MANUAL

VS 100, VS 110, VS 120, VS 200

Isolating Vent Valve
Isolating Valve
Testing Vent Valve
Two Valve Manifolds

- Operating pressure up to 42 MPa.
- Operating temperature up to 500 °C.
- Material stainless steel 1.4541.
- Sealing component selection from different material: Graphite, PTFE, PEEK, Viton, EPDM.
- Gland packing adjuster.
- Seat diameter 4 mm.
- EU Type Examination Certificate according to Directive PED 2014/68/EU.

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Contents

1. General instructions and information

1.1 Symbols used

Symbol of warning; for safe use it is necessary to proceed according to the instructions

Symbol CE certifies compliance of the product with EU directives and the respective government directives

The product does not belong to public waste and it is subjected to separate collection

1.2 Scope of delivery

With the product is delivered:

- manual for installation, operation and maintenance

Upon request can be provided:

- protocol on executed tests
- copy of the Inspection certificate 3.1 acc. to EN 10204 for material of the main body
- copy of the EU Type Examination Certificate acc. to Directive PED 2014/68/EU

1.3 Description of the delivery and packing

The product is packaged in a protective cover and provided with an identification label with a mark of the output control.

The product must not be exposed to direct rain, vibrations and shocks during transport.

1.4 Storage

The products shall be stored at temperatures from -20 to +50 °C and maximum relative humidity 80 % in the rooms with elimination of condensation of water vapours on the products. The stored products shall not be exposed to any shocks, vibrations and effects of harmful vapours and gases.

1.5 Installation and commissioning

During installation, commissioning, operation and maintenance follow the instructions in chapter 4.

1.6 Spare parts

Any of the compact parts of the product can be also ordered as a spare part if there is not required special procedures or technological operations for the exchange.

1.7 Repairs

Products are repaired by the manufacturer. The products for repair should be sent in a packing that guarantees damping of shocks and vibrations and protects against damage during transport.

1.8 Warranty

Products are covered by a warranty for a period of 24 months from the delivery date on the delivery note. The manufacturer guarantees technical and operational parameters of the products within scope of the applicable documentation. Warranty period is specified with individual items and begins from the day of takeover of the goods by the purchaser or delivery to the carrier. Any claims concerning to defects of the goods together can be filed in writing with the manufacturer within the warranty period and the claimed product shall be presented. The claiming party shall give identification of the product, number of the delivery note and description of the fault or defect.

The manufacturer is not responsible for any defects caused by improper storage, incorrect connection, damages caused by external effects, in particular by effects of factors with excessive values, unqualified installation, improper operation or common wearing.

2. End of service and disposal

2.1 End of service

In case that the manifold with a pressure or pressure difference sensor is under pressure, the sensor and manifold shall not be dismounted. During the end of operation or manifold replacement, before manifolds dismounting is necessary to switch over the possible regulation loop to manual operation or accept another suitable measure to prevent any possible damages connected with end of service of the pressure sensor. Then the supply of pressure medium is closed, pressure medium from the sensor and manifold is discharged and the manifold is dismounted.

2.2 Disposal

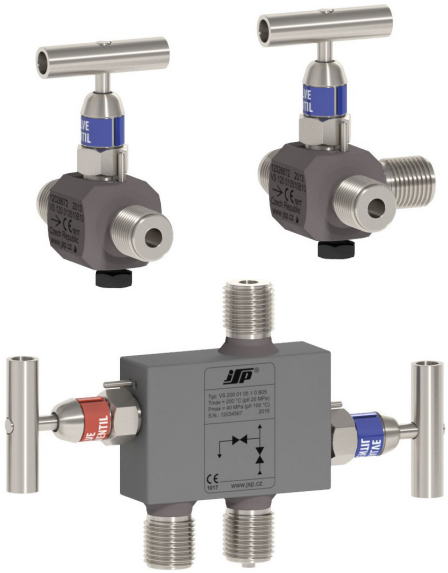
The products do not contain any environmentally hazardous parts. When disposing packages, destroyed or irreparably damaged products, proceed according to local regulations.

3. Product description

VS 100, VS 110, VS 120, VS 200

Isolating Vent Valve
Isolating Valve
Testing Vent Valve
Two Valve Manifold

- **Operating pressure up to 42 MPa.**
- **Operating temperature up to 500 °C.**
- **Material stainless steel 1.4541.**
- **Sealing component selection from different material: Graphite, PTFE, PEEK, Viton, EPDM.**
- **Gland packing adjuster.**
- **Seat diameter 4 mm.**
- **EU Type Examination Certificate according to Directive PED 2014/68/EU.**



3.1 Application

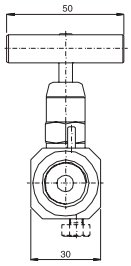
Isolating valves are used to shut off the supply of pressured medium to the pressure sensor. In addition, the valve type with a small deaeration valve (VS 100, VS 120) allows discharge of mud or deaeration of the impulse piping. VS 120 valve, thanks to the side screwing, allows connection of other equipment to pressure medium. Individual types of the valves are designed for direct installation on a pressure sensor or for installation between the impulse piping.
The two valve manifold VS 200 is used to shut off the supply of pressured medium to the pressure sensor, allows discharge of mud or deaeration of the impulse piping and possibly serves to connect other equipment to pressure medium. The manifold is designed for direct installation on a pressure sensor or for installation between the impulse piping.

