

# UFM 3030

Ultrasonic flowmeter for district heating networks



**KROHNE**

▶ *achieve more*

- ▶ Easy installation and commissioning
- ▶ MID MI-004, EN1434 PTB and METAS certificates
- ▶ Flexible flow range selection
- ▶ Maintenance free



# Achieve more with KROHNE.

Welcome to KROHNE. As a leading company in the area of measurement technology, our range of products, solutions and services means we are at home in a wide variety of sectors – worldwide.

The name KROHNE has stood for innovation and reliable solutions in process instrumentation since 1921. From there we have expanded our products and solutions and have grown in a number of industries, one of them being the energy sector.

Today the energy sector faces major challenges to achieve more efficient use of primary energy and to reduce CO<sub>2</sub> emissions.

District heating and cooling (DHC) is increasingly being considered as one of the solutions. For successful projects in district heating and cooling the solution must always be economically viable.

To this end project cost control and efficient operation are of utmost importance; while on the income side, accurate measurement of energy is key. KROHNE is committed to improving efficiency and measurement accuracy of thermal energy.

The KROHNE UFM 3030 ultrasonic flowmeter is designed to support efficient project handling and to reduce operational cost. Whether it concerns new projects or retrofitting, its compact, robust and maintenance free design along with its numerous approvals makes the UFM 3030 the ideal choice for the job.

## The standard solution for district heating and cooling.



With 3 acoustic paths the UFM 3030 provides excellent performance under all circumstances, but with its exceptional specifications over a very large dynamic range, the UFM 3030 excels in thermal energy measurement applications. The UFM 3030 is approved according to accuracy class 2/3. However it was tested to meet EN1434-4, class 1 performance. The standard accuracy specification for the UFM 3030 is  $\pm 0,5\%$ .

The UFM 3030 is also approved according to the Measurement Instrument Directive (MID MI-004), reflecting KROHNE's extensive experience in providing Custody Transfer measurement solutions in a range of industries and applications. Initial verification of the UFM 3030 for heat metering applications can be done for diameters up to 3 meters and flow rates up to 30.000 m<sup>3</sup>/h at one of the KROHNE calibration rigs.





## Everything is possible.

### Large dynamic range: 250:1.

The UFM 3030 has a very large dynamic range which provides maximum flexibility. The diameter of the flowmeter can be selected to suit the line size for minimum pressure loss and still provide excellent performance at low flow rates. To reduce installation space and cost, a smaller flow meter than the line size can be chosen resulting in reduced up and downstream straight pipe sections.

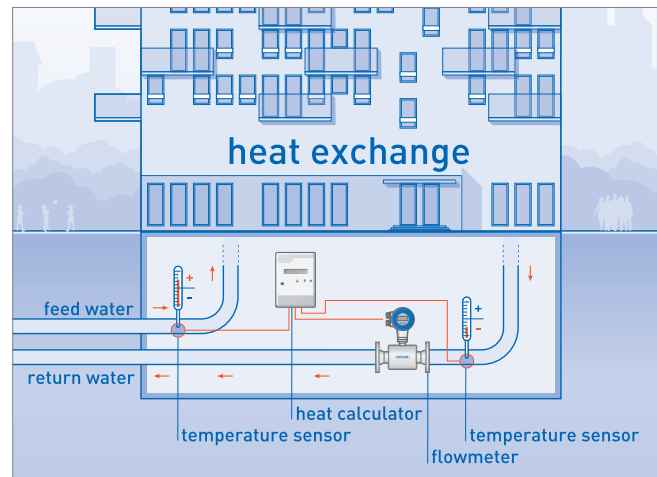
To support this the approval has been arranged so that maximum flexibility is provided with free selection of nominal flowrate ( $Q_p$ ) and measuring range (10, 25, 50, 100, 250).

### Very low minimum flowrate.

It has a very low approved minimum flowrate ( $Q_i$ ) of 4 cm/sec for accurate measurement at times of low energy demand when low flows may occur.

### Large temperature range.

For use with heating and cooling, the UFM 3030 has a very wide approved temperature range of 0 to 180°C. The technical limitation however exceeds this and is -25 to 220°C. With this the UFM 3030 always operates safely within its limits extending therefore its lifespan.



## No scaling. No leakage. No problem.

### **No effect of scaling.**

Due to the direct acoustic path without reflectors, development of magnetite or other scaling, conductive or non conductive, has no effect on flowmeter performance.

