Climate
Control

IMI TA

TA-Nano, TA-Nano Plus



Combined control & balancing valves for small terminal units

Pressure independent balancing and control valve (PIBCV)

Breakthrough
engineering for
a better world

TA-Nano, TA-Nano Plus

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

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 version)
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 10/15 LF/15: 15 kPa = 0.15 bar
DN 15 HF/20: 18 kPa = 0.18 bar
DN 20 HF: 30 kPa = 0.30 bar
DN 25: 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: 19.5 - 200 l/h
DN 15 LF: 30.6 - 310 l/h
DN 15: 47.1 - 560 l/h
DN 15 HF: 146 - 1130 l/h
DN 20: 197 - 1210 l/h
DN 20 HF: 202 - 1680 l/h
DN 25: 210 - 2400 l/h

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

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.

LF = Low flow
NF = Normal flow
HF = High flow

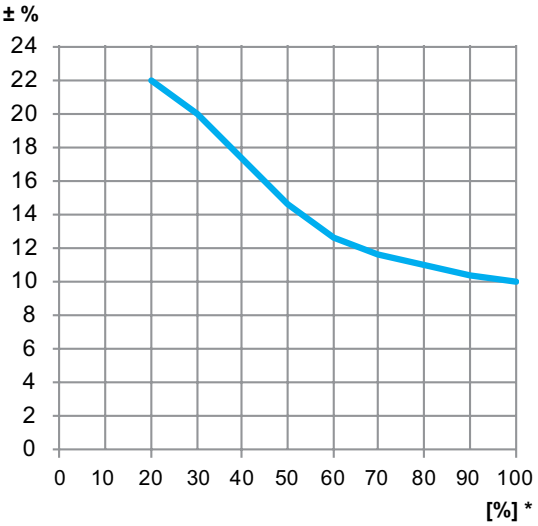
Connection:
External thread according to ISO 228.
Internal thread according to ISO 7.

Connection to actuator:
M30x1.5

Actuators:
See separate technical documentation on EMO T II, EMO TM II, 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 (≤20 cSt = 3°E = 100S.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.

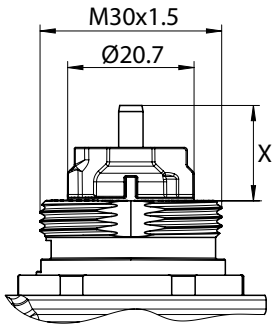
Noise

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 II / EMO TM II / 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 ΔpV_{min} (according to DN) - 600 kPa.

q_{max} values

Low flow (LF) **Normal flow (NF)** **High flow (HF)**

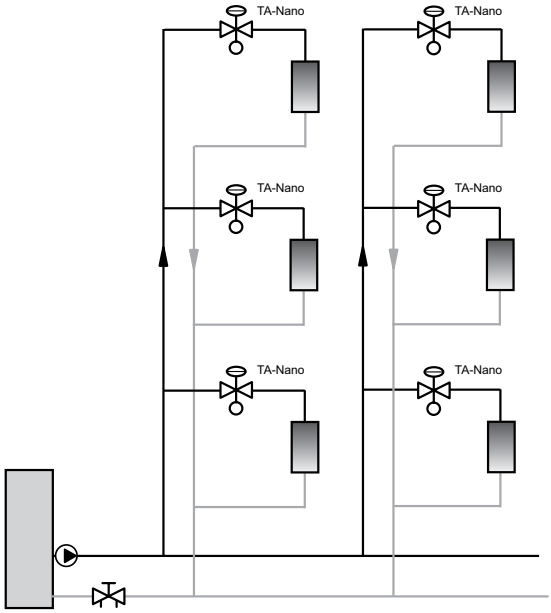


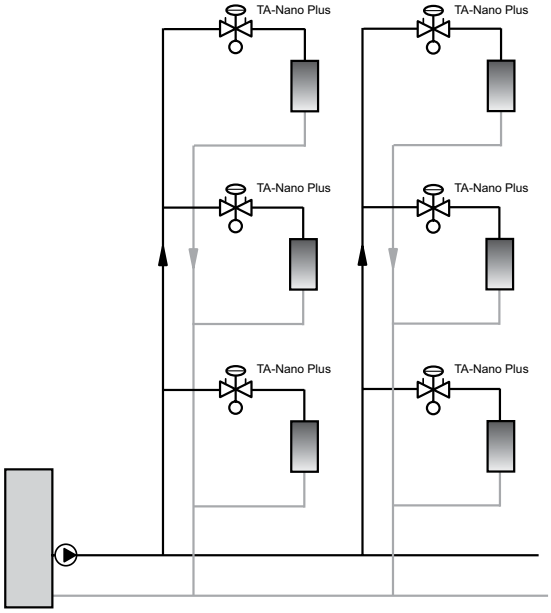
	Position									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
DN 10	19,5	37,4	59,2	78,2	97,9	119	140	160	181	200
DN 15 LF	30,6	60,6	91,7	122	154	185	217	247	278	310
DN 15	47,1	121	190	240	299	359	404	451	505	560
DN 15 HF	146	260	369	478	587	707	821	934	1040	1130
DN 20	197	320	428	538	655	771	896	1010	1120	1210
DN 20 HF	202	353	494	628	781	954	1110	1320	1510	1680
DN 25	210	415	592	766	939	1140	1370	1660	2000	2400

q_{max} = l/h at each setting and fully open valve plug.
LF = Low flow
HF = High flow

