



# PRODUCT MANUAL

## Ball valve PN 250

### type 974

#### APPLICATION

- In common measuring circuits of systems of industrial automation;
- For fast complete closing or opening of flow of the operation liquid, which can flow through the ball valve in both directions; the recommended direction is identified with an arrow on the body;
- As special design in purity grade for oxygen (O<sub>2</sub>), this armature is delivered perfectly degreased and provided with a suspended blue tag (code P2S);
- As special design with purity of inner surfaces of grade I pursuant to TPE 10-40/1926/85 (code PC1).

The ball valves may not be used for regulating the flow; it concerns a closing full-flow armature.

#### DESCRIPTION

The basis of the ball valve consists of a body, in which the stop ball is located. With the use of a shaft, it is connected with handle to for manual control of the ball valve.

The positions of the ball valve "CLOSED" - "OPEN" (OFF-ON) are achieved by the movement of the handle to the stop.

Antistatic design of the ball valve ensures electric interconnection of all parts, which are in contact with the operation liquid and jacket (body) of the armature.

The ball valve design also ensures protection against possible pushing out of the control mechanism from the ball valve body. The ball valve in open position does not contain "dead areas", in which residue of operation liquids could remain or where their solid compounds could be deposited.

Flanges with weld-on optional inlet and outlet connecting terminals are screwed to the unit.

The stop element of the armature (ball) revolves around its axis that is vertical to the direction of flow and in the open position, the operation liquid flows through the ball valve.

The ball valve is closed (opened) by turning the handle to the right (left) by 90° up to the stop, which results in full closure or opening of the ball valve.

#### TECHNICAL DATA

Nominal internal diameter pursuant to EN ISO 6708:  
DN 10

Nominal pressure pursuant to EN 1333: PN 250

Operation position: discretionary

#### Weight:

Direct ball valve approx. 0.6 kg  
Manometric test ball valve approx. 0.8

Type of operation: continuous

Connection to piping: optional input and output connecting terminals pursuant to Table 2

#### OPERATION CONDITIONS

Ball valve are designed for the environment defined by the group of parameters and their severity grades IE36 pursuant to standard EN 60721-3-3 and the following operation conditions, (i.e. in places with minimum protection against daily fluctuations of the outside climate, exposed to sunshine, with effects of precipitations carried by rain.

#### Relative ambient humidity:

10 to 100 % with condensation, with upper level of water content 29 g H<sub>2</sub>O/kg of dry air

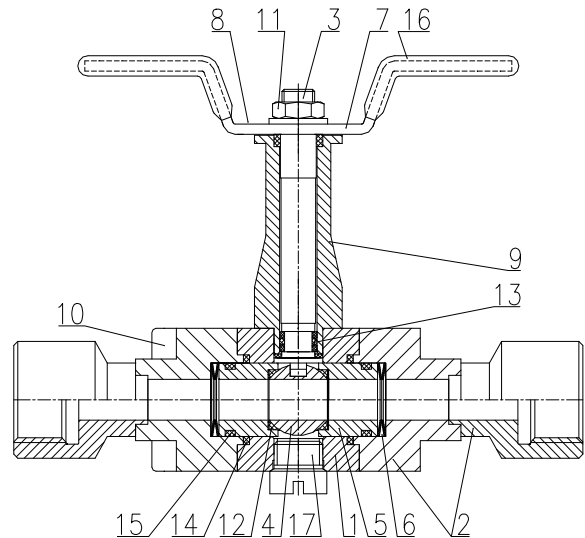
Atmospheric pressure: 70 to 106 kPa

Maximum operation pressure: 25MPa

#### Maximum operation temperature:

-20...125 °C - with sealing from material FPM  
-30...125 °C - with sealing from material NBR

Operation liquid: technical water, other liquids and gaseous fuels



Position	Name of part	Material
1	Body	1.4541 *
2	Flanges and terminals	1.4541 *
3	Shaft	1.4541 *
4	Ball	AISI 316 *
5	Thrust pistons	1.4541 *
6	Disc springs	1.4310
7	Handle	1.4541 *
8	Stop of handle	1.4541 *
9	Shaft case	1.4541 *
10	Screws	stainless steel A2
11	Nut, washer	stainless steel A2
12	Seat	PEEK + PTFE
13	Seal	FPM (NBR)+PTFE + PVDF +1.4541 nitrided
14	Flange sealing	FPM (NBR)
15	Sealing of piston	FPM (NBR)
16	Handle to roll-on	VINYL
17	Screws	stainless steel A2