### **All metal, all welded tube/sensor construction.**

The UFM 3030 flowmeter tube is a fully welded construction with the same integrity as a piece of pipe. No gaskets, sealings or o-rings are used to fit the acoustic transducers. Therefore no leakage can occur.

### **Maintenance free.**

The result is that the UFM 3030 is completely maintenance free and no recalibration is required.



## The truly plug and play solution.

### **Compact dimensions and low weight.**

The flange to flange size of the UFM 3030 is standard within the requirements of EN1434-2.

With no cables or other parts protruding past the flanges and a low weight, the UFM 3030 is very easy to handle.

### **Robust all metal construction.**

The outer casing of the UFM 3030 is an all metal construction, therefore there is little risk of damage to the flowmeter during the installation process.

### **Easy installation and commissioning.**

The flowmeter is delivered ready to measure. Once mechanically and electrically connected the flowmeter does not require any specific handling such as fitting sensitive transducer parts or making specific cable connections.

In case of a remote installation, a cable with pre-fitted connectors is provided. In this way the signal connections are easily made without the need for special handling. The cable length can be selected from 5 up to 100 meters.

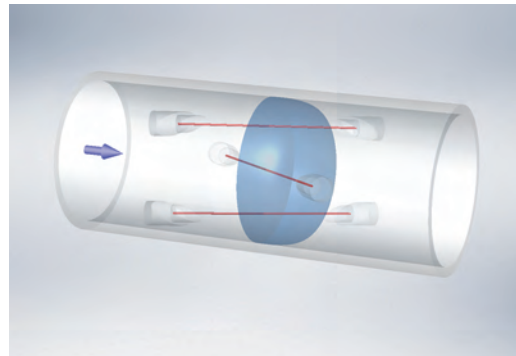
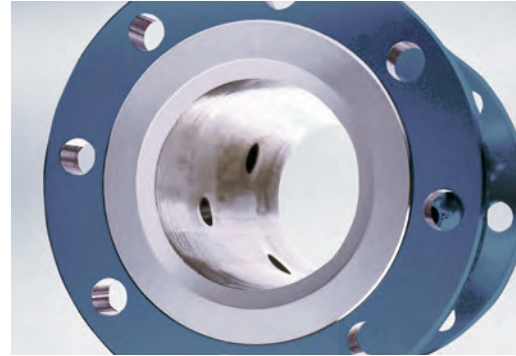


For those who want to know more.

Standard 3 acoustic paths are installed to measure the flow at three different levels in the flow sensor tube. This provides a high level of independence from any flowprofile distortions that may be caused by upstream disturbances.

In addition 3 paths provide redundancy. In the exceptional case that a path fails, the flowmeter will continue operation with the two remaining paths providing the same performance.

The advanced DSP technology applied makes the flowmeter operation independent from, for example, gas bubbles. This combined with its self-diagnostic capabilities, operation within specification is guaranteed.



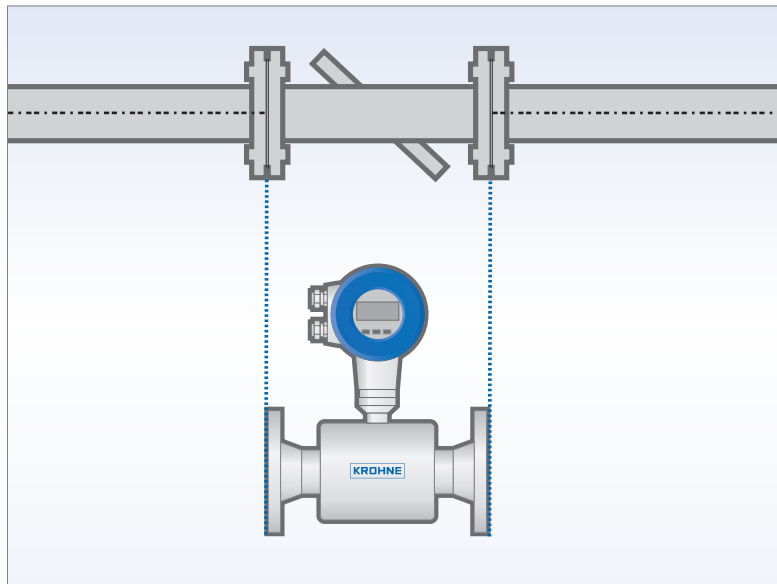
Standard 3 paths provide optimal performance, redundancy and reliability.

