



## KEMPER 'Multi-Therm', automatic valve



- Thermostatically controlled regulation of the return flow
- Isolation and adjustment integral
- Drain facility with adjustable outlet
- Optionally available with Pt1000 temperature sensor for BMS
- High quality bronze construction
- Stagnation free internals



**KEMPER 'Multi-Therm'**

A potential problem in secondary domestic hot water systems is Legionnaires disease resulting from the growth of the Legionella bacteria. Legionella bacteria starts to multiply between 30°C to 45°C but is minimised at temperatures over 50°C. It is recommended that the system is run between 55°C and 60°C.

The KEMPER 'Multi-Therm' automatic regulating valve is designed for use on recirculating secondary hot water systems to maintain the return temperature at 58°C. The valve never isolates, therefore it prevents stagnation and stops the temperature dropping below 50°C.

During periods of low, or no demand the valve automatically regulates to maintain the set water temperature. This also has the advantage of keeping the supply pipe work to the outlets 'live', preventing water wastage; when running off water waiting for the supply temperature to increase.

When the system requires thermal disinfection, it is achieved without manual adjustment of the valve, which responds automatically to an increasing circulation temperature.

The valves should be installed at the end of the secondary circuit to ensure the water upstream of the valve is maintained

at 58°C. If the design specification or site conditions require a different set temperature this can be easily achieved within the range of 50 to 65°C.

**Technical Specification**

The KEMPER 'Multi-Therm' valves are WRAS approved products for use on potable water systems. The valves are manufactured in bronze to BS EN 1982 CC491K and are therefore dezincification resistant.

Valves are supplied as standard with an integral manual isolating valve eliminating the need to install a separate isolating valve on the return.

'Multi-therm' valves are also available fitted with a drain valve, push in thermometer, Pt1000 temperature sensor and preformed insulation shell.

The 'Multi-Therm' valves are normally supplied with a male parallel thread for use with union tails the most common to suit copper pipe, Mapress copper, pressfit copper or with a male taper threads to BS EN 10226-2.

Adjustable control range	50°C to 65°C
Factory pre-set temperature	58°C
Temperature range for thermal disinfection	> 70°C
Max. permissible operating temperature	90°C
Control accuracy	±2K
Nominal pressure	PN16
Nominal sizes DN 15 DN 20 DN 25	kv-ranges in m <sup>3</sup> /h at Δp = 100 kPa 0.1 - 1.3 0.2 - 1.6 1.2 - 3.2
Valve type	Fig 141 male thread with flat gasket Fig 143 female thread
Accessories	Thermometer 0 to 80°C Pt1000 thermal sensor 0 to 120°C Drain valve Sampling valve

## Correct Sizing

As with all regulating valves it is important they are sized correctly to give the optimum performance.

