



INSTRUMENTATION AND ACCESSORIES

PRODUCTION

EMIS



emis-meter.com

PRODUCT CATALOGUE

FLOW



PRESSURE



LEVEL

Dear customers and partners!

EMIS JSC is a leading Russian manufacturer of instrumentation and control with the widest product line.

Following our mission to bring the domestic instrumentation industry to the level of the best world standards, we strive to make the "EMIS" brand a symbol of quality and reliability of instrumentation and control.

Continuous improvement, scientific and technical potential, modern production facilities and strong engineering corps allow the company to take a leading position in the domestic instrumentation market. Every year we construct new versions of instruments which we are pleased to present in catalogue 2025!

Continuing our development in the "level" direction, we launched EMIS-PULS radar level meters and guided wave radar level meters.

Another novelty became the version of Coriolis meter EMIS-MASS 260 for measuring and dosing of small liquid flow rates. We enter 2025 with new versions of electronics for Coriolis, electromagnetic and vortex flow meters. Thanks to new electronics, EMIS-MASS 260 meters now enable to diagnose the instruments using the event log, new algorithms for measuring the concentration of single components of the mixture and other additional functions.

EMIS-MAG 270 electromagnetic flow meters now have a wider range of settings ensuring operation on a variety of media including complex media such as slurries and liquids with sand. In addition, the device can perform simulated verification without removal from the pipeline and other advantages.

In new electronics of vortex flow meters EMIS-VIHR 200, 3-in-1 version, along with HART protocol updating to version 7, connection of the built-in temperature sensor is updated. Simulated verification is now possible not using an external oscillator or frequency meter.

We are actively working on implementation of LoRaWAN wireless communication technology. It is now available for EMIS-BAR pressure transmitters using our new development: the EMIS-SYSTEM 800 transducer-transmitter. Among the new advantages of EMIS pressure transmitters is increase of the calibration interval up to 6 years.

Along with technical capability improvement of instruments we continued to increase the production capacity of the enterprise, in particular we carried out a large-scale upgrade of the pressure transmitter and gas meter sections, and expanded the metrological base.

In 2025 the company sets itself no less ambitious plans to launch new production lines, to increase the volume of products, to reach the higher level of technical characteristics of EMIS instruments!



Sincerely,
Executive Director
EMIS JSC

Likhacheva Daria Andreevna

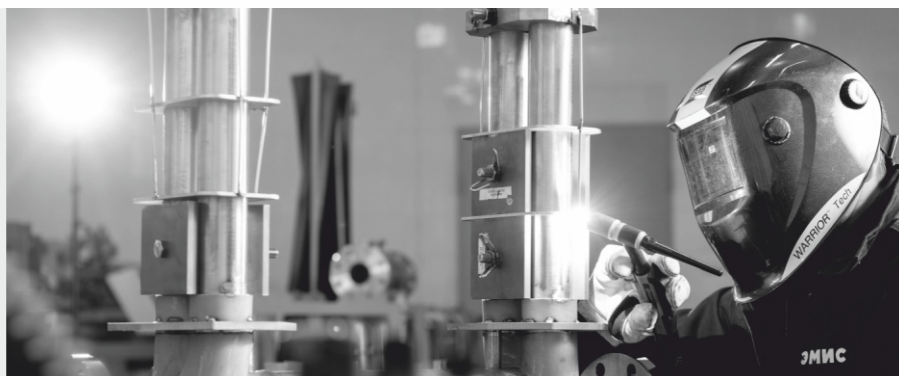
Fields of activity

The main production is located in the city of Chelyabinsk and occupies two process sites with a total area of more than 23 thousand m². EMIS JSC carries out the full cycle of instrument-making process: development and design, production and verification, installation supervision and commissioning services.

01

PRODUCTION

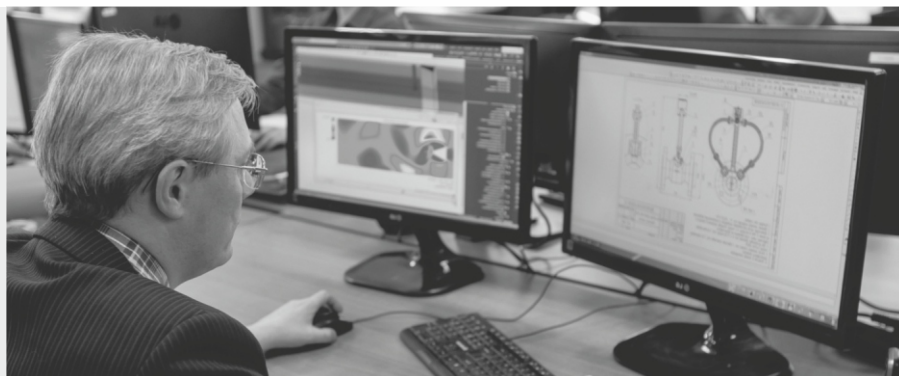
Production of flow meters, pressure transmitters, level switches and energy metering complexes.



02

ENGINEERING

Design, metrological engineering.



03

VERIFICATION

Verification services for liquid and gas meters.



04

SERVICE

Service and after-sales support.



EMIS today

Implementation of the latest technologies, innovative engineering developments and modernization of production allow the company to increase the volume of products annually and increase its presence in the automation equipment market.

23000+



square meters of production space

45+

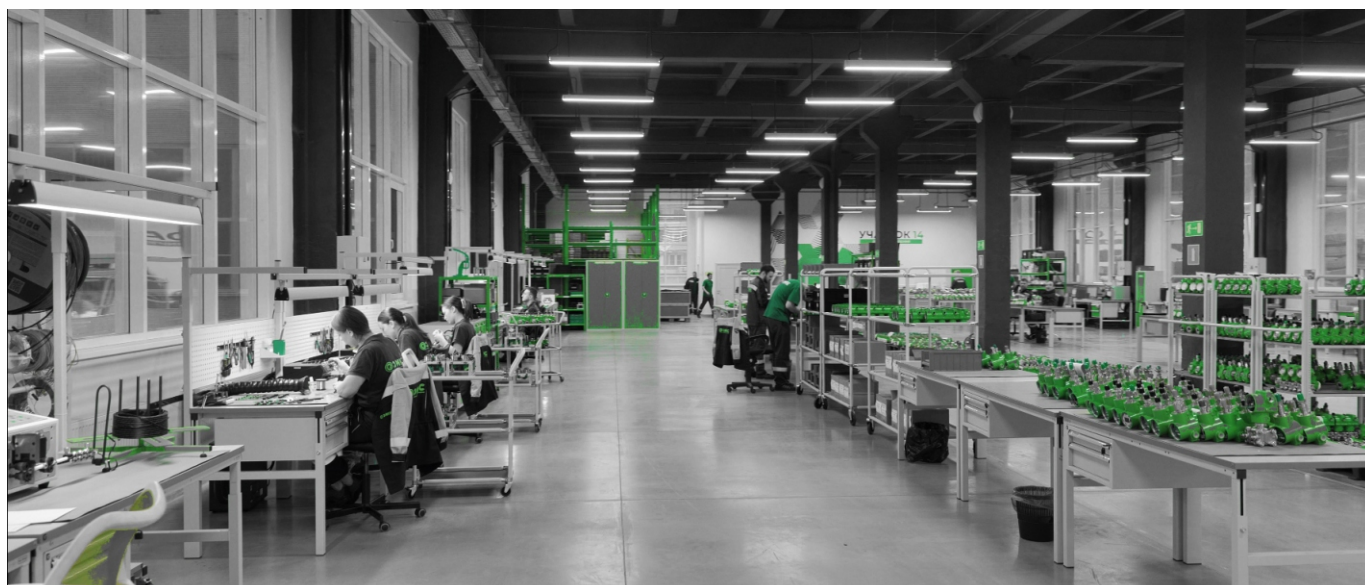


patents for inventions and useful models

35+

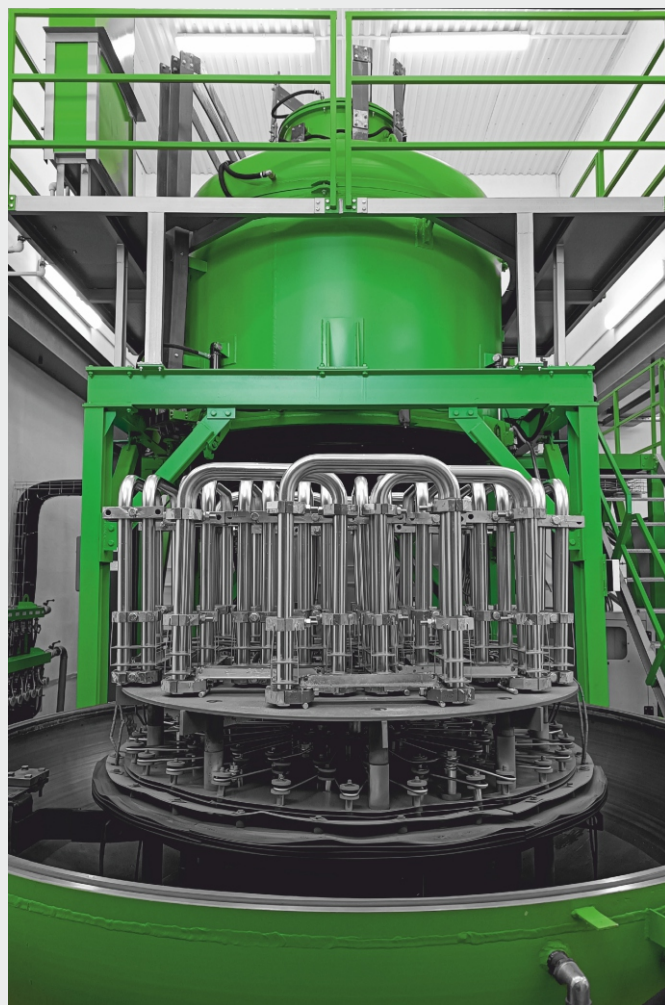


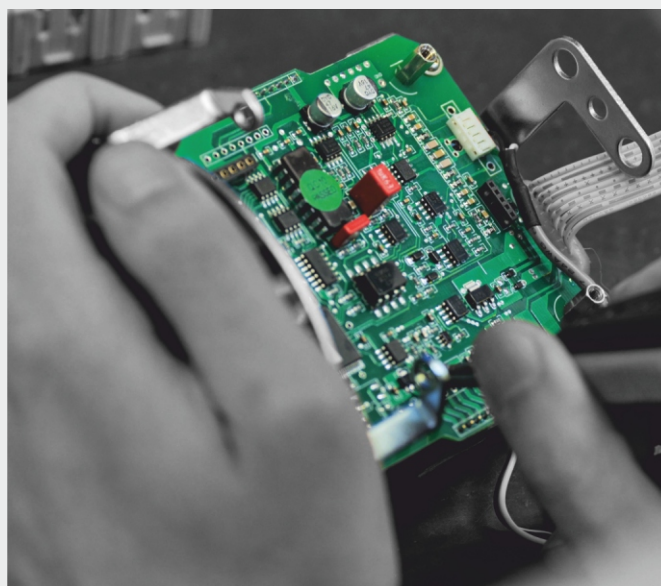
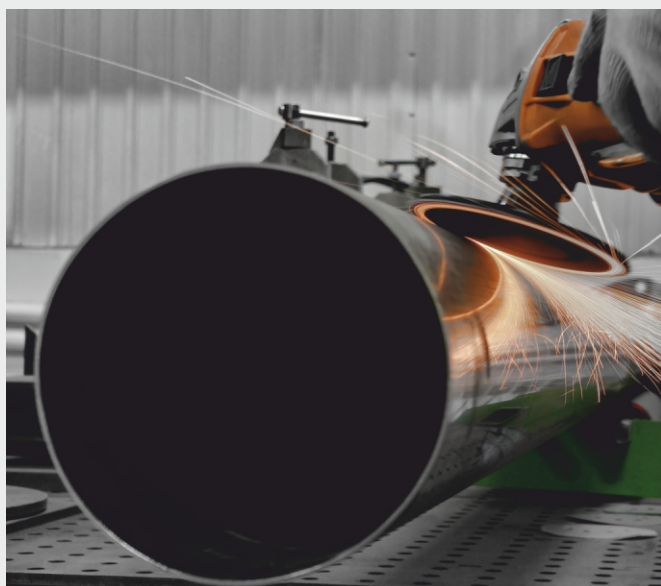
output product names



Production facilities

Production facilities include electronics, welding, assembly and technical inspection sections as well as testing laboratories. The quality management system is certified according to ISO 9001 - 2015.





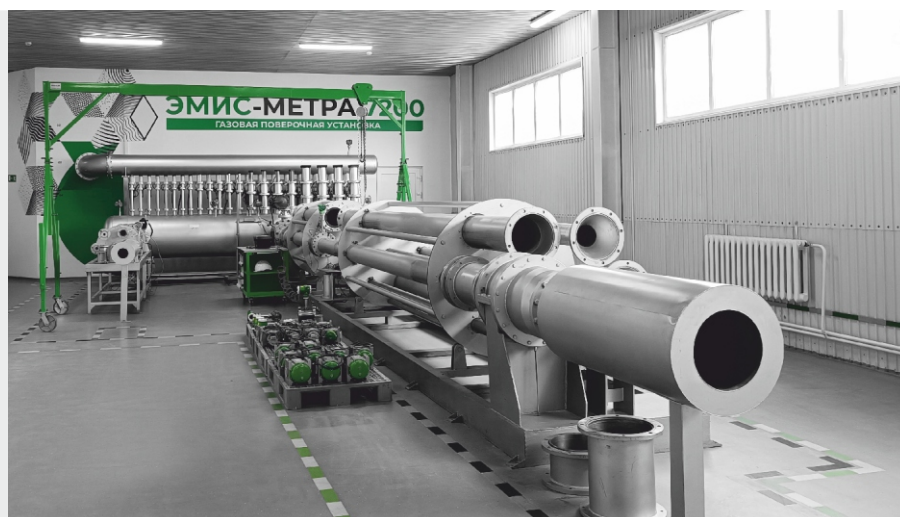
Metrological facilities

EMIS company as a leading instrumentation and control manufacturer has its own metrological facilities consisting of a set of primary and secondary reference standards of liquid and gas flow.

GAS VERIFICATION UNIT

EMIS-METRA 7200

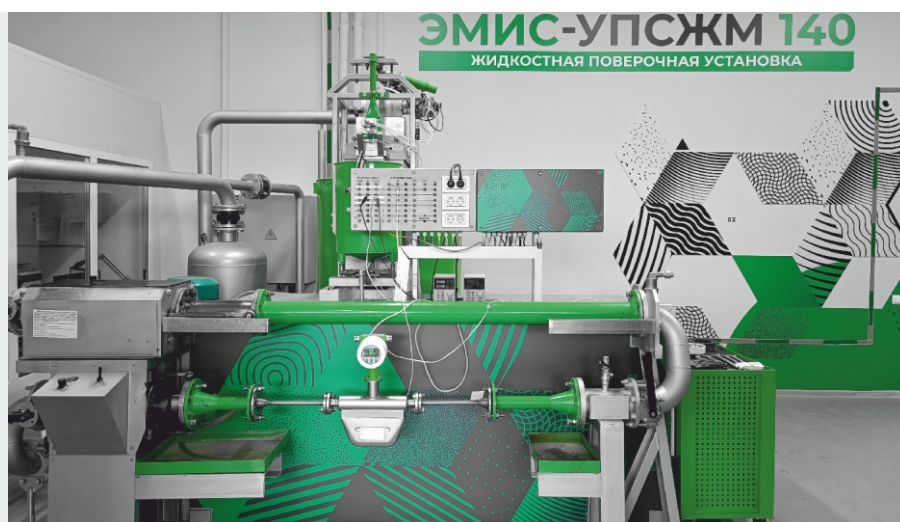
Grade 1 gas flow rate
reference standard.
Innovative development
of the company's specialists



LIQUID VERIFICATION UNIT

EMIS-UPSGM 140

Grade 1 fluid flow rate
reference standard



LIQUID VERIFICATION UNIT

EMIS-METRA 7100-20

Grade 2 fluid flow rate
reference standard



Liquid and gas verification units of EMIS metrological facilities are designed and manufactured by company's specialists using its own unique patented technology.

