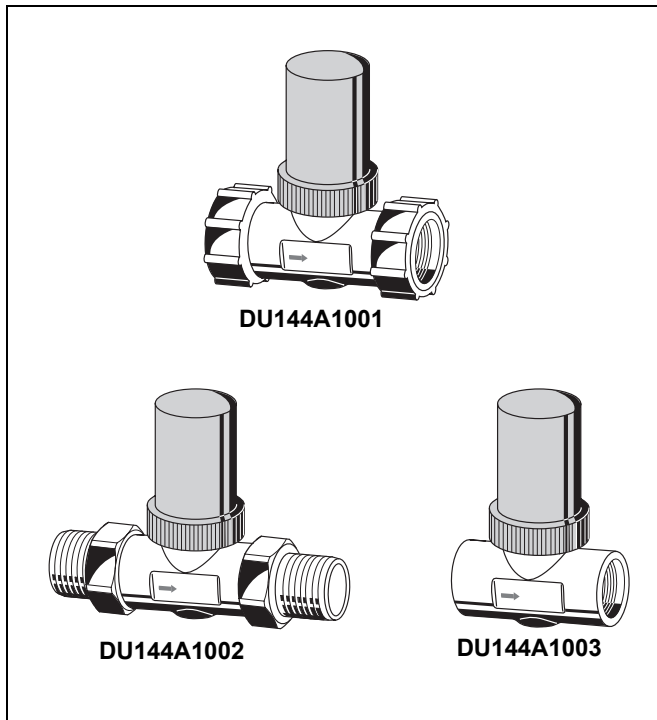


DU144 Automatic Bypass Valve FOR HYDRONIC HEATING SYSTEMS

PRODUCT DATA



Application

The DU144 automatic bypass 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.

Because manual or fixed position valves do not regulate the flow and allow water to bypass even when it is not necessary, building regulations require bypass circuits to use automatic bypass valves and not fixed position valves.

Features

- Rugged design with protection cap
- Minimises flow noise
- Differential pressure finely adjustable
- The setting is directly read on the indicator scale
- Pre-settable differential pressure from 0.1 to 0.6bar
- Factory set to 0.2bar
- Equipped with compression fittings for 22mm copper pipe, threaded union connectors R¹/₂" or with internal threads Rp¹/₂"

Design

The DU144 automatic bypass valve consists of:

- Housing - Version 1001 and 1002 with fittings
- Version 1003 with internal threads
- Spindle and plug assembly
- Bonnet with differential pressure setpoint marking
- Handwheel to pre-set differential pressure
- Protection cap

Materials

- Valve housing, fittings, bonnet and handwheel made of brass
- Spindle made of stainless steel
- All sealings made of EPDM and NBR
- Protection cap made of red plastic

Specifications

Medium	Water or water-glycol mixture, quality to VDI 2035
pH-value	8...9.5
Operating temperature	2...110°C (36...230°F)
Operating pressure	max. 10bar (145psi)
Differential pressure pre-setting range	0.1...0.6 bar (1.45...8.7psi);
Factory setting	0.2bar (2.9psi)
k _{vs} (cv)-values	2.3 (2.7)

Function

The DU144 automatic bypass 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 DU144

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.

