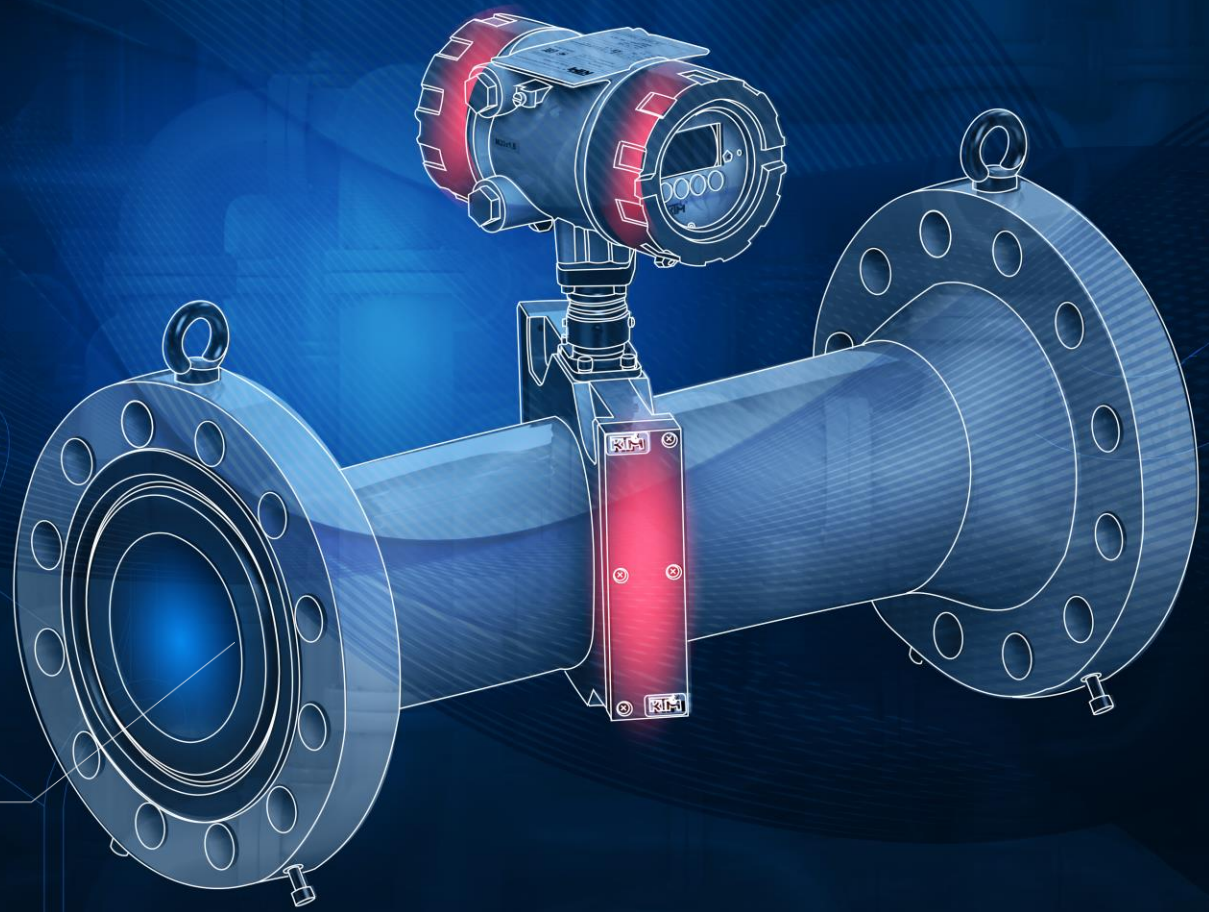
KTM600 RUS
ULTRASONIC FLOW METER



TECHNOLOGICAL METERING OF NATURAL AND ASSOCIATED PETROLEUM GAS

In the Register of Industrial produced on the territory of the Russian Federation in accordance with the Decree of the Russian Government 719 On the recognition of the production of in Russia».