3.2 Description

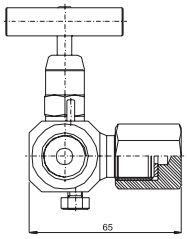
All parts of the valve is made of stainless steel 1.4541 except the sealing ball and spindle gland. As a sealing element of the valve is used a ball, embedded into the valve spindle face and closing the through seat with diameter 4 mm. Material of the sealing ball is optional; it could be made of quenched stainless steel 1.4125, ceramics Si_3N_4 or plastic PTFE 325. The valve spindle of the standard version is sealed using a FPM (Viton) or EPDM O-ring; in both cases with two Teflon supporting rings. In case of valves with gland packing adjuster it is possible to choose the sealing material PTFE, Graphite or PEEK. The wide range of dimensions of the input and output screwing allows installation of the valve into a welded on piece, on a sleeve with a transition connection, into a sensor screwing or connection of the impulse piping using a welding on nipple, welding on plow or single cutting ring for piping diameters 8, 10 mm, or double cutting ring for piping diameters 12 or 14 mm.

3.3 Dimensional drawings

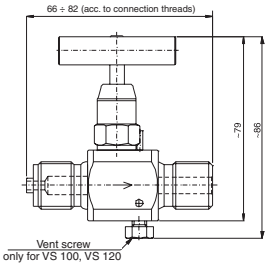
VS 100, VS 110



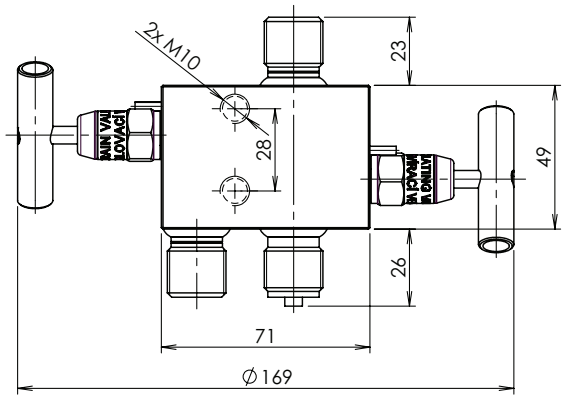
VS 120



VS 100, VS 110, VS 120



VS 200



4. Installation, operation and maintenanceu

4.1 Installation and commissioning

4.1.1 General

The shut off valve is fixed using a connecting screwing, between the impulse piping or directly on the pressure sensor. The impulse piping with diameter 12 or 14 mm is connected by welding to the plow or nipple, see Fig. 2. To ensure correct position of the nipple or plow, after installation it shall be welded together with the shut off valve.

Before installation, the impulse piping shall be cleaned from all dirt. After welding it shall be disconnected from the manifold and purged to remove any possible dirt from welding.

Piping with outer diameter 8, 10, 12 or 14 mm can be also connected by using a cutting ring. The minimum length of the impulse piping to the first bend shall be 33 mm from the pipe face. The pipe face shall be cut off perpendicularly and the inner and outer edges shall be deburred. To prevent penetration of any possible dirt between the contact surfaces, all part shall be properly cleaned before installation.

Before connection of the sensor it is recommended to test correctness of connection (welding) of the shut off valve by pressurization of the impulse piping.

When both connections of threaded parts are made of stainless steel, there is danger of galling (formation of cold weld). This can also occur during ordinary screwing by hand without using tightening key. If the cold weld is made, the thread is then damaged and parts are unusable. Before first screwing, it is therefore necessary to check whether threads are free of impurities (and clean if needed) and then treat the threads against galling (formation of cold weld) by appropriate lubricant. For example use paste G-Rapid plus or Lukosan M11 (in case of connection for oxygen). For tapered threads is usually used Teflon tape. Threads with silver covered surface do not have to be lubricated against galling.

4.1.2 Commissioning

After connection or welding of the impulse piping the shut offvalve is ready for operation.

After installation of a shut off valve into piping it is necessary to carry out deaeration of the piping. Deaeration for shut off valve VS 100 and VS 120 can be done by deaeration screw M6. In another case the deaeration is done by releasing of air bubbles by knocking on the piping. The whole system can be flooded by condensate when the thermal circuit is shut down and the valve is closed.

In case of a leakage of the spindle gland with valve having gland packing adjuster, the leakage can be eliminated by tightening the adjuster screw and the lock nut.

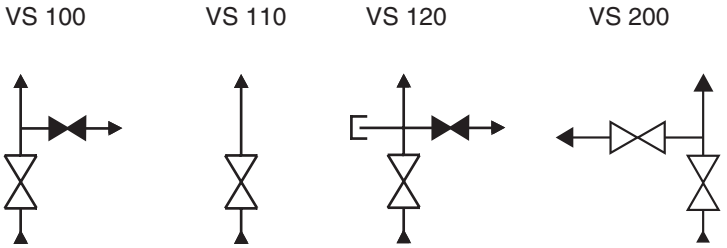
4.1.3 Cleaning the manifold

Clogged manifold may be cleaned only if pressure medium in the impulse piping is completely disconnected. Before cleaning of a clogged fitting, screw out the small valve(s) from the basic body. First remove the valve lock pin, then screw out the valve and clean the interconnection channels eventually the valve seat. When cleaning the fitting, pay attention to the seating (sealing) edge of the valve to prevent its damage.

Before installation of the valve into the fitting body it is necessary to screw in the valve spindle up to the stop into the valve body. To improve tightening and sealing of the valve in the fitting it is recommended to apply a Teflon tape or a liquid Teflon compound on the seating surface behind the valve threads. Tighten the valve to 55 Nm and then press in the locking pin.

