Ultra high-pressure solutions

Components for fluid technology up to 10,000 bar / 150,000 psi

ORIGINAL WEH® QUALITY
since 1973

50+ YEARS
Quality & Safety

WEH® - We Engineer Hightech

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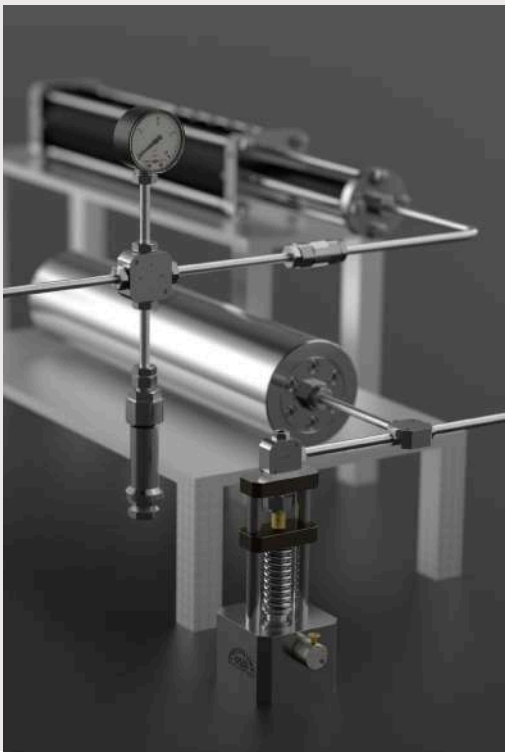
High pressure solutions from WEH®

High pressure components from WEH® stand for uncompromising quality and tangible benefits:



Versatile - one system, many options

- Two systems for a wide range of pressure ranges:
  - High pressure up to 1.,79 bar / 20,000 psi
  - Ultra-high pressure up to 10,000 bar / 150,000 psi
- WEH® components are compatible with all commercially available 60° cone and thread pipe fittings.
- All WEH® ultra-high pressure components are available with both metric and imperial thread connections.

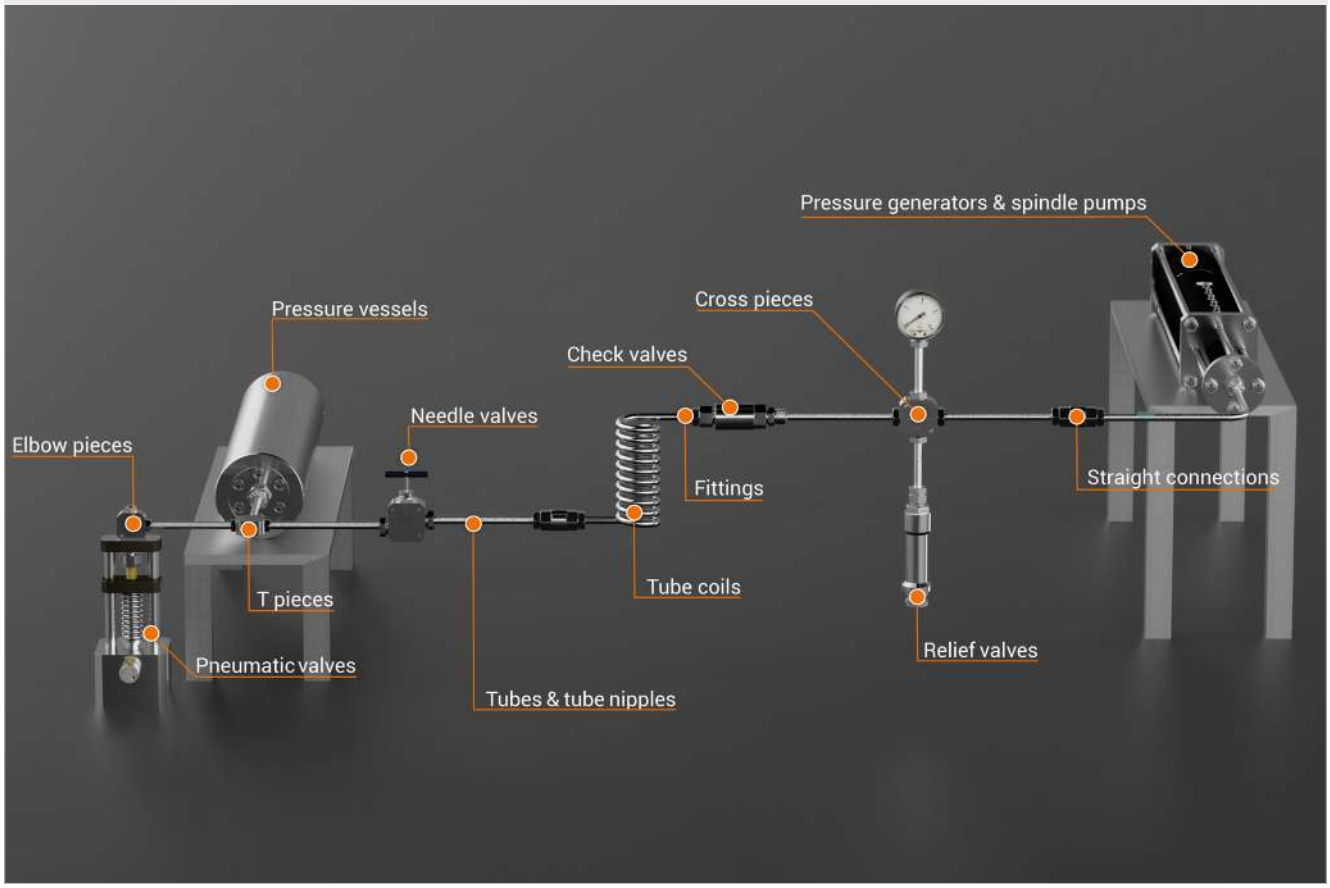
Long-lasting - built for extreme conditions

- Medium pressure components made of 1.4404, high pressure components made of 1.4542 / 17-4 PH (around 50% higher strength than 1.4404).
- Specially hardened materials on the valve seats.

High performance - when every bar counts

- Thanks to generous nominal size - generally larger than the internal pipe diameter - you benefit from maximum flow with minimum pressure loss.

Our WEH® high pressure system at a glance:



Applications and industries

WEH® high pressure solutions are in demand wherever **media** need to be stored and moved **under high pressure.**

With our solutions, we serve numerous customers from various industries such as the manufacturing industry, mechanical engineering, companies with testing facilities and research institutes.

Typical applications of such high-pressure systems are:

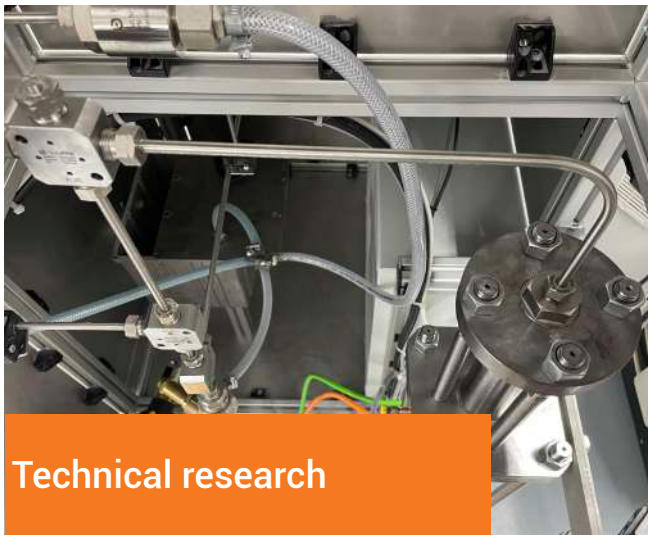
- Water jet technology
- Hydroforming
- Test benches for pressure and leak testing
- Hydrogen applications in mobility and industry
- Isostatic presses
- High-pressure treatment of food
- Plants in petrochemicals and mining
- ... and many more

Hydroforming

Water jet technology

Pressure tests

Hydrogen



Technical research

Technical Product Overview

PRESSURE RANGES

WEH® high pressure solutions are available in two different pipe connection systems for different operating pressures:
- 60° cone and thread medium pressure fitting up to 1,379 bar / 20,000 psi
- 60° cone and thread high pressure connection from 2,500 bar / 35,000 psi to 10,000 bar / 150,000 psi

PIPELINE SIZES

Pipelines are available in standard sizes of 1/4“, 3/8”, 9/16“, 3/4”, and 1“ (external diameter).
The following nominal diameters are available as standard for each pressure rating:

High pressure systems up to 1,379 bar / 20,000 psi			
Nominal size (mm)	External tube diameter	max. Operating pressure PS	
		bar	psi
2.8	1/4“	1,379	20,000
5.2	3/8“	1,379	20,000
7.9	9/16“	1,379	20,000
11.1	3/4“	1,379	20,000
14.3	1“	1,379	20,000

Ultra-high pressure systems up to 10,000 bar / 150,000 psi			
Nominal size (mm)	External tube diameter	max. Operating pressure PS	
		bar	psi
8.0	9/16“	2,500	35,000
4.8	9/16“	4,200	60,000
3.2	3/8“	4,200	60,000
2.3	1/4“	4,200	60,000
1.6	1/4“	7,000	100,000
1.6	3/8“	10,000	150,000

For tube processing by customers, WEH® offers an **extensive range of tools.** We are also happy to supply you with tubes that are already preparing for fittings (tube nipple).

If the tube has to be bent, make sure that the minimum bending radius is not less than 5 times the outer diameter of the pipe, otherwise the service life will be considerably reduced.

THREAD TYPES

- All fittings and valves are equipped with imperial female threads. Matching Collars and Glands are pre-assembled and included in the scope of delivery.
- For high pressure systems, additional variants with metric thread sizes are available.
- For further details, see the chapters on fittings and lines.

MEDIA

WEH® high pressure solutions are designed for use with air, water, and hydraulic oil as standard. Variants for other media, particularly gaseous media, are available on request.

Customized solutions

Individual solutions for your application: When standard is not enough, we develop tailor-made components for your processes.
Our approach is structured, efficient and designed for partnership-based cooperation

1. **Analysis:** Understanding application & framework conditions
2. **Consulting:** Check feasibility, propose solutions
3. **Development:** Design, material selection, simulation
4. **Prototype & test:** Quality and safety tests
5. **Production:** Series or individual solution
6. **Delivery & support:** worldwide, technical support

Technical Product Overview

ASSEMBLY OF HIGH PRESSURE TUBES

High pressure connections are composed of an **outer cone** which acts as a sealing surface, as well as a left-hand thread for attachment of the Collar. Inside the screw connection, an **inner cone** with a 2-5° larger angle is installed as a counterpart along with a female thread for the Gland.

When assembling high pressure tubes, the Gland must first be pushed onto the tube and then the Collar (note: left-hand thread) must be screwed onto the tube until **roughly 2 threads remain open from the cone** (Figure 2). As a result, the used thread length of the Gland is maximized (Figure 3) and the relief bores remain free. This is the only way to ensure safe operation.

- Slide the Gland onto the cleaned pipe (Figure 1).
- Screw the thrust collar onto the pipe. Refer to the table „Tightening torques for Glands and dimensional specifications for Collars"". (Figure 2) for the "U" dimension to be set.
  Attention: If the "U" dimension does not correspond to the specifications, a tight and secure connection cannot be guaranteed.
- Connect the pipe to the respective counterpart by screwing the Gland into the counterpart (Figure 3).
  Note: Make sure to tighten to the recommended torque from the table.
- Screw the pipe together with a Gland or other component (Figure 3).
  Note: The matching dimensions are listed in the table „Tightening torques for Glands and dimensional specifications for Collars".

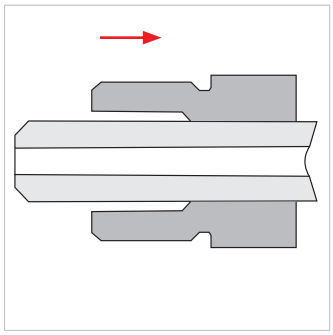


Figure 1

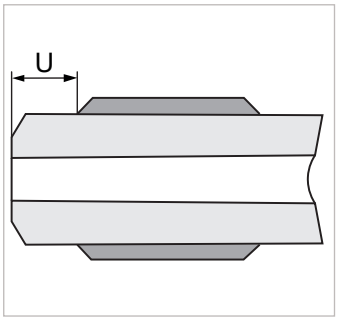


Figure 2

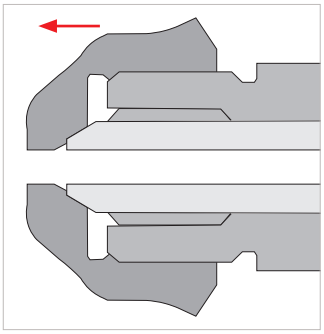


Figure 3

TIGHTENING TORQUES FOR GLANDS AND DIMENSIONAL SPECIFICATIONS FOR COLLARS

High pressure systems (Medium Pressure Fittings) up to 1,379 bar / 20,000 psi						Ultra-high pressure systems (High Pressure Fittings) up to 10,000 bar / 150,000 psi					
External tube diameter	max. Operating pressure PS		Tightening torques (Nm)	U (mm)	Thread size Collar	External tube diameter	max. Operating pressure PS		Tightening torques (Nm)	U (mm)	Thread size Collar
	bar	psi					bar	psi			
1/4"	1,379	20,000	27	3	1/4"-28 UNF-LH	1/4"	2,500	35,000	30	4	1/4"-28 UNF-LH
3/8"	1,379	20,000	41	5	3/8"-24 UNF-LH	3/8"	2,500	35,000	30	5	3/8"-24 UNF-LH
9/16"	1,379	20,000	75	5	9/16"-18 UNF-LH	9/16"	2,500	35,000	60	7	9/16"-18 UNF-LH
3/4"	1,379	20,000	122	7	3/4"-16 UNF-LH	3/4"	4,200	60,000	30	4	1/4"-28 UNF-LH
1"	1,379	20,000	170	7	1"-14 UNF-LH	3/8"	4,200	60,000	60	5	3/8"-24 UNF-LH
						9/16"	4,200	60,000	120	10	9/16"-18 UNF-LH

Note: The screw connections for high-pressure components (MP fittings) and for ultra-high-pressure components (HP fittings) are not compatible with each other, but differ in the dimensions of the Collars and Glands.
In MP fittings, the Gland is located behind the Collar, while in HP fittings it surrounds it.

» WEH® Fittings and Tubes

DESCRIPTION

Features

- Pressure-resistant **up to 1,379 bar / 20,000 psi**
- Special sealing contour for **leak-free connection**
- **Optimized flow rate**, as nominal width of fittings is higher than that of tubes
- **Easy conversion/replacement** thanks to identical size of cross, T and angle piece
- **Diagonally arranged fixing holes** protect the screw connections from twisting

WEH® fittings ensure the leak-free connection of pipe components. The cone and thread fittings are a simple and reliable fitting system.
All fittings are supplied complete with the appropriate fittings.
WEH® high pressure fittings are metal-to-metal sealed and can be screwed on again several times.
They are suitable for **pressure ranges up to 1,379 bar / 20,000 psi.**
Ready for use for different media of fluid group 2 (according to DGR 2014/68/EU), such as air, water and hydraulic oil.
Suitable for pipes in the standard market sizes 1/4“, 3/8”, 9/16”, 3/4“ and 1“.
Our fittings are available with both metric and imperial threads.

WEH® fittings up to 1,379 bar / 20,000 psi are sealed with **a 59° external cone at the pipe end and a 60° internal cone in the fitting (medium pressure-fitting 60° Cone&Thread).**

WEH offers all the necessary tools for applying and finishing the outer cone on the pipe ends and repairing the inner cones.

Applications
WEH® high pressure fittings are designed for applications **with both liquid and gaseous** media in fluid group 2 DGR.
Typical applications include hydraulic systems in hydroforming and water jet systems, high-pressure test benches, and high-pressure applications in the chemical and food processing industries.
Special versions are available for hydrogen applications. Please feel free to inquire!

TECHNICAL DATA

Characteristics	Basic Version	
Pressure ranges	PS = 1,379 bar / 20,000 psi	
Media Temperature Range	-252°C up to +649°C	
Material	High-strength stainless steel	
Connection geometry	Medium pressure fitting 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Pipe-like, pressure-retaining equipment in accordance with Article 2, No. 5 of the Pressure Equipment Directive
	Classification	Article 4, paragraph 3

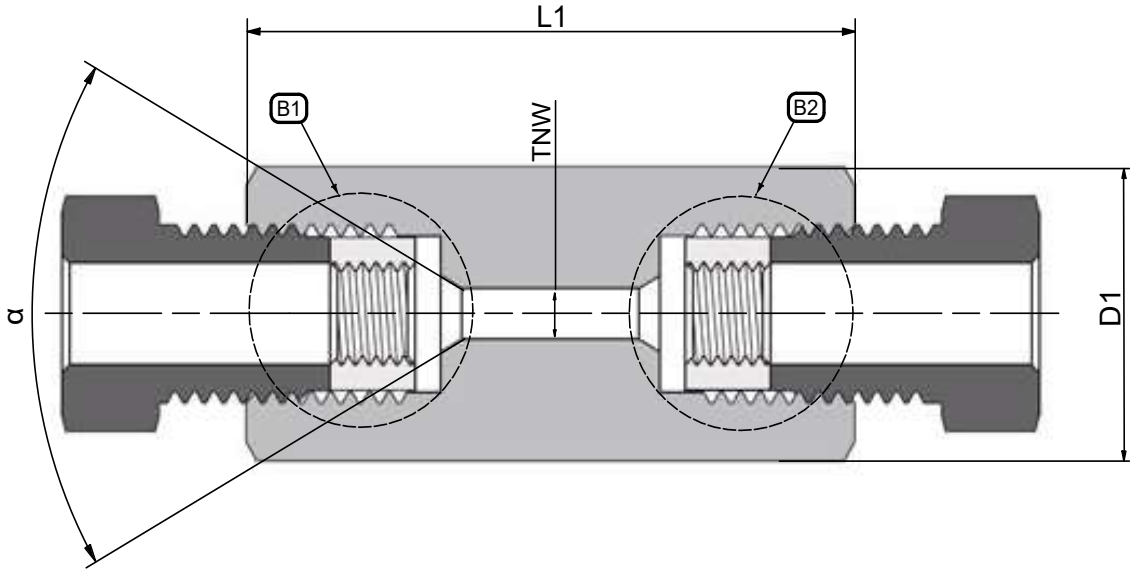
Versions for other pressure ranges, and temperature ranges available on request

ORDERING | Straight fitting

Straight fitting with **two identical ports**, available with all common connection sizes.
Pressure rings and pressure screws are pre-assembled on all connections.
The connection geometry is an medium pressure fitting 60° cone & thread.

