

KTCM 512



Combined control & balancing valves for small terminal units

Pressure independent balancing and control valve –

For modulating control



Engineering
GREAT Solutions

KTCM 512

High-performing and compact, these pressure-independent temperature control valves for variable flow heating and cooling systems, are especially suitable for fan-coil applications. Also suitable for use on the secondary side in district heating and comfort cooling systems. Rust protection is assured due to the electrophoretically painted ductile iron body.



Key features

- > **Inline design**
Inline flow allows high pressure drops without noise.
- > **Adjustable flow**
Ensures the design flow.
- > **Self-sealing measuring points**
For quick and easy measurement.

Technical description

Application:

Heating and cooling systems with variable flow.

Functions:

Temperature control, differential pressure control over the built-in control valve and flow control.

Dimensions:

DN 15-20

Pressure class:

PN 25

Max. differential pressure (Δp_V):

800 kPa = 8 bar

Pressure drop across control part of the valve (Fc):

LF/NF: 20 kPa

HF: 40 kPa

Temperature:

Max. working temperature: 120°C

Min. working temperature: -10°C

Setting range:

Maximum flow is adjustable up to 800 l/h (NF), 210 l/h (LF) and 1 150 l/h (HF).

Delivery setting: Position 10 (fully open).

Media:

Water and neutral fluids, water-glycol mixtures.

Material:

Valve body: Ductile iron EN-GJS-400

Diaphragms and gaskets: EPDM

Surface treatment:

Electrophoretic painting.

Marking:

TA, DN, PN, Kvs, material and flow direction arrow.

Identification ring on measuring point:

White = Low flow (LF)

Black = Normal flow (NF)

Red = High flow (HF)

Max. lift of the control valve:

4 mm

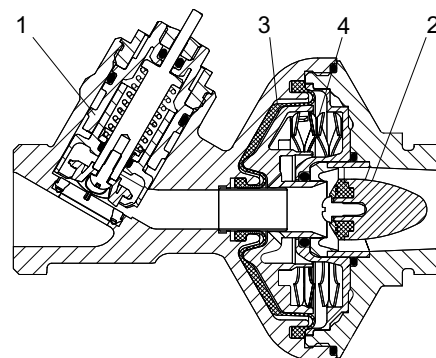
Operating function

The control valve with integrated balancing (1) and the diaphragm operated differential pressure controller (2) are built in series in a common valve body.

Pressure upstream of the control and balancing part of the valve acts through an internal impulse pipe to the inlet side of the diaphragm (3).

Pressure downstream of the control and balancing part of the valve acts to the outlet side of the diaphragm together with a spring force (4).

The spring force corresponds to a 20 kPa (LF/NF) or 40 kPa (HF) pressure difference on the diaphragm. The pressure from the differential pressure controller relieves the control and balancing part of the valve, and at the same time limits the flow to the preset value.



Sizing

The valve is capable of a maximum flow of 210 l/h (LF), 800 l/h (NF) or 1 150 l/h (HF).

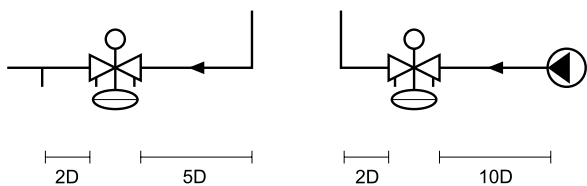
Minimum pressure drop needed for the valves to operate are 25 kPa (LF/NF) and 45 kPa (HF).

Installation

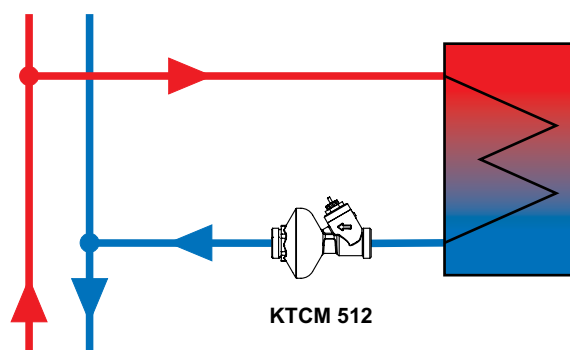
Install in supply or return pipe. Flow direction is shown by the arrow on the valve body. Install the valve so that the control and balancing part of the valve and the measurement points are accessible. Check allowed positions of the actuator. Installation of a strainer upstream of the valve is recommended. Install the actuator after performing a leakage test.

