ULTRAFLOW® 44

Ultrasonic volume measuring device
DN 15 - DN 125

Your benefits

- Durable, wear-free ultrasonic volume measuring device:
  High measurement stability and operational reliability
- Compact design:
  Requires little installation space on site
- High resolution of pulse values:
  Precise instantaneous values
- CH refrigeration certification (METAS) incl. initial calibration:
  Approved for use in commercial transactions

Applications

- Particularly suitable for district heating/cooling applications (main meters, transfer stations, etc.) in billing transactions
- Replacement of mechanical impeller heat meters
- Heat/cooling or pure cooling consumption measurement in building services engineering
- Can only be used with MULTICAL® series calculators

Properties

- Nominal diameters:
  - Combined heating/cooling: DN 15 to DN 125
  - Cooling: DN 15 to DN 125
- Nominal flow rates q_p 1.5 to q_p 100
- Low pressure loss
- No moving parts
- Signal transmission to the computing unit and power supply to the volume measuring device via a 3-wire cable
- Medium temperature 2 to 130 °C (from 90 °C, a flange meter and the removal of the calculator are recommended)
- Type approval/certification:
  - Heat: Compliance with European Measuring Instruments Directive (MID)
  - Cold: Swiss certification (METAS) including initial calibration

Options

- Pulse transmitter with its own power supply for cable lengths >10 m

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Technical data ULTRAFLOW® 44 (DN 15-65)

Series			ULTRAFLOW® 44										
Nominal diameter	**DN**	**mm**	**15**	**20**	**20**	**25**	**25**	**25**	**25**	**40**	**40**	**50**	**65**
Nominal flow rate	**q_p**	**m^3/h**	**1,5**	**1,5**	**2,5**	**3,5**	**3**	**3**	**3**	**10**	**10**	**15**	**25**
Nominal pressure	**PN**	**bar**	**16**	**16**	**16**	**16**	**16**	**16**		**16**			
Nominal pressure with flanges	**PN**	**bar**							**25**		**25**	**25**	**25**
Connection thread with meter	G...B	Inch	¾	1	1	1¼	1¼	1¼		2			
Maximum flow rate	q_s	m^3/h	3	3	5	7	12	12	12	20	20	30	50
Minimum flow rate +/- 5%	q_i	l/h	15	15	25	35	60	60	60	100	100	150	250
Pressure loss	K_v [1]	m^3/h	4,9	4,9	8,2	13,4	24,5	24,5	24,5	40	40	40	102
Start-up value		l/h	3	3	5	7	12	12	12	20	20	30	50
Temperature		max. °C	130	130	130	130	130	130	130	130	130	130	130
Standard measuring range	q_i/q_p		1:100	1:100	1:100	1:100	1:100	1:100	1:100	1:100	1:100	1:100	1:100

1] $q=kv \times \sqrt{\Delta p}$

Dimensions and weights													
Length without couplings	**L**	**mm**	**110**	**130**	**190**	**190**	**260**	**260**	**-**	**300**	**-**	**-**	**-**
Total height	B	mm	67	70	76	71	73	84	-	84	-	-	-
Height from center of pipe	B1	mm	35	38	38	51	53	60		55			
Width	H1	mm	42	42	42	41	41	41		41			
Length with PN 25 flanges	A	mm							260		300	270	300
Height with flanges	H	mm							106		140	145	168
Flange outer diameter [2]	D	mm							115		150	165	185
Bolt circle diameter [2]	K	mm							85		110	125	145
Number of screws [2]		Stk.							4		4	8	8
Weight without couplings		ca. kg	0,6	0,7	0,9	1,9	2,0	2,0		2,9			
Weight with flanges		ca. kg							4,5		7,4	8,5	13,5

2] DIN EN 1092

Technical data ULTRAFLOW® 44 (DN 80-125)

Series			ULTRAFLOW® 44			
Nominal diameter	**DN**	**mm**	**80**	**100**	**100**	**125**
Nominal flow rate	**q_p**	**m^3/h**	**40**	**60**	**100**	**100**
Nominal pressure	**PN**	**bar**				
Nominal pressure with flanges	**PN**	**bar**	**25**	**25**	**25**	**25**
Connection thread with meter	G...B	Inch				
Maximum flow rate	q_s	m^3/h	80	120	200	200
Minimum flow rate +/- 5%	q_i	l/h	400	600	1000	1000
Pressure loss	K_v 3]	m^3/h	179	373	373	373
Start-up value		l/h	80	120	130	130
Temperature		max. °C	130	130	130	130
Standard measuring range	q_i/q_p		1:100	1:100	1:100	1:100

