



TI-S24-60
 CH Issue 1

SPIRA-TROL Two-port Control Valves

EN Standard JE, JF and JL DN15 to DN200 and ASME Standard JEA, JFA and JLA 1/2" to 8"

Description

SPIRA-TROL is a range of two-port single seat globe valves with cage retained seats conforming to EN and ASME standard. These valves are available in three body materials in sizes ranging from DN15 to DN200 (1/2" to 8"). When used in conjunction with a pneumatic or electric linear actuator they provide characterized modulating or on/off control.

SPIRA-TROL valve characteristic - options:

JE	Equal percentage (E) - Suitable for most modulating process control applications providing good control at all flowrates.
JF	Fast opening (F) - For on/off applications only.
JL	Linear (L) - Primarily for liquid flow control where the differential pressures across the valve is constant.

Important note: Throughout this document, reference has been made to the standard JE control valve. With the exception of trim type, the JE, JF and JL control valves are identical.

SPIRA-TROL valve options:

Stem sealing	PTFE chevron seals	Standard
	Graphite packing	High temperature applications
Seating	Metal-to-metal	431 stainless steel - standard 316L stainless steel
	Soft seating	Up to 200°C - PTFE for Class VI shut-off Up to 250°C - PEEK for Class VI shut-off
	Hard facing	316L stainless steel with Stellite 6 facing - for more arduous applications
Bonnet type	Standard bonnet	
	Extended bonnet	for large pipe lagging or hot / cold applications
Trim	Standard trim	
	Low noise cage	

Standards

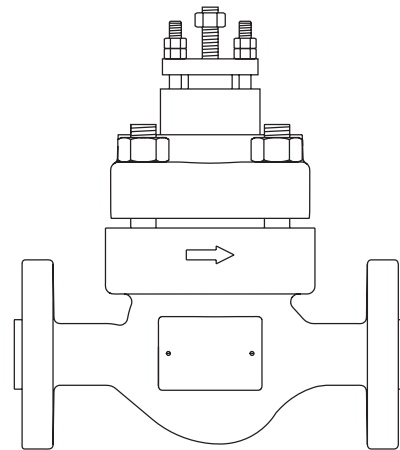
Designed in accordance with EN 60534. This product fully complies with the requirements of the European Pressure Equipment Directive 97 / 23 / EC and carries the CE mark when so required.

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

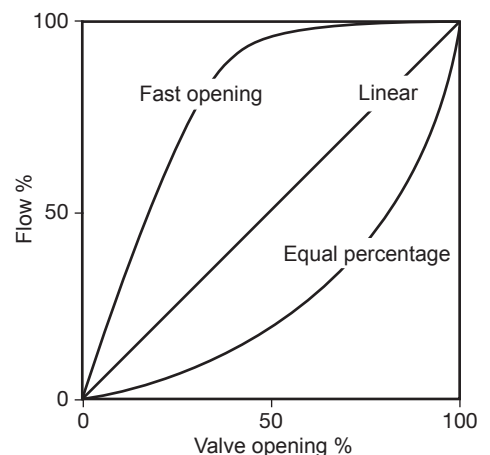
Standard	EN	JE, JF and JL	DN15, DN20, DN25, DN32, DN40, DN50, DN65, DN80, DN100, DN125, DN150 and DN200
	ASME	JEA, JFA and JLA	1/2", 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3", 4", 5", 6" and 8"
Flanged	EN	Standard	EN 1092 PN63 and PN100
	ASME	Standard	ASME B 16.5 Class 600, B22-20 JIS / KS 30 and JIS / KS 40
Butt-weld			ASME B 16.25
Socket weld			ASME B 16.11
Facing			Standard raised face, available on request.
Flanged face-to-face	EN	Standard	EN 558 Series 2.
	ASME	Standard	ISA-S75-03.



Technical data

Plug design	Parabolic		
	Metal-to-metal	Class IV	
Leakage	Soft seal	Balanced	Class IV
		Unbalanced	Class VI
Rangeability	50:1		
Travel	DN15 to DN50	20 mm	
	DN65 to DN100	30 mm	
	DN125 to DN200	70 mm	

