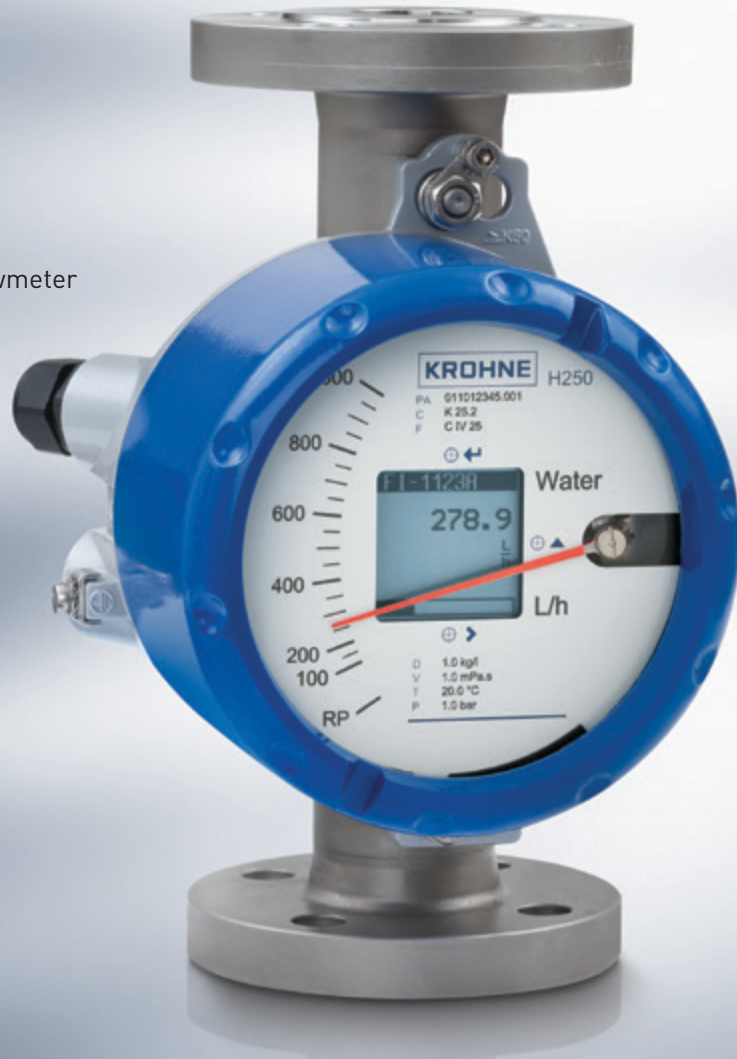


H250 M40

The modular variable area flowmeter



KROHNE

▶ *achieve more*

- ▶ Secure, cost-effective measurement and indication, even without power supply
- ▶ Modular, can be expanded up to FOUNDATION™ fieldbus
- ▶ A device that meets all Ex requirements
- ▶ Sturdy, closed tube design for high resistance to pressure, temperature and medium



Making good even better

Welcome to KROHNE. As a leader in process measuring technology, we're at home in a wide variety of industries worldwide.

For more than 90 years, the name KROHNE has not only stood for innovative and reliable solutions but also for exact, long-lasting variable area measurement technologies. Today, as the world's market leader, we cover a variety of applications with our comprehensive product portfolio of metal and glass cones. Extensive services including consultancy complete the offer.

Just as in 1921, we are secure in the knowledge that anywhere a local indication is required to guarantee the redundancy of a measurement and the safety of

a plant there is no better, more cost-effective or more reliable technology than variable area technology. And it is especially in areas where safety is key such as with nuclear technology, where our devices are put to the test in comprehensive test programs in terms of capability and suitability, that this reliability has been appreciated for over 30 years.

At KROHNE, more than 100 engineers put their entire expertise and experience into the development of new products on a daily basis. It's no wonder that we continue to inject crucial energy into the market with our innovations in the field of proven variable area technology.

Proven quality from KROHNE

From universal to one-of-a-kind: KROHNE's H250 variable area flowmeters cover the entire range of requirements in the process industry.

At KROHNE, the modular device design of the H250 M40 combined with a flexible production structure form the basis for application and customer specific versions.





As with every KROHNE variable area flowmeter, you can count on reliability and repeatability. Each device is individually calibrated for the respective application. And the robust metal version – available in a variety

of materials – provides a high degree of resistance to pressure, temperature and medium.

Automated welding processes with radiographic inspection and surface crack detection as well as other quality assessments such as material certificates, pressure, leak and hardness testing, all under the control of a seamless quality management system, form the basis for the devices being authorised for use in areas where safety is critical such as chemical plants and nuclear power stations.



