



Installation and Commissioning Instructions

Topway T2 manifold

- A range of nickel plated extruded brass manifold pre-assembled for immediate mounting for both radiator and underfloor systems
- Available in 1" and 1 1/4" sizes, from 2 ways to 12 ways with integral flow control valves to suit a wide range of system requirements
- The flow rail can either include, locksheids or flowmeters, both are designed to provide isolation and correct balancing. In addition flowmeters have the added ability to indicate the flow rates in litres per min.
- The double regulation allows isolation and flow balancing of each circuit. The return rail has blue capped integrated electrothermic bodies (ready for electrothermic heads) per circuit. Complete with DN20 24x19 takeoffs connections
- Can be surface mounted, concealed in a choice of purpose designed plastic or metal cabinets or within a partition wall for a flexible solution to location
- Manifold flow and return outlets are offset for ease of installation
- Ball valves, threaded fittings and Monoblocco pipe connectors available to accommodate a wide range of pipe types and sizes.
- Our range of T2 Topway manifolds are BBA approved certificate number 14/5087 and comply to ISO 10508:2006 Classes 1,2,4 and 5 (70°C), and EN 15875-5:15876, 21003-5; 22391-5 4 bar at 90°C.

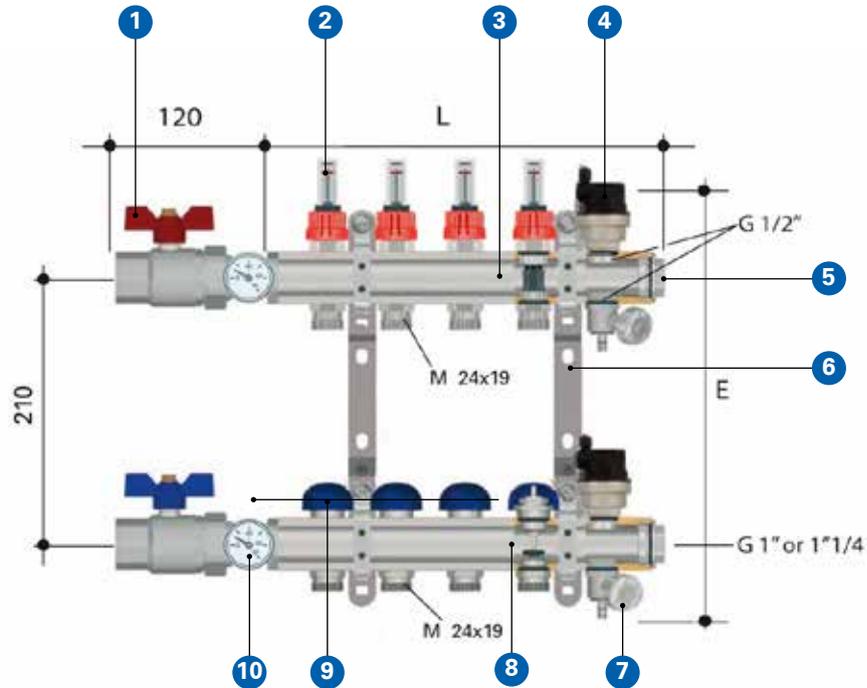


Topway T2 Manifold Installation & Commissioning Instructions

1. Description

The Topway Type 2 manifold is a pre-assembled manifold for use with underfloor and wall hung radiator systems available with between 2 and 12 ways. Available with flow meter or lockshield valves depending on application.

The 1" pre-assembled Topway manifold is suitable for use with a combined mixing valve and circulating pump set such as the Emmeti T3 Control group, T2 UFH Heat Pump Control Group, 1" M3V-HE Control group and TM3 Mixing Unit. The 1 1/4" pre-assembled Topway manifold has the flow rail on the bottom and is suitable for use with the 1 1/4" M3V-HE. The rails can be swapped over during installation.



