



# OPTIMASS 6400

Coriolis mass flowmeter

**KROHNE**

▶ *achieve more*

- ▶ The NEW standard high-performance meter for the process industry
- ▶ Cryogenic & high temperature applications from -200 to +400 °C / -328 to +752 °F
- ▶ With Entrained Gas Management (EGM™) – the NEW standard for entrained gas immunity
- ▶ Highest accuracy for mass flow and density (pressure independent)



## Go with the flow

Welcome to KROHNE. As a world-leading manufacturer and supplier of process instrumentation and measurement solutions we serve a wide range of industries across the globe.

Our products and services cover the entire range of measurement and analysis processes, from individual measuring points to complete plant solutions. Our extensive customer care and consulting services add valuable elements to our product portfolio.

Ever since we were established in 1921, the name KROHNE has stood for innovation and reliability. More than 100 engineers use their vast knowledge and expertise to develop new products and solutions. No surprise then that our ground breaking innovations have led us to be at the cutting edge of measurement

technology. In 1952 we developed the first electromagnetic flowmeter for industrial measurement. In 1989 KROHNE introduced the first FMCW radar level meter for process tanks and in 1994 we launched the first viable industrial single straight tube Coriolis mass flowmeter.

The year 2006 saw another breakthrough: We started manufacturing the first vortex flowmeter with integrated pressure and temperature compensation. And in 2008 KROHNE marketed a straight tube Coriolis mass flowmeter for bulk measurement of liquids and gases.

Now once again KROHNE sets the standard with the OPTIMASS 6400, the NEW standard, high-performance Coriolis mass flowmeter for the process industry.

## – Leading products – and reliable services

– Investment pays off: The OPTIMASS range of Coriolis mass flowmeters has been manufactured in the UK at KROHNE's global centre of excellence for Coriolis mass flowmetering since 2002, and is a winner of the innovation category of the highly acclaimed Queen's Award for Enterprise.

– To keep up with customer demand, KROHNE recently expanded its UK manufacturing facility. Part of the expansion programme included adding further calibration rigs to the UKAS accredited rigs already housed at the Wellingborough based site.

– This fact allows KROHNE to continue with the product development plan and launch the new OPTIMASS 6400 – a Coriolis mass flowmeter for liquids and gases to handle high temperature, high pressure and cryogenic applications.

– Its superior performance makes the OPTIMASS 6400 the NEW standard meter for the process industry.

– With OPTIMASS 6400 KROHNE further strengthens its OPTIMASS product line and allows our customers to choose the right solution for virtually all process applications.



## Innovative construction for better results

KROHNE has 3 decades of experience in bent self-draining tube designs. Furthermore the OPTIMASS 6400 uses proven, patented flow splitter technology that provides minimum pressure loss.

The OPTIMASS 6400 is available in sizes 08 to 250 and in 3 different materials: 316L stainless steel, Hastelloy® C-22 and Duplex UNS31803.

### The NEW standard, high-performance meter

Due to its superior design and latest, most advanced modern components, the OPTIMASS 6400 provides accurate measurements even in cryogenic and high temperature applications ranging from -200 to +400 °C / -328 to +752 °F and has high pressure capability up to 200 bar / 2900 psig.

So, whatever your requirements, you can be rest assured that your OPTIMASS 6400 meter has been made to the highest standards and that no compromises have been made on quality.



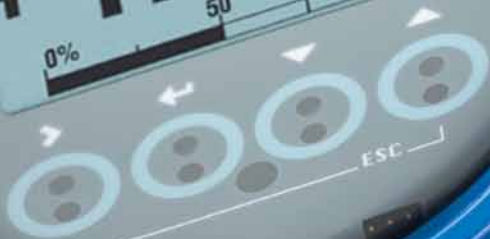


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## Superior performance for simple task completion

The new MFC 400 mass flow signal converter is an electronics unit which is perfectly suited to all measuring tasks at the highest level of technology.

The MFC 400 offers high performance with air entrainment, excellent zero stability and advanced density measurement.

Compatible with the complete range of OPTIMASS process meters, the MFC 400 features push button and optical display in its standard configuration.

It is approved according to ATEX, IECEx, GOST and cFMus and has achieved other local approvals as well. It comes with a remote converter that reaches up to 20 m / 65.6 ft and has an advanced measurement

capability and stability providing unrivalled density measurement. High level diagnostics providing condition based monitoring and its robust construction make it a valuable tool for measuring while being insensitive to gas entrainment.

In the unlikely event that a fault occurs with the electronic system, the complete electronics cartridge can be conveniently replaced on-site. And thanks to redundant storage, the data is simply transferred from the housing backplane memory to the new signal converter. This way the process is only interrupted for a short period of time.



