

Climate
Control

IMI TA

TA-Nano



Combined control & balancing valves for small terminal units

Pressure independent balancing and control valve (PIBCV)

TA-Nano

The pressure-independent balancing and control valve TA-Nano ensures optimum performance over a long life. Adjustable maximum flow enables design flow and eliminates overflows for accurate hydronic control. The TA-Nano Plus together with our balancing instruments enables advanced measuring and diagnostics.

Key features

Standard and Plus version

Flexibility for customer needs.
Standard: no measuring points
Plus: measuring points and flushing

Smallest PIBCV in the market fitting within the most constrained area

Slim and compact shape simplifies installation.

Precise hydronic balancing

Smoothly adjustable setting of max. flow prevents over flow through terminal unit.

Full control of the system (Plus)

Exact flow measuring and unique diagnostic functions for ultimate energy savings and highly reliable system.

Precise setting and ease of commissioning

Valve position visible when actuator is mounted, easy valve identification with colour coding.

High reliability

High resistance to corrosion using AMETAL®, strong resistance to dirt and completely tight valve.



Technical description

Application:

Heating and cooling systems.

Functions:

Control
Pre-setting (max. flow)
Differential pressure control
Measuring (ΔH , T, q) *
Flushing *
Isolation (for use during system maintenance – see also Leakage rate)
*) Plus version only

Dimensions:

DN 10-25

Pressure class:

PN 25

Differential pressure (ΔpV):

Max. differential pressure (ΔpV_{max}):
600 kPa = 6 bar
Min. differential pressure (ΔpV_{min}):
DN 10 NF/15 LF/15 NF:
15 kPa = 0.15 bar
DN 15 HF: 20 kPa = 0.20 bar
DN 20 NF: 18 kPa = 0.18 bar
DN 20 HF: 30 kPa = 0.30 bar
DN 25 NF: 25 kPa = 0.25 bar

(Valid for position 10, fully open. Other positions will require lower differential pressure, check with the software HySelect.)

ΔpV_{max} = The maximum allowed pressure drop over the valve to fulfill all stated performances.

ΔpV_{min} = The minimum recommended pressure drop over the valve, for proper differential pressure control.

Flow range:

The flow (q_{max}) can be set within the range:

DN 10 NF: 18 - 180 l/h
DN 15 LF: 28 - 280 l/h
DN 15 NF: 54 - 540 l/h
DN 15 HF: 95 - 950 l/h
DN 20 NF: 120 - 1200 l/h
(DN 20 HF: 160 - 1600 l/h)
(DN 25 NF: 220 - 2200 l/h)

q_{max} = l/h at each setting and fully open valve plug.

LF = Low flow

NF = Normal flow

HF = High flow

Temperature:

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

Note: If the medium temperature is below 2 °C, then ice forming on the spindle must be prevented. Therefore valves should be insulated with vapor tight insulation (stem extension can be used). IMI valves were tested for performance and durability with mono-ethylene as well as mono-propylene glycol up to a concentration of 57%.

Media:

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

Lift:

4 mm

Leakage rate:

Tight sealing (Class VI according to EN 60534-4).

Characteristics:

Linear, best suited for on/off control.

Material:

Valve body: AMETAL®
Valve insert: AMETAL® and PPS
Valve plug: PPS
Spindle: Stainless steel
Spindle seal: EPDM O-ring
 Δp insert: Brass CW614
Membrane: EPDM
Springs: Stainless steel
O-rings: EPDM
Setting wheel: PA

Measuring points: AMETAL®
Sealings: EPDM
Caps: Polyamide and TPE

AMETAL® is the dezincification resistant alloy of IMI.

Marking:

IMI, PN, DN and flow direction arrow.
Insert: TA-Nano, DN (+LF/NF/HF)
LF: Red insert.
NF: White insert.
HF: Grey insert.

Connection:

Internal thread according to ISO 7.
External thread according to ISO 228.

