Local regulations may restrict the use of this product to below the conditions quoted.
In the interests of development and improvement of the product, we reserve the right to change the specification without notice. © Copyright 2022

Selection of Modulating Feedwater Valves Pneumatically Actuated

Safety
Your attention is drawn to Safety Information Leaflet IM-GCM-10

1. Selection of the valve body size

The standard valve for modulating boiler water level control is DN40 (1½") nominal pipe size (40 mm).

A range of seat sizes to suit this body is available to suit most sizes of boilers.

However, for smaller or larger boilers, alternative sized valves can be selected from the Spirax Sarco range - See page 3.

Valve stem seals are available in normal (PTFE) or high temperature (graphite) material.

We recommend the use of the high temperature seal to decrease the possibility of leakage over long term use.

Valves with high temperature stem seals are suffixed 'H'.

2. Selection of the valve body material and pressure rating

The valve body must be suitable for the maximum pressure and temperature in the feedwater line.
Standard valve types are as follows:

SG iron body	**KE71**	Screwed	PN25 rating (Pmax 25 bar g at 120 °C)
	KE73	Flanged	
Cast steel body	**KE43**	Flanged	PN40 rating (Pmax 40 bar g at 120 °C)

To select the valve, please go to page 2

3. Selection of the valve K_v

The DN40 valve body size is available with various seat sizes giving a choice of K_v values.

Use the graph to select a suitable K_v as follows:

a) The feedwater flowrate is the actual maximum steam generation rate of the boiler plus any blowdown rate where this is significant. In practice the use of the 'from and at' boiler rating will give a small safety margin. In the example this is 15 000 kg/h.

b) The pressure drop across the valve is the feedpump pressure at the maximum flowrate, minus the boiler pressure, minus any valve and pipework losses. In the example the available pressure drop is 1.5 bar.

c) Select the larger K_v value, 16 in this example. If right on the line, or if in doubt, select a larger K_v.

4. Selection of the actuator + valve adaptor

The actuator has to be capable of shutting off against the maximum feedpump pressure to Class IV when the boiler is not under pressure.

Select the actuator + valve adaptor from the table below:

Actuator type		**PN9123E**		**PN9223E**	
Valve size	**K_v value**	**Maximum feedpump pressure bar g**			
DN40	**25.0**	11.0	(8)	40	(40)
	16.0	11.0	(8)	40	(40)
	10.0	11.0	(8)	40	(40)
	6.3	11.0	(8)	40	(40)

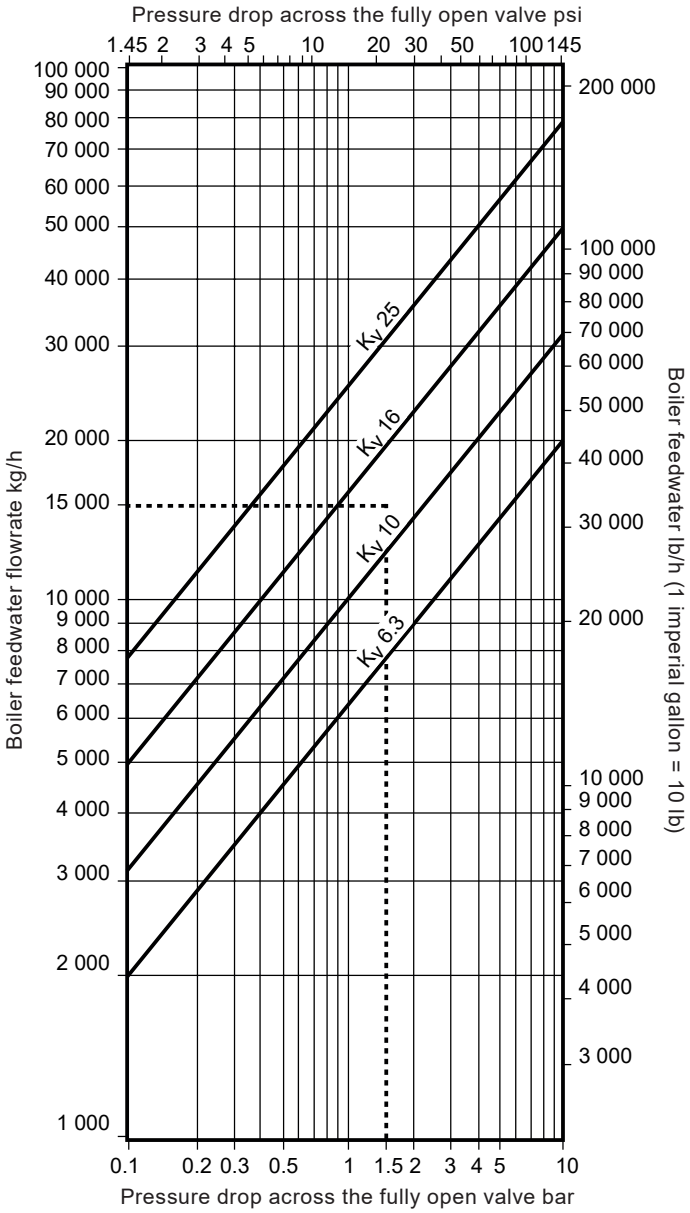
Figures in brackets denotes the differential pressures for valves fitted with high temperature graphite stem sealing. These valves have a suffix 'H'.

Valve stroke is 20 mm.

5. Electropneumatic positioner

Specify EP6 positioner (4 - 20 mA input).

