



APPLICATION

- To close or open flow of operation liquids in common measuring and control circuits of industrial automation systems;
- As pressure equipment of category III pursuant to the Decree of the Government 26/2003 Coll. (compliance assessment module B+D)

Valves are rated products pursuant to the Act No. 22/1997 Coll. and the Declaration of Conformity **EC-961000** is issued for them.

DESCRIPTION

The basis of a valve consists of a brass body, into which a valve unit is screwed. Its seat is a part of the basic body of the valve.

The valves are manufactured in closing and test designs. By turning the wheel of manual control to the right (left), the valve is CLOSED (OPENED) by means of a relevant ball, which is pressed into (pushed from) the valve seat.

TECHNICAL DATA

Technical requirements for valves and dimensions of connecting terminals are specified in ČSN 13 7501; connecting dimensions of the manometric valve comply with ČSN 13 7517.

Operation position: discretionary
Weight: closing valve approx. 0.45 kg
 test valve approx. 0.55 kg
Type of operation: continuous
Used materials: brass CW617N-R430 (CuZn40Pb2)
 Body of valve and valve unit steel 1.4541
 Valve spindle steel 1.4541
 Nut with plastic head PP
 Spindle sealing - O ring

- FPM (Viton)
- NBR (Buna-N)
- EPDM
- PTFE
- steel 1.4571
- PVC

Supporting ring:
 Seat sealing – ball
 Differentiating ring

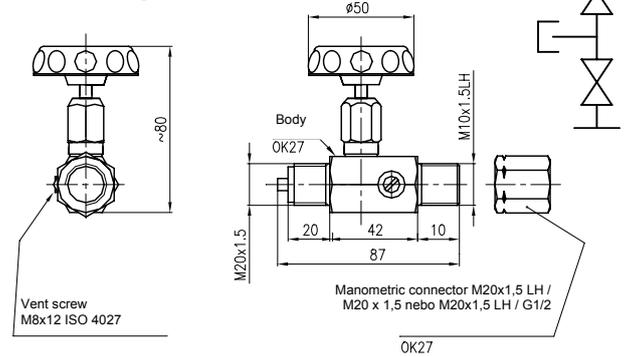
OPERATION CONDITIONS

The valves are designed for the environment defined by the group of parameters and their severity grades IE36 pursuant to the standard ČSN EN 60721-3-3 and the following operation conditions.

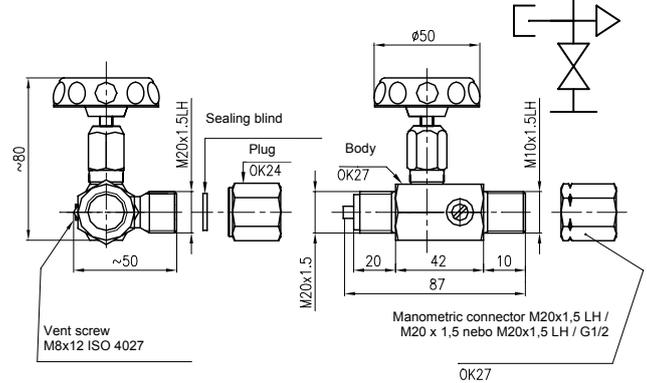
PRESSURE AND TEMPERATURE CHARACTERISTICS

Values of pressure and temperature, for which the valve may be used, are determined, in particular, by the selected material of spindle sealing and sealing elements of valve unit seats. The charts provide dependency of pressure on temperature for various materials of such sealing elements and for valve body material. When selecting the material, it is necessary to consider both the chart for the spindle sealing material and the chart for seat sealing material. Operation characteristics of the valve are determined by the material with worse parameters.

Brass closing valve



Brass test valve



Special brass closing valve

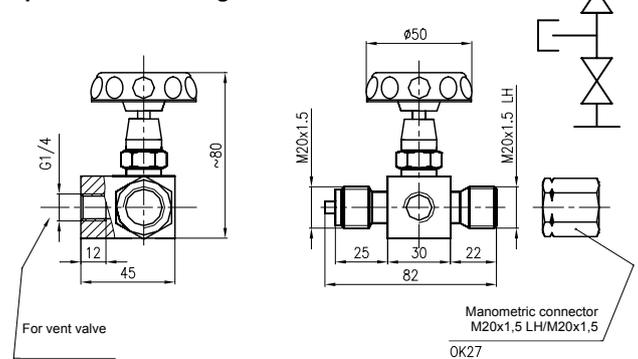


Table of maximum values of operation pressures and temperatures that are specified in test report

CODE	W1 (FPM)	W2 (NBR)	W3 (EPDM)
S1	25MPa 120°C	25MPa 110°C	25MPa 120°C
(steel)	6MPa 200°C	-	15MPa 150°C