\*) The manufacturer has the relevant certificate 3.1 for these materials pursuant to EN 10204

#### DESIGNATION

(pursuant to ČSN 13 3005-1)

#### Data on ball valve body

- Trade mark of the manufacturer
- Product ordering number
- Time code (serial number for design for O<sub>2</sub> and for design with code PC1)
- Nominal inner diameter
- Nominal pressure
- Maximum operation temperature
- Body material
- Casting number of body material
- Mark of performed pressure test
- Code of shaft seal sealing
- Arrow indicating recommended direction of medium flow

#### Data on ball valve handle to

- Arrows and terms OFF – ON identifying direction of CLOSING – OPENING the ball valve

#### Data on weld-on cone and weld-on sleeve

- Material

The armature in purity grade for O<sub>2</sub> is marked with a suspended blue tag.

## 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 1 - CHEMICAL RESISTANCE OF SEALING MATERIALS**

Medium		FPM	NBR	PTFE	PVDF	PEEK	
Acetone		-	-	*	+	+	
Acetylene		+	+	+	+	+	
Petrol		+	*	+	+	+	
Ammonia	aqueous solution	-	-	+	+	+	
	liquid	-	*		+		
	gaseous	*	*		+		
Ethylene		+	+		+		
Hydraulic fluids	not flammable	*	-		+	+	
Hydroxides		*	*		+	+	
ACIDS	Boric	+	+	+	+		
	Citric	+	+	*	+		
	Nitric	-	+	-	+		
	Hydrofluoric	< 65%	*	+	-	+	
		> 65%	*		-		
	Phosphoric	10%	+	+	+	+	
		concentrate	+	+	+	+	
		boiling conc.	+		-		
	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		+	*	+	+	+	
Gaseous fuels		+	+	+	+	+	
Radioactive radiation		*	*	-	-	+	
Compressed air		+	+	+	+		
Toluene, trichloroethylene		*	-	+		+	
Hydrocarbons		+	+	+	+		
Water	< 80°C	+	+	+	+	+	
	> 80°C	+	*	+	+	+	
Hydrogen	cold	+	+	+	+	+	
	hot	+	*	+	+	+	

+ Great resistance  
 - Not resistant  
 \* Good or conditional resistance  
 Vacant No information is available

## 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 Test report and list of used materials
  - o Product manual
  - o Inspection report for design for O<sub>2</sub> (only in case of armature with code P2S)
  - o Inspection report about purity 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 inspection certificate 3.1 pursuant to EN 10204 for body material with casting number
- Declaration of Conformity with purchase order 2.1 pursuant to EN 10204
- Supplier's declaration of conformity in accordance with ISO/IEC 17050-1
- Test report about the seismic and the vibration qualification

## 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 23 pursuant to EN 60721-3-2 but they may not be exposed to direct rain (i.e. by plains, trucks, trailers and semi-trailers, railway wagons with specially designed shock absorbers and ships, in premises that are without ventilation and protection against climatic effects).

## STORAGE

The products may be stored on conditions corresponding to the set of combinations of classes IE 12 pursuant to EN 60721-3-1 but with ambient temperature from -30 to 45 °C (i.e. in places, where temperature and humidity are not regulated, with a threat of occurrence of condensation, dripping water and formation of ice, 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).

## PLACING AN ORDER

The purchase order shall specify:

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

## PURCHASE ORDER EXAMPLE

## Standard design:

1. Ball valve PN 250  
974 11 21 21 W2 BM1 KU1 KU1  
20 pcs
2. Ball valve PN 250  
972 11 15 21 W1 BZ1 KKU5  
20 pcs

## Special requirement:

Ball valve PN 63  
974 51 99 99  
specify the type of input and output terminals  
5 pcs