Special designs with different connection threads or for deviating pressure ranges are available on request.
Special materials for **challenging media or conditions** of use are available on request.

approx. dimensions (mm)



Part no.	BG	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS		Thread B1 = B2	α	L1	D1	AF (1)
					bar	psi					
C1-191886	1	LFP-2-S5	1/4"	2.8 mm	1,379	20,000	UNF 7/16-20	60°	41.1	15.9	12.7
C1-191895	2	LFP-2-S5	3/8"	5.2 mm	1,379	20,000	UNF 9/16-18	60°	44.5	19.1	15.9
C1-191896	3	LFP-2-S5	9/16"	7.9 mm	1,379	20,000	UNF 13/16-16	60°	54.3	25.4	23.8
C1-191897	4	LFP-2-S5	3/4"	11.1 mm	1,379	20,000	3/4-14 NPSM	60°	63.5	34.9	30.2
C1-191899	5	LFP-2-S5	1"	14.3 mm	1,379	20,000	UNF 1 3/8-12	60°	88.9	44.5	34.9
On request	Straight connection as bulkhead fitting										

Other pressure ranges available on request

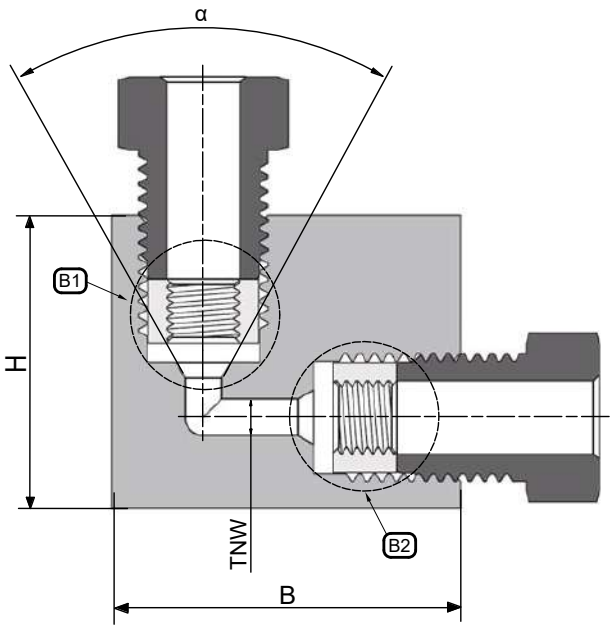
» WEH® Fittings and Tubes

ORDERING | Elbow piece

Elbow piece with **two identical ports**, available with all common connections, according to the table below.
Pressure rings and pressure screws are pre-assembled on all connections.
The connection geometry is an medium pressure fitting 60° cone & thread.

Special designs with different connection threads or for deviating pressure ranges are available on request.
Special materials for **challenging media or conditions** of use are available on request.

approx. dimensions (mm)



Part no.	BG	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS		Thread B1 = B2	α	Wide/ Height (B/H)	Depth (T)
					bar	psi				
C1-191901	1	LFP-1-S5	1/4"	2.8 mm	1,379	20,000	UNF 7/16"-20	60°	28.4	15.9
C1-191905	2	LFP-1-S5	3/8"	5.2 mm	1,379	20,000	UNF 9/16"-18	60°	34.9	19.1
C1-191906	3	LFP-1-S5	9/16"	7.9 mm	1,379	20,000	UNF 13/16"-16	60°	44.5	25.4
C1-191908	4	LFP-1-S5	3/4"	11.1 mm	1,379	20,000	3/4"-14 NPSM	60°	57.2	34.9
C1-191909	5	LFP-1-S5	1"	14.3 mm	1,379	20,000	UNF 1 3/8"-12	60°	76.2	44.5

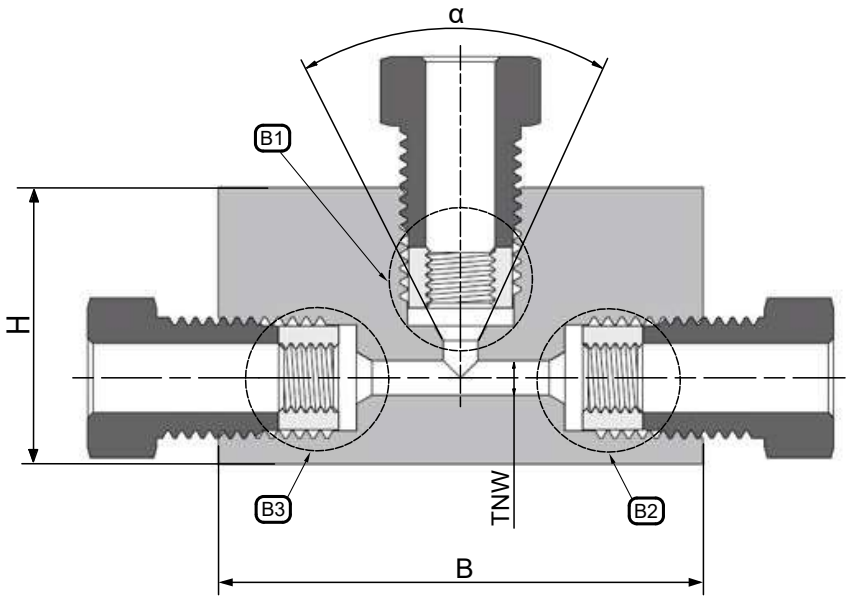
Other pressure ranges available on request

ORDERING | T piece

T pieces with **three identical ports**, available with all common connections, according to the table below.
Pressure rings and pressure screws are pre-assembled on all connections.
The connection geometry is an medium pressure fitting 60° cone & thread.

Special designs with different connection threads or for deviating pressure ranges are available on request.
Special materials for **challenging media or conditions** of use are available on request.

approx. dimensions (mm)



Part no.	BG	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS		Thread B1 = B2 = B3	α	Wide (B)	Height (H)	Depth (T)
					bar	psi					
C1-191910	1	LFP-1-S5	1/4"	2.8 mm	1,379	20,000	UNF 7/16"-20	60°	38.1	28.4	15.9
C1-191911	2	LFP-1-S5	3/8"	5.2 mm	1,379	20,000	UNF 9/16"-18	60°	50.8	34.9	19.1
C1-191912	3	LFP-1-S5	9/16"	7.9 mm	1,379	20,000	UNF 13/16"-16	60°	63.5	44.5	25.4
C1-191914	4	LFP-1-S5	3/4"	11.1 mm	1,379	20,000	3/4"-14 NPSM	60°	76.2	57.2	34.9
C1-191920	5	LFP-1-S5	1"	14.3 mm	1,379	20,000	UNF 1 3/8"-12	60°	104.6	76.2	44.5

Other pressure ranges available on request

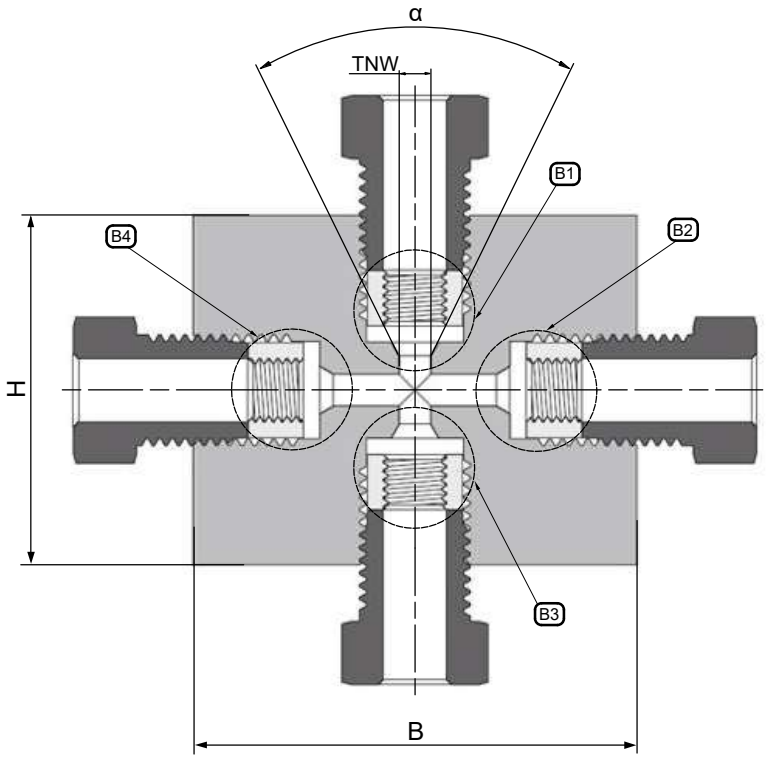
» WEH® Fittings and Tubes

ORDERING | Cross piece

Cross pieces with **four identical ports**, available with all common connections, according to the table below.
Pressure rings and pressure screws are pre-assembled on all connections.
The connection geometry is an medium pressure fitting 60° cone & thread.

Special designs with different connection threads or for deviating pressure ranges are available on request.
Special materials for **challenging media or conditions** of use are available on request.

approx. dimensions (mm)



Part no.	BG	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS		Thread B1 = B2 = B3 = B4	α	Wide/ Height (B/H)	Depth (T)
					bar	psi				
C1-191925	1	LFP-1-S5	1/4"	2.8 mm	1,379	20,000	UNF 7/16"-20	60°	38.1	15.9
C1-191927	2	LFP-1-S5	3/8"	5.2 mm	1,379	20,000	UNF 9/16"-18	60°	50.8	19.1
C1-191928	3	LFP-1-S5	9/16"	7.9 mm	1,379	20,000	UNF 13/16"-16	60°	63.5	25.4
C1-191929	4	LFP-1-S5	3/4"	11.1 mm	1,379	20,000	3/4"-14 NPSM	60°	76.2	34.9
C1-191930	5	LFP-1-S5	1"	14.3 mm	1,379	20,000	UNF 1 3/8"-12	60°	104.6	44.5

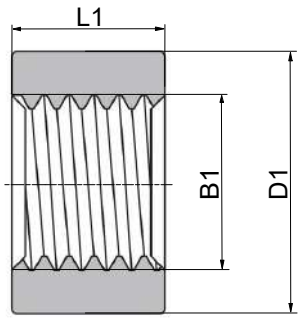
Other pressure ranges available on request

ACCESSORIES

The following **accessories** are available for WEH® high pressure fittings:

Collar

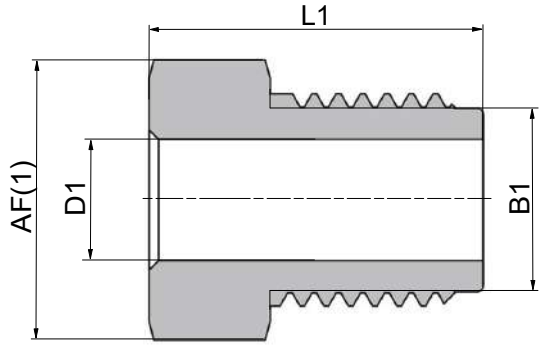
Collars for fittings used in the high pressure range.
Our Collars are interchangeable with almost all common 60° Cone & Thread medium pressure fittings.
The Collars are manufactured using **stainless steel**.
The connection geometry is an medium pressure fitting 60° cone & thread.
approx. dimensions (mm)



Part no.	Product series	Suitable for external tube diameter	Thread size B1	Connection types	D1	L1
C1-191862	LFC-5-S2	1/4"	1/4"-28 UNF LH	female thread	9.7	5.6
C1-191864	LFC-5-S2	3/8"	3/8"-24 UNF LH	female thread	11.9	6.4
C1-191865	LFC-5-S2	9/16"	9/16"-18 UNF LH	female thread	18.3	7.9
C1-191866	LFC-5-S2	3/4"	3/4"-16 UNF LH	female thread	23.8	9.4
C1-191868	LFC-5-S2	1"	1"-14 UNF LH	female thread	31.8	12.7

Gland

Glands for the fittings used in the high pressure area.
Our Glands are interchangeable with almost all common 60° Cone & Thread medium pressure fittings.
The Glands are manufactured using **stainless steel**.
The connection geometry is an medium pressure fitting 60° cone & thread.
approx. dimensions (mm)



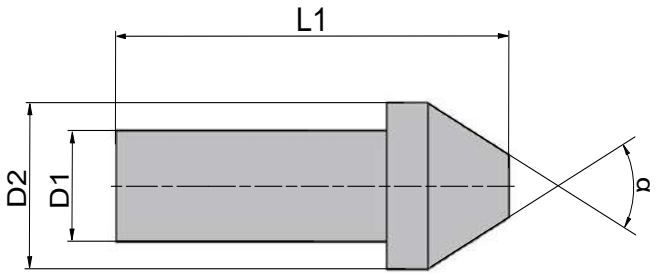
Part no.	Product series	Suitable for external tube diameter	Thread size B1	Connection types	D1	L1	AF(1)
C1-191856	LFC-3-S2	1/4"	7/16"-20 UNF	male thread	6.35	14.7	12.7
C1-191857	LFC-3-S2	3/8"	9/16"-18 UNF	male thread	9.53	18.5	15.9
C1-191858	LFC-3-S2	9/16"	13/16"-16 UNF	male thread	14.3	22.4	23.8
C1-191860	LFC-3-S2	3/4"	3/4"-14 NPSM	male thread	19.1	25.4	30.2
C1-191861	LFC-3-S2	1"	1 3/8"-12 UNF	male thread	25.4	35.1	34.9

» WEH® Fittings and Tubes

Plug

Plugs for the fittings used in the medium pressure area.
Our plugs are interchangeable with almost all common 60° Cone & Thread medium pressure fittings.
The plugs are manufactured using **stainless steel**.
The connection geometry is an medium pressure fitting 60° cone & thread.

approx. dimensions (mm)

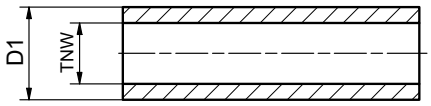


Part no.	Product series	Suitable for external tube diameter	Pressure PS		D1	D2	L1	α
			bar	psi				
C1-191870	LFC-4-S2	1/4"	1,379	20,000	6.35	9.7	23.8	59°
C1-191872	LFC-4-S2	3/8"	1,379	20,000	9.53	11.9	30.0	59°
C1-191873	LFC-4-S2	9/16"	1,379	20,000	14.3	18.3	35.6	59°
C1-191874	LFC-4-S2	3/4"	1,379	20,000	19.1	23.8	42.9	59°
C1-191875	LFC-4-S2	1"	1,379	20,000	25.4	31.8	55.9	59°

Tubes

Medium pressure tubes, manufactured from seamless cold-drawn stainless steel.

approx. dimensions (mm)



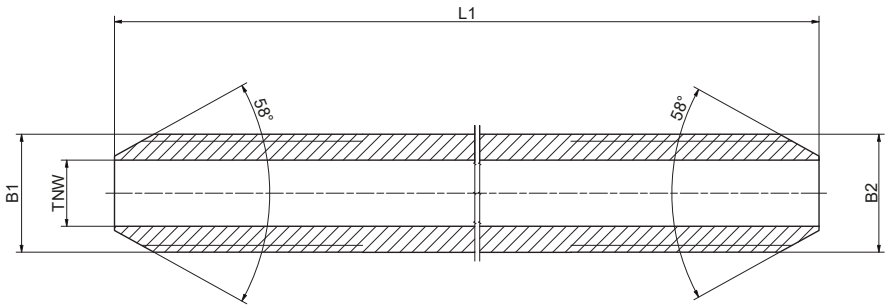
Part no.	Pressure PS		External tube diameter (Zoll)	Internal tube diameter (Zoll)	Technical nominal size (TNW)
	bar	psi			
On request	1,379	20,000	1/4"	0.109	2.8 mm
On request	1,379	20,000	3/8"	0.203	5.2 mm
On request	1,379	20,000	9/16"	0.312	7.9 mm
On request	1,379	20,000	3/4"	0.438	11.1 mm
On request	1,379	20,000	1"	0.562	14.3 mm

» WEH® Fittings and Tubes

Tubes

Medium pressure tube receptacle made of seamless cold-drawn stainless steel.
Both tube ends are already provided with an outer cone and thread for the screw connection.
The connection geometry is an medium pressure fitting 60° cone & thread.

approx. dimensions (mm)



Part no.	External tube diameter (Zoll)	Technical nominal size (TNW)	Druck PS		Thread B1 = B2 male thhread	Connection types outer cone	L1 (mm)	L1 (Zoll)
			bar	psi				
On request	1/4"	2.8 mm	1,379	20,000	1/4"-28 UNF LH	59° outer cone	76.2	3
On request	1/4"	2.8 mm	1,379	20,000	1/4"-28 UNF LH	59° outer cone	101.6	4
On request	1/4"	2.8 mm	1,379	20,000	1/4"-28 UNF LH	59° outer cone	152.4	6
On request	1/4"	2.8 mm	1,379	20,000	1/4"-28 UNF LH	59° outer cone	203.2	8
On request	1/4"	2.8 mm	1,379	20,000	1/4"-28 UNF LH	59° outer cone	254	10
On request	1/4"	2.8 mm	1,379	20,000	1/4"-28 UNF LH	59° outer cone	304.8	12
On request	3/8"	5.2 mm	1,379	20,000	3/8"-24 UNF LH	59° outer cone	76.2	3
On request	3/8"	5.2 mm	1,379	20,000	3/8"-24 UNF LH	59° outer cone	101.6	4
On request	3/8"	5.2 mm	1,379	20,000	3/8"-24 UNF LH	59° outer cone	152.4	6
On request	3/8"	5.2 mm	1,379	20,000	3/8"-24 UNF LH	59° outer cone	203.2	8
On request	3/8"	5.2 mm	1,379	20,000	3/8"-24 UNF LH	59° outer cone	254	10
On request	3/8"	5.2 mm	1,379	20,000	3/8"-24 UNF LH	59° outer cone	304.8	12
On request	9/16"	7.9 mm	1,379	20,000	9/16"-18 UNF LH	59° outer cone	101.6	4
On request	9/16"	7.9 mm	1,379	20,000	9/16"-18 UNF LH	59° outer cone	152.4	6
On request	9/16"	7.9 mm	1,379	20,000	9/16"-18 UNF LH	59° outer cone	203.2	8
On request	9/16"	7.9 mm	1,379	20,000	9/16"-18 UNF LH	59° outer cone	254	10
On request	9/16"	7.9 mm	1,379	20,000	9/16"-18 UNF LH	59° outer cone	304.8	12
On request	3/4"	11.1 mm	1,379	20,000	3/4"-16 UNF LH	59° outer cone	101.6	4
On request	3/4"	11.1 mm	1,379	20,000	3/4"-16 UNF LH	59° outer cone	152.4	6
On request	3/4"	11.1 mm	1,379	20,000	3/4"-16 UNF LH	59° outer cone	203.2	8
On request	3/4"	11.1 mm	1,379	20,000	3/4"-16 UNF LH	59° outer cone	254	10
On request	3/4"	11.1 mm	1,379	20,000	3/4"-16 UNF LH	59° outer cone	304.8	12
On request	1"	14.3 mm	1,379	20,000	1"-14 UNF LH	59° outer cone	152.4	6
On request	1"	14.3 mm	1,379	20,000	1"-14 UNF LH	59° outer cone	203.2	8
On request	1"	14.3 mm	1,379	20,000	1"-14 UNF LH	59° outer cone	254	10
On request	1"	14.3 mm	1,379	20,000	1"-14 UNF LH	59° outer cone	304.8	12

Special versions in other lengths and for other pressure ranges on request.
Special materials for **demanding media or media or operating conditions** available on request.