Software KTM Smart Stream of our own development is included in the register of Russian software (Note in the registry 11574 from 24.09.2021).

Accreditation of the manufacturer of control and measuring devices and automation from the Federal Service for Technical and Export Control on the ability to use software and hardware on Key Information Infrastructures fuel and energy enterprises.

GAS FLOW METER FOR PROCESS METERING KTM600 RUS

KTM600 RUS

PURPOSE:

Technological metering of the quantity of natural, associated oil and other gas media and mixtures.

ADVANTAGES:

- Working pressure (Excessive) up to 55 MPa in solid-machine version;
- Stainless steel version, Monel* or Hastelloy**;
- Metering for hydrogen H2 and clean gases;
- Metering for the dump gases and wet gases, hydrates, and gases with a high content of mechanical impurities;
- Metering for cryogenic media up to -194°C;
- Full-length versions up to DN1400;
- Measurement error up to 0.5-1.5%;
- Calculation of mass flow without a density meter using the «Hydrocarbon» method;
- Replacement of sensors under working pressure;
- IBC - 4 years, service life - 15 years.

* is a trademark owned by Special Metals Corporation
** is a trademark owned by Haynes International

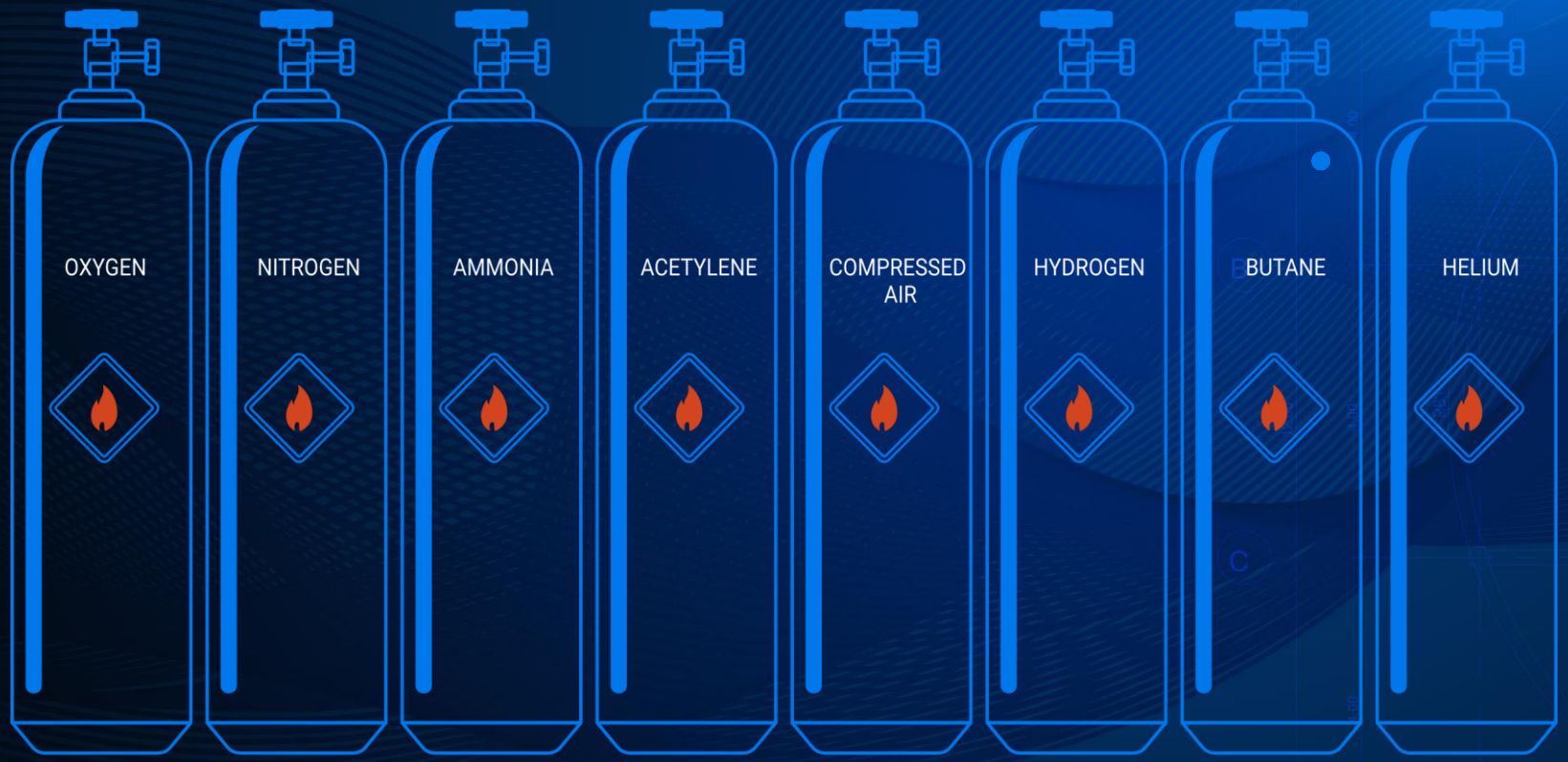
WELL GAS PRODUCTION

- Measurement error of 1% with simulation verification;
- Integral design of housing for reliable and safe operation on gas condensate fields for pressures up to 55MPa;
