Climate
Control

IMI TA

TA-6-way valve

Standard control valves

6-way valve for change-over systems

Breakthrough
engineering for
a better world

TA-6-way valve

The 6-way valve solution enables various control set-ups for heating and cooling in sequence on one terminal unit. Provides automatically adopted settings of maximum flows for heating and cooling modes together with TA-Modulator and TA-Slider 160 CO, TA-Slider 160 KNX R24 or TA-Slider 160 BACnet/Modbus CO.

Key features

Easy commissioning and balancing
Provides automatically adopted settings of max. flows for heating and cooling mode together with TA-Modulator and TA-Slider 160 CO, TA-Slider 160 KNX R24 or TA-Slider 160 BACnet/Modbus CO.

Precise flow control
Provides uniquely shaped EQM characteristic for best modulating control together with TA-Modulator.

Easy troubleshooting
Provides flow and differential pressure measuring for system diagnostics and pump optimization together with TA-Modulator.

Compact installation
Saves space by using one terminal unit for heating and cooling.

Technical description – Valve

Application:
Heating and cooling systems.
(Change-over system)

Functions:
Control

Dimensions:
DN 15-20

Pressure class:
PN 16

Max. differential pressure (ΔpV):
200 kPa

Temperature:
Max. working temperature: 120°C
Min. working temperature: -10°C

Media:
Water or neutral fluids, water-glycol mixtures (0-57%).

Leakage rate:
Level A (EN 12266-1/12 - P12)

Characteristics:
Linear, best suited for on/off control.

Material:
Valve body: Brass CW602N CuZn36Pb2As (322203-13001: Brass CW617N CuZn40Pb2)
Balls: Brass CW614N CuZn39Pb3
Spindles: Brass CW614N CuZn39Pb3
Seats: PTFE
O-rings: EPDM (Perox)

Surface treatment:
Valve body: Nickel-plated or non-plated (raw finish).
Spindles and balls: Nickel-plated.

Marking:
IMI TA, PN, DN.

Connection:
External thread according to ISO 228.
- Eurocone
- Flat faced ends
Internal thread according to ISO 228.

Connection to actuator:
F03 and F04 according to EN ISO 5211.

Angle of rotation:
90°

Actuators:
TA-M106, TA-M106 CO, TA-MC106Y

Technical description – Actuator

Functions:
Proportional control
3-point control
Manual override

Supply voltage:
TA-M106/24: 24 VAC +6% -10%
TA-M106/230: 230 VAC +6% -10%
TA-M106 CO: 24 VAC +6% -10%
TA-MC106Y: 24 VAC ±10%

Frequency:
50/60 Hz ±5%.

Power consumption:
TA-M106, TA-M106 CO: 3.5 VA
TA-MC106Y: 3.0 VA

Input signal:
TA-M106, TA-M106 CO: 3-point
TA-MC106Y: 0(2)-10 VDC, R_i 77 kΩ.
(0-10, 10-0, 2-10, 10-2)

Output signal:
TA-MC106Y: 0-10 VDC (0-10, 10-0), max. 8 mA, min. 1.2 kΩ.

Actuating time:
(at 50 Hz/90°)
TA-M106, TA-M106 CO: 130 s
TA-MC106Y: 80 s

Adjusting torque:
8 Nm

Temperature:
Medium temperature: max. 80°C
Operating environment: 0°C - +50°C

Ingress protection:
IP43

Protection class:
EN 60730
24 VAC: III
230 VAC: II

End position switch-off:
Fixed at 90°

Cable:
1,5 m, three wire (0,5 mm²) with wire end ferrule.
CO version: With connector to actuator TA-Slider 160 CO or TA-Slider 160 BACnet/Modbus CO instead of wire end ferrules.

Colour:
Orange RAL 2011, grey RAL 7043.

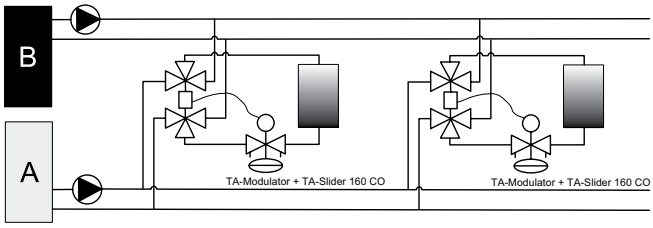
Marking:
Label: IMI TA, CE, product name and technical specification.

