

M 120 / M 190 Multi-Jet Meter

The superdry-dial model which always
presents its figures crystal-clear



- ✘ Model designations MTR / MTH-R.
- ✘ Nominal flow rate Q_n 1.5 ... 15.
- ✘ Superdry-dial design protected against deposits and soiling.
- ✘ Housing for horizontal pipes, risers and downpipes.
- ✘ Mechanism cup pressure-proof and diffusion-proof.
- ✘ Reed contactor installed or retrofittable.
- ✘ Cold water up to 50 °C, warm water up to 90 °C.

M 120 / M 190 Multi-Jet Meter

A meter series well equipped with housings for horizontal pipes, risers and downpipes

Living up to our reputation

It hardly seems possible: for a hundred years already, our multi-jet meter has been a byword, in Germany and beyond, for exemplary craftsmanship and engineering excellence.

We aim to keep things that way!

So permit us to present the complementary types to our field-proven wet-dial meters:

1. MTR
Cold-water meter.
2. MTH-R
Warm-water meter.
3. MTR-KG / MTH-R-KG
Pulse-type register as standard.
4. MTR-KN / MTH-R-KN
Reed contactor retrofit option.

The water quality is crucial

Wherever impurities are anticipated in the water, our superdry-dial meter is the best choice. It's not only the waterproof register that's an advantage.

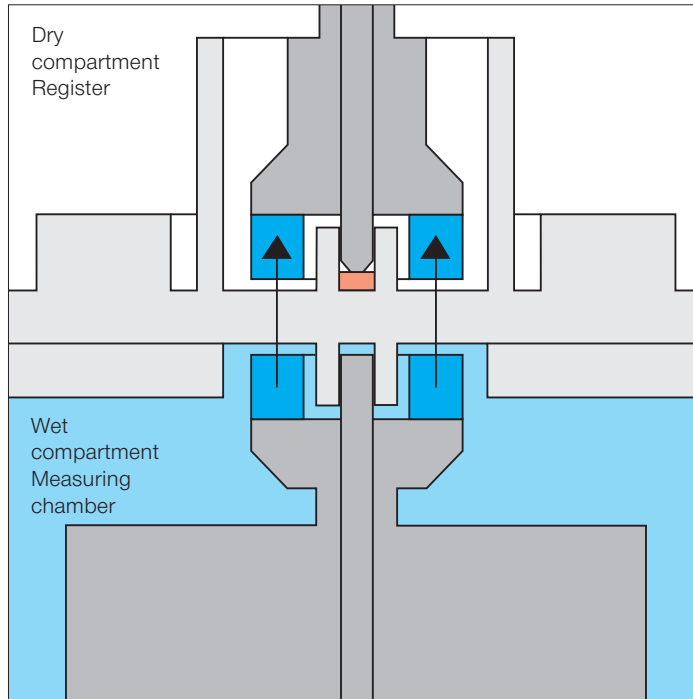
The design of the metering chamber ensures good flow characteristics and prevents deposits.

Not to mention the efficacious tubular strainer in the inlet fitting – which is easily replaceable, by the way.

Customer-friendly, standardized dimensions

This means one size headring for Q_n 1.5 up to Q_n 15 replaceability for the meter head with the headring, including glass and seal. The metering inserts, too, are dimensionally identical: the diameters at the register and the mechanism cup are always the same.

Magnetic coupling



Reed contactor can be certified	
Pulse sequence	litres/pulse
	100/1
Other pulse sequences on request	1 000/1

It's what's inside that counts

Our superdry-dial meters excel in terms of dependable accuracy. We make sure of this by continual testing and stringent quality control.

The specifications of Class B are attested by our government-approved test office by the calibration seal.

Continuous loads of approx. $1.4 Q_n$ or short ones of $1.2 \times Q_{max}$ are handled with ease.

