

ENGINEERING
TOMORROW

Danfoss

Danfoss Waltech tube fitting systems Catalog

Danfoss Waltech® tube fitting systems

General overview

Guardian
Seal Plating
Technology -
1000+
hours resistance
to red corrosion



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System components (tube connecting parts)

M	P-R	PR-M	W-R ... VI
BO-A	BO-DR	BO-ZR	BO-M
WF-WD ... VI	WF-M ... VI	WF-PLUS-SR	

Chapter **D**

Blanking plugs / ends

VSD	VSD-M	VS-R.. / M ... -WD
VS-M ... -OR	VSK	EH
SN		

Chapter **J**

Male fittings

GES ... RK / MK / NPT	P-GEV ... / RK / MK / NPT	GES ... R / M	P-GEV ... R / M	GES ... R-WD / M-WD	WES ... RK / MK / NPT
P-GEV ... R-WD / M-WD	GES ... UNF / UN	P-GEV ... UNF / UN	GES 16 SM-OR	P-GEV 16 SM-OR	P-WEV ... RK / MK / NPT

Weld fittings

ASS	P-ASV
ESS	P-ESV

Tube connectors

GS	P-GV	GS ...	P-GV ...	WS	P-WV	WSS	P-WSV
TS	P-TV	KS	P-KV	GSS	P-GSV		

Chapter **E**

Machines and tools

M-WF385Xplus Walform® machine	M-R7 cutting-ring assembly machine	MHH-R / -BO Manual assembly machines	S- / P- / W-VK Manual pre-assembly adapters	Tube bending tools

Chapter **K**

37° flared flanges

37° flared flanges to SAE J518

Chapter **I**

Adjustable fittings

RSWS ... R / M	P-RSWV ... R / M	RSWS ... R-WD / M-WD	P-RSWV ... R-WD / M-WD	RSTS ... R / M	P-RSTV ... R / M	RSTS ... R-WD / M-WD	P-RSTV ... R-WD / M-WD
EWSD / P-EWS ... -SV	P-EWVD / P-EWV ... -SV	ETSD / P-ETS ... -SV	P-ETVD / P-ETV ... -SV	ELSD / P-ELS ... SV	P-ELVD / P-ELV ... -SV	EWSD 45	P-EWVD 45
EGESD ... R-WD / M-WD	P-EGES ... R-WD-SV / M-WD-SV	EGESD ... NPT	DAS	P-DAV	SNV	SNV .../... L	SNV .../... S

Chapter **F**

<h3>Shuttle valves</h3>	<h3>Swivels</h3>		
TWS	P-TWV		
DGWES ... R-WD / M-WD	P-DGWEV ... R-WD / M-WD	DGWS	P-DGWW

Check valves

Valve inserts	RS	P-RV	RSV...R-WD / M-WD	P-RVV...R-WD / M-WD	RSZ ... R-WD / M-WD	P-RVZ ... R-WD / M-WD

Ball valves

KH-R	KHS	P-KHV	KH3KS ... -L/T	P-KH3KV ... -L/T	KH3KS-R ... -L/T	KH3S-R ... -L/T

Chapter **G**

<h3>Flange studs</h3>	<h3>Female fittings</h3>		
GFS	P-GFV		
WFS	P-WFV	GAS ... R / M	P-GAV ... R / M

<h3>Reducer fittings</h3>	<h3>Gauge couplings</h3>				
RESDSN / P-REDS ... -SV	P-REDVDN / P-REDV ... -SV	RED...-WD/R	EMASD	MAS ... R	P-MAV ... R

Chapter **H**

Left hand side - information about complete fittings with nut and profile ring (Walpro®)

Right hand side - information about the studs

Straight male fittings

P-GEV ... M
P-GEV ... M-1.4571
Metric stud type B to DIN EN ISO 9974-3

Designation of the fitting
Steel (black) / stainless steel (red)

Standards / details of the fittings and studs

Nominal pressure ratings of the steel version

Series

Designation and weight of the fitting

Article numbers of the Fittings Steel (black) / stainless steel (red)

Dimensions of the fitting and stud

Supplementary information

Straight male studs

GES ... M
GES ... M-1.4571

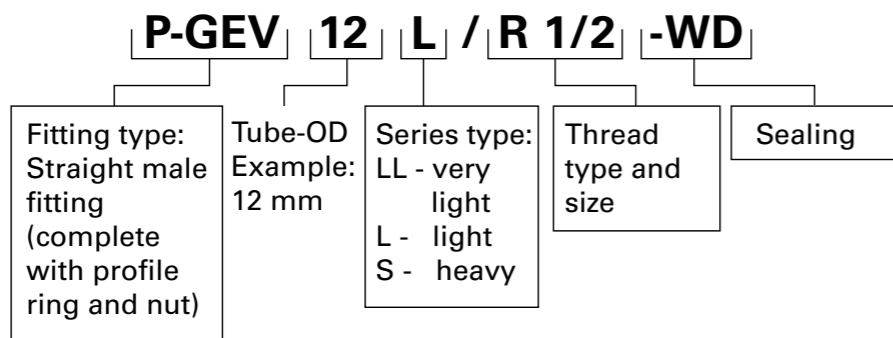
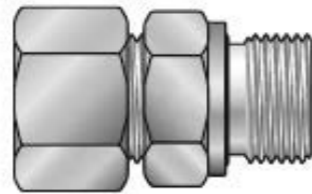
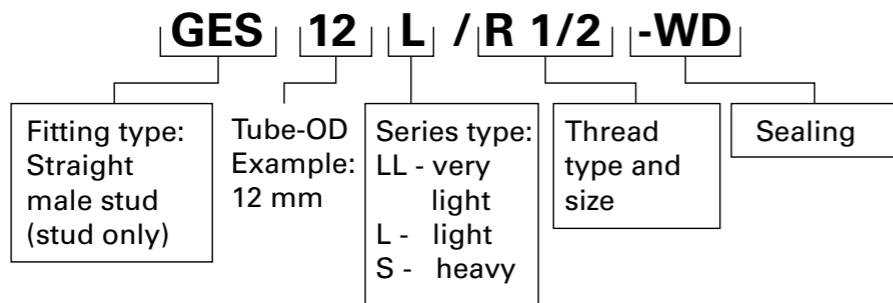
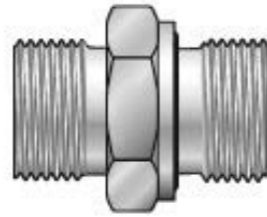
Designation of the stud
Steel (black) / stainless steel (blue)

Article numbers of supplementary Walring®, Walform, Walform stainless steel system nuts

Article numbers of the studs Steel (black) / stainless steel (red)

Designation and weight of the stud

Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	M	L ₂	L ₅	l	i	d	S ₁	S ₂	Walpro		System nuts for supplementing the stud (for technical data, see part D of this catalog)						
													P-GEV ...	Walpro stainless steel P-GEV ...-1.4571*	Stud GES ...	Stud Stainless steel GES ...-1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*		
LL	100 (1450)	4	S-GEV 4 LLM	1.8	M 8 x 1	19	13.5	9.5	8	12	12	10	WAL038302	WAL623050	GES 4 LLM	WAL037789	WAL62051				
		6	S-GEV 6 LLM	1.9	M 10 x 1	19.5	13.5	8	8	14	14	12	WAL038304	WAL623052	GES 6 LLM	WAL037791	WAL62053				
		8	S-GEV 8 LLM	2.3	M 10 x 1	20.5	14.5	9	8	14	14	14	WAL038305	WAL371486	GES 8 LLM	WAL037792	WAL37485				
		6	P-GEV 6 LM	2.5	M 10 x 1	23	15.5	8.5	8	14	14	14	WAL373087	WAL620023	GES 6 LM	WAL037793	WAL02498	WAL624607	WAL625940	WAL625980	
		6	P-GEV 6 L/M 12 x 1.5	4.0	M 12 x 1.5	24.5	17	10	12	17	17	14	WAL373088	WAL623054	GES 6 L/M 12 x 1.5	WAL037794	WAL62055	WAL624607	WAL625940	WAL625980	
		8	P-GEV 8 LM	4.0	M 12 x 1.5	25	17	10	12	17	17	17	WAL373089	WAL620024	GES 8 LM	WAL037795	WAL02499	WAL624608	WAL625941	WAL625981	
		8	P-GEV 8 L/M 18 x 1.5	6.8	M 18 x 1.5	26	18.5	11.5	12	23	24	17	WAL373090	WAL623056	GES 8 L/M 18 x 1.5	WAL024982	WAL37571	WAL624608	WAL625941	WAL625981	
		10	P-GEV 10 LM	4.7	M 14 x 1.5	26	18	11	12	19	19	19	WAL373091	WAL620025	GES 10 LM	WAL037796	WAL02500	WAL624609	WAL625942	WAL625982	
		10	P-GEV 10 L/M 16 x 1.5	6.2	M 16 x 1.5	27	19.5	12.5	12	21	22	19	WAL602652	WAL623057	GES 10 L/M 16 x 1.5	WAL063790	WAL623058	WAL624609	WAL625942	WAL625982	
		10	P-GEV 10 L/M 18 x 1.5	7.6	M 18 x 1.5	27	19.5	12.5	12	21	22	19	WAL373092	WAL623059	GES 10 L/M 18 x 1.5	WAL025787	WAL372883	WAL624609	WAL625942	WAL625982	
L	400 (5801)	10	P-GEV 10 L/M 22 x 1.5	8.3	M 22 x 1.5	27.5	20	13	14	27	27	19	WAL373093	WAL623060	GES 10 L/M 22 x 1.5	WAL028692	WAL623061	WAL624609	WAL625942	WAL625982	
		12	P-GEV 12 LM	6.3	M 16 x 1.5	27	19.5	12.5	12	21	22	22	WAL373094	WAL620026	GES 12 LM	WAL037597	WAL025501	WAL624610	WAL625943	WAL625983	
		12	P-GEV 12 L/M 18 x 1.5	7.8	M 18 x 1.5	27	19.5	12.5	12	23	24	22	WAL373095	WAL623062	GES 12 L/M 18 x 1.5	WAL037598	WAL602783	WAL624610	WAL625943	WAL625983	
		12	P-GEV 12 L/M 22 x 1.5	9.5	M 22 x 1.5	27.5	20	13	14	27	27	22	WAL373096	WAL623063	GES 12 L/M 22 x 1.5	WAL028695	WAL623064	WAL624610	WAL625943	WAL625983	
		15	P-GEV 15 LM	9.5	M 18 x 1.5	29	20.5	13.5	12	23	24	27	WAL373097	WAL620027	GES 15 LM	WAL037599	WAL025502	WAL624611	WAL625944	WAL625984	
		15	P-GEV 15 L/M 22 x 1.5	11.5	M 22 x 1.5	29	21	14	14	27	27	27	WAL373098	WAL620816	GES 15 L/M 22 x 1.5	WAL028117	WAL604968	WAL624611	WAL625944	WAL625984	
		18	P-GEV 18 L/M 18 x 1.5	12.2	M 18 x 1.5	30	21.5	14	12	23	27	32	WAL373099	WAL623065	GES 18 L/M 18 x 1.5	WAL029643	WAL623066	WAL624612	WAL625945	WAL625985	
		18	P-GEV 18 LM	12.9	M 22 x 1.5	31	22	14.5	14	27	27	32	WAL373100	WAL620028	GES 18 LM	WAL037600	WAL025503	WAL624612	WAL625945	WAL625985	
		22	P-GEV 22 LM	17.6	M 26 x 1.5	33	24	16.5	16	31	32	36	WAL373101	WAL620424	GES 22 LM	WAL037601	WAL604218	WAL624613	WAL625946	WAL625986	
		28	P-GEV 28 LM	24.7	M 33 x 2	34	25	17.5	18	39	41	41	WAL373102	WAL620029	GES 28 LM	WAL037602	WAL025505	WAL624614	WAL625947	WAL625987	
S	400 (5801)	35	P-GEV 35 LM	40.7	M 42 x 2	39	28	17.5	20	49	50	50	WAL373103	WAL620452	GES 35 LM	WAL037603	WAL025506	WAL624615	WAL625948	WAL625988	
		42	P-GEV 42 LM	45.6	M 48 x 2	42	30	19	22	55	55	60	WAL373104	WAL620995	GES 42 LM	WAL037604	WAL617435	WAL624616	WAL625949	WAL625989	
		6	P-GEV 6 SM	4.5	M 12 x 1.5	28	20	13	12	17	17	17	WAL373105	WAL620030	GES 6 SM	WAL037605	WAL028656	WAL624617	WAL625950	WAL625990	
		8	P-GEV 8 SM	5.5	M 14 x 1.5	30	22	15	12	19	19	19	WAL373106	WAL620031	GES 8 SM	WAL037606	WAL025508	WAL624618	WAL625951	WAL625991	
		10	P-GEV 10 SM	8.2	M 16 x 1.5	31	22.5	15	12	21	22	22	WAL373107	WAL620032	GES 10 SM	WAL037607	WAL025509	WAL624619	WAL625952	WAL625992	
		12	P-GEV 12 SM	10.5	M 18 x 1.5	33	24.5	17	12	23	24	24	WAL373108	WAL620033	GES 12 SM	WAL037608	WAL025510	WAL624620	WAL625953	WAL625993	
		14	P-GEV 14 SM	14.8	M 20 x 1.5	37	27	19	14	25	27	27	WAL373109	WAL621510	GES 14 SM	WAL037609	WAL025511				
		16	P-GEV 16 SM	15.4	M 22 x 1.5	37	27	18.5	14	27	27	30	WAL373110	WAL620661	GES 16 SM	WAL037610	WAL025512	WAL624621	WAL625954	WAL625994	
		20	P-GEV 20 SM	25.3	M 27 x 2	42	31	20.5	16	32	32	36	WAL373111	WAL620503	GES 20 SM	WAL037611	WAL025513	WAL624622	WAL625955	WAL625995	
		35	P-GEV 35 SM	46.5	M 33 x 2	47	35	22	18	39	41	46	WAL373112	WAL620887	GES 35 SM	WAL037612	WAL025514	WAL624622	WAL625956	WAL625996	



Customized special solutions

Danfoss Waltech offers customers an extensive portfolio of customized special fittings, regardless of the quantity involved. We are able to produce any quantity, from very small batches to regular bulk shipments, at competitive prices thanks to our flexible machinery and the option of minimum purchase quantities.

We offer a wide range of different options, from jump sizes and various bore types (throttle bores) to special fitting and thread lengths as well as customized standard fittings. All of these options are available in both steel and stainless steel (1.4571). Alternative sealing materials are also available on request.

The Danfoss Waltech special steel fittings also feature the proven Danfoss Guardian Seal finish. In addition to reliable and reproducible assembly performance, they thus offer exceptionally high corrosion protection, including more than 1,000 hours against red rust.

We are happy to advise you on the design of special fittings to help you optimize your application and to analyze the technical implementation options in collaboration with you.

The advantages of special fittings:

- Reduction in the number of required components
- Elimination of fitting chains and leakage paths
- Space savings
- Improved assembly options
- Elimination of leakage paths and thus reduction in follow-up costs
- Prevention of tube adjustments
- Flow reduction (throttling effect)
- Lower warehousing costs

Examples of special fittings

Different lengths



Jump sizes



Throttle bores



Additional special fittings



A General information



A

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A



A



Welcome to Waltech

Are you looking for the perfect fitting system?

When it comes to tube-fitting systems, reliable and leak-proof performance is crucial.

This depends on the quality of the tube fitting itself and on how well it performs as part of an assembly – for example, on the pressure resistance, load capacity and safety it delivers. Tube fittings require a high level of corrosion resistance (without compromising the performance of the assembly), and a user-friendly, replicable installation process that is easy to understand, even for untrained personnel.

Ideally, you should also have access to a comprehensive tube-fitting portfolio from a single source, along with customer success stories and certifications that demonstrate reliability across a wide range of applications.

Why choose Waltech?

Simply put, our Waltech tube connection systems have more to offer. Our tube fittings provide outstanding performance thanks to their leak-proof design and high bending and pressure-impulse strength. We offer complete solutions for all your tube-fitting needs with various connection options. And the manual assembly of our fittings is easy, safe and replicable thanks to the reduced number of components, the consistent assembly torque and the controlled final assembly of the cutting rings.

Our innovative machine technology for cutting-ring assembly and tube reshaping ensures excellent performance, reduces malfunctions and avoids human error while also providing for faster and easier installation. Our unique Guardian Seal coating also improves safety by reducing variance in the installation process.

What's more, our products also come with excellent customer references, multiple approvals from certification bodies and OEM organizations, and an extensive library of successful application examples. Thanks to our large rental portfolio and our in-house machine development and production capabilities, we are able to tackle any tube-fitting challenge.

The Waltech trilogy

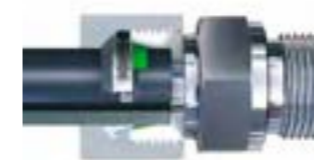
Our main product is the **Walpro cutting-ring system**, which enables the manual assembly of tube fittings. But the Waltech capabilities go far beyond simple cutting-ring systems, in line with our commitment to deliver superior performance and leak-proof operation.

We have thus expanded our core portfolio to meet the demands of various applications:

- Our **Walring cutting-ring system** with additional soft seal
- Our **WalformPlus tube-fitting system** (based on the Walform machine) is designed to support even the most demanding high-pressure, high-vibration applications where safety is critical

Key benefits

- Superior performance and leak-proof design
- Compatible with a wide range of application requirements
- Proven system reliability thanks to our end-to-end Waltech tube fittings
- The Guardian Seal coating ensures high corrosion resistance without compromising assembly strength
- A choice of system options to meet different requirements – from simple manual assembly to safety-critical applications
- Properties that make installation simple, fast and safe – including short tightening rotation, lower tightening torque, a unique pressure point to avoid excessive or insufficient tightening and an unlimited number of repeat installations without any loss of performance
- A comprehensive range of services – including machine rental and maintenance as well as staff training on site
- The combined strength of the Danfoss brand in terms of manufacturing quality, global presence, regulatory and OEM approvals and customer success stories



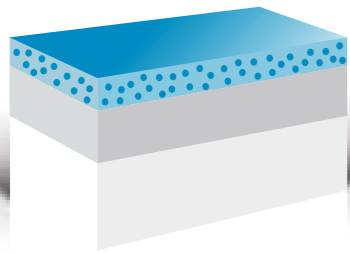
A Guardian Seal coating

Added benefits in terms of performance, health and the environment

Guardian Seal is a unique zinc-based, electroplated finish, which not only provides excellent, durable corrosion protection, but also protects your health and the environment.

By means of a special process, the zinc layer is passivated to give it an open-pore structure. In the next step, organic micro-particles are incorporated into this structure using a dipping process that is matched to the chemical properties of the material. An optimized drying process causes the top layer to polymerize, so that the molecules on its surface become cross-linked.

This produces a long-lasting, highly corrosion-resistant finish that complies with the EN ISO 9227 standard while also being easy to install, safe, healthy and environmentally friendly.



Guardian Seal passivation / micro-impregnation
Zinc layer
Base metal

Key features:

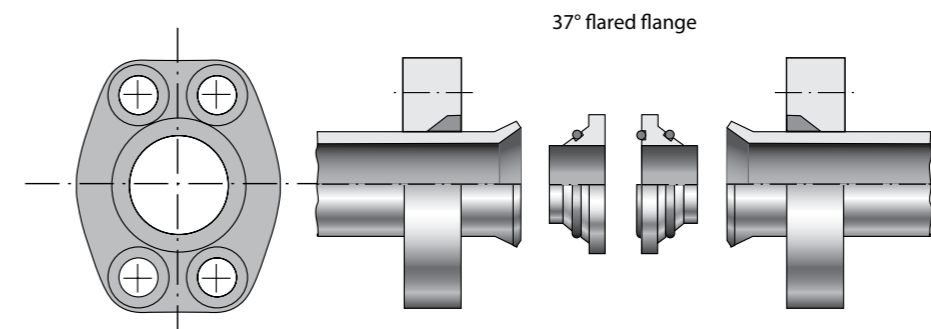
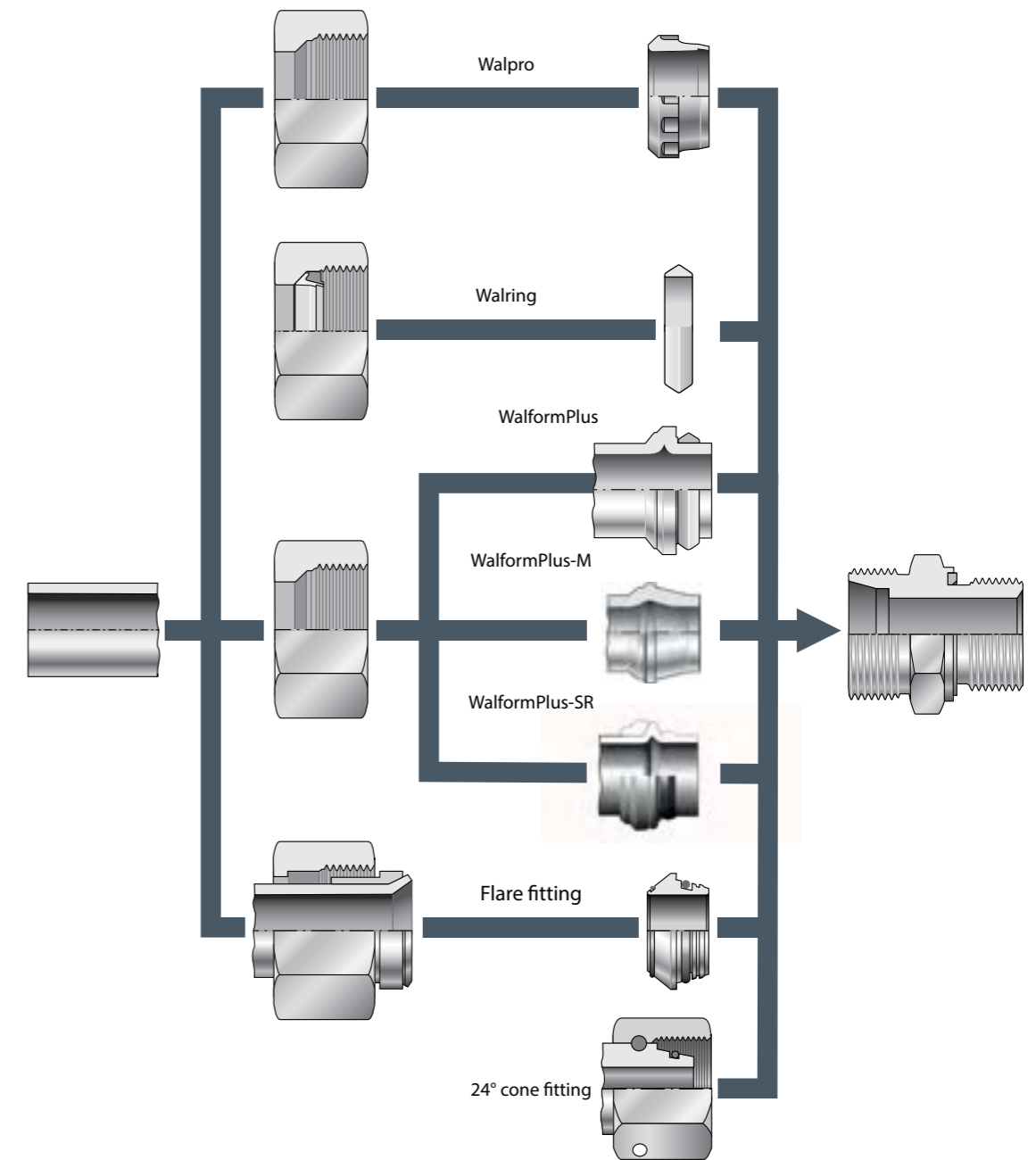
- Corrosion protection: > 360 hours resistance to white rust / > 1,000 hours resistance to red rust
- Nickel-free
- Same torque values as chrome-3
- Premium silver finish
- Zinc base layer of 11-15 µm
- Resistant to standard hydraulic fluids



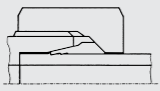
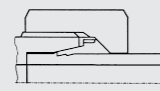
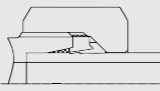
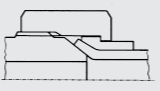
Key benefits

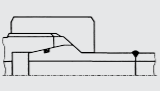
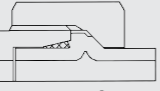
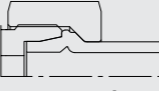
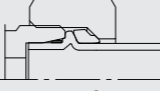
- Superior and durable corrosion protection
- Can be painted with commercially available coatings
- Superior resistance to red rust
- No risk of nickel dust during assembly and handling
- No risk of contact allergies
- Low assembly and disassembly torque to ensure safe connections and easy installation
- The waste water from the electroplating process requires less treatment

A cost-effective solution for every type of connection problem



A System comparison

	 Z-R	 P-R	 Walring	 B
	Two-edge cutting ring	Profile ring Two-edge cutting ring	Walring Two-edge cutting ring + soft seal	Flare fitting with O-ring
Standard Parts to standard	DIN 2353 EN ISO 8434-1 All components	DIN 2353 EN ISO 8434-1 All components	DIN 2353 EN ISO 8434-1 Stud and nut	DIN 3949 All components
System characteristics	Combined sealing/supporting function	Combined sealing/supporting function	Separate sealing/supporting function	Separate sealing/supporting function
Number of components	3	3	3	4 (6 if O-rings are included)
Number of leakage paths Seal type	2 metal-to-metal	2 metal-to-metal	2 elastomer + metal-to-metal	2 elastomer
Tightening rotation*	360° (180° after pre-assembly)	360° (180° after pre-assembly) (30° controlled final assembly)	360° (60° after pre-assembly)	90° or 180°
Risk of assembly errors	High	Medium, low for controlled final assembly	Low	Low
Repair / servicing usually with	Z-R, P-R	Z-R, P-R	S-R + WD Z-R, P-R, Walring	BO often with Z-R, P-R = new nut

	 SN	 WFplus	 WFplus-M	 WFplus-SR
	Welding nipple	WalformPlus	WalformPlus-M	WalformPlus-SR
Standard Parts to standard	DIN 3865, Form A ISO 8434-4 All components	DIN 2353 EN ISO 8434-1 Stud and nut	DIN 2353 EN ISO 8434-1 Stud and nut	DIN 2353 EN ISO 8434-1 Stud and nut
System characteristics	Separate sealing/ supporting function	Separate sealing/ supporting function	Separate sealing/ supporting function	Separate sealing/ supporting function
Number of components	3 (4 if O-ring is included)	3	2	4
Number of leakage paths Sealing type	1 elastomer	1 elastomer + metal-to-metal	1 metal-to-metal seal	1 elastomer + metal-to-metal
Tightening rotation*	120°	Point of resistance	Point of resistance	Point of resistance
Risk of assembly errors	Medium	Very low	Very low	Very low
Repair / servicing usually with	SN WF-WD / Wfplus	WFplus, WF-WD, S-R + WD, SN, Z-R, P-R	WFplus-M, P-R	WFplus-SR, S-R + WD, P-R

*See also the manufacturer's instructions

- Z-R = two-edge cutting ring
- P-R = profile ring
- S-R / Z-R + WD = cutting ring + soft seal
- B = flare fitting
- BO = flare fitting with O-ring
- SN = welding nipple
- WFplus = WalformPlus
- WFplus-M = WalformPlus-M (with metal-to-metal seal)
- WFplus-SR = WalformPlus-SR (with support ring)

The Danfoss Waltech service organization

The right partner in every situation

Danfoss's Waltech products offer high-quality service, especially when it comes to flexibility and tailor-made offers. Danfoss Waltech customers know that they can rely on our trusted team for advice and assistance, be it by phone or directly on site.



Danfoss Waltech service checks

- Qualified instructions for use
- Service checks for machines and tools
- Repair and replacement of machines



Danfoss Waltech trainings

- Product trainings and
- courses on how to assemble the various tube-fitting systems



Danfoss Waltech leasing

- Leasing offers for all common machine and tool types are available on request



Danfoss Waltech project consulting

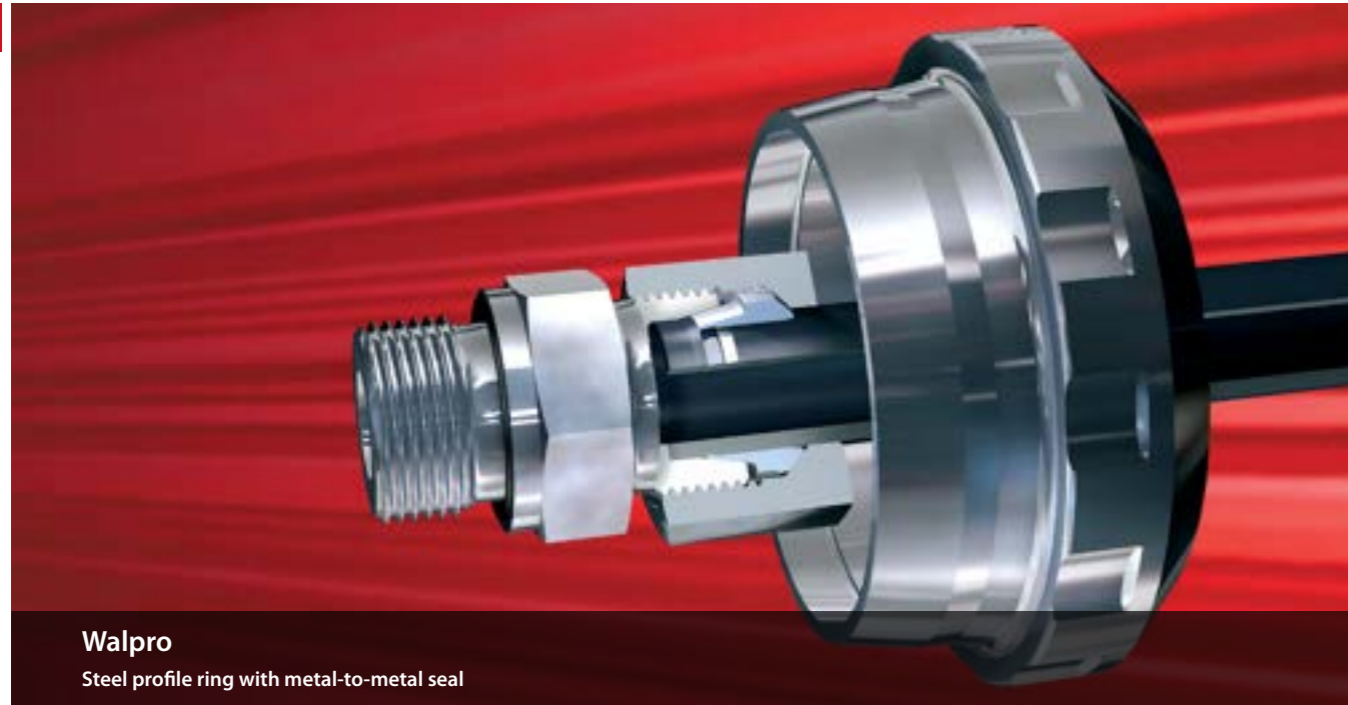
- Solutions for critical installation conditions
- Designs for applications with stringent safety requirements
- Answers to all questions concerning the selection and installation of tube assemblies
- Support with sample tube assemblies
- Comprehensive logistics services
- Comprehensive testing on our test stands



Danfoss Waltech – a global partner

Quality transcends national borders, which is why the Danfoss Waltech product innovations have successfully established themselves on the international market. Waltech tube fittings are sold all over Europe and beyond, and our global distribution network and regional warehouses ensure fast delivery anywhere.

A



Walpro
Steel profile ring with metal-to-metal seal

Functional characteristics: Profile-ring tube fittings

Thanks to their ideal shape, Walpro fittings provide a secure and leak-proof tube connection.

During installation, the two cutting edges of the Walpro ring cut into the tube to create a positive-locking connection. At the same time, the union nut taper will radially deform the contoured shoulder of the cutting ring in such a way that the tube will become tightly clamped to absorb bending loads.

For leak-proof radial sealing, the ring is wedged between the tube and the fitting stud.

The progressive increase in tightening torque at the end of the assembly process ensures a high degree of safety.

Walpro fittings can be removed and re-assembled as often as required.

The specified performance of Walpro fittings can only be achieved if original Walpro parts are used and the assembly is carried out in accordance with the installation instructions.

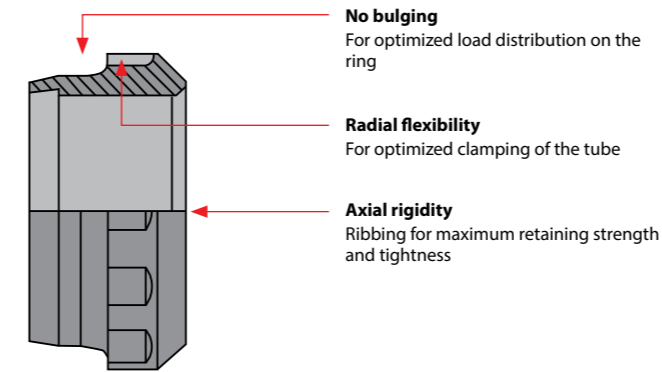
A

Computer-optimized tube-connection technology

The Walpro tube-fitting system has been fully optimized to meet current and future market requirements. With the help of the latest calculation methods, we have been able to significantly improve performance and increase installation safety. The design is based on an axially rigid ring with a shoulder section that has been radially weakened by means of a contoured profile. We have also implemented a novel design for the cutting edges to achieve leak-proof sealing and eliminate subsequent penetration.

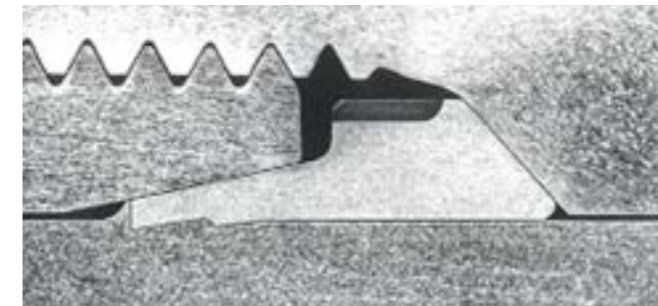
Clear advantages for users:

- Greater functional reliability
- Lower installation costs
- Lower reworking costs
- Lower operating costs



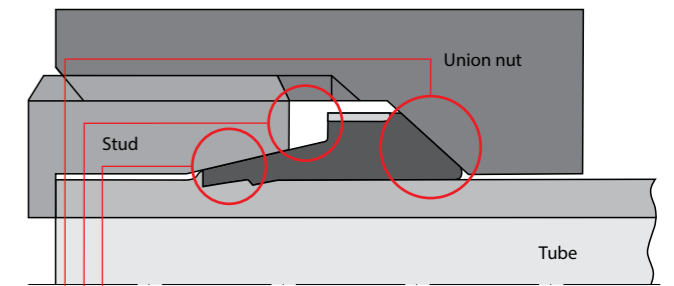
Maximum tightness thanks to:

- 100 % positive locking of the cutting edges
- High sealing strength (preload)
- No settling or subsequent penetration



Cross section of the profile ring

- Profile system: rigid ring, no settling
- Compression of chips: no subsequent penetration
- Negative clearance angle: additional sealing surface, significantly higher sealing pressure

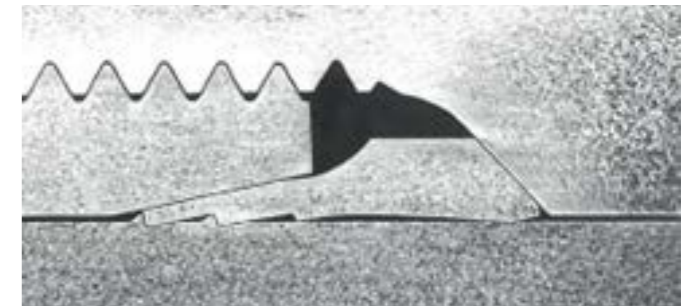


- Optimized cutting edges**

 - Optimized cutting-edge angle
 - Wedge-shaped cutting-edge flank
 - Groove for chips
 - Stable cutting edge
- Optimized central section**

 - Ideal contact angle
 - Mechanical stop to prevent excessive tightening
- Optimized shoulder section**

 - Contoured profile for greater rigidity
 - Large ring-nut contact surface
 - End radius



Cross section of a two-edge cutting ring

- Ring with thin cross section: settling of the connection
- Partially exposed cutting edges: subsequent penetration, settling
- Zero clearance at the cutting edge: only the tube face is sealed, poor sealing on the stud side

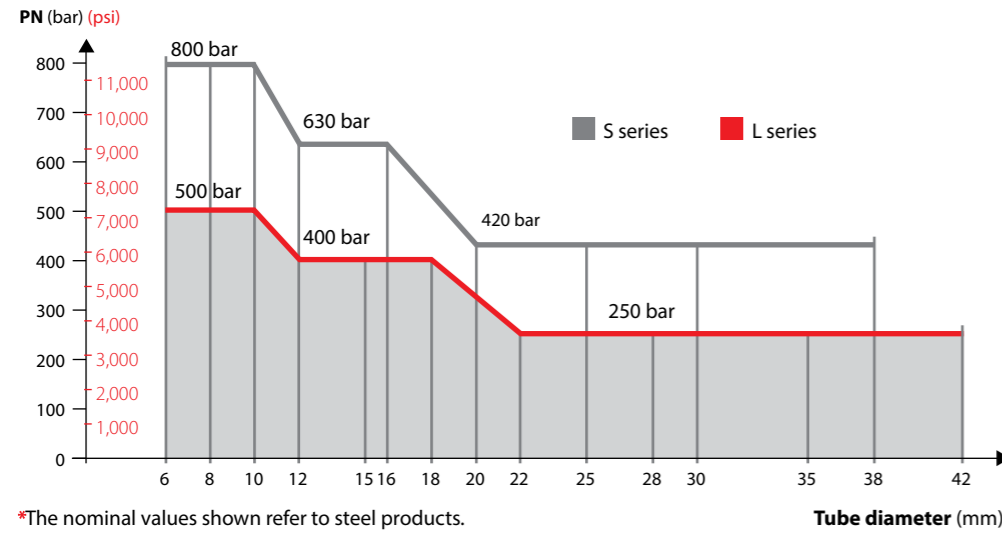
A High nominal pressure ratings

PN – nominal pressure

Nominal pressure is an approximate pressure rating that is commonly used. Load tests for burst pressure must be carried out at no less than four times the nominal pressure of the fitting. Pressure-impulse tests must be carried out at no less than 1.33 times the nominal pressure of the fitting at one million load cycles.

- L series for nominal pressure up to 500 bar
- S series for nominal pressure up to 800 bar
- Only Waltech original parts should be used for high nominal pressure ratings

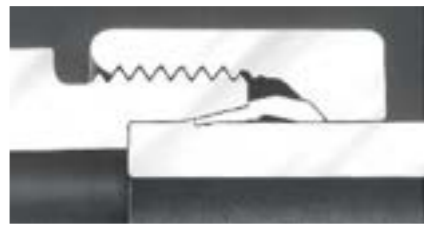
Nominal pressure ratings* of Walpro fittings



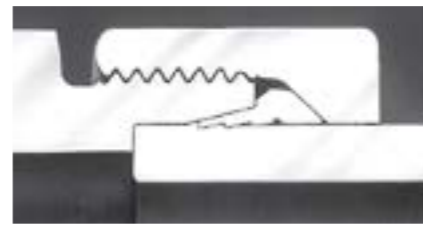
*The nominal values shown refer to steel products.

Safe installation

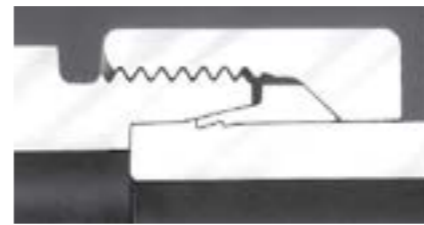
- Safe initial assembly with mechanical stop to limit tightening
- Safe re-assembly
- Work-hardening and compression of chips in the cut



Cutting ring – deformation due to excessive tightening



Two-edge cutting ring – deformation due to excessive tightening



Profile ring – no deformation due to excessive tightening

High fatigue strength

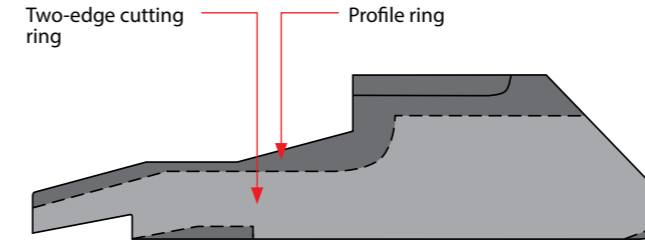
- Reliable tube retention
- Notch-free tube clamping

Behavior of cutting ring and profile ring in the event of excessive tightening	
Cutting ring – two-edge cutting ring	Profile ring
No significant torque increase	+ Significant torque increase
Loss of travel during assembly due to compression of the ring	+ No loss of travel, no compression of the ring
Reduced preload due to compression of the ring	+ High preload to accommodate the operating load The stable, optimized ring design prevents compression
Increased stress concentration on the tube	+ No stress concentration on the tube

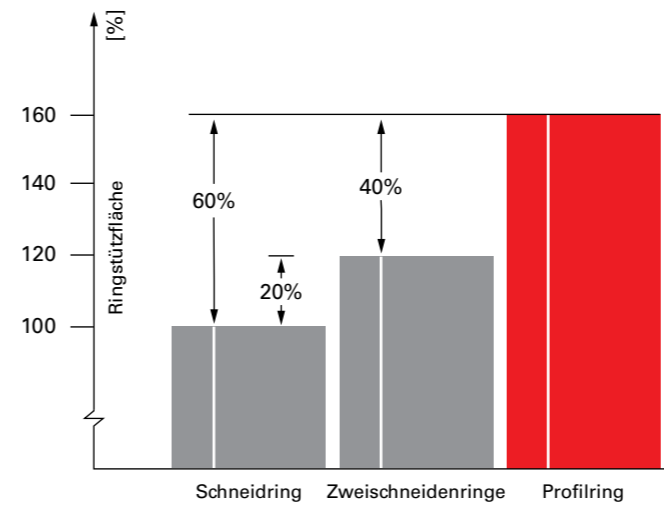
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Reliable tube retention

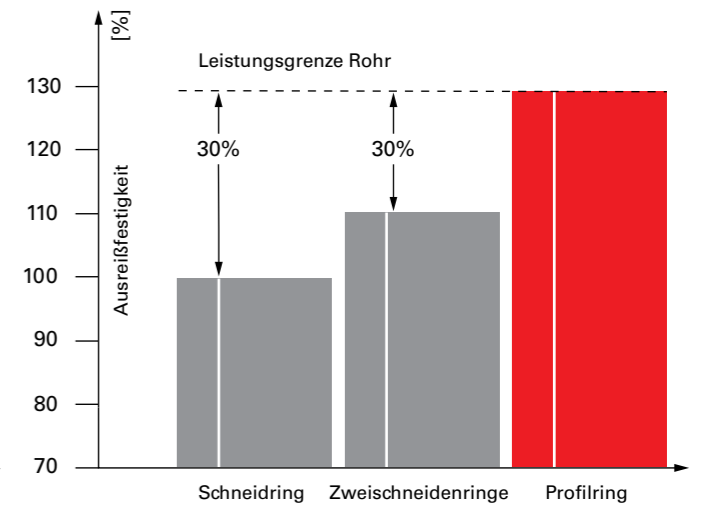
- Large ring contact area
- Rigid, profile-shaped ring
- High tensile strength



Optimized ring contact area (mean values)

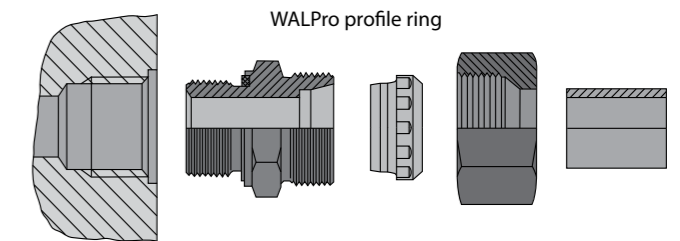


Tensile strength of the tube connections (mean values)



A universal, standardized solution

- All fitting components comply with DIN 2353 / EN ISO 8434-1
- Can be used with all standard tube materials
- Interchangeable with cutting ring and two-edge cutting ring



All fitting components comply with DIN 2353 / EN ISO 8434-1

Approvals and test certificates

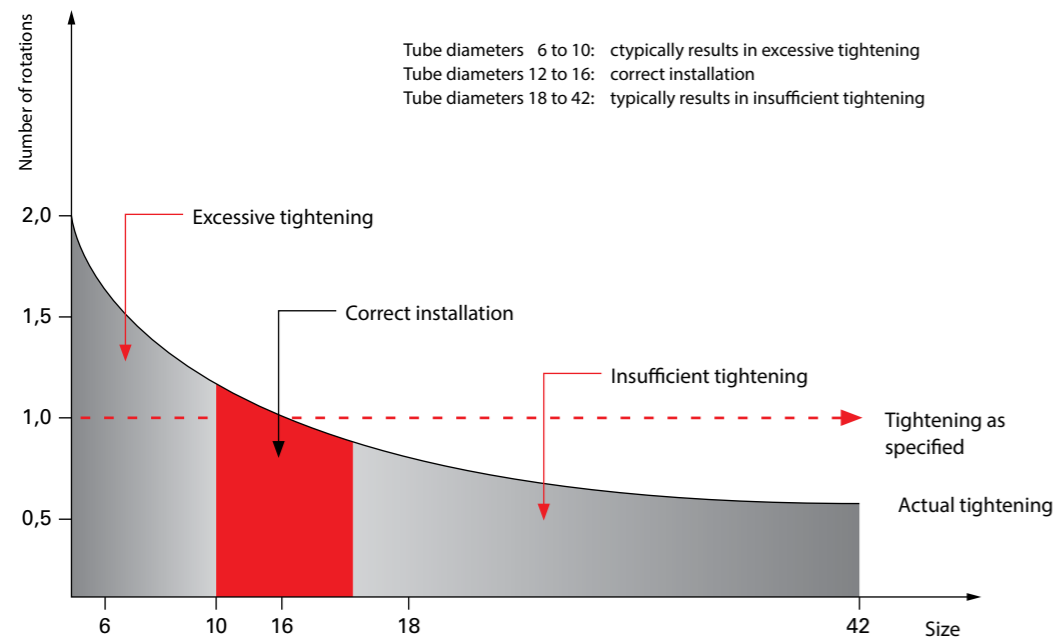
- American Bureau of Shipping
- Bureau Veritas
- DNV-GL
- Lloyd's Register of Shipping
- Registro Italiano Navale
- Polish Register of Shipping

A **Controlled final assembly of profile-ring fittings**

The right choice for a completely dry hydraulic system. The Danfoss Waltech profile ring relies on controlled final assembly, a new type of assembly technology that eliminates the most common errors that occur during installation.

Typical installation errors include:	The result:
<ul style="list-style-type: none"> • Incorrect pre-assembly • Failure to complete the assembly process • Excessive tightening • Insufficient tightening 	<ul style="list-style-type: none"> • Risk of accidents • Downtime • Maintenance costs • Leakage • Reputational damage

Field test: Comparison of target and actual values in case of intuitive installation

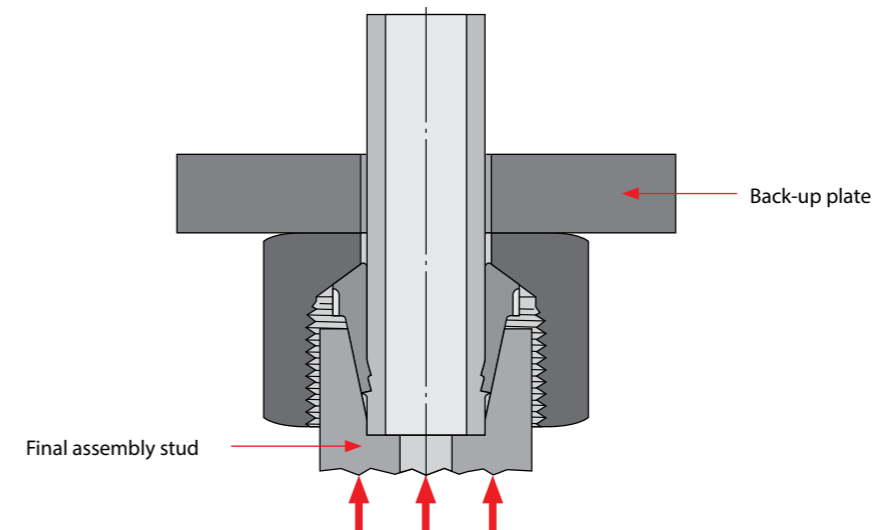


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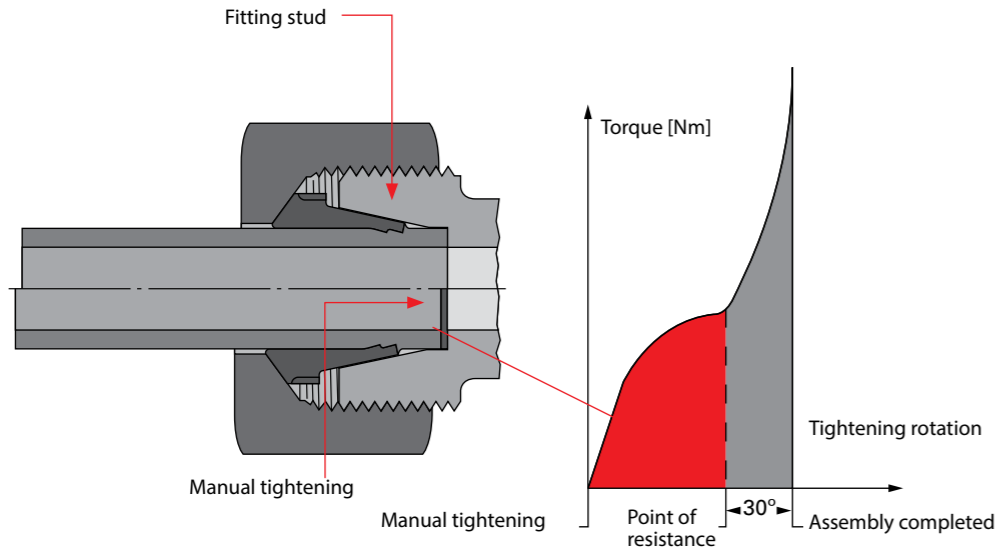
Possible errors during standard installation

The consequences of excessive tightening	The result:
<p>Constriction of the tube</p> <ul style="list-style-type: none"> • Fatigue failure <p>Deformation of the fitting components</p> <ul style="list-style-type: none"> • Leakage • Retightening is not possible • Risk of breaking • Performance loss 	<p>Insufficient cutting depth</p> <ul style="list-style-type: none"> • Reduced pressure load • Leakage • Insufficient clamping of the tube • Cutting area at risk (fatigue failure) • Reduced flexural fatigue strength

Controlled final assembly with Danfoss assembly machine = the ring is cut to 100 %

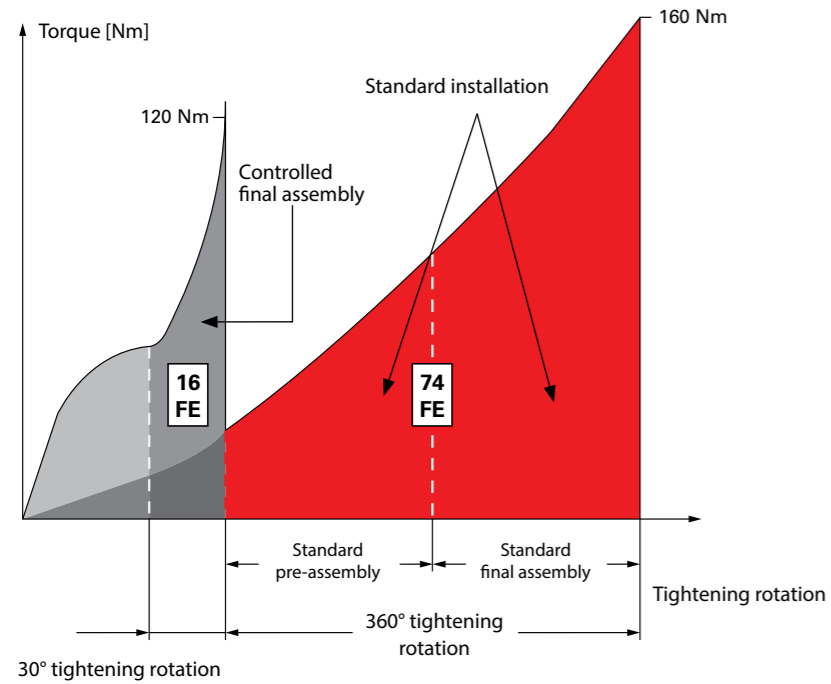


A Controlled final assembly = 30° tightening rotation after the point of resistance



Point of resistance = tube at mechanical limit

Comparison of assembly types, size 16 S



FE = units of area, the amount of work required for assembly

The most important features and benefits for customers

- The assembly machine cuts the ring to 100 %
- Short tightening rotation for final assembly (30°), meaning less force is required (-30 %)
- A steep increase in torque clearly signals the completion of the assembly process
- Components according to DIN 2353 / EN ISO 8434-1
- Assembly time reduced by up to 50 %
- The assembly machine ensures consistent quality
- Controlled final assembly options: based on the tightening rotation or torque-controlled
- Easy to assemble even where space is limited
- A significant reduction in installation costs
- The controlled final assembly eliminates sources of error and thus ensures the reliable operation of your product
- Can also be mounted on stainless steel tubes

A

A



Walpro-X
Stainless steel (1.4571) profile ring with metal-to-metal seal

Functional characteristics – Profile-ring tube fittings

Protecting people and the environment: the tried and tested Danfoss Waltech technology is also available in stainless steel (1.4571). Aggressive media and extreme operating environments require special solutions. Walpro-X has been specially developed for use in highly sensitive areas – wherever safety and the environmental protection are at stake.

A

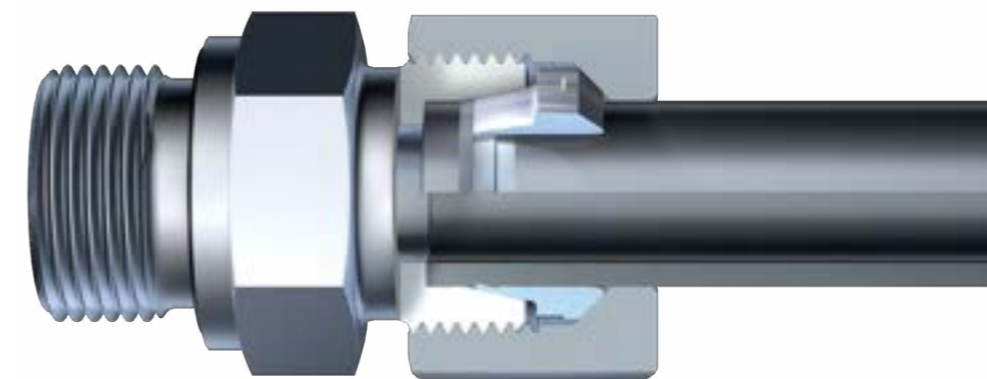
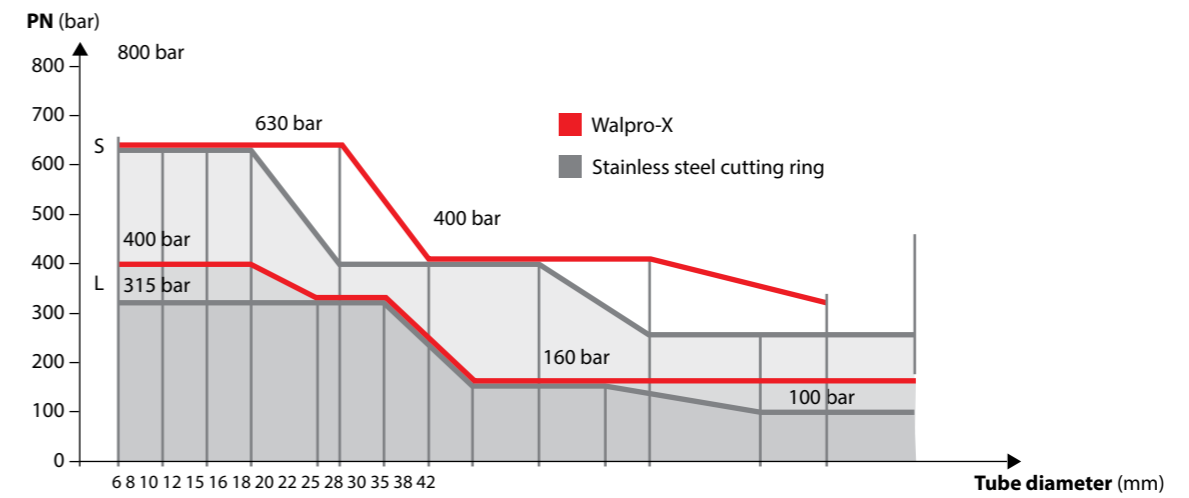
High nominal pressure ratings

PN – nominal pressure

Nominal pressure is an approximate pressure rating that is commonly used. Burst-pressure tests must be carried out at no less than four times the nominal pressure of the fitting. Pressure-impulse tests must be carried out at no less than 1.33 times the nominal pressure of the fitting at one million load cycles.

- L series for nominal pressure up to 400 bar
- S series for nominal pressure up to 630 bar
- Only Waltech original parts should be used for high nominal pressure ratings

Nominal pressure ratings* of Walpro-X fittings

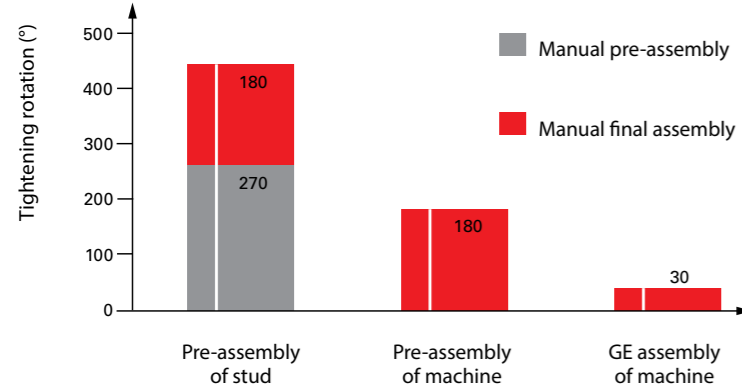


A A revolutionary assembly system

Machine-controlled final assembly is also available for Walpro-X.

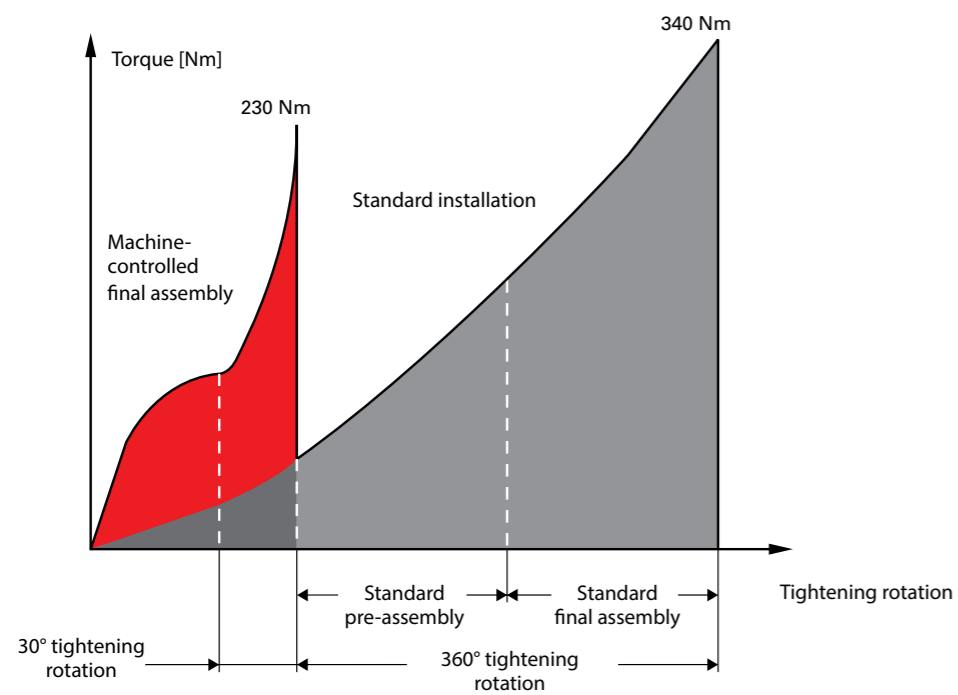
This reduces the required tightening rotation after the point of resistance to only 30°, thereby minimizing the necessary tightening force. This in turn reduces the installation time by up to 50 %.

Tightening rotation comparison for Walpro-X



Comparison of assembly types

Size 16 S



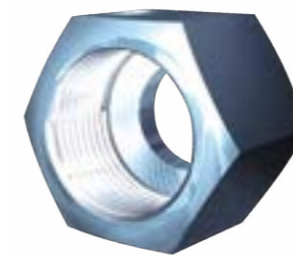
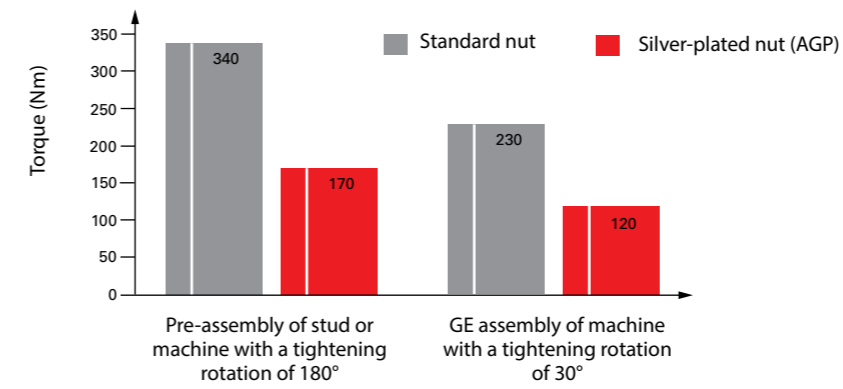
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Future-proof features

Special nuts with silver-plated threads (AG/AGP, recommended from size 15L/12S and above) reduce the assembly and release torques to a minimum, which also makes disassembly and re-assembly significantly easier.

Walpro-X final assembly torques

Size 16 S



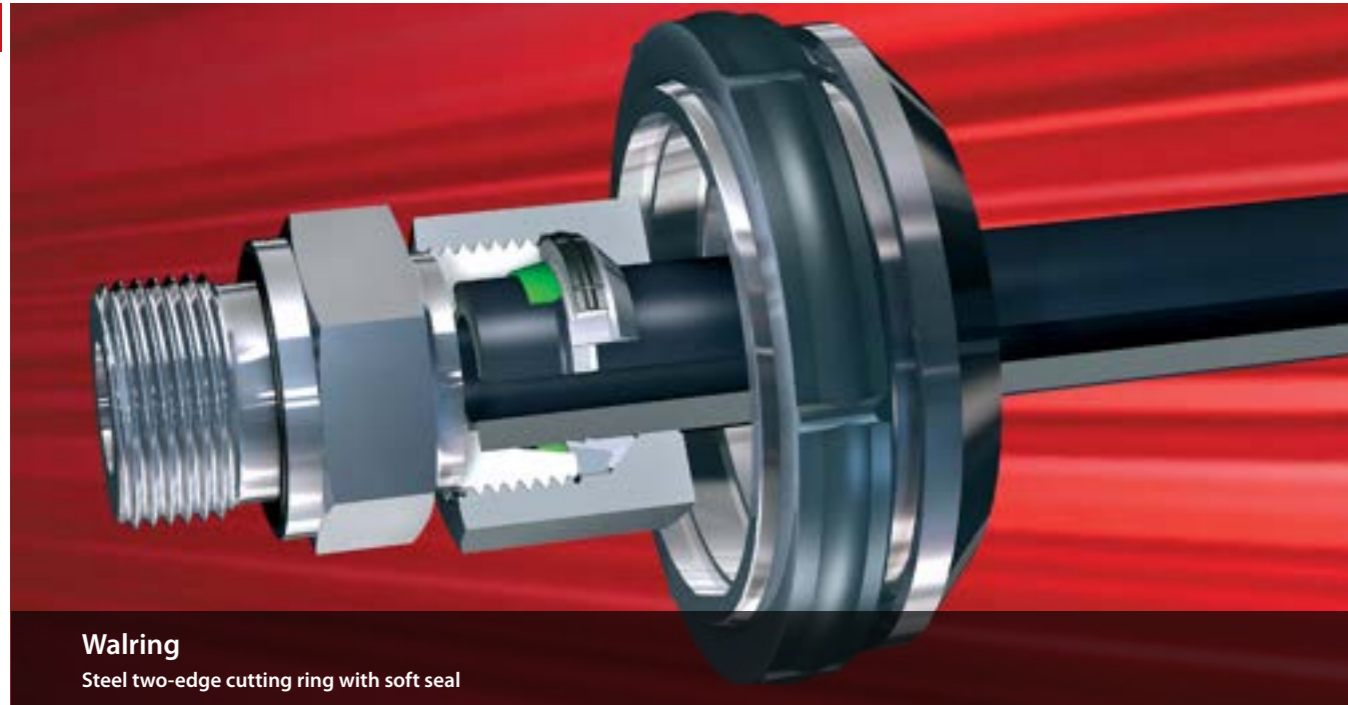
The benefits at a glance

- Unrivaled maximum nominal pressure of 400 bar for the L series / maximum nominal pressure of 630 bar for the S series
- The Danfoss Waltech final assembly machines ensure that the assembly process is 100 % reproducible
- Special silver-plated nuts (AG/AGP)
- Components according to DIN 2353, EN ISO 8434-1

Approvals and test certificates

- American Bureau of Shipping
- Bureau Veritas
- DNV-GL
- Lloyd's Register of Shipping
- Registro Italiano Navale
- Polish Register of Shipping

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Walring
Steel two-edge cutting ring with soft seal

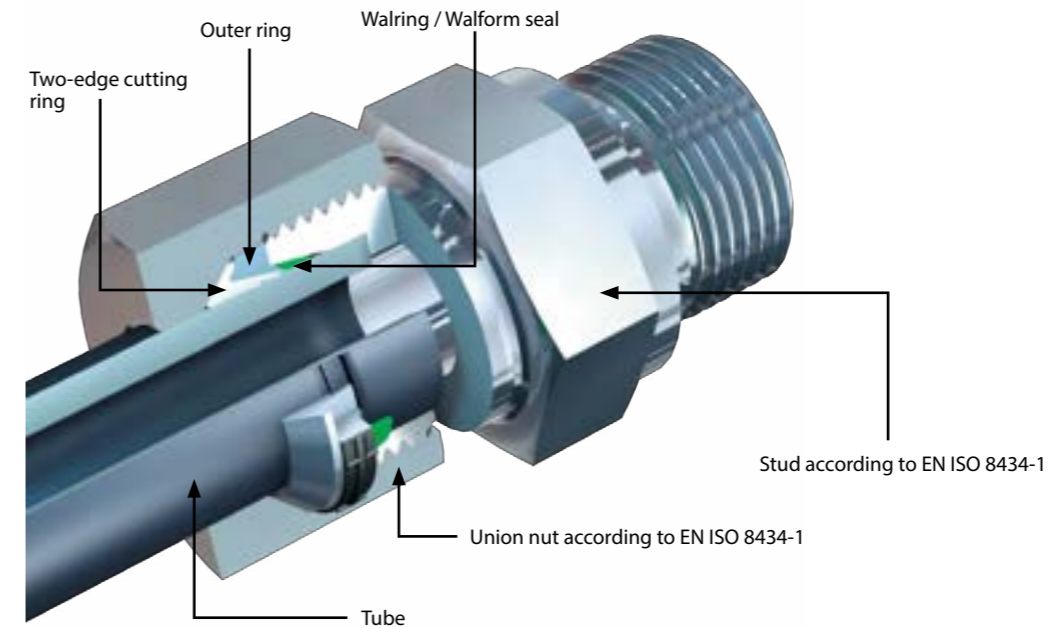
Functional characteristics: Walring tube fittings

Walring fittings combine all the advantages of two-edge cutting rings with the tried and tested WalformPlus soft-seal system and the user-friendly block assembly function. The contoured shoulder provides precisely calibrated support for the hydraulic tube behind the two cutting edges, ensuring the long-term functional safety of the fitting even in the face of high dynamic pressure impulses and reversed bending stress. The clearly detectable increase in the necessary tightening force at the end of the assembly process prevents insufficient and excessive tightening, the most common types of faults. And since the outer ring is fixed in place, the correct assembly of the connection can be easily verified.

A

Cutting-ring system with soft seal

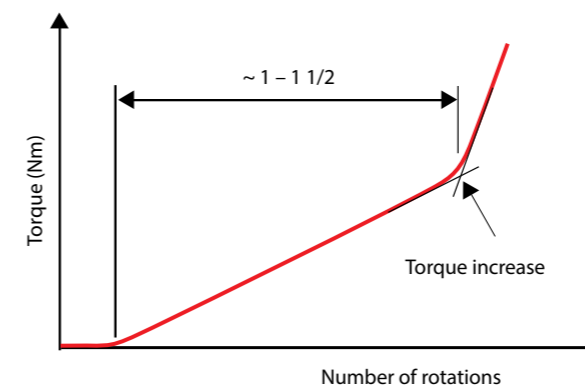
The Walring system consists of a DIN EN ISO union nut with an integrated two-edge cutting ring and outer ring, a Walform soft seal (system nut) and a DIN EN ISO fitting stud.



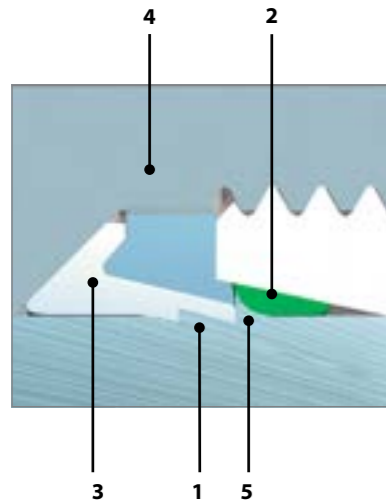
No need to worry about incorrect installation

Danfoss's Walring sets new standards in terms of installation safety: During manual assembly, there is a clearly detectable increase in the amount of tightening force required after one to one and a half rotations (depending on the model), thereby enabling users to identify the exact point when the fitting has been correctly assembled. The next generation of process safety.

Tightening torque



A The benefits in detail



1 Two equal cutting edges

- Due to the reduced cutting depth, the fittings can also be used with very thin-walled tubes
- Maximum burst-pressure and pressure-impulse performance, due to the distribution of the relevant forces across two equal cutting edges

2 The tried and tested Walform seal

- The fittings are user-friendly and save costs, as they can simply be re-assembled or replaced in the event of damage
- There is no risk of damage during pre-assembly, as the seal is only fitted afterwards
- Standard material: Viton; alternative sealing materials are also available (FKM, NBR, EPDM)

3 Interlocking of two-edge cutting ring and outer ring

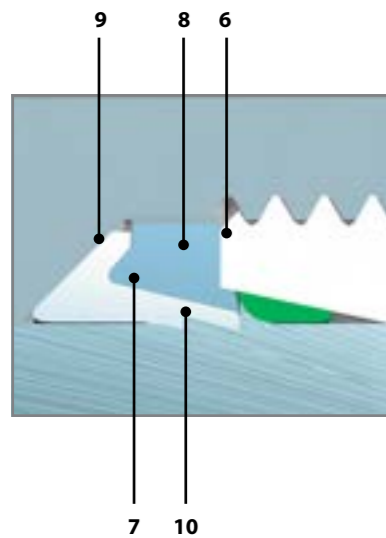
- The precision-engineered shoulder clasp increases flexural fatigue strength
- Reduced constriction of the shoulder area in the event of excessive tightening
- In the event of excessive tightening, the two-edged cutting ring is radially supported against expansion by the outer ring

4 Pre-assembled Walring system nut

- The Walring fitting already comes pre-assembled: The cutting ring and the outer ring are integrated in the DIN union nut (system nut).

5 Precision cutting

- The raised collar that secures the outer ring on the tube will only form if the ring is cut correctly. This means that the Walring system comes with a direct control feature to ensure correct cutting.



6 The outer ring is secured inside the fitting

- The outer ring is secured inside the fitting to prevent it from expanding radially, thereby ensuring that the connection can withstand even very high nominal pressures.
- This also prevents the tube from rotating during assembly.

7 Parallel 45° contact surface

- The completion of the assembly process can be easily detected thanks to the parallel contact surfaces, which ensure a significant increase in the required tightening force.
- This also prevents radial movement of the cutting ring and the outer ring.

8 Hardened outer ring

- The cutting ring does not cut into the outer ring.
- Closer tolerances ensure more precise cutting and prevent deformation.

9 Large shoulder surface

- The large shoulder surface prevents the fitting from settling and thus avoids loss of preload force.

10 Optimized taper angle

- At the end of the assembly process, the optimized taper angle causes a noticeable increase in the required tightening force after one to one and a half rotations, depending on the model.

A

High nominal pressure ratings

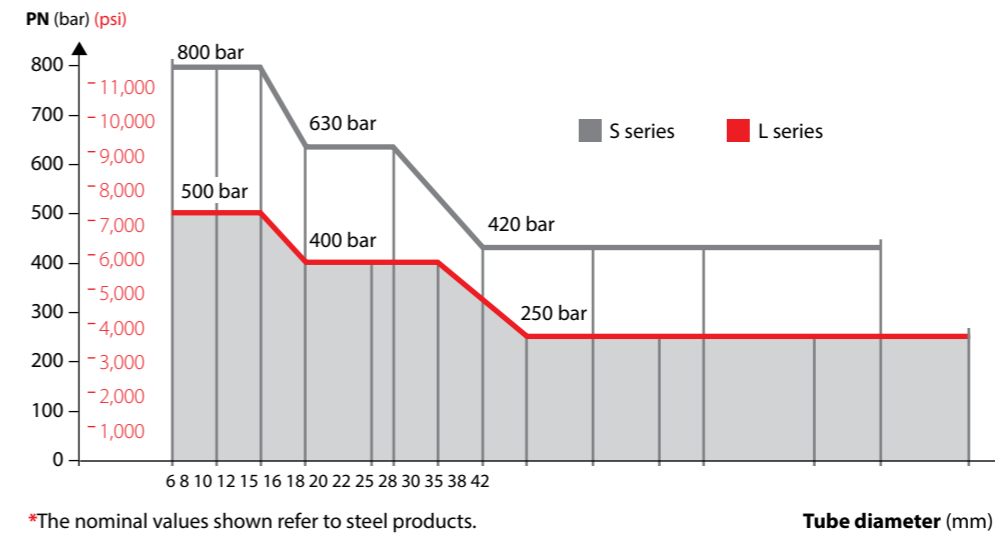
PN – nominal pressure

Nominal pressure is an approximate pressure rating that is commonly used.

Burst-pressure tests must be carried out at no less than four times the nominal pressure of the fitting. Pressure-impulse tests must be carried out at no less than 1.33 times the nominal pressure of the fitting at one million load cycles.

- L series for nominal pressure up to 500 bar
- S series for nominal pressure up to 800 bar
- Only Waltech original parts should be used for high nominal pressure ratings

Nominal pressure ratings* of Walring fittings

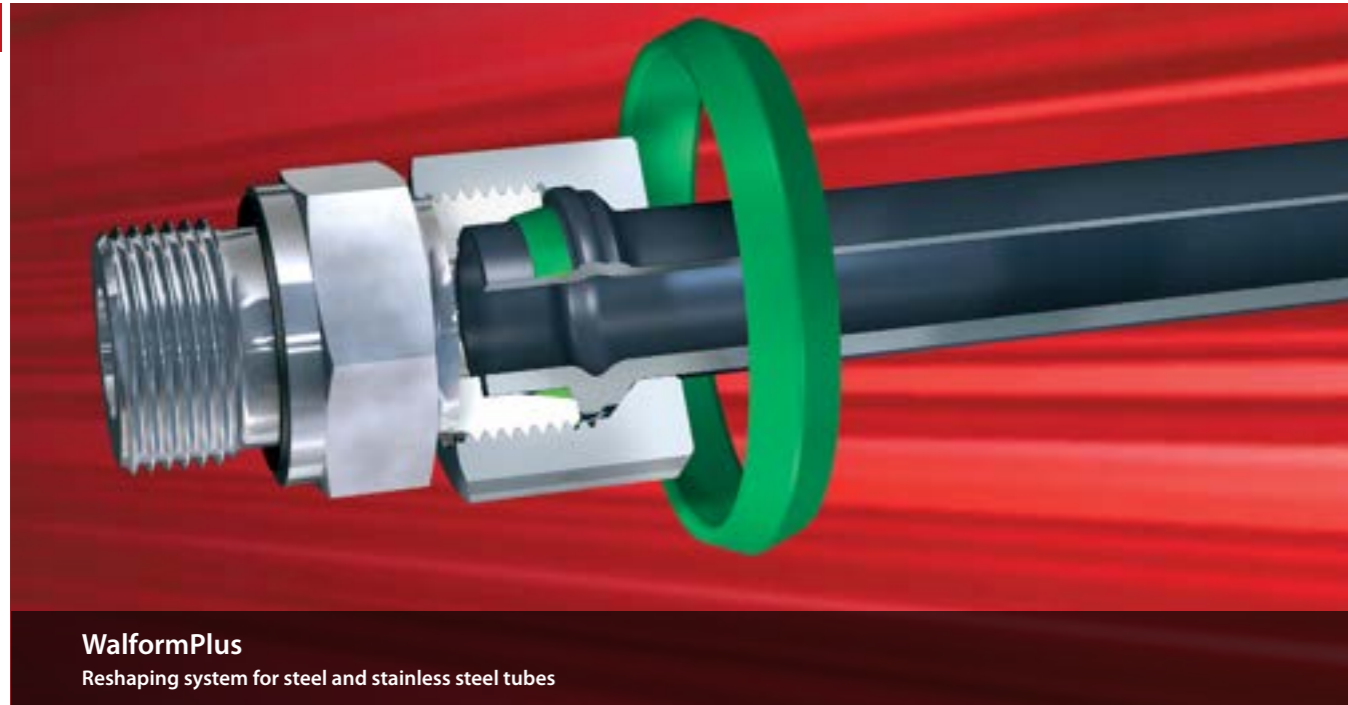


*The nominal values shown refer to steel products.

Approvals and test certificates

- DNV-GL

A



Functional characteristics: WalformPlus tube fittings

WalformPlus is a positive-locking fitting system for steel and stainless steel tubes that consists of only three components. The mechanically reshaped tube end is screwed together using a conventional DIN/ISO stud and a DIN/ISO union nut, and the only possible leakage path is sealed off by means of an elastomer ring. A characteristic feature of the plus series is the shoulder on the flat surface of the reshaped tube, which is inserted into the 24° cone of the stud. This makes assembling the fittings significantly easier and prevents excessive tightening.

Thanks to the positive-locking connection, WalformPlus ensures secure tube retention, even under high dynamic loads. The assembly process is so easy and user-friendly that no special training is required, which enables a significant reduction in costs. Moreover, the system also facilitates additional savings by eliminating the need for pre-assembly and other auxiliary operations, while the small number of components reduces the costs for equipment and logistics.

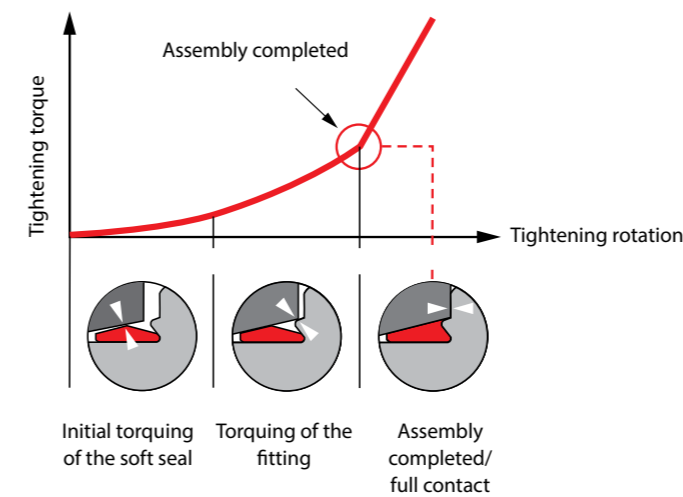
A

Fully leak-proof

The only possible leakage path is sealed off in two ways: first by the WalformPlus soft seal and secondly by means of the metal-to-metal seal between the patented WalformPlus shoulder and the fitting stud.

Assembly made easy

- A clear increase in the tightening force
- Significantly lower tightening torque
- Clearly noticeable torque increase
- Short tightening rotation
- Effective protection against excessive tightening
- Can be re-assembled as often as necessary



Reliable tube retention

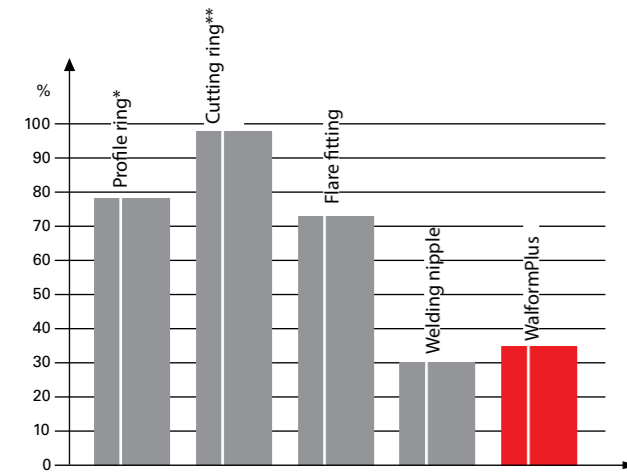
Thanks to the positive-locking connection, the system provides absolute safety even under the most extreme loads. This ensures reliable tube retention even in the event of insufficient or excessive tightening and prevents the tube from slipping out.

A Ease of assembly

Installation made easy, with reproducible results

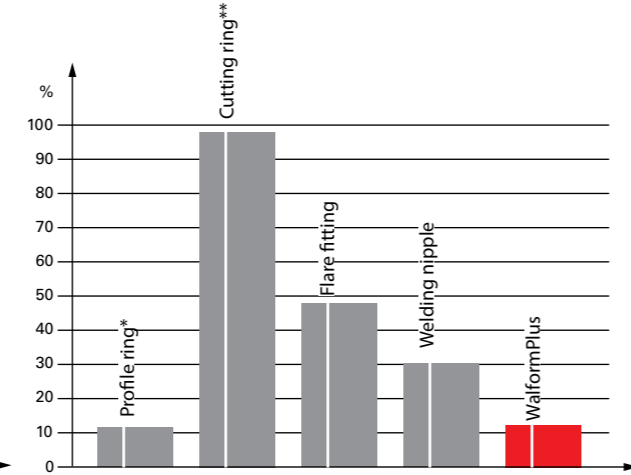
Thanks to its unique geometry, the assembly of the WalformPlus system is easy and user-friendly, and a noticeable increase in the required tightening force indicates that the process has been completed. Due to the short tightening rotation and the low torque, the installation process only takes a fraction of the time required for conventional tube-fitting systems. There is thus no need to comply with specific angles or to look for other signs that the process has been completed. Torque-based assembly is also possible.

Comparison of the required torque



*after controlled final assembly **with and without soft seal

Comparison of the required tightening rotation



High dynamic load capacity

Thanks to the computer-optimized geometry of the reshaped tube, we are able to achieve excellent performance under dynamic loads, such as high resistance to reversed bending stress and dynamic pressure impulses. The WalformPlus system has been tried and tested many times over, both in practice and through extensive testing.

A

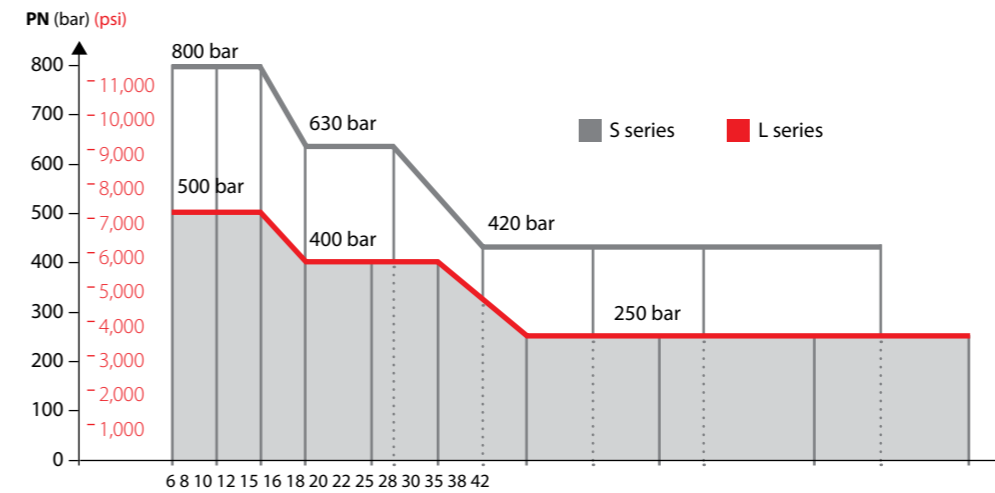
High nominal pressure ratings

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- L series for nominal pressure up to 500 bar
- S series for nominal pressure up to 800 bar
- Only Waltech original parts should be used for high nominal pressure ratings

Nominal pressure ratings of the WalformPlus fittings



*The nominal values shown refer to steel products.

A WalformPlus tube fittings



A more cost-effective system

- Fewer parts (which reduces the costs for material and logistics)
- Lower cost
- Compared to welding, no preparatory or finishing work required

Increased safety thanks to the positive-locking connection

- High compressive strength
- Fully leak-proof
- Approved for use in safety-related applications
- High tolerance for assembly errors

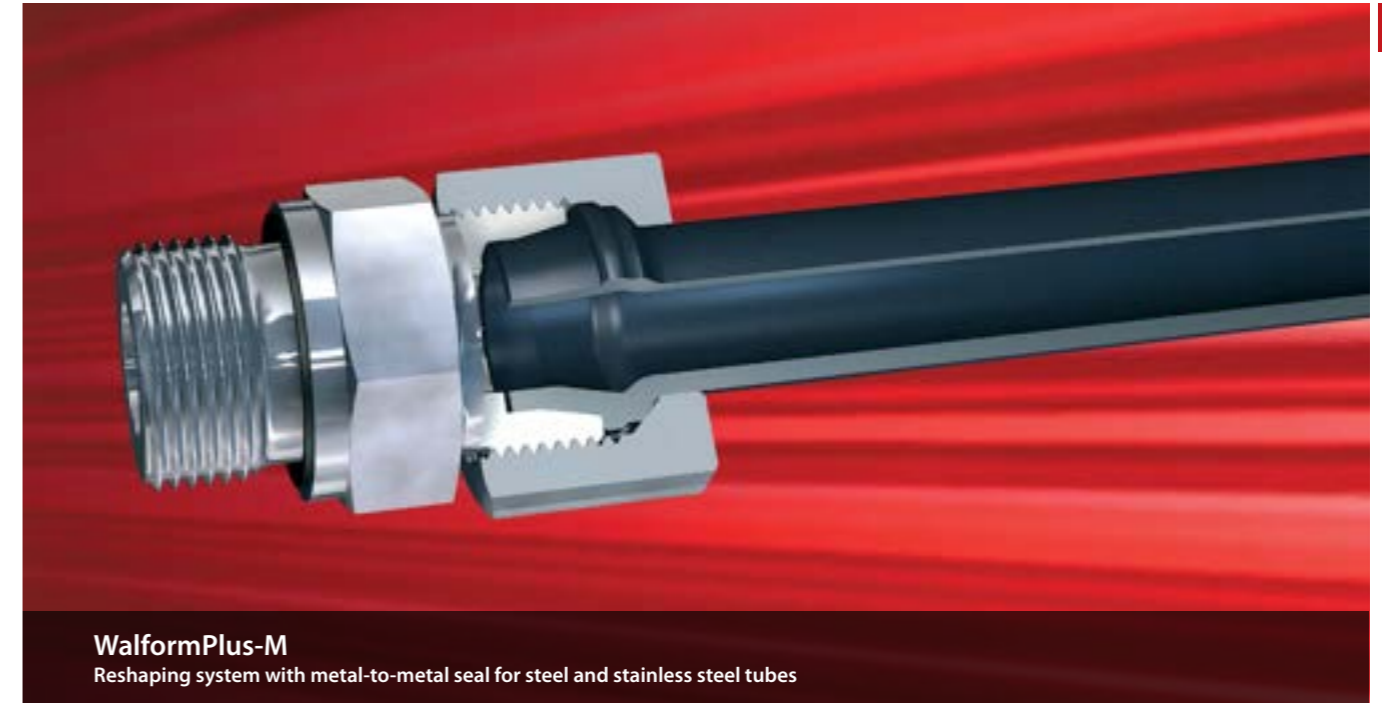
Ease of assembly

- Only one separation/sealing point
- Easy assembly/clear indication when the assembly is completed
- Short installation time, low torque
- Extremely easy to assemble
- Significantly lower tightening torque compared to conventional cutting-ring fittings

Approvals and test certificates

- American Bureau of Shipping
- Bureau Veritas
- DNV-GL
- Lloyd's Register of Shipping
- Polish Register of Shipping

A



WalformPlus-M
Reshaping system with metal-to-metal seal for steel and stainless steel tubes

Functional characteristics: WalformPlus-M tube fittings

WalformPlus-M – an innovative alternative to ring-based systems

WalformPlus-M is a positive-locking fitting system for steel and stainless steel tubes that consists of only two components. The mechanically reshaped tube end is screwed together using a conventional DIN/ISO stud and a DIN/ISO union nut, and the only possibly leakage path is sealed off by means of the 24° taper of the tube. A characteristic feature of this series is the metal-to-metal seal, which certain types of applications require.

Thanks to the positive-locking connection, WalformPlus-M ensures secure tube retention even under high dynamic loads. The assembly process is so simple and user-friendly that no special training is required, which enables a significant reduction in costs. Moreover, the system also facilitates additional savings by eliminating the need for pre-assembly and other auxiliary operations, while the small number of components reduces the costs for equipment and logistics.

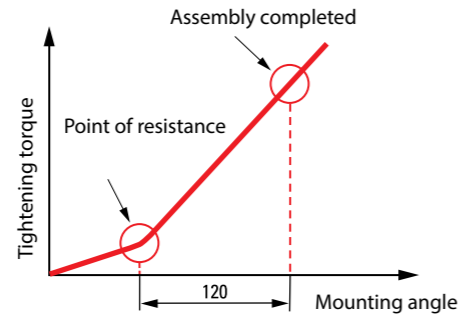
A

Fully leak-proof

A metal-to-metal seal between the contoured WalformPlus-M profile and the inner 24° taper of the fitting stud ensures that the only possible leakage path is sealed off.

Assembly made easy

- Low tightening torque
- Short tightening rotation
- Clearly noticeable torque increase
- Protection against excessive tightening
- Can be re-assembled as often as required



Reliable tube retention

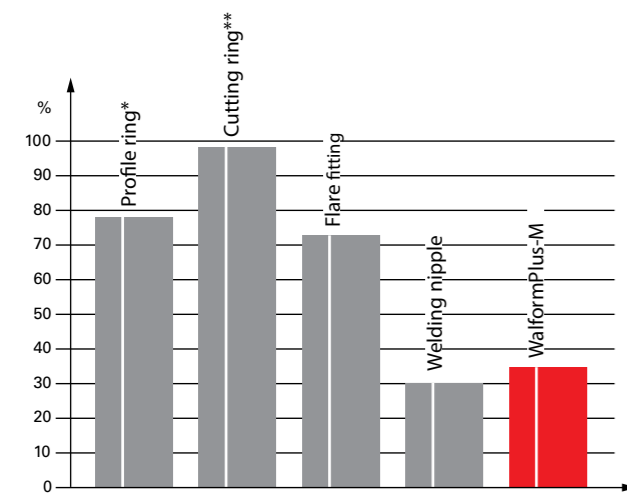
Thanks to the positive-locking connection, the system provides absolute safety even under the most extreme loads. This ensures reliable tube retention even in the event of insufficient or excessive tightening and prevents the tube from slipping out.

Easy to assemble

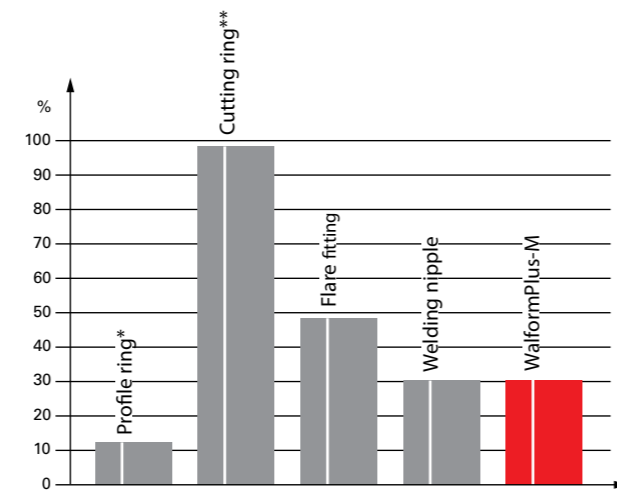
Installation made easy, with reproducible results.

Thanks to its unique geometry, the assembly of the WalformPlus-M system is user-friendly and offers effective protection against excessive tightening.

Comparison of the required torque



Comparison of the required tightening rotation



*after controlled final assembly **with and without soft seal

High dynamic load capacity

The WalformPlus-M geometry of the reshaped tube ensures excellent performance under dynamic loads, such as reversed bending stress and dynamic pressure impulses. The WalformPlus-M system has been tried and tested many times over, both in practice and through extensive testing.

A

High nominal pressure ratings

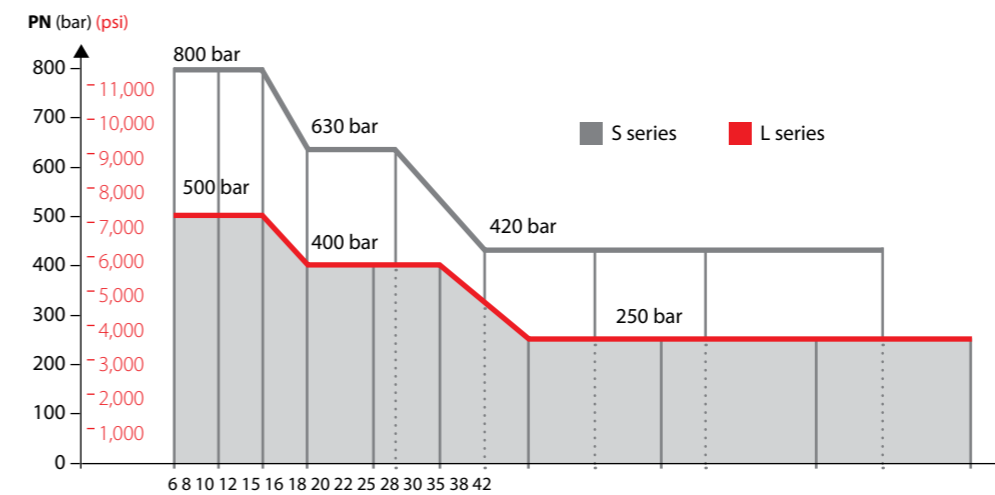
PN – nominal pressure

Nominal pressure is an approximate pressure rating that is commonly used.

Burst-pressure tests must be carried out at no less than four times the nominal pressure of the fitting. Pressure-impulse tests must be carried out at no less than 1.33 times the nominal pressure of the fitting at one million load cycles.

- L series for nominal pressure up to 500 bar
- S series for nominal pressure up to 800 bar
- Only Waltech original parts should be used for high nominal pressure ratings

Nominal pressure ratings of the WalformPlus-M fittings*



*The nominal values shown refer to steel products.

A WalformPlus-M tube fittings



Highly cost-effective

- Only two components (which reduces the costs for material and logistics)
- Much lower costs
- Compared to welding, no preparatory or finishing work required

The positive-locking connection and the metal-to-metal seal ensure a high degree of safety

- Rugged metal-to-metal seal
- Fully leak-proof
- Approved for use in safety-related applications
- Avoids the side effects of elastomer seals

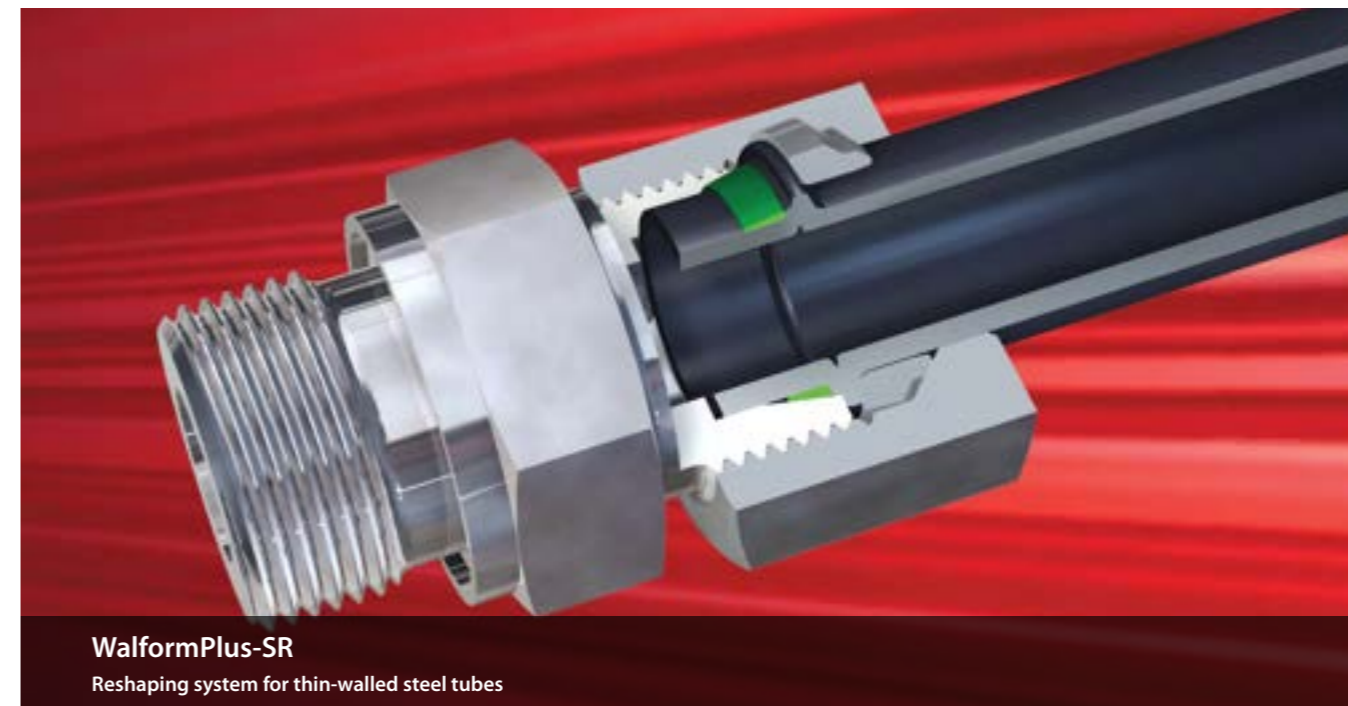
Very easy to assemble

- Only one separation/sealing point
- Short installation time, low torque
- Extremely easy to assemble
- Significantly lower tightening torque compared to conventional cutting-ring fittings

Approvals and test certificates

- American Bureau of Shipping
- DNV-GL
- Lloyd's Register of Shipping
- Polish Register of Shipping

A



WalformPlus-SR
Reshaping system for thin-walled steel tubes

Functional characteristics: WalformPlus-SR tube fittings

WalformPlus-SR – the ideal connection system for thin-walled tubes

WalformPlus-SR is a positive-locking fitting system for thin-walled steel tubes. The mechanically reshaped tube end is screwed together using an additional support ring as well as a conventional DIN/ISO stud and a DIN/ISO union nut, while the only possibly leakage path is sealed off by means of an elastomer ring. A characteristic feature of this series is the additional support ring, which allows the proven WalformPlus system to be used even on thin-walled tubes.

