

## Control Valves

**Calorimats**
**BW 31 for hot water**
**PN 25, DN 15 – 40**
**Description**

GESTRA return-temperature control valves are used for regulating large heating systems, tracing systems and for the temperature control of individual plants or heat exchangers, (washing baths, chemical or galvanic baths) and many other production plants. They ensure a uniform distribution of the hot water throughout the system and prevent insufficient heating or overheating of heat exchangers exposed to the danger of short-circuiting.

The valves adapt their pressure drops automatically to the temperature requirements of the heat exchangers. They react to any change in the system ensuring that pressure, quantity and temperature are always sufficiently provided. System balancing which is necessary with orifice plates and adjustable rigid valves is superfluous. Existing systems equipped with return-temperature control valves can be extended without difficulty, new systems can be sized smaller because of the even pressure distribution ensured by the valves.

The Calorimats are directly controlled return-temperature control valves which are installed in the return line. They maintain constant return temperatures within their proportional range. The valves are set at our works to the desired closing temperature (as stated in the order). On request an external adjusting device can be supplied for valve sizes DN 15-40 mm (1/2"-1 1/2") only.

The valves are always installed in the return line:

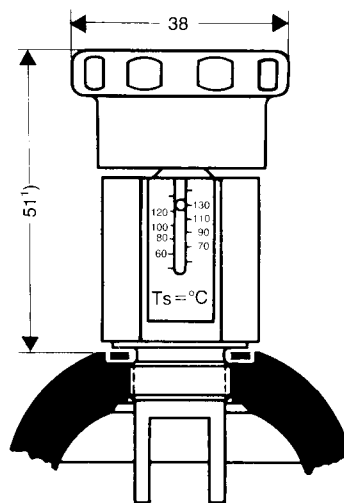
DN 15-40 mm (1/2"-1 1/2") ideally in horizontal lines with the cover pointing upwards or downwards.

**Range**

Max. service pressure	22 barg (320 psig)
Max. differential pressure	6 bar (85 psi)
Max. temperature of feed circuit	180 °C (356 °F)
Adjustment range of closing temperatures	
DN 15 mm (1/2")	60–130 °C (140–266 °F)
DN 20 mm (3/4")	40–115 °C (104–239 °F)
DN 25 mm (1")	40–115 °C (104–239 °F)
DN 40 mm (1 1/2")	50–110 °C (122–230 °F)

**Design**

Straight-through valve, standard design flanged, with compact temperature feeler, balanced valve sleeve. Closing temperature set at our works. External adjusting device for modifying adjustment in situ on request at extra cost for valve sizes DN 15-40 mm (1/2"-1 1/2") only.



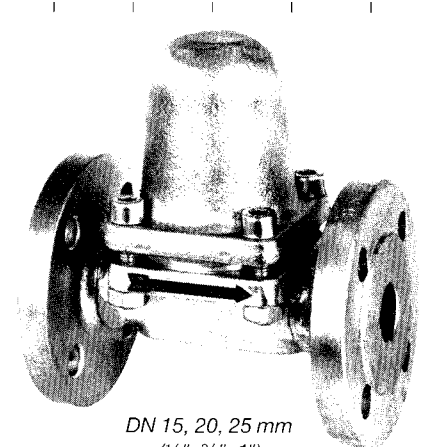
External adjusting device with graduated scale for DN 15-40 mm (1/2"-1 1/2") only  
 1) DN 40 mm (1 1/2") = 55 mm

**Connections**

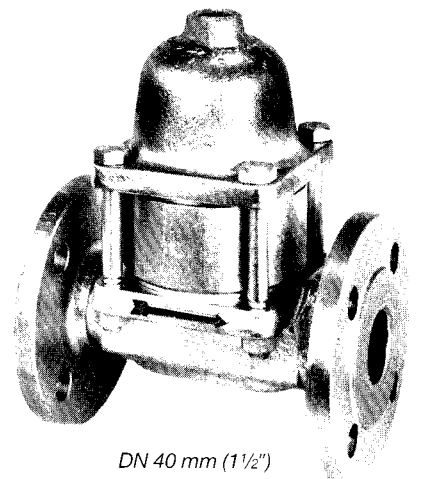
Flanges to DIN (BS 4504) PN 25. On request at extra cost, flanged to ANSI or BS 10. DN 15-40 mm (1/2"-1 1/2") also available with screwed sockets to BSP or NPT (API), with socket-weld ends or butt-weld ends.

