

CATALOGUE OF INDUSTRIAL EQUIPMENT



RIGID AND SOFT ENCLOSURES

PRE-INSULATED TUBING BUNDLES LEVEL

LEVEL AND FLOW MEASUREMENT EQUIPMENT

VISUAL FLOW INDICATORS

FITTINGS AND PIPING INSTALLATIONS

CONTAINER-TYPE MOBILE BUILDINGS

COMPREHENSIVE SOLUTIONS FOR OIL&GAS INDUSTRY

2024



Reinforced fiberglass enclosures RizurBox-C



Reinforced fiberglass enclosures (thermal cabinets) RizurBox-C are manufactured according to TS-3442-001-12189681-2014 and are used to protect equipment from exposure to low temperatures, condensate, precipitation, dust, chemicals, physical damage, unauthorized access, theft, etc.

Rigid enclosures RizurBox-C are designed to protect various equipment (pressure sensors, flow meters, level gauges, network devices, check valves, etc.), both in outdoor and indoor areas.

Area of application - hazardous areas of premises and outdoor installations in accordance with the specified markings, industry safety regulations and manufacturer's recommendations. All enclosures are made from inflammable materials and have a fire safety certificate № ПООС RU.31588.04OQHO.OC05.00296.

RizurBox-C fiberglass enclosures have a multilayer structure of the body made from inflammable unsaturated polyester resins and glass-reinforcing materials. The housing of the enclosure is antistatic.

To maintain thermal insulation between the inner and outer shell of the enclosure, polyurethane foam insulation is used. It is also possible to use additional K FLEX ALU insulation on request.

Fiberglass enclosures are radio-transparent - they have a maximum coefficient of transmission of a radio wave and at the same time a minimum phase distortion, therefore the equipment installed inside the rigid enclosures work without interference.











The safety of operation of fiberglass enclosures at explosive objects is confirmed by the certificate of conformity of the Customs Union «On the safety of equipment designed for work in explosive environments» No. EAEU RU C-RU.HB82.B.00035/22.



MORE DETAILED



Installation area	General industrial facilities / explosive zones V-1a and V-1g according to Electric installation (PUE) Ch. 7.3
IP rating	IP54/IP65/ IP66
Operating temperature	From -60 to +70 C From -70 to +70 (with additional K FLEX ALU heat-insulation layer)
Resistivity	To oil products / to chemical environments/ to UV radiation
Total wall thickness	From 20 to 40 mm (special design up to 100 mm)
Fiberglass thickness	From 2 to 4 mm (depending on the modification of the enclosure)
Thermal conductivity	0.03 W/(m*K)
Fitting materials (locks/hinges)	Stainless steel
Surface resistance (antistatic)	Under 10 ⁹ ohms
Explosion-proof marking(with electrical heating: explosion-proof heater, heating section)	1Ex eb IIC T6...T3 Gb X 1Ex eb mb IIC T6...T3 Gb X 1Ex db eb IIC T6...T3 Gb X 1Ex db eb mb IIC T6...T3 Gb X 1Ex db eb IIB T6...T3 Gb X 1Ex db eb mb IIB T6...T3 Gb X (depending on the model of the heater and thermostat used)
Type of explosion protection (water/steam heating)	II Gb IIC T3...T6 X or II Gb IIB T3...T6 X
Color	RAL 7035, light grey / any color (on request)
Warranty period	12 months (24/36 months on request)
Average operation time	over 15 years

Heating box RizurBox-C with diagonal opening	Heating box with diagonal opening and pallette	Heating box RizurBox-C with classic opening	Heating box RizurBox-C of CASE type	Heating box RizurBox-C of MULTI type
				
Horizontally-split heating box	Vertically-split heating box	Heating boxes with all-around access to the equipment	Modular heating boxes with one door	Modular heating boxes with two doors
				



Protective metal enclosures RizurBox-M



Rizurbox-M insulated enclosures are manufactured in accordance with the TS-3442-001-12189681-2014 and are designed for various equipment (pressure sensors, flowmeters, level meters, network devices, shut-off valves, etc.) in outdoor and indoor facilities.

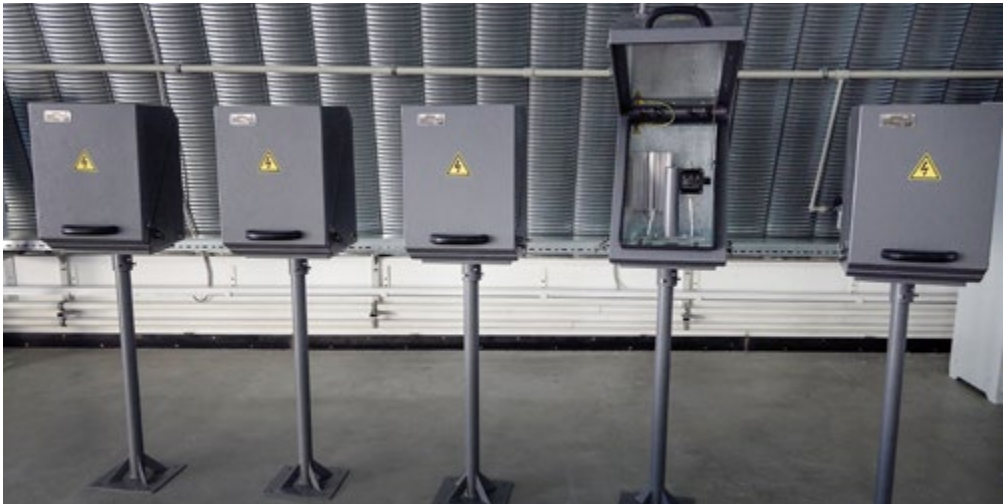
Risurbox-M enclosures are used to protect equipment from exposure to low temperatures, condensation, precipitation, dust, chemicals, physical damage, unauthorized access, theft, etc. Area of application - hazardous areas of premises and outdoor installations in accordance with the specified markings, industry safety regulations and manufacturer's recommendations. Enclosures are made of inflammable materials and have all the necessary certificates.

Insulated enclosures Rizurbox-M are a welded structure manufactured with the use of modern high-quality and technological equipment. Depending on the intended use and dimensions of the enclosure, it can be made either with a supporting frame or without it. In the design variant without the supporting frame, the pressure of the equipment installed in them is distributed along the enclosure walls. The typical frame for the enclosure is a welded steel construction of non-circular tubes or an integrated power rack. The enclosures can be supplied with pipe racks or other mounting elements that NPO RIZUR produces according to customer requirements or according to the provided drawings.

There are several configurations of metal enclosures: basic, standard, complete set. RIZURBOX-M metal enclosures are available in various designs: classical opening, horizontally-, vertically split, outdoor weather protection enclosures. It is possible to manufacture metal enclosures of any size and configuration in accordance with customer requirements.



MORE DETAILED



Installation area	General industrial facilities / explosion zones V-1a and V-1g according to PUE Chapter 7.3
Ingress protection	IP54 according to GOST 1425-96 IP65 according to GOST 1425-96 (on request) IP66 according to GOST 1425-96 (on request)
Operating temperature	From -60 to +70 °C; From -70 to +100 °C (on request);
Total wall thickness	From 10 to 50 mm (depending on the modification of the enclosure)
Metal thickness	1,2...2 mm (depending on the modification of the enclosure)
Thermal conductivity	0.03 W/(m*K)
Fittings material (locks, hinges)	Galvanized steel / Stainless steel / Black steel
Surface resistance (antistatic)	Less than 10 ⁹ Ohms
Temperature maintained inside the enclosure	from -40 to +100 °C (depending on the heating system
Explosion protection marking	<p>With electric heating: II Gb II CT6...T3 Gb X 1Ex e IIC T6...T3 Gb X 1Ex e mb IIC T6...T3 Gb X 1Ex e d IIC T6...T3 Gb X 1Ex e d mb IIC T6...T3 Gb X (depending on the model of the heater and the thermoregulator used)</p> <p>With water or steam heating: II Gb IIC T3 X (water/steam heating not higher than 195 °C) II Gb IIC T4 X (water/steam heating not higher than 135 °C) II Gb IIC T5 X (water/steam heating not higher than 95 °C) II Gb IIC T6 X (water/steam heating not higher than 80 °C)</p> <p>Without heating: II Gb IIC</p>
Color	Dark grey (antique silver) / any color (on request)
Warranty period	Warranty period
Average operation time	over 10 years

Heating box RizurBox-M-RK with classic opening



Heating box RizurBox-M-RD with diagonal opening



Vertically-split heating box Rizurbox-M-RV



Horizontally-split heating box RizurBox-M-RG





Soft enclosures RIZUR for EC&I and equipment



MORE DETAILED

The heat-insulated soft enclosure RIZUR is a multi-layer body made on the basis of wear-resistant non-flammable antistatic materials. Between the inner and outer fabric layers there is an additional insulation layer enhancing winterization properties of the enclosure.

Covering materials, insulation and insulation thickness are selected based on the conditions of the technological process and operating conditions. The detachable connections are made using frost-resistant Velcro fasteners. Specialized fabric belt cuffs of both insulated and non-insulated construction are used as seals for the insertion of various elements of cable and pipe wiring into the enclosure. The shape and size of the soft enclosures depend on the insulated equipment and its design.

Explosion-proof heaters RIZUR-OSHA-R, RIZUR-OUR, RIZUR-TERM, self-regulating or resistive heating cables can be used to maintain the required temperature inside RIZUR soft enclosures. The temperature in the soft enclosures can be regulated using various thermoregulators built into the heating elements (for example, the RIZUR-TB, RIZUR-DCS series), as well as any other types of regulators in agreement with the customer.

A distinctive feature of RIZUR soft enclosures is the possibility of assembly/ disassembly without technological process shutdown. Due to precise design and the usage of belt straps, disconnection of the data cables or other parts of protected equipment is not required.

Soft enclosures are widely used at the northern facilities of the oil and gas and petrochemical industry, as the most cost-effective and high-quality winterization solution.

Ingress protection	IP54
Outer layer material	Fiberglass with double-sided silicone coating / silica fabric
Inner layer material/ tightening sleeves	Fiberglass with double-sided silicone coating
Insulation material	K-Flex ST foam rubber / polyethylene foam / non-woven mineral insulation materials
Threads material	Lavsan/Kevlar
Closing/ fixation system	Non-flammable frost-resistant Velcro + Oval Rings made of stainless steel
Total wall thickness	From 10 to 100 mm (depending on the design of the enclosure)
Ambient air temperature during operation	-70...+70°C (up to +700°C for thermal insulation covers)
Maintained temperature	+20...+35°C (-40...+110 °C with thermoregulator)
Explosion protection marking	II Gb II C T6...T3 X IIGb IIC (without explosion protection)
Warranty period	12 months (24/36 months on request)
Average operation time	over 7 years



Soft enclosures RIZUR for tube fittings



MORE DETAILED

Winterization soft enclosures RIZUR are manufactured to provide insulation of hot surfaces, protect stuff from burns and reduce heat loss and are manufactured according to TS-3442-001-12189681-2014

RIZUR soft enclosures have a dismountable multilayered construction that provides the possibility of multiple use, as well as easy and quick assembly and disassembly and access to maintenance of the sheathed equipment and fittings.

RIZUR soft enclosure are manufactured for equipment of any shape. The design ensures tight fitting of the soft enclosure to the sheathed surface. Upon request and engineer can visit the customer's facility for measurement and more accurate modeling of the soft enclosure in cases of complex shape of the insulated equipment. The design solution and materials of the outer and inner covering layers and insulation are selected depending on the operating temperature conditions.

Heat-insulated soft enclosures RIZUR are used for thermal insulation of flanges, pipe sections, valves, valves, filters, disc valves, ball flange valves, check flange valves and other shut-off valves. Area of application - hazardous areas of premises and outdoor installations in accordance with the specified markings, industry safety regulations and manufacturer's recommendations.

