

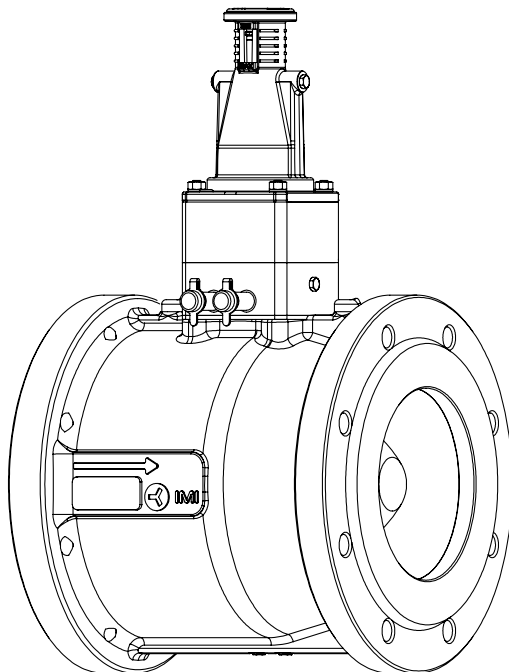
11.2024



**IMI TA**

# TA-PILOT-R

Installation and operation instructions



# General

The TA-PILOT-R is a high performing differential pressure controller designed to keep a stable differential pressure over the load. With unrivaled accuracy TA-PILOT-R assists in delivering accurate and stable conditions to provide superior control valve authority for modulating control valves, additionally it can limit noise and simplify the balancing procedure. TA-PILOT-R is a differential pressure controller for use in return pipes. Measuring points enable pressure measurements for diagnostics.

DN Size		65 2 1/2"	80 3"	100 4"	125 5"	150 6"	200 8"
Sp [kPa] / [psi]	$\Delta H = 0-400 \text{ kPa} / 0-58 \text{ psi}$	45 / 6.5					
	$\Delta H = 400-1200 \text{ kPa} / 58-174 \text{ psi}$	65 / 9.4					
$Kv_{min} / Cv_{min}$		4 / 5					
$Kv_m / Cv_m$		75 / 87	110 / 127	180 / 208	270 / 312	400 / 462	600 / 694
$q_{max} \text{ [m}^3\text{/h]} / \text{[gpm]}$		53 / 233	78 / 343	127 / 559	191 / 841	283 / 1246	424 / 1867

Sp = Sealing pressure, the increase of  $\Delta p_L$  in kPa (psi) when a  $\Delta p$  controller controls  $\Delta p_L$  from  $Kv_{min}$  ( $Cv_{min}$ ) down to zero flow.

$Kv_{min}$  ( $Cv_{min}$ ) =  $m^3/h$  (gpm) at a pressure drop of 1 bar (1 psi) and minimum opening corresponding to the p-band.

$Kv_m$  ( $Cv_m$ ) =  $m^3/h$  (gpm) at a pressure drop of 1 bar (1 psi) and maximum opening corresponding to the p-band.

$q_{max}$  = The maximum recommended flow through a  $\Delta p$  controller.

$\Delta H$  = Available differential pressure.

**Min./Max. working temperature:**

-10°C – +120°C / 14°F – +248°F

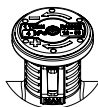
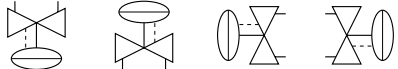
-10°C – +150°C / 14°F – +302°F

**Pressure class:**

PN 16, PN 25 / Class 150

**Max. differential pressure ( $\Delta p_V$ ):**

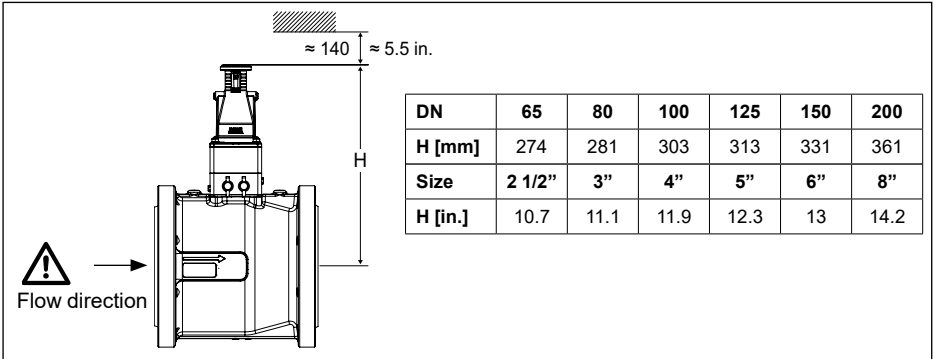
1200 kPa = 12 bar / 174 psi



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10-50	30-150	80-400	kPa
10	30	80	
1 - 7	4 - 21	12 - 58	psi
1	4	12	