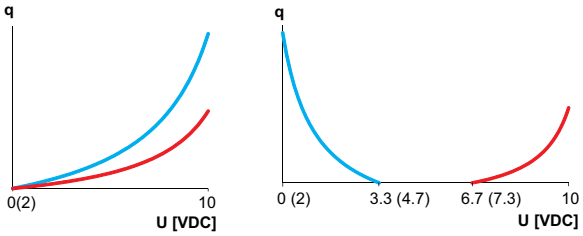
Connection to valve:
F04 according to EN ISO 5211.

Angle of rotation:
90°

Application examples

Control via the actuator TA-Slider 160 CO, TA-Slider 160 KNX R24 or TA-Slider 160 BACnet/Modbus CO and the pressure independent control valve TA-Modulator
(See connection diagrams TA-Slider 160 CO + TA-M106 CO, TA-Slider 160 KNX R24 + TA-M106 and TA-Slider 160 BACnet/Modbus CO + TA-M106 CO)

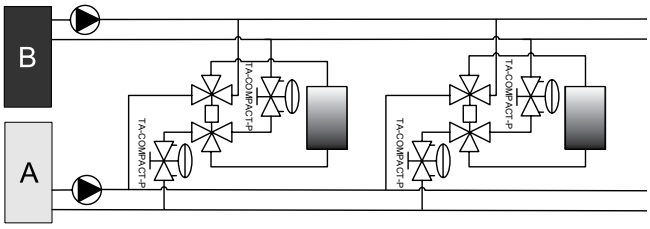




- EQM valve characteristic for best modulating control.
- High valve authority thanks to pressure independent control valve.
- Automatically adopted flow settings for heating and cooling mode.
- The 6-way valve for change-over between heating and cooling.

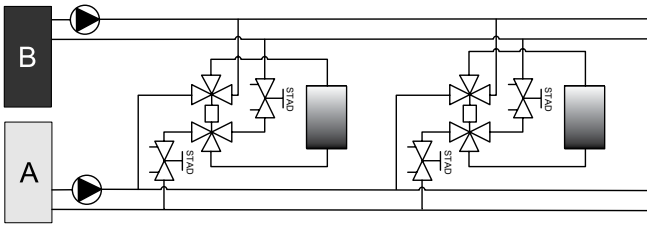
For more details on TA-Slider actuators, see separate technical leaflets.

Control via the actuator TA-MC106Y and the TA-6-way valve
(See connection diagram TA-MC106Y)



- Valve characteristic best suited for on/off-control.
- Pressure independent flow settings for heating and cooling mode with the valve TA-COMPACT-P.

Control via the actuator TA-MC106Y and the TA-6-way valve
(See connection diagram TA-MC106Y)

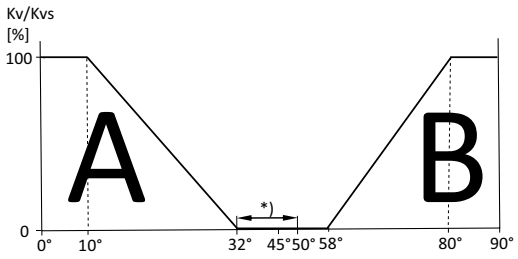


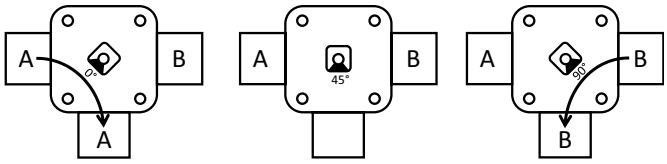
- Valve characteristic best suited for on/off-control.
- Flow balancing of heating and cooling mode with the valve STAD.

Note: Differential pressure control with STAP/STAD is recommended in branches for pressure independent modules.