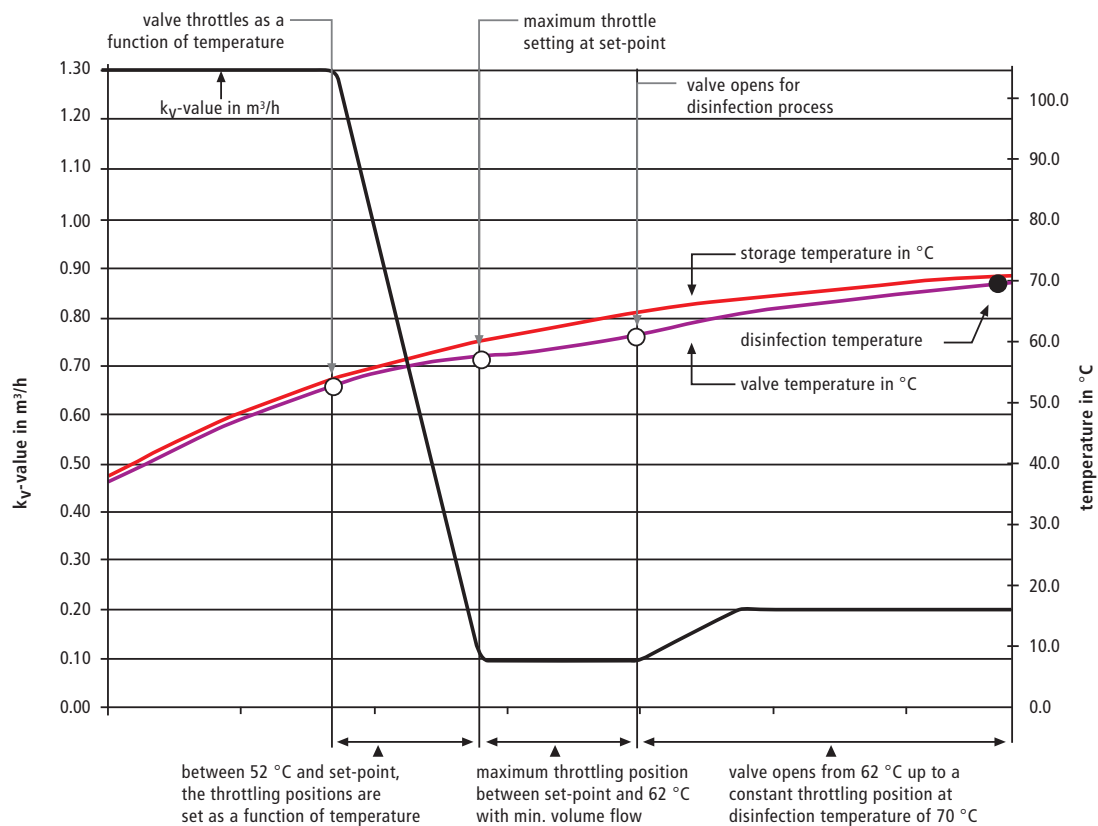
For large systems KEMPER has developed the KEMPER Dendrit CAD program which considers the complete hot water system and recommends sizes of 'Multi-Therm', 'Eta-Therm' and 'Multi-Fix' valves in addition to pipe sizes for the main pipework and individual branches.

For smaller or individual circuits a spread sheet is available to enable the designer to accurately size valves and pipework. Flow data charts are available to relate required flow rate to pressure loss through the valve.



