

ENCLOSED MANUAL OF ACCESSORIES, TYPE 981

APPLICATION

- To close consumption of the orifice, outlet of the condensation tank, close of the impulse piping when disconnecting the pressure sensor
- To vent the piping and, in case of some designs, it is possible to connect another testing manometer
- As a selected equipment BT2 and BT3 pursuant to the Decree No.214/1997 Coll. on ensuring quality at activities related with the application of nuclear energy and activities resulting in radiation and on establishment of criteria for inclusion and division of selected equipments into safety classes
- As pressure device of category III pursuant to the Decree of the Government 26/2003 Coll. (compliance assessment module B+D)
- As a special design in a purity grade for oxygen (O₂), this armature is delivered perfectly decreased and provided with a blue tag (code P2S)
- As a special design with purity of internal surfaces of grade I pursuant to TPE 10-40/1926/85 (code PC1)
- In environment, which requires seismic resistance 1 Hz to 33 Hz, acceleration 3g, record ČKD Blansko and certificate STKC Dubnica

The valves are rated products pursuant to the Act No. 22/1997 Coll. and Compliance Certificate **ES-967000** is issued for them.

DESCRIPTION

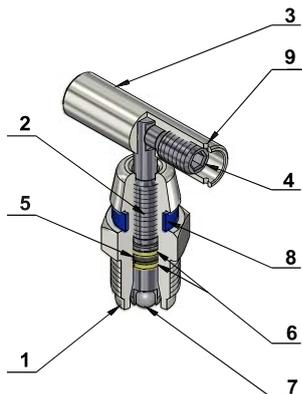
The valve basis is a body, into which the valve unit is screwed. Its seat forms a part of the basic body of the armature. In case of an armature with soft sealing, the seat has a special shape, which contributes to ensuring perfect tightness. The material of the basic body is steel 1.4541 (or 1.4571 as a special requirement).

The valve unit designs differ pursuant to the type of used spindle sealing. It can be formed with elastomer o-ring or seal from chartit or plastic material.

Valve unit with elastomer o-ring

Position	Part	Material
1	Valve unit body	1.4541 *)
2	Spindle	1.4541 *)
3	Handle	1.4541 *)
4	Screw	1.4541 *)
5	O-ring	FPM (code W1) NBR (code W2) EPDM (code W3)
6	Supporting ring	PTFE
7	Seat sealing	1.4571 (code S1) *) Si ₃ N ₄ (code S2) PVDF (code S3)
8	Differentiating ring	PVC
9	Sealing hole	

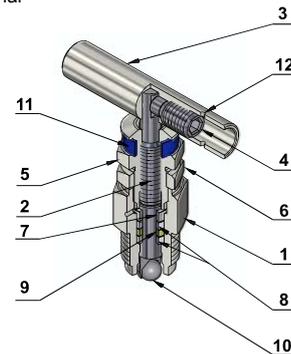
*) the manufacturer has certificate 3.1 pursuant to ČSN EN 10204 for this material



Valve unit with seal from chartit, PTFE or PEEK

Position	Part	Material
1	Valve unit body	1.4541 *)
2	Spindle	1.4541 *)
3	Handle	1.4541 *)
4	Screw	1.4541 *)
5	Sealing lid	1.4541 *)
6	Safety nut	1.4541 *)
7	Ring	1.4541 *)
8	Supporting ring for sealing of the spindle seal	(W4) 1.4541 *)
		(W5) PVDF
		(W7) PEEK
9	Spindle seal sealing	CHARTIT (code W4) PTFE (code W5) PEEK (code W6) PTFE (code W7)
10	Seat sealing	1.4571 (code S1) *) Si ₃ N ₄ (code S2) PVDF (code S3)
11	Differentiating ring	PVC (not for code W4)
12	Sealing hole	

*) the manufacturer has certificate 3.1 pursuant to ČSN EN 10204 for this material



By turning the control handle to the right (left) up to the stop, the flow of the operation medium through the armature body will be closed (opened).