Connection to actuator:

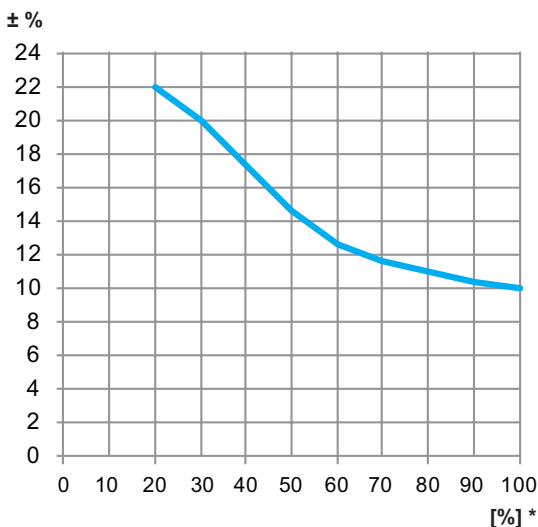
M30x1.5

Actuators:

See separate technical documentation on EMO T*, EMO TM*, TA-TRI and TA-Slider 160.

Measuring accuracy

Maximum flow deviation at different settings



*) Setting (%) of fully open valve.

Correction factors

The flow calculations are valid for water (+20°C). For other liquids with approximately the same viscosity as water ($\leq 20 \text{ cSt} = 3^\circ \text{E} = 100 \text{ S.U.}$), it is only necessary to compensate for the specific density. However, at low temperatures, the viscosity increases and laminar flow may occur in the valves. This causes a flow deviation that increases with small valves, low settings and low differential pressures. Correction for this deviation can be made with the software HySelect or directly in our balancing instruments.

Noise

In order to avoid noise in the installation, the valve must be correctly installed and the water de-aerated.

Actuators

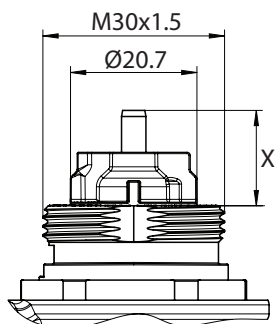
The valve is developed to work together with recommended actuators according to table. Care should be taken by the user to ensure that actuators not manufactured by IMI are fully compatible to provide optimal control from the valve. Failure to do so may provide unsatisfactory results.

See separate catalogue leaflets for more details about the actuators.

Actuators of other brands require;

Working range: X (closed - fully open) = 11,7 - 15,7

Closing force: Min. 100 N



Maximum recommended pressure drop (ΔpV) for valve and actuator combination

The maximum recommended pressure drop over a valve and actuator combination for close off (ΔpV_{close}) and to fulfill all stated performances (ΔpV_{max}).

DN	EMO T/EMO TM/TA-TRI/TA-Slider [kPa]
10	600
15	
20	
25	

ΔpV_{close} = The maximum pressure drop that the valve can close against from an opened position, with a specified force (actuator) without exceeding stated leakage rate.

ΔpV_{max} = The maximum allowed pressure drop over the valve to fulfill all stated performances.

Sizing

1. Choose the smallest valve size that can obtain the design flow with some safety margin, see " $q_{\max}$ values". The setting should be as open as possible.
2. Check that the available ΔpV is within the working range $\Delta pV_{\min}$ (according to DN) - 600 kPa.

$q_{\max}$ values

Low flow (LF)



Normal flow (NF)



High flow (HF)



	Position									
	1	2	3	4	5	6	7	8	9	10
DN 10 NF	18	36	54	72	90	108	126	144	162	180
DN 15 LF	28	56	84	112	140	168	196	224	252	280
DN 15 NF	54	108	162	216	270	324	378	432	486	540
DN 15 HF	95	190	285	380	475	570	665	760	855	950
DN 20 NF	120	240	360	480	600	720	840	960	1080	1200
(DN 20 HF) *	160	320	480	640	800	960	1120	1280	1440	1600
(DN 25 NF) *	220	440	660	880	1100	1320	1540	1760	1980	2200

$q_{\max}$ = l/h at each setting and fully open valve plug.