**TABLE 2 - DESIGN OF BALL COCKS, TYPE 972**

SPECIFICATIONS		ORDERING NUMBER									
		972	1	1	XX	XX	XX	XXX	XXX	XXX	XXX
DESIGN OF BALL VALVE pursuant to Fig. 1 - 3	direct		1	1							
	Manometric test ball valve(control consumption M20x1.5 + venting valve)		5	1							
	Manometric test ball valve (control consumption 1/4-18 NPT + venting valve)		6	1							
CONNECTING TERMINALS pursuant to table 3	of inlet				XX						
	of outlet					XX					
SHAFT SEAL	O-ring FPM (-20 až +125°C) +PTFE+PVDF						W1				
	O-ring NBR (-30 to +125°C) +PTFE+PVDF						W2				
COLOUR OF HANDLE ROLL-ON	green							BZ1			
	red							BR1			
	blue							BM1			
	yellow							BY1			
SPECIAL TREATMENT <sup>1)</sup>	cleanness of internal surfaces of equipment of grade I								PC1		
ACCESS CODE pursuant to table 4 <sup>1)</sup>	of inlet									XXX	
	of outlet										XXX

<sup>1)</sup> If the code is not specified, the fitting will be supplied without special modifications and without accessories

**TABLE 3 - OVERVIEW OF CONNECTING TERMINALS**

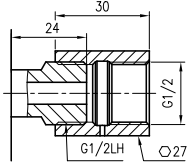
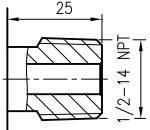
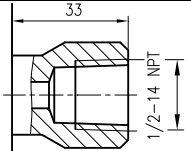
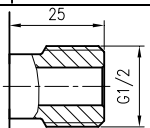
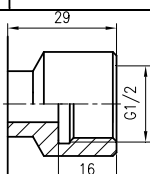
All specified connecting terminals (with the exception of terminals with codes 31, 35 and 37) are designed for full flow-through with nominal inner diameter DN 10.

CODE	DRAWING	INSTALLATION PROCEDURE OF CONNECTING TERMINALS WITH THREADED RINGS
14		<p>By means of a cap nut and two rings, a drawn, seamless tube made of plain carbon steel, alloy steel or stainless steel with Ø 6, 8, 10, 12, 14, 16, 18, 20 a 22 mm with tolerance of outside diameter and ovality ± 0.3 mm can be connected in a way that enables further uninstallation.</p> <p><b>FIRST INSTALLATION:</b></p> <ol style="list-style-type: none"> <li>Slide the cap nut, rear (cylindrical) ring and front (conical) ring on the straight-cut end of the tube that is free of burrs – pay attention to its orientation! To ensure correct function, it is necessary to maintain the layer of grease applied by the manufacturer on the conical sealing surface, rear ring and threads!</li> <li>Insert the end of the tube with rings into connecting sleeve up to the bottom and tighten the cap nut by hand.</li> <li>Tighten the cap nut with a torque-limiting wrench with the following torque 60 Nm (for tube Ø 12mm) or 65 Nm (for tube Ø14mm).</li> </ol> <p><b>UNINSTALLATION + REPEATED INSTALLATION:</b></p> <ol style="list-style-type: none"> <li>Uninstallation shall be realized by complete unscrewing of the cap nut <u>after pressure has been completely discharged from the system.</u></li> <li>Before repeated installation, check cleanness of the tube, threads and all sealing surfaces and pay attention to any possible damage. Rotation of the front threaded ring on the tube is not a defect!</li> <li>To ensure correct function, it is suitable to maintain the layer of grease applied by the manufacturer on the conical sealing surface, rear ring and threads; otherwise, they should be greased again. If required, this original grease can be ordered at the manufacturer of the armature.</li> <li>The installation is realized by inserting the end of the tube with rings and cap nut up to the bottom of the connecting sleeve. Tighten the cap nut by hand.</li> <li>By means of a torque wrench, tighten the nut by torque for repeated installation, i.e. 53 Nm (for tube Ø12mm) or 55 Nm (for tube Ø14mm).</li> </ol> <p><b>WARNING:</b> <u>THE CAP NUT MAY NEVER BE TIGHTENED (RELEASED) UNDER PRESSURE – it could cause lethal injury!!!</u> A failure to comply with the aforesaid torque (i.e. insufficient or excessive tightening of the cap nut) during the installation and with the minimum straight part of the tube from its end results in decreasing resistance of the connection to pressures and vibrations, which could then cause leakage of the connection. If vibrations of the piping system occur, the armature to be connected shall be fixed by means of a suitable holder and the connecting piping shall be attached in certain distances by tube fittings.</p>
15		<p>Connecting tube shall be inserted fully up to the bottom of the sleeve</p>

