

spirax sarco

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CH Issue 4

SPIRA-TROL

6" and 8"

KEA, KFA and KLA Two-port Control Valves

Description

SPIRA-TROL is a range of two-port single seat globe valves with cage retained seats conforming to ASME standards. These valves are available in three body materials in sizes 6" and 8". When used in conjunction with a pneumatic or electric linear actuator they provide characterised modulating or on/off control.

SPIRA-TROL valve characteristic - options:

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

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

SPIRA-TROL valve options:

Stem sealing	PTFE seals	Standard
	Graphite packing	High temperature applications
	Metal-to-metal	431 stainless steel - standard
Seating	Soft seating	PTFE for tight shut-off
	Hard facing	316L stainless steel with Stellite 6 facing - for more arduous applications
Bonnet type	Standard bonnet	
Trim	Standard trim	
	Low noise cage	

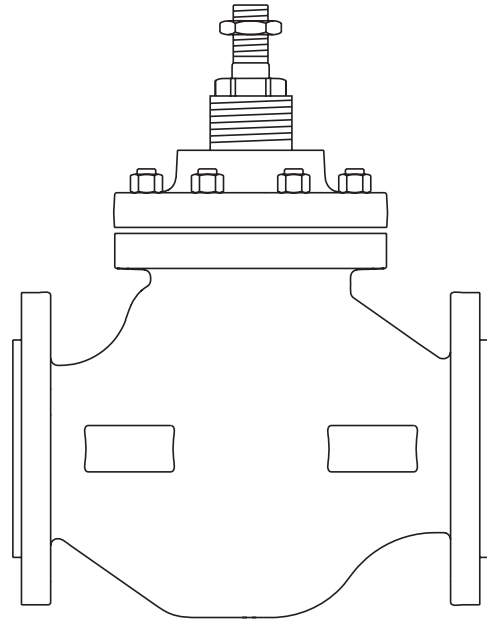
SPIRA-TROL two-port control valves are compatible with the following actuators and positioners:

Electric	EL5600 series
Pneumatic	PN1000, PN9400 and TN2000
	PP5 (pneumatic) or EP5 (electropneumatic)
Positioners	ISP5 (intrinsically safe electropneumatic)
	SP200is and SP200 (microprocessor based electropneumatic)
	SP300 (digital communications)

Refer to the relevant Technical Information sheet for further details.

Sizes and pipe connections

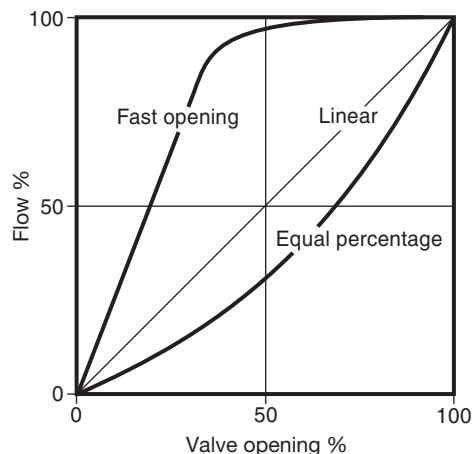
Type range	Body material	Connections	Size
KEA43	Cast steel	Flanged ASME 150 and ASME 300	6" and 8"
KEA63	Stainless steel	Flanged ASME 150 and ASME 300	6" and 8"
KEA73	SG iron	Flanged ASME 125 and ASME 250	6" and 8"



