



APPLICATION

- In circuits of measurement of flow of steam for securing continuous filling of the impulse piping with condensate at the same height and, thereby, for maintaining water columns in the impulse piping at the same height. The tanks are manufactured in two designs, either as a classic single-chamber or a double-chamber. The double tank replaces two condensation tanks in case of measurement of throttle body. It achieves significant decreasing of the construction dimensions of the whole measuring unit. Another advantage of its design consists in simpler ensuring of the same height of the level in both chambers.
 - As selected equipment BT2 and BT3 pursuant to the Decree No. 214/1997 Coll., on securing quality at activities related with the use of nuclear energy and activities resulting in radiation exposure and on identification of criteria for classification and division of selected equipment into safety classes;
 - As pressure equipment of category III pursuant to the Decree of the Government 26/2003 Coll. (compliance assessment module B+D)
 - As special design with cleanness of internal surfaces of grade I pursuant to TPE 10-40/1926/85 (code PC1)
 - For the environment requiring seismic resistance 1 Hz to 33 Hz, acceleration 3g, certificate of ČKD Blansko
- The tanks are rated products pursuant to the Act No. 22/1997 Coll. and the Declaration of Conformity **EC-966000** is issued for them.

DESCRIPTION

The condensation tank consists of a tube jacket closed from both sides with welded bottoms. A cone with a cap nut for the connection to the measuring diaphragm is welded to the input hole of the tank. In the input hole, a threaded terminal for the connection of the stop valve is welded; it is provided with a cone with a cap nut.

The double-chamber condensation tank consists of two chambers that are separated with a partition. The design of the input and output holes of both chambers is the same as in case of the single tank. The pitch of input and output holes is 54 mm.

The tanks can be delivered in design without or with a stop valve.

TECHNICAL DATA

Operation position:

The condensation tanks shall be placed horizontally and at the same height, input screw-joints of both chambers of a double-chamber tank shall be at the same height

Type of operation: continuous

Weight without condensate:

Single-chamber condensation tank with valve approx. 2.8 kg
 Double-chamber condensation tank with valves approx. 5.0 kg

Used materials:

Jacket of tank	stainless steel AISI 321
Bottom and separation diaphragm	stainless steel 1.4541
Input connecting cone	stainless steel 1.4541
Output terminal	stainless steel 1.4541
Cap nut	stainless steel 1.4541

OPERATION CONDITIONS

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

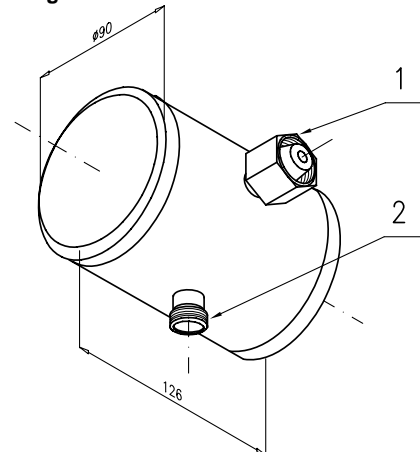
Classification of the tank as a part of the piping systems pursuant to ČSN EN 13480-1, table 4.1-1: piping category I, group of liquids 2 (refer to CEN/TR 13480-7).

Operation liquid: steam and condensate

Parameters of liquid	
Max. operation overpressure [MPa]	Operation temperature min./max. [° C]
10	0/200
6.5	0/400

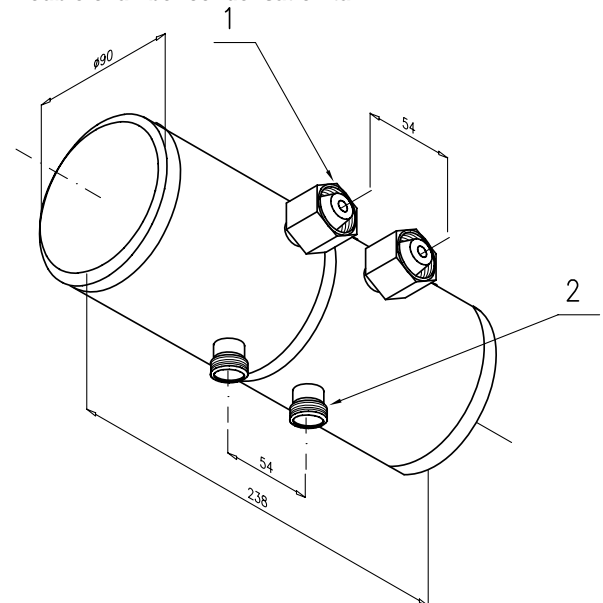
Volume of one chamber: 470 cm³
Amount of condensate in one chamber: approx. 0.2 litre