Figure 141 OG with thermometer

## Control Characteristic



**Branch plan – Extract from a major project**

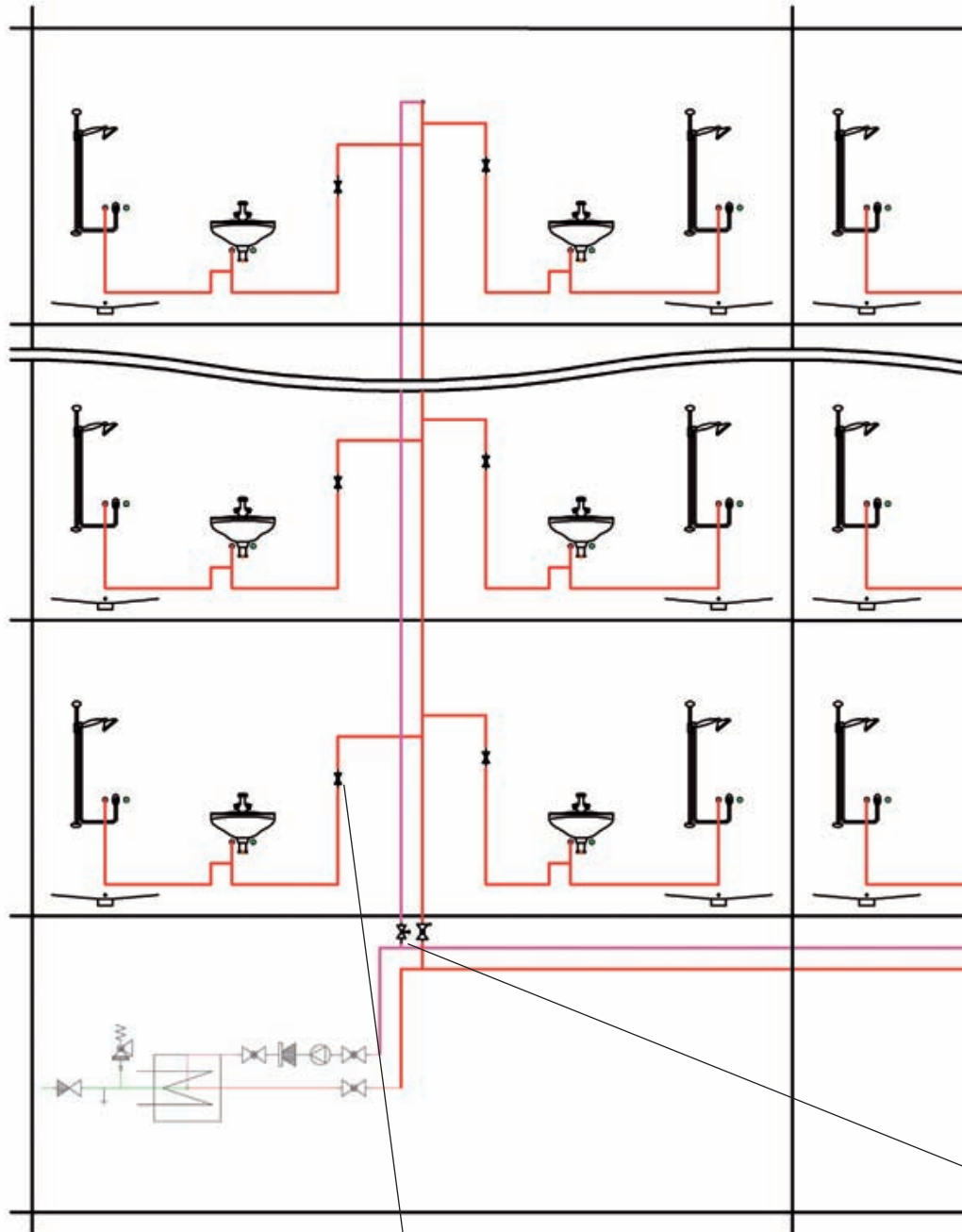


KEMPER 'Multi-Therm' control valve for meeting the hygiene and comfort demands in domestic hot water systems. For hydraulic balancing of the riser branches in large projects (e.g. hotel, hospital or nursing home).

Schematic of a riser distribution design with 'Multi-Therm' control valves and a 'Multi-Fix' control valve in the last riser branch.

**Note:**

'Multi-Therm' is a typical riser branch valve used in each of the risers (see opposite). In the last riser, to optimise the hydraulic balance, a 'Multi-Fix' valve is recommended. This valve is set almost fully open.