**Materials**

**DN 15-40 mm (1/2"-1 1/2")**  
 Body, cover: Forged steel C 22.8 (DIN No. 1.0460.01)  
 Valve sleeve: Stainless steel

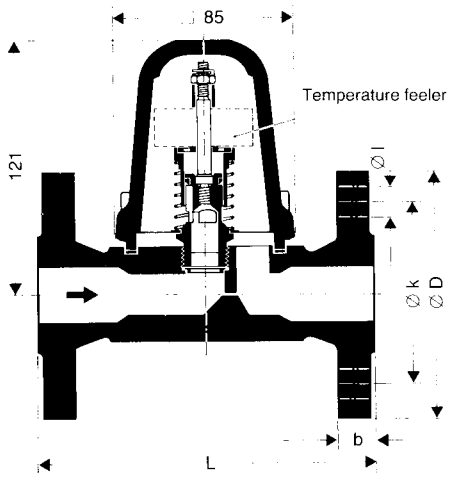


DN 15, 20, 25 mm  
 (1/2", 3/4", 1")



DN 40 mm (1 1/2")

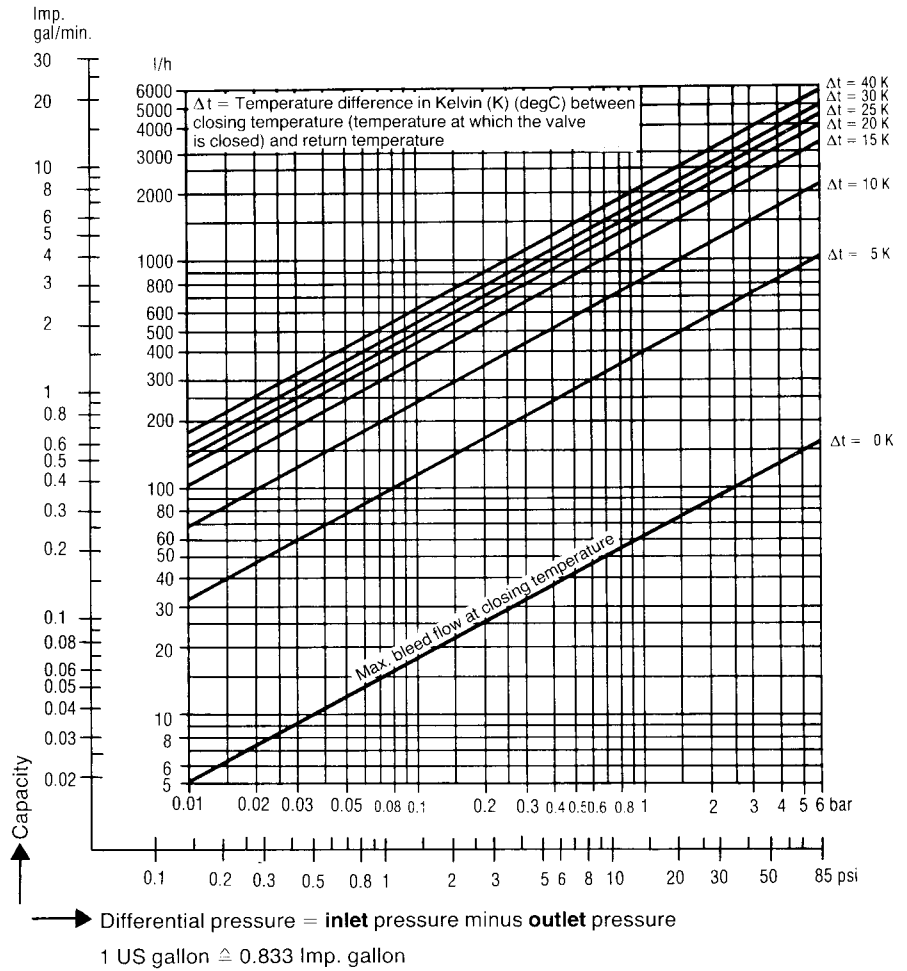
## Dimensions



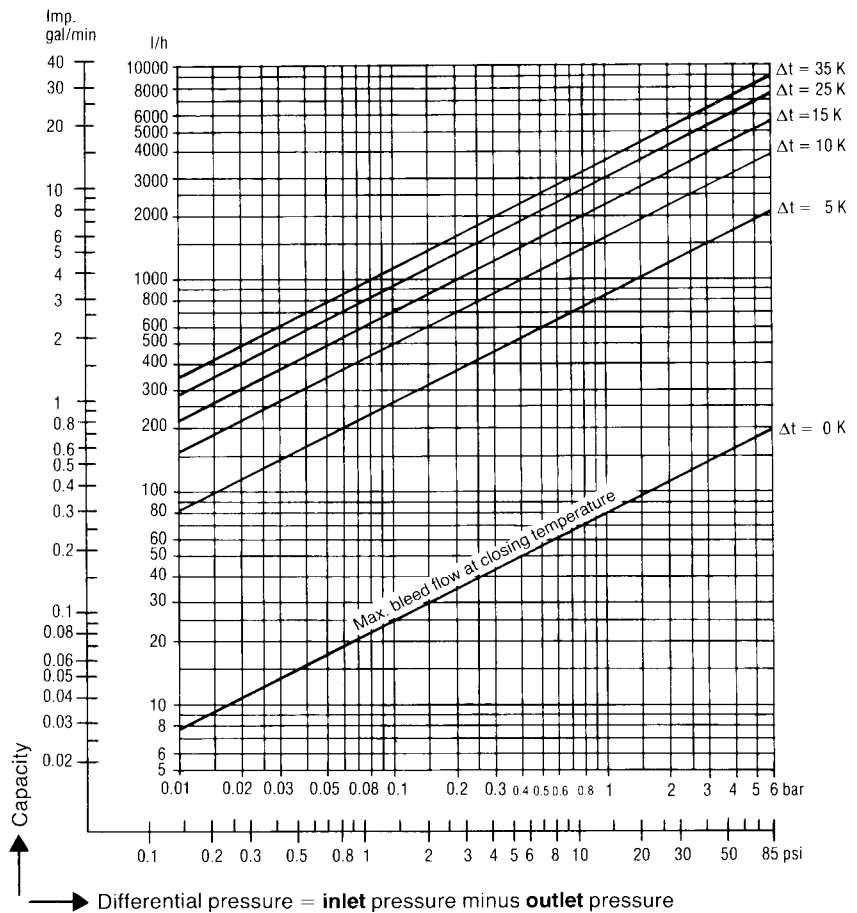
