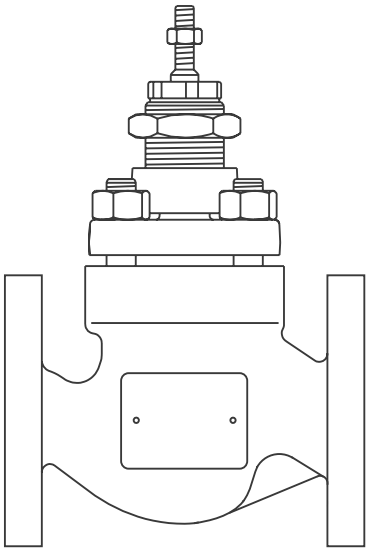
spirax sarco

SPIRA-TROL Two-port Control Valves ASME Standard KEA, KFA and KLA ½" to 8"

Description

SPIRA-TROL is a range of two-port single seat globe valves with cage retained seats conforming to ASME standard. These valves are available in three body materials in sizes ranging from ½" to 8". When used in conjunction with a pneumatic or electric linear actuator they provide characterized modulating or on / off control.



KEA, **KFA** and **KLA**
½" to 8"

Sizes and pipe connections

Body material	Connections		Type	Size range
Carbon steel	Threaded	NPT	KEA41	½", ¾", 1", 1¼", 1½" and 2"
	Socket weld		KEA42	½", ¾", 1", 1¼", 1½" and 2"
	Flanged	ASME 300	KEA43	½", ¾", 1", 1½", 2", 2½", 3" and 4"
		ASME 150 and ASME 300	KEA43	6" to 8"
Stainless steel	Threaded	NPT	KEA61	½", ¾", 1", 1¼", 1½" and 2"
	Socket weld		KEA62	½", ¾", 1", 1¼", 1½" and 2"
	Flanged	ASME 300	KEA63	½", ¾", 1", 1½", 2", 2½", 3" and 4"
		ASME 150 and ASME 300	KEA63	6" and 8"
SG iron	Flanged	ASME 125 and ASME 250	KEA73	1", 1½", 2", 2½", 3", 4", 6" and 8"

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.
In the interests of development and improvement of the product, we reserve the right to change the specification.

SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

SPIRA-TROL valve characteristic - options:

KEA	**Equal percentage (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 the differential pressures across the valve are constant.

Important note: Throughout this document, reference has been made to the standard KE or 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 chevron seals**	Standard
	Graphite packing	High temperature applications
	Bellows / PTFE (B)	Zero emissions and thermal fluids
	Bellows / graphite (C)	Zero emissions, high temperature applications and thermal fluids
	Bellows / graphite secondary seals (D)	Zero emissions and high temperature applications
Seating	**Metal-to-metal**	431 stainless steel - standard
		316L stainless steel - ½" to 4" only
	Soft seating	Up to 392°F - PTFE 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 and anti-cavitation trim (see TI-S24-59)	

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

Electric	EL7200, AEL5 and AEL6 series
Pneumatic	PN1000, PN2000, PN9000 and TN2000 series
Positioners	PP5 (pneumatic) or EP5 (electropneumatic)
	ISP5 (intrinsically safe electropneumatic)
	SP400 and SP500 (microprocessor based electropneumatic)
	SP300 (digital communications)

Note: Reference the product specific Technical Information sheet for further details.

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.

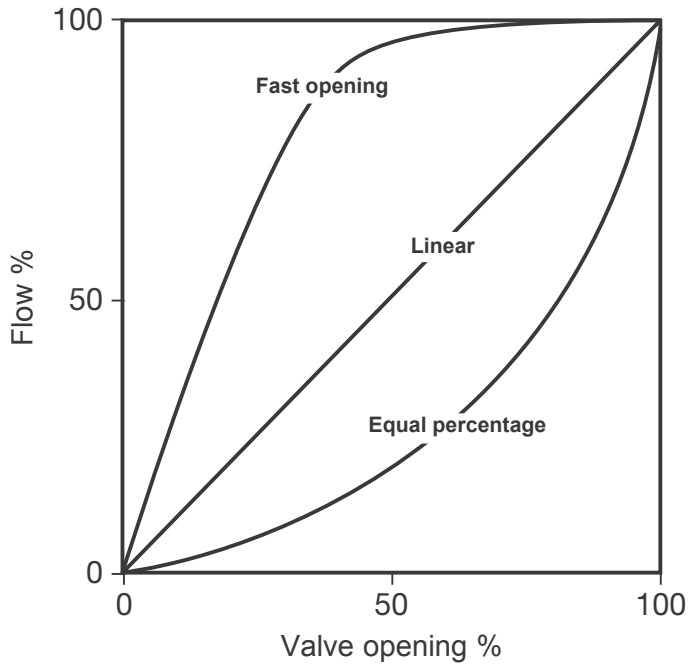
Certification
This product is available with certification to EN 10204 3.1. **Note:** All certification / inspection requirements must be stated at the time of order placement.

SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

Technical data

Plug design			Parabolic
Leakage	Metal-to-metal	Balanced (6" and 8" only)	Class IV
		Unbalanced	Class IV (Class V is optional)
	Soft seal	Balanced (6" and 8" only)	Class IV
		Unbalanced	Class VI
Rangeability	Equal		50:1
	Linear		30:1
	Fast		10:1
Travel	(½"- 2")	(¾")	
	(1½"- 4")	(1 3/16")	
	(5"- 8")	(2¾")	

Typical flow characteristic curves



SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

Materials - ½" to 4"

Body material	Type	No.	Part		Material	
Carbon steel	KEA41 KEA42 KEA43	1	Body		Cast steel	ASTM A216 WCB
		2	Bonnet	½" to 2"	Forged steel	ASTM A105N
				2½" to 4"	Cast steel	ASTM A216 WCB
		2a	Bonnet extension		Cast steel	ASTM A216 WCB
		2c	Extended bonnet		Cast steel	ASTM A216 WCB
Stainless steel	KEA61 KEA62 KEA63	1	Body		Stainless steel	ASTM A351 CF8M
		2	Bonnet			
		2a	Bonnet extension			
		2c	Extended bonnet		Stainless steel	ASTM A351 CF8M
SG iron	KEA71 KEA73	1	Body		SG iron	ASTM A395
		2	Bonnet			
		2a	Bonnet extension		Cast steel	ASTM A216 WCB
		2c	Extended bonnet			
All versions		2b	Bellows		Stainless steel	
		3	Stem lock-nut		Stainless steel	
		4	Bonnet gasket		Reinforced exfoliated graphite	
		5	Seat retainer		Stainless steel	
		6	Valve seat ring		Stainless steel	
		7	Seat gasket		Reinforced exfoliated graphite	
		8	Valve plug and stem		Stainless steel	
		9 *	Lower stem guide		Glass filled PTFE	
		10	Lower stem wiper		PTFE	
		11 *	Packing guard washer		Stainless steel	
		12 *	Spring		Stainless steel	
		13	Packing spacer		Stainless steel	
		14 *	Chevron packing set		PTFE	
		15 *	Outer 'O' ring		Viton	
		16 *	Upper stem guide		Glass filled PTFE	
		17 *	Inner 'O' ring		Viton	
		18	Gland nut		Stainless steel	
		19	Scraper ring		PTFE	
		20	Actuator clamp nut	**KEA6_**	Stainless steel	
				Others	Plated carbon steel	
		21	Bellows assembly		Stainless steel	
		22	Bonnet extension gasket		Reinforced exfoliated graphite	
		23	Top plate (used on bonnet extension only)		Stainless steel	
		24	Lower spindle bearing housing		Stainless steel	
		25	Lower spindle bearing		Stellite 6 or stainless steel for KE43, KE71 and KE73	
		26	Spindle lock and anti-rotation nut		Stainless steel	
		27 and **28** For nuts and studs, see page 8				

