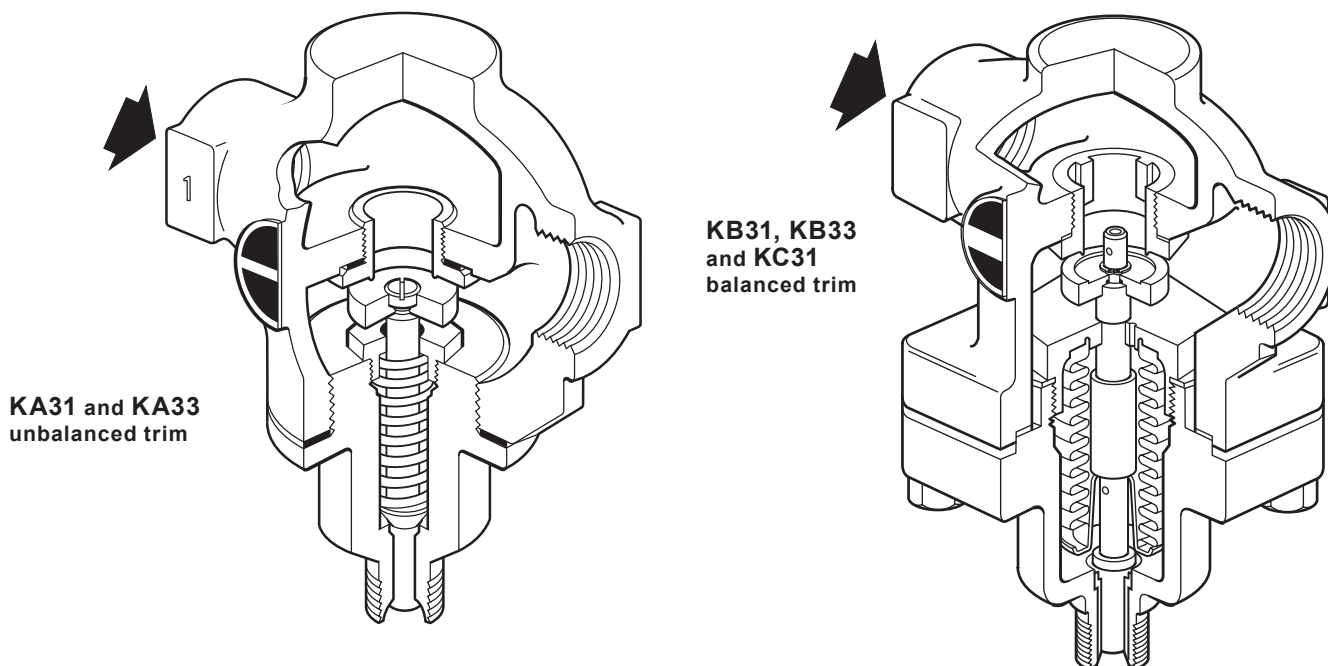




# KA31, KA33, KB31, KB33 and KC31 Cast Iron Self-acting Control Valves



KA31 and KA33  
unbalanced trim

KB31, KB33  
and KC31  
balanced trim

## Description

The KA, KB and KC range of two-port valves are used in conjunction with Spirax Sarco SA control systems to provide a self-acting temperature control unit.

## Available types

- |             |   |
|-------------|---|
| <b>KA31</b> | Normally open with screwed connections.                                       |
| <b>KA33</b> | Normally open with flanged connections.                                       |
| <b>KB31</b> | Normally open with phosphor bronze balancing bellows and screwed connections. |
| <b>KB33</b> | Normally open with phosphor bronze balancing bellows and flanged connections. |
| <b>KC31</b> | Normally open with stainless steel balancing bellows and screwed connections. |

**Note:** Pressure balancing bellows enables the valve to operate against higher differential pressures.

## Standards

These products fully comply with the requirements of the Pressure Equipment Directive (PED) and carry the **CE** 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

**Screwed** BSP (BS 21 parallel) or NPT:

**KA31** ½", ¾", 1", 1¼", 1½" and 2"

**KB31** 1", 1¼", 1½" and 2"

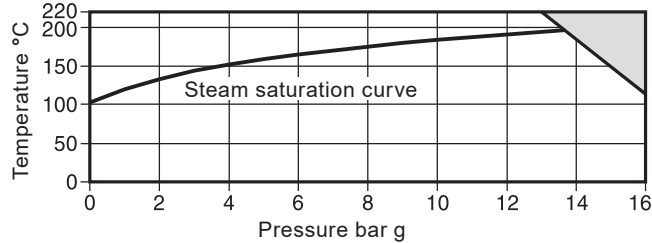
**KC31** 1½" and 2"

