

# 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).

### 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 Hydronic Engineering.

### Marking:

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

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

### Connection:

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

### Connection to actuator:

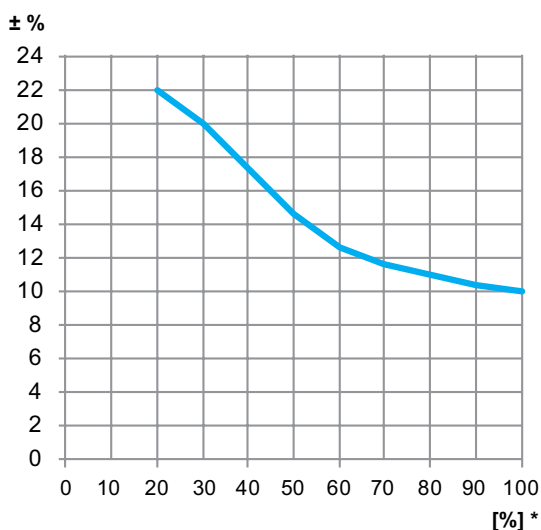
M30x1,5

### Actuators:

See separate information on EMO T.

## 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 =  $3^\circ E = 100$  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.

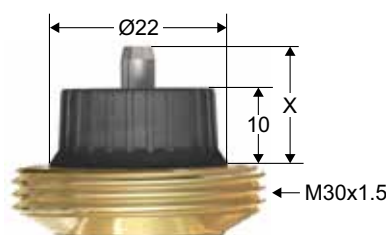
## Noise

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

## Actuators

### Actuator EMO T

For more details of EMO T, see separate catalogue leaflet. TA-COMPACT-P is developed to work together with the EMO T actuator. Actuators of other brands require; Working range: X (closed - fully open) = 11,6 - 15,8 Closing force: Min. 125 N (max. 500 N)



IMI Hydronic Engineering will not be held responsible for the control function if other brands of actuator are used.

### 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 ( $\Delta pV_{close}$ ) and to fulfill all stated performances ( $\Delta pV_{max}$ ).

DN	EMO T * [kPa]
10	400
15	
20	
25	
32	

\*) Closing force 125 N.

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

$\Delta pV_{max}$  = 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

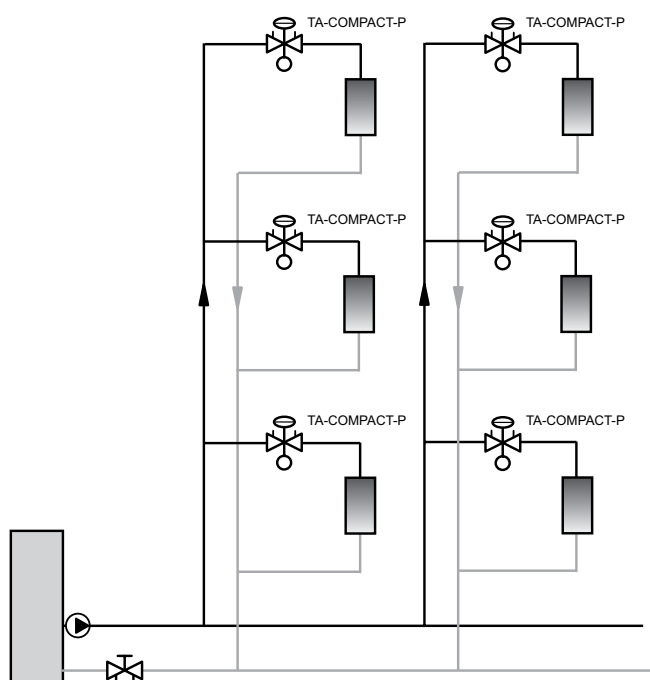
	Position									
	1	2	3	4	5	6	7	8	9	10
<b>DN 10</b>	21,5	39,5	54,0	68,5	80,0	91,0	99,0	107	113	120
<b>DN 15 LF</b>	44,0	71,0	97,0	123	148	170	190	210	227	245
<b>DN 15</b>	88,0	150	200	248	295	340	380	420	450	470
<b>DN 20</b>	210	335	460	575	680	780	890	990	1080	1150
<b>DN 25</b>	370	610	830	1050	1270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

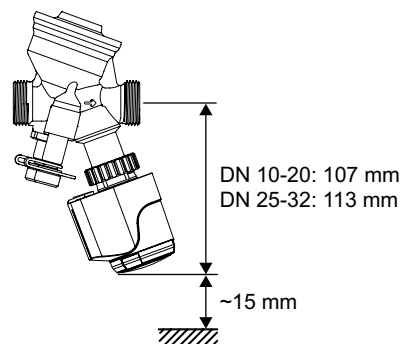
## Installation

### Application example

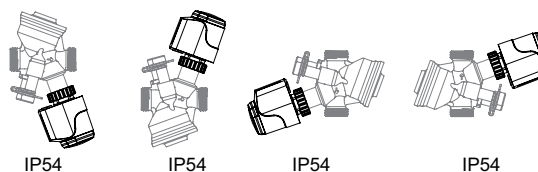


### Installation of actuator EMO T

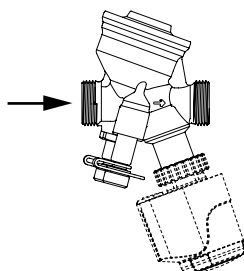
Approx. 15 mm of free space is required above the actuator.