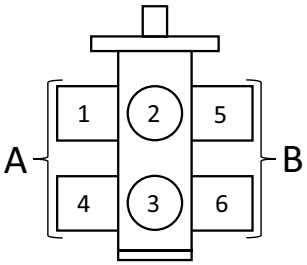
Installation

Flow distribution





*) Pressure balance function: Pressure connection between port 1 and 2, at 32° to 50°, for proper pressurisation of the terminal at zero flow. **NOTE!** Any control valve should be connected to port 3.

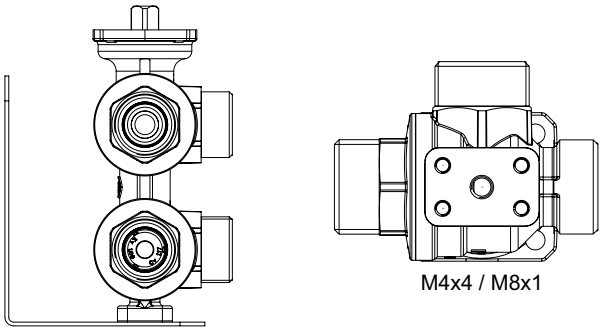


Pressurisation

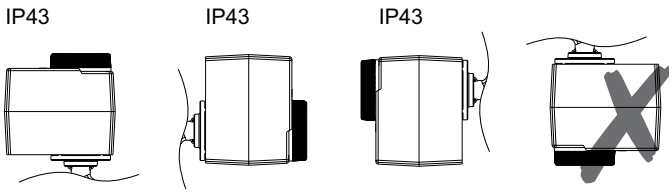
NOTE! When designing the pressurisation system: please consider that change-over systems have hydraulic interaction between the cooling and the heating system via the terminals, which cause a fluid mass transfer from the cooling to the heating system. For further information please contact IMI.

Example valve + bracket

See “Accessories”



TA-M106, TA-M106 CO, TA-MC106Y



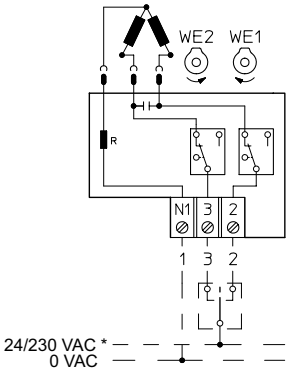
Connection diagram – Terminal/Description

Terminal	Description
S	Shielding, line should be connected at one end to a specific shielding terminal connected itself to EARTH.
L24	Power supply 24 VAC
M	Neutral for power supply 24 VAC and signals
A (Data+)	Data+ (RS 485)
B (Data-)	Data- (RS 485)
Y_V	Input signal for proportional control 0(2)-10 VDC, 47 kΩ
X_V	Output signal 0(2)-10 VDC, max. 8 mA or min. load resistance 1.25 kΩ
B	Connection for potential free contact (e.g. open window detection), max. 100 Ω, max. 10 m cable or shielded
T1	Connection for Pt1000 temperature sensor, to be connected between T1 and M, max. 10 m total cable length between actuator and sensor head.
T2	Second connection for Pt1000 temperature sensor, to be connected between T2 and M, max. 10 m total cable length between actuator and sensor head.
COM	Common relay contact; CO version: to connect TA-M106 CO actuator. KNX R24 version: Max. 30 VAC/VDC, max. 2A on resistive load (to connect TA-M106 24 VAC 3-point, see “Connection diagram”).
NC	Normally closed contact for relay
NO	Normally open contact for relay

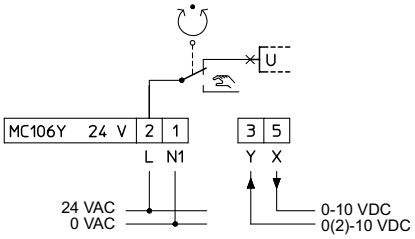
24 VAC/VDC operating only with safety transformer according to EN 61558-2-6.