Thanks to the positive-locking connection and the additional support ring, WalformPlus-SR ensures secure retention as well as greater resistance to dynamic loads.

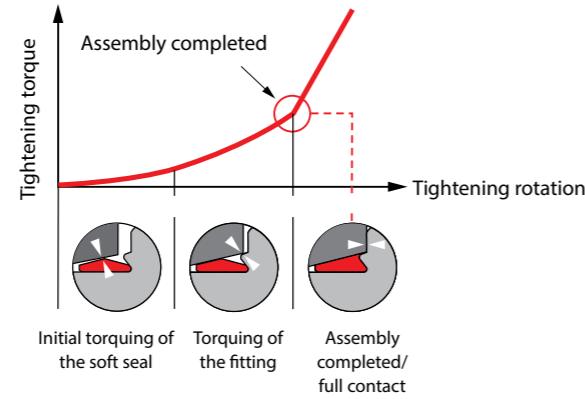
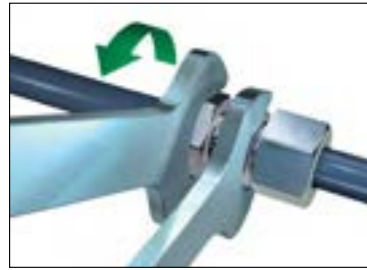
A

Fully leak-proof

The only possible leakage path is sealed off in two ways: first by the WalformPlus soft seal and secondly by means of the metal-to-metal seal between the patented WalformPlus shoulder and the fitting stud.

Assembly made easy

- A clear increase in the required tightening force
- Significantly lower tightening torque
- Clearly noticeable torque increase
- Short tightening rotation
- Effective protection against excessive tightening Can be re-assembled as often as required



Reliable tube retention

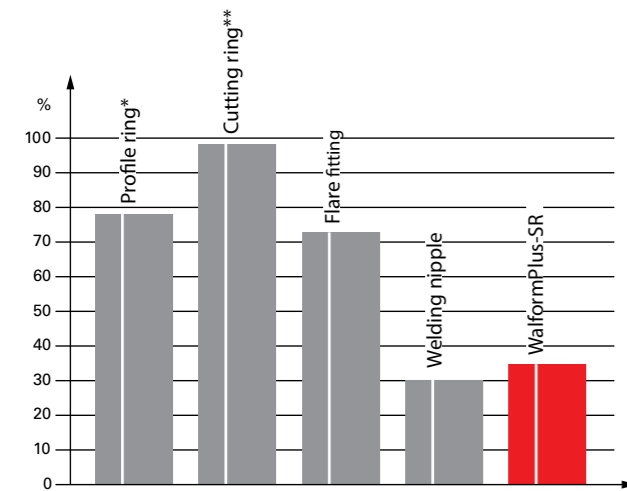
Thanks to the positive-locking connection, the system provides absolute safety even under the most extreme loads. This ensures reliable tube retention even in the event of insufficient or excessive tightening and prevents the tube from slipping out.

Easy to assemble

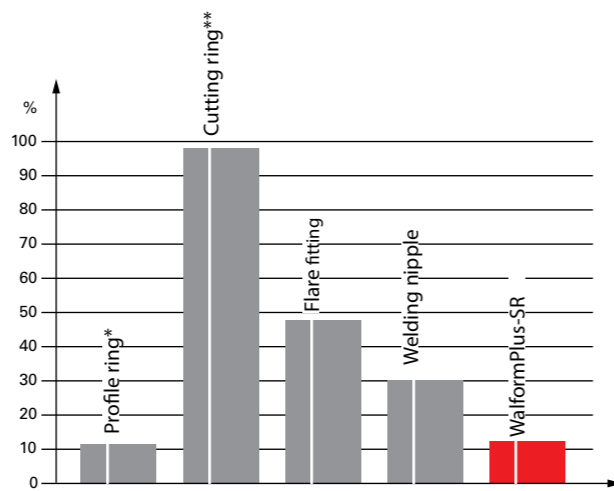
Installation made easy, with reproducible results.

Thanks to its unique geometry, the assembly of the WalformPlus-SR fittings is easy and user-friendly, and a noticeable increase in the required tightening force indicates that the process has been completed. Due to the short tightening rotation and the low torque, the installation process only takes a fraction of the time required for conventional tube-fitting systems. There is thus no need to comply with specific angles or to look for other signs that the process has been completed. Torque-based assembly is also possible.

Comparison of the required torque



Comparison of the required tightening rotation



*after controlled final assembly **with and without soft seal

High dynamic load capacity

The WalformPlus-SR geometry of the reshaped tube ensures excellent performance under dynamic loads, such as reversed bending stress and dynamic pressure impulses. The WalformPlus-M system has been tried and tested many times over, both in practice and through extensive testing.

A

High nominal pressure ratings

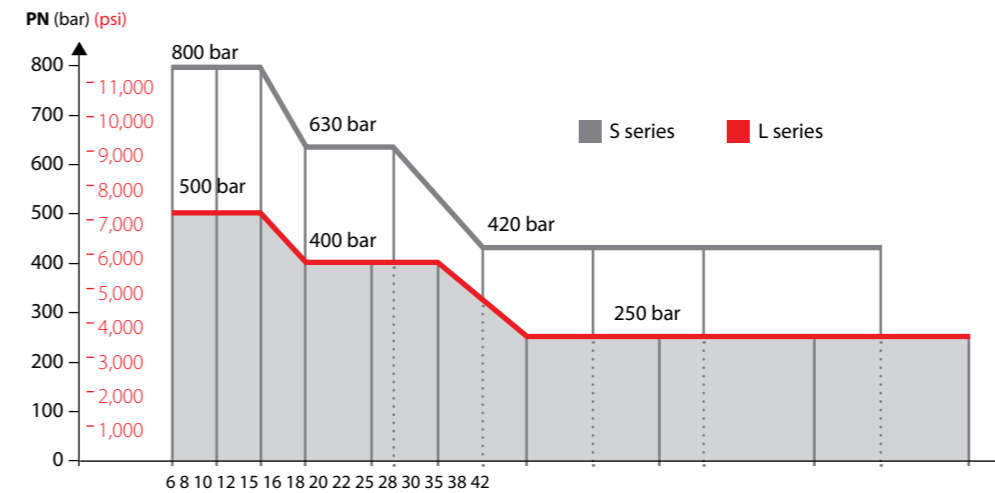
PN – nominal pressure

Nominal pressure is an approximate pressure rating that is commonly used.

Burst-pressure tests must be carried out at no less than four times the nominal pressure of the fitting. Pressure-impulse tests must be carried out at no less than 1.33 times the nominal pressure of the fitting at one million load cycles.

- L series for nominal pressure up to 500 bar
- S series for nominal pressure up to 800 bar
- Only Waltech original parts should be used for high nominal pressure ratings

Nominal pressure ratings of the WalformPlus-SR fittings*



*The nominal values shown refer to steel products.

A

WalformPlus-SR tube fittings**Highly cost-effective**

- Enables the use of the WalformPlus system on thin-walled tubes
- Lower cost
- Compared to welding, no preparatory or finishing work required

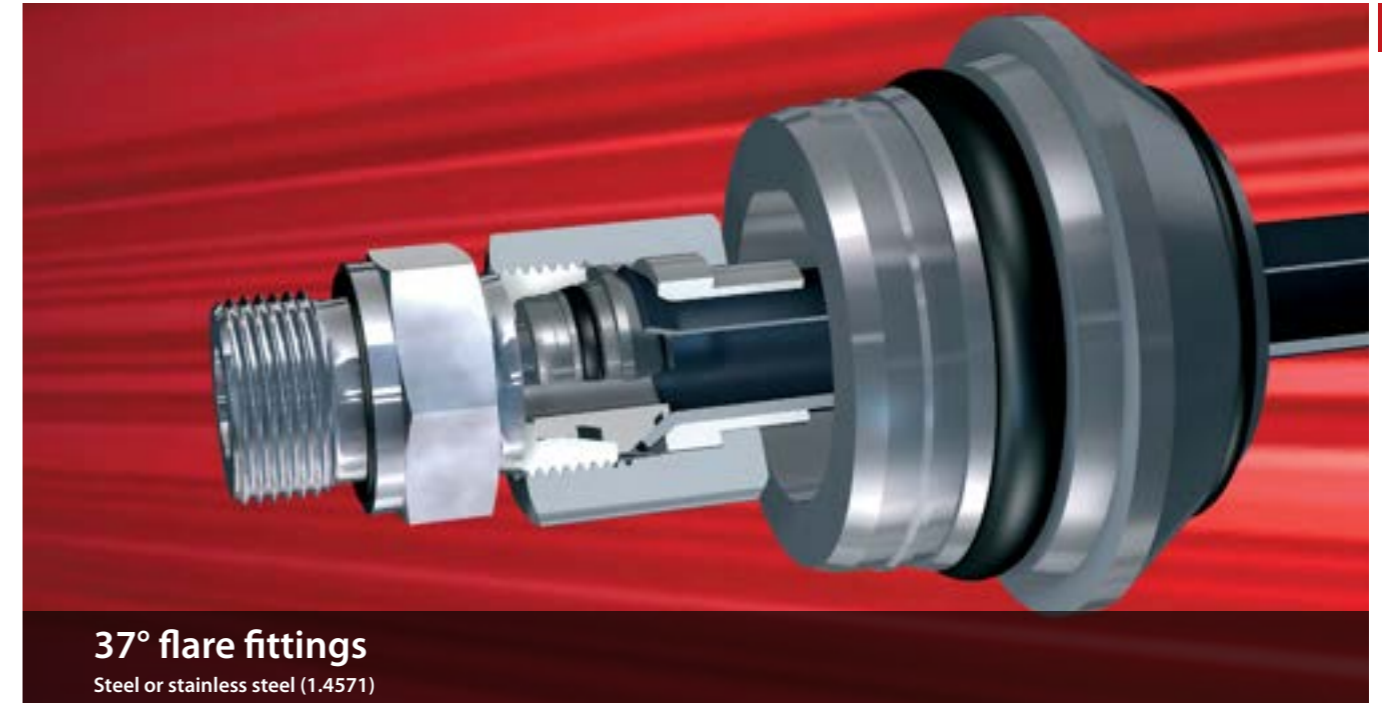
Increased safety thanks to the positive-locking connection

- High compressive strength
- Fully leak-proof
- Approved for use in safety-related applications
- High tolerance for assembly errors

Very easy to assemble

- Only one separation/sealing point
- Short installation time, low torque
- Extremely easy to assemble
- Significantly lower tightening torque compared to conventional cutting-ring fittings
- Easy assembly/clear indication when the assembly is completed

A

**37° flare fittings**

Steel or stainless steel (1.4571)

Functional characteristics: 37° flare fittings

Thanks to its ideal design, the four-component Danfoss Waltech flare fitting system enables the safe and leak-proof connection of flared tubes to standardized fitting studs according to DIN2353 / ISO 8434-1.

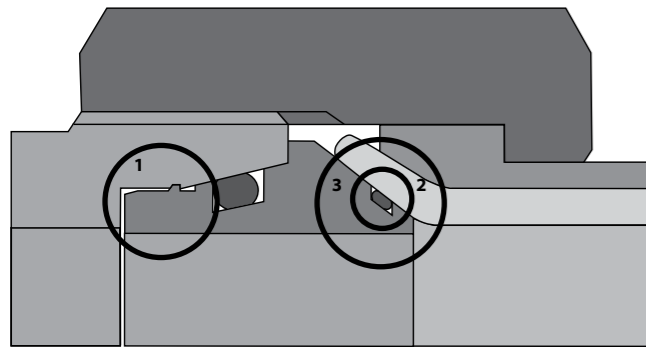
The fitting consists of the following parts:

- Fitting stud according to DIN2353 / ISO 8434-1
- Intermediate ring with 2 elastomer seals and retaining collar
- Sleeve
- Flared union nut

The central component – the intermediate ring – forms the transition from the 24° cone of the fitting stud to the SAE-compliant 37° flare connection. Two O-rings are used to seal the stud cone and the flare connection, which ensures excellent sealing properties even in the event of pressure impulses. When the union nut is tightened, the intermediate ring is pressed into the fitting taper and deforms the retaining collar until it comes into contact with the intermediate ring and thus limits any further penetration. This prevents any detrimental expansion of the fitting stud. After tightening, the intermediate ring will be permanently connected to the fitting stud, which makes it significantly easier to re-assemble the fitting. The fitting can be removed and re-assembled as often as required. The sleeve ensures safe and notch-free tube clamping and thus guarantees high fatigue strength.

A Computer-optimized technology for flare tube fittings

The Danfoss Waltech 37° flare tube-fitting system has been fully optimized to meet current and future market requirements. We have used state-of-the-art calculation methods to achieve high performance and installation safety, which is largely based on the optimized geometry of the individual parts. Two elastomer seals ensure excellent sealing properties, while the retaining collar on the intermediate ring facilitates safe handling.



1 Retaining collar on the intermediate ring

2 Additional elastomer seal

3 Optimized part geometry

- Large flare
- Optimized sleeve
- Notch-free tube clamping

Intermediate ring with two elastomer seals



A

High precision sealing

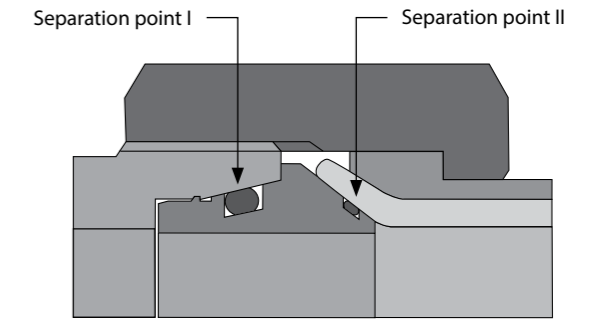
- Elastomer seals for both separation points
- No settling of the connection

Elastomer seals for both separation points

- Separation point I:
Fitting stud – intermediate ring
- Separation point II:
Intermediate ring – tube

No settling of the connection

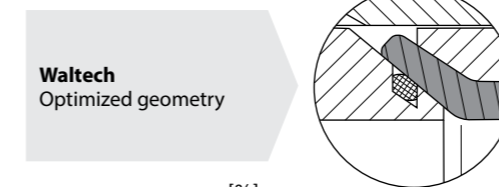
- Positive-locking connection between intermediate ring and fitting stud
- Positive-locking connection between sleeve and tube



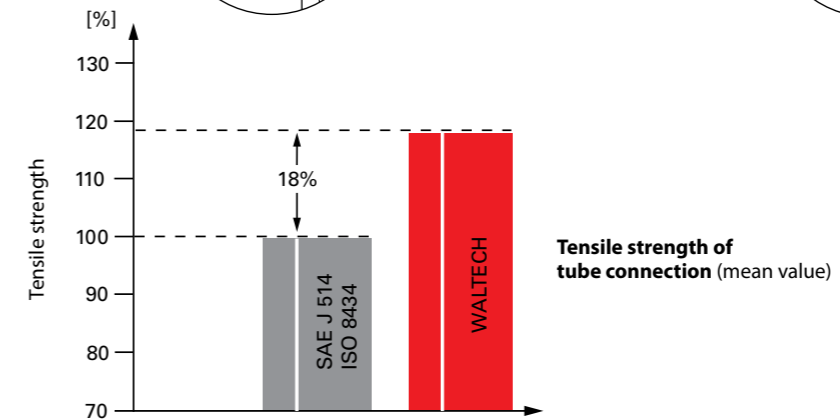
Reliable tube retention

- Large flare and optimized sleeve design
- High tensile strength
- No risk of disconnection in the event of insufficient tightening

Danfoss Waltech version



SAE version



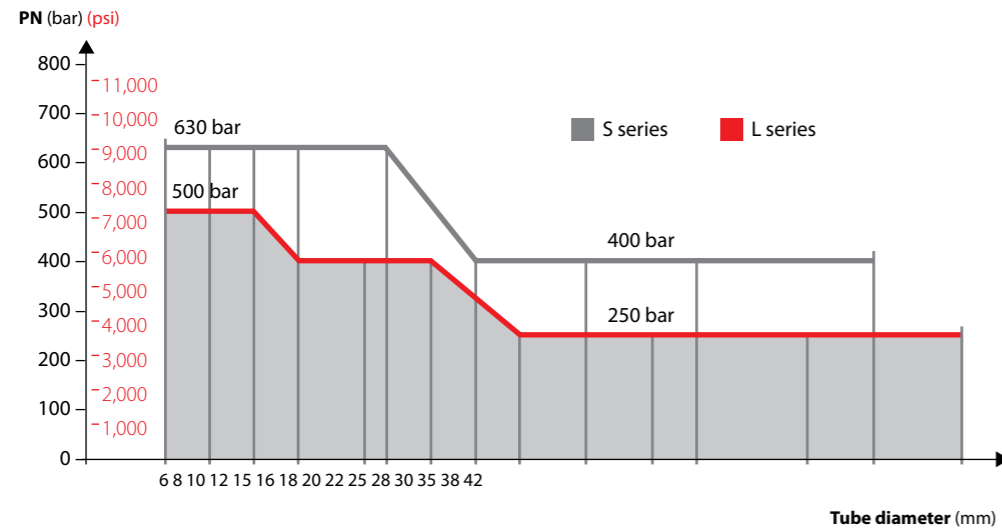
A High nominal pressure ratings

PN – nominal pressure

Nominal pressure is an approximate pressure rating that is commonly used. Burst-pressure tests must be carried out at no less than four times the nominal pressure of the fitting. Pressure-impulse tests must be carried out at no less than 1.33 times the nominal pressure of the fitting at one million load cycles.

- L series for nominal pressure up to 500 bar
- S series for nominal pressure up to 630 bar
- Only Waltech original parts should be used for high nominal pressure ratings

Nominal pressure ratings of the 37° flare fittings*

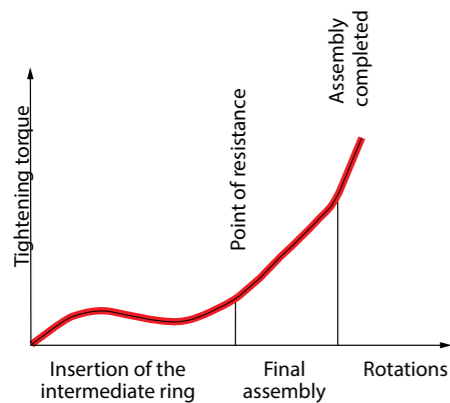


*The nominal values shown refer to steel products.

Safe installation

- Noticeable torque increase during initial assembly
- The retaining collar of the intermediate ring ensures safe re-assembly

Tightening torque curve



High fatigue strength

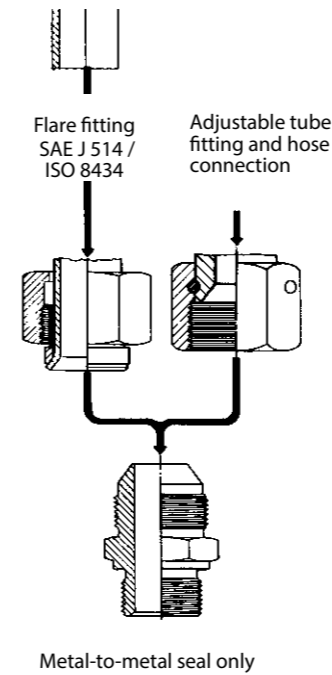
- Safe tube clamping
- Notch-free tube clamping

Standard solution

- Fitting studs according to DIN 2353 / ISO 8434-1

A

Connection in accordance with SAE J 514/ISO 8434



The Danfoss Waltech flare fitting (DIN 3949) as compared to flare fittings according to SAE J 514/ISO 8434

Compared to SAE J 514/ISO 8434 flare fittings, the fitting stud to DIN 2353 allows for a larger tube flare, so that tubes with greater wall thickness can be used. In addition, this also enables the use of elastomer seals on the tube side.

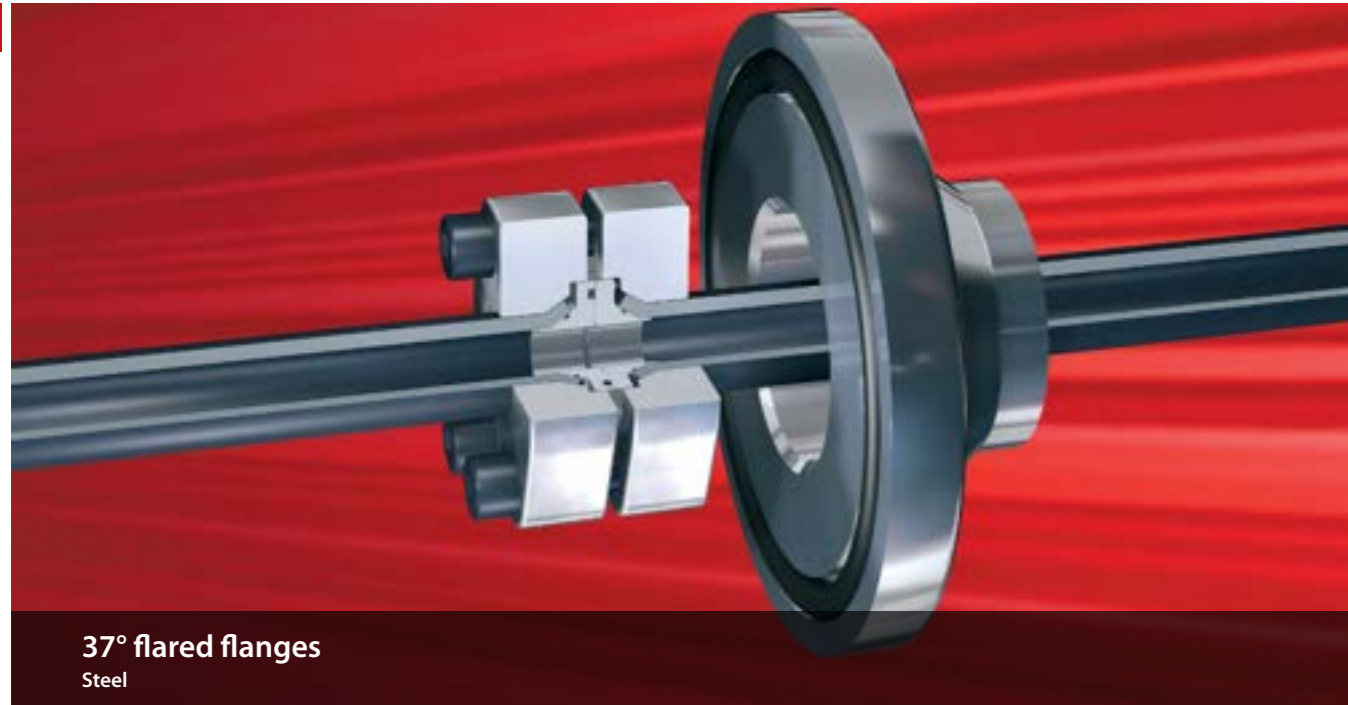
The Danfoss Waltech flare tube fittings are also perfectly matched to the various tube fitting and hose connection options of the L and S series: cutting ring/profile ring, welding nipple and taper with O-ring. The use of standard studs, hoses and fittings reduces the number of components and thus simplifies warehousing.

SAE J 514/ ISO 8434 flare fittings require separate studs and hose connections.

Approvals and test certificates

- American Bureau of Shipping
- Bureau Veritas
- DNV-GL
- Lloyd's Register of Shipping

A



37° flared flanges
Steel

Functional characteristics: 37° flared flanges

to SAE J518/ISO 6162

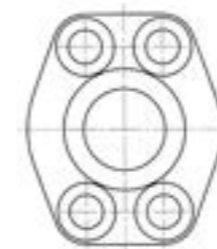
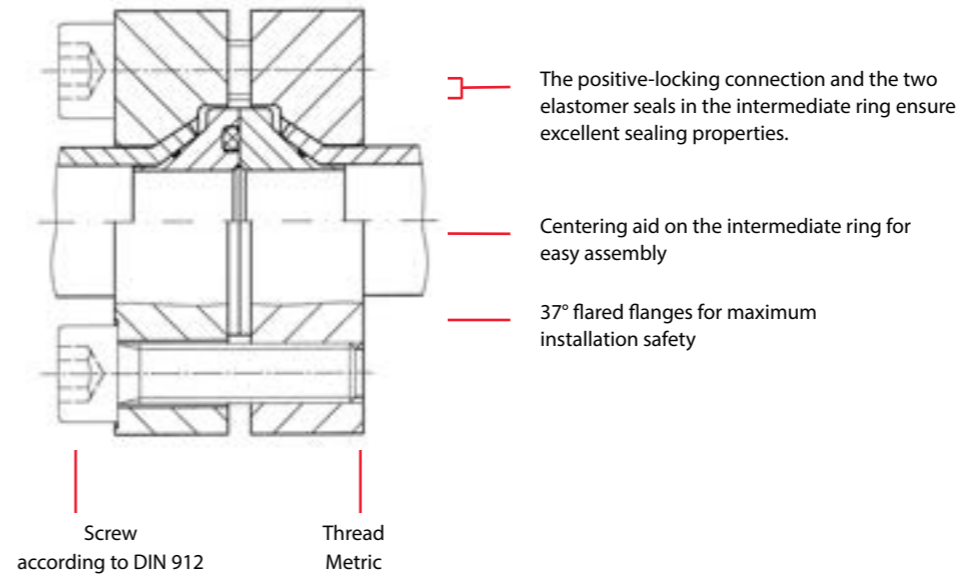
The "SAE 37°" flared-flange product line is a cost-effective alternative to tube connections that previously had to be welded.

No tack welding, welding or pickling, which translates into dramatically lower investment costs for the necessary production equipment.

And Danfoss Waltech also offers electronically controlled reshaping machines for flaring from 16 mm and up. This ensures streamlined production with a high and consistent level of quality – both in the factory and in the field.

A

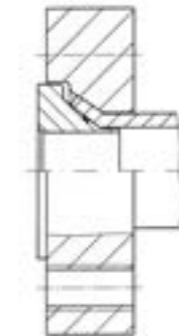
Connections without welding



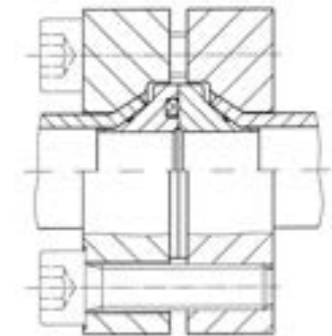
The external dimensions, the distances between the holes (hole pattern) and the dimensions of the flange connection correspond to SAE J 518 and ISO 6162:1994 (E).



BO-FK
Flange assembly



BO-FGK
Flange counterpart assembly



BO-FVK
Flange connector assembly

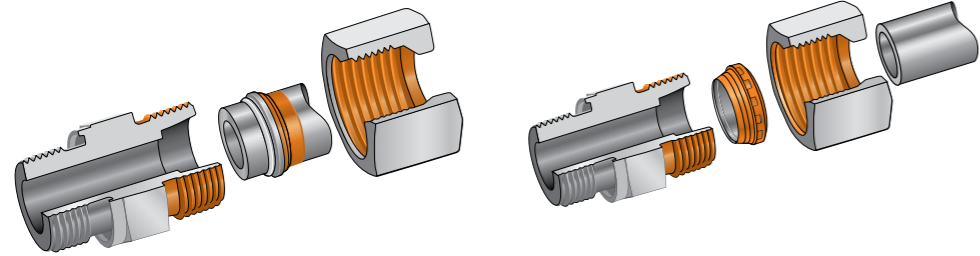


A Danfoss Waltech ABF grease (anti-block grease)

Special grease for the installation of stainless steel couplings (1.4571)

- Prevents gripping
- Reduces the friction coefficient

Application examples

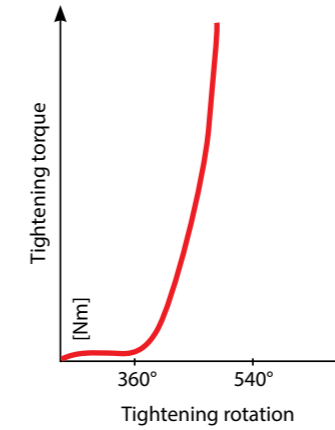


Before assembly, the fittings must be thoroughly cleaned and all contact surfaces must be coated with a sufficient quantity of anti-block grease using a brush or lint-free cloth. After greasing, the fittings must be immediately assembled to prevent contamination. The assembly instructions of the respective tube-fitting systems must be observed.



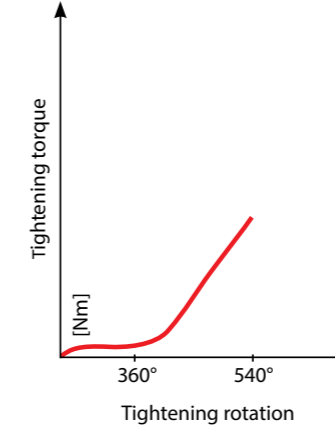
Assembly tests with Danfoss Waltech ABF grease (anti-block grease)

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Assembly without Danfoss Waltech ABF grease (anti-block grease)

- Gripping may occur
- High tightening torque due to friction, which results in a loss of tightening force
 - Insufficient preload of the connection



Assembly with Danfoss Waltech ABF grease (anti-block grease)

- Reduced friction and elimination of gripping
- Simplified assembly thanks to a reduction in the tightening torque of up to 70 %
- Reduced torsional stress on the fitting body
- Strong grease adhesion on the contact surfaces

Note: For best results, use silver-plated stainless steel nuts (AG/AGP) plus Danfoss Waltech ABF grease (anti-block grease). For applications at temperature ranges from 110°C to 400°C, we recommend our ABF-HT anti-block grease for high temperatures. Please consult us for more information. Note: Not approved for use in drinking water applications!

Available quantities:

Can of 1000 g

Order no. WAL371741

Tube of 100 g

Order no. WAL624320

B

Technical information



B

Materials and finishes 3

Pressure strength and temperature resistance 5

Calculated pressures and tolerances of seamless precision-steel tubes 11

Stud and port types 14

Stud connection dimensions 16

Table for length correction 17

Overview of the applicable standards 18

Fitting materials

Danfoss Waltech fittings are made from drawn or forged steel. The materials used are in accordance with DIN 3859-1 (Technical specifications for tube fittings). Union nuts are either cold- or hot-pressed. Our fittings are also available in stainless steel type 1.4571 (X6CrNiMoTi17122) as per DIN EN 10088-3 and DIN EN 10222-5, respectively. Special materials on request.

Sealing materials

Fitting material		Sealing materials*	
Steel	Stainless steel (1.4571)	As standard	On request
●		NBR	FPM
	●	FPM	NBR
WalringPlus soft seal		FPM	NBR / EPDM
Walring soft seal		FPM	NBR / EPDM

*NBR (e.g. Perbunan®); FPM (e.g. Viton®)

⚠ Caution: DIN 7716 applies to all fittings with elastomer seals (Elastomers: storage, cleaning, maintenance). Store in a dry, cool place (below 25 °C) and away from drafts and protect from sunlight, ozone and strong artificial light.

Special care must be taken with pre-assembled NBR O-rings, which are particularly sensitive to drafts and ozone exposure. Brittle fracture will occur if stored in open areas that are not protected from light and drafts! Recommendation: Use O-rings made of Viton (not sensitive to drafts and ozone).

Material	Description	Surface protection/finish		
		A4GS/A2GS	A4GS/A2GS + anti-friction coating	Znphr5f
Steel	Fitting body	●		
	Union nuts		●	
	Profile rings	●		
	Welded socket			●

- Danfoss Guardian Seal™ technical data sheet
- Znphr5f to DIN EN ISO 3892 and DIN 50942

Material	Description	Surface protection/finish	
		Untreated	Silver-plated
Stainless steel (1.4571)	Fitting body	●	
	Union nuts Up to size 12L/10S	●	
	Union nuts From size 15L/12S	●	●
	Profile rings	●	
	Welded socket	●	

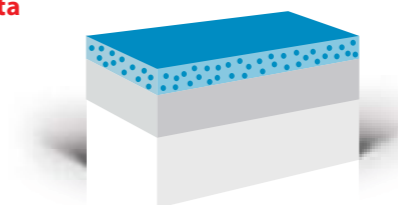
Finishes

All steel product lines are galvanized with the unique Danfoss Guardian Seal™ finish and are chrome-6-free. The silver finish lends the tube fittings an attractive appearance. The Guardian Seal™ finish offers significant advantages in terms of occupational safety and environmental protection, and it meets the latest EU legislative requirements (e.g. Directive 2000/53/EC). The finish can be easily painted over with standard industry paints (please make sure to follow the manufacturer's instructions). The steel union nuts are anti-friction coated to reduce torque. All welded fittings are phosphated.

Media

Danfoss Waltech fittings are designed for use with commercially available hydraulic oils. When using special media, such as flame-retardant fluids or native oils, please consult our application support team.

Guardian Seal™ technical data



Layer structure:

- Zinc base layer
- Micro-passivation
- Micro-impregnation

Layer thickness:

- Zinc layer: 10-15 µm (for some products 5-7 µm)
- Micro-passivation: 0.3 µm
- Micro-impregnation: < 2 µm

Corrosion resistance to DIN EN ISO 9227:

- Danfoss Waltech Products: 360 hours to white rust 1,000 hours to red rust

Coloring:

- The Guardian Seal coating gives the Danfoss Waltech tube fittings a consistent silver finish.

Paintable:

- The Guardian Seal coating can be painted with commercially available paints. If necessary, paint adhesion can be checked by means of a cross cut (DIN ISO 2409).

Resistance to fluids:

- Guardian Seal is resistant to standard hydraulic fluids.

Environmental compatibility:

- Guardian Seal complies with the EU End-of-Life Vehicle Directive (ELV 2000/53/EC).

Friction coefficients / installation behavior:

- No change in the installation and disassembly behavior/torques compared to Cr (III)-coated Danfoss Waltech fittings.

Combining Guardian Seal fittings with Cr (III)- or ZnNi-coated fittings:

- It is possible to combine Guardian Seal-coated fittings and chrome (III)- and zinc-nickel-coated fittings.



Pressure strength and temperature resistance

Pressure strength

PB – operating pressure

The allowable operating pressure of a component is the maximum permissible positive pressure inside that component at the permissible operating temperature (TB) during fault-free operation, based on the material in question and the relevant formulas.

PN – nominal pressure

Nominal pressure is an approximate pressure rating that is commonly used.

Pressure ranges

Series	Steel – profile ring + Waling + Walform			Stainless steel – profile ring + Walform (1.4571)				
	Tube outer diameter	Nominal pressure		Tube outer diameter	Nominal pressure of profile ring 1.4571		Nominal pressure Walform 1.4571	
		bar	psi		bar	psi	bar	psi
LL (very light, cutting ring only)	4-8	100	1,450	4-8	100	1,450	-	-
L (light)	6-10	500	7,252	6-12	400	5,801	400	5,801
	12-18	400	5,801	15-18	315	4,569	315	4,569
	22-42	250	3,626	22-42	160	2,321	250	3,626
S (heavy)	6-10	800	11,603	6-16	630	9,137	630	9,137
	12-16	630	9,137	20-30	400	5,801	400	5,801
	20-38	420	6,091	38	315	4,569	330	4,786

Series	Steel – flare fitting			Stainless steel – flare fitting		
	Tube outer diameter	Nominal pressure		Tube outer diameter	Nominal pressure	
		bar	psi		bar	psi
L (light)	6-10	500	7,252	6-12	400	5,801
	12-18	400	5,801	15-18	315	4,569
	22-42	250	3,626	22-42	160	2,321
S (heavy)	6-10	630	9,137	6-16	630	9,137
	20-38	420	6,091	20-30	400	5,801
				38	315	4,569

⚠ Caution: Some models have different nominal pressure ratings. Please refer to the respective nominal pressure ratings of each model. The nominal pressure ratings are also available on request.

Pressure strength and temperature resistance



Temperature range

Fitting and sealing materials must be selected in accordance with the operating temperature

Material	Permissible operating temperature TB °C												
	-60	-40	-35	-25	+20	+50	+80	+100	+120	+175	+200	+250	+400
Steel fittings*		●	●	●	●	●	●	●	●				
Stainless steel fittings (1.4571)	●	●	●	●	●	●	●	●	●	●	●	●	●
Sealing material NBR (e.g. Perbunan)			●	●	●	●	●	●					
Sealing material FPM (e.g. Viton®)				●	●	●	●	●	●	●			
Sealing material POM (e.g. Delrin®)		●	●	●	●	●	●						

● Permissible operating temperature

- If different fitting and sealing materials are used, the lowest specified temperature applies!
- Registered trademarks: Perbunan (Bayer), Viton (Chemours), Delrin (DuPont)
- Special materials on request.

At present, the manufacturers of the materials 11SMnPb30, 11SMn30, 11SMnPb30+C (or equivalent) according to DIN EN 10087 and DIN EN 10277-3 do not confirm cold resistance at temperatures of -40 °C. However, the practical experience of hose and tube-fitting manufacturers to date has not indicated any negative consequences.

Safety

The nominal pressure (PN) and operating pressure (PB) ratings of the fittings indicate the maximum permissible operating pressures, including pressure peaks. The information given under the "temperatures" and "pressure reductions" headings must be observed.

Under static load (up to 120 °C), the functional safety of fittings with PN ratings is 4-fold, and that of fittings with PB ratings is 2.5-fold or 1.5-fold. For ball valves, banjo fittings and swivel banjos, the specified safety properties must be taken into account. Strong pressure surges and mechanical stresses, such as vibrations, require special consideration.

The specified pressure and safety ratings are dependent on compliance with the Danfoss Waltech assembly instructions. An additional prerequisite is the stress-free installation of the tube assembly systems (a sufficient number of tube clamps must be used).

Note

At temperatures < -20 °C, the use of fittings made from free-cutting steel is at the discretion of the user.

Pressure reductions

Stainless steel 1.4571 can accommodate pressure reductions, depending on the temperature. (DIN EN 10088-3, DIN EN 10216-5)

⚠ Caution: If different fitting and sealing materials are used, the lowest specified temperature applies!

Temperature	Pressure reduction
-60 °C to +20 °C	-
+50 °C	4.5 %
+100 °C	11 %
+200 °C	20 %
+300 °C	29 %
+400 °C	33 %

Resistance to different media

The following table shows the compatibility of different elastomers and metals depending on the hydraulic fluid being used. This table is intended for use with Danfoss fittings and should not be used to determine compatibility with other products. It is intended for reference purposes only and does not constitute any warranty. The definitive selection of the correct materials for the seals and metal components depends on many additional factors, including pressure, ambient temperature, concentration, exposure time, etc.

How to use this table

- When determining the suitability of a combination of materials for a fitting, both the elastomer and the metal must be considered.
- Identify the hydraulic fluid and determine the suitability of the elastomer and metal components in accordance with the specified resistance ratings.
- For the dimensions and operating data of each fitting component, please refer to the relevant catalog pages.
- For information on the various sealing options for fittings and how to select them, see the relevant sections of this catalog.
- Use the table above to determine the maximum operating temperature range of the elastomer you intend to use.
- For more information on the products listed in this catalog and their applications, contact your Danfoss sales representative or Danfoss's Technical Support.

Resistance ratings

- E = excellent - fluid has little or no effect
- G = good - fluid has low to moderate effect
- C = conditional - please consult Danfoss regarding the operating conditions to determine suitability for your application
- U = unsatisfactory

The difference between the "E" and "G" ratings is relative, as both indicate satisfactory performance. Where there is a choice, the materials rated "E" can be expected to offer better or longer performance than those rated "G".

The following tables are for reference purposes only. This table contains information on material compatibility only and is not intended as an application guide.

Fluid Seal Metal	NBR (e.g. Perbunan®)	FPM (e.g. Viton®)	Steel	Stainless steel
Acetaldehyde	U	U	G	E
Acetic acid, 10 %	U	G	U	C
Acetic acid, glacial acetic acid	U	U	U	C
Acetone	U	U	E	E
Acetophenone	U	U	E	E
Acetyl acetone	U	U	U	C
Acetyl chloride	U	E	C	C
Acetylene (1)	G	E	E	E
Air, hot (up to +160 °F)	E	E	E	E
Air, hot (161 °F - 200 °F)	C	E	E	E
Air, hot (201 °F - 300 °F)	U	E	E	E
Air, wet (below 160 °F)	E	E	U	E
Aluminum chloride, 10 % aqueous	E	E	U	U
Aluminum fluoride, 10 % aqueous	E	E	U	U
Aluminum nitrate, 10 % aqueous	E	E	U	C

Fluid Seal Metal	NBR (e.g. Perbunan®)	FPM (e.g. Viton®)	Steel	Stainless steel
Aluminum sulfate, 10 % aqueous	E	E	U	C
Alums, 10 % aqueous	E	E	U	C
Ammonia, cold	E	U	E	E
Ammonia, hot	U	U	E	E
Ammonia, anhydrous	G	U	E	E
Ammonia, aqueous	E	U	E	E
Ammonium carbonate, 10 % aqueous	U	U	C	C
Ammonium chloride, 10 % aqueous	G	U	U	U
Ammonium hydroxide, 10 % aqueous	C	C	G	C
Ammonium nitrate, 10 % aqueous	E	U	G	G
Ammonium phosphate, 10 % aqueous	E	-	U	E
Ammonium sulfate/sulfide, 10 % aqueous	E	U	U	U
Amyl acetate	U	U	E	E
Amyl alcohol	G	G	G	U
Aniline, aniline oil	U	U	E	E

Resistance to different media

Fluid Seal Metal	NBR (e.g. Perbunan®)	FPM (e.g. Viton®)	Steel	Stainless steel
Aniline dyes	U	G	U	G
Asphalt, < 200 °F	G	E	E	E
IRM 901 oil	E	E	E	E
IRM 902 oil	E	E	E	E
IRM 903 oil	E	E	E	E
Automatic transmission fluid	E	E	E	E
Barium chloride, 10 % aqueous	E	E	U	G
Barium hydroxide, 10 % aqueous	E	E	G	G
Barium sulfide, 10 % aqueous	E	E	C	G
Benzene	U	E	G	E
Benzoic acid	U	E	U	G
Benzyl alcohol	U	E	E	E
Biodiesel (< B20)	G	E		
Biodiesel (> B20)	G	E		
Black sulfate liquor	C	E	E	E
Blast furnace gas	U	E	E	E
Borax, 10 % aqueous	G	E	E	E
Boric acid, 10 % aqueous	G	E	U	C
Brine	E	E	U	G
Bromine, dry	U	E	U	U
Butane	E	E	E	E
Butyl acetate	U	U	E	E
Butyl alcohol	E	E	G	G
Butyl Cellosolve	U	U	E	E
Butylene	C	E	E	E
Butyl stearate	G	E	G	G
Butyraldehyde	U	U	E	E
Calcium acetate, 10 % aqueous	G	U	G	G
Calcium bisulfate, 10 % aqueous	E	E	U	C
Calcium hydroxide, 10 % aqueous	E	E	G	G
Calcium hydroxide, 10 % aqueous	E	E	G	G
Calcium hypochlorite, 10 % aqueous	U	E	U	C
Calcium nitrate, 10 % aqueous	E	E	G	G
Carbitol	G	G	E	E
Carbolic acid	U	E	U	E
Carbonic acid	G	E	U	E
Carbon dioxide, dry	G	E	E	E
Carbon disulfide	U	E	G	G
Carbon monoxide	G	E	E	E
Carbon tetrachloride	U	E	U	G
Castor oil	E	E	E	E
Cellosolve acetate	U	U	U	E
China wood oil (tung oil)	G	E	E	E
Chlorine, dry	U	G	C	C
Chloroacetic acid	U	U	U	U
Chloroacetone	U	U	G	G
Chlorobenzene	U	G	G	G
Chloroform	U	E	G	G
O-chlorophenol	U	E	G	G
Chlosulfonic acid	U	U	G	G
Chrome plating solution	U	E	C	U

Fluid Seal Metal	NBR (e.g. Perbunan®)	FPM (e.g. Viton®)	Steel	Stainless steel
Chromic acid	U	E	C	U
Citric acid	E	E	C	C
Coke oven gas	U	E	E	E
Copper chloride, 10 % aqueous	E	E	U	U
Copper cyanide, 10 % aqueous	E	E	E	G
Copper sulfate, 10 % aqueous	E	E	U	G
Cotton seed oil	E	E	E	E
Creosote (coal tar)	G	E	E	E
Crude oil	E	E	G	G
Cyclohexanol	E	E	E	E
Cyclohexanone	U	U	E	E
Detergent/water solution	E	E	G	E
Diacetone alcohol (acetol)	U	U	E	E
Dibenzyl ether	U	U	G	G
Diesel oil	E	E	E	E
Diethylamine	G	U	E	E
Diethyl phthalate (DOP)	U	G	E	E
DOT #3/#4 brake fluid	C	U	E	E
Dowtherm A&E	U	E	G	E
Ethyl alcohol (ethanol)	E	E	E	E
Ethyl acetate	U	U	E	E
Ethyl benzene	U	E	E	G
Ethyl cellulose	G	U	E	G
Ethyl chloride	U	E	E	E
Ethylene dichloride	U	G	G	G
Ethylene glycol	E	E	U	E
Ferric chloride, 10 % aqueous	E	E	U	U
Ferric nitrate, 10 % aqueous	E	E	U	G
Ferric sulfate, 10 % aqueous	G	E	U	E
Formaldehyde	C	G	E	E
Formic acid	C	U	U	C
Fuel oil	E	E	E	E
Furfural	C	U	G	G
Gallic acid, solution	G	E	U	G
Gasoline	E	E	E	E
Gasohol	G	E	E	E
Glycerin/glycerol	E	E	E	E
Green sulfate liquor	G	E	U	E
Helium (1)	E	E	E	E
Heptane	E	E	E	E
Hexaldehyde	U	U	G	E
Hexane	E	E	E	E
Hydraulic oils, petroleum base	G	E	E	E
Ester blend	E	E	E	E
Phosphate ester/petroleum blend	U	C	E	E
Silicon oils	E	E	E	E
Straight petroleum base	E	E	E	E
Straight phosphate ester	U	C	E	E
Water glycol	E	E	E	E
Water-petroleum emulsion	E	E	C	E
Hydrobromic acid	U	E	E	E

B

E = excellent
G = good
C = conditional
U = unsatisfactory

Fluid Seal Metal	NBR (e.g. Perbunan®)	FPM (e.g. Viton®)	Steel	Stainless steel
Hydrochloric acid, cold	U	E	U	U
Hydrocyanic acid	C	E	E	G
Hydrofluoric acid	U	U	U	U
Hydrofluorosilic acid	G	E	U	U
Hydrogen	E	E	E	E
Hydrogen peroxide	G	E	U	G
Hydrogen sulfide, dry	U	U	E	G
Isocyanate	U	E	G	G
Iso-octane	E	E	E	E
Isopropyl acetate	U	U	E	E
Isopropyl alcohol	G	E	E	E
Isopropyl ether	G	U	G	G
JP-4, JP-5	E	E	E	E
Kerosene	E	E	E	E
Lacquer/lacquer solvents	U	U	U	E
Lime sulfur	U	E	G	G
Linseed oil	E	E	E	E
LPG	E	E	E	E
Magnesium chloride, 10 % aqueous	E	E	E	C
Magnesium hydroxide, 10 % aqueous	G	E	E	E
Magnesium sulfate, 10 % aqueous	E	E	E	E
Maleic acid	U	E	E	G
Maleic anhydride	U	E	G	E
Malic acid	G	G	U	E
Mercury chloride	E	E	U	U
Mercury	E	E	E	E
Methanol	G	U	G	E
Methyl bromide	G	E	E	G
Methyl chloride	U	E	E	E
Methyl butyl ketone	U	U	E	E
Methyl ethyl ketone	U	U	G	G
Methylene chloride	U	G	G	G
Methyl isobutyl ketone	U	U	G	G
Methyl isopropyl ketone	U	U	G	G
Methyl salicylate	U	U	E	G
MIL-L-2104	E	E	E	E
MIL-H-5606	E	E	E	E
MIL-H-6083	E	E	E	E
MIL-L-7808	G	E	G	E
MIL-L-23699	G	E	E	E
MIL-H-46170	E	E	E	E
MIL-H-83282	E	E	E	E
Mineral oils	E	E	E	E
Naphtha	C	E	-	-
Naphthalene	U	E	E	E
Naphthenic acid	C	E	-	E
Natural gas	E	E	G	G
Nickel acetate, 10 % aqueous	C	G	G	E
Nickel chloride, 10 % aqueous	E	E	U	G
Nickel sulfate, 10 % aqueous	E	E	U	G
Nitric acid, up to 10 %	U	E	U	E



B

E = excellent
G = good
C = conditional
U = unsatisfactory

Fluid Seal Metal	NBR (e.g. Perbunan®)	FPM (e.g. Viton®)	Steel	Stainless steel
Sodium peroxide, 10 % aqueous	G	E	U	C
Sodium phosphates, 10 % aqueous	E	E	U	G
Sodium silicate, 10 % aqueous	E	E	E	E
Sodium sulfate, 10 % aqueous	E	E	C	G
Sodium sulfide, 10 % aqueous	E	E	C	C
Sodium thiosulfate, 10 % aqueous	G	E	U	C
Soy bean oil (B100)	E	E	E	E
Stannic chloride	E	E	U	U
Steam (up to 388 °F)	U	C	E	E
Stearic acid	G	E	C	E
Stoddard solvent	E	E	E	E
Styrene	U	G	E	E
Sulfur, slurry	U	E	E	G
Sulfur chloride, wet	U	E	G	G
Sulfur dioxide, dry	U	E	E	G
Sulfur trioxide	U	E	G	G
Sulfuric acid, up to 10 %	U	E	U	C
Sulfuric acid, above 10 %	U	G	C	G
Sulfurous acid	C	G	U	C
Tannic acid	G	E	E	E
Tar (bituminous)	G	E	E	E

Fluid Seal Metal	NBR (e.g. Perbunan®)	FPM (e.g. Viton®)	Steel	Stainless steel
Tartaric acid	E	E	U	C
Tertiary butyl alcohol	G	E	G	G
Titanium tetrachloride	C	E	E	G
Toluene (toluol)	U	E	E	E
Trichloroethylene	U	E	E	E
Tricresyl phosphate	U	G	E	C
Triethanolamine	E	U	E	E
Tung oil	G	E	E	E
Turpentine	G	E	G	G
Varnish	G	E	E	E
Vinyl chloride	U	E	E	C
Water (up to +150 °F)	E	E	C	E
Water (+151 °F to +200 °F)	E	E	C	E
Water (+201 °F to +350 °F)	U	G	C	E
Water glycol	E	E	E	E
Water-petroleum emulsion	E	E	C	E
Xylene	U	E	E	E
Zinc chloride, 10 % aqueous	E	E	E	U
Zinc sulfate, 10 % aqueous	E	E	U	G



Calculated pressures and tolerances of seamless precision-steel tubes

The use of tube inserts is recommended for thin-walled tube assemblies that are subject to severe stress.

B

Calculation to DIN 2413, scope of application I, for primarily static load conditions at temperatures up to 120 °C		
Material	Steel St E235	Stainless steel 1.4571
Calculation to DIN 2413 (1993-10), scope of application I, for primarily static load conditions at temperatures up to 120 °C		
Yield point/Rp1.0:	235 N/mm ² (DIN EN 10305-4)	245 N/mm ² (DIN EN 10216-5)
Design factor:	1.5	1.5
Allowance factor c1:	10 % of wall thickness	10 % of wall thickness
Allowance factor c2:	0 (no corrosion allowance)	0 (no corrosion allowance)
Calculation to DIN 2413, scope of application III, pulsating load conditions at temperatures up to 120 °C		
Pulsating fatigue limit:	225 N/mm ² see DIN 2413, 4.2.3	190 N/mm ² Assumed value
Allowance factor c1:	10 % of wall thickness	10 % of wall thickness

In case of problems or where other tube materials are involved, please consult our application engineers and the tube manufacturer.

⚠ Caution: At temperatures above 20 °C, the pressure reductions for tube material 1.4571 indicated on page B6 apply.



Calculated pressures and tolerances of seamless precision-steel tubes

We recommend the use of seamless precision-steel tubes according to DIN EN 10305-4, materials E235 and E355. For stainless steel tubes, we recommend the use of seamless, cold-drawn, bright-annealed tube made of X6CrNiMoTi17-12-2 (1.4571), type CFA according to DIN EN ISO 10216-5, with dimensions and tolerances according to DIN EN ISO 10305-4.

B

Outer diameter	Tolerance	Wall thickness	E235		Stainless steel 1.4571	
			*Calculated pressure I	Calculated pressure III	Calculated pressure I	Calculated pressure III
mm	mm	mm	bar	bar	bar	bar
6	±0.08	1.0	409	391	426	330
6	±0.08	1.5	576	551	600	465
8	±0.08	1.0	353	303	368	256
8	±0.08	1.5	452	433	472	366
8	±0.08	2.0	576	551	600	465
10	±0.08	1.0	282	248	294	209
10	±0.08	1.5	373	357	389	301
10	±0.08	2.0	478	458	498	386
10	±0.08	2.5	576	551	600	465
10	±0.08	3.0	666	638	694	539
12	±0.08	1.0	235	209	245	177
12	±0.08	1.5	353	303	368	256
12	±0.08	2.0	409	391	426	330
12	±0.08	2.5	495	474	516	400
12	±0.08	3.0	576	551	600	465
12	±0.08	3.5	651	624	679	527
15	±0.08	1.5	282	248	294	209
15	±0.08	2.0	336	321	350	271
15	±0.08	2.5	409	391	426	330
15	±0.08	3.0	478	458	498	386
16	±0.08	2.0	353	303	368	256
16	±0.08	2.5	386	370	403	312
16	±0.08	3.0	452	433	472	366
16	±0.08	3.5	515	493	537	417
16	±0.08	4.0	576	551	600	465
18	±0.08	1.5	235	209	245	177
18	±0.08	2.0	313	273	327	230
18	±0.08	2.5	348	333	363	281
18	±0.08	3.0	409	391	426	330
20	±0.08	2.0	282	248	294	209
20	±0.08	2.5	353	303	368	256
20	±0.08	3.0	373	357	389	301
20	±0.08	3.5	426	408	444	345
20	±0.08	4.0	478	458	498	386
22	±0.08	1.5	192	173	200	146
22	±0.08	2.0	256	227	267	192
22	±0.08	2.5	320	278	334	235
22	±0.08	3.0	343	328	357	277
22	±0.08	3.5	392	376	409	317
25	±0.08	2.0	226	201	235	170
25	±0.08	2.5	282	248	294	209
25	±0.08	3.0	338	292	353	247
25	±0.08	4.0	394	378	411	319
25	±0.08	4.5	437	418	455	353
25	±0.08	5.0	478	458	498	386
28	±0.08	2.0	201	181	210	153
28	±0.08	2.5	252	223	263	188
28	±0.08	3.0	302	264	315	223
28	±0.08	3.5	353	303	368	256
28	±0.08	4.0	357	342	372	289
28	±0.08	5.0	434	415	452	351

Calculated pressures and tolerances of seamless precision-steel tubes

Outer diameter	Tolerance	Wall thickness	E235		Stainless steel 1.4571	
			*Calculated pressure I	Calculated pressure III	Calculated pressure I	Calculated pressure III
mm	mm	mm	bar	bar	bar	bar
30	±0.08	2.0	188	170	196	143
30	±0.08	2.5	235	209	245	177
30	±0.08	3.0	282	248	294	209
30	±0.08	3.5	329	285	343	241
30	±0.08	4.0	336	321	350	271
30	±0.08	5.0	409	391	426	330
30	±0.08	6.0	478	458	498	386
35	±0.15	2.0	161	147	168	124
35	±0.15	2.5	201	181	210	153
35	±0.15	3.0	242	215	252	181
35	±0.15	3.5	282	248	294	209
35	±0.15	4.0	322	280	336	236
35	±0.15	5.0	357	342	372	289
35	±0.15	6.0	419	401	437	339
38	±0.15	2.5	186	168	193	142
38	±0.15	3.0	223	199	232	168
38	±0.15	3.5	260	230	271	194
38	±0.15	4.0	297	260	309	219
38	±0.15	5.0	332	318	346	268
38	±0.15	6.0	390	373	406	315
38	±0.15	7.0	446	427	465	360
42	±0.20	2.0	134	123	140	104
42	±0.20	2.5	168	153	175	129
42	±0.20	3.0	201	181	210	153
42	±0.20	3.5	235	209	245	177
42	±0.20	4.0	269	237	280	200
48.3	±0.20	3.2	187	169		
50	±0.20	2.5	141	129		
50	±0.20	3.0	169	154		
50	±0.20	5.0	282	248		
50	±0.20	6.0	338	292		
50	±0.20	8.0	394	378		
60	±0.25	3.0	141	129		
60	±0.25	6.0	282	248		
60	±0.25	8.0	336	321		
60	±0.25	10.0	409	391		
60.3	±0.25	3.6	168	153		
60.3	±0.25	5.6	262	231		
60.3	±0.25	8.0	334	320		
60.3	±0.25	10.0	407	390		

*Calculated pressure I = static load *Calculated pressure III = pulsating load

B

Stud and port types

Metric ISO thread (parallel) DIN 13

Stud type B

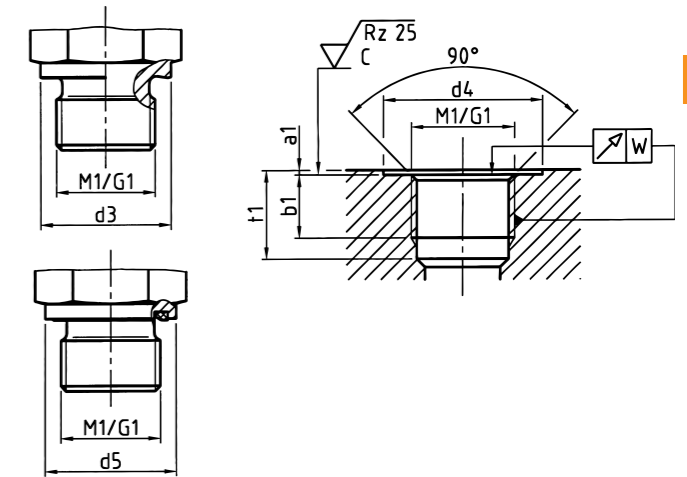
- DIN EN ISO 9974-3 (metric)
- DIN EN ISO 1179-3 (BSP thread)
- With metal-to-metal seal

Stud type E

- ISO 9974-2 (metric)
- DIN EN ISO 1179-2 (BSP thread)
- With soft seal (WD)

Port type X, Y

- DIN 3852-1 / ISO 9974-1 (metric)
- DIN 3852-2 / DIN EN ISO 1179-1 (BSP thread)
- (For parallel threads)



M ₁	d ₃	d ₄ ^{+0.4}	d ⁵	a ₁ max.	b ₁ min.	t ₁ min.	θ* LL	θ* L	θ* S	W
M 8 x 1	12	13	12	1	8	13.5	3.5	-	-	0.1
M 10 x 1	14	15	13.9	1	8	13.5	5	4	-	0.1
M 12 x 1.5	17	18	16.9	1.5	12	18.5	-	6	4	0.1
M 14 x 1.5	19	20	18.9	1.5	12	18.5	-	7	5	0.1
M 16 x 1.5	21	22	21.9	1.5	12	18.5	-	9	7	0.1
M 18 x 1.5	23	24	23.9	2	12	18.5	-	11	8	0.1
M 20 x 1.5	25	26	25.9	2	14	20.5	-	-	10	0.1
M 22 x 1.5	27	28	26.9	2.5	14	20.5	-	14	12	0.1
M 26 x 1.5	31	32	31.9	2.5	16	22.5	-	18	-	0.2
M 27 x 2	32	33	31.9	2.5	16	24	-	-	16	0.2
M 33 x 2	39	40	39.9	2.5	18	26	-	23	20	0.2
M 42 x 2	49	50	49.9	2.5	20	28	-	30	25	0.2
M 48 x 2	55	56	54.9	2.5	22	30	-	36	32	0.2

M ₁	d ₃	d ₄ ^{+0.4}	d ⁵	a ₁ max.	b ₁ min.	t ₁ min.	θ* LL	θ* L	θ* S	W
G 1/8A**	14	15	13.9	1	8	13	5	4	-	0.1
G 1/4A**	18	19	18.9	1.5	12	18.5	-	7	5	0.1
G 3/8A**	22	23	21.9	2	12	18.5	-	9	8	0.1
G 1/2A**	26	27	26.9	2.5	14	22	-	14	12	0.1
G 3/4A**	32	33	31.9	2.5	16	24	-	18	16	0.2
G 1A**	39	40	39.9	2.5	18	27	-	23	20	0.2
G 1 1/4A**	49	50	49.9	2.5	20	29	-	30	25	0.2
G 1 1/2A**	55	56	54.9	2.5	22	31	-	36	32	0.2

*Stud hole. Special designs may have different holes.

**A does not apply to female threads.

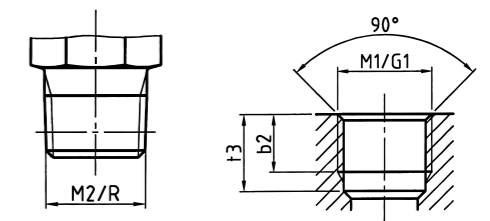
Metric ISO thread (parallel) DIN 13

Stud type C

- DIN 3852-1 (metric)
- DIN 3852-2 (BSP thread)
- With taper thread seal

Port type Z

- DIN 3852-1 (metric)
- DIN 3852-2 (BSP thread)
- (Only for taper threads)**



M ₂	b ₂ min.	t ₃ min.
M 8 x 1 taper	5.5	10
M 10 x 1 taper	5.5	10
M 12 x 1.5 taper	8.5	13.5
M 14 x 1.5 taper	8.5	13.5
M 16 x 1.5 taper	8.5	13.5
M 18 x 1.5 taper	8.5	13.5
M 20 x 1.5 taper	10.5	15.5
M 22 x 1.5 taper	10.5	15.5

R	b ₂ min.	t ₃ min.
R 1/8 taper	5.5	9.5
R 1/4 taper	8.5	13.5
R 3/8 taper	8.5	13.5
R 1/2 taper	10.5	16.5

***Caution: Additional sealing material required!

B

Stud and port types

**Metric ISO thread (parallel) DIN 13
UNF/UN thread ISO 725 / ANSI B1.1-1974**

B

Stud (metric)

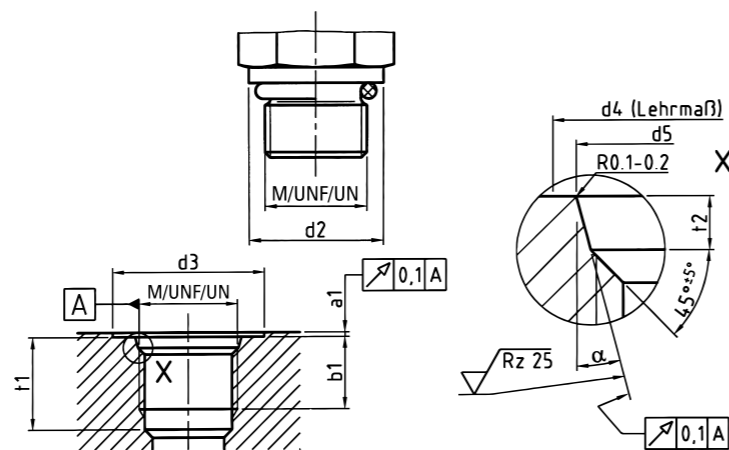
- With O-ring seal
- DIN EN ISO 6149-2 and -3

UST stud

- With O-ring seal
- ISO 11926-2 and -3

Port (metric)

- For O-ring seal
DIN EN ISO 6149-1
- ISO 11926-1 (UST)



M	d ₂	d _{3 min.}	d ₄	d _{5+0.4}	a _{1 max.}	t ₂	t _{1 min.}	b _{1 min.}	a _{±0.1°}
M 8 x 1	10.9	17	11	9.1	1	1.6	11.5	10	12°
M 10 x 1	12.9	20	13	11.1	1	1.6	11.5	10	12°
M 12 x 1.5	16.9	22	16	13.8	1.5	2.4	14	11.5	15°
M 14 x 1.5	18.9	25	18	15.8	1.5	2.4	14	11.5	15°
M 16 x 1.5	20.9	27	20	17.8	1.5	2.4	15.5	13	15°
M 18 x 1.5	22.9	29	22	19.8	2	2.4	16.5	14.5	15°
M 20 x 1.5	24.9	32	24	21.8	2	2.4	16.5	14	15°
M 22 x 1.5	26.9	34	26	23.8	2	2.4	18	15.5	15°
M 26 x 1.5	30.9	37	31	29.05	2	3.1	18.5	16	15°
M 27 x 2	31.9	40	32	29.4	2	3.1	22	19	15°
M 33 x 2	37.9	46	38	35.4	2.5	3.1	22	19	15°
M 42 x 2	47.9	56	47	44.4	2.5	3.1	22.5	19.5	15°
M 48 x 2	54.9	64	53	50.4	2.5	3.1	25	22	15°

UNF/UN	d ₂	d _{3 min.}	d ₄	d _{5+0.4}	a _{1 max.}	t ₂	t _{1 min.}	b _{1 min.}	a _{±0.1°}
7/16 - 20 UNF	14.4	21	15	12.4	1.6	2.4	14	11.5	12°
9/16 - 18 UNF	17.6	25	18	15.6	1.6	2.5	15.5	12.7	12°
3/4 - 16 UNF	22.3	30	23	20.6	2.4	2.5	17.5	14.3	15°
7/8 - 14 UNF	25.5	34	26	23.9	2.4	2.5	20	16.7	15°
1 1/16 - 12 UN	31.9	41	32	29.2	2.4	3.3	23	19	15°
1 5/16 - 12 UN	38.2	49	39	35.5	3.2	3.3	23	19	15°
1 7/8 - 12 UN	47.7	58	48	43.5	3.2	3.3	23	19	15°
M 48 x 2	54.9	64	53	50.4	2.5	3.1	25	22	15°

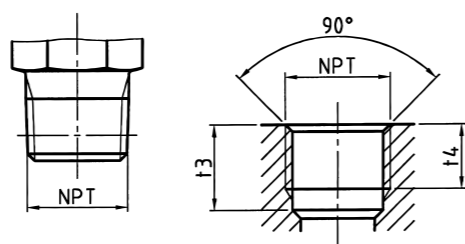
NPT thread = ANSI/ASME B1.20.1 - 1983

Stud

- NPT
- ANSI/ASME
- B1.20.1-1983

Port

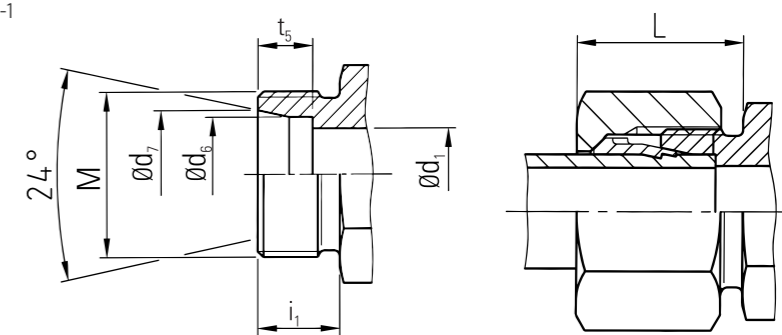
- NPT
- ANSI/ASME
- B1.20.1-1983



d _{1 NPT}	t _{3 min.}	t _{4 min.}
1/8 - 27 NPT	11.6	6.9
1/4 - 18 NPT	16.4	10.0
3/8 - 18 NPT	17.4	10.3
1/2 - 14 NPT	22.6	13.6
3/4 - 14 NPT	23.1	14.1
1 - 11.5 NPT	27.8	16.8
1 1/4 - 11.5 NPT	28.3	17.3
1 1/2 - 11.5 NPT	28.3	17.3

Stud connection dimensions

Stud and tube connection according to DIN EN ISO 8434-1



Series	Tube outer diameter	M	Ød ₁	Ød ₆	Ød ₇	i ₁	L	t ₅
LL	4	M 8 x 1	3	4	5	8	14	4
	6	M 10 x 1	4.5	6	7.5	8	14	5.5
	8	M 12 x 1	6	8	9.5	9	15	5.5
L	6	M 12 x 1.5	4	6	8.1	10	18	7
	8	M 14 x 1.5	6	8	10.1	10	18	7
	10	M 16 x 1.5	8	10	12.3	11	19	7
	12	M 18 x 1.5	10	12	14.3	11	19	7
	15	M 22 x 1.5	12	15	17.3	12	20	7
	18	M 26 x 1.5	15	18	20.3	12	21	7.5
	22	M 30 x 2	19	22	24.3	14	23	7.5
	28	M 36 x 2	24	28	30.3	14	23	7.5
	35	M 45 x 2	30	35.3	38	16	27	10.5
	42	M 52 x 2	36	42.3	45	16	28	11
S	6	M 14 x 1.5	4	6	8.1	12	20	7
	8	M 16 x 1.5	5	8	10.1	12	20	7
	10	M 18 x 1.5	7	10	12.3	12	21	7.5
	12	M 20 x 1.5	8	12	14.3	12	21	7.5
	14	M 22 x 1.5	10	14	16.3	14	24	8
	16	M 24 x 1.5	12	16	18.3	14	24	8.5
	20	M 30 x 2	16	20	22.9	16	27	10.5
	25	M 36 x 2	20	25	27.9	18	30	12
	30	M 42 x 2	25	30	33	20	33	13.5
38	M 52 x 2	32	38.3	41	22	37	16	

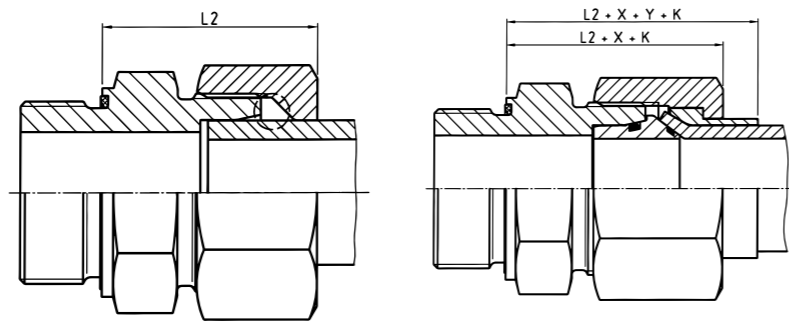
B

Length correction table

For all parts, L2 indicates the approximate length if the union nut is tightened. In the catalog, this value always refers to an assembled profile-ring or Walform fitting.

Lengths of BO tube assemblies

For flare fittings, L2 must be calculated for each size by adding the X value (see table 1: X/Y value) and the correction factor K (see table 2: correction factor), which depends on the wall thickness of the tube. To determine the linear length until the end of the sleeve, the Y value also has to be added.



Example: GES 15 LM-WD with tube 15x2 correction factor = +1
 $L2 + X + K = 29 + 6.5 + 1 = 36.5$
 $L2 + X + Y + K = 29 + 6.5 + 4 + 1 = 40.5$

The dimensions marked * in the following length correction table indicate the tube wall thickness on which the lengths in the lists of dimensions are based. For other tube wall thicknesses, the overall lengths must be modified by means of the correction factor specified in the table.

Table 1

X/Y values

Series	Tube outer diameter	X value	Y value
L	6	3	3
	8	3.5	3
	10	5	4.5
	12	5.5	4.5
	15	6.5	4
	18	7	3.5
	22	8	6.5
	28	9.5	5.5
	35	8.5	6
42	11.5	6	
S	6	2.5	3
	8	3.5	3
	10	4	5.5
	12	4.5	5.5
	14	5	4.5
	16	6.5	6
	20	6	5.5
	25	7	7.5
	30	6.5	8.5
38	6.5	10.5	

Table 2

Tube wall thickness correction factor

Series	Tube outer diameter	1	1.5	2	2.5	3	3.5	4	5	6
L	6	●	+1							
	8	●	+1	+1.5						
	10	-1	●	+1						
	12	-1	●	+1						
	15		●	+1	+2					
	18		-1	●	+1					
	22		-1	●	+1	+1.5				
	28			-1.5	-0.5	●				
	35			-1.5	-1	●		+1.5		
42			-1.5		●					
S	6	●	+1							
	8	●	+1	+1.5						
	10	-1	●	+1						
	12	-1	●	+1						
	14		-0.5	●	+1	+2				
	16		-1	●	+0.5	+1.5				
	20			●	+1	+2	+3			
	25			-1.5	-1	●		+1.5		
	30			-2	-1	●		+2	+3.5	
38				0.5	●		+1.5	+3.5	+5	

Overview of the applicable standards for tube fitting systems

	Profile-ring fittings	37° flare fittings	Taper seal/welding nipple fittings
Fitting body	DIN 2353 DIN EN ISO 8434-1		DIN EN ISO 8434-1, DIN 3946
Components	DIN 3861, DIN 3870, DIN EN ISO 8434-1	DIN 3949	DIN EN ISO 8434-4
Tube connection	DIN 3861 DIN EN ISO 8434-1		
Stud	Metric	DIN 3852-1 DIN EN ISO 9974-2 and -3 DIN ISO 6149-2 and -3	
	In inches	DIN 3852-2 DIN EN ISO 1179-2 and -4	
	UN/UNF	ISO 11926-2 and -3	
	NPT	ANSI/ASME B 1.20.1-1983	
Technical specifications	DIN 3859-1		
Tests	DIN EN ISO 8434-1, DIN EN ISO 19879		
Assembly	DIN 3859-2		

Version	SAE 37° flared-flange system
	Hole pattern to SAE J518 ISO 6162

Tube specification

Seamless, cold-drawn, normalized (+N or NBK) hydraulic tubes, calculated pressure to DIN 2413

Material	Specifications	Dimensions/tolerances	Compatibility with tube-fitting systems								
			Walpro	Walpro-X	Walform	Walform-M	WairingPlus®	WairingPlus-SR	WairingPlus-M	37° flare fittings	37° flared flange
St37.4 (1.0255) to DIN 1630 (1984-10)*	DIN 2391-1 (1994-09) C		●	●	●	●	●	●	●	●	●
St52.4 (1.0581) to DIN 1630 (1984-10)*	DIN 2391-1 (1994-09) C		●	●	●	●	●	●	●	●	●
E235 (1.0308)	DIN EN 10305-4		●	●	●	●	●	●	●	●	●
E355 (1.0580)	DIN EN 10305-4		●	●	●	●	●	●	●	●	●
X6CrNiMoTi17-12-2-(1.4571) cold- finished*	DIN 17458 (1985-07) version m	DIN 2391-1 (1994-09)	●	●	●	●	●	●	●	●	●
X6CrNiMoTi17-12-2-(1.4571) cold- finished	DIN EN 10216-5 Version CFA	DIN EN 10305-4	●	●	●	●	●	●	●	●	●

*The dated standards have been withdrawn. This ordering information is therefore obsolete.

C **Assembly** instructions



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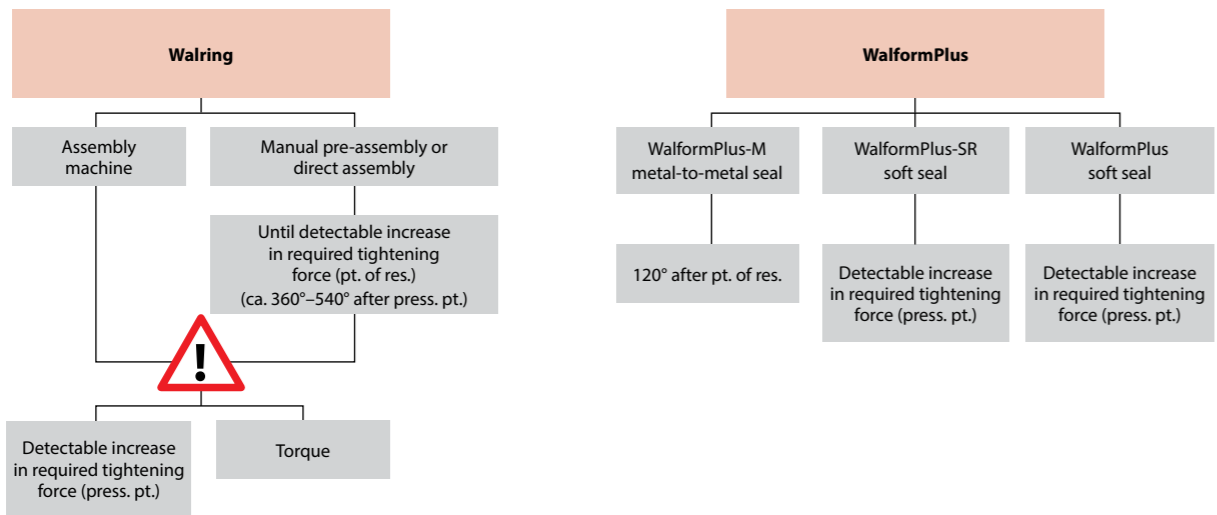
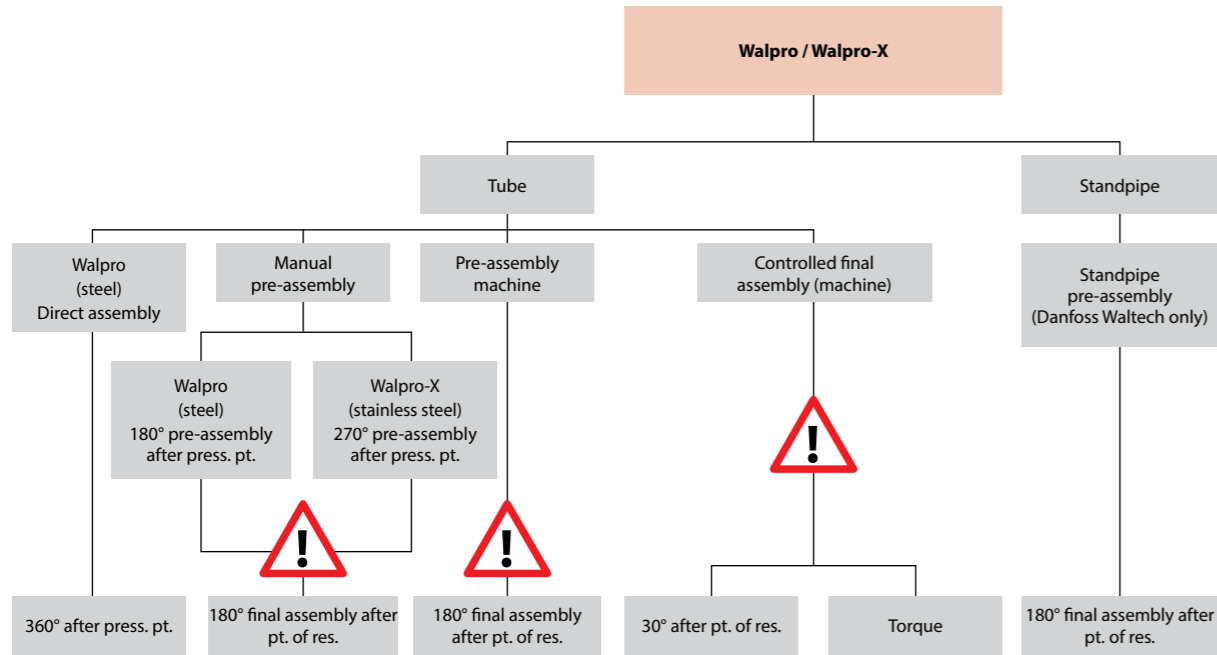
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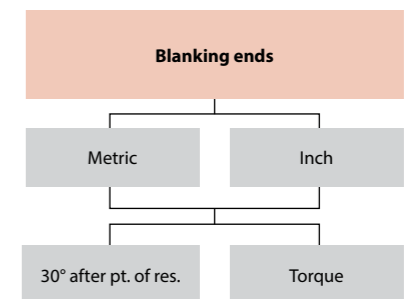
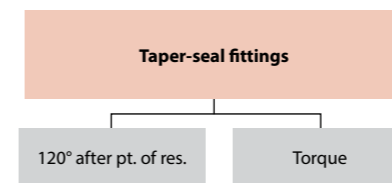
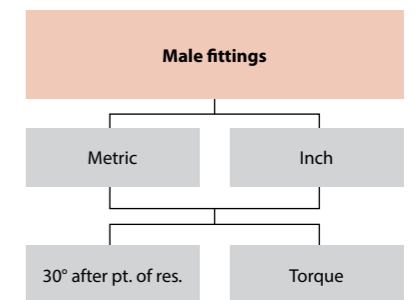
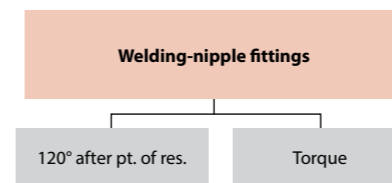
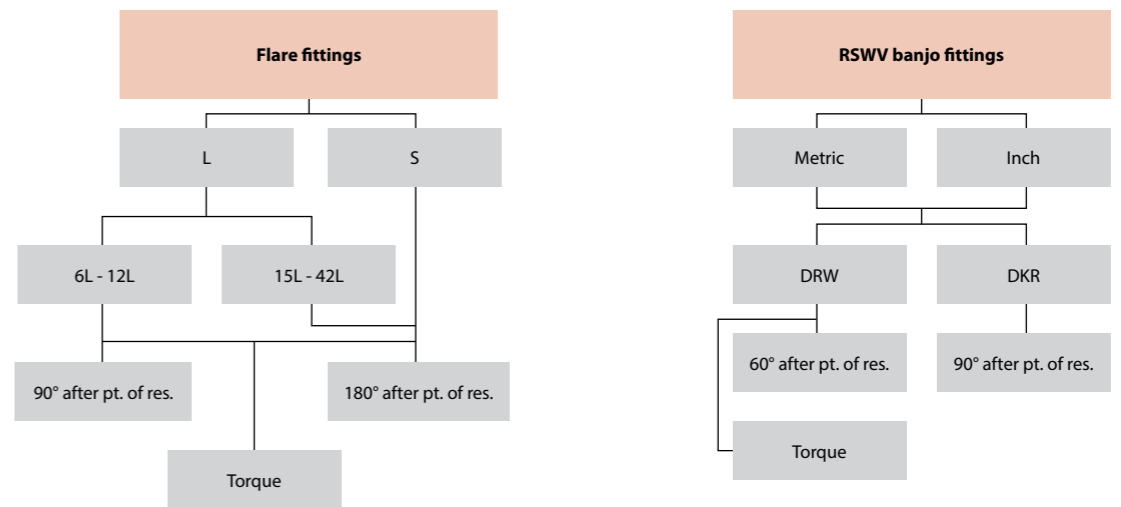
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In the case of cutting-ring fittings, the cut must always be checked (a clearly visible raised collar should form in front of the first cutting edge).



after press. pt. = after pressure point
 after pt. of res. = after point of resistance
 after man. tight. = after manual tightening




after pt. of res. = rotation after point of resistance
 after press. pt. = rotation after pressure point

Safety instructions

To ensure a permanent, secure and leakage-free connection, the following safety instructions must be observed.

C General safety instructions

- 1 Danfoss Waltech tube fittings are designed for fluid applications.
- 2 The permissible pressure and temperature ranges and other operating conditions must be observed.
- 3 Materials or tolerances that deviate from the recommended tube specifications may result in incorrect installation or total failure of the fitting.
- 4 Only fittings that have been correctly installed are able to sustain continuous pressure and vibration loads. Incorrect installation may result in leakage or failure.
- 5 Fittings that are under pressure must never be bled, loosened or retightened. There is a danger to life.
- 6 Tubes may only be attached at suitable fixed points and not to one another. Cable ties or steel clamps are not suitable for this purpose. Tubes may not be used as supports for filters, fans, valve blocks, etc. 
- 7 Vibrations must be absorbed by means of suitable tube supports. Systems that vibrate independently of one another must be isolated by means of hoses. Otherwise, tube breaks may occur.
- 8 If tube assemblies are dismantled, transported and re-assembled, care must be taken to protect the fittings against dirt. Threads and seals must not be damaged and the tubes must not be bent. Care must be taken to prevent the seals from being lost or damaged, for example by means of suitable protective caps.
- 9 Disassembled fittings must be checked for dimensional accuracy and damage and replaced if necessary.
- 10 Hand-held cut-off saws or other inappropriate tools must not be used for cutting tubes.
- 11 Dirt and chips may lead to system malfunctions or leakage.
- 12 Flow velocities > 8m/s will exert excessive forces on bent tube assemblies and can cause damage. Such velocities should therefore be avoided.
- 13 The relevant guidelines (BG, TÜV, DIN etc.) must always be followed.
- 14 Only weld fittings are made of weldable material.
- 15 Tube fittings must not be handled like bulk material.
- 16 The prescribed tools and machines must be used to reshape the flare fittings and the Walform tube fittings. These must be suitable for the respective materials and dimensions! Failure to do so may damage the machines, cause tools or tubes to break or lead to leakage.
- 17 The control diameters of flare and Walform fittings must be true to size and the sealing surfaces must be in perfect condition.

Safe assembly

- 1 When installing Walpro / Walpro-X and Walring fittings, the face end of the tube must always be in contact with the tool or the tube stop of the fitting stud. Otherwise the ring will not cut properly into the tube, which may cause the tube to slip out unexpectedly if exposed to stress.
- 2 The final assembly of pre-assembled Walpro / Walpro-X and Walring fittings must be carried out according to the instructions.
- 3 After each time the fitting is disassembled, the union nut must be retightened with the same amount of force as during initial assembly. Incorrect assembly may significantly reduce the pressure strength and vibration resistance of the fitting or lead to total failure.
- 4 Once assembled, tube connections and fitting bodies form a single unit. Fitting bodies should only be used for pre-assembly once.
- 5 During assembly, the tube assemblies must not be subjected to any stress. The union nut must always be easy to turn. Otherwise, leakage or tube breaks may occur.
- 6 The tools, equipment and lubricants recommended by Danfoss Waltech ensure safe assembly. Before using other manufacturers' products, their suitability must first be checked.
- 7 The specified torque values are only valid under the conditions stated in the assembly instructions. If parts have been damaged or the tubes are subjected to stress during installation, the torque values may vary considerably.
- 8 The threads and possible contact surfaces of stainless steel fittings must be sufficiently lubricated using Danfoss Waltech ABF grease (anti-block grease). Failure to do so will normally increase the amount of tightening force required, which may cause leakage or even sudden failure.
- 9 Stainless steel cutting rings must be pre-assembled using hardened pre-assembly tools. Failure to do so may cause sudden failure.
- 10 If pre-assembly tools are used to pre-assemble the Walpro / Walpro-X or Walring fittings, the appropriately marked Danfoss Waltech original tools must be used.
- 11 The respective operating instructions of the assembly/reshaping machines or hand-held tools must be observed.

If you are in any doubt, please contact an Danfoss Waltech tube fittings representative.



Tube selection

The pressure strength specifications refer to the following tube grades:

Steel

Material: E235 / E355, to EN 10305-4 (formerly St. 37.4 / 52.4 to DIN 1630). Type: Seamless cold-drawn, normalized bright annealed steel, designation NBK as per DIN EN 10305-4.

Stainless steel

Material: X6CrNiMoti17122 (1.4571) to DIN EN 102165 Type: Seamless cold-drawn, scale-free, heat-treated stainless steel, designation CFA as per DIN EN 10216-5 (formerly DIN 17458). Dimensions and tolerances to DIN EN 10305-4 (formerly DIN 2391-1). Additional stainless steel grades are available on request.

Calculated pressures: DIN 2413

⚠ Caution: Materials or tolerances that deviate from the recommended tube specifications may result in incorrect installation, tool break or total failure of the fitting.

⚠ Caution: The specified nominal pressure ratings always refer to the fitting. For tube pressure ratings, see the specifications of the respective manufacturers.

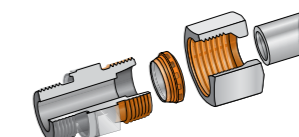
Note: In order to ensure the proper functioning of the assembly process, Walpro fittings (steel) should always be pre-assembled using an oiled pre-assembly stud, and Walpro-X fittings (stainless steel 1.4571) should always be pre-assembled using a pre-assembly stud lubricated with Danfoss Waltech ABF grease (anti-block grease). Direct assembly is only possible in the case of Walpro steel fittings.

Controlled final assembly can only be carried out using original Danfoss Waltech parts. Assembly can only be carried out with final assembly studs marked "GE".



Danfoss Waltech ABF grease (anti-block grease) Stainless steel (1.4571)

Application: Prior to assembly, the fittings must be thoroughly cleaned and the threads in particular checked for damage. All contact surfaces must be sufficiently coated with Danfoss Waltech ABF grease (anti-block grease) using a brush or a lint-free cloth. After greasing, the fittings must be immediately assembled to prevent contamination. For best results, use Danfoss Waltech stainless steel nuts with silver-plated threads (AG/AGP) plus Danfoss Waltech ABF grease (anti-block grease).



Minimum length of straight tube ends in the case of tube bends

In the case of tube bends, the straight tube end up to the beginning of the bending radius must be at least twice the height of the union nut (depending on the machine type).





Direct assembly
inside the fitting stud (only for the Walpro steel version)

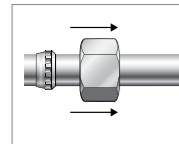
C



1. **Cut the tube at a right angle**
Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



2. **Gently deburr the tube ends and clean the tube**
Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The part of the tube where the fitting will be assembled (at least twice the height of the union nut) must be free of chips, dirt and paint! If the tube end is greasy or oily, use an environmentally friendly solvent.



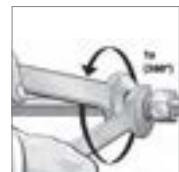
3. **Slide the union nut and the profile ring onto the tube**



4. **Pretightening**
Press the tube against the tube stop inside the fitting stud. Tighten the union nut until the profile ring engages the tube, which can be clearly detected by the increase in torque (pressure point).
⚠ Caution: In case of unfavorable assembly conditions and with large tube sizes, direct assembly must be carried out using a vice. Use the same fitting stud (see above) for this purpose.



5. **Direct assembly**
Next, complete the direct assembly by means of 1 full rotation (360°)
Important: Hold the fitting stud in place by means of a wrench.
⚠ Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak or the tube to slip out.



6. **Assembly verification**
Check the penetration of the cutting edge. A visibly raised collar should fill the space in front of the profile-ring end face. The profile ring may rotate, but it should not be possible to move it axially.



7. **Re-assembly**
After each time the fitting is disassembled, the union nut must be retightened (same torque as during final assembly).

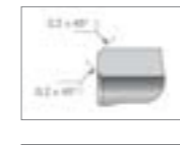


Rotation-based pre-assembly
using the manual pre-assembly stud

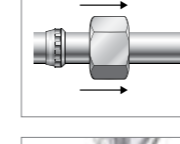
C



1. **Cut the tube at a right angle**
Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



2. **Gently deburr the tube ends and clean the tube**
Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The part of the tube where the fitting will be assembled (at least twice the height of the union nut) must be free of chips, dirt and paint! If the tube end is greasy or oily, use an environmentally friendly solvent.



3. **Slide the union nut and the profile ring onto the tube**
Important: In the case of stainless steel (1.4571) fittings, please refer to the instructions for using Danfoss Waltech ABF grease (anti-block grease).



4. **Pretightening**
Use a vice to secure the manual pre-assembly stud in place. Press the tube against the tube stop inside the manual pre-assembly stud. Tighten the union nut until the profile ring has engaged the tube, which can be clearly detected by the increase in torque (pressure point).



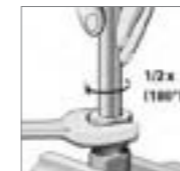
5. **Pre-assembly**
After reaching the pressure point, tighten the union nut by 1/2 a rotation (180°) in the case of steel and a 3/4 rotation (270°) in the case of stainless steel (1.4571) fittings.
⚠ Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak or the tube to slip out.



6. **Assembly verification**
Check the penetration of the cutting edge. A visibly raised collar should fill the space in front of the profile-ring cutting edge. The profile ring may rotate, but it should not be possible to move it axially.



7. **Final assembly inside the fitting stud**
Tighten the union nut until there is a noticeable increase in the required force (point of resistance), then complete the assembly process by means of 1/2 a rotation (180°).
⚠ Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.



Important: Hold the fitting stud in place by means of a wrench.
Note: In case of unfavorable assembly conditions and with large tube sizes, final assembly must be carried out using a vice. Use the same fitting stud (see above) for this purpose.



8. **Re-assembly**
After each time the fitting is disassembled, the union nut must be retightened (same torque as during final assembly).
Important: In the case of stainless steel (1.4571) fittings, please refer to the instructions for using Danfoss Waltech ABF grease (anti-block grease).



Controlled final assembly using

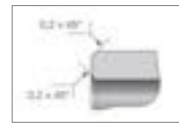
the Danfoss Waltech M-R7 assembly machine (please also see the operating instructions for the M-R7 assembly machine).

C



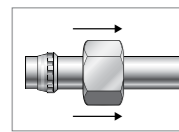
1. Cut the tube at a right angle

Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



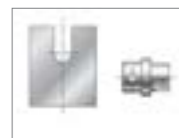
2. Gently deburr the tube ends and clean the tube

Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The part of the tube where the fitting will be assembled (at least twice the height of the union nut) must be free of chips, dirt and paint! If the tube end is greasy or oily, use an environmentally friendly solvent.



3. Slide the union nut and the profile ring onto the tube

Important: In the case of stainless steel (1.4571) fittings, please refer to the instructions for using Danfoss Waltech ABF grease (anti-block grease).



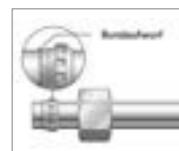
4. Place the tools inside the machine

Switch on the assembly machine and insert the backing plate and the GE stud. Only use Danfoss Waltech studs marked "GE".



5. Insert the tube into the machine, together with the union nut and the profile ring

Push the union nut and profile ring onto the tube and start the assembly process. To do so, press the tube against the cylinder until the mechanical stop is reached and hold it in place until the assembly process is complete. The assembly process will be completed automatically.



6. Assembly verification

Check the penetration of the cutting edge. A visibly raised collar should fill the space in front of the profile-ring cutting edge. The profile ring may rotate, but it should not be possible to move it axially.



7. Final assembly inside the fitting stud

Tighten the union nut until there is a noticeable increase in the required force (point of resistance), then complete the assembly process by means of a 1/12 rotation (30°). Alternatively, torque-based assembly is also possible, by tightening the union nut using a torque wrench (see the "tightening torque" table).

⚠ Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.

Important: Hold the fitting stud in place by means of a wrench.

Note: In case of unfavorable assembly conditions and with large tube sizes, final assembly must be carried out using a vice. Use the same fitting stud (see above) for this purpose.



8. Re-assembly

After each time the fitting is disassembled, the union nut must be retightened (same torque as during final assembly).

Important: In the case of stainless steel (1.4571) fittings, please refer to the instructions for using Danfoss Waltech ABF grease (anti-block grease).

Note: If the pre-assembly and the controlled final assembly are carried out using older machine models (MEG-R4/5/6), the relevant Danfoss Waltech assembly instructions must be observed.

The use and assembly of tube inserts with profile-ring fittings

Tube inserts are generally required when using plastic tubes. As a rule, this also applies to tubes made of non-ferrous metals such as copper, brass and aluminum. Tube inserts are also recommended if thin-walled steel tubes are used, as is usually the case with low pressures.

The material strength, wall thickness and thus the resistance of tin-walled tubes is often insufficient to withstand the radial forces exerted by the rings during assembly. This may cause the tubes to constrict and the fittings to leak.

C



1. Tube inserts for safe assembly of plastic, non-ferrous metal and thin-walled steel tubes.



2. Cut off the tube at a right angle (do not use a pipe cutter). Gently deburr the tube ends on the inside and outside (do not chamfer!) and then clean them.



3. Push the tube insert into the tube (up to the knurled edge).



4. Use a plastic or hard rubber hammer to fully drive in the insert. The knurled edge will then be pressed into the inner wall of the tube and thereby prevents the insert from shifting or falling out.



5. The insert must be flush with the tube end.



6. If tube inserts are used, the tube must not be constricted after assembly. Continue the assembly process in line with the assembly instructions for profile-ring fittings.

Tube outer diameter (mm)	Wall thickness (mm)		
	1	1.5	2
12	●		
18	○	●	
22	○	○	●
25	○	○	●
28	○	○	●
35	○	○	●

● These sizes require functional testing. Please consult us for more information.