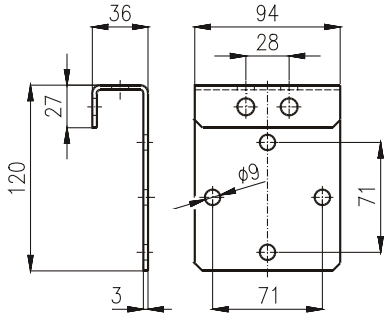
In case of cleaning of a manifold designed for use with oxygen, avoid staining of individual parts of the manifold with grease. The threads and sealing joints may be lubricated only by a paste approved for use with oxygen.

4.2 Interconnection diagram

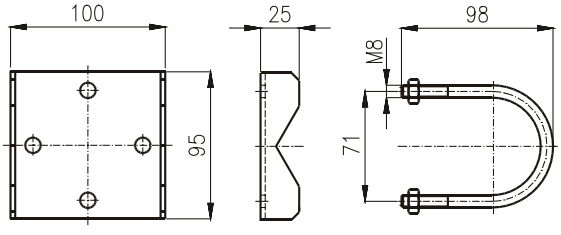


4.3 Examples of mounting of the manifolds in operation

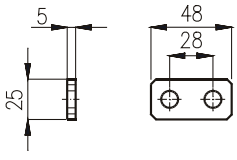
Bracket for wall mounting



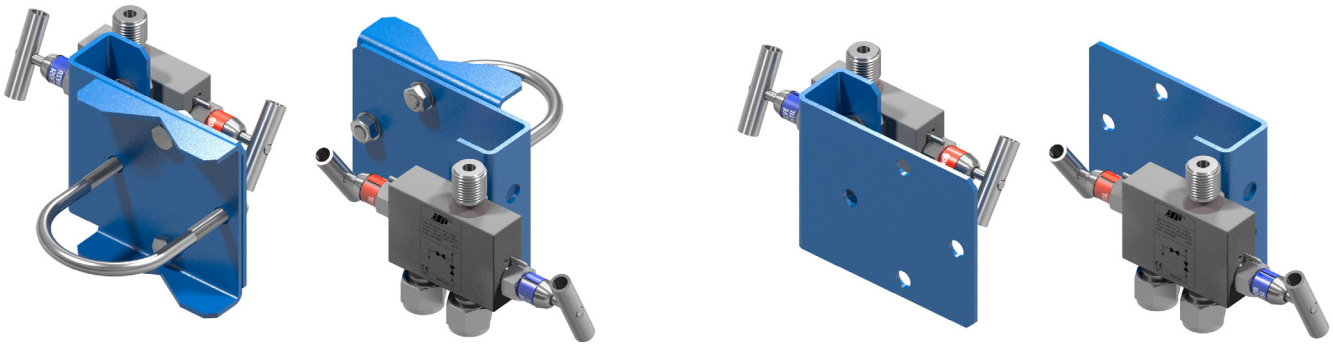
Bracket for pipe mounting



Shim for mounting of VS 200

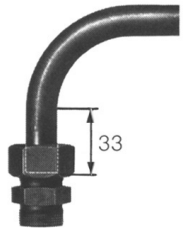


4.4 Examples of mounting with brackets

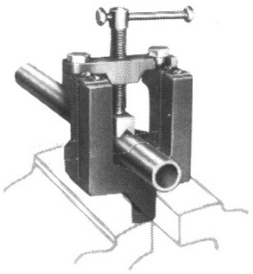


4.5 Connection of impulse piping by means of cutting rings

1



2



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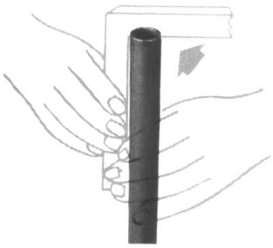
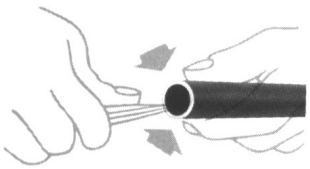


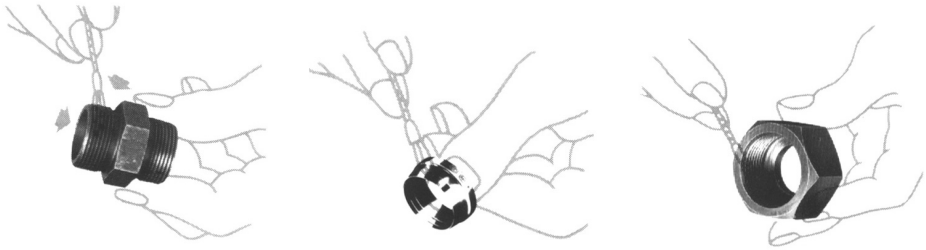
Max. deviation 0.5°

4



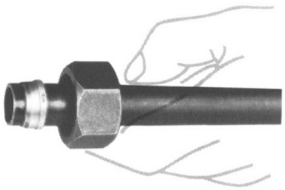
Deburr edges of the pipe.

5



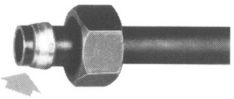
Clean threads and contact surfaces.

6

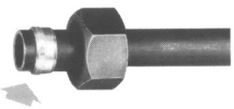


Install a nut and ring on the pipe.