Typical flow characteristic curves

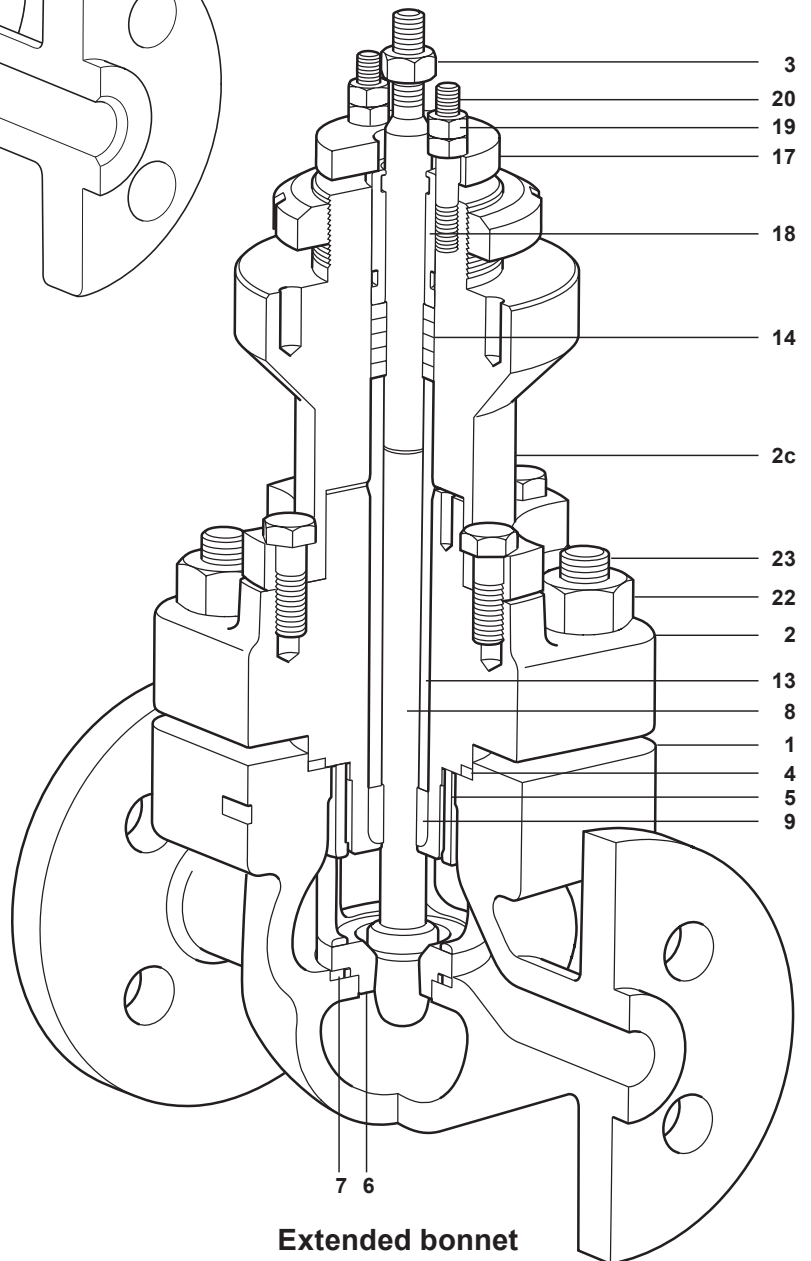
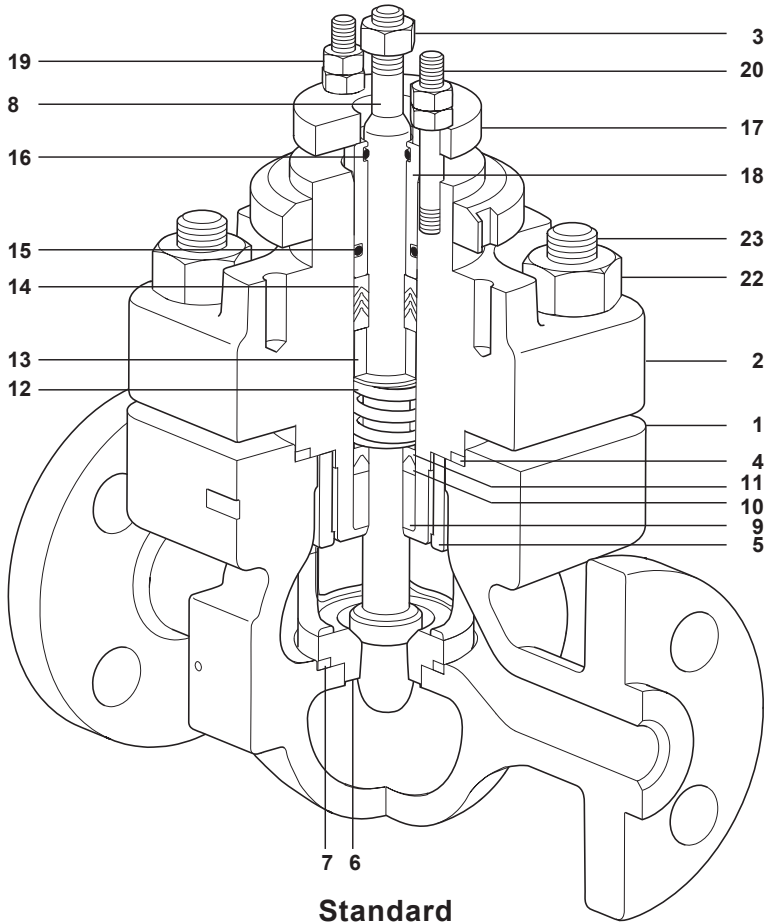