Connection diagram

TA-M106
3-point

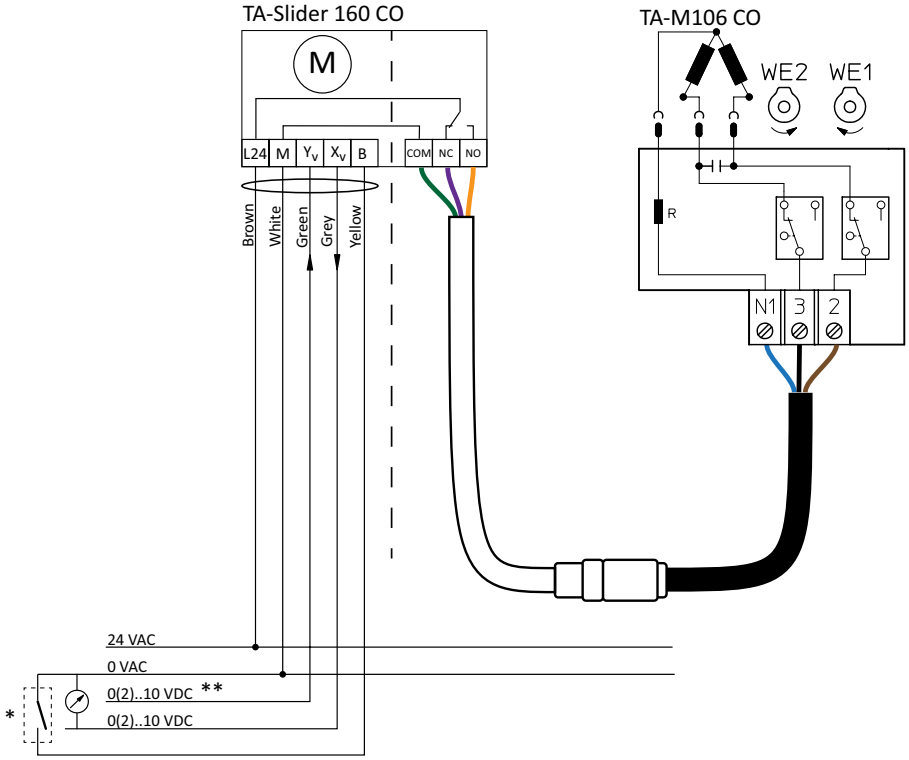


TA-MC106Y
Proportional (0(2)-10 VDC)



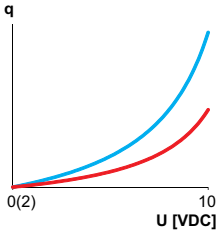
*) Depending on TA-M106 version.

TA-Slider 160 CO + TA-M106 CO
(See Application example 1)

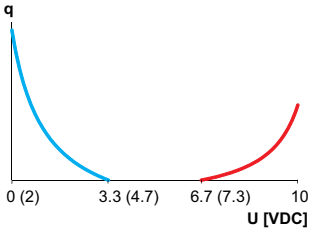


*) Binary input can be used to toggle between heating and cooling mode as an alternative to the dual-range signal.
**) Dual range signal 0-3.3/6.7-10 VDC, 2-4.7/7.3-10 VDC, 0-4.5/5.5-10 VDC or 2-5.5/6.5-10 VDC.