Single-chamber condensation tank



1. Connecting input terminal (cone 14, cap nut M22x1.5)
2. Connecting output terminal (screw-joint M20x1.5 for a cone 14)

Double-chamber condensation tank

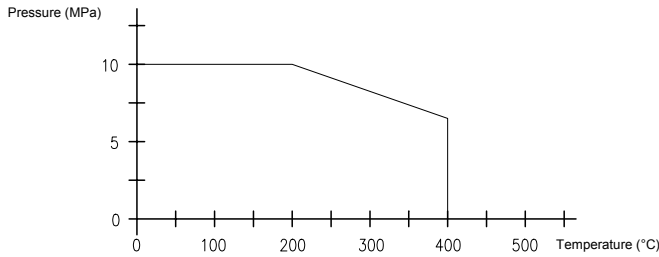


1. Connecting input terminal (cone 14, cap nut M22x1.5)
2. Connecting output terminal (screw-joint M20x1.5 for a cone 14)

PRESSURE AND TEMPERATURE CHARACTERISTICS

Values of pressure and temperature of operation medium, for which the tank may be used, are identified in the following chart.

Chart 1
 Pressure (MPa) **1015**
 Temperature (°C)



DESIGNATION

Data on bottom of tank

- Trade mark of the manufacturer
- Product ordering number
- Maximum operation pressures and temperatures
- Material of bottom
- Casting number of material of bottom
- Mark of realized pressure test
- Manufacturing number
- Mark CE 1015

Data on jacket of tank

- Material of jacket
- Casting number of material of jacket

DELIVERY

Unless agreed otherwise with the customer, each delivery includes

- Delivery note
- Products pursuant to the purchase order
- Valves of type 967 pursuant to purchase order (for tanks with valves)
- Screw-joint 025946815 ordered independently as optional accessories
- 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 applied materials
 - o Product manual
 - o Product manual for valve of type 967
 - 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 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 and bottom material with casting number
- Declaration of Conformity 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 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

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 products 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).

PLACING AN ORDER

The purchase order shall specify:

- Name
- Product ordering number
- If the delivery of screw-joint 025946815 as accessories is required for the tank
- Other (special) requirements
- Number of pieces

PURCHASE ORDER EXAMPLE

Standard design:

1. Single-chamber condensation tank
966 1 45 15
20 pcs
2. Double-chamber condensation tank
966 2 45 15
20 pcs
3. Single-chamber condensation tank
966 1 45 01
10 pcs

Special request:

- Single-chamber condensation tank
966 1 45 15 PC1
5 pcs

ORDERING SCREW-JOINT

The purchase order shall specify:

- Name
- Screw-joint ordering number
- Number of pieces

TABLE 1- DESIGN OF CONDENSATION TANKS, TYPE 966

SPECIFICATION OF CONDENSATION TANK				ORDERING NUMBER				
				966	x	xx	xx	xxx
DESIGN OF CONDENSATION TANK	Single-chamber				1			
	Double-chamber				2			
MATERIAL OF TANK	Stainless steel (AISI 321 + 1.4541)					45		
CONNECTING TERMINALS	Tank without valve	input	cone + nut M22x1.5				01	
		output	screw-joint M20x1.5 for a cone					
	Tank with valve	input	cone + nut M22x1.5					xx
		valve output	optional terminals pursuant to table 3					
SPECIAL TREATMENT	Cleanness of inner surfaces of equipment of grade I *)							PC1

*) Only as a special request on the basis of an agreement with the manufacturer

TABLE 2 - ACCESSORIES - to be ordered separately

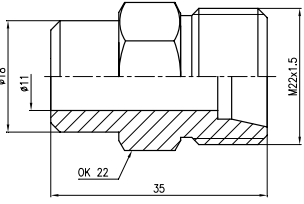
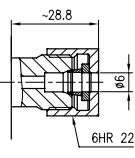
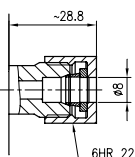
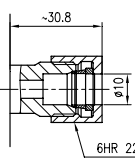
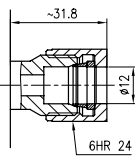
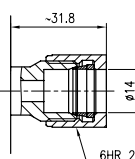
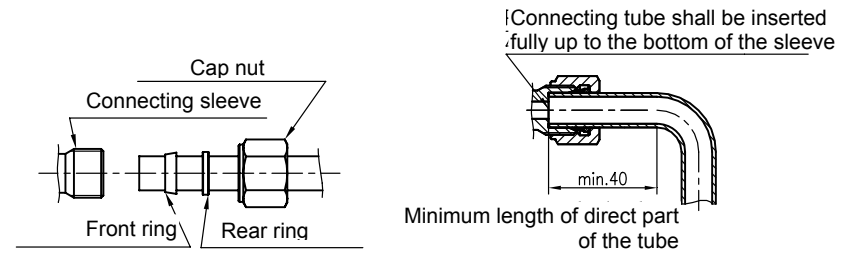
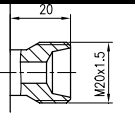
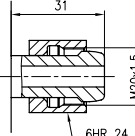
SPECIFICATION				ORDERING NUMBER
NAME	DIMENSIONAL DRAWING	MATERIAL	DESCRIPTION	
Screw-joint		1.4541	The screw-joint is used as a coupling on the tube between the diaphragm and input of the condensation tank	025946815