**Weight**

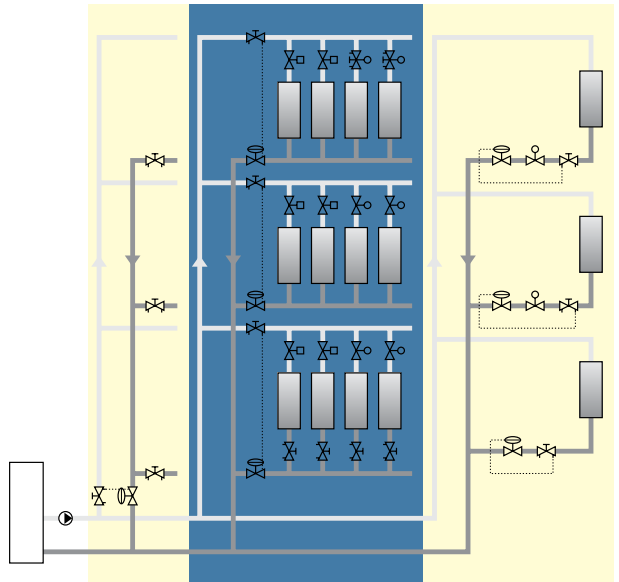
	PN 16	PN 25 Class 150	Class 150
	[kg]	[kg]	[lb]
DN 65 (2 1/2")	18	18	39.7
DN 80 (3")	21	21	46.3
DN 100 (4")	32	34	72.7
DN 125 (5")	42	45	92.6
DN 150 (6")	55	57	119
DN 200 (8")	84	88	188

**Allen key/Wrenches**

[mm]	[in.]
5	0.197
8	0.315
11	0.433
13	0.512
17	0.669

## Installation

Application example!



## Installation

- The valve serving the terminal unit should be installed in the return pipe
- The valve may be installed in a vertical, horizontal or inclined pipeline.
- The valve should be installed to match the direction of flow, with the flow direction arrow shown on the valve body or on the identification plate.
- Install the valve so that venting is possible and the  $\Delta p$  pressure adjustment pilot is visible and accessible.
- Check allowed positions of the presetting nut / pilot and provide adequate space for future service and maintenance.
- Installation of a strainer upstream of the valve is strongly recommended.

## Preparation

- Ensure valve is suitable for service conditions e.g. pressure, temperature, service media.
- Ensure the pipe system has been cleaned.
- Ensure the strainer is installed.
- Ensure all sealing surfaces are clean and undamaged.
- The installation shall provide adequate means of draining and venting to avoid harmful effects such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions and to permit cleaning, inspection and maintenance in the correct manner.
- The valve has been designed for load, appropriate to its intended use and other reasonable foreseeable operating conditions. Load caused by traffic, wind and earthquake, have not been taken into account.

## Flange Joints

Flanges may be damaged by over tightening the bolts. The following procedures will reduce this risk:

- Check that the counter-flanges are parallel before the valve is installed.
- Lubricate the threads on the bolts and fit washers. Ensure adequate lubrication of bolts and washers.
- Full faced gaskets should be used with integral flanges according to standard EN 1092-2:1997 (Type 21).
- Always use the correct size and number of bolts.
- Tighten the bolts crosswise using a torque wrench to the tightening torque set out in table 4.
- Check that the full faced gaskets are in accordance with the given standard for flanges and that they are centred correctly on the sealing surfaces.

## Maintenance

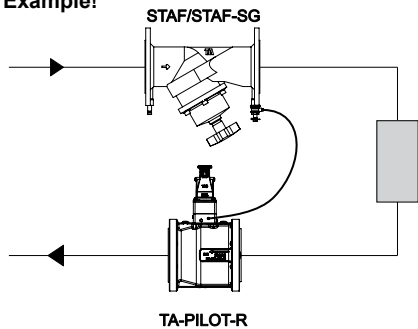
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The valves are maintenance free under the condition that they are used within their normal application.



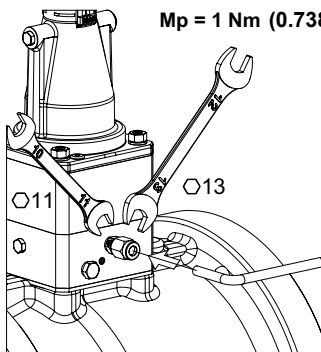
## Capillary pipe assembly

Example!

