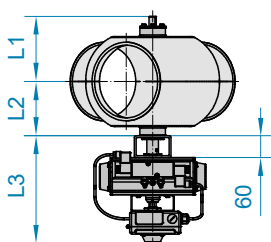
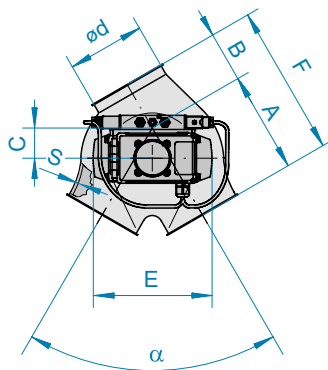
DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	3 mm powder-coated	2 mm stainless steel	F
										Item no.	Item no.	Item no.	

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

100	60°	135	65	41	216	200	82	88	286	5592100244		6592100244	
120	60°	160	70	54	216	230	90	99	286	5592120244		6592120244	
150	60°	200	100	60	216	300	146	116	286	5592150244	5593150244	6592150244	
175	60°	218	90	75	216	308	159	129	286	5592170144	5593170144	6592170144	
200	60°	265	145	70	291	410	178	148	303	5592200144	5593200144	6592200144	
250	60°	305	156	82	291	460	199	169	303	5592250144	5593250144	6592250144	
300	60°	385	190	110	291	575	225	195	303	5592300244	5593300244	6592300244	
350	50°	520	150	185	335	670	325	300	316	5592350144	5593350144	6592350144	
400	50°	580	170	195	335	750	350	333	316	5592400144	5593400144	6592400144	

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

100	60°	135	65	41	216	200	82	88	286	5592100245		6592100245	
120	60°	160	70	54	216	230	90	99	286	5592120245		6592120245	
150	60°	200	100	60	216	300	146	116	286	5592150245	5593150245	6592150245	
175	60°	218	90	75	216	308	159	129	286	5592170145	5593170145	6592170145	
200	60°	265	145	70	291	410	178	148	303	5592200145	5593200145	6592200145	
250	60°	305	156	82	291	460	199	169	303	5592250145	5593250145	6592250145	
300	60°	385	190	110	291	575	225	195	303	5592300245	5593300245	6592300245	
350	50°	520	150	185	335	670	325	300	316	5592350145	5593350145	6592350145	
400	50°	580	170	195	335	750	350	333	316	5592400145	5593400145	6592400145	



F FOOD GRADE
EC 1935/2004 plus FDA compliant



TWO-WAY DIVERTERS

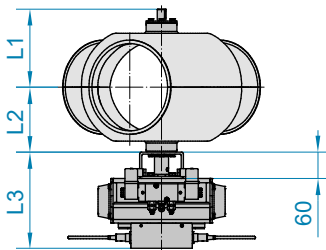
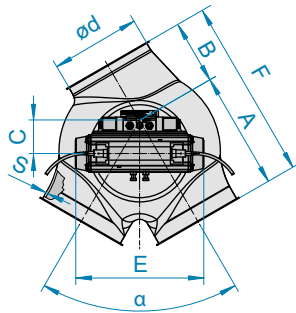
Two-way valves with inlet collar



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

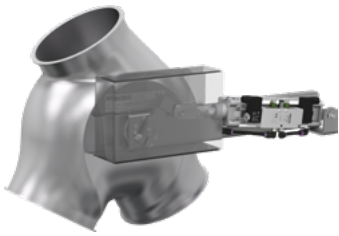


DN	α	A	B	C	E	F	L1	L2	L3	2 mm powder-coated	3 mm powder-coated	2 mm stainless steel	F
										Item no.	Item no.	Item no.	

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

100	60°	135	65	41	216	200	118	88	203	55921002455		65921002455	
120	60°	160	70	54	216	230	129	99	203	55921202455		65921202455	
150	60°	200	100	60	216	300	146	116	203	55921502455	55931502455	65921502455	
175	60°	218	90	75	216	308	159	129	203	55921701455	55931701455	65921701455	
200	60°	265	145	70	291	410	178	148	220	55922001455	55932001455	65922001455	
250	60°	305	155	82	291	460	199	169	220	55922501455	55932501455	65922501455	
300	60°	385	190	110	291	575	225	195	220	55923002455	55933002455	65923002455	
350	50°	520	150	185	335	670	345	300	233	55923501455	55933501455	65923501455	
400	50°	580	170	195	335	750	378	333	233	55924001455	55934001455	65924001455	

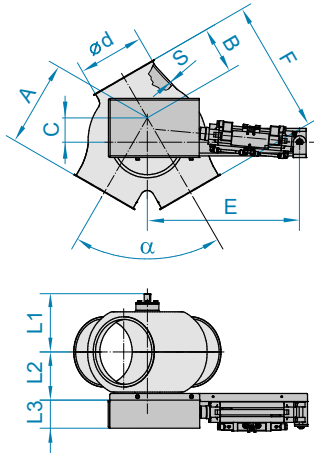
F FOOD GRADE
EC 1935/2004 plus FDA compliant



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		6592100221	
120	60°	160	70	54	440	230	90	99	88	5592120221		6592120221	
150	60°	200	100	60	440	300	146	116	88	5592150221	5593150221	6592150221	
175	60°	218	90	75	440	308	159	129	88	5592170121	5593170121	6592170121	
200	60°	265	145	70	470	410	178	148	88	5592200121	5593200121	6592200121	
250	60°	305	156	82	470	460	199	169	88	5592250121	5593250121	6592250121	
300	60°	385	190	110	470	575	225	195	88	5592300221	5593300221	6592300221	
350	50°	520	150	185	470	670	325	300	90	5592350121	5593350121	6592350121	
400	50°	580	170	195	470	750	350	333	90	5592400121	5593400121	6592400121	

Cylinder, make FESTO, control voltage 24 V DC

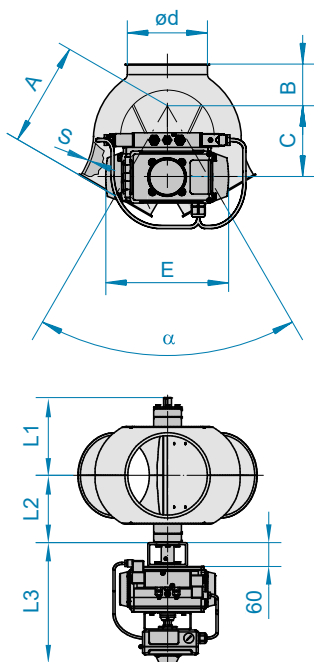
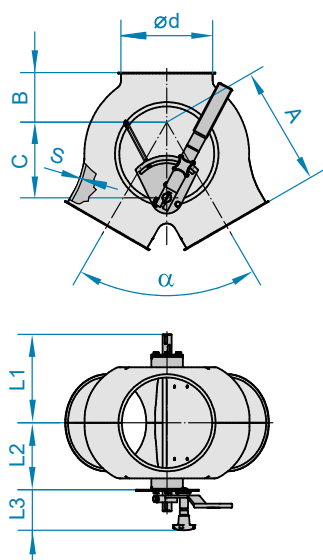
100	60°	135	65	41	440	200	82	88	88	5592100223		6592100223	
120	60°	160	70	54	440	230	90	99	88	5592120223		6592120223	
150	60°	200	100	60	440	300	146	116	88	5592150223	5593150223	6592150223	
175	60°	218	90	75	440	308	159	129	88	5592170123	5593170123	6592170123	
200	60°	265	145	70	470	410	178	148	88	5592200123	5593200123	6592200123	
250	60°	305	156	82	470	460	199	169	88	5592250123	5593250123	6592250123	
300	60°	385	190	110	470	575	225	195	88	5592300223	5593300223	6592300223	
350	50°	520	150	185	470	670	325	300	90	5592350123	5593350123	6592350123	
400	50°	580	170	195	470	750	350	333	90	5592400123	5593400123	6592400123	

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		121035037	
120	60°	160	50	112	148	96	88	12121503		121235037	
150	60°	200	80	136	168	119	88	12151503	13151503	121535037	
175	60°	218	63	170	198	147	88	12171506	13171506	121735067	
200	60°	265	110	167	199	150	88	12201506	13201506	122035067	
250	60°	305	115	215	220	171	88	12251506	13251506	122535067	
300	60°	385	145	260	264	213	88	12301503	13301503	123035037	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

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

2190

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

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

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

100	60°	135	50	87	203,5	140	110	303	5542100244		65421002744	
120	60°	160	50	112	203,5	148	118	303	5542120244		65421202744	
150	60°	200	80	136	203,5	168	138	303	5542150244	5543150244	65421502744	
175	60°	218	63	170	203,5	198	168	303	5542170144	5543170144	65421701744	
200	60°	265	110	167	241	199	169	316	5542200144	5543200144	65422001744	
250	60°	305	115	215	241	220	190	316	5542250144	5543250144	65422501744	
300	60°	385	145	260	241	264	234	316	5542300244	5543300244	65423002744	

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

100	60°	135	50	87	203,5	140	110	265	5542100245		65421002745	
120	60°	160	50	112	203,5	148	118	265	5542120245		65421202745	
150	60°	200	80	136	203,5	168	138	265	5542150245	5543150245	65421502745	
175	60°	218	63	170	203,5	198	168	265	5542170145	5543170145	65421701745	
200	60°	265	110	167	241	199	169	275	5542200145	5543200145	65422001745	
250	60°	305	115	215	241	220	190	275	5542250145	5543250145	65422501745	
300	60°	385	145	260	241	264	234	275	5542300245	5543300245	65423002745	



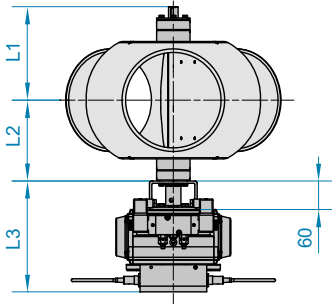
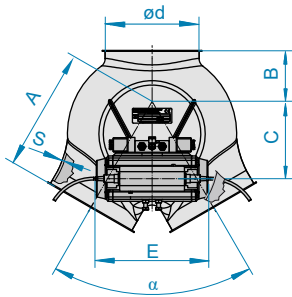
AVAILABLE IN THE DETECTABLE DESIGN LINE.



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	203,5	140	110	220	55421002455		654210027455	
120	60°	160	50	112	203,5	148	118	220	55421202455		654212027455	
150	60°	200	80	136	203,5	168	138	220	55421502455	55431502455	654215027455	
175	60°	218	63	170	203,5	198	168	220	55421701455	55431701455	654217017455	
200	60°	265	110	167	241	199	169	233	55422001455	55432001455	654220017455	
250	60°	305	115	215	241	220	190	233	55422501455	55432501455	654225017455	
300	60°	385	145	260	241	245	215	233	55423002455	55433002455	654230027455	



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

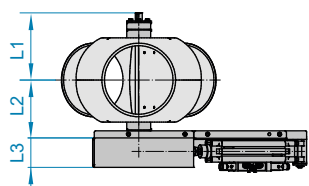
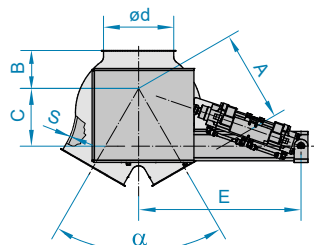
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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		65421002721	
120	60°	160	50	112	440	148	118	88	5542120221		65421202721	
150	60°	200	80	136	440	168	138	88	5542150221	5543150221	65421502721	
175	60°	218	63	170	440	198	168	88	5542170121	5543170121	65421701721	
200	60°	265	110	167	470	199	169	88	5542200121	5543200121	65422001721	
250	60°	305	115	215	470	220	190	88	5542250121	5543250121	65422501721	
300	60°	385	145	260	470	264	234	88	5542300221	5543300221	65423002721	

Cylinder, make FESTO, control voltage 24 V DC

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



AVAILABLE IN THE DETECTABLE DESIGN LINE.

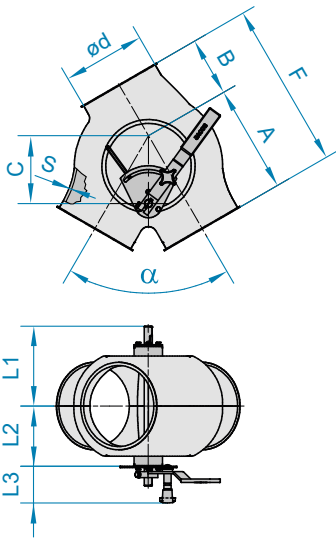
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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		121035137	
120	60°	160	70	112	230	148	96	88	12121513		121235137	
150	60°	200	100	136	300	168	119	88	12151513	13151513	121535137	
175	60°	218	90	170	308	198	149	88	12171516	13171516	121735167	
200	60°	265	145	167	410	199	150	88	12201516	13201516	122035167	
250	60°	305	155	215	460	220	171	88	12251516	13251516	122535167	
300	60°	385	190	260	575	264	197	88	12301513	13301513	123035137	



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

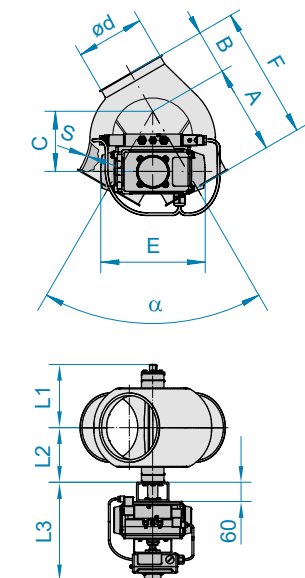
100	60°	135	65	87	203,5	200	140	110	303	5552100244		65521002744	
120	60°	160	70	112	203,5	230	148	118	303	5552120244		65521202744	
150	60°	200	100	136	203,5	300	168	138	303	5552150244	5553150244	65521502744	
175	60°	218	90	170	203,5	308	198	168	303	5552170144	5553170144	65521701744	
200	60°	265	145	167	241	410	199	169	316	5552200144	5553200144	65522001744	
250	60°	305	155	215	241	460	220	190	316	5552250144	5553250144	65522501744	
300	60°	385	190	260	241	575	264	234	316	5552300244	5553300244	65523002744	

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

100	60°	135	65	87	203,5	200	140	110	303	5552100245		65521002745	
120	60°	160	70	112	203,5	230	148	118	303	5552120245		65521202745	
150	60°	200	100	136	203,5	300	168	138	303	5552150245	5553150245	65521502745	
175	60°	218	90	170	203,5	308	198	168	303	5552170145	5553170145	65521701745	
200	60°	265	145	167	241	410	199	169	316	5552200145	5553200145	65522001745	
250	60°	305	155	215	241	460	220	190	316	5552250145	5553250145	65522501745	
300	60°	385	190	260	241	575	264	234	316	5552300245	5553300245	65523002745	



AVAILABLE IN THE DETECTABLE DESIGN LINE.



F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

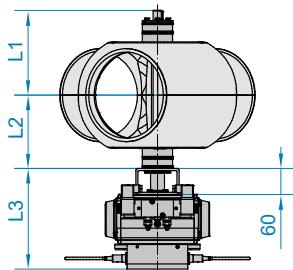
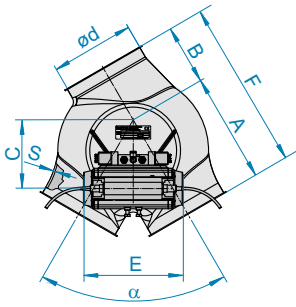
Two-way valves with seal



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	203,5	200	140	110	220	55521002455		655210027455
120	60°	160	70	112	203,5	230	148	118	220	55521202455		655212027455
150	60°	200	100	136	203,5	300	168	138	220	55521502455	55531502455	655215027455
175	60°	218	90	170	203,5	308	198	168	220	55521701455	55531701455	655217017455
200	60°	265	145	167	241	410	199	169	233	55522001455	55532001455	655220017455
250	60°	305	155	215	241	460	220	190	233	55522501455	55532501455	655225017455
300	60°	385	190	260	241	575	245	215	233	55523002455	55533002455	655230027455



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

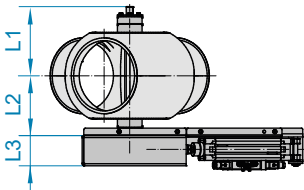
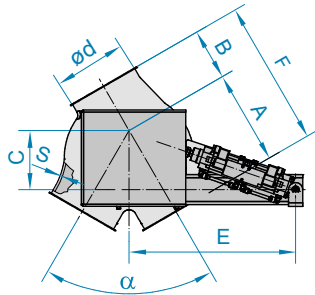
D DETECTABLE DESIGN
Metal-detectable



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		65521002721	
120	60°	160	70	112	440	230	148	118	88	5552120221		65521202721	
150	60°	200	100	136	440	300	168	138	88	5552150221	5553150221	65521502721	
175	60°	218	90	170	440	308	198	168	88	5552170121	5553170121	65521701721	
200	60°	265	145	167	470	410	199	169	88	5552200121	5553200121	65522001721	
250	60°	305	155	215	470	460	220	190	88	5552250121	5553250121	65522501721	
300	60°	385	190	260	470	575	264	234	88	5552300221	5553300221	65523002721	

Cylinder, make FESTO, control voltage 24 V DC

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



AVAILABLE IN THE DETECTABLE DESIGN LINE.

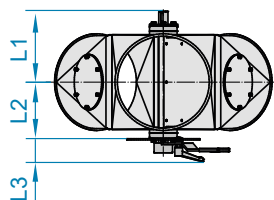
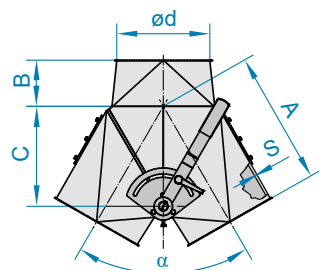
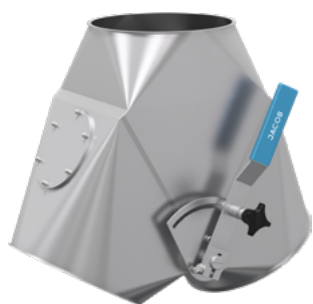
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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	F
								Item no.	Item no.	
100	60°	220	65	128	117	82	75	12101508	12103508	
120	60°	240	70	145	127	92	75	12121508	12123508	
150	60°	250	75	168	142	107	75	12151508	12153508	
200	60°	300	105	218	164	132	75	12201508	12203508	
250	60°	370	130	277	205	160	75	12251508	12253508	
300	60°	435	150	326	230	185	75	12301508	12303508	

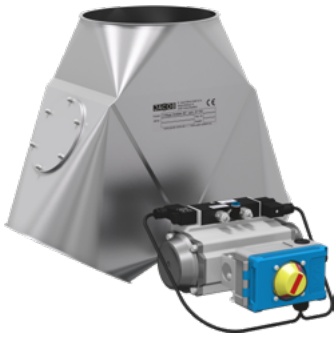


DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



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

2270

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

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

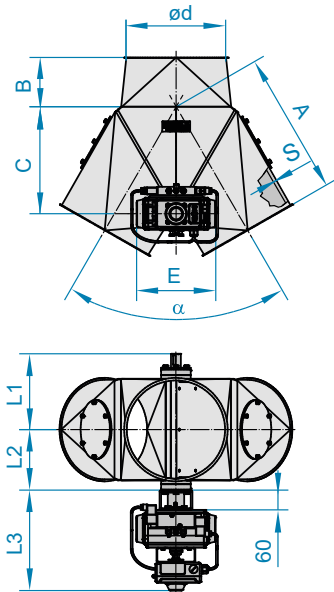
Pneumatic rotary actuator, make AIR TORQUE, control voltage 230 V AC

100	60°	220	65	128	203,5	117	82	303	5982100144	6982100144
120	60°	240	70	145	203,5	127	92	303	5982120144	6982120144
150	60°	250	75	168	203,5	142	107	303	5982150144	6982150144
200	60°	300	105	218	241	164	132	316	5982200144	6982200144
250	60°	370	130	277	259	205	160	328	5982250144	6982250144
300	60°	435	150	326	259	230	185	328	5982300144	6982300144
350	60°	500	185	377	333	255	210	358	5982350144	6982350144
400	60°	600	205	427	333	280	235	358	5982400144	6982400144
450	60°	650	225	474	422,5	301	261	397	5983450144*	6983450144*
500	60°	700	250	574	422,5	326	286	397	5983500144*	6983500144*
560	60°	800	300	592	422,5	437	357	397	5983560144*	6983560144*
630	60°	900	350	662	422,5	472	392	397	5983630144*	6983630144*

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

100	60°	220	65	128	203,5	117	82	303	5982100145	6982100145
120	60°	240	70	145	203,5	127	92	303	5982120145	6982120145
150	60°	250	75	168	203,5	142	107	303	5982150145	6982150145
200	60°	300	105	218	241	164	132	316	5982200145	6982200145
250	60°	370	130	277	259	205	160	328	5982250145	6982250145
300	60°	435	150	326	259	230	185	328	5982300145	6982300145
350	60°	500	185	377	333	255	210	358	5982350145	6982350145
400	60°	600	205	427	333	280	235	358	5982400145	6982400145
450	60°	650	225	474	422,5	301	261	397	5983450145*	6983450145*
500	60°	700	250	574	422,5	326	286	397	5983500145*	6983500145*
560	60°	800	300	592	422,5	437	357	397	5983560145*	6983560145*
630	60°	900	350	662	422,5	472	392	397	5983630145*	6983630145*

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

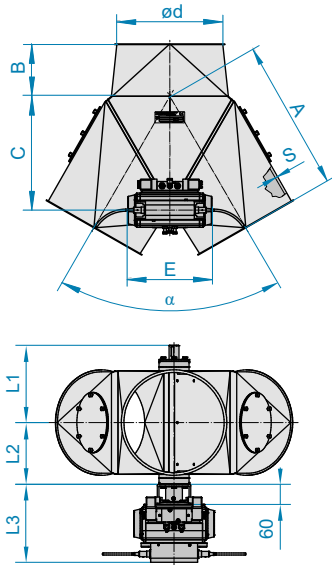
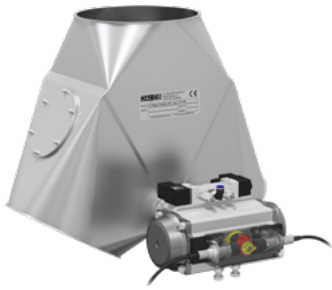
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

Two-way distributors



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

2270

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

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

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

100	60°	220	65	128	203,5	117	82	220	59821001455	69821001455
120	60°	240	70	145	203,5	127	92	220	59821201455	69821201455
150	60°	250	75	168	203,5	142	107	233	59821501455	69821501455
200	60°	300	105	218	241	164	132	233	59822001455	69822001455
250	60°	370	130	277	259	205	160	245	59822501455	69822501455
300	60°	435	150	326	259	230	185	245	59823001455	69823001455
350	60°	500	185	377	333	255	210	275	59823501455	69823501455
400	60°	600	205	427	333	280	235	275	59824001455	69824001455
450	60°	650	225	474	422,5	450	302	314	59834501455*	69834501455*
500	60°	700	250	524	422,5	475	327	314	59835001455*	69835001455*
560	60°	800	300	592	422,5	505	357	314	59835601455*	69835601455*
630	60°	900	350	662	422,5	540	392	314	59836301455*	69836301455*

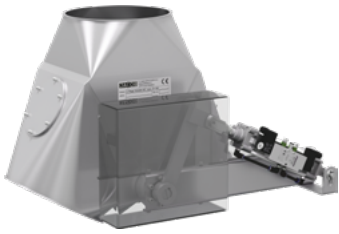
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

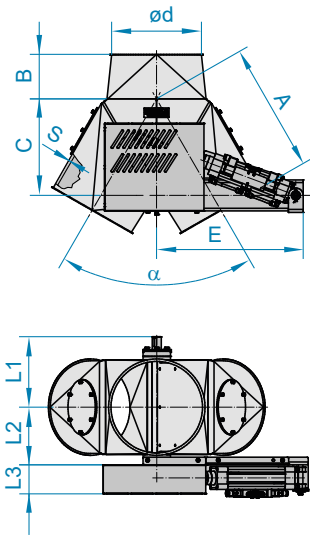
D DETECTABLE DESIGN
Metal-detectable



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	6982100121
120	60°	240	70	145	440	127	92	88	5982120121	6982120121
150	60°	250	75	168	470	142	107	88	5982150121	6982150121
200	60°	300	105	218	470	164	132	88	5982200121	6982200121
250	60°	370	130	277	470	205	160	90	5982250121	6982250121
300	60°	435	150	326	470	230	185	90	5982300121	6982300121
350	60°	500	185	377	490	255	210	110	5982350121	6982350121
400	60°	600	205	427	490	280	235	110	5982400121	6982400121
450	60°	650	225	474	540	301	261	110	5983450121*	6983450121*
500	60°	700	250	574	540	326	286	110	5983500121*	6983500121*
560	60°	800	300	592	540	437	357	110	5983560121*	6983560121*
630	60°	900	350	662	540	472	392	110	5983630121*	6983630121*

Cylinder, make FESTO, control voltage 24 V DC

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

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

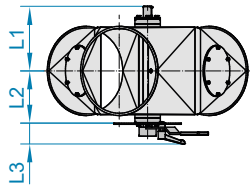
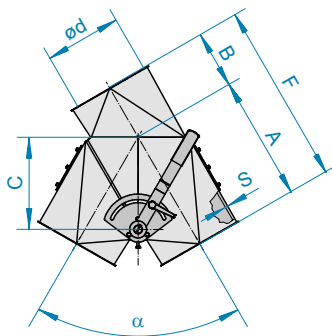
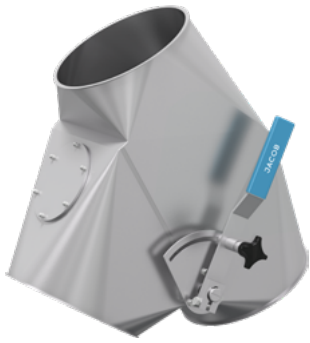
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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	12103509	
120	60°	240	110	145	350	127	92	75	12121509	12123509	
150	60°	250	115	168	365	142	107	75	12151509	12153509	
200	60°	300	140	218	440	164	132	75	12201509	12203509	
250	60°	370	170	277	540	205	160	75	12251509	12253509	
300	60°	435	200	326	635	230	185	75	12301509	12303509	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

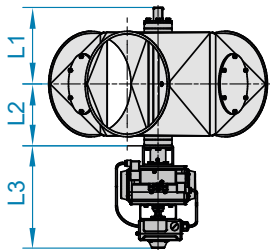
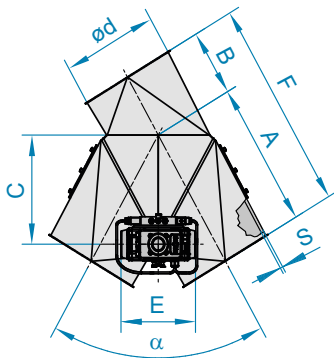
D DETECTABLE DESIGN
Metal-detectable



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	203,5	320	117	82	303	5992100144	6992100144	
120	60°	240	110	145	203,5	350	127	92	303	5992120144	6992120144	
150	60°	250	115	168	203,5	365	142	107	303	5992150144	6992150144	
200	60°	300	140	218	241	440	164	132	316	5992200144	6992200144	
250	60°	370	170	277	259	540	205	160	328	5992250144	6992250144	
300	60°	435	200	326	259	635	230	185	328	5992300144	6992300144	
350	60°	500	230	377	333	730	255	210	358	5992350144	6992350144	
400	60°	600	250	427	333	850	280	235	358	5992400144	6992400144	
450	60°	650	270	474	422,5	920	301	256	397	5993450144*	6993450144*	
500	60°	700	300	542	422,5	1000	326	288	397	5993500144*	6993500144*	
560	60°	800	350	592	422,5	1150	437	357	397	5993560144*	6993560144*	
630	60°	900	400	662	422,5	1300	472	392	397	5993630144*	6993630144*	

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

100	60°	220	100	128	203,5	320	117	82	303	5992100145	6992100145	
120	60°	240	110	145	203,5	350	127	92	303	5992120145	6992120145	
150	60°	250	115	168	203,5	365	142	107	303	5992150145	6992150145	
200	60°	300	140	218	241	440	164	132	316	5992200145	6992200145	
250	60°	370	170	277	259	540	205	160	328	5992250145	6992250145	
300	60°	435	200	326	259	635	230	185	328	5992300145	6992300145	
350	60°	500	230	377	333	730	255	210	358	5992350145	6992350145	
400	60°	600	250	427	333	850	280	235	358	5992400145	6992400145	
450	60°	650	270	474	422,5	920	301	256	397	5993450145*	6993450145*	
500	60°	700	300	542	422,5	1000	326	288	397	5993500145*	6993500145*	
560	60°	800	350	592	422,5	1150	437	357	397	5993560145*	6993560145*	
630	60°	900	400	662	422,5	1300	472	392	397	5993630145*	6993630145*	

*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

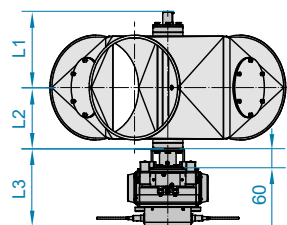
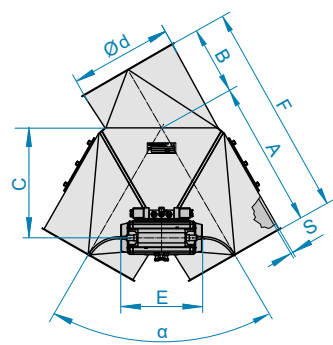
Two-way distributors



TWO-WAY DISTRIBUTORS 60°, 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	203,5	320	117	82	220	59921001455	69921001455
120	60°	240	110	145	203,5	350	127	92	220	59921201455	69921201455
150	60°	250	115	168	203,5	365	142	107	233	59921501455	69921501455
200	60°	300	140	218	241	440	164	132	233	59922001455	69922001455
250	60°	370	170	277	259	540	205	160	245	59922501455	69922501455
300	60°	435	200	326	259	635	230	185	245	59923001455	69923001455
350	60°	500	230	377	333	730	255	210	275	59923501455	69923501455
400	60°	600	250	427	333	850	280	235	275	59924001455	69924001455
450	60°	650	270	474	422,5	920	450	302	314	59934501455*	69934501455*
500	60°	700	300	524	422,5	1000	475	327	314	59935001455*	69935001455*
560	60°	800	350	592	422,5	1150	505	357	314	59935601455*	69935601455*
630	60°	900	400	662	422,5	1300	540	392	314	59936301455*	69936301455*

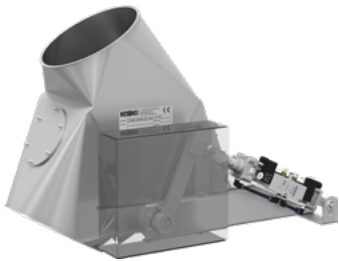
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

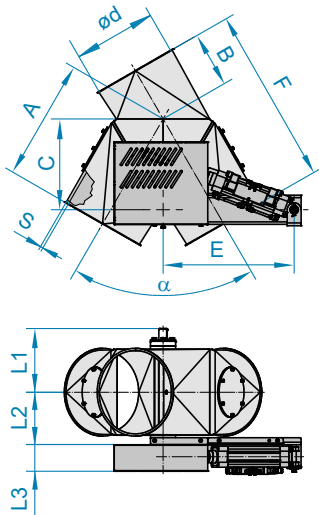
D DETECTABLE DESIGN
Metal-detectable



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	F
										Item no.	Item no.	