LF = Low flow

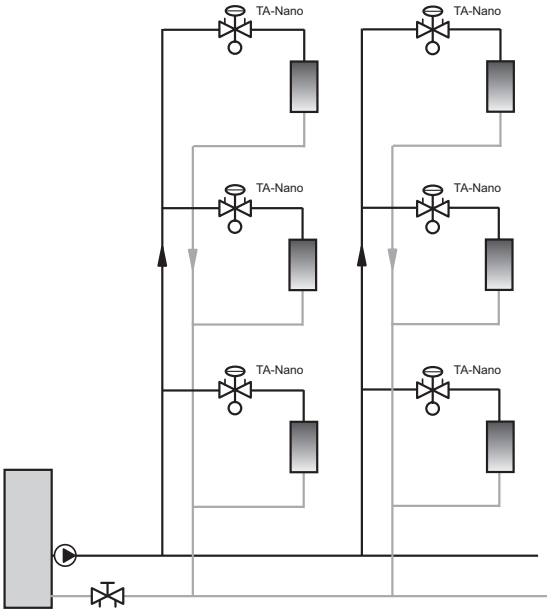
NF = Normal flow

HF = High flow

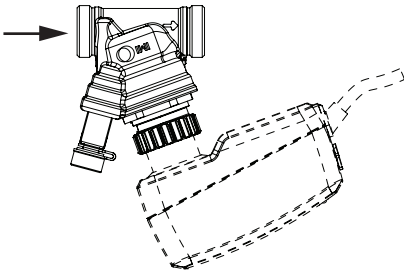
*) Launch Sep -25, values not yet verified.

Installation

Application example

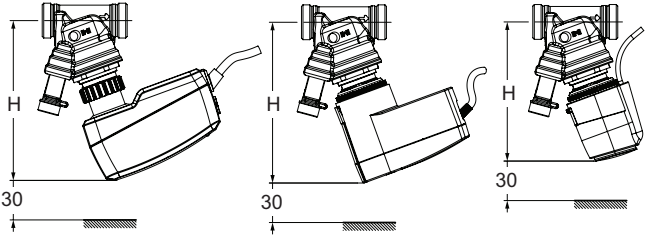


Flow direction



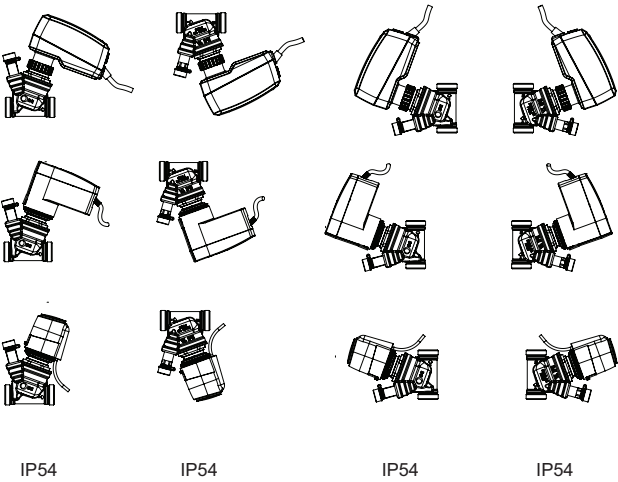
Installation of actuator

Note: Free space is required above the actuator for easy mounting/dismounting.