- Self-diagnostics of the level of contamination with notification of the operator of the need for cleaning;
- Sensors with protective casing to protect against mechanical impurities;
- Verification interval - 4 years;
- Wider than SD dynamic range;
- Special version for gas with condensate inside pipe cavity.

SOLID-MACHINED VERSION

- For pressure 55MPa we use unibody design , for reliable and safe operation on gas condensate fields;
- Precise execution of the inner cavity and positioning of sensors for qualitative measurements of the volume flow of gas;
- Possibility to manufacture without welding up to DN1400 inclusive.

CLEAN GAS MEASURING



Clean gases such as hydrogen and helium have a sound velocity of 1,100 to 1,500 m/s, which is 3 times faster than natural gas. Such measurements require special sensor designs and high-speed signal processing and computation.

HYDROGEN TRANSPORT TYPES

H2 - THE FUEL OF THE FUTURE

PIPELINE

Pressure up to 20 MPa
Temperature -40°C ... + 100°C

GROUND TRANSPORT

Pressure up to 100 MPa
Temperature -253°C ... + 100°C

SEA TRANSPORT

Pressure up to 100 MPa
Temperature -253°C ... + 100°C

RAIL TRANSPORT

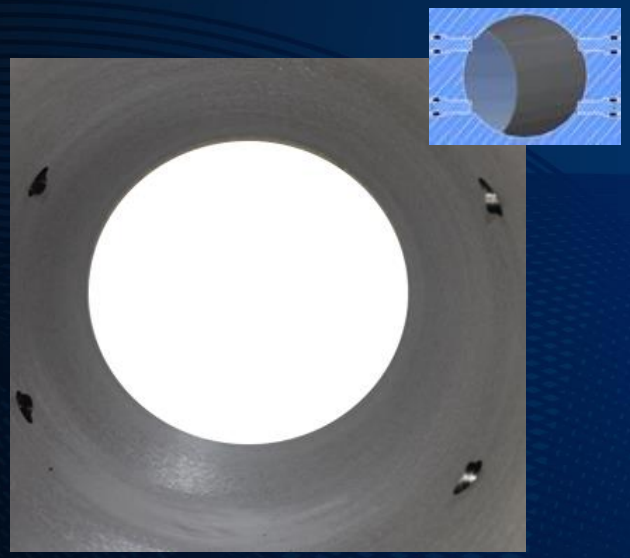
Pressure up to 100 MPa
Temperature -253°C ... + 100°C

CONSUMER

The most economically feasible method in the next five years is to blend hydrogen with natural gas for further transport. The maximum hydrogen concentration in this case is not more than 20%.