Cylinder, make FESTO, control voltage 230 V AC

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

Cylinder, make FESTO, control voltage 24V DC

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

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

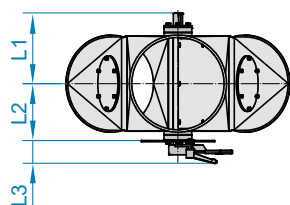
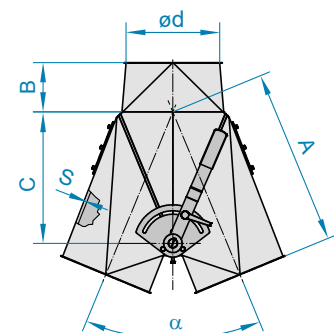
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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

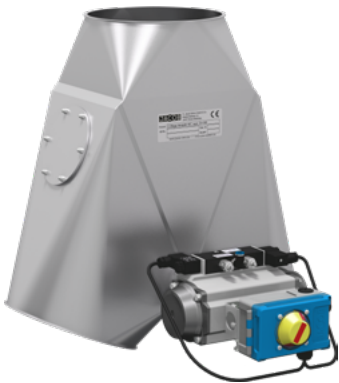
DN	α	A	B	C	L1	L2	L3	2 mm powder-coated	2 mm stainless steel	F
								Item no.	Item no.	
100	45°	260	65	165	117	82	75	12101518	12103518	
120	45°	280	70	185	127	92	75	12121518	12123518	
150	45°	315	75	225	142	107	75	12151518	12153518	
175	45°	350	90	255	151	119	75	12171518	12173518	
200	45°	400	105	289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



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

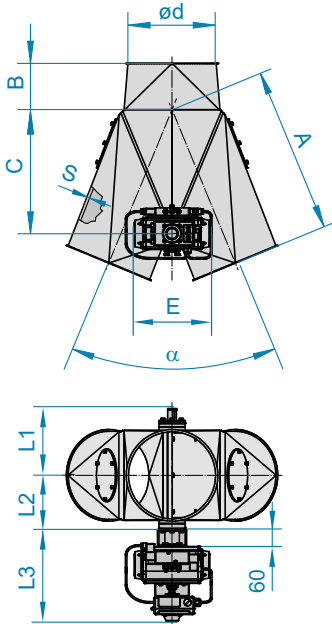
D DETECTABLE DESIGN
Metal-detectable



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

2230

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



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

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

100	45°	260	65	165	203,5	117	82	303	5922100144	6922100144
120	45°	280	70	185	203,5	127	107	303	5922120144	6922120144
150	45°	315	75	225	203,5	142	107	303	5922150144	6922150144
175	45°	350	90	255	241	150	119	316	5922170144	6922170144
200	45°	400	105	289	241	164	132	316	5922200144	6922200144
250	45°	480	130	356	259	205	160	328	5922250144	6922250144
300	45°	570	160	426	259	230	185	328	5922300144	6922300144
350	45°	618	185	495	333	238	208	358	5922350144	6922350144
400	45°	698	205	558	333	263	233	358	5922400144	6922400144
450	45°	800	225	624	422,5	450	302	397	5923450144*	6923450144*
500	45°	880	250	686	422,5	475	327	397	5923500144*	6923500144*

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

100	45°	260	65	165	203,5	117	82	303	5922100145	6922100145
120	45°	280	70	185	203,5	127	107	303	5922120145	6922120145
150	45°	315	75	225	203,5	142	107	303	5922150145	6922150145
175	45°	350	90	255	241	150	119	316	5922170145	6922170145
200	45°	400	105	289	241	164	132	316	5922200145	6922200145
250	45°	480	130	356	259	205	160	328	5922250145	6922250145
300	45°	570	160	426	259	230	185	328	5922300145	6922300145
350	45°	618	185	495	333	238	208	358	5922350145	6922350145
400	45°	698	205	558	333	263	233	358	5922400145	6922400145
450	45°	800	225	624	422,5	450	302	397	5923450145*	6923450145*
500	45°	880	250	686	422,5	475	327	397	5923500145*	6923500145*

*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

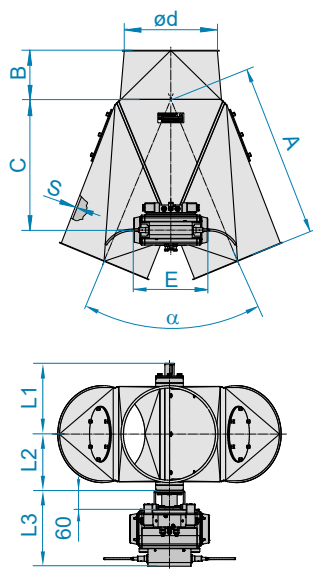
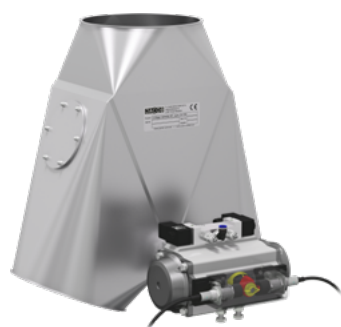
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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	
									Item no.	Item no.	

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

100	45°	260	65	165	203,5	117	82	220	59221001455	69221001455	
120	45°	280	70	185	203,5	127	92	220	59221201455	69221201455	
150	45°	315	75	225	203,5	142	107	233	59221501455	69221501455	
175	45°	350	90	255	241	151	119	233	59221701455	69221701455	
200	45°	400	105	289	241	164	132	233	59222001455	69222001455	
250	45°	480	130	356	259	205	160	245	59222501455	69222501455	
300	45°	570	160	426	259	230	185	245	59223001455	69223001455	
350	45°	618	185	495	333	238	210	375	59223501455	69223501455	
400	45°	698	205	558	333	263	235	375	59224001455	69224001455	
450	45°	800	225	624	422,5	450	302	314	59234501455*	69234501455*	
500	45°	880	250	700	422,5	475	327	314	59235001455*	69235001455*	

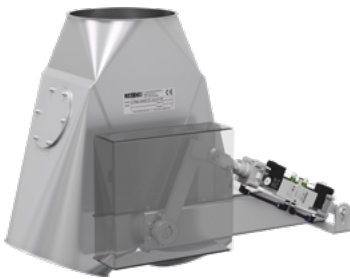
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

FOOD GRADE
EC 1935/2004 plus FDA compliant

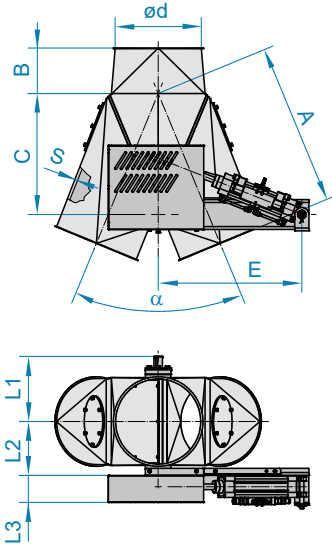
DETECTABLE DESIGN
Metal-detectable



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

2235

- Standard version: Right-side mounting
- Control with 5/2-way solenoid valve (2-coil) and 2 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	F
									Item no.	Item no.	

Cylinder, make FESTO, control voltage 230 V AC

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

Cylinder, make FESTO, control voltage 24 V DC

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

*3 mm



DETECTABLE DESIGN

AVAILABLE IN THE DETECTABLE DESIGN LINE.

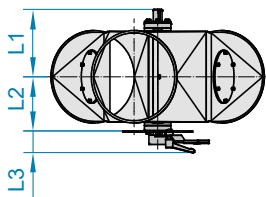
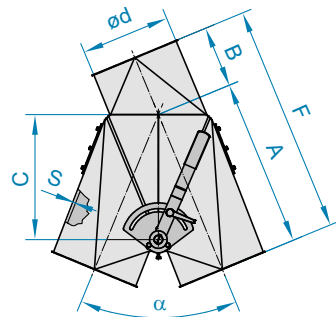
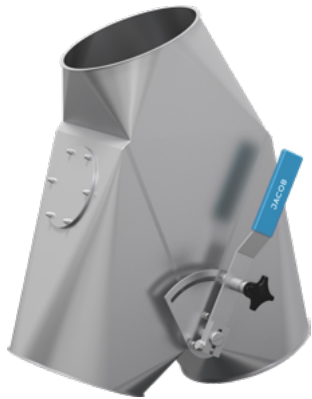
F FOOD GRADE
EC 1935/2004 plus FDA compliant

D DETECTABLE DESIGN
Metal-detectable



TWO-WAY DIVERTERS

Two-way distributors



TWO-WAY DISTRIBUTORS 45°, ASYMMETRICAL, 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	12103519	
120	45°	280	110	185	390	127	92	75	12121519	12123519	
150	45°	315	115	225	430	142	107	75	12151519	12153519	
175	45°	350	125	255	475	151	119	75	12171519	12173519	
200	45°	400	140	289	540	164	132	75	12201519	12203519	
250	45°	480	170	356	650	205	160	75	12251519	12253519	
300	45°	570	210	426	780	230	185	75	12301519	12303519	



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

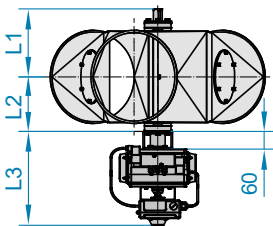
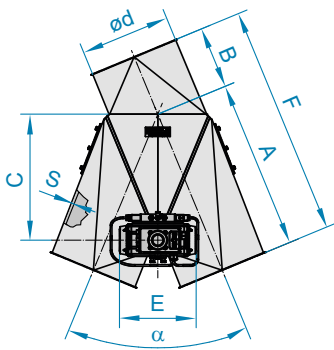
D DETECTABLE DESIGN
Metal-detectable



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	203,5	360	117	82	303	5912100144	6912100144	
120	45°	280	110	185	203,5	390	127	92	303	5912120144	6912120144	
150	45°	315	115	225	203,5	430	142	107	303	5912150144	6912150144	
175	45°	350	125	255	241	475	151	119	316	5912170144	6912170144	
200	45°	400	140	289	241	540	164	132	316	5912200144	6912200144	
250	45°	480	170	356	259	650	205	160	328	5912250144	6912250144	
300	45°	570	210	426	259	780	230	185	328	5912300144	6912300144	
350	45°	618	230	495	333	848	238	208	358	5912350144	6912350144	
400	45°	698	250	558	333	948	263	233	358	5912400144	6912400144	
450	45°	800	270	624	422,5	1070	450	302	397	5913450144*	6913450144*	
500	45°	880	300	686	422,5	1180	475	327	397	5913500144*	6913500144*	

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

100	45°	260	100	165	203,5	360	117	82	303	5912100145	6912100145	
120	45°	280	110	185	203,5	390	127	92	303	5912120145	6912120145	
150	45°	315	115	225	203,5	430	142	107	303	5912150145	6912150145	
175	45°	350	125	255	241	475	150	119	316	5912170145	6912170145	
200	45°	400	140	289	241	540	164	132	316	5912200145	6912200145	
250	45°	480	170	356	259	650	205	160	328	5912250145	6912250145	
300	45°	570	210	426	259	780	230	185	328	5912300145	6912300145	
350	45°	618	230	495	333	848	238	208	358	5912350145	6912350145	
400	45°	698	250	558	333	948	263	233	358	5912400145	6912400145	
450	45°	800	270	624	422,5	1070	450	302	397	5913450145*	6913450145*	
500	45°	880	300	686	422,5	1180	475	327	397	5913500145*	6913500145*	

*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

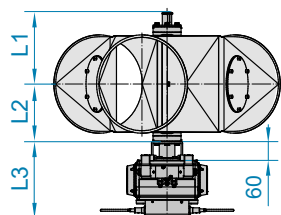
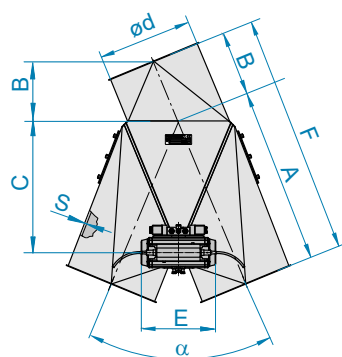
Two-way distributors



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

2240

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



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

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

100	45°	260	100	165	203,5	360	117	82	220	59121001455	69121001455
120	45°	280	110	185	203,5	390	127	92	220	59121201455	69121201455
150	45°	315	115	225	203,5	430	142	107	233	59121501455	69121501455
175	45°	350	125	255	241	475	151	119	233	59121701455	69121701455
200	45°	400	140	289	241	540	164	132	233	59122001455	69122001455
250	45°	480	170	356	259	650	205	160	245	59122501455	69122501455
300	45°	570	210	426	259	780	230	185	245	59123001455	69123001455
350	45°	618	230	495	333	848	238	210	375	59123501455	69123501455
400	45°	698	250	558	333	948	263	235	375	59124001455	69124001455
450	45°	800	270	624	422,5	1070	450	302	314	59134501455*	69134501455*
500	45°	880	300	700	422,5	1180	475	327	314	59135001455*	69135001455*

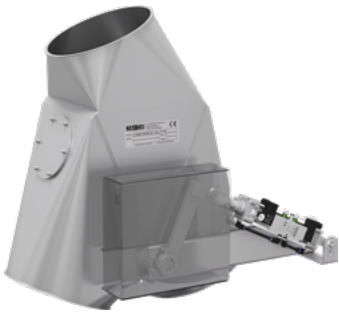
*3 mm



AVAILABLE IN THE DETECTABLE DESIGN LINE.

F FOOD GRADE
EC 1935/2004 plus FDA compliant

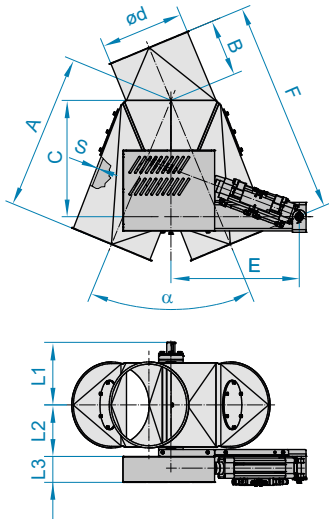
D DETECTABLE DESIGN
Metal-detectable



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	F
										Item no.	Item no.	

Cylinder, make FESTO, control voltage 230 V AC

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

Cylinder, make FESTO, control voltage 24 V DC

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

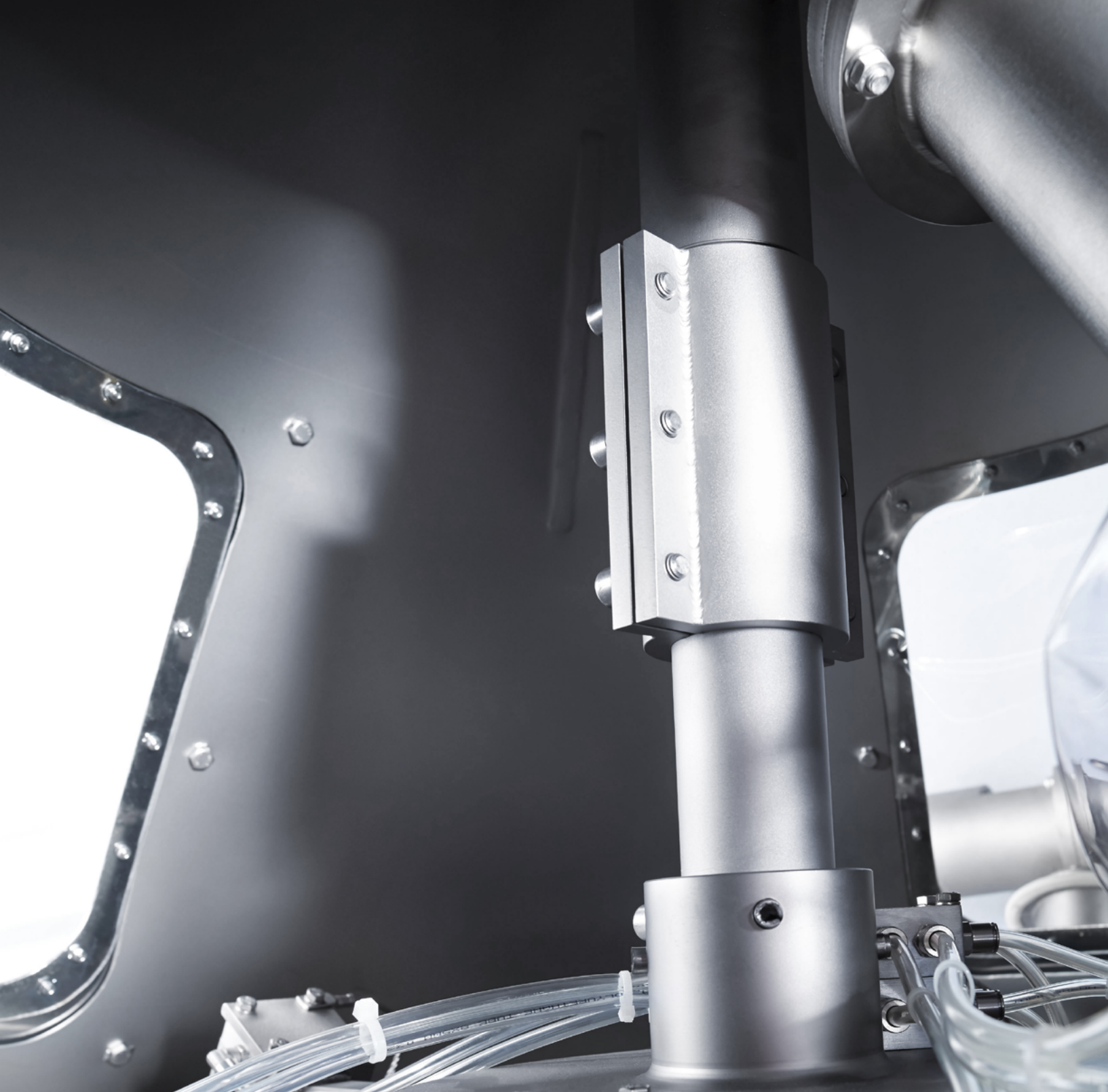
*3 mm



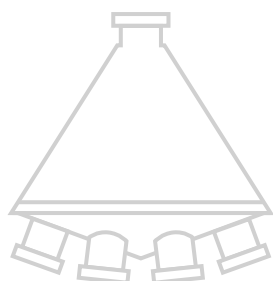
AVAILABLE IN THE DETECTABLE DESIGN LINE.

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
- 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
- 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
- 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
- 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

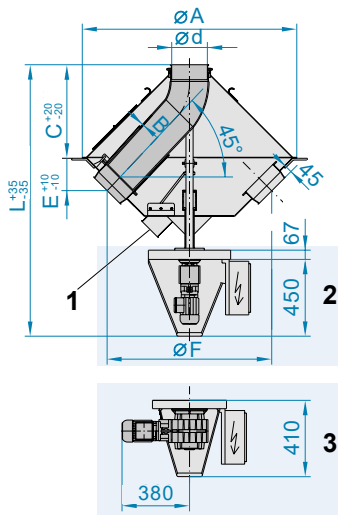


10



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 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
- A = 800 mm: Spillage outlet = DN 100 mm

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.	Item no.	Item no.
100	98	800	3.6	365	138	626	1358	77	8	5104104501	5106104501		
120	118	800	4.0	355	155	590	1348	79	12	5104124501	5106124501		
150	148	800	4.5	340	155	590	1333	80	25	5104154501	5106154501		
175	173	1200	5.4	520	173	940	1576	134	45	5104174501	5106174501		
200	198	1200	6.3	510	183	920	1568	141	65	5104204501	5106204501		
250	248	1200	6.3	485	219	850	1540	155	100	5104254501	5106254501		
300	298	1200	7.1	480	212	860	1538	165	150	5104304501	5106304501		

8 outlets

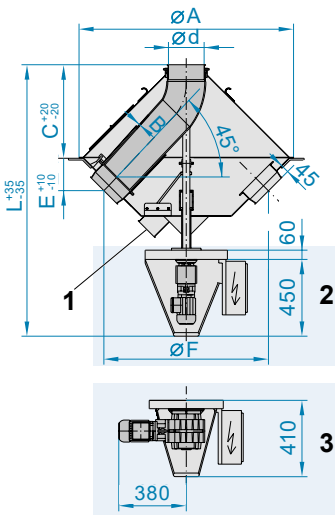
DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.
100	98	800	3.6	365	138	626	1358	77	8	5108104501
120	118	800	4.0	355	155	590	1348	79	12	5108124501
150	148	1200	4.5	535	155	974	1593	129	25	5108154501
175	173	1200	5.4	520	173	940	1576	134	45	5108174501
200	198	1200	6.3	510	183	920	1568	141	65	5108204501
250	248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

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
120	118	1200	4.0	550	155	974	1608	120	12	5110124501
150	148	1200	4.5	535	155	974	1593	129	25	5110154501
175	173	1200	5.4	520	173	940	1576	134	45	5110174501
200	198	1200	6.3	510	183	920	1568	141	65	5110204501
250	248	1600	6.3	685	219	1250	1945	248	100	5110254501
300	298	1600	7.1	680	212	1260	1940	260	150	5110304501

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



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

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

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

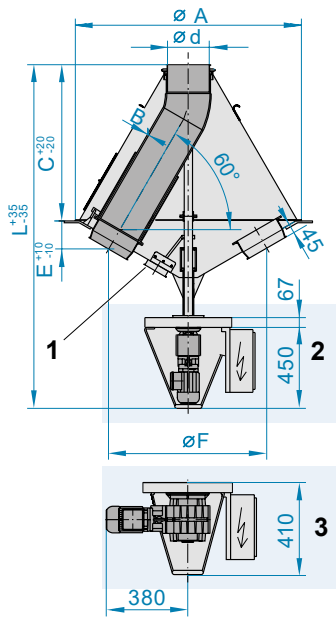
20 outlets

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



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.	Item no.	Item no.
100	98	800	3.6	590	112	560	1518	82	4	5104106001	5106106001		
120	118	800	4.0	570	120	540	1498	84	6	5104126001	5106126001		
150	148	800	4.5	545	125	520	1473	85	12	5104156001	5106156001		
175	173	1200	5.4	860	130	875	1898	153	22	5104176001	5106176001		
200	198	1200	6.3	835	135	855	1873	153	32	5104206001	5106206001		
250	248	1200	6.3	790	150	805	1688	167	50	5104256001	5106256001		
300	298	1200	7.1	745	160	770	1643	182	75	5104306001	5106306001		

8 outlets

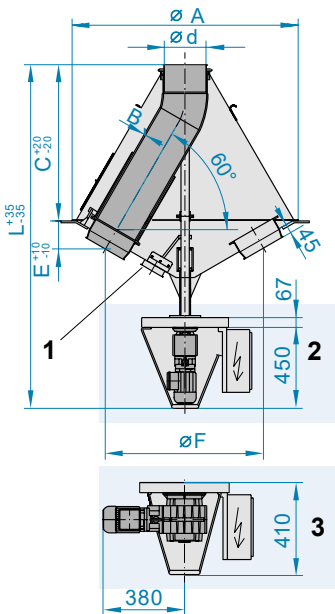
DN	Ø d	Ø A	B	C	E	Ø F	L	kg	t/h	Item no.
100	98	800	3.6	590	112	560	1518	82	4	5108106001
120	118	800	4.0	570	120	540	1498	84	6	5108126001
150	148	1200	4.5	880	125	910	1918	140	12	5108156001
175	173	1200	5.4	860	130	875	1898	153	22	5108176001
200	198	1200	6.3	835	135	855	1873	153	32	5108206001
250	248	1600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

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

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



- 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
120	118	1200	4.0	905	120	930	1943	134	6	5114126001
150	148	1600	4.5	1230	125	1310	2348	240	12	5114156001
175	173	1600	5.4	1210	130	1275	2328	250	22	5114176001
200	198	1600	6.3	1185	135	1255	2303	265	32	5114206001
250	248	2280	6.3	1745	150	1885	2963	435	50	5114256001
300	298	2280	7.1	1700	160	1850	2918	460	75	5114306001

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	5118106001
120	118	1600	4.0	1255	120	1330	2373	235	6	5116126001	5118126001
150	148	1600	4.5	1230	125	1310	2348	240	12	5116156001	5118156001
175	173	2280	5.4	1815	130	1954	3133	405	22	5116176001	5118176001
200	198	2280	6.3	1790	135	1937	3108	430	32	5116206001	5118206001
250	248	2280	6.3	1745	150	1885	2963	435	50	5116256001	