Materials

Type	No.	Part	Material	
KE and KEA	1	Body	JE43 Carbon steel EN 10213 1.0619+N	
			JEA43 Carbon steel ASTM A216 WCB	
			JE63 Stainless steel EN 10213 1.4408	
			JEA63 Stainless steel ASTM A351 CF8M	
			JE83 Alloy steel EN 10213 1.7357	
	2	Cover	JEA83 Alloy steel ASTM A217 WC6	
			JE43 Carbon steel EN 10213 1.0619+N	
			JEA43 Carbon steel ASTM A216 WCB	
			JE63 Stainless steel EN 10213 1.4408	
			JEA63 Stainless steel ASTM A351 CF8M	
	2c	Extended bonnet (not shown)	JE83 Alloy steel EN 10213 1.7357	
			JEA83 Alloy steel ASTM A217 WC6	
			JE/JEA43 A105	
	All versions using PTFE seals	3	Stem lock-nut	Stainless steel
		4	Bonnet gasket	Graphite / stainless steel
5		Seat retainer	Stainless steel AISI 316L	
6		Valve seat ring	Stainless steel	
7		Seat gasket	Graphite / stainless steel	
8		Valve plug and stem	Stainless steel 431 S29	
9 *		Lower stem guide	DN15 - DN100 (½" - 4")	PTFE
			DN125 - DN200 (5" - 8")	Stellite 6
10		Lower stem wiper	DN15 - DN100 (½" - 4")	PTFE
11		Packing guard washer	Stainless steel AISI 316L	
12		Spring	Stainless steel	
13		Packing spacer	Stainless steel	
14 *		Chevron packing set	PTFE	
15		Outer 'O' ring	Viton A	
16		Inner 'O' ring	Viton A	
17 *		Gland flange	Stainless steel AISI 304	
18 *		Gland follower	Stainless steel AISI 316L	
19		Gland nut	A2	
20		Gland stud	A2.70	
21		Actuator clamp nut	Plated carbon steel	
22		Bonnet nut	JE43 and JEA43	Grade 2H
	JE63 and JEA63		Grade 8M	
	JE83 and JEA83		Grade 7	
23	Bonnet stud	JE43 and JEA43	Grade B7	
		JE63 and JEA63	Grade B8M2	
		JE83 and JEA83	Grade B16	

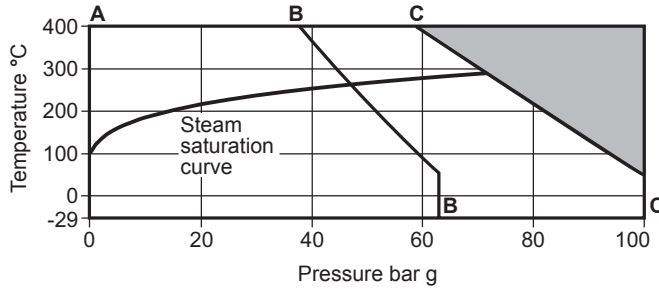
* Graphite packing

High temperature packing	9	Lower stem guide	Stellite 6
	14	Graphoil packing	Graphite ring
	17	Gland flange	Stainless steel
	18	Gland follower	Stainless steel
	11	Not used	
	12		
	15		
16			



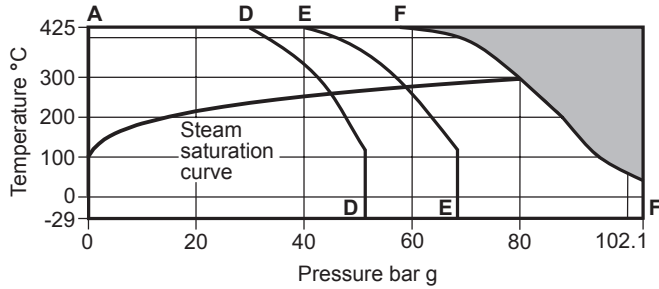
Pressure/temperature limits - JE43 and JEA43