○ Tube inserts are recommended

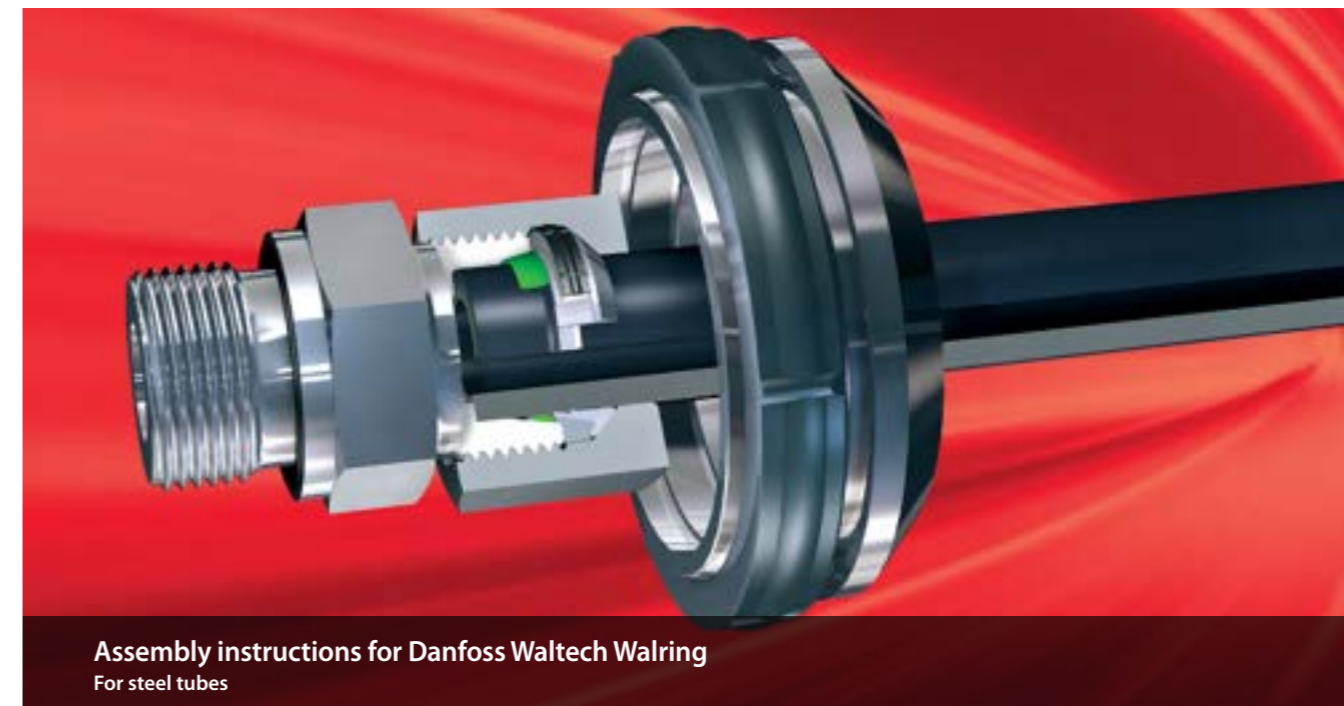
The use of tube inserts is recommended for thin-walled tube assemblies that are subject to severe stress.

For steel (E235 / E355) or stainless steel (1.4571) tubes.

Tightening torque

Series	Tube outer diameter (mm)	Walpro steel (Nm)	Walpro-X stainless steel (1.4571) (Nm)
L	6	25	35
	8	40	50
	10	50	60
	12	70	90
	15	90	160
	18	115	200
	22	210	240
	28	310	420
	35	500	560
	42	600	700
S	6	35	50
	8	55	70
	10	70	110
	12	85	120
	14	110	200
	16	120	200
	20	200	300
	25	340	440
	30	480	660
	38	850	900

Caution: The specified torque values are only valid under the conditions stated in the assembly instructions. If parts have been damaged or the tubes have been subjected to stress during installation, the torque values may vary considerably.



Tube selection

The pressure strength specifications refer to the following tube grades:

Steel

Material: E235 / E355, to EN 10305-4 (formerly St. 37.4 / 52.4 to DIN 1630). Type: Seamless cold-drawn, normalized bright annealed steel, designation NBK as per DIN EN 10305-4.

Calculated pressures: DIN 2413

Caution: Materials or tolerances that deviate from the recommended tube specifications may result in tool break, incorrect installation or total failure of the fitting.

Caution: The specified nominal pressure ratings always refer to the fitting. For tube pressure ratings, see the specifications of the respective manufacturers.

Minimum length of straight tube ends in the case of tube bends

In the case of tube bends, the straight tube end up to the beginning of the bending radius must be at least twice the height of the union nut.



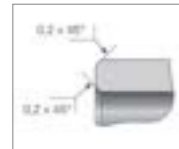


**Direct assembly
inside the fitting stud**

C



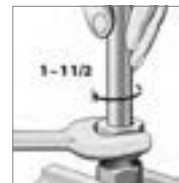
1. Cut the tube at a right angle
Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



2. Gently deburr the tube ends and clean the tube
Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The part of the tube where the fitting will be assembled (at least twice the height of the union nut) must be free of chips, dirt and paint! If the tube end is greasy or oily, use an environmentally friendly solvent.



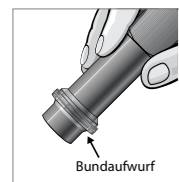
3. Slide the system nut onto the tube



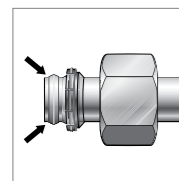
4. Direct assembly
Press the tube against the tube stop inside the fitting stud. Tighten the union nut by approximately 1 to 1 1/2 rotations until there is a clearly detectable increase in the required tightening force (point of resistance).
⚠ Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.
⚠ Caution: In case of unfavorable assembly conditions and with large tube sizes, final assembly must be carried out using a vice. Use the same fitting stud (see above) for this purpose.



5. Assembly verification
Loosen the system nut. A visibly raised collar should have formed in front of the outer ring. If this collar firmly secures the outer ring on the tube, the assembly process has been completed correctly. If not, the process has to be repeated. A slight axial movement and twisting of the outer ring are permissible.



6. Install the soft seal
Pull the soft seal onto the tube until the mechanical stop is reached. Take care not to twist or damage the parts during installation. The proper function and safety of the fitting are only ensured if original Danfoss Waltech Walform soft seals are used!

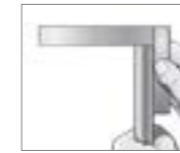


Continue to step 8. Final assembly

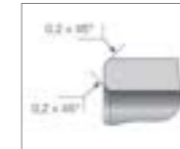


**Direct assembly
using the manual pre-assembly stud**

C



1. Cut the tube at a right angle
Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



2. Gently deburr the tube ends and clean the tube
Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The part of the tube where the fitting will be assembled (at least twice the height of the union nut) must be free of chips, dirt and paint! If the tube end is greasy or oily, use an environmentally friendly solvent.



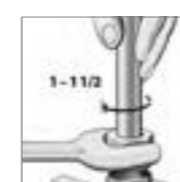
3. Slide the system nut onto the tube



4. Direct assembly
Use a vice to secure the manual pre-assembly stud in place. Press the tube against the tube stop inside the Walring manual pre-assembly stud. Tighten the union nut by approximately 1 to 1 1/2 rotations until there is a clearly detectable increase in the required tightening force (point of resistance).
⚠ Caution: Only use Danfoss Waltech Walring manual pre-assembly studs marked "W-R".
⚠ Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.



5. Assembly verification
Loosen the system nut. A visibly raised collar should have formed in front of the outer ring. If this collar firmly secures the outer ring on the tube, the assembly process has been completed correctly. If not, the process has to be repeated. A slight axial movement and twisting of the outer ring are permissible.



6. Install the soft seal
Pull the soft seal onto the tube until the mechanical stop is reached. Take care not to twist or damage the parts during installation. The proper function and safety of the fitting are only ensured if original Danfoss Waltech Walform soft seals are used!



Continue to step 8. Final assembly

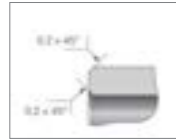


Controlled final assembly using

the Danfoss Waltech M-R7 assembly machine (please also see the operating instructions for the M-R7 assembly machine).



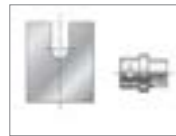
1. Cut the tube at a right angle
Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



2. Gently deburr the tube ends and clean the tube
Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The part of the tube where the fitting will be assembled (at least twice the height of the union nut) must be free of chips, dirt and paint! If the tube end is greasy or oily, use an environmentally friendly solvent.



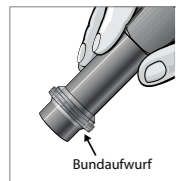
3. Slide the system nut onto the tube



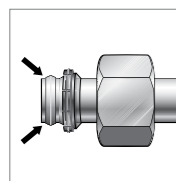
4. Place the tools inside the machine
Switch on the assembly machine and insert the backing plate and the W-R stud. Only use W-R studs from Danfoss Waltech.



5. Insert the tube into the machine together with the system nut
Slide the Walring system nut over the tube and start the assembly process. To do so, press the tube against the cylinder until the mechanical stop is reached and hold it in place until the assembly process is complete. The assembly process will be completed automatically.

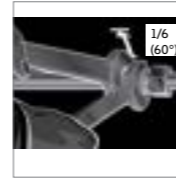


6. Assembly verification
Loosen the system nut. A visibly raised collar should have formed in front of the outer ring. If this collar firmly secures the outer ring on the tube, the assembly process has been completed correctly. If not, the process has to be repeated. A slight axial movement and twisting of the outer ring are permissible.



7. Install the soft seal
Pull the soft seal onto the tube until the mechanical stop is reached. Take care not to twist or damage the parts during installation. The proper function and safety of the fitting are only ensured if original Danfoss Waltech Walform soft seals are used!

Note: If the pre-assembly and the controlled final assembly are carried out using older machine models (MEG-R4/5/6), the relevant Danfoss Waltech assembly instructions must be observed.



8. Final assembly

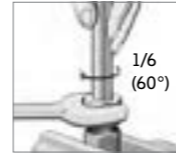
8.1 Rotation-based final assembly inside the fitting stud

Tighten the union nut until there is a clearly detectable increase in the required tightening force (without wrench extension) and then complete the assembly by means of a minimum rotation of 1/6 (60°).

⚠ Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.

Important: Hold the fitting stud in place by means of a wrench.

Note: In case of unfavorable assembly conditions and with large tube sizes, final assembly must be carried out using a vice. Use the same fitting stud (see above) for this purpose.



8.2 Torque-based final assembly inside the fitting stud

Tighten the union nut using a torque wrench (see the "tightening torque" table).

⚠ Caution: Any deviation from the specified torque will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.

Important: Hold the fitting stud in place by means of a wrench.



Tightening torque

Series	Tube outer diameter (mm)	Walring Final assembly (Nm)
L	6	30
	8	40
	10	50
	12	60
	15	95
	18	160
	22	210
	28	240
	35	520
	42	800
S	6	35
	8	60
	10	70
	12	95
	16	160
	20	260
	25	420
	30	540
38	850	

⚠ Caution: The specified torque values are only valid under the conditions stated in the assembly instructions. If parts have been damaged or the tubes have been subjected to stress during installation, the torque values may vary considerably.

Replacing the soft seal/re-assembly



- The soft seal can easily be replaced separately.
- If damaged, remove the soft seal and replace it with a new one.
- Complete the assembly process until the clearly detectable increase in the required tightening force (without wrench extension)
- Next, tighten by a minimum rotation of 1/6 (60°)
- **Alternatively,** torque-based final assembly is also possible (see table)

The use and assembly of tube inserts with Walring fittings

Tube inserts are generally required when using plastic tubes. As a rule, this also applies to tubes made of non-ferrous metals such as copper, brass and aluminum. Tube inserts are also recommended if thin-walled steel tubes are used, as is usually the case with low pressures.

C

The material strength, wall thickness and thus the resistance of tin-walled tubes is often insufficient to withstand the radial forces exerted by the rings during assembly. This may cause the tubes to constrict and the fittings to leak.



1. Tube inserts for safe assembly of plastic, non-ferrous metal and thin-walled steel tubes.



2. Cut off the tube at a right angle (do not use a pipe cutter). Gently deburr the tube ends on the inside and outside (do not chamfer!) and then clean them.



3. Push the tube insert into the tube (up to the knurled edge).



4. Use a plastic or hard rubber hammer to fully drive in the insert. The knurled edge will then be pressed into the inner wall of the tube and thereby prevents the insert from shifting or falling out.



5. The insert must be flush with the tube end.



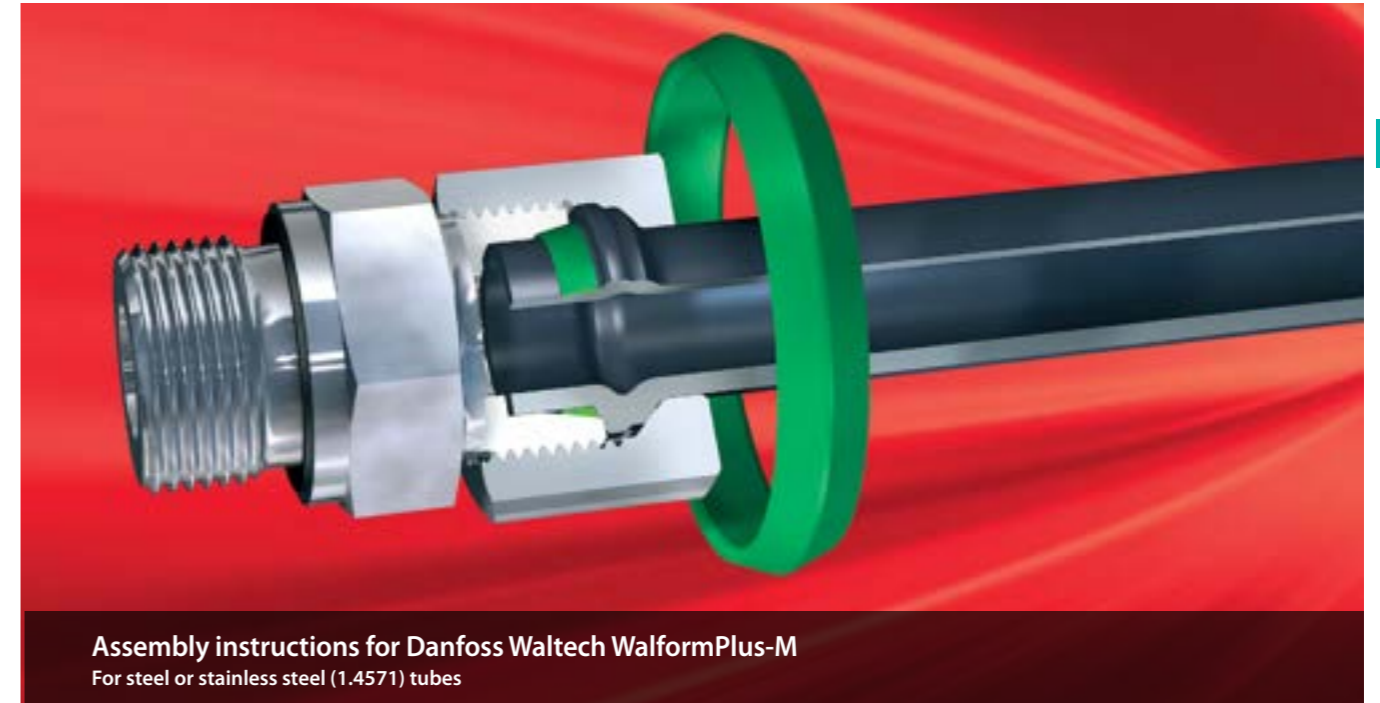
6. If tube inserts are used, the tube must not be constricted after assembly. Continue the assembly process in line with the assembly instructions for profile-ring fittings.

Series	Tube outer diameter (mm)	Wall thickness (mm)			
		1	1.5	2	2.5
L	18	●			
	22	●			
	28	○			
	35	○	○		
S	42	●	○		
	16	○			
	20	○			
	25	○	○		
	30	○	○		
	38	○	○	○	○

● These sizes require functional testing. Please consult us for more information.

○ Tube inserts are recommended

The use of tube inserts is recommended for thin-walled tube assemblies that are subject to severe stress. For steel tubes (St 37.4 / St 52.4)



Assembly instructions for Danfoss Waltech WalformPlus-M
For steel or stainless steel (1.4571) tubes

C

Tube selection

The pressure strength specifications refer to the following tube grades:

Steel

Material: E235 / E355, to EN 10305-4 (formerly St. 37.4 / 52.4 to DIN 1630). Type: Seamless cold-drawn, normalized bright annealed steel, designation NBK as per DIN EN 10305-4.

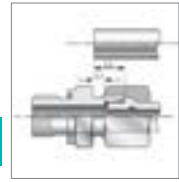
Stainless steel

Material: X6CrNiMoti17122 (1.4571) to DIN EN 10216-5 Type: Seamless cold-drawn, scale-free, heat-treated stainless steel, designation CFA as per DIN EN 10216-5 (formerly DIN 17458). Dimensions and tolerances to DIN EN 10305-4 (formerly DIN 2391-1). Additional stainless steel grades are available on request.

Calculated pressures: DIN 2413

⚠ Caution: Materials or tolerances that deviate from the recommended tube specifications may result in incorrect installation, tool break or total failure of the fitting.

⚠ Caution: The specified nominal pressure ratings always refer to the fitting. For tube pressure ratings, see the specifications of the respective manufacturers.



1. Determine the tube length

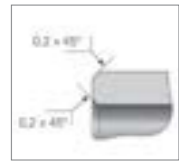
- a) By measuring the distance between the tube stops of two studs. The length L1 must be added to the measured length of each tube connection (see the "tube length determination" table).
- b) By measuring the distance between the face ends of two studs. The length L2 must be added to the measured length of each tube connection (see the "tube length determination" table).

⚠ Caution: Steel and stainless steel (1.4571) have different tube determination lengths L1 and L2 (see the "tube length determination" table).



2. Cut the tube at a right angle

Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



3. Gently deburr the tube ends and clean the tube

Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The clamping and reshaping area must be free of chips, dirt and paint! The clamping area should be free of grease and oil. If the tube end is greasy or oily, use an environmentally friendly solvent.



4. Slide the union nut onto the tube

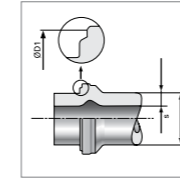
Important: In the case of stainless steel (1.4571) fittings, please refer to the instructions for using Danfoss Waltech ABF grease (anti-block grease).



5. Reshape the tube ends using an Danfoss Waltech Walform machine

To do so, insert the tools into the machine and move them into the insertion position. Insert the tube end into the machine until the clearly detectable mechanical stop in the base of the forming tool. Hold it in place to start the reshaping process. The reshaping process takes place automatically. Follow the operating instructions of the Walform machine.

⚠ Caution: Make sure to select the correct tool, in line with the tube dimensions, the tube material and the selected WalformPlus system.



6. Verification of the reshaped tube

Check the diameter D1 of the reshaped tube for dimensional accuracy (see the "minimum tube lengths" table, column "D1 min ø"). The outside of the reshaped tube must be clean. Proper reshaping is a prerequisite for a long service life of the connection.



7. Install the soft seal

Pull the soft seal onto the tube until the mechanical stop is reached. Take care not to twist or damage the parts during installation. The proper functioning and safety of the fitting are only guaranteed if original Danfoss Waltech Walform soft seals are used!



8. Final assembly inside the fitting stud

Using an appropriate wrench, tighten the union nut until there is a clearly detectable increase in the required force (point of resistance). The torque values for the required increase in tightening force can be found in the corresponding table (see the "tightening torque" table).

Important: In the case of stainless steel (1.4571) fittings, please refer to the instructions for using Danfoss Waltech ABF grease (anti-block grease).

⚠ Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause leakage or other malfunctions.

Important: Hold the fitting stud in place by means of a wrench.



9. Re-assembly

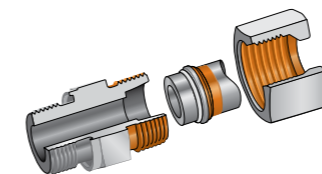
After each time the fitting is loosened, the soft seal must be checked for damage and replaced if necessary. Afterwards, firmly retighten the union nut. The torque during re-assembly must be the same as during initial assembly!

Important: In the case of stainless steel (1.4571) fittings, please refer to the instructions for using Danfoss Waltech ABF grease (anti-block grease).



Danfoss Waltech ABF grease (anti-block grease)
Stainless steel (1.4571)

Application: Prior to assembly, the fittings must be thoroughly cleaned and the threads in particular checked for damage. All contact surfaces must be sufficiently coated with Danfoss Waltech ABF grease (anti-block grease) using a brush or a lint-free cloth. After greasing, the fittings must be immediately assembled to prevent contamination. For best results, use Danfoss Waltech stainless steel nuts with silver-plated threads (AG/AGP) plus Danfoss Waltech ABF grease (anti-block grease).





Tube length determination

Steel

Stainless steel (1.4571)

WalformPlus

d (mm)	s (mm)							
	1.5	2	2.5	3	3.5	4	5	6
6 L/S	6.5 / 13.5 6.5 / 13.5							
8 L/S	7.0 / 14.0 7.0 / 14.0	7.0 / 14.0	6.0 / 13.0**					
10 L	7.0 / 14.0 7.5 / 14.5	6.0 / 13.0 7.0 / 14.0	6.0 / 13.0**	5.5 / 12.5**			Steel L1 (mm) L2 (mm) Stainless steel (1.4571) L1 (mm) L2 (mm)	
10 S	6.5 / 14.0 7.0 / 14.5	5.5 / 13.0 6.5 / 14.0						
12 L	7.0 / 14.0 7.0 / 14.0	6.5 / 13.5 6.5 / 13.5	6.0 / 13.0** 6.5 / 13.5	4.5 / 11.5** 6.0 / 13.0				
12 S	6.5 / 14.0 6.5 / 14.0	6.0 / 13.5 6.0 / 13.5	5.5 / 13.0** 6.0 / 13.5	4.0 / 11.5** 5.5 / 13.0				
15 L	6.5 / 13.5 7.5 / 14.5	6.5 / 13.5 7.0 / 14.0	6.0 / 13.0					
16 S		7.0 / 15.5 7.0 / 15.5	6.5 / 15.0 7.5 / 16.0	7.0 / 15.5 7.5 / 16.0		5.0 / 13.5**		
18 L		6.5 / 14.0 7.0 / 14.5	6.5 / 14.0** 7.0 / 14.5	6.5 / 13.5** 6.5 / 14.0				
20 S		8.5 / 19.0 9.5 / 20.0	8.0 / 18.5** 9.0 / 19.5	7.5 / 18.0* 8.5 / 19.5	7.5 / 18.0*	7.5 / 18.0*		
22 L		7.0 / 14.5 7.5 / 15.0	7.0 / 14.5** 7.0 / 14.5	6.5 / 14.0** 7.0 / 14.5				
25 S		9.0 / 21.0* 10.0 / 22.0	8.0 / 20.0* 10.0 / 22.0	8.0 / 20.0* 7.5 / 19.5	8.5 / 20.5*	8.0 / 20.0* 9.0 / 21.0	7.5 / 19.5*	
28 L		6.5 / 14.0 8.0 / 15.5	6.5 / 14.0** 8.0 / 15.5	6.5 / 14.0** 8.0 / 15.5	7.5 / 14.5**	7.5 / 14.5**		
30 S			8.5 / 22.0 9.0 / 22.5	9.0 / 22.5 10.5 / 24.0		9.0 / 22.5* 10.5 / 24.0	9.0 / 22.5* 10.0 / 23.5	8.5 / 22.0*
35 L			8.0 / 18.5**	8.0 / 18.5** 8.5 / 19.0		8.0 / 19.0** 9.5 / 20.0	8.0 / 18.5** 9.5 / 20.0	
38 S				9.5 / 25.5** 11.5 / 27.5		9.5 / 25.5** 11.0 / 27.0	10.0 / 26.0* 11.5 / 27.0	10.0 / 26.0*
42 L				8.0 / 19.0 10.0 / 21.0	8.0 / 19.0**	8.5 / 19.5**		

*For these dimensions, L1/L2 may vary for material E355 due to the different clamping jaws used

**These dimensions are currently not qualified for use with material E355. They can be qualified on request.

Note

Any tube length differences must be appropriately compensated, for example by installing tube bends. Tubes that are longer or shorter than the specified tube length may result in leakage. Prior to installation, short straight tube sections without length compensation between the installation ends must be checked for compliance with the final dimension and adapted, if necessary.

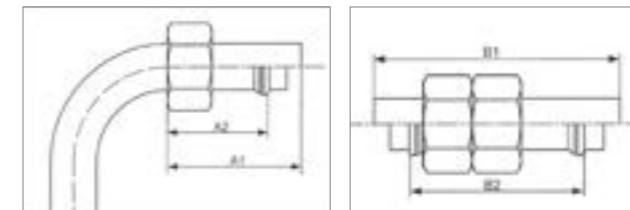
Tightening torque

Series	Tube outer diameter (mm)	Steel (Nm)	Stainless steel (1.4571) (Nm)
L	6	30	30
	8	35	35
	10	40	40
	12	55	55
	15	80	80
	18	110	120
	22	140	170
	28	210	250
	35	300	380
	42	400	520
S	6	35	35
	8	40	40
	10	55	55
	12	70	70
	16	110	110
	20	150	170
	25	210	260
	30	280	370
	38	410	590

Important: The specified torques are reference values for identifying the point of resistance (completion of assembly), which are only valid under optimum conditions.

These torque values may deviate considerably due to differing tolerances, tubes that were subjected to stress during installation or improper lubrication of stainless steel parts (ABF grease). Care must be taken to prevent the occurrence of these factors when applying the torque values during initial assembly.

Minimum tube lengths for clamping straight and bent tubes



Minimum length of straight tube (A)

Length of straight tube (B)

d (mm)	A1* (mm)	A2* (mm)	B1 (mm)	B2 (mm)	D1 min Ø (mm)
6 L/S	69	56	90	64	9.2
8 L/S	66	52	88	60	11.3
10 L/S	62	48	84	57	13.6
12 L/S	62	48	85	57	15.8
15 L	69	56	90	64	18.6
16 S	73	58	99	68	19.8
18 L	79	65	102	74	21.6
20 S	85	66	115	77	24.5
22 L	87	72	112	83	25.6
25 S	114	93	148	106	29.6
28 L	103	87	129	98	31.6
30 S	121	98	157	112	34.7
35 L	112	93	144	106	39.2
38 S	127	102	169	116	42.8
42 L	114	94	146	107	46.2

*If the straight tube end needs to be shorter than indicated in the table due to installation difficulties, it must be bent after reshaping.



Assembly instructions for Danfoss Waltech WalformPlus-SR
For thin-walled steel tubes

Tube selection

The pressure strength specifications refer to the following tube grades:

Steel

Material: E235 / E355, to EN 10305-4 (formerly St. 37.4 / 52.4 to DIN 1630). Type: Seamless cold-drawn, normalized bright annealed steel, designation NBK as per DIN EN 10305-4.

Calculated pressures: DIN 2413

⚠ Caution: Materials or tolerances that deviate from the recommended tube specifications may result in incorrect installation, tool break or total failure of the fitting.

⚠ Caution: The specified nominal pressure ratings always refer to the fitting. For tube pressure ratings, see the specifications of the respective manufacturers.



1. Tube length determination

a) By measuring the distance between the tube stops of two studs. The length L1 must be added to the measured length of each tube connection (see the "tube length determination" table).

b) By measuring the distance between the face ends of two studs. The length L2 must be added to the measured length of each tube connection (see the "tube length determination" table).

⚠ Caution: Steel and stainless steel (1.4571) have different tube determination lengths L1 and L2 (see the "tube length determination" table).



2. Cut the tube at a right angle

Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



3. Gently deburr the tube ends and clean the tube

Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The clamping and reshaping area must be free of chips, dirt and paint! The clamping area should be free of grease and oil. If the tube end is greasy or oily, use an environmentally friendly solvent.



4. Slide the union nut and the support ring onto the tube

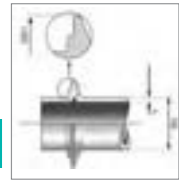
Important: Make sure that the installation direction of the support ring is correct. Incorrect assembly may significantly reduce the pressure strength and vibration resistance of the fitting.



5. Reshape the tube ends using an Danfoss Waltech Walform machine

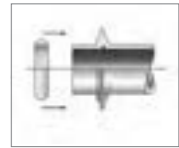
To do so, insert the tools into the machine and move them into the insertion position. Insert the tube end into the machine until the clearly detectable mechanical stop in the base of the forming tool. Hold it in place to start the reshaping process. The reshaping process takes place automatically. Follow the operating instructions of the Walform machine.

⚠ Caution: Make sure to select the correct tool, in line with the tube dimensions, the tube material and the selected WalformPlus system.



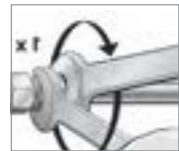
6. Verification of the reshaped tube

Check the diameter D1 of the reshaped tube for dimensional accuracy (see the “minimum tube lengths” table, column “D1 min Ø”). The outside of the reshaped tube must be clean. Proper reshaping is a prerequisite for a long service life of the connection.



7. Install the soft seal

Pull the soft seal onto the tube until the mechanical stop is reached. Take care not to twist or damage the parts during installation. The proper functioning and safety of the fitting are only guaranteed if original Danfoss Waltech Walform soft seals are used!



8. Final assembly inside the fitting stud

Using an appropriate wrench, tighten the union nut until there is a clearly detectable increase in the required force (point of resistance). The torque values for the required increase in tightening force can be found in the corresponding table (see the “tightening torque” table).

Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause leakage or other malfunctions.

Important: Hold the fitting stud in place by means of a wrench.



9. Re-assembly

After each time the fitting is loosened, the soft seal must be checked for damage and replaced if necessary. Afterwards, firmly retighten the union nut. The torque during re-assembly must be the same as during initial assembly!



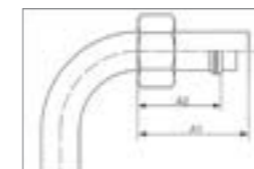
Tube length determination

WalformPlus-SR		
d (mm)	s (mm)	
	1	2
6 L	4.0 / 11.5	Steel L1 (mm) L2 (mm)
8 L	3.5 / 11.0	
10 L	3.5 / 11.0	
12 L	3.5 / 11.0	
15 L	3.5 / 11.0	
16 S	4.5 / 13.0	
18 L	4.5 / 12.0	
20 S		
22 L	4.5 / 12.0	
30 S		5.5 / 19.0
35 L		6.5 / 17.0
42 S		6.5 / 17.5

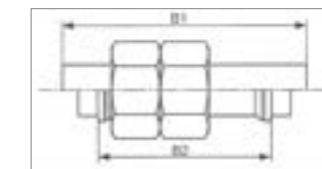
Tightening torque

Series	Tube outer diameter (mm)	WalformPlus-SR Steel (Nm)
L	6x1	25
	8x1	35
	10x1	40
	12x1	55
	15x1	80
	18x1.5	110
	22x1.5	140
	35x2	300
S	42x2	400
	16x1.5	110
	20x2	180
	30x2	280

Minimum tube lengths for clamping straight and bent tubes



Minimum length of straight tube (A)



Length of straight tube (B)

d (mm)	A1* (mm)	A2* (mm)	B1 (mm)	B2 (mm)	D1 min Ø (mm)
6 L	65	54	84	61	9.1
8 L	61	50	79	58	11.6
10 L	57	46	75	53	13.1
12 L	56	46	74	51	15.3
15 L	64	56	83	62	18.5
16 S	69	53	92	66	19.8
18 L	75	63	97	72	22.2
20 S	78	62	108	73	25.3
22 L	83	70	105	81	25.9
30 S	119	100	153	115	37.0
35 L	112	96	142	108	41.3
42 L	116	98	145	110	48.9

*If the straight tube end needs to be shorter than indicated in the table due to installation difficulties, it must be bent after reshaping.



Steel E235

Note

Any tube length differences must be appropriately compensated, for example by installing tube bends. Tubes that are longer or shorter than the specified tube length may result in leakage. Prior to installation, short straight tube sections without length compensation between the installation ends must be checked for compliance with the final dimension and adapted, if necessary.

Important: The specified torques are reference values for identifying the point of resistance (completion of assembly), which are only valid under optimum conditions.



Assembly instructions for Danfoss Waltech WalformPlus-M
For steel or stainless steel (1.4571) tubes

Tube selection

The pressure strength specifications refer to the following tube grades:

Steel

Material: E235 / E355, to EN 10305-4 (formerly St. 374 / 52.4 to DIN 1630). Type: Seamless cold-drawn, normalized bright annealed steel, designation NBK as per DIN EN 10305-4.

Stainless steel

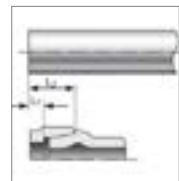
Material: X6CrNiMoti17122 (1.4571) to DIN EN 10216-5 Type: Seamless cold-drawn, scale-free, heat-treated stainless steel, designation CFA as per DIN EN 10216-5 (formerly DIN 17458). Dimensions and tolerances to DIN EN 10305-4 (formerly DIN 2391-1). Additional stainless steel grades

are available on request.

Calculated pressures: DIN 2413

Caution: Materials or tolerances that deviate from the recommended tube specifications may result in tool break, incorrect installation or total failure of the fitting.

Caution: The specified nominal pressure ratings always refer to the fitting. For tube pressure ratings, see the specifications of the respective manufacturers!



1. Tube length determination

- a) By measuring the distance between the tube stops of two studs. The length L1 must be added to the measured length of each tube connection.
- b) By measuring the distance between the face ends of two studs. The length L2 must be added to the measured length of each tube connection.

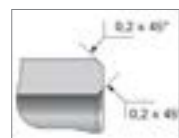
The lengths L1 and L2 as well as minimum lengths of straight tubes and the minimum lengths of straight tube ends in the case of tube bends can be found in the operating instructions and/or the corresponding tables.



2. Cut the tube at a right angle

Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.

Caution: Deviations in the tube end shape, e.g. tubes that were cut at an angle or incorrectly deburred, will reduce the service life and the tightness of the fitting.



3. Gently deburr the tube ends and clean the tube

Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The clamping and reshaping area must be free of chips, dirt and paint! The clamping area should be free of grease and oil! If the tube end is greasy or oily, use an environmentally friendly solvent.

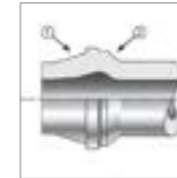
4. Slide the union nut onto the tube.



5. Reshape the tube ends using an Danfoss Waltech Walform machine

To do so, insert the tools into the machine and move them into the insertion position. Insert the tube end into the machine until the clearly detectable mechanical stop in the base of the forming tool. Hold it in place to start the reshaping process. The reshaping process takes place automatically. Follow the operating instructions of the Walform machine.

Caution: Make sure to select the correct tool, in line with the tube dimensions, the tube material and the selected WalformPlus system.



6. Verification of the reshaped tube

The two functional surfaces ① and ② must be shaped in such a way that a flat contact surface has formed. Care must therefore be taken to ensure that the tube sealing face ① is not damaged, especially not by axial scoring! Damage to the tube's sealing face will reduce the pressure strength and service life of the fitting.

- ① 12° taper for a positive fit inside the fitting stud
- ② 45° taper for fitting the union nut



7. Final assembly inside the fitting stud

Using an appropriate wrench, tighten the union nut until there is a clearly detectable increase in the required force (point of resistance). Next, complete the assembly by means of a 120° rotation (two wrench faces).

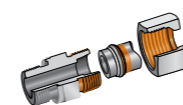
Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause leakage or other malfunctions.

Important: Hold the fitting stud in place by means of a wrench.

8. Re-assembly

After each time the fitting is disassembled, the union nut must be retightened. Any re-assembly must be carried out in the same way as the final assembly!

Important: In the case of stainless steel fittings, the threads and the tube parts that will be reshaped must be sufficiently lubricated with Danfoss Waltech ABF grease (anti-block grease) prior to re-assembly.



Danfoss Waltech ABF grease (anti-block grease)
Stainless steel (1.4571)

Application: Prior to assembly, the fittings must be thoroughly cleaned and the threads in particular checked for damage. All contact surfaces must be sufficiently coated with Danfoss Waltech ABF grease (anti-block grease) using a brush or a lint-free cloth. After greasing, the fittings must be immediately assembled to prevent contamination. For best results, use Danfoss Waltech stainless steel nuts with silver-plated threads (AG/AGP) plus Danfoss Waltech ABF grease (anti-block grease).



Tube length determination*

Steel
Stainless steel (1.4571)

WalformPlus-M							
d (mm)	s (mm)						
	2	2.5	3	3.5	4	5	6
8 L	8.5 / 15.5	7.5 / 15.0	8.0 / 15.0				
8 S	8.0 / 15.0	7.5 / 15.0	7.5 / 14.5		Steel L1 (mm) L2 (mm)		
					Stainless steel (1.4571) L1 (mm) L2 (mm)		
10 L	8.0 / 15.0 6.5 / 14.0	6.5 / 14.0	7.0 / 14.0 6.5 / 14.0				
10 S	7.5 / 15.5 6.0 / 14.0	6.0 / 14.0	6.0 / 13.5 6.0 / 14.0				
12 L	6.0 / 13.5 7.0 / 14.0		6.5 / 13.5	5.5 / 12.5			
12 S	6.0 / 13.5 6.5 / 14.0		6.0 / 13.5	5.0 / 12.5			
15 L	6.0 / 13.5 6.5 / 14.0		6.0 / 13.0 6.5 / 13.5				
16 S	7.0 / 15.5 8.5 / 16.5	8.5 / 16.5	8.5 / 16.5		6.5 / 15.5 6.5 / 14.0		
18 L	8.5 / 16.5	5.5 / 13.0			5.5 / 13.0 8.5 / 16.5		
20 S		7.5 / 18.5 9.5 / 20.0			7.0 / 18.0 9.5 / 20.0		
22 L		7.0 / 14.5	6.0 / 13.5 7.5 / 15.0	6.5 / 14.0			
25 S		10.0 / 22.5	8.0 / 20.0 9.5 / 21.5			8.0 / 20.0 9.5 / 21.5	
28 L			6.0 / 13.5 7.5 / 15.0	6.5 / 14.0	7.0 / 15.0		
30 S			10.0 / 23.5	7.5 / 21.0	10.0 / 23.5	10.0 / 23.5	8.0 / 21.5
35 L					7.5 / 18.0 9.5 / 20.0	7.5 / 18.0	
38 S				8.0 / 24.0 11.0 / 27.0	11.0 / 27.0	11.0 / 27.0	8.0 / 24.0 11.5 / 27.5
42 L						7.5 / 18.5	7.5 / 18.5

*The dimensions for determining the length of qualified tube lengths that are not given in the table are available on request.

Note

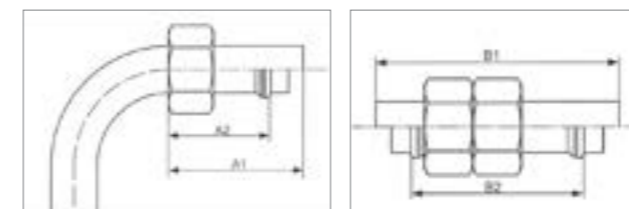
Any tube length differences must be appropriately compensated, for example by installing tube bends. Tubes that are longer or shorter than the specified tube length may result in leakage. Prior to installation, short straight tube sections without length compensation between the installation ends must be checked for compliance with the final dimension and adapted, if necessary.

C



Minimum tube lengths for clamping straight and bent tubes

Steel
Stainless steel (1.4571)



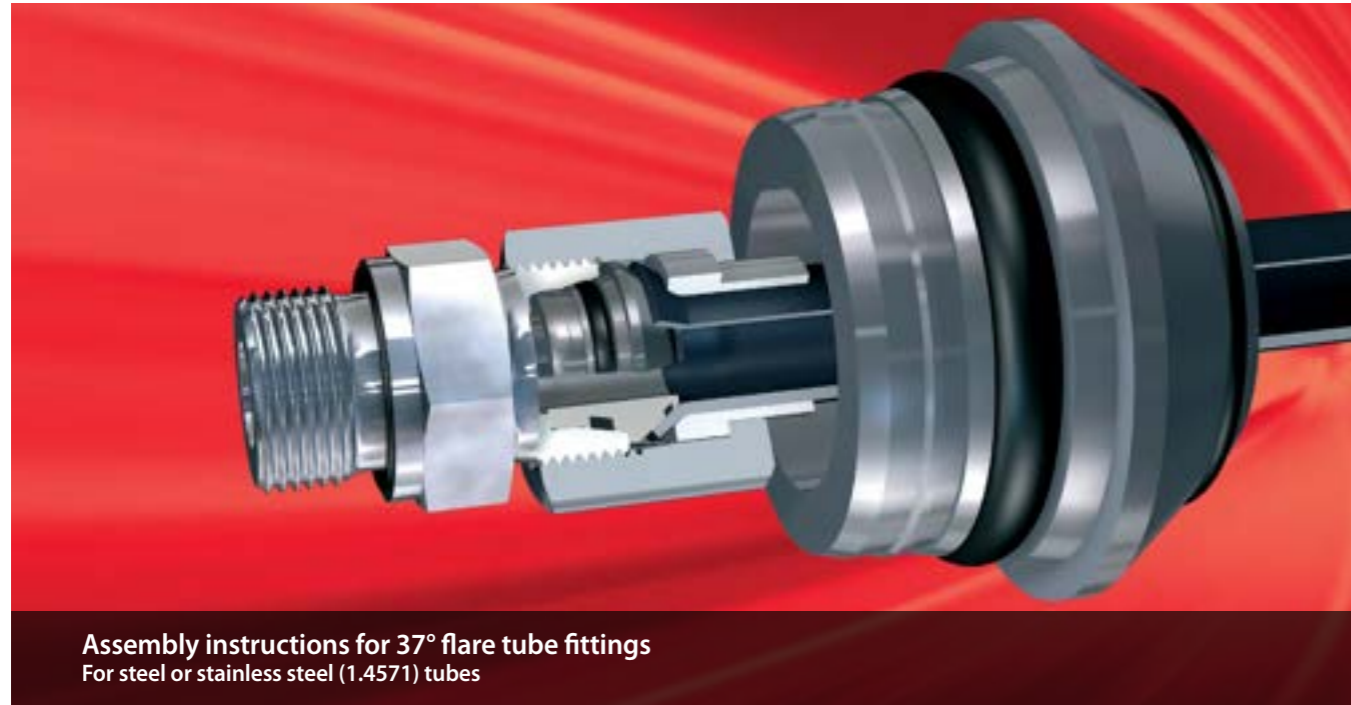
Minimum length of straight tube (A)

Length of straight tube (B)

d (mm)	A1* (mm)	A2* (mm)	B1 (mm)	B2 (mm)
8 L	65 64	50 49	89 87	58 57
8 S	67 66	53 51	91 90	61 60
10 L	60 58	46 48	83 83	53 55
10 S	62 60	49 50	87 84	56 56
12 L	59 58	46 45	80 80	53 52
12 S	61 61	48 48	82 83	55 55
15 L	68 66	55 53	91 88	64 60
16 S	71 70	56 56	97 95	66 62
18 L	76 77	63 61	98 102	72 69
20 S	82 83	64 63	113 115	76 75
22 L	84 84	71 70	109 109	81 79
25 S	110 112	90 90	143 147	103 102
28 L	100 100	87 85	124 125	96 94
30 S	121 124	100 101	159 161	116 114
35 L	112 116	94 96	143 148	107 108
38 S	129 132	105 105	169 174	121 119
42 L	116	98	148	111

*If the straight tube end needs to be shorter than indicated in the table due to installation difficulties, it must be bent after reshaping.

C



Assembly instructions for 37° flare tube fittings
For steel or stainless steel (1.4571) tubes

Tube selection

The pressure strength specifications refer to the following tube grades:

Steel

Material: E235 / E355, to EN 10305-4 (formerly St. 374 / 52.4 to DIN 1630). Type: Seamless cold-drawn, normalized bright annealed steel, designation NBK as per DIN EN 10305-4.

Stainless steel

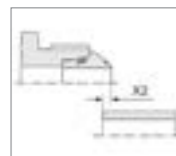
Material: X6CrNiMoTi17122 (1.4571) to DIN EN 10216- 5 Type: Seamless cold-drawn, scale-free, heat-treated stainless steel, designation CFA as per DIN EN 10216-5 (formerly DIN 17458). Dimensions and tolerances to DIN EN 10305-4 (formerly DIN 2391-1). Additional stainless steel grades

are available on request.

Calculated pressures: DIN 2413.

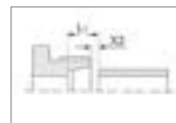
⚠ Caution: Materials or tolerances that deviate from the recommended tube specifications may result in tool break, incorrect installation or total failure of the fitting.

⚠ Caution: The specified nominal pressure ratings always refer to the fitting. For tube pressure ratings, see the specifications of the respective manufacturers!



1. Determining the tube length if the intermediate ring is pressed in

The tube length is determined by measuring the distance between the face ends of two intermediate rings, to which the length X2 must then be added for each tube connection (see tables).



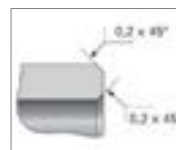
Determining the tube length without intermediate ring

The tube length is determined by measuring the distance between the face ends of two studs, from which the length X1 must then be subtracted for each tube connection (see tables). The length L1 corresponds to the difference in tube length compared to cutting-ring fittings to DIN 2353. When converting from a ring fitting (e.g. cutting ring) to flared fitting parts, the tube must be shortened by the length L1.



2. Cut the tube at a right angle

Cut the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



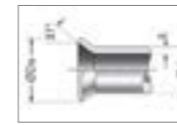
3. Gently deburr the tube ends and clean the tube

Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The clamping and reshaping area must be free of chips, dirt and paint! The clamping area should be free of grease and oil! If the tube end is greasy or oily, use an environmentally friendly solvent.



4. Tube flare

Slide the union nut and the sleeve onto the tube as shown. Flare the tube end using an Danfoss Waltech flaring machine (see the operating instructions for flaring machines).



5. Verification of the flared tube

Verify the dimensional accuracy of the flare (see tables) and check for any contamination. The outer diameter of the flare should correspond to the verification diameter (Da). The flare must be at a right angle to the tube axis and concentric with the tube and the sleeve. Uneven and off-center flares indicate faulty tools or operating errors. The inner taper of the flared tube must be clean. Proper flaring is a prerequisite for a long service life of the connection.



6. Insertion of the intermediate ring

The intermediate ring should ideally be inserted using a vice. Protect the fitting parts from damage. Oil the O-rings before pressing them in.



6.1 Alternatively, the intermediate ring can be loosely inserted into the fitting stud. Tighten the union nut manually.

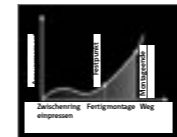
Important: The threads of stainless steel fittings should be sufficiently greased with Danfoss Waltech ABF grease (anti-block grease) prior to assembly.



7. Final assembly with pressed-in intermediate ring (point 6)

Tighten the union nut until there is a clearly detectable increase in the required force (point of resistance).

Next, complete the final assembly: 1/2 rotation
1/4 rotation for sizes 6 L to 12 L



7.1 Final assembly with loosely mounted intermediate ring (point 6.1)

Tighten the union nut until there is a clearly detectable increase in the required force (point of resistance). Doing so will press the intermediate ring into the stud.

Next, complete the final assembly: 1/2 rotation
1/4 rotation for sizes 6 L to 12 L

7.2 Final assembly using a torque wrench

The torque values for the required increase in tightening force can be found in the corresponding table (see the "tightening torque" table).

Important: Hold the fitting stud in place by means of a wrench

⚠ Caution: Any deviation from the specified torque/tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.

Important: In the case of stainless steel fittings, the threads and the contoured edge of the sleeve must be sufficiently lubricated with Danfoss Waltech ABF grease (anti-block grease) prior to re-assembly.



8. Re-assembly

After each time the fitting is disassembled, the union nut must be retightened (same torque as during final assembly).

Important: In the case of stainless steel fittings, the threads and the contoured edge of the sleeve must be sufficiently lubricated with Danfoss Waltech ABF grease (anti-block grease) prior to re-assembly.

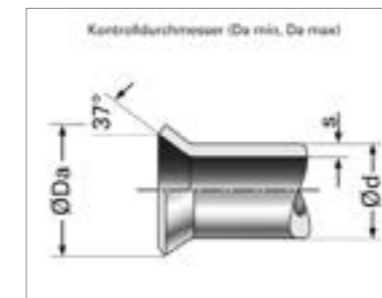


9. Minimum length of straight tube ends in the case of tube bends and minimum length of straight tubes (see tables).

Tightening torque

Series	Tube outer diameter (mm)	Steel (Nm)	Stainless steel (1.4571) (Nm)
L	6	20	30
	8	40	55
	10	45	65
	12	55	110
	15	70	190
	18	120	250
	22	200	400
	28	300	550
	35	600	900
	42	800	900
S	6	30	85
	8	45	100
	10	55	130
	12	80	190
	14	90	260
	16	130	330
	20	250	350
	25	400	700
	30	500	900
	38	800	900

Tube length and control diameter



d (mm)	s (mm)	X1 (mm)	X2 (mm)	L1 (mm)	Da min (mm)	Da max (mm)
6	1	1	3.5	8	9.1	10
	1.5	2	2.5	9		
8	1	1	4	8	11.3	12
	1.5	2	3	9		
	2	2.5	2.5	9.5		
10	1	1	4.5	8	13.1	14
	1.5	2	3.5	9		
	2	3	2.5	10		
12	1	1	4.5	8	15.3	16
	1.5	2	3.5	9		
	2	3	2.5	10		
14	1.5	0.5	5.5	8.5	18.6	19.6
	2	1	5	9		
	2.5	2	4	10		
	3	3	3	11		
15	1.5	1	4.5	8	19.1	20
	2	2	3.5	9		
	2.5	3	2.5	10		
16	1.5	0	6.5	8.5	20.6	22
	2	1	5.5	9.5		
	2.5	1.5	5	10		
	3	2.5	4	11		
18	1.5	0	5.5	7.5	23.2	24
	2	1	4.5	8.5		
	2.5	1.5	4	9		
20	2	1	7	11.5	25.6	26.8
	2.5	2	6	12.5		
	3	3	5	13.6		
	3.5	4	4	14.5		
22	1.5	1	5.7	8.5	26.5	27.5
	2	2	4.7	9.5		
	2.5	3	3.7	10.5		
	3	3.5	3.2	11		
25	2	1	7	13	31.1	33
	2.5	1.5	6.5	13.5		
	3	2.5	5.5	14.5		
	4	4	4	16		
28	2	1.5	5.7	9	32.7	33.3
	2.5	2.5	4.7	10		
	3	3	4.2	10.5		
30	2	-0.5	9	13	37	38.7
	2.5	0.5	8	14		
	3	1	7.5	14.5		
	4	3	5.5	16.5		
	5	4.5	4	18		
35	2	1.5	6.5	12	41.8	42.7
	2.5	2	6	12.5		
	3	3	5	13.5		
	4	4.5	3.5	15		
38	2.5	0	10	16	46	47.2
	3	0.5	9.5	16.5		
	4	2	8	18		
	5	4	6	20		
42	6*	2.5	7.5	18.5	46	48
	2	1.5	7	12.5	48.8	49.8
3	3	6.5	14			
	4	4.5	5	15.5		

*Only with flaring machine MEG-BO2, MEG-WF1/BO2 and special flaring clamps.

Length of straight tube the until start of the bending radius



“Bend first, then flare”
 Length of the straight tube end (**length L1**) until the start of the bending radius
 a) Manual flaring tool
 b) Flaring machine

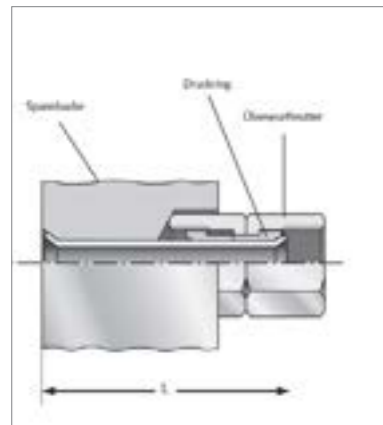
Tube outer diameter (mm)	L1	
	Manual flaring tool	Flaring machine MEG-B02 MEG-WF1/B02 MHH-B0
6	36	43
8	37	44
10	39	46
12	45	47
14	46	50
16	48	52
18	46	58
20	50	58
22	50	60
25	72	60
28	70	60
30	73	62
35	72	62
38	78	70
42	73	70



“Flare first, then bend”
 If the straight tube end (**length L2**) needs to be shorter than indicated in the table due to installation difficulties, it must first be flared and then bent (see tube bending tools).

Tube outer diameter (mm)	L2
10	15
12	15
15	17
16	21
18	18

Tube diameters 6, 8 and 14 are available on request.



Minimum length of straight tube L

Tube outer diameter (mm)	L	
	Manual flaring tool	Flaring machine MEG-B02 MEG-WF1/B02 MHH-B0
6	52	59
8	54	62
10	55	64
12	63	67
15	67	75
18	67	76
22	71	81
28	93	88
35	100	92
42	110	130
6	51	61
8	53	64
10	54	66
12	62	68
14	67	74
16	69	79
20	73	82
25	99	94
30	100	96
38	110	136

Pressure setting of the flaring machine M-WF385X/BO

M-WF385X/BO



Steel E235 / E355

Tube outer diameter 'mm'	Wall thickness s 'mm'	Potentiometer setting M-WF385X/BO	Flare diameter Da 'mm'	
			min	max
16	2.0	20	20.6	22.0
	2.5	28		
	3.0	30		
20	2.0	25	25.6	26.8
	2.5	28		
	3.0	30		
	3.5	35		
	4.0	45		
22	2.0	25	25.6	27.5
25	2.5	35	31.1	33.0
	3.0	32		
28	3.0	30	32.7	33.3
	4.0	39		
30	4.0	35	37.0	38.7
	5.0	40		
35	3.0	30	41.8	42.7
	5.0	50		
38	4.0	35	46.0	47.2
	5.0	50		
42	6.0	50	46.0	48.0
	3.0	55		
42	4.0	65	48.8	49.8

Pressure setting of the flaring machine MHH-BO

MHH-BO



Steel E235 / E355

Tube outer diameter 'mm'	Wall thickness s 'mm'								
	1	1.5	2	2.5	3	3.5	4	5	6
	Pressure setting								
6	110	160							
8	100	150	200						
10	90	140	180						
12	80	140	170						
14		140	160	270	370				
15		140	160	200					
16		140	140	250	370				
18		140	140	250					
20			150	250	350	440			
22		160	160	260	350				
25			200	280	360		500		
28			210	290	360				
30			230	300	370		500	600	
35			250	320	390		500		
38				360	410		600	600	620 ¹
42			280		420		500		

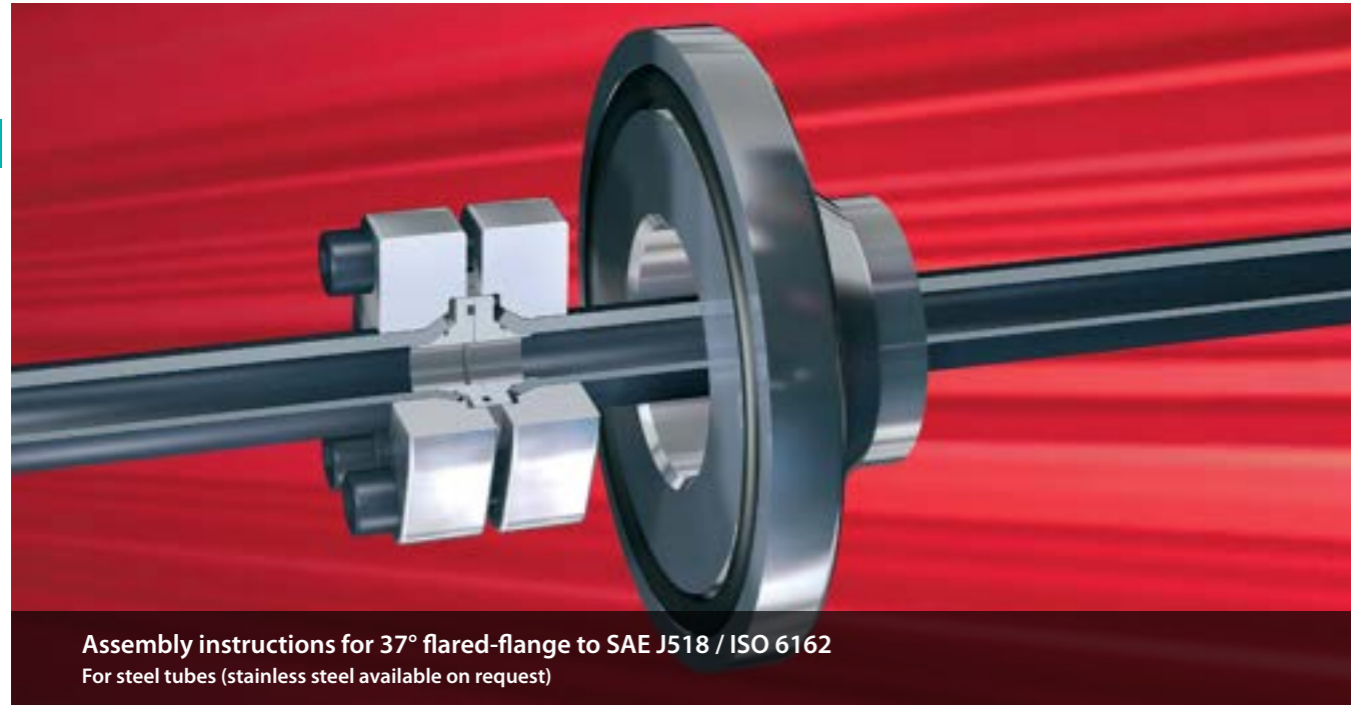
Special clamps are available on request.

*For materials to the latest standards, see Chapter B.



Danfoss Waltech ABF grease (anti-block grease) Stainless steel (1.4571)

Application: Prior to assembly, the fittings must be thoroughly cleaned and the threads in particular checked for damage. All contact surfaces must be sufficiently coated with Danfoss Waltech ABF grease (anti-block grease) using a brush or a lint-free cloth. After greasing, the fittings must be immediately assembled to prevent contamination. For best results, use Danfoss Waltech stainless steel nuts with silver-plated threads (AG/AGP) plus Danfoss Waltech ABF grease (anti-block grease).



Assembly instructions for 37° flared-flange to SAE J518 / ISO 6162
For steel tubes (stainless steel available on request)

Tube selection

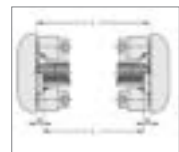
The pressure strength specifications refer to the following tube grades:

Steel Material: Steel E235 / E355, to EN 10305-4 (formerly St. 37.4 / 52.4 to DIN 1630). Type: Seamless cold-drawn, normalized bright annealed steel, designation NBK as per DIN EN 10305-4.

Calculated pressures: DIN 2413

⚠ Caution: Materials or tolerances that deviate from the recommended tube specifications may result in tool break, incorrect installation or total failure of the fitting.

⚠ Caution: The specified nominal pressure ratings always refer to the fitting. For tube pressure ratings, see the specifications of the respective manufacturers!



1. Tube length determination

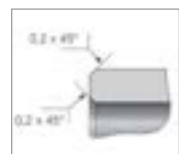
The tube length is determined by measuring the distance between the fittings (L1), from which the length X must be subtracted for each tube connection. The length X can be found in the operating instructions and/or in the corresponding tables.



2. Cut the tube at a right angle

Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.

⚠ Caution: Deviations in the tube end shape, e.g. tubes that were cut at an angle or incorrectly deburred, will reduce the service life and the tightness of the fitting.



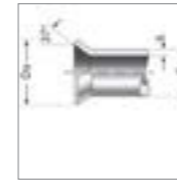
3. Gently deburr the tube ends and clean the tube

Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. The clamping and reshaping area must be free of chips, dirt and paint! The clamping area should be free of grease and oil! If the tube end is greasy or oily, use an environmentally friendly solvent.



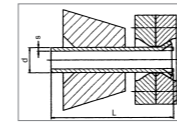
4. Tube flare

Slide the flange onto the tube as shown. Flare the tube end using an Danfoss Waltech flaring machine (see operating instructions for flaring machines).

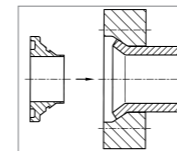


5. Verification of the flared tube

Check the diameter Da of the flared tube for dimensional accuracy and any contamination. The control diameter (Da) (see the "machine settings" table) corresponds to the outer diameter of the flared collar. The dimensions can be found in the operating instructions and/or the corresponding tables. The flare must be at a right angle to the tube axis and concentric with the tube and the flange. Uneven and off-center flares indicate faulty tools or operating errors. Proper flaring is a prerequisite for a long service life of the connection.



6. Minimum length of straight tube ends in the case of tube bends and minimum length of straight tubes (see tables)

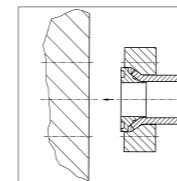


7. Insert the intermediate ring into the flange

Make sure that the soft seals are properly positioned. Place the intermediate ring in the flared tube with the centering element first. Slide the flange over the intermediate ring. The centering element must not be used to secure the intermediate ring inside the tube!

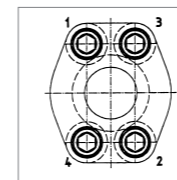
8. Fit the screws

Insert four screws (hexagon head or hexagon socket head) into the clearance holes provided. Hexagon socket head screw (DIN EN ISO 4762) - hexagon head screw (DIN EN ISO 4014).



9. Fit the flange

Place the flange on the connection point. (If two tubes need to be connected, the flanges should be in contact with one another.) Manually screw in the screws.



10. Tighten the screws

The screws must be tightened based on torque (see below). Rotation-based assembly is not possible! Tighten the screws in crosswise (1-2-3-4) sequence and several torque steps until the maximum torque is reached.

⚠ Caution: Any deviation from the specified torque will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.

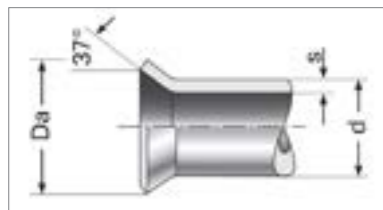
Screw tightening torque

Flange 3,000 PSI ("")	Screw	Flange 6,000 PSI ("")	Screw (mm) 0	Torque M for 8.8 screw (Nm)
1/2	M8 x 30	1/2	M8 x 30	25
3/4	M10 x 35			
1	M10 x 35	3/4	M10 x 35	53
1 1/4	M10 x 40			
1 1/2	M12 x 40	1	M12 x 45	95
2	M12 x 45			
		1 1/4	M14 x 55	150
		1 1/2	M16 x 60	220
		2	M20 x 60	390

There is a safety margin of 2.5 in the case of 8.8 screws.

Machine settings / flare control diameter

C



Steel E235

Tube outer diameter (mm)	Wall thickness S (mm)	M-WF385X/B0	Flare diameter Da (mm)	
			min.	max.
16	2.0	20	20.6	22.0
	2.5	28		
	3.0	30		
20	2.0	25	25.6	26.8
	2.5	28		
	3.0	30		
	3.5	35		
22	2.0	25	26.5	27.5
	2.5	35		
25	3.0	32	31.1	33.0
	4.0	39		
28	3.0	30	32.7	33.3
	4.0	35		
30	5.0	40	37.0	38.7
	3.0	30		
	5.0	50		
35	3.0	30	41.8	42.7
	5.0	50		
38	4.0	35	46.0	47.2
	5.0	50		
	6.0	50		
42	3.0	55	48.8	49.8
	4.0	65		
48.3	3.2	50	58.0	59.0
	2.5	48		
50	3.0	50	59.0	60.5
	5.0	55		
	6.0	70		
	8.0	83		
60	3.0	40	70.0	71.0
	3.6	50		
60.3	5.6	-	70.0	71.0
	5.0	65		
60	6.0	80	70.0	71.0
	8.0	95		
	10.0	-		

Correct



Incorrect

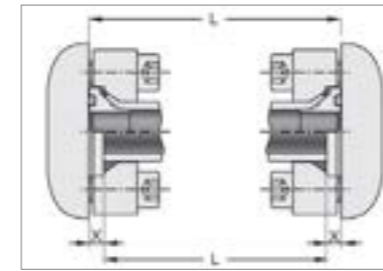


The settings indicated above are only valid for E235 steel tubes. Tubes made from stronger material require a higher pressure setting. The pressure setting must be increased until the specified collar diameter is reached and the flare geometry has fully formed (both inside and outside).

Caution: Do not attempt to determine the pressure setting by means of subsequent flaring; use a new piece of tube each time (test flaring). For materials to the latest standards, see section B12.

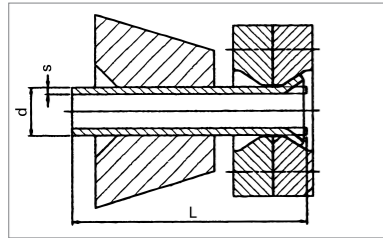
Length X ± 0-5 mm for determining the tube length

C



Tube outer diameter (mm)	Wall thickness S (mm)	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
		16	2.0	5.4			
16	2.5	5.7					
	3.0	5.9					
	2.0	6.0	7.6				
20	2.5	6.1	7.7				
	3.0	6.2	7.8				
	3.5	6.3	7.9				
	4.0		7.5				
22	2.0	6.2					
	2.5		6.7	8.6			
25	3.0		6.5	8.4			
	4.0		6.3	8.2			
28	3.0		6.6				
	4.0			7.4			
30	5.0			7.5	8.1		
	3.0			6.9			
35	5.0			6.5			
	4.0				6.6	7.7	
38	5.0			4.8	5.8	6.4	
	6.0				4.7	5.1	
	3.0				7.0	9.1	
42	4.0				6.8	9.2	
	3.2					7.5	
48.3	2.5					8.1	
	3.0					7.9	
	5.0					7.7	
50	6.0					7.5	
	8.0					7.3	
	3.0						10.6
	3.6						10.3
60.3	5.6						9.6
	5.0						9.2
60	6.0						8.8
	8.0						8.1
60 / 60.3	10.0						7.5

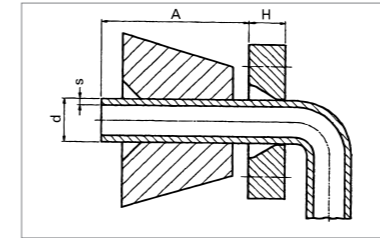
Minimum length of straight tube L



3,000 PSI (mm)	
Flange (")	M-WF385X/BO (MEG-WF2/BO)
1/2	112
3/4	114
1	118
1 1/4	120
1 1/2	124
2	128

6,000 PSI (mm)	
Flange (")	M-WF385X/BO (MEG-WF2/BO)
1/2	112
3/4	118
1	129
1 1/4	140
1 1/2	144
2	144

Minimum length of straight tube ends in the case of tube bends

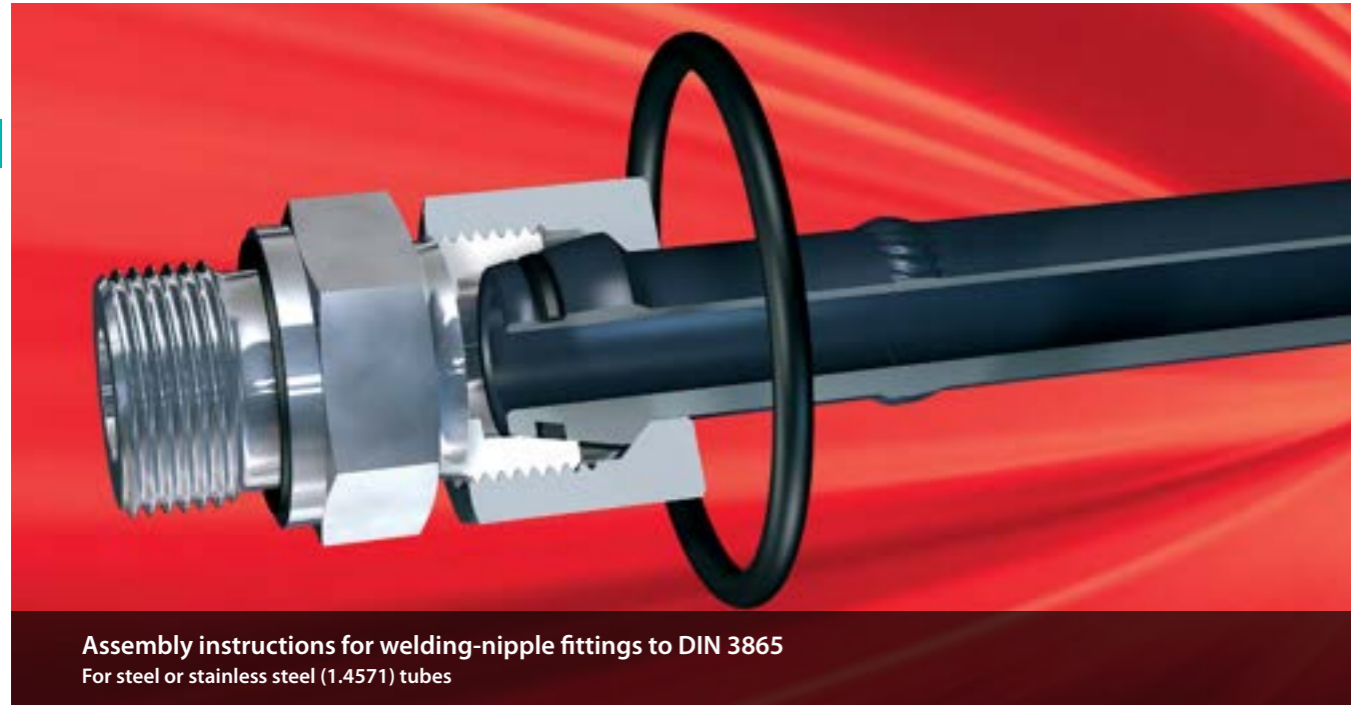


Minimum tube length A for all sizes (mm)	
M-WF385X/BO (MEG-WF2/BO)	
80	

Flange (")	Flange height 3,000 PSI (mm)	Flange height 6,000 PSI (mm)
1/2	16	16
3/4	17	19
1	19	24.5
1 1/4	20	30
1 1/2	22	32
2	24	32

 **Danfoss Waltech ABF grease (anti-block grease)**
Stainless steel (1.4571)

Application: Prior to assembly, the fittings must be thoroughly cleaned and the threads in particular checked for damage. All contact surfaces must be sufficiently coated with Danfoss Waltech ABF grease (anti-block grease) using a brush or a lint-free cloth. After greasing, the fittings must be immediately assembled to prevent contamination. For best results, use Danfoss Waltech stainless steel nuts with silver-plated threads (AG/AGP) plus Danfoss Waltech ABF grease (anti-block grease).



Assembly instructions for welding-nipple fittings to DIN 3865
For steel or stainless steel (1.4571) tubes

Tube selection

The pressure strength specifications refer to the following tube grades:

Steel

Material: Steel E235 / E355, to EN 10305-4 (formerly St. 37.4 / 52.4 to DIN 1630). Type: Seamless cold-drawn, normalized bright annealed steel, designation NBK as per DIN EN 10305-4.

Stainless steel

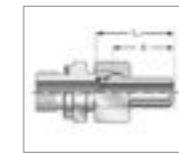
Material: X6CrNiMoTi17122 (1.4571) to DIN EN 10216- 5 Type: Seamless cold drawn, scale-free, heat-treated stainless steel, designation CFA as per DIN EN 10216-5 (formerly DIN 17458). Dimensions and tolerances to DIN EN 10305-4 (formerly DIN 2391-1).

Calculated pressures: DIN 2413

⚠ Caution: Materials or tolerances that deviate from the recommended tube specifications may result in incorrect installation or total failure of the fitting.

⚠ Caution: The specified nominal pressure ratings always refer to the fitting. For tube pressure ratings, see the specifications of the respective manufacturers!

C



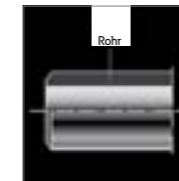
1. Tube length determination

The tube length is determined by measuring the distance between the face ends of two fitting studs, from which the length X must then be subtracted for each tube connection. When converting from cutting ring to welding nipple fittings, the tube end must be shortened by the length L_1 .



2. Cut the tube at a right angle

Cut off the tube at least 10 mm from the manufacturer's cut-off (this is a common source of error due to delivery conditions). Cut the tube at a right angle; an angular deviation of 1/2° from the tube axis is permissible. Do not use pipe cutters or cut-off saws, as these will result in pronounced burring or diagonal cuts. Use a sawing machine or similar equipment.



3. Before welding, chamfer the outside of the tube end, lightly deburr it and clean the inside

Deburr the inside and outside of the tube (max. 0.2 x 45°) and clean it. If the tube end is greasy or oily, use an environmentally friendly solvent.



4. Slide the union nut onto the welding nipple and weld

Weld the welding nipple and the tube according to welding guidelines. Descal the welding point and clean the O-ring groove.



5. Mount the O-ring, which is supplied separately

Oil the thread and O-ring.

⚠ Caution: Make sure that the O-ring is not twisted.



6. Final assembly

Tighten the union nut manually. Tighten the union nut by a 1/3 rotation past the clearly detectable increase in the required tightening force. Hold the fitting stud in place by means of a wrench. The torque values for the required increase in tightening force can be found in the corresponding table (see the "tightening torque" table).

Note: When assembling welding nipples, tension on the tube must be avoided.

⚠ Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.



7. Re-assembly

After each time the fitting is loosened, the soft seal must be checked for damage and replaced if necessary. Afterwards, firmly retighten the union nut. The torque during re-assembly must be the same as during initial assembly!

Tightening torque

Series	Tube outer diameter (mm)	Tightening torque (Nm)	Series	Tube outer diameter (mm)	Tightening torque (Nm)
L	6	20	S	6	20
	8	25		8	35
	10	45		10	50
	12	50		12	65
	15	60		14	70
	18	70		16	85
	22	130		20	135
	28	180		25	170
	35	300		30	280
	42	320		38	320

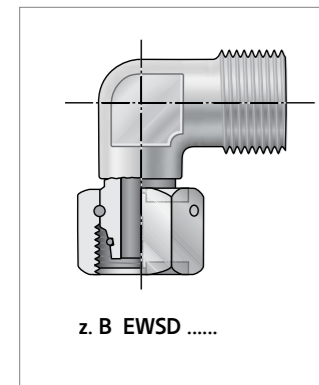
Tube length determination

Tube outer diameter (mm)	d ₂	L ₁	X
8	8	32	25
10	10	33.5	26
12	12	33.5	26
16	16	40.5	32
20	20	47	36.5
25	25	53.5	41.5
30	30	57.5	44
38	38	64.5	48.5

Note

Any tube length differences must be appropriately compensated, for example by installing tube bends. Tubes that are longer or shorter than the specified tube length may result in leakage. Prior to installation, short straight tube sections without length compensation between the installation ends must be checked for compliance with the final dimension and adapted, if necessary.

Assembly instructions for taper-seal fittings



Assembly of taper-seal fittings

Oil the O-ring. Align the tube connection in the required direction and tighten the union nut manually. Tighten the union nut by a 1/3 rotation past the clearly detectable increase in the tightening force (point of resistance).

Alternatively, in the case of steel fittings, tighten the union nut using a torque wrench (see the "tightening torque" table).

Important: Hold the fitting stud in place by means of a wrench. In case of unfavorable assembly conditions and with large tube sizes, final assembly must be carried out using a vice. Use the same fitting stud (see above) for this purpose.

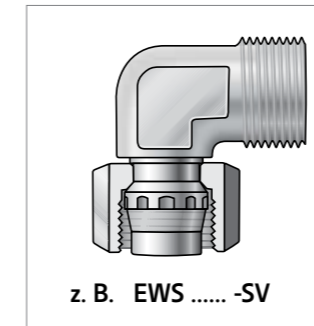
⚠ Caution: Any deviation from the specified torque/tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.

Important: The threads of stainless steel fittings must be cleaned and checked for damage prior to assembly. The fitting threads must be sufficiently lubricated using Danfoss Waltech ABF grease (anti-block grease). After greasing, the fittings must be immediately assembled to prevent any contamination.

Tightening torque

Series	Tube outer diameter (mm)	Tightening torque (Nm)	Series	Tube outer diameter (mm)	Tightening torque (Nm)
L	6	20	S	6	20
	8	25		8	35
	10	45		10	50
	12	50		12	65
	15	60		14	70
	18	70		16	85
	22	130		20	135
	28	180		25	170
35	300	30	280		
42	320	38	320		

Assembly instructions for standpipe fittings



Assembling the standpipe parts

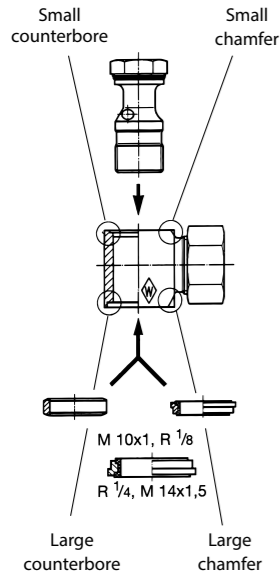
Standpipe parts are always supplied with a pre-assembled profile ring. Final assembly: Align the tube connection in the required direction and tighten the union nut manually. Tighten the union nut by 1/2 a rotation past the detectable increase in the tightening force (point of resistance).

Important: Hold the fitting stud in place by means of a wrench. In case of unfavorable assembly conditions and with large tube sizes, final assembly must be carried out using a vice. Use the same fitting stud (see above) for this purpose.

Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This will cause the fitting to leak or the standpipe to slip out.

Important: The threads of stainless steel fittings must be cleaned and checked for damage prior to assembly. The fitting threads must be sufficiently lubricated using Danfoss Waltech ABF grease (anti-block grease). After greasing, the fittings must be immediately assembled to prevent any contamination.

Assembly instructions for adjustable fittings



Tightening torques of the soft-seal version (...WD)

Tube outer diameter (mm)	LR series Md (Nm)	LM series Md (Nm)
6	25	25
8	50	60
10	50	60
12	80	85
15	140	100
18	140	140
22	210	215
28	1,400	400
35	600	600
42	850	850

	SR series Md (Nm)	SM series Md (Nm)
6	50	60
8	50	60
10	80	85
12	80	110
14	160	-
16	180	150
20	250	310
25	410	410
30	650	650
38	850	850

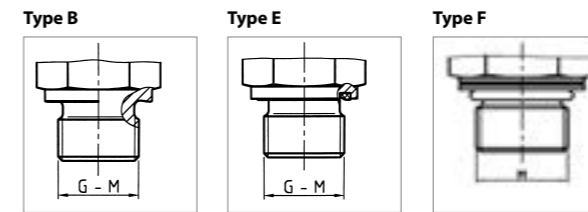
- In the case of steel fittings, the port thread and the O-ring of the banjo bolt must be oiled.
 - In the case of stainless steel fittings, the port threads of the banjo bolts should be sufficiently greased with Danfoss Waltech ABF grease (anti-block grease). After greasing, the fittings must be immediately assembled to prevent any contamination. Oil the banjo-bolt O-ring.
- Insert the banjo bolt through the banjo body (on the side that features a small counterbore).
- Insert the sealing-edge ring or the soft-seal ring into the large counterbore in the body. The fitting is centered via the banjo bolt thread. If the soft-seal ring is used, the fitting is additionally centered via the counterbore in the body (there should be no clearance between the seal ring and the body; with thread sizes M 10x1, R 1/8, R 1/4 and M 14x1.5, only the smaller diameter of the seal ring will fit into the counterbore; with the remaining dimensions, only the larger one will fit).
- Align the banjo body and tighten the banjo bolt using a wrench until there is a clearly detectable increase in the required torque (pressure point).
 - With soft-seal ring:** While holding the body in place, use a wrench to tighten the banjo bolt by a 1/6 rotation (60°) past the pressure point (see the "tightening torque" table).
 - With sealing-edge ring:** While holding the body in place, use a wrench to tighten the banjo bolt by a 1/4 rotation (90°) past the pressure point. The fitting is now fixed in place and sealed.

Caution: The tightening rotation of the soft-seal version is shorter and the tightening torque lower than for the banjo fitting with sealing-edge ring.
- Re-assembly is possible. Check the O-ring and the soft seal for damage and replace if necessary.

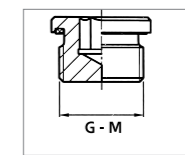
Important: The threads of stainless steel fittings should be sufficiently greased with Danfoss Waltech ABF grease (anti-block grease) prior to re-assembly.

Caution: Any deviation from the specified tightening rotation will reduce the nominal pressure rating and the service life of the fitting. This may cause the fitting to leak.

Tightening torques for steel studs to DIN 3852



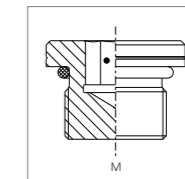
Blanking ends VS-R ...-WD, VS-M ...-WD



Series	Tube outer diameter (mm)	Standard value					
		G-M	Type B Md (Nm)	Type E Md (Nm)	Type F Md (Nm)		
L	6	M 10 x 1	18	18	M 10 x 1.5	15	
	8	M 12 x 1.5	30	25	M 12 x 1.5	25	
	10	M 14 x 1.5	45	45	M 14 x 1.5	35	
	12	M 16 x 1.5	65	55	M 16 x 1.5	40	
	15	M 18 x 1.5	80	70	M 18 x 1.5	45	
	18	M 22 x 1.5	140	125	M 22 x 1.5	60	
	22	M 26 x 1.5	190	180	M 27 x 2	100	
	28	M 33 x 2	340	310	M 33 x 2	160	
	35	M 42 x 2	500	450	M 42 x 2	210	
	42	M 48 x 2	630	540	M 48 x 2	260	
	S	6	M 12 x 1.5	35	35	M 12 x 1.5	35
		8	M 14 x 1.5	55	55	M 14 x 1.5	45
10		M 16 x 1.5	70	70	M 16 x 1.5	55	
12		M 18 x 1.5	110	90	M 18 x 1.5	70	
14		M 20 x 1.5	150	125			
16		M 22 x 1.5	170	135	M 22 x 1.5	100	
20		M 27 x 2	270	180	M 27 x 2	170	
25		M 33 x 2	410	310	M 33 x 2	310	
30		M 42 x 2	540	450	M 42 x 2	330	
38		M 48 x 2	700	540	M 48 x 2	420	
L		6	G 1/8 A	18	18		
		8	G 1/4 A	35	35		
	10	G 1/4 A	35	35			
	12	G 3/8 A	70	70			
	15	G 1/2 A	140	90			
	18	G 1/2 A	100	90			
	22	G 3/4 A	180	180			
	28	G 1 A	330	310			
	35	G 1 1/4 A	540	450			
	42	G 1 1/2 A	630	540			
	S	6	G 1/4 A	55	55		
		8	G 1/4 A	55	55		
10		G 3/8 A	90	80			
12		G 3/8 A	90	80			
14		G 1/2 A	130	115			
16		G 1/2 A	130	115			
20		G 3/4 A	270	180			
25		G 1 A	340	310			
30		G 1 1/4 A	540	450			
38		G 1 1/2 A	700	540			

G-M	PN	Standard value Md (Nm)
G 1/8 A		10
G 1/4 A		30
G 3/8 A	400	40
G 1/2 A		80
G 3/4 A		120
G 1 A		200
G 1 1/4 A	250	350
G 1 1/2 A		400
G 1 1/4	400	400
G 1 1/2		500
M 10 x 1		10
M 12 x 1.5		20
M 14 x 1.5		30
M 16 x 1.5		40
M 18 x 1.5		50
M 20 x 1.5	400	60
M 22 x 1.5		80
M 26 x 1.5		100
M 27 x 2		120
M 33 x 2		200
M 42 x 2	250	350
M 48 x 2		400
M 42 x 2	400	400
M 48 x 2		500

VS... blanking ends M-OR



M	Standard value Md (Nm)
M 10 x 1.5	20
M 12 x 1.5	35
M 14 x 1.5	45
M 16 x 1.5	55
M 18 x 1.5	70
M 22 x 1.5	100
M 27 x 2	170
M 33 x 2	310
M 42 x 2	330
M 48 x 2	420

Note:

Oil the stud before screwing it in!
 The tightening torques refer to counterparts made of steel.
 The permissible tolerance of the values in the table is +10%

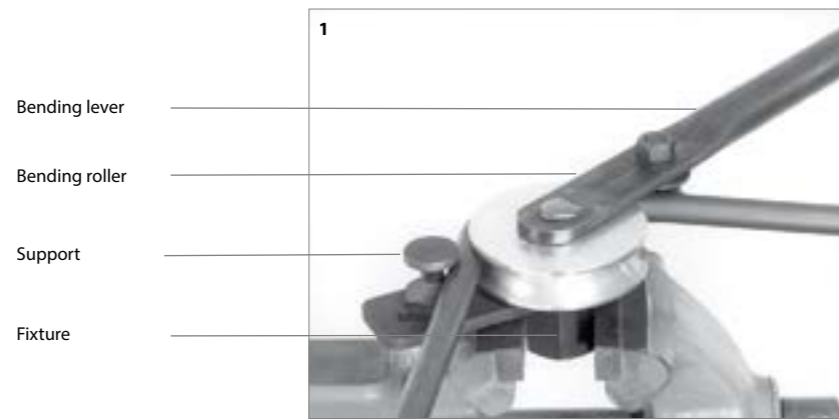
Instructions for tube bending

For tubes with an outer diameter of 6-18 mm

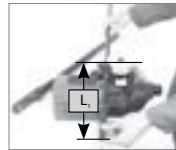
C

Tube outer diameter 6-12 mm
Art. no. WAL033012

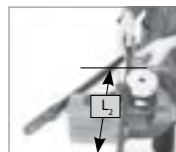
Tube outer diameter 10-18 mm
Art. no. WAL033020



2. Clamp the fixture and screw in the support. Attach a bending roller of the required size (the tube outer diameter is indicated on the bending roller).



3. **Determining the tube length L_1**
Mark the desired distance between the straight tube end and the beginning of the tube bend. Insert the tube and align it so that the marking is at a right angle to the center of the bending roller.



4. **Determining the tube length L_2 (only for 90° bends)**
Mark the required distance between the straight end of the tube and the beginning of the bend. Insert the tube and align it so that the marking is at a right angle to the outer edge of the bending roller.



5. Insert the bending lever and bend the tube quickly until the required final shape is almost reached. While bending, gently move the tube along manually.



6. Slowly pull the bending lever until the required bending angle is reached.

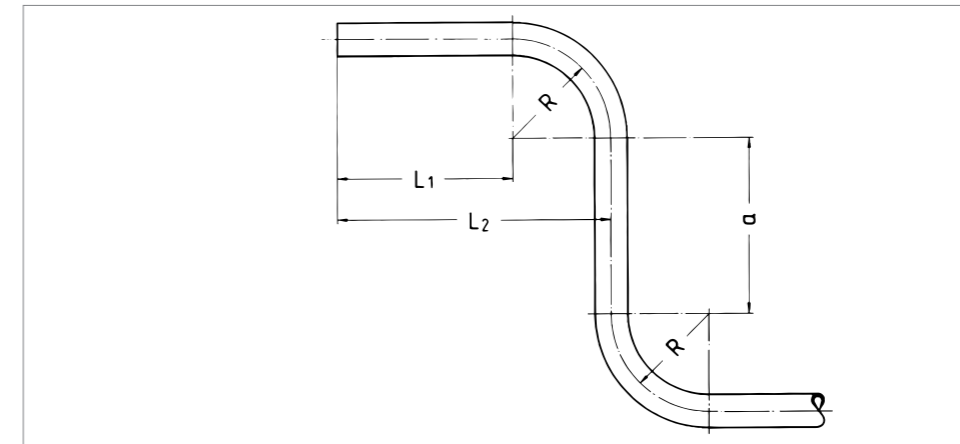


7. Remove the bent tube. With complicated tube bends, it may also be necessary to remove the bending lever and the bending roller.

Determining the length and radius

For tubes with an outer diameter of 6-18 mm

C



Tube outer diameter (mm)	Tube outer diameter 6-12 mm		Tube outer diameter 10-18 mm	
	R	a / L1 min	R	a / L1 min
6	20	36	-	-
8	20	36	-	-
10	25	32	36	64
12	25	32	36	64
15	-	-	43	53
16	-	-	44	53
18	-	-	51	73

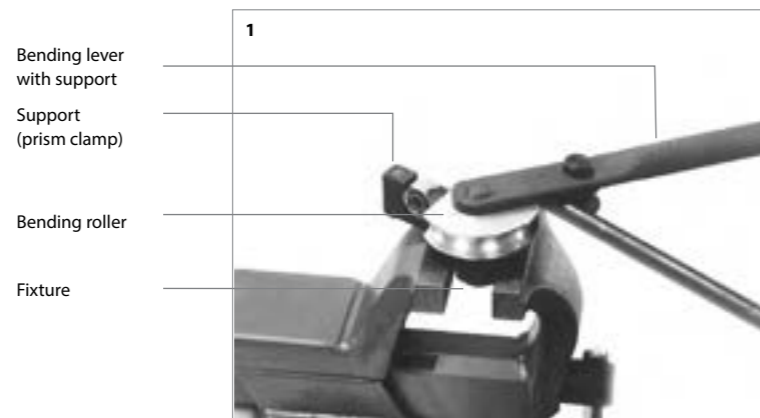
Instructions for tube bending

For tubes with an outer diameter of 10-18 mm

C

If the tube bending tool SA1 is used, tubes can be bent directly behind an already mounted nut.

Art. no. WAL063805



2. Clamp the fixture and attach the prism clamp (in accordance with the tube outer diameter). Attach a bending roller of the required size (the tube outer diameter is indicated on the bending roller).



3. Insert the tube together with the nut, so that the nut is positioned between the prism clamp and the bending roller. Attach the bending lever.

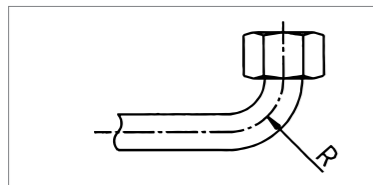


4. Quickly bend the tube until the required final shape is almost reached. While bending, gently move the tube along manually. Slowly pull the bending lever until the required bending angle is reached.



5. Remove the bent tube. With complicated tube bends, it may also be necessary to remove the bending lever and the bending roller.

Radius determination



Tube outer diameter 10-18 mm

Art. no. WAL063805

Tube outer diameter (mm)	R
10	36
12	36
15	44
16	44
18	52

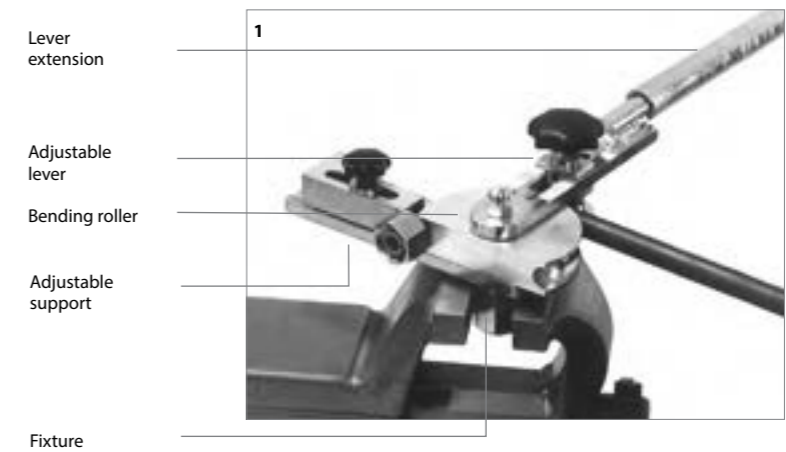
Instructions for tube bending

For tubes with an outer diameter of 6-22 mm

C

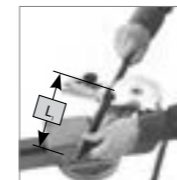
If the tube bending tool SA2 is used, tubes can be bent 24 mm behind an already mounted nut.

Art. no. WAL615706



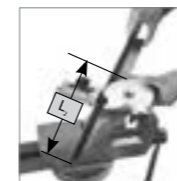
2. Bending 24 mm behind the nut

Clamp the fixture using the adjustable support. Attach a bending roller of the required size (the tube outer diameter is indicated on the bending roller). Insert the tube and fix the support in place in accordance with the tube outer diameter. The nut should rest on the flat surfaces of the support and the bending roller.



3. Bending after determining the tube length L_1

Clamp the fixture using the adjustable support. Attach a bending roller of the required size (the tube outer diameter is indicated on the bending roller). Turn the support, so that the broad surface points towards the bending roller. Mark the desired distance between the straight tube end and the beginning of the tube bend. Insert the tube and align it so that the marking is at a right angle to the center of the bending roller.



4. Bending after determining the tube length L_2 (only for 90° bends)

Clamp the fixture using the adjustable support. Attach a bending roller of the required size (the tube outer diameter is indicated on the bending roller). Turn the support, so that the broad surface points towards the bending roller. Mark the required distance between the straight end of the tube and the beginning of the bend. Insert the tube and align it so that the marking is at a right angle to the outer edge of the bending roller.



5. Attach the adjustable lever and lock it in position in accordance with the tube outer diameter.

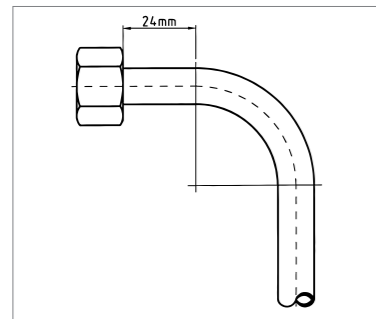


6. Attach the lever extension. Quickly bend the tube until the required final shape is almost reached. While bending, gently move the tube along manually. Slowly pull the bending lever until the required bending angle is reached.



7. Release the support to remove the tube bend. Remove the bent tube. With complicated tube bends, it may also be necessary to remove the lever and the bending roller.

Radius determination



Tube outer diameter 6-22 mm

Art. no. WAL615706

Tube outer diameter (mm)	R
6	36
8	36
10	36
12	36
14	36
15	44
16	44
18	52
20	64
22	63

Installation guidelines for tube assemblies

Installation guidelines:

- Any tube length differences and heat expansions must be appropriately compensated, for example by installing tube bends.
- Tubes that are longer or shorter than the specified tube length may cause leakage.
- Prior to installation, short straight tube sections without length compensation between the installation ends must be checked for compliance with the final dimension and adapted, if necessary.
- Straight connections between two fixed points should be avoided. Use tube bends for stress compensation.
- Aim for a clear tube arrangement.
- Allow easy access to the connection points and the components to simplify installation and maintenance.
- Make sure that the tubes are not assembled under stress and compensate for possible heat expansions while taking tube bends into account.
- System loads should be compensated as much as possible by means of vibration damping and vibration isolation.
- Aim for low pressure loss during installation.

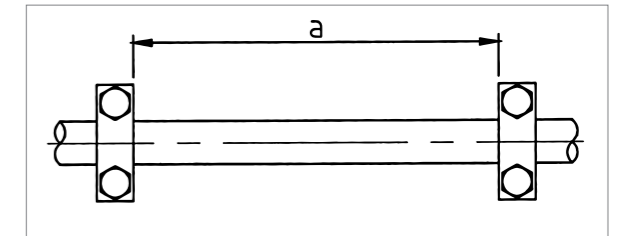
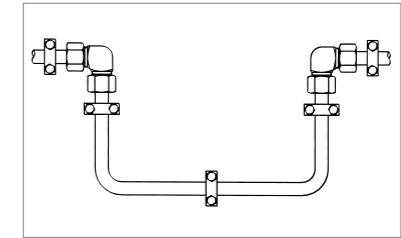
Fastening instructions:

Tube assemblies must be fastened in such a way that

- They do not vibrate uncontrollably,
- They are not in direct contact with other parts,
- They are not in contact with one another,
- The fastening method ensures stress-free installation,
- They are not used to fasten other components.

Fastening locations:

- The first clamp should be fitted immediately after the fitting, as this will prevent the fitting from vibrating - Table 1.
- Tube bends must be supported directly before and after each bend.
- A minimum distance between the clamp and the union nut should be observed in order to ensure that union nuts/union bolts are able to move axially for disassembly - Table 2.



Recommended fastening distances (to DIN 24346)

Tube outer diameter (mm)	Max. distance between clamps a (m)
6-10	1
10-25	1.5
Greater than 25	2.0

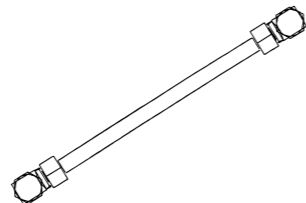
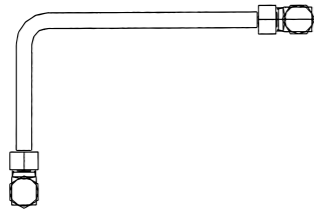
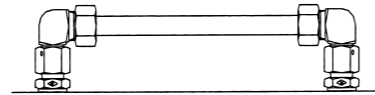
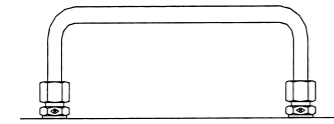
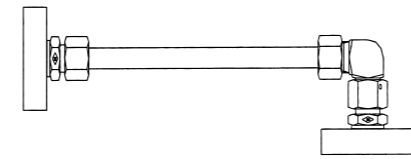
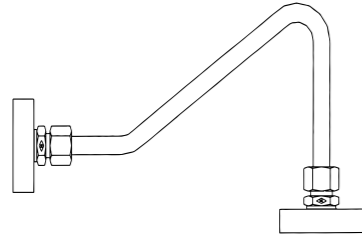
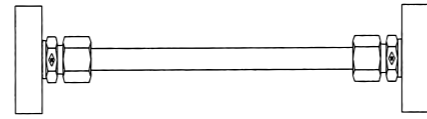
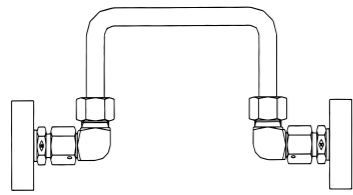
Table 1

This information is intended for reference only; for more detailed information, see the specifications of the tube clamp manufacturer.