All soft enclosures are produced of inflammable materials and have a fire safety certificate No. POCC RU.31588.04OLIH0.OC05.00297. The safety of operation of soft enclosures at explosive objects is confirmed by the certificate of conformity of the Customs Union «On the safety of equipment designed for work in explosive environments» EAEU No. RU C-RU.HB82.B.00035/22.

Ingress protection	IP54
Outer layer material	Fiberglass with double-sided silicone coating / silica fabric
Inner layer material/ tightening sleeves	Fiberglass with double-sided silicone coating
Insulation material	K-Flex ST foam rubber / polyethylene foam / non-woven mineral insulation materials
Threads material	Lavsan/Kevlar
Closing/fixing system	Non-flammable frost-resistant Velcro + Oval Rings made of stainless steel
Total wall thickness	From 10 to 100 mm (depending on the design of the enclosure)
Ambient air temperature during operation	-70...+70°C (up to +700°C for soft enclosures)
Maintained temperature	+20...+35°C (-40...+110 °C with thermoregulator)
Explosion protection marking	IIGb IIC (without explosion protection)
Warranty period	12 months (24/36 months on request)
Average operation time	over 7 years



Pre-insulated impulse tubes and tubing bundles RIZURPAK



MORE DETAILED

Pre-insulated impulse tubes and tubing bundles RIZURPAK are manufactured according to TS-3464-010-12189681-2013 and are designed to protect impulse tubes and small diameter tubes from freezing, condensation, exposure to aggressive environments, prevent equipment failures and increase the viscosity of media due to exposure to low temperatures. Area of application - hazardous areas of premises and outdoor installations in accordance with the specified markings, industry safety regulations and manufacturer's recommendations.

Operation safety of pre-insulated impulse tubes and bundles RIZURPAK at explosive objects is confirmed by the certificate of conformity of the technical regulations of the Customs Union «On the safety of equipment designed for work in explosive environments» No. EAEU RU C-RU.HB82.B.00043/22.

Compared with traditional methods of heating and protection of small diameter tubes, heat insulation and heating system RIZURPAK does not require maintenance, guarantees consistent quality and ensures time and mounting devices economy. In insulation and heating systems RIZURPAK only high-quality materials are used. Elastomeric covering is free of halogens, which in turn eliminates the possibility of chloride release that has a corrosive effect on the stainless steel of the tubes. The coatings used are resistant to mechanical damages and the effects of chemicals, and also have a wide range of operating temperatures. Installation of the RIZURPAK system can be performed at low temperatures: up to -40°C . RIZURPAK is used as impulse tubes for pressure sensors, industrial analysis systems, chromatography.

NPO RIZUR offers a comprehensive solution for the installation and protection of equipment based on pre-insulated impulse tubes and tubing bundles RIZURPAK, fiberglass and metal heating boxes RIZURBOX, soft enclosures RIZUR, heaters RIZUR-TERM.

Installation area	General industrial facilities / explosive zones V-1a and V-1g according to PUE Chapter 7.3
Resistivity	To oil products / to chemical environments/ to UV radiation
Explosion protection marking of RIZURPAK-E	1 Ex s IIC T6...T4 Gb X (1 Ex s IIC T3...T1 Gb X on request)
Explosion protection marking of RIZURPAK-PL/-PT/-Z/-I	II Gb IIC T6...T4 X (II Gb IIC T3...T1 X on request)
Ingress protection	IP67 according to GOST 14254-96
Minimum ambient temperature during installation	-40°C
Ambient temperature range during operation:	$-70 \dots +405^{\circ}\text{C}$ (depending on the temperature class)
Maximum surface temperature	$+60^{\circ}\text{C}$
Supply voltage for RIZURPAK-E	230 V
Coating color	Any (black by default)
Warranty period	12 months (24/36 months on request)
Average operation time	over 20 years



The RIZURPAK-E system ensures that the temperature in the process tube is maintained in the range from +10°C to +121°C, since the self-regulating heating cable reduces heat generation as the process tube heats up. In order to ensure the exact maintenance of the required temperature, it is necessary to additionally use a thermoregulator.

The process tubes and the RIZURPAK-PL tracing tube (individually insulated for the heatloss reduction) can maintain a temperature between +10°C and +93°C. This system provides a more stable tube temperature over a long period as opposed to the RIZURPAK-PT designs. RIZURPAK-PL type systems are designed for use in those processes where small diameter tubes are used, for example, sampling and dosing of chemical reagents.

The RIZURPAK-Z system without heating is resistant to atmospheric conditions, is operated in pipelines of liquids and gas and provides a reduction in heat loss. RIZURPAK-Z is used to protect against freezing, maintain the required viscosity of the medium or the required temperature in a narrow range.

RIZURPAK-I impulse tubes with a protective coating are used in conditions of aggressive environmental influences, where stainless steel tubes are corroded. Insulated lines without insulation are used in the chemical and petrochemical industries, offshore oil production, drilling rigs, shipbuilding, mechanical engineering, industrial and civil construction, etc.

Technical description of RIZURPAK materials

Shell	<p>Thermoplastic polyester urethane elastomer, stabilized hydrolytic method and frost-resistant PVC:</p> <ul style="list-style-type: none"> • has no halogens in its composition • resistant to abrasion • resistant to UV radiation • maintains plasticity at low temperatures
Isolation	Non-hygroscopic fiberglass
RIZURPAK temperature-PL/-PT/-Z/-I	The maximum temperature of the process tube is +204°C

<p>RIZURPAK-E temperature (All tracings have a copper shield and the outer shell)</p>	<p>Constant temperature: +200°C (high temperature) / +65°C (low temperature) Short-term temperature: +250°C (high temperature) / +85°C (low temperature) / +120°C (medium temperature) Maximum tracing temperature: Class T3, +230°C / Class T6, +85°C</p>
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Impulse tubes RIZUR



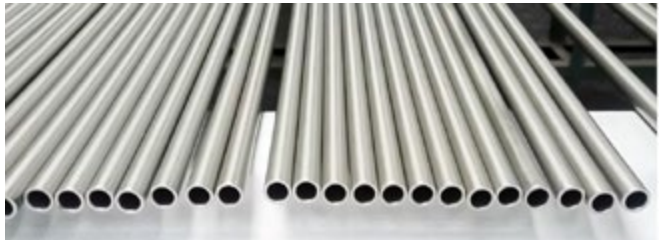
Seamless impulse tubes made of stainless steel and plastic tubes (pipelines) are used at the facilities of the oil and gas, petrochemical and other industries. Impulse tubes made of stainless steel are used for connecting equipment and measuring instruments, strapping, laying technological lines, ensuring reliable connection and trouble-free operation of all elements of the line. The tubes are manufactured according to the standard specification ASTM A269 and meet the requirements of GOST 9941-81.

Plastic tubes are designed for the supply (transportation) of liquids, oxygen, gases, aggressive media and are operated in explosive zones and general industrial zones, at high and low temperatures, in devices and installations operating under high pressure.

The tubes are manufactured in accordance with the requirements of EU regulations 10/2011 and EU 1395/2004, DIN 73378, DIN 74324, GOST R 51190-98, GOST R 52452-2005, FDA 21 CFR 177.2600, ISO 7628:2010. Plastic tubes (pipelines) and stainless steel tubes are used in RIZURPAK systems manufactured in accordance with individual technical requirements of the customer's project.



MORE DETAILED



	Stainless Steel tubes	Plastic tubes
Material of manufacture	AISI 304/304L (analog of 08X18N10/03X18N11) AISI 316/316L (analog of 03H17N13M2/08H17N13M2) AISI 316Ti (analog of 08H17H13M2T) AISI 321/321H (analog of 08 X18 N12T/12X18N10T)	RILSAN® PA11/polyurethane/ polyethylene/polyester frost-resistant design/ fluoroplast/polyvinyl chloride (PVC)/ copolymer tetrafluoroethylene/ Hexafluoropropylene/PTFE/PFA/FEP
Outer diameter of the tube	From 3 mm to 20 mm	From 3 mm to 40 mm (depending on the tube model)
Tube wall thickness	From 0.5 mm to 3 mm	0.5 mm to 7 mm (depending on tube models)



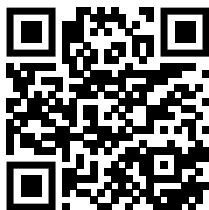
Threaded and compression fittings RIZURLOK for the instrument pipeline



Fittings are connecting elements for tubes and equipment for various purposes. Fittings connect parts of tubes, redirect, divide the flow of the working medium, close the system, serve as adapters between parts with different diameters or made of different materials.

With the help of compression fittings, tubes of various diameters, angular turns, branches of pipelines of various purposes are joined. With a clamping nut, the fittings are easily attached on one side and have various options for combining on the other side. The use of these fittings makes it possible to quickly disassemble the system, carry out repairs and maintenance. When choosing tube compression fittings, the outer diameter of the pipe, the conditional passage, the temperature and pressure of the working medium should be taken into account.

Threaded fittings for the instrument pipeline of the RIZURLOK series are supplied with any type of thread required by the customer: M - metric (GOST 24705-2004), R - conical pipe (GOST 6211-81), G - cylindrical pipe (GOST 6357-81), NPT – inch taper (GOST 6111-52), BSPP - British cylindrical pipe thread, BSPT - British conical pipe thread.



MORE DETAILED

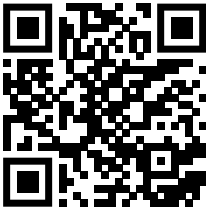
RIZURLOK fittings are made of 316, 316L, 321 stainless steel, brass, titanium alloy, hastelloy or other materials according to customer requirements. The production resources of NPO RIZUR allow us to supply crimping and threaded fittings of any configurations according to the technical specification in a short time.

Among the main types of fittings that RIZUR produces, couplings, fittings, nipples, corners, tees, crosspieces, adapters, as well as accessories for compression fittings are most often supplied: nuts, front rings, gaskets, pipe plugs, lenses, cones.

Dielectric Fittings	Straight Fittings	Nozzles	Elbows
			
T-type	Crosses	Nipple fittings	Accessories
			



Valve manifolds and valves RIZURLOK



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The correct operation of pressure sensors is one of the main points in the technological process. The high-quality functioning of a particular system directly depends on reliable components.

To connect devices to impulse lines NPO RIZUR offers valve manifolds. They are used in systems of automatic regulation, control and control of technological processes. Using valve manifolds, sensors and impulse lines are drained, the EC&I is connected. The options for their configuration are structurally different. Depending on the handling problem, valve blocks of different types are used.

One-, two-, three-, five-vent valve manifolds of the RIZURLOK-BKN and RIZURLOK-2VM models are used in technological processes to connect the following pressure sensors to measuring lines in automatic control, monitoring and control systems: expansion pressure, pressure surge sensor, absolute pressure gauge, vacuum gauge pressure. In addition, valve blocks of the RIZURLOK-BKN and RIZURLOK-2VM series are used for drainage of impulse lines, as well as for connecting EC&I.

These valve manifolds can be operated in contact with gas oxygen after special cleaning of details, in this case the models are identifies with the code «K». To ensure the reduction and smoothing of pulsations of the operating medium, as well as to protect devices from pneumatic and hydraulic shocks, a damper is used to dampen pressure pulsations. The damper is used to measure the pressure of gas and liquid media. The needle valve is designed to smoothly change the cross-section with a decrease and increase in the supply volume of the operating medium and ensure the tightness of the device. Pressure relief valves are used to reduce the inlet pressure to the required outlet and to maintain this pressure permanently.

Multi-port valves provide variable installation of pressure sensors with no need for additional ports. Multiport valves are operated in environments containing hydrogen sulfide in accordance with the NACE MR0175 standard.

The compact design of multi-port valves requires minimal space for installation and operation, and also provides cost savings due to a reduction in the number of components and potential leak points. Distributive valves are designed to target the flow of the operating medium into several pipelines. The nipples located in the valve body carry out the flow direction. The check valve is designed to protect equipment, pipelines, pumps, pressure vessels from changing the flow direction of the medium in the process system, as well as to limit the flow in case of partial destruction of the pipeline section. The drain valve is designed to drain liquid and protect pipeline systems from freezing. Dual relief valves are designed for mounting on pressure gauges, transmitters and alarms. The check valve poppet is used to prevent the backflow of the medium in the pipeline.