MTR / MTR-S MT-F-D MTH-R / MTH-R-S Dry-dial

- Cold water up to 50 °C.
D 98 MTR / MTR-S
6.131.05 Q_n 1.5 ... 15
D 86 MT-F-D
6.131.91 Q_n 1.5 ... 10
- Warm water up to 90 °C.
D 02 MTH-R / MTH-R-S
6.331.08 Q_n 1.5 ... 15
- Horizontal installation. Approval Class B.
- MTR / MTH-R Housing horizontal. MTR-S / MTH-R-S Riser housing. MT-F-D Downpipe housing.
- Display capacity Q_n 1.5 ... 15: 99 999 m³.
- Minimum scale value Q_n 1.5 ... 15: 0.05 l.

Typical
MTR/MTH-R

Impeccable

- ✘ Non-slip, durable, hard-ferrite magnetic coupling.
- ✘ Pressure-proof, diffusion-proof mechanism cup.
- ✘ Wear-proof, low-friction sapphire bearings.
- ✘ Permanently elastic, non-aging O-ring seal.
- ✘ Carefully selected materials and appropriate design give the warm-water meter lasting thermal stability.

Easy-read

- ✘ Where there's no water, there aren't any deposits either.
- ✘ Where no water vapour is produced or penetrates, nothing will mist up.
- ✘ Where the register displays full cubic metres, there are no reading errors.
- ✘ Where the glass is scratchproof and absolutely transparent, a clear reading is guaranteed.

Maintenance-friendly

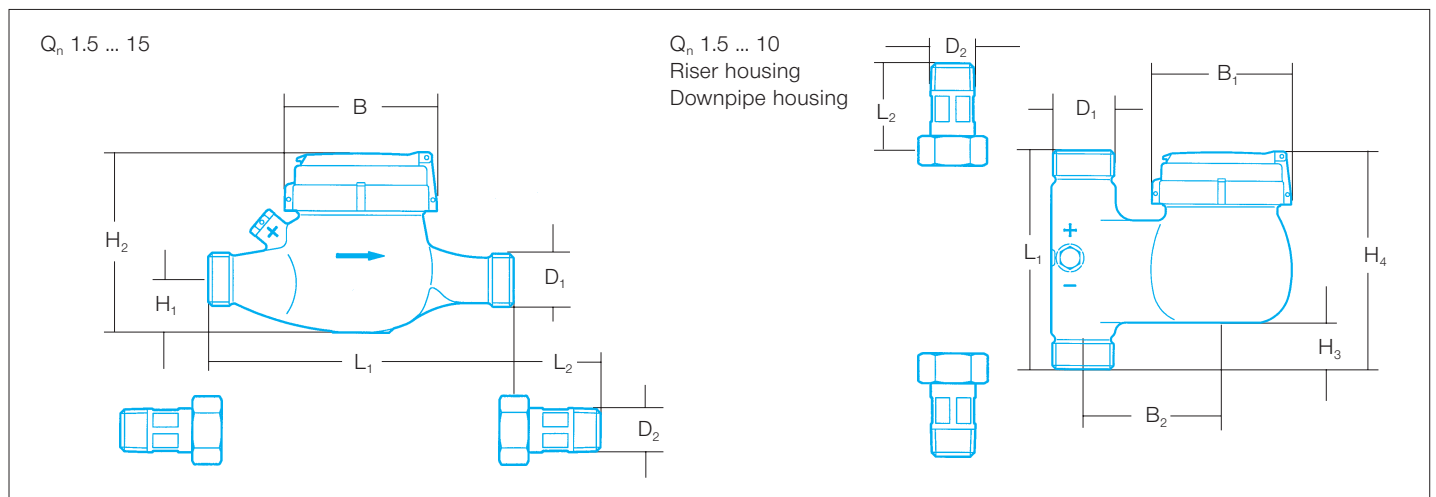
- ✘ Numerous re-usable components.
- ✘ Brand-new replacement measuring inserts.
- ✘ MTR parts kit makes a superdry-dial model out of the wet-dial MNR.
- ✘ Prompt spare parts service.