GAS VERIFICATION UNIT

EMIS-METRA 7200-2500

Grade 1 gas flow rate reference standard. Innovative development of the company's specialists



LIQUID VERIFICATION UNIT

EMIS-METRA 7100

Secondary fluid flow rate reference standard



METROLOGICAL TEST BENCHES FOR PRESSURE TRANSMITTER CALIBRATION

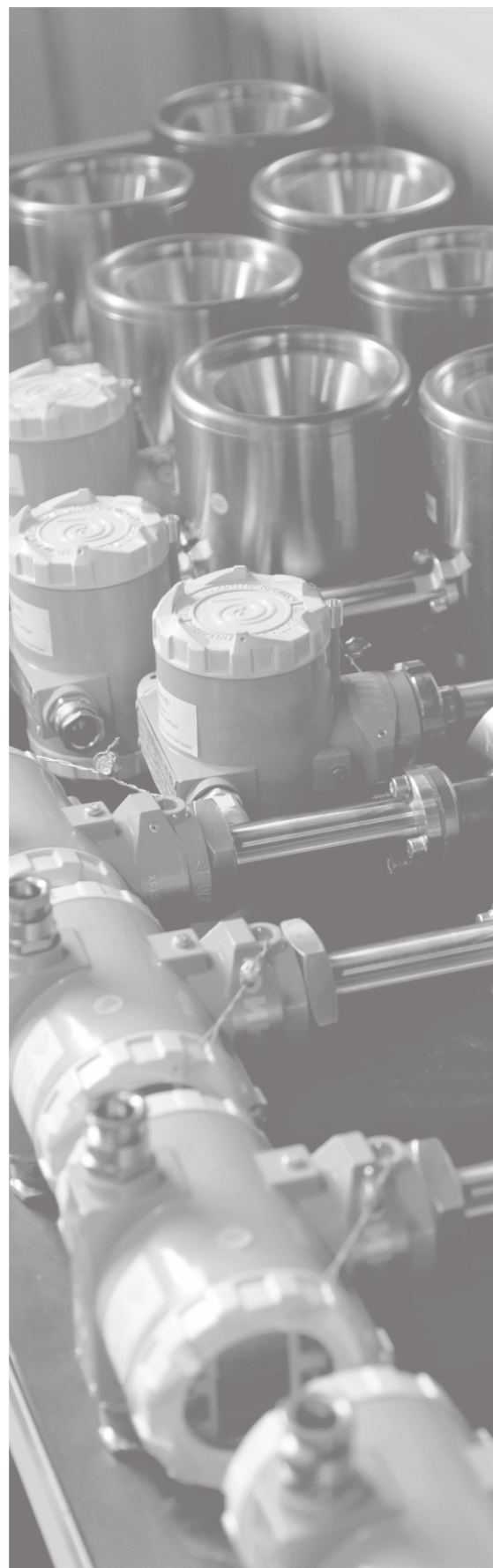




INSTRUMENTATION AND CONTROL

FLOW RATE › PRESSURE › LEVEL

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01



EMIS-BAR

Pressure transmitters

Designed for measuring absolute, gauge, differential and hydrostatic pressure. Determine the discharge of liquid and gaseous media, saturated and superheated steam. For pressure measurement under difficult technical conditions, the transmitters are manufactured with membrane phase separator (MPS).

EMIS-BARs can be operated at remote hard-to-reach sites without power supply and transmit data via Lo Ra WAN network. The fully complete wireless stand-alone solution is the EMIS-BAR transmitter complete with EMIS-SISTEMA 800 transducer-transmitter (ref. page 44).

Due to the reduced measurement error of 0.04%, EMIS-BAR is used as part of commercial metering units and heat meters.

Design versions



01 EMIS-BAR 143 / 153 / 193
Flanged
(differential pressure)

02 EMIS-BAR 163 / 164
With remote diaphragm
seal (differential pressure)

03 EMIS-BAR 105 / 133
Flanged (gauge / absolute
pressure)

04 EMIS-BAR 183 / 188
With flat diaphragm seals
(diff.pressure)

05 EMIS-BAR 173 / 176
With flat diaphragm seal
(gauge / absolute pressure)

06 EMIS-BAR 103 -123
Nipple (gauge / absolute
pressure)

07 EMIS-BAR 113
With open diaphragm seal
(gauge pressure)

Technical specifications

Measured fluid	Gas (including oxygen), vapor, liquid (including contaminated liquids and mixtures of liquids)
Measured medium pressure, MPa	up to 70
Measured medium temperature, °C	-120...+700 (using diaphragm seal)
Ambient temperature*, °C	-60...+85
Basic percentage error, %	±0,04; ±0,065; ±0,074; ±0,1; ±0,15; ±0,16; ±0,2; ±0,25; ±0,4; ±0,5; ±0,6; ±1,0; ±1,5; ±2,0; ±2,5
Output signals	4-20mA + HART v.6, v.7 with DD files available
Explosion protection type	Exia, Exd, Exdia, RO, RV, RVia
Ingress protection	IP65, IP66, IP67, IP68
Readjustment range**	Up to 100:1
Interval between verifications, years	6
Mechanical connection	M20x1,5; M44x1,25; G1/2, 1/2NPTF, 1/4NPTM, flange version, hygienic connection



* - For ambient temperature, refer to the Operations Manual.

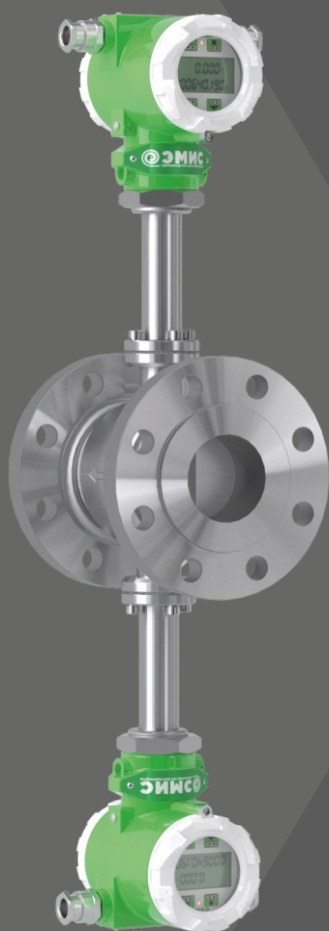
** - According to the pressure transmitter model.

Specific features and advantages

- Complete with diaphragm seal in various versions.
- Ability to operate via LoRaWAN wireless technology.
- Basic percentage error up to ±0.04% of the measuring range.
- Complete push-button setting directly in the hazardous area.
- Combined explosion protection 1Ex d ia IIC T6...T4 Gb X.
- Mining explosion protection PB Ex d ia I Mb X. Long-term stability is one of the best in the industry: no more than 0.1% of the measuring range over 10 years (0.01% of the range for 1 year).
- Sensor and electronics temperature measurement.
- Average MTBF is 220,000 hours.
- LCD display operability is -42...+85°C. Double-chamber housing of the electronic unit.
- lifespan: 30 years old.
- High overload capacity: up to 105 MPa. Average
- Certificate of VCS "Intergazsert".
- Seismic resistance is 9 points according to MSK64 GOST 30546.1.
- Certificates: TR CU 032, TR CU 012, TR CU 020.
- Vibration resistance V2 and G2 according to GOST R 52931-2008.
- Certificate of Type Approval from the RMRS.
- Certificate for use in environments containing hydrogen sulfide GOST R 53679-2009, GOST R 53678-2009.
- Certificate for use in contact with chlorine GEST 79/82. SIL2 certification with ability to calculate the safety integrity level.
- Measuring diaphragm materials are 316L steel, 316L gold-flashed, tantalum, C-276 alloy, monel.



01



EMIS-VIHR 200

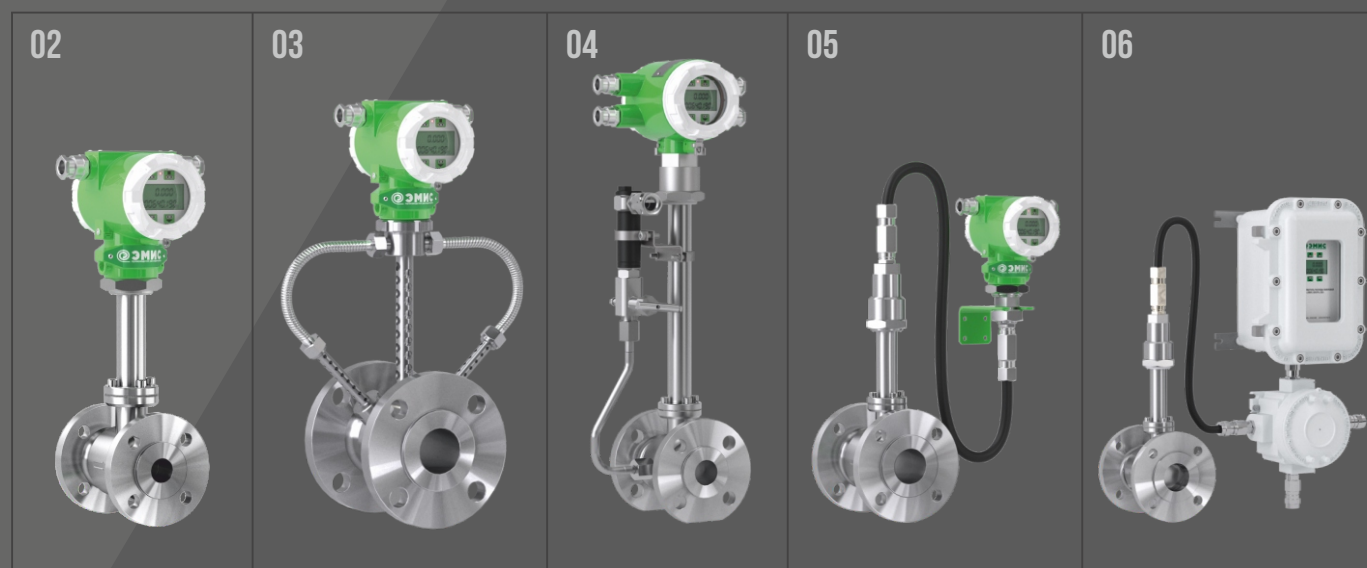
Vortex flow meters

Designed to measure the volume and volume flow of liquids, gases (natural gas, associated petroleum gas, hydrogen, oxygen, air and other gases), saturated and superheated steam, corrosive media at operating pressure and operating temperature as well as the volume and volume flow rate of gas reduced converted to standard conditions in various industries.

They are used both for direct flow measurement of most process media and as part of commercial energy metering units including in heat supply systems, CWS, HWS.

If the working fluid density is constant, it is possible to measure mass and mass flow rate by setting the density in the calculator of the electronic unit of the flow meter.

Design versions



01

EMIS-VIHR 200
Two-sensor
version

02

EMIS-VIHR 200
Flanged
version

03

EMIS-VIHR 200
High-temperature
version

04

EMIS-VIHR 200
3 in 1
version

05

EMIS-VIHR 200
Remote
version

06

EMIS-VIHR 200
Mining
version

Technical specifications

Measured medium	Liquid / gas / steam
Nominal bore diameter, mm	15; 25; 32; 40; 50; 65; 80; 100; 125; 150; 200; 250; 300
Measured medium pressure, Mpa	Up to 30
Measured medium temperature, °C	-200...+450
Ambient temperature, °C	-60...+70
Accuracy liquid/gas, steam, %	Up to ±0,5 / up to ±0,7
Output signals	Frequency - corresponds to NAMUR NA 01; Pulse; Analog current 4-20 mA - corresponds to NAMUR NE 43; Digital signal Modbus RTU (RS-485, USB), HART
Explosion protection	Exi, Exd, mining version
Ingress protection	IP 66/68
Interval between verifications, years	5



Specific features and advantages

- One of the best measurement accuracy for vortex flow meters in Russia: $\pm 0.5\%$ for liquid media and $\pm 0.7\%$ for gas environment.
- High metrological stability of measurements. Measurement of mass flow rate of liquids, saturated and superheated steam as well as volumetric flow rate of gas media under standard conditions with standardized error in accordance with GOST, GSSSD (for electronic unit version with «VV» calculator).
- Version with external pressure and temperature sensor (for electronic unit version with "VV" calculator).
- Version with 2-wire connection (power supply via current loop of 4-20 mA signal line).
- $\pm 1\%$ error measurement with gas phase contents up to 4%. Survival with $\pm 6.5\%$ accuracy at up to 15% gas phase content in liquid.
- Service and diagnostic proprietary software EMIS-Integrator.
- Sensor resistance to hydraulic impacts. High-temperature version (up to +450°C). Cryogenic version (down to -200°C).
- Stable operation at high temperatures. Digital signal filtering.
- Adjustable pulse weight and duration. A set of self-diagnostic functions, also according to NAMUR NE 107.
- Approved simulated verification and diagnostics of the instrument not stopping the process.
- Remote data transfer, configuration via RS-485 or USB based on Modbus RTU and HART protocol.
- Mining version for use in underground operations of mines, mining plants where there is a risk of mine gas, mining dust.
- Possibility to manufacture instruments with mounting dimensions of imported analogs.
- Availability of the sanitary and epidemiological inspection report.
- Availability of GOST R 53678 and GOST R 53679 certificate of conformity for use in environments containing hydrogen sulfide.
- Test report of Gazprom VNIIGAZ LLC for compliance with requirements of RTM 311.001-90 was received.
- Certificate of VCS «Intergazsert».

Version 1



EMIS-VIHR 200 PPD

Vortex flowmeters
with piezoelectric bending moment sensor

They are used for metering water injected into the reservoir during oil production to maintain reservoir pressure. This modification of the vortex flow meter is specially developed for measuring media under high pressure conditions and in the presence of mechanical and gas inclusions. Instrument operation reliability is ensured by the special sensor design.

This flow meter is used to measure: fresh water (river water, lake water), produced water (coming from oil treatment plants), formation water, Cenomanian water, oil-water mixtures, chemical and other liquid products that are not aggressive to flow meter materials.

Version 2



EMIS-VIHR 200 PPD

Vortex flowmeters
with vortex acoustic signal pick-up

Designed for measuring the volume flow rate of liquids in reservoir pressure maintenance systems, Cenomanian water as well as other liquids at increased pressure.

Flow transducers can be used as part of automatic control and monitoring systems, local automation diagrams using frequency-pulse signal, current signal and digital signal ModBus (RS-485) and HART.

Technical specifications

Measured medium	Vers.1 Liquids with mechanical impurities up to 1 g/l and gas inclusions up to 15 % by volume Vers.2 Liquid
Nominal bore diameter, mm	50; 80; 100, 150
Measured medium pressure, Mpa	Up to 30
Measured medium temperature, °C	0...+100
Ambient temperature, °C	-60...+70
Accuracy liquid/gas, steam, %	Vers.1 Up to ±0,5 / Vers.2 ±1,0; ±1,5; ±3,0
Output signals	Frequency - complies with NAMUR NA 01; Pulse; Analog current 4-20 mA - complies with NAMUR NE 43; Digital signal Modbus RTU (RS-485, USB), HART
Explosion protection type	Vers.1 Exi, Exd Vers.2 Exd
Ingress protection	IP 66/68
Interval between verifications, years	5

HS HYDROGEN SULFIDE
VERSION

HART
COMMUNICATION PROTOCOL

SIL
SAFETY INTEGRATED LEVEL

Specific features and advantages of Version 1 and Version 2

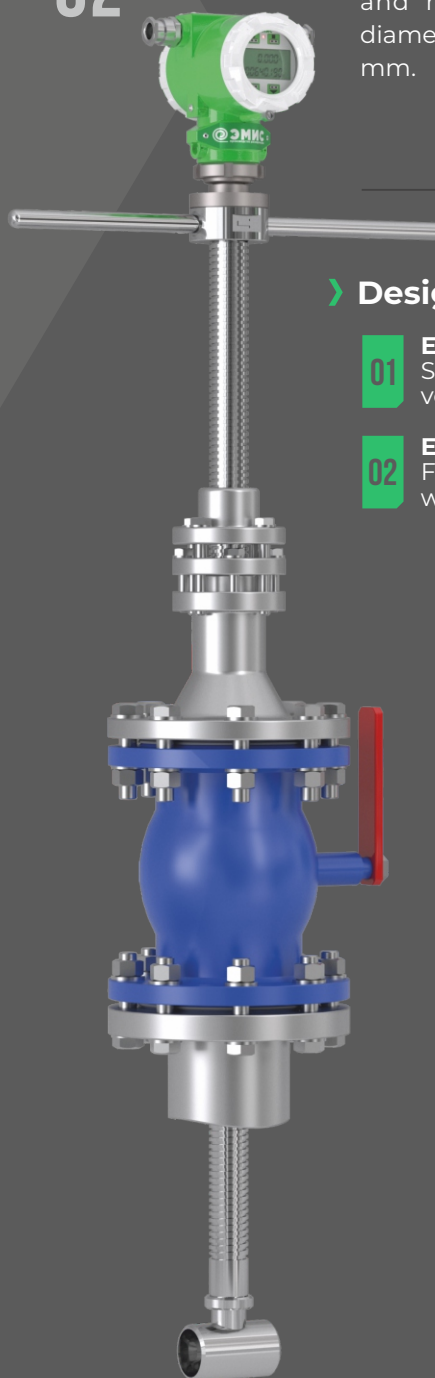
- Capability to measure contaminated and mineralized liquids.
- Capability to measure emulsion (up to 30% oil content in liquid). (**Vers.1**)
- Measurement with ±1% error in the presence of gas phase up to 4%. Survival with ±6.5% accuracy at gas phase contents up to 15%. (**Vers.1**)
- Measurement of relatively low flow rates due to versions with integrated restrictions.
- Operation at low ambient temperatures down to -60 °C.
- Periodic maintenance is not required.
- Service and diagnostic proprietary software EMIS-Integrator.
- Remote data transfer, configuration via Modbus RTU (RS-485, USB) and HART.
- Full interchangeability with competitive flow transducers used in PPD systems in terms of connection dimensions and mounting method, communication protocols.
- Adjustable pulse weight and duration.
- Approved simulated verification not stopping the process.
- Availability of GOST R 53678 and GOST R 53679 certificate of conformity for use in environments containing hydrogen sulfide.
- Version with 2-wire power supply connection via 4-20mA current loop.
- Digital signal filtering.
- A set of self-diagnostic functions, also according to NAMUR NE 107.
- Resistant to pipeline vibration effects. (**Vers.2**)



01



02



EMIS-VIHR 205

Vortex flow meters
submersible version

Designed to measure the volume and volume flow rate of liquids, gases (natural gas, associated petroleum gas, air and other gases), aggressive media at operating pressure and operating temperature in various industries.