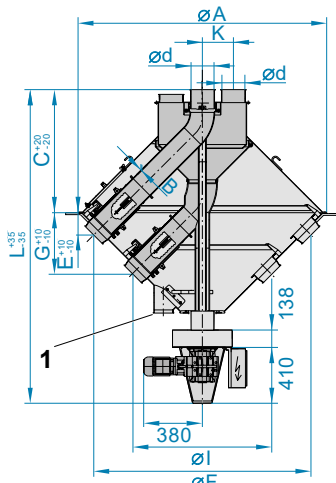
20 outlets

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
120	118	1600	4.0	1255	120	1330	2373	235	6	5120126001
150	148	2280	4.5	1835	125	2019	3153	380	12	5120156001
175	173	2280	5.4	1815	130	1954	3133	405	22	5120176001
200	198	2280	6.3	1790	135	1937	3108	430	32	5120206001



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

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

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

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



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

2 x 8 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
150	148	1600	4.5	1255	120	1310	305	680	190	2390	355	12	52081560
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52081760
200	198	2280	6.3	1825	135	1960	365	1170	240	3160	580	32	52082060
250	248	2280	6.3	1765	155	1890	425	1000	290	3100	597	50	52082560

2 x 10 and 2 x 12 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	52121260
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52101560	52121560
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52101760	52121760
200	198	2280	6.3	1825	135	1960	365	1170	240	3160	580	32	52102060	52122060

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	2280	4.0	1890	115	2025	265	1505	160	3225	545	6	52141260	52161260
150	148	2280	4.5	1860	120	2010	305	1380	190	3195	555	12	52141560	52161560
175	173	2280	5.4	1835	130	1975	335	1285	215	3170	566	22	52141760	52161760

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

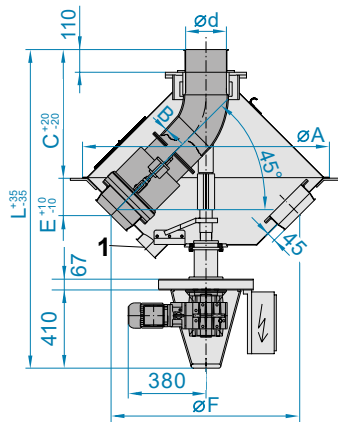


MULTI-WAY DISTRIBUTORS

Turn-head distributors, dust-tight version

TURN-HEAD DISTRIBUTORS, DUST-TIGHT 45°

2360



1 Spillage outlet

- 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

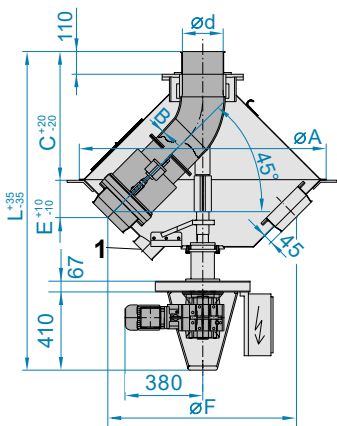
DN	Ø d	Ø A	B	C	E	Ø F	L	4 outlets		6 outlets	
								Item no.	Item no.		
100	98	1200	5.0	643	138	1014	1617	54041045		54061045	
120	118	1200	5.0	621	155	980	1595	54041245		54061245	
150	148	1200	5.6	640	155	980	1614	54041545		54061545	
175	173	1200	5.4	622	173	944	1596	54041745		54061745	
200	198	1200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

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

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



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

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

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
120	118	1600	5.0	821	155	1380	1997	54161245
150	148	1600	5.6	840	155	1380	2016	54161545
175	173	1600	5.4	822	173	1344	1998	54161745

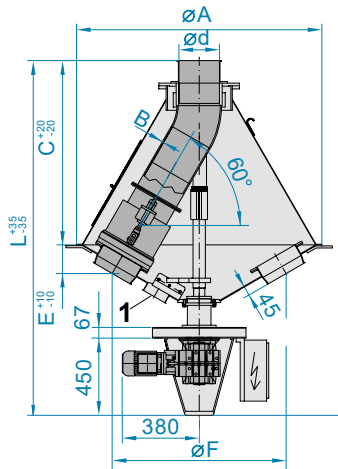
18 and 20 outlets

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	54201045
120	118	1600	5.0	821	155	1380	1997	54181245	54201245



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		54061060	
120	118	1200	5.0	946	120	932	1865	54041260		54061260	
150	148	1200	5.6	939	125	914	1858	54041560		54061560	
175	173	1200	5.4	910	135	880	1829	54041760		54061760	
200	198	1200	6.3	910	140	862	1829	54042060		54062060	
250	248	1600	6.3	1215	155	1210	2250	54042560		54062560	
300	298	1600	7.1	1196	165	1176	2231	54043060		54063060	

8 outlets

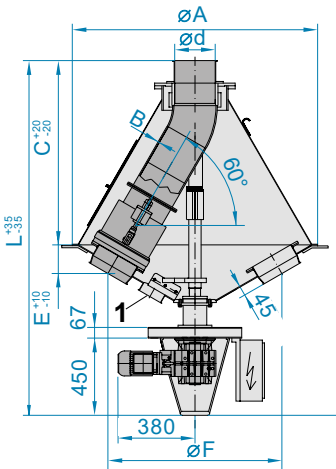
DN	Ø d	Ø A	B	C	E	Ø F	L	Item no.
100	98	1200	5.0	970	112	958	1889	54081060
120	118	1200	5.0	946	120	932	1865	54081260
150	148	1200	5.6	939	125	914	1858	54081560
175	173	1200	5.4	910	135	880	1829	54081760
200	198	1200	6.3	910	140	862	1829	54082060
250	248	1600	6.3	1215	155	1210	2250	54082560
300	298	1600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

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

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



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
120	118	1200	5.0	946	120	932	1865	54141260
150	148	1600	5.6	1285	125	1314	2320	54141560
175	173	1600	5.4	1257	135	1280	2292	54141760
200	198	2280	6.3	1845	140	1942	3076	54142060
250	248	2280	6.3	1804	155	1890	3035	54142560
300	298	2280	7.1	1785	165	1856	3016	54143060

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
120	118	1600	5.0	1293	120	1332	2328	54161260
150	148	1600	5.6	1285	125	1314	2320	54161560
175	173	2280	5.4	1845	135	1960	3076	54161760
200	198	2280	6.3	1845	140	1942	3076	54162060
250	248	2280	6.3	1804	155	1890	3035	54162560

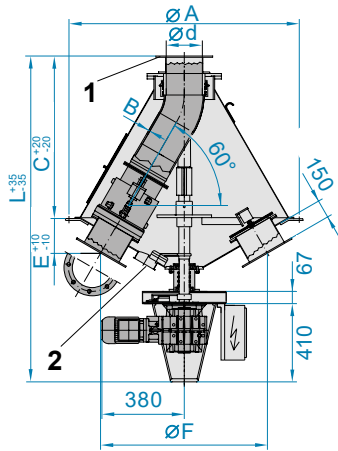
18 and 20 outlets

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	54201060
120	118	1600	5.0	1293	120	1332	2328	54181260	54201260
150	148	2280	5.6	1874	125	1994	3105	54181560	54201560
175	173	2280	5.4	1845	135	1960	3076	54181760	54201760
200	198	2280	6.3	1845	140	1942	3076	54182060	54202060



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		53060860	
100	99	1200	8.0	970	203	1064	1889	53041060		53061060	
120	118	1200	8.0	946	211	1038	1865	53041260		53061260	
150	148	1200	10.0	939	216	1020	1858	53041560		53061560	
200	197	1200	11.0	910	231	968	1829	53042060		53062060	

8 outlets

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

10 and 12 outlets

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

14 outlets

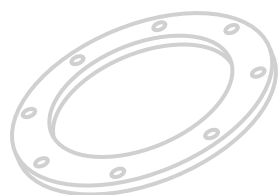
DN	Ø d	Ø A	B	C	E	Ø F	L	14 outlets	
								Item no.	Item no.
80	80	1200	5.0	998	193	1096	1917	53140860	
100	99	1200	8.0	970	203	1064	1889	53141060	



10



THE WHOLE JACOB DIVERSITY –
WITH LOOSE AND WELDED FLANGES



THE FLANGE RANGE

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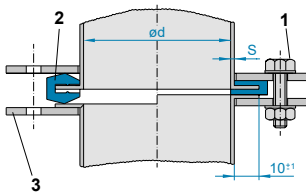


FOR LARGE DIAMETERS: FLANGES

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)

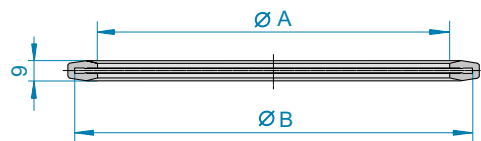


U-shaped seals for loose flange system with 10 mm lip



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

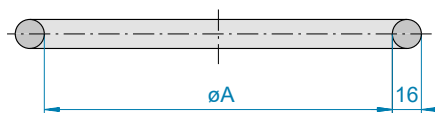
A U-shaped seal (chapter 2) must be used for pipe components with a loose flange diameter of up to 350 mm and a 6 mm lip

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



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

APPLICATIONS

Use in the area of bulk goods conveying and ventilation systems at over-pressures of 50,000 Pa (500 mbar, 5000 mm WG). DN 900 to 1250 mm with loose flanges are only recommended for use in air. 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

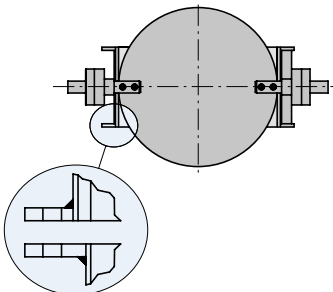
- Diameters: DN 350 to 1250 mm
- DN 350 to 800 mm available with loose flange similar to DIN 24154-2 (see page 227 for dimensions)
- From DN 900 mm, 3 mm wall thickness with welded-on flanges similar to DIN 24154-2 (see page 227 for dimensions)
- Shafts with ball bearings and sealed with Viton O-rings
- 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

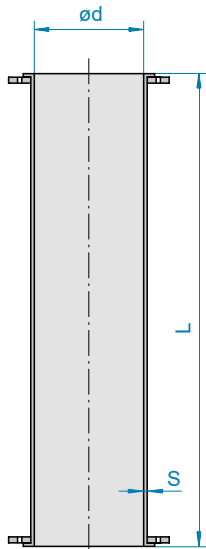


Installation instructions for loose flange connections



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.	Item no.	Item no.		
350	349	1976	40.60	21351010	22351010	21352010	22352010				
400	398	1976	46.20	21401010	22401010	21402010	22402010				
450	448	1976	52.10	21451010	22451010	21452010	22452010				
500	498	1976	57.90	21501010	22501010	21502010	22502010				
560	558	1976	64.70		22561010		22562010				
630	628	1980	75.00		22631010		22632010				
710	707	1980	84.00		22711010		22712010				
800	797	1980	100.00		22801010		22802010				
900	897	1980	108.92		229910104090		229920104090				
1000	998	1980	121.14		229910104100		229920104100				
1120	1118	1980	146.60		229910104112		229920104112				
1250	1248	1980	163.46		229910104125		229920104125				

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	
				Item no.	Item no.	Item no.	Item no.
350	349	1976	40.60	21353010	22353010	213530103	223530103
400	398	1976	46.20	21403010	22403010	214030103	224030103
450	448	1976	52.10	21453010	22453010	214530103	224530103
500	498	1976	57.90	21503010	22503010	215030103	225030103
560	558	1976	64.70		22563010		225630103
630	628	1980	75.00		22633010		226330103
710	707	1980	84.00		22713010		227130103
800	797	1980	100.00		22803010		
900	897	1980	108.92		229930104090		
1000	998	1980	121.14		229930104100		
1120	1118	1980	146.60		229930104112		
1250	1248	1980	163.46		229930104125		

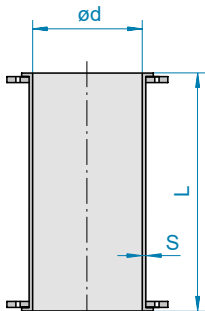
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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	22351020	21352020	22352020
400	398	976	25.30	21401020	22401020	21402020	22402020
450	448	976	29.40	21451020	22451020	21452020	22452020
500	498	976	33.20	21501020	22501020	21502020	22502020
560	558	976	36.60		22561020		22562020
630	628	976	45.00		22631020		22632020
710	707	980	48.00		22711020		22712020
800	797	980	56.00		22801020		22802020
900	897	980	63.63		229910204090		229920204090
1000	998	980	70.77		229910204100		229920204100
1120	1118	980	90.20		229910204112		229920204112
1250	1248	980	100.53		229910204125		229920204125

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	22353020	213530203	223530203
400	398	976	25.30	21403020	22403020	214030203	224030203
450	448	976	29.40	21453020	22453020	214530203	224530203
500	498	976	33.20	21503020	22503020	215030203	225030203
560	558	976	36.60		22563020		225630203
630	628	976	45.00		22633020		226330203
710	707	980	48.00		22713020		227130203
800	797	980	56.00		22803020		
900	897	980	63.63		229930204090		
1000	998	980	70.77		229930204100		
1120	1118	980	90.20		229930204112		
1250	1248	980	100.53		229930204125		

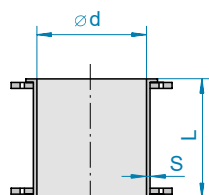
 FOOD GRADE
EC 1935/2004 plus FDA compliant

 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)

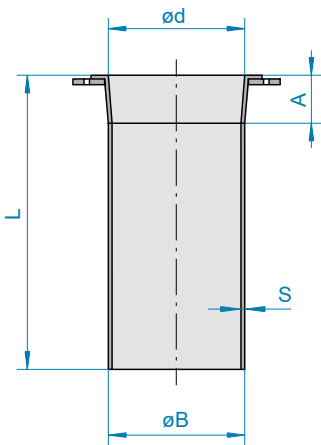
DN	ø d	L	kg	1 mm powder-coated		2 mm powder-coated		1 mm galvanised		2 mm galvanised	
				Item no.	Item no.	Item no.	Item no.	Item no.	Item no.		
350	349	478	14.60	21351030	22351030	21352030	22352030				
400	398	478	16.30	21401030	22401030	21402030	22402030				
450	448	478	18.50	21451030	22451030	21452030	22452030				
500	498	478	20.60	21501030	22501030	21502030	22502030				
560	558	478	22.60		22561030		22562030				
630	628	478	25.40		22631030		22632030				
710	707	480	32.00		22711030		22712030				
800	797	480	36.00		22801030		22802030				
900	897	480	40.98		229910304090		229920304090				
1000	998	480	45.60		229910304100		229920304100				
1120	1118	480	62.00		229910304112		229920304112				
1250	1248	480	69.07		229910304125		229920304125				

Stainless steel (dimensions for 2 mm pipework)

DN	ø d	L	kg	1 mm stainless steel with galvanised loose flanges F		2 mm stainless steel with stainless steel shotblasted loose flange F	
				1 mm		2 mm	
				Item no.	Item no.	Item no.	Item no.
350	349	478	14.60	21353030	22353030	213530303	223530303
400	398	478	16.30	21403030	22403030	214030303	224030303
450	448	478	18.50	21453030	22453030	214530303	224530303
500	498	478	20.60	21503030	22503030	215030303	225030303
560	558	478	22.60		22563030		225630303
630	628	478	25.40		22633030		226330303
710	707	480	32.00		22713030		227130303
800	797	480	36.00		22803030		
900	897	480	40.98		229930304090		
1000	998	480	45.60		229930304100		
1120	1118	480	62.00		229930304112		
1250	1248	480	69.07		229930304125		

F FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



PUSH-IN PIPES 1000 MM

6020

- For information on push-in pipe applications, see chapter 3
- One side with loose flange
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Use in conjunction with ring seal and flange for push-in pipe

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

DN	Ø d	A	Ø B	L	kg	1.5 mm powder-coated	2 mm powder-coated	1.5 mm galvanised	2 mm galvanised
						Item no.	Item no.	Item no.	Item no.
350	350	50	345	986	18.00	21351110	22351110	21352110	22352110
400	399	50	394	986	22.00	21401110	22401110	21402110	22402110
450	448	50	444	986	29.45	21451110	22451110	21452110	22452110
500	498	50	494	986	29.40	21501110	22501110	21502110	22502110
560	558	50	554	986	32.00		22561110		22562110
630	628	50	624	986	36.00		22631110		22632110
710	707	50	703	986	42.00		22711110		22712110
800	797	100	792	986	40.00		22801110		22802110

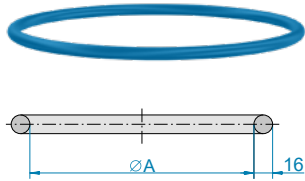
Stainless steel (dimensions for 1 mm pipework)

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	22353110
400	399	50	394	986	22.00	21403110	22403110
450	448	50	444	986	29.45	21453110	22453110
500	498	50	494	986	29.40	21503110	22503110
560	558	50	554	986	32.00		22563110
630	628	50	624	986	36.00		22633110
710	707	50	703	986	42.00		22713110
800	797	100	792	986	40.00		22803110



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	$\varnothing A$	kg	NBR grey	Silicone beige	F	Silicone blue	F D	EPDM black	FKM black
			Item no.	Item no.		Item no.		Item no.	Item no.
350	327	0.34	203561177	2035711709		20357117091		2035811759	203591179
400	373	0.38	204061177	2040711709		20407117091		2040811759	204091179
450	421	0.42	204561177	2045711709		20457117091		2045811759	204591179
500	468	0.48	205061177	2050711709		20507117091		2050811759	205091179
560	524	0.54	205661177	2056711709		20567117091		2056811759	205691179
630	591	0.60	206361177	2063711709		20637117091		2063811759	206391179
710	666	0.69	207161177	2071711709		20717117091		2071811759	207191179
800	761	0.78	208061177	2080711709		20807117091		2080811759	208091179



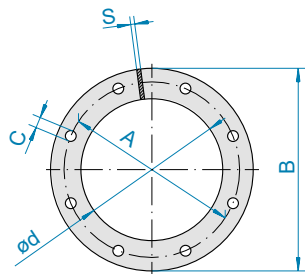
FLANGES FOR PUSH-IN PIPES

6040

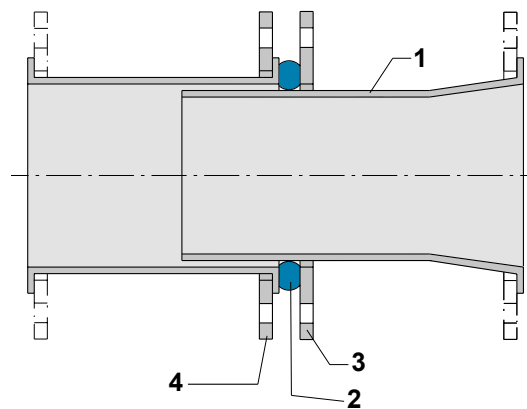
- Use in conjunction with ring seal for push-in pipe and standard pipe with loose flange
- Use 50 mm long mounting bolts

Powder-coated, galvanised and stainless steel

DN	$\varnothing d$	A	B	C	E	S	kg	Powder-coated	Galvanised	Stainless steel
								Item no.	Item no.	Item no.
350	348	405	438	11.5	8	8	3.46	20351724	20352724	20353724
400	398	448	488	11.5	12	8	3.88	20401724	20402724	20403724
450	448	497	538	11.5	12	8	4.33	20451724	20452724	20453724
500	498	551	588	11.5	12	8	4.77	20501724	20502724	20503724
560	556	629	656	14	16	8	5.86	20561724	20562724	20563724
630	626	698	726	14	16	8	6.56	20631724	20632724	20633724
710	705	775	805	14	16	8	7.34	20711724	20712724	20713724
800	795	861	895	14	24	8	8.16	20801724	20802724	20803724



E = No. of holes

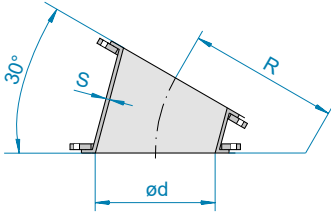


- 1 Push-in pipe
- 2 Ring seal for push-in pipe
- 3 Flange for push-in pipe
- 4 Straight pipe with loose flange

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	22351320		
400	398	500	11.20	21401320	22401320		
450	448	563	14.40	21451320	22451320		
500	498	625	17.10	21501320	22501320		
560	558	700	17.00		22561320		
630	628	788	26.00		22631320		
710	707	888	30.00		22711320		
800	797	1000	38.00		22801320		
900	897	1126	43.88		229913204090		
1000	998	1250	51.89		229913204100		
1120	1118	1400	73.28		229913204112		
1250	1248	1563	86.79		229913204125		

Galvanised (dimensions for 2 mm pipework)

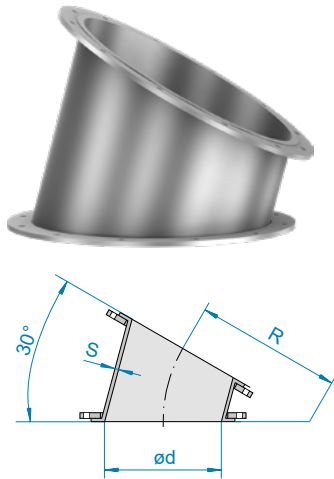
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	Item no.		
350	349	438	9.40	21352320	22352320		
400	398	500	11.20	21402320	22402320		
450	448	563	14.40	21452320	22452320		
500	498	625	17.10	21502320	22502320		
560	558	700	17.00		22562320		
630	628	788	26.00		22632320		
710	707	888	30.00		22712320		
800	797	1000	38.00		22802320		
900	897	1126	43.88		229923204090		
1000	998	1250	51.89		229923204100		
1120	1118	1400	73.28		229923204112		
1250	1248	1563	86.79		229923204125		

Shock explosion proof tested up to 3 bar



THE FLANGE RANGE

Segments and bends



Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges		F	Stainless steel with stainless steel loose flange, shotblasted	F
				1.5 mm	2 mm		2 mm	
				Item no.	Item no.		Item no.	
350	349	438	9.40	21353320	22353320		223533203	
400	398	500	11.20	21403320	22403320		224033203	
450	448	563	14.40	21453320	22453320		224533203	
500	498	625	17.10	21503320	22503320		225033203	
560	558	700	17.00		22563320		225633203	
630	628	788	26.00		22633320		226333203	
710	707	888	30.00		22713320		227133203	
800	797	1000	38.00		22803320			
900	897	1126	43.88		229933204090			
1000	998	1250	51.89		229933204100			
1120	1118	1400	73.28		229933204112			
1250	1248	1563	86.79		229933204125			

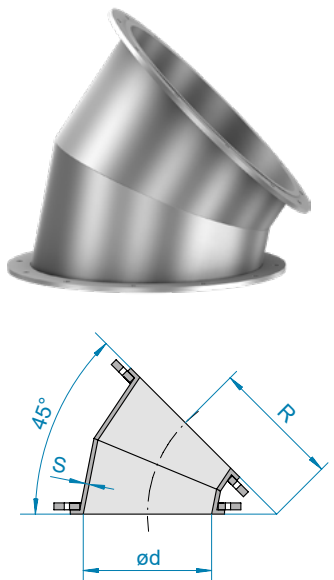
SEGMENTS 45°

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	22351330
400	398	400	13.30	21401330	22401330
450	448	450	16.40	21451330	22451330
500	498	500	19.00	21501330	22501330
560	558	560	21.00		22561330
630	628	630	27.00		22631330
710	707	710	34.00		22711330
800	797	800	42.00		22801330
900	897	900	51.53		229913304090
1000	998	1000	61.30		229913304100
1120	1118	1120	85.15		229913304112
1250	1248	1250	101.59		229913304125



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)

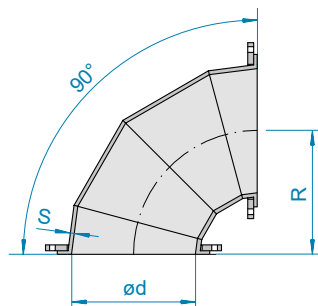
DN	Ø d	R	kg	1.5 mm galvanised		2 mm galvanised	
				Item no.	Item no.		
350	349	350	11.40	21352330	22352330		
400	398	400	13.30	21402330	22402330		
450	448	450	16.40	21452330	22452330		
500	498	500	19.00	21502330	22502330		
560	558	560	21.00		22562330		
630	628	630	27.00		22632330		
710	707	710	34.00		22712330		
800	797	800	42.00		22802330		
900	897	900	51.53		229923304090		
1000	998	1000	61.30		229923304100		
1120	1118	1120	85.15		229923304112		
1250	1248	1250	101.59		229923304125		

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	22353330	213533303	223533303
400	398	400	13.30	21403330	22403330	214033303	224033303
450	448	450	16.40	21453330	22453330	214533303	224533303
500	498	500	19.00	21503330	22503330	215033303	225033303
560	558	560	21.00		22563330		225633303
630	628	630	27.00		22633330		226333303
710	707	710	34.00		22713330		227133303
800	797	800	42.00		22803330		
900	897	900	51.53		229933304090		
1000	998	1000	61.30		229933304100		
1120	1118	1120	85.15		229933304112		
1250	1248	1250	101.59		229933304125		

 FOOD GRADE
EC 1935/2004 plus FDA compliant

 Shock explosion proof tested
up to 3 bar



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

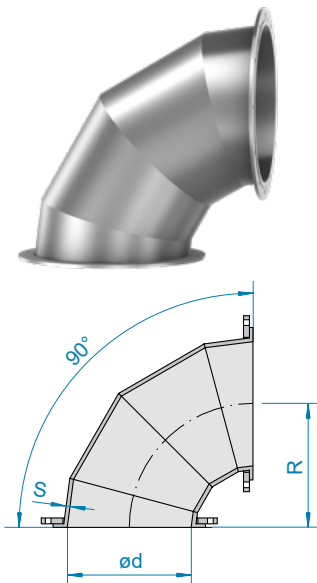
Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated		2 mm powder-coated	
				Item no.	Item no.		
350	349	350	16.00	21351339	22351339		
400	398	400	20.40	21401339	22401339		
450	448	450	24.40	21451339	22451339		
500	498	500	24.60	21501339	22501339		
560	558	560	36.00		22561339		
630	628	630	46.00		22631339		
710	707	710	56.00		22711339		
800	797	800	66.00		22801339		
900	897	900	82.77		229913394090		
1000	998	1000	99.85		229913394100		
1120	1118	1120	133.45		229913394112		
1250	1248	1250	161.74		229913394125		

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	22352339		
400	398	400	20.40	21402339	22402339		
450	448	450	24.40	21452339	22452339		
500	498	500	24.60	21502339	22502339		
560	558	560	36.00		22562339		
630	628	630	46.00		22632339		
710	707	710	56.00		22712339		
800	797	800	66.00		22802339		
900	897	900	82.77		229923394090		
1000	998	1000	99.85		229923394100		
1120	1118	1120	133.45		229923394112		
1250	1248	1250	161.74		229923394125		

Shock explosion proof tested up to 3 bar



4 lobster back segments:
2x30°/2x15°

Stainless steel (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with galvanised loose flanges		Stainless steel with stainless steel loose flange, shotblasted	
				1.5 mm		2 mm	
				Item no.	Item no.	Item no.	Item no.
350	349	350	16.00	21353339	22353339	213533393	223533393
400	398	400	20.40	21403339	22403339	214033393	224033393
450	448	450	24.40	21453339	22453339	214533393	224533393
500	498	500	24.60	21503339	22503339	215033393	225033393
560	558	560	36.00		22563339		225633393
630	628	630	46.00		22633339		226333393
710	707	710	56.00		22713339		227133393
800	797	800	66.00		22803339		228033393
900	897	900	82.77		229933394090		
1000	998	1000	99.85		229933394100		
1120	1118	1120	133.45		229933394112		
1250	1248	1250	161.74		229933394125		