On request, we can also offer you unprocessed pipes, pipe coils and hose lines.

» WEH® Check Valve

DESCRIPTION

Features and Benefits

- **High flow rate** thanks to large technical nominal sizes
- **Available in two versions** (with o-ring or ball seal)
- **Suitable for pipe threads from 1/4“ to 1”** (external diameter)
- **Delivery includes pre-assembled** pressure rings and pressure screws

Wherever a medium needs to flow in **just one direction** within a pipeline system and return flow needs to be prevented, WEH® check valves fulfil this function with **absolute reliability.**

WEH® check valves for medium pressure applications are available in two versions:

- with o-ring seaingl for special tightness requirements, especially for gaseous media
- with metal ball sealing for frequent pressure changes and lower tightness requirements, especially for liquid media.

Application
WEH® medium pressure check valves are designed for applications with both liquid and gaseous media of fluid group 2 DGR. Special versions are available for hydrogen applications. Please inquire!

TECHNICAL DATA

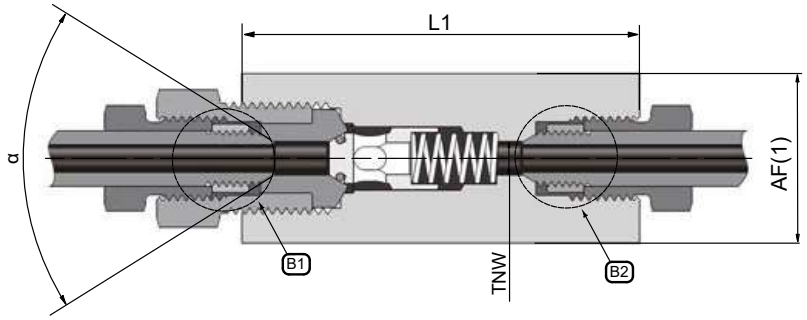
Characteristics	Basic Version	
Max. operating pressure at B2	PS = 3,179 bar / 20,000 psi	
Cracking pressure	0.97 - 1.79 bar (14 - 26 psi)	
Cracking pressure	1.8 bar (26 psi)	
Temperature range	O-ring-version: -17.8°C up to +204°C Ball-version: -79°C up to +649°C	
Sealing material	High-strength stainless steel	
Medium	O-ring-version: FKM Ball-version: Stainless steel 316	
Connection geometry	Medium pressure fitting 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Pipe-like, pressure-retaining equipment in accordance with Article 2, No. 5 of the Pressure Equipment Directive
	Classification	Article 4, paragraph 3

Versions for other pressure ranges, and temperature ranges available on request.

» WEH® Check Valve

ORDERING | Check Valve with o-ring sealing

approx. dimensions (mm)

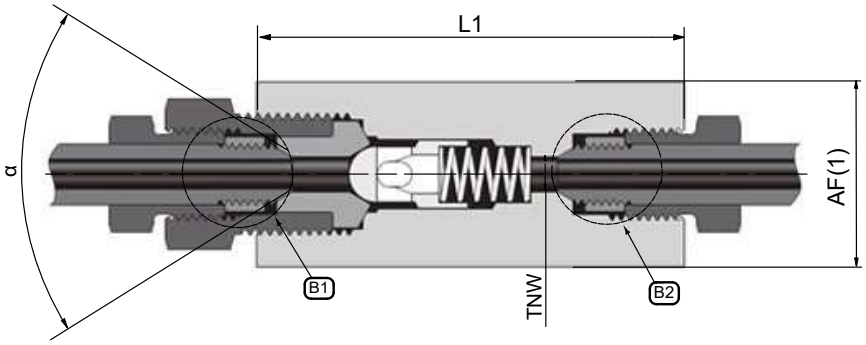


Part no.	Product serie	Suitable for external tube diameter	TNW	Max. operating pressure		Thread B1 = B2	Connection standard B1 = B2	α	L1	AF (1)
				PS (bar)	PS (psi)					
C1-191932	VCA-1-S6	1/4"	3.18 mm	1,379	20,000	7/16"-20 UNF	60° inner cone	60°	63.5	20.6
C1-191933	VCA-1-S6	3/8"	5.54 mm	1,379	20,000	9/16"-18 UNF	60° inner cone	60°	66.6	25.4
C1-191934	VCA-1-S6	9/16"	9.12 mm	1,379	20,000	13/16"-16 UNF	60° inner cone	60°	88.9	35.1
C1-191935	VCA-1-S6	3/4"	13.11 mm	1,379	20,000	3/4"-14 NPSM	60° inner cone	60°	120.7	44.5
C1-191936	VCA-1-S6	1"	17.48 mm	1,379	20,000	1 3/8"-12 UNF	60° inner cone	60°	146.1	53.9

Other connection types and pressure ranges available on request.

ORDERING | Check Valve with ball sealing

ca.-Maße (mm)



Part no.	Product serie	Suitable for external tube diameter	TNW	Max. operating pressure		Thread B1 = B2	Connection standard B1 = B2	α	L1	AF (1)
				PS (bar)	PS (psi)					
C1-191937	VCA-1-S6	1/4"	3.18 mm	1,379	20,000	7/16"-20 UNF	60° inner cone	60°	63.5	20.6
C1-191938	VCA-1-S6	3/8"	5.54 mm	1,379	20,000	9/16"-18 UNF	60° inner cone	60°	66.6	25.4
C1-191939	VCA-1-S6	9/16"	9.12 mm	1,379	20,000	13/16"-16 UNF	60° inner cone	60°	88.9	35.1
C1-191940	VCA-1-S6	3/4"	13.11 mm	1,379	20,000	3/4"-14 NPSM	60° inner cone	60°	120.7	44.5
C1-191941	VCA-1-S6	1"	17.48 mm	1,379	20,000	1 3/8"-12 UNF	60° inner cone	60°	146.1	53.9

Other connection types and pressure ranges available on request.

» WEH® Needle Valve

DESCRIPTION

Features and Benefits

- Needle valves for shutting off and regulating flow in high pressure lines
- **Metal sealing seat** for high sealing requirements and long service life
- Versions with r**eplaceable sealing package** on the valve seat available
- Standard version with regulating tip, versions with V-tip available on request
- **Delivery includes pre-assembled** pressure rings and pressure screws

Wherever the media flow within a pipe system needs to be manually shut off or opened in both directions, WEH® needle valves perform this function with absolute reliability.
The valves are extremely smooth-running and durable, as the valve needle and the rotating valve spindle are decoupled from each other. The valve needle with regulating tip and the spindle are shaped in such a way that the flow can be increased/regulated slowly and precisely when the valve is opened (6–7 turns to fully open). Alternatively, versions with a V-tip for use as a shut-off valve only are available on request (2–3 turns to fully open).

WEH® needle valves can be mounted either frontally in panels (bore diameter 6.35 mm) or laterally on rails or holders (bore diameter depending on size, see tables).

Applications
WEH® medium pressure needle valves are designed for applications with both liquid and gaseous media in fluid group 2 DGR.
Special versions are available for hydrogen applications. Please feel free to inquire!

TECHNICAL DATA

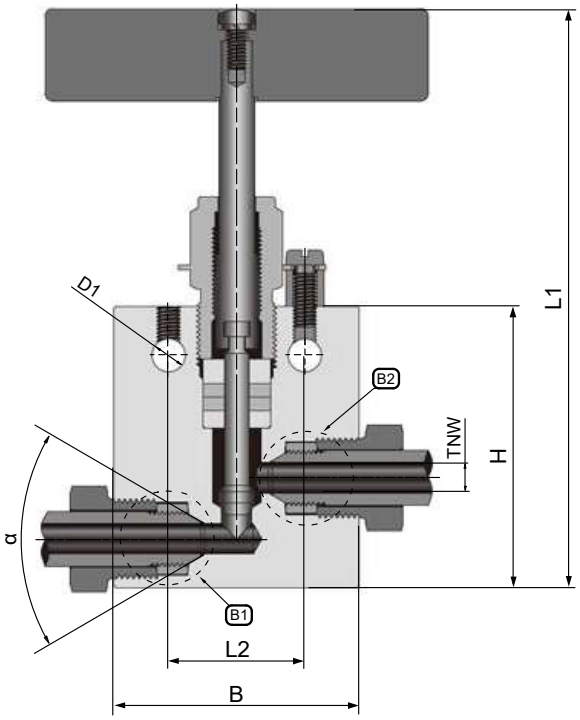
Characteristics	Basic Version	
Pressure ranges	PS = 1,379 bar / 20,000 psi	
Temperature range	-73°C to +232°C	
Materials	High-strength stainless steel	
Sealing material on the spindle seat	PTFE (other sealing materials available on request)	
Connection geometry	Medium pressure fitting 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Pipe-like, pressure-retaining piece of equipment
	Classification	Article 4, paragraph 3

Designs for other pressure ranges and temperature ranges are available on request

» WEH® Needle Valve

ORDERING | Hand valve straight design

approx. dimensions (mm)



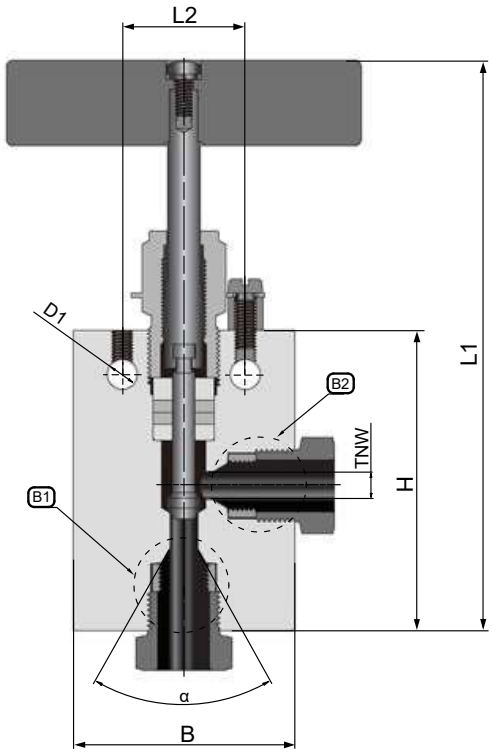
Part no.	Product series	suitable for external tube diameter	TNW	Max. operating pressure		cv-Value (GPM)	Thread B1 = B2	α	Wide (B)	Height (H)	Depth (T)	L1	Distance mounting bores (L2)	D1
				PS (bar)	PS (psi)									
C1-191859	VAA-1-S5	1/4"	3.18 mm	1,379	20,000	0.31	7/16"-20 UNF	60°	50.8	50.8	19.1	123.1	31.6	5.6
C1-191867	VAA-1-S5	3/8"	5.18 mm	1,379	20,000	0.68	9/16"-18 UNF	60°	50.8	50.8	19.1	124.2	31.6	5.6
C1-191871	VAA-1-S5	9/16"	7.92 mm	1,379	20,000	1.30	13/16"-16 UNF	60°	63.5	73.2	25.4	157.2	35.0	8.6
C1-191884	VAA-1-S5	3/4"	11.13 mm	1,379	20,000	2.50	3/4"-14 NPSM	60°	76.2	95.3	35.1	187.2	44.8	11.2
C1-191887	VAA-1-S5	1"	14.27 mm	1,379	20,000	4.40	1 3/8"-12 UNF	60°	104.6	117.6	44.5	240.1	63.6	14.2

Other designs (3-way variants or variants with V-tip) available on request.

» WEH® Needle Valve

ORDERING | Hand valve angled design

approx. dimensions (mm)



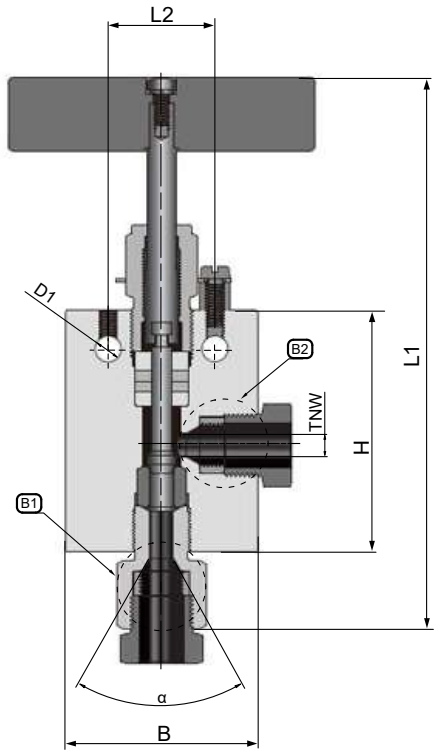
Part no.	Product series	suitable for external tube diameter	TNW	Max. operating pressure		cv-Value (GPM)	Thread B1 = B2	α	Wide (B)	Height (H)	Depth (T)	L1	Distance mounting bores (L2)	D1
				PS (bar)	PS (psi)									
C1-191888	VAA-1-S5	1/4"	3.18 mm	1,379	20,000	0.47	7/16"-20 UNF	60°	50.8	61.9	19.1	134.2	31.6	5.6
C1-191889	VAA-1-S5	3/8"	5.18 mm	1,379	20,000	1.02	9/16"-18 UNF	60°	50.8	61.9	19.1	135.4	31.6	5.6
C1-191890	VAA-1-S5	9/16"	7.92 mm	1,379	20,000	1.95	13/16"-16 UNF	60°	63.5	85.9	25.4	170.0	35.0	8.6
C1-191891	VAA-1-S5	3/4"	11.13 mm	1,379	20,000	3.75	3/4"-14 NPSM	60°	76.2	108.0	35.1	199.9	44.8	11.2
C1-191892	VAA-1-S5	1"	14.27 mm	1,379	20,000	6.60	1 3/8"-12 UNF	60°	104.6	130.1	44.5	252.6	63.6	14.2

Other designs (3-way variants or variants with V-tip) available on request.

» WEH® Needle Valve

ORDERING | Hand valve angled design with replaceable sealing seat

approx. dimensions (mm)



Part no.	Product series	suitable for external tube diameter	TNW	Max. operating pressure		cv-Value (GPM)	Thread B1 = B2	α	Wide (B)	Height (H)	Depth (T)	L1	Distance mounting bores (L2)	D1
				PS (bar)	PS (psi)									
C1-191893	VAA-1-S5	1/4"	3.18 mm	1,379	20,000	0.47	7/16"-20 UNF	60°	50.8	57.2	19.1	154.9	31.6	5.6
C1-191900	VAA-1-S5	3/8"	5.18 mm	1,379	20,000	1.02	9/16"-18 UNF	60°	50.8	57.2	19.1	156.5	31.6	5.6
C1-191902	VAA-1-S5	9/16"	7.92 mm	1,379	20,000	1.95	13/16"-16 UNF	60°	63.5	79.4	25.4	192.1	35.0	8.6
C1-191903	VAA-1-S5	3/4"	11.13 mm	1,379	20,000	3.75	3/4"-14 NPSM	60°	76.2	108.0	35.1	236.3	44.8	11.2
C1-191904	VAA-1-S5	1"	14.27 mm	1,379	20,000	6.60	1 3/8"-12 UNF	60°	104.6	133.4	44.5	301.3	63.6	14.2

Other designs (3-way variants or variants with V-tip) available on request.

» WEH® pneumatische Needle Valve

DESCRIPTION

Features and Benefits

- Needle valve for pneumatically operated shutting off and opening of high pressure lines
- **Metallic sealing seat** for high sealing requirements
- **Long service life** of the pneumatic actuator
- **Easy maintenance** of valve components
- Position indicator on the valve needle
- **Durable:** Tested for 100,000 cycles with 6.9 bar compressed air
- Pneumatic cylinder made of **anodized, corrosion-resistant aluminum**

WEH® needle valves with pneumatic actuators are used wherever—for example, for safety reasons—manual operation of the valves is not desired. They can also be installed in automated systems.
The pneumatic needle valves for medium pressure are characterized by their exceptional service life and ease of maintenance:

- The valve needles and sealing seats, which are subject to particular wear, are available as spare parts and can be replaced easily in just a few steps.
- The anodized aluminum housing is corrosion and wear resistant.
- The durable pneumatic actuator has been tested for 100,000 cycles with 6.9 bar compressed air.

WEH® needle valves with pneumatic actuation are equipped with a V-tip as standard for fast opening and closing. For regulation, however, we recommend the use of manually operated needle valves with regulating tips.

Applications

WEH® needle valves with pneumatic actuators are designed for applications with both liquid and gaseous media in fluid group 2 DGR.
Special versions are available for hydrogen applications. Please feel free to inquire!

TECHNICAL DATA

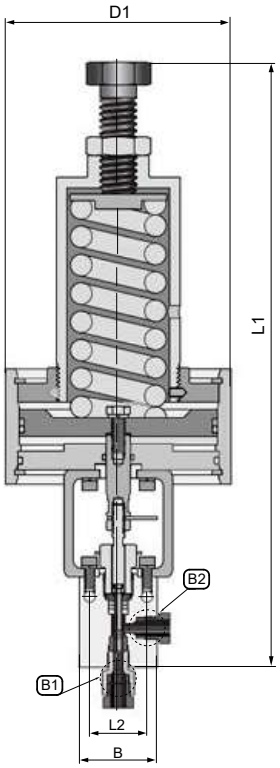
Characteristics	Basic Version	
Max. operating pressure Valve	PS = 1,379 bar / 20,000 psi	
Max. operating pressure Actuator	PP = 6.9 bar / 100 psi	
Temperature range	-23°C up to +93°C	
Materials	High-strength stainless steel	
Sealing materials on the spindle seat	PTFE (other sealing materials available on request)	
Control pressure connection P1	NPT female thread 1/8" for devices for pipe sizes 1/4" to 3/4" NPT female thread 3/8" for devices for pipe size 1"	
Connection geometry	Medium pressure fitting 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Pipe-like, pressure-retaining piece of equipment
	Classification	Article 4, paragraph 3

Designs for other pressure ranges and temperature ranges are available on request

» WEH® pneumatische Needle Valve

ORDERING | Angular design with replaceable valve seat - normally closed

approx. dimensions (mm)



Part no.	Product series	Suitable for external tube diameter	TNW	Max. operating pressure		cv-Value (GPM)	Thread B1 = B2	Wide (B)	D1	L1	Distance mounting hole (L2)
				PS (bar)	PS (psi)						
C1-191907	VAA-2-S5	1/4"	3.18 mm	1,379	20,000	0.44	7/16"-20 UNF	50.8	146	394.2	31.6
C1-191913	VAA-2-S5	3/8"	5.18 mm	1,379	20,000	0.93	9/16"-18 UNF	50.8	146	394.2	31.6
C1-191915	VAA-2-S5	9/16"	7.92 mm	1,379	20,000	1.95	13/16"-16 UNF	63.5	166	498.4	35.0
C1-191916	VAA-2-S5	3/4"	11.13 mm	1,379	20,000	3.62	3/4"-14 NPSM	76.2	218	634.3	44.8
C1-191918	VAA-2-S5	1"	14.27 mm	1,379	20,000	6.6	1 3/8"-12 UNF	104.6	243	742.8	63.6

Other designs (straight variants, 3-way variants, or variants with V-tip) available on request.

