



KTM RuMASS
CORIOLIS FLOW METER



CUSTODY TRANSFER
AND TECHNOLOGICAL
METERING OF
PETROLEUM AND
PETROLEUM PRODUCTS,
GASES, LNG AND
CRYOGENIC FLUIDS





CORIOLIS FLOW METER KTM RuMASS™

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PURPOSE:

Custody transfer and technological metering of petroleum, petroleum products, gases, LNG and cryogenic fluids.

ADVANTAGES:

- Significantly higher Qmax flow rates at the same DN (size) of the pipeline compared to the leading global manufacturers;
- Flow meters with DN from 15 to 250 mm are manufactured at our own full-cycle facility;
- High-temperature version up to +350°C/+400°C;
- Working pressure up to 40 MPa;
- Reduced hydraulic losses by 15-20% compared to the best global counterparts;
- The function of calculation of the mass of petroleum and petrochemicals (petroleum calculator);
- Built-in pressure and temperature correction function;
- Metrologically secured, tested density measurement channel with accuracy up to 0.2 kg/m³;
- Metrologically secured, verified temperature measurement channel;
- Metering of LNG to -196°C and other cryogenic fluids;
- Diagnostics of the condition of measuring tubes Clever Control Tool;
- The possibility of simulation method proving of the flow meter without removal from the pipeline, as well as the wet calibration/proving of the flow meter using a compact-prover or pipe mechanical displacement prover;
- IBC - 5 years, service life - 20 years;
- Possibility of manufacturing with mounting dimensions according to customer's requirements.