NPO RIZUR manufactures and supplies valve manifolds and valves of any necessary types and configurations.



Pipe clamps



MORE DETAILED

RIZUR pipe clamps are manufactured in accordance with DIN 3015, and designed for fixing, mounting, dismantling and safe operation of pipes, hoses, electrical cables. Clamps manufactured by RIZUR do not lose their performance characteristics when used in various environments, including aggressive ones: water, sea water, oils, gas, alcohol-containing liquids, solvents, gasoline, acids and others.

Pipe clamps are used in oil and gas, petrochemical, metallurgical, construction, energy industries, automotive, shipbuilding, etc. when conducting, laying pipe systems, cable networks. Pipe clamps are reliable elements for the organization of safe and efficient operation of various communications. The clamps are easily mounted and dismantled, which makes it possible, if necessary, to carry out maintenance or emergency maintenance quickly and efficiently.

The advantage of pipe clamps (clamps) manufactured by NPO RIZUR is a fully milled housing, which significantly increases the strength characteristics of this product.

Areas of application of RIZUR pipe clamps: enterprises of the thermal and electric power industry - thermal power plants, thermal power stations, hydroelectric power plants and nuclear power plants; hydraulic equipment; pneumatic equipment; equipment for the mining industry; EC&I impulse lines; cable trestles; underground collectors, etc.

Pipe clamps can be made of aluminum, polyamide, polypropylene, polyester resin. These materials withstand extremely low and high temperatures, large temperature differences, and are not subject to corrosion. The design of pipe clamps allows you to compensate for the dynamic and static load on the system, reduce vibrations and vibration.





Explosion-proof heaters RIZUR-TERM



MORE DETAILED

RIZUR-TERM explosion-proof heaters are designed to accurately maintain the required temperature in the heated space, protect against freezing and/or condensation at subzero temperatures, to preserve the metrological characteristics of the heated device in explosive and general industrial zones.

RIZUR-TERM heater consists of a profile radiator made of aluminum alloy or of two aluminum plates (RIZUR-TERM-P), a ceramic or nichrome electric heating element located inside the radiator (between the plates), a thermal sensor, an input box, a cable, a thermoregulation unit.

Protection against overheating of the surface of the heaters of the RIZUR-TERM series is provided by the area of the external surface corresponding to the rated heat output power, an internal temperature sensor that maintains and controls the temperature of the outer surfaces of the heater and an external thermoregulation unit that controls the operation of the internal temperature sensor and maintains the set temperature of the air environment.

RIZUR-TERM explosion-proof industrial heaters are available in several designs. Heaters are produced in small, large, flat, small-sized and cylindrical housings; they differ in size and technical characteristics.

NPO RIZUR is constantly improving the models of existing heaters of the RIZUR-TERM series, as well as designing and producing new samples.

Explosion-proof heaters RIZUR-TERM manufactured by NPO RIZUR are produced according to the-3442-001-12189681-2014 and depending on the design, they meet the requirements of TR CU 012/2011, GOST IEC 60079-1-2013 as electrical equipment with the type of explosion protection «explosion-proof coatings (d)» or GOST R IEC 60079-18-2012 as electrical equipment of increased reliability against explosion with the type of explosion protection «sealing compound (m)».



Installation area	General industrial facilities / explosive zones V-1a and V-1g according to PUE Chapter 7.3
Explosion protection marking	1Ex db IIC T6... T3 Gb X 1Ex mb IIC T6... T3 Gb X
Heating element capacity	10 to 6000 W
Supply voltage	230 (±15%) V (50 Hz) 380 (±15%) V (50 Hz)
Temperature on the heater's surface	+80...+130°C -40...+100°C, an increment of 1°C (with digital thermoregulators produced by LLC «NPO RIZUR»)
Temperature maintained	+10...+20°C (with thermoregulators based on bimetallic thermostat); -40...+100°C, an increment of 1°C (with digital thermoregulators produced by LLC «NPO RIZUR»)
Ingress protection	IP54 IP67 IP68
Insulation strength	Min. 1500 V
Insulation resistance	Min. 20 MOhm
Warranty period	24 months
Average operation time	over 10 years
Electric heating element	Ceramic self-regulating; Nichrome
Temperature class	T4/T5/T6
Thermoregulator, design	-FB/-FT/-S/-ST/-A/-SR/-AR
Length of the supply cable, m	1,0/2,0/3,0 (minimum cable length 0.5m)
Protection of the supply cable with a metal sleeve	Without a metal jacket In a metal jacket

Table of conformity of heater models and mounting methods

TERM-M 50... 300	TERM-B 300... 1100	TERM-B 1100... 3000	TERM-B 3500... 6000	TERM-P
<ul style="list-style-type: none"> • on the DIN rail • on the end-type bracket • on the front bracket • on the floor bracket • on the mounting plate 	<ul style="list-style-type: none"> • on the end-type bracket • on the floor bracket • on the angle bars 	<ul style="list-style-type: none"> • on the floor bracket • on the angle bars 	<ul style="list-style-type: none"> • on the angle bars • on the floor bracket with additional wall mounting 	<ul style="list-style-type: none"> • on the angle bars



Explosion-proof heaters RIZUR-OSHA-R, RIZUR-OUR-TRO, RIZUR-OUR-PL



RIZUR-OSHA-R heaters are intended for use mainly in the oil and gas industry in explosive zones of premises and outdoor installations of classes V-1a and V-1g (PUE, ch.7.3) for heating cabinets and units with control and measuring equipment and equipment requiring a positive temperature for normal functioning.

Explosion-proof heaters RIZUR-OSHA-P, RIZUR-OUR-TRO, RIZUR-OUR-PL manufactured by NPO RIZUR are produced according to TS-3442-001-12189681-2014 and comply with the requirements of TR CU 012/2011, GOST R IEC 60079-18-2012 and are marked with explosion protection depending on the factory setting and emergency shutdown temperature 1Ex mb IIC T6...T3 Gb X. According to the explosion protection marking, Chapter 7.3 of the PUE and other regulatory documents regulating the use of electrical equipment in explosive zones, heaters are allowed to be used in explosive zones of premises and outdoor installations. The safety of operation of heaters at explosive objects is confirmed by the certificate of conformity of the Customs Union «On the safety of equipment designed for work in explosive environments» No. EAEU RU C-RU.HB82.B.00035/22, as well as the Certificate of Compliance with Industrial Safety requirements No. C-RTE.002.TU.00198.



MORE DETAILED



Installation area	General industrial facilities / explosive zones V-1a and V-1g according to PUE Chapter 7.3
Explosion protection marking	1 Ex mb IIC T6...T3 Gb X
Heating element capacity	100 to 2000 W (RIZUR-OSHA-R) / 50 to 100 W (RIZUR-OUR-PL)
Supply voltage	230 (±15%) V
Temperature on the heater's surface	+90...+100°C 30...+90°C, step 1°C (with digital thermoregulators RIZUR)
Maintained temperature in the box	+10...+20°C (for FT) -40...+50°C, step 1°C (for S, ST, SR, AR)
Ingress protection	IP54/IP66/ IP67
Insulation strength	Min. 1500 V
Insulation resistance	Min. 20 MOhm
Warranty period	24 months
Average operation time	over 10 years

General purpose heaters for control cabinets

RIZUR-OSHA-IP20



MORE DETAILED

RIZUR-OSHA-IP20 and RIZUR-OSHA-IP20 heaters for control cabinets with a fan are used outside explosive zones. Heating element- PTC thermistor, which guarantees long-term operation of the product. Heaters of this series are an economical option for heating automation cabinets.

Heaters of control cabinets (OSHA) are used to install and maintain the necessary temperature regime (heating) in cabinets of electrical equipment. The presence of a heating system in the control cabinets is necessary to protect the controls from low temperatures and moisture. It is recommended that the heater should be mounted vertically with space above and below left empty for better convection.

The heater is mounted in place with the mounting brackets included in the scope of supply (DIN rail or screw-type fittings). In case there is a need for the temperature maintenance in the set range, it is recommended to use temperature limiters (air sensors, thermostats) along with the heater, which can be purchased at NPO RIZUR.

There are two types of RIZUR-OSHA-IP20 connection: terminal connection (standard design) and cable connection. heat-resistant power supply wires are output on the heater, the length can be any, on request of the customer.

For installation the heater can be equipped with screws, M5 bolts, a bracket for a standard 35 mm DIN rail.

Heaters RIZUR-OSHA-IP20 are produced according to the requirements of regulatory and technical documentation developed at the enterprise and comply with international standards ISO 9001.

Installation area	General industrial facilities
Heating element capacity	50 to 250 watts
Heater weight	0.78 to 2.51 kg
Supply voltage	230 (±15%) V
Insulation strength	Min. 1500 V
Insulation resistance	Min. 20 MOhm
Mounting options	Screw / DIN rail
Warranty period	24 months
Average operation time	over 10 years



Digital thermoregulator explosion-proof RIZUR-TB-DCS



RIZUR-DCS thermoregulator is developed on the basis of a digital control system. The control module consists of a microcontroller controlled by software, and a remote digital air temperature sensor. The hardware and software solution ensures the maintenance of the set temperature in the heated space with an accuracy of up to 1 °C. The temperature setpoint is programmed at the factory based on the data of the questionnaire/order code.

To signal an increase/decrease in temperature above /below the set temperature limits, the RIZUR-DCS thermoregulator is equipped with additional relay outputs, as well as, depending on the design, an analog output signal of 4-20 mA. The housing of the thermoregulator also performs the function of a junction box, that is, a terminal block is located inside the housing, and explosion-proof cable glands for connecting the heater, power cable and temperature sensors are placed on the housing.

RIZUR-DCS thermostat was developed specifically for controlling high-power heating elements (up to 5 kW), including self-regulating heating cables. The thermoregulator withstands cold starting loads exceeding the rated power by 10 times.



MORE DETAILED



Installation area	General industrial facilities / explosive zones V-1a and V-1g according to PUE Chapter 7.3
Explosion protection marking	1Ex db [Ia IIC Ga] IIC T6 Gb X
Temperature control	Digital control system
Heating element power	Up to 5000 W
Supply voltage	230 (±10 %) V 24/36-48 V post./trans.current (by special order)
Ambient temperature	-60...+50°C
Maintained temperature on the surface of the heater	-50°C ... +110°C, step 1°C (for digital sensors RISUR-DT) -60°C ... +400°C, step 1°C (for analog sensors RISUR-DT (PT100))
Temperature maintained in the box	-40...+50 °C, an increment of 1 °C
Ingress protection	IP67
Alarm when the temperature goes below the set limit	Relay, "dry" contact, 1A
Warranty period	24 months
Average operation time	over 15 years



Self-regulating heating cable explosion-proof RIZUR-SGL



MORE DETAILED

Explosion-proof self-regulating heating cable RIZUR-SGL manufactured by NPO RIZUR is produced according to TU 27.32.13-001-12189681-2018 and is intended for electric heating of appliances, fittings, process pipes, pipelines, as well as any equipment and structures located both in explosive zones in which the formation of explosive mixtures of gases and vapors of flammable liquids with air belonging to categories IIA, IIB, IIC, groups T3...T6 according to GOST R51330.9-99, and at general industrial facilities.

Explosion-proof self-regulating heating cable RIZUR-SGL consists of a semiconductor matrix placed between two conductive copper cores, which provide constant voltage along the entire length of the cable. Elastomeric thermoplastic insulation provides insulation of the matrix and protects it from moisture and abrasion, and the polyester shell (plastic, fluoropolymer or polyurethane) performs the functions of additional protection of the semiconductor matrix. A braid of tinned copper wire provides cable shielding and grounding, and also protects the cable from mechanical influences. Connection to the supply cable can be carried out in two ways: either with the help of a special junction with further sealing or a coupling. The maintenance of the required heating temperature is provided by an accurate thermal calculation, which allows determining the required power of the heating cable RIZUR-SGL, as well as additionally using thermoregulators such as RIZUR-TB and RIZUR-DCS.