Electrical options

Limit switches	
	<p>3 versions:</p> <ul style="list-style-type: none"> • 2-wire NAMUR contact as per IEC 60947-5-6 • 3-wire transistor output 10-30 VDC • Potential-free reed switch
2-wire sensor module with 4...20 mA current output	
	<ul style="list-style-type: none"> • 4...20 mA for 0...100% flow • Can be combined with limit switches • 14-30 VDC power supply • HART® certified communication • Internal interface to extension modules • Simple loop-check at push of button
Totaliser with pulse output, limit switches and LCD	
	<ul style="list-style-type: none"> • Counter module with graphic display to indicate flow, counter reading, additional information and operating menu • Power supply via sensor module • Operation and parameter setting via internal microswitch or externally using a bar magnet
Fieldbus communication	
	<ul style="list-style-type: none"> • PROFIBUS® PA or FOUNDATION™ fieldbus • Power supply for entire device from 2-wire bus (16 mA current consumption) • Direct bus communication without additional converter

The package for hazardous areas

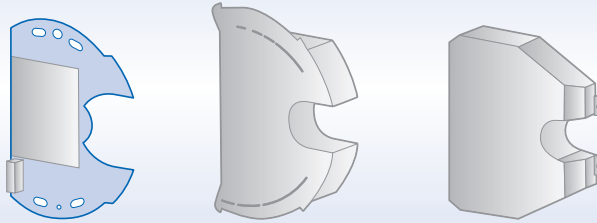
H250 M40 from KROHNE offers a universal Ex-design across a wide range of usage zones and protection types.

All electronic components are designed intrinsically safe and non-sparking and can be used in areas that are explosive due to the presence of gas or dust. As an option, the same components, featuring a safety housing, can be installed as explosion proof devices. One device can thus accommodate the different regional explosion protection strategies.

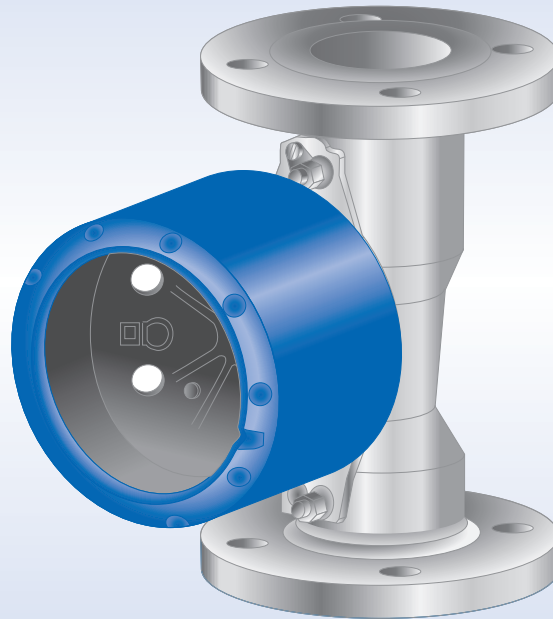
H250 M40 is ATEX-, IECEx- and FM-approved for the USA and Canada and also according to NEPSI for China. In addition, the measuring device also features other local approvals such as INMETRO, CCOE/PESO, KGS and GOST-R.

Whether it's intrinsically safe or explosion proof – the devices are designed as IP66/IP68 or NEMA 4X/6 as standard. An IP69K version is also available on request.

Intrinsically safe electronics



Explosion proof housing





H250 M40 R

Robust design for harsh process conditions

The measuring principle allows for a robust, closed tube design without sensor feedthrough, as the height of the float is transferred to the indicator by way of a magnetic coupling. This enables high pressure versions that can withstand up to 900 barg / 13,000 psig.

All wetted, pressurised parts are made as standard of 1.4404/316L stainless steel and meet the requirements of the NACE MR0175 standard. To guarantee the longevity of the device even with chemically harsh products, it is possible to use special materials such as Hastelloy®, titanium, Monel®, etc. in production.

In addition, the H250 C M40 is also available with a PTFE liner for applications involving aggressive acids and bases.

Special indicator variants for extreme operating conditions

With the indicator housing made of stainless steel, the H250 M40 R withstands attacks from salt fogs and contaminated precipitates. It can be reliably used in corrosive atmospheres and is perfectly suited for use in spray water zones, such as in the food and beverage industries.

Unique to date: The indestructible stainless steel housing is also available on request in an explosion

proof version for use in hazardous areas.

As a high-temperature variant, the H250 M40 HT measuring device is suitable both for very high product temperatures up to +400 °C / +752 °F as well as cryogenic applications down to -200 °C / -328 °F. The increased distance between the measuring tube and the display makes it easier to insulate the measuring tube.