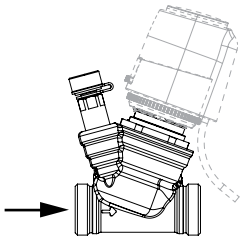
Installation

Application example

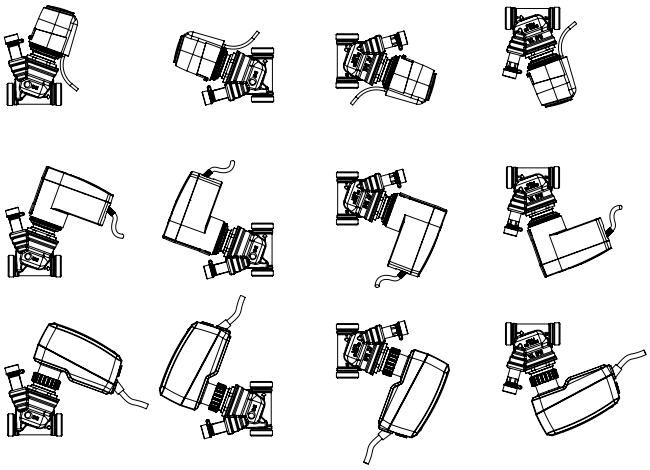




Flow direction



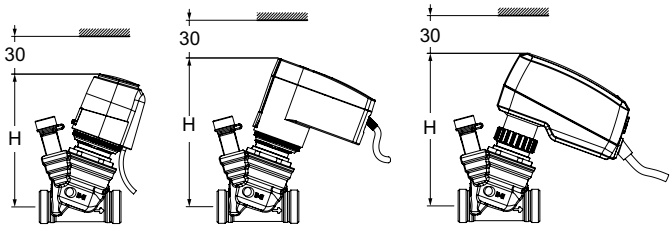
TA-Nano + EMO T II / EMO TM II / TA-TRI / TA-Slider



IP54 IP54 IP 54 IP54

Installation of actuator

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

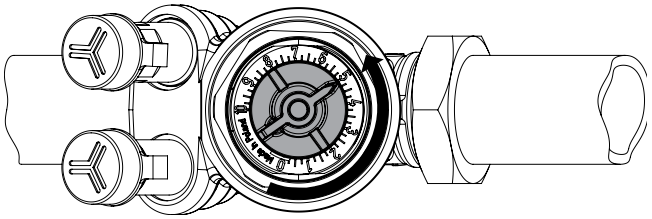


	EMO T II / TM II H	TA-TRI H	TA-Slider 160 H
DN 10-25	106	111	122

Operating function

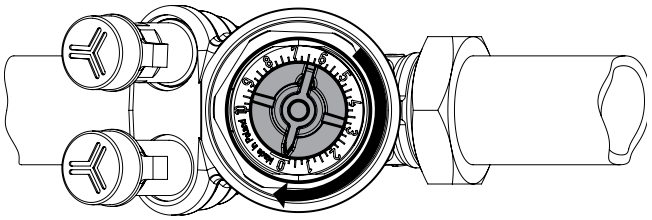
Standard / Plus versions

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

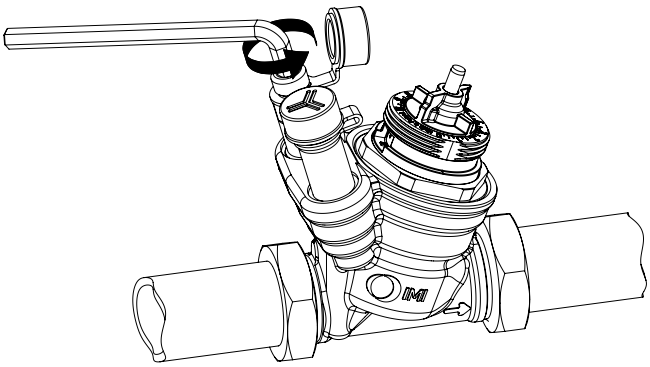
1. Remove the installed actuator.
2. Connect the IMI TA balancing instrument to the measuring points.
3. Input the valve type, size and setting and the actual flow is displayed.

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.