Tube installation examples

Advantageous **Disadvantageous**

C















Min. axial clearance for union nut	
Tube outer diameter (mm)	Distance between clamp and nut (mm)
6, 8	13
10, 12, 15	15
16	16.5
18	15.5
20	19.5
22, 25	22.5
28	17.5
30	25.5
35	22.5
38	31.5
42	26

Table 2

D

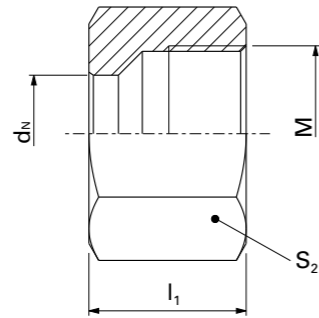
Tube connecting parts



		Figure	Model	Page
Tube connecting parts	Union nut		M ...	D3
Walring	System nut with integrated soft seal		W-R ...	D4
Tube connecting parts for profile-ring tube fittings	Walpro system nut		PR-M ...	D5
	Walpro profile ring		P-R ...	D6
Tube connecting parts for Walform tube fittings	Walform system nut		WF-M ...	D7
	Support ring		WF-PLUS-SR ...	D7
	Soft seal		WF-WD ...	D8
Flare connecting parts for flare tube fittings	Flare connecting parts		BO-A ...	D9
	Intermediate ring		BO-ZR ...	D10
	Sleeve		BO-DR ...	D11
	Union nut		BO-M ...	D12
	Protective cap for intermediate rings (tube end)		Cap M ...	D13

M ...
M ... -1.4571

• Union nut



D

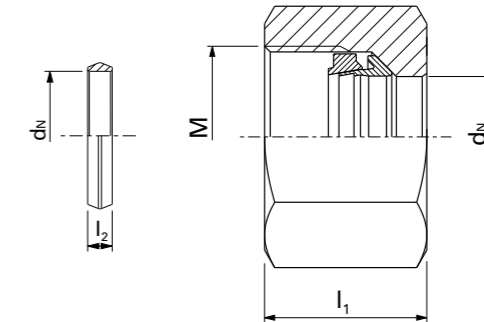
Series	PN bar (psi)	Tube outer diameter d _N	Model	kg/ 100 pc.	M	I ₁	S ₂	Art. no.	Art. no.
									Union nut Stainless steel (1.4571) M ... -1.4571*
LL	100 (1450)	4	M 4 LL	0.4	M 8 x 1	11	10	WAL039838	WAL027923
		6	M 6 LL	0.5	M 10 x 1	11.5	12	WAL039840	WAL027925
		8	M 8 LL	0.7	M 12 x 1	12	14	WAL039841	WAL027926
500 (7252)		6	M 6 L	0.9	M 12 x 1.5	14.5	14	WAL039842	WAL027927
		8	M 8 L	1.4	M 14 x 1.5	14.5	17	WAL039843	WAL027928
		10	M 10 L	2.0	M 16 x 1.5	15.5	19	WAL039844	WAL027929
400 (5801)		12	M 12 L	2.5	M 18 x 1.5	15.5	22	WAL039845	WAL027930
		15	M 15 L	4.0	M 22 x 1.5	17	27	WAL039846	WAL027931
		18	M 18 L	6.0	M 26 x 1.5	18	32	WAL039847	WAL027932
250 (3626)		22	M 22 L	8.0	M 30 x 2	20	36	WAL039848	WAL027933
		28	M 28 L	8.5	M 36 x 2	21	41	WAL039849	WAL027934
		35	M 35 L	13.0	M 45 x 2	24	50	WAL039850	WAL027935
800 (11603)		42	M 42 L	21.0	M 52 x 2	24	60	WAL039851	WAL027936
		6	M 6 S	1.5	M 14 x 1.5	16.5	17	WAL039852	WAL028649
		8	M 8 S	1.7	M 16 x 1.5	16.5	19	WAL039853	WAL027937
630 (9137)		10	M 10 S	3.0	M 18 x 1.5	17.5	22	WAL039854	WAL027938
		12	M 12 S	3.5	M 20 x 1.5	17.5	24	WAL039855	WAL027939
		14	M 14 S	5.0	M 22 x 1.5	20.5	27	WAL039856	WAL027940
420 (6091)		16	M 16 S	6.0	M 24 x 1.5	20.5	30	WAL039857	WAL027941
		20	M 20 S	9.5	M 30 x 2	24	36	WAL039858	WAL027942
		25	M 25 S	19.5	M 36 x 2	27	46	WAL039859	WAL027943
800 (11603)		30	M 30 S	21.5	M 42 x 2	29	50	WAL039860	WAL027944
		38	M 38 S	31.0	M 52 x 2	32.5	60	WAL039861	WAL027945

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*Silver-plated stainless steel nut (AG/AGP), see price list

W-R...

- Walring system nut with integrated soft seal
- Walform soft seal made from FPM* (e.g. Viton)
- Alternative option: Walform soft seal made from NBR (e.g. Perbunan)



D

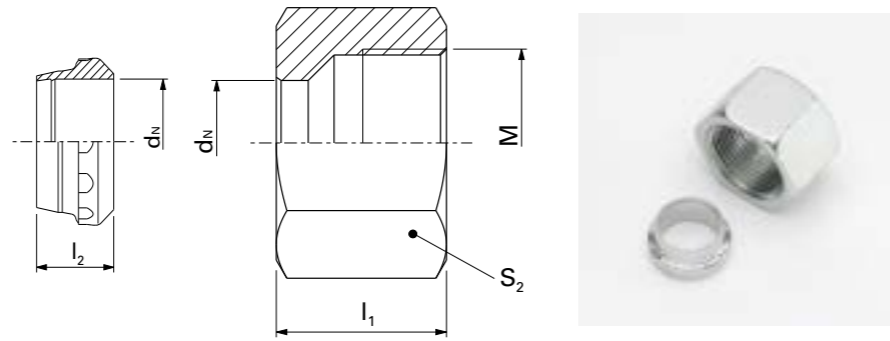
Series	PN bar (psi)	Tube outer diameter d _N	Model	kg/ 100 pc.	M	I ₁	I ₂	S ₂	Art. no.	Art. no.	Art. no.	
										Walring W-R ... VI	Replacement soft seal WF-WD ... VI	Alternative option: WF-WD made from NBR Replacement soft seal WF-WD...
L	500 (7252)	6	W-R 6 L VI	0.9	M 12 x 1.5	14.5	2.7	14	WAL624607	WAL610871	WAL612893	
		8	W-R 8 L VI	1.4	M 14 x 1.5	14.5	2.7	17	WAL624608	WAL610872	WAL612894	
		10	W-R 10 L VI	2.0	M 16 x 1.5	15.5	2.95	19	WAL624609	WAL610873	WAL612840	
	400 (5801)	12	W-R 12 L VI	2.5	M 18 x 1.5	15.5	2.95	22	WAL624610	WAL610874	WAL612790	
		15	W-R 15 L VI	4.0	M 22 x 1.5	17	2.95	27	WAL624611	WAL610875	WAL612479	
		18	W-R 18 L VI	6.0	M 26 x 1.5	18	2.95	32	WAL624612	WAL610877	WAL612896	
250 (3626)	22	W-R 22 L VI	8.0	M 30 x 2	20	2.95	36	WAL624613	WAL610879	WAL612897		
	28	W-R 28 L VI	8.5	M 36 x 2	21	2.95	41	WAL624614	WAL610881	WAL612898		
	35	W-R 35 L VI	13.0	M 45 x 2	24	3.5	50	WAL624615	WAL610883	WAL612899		
	42	W-R 42 L VI	21.0	M 52 x 2	24	3.5	60	WAL624616	WAL610885	WAL612900		
800 (11603)	6	W-R 6 S VI	1.5	M 14 x 1.5	16.5	2.7	17	WAL624617	WAL610871	WAL612893		
	8	W-R 8 S VI	1.7	M 16 x 1.5	16.5	2.7	19	WAL624618	WAL610872	WAL612894		
	10	W-R 10 S VI	3.0	M 18 x 1.5	17.5	2.95	22	WAL624619	WAL610873	WAL612840		
630 (9137)	12	W-R 12 S VI	3.5	M 20 x 1.5	17.5	2.95	24	WAL624620	WAL610874	WAL612790		
	16	W-R 16 S VI	6.0	M 24 x 1.5	20.5	2.95	30	WAL624621	WAL610876	WAL612895		
	20	W-R 20 S VI	9.5	M 30 x 2	24	3.7	36	WAL624622	WAL610878	WAL612480		
420 (6091)	25	W-R 25 S VI	19.5	M 36 x 2	27	3.7	46	WAL624623	WAL610880	WAL612791		
	30	W-R 30 S VI	21.5	M 42 x 2	29	3.85	50	WAL624624	WAL610882	WAL612481		
	38	W-R 38 S VI	31.0	M 52 x 2	32.5	3.5	60	WAL624625	WAL610884	WAL612837		

*EPDM available on request

PR-M ...

PR-M ... -1.4571

- Walpro system nut



D

P-R ...

P-R ... -1.4571

- Walpro profile ring



D

Walpro system nut PR-M ...											Profile ring P-R ...										
Series	PN bar (psi)	Tube outer diameter d _N	Model	kg/ 100 pc.	M	I ₁	S ₂	I ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter d _N	Model	kg/ 100 pc.	I ₂	Art. no.	Art. no.			
LL	100 (1450)	4	SR-M 4 LL	0.5	M 8 x 1	11	10	6	WAL626000	WAL626100	LL	100 (1450)	4	S-R 4 LL	0.05	6	WAL039862	WAL029780			
		6	SR-M 6 LL	0.6	M 10 x 1	11.5	12	7	WAL626001	WAL626101			6	S-R 6 LL	0.09	7	WAL039864	WAL029782			
		8	SR-M 8 LL	0.8	M 12 x 1	12	14	7	WAL626002	WAL626102			8	S-R 8 LL	0.1	7	WAL039865	WAL029783			
L	500 (7252)	6	PR-M 6 L	1.1	M 12 x 1.5	14.5	14	9.8	WAL626003	WAL626103	L	500 (7252)	6	P-R 6 L/S	0.2	9.8	WAL372404	WAL618843			
		8	PR-M 8 L	1.7	M 14 x 1.5	14.5	17	9.5	WAL626004	WAL626104			8	P-R 8 L/S	0.29	9.5	WAL372405	WAL618844			
		10	PR-M 10 L	2.4	M 16 x 1.5	15.5	19	10	WAL626005	WAL626105			10	P-R 10 L/S	0.39	10	WAL372406	WAL618845			
	400 (5801)	12	PR-M 12 L	3.0	M 18 x 1.5	15.5	22	9.5	WAL626006	WAL626106		400 (5801)	12	P-R 12 L/S	0.45	9.5	WAL372407	WAL618846			
		15	PR-M 15 L	4.6	M 22 x 1.5	17	27	9.8	WAL626007	WAL626107			15	P-R 15 L	0.58	9.8	WAL372408	WAL618847			
		18	PR-M 18 L	6.7	M 26 x 1.5	18	32	9.8	WAL626008	WAL626108			18	P-R 18 L	0.73	9.8	WAL372409	WAL618848			
250 (3626)	22	PR-M 22 L	8.9	M 30 x 2	20	36	10.5	WAL626009	WAL626109	250 (3626)	22	P-R 22 L	0.86	10.5	WAL372410	WAL618849					
	28	PR-M 28 L	9.7	M 36 x 2	21	41	11	WAL626010	WAL626110		28	P-R 28 L	1.17	11	WAL372411	WAL618850					
	35	PR-M 35 L	15.3	M 45 x 2	24	50	13	WAL626011	WAL626111		35	P-R 35 L	2.31	13	WAL372412	WAL618851					
	42	PR-M 42 L	23.8	M 52 x 2	24	60	13	WAL626012	WAL626112		42	P-R 42 L	2.83	13	WAL372413	WAL618852					
800 (11603)	6	PR-M 6 S	1.7	M 14 x 1.5	16.5	17	9.8	WAL626013	WAL626113	800 (11603)	6	P-R 6 L/S	0.2	9.8	WAL372404	WAL618843					
	8	PR-M 8 S	2.0	M 16 x 1.5	16.5	19	9.5	WAL626014	WAL626114		8	P-R 8 L/S	0.29	9.5	WAL372405	WAL618844					
	10	PR-M 10 S	3.4	M 18 x 1.5	17.5	22	10	WAL626015	WAL626115		10	P-R 10 L/S	0.39	10	WAL372406	WAL618845					
S	630 (9137)	12	PR-M 12 S	4.0	M 20 x 1.5	17.5	24	9.5	WAL626016	WAL626116	S	630 (9137)	12	P-R 12 L/S	0.45	9.5	WAL372407	WAL618846			
		14	PR-M 14 S	5.6	M 22 x 1.5	20.5	27	10	WAL626017	WAL626117			14	P-R 14 S	0.61	10	WAL372414	WAL618853			
	16	PR-M 16 S	6.7	M 24 x 1.5	20.5	30	10.3	WAL626018	WAL626118	16		P-R 16 S	0.74	10.3	WAL372415	WAL618854					
	20	PR-M 20 S	10.6	M 30 x 2	24	36	12	WAL626019	WAL626119	20		P-R 20 S	1.13	12	WAL372416	WAL618855					
420 (6091)	25	PR-M 25 S	21.0	M 36 x 2	27	46	12	WAL626020	WAL626120	420 (6091)	25	P-R 25 S	1.53	12	WAL372417	WAL618856					
	30	PR-M 30 S	23.6	M 42 x 2	29	50	13	WAL626021	WAL626121		30	P-R 30 S	2.13	13	WAL372418	WAL618857					
		38	PR-M 38 S	33.6	M 52 x 2	32.5	60	13	WAL626022	WAL626122			38	P-R 38 S	2.55	13	WAL372419	WAL618858			

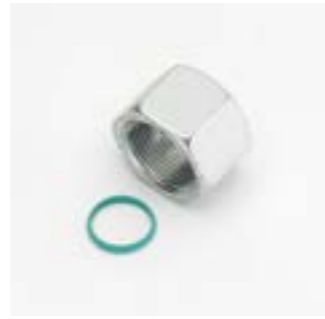
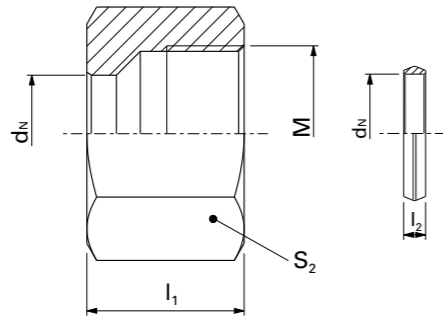
⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
*Silver-plated stainless steel nut (AG/AGP), see price list

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

WF-M ... VI

WF-M ... VI-1.4571

- Walform system nut
- Walform soft seal made from FPM (e.g. Viton)

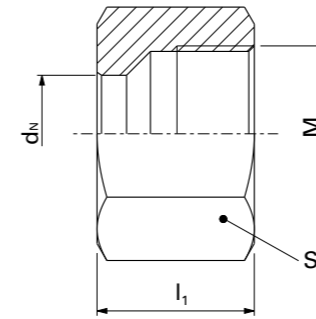


D

M ...

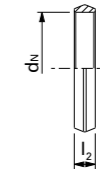
M ... -1.4571

- Union nut



WF-WD ... VI

- Walform soft seal made from FPM** (e.g. Viton)
- Alternative option: Walform soft seal made from NBR (e.g. Perbunan)



D

Series	PN bar (psi)	Tube outer diameter d_n	Model	kg/ 100 pc.	M	I_1	I_2	S_2	Walform	Walform	Union nut	Walform soft seal	Alternative option:							
									WF-M ... VI	Stainless steel (1.4571) WF-M ... VI-1.4571		M ...	WF-WD ... VI**	Replacement soft seal made from NBR WF-WD ...						
Series	PN bar (psi)	Tube outer diameter d_n	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.	Model	Art. no.	Art. no.							
L	500 (7252)	6	WF-M 6 L VI	0.9	M 12 x 1.5	14.5	2.7	14	WAL625940	WAL625980	L	500 (7252)	6	M 6 L	0.9	WAL039842	WAL027927	WF-WD 6 L/S VI	WAL610871	WAL612893
		8	WF-M 8 L VI	1.4	M 14 x 1.5	14.5	2.7	17	WAL625941	WAL625981		500 (7252)	8	M 8 L	1.4	WAL039843	WAL027928	WF-WD 8 L/S VI	WAL610872	WAL612894
		10	WF-M 10 L VI	2.0	M 16 x 1.5	15.5	2.95	19	WAL625942	WAL625982		400 (5801)	10	M 10 L	2.0	WAL039844	WAL027929	WF-WD 10 L/S VI	WAL610873	WAL612840
		12	WF-M 12 L VI	2.5	M 18 x 1.5	15.5	2.95	22	WAL625943	WAL625983		400 (5801)	12	M 12 L	2.5	WAL039845	WAL027930	WF-WD 12 L/S VI	WAL610874	WAL612790
		15	WF-M 15 L VI	4.0	M 22 x 1.5	17	2.95	27	WAL625944	WAL625984		400 (5801)	15	M 15 L	4.0	WAL039846	WAL027931	WF-WD 15 L VI	WAL610875	WAL612479
	18	WF-M 18 L VI	6.0	M 26 x 1.5	18	2.95	32	WAL625945	WAL625985	250 (3626)		18	M 18 L	6.0	WAL039847	WAL027932	WF-WD 18 L VI	WAL610877	WAL612896	
	22	WF-M 22 L VI	8.0	M 30 x 2	20	2.95	36	WAL625946	WAL625986	250 (3626)		22	M 22 L	8.0	WAL039848	WAL027933	WF-WD 22 L VI	WAL610879	WAL612897	
	28	WF-M 28 L VI	8.5	M 36 x 2	21	2.95	41	WAL625947	WAL625987	250 (3626)		28	M 28 L	8.5	WAL039849	WAL027934	WF-WD 28 L VI	WAL610881	WAL612898	
	35	WF-M 35 L VI	13.0	M 45 x 2	24	3.5	50	WAL625948	WAL625988	250 (3626)		35	M 35 L	13.0	WAL039850	WAL027935	WF-WD 35 L VI	WAL610883	WAL612899	
	42	WF-M 42 L VI	21.0	M 52 x 2	24	3.5	60	WAL625949	WAL625989	800 (11603)		42	M 42 L	21.0	WAL039851	WAL027936	WF-WD 42 L VI	WAL610885	WAL612900	
S	800 (11603)	6	WF-M 6 S VI	1.5	M 14 x 1.5	16.5	2.7	17	WAL625950	WAL625990	S	800 (11603)	6	M 6 S	1.5	WAL039852	WAL028649	WF-WD 6 L/S VI	WAL610871	WAL612893
		8	WF-M 8 S VI	1.7	M 16 x 1.5	16.5	2.7	19	WAL625951	WAL625991		800 (11603)	8	M 8 S	1.7	WAL039853	WAL027937	WF-WD 8 L/S VI	WAL610872	WAL612894
		10	WF-M 10 S VI	3.0	M 18 x 1.5	17.5	2.95	22	WAL625952	WAL625992		630 (9137)	10	M 10 S	3.0	WAL039854	WAL027938	WF-WD 10 L/S VI	WAL610873	WAL612840
	12	WF-M 12 S VI	3.5	M 20 x 1.5	17.5	2.95	24	WAL625953	WAL625993	630 (9137)		12	M 12 S	3.5	WAL039855	WAL027939	WF-WD 12 L/S VI	WAL610874	WAL612790	
	16	WF-M 16 S VI	6.0	M 24 x 1.5	20.5	2.95	30	WAL625954	WAL625994	630 (9137)		16	M 16 S	6.0	WAL039857	WAL027941	WF-WD 16 S VI	WAL610876	WAL612895	
	20	WF-M 20 S VI	9.5	M 30 x 2	24	3.7	36	WAL625955	WAL625995	420 (6091)		20	M 20 S	9.5	WAL039858	WAL027942	WF-WD 20 S VI	WAL610878	WAL612480	
	25	WF-M 25 S VI	19.5	M 36 x 2	27	3.7	46	WAL625956	WAL625996	420 (6091)		25	M 25 S	19.5	WAL039859	WAL027943	WF-WD 25 S VI	WAL610880	WAL612791	
	30	WF-M 30 S VI	21.5	M 42 x 2	29	3.85	50	WAL625957	WAL625997	420 (6091)		30	M 30 S	21.5	WAL039860	WAL027944	WF-WD 30 S VI	WAL610882	WAL612481	
	38	WF-M 38 S VI	31.0	M 52 x 2	32.5	3.5	60	WAL625958	WAL625998	420 (6091)		38	M 38 S	31.0	WAL039861	WAL027945	WF-WD 38 S VI	WAL610884	WAL612837	

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

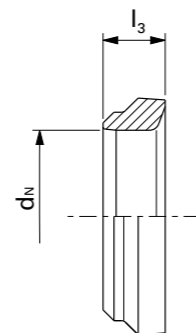
Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*Silver-plated stainless steel nut (AG/AGP), see price list

**EPDM available on request

Support rings for WalformPlus-SR

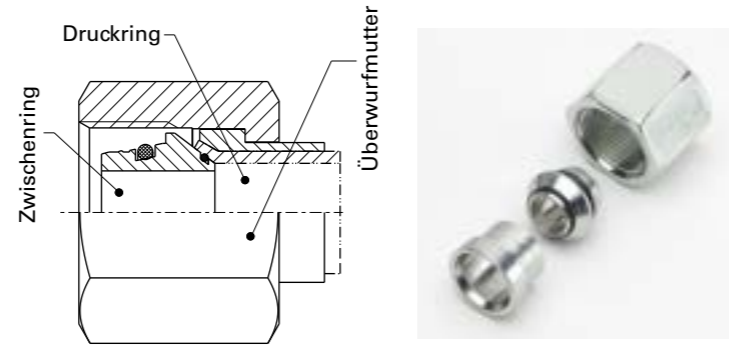
Dimensions	Tube outer diameter d_n	Model	Art. no.	I_3
6 x 1.0	6	WF-PLUS-SR 6 L/S	WAL625132	5.3
8 x 1.0	8	WF-PLUS-SR 8 L/S	WAL625133	5.6
10 x 1.0	10	WF-PLUS-SR 10 L/S	WAL625134	5.8
12 x 1.0	12	WF-PLUS-SR 12 L/S	WAL625135	5.8
15 x 1.0	15	WF-PLUS-SR 15 L	WAL625136	5.7
16 x 1.5	16	WF-PLUS-SR 16 S	WAL625137	5.7
18 x 1.5	18	WF-PLUS-SR 18 L	WAL625138	6.0
22 x 1.5	22	WF-PLUS-SR 22 L	WAL625139	6.6
30 x 2.0	30	WF-PLUS-SR 30 S	WAL625140	7.6
35 x 2.0	35	WF-PLUS-SR 35 L	WAL625141	7.6



BO-A ...

BO-A ...-1.4571

- Flare connecting parts for flare tube fittings, consisting of



D

Series	PN bar (psi)	Tube outer diameter d_n	Model	kg/ 100 pc.	Art. no.*	Art. no.	Intermediate ring with O-rings	Sleeve	Union nut	Flare connecting parts	
										BO-A ...	Stainless steel (1.4571) BO-A ... VI-1.4571
L	500 (7252)	6	BO-A 6 L	1.6	WAL374800	WAL603919	BO-ZR 6 L/S	BO-DR 6 L/S	BO-M 6 L	Intermediate ring with O-rings stainless steel (1.4571) BO-ZR ... VI-1.4571	Intermediate ring with O-rings BO-ZR ...
		8	BO-A 8 L	2.4	WAL374801	WAL603920	BO-ZR 8 L/S	BO-DR 8 L/S	BO-M 8 L		
		10	BO-A 10 L	3.2	WAL374802	WAL603921	BO-ZR 10 L/S	BO-DR 10 L/S	BO-M 10 L		
		12	BO-A 12 L	4.4	WAL374803	WAL603922	BO-ZR 12 L/S	BO-DR 12 L/S	BO-M 12 L		
	400 (5801)	15	BO-A 15 L	7.2	WAL374804	WAL603923	BO-ZR 15 L	BO-DR 15 L	BO-M 14 S/15 L		
		18	BO-A 18 L	10.1	WAL374805	WAL603924	BO-ZR 18 L	BO-DR 18 L	BO-M 18 L		
		22	BO-A 22 L	14.2	WAL374806	WAL603925	BO-ZR 22 L	BO-DR 22 L	BO-M 20 S/22 L		
	250 (3626)	28	BO-A 28 L	15.9	WAL374807	WAL603926	BO-ZR 28 L	BO-DR 28 L	BO-M 28 L		
		35	BO-A 35 L	25.5	WAL374808	WAL603927	BO-ZR 35 L	BO-DR 35 L	BO-M 35 L		
		42	BO-A 42 L	42.2	WAL374809	WAL603928	BO-ZR 42 L	BO-DR 42 L	BO-M 42 L		
S		630 (9137)	6	BO-A 6 S	2.4	WAL374810	WAL603929	BO-ZR 6 L/S	BO-DR 6 L/S	BO-M 6 S	
	8		BO-A 8 S	3.1	WAL374811	WAL603930	BO-ZR 8 L/S	BO-DR 8 L/S	BO-M 8 S		
	10		BO-A 10 S	4.5	WAL374812	WAL603931	BO-ZR 10 L/S	BO-DR 10 L/S	BO-M 10 S		
	12		BO-A 12 S	5.4	WAL374813	WAL603932	BO-ZR 12 L/S	BO-DR 12 L/S	BO-M 12 S		
	400 (5801)	14	BO-A 14 S	7.6	WAL374814	WAL603933	BO-ZR 14 S	BO-DR 14 S	BO-M 14 S/15 L		
		16	BO-A 16 S	10.8	WAL374815	WAL603934	BO-ZR 16 S	BO-DR 16 S	BO-M 16 S		
		20	BO-A 20 S	15.5	WAL374816	WAL603935	BO-ZR 20 S	BO-DR 20 S	BO-M 20 S/22 L		
		25	BO-A 25 S	26.7	WAL374817	WAL603936	BO-ZR 25 S	BO-DR 25 S	BO-M 25 S		
30	30	BO-A 30 S	33.0	WAL374818	WAL603937	BO-ZR 30 S	BO-DR 30 S	BO-M 30 S			
	38	BO-A 38 S	51.5	WAL374819	WAL603938	BO-ZR 38 S	BO-DR 38 S	BO-M 38 S			

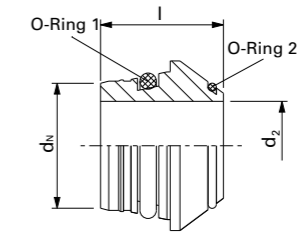
Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*Flare connecting parts with O-rings made from Viton, see price list

BO-ZR ...

BO-ZR ... VI-1.4571

- Intermediate ring with O-rings made from NBR* (e.g. Perbunan) for steel
- Intermediate ring with O-rings made from FKM (e.g. Viton) for stainless steel (1.4571)



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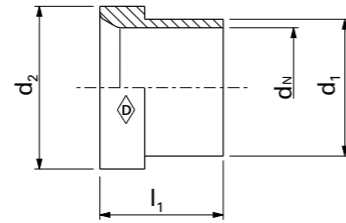
Series	PN bar (psi)	Tube outer diameter d_n	Model	kg/ 100 pc.	d_2	l	O-ring 1	O-ring 2	Art. no.*	Art. no.	Intermediate ring with O-rings	
											BO-ZR ...	Intermediate ring with O-rings stainless steel (1.4571) BO-ZR ... VI-1.4571
L	500 (7252)	6	BO-ZR 6 L/S	0.3	3	11.5	4.5 x 1.5	4.4 x 0.8	WAL374408	WAL602957	Intermediate ring with O-rings stainless steel (1.4571) BO-ZR ... VI-1.4571	
		8	BO-ZR 8 L/S	0.4	5	12	6 x 1.5	6 x 0.8	WAL374409	WAL602958		
		10	BO-ZR 10 L/S	0.6	6	12.5	8.5 x 1.5	7.5 x 0.8	WAL374410	WAL602959		
		12	BO-ZR 12 L/S	0.8	8	12.5	10 x 1.5	9.5 x 0.8	WAL374411	WAL602960		
	400 (5801)	15	BO-ZR 15 L	1.0	11	12.5	13 x 1.5	12.5 x 0.8	WAL374412	WAL602961		
		18	BO-ZR 18 L	1.3	14	13	16 x 1.5	15 x 1	WAL374413	WAL602962		
		22	BO-ZR 22 L	2.1	17	14.2	20 x 2	18 x 1	WAL374414	WAL602963		
	250 (3626)	28	BO-ZR 28 L	2.7	23	14.7	26 x 2	23 x 1	WAL374415	WAL602964		
		35	BO-ZR 35 L	5.4	28	18.5	32 x 2.5	30 x 1	WAL374416	WAL602965		
		42	BO-ZR 42 L	7.3	35	20.5	38 x 2.5	37 x 1	WAL374417	WAL602966		
S		630 (9137)	6	BO-ZR 6 L/S	0.3	3	11.5	4.5 x 1.5	4.4 x 0.8	WAL374408	WAL602957	
	8		BO-ZR 8 L/S	0.4	5	12	6 x 1.5	6 x 0.8	WAL374409	WAL602958		
	10		BO-ZR 10 L/S	0.6	6	12.5	8.5 x 1.5	7.5 x 0.8	WAL374410	WAL602959		
	12		BO-ZR 12 L/S	0.8	8	12.5	10 x 1.5	9.5 x 0.8	WAL374411	WAL602960		
	400 (5801)	14	BO-ZR 14 S	1.1	9	14	12 x 2	11 x 1	WAL374418	WAL602967		
		16	BO-ZR 16 S	1.5	11	15	14 x 2	12.5 x 1	WAL374419	WAL602968		
		20	BO-ZR 20 S	2.6	14	18.5	17.3 x 2.4	16 x 1	WAL374420	WAL602969		
		25	BO-ZR 25 S	3.7	19	20	22.3 x 2.4	20 x 1	WAL374421	WAL602970		
30	30	BO-ZR 30 S	5.7	23	22	27.3 x 2.4	25 x 1	WAL374422	WAL602971			
	38	BO-ZR 38 S	8.8	30	26	35 x 2.5	32 x 1.78	WAL374423	WAL602972			

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*Intermediate rings with O-rings made from Viton, see price list

BO-DR ...
BO-DR ... 1.4571

· Sleeve



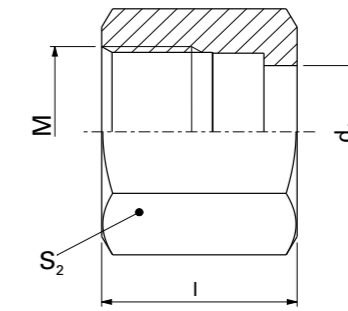
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Series	PN bar (psi)	Tube outer diameter d _N	Model	kg/ 100 pc.	d ₁	d ₂	l ₁	Sleeve BO-DR ...	
								Art. no.	Art. no.
L	500 (7252)	6	BO-DR 6 L/S	0.2	7.6	10.2	10.5	WAL374376	WAL602973
		8	BO-DR 8 L/S	0.3	9.3	12.2	11.0	WAL374377	WAL602974
		10	BO-DR 10 L/S	0.4	11.5	14.2	12.5	WAL374378	WAL602975
	400 (5801)	12	BO-DR 12 L/S	0.5	13.6	16.2	13.0	WAL374379	WAL602976
		15	BO-DR 15 L	0.9	17.5	20.2	14.0	WAL374380	WAL602977
		18	BO-DR 18 L	1.4	21	24.2	14.5	WAL374381	WAL602978
	250 (3626)	22	BO-DR 22 L	1.6	24.2	27.8	18.0	WAL374382	WAL602979
		28	BO-DR 28 L	2.0	30.2	33.8	17.0	WAL374383	WAL602980
		35	BO-DR 35 L	3.7	38	42.7	19.0	WAL374384	WAL602981
		42	BO-DR 42 L	5.0	45	49.7	21.0	WAL374385	WAL602982
		6	BO-DR 6 L/S	0.2	7.6	10.2	10.5	WAL374376	WAL602973
		8	BO-DR 8 L/S	0.3	9.3	12.2	11.0	WAL374377	WAL602974
S	630 (9137)	10	BO-DR 10 L/S	0.4	11.5	14.2	12.5	WAL374378	WAL602975
		12	BO-DR 12 L/S	0.5	13.6	16.2	13.0	WAL374379	WAL602976
		14	BO-DR 14 S	1.2	17.5	20.2	14.5	WAL374386	WAL602983
		16	BO-DR 16 S	1.3	18.5	22.0	17.0	WAL374387	WAL602984
	400 (5801)	20	BO-DR 20 S	2.4	24.2	27.8	17.5	WAL374388	WAL602985
		25	BO-DR 25 S	3.1	28.5	32.8	20.0	WAL374389	WAL602986
		30	BO-DR 30 S	4.5	34	39.0	21.5	WAL374390	WAL602987
		38	BO-DR 38 S	7.5	42	48.5	26.5	WAL374391	WAL602988

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

BO-M ...
BO-M ... 1.4571

· Union nut



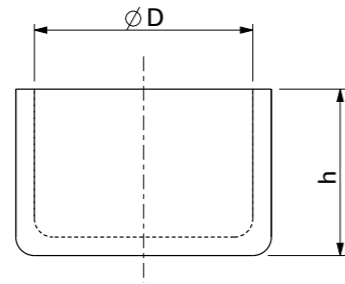
D

Series	PN bar (psi)	Tube outer diameter d _N	Model	kg/ 100 pc.	M	l	d ₁	S ₂	Union nut BO-M ...	
									Art. no.	Art. no.
L	500 (7252)	6	BO-M 6 L	1.1	M 12 x 1.5	17	7.8	14	WAL374510	WAL603901
		8	BO-M 8 L	1.7	M 14 x 1.5	18	9.5	17	WAL374511	WAL603902
		10	BO-M 10 L	2.2	M 16 x 1.5	19.5	11.7	19	WAL374512	WAL603903
	400 (5801)	12	BO-M 12 L	3.1	M 18 x 1.5	20.5	13.8	22	WAL374513	WAL603904
		15	BO-M 14 S/15 L	5.3	M 22 x 1.5	23	17.7	27	WAL374522	WAL603905
		18	BO-M 18 L	7.4	M 26 x 1.5	23	21.2	32	WAL374514	WAL603906
	250 (3626)	22	BO-M 20 S/22 L	10.5	M 30 x 2	27.5	24.4	36	WAL374524	WAL603907
		28	BO-M 28 L	11.2	M 36 x 2	27.5	30.4	41	WAL374515	WAL603908
		35	BO-M 35 L	16.4	M 45 x 2	30	38.3	50	WAL374516	WAL603909
		42	BO-M 42 L	29.9	M 52 x 2	34	45.3	60	WAL374517	WAL603910
		6	BO-M 6 S	1.9	M 14 x 1.5	18	7.8	17	WAL374518	WAL603911
		8	BO-M 8 S	2.5	M 16 x 1.5	19	9.5	19	WAL374519	WAL603912
S	630 (9137)	10	BO-M 10 S	3.5	M 18 x 1.5	20.5	11.7	22	WAL374520	WAL603913
		12	BO-M 12 S	4.1	M 20 x 1.5	21	13.8	24	WAL374521	WAL603914
		14	BO-M 14 S/15 L	5.3	M 22 x 1.5	23	17.7	27	WAL374522	WAL603905
		16	BO-M 16 S	8.0	M 24 x 1.5	26.5	18.7	30	WAL374523	WAL603915
	400 (5801)	20	BO-M 20 S/22 L	10.5	M 30 x 2	27.5	24.4	36	WAL374524	WAL603907
		25	BO-M 25 S	19.9	M 36 x 2	30.5	28.7	46	WAL374525	WAL603916
		30	BO-M 30 S	22.8	M 42 x 2	32	34.2	50	WAL374526	WAL603917
		38	BO-M 38	35.2	M 52 x 2	38	42.3	60	WAL374527	WAL603918

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

Cap M ...

- Protective cap for intermediate rings (tube end)
- Material: HD polyethylene



D

D

						Cap M ...
Series	Tube outer diameter d _n	Model	M	Ø D	h	Art. no.
L	6	Cap M 12	M 12 x 1.5	11.5	12	WAL050120
	8	Cap M 14	M 14 x 1.5	13.5	13.5	WAL050135
	10	Cap M 16	M 16 x 1.5	15.7	15	WAL050160
	12	Cap M 18	M 18 x 1.5	17.7	15	WAL050180
	15	Cap M 22	M 22 x 1.5	21.3	15.5	WAL050213
	18	Cap M 26	M 26 x 1.5	25.4	17.5	WAL064030
	22	Cap M 30	M 30 x 2	29.3	18	WAL050300
	28	Cap M 36 / H=25	M 36 x 2	34.8	25	WAL374826
	35	Cap M 45	M 45 x 2	44.5	35	WAL064031
	42	Cap M 52 / H=29	M 52 x 2	50.6	29	WAL374827
S	6	Cap M 14	M 14 x 1.5	13.5	13.5	WAL050135
	8	Cap M 16	M 16 x 1.5	15.7	15	WAL050160
	10	Cap M 18	M 18 x 1.5	17.7	15	WAL050180
	12	Cap M 20	M 20 x 1.5	19.7	14	WAL050200
	14	Cap M 22	M 22 x 1.5	21.3	15.5	WAL050213
	16	Cap M 24	M 24 x 1.5	23.5	18.5	WAL050240
	20	Cap M 30	M 30 x 2	29.3	18	WAL050300
	25	Cap M 36 / H=25	M 36 x 2	34.8	25	WAL374826
	30	Cap M 42	M 42 x 2	41.9	28	WAL050421
	38	Cap M 52 / H=29	M 52 x 2	50.6	29	WAL374827

E Male studs, connecting studs, bulkhead studs, weldable studs



	Figure Fitting	Figure Stud	Model	Page
Straight male fittings / straight male studs			P-GEV / GES ... RK	E3 / E4
			P-GEV / GES ... MK	E3 / E4
			P-GEV / GES ... NPT	E5 / E6
			P-GEV / GES ... R	E6 - E10
			P-GEV / GES ... M	E11 / E12
			P-GEV / GES ... R-WD	E13 / E14
Male elbow fittings / male elbow studs			P-GEV / GES ... M-WD	E15 / E16
			P-GEV / GES ... UNF / UN	E17 / E18
			P-GEV / GES ... M-OR	E19 / E20
Straight fittings / straight studs			P-WEV / WES ... RK	E21 / E22
			P-WEV / WES ... MK	E23 / E24
			P-WEV / WES ... NPT	E25 / E26
Straight reducer fittings / straight reducer studs			P-GV ... / GS ...	E27 / E28
			P-GV.../... / GS.../....	E29 / E30
Elbow fittings / elbow studs			P-WW ... / WS ...	E31 / E32
T fittings / T studs			P-TV ... / TS ...	E33 / E34
T reducer fittings / T reducer studs			P-TV .../.../... / TS .../.../...	E35 - E38
Cross fittings / cross studs			P-KV ... / KS ...	E39 / E40
Straight bulkhead fittings / straight bulkhead studs			P-GSV ... / GSS ...	E41 / E42
Bulkhead elbow fittings / bulkhead elbow studs			P-WSV ... / WSS ...	E43 / E44
Weld-on fittings / weld-on studs			P-ASV ... / ASS ...	E45 / E46
Weld-in bulkhead fittings / weld-in bulkhead studs			P-ESV ... / ESS ...	E47 / E48

Special parts are available on request.

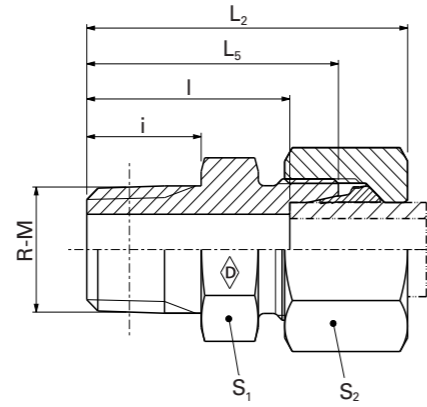
P-GEV ... RK

P-GEV ... RK-1.4571

P-GEV ... MK

P-GEV ... MK-1.4571

- Tapered studs, type C according to DIN 3852-2, with Whitworth thread
- Tapered studs, type C according to DIN 3852-1, with metric thread



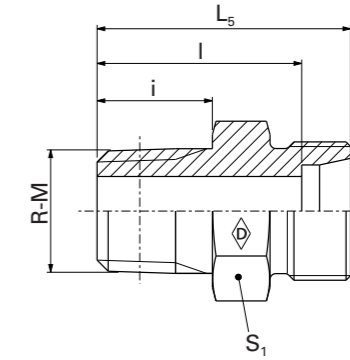
E

GES ... RK

GES ... RK-1.4571

GES ... MK

GES ... MK-1.4571



E

Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	R-M	L ₂	L ₅	l	i	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter (Ø ext.)	Model	kg/100 pc.	R-M	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)		
																						Walpro P-GEV ...	Walpro stainless steel P-GEV ...-1.4571*	Stud GES ...
LL	100 (1450)	4	S-GEV 4 LLRK	1.4	R 1/8 taper	25.5	20	16	8	10	10	WAL038218	WAL604569	LL	100 (1450)	4	GES 4 LLRK	0.8	R 1/8 taper	WAL037505	WAL604568			
		6	S-GEV 6 LLRK	1.6	R 1/8 taper	26.0	20	14.5	8	11	12	WAL038220	WAL060989			6	GES 6 LLRK	1.0	R 1/8 taper	WAL037507	WAL060990			
		8	S-GEV 8 LLRK	1.8	R 1/8 taper	28.0	22	16.5	8	12	14	WAL038221	WAL370813			8	GES 8 LLRK	1.0	R 1/8 taper	WAL037508	WAL061563			
L	250 (3626)	6	P-GEV 6 L/R 1/4 K	3.4	R 1/4 taper	34.5	27	20	12	14	14	WAL373003	WAL620527	L	250 (3626)	6	GES 6 L/R 1/4 K	2.0	R 1/4 taper	WAL037509	WAL372345	WAL624607	WAL625940	WAL625980
		8	P-GEV 8 L/RK	3.7	R 1/4 taper	34.5	27	20	12	14	17	WAL373004	WAL620492			8	GES 8 L/RK	2.0	R 1/4 taper	WAL037510	WAL604014	WAL624608	WAL625941	WAL625981
		8	P-GEV 8 L/R 3/8 K	4.9	R 3/8 taper	34.5	27	20	12	17	17	WAL373005	WAL620539			8	GES 8 L/R 3/8 K	3.0	R 3/8 taper	WAL037511	WAL605046	WAL624608	WAL625941	WAL625981
		10	P-GEV 10 L/RK	4.8	R 1/4 taper	35.5	28	21	12	17	19	WAL373006	WAL620131			10	GES 10 L/RK	2.4	R 1/4 taper	WAL037512	WAL060086	WAL624609	WAL625942	WAL625982
		10	P-GEV 10 L/R 3/8 K	5.4	R 3/8 taper	35.5	28	21	12	17	19	WAL373007	WAL620132			10	GES 10 L/R 3/8 K	2.9	R 3/8 taper	WAL037513	WAL060988	WAL624609	WAL625942	WAL625982
		12	P-GEV 12 L/R 1/4 K	5.7	R 1/4 taper	36.5	29	22	12	19	22	WAL373008	WAL620350			12	GES 12 L/R 1/4 K	3.0	R 1/4 taper	WAL037514	WAL372151	WAL624610	WAL625943	WAL625983
		12	P-GEV 12 L/RK	6.1	R 3/8 taper	36.5	29	22	12	19	22	WAL373009	WAL620354			12	GES 12 L/RK	3.4	R 3/8 taper	WAL037515	WAL372295	WAL624610	WAL625943	WAL625983
		12	P-GEV 12 L/R 1/2 K	7.8	R 1/2 taper	38.5	31	24	14	22	22	WAL373010	WAL620553			12	GES 12 L/R 1/2 K	4.9	R 1/2 taper	WAL037516	WAL374441	WAL624610	WAL625943	WAL625983
		15	P-GEV 15 L/RK	10.2	R 1/2 taper	40.0	32	25	14	24	27	WAL373011	WAL620357			15	GES 15 L/RK	5.4	R 1/2 taper	WAL028100	WAL068952	WAL624611	WAL625944	WAL625984
		LL	100 (1450)	4	S-GEV 4 LLMK	1.4	M 8 x 1 taper	25.5	20	16	8	10	10			WAL038230	WAL617077	LL	100 (1450)	4	GES 4 LLMK	0.6	M 8 x 1 taper	WAL037517
6	S-GEV 6 LLMK			1.6	M 10 x 1 taper	26.0	20	14.5	8	11	12	WAL038232	WAL616303	6	GES 6 LLMK	0.8	M 10 x 1 taper			WAL037519	WAL617316			
8	S-GEV 8 LLMK			1.8	M 10 x 1 taper	28.0	22	16.5	8	12	14	WAL038233	WAL616304	8	GES 8 LLMK	1.0	M 10 x 1 taper			WAL037520	WAL061370			
L	250 (3626)	8	P-GEV 8 LMK	3.5	M 12 x 1.5 taper	34.5	27	20	12	14	17	WAL373016	WAL620514	L	250 (3626)	8	GES 8 LMK	1.7	M 12 x 1.5 taper	WAL037522	WAL604888	WAL624608	WAL625941	WAL625981
		10	P-GEV 10 LMK	4.7	M 14 x 1.5 taper	35.5	28	21	12	17	19	WAL373018	WAL621151			10	GES 10 LMK	2.3	M 14 x 1.5 taper	WAL037524	WAL617319	WAL624609	WAL625942	WAL625982
		10	P-GEV 10 L/M 16 x 1.5 K	5.1	M 16 x 1.5 taper	35.5	28	21	12	17	19	WAL373019	WAL620859			10	GES 10 L/M 16 x 1.5 K	2.7	M 16 x 1.5 taper	WAL037525	WAL617320	WAL624609	WAL625942	WAL625982
		12	P-GEV 12 LMK	5.9	M 16 x 1.5 taper	36.5	29	22	12	19	22	WAL373020	WAL620916			12	GES 12 LMK	2.9	M 16 x 1.5 taper	WAL037526	WAL617321	WAL624610	WAL625943	WAL625983
		12	P-GEV 12 L/M 18 x 1.5 K	6.5	M 18 x 1.5 taper	36.5	29	22	12	19	22	WAL373021	WAL620917			12	GES 12 L/M 18 x 1.5 K	4.7	M 18 x 1.5 taper	WAL037527	WAL617322	WAL624610	WAL625943	WAL625983

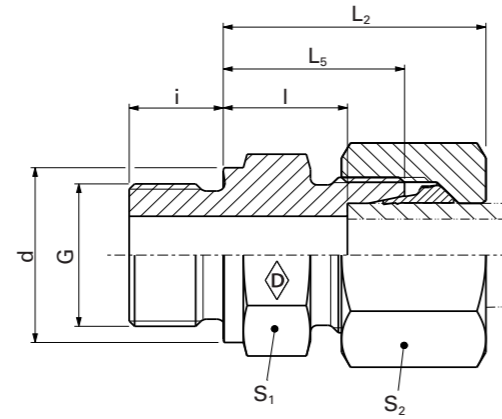
⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂ = approximate dimension if the union nut is tightened

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-GEV ... R

P-GEV ... R-1.4571

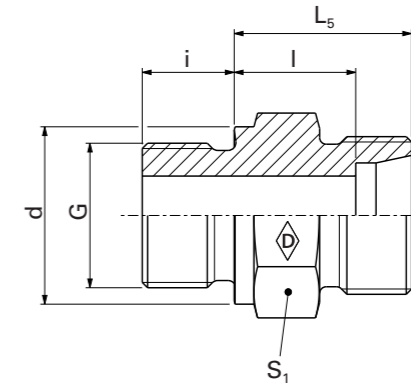
· Inch studs type B to DIN EN ISO 1179-4



E

GES ... R

GES ... R-1.4571



E

Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	DIN-ISO 228 (R..., DIN 259) G	L ₂	L ₅	l	i	d	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	DIN-ISO 228 (R..., DIN 259) G	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)			
																							Walpro P-GEV ...	Walpro stainless steel P-GEV ...-1.4571*	Stud GES ...	Stud Stainless steel GES ...-1.4571*
LL	100 (1450)	4	S-GEV 4 LLR	1.8	G 1/8 A	19	13.5	9.5	8	14	14	10	WAL038272	WAL604717	LL	100 (1450)	4	GES 4 LLR	1.1	G 1/8 A	WAL037559	WAL604716				
		6	S-GEV 6 LLR	1.9	G 1/8 A	19.5	13.5	8	8	14	14	12	WAL038274	WAL061402												
		8	S-GEV 8 LLR	2.3	G 1/8 A	20.5	14.5	9	8	14	14	14	WAL038275	WAL068993												
	L	400 (5801)	6	P-GEV 6 LR	2.5	G 1/8 A	23	15.5	8.5	14	14	14	14	WAL373056	WAL620004	L	400 (5801)	6	GES 6 LR	1.4	G 1/8 A	WAL037563	WAL025478	WAL624607	WAL625940	WAL625980
			6	P-GEV 6 L/R 1/4	4.1	G 1/4 A	24.5	17	10	12	18	19	14	WAL373057	WAL620140											
			6	P-GEV 6 L/R 3/8	6.0	G 3/8 A	26	18.5	11.5	12	22	22	14	WAL602638	WAL620269											
			8	P-GEV 8 LR	4.5	G 1/4 A	25	17	10	12	18	19	17	WAL373058	WAL620005											
			8	P-GEV 8 L/R 1/8	3.3	G 1/8 A	24	16.5	9.5	8	14	14	17	WAL604871	WAL620633											
			8	P-GEV 8 L/R 3/8	6.0	G 3/8 A	26	18.5	11.5	12	22	22	17	WAL373059	WAL620174											
			8	P-GEV 8 L/R 1/2	7.1	G 1/2 A	16.5	19	12	14	26	27	17	WAL374844	WAL620312											
10			P-GEV 10 LR	4.7	G 1/4 A	26	18	11	12	18	19	19	WAL373060	WAL620006												
10			P-GEV 10 L/R 3/8	6.0	G 3/8 A	27	19.5	12.5	12	22	22	19	WAL373061	WAL620003												
10			P-GEV 10 L/R 1/2	7.6	G 1/2 A	27.5	20	13	14	26	27	19	WAL373062	WAL620230												
L		250 (3626)	12	P-GEV 12 LR	6.3	G 3/8 A	27	19.5	12.5	12	22	22	22	WAL373064	WAL620007	L	250 (3626)	12	GES 12 LR	4.3	G 3/8 A	WAL037570	WAL025481	WAL624610	WAL625943	WAL625983
			12	P-GEV 12 L/R 1/4	6.0	G 1/4 A	27	19	12	12	18	19	22	WAL373063	WAL620198											
			12	P-GEV 12 L/R 1/2	9.5	G 1/2 A	28	20	13	14	26	27	22	WAL373065	WAL620148											
			15	P-GEV 15 LR	16.5	G 1/2 A	29	21	14	14	26	27	27	WAL373067	WAL620008											
			15	P-GEV 15 L/R 3/8	9.3	G 3/8 A	28.5	20.5	13.5	12	22	24	27	WAL373066	WAL620191											
			15	P-GEV 15 L/R 3/4	9.3	G 3/4 A	30	22	15	16	32	32	27	WAL602629	WAL620861											
			18	P-GEV 18 LR	12.9	G 1/2 A	31	22	14.5	14	26	27	32	WAL373068	WAL620009											
			18	P-GEV 18 L/R 3/4	18.0	G 3/4 A	31	22	14.5	16	32	32	32	WAL374919	WAL620471											
			22	P-GEV 22 LR	17.6	G 3/4 A	33	24	16.5	16	32	32	36	WAL373069	WAL620010											
			22	P-GEV 22 L/R 1/2	17.5	G 1/2 A	33	24	16.5	14	26	32	36	WAL373845	WAL620469											
L	250 (3626)	28	P-GEV 28 LR	24.7	G 1 A	34	25	17.5	18	39	41	41	WAL373070	WAL620011	L	250 (3626)	28	GES 28 LR	16.8	G 1 A	WAL037575	WAL025485	WAL624614	WAL625947	WAL625987	
		28	P-GEV 28 L/R 3/4	25.0	G 3/4 A	34	25	17.5	16	32	41	41	WAL374846	WAL620788												
		35	P-GEV 35 LR	40.7	G 1 1/4 A	39	28	17.5	20	49	50	50	WAL373071	WAL620012												
		42	P-GEV 42 LR	45.6	G 1 1/2 A	42	30	19	22	55	55	60	WAL373072	WAL620013												

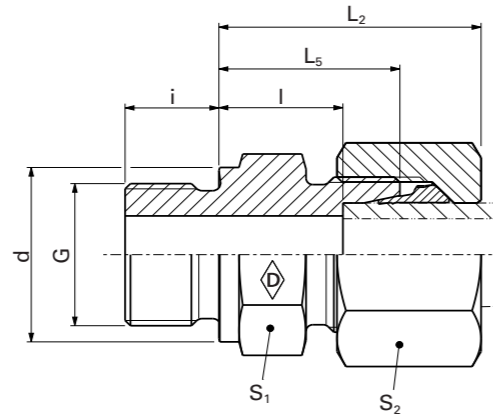
⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂= approximate dimension if the union nut is tightened

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-GEV ... R

P-GEV ... R-1.4571

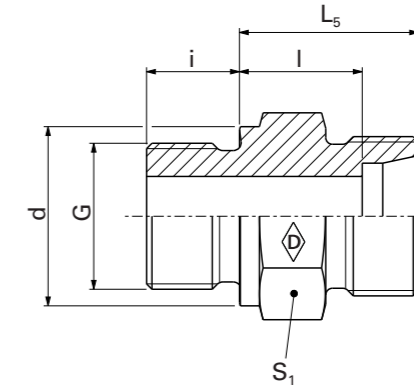
Inch studs type B to DIN EN ISO 1179-4



L₅

GES ... R

GES ... R-1.4571



E

Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	DIN-ISO 228 (R ..., DIN 259) G	L ₂	L ₅	l	i	d	S ₁	S ₂	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)							
															Walpro P-GEV ...	Walpro stainless steel P-GEV ...-1.4571*	Stud GES ...	Stud Stainless steel GES ...-1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*	
630 (9137)	S	6	P-GEV 6 SR	5	G 1/4 A	20	28	13	12	18	19	17	WAL373073	WAL620014	GES 6 SR	3.6	G 1/4 A	WAL037578	WAL025488	WAL624617	WAL625950	WAL625990
		8	P-GEV 8 SR	5.5	G 1/4 A	22	30	15	12	18	19	19	WAL373074	WAL620015	GES 8 SR	4.1	G 1/4 A	WAL037579	WAL025489	WAL624618	WAL625951	WAL625991
		8	P-GEV 8 SR 3/8	8.0	G 3/8 A	22.5	30.5	15.5	12	22	22	19	WAL374849	WAL620811	GES 8 S/R 3/8	5.8	G 3/8 A	WAL370740	WAL617381	WAL624618	WAL625951	WAL625991
		10	P-GEV 10 SR	8.2	G 3/8 A	22.5	31	15	12	22	22	22	WAL373075	WAL620016	GES 10 SR	5.7	G 3/8 A	WAL037580	WAL025490	WAL624619	WAL625952	WAL625992
		10	P-GEV 10 SR 1/4	7.5	G 1/4 A	22	30.5	14.5	12	18	19	22	WAL602938	WAL620295	GES 10 S/R 1/4	4.0	G 1/4 A	WAL067917	WAL067084	WAL624619	WAL625952	WAL625992
		10	P-GEV 10 SR 1/2	13.0	G 1/2 A	25	33.5	17.5	14	26	27	22	WAL374850	WAL620224	GES 10 S/R 1/2	9.7	G 1/2 A	WAL060170	WAL066872	WAL624619	WAL625952	WAL625992
		12	P-GEV 12 SR	9.5	G 3/8 A	24	33	17	12	22	22	24	WAL373076	WAL620017	GES 12 SR	6.3	G 3/8 A	WAL037581	WAL025491	WAL624620	WAL625953	WAL625993
		12	P-GEV 12 SR 1/4	9.5	G 1/4 A	24	32.5	16.5	12	18	22	24	WAL602939	WAL620353	GES 12 S/R 1/4	5.7	G 1/4 A	WAL371817	WAL617383	WAL624620	WAL625953	WAL625993
		12	P-GEV 12 S/R 1/2	13.5	G 1/2 A	25	34	17.5	14	26	27	24	WAL373077	WAL620120	GES 12 S/R 1/2	9.7	G 1/2 A	WAL037582	WAL060015	WAL624620	WAL625953	WAL625993
		14	P-GEV 14 SR	14.8	G 1/2 A	27	37	19	14	26	27	27	WAL373078	WAL621512	GES 14 SR	9.6	G 1/2 A	WAL037583	WAL025492			
		16	P-GEV 16 SR	15.4	G 1/2 A	27	37	18.5	14	26	27	30	WAL373079	WAL620018	GES 16 SR	9.1	G 1/2 A	WAL037584	WAL025493	WAL624621	WAL625954	WAL625994
		16	P-GEV 16 SR 3/8	16.0	G 3/8 A	26.5	36.5	18	12	22	27	30	WAL374852	WAL620352	GES 16 S/R 3/8	8.6	G 3/8 A	WAL024062	WAL372245	WAL624621	WAL625954	WAL625994
		16	P-GEV 16 SR 3/4	23.0	G 3/4 A	29	40	21.5	16	32	32	30	WAL604264	WAL620789	GES 16 S/R 3/4	15.5	G 3/4 A	WAL025474	WAL617388	WAL624621	WAL625954	WAL625994
		20	P-GEV 20 SR	25.3	G 3/4 A	31	42	20.5	16	32	32	36	WAL373080	WAL620019	GES 20 SR	14.9	G 3/4 A	WAL037585	WAL025494	WAL624622	WAL625955	WAL625995
		20	P-GEV 20 S/R 1/2	24.5	G 1/2 A	31	40	18.5	14	26	32	36	WAL602651	WAL620202	GES 20 S/R 1/2	13.6	G 1/2 A	WAL028704	WAL066306	WAL624622	WAL625955	WAL625995
		25	P-GEV 25 SR	46.5	G 1 A	35	47	23	18	39	41	46	WAL373081	WAL620020	GES 25 SR	26.9	G 1 A	WAL037586	WAL025495	WAL624623	WAL625956	WAL625996
25	P-GEV 25 S/R 3/4	45.5	G 3/4 A	3.5	47	23	16	32	41	46	WAL374854	WAL620606	GES 25 S/R 3/4	24.3	G 3/4 A	WAL028789	WAL605636	WAL624623	WAL625956	WAL625996		
30	P-GEV 30 SR	64.4	G 1 1/4 A	37	50	23.5	20	49	50	50	WAL373082	WAL620021	GES 30 SR	41.8	G 1 1/4 A	WAL037587	WAL025496	WAL624624	WAL625957	WAL625997		
38	P-GEV 38 SR	88.9	G 1 1/2 A	42	57	26	22	55	55	60	WAL373083	WAL620022	GES 38 SR	56.8	G 1 1/2 A	WAL037588	WAL025497	WAL624625	WAL625958	WAL625998		
38	P-GEV 38 S/R 1 1/4	89.6	G 1 1/4 A	42	57	26	20	49	55	60	WAL603977	WAL620630	GES 38 S/R 1 1/4	56.7	G 1 1/4 A	WAL025223	WAL606647	WAL624625	WAL625958	WAL625998		

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂= approximate dimension if the union nut is tightened

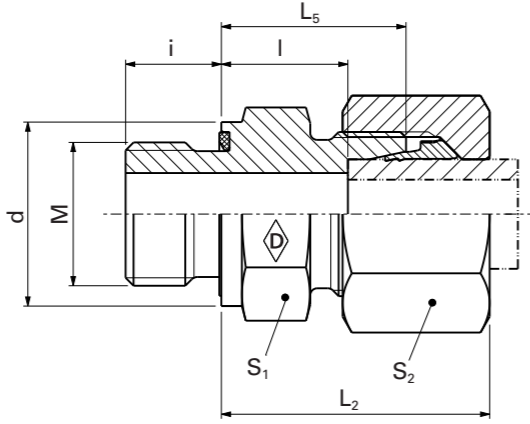
⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.



P-GEV ... M-WD

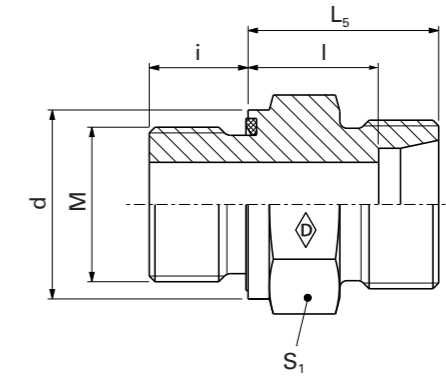
P-GEV ... M-WD-1.4571

- With soft seal made from NBR** (e.g. Perbunan) for steel
- With soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)
- Metric stud type E to DIN EN ISO 9974-2



GES ... M-WD

GES ... M-WD-1.4571



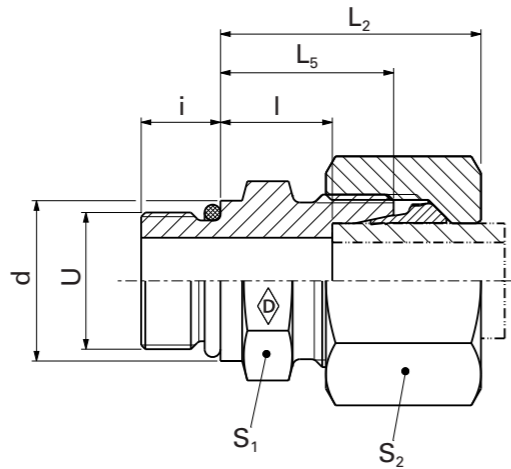
Series	PN bar (psi)	Tube outer diameter	Model	M	kg/100 pc.	L ₂	L ₅	l	i	d	S ₁	S ₂	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)				
															Walpro P-GEV ...	Walpro stainless steel P-GEV ...-1.4571*	Stud GES ...	Stud Stainless steel GES ...-1.4571*	Walring W-R ... VI
L	500 (7252)	6	P-GEV 6 LM-WD	M 10 x 1	2.5	23	15.5	8.5	8	13.9	14	14	WAL373136	WAL620601	WAL037638	WAL602785	WAL624607	WAL625940	WAL625980
		8	P-GEV 8 LM-WD	M 12 x 1.5	4.0	25	17	10	12	16.9	17	17	WAL373137	WAL620805	WAL037639	WAL612439	WAL624608	WAL625941	WAL625981
		10	P-GEV 10 LM-WD	M 14 x 1.5	4.7	26	18	11	12	18.9	19	19	WAL373138	WAL620451	WAL037640	WAL610672	WAL624609	WAL625942	WAL625982
		10	P-GEV 10 L/M 18 x 1.5-WD	M 18 x 1.5	7.6	27	19.5	12.5	12	23.9	24	19	WAL605930	WAL623067	WAL606459	WAL623068	WAL624609	WAL625942	WAL625982
		10	P-GEV 10 L/M 22 x 1.5-WD	M 22 x 1.5	8.3	27.5	20	13	14	26.9	27	19	WAL605931	WAL623069	WAL604706	WAL623070	WAL624609	WAL625942	WAL625982
		12	P-GEV 12 LM-WD	M 16 x 1.5	6.3	27	19.5	12.5	12	21.9	22	22	WAL373139	WAL620591	WAL037641	WAL602808	WAL624610	WAL625943	WAL625983
	400 (5801)	12	P-GEV 12 L/M 18 x 1.5-WD	M 18 x 1.5	7.8	27	17	12.5	12	23.9	24	22	WAL602562	WAL623071	WAL024966	WAL613182	WAL624610	WAL625943	WAL625983
		12	P-GEV 12 L/M 22 x 1.5-WD	M 22 x 1.5	9.5	27.5	20	13	14	26.9	27	22	WAL602563	WAL620817	WAL604514	WAL613122	WAL624610	WAL625943	WAL625983
		15	P-GEV 15 LM-WD	M 18 x 1.5	9.5	29	20.5	13.5	12	23.9	24	27	WAL373140	WAL620622	WAL037642	WAL606270	WAL624611	WAL625944	WAL625984
		15	P-GEV 15 L/M 22 x 1.5-WD	M 22 x 1.5	11.5	29	21	14	14	26.9	27	27	WAL602564	WAL620820	WAL604266	WAL613123	WAL624611	WAL625944	WAL625984
		18	P-GEV 18 LM-WD	M 22 x 1.5	12.2	30	22	14	14	26.9	27	32	WAL373141	WAL620608	WAL037643	WAL605670	WAL624612	WAL625945	WAL625985
		18	P-GEV 18 L/M 18 x 1.5-WD	M 18 x 1.5	12.9	31	21.5	14.5	12	23.9	27	32	WAL605934	WAL621515	WAL060294	WAL618838	WAL624612	WAL625945	WAL625985
250 (3626)	22	P-GEV 22 LM-WD	M 26 x 1.5	17.6	33	24	16.5	16	31.9	32	36	WAL373142	WAL620996	WAL037644	WAL612877	WAL624613	WAL625946	WAL625986	
	28	P-GEV 28 LM-WD	M 33 x 2	24.7	34	25	17.5	18	39.9	41	41	WAL373143	WAL620891	WAL037645	WAL605323	WAL624614	WAL625947	WAL625987	
	35	P-GEV 35 LM-WD	M 42 x 2	40.7	39	28	17.5	20	49.9	50	50	WAL373144	WAL620892	WAL037646	WAL605328	WAL624615	WAL625948	WAL625988	
	42	P-GEV 42 LM-WD	M 48 x 2	45.6	42	30	19	22	54.9	55	60	WAL373145	WAL620796	WAL037647	WAL617437	WAL624616	WAL625949	WAL625989	
S	800 (11603)	6	P-GEV 6 SM-WD	M 12 x 1.5	4.5	28	20	13	12	16.9	17	17	WAL373146	WAL620564	WAL037648	WAL605312	WAL624617	WAL625950	WAL625990
		8	P-GEV 8 SM-WD	M 14 x 1.5	5.5	30	22	15	12	18.9	19	19	WAL373147	WAL620565	WAL037649	WAL605316	WAL624618	WAL625951	WAL625991
		10	P-GEV 10 SM-WD	M 16 x 1.5	8.2	31	22.5	15	12	21.9	22	22	WAL373148	WAL620621	WAL037650	WAL606269	WAL624619	WAL625952	WAL625992
		12	P-GEV 12 SM-WD	M 18 x 1.5	10.5	33	24.5	17	12	23.9	24	24	WAL373149	WAL620559	WAL037651	WAL605268	WAL624620	WAL625953	WAL625993
		14	P-GEV 14 SM-WD	M 20 x 1.5	14.8	37	27	19	14	25.9	27	27	WAL373150	WAL621511	WAL037652	WAL613184			
		16	P-GEV 16 SM-WD	M 22 x 1.5	15.4	37	27	18.5	14	26.9	27	30	WAL373151	WAL620566	WAL037653	WAL605274	WAL624621	WAL625954	WAL625994
	420 (6091)	20	P-GEV 20 SM-WD	M 27 x 2	25.3	42	31	20.5	16	31.9	32	36	WAL373152	WAL620623	WAL037654	WAL605517	WAL624622	WAL625955	WAL625995
		25	P-GEV 25 SM-WD	M 33 x 2	46.5	47	35	23	18	39.9	41	46	WAL373153	WAL620642	WAL037655	WAL605276	WAL624623	WAL625956	WAL625996
		30	P-GEV 30 SM-WD	M 42 x 2	64.4	50	37	23.5	20	49.9	50	50	WAL373154	WAL620997	WAL037656	WAL617438	WAL624624	WAL625957	WAL625997
		38	P-GEV 38 SM-WD	M 48 x 2	88.9	57	42	26	22	54.9	55	60	WAL373155	WAL620734	WAL037657	WAL617439	WAL624625	WAL625958	WAL625998

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂ = approximate dimension if the union nut is tightened
 **FPM (e.g. Viton) see price list / available on request

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

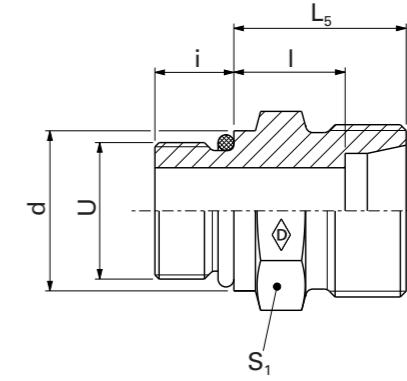
P-GEV ... UNF/UN

- with O-ring made from NBR* (e.g. Perbunan)
- Stud to ISO 11926-2 and -3 (UNF/UN) / SAE J 514 (UST)



E

GES ... UNF/UN



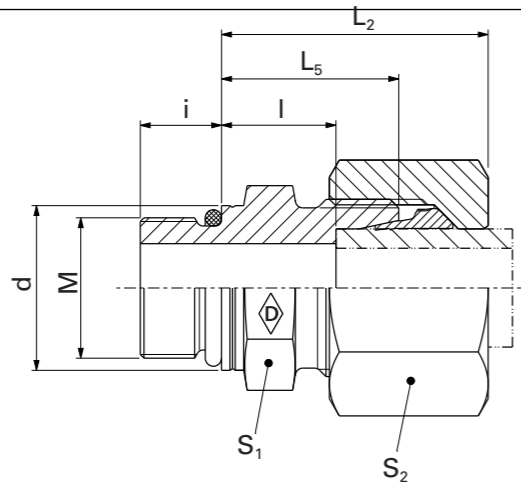
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													System nuts for supplementing the stud (for technical data, see part D of this catalog)								
Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	L ₂	L ₅	l	i	d	S ₁	S ₂	*O-ring	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	Art. no.	Art. no.	Art. no.
		6	P-GEV 6 L/ 9/16-18 UNF	3.7	25	17	10	10	17.6	19	14	11.9 x 1.98	WAL373157			6	GES 6 L/ 9/16-18 UNF	2.8	WAL065356	WAL624607	WAL625940
		8	P-GEV 8 L/ 7/16-20 UNF	3.2	25	17	10	9	14.4	17	17	8.92 x 1.83	WAL373158			8	GES 8 L/ 7/16-20 UNF	2.0	WAL065358	WAL624608	WAL625941
		8	P-GEV 8 L/ 9/16-18 UNF	3.7	25	17	10	10	17.6	19	17	11.9 x 1.98	WAL373159			8	GES 8 L/ 9/16-18 UNF	2.0	WAL065359	WAL624608	WAL625941
		10	P-GEV 10 L/ 7/16-20 UNF	4.0	26	18	11	9	14.4	17	19	8.92 x 1.83	WAL373160			10	GES 10 L/ 7/16-20 UNF	2.0	WAL065361	WAL624609	WAL625942
		10	P-GEV 10 L/ 9/16-18 UNF	4.6	26	18	11	10	17.6	19	19	11.9 x 1.98	WAL373161			10	GES 10 L/ 9/16-18 UNF	2.8	WAL065362	WAL624609	WAL625942
		10	P-GEV 10 L/ 3/4-16 UNF	7.6	28	20	13	11	22.3	24	19	16.36 x 2.20	WAL373162			10	GES 10 L/ 3/4-16 UNF	5.5	WAL065363	WAL624609	WAL625942
	400 (5801)	12	P-GEV 12 L/ 9/16-18 UNF	6.1	26	18	11	10	17.6	19	22	11.9 x 1.98	WAL373164		400 (5801)	12	GES 12 L/ 9/16-18 UNF	3.3	WAL065365	WAL624610	WAL625943
		12	P-GEV 12 L/ 3/4-16 UNF	7.6	28	20	13	11	22.3	24	22	16.36 x 2.20	WAL373165			12	GES 12 L/ 3/4-16 UNF	4.8	WAL065366	WAL624610	WAL625943
		12	P-GEV 12 L/ 7/8-14 UNF	8.8	29	21	14	12.7	25.5	27	22	19.18 x 2.46	WAL373166			12	GES 12 L/ 7/8-14 UNF	5.9	WAL065367	WAL624610	WAL625943
L		15	P-GEV 15 L/ 3/4-16 UNF	9.5	29	21	14	11	22.3	24	27	16.36 x 2.20	WAL373168		L	15	GES 15 L/ 3/4-16 UNF	5.4	WAL065369	WAL624611	WAL625944
		15	P-GEV 15 L/ 7/8-14 UNF	11.0	30	22	15	12.7	25.5	27	27	19.18 x 2.46	WAL373169			15	GES 15 L/ 7/8-14 UNF	9.8	WAL065370	WAL624611	WAL625944
		18	P-GEV 18 L/ 3/4-16 UNF	12.5	31	22	14.5	11	22.3	27	32	16.36 x 2.20	WAL373170			18	GES 18 L/ 3/4-16 UNF	6.5	WAL065371	WAL624612	WAL625945
		18	P-GEV 18 L/ 7/8-14 UNF	13.2	31	22	14.5	12.7	25.5	27	32	19.18 x 2.46	WAL373171			18	GES 18 L/ 7/8-14 UNF	7.0	WAL065372	WAL624612	WAL625945
		22	P-GEV 22 L/ 7/8-14 UNF	17.2	33	24	16.5	12.7	25.5	32	36	19.18 x 2.46	WAL373172			22	GES 22 L/ 7/8-14 UNF	9.0	WAL065374	WAL624613	WAL625946
		22	P-GEV 22 L/ 1 1/16-12 UN	18.5	33	24	16.5	15	31.9	32	36	23.47 x 2.95	WAL373173			22	GES 22 L/ 1 1/16-12 UN	16.5	WAL065377	WAL624613	WAL625946
	250 (3626)	28	P-GEV 28 L/ 7/8-14 UNF	22.0	34	25	17.5	12.7	25.5	41	41	19.18 x 2.46	WAL373174		250 (3626)	28	GES 28 L/ 7/8-14 UNF	20.6	WAL065378	WAL624614	WAL625947
		28	P-GEV 28 L/ 1 5/16-12 UN	25.0	34	25	17.5	15	38.2	41	41	29.74 x 2.95	WAL373175			28	GES 28 L/ 1 5/16-12 UN	15.5	WAL065382	WAL624614	WAL625947
		35	P-GEV 35 L/ 1 5/8-12 UN	40.0	39	28	17.5	15	47.7	50	50	37.46 x 3	WAL373177			35	GES 35 L/ 1 5/8-12 UN	26.5	WAL065384	WAL624615	WAL625948
		42	P-GEV 42 L/ 1 5/8-12 UN	46.2	42	30	19	15	47.7	55	55	37.46 x 3	WAL374346			42	GES 42 L/ 1 5/8-12 UN	30.6	WAL065386	WAL624616	WAL625949
	630 (9137)	12	P-GEV 12 S/ 3/4-16 UNF	10.0	34	25	17.5	11	22.3	24	24	16.36 x 2.20	WAL373180		630 (9137)	12	GES 12 S/ 3/4-16 UNF	7.6	WAL065389	WAL624620	WAL625953
		16	P-GEV 16 S/ 3/4-16 UNF	13.0	34	24	15.5	11	22.3	24	30	16.36 x 2.20	WAL373182			16	GES 16 S/ 3/4-16 UNF	6.5	WAL065391	WAL624621	WAL625954
		16	P-GEV 16 S/ 7/8-14 UNF	15.0	37	27	18.5	12.7	25.5	27	30	19.18 x 2.46	WAL373183			16	GES 16 S/ 7/8-14 UNF	9.5	WAL065392	WAL624621	WAL625954
		20	P-GEV 20 S/ 3/4-16 UNF	22.0	42	31	20.5	11	22.3	32	36	16.36 x 2.20	WAL373184		S	20	GES 20 S/ 3/4-16 UNF	13.1	WAL065393	WAL624622	WAL625955
S		20	P-GEV 20 S/ 7/8-14 UNF	23.0	42	31	20.5	12.7	25.5	32	36	19.18 x 2.46	WAL373185			20	GES 20 S/ 7/8-14 UNF	14.1	WAL065394	WAL624622	WAL625955
	400 (5801)	20	P-GEV 20 S/ 1 1/16-12 UN	25.0	42	31	20.5	15	31.9	32	36	23.47 x 2.95	WAL373186		400 (5801)	20	GES 20 S/ 1 1/16-12 UN	15	WAL065395	WAL624622	WAL625955
		25	P-GEV 25 S/ 1 5/16-12 UN	46.0	47	35	23	15	38.2	41	46	29.74 x 2.95	WAL373189			25	GES 25 S/ 1 5/16-12 UN	26	WAL065400	WAL624623	WAL625956
	315 (4569)	30	P-GEV 30 S/ 1 5/8-12 UN	62.0	50	37	23.5	15	47.7	50	50	37.46 x 3	WAL373191		315 (4569)	30	GES 30 S/ 1 5/8-12 UN	39.4	WAL065402	WAL624624	WAL625957

L₂ = approximate dimension if the union nut is tightened
 *For FPM (e.g. Viton) see price list / available on request

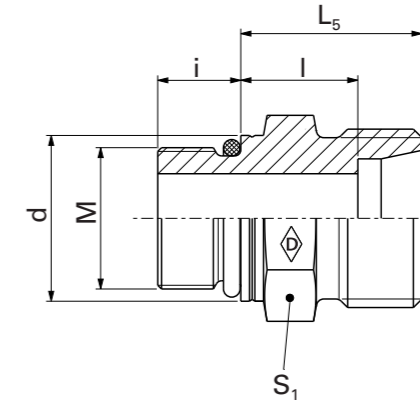
P-GEV ... M - OR (ISO 6149)

- with O-ring made from NBR* (e.g. Perbunan)
- Straight metric stud with O-ring to DIN EN ISO 6149-2 and -3



E

GES ... M-OR (ISO 6149)



E

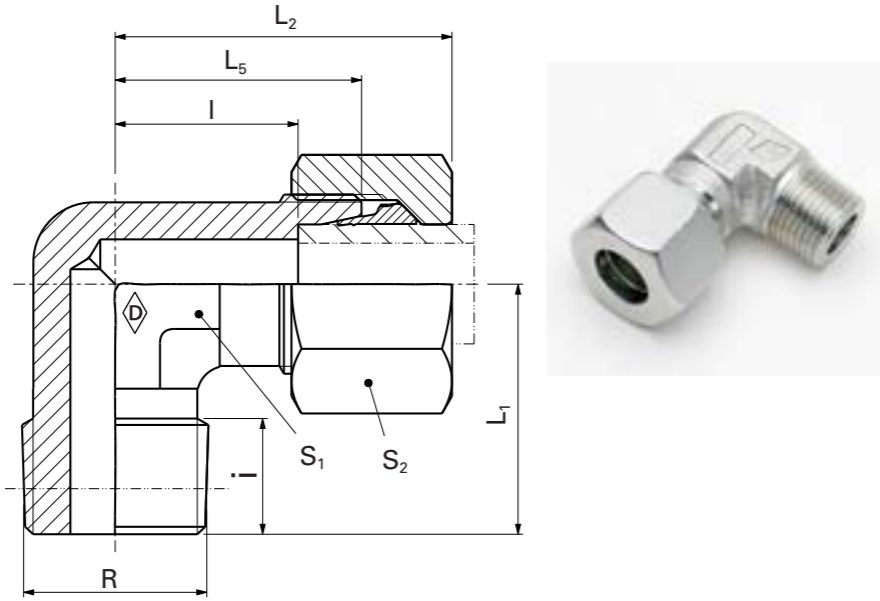
Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	M	L ₂	L ₅	l	i	d	S ₁	S ₂	*O-ring	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	M	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)				
																						Walpro P-GEV ...	Stud GES ...	Walring W-R ... VI	Walform WF-M ... VI	
L	400 (5801)	6	P-GEV 6 LM-OR	2.7	M10 x 1.5	24	16.5	9.5	8.5	13.8	14	14		8.1 x 1.6	WAL625528	L	400 (5801)	6	GES 6 LM-OR	1.6	M10 x 1.5	WAL625509	WAL624607	WAL625940		
		8	P-GEV 8 LM-OR	4.0	M12 x 1.5	25	17	10	11	16.8	17	17		9.3 x 2.2	WAL625529			8	GES 8 LM-OR	2.3	M12 x 1.5	WAL625510	WAL624608	WAL625941		
		10	P-GEV 10 LM-OR	5.2	M14 x 1.5	26	18	11	11	18.8	19	19		11.3 x 2.2	WAL625530			10	GES 10 LM-OR	2.8	M14 x 1.5	WAL625511	WAL624609	WAL625942		
		12	P-GEV 12 LM-OR	6.9	M16 x 1.5	27	19.5	12.5	11.5	21.8	22	22		13.3 x 2.2	WAL625531			12	GES 12 LM-OR	4.0	M16 x 1.5	WAL625512	WAL624610	WAL625943		
	315 (4569)	15	P-GEV 15 LM-OR	10.2	M18 x 1.5	29	20.5	13.5	12.5	23.8	24	27		15.3 x 2.2	WAL625532		315 (4569)	15	GES 15 LM-OR	5.6	M18 x 1.5	WAL625513	WAL624611	WAL625944		
		18	P-GEV 18 LM-OR	14.7	M22 x 1.5	30	22	14.5	13	26.8	27	32		17.3 x 2.2	WAL625533			18	GES 18 LM-OR	8.0	M22 x 1.5	WAL625514	WAL624612	WAL625945		
	200 (2900)	22	P-GEV 22 LM-OR	19.3	M27 x 2	33	24	16.5	16	31.8	32	36		19.3 x 2.2	WAL625534		200 (2900)	22	GES 22 LM-OR	10.4	M27 x 2	WAL625515	WAL624613	WAL625946		
		28	P-GEV 28 LM-OR	26.8	M33 x 2	34	25	17.5	16	40.8	41	41		23.6 x 2.9	WAL625535			28	GES 28 LM-OR	17.1	M33 x 2	WAL625516	WAL624614	WAL625947		
		35	P-GEV 35 LM-OR	43.1	M42 x 2	39	28	17.5	16	49.8	50	50		38.6 x 2.9	WAL625536			35	GES 35 LM-OR	27.8	M42 x 2	WAL625517	WAL624615	WAL625948		
		42	P-GEV 42 LM-OR	57.8	M48 x 2	42	30	19	17.5	54.8	55	60		44.6 x 2.9	WAL625537			42	GES 42 LM-OR	34.0	M48 x 2	WAL625518	WAL624616	WAL625949		
	S	630 (9137)	6	P-GEV 6 SM-OR	4.6	M12 x 1.5	28	20	13	11	16.8	17	17		9.3 x 2.2		WAL625538	S	630 (9137)	6	GES 6 SM-OR	2.9	M12 x 1.5	WAL625519	WAL624617	WAL625950
			8	P-GEV 8 SM-OR	6.1	M14 x 1.5	30	22	15	11	18.8	19	19		11.3 x 2.2		WAL625539			8	GES 8 SM-OR	4.1	M14 x 1.5	WAL625520	WAL624618	WAL625951
10			P-GEV 10 SM-OR	8.9	M16 x 1.5	31	22.5	15	12.5	21.8	22	22		13.3 x 2.2	WAL625540	10	GES 10 SM-OR			5.5	M16 x 1.5	WAL625521	WAL624619	WAL625952		
12			P-GEV 12 SM-OR	11.3	M18 x 1.5	33	24.5	17	14	23.8	24	24		15.3 x 2.2	WAL625541	12	GES 12 SM-OR			7.3	M18 x 1.5	WAL625522	WAL624620	WAL625953		
400 (5801)		16	P-GEV 16 SM-OR	16.9	M22 x 1.5	37	27	18.5	15	26.8	27	30		17.3 x 2.2	WAL625542	400 (5801)	16		GES 16 SM-OR	10.2	M22 x 1.5	WAL625523	WAL624621	WAL625954		
		20	P-GEV 20 SM-OR	27.5	M27 x 2	42	31	20.5	18.5	31.8	32	36		19.3 x 2.2	WAL625543		20		GES 20 SM-OR	16.9	M27 x 2	WAL625524	WAL624622	WAL625955		
250 (3626)		25	P-GEV 25 SM-OR	48.4	M33 x 2	47	35	23	18.5	40.8	41	46		23.6 x 2.9	WAL625544	250 (3626)	25		GES 25 SM-OR	27.4	M33 x 2	WAL625525	WAL624623	WAL625956		
		30	P-GEV 30 SM-OR	64.8	M42 x 2	50	37	23.5	19	49.8	50	50		38.6 x 2.9	WAL625545		30		GES 30 SM-OR	41.2	M42 x 2	WAL625526	WAL624624	WAL625957		
		38	P-GEV 38 SM-OR	91.5	M48 x 2	56.5	41.5	26	21.5	54.8	55	60		44.6 x 2.9	WAL625546			38	GES 38 SM-OR	58.0	M48 x 2	WAL625527	WAL624625	WAL625958		

L₂ = approximate dimension if the union nut is tightened
 *For FPM (e.g. Viton) see price list / available on request

P-WEV ... RK

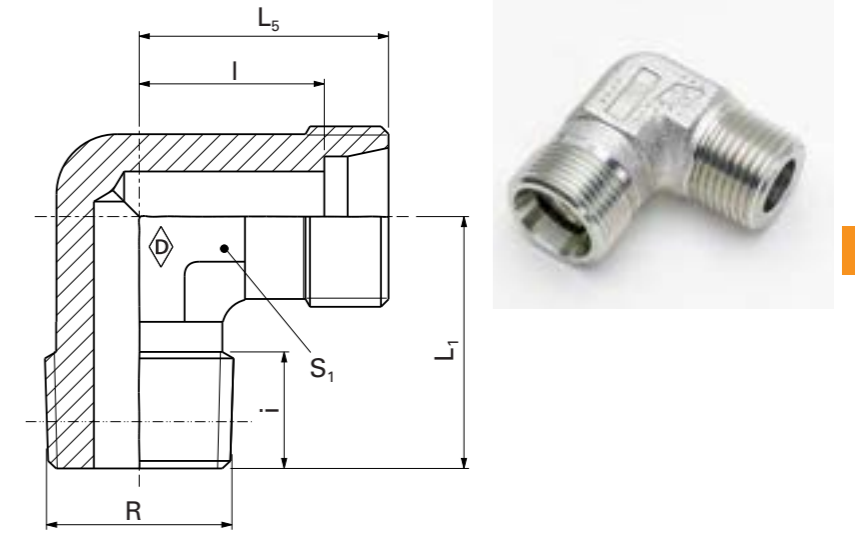
P-WEV ... RK-1.4571

- Tapered studs type C to DIN 3852-2 with Whitworth thread



WES ... RK

WES ... RK-1.4571



														System nuts for supplementing the stud (for technical data, see part D of this catalog)											
														Walpro P-WEV ...	Walpro stainless steel P-WEV ...-1.4571*	Stud WES ...	Stud Stainless steel WES ...-1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*					
Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	R	L ₁	L ₂	L ₅	I	i	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	R	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.
LL	100 (1450)	4	S-WEV 4 LLRK	2.1	R 1/8 taper	17	21	15	11	8	11	10	WAL038408	WAL616401	LL	100 (1450)	4	WES 4 LLRK	1.7	R 1/8 taper	WAL037695	WAL617440			
		6	S-WEV 6 LLRK	2.4	R 1/8 taper	17	21	15	9.5	8	11	12	WAL038410	WAL061404			6	WES 6 LLRK	1.6	R 1/8 taper	WAL037697	WAL061405			
		8	S-WEV 8 LLRK	3.4	R 1/8 taper	20	23	17	11.5	8	12	14	WAL038411	WAL065330			8	WES 8 LLRK	2.2	R 1/8 taper	WAL037698	WAL065331			
L	250 (3626)	6	P-WEV 6 LRK	4.0	R 1/8 taper	20	27	19	12	8	12	14	WAL373195	WAL620034	L	250 (3626)	6	WES 6 LRK	2.8	R 1/8 taper	WAL037699	WAL025517	WAL624607	WAL625940	WAL625980
		6	P-WEV 6 L/R 1/4 K	6.0	R 1/4 taper	26	29	21	14	12	14	14	WAL373196	WAL620169			6	WES 6 L/R 1/4 K	5.0	R 1/4 taper	WAL037700	WAL065333	WAL624607	WAL625940	WAL625980
		8	P-WEV 8 LRK	6.6	R 1/4 taper	26	29	21	14	12	14	17	WAL373197	WAL620035			8	WES 8 LRK	4.6	R 1/4 taper	WAL037701	WAL025518	WAL624608	WAL625941	WAL625981
		10	P-WEV 10 LRK	8.3	R 1/4 taper	27	30	22	15	12	17	19	WAL373198	WAL620036			10	WES 10 LRK	8.9	R 1/4 taper	WAL037702	WAL025519	WAL624609	WAL625942	WAL625982
		10	P-WEV 10 L/R 3/8 K	9.0	R 3/8 taper	27	30	22	15	12	17	19	WAL373199	WAL620347			10	WES 10 L/R 3/8 K	6.8	R 3/8 taper	WAL037703	WAL024259	WAL624609	WAL625942	WAL625982
		12	P-WEV 12 L/R 1/4 K	11.4	R 1/4 taper	28	32	24	17	12	19	22	WAL373200	WAL620170			12	WES 12 L/R 1/4 K	8.4	R 1/4 taper	WAL037704	WAL065335	WAL624610	WAL625943	WAL625983
		12	P-WEV 12 LRK	11.8	R 3/8 taper	28	32	24	17	12	19	22	WAL373201	WAL620037			12	WES 12 LRK	8.9	R 3/8 taper	WAL037705	WAL025520	WAL624610	WAL625943	WAL625983
S	160 (2321)	15	P-WEV 15 LRK	13.0	R 1/2 taper	34	36	28	21	14	19	27	WAL373202	WAL620038	S	160 (2321)	15	WES 15 LRK	8.9	R 1/2 taper	WAL037706	WAL025521	WAL624611	WAL625944	WAL625984
		18	P-WEV 18 LRK	16.6	R 1/2 taper	36	40	31	23.5	14	24	32	WAL373203	WAL620039			18	WES 18 LRK	12.0	R 1/2 taper	WAL037707	WAL025522	WAL624612	WAL625945	WAL625985
		6	P-WEV 6 SRK	7.2	R 1/4 taper	26	31	23	16	12	14	17	WAL373204	WAL620040			6	WES 6 SRK	5.4	R 1/4 taper	WAL037708	WAL025523	WAL624617	WAL625950	WAL625990
		8	P-WEV 8 SRK	8.8	R 1/4 taper	27	32	24	17	12	17	19	WAL373205	WAL620041			8	WES 8 SRK	7.7	R 1/4 taper	WAL037709	WAL025524	WAL624618	WAL625951	WAL625991
S	630** (9137)	10	P-WEV 10 SRK	13.4	R 3/8 taper	28	34	25	17.5	12	19	22	WAL373206	WAL620042	S	630** (9137)	10	WES 10 SRK	10.1	R 3/8 taper	WAL037710	WAL025525	WAL624619	WAL625952	WAL625992
		12	P-WEV 12 SRK	16.5	R 3/8 taper	28	38	29	21.5	12	22	24	WAL373207	WAL620043			12	WES 12 SRK	12.7	R 3/8 taper	WAL037711	WAL025526	WAL624620	WAL625953	WAL625993
		14	P-WEV 14 SRK	15.3	R 1/2 taper	32	40	30	22	14	19	27	WAL373208	WAL621648			14	WES 14 SRK	10.6	R 1/2 taper	WAL037712	WAL025527			
S	400 (5801)	16	P-WEV 16 SRK	17.9	R 1/2 taper	32	43	33	24.5	14	24	30	WAL373209	WAL620044	S	400 (5801)	16	WES 16 SRK	13.6	R 1/2 taper	WAL037713	WAL025528	WAL624621	WAL625954	WAL625994

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₅ = approximate dimension if the union nut is tightened

**The nominal pressure of 630 bar only applies to tapered ports; otherwise, the nominal pressure is 400 bar

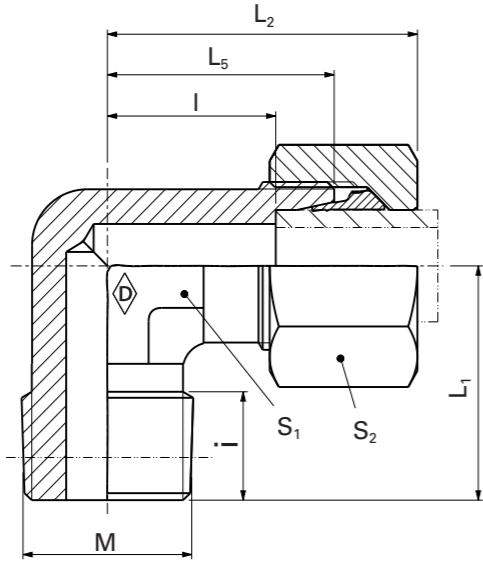
⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.



P-WEV ... MK

P-WEV ... MK-1.4571

- Tapered studs type C to DIN 3852-1 with metric thread

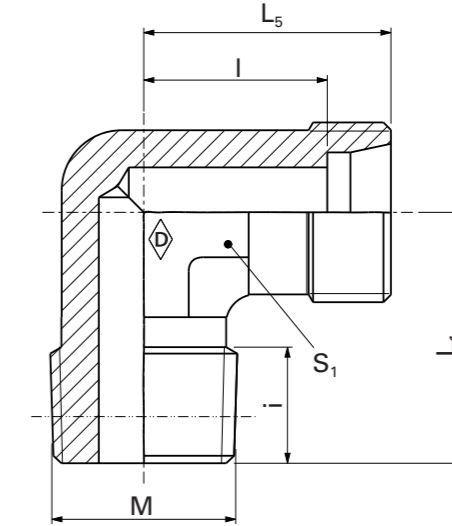


E



WES ... MK

WES ... MK-1.4571



E

														System nuts for supplementing the stud (for technical data, see part D of this catalog)											
														Walpro P-WEV ...	Walpro stainless steel P-WEV ...- 1.4571*				Stud WES ...	Stud Stainless steel WES ... -1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*		
Series	PN bar (psi)	Tube outer diameter	Model	M	kg/ 100 pc.	L ₁	L ₂	L ₃	L	i	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	M	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.
LL	100 (1450)	4	S-WEV 4 LLMK	M 8 x 1 taper	2.1	17	21	15	11	8	11	10	WAL038427	WAL616402	LL	100 (1450)	4	WES 4 LLMK	M 8 x 1 taper	1.5	WAL037714	WAL067181			
		6	S-WEV 6 LLMK	M 10 x 1 taper	2.4	17	21	15	9.5	8	11	12	WAL038429	WAL609041			6	WES 6 LLMK	M 10 x 1 taper	1.6	WAL037716	WAL606649			
		8	S-WEV 8 LLMK	M 10 x 1 taper	3.4	20	23	17	11.5	8	12	14	WAL038430	WAL616403			8	WES 8 LLMK	M 10 x 1 taper	2.3	WAL037717	WAL617441			
L	250 (3626)	6	P-WEV 6 LMK	M 10 x 1 taper	4.0	20	27	19	12	8	12	14	WAL373213	WAL620050	L	250 (3626)	6	WES 6 LMK	M 10 x 1 taper	2.9	WAL037718	WAL025537	WAL624607	WAL625940	WAL625980
		8	P-WEV 8 LMK	M 12 x 1.5 taper	6.6	26	29	21	14	12	14	17	WAL373214	WAL620610			8	WES 8 LMK	M 12 x 1.5 taper	4.4	WAL037719	WAL025538	WAL624608	WAL625941	WAL625981
		10	P-WEV 10 LMK	M 14 x 1.5 taper	8.3	27	30	22	15	12	17	19	WAL373215	WAL620999			10	WES 10 LMK	M 14 x 1.5 taper	6.1	WAL037720	WAL025539	WAL624609	WAL625942	WAL625982
		12	P-WEV 12 LMK	M 16 x 1.5 taper	11.8	28	32	24	17	12	19	22	WAL373216	WAL620051			12	WES 12 LMK	M 16 x 1.5 taper	8.7	WAL037721	WAL025540	WAL624610	WAL625943	WAL625983
		15	P-WEV 15 LMK	M 18 x 1.5 taper	12.0	32	36	28	21	12	19	17	WAL373217	WAL620052			15	WES 15 LMK	M 18 x 1.5 taper	8.1	WAL037722	WAL025541	WAL624611	WAL625944	WAL625984
S	160 (2321)	18	P-WEV 18 LMK	M 22 x 1.5 taper	16.6	36	40	31	23.5	14	24	32	WAL373218	WAL620053	S	160 (2321)	18	WES 18 LMK	M 22 x 1.5 taper	12.2	WAL037723	WAL025542	WAL624612	WAL625945	WAL625985
		6	P-WEV 6 SMK	M 12 x 1.5 taper	7.2	26	31	23	16	12	14	17	WAL373219	WAL621000			6	WES 6 SMK	M 12 x 1.5 taper	5.3	WAL037724	WAL025543	WAL624617	WAL625950	WAL625990
		8	P-WEV 8 SMK	M 14 x 1.5 taper	8.8	27	32	24	17	12	17	19	WAL373220	WAL620665			8	WES 8 SMK	M 14 x 1.5 taper	7.8	WAL037725	WAL025544	WAL624618	WAL625951	WAL625991
		10	P-WEV 10 SMK	M 16 x 1.5 taper	13.4	28	34	25	17.5	12	19	22	WAL373221	WAL620666			10	WES 10 SMK	M 16 x 1.5 taper	10.3	WAL037726	WAL025545	WAL624619	WAL625952	WAL625992
		12	P-WEV 12 SMK	M 18 x 1.5 taper	16.5	28	38	29	21.5	12	22	24	WAL373222	WAL620667			12	WES 12 SMK	M 18 x 1.5 taper	12.9	WAL037727	WAL025546	WAL624620	WAL625953	WAL625993
		14	P-WEV 14 SMK	M 20 x 1.5 taper	15.3	32	40	30	22	14	19	27	WAL373223	WAL621647			14	WES 14 SMK	M 20 x 1.5 taper	10.3	WAL037728	WAL025547			
S	400 (5801)	16	P-WEV 16 SMK	M 22 x 1.5 taper	17.9	32	43	33	24.5	14	24	30	WAL373224	WAL621001	S	400 (5801)	16	WES 16 SMK	M 22 x 1.5 taper	11.4	WAL037729	WAL025548	WAL624621	WAL625954	WAL625994

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₂ = approximate dimension if the union nut is tightened

**The nominal pressure of 630 bar only applies to tapered ports; otherwise, the nominal pressure is 400 bar

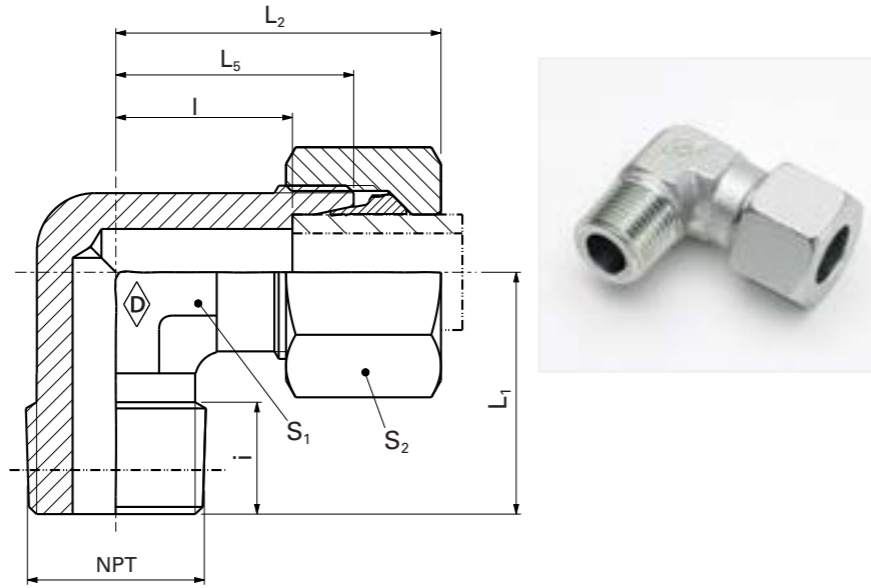
Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.



