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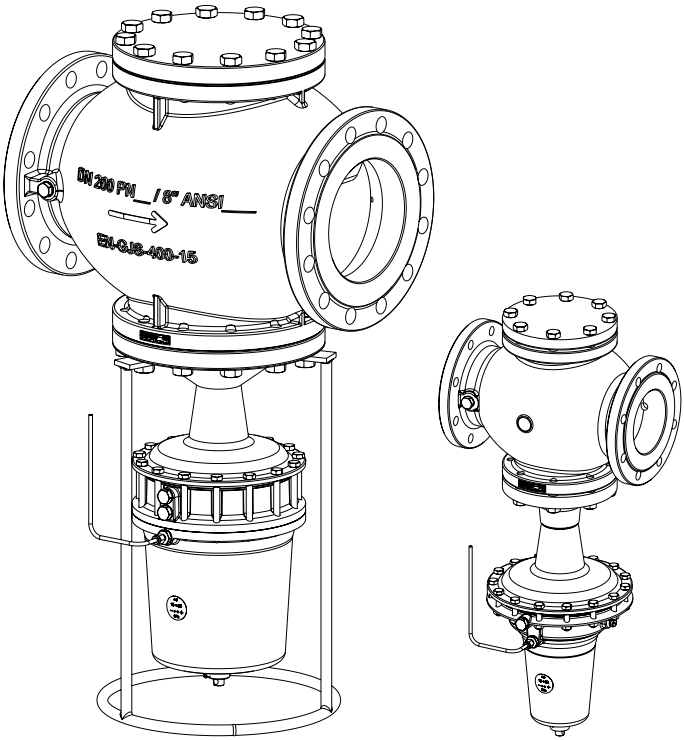
IMI TA

DA 50 (DN 32 - 200)

Installation, maintenance and operating instructions



IMI Hydronic Engineering

General

- High-performing and compact, these differential pressure controllers for heating and cooling systems are particularly effective in situations requiring high temperatures and/or pressure drops.
- They are also suitable for use on the primary and secondary side in district heating and cooling systems.
- Ductile iron body - painted with duasolid offering good rust protection.

Marking

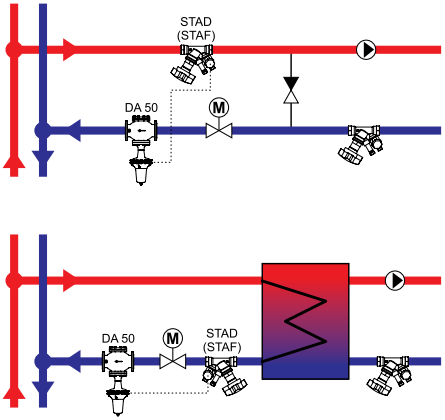
The valve displays the following data:

- TA - Manufacturer: according to table 3
- Material: according to table 2
- DN: according to table 2
- Max. (PN) working pressure according to table 2
- CE-marking according to table 1; 3
- → Unidirectional flow arrow for the recommended direction of flow
- Max. permitted temperature: 120°C (table3)
- Setting range: 10-60, 50-150, 130-250, 100-400 kPa (table 3)
- Date of manufacture: year, week (table 3)

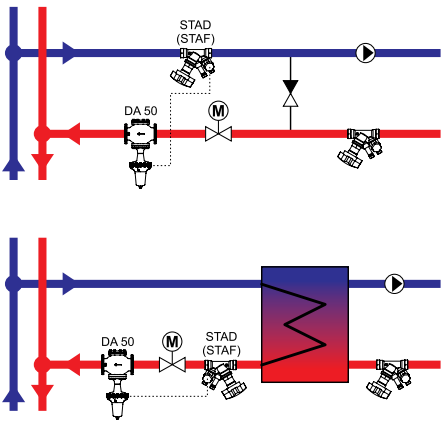
Installation

- The valve serving the terminal unit can be installed in the return pipe

- Heating



- Cooling



- 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 Δp pressure setting spanner is visible and accessible.
- Check allowed positions of the setting spanner and provide adequate space for future service and maintenance.
- Installation of a strainer upstream of the valve is strongly recommended.