FLOW METERS WITH DN FROM 15 TO 250 MM ARE MANUFACTURED ON OUR OWN FULL-CYCLE FACILITY



DN15



DN25



DN50



DN80



DN100



DN200

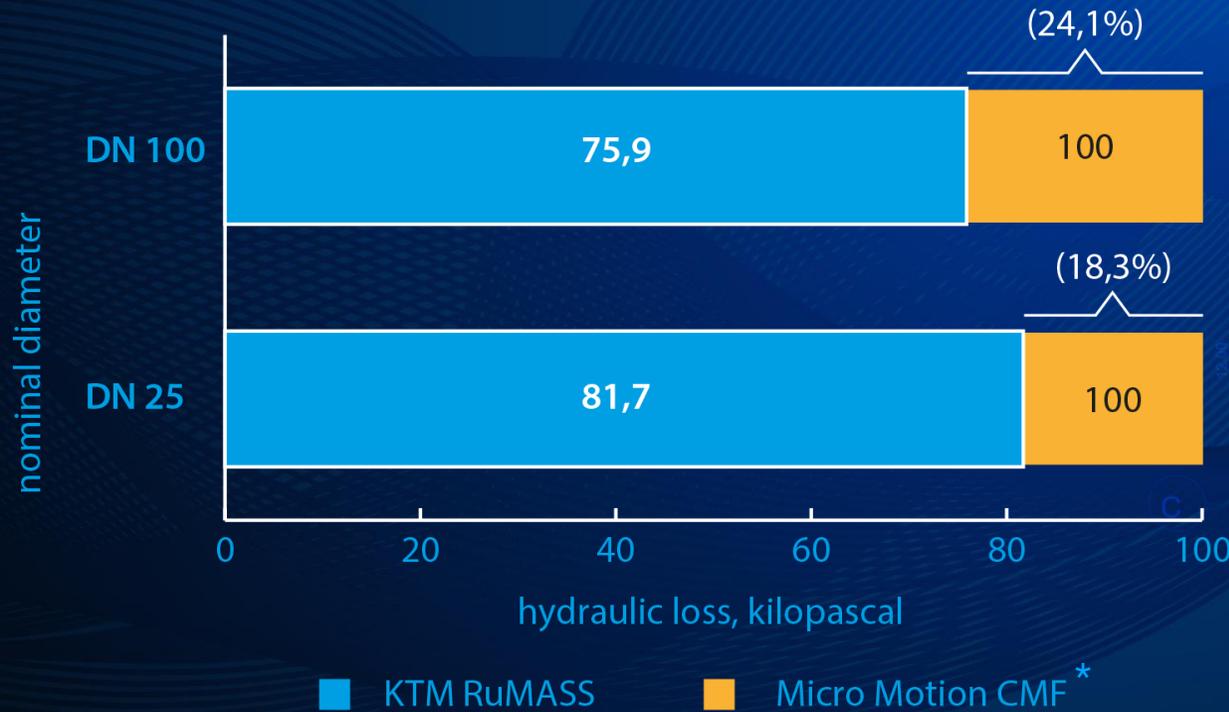


DN250





PRESSURE DROP REDUCED BY 15-20 % COMPARED TO THE TOP GLOBAL COUNTERPARTS



Optimization of the flow path shape of the manifold

- Reduction of pump capacity by the amount of pressure loss difference;
- Energy saving - Δ pumping capacity;
- Reduction of wear of pumping equipment (pump) due to saving mode (increase of service life by 15-20%).

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NOMINAL AND MAXIMUM FLOW RATES INCREASED BY 15-25% COMPARED TO THE TOP FOREIGN COUNTERPARTS

- Ability to use a smaller size mass flow meter, thanks to increased capacity;
- Reduction of the number of measuring lines in the metering skid (4 x KTM RuMASS 100 ≥ 5 x Micro Motion CMF400*).

Manufacturer	Product	Nominal diameter, mm	Number of lines	Nominal flow, kg/h	Final flow, kg/h
NPP KuibyshevTelekom-Metrologiya	KTM RuMASS 100	100-150	4	566 892	2 267 568
Emerson	Micro Motion CMF400*	100-150	5	415 179	2 075 895



**20% COST REDUCTION
OF METERING SKID
CONSTRUCTION**

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HIGH-TEMPERATURE VERSION UP TO +350°C/+400°C WORKING PRESSURE UP TO 40 MPa

KTM RuMASS can be used in a variety of industries by metering the flow rate of the working environment up to +350°C/+400°C

- For metering of high-temperature fluids such as tar, bitumen;
- For pipelines with periodic steaming.





METERING OF LNG AND OTHER CRYOGENIC FLUIDS DOWN TO -196°C



- Production of LNG;
- Storage of LNG;
- LNG transport by car and rail transport;
- LNG fuel stations;
- Bunkering of LNG transport vessels and own use;
- Port structure.



The function of calculation of mass of petroleum and petroleum products in meters based on the direct or indirect method of dynamic measurements according to GOST 8.587- 2019 at entering of necessary parameters of petroleum product with an accuracy 0.25%.

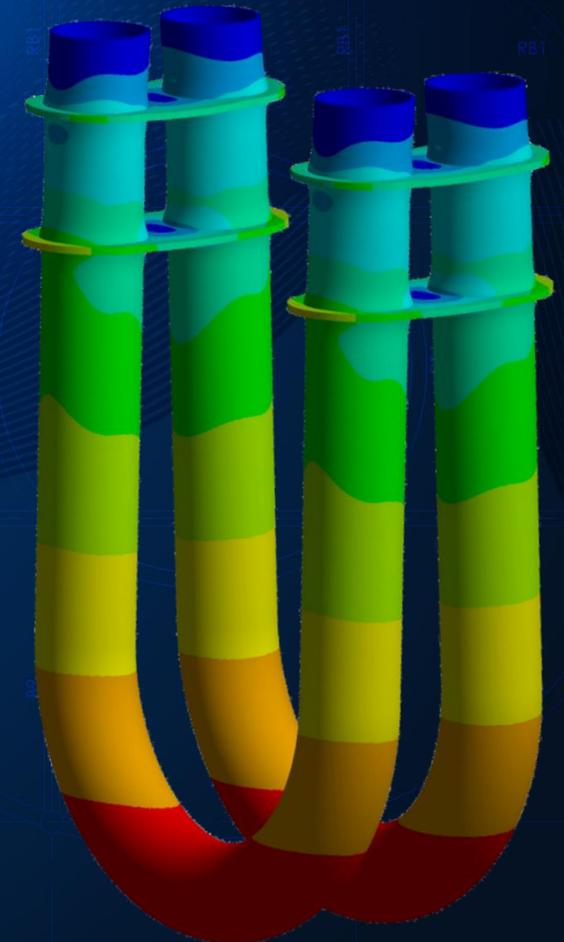
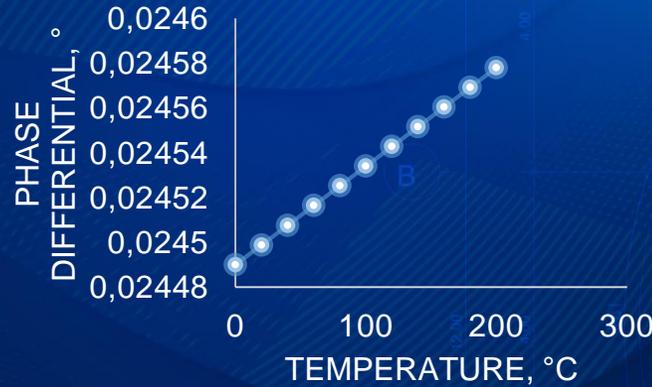
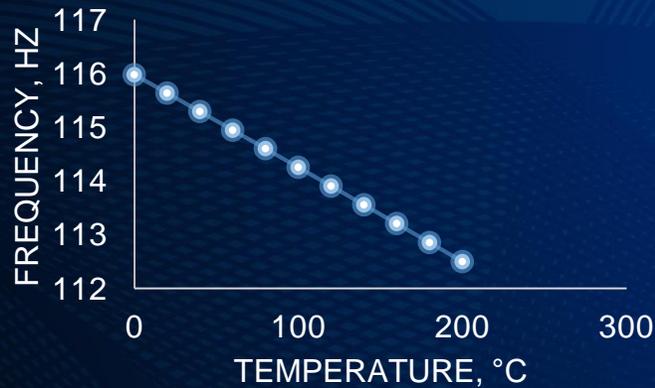