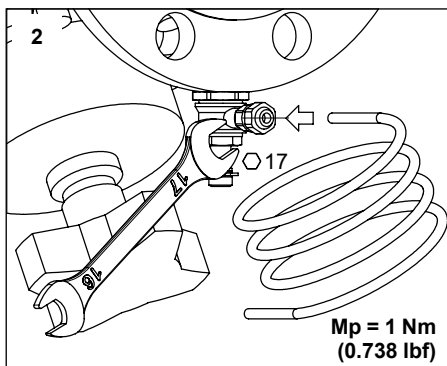


1

$M_p = 1 \text{ Nm}$  (0.738 lbf)

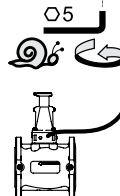


2



3

STAF/STAF-SG



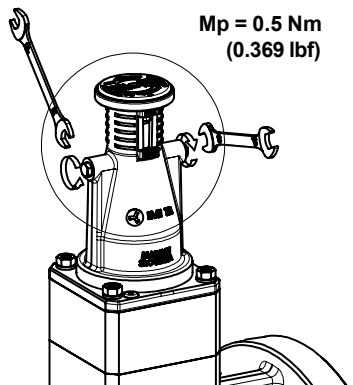
## Venting

To vent the valve, open the topmost venting screw.

**NOTE!** Max. 2 turns opening.

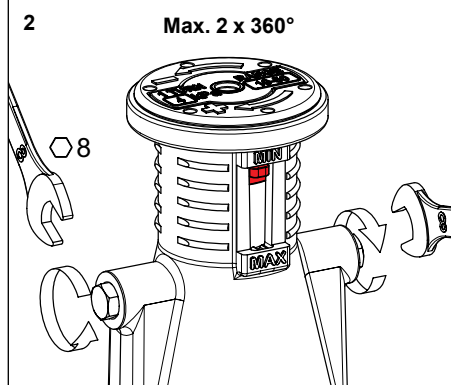
1

$M_p = 0.5 \text{ Nm}$   
(0.369 lbf)



2

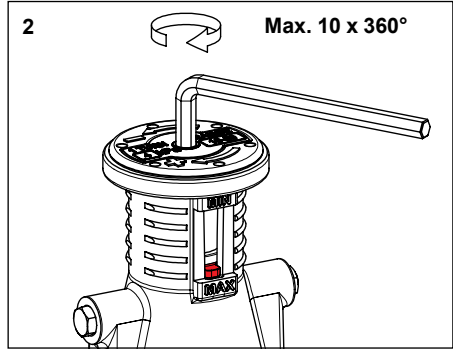
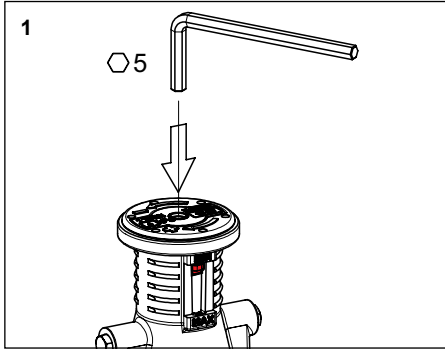
Max. 2 x 360°



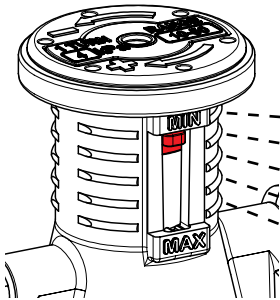


## Operation/Setting

Use a 5 mm allen key for setting. Turn clockwise to increase the setting, see table "Setting table" and "kPa/turn". Each rib on the pilot correspond to the different settings in the "Setting table".



Setting table



	⤵	Settings [kPa] / [psi]					
		10-50 kPa	1-7 psi	30-150 kPa	4-21 psi	80-400 kPa	12-58 psi
Min.	0	10*	1*	30*	4*	80*	12*
-	2.5	20	2.5	60	8.3	160	23.5
-	5,0	30	4	90	12.5	240	35
-	7.5	40	5.5	120	16.8	320	46.5
Max.	10	50	7	150	21	400	58

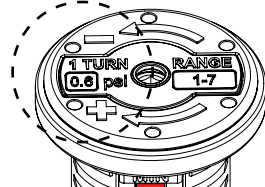
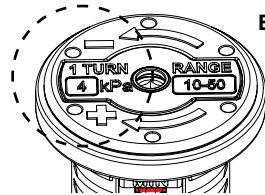
\*) Delivery setting.

