



Cert. No. LQR 0963008

ISO 9001

# 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.
- KX33** Normally closed with flanged connections.
- KY31** Normally closed with balancing bellows and screwed 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.

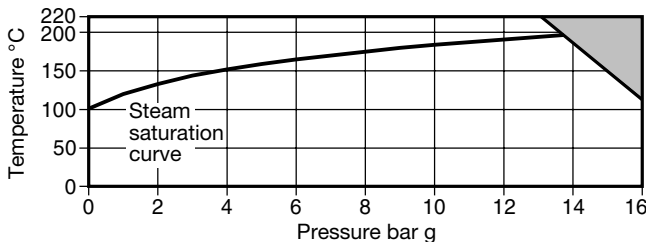
#### Standards

These products fully comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the CE mark when so required.

#### Certification

As standard these products are available with a manufacturer's Typical Test Report. **Note:** All certification/inspection requirements must be stated at the time of order placement.

#### 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	<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

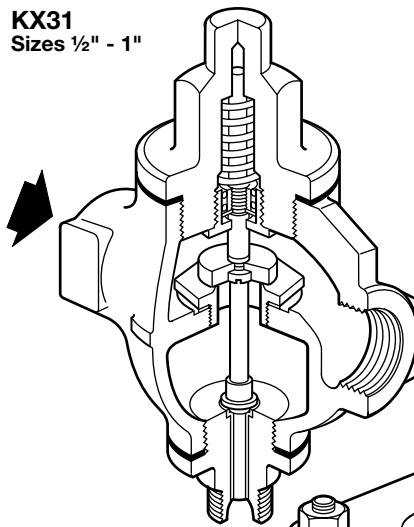
Designed for a maximum cold hydraulic test pressure of 24 bar g

#### 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.

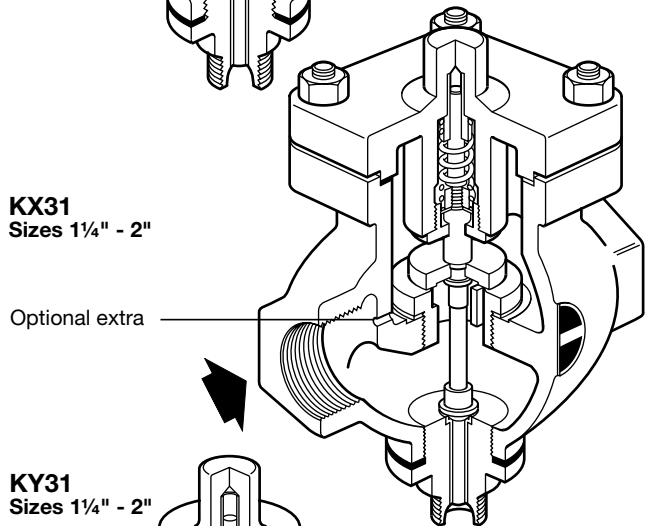
#### KX31

Sizes 1/2" - 1"



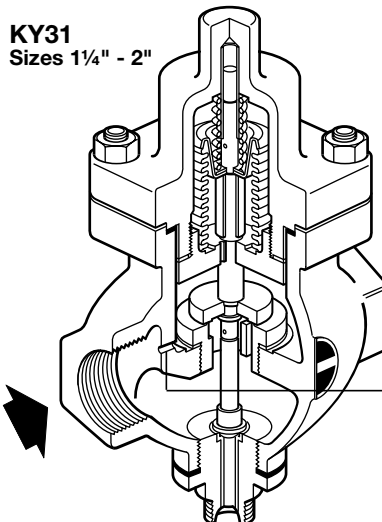
#### KX31

Sizes 1 1/4" - 2"