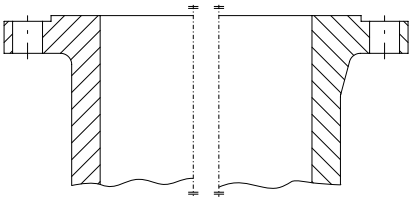
Installation - Preparation

- 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

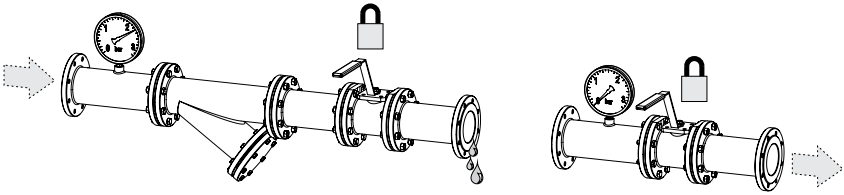
Flanges may be damaged by over tightening the bolts. The following procedures will reduce this risk:

- 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.

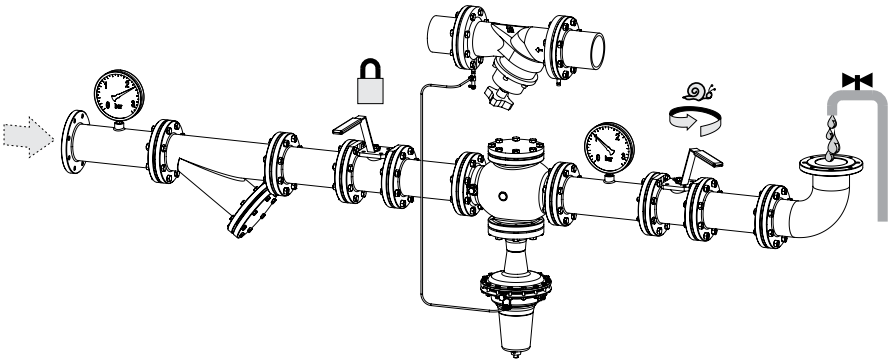


Start-up procedure

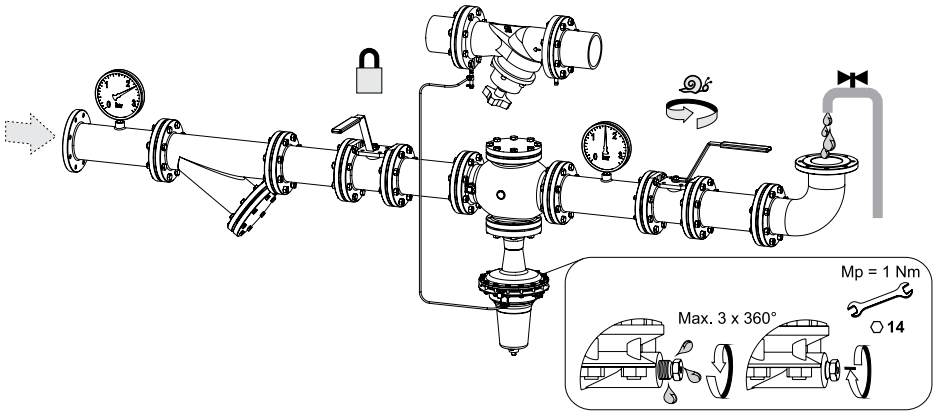
- Install the valve into dry pipe. Verify the installation of a strainer upstream of the DA valve. Isolation valves at the inlet and outlet side of the DA should be closed.



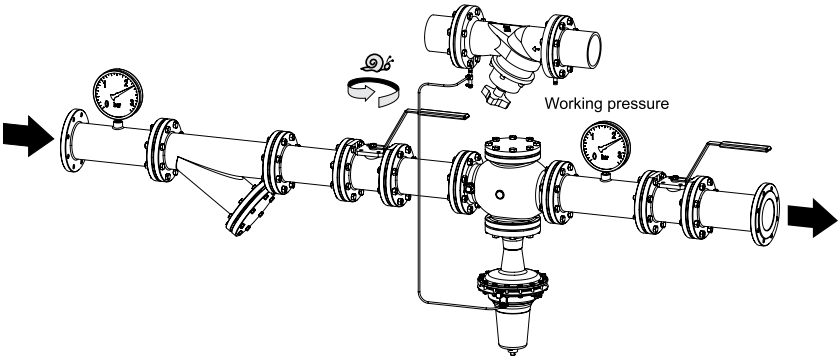
- Fill the system with the tap water from the reverse side by slowly opening the isolation valve at the outlet side of the DA, while the isolation valve at the outlet side of the DA, while the isolation valve at the inlet side of the DA is still closed.