DN 15, 20, 25 mm  
(1/2", 3/4", 1")

DN	mm	15	20	25
	in	1/2	3/4	1
Dimensions in mm	L	150	150	160
Flange measurements in mm	D	95	105	115
	b	16	16	18
Number of bolts	k	65	75	85
	l	14	14	14
Approx. weight	kg	4.4	5.3	5.7

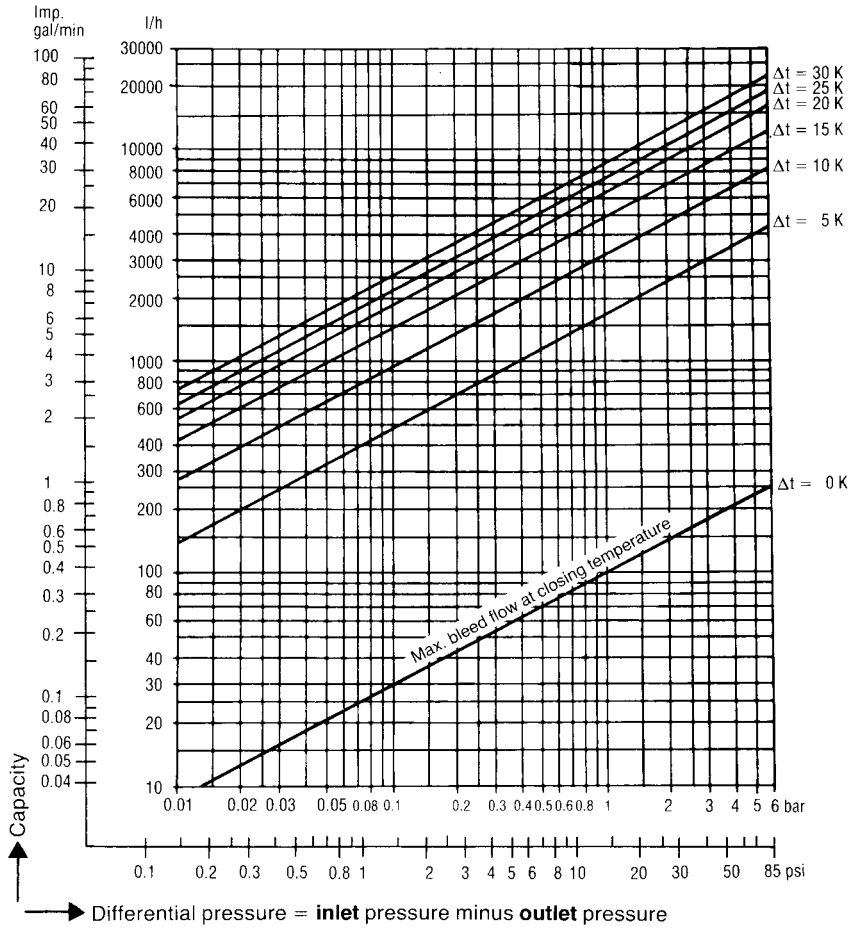
## Capacity Chart, DN 15 mm (1/2")