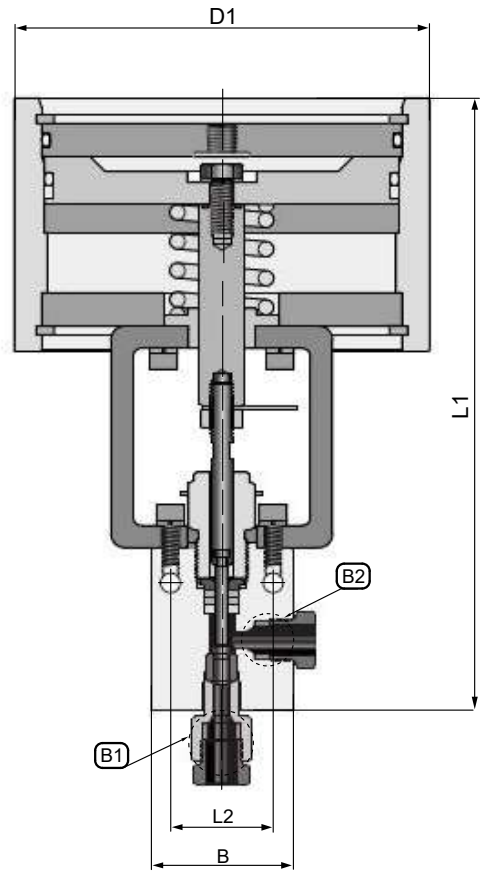
Pressure PS depending on the control pressure used

Part no.	Product series	Piston area of pneumatic cylinder in cm^2	Required air pressure in bar to open the valve at a system pressure in bar									Stroke Valve spindle in mm
			276 bar	414 bar	552 bar	690 bar	827 bar	965 bar	1.103 bar	1.241 bar	1.379 bar	
C1-191907	VAA-2-S5	128.7	2.8	3.5	3.8	4.1	4.2	4.5	5.2	5.5	6.2	4.9
C1-191913	VAA-2-S5	128.7	2.8	3.5	3.8	4.1	4.2	4.5	5.2	5.5	6.2	4.9
C1-191915	VAA-2-S5	330.3	2.8	3.1	3.5	4.1	4.5	4.8	5.2	5.5	6.2	6.0
C1-191916	VAA-2-S5	597.3	2.8	3.1	3.5	4.1	4.5	4.8	5.2	5.9	6.2	9.2
C1-191918	VAA-2-S5	726.1	3.1	3.5	4.1	4.5	4.8	5.5	5.9	6.6	6.9	10.3

» WEH® pneumatische Needle Valve

ORDERING | Angular design with replaceable valve seat - normally open

approx. dimensions (mm)



Part no.	Product series	Suitable for external tube diameter	TNW	Max. operating pressure		cv-Value (GPM)	Thread B1 = B2	Wide (B)	D1	L1	Distance mounting hole (L2)
				PS (bar)	PS (psi)						
C1-191921	VAA-2-S5	1/4“	3.18 mm	1,379	20,000	0.44	7/16“-20 UNF	50.8	146	212.9	31.6
C1-191922	VAA-2-S5	3/8“	5.18 mm	1,379	20,000	0.93	9/16“-18 UNF	50.8	146	212.9	31.6
C1-191923	VAA-2-S5	9/16“	7.92 mm	1,379	20,000	1.95	13/16“-16 UNF	63.5	166	295.9	35.0
C1-191924	VAA-2-S5	3/4“	11.13 mm	1,379	20,000	3.62	3/4“-14 NPSM	76.2	218	376.0	44.8
C1-191926	VAA-2-S5	1“	14.27 mm	1,379	20,000	6.6	1 3/8“-12 UNF	104.6	243	454.1	63.6

Other designs (straight variants, 3-way variants, or variants with V-tip) available on request.

» WEH® pneumatische Needle Valve

Pressure PS depending on the control pressure used

Part no.	Product series	Piston area of pneumatic cylinder in cm^2	Required air pressure in bar to close the valve at a system pressure in bar									Stroke Valve spindle in mm
			276 bar	414 bar	552 bar	690 bar	827 bar	965 bar	1.103 bar	1.241 bar	1.379 bar	
C1-191921	VAA-2-S5	128.7	2.1	2.4	2.8	3.5	3.8	4.2	4.5	4.8	5.2	4.9
C1-191922	VAA-2-S5	128.7	2.1	2.4	2.8	3.5	3.8	4.2	4.5	4.8	5.2	4.9
C1-191923	VAA-2-S5	330.3	1.4	2.1	2.4	2.8	3.1	3.8	4.2	4.5	4.8	6.0
C1-191924	VAA-2-S5	597.3	1.7	2.1	2.4	2.8	3.1	3.8	4.2	4.5	4.8	9.0
C1-191926	VAA-2-S5	726.1	1.7	2.1	2.8	3.1	3.8	4.2	4.5	5.2	5.5	10.0

» WEH® Pressure Relief Valve

DESCRIPTION

Features and Benefits

- **Factory setting and testing** of the desired pressure
- **Replaceable PEEK sealing** on the valve seat for bubble-tight sealing
- Can be installed **vertically** or **horizontally**
- **Delivery includes pre-assembled** pressure rings and pressure screws

WEH® pressure relief valves relieve fluid systems when a preset pressure is reached. This protects the installed components from wear or damage caused by excessive pressure.
The WEH® pressure relief valve remains closed until the set pressure is reached thanks to a built-in spring. If the set pressure is exceeded, the valve opens and discharges excess medium via a medium outlet (B2).
Sealing is provided by a replaceable soft seal. Delivery includes a pressure ring and pressure screw for the Cone & Thread Medium Pressure tube connection 9/16".
The pressure relief valves are factory-set and tested, and the adjustment screw is then locked and sealed to prevent unintentional adjustment.

Please specify the desired set pressure when ordering. The maximum operating pressure of the entire system should not exceed 90% of the set pressure.

Notes:
- WEH® medium pressure relief valves VRA-1-S5 are not considered safety valves or safety accessories within the meaning of the Pressure Equipment Directive 2014/68/EU or the ASME Boiler & Pressure Vessel Code.
- The actual set pressure may vary due to temperature fluctuations or after long intervals between actuations.

Application
WEH® medium pressure relief valves are designed for applications with both liquid and gaseous media in fluid group 2 DGR. Special versions are available for hydrogen applications. Please feel free to inquire!

TECHNICAL DATA

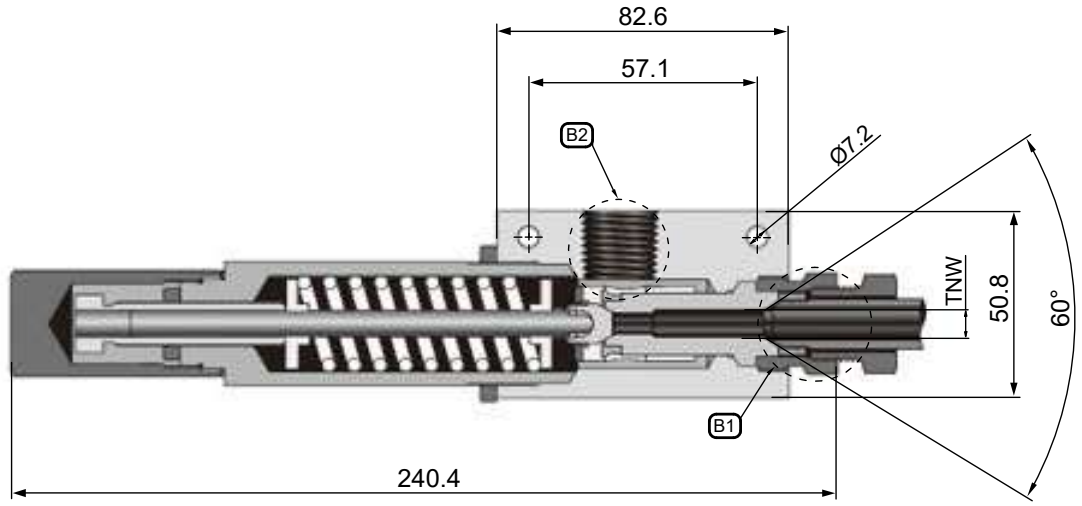
Characteristics	Basic Version	
Max. permissible back pressure at B2	34.5 bar / 500 psi	
Set pressure	103 - 1,379 bar (1,500 - 20,000 psi)	
Temperature range	+0°C to +204°C	
Materials	High-strength stainless steel	
Sealing material Valve needle	PEEK	
Connection geometry	Medium pressure fitting 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Pipe-like, pressure-retaining equipment in accordance with Article 2, No. 5 of the Pressure Equipment Directive
	Classification	Article 4, paragraph 3

Versions for other media, pressure ranges, and temperature ranges available on request.

» WEH® Pressure Relief Valve

ORDERING | Pressure Relief Valve

approx. dimensions (mm)

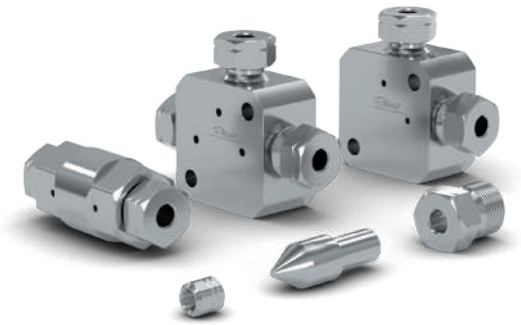


Part no.	Produkc serie	Suitable for external tube diameter	TNW	Set pressure		cv-Value (GPM)	Connection size B1	Connection standard B2	Connection size B2 (female thread)
				bar	psi				
On request	VRA-1-S5	9/16"	7.92 mm	103-345	1,500-5,000	1.2	13/16"-16 UNF	SAE AS71051	3/4" NPT
On request	VRA-1-S5	9/16"	6.35 mm	345-690	5,000-10,000	0.8	13/16"-16 UNF	SAE AS71051	3/4" NPT
On request	VRA-1-S5	9/16"	3.96 mm	690-1379	10,000-20,000	0.3	13/16"-16 UNF	SAE AS71051	3/4" NPT

Other connection types and pressure ranges on request.

» WEH® Fittings and Tubes

DESCRIPTION



Features

- Pressure-resistant **up to 10,000 bar / 150,000 psi**
- Special sealing contour for **leak-free connection**
- **Optimized flow rate**, as nominal width of fittings is higher than that of tubes
- **Easy conversion/replacement** thanks to identical size of cross, T and angle piece

The WEH® ultra- high pressure fittings ensure the leak-free connection of pipe components. The cone and thread fittings give you the good feeling of a simple and reliable fitting system. All fittings can be ordered individually or complete with the matching fittings.
The high-pressure fittings are metal-to-metal sealed and can be connected multiple times - for **pressure ranges up to 10,000 bar / 150,000 psi**. Ready for use for different media of fluid group 2 (according to DGR 2014/68/EU), such as air, water and hydraulic oil. Suitable for pipes in the standard market sizes 1/4“, 3/8" and 9/16". Our fittings are available with both metric and imperial threads.

For the pressure ranges 2,500 bar / 35.000 psi and 4,200 bar / 60,000 psi, the fitting is manufactured using the **common global standard of a 58° outer cone in a 60° inner cone.**

For pressure ratings of 7,000 bar and 10,000 bar, we offer **special high-density fittings** with a 120° internal cone; the pipe end is then fitted with a 116° external cone.

To attach the outer cone on the tube ends and for reworking or repair of the inner cone, WEH® offers all the **necessary tools.**

Applications
The WEH® ultra- high pressure fittings are designed as a standard for **hydraulic high pressure systems.**
Typical applications include hydraulic systems in hydroforming and water jet plants, high-pressure test stands, isostatic pressure for manufacturing ceramics as well as high-pressure applications in chemistry and food processing.

TECHNICAL DATA

Characteristics	Basic Version	
Pressure ranges	Depending on design	
Media	Air, Water, Hydraulic oil (exclusively non-hazardous oils pursuant to fluid group 2 DGR)	
Media Temperature Range	+5 °C up to +50 °C	
Material	High-strength stainless steel	
Connection geometry	High pressure fittings 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Pipe-like, pressure-retaining equipment in accordance with Article 2, No. 5 of the Pressure Equipment Directive
	Classification	Article 4, paragraph 3

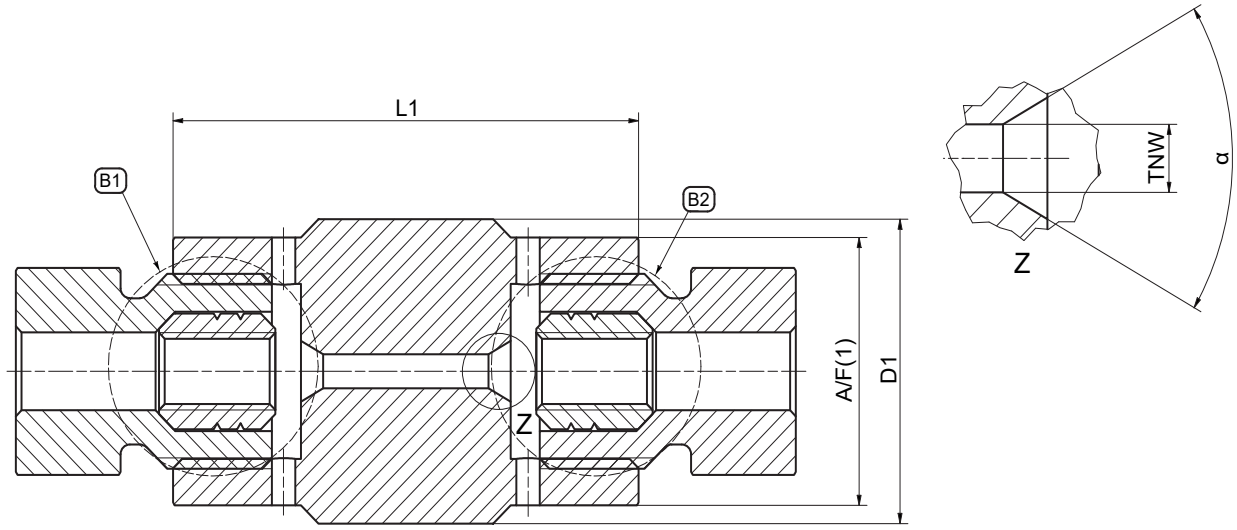
Versions for other media, pressure ranges and temperature ranges on request

ORDERING | Straight Connection

Straight fitting with **two identical ports**, available with all common high-pressure connection sizes.
Pressure rings and pressure screws are pre-assembled on all connections.
The connection geometry is an high pressure fitting 60° cone & thread.

Special designs with different connection threads or for deviating pressure ranges are available on request.
Special materials for **challenging media or conditions** of use are available on request.

approx. dimensions (mm)



Part no.	BG	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS (bar)	Max. operating pressure PS (psi)	Thread B1 = B2	α	L1	D1	A/F(1)
C1-187821	1	LFP-2-S1	1/4“	2.8 mm	2,500	35,000	M16x1,5	60°	40.0	25.0	22
C1-187824	1	LFP-2-S1	1/4“	2.8 mm	2,500	35,000	9/16“-18 UNF	60°	40.0	25.0	22
C1-187822	2	LFP-2-S1	3/8“	5.0 mm	2,500	35,000	M20x1,5	60°	48.0	32.0	27
C1-187825	2	LFP-2-S1	3/8“	5.0 mm	2,500	35,000	3/4“-16 UNF	60°	48.0	32.0	27
C1-187823	3	LFP-2-S1	9/16“	8.0 mm	2,500	35,000	M30x2	60°	70.0	40.0	36
C1-187826	3	LFP-2-S1	9/16“	8.0 mm	2,500	35,000	1 1/8“-12 UNF	60°	70.0	40.0	36
C1-187836	1	LFP-2-S2	1/4“	2.8 mm	4,200	60,000	M16x1,5	60°	40.0	25.0	22
C1-187844	1	LFP-2-S2	1/4“	2.8 mm	4,200	60,000	9/16“-18 UNF	60°	40.0	25.0	22
C1-187837	2	LFP-2-S2	3/8“	4.0 mm	4,200	60,000	M20x1,5	60°	48.0	32.0	27
C1-187845	2	LFP-2-S2	3/8“	4.0 mm	4,200	60,000	3/4“-16 UNF	60°	48.0	32.0	27
C1-187839	3	LFP-2-S2	9/16“	5.0 mm	4,200	60,000	M30x2	60°	70.0	40.0	36
C1-187846	3	LFP-2-S2	9/16“	5.0 mm	4,200	60,000	1 1/8“-12 UNF	60°	70.0	40.0	36
On request	1	LFP-2-S3	1/4“	--	7,000	100,000	M16x1,5	120°	--	--	--
On request	1	LFP-2-S3	1/4“	--	7,000	100,000	9/16“-18 UNF	120°	--	--	--

Other pressure ranges on request

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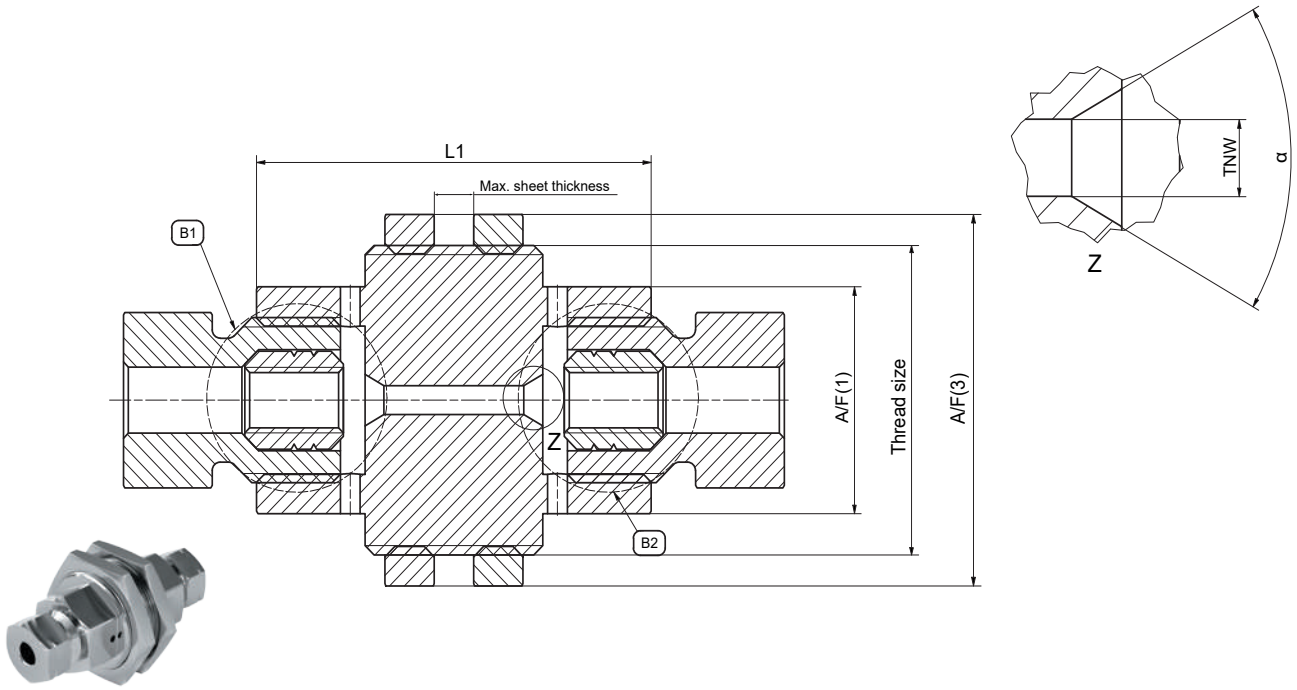
ORDERING | Bulkhead fitting

Bulkhead fitting with **two identical connections**, available with all standard high-pressure connection sizes.
Pressure rings and pressure screws are pre-assembled on all connections.
The connection geometry is an high pressure fitting 60° cone & thread.