7

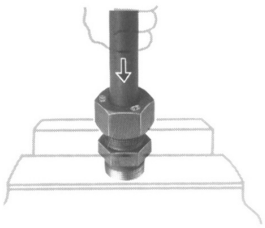


Correct



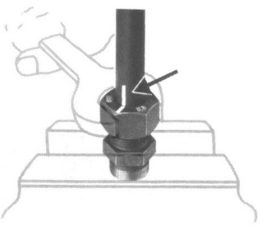
Wrong

8



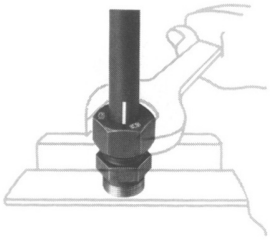
Slide in the pipe down to the bottom and tighten it by hand.

9



Mark position of the nut.

10

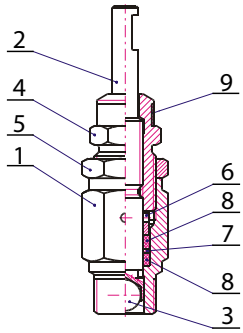


Tighten the nut using a wrench*

* Tighten by 1 1/2 turn for single cutting ring (codes 04, 13) and by 1 1/4 turn for double cutting ring (codes 22, 24).

4.6 Operation and maintenance

The device is attendance- and maintenance-free.
Only in case of a leakage of the spindle gland (version with gland packing adjuster), the leakage can be eliminated by tightening the adjuster screw (position 4). Before tightening the screw loosen the lock nut (position 5). Tightening torque of gland packing adjuster is 15 Nm. After tightening the adjuster retighten the lock nut.



1 - Valve body
2 - Spindle
3 - Seat packing
4 - Vent screw
5 - Nut
6 - Pressure ring
7 - Carrier ring
8 - Gland packing
9 - Tag

5. Product specifications

5.1 Technical specifications

Operation pressure:
up to 42 MPa

Operation temperature:
up to 500 °C

5.2 Supplementary parameters

Materials:

manifold body	stainless steel 1.4541
sealing ball of valve	stainless steel 1.4125 (X105CrMo17) ceramics Si_3N_4, plastic PTFE 325
vent screw	stainless steel 1.4034
O-ring	EPDM, Viton
carrier rings	teflon
dust cap	silicone rubber
gland packing adjuster	PTFE, Graphite, PEEK
welding nipple	carbon steel 1.0570 steel 1.7715 stainless steel 1.4541
welding cone	carbon steel 1.0570 steel 1.7715 stainless steel 1.4541
cutting ring	stainless steel 1.4571

Weight without accessories:

VS 100	0.35 kg
VS 110	0.32 kg
VS 120	0.45 kg
VS 200	1.1 kg

Table 1.
Chemical resistance of sealing materials

Medium		Viton	EPDM	PTFE	Grafit	PEEK
Acetone		-	-	+	+	+
Acetylene		+	+	+	+	+
Gas		+	-	+	+	+
Ammoniac	Water solution	-	+	+	+	+
	Liquid	-	+	+	+	
	Fluid	*	-	+	+	
Ethylene		+	+	+	+	
Hydraulic liquids	Fireproof	*	-	+	+	+
Hydroxides		*	+	+	+	+
Boracic acid		+	+	+		+
Lemon acid		+	+	+		+
Nitric acid		-	-	+	+	+
Fluoric acid	< 65 %	*	*	+	+	-
	> 65 %	*	*	+	-	
Phosphoric acid	10 %	+	+	+	+	+
	Concentrate	+	+	+		+
	Boiling concentrate	+	+	+		*
Hydrochloric acid	10 %, 80 °C	*	+	+		+
	36 %, 20 °C	*	+	+		+
Chromic acid		+	*	+		
Malic acid		+	+	+		
Carbolic acid		-	-	+		
Hydrocyanic acid		+	*	+		
Butyric acid		*		+		
Lactic acid		+	+	+		+
Formic acid	10 %	-	*	+	+	+
Acetous acid	10 %	-	*	+	+	+
	Concentrate	-	-	+		
Salicylic acid		+	+	+		
Sulphuric acid	25 %	*	+	+	+	+
	80 %	-	*	+	+	-
Oxalic acid	10 %	+	+	+		+
Carbonic acid		+	+	+		+
Tartaric acid		+	+	+	+	+
Oxygen		+	+	+	+	+
Methane		+	-	+	+	+
Oils		+	-	+	+	+
Steam	< 200 °C	*	*	+	+	+
	> 200 °C	-	-	-	+	-
Perchlorethylen		+	-	+	+	+
Burning oil		+	-	+	+	+
Gas fuels		+	-	+	+	+
Propane + butane		+	-	+	+	+
Radioactive radiation		*	*	-	*	+
Compressed air		+	+	+	+	
Toluene		*	-		+	+
Heating gases		+	-	+	+	+
Hydrocarbons		+	-	+	+	
Water	< 80 °C	+	+	+	+	+
	> 80 °C	+	+	+	+	+
Hydrogen	Cold	+	+	+	+	+
	Warm	+	+	+	+	+
Air	< 200 °C	+	+	+	+	+
Natural gas		+	+	+	+	+

+ Perfect resistance * Good resistance - No resistance

5.3 Operation conditions

The manifolds are designed and manufactured for operation in environment defined by conditions IE36 according to the standard EN 60721-3-3 and technical regulation PT 500026.

Pressure and temperature characteristics

The operating characteristics of a manifold are given by pressure and temperature, see Fig. 1. These characteristics determine conditions for use of the manifold. The operating variables pressure and temperature are in particular given by the material used for the basic body, by valve and by material of sealing elements of the valve seat and spindle. When selecting material of sealing elements, it is needed to take into account also condition of the operating fluid and its corrosiveness with regard to the sealing materials and material of the manifold. For steam is mostly used sealing of seat by a steel ball (1.4125) with a graphite gland. A ceramic ball of Si_3N_4 is used for corrosive chemicals and a soft ball of PTFE 325 is used for gases. Chemical resistances of gland sealing materials see Table 1.

