



## RP31, RP32 and RP33 Piston Valves

### Description

The RP valve is a piston isolation valve with a carbon steel body/bonnet and stainless steel internals. It can be used on steam, condensate and other liquid systems.

### Available types:

**RP31** Screwed connections

**RP32** Socket weld connections

**RP33** Flanged connections

### Standards

This product fully complies with the requirements of the Pressure Equipment Directive (PED). The valves conform to API 602.

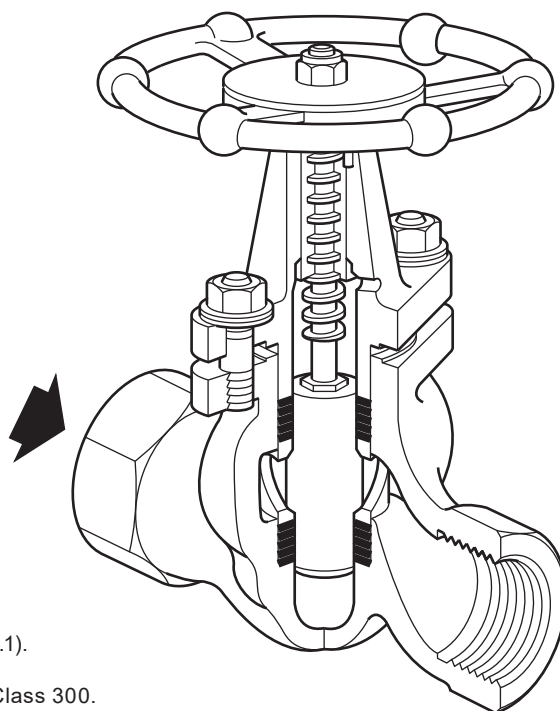
### Seat leakage

Seat shut-off conforms to API 602.

### Certification

This product is available with certification to EN 10204 3.1.

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



### Sizes and pipe connections

½", ¾", 1", 1½" and 2" screwed BSP (BS 21/DIN 2999) or NPT to (ASME B 2.1).

½", ¾", 1", 1½" and 2" socket weld ends to ASME B 16.11 (API 602-800 lb).

DN15, DN20, DN25, DN40 and DN50 flanged ASME B 16.5 Class 150 and Class 300.

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

Where available reduced bore and full bore K<sub>vs</sub> are shown

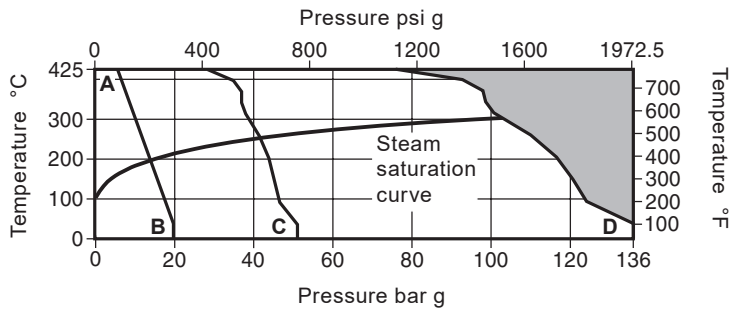
	Size	½"	¾"	1"	1½"	2"
<b>Screwed and Socket weld</b>	K <sub>v</sub>	3	4.5	8.5	20.5	32
	Size	DN15	DN20	DN25	DN40	DN50
<b>Flanged</b>	K <sub>v</sub>	4.5	4.5/8	8.5/14	20.5/32	32/50