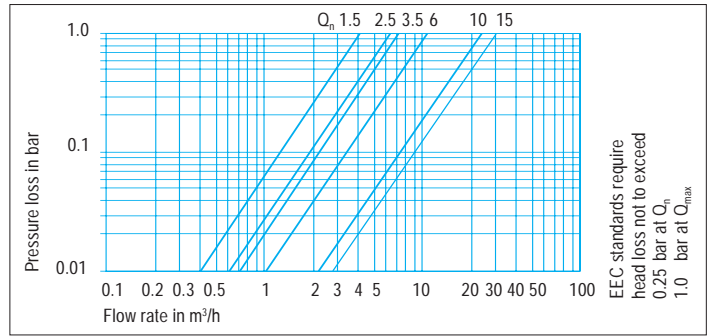
Accurate

- ✘ Conforms at least to the EEC-Guidelines for cold and warm water and ISO 4064 for cold water.
- ✘ Can be briefly overloaded by 20 % at Q_{max} .

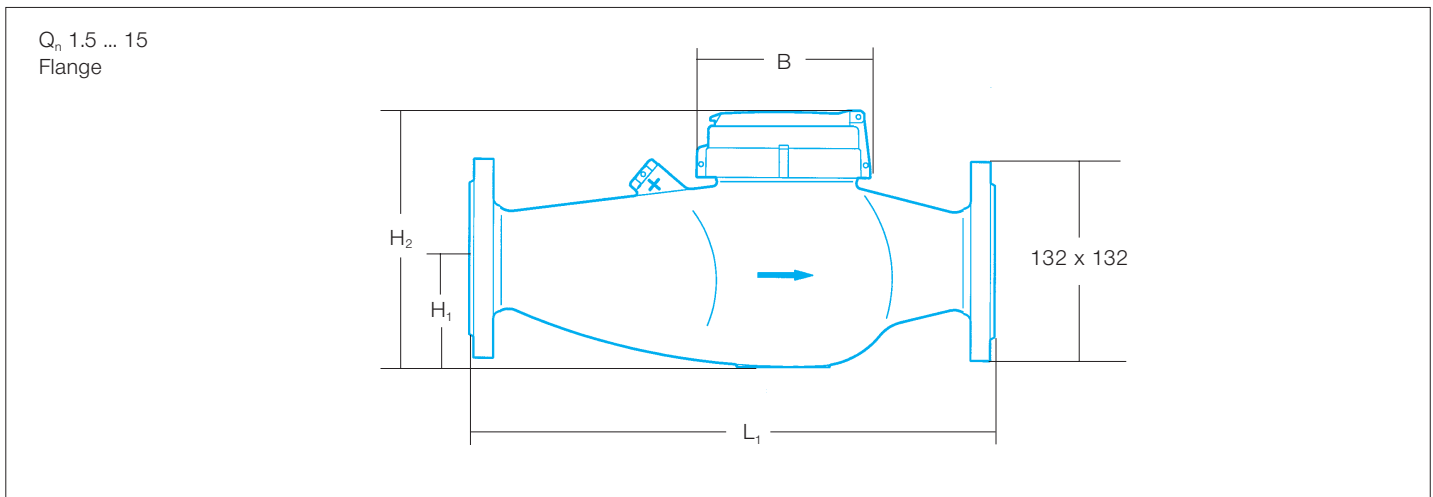
The technical data

Multi-jet meter			MTR / MTH-R		MTR / MTH-R		MTR / MTH-R		MTR / MTH-R		MTR / MTH-R	
Meter size / nominal flow rate	Q_n m ³ /h		1.5	1.5	2.5	3.5	3.5					
Nominal size	DN mm		15	15	20	20	25					
	DN inches		1/2	3/4	3/4	3/4	1					
D ₁ Meter connection thread	ISO 228/1 inches		G 3/4 B	G 1 B	G 1 B	G 1 B	G 1 1/4 B					
D ₂ Connection pipe thread	ISO 7/1 inches		R 1/2	R 3/4	R 3/4	R 3/4	R 1					
Class			B	B	B	B	B					
Maximum flow rate	Q_{max} m ³ /h		3	3	5	7	7					
Transitional flow rate	Q_t l/h		120	120	200	280	280					
Minimum flow rate												
- Required	Q_{min} l/h		30	30	50	70	70					
- Actual	Q_{min} l/h		25	25	35	35	35					
Continuous load	approx. 1.4 x Q_n l/h		2 100	2 100	3 500	4 900	4 900					
Temperature	T_{max} °C		50 / 90	50 / 90	50 / 90	50 / 90	50 / 90					
Pressure rating	PN		16	16	16	16	16					
Flow capacity	at 1 bar pressure loss m ³ /h		4.4/4.7	4.4/4.7	6.7	7.2	7.2					
L ₁ Meter length	Standard mm		165	190	190	220	260					
	Option mm		145/170/190	165	165/220	—	175					
L ₂ Connector length	mm		40	50	50	50	60					
B Width	mm		100	100	100	100	100					
H ₁ Centerline height	mm		31	31	31	31	31					
H ₂ Overall height	mm		115	115	115	115	115					
Weight	kg		1.6	1.7	1.7	1.7	2.2					
			MTR-S MTH-R-S		MT-F-D	MTR-S MTH-R-S		MTR-S MTH-R-S		MT-F-D		
L ₁ Meter length	mm		—	105	105	105	105	—	150	150		
L ₂ Connector length	mm		—	50	50	50	50	—	50	60		
B ₁ Width	mm		—	100	100	100	100	—	100	105		