Figure 1.
The scope of application of the valve set depending on temperature and pressure

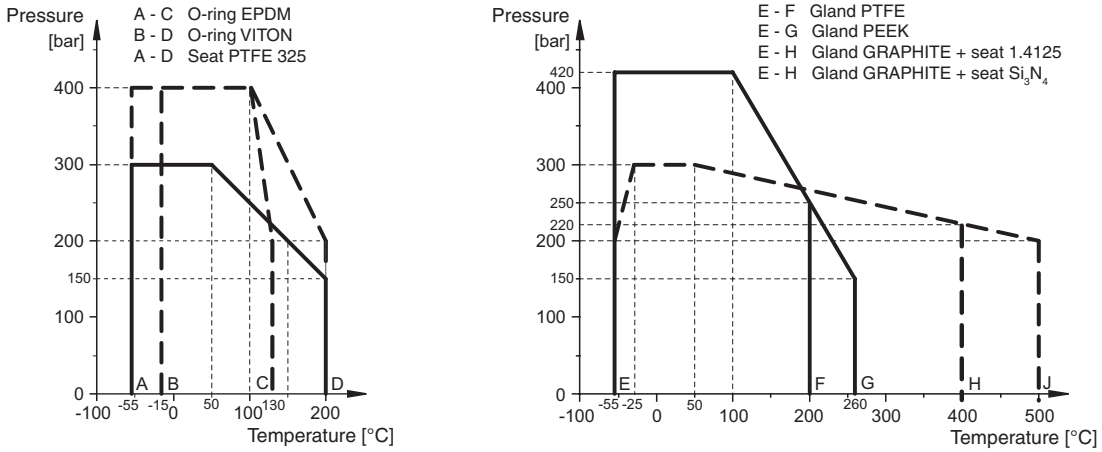


Table 2:
Maximal values of temperature and pressure depending on material of the sealing seat (ball) and material of the valve spindle gland

Material of the sealing seat (ball)	Material of the sealing valve spindle gland									
	EPDM		Viton (FPM)		PTFE		PEEK		Graphite	
	Pressure	Temperature	Pressure	Temperature	Pressure	Temperature	Pressure	Temperature	Pressure	Temperature
Steel 1.4125 (X105CrMo17)	40 MPa	100 °C	40 MPa	100 °C	42 MPa	100°C	42 MPa	100 °C	30 MPa	100 °C
	20 MPa	130 °C	20 MPa	200 °C	25 MPa	200°C	15 MPa	260 °C	22 MPa	400 °C
Ceramics Si_3N_4	40 MPa	100 °C	40 MPa	100 °C	42 MPa	100°C	42 MPa	100 °C	30 MPa	100 °C
	20 MPa	130 °C	20 MPa	200 °C	25 MPa	200°C	15 MPa	260 °C	20 MPa	500 °C
Fluoroplastic PTFE 325	30 MPa	50 °C	30 MPa	50 °C	30 MPa	50°C	30 MPa	50 °C	-	-
	20 MPa	130 °C	15 MPa	200 °C	15 MPa	200°C	15 MPa	200 °C	-	-

6. Tests, certificates and standards

6.1 Tests and certificates

Valves and manifolds VS have the following certificates and approvals according to PED 2014/68/EU:

EU Type Examination Certificate No. 10.598.661, TÜV CZ s.r.o., Novodvorská 994, 142 21 Praha 4, Czech Republic, VAT: CZ63987121, dated 18. 5. 2017.

6.2 Marking and type tag information

Coding on the valve body VS 100, VS 110, VS 120:
Example:

VS 120 0101 10	type number
40 MPa (100 °C)	maximal operation pressure up to temperature
200 °C (20 MPa)	maximal operation temperature up to pressure
CE1017	marking of conformity and number of notified body, that makes approval
99091234	serial number
2017	year of manufacture
Czech Republic	country of origin
www.jsp.cz	website address

The direction of the flow is marked by arrow on the valve body.

Coding on the manifold body VS 200:
Example:

VS 200 0101 10 B01	type number
40 MPa (100 °C)	maximal operation pressure up to temperature
200 °C (20 MPa)	maximal operation temperature up to pressure
CE1017	marking of conformity and number of notified body, that makes approval
99091234	serial number
2017	year of manufacture
Czech Republic	country of origin
	logo of JSP, s.r.o.
www.jsp.cz	website address

The direction of the flow is marked by arrow on the manifold body.

Coding on the valve:
Code on the hexagon of the valve:

V	O-ring Viton or
V- KY	version for oxygen
E	O-ring EPDM or
E-KY	version for oxygen
T	sealing PTFE or
T-KY	version for oxygen
P	sealing PEEK
G	sealing Graphite

Aluminium tag on the manifold:

ISOLATING VALVE
UZAVÍRACÍ VENTIL — marking of isolating valve

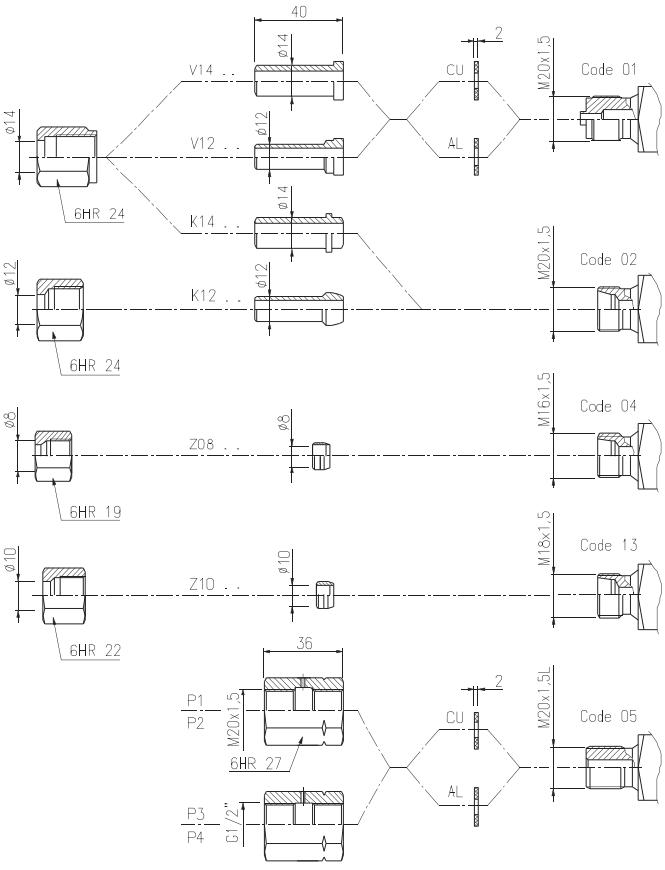
EQUALISING VALVE
PROPOJOVACÍ VENTIL — marking of equalising valve

DRAIN VALVE
ODKALOVACÍ VENTIL — marking of drain valve

Tag on valve with gland packing adjuster (PTFE, Graphite and PEEK glands) is made of stainless steel.

7. Optional accessories

7.1 Optional accessories to connection of impulse piping



8. Ordering information

8.1 Ordering table

	Type	Description		
•	VS 100	One-way vent valve		
°	VS 110	One-way valve		
•	VS 120	Testing one-way vent valve		
	Code	**Version of inlet thread**		
•	01	Male thread M20x1.5 manometric		
•	02	Male thread M20x1.5 with tapered seat		
°	04	Male thread M16x1.5 with tapered seat (only for cutting ring, diameter of 8 mm)		
°	05	Male thread M20x1.5L (left)		
°	06	Male thread G1/2" manometric		
°	07	Male thread 1/2"-14 NPT		
°	08	Male thread 1/4"-18 NPT		
°	11	Female thread 1/4"-18 NPT		
°	12	Female thread 1/2"-14 NPT		
°	13	Male thread M18x1.5 with tapered seat (only for cutting ring, diameter of 10 mm)		
•	22	Double cutting ring for piping Ø12 mm, cap nut with silver-plated thread, material AISI 316		
°	24	Double cutting ring for piping Ø14 mm, cap nut with silver-plated thread, material AISI 316		
	99	Other		
	Code	**Version of outlet thread**		
•	01	Male thread M20x1.5 manometric		
•	02	Male thread M20x1.5 with tapered seat		
°	04	Male thread M16x1.5 with tapered seat (only for cutting ring, diameter of 8 mm)		
•	05	Male thread M20x1.5L (left)		
°	06	Male thread G1/2" manometric		
°	07	Male thread 1/2"-14 NPT		
°	08	Male thread 1/4"-18 NPT		
°	11	Female thread 1/4"-18 NPT		
°	12	Female thread 1/2"-14 NPT		
°	13	Male thread M18x1.5 with tapered seat (only for cutting ring, diameter of 10 mm)		
•	22	Double cutting ring for piping Ø12 mm, cap nut with silver-plated thread, material AISI 316		
°	24	Double cutting ring for piping Ø14 mm, cap nut with silver-plated thread, material AISI 316		
	99	Other		
	Code	**Sealing valve spindle material / application**		
°	0	O-ring / EPDM - pmax 40 MPa, for ammoniac, for air up to 95 °C (not suitable for DEMI water!)		
•	1	O-ring / Viton - pmax 40 MPa, for water and DEMI water up to 100 °C, for air up to 200 °C		
°	5	Gland / PTFE - pmax 42 MPa, Tmax=200 °C		
°	6	Gland / Graphite - pmax 30 MPa, Tmax=500 °C		
	7	Gland / PEEK - pmax 42 MPa, Tmax=260 °C		
	9	Other		
	Code	**Sealing ball material**		
•	0	Steel 1.4125 up to 400 °C		
°	3	Ceramic Si3N4 up to 500 °C		
°	5	Plastic PTFE 325 up to 200 °C/15 MPa, up 50 °C/30 MPa (not for sealing valve spindle Graphite and PEEK)		
	9	Other		
		OPTIONAL ACCESSORIES ONLY FOR VS 120		
	Code	**Version of side thread**		
°	B01	Male thread M20x1.5 manometric		
°	B02	Male thread M20x1.5 with tapered seat		
°	B04	Male thread M16x1.5 with tapered seat (only for cutting ring, diameter of 8 mm)		
•	B05	Male thread M20x1.5L (left)		
°	B06	Male thread G1/2" manometric		
°	B07	Male thread 1/2"-14 NPT		
°	B08	Male thread 1/4"-18 NPT		
•	B10	Male thread M20x1.5 cylindrical (without neck for centring seal)		
°	B11	Female thread 1/4"-18 NPT		
°	B12	Female thread 1/2"-14 NPT		
°	B13	Male thread M18x1.5 with tapered seat (only for cutting ring, diameter of 10 mm)		
°	B22	Double cutting ring for piping Ø12 mm, cap nut with silver-plated thread, material AISI 316		
°	B24	Double cutting ring for piping Ø14 mm, cap nut with silver-plated thread, material AISI 316		
	B99	Other		
		OPTIONAL ACCESSORIES		
	Code	**Reducing connection**	**Material**	**Only for thread codes**
•	P1	M20x1.5L / M20x1.5	Carbon steel 1.0715	(B) 01; 05; 10
•	P2	M20x1.5L / M20x1.5	Stainless steel 1.4301	(B) 01; 05; 10
•	P3	M20x1.5L / G1/2"	Carbon steel 1.0715	(B) 05; 06
•	P4	M20x1.5L / G1/2"	Stainless steel 1.4021	(B) 05; 06
	P9	Other		
	Code	**Blinding nut and plug**	**Material**	**Only for thread codes**
•	M01	Nut M20x1.5	Stainless steel 1.4541	(B) 01; 10
•	M05	Nut M20x1.5L	Stainless steel 1.4541	(B) 05
°	M06	Nut G1/2"	Stainless steel 1.4541	(B) 06
°	M11	Plug 1/4"-18 NPT	Stainless steel 1.4541	(B) 11
	M99	Other		