TABLE 3 - OVERVIEW OF CONNECTING TERMINALS – continuation from the previous page

CODE	DRAWING	DESCRIPTION AND INSTALLATION PROCEDURE
		<b>SCREW-JOINT FOR CONE</b>
21		<ol style="list-style-type: none"> <li>1. Put a cap nut on the cone</li> <li>2. Weld the cone on the tube end</li> <li>3. By means of a nut, screw the tube to the sleeve, hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</li> </ol>
22		<p style="text-align: center;"><b>WELD-ON CONE WITH CAP NUT M20x1.5</b></p> <p>By means of the nut, screw the armature to the screw joint for a cone, which forms a part of e.g. condensation tank, another valve, etc., hold the cock flange with a side wrench 32 and tighten the nut with torque of 120 Nm.</p>
23		<p style="text-align: center;"><b>WELD-ON CONE WITH CAP NUT M22x1.5</b></p> <p>By means of the nut, screw the armature to the screw joint for a cone with the corresponding thread, which forms a part of e.g. piping, hold the cock flange with a side wrench 32 and tighten the nut with torque of 150 Nm.</p>
31		<p style="text-align: center;"><b>MANOMETRIC SCREW-JOINT M20x1.5</b></p> <ol style="list-style-type: none"> <li>1. Put a cap nut on the sleeve</li> <li>2. Weld the sleeve on the tube end</li> <li>3. Put a metal sealing on the screw joint</li> <li>4. By means of a nut, screw the piping to the screw joint, hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</li> </ol>
32		<p style="text-align: center;"><b>WELD-ON SLEEVE WITH CAP NUT M20x1.5</b></p> <p>By means of a nut, screw the armature to the manometric screw joint with the corresponding thread, hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</p>
33		<p style="text-align: center;"><b>SCREW-JOINT WITH MANOMETRIC CONNECTION M20x1.5 LH / M20x1.5</b></p> <p>The screw joint is used to connect a manometer or valve with this screw joint.</p> <ol style="list-style-type: none"> <li>1. Put a metal sealing on the screw joint of the manometer.</li> <li>2. Screw the manometer and the armature together with the use of a sleeve coupling (it is delivered with the armature), hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</li> </ol>
34		<p style="text-align: center;"><b>TEST SCREW-JOINT M20x1.5</b></p> <p>The screw joint is used to connect control manometer. It is delivered including the plug with sealing. Recommended torque is 120 Nm.</p>
35		<p style="text-align: center;"><b>MANOMETRIC SCREW-JOINT G1/2</b></p> <ol style="list-style-type: none"> <li>1. Put a cap nut on the sleeve</li> <li>2. Weld the sleeve on the tube end</li> <li>3. Put a metal sealing on the screw joint</li> <li>4. By means of a nut, screw the piping to the screw joint, hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</li> </ol>
36		<p style="text-align: center;"><b>WELD-ON SLEEVE WITH CAP NUT G1/2</b></p> <p>By means of a nut, screw the armature to the manometric screw joint with a corresponding thread, hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</p>
37		<p style="text-align: center;"><b>WELD-ON SLEEVE WITH CAP NUT M20x1.5 WITH SEALING PURSUANT TO STANDARD SHELL</b></p> <p>By means of a nut, screw the armature to the manometric screw joint, hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm. Tightness is ensured with stainless sealing ring made of soft steel.</p>
39		<p style="text-align: center;"><b>SCREW-JOINT WITH MANOMETRIC CONNECTION M20x1.5 LH / G1/2</b></p> <p>The screw joint is used to connect a manometer or valve with manometric screw joint G1/2.</p> <ol style="list-style-type: none"> <li>1. Put a metal sealing on the screw joint of the manometer.</li> <li>2. Screw the manometer and the armature together with the use of a manometric connection (it is delivered with the armature), which shall be tightened with torque of approx. 120 Nm.</li> </ol>