It is used as part of metering, control and monitoring systems for large diameter pipelines - from 300 to 2000 mm.

Design versions

01

EMIS-VIHR 205
Standard
version

02

EMIS-VIHR 205
Furnishing
with ball valve

Technical specifications

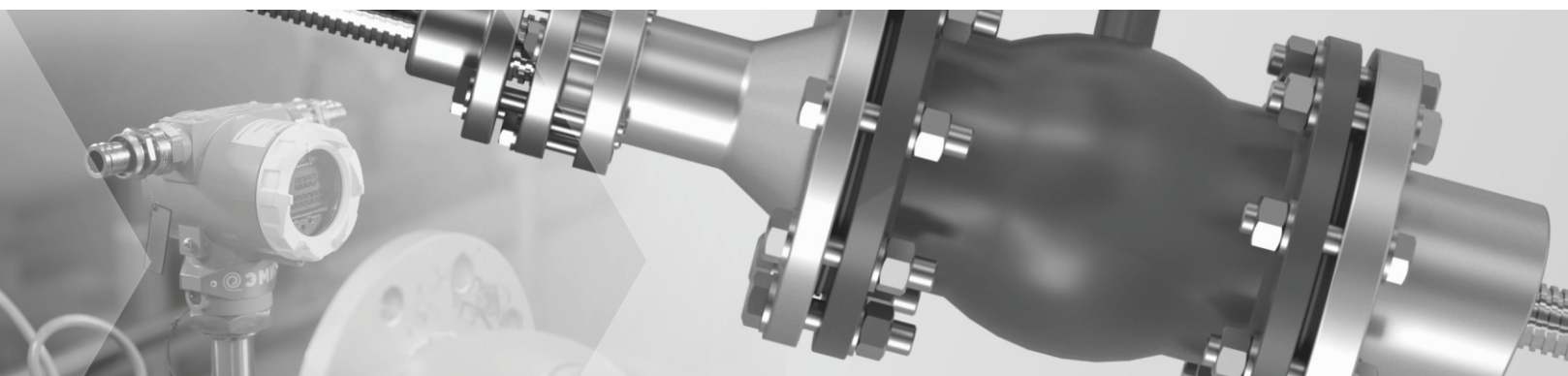
Measured medium	Liquid / gas
Nominal bore diameter, mm	300; 350; 400; 450; 500; 600; 700; 800; 900; 1000; 1100; 1200; 1300; 1400; 1500; 1600; 1800; 2000
Measured medium pressure, Mpa	Up to 2,5
Measured medium temperature, °C	-40...+250
Ambient temperature, °C	-60...+70
Accuracy liquid/gas,steam, %	±0,5 / within ±1,0
Output signals	Frequency; Pulse; Analog current 4-20 mA; Digital signal Modbus RTU (RS-485, USB), HART
Explosion protection type	Exi, Exd
Ingress protection	IP 66/68
Interval between verifications, years	5



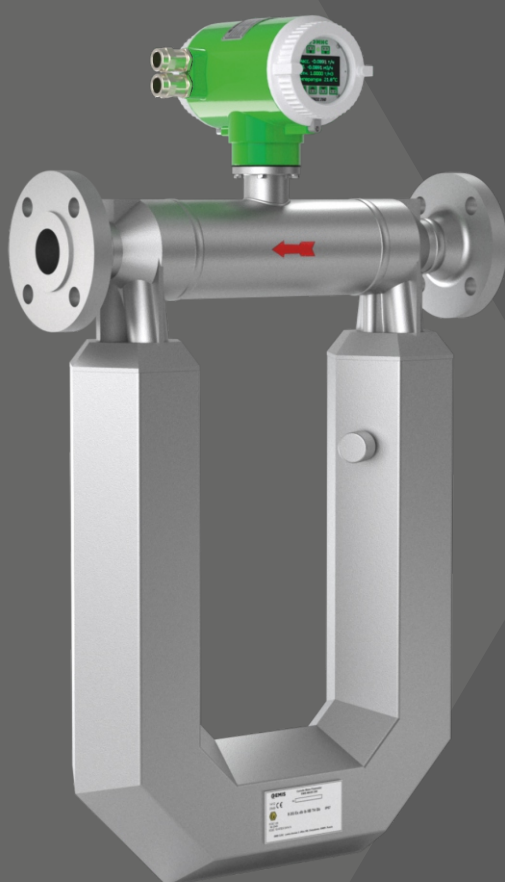
Specific features and advantages

- Installation with minimal mounting work.
- Easy assembly (disassembly) without process shut-down*.
- No moving parts.
- Instrument versatility.
- It is possible to set and install the flow meter on a pipeline with a different DN*.
- Digital signal filtering.
- Periodic maintenance is not required.
- Remote data transfer, configuration and diagnostics via Modbus RTU (RS-485, USB) and HART. Service and diagnostic proprietary software EMIS-Integrator.
- Approved simulated verification not stopping the process.

* For 1.6MPa applications and lower



01



EMIS-MASS 260

Coriolis mass flow meters

Designed to measure mass flow rate, mass, temperature, density and calculate volume flow rates, volumes of liquids and gases in the flow.

Used in systems of automatic monitoring, regulation and control of processes, in mixing and dosing systems, as part of gaging gas separators, liquid and gas metering units (LACT units, automated systems for measurement of quantity and quality parameters of crude oil, gas amount measuring systems, etc.) in ground, including mobile, filling and pumping facilities of liquefied natural gas and in other processes in any industry.

They can be used for metering homogeneous and heterogeneous two-component media with calculation of the content of each component.

Design versions

02



03



04



01

EMIS-MASS 260

Standard version

02

EMIS-MASS 260

Remote version with extended U/UIP electronics version

03

EMIS-MASS 260

Compact design

04

EMIS-MASS 260

Low flow rate version

Technical specifications

Measuring medium	Liquid/liquefied gas/gas
Nominal bore diameter, mm	10; 15; 25; 40; 50; 80; 100; 150; 200; 250; 300
Measured medium pressure, Mpa	Up to 25
Measured medium temperature, °C	-196...+250
Ambient temperature, °C	-60...+70
Accuracy	Liquid ± 0.1 ; ± 0.15 ; ± 0.2 ; ± 0.25 ; $\pm 0.5\%$; Gas ± 0.35 ; ± 0.4 ; ± 0.45 ; ± 0.5 ; $\pm 0.75\%$; Temperature ± 0.5 ; ± 1 °C; Density ± 0.5 ; ± 1.0 kg/m ³
Output signals	Pulse (passive/active) - corresponds to NAMUR NA 01; Analog current 4-20 mA (passive/active) - corresponds to NAMUR NE 43; Digital based on Modbus RTU protocol, with RS-485 interface; Digital Ethernet with Modbus TCP/IP protocol; Current output signal 4-20 mA with digital HART protocol (passive) without additional error
Explosion protection type	Exi, Exd, mining version
Ingress protection	IP66/IP67
Interval between verifications, years	5



Specific features and advantages

- Additional Modbus register card compatible with the software of flow meters produced by foreign manufacturers.
- Dosing function with discrete output signal.
- Adjustable pulse weight and duration.
- Adjustable damping time of measured flow and density readings, minimum flow shutdown setpoints, visual display of signal spectrum and digital signal filtering.
- Possibility to measure the flow rate of two-component liquid media with certified algorithms for calculating the content of each medium.
- Capability to calculate the mass of highly viscous liquids, non-Newtonian liquids, liquids with gas inclusions (up to 3% gas). Calculation of the volume gas flow rate reduced to standard conditions.
- Bank of safety switches to protect metrological parameters of the instrument from unauthorized changes.
- Access to the menu via built-in display and optical buttons to configure and control the flow meter.
- Confirmed absence of additional error in the current output signal and in reverse flow measurement.
- Possibility of connecting an external pressure transmitter and automatic pressure correction of measurements.
- Availability of the sanitary and epidemiological inspection report; certificates of resistance to hydrogen sulfide, resistance to vibrations and seismic resistance.
- Approved simulated verification without removing the flow meter from the pipeline.
- Verification interval is 5 years.
- Service and diagnostic proprietary software EMIS-Integrator.
- Connections according to GOST, EN and ANSI standards including DIN 11851.
- Possibility to manufacture instruments with mounting dimensions of imported analogs.
- Availability of compact version of the primary transducer (flow part) with reduced mass and dimensional parameters.

01



EMIS-MERA 300

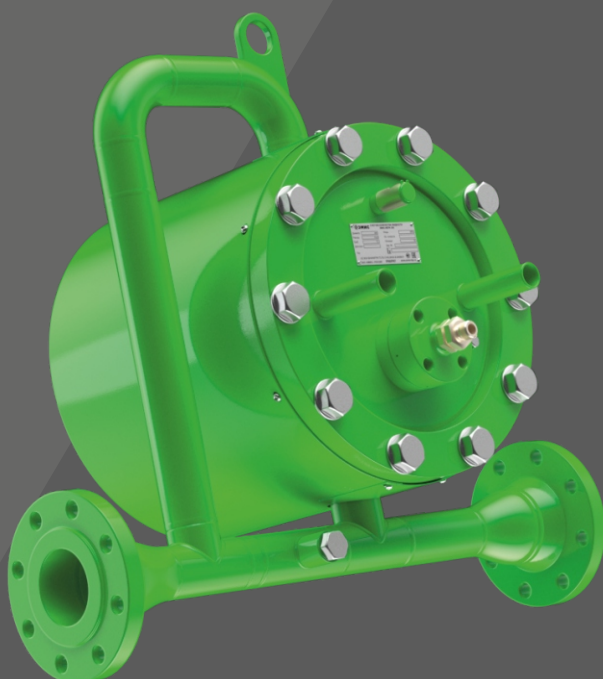
Fluid amount meter

Designed to measure mass (mass flow rate) of liquid, oil-gas-water mixture, crude oil according to GOST R 8 . 615 - 2005 and petroleum products and use of the obtained information for process purposes.

Used at production wells for primary operational metering of oil-gas-water mixture with high content of dissolved gas and mechanical impurities including in automated group metering units (AGMU).

Design versions

02



01

EMIS-MERA 300
Yoke version
(standard)

02

EMIS-MERA 300
Flanged
version

Technical specifications

Measured medium	Liquid/oil and gas-water mixture/crude oil
Measured medium pressure, Mpa	Up to 6,3
Measured medium temperature, °C	0...+130
Ambient temperature, °C	-50...+80
Accuracy, %	±1,0; ±1,5; ±1,75; ±2,0; ±2,5
Output signals	Pulse (frequency); digital RS-485
Explosion protection	Electric-traced: 1 Exde IIB+H2 T4 Gb X; Not electric-traced: 1 Exd IIC (T4-T6) Gb X;
Ingress protection	IP 67
Interval between verifications, years	3
Permissible content of volume ratio of free gas in the oil and gas-water mixture	2...50%; Up to 75% - special version as agreed



HYDROGEN SULFIDE
VERSION



FDT GROUP



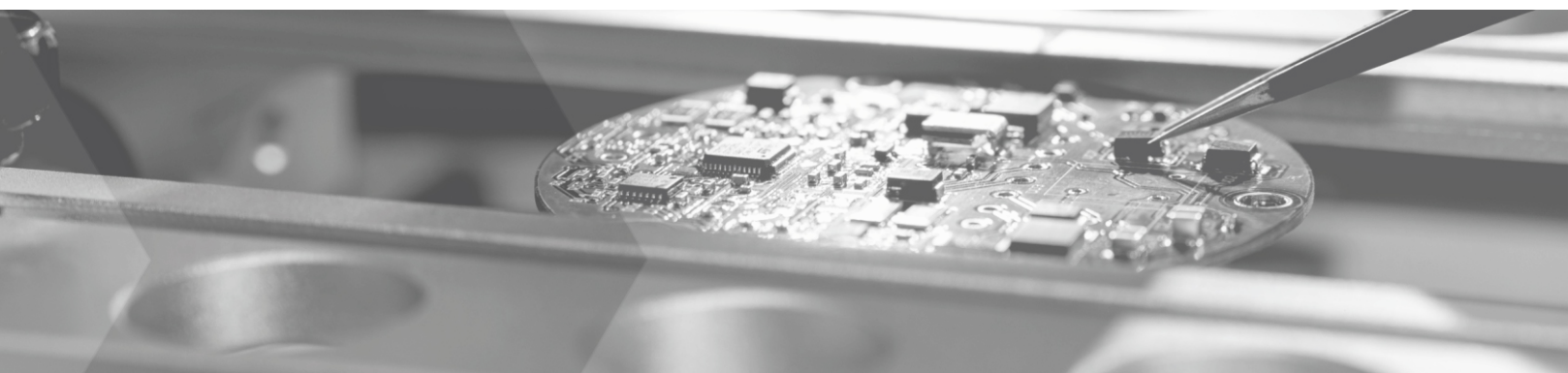
HART
COMMUNICATION PROTOCOL



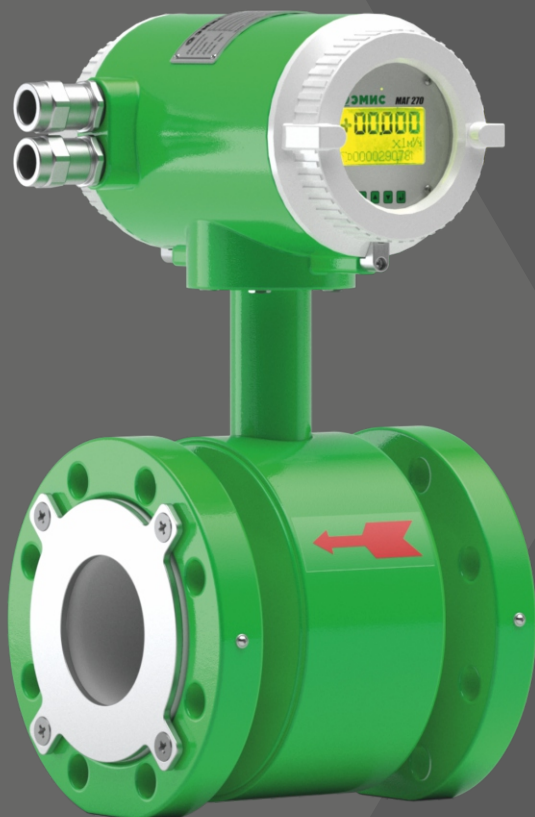
SIL

Specific features and advantages

- The instrument can be verified on universal metrological benches of the UPSZh type.
- Capability to adjust the weight and duration of the output pulse.
- Ensuring safe operation of secondary instrumentation and control equipment due to galvanically isolated interface lines.
- Self-contained power supply capability.
- Service and diagnostic proprietary software EMIS-Integrator.
- Real-time clock and data archiving capability in the flow meter electronics.
- Self-diagnosis of the instrument.
- Verification time - 40 minutes.