PN63
PN100



ASME 600

JIS / KS 30
JIS / KS 40



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

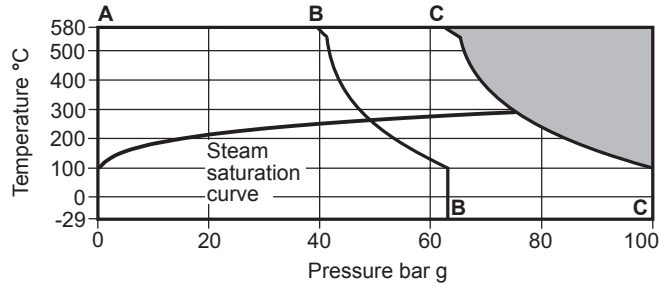
- A - B Flanged EN 1092 PN63
- A - C Flanged EN 1092 PN100
- A - D Flanged JIS / KS 30
- A - E Flanged JIS / KS 40
- A - F Flanged ASME 600

- Notes:**
1. Where the process fluid temperature is sub-zero and the ambient temperature is below +5°C, the external moving parts of the valve and actuator must be heat traced to maintain normal operation.
 2. When selecting a valve with a bellows sealed bonnet, the pressure/temperature limits of the bellows must be read in conjunction with the valve pressure/temperature limits shown below.

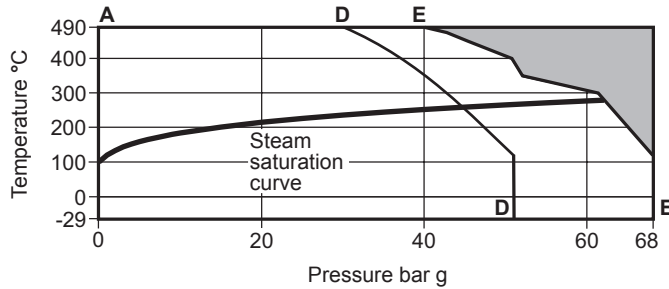
Body design conditions		PN100 / ASME Class 600	
PMA	Maximum allowable pressure	EN	PN63 JE43 63 bar g @ 50°C
		ASME 600	PN100 JE43 100 bar g @ 50°C
PMO	Maximum operating pressure	JIS / KS 30	JEA43 102.1 bar g @ 38°C
		JIS / KS 40	JEA43 51 bar g @ 120°C
TMA	Maximum allowable temperature	EN	JE43 400°C
		ASME 600	JEA43 425°C
		JIS / KS 30	JEA43 425°C
		JIS / KS 40	JEA43 425°C
Minimum allowable temperature		-29°C	
TMO	Maximum operating temperature (For clarification of the options G, H, K and P see the SPIRA-TROL selection guide on page 9)	Standard packing PTFE chevron (Stem sealing - Option P)	250°C
		High temperature packing (Stem sealing - Option H)	425°C
		Extended bonnet (E) with PTFE chevron	250°C
		Extended bonnet (E) with graphite packing	425°C
		PTFE soft seat (Seating - Option G)	200°C
		PEEK soft seat (Seating - Option K)	250°C
Minimum operating temperature		Note: For lower operating temperatures consult SpiraxSarco. -29°C	
Designed for a maximum cold hydraulic test pressure of:		156 bar g	