Normal pipe fittings

Try to avoid mounting taps and pumps immediately before the valve.



Application example

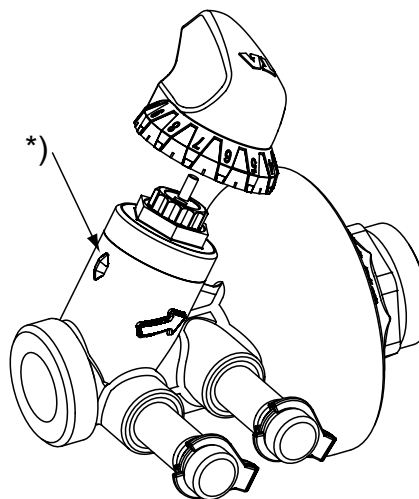


Setting

KTCM is delivered preset at position 10 (fully open). Presetting of a valve for a given flow, e.g. corresponding to position 8, is done as follows:

1. Place the presetting tool, Article No 52 133-100, at the valve.
2. Turn the presetting tool so that position 8 is pointing at the index* of the valve body.
3. Remove the presetting tool. The valve is now pre-set.

The charts under "Flow measuring" show flow at various positions of presetting.



Flow measuring

To measure the flow through the valve, use TA's balancing or measuring instruments. The actuator must be in fully open position or removed. The measuring points are self-sealing.

Remove the caps and insert the probes through the seals. After measuring replace the caps. Recommended setting: Position 3-10

KTCM 512 LF (low flow)

Position	Flow [l/h]	Kv
1	35	0,06
2	45	0,10
3	75	0,16
4	105	0,23
5	135	0,28
6	160	0,35
7	170	0,37
8	180	0,40
9	195	0,44
10	210	0,47

KTCM 512 NF (normal flow)

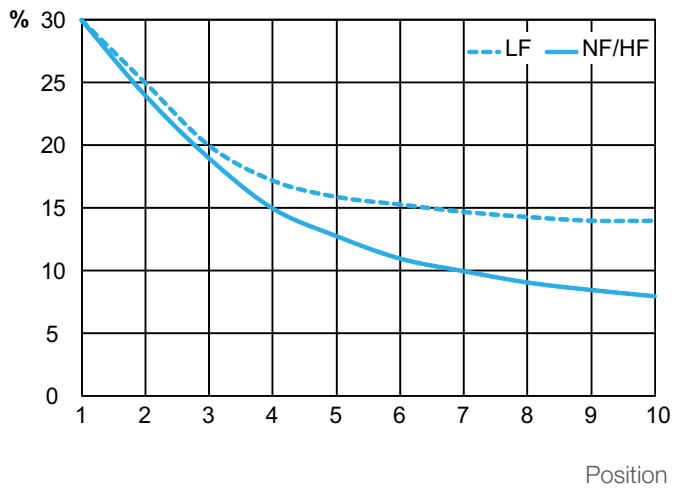
Position	Flow [l/h]	Kv
1	70	0,15
2	85	0,18
3	115	0,22
4	195	0,40
5	290	0,61
6	350	0,78
7	410	0,96
8	550	1,20
9	710	1,62
10	800	1,90

KTCM 512 HF (high flow)

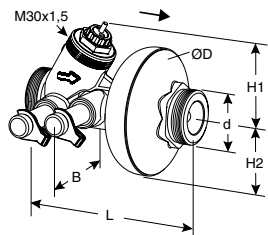
Position	Flow [l/h]	Kv
1	100	0,19
2	125	0,21
3	150	0,29
4	265	0,40
5	405	0,61
6	505	0,78
7	605	0,96
8	775	1,20
9	1025	1,62
10	1150	1,90

Measuring accuracy

Kv deviation at different settings



Articles

**Male thread**

Threads according to ISO 228

Fc = 20 kPa

DN	d	D	L	H1	H2	B	Kvd	Q _{max} [l/h]	Kg	EAN	Article No
KTCM 512 LF (low flow)											
20	G1	78	110	53	39	58	4	210	0,9	-	52 792-120
KTCM 512 NF (normal flow)											
20	G1	78	110	53	39	58	4	800	0,9	-	52 792-320

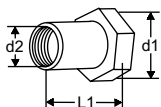
Fc = 40 kPa

DN	d	D	L	H1	H2	B	Kvd	Q _{max} [l/h]	Kg	EAN	Article No
KTCM 512 HF (high flow)											
20	G1	78	110	53	39	58	4	1 150	0,9	-	52 795-920

→ = Flow direction

Kvd = Is the Kv value of the differential pressure control component when fully open.

