



## DU145

### Automatic bypass and differential pressure valve

With Differential Pressure Indicator

#### APPLICATION

The automatic bypass and differential pressure valve controls water flow in the heating circuit according to the water pressure across it and is used to maintain a minimum flow rate through the boiler and to limit circulation pressure when other water paths are closed. A bypass circuit must be installed if the Boiler manufacturer requires one, or specifies that a minimum flow rate has to be maintained whilst the Boiler is firing. The use of automatic bypass valves becomes particularly important when heating systems include large numbers of thermostatic radiator valves (TRVs) - whilst the TRVs are open the automatic bypass valve remains closed, however, as the TRVs start to close, the automatic bypass valve starts to open maintaining the required water flow through the boiler.

Using an automatic bypass valve is also likely to reduce noise in systems caused by excess water velocities. It also helps to reduce the corrosion caused by flue gas condensation as the boiler return temperature is raised.

#### SPECIAL FEATURES


- Maintain minimum flow through a boiler
- Minimises flow noise
- Hinders boiler corrosion
- Differential pressure finely adjustable using indicator scale
- Presetting accessible directly
- Setting value is in meters water column
- No external controls required



#### TECHNICAL DATA

<b>Media</b>	
Medium:	Water or water-glycol mixture, quality to VDI 2035
pH-value:	8 - 9.5
<b>Connections/Sizes</b>	
Connection sizes:	3/4"
<b>Operating temperatures</b>	
Max. operating temperature medium:	110 °C (230 °F)
<b>Pressure values</b>	
Max. operating pressure:	3 bar (43.5 psi)
Differential pressure presetting range:	0.1 - 0.6 bar (1.5 - 8.7 psi)
<b>Specifications</b>	
For system capacities up to approximately:	70 kW (60.000 kcal/h)
Factory setting:	0.2 bar (2.9 psi)

## CONSTRUCTION

Overview	Components	Materials
	<b>1</b> Adjuster knob with setting indicator scale	High-quality synthetic material
	<b>2</b> Housing - Option A with fittings - Option B with fittings - Option E with internal threads	Unpolished pressed brass
	<b>3</b> Fittings (Option A and B)	Brass
<b>Not depicted components:</b>		
	Spring bonnet	High-grade synthetic material
	Valve disc	High-quality synthetic material
	Spring	Stainless steel
	Seals	EPDM

## METHOD OF OPERATION

The automatic bypass and differential pressure valve is installed between the supply and return mains pipeline. The differential pressure is set according to the minimum flow required for the boiler and the available pump head. When the differential pressure is reached, for example because of closing TRVs, the valve starts to open. As the differential pressure increases across the valve the valve is further opened and the flow increased. When the differential pressure decreases, for example because TRVs are opening again, the valve closes and the flow is redirected from the bypass to the heating loop.

## TRANSPORTATION AND STORAGE

Keep parts in their original packaging and unpack them shortly before use.

The following parameters apply during transportation and storage:

Parameter	Value
Environment:	clean, dry and dust free
Min. ambient temperature:	0 °C
Max. ambient temperature:	40 °C
Max. ambient relative humidity:	75 % *