Special versions with different connection threads or for different pressure ranges are available on request.
Special materials **for demanding media or operating conditions** are available on request.

approx. dimensions (mm)



Part no.	BG	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS (bar)	Max. operating pressure PS (psi)	Thread B1 = B2	Thread size	Max. sheet thickness	α	L1	A/F (1)	A/F (3)
C1-189641	1	LFP-3-S1	1/4"	2.8 mm	2,500	35,000	M16x1.5	M30x1.5	5	60°	40.0	22	36
C1-189644	1	LFP-3-S1	1/4"	2.8 mm	2,500	35,000	9/16"-18 UNF	M30x1.5	3	60°	40.0	22	36
C1-189642	2	LFP-3-S1	3/8"	5.0 mm	2,500	35,000	M20x1.5	M36x2.0	6	60°	48.0	27	41
C1-189645	2	LFP-3-S1	3/8"	5.0 mm	2,500	35,000	3/4"-16 UNF	M36x2.0	5	60°	48.0	27	41
C1-189643	3	LFP-3-S1	9/16"	8.0 mm	2,500	35,000	M30x2	M45x2.0	3	60°	70.0	36	55
C1-189646	3	LFP-3-S1	9/16"	8.0 mm	2,500	35,000	1 1/8"-12 UNF	M45x2.0	6	60°	70.0	36	55
C1-189647	1	LFP-3-S2	1/4"	2.8 mm	4,200	60,000	M16x1.5	M30x1.5	5	60°	40.0	22	36
C1-189650	1	LFP-3-S2	1/4"	2.8 mm	4,200	60,000	9/16"-18 UNF	M30x1.5	3	60°	40.0	22	36
C1-189648	2	LFP-3-S2	3/8"	4.0 mm	4,200	60,000	M20x1.5	M36x2.0	6	60°	48.0	27	41
C1-189652	2	LFP-3-S2	3/8"	4.0 mm	4,200	60,000	3/4"-16 UNF	M36x2.0	5	60°	48.0	27	41
C1-189649	3	LFP-3-S2	9/16"	5.0 mm	4,200	60,000	M30x2	M45x2.0	3	60°	70.0	36	55
C1-189651	3	LFP-3-S2	9/16"	5.0 mm	4,200	60,000	1 1/8"-12 UNF	M45x2.0	6	60°	70.0	36	55

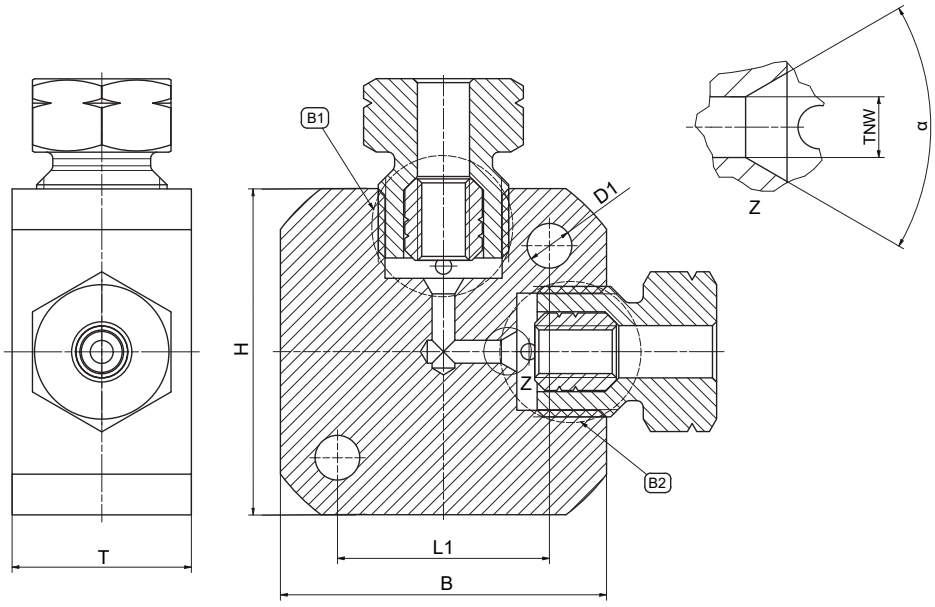
Other pressure ranges on request

ORDERING | Elbow piece

Elbow piece with **two identical ports**, available with all common high-pressure connections.
With two **diagonally arranged mounting bores**. The identical pattern of holes on elbow, T, and cross pieces facilitates any future conversions and expansions of the pipe system.
Pressure rings and pressure screws are pre-assembled on all connections.
The connection geometry is an high pressure fitting 60° cone & thread.

Special designs with different connection threads or for deviating pressure ranges are available on request.
Special materials for **challenging media or conditions** of use are available on request.

approx. dimensions (mm)



Part no.	BG	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS (bar)	Max. operating pressure PS (psi)	Thread B1 = B2	α	Wide/ Height (B/H)	Depth (T)	Distance Mounting Bores (L1)	D1
C1-188348	1	LFP-1-S1	1/4"	2.8 mm	2,500	35,000	M16x1,5	60°	40.0	22.0	26.0	5.5
C1-188351	1	LFP-1-S1	1/4"	2.8 mm	2,500	35,000	9/16"-18 UNF	60°	40.0	22.0	26.0	5.5
C1-188349	2	LFP-1-S1	3/8"	5.0 mm	2,500	35,000	M20x1,5	60°	48.0	27.0	34.0	5.5
C1-188352	2	LFP-1-S1	3/8"	5.0 mm	2,500	35,000	3/4"-16 UNF	60°	48.0	27.0	34.0	5.5
C1-188350	3	LFP-1-S1	9/16"	8.0 mm	2,500	35,000	M30x2	60°	70.0	36.0	48.0	6.5
C1-188353	3	LFP-1-S1	9/16"	8.0 mm	2,500	35,000	1 1/8"-12 UNF	60°	70.0	36.0	48.0	6.5
C1-188381	1	LFP-1-S2	1/4"	2.8 mm	4,200	60,000	M16x1,5	60°	40.0	22.0	26.0	5.5
C1-188384	1	LFP-1-S2	1/4"	2.8 mm	4,200	60,000	9/16"-18 UNF	60°	40.0	22.0	26.0	5.5
C1-188382	2	LFP-1-S2	3/8"	3.3 mm	4,200	60,000	M20x1,5	60°	54.0	26.0	34.0	5.5
C1-188385	2	LFP-1-S2	3/8"	3.3 mm	4,200	60,000	3/4"-16 UNF	60°	54.0	26.0	34.0	5.5
C1-188383	3	LFP-1-S2	9/16"	5.0 mm	4,200	60,000	M30x2	60°	70.0	36.0	48.0	6.5
C1-188386	3	LFP-1-S2	9/16"	5.0 mm	4,200	60,000	1 1/8"-12 UNF	60°	70.0	36.0	48.0	6.5
On request	1	LFP-1-S3	1/4"	--	7,000	100,000	M16x1,5	120°	--	--	--	--
On request	1	LFP-1-S3	1/4"	--	7,000	100,000	9/16"-18 UNF	120°	--	--	--	--

Other pressure ranges on request

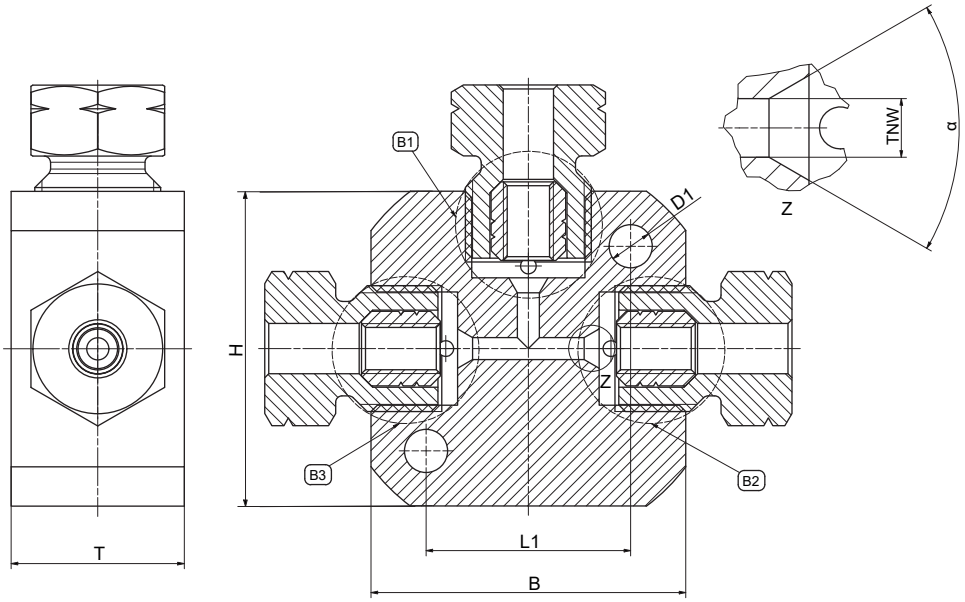
» WEH® Fittings and Tubes

ORDERING | T piece

T pieces with **three identical ports**, available with all common high-pressure connection sizes.
With two **diagonally arranged mounting bores**. The identical pattern of holes on elbow, T, and cross pieces facilitates any future conversions and expansions of the pipe system.
Pressure rings and pressure screws are pre-assembled on all connections.
The connection geometry is an high pressure fitting 60° cone & thread.

Special designs with different connection threads or for deviating pressure ranges are available on request.
Special materials for **challenging media or conditions** of use are available on request.

approx. dimensions (mm)



Part no.	BG	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS (bar)	Max. operating pressure PS (psi)	Thread B1 = B2 = B3	α	Wide/ Height (B/H)	Depth (T)	Distance Mounting Bores (L1)	D1
C1-188360	1	LFP-1-S1	1/4"	2.8 mm	2,500	35,000	M16x1,5	60°	40.0	22.0	26.0	5.5
C1-188363	1	LFP-1-S1	1/4"	2.8 mm	2,500	35,000	9/16"-18 UNF	60°	40.0	22.0	26.0	5.5
C1-188361	2	LFP-1-S1	3/8"	5.0 mm	2,500	35,000	M20x1,5	60°	48.0	27.0	34.0	5.5
C1-188364	2	LFP-1-S1	3/8"	5.0 mm	2,500	35,000	3/4"-16 UNF	60°	48.0	27.0	34.0	5.5
C1-188362	3	LFP-1-S1	9/16"	8.0 mm	2,500	35,000	M30x2	60°	70.0	36.0	48.0	6.5
C1-188365	3	LFP-1-S1	9/16"	8.0 mm	2,500	35,000	1 1/8"-12 UNF	60°	70.0	36.0	48.0	6.5
C1-188387	1	LFP-1-S2	1/4"	2.8 mm	4,200	60,000	M16x1,5	60°	40.0	22.0	26.0	5.5
C1-188390	1	LFP-1-S2	1/4"	2.8 mm	4,200	60,000	9/16"-18 UNF	60°	40.0	22.0	26.0	5.5
C1-188388	2	LFP-1-S2	3/8"	3.3 mm	4,200	60,000	M20x1,5	60°	54.0	26.0	34.0	5.5
C1-188391	2	LFP-1-S2	3/8"	3.3 mm	4,200	60,000	3/4"-16 UNF	60°	54.0	26.0	34.0	5.5
C1-188389	3	LFP-1-S2	9/16"	5.0 mm	4,200	60,000	M30x2	60°	70.0	36.0	48.0	6.5
C1-188392	3	LFP-1-S2	9/16"	5.0 mm	4,200	60,000	1 1/8"-12 UNF	60°	70.0	36.0	48.0	6.5
On request	1	LFP-1-S3	1/4"	--	7,000	100,000	M16x1,5	120°	--	--	--	--
On request	1	LFP-1-S3	1/4"	--	7,000	100,000	9/16"-18 UNF	120°	--	--	--	--

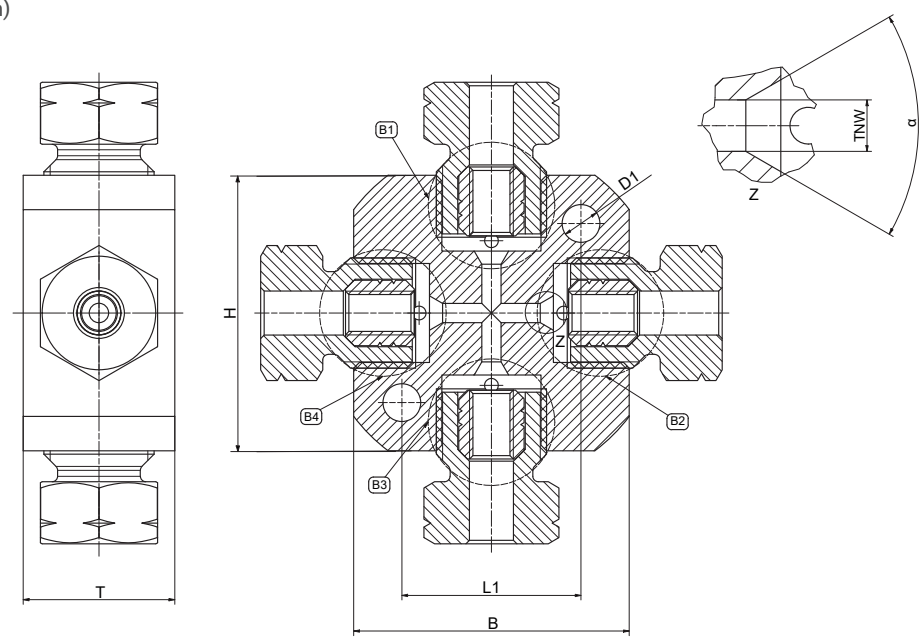
Other pressure ranges on request

ORDERING | Cross piece

Cross pieces with **four identical ports**, available with all common high-pressure connection sizes.
With two **diagonally arranged mounting bores**. The identical pattern of holes on elbow, T, and cross pieces facilitates any future conversions and expansions of the pipe system.
Pressure rings and pressure screws are pre-assembled on all connections.
The connection geometry is an high pressure fitting 60° cone & thread.