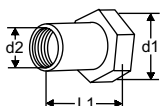
Connections



With female thread

Threads according to ISO 228.
Swivelling nut

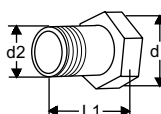
d1	d2	L1*	EAN	Article No
G1	G1/2	26	3831112501027	52 759-015
G1	G3/4	32	3831112501034	52 759-020



With female thread Rc

Threads according to ISO 7-1
Swivelling nut

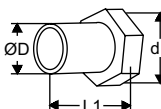
d1	d2	L1*	EAN	Article No
G1	Rc1/2	26	3831112527454	52 751-301
G1	Rc3/4	32	3831112527461	52 751-302



With male thread

Threads according to ISO 7
Swivelling nut

d1	d2	L1*	EAN	Article No
G1	R1/2	34	3831112500983	52 759-115
G1	R3/4	40	3831112500990	52 759-120



For welding

Swivelling nut

d1	D	L1*	EAN	Article No
G1	20,8	37	3831112500945	52 759-315
G1	26,3	42	3831112500952	52 759-320

*) Fitting length (from the gasket surface to the end of the connection).

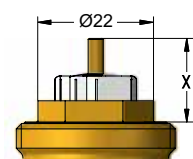
Accessories



Presetting tool

For TBV-C, TBV-CM, TBV-CMP,
KTCM 512

EAN	Article No
7318793886002	52 133-100



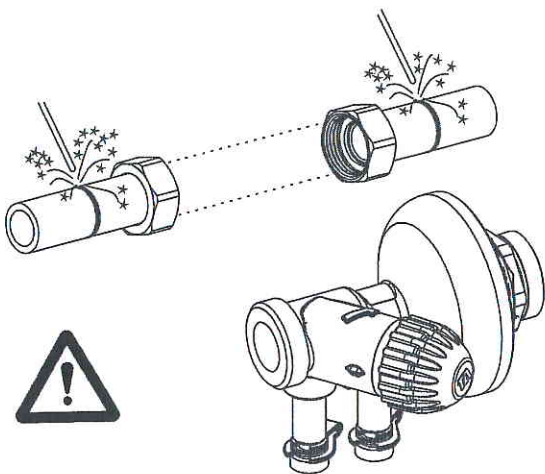
Actuator EMO TM

For more details of EMO TM, see separate catalogue leaflet.

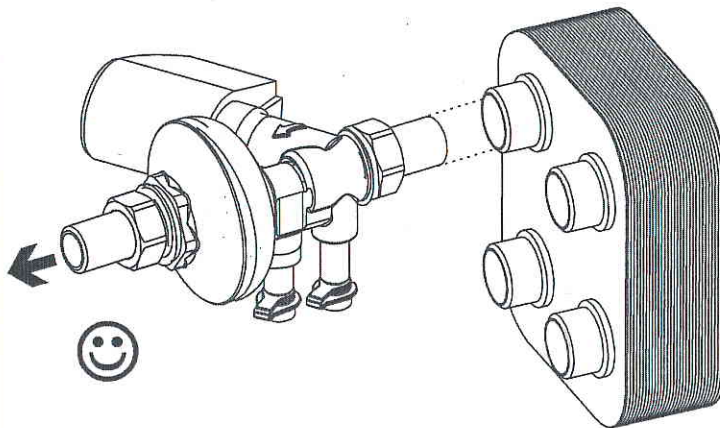
KTCM 512 is developed to work together with the EMO TM actuator. Actuators of other brands require a working range of:

X = 11,50 - 15,80 (closed - fully open)

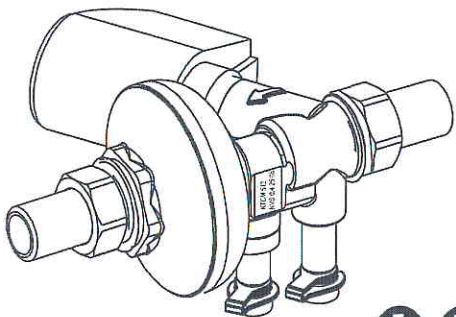
IMI Hydronic Engineering will not be held responsible for the control function if actuators other brand than IMI TA are used.