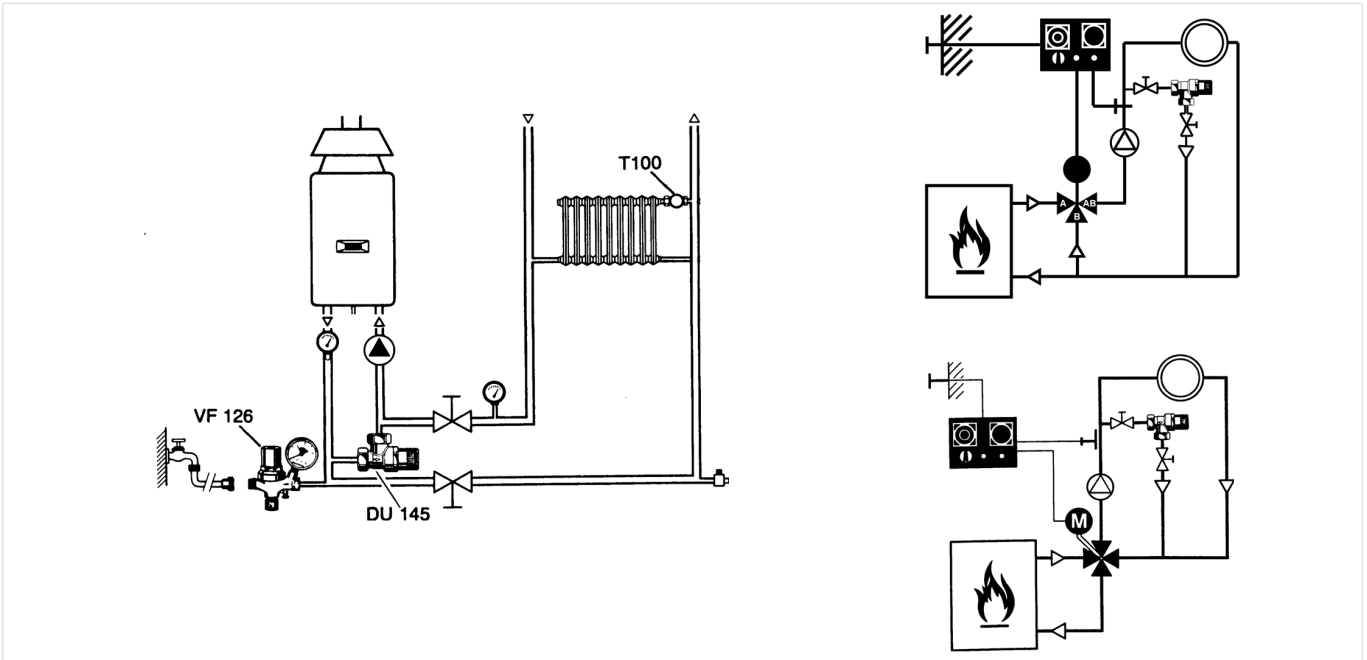
\*non condensing

## INSTALLATION GUIDELINES

### Setup requirements

- Installation between flow and return
- Not suitable for district heating installations
- For maintenance purposes it is recommended that shut-off valves be fitted on both sides of the bypass valve
- DU145 can be installed:
  - On heating systems with three-way mixing valves
  - On heating systems with four-way mixing valves
  - On gas-fired hot water circulation heating systems