• ... Ex stock version ° ... Marked version can be dispatched up to 10 working days

	Code	Nipples, cones and cutting rings		Only for thread codes
•	V12 ..	Nipple for welding Ø12 (Ø14)/Ø8 mm with cap nut M20x1.5		(B) 01
•	V14 ..	Nipple for welding Ø14/Ø8 mm with cap nut M20x1.5		(B) 01
•	K12 ..	Cone for welding Ø12/Ø8 mm with cap nut M20x1.5		(B) 02
•	K14 ..	Cone for welding Ø14/Ø8 mm with cap nut M20x1.5		(B) 02
•	Z08 ..	Cutting ring for piping Ø8 mm (±0.06 mm) with cap nut M16x1.5		(B) 04
•	Z10 ..	Cutting ring for piping Ø10 mm (±0.07 mm) with cap nut M18x1.5		(B) 13
	Code	Nipple or cone material	Cutting ring material	
•	1	Carbon steel 1.0570	—	
•	2	Structural alloy steel 1.7715	—	
•	4	Stainless steel 1.4541	—	
•	5	—	Stainless steel 1.4571	
	9	Other	—	
	Code	Material of nut for nipples or cones	Material of nut for cutting ring	
•	0	Galvanized carbon steel 1.0715	Galvanized carbon steel 1.0715	
•	3	Stainless steel 1.4301	Stainless steel 1.4301	
•	5	—	Stainless steel 1.4571, silver-plated thread (not for Z10)	
	9	Other	—	
	Code	Sealing (not for cones and cutting rings)		
•	CU	Flat sealing, Ø17/6.5 - 2 mm, material copper		
•	AL	Flat sealing, Ø17/6.5 - 2 mm, material aluminium		
	OC	Comb sealing, ∅17/6.5 - 3.5 mm, material stainless steel 1.4541		
	Code	Supplements		
•	GR	G-Rapid plus paste (50 g) against thread seizure and for easy installation		(not for oxygen)
•	LU	Lukosan M11 paste (50 g) for lubricating of O-rings, threads and for oxygen application		
•	TT	Liquid teflon paste for high temperatures and for valves reassembling		
•	KL	Control valve handle for high temperatures		
•	Q1	Material certificate of manifold body according to EN 10204, 3.1		
•	TZ	Pressure test		
	Code	Special version		
	PL	Adjustment of valve handle for sealing		
	KY	Degrease version for oxygen		(not for Graphite)
	Example of order: VS 100 0101 10 V1210(2x) CU(2x)			

• ... Ex stock version ° ... Marked version can be dispatched up to 10 working days