01



EMIS-MAG 270

Electromagnetic flow meters

Designed for measuring the volumetric flow rate of electrically conductive liquids in forward and reverse flow direction including aggressive liquids, two-component and contaminated liquids (with inclusion of solid particles or suspensions) with $5 \cdot 10^{-4}$ Sm/m minimum specific conductivity.

They are used for metering of medium flow rate in systems of automatic monitoring and control of processes in power engineering, chemical, paper, food and many other industries.

They can be used for reverse flow measurement with flow direction signal output

Design versions

02



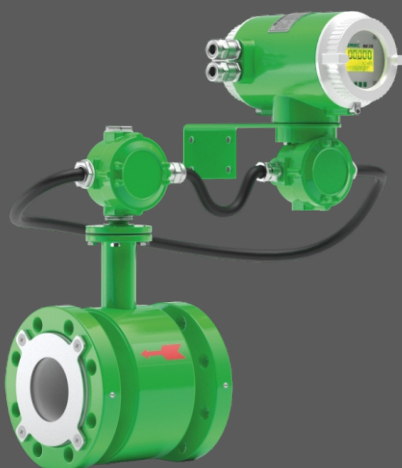
01

EMIS-MAG 270
Standard
version

02

EMIS-MAG 270
Food
version

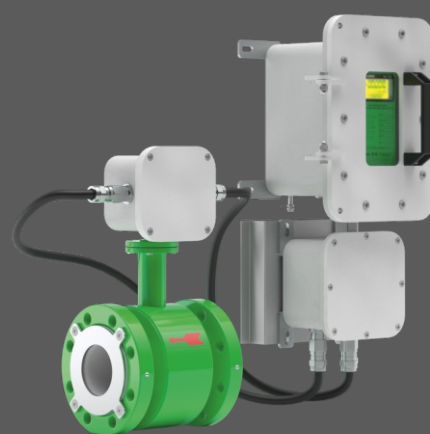
03



03

EMIS-MAG 270
Remote
version

04



04

EMIS-MAG 270
Mining
version

> Technical specifications

> Measured medium	Liquids with specific conductivity of minimum least 5-10 ⁻⁴ Sm/m
> Nominal bore diameter, mm	15; 20; 25; 32; 40; 50; 65; 80; 100; 125; 150; 200; 250; 300; 350; 400; 450; 500; 600; 700; 800
> Measured medium pressure, Mpa	Up to 25
> Measured medium temperature, °C	-40...+180
> Ambient temperature, °C	-60...+70
> Accuracy, %	±0,5
> Output signals	Pulse/Frequency signal; Analog current signal (4-20 mA); Modbus RTU digital signal; HART digital signal; Alarm signal
> Explosion protection type	Ex, Exd, mining version
> Ingress protection	IP65, IP66, IP67, IP66/IP67, IP68
> Interval between verifications, years	5



HYDROGEN SULFIDE
VERSION



FOOD
VERSION



> Specific features and advantages

- > A wide choice of liner and electrode materials allows to use EMIS-MAG 270 flow meters on aggressive media.
- > Operability at high medium pressures - up to 25 Mpa.
- > Flow measurement of two-component and contaminated liquids (including solids or suspensions).
- > Flow measurement accuracy is not related to changes in viscosity and density of the medium.
- > Food certificate is available.
- > Service and diagnostic proprietary software EMIS-Integrator.
- > Mine explosion protection.
- > Built-in total flow meter-indicator with indicator allows to use the flow meter without additional recording equipment, thus reducing the total cost of the flow metering solution (cost of furnishing and installation).
- > Installation of the flow meter on horizontal, vertical and inclined pipeline sections.
- > No mechanical elements and elements protruding into the flow section.
- > Low pressure losses.
- > Approved simulated verification not stopping the process.
- > Wide dimension range.



01



EMIS-PLAST 220

Flow meters meter

Designed to measure the volumetric flow rate of liquids in high-pressure pipelines and transmit the obtained information.

They are used in petroleum, chemical, petrochemical, metallurgical and other industries.

The version with built-in self-contained power supply is available for measurements in remote and hard-to-reach places.

Design versions

02



01 EMIS-PLAST 220
Standard
version

02 EMIS-PLAST 220
Mining
version

Technical specifications

Measuring medium	Liquid (including contaminated liquids)
Nominal bore diameter, mm	8; 15; 20; 25; 40; 50; 80; 100; 150; 200; 250; 300
Measured medium pressure, Mpa	Up to 42
Measured medium temperature, °C	Standard version: -40...+80 High-temperature version: 0...+150
Ambient temperature, °C	-60...+80
Accuracy, %	±0,5; ±1; ±1,5
Output signals	Impulse; Analog current 4-20 mA; Digital RS-485 standard; Visual indication
Explosion protection	1EX db IIB T3/T6 Gb X
Ingress protection	IP65
Interval between verifications, years	4



Specific features and advantages

- Built-in counter-indicator of the total flow rate allows to use the EMIS-PLAST 220 liquid meter without external computing and storage facilities which reduces the cost of equipment purchase.
- Autonomous power supply provided by the built-in battery allows to use the flow meter in places where there are no external power sources for 3 years, and also guarantees flow meter operation in case of emergency situations.
- The flow meter sensor is reliably protected against mechanical contamination and oiling which increases instrument reliability. It does not require adjustment to the medium and application conditions which makes it easy to use.
- The detachable sensor allows preventive maintenance without disassembling the flow meter, reducing maintenance time and costs.
- Availability of mining explosion protection version.



01



EMIS-META 215

Rotameters

They are constant differential pressure flow meters.

Metal rotameters are designed to measure the volumetric flow rate of liquids and gases including aggressive ones.

They are used in systems of automatic monitoring, regulation and control of processes at enterprises of various industries as well as in oxygen supply systems at healthcare facilities.

It is possible to measure, display, read and transmit measurement results under conditions reduced to standard or normal conditions for compressible media (gases).

Design versions

02



03



04



01

EMIS-META 215
Standard
version

02

EMIS-META 215
Horizontal
version

03

EMIS-META 215
Food
version

04

EMIS-META 215
Oxygen
version

Technical specifications

Measured medium	Liquid/gas
Nominal bore diameter, mm	15; 25; 40; 50; 80; 100; 150
Measured medium pressure, Mpa	Up to 25
Measured medium temperature, °C	Standard version: -40 ... +120; High temperature versions: -80 ... +195; -80 ... +250; -40 ... +420;
Ambient temperature, °C	-60 ... +70
Reduced error, %	±1,5; ±2,5; ±4
Output signals	LCD display; Analog current 4 - 20 mA; HART; Up to 2 limit switches
Explosion protection type*	1Ex ib IIB/IIC T1/T2/T3/T4 Gb X 1Ex db IIB/IIC T1/T2/T3/T4 Gb X II Gb c T1/T2/T3/T4 X
Ingress protection	IP65; IP67
Interval between verifications, years	5



*For version with output signal.

Specific features and advantages

- The universal principle of operation allows to use instruments to measure the flow rate of any gases, liquids.
- Possibility of operation in chemically aggressive environments (in corrosion-resistant version Ft).
- Possibility of scale graduation according to the customer's task.
- LCD display of current and accumulated volume.
- HART output interface.
- Easy calibration.
- Possibility of remote control of readings (using output signals).
- Possibility to install limit switches with adjustable setpoint.
- Rotameter version with horizontal positioning on the pipeline.
- Possibility of heating the measuring tube of the rotameter.
- Food certificate is available.





EMIS-RGS 245

Rotary gas meter

It is designed to measure gas volumes under operating conditions according to GOST 5542-87; it can also be used for metering free oil gas, air, nitrogen and other non-corrosive clean and dry gases. A calculator (corrector) with a pressure and temperature sensor is required to bring the measurement results to standard conditions.

It is most widely used in medium - and low-pressure networks for gas distribution to consumers.

Technical specifications

Measured medium	Gas and gas mixtures
Standard	G10 - G1000
Nominal bore diameter, mm	25...200
Measured medium pressure, Mpa	1,6
Measured medium temperature, °C	-30...+80
Ambient temperature, °C	-40...+60
Mechanical inclusions, µm	50
Accuracy, %	±0,6; ±1,0
Output signals	Pulse (reed switch)
Explosion protection type	Ex, Gbc
Relative humidity, %	Maximum 95
Atmospheric pressure, kPa	from 84 to 106,7
Ingress protection	IP 65
Interval between verifications, years	6

Specific features and advantages

- Wide model range G10 - G1000.
- Possibility to operate at low flow rates from 0.4 m³/h.
- High accuracy of gas volume measurement (±0.6% error version on special order).
- Compliance with connection dimensions of competitive analogs.
- No requirement for straight runs upstream and downstream of the meter installation place.
- Possibility to install temperature, pressure and differential pressure sensors in the meter body for joint operation with an electronic gas volume corrector.
- Installation on horizontal and vertical pipeline sections.
- Small size of the meter.



EMIS-Esko 2230

Gas metering skids

Designed to measure volumetric flow rate and volume, pressure, temperature of natural gas, simple gases and gas mixtures under operating conditions with subsequent conversion of measurement results to standard conditions in accordance with GOST R 8.740-2023.

They are used in measuring systems for commercial gas metering, automated monitoring and control of processes.

Specifications with FLOWGAS correction unit (2230-F)

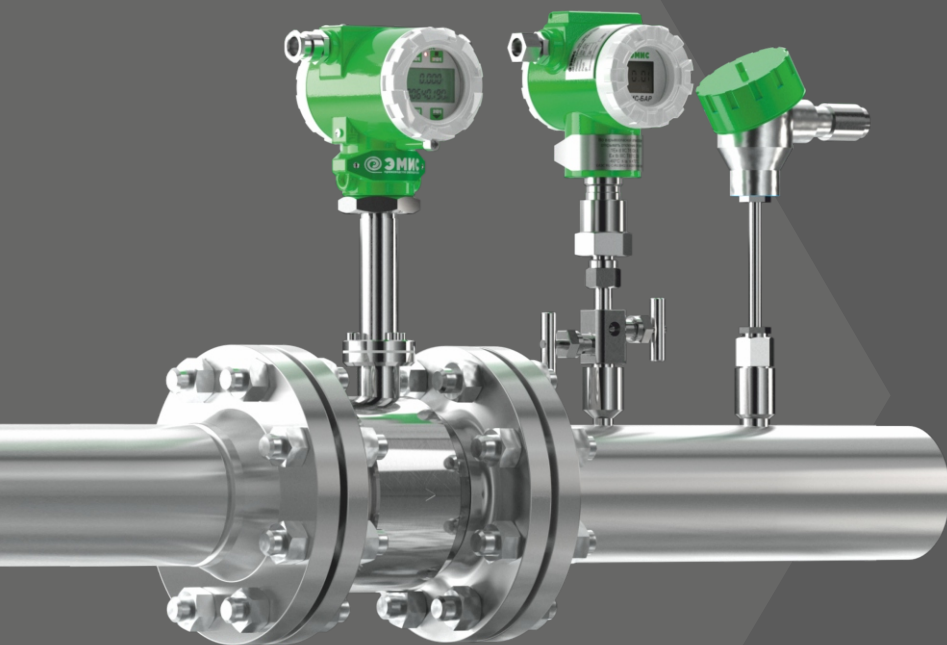
Measured medium	Natural gas
Measured medium pressure, Mpa	Up to 1,6
Flow rate range, m ³ /h	0,4...1600
Measured medium temperature, °C	-23...+60
Ambient temperature, °C	-40...+60
Error in the basic (full) range, %	1,2 (2,1); 0,8 (1,6)
Output signals	RS-232, RS-485, optical port
Ingress protection	IP 65
Interval between verifications, years	5

Specifications with LNG, TECON-19, IM 2300, UVP 280 (2230-R) calculators

Measured medium	Simple gases and gas mixtures
Measured medium pressure, Mpa	Up to 1,6
Flow rate range	0,4...1600
Measured medium temperature, °C	-30...+60
Accuracy, %	2,5; 3; 4
Interval between verifications, years	4

Specific features and advantages

- Power supply independence (5 years of operation from the built-in battery). (2230-F).
- The interval between verifications is 5 years. (2230-F).
- Compact, one-piece layout of the complex.
- A single passport for the metering system.
- Compliance with requirements of GOST R 8.740-2023 (development of a measurement procedure is not required).

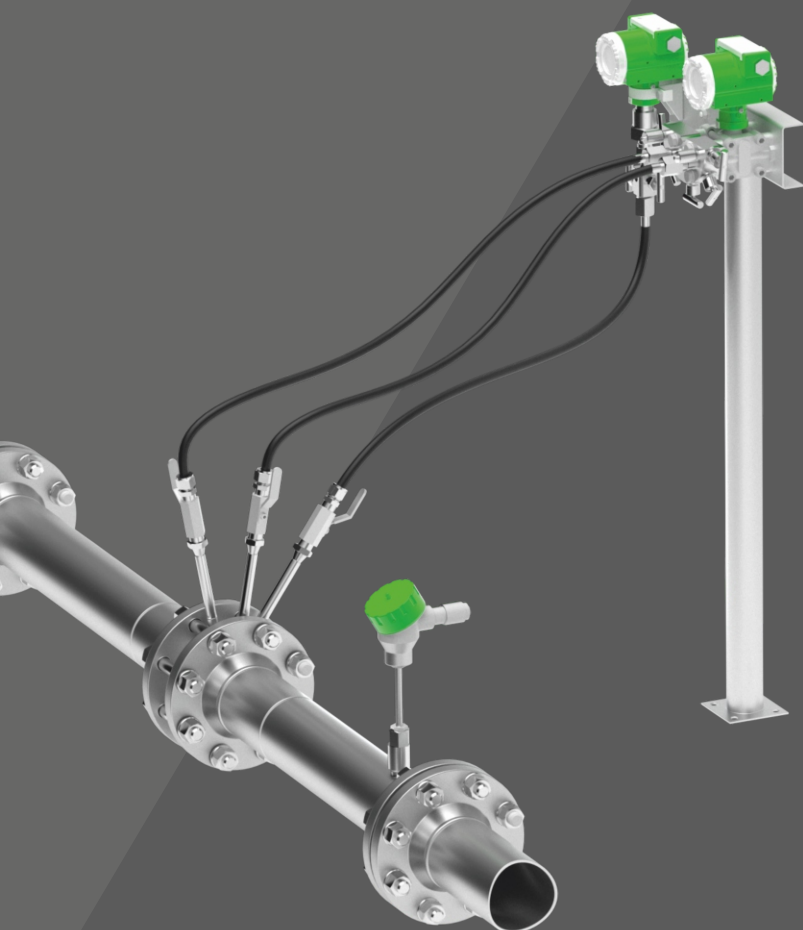


EMIS-Esko 2210

Energy carrier metering skids

Designed for measuring volume, pressure, temperature, mass and volume flow of water, steam, gases and gas mixtures, heat energy measuring in closed and open heat supply systems.

Field of application: measuring systems for metering, automated monitoring and control of processes at thermal, gas distribution stations, oil and gas production facilities, any industrial enterprises.



EMIS-Esko 2210

Energy carrier metering skids based on diaphragms

EMIS-Esko 2210 using orifice plates is a measuring instrument and has an approved type description. To perform measurements in accordance with Federal Law No. 102 dated 26/06/2008.

«On Ensuring Uniformity of Measurements» as well as GOST and orders of Rosstandart, it is required to develop and certify a measurement methodology for specific operating conditions.

The system consists of an orifice plate (diaphragm), differential and absolute pressure transmitters.

Diaphragms are designed for flow measurement using the differential pressure method.

» Technical specifications of EMIS-Esco 2210

» Measured medium	Gas/liquid/steam
» Nominal bore diameter, mm	15; 25; 32; 40; 50; 65; 80; 100; 125; 150; 200; 250; 300
» Measured medium pressure, Mpa	1,6; 2,5; 4; 6,3; 16; 20; 25
» Measured medium temperature, °C	-60....+450*
» Limits of allowed percentage error, %	IR of mass flow rate and gas volume reduced to standard conditions: 1.0; 1.5; 2.5; 3 IR of steam mass: ±3; liquid mass IR: ±2 IR of thermal energy: ±4, ±5
» Data transmission interface	RS-232/CAN-BUS/RS-485, GSM/GPRS/Ethernet
» Explosion protection type	Exi, Exd
» Ingress protection	min. IP65 for field equipment; min. IP20 for computing and functional equipment.
» Number of metering points	Up to 14
» Interval between verifications, years	4

*Temperature of the measured medium depends on the type of selected flow transmitter

» Specific features and advantages

- » Capable of measuring superheated, saturated, dry and wet steam.
- » Remote GSM/GPRS wireless data transmission. Open list on flow, pressure, temperature transducers.
- » Pressure transmitters replacement or repair, metrological diagnostics of the flow meter not stopping the medium flow.
- » Calculation of flow rate, mass and volume of gases and gas mixtures reduced to standard conditions are carried out in accordance with GOST 30319.(2,3)-2015, GOST R 8.662-2009, ISO 20765-2, GOST R 8.740-2023, GOST 8.611-2013, GOST P 8.733-2011, GSSD MR 112-2003, GSSD MR 134-2007, GSSD MR 113-2003, GSSD MR 118-2005, GSSD MR 273-2018, GSSD MR 232-2014.
- » Systems perform heat energy metering in accordance with the "Rules of commercial metering of heat energy, heat carrier", approved by the Government of the Russian Federation No. 1034 dated 18/11/2013 as amended and supplemented on February 13, 2019.
- » Calculation of thermal-physical properties of water and water vapor is performed in accordance with GSSD MR 147-2008.