### 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

## Pressure/temperature limits



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

**A - B** Flanged to ASME B 16.5 Class 150

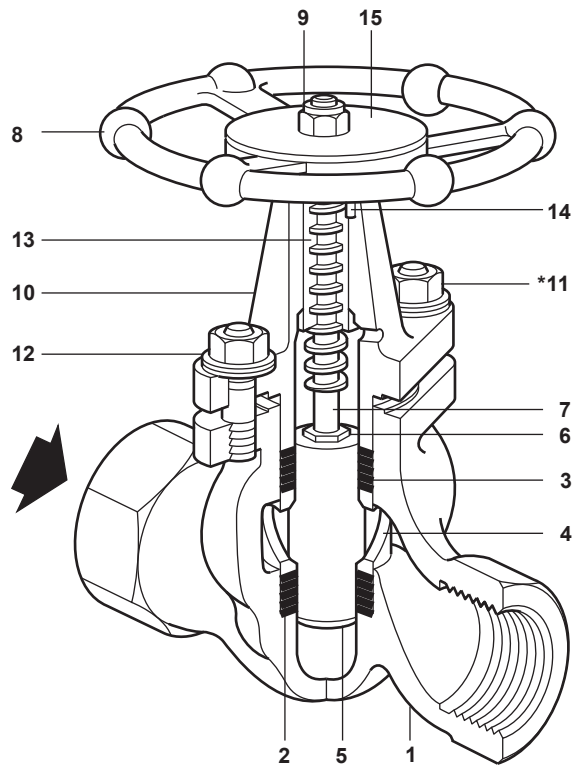
**A - C** Flanged to ASME B 16.5 Class 300

**A - D** Screwed and socket weld

Body design conditions		API Class 800	
PMA	Maximum allowable pressure	136 bar g @ 38 °C	(1972.5 psi g @ 100.4 °F)
TMA	Maximum allowable temperature	425 °C @ 76 bar g	(797 °F @ 1102 psi g)
Minimum allowable temperature		-29 °C	(-20 °F)
PMO	Maximum operating pressure for saturated steam service	101 bar g	(1465 psi g)
TMO	Maximum operating temperature	425 °C @ 76 bar g	(797 °F @ 1102 psi g)
Minimum operating temperature		0 °C	(32 °F)
<b>Note:</b> For lower operating temperatures consult Spirax Sarco			
Designed for a maximum cold hydraulic test pressure of:		205 bar g	(2973 psi g)

## Materials

No.	Part	Material
1	Body	Carbon steel — ASTM A105
		— ASTM A216 WCB
2	Lower sealing ring	Graphite laminate
		Stainless steel
3	Upper sealing ring	Graphite laminate
		Stainless steel
4	Lantern bush	Carbon steel
5	Piston	$\frac{1}{2}$ " - $\frac{3}{4}$ " Stainless
		1" - 2" XM34
6	Nut	Carbon steel
7	Spindle	Steel
		Screwed Carbon steel
8	Handwheel	Socket weld Carbon steel
		Flanged Cast iron
9	Handwheel nut	Steel
10	Bonnet	Steel — ASTM A105
11 *	Stud bolt	Steel — ASTM A193 B7
		Nut — ASTM A194 2H
12	Washer	Steel
13	Threaded bush	$\frac{1}{2}$ " - 2" OT 58
14	Pin	$\frac{1}{2}$ " - 2" Carbon steel
15	Name-plate	Stainless steel

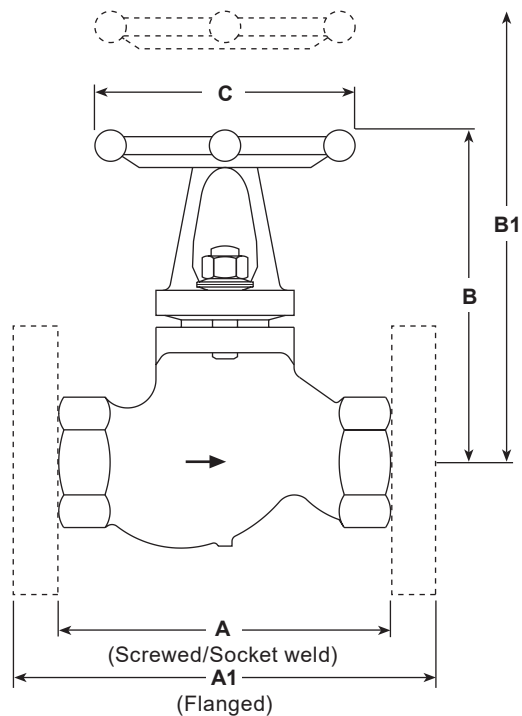


**\* Note:**  
Screwed and socket weld versions have 2 bonnet bolts.  
Flanged versions have 4 bonnet bolts.

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

### Screwed and socket weld

Size	A	B	B1	C	Weight
½"	85	92	112	75	1.0
¾"	100	102	142	95	1.6
1"	120	134	174	115	2.9
1½"	160	180	220	150	6.8
2"	185	210	265	175	10.2