	RIZUR-SGL-N, up to 65/85 °C	RISUR-SGL-C, up to 120/190 °C	RISUR-SGL-B, up to 190/250 °C
			
Heat capacity, at 10 °C	10-40W/m	15-60W/m	15-90W/m
Maximum temperature	65 °C	120 °C	200°C
Maximum permissible temperature without load (1000 hours in total)	85 °C	190 °C	250 °C
Minimum installation temperature	-60 °C	-60 °C	-60 °C
Supply voltage	230 (±15%) V	230 (±15%) V	230 (±15%) V
Temperature group	T6	T4	T3
Maximum resistance of the protection braid	No more than 10 Ohms/km	No more than 10 Ohms/km	No more than 10 Ohms/km
Explosion protection marking	1Ex e IIC T3...T6 Gb X	1Ex e IIC T3...T6 Gb X	1Ex e IIC T3...T6 Gb X
Outer coating material of the self-regulating heating cable	Polyolefin Thermoplastic elastomer Fluoropolymer	Fluoropolymer for protection against corrosive chemical solutions or vapors	Fluoropolymer resistant to organic and corrosive environments



Bypass level gauges RIZUR-NBK



Bypass gauges RIZUR-NBK are used for continuous measurement/display of the upper liquid level or the level of separation of two liquid media in tanks. RIZUR-NBK is designed to monitor the liquid level in open or closed, pressurized containers in technological installations of industrial facilities of chemical, petrochemical, medical, food and other industries, and can also be used as an indicator of the presence (absence) of liquid in a controlled volume at a predetermined height of the container. Bypass gauges RIZUR-NBK can be operated both indoors and in open installations in a wide range of climatic conditions.

The bypass level gauge RIZUR-NBK-NM consists of an index column, a guide tube, a float with a guide rod and a magnetic system.

The bypass level gauge is mounted on the top of the tank (container) with the help of a flange or threaded connection. By means of the magnetic field in a non-contact manner the float changes the position (rotates) of one or of a group of vertically positioned magnetic rollers or transmits information about the current level to another control device.

The operating principle of RIZUR-NBK is based on the law of interconnected vessels — the level in the bypass column is equal to the level of the measured liquid inside the tank. A float with the built-in magnet moves along with the liquid level inside the column. Under the influence of the magnetic field, the float changes with no contact the position (rotates) of one or a group of vertically positioned magnetic rollers or transmits information about the current level to another control device. Bypass level gauge RIZUR-NBK is a simple and reliable solution for measuring and displaying the liquid level in large and small tanks.



MORE DETAILED

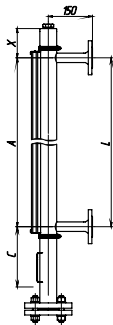


	Bypass level gauge RIZUR-NBK side-mounted level indicator	Bypass level gauge RIZUR-NBK overhead mounting
Measuring range	150...6000 mm	150...6000 mm
Minimum medium density	450 kg/m ³ (depending on pressure and temperature)	600 kg/m ³ (depending on pressure and temperature)
Maximum pressure	16 MPa (determined when ordering), 40 MPa at t up to 100 °C and a density of at least 775 kg/m ³ , 25 MPa at t up to 200 °C and a density of at least 775 kg/m ³	4 mPa (determined when ordering)
Material	Stainless steel 12X18H10T (AISI 321)/10X17H13M2T (316 Ti)/other types of stainless steel/polypropylene/PVC/titanium alloy or other materials according to spec. order's	Stainless steel 12X18H10T (AISI 321)/10X17H13M2T (316 Ti)/other types of stainless steel including coated/polypropylene/PVC/titanium alloy or other materials according to spec. order's
Temperature range the measured medium	-196...+425 °C	-196...+425 °C
Process connection	Flange / thread / welded	DN80...250 (depending on the density of the measured medium)
Ingress protection	IP65 or IP67	IP65 or IP67
Ambient temperature	-60...+60 °C -60...+75 °C	-40...+60 °C -40...+80 °C -60...+80 °C
Explosion protection marking	II Gb IIC T6...T1 X	II Gb IIC T6...T1 X

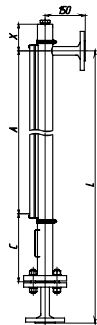
Side mounting

Overhead mounting

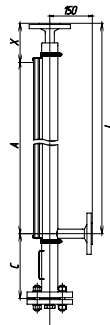
Design "side-side"



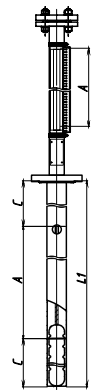
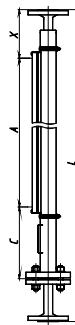
Design «side-bottom»



Design «top-side»



Design «top-bottom»



Important:

The minimum values of X and C are calculated by the manufacturer when ordering and depend on the characteristics of the measured medium and process conditions. By default over-head magnetic level gauge RIZUR-NBK is manufactured with a still pipe. The level gauge can be made without a still pipe for the purpose of cost reduction. This requirement must be specified at order placement.

A - measurement range

L is the distance between the centers of the connection points

L1 - length of the submerged part

X, C - «dead zones», unmeasurable areas



Bypass level gauge with a sight glass RIZUR-NBK-GLASS



Bypass level gauge RIZUR-NBK-GLASS are used for continuous measurement and display of the liquid level in tanks. RIZUR-NBK-GLASS is designed to monitor the liquid level in open, closed or pressurized containers, as an indicator of the presence (absence) of liquid in a controlled volume, at a predetermined height of the container; the devices are also operated both indoors and in open installations in a wide range of climatic conditions at chemical, petrochemical, medical, food and other industries.

The principle of operation of RIZUR-NBK-GLASS is based on the law of interconnected vessels – the level in the glass tube is equal to the level of the measured liquid inside the tank. Bypass level indicator with sight glass RIZUR-NBK-GLASS is a simple and reliable solution for displaying the liquid level in large and small tanks.

Standard bypass level indicators RIZUR-NBK-GLASS are mounted on the side wall of the tank. If necessary, the connecting elements of the bypass level indicator can be located on top or distanced to a side.




NPO RIZUR produces several types of bypass level gauges with a sight glass: RIZUR-NBK-GLASS-K with a quartz tube; RIZUR-NBK-GLASS-P with luminate and non-luminate type with plane water-gauge unruffled glasses (Duren's lenses), or plane water-gauge ruffled glasses (Klinger's glasses); RIZUR-NBK-GLASS-C with a quartz tube or borosilicate glass.

Advantages of bypass level gauges RIZUR-NBK-GLASS: various types of materials, including for aggressive environments; long service life, simplicity of design, ease of cleaning and maintenance. Bypass level gauges RIZUR-NBK-GLASS have all the necessary certificates, comply with Russian and international standards.



MORE DETAILED



<p>Visualization of the device</p>			
<p>Type of level indicator</p>	<p>RIZUR-NBK-GLASS-S</p>	<p>RIZUR-NBK-GLASS-P</p>	<p>RIZUR-NBK-GLASS-K</p>
<p>Valves material</p>	<p>12X18H10T (AISI 321) 10X17H13M2 (analog AISI 316Ti) 08X18H10 (analog AISI 304)</p>	<p>12X18H10T (AISI 321) 10X17H13M2 (analog AISI 316Ti) 08X18H10 (analog AISI 304) (other materials in agreement with the manufacturer)</p>	<p>12X18H10T (AISI 321) 10X17H13M2 (analog AISI 316Ti) 08X18H10 (analog AISI 304) (other materials in agreement with the manufacturer)</p>
<p>Type of glass</p>	<p>Quartz Tube / borosilicate tube</p>	<p>Borosilicate glass (it is possible to perform non-luminate and luminate type)</p>	<p>Quartz Tube</p>
<p>Maximum temperature of the operating environment</p>	<p>+200 °C</p>	<p>+300 °C</p>	<p>+200 °C</p>
<p>Process pressure</p>	<p>0,6 MPa 1 MPa 1,6 MPa</p>	<p>0,6 MPa/1,0 MPa/1,6 MPa/ 2,5 MPa/4,0 MPa/6,3 MPa (in agreement with the manufacturer, it is possible to manufacture for pressures up to 10 and 16 MPa)</p>	<p>0,6 MPa 1,0 MPa 1,6 MPa 2,5 MPa 4,0 MPa</p>
<p>Process connection</p>	<p>Flange/Thread/ welded/slip nut</p>	<p>Flange/Thread/ welded/slip nut</p>	<p>Flange/Thread/ welded/slip nut</p>
<p>Ventilation/ drainage hole</p>	<p>Plug/needle valve/ flange/ without holes</p>	<p>Plug/needle valve/ flange/ without holes</p>	<p>Plug/needle valve/ flange/ without holes</p>
<p>Operating temperature</p>	<p>-60...+60 °C -60...+75 °C</p>	<p>-60...+60 °C -60...+75 °C</p>	<p>-60...+60 °C -60...+75 °C</p>

Advantages of bypass level gauges RIZUR-NBK-GLASS

- Various designs based on materials, including for aggressive environments
- long service life
- simple design, easy cleaning and maintenance



Level gauge bypass chamber RIZUR-KBU



The level gauge bypass chamber (remote level gauge camera) RIZUR-KBU is used in cases where it is not possible to install signaling devices and level gauges of various types directly into the tank. RIZUR-KBU is designed for the installation of level measurement and control devices.

The principle of operation of the RIZUR-KBU is as follows: a level-gauge bypass chamber and a tank connected to it by a flanged, threaded or welded method form communicating vessels. Accordingly, the level of the medium in the chamber and in the tank is the same, that is, the liquid level in the tank is determined by measuring the liquid level in the bypass chamber. It is possible to install level detectors, level gauges and other level monitoring devices on the RIZUR-KBU level gauge chamber. RIZUR-KBU level-gauge bypass chambers are available in several configurations developed by the design department of NPO RIZUR and differ in the types of connections to the tank, the choice of which depends on the pressure and the type of controlled environment. RIZUR-KBU are manufactured according to the customer's drawings and according to T-MM-04-06 — an album of drawings of the internal type, which determines the unity of technical solutions in projects when using buoy level gauges.



MORE DETAILED



Material of the remote chamber and flanges	Steel 20 / 09G2S / 12X18N10T (AISI 321) / AISI 304 / AISI 316Ti and others
Diameter of the remote camera	DN50/DN65/DN80/DN100 (wall thickness depends on the medium pressure)
RIZUR-KBU operating range	From 100 to 25000 mm (with a length of more than 5000 mm, a split-type construction is used)
Process temperature	-196 to + 500 °C
Ambient temperature	-60...+60 -60...+75
Nominal pressure	from - 0.1 to 42 MPa
Process connection	Flange according to GOST 12815-80, EN1092-1, DIN 2526, ANSI / ASMEB16.5 Welded: welded neck flanges Threaded: Metric (M), cylindrical (G) or pipe taper (NPT)
Mounting method	Side-side/ side-bottom and others on special order
Ventilation / Drainage	Plugs/taps/valves/flanges/pipes for welding



Sight flow indicators RIZUR-VIP



MORE DETAILED

RIZUR-VIP flow indicators are simple and reliable equipment for determining the direction, presence and absence of a flow of liquid, transparent, translucent, colored, gaseous media.

Sight flow indicators are used at steampipes and pipe installations, at factories, plants in the oil refining, chemical, food, pulp and paper and other industries.

Sight flow indicators of liquid and gas flow RIZUR-VIP control the quality, quantity and density (consistency) of liquid, gas and corrosive media in systems.

Sight flow indicators consist of a body that can be produced of materials such as stainless steel, carbon steel; and an observation window made of tempered, borosilicate or quartz glass.

An inspection glass is placed in the housing of the sight flow indicators of liquid and gas, inside which one of the elements reacting to the flow is located.

The recognition of the controlled environment, the visibility of its movement at a distance is provided by a flap (blade), an impeller (rotor) or balls.