TABLE 3 – OVERVIEW OF CONNECTING TERMINALS

CODE	DRAWING	INSTALLATION PROCESS OF CONNECTING TERMINALS WITH THREADED RINGS
11		<p>By means of a cap nut and two rings, a tube made of stainless steel or carbon steel (pursuant to ČSN 42 6711 and ČSN 42 6750) with the diameter according to the drawings and tolerance of the external diameter of $\pm 0,3$ mm can be installed in a way that enables further uninstallation.</p> <p>FIRST INSTALLATION:</p> <ol style="list-style-type: none"> 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! Insert the end of the tube with rings into connecting sleeve up to the bottom and tighten the cap nut by hand. Tighten the cap nut with a torque-limiting wrench with the following torque 30 - 35 Nm (diameters 6 and 8 mm), 60 - 65 Nm (diameters 10, 12 and 14 mm), <p>UNINSTALLATION + REPEATED INSTALLATION:</p> <ol style="list-style-type: none"> The uninstallation shall be realized by complete unscrewing of the cap nut <u>after pressure has been completely discharged from the system</u>. 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! 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; if required, they should be greased again. If required, this original grease can be ordered at the manufacturer of the tank. 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. By means of a torque wrench, tighten the nut with the aforesaid torque. <p>WARNING: <u>THE CAP NUT MAY NEVER BE TIGHTENED (RELEASED) UNDER PRESSURE – it could cause lethal injury!!!</u> 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 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>
12		
13		
14		
15		
		
CODE	DRAWING	DESCRIPTION AND INSTALLATION PROCEDURE
21		<p>SCREW-JOINT FOR A CONE</p> <p>By means of the cap nut, screw the cone with weld-on piping to the screw joint and tighten with torque of 120 Nm.</p>
22		<p>WELDED CONE WITH A CAP NUT M20x1.5</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., and tighten with torque of 120 Nm.</p>

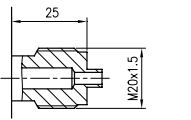
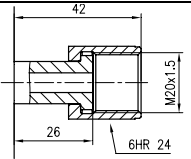
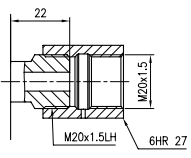
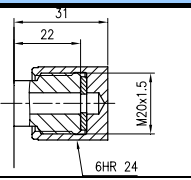
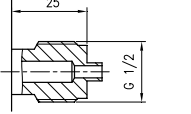
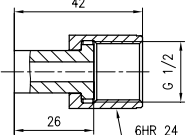
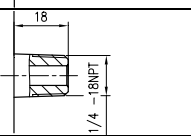
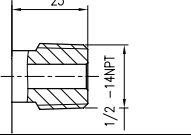
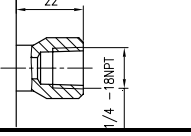
31		<p style="text-align: center;">MANOMETRIC SCREW-JOINT M20x1.5</p> <ol style="list-style-type: none"> Put a metal sealing on the screw joint. Screw the sleeve with weld-on piping to the manometer screw joint with the use of a cap nut and tighten by torque of approx. 120 Nm.
32		<p style="text-align: center;">WELDED SLEEVE WITH A CAP NUT M20x1.5</p> <p>By means of the nut, screw the armature to the manometric screw joint with the relevant thread and tighten with torque of 120 Nm.</p>
33		<p style="text-align: center;">MANOMETRIC SCREW-JOINT M20x1.5 LH</p> <p>The screw joint is used to connect a manometer or valve with manometric screw joint M20x1.5</p> <ol style="list-style-type: none"> Put a metal sealing on the screw joint of the manometer. Screw the manometer and the armature together with the use of a sleeve coupling (it is delivered with the armature), which is tightened by torque of approx. 120 Nm.