» Technical specifications of EMIS-Esco 2210 (based on orifice plates)

» Measured medium	Gas/liquid/steam
» Nominal bore diameter, mm	50-1000
» Measured medium pressure, Mpa	1,6; 2,5; 4; 6,3; 16; 20; 25
» Measured medium temperature, °C	- 60....+500

» Specific features and advantages

- » Measurements of superheated and saturated steam, dry and wet steam.
- » Open list of pressure, temperature and type of orifice plates according to GOST 8.586-2005.
- » Calculation of flow rate, mass and volume of gases and gas mixtures, reduced to standard conditions, in accordance with GOST 30319.(2,3)-2015, GOST R 8.662- 2009, ISO 20765-2, GSSD MR 112-2003, GSSD MR 134-2007, GSSD MR 113-2003, MI 3563-2016, GSSD MR 118-2005, GSSD MR 273-2018, GSSD MR 232-2014.
- » Heat energy metering in accordance with the "Rules of commercial metering of heat energy, heat carrier", approved by the Resolution of the Government of the Russian Federation No. 1034 dated 18/11/2013 as amended on 13/02/2019.
- » Calculation of thermal-physical properties of water and water vapor is performed in accordance with GSSD MR 147-2008.
- » 2008Zero-spill verification. Only a geometric dimension check every 1 year is required.



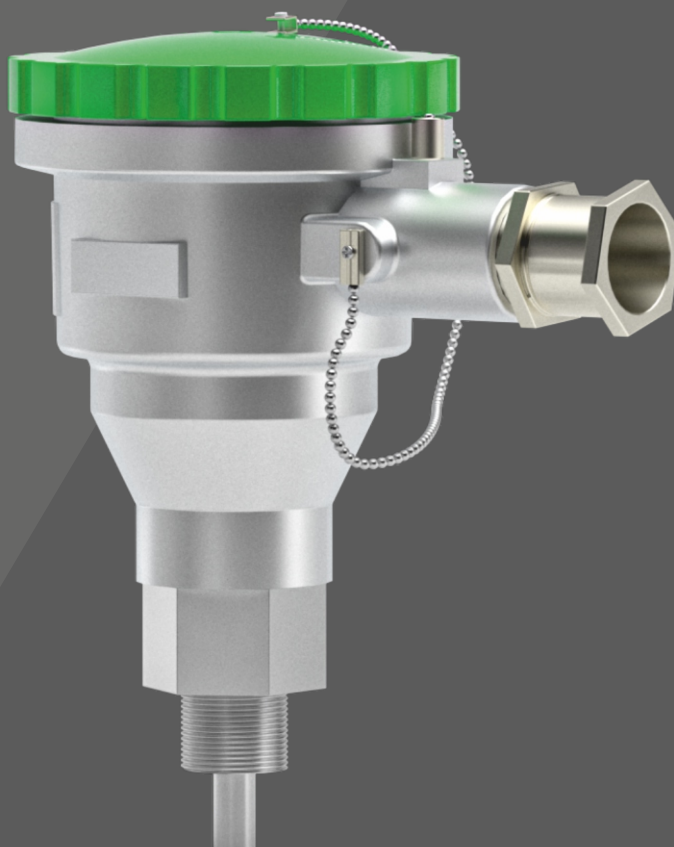
► EMIS-POTOK 236

Paddle type flow indicator

Designed to control presence / absence of liquid flow in the pipeline.

The flow indicator is used to protect pumps, motors and other equipment from overheating caused by low or no flow and is used in automatic control systems, process control in power engineering, petrochemical, food, paper and other industries.

The flow indicator has a general industrial version and a version for operation in hazardous areas



► EMIS-POTOK 285

Thermoanemometrical flow indicator

It is a modern solution for presence/absence monitoring of gas and liquid flow in industrial pipelines including large diameters.

20082008It is used in fluid flow control systems, in automation systems of liquid supply and pumping as a flow sensor for protection against overheating and dry running of a pump, motor and other equipment.

» Technical specifications of EMIS-POTOK 23

» Measured medium	Liquid
» Standard sizes, mm	32...250
» Measured medium pressure, Mpa	Up to 5
» Measured medium temperature, °C	-30°C to +150°C - without explosion protection -50°C to +130°C - for explosion-proof version.
» Ambient temperature, °C	-50... +60
» Maximum viscosity of the medium, mPa s	400
» Explosion protection type	1Ex db IIB T6 Gb X
» Output signal	relay contact (SPDT)
» Ingress protection	IP65
» Pressure losses, MPa	Up to 0,02
» Maximum switching capacity of contacts	1A, 220 VAC, 24 V DC SPDT
» Connection	R1 GOST 6211-81

» Specific features and advantages

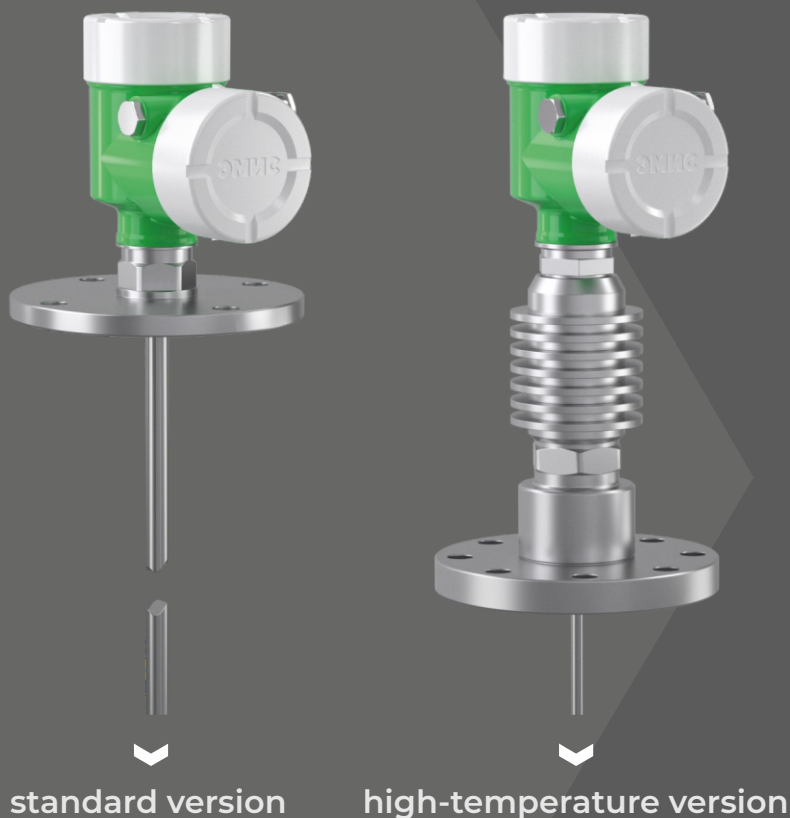
- » Setting is not required.
- » Design simplicity.
- » High operating pressure.
- » Operation upon forward and reverse flow.
- » Wide ambient and operating temperature range.
- » Operability in highly viscous media.

» Technical specifications of EMIS-POTOK 285

» Measured medium	Liquid, gas
» Standard sizes, mm	25...700
» Measuring medium pressure, Mpa	up to 10
» Measured medium temperature, °C	-50... +75
» Ambient temperature, °C	-50...+70
» Explosion protection type	Exd
» Output signal	relay contact (SPDT); NPN contact; PNP contact
» Ingress protection	Ip65
» Maximum switching capacity of contacts	2.5 A/220 V AC (relay output); 1 A/24 V DC (relay output); 400 mA/24 V DC (PNP and NPN)
» Connection	K1/2 GOST 6111

» Specific features and advantages

- » No moving mechanical parts. Reliability and durability.
- » Operation upon forward and reverse flow.
- » Operation in low ambient temperatures.
- » High operating pressure.
- » Installation in large diameter pipelines. The setpoint can be reset.
- » Ease of installation.
- » Mounting on vertical and inclined pipelines.
- » Designed for operation in both liquid and gaseous media.
- » General industrial version and a version for operation in hazardous areas.



EMIS-PULSE 540

Guided wave radar level meters

Waveguide level gauges are designed to measure and control the level and interface of liquid and loose media. The operation principle of the guided wave radar level meter is based on TDR (Time Domain Reflectometry) technology.

Types of waveguides

<p>➤ Cable (2,4,8 mm diameters)</p> <p>Medium: Liquid (2,4) and bulk solids (8)</p> <p>Measurement limit: 75 m</p>	<p>➤ Double cable</p> <p>Medium: Liquid</p> <p>Measurement limit: 75 m</p>	<p>➤ Rod (10,16 mm diameters)</p> <p>Medium: Liquid (10,16) and bulk solids (16)</p> <p>Measurement limit: 10 m</p>	<p>➤ Coaxial (22,42 mm diameters)</p> <p>Medium: Liquid</p> <p>Measurement limit: 6 m</p>

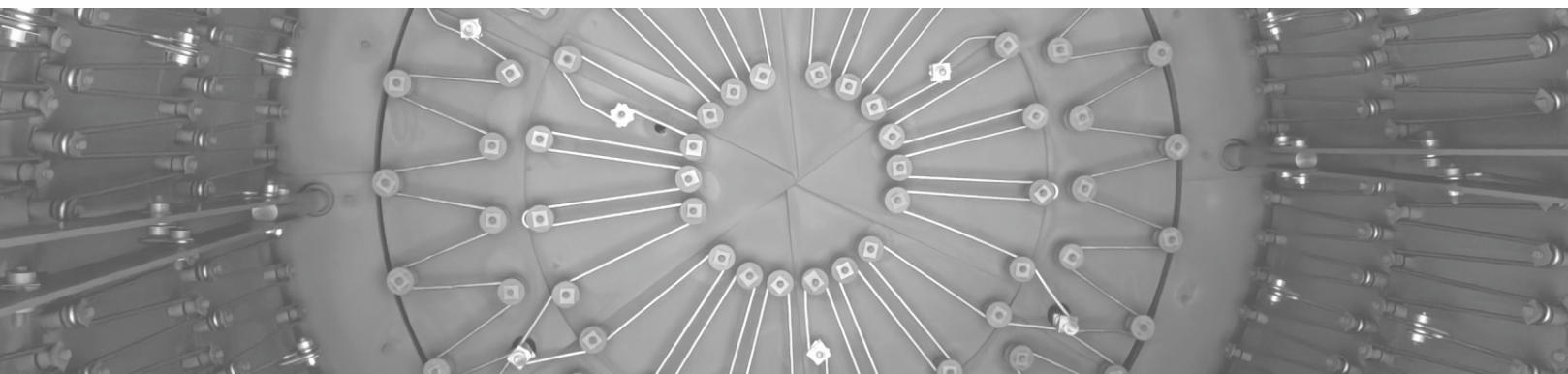
Technical specifications

Measured medium	Liquid, bulk solids
Purpose	Level measurement
Measuring range, m	Up to 75
Measurement error, mm	±1; ±2; ±3; ±3,5; ±5
Frequency, GHz	~ 1
Ambient temperature, °C	from -60...+85 (-70 to +85 with thermal cover)
Operating medium temperature, °C	From -60 up to +450
Operating medium pressure, MPa	4 (Special up to 40)
Dielectric permeability of the medium	From 1.4
Output signals	Analog 4-20 mA / digital HART v7
Voltage and communications	24 V DC, 220 V AC
Explosion protection	0Ex ia IIC T6...T1 Ga X; Ex ia IIIC T80°C...T450°C; 0Ex ia IIB T6...T1 Ga X; Ex ia IIIB T80°C...T450°C; 1Ex db IIC T6...T1 Gb X; Ex tb IIIC T80°C...T450°C; 1Ex db ia IIC T6...T1 Gb X.
Antenna material	Steel - 304 / 316 / 12X18H10T / 316L
Connection to process	Flange connection from DN25, GOST, EN, ASME flanges Threaded connection 1.5" and 3/4", G, NPT threads.
Cable glands	M20x1,5
Housing material	Aluminum / stainless steel
Display	Yes
Ingress protection	IP66/IP67, IP66/IP68



Typical applications

- Oil and water storage tanks including tanks with high nozzles or with internal structural elements;
- Storage tanks containing bulk solids and highly viscous media; Desalters, dehydrators;
- Remote chambers including those with a narrow measuring range of the medium level;
- Oil/water separators, measurement at low dielectric constant and turbulence at the surface of the medium;
- Replacement of displacer-type level indicators in existing chambers.





threaded version

flanged version

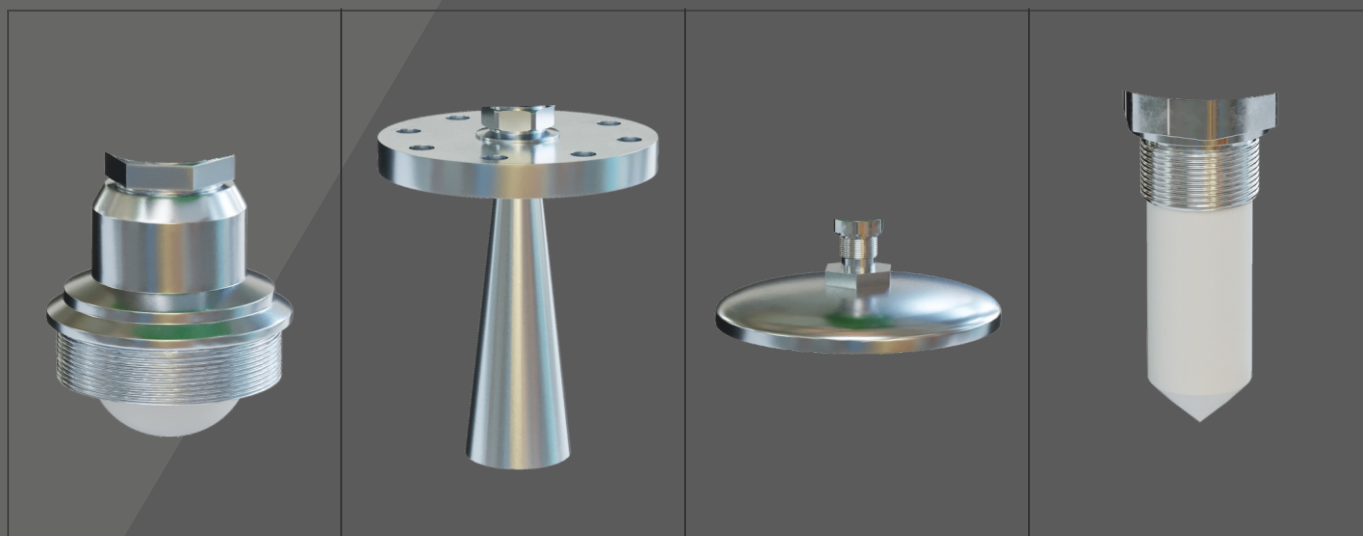
EMIS-PULSE 530

Radar level meters

Designed for measuring the level of liquids (including liquefied gases) and bulk materials at atmospheric pressure and overpressure.

The operating principle of level meters is based on by the level meter antenna emission of continuous frequency modulated signal which reflecting from the surface of the medium is received by the level meter antenna with a time delay. Using the frequency difference between the emitted and received signals, the level value of the medium is calculated.