* **Graphite packing**

High temperature packing	9 16	Lower and upper stem guide	Stelite 6
	14	Grafoil packing	Graphite rings
	10, 11, 12, 15, 17 and 19		Not used

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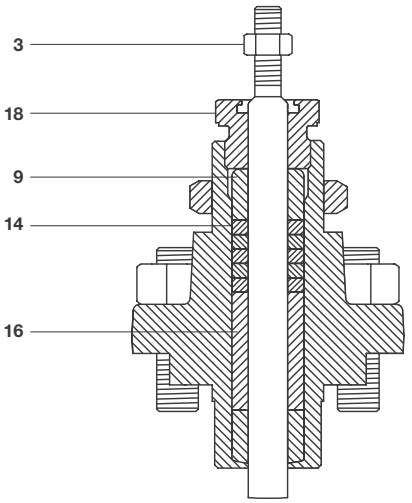
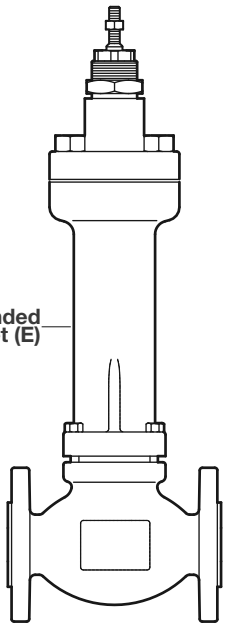
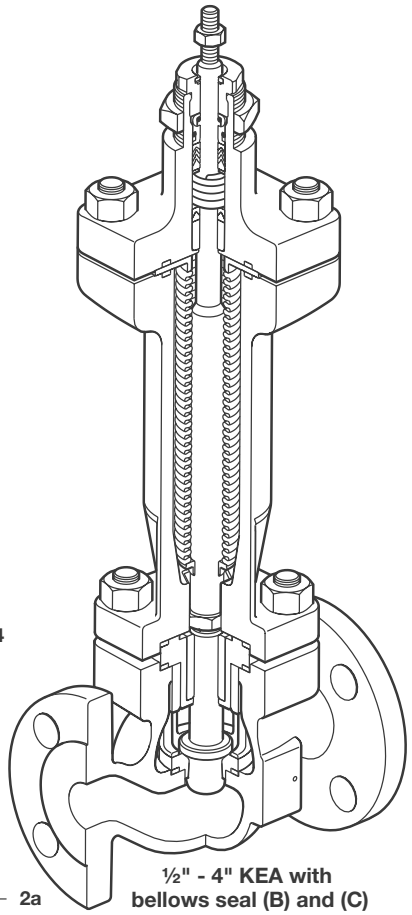
ASME Standard KEA, KFA and KLA ½" to 8"

KEA valve with graphite packing



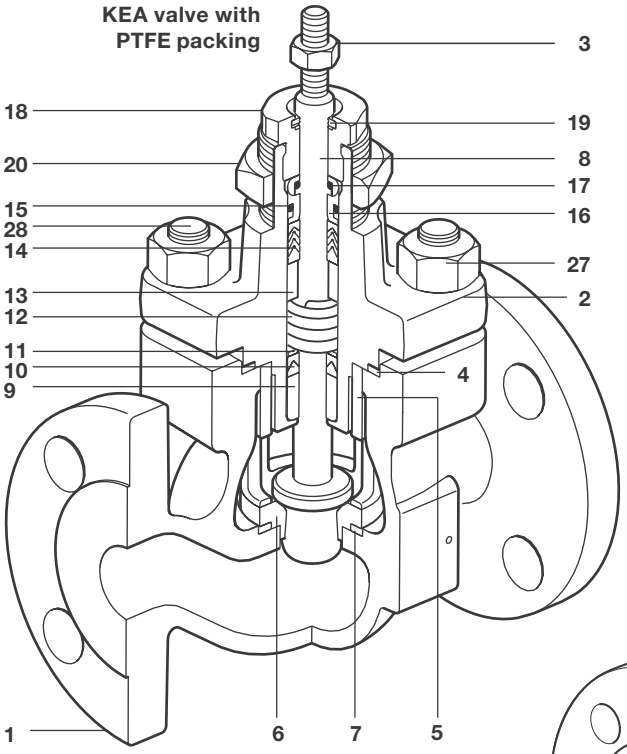
KEA valve with extended bonnet (E)

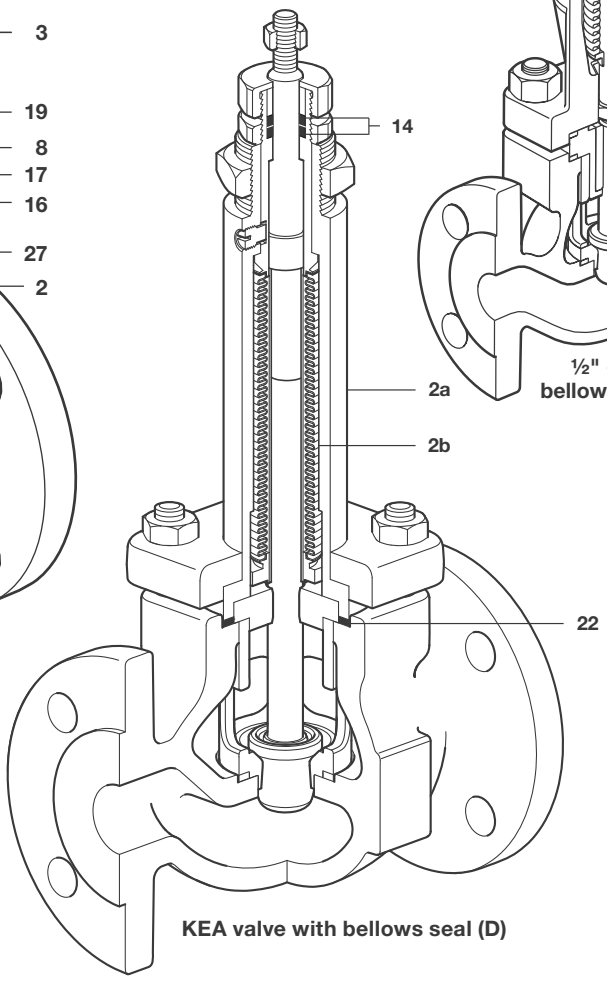




½" - 4" KEA with bellows seal (B) and (C)