## Details that have a big impact.

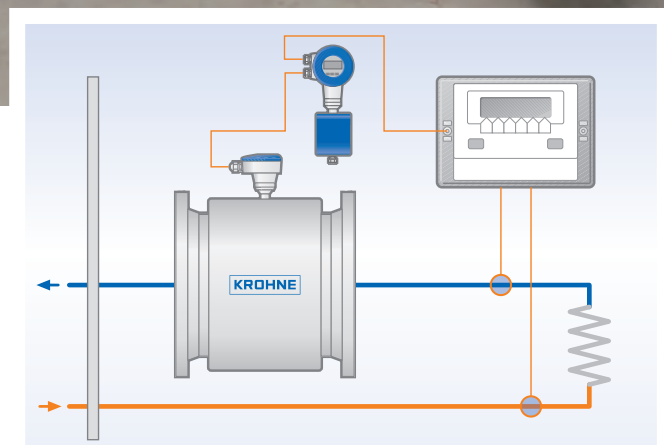
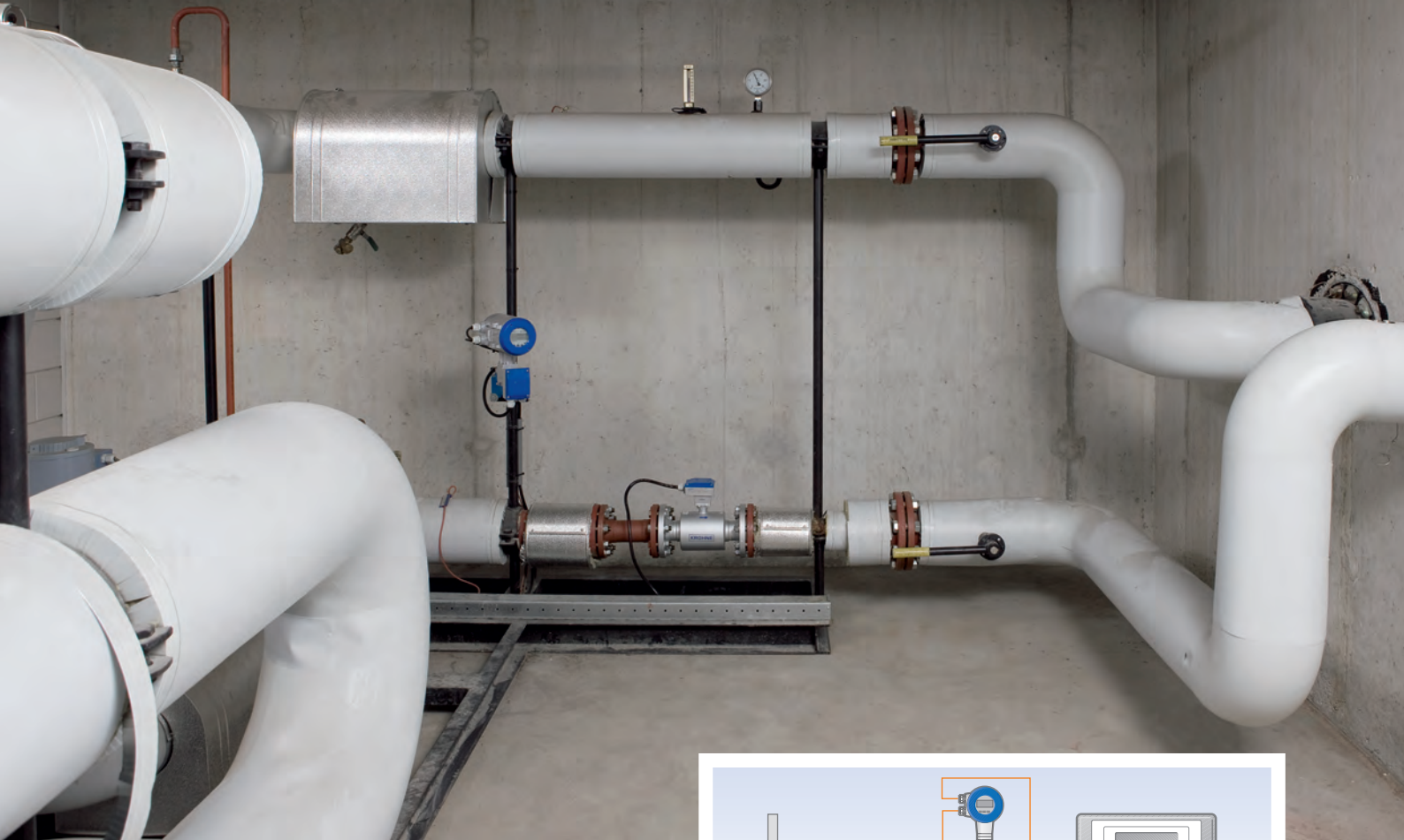
### Easy retrofitting.