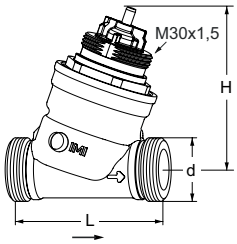
Flushing



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.

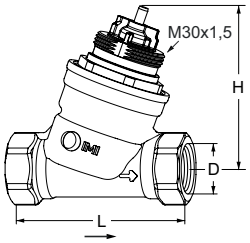
Important! Set the valve to previous setting and close the bypass spindle after the flushing is completed.

Articles - Standard, without measuring points



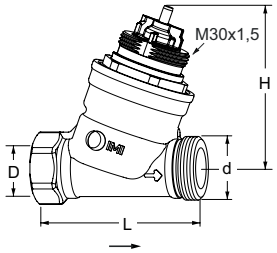
External thread
Threads according to ISO 228.

DN	d	L	H	q_{max} [l/h]	Kg	EAN	Article No
10	G1/2	65	68	200	0,31	5902276824005	322213-00110
15 LF	G3/4	65	68	310	0,35	5902276824012	322213-00015
15	G3/4	65	68	560	0,35	5902276824029	322213-00115
15 HF	G3/4	65	68	1130	0,35	5902276824036	322213-00215
20	G1	75	68	1210	0,38	5902276824043	322213-00120
20 HF	G1	75	68	1680	0,38	5902276824050	322213-00220
25	G1 1/4	82	68	2400	0,50	5902276824067	322213-00125



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	310	0,38	5902276824142	322213-01015
15	G1/2	75	68	560	0,38	5902276824159	322213-01115
15 HF	G1/2	75	68	1130	0,38	5902276824166	322213-01215
20	G3/4	75	68	1210	0,39	5902276824173	322213-01120
20 HF	G3/4	75	68	1680	0,39	5902276824180	322213-01220
25	G1	90	68	2400	0,53	5902276824197	322213-01125

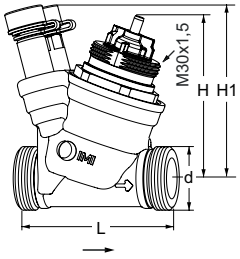


Internal thread x External thread
Threads according to ISO 7 x Threads according to ISO 228.

DN	D	d	L	H	q_{max} [l/h]	Kg	EAN	Article No
15 LF	G1/2	G3/4	70	68	310	0,36	5902276824326	322213-04015
15	G1/2	G3/4	70	68	560	0,36	5902276824333	322213-04115
15 HF	G1/2	G3/4	70	68	1130	0,36	5902276824340	322213-04215

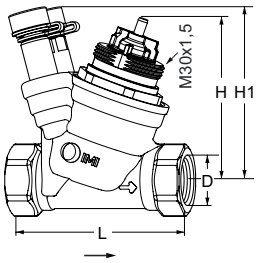
LF = Low flow
HF = High flow
*) Connection to actuator.
→ = Flow direction

Articles - Plus, with measuring points



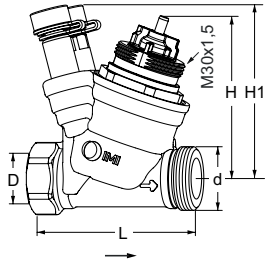
External thread
Threads according to ISO 228.

DN	d	L	H	H1	q_{max} [l/h]	Kg	EAN	Article No
10	G1/2	65	68	72	200	0,43	5902276824074	322213-10110
15 LF	G3/4	65	68	72	310	0,47	5902276824081	322213-10015
15	G3/4	65	68	72	560	0,47	5902276824098	322213-10115
15 HF	G3/4	65	68	72	1130	0,47	5902276824104	322213-10215
20	G1	75	68	72	1210	0,51	5902276824111	322213-10120
20 HF	G1	75	68	72	1680	0,51	5902276824128	322213-10220
25	G1 1/4	82	68	72	2400	0,66	5902276824135	322213-10125



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	310	0,51	5902276824203	322213-11015
15	G1/2	75	68	72	560	0,51	5902276824210	322213-11115
15 HF	G1/2	75	68	72	1130	0,51	5902276824227	322213-11215
20	G3/4	75	68	72	1210	0,52	5902276824234	322213-11120
20 HF	G3/4	75	68	72	1680	0,52	5902276824241	322213-11220
25	G1	90	68	72	2400	0,70	5902276824258	322213-11125

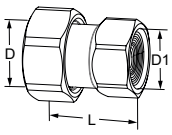


Internal thread x External thread
Threads according to ISO 7 x Threads according to ISO 228.