P-WEV ... NPT

P-WEV ... NPT-1.4571

• Stud with NPT thread to ANSI/ASME B1.20.1-1983

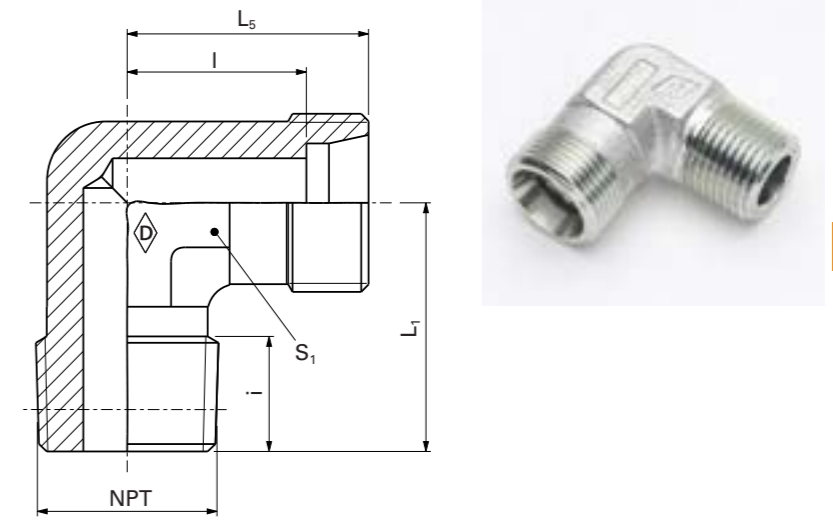


E



WES ... NPT

WES ... NPT-1.4571



E

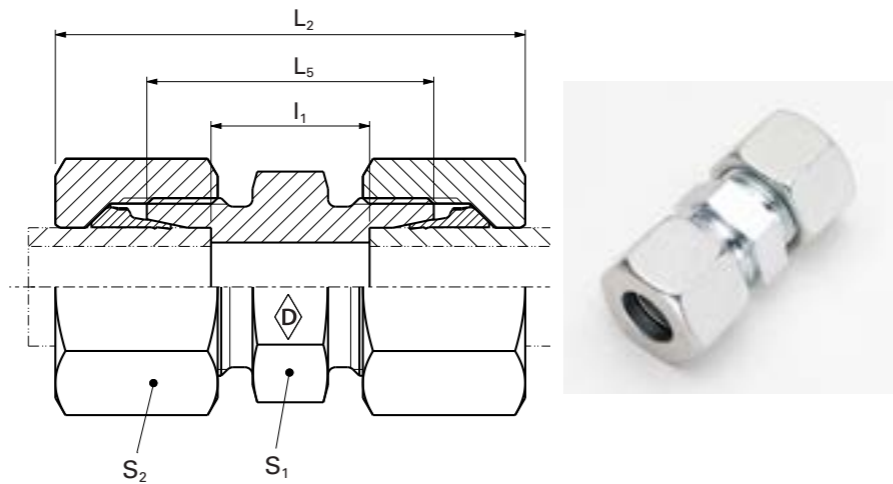
Series	PN bar (psi)	Tube outer diameter	Model	NPT	kg/100 pc.	L ₁	L ₂	L ₅	I	i	S ₁	S ₂	Walpro P-WEV ...	Walpro stainless steel P-WEV ...-1.4571*	Series	PN bar (psi)	Tube outer diameter	Model	NPT	kg/100 pc.	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)		
																							Stud WES ...	Stud Stainless steel WES ... -1.4571*	Walring W-R ... VI
LL	100 (1450)	4	S-WEV 4LL/ 1/8 NPT	1/8 NPT	2.0	17	21	15	11	10	10	10	WAL038383	WAL616408	LL	100 (1450)	4	WES 4LL/ 1/8 NPT	1/8 NPT	1.4	WAL037670	WAL617442			
		6	S-WEV 6 LL/ 1/8 NPT	1/8 NPT	2.3	17	21	15	9.5	10	10	12	WAL038385	WAL608456			6	WES 6 LL/ 1/8 NPT	1/8 NPT	1.7	WAL037672	WAL024144			
		8	S-WEV 8 LL/ 1/8 NPT	1/8 NPT	3.3	20	23	17	11.5	10	12	14	WAL038386	WAL607142			8	WES 8 LL/ 1/8 NPT	1/8 NPT	2.3	WAL037673	WAL617443			
L	250 (3626)	6	P-WEV 6 L/ 1/8 NPT	1/8 NPT	4.0	20	27	19	12	10	12	14	WAL373228	WAL620499	L	250 (3626)	6	WES 6 L/ 1/8 NPT	1/8 NPT	2.8	WAL037674	WAL604782	WAL624607	WAL625940	WAL625980
		8	P-WEV 8 L/ 1/4 NPT	1/4 NPT	6.3	26	29	21	14	15	14	17	WAL373229	WAL620187			8	WES 8 L/ 1/4 NPT	1/4 NPT	4.5	WAL037675	WAL066342	WAL624608	WAL625941	WAL625981
		10	P-WEV 10 L/ 1/4 NPT	1/4 NPT	8.2	27	30	22	15	15	17	19	WAL373230	WAL620188			10	WES 10 L/ 1/4 NPT	1/4 NPT	6	WAL037676	WAL060075	WAL624609	WAL625942	WAL625982
	12	P-WEV 12 L/ 1/4 NPT	1/4 NPT	11.4	28	32	24	17	15	19	22	WAL373231	WAL620215	12		WES 12 L/ 1/4 NPT	1/4 NPT	8.1	WAL037677	WAL067069	WAL624610	WAL625943	WAL625983		
	12	P-WEV 12 L/ 3/8 NPT	3/8 NPT	11.6	28	32	24	17	15	19	22	WAL373232	WAL620257	12		WES 12 L/ 3/8 NPT	3/8 NPT	8.6	WAL037678	WAL067678	WAL624610	WAL625943	WAL625983		
	15	P-WEV 15 L/ 1/2 NPT	1/2 NPT	14.0	34	36	28	21	14	19	27	WAL373233	WAL620258	15		WES 15 L/ 1/2 NPT	1/2 NPT	8.8	WAL037679	WAL067682	WAL624611	WAL625944	WAL625984		
S	160 (2321)	18	P-WEV 18 L/ 1/2 NPT	1/2 NPT	16.5	36	40	31	23.5	20	24	32	WAL373234	WAL620134	S	160 (2321)	18	WES 18 L/ 1/2 NPT	1/2 NPT	13.1	WAL037680	WAL027535	WAL624612	WAL625945	WAL625985
		22	P-WEV 22 L/ 3/4 NPT	3/8 NPT	23.5	42	44	35	27.5	20	27	36	WAL373235	WAL621002			22	WES 22 L/ 3/4 NPT	3/8 NPT	14.9	WAL037681	WAL069030	WAL624613	WAL625946	WAL625986
		28	P-WEV 28 L/1 NPT	1 NPT	37.5	48	47	38	30.5	23	36	41	WAL373236	WAL621003			28	WES 28 L/1 NPT	1 NPT	28.3	WAL037682	WAL604436	WAL624612	WAL625945	WAL625985
S	630 (9137)	6	P-WEV 6 S/ 1/4 NPT	1/4 NPT	6.9	26	31	23	16	15	14	17	WAL373239	WAL620484	S	630 (9137)	6	WES 6 S/ 1/4 NPT	1/4 NPT	5.3	WAL037685	WAL604307	WAL624617	WAL625950	WAL625990
		8	P-WEV 8 S/ 1/4 NPT	1/4 NPT	9.5	27	32	24	17	15	17	19	WAL373240	WAL620501			8	WES 8 S/ 1/4 NPT	1/4 NPT	7.3	WAL037686	WAL604712	WAL624618	WAL625951	WAL625991
		10	P-WEV 10 S/ 3/8 NPT	3/8 NPT	13.3	28	34	25	17.5	15	19	22	WAL373241	WAL620750			10	WES 10 S/ 3/8 NPT	3/8 NPT	9.7	WAL037687	WAL605048	WAL624619	WAL625952	WAL625992
	12	P-WEV 12 S/ 3/8 NPT	3/8 NPT	16.8	28	38	29	21.5	15	22	24	WAL373242	WAL620366	12		WES 12 S/ 3/8 NPT	3/8 NPT	12.1	WAL037688	WAL372649	WAL624620	WAL625953	WAL625993		
	14	P-WEV 14 S/ 1/2 NPT	1/2 NPT	16.6	33	40	30	22	15	19	27	WAL373243	WAL621646	14		WES 14 S/ 1/2 NPT	1/2 NPT	10.3	WAL037689	WAL067071					
	16	P-WEV 16 S/ 1/2 NPT	1/2 NPT	18.4	33	43	33	24.5	17	24	30	WAL373244	WAL620663	16		WES 16 S/ 1/2 NPT	1/2 NPT	13.8	WAL037690	WAL605049	WAL624621	WAL625954	WAL625994		
S	400 (5801)	20	P-WEV 20 S/ 3/4 NPT	3/4 NPT	30.0	42	48	37	26.5	20	27	36	WAL373245	WAL620216	S	400 (5801)	20	WES 20 S/ 3/4 NPT	3/4 NPT	19.7	WAL037691	WAL067073	WAL624622	WAL625955	WAL625995
		25	P-WEV 25 S/1 NPT	1 NPT	56.5	48	54	42	30	23	36	46	WAL373246	WAL621004			25	WES 25 S/1 NPT	1 NPT	36	WAL037692	WAL617444	WAL624623	WAL625956	WAL625996

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂ = approximate dimension if the union nut is tightened

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-GV ...

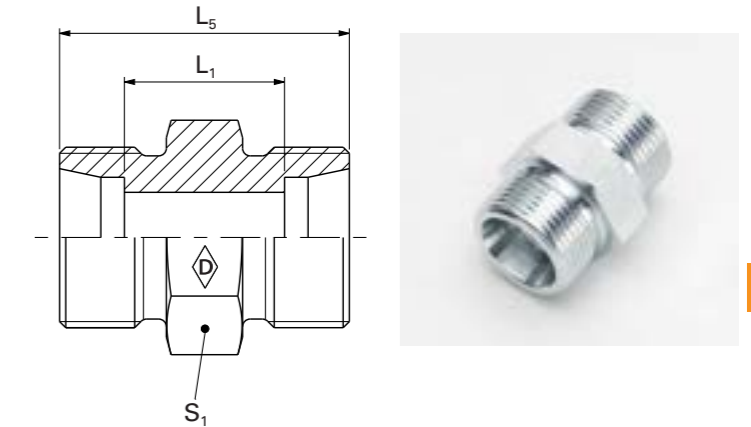
P-GV ... -1.4571



E

GS ...

GS ... -1.4571



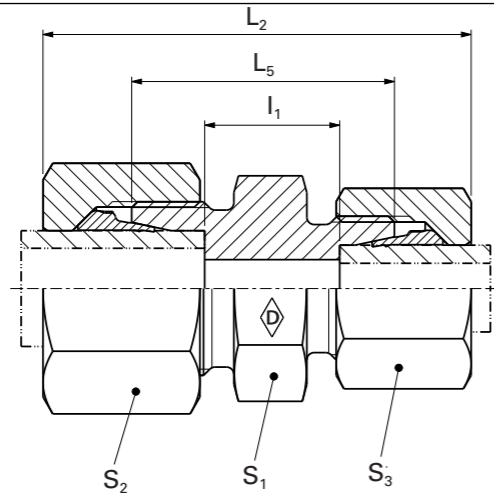
E

											System nuts for supplementing the stud (for technical data, see part D of this catalog)											
											Stud GS ...	Stud Stainless steel GS ... -1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*							
Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L ₂	L ₅	I ₁	S ₁	S ₂	Walpro P-GV ... Art. no.	Walpro stainless steel P-GV ...-1.4571* Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.	
LL	100 (1450)	4	S-GV 4 LL	1.4	31	20	12	9	10	WAL038557	WAL069960	LL	100 (1450)	4	GS 4 LL	0.6	WAL037844	WAL069017				
		6	S-GV 6 LL	2.1	32	20	9	11	12	WAL038559	WAL066887			6	GS 6 LL	0.7	WAL037846	WAL065349				
		8	S-GV 8 LL	2.6	35	23	12	12	14	WAL038560	WAL604827			8	GS 8 LL	1.1	WAL037847	WAL061565				
L	500 (7252)	6	P-GV 6 L	3.5	39	24	10	12	14	WAL373362	WAL620055	L	500 (7252)	6	GS 6 L	1.3	WAL037848	WAL025557	WAL624607	WAL625940	WAL625980	
		8	P-GV 8 L	4.9	40	25	11	14	17	WAL373363	WAL620056			8	GS 8 L	1.7	WAL037849	WAL025558	WAL624608	WAL625941	WAL625981	
		10	P-GV 10 L	6.9	42	27	13	17	19	WAL373364	WAL620057			10	GS 10 L	2.5	WAL037850	WAL025559	WAL624609	WAL625942	WAL625982	
	400 (5801)	12	P-GV 12 L	8.5	43	28	14	19	22	WAL373365	WAL620058		400 (5801)	400 (5801)	12	GS 12 L	2.8	WAL037851	WAL025560	WAL624610	WAL625943	WAL625983
		15	P-GV 15 L	13.8	46	30	16	24	27	WAL373366	WAL620059				15	GS 15 L	4.8	WAL037852	WAL025561	WAL624611	WAL625944	WAL625984
		18	P-GV 18 L	19.5	48	31	16	27	32	WAL373367	WAL620060				18	GS 18 L	6.6	WAL028736	WAL025562	WAL624612	WAL625945	WAL625985
		22	P-GV 22 L	26.2	52	35	20	32	36	WAL373368	WAL620061				22	GS 22 L	8.9	WAL028737	WAL025563	WAL624613	WAL625946	WAL625986
	250 (3626)	28	P-GV 28 L	31.5	54	36	21	41	41	WAL373369	WAL620062		250 (3626)	250 (3626)	28	GS 28 L	13.5	WAL028738	WAL025564	WAL624614	WAL625947	WAL625987
		35	P-GV 35 L	49.4	63	41	20	46	50	WAL373370	WAL620063				35	GS 35 L	21.2	WAL028739	WAL025565	WAL624615	WAL625948	WAL625988
		42	P-GV 42 L	49.4	66	43	20	46	50	WAL373371	WAL620064				42	GS 42 L	29.2	WAL028740	WAL025566	WAL624616	WAL625949	WAL625989
6		P-GV 6 S	5.9	45	30	16	14	17	WAL373372	WAL620065	S	800 (11603)			6	GS 6 S	2.5	WAL037853	WAL029716	WAL624617	WAL625950	WAL625990
800 (11603)	8	P-GV 8 S	7.8	47	32	18	17	19	WAL373373	WAL620066			8	GS 8 S	2.9	WAL037854	WAL025567	WAL624618	WAL625951	WAL625991		
	10	P-GV 10 S	11.0	49	32	17	19	22	WAL373374	WAL620067			10	GS 10 S	4.3	WAL037855	WAL025568	WAL624619	WAL625952	WAL625992		
	12	P-GV 12 S	13.6	51	34	19	22	24	WAL373375	WAL620068			12	GS 12 S	6.0	WAL037856	WAL025569	WAL624620	WAL625953	WAL625993		
630 (9137)	14	P-GV 14 S	18.2	57	38	22	24	27	WAL373376	WAL621531			630 (9137)	630 (9137)	14	GS 14 S	7.5	WAL037857	WAL025570			
	16	P-GV 16 S	22.3	57	38	21	27	30	WAL373377	WAL620069					16	GS 16 S	8.7	WAL037858	WAL025571	WAL624621	WAL625954	WAL625994
	20	P-GV 20 S	34.7	66	44	23	32	36	WAL373378	WAL620070					20	GS 20 S	14.2	WAL037859	WAL025572	WAL624622	WAL625955	WAL625995
420 (6091)	25	P-GV 25 S	66.9	74	50	26	41	46	WAL373379	WAL620071			420 (6091)	420 (6091)	25	GS 25 S	24.9	WAL037860	WAL025573	WAL624623	WAL625956	WAL625996
	30	P-GV 30 S	80.9	80	54	27	46	50	WAL373380	WAL620072					30	GS 30 S	32.8	WAL037861	WAL025574	WAL624624	WAL625957	WAL625997
	38	P-GV 38 S	119.4	90	61	29	55	60	WAL373381	WAL620073					38	GS 38 S	54.0	WAL037862	WAL025575	WAL624625	WAL625958	WAL625998

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂ = approximate dimension if the union nut is tightened

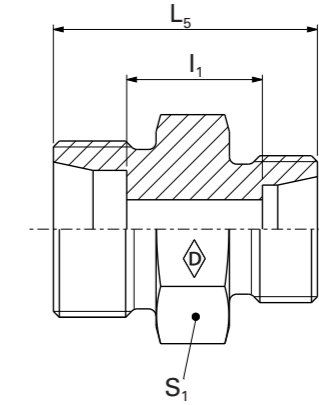
⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-GV ... / ...
P-GV ... / ... -1.4571



E

GS ... / ...
GS ... / ... -1.4571



E

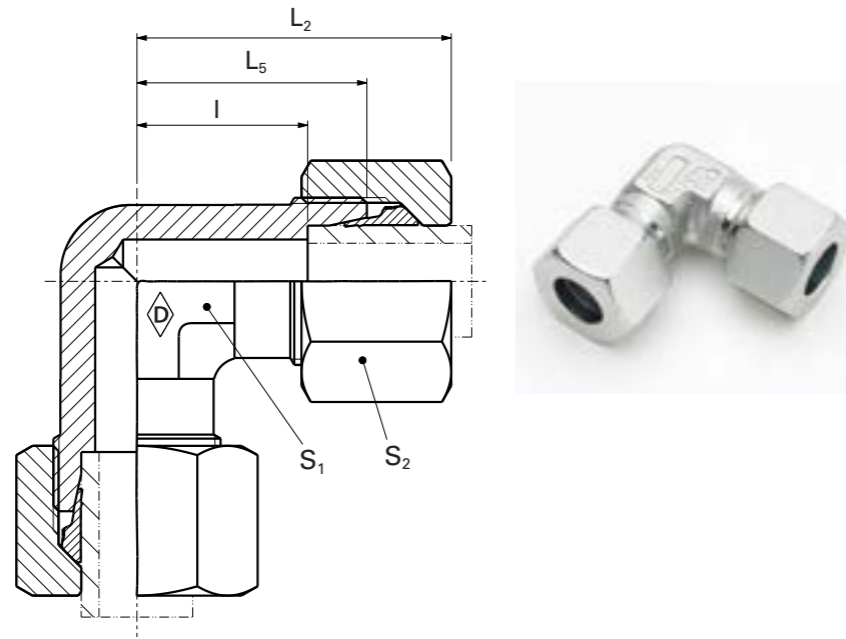
Series	PN bar (psi)	Tube outer diameter 1	Tube outer diameter 2	Model	kg/100 pc.	L ₂	L ₅	I ₁	S ₁	S ₂	S ₃	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter 1	Tube outer diameter 2	Model	kg/100 pc.	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)			
																						Walpro P-GV ... / ...	Walpro stainless steel P-GV ... / ... -1.4571*	Stud GS ... / ...	Stud Stainless steel GS ... / ... -1.4571*
LL	100 (1450)	6	4	S-GV 6/4 LL	1.8	32.5	20	10.5	11	12	10	WAL060065	WAL623072	LL	100 (1450)	6	4	GS 6/4 LL	0.7	WAL060066	WAL623073				
		8	4	S-GV 8/4 LL	2.1	34	22	12.5	12	14	10	WAL024214	WAL623074			8	4	GS 8/4 LL	0.8	WAL025120	WAL623075				
	500 (7252)	8	6	P-GV 8/6 L	4.4	40	25	11	14	17	14	WAL374530	WAL620872	500 (7252)	8	6	GS 8/6 L	1.6	WAL029475	WAL061625	WAL624608	WAL625941	WAL625981		
		10	6	P-GV 10/6 L	5.4	41	26	12	17	19	14	WAL374531	WAL620857		10	6	GS 10/6 L	2.0	WAL029476	WAL617445	WAL624609	WAL625942	WAL625982		
		10	8	P-GV 10/8 L	5.6	41	26	12	17	19	17	WAL602920	WAL620156		10	8	GS 10/8 L	2.1	WAL029477	WAL061627	WAL624609	WAL625942	WAL625982		
		12	6	P-GV 12/6 L	6.4	42	27	13	19	22	14	WAL602654	WAL621005		12	6	GS 12/6 L	2.3	WAL063441	WAL066615	WAL624610	WAL625943	WAL625983		
		12	8	P-GV 12/8 L	7.2	42	27	13	19	22	17	WAL374532	WAL620190		12	8	GS 12/8 L	2.3	WAL029478	WAL066613	WAL624610	WAL625943	WAL625983		
		12	10	P-GV 12/10 L	8.0	43	28	14	19	22	19	WAL374533	WAL620548		12	10	GS 12/10 L	2.5	WAL029479	WAL605070	WAL624610	WAL625943	WAL625983		
	L	400 (5801)	15	10	P-GV 15/10 L	11.4	44.5	29	15	24	27	19	WAL374534	WAL620841	L	400 (5801)	15	10	GS 15/10 L	4.4	WAL060223	WAL617448	WAL624611	WAL625944	WAL625984
			15	12	P-GV 15/12 L	11.8	44.5	29	15	24	27	22	WAL374535	WAL620616			15	12	GS 15/12 L	4.2	WAL029480	WAL604558	WAL624611	WAL625944	WAL625984
		18	10	P-GV 18/10 L	14.1	46	30	15.5	27	32	19	WAL602655	WAL620575	18		10	GS 18/10 L	6.0	WAL024917	WAL605347	WAL624612	WAL625945	WAL625985		
		18	12	P-GV 18/12 L	15.7	46	30	15.5	27	32	22	WAL374536	WAL620574	18		12	GS 18/12 L	5.9	WAL029663	WAL605346	WAL624612	WAL625945	WAL625985		
18		15	P-GV 18/15 L	17.5	47.5	31	16.5	27	32	27	WAL374537	WAL620615	18	15		GS 18/15 L	6.1	WAL029482	WAL605919	WAL624612	WAL625945	WAL625985			
22		15	P-GV 22/15 L	21.4	49.5	33	18.5	32	36	27	WAL374538	WAL621009	22	15		GS 22/15 L	7.9	WAL024355	WAL617451	WAL624613	WAL625946	WAL625986			
250 (3626)	22	18	P-GV 22/18 L	23.8	50	33	18.21	32	36	32	WAL374762	WAL620833	250 (3626)	22	18	GS 22/18 L	8.3	WAL061992	WAL617452	WAL624613	WAL625946	WAL625986			
	28	22	P-GV 28/22 L	32.6	54	36	21	41	41	36	WAL604368	WAL620900		28	22	GS 28/22 L	13.0	WAL024889	WAL615418	WAL624614	WAL625947	WAL625987			
S	630 (9137)	16	12	P-GV 16/12 S	22.3	54	36	20	27	30	24	WAL374539	WAL620573	S	630 (9137)	16	12	GS 16/12 S	8.2	WAL029481	WAL371138	WAL624621	WAL625954	WAL625994	
		20	16	P-GV 20/16 S	30.0	62.5	42	23	32	36	30	WAL374540	WAL621024			20	16	GS 20/16 S	13.1	WAL025197	WAL612801	WAL624622	WAL625955	WAL625995	
	25	16	P-GV 25/16 S	52.6	68	46	25.5	41	46	30	WAL604471	WAL621025	420 (6091)		25	16	GS 25/16 S	22.3	WAL060853	WAL615211	WAL624623	WAL625956	WAL625996		
	25	20	P-GV 25/20 S	55.2	71	48	25.5	41	46	36	WAL374541	WAL621026			25	20	GS 25/20 S	23.4	WAL063230	WAL617469	WAL624623	WAL625956	WAL625996		

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂ = approximate dimension if the union nut is tightened

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-WV ...

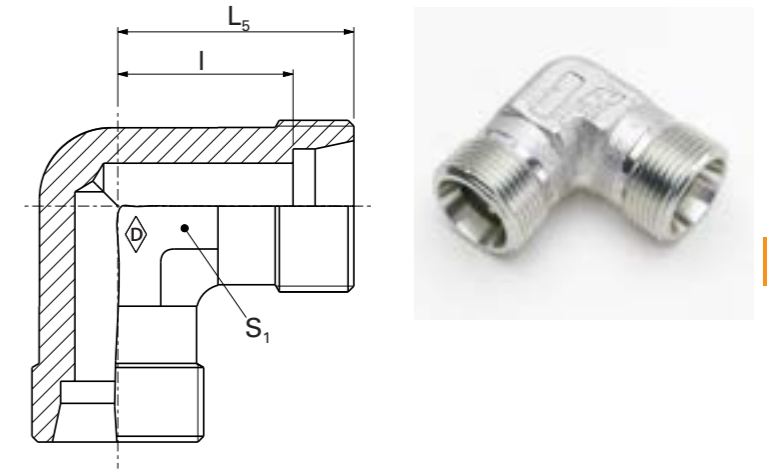
P-WV ... -1.4571



E

WS ...

WS ... -1.4571



E

											System nuts for supplementing the stud (for technical data, see part D of this catalog)												
											Stud WS ...	Stud Stainless steel WS ... -1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*								
Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L ₂	L ₅	I	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.		
LL	100 (1450)	4	S-WV 4 LL	2.5	21	15	11	9	10	WAL038576	WAL604071	LL	100 (1450)	4	WS 4 LL	1.2	WAL037863	WAL604070					
		6	S-WV 6 LL	2.7	21	15	9.5	9	12	WAL038578	WAL061566			6	WS 6 LL	1.4	WAL037865	WAL061567					
		8	S-WV 8 LL	3.8	23	17	11.5	12	14	WAL038579	WAL065336			8	WS 8 LL	2.2	WAL037866	WAL065337					
L	500 (7252)	6	P-WV 6 L	4.9	27	19	12	12	14	WAL373385	WAL620074	L	500 (7252)	6	WS 6 L	2.8	WAL037867	WAL025576	WAL624607	WAL625940	WAL625980		
		8	P-WV 8 L	7.6	29	21	14	12	17	WAL373386	WAL620075			8	WS 8 L	4.1	WAL037868	WAL025577	WAL624608	WAL625941	WAL625981		
		10	P-WV 10 L	9.6	30	22	15	14	19	WAL373387	WAL620076			10	WS 10 L	5.7	WAL037869	WAL025578	WAL624609	WAL625942	WAL625982		
	400 (5801)	12	P-WV 12 L	13.5	32	24	17	17	22	WAL373388	WAL620077		400 (5801)	400 (5801)	12	WS 12 L	8	WAL037870	WAL025579	WAL624610	WAL625943	WAL625983	
		15	P-WV 15 L	15.8	36	28	21	19	27	WAL373389	WAL620078				15	WS 15 L	7.5	WAL037871	WAL025580	WAL624611	WAL625944	WAL625984	
		18	P-WV 18 L	23.9	40	31	23.5	24	32	WAL373390	WAL620079				18	WS 18 L	11.2	WAL037872	WAL025581	WAL624612	WAL625945	WAL625985	
		22	P-WV 22 L	31.7	44	35	27.5	27	36	WAL373391	WAL620080				22	WS 22 L	14.9	WAL037873	WAL025582	WAL624613	WAL625946	WAL625986	
	250 (3626)	28	P-WV 28 L	42.0	47	38	30.5	36	41	WAL373392	WAL620081		250 (3626)	250 (3626)	28	WS 28 L	25.2	WAL037874	WAL025583	WAL624614	WAL625947	WAL625987	
		35	P-WV 35 L	75.9	56	45	34.5	41	50	WAL373393	WAL620082				35	WS 35 L	46.5	WAL037875	WAL025584	WAL624615	WAL625948	WAL625988	
	S	800 (11603)	42	P-WV 42 L	107.8	63	51	40	50	60	WAL373394		WAL620083	S	800 (11603)	42	WS 42 L	61.6	WAL037876	WAL025585	WAL624616	WAL625949	WAL625989
6			P-WV 6 S	8.5	31	23	16	12	17	WAL373395	WAL620084	630 (9137)	630 (9137)			6	WS 6 S	9.4	WAL037877	WAL025586	WAL624617	WAL625950	WAL625990
8			P-WV 8 S	11.7	32	24	17	14	19	WAL373396	WAL620085					8	WS 8 S	7.2	WAL037878	WAL025587	WAL624618	WAL625951	WAL625991
630 (9137)		10	P-WV 10 S	16.1	34	25	17.5	17	22	WAL373397	WAL620086	630 (9137)	630 (9137)		10	WS 10 S	9.7	WAL037879	WAL025588	WAL624619	WAL625952	WAL625992	
		12	P-WV 12 S	20.5	38	29	21.5	17	24	WAL373398	WAL620087				12	WS 12 S	13.6	WAL037880	WAL025589	WAL624620	WAL625953	WAL625993	
		14	P-WV 14 S	20.7	40	30	22	19	27	WAL373399	WAL621652				14	WS 14 S	9.8	WAL037881	WAL025590				
		16	P-WV 16 S	25.0	43	33	24.5	24	30	WAL373400	WAL620088				16	WS 16 S	14.4	WAL037882	WAL025591	WAL624621	WAL625954	WAL625994	
420 (6091)		20	P-WV 20 S	40.7	48	37	26.5	27	36	WAL373401	WAL620089	420 (6091)	420 (6091)		20	WS 20 S	20	WAL037883	WAL025592	WAL624622	WAL625955	WAL625995	
		25	P-WV 25 S	77.6	54	42	30	36	46	WAL373402	WAL620090				25	WS 25 S	36.5	WAL037884	WAL025593	WAL624623	WAL625956	WAL625996	
		30	P-WV 30 S	97.4	62	49	35.5	41	50	WAL373403	WAL620091				30	WS 30 S	46.5	WAL037885	WAL025594	WAL624624	WAL625957	WAL625997	
	38	P-WV 38 S	131.8	72	57	41	50	60	WAL373404	WAL620092	38			WS 38 S	66	WAL037886	WAL025595	WAL624625	WAL625958	WAL625998			

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

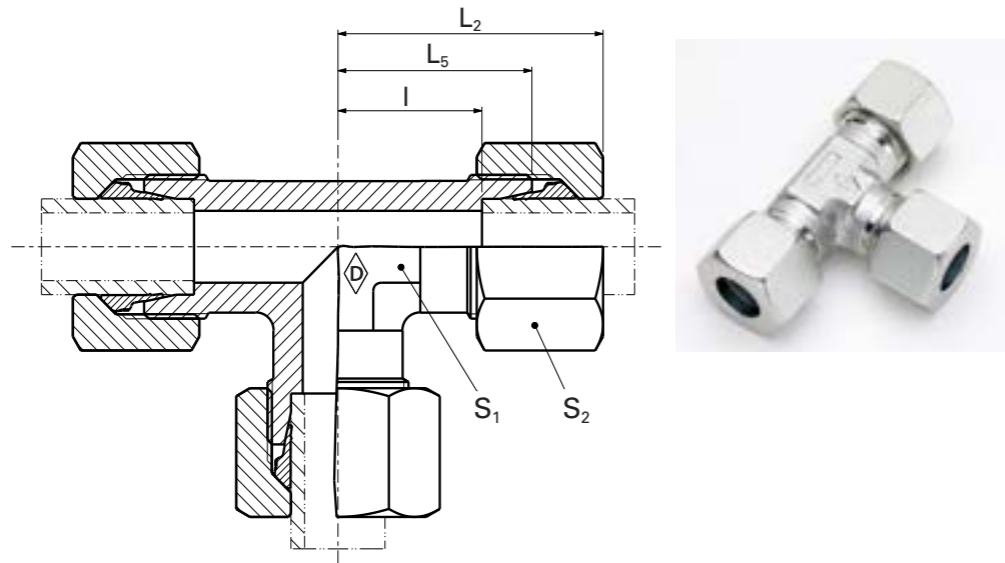
*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₂ = approximate dimension if the union nut is tightened

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

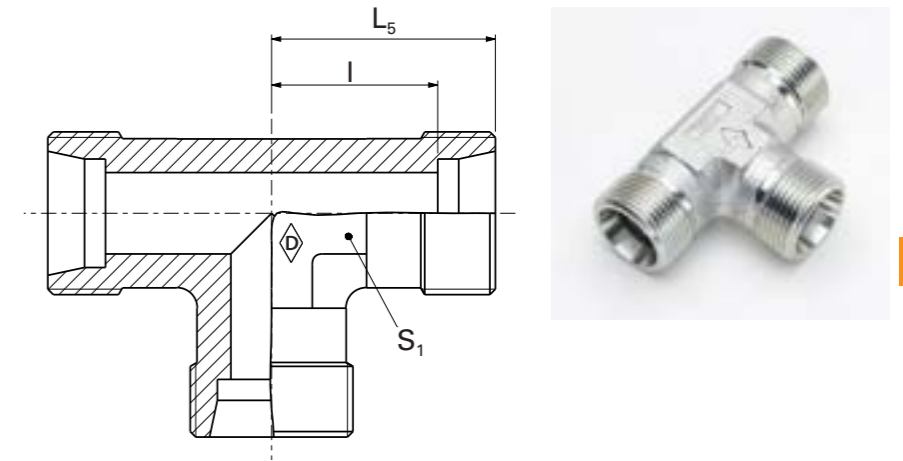
P-TV ...

P-TV ... -1.4571



TS ...

TS ... -1.4571



												System nuts for supplementing the stud (for technical data, see part D of this catalog)										
												Stud TS ...	Stud Stainless steel TS ... -1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*						
Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L ₂	L ₅	I	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	DIN 2353	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.
LL	100 (1450)	4	S-TV 4 LL	2.8	21	15	11	8	10	WAL038600	WAL609123	LL	100 (1450)	4	TS 4 LL	1.4	QLL 4	WAL037887	WAL617473			
		6	S-TV 6 LL	3.7	21	15	9.5	10	12	WAL038602	WAL065338			6	TS 6 LL	1.7	QLL 6	WAL037889	WAL065339			
		8	S-TV 8 LL	5.1	23	17	11.5	12	14	WAL038603	WAL065340			8	TS 8 LL	2.5	QLL 8	WAL037890	WAL065341			
L	500 (7252)	6	P-TV 6 L	7.1	27	19	12	12	14	WAL373408	WAL620093	L	500 (7252)	6	TS 6 L	3.4	QL 6	WAL037891	WAL025596	WAL624607	WAL625940	WAL625980
		8	P-TV 8 L	10.1	29	21	14	14	17	WAL373409	WAL620094			8	TS 8 L	5.2	QL 8	WAL037892	WAL025597	WAL624608	WAL625941	WAL625981
		10	P-TV 10 L	13.0	30	22	15	17	19	WAL373410	WAL620095			10	TS 10 L	6.3	QL 10	WAL037893	WAL025598	WAL624609	WAL625942	WAL625982
	400 (5801)	12	P-TV 12 L	17.7	32	24	17	19	22	WAL373411	WAL620096		400 (5801)	12	TS 12 L	8.6	QL 12	WAL037894	WAL025599	WAL624610	WAL625943	WAL625983
		15	P-TV 15 L	23.2	36	28	21	19	27	WAL373412	WAL620097			15	TS 15 L	8.9	QL 15	WAL037895	WAL025600	WAL624611	WAL625944	WAL625984
		18	P-TV 18 L	35.4	40	31	23.5	24	32	WAL373413	WAL620098			18	TS 18 L	14.7	QL 18	WAL037896	WAL025601	WAL624612	WAL625945	WAL625985
250 (3626)	22	P-TV 22 L	44.3	44	35	27.5	27	36	WAL373414	WAL620099	250 (3626)	22	TS 22 L	19.6	QL 22	WAL037897	WAL025602	WAL624613	WAL625946	WAL625986		
	28	P-TV 28 L	61.1	47	38	30.5	36	41	WAL373415	WAL620100		28	TS 28 L	33.4	QL 28	WAL037898	WAL025603	WAL624614	WAL625947	WAL625987		
	35	P-TV 35 L	90.1	56	45	34.5	41	50	WAL373416	WAL620101		35	TS 35 L	49.5	QL 35	WAL037899	WAL025604	WAL624615	WAL625948	WAL625988		
S	800 (11603)	42	P-TV 42 L	136.8	63	51	40	50	60	WAL373417	WAL620102	S	800 (11603)	42	TS 42 L	67.5	QL 42	WAL037900	WAL025605	WAL624616	WAL625949	WAL625989
		6	P-TV 6 S	12.0	31	23	16	12	17	WAL373418	WAL620103			6	TS 6 S	6.1	QS 6	WAL037901	WAL025606	WAL624617	WAL625950	WAL625990
		8	P-TV 8 S	15.7	32	24	17	17	19	WAL373419	WAL620104			8	TS 8 S	8.6	QS 8	WAL037902	WAL025607	WAL624618	WAL625951	WAL625991
	630 (9137)	10	P-TV 10 S	21.2	34	25	17.5	19	22	WAL373420	WAL620105		630 (9137)	10	TS 10 S	10.8	QS 10	WAL037903	WAL025608	WAL624619	WAL625952	WAL625992
		12	P-TV 12 S	28.5	38	29	21.5	22	24	WAL373421	WAL620106			12	TS 12 S	16.0	QS 12	WAL037904	WAL025609	WAL624620	WAL625953	WAL625993
		14	P-TV 14 S	28.5	40	30	22	19	27	WAL373422	WAL621643			14	TS 14 S	13.2	QS 14	WAL037905	WAL025610			
	420 (6091)	16	P-TV 16 S	35.7	43	33	24.5	24	30	WAL373423	WAL620107		420 (6091)	16	TS 16 S	16.0	QS 16	WAL037906	WAL025611	WAL624621	WAL625954	WAL625994
		20	P-TV 20 S	55.8	48	37	26.5	27	36	WAL373424	WAL620108			20	TS 20 S	26.8	QS 20	WAL037907	WAL025612	WAL624622	WAL625955	WAL625995
		25	P-TV 25 S	106.7	54	42	30	36	46	WAL373425	WAL620109			25	TS 25 S	46.0	QS 25	WAL037908	WAL025613	WAL624623	WAL625956	WAL625996
		30	P-TV 30 S	134.9	62	49	35.5	41	50	WAL373426	WAL620110			30	TS 30 S	71.4	QS 30	WAL037909	WAL025614	WAL624624	WAL625957	WAL625997
		38	P-TV 38 S	202.2	72	57	41	50	60	WAL373427	WAL620111			38	TS 38 S	103.5	QS 38	WAL037910	WAL025615	WAL624625	WAL625958	WAL625998

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

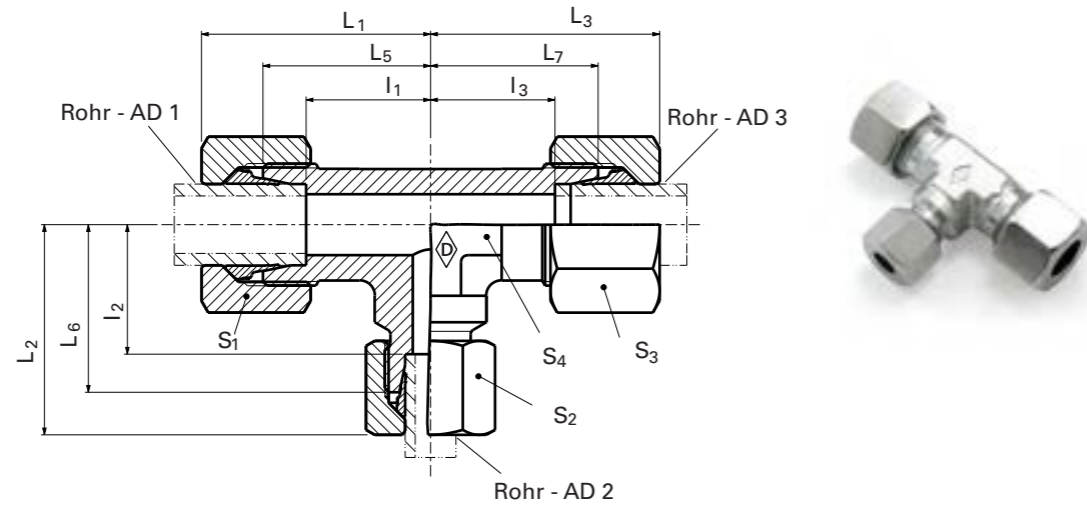
*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₂ = approximate dimension if the union nut is tightened

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-TV 1 / 2 / 3

- L1, L2 and L3 = approximate dimensions if the union nuts are tightened
- Light-duty range

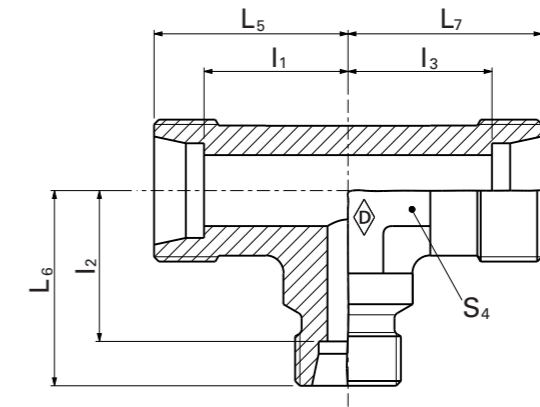


E

Series	PN bar (psi)	Tube outer diameter 1	Tube outer diameter 2	Tube outer diameter 3	Model	I ₁	I ₂	I ₃	L ₁	L ₂	L ₃	L ₅	L ₆	L ₇	S ₁	S ₂	S ₃	S ₄	Art. no.	
L	500 (7252)	10	6	10	P-TV 10/6/10 L	15	15	15	30	30	30	22	22	22	17	19	14	14	WAL374542	
		10	8	10	P-TV 10/8/10 L	15	15	15	30	30	30	22	22	22	17	19	17	14	WAL374543	
		12	6	12	P-TV 12/6/12 L	17	17	17	32	32	32	24	24	24	22	22	14	17	WAL602635	
		12	8	12	P-TV 12/8/12 L	17	17	17	32	32	32	24	24	24	22	22	17	17	WAL374544	
		12	10	12	P-TV 12/10/12 L	17	17	17	32	32	32	24	24	24	22	22	19	17	WAL374545	
		12	15	12	P-TV 12/15/12 L	21	21	21	36	36	36	28	28	28	22	22	27	19	WAL374546	
		15	12	12	P-TV 15/12/12 L	21	21	21	36	36	36	28	28	28	27	22	22	19	WAL374549	
	400 (5801)	15	15	12	P-TV 15/15/12 L	21	21	21	36	36	36	28	28	28	27	22	27	19	WAL606957	
		15	8	15	P-TV 15/8/15 L	21	21	21	36	36	36	28	28	28	27	27	17	19	WAL374547	
		15	10	15	P-TV 15/10/15 L	21	21	21	36	36	36	28	28	28	27	27	19	19	WAL605187	
		15	12	15	P-TV 15/12/15 L	21	21	21	36	36	36	28	28	28	27	27	22	19	WAL374548	
		18	12	12	P-TV 18/12/12 L	23.5	24	24	40	39	39	31	31	31	32	22	22	24	24	WAL374552
		18	10	18	P-TV 18/10/18 L	23.5	23.5	24	40	40	39	31	31	31	32	32	19	24	24	WAL374550
		18	12	18	P-TV 18/12/18 L	23.5	23.5	24	40	40	39	31	31	31	32	32	22	24	24	WAL374551
	250 (3626)	18	15	18	P-TV 18/15/18 L	23.5	23.5	24	40	40	39	31	31	31	32	32	27	24	24	WAL605018
22		10	22	P-TV 22/10/22 L	27.5	27.5	28	44	44	43	35	35	35	36	36	19	27	27	WAL373553	
22		15	22	P-TV 22/15/22 L	27.5	27.5	28	44	44	43	35	35	35	36	36	27	27	27	WAL374554	
28		22	22	P-TV 28/22/22 L	30.5	30.5	30.5	47	47	47	38	38	38	41	36	36	36	36	WAL606590	
28		22	28	P-TV 28/22/28 L	30.5	30.5	30.5	47	47	47	38	38	38	41	41	36	36	36	WAL605916	

L₁, L₂ and L₃ = approximate dimensions if the union nuts are tightened

TS 1 / 2 / 3

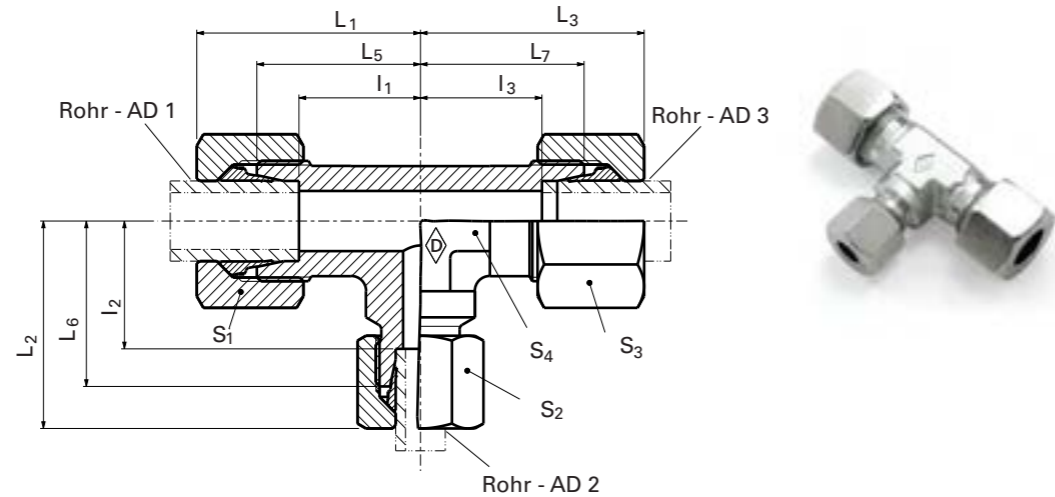


E

Series	PN bar (psi)	Tube outer diameter 1	Tube outer diameter 2	Tube outer diameter 3	Model	I ₁	I ₂	I ₃	L ₅	L ₆	L ₇	S ₄	Art. no.
L	500 (7252)	10	6	10	TS 10/6/10 L								WAL027761
		10	8	10	TS 10/8/10 L								WAL029472
		12	6	12	TS 12/6/12 L								WAL025465
		12	8	12	TS 12/8/12 L								WAL027710
		12	10	12	TS 12/10/12 L								WAL024215
		12	15	12	TS 12/15/12 L								WAL060044
		15	12	12	TS 15/12/12 L								WAL028939
	400 (5801)	15	15	12	TS 15/15/12 L								WAL024959
		15	8	15	TS 15/8/15 L								WAL025033
		15	10	15	TS 15/10/15 L								WAL060051
		15	12	15	TS 15/12/15 L								WAL029473
		18	12	12	TS 18/12/12 L								WAL064007
		18	10	18	TS 18/10/18 L								WAL029620
		18	12	18	TS 18/12/18 L								WAL028666
	250 (3626)	18	15	18	TS 18/15/18 L								WAL066450
22		10	22	TS 22/10/22 L								WAL025467	
22		15	22	TS 22/15/22 L								WAL060866	
28		22	22	TS 28/22/22 L								WAL063243	
28		22	28	TS 28/22/28 L								WAL060956	

P-TV 1 / 2 / 3

- L1, L2 and L3 = approximate dimensions if the union nuts are tightened
- Heavy-duty range

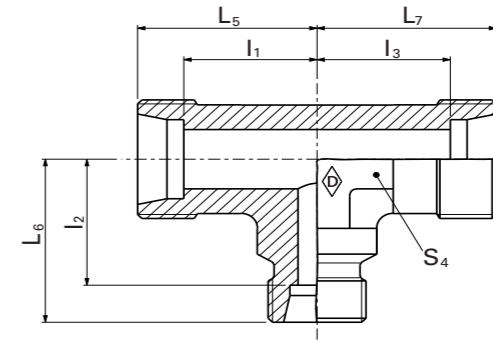


E

Series	PN bar (psi)	Tube outer diameter 1	Tube outer diameter 2	Tube outer diameter 3	L ₁	L ₂	L ₃	L ₁	L ₂	L ₃	L ₅	L ₆	L ₇	S ₁	S ₂	S ₃	S ₄
S	630 (9137)	12	16	12	25.5	25.5	24.5	42	42	43	33	33	33	24	24	30	24
		16	10	16	24.5	24.5	25.5	43	43	42	33	33	33	30	30	22	24
		16	12	16	24.5	25.5	25.5	43	43	42	33	33	33	30	30	24	24
		16	12	12	24.5	25.5	25.5	43	42	38	33	33	29	30	30	24	24
		16	6	16	24.5	24.5	26	43	43	41	33	33	33	30	30	17	24
		16	25	16	33.5	33.5	30	52	52	54	42	42	42	30	30	46	36
		16	20	16	28.5	28.5	26.5	47	47	48	37	37	37	30	30	36	27
		20	25	20	31.5	31.5	30	53	53	54	42	42	42	36	36	46	36
		20	20	16	36.5	28.5	36.5	48	47	48	37	37	37	36	30	36	27
		20	16	16	26.5	28.5	24.5	48	47	43	37	37	33	36	30	30	27
	420 (6091)	20	10	20	26.5	26.5	29.5	48	48	46	37	37	37	36	36	22	27
	20	12	20	26.5	26.5	29.5	48	48	47	37	37	37	36	36	24	27	
	25	12	25	30	30	34.5	54	54	51	42	42	42	46	46	24	36	
	25	16	25	30	30	33.5	54	54	52	42	42	42	46	46	30	36	
	25	20	25	30	30	31.5	54	54	53	42	42	42	46	46	36	36	
	30	20	30	35.5	35.5	38.5	62	62	60	49	49	49	50	50	36	41	
	30	25	30	35.5	35.5	37	62	62	61	49	49	49	50	50	46	41	
	30	30	20	35.5	33	35.5	62	60	62	49	49	49	50	36	50	41	
	30	30	16	35.5	40.5	35.5	62	59	62	49	49	49	50	30	50	41	
	30	38	30	43.5	43.5	41	70	70	72	57	57	57	50	50	60	50	
400 (5801)	20	16	20	26.5	26.5	28.5	48	48	47	37	37	37	36	36	30	27	
25	38	25	41	45	41	69	69	72	57	57	57	46	46	60	50		
38	20	38	41	41	46.5	72	72	68	57	57	57	60	46	46	50		
38	25	25	41	45	45	72	69	69	57	57	57	60	46	46	50		
38	25	38	41	41	41	72	72	65	57	57	53	60	60	46	50		
38	38	25	41	45	41	72	69	72	57	57	57	60	46	60	50		

L₁, L₂ and L₃ = approximate dimensions if the union nuts are tightened

TS 1 / 2 / 3

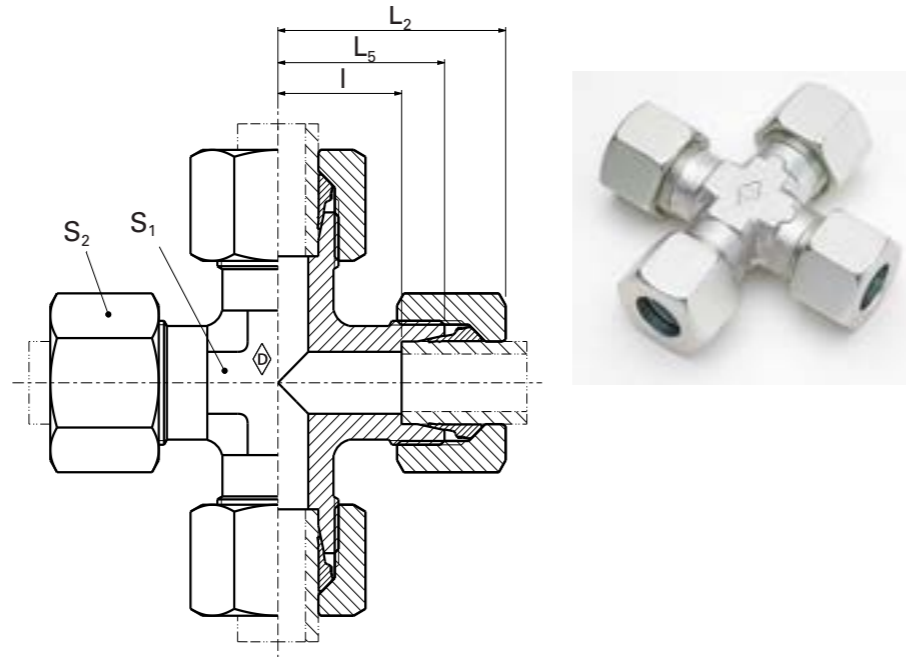


E

Series	PN bar (psi)	Tube outer diameter 1	Tube outer diameter 2	Tube outer diameter 3	Model	Art. no.
S	630 (9137)	12	16	12	TS 12/16/12 S	WAL066485
		16	10	16	TS 16/10/16 S	WAL025263
		16	12	16	TS 16/12/16 S	WAL067362
		16	12	12	TS 16/12/12 S	WAL612794
		16	6	16	TS 16/6/16 S	WAL615645
		16	25	16	TS 16/25/16 S	WAL613187
		16	20	16	TS 16/20/16 S	WAL611432
		20	25	20	TS 20/25/20 S	WAL612080
		20	20	16	TS 20/20/16 S	WAL612792
		20	16	16	TS 20/16/16 S	WAL612793
	420 (6091)	20	10	20	TS 20/10/20 S	WAL024178
	20	12	20	TS 20/12/20 S	WAL617083	
	25	12	25	TS 25/12/25 S	WAL025200	
	25	16	25	TS 25/16/25 S	WAL615644	
	25	20	25	TS 25/20/25 S	WAL060872	
	30	20	30	TS 30/20/30 S	WAL615640	
	30	25	30	TS 30/25/30 S	WAL624322	
	30	30	20	TS 30/30/20 S	WAL624323	
	30	30	16	TS 30/30/16 S	WAL624743	
	30	38	30	TS 30/38/30 S	WAL060874	
400 (5801)	20	16	20	TS 20/16/20 S	WAL615641	
25	38	25	TS 25/38/25 S	WAL615638		
38	20	38	TS 38/20/38 S	WAL615639		
38	25	25	TS 38/25/25 S	WAL615637		
38	25	38	TS 38/25/38 S	WAL615642		
38	38	25	TS 38/38/25 S	WAL618539		

P-KV ...

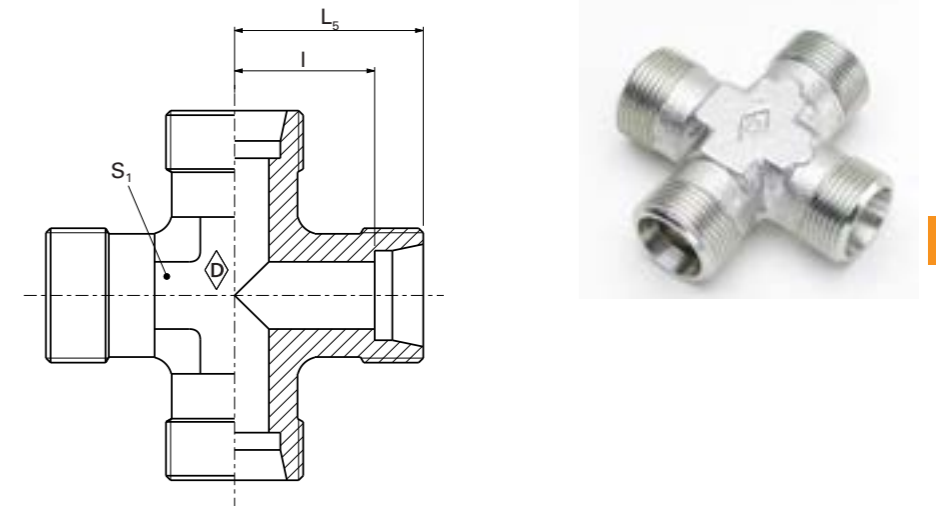
P-KV ... -1.4571



E

KS ...

KS ... -1.4571



E

												System nuts for supplementing the stud (for technical data, see part D of this catalog)									
												Stud KS ...	Stud Stainless steel KS ... -1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*					
Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L ₂	L ₅	L	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.
LL	100 (1450)	4	S-KV 4 LL	3.0	21	15	11	9	10	WAL038624	WAL623076	LL	100 (1450)	4	KS 4 LL	1.5	WAL037911	WAL623077			
		6	S-KV 6 LL	4.0	21	15	9.5	9	12	WAL038626	WAL623078			6	KS 6 LL	1.5	WAL037913	WAL623079			
		8	S-KV 8 LL	6.0	23	17	11.5	12	14	WAL038627	WAL623080			8	KS 8 LL	2.6	WAL037914	WAL623081			
L	500 (7252)	6	P-KV 6 L	7.7	27	19	12	12	14	WAL373431	WAL620368	L	500 (7252)	6	KS 6 L	3.5	WAL037915	WAL372737	WAL624607	WAL625940	WAL625980
		8	P-KV 8 L	10.9	29	21	14	12	17	WAL373432	WAL621030			8	KS 8 L	4.1	WAL037916	WAL372105	WAL624608	WAL625941	WAL625981
		10	P-KV 10 L	15.5	30	22	15	14	19	WAL373433	WAL620446			10	KS 10 L	4.6	WAL037917	WAL370719	WAL624609	WAL625942	WAL625982
	400 (5801)	12	P-KV 12 L	19.2	32	24	17	17	22	WAL373434	WAL620442	L	400 (5801)	12	KS 12 L	7.3	WAL037918	WAL604343	WAL624610	WAL625943	WAL625983
		15	P-KV 15 L	31.1	36	28	21	19	27	WAL373435	WAL620355			15	KS 15 L	12.5	WAL037919	WAL372319	WAL624611	WAL625944	WAL625984
		18	P-KV 18 L	48.3	40	31	23.5	24	32	WAL373436	WAL620670			18	KS 18 L	18.2	WAL037920	WAL374733	WAL624612	WAL625945	WAL625985
250 (5801)	250 (5801)	22	P-KV 22 L	72.4	44	35	27.5	27	36	WAL373437	WAL620529	L	250 (5801)	22	KS 22 L	23.5	WAL037921	WAL371815	WAL624613	WAL625946	WAL625986
		28	P-KV 28 L	101.1	47	38	30.5	36	41	WAL373438	WAL621031			28	KS 28 L	64.0	WAL037922	WAL617474	WAL624614	WAL625947	WAL625987
		35	P-KV 35 L	122.8	56	45	34.5	41	50	WAL373439	WAL621032			35	KS 35 L	64.0	WAL037923	WAL617475	WAL624615	WAL625948	WAL625988
		42	P-KV 42 L	175.6	63	51	40	50	60	WAL373440	WAL620671			42	KS 42 L	83.2	WAL037924	WAL605168	WAL624616	WAL625949	WAL625989
800 (11603)	800 (11603)	6	P-KV 6 S	12.3	31	23	16	12	17	WAL373441	WAL621033	L	800 (11603)	6	KS 6 S	6.1	WAL037925	WAL617476	WAL624617	WAL625950	WAL625990
		8	P-KV 8 S	14.8	32	24	17	14	19	WAL373442	WAL620649			8	KS 8 S	8.1	WAL037926	WAL617477	WAL624618	WAL625951	WAL625991
		10	P-KV 10 S	23.0	34	25	17.5	17	22	WAL373443	WAL620498			10	KS 10 S	10.4	WAL037927	WAL604780	WAL624619	WAL625952	WAL625992
630 (9137)	630 (9137)	12	P-KV 12 S	28.2	38	29	21.5	17	24	WAL373444	WAL620522	L	630 (9137)	12	KS 12 S	13.7	WAL037928	WAL604969	WAL624620	WAL625953	WAL625993
		14	P-KV 14 S	35.4	40	30	22	19	27	WAL373445	WAL621534			14	KS 14 S	16.5	WAL037929	WAL617478			
		16	P-KV 16 S	45.1	43	33	24.5	24	30	WAL373446	WAL621034			16	KS 16 S	22.4	WAL037930	WAL371676	WAL624621	WAL625954	WAL625994
		20	P-KV 20 S	70.4	48	37	26.5	27	36	WAL373447	WAL620906			20	KS 20 S	29.0	WAL037931	WAL617479	WAL624622	WAL625955	WAL625995
420 (6091)	420 (6091)	25	P-KV 25 S	125.7	54	42	30	36	46	WAL373448	WAL620515	L	420 (6091)	25	KS 25 S	43.5	WAL037932	WAL604892	WAL624623	WAL625956	WAL625996
		30	P-KV 30 S	150.3	62	49	35.5	41	50	WAL373449	WAL621035			30	KS 30 S	58.5	WAL037933	WAL371178	WAL624624	WAL625957	WAL625997
400 (5801)	400 (5801)	38	P-KV 38 S	205.1	72	57	41	50	60	WAL373450	WAL621036	L	400 (5801)	38	KS 38 S	73.5	WAL037934	WAL604807	WAL624625	WAL625958	WAL625998

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

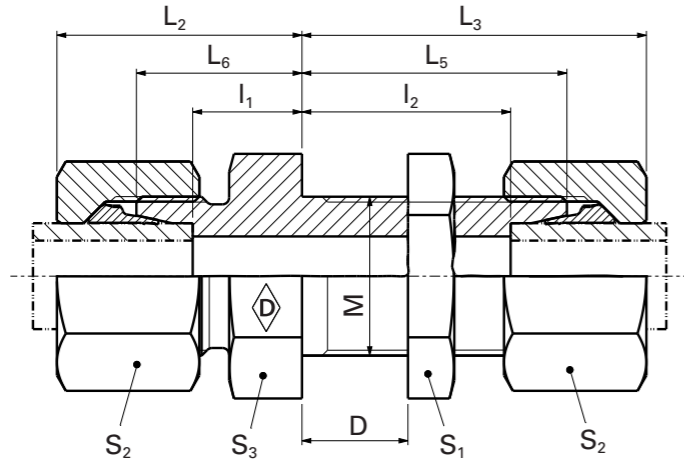
*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₂ = approximate dimension if the union nut is tightened

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-GSV ...

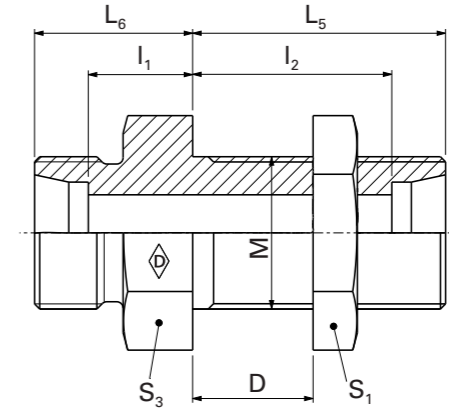
P-GSV ... -1.4571



E

GSS ...

GSS ... -1.4571



E

Series	PN bar (psi)	Tube outer diameter	Model	M	D min.	D max.	kg/100 pc.	L ₆	L ₅	L ₃	L ₂	I ₁	I ₂	*S ₁	S ₂	S ₃	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)					
																			Walpro P-GSV ...	Walpro stainless steel P-GSV ... -1.4571*	Stud GSS ...	Stainless steel stud GSS ... -1.4571*	Walring W-R ... VI	Walform WF-M ... VI
L	500 (7252)	6	P-GSV 6 L m. 6kt M	M 12 x 1.5	4	16	6.7	14	34	42	22	7	27	17	14	17	WAL373451	WAL620175	WAL606273	WAL606286	WAL624607	WAL625940	WAL625980	
		8	P-GSV 8 L m. 6kt M	M 14 x 1.5	4	16	8.4	15	34	42	23	8	27	19	17	19	WAL373452	WAL620154	WAL024147	WAL606287	WAL624608	WAL625941	WAL625981	
		10	P-GSV 10 L m. 6kt M	M 16 x 1.5	4	16	11.0	17	35	43	25	10	28	22	19	22	WAL373453	WAL620143	WAL061656	WAL606288	WAL624609	WAL625942	WAL625982	
		12	P-GSV 12 L m. 6kt M	M 18 x 1.5	4	16	13.3	17	36	44	25	10	29	24	22	24	WAL373454	WAL620137	WAL061657	WAL602786	WAL624610	WAL625943	WAL625983	
		15	P-GSV 15 L m. 6kt M	M 22 x 1.5	4	16	22.8	19	38	45	27	12	31	30	27	27	WAL373455	WAL620217	WAL061995	WAL617480	WAL624611	WAL625944	WAL625984	
		18	P-GSV 18 L m. 6kt M	M 26 x 1.5	4	16	33.2	21	40	49	30	13.5	32.5	36	32	32	WAL373456	WAL620194	WAL061658	WAL605445	WAL624612	WAL625945	WAL625985	
	250 (3626)	22	P-GSV 22 L m. 6kt M	M 30 x 2	5	16	41.5	44	42	51	33	16.5	34.5	41	36	36	WAL373457	WAL620195	WAL063759	WAL612436	WAL624613	WAL625946	WAL625986	
		28	P-GSV 28 L m. 6kt M	M 36 x 2	5	16	52.5	26	43	52	35	18.5	35.5	46	41	41	WAL373458	WAL620192	WAL063760	WAL617481	WAL624614	WAL625947	WAL625987	
		35	P-GSV 35 L m. 6kt M	M 45 x 2	5	16	80.0	29	47	58	40	18.5	36.5	55	50	50	WAL373459	WAL620513	WAL063761	WAL617482	WAL624615	WAL625948	WAL625988	
		42	P-GSV 42 L m. 6kt M	M 52 x 2	5	16	119.3	30	47	59	42	19	36	65	60	60	WAL373460	WAL620267	WAL063762	WAL617483	WAL624616	WAL625949	WAL625989	
		800 (11603)	6	P-GSV 6 S m. 6kt M	M 14 x 1.5	4	16	9.6	19	36	44	27	12	29	19	17	19	WAL373461	WAL620135	WAL063763	WAL603960	WAL624617	WAL625950	WAL625990
			8	P-GSV 8 S m. 6kt M	M 16 x 1.5	4	16	12.4	20	36	44	28	13	29	22	19	22	WAL373462	WAL620273	WAL063764	WAL604963	WAL624618	WAL625951	WAL625991
S	630 (9137)	10	P-GSV 10 S m. 6kt M	M 18 x 1.5	4	16	18.1	22	37	46	31	14.5	29.5	24	22	24	WAL373463	WAL620206	WAL063765	WAL617063	WAL624619	WAL625952	WAL625992	
		12	P-GSV 12 S m. 6kt M	M 20 x 1.5	4	16	21.0	22	38	47	31	14.5	30.5	27	24	27	WAL373464	WAL620136	WAL063766	WAL604599	WAL624620	WAL625953	WAL625993	
		14	P-GSV 14 S m. 6kt M	M 22 x 1.5	4	16	29.0	25	40	50	35	17	32	30	27	30	WAL373465	WAL620466	WAL063767	WAL617484				
		16	P-GSV 16 S m. 6kt M	M 24 x 1.5	4	16	31.0	25	40	50	35	16.5	31.5	32	30	32	WAL373466	WAL620162	WAL063768	WAL372243	WAL624621	WAL625954	WAL625994	
		20	P-GSV 20 S m. 6kt M	M 30 x 2	5	16	54.5	28	44	55	39	17.5	33.5	41	36	41	WAL373467	WAL620234	WAL063769	WAL370731	WAL624622	WAL625955	WAL625995	
		400 (5801)	25	P-GSV 25 S m. 6kt M	M 36 x 2	5	16	89.0	32	47	59	44	20	35	46	46	46	WAL373468	WAL620193	WAL063770	WAL372244	WAL624623	WAL625956	WAL625996
30	P-GSV 30 S m. 6kt M		M 42 x 2	5	16	107.7	35	51	64	48	21.5	37.5	50	50	50	WAL373469	WAL620259	WAL063771	WAL617485	WAL624624	WAL625957	WAL625997		
		38	P-GSV 38 S m. 6kt M	M 52 x 2	5	16	173.0	38	53	68	53	22	37	65	60	65	WAL373470	WAL620392	WAL063772	WAL604964	WAL624625	WAL625958	WAL625998	

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

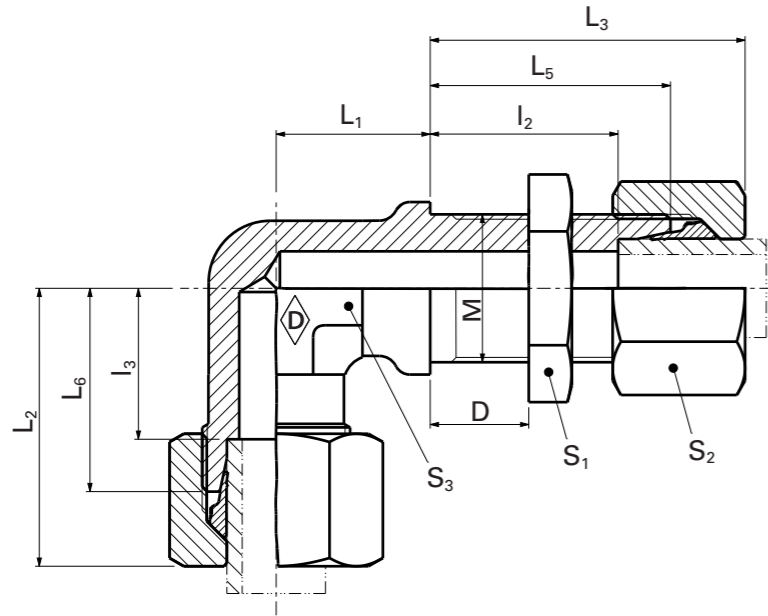
*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₂ = approximate dimension if the union nut is tightened

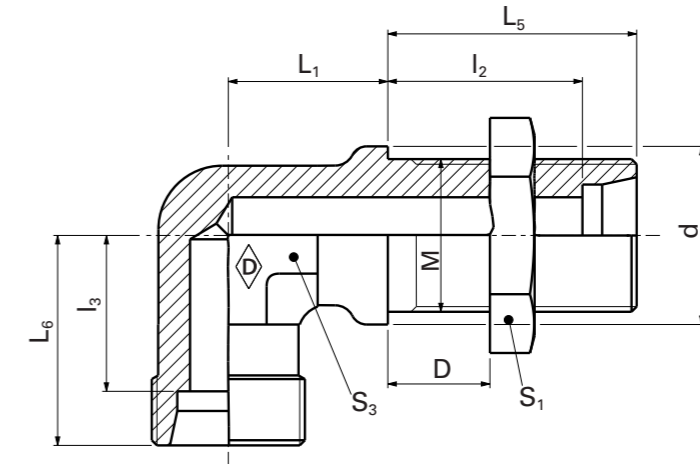
⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.



P-WSV ...
P-WSV ... -1.4571



WSS ...
WSS ... -1.4571



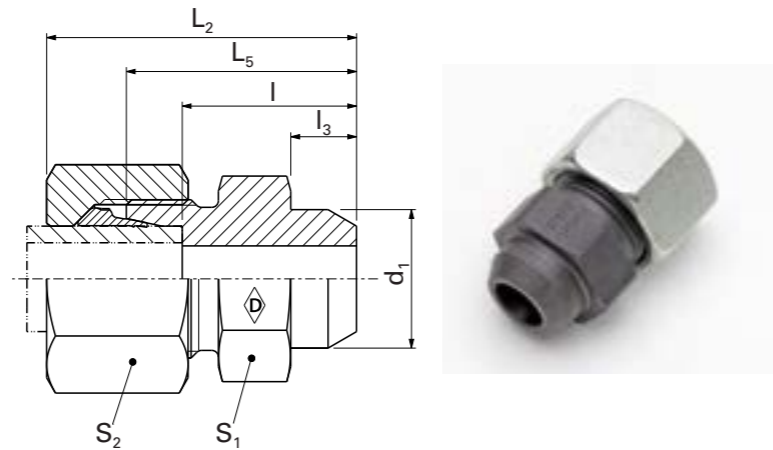
																		System nuts for supplementing the stud (for technical data, see part D of this catalog)									
																	Walpro P-WSV ...	Stainless steel stud WSS ... -1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*						
Series	PN bar (psi)	Tube outer diameter	Model	M	D min.	D max.	kg/100 pc.	L ₁	L ₂	L ₃	L ₅	L ₆	I ₁	I ₂	I ₃	d	S ₁	S ₂	S ₃	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.			
L	500 (7252)	6	P-WSV 6 L m. 6kt M	M 12 x 1.5	4	16	7.5	14	27	42	34	19	27	12	17	14	12	17	14	12	WAL373471	WAL620245	WAL624607	WAL625940	WAL625980		
		8	P-WSV 8 L m. 6kt M	M 14 x 1.5	4	16	9.9	17	29	42	34	21	27	14	19	19	17	12	19	17	12	WAL373472	WAL620480	WAL624608	WAL625941	WAL625981	
		10	P-WSV 10 L m. 6kt M	M 16 x 1.5	4	16	12.0	18	30	43	35	22	28	15	22	22	19	14	22	19	14	WAL373473	WAL620502	WAL624609	WAL625942	WAL625982	
	400 (5801)	12	P-WSV 12 L m. 6kt M	M 18 x 1.5	4	16	15.0	20	32	44	36	24	29	17	24	24	22	17	24	22	17	WAL373474	WAL620246	WAL624610	WAL625943	WAL625983	
		15	P-WSV 15 L m. 6kt M	M 22 x 1.5	4	16	25.0	23	36	46	38	28	31	21	27	30	27	19	30	27	19	WAL373475	WAL620338	WAL624611	WAL625944	WAL625984	
		18	P-WSV 18 L m. 6kt M	M 26 x 1.5	4	16	35.5	24	40	49	40	31	32.5	23.5	32	36	32	24	36	32	24	WAL373476	WAL620500	WAL624612	WAL625945	WAL625985	
	250 (3626)	22	P-WSV 22 L m. 6kt M	M 30 x 2	5	16	46.5	30	44	51	42	35	34.5	27.5	36	41	36	27	41	36	27	WAL373477	WAL620520	WAL624613	WAL625946	WAL625986	
		28	P-WSV 28 L m. 6kt M	M 36 x 2	5	16	64.0	34	47	52	43	38	35.5	30.5	42	46	41	36	46	41	36	WAL373478	WAL620552	WAL624614	WAL625947	WAL625987	
		35	P-WSV 35 L m. 6kt M	M 45 x 2	5	16	99.4	39	56	58	47	45	36.5	34.5	50	55	50	41	55	50	41	WAL373479	WAL620672	WAL624615	WAL625948	WAL625988	
	S	800 (11603)	42	P-WSV 42 L m. 6kt M	M 52 x 2	5	16	149.0	43	63	59	47	51	36	40	60	60	50	65	60	50	WAL373480	WAL620673	WAL624616	WAL625949	WAL625989	
			6	P-WSV 6 S m. 6kt M	M 14 x 1.5	4	16	10.5	17	31	44	36	23	29	16	19	19	17	12	19	17	12	WAL373481	WAL620540	WAL624617	WAL625950	WAL625990
			8	P-WSV 8 S m. 6kt M	M 16 x 1.5	4	16	14.0	18	32	44	36	24	29	17	22	22	19	14	22	19	14	WAL373482	WAL620541	WAL624618	WAL625951	WAL625991
		630 (9137)	10	P-WSV 10 S m. 6kt M	M 18 x 1.5	4	16	19.0	20	34	46	37	25	29.5	17.5	24	24	22	17	24	22	17	WAL373483	WAL620463	WAL624619	WAL625952	WAL625992
			12	P-WSV 12 S m. 6kt M	M 20 x 1.5	4	16	22.5	21	38	47	38	29	30.5	21.5	27	27	24	17	27	24	17	WAL373484	WAL620334	WAL624620	WAL625953	WAL625993
			14	P-WSV 14 S m. 6kt M	M 22 x 1.5	4	16	30.0	23	40	50	40	30	32	22	27	30	27	19	30	27	19	WAL373485	WAL620674	WAL601079	WAL625954	WAL625994
400 (5801)		16	P-WSV 16 S m. 6kt M	M 24 x 1.5	4	16	36.5	24	43	50	40	33	31.5	24.5	30	32	30	24	32	30	24	WAL373486	WAL620264	WAL624622	WAL625955	WAL625995	
		20	P-WSV 20 S m. 6kt M	M 30 x 2	5	16	58.0	30	48	55	44	37	33.5	26.5	36	41	36	27	41	36	27	WAL373487	WAL620223	WAL624623	WAL625956	WAL625996	
		25	P-WSV 25 S m. 6kt M	M 36 x 2	5	16	100.0	34	54	59	47	42	35	30	42	46	46	36	46	46	36	WAL373488	WAL620247	WAL624624	WAL625957	WAL625997	
		30	P-WSV 30 S m. 6kt M	M 42 x 2	5	16	130.0	39	62	64	51	49	37.5	35.5	50	50	50	41	50	50	41	WAL373489	WAL620675	WAL624625	WAL625958	WAL625998	
			P-WSV 38 S m. 6kt M	M 52 x 2	5	16	197.0	43	72	68	53	57	37	41	60	65	60	65	60	50	WAL373490	WAL620391					

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂ = approximate dimension if the union nut is tightened

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-ASV ...

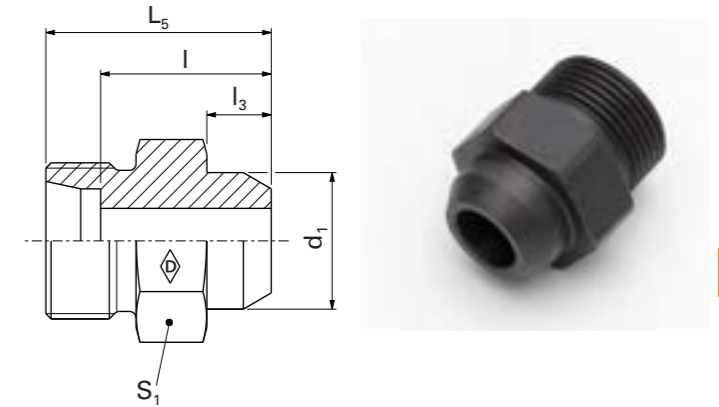
P-ASV ... -1.4571



E

ASS ...

ASS ... -1.4571



E

Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	L ₂	L ₅	I	I ₃	d ₁	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)			
																					Walpro P-ASV ...	Walpro stainless steel P-ASV ...-1.4571*	Stud ASS ...	Stainless steel stud ASS ... -1.4571*
L	500 (7252)	6	P-ASV 6 L	2.5	29	21	14	7	10	12	14	WAL373491	WAL620204	L	500 (7252)	6	ASS 6 L	1.1	WAL037975	WAL061824	WAL624607	WAL625940	WAL625980	
		8	P-ASV 8 L	3.6	31	23	16	8	12	14	17	WAL373492	WAL620271			8	ASS 8 L	1.5	WAL037976	WAL066290	WAL624608	WAL625941	WAL625981	
		10	P-ASV 10 L	4.7	33	25	18	8	14	17	19	WAL373493	WAL620220			10	ASS 10 L	2.2	WAL037977	WAL024055	WAL624609	WAL625942	WAL625982	
		12	P-ASV 12 L	6.3	33	25	18	8	16	19	22	WAL373494	WAL620221			12	ASS 12 L	2.5	WAL037978	WAL060719	WAL624610	WAL625943	WAL625983	
	400 (5801)	15	P-ASV 15 L	8.4	37	29	22	10	19	22	27	WAL373495	WAL620222	L	400 (5801)	15	ASS 15 L	4.3	WAL037979	WAL066291	WAL624611	WAL625944	WAL625984	
		18	P-ASV 18 L	13.9	40	31	23.5	10	22	27	32	WAL373496	WAL620178			18	ASS 18 L	6.6	WAL037980	WAL066292	WAL624612	WAL625945	WAL625985	
		22	P-ASV 22 L	18.1	45	36	28.5	12	27	32	36	WAL373497	WAL620208			22	ASS 22 L	9.8	WAL037981	WAL066293	WAL624613	WAL625946	WAL625986	
		28	P-ASV 28 L	30.2	47	38	30.5	12	32	41	41	WAL373498	WAL620177			28	ASS 28 L	15.9	WAL037982	WAL066294	WAL624614	WAL625947	WAL625987	
	250 (3626)	35	P-ASV 35 L	37.7	54	43	32.5	14	40	46	50	WAL373499	WAL620176	L	250 (3626)	35	ASS 35 L	23	WAL037983	WAL066295	WAL624615	WAL625948	WAL625988	
		42	P-ASV 42 L	64.1	58	46	35	16	46	55	60	WAL373500	WAL620676			42	ASS 42 L	32.7	WAL037984	WAL066296	WAL624616	WAL625949	WAL625989	
	S	800 (11603)	6	P-ASV 6 S	3.2	34	26	19	7	11	14	17	WAL373501	WAL620677	S	800 (11603)	6	ASS 6 S	2.1	WAL037985	WAL066297	WAL624617	WAL625950	WAL625990
			8	P-ASV 8 S	4.9	36	28	21	8	13	17	19	WAL373502	WAL620318			8	ASS 8 S	3.1	WAL037986	WAL066298	WAL624618	WAL625951	WAL625991
10			P-ASV 10 S	7.2	39	30	22.5	8	15	19	22	WAL373503	WAL620149	10			ASS 10 S	4.1	WAL037987	WAL061333	WAL624619	WAL625952	WAL625992	
12			P-ASV 12 S	8.3	41	32	24.5	10	17	22	24	WAL373504	WAL620231	12			ASS 12 S	5.6	WAL037988	WAL066299	WAL624620	WAL625953	WAL625993	
630 (9137)		14	P-ASV 14 S	10.8	45	35	27	10	19	24	27	WAL373505	WAL621459	S	630 (9137)	14	ASS 14 S	7.0	WAL037989	WAL066300				
		16	P-ASV 16 S	14.4	45	35	26.5	10	21	27	30	WAL373506	WAL620411			16	ASS 16 S	8.3	WAL037990	WAL066301	WAL624621	WAL625954	WAL625994	
		20	P-ASV 20 S	21.8	51	40	29.5	12	26	32	36	WAL373507	WAL620396			20	ASS 20 S	12.9	WAL037991	WAL066302	WAL624622	WAL625955	WAL625995	
		25	P-ASV 25 S	37.7	56	44	32	12	31	41	46	WAL373508	WAL620432			25	ASS 25 S	21.9	WAL037992	WAL066303	WAL624623	WAL625956	WAL625996	
420 (6091)		30	P-ASV 30 S	44.9	62	49	35.5	14	36	46	50	WAL373509	WAL620678	S	420 (6091)	30	ASS 30 S	29.5	WAL037993	WAL066304	WAL624624	WAL625957	WAL625997	
		38	P-ASV 38 S	68.4	69	54	38	16	44	55	60	WAL373510	WAL620476			38	ASS 38 S	44.7	WAL037994	WAL066305	WAL624625	WAL625958	WAL625998	

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

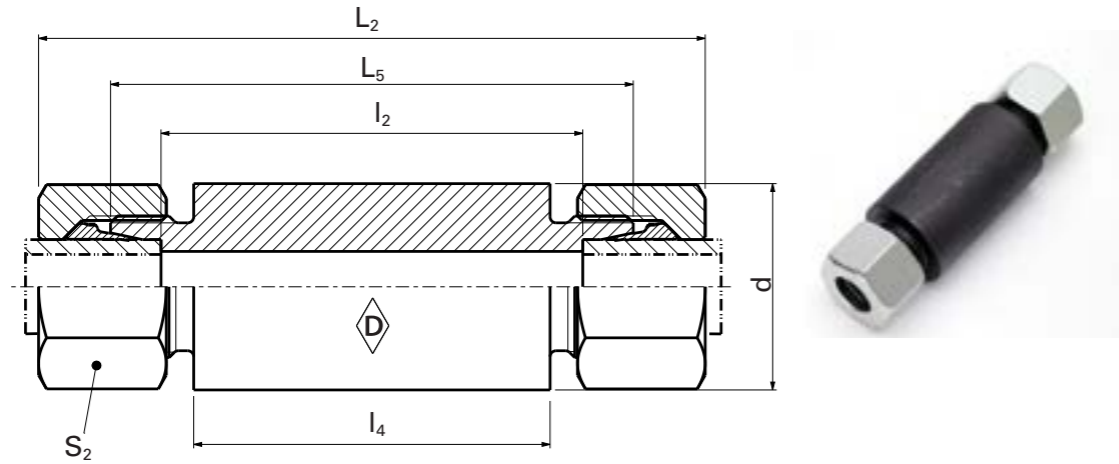
*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₂= approximate dimension if the union nut is tightened

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-ESV ...

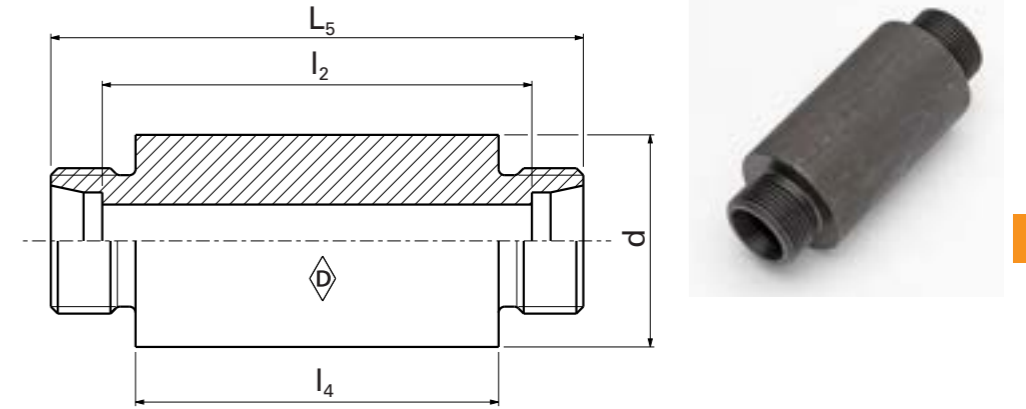
P-ESV ... -1.4571



E

ESS ...

ESS ... -1.4571



E

												System nuts for supplementing the stud (for technical data, see part D of this catalog)										
												Stud ESS ...	Stainless steel stud ESS ... -1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*						
Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L ₂	L ₅	l ₂	l ₄	d ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.
L	500 (7252)	6	P-ESV 6 L	13.1	85	70	56	50	18	14	WAL373511	WAL620144	L	500 (7252)	6	ESS 6 L	10.3	WAL037995	WAL061099	WAL624607	WAL625940	WAL625980
		8	P-ESV 8 L	16.2	85	70	56	50	20	17	WAL373512	WAL620236			8	ESS 8 L	12.3	WAL037996	WAL067360	WAL624608	WAL625941	WAL625981
		10	P-ESV 10 L	19.5	87	72	58	50	22	19	WAL373513	WAL620145			10	ESS 10 L	14.4	WAL037997	WAL061101	WAL624609	WAL625942	WAL625982
		12	P-ESV 12 L	24.1	87	72	58	50	25	22	WAL373514	WAL620158			12	ESS 12 L	17.9	WAL037998	WAL060689	WAL624610	WAL625943	WAL625983
	400 (5801)	15	P-ESV 15 L	35.3	100	84	70	60	28	27	WAL373515	WAL620237	400 (5801)	15	ESS 15 L	26.5	WAL037999	WAL067418	WAL624611	WAL625944	WAL625984	
		18	P-ESV 18 L	46.9	101	84	69	60	32	32	WAL373516	WAL620235		18	ESS 18 L	33.4	WAL038000	WAL060686	WAL624612	WAL625945	WAL625985	
		22	P-ESV 22 L	58.2	105	88	73	60	36	36	WAL373517	WAL620238		22	ESS 22 L	39.9	WAL038001	WAL067420	WAL624613	WAL625946	WAL625986	
	250 (3626)	28	P-ESV 28 L	66.0	106	88	73	60	40	41	WAL373518	WAL620488	250 (3626)	28	ESS 28 L	45.1	WAL038002	WAL066897	WAL624614	WAL625947	WAL625987	
		35	P-ESV 35 L	102.9	114	92	71	60	50	50	WAL373519	WAL620274		35	ESS 35 L	72.2	WAL038003	WAL068958	WAL624615	WAL625948	WAL625988	
	S	800 (11603)	42	P-ESV 42 L	148.8	115	92	70	60	60	60	WAL373520	WAL620839	S	800 (11603)	42	ESS 42 L	100.7	WAL038004	WAL069205	WAL624616	WAL625949
6			P-ESV 6 S	16.9	89	74	60	50	20	17	WAL373521	WAL620679	6			ESS 6 S	13.6	WAL038005	WAL617500	WAL624617	WAL625950	WAL625990
8			P-ESV 8 S	20.4	89	74	60	50	22	19	WAL373522	WAL620292	8			ESS 8 S	16.4	WAL038006	WAL371031	WAL624618	WAL625951	WAL625991
10			P-ESV 10 S	27.0	91	74	59	50	25	22	WAL373523	WAL620680	10			ESS 10 S	20.3	WAL038007	WAL372568	WAL624619	WAL625952	WAL625992
630 (9137)		12	P-ESV 12 S	33.1	91	74	59	50	28	24	WAL373524	WAL620423	630 (9137)	12	ESS 12 S	25.3	WAL038008	WAL061848	WAL624620	WAL625953	WAL625993	
		14	P-ESV 14 S	44.7	107	88	72	60	30	27	WAL373525	WAL620681		14	ESS 14 S	16.8	WAL038009	WAL060319				
		16	P-ESV 16 S	57.8	107	88	71	60	35	30	WAL373526	WAL620146		16	ESS 16 S	44.5	WAL038010	WAL061103	WAL624621	WAL625954	WAL625994	
420 (6091)		20	P-ESV 20 S	73.2	114	92	71	60	38	36	WAL373527	WAL620002	420 (6091)	20	ESS 20 S	51.7	WAL038011	WAL024157	WAL624622	WAL625955	WAL625995	
		25	P-ESV 25 S	114.6	120	96	72	60	45	46	WAL373528	WAL620001		25	ESS 25 S	72.5	WAL038012	WAL024155	WAL624623	WAL625956	WAL625996	
		30	P-ESV 30 S	134.4	126	100	73	60	50	50	WAL373529	WAL620239		30	ESS 30 S	87.9	WAL038013	WAL066873	WAL624624	WAL625957	WAL625997	
		38	P-ESV 38 S	191.3	133	104	72	60	60	60	WAL373530	WAL620346			38	ESS 38 S	125.5	WAL038014	WAL372103	WAL624625	WAL625958	WAL625998

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂ = approximate dimension if the union nut is tightened

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

F Adjustable studs

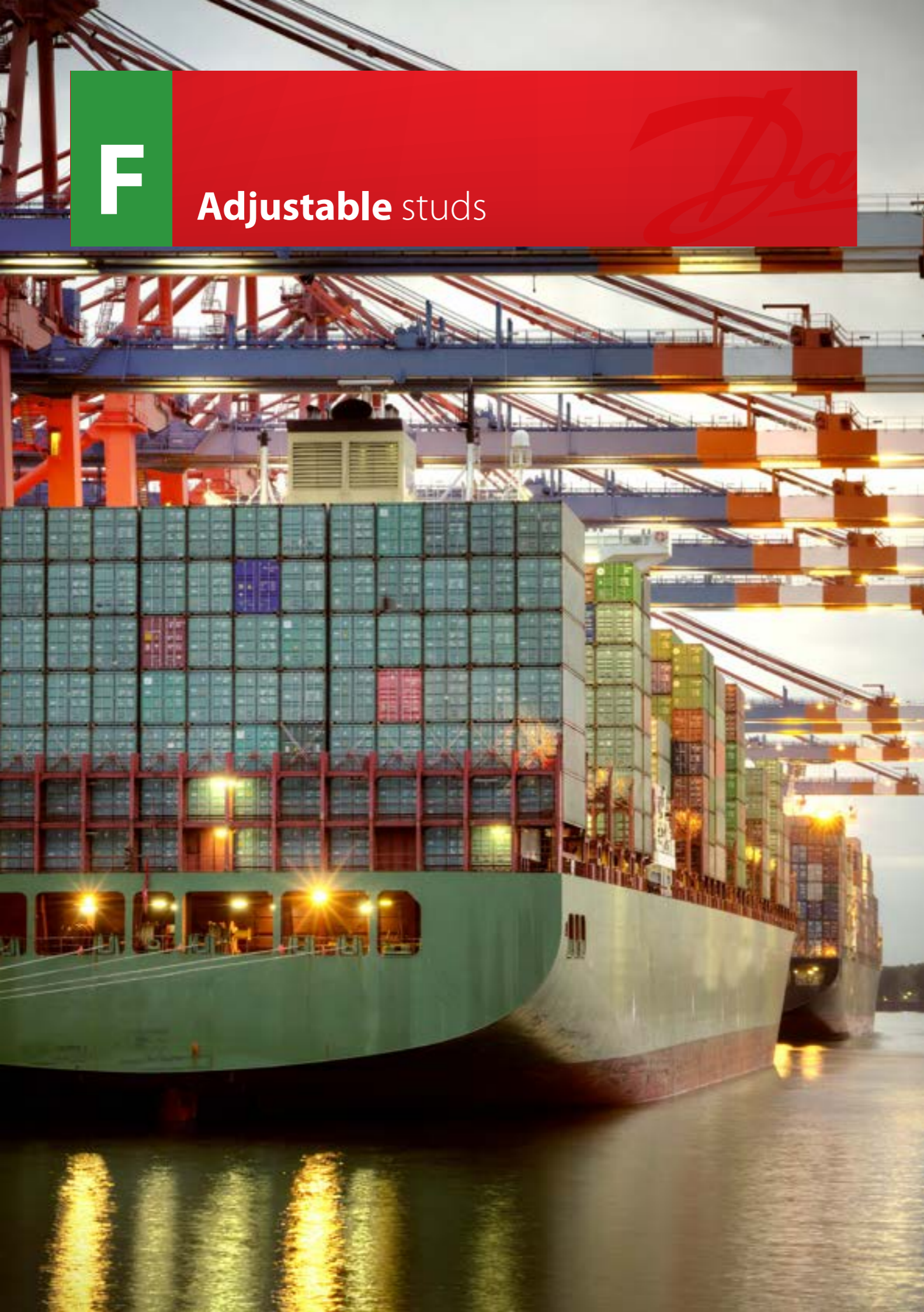


	Figure Fitting	Figure Stud	Model	Page
Banjo coupling elbow fittings / Banjo coupling elbow studs			P-RSWV / RSWS ... R	F3 / F4
			P-RSWV / RSWS ... R-WD	F3 / F4
			P-RSWV / RSWS ... M	F5 / F6
			P-RSWV / RSWS ... M-WD	F5 / F6
			P-RSWV / RSWS ... R-HD-WD	F7 / F8
			P-RSWV / RSWS ... M-HD-WD	F7 / F8
Banjo coupling T fittings / Banjo coupling T studs			P-RSTV / RSTS ... R	F9 / F10
			P-RSTV / RSTS ... R-WD	F9 / F10
			P-RSTV / RSTS ... M	F11 / F12
			P-RSTV / RSTS ... M-WD	F11 / F12
Adjustable elbow fittings / adjustable elbow studs			P-EWV / P-EWS ... -SV	F13 / F14
			P-EWVD / EWSD ...	F15 / F16
			P-EWVD 45 / EWSD 45 ...	F17 / F18
Adjustable T fittings / adjustable T studs			P-ETV / P-ETS ... -SV	F19 / F20
			P-ETVD / ETSD ...	F21 / F22
Adjustable L fittings / adjustable L studs			P-ELV / P-ELS ... -SV	F23 / F24
			P-ELVD / ELSD ...	F25 / F26
Straight male studs			P-EGES ... R-WD-SV	F27
			P-EGES ... M-WD-SV	F29
			EGESD ... R-WD	F28
			EGESD ... M-WD	F30
Spacer fittings / spacer adapters			P-DAV ... / DAS ...	F33 / F34
Straight fittings			SNV ...	F35
Straight fittings Reducer fittings			SNV ... / ... L	F36
			SNV ... / ... S	F37
			SNV ... L / S-S / L	F38

F

Special parts are available on request.

P-RSWV ... SR-HD-WD

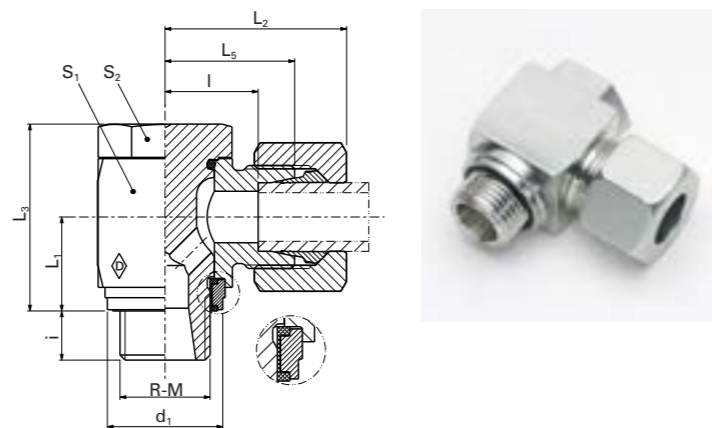
- High-pressure swivel fittings are only available with elastomer seals!
- with soft seal made from NBR* (e.g. Perbunan)
- Inch studs type E to DIN EN ISO 1179-2

P-RSWV ... SM-HD-WD

- with soft seal made from NBR* (e.g. Perbunan)
- Metric stud type E to DIN EN ISO 9974-2

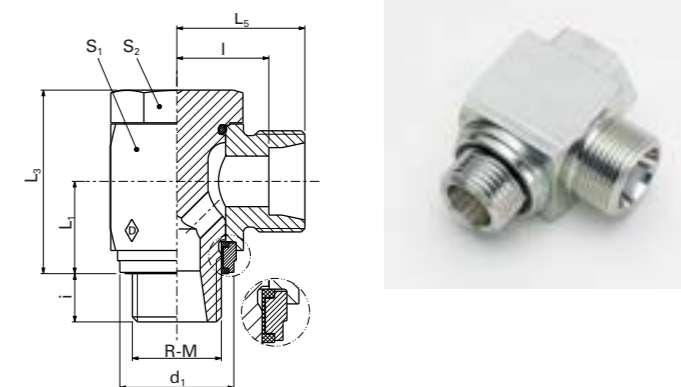
Outer dimensions

Suitable for "narrow" counterbores to DIN 3852



RSWS ... SR-HD-WD

RSWS ... SM-HD-WD



F

F

Series	PB bar (psi)	Thread	Model	L ₂	L ₃	l	i	h	d _{1 max.}	S ₁	S ₂	Art. no.	Stud RSWS SR/SM-HDWD with elastomer seal	Individual components			
														Body	Banjo bolt	Soft seal	
S	400 bar	G 1	P-RSWV 25 SR-HD-WD	30.5	59	31	18	3.5	39.9	50	41	WAL608810	RSWS 25 SR-HD-WD	WAL625035	WAL608830	WAL607403	WAL608800
		G 1 1/4	P-RSWV 30 SR-HD-WD	35.5	70	36.5	20	3.5	49.9	60	50	WAL608811	RSWS 30 SR-HD-WD	WAL626065	WAL608831	WAL607405	WAL608801
		G 1 1/2	P-RSWV 38 SR-HD-WD	40.5	80	41	22	3.5	55.9	70	55	WAL608812	RSWS 38 SR-HD-WD	WAL611028	WAL608832	WAL607407	WAL608802
S	400 bar	M 33 x 2	P-RSWV 25 SM-HD-WD	30.5	59	31	18	3.5	39.9	50	41	WAL608813	RSWS 25 SM-HD-WD	WAL626066	WAL608830	WAL607402	WAL608800
		M 42 x 2	P-RSWV 30 SM-HD-WD	35.5	70	36.5	20	3.5	49.9	60	50	WAL608814	RSWS 30 SM-HD-WD	WAL626067	WAL608831	WAL607404	WAL608801
		M 48 x 2	P-RSWV 38 SM-HD-WD	40.5	80	41	22	3.5	55.9	70	55	WAL608815	RSWS 38 SM-HD-WD	WAL626068	WAL608832	WAL607406	WAL608802

L₂ = approximate dimension if the union nut is tightened
 *For FPM (e.g. Viton) see price list / available on request

Installation safety:

- Same degree of protection against excessive tightening as for the standard RSWS
- The soft seal is preloaded inside the body
- The banjo bolt can only be inserted into the body from one side

⚠ Caution: Observe assembly instructions for the RSWS... swivel fittings. See catalog chapter C or the "Assembly instructions" leaflet.