Dimensions

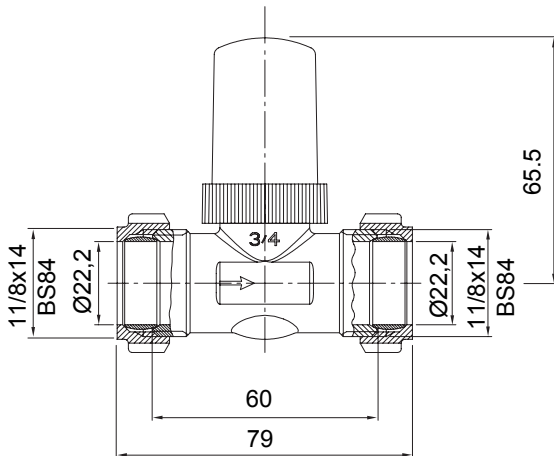


Fig. 1. DU144A1001

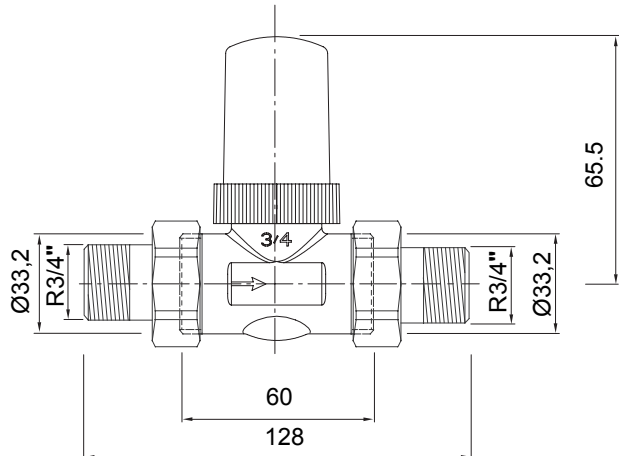


Fig. 2. DU144A1002

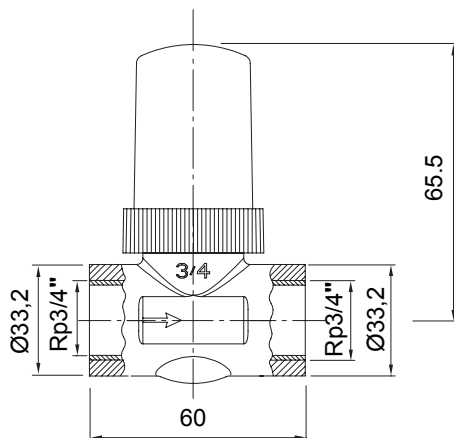


Fig. 3. DU144A1003

NOTE: All dimensions in mm

Ordering Information

Order text	Pre-setting range	Connection size	OS-No.
DU144 automatic bypass valve	0.1...0.6 bar (1.45...8.7 psi)	Compression fittings for 22mm copper pipes	DU144A1001
		3/4" external threads	DU144A1002
		3/4" internal threads	DU144A1003