Technical data

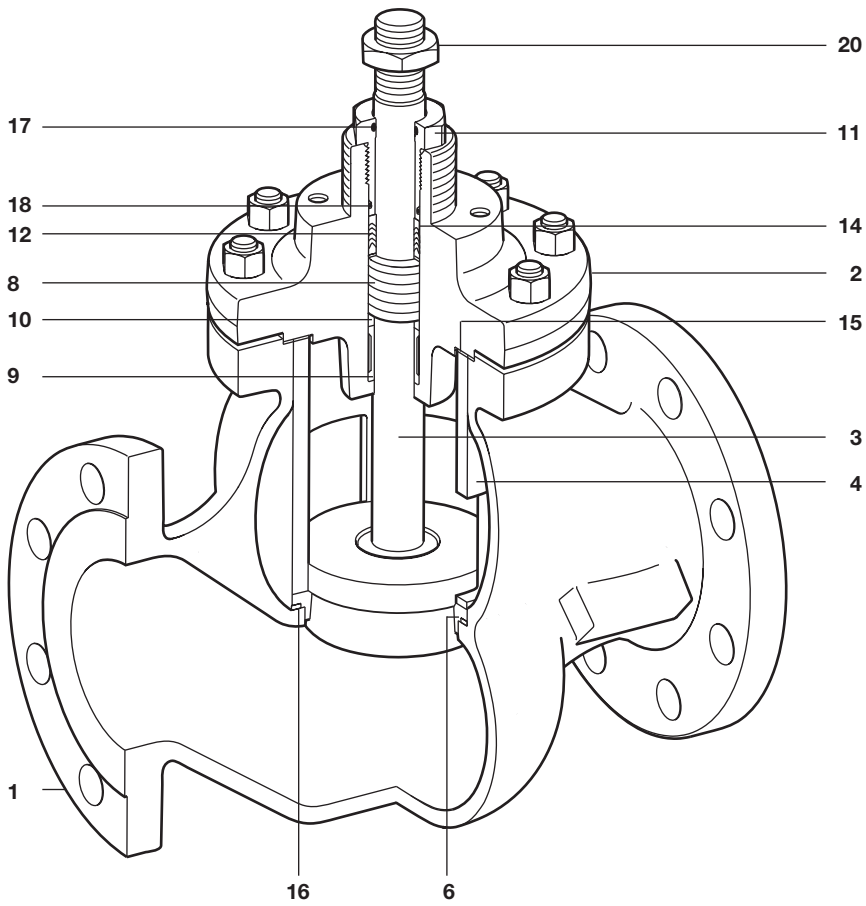
Plug design	Metal-to-metal	Parabolic
	Soft seal	Class IV
Leakage	Unbalanced	Class VI
	Balanced	Class IV
Rangeability	50:1	
Travel	6" and 8"	