Pressure performance

In the event of a safety factor of 2.5, an operating pressure (PB) of 400 bar is guaranteed.

⚠ Caution: The specified pressure rating represents the maximum permissible operating pressure, assuming a predominantly static load and a temperature of max. +120 °C.

Flow rate

Corresponds to that of the standard RSWS.

Operating pressure

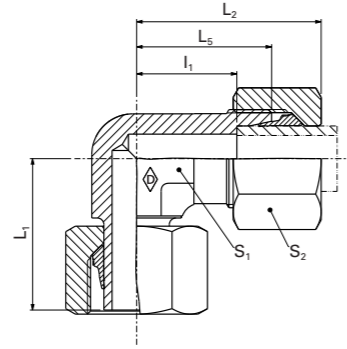
The specified operating pressure ratings (PB) are calculated with a minimum safety factor of 2.5 and represent the maximum permissible operating pressures under predominantly static load conditions and temperatures of up to +120 °C (in the case of steel). Strong pressure surges and mechanical stresses, such as vibrations, require special consideration.



P-EWV ... -SV

P-EWV ... -SV-1.4571

• with pre-assembled standpipe

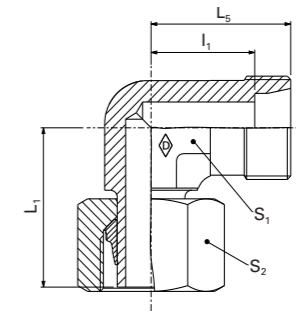


F



P-EWS ... -SV

P-EWS ... -SV-1.4571



F

Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L ₁	L ₂	L ₅	I ₁	S ₁	S ₂	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)									
													Walpro P-EWV... SV	Walpro Stainless steel (1.4571) P-EWV ... SV-1.4571*	Stud P-EWS ... -SV	Stud Stainless steel (1.4571) P-EWS... SV-1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform Stainless steel (1.4571) WF-M ... VI -1.4571**			
L	500 (7252)	6	P-EWV 6 L-SV	3.6	26	27	19	12	12	14	WAL373636	WAL620232	500 (7252)	6	P-EWS 6 L-SV	2.5	WAL602582	WAL621226	WAL624607	WAL625940	WAL625980	
		8	P-EWV 8 L-SV	5.0	27.5	29	21	14	12	17	WAL373637	WAL620372		8	P-EWS 8 L-SV	4	WAL602579	WAL621227	WAL624608	WAL625941	WAL625981	
		10	P-EWV 10 L-SV	6.9	29	30	22	15	14	19	WAL373638	WAL620268		10	P-EWS 10 L-SV	5	WAL374926	WAL620332	WAL624609	WAL625942	WAL625982	
		12	P-EWV 12 L-SV	9.2	29.5	32	24	17	17	22	WAL373639	WAL620226		12	P-EWS 12 L-SV	7.5	WAL374927	WAL620651	WAL624610	WAL625943	WAL625983	
	400 (5801)	15	P-EWV 15 L-SV	15.4	32.5	36	28	21	19	27	WAL373640	WAL620340	400 (5801)	15	P-EWS 15 L-SV	12.5	WAL374928	WAL620604	WAL624611	WAL625944	WAL625984	
		18	P-EWV 18 L-SV	22.5	35.5	40	31	23.5	24	32	WAL373641	WAL620508		18	P-EWS 18 L-SV	17.5	WAL602501	WAL620336	WAL624612	WAL625945	WAL625985	
	250 (3626)	22	P-EWV 22 L-SV	30.4	38.5	44	35	27.5	27	36	WAL373642	WAL620280	250 (3626)	22	P-EWS 22 L-SV	23	WAL602464	WAL620380	WAL624613	WAL625946	WAL625986	
		28	P-EWV 28 L-SV	42.6	41.5	47	38	30.5	36	41	WAL373643	WAL620337		28	P-EWS 28 L-SV	34.5	WAL602465	WAL621228	WAL624614	WAL625947	WAL625987	
	S	800 (11603)	6	P-EWV 6 S-SV	5.8	27	31	23	16	12	17	WAL373646	WAL620330	800 (11603)	6	P-EWS 6 S-SV	4.5	WAL602696	WAL620594	WAL624617	WAL625950	WAL625990
			8	P-EWV 8 S-SV	7.0	27.5	32	24	17	14	19	WAL373647	WAL620465		8	P-EWS 8 S-SV	6	WAL602881	WAL620655	WAL624618	WAL625951	WAL625991
630 (9137)		10	P-EWV 10 S-SV	11.2	30	34	25	17.5	17	22	WAL373648	WAL620319	630 (9137)	10	P-EWS 10 S-SV	8.5	WAL602697	WAL621230	WAL624619	WAL625952	WAL625992	
		12	P-EWV 12 S-SV	13.8	31	38	29	21.5	27	24	WAL373649	WAL620320		12	P-EWS 12 S-SV	8.5	WAL602593	WAL621231	WAL624620	WAL625953	WAL625993	
630 (9137)		14	P-EWV 14 S-SV	19.0	35	40	30	22	19	27	WAL373650	WAL620542	630 (9137)	14	P-EWS 14 S-SV	13.9	WAL604826	WAL621232				
		16	P-EWV 16 S-SV	23.8	36.5	43	33	24.5	24	30	WAL373651	WAL620248		16	P-EWS 16 S-SV	16.5	WAL602698	WAL620321	WAL624621	WAL625954	WAL625994	

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

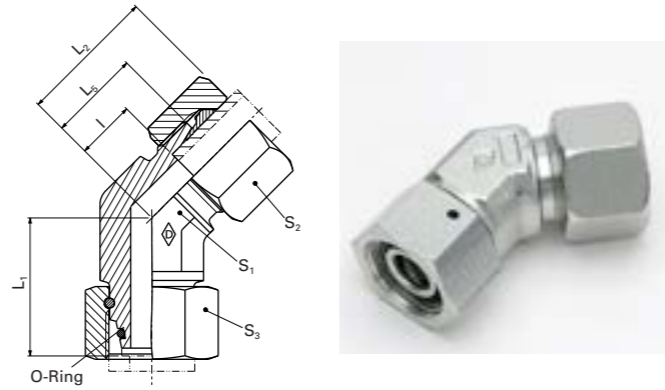
*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₂ = approximate dimension if the union nut is tightened

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-EWVD 45 ...

- with taper and O-ring made from NBR* (e.g. Perbunan)

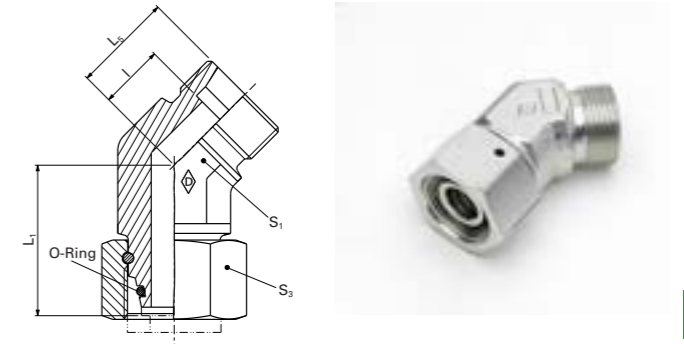


F

Series	PN bar (psi)	Tube outer diameter	Model	L ₁	L ₂	L ₃	S ₁	S ₂	*O-ring	Art. no.	Walpro
											P-EWVD 45 ...
L	500 (7252)	6	P-EWVD 45 6 L	26.0	16.0	9.0	14	17	4.5 x 1.5	WAL625819	
		8	P-EWVD 45 8 L	27.5	19.0	12.0	14	17	6 x 1.5	WAL625820	
		10	P-EWVD 45 10 L	29.0	19.0	12.0	19	19	8.5 x 1.5	WAL625821	
		12	P-EWVD 45 12 L	29.5	21.0	14.0	19	22	10 x 1.5	WAL625822	
	400 (5801)	15	P-EWVD 45 15 L	32.5	24.0	17.0	22	27	12 x 2	WAL625823	
		18	P-EWVD 45 18 L	35.5	24.0	16.5	27	32	15 x 2	WAL625824	
	250 (3626)	22	P-EWVD 45 22 L	38.5	26.5	18.5	30	36	20 x 2	WAL625825	
		28	P-EWVD 45 28 L	41.5	30.5	23.0	36	46	26 x 2	WAL625826	
		35	P-EWVD 45 35 L	51.0	37.0	26.5	50	50	32 x 2.5	WAL625827	
		42	P-EWVD 45 42 L	56.0	37.0	26.0	50	60	38 x 2.5	WAL625828	
S	800 (11603)	6	P-EWVD 45 6 S	27.0	16.0	9.0	14	17	4.5 x 1.5	WAL625829	
		8	P-EWVD 45 8 S	27.5	19.0	12.0	19	19	6 x 1.5	WAL625830	
		10	P-EWVD 45 10 S	30.0	21.0	13.5	19	22	8.5 x 1.5	WAL625831	
	630 (9137)	12	P-EWVD 45 12 S	31.0	24.0	16.5	22	24	10 x 1.5	WAL625832	
		16	P-EWVD 45 16 S	36.5	24.0	15.5	27	30	14 x 2	WAL625833	
	420 (6091)	20	P-EWVD 45 20 S	44.5	26.5	16.0	30	36	17.3 x 2.4	WAL625834	
		25	P-EWVD 45 25 S	50.5	30.5	18.5	36	46	22.3 x 2.4	WAL625835	
	400 (5801)	30	P-EWVD 45 30 S	55.0	37.0	23.5	50	50	27.3 x 2.4	WAL625836	
		38	P-EWVD 45 38 S	63.0	37.0	21.0	50	60	35 x 2.5	WAL625837	

L₂ = approximate dimension if the union nut is tightened
 *For FPM (e.g. Viton) see price list / available on request

EWSD 45 ...



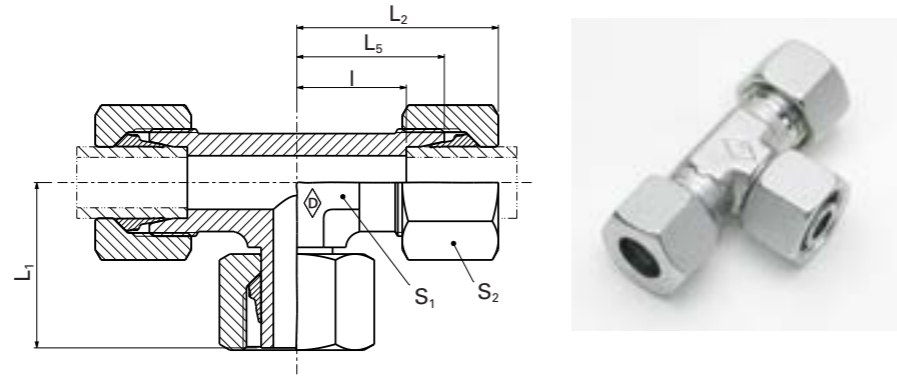
F

Series	PN bar (psi)	Tube outer diameter	Model	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)	
					Walring W-R ... VI	Walform WF-M ... VI
L	500 (7252)	6	EWSD 45 6 L	WAL625761	WAL624607	WAL625940
		8	EWSD 45 8 L	WAL625762	WAL624608	WAL625941
		10	EWSD 45 10 L	WAL625763	WAL624609	WAL625942
		12	EWSD 45 12 L	WAL625764	WAL624610	WAL625943
	400 (5801)	15	EWSD 45 15 L	WAL625765	WAL624611	WAL625944
		18	EWSD 45 18 L	WAL625766	WAL624612	WAL625945
	250 (3626)	22	EWSD 45 22 L	WAL625767	WAL624613	WAL625946
		28	EWSD 45 28 L	WAL625768	WAL624614	WAL625947
		35	EWSD 45 35 L	WAL625769	WAL624615	WAL625948
		42	EWSD 45 42 L	WAL625770	WAL624616	WAL625949
S	800 (11603)	6	EWSD 45 6 S	WAL625771	WAL624617	WAL625950
		8	EWSD 45 8 S	WAL625772	WAL624618	WAL625951
		10	EWSD 45 10 S	WAL625773	WAL624619	WAL625952
	630 (9137)	12	EWSD 45 12 S	WAL625774	WAL624620	WAL625953
		16	EWSD 45 16 S	WAL625775	WAL624621	WAL625954
	420 (6091)	20	EWSD 45 20 S	WAL625776	WAL624622	WAL625955
		25	EWSD 45 25 S	WAL625777	WAL624623	WAL625956
	400 (5801)	30	EWSD 45 30 S	WAL625778	WAL624624	WAL625957
		38	EWSD 45 38 S	WAL625779	WAL624625	WAL625958

P-ETV ... -SV

P-ETV ...SV-1.4571

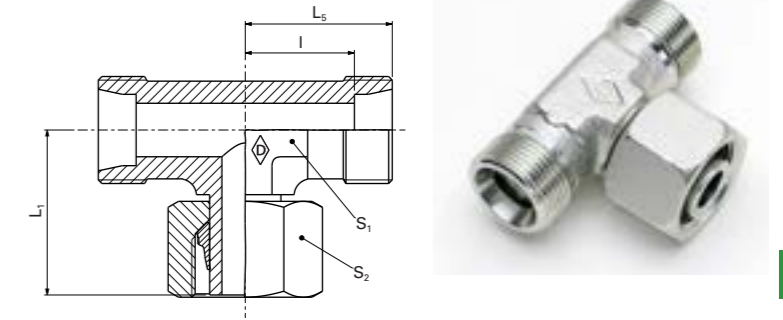
• with pre-assembled standpipe



F

P-ETS ... -SV

P-ETS ... -SV-1.4571



F

													System nuts for supplementing the stud (for technical data, see part D of this catalog)									
													Stud P-ETS ... -SV		Stud Stainless steel (1.4571) P-ETS ...-SV VI -1.4571		Walring W-R ... VI	Walform WF-M ... VI	Walform Stainless steel (1.4571) WF-M ... VI -1.4571*			
Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L ₁	L ₂	L ₅	L	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.
L	500 (7252)	6	P-ETV 6 L-SV	5.3	26	27	19	12	12	14	WAL373676	WAL620329	L	500 (7252)	6	P-ETS 6 L-SV	3.5	WAL602686	WAL621235	WAL624607	WAL625940	WAL625980
		8	P-ETV 8 L-SV	7.4	27.5	29	21	14	12	17	WAL373677	WAL620341			8	P-ETS 8 L-SV	5	WAL374929	WAL621236	WAL624608	WAL625941	WAL625981
		10	P-ETV 10 L-SV	10.4	29	30	22	15	14	19	WAL373678	WAL620436			10	P-ETS 10 L-SV	6.5	WAL602662	WAL620654	WAL624609	WAL625942	WAL625982
	400 (5801)	12	P-ETV 12 L-SV	13.1	29.5	32	24	17	17	22	WAL373679	WAL620486	L	400 (5801)	12	P-ETS 12 L-SV	8.5	WAL602431	WAL620333	WAL624610	WAL625943	WAL625983
		15	P-ETV 15 L-SV	21.9	32.5	36	28	21	19	27	WAL373680	WAL620512			15	P-ETS 15 L-SV	15	WAL602597	WAL621237	WAL624611	WAL625944	WAL625984
		18	P-ETV 18 L-SV	32.5	35.5	40	31	23.5	24	32	WAL373681	WAL620686			18	P-ETS 18 L-SV	19	WAL602687	WAL621238	WAL624612	WAL625945	WAL625985
250 (3626)	22	P-ETV 22 L-SV	43.3	38.5	44	35	27.5	27	36	WAL373682	WAL620687	L	250 (3626)	22	P-ETS 22 L-SV	28	WAL602688	WAL621239	WAL624613	WAL625946	WAL625986	
	28	P-ETV 28 L-SV	57.4	41.5	47	38	30.5	36	41	WAL373683	WAL620688			28	P-ETS 28 L-SV	42.5	WAL374930	WAL621240	WAL624614	WAL625947	WAL625987	
S	800 (11603)	6	P-ETV 6 S-SV	8.6	27	31	23	16	12	17	WAL373686	WAL620689	S	800 (11603)	6	P-ETS 6 S-SV	5.3	WAL604060	WAL621243	WAL624617	WAL625950	WAL625990
		8	P-ETV 8 S-SV	10.7	27.5	32	24	17	14	19	WAL373687	WAL621096			8	P-ETS 8 S-SV	7.5	WAL602689	WAL621244	WAL624618	WAL625951	WAL625991
		10	P-ETV 10 S-SV	16.6	30	34	25	17.5	17	22	WAL373688	WAL620690			10	P-ETS 10 S-SV	10.2	WAL602912	WAL621245	WAL624619	WAL625952	WAL625992
	630 (9137)	12	P-ETV 12 S-SV	20.4	31	38	29	21.5	17	24	WAL373689	WAL620419	S	630 (9137)	12	P-ETS 12 S-SV	13.5	WAL602907	WAL621246	WAL624620	WAL625953	WAL625993
		14	P-ETV 14 S-SV	27.6	35	40	30	22	19	27	WAL373690				14	P-ETS 14 S-SV	17	WAL615559	WAL621247			
		16	P-ETV 16 S-SV	35.6	36.5	43	33	24.5	24	30	WAL373691	WAL620691			16	P-ETS 16 S-SV	24	WAL604098	WAL621248	WAL624621	WAL625954	WAL625994

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

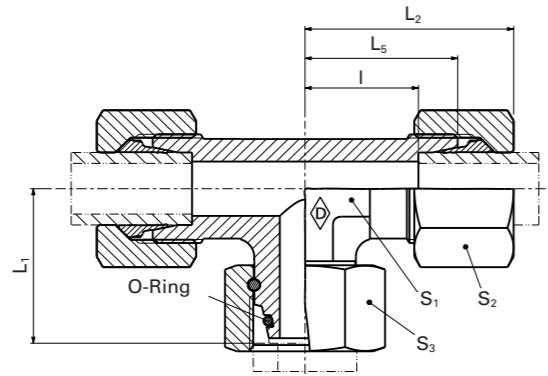
L₂ = approximate dimension if the union nut is tightened

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-ETVD ...

P-ETVD ...-1.4571

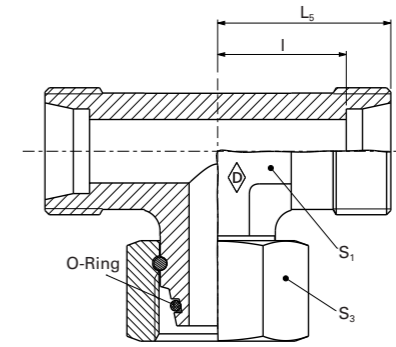
- with taper and O-ring made from NBR* (e.g. Perbunan) for steel
- with taper and O-ring made from FKM (e.g. Viton) for stainless steel (1.4571)



F

ETSD ...

ETSD ...-1.4571



F

														System nuts for supplementing the stud (for technical data, see part D of this catalog)												
														Stud ETSD ...	Stud Stainless steel (1.4571) ETSD ... VI-1.4571	Walring W-R ... VI	Walform WF-M ... VI	Walform Stainless steel (1.4571) WF-M ... VI -1.4571**								
Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L ₁	L ₂	L ₅	I	S ₁	S ₂	S ₃	*O-ring	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.		
L	500 (7252)	6	P-ETVD 6 L	5.4	26	29	21	14	14	14	17	4.5 x 1.5	WAL374574	WAL621345	L	500 (7252)	6	ETSD 6 L	3.2	WAL063897	WAL618253	WAL624607	WAL625940	WAL625980		
		8	P-ETVD 8 L	7.6	27.5	29	21	14	14	17	17	6 x 1.5	WAL374575	WAL621100			8	ETSD 8 L	6.5	WAL063898	WAL618254	WAL624608	WAL625941	WAL625981		
		10	P-ETVD 10 L	10.7	29	30	22	15	17	19	19	8.5 x 1.5	WAL374576	WAL621346			10	ETSD 10 L	9.5	WAL063899	WAL618255	WAL624609	WAL625942	WAL625982		
	400 (5801)	12	P-ETVD 12 L	13.5	29.5	32	24	17	19	22	22	10 x 1.5	WAL374577	WAL621347	L	400 (5801)	12	ETSD 12 L	12.5	WAL063900	WAL618256	WAL624610	WAL625943	WAL625983		
		15	P-ETVD 15 L	22.3	32.5	36	28	21	19	27	27	12 x 2	WAL374578	WAL621348			15	ETSD 15 L	14	WAL063901	WAL618257	WAL624611	WAL625944	WAL625984		
		18	P-ETVD 18 L	33.2	35.5	40	31	23.5	24	32	32	15 x 2	WAL374579	WAL621101			18	ETSD 18 L	21.5	WAL063902	WAL618258	WAL624612	WAL625945	WAL625985		
		22	P-ETVD 22 L	43.9	38.5	44	35	27.5	27	36	36	20 x 2	WAL374580	WAL621102			22	ETSD 22 L	28	WAL063903	WAL618259	WAL624613	WAL625946	WAL625986		
	250 (3626)	28	P-ETVD 28 L	58.3	41.5	47	38	30.5	36	41	46	26 x 2	WAL374581	WAL621349	L	250 (3626)	28	ETSD 28 L	49	WAL063904	WAL618260	WAL624614	WAL625947	WAL625987		
		35	P-ETVD 35 L	91.5	51	56	45	34.5	41	50	50	32 x 2.5	WAL374582	WAL621350			35	ETSD 35 L	60.9	WAL063905	WAL618261	WAL624615	WAL625948	WAL625988		
	S	800 (11603)	42	P-ETVD 42 L	136.9	56	63	51	40	50	60	60	38 x 2.5	WAL374583	WAL621351	L	42	42	ETSD 42 L	89.2	WAL063906	WAL617598	WAL624616	WAL625949	WAL625989	
6			P-ETVD 6 S	8.7	27	31	23	16	14	17	17	4.5 x 1.5	WAL374584	WAL621103	S			800 (11603)	6	ETSD 6 S	8	WAL063907	WAL617599	WAL624617	WAL625950	WAL625990
8			P-ETVD 8 S	10.9	27.5	32	24	17	17	19	19	6 x 1.5	WAL374585	WAL621352					8	ETSD 8 S	10.5	WAL063908	WAL618262	WAL624618	WAL625951	WAL625991
10		P-ETVD 10 S	16.9	30	34	25	17.5	19	22	22	8.5 x 1.5	WAL374586	WAL621353	10		ETSD 10 S	14		WAL063909	WAL618263	WAL624619	WAL625952	WAL625992			
630 (9137)		12	P-ETVD 12 S	21.2	31	38	29	21.5	22	24	24	10 x 1.5	WAL374587	WAL620637	S	630 (9137)	12	ETSD 12 S	19	WAL063910	WAL618264	WAL624620	WAL625953	WAL625993		
		14	P-ETVD 14 S	28.1	35	40	30	22	19	27	27	12 x 2	WAL374588				14	ETSD 14 S	16.9	WAL063911	WAL606249					
		16	P-ETVD 16 S	36.4	36.5	43	33	24.5	24	30	30	14 x 2	WAL374589	WAL621354			16	ETSD 16 S	23	WAL063912	WAL618265	WAL624621	WAL625954	WAL625994		
		20	P-ETVD 20 S	54.2	44.5	48	37	26.5	27	36	36	17.3 x 2.4	WAL374590	WAL621355			20	ETSD 20 S	35	WAL063913	WAL618266	WAL624622	WAL625955	WAL625995		
420 (6091)		25	P-ETVD 25 S	105.0	50	54	42	30	36	46	46	22.3 x 2.4	WAL374591	WAL621356	S	420 (6091)	25	ETSD 25 S	63.5	WAL063914	WAL618267	WAL624623	WAL625956	WAL625996		
		30	P-ETVD 30 S	134.9	55	62	49	35.5	41	50	50	27.3 x 2.4	WAL374592	WAL621357			30	ETSD 30 S	87	WAL063915	WAL617600	WAL624624	WAL625957	WAL625997		
400 (5801)	38	P-ETVD 38 S	206.1	63	72	57	41	50	60	60	35 x 2.5	WAL374593	WAL621358	S	400 (5801)	38	ETSD 38 S	131	WAL063916	WAL618268	WAL624625	WAL625958	WAL625998			

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

**Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₅ = approximate dimension if the union nut is tightened

*For FPM (e.g. Viton) see price list / available on request

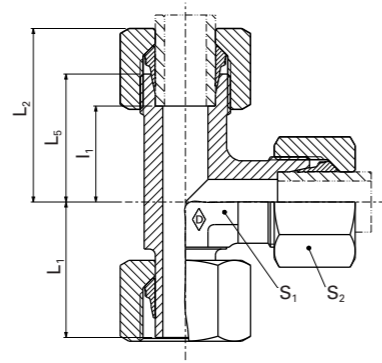
Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.



P-ELV ... -SV

P-ELV ...SV-1.4571

· with pre-assembled standpipe

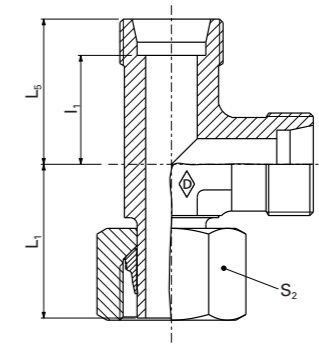


F



P-ELS ... -SV

P-ELS ...SV-1.4571



F

												System nuts for supplementing the stud (for technical data, see part D of this catalog)										
												Walpro P-ELV... -SV	Walpro Stainless steel (1.4571) P-ELV ... SV-1.4571*	Stud P-ELS ... -SV	Stud Stainless steel (1.4571) P-ELS ... -SV- 1.4571	Walring W-R ... VI	Walform WF-M ... VI	Walform Stainless steel (1.4571) WF-M ... VI -1.4571*				
Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L ₁	L ₂	L ₃	L	S ₁	S ₂	Model	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.
L	500 (7252)	6	P-ELV 6 L-SV	5.2	26	27	19	12	12	14	WAL373716	WAL620359	L	500 (7252)	6	P-ELS 6 L-SV	4.0	WAL602911	WAL620609	WAL624607	WAL625940	WAL625980
		8	P-ELV 8 L-SV	7.8	27.5	29	21	14	12	17	WAL373717	WAL620283			8	P-ELS 8 L-SV	4.4	WAL374931	WAL621253	WAL624608	WAL625941	WAL625981
		10	P-ELV 10 L-SV	10.6	29	30	22	15	14	19	WAL373718	WAL620455			10	P-ELS 10 L-SV	6.0	WAL374932	WAL620599	WAL624609	WAL625942	WAL625982
	400 (5801)	12	P-ELV 12 L-SV	12.8	29.5	32	24	17	17	22	WAL373719	WAL620441		12	P-ELS 12 L-SV	8.5	WAL602559	WAL620658	WAL624610	WAL625943	WAL625983	
		15	P-ELV 15 L-SV	21.9	32.5	36	28	21	19	27	WAL373720	WAL620401		15	P-ELS 15 L-SV	14.5	WAL374933	WAL621254	WAL624611	WAL625944	WAL625984	
		18	P-ELV 18 L-SV	33.0	35.5	40	31	23.5	24	32	WAL373721	WAL620530		18	P-ELS 18 L-SV	21.0	WAL602467	WAL620568	WAL624612	WAL625945	WAL625985	
250 (3626)	22	P-ELV 22 L-SV	43.3	38.5	44	35	27.5	27	36	WAL373722	WAL620402	250 (3626)	22	P-ELS 22 L-SV	25.6	WAL604092	WAL620636	WAL624613	WAL625946	WAL625986		
	28	P-ELV 28 L-SV	55.9	41.5	47	38	30.5	36	41	WAL373723	WAL620692	28	P-ELS 28 L-SV	41.5	WAL602583	WAL621255	WAL624614	WAL625947	WAL625987			
S	800 (11603)	6	P-ELV 6 S-SV	8.8	27	31	23	16	12	17	WAL373726	WAL620694	S	800 (11603)	6	P-ELS 6 S-SV	6.0	WAL602998	WAL621257	WAL624617	WAL625950	WAL625990
		8	P-ELV 8 S-SV	10.7	27.5	32	24	17	14	19	WAL373727	WAL621106			8	P-ELS 8 S-SV	7.5	WAL602999	WAL620348	WAL624618	WAL625951	WAL625991
		10	P-ELV 10 S-SV	16.7	30	34	25	17.5	17	22	WAL373728	WAL620695			10	P-ELS 10 S-SV	10.5	WAL602913	WAL621258	WAL624619	WAL625952	WAL625992
	630 (9137)	12	P-ELV 12 S-SV	20.4	31	38	29	21.5	17	24	WAL373729	WAL620417		12	P-ELS 12 S-SV	13.5	WAL602908	WAL621259	WAL624620	WAL625953	WAL625993	
		14	P-ELV 14 S-SV	27.2	35	40	30	22	19	27	WAL373730	WAL621107		14	P-ELS 14 S-SV	16.6	WAL606307	WAL621260				
		16	P-ELV 16 S-SV	33.7	36.5	43	33	24.5	24	30	WAL373731	WAL620696		16	P-ELS 16 S-SV	24.0	WAL602910	WAL620570	WAL624621	WAL625954	WAL625994	

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

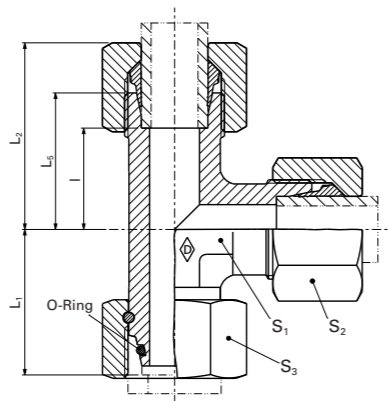
L₂= approximate dimension if the union nut is tightened

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-ELVD ...

P-ELVD ...-1.4571

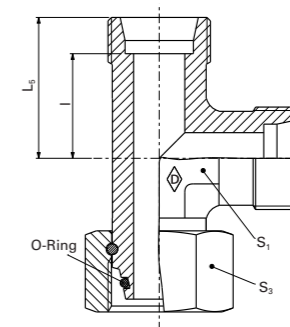
- with taper and O-ring made from NBR* (e.g. Perbunan) for steel
- with taper and O-ring made from FKM (e.g. Viton) for stainless steel (1.4571)



F

ELSD ...

ELSD ...-1.4571



F

Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	L ₁	L ₂	L ₃	L ₄	L ₅	I	S ₁	S ₂	S ₃	*O-ring	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)								
																	Walpro P-ELVD...	Walpro Stainless steel (1.4571) P-ELVD ... VI-1.4571**	Stud ELSD ...	Stud Stainless steel (1.4571) ELSD ... VI-1.4571	Walring W-R ... VI	Walform WF-M ... VI	Walform Stainless steel (1.4571) WF-M ... VI -1.4571**		
L	500 (7252)	6	P-ELVD 6 L	5.3	26	29	21	14	14	14	14	14	17	4.5 x 1.5	WAL374594	WAL620653	500 (7252)	6	ELSD 6 L	4.6	WAL063917	WAL602804	WAL624607	WAL625940	WAL625980
		8	P-ELVD 8 L	8.0	27.5	29	21	14	14	17	17	17	17	6 x 1.5	WAL374595	WAL621360		8	ELSD 8 L	7.0	WAL063918	WAL602774	WAL624608	WAL625941	WAL625981
		10	P-ELVD 10 L	10.9	29	30	22	15	17	19	19	19	19	8.5 x 1.5	WAL374596	WAL621109		10	ELSD 10 L	9.0	WAL063919	WAL617610	WAL624609	WAL625942	WAL625982
		12	P-ELVD 12 L	13.2	29.5	32	24	17	19	22	22	22	22	10 x 1.5	WAL372991	WAL620815		12	ELSD 12 L	12.5	WAL063920	WAL618269	WAL624610	WAL625943	WAL625983
		15	P-ELVD 15 L	22.3	32.5	36	28	21	19	27	27	27	27	12 x 2	WAL374597	WAL620727		15	ELSD 15 L	13.1	WAL063921	WAL371559	WAL624611	WAL625944	WAL625984
		18	P-ELVD 18 L	33.7	35.5	40	31	23.5	24	32	32	32	32	15 x 2	WAL374598	WAL621361		18	ELSD 18 L	20.5	WAL063922	WAL618270	WAL624612	WAL625945	WAL625985
	250 (3626)	22	P-ELVD 22 L	43.9	38.5	44	35	27.5	27	36	36	36	36	20 x 2	WAL374599	WAL621362	22	ELSD 22 L	28.0	WAL063923	WAL617611	WAL624613	WAL625946	WAL625986	
		28	P-ELVD 28 L	56.8	41.5	47	38	30.5	36	41	46	46	26 x 2	WAL374600	WAL621363	28	ELSD 28 L	49.0	WAL063924	WAL618271	WAL624614	WAL625947	WAL625987		
		35	P-ELVD 35 L	90.5	51	56	45	34.5	41	50	50	50	32 x 2.5	WAL374601	WAL621364	35	ELSD 35 L	65.0	WAL063925	WAL605999	WAL624615	WAL625948	WAL625988		
		42	P-ELVD 42 L	134.4	56	63	51	40	50	60	60	60	38 x 2.5	WAL374602	WAL621365	42	ELSD 42 L	100.0	WAL063926	WAL618272	WAL624616	WAL625949	WAL625989		
		800 (11603)	6	P-ELVD 6 S	8.9	27	31	23	16	14	17	17	17	4.5 x 1.5	WAL374603	WAL620864	800 (11603)	6	ELSD 6 S	8.0	WAL063927	WAL617612	WAL624617	WAL625950	WAL625990
			8	P-ELVD 8 S	10.9	27.5	32	24	17	17	19	19	19	6 x 1.5	WAL374604	WAL621110	8	ELSD 8 S	11.0	WAL063928	WAL618273	WAL624618	WAL625951	WAL625991	
S	630 (9137)	10	P-ELVD 10 S	17.0	30	34	25	17.5	19	22	22	22	8.5 x 1.5	WAL374605	WAL621366	630 (9137)	10	ELSD 10 S	14.0	WAL063929	WAL617613	WAL624619	WAL625952	WAL625992	
		12	P-ELVD 12 S	21.2	31	38	29	21.5	22	24	24	24	10 x 1.5	WAL374606	WAL620587	12	ELSD 12 S	19.0	WAL063930	WAL605361	WAL624620	WAL625953	WAL625993		
		14	P-ELVD 14 S	27.7	35	40	30	22	19	27	27	27	12 x 2	WAL374607	WAL621111	14	ELSD 14 S	16.5	WAL063931	WAL617614					
		16	P-ELVD 16 S	34.5	36.5	43	33	24.5	24	30	30	30	14 x 2	WAL374608	WAL621112	16	ELSD 16 S	23.5	WAL063932	WAL618275	WAL624621	WAL625954	WAL625994		
		20	P-ELVD 20 S	54.8	44.5	48	37	26.5	27	36	36	36	17.3 x 2.4	WAL374609	WAL620588	20	ELSD 20 S	35.5	WAL063933	WAL605363	WAL624622	WAL625955	WAL625995		
		25	P-ELVD 25 S	103.6	50	54	42	30	36	46	46	46	22.3 x 2.4	WAL374610	WAL621367	25	ELSD 25 S	63.5	WAL063934	WAL618277	WAL624623	WAL625956	WAL625996		
	400 (5801)	30	P-ELVD 30 S	134.1	55	62	49	35.5	41	50	50	50	27.3 x 2.4	WAL374611	WAL621113	400 (5801)	30	ELSD 30 S	88.0	WAL063935	WAL617615	WAL624624	WAL625957	WAL625997	
		38	P-ELVD 38 S	196.4	63	72	57	41	50	60	60	60	35 x 2.5	WAL374612	WAL621114	38	ELSD 38 S	130.0	WAL063936	WAL618278	WAL624625	WAL625958	WAL625998		

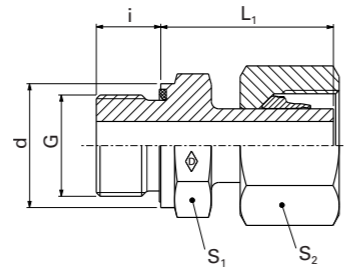
Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 **Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂ = approximate dimension if the union nut is tightened
 *For FPM (e.g. Viton) see price list / available on request

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-EGES ... R-WD-SV

P-EGES ... R-WD-SV-1.4571

- with pre-assembled standpipe
- with soft seal made from NBR* (e.g. Perbunan) for steel
- with soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)
- Inch studs type E to DIN EN ISO 1179-2



F

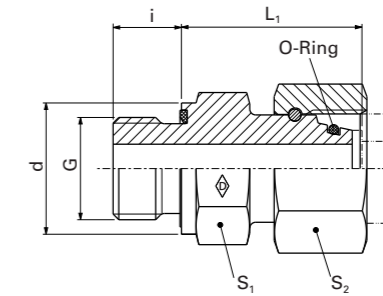
Series	PN bar (psi)	Tube outer diameter	DIN-ISO 228 (R...DIN 259) G	Model	kg/100 pc.	i	d	L ₁	S ₁	S ₂	Art. no.	Art. no.
L	500 (7252)	6	G 1/8 A	P-EGES 6 LR-WD-SV	2.5	8	13.9	24.5	14	14	WAL373856	WAL620543
		8	G 1/4 A	P-EGES 8 LR-WD-SV	4.5	12	18.9	29.5	19	17	WAL373857	WAL620493
		10	G 1/4 A	P-EGES 10 LR-WD-SV	5.8	12	18.9	27.5	19	19	WAL373858	WAL620456
	400 (5801)	12	G 1/4 A	P-EGES 12 L/R 1/4-WD-SV	6.5	12	18.9	27.5	19	22	WAL373859	WAL623088
		12	G 3/8 A	P-EGES 12 LR-WD-SV	6.5	12	21.9	34	22	22	WAL373860	WAL620408
		15	G 3/8 A	P-EGES 15 L/R 3/8-WD-SV	11.0	12	21.9	34	27	27	WAL374482	WAL623089
250 (3626)	15	G 1/2 A	P-EGES 15 LR-WD-SV	11.6	14	26.9	32	27	27	WAL373861	WAL620457	
	18	G 1/2 A	P-EGES 18 LR-WD-SV	13.0	14	26.9	31.5	27	27	WAL373862	WAL620487	
S	800 (11603)	22	G 3/4 A	P-EGES 22 LR-WD-SV	17.6	16	31.9	32.5	32	36	WAL373863	WAL620472
		6	G 1/4 A	P-EGES 6 SR-WD-SV	5.1	12	18.9	27	19	17	WAL373867	WAL620544
		8	G 1/4 A	P-EGES 8 SR-WD-SV	4.8	12	18.9	29.5	19	19	WAL373868	WAL620490
	630 (9137)	10	G 3/8 A	P-EGES 10 SR-WD-SV	8.3	12	21.9	32	22	22	WAL373869	WAL620545
		12	G 3/8 A	P-EGES 12 SR-WD-SV	7.3	12	21.9	34	22	24	WAL373870	WAL620407
		12	G 1/2 A	P-EGES 12 S/R 1/2-WD-SV	9.2	14	26.9	34.5	27	25	WAL373871	WAL620546
420 (6091)	14	G 1/2 A	P-EGES 14 SR-WD-SV	14.9	14	26.9	36.5	27	27	WAL373872	WAL617616	
	16	G 1/2 A	P-EGES 16 SR-WD-SV	15.4	14	26.9	37	27	30	WAL373873	WAL620532	
400 (5801)	16	G 3/4 A	P-EGES 16 S/R 3/4-WD-SV	20.0	16	31.9	39	32	30	WAL373874	WAL623090	

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 **Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 *For FPM (e.g. Viton) see price list / available on request

EGESD ... R-WD

EGESD ... R-WD-1.4571

- with taper and O-ring made from NBR* (e.g. Perbunan) for steel
- with taper and O-ring made from FKM (e.g. Viton) for stainless steel (1.4571)
- Inch studs type E to DIN EN ISO 1179-2



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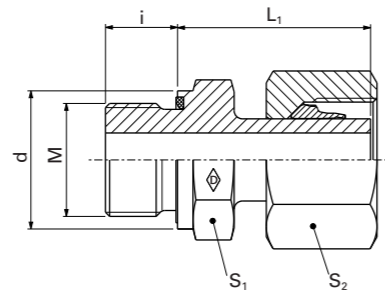
Series	PN bar (psi)	Tube outer diameter	DIN-ISO 228 (R...DIN 259) G	Model	kg/100 pc.	L ₁	i	d	S ₁	S ₂	*O-ring	Art. no.	Art. no.
L	500 (7252)	6	G 1/8 A	EGESD 6 LR-WD	3.6	24.5	8	13.9	14	17	4.5 x 1.5	WAL063661	
		8	G 1/4 A	EGESD 8 LR-WD	5.7	29.5	12	18.9	19	17	6 x 1.5	WAL063662	WAL374950
		10	G 1/4 A	EGESD 10 LR-WD	5.8	27.5	12	18.9	19	19	8.5 x 1.5	WAL063663	WAL371550
	400 (5801)	12	G 1/4 A	EGESD 12 L/R 1/4-WD	6.8	27.5	12	18.9	19	22	10 x 1.5	WAL063664	WAL615354
		12	G 3/8 A	EGESD 12 LR-WD	7.5	34	12	21.9	22	22	10 x 1.5	WAL063665	WAL372579
		15	G 1/2 A	EGESD 15 LR-WD	14.4	32	14	26.9	27	27	12 x 2	WAL063666	WAL371553
250 (3626)	18	G 1/2 A	EGESD 18 LR-WD	15.2	31.5	14	26.9	27	32	15 x 2	WAL063667	WAL371556	
	22	G 3/4 A	EGESD 22 LR-WD	20.2	32.5	16	31.9	32	36	20 x 2	WAL063668	WAL372751	
	28	G 1 A	EGESD 28 LR-WD	35.6	35	18	39.9	41	46	26 x 2	WAL063669	WAL604194	
S	800 (11603)	35	G 1 1/4 A	EGESD 35 LR-WD	50.7	42.5	20	49.9	50	50	32 x 2.5	WAL063670	WAL604648
		42	G 1 1/2 A	EGESD 42 LR-WD	66.4	46.5	22	54.9	55	60	38 x 2.5	WAL063671	WAL372348
		6	G 1/4 A	EGESD 6 SR-WD	5.6	27	12	18.9	19	17	4.5 x 1.5	WAL063672	WAL615654
	630 (9137)	8	G 1/4 A	EGESD 8 SR-WD	6.2	29.5	12	18.9	19	19	6 x 1.5	WAL063673	WAL608481
		10	G 3/8 A	EGESD 10 SR-WD	9.2	32	12	21.9	22	22	8.5 x 1.5	WAL063674	WAL608620
		12	G 3/8 A	EGESD 12 SR-WD	11.0	34	12	21.9	22	24	10 x 1.5	WAL063675	WAL606820
420 (6091)	12	G 1/2 A	EGESD 12 S/R 1/2-WD	15.3	34.5	14	26.9	27	24	10 x 1.5	WAL063676	WAL372581	
	14	G 1/2 A	EGESD 14 SR-WD	17.0	36.5	14	26.9	27	27	12 x 2	WAL063677	WAL617616	
400 (5801)	16	G 1/2 A	EGESD 16 SR-WD	23.0	37	14	26.9	27	30	14 x 2	WAL063678	WAL370609	
400 (5801)	20	G 3/4 A	EGESD 20 SR-WD	28.6	43	16	31.9	32	36	17.3 x 2.4	WAL063679	WAL608479	
	25	G 1 A	EGESD 25 SR-WD	49.4	48	18	39.9	41	46	22.3 x 2.4	WAL063680	WAL372587	
400 (5801)	30	G 1 1/4 A	EGESD 30 SR-WD	67.4	51	20	49.9	50	50	27.3 x 2.4	WAL063681	WAL372332	
	38	G 1 1/2 A	EGESD 38 SR-WD	93.1	60	22	54.9	55	60	35 x 2.5	WAL063682	WAL370961	

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *For FPM (e.g. Viton) see price list / available on request

P-EGES ... M-WD-SV

P-EGES ... M-WD-SV-1.4571

- with pre-assembled standpipe
- with soft seal made from NBR* (e.g. Perbunan) for steel
- with soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)
- Metric stud type E to DIN EN ISO 9974-2



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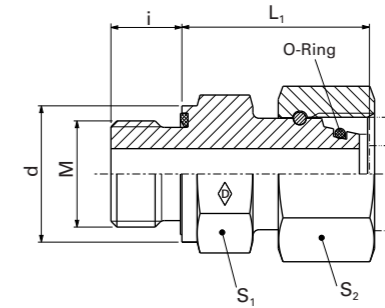
Series	PN bar (psi)	Tube outer diameter	Model	M	kg/100 pc.	i	d	L ₁	S ₁	S ₂	Art. no.	Art. no.
L	500 (7252)	6	P-EGES 6 LM-WD-SV	M 10 x 1	2.5	8	13.9	24.5	14	14	WAL373879	WAL621116
		8	P-EGES 8 LM-WD-SV	M 12 x 1.5	4.0	12	16.9	26.5	17	17	WAL373880	WAL621117
		10	P-EGES 10 LM-WD-SV	M 14 x 1.5	4.8	12	18.9	27.5	19	19	WAL373881	WAL620700
	400 (5801)	12	P-EGES 12 LM-WD-SV	M 16 x 1.5	6.5	12	21.9	30.5	22	22	WAL373882	WAL621118
		15	P-EGES 15 LM-WD-SV	M 18 x 1.5	9.6	12	23.9	31.5	24	27	WAL373883	WAL621119
		18	P-EGES 18 LM-WD-SV	M 22 x 1.5	13.0	14	26.9	31.5	27	32	WAL373884	WAL621120
250 (3626)	22	P-EGES 22 LM-WD-SV	M 26 x 1.5	17.6	16	31.9	32	32	36	WAL373885	WAL621121	
S	800 (11603)	6	P-EGES 6 SM-WD-SV	M 12 x 1.5	4.6	12	16.9	27	17	17	WAL373889	WAL620701
		8	P-EGES 8 SM-WD-SV	M 14 x 1.5	5.5	12	18.9	29.5	19	19	WAL373890	WAL621125
		10	P-EGES 10 SM-WD-SV	M 16 x 1.5	8.3	12	21.9	32	22	22	WAL373891	WAL621126
	630 (9137)	12	P-EGES 12 SM-WD-SV	M 18 x 1.5	11.5	12	23.9	34	24	24	WAL373892	WAL621127
		14	P-EGES 14 SM-WD-SV	M 20 x 1.5	14.9	14	25.9	36.5	27	27	WAL373893	WAL621472
		16	P-EGES 16 SM-WD-SV	M 22 x 1.5	15.4	14	26.9	37	27	30	WAL373894	WAL620657

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 **Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 *For FPM (e.g. Viton) see price list / available on request

EGESD ... M-WD

EGESD ... M-WD-1.4571

- with taper and O-ring made from NBR* (e.g. Perbunan) for steel
- with taper and O-ring made from FKM (e.g. Viton) for stainless steel (1.4571)
- Metric stud type E to DIN EN ISO 9974-2



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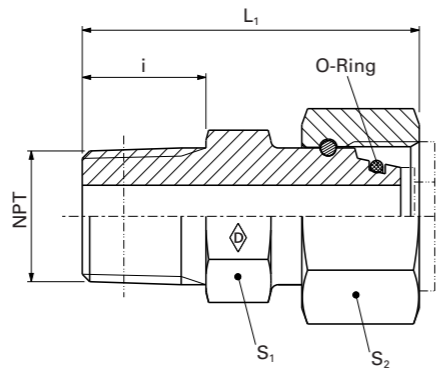
Series	PN bar (psi)	Tube outer diameter	M	Model	kg/100 pc.	L ₁	i	d	S ₁	S ₂	*O-ring	Art. no.	Art. no.
L	500 (7252)	6	M 10 x 1	EGESD 6 LM-WD	3.6	24.5	8	13.9	14	17	4.5 x 1.5	WAL063641	WAL602795
		8	M 12 x 1.5	EGESD 8 LM-WD	5.7	26.5	12	16.9	17	17	6 x 1.5	WAL063642	WAL617617
		10	M 14 x 1.5	EGESD 10 LM-WD	5.8	27.5	12	18.9	19	19	8.5 x 1.5	WAL063643	WAL615649
	400 (5801)	12	M 16 x 1.5	EGESD 12 LM-WD	7.5	30.5	12	21.9	22	22	10 x 1.5	WAL063644	WAL613252
		15	M 18 x 1.5	EGESD 15 LM-WD	14.4	31.5	12	23.9	24	27	12 x 2	WAL063645	WAL617618
		18	M 22 x 1.5	EGESD 18 LM-WD	15.2	31.5	14	26.9	27	32	15 x 2	WAL063646	WAL615369
250 (3626)	22	M 26 x 1.5	EGESD 22 LM-WD	20.2	32.5	16	31.9	32	36	20 x 2	WAL063647	WAL615318	
S	800 (11603)	28	M 33 x 2	EGESD 28 LM-WD	35.6	35	18	39.9	41	46	26 x 2	WAL063648	WAL617619
		35	M 42 x 2	EGESD 35 LM-WD	50.7	42.5	20	49.9	50	50	32 x 2.5	WAL063649	WAL615713
		42	M 48 x 2	EGESD 42 LM-WD	66.4	46.5	22	54.9	55	60	38 x 2.5	WAL063650	WAL617620
	630 (9137)	6	M 12 x 1.5	EGESD 6 SM-WD	5.6	27	12	16.9	17	17	4.5 x 1.5	WAL063651	WAL617621
		8	M 14 x 1.5	EGESD 8 SM-WD	6.2	29.5	12	18.9	19	19	6 x 1.5	WAL063652	WAL617622
		10	M 16 x 1.5	EGESD 10 SM-WD	9.2	32	12	21.9	22	22	8.5 x 1.5	WAL063653	WAL617623
420 (6091)	12	M 18 x 1.5	EGESD 12 SM-WD	11.0	34	12	23.9	24	24	10 x 1.5	WAL063654	WAL617624	
	14	M 20 x 1.5	EGESD 14 SM-WD	17.0	36.5	14	25.9	27	27	12 x 2	WAL063655		
	16	M 22 x 1.5	EGESD 16 SM-WD	23.0	37	14	26.9	27	30	14 x 2	WAL063656	WAL607908	
400 (5801)	20	M 27 x 2	EGESD 20 SM-WD	28.6	43	16	31.9	32	36	17.3 x 2.4	WAL063657	WAL610674	
	25	M 33 x 2	EGESD 25 SM-WD	49.4	48	18	39.9	41	46	22.3 x 2.4	WAL063658	WAL617625	
400 (5801)	30	M 42 x 2	EGESD 30 SM-WD	67.4	51	20	49.9	50	50	27.3 x 2.4	WAL063659	WAL610619	
	38	M 48 x 2	EGESD 38 SM-WD	93.1	60	22	54.9	55	60	35 x 2.5	WAL063660	WAL617626	

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *For FPM (e.g. Viton) see price list / available on request

EGESD ... NPT

EGESD ... NPT-1.4571

- with taper and O-ring made from NBR* (e.g. Perbunan) for steel
- with taper and O-ring made from FKM (e.g. Viton) for stainless steel (1.4571)
- Stud with NPT thread to ANSI/ASME B1.20.1-1983



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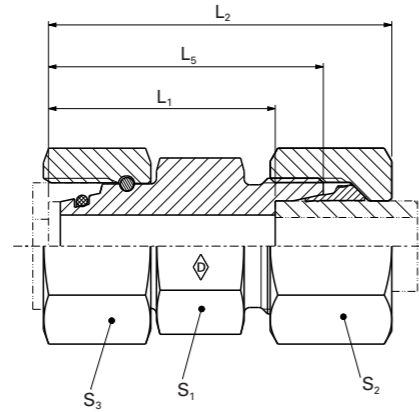
Series	PN bar (psi)	Tube outer diameter	NPT	Model	kg/100 pc.	i	L ₁	S ₁	S ₂	*O-ring	Art. no.	Art. no.
L	250 (3626)	6	1/8 NPT	EGESD 6 L/ 1/8 NPT	3.7	10	36.5	11	14	4.5 x 1.5	WAL605721	WAL617627
		8	1/4 NPT	EGESD 8 L/ 1/4 NPT	6.9	15	41.5	14	17	6 x 1.5	WAL605722	WAL617628
		10	1/4 NPT	EGESD 10 L/ 1/4 NPT	5.9	15	40.5	17	19	8.5 x 1.5	WAL605723	WAL617629
		12	3/8 NPT	EGESD 12 L/ 3/8 NPT	10.2	15	45.5	19	22	10 x 1.5	WAL605724	WAL615256
		15	1/2 NPT	EGESD 15 L/ 1/2 NPT	15.9	20	48	22	27	12 x 2	WAL605725	WAL617630
	160 (2321)	18	1/2 NPT	EGESD 18 L/ 1/2 NPT	15.8	20	47.5	27	32	15 x 2	WAL605726	WAL617631
		22	3/4 NPT	EGESD 22 L/ 3/4 NPT	21.6	20	49	30	36	20 x 2	WAL605727	WAL617632
		28	1 NPT	EGESD 28 L/ 1NPT	43.9	25	57.5	36	46	26 x 2	WAL605728	WAL618291
	100 (1450)	35	1 1/4 NPT	EGESD 35 L/ 1 1/4 NPT	50.5	26	65	46	50	32 x 2.5	WAL605729	WAL617633
		42	1 1/2 NPT	EGESD 42 L/ 1 1/2 NPT	77.0	26	65	50	60	38 x 2.5	WAL605730	WAL617634
S	630 (9137)	6	1/4 NPT	EGESD 6 S/ 1/4 NPT	6.1	15	41.5	17	17	4.5 x 1.5	WAL605731	WAL617635
		8	1/4 NPT	EGESD 8 S/ 1/4 NPT	6.2	15	41.5	17	19	6 x 1.5	WAL605732	WAL617636
		10	3/8 NPT	EGESD 10 S/ 3/8 NPT	9.0	15	44.5	19	22	8.5 x 1.5	WAL605733	WAL617637
		12	3/8 NPT	EGESD 12 S/ 3/8 NPT	9.5	15	45.5	19	24	10 x 1.5	WAL605734	WAL618292
		14	1/2 NPT	EGESD 14 S/ 1/2 NPT	17.7	20	53.5	22	27	12 x 2	WAL605735	WAL617638
	400 (5801)	16	1/2 NPT	EGESD 16 S/ 1/2 NPT	23.6	20	53.5	24	30	14 x 2	WAL605734	WAL617639
		20	3/4 NPT	EGESD 20 S/ 3/4 NPT	28.3	20	58	30	36	17.3 x 2.4	WAL605737	WAL617640
		25	1 NPT	EGESD 25 S/ 1NPT	50.4	25	68	36	46	22.3 x 2.4	WAL605738	WAL618293
	250 (3626)	30	1 1/4 NPT	EGESD 30 S/ 1 1/4 NPT	65.0	26	73.5	46	50	27.3 x 2.4	WAL605739	WAL617641
		38	1 1/2 NPT	EGESD 38 S/ 1 1/2 NPT	93.2	26	78	50	60	35 x 2.5	WAL605740	WAL617642

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*For FPM (e.g. Viton) see price list / available on request

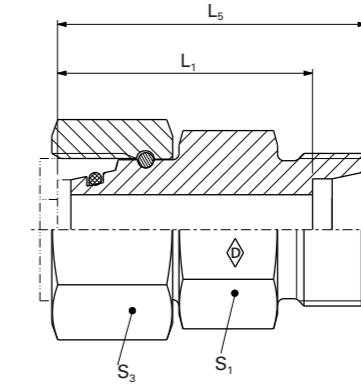
P-DAV ...

- with taper and O-ring made from NBR* (e.g. Perbunan)



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DAS ...



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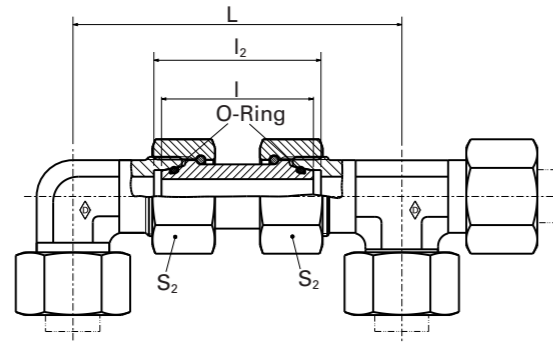
Walpro P-DAV...													System nuts for supplementing the stud (for technical data, see part D of this catalog)							
Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	L ₁	L ₂	L ₃	S ₁	S ₂	S ₃	*O-ring	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	kg/100 pc.	Art. no.	Art. no.	Art. no.*
L	500 (7252)	6	P-DAV 6 L A4GS	5.8	51	43.0	36	12	14	17	4.5x1.5	WAL627441	L	500 (7252)	6	DAS 6 L A4GS	4.6	WAL627401	WAL624607	WAL625940
		8	P-DAV 8 L A4GS	6.6	51	43.0	36	14	17	17	6x1.5	WAL627442			8	DAS 8 L A4GS	4.9	WAL627402	WAL624608	WAL625941
		10	P-DAV 10 L A4GS	8.7	51	43.0	36	17	19	19	8.5x1.5	WAL627443			10	DAS 10 L A4GS	6.5	WAL627403	WAL624609	WAL625942
		12	P-DAV 12 L A4GS	11.3	51	43.0	36	19	22	12	10x1.5	WAL627444			12	DAS 12 L A4GS	8.3	WAL627404	WAL624610	WAL625943
	400 (5801)	15	P-DAV 15 L A4GS	17.1	51	43.0	36	24	27	27	12x2	WAL627445		400 (5801)	15	DAS 15 L A4GS	12.2	WAL627405	WAL624611	WAL625944
		18	P-DAV 18 L A4GS	23.2	52	43.5	36	27	32	32	15x2	WAL627446		18	DAS 18 L A4GS	16.2	WAL627406	WAL624612	WAL625945	
		22	P-DAV 22 L A4GS	30.9	56	47.5	40	32	36	36	20x2	WAL627447		22	DAS 22 L A4GS	21.7	WAL627407	WAL624613	WAL625946	
	250 (3626)	28	P-DAV 28 L A4GS	46.4	57	47.5	40	41	41	46	26x2	WAL627448		250 (3626)	28	DAS 28 L A4GS	36.0	WAL627408	WAL624614	WAL625947
		35	P-DAV 35 L A4GS	65.7	72	60.5	50	46	50	50	32x2.5	WAL627449		35	DAS 35 L A4GS	49.7	WAL627409	WAL624615	WAL625948	
			42	P-DAV 42 L A4GS	106.5	83	71.0	60	55	60	60	38x2.5		WAL627450		42	DAS 42 L A4GS	81.5	WAL627410	WAL624616
S	800 (11603)	6	P-DAV 6 S A4GS	7.2	51	43.0	36	14	17	17	4.5x1.5	WAL627451	S	800 (11603)	6	DAS 6 S A4GS	5.2	WAL627411	WAL624617	WAL625950
		8	P-DAV 8 S A4GS	9.1	51	43.0	36	17	19	19	6x1.5	WAL627452			8	DAS 8 S A4GS	6.8	WAL627412	WAL624618	WAL625951
		10	P-DAV 10 S A4GS	12.1	52	43.5	36	19	22	22	8.5x1.5	WAL627453			10	DAS 10 S A4GS	8.7	WAL627413	WAL624619	WAL625952
	630 (9137)	12	P-DAV 12 S A4GS	14.8	52	43.5	36	22	24	24	10x1.5	WAL627454		630 (9137)	12	DAS 12 S A4GS	10.8	WAL627414	WAL624620	WAL625953
		14	P-DAV 14 S A4GS	19.9	58	48.0	40	24	27	27	12x2	WAL627455		14	DAS 14 S A4GS	14.3	WAL627415			
	400 (5801)	16	P-DAV 16 S A4GS	24.6	58	48.5	40	27	30	30	14x2	WAL627456		400 (5801)	16	DAS 16 S A4GS	17.2	WAL627416	WAL624621	WAL625954
		20	P-DAV 20 S A4GS	39.8	68	56.5	46	32	36	36	17.3x2.4	WAL627457		20	DAS 20 S A4GS	28.7	WAL627417	WAL624622	WAL625955	
		25	P-DAV 25 S A4GS	71.1	74	62.0	50	41	46	46	22.3x2.4	WAL627458		25	DAS 25 S A4GS	49.1	WAL627418	WAL624623	WAL625956	
		30	P-DAV 30 S A4GS	86.5	83	69.5	56	46	50	50	27.3x2.4	WAL627459		30	DAS 30 S A4GS	62.9	WAL627419	WAL624624	WAL625957	
				38	P-DAV 38 S A4GS	123.3	91	76.0	60	55	60	35x2.5		WAL627460		38	DAS 38 S A4GS	89.5	WAL627420	WAL624625

L₂ = approximate dimension if the union nut is tightened
 *FPM (e.g. Viton) available on request

SNV ...

SNV ...-1.4571

- for steel, with taper and O-rings made from NBR* (e.g. Perbunan) at both ends
- for stainless steel (1.4571), with taper and O-rings made from FKM (e.g. Viton) at both ends
- in each case, one nut can be pushed back to the rear edge of the O-ring groove



F

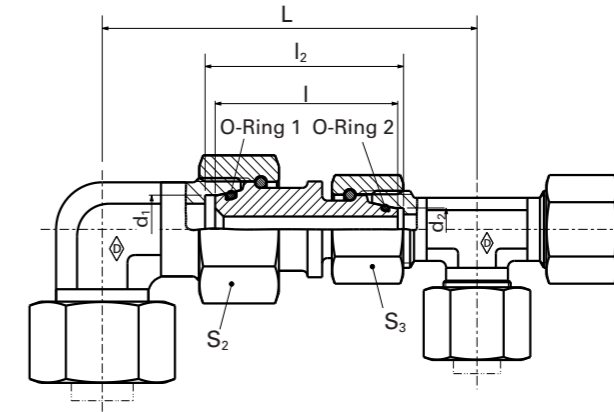
Series	PN bar (psi)	Tube outer diameter	Model	L	l	l ₂	S ₂	*O-ring	Fitting SNV ...	Art. no.	Fitting Stainless steel (1.4571) SNV ... -VI-1.4571**	
L	500 (7252)	6	SNV 6 L	60	34	36	17	4.5 x 1.5	WAL372938	WAL605650		
		8	SNV 8 L	64	34	36	17	6 x 1.5	WAL372939	WAL614821		
		10	SNV 10 L	67	36	37	19	8.5 x 1.5	WAL372940	WAL614822		
	400 (5801)	12	SNV 12 L	71	36	37	22	10 x 1.5	WAL372941	WAL602792		
		15	SNV 15 L	82	39	40	27	12 x 2	WAL372942	WAL613125		
		18	SNV 18 L	89.5	40.5	42.5	32	15 x 2	WAL372943	WAL613126		
	250 (3626)	22	SNV 22 L	102	45	47	36	20 x 2	WAL372944	WAL613249		
		28	SNV 28 L	110	47	49	46	26 x 2	WAL372945	WAL615448		
		35	SNV 35 L	127	53	58	50	32 x 2.5	WAL372946	WAL615456		
	S	800 (11603)	42	SNV 42 L	139	53	59	60	38 x 2.5	WAL372947	WAL615609	
			6	SNV 6 S	71	37	39	17	4.5 x 1.5	WAL372948	WAL617643	
			8	SNV 8 S	73	37	39	19	6 x 1.5	WAL069234	WAL607143	
630 (9137)		10	SNV 10 S	78	41	43	22	8.5 x 1.5	WAL068948	WAL613325		
		12	SNV 12 S	87	42	48	24	10 x 1.5	WAL068950	WAL604350		
		14	SNV 14 S	92	45	48	27	12 x 2	WAL372949	WAL617644		
420 (6091)	16	SNV 16 S	99	46	50	30	14 x 2	WAL068088	WAL610011			
	20	SNV 20 S	113	55	60	36	17.3 x 2.4	WAL681090	WAL605521			
	25	SNV 25 S	126	58	66	46	22.3 x 2.4	WAL061763	WAL605522			
400 (5801)	30	SNV 30 S	144	62	73	50	27.3 x 2.4	WAL068099	WAL613266			
	38	SNV 38 S	165	67	83	60	35 x 2.5	WAL061765	WAL606413			

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*For FPM (e.g. Viton) see price list / available on request

SNV .../... L

- Reducer fittings
- with taper and O-rings made from NBR* (e.g. Perbunan) at both ends
- in each case, one nut can be pushed back to the rear edge of the O-ring groove
- Light-duty range



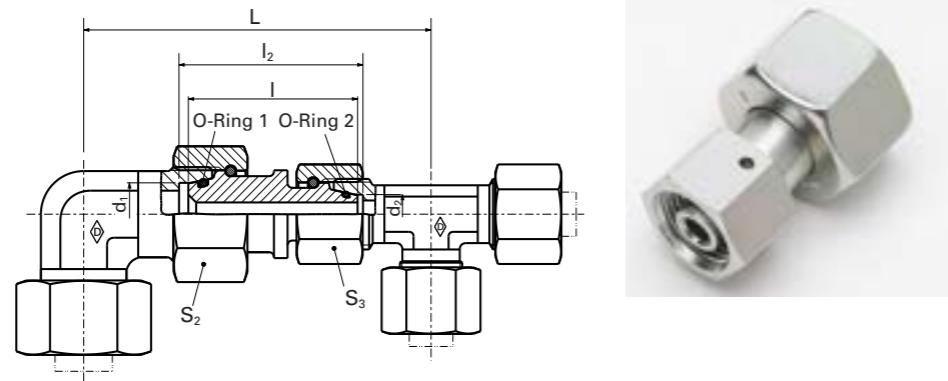
F

Series	PN bar (psi)	Tube outer diameter d ₁	Tube outer diameter d ₂	Model	L	l	l ₂	S ₁	S ₂	*O-ring 1	*O-ring 2	Art. no.	Fitting SNV .../...
L	500 (7252)	8	6	SNV 8/ 6 L	64	34	36	17	17	6 x 1.5	4.5 x 1.5	WAL612675	
		10	6	SNV 10/ 6 L	65.5	35	36.5	19	17	8.5 x 1.5	4.5 x 1.5	WAL612676	
		10	8	SNV 10/ 8 L	65.5	35	36.5	19	17	8.5 x 1.5	6 x 1.5	WAL612677	
		12	6	SNV 12/ 6 L	67.5	35	36.5	22	17	10 x 1.5	4.5 x 1.5	WAL612678	
		12	8	SNV 12/ 8 L	68.5	36	37.5	22	17	10 x 1.5	6 x 1.5	WAL374358	
		12	10	SNV 12/10 L	69.5	36.5	37.5	22	19	10 x 1.5	8.5 x 1.5	WAL612679	
	400 (5801)	15	8	SNV 15/ 8 L	73	36.5	38	27	17	12 x 2	6 x 1.5	WAL612680	
		15	10	SNV 15/10 L	74.5	37.5	38.5	27	19	12 x 2	8.5 x 1.5	WAL612681	
		15	12	SNV 15/12 L	83	44	45	27	22	12 x 2	10 x 1.5	WAL612682	
		18	10	SNV 18/10 L	78	38	39.5	32	19	15 x 2	8.5 x 1.5	WAL612683	
		18	12	SNV 18/12 L	80	38	39.5	32	22	15 x 2	10 x 1.5	WAL612684	
		18	15	SNV 18/15 L	91	45	46.5	32	27	15 x 2	12 x 2	WAL612685	
L	250 (3626)	22	12	SNV 22/12 L	86.5	40.5	42	36	22	20 x 2	10 x 1.5	WAL612686	
		22	15	SNV 22/15 L	92	42	43.5	36	27	20 x 2	12 x 2	WAL612687	
		22	18	SNV 22/18 L	98	45	47	36	32	20 x 2	15 x 2	WAL612688	
		28	15	SNV 28/15 L	96	43	44.5	41	27	26 x 2	12 x 2	WAL612689	
		28	18	SNV 28/18 L	100	44	46	41	32	26 x 2	15 x 2	WAL612690	
		28	22	SNV 28/22 L	106	46	48	41	36	26 x 2	20 x 2	WAL612691	
	250 (3626)	35	18	SNV 35/18 L	109.5	48	51.5	50	32	32 x 2.5	15 x 2	WAL612692	
		35	22	SNV 35/22 L	115	49.5	53	50	36	32 x 2.5	20 x 2	WAL612693	
		35	28	SNV 35/28 L	118.5	50	53.5	50	46	32 x 2.5	26 x 2	WAL612694	
		42	22	SNV 42/22 L	121	49.5	53.5	60	36	38 x 2.5	20 x 2	WAL612695	
		42	28	SNV 42/28 L	124.5	50	54	60	46	38 x 2.5	26 x 2	WAL612696	
		42	35	SNV 42/35 L	133	53	58.5	60	50	38 x 2.5	32 x 2.5	WAL612697	

*For FPM (e.g. Viton) see price list / available on request

SNV .../ ... S

- Reducer fittings
- with taper and O-rings made from NBR* (e.g. Perbunan) at both ends
- in each case, one nut can be pushed back to the rear edge of the O-ring groove
- Heavy-duty range



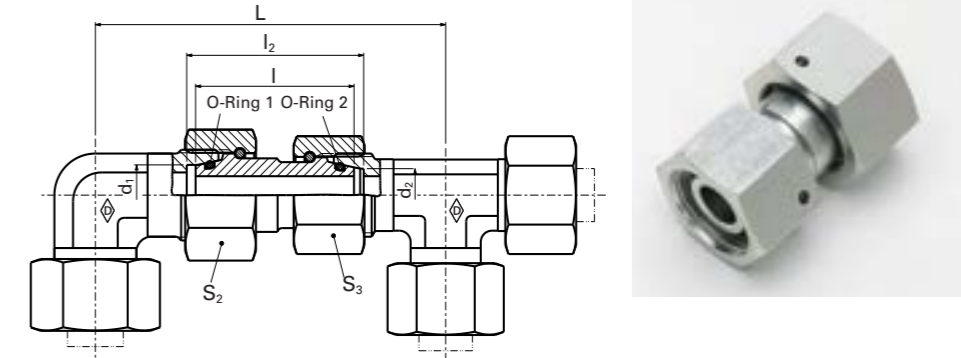
F

Series	PN bar (psi)	Tube outer diameter d ₁	Tube outer diameter d ₂	Model	L	l	l ₂	S ₁	S ₂	*O-ring 1	*O-ring 2	Art. no.	Fitting SNV .../ ...
800 (11603)		8	6	SNV 8/ 6 S	72	37	39	19	17	6 x 1.5	4.5 x 1.5	WAL612698	
		10	6	SNV 10/ 6 S	76	40.5	42.5	22	17	8.5 x 1.5	4.5 x 1.5	WAL612699	
		10	8	SNV 10/ 8 S	75.5	39	41	22	19	8.5 x 1.5	6 x 1.5	WAL612700	
		12	6	SNV 12/ 6 S	80.5	39	43	24	17	10 x 1.5	4.5 x 1.5	WAL612701	
		12	8	SNV 12/ 8 S	84.5	44	46	24	19	10 x 1.5	6 x 1.5	WAL612702	
		12	10	SNV 12/10 S	82.5	41.5	43.5	24	22	10 x 1.5	8.5 x 1.5	WAL612703	
630 (9137)		16	10	SNV 16/10 S	88.5	43.5	46.5	30	22	14 x 2.0	8.5 x 1.5	WAL612704	
		16	12	SNV 16/12 S	96.5	47.5	50.5	30	24	14 x 2.0	10 x 1.5	WAL612705	
		20	12	SNV 20/12 S	100	48.5	52	36	24	17.3 x 2.4	10 x 1.5	WAL612706	
S		20	16	SNV 20/16 S	108	52.5	57	36	30	17.3 x 2.4	14 x 2	WAL612707	
		25	16	SNV 25/16 S	112.5	52	58	46	30	22.3 x 2.4	14 x 2	WAL612708	
		25	20	SNV 25/20 S	121	58	64.5	46	36	22.3 x 2.4	17.3 x 2.4	WAL612709	
		30	16	SNV 30/16 S	121.5	54	61.5	50	30	27.3 x 2.4	14 x 2	WAL612710	
		30	20	SNV 30/20 S	128.5	58.5	66.5	50	36	27.3 x 2.4	17.3 x 2.4	WAL612711	
		30	25	SNV 30/25 S	135	60	69.5	50	46	27.3 x 2.4	22.3 x 2.4	WAL612712	
400 (5801)		38	20	SNV 38/20 S	139	61	71.5	60	36	35 x 2.5	17.3 x 2.4	WAL612713	
		38	25	SNV 38/25 S	145.5	62.5	74.5	60	46	35 x 2.5	22.3 x 2.4	WAL612714	
		38	30	SNV 38/30 S	154.5	64.5	78	60	50	35 x 2.5	27.3 x 2.4	WAL612715	

*For FPM (e.g. Viton) see price list / available on request

SNV ... L/S-S/L

- Reducer fittings
- with taper and O-rings made from NBR* (e.g. Perbunan) at both ends
- in each case, one nut can be pushed back to the rear edge of the O-ring groove



F

PN bar (psi)	Tube outer diameter d ₁	Tube outer diameter d ₂	Model	L	l	l ₂	S ₁	S ₂	*O-ring 1	*O-ring 2	Art. no.	Fitting SNV .../ ...
400 (5801)	6	6	SNV 6L/ 6 S	67.5	35.5	37.5	17	17	4.5 x 1.5	4.5 x 1.5	WAL612716	
	8	8	SNV 8L/ 8 S	68.5	35.5	37.5	17	19	6 x 1.5	6 x 1.5	WAL612717	
	10	10	SNV 10L/10 S	72.5	38.5	40	19	22	8.5 x 1.5	8.5 x 1.5	WAL612718	
	12	12	SNV 12L/12 S	79	39	40.5	22	24	10 x 1.5	10 x 1.5	WAL612719	
	18	16	SNV 18L/16 S	94.5	43.5	46.5	32	30	15 x 2	14 x 2	WAL612720	
	22	20	SNV 22L/20 S	107.5	50	53.5	36	36	20 x 2	17.3 x 2.4	WAL612721	
250 (3626)	28	25	SNV 28L/25 S	118	52.5	57.5	46	46	26 x 2	22.3 x 2.4	WAL612722	
	35	30	SNV 35L/30 S	139	61	69	50	50	32 x 2.5	27.3 x 2.4	WAL612723	
	42	38	SNV 42L/38 S	147	55	66	60	60	38 x 2.5	35 x 2.5	WAL612724	
400 (5801)	16	15	SNV 16S/15 L	90.5	42.5	45	30	27	14 x 2	12 x 2	WAL612725	
	20	18	SNV 20S/18 L	101	47.5	51	36	32	17.3 x 2.4	15 x 2	WAL612726	
250 (3626)	25	22	SNV 25S/22 L	119.5	57	62	46	36	22.3 x 2.4	20 x 2	WAL612727	
	30	28	SNV 30S/28L	131.5	59	65.5	50	46	27.3 x 2.4	26 x 2	WAL612728	
	38	35	SNV 38S/35 L	148	62	72.5	60	50	35 x 2.5	32 x 2.5	WAL612729	





*For FPM (e.g. Viton) see price list / available on request



G1

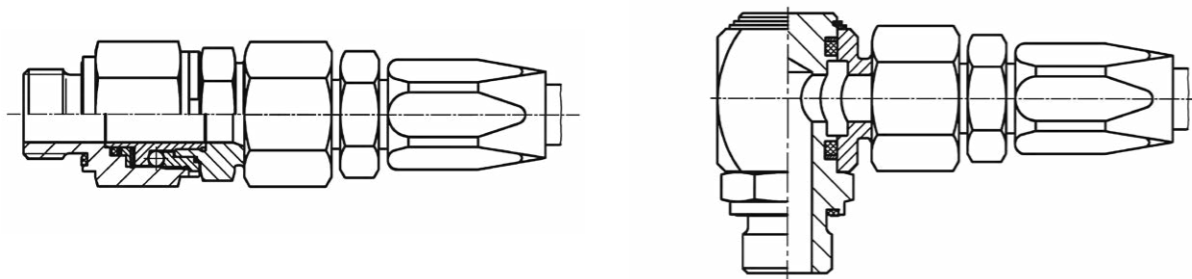
Swivel studs



	Figure Fitting	Figure Stud	Model	Page
			Technical information	G3
			Speed and starting torque	G4
Swivel fittings / swivel studs			P-DGWEV / DGWES ... R-WD	G5 / G6
			P-DGWEV / DGWES ... M-WD	G7 / G8
			P-DGWW / DGWS ...	G9 / G10

G

Technical information



Application

Danfoss's Waltech swivels are connecting elements for the transmission of swivel and rotary movements between assemblies and tubes at low angular velocity.

The fittings are maintenance-free, prevent leakage losses and have low starting torques.

Note: The use of flexible fittings is recommended to compensate for any misalignment.

Safety

The nominal pressure ratings of the swivels are designed to provide a safety factor of 2.5. If used at lower pressure ranges, the safety factor will be higher accordingly.

Materials

Made from steel as standard. A stainless steel version (1.4571) is available on request.

Seals

The seals are made from NBR (e.g. Perbunan) as standard and can be easily replaced. In the case of special hydraulic fluids or higher operating temperatures, special sealing materials are available on request.

The service life of the sealing elements depends on the operating pressure and the sliding velocity. Seal kits are available on request.

Operating temperature

Temperature range of -30 °C to +100 °C

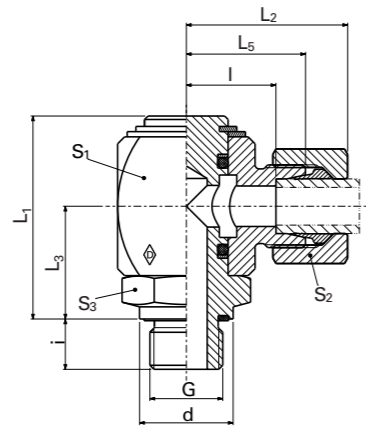
Speed and starting torque

DN (mm)	Model DGWS ...	DGWS ...	Permissible speed (min-1) at an operating pressure of		Starting torque (reference value)						
			200 bar	400 bar	(Nm)						
5	6 LR	6 L	50	25	0.5 at	400 bar					
	6 L/R 1/4	6 S									
	6 SR	8 S									
	8 SR										
	6 LM										
	6 L/M 12 x 1.5										
	8 LM										
	6 SM										
	8 SM										
	8 LR	8 L									
6	10 LR	10 L	50	25	0.5 at	400 bar					
	10 SR										
	12 L/R 1/4										
	8 L/M 14 x 1.5										
	10 LM										
	10 SM										
	10 L/R 3/8	10 L									
	12 LR	12 S									
	12 SR										
	10 L/M 16 x 1.5										
8	12 LM		40	20	2.8 at	400 bar					
	12 SM										
	12 L/R 1/2	12 L									
	14 SR	14 S									
	12 L/M 18 x 1.5										
	15 LM										
	14 SM										
	15 LR	15 L									
	18 LR	16 S									
	16 SR										
10	18 LM		15	-	3.0 at	200 bar					
	16 SM										
	22 LR	18 L									
	20 SR	20 S									
	22 LM										
	20 SM										
	28 LR	22 L									
	25 SR	25 S									
	28 LM										
	25 SM										
13	35 LR	28 L	8	-	7.0 at	200 bar					
	30 SR	30 S									
	35 LM										
	30 SM										
	42 LR	35 L									
	38 SR	38 S									
	42 LM										
	38 SM										
	40	-					42 L	4	-	7.0 at	200 bar

These specifications are provided for reference only. Factors such as temperature, the degree of contamination and whether or not the fittings were installed under stress will affect these values.

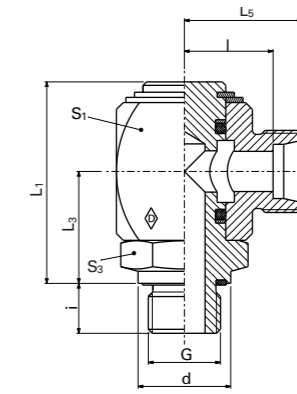
P-DGWEV ... R-WD

- with soft seal made from NBR* (e.g. Perbunan)
- Inch studs type E to DIN EN ISO 1179-2



G

DGWES ... R-WD



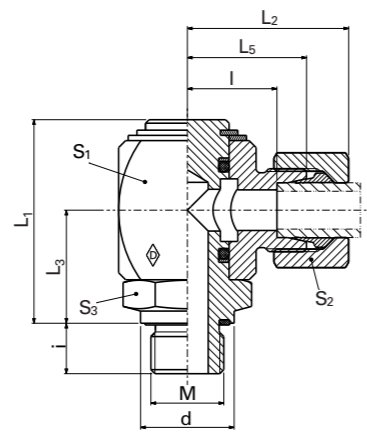
G

Series	PN bar (psi)	Tube outer diameter	DIN-ISO 228 (R..., DIN 259) G	Model	L ₁	L ₂	L ₃	L ₅	I	i	d	S ₁	S ₂	S ₃	Art. no.	Walpro P-DGWEV ...	Series	PN bar (psi)	Tube outer diameter	DIN-ISO 228 (R..., DIN 259) G	Model	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)	
																							Walring W-R ... VI	Walform WF-M ... VI
L	w250 (3626)	6	G 1/8 A	P-DGWEV 6 LR-WD	39	31	21.5	23.5	16.5	8	13.9	27	14	17	WAL607570		L	6	G 1/8 A	DGWES 6 LR-WD	WAL608101	WAL624607	WAL625940	
		6	G 1/4 A	P-DGWEV 6 L/R1/4-WD	40	31	22.5	23.5	16.5	12	18.9	27	14	19	WAL607571			6	G 1/4 A	DGWES 6 L/R 1/4-WD	WAL608102	WAL624607	WAL625940	
		8	G 1/4 A	P-DGWEV 8 LR-WD	45.5	32.5	25	25	18	12	18.9	30	17	22	WAL607572			8	G 1/4 A	DGWES 8 LR-WD	WAL608103	WAL624608	WAL625941	
		10	G 1/4 A	P-DGWEV 10 LR-WD	45.5	33.5	25	26	19	12	18.9	30	19	22	WAL607573			10	G 1/4 A	DGWES 10 LR-WD	WAL608104	WAL624609	WAL625942	
		10	G 3/8 A	P-DGWEV 10 L/R3/8-WD	47.5	34.5	27	27	20	12	21.9	32	19	24	WAL607574			10	G 3/8 A	DGWES 10 L/R 3/8-WD	WAL608105	WAL624609	WAL625942	
		12	G 3/8 A	P-DGWEV 12 LR-WD	47.5	34.5	27	27	20	12	21.9	32	22	24	WAL607575			12	G 3/8 A	DGWES 12 LR-WD	WAL608106	WAL624610	WAL625943	
	160 (2321)	12	G 1/2 A	P-DGWEV 12 L/R1/2-WD	54	36.5	30	29	22	14	26.9	36	22	27	WAL607576		12	G 1/2 A	DGWES 12 L/R 1/2-WD	WAL608107	WAL624610	WAL625943		
		15	G 1/2 A	P-DGWEV 15 LR-WD	59	40	33	32	25	14	26.9	40	27	32	WAL607577		15	G 1/2 A	DGWES 15 LR-WD	WAL608108	WAL624611	WAL625944		
		18	G 1/2 A	P-DGWEV 18 LR-WD	59	40.5	33	32	24.5	14	26.9	40	32	32	WAL607578		18	G 1/2 A	DGWES 18 LR-WD	WAL608109	WAL624612	WAL625945		
		22	G 3/4 A	P-DGWEV 22 LR-WD	64	45	35.5	36.5	29	16	32.9	45	36	36	WAL607579		22	G 3/4 A	DGWES 22 LR-WD	WAL608110	WAL624613	WAL625946		
		28	G 1 A	P-DGWEV 28 LR-WD	76	50.5	41.5	45.5	38	18	39.9	55	41	41	WAL607580		28	G 1 A	DGWES 28 LR-WD	WAL608111	WAL624614	WAL625947		
		100 (1450)	35	G 1 1/4 A	P-DGWEV 35 LR-WD	92	59.5	51.5	48.5	38	20	49.9	65	50	50	WAL607581		100 (1450)	35	G 1 1/4 A	DGWES 35 LR-WD	WAL608112	WAL624615	WAL625948
S	400 (5801)	42	G 1 1/2 A	P-DGWEV 42 LR-WD	102	65	56.5	53.5	42.5	22	54.9	75	60	55	WAL607582		42	G 1 1/2 A	DGWES 42 LR-WD	WAL608113	WAL624616	WAL625949		
		6	G 1/4 A	P-DGWEV 6 SR-WD	40	33	22.5	25.5	18.5	12	18.9	27	17	19	WAL607583		6	G 1/4 A	DGWES 6 SR-WD	WAL608114	WAL624617	WAL625950		
		8	G 1/4 A	P-DGWEV 8 SR-WD	40	33	22.5	25.5	18.5	12	18.9	27	19	19	WAL607584		8	G 1/4 A	DGWES 8 SR-WD	WAL608115	WAL624618	WAL625951		
		10	G 3/8 A	P-DGWEV 10 SR-WD	45.5	35.5	25	27	19.5	12	21.9	30	22	22	WAL607585		10	G 3/8 A	DGWES 10 SR-WD	WAL608116	WAL624619	WAL625952		
		12	G 3/8 A	P-DGWEV 12 SR-WD	47.5	36.5	27	28	20.5	12	21.9	32	24	24	WAL607586		12	G 3/8 A	DGWES 12 SR-WD	WAL608117	WAL624620	WAL625953		
		14	G 1/2 A	P-DGWEV 14 SR-WD	54	41.5	30	32	24	14	26.9	36	27	27	WAL607587		14	G 1/2 A	DGWES 14 SR-WD	WAL608118				
	250 (3626)	16	G 1/2 A	P-DGWEV 16 SR-WD	59	43.5	33	34	25.5	14	26.9	40	30	32	WAL607588		16	G 1/2 A	DGWES 16 SR-WD	WAL608119	WAL624621	WAL625954		
		20	G 3/4 A	P-DGWEV 20 SR-WD	64	49.5	35.5	38.5	28	16	31.9	45	36	36	WAL607589		20	G 3/4 A	DGWES 20 SR-WD	WAL608120	WAL624622	WAL625955		
		25	G 1 A	P-DGWEV 25 SR-WD	76	57.5	41.5	45.5	33.5	18	39.9	55	46	41	WAL607590		25	G 1 A	DGWES 25 SR-WD	WAL608121	WAL624623	WAL625956		
		30	G 1 1/4 A	P-DGWEV 30 SR-WD	92	65.5	51.5	52.5	39	20	49.9	65	50	50	WAL607591		30	G 1 1/4 A	DGWES 30 SR-WD	WAL608122	WAL624624	WAL625957		
		38	G 1 1/2 A	P-DGWEV 38 SR-WD	102	74	56.5	59.5	43.5	22	54.9	75	60	55	WAL607592		38	G 1 1/2 A	DGWES 38 SR-WD	WAL608123	WAL624625	WAL625958		

L₂ = approximate dimension if the union nut is tightened
 *For FPM (e.g. Viton) see price list / available on request

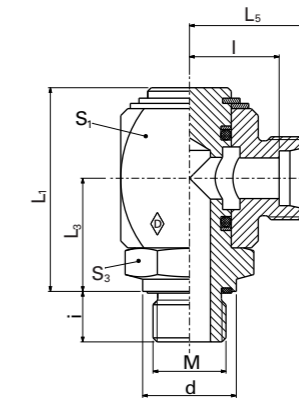
P-DGWEV ... M-WD

- with soft seal made from NBR* (e.g. Perbunan)
- Metric stud type E to DIN EN ISO 9974-2



G

DGWES ... M-WD



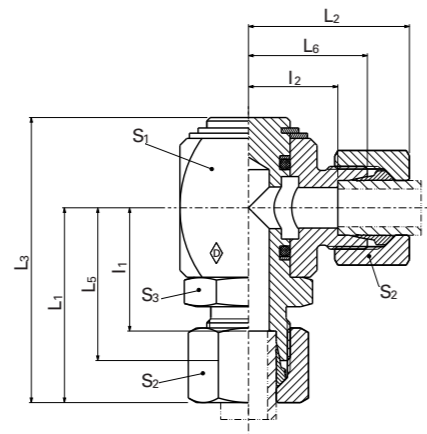
G

Series	PN bar (psi)	Tube outer diameter	M	Model	L ₁	L ₂	L ₃	L ₅	I	i	d	S ₁	S ₂	S ₃	Art. no.	Walpro P-DGWEV ...	Series	PN bar (psi)	Tube outer diameter	M	Model	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)			
																							Stud DGWES ...	Walring W-R ... VI	Walform WF-M ... VI	
L	250 (3626)		6	M 10 x 1	P-DGWEV 6 LM-WD	39	31	21.5	23	16.5	8	13.9	27	14	17	WAL607593		L	250 (3626)		6	M 10 x 1	DGWES 6 LM-WD	WAL608124	WAL624607	WAL625940
			6	M 12 x 1.5	P-DGWEV 6 L/M 12 x 1.5-WD	40	31	22.5	23	16.5	12	16.9	27	14	19	WAL607594					6	M 12 x 1.5	DGWES 6 L/M 12 x 1.5-WD	WAL608125	WAL624607	WAL625940
			8	M 12 x 1.5	P-DGWEV 8 LM-WD	40	31	22.5	23	16.5	12	16.9	27	17	19	WAL607595					8	M 12 x 1.5	DGWES 8 LM-WD	WAL608126	WAL624608	WAL625941
			8	M 14 x 1.5	P-DGWEV 8 L/M 14 x 1.5-WD	45.5	32.5	25	25	18	12	18.9	30	17	22	WAL607596					8	M 14 x 1.5	DGWES 8 L/M 14 x 1.5-WD	WAL608127	WAL624608	WAL625941
			10	M 14 x 1.5	P-DGWEV 10 LM-WD	45.5	33.5	25	26	19	12	18.9	30	19	22	WAL607597					10	M 14 x 1.5	DGWES 10 LM-WD	WAL608128	WAL624609	WAL625942
			10	M 16 x 1.5	P-DGWEV 10 L/M 16 x 1.5-WD	47.5	34.5	27	27	20	12	21.9	32	19	24	WAL607598					10	M 16 x 1.5	DGWES 10 L/M 16 x 1.5-WD	WAL608129	WAL624609	WAL625942
			12	M 16 x 1.5	P-DGWEV 12 LM-WD	47.5	34.5	27	27	20	12	21.9	32	22	24	WAL607599					12	M 16 x 1.5	DGWES 12 LM-WD	WAL608130	WAL624610	WAL625943
			12	M 18 x 1.5	P-DGWEV 12 L/M 18 x 1.5-WD	54	36.5	30	29	22	12	23.9	36	22	27	WAL607600					12	M 18 x 1.5	DGWES 12 L/M 18 x 1.5-WD	WAL608131	WAL624610	WAL625943
			15	M 18 x 1.5	P-DGWEV 15 LM-WD	54	38	30	30	23	12	23.9	36	27	27	WAL607601					15	M 18 x 1.5	DGWES 15 LM-WD	WAL608132	WAL624611	WAL625944
			18	M 22 x 1.5	P-DGWEV 18 LM-WD	59	40.5	33	32	24.5	14	26.9	40	32	32	WAL607602					18	M 22 x 1.5	DGWES 18 LM-WD	WAL608133	WAL624612	WAL625945
			22	M 26 x 1.5	P-DGWEV 22 LM-WD	64	45	35.5	36	29	16	31.9	45	36	36	WAL607603					22	M 26 x 1.5	DGWES 22 LM-WD	WAL608134	WAL624613	WAL625946
			28	M 33 x 2	P-DGWEV 28 LM-WD	76	50.5	41.5	41	34	18	39.9	55	41	41	WAL607604					28	M 33 x 2	DGWES 28 LM-WD	WAL608135	WAL624614	WAL625947
			35	M 42 x 2	P-DGWEV 35 LM-WD	92	59.5	51.5	48	38	20	49.9	65	50	50	WAL607605					35	M 42 x 2	DGWES 35 LM-WD	WAL608136	WAL624615	WAL625948
			42	M 48 x 2	P-DGWEV 42 LM-WD	102	65	56.5	53	42.5	22	54.9	75	60	55	WAL607606					42	M 48 x 2	DGWES 42 LM-WD	WAL608137	WAL624616	WAL625949
			S	400 (5801)		6	M 12 x 1.5	P-DGWEV 6 SM-WD	40	33	22.5	25	18.5	12	16.9	27	17				19	WAL607607		S	400 (5801)	
8	M 14 x 1.5	P-DGWEV 8 SM-WD				40	33	22.5	25	18.5	12	18.9	27	19	19	WAL607608		8	M 14 x 1.5	DGWES 8 SM-WD	WAL608139	WAL624618	WAL625951			
10	M 16 x 1.5	P-DGWEV 10 SM-WD				45.5	35.5	25	27	19.5	12	21.9	30	22	22	WAL607609		10	M 16 x 1.5	DGWES 10 SM-WD	WAL608140	WAL624619	WAL625952			
12	M 18 x 1.5	P-DGWEV 12 SM-WD				47.5	36.5	27	28	20.5	12	23.9	32	24	24	WAL607610		12	M 18 x 1.5	DGWES 12 SM-WD	WAL608141	WAL624620	WAL625953			
14	M 20 x 1.5	P-DGWEV 14 SM-WD				54	41.5	30	32	24	14	25.9	36	27	27	WAL607611		14	M 20 x 1.5	DGWES 14 SM-WD	WAL608142					
16	M 22 x 1.5	P-DGWEV 16 SM-WD				59	43.5	33	34	25.5	14	26.9	40	30	32	WAL607612		16	M 22 x 1.5	DGWES 16 SM-WD	WAL608143	WAL624621	WAL625954			
20	M 27 x 2	P-DGWEV 20 SM-WD				64	49.5	35.5	38	28	16	31.9	45	36	36	WAL607613		20	M 27 x 2	DGWES 20 SM-WD	WAL608144	WAL624622	WAL625955			
25	M 33 x 2	P-DGWEV 25 SM-WD				76	57.5	41.5	45	33.5	18	39.9	55	46	41	WAL607614		25	M 33 x 2	DGWES 25 SM-WD	WAL608145	WAL624623	WAL625956			
30	M 42 x 2	P-DGWEV 30 SM-WD				92	65.5	51.5	52	39	20	49.9	65	50	50	WAL607615		30	M 42 x 2	DGWES 30 SM-WD	WAL608146	WAL624624	WAL625957			
38	M 48 x 2	P-DGWEV 38 SM-WD				102	74	56.5	59	43.5	22	54.9	75	60	55	WAL607616		38	M 48 x 2	DGWES 38 SM-WD	WAL608147	WAL624625	WAL625958			

L₂ = approximate dimension if the union nut is tightened
 *For FPM (e.g. Viton) see price list / available on request

P-DG WV ...

- Tube connection at both ends

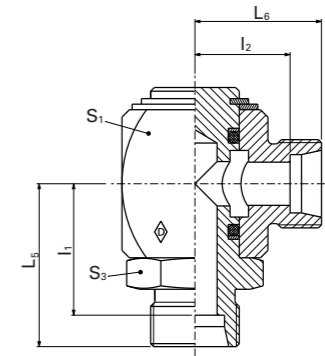


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Series	PN bar (psi)	Tube outer diameter	Model	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	I ₁	I ₂	S ₁	S ₂	S ₃	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)		
																Walring W-R ... VI	Walform WF-M ... VI	Walpro P-DG WV ...
L	250 (3626)	6	P-DG WV 6 L	39	31	56.5	31.5	23.5	24.5	16.5	27	14	19	WAL373966				
		8	P-DG WV 8 L	40.5	32.5	61	33	25	26	18	30	17	22	WAL373967				
		10	P-DG WV 10 L	43.5	34.5	64	36	27	29	20	32	19	24	WAL373968				
		12	P-DG WV 12 L	46.5	36.5	70.5	39	29	32	22	36	22	27	WAL373969				
		15	P-DG WV 15 L	50	40	76	42	32	35	25	40	27	32	WAL373970				
	160 (2321)	18	P-DG WV 18 L	55	43	83.5	46.5	34.5	39	27	45	32	36	WAL373971				
		22	P-DG WV 22 L	63	50	97.5	54.5	41.5	47	34	55	36	41	WAL373972				
	100 (1450)	28	P-DG WV 28 L	71.5	55.5	112	62.5	46.5	55	39	65	41	50	WAL373973				
		35	P-DG WV 35 L	80.5	64.5	126	69.5	53.5	59	43	75	50	55	WAL373974				
			42	P-DG WV 42 L	92.5	72.5	146.5	81	61	70	90	60	70	WAL373975				
S	400 (5801)	6	P-DG WV 6 S	41	33	58.5	33.5	25.5	26.5	18.5	27	17	19	WAL373976				
		8	P-DG WV 8 S	41	33	58.5	33.5	25.5	26.5	18.5	27	19	19	WAL373977				
		10	P-DG WV 10 S	43.5	35.5	64	35	27	27.5	19.5	30	22	22	WAL373978				
		12	P-DG WV 12 S	45.5	36.5	66	37	28	29.5	20.5	32	24	24	WAL373979				
		14	P-DG WV 14 S	51.5	41.5	75.5	42	32	34	24	36	27	27	WAL373980				
	250 (3626)	16	P-DG WV 16 S	63.5	43.5	79.5	44	34	35.5	25.5	40	30	32	WAL373981				
		20	P-DG WV 20 S	61.5	49.5	90	50.5	38.5	40	28	45	36	36	WAL373982				
			25	P-DG WV 25 S	70.5	57.5	105	58.5	45.5	46.5	33.5	55	46	41	WAL373983			
			30	P-DG WV 30 S	81.5	65.5	122	68.5	52.5	55	39	65	50	50	WAL373984			
			38	P-DG WV 38 S	90	74	135.5	75.5	59.5	59.5	43.5	75	60	55	WAL373985			

L₁, L₂ and L₃ = approximate dimensions if the union nuts are tightened

DGWS ...
