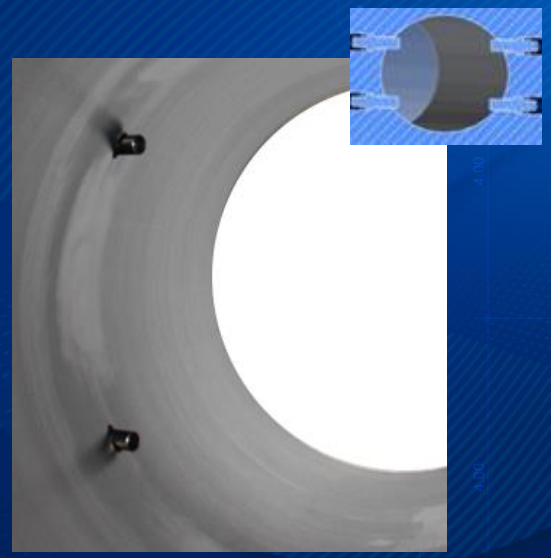
FOUL AND HUMID GASES MEASURING

SENSOR VERSIONS



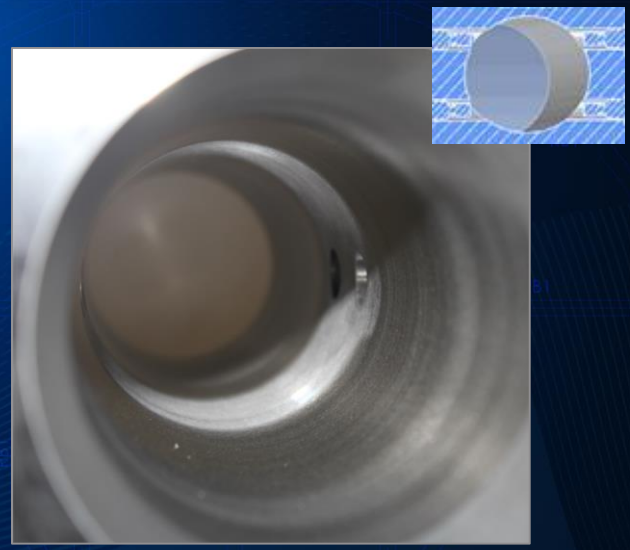
DRY GAS

High condensate or thick resin deposits presence on the inner surface of the sensors will cause a loss of signal.