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: approx. 0.4 kg
Type of operation: continuous

OPERATION CONDITIONS

The armatures are designed for the environment defined by a group of parameters and their severity grades IE36 pursuant to the standard ČSN EN 60 721-3-3 and the following operation conditions.

PRESSURE AND TEMPERATURE CHARACTERISTICS

Values of pressure and temperature of the operation medium, for which the armature 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. 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 armature are determined by the material with worse parameters.

DESIGNATION

(pursuant to ČSN 13 3005-1)

Data on basic body

- Trade mark of the manufacturer
- Maximum operating pressures and temperatures
- Body material
- Casting number of basic body material
- Valve scheme
- Mark of performed pressure test
- Product ordering number
- Time code (manufacturing number for orders pursuant to the Decree 214/1997 Coll. in case of designs for O₂ and designs with code PC1)
- CE mark 1015

Data on valve unit

- Designation of valve unit function

TITLE	COLOUR	FUNCTION
BLOCK	blue	closing

- In case of designs W2, W3, W4, W5, W6, W7, S2 and S3, these codes are marked on the surface of the hexagon of each valve unit, e.g. W4S2.

The armature in purity grade for O₂ is marked with a blue tag.

DELIVERY

Unless agreed otherwise with the customer, each delivery includes

- Delivery note
- Products pursuant to purchase order
- A sealing blinder into the control handle for each valve
- Optional accessories pursuant to the manual of accessories, type 981
- Accompanying technical documentation in Czech:
 - o Product quality and completeness certificate, which also serves as the warranty certificate
 - o EC Compliance Certificate
 - o Test report and list of applied materials
 - o Product manual
 - o Manual of accessories, type 981
 - o Report about inspection of design for O₂ (only in case of armature with code P2S)
 - o Report about inspection of cleanness of internal surfaces (only in case of armature with code PC1)

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

- Copy of the EC Certificate of type test pursuant to the Decree of the Government 26/2003 Coll.
- Copy of the Inspection Certificate 3.1 pursuant to ČSN EN 10204 for body material with casting number
- Declaration of compliance with purchase order 2.1 pursuant to ČSN EN 10204
- Copy of report about test results for verification of seismic capability pursuant to ČSN IEC 980

CERTIFICATION

- Pressure device of category III pursuant to the Decree of the Government 26/2003 Coll. (compliance assessment module B+D), EC Certificate of type test SZÚ Brno

VALVE DESIGNS, TYPE 967

SPECIFICATION		ORDERING NUMBER								
		967	x	1	x	x	x	x	vol. ²⁾	acce. ³⁾
VALVE DESIGN	direct		1							
	angular		2							
	direct with internal threads		3							
	manometric, closing		4							
	manometric, testing		5							
	manometric with internal threads		6							
CONNECTING TERMINALS pursuant to manual of accessories, type 981					x	x				
	INLET ¹⁾									
	OUTLET ¹⁾						x	x		
SEALING SPINDLE	O-ring from elastomer FPM (max. 200°C)								W1	
	O-ring from elastomer NBR (max. 110°C)								W2	
	O-ring from elastomer EPDM (max. 150°C)								W3	
	seal from Chartit + 1.4541 (max. 500°C)								W4	
	seal from PTFE + PVDF (max. 200°C)								W5	
	seal from PEEK (resistant to gamma radiation) (max. 200°C)								W6	
	seal from PTFE + PEEK (max. 260°C)								W7	
SEAT SEALING	stainless ball from mat. 1.4571 (max. 300°C)								S1	
	ceramic ball Si ₃ N ₄ (default for W4) (max. 500°C)								S2	
	soft sealing from PVDF (NOT for W4, W7) (max. 150°C)								S3	
SPECIAL TREATMENT	purity grade for O ₂ (NOT for W4)								P2S	
	purity of internal surfaces of grade I								PC1	

1) For the design of the valve inlet and outlet, terminals with the following codes can be selected: 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 31, 32, 33, 34, 35, 36, 37, 38, 41, 42, 43, 51, 61 and 63. Code 52 may only be selected in case of a valve with internal threads. In this case, both inlet and outlet threads are always equal (i.e. either both 51 or both 52).