Installation Examples

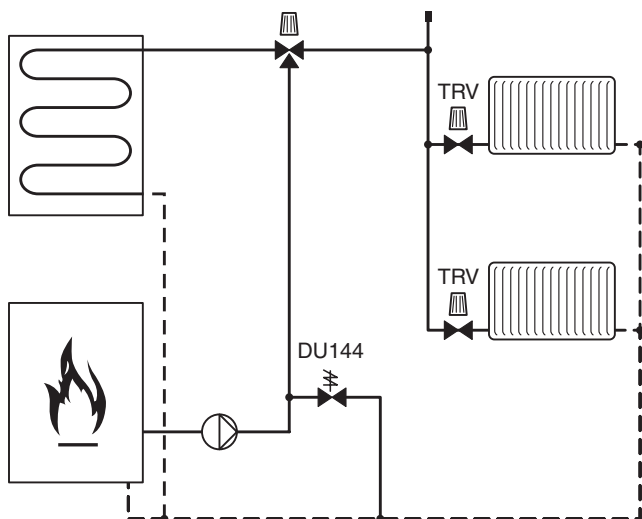


Fig. 4. DU144 in system with stored hot water

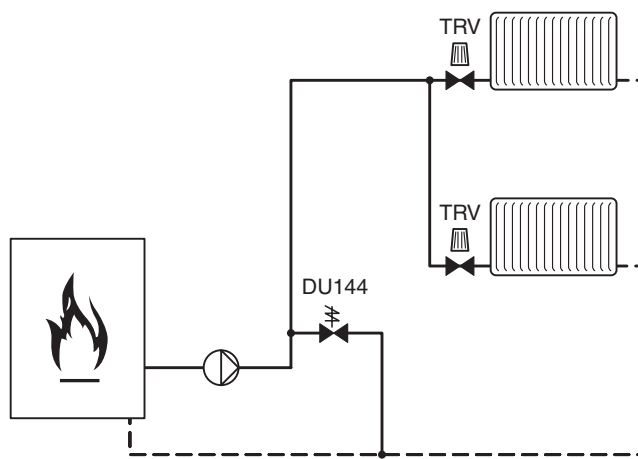


Fig. 5. DU144 in system with combi boiler

Flow Diagram

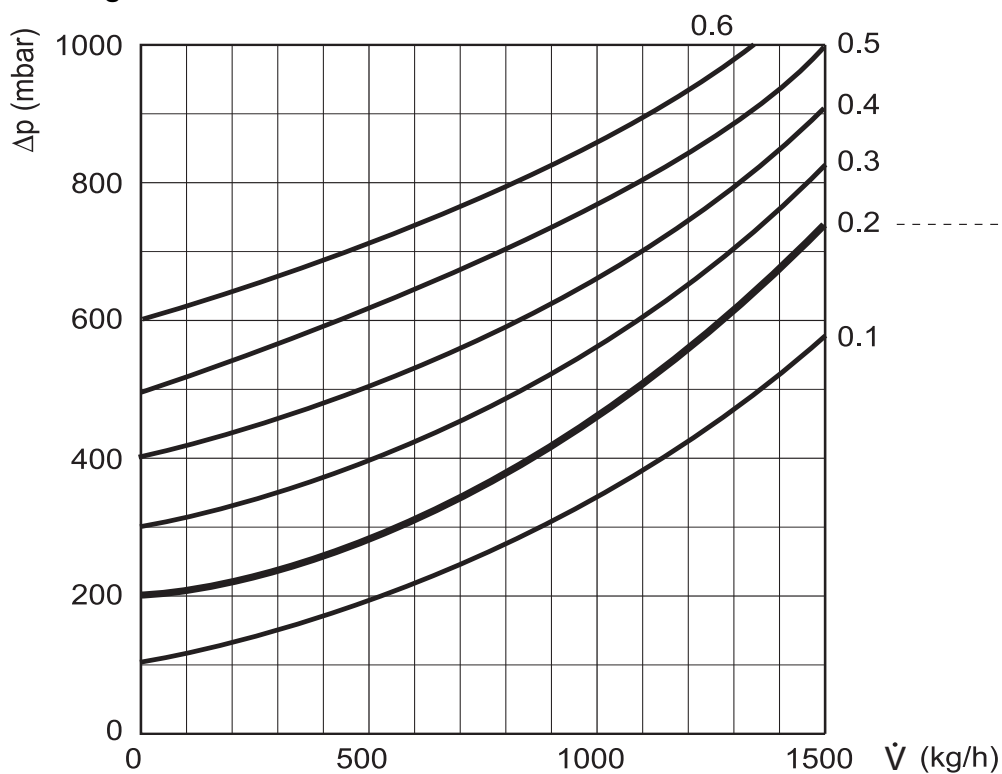


Fig. 6. DU144 Flow Diagram

Setting Procedure

1. Commission and balance the Heating System – take note of the selected pump speed.
2. Using the Boiler manufacturer’s instructions, find the minimum flow requirement for the Boiler.
3. Using the Pump manufacturer’s Pump curves determine the available Pump head when operating at the required minimum flow and the selected Pump speed.
4. Using the DU144 Setting chart, the calculated Pump Head and the minimum Boiler Flow to find the optimum setting for the DU144

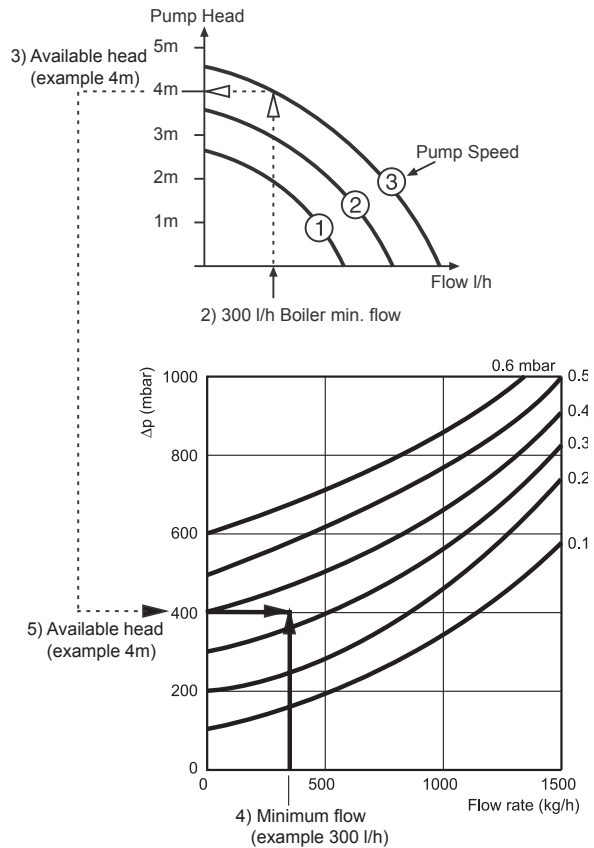
Note: To set the DU144, remove the protective cap and turn the setting handle until the bottom of the handle crosses the corresponding line on the DU144 stem.

Note: The cap is internally fixed with sealing wax during assembly. Turn firmly to break the seal.

Should persistent water velocity noise occur in the Heating System, gradually turn the DU144 to a lower setting until the noise is eliminated.

Example:

Minimum flow 300 l/h - Pump speed 3.
 Pump chart indicates 4 m head (Use Pump Manufactures chart).



Using DU144 Setting Chart:

4m Head / Minimum Flow 300 l/h
 Result = Set DU144 to setting 0.35

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