INTEGRATED FLOW RATE AND DENSITY CORRECTION FUNCTION BY TEMPERATURE



Dynamic compensation of flow rate and density readings depending on the temperature (built-in thermosensor) allows you to maintain the accuracy of the instrument when the temperature of the working environment changes.



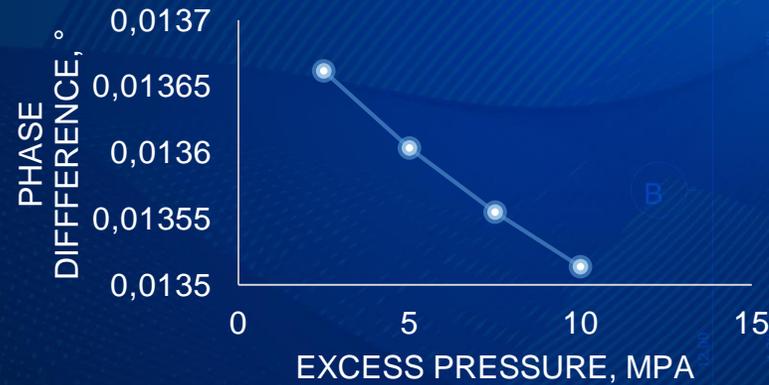
Temperature	Relative accuracy without temperature compensation	Nominal flow rate	Flow rate without temperature compensation	Absolute accuracy without temperature compensation	Accumulated losses due to accuracy rate per year of use without compensation
20 °C (in a laboratory conditions)	±0,1%	500 000 kg/h	500 000 kg/h	±1 250 kg/h	10 950 tons
+200 °C	±0,35%		498 750 kg/h		



BUILT-IN FLOW RATE AND DENSITY CORRECTION FUNCTION BY PRESSURE



Under the influence of excess pressure, the rigidity of the oscillating system changes and the phase difference shifts.