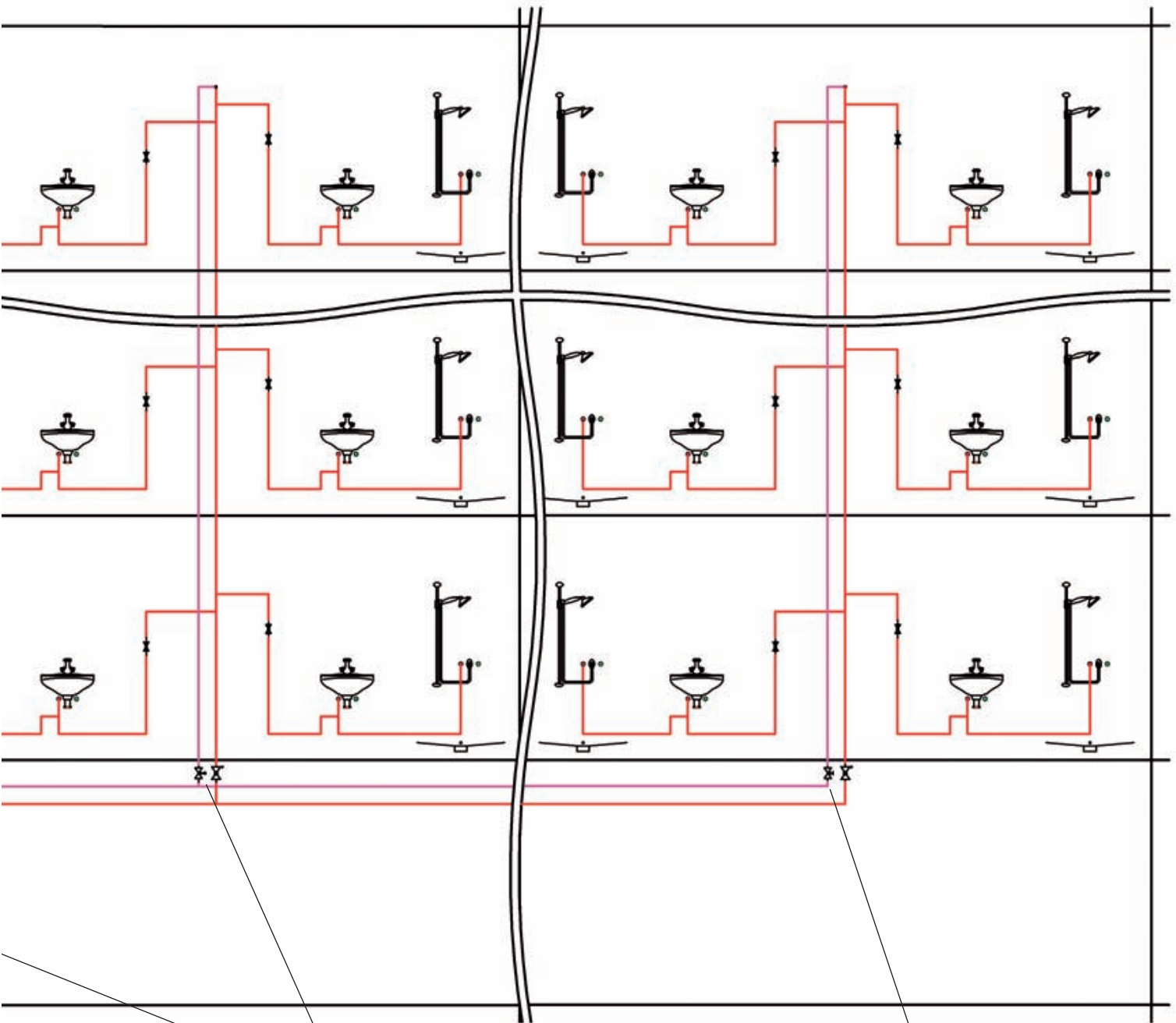
Maximum flow isolating ball valve (VAV)  
Figure 385 or Figure 585