**TABLE 3 - OVERVIEW OF CONNECTING TERMINALS** – continuation from the previous page

<b>40</b>		<p style="text-align: center;"><b>SCREW-UNION WITH MANOMETRIC CONNECTION M20x1.5 LH / G1/2</b></p> <p>The screw-union is used to connect a manometer or valve with manometric screw-union G1/2.</p> <ol style="list-style-type: none"> <li>Put a metal sealing on the screw-union of the manometer.</li> <li>Screw the manometer and the armature together with the use of a manometric connection (it is delivered with the armature), which shall be tightened with torque of approx. 120 Nm.</li> </ol>
<b>42</b>		<p style="text-align: center;"><b>EXTERNAL THREAD 1/2 - 14 NPT</b></p> <ol style="list-style-type: none"> <li>Wind up sealing tape of PTFE on the thread.</li> <li>Screw the armature into the hole with corresponding internal thread, hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</li> </ol>
<b>54</b>		<p style="text-align: center;"><b>INTERNAL THREAD 1/2 - 14 NPT</b></p> <p>The thread is cut in the weld-on terminal.</p> <ol style="list-style-type: none"> <li>Wind up sealing tape of PTFE on a corresponding external thread</li> <li>Screw the screw joint or tube into the hole in the armature, hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</li> </ol>
<b>62</b>		<p style="text-align: center;"><b>EXTERNAL THREAD G1/2</b></p> <p>Wind up sealing tape of PTFE on the thread. Hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</p>
<b>72</b>		<p style="text-align: center;"><b>INTERNAL THREAD G1/2</b></p> <p>The thread is cut in the weld-on terminal.</p> <ol style="list-style-type: none"> <li>Wind up sealing tape of PTFE on a corresponding external thread</li> <li>Screw the screw joint or tube into the hole in the weld-on terminal</li> <li>Hold the cock flange with side wrench 32 and tighten the nut with torque of 120 Nm.</li> </ol>
<b>99</b>		<b>ANOTHER CONNECTING TERMINAL</b>

**ORDERING ACCESSORIES**

The purchase order shall specify:

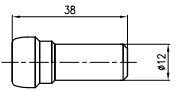
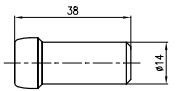
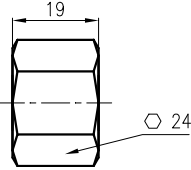
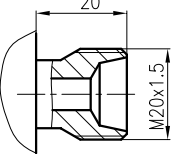
- Name
- Product ordering number
- Number of pieces

**PURCHASE ORDER EXAMPLE**

**Standard design:**

- Weld-on sleeve with cap nut and sealing  
981 NA1  
20 pcs
- Sealing3  
972 11 15 21 W1 BZ1 KKU5  
20 pcs

**TABLE 4 OVERVIEW OF OPTIONAL ACCESSORIES - WELD-ON CONE WITH CAP NUT**

CODE	<b>WELD-ON CONE WITH CAP NUT</b>		
	The cone is delivered by 1 piece, welded in a PE bag together with the relevant cap nut. After putting the cap nut on the cone and welding the cone on the piping, it is possible to connect an armature to the cone, which is provided with a corresponding screw-union for the cone according to the dimensional drawing of the screw-union		
	MATERIAL	INNER DIAMETER	DRAWING
<b>KU1</b>	Carbon steel	1.0569	
<b>KU2</b>	Stainless steel	1.4541	
<b>KU3</b>	Creep-resisting steel	15 128	
<b>KKU4</b>	Carbon steel	1.0569	
<b>KKU5</b>	Stainless steel	1.4541	
<b>KKU6</b>	Creep-resisting steel	15 128	
<b>CAP NUT FOR WELD-ON CONE</b>			
	MATERIAL OF NUT	DRAWING OF NUT	DRAWING OF SCREW-UNION
	Stainless steel 1.4541 (only for KU2, KU3, KKU5 and KKU6)		
	Carbon steel 11 109.0 (only for KU1 and KKU4)		