Typical flow characteristic curves

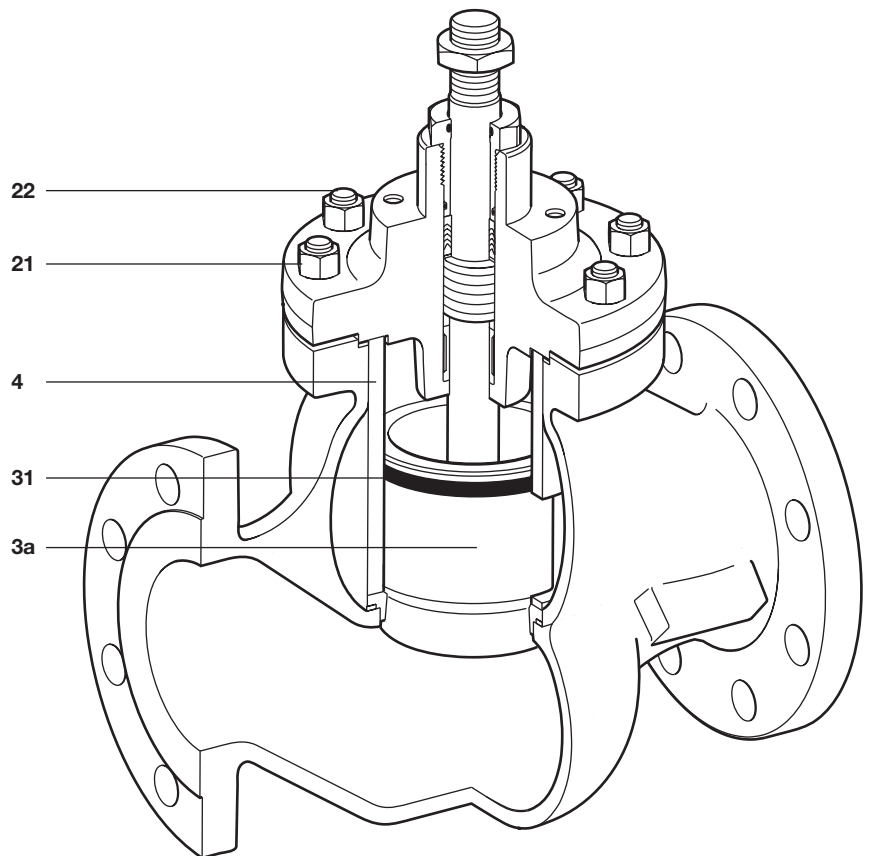


Materials

Type	No.	Part	Material	
KEA43	1	Body	Cast steel ASTM A216 WCB	
	2	Bonnet	Cast steel ASTM A216 WCB	
KEA63	1	Body	Stainless steel ASTM A351 CF8M	
	2	Bonnet	Stainless steel ASTM A351 CF8M	
KEA73	1	Body	SG iron ASTM A395	
	2	Bonnet	SG iron ASTM A395	
All versions	3	Plug and stem assembly	Stainless steel	
	4	Cage	Stainless steel	
	6	Valve seat ring	Stainless steel	
	9	Bearing	Stellite	
	10	Spacer	Stainless steel	
	11	Gland nut	Stainless steel	
	14	Washer	Stainless steel	
	15	Bonnet gasket	Stainless steel / graphite	
	16	Seat gasket	Stainless steel / graphite	
	20	Stem nut	Stainless steel	
	21	Standard bonnet nut	KEA43	Carbon steel ASTM A194 2H
			KEA63	Stainless steel B8M2
			KEA73	Carbon steel ASTM A194 2H
22	Standard stud	KEA43	Alloy steel ASTM A193 B7	
		KEA63	Stainless steel B8M	
		KEA73	Alloy steel ASTM A193 B7	
PTFE gland versions	8	Spring	Stainless steel	
	12	Chevron packing set	PTFE	
	17	Stem 'O' ring	Viton	
	18	Bonnet 'O' ring	Viton	
High temperature gland versions	26	Gland packing	Graphite	
Balanced versions	3a	Plug and stem assembly	Stainless steel	
	4	Cage	ENP / stainless steel	
	31	Balanced seal	Graphite	



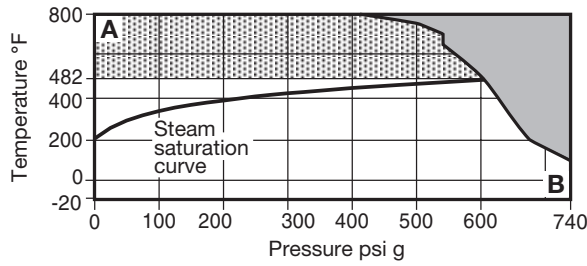
DN150 unbalanced valve



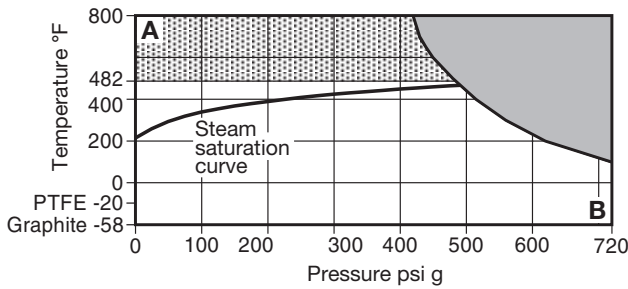
DN150 balanced valve

Pressure/temperature limits

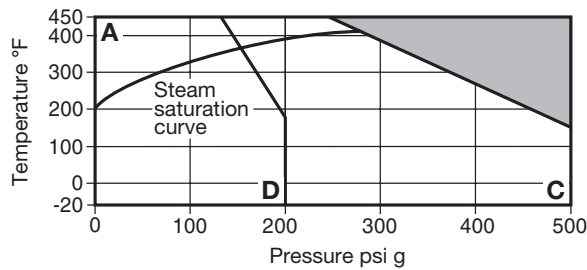
KEA41, KEA42 and KEA43 (Carbon steel)



KEA61, KEA62 and KEA63 (Stainless steel)



KEA71 and KEA73 (Ductile iron)



- A - B Flanged ASME (ANSI) 300 and screwed NPT and SW
- A - C Flanged ASME (ANSI) 250 and screwed NPT and SW
- A - D Flanged ASME (ANSI) 125

- The product **must not** be used in this region.
- Graphite stem sealing is required for use in this region

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 above.
3. As standard the KEA, KFA, KLA series two-port control valves are supplied with the PTFE stem sealing option.