KEA valve with PTFE packing





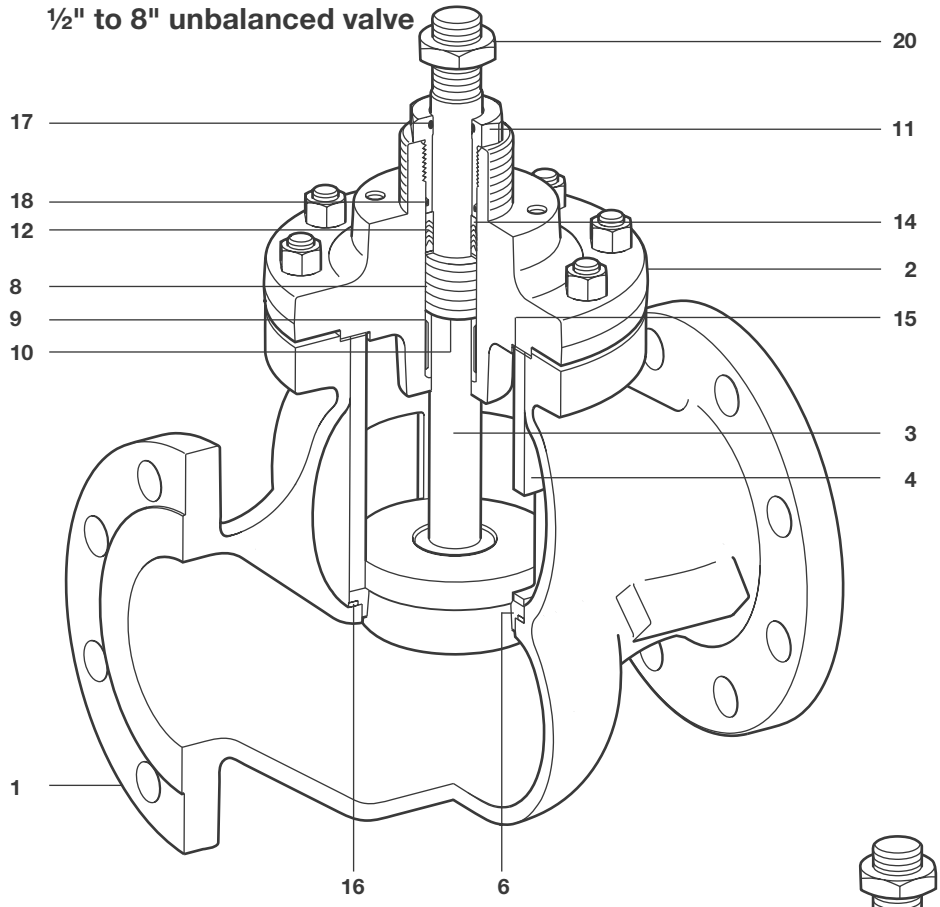
KEA valve with bellows seal (D)

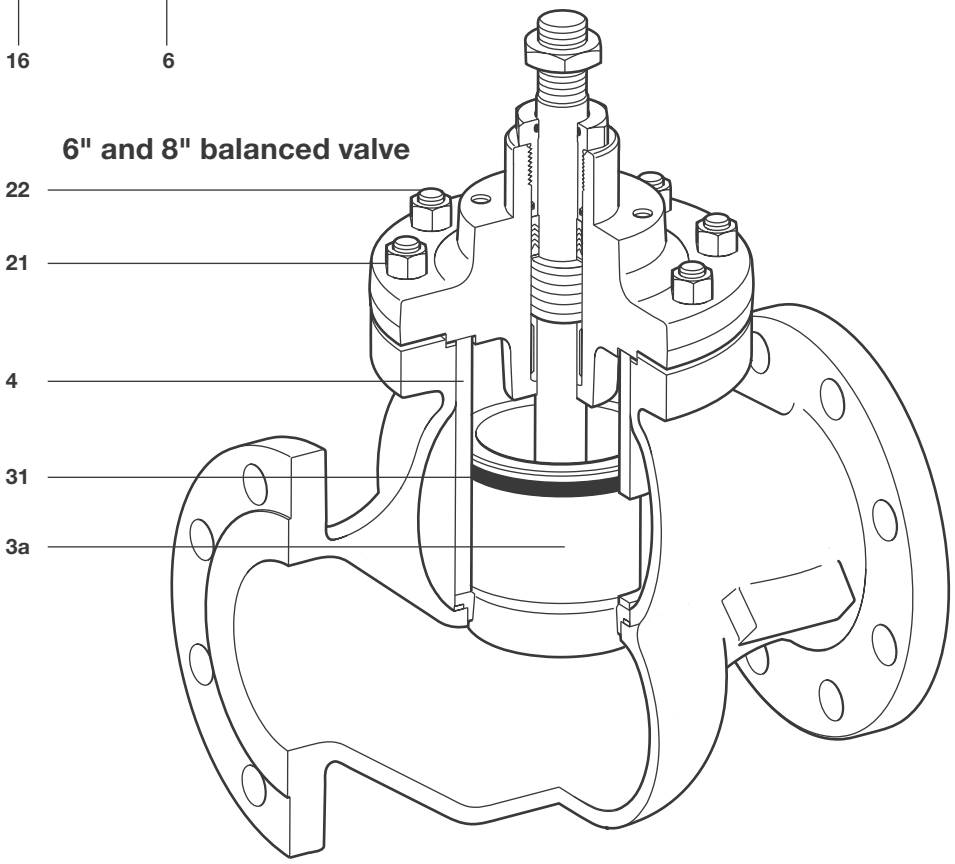
SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

Materials - 6" to 8"

Body material	Type	No.	Part		Material	
Carbon steel	KEA43	1	Body		Cast steel	ASTM A216 WCB
		2	Bonnet		Cast steel	ASTM A216 WCB
Stainless steel	KEA63	1	Body		Stainless steel	ASTM A351 CF8M
		2	Bonnet			
SG iron	KEA73	1	Body		SG iron	ASTM A395
		2	Bonnet			
All versions		3	Plug and stem assembly		Stainless steel	
		4	Cage		Stainless steel	
		6	Valve seat ring		Stainless steel	
		9	Bearing		Stellite	
		10	Spacer (not used in DN125 valves)		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	ASTM A194 8M
				KEA73	Carbon steel	ASTM A194 2H
			High temperature bonnet nut		Stainless steel	DIN ISO 3506 A2
		22	Standard stud	KEA43	Carbon steel	ASTM A193 B7
				KEA63	Stainless steel	ASTM A193 B8M2
				KEA73	Carbon 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	
		29	Cage		Stainless steel	
		31	Balanced seal		Graphite	

SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

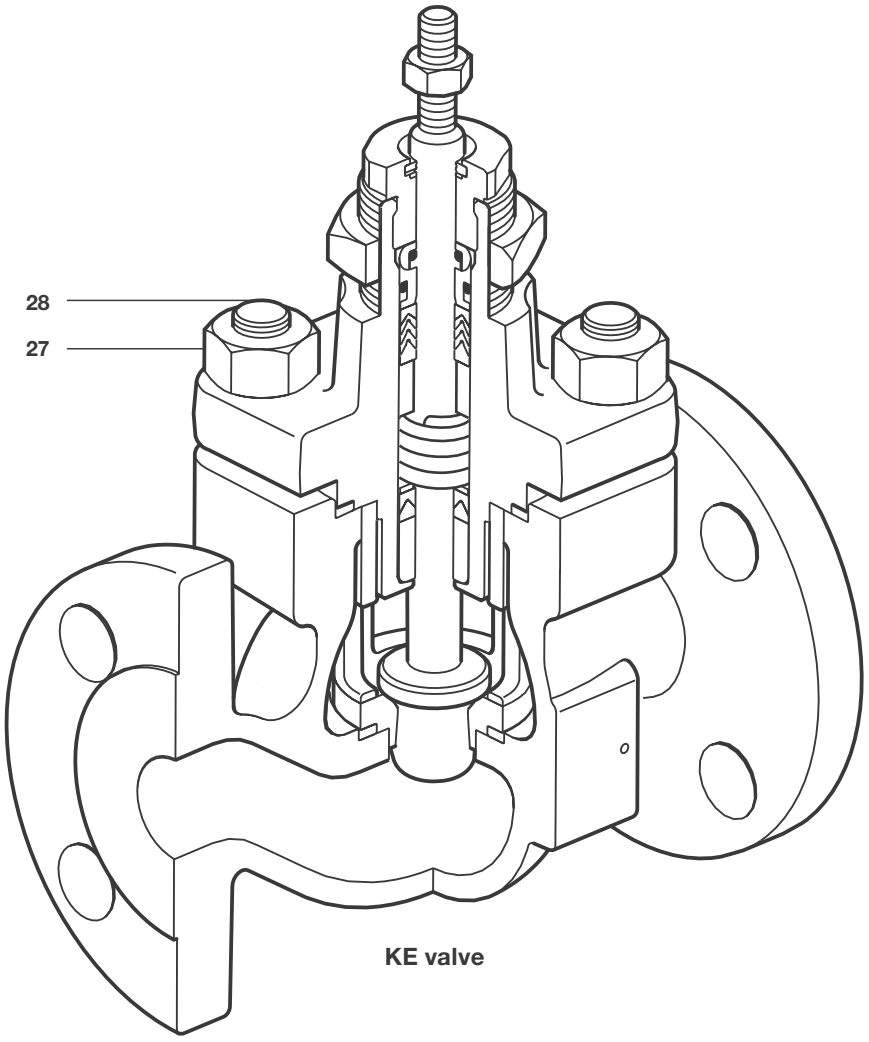




SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

Materials - Nuts and studs ½" to 4"