When the isolation valve on the outlet side of the DA valve is fully open and the valve is under pressure, vent the valve by using an 14 mm spanner.



- Slowly open the isolation valve at the inlet side of the DA.



- **Reversing the flow and flushing through the DA valve is not allowed!!!**

Pre-commission

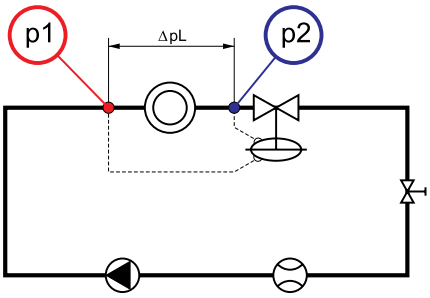
- Check that the arrow on the valve body is in the same direction as the flow.
- Check that the strainer basket is clean.
- Slowly fill the system with the tap water according to the «Start-up procedure»
- Close the bypasses.
- Check sealing.

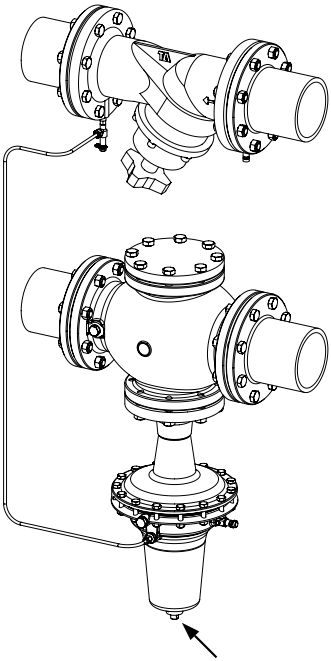
Commission

- Slowly raise the pressure to working pressure.
- Vent the valve.
- Check sealing.
- Set the ∆p according to the table supplied with the valve or from table 5.

Presetting

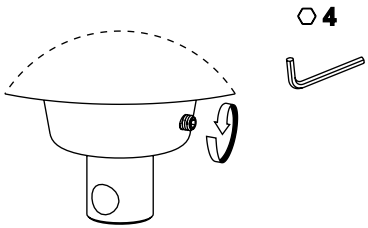
Factory setting is on minimum value of Δp range. Example of presetting the valve DA 50 DN 100 Δp 50-150 kPa, to 100 kPa is done as follow:



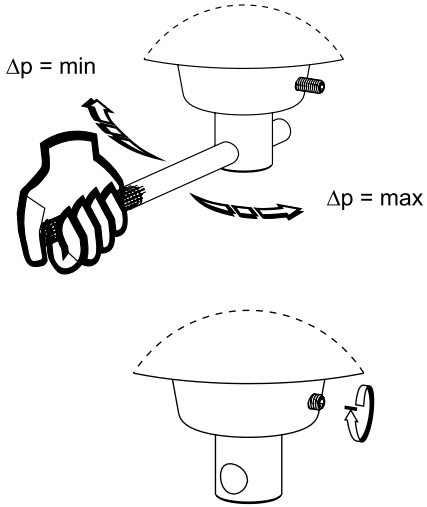


- Unscrew the fixing screw with 4 mm allen key.

- Use stick or screwdriver and set it into the hole on the spanner.



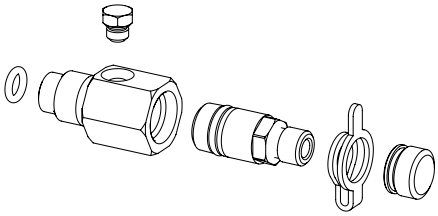
- With hand turn the spanner clockwise to increase the the setting. Between turning, count the turns.
- Set Δp according to the table 5. In this example you need to turn the spanner for 19,2 turns. For fine turning use TA-SCOPE or U-pipe.
- By turning spanner clockwise you will increase the setting and vice versa.
- After adjustment, screw the fixing screw with 4 mm allen key to protect the setting.