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Series	PN bar (psi)	Tube outer diameter	Model	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)		
					Walring W-R ... VI	Walform WF-M ... VI	Walpro P-DG WV ...
L	250 (3626)	6	DGWS 6 L	WAL060910	WAL624607	WAL625940	
		8	DGWS 8 L	WAL060911	WAL624608	WAL625941	
		10	DGWS 10 L	WAL060912	WAL624609	WAL625942	
		12	DGWS 12 L	WAL060913	WAL624610	WAL625943	
		15	DGWS 15 L	WAL060914	WAL624611	WAL625944	
	160 (2321)	18	DGWS 18 L	WAL060915	WAL624612	WAL625945	
		22	DGWS 22 L	WAL060916	WAL624613	WAL625946	
	100 (1450)	28	DGWS 28 L	WAL060917	WAL624614	WAL625947	
		35	DGWS 35 L	WAL060918	WAL624615	WAL625948	
			42	DGWS 42 L	WAL060919	WAL624616	WAL625949
S	400 (5801)	6	DGWS 6 S	WAL060920	WAL624617	WAL625950	
		8	DGWS 8 S	WAL060921	WAL624618	WAL625951	
		10	DGWS 10 S	WAL060922	WAL624619	WAL625952	
		12	DGWS 12 S	WAL060923	WAL624620	WAL625953	
		14	DGWS 14 S	WAL060924	WAL624621	WAL625954	
	250 (3626)	16	DGWS 16 S	WAL060925	WAL624622	WAL625955	
		20	DGWS 20 S	WAL060926	WAL624623	WAL625956	
			25	DGWS 25 S	WAL060927	WAL624624	WAL625957
			30	DGWS 30 S	WAL060928	WAL624625	WAL625958
			38	DGWS 38 S	WAL060929	WAL624625	WAL625958

G2

Check valves, shuttle valves, high-pressure ball valves

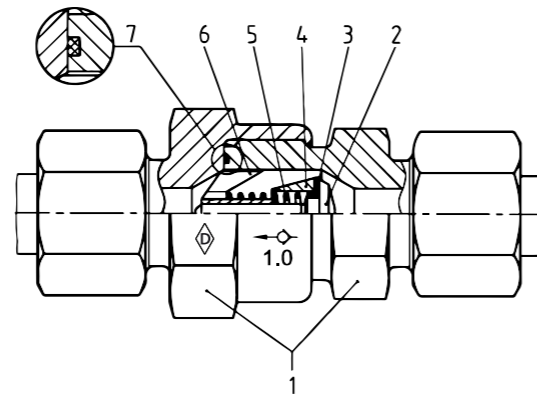
Check valves, shuttle valves, high-pressure ball valves

	Figure Fitting	Figure Stud	Model	Page
			Technical information	G13
			Valve insert	G14
Check valve			P-RV / RS ...	G15 / G16
			P-RW / RSV ... R-WD P-RW / RSV ... M-WD	G17 / G18 G19 / G20
			P-RVZ / RSZ ... R-WD P-RVZ / RSZ ... M-WD	G21 / G22 G23 / G24
			Technical information	G25
Shuttle valve			P-TW / TWS ...	G25 / G26
			Technical information	G27
High-pressure ball valve			KH-R ...	G28
			P-KHV / KHS ...	G29 / G30
			P-KH3KV / KH3KS ...	G31 / G32
			KH3KS-R ...	G33
			KH3S-R ...	G34

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Technical information

1. Stud
2. Bolt
3. Sealing washer
4. Sleeve
5. Compression spring
6. Valve guide
7. O-ring



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Applications

For use with hydraulic fluids and compressed air. To ensure the suitability of the valves for your application, please specify the medium, where necessary also the concentration level, the maximum operating pressure including pressure peaks, the temperature and the frequency of valve actuation.

Design and construction

Danfoss's Waltech check valves are equipped with 90° tapers and a sealing washer made from FPM (e.g. Viton).

The internal parts are designed to optimize the media flow.

Operating temperature

Temperature range of -20 °C to +100 °C

Materials

- | | |
|-------------------------------|------------------|
| 1. Stud: | galvanized steel |
| 2. Bolt: | galvanized steel |
| 3. Sealing washer: | FPM |
| 4. Sleeve: | galvanized steel |
| 5. Compression spring: | steel |
| 6. Valve guide: | |
| Tube outer diameter 6-28 mm: | brass |
| Tube outer diameter 30-42 mm: | galvanized steel |
| 7. O-ring: | FPM |

Opening pressures

The check valves come with a standard opening pressure of 1.0 bar. Alternative opening pressures from 0.5 to 3.0 bar are available on request.

Version

The port thread of the check valves is sealed by means of a soft seal.

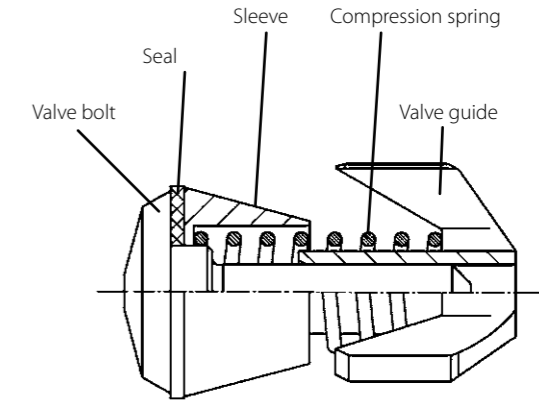
The opening pressure and flow direction are indicated on the valves.

Assembly

The valve bodies come fully assembled and with the required opening pressure. When connecting or dismantling the tubes, the hexagon socket closest to the union nut must be held firmly in place to prevent the sealing edge at the inside of the valve body from coming loose.

- for opening pressure of 1 bar
- fitting dimensions available on request

Nominal width	Tube outer diameter	Art. no.
6	6-12	WAL032431
10	14-18	WAL032438
16	20-28	WAL032445
25	30	WAL032451
32	35 - 42	WAL032457

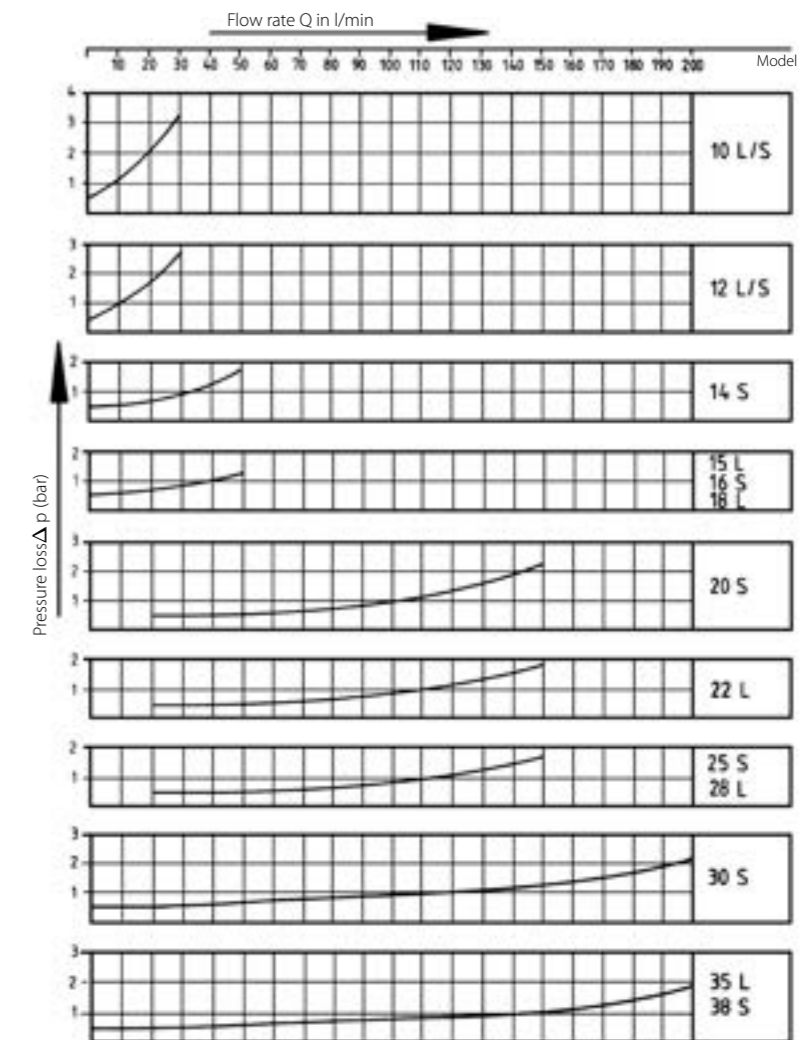
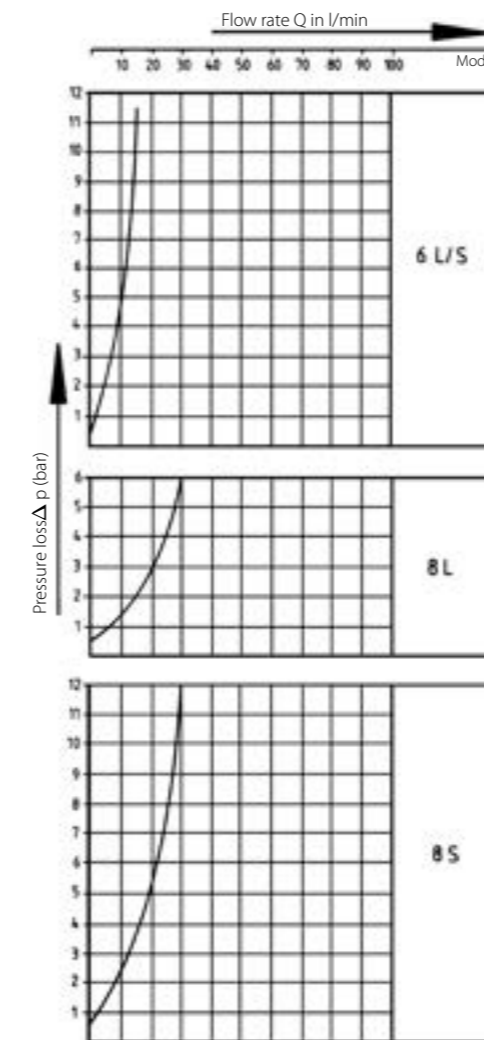


The valve insert with nominal size 16 must not be installed in reverse position.

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Pressure loss if check valves are used

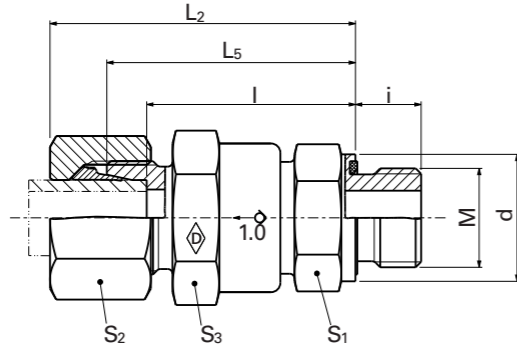
Measured using 35 mm² of hydraulic oil per second
Opening pressure 0.5 bar



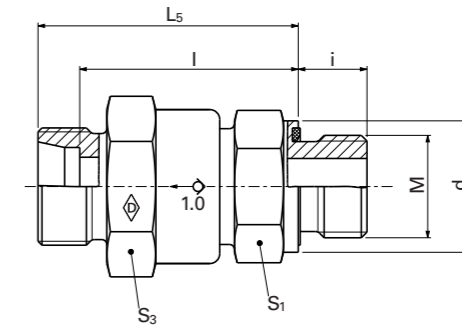


P-RVV ... M-WD

- Flow from male studs
- with soft seal made from NBR* (e.g. Perbunan)
- Metric stud type E to DIN EN ISO 9974-2



RSV ... M-WD



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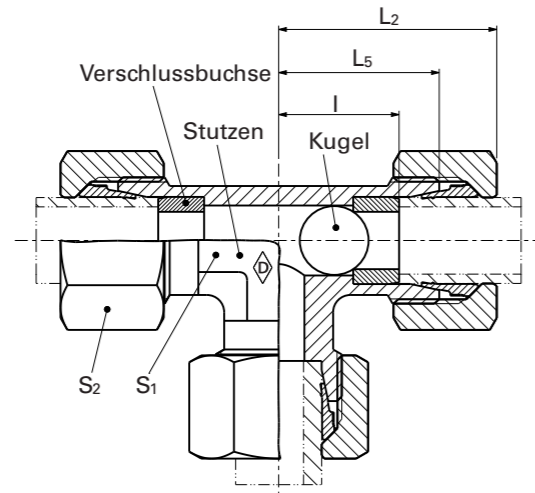
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Series	PN bar (psi)	Tube outer diameter	M	Model	kg/100 pc.	d	L ₂	L ₅	L	i	S ₁	S ₂	S ₃	Ø of outlet	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)		
																Stud RSV ... M-WD	Walring W-R ... VI	Walform WF-M ... VI
L	400 (5801)	6	M 10 x 1	P-RVV 6 LM-WD	11.5	13.9	50.5	43	36	8	22	14	27	4.0	WAL374005	WAL610475	WAL624607	WAL625940
		8	M 12 x 1.5	P-RVV 8 LM-WD	13.0	16.9	50.5	43	36	12	22	17	27	6.0	WAL374006	WAL374842	WAL624608	WAL625941
		10	M 14 x 1.5	P-RVV 10 LM-WD	12.6	18.9	48.5	41	34	12	22	19	27	7.0	WAL374007	WAL067897	WAL624609	WAL625942
		12	M 16 x 1.5	P-RVV 12 LM-WD	16.5	21.9	53.5	46	39	12	22	22	27	7.5	WAL374008	WAL607416	WAL624610	WAL625943
		15	M 18 x 1.5	P-RVV 15 LM-WD	21.2	23.9	56	48	41	12	27	27	32	11.0	WAL374009	WAL067988	WAL624611	WAL625944
	250 (3626)	18	M 22 x 1.5	P-RVV 18 LM-WD	29.7	29.9	61.5	53	45.5	14	27	32	32	11.0	WAL374010	WAL372118	WAL624612	WAL625945
		22	M 26 x 1.5	P-RVV 22 LM-WD	51.6	31.9	69.5	61	53.5	16	41	36	46	18.0	WAL374011	WAL061479	WAL624613	WAL625946
		28	M 33 x 2	P-RVV 28 LM-WD	68.2	39.9	77	68	60.5	18	41	41	46	18.5	WAL374012	WAL604421	WAL624614	WAL625947
		35	M 42 x 2	P-RVV 35 LM-WD	155.5	49.9	88.5	77.5	67	20	60	50	70	29.0	WAL374013	WAL615467	WAL624615	WAL625948
		42	M 48 x 2	P-RVV 42 LM-WD	161.2	54.9	87.5	75.5	64.5	22	60	60	70	29.0	WAL609988	WAL615468	WAL624616	WAL625949
S	400 (5801)	6	M 12 x 1.5	P-RVV 6 SM-WD	12.8	16.9	52.5	45	38	12	22	17	27	4.0	WAL374014	WAL615469	WAL624617	WAL625950
		8	M 14 x 1.5	P-RVV 8 SM-WD	13.6	18.9	50.5	43	36	12	22	19	27	5.0	WAL374015	WAL615214	WAL624618	WAL625951
		10	M 16 x 1.5	P-RVV 10 SM-WD	15.1	21.9	53.5	45	37.5	12	22	22	27	7.0	WAL374016	WAL371695	WAL624619	WAL625952
		12	M 18 x 1.5	P-RVV 12 SM-WD	18.7	23.9	55.5	47	39.5	12	24	24	27	7.5	WAL374017	WAL371496	WAL624620	WAL625953
		14	M 20 x 1.5	P-RVV 14 SM-WD	24.5	25.9	59.5	50	42	14	27	27	32	10.0	WAL374018	WAL609976	WAL624621	WAL625954
	250 (3626)	16	M 22 x 1.5	P-RVV 16 SM-WD	29.1	26.9	62.5	53	44.5	14	27	30	32	11.0	WAL374019	WAL371266	WAL624622	WAL625955
		20	M 27 x 2	P-RVV 20 SM-WD	55.3	31.9	74	63	52.5	16	41	36	46	16.0	WAL374020	WAL609900	WAL624623	WAL625956
		25	M 33 x 2	P-RVV 25 SM-WD	73.5	39.9	77	65	53	18	41	46	46	18.5	WAL374021	WAL025201	WAL624624	WAL625957
		30	M 42 x 2	P-RVV 30 SM-WD	105.3	49.9	87	74	60.5	20	50	50	55	24.0	WAL374022	WAL609901	WAL624625	WAL625958
		38	M 48 x 2	P-RVV 38 SM-WD	200.4	54.9	96	81.5	65.5	22	60	60	70	29.0	WAL374023	WAL068471	WAL624625	WAL625958

L₂ = approximate dimension if the union nut is tightened
 *For FPM (e.g. Viton) see price list / available on request

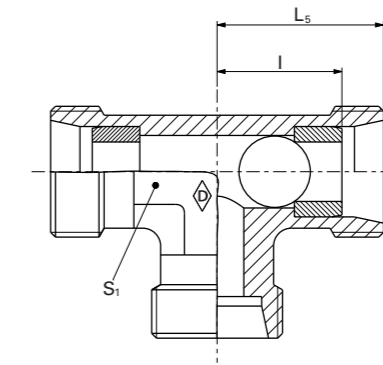
P-TWV ...

• Shuttle valve



G

TWS ...



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Series	PB* bar (psi)	Tube outer diameter	Model	L ₅	L ₂	I	S ₁	S ₂	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)						
										Walpro P-TWV ...	Stud TWS ...	Walring W-R ... VI	Walform WF-M ... VI			
L	250 (3626)	8	P-TWV 8L	21	29	14	14	17	WAL613224	L	250 (3626)	8	TWS 8L	WAL611086	WAL624608	WAL625941
		10	P-TWV 10L	22	30	15	17	19	WAL613225			10	TWS 10L	WAL612901	WAL624609	WAL625942
		12	P-TWV 12L	24	32	17	19	22	WAL613226			12	TWS 12L	WAL612902	WAL624610	WAL625943
		15	P-TWV 15L	28	36	21	19	27				15	TWS 15L	WAL624877	WAL624611	WAL625944

L₂ = approximate dimension if the union nut is tightened
 *With a safety factor of 1.5

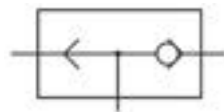
Material

Steel

Application

For use as an automatic diverter valve for hydraulic fluids within a closed hydraulic circuit. To ensure the functionality of the valve in each case, please specify the medium, where necessary also the concentration level, the maximum operating pressure including pressure peaks, the temperature and the frequency of valve actuation. Only suitable for connections that fit closely against the tube stop of the body.

Operating mode



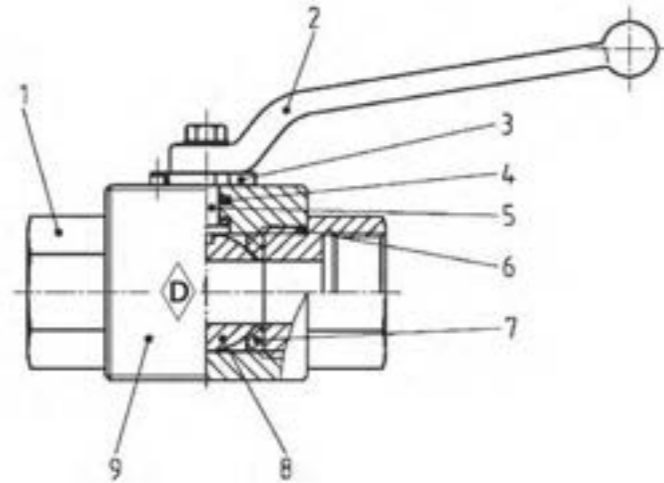
The port through which pressurized oil is applied (either A or B) must be connected to port C.
 The port that is not pressurized will be closed by means of a movable ball that acts as a metal-to-metal seal.

Operating temperature

Temperature range of -40 °C to +120 °C

Technical information

1. Adapter
2. Handle
3. Stop plate
4. O-ring
5. Selector shaft
6. O-ring
7. Sealing element
8. Ball
9. Body



Application

For use with hydraulic applications. For compressed air applications up to an operating pressure (PB) of 16 bar. Ball valves are available on request for compressed air applications above 16 bar.

Design and construction

The ball seal is pre-loaded, which ensures tight sealing even at lower pressures. Owing to the ball's floating position, any rise in pressure will progressively push the ball closer to the seal. Handles can be fitted in any position at 45° angles.

Safety

The operating pressures of the ball valves are designed with a safety factor of 1.5 under static load conditions, including pressure peaks. Ball valves are subject to a maximum storage period of 6 months.

Materials

Standard version:

- Body – galvanized steel
- Ball and selector shaft – steel
- Ball seal – POM (e.g. Delrin)
- O-rings – NBR (e.g. Perbunan)

Special body and sealing materials available on request

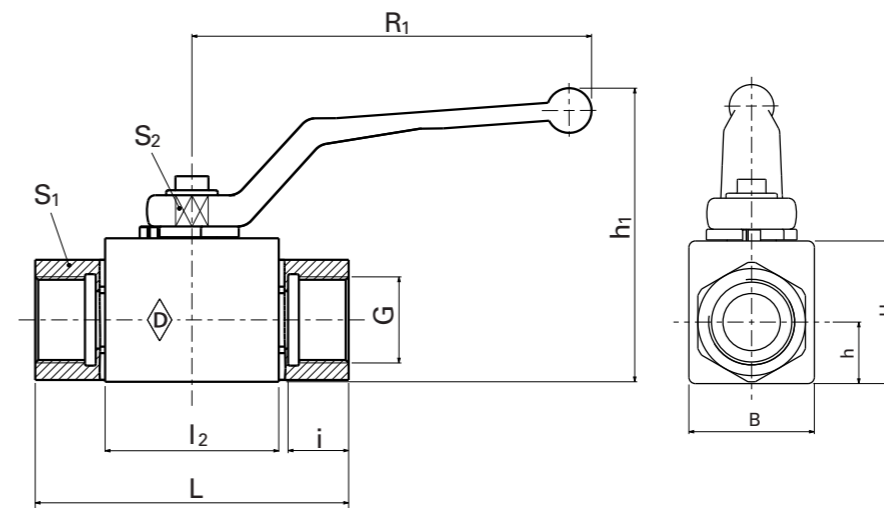
Operating temperature

Temperature range of -20 °C to +60 °C

G

KH-R ...

- Whitworth thread



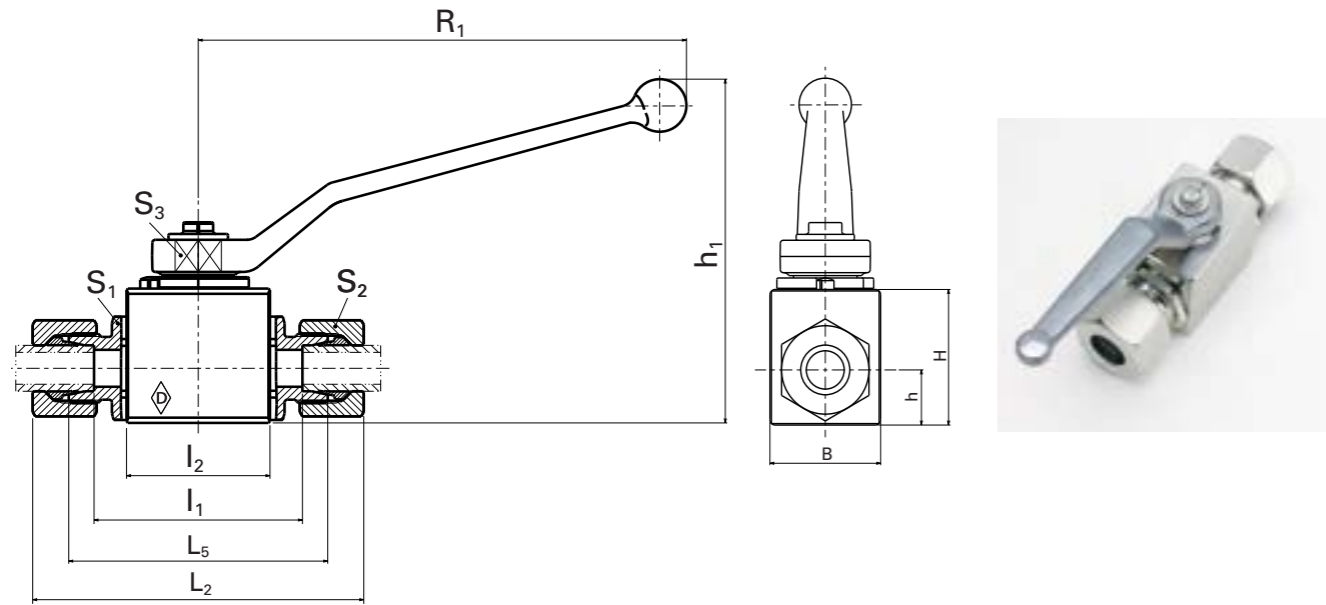
G

														Stud KH-R ...
PB* bar (psi)	DIN-ISO 228 (R ..., DIN 259) G	Model	B	H	h	h ₁ ±5	L	I ₂	i	S ₁	S ₂	R ₁	DN	Art. no.
500 (7252)	G 1/8	KH-R 1/8 /NW 4	26	32	12.8	72	69	36.2	8	22	9	107	4	WAL029293
	G 1/4	KH-R 1/4 /NW 6	26	32	12.8	72	69	36.2	12	22	9	107	6	WAL029294
	G 3/8	KH-R 3/8 /NW 10	32	38	16.25	78	73	43.2	12	27	9	107	10	WAL029295
400 (5801)	G 1/2	KH-R 1/2 /NW 13	35	40	17.25	80	85	48.2	14	30	9	107	13	WAL029296
	G 3/4	KH-R 3/4 /NW 20	49	57	24.5	135	96.5	62.2	16	41	14	165	20	WAL029298
350 (5076)	G 1	KH-R 1 /NW 25	54	60	26.5	139	113.5	66.2	18	46	14	165	24	WAL029299
	G 1 1/4	KH-R 1 1/4 /NW 32	80	85.4	39.5	160	121.5	80	20	60	17	210	24	WAL029300
	G 1 1/4	KH-R 1 1/4 /NW 32**	80	85.4	39.5	160	110	80	20	60	17	210	32	WAL061806
	G 1 1/2	KH-R 1 1/2 /NW 40**	84	92.4	42	164	120	85	22	70	17	210	38	WAL029301

*With a safety factor of 1.5
**With forged body

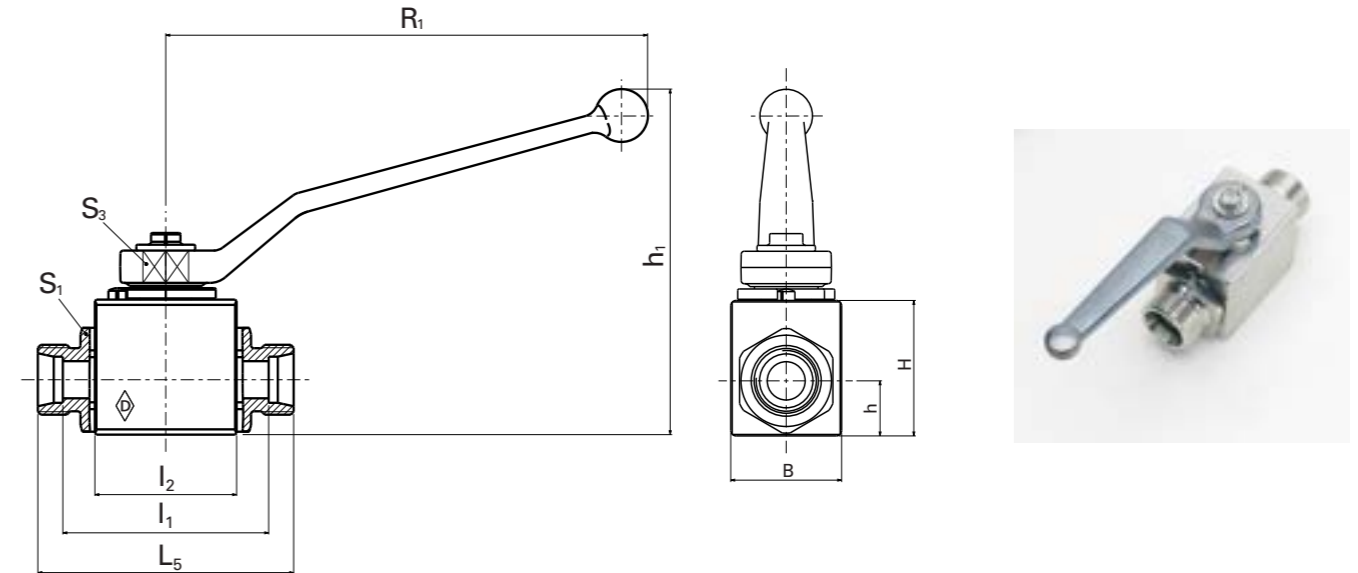
P-KHV ...

- Tube connection at both ends
- Threads are available with runout or with undercut according to DIN 3853



G

KHS ...



G

Walpro P-KHV...																	Stud KHS...			System nuts for supplementing the stud (for technical data, see part D of this catalog)	
Series	PB* bar (psi)	Tube outer diameter	Model	B	H	h	h ₁ ±5	I ₂	I ₁	L ₂	L ₅	S ₁	S ₂	S ₃	R ₁	DN	Art. no.	Art. no.	Art. no.	Art. no.	
L	400 (5801)	6	P-KHV 6 L/NW 4	26	32	12.8	72	36	62	82	67	22	14	9	107	5	WAL374081	WAL029274	WAL624607	WAL625940	
		8	P-KHV 8 L/NW 6	26	32	12.8	72	36	53	82	67	22	17	9	107	6	WAL374082	WAL029275	WAL624608	WAL625941	
		10	P-KHV 10 L/NW 8	26	32	12.8	72	36	57	86	71	22	19	9	107	8	WAL374083	WAL029276	WAL624609	WAL625942	
		12	P-KHV 12 L/NW 10	32	38	16.25	78	43	61	90	75	27	22	9	107	10	WAL374084	WAL029277	WAL624610	WAL625943	
		15	P-KHV 15 L/NW 13	35	40	17.25	80	48	68.6	99.5	84	30	27	9	107	13	WAL374085	WAL029278	WAL624611	WAL625944	
	250 (3626)	18	P-KHV 18 L/NW 16	38	46	18.7	124	48	68	101	83	32	32	12	165	15	WAL374086	WAL029279	WAL624612	WAL625945	
		22	P-KHV 22 L/NW 20	49	57	24.5	135	62	87	119	102	41	36	14	165	20	WAL374087	WAL029280	WAL624613	WAL625946	
		28	P-KHV 28 L/NW 25	54	60	26.5	139	66	93	126	108	46	41	14	165	24	WAL374088	WAL029281	WAL624614	WAL625947	
		35	P-KHV 35 L/NW 25	54	60	26.5	139	66	93	136	114	50	50	14	165	24	WAL374089	WAL029282	WAL624615	WAL625948	
		210 (3046)	42	P-KHV 42 L/NW 40**	84	92.4	42	164	80	111	157	133	70	60	17	210	38	WAL374091	WAL029283	WAL624616	WAL625949
S	500 (7252)	8	P-KHV 8 S/NW 4	26	32	12.8	72	36	59	88	73	22	19	9	107	5	WAL374092	WAL029284	WAL624618	WAL625951	
		10	P-KHV 10 S/NW 6	26	32	12.8	72	36	58	90	73	22	22	9	107	6	WAL374093	WAL029285	WAL624619	WAL625952	
		12	P-KHV 12 S/NW 8	26	32	12.8	72	36	61	93	77	22	24	9	107	8	WAL374094	WAL029286	WAL624620	WAL625953	
		14	P-KHV 14 S/NW 10	32	38	16.25	78	43	68	103	84	27	27	9	107	10	WAL374095	WAL029287	WAL624620	WAL625953	
		16	P-KHV 16 S/NW 13	35	40	17.25	80	48	70	106	87	30	30	9	107	13	WAL374096	WAL029288	WAL624621	WAL625954	
	400 (5801)	20	P-KHV 20 S/NW 16	38	46	18.7	124	48	70	112	90	32	32	12	165	15	WAL374097	WAL029289	WAL624622	WAL625955	
		25	P-KHV 25 S/NW 20	49	57	24.5	135	62	88	134	110	41	46	14	165	20	WAL374098	WAL029290	WAL624623	WAL625955	
		30	P-KHV 30 S/NW 25	54	60	26.5	139	66	93	146	120	46	50	14	165	24	WAL374099	WAL029291	WAL624624	WAL625957	
		315 (4569)	38	P-KHV 38 S/NW 32**	80	85.4	39.5	160	80	108	170	140	60	60	17	210	32	WAL374101	WAL061810	WAL624625	WAL625958

L₅ = approximate dimension if the union nut is tightened
 *With a safety factor of 1.5
 **With forged body

L₅ = approximate dimension if the union nut is tightened
 *With a safety factor of 1.5
 **With forged body

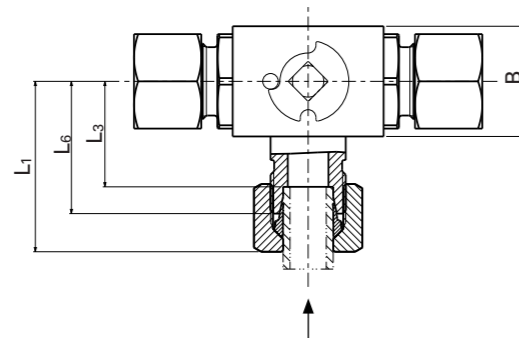
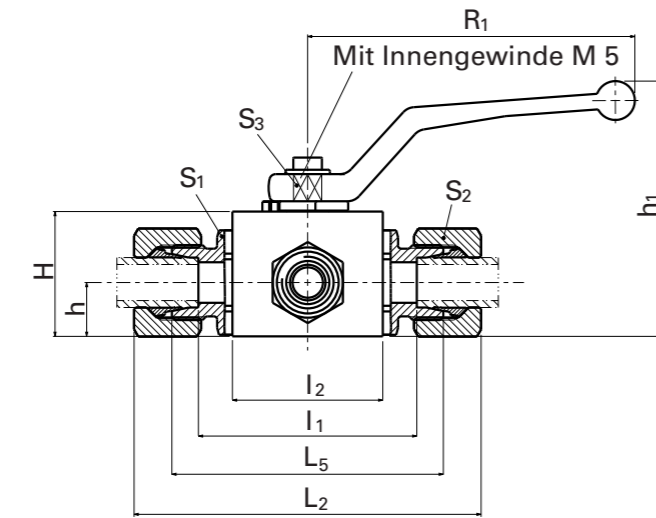
P-KH3KV ...

- L or T port
- Port type



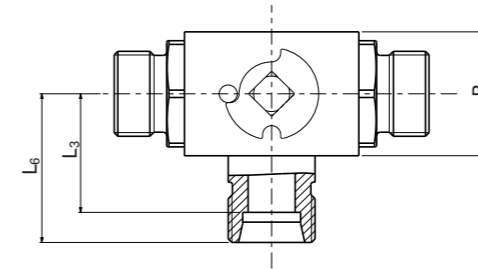
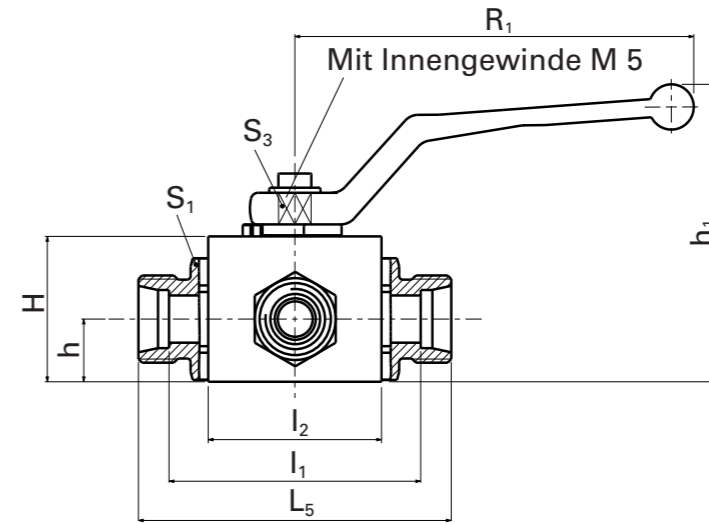
The required port type should be indicated after the model name.

- With female M5 thread
- Threads are available with runout or with undercut according to DIN 3853



- This port must always be in the open position.
- Pressure may only be applied from this side. Pressurization from the other ports is not permissible and will lead to malfunctions!

KH3KS ...



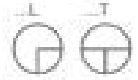
Walpro P-KH3KV...																				Stud KH3KS...				
Series	PB* bar (psi)	Tube outer diameter	Model	B	H	h	h ₁ ±0.5	l ₁	l ₂	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	S ₁	S ₂	S ₃	R ₁	DN	Art. no.	Art. no.	Art. no.	Art. no.
L	400 (5801)	8	P-KH3KV 8 L/NW 6-L	26	32	13	72	53	36	41	82	25	67	32	22	17	9	107	6	6	WAL374620	WAL062623	WAL624608	WAL625941
		8	P-KH3KV 8 L/NW 6-T	26	32	13	72	53	36	41	82	25	67	32	22	17	9	107	6	6	WAL374621	WAL062635	WAL624608	WAL625941
		10	P-KH3KV 10 L/NW 8-L	26	32	13	72	57	36	44.5	86	25	71	32	22	19	9	107	8	8	WAL374622	WAL062624	WAL624609	WAL625942
		10	P-KH3KV 10 L/NW 8-T	26	32	13	72	57	36	44.5	86	25	71	32	22	19	9	107	8	8	WAL374623	WAL062636	WAL624609	WAL625942
	350 (5076)	12	P-KH3KV 12 L/NW 10-L	32	38	16.5	78	57	43	44.5	90	33	75	35	27	22	9	107	10	10	WAL374624	WAL062625	WAL624610	WAL625943
		12	P-KH3KV 12 L/NW 10-T	32	38	16.5	78	57	43	44.5	90	33	75	35	27	22	9	107	10	10	WAL374625	WAL062637	WAL624610	WAL625943
		15	P-KH3KV 15 L/NW 13-L	35	40	17.5	80	63	48	49.5	100	33	84	42	30	27	9	107	13	13	WAL374626	WAL062626	WAL624611	WAL625944
		15	P-KH3KV 15 L/NW 13-T	35	40	17.5	80	63	48	49.5	100	33	84	42	30	27	9	107	13	13	WAL374627	WAL062638	WAL624611	WAL625944

L₂ = approximate dimension if the union nut is tightened
*With a safety factor of 1.5

L₂ = approximate dimension if the union nut is tightened
*With a safety factor of 1.5

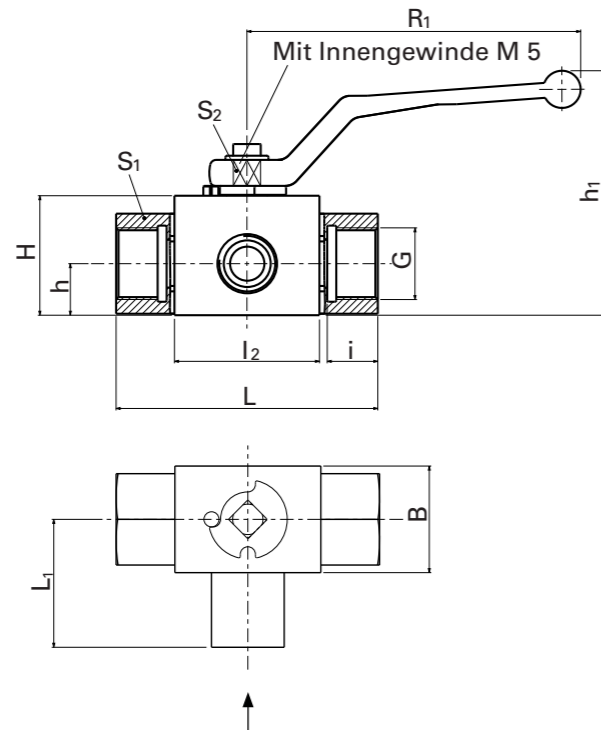
KH3KS-R ...

- L or T port Whitworth thread
- Port type



The required port type should be indicated after the model name.

- With female M5 thread



- This port must always be in the open position.
- Pressure may only be applied from this side. Pressurization from the other ports is not permissible and will lead to malfunctions!

PB* bar (psi)	DIN-ISO 228 (R ..., DIN 259) G	Model	B	H	h	h ₁ ±5	L	L ₁	l ₂	i	S ₁	S ₂	R ₁	DN	Art. no.	Stud KH3KS-R...
400 (5801)	G1/4	KH3KS-R 1/4 /NW 6-L	26	32	13	82	69	32	36	14	22	9	136	6	WAL062615	
	G1/4	KH3KS-R 1/4 /NW 6-T	26	32	13	82	69	32	36	14	22	9	136	6	WAL062619	
	G3/8	KH3KS-R 3/8 /NW 10-L	32	38	16.5	88	73	35	43	14	27	9	136	10	WAL062616	
350 (5076)	G3/8	KH3KS-R 3/8 /NW 10-T	32	38	16.5	88	73	35	43	14	27	9	136	10	WAL062620	
	G1/2	KH3KS-R 1/2 /NW 13-L	35	40	17.5	90	85	37	48	16	30	9	136	13	WAL062617	
	G1/2	KH3KS-R 1/2 /NW 13-T	35	40	17.5	90	85	37	48	16	30	9	136	13	WAL062621	

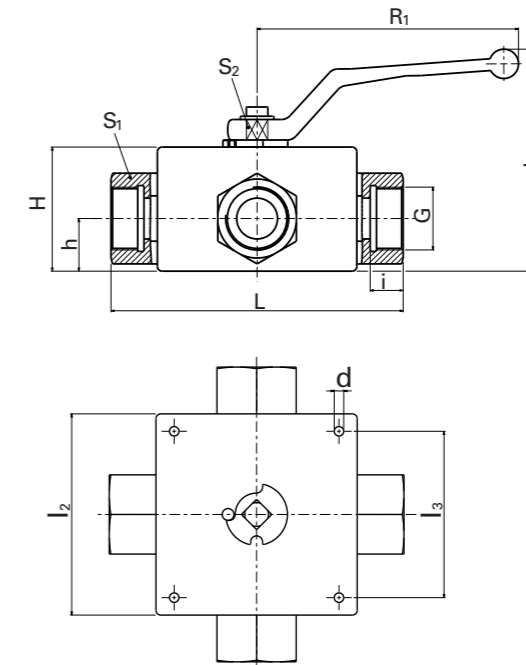
*With a safety factor of 1.5

KH3S-R ...

- L or T port Whitworth thread
- Port type



The required port type should be indicated after the model name.



PB* bar (psi)	DIN-ISO 228 (R ..., DIN 259) G	Model	l ₁	H	h	h ₁	L	l ₃	d	i	S ₁	S ₂	R ₁	DN	Art. no.	Stud KH3S-R...
400 (5801)	G1/4	KH3S-R 1/4/NW 6-L	70	52	26.5	110	100	55	6.5	14	27	12	164	6	WAL062647	
	G1/4	KH3S-R 1/4/NW 6-T	70	52	26.5	110	100	55	6.5	14	27	12	164	6	WAL062653	
500 (7252)	G3/8	KH3S-R 3/8/NW 10-L	80	55	28	116	115	65	6.7	14	30	14	164	10	WAL062648	
	G3/8	KH3S-R 3/8/NW 10-T	80	55	28	116	115	65	6.7	14	30	14	164	10	WAL062654	
400 (5801)	G1/2	KH3S-R 1/2/NW 13-L	100	60	30	121	134	80	8.7	16	36	14	164	13	WAL062649	
	G1/2	KH3S-R 1/2/NW 13-T	100	60	30	121	134	80	8.7	16	36	14	164	13	WAL062655	
315 (4569)	G3/4	KH3S-R 3/4/NW 20-L	114	71	37	133	148	85	8.7	18	41	17	193	20	WAL062650	
	G3/4	KH3S-R 3/4/NW 20-T	114	71	37	133	148	85	8.7	18	41	17	193	20	WAL062656	
	G1	KH3S-R 1/NW 25-L	127	79	42.5	141	172	105	11	20	50	19	200	25	WAL062651	
	G1	KH3S-R 1/NW 25-T	127	79	42.5	141	172	105	11	20	50	19	200	25	WAL062657	

*With a safety factor of 1.5

H

Reducer studs, flange studs, female studs, gauge couplings

	Figure Fitting	Figure Stud	Model	Page
Reducer fittings / reducer studs			P-REDV / P-REDS ... -SV	H3 / H4
			P-REDVDN / REDSDN ... / ...	H5 - H12
Reducing adapter with soft seal			RED ... -WD/...	H13
			RED ... -WD/...	H14
Straight flange fittings / straight flange studs			P-GFV / GFS ...	H15 / H16
Elbow flange fittings / elbow flange studs			P-WFV / WFS ...	H17 / H18
Straight female fittings / straight female studs			P-GAV / GAS ... R	H19 / H20
			P-GAV / GAS ... M	H21 / H22
Adjustable gauge couplings			EMASD ...	H23
Gauge couplings (fittings / studs)			P-MAV / MAS ... R	H25 / H26

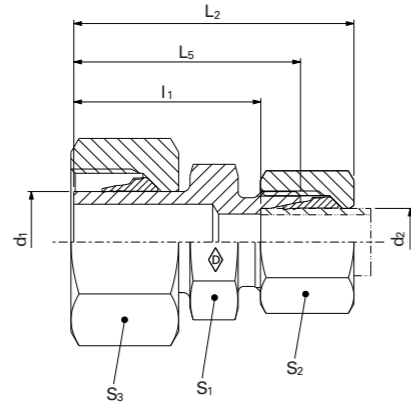
H



P-REDV....-SV

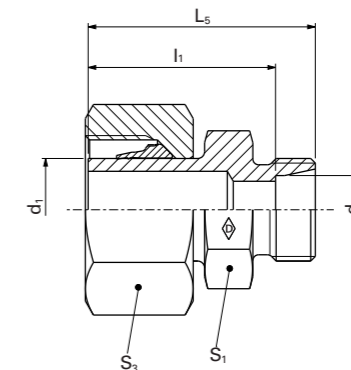
P-REDV ...-SV-1.4571

- L series
- Pre-assembled standpipe



P-REDS...-SV

P-REDS ...-SV-1.4571



H

H

												System nuts for supplementing the stud (for technical data, see part D of this catalog)											
												Stud P-REDS...-SV		Stud Stainless steel (1.4571) P-REDS ...-SV-1.4571		Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*					
PN bar (psi)	d ₁	Tube outer diameter d ₂	Model	kg/ 100 pc.	L ₂	L ₅	I ₁	S ₁	S ₂	S ₃	Art. no.	Art. no.	PN bar (psi)	d ₁	Tube outer diameter d ₂	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.	
500 (7252)	8	6	P-REDV 8/6 L-SV	3.9	43	34.5	27.5	12	14	17	WAL374192	WAL620250	500 (7252)	8	6	P-REDS 8/6 L-SV	3.0	WAL604589	WAL621262	WAL624607	WAL625940	WAL625980	
		6	P-REDV 10/6 L-SV	5.1	43	35.5	28.5	12	14	19	WAL374193	WAL620251			6	P-REDS 10/6 L-SV	4.0	WAL602458	WAL620345	WAL624607	WAL625940	WAL625980	
		8	P-REDV 10/8 L-SV	5.8	43	35.5	28.5	14	17	19	WAL374194	WAL620227			8	P-REDS 10/8 L-SV	4.0	WAL602753	WAL620908	WAL624608	WAL625941	WAL625981	
	12	6	P-REDV 12/6 L-SV	6.1	42.5	35	28	14	14	22	WAL374195	WAL620185	12	6	P-REDS 12/6 L-SV	5.5	WAL602691	WAL620600	WAL624607	WAL625940	WAL625980		
		8	P-REDV 12/8 L-SV	7.0	43.5	36	29	14	17	22	WAL374196	WAL620199		8	P-REDS 12/8 L-SV	5.5	WAL602585	WAL621263	WAL624608	WAL625941	WAL625981		
		10	P-REDV 12/10 L-SV	8.1	44.5	37	30	17	19	22	WAL374197	WAL620252		10	P-REDS 12/10 L-SV	5.5	WAL602433	WAL620577	WAL624609	WAL625942	WAL625982		
		6	P-REDV 15/6 L-SV	8.9	43	35	28	17	14	27	WAL374198	WAL620505		15	6	P-REDS 15/6 L-SV	7.5	WAL602992	WAL621264	WAL624607	WAL625940	WAL625980	
		8	P-REDV 15/8 L-SV	8.7	44	36	29	17	17	27	WAL374199	WAL620495			8	P-REDS 15/8 L-SV	8.5	WAL602930	WAL621265	WAL624608	WAL625941	WAL625981	
		10	P-REDV 15/10 L-SV	9.4	45	37	30	17	19	27	WAL374200	WAL620459			10	P-REDS 15/10 L-SV	8.5	WAL602586	WAL620611	WAL624609	WAL625942	WAL625982	
	400 (5801)	12	6	P-REDV 15/12 L-SV	12.1	46	38	31	19	22	27	WAL374201	WAL620385	400 (5801)	12	6	P-REDS 15/12 L-SV	8.5	WAL602539	WAL621266	WAL624610	WAL625943	WAL625983
			8	P-REDV 18/6 L-SV	11.8	45	37	30	19	14	32	WAL374202	WAL620711			6	P-REDS 18/6 L-SV	10.5	WAL602993	WAL620582	WAL624607	WAL625940	WAL625980
			8	P-REDV 18/8 L-SV	12.3	46	38	31	19	17	32	WAL374203	WAL620253			8	P-REDS 18/8 L-SV	11.0	WAL602434	WAL621267	WAL624608	WAL625941	WAL625981
18		10	P-REDV 18/10 L-SV	12.9	47	39	32	19	19	32	WAL374204	WAL620229	18	10	P-REDS 18/10 L-SV	12.5	WAL602461	WAL620583	WAL624609	WAL625942	WAL625982		
		12	P-REDV 18/12 L-SV	14.1	48	40	33	19	22	32	WAL374205	WAL620243		12	P-REDS 18/12 L-SV	12.0	WAL602462	WAL621268	WAL624610	WAL625943	WAL625983		
		15	P-REDV 18/15 L-SV	16.6	49	41	34	24	27	32	WAL374206	WAL620430		15	P-REDS 18/15 L-SV	13.0	WAL602931	WAL621269	WAL624611	WAL625944	WAL625984		
250 (3626)	6	6	P-REDV 22/6 L-SV	16.1	47	39	32	24	14	36	WAL374207	WAL620393	250 (3626)	6	6	P-REDS 22/6 L-SV	13.0	WAL612581	WAL621270	WAL624607	WAL625940	WAL625980	
		8	P-REDV 22/8 L-SV	17.0	48	40	33	24	17	36	WAL374208	WAL620528			8	P-REDS 22/8 L-SV	14.5	WAL604260	WAL621271	WAL624608	WAL625941	WAL625981	
		10	P-REDV 22/10 L-SV	17.5	49	41	34	24	19	36	WAL374209	WAL620244			10	P-REDS 22/10 L-SV	15.5	WAL604256	WAL621272	WAL624609	WAL625942	WAL625982	
	22	12	P-REDV 22/12 L-SV	18.6	50	42	35	24	22	36	WAL374210	WAL620327	22	12	P-REDS 22/12 L-SV	15.0	WAL602932	WAL621273	WAL624610	WAL625943	WAL625983		
		15	P-REDV 22/15 L-SV	20.6	51	43	36	24	27	36	WAL374211	WAL620400		15	P-REDS 22/15 L-SV	17.5	WAL602435	WAL621274	WAL624611	WAL625944	WAL625984		
		18	P-REDV 22/18 L-SV	24.1	53	44	36.5	27	32	36	WAL374212	WAL620254		18	P-REDS 22/18 L-SV	18.0	WAL602463	WAL621275	WAL624612	WAL625945	WAL625985		

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*For complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list.

L₂ = approximate dimension if the union nut is tightened

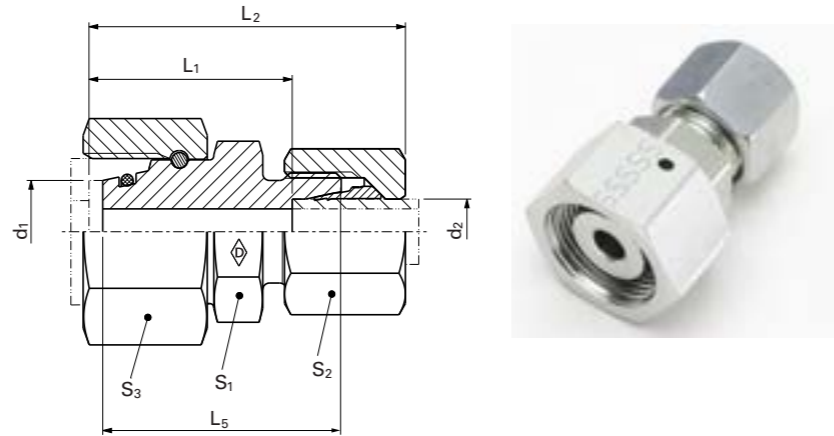
⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.



P-REDVDN ... / ...

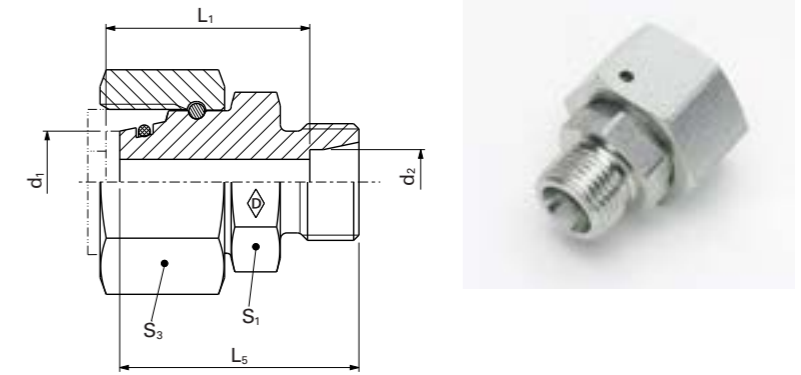
P-REDVD ... / ...-1.4571

- L series
- With soft seal made from NBR** (e.g. Perbunan) for steel
- With soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)



RESDN ... / ...

RESD ... / ...-1.4571



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													System nuts for supplementing the stud (for technical data, see part D of this catalog)										
													Stud RESDN ... / ...		Stud Stainless steel (1.4571) P-RESD ... / ... VI-1.4571*		Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*				
PN bar (psi)	d ₁	Tube outer diameter d ₂	Model	kg/ 100 pc.	L ₃	L ₂	L ₁	S ₁	S ₂	S ₃	*O-ring	Art. no.	Art. no.	PN bar (psi)	d ₁	Tube outer diameter d ₂	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.
250 (3626)	35	6	P-REDVDN 35/6 L	37.4	41.0	51.0	37.0		14			WAL619147	WAL621396	250 (3626)	35	6	RESDN 35/6 L	35.0	WAL619058	WAL618365	WAL624607	WAL625940	WAL625980
		8	P-REDVDN 35/8 L	36.8	41.0	51.5	37.0		17			WAL619148	WAL621397			8	RESDN 35/8 L	32.4	WAL619059	WAL618366	WAL624608	WAL625941	WAL625981
		10	P-REDVDN 35/10 L	37.5	42.0	52.5	38.0		19			WAL619149	WAL621398			10	RESDN 35/10 L	36.0	WAL619060	WAL618367	WAL624609	WAL625942	WAL625982
		12	P-REDVDN 35/12 L	36.5	42.0	52.0	38.0	46	22	50	32x2.5	WAL619150	WAL621399			12	RESDN 35/12 L	33.5	WAL619061	WAL618368	WAL624610	WAL625943	WAL625983
		15	P-REDVDN 35/15 L	40.0	43.0	54.0	39.0		27			WAL619151	WAL621400			15	RESDN 35/15 L	34.0	WAL619062	WAL618369	WAL624611	WAL625944	WAL625984
		18	P-REDVDN 35/18 L	42.0	43.0	54.5	38.5		32			WAL619152	WAL621401			18	RESDN 35/18 L	34.5	WAL619063	WAL618370	WAL624612	WAL625945	WAL625985
		22	P-REDVDN 35/22 L	44.0	45.0	56.5	40.5		36			WAL619153	WAL621402			22	RESDN 35/22 L	35.0	WAL619064	WAL618371	WAL624613	WAL625946	WAL625986
		28	P-REDVDN 35/28 L	49.0	45.0	56.5	40.5		41			WAL619154	WAL621403			28	RESDN 35/28 L	37.0	WAL619065	WAL618372	WAL624614	WAL625947	WAL625987
		6	P-REDVDN 42/6 L	54.2	44.0	54.5	40.5		14			WAL619155	WAL623091			6	RESDN 42/6 L	49.5	WAL619066	WAL623092	WAL624607	WAL625940	WAL625980
		8	P-REDVDN 42/8 L	51.0	44.0	55.0	40.5		17			WAL619156	WAL623093			8	RESDN 42/8 L	51.8	WAL619067	WAL623094	WAL624608	WAL625941	WAL625981
42	60	10	P-REDVDN 42/10 L	52.0	45.0	56.0	41.5		19			WAL619157	WAL621404	10	RESDN 42/10 L	50.0	WAL619068	WAL618373	WAL624609	WAL625942	WAL625982		
		12	P-REDVDN 42/12 L	56.2	45.0	55.5	41.5		22			WAL619158	WAL621405	12	RESDN 42/12 L	50.0	WAL619069	WAL618374	WAL624610	WAL625943	WAL625983		
		15	P-REDVDN 42/15 L	51.0	46.0	57.5	52.5	50	27	60	38x2.5	WAL619159	WAL621406	15	RESDN 42/15 L	46.0	WAL619070	WAL618375	WAL624611	WAL625944	WAL625984		
		18	P-REDVDN 42/18 L	53.5	46.0	58.0	42.0		32			WAL619160	WAL621407	18	RESDN 42/18 L	46.5	WAL619071	WAL618376	WAL624612	WAL625945	WAL625985		
		22	P-REDVDN 42/22 L	57.5	48.0	60.0	44.0		36			WAL619161	WAL621408	22	RESDN 42/22 L	48.5	WAL619072	WAL618377	WAL624613	WAL625946	WAL625986		
		28	P-REDVDN 42/28 L	59.5	48.0	60.0	44.0		41			WAL619162	WAL621409	28	RESDN 42/28 L	49.0	WAL619073	WAL618378	WAL624614	WAL625947	WAL625987		
		35	P-REDVDN 42/35 L	66.8	50.0	63.5	43.0		50			WAL619163	WAL621410	35	RESDN 42/35 L	55.0	WAL619074	WAL618379	WAL624615	WAL625948	WAL625988		

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *Complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list
 L₂ = approximate dimension if the union nut is tightened
 **FPM (e.g. Viton) see price list / available on request

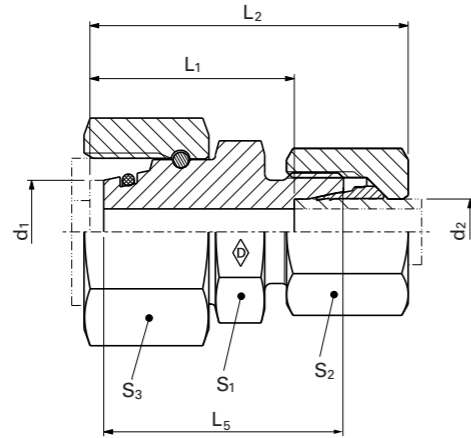
Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.



P-REDVDN ... / ...

P-REDVD ... / ...-1.4571

- S series
- With soft seal made from NBR** (e.g. Perbunan) for steel
- With soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)

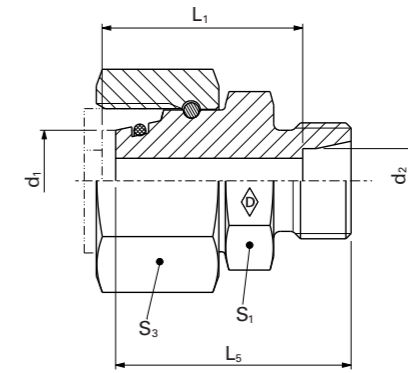


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RESDN ... / ...

RESD ... / ...-1.4571



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													System nuts for supplementing the stud (for technical data, see part D of this catalog)											
													Walpro P-REDVDN ... / ...		Walpro Stainless steel (1.4571) P-REDVD ... / ... VI-1.4571*		Stud RESDN ... / ...		Stud Stainless steel (1.4571) RESD ... / ... VI-1.4571*		Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*	
PN bar (psi)	d ₁	Tube outer diameter d ₂	Model	kg/ 100 pc.	L ₅	L ₂	L ₁	S ₁	S ₂	S ₃	*O-ring	Art. no.	Art. no.	PN bar (psi)	d ₁	Tube outer diameter d ₂	Model	kg/ 100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.	
30		6	P-REDVDN 30/6 S	43.0	45.0	58.5	44.0		17			WAL619192	WAL621439	30		6	RESDN 30/6 S	40.5	WAL619103	WAL618450	WAL624617	WAL625950	WAL625990	
		8	P-REDVDN 30/8 S	43.0	45.0	58.5	44.0		19			WAL619193	WAL621440			8	RESDN 30/8 S	41.0	WAL619104	WAL618451	WAL624618	WAL625951	WAL625991	
		10	P-REDVDN 30/10 S	44.0	45.0	59.0	43.5		22			WAL619194	WAL621441			10	RESDN 30/10 S	41.5	WAL619105	WAL618452	WAL624619	WAL625952	WAL625992	
		12	P-REDVDN 30/12 S	46.1	45.0	59.0	43.5	41	24	50	27.3x2.4	WAL619195	WAL621442			12	RESDN 30/12 S	41.5	WAL619106	WAL618453	WAL624620	WAL625953	WAL625993	
		14	P-REDVDN 30/14 S	47.9	47.0	62.5	45.0		27			WAL619196	WAL621443			14	RESDN 30/14 S	47.0	WAL619107	WAL618454				
		16	P-REDVDN 30/16 S	46.1	47.0	62.5	44.5		30			WAL619197	WAL621444			16	RESDN 30/16 S	41.5	WAL619108	WAL618455	WAL624621	WAL625954	WAL625994	
		20	P-REDVDN 30/20 S	53.9	49.0	65.5	44.5		36			WAL619198	WAL621445			20	RESDN 30/20 S	43.0	WAL619109	WAL067815	WAL624622	WAL625955	WAL625995	
		25	P-REDVDN 30/25 S	65.9	51.0	68.5	45.0		46			WAL619199	WAL621446			25	RESDN 30/25 S	46.0	WAL619110	WAL618456	WAL624623	WAL625956	WAL625996	
420 (6091)		6	P-REDVDN 38/6 S	60.0	46.0	62.0	47.5		17			WAL619200	WAL621447	38		6	RESDN 38/6 S	57.0	WAL619111	WAL618457	WAL624617	WAL625950	WAL625990	
		8t	P-REDVDN 38/8 S	60.0	46.0	62.0	47.5		19			WAL619201	WAL621448			8	RESDN 38/8 S	57.5	WAL619112	WAL618458	WAL624618	WAL625951	WAL625991	
		10	P-REDVDN 38/10 S	60.5	46.0	62.5	47.0		22			WAL619202	WAL621449			10	RESDN 38/10 S	58.0	WAL619113	WAL618459	WAL624619	WAL625952	WAL625992	
		12	P-REDVDN 38/12 S	63.1	46.0	62.5	47.0		24			WAL619203	WAL621450			12	RESDN 38/12 S	57.5	WAL619114	WAL618460	WAL624620	WAL625953	WAL625993	
		14	P-REDVDN 38/14 S	66.7	48.0	66.0	48.5	50	27	60	35x2.5	WAL619204	WAL621451			14	RESDN 38/14 S	67.2	WAL619115	WAL618461				
		16	P-REDVDN 38/16 S	68.0	48.0	66.0	48.0		30			WAL619205	WAL621452			16	RESDN 38/16 S	58.5	WAL619116	WAL618462	WAL624621	WAL625954	WAL625994	
		20	P-REDVDN 38/20 S	70.0	50.0	69.0	48.0		36			WAL619206	WAL621453			20	RESDN 38/20 S	59.0	WAL619117	WAL618463	WAL624622	WAL625955	WAL625995	
		25	P-REDVDN 38/25 S	82.5	52.0	72.0	48.5		46			WAL619207	WAL621454			25	RESDN 38/25 S	61.0	WAL619118	WAL618464	WAL624623	WAL625956	WAL625996	
30	P-REDVDN 38/30 S	87.8	54.0	75.0	49.0		50			WAL619208	WAL621455	30	RESDN 38/30 S	67.5	WAL619119	WAL067816	WAL624624	WAL625957	WAL625997					

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*For complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₂ = approximate dimension if the union nut is tightened

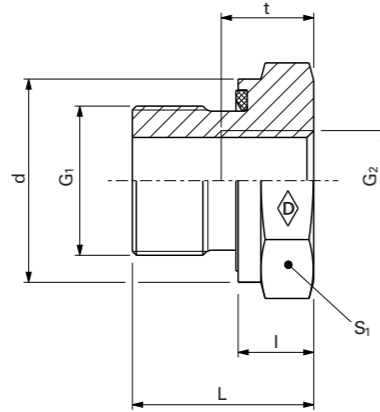
**FPM (e.g. Viton) see price list / available on request

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

RED ... -WD/...

RED ... -WD/...-1.4571

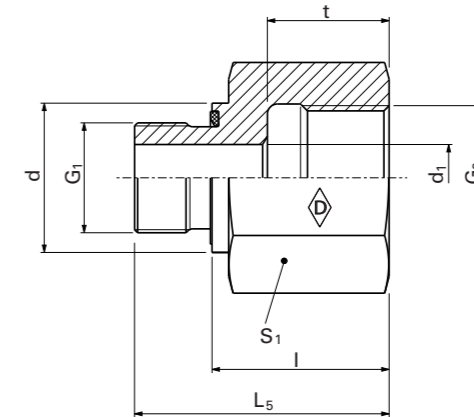
- With soft seal made from NBR** (e.g. Perbunan) for steel
- With soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)
- Inch studs type E to DIN EN ISO 1179-2



RED ... -WD/...

RED ... -WD/...-1.4571

- With soft seal made from NBR** (e.g. Perbunan) for steel
- With soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)
- Inch studs type E to DIN EN ISO 1179-2



PN bar (psi)	DIN - ISO 228 (R..., DIN 259) G ₁	G ₂	Model	kg/100 pc.	L	I	d	t	S ₁	Art. no.	Art. no.
630 (9137)	G 3/8 A	G 1/8	RED-R 3/8-WD/R 1/8	4.0	22.5	10.5	21.9	8	22	WAL606600	WAL612428
		G 1/8	RED-R 1/2-WD/R 1/8	6.6	24	10	26.9	8	27	WAL606601	WAL617813
	G 1/2 A	G 1/4	RED-R 1/2-WD/R 1/4	6.0	24	10	26.9	12	27	WAL606602	WAL610622
400 (5801)	G 3/4 A	G 1/4	RED-R 3/4-WD/R 1/4	9.5	26	10	31.9	12	32	WAL606603	WAL611180
		G 3/8	RED-R 3/4-WD/R 3/8	9.0	26	10	31.9	12	32	WAL606604	WAL612089
	G 1 A	G 1/4	RED-R 1-WD/R 1/4	20.0	29	11	39.9	12	41	WAL606605	WAL615116
		G 3/8	RED-R 1-WD/R 3/8	18.0	29	11	39.9	12	41	WAL606606	WAL617814
	G 1 1/4 A	G 1/2	RED-R 1-WD/R 1/2	16.0	29	11	39.9	14	41	WAL606607	WAL611254
		G 1/2	RED-R 1 1/4-WD/R 1/2	31.0	32	12	49.9	14	50	WAL606608	WAL613813
G 1 1/2 A	G 3/4	RED-R 1 1/4-WD/R 3/4	27.0	32	12	49.9	16	50	WAL606609	WAL612044	
	G 1/2	RED-R 1 1/2-WD/R 1/2	47.0	36	12	54.9	14	55	WAL606610	WAL613127	
	G 3/4	RED-R 1 1/2-WD/R 3/4	43.0	36	14	54.9	16	55	WAL606611	WAL615258	
		G 1	RED-R 1 1/2-WD/R 1	34.5	36	14	54.9	18	55	WAL606612	WAL612103

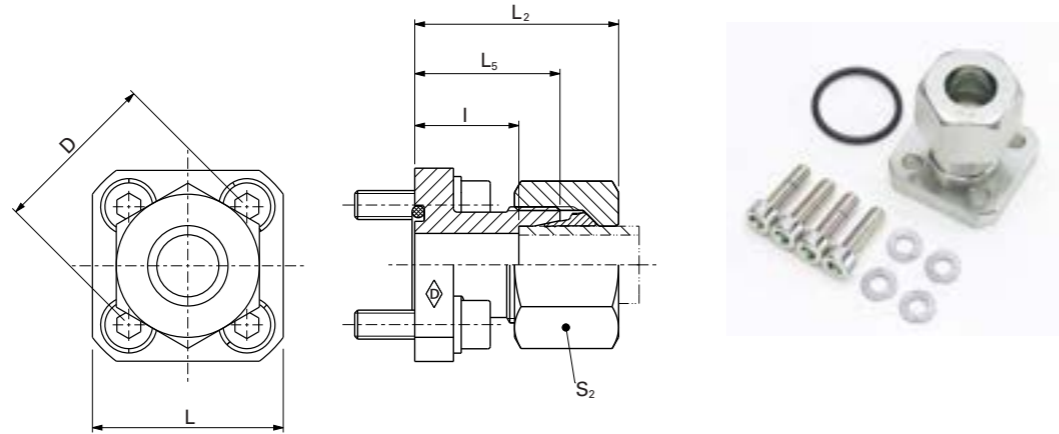
⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 **FPM (e.g. Viton) see price list / available on request

PN bar (psi)	DIN - ISO 228 (R..., DIN 259) G ₁	G ₂	Model	kg/100 pc.	L	I	d	d ₁	t	S ₁	Art. no.	Art. no.
400 (5801)	G 1/8 A	G 1/4	RED-R 1/8-WD/R 1/4	3.6	31	23	13.9	4	17	19	WAL606613	WAL612430
		G 3/8	RED-R 1/8-WD/R 3/8	4.5	32	24	13.9	4	17	24	WAL606614	WAL612431
		G 1/8	RED-R 1/4-WD/R 1/8	3.6	29	17	18.9	5	12	19	WAL606615	WAL615402
		G 3/8	RED-R 1/4-WD/R 3/8	6.6	36	24	18.9	5	17	24	WAL606616	WAL610621
		G 1/2	RED-R 1/4-WD/R 1/2	8.5	40	28	18.9	5	20	30	WAL606617	WAL610620
		G 3/4	RED-R 1/4-WD/R 3/4	17.3	43	31	18.9	5	22	36	WAL606618	WAL617815
	G 3/8 A	G 1/4	RED-R 3/8-WD/R 1/4	3.0	36	24	21.9	8	17	22	WAL606619	WAL615403
		G 1/2	RED-R 3/8-WD/R 1/2	9.0	41	29	21.9	8	20	30	WAL606620	WAL612429
		G 3/4	RED-R 3/8-WD/R 3/4	17.5	44	32	21.9	8	22	36	WAL606621	WAL615482
	G 1/2 A	G 3/8	RED-R 1/2-WD/R 3/8	9.5	37	23	26.9	12	17	27	WAL606622	WAL612095
		G 3/4	RED-R 1/2-WD/R 3/4	18.0	46	32	26.9	12	22	36	WAL606623	WAL611320
		G 1	RED-R 1/2-WD/R 1	22.5	49	35	26.9	12	24.5	41	WAL606624	WAL612928
250 (3626)	G 1/2 A	G 1 1/4	RED-R 1/2-WD/R 1 1/4	47.0	53	39	26.9	12	26.5	55	WAL606625	WAL615487
400 (5801)	G 3/4 A	G 1/2	RED-R 3/4-WD/R 1/2	15.0	43	27	31.9	16	20	32	WAL606626	WAL612017
		G 1	RED-R 3/4-WD/R 1	23.5	51	35	31.9	16	24.5	41	WAL606627	WAL615220
250 (3626)	G 3/4 A	G 1 1/4	RED-R 3/4-WD/R 1 1/4	48.3	55	39	31.9	16	26.5	55	WAL606628	WAL615412
		G 1 1/2	RED-R 3/4-WD/R 1 1/2	54.5	57	41	31.9	16	28.5	60	WAL606629	WAL615508
400 (5801)	G 1 A	G 3/4	RED-R 1-WD/R 3/4	28.0	49	31	39.9	20	22	41	WAL606630	WAL611989
250 (3626)	G 1 A	G 1 1/4	RED-R 1-WD/R 1 1/4	51.0	57	39	39.9	20	26.5	55	WAL606631	WAL611321
		G 1 1/2	RED-R 1-WD/R 1 1/2	56.5	59	41	39.9	20	28.5	60	WAL606632	WAL615411
400 (5801)	G 1 1/4 A	G 1	RED-R 1 1/4-WD/R 1	45.5	53	33	49.9	25	24.5	50	WAL606633	WAL611629
250 (3626)	G 1 1/4 A	G 1 1/2	RED-R 1 1/4-WD/R 1 1/2	58.0	60	40	49.9	25	28.5	60	WAL606634	WAL615483
		G 1 1/2 A	G 1 1/4	RED-R 1 1/2-WD/R 1 1/4	53.0	58	36	54.9	32	26.5	55	WAL606635

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 **FPM (e.g. Viton) see price list / available on request

P-GFV ...

• For four-hole mounting



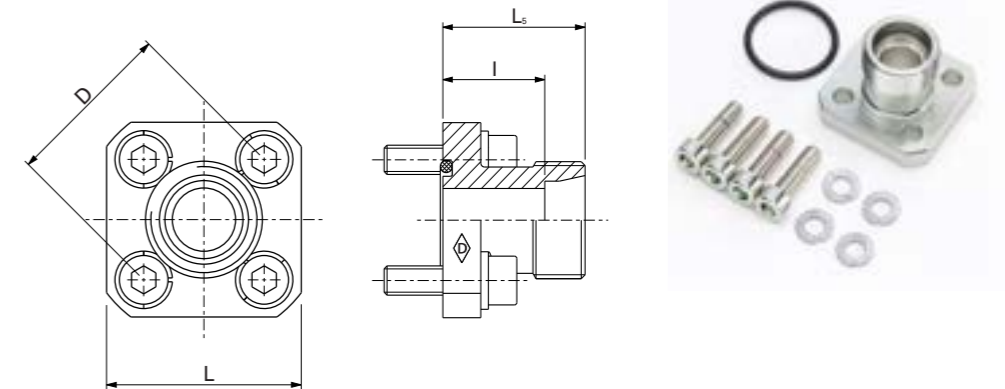
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Walpro P-GFV...												System nuts for supplementing the stud (for technical data, see part D of this catalog)							
D	Series	PN bar (psi)	Tube outer diameter	Model	kg/ 100 pc.	L	L ₂	L ₅	I	S ₂	Art. no.	D	Series	PN bar (psi)	Tube outer diameter	Model	Art. no.	Walring W-R ... VI	Walform WF-M ... VI
35	L	315 (4569)	10	P-GFV 10 L-35	13.5	39	37.5	30	23	19	WAL374282	35	L	315 (4569)	10	GFS 10 L-35	WAL064121	WAL624609	WAL625942
			12	P-GFV 12 L-35	14.4	39	37.5	30	23	22	WAL374283				12	GFS 12 L-35	WAL064122	WAL624610	WAL625943
	S	315 (4569)	15	P-GFV 15 L-35	16.3	39	38	30	23	27	WAL374284		S	315 (4569)	15	GFS 15 L-35	WAL064123	WAL624611	WAL625944
			16	P-GFV 16 S-35	20.0	39	39.5	30	21.5	30	WAL374285				16	GFS 16 S-35	WAL064125	WAL624621	WAL625954
40	L	100 (1450)	15	P-GFV 15 L-40	18.6	42	43	35	28	27	WAL374286	40	L	100 (1450)	15	GFS 15 L-40	WAL064124	WAL624611	WAL625944
			18	P-GFV 18 L-40	23.1	42	43.5	35	27.5	32	WAL374287				18	GFS 18 L-40	WAL064126	WAL624612	WAL625945
			22	P-GFV 22 L-40	23.8	42	43.5	35	27.5	36	WAL374288				22	GFS 22 L-40	WAL064128	WAL624613	WAL625946
			28	P-GFV 28 L-40	25.2	41	51	42	34.5	41	WAL374717				28	GFS 28 L-40	WAL064129	WAL624614	WAL625947
55	S	250 (3626)	20	P-GFV 20 S-55	52.5	55	51	40	29.5	36	WAL374718	55	S	250 (3626)	20	GFS 20 S-55	WAL064127	WAL624622	WAL625955

L₂ = approximate dimension if the union nut is tightened.
Accessories such as hexagon socket screws, spring washers and O-rings are included in the delivery but come unassembled.

GFS ...

• For four-hole mounting



H

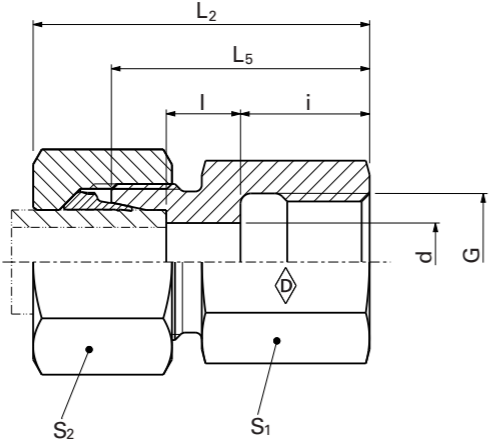
Accessory parts

D	Tube outer diameter	O-ring		Spring washer		Hexagon socket screw		
		Model	Dimensions	Art. no.	Dimensions	Art. no.	Dimensions	Art. no.
35	10	GFS 10 L-35	20x2.5	WAL610519	B6	WAL020102	M6x22	WAL020309
	12	GFS 12 L-35	20x2.5	WAL610519	B6	WAL020102	M6x22	WAL020309
	15	GFS 15 L-35	20x2.5	WAL610519	B6	WAL020102	M6x22	WAL020309
	16	GFS 16 S-35	20x2.5	WAL610519	B6	WAL020102	M6x22	WAL020309
40	15	GFS 15 L-40	26x2.5	WAL610499	B6	WAL020102	M6x22	WAL020309
	18	GFS 18 L-40	26x2.5	WAL610499	B6	WAL020102	M6x22	WAL020309
	22	GFS 22 L-40	26x2.5	WAL610499	B6	WAL020102	M6x22	WAL020309
	28	GFS 28 L-40	26x2.5	WAL610499	B6	WAL020102	M6x22	WAL020309
55	20	GFS 20 S-55	33x2.5	WAL610500	B8	WAL020104	M8x25	WAL020324

P-GAV ... R

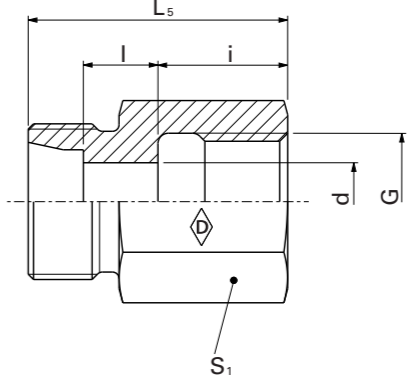
P-GAV ... R-1.4571

· Inch thread



GAS ... R

GAS ... R-1.4571



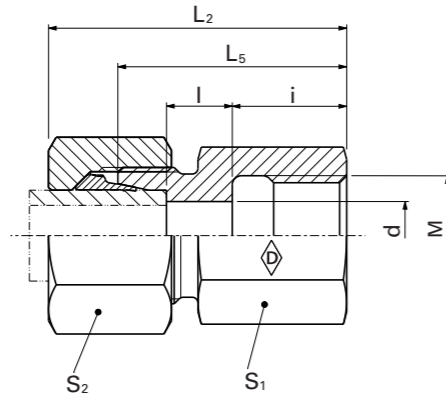
Series	PN bar (psi)	Tube outer diameter	DIN-ISO 228 (R... DIN 259) G	Model	kg/100 pc.	L ₂	L ₅	l	i	d	S ₁	S ₂	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	G	Model	kg/100 pc.	Art. no.	Art. no.	Art. no.	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)		
																										Walpro P-GAV ... R	Walpro Stainless steel (1.4571) P-GAV ... -1.4571*	Stud GAS ... R
L	250 (3626)	6	G 1/8	P-GAV 6 LR	2.0	34	26	7	12	4	14	14	WAL374305	WAL621217	250 (3626)	6	G 1/8		GAS 6 LR	1.9	WAL038084	WAL061994	WAL624607	WAL625940	WAL625980			
		8	G 1/4	P-GAV 8 LR	4.0	39	31	7	17	6	19	17	WAL374306	WAL620364		8	G 1/4		GAS 8 LR	3.8	WAL038085	WAL060717	WAL624608	WAL625941	WAL625981			
		10	G 1/4	P-GAV 10 LR	4.5	40	32	8	17	8	19	19	WAL374307	WAL620241		10	G 1/4		GAS 10 LR	3.9	WAL038086	WAL065914	WAL624609	WAL625942	WAL625982			
	400 (5801)	12	G 1/4	P-GAV 12 LR 1/4	5.3	40	32	8	17	8	19	22	WAL374308	WAL620365	400 (5801)	12	G 1/4		GAS 12 LR 1/4	4.4	WAL038087	WAL065915	WAL624610	WAL625943	WAL625983			
		250 (3626)	12	G 3/8	P-GAV 12 LR	6.0	41	33	9	17	10	24	22	WAL374309	WAL620284	L	250 (3626)	12	G 3/8		GAS 12 LR	6.2	WAL038088	WAL060759	WAL624610	WAL625943	WAL625983	
	160 (2321)	15	G 1/2	P-GAV 15 LR	10.5	46	38	11	20	12	30	27	WAL374310	WAL620201	160 (2321)	15	G 1/2		GAS 15 LR	8.6	WAL038089	WAL065916	WAL624611	WAL625944	WAL625984			
		18	G 1/2	P-GAV 18 LR	12.5	47	38	10.5	20	15	27	32	WAL374311	WAL620278		18	G 1/2		GAS 18 LR	8.9	WAL038090	WAL063099	WAL624612	WAL625945	WAL625985			
	100 (1450)	22	G 3/4	P-GAV 22 LR	17.5	52	43	13.5	22	19	36	36	WAL374312	WAL620219	100 (1450)	22	G 3/4		GAS 22 LR	8.9	WAL038091	WAL065917	WAL624613	WAL625946	WAL625986			
		28	G 1	P-GAV 28 LR	25.5	55	45.5	13.5	24.5	24	41	41	WAL374313	WAL620281		28	G 1		GAS 28 LR	20.9	WAL038092	WAL065918	WAL624614	WAL625947	WAL625987			
		35	G 1 1/4	P-GAV 35 LR	42.0	63	51.5	14.5	26.5	30	55	50	WAL374314	WAL620494		35	G 1 1/4		GAS 35 LR	46.3	WAL038093	WAL065919	WAL624615	WAL625948	WAL625988			
		42	G 1 1/2	P-GAV 42 LR	43.5	65	53.5	14	28.5	36	60	60	WAL374315	WAL620722		42	G 1 1/2		GAS 42 LR	52.8	WAL038094	WAL065920	WAL624616	WAL625949	WAL625989			
	S	630 (9137)	6	G 1/4	P-GAV 6 SR	4.0	41	33	9	17	4	19	17	WAL374316	WAL620000	S	630 (9137)	6	G 1/4		GAS 6 SR	4.2	WAL038095	WAL024001	WAL624617	WAL625950	WAL625990	
			8	G 1/4	P-GAV 8 SR	5.0	41	33	9	17	5	19	19	WAL374317	WAL620308			8	G 1/4		GAS 8 SR	4.4	WAL038096	WAL065921	WAL624618	WAL625951	WAL625991	
10			G 3/8	P-GAV 10 SR	8.5	43	34	9.5	17	7	24	22	WAL374318	WAL620233	10			G 3/8		GAS 10 SR	6.9	WAL038097	WAL061840	WAL624619	WAL625952	WAL625992		
12		G 3/8	P-GAV 12 SR	9.0	43	34	9.5	17	8	24	24	WAL374319	WAL620309	12	G 3/8			GAS 12 SR	7.2	WAL038098	WAL024535	WAL624620	WAL625953	WAL625993				
14		G 1/2	P-GAV 14 SR	12.5	50	40	12	20	10	27	27	WAL374320	WAL620531	14	G 1/2			GAS 14 SR	9.7	WAL038099	WAL065922							
400 (5801)	16	G 1/2	P-GAV 16 SR	14.0	50	40	11.5	20	12	30	30	WAL374321	WAL620293	400 (5801)	16	G 1/2		GAS 16 SR	9.4	WAL038100	WAL061007	WAL624621	WAL625954	WAL625994				
	20	G 3/4	P-GAV 20 SR	24.0	56	45	12.5	22	16	36	36	WAL374322	WAL620323		20	G 3/4		GAS 20 SR	19.3	WAL038101	WAL065923	WAL624622	WAL625955	WAL625995				
	25	G 1	P-GAV 25 SR	46	62	49.5	13	24.5	20	41	46	WAL374323	WAL620342		25	G 1		GAS 25 SR	24.2	WAL038102	WAL065924	WAL624623	WAL625956	WAL625996				
250 (3626)	30	G 1 1/4	P-GAV 30 SR	54.5	69	55.5	15.5	26.5	25	55	50	WAL374324	WAL620723	250 (3626)	30	G 1 1/4		GAS 30 SR	50.1	WAL038103	WAL065925	WAL624624	WAL625957	WAL625997				
	38	G 1 1/2	P-GAV 38 SR	86.0	74	59.5	15	28.5	32	60	60	WAL374325	WAL620724		38	G 1 1/2		GAS 38 SR	58.4	WAL038104	WAL065926	WAL624625	WAL625958	WAL625998				

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
 *For complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price lists
 L₂= approximate dimension if the union nut is tightened

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

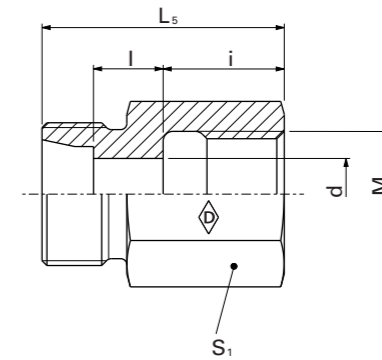
P-GAV ... M

• Metric thread



H

GAS ... M



H

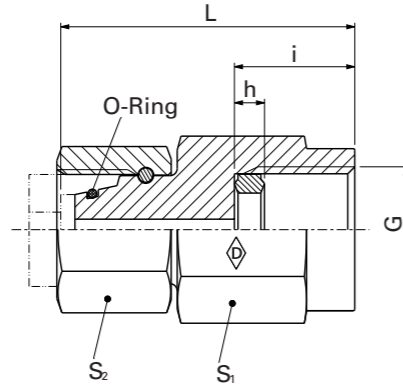
Series	PN bar (psi)	Tube outer diameter	DIN-ISO 228 (R ..., DIN 259) M	Model	kg/100 pc.	L ₂	L ₅	l	i	d	S ₁	S ₂	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)								
														Walpro P-GAV ... M	Stud GAS ... M	Walring W-R ... VI	Walform WF-M ... VI					
L	250 (3626)	6	M 10x1	P-GAV 6 LM	2.5	34	26.5	7	12.5	4	14	14	WAL602627	L	250 (3626)	6	M 10x1	GAS 6 LM	1.9	WAL060046	WAL624607	WAL625940
		8	M 12x1.5	P-GAV 8 LM	4.0	39	31	7	17	6	17	17	WAL604351			8	M 12x1.5	GAS 8 LM	3.1	WAL061084	WAL624608	WAL625941
		10	M 14x1.5	P-GAV 10 LM	5.0	40	32	8	17	8	19	19	WAL604132			10	M 14x1.5	GAS 10 LM	3.8	WAL060213	WAL624609	WAL625942
		12	M 16x1.5	P-GAV 12 LM	8.0	41	33	9	17	10	22	22	WAL602936			12	M 16x1.5	GAS 12 LM	5.2	WAL025317	WAL624610	WAL625943
		15	M 18x1.5	P-GAV 15 LM	10.1	43	35	11	17	12	24	27	WAL602628			15	M 18x1.5	GAS 15 LM	6.7	WAL024357	WAL624611	WAL625944
	160 (2321)	18	M 22x1.5	P-GAV 18 LM	17.1	46	37	10.5	19	15	30	32	WAL602706		160 (2321)	18	M 22x1.5	GAS 18 LM	10.9	WAL062966	WAL624612	WAL625945
S	160 (2321)	22	M 26x1.5	P-GAV 22 LM	18.1	51	42	13.5	21	19	32	36	WAL604366	S	160 (2321)	22	M 26x1.5	GAS 22 LM	12.1	WAL061612	WAL624613	WAL625946
		6	M 12x1.5	P-GAV 6 SM	4.5	41	33	9	17	4	17	17	WAL603940			6	M 12x1.5	GAS 6 SM	3.6	WAL066876	WAL624617	WAL625950
	630 (9137)	8	M 14x1.5	P-GAV 8 SM	6.2	41	33	9	17	5	19	19	WAL604572	630 (9137)	8	M 14x1.5	GAS 8 SM	4.2	WAL061634	WAL624618	WAL625951	
		10	M 16x1.5	P-GAV 10 SM	8.0	43	34	9.5	17	7	22	22	WAL604328		10	M 16x1.5	GAS 10 SM	5.7	WAL060704	WAL624619	WAL625952	
		12	M 18x1.5	P-GAV 12 SM	10.5	44	35	10.5	17	8	24	24	WAL602664		12	M 18x1.5	GAS 12 SM	6.9	WAL060069	WAL624620	WAL625953	
	400 (5801)	14	M 20x1.5	P-GAV 14 SM	13.5	49	39	12	19	10	27	27	WAL604665	400 (5801)	14	M 20x1.5	GAS 14 SM	9.3	WAL066855			
		16	M 22x1.5	P-GAV 16 SM	18.5	49	39	11.5	19	12	30	30	WAL604596		16	M 22x1.5	GAS 16 SM	11.4	WAL067979	WAL624621	WAL625954	
		20	M 27x2	P-GAV 20 SM	25.5	56	45	12.5	22	16	36	36	WAL604441		20	M 27x2	GAS 20 SM	15.2	WAL065147	WAL624622	WAL625955	

L₂ = approximate dimension if the union nut is tightened
Stainless steel (1.4571) studs and fittings available on request

EMASD ...

EMASD ...-1.4571

- Inch thread
- with taper and O-ring made from NBR* (e.g. Perbunan)
- with taper and O-ring made from FKM (e.g. Viton) for stainless steel (1.4571)



H

Series	PN bar (psi)	Tube outer diameter	DIN-ISO 228 (R ..., DIN 259) G	Model	kg/100 pc.	L ₂	i	h	S ₁	S ₂	*O-ring	Stud EMASD ...	Stud Stainless steel (1.4571) EMASD ...-1.4571
L	500 (7252)	6	G 1/4	EMASD 6 LR	5.7	38	14.5	4.5	19	14	4.5x1.5	WAL605748	WAL615259
		8	G 1/4	EMASD 8 LR	7.0	38	14.5	4.5	19	17	6x1.5	WAL066353	WAL617825
		10	G 1/4	EMASD 10 LR	7.2	39.5	14.5	4.5	19	19	8.5x1.5	WAL605749	WAL617826
S	630 (9137)	12	G 1/4	EMASD 12 LR	8.0	40.5	14.5	4.5	19	22	10x1.5	WAL605750	WAL614847
		6	G 1/2	EMASD 6 SR	11.5	45	20	5	27	17	4.5x1.5	WAL605751	WAL617827
		8	G 1/2	EMASD 8 SR	11.4	45	20	5	27	19	6x1.5	WAL605752	WAL615584
		10	G 1/2	EMASD 10 SR	13.4	47	20	5	27	22	8.5x1.5	WAL605753	WAL615441
		12	G 1/2	EMASD 12 SR	12.9	47.5	20	5	27	24	10x1.5	WAL066313	WAL617828

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

L₂ = approximate dimension if the union nut is tightened

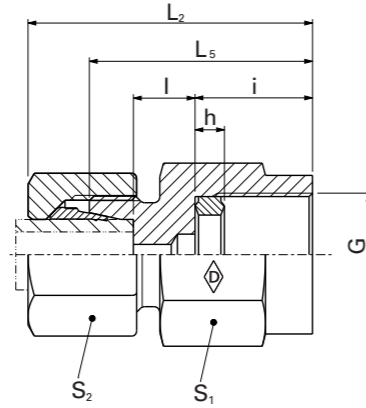
**FPM (e.g. Viton) see price list / available on request

H

P-MAV ... R

P-MAV ... R-1.4571

· Inch studs type B to DIN EN ISO 1179-4



H

Series	PN bar (psi)	Tube outer diameter	DIN-ISO 228 (R..., DIN 259) G	Model	kg/100 pc.	L ₂	L ₅	l	i	h	S ₁	S ₂	Art. no.	Art. no.	System nuts for supplementing the stud (for technical data, see part D of this catalog)					
															Walpro P-MAV...R	Walpro Stainless steel (1.4571) P-MAV ... R-1.4571*	Stud Stainless steel (1.4571) MAS ... R-1.4571*	Walring W-R ... VI	Walform WF-M ... VI	Walform stainless steel WF-M ... VI-1.4571*
L	500(7252)	6	G 1/4	P-MAV 6 LR	4.6	37	14.5	7.5	14.5	4.5	19	14	WAL374334	WAL620112						
		8	G 1/4	P-MAV 8 LR	5.3	37	14.5	7.5	14.5	4.5	19	17	WAL374335	WAL620113						
		10	G 1/4	P-MAV 10 LR	6.2	38	15.5	8.5	14.5	4.5	19	19	WAL374336	WAL620114						
	400 (5801)	12	G 1/4	P-MAV 12 LR	7.0	38	15.5	8.5	14.5	4.5	19	22	WAL374337	WAL620115						
S	800 (11603)	6	G 1/2	P-MAV 6 SR	10.5	46	18	11	20	5	27	17	WAL374338	WAL620116						
		8	G 1/2	P-MAV 8 SR	10.7	46	18	11	20	5	27	19	WAL374339	WAL620117						
		10	G 1/2	P-MAV 10 SR	12.5	47	18	10.5	20	5	27	22	WAL374340	WAL620118						
	630 (9137)	12	G 1/2	P-MAV 12 SR	13.4	47	18	10.5	20	5	27	24	WAL374341	WAL620119						

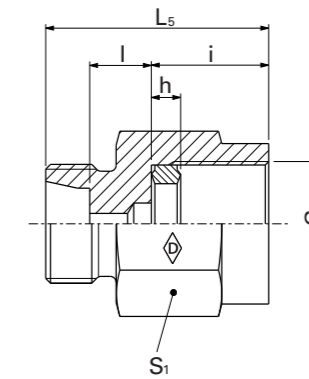
⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

*For complete stainless steel fittings (1.4571) with silver-plated nut (AG/AGP), see price list

L₂= approximate dimension if the union nut is tightened

MAS ... R

MAS ... R-1.4571



H

⚠ **Caution:** The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.



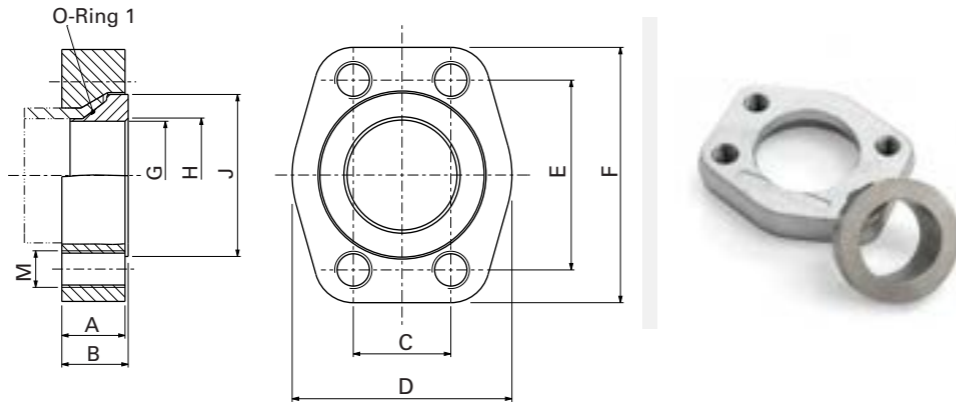
37° flared flanges to SAE J518 / ISO6162

			Figure	Model	Page
37° flared flanges to SAE J518 / ISO 6162	Flange assembly	3,000 psi		BO-FK 3000 ...	13 - 14
	Flange counterpart assembly	3,000 psi		BO-FGK 3000 ...	15 - 16
	Flange connector assembly	3,000 psi		BO-FVK 3000 ...	17
	Flange assembly	6,000 psi		BO-FK 6000 ...	19 - 110
	Flange counterpart assembly	6,000 psi		BO-FGK 6000 ...	111 - 112
	Flange connector assembly	6,000 psi		BO-FVK 6000 ...	113

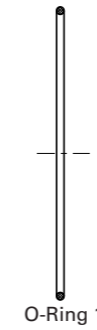


BO-FGK 3000 ...