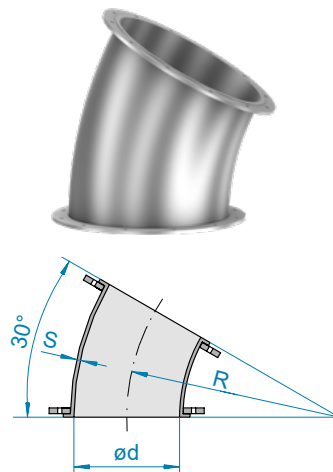
BENDS R = 2 D, 30°

6130

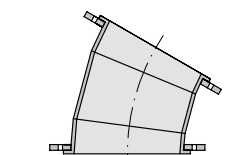
- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	R	kg	1.5 mm powder-coated	2 mm powder-coated
				Item no.	Item no.
350	349	700	13.20		22351343
400	398	800	15.20		22401343
450	448	900	19.00	21451343	22451343
500	498	1000	28.00	21501343	22501343
560	558	1120	28.00		22561343
630	628	1260	34.00		22631343
710	707	1420	42.00		22711343
800	797	1600	50.50		22801343
900	897	1800	60.57		229913434090
1000	998	2000	72.45		229913434100
1120	1118	2240	99.08		229913434112
1250	1248	2500	118.94		229913434125



1 pressed segment 30°



3 lobster back segments:
1x15°/2x7.5°

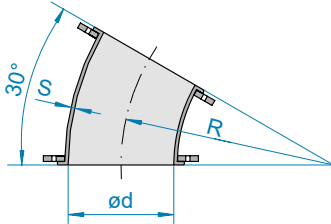
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar

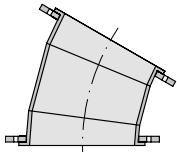


THE FLANGE RANGE

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	
400	398	800	15.20			22402343	
450	448	900	19.00	21452343		22452343	
500	498	1000	23.00	21502343		22502343	
560	558	1120	28.00			22562343	
630	628	1260	34.00			22632343	
710	707	1420	42.00			22712343	
800	797	1600	50.50			22802343	
900	897	1800	60.57			229923434090	
1000	998	2000	72.45			229923434100	
1120	1118	2240	99.08			229923434112	
1250	1248	2500	118.94			229923434125	

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		213533433	223533433
400	398	800	15.20		22403343		214033433	224033433
450	448	900	19.00	21453343	22453343		214533433	224533433
500	498	1000	23.00	21503343	22503343		215033433	225033433
560	558	1120	28.00		22563343			225633433
630	628	1260	34.00		22633343			226333433
710	707	1420	42.00		22713343			227133433
800	797	1600	50.50		22803343			
900	897	1800	60.57		229933434090			
1000	998	2000	72.45		229933434100			
1120	1118	2240	99.08		229933434112			
1250	1248	2500	118.94		229933434125			

F FOOD GRADE
EC 1935/2004 plus FDA compliant

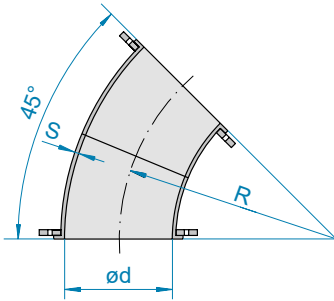
■ Shock explosion proof tested
up to 3 bar



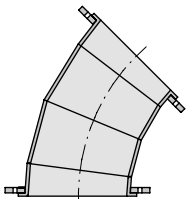
BENDS $R = 2 D, 45^\circ$

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



■ 2 pressed segments 22.5°



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

Powder-coated (dimensions for 2 mm pipework)

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

Galvanised (dimensions for 2 mm pipework)

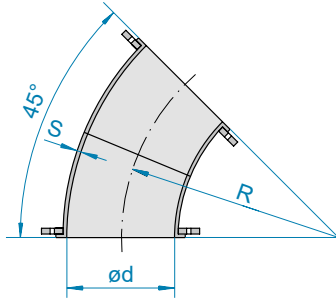
DN	Ø d	R	kg	1.5 mm galvanised	2 mm galvanised
				Item no.	Item no.
350	349	700	17.12		22352344
400	398	800	20.00		22402344
450	448	900	24.20	21452344	22452344
500	498	1000	29.50	21502344	22502344
560	558	1120	37.00		22562344
630	628	1260	39.20		22632344
710	707	1420	54.00		22712344
800	797	1600	72.76		22802344
900	897	1800	81.66		229923444090
1000	998	2000	98.48		229923444100
1120	1118	2240	131.72		229923444112
1250	1248	2500	159.59		229923444125

■ Shock explosion proof tested up to 3 bar

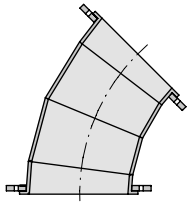


THE FLANGE RANGE

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	213533443	223533443	
400	398	800	20.00	22403344	214033443	224033443	
450	448	900	24.20	21453344	22453344	214533443	224533443
500	498	1000	29.50	21503344	22503344	215033443	225033443
560	558	1120	37.00		22563344		225633443
630	628	1260	39.20		22633344		226333443
710	707	1420	54.00		22713344		227133443
800	797	1600	72.76		22803344		
900	897	1800	81.66		229933444090		
1000	998	2000	98.48		229933444100		
1120	1118	2240	131.72		229933444112		
1250	1248	2500	159.59		229933444125		

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof tested
up to 3 bar



BENDS $R = 2 D$, 60°

6150

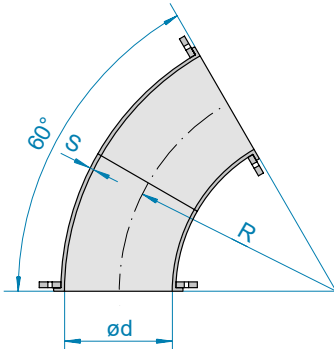
- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

Powder-coated (dimensions for 2 mm pipework)

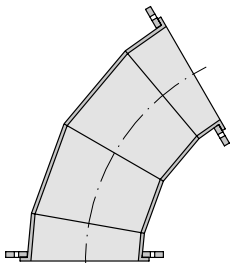
DN	Ø d	R	kg	1.5 mm powder-coated	2 mm powder-coated
				Item no.	Item no.
350	349	700	19.40		22351346
400	398	800	23.80		22401346
450	448	900	29.40	21451346	22451346
500	498	1000	36.00	21501346	22501346
560	558	1120	45.00		22561346
630	628	1260	56.00		22631346
710	707	1420	69.00		22711346
800	797	1600	84.00		22801346
900	897	1800	103.12		229913464090
1000	998	2000	124.97		229913464100
1120	1118	2240	164.95		229913464112
1250	1248	2500	200.97		229913464125

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
400	398	800	23.80		22402346
450	448	900	29.40	21452346	22452346
500	498	1000	36.00	21502346	22502346
560	558	1120	45.00		22562346
630	628	1260	56.00		22632346
710	707	1420	69.00		22712346
800	797	1600	84.00		22802346
900	897	1800	103.12		229923464090
1000	998	2000	124.97		229923464100
1120	1118	2240	164.95		229923464112
1250	1248	2500	200.97		229923464125



■ 2 pressed segments 30°



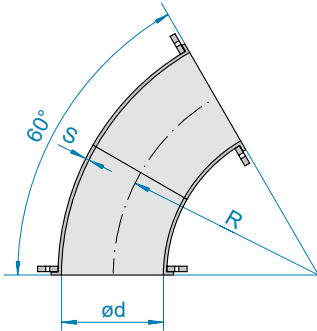
■ 4 lobster back segments:
 $2 \times 20^\circ / 2 \times 10^\circ$

■ Shock explosion proof tested up to 3 bar

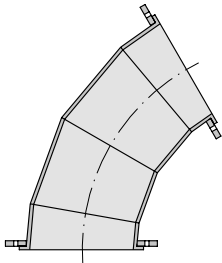


THE FLANGE RANGE

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	213533463	223533463	
400	398	800	23.80	22403346	214033463	224033463	
450	448	900	29.40	21453346	22453346	214533463	
500	498	1000	36.00	21503346	22503346	215033463	
560	558	1120	45.00		22563346	225633463	
630	628	1260	56.00		22633346	226333463	
710	707	1420	69.00		22713346	227133463	
800	797	1600	84.00		22803346		
900	897	1800	103.12		229933464090		
1000	998	2000	124.97		229933464100		
1120	1118	2240	164.95		229933464112		
1250	1248	2500	200.97		229933464125		

F FOOD GRADE
EC 1935/2004 plus FDA compliant

■ Shock explosion proof tested
up to 3 bar



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

6160

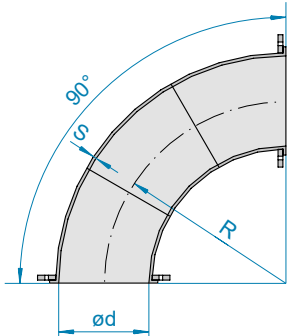


- Both sides with loose flange
- DN 1400 and 1600 mm on request

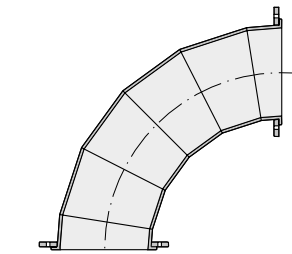
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed

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
400	398	800	31.80		22401349
450	448	900	41.50	21451349	22451349
500	498	1000	48.60	21501349	22501349
560	558	1120	62.00		22561349
630	628	1260	68.80		22631349
710	707	1420	94.00		22711349
800	797	1600	120.00		22801349
900	897	1800	145.24		229913494090
1000	998	2000	176.95		229913494100
1120	1118	2240	230.14		229913494112
1250	1248	2500	282.16		229913494125



3 pressed segments 30°



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

Galvanised (dimensions for 2 mm pipework)

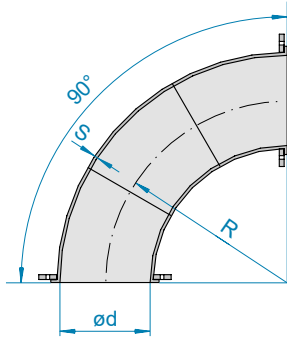
DN	Ø d	R	kg	1.5 mm galvanised	2 mm galvanised
				Item no.	Item no.
350	349	700	25.20		22352349
400	398	800	31.80		22402349
450	448	900	41.50	21452349	22452349
500	498	1000	48.60	21502349	22502349
560	558	1120	62.00		22562349
630	628	1260	68.80		22632349
710	707	1420	94.00		22712349
800	797	1600	120.00		22802349
900	897	1800	145.24		229923494090
1000	998	2000	176.95		229923494100
1120	1118	2240	230.14		229923494112
1250	1248	2500	282.16		229923494125

Shock explosion proof tested
up to 3 bar

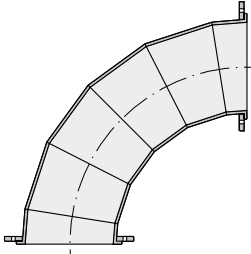


THE FLANGE RANGE

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	
				1.5 mm	2 mm
				Item no.	Item no.
350	349	700	25.20		22353349
400	398	800	31.80		22403349
450	448	900	41.50	21453349	22453349
500	498	1000	48.60	21503349	22503349
560	558	1120	62.00		22563349
630	628	1260	68.80		22633349
710	707	1420	94.00		22713349
800	797	1600	120.00		22803349
900	897	1800	145.24		229933494090
1000	998	2000	176.95		229933494100
1120	1118	2240	230.14		229933494112
1250	1248	2500	282.16		229933494125

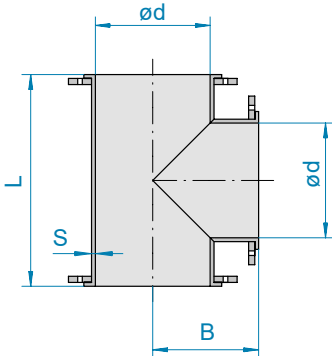
Stainless steel with stainless steel loose flange, shotblasted (dimensions for 2 mm pipework)

DN	Ø d	R	kg	Stainless steel with stainless steel loose flange, shotblasted	
				1.5 mm	2 mm
				Item no.	Item no.
350	349	700	26.00	213533493	223533493
400	398	800	32.00	214033493	224033493
450	448	900	41.00	214533493	224533493
500	498	1000	50.00	215033493	225033493
560	558	1120	62.00		225633493
630	628	1260	76.00		226333493
710	707	1420	94.00		227133493
800	797	1600	120.00		228033493

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	22351240
400	398	300	600	24.00	21401240	22401240
450	448	325	650	27.20	21451240	22451240
500	498	350	700	32.20	21501240	22501240
560	558	380	760	40.00		22561240
630	628	415	830	46.40		22631240
710	707	460	910	58.00		22711240
800	797	500	1000	64.00		22801240
900	897	550	1100	77.87		229912404090
1000	998	600	1200	90.84		229912404100
1120	1118	660	1320	124.06		229912404112
1250	1248	725	1450	145.46		229912404125

Galvanised (dimensions for 2 mm pipework)

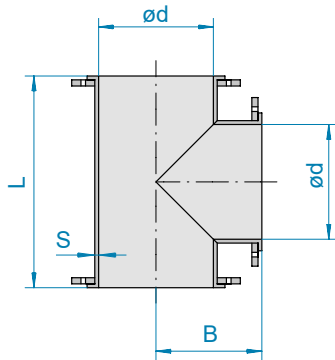
DN	Ø d	B	L	kg	1.5 mm galvanised	2 mm galvanised
					Item no.	Item no.
350	349	275	550	19.80	21352240	22352240
400	398	300	600	24.00	21402240	22402240
450	448	325	650	27.20	21452240	22452240
500	498	350	700	32.20	21502240	22502240
560	558	380	760	40.00		22562240
630	628	415	830	46.40		22632240
710	707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

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	22353240	213532403	223532403
400	398	300	600	24.00	21403240	22403240	214032403	224032403
450	448	325	650	27.20	21453240	22453240	214532403	224532403
500	498	350	700	32.20	21503240	22503240	215032403	225032403
560	558	380	760	40.00		22563240		225632403
630	628	415	830	46.40		22633240		226332403
710	707	460	910	58.00		22713240		227132403
800	797	500	1000	64.00		22803240		
900	897	550	1100	77.87		229932404090		
1000	998	600	1200	90.84		229932404100		
1120	1118	660	1320	124.06		229932404112		
1250	1248	725	1450	145.46		229932404125		

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



FORKS AND CONICAL FORKS 30°

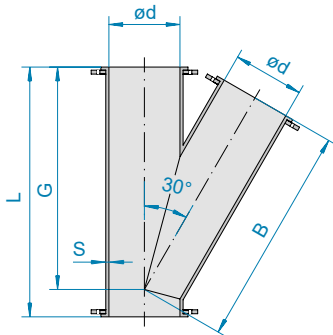
6080



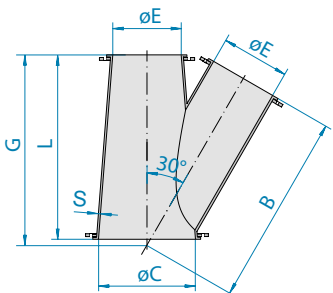
- DN < 350 mm with 6 mm lip for pull-ring connection (without flange)
- DN 560 and 630 mm: 3 mm wall thickness, available in shock explosion proof version up to 3 bar, prices on request
- With loose flange on all sides
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Other combinations of diameters available on request

Powder-coated (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	1.5 mm powder-coated	2 mm powder-coated
								Item no.	Item no.
350- 250- 250		727	350	250	727	620	15.60	21351255	22351255
350- 350- 350	349	817			828	920	27.75	21351230	22351230
400- 300- 300		824	399	300	821	720	20.40	21401255	22401255
400- 400- 400	398	925			926	1025	38.80	21401230	22401230
450- 350- 350		911	449	350	909	920	36.40	21451255	22451255
450- 450- 450	448	1030			1045	1150	48.00	21451230	22451230
500- 400- 400		1014	499	399	1009	1025	44.00	21501255	22501255
500- 500- 500	498	1127			1138	1250	56.00	21501230	22501230
560- 400- 400		1071	558	399	1059	1025	47.60		22561255
560- 560- 560	558	1275			1280	1400	72.00		22561230
630- 450- 450		1213	628	448	1195	1150	58.80		22631255
630- 630- 630	628	1404			1401	1530	84.60		22631230
710- 500- 500		1327	707	498	1311	1250	72.00		22711255
710- 710- 710	707	1665			1660	1800	116.00		22711230
800- 560- 560		1507	797	558	1481	1400	87.00		22801255
800- 800- 800	797	1823			1818	1970	140.00		22801230
900- 900- 900	897	2030			2020	2200	165.60		229912304090
1000-1000-1000	998	2190			2205	2400	194.60		229912304100
1120-1120-1120	1118	2480			2490	2700	258.70		229912304112
1250-1250-1250	1248	2710			2715	2950	308.46		229912304125



█ Fork 30°



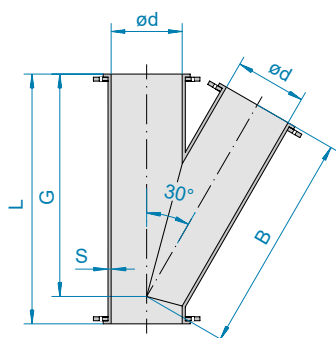
Conical fork 30°

█ Shock explosion proof tested up to 3 bar

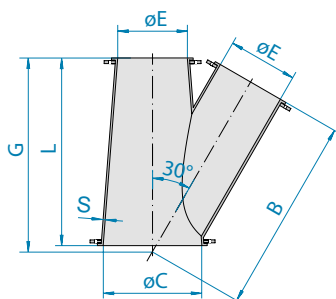


THE FLANGE RANGE

Branch pieces



█ Fork 30°

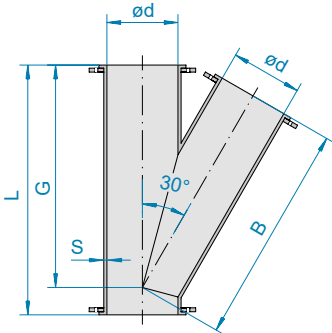


Conical fork 30°

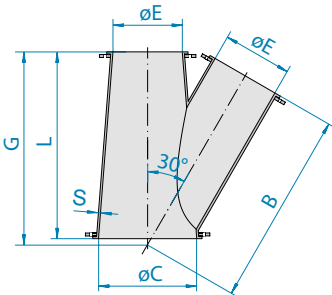
Galvanised (dimensions for 2 mm pipework)

DN	Ø d	B	Ø C	Ø E	G	L	kg	1.5 mm galvanised	2 mm galvanised
								Item no.	Item no.
350- 250- 250		727	350	250	727	620	15.60	21352255	22352255
350- 350- 350	349	817			828	920	27.75	21352230	22352230
400- 300- 300		824	399	300	821	720	20.40	21402255	22402255
400- 400- 400	398	925			926	1025	38.80	21402230	22402230
450- 350- 350		911	449	350	909	920	36.40	21452255	22452255
450- 450- 450	448	1030			1045	1150	48.00	21452230	22452230
500- 400- 400		1014	499	399	1009	1025	44.00	21502255	22502255
500- 500- 500	498	1127			1138	1250	56.00	21502230	22502230
560- 400- 400		1071	558	399	1059	1025	47.60		22562255
560- 560- 560	558	1275			1280	1400	72.00		22562230
630- 450- 450		1213	628	448	1195	1150	58.80		22632255
630- 630- 630	628	1404			1401	1530	84.60		22632230
710- 500- 500		1327	707	498	1311	1250	72.00		22712255
710- 710- 710	707	1665			1660	1800	116.00		22712230
800- 560- 560		1507	797	558	1481	1400	87.00		22802255
800- 800- 800	797	1823			1818	1970	140.00		22802230
900- 900- 900	897	2030			2020	2200	165.60		229922304090
1000-1000-1000	998	2190			2205	2400	194.60		229922304100
1120-1120-1120	1118	2480			2490	2700	258.70		229922304112
1250-1250-1250	1248	2710			2715	2950	308.46		229922304125

█ Shock explosion proof tested up to 3 bar



Fork 30°



Conical fork 30°

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

DN	$\varnothing d$	B	$\varnothing C$	$\varnothing E$	G	L	kg	Stainless steel with galvanised loose flanges	
								1.5 mm	2 mm
								Item no.	Item no.
350- 250- 250		727	350	250	727	620	15.60	21353255	22353255
350- 350- 350	349	817			828	920	27.75	21353230	22353230
400- 300- 300		824	399	300	821	720	20.40	21403255	22403255
400- 400- 400	398	925			926	1025	38.80	21403230	22403230
450- 350- 350		911	449	350	909	920	36.40	21453255	22453255
450- 450- 450	448	1030			1045	1150	48.00	21453230	22453230
500- 400- 400		1014	499	399	1009	1025	44.00	21503255	22503255
500- 500- 500	498	1127			1138	1250	56.00	21503230	22503230
560- 400- 400		1071	558	399	1059	1025	47.60		22563255
560- 560- 560	558	1275			1280	1400	72.00		22563230
630- 450- 450		1213	628	448	1195	1150	58.80		22633255
630- 630- 630	628	1404			1401	1530	84.60		22633230
710- 500- 500		1327	707	498	1311	1250	72.00		22713255
710- 710- 710	707	1665			1660	1800	116.00		22713230
800- 560- 560		1507	797	558	1481	1400	87.00		22803255
800- 800- 800	797	1823			1818	1970	140.00		22803230
900- 900- 900	897	2030			2020	2200	165.60		229932304090
1000-1000-1000	998	2190			2205	2400	194.60		229932304100
1120-1120-1120	1118	2480			2490	2700	258.70		229932304112
1250-1250-1250	1248	2710			2715	2950	308.46		229932304125

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

DN	$\varnothing d$	B	$\varnothing C$	$\varnothing E$	G	L	kg	Stainless steel with stainless steel loose flange, shotblasted	
								1.5 mm	2 mm
								Item no.	Item no.
350-250-250		727	350	250	727	620	15.60	213532553	223532553
350-350-350	349	817			828	920	28.00	213532303	223532303
400-300-300		824	399	300	821	720	20.00	214032553	224032553
400-400-400	398	925			926	1025	39.40	214032303	224032303
450-350-350		911	449	350	909	920	38.20	214532553	224532553
450-450-450	448	1030			1045	1150	48.00	214532303	224532303
500-400-400		1014	499	399	1009	1025	44.00	215032553	225032553
500-500-500	498	1127			1138	1250	61.00	215032303	225032303
560-400-400		1071	558	399	1059	1025	47.60		225632553
560-560-560	558	1275			1280	1400	75.00		225632303
630-450-450		1213	628	448	1195	1150	57.00		226332553
630-630-630	628	1404			1401	1530	84.50	226332303*	236332303*
710-500-500		1327	707	498	1311	1250	72.00		227132553
710-710-710	707	1665			1660	1800	113.00	227132303*	237132303*

* 2 mm

* 3 mm

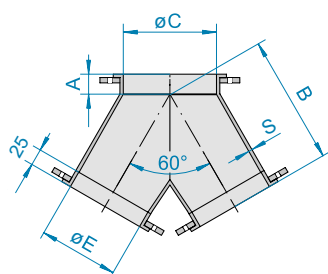
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

Branch pieces



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

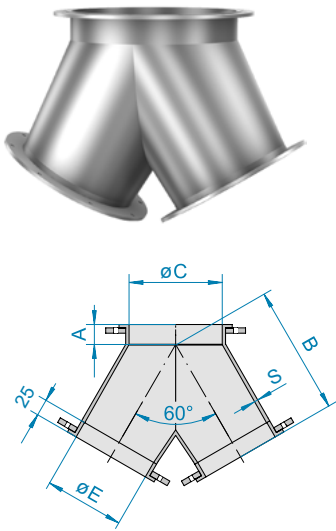
Powder-coated (dimensions for 2 mm pipework)

DN	A	B	Ø C	Ø E	kg	1.5 mm powder-coated		2 mm powder-coated	
						Item no.	Item no.	Item no.	Item no.
350- 250- 250	70	300	350	250	11.35	21351275		22351275	
400- 300- 300	70	350	399	300	12.00	21401275		22401275	
450- 350- 350	80	425	449	350	23.00	21451275		22451275	
500- 400- 400	80	475	499	399	33.50	21501275		22501275	
560- 400- 400	80	550	558	399	37.00			22561275	
630- 450- 450	150	600	628	448	40.40			22631275	
710- 500- 500	200	650	707	498	47.60			22711275	
800- 560- 560	200	700	797	558	59.00			22801275	
900- 630- 630	210	850	897	628	74.40			229912754090	
1000- 710- 710	220	930	998	707	87.96			229912754100	
1120- 800- 800	220	1040	1118	797	110.30			229912754112	
1250- 900- 900	220	1130	1248	897	128.22			229912754125	

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.	Item no.	Item no.
350- 250- 250	70	300	350	250	11.35	21352275		22352275	
400- 300- 300	70	350	399	300	12.00	21402275		22402275	
450- 350- 350	80	425	449	350	23.00	21452275		22452275	
500- 400- 400	80	475	499	399	33.50	21502275		22502275	
560- 400- 400	80	550	558	399	37.00			22562275	
630- 450- 450	150	600	628	448	40.40			22632275	
710- 500- 500	200	650	707	498	47.60			22712275	
800- 560- 560	200	700	797	558	59.00			22802275	
900- 630- 630	210	850	897	628	74.40			229922754090	
1000- 710- 710	220	930	998	707	87.96			229922754100	
1120- 800- 800	220	1040	1118	797	110.30			229922754112	
1250- 900- 900	220	1130	1248	897	128.22			229922754125	

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	22353275	
400- 300- 300	70	350	399	300	12.00	21403275	22403275	
450- 350- 350	80	425	449	350	23.00	21453275	22453275	
500- 400- 400	80	475	499	399	33.50	21503275	22503275	
560- 400- 400	80	550	558	399	37.00		22563275	
630- 450- 450	150	600	628	448	40.40		22633275	
710- 500- 500	200	650	707	498	47.60		22713275	
800- 560- 560	200	700	797	558	59.00		22803275	
900- 630- 630	210	850	897	628	74.40		229932754090	
1000- 710- 710	220	930	998	707	87.96		229932754100	
1120- 800- 800	220	1040	1118	797	110.30		229932754112	
1250- 900- 900	220	1130	1248	897	128.22		229932754125	

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	223532753	
400-300-300	70	350	399	300	11.76	214032753	224032753	
450-350-350	80	425	449	350	32.90	214532753	224532753	
500-400-400	80	475	499	399	27.40	215032753	225032753	
560-400-400	80	550	558	399	37.00		225632753	
630-450-450	150	600	628	448	41.00		226332753	
710-500-500	200	650	707	498	47.60		227132753	

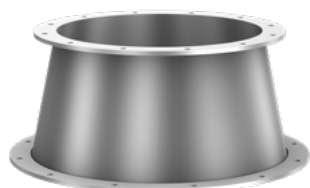
F FOOD GRADE
EC 1935/2004 plus FDA compliant

Shock explosion proof tested
up to 3 bar



THE FLANGE RANGE

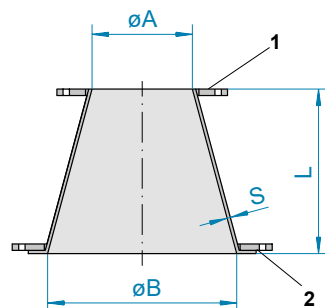
Transition pieces and adapters



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)

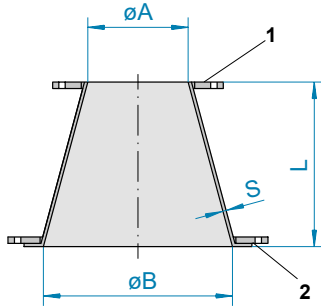
Powder-coated (dimensions for 2 mm pipework)

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	22001480
300- 400	299	398	200	7.40	21001481	22001481
350- 400	349	398	200	10.00	21001482	22001482
350- 450	349	448	200	11.20	21001483	22001483
400- 450	398	448	200	11.80	21001485	22001485
400- 500	398	498	250	13.40	21001486	22001486
450- 500	448	498	200	14.20	21001487	22001487
450- 560	448	558	250	16.60		22001495
500- 560	498	558	250	17.40		22001496
500- 630	498	628	300	19.60		22001497
560- 630	558	628	300	21.80		22001498
630- 710	628	707	300	24.40		22001499
710- 800	707	797	300	28.00		22001500
800- 900	897	799	300	31.21		229918104090
900-1000	998	899	300	34.83		229918114100
1000-1120	1118	1000	300	44.21		229918124112
1120-1250	1248	1120	300	55.14		229918134125