Types of antennas



Lens

Medium:
liquid
and bulk solids

Measurement limit:
30 m (liquids)
100 m (bulk)

Conical

Medium:
liquid and bulk
solids

Measurement limit:
35 m (liquids)
70 m (bulk)

Parabolic

Medium:
bulk materials

Measurement limit:
70 m

Anticorrosive

Medium:
liquid

Measurement limit:
30 m

Technical specifications

Measured medium	Liquid, bulk solids
Purpose	Level measurement
Measuring range	Up to 100 m (depending on antenna type)
Measurement error, mm	±1, ±2, ±3, ±5
Frequ	26 GHz - conical, parabolic, anticorrosive; 80 GHz - lens antennas
Ambient temperature, °C	from -60...+85 (-70 to +85 with thermal cover)
Measured medium temperature, °C	from -60 to +450 from -196 to +445 special
Operating medium pressure, Mpa	4 Mpa
Dielectric permeability of the medium	From 1.4 (depending on antenna type and the measured medium)
Output signals	Analog 4-20 mA / digital HART v7
Voltage and communications	24 V DC, 220 V AC
Explosion protection	0Ex ia IIC T6...T1 Ga X; Ex ia IIIC T80°C...T450°C; 0Ex ia IIB T6...T1 Ga X; Ex ia IIIB T80°C...T450°C; 1Ex db IIC T6...T1 Gb X; Ex tb IIIC T80°C...T450°C; 1Ex db ia IIC T6...T1 Gb X.
Antenna material	Steel - 304/316; fluorine - PTFE (depending on the antenna type)
Process connection	Flanged connection from DN50, GOST flanges, EN, ASME, Threaded connection 1.5" and 3", G, NPT threads.
Cable glands	M20x1,5
Housing material	Aluminum / stainless steel
Display	yes
Ingress protection	IP66/IP67, IP66/IP68



Typical applications

- Storage tanks and buffer tanks containing liquid (oil, gas condensate, water, chemicals, etc.);
- Reactors including those with complex process conditions: strong turbulence, foaming, condensation, high temperatures and pressures;
- LPG stilling pipes, with boiling surface and rapidly changing level;
- Mixers and agitators, working under conditions of vibration and changing fluid properties;
- Open tanks range from small sumps to large dams;
- Bulk and solid material storage, measuring at abrupt level changes.



threaded
for liquid



threaded
for bulk solids

EMIS-SIGNAL

Vibrating level switches

Used for upper and lower level alarms.

Level switches are used either independently to indicate tank filling or in addition to a level meter with a continuous output signal.

They are intended for use in automatic process control systems for signaling the level of liquid or bulk media, for protection of pumps against dry running, detection of media in the tank, bottom sediments, protection against overflow in emergency shutdown systems.

EMIS-SIGNAL vibration level switches are manufactured in both general industrial and explosion-proof versions in accordance with TR CU 012/2011.

Design versions



Threaded standard for fluid /
with extended sensor



Flanged for fluid standard /
with extended sensor



High-temperature
for liquid standard / with
extended sensor

*All presented types of level
switches can also be manufactured
for bulk solids

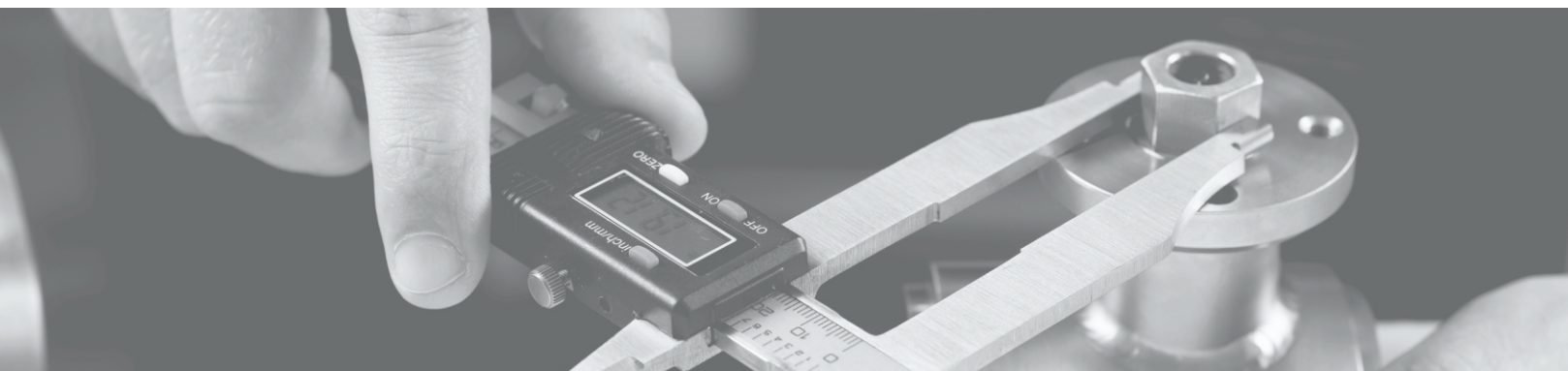
> Technical specifications

> Measured medium	Liquid, bulk solids
> Controlled medium overpressure range, Mpa	At threaded connection: -0.1...6.3 At flange connection: -0.1...6.3
> Measured medium temperature, °C	- 60.... +190
> Ambient temperature, °C	- 60...+75 (-70 °C to +75 °C (with thermal cover)
> Output signals	DPDT contact
> Explosion protection	Exd
> Ingress protection	IP 66/67
> Resistance to influence of external magnetic field	Direct 400 A/m; Alternating 400 A/m, at a frequency of 50 Hz
> Cable gland thread	M20 x 1,5
> Materials used	Electronic unit housing: aluminum alloy Vibrating plug: stainless steel, fluoroplastic coated stainless steel



> Specific features and advantages

- > Low susceptibility to mechanical wear of all elements including the tuning fork.
- > Absence of moving mechanical parts eliminates mechanical wear and jamming. No sensor maintenance is required, long service life.
- > Easy installation and commissioning (no media filling and calibration required).
- > Variety of standard sizes of connections to the process for all applications.
- > Can be installed in any position at the desired height of the switching point.
- > Reliable principle of the limit level control - regardless of the installation position, foam, viscosity and fraction size.
- > Annunciator operation at ambient temperatures -60 ...+85 °C.
- > Possibility of use in ESS systems (SIL2).





EMIS-BRIZ 90

Transformer type power supply

They are used mainly for power supply for transmitters (flow, pressure, level, etc.) of general industrial non-explosion-proof version in systems of automatic monitoring, regulation and control of processes in various industries, in stationary process installations, in commercial metering systems.



EMIS-BRIZ 100

Pulse power supply

Designed for power supply for industrial automation, process controls, instrumentation, electromagnetic drives, fans, programmable controllers and other DC loads.

Technical specifications of EMIS-BRIZ 90

Type	Transformer
Number of channels	2/4
Supply voltage, V	187...242, frequency 50±1 Hz
Maximum load current, mA	100/250
Output voltage, V	24 (±0,2%)
Mounting	DIN rail or panel mounting (1 and 1K version)
Ambient temperature, °C	-10...+50
Ingress protection	IP20 for DIN version IP30 for panel version

Specific features and advantages

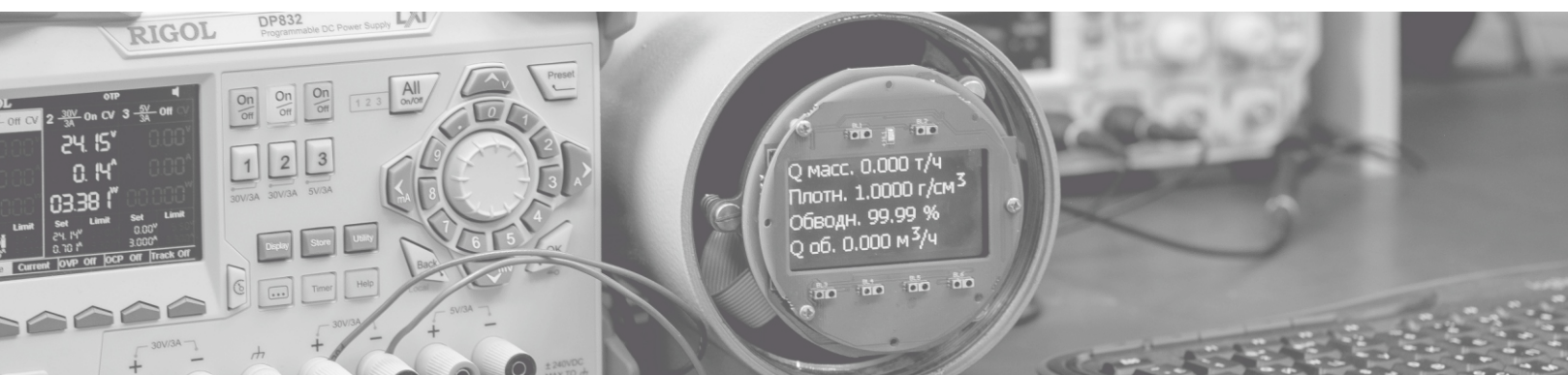
- Galvanic isolation of output channels. The channels are protected against overloads and short-circuits.
- Compact size.
- Indication of unit switching-on for each channel.
- Units do not cause industrial interference.
- High reliability.

Technical specifications of EMIS-BRIZ 100

Type	Pulse
Number of channels	1
Supply voltage, V	100...265, frequency 45...65 Hz
Maximum load current, A	1
Output voltage, V	24
Mounting	DIN rail
Ambient temperature, °C	-40...+55
Ingress protection	IP20

Specific features and advantages

- Ease of connection and control of system operation.
- Ease of installation.
- No electromagnetic interference affecting operation of other system components.
- Protection against overheating, overload and short-circuit at the output as well as availability of an input fuse that trips in case of internal faults in the unit.





EMIS-BRIZ 250

Pulse power supply

Designed for power supply for industrial automation, process controls, instrumentation, electromagnetic drives, fans, programmable controllers and other DC loads



EMIS-BRIZ 500

Transformer type power supply

They are used mainly for power supply for transmitters (flow, pressure, level, etc.) of general industrial non-explosion-proof version in systems of automatic monitoring, regulation and control of processes in various industries, in stationary process installations, in commercial metering systems, at low temperatures (-60°C)



-60°C

» Technical specifications of EMIS-BRIZ 250

» Type	Pulse
» Number of channels	1
» Supply voltage, V	from AC mains, 184...264 V, 45...65 Hz
» Maximum load current, A	2,5
» Output voltage, V	24
» Mounting	DIN rail
» Ambient temperature, °C	-40...+55
» Ingress protection	IP20

» Specific features and advantages

- » Ease of connection and control of system operation.
- » Ease of installation.
- » No electromagnetic interference affecting operation of other system components.
- » Protection against overheating, overload and short-circuit at the output as well as availability of an input fuse that trips in case of internal faults in the unit.

» Technical specifications of EMIS-BRIZ 500

» Type	Transformer
» Number of channels	1
» Supply voltage, V	187...242, frequency 50±1 Hz
» Maximum load current, mA	500
» Output voltage, V	24 (±0,2%)
» Mounting	DIN rail
» Ambient temperature, °C	-60...+50
» Ingress protection	IP20

» Specific features and advantages

- » Ease of connection.
- » System operation monitoring.
- » Ease of installation.
- » Operation at low temperatures (down to -60 °C).
- » Overload and short-circuit protection at the output, an input fuse to trip in case of internal faults in the unit.





EMIS-SISTEMA 800

Transducer - transmitter

Designed for operation with EMIS-BAR pressure transmitters. Provides capability to transmit and record process parameters at remote, inaccessible, and explosive objects without equi-page with electrical and communication networks.

Data registration and processing is carried out by specialized software IOT EMIS data.

Recording of parameters to the transmitters via Modbus - HART.

Supplied complete with EMIS-BAR pressure sensor.

Technical specifications

Input signals	HART 6, HART 7
Output signals	LoRaWAN
Transmission range	15 km
Power	self-contained or 24 V
Ambient temperature °C	-40...+50 (optional +70)
Explosion	intrinsically safe circuit (0Ex ia IIC T4 Ga)

Specific features and advantages

- Providing LoRaWAN and HART technology binding;
- High degree of self-sustainability (up to 8 years without element replacement);
- Capability of independent deployment of a closed (secure) network without dependence on telecom operators and providers;
- Availability of software of top level to collect, store and analyze data from remote devices;
- Possibility of application at explosive objects;
- Fully complete solution for remote data collection, storage and analysis based on EMIS-SISTEMA 800;
- Convenient user-operator interface to provide current data on process control points with the function of forming and uploading reports for the selected period.



EMIS-SISTEMA 750

Interface converter
RS-485

Designed for data transfer between devices using RS-485 physical layer on one side and RS-232 or USB on the other side.

Technical specifications

Network type	Pulse
Interface 1	RS - 485
Interface 2	USB / RS-232 (COM)
Transmission range	1.2 km
Transfer rate	up to 115.2 Kbps
Power supply	USB (RS-485-USB), 220V (RS-232 - RS-485)
Ambient temperature, °C	-25...+65 °C
Ingress protection	IP30

Specific features and advantages

- Automatic detection of the data transmission direction.
- Built-in protection against incorrect polarity selection and overvoltage..
- Transmission light indication.
- Galvanic isolation of RS-485 and USB/COM network.

Measurement ranges of EMIS-BAR pressure transmitters

Pressure transmitters model	Code in the order line of the pressure transmitters	The full measurement range of the transmitters LRL... URL*4	Minimum difference between upper and lower range limit, ΔPmin*7		Maximum difference between the upper and lower range limit, ΔPmax*7		Overload pressure, MPa	Permissible readjustment
			kPa	Mpa	kPa	Mpa		
Over pressure								
EMIS-BAR 103	(-40...40)kPa	-40...40 kPa	4	-	40	-	0,6	1:10
	(-100...100)kPa	-101.3...100 kPa	1	-	100	-	0,6	1:100
	(-100...250)kPa	-101.3...250 kPa	5	-	250	-	1,5	1:50
	(-100...400)kPa	-101.3...400 kPa	4	-	400	-	1,5	1:100
	(-0.1...1)MPa	-0.1013...1 MPa	30	-	-	1	4,5	1:33
	(-0.1...3)MPa	-0.1013...3 MPa	30	-	-	3	4,5	1:100
	(-0.1...10)MPa	-0.1013...10 MPa	200	-	-	10	20	1:50
	(-0.1...20)MPa	-0.1013...20 MPa	200	-	-	20	30	1:100
	(-0.1...40)MPa	-0.1013...40 MPa	400	-	-	40	60	1:100
	(-0.1...70)MPa	-0.1013...70 MPa	700	-	-	70	105	1:100
EMIS-BAR 103-M1	(-40...40Hp)kPa	-40...40 kPa	4	-	40	-	1	1:10
	(-100...250Hp)kPa	-101.3...250 kPa	5	-	250	-	4	1:50
	(-0.1...1Hp)MPa	-0.1013...1 MPa	20	-	-	1	6	1:50
	(-0.1...3Hp)MPa	-0.1013...3 MPa	60	-	-	3	15	1:50
	(-0.1...10Hp)MPa	-0.1013...10 MPa	200	-	-	10	20	1:50
	(-0.1...40Hp)MPa	-0.1013...40 MPa	-	8	-	40	60	1:5
EMIS-BAR 105	(-2...2Hs)kPa	-2...2 kPa	0,1	-	2	-	3,2	1:20
	(-10...10Hs)kPa	-10...10 kPa	0,5	-	10	-	3,2	1:20
	(-100...100)kPa	-101.3...100 kPa	1	-	100	-	0,6	1:100
	(-100...100Hs)kPa	-101.3...100 kPa	1	-	100	-	25	1:100
	(-100...400)kPa	-101.3...400 kPa	4	-	400	-	1,5	1:100
	(-100...500Hs)kPa	-101.3...500 kPa	5	-	500	-	25	1:100
	(-0.1...3)MPa	-0.1013...3 MPa	30	-	-	3	4,5	1:100
	(-0.1...3Hs)MPa	-0.1013...3 MPa	30	-	-	3	25	1:100
	(-0.1...14Hs)MPa	-0.1013...14 MPa	140	-	-	14	25	1:100
	(-0.1...16)MPa	-0.1013...16 MPa	200	-	-	16	30	1:80
(-0.1...40)MPa	-0.1013...40 MPa	400	-	-	40	60	1:100	
EMIS-BAR 113	(-100...100)kPa	-101.3...100 kPa	10	-	100	-	0,6	1:10
	(-100...400)kPa	-101.3...400 kPa	15	-	400	-	1,5	1:26
	(-0.1...3)MPa	-0.1013...3 MPa	100	-	-	3	5	1:30
	(-0.1...4)MPa5)	-0.1013...4 MPa	200	-	-	4	6	1:20
	(-0.1...6.3)MPa	-0.1013...6.3 MPa	210	-	-	6,3	10	1:30
EMIS-BAR 173, 174	(-100...100)kPa	-101.3...100 kPa	5 / 10*5,*6	-	100	-	0,6*2	1:20 / 1:10*5,*6
	(-100...400)kPa	-101.3...400 kPa	20	-	400	-	1,5*2	1:20
	(-0.1...3)MPa	-0.1013...3 MPa	150	-	-	3	4,5*2	1:20
	(-0.1...4)MPa5)	-0.1013...4 MPa	200	-	-	4	6*2	1:20
	(-0.1...10)MPa6)	-0.1013...10 MPa	625	-	-	10	15*2	1:16
	(-0.1...20)MPa	-0.1013...20 MPa	600	-	-	20	30*2	1:33
	(-0.1...40)MPa	-0.1013...40 MPa	-	2	-	40	60*2	1:20
EMIS-BAR 173-M1, 174-M1	(-40...40Hp)kPa1)	-40...40 kPa	4	-	40	-	1	1:10
	(-100...250Hp)kPa1)	-101.3...250 kPa	25	-	250	-	4	1:10
	(-0.1...1Hp)MPa1)	-0.1013...1 MPa	50	-	-	1	6	1:20
	(-0.1...3Hp)MPa1)	-0.1013...3 MPa	150	-	-	3	15	1:20
	(-0.1...10Hp)MPa1)	-0.1013...10 MPa	500	-	-	10	20	1:20
		-0.1013...40 MPa	-	8	-	40	60	1:5