	TA-Slider 160 H	EMO T/TM H	TA-TRI H
DN 10-25	122	122	106

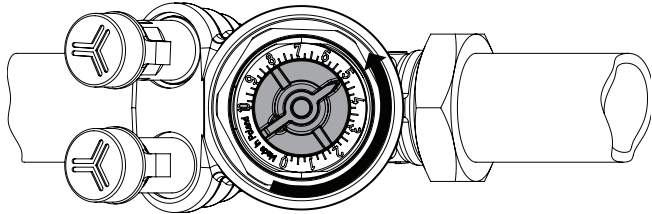
TA-Nano + TA-Slider / EMO T/TM / TA-TRI



Operating function

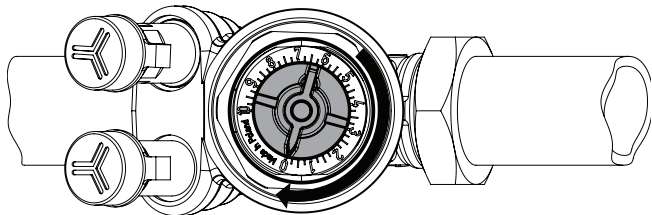
Standard / Plus versions

Setting



1. Turn the setting wheel to desired value, e.g. 5.0.

Shut-off



1. Turn the setting wheel clockwise to 0.

Plus version

Measuring q

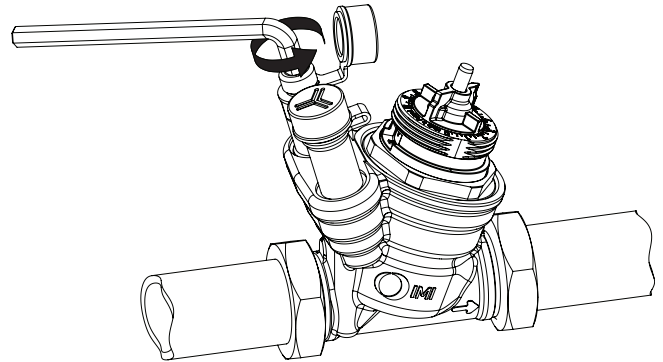
1. Remove the installed actuator.
2. Connect the IMI TA balancing instrument to the measuring points.
3. Input the valve type, size and setting and the actual flow is displayed.

Measuring ΔH

1. Remove any actuator.
2. Close the valve according to "Shut-off".
3. Connect IMI TA balancing instrument to the measuring points and measure.

Important! Reopen the valve to previous setting after the measurement is completed.

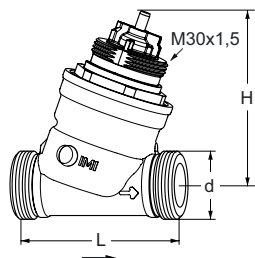
Flushing



1. Remove any actuator.
2. Open the valve fully, setting 10.
3. Bypass the Δp -part by inserting a 5 mm Allen key in red measuring point and open ≈ 1 turn anticlockwise.
4. Increase pump head to flush the valve.

Important! Set the valve to previous setting and close the bypass spindle after the flushing is completed.

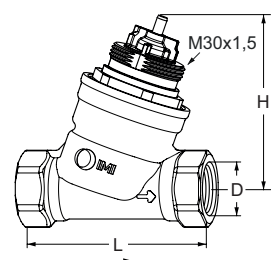
Articles - Standard, without measuring points



External thread

Threads according to ISO 228.

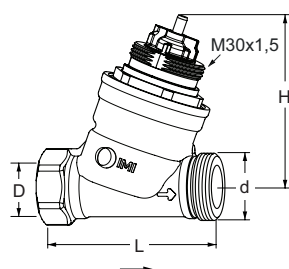
DN	d	L	H	q _{max} [l/h]	Kg	EAN	Article No
10 NF	G1/2	65	68	180	0,29	5902276824005	322213-00110
15 LF	G3/4	70	68	280	0,31	5902276824012	322213-00015
15 NF	G3/4	70	68	540	0,31	5902276824029	322213-00115
15 HF	G3/4	70	68	950	0,31	5902276824036	322213-00215
20 NF	G1	75	68	1200	0,35	5902276824043	322213-00120
20 HF	G1	75	68	1600	0,35	-	Launch Sep -25
25 NF	G1 1/4	82	68	2200	0,46	-	Launch Sep -25



Internal thread

Threads according to ISO 7.

DN	d	L	H	q _{max} [l/h]	Kg	EAN	Article No
15 LF	G1/2	75	68	280	0,38	-	Launch Sep -25
15 NF	G1/2	75	68	540	0,38	-	Launch Sep -25
15 HF	G1/2	75	68	950	0,38	-	Launch Sep -25
20 NF	G3/4	75	68	1200	0,40	-	Launch Sep -25
20 HF	G3/4	75	68	1600	0,40	-	Launch Sep -25
25 NF	G1	90	68	2200	0,63	-	Launch Sep -25



Internal thread x External thread

Threads according to ISO 7 x Threads according to ISO 228.