Special designs with different connection threads or for deviating pressure ranges are available on request.
Special materials for **challenging media or conditions** of use are available on request.

approx. dimensions (mm)



Part no.	BG	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS (bar)	Max. operating pressure PS (psi)	Thread B1 = B2 = B3 = B4	α	Wide/ Height (B/H)	Depth (T)	Distance Mounting Bores (L1)	D1
C1-188337	1	LFP-1-S1	1/4"	2.8 mm	2,500	35,000	M16x1,5	60°	40.0	22.0	26.0	5.5
C1-188340	1	LFP-1-S1	1/4"	2.8 mm	2,500	35,000	9/16"-18 UNF	60°	40.0	22.0	26.0	5.5
C1-188338	2	LFP-1-S1	3/8"	5.0 mm	2,500	35,000	M20x1,5	60°	48.0	27.0	34.0	5.5
C1-188341	2	LFP-1-S1	3/8"	5.0 mm	2,500	35,000	3/4"-16 UNF	60°	48.0	27.0	34.0	5.5
C1-188339	3	LFP-1-S1	9/16"	8.0 mm	2,500	35,000	M30x2	60°	70.0	36.0	48.0	6.5
C1-188342	3	LFP-1-S1	9/16"	8.0 mm	2,500	35,000	1 1/8"-12 UNF	60°	70.0	36.0	48.0	6.5
C1-188372	1	LFP-1-S2	1/4"	2.8 mm	4,200	60,000	M16x1,5	60°	40.0	22.0	26.0	5.5
C1-188375	1	LFP-1-S2	1/4"	2.8 mm	4,200	60,000	9/16"-18 UNF	60°	40.0	22.0	26.0	5.5
C1-188373	2	LFP-1-S2	3/8"	3.3 mm	4,200	60,000	M20x1,5	60°	54.0	26.0	34.0	5.5
C1-188376	2	LFP-1-S2	3/8"	3.3 mm	4,200	60,000	3/4"-16 UNF	60°	54.0	26.0	34.0	5.5
C1-188374	3	LFP-1-S2	9/16"	5.0 mm	4,200	60,000	M30x2	60°	70.0	36.0	48.0	6.5
C1-188377	3	LFP-1-S2	9/16"	5.0 mm	4,200	60,000	1 1/8"-12 UNF	60°	70.0	36.0	48.0	6.5
On request	1	LFP-1-S3	1/4"	--	7,000	100,000	M16x1,5	120°	--	--	--	--
On request	1	LFP-1-S3	1/4"	--	7,000	100,000	9/16"-18 UNF	120°	--	--	--	--

Other pressure ranges on request

» WEH® Fittings and Tubes

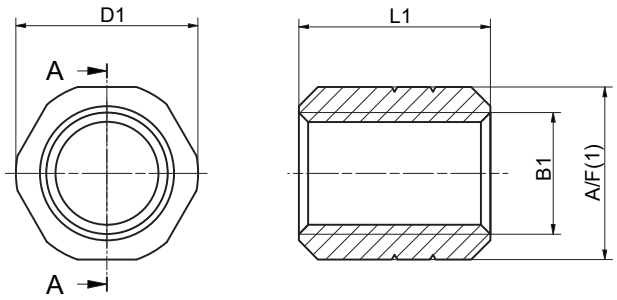
ACCESSORIES

The following **accessories** are available for the ultra-high pressure fittings from WEH®:

Collar

Collars for the fittings used in the high pressure area. In contrast to the competitors, our collars are **not round on the outside, but instead feature a hexagonal wrench flat**. In this way, open-ended spanners can be used for installation and disassembly, which makes work considerably easier.
Our collars are interchangeable with almost all common high pressure fittings.
The collars are manufactured using **stainless steel**.
The connection geometry is an high pressure fitting 60° cone & thread.

approx. dimensions (mm)

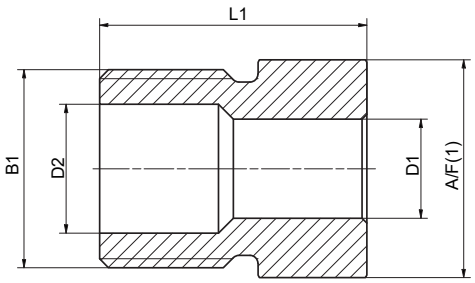


Part no.	Product series	Suitable for external tube diameter	Thread size B1	Connection types	D1	L1	A/F (1)
C1-185394	LFC-5-S1	1/4"	1/4"-28 UNF LH	female thread	9.5	10.0	9
C1-185495	LFC-5-S1	3/8"	3/8"-24 UNF LH	female thread	12.7	13.5	12
C1-180993	LFC-5-S1	9/16"	9/16"-18 UNF LH	female thread	20.6	15.5	19

Gland

Glands for the fittings used in the high pressure area. Our pressure screws are interchangeable with almost all common high pressure fittings.
For easier differentiation, our glands are **specially marked on the wrench flat**: One groove for metric thread and two grooves for imperial thread.
The glands are manufactured using **stainless steel**.
The connection geometry is an high pressure fitting 60° cone & thread.

approx. dimensions (mm)

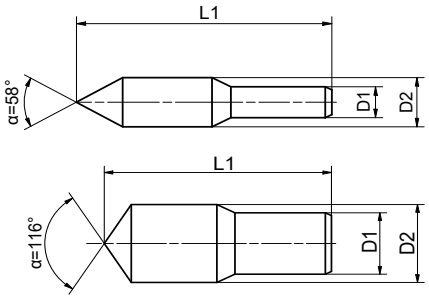


Part no.	Product series	Suitable for external tube diameter	Thread size B1	Connection types	D1	D2	L1	A/F (1)
C1-185522	LFC-3-S1	1/4"	M16x1,5	male thread	6.4	9.8	22.0	17
C1-185403	LFC-3-S1	1/4"	9/18"-18 UNF	male thread	6.4	9.8	22.0	17
C1-185521	LFC-3-S1	3/8"	M20x1,5	male thread	10.0	13.0	27.0	22
C1-185593	LFC-3-S1	3/8"	3/4"-16 UNF	male thread	10.0	13.0	27.0	22
C1-185588	LFC-3-S1	9/16"	M30x2	male thread	14.5	21.0	19.0	32
C1-185592	LFC-3-S1	9/16"	1 1/8"-12 UNF	male thread	14.5	21.0	19.0	32

Plug

Plugs for the fittings used in the high pressure area.
Our plugs are interchangeable with almost all common high pressure fittings.
The plugs are manufactured using **stainless steel**.
The connection geometry is an high pressure fitting 60° cone & thread.

approx. dimensions (mm)



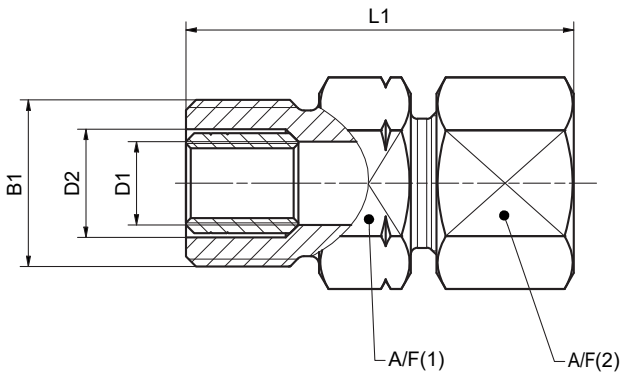
Part no.	Product series	Suitable for external tube diameter	Pressure (PS)	D1	D2	L1	α
C1-185912	LFC-4-S1	1/4"	2,500 bar + 4,200 bar	6.35	9.5	32.0	58°
C1-185918	LFC-4-S1	3/8"	2,500 bar + 4,200 bar	9.5	12.7	39.0	58°
C1-185919	LFC-4-S1	9/16"	2,500 bar + 4,200 bar	14.0	20.6	52.0	58°
C1-185958	LFC-4-S1	1/4"	7,000 bar + 10,000 bar	6.35	9.5	31.0	116°
C1-185959	LFC-4-S1	3/8"	7,000 bar + 10,000 bar	9.5	12.7	36.0	116°
C1-185960	LFC-4-S1	9/16"	7,000 bar + 10,000 bar	14.0	20.6	49.0	116°

» WEH® Fittings and Tubes

Anti-vibration gland

The anti-vibration gland for applications in high-pressure systems that are exposed to strong external shocks or vibrations.
The anti-vibrationgland grips the high-pressure pipe behind the thread and protects the pressure screw from loosening.
The scope of delivery consists of pressure ring, anti-vibration gland and clamping nut, which can be used in all ultra-high pressure fittings, elbows, T-pieces and cross-pieces.
The connection geometry is an high pressure fitting 60° cone & thread.

approx. dimensions (mm)

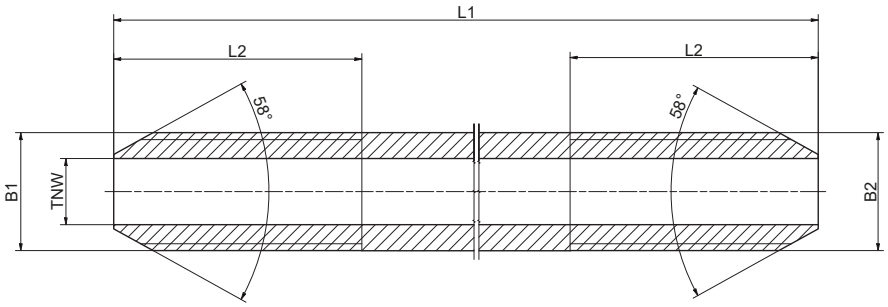


Part no.	Product series	Suitable for external tube diameter	Thread size B1	D1	D2	L1	A/F (1)	A/F (2)
C1-189607	LFP-4-S1	1/4"	M16x1.5	6.6	9.8	39.0	17	17
C1-185419	LFP-4-S1	1/4"	9/16"-18 UNF	6.6	9.8	39.0	17	17
C1-189019	LFP-4-S1	3/8"	M20x1.5	10.0	13.0	46.5	22	22
C1-189614	LFP-4-S1	3/8"	3/4"-16 UNF	10.0	13.0	46.5	22	22
C1-180994	LFP-4-S1	9/16"	M30x2	14.5	21.0	53.0	32	30
C1-189605	LFP-4-S1	9/16"	1 1/8"-12 UNF	14.5	21.0	53.0	32	30

Tubes

The high-pressure tube receptacle made of seamless cold-drawn stainless steel.
Both tube ends are already provided with an outer cone and thread for the screw connection.
The connection geometry is an high pressure fitting 60° cone & thread.

approx. dimensions (mm)



Part no.	Product series	Suitable for external tube diameter	TNW	Max. operating pressure PS (bar)	Max. operating pressure PS (psi)	Thread B1 = B2	Connection types outer cone	L1 (mm)	L1 (Zoll)	L2 (mm)
C1-189146	LP-2-S1	1/4"	2.1 mm	4,200	60,916	UNF 1/4"-28-LH	58°	152	6	17
C1-189157	LP-2-S1	1/4"	2.1 mm	4,200	60,916	UNF 1/4"-28-LH	58°	203	8	17
C1-189159	LP-2-S1	1/4"	2.1 mm	4,200	60,916	UNF 1/4"-28-LH	58°	254	10	17
C1-189175	LP-2-S1	1/4"	2.1 mm	4,200	60,916	UNF 1/4"-28-LH	58°	305	12	17
C1-189186	LP-2-S1	3/8"	3.1 mm	4,200	60,916	UNF 3/8"-24-LH	58°	152	6	23
C1-189187	LP-2-S1	3/8"	3.1 mm	4,200	60,916	UNF 3/8"-24-LH	58°	203	8	23
C1-189188	LP-2-S1	3/8"	3.1 mm	4,200	60,916	UNF 3/8"-24-LH	58°	254	10	23
C1-189189	LP-2-S1	3/8"	3.1 mm	4,200	60,916	UNF 3/8"-24-LH	58°	305	12	23
C1-189196	LP-2-S1	9/16"	8.0 mm	2,500	36,259	UNF 9/16"-18-LH	58°	152	6	30
C1-189197	LP-2-S1	9/16"	8.0 mm	2,500	36,259	UNF 9/16"-18-LH	58°	203	8	30
C1-189199	LP-2-S1	9/16"	8.0 mm	2,500	36,259	UNF 9/16"-18-LH	58°	254	10	30
C1-189200	LP-2-S1	9/16"	8.0 mm	2,500	36,259	UNF 9/16"-18-LH	58°	305	12	30
										30
C1-189191	LP-2-S1	9/16"	4.7 mm	4,200	60,916	UNF 9/16"-18-LH	58°	152	6	30
C1-189193	LP-2-S1	9/16"	4.7 mm	4,200	60,916	UNF 9/16"-18-LH	58°	203	8	30
C1-189194	LP-2-S1	9/16"	4.7 mm	4,200	60,916	UNF 9/16"-18-LH	58°	254	10	30
C1-189195	LP-2-S1	9/16"	4.7 mm	4,200	60,916	UNF 9/16"-18-LH	58°	305	12	30

Special versions in other lengths and for other pressure ranges on request.
Special materials for **demanding media or media or operating conditions** available on request.

On request, we can also offer you unprocessed pipe coils, pipes and hose lines.

» WEH® Check Valve

DESCRIPTION

Features and Benefits

- **High flow rate** thanks to large nominal bores
- **Easy installation** thanks to integrated double pressure screws with 1x left-hand and 1x right-hand thread
- **Long service life** thanks to sealing with high-quality ceramic ball
- **Delivery includes pre-assembled** pressure rings and pressure screws

Wherever a medium needs to flow i**n just one direction** within a pipeline system and return flow needs to be prevented, the WEH® ultra-high pressure check valves fulfil this function with **absolute reliability.**
The large technical nominal diameter of the check valve enables high flow rates with a low pressure drop.
Installation is extremely simple thanks to the double pressure screw integrated in the valve: the check valve only needs to be tightened on one wrench flat, the pipe is not subjected to any tension or rotation.

Application
The WEH® ultra-high pressure check valves with ball sealing are specially designed for hydraulic applications in the high pressure range. We are happy to offer alternative versions for other media ranges and applications on request.

TECHNICAL DATA

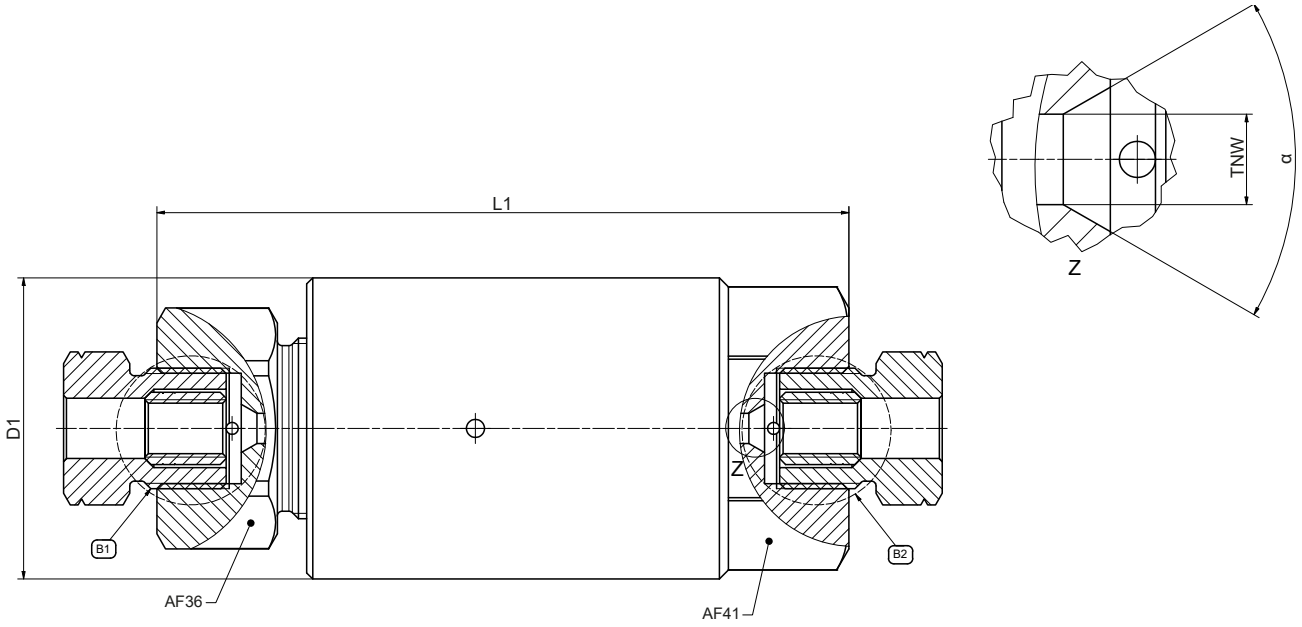
Characteristics	Basic Version	
Max. operating pressure at B2	PS = 2,500 bar (36,259 psi), 4,200 bar (60,916 psi), depending on design	
Max. inlet pressure at B1	800 bar	
Cracking pressure	1.8 bar (26 psi)	
Temperature range	+5°C to +50°C	
Materials	High-strength stainless steel	
Medium	Liquids according to fluid group 2 DGR, e.g. hydraulic oil	
Connection geometry	High pressure fittings 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Pipe-like, pressure-retaining equipment in accordance with Article 2, No. 5 of the Pressure Equipment Directive
	Classification	Article 4, paragraph 3

Versions for other media, pressure ranges and temperature ranges on request

» WEH® Check Valve

ORDERING | Check Valve

approx. dimensions (mm)



Part no.	Produkc serie	Suitable for external tube diameter	TNW	Max. operating pressure		Thread B1 = B2	α	L1	D1
				PS (bar)	PS (psi)				
C1-189332	VCA-1-S1	3/8“	5.0 mm	2,500	35,000	M20x1,5	60°	115	50
C1-189396	VCA-1-S1	3/8“	5.0 mm	2,500	35,000	3/4“-16 UNF	60°	115	50
C1-189397	VCA-1-S2	1/4“	2.8 mm	4,200	60,000	M16x1,5	60°	115	50
C1-189398	VCA-1-S2	1/4“	2.8 mm	4,200	60,000	9/16“-18 UNF	60°	115	50
C1-189399	VCA-1-S2	3/8“	4.0 mm	4,200	60,000	M20x1,5	60°	115	50
C1-189400	VCA-1-S2	3/8“	4.0 mm	4,200	60,000	3/4“-16 UNF	60°	115	50
C1-189401	VCA-1-S2	9/16“	5.0 mm	4,200	60,000	M30x2	60°	125	50
C1-189402	VCA-1-S2	9/16“	5.0 mm	4,200	60,000	1 1/8“-12 UNF	60°	125	50

Other connection types and pressure ranges on request

» WEH® Needle Valve

DESCRIPTION

Features and Benefits
- Needle valves for shutting off high-pressure lines
- **Quick opening and closing** with just a few turns
- **High flow rates** thanks to optimized technical nominal size
- **Easy installation** thanks to numerous mounting options
- **Flow** possible **in both directions**
- **Delivery includes pre-assembled** pressure rings and pressure screws

Wherever the media flow within a pipe system needs to be shut off or opened manually in both directions, the manual valves perform this function with absolute reliability. The WEH® ultra-high pressure hand valves are needle valves that can be used to shut off the media flow. The valves are extremely smooth-running and only two to three turns are required to open them completely.

High flow rates: As the technical nominal diameter of the manual valves is larger than standard pipe diameters, the pressure drop is significantly lower than with comparable products.

Three differently arranged mounting holes enable a variety of mounting options:
- laterally on a panel
- laterally on rails

The diagonally arranged lateral fixing holes also prevent unintentional twisting of the pipe connections when the hand lever is actuated, thus ensuring a permanent seal.

Applications
The WEH® ultra-high pressure hand valves are specially designed for hydraulic applications in the high-pressure range. We are happy to offer alternative versions for other media ranges and applications on request.