At the moment when the medium passes through the flow, the flap is deflected, the rotor rotates, the balls move.

Visual two-way monitoring of the observed medium is carried out through the viewing glass: filling level, color, density, presence of impurities in the liquid. Sight flow indicators are distinguished by mechanisms placed inside the glass, methods of connection to the process, variants of housing designs.

NPO RIZUR offers ATK sight flow indicators and special RIZUR-VIP designs in accordance with customer requirements.



RIZUR-VIP-1	RIZUR-VIP-3	RIZUR-VIP-5
		
RIZUR-VIP-6	RIZUR-VIP-7	RIZUR-VIP-8
		



Ultrasonic level switch RIZUR-900



MORE DETAILED

Ultrasonic level and medium presence switches RIZUR-900 are designed to monitor the level of liquids in open or closed, including pressurized containers in technological installations of industrial facilities of chemical, petrochemical, pharmaceutical, food and other industries. They can also be used as an indicator of the presence (absence) of liquid in a controlled volume at a predetermined height of the container.

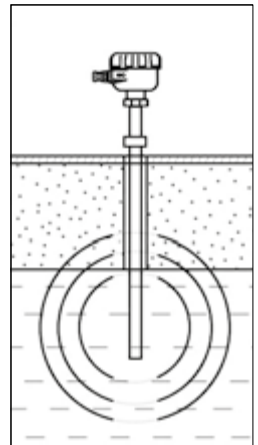
RIZUR-900 level switch manufactured by NPO RIZUR can be used in systems of automatic control, regulation and control of technological facilities, in other automation devices. They can be used in cleaning and filtration systems, in tanks for cooling and lubricating fluids, in pump protection systems, as well as in the food industry in contact with food products.

RIZUR-900 is a device unique in price and quality, which is an alternative to both outdated sensors—level relays, for example, ROS 101(I), ROS 102(I), UZS, ROS-400, ROS-501(I), etc., and expensive imported level detectors, for example, Liquiphant, SITRANS, Optiswitch and other float, electric contact, vibration and optical signaling devices. The operation of the RIZUR-900 is not affected by turbulent flows and external vibrations, the devices have increased strength. One ultrasonic level switch RIZUR-900 is capable of monitoring up to 8 points of liquid level. For a rigid probe the maximum length is 6,000 mm, for a flexible one — up to 20 m. Vibrations and solid suspensions do not affect the operation of the RIZUR-900 switches. With the help of switches in accordance with the operating instructions, it is possible to: change the delay time of the alarm; inversion of the output signal; inversion of the relay. It is possible to install the ultrasonic switch RIZUR-900 on the top of the tank, on the side wall of the tank, including with an «L»-shaped probe, in a level gauge chamber, in addition, it is possible to install a switch to protect pumps from «dry run».

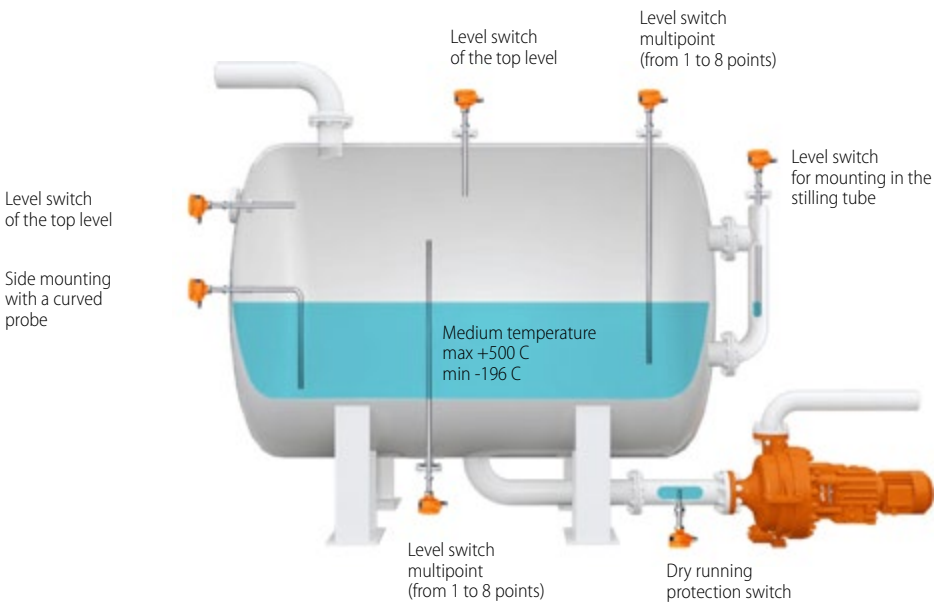
Design and principle of operation

The principle of operation of RIZUR-900 switch is based on determination of acoustic impulses dampening in the probe, which increase significantly when it is immersed in a controlled medium. The housing and the cover are made of cast aluminum alloy (by special order, the housing can be made of stainless steel). Under the cover there are clips for connecting the cable, which is inserted into the housing through the cable gland. On the body of the switch there is an LED indicator showing the state of the controlled medium and the serviceability of the switch. In the RIZUR-900 switch the probe is made of a tube with an outer diameter of 16...20mm.

Ultrasonic impulses are generated and received by a piezoelectric transducer located close to the housing. Level switch RIZUR-900 has a self-diagnosis function for the electronics and sensor status. (This option is available only in the RIZUR-901 model (one control point).) The switch is equipped with a control point on the housing. In case a magnet is placed close to the control point, the self-diagnosis is activated and it is possible to start the level switch adjustment. With the help of a magnet, in accordance with the operating instructions, it is possible to: change the delay time of the alarm; invert the output signal; select the sensitivity mode of the alarm; select the trigger threshold; calibration of the «dry» and «wet» state of the sensor.



The material of the switch in contact with the controlled environment	6 MPa/10 MPa/16 MPa/25 MPa/35 MPa/45 MPa
Process temperature	300 kg/m ³
Working medium pressure	2 mm
Minimum working medium density	up to 8
Error, no more than	1 s/3 s/10 s/30 s
Number of trigger points	24 V or according to the "Namur" standard
Response delay	Dry contact DPDT/SPDT /NAMUR / two-wire connection: 4...20 mA / 8...16 mA / 7...14 mA
Rated supply voltage	24 V or according to the «Namur» standard
Output signal	Dry contact DPDT/SPDT /NAMUR / two-wire connection: 4...20 mA / 8...16 mA / 7...14 mA
Ambient temperature	-60...+60 -60...+75
Housing ingress protection	IP65/IP67/IP68
Explosion protection marking	0Ex ib IIC T6 Ga X / 0Ex ib IIC T5 Ga X / 1Ex db IIC T6 Gb X / 1Ex db IIC T5 Gb X / without explosion protection
Orientation of the device in space during installation on the object	Arbitrary
Number of cable glands	1 or 2 (determined when ordering)
Average service life	10 years





Vibration level switch RIZUR-500



MORE DETAILED

RIZUR-500 vibration switch is designed to monitor the level of liquid media, as well as to signal their presence or absence at chemical, petrochemical, pharmaceutical, food and other industries. The device is used in open or closed, including pressurized containers in technological installations. RIZUR-500 vibration switch is used for operation in automatic control, regulation and process control systems. Controlled media: various liquids, including contaminated ones.

The device is operated: in pipelines (in order to protect pumps from dehumidification); in containers with various liquids; in tanks with cooling and lubricating liquids; in cleaning and filtration systems.

The principle of operation is based on the generation of the oscillation frequency of the probe — a mechanical tuning fork. When the probe is immersed in a controlled environment, the resonant frequency of vibrations changes, which is fixed by electronics. When the frequency value exceeds the threshold value, the output signal is switched.

RIZUR-500 vibration switch can be installed both horizontally and vertically.

RIZUR-500 vibration level switch consists of a housing with a lid, a mounting fitting or flange and a probe.

The housing and the cover are made of stainless steel or aluminum alloy by injection molding. The cover has a light-transmitting part made of polycarbonate. There are two threaded holes in the housing for mounting the cable gland or a plug. A threaded hole is located in the lower part of the housing to connect the probe.

The material of the switch , contacting with a controlled medium	12X18H10T (other sizes are possible on request)
Process temperature	-40...+150 °C
Pressure of the controlled medium	1 MPa/6 MPa
Minimum density of the controlled medium	500 kg/m ³
Response time	1 s/3 s/10 s/30 s
Rated supply voltage	from 16 to 28 V
Housing ingress protection	IP65/IP67/IP68
Connecting dimensions	Threaded (minimum G3/4) / flanged (minimum DN25)
Explosion protection marking	Without explosion protection 0Ex ia IIC T6...T5 Ga X 1Ex db IIC T6...T5 Gb X 1Ex ib IIC T6...T5 Gb X
Average service life	10 years



Magnetic float level switches RIZUR-M-G and RIZUR-M-V




MORE DETAILED

Magnetic float level switches are available in two designs: RIZUR-M-G (horizontal mounting) and RIZUR-M-V (vertical mounting). The devices are designed to monitor the level of liquids in open or closed containers, including those under excessive pressure, at technological installations of industrial facilities. The switches are used as an indicator of the presence (absence) of liquid in a controlled volume at a predetermined height of the container. Controlled media: water, petroleum products, oils and any other liquids.

The submersible part of the RIZUR-M-B is a rod on which a float (or several floats at different points) is located at a certain point.

The submersible part of the RIZUR-M-G is a horizontally positioned float fixed on a special axis.

	Magnetic float level switch RIZUR-MG	Magnetic float level switch RIZUR-MV
		
Number of trigger points	1	up to 8
Minimum density of the controlled medium	750 kg/m ³	700 kg/m ³
Process connection	Threaded (not less than G2) / flanged (not less than DN80)	Threaded (not less than M32) / flange (at least DN32)
Housing material	Aluminum/stainless steel steel/plastic	
Contact material with a controlled medium	12X18H10T/ 304/AISI 321	
Operation process temperature	-60...+150 °C	
Working medium pressure	1.6 MPa/2.5MPa/4MPa/6.3MPa (up to 10 according to spec. order)	
Ambient temperature	-60...+60 °C -60...+75 °C	
Housing ingress protection	IP65, IP67, IP68	
Explosion protection marking	Without explosion protection / 0 Ex ia IIC T6 Ga X / 1 Ex db IIC T6 G X	
Average service life	10 years	



Pontoon level switch RIZUR-M-P and displacer level switch RIZUR-M-B



MORE DETAILED

Design and principle of operation

RIZUR-M-P level switch consists of an explosion-proof housing, a guide pipe and a weight suspended on a cable to the rod.

The explosion-proof housing of two types of alarm devices is attached to the guide pipe using clamps, which allows you to adjust the position of the reed switch in relation to the permanent magnet. The alarm housing contains a cable entry and a terminal block for entering and connecting the signal cable. The tightness of the lid is ensured by an o-ring.

The guide tube of the level switch contains a movable rod with a permanent magnet installed inside. The rod is suspended from the upper edge of the guide pipe by a spring. At the bottom, a weight (RIZUR-M-P) or a float (RIZUR-MB) is attached to the rod on a cable. A reed switch is fixed in the alarm body, changing its state (closed or open) under the influence of a magnetic field

The operation of RIZUR-M-P alarm is carried out as follows: when the liquid level rises, the pontoon on its surface pushes the suspended load upward. The rod with the magnet, under the action of the spring, moves upward. When using RIZUR-M-B, when the liquid level rises, the float, located in the phase section: liquid-gas, rises up. The magnet, passing by the body of RIZUR-M-P and RIZUR-M-B signaling devices, activates the reed switch.

By moving the signaling device body relative to the guide pipe, it is possible to configure the reed switch to the following states: normally closed contact or normally open contact. The alarm level is adjusted by the length of the cable. The upper edge of the guide pipe is closed with a threaded plug. The plug provides access to the spring and rod of the alarm.

