



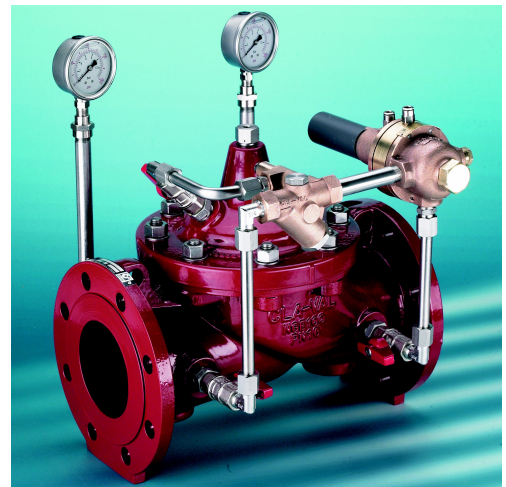
# Cla-Val series 40-111

## Differential pressure control valve

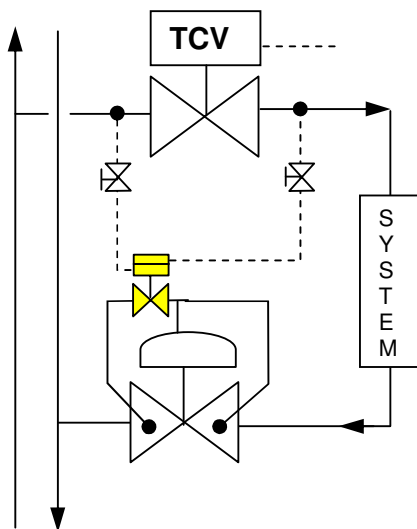
The Cla-Val series 40-111 is a hydraulically operated, pilot controlled, modulating valve designed to maintain a constant differential pressure across a pipe-work sub-circuit or temperature control valve to a pre-determined value despite fluctuations in mains pressure and/or flow-rate. The main control valve is **internally pressure balanced** and consequently can **close-off tightly** against extremely high upstream pressures.

**Sizes: 1 ¼" – 28" (32mm - 700mm)**

- Internally pressure balanced
- Extremely accurate control of set-point
- High quality materials
- Minimum dimensions above and below the centre-line
- 3 year warranty



### Control of Point Load (Heat exchanger or Air coil)



In this application, the differential pressure across a modulating temperature control valve is maintained at a constant value, irrespective of its stem opening. This ensures that:

- The flow through the circuit cannot be exceeded even when the temperature control valve is fully open
- The control authority of the temperature control valve is virtually 100% giving greater control accuracy than 3-way valves whose authority is usually 50%
- The 0 -10 V control signal is fully utilised
- Larger temperature control valves can close tightly if the mains pump head is very high

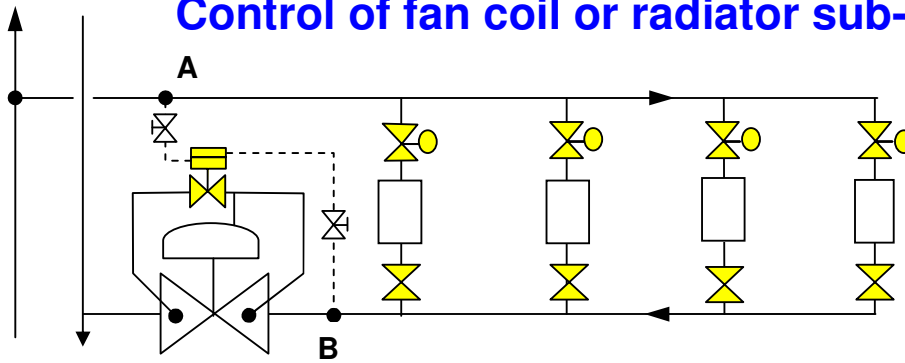
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## Control of fan coil or radiator sub-circuit

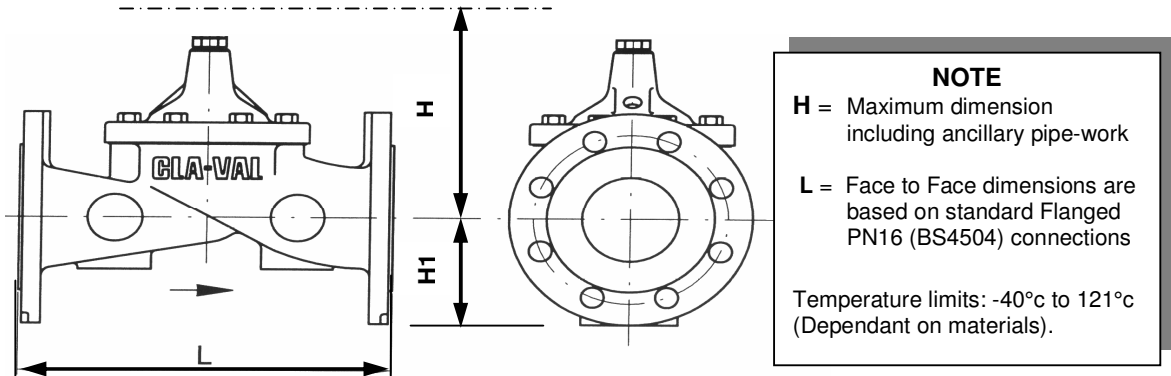


The differential pressure across the sub-circuit is maintained essentially constant irrespective of changes in flow-rate or mains pressure. This ensures that :

- The required flow-rate through the sub-circuit cannot be exceeded despite mains pressure changes
- The sub-circuit T.R.V's or Fan-coil controls are protected from excess mains pressure, against which they may not be capable of closing-off. Noise generation across the controls will also be reduced.
- Provided the radiator lock-shield valves or Fan-coil regulating valves are adjusted such that **the head-loss for each individual circuit from A to B is the same** i.e the value being controlled by the D.P controller, the flow-rate for each individual radiator or Fan-coil cannot be exceeded. **Each one is therefore individually automatically balanced.**

### IMPORTANT NOTE

For automatic balancing of variable flow systems, differential pressure controls are far superior to automatic flow limiting valves since, whereas at flow rates **below maximum design** a flow limiter **OPENS**, the head-loss across it **FALLS** dramatically and **temperature controls** then have to absorb **ALL the available pump head**, significantly reducing their control authority, a differential pressure controller **CLOSES** and continues to absorb the surplus pump head thus ensuring **MAXIMUM** control authority for the temperature controls and head protection for TRV's etc. Systems in the UK rarely operate at the maximum design conditions.



### DIMENSIONS (Common sizes)

Valve Model	Size [mm]	Kv [m <sup>3</sup> /h]	L [mm]	H [mm]	H1 [mm]	Weight [Kg]
<b>NGE40-111KC (Standard)</b>						
	50	32	230	255	82.5	15
	65	43	290	295	93	20
	80	58	310	300	100	25
	100	119	350	390	110	40
	150	209	480	480	142.5	70
	200	479	600	585	170	120
	250	799	730	700	200	190
	300	1292	850	875	228	330
<b>40GE-111KC (High Capacity)</b>						
	40	28	215	251	75	13
	50	47	254	285	82.5	20
	65	72	280	320	93	25
	80	101	305	345	100	30
	100	173	381	450	110	50
	150	400	508	540	142.5	95
	200	666	645	645	170	170
	250	1076	756	780	200	310
	300	1490	864	905	228	470

\* The flow coefficient (Kv) expressed as m<sup>3</sup>/h is the flow ( water temp. At 20 °c) which produces a 1 bar pressure `drop across the wide open valve.