Cvs values

Size			6"	8"	
Travel			2¾"		
Trim	Full port	Equal %	433	679	
		Linear	456	749	
		Fast opening	456	749	
	Reductions	Trim 1	Equal %	336	433
			Linear	336	433
		Trim 2	Equal %	154	271
			Linear	154	271
		Trim 3	Equal %	120	191
			Linear	120	191
Low noise trim	Full port	Linear	351	604	
		Trim 1 Linear	298	535	
	Reductions	Trim 2 Linear	234	410	
		Trim 3 Linear	178	310	

Body design conditions	KEA4_	ASME (ANSI) 150
	KEA6_	ASME (ANSI) 300
	KEA7_	ASME (ANSI) 125
	KEA7_	ASME (ANSI) 250

Maximum design pressure	KEA4_	ASME (ANSI) 150	276 psi g @ 100°F
	KEA4_	ASME (ANSI) 300	740 psi g @ 100°F
	KEA6_	ASME (ANSI) 150	275 psi g @ 100°F
	KEA6_	ASME (ANSI) 300	720 psi g @ 100°F

Maximum design temperature	KEA4_	800°F
	KEA6_	800°F
	KEA7_	450°F
Minimum design temperature	KEA4_	-20°F
	KEA6_	-58°F
	KEA7_	-20°F

Maximum operating temperature	Standard packing PTFE chevron	482°F
	PTFE soft seat (G)	392°F
	PEEK seat (K)	482°F
	Graphite packing (H)	800°F
	Extended bonnet (E) with PTFE chevron	482°F
	Extended bonnet (E) with graphite packing	800°F
	Bellows (B)	570°F
	Bellows (C)	750°F

Minimum operating temperature	KEA4_	-20°F
	KEA6_	PTFE packing -20°F
	KEA6_	Graphite packing -58°F
KEA7_	-20°F	

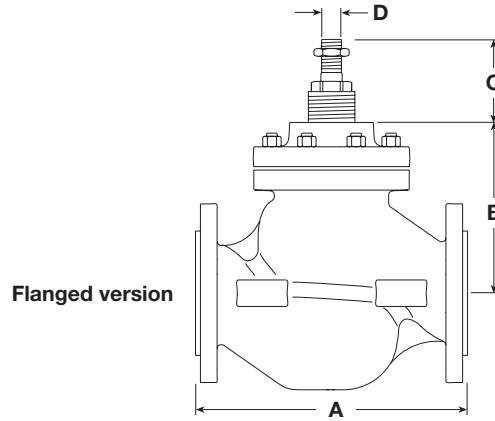
Maximum differential pressures: See relevant actuator Technical Information sheet

Maximum cold hydraulic test pressure of:	KEA4_	1100 psi g
	KEA6_	1100 psi g
	KEA7_	ASME (ANSI) 125 300 psi g
		ASME (ANSI) 250 750 psi g

Warning: If the valve is fitted with a bellows it must be removed if hydraulic testing is to be done.