Chart 1
Pressure and temperature characteristics of elastomer O-rings

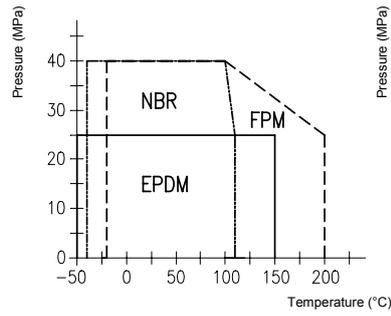


Chart 2
Pressure and temperature characteristics of seat sealing material

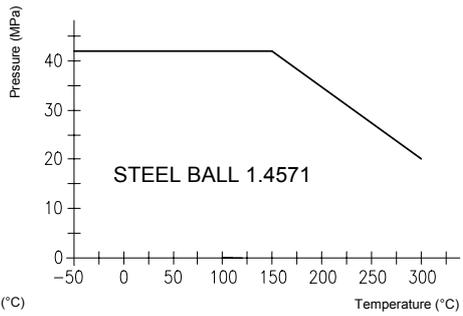
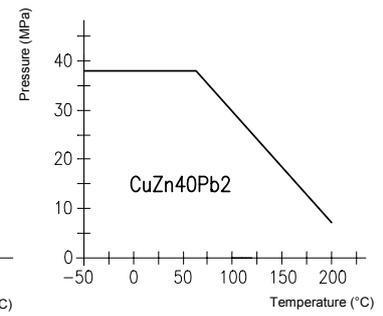


Chart 3
Pressure and temperature characteristics of body material



CHEMICAL RESISTANCE OF SEALING MATERIALS

Chemical resistance of materials of sealing elements represents an important parameter, which determines reliability of the valve. The following table includes informative data of the most frequently used substances together with chemical resistance of sealing element materials. If other substances are used, chemical resistance tests shall be performed directly at the customer in the expected operation conditions (temperature, pressure, concentration ...)

Table of chemical resistances of sealing element materials

Medium		Elastomer O-ring			
		FPM	NBR	EPDM	
Acetone		-	-	-	
Acetylene		+	+	+	
Petrol		+	*	-	
Ammonia	aqueous solution	-	-	+	
	liquid	-	*	+	
	gaseous	*	*	-	
Ethylene		+	+	+	
Hydraulic fluids	not flammable	*	-	+	
Hydroxides		*	*	+	
ACIDS	Boric	+	+	+	
	Citric	+	*	+	
	Nitric	-	-	-	
	Hydrofluoric	< 65%	*	-	*
		> 65%	*	-	*
	Phosphoric	10%	+	+	+
		concentrate	+	+	+
	Hydrochloric	10%, 80°C	+	-	+
		36%, 20°C	*	*	+
	Chromic		+	-	*
	Malic		+	+	+
	Carbolic		-	-	-
	Hydrocyanic		+	*	*
	Butyric		*	*	
	Lactic		+	*	+
	Formic	10%	-	-	*
	Acetic	10%	-	-	*
		concentrate	-	-	-
	Salicylic		+	+	+
Sulphuric	25%	*	*	+	
	80%	-	-	*	
Oxalic	10%	+	+	+	
Carbonic		+	+	+	
Tartaric		+	+	+	
Oxygen		+	-	+	
Oils		+	*	-	
Steam	< 200°C	*	-	*	
	> 200°C	-	-	-	
Perchloroethylene		+	*	-	
Kerosene		+	*	-	
Radioactive radiation		*	*	*	
Compressed air		+	+	+	
Toluene, trichloroethylene		*	-	-	
Hydrocarbons	natural gas	+	+	-	
Water	< 80°C	+	+	+	
	> 80°C	+	*	+	
Hydrogen	cold	+	+	+	
	hot	+	*	+	

+ great resistance
 * good or conditional resistance
 - not resistant
 vacant no information is available

DESIGNATION

(pursuant to ČSN 13 3005-1)

Data on basic body

- Trade mark of the manufacturer
- Maximum operation pressure
- Mark of performed pressure test
- Product ordering number
- Manufacturing number
- Mark CE 1015
- Casting number of body material (for orders of special importance)

Data on valve unit

- Code of valve spindle sealing (W1, W2, W3)
- Code of valve seat sealing (S1)

Data on test report

- Maximum operation pressure and temperature

DELIVERY

Unless agreed otherwise with the customer, each delivery includes

- Delivery note
- Products pursuant to the purchase order
- Accompanying technical documentation in Czech:
 - o Product quality and completeness certificate, which also serves as the warranty certificate
 - o EC Declaration of Conformity
 - o Test report and list of used materials
 - o Product manual

If it is established in the purchase contract or agreed otherwise, the following documentation can be also delivered with the product:

- Copy of EC-Type Examination certificate pursuant to the Decree of the Government 26/2003 Coll.
- Copy of inspection certificate 3.1 pursuant to ČSN EN 10204 for body material with casting number
- Declaration of Conformity with purchase order 2.1 pursuant to ČSN EN 10204

CERTIFICATION

- Pressure equipment of category III pursuant to the Decree of the Government 26/2003 Coll. (compliance

assessment module B+D), EC-Type Examination Certificate SZÚ Brno

ORDERING

The purchase order shall specify:

- Name
- Product ordering number
- Other (special) requirements
- Number of pieces

PURCHASE ORDER EXAMPLE**Standard design:**

Brass valve
961 4E 31 33 - 50 pcs

Special requirement:

Brass valve
961 4E 31 33 - 50 pcs
with manometric connector M20x1.5LH / G1/2 at outlet

PACKING

Both products and accessories are delivered in a packing ensuring resistance to the impact of thermal effects and mechanical effects pursuant to controlled packing regulations.