Housing material	Aluminium/stainless steel
Working environment, °C	- 60... + 400
Working medium pressure, MPa	1,6/2,5
Minimum density of the measured medium, kg/m ³	700
Material in contact with the measured medium	Stainless steel AISI 304, AISI 321 / titanium and other
Maksimum permissible contact voltage, V	60
Max. commutation current, A	0,5
Maximum contact load, W	4
Ambient temperature, °C	- 60...+60
Orientation in space	Vertical
Housing protection degree	IP67
Output signal	Dry contact, 4...20 mA, NAMUR
Explosion protection marking	0 Ex ia IIC T6 Ga X / 1 Ex db IIC T6 Gb X
Process connection	Flanged (not less DN80)
Average service life, years	10



Conductometric level switch RIZUR-300-RI of split-type design



MORE DETAILED

RIZUR-300 — multifunctional conductometric level switch, which is a new achievement in the development of devices for monitoring, measuring and maintaining the level of various environments. RIZUR-300 switches in various versions have a monoblock design — RIZUR-300-MB, a separate design — RIZUR-300-RI, a separate design with housing mounting on a DIN rail — RIZUR-300-RI-DIN.

Unlike similar conductometric signaling devices, RIZUR-300 has an explosion-proof and intrinsically safe design and can be operated in explosive zones of premises and technological installations.

Multifunctional signaling switches RIZUR-300 manufactured by NPO RIZUR are designed to measure electrically conductive liquids within the established limits, and signaling, monitoring and maintaining the level of media can be carried out at a maximum of ten points in one or more tanks simultaneously. RIZUR-300 can operate under the supply voltage determined when ordering.

RIZUR-300 is also used to regulate the level of raw water and to notify about a decrease in its amount below the permissible norm

RIZUR-300-RI is a separate design consisting of an electronic unit, which is a transmitting converter and sensors, which are a unit with a threaded fitting and a sensitive element immersed in a controlled environment.

The device, when an electrical circuit is closed or opened by an electrically conductive working medium, converts a signal of a change in electrical resistance between the electrode and the wall of the container into relay signals. RIZUR-300-RI can have up to 3 control points for monitoring media in one or more installations (an explosion-proof device has up to 3 control points, an explosion—proof device has up to 6 control points).

Primary insulator material	Silicone (standard)/fluoroplast/ceramics
Material of probes	12X18H10T (other sizes are possible on request)
Process temperature	-100... +100 (silicone) / -100... +250 (fluoroplast) / -100... +300 (ceramics)
Pressure of the controlled medium	2.5 MPa
Structural design of probes	Rod: from 0.1 to 2.5 m (up to 5 m on request) / cable: from 1 to 22 m
Supply voltage, alternating current	230 V (+10%/ -15%), 50 Hz ± 2%
Explosion protection marking	Without explosion protection 0Ex ia IIC T5 Ga X 0Ex ib IIC T6 Ga X 0Ex ib IIC T5 Ga X 1Ex db [ia Ga] IIC T6 Gb X 1Ex db [ia Ga] IIC T5 Gb X
Output signal	Relay "dry contact", 250 V, 5 A, 1250 VA, 150 W
Power consumption, no more	2.5 VA
Average service life	10 years



Conductometric level switch RIZUR-300-MB monoblock design



MORE DETAILED

Purpose and field of application

RIZUR-300-MB — multifunctional conductometric level switches. Unlike similar conductometric alarms RIZUR-300-MB have different types of explosion protection: intrinsically safe circuit and explosion-proof enclosure and can be used in explosive areas of premises and technological installations.

Multifunctional signaling devices of the RIZUR-300-MB series produced by NPO RIZUR are designed to monitor electrically conductive liquids within established limits. Devices of the RIZUR-300-MB series can operate under the supply voltage specified when ordering.

RIZUR-300-MB is also used to regulate the level of produced water and notify when its quantity decreases below the permissible norm.

Design and principle of operation

RIZUR-300-MB is a monoblock design, which consists of a body and a rod, with probes placed on it, the number of which depends on the number of control points required. The device is mounted in a tank and, when the rod is immersed in the medium being tested, it measures its level.

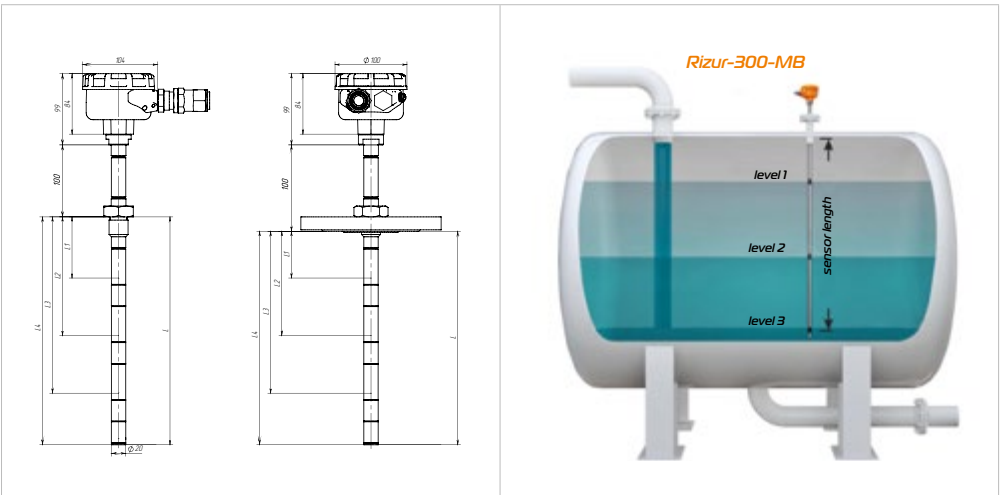
The work is based on the conductometric method. The electronic unit generates an excitation signal between each point of the sensitive element and the device body (metal wall of the tank).

When an electrically conductive medium touches a sensitive element, a weak electric current occurs, recorded by an electronic unit, which, in accordance with the specified response time and sensitivity settings, controls the output relay.

RIZUR-300-MB can have up to 4 control points to monitor media in one tank.

Amount of control level points	1...4
Ambient temperature	-40...+60 °C
Temperature of controlled environment	-50...+150 °C
Pressure of controlled environment, no more than	2,5 MPa
Supply voltage	From 12 to V (intrinsically safe circuit) From 12 to 36 V (3pexplosion-proof sheath) From 12 to 36 V (no explosion-proof protection) 8,2V (NAMUR signal)
Current consumption, depending on the output signal	
Output signal	
«Current loop» from 4 to 20 mA	Not more than 25mA
Relay changeover contact	
Control point 1	Not more than 25mA
Control point 2	Not more than 35mA
Control point 3	Not more than 45mA

Control point 4	Not more than 55mA
Namur	Не более 6mA
Load on output relay contacts (no more than any of values)	250 V/1 A/30 BA (W)
Adjustable response delay	1 s/3 s/10 s/30 s
Explosion protection marking	0Ex ia IIC T6...T5 Ga X 0Ex ib IIC T6...T5 Ga X 1Ex db [ia Ga] IIC T6...T5 Gb X
Ingress protection GOST 14254	IP65, IP67
Housing material	Aluminium alloy Stainless steel 12X18H10T (AISI321)
Material of the level switch in contact with the controlled environment	PEEK, 12X18H10T (AISI321), 10X17H13M2T
Sensor length, mm	90...3 000 (depending on the design)
Distance between control points	Not less than 70 mm
Amount of cable glands	1 or 2
Orientation in space when installed on site	Vertical Horizontal (1 control point)
Average service life	10 years



Membrane level switch

RIZUR-M-SM1



MORE DETAILED

RIZUR-M-SM1 membrane level switch is designed for automatic control of the level of bulk products (grain, cement, crushed stone, sand, etc.) in production tanks, elevators, storage facilities, bunkers, holds of river and sea transport, gravity feeders and containers. The device can be used as an independent device or as part of automated control systems (ACS).

Design and principle of operation

During operation, the bulk product begins to exert pressure through the working membrane on the microswitch of the device, which is activated and transmits a signal to the main signaling and control circuit. The level sensor has one switching "dry" contact capable of switching 5 A of alternating current at a voltage of 230 V or DC with a voltage of 125 V, and also does not require additional stabilizing devices or power supplies for operation.

For correct operation RIZUR-M-SM1 level switch must be installed in a place where there is free access of air and the device cannot be exposed to direct sunlight or any precipitation.

Преимущества

- A simple design solution ensures high reliability;
- Wide range of application;
- Universality, can be used for any type of bulk materials without reconfiguration;
- High degree of accuracy of the signaling device;
- The device membrane has high wear and durability rates;
- Ability to work in a wide temperature range from -45 to $+50$ °C, even at 100% humidity;
- The device is protected from outside penetration of dust and water, has a dust and water protection rating of IP65;
- Service life from 10 years.

Supply voltage	230 V AC 125 V DC
Current strength	5A
Current frequency	50 Hz
Actuation force, N	0,5±20%
Ingress protection IP	IP65
Ambient temperature °C	-45...+50 °C,
Humidity	up to 100% at +25 °C
Probability of failure-free operation for 2000 operating hours, no less than	0,94
Established uptime	not less than 70 000 cycles
Average service life	10 years
Dimensions	125×115×77mm
Weight, no more	0,4 kg



Guided radar level transmitter RIZUR-1300



MORE DETAILED

RIZUR-1300 is a guided radar level transmitter, which has a wide range of applications in chemical, metallurgical and all branches of the fuel industry: oil, gas, electric power, coal, peat.

The device is suitable for most liquids, regardless of changes in the conditions of the parameters of the measured medium, such as density, electrical conductivity, temperature, pressure. Adverse conditions, such as turbulence of the medium, do not affect the accuracy and reliability of the device.

The device is applicable in all types of processes and has stable characteristics in environments with low permittivity, such as oils and hydrocarbons.

The guided radar level transmitter has practically no restrictions in installation: it can be mounted in small containers, high and narrow pipes. The complex geometry, as well as the presence of various protruding structures inside the tanks (for example, agitators, ladders, pipes, etc.) in the immediate vicinity of the level transmitter does not affect the accuracy of measurements and the reliability of the instrument readings. The level transmitter can be manufactured with various options for connection to the process - thread, slip nut, flanges according to Russian and international standards.

The device is manufactured in accordance with the TS26.51.52-001-12189681-2018, has a certificate of compliance with the requirements of the Technical Regulations of the Customs Union «On the safety of equipment for work in explosive environments» No. EAEU RU C-RU.HB82.B.00077/22.

Housing material	Aluminum Alloy
Output signal	4-20 mA (two-wire circuit)
Error	±20 mm (≥200 ... ≤500 mm) ±3 mm (≥500 ... ≤30,000 mm)
Repeatability	±2 mm
Reaction time	≥10 s
Supply voltage	24±2.4V DC
Power usage	Not more than 25 mA
Ingress protection	IP65/IP67/IP68
Explosion protection marking	Without explosion protection 0Ex ia IIC T6...T5 Ga X 1Ex db IIC T6...T5 Gb X






RIZUR-1300 is supplied with one of three variants of the sensing element: rod, cable or coaxial.

The rod probe is recommended for use in tanks without protruding structures.

The cable probe is designed to work in liquids, including in high tanks and hard-to-reach places with limited space for installation.

The coaxial probe is not affected by external conditions and protruding elements of the structures, which could cause distortion of the measurement signal for the core probe .

Thanks to this design, the coaxial probe is the ideal solution for reliable measurements in almost any operating conditions.