1.1 Components

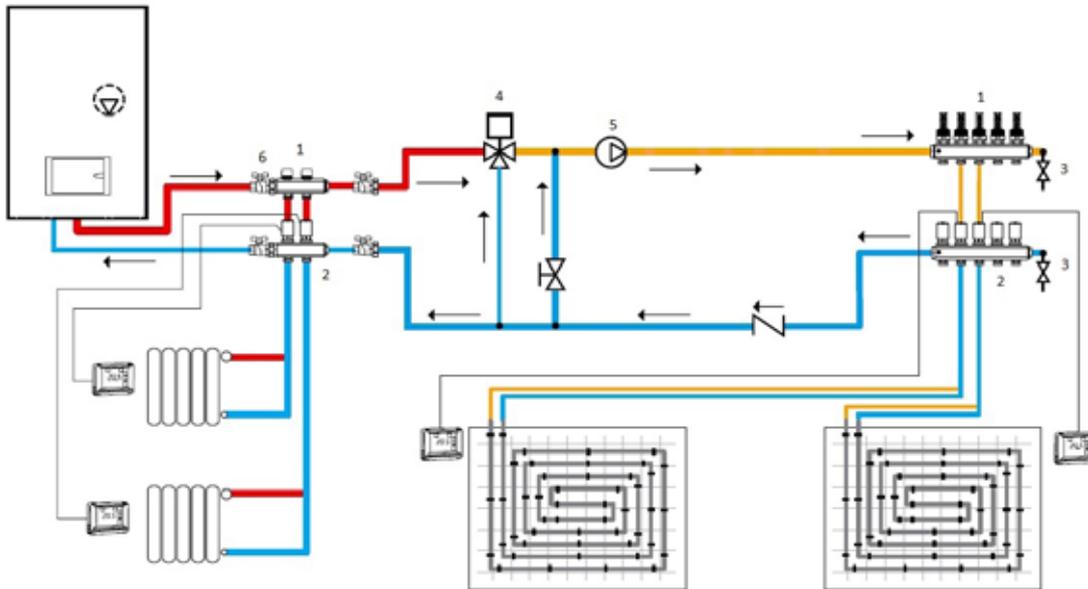
1. Ball valves with temperature gauge (available separately)
2. Double regulating flowmeter
3. Flow rail available with flow meter or lockshield valves.
4. Tecno-Varia automatic air vent, 1/2"
5. 1" or 1 1/4" male plugs
6. Offset mounting brackets, 210mm centres.
7. 1/2" Drain/fill valve
8. Return rail for heating system from 2 to 12 ways with electrothermic bodies designed for attachment of the electrothermic heads (item 2)
9. Electro-thermic body (Control T electro-thermic head available separately)
10. Temperature gauge 0°C – 80°C

1.2 Technical Data

	Lockshield	Flowmeter
Max. temperature on primary circuit	110 °C	90 °C
Maximum operating pressure	10 bar	6 bar
Temperature gauge range	0 - 80 °C	0 - 80 °C
Manifold size	1" or 1 1/4"	1" or 1 1/4"
Primary connections	G1" 1 1/4"	G1" 1 1/4"
Manifold connections	M 24x19	M 24x19
Thermally cycle tested for 50 years		

1. Description

1.3 Schematic System Diagram



Key

1. Topway T2 flow rail
2. Topway T2 return rail
3. Drain and filling valves with rotatable connection and safety cap
4. Mixing assembly
5. Circulation pump
6. Ball valve kit with or without temperature gauge in straight or angled pattern

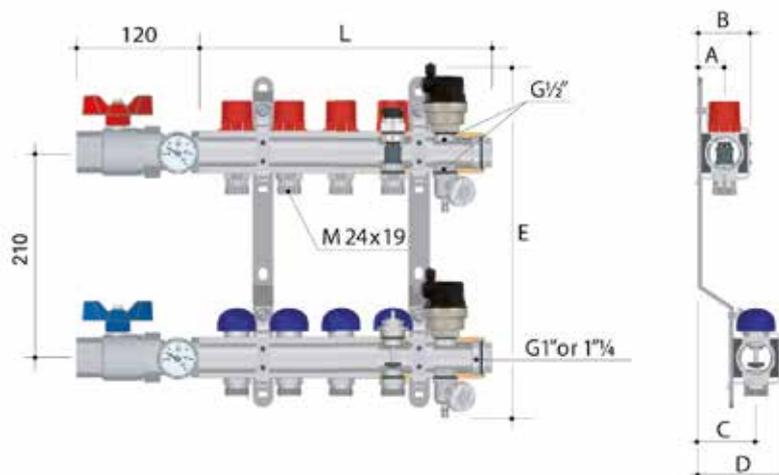
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2. Installation