B ₂ Clearance	Pipe axis to meter axis mm		—	80	82	80	82	—	94	94		
H ₃ Distance to meter bottom	mm		—	22	18	22	18	—	28	30		
H ₄ Overall height	mm		—	135	153	135	153	—	151	181		
Weight	kg		—	1.8	2.5	1.8	2.5	—	2.6	3		





Multi-jet meter			MTR-R		MT-R		MTH-R	
Meter size / nominal flow rate	Q_n m ³ /h		6	6	10	15	15	15
Nominal size	DN mm		25	32	40	50	50	50
	DN inches		1	1 1/4	1 1/2	2	2	2
D ₁ Meter connection thread	ISO 228/1 inches		G 1 1/4 B	G 1 1/2 B	G 2 B	G 2 1/2 B	Flange	Flange
D ₂ Connection pipe thread	ISO 7/1 inches		R 1	R 1 1/4	R 1 1/2	R 2	—	—
Class			B	B	B	B	B	C
Maximum flow rate	Q_{max} m ³ /h		12	12	20	30	30	30
Transitional flow rate	Q_t l/h		480	480	800	3 000	3 000	1 500
Minimum flow rate								
- Required	Q_{min} l/h		120	120	200	450	450	300
- Actual	Q_{min} l/h		60	60	120	200	200	200
Continuous load	approx. 1.4 x Q_n l/h		8 400	8 400	14 000	21 000	21 000	21 000
Temperature	T_{max} °C		50 / 90	50 / 90	50 / 90	50	50	90
Pressure rating	PN		16	16	16	16	16	16
Flow capacity	at 1 bar pressure loss m ³ /h		12.8	12.8	22	33	33	33
			MTR / MTH-R		MTR / MTH-R		MTR / MTH-R	
L ₁ Meter length	Standard mm		260	260	300	270	270	270
	Option mm		—	—	—	300	300	300
L ₂ Connector length	mm		60	60	70	60	—	—
B Width	mm		100	100	100	100	135	135
H ₁ Centerline height	mm		43	43	46	46	68	68
H ₂ Overall height	mm		130	130	153	153	160	160
Weight	kg		2.7	2.7	4.0	5.0	9.0	9.0
			MTR-S MT-F-D		MTR-S MT-F-D			
			MTR-H-S		MTH-R-S			
L ₁ Meter length	mm		150	150	—	200	200	
L ₂ Connector length	mm		60	60	—	70	70	
B ₁ Width	mm		100	105	—	100	135	
B ₂ Clearance	Pipe axis to meter axis mm		94	94	—	105	120	
H ₃ Distance to meter bottom	mm		32	30	—	51	22	
H ₄ Overall height	mm		147	181	—	175	198	
Gewicht	kg		2.6	3.0	—	5.5	5.5	