**Flanged** EN 1092 PN16 and BS 10 Table F:

**KA33** DN15, DN20, DN25, DN32, DN40 and DN50

**KB33** DN25, DN32, DN40 and DN50

## 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 @ 13.8 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>KA31</b>	13.0	10.3	4.5	3.0	2.0	1.5
	<b>KA33</b>	13.0	10.3	4.5	3.0	2.0	1.5
	<b>KB31</b>	-	-	10.3	9.0	8.2	6.9
	<b>KB33</b>	-	-	10.3	9.0	8.2	6.9
	<b>KC31</b>	-	-	-	-	13.0	13.0
Designed for a maximum cold hydraulic test pressure of:							24 bar g

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

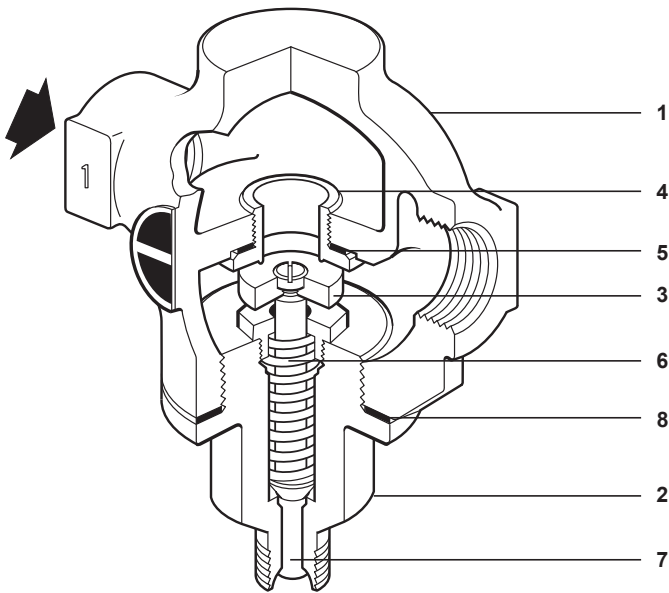
Size	DN15	DN20	DN25	DN32	DN40	DN50	
<b>KA31, KA33</b>	2.90	4.64	9.80	16.48	23.70	34.00	For conversion C <sub>v</sub> (UK) = K <sub>v</sub> x 0.963 C <sub>v</sub> (US) = K <sub>v</sub> x 1.156
<b>KB31, KB33</b>	-	-	9.80	16.48	23.70	34.00	
<b>KC31</b>	-	-	-	-	16.48	34.00	

## Capacities

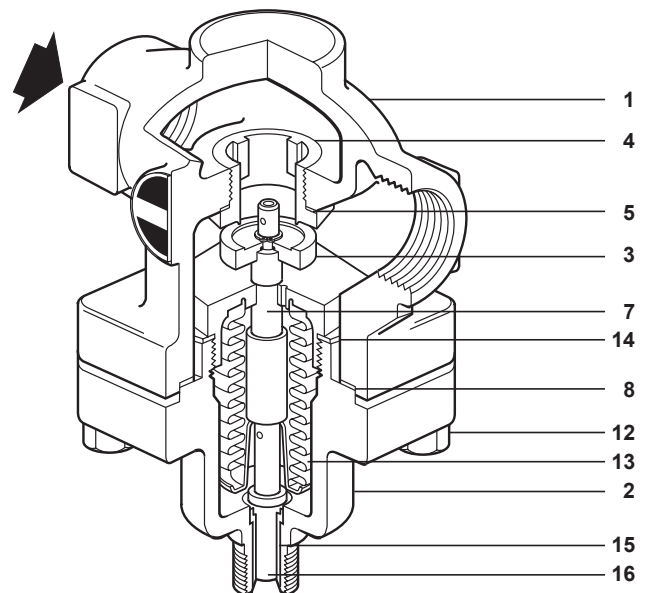
For saturated steam sizing capacities see TI-GCM-08.

