



## DU146

### 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

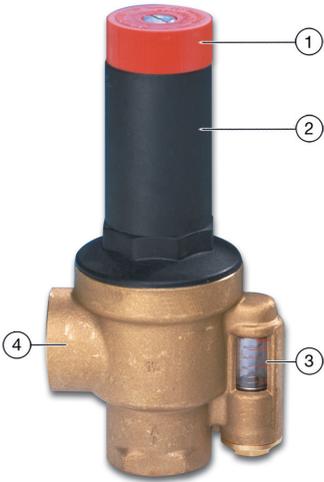
- Maintain minimum flow through a boiler
- Minimises flow noise
- Hinders boiler corrosion
- Differential pressure finely adjustable using the indicator scale integrated in metal housing
- Presetting accessible directly
- Setting value is in meters water column
- No external controls required



#### 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" and 1 1/4"
<b>Operating temperatures</b>	
Max. operating temperature medium:	110 °C (230 °F)
<b>Pressure values</b>	
Max. operating pressure:	3.0 bar (43.5 psi)
Differential pressure presetting range:	0.05 - 0.5 bar (0.7 - 7.3 psi)
<b>Specifications</b>	
Factory setting:	0.2 bar (2.9 psi)

## CONSTRUCTION

Overview	Components	Materials
	<b>1</b> Adjuster knob	High-quality synthetic material
	<b>2</b> Spring bonnet	High-grade synthetic material
	<b>3</b> Display tube for differential pressure indication	High-temperature resistant synthetic material
	<b>4</b> Body with internally threaded inlet and outlet	Unpolished brass
<b>Not depicted components:</b>		
	Valve piston	Brass
	Valve disc	Brass
	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
- DU146 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**

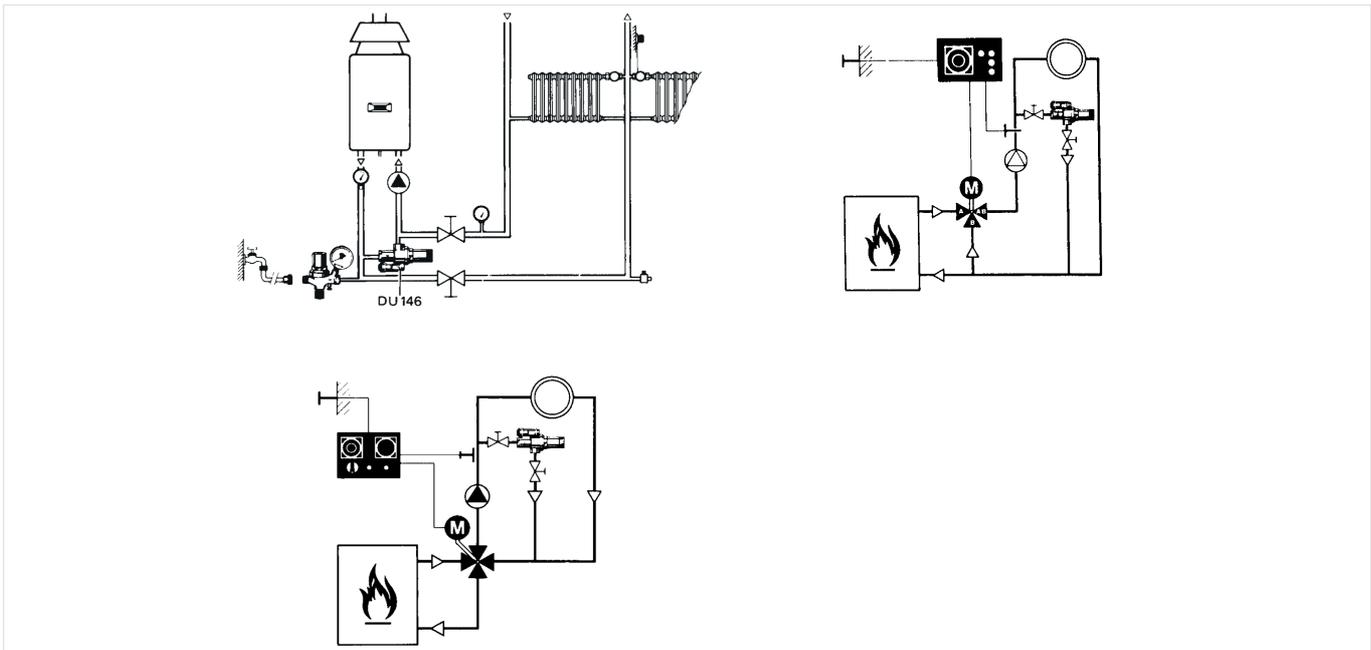
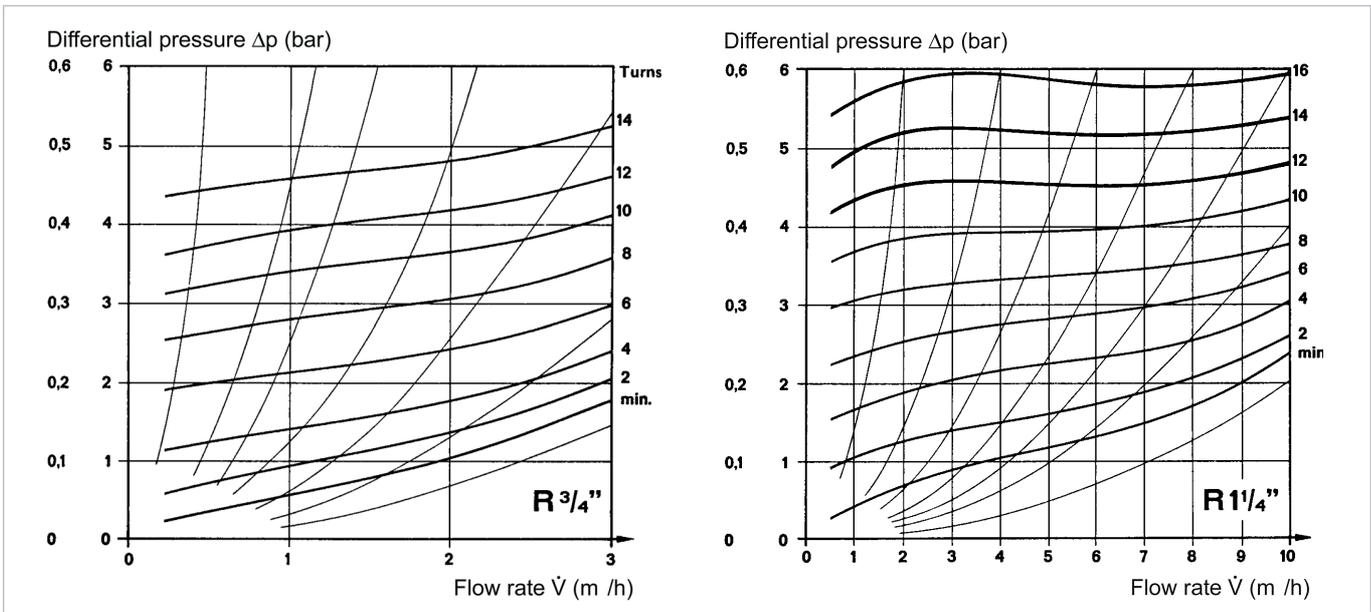