**Installation Example**



**TECHNICAL CHARACTERISTICS**

**Flow Chart**

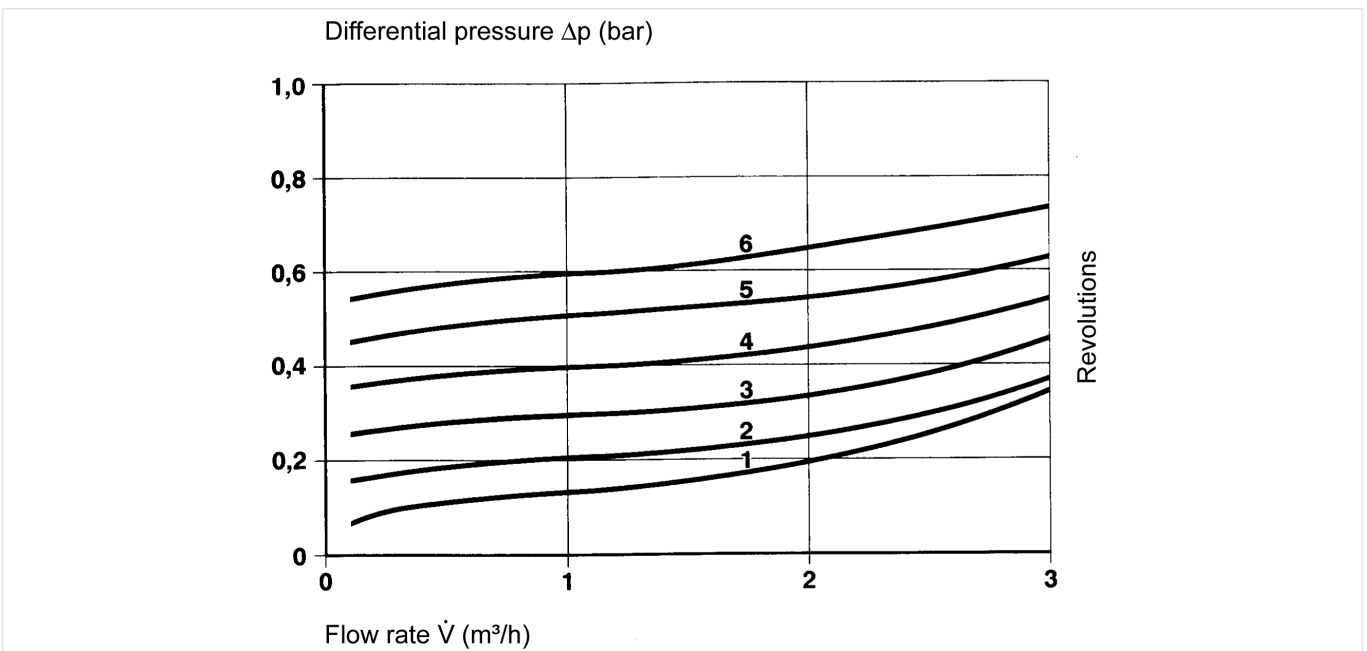
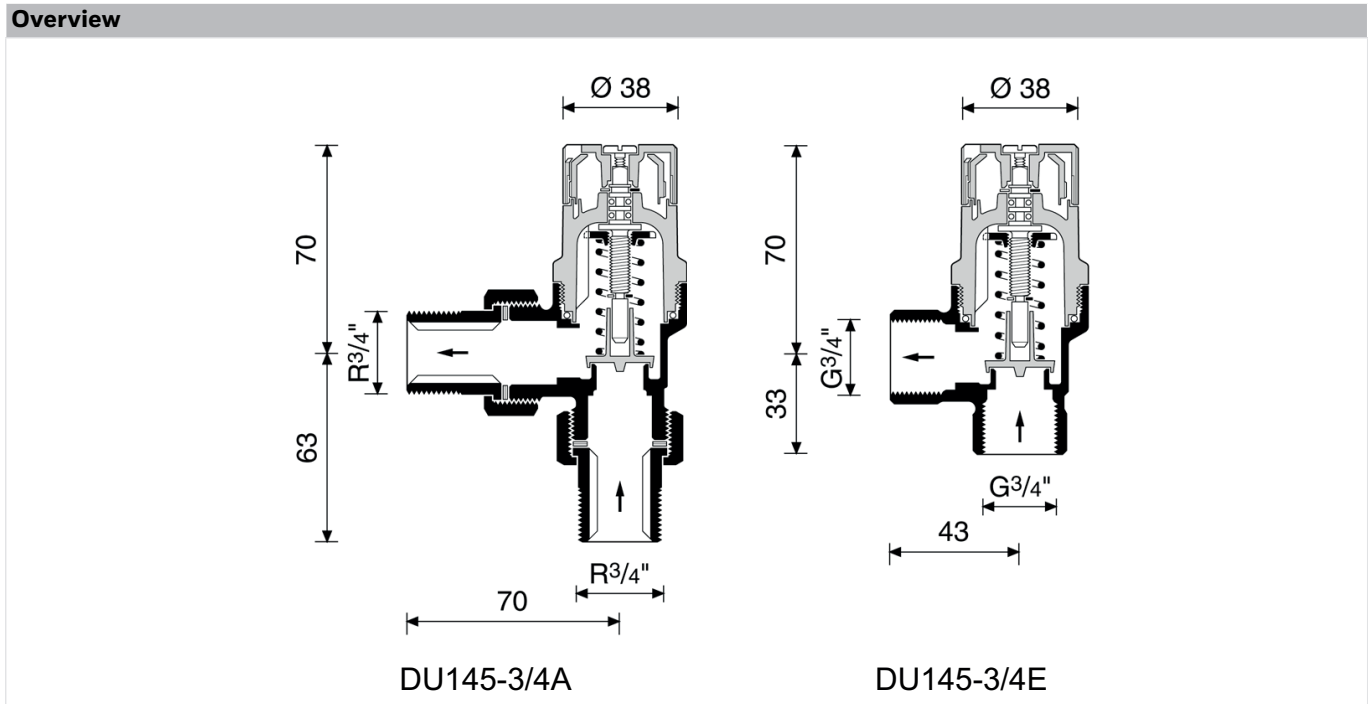


Fig. 1 Pressure drop in dependency on the flow rate.

## DIMENSIONS



## ORDERING INFORMATION

The following tables contain all the information you need to make an order of an item of your choice. When ordering, please always state the type, the ordering or the part number.

### Options


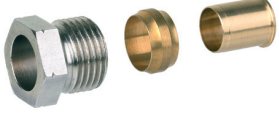
The valve is available in the following sizes:  $\frac{3}{4}$ "

- standard
- not available

		DU145-3/4A	DU145-3/4B	DU145-3/4E
Connection sizes:	with threaded union connectors $R\frac{3}{4}$ "	•	-	-
	with compression fittings for 22 mm copper pipe	-	•	-
	with internal threads $G\frac{3}{4}$ "	-	-	•

Pre-setting range: 0.1...0.6 bar (1.5...8.7 psi)

**Accessories**

	Description	Dimension	Part No.
	<b>VST06 Solder union connection set for DU145-3/4A</b>		
	2 solder union connectors, 2 backnuts and 2 seal rings. For 22 mm pipe.	3/4"	VST06-3/4B
	<b>ZS109M Compression ring and nut for DU 145-3/4E</b>		
	Support inserts have to be used for copper or soft steel pipe with 1.0 mm wall thickness.		
		3/4" x 18 mm	ZS109M-3/4G
		3/4" x 22 mm	ZS109M-3/4H
	with support insert (2 pcs each)	3/4" x 18 mm	ZS109M-3/4GS

**For more information**

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EN0H-2700GE25 R0420

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