

Climate  
Control

IMI TA

# TA-COMPACT-P

– NPT threads



**Combined control & balancing valves for small terminal units**

Pressure independent balancing and control valve (PIBCV)

## TA-COMPACT-P – NPT threads

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

### Key features

#### Precise hydronic balancing

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

#### Installations without limits

Slim and compact shape simplifies installation, one side access to all functions simplifies operation.

#### Full control of the system

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

#### High reliability

AMETAL® and stainless steel guarantees high corrosion resistance and reduces the risk of leakage.



### Technical description

#### Application:

Heating and cooling systems.

#### Functions:

Control  
Pre-setting (max. flow)  
Differential pressure control  
Measuring ( $\Delta H$ , T, q)  
Isolation (for use during system maintenance – see also Leakage rate)

#### Dimensions:

DN 10-32

#### Pressure class:

PN 16

#### Differential pressure ( $\Delta pV$ ):

Max. differential pressure ( $\Delta pV_{max}$ ):  
400 kPa = 4 bar

Min. differential pressure ( $\Delta pV_{min}$ ):

DN 10-20: 15 kPa = 0,15 bar

DN 25-32: 23 kPa = 0,23 bar

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

$\Delta pV_{max}$  = The maximum allowed pressure drop over the valve, to fulfill all stated performances.

$\Delta pV_{min}$  = 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: 21,5 - 120 l/h

DN 15 LF: 44 - 245 l/h

DN 15: 88 - 470 l/h

DN 20: 210 - 1150 l/h

DN 25: 370 - 2150 l/h

DN 32: 800 - 3700 l/h

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

LF = Low flow

#### Temperature:

Max. working temperature: 90°C

Min. working temperature: -10°C

#### Media:

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

#### Lift:

4 mm

#### Leakage rate:

Leakage flow  $\leq 0,01\%$  of max.  $q_{max}$  (setting 10) and correct flow direction. (Class IV according to EN 60534-4).

#### Characteristics:

Linear, best suited for on/off control.

#### Material:

Valve body: AMETAL®

Valve insert: AMETAL®

Valve plug: Brass CW724R (CuZn21Si3P)

Spindle: Stainless steel

Spindle seal: EPDM O-ring

$\Delta p$  insert: PPS

Membrane: EPDM and HNBR

Springs: Stainless steel

O-rings: EPDM

AMETAL® is the dezincification resistant alloy of IMI.

#### Marking:

TA, IMI, PN 16, DN and flow direction arrow.

Grey handwheel: TA-COMPACT-P and DN. For low flow version also LF.

#### Connection:

External thread according to ISO 228. Connections (accessories) with internal and external threads NPT according to ANSI/ASME B1.20.1-1983, or for soldering according to ASME/ANSI B16.18.

#### Connection to actuator:

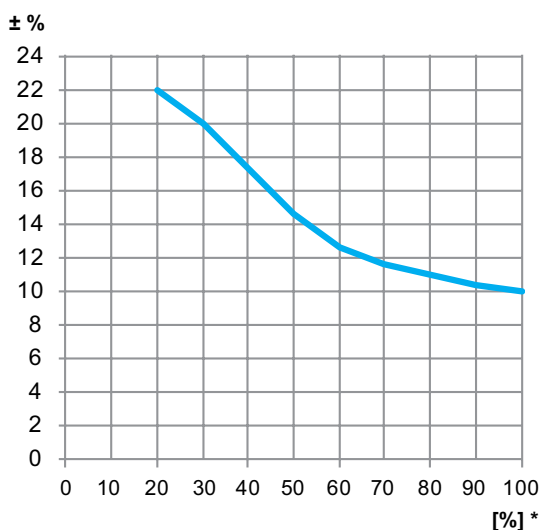
M30x1,5

#### Actuators:

See separate technical documentation on EMO T and TA-TRI.

## 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 ( $\leq 20$  cSt =  $3^\circ\text{E}$ =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.