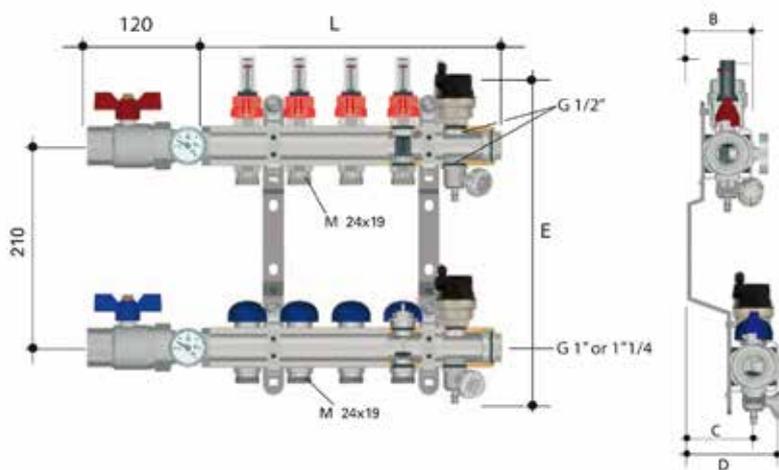
2.1 Mounting

Topway T2 manifolds can be wall-mounted using the brackets provided with suitable fixings. Alternatively they can be mounted within an Emmeti cabinet. Manifolds should be centrally located and installed at least 300mm from the floor.

Topway T2 manifold with lockshields



Topway T2 manifold with flowmeters



		1"	1 1/4"
A mm		39.5	43.5
B mm		64	71.5
C mm		65.5	69.5
D mm		90	98.5
E mm		364	375
F mm		97	135

The automatic air vents, drain / fill valves and blanking caps are supplied loose with the manifold and should be assembled to the manifold prior to filling. These are fitted with o-ring seals and do not require any further jointing measures.

Dimensional Data

To ensure adequate installation space please refer to dimensional data. A range manifold cabinets are also available.

Any additional components such as ball valves or mixing group will need to be accounted for.

Type		2 ways	3 ways	4 ways	5 ways	6 ways	7 ways	8 ways	9 ways	10 ways	11 ways	12 ways
1"	L mm	172	222	272	322	372	422	472	522	572	622	672
1 1/4"	L mm	-	-	282	332	382	432	482	532	582	632	682

2. Installation

2.3 Electrical connections

The Domestic Building Services Compliance Guide recommends the use of a separate flow temperature high limit thermostat for systems connected to a high temperature water supply (i.e. more than 60°C) to ensure that the water temperature in an underfloor heating system does not rise above the temperature recommended for the floor. Emmeti UK offer a thermostat for this purpose, code: 28130632.

Emmeti UK also offer the EWC Wiring Centre range designed specifically for the connection of electrical components in underfloor heating systems:

Code U9360010
- EWC-1 230V 8-way wiring centre with on-off switch

Code U9360020
- EWC-1 24V 8-way wiring centre with on-off switch

Code U9370001
- EWC-2 230V 8-way wiring centre

Code U9370002
- EWC-2 230V 12-way wiring centre

Code U9380001
- EWC-4 230V 4-way wiring centre

This allows the connection of the mains power supply, thermostats and actuators with electrical interlock terminals for the boiler and manifold pump as required by Building regulations Part L.

Wiring diagrams are provided with the above items.

Please ensure that the electrical wiring of the installation and connections to and from electrical system components are in accordance with BS 7671, the latest edition of the IET Wiring Regulations.

High limit thermostat, code: 28130632

Wall Mounting - Install the high limit thermostat adjacent to the Topway T2 manifold where the thermostat phial can be trapped between the rubber mounting pad in the support bracket and the surface of the flow manifold.

Cabinet mounting - Where the Topway T2 manifold is installed in a Metalbox manifold cabinet, install the thermostat in the enclosure above or to the side of the manifold assembly. Make the electrical connections to the thermostat as shown in the installation leaflet

Maximum suggested thermostat setting: 45/50 °C for cement slabs; for other materials refer to the maximum values as stated by the supplier, and not more than 55°C (EN 1264-4).

EWC-1 wiring centre, codes: U9360010, U9360020

EWC-2 wiring centre, codes: U9370001, U9370002

EWC-4 wiring centre, code: U9380001

Wall mounting – Install the wiring centre adjacent to the Topway T2 manifold so that the electrical cables from the electrothermic heads can reach the wiring centre, ideally on the lower face of the centre.