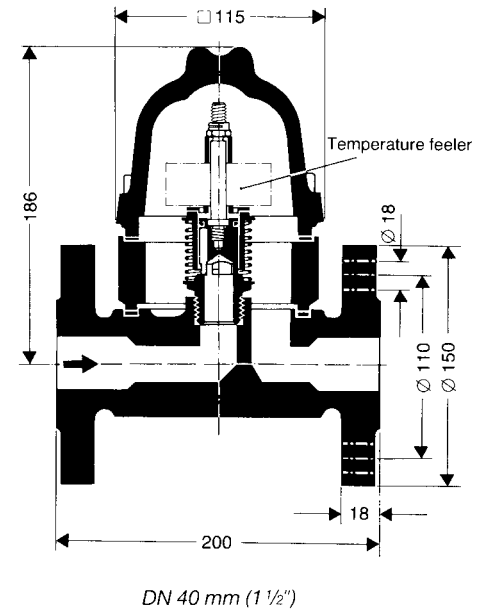
## Capacity Chart, DN 20, 25 mm (3/4, 1")



# Capacity Chart, DN 40 mm (1 1/2")



# Dimensions



## Determination of Nominal Size (DN)

1. Required operating data:  
Desired flowrate e.g. 1000 l/h  
Permissible differential pressure e.g. 0.2 bar  
  
Desired return temperature (depending on the desired flowrate) e.g.  $t_R = 70\text{ °C}$   
Max. permissible closing temperature e.g.  $t_C = 80\text{ °C}$   
 $\Delta t = t_C - t_R = 80\text{ °C} - 70\text{ °C} = 10\text{ K (Kelvin)}$
2. See capacity chart of the valve size which you intend to use, e.g. DN 25 mm (1"). The point of intersection between the flowrate of 1000 l/h and the differential pressure of 0.2 bar falls on the curve  $\Delta t = 15\text{ K}$ . In accordance with point 1, however, a  $\Delta t = 10\text{ K}$  is permissible.  
  
In the capacity chart for the next greater valve size, DN 40 mm (1½") the point of intersection between 1000 l/h and 0.2 bar falls on  $\Delta t = 8\text{ K}$  which gives a closing temperature of  $70 + 8 = 78\text{ °C}$  (max. permissible temperature =  $80\text{ °C}$ ). This temperature lies within the adjustment range of the closing temperatures for the BW 31, DN 40 mm (1½"), so that this valve size is chosen.

## Enquiry Specification

Return-temperature control valve Calorimat for hot water.  
With compact temperature feeler and balanced valve sleeve.  
For remaining data see "Order Specifications".

## Order Specifications

Nominal pressure (PN), nominal size (DN).  
Closing temperature set at . . . °C (°F)  
or with external adjusting device, on request for DN 15-40 mm (½-1½") only.

Data required for valve selection:

Service pressure, differential or back pressure, capacity, temperature of feed circuit, desired return temperature.

Type of heating fluid, position of the valve and details of application (type of heat exchanger).

Technical modifications reserved.

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