TECHNICAL DATA

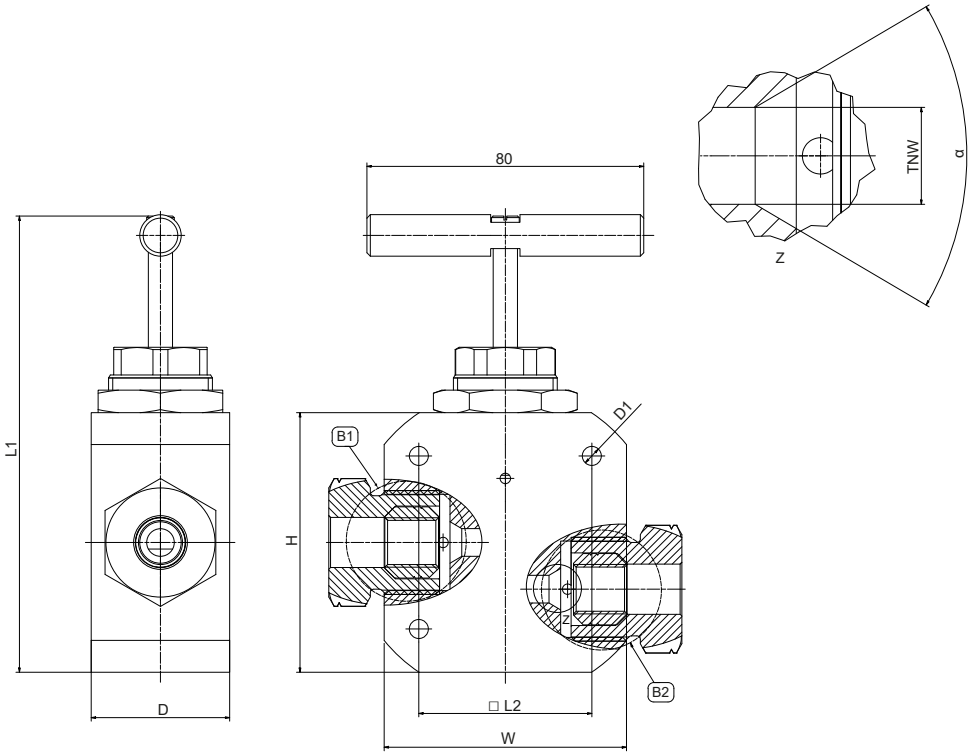
Characteristics	Basic Version	
Pressure ranges	PS = 2,500 bar (36,259 psi), 4,200 bar (60,916 psi), depending on design	
Temperature range	+5°C to +50°C	
Materials	High-strength stainless steel	
Medium	Air / water / hydraulic oil (only oils according to fluid group 2 DGR)	
Connection geometry	High pressure fittings 60° Cone & Thread	
Conformity / Tests / Approvals	Certified quality assurance system in accordance with the Pressure Equipment Directive 2014/68/EU	
	Pressure equipment type	Pipe-like, pressure-retaining piece of equipment
	Classification	Article 4, paragraph 3

Versions for other media, pressure ranges and temperature ranges on request

» WEH® Needle Valve

ORDERING | Hand valve straight design

approx. dimensions (mm)



Part no.	BG	Product series	suitable for external tube diameter	TNW	Max. operating pressure		Thread B1 = B2	α	Wide/ Height (WxH)	Depth (D)	L1	Distance mounting bores (L2)	D1
					PS (bar)	PS (psi)							
C1-189590	1	VAA-1-S1	1/4"	3.5 mm	2,500	35,000	M16x1.5	60°	48x48	26	108	34	5.5
C1-189592	1	VAA-1-S1	1/4"	3.5 mm	2,500	35,000	9/16"-18 UNF	60°	48x48	26	108	34	5.5
C1-189582	3	VAA-1-S1	3/8"	5.0 mm	2,500	35,000	M20x1.5	60°	70x70	26	130	50	5.5
C1-189584	3	VAA-1-S1	3/8"	5.0 mm	2,500	35,000	3/4"-16 UNF	60°	70x70	26	130	50	5.5
C1-189575	4	VAA-1-S1	9/16"	8.0 mm	2,500	35,000	M30x2	60°	73x84*	40	141	50	5.5
C1-189577	4	VAA-1-S1	9/16"	8.0 mm	2,500	35,000	1 1/8"-12 UNF	60°	73x84*	40	141	50	5.5
C1-189333	1	VAA-1-S2	1/4"	2.5 mm	4,200	60,000	M16x1.5	60°	48x48	26	108	34	5.5
C1-189519	1	VAA-1-S2	1/4"	2.5 mm	4,200	60,000	9/16"-18 UNF	60°	48x48	26	108	34	5.5
C1-189549	1	VAA-1-S2	3/8"	3.2 mm	4,200	60,000	M20x1.5	60°	48x48	26	108	34	5.5
C1-189550	1	VAA-1-S2	3/8"	3.2 mm	4,200	60,000	3/4"-16 UNF	60°	48x48	26	108	34	5.5
C1-189562	3	VAA-1-S2	9/16"	4.5 mm	4,200	60,000	M30x2	60°	70x70	36	130	50	5.5
C1-189563	3	VAA-1-S2	9/16"	4.5 mm	4,200	60,000	1 1/8"-12 UNF	60°	70x70	36	130	50	5.5

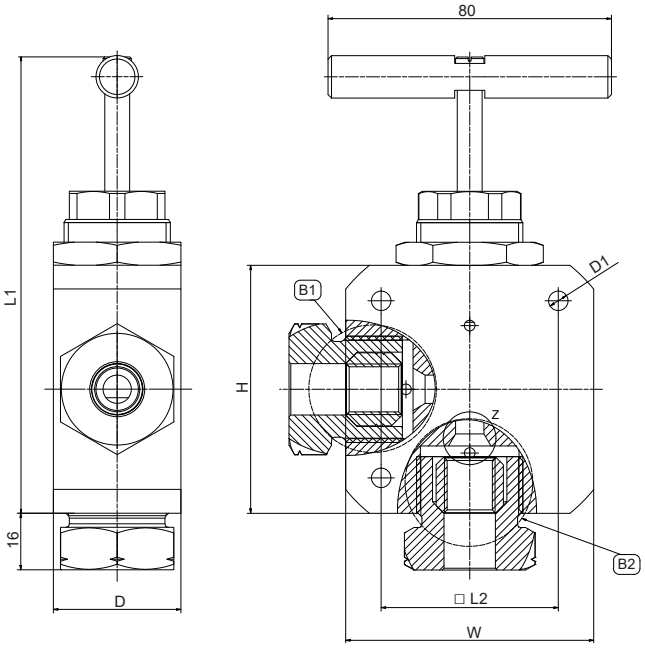
*Housing dimensions not axially symmetrical

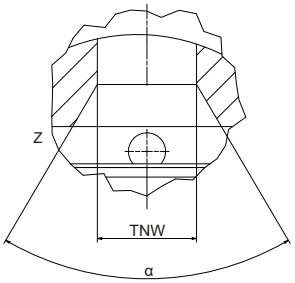
Other designs (3-way variants) and pressure ranges on request.

» WEH® Needle Valve

ORDERING | Hand valve angled design

approx. dimensions (mm)





Part no.	BG	Product series	suitable for external tube diameter	TNW	Max. operating pressure		Thread B1 = B2	α	Wide/ Height (WxH)	Depth (D)	L1	Distance mounting bores (L2)	D1
					PS (bar)	PS (psi)							
C1-189591	1	VAA-1-S1	1/4"	3.5 mm	2,500	35,000	M16x1.5	60°	48x48	26	108	34	5.5
C1-189593	1	VAA-1-S1	1/4"	3.5 mm	2,500	35,000	9/16"-18 UNF	60°	48x48	26	108	34	5.5
C1-189573	2	VAA-1-S1	3/8"	5.0 mm	2,500	35,000	M20x1.5	60°	54x54	26	114	34	5.5
C1-189585	2	VAA-1-S1	3/8"	5.0 mm	2,500	35,000	3/4"-16 UNF	60°	54x54	26	114	34	5.5
C1-189576	4	VAA-1-S1	9/16"	8.0 mm	2,500	35,000	M30x2	60°	77x84	40	141	50	5.5
C1-189578	4	VAA-1-S1	9/16"	8.0 mm	2,500	35,000	1 1/8"-12 UNF	60°	77x84	40	141	50	5.5
C1-189522	1	VAA-1-S2	1/4"	2.5 mm	4,200	60,000	M16x1.5	60°	48x48	26	108	34	5.5
C1-189526	1	VAA-1-S2	1/4"	2.5 mm	4,200	60,000	9/16"-18 UNF	60°	48x48	26	108	34	5.5
C1-189555	2	VAA-1-S2	3/8"	3.2 mm	4,200	60,000	M20x1.5	60°	54x54	26	114	34	5.5
C1-189561	2	VAA-1-S2	3/8"	3.2 mm	4,200	60,000	3/4"-16 UNF	60°	54x54	26	114	34	5.5
C1-189570	3	VAA-1-S2	9/16"	4.5 mm	4,200	60,000	M30x2	60°	70x70	36	130	50	5.5
C1-189571	3	VAA-1-S2	9/16"	4.5 mm	4,200	60,000	1 1/8"-12 UNF	60°	70x70	36	130	50	5.5

Other designs (3-way variants) and pressure ranges on request.

» WEH® Pressure Relief Valve

DESCRIPTION

Features and Benefits

- **Factory setting and testing** of the desired pressure
- **Replaceable** sealing seat
- **Long service life** thanks to high-quality metal sealing
- Can be installed **vertically** or **horizontally**
- **Delivery includes pre-assembled** pressure rings and pressure screws

The WEH® ultra high pressure pressure relief valves relieve fluid systems when a preset pressure is reached. This protects the installed components from wear or damage caused by excessive pressure.
The WEH® pressure relief valve remains closed until the set pressure is reached thanks to a built-in spring. If the set pressure is exceeded, the valve opens and discharges excess medium via a medium outlet (B2). The valve is sealed by a replaceable metal sealing seat. The valve is supplied with pressure rings and pressure screws for the corresponding Cone & Thread high pressure tube connections.

The customer must specify the desired set pressure when ordering. A tolerance range of +/- 100 bar must be taken into account. WEH adjusts the valve at room temperature and tests it for leaks and release behavior.
The adjustment screw is then sealed.

The actual set pressure may vary due to temperature fluctuations or after long intervals between actuations.

Application
WEH® pressure relief valves are specially designed for high-pressure hydraulic applications. Alternative versions for other media ranges and applications are available on request.

WEH® pressure relief valves VRA-1-S1 are not considered safety valves or safety accessories within the meaning of the Pressure Equipment Directive 2014/68/EU or the ASME Boiler & Pressure Vessel Code.

TECHNICAL DATA

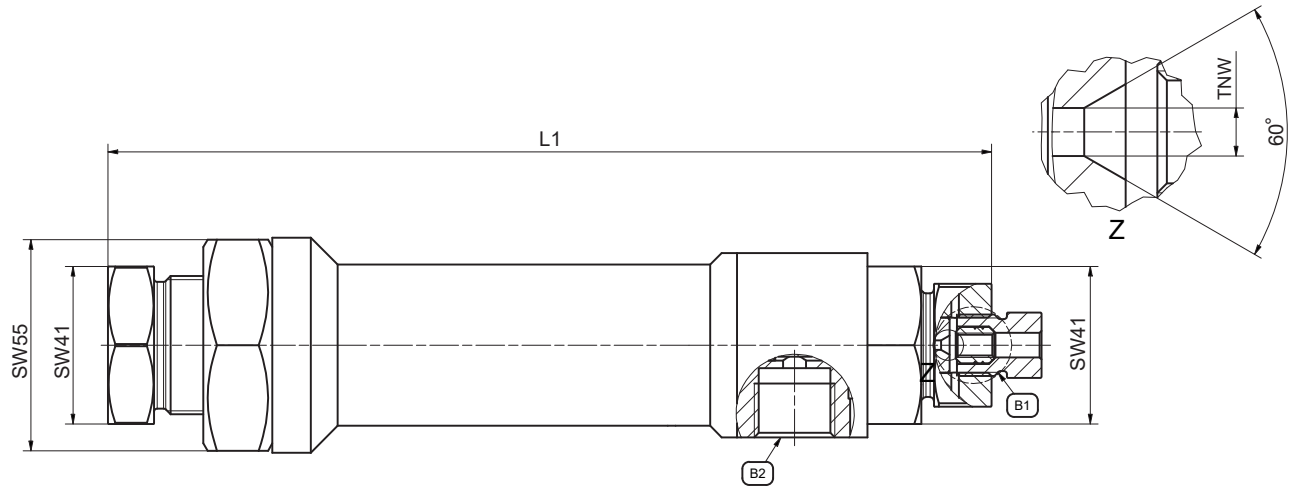
Characteristics	Basic Version	
Max. operating pressure at B2	PS = 2,500 bar (36,259 psi)	
Setting pressure	400 bar to 2,500 bar (customized) Tolerance: ± 100 bar	
Temperature range	+5°C to +50°C	
Materials	High-strength stainless steel	
Medium	Liquids according to fluid group 2 DGR, e.g. hydraulic oil	
Connection geometry	High pressure fittings 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Pipe-like, pressure-retaining equipment in accordance with Article 2, No. 5 of the Pressure Equipment Directive
	Classification	Article 4, paragraph 3

Versions for other media, pressure ranges, and temperature ranges available on request.

» WEH® Pressure Relief Valve

ORDERING | Pressure relief valve

approx. dimensions (mm)

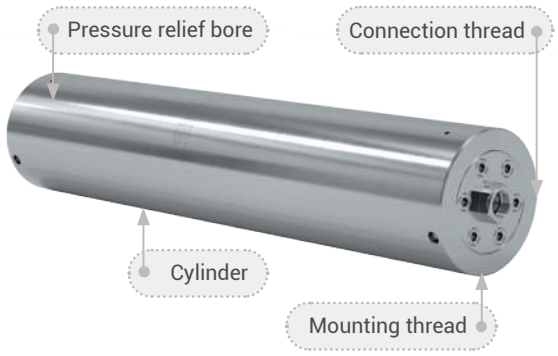


Part no.	Product serie	TNW	Max. operating pressure		B1 (female thread)	B1 suitable for external tube diameter	B2 (female thread)	L1
			PS (bar)	PS (psi)				
C1-192214	VRA-1-S1	2.5 mm	2,500	35,000	M16x1.5	1/4"	G1/2"	230
C1-192212	VRA-1-S1	2.5 mm	2,500	35,000	M20x1.5	3/8"	G1/2"	233
C1-192216	VRA-1-S1	2.5 mm	2,500	35,000	M30x2	9/16"	G1/2"	238
C1-192215	VRA-1-S1	2.5 mm	2,500	35,000	9/16" UNF	1/4"	G1/2"	230
C1-192202	VRA-1-S1	2.5 mm	2,500	35,000	3/4" UNF	3/8"	G1/2"	233
C1-192213	VRA-1-S1	2.5 mm	2,500	35,000	1 1/8"	9/16"	G1/2"	238

Other connection types and pressure ranges on request.

WEH® Pressure Vessels

DESCRIPTION | Pressure vessels



Features & benefits

- Volume & operating pressure **adaptable** to customer requirements
- **Easy installation** in any installation position
- **Good accessibility** to all connections
- **Low-maintenance** and **durable** construction made of high-quality steel

The WEH® ultra high pressure pressure vessels store fluids under high pressure. They act as energy accumulators by keeping pressure media such as hydraulic oil under pressure and releasing it when required. This allows energy to be extracted from the reservoir during discharge.
Depending on the application, these tanks can be equipped with various additional functions at the customer's request such as a non-return valve for controlled filling or an upstream spindle pump for precise pressure regulation.

Applications
The pressure vessels are designed exclusively for use in static high-pressure systems with liquids. They are used in a wide range of industrial applications (such as hydroforming systems) to compensate for pressure fluctuations, absorb peak loads or use energy more efficiently.

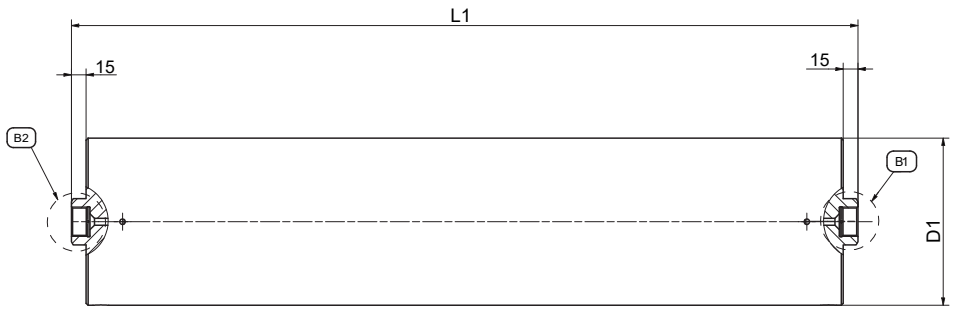
TECHNICAL DATA

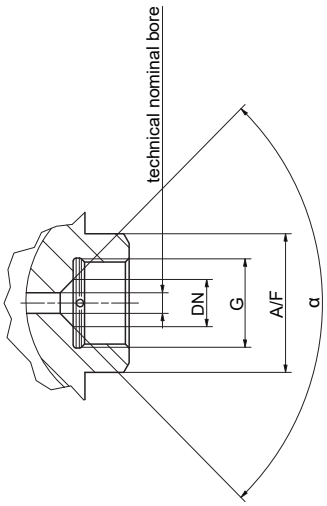
Characteristics	Basic Version	
Medium	Hydraulic oil according to fluid group 2	
Temperature range	+5°C up to +50°C	
Possible pressure ranges	PS = 500 up to 3,000 bar	
Possible volumes	0.25 up to 30 l	
Max. possible external diameter	Ø350 mm	
Max. possible length	2,000 mm	
Material	High strength stainless steel	
Connection system	Cone and threaded screw connection	
Connection geometry	High pressure fittings 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Vessels according to Article 2, No. 2 of the Pressure Equipment Directive
	Classification	Depending on version

Versions for other media, pressure ranges and temperature ranges on request

EXAMPLE CONFIGURATIONS

approx. dimensions (mm)





Part No.	Inner volume	PED-nominal size (DN)	Technical nominal size	Pressure (PS)	Thread (G) B1 = B2	D1	L1	A/F	α
C1-186688	3.85 l	DN 16	7 mm	1,500 bar	M30x2	Ø 170	800	41	91 °
C1-180792	2 l	DN 16	7 mm	3,000 bar	M30x2	Ø 170	800	41	90 °

Versions for other pressure ratings, sizes and connection types on request.

WEH® Pressure Generators

DESCRIPTION | Manual spindle pump

Features and Benefits

- Volume & operating pressure **adaptable** to customer requirements
- **Easy installation** in any installation position
- **Good accessibility** to all connections
- **Low-maintenance** and **durable** construction made of high-quality steel

The WEH® ultra high pressure hand spindle pumps are particularly suitable as pressure generators for small mobile or stationary systems. The hand spindle pumps can be used anywhere without compressed air or power supply. They offer a simple, cost-effective and yet precise way of generating high pressures with small volumes. In addition to the hand spindle pumps, we also offer motor-driven spindle pumps, which have the advantage of very precise control and controllability.

Application
The manual spindle pumps are designed exclusively for use in static high-pressure systems with liquids.
Depending on the application and the available measurement technology, the pressure and flow rate can be finely adjusted with the spindle pump.