Modulating control

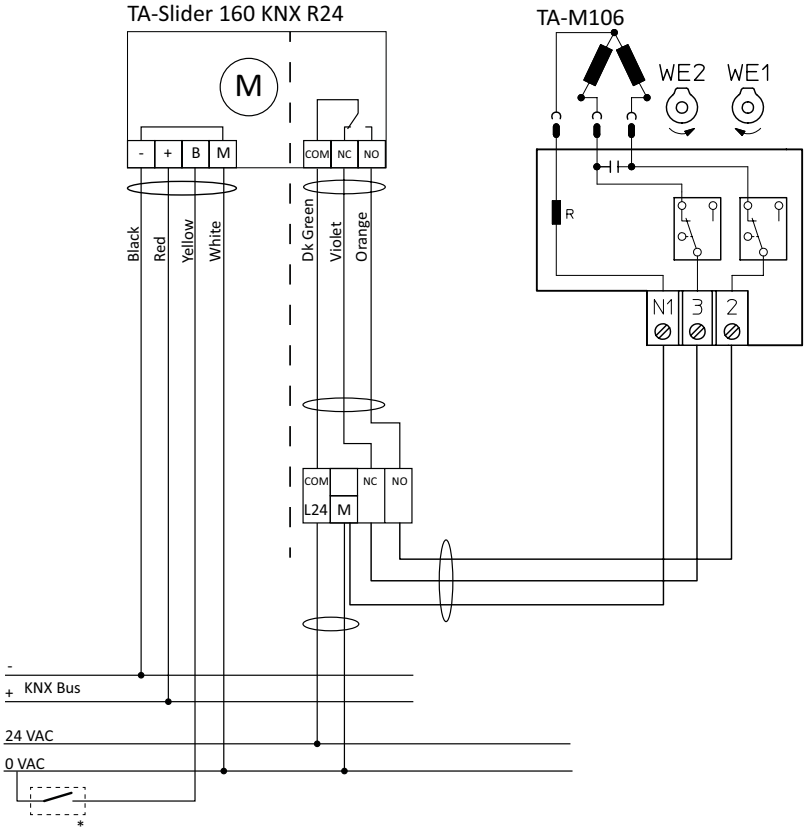


Dual range modulating control



TA-Slider 160 KNX R24 + TA-M106
(See Application example 1)