EHEDG certification for use in the food and pharma industries

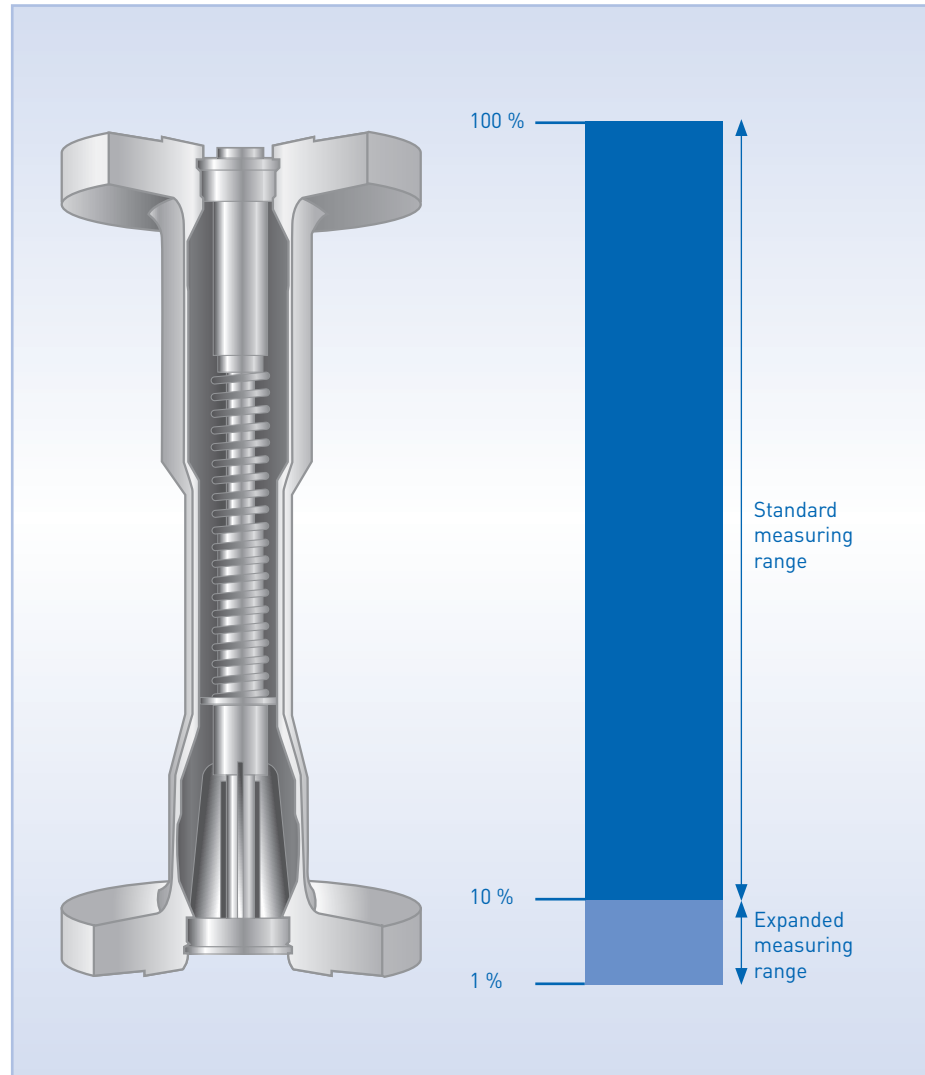
The H250 F M40 is the only variable area flowmeter with EHEDG approval for food and pharmaceutical applications. FDA-compliant materials meet strict hygienic and legal regulations. A design with no dead spaces or stagnation zones as well as the electro-polished surface of the wetted parts with a surface roughness $Ra < 0.8 \mu m$ make it difficult for deposits to settle and facilitate proper cleaning.

The outstanding properties of the H250 F M40 are used in the pharmaceutical industry in areas such as ultrapure water plants and in the food industry e.g. for cream measurement.



The expanded measuring range provides more process information

Depending on the technology, the standard measuring range span of the H250 M40 is 10:1. As an option, it is possible to refine the measuring range span – and this is worldwide unique for measuring devices in this category – to 100:1. This way the otherwise necessary additional measuring devices for small quantities are no longer necessary.



The right solution for any installation direction

- Typically, variable area flowmeters are installed vertically in rising pipes and the product must flow through them from bottom to top. This can lead to considerable expense.

The H250 M40 measuring device on the other hand offers you freedom in terms of design as unique versions can be used for horizontal or even descending pipes.