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	22002480
300- 400	299	398	200	7.40	21002481	22002481
350- 400	349	398	200	10.00	21002482	22002482
350- 450	349	448	200	11.20	21002483	22002483
400- 450	398	448	200	11.80	21002485	22002485
400- 500	398	498	250	13.40	21002486	22002486
450- 500	448	498	200	14.20	21002487	22002487
450- 560	448	558	250	16.60		22002495
500- 560	498	558	250	17.40		22002496
500- 630	498	628	300	19.60		22002497
560- 630	558	628	300	21.80		22002498
630- 710	628	707	300	24.40		22002499
710- 800	707	797	300	28.00		22002500
800- 900	897	799	300	31.21		229928104090
900-1000	998	899	300	34.83		229928114100
1000-1120	1118	1000	300	44.21		229928124112
1120-1250	1248	1120	300	55.14		229928134125

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	22003480
300- 400	299	398	200	7.40	21003481	22003481
350- 400	349	398	200	10.00	21003482	22003482
350- 450	349	448	200	11.20	21003483	22003483
400- 450	398	448	200	11.80	21003485	22003485
400- 500	398	498	250	13.40	21003486	22003486
450- 500	448	498	200	14.20	21003487	22003487
450- 560	448	558	250	16.60		22003495
500- 560	498	558	250	17.40		22003496
500- 630	498	628	300	19.60		22003497
560- 630	558	628	300	21.80		22003498
630- 710	628	707	300	24.40		22003499
710- 800	707	797	300	28.00		22003500
800- 900	897	799	300	31.21		229938104090
900-1000	998	899	300	34.83		229938114100
1000-1120	1118	1000	300	44.21		229938124112
1120-1250	1248	1120	300	55.14		229938134125

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	220034803
300-400	299	398	200	7.40	210034813	220034813
350-400	349	398	200	10.00	210034823	220034823
350-450	349	448	200	11.00	210034833	220034833
400-450	398	448	200	11.80	210034853	220034853
400-500	398	498	250	13.40	210034863	220034863
450-500	448	498	200	14.20	210034873	220034873
450-560	448	558	250	16.60		220034953
500-560	498	558	250	17.40		220034963
500-630	498	628	300	19.60		220034973
560-630	558	628	300	21.80		220034983
630-710	628	707	300	24.40		220034993

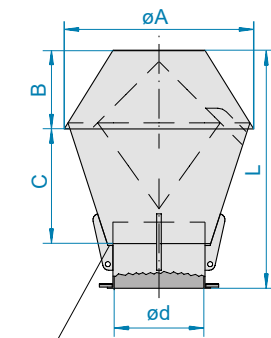
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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)

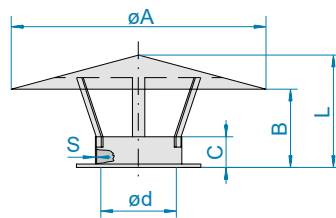
Galvanised and stainless steel (dimensions for 2 mm pipework)

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	12353805	
400	398	715	295	480	915	42.00	12402805	12403805	
450	448	820	320	588	1040	51.00	12452805	12453805	
500	498	870	320	588	1040	61.50	12502805	12503805	
560	558	990	372	703	1208	81.50	12562805	12563805	
630	628	1140	442	776	1434	112.00	12632805	12633805	
710	707	1290	502	901	1627	138.00	12712805	12713805	
800	797	1440	520	1020	1790	164.00	12802805	12803805	
900	897	1550	600	1150	2150	260.00	239928055090 *	239938055090 *	
1000	998	1800	700	1330	2400	328.00	239928055100 *	239938055100 *	
1120	1118	1825	1120	1100	2370	421.00	239928055112 *	239938055112 *	
1250	1248	1955	1190	1150	2470	452.00	239928055125 *	239938055125 *	

*3 mm

RAIN CAPS

6190



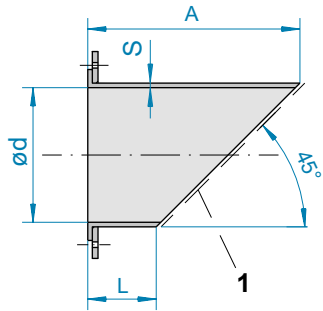
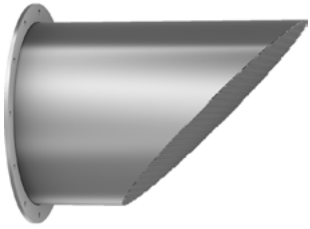
- With loose flange up to DN 1000 mm
- DN 1120 mm: 3 mm wall thickness, with welded flange similar to DIN 24154-2 (see page 227 for dimensions)
- From DN 1250 mm, we recommend the use of jet caps
- Take local building regulations into account, alternatively use a jet cap
- DN 710 – 1120 available in 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	22353850		223538503	
400	398	850	320	150	435	16.80	22402850	22403850		224038503	
450	448	950	340	150	470	25.90	22452850	22453850		224538503	
500	498	1050	410	200	550	31.50	22502850	22503850		225038503	
560	558	1150	435	200	590	34.00	22562850	22563850		225638503	
630	628	1300	470	200	645	42.00	22632850	22633850		226338503	
710	707	1400	500	250	700	52.00		22713850		227138503	
800	797	1500	530	250	760	59.92		22803850		228038503	
900	897	1800	550	250	793	87.20		229938504090			
1000	998	2000	600	250	870	103.20		229938504100			
1120	1118	2240	650	300	950	186.90				239938505112*	

*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			
400	399	600	200	10.80	21402880			
450	449	650	200	12.30	21452880			
500	499	700	200	10.60	21502880			
560	558	760	200	22.00			22562880	
630	628	830	200	26.00			22632880	
710	707	910	200	30.00			22712880	
800	797	1000	200	36.00			22802880	
900	897	1100	200	58.80			239928804090*	
1000	998	1200	200	69.12			239928804100*	
1120	1118	1320	200	90.75			239928804112*	
1250	1248	1450	200	107.40			239928804125*	

*3 mm

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

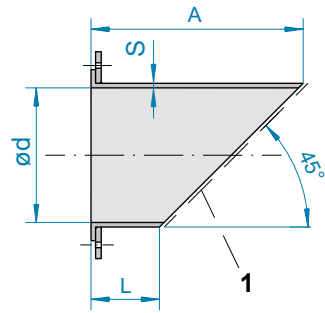
DN	Ø d	A	L	kg	Stainless steel with galvanised loose flanges		F		
					1 mm			2 mm	
					Item no.			Item no.	
350	350	550	200	9.20	21353880				
400	399	600	200	10.80	21403880				
450	449	650	200	12.30	21453880				
500	499	700	200	10.60	21503880				
560	558	760	200	22.00			22563880		
630	628	830	200	26.00			22633880		
710	707	910	200	30.00			22713880		
800	797	1000	200	36.00			22803880		
900	897	1100	200	58.80			239938804090*		
1000	998	1200	200	69.12			239938804100*		
1120	1118	1320	200	90.75			239938804112*		
1250	1248	1450	200	107.40			239938804125*		

*3 mm



THE FLANGE RANGE

Transition pieces and adapters / Cleaning pipes



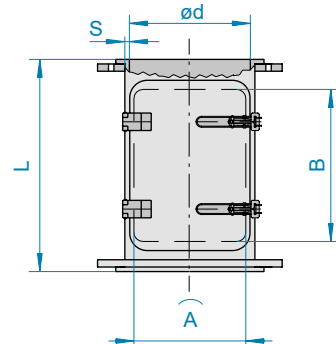
1 Bird-guard
mesh size: 20x20 x 2 mm

AIR OUTLET PIPES 45°

6200

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

DN	Ø d	A	L	kg	Stainless steel with stainless steel loose flange, shotblasted		F
					1 mm	2 mm	
					Item no.	Item no.	
350	350	550	200	9.20	213538803		
400	399	600	200	10.80	214038803		
450	448	650	200	12.30	214538803		
500	498	700	200	10.60	215038803		
560	558	760	200	22.00		225638803	
630	628	830	200	26.00		226338803	
710	707	910	200	30.00		227138803	
800	797	1000	200	36.00		228038803	



CLEANING PIPES

6050

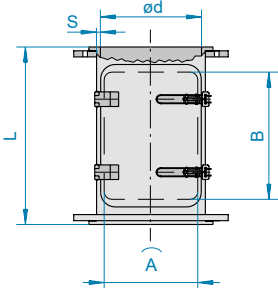
- For seals, please also read and take into account the technical information given at the beginning of this chapter
- Both sides with loose flange
- DN 1400 and 1600 mm on request
- RAL 7032 (pebble grey): up to DN 630 mm powder-coated, from DN 710 mm spray-primed
- Not recommended for extracting exhaust 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	
400	399	350	350	478	15.90	21401195	
450	448	500	350	478	20.00		22451195
500	498	500	350	478	21.60		22501195
560	558	500	350	478	25.00		22561195
630	628	500	350	478	30.00		22631195
710	707	500	350	478	34.00		22711195
800	797	500	350	478	38.00		22801195
900	897	500	350	478	41.48		229911954090
1000	998	500	350	478	46.10		229911954100
1120	1118	500	350	478	62.50		229911954112
1250	1248	500	350	478	69.57		229911954125

F FOOD GRADE
EC 1935/2004 plus FDA compliant

Cleaning pipes



Galvanised (dimensions for 2 mm pipework)

DN	Ø d	A	B	L	kg	Galvanised	
						1.5 mm galvanised	2 mm galvanised
						Item no.	Item no.
350	350	350	350	478	14.50	21352195	
400	399	350	350	478	15.90	21402195	
450	448	500	350	478	20.00		22452195
500	498	500	350	478	21.60		22502195
560	558	500	350	478	25.00		22562195
630	628	500	350	478	30.00		22632195
710	707	500	350	478	34.00		22712195
800	797	500	350	478	38.00		22802195
900	897	500	350	478	41.48		229921954090
1000	998	500	350	478	46.10		229921954100
1120	1118	500	350	478	62.50		229921954112
1250	1248	500	350	478	69.57		229921954125

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	
400	399	350	350	478	15.90	21403195	
450	448	500	350	478	20.00		22453195
500	498	500	350	478	21.60		22503195
560	558	500	350	478	25.00		22563195
630	628	500	350	478	30.00		22633195
710	707	500	350	478	34.00		22713195
800	797	500	350	478	38.00		22803195
900	897	500	350	478	41.48		229931954090
1000	998	500	350	478	46.10		229931954100
1120	1118	500	350	478	62.50		229931954112
1250	1248	500	350	478	69.57		229931954125

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	
400	399	350	350	478	15.60	214031953	
450	448	500	350	478	16.00		224531953
500	498	500	350	478	23.00		225031953
560	558	500	350	478	29.50		225631953
630	628	500	350	478	34.80		226331953
710	707	500	350	478	38.50		227131953



AVAILABLE IN THE DETECTABLE DESIGN LINE.

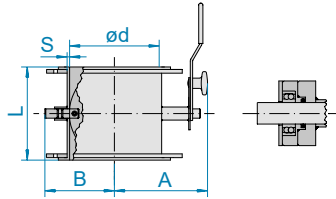
F FOOD GRADE
EC 1935/2004 plus FDA compliant

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)

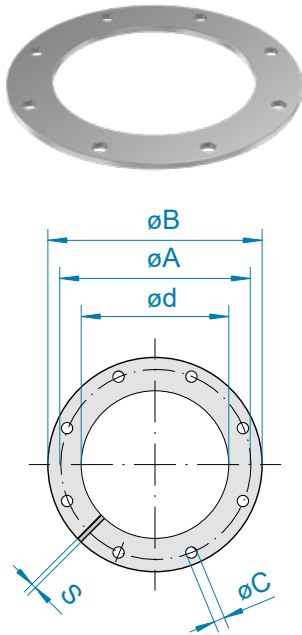
DN	Ø d	A	B	L	kg	2 mm	
						powder-coated Item no.	galvanised Item no.
350	349	240	233	200	14.00	22351560	
400	398	265	258	200	16.20	22401560	
450	458	396	365	200	26.50	22451560	
500	498	421	391	200	29.60	22501560	
560	558	451	421	200	36.00	22561560	
630	628	486	456	200	41.00	22631560	
710	707	525	495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

*3 mm

DN	Ø d	A	B	L	kg	2 mm	
						Stainless steel with galvanised loose flanges Item no.	stainless steel with stainless steel loose flange, shotblasted Item no.
350	349	240	233	200	14.00	22353560	223535603
400	398	265	258	200	16.20	22403560	224035603
450	458	396	365	200	26.50	22453560	224535603
500	498	421	391	200	29.60	22503560	225035603
560	558	451	421	200	36.00	22563560	225635603
630	628	486	456	200	41.00	22633560	226335603
710	707	525	495	200	46.00	22713560	227135603
800	797	570	540	200	52.00	22803560	
900	897	620	590	200	65.00		239935605090*
1000	998	670	640	200	83.00		239935605100*
1120	1118	810	675	200	104.00		239935605112*
1250	1248	875	740	200	123.00		239935605125*

*3 mm

F FOOD GRADE
EC 1935/2004 plus FDA compliant



E = No. of holes

FLANGES

1360

- Similar to DIN 24154-2
- For nominal diameters DN 120, 150, 175, 300 and 350 mm, the hole diameter and number of holes have been adapted to the next higher standard diameter (120=125, 150=160, 175=180, 300=315, 350=355 mm)
- DN 60 mm is not a standard diameter; the dimensions are adapted to DIN 24154-2
- For nominal diameters 80, 100, 140, 160, 200, 224, 250, 400, 450, 500, 560, 630, 710 and 800 the pitch circle diameter, the hole diameter and the number of holes conform to DIN 24154-2

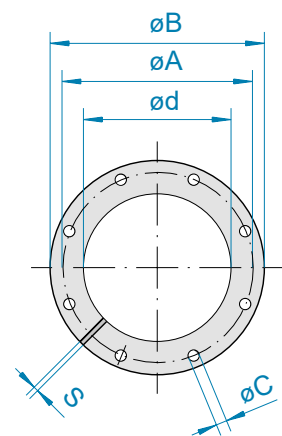
Powder-coated and galvanised

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



THE FLANGE RANGE

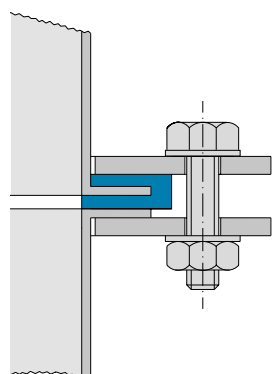
Flanges, seals and installation kit



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	
80	82	118	142	9.5	4	5	0.40	10083711	
100	105	139	165	9.5	4	5	0.46	10103711	
120	125	165	185	9.5	4	5	0.57	10123711	
140	142	182	212	11.5	8	5	0.73	10143711	
150	155	200	225	11.5	8	5	0.78	10153711	
160	162	200	232	11.5	8	5	0.82	10163711	
175	180	219	250	11.5	8	5	0.93	10173711	
200	205	241	275	11.5	8	5	0.99	10203711	
224	225	265	295	11.5	8	5	1.10	10223711	
250	255	292	325	11.5	8	5	1.21	10253711	
280	283	332	363	11.5	8	8	2.51	10283711	
300	305	366	395	11.5	8	8	3.00	10303711	
315	318	366	398	11.5	8	8	2.98	10313711	
350	356	405	436	11.5	8	8	3.10	10353711	
400	405	448	485	11.5	12	8	3.44	10403711	
450	455	497	535	11.5	12	8	3.90	10453711	
500	505	551	585	11.5	12	8	4.13	10503711	
560	565	629	665	14	16	8	5.90	10563711	
630	635	698	735	14	16	8	6.60	10633711	
710	715	775	815	14	16	8	7.40	10713711	
800	805	861	905	14	24	8	7.95	10803711	
900	904	958	1004	14	24	8	9.17	109937110090	
1000	1005	1067	1105	14	24	8	10.20	109937110100	
1120	1125	1200	1245	18	32	10	16.90	109937110112	
1250	1255	1337	1375	18	32	10	18.80	109937110125	
1400	1405	1475	1525	18	32	10	21.00	109937110140	
1600	1605	1675	1725	18	40	10	23.80	109937110160	



INSTALLATION KIT FOR JACOB FLANGES

1510

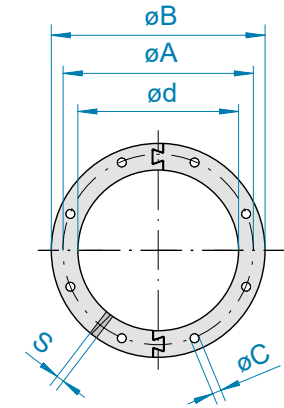
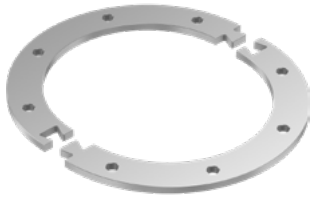
- Installation kit consisting of bolts, nuts and two washers per bolt
- Quantity to match the number of holes and flange thicknesses
- Bolts in compliance with DIN EN ISO 4017 (formerly DIN 933)
- Washers in compliance with DIN EN ISO 7090 (formerly DIN 125), 2 each per bolt
- Nuts in compliance with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

Galvanised bolts, nuts and washers

DN	Bolts	Number	Item no.
60- 120	M 8x30	4	10062788
140- 250	M 10x35	8	10142788
280- 350	M 10x40	8	10282788
400- 500	M 10x40	12	10402788
560- 710	M 12x45	16	10562788
800-1000	M 12x45	24	10802788
1120-1400	M 16x50	32	109927880112
1600	M 16x50	40	109927880160



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	10082713
100	105	139	165	9.5	4	8	0.46	10101713	10102713
120	125	165	185	9.5	4	8	0.57	10121713	10122713
140	142	182	212	11.5	8	8	0.73	10141713	10142713
150	155	200	225	11.5	8	8	1.25	10151713	10152713
175	180	219	250	11.5	8	8	1.50	10171713	10172713
200	205	241	275	11.5	8	8	1.60	10201713	10202713
224	225	265	295	11.5	8	8	1.76	10221713	10222713
250	255	292	325	11.5	8	8	1.94	10251713	10252713
280	283	332	363	11.5	8	8	2.51	10281713	10282713
300	305	366	395	11.5	8	8	3.00	10301713	10302713
315	318	366	398	11.5	8	8	3.10	10311713	10312713
350	356	405	436	11.5	8	8	3.20	10351713	10352713
400	405	448	485	11.5	12	8	3.44	10401713	10402713

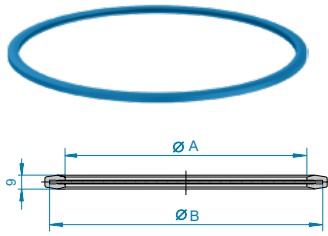
Stainless steel

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



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

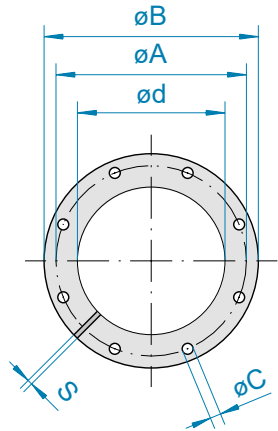
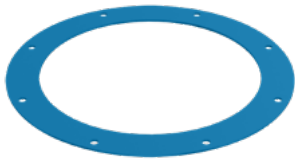
DN	Ø A	Ø B	kg	NBR grey white	Silicone beige	F	Silicone blue	F D
				Item no.	Item no.		Item no.	
350	353	373	0.11	103567177	1035771709		10357717091	
400	403	423	0.13	104067177	1040771709		10407717091	
450	453	473	0.15	104567177	1045771709		10457717091	
500	503	523	0.17	105067177	1050771709		10507717091	
560	561	581	0.18	105667177	1056771709		10567717091	
630	631	651	0.21	106367177	1063771709		10637717091	
710	711	731	0.24	107167177	1071771709		10717717091	
800	801	821	0.26	108067177	1080771709		10807717091	

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	103597179	
400	403	423	0.13	1040871759	104097179	
450	453	473	0.15	1045871759	104597179	
500	503	523	0.17	1050871759	105097179	
560	561	581	0.18	1056871759	105697179	
630	631	651	0.21	1063871759	106397179	
710	711	731	0.24	1071871759	107197179	
800	801	821	0.26	1080871759	108097179	

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

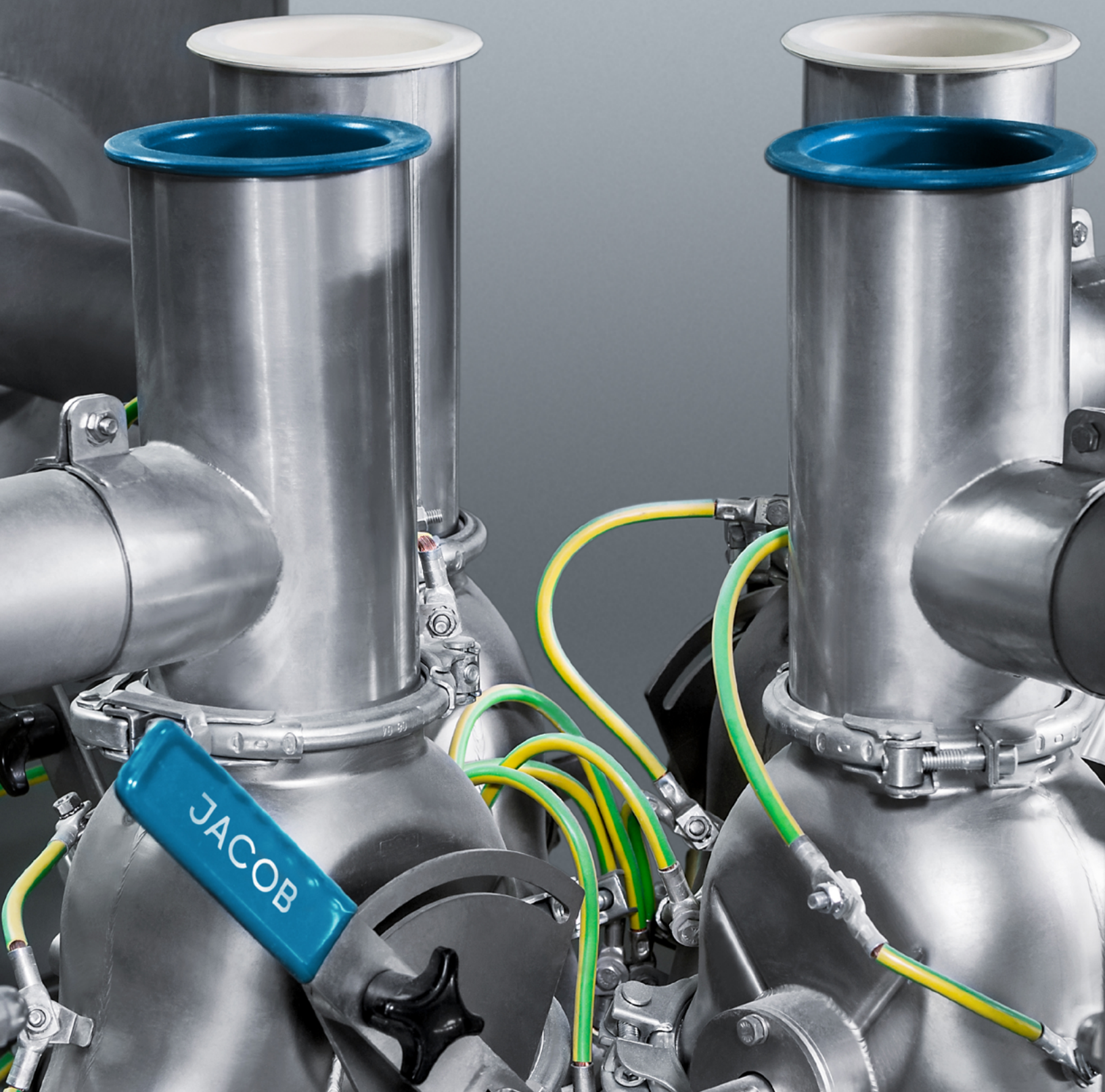
DN	ø d	ø A	ø B	ø C	E	S	kg	NBR grey white	Silicone transparent	F	Silicone blue	F D
								Item no.	Item no.	Item no.	Item no.	
350	355	405	435	11.5	8	3	0.20	10356718	10357718		1035771801	
400	400	448	484	11.5	12	3	0.24	10406718	10407718		1040771801	
450	450	497	534	11.5	12	3	0.26	10456718	10457718		1045771801	
500	500	551	584	11.5	12	3	0.28	10506718	10507718		1050771801	
560	560	629	664	14	16	3	0.38	10566718	10567718		1056771801	
630	630	698	734	14	16	3	0.42	10636718	10637718		1063771801	
710	710	775	814	14	16	3	0.52	10716718	10717718		1071771801	
800	800	861	904	14	24	3	0.56	10806718	10807718		1080771801	
900	897	958	1004	14	24	4	1.51	109967180090	109977180090		10997718009001	
1000	998	1067	1105	14	24	4	1.68	109967180100	109977180100		10997718010001	
1120	1118	1200	1245	18	32	4	2.79	109967180112	109977180112		10997718011201	
1250	1248	1337	1375	18	32	4	3.10	109967180125	109977180125		10997718012501	
1400	1398	1475	1525	18	32	4	3.47	109967180140	109977180140		10997718014001	
1600	1598	1675	1725	18	40	4	3.93	109967180160	109977180160		10997718016001	

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
400	400	448	484	11.5	12	3	0.24	10408718
450	450	497	534	11.5	12	3	0.26	10458718
500	500	551	584	11.5	12	3	0.28	10508718
560	560	629	664	14	16	3	0.38	10568718
630	630	698	734	14	16	3	0.42	10638718
710	710	775	814	14	16	3	0.52	10718718
800	800	861	904	14	24	3	0.56	10808718
900	897	958	1004	14	24	4	1.51	109987180090
1000	998	1067	1105	14	24	4	1.68	109987180100
1120	1118	1200	1245	18	32	4	2.79	109987180112
1250	1248	1337	1375	18	32	4	3.10	109987180125
1400	1398	1475	1525	18	32	4	3.47	109987180140
1600	1598	1675	1725	18	40	4	3.93	109987180160