Working with the multi-jet meter

Laws and regulations

Water meters may be installed only by properly trained experts. The remarks below are designed to help you achieve optimum metering results.

In addition, the applicable laws and regulations, plus of course good engineering practice, must be strictly complied with!

Operating temperature

Cold-water meters approved for T_{\max} 30°C can be used outside legally calibrated applications for operating temperatures of up to T_{\max} 50°C. They may not, however, be used for neither warm water nor hot water.

In the case of warm-water meters, the operating temperature of T_{\max} 90°C must be complied with. They must not be used for hot water.

Transport and storage

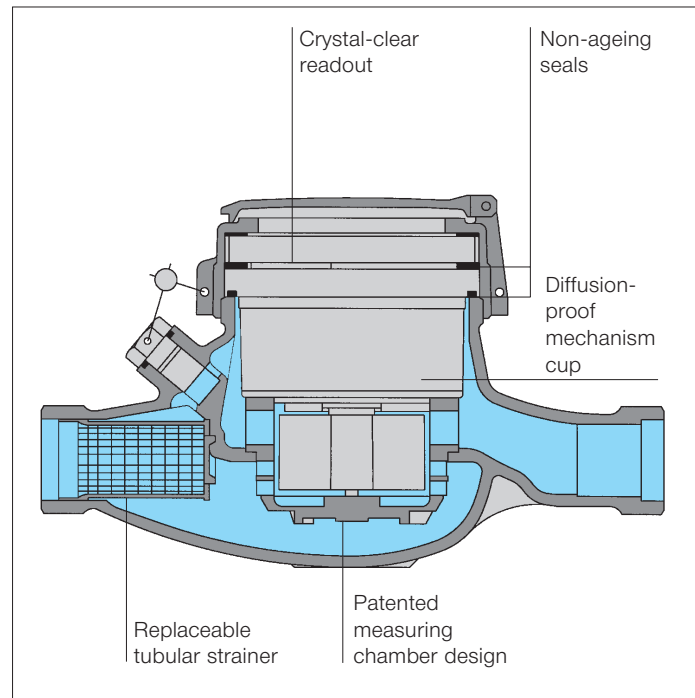
Do not drop or bang the meters: damage will lead to imprecise measurements.

Residues of test water may freeze inside the meters during transportation in frosty weather. If this happens, let the meters thaw slowly in a frost-free room. The temperature must not exceed 50°C for cold-water meters.

Only a frost-proof, dust-free room will protect against damage during storage. The storage temperature must not, however, be above 50°C; be careful of radiators.

To avoid soiling, take the meters to the installation site in their original packaging; at the very least, use thread guard caps.

Dry-dial meter



Installation

Always flush new or modified pipes at as high a pressure as possible. Insert adapters instead of the meters.

Install the meter so as to ensure that it is protected against frost and can be easily read. Make sure the direction of flow is correct (the meters are marked with arrows). The MTR/MTH-R is approved only for horizontal installation. Riser or downpipe meter bodies are available for vertical pipes.

The metering points must be positioned so as to ensure that the meters are always filled completely with water.

During a period of frosty weather, first blow lightly on the meter to make sure it is functioning before installing it.

When installing the meter, use only materials which have been approved for drinking water.