FOR THE GAS WITH CONDENSATE

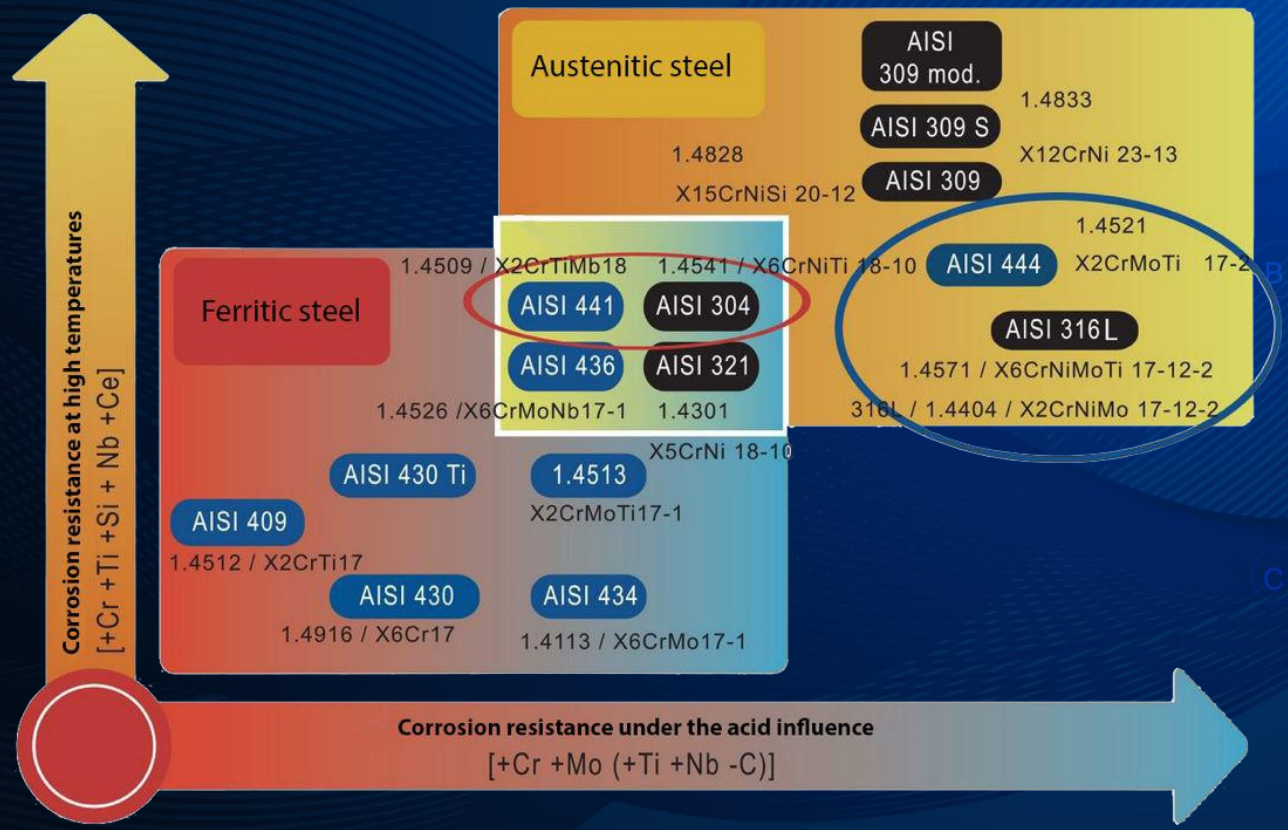
Special type of transceivers, extended from their places, for operation in gas with increased content of drip fluid.



FOR GAS WITH MECHANICAL IMPURITIES

For the gas metering at the well, the problem for the sensors has been solved - a gas containing sand, mechanical impurities, ice fragments. Special type of flow meter body, transceivers are located in unique landing pockets.

CORROSION-RESISTANT STEEL HOUSING



- Aggressive and cryogenic environments require usage of stainless steel for safe operation throughout the life cycle;
- Can be made of special stainless steels: monel*, hastelloy** and others according to customer's requirement;
- Gas metering up to -194°C;
- Counting to +280°C of highly aggressive environments.

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GAS MEASURING AT HIGH TEMPERATURES