Kind of sensitive element	Rod	Cable	Coaxial
Visualization type of sensitive element			
Probe material	Stainless steel 12x18h10t / AISI 321 08x17h13m2 / AISI 316	Stainless steel 12x18h10t / AISI 321 08x17h13m2 / AISI 316	Stainless steel 12x18h10t / AISI 321 08x17h13m2 / AISI 316
The length of the sensitive element	from 800 to 3,000 mm	from 900 to 30,000 mm	from 800 to 6,000 mm
Unmeasured zone on top	≥200 mm	≥200 mm	≥200 mm
Unmeasured zone from below	≥80 mm	≥150 mm	≥80 mm
Maximum load on the probe	6 Nm (side load)	5 kN (buckling load)	100 Nm (side load)
Probe diameter	6/8 mm	4/6 mm	40 mm
Ambient temperature	-40...+60 °C -40...+75 °C	-40...+60 °C -40...+75 °C	-40...+60 °C -40...+75 °C
Process temperature	-40...+130 °C (up to +250 °C on special order)	-40...+130 °C (up to +250 °C on special order)	-40...+130 °C (up to +250 °C on special order)

* The unmeasured zone depends on the dielectric constant of the controlled medium. The nominal length of the non-measured zone is indicated.



Rotameter RIZUR-RPS-250



MORE DETAILED

Design and principle of operation

Rotameters RIZUR-RPS-250 of variable area with a metal cone are used to measure the instantaneous and accumulated flow of liquid, gas and steam in closed pipelines.

The measuring principle is based on hydrodynamic effects, this leads to the movement of a float from bottom to top in a vertical pipe. Because the float displacement depends on the flow rate, which can be read from the indicator using a magnetic drive system in a non-contact manner. In addition, rotameters output an electrical signal (4-20) mA via the HART communication protocol with a high/low limit.

The rotameter consists of a conical tube diverging upward, inside which an indicator float moves. The rotameter works on the following principle: the flow of liquid, steam or gas, due to the pressure created, pushes the float along the flow part of the device. The distance between the float and the conical tube increases, and the hydraulic force on the float decreases. There comes a point when hydraulic force and gravity cancel each other out and the float stops.

The distance it manages to move shows the current flow rate. The resulting value is sent to the display unit. The indicator arrow shows the instantaneous flow rate on the scale, and the indicators of the instantaneous flow rate and the accumulated value are displayed on the liquid crystal display.

Rotameters consist of two main units - a measuring unit and an indication unit. The display unit can be equipped with an analog current output signal and a digital HART protocol. In the absence of a digital indicator and an output signal, up to two configurable normally open contacts can be used.

Medium to be measured	Liquid/gas
Nominal diameter	From 15 to 150 mm
Execution	Vertical design / horizontal design
Measurement range	Water 16...200000 l/h / air 0,5...4500 m ³ /h
Temperature ranges of the measured medium	
- standard design	-40 (-60)...+120°C
- high temperature design	-80...+400°C
Ambient temperature ranges, °C	-40...+120 / -60...+120 (with soft enclosure)
Operating temperature	Up to 45 MPa
Nominal diameter	15...150 mm
Design	Vertical design / horizontal design
Indication	Dial indicator / dial + digital indicator
Design in accordance with output signal	4-20 mA (two-wire connection), protocol communication HART / limit switches (2 pieces)
Supply voltage for Ex ia	From 12 to 28
Supply voltage for Ex db, no explosion protection	From 12 to 36
Ingress protection	IP65/IP67 or IP66/IP68
Service life	More than 10 years
Mean time between failures	More than 70 000 hours



Rotameter RIZUR-RPS-37



MORE DETAILED

Design and principle of operation

RIZUR-RPS series rotameter is a flow meter with a variable cross-sectional area, based on measuring the position of a float. Particularly suitable for measuring small flow rates of liquids and gases.

The rotameter consists of a conical tube diverging upward, inside which an indicator float moves.

The rotameter works on the following principle: a flow of liquid, steam or gas passes from bottom to top through a conical tube, lifting a float until the weight of the float is balanced by the buoyant force.

The distance between the float and the conical tube increases, an annular gap appears, proportional to the flow speed. The height of the float in the conical tube is the scale for measuring the flow velocity.

The distance the float manages to move shows the current flow rate. The resulting value is sent to the display unit. The indicator arrow shows the instantaneous flow rate on the scale, and the indicators of the instantaneous flow rate and the accumulated value are displayed on the liquid crystal display.

Rotameters consist of two main units - a measuring unit and an indication unit, with the ability to be equipped with an analog current output signal from 4 to 20 mA, and a digital HART protocol.

Housing material	Aluminium alloy / stainless steel
Float material in contact with the working fluid	Stainless steel
Medium to be measured	Liquid/gas
Nominal diameter, mm	From 6 to 15
Limits of permissible reduced error, %	$\pm 2,5/\pm 4$
Measurement range	Liquid 0,1-1...300-3000 l/h / gas 0,0035-0,035...9-90 m ³ /h
Indication and output signal	Pointer indicator, no output signal/ pointer / 4-20 mA (two-wire connection), protocol HART connection
Supply voltage	
• for Ex ia	From 12 to 28
• without explosion protection V	From 12 to 36
Design according to explosion protection	Intrinsically safe circuit [Ex i] / no explosion
Explosion protection marking	II Gb II C T6...T1 X / 0Ex ia IIC T6...T3 Ga X
Pressure, MPa	Up to 45
Temperature range of the measured medium	
- standard design	-60 ...+70 °C
- high temperature design	-60...+150 °C
Ambient temperature range	-40(-60)...+70 °C
Ingress protection	IP67 or IP66/IP68
Service life	More than 10 years



Non-contact radar level transmitter RIZUR-2030



RIZUR-2030 uses advanced non-contact radar measurement technology and is designed for continuous monitoring and level measurement without direct contact with the medium.

RIZUR-2030 is safe and reliable, easy to install and operate.

RIZUR-2030 non-contact radar transmitter manufactured by NPO RIZUR is designed to measure and indicate the level of various liquids and bulk media. RIZUR-2030 is used in open, closed, including pressurized containers, in technological installations at chemical, petrochemical, oil and gas, pharmaceutical, food and other industries. RIZUR-2030 is suitable for use in explosive zones where the formation of explosive mixtures of gases and vapors with air is possible.

The RIZUR-2030 level transmitter does not come into contact with a controlled environment, therefore it can be used for polluted environments, as well as with environments that require special sanitary conditions to be observed when working with. The operation of the device is not affected by changes in the parameters of the measured medium, such as density, electrical conductivity, temperature, pressure, viscosity.

RIZUR-2030 has a monoblock design. The housing and cover of the level transmitter are made of aluminum alloy by casting. Under the cover there are: a terminal block for connecting the cable and an indicator. The cable is inserted into the housing through a cable gland with an oil seal. It is possible to hermetically fix the level transmitter on the object using a flange (the connection is sealed with a gasket) or a fitting.

The device is manufactured in accordance with the TS-26.51.52-001-12189681-2018, has a certificate of compliance with the requirements of the Technical Regulations of the Customs Union «On the safety of equipment for work in explosive environments» No. EAEU RU C-RU.HB82.B.00077/22.



MORE DETAILED

Housing material	Aluminum Alloy
Antenna material	Stainless steel (horn) / Fluoroplast (lens)
Operating measurement range	30 m
Upper non-measurable level	0.5 m
Operation process temperature	-60...+150 °C / -60...+250 °C
Working medium pressure	-0.1...+ 4.0 MPa
Explosion protection marking	Without explosion protection 0Ex ia IIC T6...T5 Ga X 1Ex db IIC T6...T5 Gb X
Output signal	Analog 4.. 20 mA (2-wire connection)
Supply voltage	24 V
Switch-on time, no more	25 s
Average service life	10 years

Non-contact ultrasonic level transmitter RIZUR-2090



The non-contact ultrasonic level transmitter RIZUR-2090 is designed for measuring and indicating the level of various liquids and bulk media. RIZUR-2090 is used in open, closed, including pressurized containers, in technological installations at chemical, petrochemical, oil and gas, pharmaceutical, food and other industries.

RIZUR-2090 is suitable for use in explosive zones where the formation of explosive mixtures of gases and vapors with air is possible.

RIZUR-2090 level transmitter does not come into contact with a controlled medium, therefore it can be used for polluted media, as well as with media with which special sanitary conditions must be observed.

The operation of the device is not affected by changes in the parameters of the measured medium, such as density, electrical conductivity, temperature, pressure, viscosity.

The device is manufactured in accordance with the TS26.51.52-001-12189681-2018, has a certificate of compliance with the requirements of the Technical Regulations of the Customs Union «On the safety of equipment for work in explosive environments» No. EAEU RU C-RU.HB82.B.00077/22.

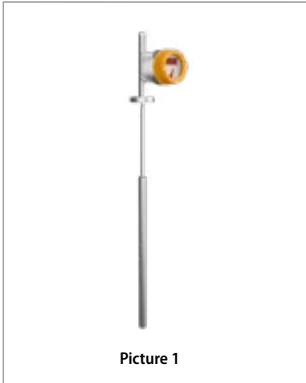


MORE DETAILED



Overall dimensions of the transmitter	Ø44x100 mm	Ø62x100 mm	Ø90x100 mm
Measuring range, no more than	4 m	8 m	12 m
Housing material	Aluminum Alloy		
Antenna material	Polyamide 66 glass-filled		
Operating process temperature	-40...+70 °C		
Process pressure	-0.02...0.1 MPa		
Output signal	4-20mA, current		
Power supply voltage	24±8 V		
Insulation resistance	Min. 20 MOhm		
Switch-on time, no more than	15 s		
Current output action time	15 s		
Average service life	10 years		

Displacer-type level gauge RIZUR-4000



Picture 1



MORE DETAILED

Purpose and field of application

Level gauges are designed for measuring and digitally indicating the level of various liquid media in open or closed, including those under pressure, tanks and technological installations of industrial facilities in the chemical, petrochemical, medical, food and other industries.

The main advantages of displacer-type level gauges:

1. Possibility of measuring the level of various types of liquids;
2. Ease of installation and use;
3. Ability to operate in a wide range of temperatures and pressures;
4. Possibility of use in aggressive environments

Description of the measuring device

The general view of level gauges is shown in the picture 1.

Serial numbers are engraved to the level gauge plate.

The design structure is shown in Picture 2.

Design and principle of operation

The principle of operation is based on measuring the buoyant force determined by the density of the liquid. When the level of liquid in the vessel changes, the buoyant force acting on the displacer rod changes, as a result of which the load on the spring on which the displacer rod is suspended changes. Changing the load leads to stretching or compression of the spring, the results of changing the length of the spring are transmitted to the display using an electromagnetic system installed in the measuring chamber.

Structurally, the level gauge consists of an indicator and a primary transducer consisting of a displacer rod, a flange attachment and a spring suspension with a magnetic coupling.

Field of application	Level measurement
Operating method/measuring principle	Displacer principle
Measured parameter	Level
Min.measurement range	0,3 m
Max.measurement range	16 m
Working product	Liquids
Density	400 — 2000 кг/м ³
Temperature	-200... +400
Housing	Powder coated aluminum
Displacer rod	Stainless steel / Special design
Spring	Stainless steel (t of measured environment < 100°C)
Соединение	Falnged (Stainless steel) / Threaded (stainless steel)
Подвес	Rigid (stainless steel) / Flexible (stainless steel)

Operating conditions:	
- ambient temperature, °C	From -40 (-60) to +60
- relative air humidity, %	From 0 to 98 (no condensation)
- atmospheric pressure, kPa	From 84,0 to 106,7

Overall dimensions of the indicator, mm, no more:	300
- length	300
- width	400

Indicator mass without without displacer, kg, no more:	17
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Average service life, years, not less*	10
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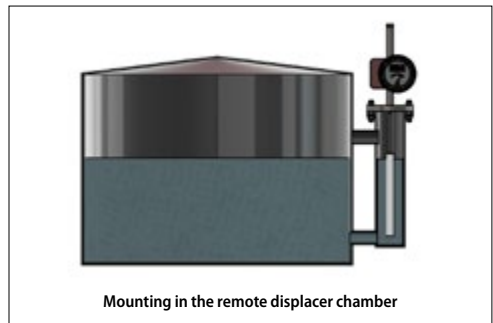
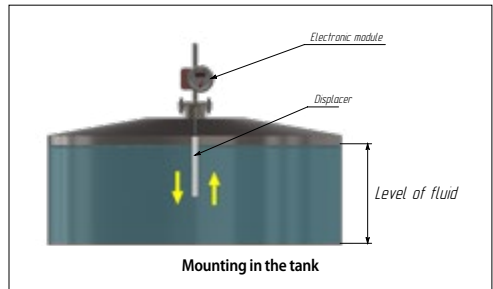
Mean time between failures	More than 70 000 hours
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Explosion protection marking	0Ex ia IIC T6...T3 Ga X / 1Ex db IIC T6...T3 Gb X / II Gb II C T6...T3 X
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Ingress protection marking	IP65/IP67 or IP66/IP68
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Output signal and indication	Pointer + digital indicator, 4...20 mA (two-wire connection), protocol HART; Pointer, no output signal; Pointer + digital indicator, switching contact NAMUR. Limit switches (2 pieces)
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Mounting option





Magnetostrictive float level gauge of RIZUR-NMT-M series



MORE DETAILED

Purpose and field of application

RIZUR-NMT-M — is a float magnetostrictive level gauge for measuring the level of liquids and liquid interface level

RIZUR-NMT-M is used in open or closed containers, including those under pressure, in technological installations of industrial facilities in the chemical, petrochemical, oil refining, metallurgical, thermal power, medical, food and other industries

Design and principle of operation

The operating principle of level gauges is based on the interaction of a magnetostrictive probe-waveguide, located inside the tube, and one or more magnetic blocks (hereinafter - MB), freely moving along the probe. The MB is located in a float, which, under the action of the buoyant force of the liquid and the force of gravity, moves along the probe.