We recommend a mounting bracket. It is not necessary to have a straight section of pipe before or after the installation point.

However, shutoff valves must be installed upstream and downstream of the meter. A draincock is advisable. The valve downstream of the meter must, under the applicable regulations, be fitted with an approved non-return valve. For safety's sake, our meters can be supplied with an additional plug-in non-return valve.

Start-up

At initial start-up, and also after every time the pipes have been drained, open the shutoff valves only slowly. The meters will be running dry at first, so start them up gently. To prevent faulty readings and damage, no water-air mixture must be allowed to flow through the meters. This also applies for continuous operation.

Calibration validity and maintenance

Water meters used or provided in business transactions, have to be calibrated.

The duration of calibration validity is 6 years for cold-water meters, and 5 years for warm-water meters. These intervals have proved suitable as a maintenance schedule for uncalibrated meters as well.

Depending on the state of the piping network, the water quality and the operating conditions involved, however, shorter intervals may be necessary.

Warranty procedures

If you wish to claim under our warranty for your water meter, please send it to us immediately, unopened and lead-sealed, with a reference to the warranty obligation.

Otherwise it will not be examined upon receipt, and the cause of the damage will subsequently prove impossible to reconstruct.

The order numbers

MTR, MTR-S

Wet-dial register.
Class B verification.
Housing epoxy-coated blue.

MTH-R

Dry-dial register.
Class B verification.
Q_n 15 class C verification.
Housing Standard unpainted.
Special design coated red.

MT-F-D

Class A verification.
Housing epoxy-coated blue.

Reed contactor

Contact load 24 V,
100 mA with suitable
spark suppression,
protection rating IP 67.

Flow rate Q _n m ³ /h	Nominal size DN inches	Meter length mm	MTR		MTH-R
			Order No.	Order No.	Order No.
1.5	1/2	145	1186279		—
1.5	1/2	165	*1175625		0621137
1.5	1/2	170	1186287		0681474
1.5	1/2	190	1186295		0681482
1.5	3/4	165	1186317		0681490
1.5	3/4	190	*1186309		0681504
2.5	3/4	165	1186325		0681512
2.5	3/4	190	*1175633		0621145
2.5	3/4	220	1186333		0681520
3.5	3/4	220	1186368		0681539
3.5	1	175	1186376		A
3.5	1	260	*1175641		0621153
6	1	260	*1175668		0621161
6	1 1/4	260	*1175676		0621188
10	1 1/2	300	*1175684		0621196
15	2	270	0647195		0647233
15	Flange	270	0647217		0647268
15	2	300	0647209		0647241
15	Flange	300	0647225		0647276
Flow rate Q _n m ³ /h	Nominal size DN inches	Meter length mm	MTR-S		MT-F-D
			Order No.	Order No.	Order No.
1.5	3/4	105	1186988		R
2.5	3/4	105	1186996		0501988
3.5	1	150	0629383		R
6	1	150	0625582		0501995
10	1 1/2	200	0629391		0502009

Flange: 132 x 132 mm

* Standard

R: on request

Accessories

Description	Order No.	
Union 1 pair	1/2	0501184
	3/4	0501124
	1	0501147
	1 1/4	0501206
	1 1/2	0501161
	2	0501101
Reed disc complete MTR-KN Cable length 1 m	100/1 litres/pulse	0645737
	1 000/1 litres/pulse	0645745
Reed contactor MTR-KG as spare part Cable length 1 m		0507062

**MTR-KG,
MTR-S-KG,
MTH-R-KG
MTH-R-S-KG**

Pulse-type register
100/1, 1 000/1 litres/pulse.
Other pulse sequences
on request.
Contactor pre-mounted.
Class B certification.
MTH-R-KG Q_n 15 class C.
Housing epoxy-coated.

Reed contactor

Contact load 24 V,
100 mA with suitable
spark suppression,
protection rating IP 67.