### TA-COMPACT-P + EMO T

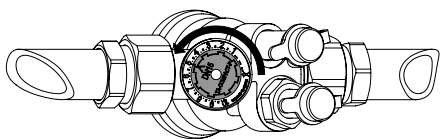


### Flow direction



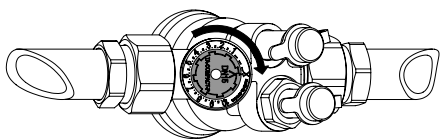
## Operating function

### Setting



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

### Shut-off

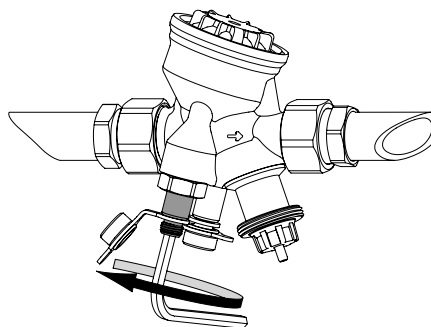


1. Turn the setting wheel clockwise to X.

### Measuring $q$

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

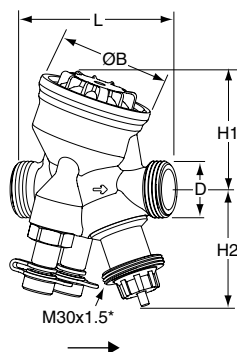
### Measuring $\Delta H$



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 TA's balancing instrument to the measuring points and measure.

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

## Articles



### Male thread

Threads according to ISO 228

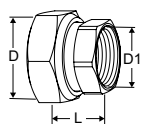
DN	D	L	H1	H2	B	q <sub>max</sub> [l/h]	Kg	EAN	Article No
10	G1/2	74	55	55	54	120	0,53	7318794013308	52 164-010
15 LF	G3/4	74	55	55	54	245	0,54	7318794025202	52 164-115
15	G3/4	74	55	55	54	470	0,54	7318794013407	52 164-015
20	G1	85	64	55	64	1150	0,69	7318794013506	52 164-020
25	G1 1/4	93	64	61	64	2150	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

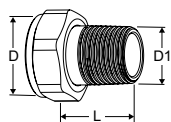
## Connections



### With female thread NPT

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

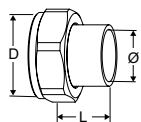
Valve DN	D	D1	L*	EAN	Article No
10	G1/2	3/8 NPT	21	7318794017801	52 163-210
15	G3/4	1/2 NPT	25	7318794017900	52 163-215
20	G1	1/2 NPT	18	7318794018303	52 163-320
20	G1	3/4 NPT	23	7318794018006	52 163-220
25	G1 1/4	3/4 NPT	27	7318794018402	52 163-325
25	G1 1/4	1 NPT	27	7318794018105	52 163-225
32	G1 1/2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



### With male 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

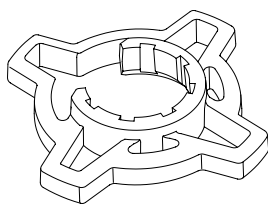
According to ASME/ANSI B16.18 Swivelling nut

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	G3/4	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.

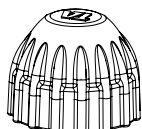
## Accessories



### Grip for setting wheel, optional

For better grip when presetting.  
For TA-COMPACT-P/-DP and TA-Modulator (DN 15-32).

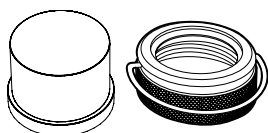
Colour	EAN	Article No
Orange	7318794040502	52 164-950



### Protection cap

For TA-COMPACT-P/-DP, TA-Modulator (DN 15-20), TBV-C/-CM.

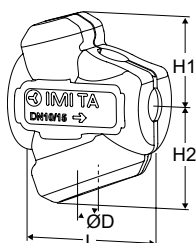
	EAN	Article No
Red	7318793961105	52 143-100



### Tamper proof cover

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

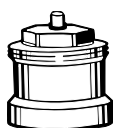
	EAN	Article No
	7318794030206	52 164-100



### Insulation

For heating/comfort cooling.  
Material: EPP.  
Fire class: E (EN 13501-1), B2 (DIN 4102).

Valve DN	L	H1	H2	D	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
<b>Plastic, black</b>		
30	4024052165018	2002-30.700