2) Alfa-numeric codes behind the numeric designation (position vol.) indicate either other than standard design or a special treatment. If none of those codes is identified, the valve of standard design will be delivered, i.e. with sealing W1 and S1.

3) Behind the ordering number, it is possible to add the codes of accessories pursuant to the manual of accessories, type 981. Codes of accessories, which can be specified behind the ordering number: KU1, KU2, KU3, KU4, KU5, KU6, NA1, NA2, NA3, NA4, NA5, NA6, TZ1, TZ2 and KL1.

If codes KU or NA are specified, all delivered cones or sleeves are equal. If different terminals are considered (e.g. carbon steel for inlet, stainless steel for outlet or various diameters), it is necessary to order them separately pursuant to the manual of accessories, type 981.

- Other (special) requirements
- Number of pieces

ORDERING

The purchase order shall specify:

- Name
- Product ordering number

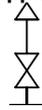
PURCHASE ORDER EXAMPLE

Standard design:

1. Stainless valve
967513133
20 pcs

2. Stainless valve
9676152W5S1
20 pcs

Figure 1 - Direct valve (967 11..), dimensional drawing, scheme, application



Valve scheme:

It is used as closing for impulse piping
(for pressure sensor, condensation tanks, ...).

Material spindle sealing	A	B
FPM, NBR, EPDM	80	45
CHARTIT, PTFE, PEEK	90	60

Dimensions C, D of welded-on terminals are specified in the manual of accessories - type 981 - Connecting terminals.

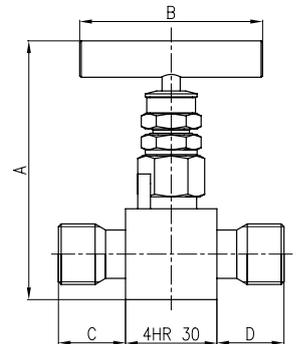
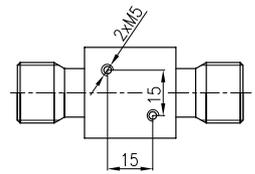


Figure 2 - Angular valve (967 21..), dimensional drawing, scheme, application



Valve scheme:

It is used as closing for impulse piping
(for pressure sensor, condensation tanks, ...).

Material spindle sealing	A	B
FPM, NBR, EPDM	80	45
CHARTIT, PTFE, PEEK	90	60

Dimensions C, D of welded-on terminals are specified in the manual of accessories - type 981 - Connecting terminals.

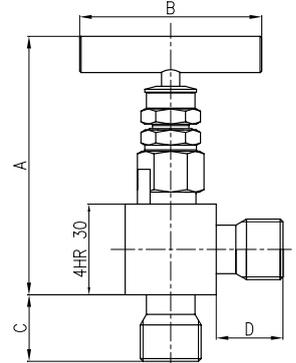
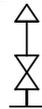


Figure 3 - Direct valve with internal threads (967 31..), dimensional drawing, scheme, application

(967 315 151- for C=1/4-18NPT)
(967 315 252- for C=1/2-14NPT)



Valve scheme:

It is used similarly like the previous valves; internal threads enable installation of various screw joints.

Material spindle sealing	A	B
FPM, NBR, EPDM	80	45
CHARTIT, PTFE, PEEK	90	60

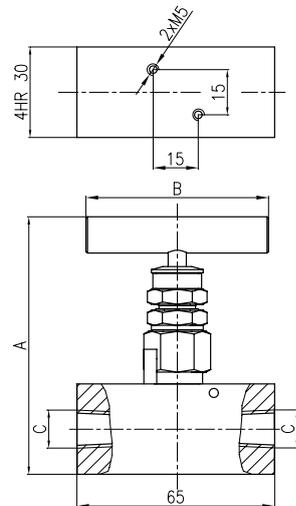
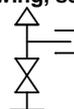


Figure 4 - Manometric, closing valve (967 41..), dimensional drawing, scheme, application



Valve scheme:

It is used as closing for a pressure sensor.
It is provided with a venting valve (internal thread M8).

Material spindle sealing	A	B
FPM, NBR, EPDM	80	45
CHARTIT, PTFE, PEEK	90	60

Dimensions C, D of welded-on terminals are specified in the manual of accessories - type 981 - Connecting terminals.