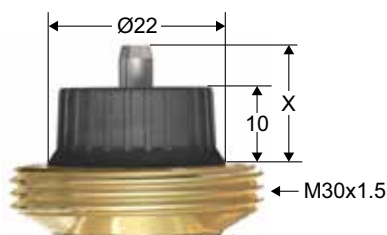
## Actuators

TA-COMPACT-P 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) = 11,6 - 15,8

Closing force: Min. 125 N (max. 500 N)



If TA-COMPACT-P is used with EMO TM the setting of the valve must be setting 3 or higher in order to achieve the minimum stroke of 1 mm.

IMI recommend that TA-Modulator with its EQM characteristics is used with the proportional actuator EMO TM.

### Max. recommended pressure drop ( $\Delta pV$ ) for valve and actuator combination

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

DN	EMO T/EMO TM/TA-TRI [kPa]
10	400
15	
20	
25	
32	

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

$\Delta pV_{\text{max}}$  = 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  $\Delta p_V$  is within the working range 15-400 kPa or 23-400 kPa.

## $q_{\max}$ values

	Position									
	1	2	3 *	4	5	6	7	8	9	10
DN 10	21,5	39,5	54,0	68,5	80,0	91,0	99,0	107	113	120
DN 15 LF	44,0	71,0	97,0	123	148	170	190	210	227	245
DN 15	88,0	150	200	248	295	340	380	420	450	470
DN 20	210	335	460	575	680	780	890	990	1080	1150
DN 25	370	610	830	1050	1270	1490	1720	1870	2050	2150
DN 32	800	1220	1620	2060	2450	2790	3080	3350	3550	3700

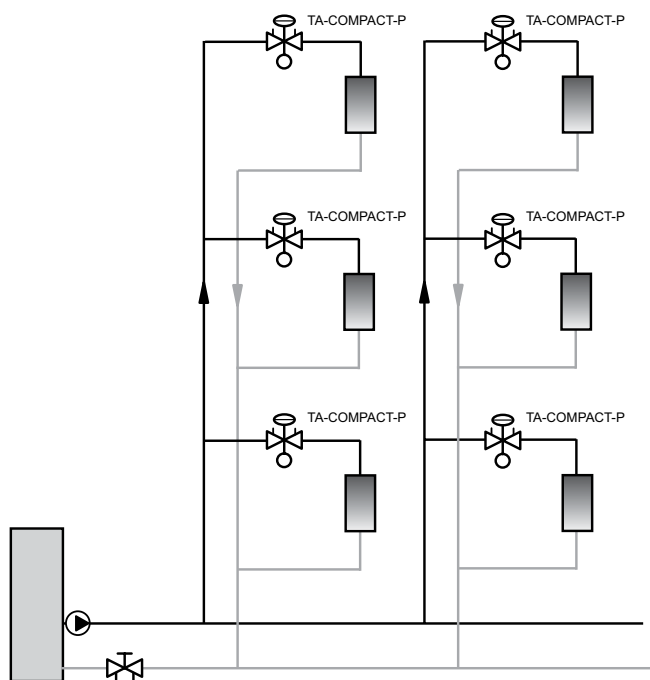
$q_{\max} = l/h$  at each setting and fully open valve plug.

LF = Low flow

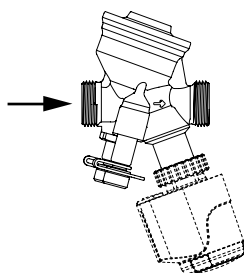
\*) Min. setting if used with actuator EMO TM.