DN	D	d	L	H	H1	q_{max} [l/h]	Kg	EAN	Article No
15 LF	G1/2	G3/4	70	68	72	310	0,49	5902276824357	322213-14015
15	G1/2	G3/4	70	68	72	560	0,49	5902276824364	322213-14115
15 HF	G1/2	G3/4	70	68	72	1130	0,49	5902276824371	322213-14215

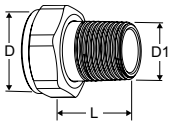
LF = Low flow
HF = High flow
*) Connection to actuator.
→ = Flow direction

Connections



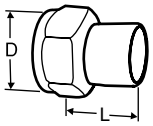
With internal thread
Threads according to ISO 228. Thread length according to ISO 7-1.
Swivelling nut. Brass

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



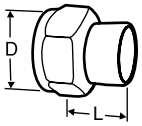
With external thread
Threads according to ISO 7-1.
Swivelling nut. Brass

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)

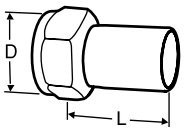
For DN	D	Pipe DN	L*	EAN	Article No
10	G1/2	10	30	7318792748400	52 009-010
15	G3/4	15	36	7318792748509	52 009-015
20	G1	20	40	7318792748608	52 009-020
25	G1 1/4	25	40	7318792748707	52 009-025



Soldering connection
Swivelling nut. Brass/gunmetal CC491K (EN 1982)

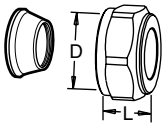
For DN	D	Pipe Ø	L*	EAN	Article No
10	G1/2	10	10	7318792749100	52 009-510
10	G1/2	12	11	7318792749209	52 009-512
15	G3/4	15	13	7318792749308	52 009-515
15	G3/4	16	13	7318792749407	52 009-516
20	G1	18	15	7318792749506	52 009-518
20	G1	22	18	7318792749605	52 009-522
25	G1 1/4	28	21	7318792749704	52 009-528

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



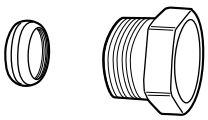
Connection with smooth end
For connection with press coupling.
Swivelling nut. Brass/AMETAL®

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

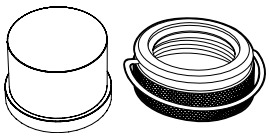
*) Fitting length (from the gasket surface to the end of the connection).
**) Over all length L refers to unassembled coupling.

Accessories



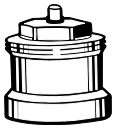
Protection cap
For TA-Nano, TA-COMPACT-P/-DP, TA-Modulator (DN 10-20), TBV-C/-CM.

Colour	EAN	Article No
Red	7318793961105	52 143-100



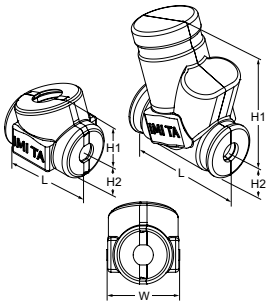
Tamper proof cover
Set containing plastic cover and locking ring for valves with connection M30x1.5 to thermostatic head/actuator.
Prevents manipulation of setting.

EAN	Article No
7318794030206	52 164-100



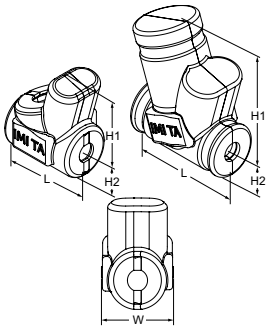
Spindle extension
Recommended together with the insulation to minimize the risk of condensation at the valve-actuator interface.
M30x1,5.

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



Insulation for TA-Nano
For heating and non-condensing cooling applications.
Material: EPP (heating) or XPE (cooling).
Fire class: EPP (heating) E (EN 13501-1), B2 (DIN 4102). XPE (cooling) B2 (DIN 4102).

For DN	L	H1	H2	W	EAN	Article No
Heating (EPP)						
10-15	97	57	31	84	4030095058408	322213-20001
20	104	56	36	84	4030095058439	322213-20002
Cooling (XPE)						
10-15	126	137	31	76	4030095058453	322213-20111
20	140	137	36	80	4030095058460	322213-20112



Insulation for TA-Nano Plus
For heating and non-condensing cooling applications.
Material: EPP (heating) or XPE (cooling).
Fire class: EPP (heating) E (EN 13501-1), B2 (DIN 4102). XPE (cooling) B2 (DIN 4102).

For DN	L	H1	H2	W	EAN	Article No
Heating (EPP)						
10-15	97	88	31	84	4030095058422	322213-20101
20	104	88	36	84	4030095058446	322213-20102
Cooling (XPE)						
10-15	126	137	31	76	4030095058453	322213-20111
20	140	137	36	80	4030095058460	322213-20112

The products, texts, photographs, graphics and diagrams in this document may be subject to alteration by IMI without prior notice or reasons being given. For the most up to date information about our products and specifications, please visit climatecontrol.imiplc.com.