Measurement ranges of EMIS-BAR pressure transmitters

Pressure transmitters model	Code in the order line of the pressure transmitters	The full measurement range of the transmitters LRL... URL*4	Minimum difference between upper and lower range limit, ΔPmin*7		Maximum difference between the upper and lower range limit, ΔPmax*7		Overload pressure, MPa	Permissible readjustment
			kPa	Mpa	kPa	Mpa		
Absolut pressure								
EMIS-BAR 123	(0...25)kPa	0...25 kPa	0,5	-	25	-	0,3	1:50
	(0...130)kPa	0...130 kPa	2,6	-	130	-	0,5	1:50
	(0...500)kPa	0...500 kPa	5	-	500	-	1	1:100
	(0...3)MPa	0...3 MPa	30	-	-	3	6	1:100
	(0...20)MPa	0...20 MPa	200	-	-	20	30	1:100
EMIS-BAR 123-M1	(0...40Hp)kPa	0...40 kPa	8	-	40	-	1	1:5
	(0...250Hp)kPa	0...250 kPa	5	-	250	-	4	1:50
	(0...1Hp)MPa	0...1 MPa	20	-	-	1	6	1:50
	(0...3Hp)MPa	0...3 MPa	60	-	-	3	15	1:50
	(0...10Hp)MPa	0...10 MPa	200	-	-	10	20	1:50
	(0...40Hp)MPa	0...40 MPa	-	8	-	40	60	1:5
EMIS-BAR 133	(0...25)kPa	0...25 kPa	0,5	-	25	-	0,3	1:50
	(0...130)kPa	0...130 kPa	2,6	-	130	-	0,5	1:50
	(0...500)kPa	0...500 kPa	5	-	500	-	1	1:100
	(0...3)MPa	0...3 MPa	30	-	-	3	6	1:100
	(0...16)MPa	0...16 MPa	600	-	-	16	25	1:25
EMIS-BAR 175, 176	(0...25)kPa	0...25 kPa	5	-	25	-	0,3*2	1:5
	(0...130)kPa	0...130 kPa	10	-	130	-	0,5*2	1:13
	(0...500)kPa	0...500 kPa	25	-	500	-	12)	1:20
	(0...3)MPa	0...3 MPa	150	-	-	3	6*2 / 4,5*5	1:20
EMIS-BAR 175-M1, 176-M1	(0...40Hp)kPa1)	0...40 kPa	8	-	40	-	1	1:5
	(0...250Hp)kPa1)	0...250 kPa	25	-	250	-	4	1:10
	(0...1Hp)MPa1)	0...1 MPa	50	-	1	1	6	1:20
	(0...3Hp)MPa1)	0...3 MPa	150	-	3	3	15	1:20
	(0...10Hp)MPa1)	0...10 MPa	500	-	10	10	20	1:20
	(0...40Hp)MPa1	0...40 MPa	-	8	40	40	60	1:5
Differential pressure								
EMIS-BAR 143	(-10...10)kPa	-10...10 kPa	0,5	-	10	-	25	1:20
	(-100...100)kPa	-100...100 kPa	1	-	100	-		1:100
	(-500...500)kPa	-500...500 kPa	5	-	500	-		1:100
	(-0.5...3)MPa	-0.5...3 MPa	30	-	-	3		1:100
	(-0.5...14)MPa	-0.5...14 MPa	140	-	-	14		1:100
EMIS-BAR 153	(-10...10)kPa	-10...10 kPa	0,5	-	10	-	42	1:10
	(-100...100)kPa	-100...100 kPa	1	-	100	-		1:100
	(-500...500)kPa	-500...500 kPa	5	-	500	-		1:100
	(-0.5...3)MPa	-0.5...3 MPa	30	-	-	3		1:100
EMIS-BAR 193	(-100...100)Pa	-100...100 Pa	50 Pa	-	100 Pa	-	0,2	1:2
	(-2...2)kPa	-2...2 kPa	0,1	-	2	-	0,2	1:20
	(-2...2Hp)kPa			-		-	3,2	
EMIS-BAR 183, 184, 185, 186, 187, 188	(-10...10)kPa	-10...10 kPa	2,5	-	10	1	16 (25/42)*2	1:4
	(-100...100)kPa	-100...100 kPa	5	-	100	3		1:20
	(-500...500)kPa	-500...500 kPa	25	-	500	10		1:20
	(-0.5...3)MPa	-0.5...3 MPa	150	-	-	3		1:20
	(-0.5...4)MPa5)	-0.5...4 MPa	400	-	-	4		1:10
	(-0.5...14)MPa	-0.5...14 MPa	700	-	-	14		1:20

Measurement ranges of EMIS-BAR pressure transmitters

Pressure transmitters model	Code in the order line of the pressure transmitters	The full measurement range of the sensor LRL... URL*4	Minimum difference between upper and lower range limit, ΔPmin*7		Maximum difference between the upper and lower range limit, ΔPmax*7		Overload pressure, MPa	Permissible readjustment
			kPa	Mpa	kPa	Mpa		
Hydrostatic pressure								
EMIS-BAR 163, 164	(-10...10)kPa	-10...10 kPa	2	-	10	-	16 (25/42)*2	1:5
	(-100...100)kPa	-100...100 kPa	5	-	100	-		1:20
	(-500...500)kPa	-500...500 kPa	16	-	500	-		1:31
	(-0.5...3)MPa	-0.5...3 MPa	100	-	-	3		1:30
	(-0.5...10)MPa	-0.5...10 MPa	400	-	-	10		1:25

Notes:

*1 - Ranges are available on request.

*2 - Transmitters overload pressure does not exceed the sensor overload capacity listed in the table and shall not exceed overload pressure for the flange. If overload pressure for the selected flange is less than the overload capacity of the sensor, the overload capacity of the transmitters is limited by the overload capacity of the flange (the corresponding value is indicated in the certificate and on the marking plate of the instrument). Overload pressure up to 25/42 MPa is only available for models 163, 183 when using ES, EL, or ETS4 fill fluid.

*3 - No verification and/or calibration is required after the pressure transmitters has been reconfigured.

*4 - The overpressure sensors can be reconfigured from minus 101.3 kPa to P_(in max), assuming that the atmospheric pressure is 101.3 kPa. The range limit (minus 101.3 kPa) for overpressure transmitters changes with atmospheric pressure.

*5 - Only for transmitters in hygienic version (filling fluid type 4 - coconut oil).

*6 - Only for transmitters with SHT (Super High Temperature) fill fluid code.

*7 - $\Delta P = |P_v - P_n|$, where P_v is the set upper range limit of the transmitters and P_n is the set lower range limit of the transmitters.

Measurement ranges of EMIS-VIHR 200 flow meters

Flow meter standard size (DN), mm	Version code by type of connection to pipeline*	Version code for measured medium temperature	Measured flow rate, m ³ /h			
			Water		Air	
			Qmin	Qmax	Qmin	Qmax
15	S, F	85-250	0,5	25	4,5	32
		300, 320	0,5	5	7	32
25	FR	85-250	0,5	5	4,5	32
		300, 320	0,5	5	7	32
25	S, F	85-250	0,6 (0,4)	16	8	120 (155)
		300, 320	0,6	16	12,5	120 (155)
32	FR	85-250	0,6 (0,4)	16	8	120 (155)
		300, 320	0,6	16	12,5	120 (155)
32	S, F	85-250	0,8 (0,6)	27	10	200 (255)
		300, 320	0,8	27	13	200 (255)
40	S, F	85-250	1,4 (1)	43	12	310 (400)
		300, 320	1,4	43	20	310 (400)
		350, 450	3,4	43	31	310
50	FR	85-250	0,8 (0,6)	27	10	200 (255)
		300, 320	0,8	27	13	200 (255)
50	S, F	85-250	2 (1,4)	67	18 (14)	480 (620)
		300, 320	2	67	30	480 (620)
		350, 450	5,3	67	48	480
65	S, F	85-250	3 (2,6)	115	33 (24)	810 (1050)
		300, 320	3	115	55	810 (1050)
		350, 450	9	115	81	810
80	FR	85-250	2 (1,4)	67	18 (14)	480 (620)
		300, 320	2	67	30	480

Measurement ranges of EMIS-VIHR 200 flow meters

Flow meter standard size (DN), mm	Version code by type of connection to pipeline*	Version code for measured medium temperature	Measured flow rate, m ³ /h			
			Water		Air	
			Qmin	Qmax	Qmin	Qmax
80	S, F	85-250	4,6 (4)	172	53 (36)	1230 (1600)
		300, 320	4,6	172	60	1230 (1600)
		350, 450	13	172	123	1230
100	FR	85-250	4,6 (4)	172	53 (36)	1230 (1600)
		300, 320	4,6	172	60	1230 (1600)
100	S, F	85-250	8 (6)	270	80 (60)	1920 (2500)
		300, 320	8	270	90	1920 (2500)
		350, 450	21	270	192	1920
125	S, F	85-250	13 (10)	400	130 (90)	3000 (3600)
		300, 320	13	400	130	3000 (3600)
		350, 450	33	400	290	3000
150	S, F	85-250	18 (14)	605	190 (130)	4325 (5000)
		300, 320	18	605	190	4325 (5000)
		350, 450	47	605	420	4325
200	S, F	85-250	34 (26)	1075	320 (235)	8000 (10000)
		300, 320	34	1075	330	8000 (10000)
		350, 450	90	1075	810	8000
250	S, F	85-250	60 (42)	1700	470 (380)	12900 (15000)
		300, 320	60	1700	500	12900 (15000)
		350, 450	142	1700	1260	12900
300	S, F	85-250	95 (60)	2460	680 (550)	18600 (22000)
		300, 320	95	2460	800	18600 (22000)
		350, 450	200	2460	1820	18600
50,80	SD/80	85-250	–	–	5	80
	SD/160	85-250	–	–	7	160
	SD/400	85-250	–	–	10	400
80	SD/800	85-250	–	–	20	800
	SD/1600	85-250	–	–	40	1600

Notes:

* - Version code "S" also includes "SI", "SA", "SE", code "F" includes "FI", "F2", "FA", "FE", code "FR" includes "FR1", "FRA", "FRE".

1 - By special order for temperature versions up to +250°C, transducers with extended measuring range can be produced. Range extension is possible from the lower limit of the measuring range as well as from the upper limit. Extended limits are indicated in parentheses. In the order sheet after the transmitter size and accuracy class the letter "L" is written for extending the lower limit of the range and/or "U" for extending the upper limit of the range (e.g. 080-U/L indicates a transmitter with DN 80 mm with accuracy class B and extended lower limit of the measured flow range).

2 - Measured flow rate ranges for other media depend on their density, viscosity, pressure, temperature and are specified on the basis of a datasheet filled in by the customer.

Error limits of EMIS-VIHR 200

Measured fluid	Maximum permissible error for accuracy classes, %									
	Qt ≤ Q ≤ Qmax.					Qmin. ≤ Q < Qn				
	AA	A0	A	B	C	A	A	B	B	C
Liquid	–	± 0,5	± 0,5	± 1,0	± 1,5	–	± 0,5	± 1,0	± 1,5	± 2,5
Gas and steam	± 0,7	± 1,0	± 1,0	± 1,5	± 2,0	± 1,0	± 1,0	± 2,0	± 2,5	± 3,5

Notes:

In case of simulated verification the limits of allowed percentage error |δ|+0,2, %..

Measurement ranges of EMIS-VIHR 200 PPD flow meters

Flow meter standard size (DN), mm	Design	Measured flow rate, m ³ /h		
		Full range of flow rates		Transient flow rate
		Qmin	Qmax	Qe
50/10	–	0,3	10	0,5
50/20	–	0,5	25	0,7
50/25	–, 1	0,6	32	0,8
50/50	–	1,1	55	1,5
50/60	–	1,3	65	1,8
80/20	–	0,6	25	0,9
80/25	1	0,8	32	1
80/35	–	0,8	40	1,2
80/50	–	1,1	60	1,6
80/50	1	1,2	55	2
80/100	1	2,5	110	3
80/150	–	3,5	160	5
100/25	–	0,8	32	1
100/50	–	1,2	55	2
100/120	–	4	132	5
100/200	–	5	220	8
100/200	1	4	200	5
100/300	–	8,2	330	12
150/500	1	12,5	520	15

Error limits of EMIS-VIHR 200 PPD

Measured fluid	Error limits for accuracy classes A, B, C, %					
	Qe ≤ Q ≤ Qmax			Qmin. ≤ Q < Qe		
	A	B	C	A	B	C
Liquid	± 0,5	± 1,0	± 1,5	± 1,0	± 1,5	± 2,5

Notes:

In case of simulated verification the limits of allowed percentage error $|\delta| + 0,2, \%$.

Measuring ranges of EMIS-VIHR 200 PPD flow meters (design version 2)

Flow meter standard size (DN), mm	Measured water flow rate, m ³ /h		
	Full range of flow rates		Transient flow rate
	Qmin	Qmax	Qe
50/10	0,3	10	0,5
50/25	0,6	32	0,8
50/50	1,1	55	1,5
50/60	1,3	65	1,8
80/20	0,6	25	0,9
80/35	0,8	40	1,2
80/50	1,2	55	2
80/150	3	160	4
100/25	0,8	32	1
100/50	1,2	55	2
100/120	4	132	5
100/200	5	220	8
100/300	8,2	330	12
150/500	12,5	540	15

➤ Error limits of EMIS-VIHR 200 PPD flow meters (design version 2)

Measured fluid	Maximum permissible error, %		
	$2Q_e \leq Q \leq Q_{max}$	$Q_e \leq Q \leq 2Q_e$	$Q_{min} \leq Q \leq Q_e$
Liquid	$\pm 1,0$	$\pm 1,5$	$\pm 3,0$

Notes:

In case of simulated verification the limits of allowed percentage error $|\delta| + 0,2, \%$.

➤ Measurement ranges of EMIS-VIHR 205 flow meters

Flow meter standard size (DN), mm	Measured flow rate, m³/h						Pressure version, MPa
	Water		Air				
			Qmin			Qmax	
	85, 100 °C		135-250 °C				
	1,6 MPa	2,5 MPa					
40	1	28	11	23	23	210	1,6-2,5
300	75	2030	800	1670	1670	15230	1,6-2,5
350	100	2770	1090	2280	2280	20770	1,6-2,5
400	130	3630	1430	2980	2980	27240	1,6-2,5
450	165	4600	1810	3780	3780	34550	1,6-2,5
500	200	5700	2240	4680	4680	42750	1,6-2,5
600	300	8200	3240	6770	6770	61800	1,6-2,5
700	400	11300	4430	9260	9260	84500	1,6-2,5
800	540	15100	5950	-	12440	113600	1,6
	530	14800	-	12140	12140	110800	2,5
900	690	19200	7560	-	15810	144300	1,6
	670	18800	-	15430	15430	140900	2,5
1000	850	23900	9370	-	19600	178900	1,6
	830	23300	-	19130	19130	174600	2,5
1100	1030	29000	11380	23790	23790	217200	1,6-2,5
1200	1240	34600	13600	28420	28420	259500	1,6-2,5
1300	1460	40700	16000	33460	33460	305500	1,6-2,5
1400	1700	47400	18620	38930	38930	355400	1,6-2,5
1500	1950	54600	21440	44830	44830	409300	1,6-2,5
1600	2200	62200	24440	51100	51100	466600	1,6-2,5
1800	2800	79000	31030	64880	64880	592400	1,6-2,5
2000	3500	98000	38460	80430	80430	734300	1,6-2,5

➤ Error limits of EMIS-VIHR 205 flow meters

Measured fluid	Error limits for accuracy classes A, B, C, %						Transient flow rate Qe
	Qe ≤ Q ≤ Qmax			Qmax. ≤ Q < Qe			
	A	B	C	A	B	C	
Liquid	± 0,5	± 1,0	± 1,5	± 1,0	± 1,5	± 2,5	0.125-Qmax
Gas and steam	± 1,0	± 1,5	± 2,0	± 2,0	± 2,5	± 3,5	0.15-Qmax

Notes:

In case of simulated verification the limits of allowed percentage error $|\delta| + 0,2, \%$.