Pressure / temperature limits - JE63 and JEA63

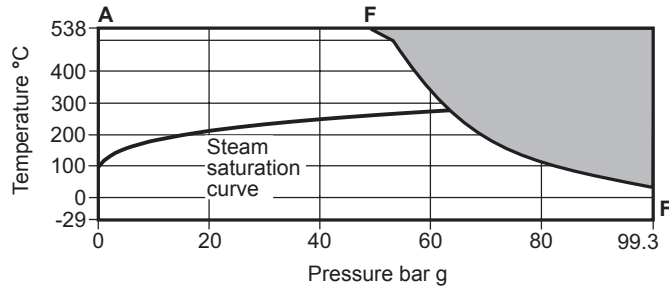
PN63
PN100



JIS / KS 30
JIS / KS 40



ASME 600



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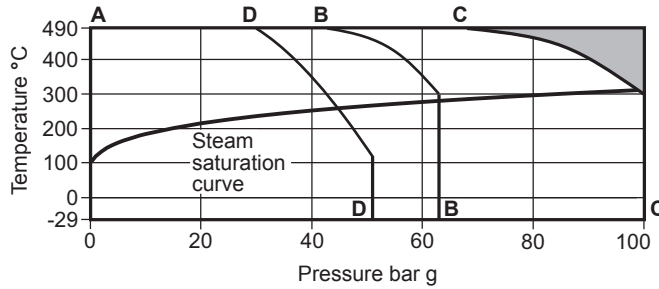
- A - B Flanged EN 1092 PN63 A - C Flanged EN 1092 PN100
- A - D Flanged JIS/KS 30 A - E Flanged JIS/KS 40
- A - F Flanged ASME 600

- Notes:**
1. Where the process fluid temperature is sub-zero and the ambient temperature is below +5°C, the external moving parts of the valve and actuator must be heat traced to maintain normal operation.
 2. When selecting a valve with a bellows sealed bonnet, the pressure/temperature limits of the bellows must be read in conjunction with the valve pressure/temperature limits shown below.

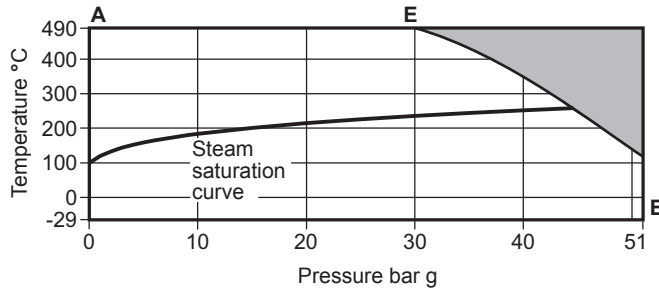
Body design conditions		PN100 / ASME Class 600	
PMA	Maximum allowable pressure and	EN	63 bar g @ 100°C
		PN63	100 bar g @ 100°C
PMO	Maximum operating pressure	ASME 600	99.3 bar g @ 38°C
		JIS / KS 30	51 bar g @ 120°C
		JIS / KS 40	68 bar g @ 120°C
TMA	Maximum allowable temperature	EN	580°C
		ASME 600	538°C
		JIS / KS 30	490°C
		JIS / KS 40	490°C
Minimum allowable temperature		-29°C	
TMO	Maximum operating temperature (For clarification of the options G, H, K and P see the SPIRA-TROL selection guide on page 9)	Standard packing PTFE chevron (Stem sealing - Option P)	250°C
		High temperature packing (Stem sealing - Option H)	580°C
		Extended bonnet (E) with PTFE chevron	250°C
		Extended bonnet (E) with graphite packing	580°C
		PTFE soft seat (Seating - Option G)	200°C
		PEEK soft seat (Seating - Option K)	250°C
Minimum operating temperature		Note: For lower operating temperatures consult SpiraxSarco. -29°C	
Designed for a maximum cold hydraulic test pressure of:		156 bar g	

Pressure/temperature limits - JE83 / JEA83

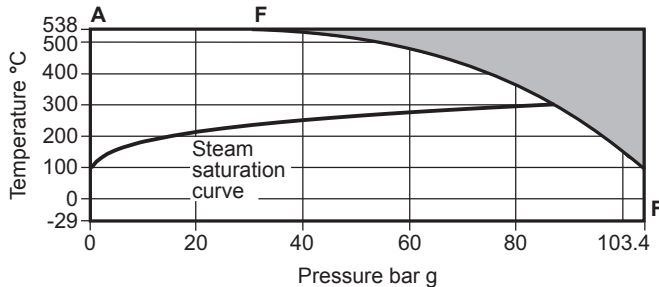
PN63
PN100
JIS / KS 30



JIS / KS 40



ASME 600



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

- A - B Flanged EN 1092 PN63 A - C Flanged EN 1092 PN100
- A - D Flanged JIS / KS 30 A - E Flanged JIS / KS 40
- A - F Flanged ASME 600

- Notes:**
- Where the process fluid temperature is sub-zero and the ambient temperature is below +5°C, the external moving parts of the valve and actuator must be heat traced to maintain normal operation.
 - When selecting a valve with a bellows sealed bonnet, the pressure/temperature limits of the bellows must be read in conjunction with the valve pressure/temperature limits shown below.