DN	D	d	L	H	q _{max} [l/h]	Kg	EAN	Article No
15 LF	G1/2	G3/4	70	68	280	0,54	-	Launch Sep -25
15 NF	G1/2	G3/4	70	68	540	0,54	5902276824333	322213-04115
15 HF	G1/2	G3/4	70	68	950	0,54	5902276824340	322213-04215

LF = Low flow

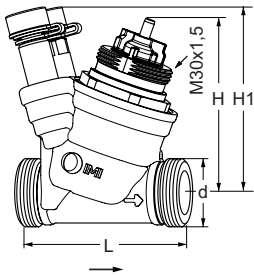
NF = Normal flow

HF = High flow

*) Connection to actuator.

→ = Flow direction

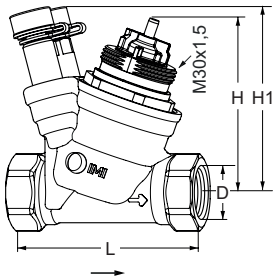
Articles - Plus, with measuring points



External thread

Threads according to ISO 228.

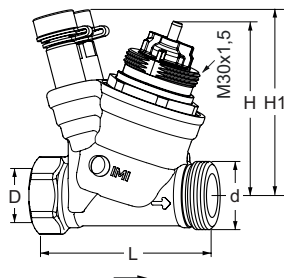
DN	d	L	H	H1	q _{max} [l/h]	Kg	EAN	Article No
10 NF	G1/2	65	68	72	180	0,43	-	Launch Sep -25
15 LF	G3/4	70	68	72	280	0,49	-	Launch Sep -25
15 NF	G3/4	70	68	72	540	0,49	-	Launch Sep -25
15 HF	G3/4	70	68	72	950	0,49	-	Launch Sep -25
20 NF	G1	75	68	72	1200	0,56	-	Launch Sep -25
20 HF	G1	75	68	72	1600	0,56	-	Launch Sep -25
25 NF	G1 1/4	82	68	72	2200	0,69	-	Launch Sep -25



Internal thread

Threads according to ISO 7.

DN	D	L	H	H1	q _{max} [l/h]	Kg	EAN	Article No
15 LF	G1/2	75	68	72	280	0,54	-	Launch Sep -25
15 NF	G1/2	75	68	72	540	0,54	-	Launch Sep -25
15 HF	G1/2	75	68	72	950	0,54	-	Launch Sep -25
20 NF	G3/4	75	68	72	1200	0,59	-	Launch Sep -25
20 HF	G3/4	75	68	72	1600	0,59	-	Launch Sep -25
25 NF	G1	90	68	72	2200	0,78	-	Launch Sep -25



Internal thread x External thread

Threads according to ISO 7 x Threads according to ISO 228.

DN	D	d	L	H	H1	q _{max} [l/h]	Kg	EAN	Article No
15 LF	G1/2	G3/4	70	68	72	280	0,54	-	Launch Sep -25
15 NF	G1/2	G3/4	70	68	72	540	0,54	-	Launch Sep -25
15 HF	G1/2	G3/4	70	68	72	950	0,54	-	Launch Sep -25

LF = Low flow

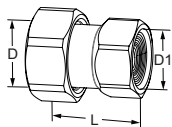
NF = Normal flow

HF = High flow

*) Connection to actuator.

→ = Flow direction

Connections



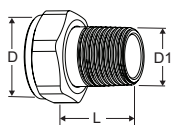
With internal thread

Threads according to ISO 228. Thread length according to ISO 7-1.

Swivelling nut.

Brass

For DN	D	D1	L*	EAN	Article No
10	G1/2	G3/8	29,5	5902276820014	52 009-810
10	G1/2	G1/2	34,5	5902276820021	52 009-910
15	G3/4	G1/2	31,5	5902276820038	52 009-815
15	G3/4	G3/4	36,5	5902276820045	52 009-915
20	G1	G3/4	33,5	5902276820052	52 009-820
20	G1	G1	39,5	5902276820069	52 009-920
25	G1 1/4	G1	39	5902276820076	52 009-825
25	G1 1/4	G1 1/4	43	5902276820083	52 009-925



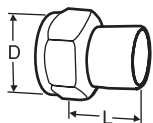
With external thread

Threads according to ISO 7-1.