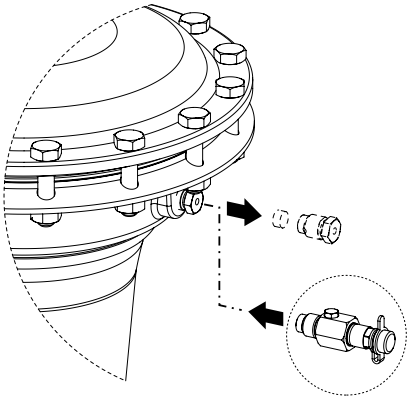
Measuring

For precise Δp_L setting use TA-SCOPE or U-tube and measure the Δp_L over measuring points.

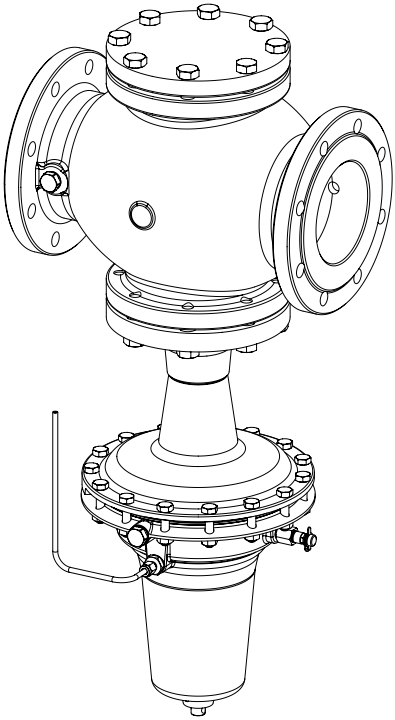
For measuring Δp_L directly on the valve, you need special adapter which is not delivered by basic order.

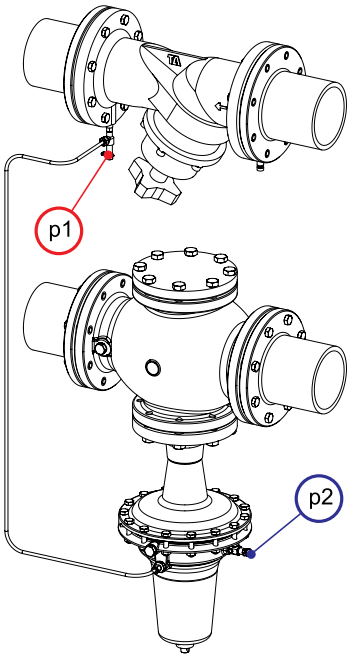


Special adapter you can order as accessories and install on the valve by exchanging the right venting screw.



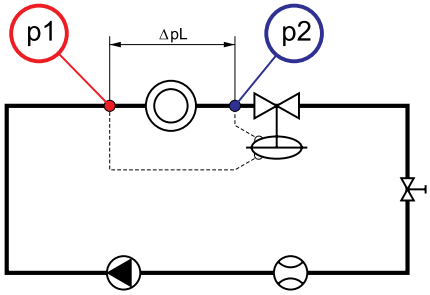
DA 50 DN 32-200

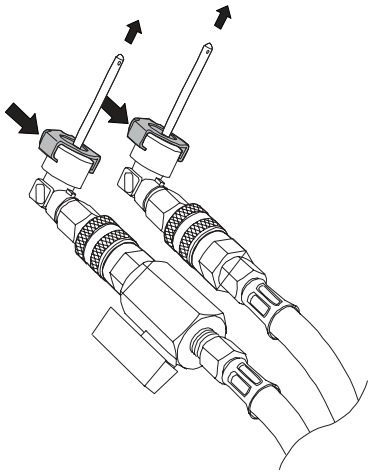




TA-SCOPE will read Δp over the load (Δp_L) between p1 and p2.

- Be sure, that the system is under working pressure and all isolation valves are fully open.
- Connect TA-SCOPE or U-tube on the valve with measuring probes.