1

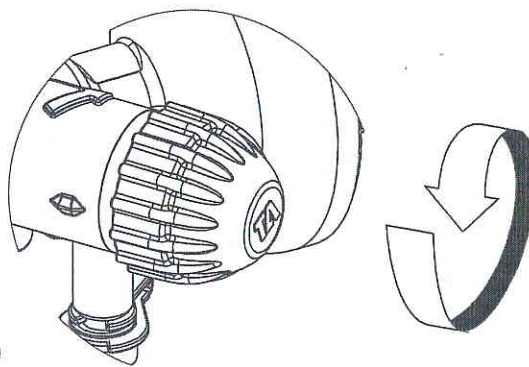


2



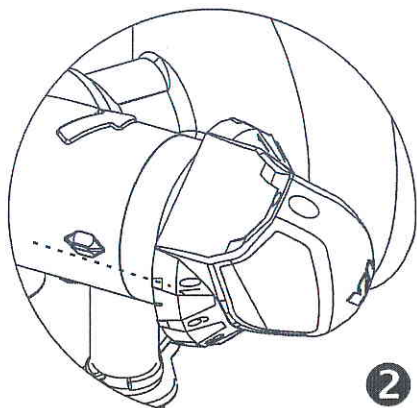
1 2 3 4

3



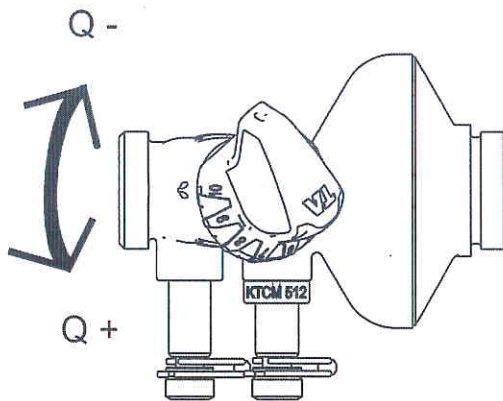
1

4



2

5

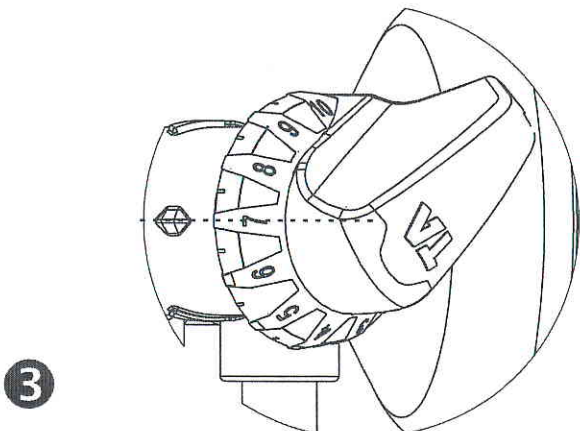


Q -

Q +

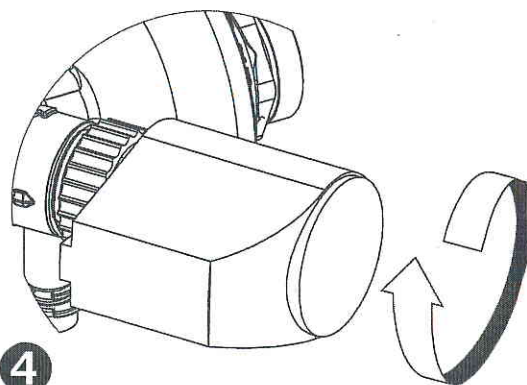
Position	LF	NF	HF
	Low Flow (l/h)	Normal Flow (l/h)	High Flow (l/h)
1	35	70	125
2	45	85	135
3	75	115	180
4	105	195	265
5	135	290	405
6	160	350	505
7	170	410	605
8	180	550	775
9	195	710	1025
10	210	800	1150

6



3

7



4

8