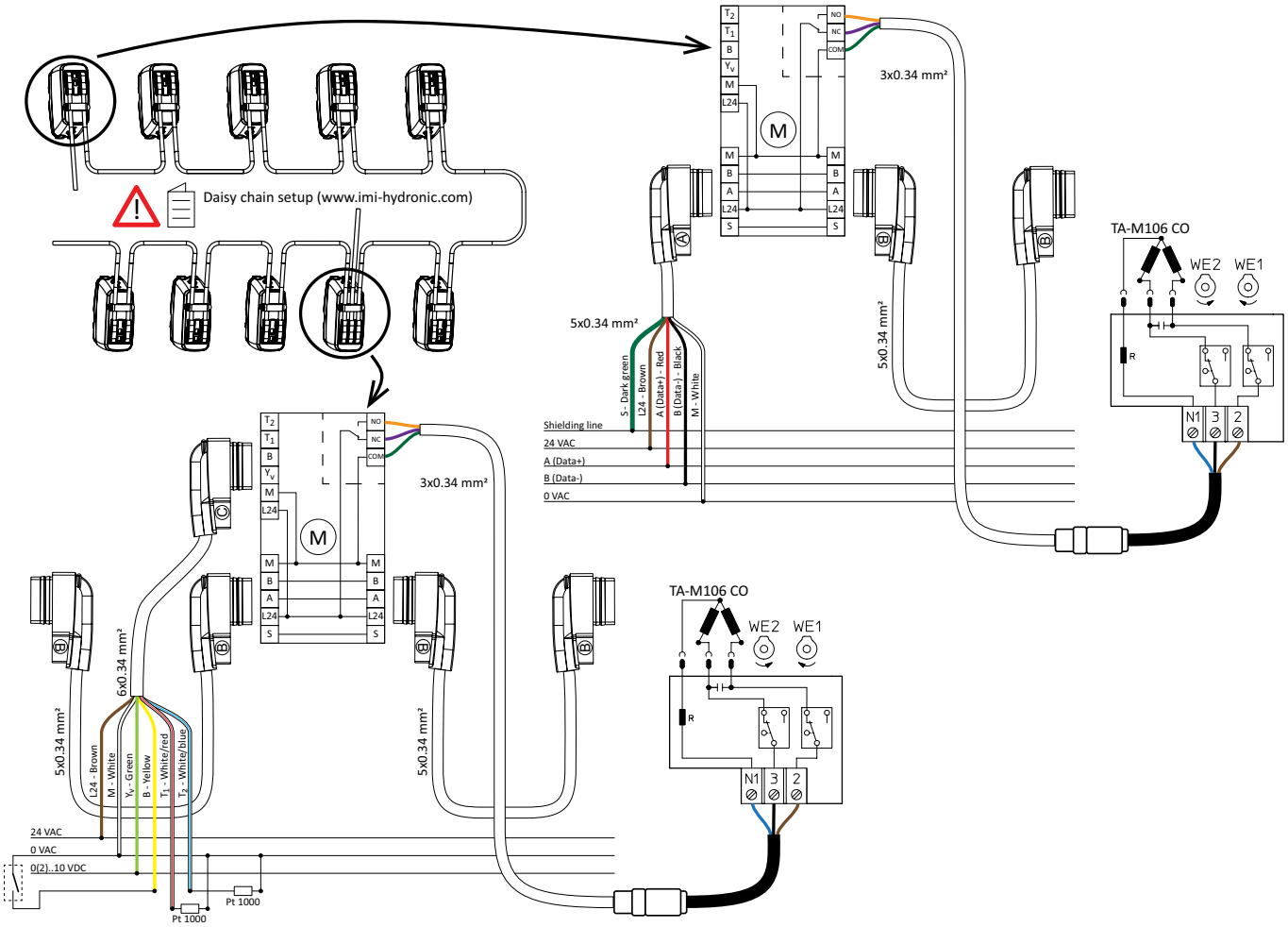
Control by KNX bus



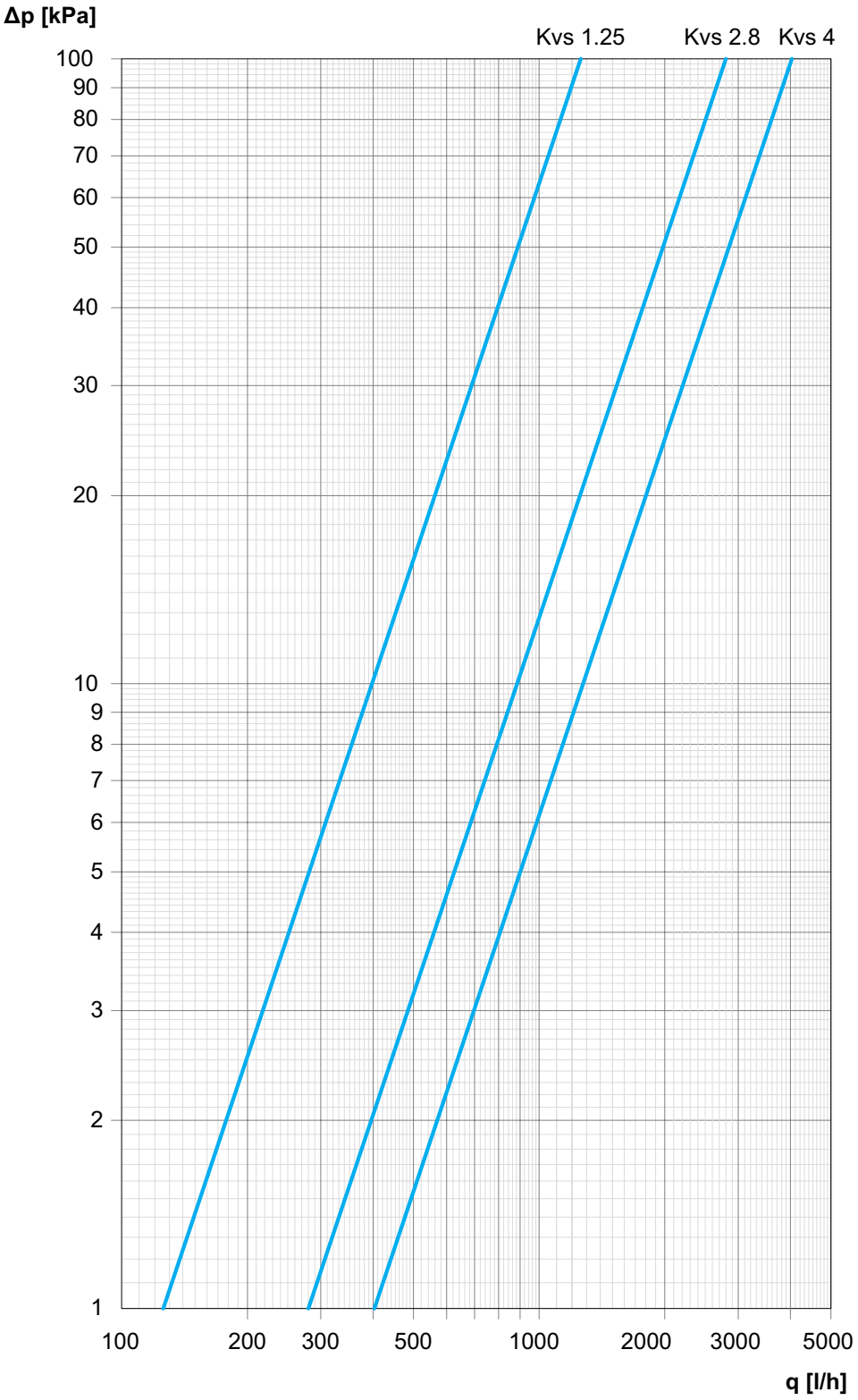
*) Binary input can be used to toggle between heating and cooling mode as an alternative to toggling by KNX bus.