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

CODE	DRAWING	DESCRIPTION AND INSTALLATION PROCEDURE
34		<p style="text-align: center;">TEST SCREW-JOINT M20x1.5</p> <p>The screw joint is used to connect control manometer. It is delivered including the plug with sealing. Recommended torque 120 Nm.</p>
35		<p style="text-align: center;">MANOMETRIC SCREW-JOINT G1/2</p> <ol style="list-style-type: none"> Put a metal sealing on the screw joint. Screw the sleeve with the weld-on piping to the manometric screw joint by means of a cap nut and tighten with torque of 120 Nm.
36		<p style="text-align: center;">WELDED SLEEVE WITH A CAP NUT G1/2</p> <p>By means of the nut, screw the armature to the manometric screw joint with the relevant thread and tighten with torque of 120 Nm.</p>
41		<p style="text-align: center;">EXTERNAL THREAD 1/4 - 18NPT</p> <ol style="list-style-type: none"> Wind up sealing tape of PTFE on the thread. Screw the armature into the hole with corresponding internal thread and tighten with torque of 28 Nm.
42		<p style="text-align: center;">EXTERNAL THREAD 1/2 - 14 NPT</p> <ol style="list-style-type: none"> Wind up sealing tape of PTFE on the thread. Screw the armature into the hole with corresponding internal thread and tighten with torque of 60 Nm.
51		<p style="text-align: center;">INTERNAL THREAD 1/4 - 18NPT</p> <ol style="list-style-type: none"> Wind up sealing tape of PTFE on the corresponding external thread. Tighten the screw joint with torque of 28 Nm.

INSTALLATION AND CONNECTION

Installation of the condensation tank may only be realized by a worker of the operation or service organization.

The installation and un-installation of the screw-joint for selected equipment pursuant to the Decree 214/1997 Coll. for the connection of the condensation tank of type 966 ZPA Nová Paka, a. s., their operation and maintenance may only be realized by a bearer of the AUTHORIZATION, which is issued by the manufacturer of the armatures on the basis of performed training.

INSTALLATION OF CONDENSATION TANKS

The condensation tank shall be installed directly on the measurement place of the measuring diaphragm by means of the cone 14 mm and cap nut M 22x1.5. Install the stop valve with weld-on cone 14 mm on the output screw-joint by means of a cap nut M 20x1.5.

The operation position identified in the Article TECHNICAL DATA shall be complied with.

Correct position of the condensation tank can be adjusted and checked by means of a hose water level. To ensure the same

height of the level of condensate in both chambers, both input holes of the double-chamber tank shall be at the same height. The best way to check it is with a knife ruler enclosed on the output cones of the tank. The height difference of points of the ruler with distance 30 cm from each other should not exceed 2 mm (for the range of pressure difference 30 kPa). The input piping shall be either horizontal or it may be inclined slightly downwards from the tank to the diaphragm.

CONNECTION OF THE IMPULSE PIPING

Before the connection, the impulse piping shall be cleaned perfectly.

The condensation tank shall be connected to the impulse piping through a valve with the use of welded terminals. All types of connections with their dimensional drawings and described type of installation are identified in table 3.

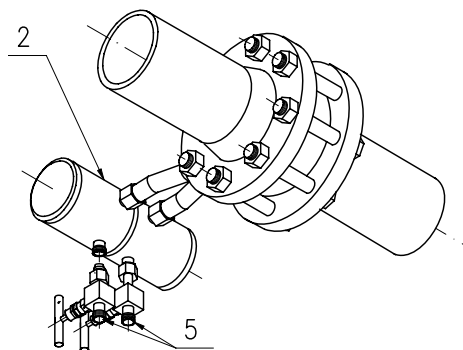
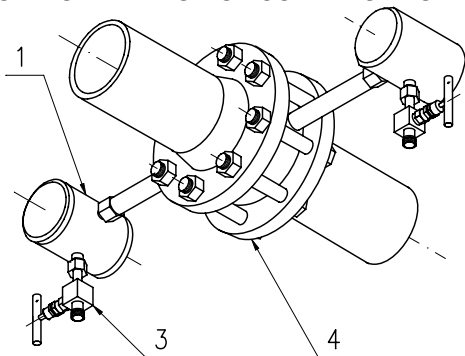
INSTALLATION OF STOP VALVE

By means of a sealing cone and a cap nut on the output part, the valve shall be connected to the output screw-joint of the condensation tank. To ensure better quality of venting, the

valve shall be installed with the arrow marked on its body

facing upwards in the direction of the tank.

TYPES OF INSTALLATION OF CONDENSATION TANKS



1. Single-chamber condensation tank
2. Double-chamber condensation tank
3. Stainless valve (type 967)
4. Measuring diaphragm
5. Connecting terminals pursuant to table 3

COMMISSIONING

After the installation, check of the correct position and connection of the impulse piping, the condensation tank is prepared for putting into operation.

OPERATION AND MAINTENANCE

The condensation tank does not require any operation and maintenance.

SPARE PARTS

The parts, which can be delivered as spare parts, are specified together with other accessories in the Manual to accessories, type 981.

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.

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 tanks are not repaired. The stop 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