Valve with zero pressure loss  
for isolation



Maximum flow isolating ball valve (VAV)  
Figure 385 or Figure 585

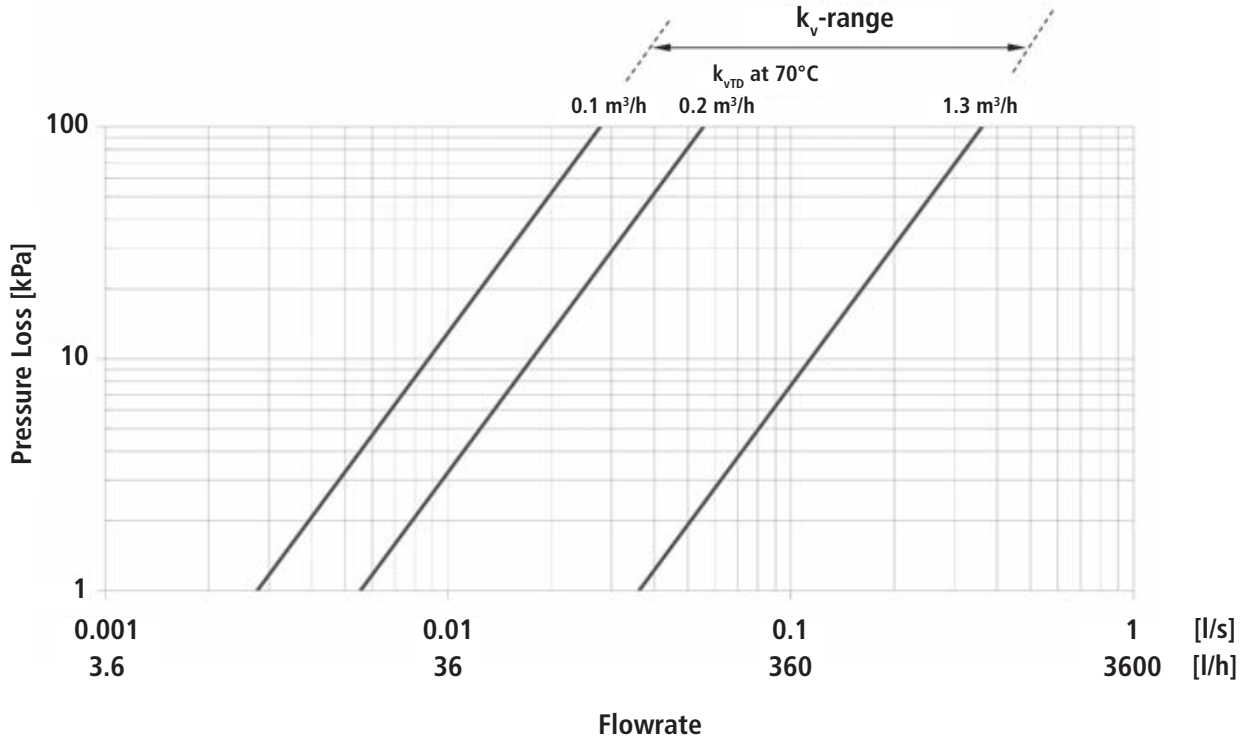


Multi-Therm  
Figure 141 or Figure 143

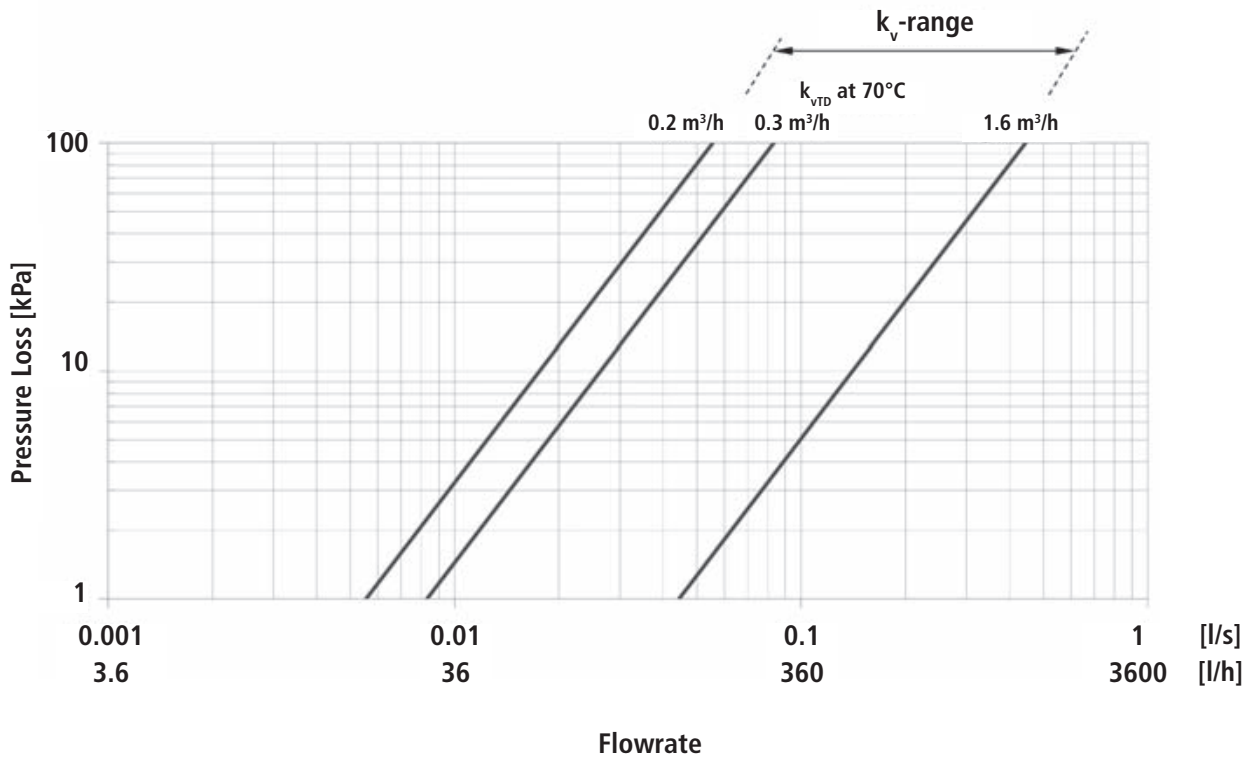


Multi-Fix  
Figure 150 or Figure 151

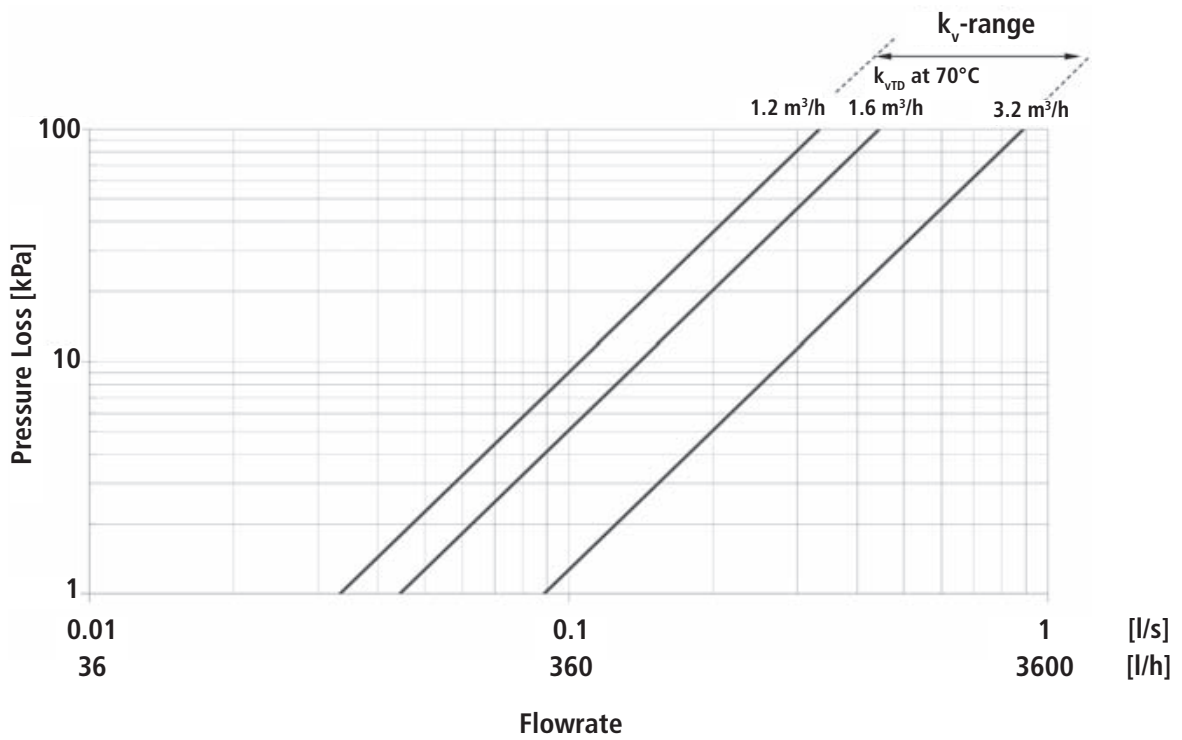
Flow Chart, DN 15



Flow Chart, DN 20



Flow Chart, DN 25



'Multi-Therm' applications



Figure 141 0G with male thread



Figure 143 00 with female thread



Figure 143 22 with Geberit 'Mapress' press-fit connection



Figure 143 40 with Geberit 'Mepla' press-fit connection



Figure 143 35 with 'Sanha' press-fit connection



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