WORKING MEDIUM TEMPERATURE UP TO +280°C ALLOWS TO USE THE FLOWMETER IN PETROLEUM AND GAS PROCESSING

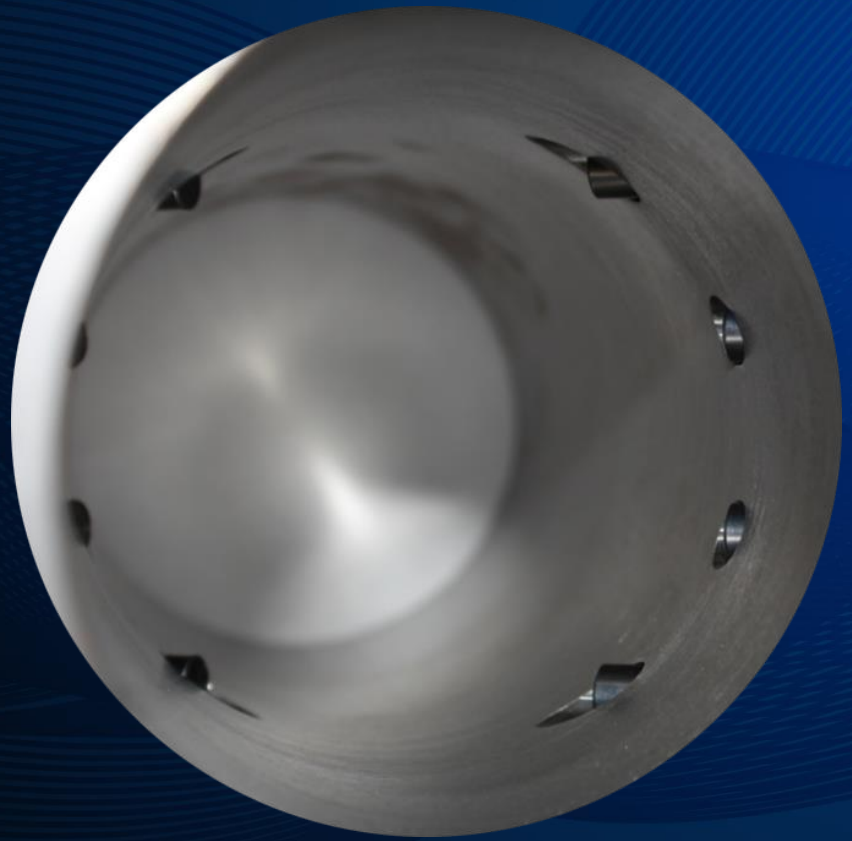
- Hot air for burning of limestone kilns and industrial furnaces up to +280°C;
- Low temperature pyrolysis with process temperature up to +500°C and temperature diversion up to +280°C.

CRYOGENIC MEDIA MEASURING

GAS TEMPERATURE RANGE UP TO -194 ALLOWS USAGE IN NATURAL GAS LIQUEFACTION PROCESSES, IN CRYOGENIC AIR SEPARATION UNITS, GASIFIERS, CRYOCILINDRES

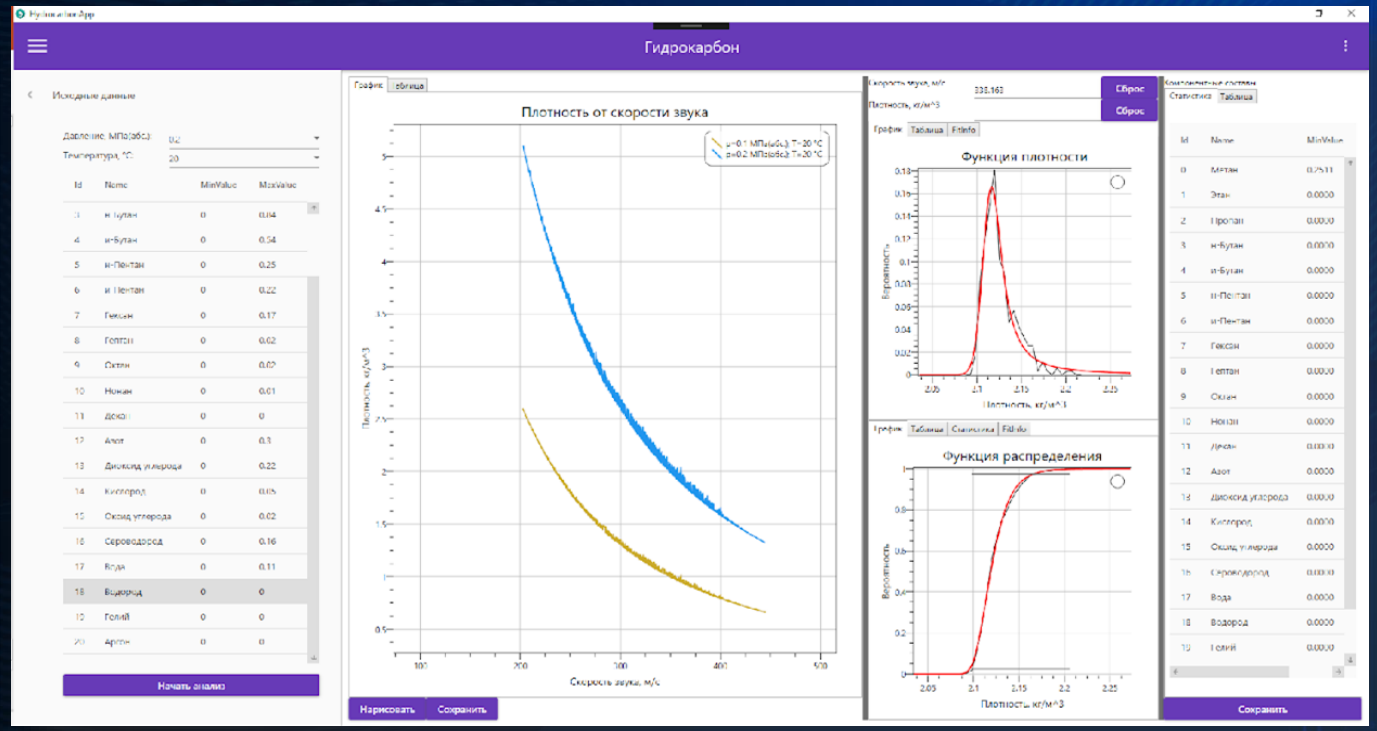
- The deep cooling method is made in steps to lower the temperature up to -160°C when receiving LNG. Metering of the vapour or gas phase ,as well as the heat carrier, is also possible.