**MFC 400 C**  
Compact installation  
on the sensor



**MFC 400 F**  
Separate installation up to a max.  
of 20 m / 65.6 ft from the sensor



**MFC 400 W**  
Wall mounting for  
non-hazardous areas

## Seven measuring functions in one device – And all of them perfectly under control

Up to seven measuring functions in a single device? The OPTIMASS 6400 makes it possible: mass flow rate, mass counter, density, temperature, volume flow rate, volume counter and concentration of fluids and gases. This "7 in 1" solution means low investment costs and minimal maintenance costs.

And so as not to lose the big picture amongst so many functions, the OPTIMASS 6400 is factory-fitted with an extensive diagnostics package: not only does the software monitor the flowmeter itself but also the process and the process conditions.

Within the system, the software records the temperature of the medium, the density, concentration, speed and state of the respective medium. In this way, gas as well as solid inclusions can be identified.

When it comes to the process conditions the OPTIMASS 6400 diagnostic software does not miss a thing, every fraction of a second it sees changes; including temperature, an installation error, or changes in driver amplitude.





**With Entrained Gas Management (EGM™) –  
the NEW standard for entrained gas immunity**

The OPTIMASS 6400 synthetic drive control ensures continuous measurement even with high entrained gas conditions. The drive system can be optimised to the application to correct for less than ideal operating conditions.



## Smooth sailing: installation, commissioning and operating

User friendliness has many aspects when it comes to the OPTIMASS 6400: whether installation, commissioning, operation or communication – the newest member of the OPTIMASS family makes things easy for the user in the truest sense of the word.

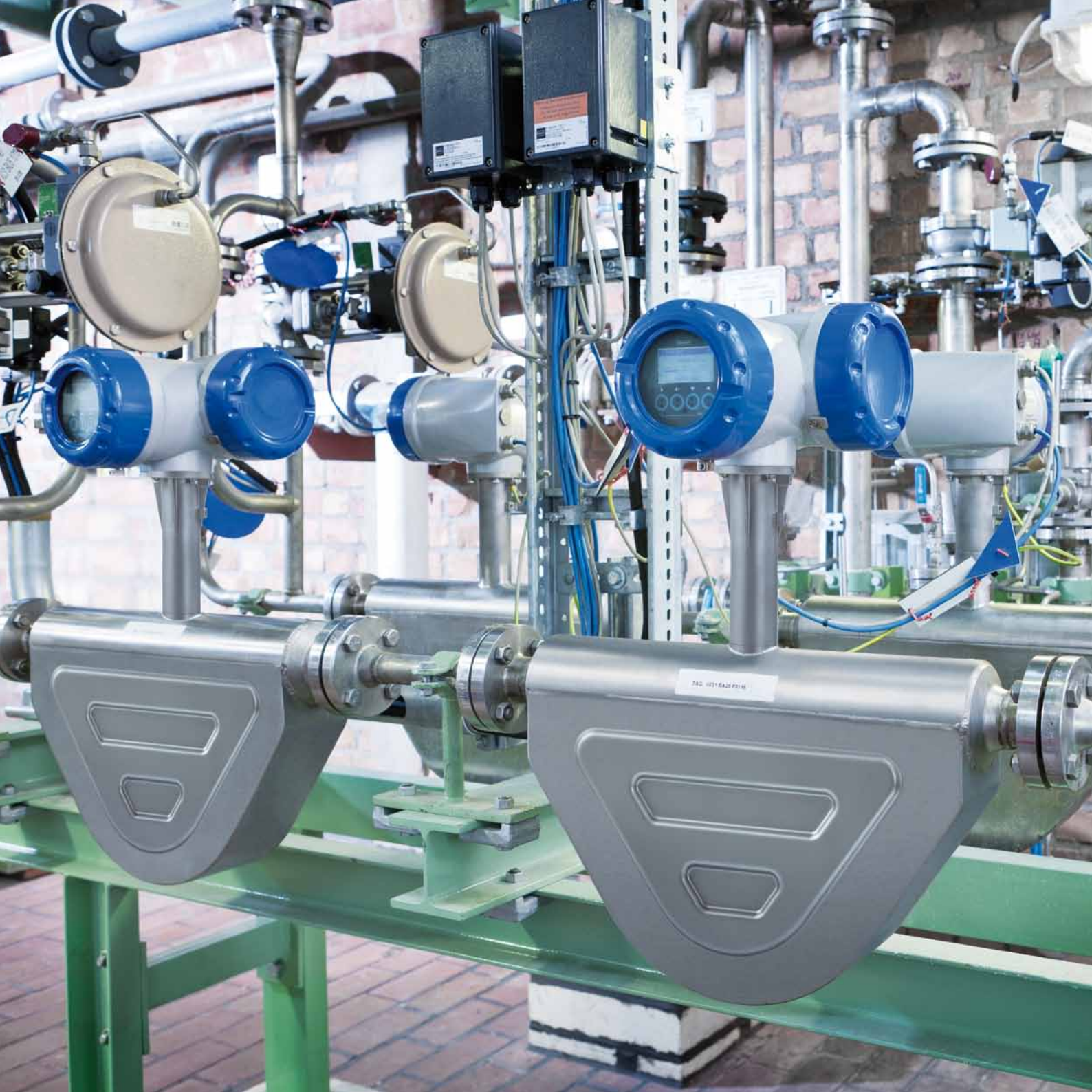
The installation for example. Whether it's horizontal, vertical or diagonal, the OPTIMASS 6400 can be integrated into virtually any system, regardless of the type of installation or external influences such as pipeline vibrations. Since there are no inlet and outlet runs, the compact design and minimal weight of the sensor are a huge plus during installation. Should pipe supports prove necessary in some cases, they can be attached on the pipeline wherever desired.