Valve K_v selection graph



For alternative sizes to the standard DN40 (1½")

2. Selection of the valve body material and pressure rating

The valve body must be suitable for the maximum pressure and temperature in the feedwater line.
Standard valve types are as follows:

SG iron body	**KE71**	Screwed	PN25 rating (Pmax 25 bar g at 120 ºC)
	KE73	Flanged	
Cast steel body	**KE43**	Flanged	PN40 rating (Pmax 40 bar g at 120 ºC)

Valve stem seals are available in normal (PTFE) or high temperature (graphite) material. We recommend the use of the high temperature seal to decrease the possibility of leakage over long term use. Valves with high temperature stem seals are suffixed 'H'.

To select the valve, please go to page 4

3. Selection of the valve K_v

The DN40 valve body size is available with various seat sizes giving a choice of K_v values.

Use the graph to select a suitable K_v as follows:

a) The feedwater flowrate is the actual maximum steam generation rate of the boiler plus any blowdown rate where this is significant. In practice the use of the 'from and at' boiler rating will give a small safety margin. In the example this is 15 000 kg/h.

b) The pressure drop across the valve is the feedpump pressure at the maximum flowrate, minus the boiler pressure, minus any valve and pipework losses. In the example the available pressure drop is 1.5 bar.

c) Select the larger K_v value, 16 in this example. If right on the line, or if in doubt, select a larger K_v.

4. Selection of the actuator + valve adaptor

The actuator has to be capable of shutting off against the maximum feedpump pressure to Class IV when the boiler is not under pressure.

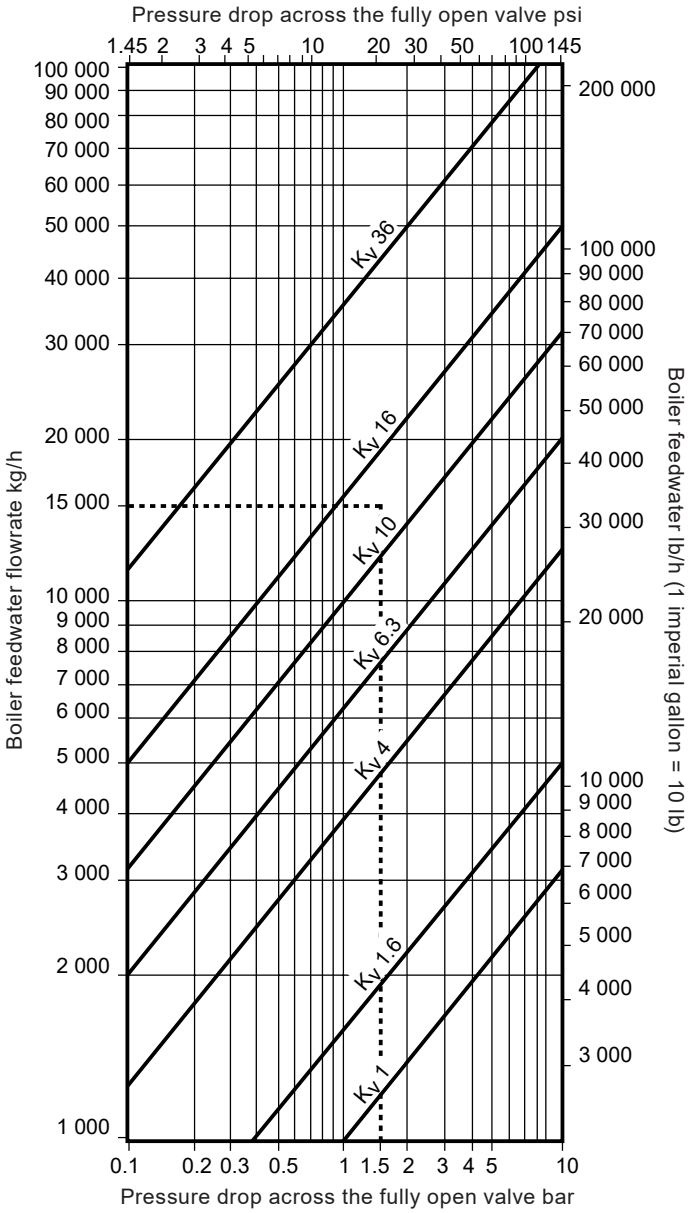
Select the actuator + valve adaptor from the table below:

Actuator type		**PN9123E**		**PN9223E**	
Valve size	**K_v value**	**Maximum feedpump pressure bar g**			
DN50	**36.0**	7	(5)	38	(36)
	25.0	7	(5)	38	(36)
	16.0	7	(5)	38	(36)
	10.0	7	(5)	38	(36)
DN32	**16.0**	29	(23)	40	(40)
	10.0	29	(23)	40	(40)
	6.3	29	(23)	40	(40)
	4.0	29	(23)	40	(40)
DN25	**10.0**	37	(29)	40	(40)
	6.3	37	(29)	40	(40)
	4.0	37	(29)	40	(40)
	1.6	37	(29)	40	(40)
DN20	**6.3**	40	(40)	-	-
	4.0	40	(40)	-	
	1.6	40	(40)	-	-
	1.0	40	(40)	-	-
DN15	**4.0**	40	(40)	-	-
	1.6	40	(40)	-	
	1.0	40	(40)	-	-

Figures in brackets denotes the differential pressures for valves fitted with high temperature graphite stem sealing. These valves have a suffix 'H'.

Valve stroke is 20 mm.

Valve K_v selection graph



5. Electropneumatic positioner

Specify EP6 positioner (4 - 20 mA input).