ERROR IN DETERMINING THE VOLUME FLOW UNDER OPERATING CONDITIONS



- 4-beam versions for high-precision measurements with a relative error of 0.5% for DN200 and above;
- 2-beam versions with a relative error of 0.7% for DN200 and above;
- 2-beam versions with a relative error of 2% for processes with high condensate content.

HYDROCARBON TECHNIQUE

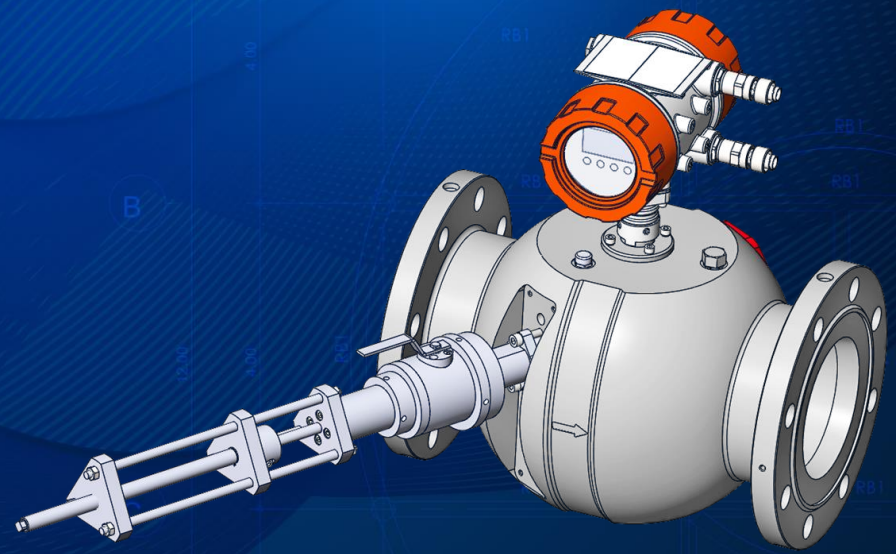


CALCULATION OF THE MOLECULAR MASS OF THE GAS OF DIFFERENT COMPOSITIONS BASED ON CALCULATION OF THE SOUND VELOCITY IN THE MEDIUM BY THE FLOWMETER, AND ALSO THE TEMPERATURE AND PRESSURE FROM THE CORRESPONDING SENSORS.