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	



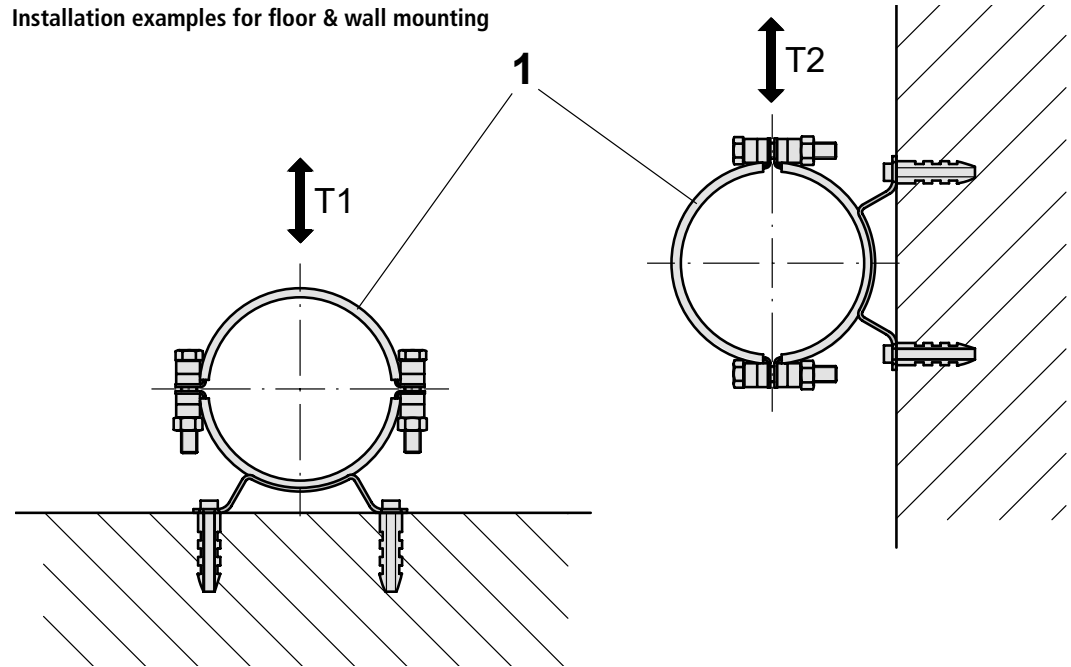
JACOB ACCESSORIES

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

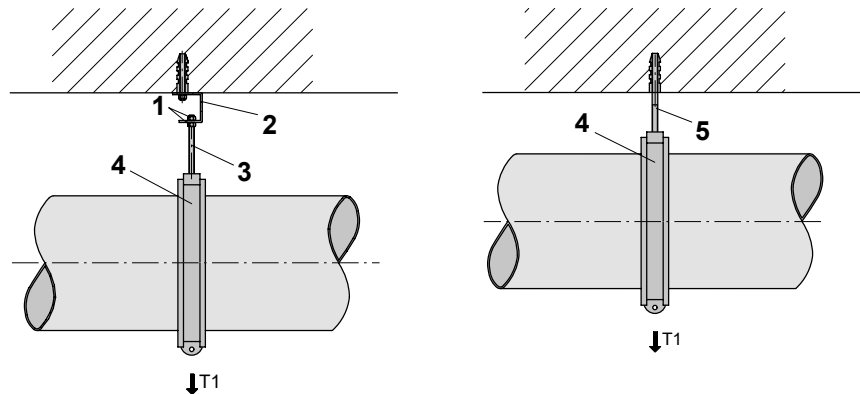
T2 Load with a deformation of 10 mm

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



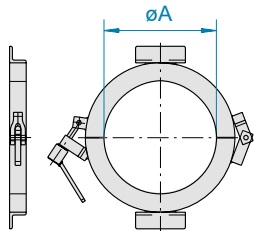
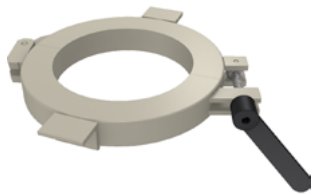
EARTHING WIRE

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
80	80	3.30	10081740
100	103	3.60	10101740
120	123	4.70	10121740
140	139	5.20	10141740
150	153	5.60	10151740
175	178	6.40	10171740
200	203	6.80	10201740
224	223	7.30	10221740
250	253	8.75	10251740
280	283	9.10	10281740
300	303	9.35	10301740
315	318	9.80	10311740
350	353	10.30	10351740
400	403	12.00	10401740
450	453	14.50	10451740
500	503	17.00	10501740

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
- Non food grade

Paint and zinc spray

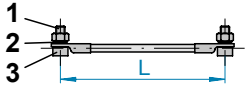
RAL 7032	Galvanised
Item no.	Item no.
100019900	100029900

1 kg paint and paintbrush

RAL 7032
Item no.
100019910



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

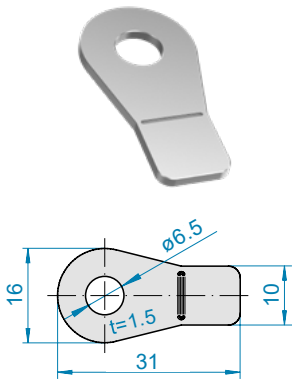
- To create electrostatic continuity
- For use in conjunction with pipework with earthing lugs
- Including hexagon nut M6, A2, toothed lock washer 6.4, A2 and hexagon bolt M6 x 16, A2

L = 120 mm	L = 230 mm	L = 330 mm	L = 430 mm
Item no. 1000079510	Item no. 1000079610	Item no. 1000079705	Item no. 1000079805

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

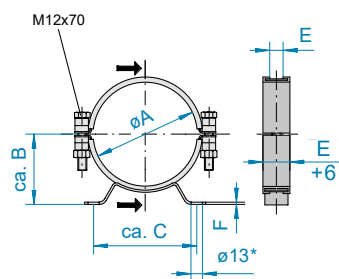
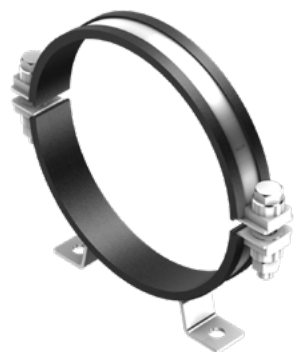


Earthing lug, loose	Earthing lug, spot-welded
Item no. 1100379020	Item no. 11003791



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	10063780
80	80	64	138	30x2.5	3	2.0	1.0	0.70	10082780	10083780
100	102	75	138	30x2.5	3	2.5	1.0	0.80	10102780	10103780
120	123	86	138	30x2.5	3	2.5	1.0	0.85	10122780	10123780
140	139	94	138	30x2.5	3	2.5	1.0	0.85	10142780	10143780
150	153	101	148	30x2.5	3	3.0	1.2	0.95	10152780	10153780
175	178	113	148	30x2.5	3	3.0	1.2	1.00	10172780	10173780
200	203	126	148	30x2.5	3	3.0	1.2	1.05	10202780	10203780
224	223	136	148	30x2.5	3	3.0	1.2	1.10	10222780	10223780
250	253	151	230	30x2.5	3	3.0	1.2	1.25	10252780	10253780
280	280	166	230	30x2.5	3	3.0	1.2	1.40	10282780	10283780
300	303	176	230	30x2.5	3	3.0	1.2	1.40	10302780	10303780
315	315	182	230	30x2.5	3	3.0	1.2	1.40	10312780	10313780
350	353	204	260	30x3	4	3.5	1.2	1.55	10352780	10353780
400	402	228	260	30x3	4	3.5	1.2	2.10	10402780	10403780
450	452	254	300	30x3	4	4.5	1.5	2.95	10452780	10453780
500	502	279	300	30x3	4	4.5	1.5	3.05	10502780	10503780
560	562	309	350	30x3	4	5.0	1.7	4.00	10562780	10563780
630	632	344	350	30x3	4	5.0	1.7	5.00	10632780	10633780
710	712	385	350	40x4	5			5.50	10712780	10713780
800	800	450	350	40x4	5			6.50	10802780	10803780

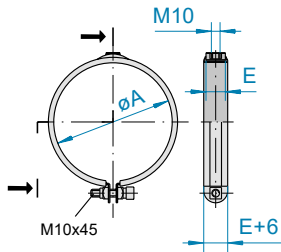


PIPE CLAMPS FOR CEILING MOUNTING

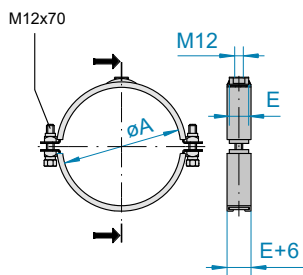
3090



- 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



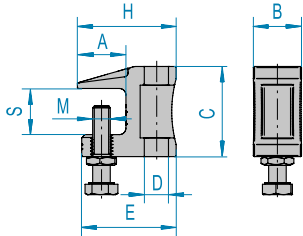
DN 315 to 800 mm

DN	Ø A	E	Load (kN)		kg	Electro-galvanised	Stainless steel
			T1			Item no.	Item no.
60	60	20x1.0		0.11		10062770	10063770
80	80	25x1.5	2.0	0.20		10082770	10083770
100	102	25x1.5	2.0	0.24		10102770	10103770
120	123	25x1.5	2.0	0.27		10122770	10123770
140	139	25x1.5	2.0	0.29		10142770	10143770
150	153	25x1.5	2.0	0.31		10152770	10153770
175	178	25x1.5	2.0	0.34		10172770	10173770
200	203	25x1.5	2.0	0.37		10202770	10203770
224	223	25x1.5	2.0	0.41		10222770	10223770
250	253	25x1.5	2.0	0.44		10252770	10253770
280	280	25x1.5	2.0	0.51		10282770	10283770
300	303	25x1.5	2.0	0.60		10302770	10303770
315	315	30x2.5	2.0	1.25		10312770	10313770
350	353	30x2.5	3.0	1.31		10352770	10353770
400	402	30x2.5	3.0	1.42		10402770	10403770
450	452	30x2.5	3.0	1.60		10452770	10453770
500	502	30x2.5	3.0	1.66		10502770	10503770
560	562	30x2.5	3.0	1.79		10562770	10563770
630	632	30x2.5	3.0	1.80		10632770	10633770
710	712	30x2.5		2.50		10712770	10713770
800	802	30x2.5		3.50		10802770	10803770



FIXING COMPONENTS AND ACCESSORIES

Assembly accessories

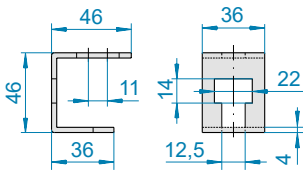
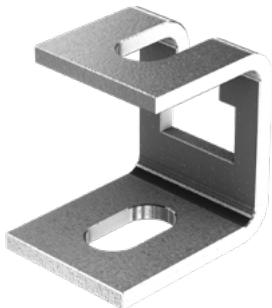


BEARING CLAMPS

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.	Item no.
0-20	23	21	42	11	41	44	10	1008277610	
0-16	21.5	21	38	11	34	41.5	10		10083776



FIXING CLIPS

3110

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

Item no.
1008277110



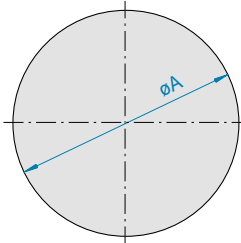
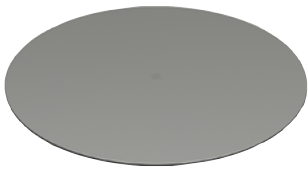
Hanger bolt metric

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	10083772
	M 12	10102772	10103772
Hexagon nuts metric DIN EN ISO 4032	M 10	10082774	10083774
	M 12	10102774	10103774
Twin nuts 30 mm long	M 10	10082775	10083775
	M 12	10102775	10103775
Hanger bolts metric M 10 x 100 mm	M 10	10082773	10083773
	M 12	10102773	10103773

Blank-off cover



BLANK-OFF COVER

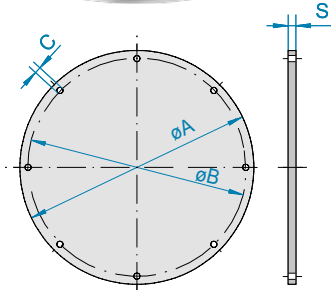
1370

- 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			
80	92	0.05	110837151			
100	114	0.10	111037151			
120	134	0.10	111237151			
140	150	0.15	111437151			
150	164	0.15	111537151			
175	189	0.20	111737151			
200	214	0.30	112037151			
224	234	0.30	112237151			
250	264	0.45	112537151			
280	292	0.83	112837151			
300	314	0.55	113037151			
315	327	1.10	113137151			
350	364	1.60			123537151	
400	414	1.50			124037151	
450	464	1.50			124537151	
500	514	3.25			125037151	
560	574	4.05			125637151	
630	644	5.15			126337151	

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	
400	484	448	11.5	12	6	8.70	20403723	
450	534	497	11.5	12	6	10.60	20453723	
500	584	551	11.5	12	6	12.70	20503723	
560	664	629	14.0	16	6	16.30	20563723	
630	734	698	14.0	16	6	20.00	20633723	
710	814	775	14.0	16	6	24.50	20713723	
800	904	861	14.0	24	6	30.30	20803723	
900	1004	958	14.0	24	6	37.30	209937230090	
1000	1105	1067	14.0	24	6	45.20	209937230100	
1120	1245	1200	18.0	32	6	57.30	209937230112	
1250	1375	1337	18.0	32	6	69.90	209937230125	

F FOOD GRADE
EC 1935/2004 plus FDA compliant



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



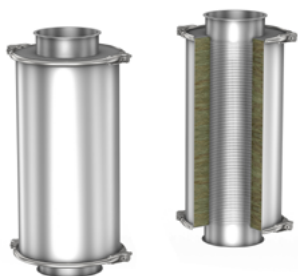
SILENCERS AND CYCLONES

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Horizontal cyclone	NEW 251	



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.

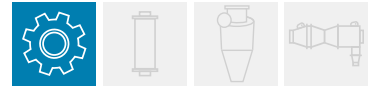
We custom-build cyclones according to your individual requirements and we also help you to select the right cyclone for the job. Further models and diameters are available on request. Please call us for further information.

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

NEW

The patented horizontal cyclone from JACOB fits in almost every pipe system. Its design makes it easy to integrate with straight pipes. This makes it the first choice when retrofitting a cyclone. But it also proves its worth in new pipework systems, where it reliably cleans the airflow of particles and sparks.

These horizontal cyclones belong to the JACOB modular pipework system. They can be integrated within your system as required:

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

The advantages for you:

- Their elongated form is easy to integrate in straight pipes
- Their modular design makes light work of replacing worn components
- As passive components they do not require their own power supply
- Proven JACOB quality

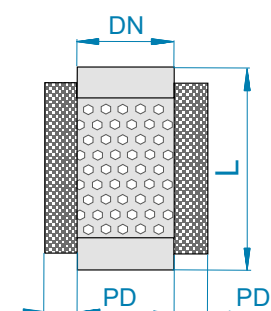
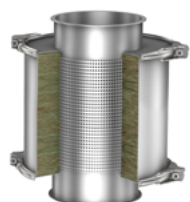


Explanatory video about horizontal cyclone



SILENCERS, DAMPING LENGTH 400 MM

1470/6470



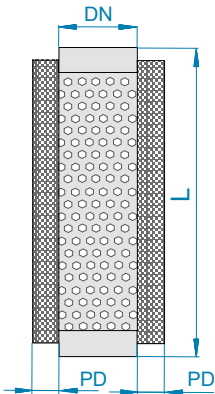
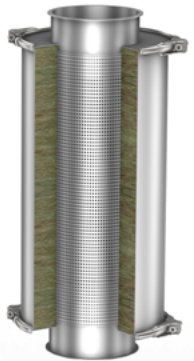
PD = insulation thickness

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		4200805022500	
100	4201005012500		4201005022500	
120	4201205012500		4201205022500	
140	4201405012500		4201405022500	
150	4201505012500		4201505022500	
175	4201705012500		4201705022500	
200	4202005012500		4202005022500	
224	4202205012500		4202205022500	
250	4202505012500		4202505022500	
300	4203005012500		4203005022500	
350	4203505012500	4203505012503	4203505022500	4203505022503
400	4204005012500	4204005012503	4204005022500	4204005022503

DN	2 mm stainless steel, with lipped end	2 mm stainless steel, with loose flange
	Item no.	Item no.
80	4200805032500	
100	4201005032500	
120	4201205032500	
140	4201405032500	
150	4201505032500	
175	4201705032500	
200	4202005032500	
224	4202205032500	
250	4202505032500	
300	4203005032500	
350	4203505032500	4203505032503
400	4204005032500	4204005032503



PD = insulation thickness

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

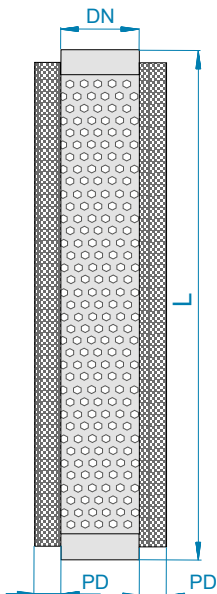
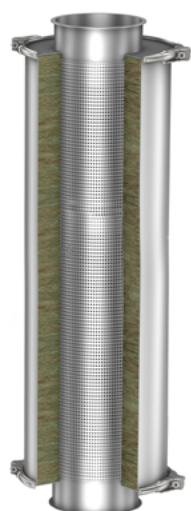
DN	2 mm, primed, with lipped end	2 mm, primed, with welded-on flange	2 mm, hot-dip galvanised, with lipped end	2 mm, hot-dip galvanised, with welded-on flange
	Item no.	Item no.	Item no.	Item no.
80	4200810012500		4200810022500	
100	4201010012500		4201010022500	
120	4201210012500		4201210022500	
140	4201410012500		4201410022500	
150	4201510012500		4201510022500	
175	4201710012500		4201710022500	
200	4202010012500		4202010022500	
224	4202210012500		4202210022500	
250	4202510012500		4202510022500	
300	4203010012500		4203010022500	
350	4203510012500	4203510012503	4203510022500	4203510022503
400	4204010012500	4204010012503	4204010022500	4204010022503
450	4204510012500	4204510012503	4204510022500	4204510022503

DN	2 mm stainless steel, with lipped end	2 mm stainless steel, with loose flange
	Item no.	Item no.
80	4200810032500	
100	4201010032500	
120	4201210032500	
140	4201410032500	
150	4201510032500	
175	4201710032500	
200	4202010032500	
224	4202210032500	
250	4202510032500	
300	4203010032500	
350	4203510032500	4203510032503
400	4204010032500	4204010032503
450	4204510032500	4204510032503



SILENCERS, DAMPING LENGTH 1400 MM

1470/6470



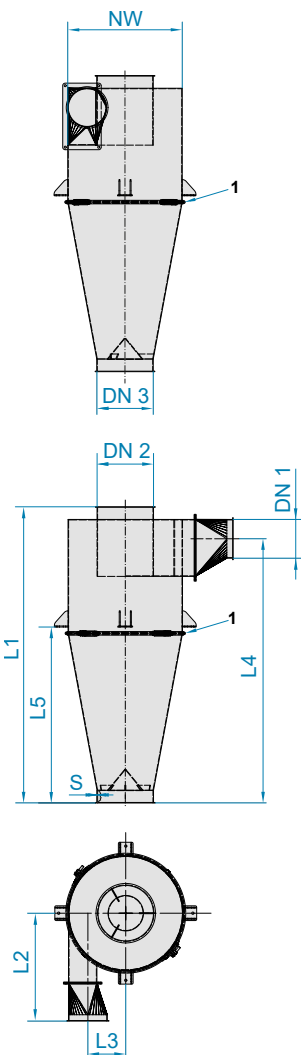
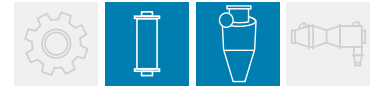
PD = insulation thickness

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		4201515022500	
175	4201715012500		4201715022500	
200	4202015012500		4202015022500	
224	4202215012500		4202215022500	
250	4202515012500		4202515022500	
300	4203015012500		4203015022500	
350	4203515012500	4203515012503	4203515022500	4203515022503
400	4204015012500	4204015012503	4204015022500	4204015022503
450	4204515012500	4204515012503	4204515022500	4204515022503
500	4205015012500	4205015012503	4205015022500	4205015022503
560	4205615012500	4205615012503	4205615022500	4205615022503
630	4206315012500	4206315012503	4206315022500	4206315022503

DN	2 mm stainless steel, with lipped end	2 mm stainless steel, with loose flange
	Item no.	Item no.
150	4201515032500	
175	4201715032500	
200	4202015032500	
224	4202215032500	
250	4202515032500	
300	4203015032500	
350	4203515032500	4203515032503
400	4204015032500	4204015032503
450	4204515032500	4204515032503
500	4205015032500	4205015032503
560	4205615032500	4205615032503
630	4206315032500	4206315032503



- 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 (m ³ /h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
250	80	120	120	650	262	87	560	375	407	1020	>10
300	100	150	150	800	302	102	699	475	636	1012	>10
350	120	175	175	924	347	117	814	550	865	924	>12
400	140	200	200	1050	386	131	931	625	1130	980	>12
450	150	224	224	1170	426	151	1044	695	1418	984	>13
500	175	250	250	1300	471	164	1161	775	1766	980	>13
560	200	280	280	1450	516	181	1299	865	2216	980	>14
630	224	300	300	1550	576	204	1389	895	2543	975	>15
710	250	350	350	1800	647	232	1474	1040	3462	978	>16
800	280	400	400	2050	717	262	1710	1200	4522	980	>18
900	300	450	450	2300	802	302	1949	1350	5723	980	>18
1000	350	500	500	2550	887	327	2174	1500	7065	980	>19

Inlets and outlets with 6 mm lip, powder-coated in RAL 7032 and galvanised

NW	2 mm powder-coated	3 mm powder-coated	2 mm galvanised	3 mm galvanised
	Item no.	Item no.	Item no.	Item no.
250	4202002512255	4203002512255	4202002522255	4203002522255
300	4202003012255	4203003012255	4202003022255	4203003022255
350	4202003512255	4203003512255	4202003522255	4203003522255
400	4202004012255	4203004012255	4202004022255	4203004022255
450	4202004512255	4203004512255	4202004522255	4203004522255
500	4202005012255	4203005012255	4202005022255	4203005022255
560	4202005612255	4203005612255	4202005622255	4203005622255
630	4202006312255	4203006312255	4202006322255	4203006322255
710	4202007112255	4203007112255	4202007122255	4203007122255
800	4202008012255	4203008012255	4202008022255	4203008022255
900	4202009012255	4203009012255	4202009022255	4203009022255
1000	4202010012255	4203010012255		4203010022255

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	4202002542255
300	4202003032255	4202003042255
350	4202003532255	4202003542255
400	4202004032255	4202004042255
450	4202004532255	4202004542255
500	4202005032255	4202005042255
560	4202005632255	4202005642255
630	4202006332255	4202006342255
710	4202007132255	4202007142255
800	4202008032255	4202008042255
900	4202009032255	4202009042255
1000	4202010032255	4202010042255



SILENCERS AND CYCLONES

Cyclones



Product similar to picture

Technical data

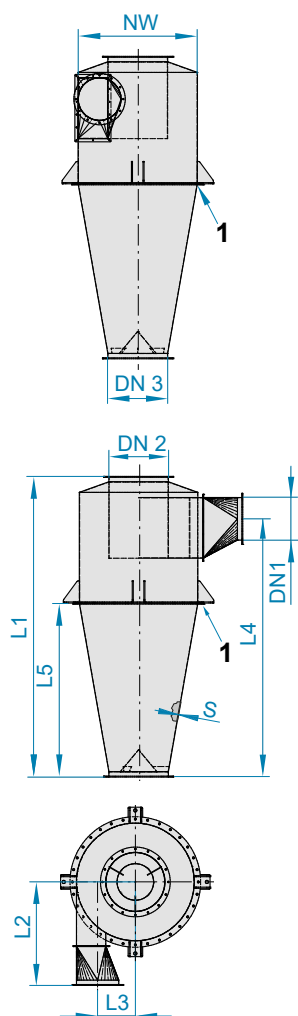
NW	DN1	DN2	DN3	L1	L2	L3	L4	L5	Volumetric flow (m³/h)	Pressure loss (Pa)	Separation rate 95% with particle size (µm):
1120	400	560	560	2900	987	362	2449	1650	8862	1003	>19
1250	450	630	630	3250	1097	402	2774	1900	11216	998	>21
1400	500	710	710	3650	1217	452	3149	2130	14246	980	>22
1600	560	800	800	4100	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	4203011212255	4203011222255
1250	4202012512255	4203012512255	4203012522255
1400		4203014012255	4203014022255
1600		4203016012255	
1800		4203018012255	
2000		4203020012255	
2300		4203023012255	

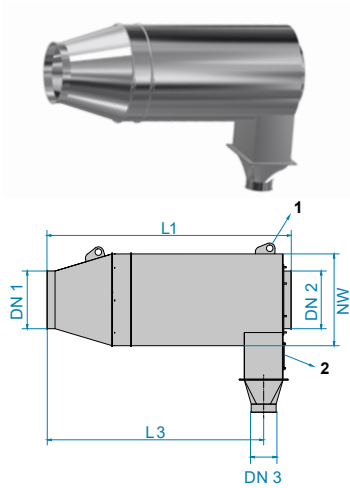
Inlets and outlets with welded-on flanges, stainless steel, pickled and passivated

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	4203011232255	4202011242255	4203011242255
1250	4202012532255	4203012532255	4202012542255	4203012542255
1400		4203014032255		4203014042255
1600		4203016032255		4203016042255
1800		4203018032255		4203018042255
2000		4203020032255		4203020042255
2300		4203023032255		4203023042255

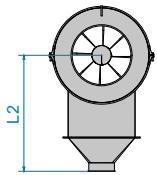


- 1 Connection between top and bottom section with JACOB flanges
- DN 1, 2 and 3 with welded flanges; flanges welded off-radius
 - Dimensions of JACOB flanges see chapter 12
 - From a nominal diameter of 2000 mm: three-part cyclone

Horizontal cyclone



- 1 From NW 500, two transport lugs
- 2 From NW 500, there is an inspection opening here



HORIZONTAL CYCLONE NEW

1481

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

Technical data (dimensions for 2.0 mm material thickness) available with powder coating or in stainless steel

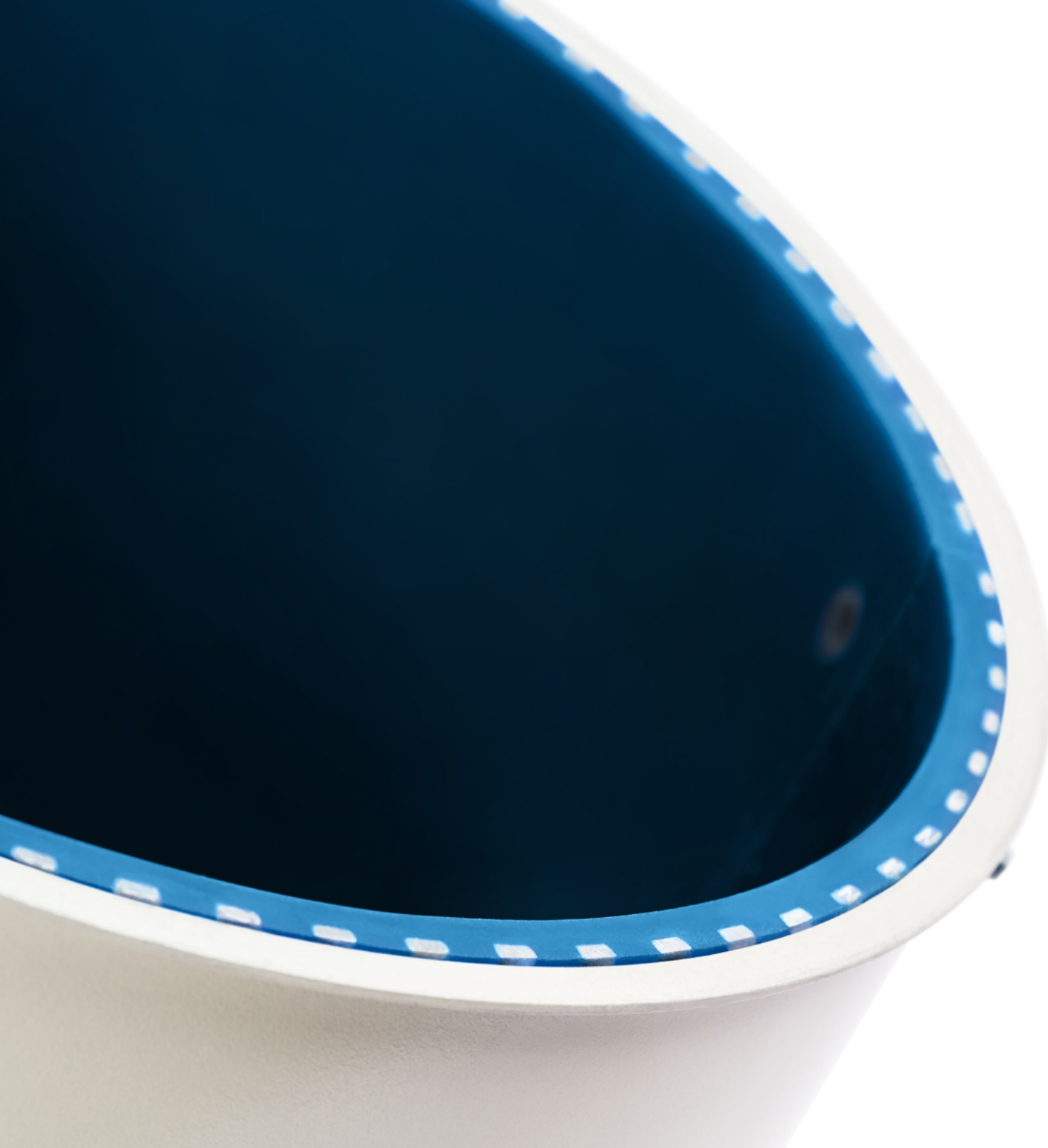
NW	DN 1	DN 2	DN 3	L 1	L 2	L 3	Volumetric flow m ³ /h	Pressure loss Pa
120	80	80	80	404	206	324	360	1050
175	100	100	80	496	239	408	560	1050
200	120	120	80	576	267	484	810	1050
250	150	150	80	696	359	594	1270	1050
300	175	175	150	796	394	686	1730	1050
350	200	200	150	896	429	777	2260	1050
400-1	224	224	150	976	457	850	2830	1050
400-2	250	250	150	1096	549	960	3510	1050
500	300	300	150	1296	619	1143	5080	1050
560	350	350	150	1496	689	1327	6900	1050
630	400	400	350	1692	807	1506	9050	1050
710	450	450	350	1892	877	1689	11450	1050
800	500	500	350	2092	947	1873	14100	1050
1000-1	560*	560*	350*	2332	1081	2092	17730	1050
1000-2	630*	630*	350*	2612	1179	2349	22450	1050
1250	710*	710*	350*	2932	1291	2642	28500	1050
1400	800*	800*	350*	3292	1517	2972	36200	1050