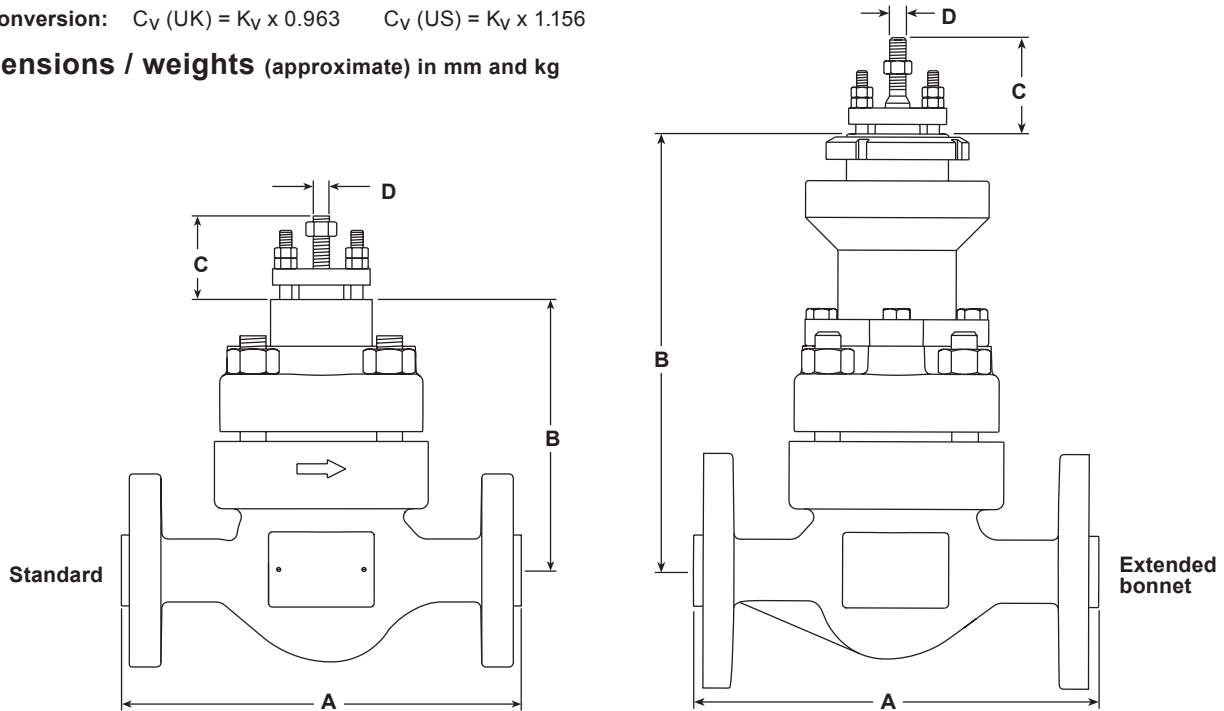
Body design conditions		PN100 / ASME Class 600	
PMA	Maximum allowable pressure and	EN	PN63 JE83 63 bar g @ 300°C
		ASME 600	PN100 JE83 100 bar g @ 300°C
PMO	Maximum operating pressure	JIS / KS 30	JEA83 103.4 bar g @ 38°C
		JIS / KS 40	JEA83 51 bar g @ 120°C
TMA	Maximum allowable temperature	EN	JE83 490°C
		ASME 600	JEA83 538°C
		JIS / KS 30	JEA83 490°C
		JIS / KS 40	JEA83 510°C
Minimum allowable temperature		-29°C	
TMO	Maximum operating temperature (For clarification of the options G, H, K and P see the SPIRA-TROL selection guide on page 9)	Standard packing PTFE chevron (Stem sealing - Option P)	250°C
		High temperature packing (Stem sealing - Option H)	538°C
		Extended bonnet (E) with PTFE chevron	250°C
		Extended bonnet (E) with graphite packing	538°C
		PTFE soft seat (Seating - Option G)	200°C
		PEEK soft seat (Seating - Option K)	250°C
Minimum operating temperature		Note: For lower operating temperatures consult SpiraxSarco. -29°C	
Designed for a maximum cold hydraulic test pressure of:		156 bar g	