Fig. 1 DU146 in heating loops with boiler, in heating systems with three-way mixing valve and in heating systems with four-way mixing valve.

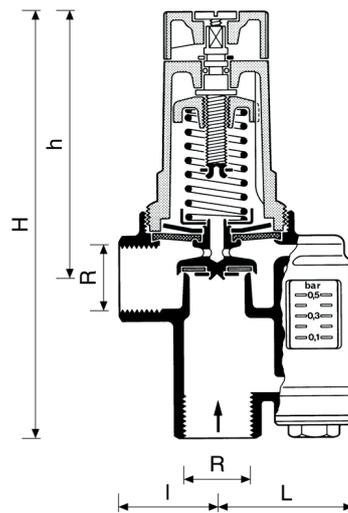
**TECHNICAL CHARACTERISTICS**

**Flow chart**



## DIMENSIONS

### Overview



Parameter		Values	
Connection sizes:	DN	3/4"	1 1/4"
Dimensions:	L	50	58
	H	160	213
	h	100	155
	l	36	51
for installations 90/70 up to:	ca. KW	70	232
	approx. kcal/h	60.000	200.000
OS-No.:		DU146-3/4A	DU146-11/4A

Note: All dimensions in mm unless stated otherwise.

## 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: 3/4" and 1 1/4"

- standard
- not available

		DU146-3/4A	DU146-1 1/4A
Connection sizes:	with internal threads Rp 3/4"	•	-
	with internal threads Rp 1 1/4"	-	•

Note: Special Versions available on request

Note: Ordering number example for 1 1/4" and type A valve: DU146-11/4A

**Accessories**

	Description	Dimension	Part No.
	<b>DU146AH Complete indicator tube</b>		
	<b>-A</b> For DU146 differential pressure and bypass valve. Comprising: Indicator tube, spring, indicator piston and 5 'O' rings		DU146AH-A

**Spare Parts**

Boiler Room Valve DU146.

Overview	Description	Dimension	Part No.
	<b>1 Valve insert</b>		
		3/4"	0900311
		1 1/4"	0900312

**For more information**

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 EN0H-2701GE25 R0420

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