**TABLE 4 OVERVIEW OF OPTIONAL ACCESSORIES - WELD-ON SLEEVE WITH CAP NUT AND SEALING**

CODE	WELD-ON SLEEVE WITH CAP NUT AND SEALING					
	The sleeve is delivered by 1 piece, welded in a PE bag together with the relevant cap nut and aluminium sealing. After putting the cap nut on the sleeve and welding the sleeve on the piping, it is possible to connect an armature, which is provided with a corresponding screw-union for the sleeve according to the dimensional drawing of the screw-union, to the piping.					
	MATERIAL OF SLEEVE		THREAD OF NUT	SLEEVE		
			INNER DIAMETER	DRAWING		
NA1	Carbon steel	1.0569	M20 x 1.5	6.5		
NA2	Stainless steel	1.4541				
NA3	Creep-resisting steel	15 128				
NAG1	Carbon steel	1.0569	G 1/2			
NAG2	Stainless steel	1.4541				
NAG3	Creep-resisting steel	15 128				
NA4	Carbon steel	1.0569	M20 x 1.5	6.5		
NA5	Stainless steel	1.4541				
NA6	Creep-resisting steel	15 128				
NAG4	Carbon steel	1.0569	G 1/2		6.5	
NAG5	Stainless steel	1.4541				
NAG6	Creep-resisting steel	15 128				
CAP NUT FOR WELD-ON SLEEVE						
	MATERIAL OF NUT	DIMENSIONAL DRAWING OF NUT		DRAWING OF SCREW-UNION		
	Stainless steel 1.4541 (only for NA2, NAG2, NA3, NAG3, NA5, NAG5, NA6 and NAG6)					
	Carbon steel 11 109.0 (only for NA1, NAG1 NA4 and NAG4)					
ORDERING NUMBER	SEALING RINGS FOR WELD-ON SLEEVE					
	Sealing rings made of other materials can also be ordered independently according to the following ordering numbers					
	MATERIAL OF SEALING			DRAWING OF SEALING		
382 041	Al	EN AW-1050A				
276 067	Cu	42 3005				
382 063	Stainless steel	1.4541				
382 096	Stainless steel	1.4404				

Optional accessories according to Table 3 can also be ordered separately as Type 981 (according to Accessory Catalog 981).