K_v values

Valve size		DN15 (½")	DN20 (¾")	DN25 (1")	DN32 (1¼")	DN40 (1½")	DN50 (2")	DN65 (2½")	DN80 (3")	DN100 (4")	DN125 (5")	DN150 (6")	DN200 (8")	
Standard trim	Full port	Equal %	4.0	6.3	10.0	16.0	25.0	36	63	100	160	245	370	580
		Linear	4.0	6.3	10.0	16.0	25.0	36	63	100	160	260	390	640
		Fast opening	4.0	6.3	10.0	18.0	28.0	50	85	117	180	260	390	640
	Reduced trim 1	Equal %	1.6	4.0	6.3	10.0	16.0	25	36	63	100	200	287	370
		Linear	1.6	4.0	6.3	10.0	16.0	25	36	63	100	200	287	550
	Reduced trim 2	Equal %	1.0	1.6	4.0	6.3	10.0	16	25	36	63	100	132	232
		Linear	1.0	1.6	4.0	6.3	10.0	16	25	36	63	100	132	232
	Reduced trim 3	Equal %	0.4	1.0	1.6	4.0	6.3	10	16	25	36	63	103	163
		Linear	0.4	1.0	1.6	4.0	6.3	10	16	25	36	63	103	163
Low noise	Full port	4.0	6.0	8.0	17.0	20.0	27	55	63	90	245	300	516	
	Reduced trim 1 Linear	3.5	5.0	6.0	12.0	13.0	15	35	40	60	219	255	457	
	Reduced trim 2 Linear	3.0	4.0	4.5	7.0	7.0	7	30	33	40	115	200	350	
	Reduced trim 3										75	152	265	
Microflute		-	0.5	0.5										
		0.2	0.2	0.2										
		0.1	0.1	0.1										

For conversion: C_v (UK) = K_v x 0.963 C_v (US) = K_v x 1.156

Dimensions / weights (approximate) in mm and kg



Size	Dimensions						Weights		
	A	EN 1092 PN63 PN100	Standard	Extended bonnet	C	D	ASME 600	PN100	Butt-weld socket weld
DN15	203	210	133	214	41	M8	9.5	10	6
DN20	206	230	133	214	41	M8	10.2	12	6
DN25	210	230	133	214	41	M8	10.8	13	6
DN32	251	260	160	231	41	M8	16.5	19	11
DN40	251	260	160	231	41	M8	18.5	22	11
DN50	286	300	160	231	41	M8	22.0	27	13
DN65	311	340	234	410	48	M12	46.5	51	31
DN80	337	380	234	410	48	M12	51.5	58	35
DN100	394	430	249	410	48	M12	83.0	79	46
DN125	457	500	305	586	77	M32	133.0	124	74
DN150	508	550	278	603	77	M32	176.0	168	108
DN200	610	650	288	668	79	M32	300.0	306	197

Spare parts

SPIRA-TROL

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

Note: When placing an order for spare parts please specify clearly the full product description as found on the label of the valve body, as this will ensure that the correct spare parts are supplied.

Available spares – JE and JEA

Actuator clamping nut		A
Gasket set		B, G
Stem seal kits	PTFE chevrons	C
	Graphite packing	C1
Plug stem and seat kit	Equal percentage trim (No gaskets supplied)	D, E
	Fast opening trim (No gaskets supplied)	D1, E
	Linear trim (No gaskets supplied)	D2, E