Flow rate Q _n m ³ /h	Nominal size DN inches	Meter length mm	MTR-KG		MTH-R-KG	
			100/1	1 000/1 Order No.	100/1	1 000/1 Order No.
1.5	1/2	145	R	R	R	R
1.5	1/2	165	0613029	0613037	0683655	0683663
1.5	1/2	170	R	R	R	R
1.5	1/2	190	R	R	R	R
1.5	3/4	165	R	R	R	R
1.5	3/4	190	R	R	R	R
2.5	3/4	165	R	R	R	R
2.5	3/4	190	0613045	0613053	0683671	0683698
2.5	3/4	220	R	R	R	R
3.5	3/4	220	R	R	R	R
3.5	1	175	R	R	R	R
3.5	1	260	R	R	R	R
6	1	260	0613061	0613088	0668036	0683450
6	1 1/4	260	0613096	0613118	0668117	0683469
10	1 1/2	300	0613126	0613134	0683639	0683647
15	2	270	R	R	0683795	0683809
15	Flange	270	R	R	0683817	0683825
15	2	300	R	R	R	R
15	Flange	300	R	R	R	R
Flow rate Q _n m ³ /h	Nominal size DN inches	Meter length mm	100/1	MTR-S-KG 1 000/1 Order No.	100/1	MTH-R-S-K 1 000/1 Order No.
1.5	3/4	105	0613142	0613150	R	R
2.5	3/4	105	0613169	0613177	R	R
3.5	1	150	R	R	R	R
6	1	150	0642541	0642576	R	R
10	1 1/2	200	0642568	0642584	R	R

Flange: 132 x 132 mm

* Standard

R: on request

MTR-KN



**MTR-KN,
MTR-S-KN,
MTH-R-KN,
MTH-R-S-KN**

Magnet pointer
100/1, 1 000/1 litres/pulse.
Retrofit reed disk
at any point in time.
Class B certification.
MTH-R-KN Q_n 15 class C.
Housing epoxy-coated.

Reed contactor

Contact load 24 V,
100 mA with suitable
spark suppression,
protection rating IP 67.

Flow rate Q _n m ³ /h	Nominal size DN inches	Meter length mm	MTR-KN		MTH-R-KN	
			100/1	1 000/1 Order No.	100/1	1 000/1 Order No.
1.5	1/2	145	R	R	R	R
1.5	1/2	165	0653411	0653438	0689572	0689718
1.5	1/2	170	R	R	R	R
1.5	1/2	190	R	R	R	R
1.5	3/4	165	R	R	R	R
1.5	3/4	190	0713341	R	R	R
2.5	3/4	165	R	R	R	R
2.5	3/4	190	0653446	0653454	0689580	0689726
2.5	3/4	220	R	R	R	R
3.5	3/4	220	R	R	R	R
3.5	1	175	R	R	R	R
3.5	1	260	R	0652695	0689599	0689734
6	1	260	0653462	0653470	0680575	0689750
6	1 1/4	260	0653489	0653497	0680583	0689742
10	1 1/2	300	0653500	0653519	0680591	0689769
15	2	270	0680397	0680435	0689602	0689807
15	Flange	270	0680419	0680451	0689629	0689785
15	2	300	0680400	0680443	0689610	0689793
15	Flange	300	0680427	0680478	0689637	0689777
Flow rate Q _n m ³ /h	Nominal size DN inches	Meter length mm	MTR-S-KN		MTH-R-S-KN	
			100/1	1 000/1 Order No.	100/1	1 000/1 Order No.
1.5	3/4	105	0653527	0653535	R	R
2.5	3/4	105	0653543	0653551	0689653	0689823
3.5	1	150	R	R	0689661	0689831
6	1	150	0653578	0653586	0689688	0689858
10	1 1/2	200	0653594	0653608	0689696	0689866

Flange: 132 x 132 mm

* Standard

R: on request