**Figure 1 - Ball valve – direct (974 11 ..), dimensional drawing**

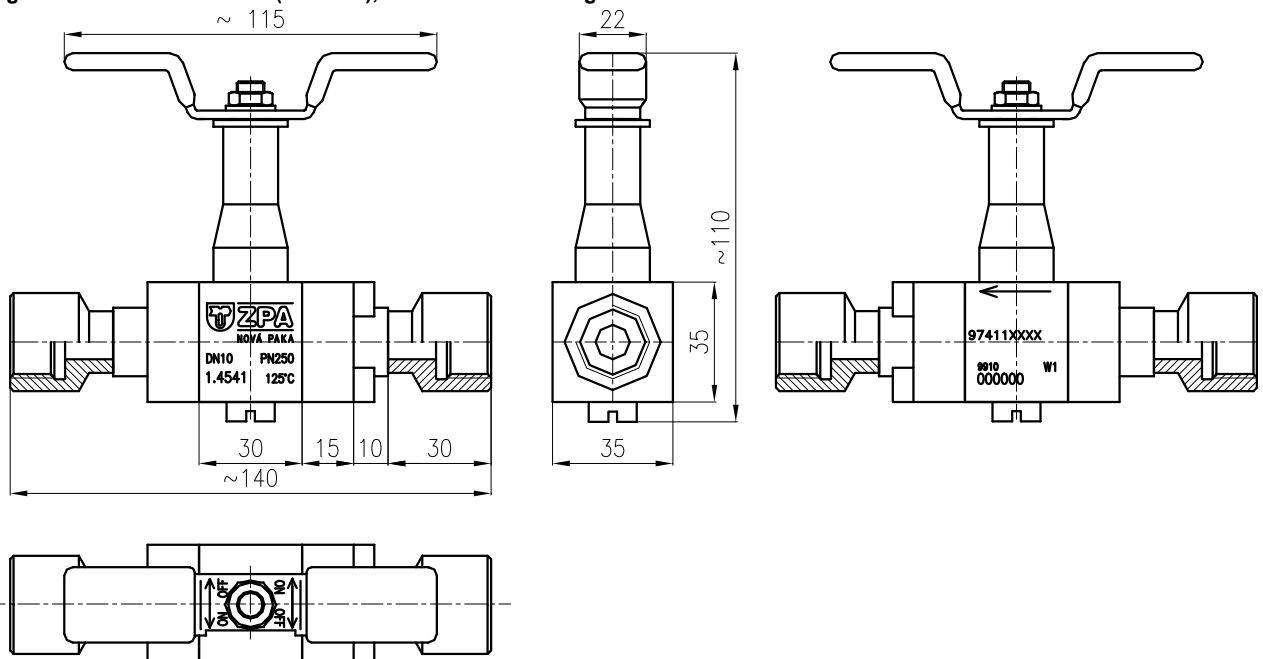


Figure 2 Ball valve - manometric test (971 51 ..), dimensional drawing

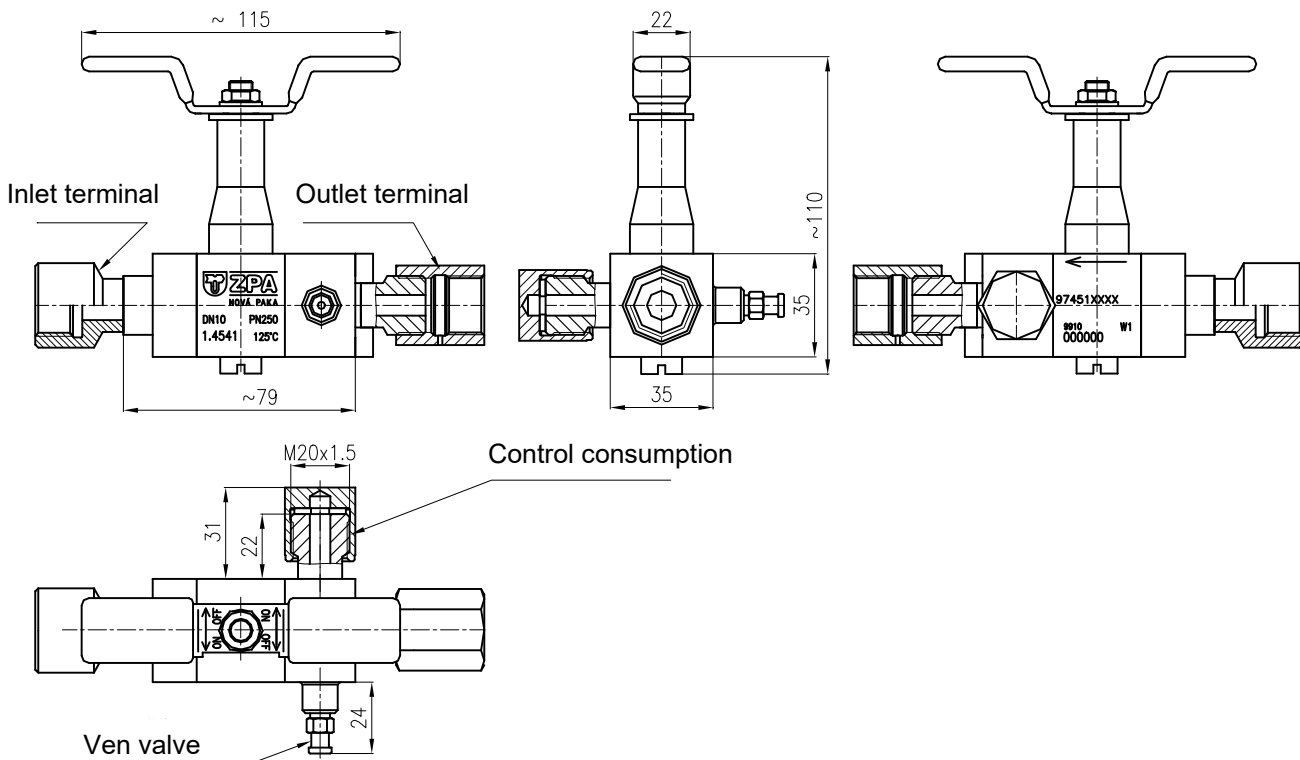
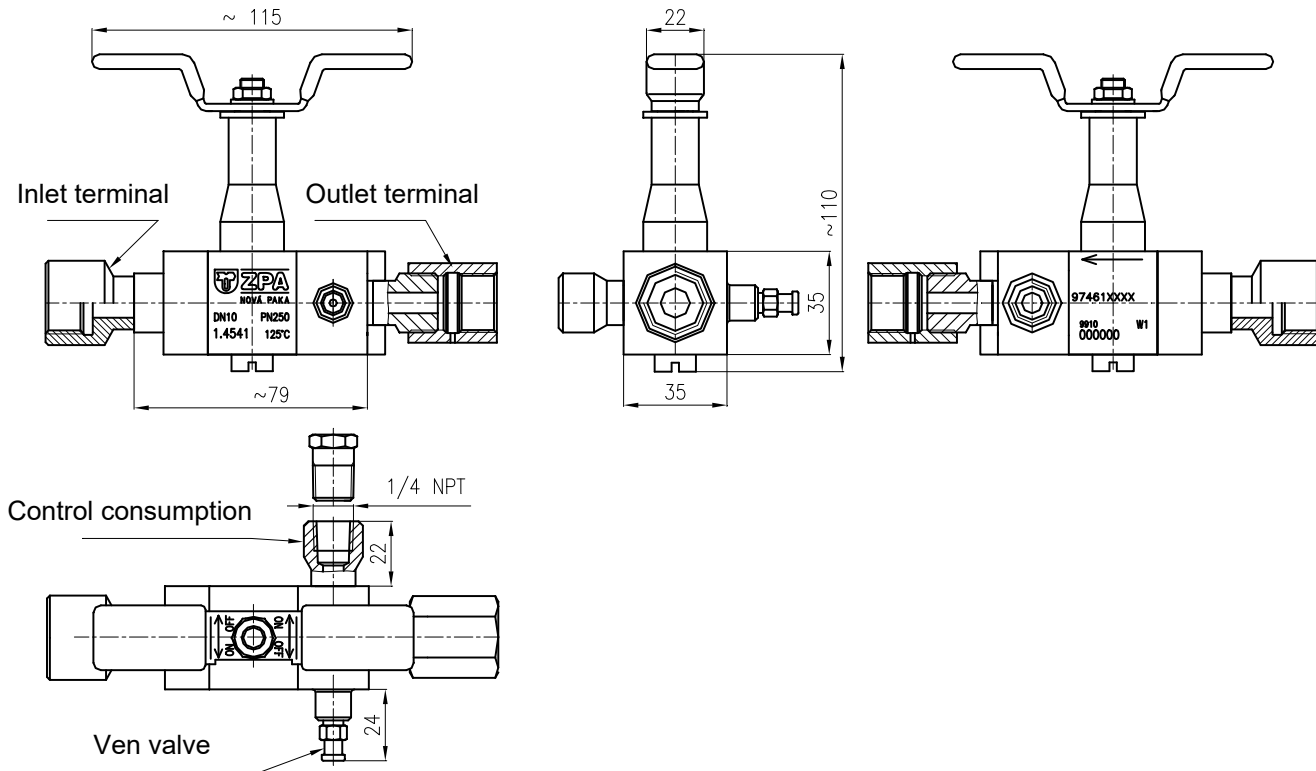