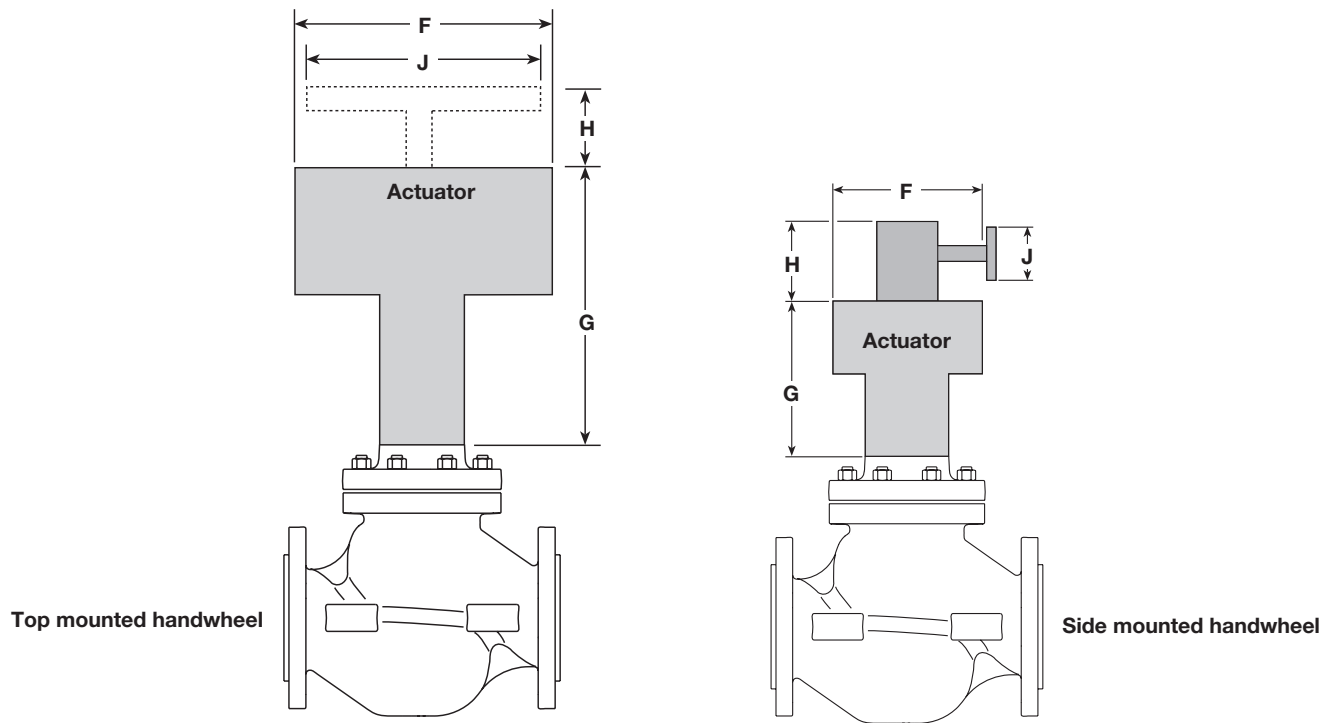
Dimensions / weights for the SPIRA-TROL (approximate) in inches and lbs

Valve size	A		B	C	D	Weight	
	ASME 125 and 150	ASME 250 and 300				Balanced	Unbalanced
6"	17 ³ / ₄ "	18 ⁵ / ₈ "	11"	4 ⁷ / ₈ "	M30	286	312
8"	21 ³ / ₈ "	22 ³ / ₈ "	13 ¹ / ₂ "	4 ⁷ / ₈ "		462	486



Dimensions / weights for the PN actuator range (approximate) in inches and lbs

Actuator range	F	G	H	J	Weight	
					Actuator	With handwheel
PN1600 and PN2600	18 ⁵ / ₁₆ "	46"	-	-	339	+ 103
PN9400 and variants	20 ¹ / ₂ "	-	28 ¹ / ₄ "	-	583	+ 116
TN2277E and variants	21"	34"	13"	13"	561	+ 103
TN2277NDA and variants	21"	34"	-	-	475	-



Dimensions / weights for the EL actuator (approximate) in inches and lbs

Actuator range	F	G	Weight
EL565_	8 ³ / ₄ "	31 ³ / ₄ "	97

Spare parts - SPIRA-TROL (balanced)

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 - KEA, KFA and KLA

Gasket set		A, B, G
Stem seal kits	PTFE chevrons	C
	Graphite packing	C2
PTFE to Graphite conversion kit		C1
	* Balanced equal percentage trim (No gaskets supplied)	A, D, E
Plug stem and seat kit	Balanced fast opening trim (No gaskets supplied)	A, D1, E
	Balanced linear trim (No gaskets supplied)	A, D2, E
PTFE soft seal		H
Soft seat conversion kit		J

* Specify if reduced trim.