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

## Materials



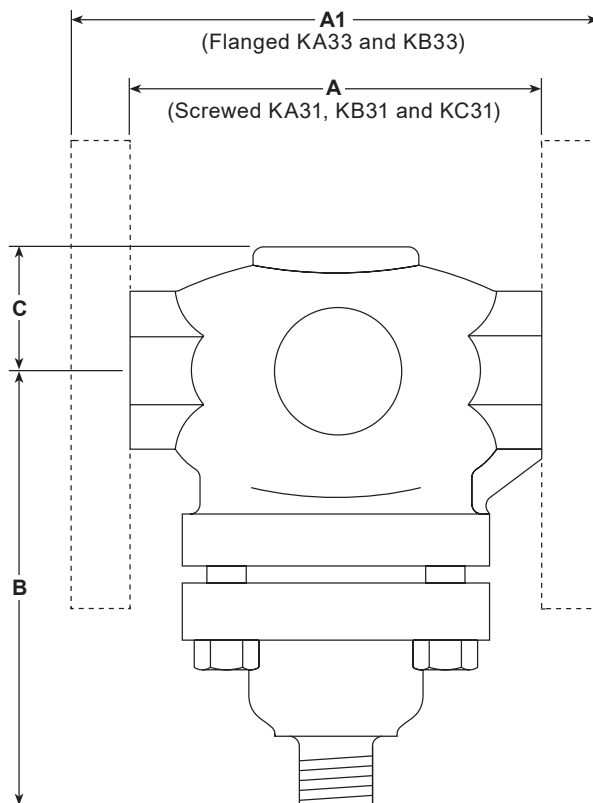
**KA31 and KA33**  
unbalanced trim



**KB31, KB33 and KC31**  
balanced trim

No.	Part	Material	
1	Body	Cast iron	DIN 1691 GG 25
		KA and KB	Cast iron
			DIN 1691 GG 25
2	Bonnet	KC - 1½"	Cast iron
		KC - 2"	Steel
			EN 10213 GP240 GH+N
3	Valve head	Stainless steel	BS 970 431 S 29
4	Valve seat ring	Stainless steel	BS 970 431 S 29
		DN15-DN25	Mild steel
			BS 1449 CS 4
5	Valve seat gasket	DN32-DN50	Reinforced exfoliated graphite
6	Return spring	Stainless steel	BS 2056 302 S 26
		KA and KB	Brass
			BS 2874 CZ 121
7	Stem	KC	Stainless steel
			BS 970 321S20
8	Bonnet gasket	Reinforced exfoliated graphite	
	Bonnet studs	Steel	BS 4439 Gr. 8.8
12	Bonnet nuts	Steel	BS 3692 Gr. 8
		KB	Phosphor bronze
			EN 12449 Cu Sn 6
13	Bellows	KC	Stainless steel
			AISI 316 L
14	Bellows gasket	Reinforced exfoliated graphite	
15	Bonnet bush	Brass	BS 2874 CZ 121
16	Plunger	Brass	BS 2874 CZ 121

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



Size	PN16		BS 10'F'		B	C	Weight	
	A	A1	A1	A1			Scr.	Flg.
<b>KA31 and KA33</b>	DN15-1/2"	90	130	130	105	37	1.3	3.3
	DN20-3/4"	104	150	147	105	37	1.6	4.3
	DN25-1"	136	160	157	107	51	3.2	5.7
	DN32-1 1/4"	144	180	180	110	-	5.1	8.8
	DN40-1 1/2"	150	200	200	110	-	6.3	11.0
	DN50-2"	180	230	230	110	-	7.8	13.0
<b>KB31, KB33 and KC31</b>	DN25-1"	136	160	157	138	51	3.4	5.9
	DN32-1 1/4"	144	180	180	152	51	5.7	9.1
	DN40-1 1/2"	150	200	200	152	62	6.9	11.2
	DN50-2"	180	230	230	152	71	8.8	13.4

## 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 1 1/4" screwed BSP KA31 self-acting control valve with cast iron body.

## Spare parts

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

### Available spares

#### KA31 and KA33

Valve seat assembly	A, D, E, L
Set of all gaskets	E, L
Set of bonnet studs and nuts (set of 4)	S

#### KB31, KB33 and KC31

Valve seat assembly (excluding bellows and stem assembly)	A, B, C, D, E, L, U, G
Bellows and stem assembly	G, L, N, H
Set of all gaskets	B, C, E, L, U, G
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 seat assembly for a Spirax Sarco DN32 KB31 self-acting control valve.