3] $q=kv \times \sqrt{\Delta p}$

Dimensions and weights						
Length without couplings	L	mm				
Total height	B	mm				
Height from center of pipe	B1	mm				
Width	H1	mm				
Length with PN 25 flanges	**A**	**mm**	**300**	**360**	**360**	**350**
Height with flanges	H	mm	184	220	220	260
Flange outer diameter 4]	D	mm	200	235	35	270
Bolt circle diameter 4]	K	mm	160	190	190	220
Number of screws 4]		Stk.	8	8	8	8
Weight without couplings		ca. kg	-	-	-	-
Weight with flanges		ca. kg	17,1	22	22	28,5

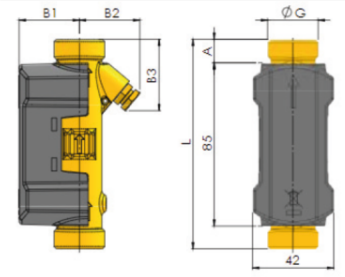
4] DIN EN 1092

All ULTRAFLOW® 44 flow sensors come with a separate electronics box containing the circuit board. This electronics box is connected to the plastic housing of the respective meter housing via a coaxial cable with a length of < 1.2 m. The plastic housing on the meter housings contains the transducers of the flow sensor.

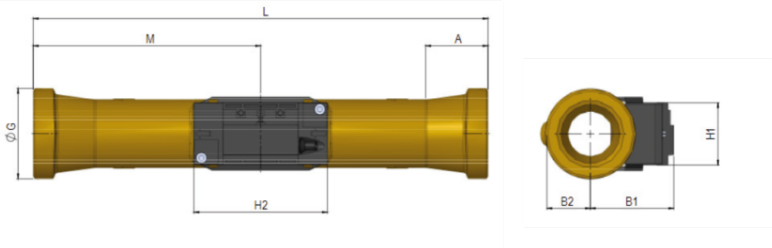
Nominal diameter	Length (m)	Approximate weight (kg)
q_p 1,5 and 2,5 m^3/h	2,5	0.18
q_p 1,5 to 100 m^3/h	2,5	0.36