Figure 3 Ball valve - manometric test (971 61 ..), dimensional drawing





## INSTALLATION AND CONNECTION

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

The operation liquid may flow through the ball valve in both directions. The arrow in the upper part of the body indicating the recommended direction of flow only serves for identification of inlet and outlet terminals in case they are different.

Installation of the ball valve shall be realized directly on the piping by means of inlet and outlet connecting terminals.

The procedure of correct connection of the terminals with threaded rings is specified on the instruction label, which forms a part of the delivery of the ball valve.

## COMMISSIONING

After the installation (connection of the piping) and inspection of the correct position of the control handle, the ball valve is prepared for operation.

## OPERATION AND MAINTENANCE

The ball valve is closed (opened) by turning the handle to the right (left) by 90° to the stop, which results in full closure or opening of the ball valve. The positions of the ball valve "CLOSED" - "OPEN" (OFF-ON) are achieved by the movement of the handle to the stop. Intermediate positions are not recommended on principle – danger of damaging seats and losing tightness.

The ball valve may only be cleaned by service workers of the manufacturer.

### PROCEDURE IN CASE OF FINDING LEAKAGE OF THE CONNECTION WITH THREADED RINGS

Possible leakage of the connection can be caused by unauthorized installation, e.g. by failure to comply with required torque (i.e. excessive or insufficient tightening of the cap nut), failure to comply with the minimum direct part of the tube from its end or application of this connection in conditions with increased level of vibrations without any fixation of the armature and connecting tubes, especially of those of bigger lengths.



### WARNING

**The cap nut may never be tightened (released) under pressure – it could cause lethal injury!!!**

Uninstallation and repeated installation of the connection shall be realized pursuant to table 2 - INSTALLATION PROCEDURE FOR CONNECTING TERMINALS WITH THREADED RINGS.

## SPARE PARTS

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

## WARRANTY

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

## DISABLING AND LIQUIDATION

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 accordance with applicable legislation



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