Body material	No.	Part		Material	
All versions	27	Standard bonnet studs	KEA4_ KEA6_ KEA7_	Steel	ASTM A194 Gr.2H
	28	Standard bonnet studs	KEA4_	Steel	ASTM A193 Gr.B7
			KEA6_	Steel	ASTM A193 Gr. B8 M2
			KEA7_	Steel	ASTM A193 Gr. B7



KE valve

SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

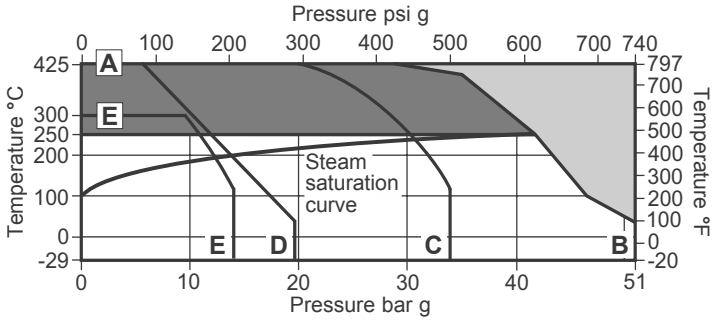
C_V values

Valve size			(½")	(¾")	(1")	(1¼")	(1½")	(2")	(2½")	(3")	(4")	(5")	(6")	(8")
Standard trim	Full port	Equal %	5.0	7.5	12.0	16.0	30	45	75	120	190		433	679
		Linear	5.0	7.5	12.0	16.0	30	45	75	120	190		456	749
		Fast opening	5.0	7.5	12.0	16.0	32	50	88	136	210		456	749
	Reduced trim 1	Equal %	2.5	5.5	8.5	18.0	16	33	48	85	130		336	433
		Linear	2.5	5.5	8.5	12.0	18	33	48	85	130		336	433
	Reduced trim 2	Equal %	1.8	2.5	6.0	8.5	13	18	36	50	90		154	271
		Linear	1.8	2.5	6.0	8.5	13	18	36	50	90		154	271
	Reduced trim 3	Equal %	1.0	1.8	3.0	6.0	9	14	18	38	53		120	191
		Linear	1.0	1.8	3.0	6.0	9	14	18	38	53		120	191
	Reduced trim 4	Equal %		1.0	1.8		6	9		18				
		Linear		1.0	1.8		6	9		18				
	Reduced trim 5	Equal %			1.0			6						
		Linear			1.0			6						
Microflute			0.50	0.50	0.50									
			0.20	0.20	0.20									
			0.10	0.10	0.10									
			0.07	0.07	0.07									
			0.01	0.01	0.01									
			0.20	0.20	0.20									
			0.10	0.10	0.10									
			0.07	0.07	0.07									
			0.01	0.01	0.01									

Note: For low noise and anti-cavitation C_V please see TI-S24-59

SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

Pressure/temperature limits - KEA41, KEA42 and KEA43 (Carbon steel)



A - B Flanged ASME 300 and threaded NPT and SW.

A - D Flanged ASME 150.

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 41°F, 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.

Body design conditions		ASME 150 and ASME 300
Maximum design pressure	ASME 150 (6" to 8" only)	284 psi g @ 100°F
	ASME 300	740 psi g @ 100°F
Maximum design temperature		800°F
Minimum design temperature		-20°F
Maximum operating temperature	PTFE soft seat (G)	392°F
	Standard packing PTFE chevron Extended bonnet (E) with PTFE chevron	482°F
	Graphite packing (H) Extended bonnet (E) with graphite packing	800°F

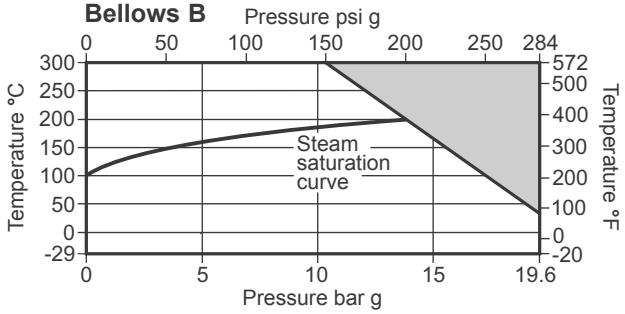
Note: We recommend that an extended bonnet (E) with graphite packing is used where valve operation is above 572°F.

Maximum operating temperature - Bellows only

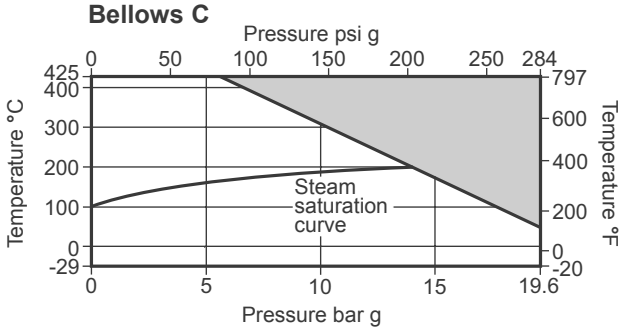
Note: When selecting a valve with a bellows sealed bonnet, the pressure/temperature limits of the bellows must be read in conjunction with the valve pressure/temperature limits shown above.

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

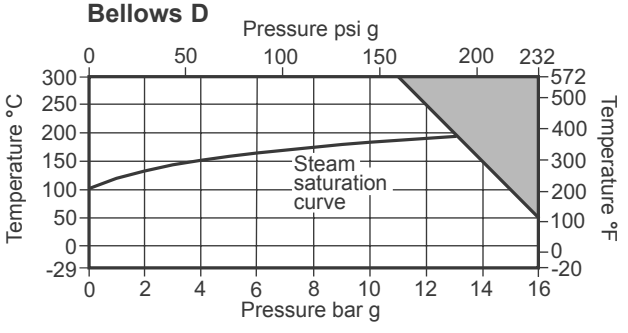
Bellows B



Bellows C



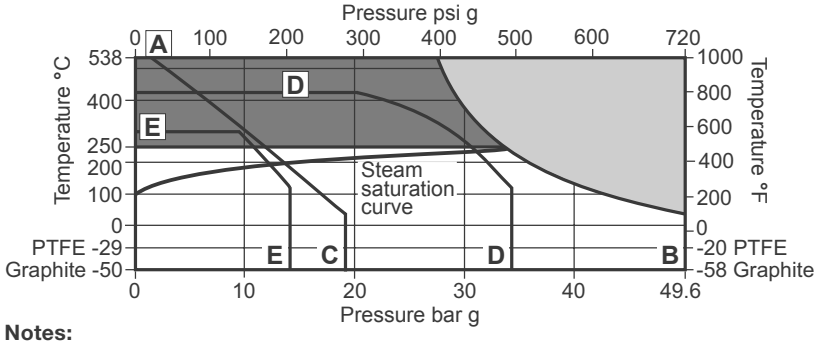
Bellows D



Minimum operating temperature **Note:** For lower operating temperatures consult Spirax Sarco.	-20°F
Maximum differential pressures	See relevant actuator Technical Information sheet
Maximum cold hydraulic test pressure of: **Warning:** If the valve is fitted with a bellows it must be removed if hydraulic testing is to be done.	1 100 psi g

SPIRA-TROL Two-port Control Valves ASME Standard KEA, KFA and KLA ½" to 8"

Pressure/temperature limits - KEA61, KEA62 and KEA63 (Stainless steel)



A - B Flanged ASME 300 and threaded NPT and SW.