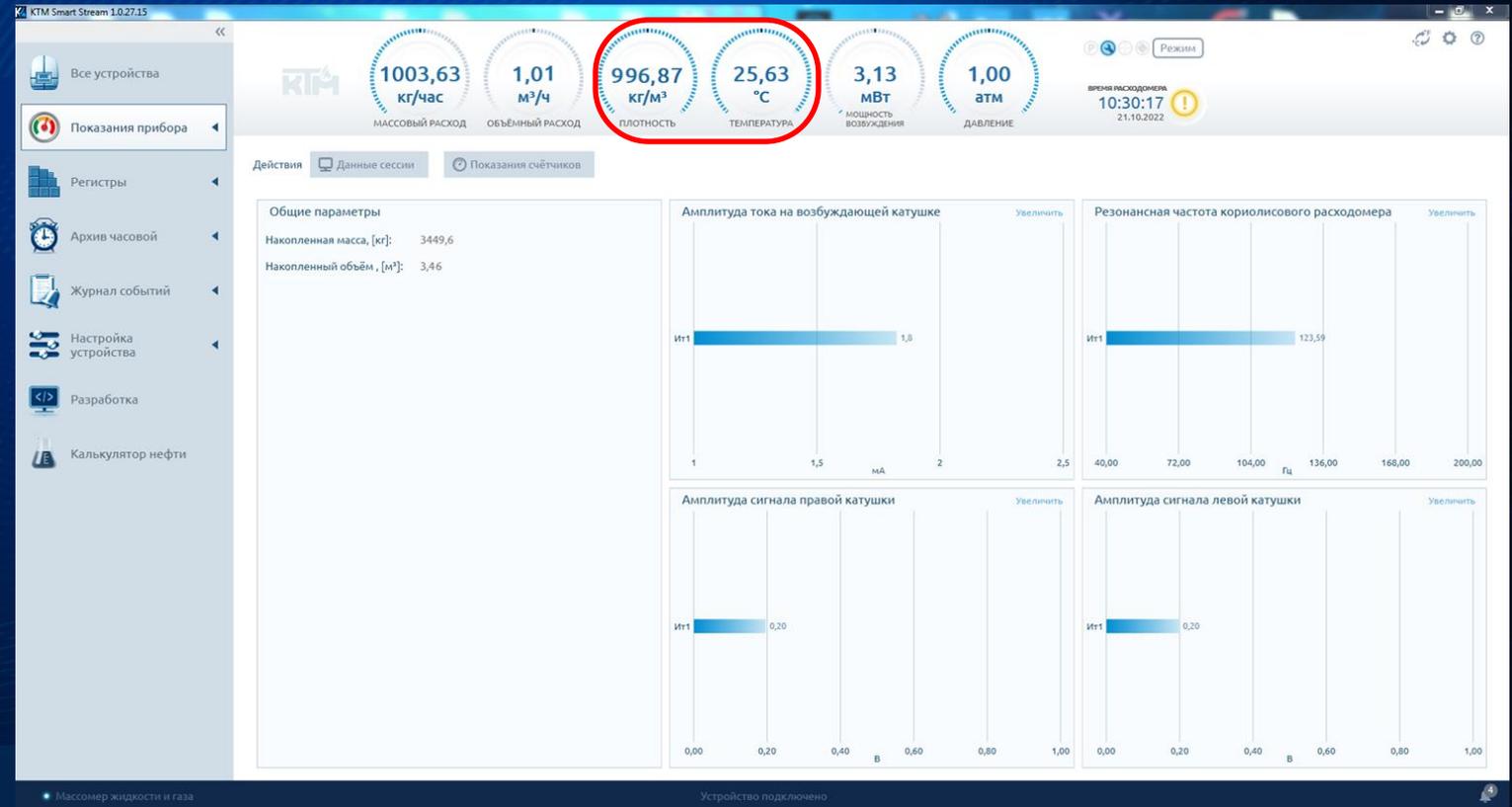
Pressure	Relative accuracy without pressure compensation	Nominal flow rate	Flow rate without pressure compensation	Absolute accuracy without pressure compensation	Accumulated losses due to accuracy rate per year of use without compensation
0,1 MPa (in a laboratory setting)	±0,1%	500 000 kg/h	500 000 kg/h	±5 000 kg/h	43 800 tons
10 MPa	±1%		505 000 kg/h		



METROLOGICALLY SECURED, PROVABLE DENSITY MEASUREMENT CHANNEL WITH ACCURACY OF UP TO +/- 0.2 KG/M³ AND TEMPERATURE MEASUREMENT CHANNEL WITH ACCURACY +/- 1°C

YOU DON'T NEED TO BUY A DENSITY METER SEPARATELY.

KTM RuMASS™ can play the role of the full-fledged density meter with the function of density readings compensation depending on temperature and pressure.