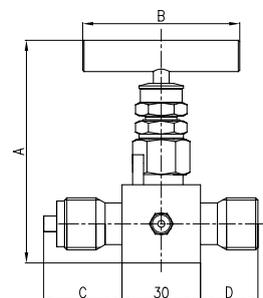
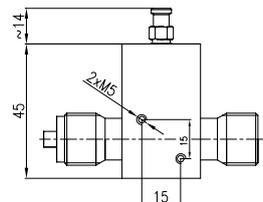
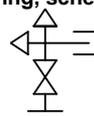


Figure 5 - Manometric, testing valve (967 51..), dimensional drawing, scheme, application



Valve scheme:

It is used like the previous manometric valve.

In addition to the venting valve, it also has manometric screw joint M20x1.5 for the connection of a manometer.

Material spindle sealing	A	B
FPM, NBR, EPDM	80	45
CHARTIT, PTFE, PEEK	90	60

Dimensions C, D of welded-on terminals are specified in the manual of accessories - type 981 - Connecting terminals.

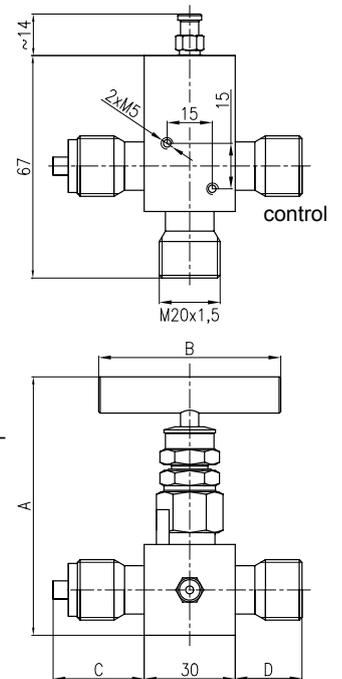


Figure 6 - Manometric with internal threads (967 61..), dimensional drawing, scheme, application

(967 615 151-for C=1/4-18NPT)
(967 615 252-for C=1/2-14NPT)



Valve scheme:

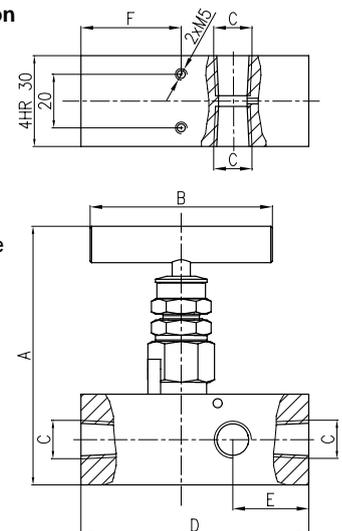
It is used like the manometric or distribution valve.

It has one inlet and three outlets, in which various types of screw joints can be screwed thanks to the internal threads.

Valve dimensions also depend on the size of the selected thread.

Material spindle sealing	A	B
FPM, NBR, EPDM	80	45
CHARTIT, PTFE, PEEK	90	60

Thread C	D	E	F
1/4-18 NPT	75	25	33
1/2-14 NPT	85	33	32.5



PACKING

The products as well as accessories are delivered in packing ensuring resistance to the impacts of thermal effects and mechanical effects pursuant to controlled packing regulations. When removing from the packing, no special measures are required with the exception of the design for O₂, when perfect degreasing of the product shall be maintained.

TRANSPORT

The sensors 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 climatic conditions).

STORAGE

The sensors may be stored on conditions corresponding to the set of combinations of classes IE 11 pursuant to ČSN EN 60721-3-1 (i.e. in places with continuous temperature control between 5 to 40 °C and with humidity from 5 to 85%, without a special threat of an attack by biological agents, with vibrations of small significance and not situated close to sources of dust and sand).

INSTALLATION AND CONNECTION

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

As for the design for O₂, the installation and commissioning may only be realized by the organization, which has the authorization for installation and repair of gas equipments issued by the organization of the state professional supervision ITI Prague.