- Before measuring the Δp_L, be sure that bypasses are closed.
- Be aware that complete pressure drop in the system between p1 and p2 at design flow should not be bigger than max. setting on DA valve !!!
- Biggest Δp_L as $\Delta p_{setting}$, closing the valve and don't allow to reach the desire flow.
- $(\Delta p_{pipe} + \Delta p_{accessories} + \Delta p_{heatexchanger}) <$ max. $\Delta p_{setting}$

Maintenance

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

Trouble-shooting guide

1. Valve is fully open and design flow is not able to be measured
    - Check pump head is sufficient and in manual mode
    - Ensure all by-pass valves are closed
    - Check all control valves are fully open
    - Check strainers are not blocked
    - Ensure that water is not being drained at another part of the system.
    - If possible measure the pressure drop of the load and check setting.

2. Valve is adjusted but no change in flow is measured
    - Check valve chamber is vented and water is evident, if not;
        - Capillary may be blocked with dirt. (a fine hard wire may dislodge trapped dirt)
        - Throttle in valve body may be blocked with dirt. (a fine hard wire Ø 1 mm may dislodge trapped dirt)

Tables

Table 1 Categorization according to directive 97/23/EC (PED)

	PS (PN)	
	PN16	**PN25**
Article 3&3		DN 15-40
Category I	DN 65-200	DN 50-125
Category II		DN 150-200

Table 2 Markings on housing / plates

DN	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**
Material	**x**	✓	**x**	**x**	**x**	**x**	**x**	✓	✓
DN	✓	✓	✓	✓	✓	**x**	✓	✓	✓
PN	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 3 Marking on plates

DN	**32**	**40**	**50**	**65**	**80**	**100**	**125**	**150**	**200**
Logo - TAH	✓	✓	✓	✓	✓	✓	✓	✓	✓
CE	**x**	**x**	✓	✓	✓	✓	✓	✓	✓
Temp. °C	✓	✓	✓	✓	✓	✓	✓	✓	✓
Δp	✓	✓	✓	✓	✓	✓	✓	✓	✓
Date	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table 4 Bolts, gaskets, torque

DN	32	40	50	65	80	100	125	150	200
Threads	M16	M16	M16	M16	M16	M16/M20	M16/M24	M20/M24	M20/M24
Screw length	60	60	65	65	65/70	75	75/85	80/90	90/95
Nº	4	4	4	4/8	8	8	8	8	12
Nm	100	120	150	100	130	200	280	310	550
Gasket	82/43 x2	92/49 x2	107/61 x2	127/77 x2	142/89 x2	168/115 x2	194/141 x2	218/169 x2	284/220 x2

Table 5 Presettings

	Δp [kPa] change per turn of setting spanner			
	10 - 60	**50 - 150**	**130 - 250**	**100 - 400**
DN 32	0,9	2,6	4,0	13,2
DN 40	0,9	2,6	4,0	13,2
DN 50	0,9	2,6	4,0	13,2
DN 65	0,9	2,6	4,0	13,2
DN 80	0,9	2,6	4,0	13,2
DN 100	0,9	2,6	4,0	13,2
DN 125	0,9	2,6	4,0	13,2
DN 150	1,1	2,1	2,6	6,4
DN 200	1,1	2,1	2,6	6,4

	Max. number of turns			
	10 - 60	**50 - 150**	**130 - 250**	**100 - 400**
DN 32	54	38	30	22,5
DN 40	54	38	30	22,5
DN 50	54	38	30	22,5
DN 65	54	38	30	22,5
DN 80	54	38	30	22,5
DN 100	54	38	30	22,5
DN 125	54	38	30	22,5
DN 150	47	47	47	47
DN 200	47	47	47	47

Measure flow and adjust Δp accordingly

Start-up procedure - fill form

1. Pre-commission

	Check
1. Install the valve in the pipeline according by the arrow on the label (flow direction)	☐
2. Check that the strainer basket is clean	☐
3. Slowly fill the system with the tap water	☐
4. Close the bypass	☐
5. Check sealings	☐

2. Commission

	Check
1. Slowly rise the pressure to workin pressure	☐
2. Vent the valve	☐
3. Check the sealing	☐
4. Check Δp_L according to the table 5. on page 10	☐
5. Check Δp_L on measuring points	☐

Location/object:	Valve typ:	Date: Signature:

Notes:

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

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