TRANSPORT

The products may be transported on conditions corresponding to the set of combinations of classes IE 21 pursuant to ČSN EN 60721-3-2 (i.e. by airplanes and trucks, in premises that are ventilated and protected against atmospheric conditions).

STORAGE

The sensors may be stored on conditions corresponding to the set of combinations of classes IE 11/1K3 pursuant to ČSN EN 60721-3-1 (i.e. in places with temperature from -5 to 45 °C and humidity from 5 to 95%, without a special threat of an attack with biological agents, with vibrations of small significance and not situated close to sources of dust and sand).

DESIGN OF VALVES, TYPE 961

SPECIFICATIONS		ORDERING NUMBER					
		961	xx	xx *)	xx *)	xx **)	xx **)
Valve design	Manometric closing		4E				
	Manometric test		5E				
	Manometric closing, special		41			W1	
Inlet code	Manometric screw-joint M20x1.5			31			
Outlet code	Manometric screw-joint M20x1.5LH with nut M20x1.5LH/M20x.5 with nut M20x1.5LH/G½ ***)				33		
					39		
Spindle sealing	O – ring – FPM (max. 200°C)					W1	
	O – ring – NBR (max. 110°C)					W2	
	O – ring – EPDM (max. 150°C)					W3	
Seat sealing	Stainless ball – 1.4571						S1

*) As a special requirement, the valve with different input and output terminals can be delivered pursuant to the catalogue of accessories, type 981.

***) If none of these codes is specified, the standard design of the valve will be delivered, i.e. with sealing W1 and S1.

***) Code 39 may only be ordered for designs 961 4E and 961 5E.

INSTALLATION AND CONNECTION

The valve may only be installed by a worker of the installation or service organization.

PIPING CLEANNESS

Before the valve is connected, the impulse piping shall be perfectly cleaned. To prevent any deposit of impurities in the valve, cleanness of medium in the piping shall be ensured in a suitable way (drain tanks, etc.).

CONNECTION OF IMPULSE PIPING

The valve shall be connected to the piping by means of connecting terminals.

Recommended torque of terminals is 60 Nm.

COMMISSIONING

After the valve installation and venting of the piping, the equipment is prepared for operation.

To realize venting, use either condensate (cold, if possible) or flood the whole system with clean service water.

In case of valve design with a venting screw, these screws can be used for venting. Venting shall be realized within the

shortest possible time so that the armature could not warm up excessively. By knocking on the piping, air blisters are released, which could stick on the piping walls when the piping is flooded.

Therewith the venting is completed.

OPERATION AND MAINTENANCE**CONTROL MOMENT OF SPINDLE**

The table specifies informative values of control moments of spindle and moments required for closing the valve for various types of sealing subjected to various medium pressures.

Medium pressure (MPa)	Control moment (Nm)	Closing moment (Nm)
	W1, W2, W3	W1, W2, W3
0 to 10	0.1 to 0.5	2.5 to 4.0
10 to 25	0.5 to 1.0	4.0 to 4.5

VALVE CLEANING

This activity may only be performed by service workers of the valve manufacturer.

SPARE PARTS

The valve design does not require any delivery of spare parts.

WARRANTY

Pursuant to § 429 of the Commercial Code and the provisions of § 620 (2) of the Civil Code, the manufacturer warrants for technical and operation parameters of the product specified in the manual. The warranty period is 36 months from the receiving of the product by the customer, unless established otherwise in the contract. The manufacturer warrants for the parts, which are subjected to natural wear and are replaceable as a part of common maintenance of the product (plug sealing, sealing O-rings, etc.), for the period of 24 months.

Rejection of defects shall be enforced in writing at the manufacturer within the warranty period. The rejecting side shall identify the product name, ordering and manufacturing numbers, date of issue and number of the delivery note, clear description of the occurring defect and the subject of the claim. If the rejecting side is invited to send the device for repair, it shall do so in the original package of the manufacturer and/or in another package ensuring safe transport.

The warranty shall not apply to defects caused by unauthorized intervention into the device, its forced mechanical damage or failure to comply with operation conditions of the product and the product manual.

REPAIRS

The valves shall be repaired by the manufacturer. They shall be sent for repair in the original or equal package without accessories.

DISABLING AND LIQUIDATION

They shall be realized in compliance with the Waste Act No. 106/2005 Coll.

The product and its package do not include any parts that could impact the environment.

Products that are withdrawn from operation, including their packages, may be disposed of to sorted or unsorted waste pursuant to the type of waste.

The package of the product can be recycled completely. Metal parts of the product are recycled, non-recyclable plastic materials shall be disposed of in compliance with the aforesaid Act.



MMG Műszerszerviz Kft.

1036 Budapest, Dereglye u. 1.,

Tel/fax: 204-2252, Tel:203-7443

Web: www.mmg.hu, E-mail: info@mmg.hu