The float is designed in such a way that it is always on the surface of the liquid. The float level gauges are located on the probe or at the distance of the MB magnetic field from the probe (in the bypass pipe).

Level gauges have a rigid or flexible probe. The electronic unit (hereinafter – EU) generates an electrical pulse that creates a magnetic field along the entire length of the probe, and begins counting time.

At the location of the MB, an elastic deformation pulse arises, which propagates along the probe towards the EU. In the EU, the elastic deformation pulse is converted into an electrical signal and the time countdown ends. The measured time value is converted into the distance value from the EU to the MB, and the level value, then converted into a unified current output signal, a digital signal and displayed on the indicator.

Level gauges are manufactured in general industrial and explosion-proof (explosion-proof enclosure Ex db or intrinsically safe circuit Ex ia) versions

Probe length, mm, not more than - rigid probe / - soft probe	6000/25000
Upper unmeasurable level, mm	100
Lower unmeasurable level, mm	100
Supply voltage	From 12 to 32 V
Type of process connection	Threaded/Flanged/Other (as agreed with the manufacturer)
Degree of protection	IP65/IP67/IP68
Output signal	4-20mA+HART / Analog (2-wire connection)
Operating conditions: - ambient temperature*, °C -relative humidity at temperature +40 °C, % %, not more than	From -40 to +60 / From -40 to +80 95
Parameters of the measured medium**: - excess pressure, MPa / - temperature, °C	From -0,1 to 20 / from -40 to +200
Explosion protection marking	0Ex ia IIC T6...T4 Ga X / 1Ex db IIC T6...T4 Gb X
Warranty period	12 months
Average service life	10 years
Mean time between failures	More than 70 000 hours

*When the level gauges are equipped with a soft enclosure, it is possible to use the level gauges at ambient temperatures from -60 °C.

**Operation of the digital indicator is ensured at ambient temperatures from -20 °C to +70 °C. Exposure to lower or higher ambient temperatures, within the operating conditions of the level gauge, does not lead to damage to the digital indicator, while its readings may be unreadable, the frequency of its updates is reduced, the error in reproducing the output current signal from 4 to 20 mA does not exceed the limits, indicated in this table.



Explosion-proof cable glands RIZUR-KVV



RIZUR-KVV are designed for sealing and fixing cables with various insulation when they are inserted into electrical or electrical equipment. RIZUR-KVV cable glands are used for all types of cable: electrical, heating, telecommunication, information and others.

RIZUR company produces cable glands for both armored and unarmored cables laid in a metal sleeve or without it. Explosion-proof RIZUR-KVV cable glands and accessories (adapters, plugs and drainage and ventilation valves) are made of various materials: brass, nickel-plated brass, galvanized steel, stainless steel, anodized aluminum. Silicone rings of different diameters are used for sealing.

All products marked Exd have at least 5 complete continuous turns of thread. The safety of operation of RIZUR-KVV cable glands at explosive objects is confirmed by the certificate of conformity of the Technical Regulations of the Customs Union «On the safety of equipment for work in explosive environments» No. EAEU RU C-RU.HB82.B.00077/22.



MORE DETAILED



Explosion protection marking
cable glands

1 Ex eb IIC Gb/Ex tb IIIC Db или
1 Ex eb IIC Gb/1Ex db IIC Gb/Ex tb IIIC Db

Ingress protection
impacts

IP66/IP67/IP68

Operating temperature range

From -60 °C to +80 °C (standard version)
From -65 °C to +110°C (on special order)

Material

Brass / Nickel-plated brass / Stainless steel
(AISI 201 / AISI 304 / AISI 321 / AISI 316)

Type of connecting thread

M – metric (GOST 24705-2004)
R – taper pipe (GOST 6211-81)
G – cylindrical tube (GOST 6357-81)
NPT – inch taper (GOST 6111-52)

Sealing ring material

Silicone Rubber



Explosion-proof junction boxes

RIZUR-KS series



Explosion proof junction boxes RIZUR-KS are manufactured according to TU 27.12.31-001-27965004-2017 and are designed for connecting and branching signal and power cables of automation and telemechanics systems in DC or AC circuits. The safety of operation of RIZUR-KS junction boxes at explosive objects is confirmed by certificates of conformity No. EAEU RU C-RU.HB82.B.00100/22 of the technical Regulations of the Customs Union TR CU 012/2011 «On the safety of equipment for work in explosive environments».

RIZUR-KS junction boxes have housings and covers made of materials resistant to the negative effects of the environment and various chemicals, including hydrochloric acid and hydrogen sulfide vapors. RIZUR-KS sealing system has a special labyrinth shape and provides a degree of ingress protection not lower than IP65. Explosion-proof spring/screw/block terminal blocks are located inside the boxes, with types of explosion protection «e» or «ia». Cable glands for various types of cable are mounted on the walls of the boxes, which securely fix the cable and prevent dust and moisture from getting inside.



MORE DETAILED



Explosion protection marking	1Ex eb IIC T6 Gb/Ex tb IIIC T80°C Db / or 1Ex eb IIC T5 Gb/Ex tb IIIC T95°C Db / or 1Ex eb IIC T4 Gb/Ex tb IIIC T130°C Db / or 1Ex db IIC T6 Gb/Ex tb IIIC T80°C Db / or 1Ex db IIC T5 Gb/Ex tb IIIC T95°C Db / or 1Ex db IIC T4 Gb/Ex tb IIIC T130°C Db / or 1Ex db IIB T6 Gb/Ex tb IIIC T80°C Db / or 1Ex db IIB T5 Gb/Ex tb IIIC T95°C Db / or 1Ex db IIB T4 Gb/Ex tb IIIC T130°C Db / or 0Ex ia IIC T6 Ga X, 1Ex ib IIC T6 Gb X, 2Ex ic IIC T6 Gc X
Ingress protection, IP	IP65/IP66/IP67/IP68
Nominal voltage, V	380 V (other options possible by agreement)
Rated current, A (for one group of terminal blocks)	24 A (other options are possible by agreement)
Working position in space	Any
Ambient temperature, °C	-60 °C....+85 °C
Placement of cable glands	According to the customer's specification (it is possible to supply only the housing without cable glands and terminal blocks)
Case dimensions	Depending on the type of box and the number of cable entries and terminal blocks.



Explosion-proof and general industrial luminaires RIZUR-LIGHT



MORE DETAILED

RIZUR-LIGHT luminaires are designed for lighting applications of various types.

Explosion-proof LED lamps of the RIZUR-LIGHT series are used to illuminate premises, production workshops, outdoor areas, including those located in explosive zones. The sealed housing prevents the ingress of gas, dust, vapors of flammable liquids. The luminaires are used in the oil and gas, chemical, metallurgical, gas, mining, electric power, aerospace and other industries.

RIZUR-LIGHT has a wide range of applications. Luminaires are used in : oil and gas platforms, oil refineries, onshore drilling rigs, power plants, airports, etc.; industrial and public buildings, office, residential premises, housing and communal services facilities, warehouse complexes, workshops, workshops, hangars, terminals, repair areas, shopping centers, transport and logistics centers, shops, apartment entrances houses, stairwells, vestibules, basements and utility rooms, elevators, garages of shopping malls, supermarkets, car washes, covered and underground parking lots, premises of transport depots, garages, warehouses, agricultural facilities — livestock farms and complexes, etc.; open areas: streets, courtyards, house territories, gazebos, verandas; lighting of roads of all categories — highways, sidewalks, pedestrian paths; parking lots, construction sites, parks, alleys, squares, etc.; also luminaires of the RIZUR-LIGHT series are used for architectural illumination of buildings and structures.

Since 2014 NPO RIZUR has been producing explosion-proof and general industrial RIZUR-LIGHT LED luminaires in series. Design developments are being improved. It is possible to produce both standard LED luminaires for various purposes, and non-standard, based on the technical requirements of the customer.



RIZUR-LIGHT-A	RIZUR-LIGHT-A	RIZUR-LIGHT-DDU
		
RIZUR-LIGHT-L		RIZUR-LIGHT-F
		

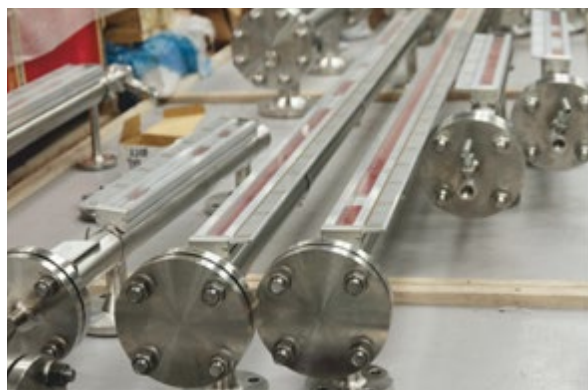
	RIZUR-LIGHT-A	RIZUR-LIGHT-AM	RIZUR-LIGHT-DDU
Purpose	For lighting open industrial sites, production facilities and other places where explosive atmospheres may be present.	For lighting industrial premises, workshops, territories and sites. Designed for use in hazardous areas in accordance with the assigned explosion protection marking.	For lighting warehouse and production premises, administrative and other institutions, retail areas, premises of livestock complexes
Operating temperature, °C	- 60...+40	- 60...+40	-45...+50
Explosion protection marking	1Ex sb IIC T4...6Gb	1Ex sb IIC T4...6Gb	1Ex s IIC T5 Gb X
Colour temperature, K	4500-5000	4500-5000	5000/4000
Climatic category	NF1	NF1	NF4
Housing material	Solid aluminium	Solid aluminium	Extruded aluminum profile
Power consumption no more than, W	22/28	25/30/32/35/50/60/65/70	18/35/42/54/108/162/216

	RIZUR-LIGHT-F	RIZUR-LIGHT-L-18	RIZUR-LIGHT-L-25	RIZUR-LIGHT-L-32
Purpose	Used to create architectural and landscape lighting, lighting of billboards, industrial premises, open and closed areas, as well as LED headlights for additional lighting on vehicles	Used for local lighting at fire and explosive sites. They are used as duty, emergency, and signal lighting.		
Operating temperature, °C	-60...+40	-40...+50	-40...+40	-40...+40
Explosion protection marking	General industrial design	1Ex sb IIC T4...6Gb	1Ex sb IIC T4...6Gb	1Ex sb IIC T4...6Gb
Colour temperature, K	5000	4500-5000	4500-5000	4500-5000
Climatic category	—	NF1	NF1	NF1
Housing materia	Solid aluminium	Cast aluminium	Cast aluminium	Cast aluminium
Power consumption no more than, W	20/25/35	18	25	32

RizurBox in the facility







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