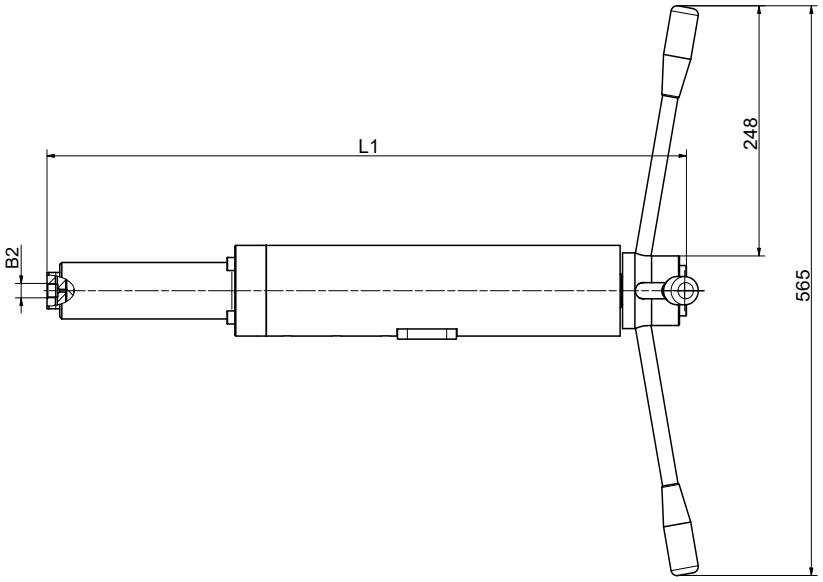
TECHNICAL DATA

Characteristics	Basic Version	
Medium	Fluids according to fluid group 2 DGR, e.g. hydraulic oil	
Temperature range	+5°C up to +50°C	
Possible pressure ranges	PS = 500 up to 3,000 bar	
Possible volumes	0.25 up to 30 l	
Max. possible length	2,000 mm	
Material	High-strength stainless steel	
Connection system	Cone & Thread (60° HP-Fitting)	
Connection geometry	High pressure fittings 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Vessels according to article 2, No. 2 of the Pressure Equipment Directive
	Classification	Article 4, paragraph 3

Versions for other media, pressure ranges and temperature ranges on request

EXAMPLE CONFIGURATIONS

approx. dimensions (mm)



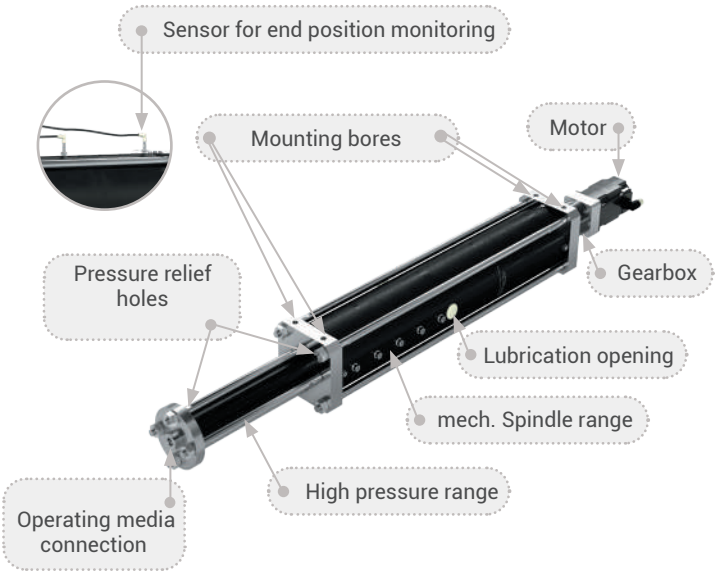
Part No.	Pressure (PS)	Stroke volumen (cm³ / ml)	Nominal Bore (DN)	B2 (female thread)	L1
C1-187405	50 bar	327	DN 5	UNF 9/16-18*	650

*60°-Cone

Version for other pressure ratings, sizes and connection types on request.

» WEH® Pressure Generators

DESCRIPTION | Spindle pump for electric drive



Features and Benefits

- Volume & operating pressure **adaptable** to customer requirements
- **Easy installation** in any installation position
- **Good accessibility** to all connections
- **Low-maintenance** and **durable** construction made of high-quality steel
- Wide range of actuator options

The WEH® ultra high pressure spindle pumps for electric drive are the ideal solution as pressure generators for medium-sized and larger systems that are to be centrally controlled. Thanks to motor operation, they offer the advantage of very precise control and monitoring. They are also used in particular where there are special requirements for operational safety as, unlike manual spindle pumps, they can be operated via a control system outside the safety zone. Depending on the application and the measurement technology available, the pressure and flow rate can be finely adjusted with the spindle pump.

Application
The spindle pumps are designed exclusively for use in static high-pressure systems with liquids

TECHNICAL DATA

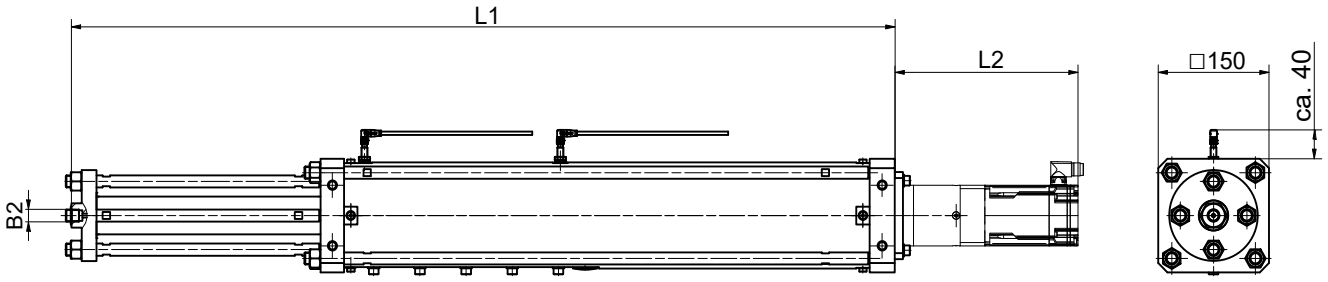
Characteristics	Basic Version	
Medium	Fluids according to fluid group 2 DGR, e.g. hydraulic oil	
Temperature range	+5°C up to +50°C	
Possible pressure ranges	PS = 500 up to 3,000 bar	
Possible volumes	0.25 up to 30 l	
Max. possible length	2,000 mm	
Material	High-strength stainless steel	
Connection system	Cone & Thread (60° HP-Fitting)	
Connection geometry	High pressure fittings 60° Cone & Thread	
Conformity / Tests / Approvals	Pressure equipment type	Vessels according to article 2, No. 2 of the Pressure Equipment Directive
	Classification	Article 4, paragraph 3

Versions for other media, pressure ranges and temperature ranges on request

» WEH® Pressure Generators

EXAMPLE CONFIGURATIONS

approx. dimensions (mm)



Part No.	Pressure (PS)	Stroke volumen (cm³ / ml)	PED-no-minal size (DN)	B2 (female thread)	L1	L2	Drive preparation	Media connection
180793	700 bar	120	DN 16	NPT 3/8"	1125	6	Adapter plate for BG080	-
180791	2,000 bar	75	DN 3	M16x1.5"	1115	175	Gearbox for NEMA34	90° pipe angle M16x1.5 AG
On request	Drive motor							

Version for other pressure ratings, sizes and connection types on request.

OTHER POSSIBLE VARIANTS

In addition to spindle pumps, WEH also offers pressure generators with pneumatic or hydraulic drives. Please feel free to send us your inquiry.

Pneumatic pressure intensifier
Pressure intensifier are used to increase the pressure of liquids and gases and are used when high pressures are required for certain functions but the entire system is not designed for this.

Hydraulic pressure intensifier
Use and application are the same as for pneumatic pressure intensifier, but instead of a compressed air system, a medium-pressure hydraulic system with approx. 200 to 450 bar is used as the drive.

Autoclaves
These pressure vessels with integrated spindle pump are suitable for the thermal treatment of media or the investigation of chemical processes in the high-pressure range.

» Systems

From small pneumatic aggregates all the way to large complete systems with multiple kinds of pressure generation, and a wide range of technical uses and controllers, we are able to offer you **custom solutions** for many requirements.

We supply high pressure systems predominantly for the following applications:
- Carfrettage plants
- Hydroforming plants
- Isostatic presses
- High pressure test benches
- Ultra high pressure homogenizers

Consult our product experts: We are also your ideal contact for the implementation of high pressure systems for other applications.
industry@weh.com

» Tools

For tube processing, we offer you an **extensive range of tools**.

Thread Cutter
Hand tool for applying the thread for the pressure ring onto the tube ends.
Depending on the tube diameter and thread type, different cutter inserts are available.

Cone Cutter
Hand tool for applying the conical sealing contour onto the tube ends.
Depending on the tube diameter and cone angle, different cutter inserts are available.

Cone Reworker
During operation, plastic deformations may occur on tubes and fittings.
With the cone reworker, the fittings can be reconditioned.

Tube Bender
Hand tool for manual bending of high pressure lines. Bending inserts are available for different tube sizes.

The following accessories are available for the tool portfolio:
- Cutting blades
- Countersink
- Clamping jaws
- Thread-cutting dies
- Thread-cutting paste
- Glycol
- Hydraulic oil
- Freezing spray
- Leak detection spray

» Technical Appendix

Definitions

Abbreviation	Definition	
Pressure specifications	(all pressure specifications are to be understood as overpressure, unless otherwise stated)	
PN	Nominal pressure	Nominal pressure after temperature compensation at 15 °C (59 °F)
PS	Max. allowable operating pressure	Maximum allowable operating pressure acc. to Pressure Equipment Directive 2014/68/EU, Article 2 paragraph 8
PT	Hydrostatic test pressure	Hydrostatic test pressure acc. to Pressure Equipment Directive 2014/68/EU, Annex I no. 7.4
PP	Pilot pessure	Actuation pressure for hydraulic and pneumatic components
PC	Cracking pressure	Pressure at which the check valve opens and the first indication of flow occurs
WP	Working pressure	'Working pressure' means the maximum pressure to which a component is designed to be subjected to and which is the basis for determining the strength of the component under consideration
MAWP	Max. allowable working pressure	Max. allowable operating pressure at which the weakest point of the system or the vessel (e.g. cylinder valve) can operate at a certain temperature during normal operation
Dimensions		
L1, L2, L3 ...	Length specification	
D1, D2, D3 ...	Diameter specification	
A/F(1), A/F(2) ...	Wrench size specification	
Ports		
A / X	Customer-specific port (test piece, sample, cylinder valve, handwheel respiratory protective equipment)	
B1, B2, B3 ...	Media ports	
C1, C2, C3 ...	Gas recirculation ports	
P1, P2, P3 ...	Pilot pressure ports	
MA1, MA2 ...	Measuring ports	
Q	Drain port filter	
G	Mounting bores	
Others		
DN	PED-nominal size (DN)	Nominal size (DN) acc. to Pressure Equipment Directive 2014/68/EU, whereby the largest, pressurized diameter of the media or pilot pressure connections of the WEH Device (A, B1, B2, B3 or C1, C2, C3 and P1, P2, P3) which faces the customer´s pipe system, is relevant. Expressed by a rounded, dimensionless number, e. g. DN 25
TNW	Technical nominal size	The technical nominal size (formerly expressed by "effective diameter") is the smallest diameter available for the media flow of the respective pressure device. Expressed by a number with unit, e. g. 12 mm
µm	Max. diameter of the filtered particle	
Kv	Is the discharge of water in m^3/h at a pressure drop of 1 bar (14.5 psi), acc. to DIN/EN 60534-2	
Cv	Is the discharge of water in gallons per minute at a pressure drop of 1 psi, acc. to DIN/EN 60534-2	
IR	Infrared data interface	
ENR	Exchangeable data interface (exchangeable nozzle receiver)	

» Technical Appendix

Definitions

Abbreviation	Definition
TS	Maximum allowable temperature acc. to Pressure Equipment Directive 2014/68/EU, Article 2 paragraph 9
Breakaway force	Is the force range, in which the breakaway releases
NC	Normally closed (initial position of shut-off valve)
NO	Normally open (initial position of shut-off valve)

Technical explanations

Term	Definition
Temperature range	Is the temperature range in which the WEH® Product can be used. If no explicit information on medium and ambient temperature is given, this temperature range applies to both medium and environment.
Media temperature range	Is the temperature range of the medium used, which can flow through the WEH® Product (may change depending on the time of measurement).
Ambient temperature range	Is the temperature range of the environment in which the WEH® Product can be used.
Leak rate	Is the maximum external leak rate, which the WEH® Product exhibits in delivery condition.
Internal leak rate	The internal leak rate depends, among other things, on type of application, medium and pressure difference on the WEH® Product. On request it can be specified more precisely.
Max. side load	Is the max. allowable sum of all external forces that may act on the device under intended use. **Note:** External forces can affect the life time of WEH® Products and can cause damage. Tensile and transverse loads as well as vibrations and pressure impacts need to be considered, e.g. by user side measures such as on site mountings and similar. Therefore, lateral forces such as whipping hoses or other equipment must be avoided. WEH® Products should be installed in such a way, that lateral forces which could lead to leakage or damage can not occur. Special applications require a special consultation before selecting the product.
Products with pneumatic actuation	The customer has to ensure there is adequate axial movement when pneumatically actuated WEH® Products are used in automated systems, see maximum side load. Ideally the products should be mounted with a floating joint or introduced individually to prevent the possibly existing clamping jaws getting blocked or jammed in the thread of the test piece.
Sealing material	On request the WEH® Product can be adapted to customer specific applications regarding to the sealing materials used. The clarification of the media compatibility and suitability of the adapted WEH® Product for the final application is always the responsibility of the end user.
Corrosion resistant	WEH® Products are designed for use in temperate climate zones - with low levels of humidity and salinity in the air. An accelerated formation of rust or corrosion may occur at or near the sea. Therefore, reduce the inspection interval recommended for normal use and send in the WEH® Product for maintenance immediately if you notice increased soot, rust or corrosion.
Storage / life time of components	There are certain requirements for every WEH® Product. WEH® Products are generally products which may be subject to wear and fatigue during operation and depending on your individual application/use. For details - in particular regarding the corresponding minimum inspection and maintenance intervals – please refer to the respective operating instructions for the WEH® Product.

» Technical appendix

Further explanations

Subject	Definition
Technical data	Unless otherwise stated, the technical data in catalogs, data sheets and operating instructions are based on tests with nitrogen that are in the development phase or at the end of development. Leakage data are based on measurements with helium.
Intended use	The intended use of WEH® products can be found in the respective operating instructions. The following applications are generally excluded for all WEH® products, unless these are expressly permitted in the operating instructions: • applications in the aerospace industry, e.g. for installation or use in or for the construction of aircraft, rocket propulsion systems, space probes, satellites, etc. • shipping applications
Safe product selection	Our WEH® Products are designed to be operated by qualified professional users (insofar as WEH® Products are also designed to be operated by other users in individual cases, this is explicitly stated in the corresponding operating instructions). Please note that WEH does not know your system and therefore - also due to the large number of different potential applications of WEH® Products - cannot perform tests on all potential types of application. You alone are responsible for the selection, configuration and suitability of WEH® Products, especially according to the requirements of your system. Before purchasing WEH® Products, please particularly ensure that our products are compatible with your intended use, your performance data, your material and fluids, your system concept and your system limits according to our product specifications. Please also consider your technical and legal requirements for operation, handling and maintenance. The quality and safety of WEH® Products is our highest priority. For this reason, WEH® Products may not be used outside the specifications in the relevant data sheets and product descriptions. If you are not sure whether the WEH® Product is suitable for your system and intended use, please contact us in advance. We also strongly recommend that you refrain from using third-party spare parts or a combination of WEH® Products with unsuitable third-party products. You alone are responsible for reviewing the suitability of third-party products. WEH® Products and WEH® Spare parts comply with our quality and safety standards.
Explanation on the Pressure Equipment Directive	In general, WEH® Products with a maximum allowable operating pressure of more than 0.5 bar (PS) fall within the scope of application of the Pressure Equipment Directive 2014/68/EU, are generally classified as pressure accessories in accordance with Article 2 (5) of the same and are considered to be similar to piping. These WEH® Products may not be used as safety accessories. Furthermore, it is pointed out, that these WEH® Products are designed and placed on the market in accordance with the requirements of Article 4 (3) of the Pressure Equipment Directive 2014/68/EU. For some products a different classification and/or categorisation is required or can be conducted on request. In these cases, if legally required, a conformity assessment procedure in accordance with Annex III of the Pressure Equipment Directive 2014/68/EU can and will also be conducted and the conformity can be declared by means of an EU Declaration of Conformity in accordance with Annex IV of the Pressure Equipment Directive 2014/68/EU. In these cases, the EU Declaration of Conformity is enclosed with the product.
External change management	WEH reserves the right to update, optimise and adjust its products continuously. This may result in corresponding changes of the product. Customers will be informed proactively or unsolicited by WEH only in individual cases about product updates, product optimisations and/or product adaptations that have been carried out. You are free to contact WEH at any time to request information about any product updates, product optimisations and/or product adjustments.

» Brochure data

This catalog was created diligently and on the basis of decades of experience.

All information/recommendations in this catalog are non-binding and are particularly subject to possible deviations or changes. For any binding information/recommendations, please refer to the verified information/recommendations in our individual orders. Particularly, due to the wide range of possible applications of WEH® Products and the unknown parameters and operating conditions linked to them, the accuracy and/or completeness of the information/recommendations in this catalog cannot be guaranteed with respect to certain individual cases. In doing so, we would like to refer once again to the information/recommendations provided in individual orders.

The application limits indicated in this catalog (e.g. for pressure, temperature, etc.) are generally theoretical values determined in a test environment. As the concrete operating conditions could differ, we cannot ensure that these values apply to a specific customer application. During the practical use, you should particularly consider that the mutual influence of operational parameters could result in changes of the maximum values. Especially, in case of any unusual operating conditions, please contact WEH before using any WEH® Products. We therefore strongly recommend that you also require any necessary binding information/recommendations to be included by us in the individual orders.

Furthermore, we point out that we cannot assume any warranty or accept any responsibility for printing errors, incomplete information or misinterpretations. Illustrations and/or images are particularly provided for illustrative purposes only and may differ in some details from the actual product. Moreover, dimensions and other technical details in this catalog are non-binding information and are provided for illustrative purposes only. The product's exact form and design result exclusively from the specific individual order. In particular, certain information/recommendations in the catalog only become integral part of the contract if they have been expressly contractually agreed.

Only the latest version of our catalog and other product related documents is valid and applicable. Please ensure that you always use the latest catalog's and documents' versions. Please feel free to contact WEH at any time and request the latest versions.

Our General Terms and Conditions and the Agreement on Protection of Know-How and Quality Assurance shall apply to deliveries and other services, unless expressly agreed otherwise.
In principle, we do not accept the General Terms and Conditions of our customers or third parties. Thank you for your understanding.

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More questions? – Great! Don't hesitate to contact our experts.