Flange counterpart assembly



Spare parts

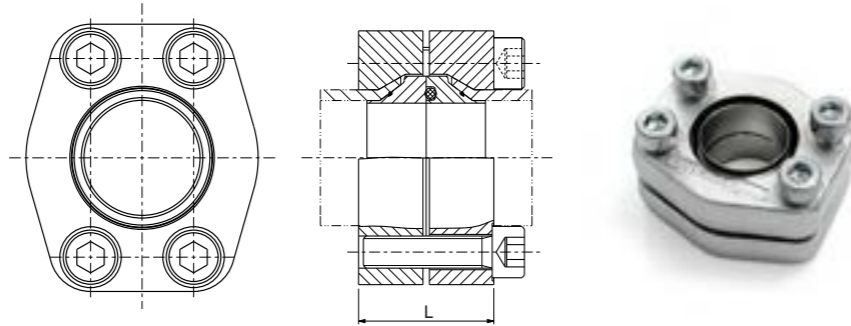


Flange BO-FGK 3000 ...												O-ring 1			
SAE flange	PB** bar (psi)	Model	A	B*	C	D	E	F	G	H	J	Art. no.	Model	Dimensions	Art. no.
1/2	350 (5000)	BO-FGK 3000- 1/2-16 x 2.0	16	17	17.48	48	38.1	56	10	13	30	WAL614860	BO-FGK 3000- 1/2-16 x 2.0	12.5 x 1	WAL374756
		BO-FGK 3000- 1/2-16 x 2.5	16	17	17.48	48	38.1	56	9	13	30	WAL614861	BO-FGK 3000- 1/2-16 x 2.5	12.5 x 1	WAL374756
		BO-FGK 3000- 1/2-20 x 2.0	16	17	17.48	48	38.1	56	14		30	WAL614862	BO-FGK 3000- 1/2-20 x 2.0	16 x 1	WAL261058
		BO-FGK 3000- 1/2-20 x 2.5	16	17	17.48	48	38.1	56	13		30	WAL614863	BO-FGK 3000- 1/2-20 x 2.5	16 x 1	WAL261058
		BO-FGK 3000- 1/2-20 x 3.0	16	17	17.48	48	38.1	56	12	13	30	WAL614864	BO-FGK 3000- 1/2-20 x 3.0	15 x 1	WAL304305
		BO-FGK 3000- 1/2-22 x 2.0	16	17	17.48	48	38.1	56	16		30	WAL614865	BO-FGK 3000- 1/2-22 x 2.0	15 x 1	WAL304305
3/4	350 (5000)	BO-FGK 3000- 3/4-20 x 2.0	17	18	22.23	50	47.63	65	14	19	38	WAL614866	BO-FGK 3000- 3/4-20 x 2.0	16 x 1	WAL261058
		BO-FGK 3000- 3/4-20 x 2.5	17	18	22.23	50	47.63	65	13	19	38	WAL614867	BO-FGK 3000- 3/4-20 x 2.5	16 x 1	WAL261058
		BO-FGK 3000- 3/4-20 x 3.0	17	18	22.23	50	47.63	65	12	19	38	WAL614868	BO-FGK 3000- 3/4-20 x 3.0	15 x 1	WAL304305
		BO-FGK 3000- 3/4-25 x 2.5	17	18	22.23	50	47.63	65	18	19	38	WAL614869	BO-FGK 3000- 3/4-25 x 2.5	20 x 1	WAL304307
		BO-FGK 3000- 3/4-25 x 3.0	17	18	22.23	50	47.63	65	17	19	38	WAL614870	BO-FGK 3000- 3/4-25 x 3.0	20 x 1	WAL304307
		BO-FGK 3000- 3/4-25 x 4.0	17	18	22.23	50	47.63	65	15	19	38	WAL614871	BO-FGK 3000- 3/4-25 x 4.0	18 x 1	WAL304306
1	350 (5000)	BO-FGK 3000- 3/4-28 x 3.0	17	18	22.23	50	47.63	65	20	25	38	WAL614872	BO-FGK 3000- 3/4-28 x 3.0	23 x 1	WAL304310
		BO-FGK 3000-1 -25 x 2.5	19	20	26.19	60	52.37	71	18	25	44.5	WAL614873	BO-FGK 3000-1 -25 x 2.5	20 x 1	WAL304307
		BO-FGK 3000-1 -25 x 3.0	19	20	26.19	60	52.37	71	17	25	44.5	WAL614874	BO-FGK 3000-1 -25 x 3.0	20 x 1	WAL304307
		BO-FGK 3000-1 -25 x 4.0	19	20	26.19	60	52.37	71	15	25	44.5	WAL614875	BO-FGK 3000-1 -25 x 4.0	18 x 1	WAL304306
		BO-FGK 3000-1 -30 x 4.0	19	20	26.19	60	52.37	71	20	25	44.5	WAL614876	BO-FGK 3000-1 -30 x 4.0	23 x 1	WAL304310
		BO-FGK 3000-1 -35 x 3.0	19	20	26.19	60	52.37	71	27		44.5	WAL614877	BO-FGK 3000-1 -35 x 3.0	28 x 1	WAL304273
1 1/4	250 (3570)	BO-FGK 3000-1 1/4-38 x 4.0	20	21	30.18	68	58.72	79	28	32	50.8	WAL614878	BO-FGK 3000-1 1/4-38 x 4.0	32 x 1.78	WAL261131
		BO-FGK 3000-1 1/4-38 x 5.0	20	21	30.18	68	58.72	79	26	32	50.8	WAL614879	BO-FGK 3000-1 1/4-38 x 5.0	32 x 1.78	WAL261131
		BO-FGK 3000-1 1/4-42 x 3.0	20	21	30.18	68	58.72	79	34		50.8	WAL614880	BO-FGK 3000-1 1/4-42 x 3.0	37 x 1	WAL374749
		BO-FGK 3000-1 1/4-42 x 4.0	20	21	30.18	68	58.72	79	32		50.8	WAL614881	BO-FGK 3000-1 1/4-42 x 4.0	37 x 1	WAL374749
1 1/2	210 (3000)	BO-FGK 3000-1 1/2-38 x 4.0	22	23	35.71	78	69.85	93	28	38	60	WAL614882	BO-FGK 3000-1 1/2-38 x 4.0	32 x 1.78	WAL261131
		BO-FGK 3000-1 1/2-38 x 5.0	22	23	35.71	78	69.85	93	26	38	60	WAL614883	BO-FGK 3000-1 1/2-38 x 5.0	32 x 1.78	WAL261131
		BO-FGK 3000-1 1/2-42 x 3.0	22	23	35.71	78	69.85	93	34	38	60	WAL614884	BO-FGK 3000-1 1/2-42 x 3.0	37 x 1	WAL374749
		BO-FGK 3000-1 1/2-42 x 4.0	22	23	35.71	78	69.85	93	32	38	60	WAL614885	BO-FGK 3000-1 1/2-42 x 4.0	37 x 1	WAL374749
		BO-FGK 3000-1 1/2-48.3 x 3.2	22	23	35.71	78	69.85	93	38		60	WAL614886	BO-FGK 3000-1 1/2-48.3 x 3.2	44.17 x 1.78	WAL611929
		BO-FGK 3000-1 1/2-50 x 2.5	22	23	35.71	78	69.85	93	42.4		60	WAL614887	BO-FGK 3000-1 1/2-50 x 2.5	44.17 x 1.78	WAL611929
		BO-FGK 3000-1 1/2-50 x 3.0	22	23	35.71	78	69.85	93	41.4		60	WAL614888	BO-FGK 3000-1 1/2-50 x 3.0	44.17 x 1.78	WAL611929
		BO-FGK 3000-1 1/2-50 x 5.0	22	23	35.71	78	69.85	93	37.4		60	WAL614889	BO-FGK 3000-1 1/2-50 x 5.0	44.17 x 1.78	WAL611929
2	210 (3000)	BO-FGK 3000-2 -60 x 3.0	22	23	42.88	90	77.77	102	51.4		71.3	WAL614890	BO-FGK 3000-2 -60 x 3.0	53.7 x 1.78	WAL612146
		BO-FGK 3000-2 -60.3 x 3.6	22	23	42.88	90	77.77	102	50.5		71.3	WAL614891	BO-FGK 3000-2 -60.3 x 3.6	53.7 x 1.78	WAL612146
		BO-FGK 3000-2 -60.3 x 5.6	22	23	42.88	90	77.77	102	46.5	51	71.3	WAL614892	BO-FGK 3000-2 -60.3 x 5.6	50.52 x 1.78	WAL612147
		BO-FGK 3000-2 -60/60.3 x 8.0	22	23	42.88	90	77.77	102	41.4	51	71.3	WAL614893	BO-FGK 3000-2 -60/60.3 x 8.0	44.17 x 1.78	WAL611929

*B = approximate dimension if the hexagon socket screws are tightened
**with a safety factor of 2.5

BO-FVK 3000 ...

- Flange connector assembly

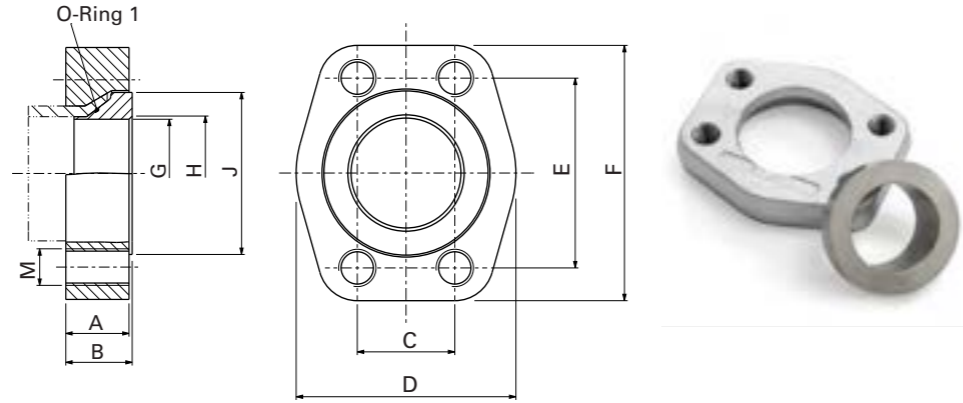


Flange BO-FVK 3000				
SAE flange	PB** bar (psi)	L*	Model	Art. no.
1/2	350 (5000)	34	BO-FVK 3000- 1/2-16 x 2.0	WAL613701
		34	BO-FVK 3000- 1/2-16 x 2.5	WAL613702
		34	BO-FVK 3000- 1/2-20 x 2.0	WAL613703
		34	BO-FVK 3000- 1/2-20 x 2.5	WAL613704
		34	BO-FVK 3000- 1/2-20 x 3.0	WAL613705
		34	BO-FVK 3000- 1/2-22 x 2.0	WAL613706
3/4	350 (5000)	36	BO-FVK 3000- 3/4-20 x 2.0	WAL613707
		36	BO-FVK 3000- 3/4-20 x 2.5	WAL613708
		36	BO-FVK 3000- 3/4-20 x 3.0	WAL613709
		36	BO-FVK 3000- 3/4-25 x 2.5	WAL613710
		36	BO-FVK 3000- 3/4-25 x 3.0	WAL613711
		36	BO-FVK 3000- 3/4-25 x 4.0	WAL613712
1	350 (5000)	40	BO-FVK 3000- 1-25 x 2.5	WAL613713
		40	BO-FVK 3000- 1-25 x 3.0	WAL613714
		40	BO-FVK 3000- 1-25 x 4.0	WAL613715
		40	BO-FVK 3000- 1-30 x 4.0	WAL613716
		40	BO-FVK 3000- 1-30 x 3.0	WAL613717
		40	BO-FVK 3000- 1-35 x 3.0	WAL613718
1 1/4	250 (3570)	42	BO-FVK 3000- 1 1/4-38 x 4.0	WAL613719
		42	BO-FVK 3000- 1 1/4-38 x 5.0	WAL613720
		42	BO-FVK 3000- 1 1/4-42 x 3.0	WAL613721
		42	BO-FVK 3000- 1 1/4-42 x 4.0	WAL613722
1 1/2	210 (3000)	46	BO-FVK 3000- 1 1/2-38 x 4.0	WAL613723
		46	BO-FVK 3000- 1 1/2-38 x 5.0	WAL613724
		46	BO-FVK 3000- 1 1/2-42 x 3.0	WAL613725
		46	BO-FVK 3000- 1 1/2-42 x 4.0	WAL613726
		46	BO-FVK 3000- 1 1/2-48.3 x 3.2	WAL613727
		46	BO-FVK 3000- 1 1/2-50 x 2.5	WAL613728
		46	BO-FVK 3000- 1 1/2-50 x 3.0	WAL613729
		46	BO-FVK 3000- 1 1/2-50 x 5.0	WAL613730
2	210 (3000)	50	BO-FVK 3000- 2 -60 x 3.0	WAL613731
		50	BO-FVK 3000- 2 -60.3 x 3.6	WAL613732
		50	BO-FVK 3000- 2 -60.3 x 5.6	WAL613733
		50	BO-FVK 3000- 2 -60 /60.3 x 8.0	WAL613734

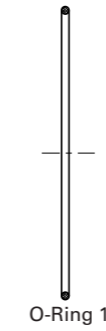
*B = approximate dimension if the hexagon socket screws are tightened
 **with a safety factor of 2.5

BO-FGK 6000 ...

· Flange counterpart assembly



Spare parts

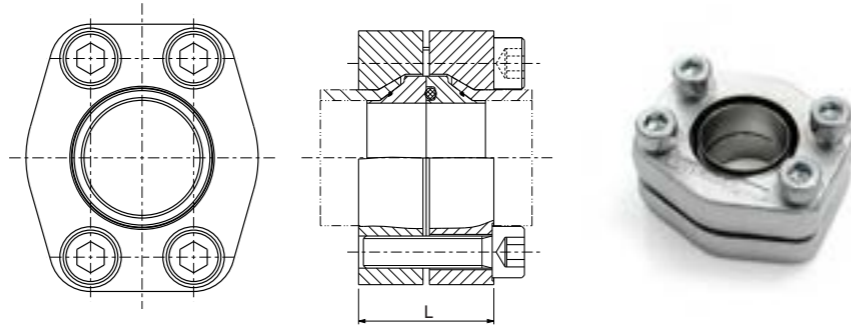


Flange BO-FGK 6000													O-ring 1			
SAE flange	PB** bar (psi)	Model	A	B*	C	D	E	F	G	H	J	M	Art. no.	Model	Dimensions	Art. no.
1/2	420 (6000)	BO-FGK 6000- 1/2-16 x 2.5	16	17	18.24	48	40.49	56	9	13	30	M8	WAL614913	BO-FGK 6000- 1/2-16 x 2.5	12.5 x 1	WAL374756
		BO-FGK 6000- 1/2-16 x 3.0	16	17	18.24	48	40.49	56	8	13	30	M8	WAL614914	BO-FGK 6000- 1/2-16 x 3.0	11 x 1	WAL374750
		BO-FGK 6000- 1/2-20 x 2.5	16	17	18.24	48	40.49	56	13		30	M8	WAL614915	BO-FGK 6000- 1/2-20 x 2.5	16 x 1	WAL261058
		BO-FGK 6000- 1/2-20 x 3.0	16	17	18.24	48	40.49	56	12	13	30	M8	WAL614916	BO-FGK 6000- 1/2-20 x 3.0	15 x 1	WAL304305
		BO-FGK 6000- 1/2-20 x 3.5	16	17	18.24	48	40.49	56	11	13	30	M8	WAL614917	BO-FGK 6000- 1/2-20 x 3.5	15 x 1	WAL304305
3/4	420 (6000)	BO-FGK 6000- 3/4-20 x 2.5	19	20	23.8	60	50.8	71	13	19	38	M10	WAL614918	BO-FGK 6000- 3/4-20 x 2.5	16 x 1	WAL261058
		BO-FGK 6000- 3/4-20 x 3.0	19	20	23.8	60	50.8	71	12	19	38	M10	WAL614919	BO-FGK 6000- 3/4-20 x 3.0	15 x 1	WAL304305
		BO-FGK 6000- 3/4-20 x 3.5	19	20	23.8	60	50.8	71	11	19	38	M10	WAL614920	BO-FGK 6000- 3/4-20 x 3.5	15 x 1	WAL304305
		BO-FGK 6000- 3/4-20 x 4.0	19	20	23.8	60	50.8	71	10	19	38	M10	WAL614921	BO-FGK 6000- 3/4-20 x 4.0	15 x 1	WAL304305
		BO-FGK 6000- 3/4-25 x 3.0	19	20	23.8	60	50.8	71	17	19	38	M10	WAL614922	BO-FGK 6000- 3/4-25 x 3.0	20 x 1	WAL304307
		BO-FGK 6000- 3/4-25 x 4.0	19	20	23.8	60	50.8	71	15	19	38	M10	WAL614923	BO-FGK 6000- 3/4-25 x 4.0	18 x 1	WAL304306
1	420 (6000)	BO-FGK 6000-1 -25 x 2.5	24.5	25.5	27.76	70	57.15	81	18	25	44.5	M12	WAL614924	BO-FGK 6000-1 -25 x 2.5	20 x 1	WAL304307
		BO-FGK 6000-1 -25 x 3.0	24.5	25.5	27.76	70	57.15	81	17	25	44.5	M12	WAL614925	BO-FGK 6000-1 -25 x 3.0	20 x 1	WAL304307
		BO-FGK 6000-1 -25 x 4.0	24.5	25.5	27.76	70	57.15	81	15	25	44.5	M12	WAL614926	BO-FGK 6000-1 -25 x 4.0	18 x 1	WAL304306
		BO-FGK 6000-1 -30 x 4.0	24.5	25.5	27.76	70	57.15	81	20	25	44.5	M12	WAL614927	BO-FGK 6000-1 -30 x 4.0	23 x 1	WAL304310
		BO-FGK 6000-1 -30 x 5.0	24.5	25.5	27.76	70	57.15	81	18	25	44.5	M12	WAL614928	BO-FGK 6000-1 -30 x 5.0	23 x 1	WAL304310
		BO-FGK 6000-1 -34 x 4.5	24.5	25.5	27.76	70	57.15	81	23	25	44.5	M12	WAL614929	BO-FGK 6000-1 -34 x 4.5	28 x 1	WAL304273
		BO-FGK 6000-1 -38 x 5.0	24.5	25.5	27.76	70	57.15	81	26		44.5	M12	WAL614930	BO-FGK 6000-1 -38 x 5.0	32 x 1.78	WAL261131
1 1/4	420 (6000)	BO-FGK 6000-1 1/4-30 x 5.0	30	31	31.75	78	66.68	95	18	32	50.8	M14	WAL614931	BO-FGK 6000-1 1/4-30 x 5.0	23 x 1	WAL304310
		BO-FGK 6000-1 1/4-38 x 4.0	30	31	31.75	78	66.68	95	28	32	50.8	M14	WAL614932	BO-FGK 6000-1 1/4-38 x 4.0	32 x 1.78	WAL261131
		BO-FGK 6000-1 1/4-38 x 5.0	30	31	31.75	78	66.68	95	26	32	50.8	M14	WAL614933	BO-FGK 6000-1 1/4-38 x 5.0	32 x 1.78	WAL261131
		BO-FGK 6000-1 1/4-38 x 6.0	30	31	31.75	78	66.68	95	24	32	50.8	M14	WAL614934	BO-FGK 6000-1 1/4-38 x 6.0	32 x 1.78	WAL261131
		BO-FGK 6000-1 1/4-43 x 5.5	30	31	31.75	78	66.68	95	30	32	50.8	M14	WAL614935	BO-FGK 6000-1 1/4-43 x 5.5	32 x 1.78	WAL261131
1 1/2	420 (6000)	BO-FGK 6000-1 1/2-38 x 5.0	32	33	36.5	96	79.38	113	26	38	60	M16	WAL614936	BO-FGK 6000-1 1/2-38 x 5.0	32 x 1.78	WAL261131
		BO-FGK 6000-1 1/2-38 x 6.0	32	33	36.5	96	79.38	113	24	38	60	M16	WAL614937	BO-FGK 6000-1 1/2-38 x 6.0	32 x 1.78	WAL261131
		BO-FGK 6000-1 1/2-50 x 5.0	32	33	36.5	96	79.38	113	37.4		60	M16	WAL614938	BO-FGK 6000-1 1/2-50 x 5.0	44.17 x 1.78	WAL611929
		BO-FGK 6000-1 1/2-50 x 6.0	32	33	36.5	96	79.38	113	35.4	38	60	M16	WAL614939	BO-FGK 6000-1 1/2-50 x 6.0	37.82 x 1.78	WAL612739
2	420 (6000)	BO-FGK 6000-2 x 6.0	32	33	44.45	114	96.82	134	45.4	51	71.3	M20	WAL614941	BO-FGK 6000-2 x 6.0	50.52 x 1.78	WAL612147
		BO-FGK 6000-2-60 /60.3 x 8.0	32	33	44.45	114	96.82	134	41.4	51	71.3	M20	WAL614942	BO-FGK 6000-2-60 /60.3 x 8.0	44.17 x 1.78	WAL611929
		BO-FGK 6000-2-60 /60.3 x 10.0	32	33	44.45	114	96.82	134	37.4	51	71.3	M20	WAL614943	BO-FGK 6000-2-60 /60.3 x 10.0	44.17 x 1.78	WAL612147

*B = approximate dimension if the hexagon socket screws are tightened
 **with a safety factor of 2.5

BO-FVK 6000

Flange connector assembly









Flange BO-FVK 6000				
SAE flange	PB** bar (psi)	L*	Model	Art. no.
1/2	420 (6000)	34	BO-FVK 6000- 1/2-16 x 2.5	WAL613735
		34	BO-FVK 6000- 1/2-16 x 3.0	WAL613736
		34	BO-FVK 6000- 1/2-20 x 2.5	WAL613737
		34	BO-FVK 6000- 1/2-20 x 3.0	WAL613738
		34	BO-FVK 6000- 1/2-20 x 3.5	WAL613739
3/4	420 (6000)	40	BO-FVK 6000- 3/4-20 x 2.5	WAL613740
		40	BO-FVK 6000- 3/4-20 x 3.0	WAL613741
		40	BO-FVK 6000- 3/4-20 x 3.5	WAL613742
		40	BO-FVK 6000- 3/4-20 x 4.0	WAL613743
		40	BO-FVK 6000- 3/4-25 x 3.0	WAL613744
1	420 (6000)	51	BO-FVK 6000-1 -25 x 2.5	WAL613746
		51	BO-FVK 6000-1 -25 x 3.0	WAL613747
		51	BO-FVK 6000-1 -25 x 4.0	WAL613748
		51	BO-FVK 6000-1 -30 x 4.0	WAL613749
		51	BO-FVK 6000-1 -30 x 5.0	WAL613750
1 1/4	420 (6000)	62	BO-FVK 6000-1 1/4-30 x 5.0	WAL613752
		62	BO-FVK 6000-1 1/4-38 x 4.0	WAL614777
		62	BO-FVK 6000-1 1/4-38 x 5.0	WAL613753
		62	BO-FVK 6000-1 1/4-38 x 6.0	WAL613754
		62	BO-FVK 6000-1 1/4-43 x 5.5	WAL613755
1 1/2	420 (6000)	66	BO-FVK 6000-1 1/2-38 x 5.0	WAL613756
		66	BO-FVK 6000-1 1/2-38 x 6.0	WAL613757
		66	BO-FVK 6000-1 1/2-50 x 5.0	WAL613758
		66	BO-FVK 6000-1 1/2-50 x 6.0	WAL613759
		66	BO-FVK 6000-1 1/2-50 x 8.0	WAL613760
2	420 (6000)	66	BO-FVK 6000-2 x 6.0	WAL613761
		66	BO-FVK 6000-2-60 /60.3 x 8.0	WAL613762
		66	BO-FVK 6000-2-60 /60.3 x 10.0	WAL613767

*B = approximate dimension if the hexagon socket screws are tightened
 **with a safety factor of 2.5



J

Blanking plugs, blanking ends, tube inserts, welding nipples, O-rings

	Figure Fitting	Figure Stud	Model	Page
System nuts with blanking plug / blanking plug			VSD-M / VSD ...	J3 / J4
System nuts with blanking end / blanking end			P-VSK / VSK ...	J5 / J6
Blanking ends			VS-R ... -WD	J7
			VS-M ... -WD	J8
			VS- ... M-OR	J9
Tube inserts			EH ...	J11
Welding nipples			SN	J12
O-rings				J13 - J17

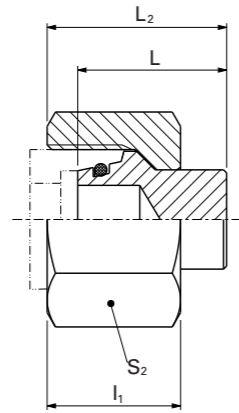
J



VSD-M...

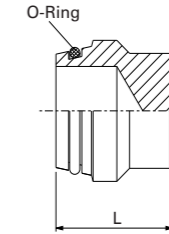
VSD-M ... -1.4571

- with taper and O-ring
- with soft seal made from NBR* (e.g. Perbunan) for steel
- with soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)



VSD...

VSD... -1.4571

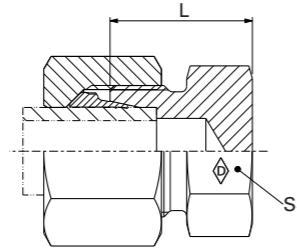


System nuts with blanking plug VSD-M ...													System nuts with blanking plug Stainless steel (1.4571) VSD-M ... -1.4571					Blanking plugs VSD ...					Blanking plugs Stainless steel (1.4571) VSD ... -1.4571	
Series	PN bar (psi)	Tube outer diameter	M	Model	kg/100 pc.	L	I ₁	L ₂	S ₂	O-ring	Art. no.	Art. no.	Series	PN bar (psi)	Tube outer diameter	Model	Art. no.	Art. no.						
LL	100 (1450)	4	M12 x 1.5	VSD-M 4 LL A4GS	1.1	13.5	11	15.36	10	3 x 1	WAL626561	WAL626580	LL	100 (1450)	4	VSD 4 LL M.MB.	WAL612327	WAL618772						
		6	M14 x 1.5	VSD-M 6 LL A4GS	1.8	15	11.5	15.86	12	5 x 1	WAL626562	WAL626581			6	VSD 6 LL M.MB.	WAL612328	WAL618773						
		8	M16 x 1.5	VSD-M 8 LL A4GS	2.6	15	12	16.36	14	7 x 1	WAL626563	WAL626582			8	VSD 8 LL M.MB.	WAL612329	WAL618774						
L	800 (11603)	6	M12 x 1.5	VSD-M 6 L A4GS	1.9	17	14.5	17.4	14	4.5 x 1.5	WAL626564	WAL626583	L	800 (11603)	6	VSD 6 L/S M.MB.	WAL612330	WAL618775						
		8	M14 x 1.5	VSD-M 8 L A4GS	2.7	17	14.5	17.4	17	6 x 1.5	WAL626565	WAL626584			8	VSD 8 L/S M.MB.	WAL612331	WAL618776						
		10	M16 x 1.5	VSD-M 10 L A4GS	3.6	20	15.5	20.9	19	8.5 x 1.5	WAL626566	WAL626585			10	VSD 10 L/S M.MB.	WAL612332	WAL618777						
	630 (9137)	12	M18 x 1.5	VSD-M 12 L A4GS	4.5	21	15.5	22.9	22	10 x 1.5	WAL626558	WAL626586		630 (9137)	12	VSD 12 L/S M.MB.	WAL612333	WAL618778						
	400 (5801)	15	M22 x 1.5	VSD-M 15 L A4GS	6.3	20	17	22.4	27	12 x 2	WAL626567	WAL626587		400 (5801)	15	VSD 15 L M.MB.	WAL612334	WAL618779						
	18	M26 x 1.5	VSD-M 18 L A4GS	9.0	21	18	23.4	32	15 x 2	WAL626568	WAL626588	18			VSD 18 L M.MB.	WAL612335	WAL618780							
22	M30 x 2	VSD-M 22 L A4GS	12.8	23	20	24.9	36	20 x 2	WAL626569	WAL626589	22	VSD 22 L M.MB.	WAL612336		WAL618781									
250 (3626)	28	M36 x 2	VSD-M 28 L A4GS	17.6	23	21	26.1	41	26 x 2	WAL626559	WAL626590	250 (3626)	28	VSD 28 L M.MB.	WAL612337	WAL618782								
	35	M45 x 2	VSD-M 35 L A4GS	30.0	29	24	31.3	50	32 x 2	WAL626570	WAL626591		35	VSD 35 L M.MB.	WAL612338	WAL618783								
	42	M52 x 2	VSD-M 42 L A4GS	43.6	30	24	30.9	60	38 x 2.5	WAL626571	WAL626592		42	VSD 42 L M.MB.	WAL612339	WAL618784								
S	800 (11603)	6	M14 x 1.5	VSD-M 6 S A4GS	2.5	17	16.5	19.4	17	4.5 x 1.5	WAL626572	WAL626593	S	800 (11603)	6	VSD 6 L/S M.MB.	WAL612330	WAL618775						
		8	M16 x 1.5	VSD-M 8 S A4GS	3.0	17	16.5	19.4	19	6 x 1.5	WAL626573	WAL626594			8	VSD 8 L/S M.MB.	WAL612331	WAL618776						
		10	M18 x 1.5	VSD-M 10 S A4GS	4.6	20	17.5	21.9	22	8.5 x 1.5	WAL626574	WAL626595			10	VSD 10 L/S M.MB.	WAL612332	WAL618777						
	630 (9137)	12	M20 x 1.5	VSD-M 12 S A4GS	5.5	21	17.5	23.9	24	10 x 1.5	WAL626545	WAL626596		630 (9137)	12	VSD 12 L/S M.MB.	WAL612333	WAL618778						
		14	M22 x 1.5	VSD-M 14 S A4GS	7.3	23	20.5	26.9	27	12 x 2	WAL626575	WAL626597			14	VSD 14 S M.MB.	WAL612340	WAL618785						
		16	M24 x 1.5	VSD-M 16 S A4GS	9.2	24	20.5	28.9	30	14 x 2	WAL626546	WAL626598			16	VSD 16 S M.MB.	WAL612341	WAL618786						
	420 (6091)	20	M30 x 2	VSD-M 20 S A4GS	14.5	28	24	31.0	36	17.3 x 2.4	WAL626576	WAL626599		420 (6091)	20	VSD 20 S M.MB.	WAL612342	WAL618787						
		25	M36 x 2	VSD-M 25 S A4GS	29.7	31	27	35.7	46	22.3 x 2.4	WAL626577	WAL626600			25	VSD 25 S M.MB.	WAL612343	WAL618788						
		30	M42 x 2	VSD-M 30 S A4GS	35.7	34	29	39.7	50	27.3 x 2.4	WAL626578	WAL626601			30	VSD 30 S M.MB.	WAL612344	WAL618789						
		38	M52 x 2	VSD-M 38 S A4GS	51.5	38	32.5	45.5	60	35 x 2.5	WAL626579	WAL626602			38	VSD 38 S M.MB.	WAL612345	WAL618790						

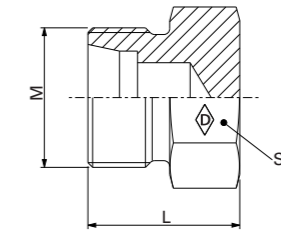
⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
*For FPM (e.g. Viton) see price list / available on request

⚠ Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.

P-VSK ...



VSK ...

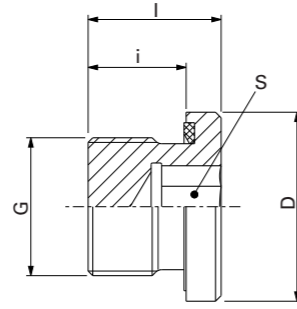


Blanking ends P-VSK...								Blanking ends VSK...					
Series	PN (bar) (psi)	Tube outer diameter	M	Model	kg/100 pc.	L	S ₁	Series	PN (bar) (psi)	Tube outer diameter	Model	kg/100 pc.	Art. no.
L	500 (7252)	6	M 12 x 1.5	P-VSK 6 L	2.5	17	14	L	500 (7252)	6	VSK 6 L	1.4	WAL609765
		8	M 14 x 1.5	P-VSK 8 L	4.1	17	17			8	VSK 8 L	2.4	WAL609766
		10	M 16 x 1.5	P-VSK 10 L	5.1	20	17			10	VSK 10 L	2.7	WAL372285
		12	M 18 x 1.5	P-VSK 12 L	6.4	21	19			12	VSK 12 L	3.4	WAL063311
	400 (5801)	15	M 22 x 1.5	P-VSK 15 L	10.5	20	24		15	VSK 15 L	5.9	WAL609767	
		18	M 26 x 1.5	P-VSK 18 L	14.8	21	27		18	VSK 18 L	8.1	WAL061866	
		22	M 30 x 2	P-VSK 22 L	20.4	23	32		22	VSK 22 L	11.5	WAL609768	
		28	M 36 x 2	P-VSK 28 L	30.2	23	41		28	VSK 28 L	20.5	WAL609769	
	250 (3626)	35	M 45 x 2	P-VSK 35 L	44.5	29	46		35	VSK 35 L	29.2	WAL609770	
		42	M 52 x 2	P-VSK 42 L	68.7	30	55		42	VSK 42 L	44.9	WAL609771	
800 (11603)	6	M 14 x 1.5	P-VSK 6 S	3.6	17	17	6	VSK 6 S	1.9	WAL609772			
	8	M 16 x 1.5	P-VSK 8 S	4.5	17	17	8	VSK 8 S	2.5	WAL609773			
	10	M 18 x 1.5	P-VSK 10 S	6.9	20	19	10	VSK 10 S	3.5	WAL371395			
	12	M 20 x 1.5	P-VSK 12 S	9.3	21	22	12	VSK 12 S	5.3	WAL024051			
630 (9137)	14	M 22 x 1.5	P-VSK 14 S	11.8	23	24	14	VSK 14 S	6.2	WAL609774			
	16	M 24 x 1.5	P-VSK 16 S	14.5	24	27	16	VSK 16 S	7.8	WAL063859			
	20	M 30 x 2	P-VSK 20 S	23.7	28	32	20	VSK 20 S	13.1	WAL063400			
420 (6091)	25	M 36 x 2	P-VSK 25 S	43.9	31	41	25	VSK 25 S	22.9	WAL063312			
	30	M 42 x 2	P-VSK 30 S	53.8	34	46	30	VSK 30 S	30.2	WAL602420			
	38	M 52 x 2	P-VSK 38 S	83.8	38	55	38	VSK 38 S	50.2	WAL609775			

VS-R ... -WD

VS-R ... -WD-1.4571

- with hexagon socket
- with soft seal made from NBR* (e.g. Perbunan) for steel
- with soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)
- Inch studs type E to DIN EN ISO 1179-2



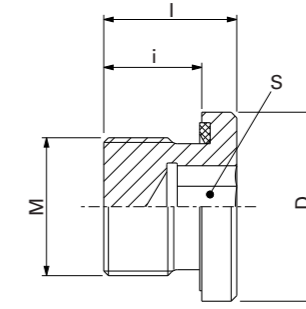
PN bar (psi)	DIN - ISO 228 (R..., DIN 259)	Model	kg/100 pc.	D	l	i	S	O-ring	Blanking ends	Blanking ends
									VS-R ... -WD	Stainless steel (1.4571) VS-R ... -WD-1.4571
									Art. no.	Art. no.
400 (5801)	G 1/8 A	VS-R 1/8 -WD	0.6	14	12	8	5	3 x 1	WAL036856	WAL602800
	G 1/4 A	VS-R 1/4 -WD	1.4	19	17	12	6	5 x 1	WAL036858	WAL374787
	G 3/8 A	VS-R 3/8 -WD	2.1	22	17	12	8	7 x 1	WAL036860	WAL374841
	G 1/2 A	VS-R 1/2 -WD	4.0	27	19	14	10	4.5 x 1.5	WAL036862	WAL372597
	G 3/4 A	VS-R 3/4 -WD	7.5	32	21	16	12	6 x 1.5	WAL036864	WAL602802
	G 1 A	VS-R 1 -WD	11.8	40	22.5	16	17	8.5 x 1.5	WAL036866	WAL374498
250 (3626)	G 1 1/4 A	VS-R 1 1/4 -WD	18.6	50	22.5	16	22	10 x 1.5	WAL036868	WAL371504
	G 1 1/2 A	VS-R 1 1/2 -WD	24.7	55	22.5	16	24	12 x 2	WAL036870	WAL609394
400 (5801)	G 1 1/4 A	VS-R 1 1/4 -WD/PN 400	28.3	50	28	20	22	15 x 2	WAL372905	
	G 1 1/2 A	VS-R 1 1/2 -WD/PN 400	39.2	55	30	22	24	20 x 2	WAL372989	

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
*For FPM (e.g. Viton) see price list / available on request

VS-M ... -WD

VS-M ... -WD-1.4571

- with hexagon socket
- with soft seal made from NBR* (e.g. Perbunan) for steel
- with soft seal made from FKM (e.g. Viton) for stainless steel (1.4571)
- Metric stud type E to DIN EN ISO 9974-2

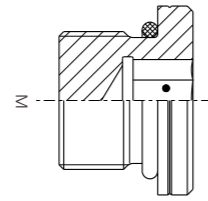


PN bar (psi)	M	Model	kg/100 pc.	D	l	i	S	Art. no.	Blanking ends	Blanking ends
									VS-M ... -WD	Stainless steel (1.4571) VS-M ... -WD-1.4571
								Art. no.	Art. no.	
400 (5801)	M 10 x 1	VS-M 10 x 1 -WD	0.6	14	12	8	5	WAL028302	WAL605040	
	M 12 x 1.5	VS-M 12 x 1.5 -WD	1.1	17	17	12	6	WAL028303	WAL605042	
	M 14 x 1.5	VS-M 14 x 1.5 -WD	1.5	19	17	12	6	WAL028304	WAL374724	
	M 16 x 1.5	VS-M 16 x 1.5 -WD	1.8	22	17	12	8	WAL028305	WAL605044	
	M 18 x 1.5	VS-M 18 x 1.5 -WD	2.8	24	17	12	8	WAL029844	WAL604532	
	M 20 x 1.5	VS-M 20 x 1.5 -WD	3.6	26	19	14	10	WAL028306	WAL609395	
	M 22 x 1.5	VS-M 22 x 1.5 -WD	4.6	27	19	14	10	WAL028307	WAL374725	
	M 26 x 1.5	VS-M 26 x 1.5 -WD	7.2	32	21	16	12	WAL028308	WAL617296	
	M 27 x 2	VS-M 27 x 2 -WD	7.5	32	21	16	12	WAL028309	WAL605284	
	M 33 x 2	VS-M 33 x 2 -WD	11.8	40	22.5	16	17	WAL028310	WAL605143	
	250 (3626)	M 42 x 2	VS-M 42 x 2 -WD	18.6	50	22.5	16	22	WAL028311	WAL617297
		M 48 x 2	VS-M 48 x 2 -WD	24.7	55	22.5	16	24	WAL028312	WAL617298
	400 (5801)	M 42 x 2	VS-M 42 x 2 -WD/PN 400	28.3	50	28	20	22	WAL608445	
		M 48 x 2	VS-M 48 x 2 -WD/PN 400	39.2	55	30	22	24	WAL608446	

Caution: The pressure specifications refer to the steel version. For the stainless steel version (1.4571), please refer to the pressure specifications on page B5.
*For FPM (e.g. Viton) see price list / available on request

VS- ... M - OR (ISO 6149)

- with hexagon socket and O-ring made from NBR* (e.g. Perbunan)
- Metric stud with O-ring to DIN EN ISO 6149-2 and -3



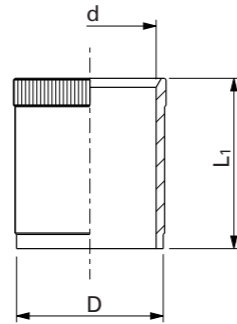
										Blanking ends VS- ... M-OR
PN bar (psi)	M	Model	kg/ 100 pc.	D	I	i	S	O-ring	Art. no.	
420 (5801)	M10 x 1.5	VS-M 10 x 1-OR	0.8	14	13.5	9.5	5	8.1 x 1.6	WAL625557	
	M12 x 1.5	VS-M 12 x 1.5-OR	1.4	17	15.5	11	6	9.3 x 2.2	WAL625558	
630 (9137)	M14 x 1.5	VS-M 14 x 1.5-OR	2.0	19	16	11	6	11.3 x 2.2	WAL625559	
	M16 x 1.5	VS-M 16 x 1.5-OR	2.6	22	17.5	12.5	8	13.3 x 2.2	WAL625560	
	M18 x 1.5	VS-M 18 x 1.5-OR	3.7	24	19	14	8	15.3 x 2.2	WAL625561	
	M22 x 1.5	VS-M 22 x 1.5-OR	5.8	27	20	15	10	17.3 x 2.2	WAL625562	
400 (5801)	M27 x 2	VS-M 27 x 2-OR	9.5	32	23.5	18.5	12	19.3 x 2.2	WAL625563	
	M33 x 2	VS-M 33 x 2-OR	14.2	41	24.5	18.5	14	23.6 x 2.9	WAL625564	
250 (3626)	M42 x 2	VS-M 42 x 2-OR	22.9	50	25	19	17	38.6 x 2.9	WAL625565	
	M48 x 2	VS-M 48 x 2-OR	32.8	55	27.5	21.5	17	44.6 x 2.9	WAL625566	

*For FPM (e.g. Viton) see price list / available on request

EH ...

EH ... -1.4571

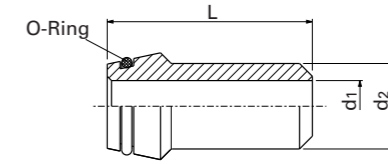
· Material: Brass Cu Zn 39 Pb (Ms 58)



Tube ID	Model	kg/ 100 pc.	D	d	L ₁	Tube inserts	Tube inserts
						EH ...	Stainless steel (1.4571) EH ... -1.4571
						Art. no.	Art. no.
4	EH 4 Ms	0.08	3.8	2.5	17	WAL061879	WAL617300
5	EH 5 Ms	0.11	4.8	3.5	17	WAL061881	WAL374722
6	EH 6 Ms	0.13	5.8	4.5	17	WAL033406	WAL608321
6.5	EH 6,5 Ms	0.14	6.3	5	17	WAL033407	
7	EH 7 Ms	0.17	6.8	5.5	17	WAL033408	WAL061199
8	EH 8 Ms	0.22	7.8	6.5	17	WAL033409	WAL617301
8.5	EH 8,5 Ms	0.23	8.3	7	17	WAL029008	
9	EH 9 Ms	0.24	8.8	7.5	17	WAL033410	WAL374723
10	EH 10 Ms	0.26	9.8	8.5	17	WAL033411	WAL060690
12	EH 12 Ms	0.36	11.8	10.5	17	WAL033412	WAL617302
13	EH 13 Ms	0.4	12.8	11.5	18	WAL033413	WAL617303
15	EH 15 Ms	0.5	14.8	13	18	WAL033415	WAL615587
16	EH 16 Ms	0.6	15.8	14	18	WAL033416	WAL604537
18	EH 18 Ms	0.85	17.8	16	22	WAL033417	WAL617304
19	EH 19 Ms	0.85	18.8	17	20	WAL033418	WAL615586
20	EH 20 Ms	0.9	19.8	18	20	WAL033419	WAL617305
24	EH 24 Ms	1.1	23.8	22	20	WAL033420	WAL617306
25	EH 25 Ms	1.15	24.8	23	20	WAL033800	WAL617307
31	EH 31 Ms	1.85	30.8	28	23	WAL029011	WAL617308
38	EH 38 Ms	2.6	37.8	35	24	WAL029013	WAL617310

SN ...

· with O-ring made from NBR* (e.g. Perbunan)

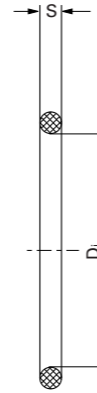


Tube outer diameter	PN bar (psi)	Model	kg/ 100 pc.	d ₁	L	O-ring	Welding nipple SN...
							Art. no.
8	400 (5801)	SN 8 x 2	1.1	4	31	6 x 1.5	WAL028783
10	315 (4569)	SN 10 x 2	1.5	6	32.5	7.5 x 1.5	WAL028784
12	400 (5801)	SN 12 x 2.5	2.2	7	32.5	9 x 1.5	WAL028785
16	400 (5801)	SN 16 x 3	3.9	10	38.5	12 x 2	WAL028788
20	250 (3626)	SN 20 x 3	6.0	14	44.5	16.3 x 2.4	WAL028790
	400 (5801)	SN 20 x 4	7.4	12			WAL068737
25	250 (3626)	SN 25 x 3	8.7	19	49.5	20.3 x 2.4	WAL028792
	315 (4569)	SN 25 x 4	10.7	17			WAL028793
30	250 (3626)	SN 30 x 4	14.0	22	52	25.3 x 2.4	WAL028795
	315 (4569)	SN 30 x 5	16.5	20			WAL028796
	400 (5801)	SN 30 x 6	18.6	18			WAL604551
38	160 (2321)	SN 38 x 4	20.4	30	56.5	33.3 x 2.4	WAL028797
	250 (3626)	SN 38 x 5	23.5	28			WAL028798
	315 (4569)	SN 38 x 6	27.2	26			WAL028799
	400 (5801)	SN 38 x 7	30.1	24			WAL604552

*For FPM (e.g. Viton) see price list / available on request.
Do not fit the O-ring until after the welding process.
For stainless steel (1.4571), see price list / available on request

O-rings

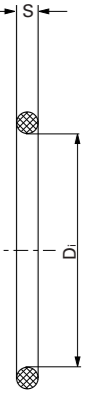
BO-ZR	Intermediate flare ring	A	RSWV	Banjo bolt	G
SN	Welding nipple	B	UNF; UN	Thread	H
DK	Taper	C	BO-FK	Complete flared flange	I
VSD	Blanking plug with taper	D	BO-FGK	Complete flared flange counterpart	K
GFV	Straight flange fitting	E	SNV	Straight fitting	L
WFV	Elbow flange fitting	F			



Di x S	Art. no.	Application			
		Material: NBR (Perbunan®)		Material: FPM (Viton®)	
		70 NBR	90 NBR	75 FPM	85 FPM
3 x 1	WAL612346	D			
3 x 1	WAL613311				D
4 x 1.5	WAL023488	B			
4 x 1.5	WAL023497				B/C
4.4 x 0.8	WAL374746	A			
4.4 x 0.8	WAL374747				A
4.5 x 1.5	WAL304287	A/C/D/L			
4.5 x 1.5	WAL304265				A/C/D/L
5 x 1	WAL612347	D			
5 x 1	WAL613312				D
6 x 0.8	WAL374737	A			
6 x 0.8	WAL374741				A
6 x 1.5	WAL023489	A/B/C/D/L			
6 x 1.5	WAL023498				A/B/C/D/L
6.5 x 1.5	WAL605948	G			
6.5 x 1.5	WAL606088			G	
7 x 1	WAL612348	D			
7 x 1	WAL613313				D
7.5 x 0.8	WAL374738	A			
7.5 x 0.8	WAL374742				A
7.5 x 1.5	WAL099808	B			
7.5 x 1.5	WAL099803				B
7.65 x 1.63	WAL099668		H		
8.5 x 1.5	WAL304288	A/C/D/G/L			
8.5 x 1.5	WAL304266				A/C/D/G/L
8.92 x 1.83	WAL304315				H
8.92 x 1.83	WAL099669		H		
9 x 1.5	WAL099807	B			
9 x 1.5	WAL099802				B
9.4 x 2.1	WAL606541		H		
9.5 x 0.8	WAL374739	A			
9.5 x 0.8	WAL374743				A
10 x 1.5	WAL023491	A/C/D/L			
10 x 1.5	WAL023500				A/C/D/L
10 x 2	WAL020765	B			
10 x 2	WAL099801				B
10.5 x 1.5	WAL623927	C/D/L			
10.52 x 1.83	WAL613166				H

O-rings

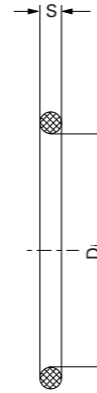
BO-ZR	Intermediate flare ring	A	RSWV	Banjo bolt	G
SN	Welding nipple	B	UNF; UN	Thread	H
DK	Taper	C	BO-FK	Complete flared flange	I
VSD	Blanking plug with taper	D	BO-FGK	Complete flared flange counterpart	K
GFV	Straight flange fitting	E	SNV	Straight fitting	L
WFV	Elbow flange fitting	F			



Di x S	Art. no.	Application			
		Material: NBR (Perbunan®)		Material: FPM (Viton®)	
		70 NBR	90 NBR	75 FPM	85 FPM
10.52 x 1.83	WAL099670		H		
11 x 1	WAL374750	A/I/K			
11 x 1	WAL374754				A
11 x 2	WAL023492	G			
11 x 2	WAL606090			G	
11.3 x 2.2	WAL609916		H		
11.4 x 2.1	WAL615165				H
11.4 x 2.1	WAL606542		H		
11.9 x 1.98	WAL609705				H
11.9 x 1.98	WAL099671		H		
12 x 2	WAL020766	A/B/C/D			
12 x 2	WAL099800				A/B/C/D
12.5 x 0.8	WAL374740	A			
12.5 x 0.8	WAL374744				A
12.5 x 1	WAL374756	A/I/K			
12.5 x 1	WAL374757				A/I
13 x 1.5	WAL304289	A			
13 x 1.5	WAL304267				A
13.4 x 2.1	WAL606543		H		
14 x 1.78	WAL023589	F			
14 x 2	WAL021629	A/C/D/L			
14 x 2	WAL099795				A/C/D/L
14.5 x 2	WAL605949	G			
14.5 x 2	WAL606091			G	
15 x 1	WAL304305	A/I/K			
15 x 1	WAL374434				A/I
15 x 2	WAL612804	C/D/L			
15 x 2	WAL609682				C/D
15.3 x 2.2	WAL611603		H		
15.4 x 2.1	WAL606544		H		
16 x 1	WAL261058	A/I/K			
16 x 1	WAL374435				A/I
16 x 1.5	WAL304290	A			
16 x 1.5	WAL304268				A
16 x 2.5	WAL020767	F			
16.3 x 2.4	WAL023605	B			
16.3 x 2.4	WAL099799				B/I
16.36 x 2.2	WAL304318				H

O-rings

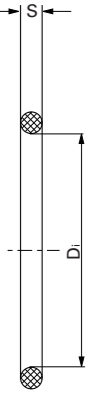
BO-ZR	Intermediate flare ring	A	RSWV	Banjo bolt	G
SN	Welding nipple	B	UNF; UN	Thread	H
DK	Taper	C	BO-FK	Complete flared flange	I
VSD	Blanking plug with taper	D	BO-FGK	Complete flared flange counterpart	K
GFV	Straight flange fitting	E	SNV	Straight fitting	L
WFV	Elbow flange fitting	F			



Di x S	Art. no.	Application			
		Material: NBR (Perbunan®)		Material: FPM (Viton®)	
		70 NBR	90 NBR	75 FPM	85 FPM
16.36 x 2.2	WAL099672		H		
16.5 x 2	WAL605950	G			
16.5 x 2	WAL606092			G	
17 x 1	WAL608804	A			
17.3 x 2.4	WAL261067	A/C/L			
17.3 x 2.4	WAL304269				A/C/D/L
17.4 x 2.1	WAL606597		H		
18 x 1	WAL304306	A/I/K			
18 x 1	WAL304407				A/I
18 x 2.5	WAL099794				E/F
18.64 x 3.53	WAL613769	I			
18.64 x 3.53	WAL614080				I
19.18 x 2.46	WAL304319				H
19.18 x 2.46	WAL099636		H		
19.4 x 2.1	WAL606545		H		
19.5 x 2	WAL605951	G			
19.5 x 2	WAL606093			G	
20 x 1	WAL304307	A/I/K			
20 x 1	WAL304402				A/I
20 x 2	WAL261082	A/C/D/L			
20 x 2	WAL304166				A/C/D/L
20 x 2.5	WAL610519	E/F			
20 x 2.5	WAL612474				F
20.3 x 2.4	WAL023626	B			
20.3 x 2.4	WAL099798				B
22.3 x 2.4	WAL261093	A/C/D/L			
22.3 x 2.4	WAL304270				A/C/D/L
22.7 x 2.8	WAL607383		H		
23 x 1	WAL304310	A/I/K			
23 x 1	WAL304409				A/I
23.47 x 2.95	WAL304320				H
23.47 x 2.95	WAL099637		H		
23.7 x 2.8	WAL612489		H		
24 x 2.5	WAL099793				F
25 x 1	WAL374751	A			
25 x 1	WAL374755				A
25 x 3.5	WAL614081				I
25 x 3.53	WAL611016	I			

O-rings

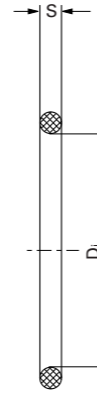
BO-ZR	Intermediate flare ring	A	RSWV	Banjo bolt	G
SN	Welding nipple	B	UNF; UN	Thread	H
DK	Taper	C	BO-FK	Complete flared flange	I
VSD	Blanking plug with taper	D	BO-FGK	Complete flared flange counterpart	K
GFV	Straight flange fitting	E	SNV	Straight fitting	L
WFV	Elbow flange fitting	F			



Di x S	Art. no.	Application			
		Material: NBR (Perbunan®)		Material: FPM (Viton®)	
		70 NBR	90 NBR	75 FPM	85 FPM
25.3 x 2.4	WAL099806	B/F			
25.3 x 2.4	WAL099797				B/I
26 x 1.5	WAL605952	G			
26 x 1.5	WAL606094			G	
26 x 2	WAL261108	A/B/C/D/L			
26 x 2	WAL304167				A/C/D/L
26 x 2.5	WAL610499	E/F			
26 x 2.5	WAL612930				F
27 x 1	WAL608805	A			
27.3 x 2.4	WAL304293	A/C/D/L			
27.3 x 2.4	WAL304271				C/D/L
28 x 1	WAL304273	I/K			
28 x 1	WAL612832				I
29.74 x 2.95	WAL304322				H
29.74 x 2.95	WAL099639		H		
29.828 x 2.62	WAL614724				I
30 x 1	WAL374748	A			
30 x 1	WAL374752				A
31 x 2	WAL250258	G			
31 x 2	WAL606095			G	
32 x 1.78	WAL261131	A/I/K			
32 x 1.78	WAL374745				A/I
32 x 2.5	WAL020775	A/C/D/L			
32 x 2.5	WAL304168				A/C/D/L
32.92 x 3.53	WAL610404	I			
32.92 x 3.53	WAL614082				I
33 x 2.5	WAL610500	E/F			
33.3 x 2.4	WAL023683	B			
33.3 x 2.4	WAL099796				B
34.5 x 2.65	WAL614725				I
35 x 2.5	WAL261138	A/C/D/L			
35 x 2.5	WAL304272				C/D/L
37 x 1	WAL374749	A/I/K			
37 x 1	WAL374753				A/I
37.46 x 3	WAL304323				H
37.46 x 3	WAL099640		H		
37.69 x 3.53	WAL610405	E/F/I			
37.69 x 3.53	WAL614083				I

O-rings

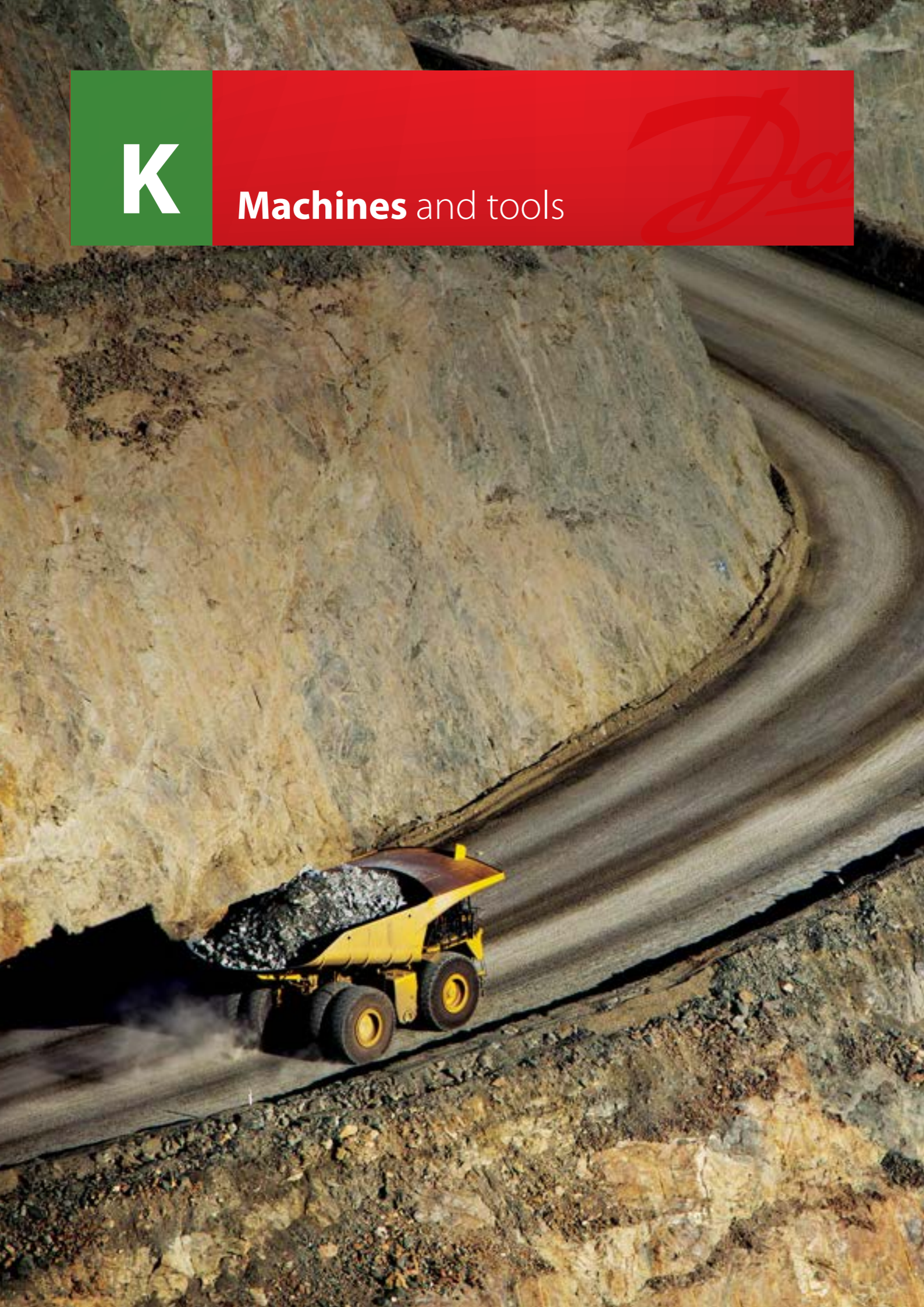
BO-ZR	Intermediate flare ring	A	RSWV	Banjo bolt	G
SN	Welding nipple	B	UNF; UN	Thread	H
DK	Taper	C	BO-FK	Complete flared flange	I
VSD	Blanking plug with taper	D	BO-FGK	Complete flared flange counterpart	K
GFV	Straight flange fitting	E	SNV	Straight fitting	L
WFV	Elbow flange fitting	F			



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		Application			
		Material: NBR (Perbunan®)		Material: FPM (Viton®)	
Di x S	Art. no.	70 NBR	90 NBR	75 FPM	85 FPM
37.82 x 1.78	WAL612739	I/K			
37.82 x 1.78	WAL614076				I
38 x 2.5	WAL099804	A/C/D/L			
38 x 2.5	WAL099791				C/D/L
40 x 2	WAL261157	G			
40 x 2	WAL606096			G	
43.69 x 3	WAL099641		H		
44.17 x 1.78	WAL611929	I/K			
44.17 x 1.78	WAL614077				I/K
46 x 2	WAL605953	G			
46 x 2	WAL606097			G	
47.22 x 3.53	WAL611425	I			
47.22 x 3.53	WAL614084				I
50.52 x 1.78	WAL612147	I/K			
50.52 x 1.78	WAL614078				I
53.67 x 1.78	WAL614079				I/K
53.7 x 1.78	WAL612146	I/K			
56.52 x 5.33	WAL614138				I
56.74 x 3.53	WAL612145	I			
56.74 x 3.53	WAL614085				I
56.82 x 2.62	WAL614386	I/K			
64.77 x 2.62	WAL614385	I/K			
64.77 x 2.62	WAL614424				I
69.22 x 5.33	WAL614139				I
69.44 x 3.53	WAL614389	I			
69.44 x 3.53	WAL614419				I
69.52 x 2.62	WAL614384	I/K			
69.52 x 2.62	WAL614423				I/K
82.22 x 2.62	WAL614387	I/K			
82.22 x 2.62	WAL614426				I/K
85.32 x 3.53	WAL614390	I			
85.32 x 3.53	WAL614420				I
88.27 x 5.33	WAL614140				I
98.02 x 3.53	WAL614391	I			
98.02 x 3.53	WAL614421				I
110.49 x 5.33	WAL614141				I
110.72 x 3.53	WAL614392	I			
110.72 x 3.53	WAL614422				I

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Machines and tools

Danfoss

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Special machine assembly

Fast and reliable assembly is crucial for tube-fitting systems. Yet the results may vary due to human error during the assembly process.

To ensure superior performance, the best solution is to automate the cutting-ring assembly and tube reshaping process. For this reason, we have developed tailor-made assembly machines to optimize the assembly of Waltech systems, based on our many years of experience in the field and our holistic approach to in-house value creation, from design to production.

In-house machine design and production

Based on decades of experience, we develop and produce our assembly machines at our factory in Lohmar, Germany. Our specialized machine design and production department monitors this process throughout - from the design and prototyping phase all the way to testing and optimization.

Over the years, we have incorporated extensive customer feedback into our design process, from large OEM customers that require maximum reliability and low cycle times, to small distributors looking for a high degree of flexibility and a wide range of options.

Today, we manufacture up to 80 machines each year and offer many options for the servicing and maintenance of older machines. We pride ourselves on manufacturing all our tools in-house, which guarantees stable machine performance and a long service life. In addition, we also offer a large number of machines for rent, to support customer projects and to provide replacements in the event of maintenance.

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Machines

M-WF385Xplus



Tools

Clamping jaws for WalformPlus



Reshaping adapter with internal support



M-R7



Backing plate



Complete GE adapter



M-WF385X/BO



Clamping jaws for flared tube fittings



Flare fitting and mandrel with mechanically resistant coating



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Cutting-ring assembly using the M-R7 assembly machine

The innovative M-R7 cutting-ring final assembly machine

The new M-R7 machine is designed for the controlled final assembly of our Walpro and Walring systems.

It offers optimized performance and a number of other benefits, including a short tightening rotation and a reduction in the amount of force required during final assembly.



Model	Art. no.
M-R7	WAL627627



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Key features and benefits:

- Suitable for processing 180° bent tubes with an outer diameter of R = 1.5 (previously an outer diameter of R = 6.4 x)
- For final assembly of Waltech Walpro and Walring fittings with diameters between 6 and 42 mm
- The production process is efficient and cost-effective
- The process starts automatically when the tube makes contact with the tool
- The machine can process tightly bent and short straight tubes
- Modern RFID technology is used for tool recognition and adjustment of the machining values
- Automatic pressure point detection and rotation control ensure robust, leakage-free and safe tube fittings
- Optimized error detection thanks to preprogrammed tolerance values based on statistical process control
- The assembly parameters can be exported to external devices via a USB port for integration into quality control systems
- Day counter with reset function and series counter
- Intuitive and user-friendly touch panel (7")
- Existing Waltech tools can be retrofitted with RFID technology
- Compact and lightweight tabletop device

M-R7 technical data:

- Weight: 105 kg
- Dimensions (W x H x D): 770 x 225 x 650 mm
- Standard voltage: 400 V AC
- 3-phase
- Frequency: 50 Hz
- Circuit protection: 16 A
- Plug: CEE 16
- Power consumption: 1.8 kW

- Plastic housing
- Input: 1.5 m H07RN-F 5G2.5 with CEE plug (400 V/32 A/5-pole)
- Output: 1 x CEE socket (400 V/16 A/5-pole) with hinged cover
- Circuit protection: 1 circuit breaker, C 16 A, 3-pole, resettable, 400 V/32 A/max. 11 kW

Model	Art. no.
Adapter 1.5 m 5G2.5 400 V 32 A/11 kW to 16 A	WAL626329
Adapter for 32 A networks	



Cutting-ring assembly using the M-R7 assembly machine

GE adapter ...

Adapters for controlled final assembly of Walpro / Walpro-X fittings



WR adapter ...

Studs for controlled final assembly of Walring fittings



BACKING PLATE M-R7 ...

Backing plate for Walpro / Walpro-X / Walring



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Series	Tube outer diameter	Walpro GE adapter		Walring W-R adapter		Backing plate for M-R7	
		Model	Art. no.	Model	Art. no.	Model	Art. no.
L	6	GE adapter 6L M-R7	WAL627874	W-R adapter 6L M-R7	WAL627800	Backing plate 6L/S M-R7 KPL	WAL627894
	8	GE adapter 8L M-R7	WAL627875	W-R adapter 8L M-R7	WAL627801	Backing plate 8L/S M-R7 KPL	WAL627895
	10	GE adapter 10L M-R7	WAL627876	W-R adapter 10L M-R7	WAL627802	Backing plate 10L/S M-R7 KPL	WAL627896
	12	GE adapter 12L M-R7	WAL627877	W-R adapter 12L M-R7	WAL627803	Backing plate 12L/S M-R7 KPL	WAL627897
	15	GE adapter 15L M-R7	WAL627878	W-R adapter 15L M-R7	WAL627804	Backing plate 15L M-R7 KPL	WAL627899
	18	GE adapter 18L M-R7	WAL627879	W-R adapter 18L M-R7	WAL627805	Backing plate 18L M-R7 KPL	WAL627901
	22	GE adapter 22L M-R7	WAL627880	W-R adapter 22L M-R7	WAL627806	Backing plate 22L M-R7 KPL	WAL627903
	28	GE adapter 28L M-R7	WAL627881	W-R adapter 28L M-R7	WAL627807	Backing plate 28L M-R7 KPL	WAL627905
	35	GE adapter 35L M-R7	WAL627882	W-R adapter 35L M-R7	WAL627808	Backing plate 35L M-R7 KPL	WAL627907
	42	GE adapter 42L M-R7	WAL627883	W-R adapter 42L M-R7	WAL627809	Backing plate 42L M-R7 KPL	WAL627909
S	6	GE adapter 6S M-R7	WAL627884	W-R adapter 6S M-R7	WAL627810	Backing plate 6L/S M-R7 KPL	WAL627894
	8	GE adapter 8S M-R7	WAL627885	W-R adapter 8S M-R7	WAL627811	Backing plate 8L/S M-R7 KPL	WAL627895
	10	GE adapter 10S M-R7	WAL627886	W-R adapter 10S M-R7	WAL627812	Backing plate 10L/S M-R7 KPL	WAL627896
	12	GE adapter 12S M-R7	WAL627887	W-R adapter 12S M-R7	WAL627813	Backing plate 12L/S M-R7 KPL	WAL627897
	14	GE adapter 14S M-R7	WAL627888	-	-	Backing plate 14S M-R7 KPL	WAL627898
	16	GE adapter 16S M-R7	WAL627889	W-R adapter 16S M-R7	WAL627814	Backing plate 16S M-R7 KPL	WAL627900
	20	GE adapter 20S M-R7	WAL627890	W-R adapter 20S M-R7	WAL627815	Backing plate 20S M-R7 KPL	WAL627902
	25	GE adapter 25S M-R7	WAL627891	W-R adapter 25S M-R7	WAL627816	Backing plate 25S M-R7 KPL	WAL627904
30	GE adapter 30S M-R7	WAL627892	W-R adapter 30S M-R7	WAL627817	Backing plate 30S M-R7 KPL	WAL627906	
	38	GE adapter 38S M-R7	WAL627893	W-R adapter 38S M-R7	WAL627818	Backing plate 38S M-R7 KPL	WAL627908

Cutting-ring assembly using the MHH-R manual pre-assembly device

MHH-R

Manual pre-assembly device

Model	Art. no.
MHH-R	WAL624423



MHH-R technical data:	
Weight:	29 kg
Dimensions (W x H x D):	400 x 170 x 500 mm

Key features and benefits:

- A user-friendly and cost-effective alternative to the M-R7 machine
- The device offers a high degree of flexibility and requires no electricity
- It is easy to transport and especially suitable for use on construction sites
- Suitable for all Waltech cutting-ring systems, thanks to the easy tool change function

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PRE-ASS. AD. P- ...

Pre-assembly adapter for Walpro / Walpro-X



PRE-ASS. AD. W- ...

Pre-assembly adapter for Walring



BACKING PLATE ...

Backing plate for Walpro / Walpro-X / Walring



Series	Tube outer diameter	Walpro pre-assembly adapter		Walring pre-assembly adapter		Backing plate	
		Model	Art. no.	Model	Art. no.	Model	Art. no.
L	6	PRE-ASS. AD. P-6 L BRN	WAL028382	PRE-ASS. AD. W-6 L-GE BRN	WAL624550	BACKING PLATE 6 L/S	WAL608363
	8	PRE-ASS. AD. P-8 L BRN	WAL028383	PRE-ASS. AD. W-8 L-GE BRN	WAL624551	BACKING PLATE 8 L/S	WAL608364
	10	PRE-ASS. AD. P-10 L BRN	WAL028384	PRE-ASS. AD. W-10 L-GE BRN	WAL624552	BACKING PLATE 10 L/S	WAL608365
	12	PRE-ASS. AD. P-12 L BRN	WAL028385	PRE-ASS. AD. W-12 L-GE BRN	WAL624553	BACKING PLATE 12 L/S	WAL608366
	15	PRE-ASS. AD. P-15 L BRN	WAL028386	PRE-ASS. AD. W-15 L-GE BRN	WAL624554	BACKING PLATE 15 L	WAL608367
	18	PRE-ASS. AD. P-18 L BRN	WAL028387	PRE-ASS. AD. W-18 L-GE BRN	WAL624555	BACKING PLATE 18 L	WAL608368
	22	PRE-ASS. AD. P-22 L BRN	WAL028388	PRE-ASS. AD. W-22 L-GE BRN	WAL624556	BACKING PLATE 22 L	WAL608369
	28	PRE-ASS. AD. P-28 L BRN	WAL028389	PRE-ASS. AD. W-28 L-GE BRN	WAL624557	BACKING PLATE 28 L	WAL608370
	35	PRE-ASS. AD. P-35 L BRN	WAL028390	PRE-ASS. AD. W-35 L-GE BRN	WAL624558	BACKING PLATE 35 L	WAL608371
	42	PRE-ASS. AD. P-42 L BRN	WAL028391	PRE-ASS. AD. W-42 L-GE BRN	WAL624559	BACKING PLATE 42 L	WAL608372
S	6	PRE-ASS. AD. P-6 S BRN	WAL028392	PRE-ASS. AD. W-6 S-GE BRN	WAL624560	BACKING PLATE 6 L/S	WAL608363
	8	PRE-ASS. AD. P-8 S BRN	WAL028393	PRE-ASS. AD. W-8 S-GE BRN	WAL624561	BACKING PLATE 8 L/S	WAL608364
	10	PRE-ASS. AD. P-10 S BRN	WAL028394	PRE-ASS. AD. W-10 S-GE BRN	WAL624562	BACKING PLATE 10 L/S	WAL608365
	12	PRE-ASS. AD. P-12 S BRN	WAL028395	PRE-ASS. AD. W-12 S-GE BRN	WAL624563	BACKING PLATE 12 L/S	WAL608366
	14	PRE-ASS. AD. P-14 S BRN	WAL028396	PRE-ASS. AD. W-14 S-GE BRN	WAL624564	BACKING PLATE 14 S	WAL608373
	16	PRE-ASS. AD. P-16 S BRN	WAL028397	PRE-ASS. AD. W-16 S-GE BRN	WAL624564	BACKING PLATE 16 S	WAL608374
	20	PRE-ASS. AD. P-20 S BRN	WAL028398	PRE-ASS. AD. W-20 S-GE BRN	WAL624565	BACKING PLATE 20 S	WAL608375
	25	PRE-ASS. AD. P-25 S BRN	WAL028399	PRE-ASS. AD. W-25 S-GE BRN	WAL624566	BACKING PLATE 25 S	WAL608376
30	PRE-ASS. AD. P-30 S BRN	WAL028400	PRE-ASS. AD. W-30 S-GE BRN	WAL624567	BACKING PLATE 30 S	WAL608377	
38	PRE-ASS. AD. P-38 S BRN	WAL028401	PRE-ASS. AD. W-38 S-GE BRN	WAL624568	BACKING PLATE 38 S	WAL608378	

The pre-assembly tools listed above can also be used with the MEG-R6 assembly machine (predecessor model of the M-R7).
Tools for controlled final assembly using the MEG-R6 machine can be found at the end of this chapter.

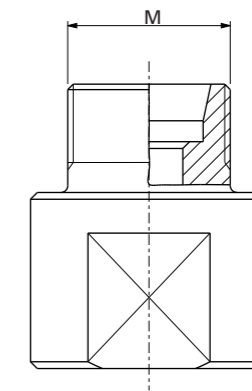
Cutting-ring assembly using the manual pre-assembly adapter

S-VK ... / P-VK ...

- Manual pre-assembly adapter for Walpro / Walpro-X

W-VK ...

- Manual pre-assembly adapter for Walring



Series	Tube outer diameter	M	kg/100 pc.	Walpro Manual pre-assembly adapter		Walring Manual pre-assembly adapter	
				Model	Art. no.	Model	Art. no.
LL	4	M 8 x 1	2.7	S-VK 4 LL	WAL029250		
	6	M 10 x 1	2.8	S-VK 6 LL	WAL029252		
	8	M 12 x 1	3.9	S-VK 8 LL	WAL029253		
L	6	M 12 x 1.5	4.4	P-VK 6 L	WAL029254	W-VK 6 L	WAL624967
	8	M 14 x 1.5	6.4	P-VK 8 L	WAL029255	W-VK 8 L	WAL624969
	10	M 16 x 1.5	6.6	P-VK 10 L	WAL029256	W-VK 10 L	WAL624971
	12	M 18 x 1.5	8.1	P-VK 12 L	WAL029257	W-VK 12 L	WAL624973
	15	M 22 x 1.5	18.0	P-VK 15 L	WAL029258	W-VK 15 L	WAL624974
	18	M 26 x 1.5	21.0	P-VK 18 L	WAL029259	W-VK 18 L	WAL624976
	22	M 30 x 2	30.0	P-VK 22 L	WAL029260	W-VK 22 L	WAL624978
	28	M 36 x 2	44.3	P-VK 28 L	WAL029261	W-VK 28 L	WAL624980
	35	M 45 x 2	63.5	P-VK 35 L	WAL029262	W-VK 35 L	WAL624982
	42	M 52 x 2	91.5	P-VK 42 L	WAL029263	W-VK 42 L	WAL624984
S	6	M 14 x 1.5	6.5	P-VK 6 S	WAL029264	W-VK 6 S	WAL624966
	8	M 16 x 1.5	6.7	P-VK 8 S	WAL029265	W-VK 8 S	WAL624968
	10	M 18 x 1.5	8.2	P-VK 10 S	WAL029266	W-VK 10 S	WAL624970
	12	M 20 x 1.5	18.0	P-VK 12 S	WAL029267	W-VK 12 S	WAL624972
	14	M 22 x 1.5	18.2	P-VK 14 S	WAL029268		
	16	M 24 x 1.5	18.7	P-VK 16 S	WAL029269	W-VK 16 S	WAL624975
	20	M 30 x 2	29.0	P-VK 20 S	WAL029270	W-VK 20 S	WAL624977
	25	M 36 x 2	43.0	P-VK 25 S	WAL029271	W-VK 25 S	WAL624979
	30	M 42 x 2	62.3	P-VK 30 S	WAL029272	W-VK 30 S	WAL624981
	38	M 52 x 2	94.0	P-VK 38 S	WAL029273	W-VK 38 S	WAL624983

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Walform tube fittings

The reliable M-WF385Xplus

Walform machine

- The M-WF385Xplus machine has been designed for the most demanding applications and can be used for tube reshaping with the WalformPlus system (for both steel and stainless steel).



M-WF385Xplus technical data:

Weight:	280 kg
Dimensions (W x H x D):	850 x 275 x 990 mm
Standard voltage:	400 V AC*
Frequency:	50 Hz
Circuit protection:	16 A
Power consumption:	2.8 kW

*230 V for part number WAL626353; 440 V and 480 V available on request

Key features and benefits:

- For final assembly of Waltech WalformPlus fittings with diameters between 6 and 42 mm
- Fast cycle times ensure efficient and cost-effective production
- Time-saving and easy tool change process
- The compact dimensions and reduced weight simplify transport to the point of use
- The rugged design reduces downtime and ensures a long service life of the machine
- The ability to control the shaping pressure reduces energy consumption and prolongs service life
- More silent operation for reduced noise levels during production
- Color-coded tools help to prevent errors in the reshaping process

Accessories and spare parts:

Model	Art. no.
MW1 assembly trolley (complete)	WAL626257
Assembly trolley for Walform machine with drawer cabinet and removal tool holder	
Model	Art. no.
MW1 basic version	WAL626258
Assembly trolley for Walform machine without drawer cabinet or removal tool holder	
Model	Art. no.
MW1 removal tool holder	WAL626261
Removal tool holder	
Model	Art. no.
MW1 drawer cabinet	WAL626259
Drawer cabinet, can be positioned as required	
Model	Art. no.
Foot switch	WAL609949
Foot switch for Walform machine	



Model	Art. no.
Adapter 1.5 m 5G2.5 400 V 32 A/11 kW to 16 A	WAL626329
Adapter for 32 A networks	



Walform tube fittings

Tube outer diameter (mm)	Wall thickness (mm)									
	1	1.5	2	2.5	3	3.5	4	5	6	
6	WAL625294	WAL615765								
8	WAL625295		WAL615766							
10	WAL625296			WAL615767						
12	WAL625297			WAL615768						
15	WAL625298		WAL615769							
16 A		WAL625299		WAL615770				WAL615770		
18		WAL625300		WAL615771						
20					WAL615772* (WAL625814*)					
22		WAL625301		WAL615773						
25					WAL615774* (WAL625816*)					
28					WAL615775					
30			WAL625302		WAL615776				WAL615776* (WAL625489*)	
35			WAL625303		WAL615777				WAL615777	
38					WAL615778				WAL615778* (WAL625818*)	
42			WAL625304					WAL615779		

*Special clamping jaws must be used with tube material E355. See the part number in brackets.

For tube sizes where standard clamping jaws can also be used with tube material E355, please refer to the notes in chapter C.

Tube outer diameter (mm)	Wall thickness (mm)									
	1	1.5	2	2.5	3	3.5	4	5	6	
6	WAL625272	WAL615820								
8	WAL625273	WAL615821	WAL615822	WAL625325						
10	WAL625274	WAL615823	WAL615824	WAL615825	WAL615826					
12	WAL625275	WAL615827	WAL615830	WAL615831	WAL615832					
15	WAL625276	WAL615833	WAL615836	WAL615839						
16 A		WAL625277	WAL615842	WAL615845	WAL615848			WAL615849		
18		WAL625278	WAL615850	WAL615853	WAL615856					
20			WAL615857	WAL615860		WAL615863		WAL615864		
22		WAL625279	WAL615865	WAL615995	WAL615868	WAL615869				
25			WAL615870	WAL615873	WAL615876	WAL615877	WAL615878	WAL615994		
28			WAL615879	WAL615882	WAL615885		WAL615888			
30			WAL625280	WAL615889	WAL615892			WAL615895	WAL615896	
35			WAL625281	WAL624009	WAL615897			WAL615900	WAL615901	
38					WAL615902			WAL615905	WAL615906	
42			WAL625282		WAL615908	WAL615911	WAL615914			

- Reshaping without internal support
- Reshaping with internal support
- Reshaping for WalformPlus-SR (for an overview of the available support rings, see chapter D)

Model	Art. no.	Model	Art. no.	Model	Art. no.	Model	Art. no.
Removal tool	WAL617090	Clamping jaws	See table	Reshaping with internal support	See table	Reshaping adapter without internal support	See table



Walform tube fittings

Clamping jaws for WalformPlus and Walform-WD-SR stainless steel fittings (1.4571)									
Wall thickness (mm)									
Tube outer diameter (mm)	1*	1.5	2	2.5	3	3.5	4	5	6
6	WAL610897	WAL615765							
8	WAL612561		WAL615766						
10	WAL612562	WAL615767							
12	WAL612563	WAL615768							
15		WAL615769							
16 A			WAL615770						
18			WAL615771						
20			WAL615772						
22			WAL615773						
25			WAL615774		WAL615774				
28			WAL615775						
30			WAL615776			WAL615776			
35			WAL615777			WAL615777			
38			WAL615778			WAL615778			
42			WAL615779						

*WF-WD-SR clamping jaw

Reshaping adapter for WalformPlus and Walform-WD-SR stainless steel fittings (1.4571)									
Wall thickness (mm)									
Tube outer diameter (mm)	1*	1.5	2	2.5	3	3.5	4	5	6
6	WAL612284	WAL615917							
8	WAL612903		WAL615918						
10	WAL612904	WAL615919	WAL625036						
12	WAL612560	WAL615920	WAL615921	WAL625123					
15		WAL615922	WAL615925						
16 A			WAL615928	WAL615931	WAL615934				
18			WAL615935	WAL615938	WAL615941				
20			WAL615942	WAL615945	WAL615948				
22			WAL615949	WAL615952	WAL615955				
25			WAL624816	WAL615956	WAL615959		WAL615960		
28			WAL615961	WAL615964	WAL615967				
30				WAL615970	WAL615973	WAL615976	WAL615977		
35					WAL615978	WAL615981	WAL615982		
38					WAL615983	WAL615986	WAL615989		
42					WAL615991				

*Removal tool WAL611632 must be used with the WF-WD-SR reshaping adapter.

- Reshaping without internal support
- Reshaping with internal support
- Reshaping for Walform-WD-SR (WF-WD support rings available on request)

Model	Art. no.	Model	Art. no.	Model	Art. no.	Model	Art. no.
Removal tool	WAL617090	Clamping jaws	See table	Reshaping with internal support	See table	Reshaping adapter without internal support	See table



Walform tube fittings

Clamping jaws for WalformPlus-M steel (E235, E355) and stainless steel (1.4571) fittings									
Wall thickness (mm)									
Tube outer diameter (mm)	1	1.5	2	2.5	3	3.5	4	5	6
8			WAL615766						
10			WAL615767						
12			WAL615768						
15			WAL615769						
16 A			WAL615770						
18			WAL615771						
20			WAL615772						
22			WAL615773						
25			WAL615774						
28			WAL615775						
30			WAL615776						
35			WAL615777			WAL615777			
38			WAL615778			WAL615778			
42			WAL615779			WAL615779			

Reshaping adapter for WalformPlus-M steel fittings (E235, E355)									
Wall thickness (mm)									
Tube outer diameter (mm)	1	1.5	2	2.5	3	3.5	4	5	6
8			WAL625706	WAL625707					
10			WAL625708	WAL625709					
12			WAL624536	WAL625710					
15			WAL625711						
16 A			WAL623406						
18			WAL625712						
20			WAL625713						
22			WAL625714						
25			WAL625715						
28			WAL625716						
30			WAL625717						
35			WAL625718						
38			WAL625719						
42			WAL625720						

Reshaping adapter for WalformPlus-M stainless steel fittings (1.4571)									
Wall thickness (mm)									
Tube outer diameter (mm)	1	1.5	2	2.5	3	3.5	4	5	6
8				WAL625721					
10				WAL624548					
12			WAL623405	WAL625722					
15				WAL625723					
16 A				WAL623406					
18				WAL625724					
20				WAL623407					
22				WAL625725					
25				WAL623408					
28				WAL625726					
30				WAL623409					
35				WAL626536				WAL625727	
38				WAL623411				WAL623429	
42				WAL626533				WAL625720	

- Reshaping without internal support
- Reshaping with internal support

Model	Art. no.
Removal tool	WAL617090



Model	Art. no.
Clamping jaws	See table



Model	Art. no.
Reshaping adapter without internal support	See table



Model	Art. no.
Reshaping with internal support	See table



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37° flared tube fittings

M-WF385X/BO

Walform / flaring machine (head can be selected)

Model	Art. no.
M-WF385X/BO without head	WAL623487



Key features and benefits:

- For flaring steel and stainless steel tubes with a diameter of 16 to 60.3 mm
- Can be easily transported inside the workshop thanks to the compact and lightweight machine design
- For the potentiometer settings, see chapter C
- Also suitable for Walform reshaping if used in conjunction with the WAL612351 reshaping head

M-WF385Xplus technical data:	
Weight:	251 kg
Dimensions (W x H x D):	850 x 275 x 990 mm
Standard voltage:	400 V AC*
Frequency:	50 Hz
Circuit protection:	16 A
Power consumption:	2.8 kW

*Voltages of 230 V, 440 V and 480 V are available on request

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Accessories and spare parts:

Model	Art. no.
MW1 assembly trolley (complete)	WAL626257
Assembly trolley for Walform machine with drawer cabinet and removal tool holder	
Model	Art. no.
MW1 basic version	WAL626258
Assembly trolley for Walform machine without drawer cabinet or removal tool holder	
Model	Art. no.
MW1 removal tool holder	WAL626261
Removal tool holder	
Model	Art. no.
MW1 drawer cabinet	WAL626259
Drawer cabinet, can be positioned as required	



Model	Art. no.	Model	Art. no.	Model	Art. no.	Model	Art. no.
Foot switch	WAL609949	Walform head	WAL612351	Flaring head	WAL612350	Adapter 1.5 m 5G2.5 400 V 32 A/11 kW to 16 A	WAL626329
Foot switch for Walform machine		Reshaping head for M-WF385Xplus		Flaring head for M-WF385X/BO		Adapter for 32 A networks	



37° flared tube fittings

M-WF385X/BO clamping jaws for flared flanges made from steel (E235 and E355)												
Tube outer diameter (mm)	Wall thickness (mm)											
	2	2.5	3	3.2	3.5	3.6	4	4.5	5	5.6	6	8
16 A		WAL611740										
20		WAL611741			WAL611741		WAL611741					
22	WAL613773											
25		WAL61382					WAL61382					
28			WAL613775									
30							WAL611743		WAL611743			
34								WAL611383				
35			WAL613777							WAL613777		
38								WAL61384		WAL61384		WAL61384
42			WAL612148					WAL612148				
48.3				WAL613771								
50 Hz		WAL61386							WAL61386			WAL61386
60			WAL612149						WAL612149		WAL612149	WAL612149
60.3						WAL612149				WAL612149		WAL612149

* Additional sizes available on request

M-WF385X/BO flaring mandrel adapter for steel (E235 and E355)												
Tube outer diameter (mm)	Wall thickness (mm)											
	2	2.5	3	3.2	3.5	3.6	4	4.5	5	5.6	6	8
16 A	WAL611748	WAL611749	WAL611750									
20	WAL611751	WAL611752	WAL611753		WAL611754		WAL614086					
22	WAL614087											
25		WAL611755	WAL61399				WAL611757					
28			WAL614088									
30							WAL611758		WAL611759			
34								WAL611400				
35			WAL614089						WAL614090			
38							WAL611401		WAL611762		WAL611763	
42			WAL612150				WAL614091					
48.3				WAL614092								
50 Hz		WAL611765	WAL612151						WAL611766		WAL611403	WAL611768
60			WAL612152						WAL614802		WAL612153	WAL614093
60.3						WAL612152				WAL614096		WAL614093

* Additional sizes available on request

Model	Art. no.	Model	Art. no.	Model	Art. no.
Clamping jaws	See table	Flaring mandrel adapter	See table	Flaring mandrel	WAL613205



Model	Art. no.	Model	Art. no.
Removal tool	WAL611632	Removal tool	WAL613783
Flaring mandrel adapter		Flaring mandrel	

37° flared tube fittings

MHH-BO

Manual flaring device



MHH-BO technical data:

Weight:	45 kg
Dimensions (W x H x D):	500 x 285 x 700 mm

Key features and benefits:

- For flaring steel and stainless steel tubes with a diameter of 6 to 42 mm
- A user-friendly and cost-effective alternative to the M-WF385X/BO machine
- The device offers a high degree of flexibility and requires no electricity
- It is easy to transport and especially suitable for use on construction sites

Clamping jaws for MHH-BO for 37° flared tube fittings in steel (E235, E355) and stainless steel (1.4571)

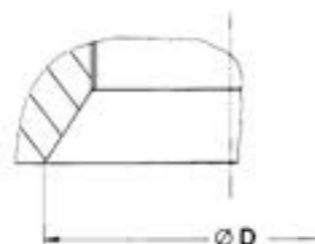
Tube outer diameter (mm)	Wall thickness (mm)										D (mm)
	1	1.5	2	2.5	3	3.5	4	5	6		
6	WAL608500									11.6	
8	WAL608501									13.9	
10	WAL608502									15.7	
12	WAL608503									18.0	
14	WAL608504									22.5	
15	WAL608505									23.0	
16 A	WAL608506									25.2	
18	WAL608507									26.8	
20	WAL608508									29.6	
22	WAL608509									29.9	
25	WAL608510									35.7	
28	WAL608511									36.0	
30	WAL608512									42.4	
35	WAL608513									46.0	
38	WAL608514									52.2 / 55.4	
42	WAL608515									52.5	

Model	Art. no.
Clamping jaws for MHH-BO	See table



Clamping jaws for 37° flared tube fittings to SAE J 514 in steel (E235, E355) and stainless steel (1.4571)

Tube outer diameter	Model	Art. no.	D (mm)
6	BO-SBM 6-SAE	WAL608516	10.7
8	BO-SBM 8-SAE	WAL608517	11.6
10	BO-SBM 10-SAE	WAL608518	13.7
12	BO-SBM 12-SAE	WAL608519	17.4
14	BO-SBM 14-SAE	WAL608408	21.0
15	BO-SBM 15-SAE	WAL608409	21.0
16 A	BO-SBM 16-SAE	WAL608520	22.0
18	BO-SBM 18-SAE	WAL608410	26.0
20	BO-SBM 20-SAE	WAL608521	26.6
25	BO-SBM 25-SAE	WAL608522	32.7
30	BO-SBM 30-SAE	WAL608411	41.5
32	BO-SBM 32-SAE	WAL608523	40.8
38	BO-SBM 38-SAE	WAL608524	48.6



Model	Art. no.
Flaring mandrel	WAL604854
Standard mandrel for flaring steel tubes (for use with the MHH-BO device)	



Model	Art. no.
Removal tool	WAL611633
Flaring mandrel	







Model	Art. no.
Flaring mandrel	WAL605100
Mandrel with mechanically resistant coating for flaring steel and stainless steel tubes (for use with the MHH-BO device)	



Other tools

Tube bending tool

- For tubes with an outer diameter of 6-22 mm

Model	Art. no.
 Tube bending tool For tubes with an outer diameter of 6-12 mm 4 replaceable bending rollers	WAL033012
 Tube bending tool For tubes with an outer diameter of 10-18 mm 4 replaceable bending rollers	WAL033020
 Tube bending tool For tubes with an outer diameter of 10-18 mm 4 replaceable bending rollers and 7 clamping jaws 10L/S, 12L/S, 15L, 16S, 18L	WAL063805
 Tube bending tool For tubes with an outer diameter of 6-22 mm 8 replaceable bending rollers; transport case included	WAL615706

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Spare parts for previous machine models

Spare tools for MEG-R...(this machine has been discontinued)



Series	Tube outer diameter	Model	Walpro GE adapter	Walpro GE adapter Replacement adapter	Backing plate	
			Art. no.	Art. no.	Model	Art. no.
L	6	PRE-ASS. AD.-3 P-6 L-GE VANADIS4E A4SI	WAL615319	WAL611262	BACKING PLATE 6 L/S	WAL608363
	8	PRE-ASS. AD.-3 P-8 L-GE VANADIS4E A4SI	WAL615320	WAL611263	BACKING PLATE 8 L/S	WAL608364
	10	PRE-ASS. AD.-3 P-10 L-GE VANADIS4E A4SI	WAL615321	WAL611264	BACKING PLATE 10 L/S	WAL608365
	12	PRE-ASS. AD.-3 P-12 L-GE VANADIS4E A4SI	WAL615322	WAL611265	BACKING PLATE 12 L/S	WAL608366
	15	PRE-ASS. AD.-3 P-15 L-GE VANADIS4E A4SI	WAL615323	WAL611266	BACKING PLATE 15 L	WAL608367
	18	PRE-ASS. AD.-3 P-18 L-GE VANADIS4E A4SI	WAL615324	WAL611267	BACKING PLATE 18 L	WAL608368
	22	PRE-ASS. AD.-3 P-22 L-GE VANADIS4E A4SI	WAL615325	WAL611268	BACKING PLATE 22 L	WAL608369
	28	PRE-ASS. AD.-3 P-28 L-GE VANADIS4E A4SI	WAL615326	WAL611269	BACKING PLATE 28 L	WAL608370
	35	PRE-ASS. AD.-3 P-35 L-GE VANADIS4E A4SI	WAL615327	WAL611270	BACKING PLATE 35 L	WAL608371
	42	PRE-ASS. AD.-3 P-42 L-GE VANADIS4E A4SI	WAL615328	WAL611271	BACKING PLATE 42 L	WAL608372
S	6	PRE-ASS. AD.-3 P-6 S-GE VANADIS4E A4SI	WAL615329	WAL611272	BACKING PLATE 6 L/S	WAL608363
	8	PRE-ASS. AD.-3 P-8 S-GE VANADIS4E A4SI	WAL615330	WAL611273	BACKING PLATE 8 L/S	WAL608364
	10	PRE-ASS. AD.-3 P-10 S-GE VANADIS4E A4SI	WAL615331	WAL611274	BACKING PLATE 10 L/S	WAL608365
	12	PRE-ASS. AD.-3 P-12 S-GE VANADIS4E A4SI	WAL615332	WAL611275	BACKING PLATE 12 L/S	WAL608366
	14	PRE-ASS. AD.-3 P-14 S-GE VANADIS4E A4SI	WAL615333	WAL611276	BACKING PLATE 14 S	WAL608373
	16 A	PRE-ASS. AD.-3 P-16 S-GE VANADIS4E A4SI	WAL615334	WAL611277	BACKING PLATE 16 S	WAL608374
	20	PRE-ASS. AD.-3 P-20 S-GE VANADIS4E A4SI	WAL615335	WAL611278	BACKING PLATE 20 S	WAL608375
	25	PRE-ASS. AD.-3 P-25 S-GE H	WAL610657	-	BACKING PLATE 25 S	WAL608376
	30	PRE-ASS. AD.-3 P-30 S-GE H	WAL610658	-	BACKING PLATE 30 S	WAL608377
	38	PRE-ASS. AD.-3 P-38 S-GE H	WAL610659	-	BACKING PLATE 38 S	WAL608378

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Spare parts for previous machine models

Spare tools for MEG-BO2 (this machine has been discontinued)

Tube outer diameter (mm)	Wall thickness (mm)										D (mm)
	1	1.5	2	2.5	3	3.5	4	5	6		
6	WAL608379										11.6
8	WAL608380										13.9
10	WAL608381										15.7
12	WAL608382										18.0
14	WAL608383										22.5
15	WAL608384										23.0
16 A	WAL608385										25.2
18	WAL608386										26.8
20	WAL608387										29.6
22	WAL608388										29.9
25	WAL608389										35.7
28	WAL608390										36.0
30	WAL608391										42.4
35	WAL608392										46.0
38	WAL608393										WAL608412 52.2 / 55.4
42	WAL608394										52.5

Model	Art. no.
Clamping jaws for MEG-BO2	See table



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Tube outer diameter	Model	Art. no.	D (mm)
6	BO-SBM 6-SAE COMPLETE	WAL608395	10.7
8	BO-SBM 8-SAE COMPLETE	WAL608396	11.6
10	BO-SBM 10-SAE COMPLETE	WAL608397	13.7
12	BO-SBM 12-SAE COMPLETE	WAL608398	17.4
14	BO-SBM 14-SAE COMPLETE	WAL608413	21.0
15	BO-SBM 15-SAE COMPLETE	WAL608414	21.0
16 A	BO-SBM 16-SAE COMPLETE	WAL608399	22.0
18	BO-SBM 18-SAE COMPLETE	WAL608415	26.0
20	BO-SBM 20-SAE COMPLETE	WAL608400	26.6
25	BO-SBM 25-SAE COMPLETE	WAL608401	32.7
30	BO-SBM 30-SAE COMPLETE	WAL608416	41.5
32	BO-SBM 32-SAE COMPLETE	WAL608402	40.8
38	BO-SBM 38-SAE COMPLETE	WAL608403	48.6



Model	Art. no.
Flaring mandrel	WAL604854
Standard mandrel for flaring steel tubes (for use with the MEG-BO2 device)	



Model	Art. no.
Flaring mandrel	WAL605100
Mandrel with mechanically resistant coating for flaring steel and stainless steel tubes (for use with the MEG-BO2 device)	



Model	Art. no.
Removal tool	WAL611633
Flaring mandrel	

Machines and tools

Waltech sample case

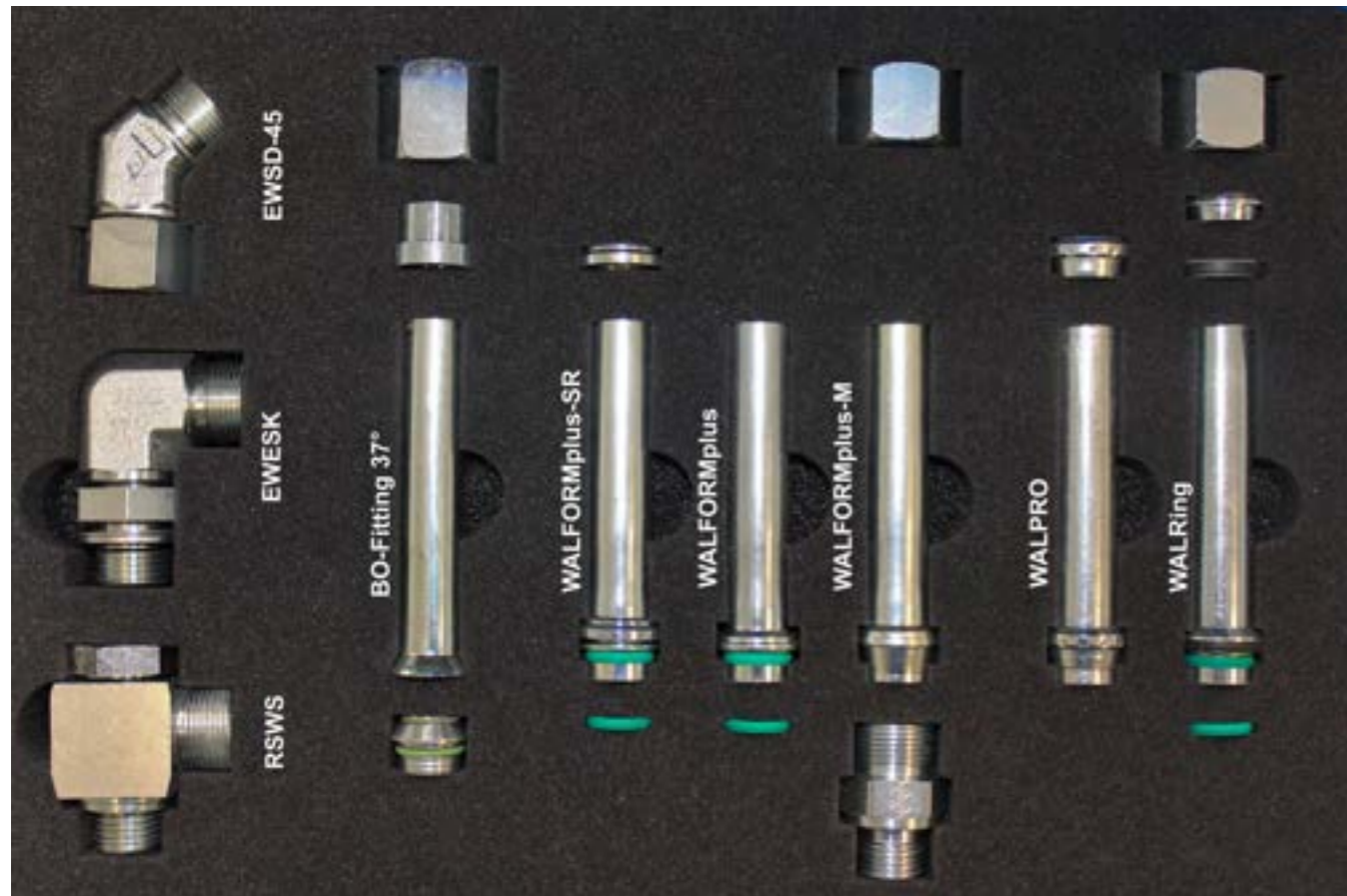
Waltech sample case

Model	Art. no.
WAL sample case	WAL627400

- For easy presentation of the Danfoss Waltech systems
- Includes samples of Walpro, Walring and WalformPlus fittings



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Go to www.danfoss.com for further product information.

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