A - C Flanged ASME 150.

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

Graphite stem sealing is required for use in this region.

Notes:

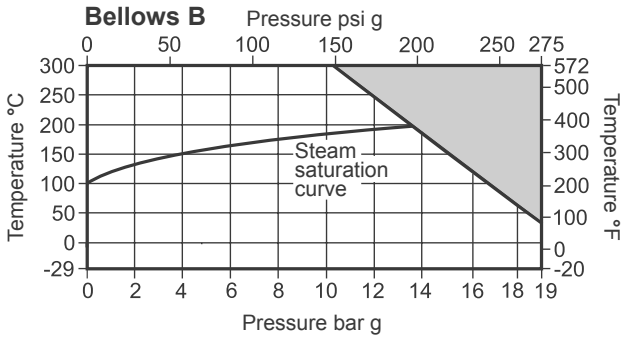
1. Where the process fluid temperature is sub-zero and the ambient temperature is below +41°F, the external moving parts of the valve and actuator must be heat traced to maintain normal operation.
2. When selecting a valve with a bellows sealed bonnet, the pressure/temperature limits of the bellows must 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.

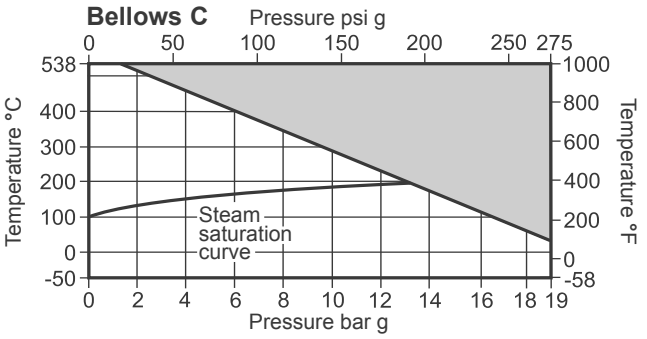
Body design conditions		ASME 150 and ASME 300
Maximum design pressure	ASME 150 (6" to 8" only)	275 psi g @ 100°F
	ASME 300	720 psi g @ 100°F
Maximum design temperature		1000°F
Minimum design temperature		-58°F
Maximum operating temperature	PTFE soft seat (G)	392°F
	Standard packing PTFE chevron Extended bonnet (E) with PTFE chevron	482°F
	Graphite packing (H) Extended bonnet (E) with graphite packing	1000°F

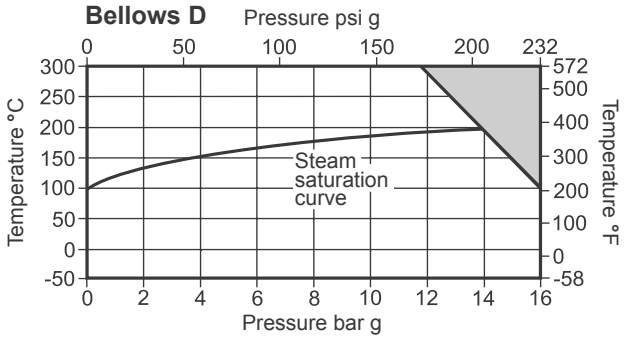
Note: We recommend that an extended bonnet (E) with graphite packing is used where valve operation is above 572°F.

Maximum operating temperature - Bellows only

Note: 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.



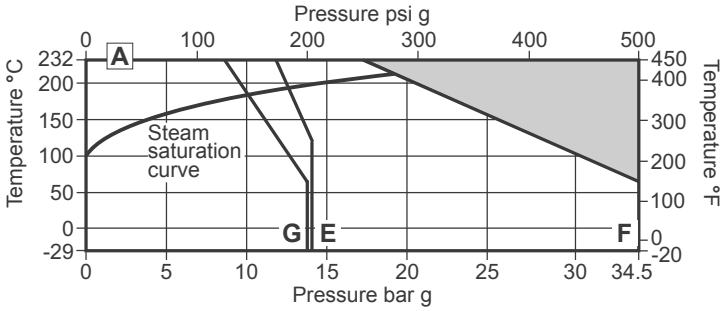




Minimum operating temperature **Note:** For lower operating temperatures consult Spirax Sarco.	PTFE packing	-20°F
	Graphite packing	-58°F
Maximum differential pressures		See relevant actuator Technical Information sheet
Maximum cold hydraulic test pressure of: **Warning:** If the valve is fitted with a bellows it must be removed if hydraulic testing is to be done.		1087.5 psi g

SPIRA-TROL Two-port Control Valves ASME Standard KEA, KFA and KLA ½" to 8"

Pressure/temperature limits - KEA71 and KEA73 (SG iron)



A - F Flanged ASME 250 and threaded NPT and SW.

A - G Flanged ASME 125.

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

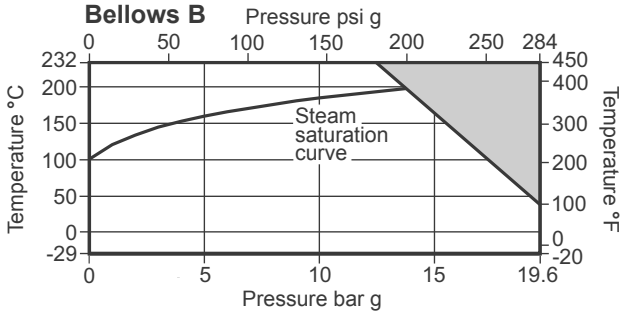
Notes:

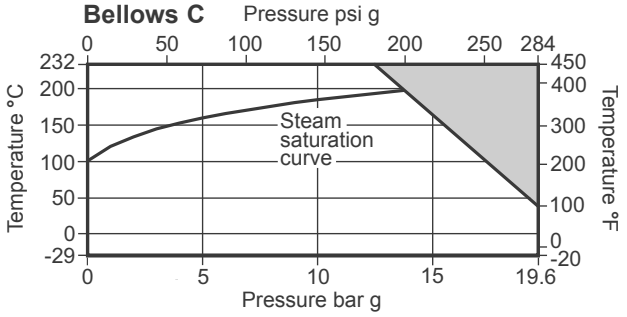
1. Where the process fluid temperature is sub-zero and the ambient temperature is below +41°F, the external moving parts of the valve and actuator must be heat traced to maintain normal operation.
2. When selecting a valve with a bellows sealed bonnet, the pressure/temperature limits of the bellows must 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.

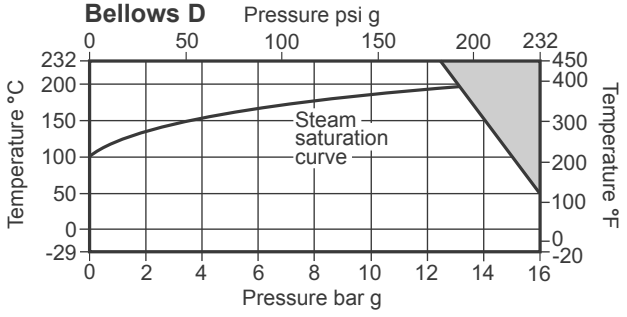
Body design conditions		ASME 125 and ASME 250
Maximum design pressure	ASME 125	200 psi g @ 150°F
	ASME 250	500 psi g @ 150°F
Maximum design temperature		450°F
Minimum design temperature		-20°F
Maximum operating temperature	PTFE soft seat (G)	392°F
	Standard packing PTFE chevron	450°F
	Graphite packing (H)	
	Extended bonnet (E) with PTFE chevron	
	Extended bonnet (E) with graphite packing	

Maximum operating temperature - Bellows only

Note: 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.