Swivelling nut.

Brass

For DN	D	D1	L*	EAN	Article No
10	-	-	-	-	-
15	G3/4	R1/2	29	4024052516612	0601-02.350
20	G1	R3/4	32,5	4024052516810	0601-03.350
25	G1 1/4	R1	35	4024052517015	0601-04.350

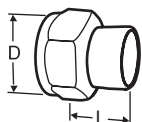


Welding connection

Swivelling nut.

Brass/Steel 1.0045 (EN 10025-2)

For DN	D	Pipe DN	L*	EAN	Article No
10	G1/2	10	30	7318792748400	52 009-010
15	G3/4	15	36	7318792748509	52 009-015
20	G1	20	40	7318792748608	52 009-020
25	G1 1/4	25	40	7318792748707	52 009-025



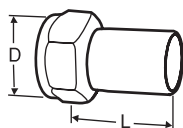
Soldering connection

Swivelling nut.

Brass/gunmetal CC491K (EN 1982)

For DN	D	Pipe Ø	L*	EAN	Article No
10	G1/2	10	10	7318792749100	52 009-510
10	G1/2	12	11	7318792749209	52 009-512
15	G3/4	15	13	7318792749308	52 009-515
15	G3/4	16	13	7318792749407	52 009-516
20	G1	18	15	7318792749506	52 009-518
20	G1	22	18	7318792749605	52 009-522
25	G1 1/4	28	21	7318792749704	52 009-528

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

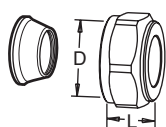
**Connection with smooth end**

For connection with press coupling.

Swivelling nut.

Brass/AMETAL®

For DN	D	Pipe Ø	L*	EAN	Article No
10	G1/2	12	35	7318793810502	52 009-312
15	G3/4	15	39	7318793810601	52 009-315
20	G1	18	44	7318793810700	52 009-318
20	G1	22	48	7318793810809	52 009-322
25	G1 1/4	28	53	7318793810908	52 009-328

**Compression connection**

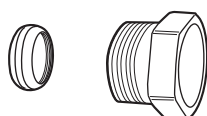
Support bushes shall be used, for more information see catalogue leaflet FPL.

Should not be used with PEX pipes.

Brass/AMETAL®

Chrome plated

For DN	D	Pipe Ø	L**	EAN	Article No
10	G1/2	10	17	7318793620101	53 319-210
10	G1/2	12	17	7318793620200	53 319-212
10	G1/2	15	20	7318793620309	53 319-215
10	G1/2	16	25	7318793620408	53 319-216
15	G3/4	22	27	7318793705204	53 319-622

**KOMBI compression coupling**

Max.: 100°C

Thrust screw: AMETAL® or brass, nickel plated.

Cone: Brass

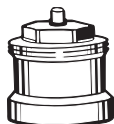
(For more information see catalogue leaflet KOMBI.)

Male pipe threads on thrust screw	For pipes, diameter	EAN	Article No
G1/2	10	7318792874901	53 235-109
G1/2	12	7318792875007	53 235-111
G1/2	14	7318792875106	53 235-112
G1/2	15	7318792875205	53 235-113
G1/2	16	7318792875304	53 235-114
G3/4	15	7318792875403	53 235-117
G3/4	18	7318792875601	53 235-121
G3/4	22	7318792875700	53 235-123

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

**) Over all length L refers to unassembled coupling.

Accessories



Spindle extension

Recommended together with the insulation to minimize the risk of condensation at the valve-actuator interface.

M30x1,5.

Type	L	EAN	Article No
Plastic, black	30	4024052165018	2002-30.700

Insulation

For heating and non-condensing cooling applications.

Material: EPP.

Fire class: E (EN 13501-1), B2 (DIN 4102).