## Installation

### Application example

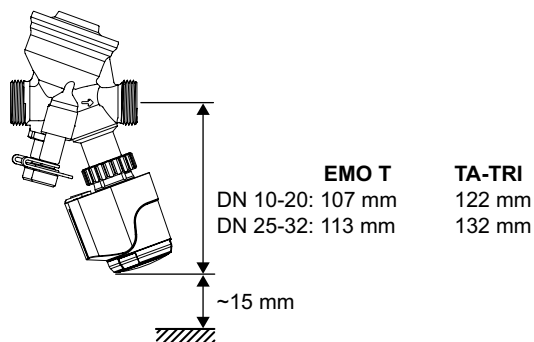


### Flow direction

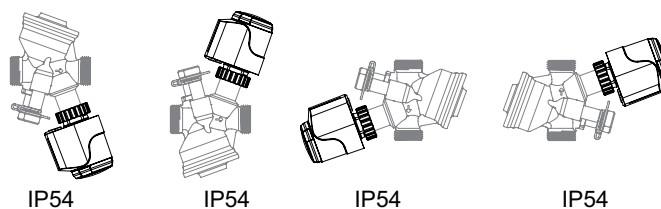


### Installation of actuator EMO T

Approx. 15 mm of free space is required above the actuator.

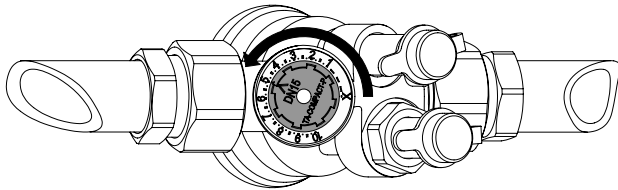


### TA-COMPACT-P + EMO T



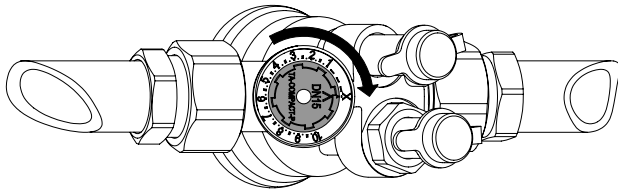
## Operating function

### Setting



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

### Shut-off

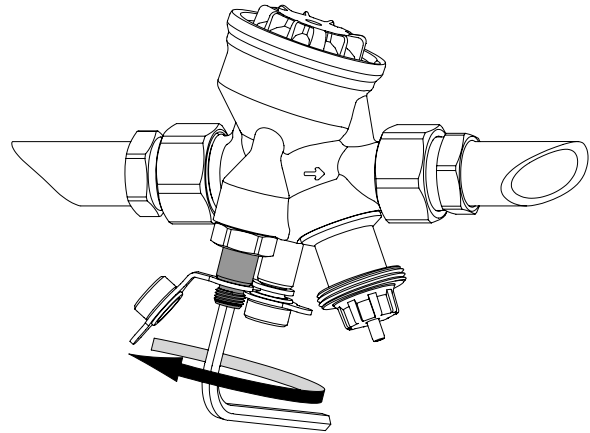


1. Turn the setting wheel clockwise to X.

### Measuring q

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

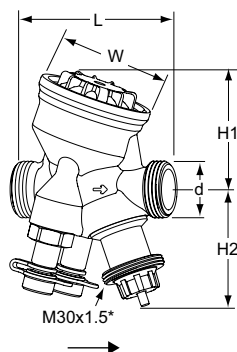
### Measuring $\Delta H$



1. Remove any actuator.
2. Close the valve according to "Shut-off".
3. Bypass the  $\Delta p$  part by opening the bypass spindle  $\approx 1$  turn anticlockwise, with a 5 mm Allen key.
4. Connect IMI TA's balancing instrument to the measuring points and measure.