MASS METER DIAGNOSTICS CLEVER CONTROL TOOL SOFTWARE*

Diagnostics Clever Control Tool Software[®] * allows you to carry out:

- Automatic flow meter performance check during operation;
- Continuous monitoring of the condition of the flow meter to detect corrosion, mechanical damage of measuring tubes, the presence of deposits on the walls of measuring tubes;
- Identify and eliminate the problem before it affects the metrological characteristics of the flow meter.

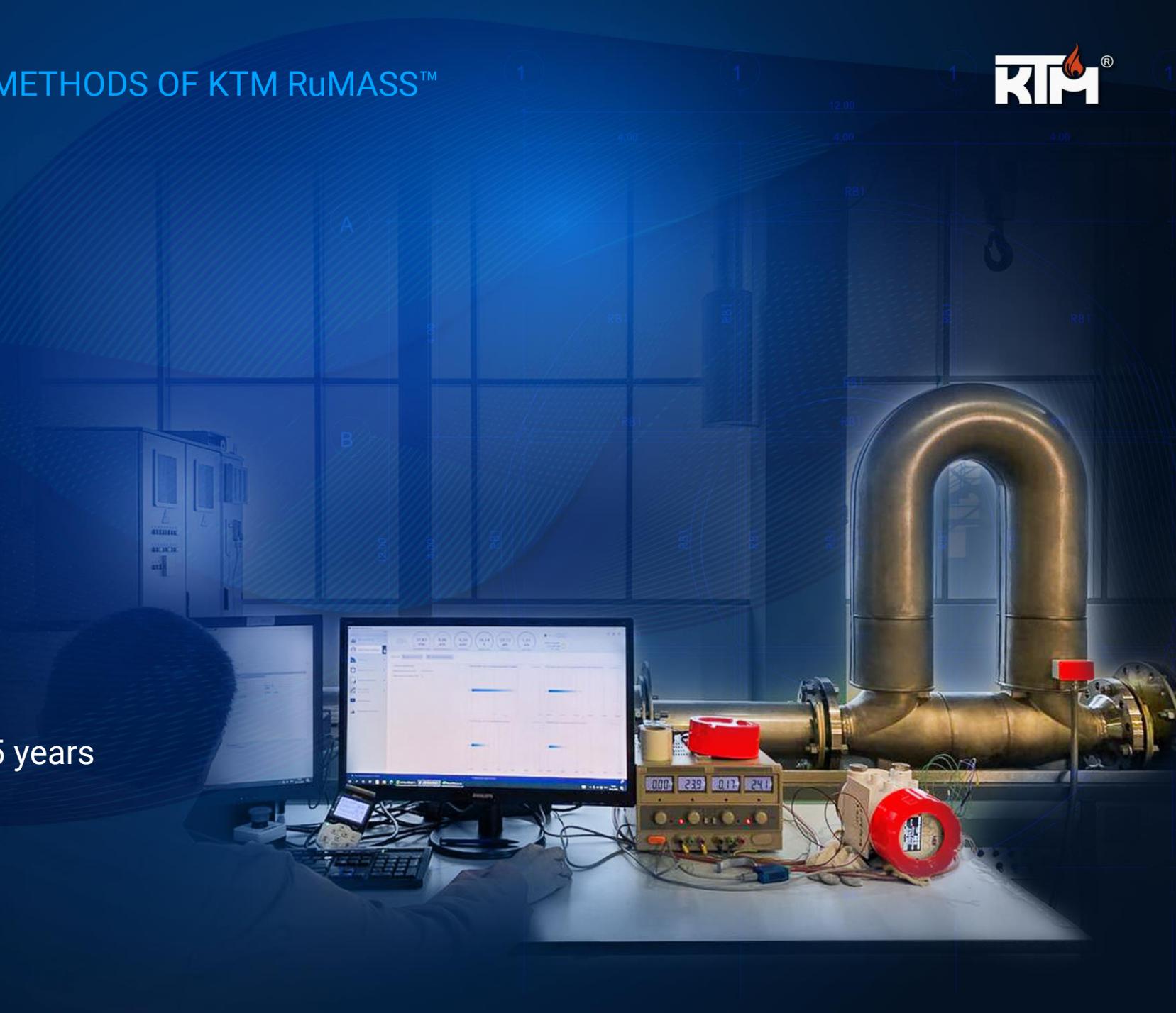




- Verification on the calibration rig;
- Verification at the site of operation, including usage of mechanical displacement prover;
- Simulation proving method without/with dismantle from the pipeline.