Liquid measurement ranges for EMIS-MASS 260

DN	Housing type	Design	Qmin', kg/h	Qmin, kg/h		Qmax ¹ , kg/h	Qmax ² , kg/h	Zero stability, kg/h
				at the accuracy class				
				0,1; 0,15 & 0,2	0,25 & 0,5			
10	–	Frd3	5	30	20	250	360	0,03
10	K	-	10	100	50	1 100	1 600	0,04
15	–	FRd3	5	30	20	250	360	0,03
15	K	FR	10	100	50	1 100	1 600	0,04
15	K	-	10	200	150	3 000	4 600	0,2
15	K	Φ2	10	200	150	3 000	4 600	0,2
25	K	FR	10	200	150	3 000	4 600	0,2
25	K	FR2	10	200	150	3 000	4 600	0,2
25	K	-	30	600	400	9 000 11 000*	14 000 16 000*	0,6
25	–	-	40	600	300	10 000	14 000	0,4
40	K	FR	30	600	400	9 000 11 000*	14 000 16 000*	0,6
40	–	FR	40	600	300	10 000	14 000	0,4
40	K	-	180	3 600	2 400	25 000	34 000	3,6
40	–	-	160	2 200	1 500	35 000	51 000	1,28
40	K	Φ2	200	6 200	4 100	43 000	60 000	3,6
50	K	FR	180	3 600	2 400	25 000	34 000	3,6
50	–	FR	160	2 200	1 500	35 000	51 000	1,28
50	K	FR2	200	6 200	4 100	43 000	60 000	3,6
50	K	-	250	5 000	3 500	50 000 62 000*	64 000 87 000*	5
50	–	-	250	3 500	2 500	55 000	77 000	2
80	K	FR	250	5 000	3 500	50 000 62 000*	64 000 87 000*	5
80	–	FR	250	3 500	2 500	55 000	77 000	2
80	K	-	600	12 000	8 000	140 000	188 000	12
80	–	-	700	9 500	6 000	200 000	288 000	6
100	K	FR	600	12 000	8 000	140 000	188 000	12
100	–	FR	700	9 500	6 000	200 000	288 000	6
100	K	-	1 000	20 000	15 000	240 000	375 000	20
100	–	-	1 000	15 000	10 000	430 000	550 000	8
150	K	FR	1 000	20 000	15 000	240 000	375 000	20
150	–	FR	1 000	15 000	10 000	430 000	550 000	8
150	K	-	2 500	50 000	35 000	430 000	574 000	50
150	–	-	2 500	45 000	35 000	700 000	900 000	20
200	K	FR	2 500	50 000	35 000	430 000	574 000	50
200	–	FR	2 500	45 000	35 000	700 000	900 000	20
200	K	-	5 000	100 000	70 000	1 000 000 1 200 000*	1 100 000 1 600 000*	100
250	K	FR	5 000	100 000	70 000	1 000 000 1 200 000*	1 100 000 1 600 000*	100
250	K	-	7 500	150 000	120 000	1 500 000	1 600 000	188
300	K	FR	7 500	150 000	120 000	1 500 000	1 600 000	188

Notes:

* - An extended range is available by agreement.

Qmax¹ and **Qmax²** are flow rates corresponding to a differential pressure at the flow meter equal to 1 bar and 2 bar respectively (measured medium is water at 20 °C).

Gas measurement ranges for EMIS-MASS 260

DN	Housing type	Design	Qmin', kg/h	Qmin, kg/h		Q(MG)max,kg/h**	Zero stability, kg/h
				at the accuracy class			
				0,1; 0,15 & 0,2	0,25 и 0,5		
10	K	–	10	100	50	15,7· g	0,04
15	K	FR	10	100	50	15,7· g	0,04
15	K	–	10	200	150	42,9· g	0,2
15	K	F2	10	200	150	42,9· g	0,2
25	K	FR	10	200	150	42,9· g	0,2
25	K	FR2	10	200	150	42,9· g	0,2
25	K	–	30	600	400	128,6· g / 157,1· g*	0,6
25	–	–	40	600	300	142,8· g	0,4
40	K	FR	30	600	400	128,6· g / 157,1· g*	0,6
40	–	FR	40	600	300	142,8· g	0,4
40	K	–	180	3 600	2 400	357,1· g	3,6
40	–	–	160	2 200	1 500	500· g	1,28
40	K	F2	200	6 200	4 100	614,2· g	3,6
50	K	FR	180	3 600	2 400	357,1· g	3,6
50	–	FR	160	2 200	1 500	500· g	1,28
50	K	FR2	200	6 200	4 100	614,2· g	3,6
50	K	–	250	5 000	3 500	714,3· g / 885,8· g*	5
50	–	–	250	3 500	2 500	785,7· g	2
80	K	FR	250	5 000	3 500	714,3· g / 885,8· g*	5
80	–	FR	250	3 500	2 500	785,7· g	2
80	K	–	600	12 000	8 000	2,000· g	12
80	–	–	700	9 500	6 000	2,857,1· g	6
100	K	FR	600	12 000	8 000	2,000· g	12
100	–	FR	700	9 500	6 000	2,857,1· g	6
100	K	–	1 000	20 000	15 000	3,428,6· g	20
100	–	–	1 000	15 000	10 000	6,142,9· g	8
150	K	FR	1 000	20 000	15 000	3,428,6· g	20
150	–	FR	1 000	15 000	10 000	6,142,9· g	8
150	K	–	2 500	50 000	35 000	6,142,9· g	50
150	–	–	2 500	45 000	35 000	10,000· g	20
200	K	FR	2 500	50 000	35 000	6,142,9· g	50
200	–	FR	2 500	45 000	35 000	10,000· g	20
200	K	–	5 000	100 000	70 000	14,285,7· g / 17,142,8· g*	100
250	K	FR	5 000	100 000	70 000	14,285,7· g / 17,142,8· g*	100

Notes:

The value of the maximum gas flow rate is calculated by the formula $Q(MG)max = (Qmax/kg) \cdot \rho g$

where ρg – gas density under operating conditions, kg/m³;

kg – empirical coefficient, kg = 70 kg/m³;

$Qmax$ – maximum mass flow rate of liquid according to Table 1.4, kg/h.

For example: $Q(MG)max$ for DN10K is calculated as $(Qmax/kg) \cdot \rho g = (1100/70) \cdot \rho g = 15,7 \cdot \rho g$, kg/h.

* - extended range available by agreement.

** - maximum mass flow rate of gas $Q(MG)max$ cannot exceed the value of maximum flow rate for liquid $Qmax$, $Qmax$ specified in the table of EMIS-MASS 260 liquid measurement ranges for the corresponding flow meter size.

Measurement ranges for EMIS-MERA 300

Meter designation	Flow range depending on density (ρ , kg/m ³) of the measured liquid, t/day			
	$500 \leq \rho < 600$	$600 \leq \rho < 700$	$700 \leq \rho < 820$	$820 \leq \rho < 1500$
EM-300-030	0,3 ... 18	0,3 ... 22	0,3 ... 26	0,3 ... 30
EM-300-060	0,3 ... 37	0,3 ... 44	0,3 ... 51	0,3 ... 60
EM-300-120	0,3 ... 73	0,3 ... 88	0,3 ... 102	0,3 ... 120
EM-300-210	0,3 ... 128	0,3 ... 154	0,3 ... 179	0,3 ... 210
EM-300-480	0,3 ... 256	0,3 ... 307	0,3 ... 359	0,3 ... 480

Notes:

- 1 - The full flow rate range corresponds to values at the maximum density of the liquid to be measured.
 2 - The minimum flow rate per one channel for all EMIS-MERA 300 versions is 1·10⁻³ tons/day.

Measurement ranges of EMIS-MAG 270 flow meters

DN	D, m	Qmin, m ³ /h*	Qtr, m ³ /h*	Qmax, m ³ /h*
15	0,015	0,06	0,64	6,4
20	0,02	0,12	1,17	11,7
25	0,025	0,18	1,8	18
32	0,032	0,3	2,97	29,7
40	0,04	0,45	4,5	45
50	0,05	0,72	7,2	72
65	0,065	1,2	11,7	117
80	0,08	1,8	18	180
100	0,1	2,9	28,8	288
125	0,125	4,5	45	450
150	0,15	6,5	64,8	648
200	0,2	11,7	117	1170
250	0,25	18	180	1800
300	0,3	26	261	2610
350	0,35	36	360	3600
400	0,4	47	468	4680
450	0,45	59	594	5940
500	0,5	72	720	7200
600	0,6	100	999	9990

Notes:

Flow ranges for flow meters with DN > 600 are available on request.

* - Default values. Upon special order, the flow meters can be supplied with values other than those specified in the table: special values are specified in the flow meter certificate. If the Qtr value is absent in the flow meter certificate, it is taken as 0,1·Qmax.

Measurement ranges of EMIS-PLAST 220 flow meters

DN	Inner diameter of the flow section, mm	Flow rate range at different values of allowed percentage error, m ³ /h							
		For oil and oil products				For water			
		0,50%		1%		1%		1,50%	
		Q min	Q max	Q min	Q max	Q min	Q max	Q min	Q max
8	*	0,15	0,7	0,1	0,8	0,15	1,0	0,1	0,8
15	*	0,2	1	0,15	1,2	0,2	1,0	0,15	1,2
20	10	0,3	1,5	0,3	3	0,3	1,5	0,3	3
25	14	1	5	0,6	6	1	5	0,6	6
40	24	3	15	2	15	3	15	2	15



Диапазоны измерения расходомеров ЭМИС-ПЛАСТ 220

DN	Inner diameter of the flow section, mm	Flow rate range at different values of allowed percentage error, m³/h							
		For oil and oil products				For water			
		0,50%		1%		1%		1,50%	
		Q min	Q max	Q min	Q max	Q min	Q max	Q min	Q max
50	30	4	20	2,5	25	4	20	2,5	25
80	65	-	-	-	-	10	80	10	100
100	90	-	-	-	-	30	200	20	200
150	110	-	-	-	-	50	300	40	400
200	154	-	-	-	-	100	500	60	600
250	250	-	-	-	-	200	1000	150	1500
300	280	-	-	-	-	300	1500	250	2000

Notes:

* - available upon request.

Liquid measurement ranges for EMIS-META 215

DN	Flow range, m³/h			
	Flow section material H, H2	Accuracy class, %	Flow section material FT*	Accuracy class, %
015A**	from 0.0025 to 0.025	2,5; 4,0	-	-
015B**	from 0.004 to 0.04	1,5; 2,5; 4,0	from 0.0025 to 0.025	2,5; 4,0
015C	from 0.0063 to 0.063	1,5**; 2,5**, 4,0	from 0.004 to 0.04	
015Г	from 0.01 to 0.1	1,5**, 2,5; 4,0	from 0.0063 to 0.063	
015Д	from 0.016 to 0.16		from 0.01 to 0.1	
015Е	from 0.025 to 0.25		from 0.016 to 0.16	
015Ж	from 0.04 to 0.4		from 0.025 to 0.25	
015И	from 0.063 to 0.63	1,5**, 2,5**, 4,0	from 0.04 to 0.4	
025A	from 0.1 to 1.0		from 0.063 to 0.63	1,5**, 2,5; 4,0
025B	from 0.16 to 1.6		from 0.1 to 1.0	
025C	from 0.25 to 2.5	1,5**, 2,5; 4,0	from 0.16 to 1.6	
025Г	from 0.4 to 4.0		from 0.25 to 2.5	
040A	from 0.5 to 5.0		from 0.4 to 4.0	2,5; 4,0
040B	from 0.6 to 6.0		from 0.5 to 5.0	
050A	from 0.63 to 6.3	1,5**, 2,5**, 4,0	from 0.6 to 6.0	
050B	from 1.0 to 10	1,5**, 2,5; 4,0	from 0.63 to 6.3	
050C	from 1.6 to 16		from 1.0 to 10	2,5; 4,0
080A	from 2.5 to 25		from 1.6 to 16	
080B	from 4.0 to 40	2,5; 4,0	from 2.5 to 25	
100	from 6.3 to 63	1,5**, 2,5; 4,0	from 4.0 to 40	2,5; 4,0
150**	from 20 to 100	2,5; 4,0	-	

Notes:

* - for rotameters with FT flow section and ASME flanges the flow rate may differ from the that shown in the table, please contact EMIS JSC specialists for consultation;

** - horizontal version is not possible.

Gas measurement ranges for EMIS-META 21

DN	Flow range, m³/h		
	Flow section material H, H2	Flow section material FT*	Accuracy class, %
015A**	from 0.07 to 0.7	-	2,5; 4,0
015B**	from 0.11 to 1.1	-	
015C	from 0.18 to 1.8	from 0.18 to 1.8	2,5**, 4,0

Gas measurement ranges for EMIS-META 215

DN	Flow range, m ³ /h		
	Flow section material H, H2	Flow section material FT*	Accuracy class, %
015D	from 0.28 to 2.8	from 0.28 to 2.8	2,5; 4,0
015E	from 0.48 to 4.8	from 0.48 to 4.8	
015F	from 0.7 to 7.0	from 0.7 to 7.0	
015G	from 1.0 to 10	from 1.0 to 10	
015H	from 1.6 to 16	-	2,5**; 4,0
025A	from 3.0 to 30	from 3.0 to 30	
025B	from 4.5 to 45	from 4.5 to 45	
025C	from 7.0 to 70	from 7.0 to 70	
025D	from 11 to 110	-	2,5***; 4,0
040A	from 12 to 120	from 12 to 120	2,5; 4,0
040B	from 16 to 160	from 16 to 160	
050A	from 18 to 180	from 18 to 180	2,5**; 4,0
050B	from 25 to 250	from 25 to 250	
050C	from 40 to 400	from 40 to 400	2,5; 4,0
080A	from 60 to 600	from 60 to 600	
080B	from 80 to 800	-	
100**	from 100 to 1000	from 100 to 1000	2,5; 4,0

Notes:

* - for rotameters with the FT flow section and ASME flanges the flow rate may differ from the that indicated in the table, for consultation please contact EMIS JSC specialists.

** - horizontal version is not possible.

*** - vertical version is not possible.

Measurement ranges for gas meter EMIS-RGS 245

Standard size	DN, mm	Dynamic range	Qmin, m ³ /h	Qmax, m ³ /h	Pressure drop at Qmax, maximum, kPa
G10	25	1:40	0,4	16	0,05
G16	50	1:50	0,5	25	0,07
G25	50	1:80	0,5	40	0,13
G40	50	1:130	0,5	65	0,13
G65	50	1:200	0,5	100	0,16
G100	80	1:250	0,65	160	0,19
G160-80	80	1:160	1,6	250	0,32
G160-100	100	1:160	1,6	250	0,32
G250	100	1:200	2,0	400	0,55
G400-100	100	1:200	3,2	650	0,65
G400-150	150	1:100	6,5	650	0,35
G650	150	1:100	10,0	1000	0,49
G1000	200	1:100	16	1600	0,55

Measurement error of gas meter EMIS-RGS 245

Meter accuracy class	Maximum relative measurement error, %	
0.6	- in the range $Q_{min} \leq Q < Q_t$	$\pm 1,5$
	- in the range $Q_t \leq Q \leq Q_{max}$	$\pm 0,6$
1.0	- in the range $Q_{min} \leq Q < Q_t$	$\pm 2,0$
	- in the range $Q_t \leq Q \leq Q_{max}$	$\pm 1,0$

Dependence of Q_t on DN of gas meter EMIS-RGS 245

Standard size	DN, mm	Transient flow rate value, Q_t
G10	25	$0,15 \cdot Q_{max}$
G16	50	$0,10 \cdot Q_{max}$
G25-G1000	50-200	$0,05 \cdot Q_{max}$

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