Or commissioning for instance. Once the OPTIMASS 6400 has been installed, the electronics automatically run a self-test. The meter is then ready for service immediately.

Operation is simple and convenient thanks to a user-friendly interface with 4 integrated optical/push buttons. This design is extremely practical. For example, the glass cover protecting the display from dirt and dust does not have to be removed during operation and configuration.

The display and user interface are available in multiple languages, and the rotating, high contrast display always makes for optimal legibility.

The OPTIMASS 6400 uses the tried and tested HART®, FOUNDATION fieldbus™ and PROFIBUS® interfaces for communication. And configuration uses PACTware™, including the necessary DTM free of charge.



## Intelligent modularity to suit needs and fulfil requirements

When it comes to selecting a flowmeter for your application, the OPTIMASS range covers all bases of all relevant industries around the globe. KROHNE offers superior straight and bent tube design mass flowmeters. From small to large. For 0.00015 to 2300 t/h flows. For custody transfer applications or problematic applications such as highly viscous media, non-homogeneous mixtures, media with solid content or gas inclusions.

All meters have been designed to reduce constraints on the user. So you can just choose the best meter for your application.



**OPTIMASS 1300**  
Twin straight tube design.  
For general purpose applications  
in the process industry.



**OPTIMASS 2300**  
Twin straight tube design.  
The first choice for bulk flows and for  
custody transfer. Available in Duplex  
and Super Duplex.



**OPTIMASS 3300**  
Single bent tube design.  
The solution for extremely  
low flow rates.



**OPTIMASS 6400**  
The NEW standard,  
high-performance meter  
for the process industry.



**OPTIMASS 7300**  
Single straight tube design.  
High performance meter for abrasive,  
corrosive or viscous fluids. Also ideal  
for hygienic applications.



**OPTIBATCH**  
Twin bent tube design.  
OEM meter for rotary and linear  
batch filling machines.



**OPTIGAS 4010**  
Twin bent tube design.  
OEM meter for CNG dispensers.  
CT approved to OIML R139.



## Operating conditions

Material	Stainless steel			Hastelloy® C-22	Duplex
Pressure rating					
Measuring tube	100 barg (1450 psig)			200 barg (2900 psig)	200 barg (2900 psig)
Process temperature	Cryogenic	Standard	High temperature		
Temperature Max	+40°C/+104°F	+230°C/+446°F	+400°C/+752°F	+230°C/+446°F	+230°C/+446°F
Temperature Min	-200°C/-328°F	-70°C/-94°F	-50°C/-58°F	-70°C/-94°F	-50°C/-58°F



## Technical data

	Nominal meter size	1 bar pd nominal flowrange (kg/h)	Proposed flange size	
			DIN / JIS	ASME
Nominal flow rates and flange sizes	08	600	10, 15	½"
	10	1200	10, 15	½"
	15	3800	15, 20, 25	½", ¾", 1"
	25	19000	25, 40	1", 1.5"
	50	35000	40, 50	1.5", 2"
	80	78000	50, 80	2", 3"
	100	175000	80, 100	3", 4"
	150	320000	100, 150	4", 6"
	200	550000	150, 200	6", 8"
	250	1000000	250, 300	10", 12"

### Accuracy

0.1% flat-line accuracy for 20:1 turndown from nominal flow  
 0.05% flat-line accuracy for 10:1 turndown from nominal flow  
 Below 1/20th of nominal flow rate: +/- zero stability

### Maximum flow rate

Up to 150% of nominal flow

### Approvals

Ex, cFMus, Ex NEPSI, OIML, IEC Ex

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## Product overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Ultrasonic flowmeters
- Mass flowmeters
- Vortex flowmeters
- Flow controllers
- Level meters
- Temperature meters
- Pressure meters
- Analysis products
- Products and systems for oil & gas industry
- Measuring systems for the marine industry



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