*3 mm

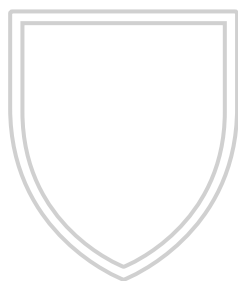
Connection type:

- Pull-ring connection
NW 120 to 630 mm
- Welded flange
NW 710 to 1400 mm
- From DN 500
with inspection opening

DN1	2 mm powder-coated		2 mm Stainless steel	
	Item no.		Item no.	
80	4201200812270		4201200832270	
100	4201801012270		4201801032270	
120	4202001212270		4202001232270	
150	4202501512270		4202501532270	
175	4203001712270		4203001732270	
200	4203502012270		4203502032270	
224	4204002212270		4204002232270	
250	4204002512270		4204002532270	
300	4205003012270		4205003032270	
350	4205603512270		4205603532270	
400	4206304012270		4206304032270	
450	4207204512270		4207204532270	
500	4208005012270		4208005032270	
560	4210005612270		4210005632270	
630	4210006312270		4210006332270	
710	4212507112270		4212507132270	
800	4214008012270		4214008032270	



GREATER EFFICIENCY WITH THE
JACOB WEAR PROTECTION RANGE



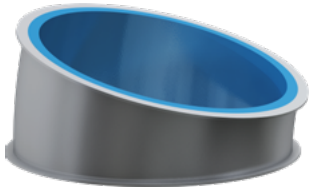
WEAR PROTECTION LINING

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Inlet pieces	256	
Pipes	256	
Segments	258	
Forks	260	
Cone pieces	260	
Two-way valves with inlet collar	261	
Cast-iron pipework	262	
Special range hot-dip galvanised 3 mm	264	



WEAR PROTECTION LINING

Technical information



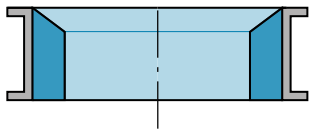
DURABLE DESIGN – WEAR PROTECTION RANGE

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

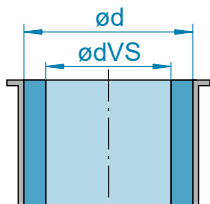
- Wear protection in a modular system
- Perfect for combining with JACOB pull-ring system
- Flexibly replaceable
- Wide product spectrum, wear protection possible with various materials from DN 100 mm
- Easy to assemble
- Longer lasting when conveying abrasive materials
- Choice of 6 different materials 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	$\varnothing d$	$\varnothing dVS$		
		Material thickness		
		approx. 6 mm	approx. 6.5 mm	approx. 8 mm
150	150	138	137	134
200	200	188	187	184
250	250	238	237	234
300	300	288	287	284
350	350	338	337	334

Internal diameter 2 mm pipe components with wear protection lining

DN	$\varnothing d$	$\varnothing dVS$		
		Material thickness		
		approx. 6 mm	approx. 6.5 mm	approx. 8 mm
150	149	137	136	133
200	199	187	186	183
250	249	237	236	233
300	299	287	286	283
350	349	337	336	333

All internal diameters (dVS) are approximate dimensions

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.

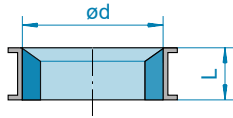
Product range	PU ochre and Kryptane red (glued)	Blue Ox, Kryptane green, Rhino Hyde blue and Kryptane blue (bolted)
DN > 350 mm on request		
Inlet piece 50 mm	DN 100–350	DN 150–350
Pipes 50–1000 mm	DN 100–350	DN 150–350
Pipes 2000 mm	DN 100–350	–
Segments 5°–30°	DN 100–350	DN 150–350
Segments 45°	DN 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	121514000951	121514000950
200	122014000952	122014000951	122014000950
250	122514000952	122514000951	122514000950
300	123014000952	123014000951	123014000950
350	123514000952	123514000951	123514000950

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	121524000951	121524000950
200	122024000952	122024000951	122024000950
250	122524000952	122524000951	122524000950
300	123024000952	123024000951	123024000950
350	123524000952	123524000951	123524000950



PIPES – WEAR PROTECTION

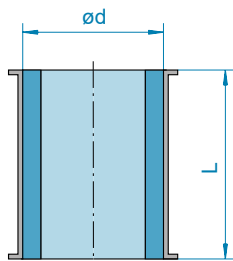
1492

200 mm long, 2 mm powder-coated

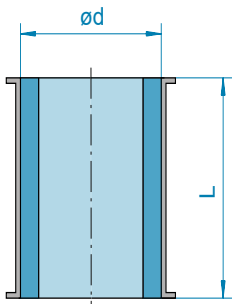
DN	Lined with Blue Ox	Lined with Kryptane green	Lined with Rhino Hyde blue
	Item no.	Item no.	Item no.
150	121510400952	121510400951	121510400950
200	122010400952	122010400951	122010400950
250	122510400952	122510400951	122510400950
300	123010400952	123010400951	123010400950
350	123510400952	123510400951	123510400950

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	121520400951	121520400950
200	122020400952	122020400951	122020400950
250	122520400952	122520400951	122520400950
300	123020400952	123020400951	123020400950
350	123520400952	123520400951	123520400950



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	121510300951	121510300950
200	122010300952	122010300951	122010300950
250	122510300952	122510300951	122510300950
300	123010300952	123010300951	123010300950
350	123510300952	123510300951	123510300950

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	121520300951	121520300950
200	122020300952	122020300951	122020300950
250	122520300952	122520300951	122520300950
300	123020300952	123020300951	123020300950
350	123520300952	123520300951	123520300950

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	121510200951	121510200950
200	122010200952	122010200951	122010200950
250	122510200952	122510200951	122510200950
300	123010200952	123010200951	123010200950
350	123510200952	123510200951	123510200950

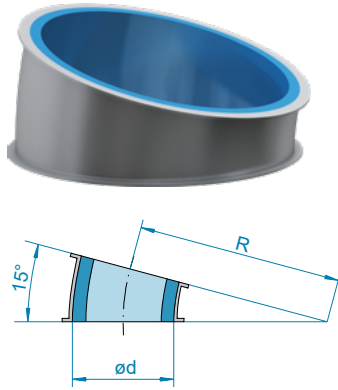
1000 mm long, 2 mm galvanised

DN	Lined with Blue Ox	Lined with Kryptane green	Lined with Rhino Hyde blue
	Item no.	Item no.	Item no.
150	121520200952	121520200951	121520200950
200	122020200952	122020200951	122020200950
250	122520200952	122520200951	122520200950
300	123020200952	123020200951	123020200950
350	123520200952	123520200951	123520200950



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	121513000951	121513000950
200	690	122013000952	122013000951	122013000950
250	635	122513000952	122513000951	122513000950
300	625	123013000952	123013000951	123013000950
350	350	123513000952	123513000951	123513000950

5°, 2 mm galvanised

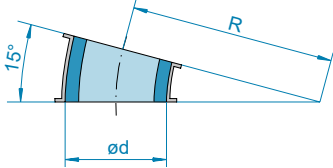
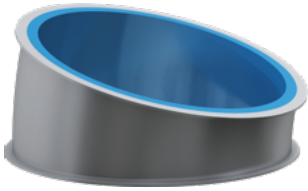
DN	R	Lined with Blue Ox	Lined with Kryptane green	Lined with Rhino Hyde blue
		Item no.	Item no.	Item no.
150	500	121523000952	121523000951	121523000950
200	690	122023000952	122023000951	122023000950
250	635	122523000952	122523000951	122523000950
300	625	123023000952	123023000951	123023000950
350	350	123523000952	123523000951	123523000950

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	121513100951	121513100950
200	270	122013100952	122013100951	122013100950
250	310	122513100952	122513100951	122513100950
300	310	123013100952	123013100951	123013100950
350	350	123513100952	123513100951	123513100950

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	121523100951	121523100950
200	270	122023100952	122023100951	122023100950
250	310	122523100952	122523100951	122523100950
300	310	123023100952	123023100951	123023100950
350	350	123523100952	123523100951	123523100950



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	121513200951	121513200950
200	180	122013200952	122013200951	122013200950
250	230	122513200952	122513200951	122513200950
300	230	123013200952	123013200951	123013200950
350	350	123513200952	123513200951	123513200950

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	121523200951	121523200950
200	180	122023200952	122023200951	122023200950
250	230	122523200952	122523200951	122523200950
300	230	123023200952	123023200951	123023200950
350	350	123523200952	123523200951	123523200950

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	121513300951	121513300950
200	195	122013300952	122013300951	122013300950
250	195	122513300952	122513300951	122513300950
300	205	123013300952	123013300951	123013300950
350	350	123513300952	123513300951	123513300950

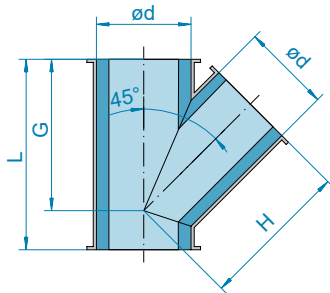
45°, 2 mm galvanised

DN	R	Lined with Blue Ox	Lined with Kryptane green	Lined with Rhino Hyde blue
		Item no.	Item no.	Item no.
150	150	121523300952	121523300951	121523300950
200	195	122023300952	122023300951	122023300950
250	195	122523300952	122523300951	122523300950
300	205	123023300952	123023300951	123023300950
350	350	123523300952	123523300951	123523300950



WEAR PROTECTION LINING

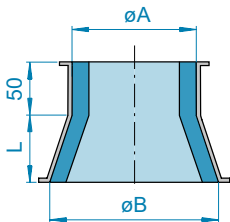
Forks/Cone pieces



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	121512200951	121512200950
200	122012200952	122012200951	122012200950
250	122512200952	122512200951	122512200950
300	123012200952	123012200951	123012200950
350	123512200952	123512200951	123512200950

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	121522200951	121522200950
200	122022200952	122022200951	122022200950
250	122522200952	122522200951	122522200950
300	123022200952	123022200951	123022200950
350	123522200952	123522200951	123522200950

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*	110014610951*	110014610950*
150-250	150	110014620952*	110014620951*	110014620950*
150-300	200	110014630952*	110014630951*	110014630950*
200-250	120	120014700952	120014700951	120014700950
200-300	150	120014710952	120014710951	120014710950
250-300	150	120014750952	120014750951	120014750950
250-350	200	120014840952	120014840951	120014840950
300-350	200	120014800952	120014800951	120014800950

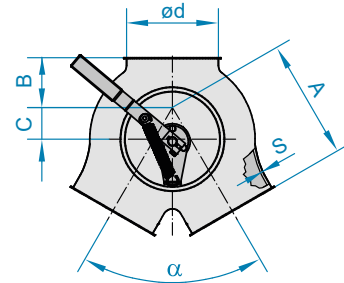
*1.5 mm

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*	110024610951*	110024610950*
150-250	150	110024620952*	110024620951*	110024620950*
150-300	200	110024630952*	110024630951*	110024630950*
200-250	120	120024700952	120024700951	120024700950
200-300	150	120024710952	120024710951	120024710950
250-300	150	120024750952	120024750951	120024750950
250-350	200	120024840952	120024840951	120024840950
300-350	200	120024800952	120024800951	120024800950

*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	121515120951	121515120950
200	122015170952	122015170951	122015170950
250	122515170952	122515170951	122515170950
300	123015120952	123015120951	123015120950
350	123515150952	123515150951	123515150950

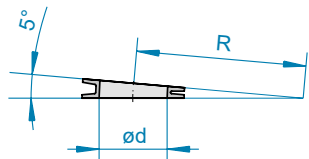
Symmetrical 60°, hand-operated, 2 mm powder-coated

DN	Lined with Blue Ox	Lined with Kryptane green	Lined with Rhino Hyde blue
	Item no.	Item no.	Item no.
150	121515020952	121515020951	121515020950
200	122015050952	122015050951	122015050950
250	122515050952	122515050951	122515050950
300	123015020952	123015020951	123015020950
350	123515050952	123515050951	123515050950

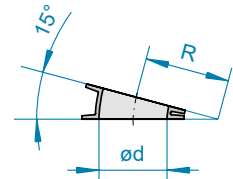


WEAR PROTECTION LINING

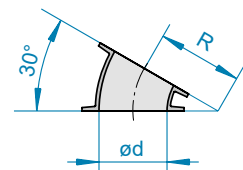
Cast-iron pipework



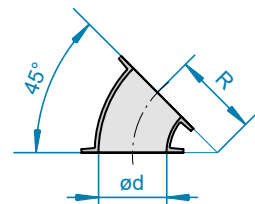
Cast-iron segment 5°



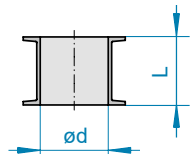
Cast-iron segment 15°



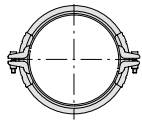
Cast-iron segment 30°



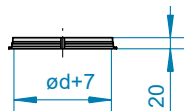
Cast-iron segment 45°



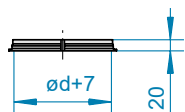
Cast-iron pipes



Pull-rings for cast-iron pipework



Angle flanges



Angle flanges, 1 cut

CAST-IRON PIPEWORK

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

- 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	$\varnothing d$	R	Cast-iron segments 5°	R	Cast-iron segments 15°
			Item no.		Item no.
120	118			155	17121310
150	148	600	17151300	250	17151310
200	198	690	17201300	270	17201310
250	248	635	17251300	310	17251310
300	298	625	17301300	310	17301310

Cast-iron segments 30° and 45°

DN	$\varnothing d$	R	Cast-iron segments 30°	R	Cast-iron segments 45°
			Item no.		Item no.
120	118	110	17121320		
150	148	175	17151320	150	17151330
200	198	180	17201320	195	17201330
250	248	230	17251320	195	17251330

Cast-iron pipes and pull-rings

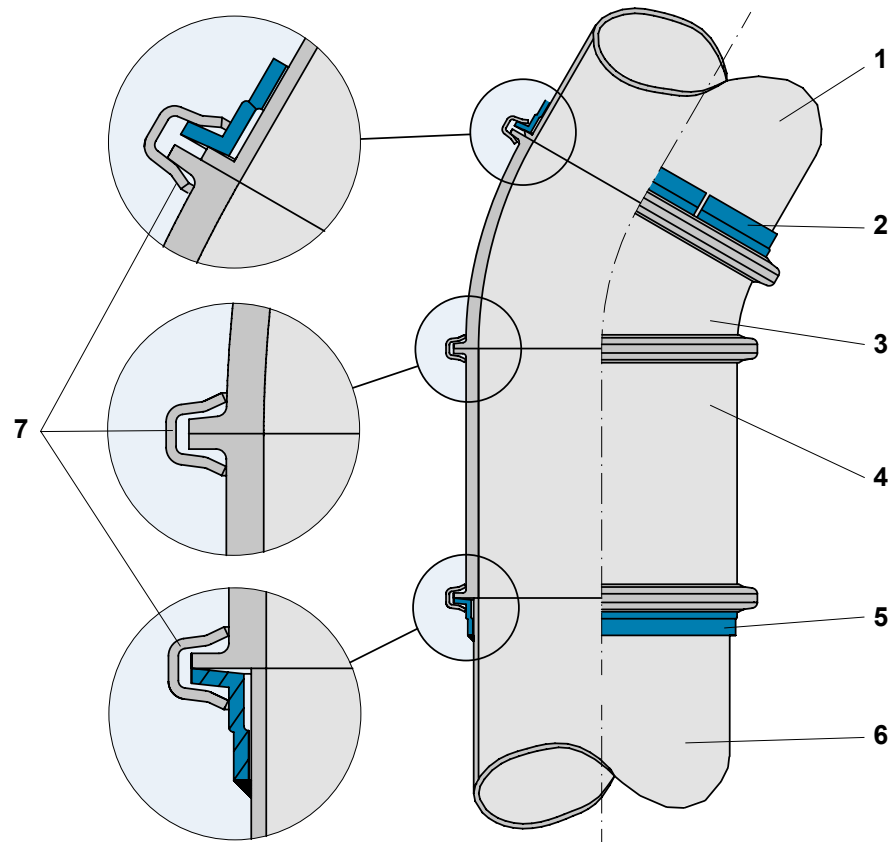
DN	$\varnothing d$	L	Cast-iron pipes	Pull-rings for cast-iron pipework, galvanised, with mastic sealant
			Item no.	Item no.
120	118	150	17121040	17122382
150	148	150	17151040	17152382
200	198	200	17201040	17202382
250	248	250	17251040	17252382
300	298	300	17301040	17302382

Angle flanges

DN	$\varnothing d$	Angle flanges for welding-on on site	Angle flanges, 1 cut
		Item no.	Item no.
120	118	33121705	17121705
150	148	33151705	17151705
200	198	33201705	17201705
250	248	33251705	17251705
300	298	33301705	17301705



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

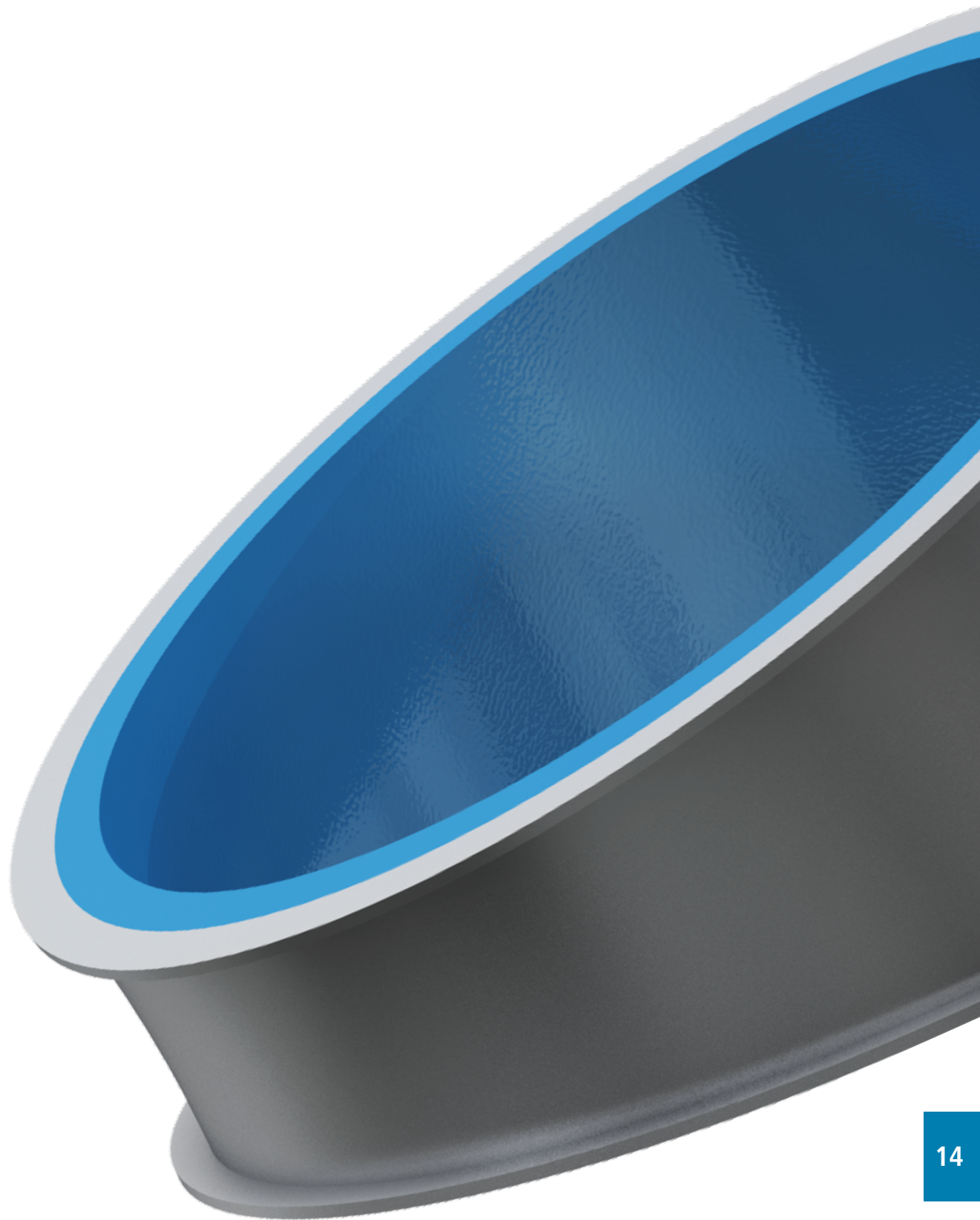


The hot-dip galvanised pipework system that JACOB delivers from stock is specially designed for conveying bulk goods in outdoor areas. It is particularly suitable for conveying goods with abrasive characteristics.

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.

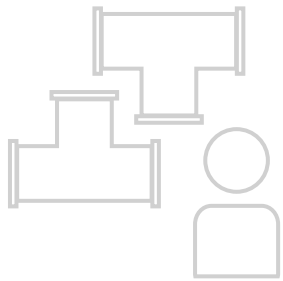
Please refer to chapter 2 for technical information and instructions for assembling the JACOB pull-ring system.

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	13252010	13302010
Welded pipes 1000 mm long	13202020	13252020	13302020
Welded pipes 500 mm long	13202030	13252030	13302030
Segments 5°	13202300	13252300	13302300
Segments 15°	13202310	13252310	13302310
Segments 30°	13202320	13252320	13302320
Segments 45°	13202330	13252330	13302330
Cone pieces 200-250	13002470		
Cone pieces 200-300	13002471		
Cone pieces 250-300		13002475	
Forks 45°	13202220	13252220	13302220
Connecting flanges with loose flange drilled similarly to DIN 24154-2 (see chapter 11, page 227, for dimensions)	13202432	13252432	13302432
Spouts without a gradient from square to round	13202400	13252400	13302400
Spouts with a 45° gradient from square to round	13202420	13252420	13302420
Inspection T-pieces without a rubber cover	13202200	13252200	13302200
Two-way valves with inlet collar, symmetrical, hand-operated	13202505	13252505	13302502
Two-way valves with inlet collar, asymmetrical, hand-operated	13202517	13252517	13302512



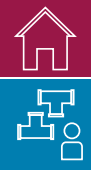


JACOB MANUFACTURING TECHNOLOGY:
TOP QUALITY CUSTOMISED PRODUCT SOLUTIONS



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

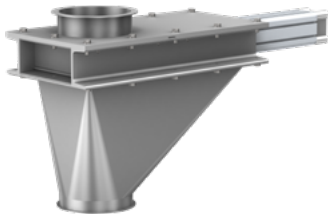
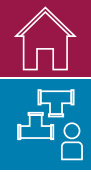
- Air outlets for roofs
- Air inlet / outlet hoods
- Air quality / air conditioning and ventilation

MATERIALS AND SPECIAL FINISHES

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

PIPE LENGTHS OF UP TO 12 M

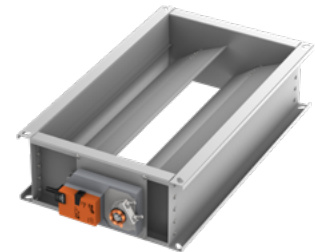




DISTRIBUTORS / THROTTLE VALVES

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.



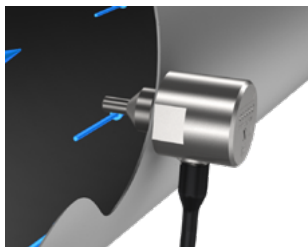
Louvre valve

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.



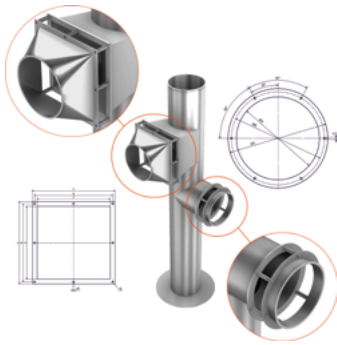
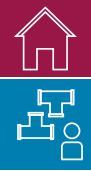
Baffle boxes/pipes

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

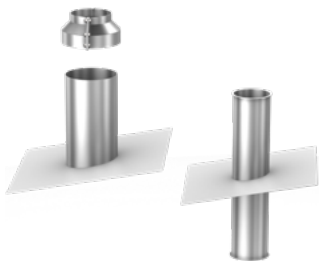
The addition of a non-stick coating improves the flow properties of dry products that do not tend to flow freely. Examples of these are coffee powder varieties with a high oil content, or products used in the manufacture and recycling of car tyres. This type of coating is typically used in the food industry, 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

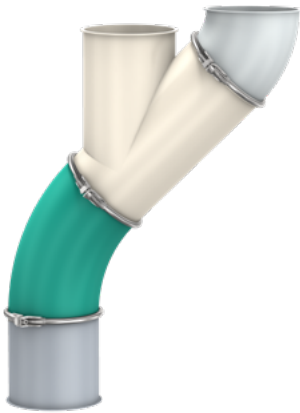
Do you require special transitions or adapter connections for the JACOB pipework system? We have a wide range of adapters and transitions available as standard components. Special customer-specific solutions can also be produced if required. Please refer to chapter 6 of this catalogue for details of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

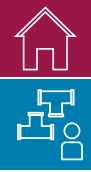
At our customers' request, we also offer electrolytic polishing or grinding of our stainless steel pipework.