**Important!** Close the bypass spindle after the measurement is completed.

## Articles



### External thread

Threads according to ISO 228

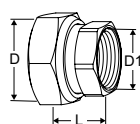
DN	d	L	H1	H2	W	q <sub>max</sub> [l/h]	Kg	EAN	Article No
10	G1/2	74	55	55	54	120	0,53	7318794013308	52 164-010
15 LF	G3/4	74	55	55	54	245	0,54	7318794025202	52 164-115
15	G3/4	74	55	55	54	470	0,54	7318794013407	52 164-015
20	G1	85	64	55	64	1150	0,69	7318794013506	52 164-020
25	G1 1/4	93	64	61	64	2150	0,79	7318794013605	52 164-025
32	G1 1/2	112	78	61	78	3700	1,5	7318794013704	52 164-032

LF = Low flow

\*) Connection to actuator.

→ = Flow direction

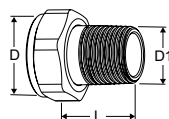
## Connections



### With internal thread NPT

Threads according to ANSI/ASME B1.20.1-1983. Swivelling nut

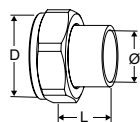
Valve DN	D	D1	L*	EAN	Article No
10	G1/2	3/8 NPT	21	7318794017801	52 163-210
15	G3/4	1/2 NPT	25	7318794017900	52 163-215
20	G1	1/2 NPT	18	7318794018303	52 163-320
20	G1	3/4 NPT	23	7318794018006	52 163-220
25	G1 1/4	3/4 NPT	27	7318794018402	52 163-325
25	G1 1/4	1 NPT	27	7318794018105	52 163-225
32	G1 1/2	1 NPT	27	7318794018501	52 163-332
32	G1 1/2	1 1/4 NPT	31	7318794018204	52 163-232



### With external thread NPT

Threads according to ANSI/ASME B1.20.1-1983. Swivelling nut

Valve DN	D	D1	L*	EAN	Article No
10	-	-	-	-	-
15	G3/4	1/2 NPT	29	4024052928415	2400-02.350
20	G1	3/4 NPT	32,5	4024052928514	2400-03.350
25	G1 1/4	1 NPT	35	4024052928613	2400-04.350
32	-	-	-	-	-



### Soldering connection

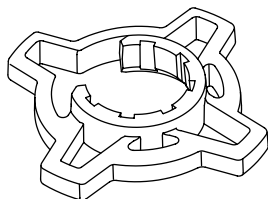
According to ASME/ANSI B16.18 Swivelling nut

Valve DN	D	Pipe Ø [in]	~ [mm]	L*	EAN	Article No
10	G1/2	0.504	12.8	13	7318794022805	52 009-710
15	G3/4	0.629	16.0	16	7318794022904	52 009-715
20	G1	0.879	22	22	7318794023000	52 009-720
25	G1 1/4	1.130	29	26	7318794023109	52 009-725
32	G1 1/2	1.380	35	28	7318794023208	52 009-732

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

Other type of connections (ISO), see international version of TA-COMPACT-P.

## Accessories

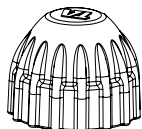


### Grip for setting wheel, optional

For better grip when presetting.

For TA-COMPACT-P/-DP and TA-Modulator (DN 10-32).

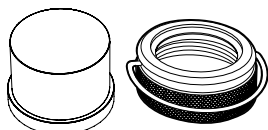
Colour	EAN	Article No
Orange	7318794040502	52 164-950



### Protection cap

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

	EAN	Article No
Red	7318793961105	52 143-100

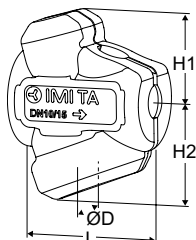


### Tamper proof cover

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



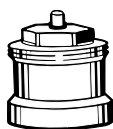
### Insulation

For heating/comfort cooling.

Material: EPP.

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

Valve DN	L	H1	H2	ØD	EAN	Article No
10-15	100	61	71	84	7318794027404	52 164-901
20	118	67	79	90	7318794027503	52 164-902
25	127	71	84	104	7318794027602	52 164-903
32	154	85	99	124	7318794027701	52 164-904



### Spindle extension

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

M30x1,5.

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



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