

# spirax sarco

## KX31, KX33, KY31 and KY33

### Cast Iron

### Self-acting Control Valves

#### Description

The KY31 and KY33 incorporate a pressure balancing bellows, which enables the valve to operate against higher differential pressures.

#### Available types

**KX31** Normally closed with screwed connections.

**KY31** Normally closed with balancing bellows and screwed connections.

**KX33** Normally closed with flanged connections.

**KY33** Normally closed with balancing bellows and flanged connections


#### Optional extras

Fixed bleed bypass on DN15 to DN50 valves for water systems:

**KX31B, KX33B, KY31B and KY33B**

The 'B' denotes the internal fixed bleed, if requested.

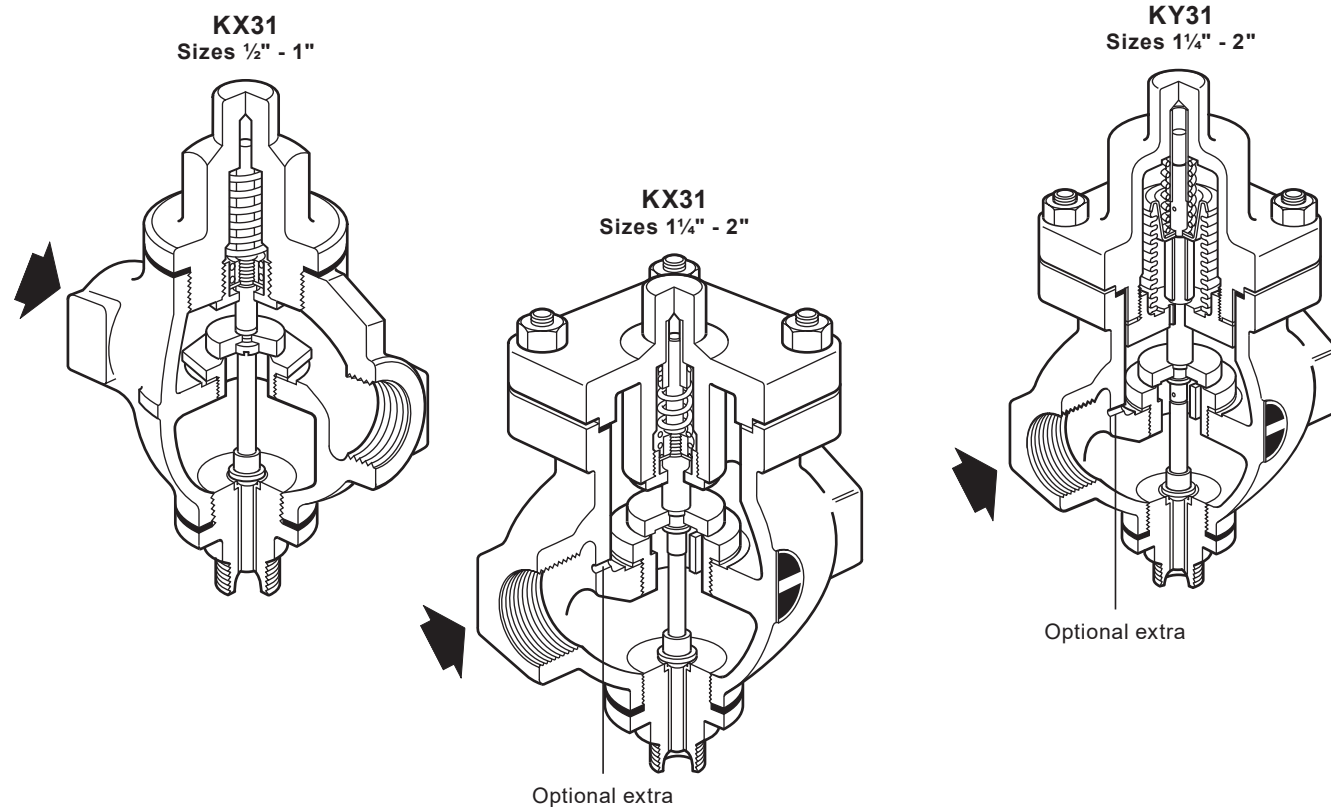
#### Standards

These products fully comply with the requirements of the Pressure Equipment Directive (PED) and carry the  mark when so required.

#### Certification

As standard these products are available with a manufacturers' Typical Test Report.

**Note:** All certification/inspection requirements must be stated at the time of order placement.



## Sizes and pipe connections

**KX31** 1/2", 3/4", 1", 1 1/4", 1 1/2" and 2"

**KY31** 1 1/4", 1 1/2" and 2".

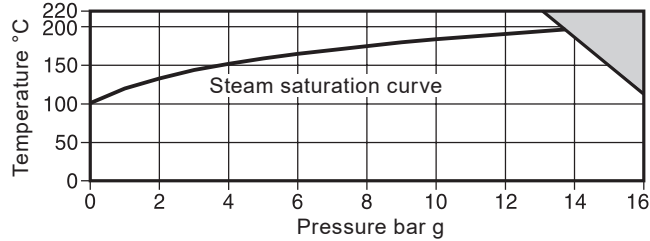
Screwed BSP (BS 21 parallel) or NPT.