Cabinet mounting – where the Topway T2 manifold is installed in a Metalbox manifold cabinet, the wiring centre can be installed above or to one side of the manifold providing all electrothermic head cables can reach the centre. Make the electrical connections to the centre as shown in the installation leaflet.

2.4 Hydraulic connections

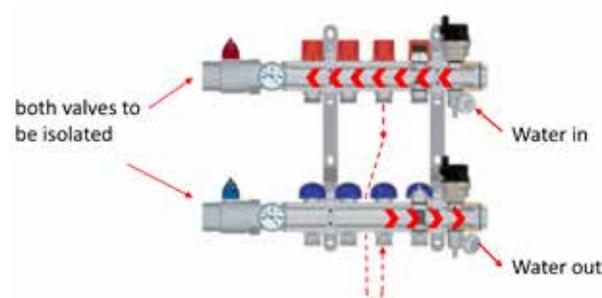
Connect the primary flow and return pipes to the 1" or 1 ¼" female connections and each of the individual circuits. It is strongly recommended that only fittings with a parallel thread are used and that a gasket or o-ring is used to make the seals watertight. The use of jointing paste and hemp or similar sealing materials is not recommended as this may interfere with the correct operation of the manifold. Emmeti UK offer a range of ball valves and other fittings with o-ring seals suitable for this purpose.

2.5 Filling and testing

To fill the system, close the main flow and return isolators, isolate all circuits via lockshield or flowmeter. Attach a mains water fed hose to the top manifold and a hose to drain/bucket on the bottom manifold, begin filling each circuit individually by opening the lockshield/flowmeter until water runs uninterrupted through the hose at the bottom manifold. This circuit is now full of water and free of air. Isolate the circuit and move to the next to repeat the process.

We recommend filling each circuit separately, opening the relative valves and double regulating valves each time and closing them again when the operation is completed. Once filled the system should be pressure tested in accordance with EN1264-4:2009 for UFH (between 4 and 6 bar) or EN 14336:2006 for radiator systems (30% greater than working pressure for a minimum of 2 hours)

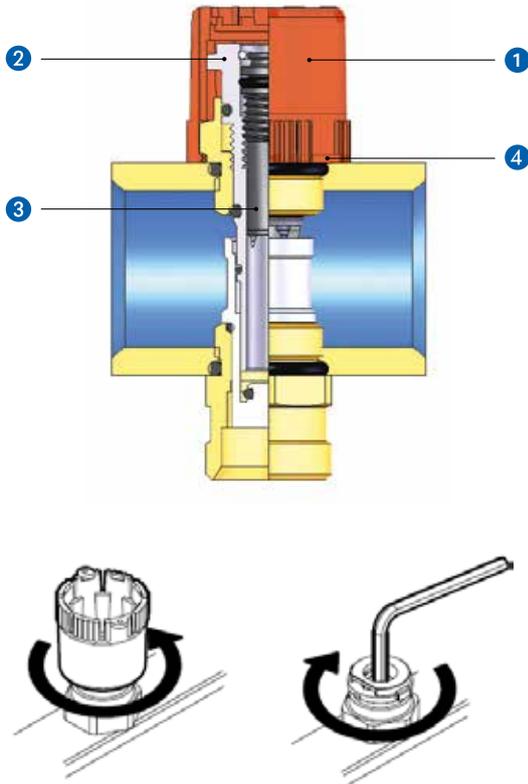
The following commissioning instructions show separately the different procedures for setting up the designed flow rate using either lockshields or flowmeters.



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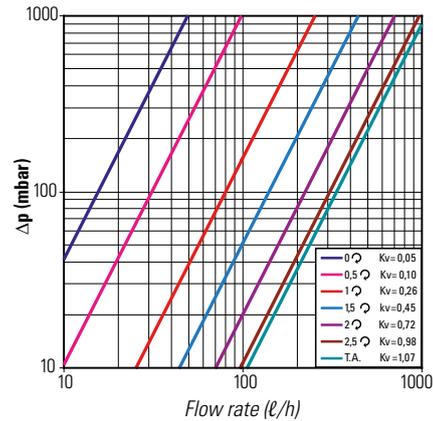
3. Balancing and Adjustment of the System

3.1 Double regulating lockshield adjustment



Using the graphs below (3.2) you can calculate the number of turns required to reach your chosen flow rate. Now start to open the inner (balancing) sleeve anticlockwise, by the number of turns you have calculated. Then stop. It is now set. Replace the red cover. To prevent tampering, you can seal the red cover into position, using wire and a lead seal, making use of the 2 holes in fins 4 on the red cover.