	Type	Description		
°	VS 200	Two-way manifold		
	Code	Version of inlet thread		
°	01	Male thread M20x1.5 manometric		
°	02	Male thread M20x1.5 with tapered seat		
°	04	Male thread M16x1.5 with tapered seat (only for cutting ring, diameter of 8 mm)		
°	05	Male thread M20x1.5L (left)		
°	06	Male thread G1/2" manometric		
°	07	Male thread 1/2"-14 NPT		
°	08	Male thread 1/4"-18 NPT		
°	11	Female thread 1/4"-18 NPT		
°	12	Female thread 1/2"-14 NPT		
°	13	Male thread M18x1.5 with tapered seat (only for cutting ring, diameter of 10 mm)		
°	22	Double cutting ring for piping Ø12 mm, cap nut with silver-plated thread, material AISI 316		
°	24	Double cutting ring for piping Ø14 mm, cap nut with silver-plated thread, material AISI 316		
	99	Other		
	Code	Version of outlet thread		
°	01	Male thread M20x1.5 manometric		
°	02	Male thread M20x1.5 with tapered seat		
°	04	Male thread M16x1.5 with tapered seat (only for cutting ring, diameter of 8 mm)		
°	05	Male thread M20x1.5L (left)		
°	06	Male thread G1/2" manometric		
°	07	Male thread 1/2"-14 NPT		
°	08	Male thread 1/4"-18 NPT		
°	11	Female thread 1/4"-18 NPT		
°	12	Female thread 1/2"-14 NPT		
°	13	Male thread M18x1.5 with tapered seat (only for cutting ring, diameter of 10 mm)		
°	22	Double cutting ring for piping Ø12 mm, cap nut with silver-plated thread, material AISI 316		
°	24	Double cutting ring for piping Ø14 mm, cap nut with silver-plated thread, material AISI 316		
	99	Other		
	Code	Sealing valve spindle material / application		
°	0	O-ring / EPDM	- pmax 40 MPa, for ammoniac, for air up to 95 °C (not suitable for DEMI water!)	
°	1	O-ring / Viton	- pmax 40 MPa, for water and DEMI water up to 100 °C, for air up to 200 °C	
°	5	Gland / PTFE	- pmax 42 MPa, Tmax=200 °C	
°	6	Gland / Graphite	- pmax 30 MPa, Tmax=500 °C	
	7	Gland / PEEK	- pmax 42 MPa, Tmax=260 °C	
	9	Other		
	Code	Sealing ball material		
°	0	Steel 1.4125	up to 400 °C	
°	3	Ceramic Si3N4	up to 500 °C	
°	5	Plastic PTFE 325	up to 200 °C/15 MPa, up 50 °C/30 MPa (not for sealing valve spindle Graphite and PEEK)	
	9	Other		
	Code	Version of side thread		
°	B01	Male thread M20x1.5 manometric		
°	B02	Male thread M20x1.5 with tapered seat		
°	B04	Male thread M16x1.5 with tapered seat (only for cutting ring, diameter of 8 mm)		
°	B05	Male thread M20x1.5L (left)		
°	B06	Male thread G1/2" manometric		
°	B07	Male thread 1/2"-14 NPT		
°	B08	Male thread 1/4"-18 NPT		
°	B10	Male thread M20x1.5 cylindrical (without neck for centring seal)		
°	B11	Female thread 1/4"-18 NPT		
°	B12	Female thread 1/2"-14 NPT		
°	B13	Male thread M18x1.5 with tapered seat (only for cutting ring, diameter of 10 mm)		
°	B22	Double cutting ring for piping Ø12 mm, cap nut with silver-plated thread, material AISI 316		
°	B24	Double cutting ring for piping Ø14 mm, cap nut with silver-plated thread, material AISI 316		
	B99	Other		
		OPTIONAL ACCESSORIES		
	Code	Reducing connection	Material	Only for thread codes
•	P1	M20x1.5L / M20x1.5	Carbon steel 1.0715	(B) 01; 05; 10
•	P2	M20x1.5L / M20x1.5	Stainless steel 1.4301	(B) 01; 05; 10
•	P3	M20x1.5L / G1/2"	Carbon steel 1.0715	(B) 05; 06
•	P4	M20x1.5L / G1/2"	Stainless steel 1.4021	(B) 05; 06
	P9	Other		
	Code	Blinding nut and plug	Material	Only for thread codes
•	M01	Nut M20x1.5	Stainless steel 1.4541	(B) 01; 10
•	M05	Nut M20x1.5L	Stainless steel 1.4541	(B) 05
°	M06	Nut G1/2"	Stainless steel 1.4541	(B) 06
°	M11	Plug 1/4"-18 NPT	Stainless steel 1.4541	(B) 11
	M99	Other		

• ... Ex stock version ° ... Marked version can be dispatched up to 10 working days

	Code	Nipples, cones and cutting rings	Only for thread codes
•	V12 ..	Nipple for welding Ø12 (Ø14)/Ø8 mm with cap nut M20x1.5	(B) 01
•	V14 ..	Nipple for welding Ø14/Ø8 mm with cap nut M20x1.5	(B) 01
•	K12 ..	Cone for welding Ø12/Ø8 mm with cap nut M20x1.5	(B) 02
•	K14 ..	Cone for welding Ø14/Ø8 mm with cap nut M20x1.5	(B) 02
•	Z08 ..	Cutting ring for piping Ø8 mm (±0.06 mm) with cap nut M16x1.5	(B) 04
•	Z10 ..	Cutting ring for piping Ø10 mm (±0.07 mm) with cap nut M18x1.5	(B) 13

	Code	Nipple or cone material	Cutting ring material
•	1	Carbon steel 1.0570	—
•	2	Structural alloy steel 1.7715	—
•	4	Stainless steel 1.4541	—
•	5	—	Stainless steel 1.4571
	9	Other	—

	Code	Material of nut for nipples or cones	Material of nut for cutting ring
•	0	Galvanized carbon steel 1.0715	Galvanized carbon steel 1.0715
•	3	Stainless steel 1.4301	Stainless steel 1.4301
•	5	—	Stainless steel 1.4571, silver-plated thread (not for Z10)
	9	Other	—

	Code	Sealing (not for cones and cutting rings)
•	CU	Flat sealing, Ø17/6.5 - 2 mm, material copper
•	AL	Flat sealing, Ø17/6.5 - 2 mm, material aluminium
	OC	Comb sealing, Ø17/6.5 - 3.5 mm, material stainless steel 1.4541

	Code	Mounting brackets
•	DS21	Bracket for wall mounting of VS 200
•	DT21	Bracket for pipe mounting (max. Ø63 mm) with clip for VS 200

	Code	Supplements	
•	GR	G-Rapid plus paste (50 g) against thread seizure and for easy installation	(not for oxygen)
•	LU	Lukosan M11 paste (50 g) for lubricating of O-rings, threads and for oxygen application	
•	TT	Liquid teflon paste for high temperatures and for valves reassembling	
•	KL	Control valve handle for high temperatures	
•	Q1	Material certificate of manifold body according to EN 10204, 3.1	
•	TZ	Pressure test	

	Code	Special version	
	PL	Adjustment of valve handle for sealing	
	KY	Degrease version for oxygen	(not for Graphite)

Example of order: VS 200 0101 13 B01 P2 Z1450 CU

• ... Ex stock version ° ... Marked version can be dispatched up to 10 working days

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