With the UFM 3030, retrofitting flowmeters is a low risk and cost effective exercise. Retrofitting costs are kept under control as the UFM 3030 can be ordered in different flange-to-flange sizes which means pipe work modification is avoided.

When retrofitting, sizing and performance can also be a concern. Not with the UFM 3030. In addition, its large approved measurement range and performance specifications makes the UFM 3030 a suitable solution at all times.







## Technical data UFM 3030

Technical specifications				
Standard accuracy	< +/-0,5%		for 0,5 to 20 m/s	
Repeatability	< +/-0,2%			
Accuracy class	2 or 3			
Process temperature range	-25 to 220°C			
Approved temperature range	0 to 180°C		(Remote design)	
Ambient temperature	-40 to +65°C			
Number of acoustic paths	3			
Environmental class	EN1434:		C	
	MID		Mechanical: M1	Electromagnetic: E2
Mounting orientation	Horizontal or vertical			
Design	Compact or Remote			
Max. cable length	100 meter		(Remote design)	
Protection class	IP67			
Converter supply voltage	85-260 V AC, 48-63 Hz			
Max. pulse frequency	2000 Hz		max. 2200 Hz at overflow condition	
Flange type / Pressure rating	PN10, PN16, PN25, PN40, acc. to EN1092-1			
Max. adm. working pressure	40 Bar at 20°C		32 Bar at 180°C	
Materials	transducer	flange	tube	sensor housing
DN25-DN65	SS1.4404	SS1.4404	SS1.4404	SS1.4404
DN80-DN300	SS1.4404	Carbon steel	SS1.4404	Carbon steel
>DN400	SS1.4404	Carbon steel	Carbon steel	SS1.4404 cable tubes
Cabling	Fitted in housing or steel tubes			

Approvals	Number
Directive 2004/22/EC, MID MI-004	0402-MID-503001
Germany/PTB, EN1434	22.56 04.04
Switzerland/METAS, EN1434	T2 216

When ordering please provide the following information:

DN = diameter; PN = pressure class; Sensor cable length = 5 to 100 meter in steps of 5 meter; length = in mm

$q_i$  = minimum certified flowrate;  $q_p$  = nominal certified flowrate;  $q_s$  = maximum certified flowrate

pulse rate = in pulses per volume unit or frequency at nominal flowrate ( $q_p$ )

Flow range				
Diameter	qi min (m³/h)	qp max (m³/h)	qs (m³/h)	max. pulse rate (pulse/liter)
DN25	0,072	18	27	400,0
DN40	0,18	45	68	160,0
DN50	0,28	71	106	101,4
DN65	0,48	120	180	60,0
DN80	0,72	180	270	40,0
DN100	1,1	280	430	25,7
DN125	1,8	440	500	16,4
DN150	4,5	630	630	11,4
DN200	4,5	1130	1130	6,37
DN250	17,1	1750	1750	4,11
DN300	25	2500	2500	2,88
DN350	34	3400	3400	2,12
DN400	45	4500	4500	1,60
DN500	70	7000	7000	1,03
DN800	180	18000	18000	0,40

Diameter	Standard pressure class	Standard flange to flange size			Maximum flange to flange size		
		PN16	PN25	PN40	PN16	PN25	PN40
DN25	PN40	-	-	250	400	400	400
DN40	PN40	-	-	270	400	400	400
DN50	PN40	-	-	300	465	475	475
DN65	PN40	-	-	300	450	475	475
DN80	PN40	-	-	300	380	400	400
DN100	PN16	350	350	350	375	400	400
DN125	PN16	350	350	350	375	400	400
DN150	PN16	350	400	400	360	400	400
DN200	PN10	400	450	450	450	490	500
DN250	PN10	400	500	500	600	575	600
DN300	PN10	500	500	500	600	560	600
DN350	PN10	500	600	600	800	840	880
DN400	PN10	600	700	700	875	925	975
DN500	PN10	600	700	800	980	1050	1080
DN800	PN10	800	1000	1000	1180	1240	1400

## KROHNE measuring technology

### Product overview

- Electromagnetic flowmeters
- Variable area flowmeters
- Ultrasonic flowmeters
- Mass flowmeters
- Vortex flowmeters
- Flow controllers
- Level measuring instruments
- Temperature measuring instruments
- Pressure measuring instruments
- Analysis
- Oil and gas industry



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