Dimension chart

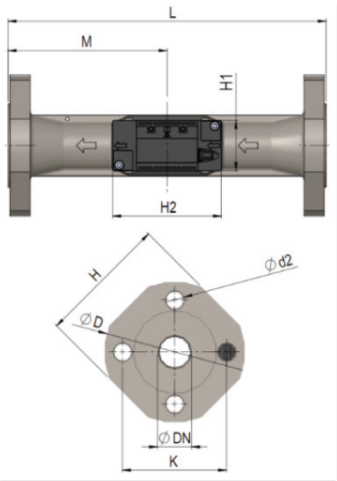
ULTRAFLOW® 44, G¾B and G1B



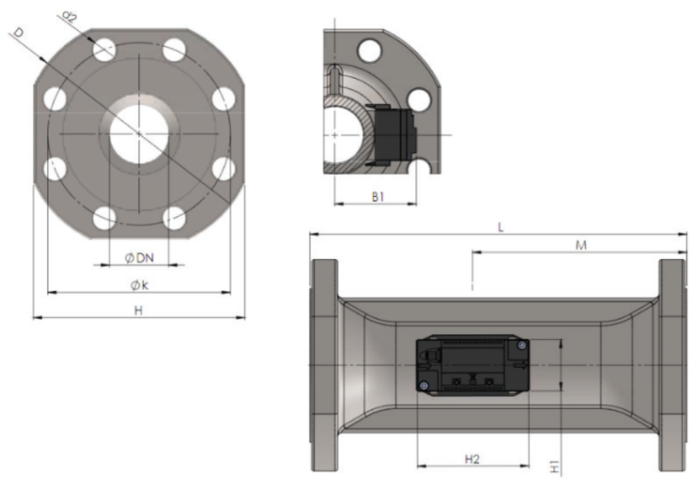
ULTRAFLOW® 44, G1¼B and G2B



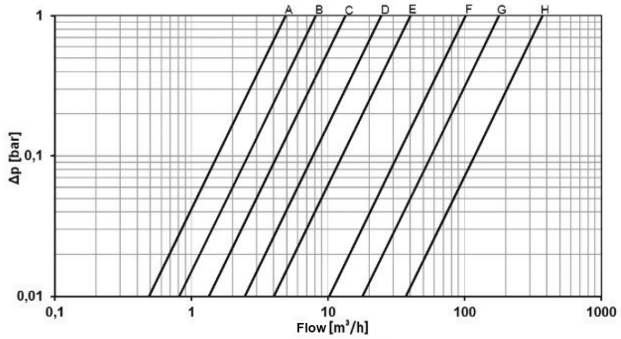
ULTRAFLOW® 44, DN 25 to DN 50



ULTRAFLOW® 44, DN 65 to DN 125



Pressure loss curve



Graph	q_p (m^3 / h)	Nominal diameter (mm)	$\Delta p@q_p$ (bar)	k_v 5)
A	1,5	DN/15/DN20	0,09	4,9
B	2,5	DN20	0,09	8,2
C	3,5	DN20	0,07	13,4
D	6	DN/25/DN32	0,06	24,5
E	10	DN40	0,06	40
E	10	DN50	0,14	40
F	25	DN60	0,06	102
G	40	DN80	0,05	179
H	60	DN100	0,03	373
H	100	DN100/DN125	0,07	373

5) $q=kv \times \sqrt{\Delta p}$

Installation note

With ULTRAFLOW® 44, the black electronics housing must be installed on the side (for horizontal installation). ULTRAFLOW® 44 can be rotated up to +45° in relation to the pipe axis. If there is a risk of condensation, e.g. in refrigeration installations or if ULTRAFLOW® 44 is installed in a humid environment, ULTRAFLOW® 44 must be rotated +45° to the pipe axis. ULTRAFLOW® 44 does not require a straight inlet or outlet section. ULTRAFLOW® 44 must not be exposed to pressure lower than the ambient pressure (vacuum).

Installation recommendations

Severe flow disturbances usually occur in connection with valves and pumps that are not fully open, as well as multiple bends. The minimum distances listed below have proven effective in the installation of thermal energy meters (best practice approach):

	Ultrasonic volume measurement unit DN 15 - 80	Ultrasonic volume measurement unit DN 100 - 250
Minimum recommended distances	**Ultrasonic volume measurement unit DN 15-80**	**Ultrasonic volume measurement unitDN 100 - 250**
For valves that are not fully open	20 x DN	40 x DN
On the pressure side of pumps	20 x DN	20 x DN
For multiple bends	5 x DN	5 x DN

Installation positions

Pipeline:	horizontal	
	vertical	
	diagonal	
Head of the meter ULTRAFLOW® 44: DN 15 – DN 125	to the side + 45°	

Electrical connections

MULTICAL® and ULTRAFLOW® 44 connections

ULTRAFLOW® 44	→	MULTICAL®
Blue (ground)	→	11
Red (power supply)	→	9
Yellow (signal)	→	10

Materials

Parts in contact with the medium ULTRAFLOW®□44 ϕ1,5 and 2,5	
Housing with threaded connection	Dezincification-resistant brass
Sensor	Stainless steel, W. No. 1.4401
Seals	EPDM
Reflector	Thermoplastic, PES 30% GF and stainless steel, comparable to AISI 304
Measuring tube	Thermoplastic, polyethersulfone (PESU)
ULTRAFLOW®□44 ϕ3,5 to qp 100	
Housing with threaded connection	Dezincification-resistant brass
Housing with flange connection	Stainless steel, W. No. 1.4308
Sensor	Stainless steel, W. No. 1.4404
Seals	EPDM
Reflector	Thermoplastic, PES 30% GF and stainless steel, comparable to AISI 304
Measuring tube	Thermoplastic, polyethersulfone (PESU) 30% GF
Electronics enclosure	
Basis	q_p 1.5 - 2.5 Thermoplastic, PESU 30% GF q_p ⩾ 3.5 Thermoplastic PC 10% GF
Lid	Thermoplastic, PC 10% GF
Connecting cable Signal cable	Silicone (3x0.25 mm^2)