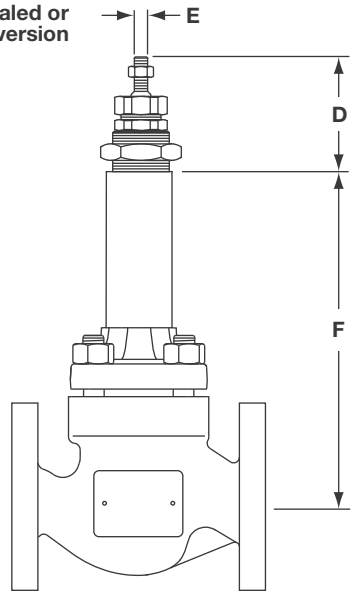
Minimum operating temperature		-20°F
Note: For lower operating temperatures consult Spirax Sarco.		
Maximum differental pressures		See relevant actuator Technical Information sheet
Maximum cold hydraulic test pressure of:	ASME 125	300 psi g
Warning: If the valve has a bellows it must be removed if hydraulic testing is to be done.	ASME 250	750 psi g

SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

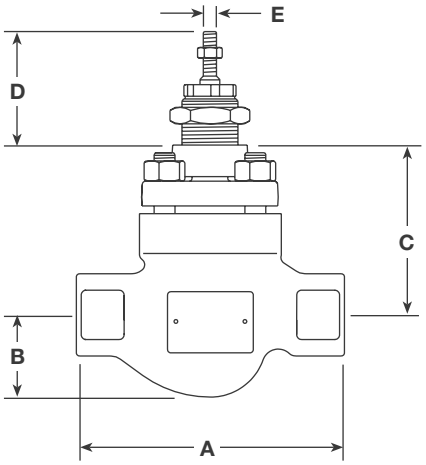
Dimensions for the SPIRA-TROL two-port control valve approximate in inches

Valve size	Screwed NPT			Flanged KEA valves			D	E	F	
	A	B	C	A1		C1		Thread	Bellows seals	Extended bonnet
				ASME 125 and 150	ASME 250 and 300					
½"	6½"	1¾"	4"		7½"	4"	2¾"	M8	9"	13.25"
¾"	6½"	1¾"	4"		7½"	4"				
1"	7¾"	2¼"	4"	7¼"	7¾"	4"				
1¼"	8½"	2¼"	5"			5"			10½"	19.94
1½"	9¼"	2½"	5"	8¾	9¼"	5"				
2"	10½"	3"	5"	10"	10½"	5"				
2½"				10½	11½"	7⅞"	3"	M12	14½"	19.38"
3"				11¾	12½"	7⅞"			14½"	
4"				13¾	14½"	8½"			15"	17"
5"							4 7/8"	M30		21 1/5"
6"				17¾"	18 5/8"	11"				21 7/8"
8"				21 3/8"	22 3/8"	13½"				24½"

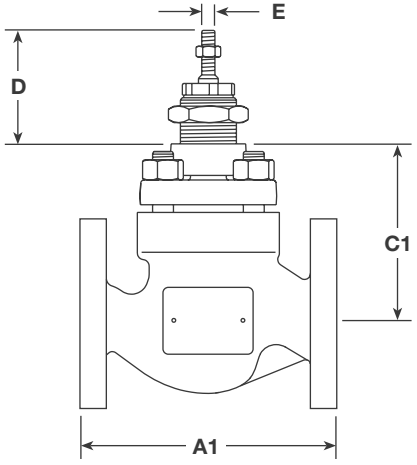
Bellows sealed or extended bonnet version



Screwed version



Flanged version



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SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

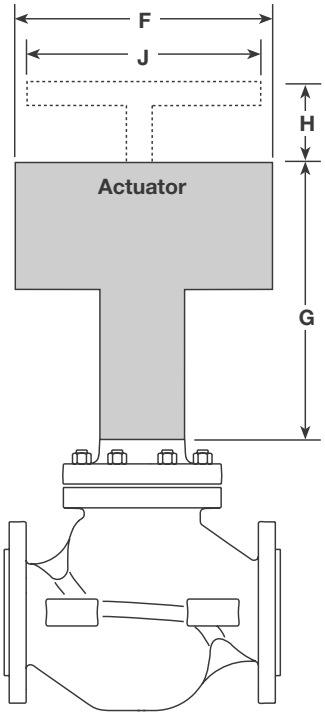
Weights for the SPIRA-TROL two-port control valve approximate in lbs

Valve size	KEA valves				Additional bellows and Extended bonnet	Additional balanced
	KEA43	KEA63	KEA73	KEA41 KEA42 KEA61 KEA62 KEA71		
½"	16	16	16	16	10	
¾"	18	18	18	16		
1"	20	20	20	22		
1¼"	31	31	29	25	12	
1½"	36	36	31	31		
2"	38	40	38	33		
2½"	78	78	84		21	
3"	86	89	91			
4"	124	124	132		28	
5"					35	4.4
6"	286	286	286		35	7
8"	462	462	462		35	22

SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

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

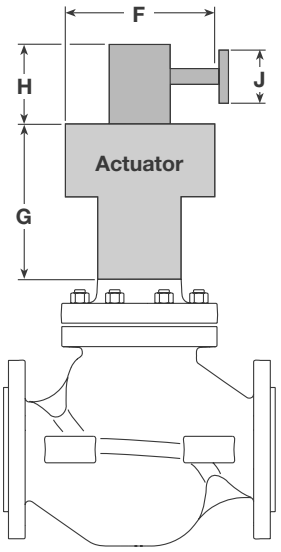
Actuator range and variants	F inches	G inches	H inches	J inches	Weight Actuator lbs	Weight With handwheel lbs
PN1500 and PN2500	16"	46"			121.00	
PN1600 and PN2600	18 5/16"	46"			154.00	
PN9100E	10 7/8"	6A"	2 3/16"	8 7/8"	13.25	+13.00
PN9100R			5½"			+5.50
PN9200E	11 7/8"	11 7/8"	2 3/16"	8 7/8"	37.50	+15.75
PN9200R			5½"			+8.50
PN9320E	12 7/8"	15 9/16"	2 9/16"	13¾"	59.50	+15.75
PN9320R			15 9/16"			+8.50
PN9330E	13 3/8"	15 9/16"	2 9/16"	13¾"	59.50	+15.75
PN9330R			15 9/16"			+8.50
PN9400	20½"		28¼"		583	+116.00
TN2277E	21"	34"	13"	13"	561	+103.00
TN2277NDA	21"	34"			475	



Top mounted handwheel

Dimensions / weights for the EL and AEL actuator ranges approximate in inches and lbs

Actuator range	F inches	G inches	Weight lbs
EL3500	5¼" x 6¼"	9½"	3.0
EL3500 SE and SR	5¼" x 6¼"	11"	6.0
AEL55 and AEL65	7"	22"	22.0
AEL51, AEL52, AEL53, AEL62 and AEL63	7"	18"	11.0
AEL54 and AEL64	7"	19"	15.5
AEL56 and AEL66	9"	30"	44.0



Side mounted handwheel

SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

Spare parts

SPIRA-TROL two-port control valve ½" to 4"