Lockshield pressure drop with electro-thermic body fully open



↻ no. of turns for opening adjustment device 3

TA = All open. The above values refer to water temperature 15 °C.;

$\Delta p = \Delta p \text{ flow} + \Delta p \text{ return}$;

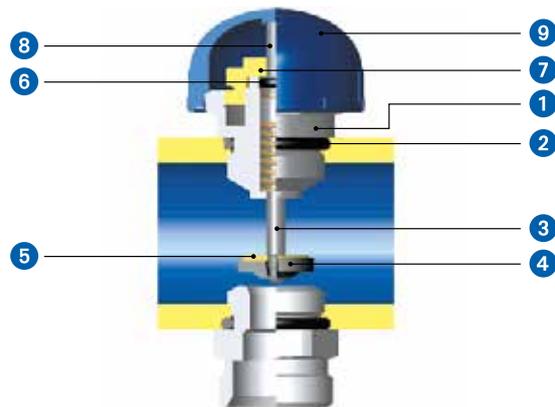
Emmeti have evolved a new and superior lockshield design. This allows easier, quicker and more accurate onsite setting of the correct flow. It is more accurate at maintaining the correct low flow, when set to a small aperture. This lockshield can be upgraded on site to become an integrated flow meter and lockshield.

How to balance using the lockshield:

Remove the red cover 1. The black plastic assembly underneath has an inner sleeve, and an outer sleeve. The outer sleeve is used for isolating the valve, actuated using the impression in the top of the red cover. The inner sleeve is used to balance the circuit, increasing or decreasing the flow by using a 4mm allen key, placed in the hexagon recess in the centre. The valve is supplied in the fully isolated position (flow is closed). First fully open the circuit. Turn the red cover over, and using the top, turn the outer (isolating) sleeve 2 anticlockwise, until the circuit is fully open, rotate until you feel steady resistance, then stop. Then rotate back half a turn. To verify, you will have seen the black plastic assembly rising. Then, using the 4mm allen key placed in the hexagon recess, rotate the inner (balancing) sleeve 3 clockwise. To verify you will have seen the inner sleeve falling. Rotate until you feel a strong resistance, then stop. Rotate back half a turn. The lockshield is now ready for flow setting.

NOTE: Make sure you do not leave the inner (balancing) sleeve in the fully open position, back it off half a turn to be sure the o-ring is not stressed.

Electrothermic Body (for electro-thermic heads)