**KX33** DN15, DN20, DN25, DN32, DN40 and DN50

**KY33** DN32, DN40 and DN50.

Flanged EN 1092 PN16 and BS 10 Table F.

## Pressure/temperature limits



The product **must not** be used in this region.

Body design conditions	PN16
Maximum design pressure	16 bar g @ 120 °C
Maximum design temperature	220 °C @ 13 bar g
Minimum design temperature	-10 °C
Maximum operating temperature	220 °C
Minimum operating temperature	0 °C

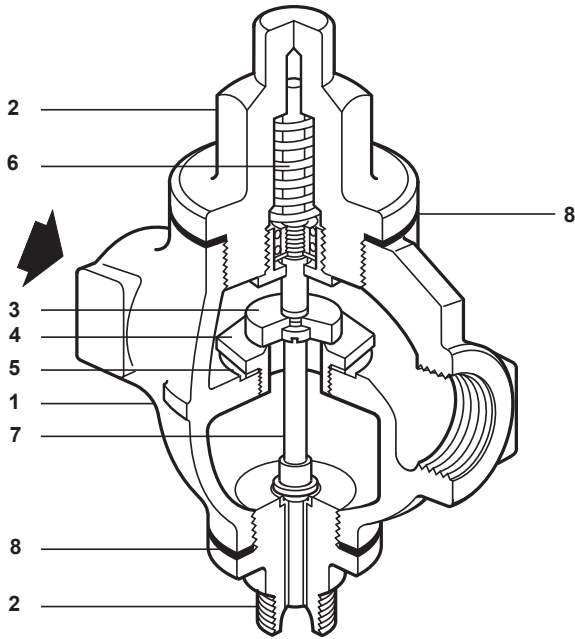
**Note:** For lower operating temperatures consult Spirax Sarco

	Size	DN15	DN20	DN25	DN32	DN40	DN50
Maximum differential pressure bar	<b>KX31</b>	12.0	7.0	3.5	2.3	1.7	1.1
	<b>KX33</b>	12.0	7.0	3.5	2.3	1.7	1.1
	<b>KY31</b>	-	-	-	9.0	8.2	6.9
	<b>KY33</b>	-	-	-	9.0	8.2	6.9

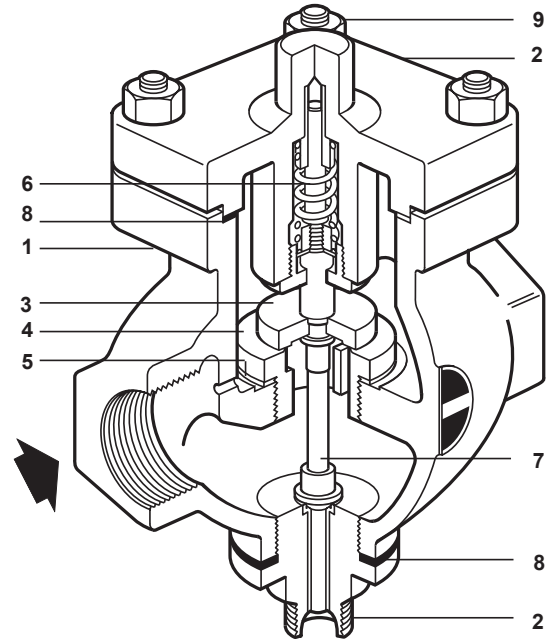
Designed for a maximum cold hydraulic test pressure of 24 bar g