The installation and uninstallation of the screw joint of the type line 981 of selected equipment pursuant to the Decree No. 214/1997 Coll. for the connection of valves, type 967 ZPA Nová Paka, a. s., their operation and maintenance may only be performed by a bearer of the AUTHORIZATION, which is issued by the manufacturer of the armatures on the basis of a realized training.

PIPING CLEANNESS

Before the valve is connected, the impulse piping shall be cleaned perfectly. To avoid any deposits of impurities in the valve, cleanness of medium in the piping shall be ensured in a suitable way (de-slumming tanks, etc.).

OPERATION POSITION

The operation position of the valve is discretionary. On the bottom side of the valve body, there are two holes with threads M5 for connection of the valve on a wall or a holder.

PIPING CONNECTION

The armature shall be connected to the piping either by means of internal threads or by means of welded terminals. In case of a valve design with internal threads, the threads of the inlet and outlet have the same dimensions. All kinds of connection, together with dimensional drawings and the described way of the installation, are specified in the manual of accessories, type 981.

COMMISSIONING

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

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

In case of a valve design with a venting valve, such valves may be used for venting. Venting shall be performed as quickly as possible to avoid excessive heating of the armature. By knocking on the piping, air blisters, which could stick on the piping walls when it was flooded, are released.

Therewith the venting is finished.

If required, an authorized worker of the installation and service organization can provide the valve with a seal with a mark of the installation and service organization.

OPERATION AND MAINTENANCE

SPINDLE CONTROL MOMENT

The following table provides informative values of control moments of spindle and moments required to close the valve for various types of sealing and different medium pressures. Values are only informative, because real values may differ pursuant to tightening of the seal lid.

	Controlling moment (Nm)	Closing moment (Nm)
Medium pressure (MPa)	W1,W2,W3	W1,W2,W3
0	0.1 to 1.0	2.5 to 4.0
40	2.0 to 3.0	4.0 to 6.0



WARNING:

To avoid damage to the seat sealing of the valve unit with a soft sealing (code S3), smaller closing moment (max. 4 Nm) shall be used for closing the valve.

VENTING

During the operation of the armature, air may leak into the piping. Therefore, the piping shall be vented by means of the venting valves, which form a part of the armature. The venting interval shall be selected according to the local conditions.

VALVE CLEANING

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

PROCEDURE WHEN FINDING INCOMPLIANCE OF THE CONNECTION WITH THREADED RINGS

Possible leakages of the connection may be caused by unprofessional installation, e.g. by a failure to comply with the prescribed torques (i.e. insufficient or excessive tightening of the cap nut), failure to comply with the minimum direct part of the tube from its end or by application of this connection in the

environment with increased level of vibrations without fixing the armature and connecting tubes, especially those of bigger lengths.



WARNING

Never tighten (release) the cap nut under pressure – danger of fatal injury!!!

Uninstallation and repeated installation of the connection shall be realized pursuant to the manual of accessories, type 981 – Connecting terminals.

SPARE PARTS

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

WARRANTY

The manufacturer warrants, pursuant to § 429 of the Commercial Code and provisions of § 620 (2) of the Civil Code, for technical and operation parameters of the product that are specified in the operation manual. The warranty period shall be 36 months from the receipt of the product by the customer, unless agreed otherwise in the contract. The manufacturer warrants the parts, which are subjected to natural wear and can be replaced during common maintenance (packing sealing, sealing O-rings, etc.), for 24 months.

Defects shall be reclaimed in writing at the manufacturer within the warranty period. The claimant shall identify the product name, ordering and manufacturing numbers, date of issue, clear description of the occurring defect and what is claimed. If the claimant is invited to send the device for repair, they shall do so in the original package of the product or in another package ensuring safe transport.

Warranty shall not apply to defects caused by unauthorized intervention into the device, its forced mechanical damage or a 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 equivalent package without accessories.

DECOMMISSIONING AND LIQUIDATION

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

Neither the product, nor its parts include components that can have an impact on the environment.

Decommissioned products, including their packing, may be disposed of to sorted or unsorted waste pursuant to the kind of waste.

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



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