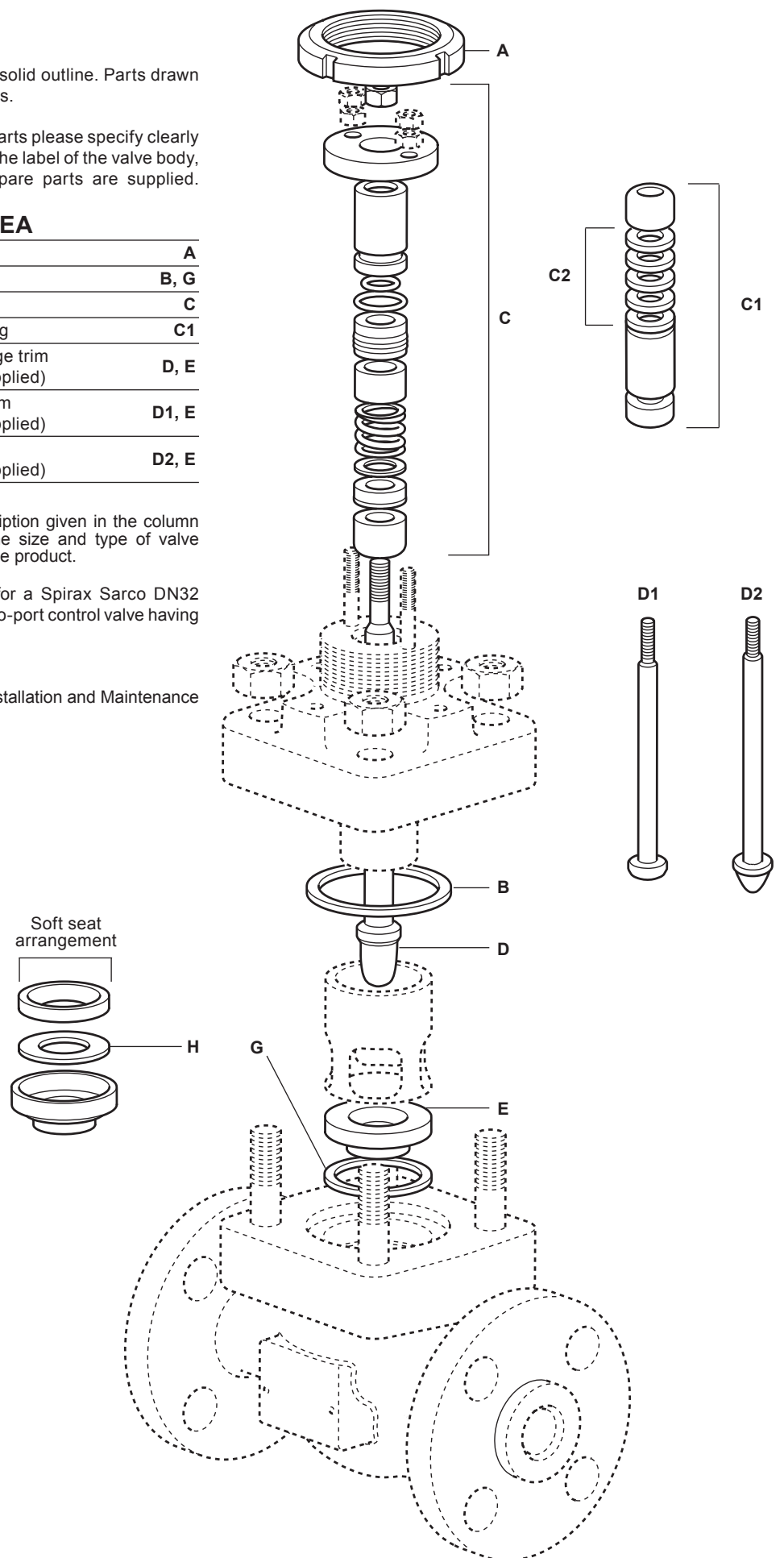
How to order spares

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

Example: 1 - Plug stem and seat kit for a Spirax Sarco DN32 SPIRA-TROL JE43PTSUSS.2 K_{VS} 16 two-port control valve having flanged PN63 connections.

How to fit spares

Full fitting instructions are given in the Installation and Maintenance Instructions supplied with the spare.



SPIRA-TROL selection guide:

Valve size	EN standard = DN15, DN20, DN25, DN32, DN40, DN50, DN65*, DN80, DN100, DN125, DN150, DN200 ASME standard = ½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6" and 8"	DN25
Valve series	J = J series 2-port control valve	J
Valve characteristic	E = Equal percentage F = Fast opening L = Linear	E
Flange type	A = ASME Blank = EN (PN)	Blank
Flow	Blank = under T = over	Blank
Body material	4 = Carbon steel 6 = Stainless steel 8 = Alloy steel	4
Connections	1 = Screwed 2 = Socket weld 3 = Flanged 4 = Butt weld	3
Stem sealing	P = PTFE H = Graphite	P
Seating	T = 431 stainless steel G = PTFE soft seat S = 316L stainless steel W = 316L with stellite 6 facing P = Full PEEK K = PEEK soft seat	T
Type of trim	S = Standard trim A1 = 1 stage anticavitation A2 = 2 stage anticavitation P1 = 1 stage low noise cage P2 = 2 stage low noise cage P3 = 3 stage low noise cage	S
Trim balancing	U = Unbalanced B = Balanced	U
Bonnet type	S = Standard E = Extended	S
Bolting	S = Standard	S
Series	2 = .2	.2
K_{Vs}	To be specified	K_{Vs} 10
Connection type	To be specified	Flanged PN63

Selection example:

DN32 -
 J E 4 3 P T S U S S .2 -
 K_{Vs} 16 -
 Flanged PN63

How to order

Example: 1 off Spirax Sarco SPIRA-TROL DN32 JE43PTSUSS.2 K_{Vs} 16 two-port control valve having flanged PN63 connections.