### kPa/turn

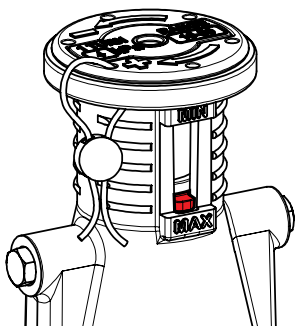
	kPa (psi) / 1 ⤵		
	10 - 50 (1 - 7)	30 - 150 (4 - 21)	80 - 400 (12 - 58)
1 ⤵ =	4 kPa 0.6 psi	12 kPa 1.7 psi	32 kPa 4.6 psi

kPa/turn is also marked on the top of the pilot.

### Example!



**Optional!**

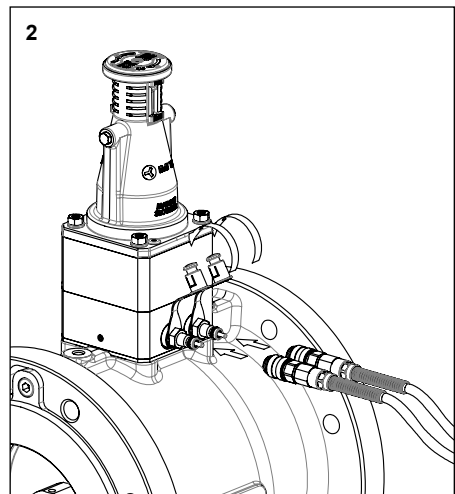
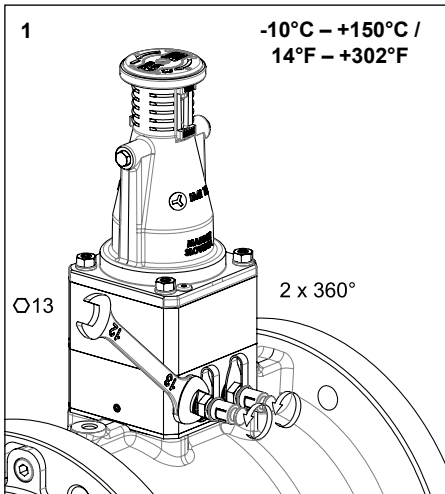
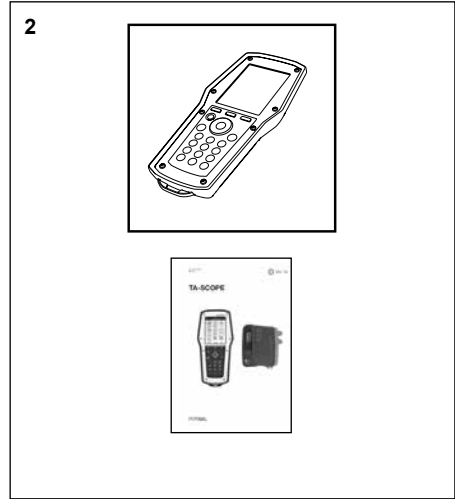
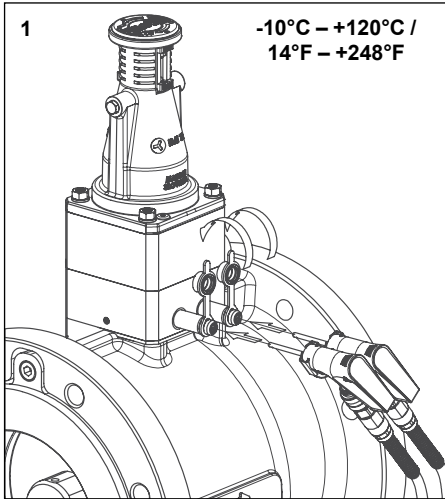


Tamper proof the setting if necessary



## Measuring $\Delta pL$

Connect TA balancing instrument TA-SCOPE to the measuring points and measure  $\Delta pL$ .

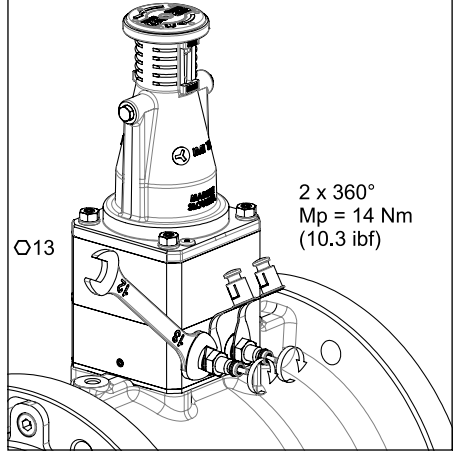




3



4







*We reserve the right to introduce technical alterations without previous notice.*