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

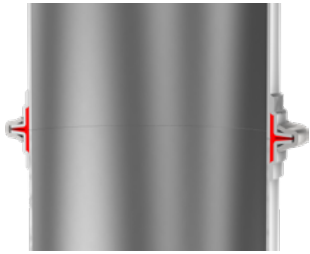
Special range shock explosion proof to 10 bar



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	
100	32102382	
120	32122382	
150		32152382
175		32172382
200		32202382
250		32252382
300		32302382



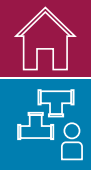
WELDED PIPES

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		32081020	
100	32101010		32101020	
120	32121010		32121020	
150	32151010	33151010	32151020	33151020
175	32171010	33171010	32171020	33171020
200	32201010	33201010	32201020	33201020
250	32251010	33251010	32251020	33251020
300	32301010	33301010	32301020	33301020

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		32081040	
100	32101030		32101040	
120	32121030		32121040	
150	32151030	33151030	32151040	33151040
175	32171030	33171030	32171040	33171040
200	32201030	33201030	32201040	33201040
250	32251030	33251030	32251040	33251040
300	32301030	33301030	32301040	33301040



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	
100	32101060	
120	32121060	
150	32151060	33151060
175	32171060	33171060
200	32201060	33201060
250	32251060	33251060
300	32301060	33301060



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	
100	32101200	
120	32121200	
150	32151200	33151200
175	32171200	33171200
200	32201200	33201200
250	32251200	33251200
300	32301200	33301200





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		32081220	
100	32101230		32101220	
120	32121230		32121220	
150	32151230	33151230	32151220	33151220
175	32171230	33171230	32171220	33171220
200	32201230	33201230	32201220	33201220
250	32251230	33251230	32251220	33251220
300	32301230	33301230	32301220	33301220



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		32081344	
100	32101343		32101344	
120	32121343		32121344	
150	32151343	33151343	32151344	33151344
175	32171343	33171343	32171344	33171344
200	32201343	33201343	32201344	33201344
250	32251343	33251343	32251344	33251344
300	32301343	33301343	32301344	33301344

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		32081349	
100	32101346		32101349	
120	32121346		32121349	
150	32151346	33151346	32151349	33151349
175	32171346	33171346	32171349	33171349
200	32201346	33201346	32201349	33201349
250	32251346	33251346	32251349	33251349
300	32301346	33301346	32301349	33301349







1. General Information

(1) Our deliveries, services and offers are made exclusively on the basis of these General Terms and Conditions of Delivery and Payment (in the following "T&C"). Unless otherwise agreed, the T&C apply in the version valid at the time of the Purchaser's order or, in any case, in the version last notified to the Purchaser in writing as a framework agreement also for similar future contracts without our need to refer to them again in each individual case. We do not recognise any terms and conditions of the Purchaser which contradict or deviate from our T&C unless we have expressly agreed to their validity in writing. Our T&C also apply if we deliver to the Purchaser without any reservations although we are aware of Purchaser's terms and conditions which contradict or deviate from our T&C unless we have expressly agreed to their validity in writing. Our T&C also apply if we deliver to the Purchaser without any reservation although we are aware of Purchaser's terms and conditions which contradict or deviate from our T&C or if the Purchaser refers to its general terms and conditions within the scope of the order and we do not expressly object.

(2) Our T&C apply to entrepreneurs (§ 14 German Civil Code – BGB), legal entities under public law and special funds under public law ("öffentlich-rechtliches Sondervermögen") only.

(3) Individual agreements (e.g. framework supply agreements, quality assurance agreements) and specifications in our order confirmation take precedence over these T&C. In any case, commercial clauses are interpreted in accordance with the Incoterms issued by the International Chamber of Commerce in Paris (ICC) in the version valid at the time of conclusion of the contract.

(4) Legally relevant declarations and notifications of the Purchaser with regard to the contract (e.g. setting of deadlines, notification of defects, withdrawal or reduction) are to be made in writing. Written form in terms of these T&C includes written and text form (e.g. letter, e-mail, fax). Legal formal requirements and further proof, in particular in the case of doubts about the legitimacy of the declarant, remain unaffected.

(5) References to the statutory law only have clarifying significance. Even without such clarification, the statutory law therefore applies unless it is expressly amended or excluded in these T&C.

2. Conclusion of the Contract; Contract Documents

(1) Our offers are subject to confirmation and non-binding unless they are explicitly specified as binding. This also applies if we have provided the Purchaser with samples, catalogs, other product descriptions or documents - also in electronic form - to which we reserve property rights and copyrights.

(2) The Purchaser's order of goods is viewed as a binding offer to contract. Unless otherwise stated in the order, we are entitled to accept this offer to contract within one week of receipt. During this period the Purchaser is bound to his order. The contract is deemed to be concluded upon our confirmation (order confirmation). In case of immediate delivery, our delivery replaces the order confirmation.

(3) The Purchaser must check our order confirmation without undue delay to ensure that it is correct and complete and must inform us of any discrepancies between the order and the order confirmation without undue delay. In the event of discrepancies from his order, the discrepancies are deemed to be approved by the Purchaser if the Purchaser accepts our delivery without reservation.

(4) Performance characteristics specified in catalogues and orders such as figures, drawings etc. are to be considered an approximation only. In particular, such information represents no guarantees or assurances („Zusicherungen") and do not relieve the Purchaser from its duty to execute own tests or examinations.

(5) The tolerances specified in our catalogs and offers for these components also apply to components manufactured according to drawings, specifications, samples, requirements and/or other documents of the purchaser.

(6) Our salespersons are not authorised to make further agreements or give assurances which exceed the content of the written contract or these T&C.

(7) The Purchaser is liable for the correctness, accuracy and completeness of his order data and all of his order documents, especially those relating to drawings as well as for technical data and samples. Verbal specifications, including those relating to amendments and modifications of the documentation and data provided, require written confirmation.

3. Prices; Terms of Payment

(1) Our prices are EURO prices. Unless stated otherwise in the order confirmation, our prices are FCA (pursuant to Incoterms® 2020 or in their respective version valid in time) ex our works in Porta Westfalica plus packaging costs and the then applicable value-added tax.

(2) Our prices do not include installation, commissioning and assembly costs nor packing, 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 decrease and increases will be netted. We will produce evidence of these cost changes upon the Purchaser's request.

(4) Deliveries and services in excess of the order will be - after consultation with the Purchaser - invoiced separately.

(5) Payments are to be conducted cashless and free of charge without any deductions. Unless indicated otherwise in the order confirmation, our invoices are due and payable within 14 days after the invoice date and receipt of the invoice. In case prepayment has been agreed upon, the deadline for delivery begins to start only after receipt of the full invoice amount.

(6) Despite dissenting provisions by the Purchaser, we are entitled to offset the Purchaser's payments first with older claims due against the Purchaser; we will inform the Purchaser of any type of offsetting. In case any costs and interests have already occurred, we are entitled to offset the payment first with the costs, then the interests and the main service at last.

(7) Payments are only considered settled if we can dispose of the amount.

(8) Upon expiry of the payment deadline, the Purchaser shall be in default. In case of the Purchaser's default in payment, the statutory provisions are fully applicable.

(9) The Purchaser is not entitled to withhold payments based on counter-claims or offset counter-claims unless these counter-claims have been recognised by us, are undisputed or have been established by a final non-appealable court decision (res judicata). However, counter-claims of the Purchaser existing or arising under the same contract for defects or non-performance and/or unfinished or incomplete performance remain unaffected. (10) If, after conclusion of the contract, it becomes apparent (e.g. through termination of the trade credit insurance or application for the opening of insolvency proceedings) that our claim to the purchase price is jeopardized by the Purchaser's inability to pay, we are entitled in accordance with the statutory provisions to refuse performance and - if necessary after setting a deadline - to withdraw from the contract (§ 321 BGB).

4. Serial Deliveries, Long-term and Call-off Contracts

(1) Unlimited contracts are subject to ordinary termination giving three months' notice prior to the end of a calendar month, unless provided otherwise.

(2) In case of call-off contracts, unless provided otherwise, binding quantities are to be notified at least 3 months prior to the delivery date by call-offs. Additional costs arising as a result of delayed call-offs or subsequent amendments to a call-off regarding time or quantity by the Purchaser will be borne by the latter.

5. Time of Delivery, Delay in Delivery; Force Majeure

(1) Unless explicitly provided otherwise, any indicated delivery times are approximate only. Any delivery deadline only starts to run if all details of execution have been clarified and both parties have mutually agreed on the conditions of the order. Any agreed delivery date will be postponed accordingly. Any change made to the scope of services will result in a corresponding extension of the delivery period once the order has been accepted.

(2) If advance payment has been contractually agreed, compliance with the delivery deadline is dependent on the timely payment of the advance payment. In the event of late payment of the advance payment, the delivery period is extended accordingly.

(3) Fulfilment of our delivery obligations further requires timely and proper fulfilment of the Purchaser's obligations. The defence of non-performance remains reserved. In addition, we are entitled to postpone delivery as long as the Purchaser has failed to fulfil due payment obligations arising out of previous deliveries without justification.



(4) In case we are prevented from adhering to agreed delivery or performance dates as a result of for e.g. force majeure, labour disputes, governmental action, energy or raw material shortages, transport bottlenecks or hindrances, operational hindrances, for example due to fire, water and/or machine defects, for which we are not responsible, or other disruptions in the flow of operations either at our premises or those of suppliers or subcontractors for which we are not responsible and which can be proven to have a significant impact, we are obliged to inform the other party without undue delay ("unverzüglich"). In such cases we are entitled to extend the delivery/performance period by the period of the event of force majeure or the disruption if we have informed the Purchaser pursuant to the above information obligation. If delivery or performance becomes impossible as a result thereof, our obligation to perform lapses to the exclusion of any compensation for damages. If the Purchaser proves that subsequent performance of the contract is of no interest to him as a result of the delay, he may withdraw from the contract, any further claims being excluded. If the event of force majeure or the disruption lasts longer than three 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. Force majeure is any external event caused by elementary forces of nature or by actions of third parties, which is unforeseeable according to human insight and experience, which cannot be prevented or rendered harmless by economically acceptable means even by the utmost care reasonably to be expected in the circumstances and which is also not to be accepted by us due to its frequency.

(5) Article 5 (4) applies mutatis mutandis if and to the extent that we have, prior to conclusion of the contract with the Purchaser, entered into a covering transaction which – if properly executed – would have enabled us to fulfil our contractual obligations in our relationship with the Purchaser and have not been supplied by our suppliers in conformity with the contract and/or due time with no fault on our part.

(6) In case we are in default, the Purchaser may specify an additional period for performance in writing and, if said period elapsed to no avail, withdraw from the contract. An additional period for performance is not required if we seriously and finally refuse to perform the contract or if the underlying contract is a fixed-date transaction ("Fixgeschäft") according to Section 323 para. 2 No. 2 of the German Civil Code (BGB) or Section 376 of the German Commercial Code (HGB) or if special circumstances exist which, taking into account the interests of both parties, justify immediate withdrawal from the contract.

(7) We are liable for damages in accordance with Article 10 of these T&C only. The Purchaser's right to withdraw from the contract is governed by statutory provisions.

(8) If an acceptance inspection of the delivered goods has been agreed, the acceptance inspection has to be performed at our factory immediately after we have informed the Purchaser that the goods are ready for acceptance, unless otherwise agreed. The Purchaser will bear the costs of the acceptance inspection.

(9) If the Purchaser is in default of acceptance or if the delivery is delayed for reasons which are attributable to the Purchaser, we will be entitled to claim compensation of any damage incurred as a result thereof, including additional expenses, if any. In these cases, we will store the goods at the Purchaser's risk and invoice the Purchaser for such storage. We are entitled to charge for the storage a flat fee of 0.1 % of the net price agreed in the contract for each completed working day ("Werktag") but not more than 5 % in total of the net price agreed in the contract. We reserve the right to assert further claims. The Purchaser reserves the right to prove that we incurred no damage or a substantially smaller damage than the foregoing flat fee.

(10) We reserve the right to make partial deliveries if and to the extent that they are reasonably acceptable for the Purchaser, also considering the Purchaser's interests.

6. Delivery and transfer of risk

(1) Unless stated otherwise in the order confirmation, deliveries are made FCA (pursuant to Incoterms® 2020 or in their respective version valid in time) ex our works in Porta Westfalica. This also applies if we have exceptionally assumed the transport costs or paid them in advance on behalf of the Purchaser. (2) At the request and expense of the Purchaser, the goods are shipped to another destination (sale by delivery to a place other than the place of performance). Unless otherwise agreed, we are entitled to determine the type of shipment (in particular transport company, shipping route, packaging) ourselves.

(3) In case shipment has been agreed, the risk of incidental loss or incidental deterioration of the goods passes to the Purchaser at the time the goods have been handed over to the carrier, freight forwarder or any other third party entrusted with the execution of shipment. This also applies if shipment is performed by our own vehicles, if we have assumed the transport costs or if we have advanced the costs on behalf of the Purchaser or in the case of partial delivery. If dispatch or handover is delayed for reasons attributable to the Purchaser, the risk will pass to the Purchaser at the time the goods are ready for dispatch and we have notified the Purchaser thereof.

(4) Provided that the Purchaser does not announce in due time how the goods shall be delivered, we will conclude a transport contract with a carrier at the Purchaser's expense. In this case the choice of the transportation route and the shipping method is at our discretion, unless provided otherwise. The Purchaser shall point out to us if transport insurance is desired; if so, transport insurance will be concluded at our reasonable discretion in favour of the Purchaser. Any costs incurred in this respect shall be borne by the Purchaser, even if we have exceptionally assumed the remaining transport costs.

(5) We are entitled to make partial deliveries insofar as this is reasonable for the Purchaser, taking into account his interests.

(6) If the Purchaser is in default of acceptance or if the delivery is delayed for reasons for which the Purchaser is responsible, we are entitled to demand compensation for the resulting damage including additional expenses. In such cases, we store the products at the risk of the Purchaser and invoice the Purchaser for storage.

7. Retention of Title

(1) We reserve title to the goods sold until full payment of all our present and future claims arising from the purchase contract and an ongoing business relationship (secured claims).

(2) Prior to complete payment of the secured claims, goods subject to reservation of title must neither be pledged to third parties nor assigned by way of security by the Purchaser without our explicit written consent. In the case of pledges or other third party intervention, the Purchaser must notify us immediately in writing so that we can file a lawsuit (pursuant to § 771 ZPO). If we bring an action against the third party and to the extent that the action was successful and the third party is unable to reimburse us for the judicial and extra-judicial costs incurred by us, the Purchaser will be liable for such costs.

(3) If the Purchaser acts contrary to the contract – in particular delayed payment – we are entitled to rescind the contract in accordance with the statutory regulation and to reclaim the reserved goods.

(4) The Purchaser is obliged to notify us at all times of the location of the goods subject to retention of title until the reserved goods have been paid for in full.

(5) The Purchaser is entitled to resell the goods delivered within the ordinary course of business. He herewith assigns to us, however, all claims amounting to the final invoice amount (including value-added tax) of our claims which accrue from the resale vis-à-vis its customers or third parties, irrespective of whether the goods purchased have been sold again with or without further processing. After such assignment the Purchaser also remains entitled to collect this claim. Our right to collect this claim ourselves remains unaffected thereby. However, we undertake not to collect the claim provided that no bill or cheque protests are raised, the Purchaser fulfils his payment obligations out of the proceeds received, the Purchaser is not in default of payment and, in particular, no application to initiate insolvency proceedings with regard to the Purchaser's assets has been filed. If this is the case, however, we may demand that the Purchaser notifies us of the claims assigned and their debtors, provides all details necessary for their collection, delivers the relevant documents and informs the debtors (third parties) of said assignment.

(6) The processing or conversion by the Purchaser of the goods supplied subject to reservation of title is always deemed to be performed for us and on our behalf. If the goods supplied subject to reservation of title are processed with other items/materials not belonging to us, we acquire co-ownership of the new article in a ratio of the value of the goods subject to reservation of title to the other processed items/materials at the time of processing. In all other respects, the provisions applicable to the goods supplied subject to reservation of title also apply mutatis mutandis to the articles resulting from such processing.



(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. Packaging

(1) Unless agreed otherwise, the packaging is at our discretion. The costs of packaging are borne by the Purchaser. The transport boxes of our standard packaging are not designed for stacking. Special packaging (e.g. additional transport reinforcement which allows max. double-stacking of the transport crates) must only be provided upon special agreement and / or at the request of the Purchaser (which the Purchaser must specify in its order at the latest).

(2) The packaging of our products (including transport packaging, sales packaging and outer packaging) must be disposed of properly. For this reason, we are legally obligated under Section 15 (1) of the German Packaging Act (VerpackG) to organize and monitor the proper return and recycling of our packaging.

(3) In the interest of an efficient and careful use of resources, in particular to avoid unnecessary transport routes, the Purchaser undertakes, on our behalf and in accordance with the applicable law, to dispose of the packaging of the products delivered by us (including transport packaging, sales packaging and outer packaging) properly and at its own expense.

(4) Upon request, the Purchaser provides us with evidence of the proper disposal of the packaging of the products delivered by us without undue delay and in a suitable form and shall cooperate to the required extent in packaging law procedures of the competent authorities.

(5) The Purchaser undertakes to use the products delivered by us directly in its business or to process them further or to deliver them to further processing companies so that the packaging of the respective products is not regarded as waste at a private end user or at comparable points of accumulation in accordance with § 3 para. 11 VerpackG. Insofar as the Purchaser does not (or no longer) fulfill the aforementioned obligation for products delivered to it, it undertakes to inform us immediately in text form.

10. Warranty - Liability for Infringement of Obligations

(1) The statutory provisions apply to the rights of the Purchaser with respect to defects in quality or title (including incorrect delivery and short delivery) unless nothing to the contrary is determined in the following.

(2) In any case, the special statutory provisions on the reimbursement of expenses in the event of final delivery of the newly manufactured goods to a consumer (supplier recourse pursuant to Sections 478, 445a, 445b or Sections 445c, 327 (5), 327u BGB) remain unaffected, unless an equivalent compensation has been agreed, e.g. within the framework of a quality assurance agreement. (3) In case we have to perform a contract in accordance with drawings, specifications, specimens, figures and/or other documents supplied by the Purchaser, the latter has to bear the risk of the suitability for the intended use.

(4) If parts of the Purchaser are processed on behalf of the Purchaser, the Purchaser is obliged to examine whether the parts are suitable for the requested processing. If processing of parts sent by the Purchaser is not successful due to reasons beyond our control and responsibility, we will accept no responsibility for any damages caused. The Purchaser will still be required to pay for the costs already incurred for the processing. We will invoice the Purchaser for any necessary reworking costs.

(5) The Purchaser's right to warranty claims under this contract requires the Purchaser to duly discharge his obligations of inspection and notification of defects in accordance with Section 377 of the German Commercial Code (HGB). If the contractual relationship between us and the Purchaser constitutes a contract for work and services ("Werkvertrag"), Section 377 of the German Commercial Code (HGB) shall apply mutatis mutandis. Notices of defects have to be addressed to our Customer Service Department in writing. In the case of goods intended for installation or other further processing, an inspection must in any case be carried out at the latest before installation or processing.

(6) If an acceptance inspection or an initial specimen inspection has been agreed with the Purchaser, a complaint about defects which the Purchaser could have detected during a careful acceptance or initial specimen inspection is excluded.

(7) We must be given the opportunity to examine on site any defect complained about.

(8) If our operating and maintenance instructions are not followed, unauthorised modifications are carried out in the products and/or parts are exchanged, warranty claims for the consequences so caused are excluded. The foregoing applies also to incorrect installation or removal, poor maintenance, incorrect handling or storage, improper repairs not carried out by us, alterations as well as chemical, electrochemical or electrical influences for which we are not responsible as well as weather-induced or other natural causes.

(9) If the delivered goods or the work created is defective, the Purchaser is entitled to the statutory rights as follows:



a) We are first entitled to either remedy the defect or to supply the Purchaser with goods free of defect as we so choose or, in case a contract for work and services has been agreed upon, to produce a new work (subsequent performance ("Nacherfüllung")). The Purchaser must allow the time necessary for and give the opportunity to subsequent performance. If the type of subsequent performance chosen by us is unreasonable for the Purchaser in the individual case, the Purchaser may reject it. Our right to refuse to provide subsequent performance on the conditions provided for by law remains unaffected.

b) We will bear or reimburse the expenses necessary for subsequent performance, in particular transport, travel, labor and material costs and, if applicable, dismantling and installation costs, in accordance with the statutory law and these T&C, if the goods actually prove to be defective. If the Purchaser's request to remedy the defect turns out to be unjustified, we are entitled to demand reimbursement of the costs incurred from the Purchaser if the Purchaser knew or negligently did not know that there was actually no defect. The supplementary performance does not include the expenses for the removal of the defective item or for the renewed installation if the Purchaser was already aware of the defect at the time of installation or if the installation was not carried out in accordance with the intended purpose. This also applies if the Purchaser failed to recognize the defect prior to installation due to gross negligence, unless we fraudulently concealed the defect or assumed a guarantee.

c) In the event of replacement delivery or, in case a contract for works and services has been agreed upon, new production, the Purchaser must return the defective goods to us on request.

d) We are entitled to make the subsequent performance contingent on the Purchaser paying the price agreed for the goods delivered. The Purchaser is entitled, however, to withhold an appropriate part of the price.

e) If the subsequent performance fails, the Purchaser is entitled to withdraw from the contract or to request a reduction in the agreed purchase price as he so chooses. However, there is no right of withdrawal in case of minor defects.

f) Claims of the Purchaser for compensation of damages or replacement of expenses only apply in accordance with the provisions of Article 10 of these T&C.

(10) The limitation periods are governed by Article 11 of these T&C.

11. Exclusions and Limitations of Liability

(1) Subject to the provisions of Article 10 (2), we are only liable for damages – in the case of contractual, non-contractual or other claims for damages, irrespective of the legal reason, in particular due to defects, default and impossibility, culpa in contrahendo and tort – in case of wilful intent and/or gross negligence, including wilful intent and/or gross negligence on the part of our representatives or vicarious agents. In addition, we are also liable in case of mild negligence, including mild negligence of our representatives and vicarious agents, for damages arising from the infringement of an essential contractual duty, i.e. a duty, the satisfaction of which makes the due implementation of the contract possible in the first place and which the Purchaser can therefore usually expect to be satisfied by us (cardinal duty). If and to the extent that we are not liable for wilfully infringing a duty, the liability for damages will, however, be restricted to the foreseeable, typical damage.

(2) Claims for damages arising from an injury of life or limb or health as well as claims of the Purchaser pursuant to the German Product Liability Act and the special statutory provisions governing ultimate delivery of the goods to a consumer as well as other mandatory statutory liability regulations remain unaffected by the exclusions and limitations of liability set out in Article 10 (1). The above exclusions and limitations do neither apply insofar as we have fraudulently concealed a defect or insofar as we are liable because of the assumption of a guarantee or of the risk of procurement ("Beschaffungsrisiko").

(3) Articles 10 (1) and 10 (2) also apply if the Purchaser demands replacement of useless applications instead of a claim to compensation of damages.

(4) Insofar as our liability of damages is excluded or limited, this also applies with regard to personal liability for damages of our employees, representatives and vicarious agents which is based on the same legal reason.

12. Statute of Limitations

(1) Claims of the Purchaser arising from defects in quality and title become time-barred after expiry of 12 months from delivery (hand-over) of the goods. If acceptance has been agreed, the limitation period shall commence upon acceptance.

(2) Mandatory provisions on the statute of limitations remain unaffected. Therefore, Article 11 (1) shall not apply to claims for injury of life, limb or health, to claims based on wilful intent and gross negligence and to claims based on the assumption of a warranty or the risk of procurement ("Beschaffungsrisiko"). The longer limitation periods pursuant to Section 438 (1) No. 1 of the German Civil Code (BGB) – third party rights in rem; Sections 438 (1) Nr. 2, 634a (1) No. 2 of the German Civil Code (BGB) – constructions (Bauwerke), construction materials and construction components as well as planning services for a construction and Sections 438 (3), 634a (3) of the German Civil Code (BGB) – fraudulent concealment remain unaffected. If the ultimate contract in the supply chain pertains to a sale of consumer goods according to § 474 of the German Civil Code (BGB) (i.e. if the goods are ultimately delivered to a consumer), the limitation periods stipulated in § 445b of the German Civil Code (BGB) remain unaffected, too.

(3) The limitation periods resulting from Articles 11 (1) and 11 (2) for claims due to defects in quality and title apply mutatis mutandis to competing contractual or non-contractual claims for damages of the Purchaser which are based on a defect to the contractual goods. If, however, in an individual case the application of the statutory limitation rules lead to an earlier statutory limitation of the competing claims, the statutory period of limitation applies to the competing claims. In any case, the statutory periods of limitation pursuant to the German Product Liability Act remain unaffected.

(4) Insofar as the limitation period for claims against us is shortened pursuant to Articles 11 (1) to 11 (3), this applies mutatis mutandis to any claims of the Purchaser against our statutory representatives, employees, authorised representatives and vicarious agents which are based on the same legal reason.

13. Right of Withdrawal - Right of Termination

(1) The Purchaser is only entitled to withdraw from the contract for a breach of duty on our part other than a defect if we can be made responsible for such breach of duty.

(2) In case a contract for works and services under which we are obliged to bring about a particular result ("Werkvertrag") or a contract for work and services under which we are obliged to supply the Purchaser with movable things to be produced or manufactured ("Werklieferungsvertrag") has been agreed upon, the Purchaser's right to freely terminate the contract according to Sections 651, 649 of the German Civil Code (BGB) is excluded.

14. Industrial property rights and Copyrights

(1) Unless provided otherwise, we are required to perform delivery free of third party industrial property rights and/or copyrights (hereinafter referred to as industrial property rights) only in the country in which the place of original delivery is located.

(2) If a third party raises legitimate claims against the Purchaser for breach of industrial property rights by goods delivered by us and used in accordance with the contract, we are liable vis-à-vis the Purchaser as follows:

We will, at our option and cost, either secure a right of use of the deliveries concerned, or modify them so as to ensure that they will not infringe upon such property rights or exchange such deliveries. In case neither option can be reasonably demanded from us, the Purchaser may cancel the contract or reduce the remuneration pursuant to the statutory provisions and Article 8 of these T&C. Our obligation to pay damages is determined by Article 10 of these T&C, the statute of limitations by Article 11 of these T&C. The above obligations apply to us only provided that the Purchaser has notified us of the claims asserted by third parties immediately in writing.

(3) Claims by the Purchaser are excluded to the extent he himself is responsible for the infringement of the industrial property right. Claims by the Purchaser are excluded in particular if the infringement of the industrial property right is caused by the Purchaser's special requirements or is caused by a use which we could not foresee or because the delivery is changed by the Purchaser or is used together with products that we did not deliver and if we are not responsible for the infringement.

15. Non-Disclosure

We reserve property rights and copyrights in figures, drawings, calculations and other documents. This also applies to written documents which are marked as "confidential". The Purchaser requires our explicit written consent before passing on such to third parties. Upon request, the Purchaser has to return these documents to us completely, including any copies which may have been made, if they are no longer needed during the ordinary course of business or if negotiations do not lead to the conclusion of a contract.



16. Communication with the Purchaser

(1) We process personal data, which we collect within the scope of deliveries, services and offers, exclusively in compliance with the applicable data protection law regulations. Information pursuant to Articles 13, 14 of the EU General Data Protection Regulation No. 2016/679 on this processing of personal data can be found at www.jacob-rohre.de/datenschutzhinweis/.

(2) In the event that personal data is transmitted to us, the Purchaser is obliged to inform the persons concerned in good time about the data processing by us in accordance with Article 14 of the EU General Data Protection Regulation No. 2016/679. We refrain from providing information to the person concerned.

17. Final Provisions

(1) A transfer of the contractual rights and obligations to third parties by the Purchaser is only admissible with our written approval. This does not apply if the contractual rights and obligations are transferred to an affiliated company within the meaning of Section 15 German Stock Corporation Act (AktG).

(2) Unless otherwise stated in the order confirmation, place of performance for payments and delivery is Porta Westfalica.

(3) The law of the Federal Republic of Germany shall apply to the contractual relationship. The application of the UN sales law (CISG - United Nations Convention on Contracts for the International Sale of Goods) is excluded.

(4) If the Purchaser is a merchant, legal entity under public law or a special fund under public law ("öffentlich-rechtliches Sondervermögen") as defined by German law, the place of jurisdiction for all disputes arising out of the contractual relationship including legal proceedings relating to cheques, bills of exchange and deeds shall be the venue competent at our registered office, Porta Westfalica. We are, however, also entitled to bring legal action against the Purchaser before the court having jurisdiction at its place of residence.

(5) In case of discrepancies between the German and a translated version of these T&C, the German version always prevails.

(6) Should any individual provision of these T&C or any individual provision of any other agreement be or become void or illegal, the validity of the remaining provisions or agreements is in no way affected.

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

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

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

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

Nous effectuons nos livraisons en tenant compte de « nos conditions générales de vente et de paiement ». (Voir aussi sur le site www.jacob-group.fr ou aussi sur demande.)





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