### Flanged

Size	A1		B		B1		C		Weight	
	ASME 150	ASME 300	ASME 150	ASME 300	ASME 150	ASME 300	ASME 150	ASME 300	ASME 150	ASME 300
½"	108	152	108	110	134	140	95	95	2.0	2.7
¾"	117	178	108	135	134	170	95	115	2.5	4.6
1"	127	203	133	150	165	185	115	115	4.2	7.0
1½"	165	228	170	195	212	250	150	150	8.7	14.0
2"	203	267	194	225	245	285	150	200	13.8	19.0

## Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P175-02-EN-ISS1) supplied with the product. Valve keys should not be used to operate these valves.

### Installation note:

Install the valve in the direction of flow given by the arrow on the body. The valve can be installed in any plane but not with the handwheel below the valve body.

### Disposal

The product is recyclable. No ecological hazard is anticipated with the disposal of this product, providing due care is taken.

### How to order

**Example:** 1 off Spirax Sarco ½" RP31 piston valve having screwed NPT connections. The valve is to be supplied with EN 10204 3.1 certification. The  $K_V$  is to be 3.0.

## Spare parts

Spare parts are available as indicated. No other parts are supplied as spares.

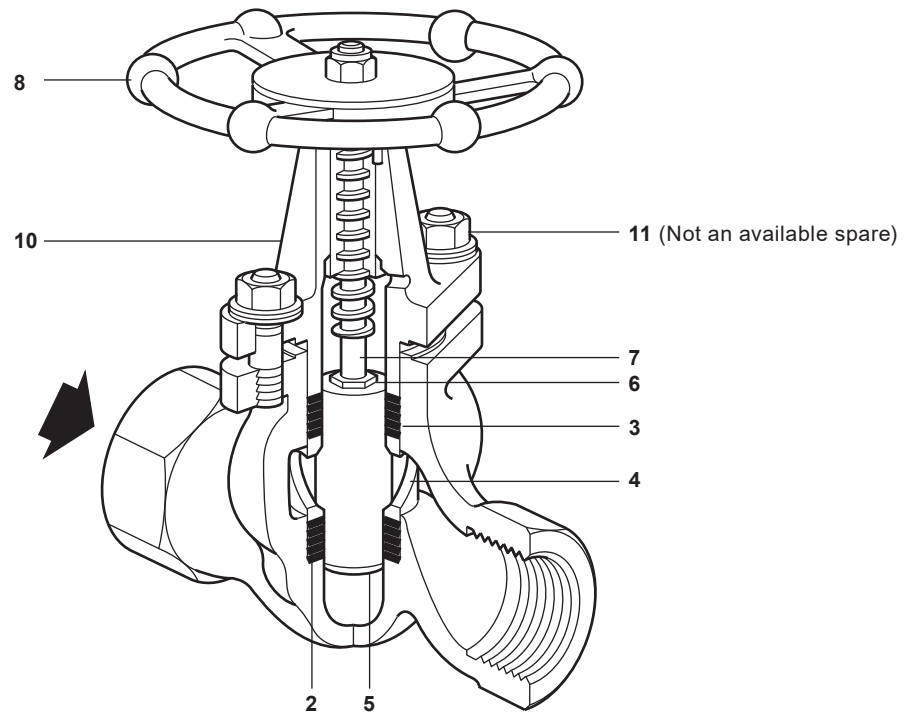
### Available spares

Set of sealing rings	2, 3
Bonnet assembly	2, 3, 4, 5, 6, 7, 8, 10



### How to order spares

Always order spares by using the description given above and state the size and type of valve.

**Example:** 1 - Bonnet assembly for a Spirax Sarco 1/2" RP31 piston valve.



### Recommended tightening torques

Item	Size		or mm		N m
11	DN15 - 1/2"	14			5
	DN20 - 3/4"	17			6
	DN25 - 1"	17			8
	DN40 - 1 1/2"	22			9
	DN50 - 2"	22			10