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 - K series

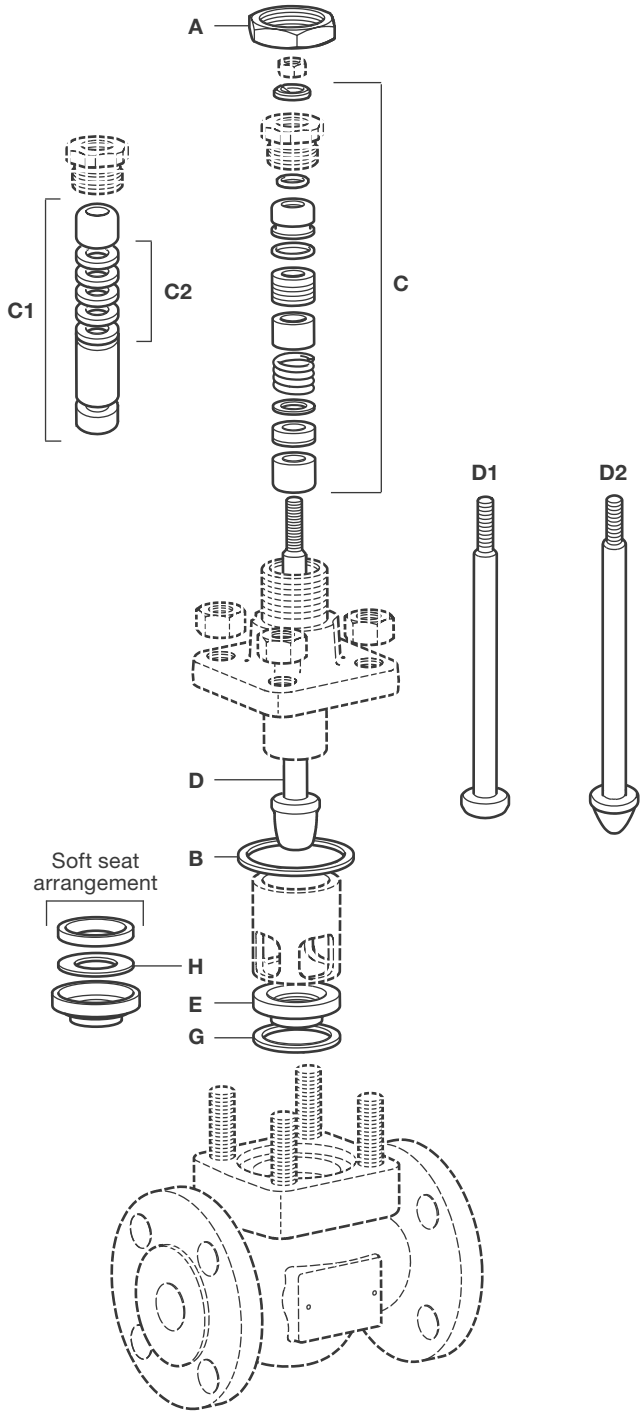
Actuator clamping nut		**A**
Gasket set	(Non-bellows sealed)	**B**, **G**
Stem seal kits	**PTFE** chevrons	**C**
	PTFE to **Graphite** conversion kit	**C1**
	Graphite packing	**C2**
Plug stem and seat kit	* **Equal percentage trim** (No gaskets supplied)	**D**, **E**
	Fast opening trim (No gaskets supplied)	**D1**, **E**
	Linear trim (No gaskets supplied)	**D2**, **E**
PTFE soft seat seal		**H**

* 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 1" SPIRA-TROL two-port KEA43 PTSUSS.2 C_{VS} 12 control valve.

How to fit spares
Full fitting instructions are given in the Installation and Maintenance Instructions supplied with the spare.



SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

Spare parts

SPIRA-TROL two-port control valve
Balanced and unbalanced
6" to 8"

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.

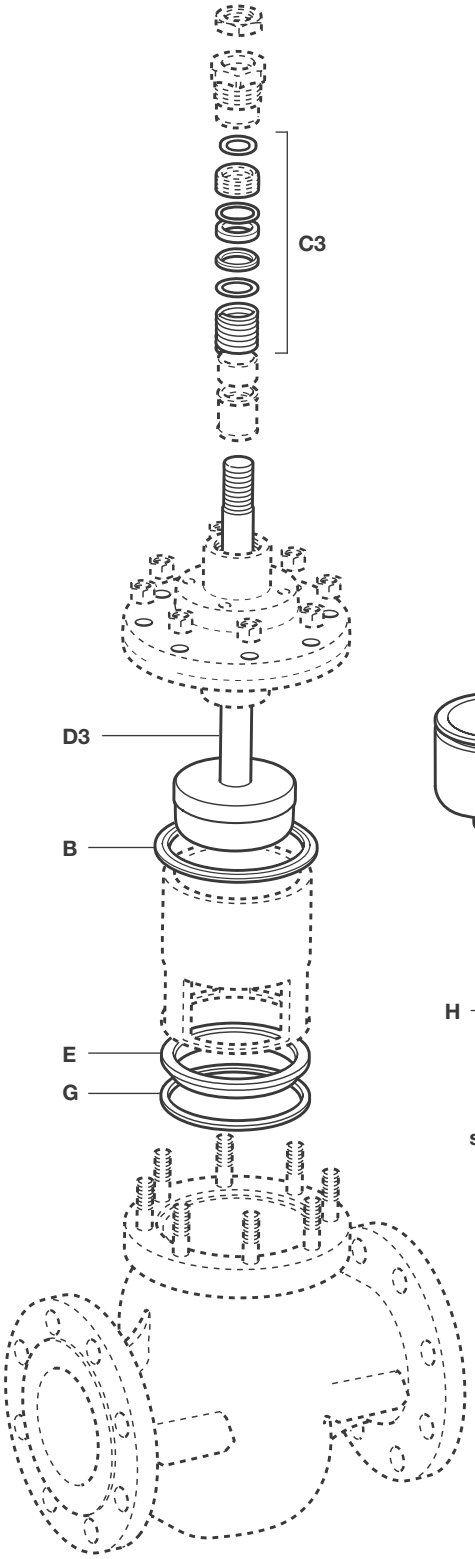
Available spares - K series

Gasket set Non bellows sealed	**Balanced**	**B, G**
	Unbalanced	**A, B, G**
Stem seal kit	**PTFE** chevrons	**C3**
	PTFE to **Graphite** conversion kit (DN15 to DN100)	**C4**
	Graphite packing	**C5**
Plug stem and seat kit	**Balanced** (No gaskets supplied)	**A, D, E**
	Unbalanced (No gaskets supplied)	**D, 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 - PTFE stem seal kit for a Spirax Sarco 6" SPIRA-TROL two-port KEA43 PTSBSS.2 C_{VS} 433 control valve.

How to fit spares
Full fitting instructions are given in the Installation and Maintenance Instructions supplied with the spare.