TA-Slider 160 BACnet/Modbus CO + TA-M106 CO
(See Application example 1)

Control by BACnet/Modbus

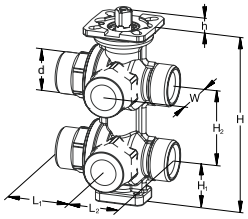


Diagram



Kvs = Kv of both ball valves fully open (A and B side equal)

Articles



External thread

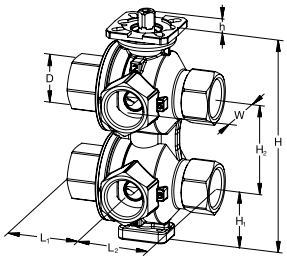
Thread according to ISO 228.

Nickel-plated

DN	d	L1	L2	H	H1	H2	h	W	Kvs	Kg	EAN	Article No
Flat faced ends												
15	G3/4	42	34	117	29	50	9,4	35	1,25	1,0	8016603306090	322203-13000

Non-plated (raw finish)

DN	d	L1	L2	H	H1	H2	h	W	Kvs	Kg	EAN	Article No
Flat faced ends												
15	G3/4	42	34	117	29	50	9,4	35	1,25	1,0	8016603308186	322031-30402
15*	G3/4	47	39	141	37	60	9,4	41	2,80	1,9	8016603309466	322031-30500
Eurocone												
15	G3/4	42	34	117	29	50	9,4	35	1,25	1,0	8016603308162	322031-30403
15*	G3/4	47	42,5	141	37	60	9,4	41	2,80	1,9	8016603309411	322031-30501



Internal threads

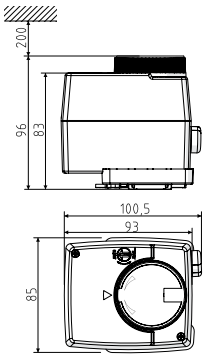
Thread according to ISO 228.

Non-plated (raw finish)

DN	D	L1	L2	H	H1	H2	h	W	Kvs	Kg	EAN	Article No
20	G3/4	47,5	47,5	141	37	60	9,4	40	4,00	2,0	8016603310219	322031-30504

Valve and actuator to be ordered and delivered separately.

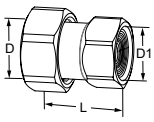
*) Body marked with DN 20 (connections DN 15).



TA-M106/TA-M106 CO/TA-MC106Y actuators

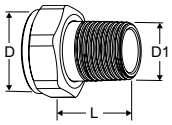
	Supply voltage	Input signal	Kg	EAN	Article No
TA-M106	24 VAC	3-point	0,5	5902276884016	322204-29000
TA-M106	230 VAC	3-point	0,5	5902276884023	322204-29001
TA-M106 CO	24 VAC	3-point	0,5	5901688829639	322042-90000
TA-MC106Y	24 VAC	0(2)-10 VDC	0,5	5902276884030	322204-29002

Connections – For flat faced ends



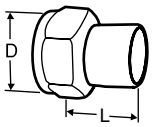
With internal thread
Threads according to ISO 228. Thread length according to ISO 7-1.
Swivelling nut

Valve DN	D	D1	L*	EAN	Article No
15	G3/4	G1/2	31,5	5902276820038	52 009-815
15	G3/4	G3/4	36,5	5902276820045	52 009-915



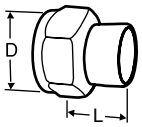
With external thread
Threads according to ISO 7-1.
Swivelling nut