## Materials

**KX31**  
Sizes 1/2" - 1"

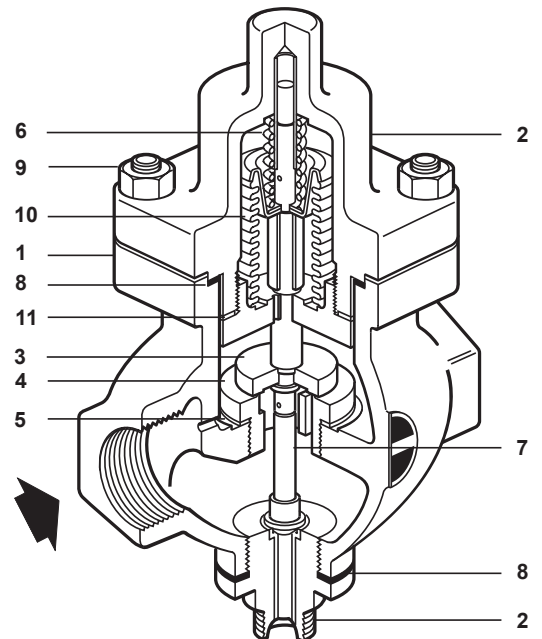


**KX31**  
Sizes 1 1/4" - 2"

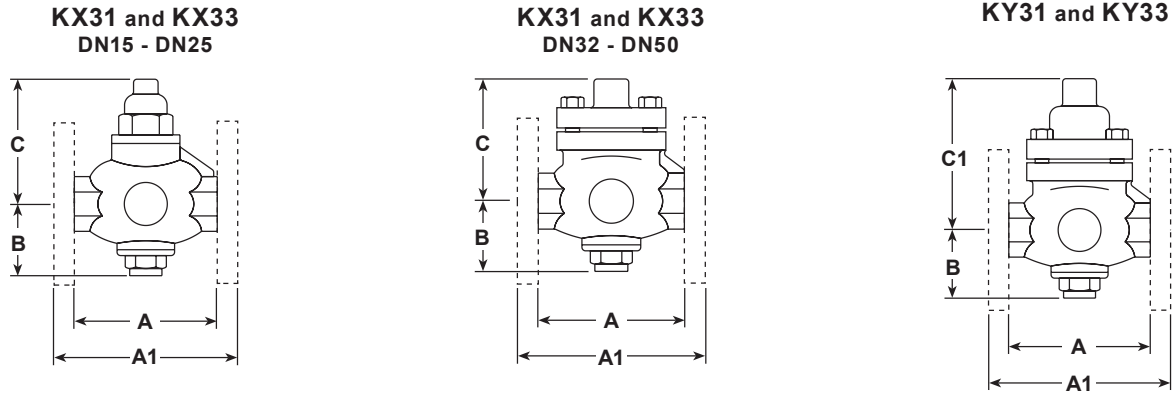


No.	Part	Material	
1	Body	Cast iron	DIN 1691 GG25
2	Bonnet	Cast iron	DIN 1691 GG25
3	Valve head	Stainless steel	BS 970 431 S29
4	Valve seat ring	Stainless steel	BS 970 431 S29
5	Valve seat gasket	DN15 - DN25	Mild steel BS 1449 CS 4
		DN32 - DN50	Reinforced exfoliated graphite
6	Return spring	Stainless steel	BS 2056 302 S 26
7	Stem	Brass	BS 2874 CZ 121
8	Bonnet gaskets	Reinforced exfoliated graphite	
	Bonnet studs	Steel	BS 4439 Gr. 8.8
9	Bonnet nuts	DN32 - DN40	M10 BS 3692 Gr. 8
		DN50	M12 BS 3692 Gr. 8
10	Bellows	Phosphor bronze	EN 12449 Cu Sn 6
11	Bellows gasket	Reinforced exfoliated graphite	

**KY31**  
Sizes 1 1/4" - 2"



## Dimensions/weights (approximate) in mm and kg



Size	NPT / BSP			PN16			BS 10 'F'			Weight	
	A	A1	A1	B	C	C1	KX31	KX33	KY31	KY33	
DN15-1/2"	90	130	130	68	106	-	1.5	3.4	-	-	
DN20-3/4"	104	150	147	68	106	-	1.8	4.4	-	-	
DN25-1"	136	160	157	80	108	-	3.3	5.8	-	-	
DN32-1 1/4"	144	180	180	80	112	154	5.3	8.9	6.1	9.2	
DN40-1 1/2"	150	200	200	90	112	154	6.4	11.1	7.3	11.3	
DN50-2"	180	230	230	100	112	154	7.9	13.1	9.0	13.5	

## K<sub>v</sub> values

DN	15	20	25	32	40	50	For conversion: C <sub>v</sub> (UK) = K <sub>v</sub> x 0.963 C <sub>v</sub> (US) = K <sub>v</sub> x 1.156
K <sub>v</sub>	2.90	4.64	9.80	16.48	23.70	34.0	

## Capacities

For saturated steam sizing capacities see TI-GCM-08.

For water valve sizing capacities see TI-GCM-09.

## Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions supplied with the product.

### Installation note:

The valve should be fitted in a horizontal line with the actuator vertically below the pipeline.

## How to order

**Example:** 1 off Spirax Sarco 2" KY31 self-acting control valve having screwed BSP connections.

## Spare parts

The spare parts available are shown in solid outline. Parts drawn in a grey line are not supplied as spares.

### Available spares

	Valve and seat assembly	A1, D1, E, J, F, L1
<b>KX31 and KX33</b>	Set of all gaskets	L1, L2, E
		(DN25)
		(DN32 - DN50)
	Set of bonnet studs and nuts (set of 4)	S
<b>KY31 and KY33</b>	Valve and seat assembly	A1, B, C, D1, E, L1, U
	Bellows and seat assembly	H, G, L1, B, C, U, J
	Set of all gaskets	B, C, U, E, G, L1, L2
	Set of bonnet studs and nuts (set of 4)	S

### How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size and type of valve.

**Example:** 1 - Valve and seat assembly for a Spirax Sarco DN40 KY33 self-acting control valve.