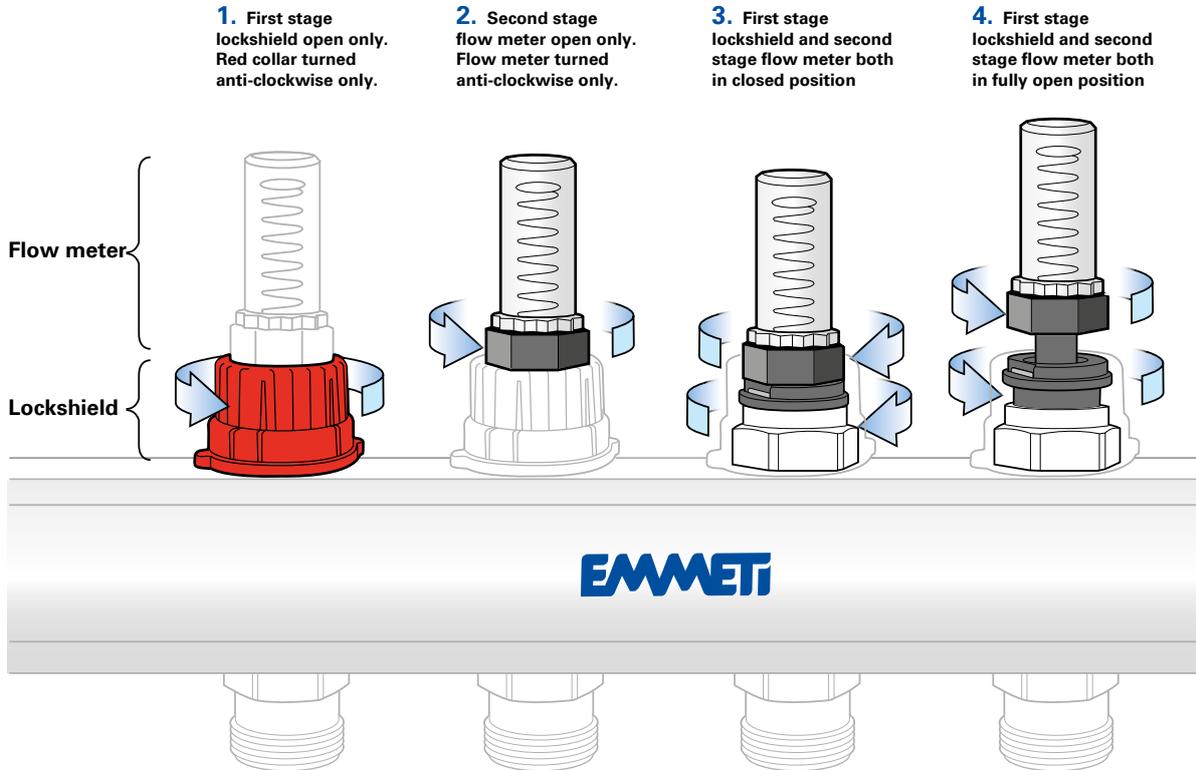


- 1 Shutter in brass EN 12164 CW614N
- 2 EPDM o-ring
- 3 Bolt in brass EN 12164 CW614N
- 4 Gasket in EPDM
- 5 Brass gasket EN 12164 CW614N
- 6 O-ring for shutter EPDM
- 7 Collar in brass EN 12164 CW614N with nickel finish
- 8 Bolt in stainless steel AISI 304
- 9 Cap in blue ABS (RAL 5005)

The blue cap is designed to be used for installation and commissioning, not for permanent isolation (if you are not replacing the cap with an electrothermic head. Please use code 01306112, section "Manifold accessories").

3. Balancing and Adjustment of the System

Flowmeter Adjustment



The combined lockshield and flow meter is a two stage device. The lockshield provides individual port isolation and the flow meter regulates flow rate.

To fully open the port for filling and flushing:

First stage: to open the lockshield rotate the collar anticlockwise approx. 3.5 turns.

Second stage: rotate the black nut on the flow meter anticlockwise approx. 3 turns.

Locking the flow rate:

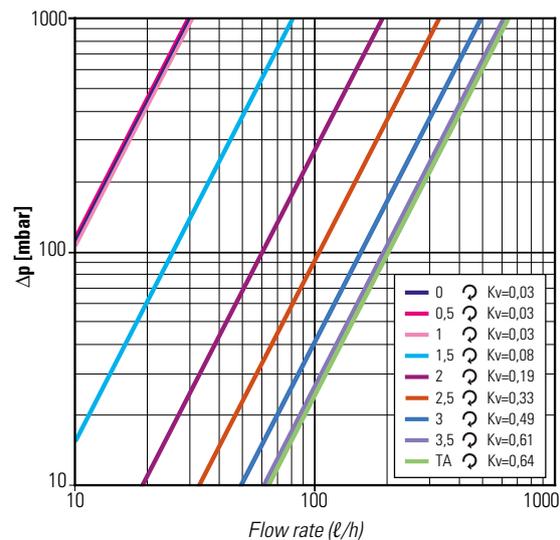
Once the manifold flow rates have been set, pop up the collar to lock the setting.

Range of measurement	0-4 l/min
Maximum operating pressure	6 bars
Max. operating temperature	90 °C
Kv = 0.15 (1 l/min) -0.55 (4 l/min)	
Kv max off scale	= 0.9
Precision	±10% fs
fs = Bottom of scale	

Cleaning the flowmeter tube

Turn the red collar (1) clockwise, until the isolating function is fully closed. Remove the flowmeter tube by securing the black spanner flats, then using either hand pressure or a 17mm ring spanner, gently unscrew the flowmeter tube anticlockwise. Clean the tube and screw it back on. Turn the red collar (1) anticlockwise until the isolating valve is fully open again.

Flow meter pressure drop with return electro-thermic body fully open



🌀 no. of turns for opening adjustment device ②

TA = All open. The above values refer to water temperature 15 °C.;

$$\Delta p = \Delta p \text{ flow} + \Delta p \text{ return};$$