Valve DN	D	D1	L*	EAN	Article No
15	G3/4	R1/2	29	4024052516612	0601-02.350



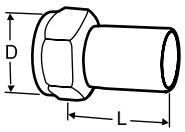
Welding connection
Swivelling nut

Valve DN	D	Pipe DN	L*	EAN	Article No
15	G3/4	15	36	7318792748509	52 009-015



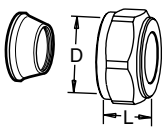
Soldering connection
Swivelling nut

Valve DN	D	Pipe Ø	L*	EAN	Article No
15	G3/4	15	13	7318792749308	52 009-515
15	G3/4	16	13	7318792749407	52 009-516



Connection with smooth end
For connection with press coupling
Swivelling nut

Valve DN	D	Pipe Ø	L*	EAN	Article No
15	G3/4	15	39	7318793810601	52 009-315

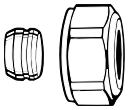


Compression connection
Support bushes shall be used, for more information see catalogue leaflet FPL.
Should not be used with PEX pipes.
Chrome plated

Valve DN	D	Pipe Ø	L**	EAN	Article No
15	G3/4	15	27	7318793705006	53 319-615
15	G3/4	18	27	7318793705105	53 319-618
15	G3/4	22	27	7318793705204	53 319-622

*) Fitting length (from the gasket surface to the end of the connection).
**) Over all length L refers to unassembled coupling.

Connections – For eurocone

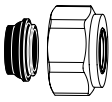


Compression fitting for copper or steel pipes
For eurocone
Metal-to-metal sealing
Support bushes shall be used.

Ø Pipe	EAN	Article No
12	4024052214211	3831-12.351
14	4024052214310	3831-14.351
15	4024052214617	3831-15.351
16	4024052214914	3831-16.351
18	4024052215218	3831-18.351

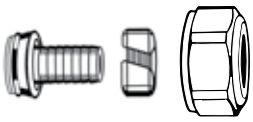
Support sleeve
for copper or precision steel pipe with a 1 mm wall thickness.
Brass.

Ø Pipe	L	EAN	Article No
12	25,0	4024052127016	1300-12.170
15	26,0	4024052127917	1300-15.170
16	26,3	4024052128419	1300-16.170
18	26,8	4024052128815	1300-18.170



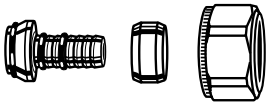
Compression fitting for copper or steel pipes
For eurocone
Nickel plated, soft sealing (EPDM)

Ø Pipe	EAN	Article No
15	4024052515851	1313-15.351
18	4024052516056	1313-18.351



Compression fitting for plastic pipes
For eurocone

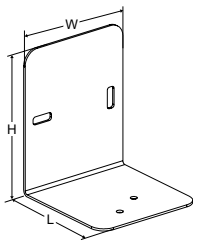
Ø Pipe	EAN	Article No
12x1,1	4024052136018	1315-12.351
14x2	4024052134618	1311-14.351
16x1,5	4024052136117	1315-16.351
16x2	4024052134816	1311-16.351
17x2	4024052134915	1311-17.351
18x2	4024052135110	1311-18.351
20x2	4024052135318	1311-20.351



Compression fitting for multi-layer pipes
For eurocone

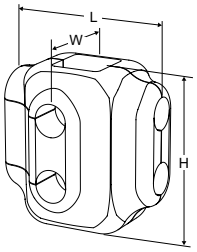
Ø Pipe	EAN	Article No
16x2	4024052137312	1331-16.351

Accessories



Bracket
For easier mounting on walls or ceilings.
2 pcs of M4 screws for fixing the valve to the bracket are included in the package.

L	H	W	EAN	Article No
80	100	80	8016603308032	322031-30000



Insulation
For heating and cooling.
Max. temperature: 90°C
Shell thickness: 16 mm.
Material: Cross-linked polyethylene foam, density external layer 80 kg/m^3, internal layer 29 kg/m^3.
Fire class: B2 – DIN 4102 and 1 – UNI 9177.

Valve DN	L	H	W	EAN	Article No
15	125	125	90	5902276805714	322031-30405
15* / 20	120	140	100	5902276805721	322031-30508

*) Body marked with DN 20 (connections DN 15).