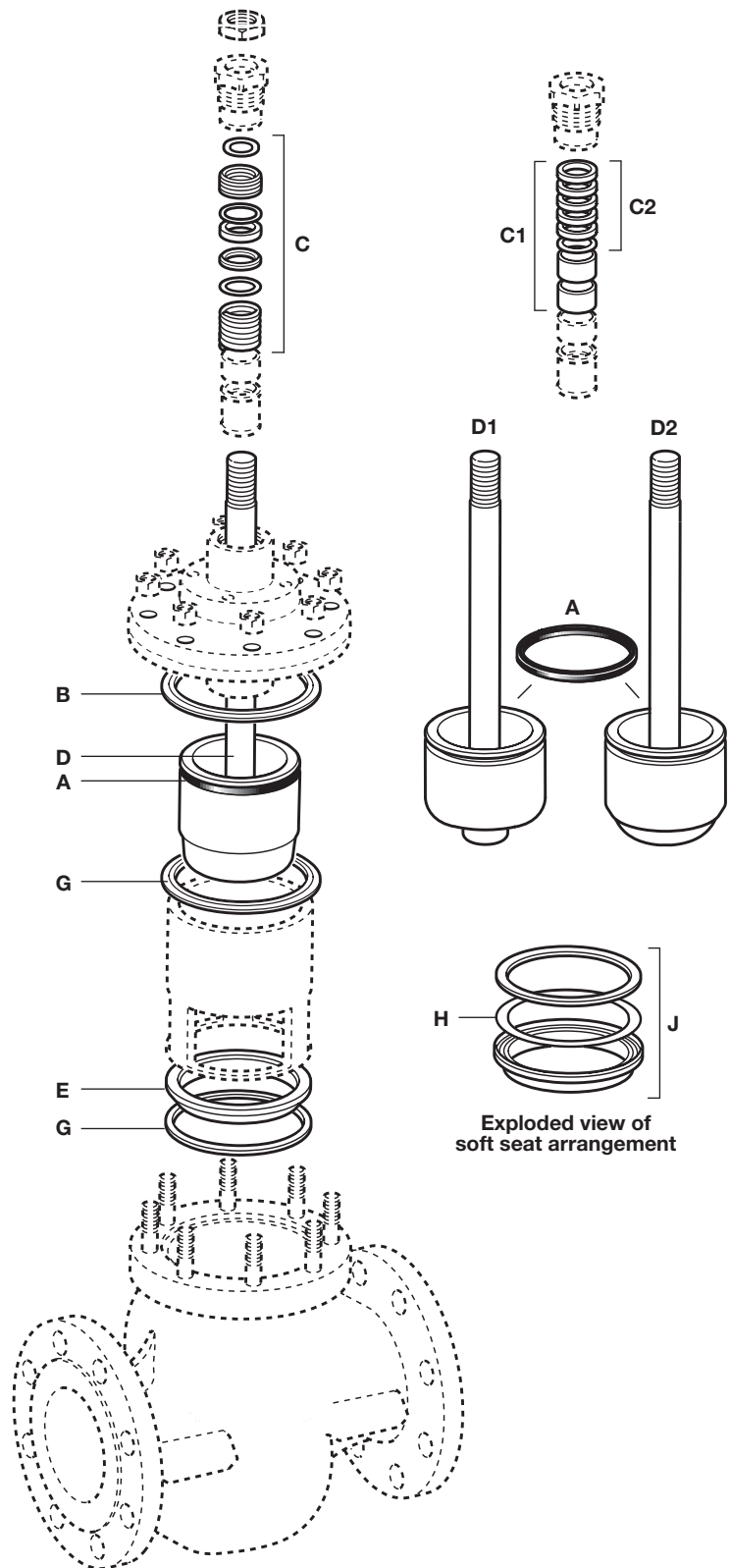
How to order spares

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 - PTFE stem seal kit for a Spirax Sarco 6" SPIRA-TROL two-port KEA43 PTSBSS.2 C_V 433 control valve.

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	6" and 8"	6"
Valve series	K = K series 2-port control valve	K
	E = Equal percentage (not available for low noise option)	
Valve characteristic	F = Fast opening (not available for low noise option)	E
	L = Linear	
Design code	A = ASME	A
	T = Flow over	
Flow direction	Blank = Flow under	
	4 = Carbon steel	
Body material	6 = Stainless steel	4
	7 = SG iron	
Connections	3 = Flanged	3
	P = PTFE	
Stem sealing	H = Graphite	P
	T = 431 stainless steel	
Seating	G = PTFE soft seat	T
	W = 316L with stellite 6 facing	
	S = Standard trim	
Type of trim	P = Low noise cage (Linear balanced trim only)	S
	B = Balanced	
Trim balancing	U = Unbalanced	U
Bonnet type	S = Standard	S
	S = Standard	
Bolting	H = High temperature	S
Series	2 = .2	.2
Cvs	To be specified	Cvs 433
Connection type	To be specified	ASME 150

Selection example:

6" - K E A 4 3 P T S U S S .2 - Cvs 433 - ASME 150

How to order

Example: 1 off Spirax Sarco 6" SPIRA-TROL KEA 43PTSUSS.2 Cvs 433 two-port control valve having flanged ASME 150 connections.