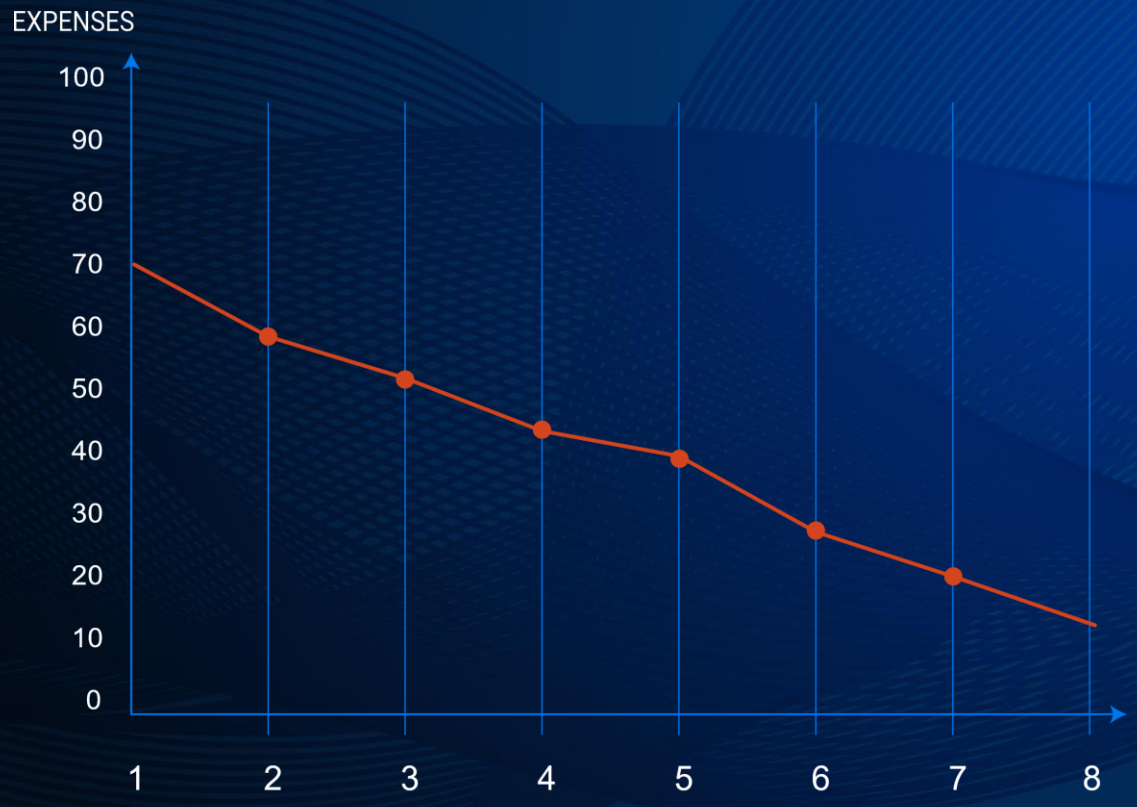
- Calculation of mass flow of gas without density meter;
- No gas composition is required;
- Reduction of the cost of the measuring unit;
- It is possible to compile a measuring methodology for a unit from Russian Research Institute of Metrology or other organizations (from 6 months);
- 3% accuracy for molar gas mass greater than 25 g/mol and pressure from 0.1 to 3.5 MPa;
- 5% accuracy for molar gas mass greater than 25 g/mol and pressure between 3.5 and 4.0 MPa.

SENSOR REPLACEMENT UNDER THE WORKING PRESSURE

The specialized sensor extraction equipment allows you to remove the sensor for cleaning, diagnostics or replacement without stopping the process, and save money instead of stopping the process and losing the gas released into the atmosphere.



LONG SERVICE LIFE



- Service life up to 15 years, according to customer requirements, for delivery to commercial nodes;
- Reduction in the cost of ownership over the life of the equipment and reduction in depreciation.

THANK YOU FOR YOUR ATTENTION!

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