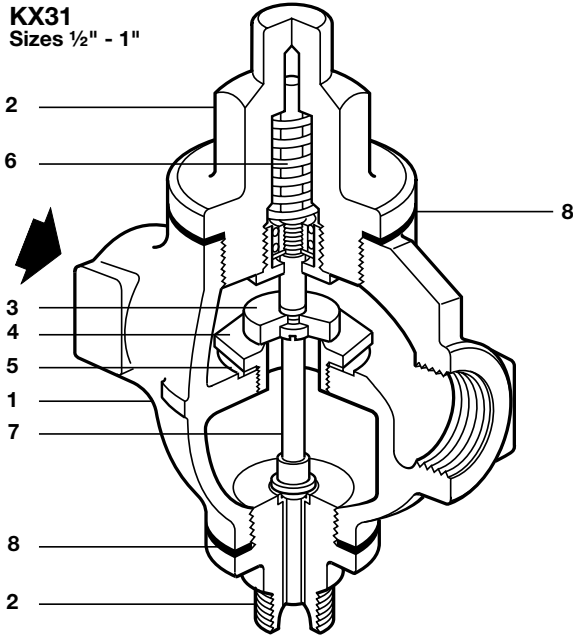


#### KY31

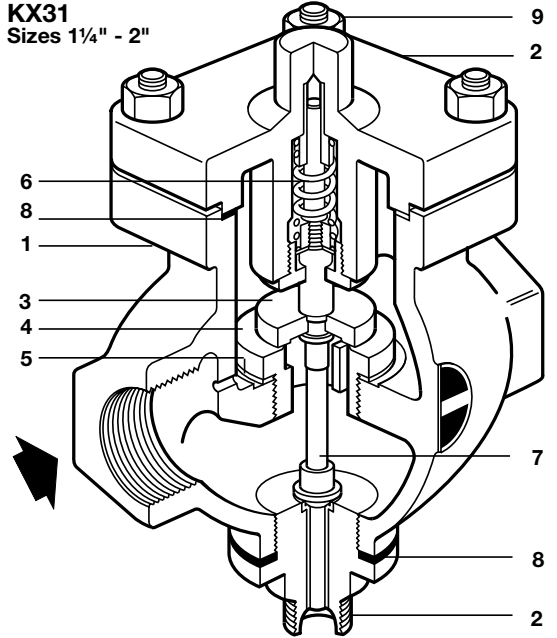
Sizes 1 1/4" - 2"



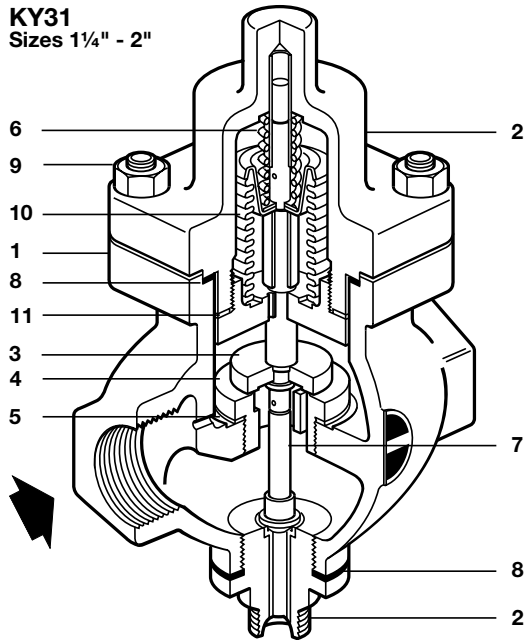
**KX31**  
Sizes 1/2" - 1"



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



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

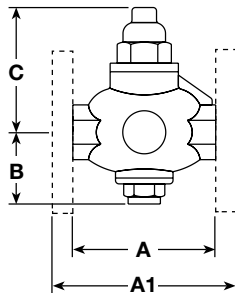
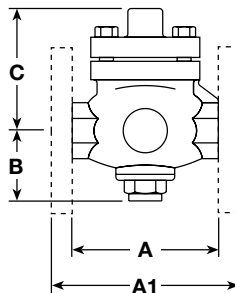
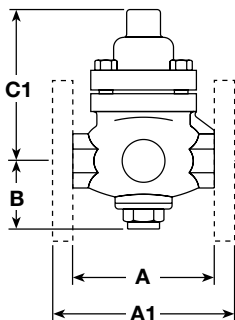


**Materials**

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		
9 Bonnet studs	Steel	BS 4439 Gr. 8.8	
	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		

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

Size	NPT / BSP	PN16	BS 10 'F'	B	C	C1	KX31	KX33	Weight	
	A	A1	A1						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

**KX31 and KX33  
DN15 - DN25****KX31 and KX33  
DN32 - DN50****KY31 and KY33****K<sub>v</sub> values**

DN	15	20	25	32	40	50
<b>K<sub>v</sub></b>	2.90	4.64	9.80	16.48	23.70	34.0

For conversion:  $C_v$  (UK) =  $K_v \times 0.963C_v$  (US) =  $K_v \times 1.156$

**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 (IM-S21-01) 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 broken line are not supplied as spares.

**Available spares**

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

**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.