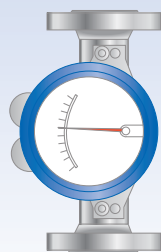
H250 H M40



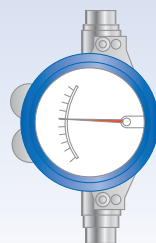
H250 U M40

Free choice of process connections

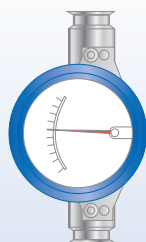
Thanks to a wide variety of process connections – common flange connections in accordance with DIN, ASME and JIS, male and female threads as well as clamp connections – this device is available to all sectors of industry.



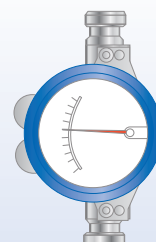
Flange



Female thread



Clamp



Male thread

The cost-effective and reliable all-rounder

Like all members of the H250 product family, the H250 M40 features the advantages of variable area technology. It guarantees reliable and precise flow measurement and provides a high degree of application reliability, even with very low flow rates. This is maintained through excellent long-term stability.

The H250 M40 measuring device is all-purpose, especially for applications with low flow rates. It is suitable for the measurement of gases as well as conducting and non-conducting liquids, even those that are highly viscous. Thanks to the modular design of the indicator, it can even be used where there is no connection to the power supply, or where this is difficult but it can also be integrated into any type of

process control or monitoring system. It can be upgraded at a later date simply by adding modules and there is no need to replace the existing measuring devices.

User-friendliness was the top priority for KROHNE when developing the H250 M40. Following simple mechanical installation and start-up with a electrical connection if applicable, the device is immediately ready to use and it is good for long-term maintenance-free operation.

Economical all the way: High flexibility as well as low purchase and operating costs make the H250 M40 variable area flowmeter a cost-effective all-rounder!



CT30
73FE



CT30
75PI



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Variable area measuring device family from KROHNE at a glance

Metal devices

- For extreme process conditions
 - High/low temperatures
 - High pressures
 - Aggressive products
- Limit switches, current output, counters and communication possible



H250 M40
The new standard device, explosion
proof or intrinsically safe



DK32, 34, 37
With mechanical or electronic display
and dosing valve for precise adjustment
of small flow rates

Glass devices

- Very reasonably priced
- Product visible
- Up to max. 10 barg / 145 psig and +100 °C / +212 °F
- Change of glass possible
- Optional: limit switches



VA40, 45
All-purpose flowmeters with various
process connections

DK46, 47, 48, 800
Small, compact purge meters with valve

Technical data

	Standard	Option
Wetted material	1.4404/316L stainless steel (NACE MR 0175-compliant)	Stainless steel electropolished for food and pharmaceutical industry, Hastelloy®, titanium, Monel®, PTFE liner
Process connections	EN/ASME/JIS flange DN15-DN150	Screw connection, clamp, welding ends, threaded connection, aseptic connections
Display housing	Aluminium die casting, coated	Stainless steel
Ex-design	Intrinsically safe: Ex-i (IS) Non-sparking: Ex-nA (NI)	Explosion proof: Ex-d (XP) Dust ignition proof: Ex-t (DIP)
Electronics features	Measurement and indication without power supply	Modular: <ul style="list-style-type: none"> • Limit switches (NAMUR, transistor, reed) • 2-wire current output 4...20 mA HART® • FOUNDATION™ fieldbus/PROFIBUS® PA • Totalizer with digital display and pulse output
Mounting position/direction of flow	Vertical/from bottom to top	Horizontal/from left to right or right to left Vertical/from top to bottom
Error limit according to VDI/VDE3513-2 (qG=50%)	1.6%	Precision calibration on request
Measuring span	10:1	100:1
Accessoires	<ul style="list-style-type: none"> • Magnetic filter, if the medium contains particles which can be magnetically influenced • Float damping, for pulsating flows or low operating pressures (particularly when measuring gases) • Pointer damping for easy reading of measured value • Heating jacket for measuring cone 	

Operating conditions

Products	Clean, non-abrasive liquids and gases as well as liquefied gases, e. g. water, chemicals, oils, lubricants and corrosion inhibitors, distillates, air, process gases, purge gases
Measuring ranges liquids	10 l/h-120 m ³ /h; 5-32,000 GPH
Measuring range gases (referenced to atmospheric operating pressure)	500 l/h-2800 m ³ /h; 25-100,000 SCFH
Process temperature	-200...+400°C; -328...+752°F
Process pressure	Up to 900 barg; 13,000 psig, higher pressures on request
Ambient temperature	-40...+120°C; -40...+248°F (+70°C; +158°F for electronic modules)
Housing protection	IP66/68 or NEMA 4X/6, IP69K on request
Installation recommendations	In accordance with VDI/VDE 3513 sheet 3

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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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