Interval between calibrations - 5 years

Service life - 20 years

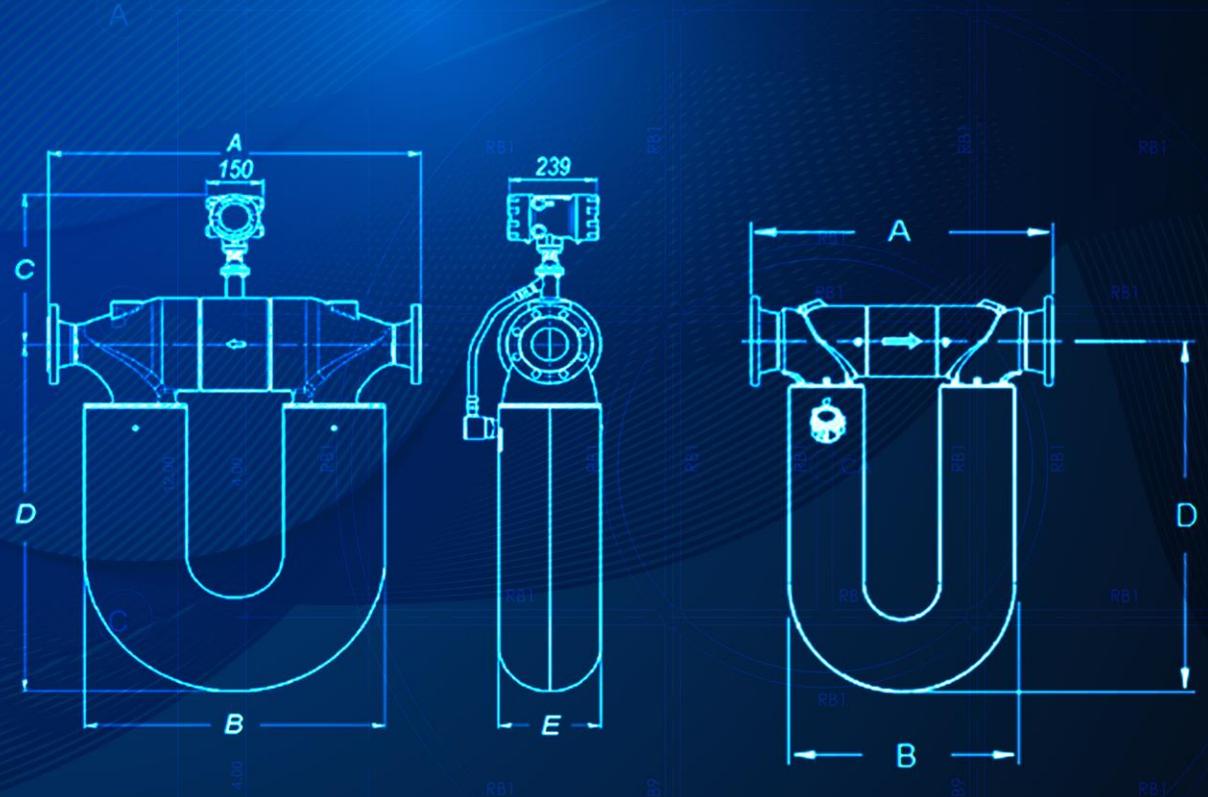




POSSIBILITY OF MANUFACTURING WITH MOUNTING DIMENSIONS ACCORDING TO CUSTOMER REQUIREMENTS



KTM RuMASS™ is an analogue of the Micro Motion CMF* flow meter by the flange-to-flange length (A). Thanks to the capabilities of our own production facility, it is possible to customize the flange-to-flange length (A) of the flowmeter to the requirements of the customer either by changing the dimensions of the flow meter itself, or by using an mounting spool.



	KTM RuMASS 100	Micro Motion CMF400*
Size A, mm	1021	1021
Size B, mm	806	833
Size C, mm	439	-
Size D, mm	1019	968
Size E, mm	274	274

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THANK YOU FOR YOUR ATTENTION!

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