Exploded view of soft seat arrangement

SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

Spare parts

SPIRA-TROL two-port control valve with bellows seal - Type D
½" to 4"

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 - K series

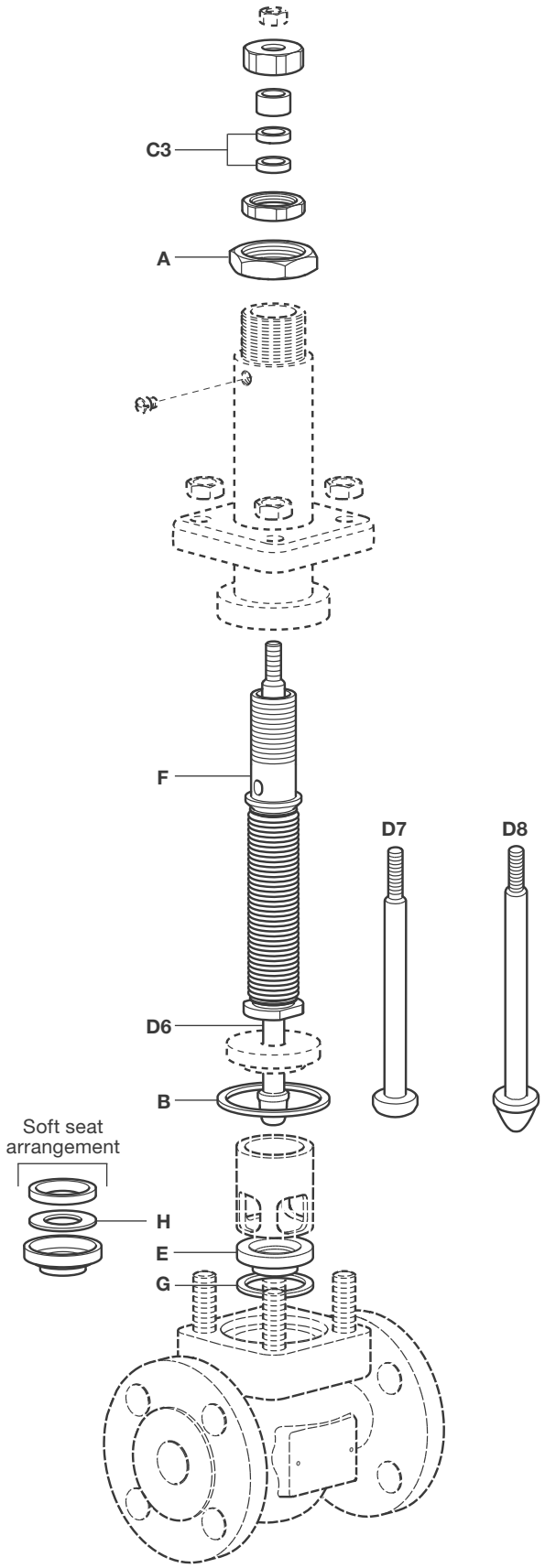
Actuator clamping nut		**A**
Gasket set	(Bellows sealed)	**B**, **G**
Stem seal kit	**Graphite** secondary seal and gasket set	**C3**
Plug stem and seat kit	* **Equal percentage trim** (No gaskets supplied)	**D6**, **E**
	Fast opening trim (No gaskets supplied)	**D7**, **E**
	Linear trim (No gaskets supplied)	**D8**, **E**
Bellows seal assembly		**F**
PTFE soft seat seal		**H**

* 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 - Graphite stem seal kit for a Spirax Sarco 1" SPIRA-TROL two-port KEA43B TSUSS.2 $C_{VS}12$ control valve.

How to fit spares
Full fitting instructions are given in the Installation and Maintenance Instructions supplied with the spare.



SPIRA-TROL Two-port Control Valves ASME Standard KEA, KFA and KLA ½" to 8"

Spare parts

SPIRA-TROL two-port control valve with bellows seal - Types B and C ½" to 4"

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 - K series

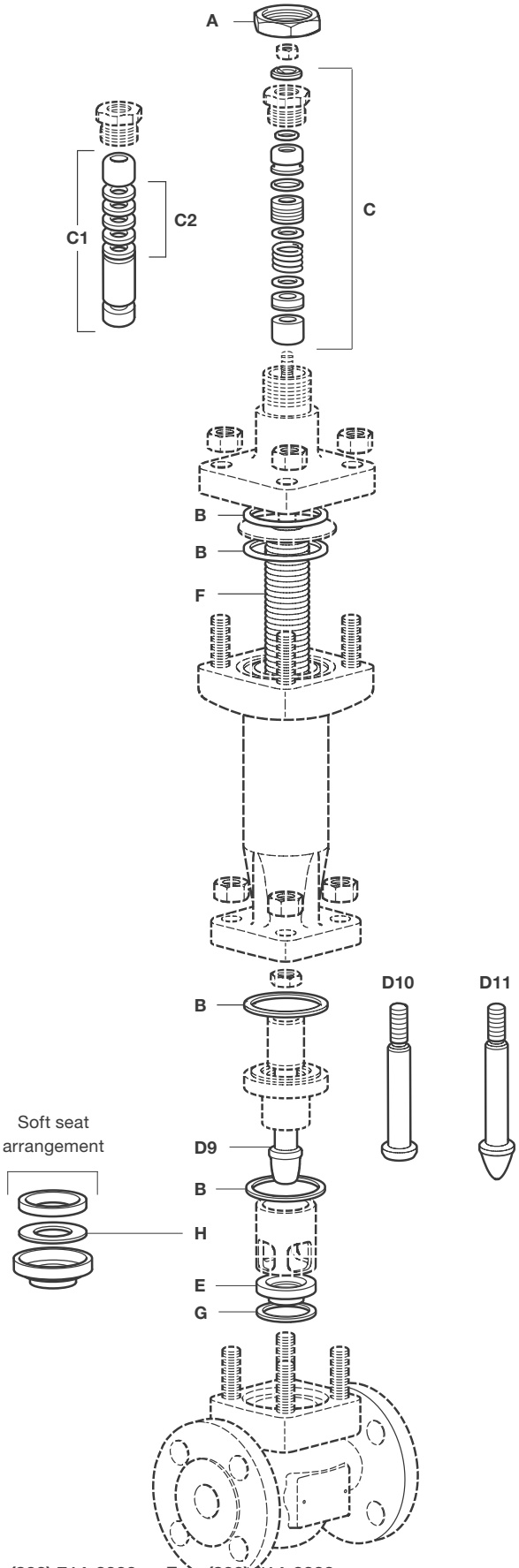
Actuator clamping nut		**A**
Gasket set	(Bellows sealed)	**B**, **G**
Stem seal kits	**PTFE** chevrons	**C**
	PTFE to **Graphite** conversion kit	**C1**
	Graphite packing	**C2**
Plug stem and seat kit	* **Equal percentage trim** (No gaskets supplied)	**D9**, **E**
	Fast opening trim (No gaskets supplied)	**D10**, **E**
	Linear trim (No gaskets supplied)	**D11**, **E**
Bellow seal assembly		**F**
* **PTFE soft seat seal**		**H**

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 1" SPIRA-TROL two-port KEA43B TSUSS.2 $C_{VS}12$ control valve.

How to fit spares
Full fitting instructions are given in the Installation and Maintenance Instructions supplied with the spare.



SPIRA-TROL Two-port Control Valves
ASME Standard KEA, KFA and KLA ½" to 8"

SPIRA-TROL selection guide:

Valve size	ASME standard	=	½", ¾", 1", 1¼", 1½", 2", 2½", 3", 4", 5", 6", and 8"	**1"**
Valve series	K	=	K series 2-port control valve	**K**
Valve characteristic	E	=	Equal percentage	**E**
	F	=	Fast opening	
	L	=	Linear	
Flange type	A	=	ASME	**A**
Flow	Blank	=	under	**Blank**
	T	=	over	
Body material	4	=	Carbon steel	**4**
	6	=	Stainless steel	
	7	=	SG iron	
Connections	1	=	Threaded	**3**
	2	=	Socket weld	
	3	=	Flanged	
Stem sealing	B	=	Bellows / PTFE secondary seals	**P**
	C	=	Bellows / graphite secondary seals	
	D	=	Bellows / graphite secondary seals	
	H	=	Graphite	
	P	=	PTFE	
Seating	G	=	PTFE soft seat	**T**
	S	=	316L stainless steel	
	T	=	431 stainless steel	
	W	=	316L with stellite 6 facing	
Type of trim	A1	=	1 stage anti-cavitation	**S**
	A2	=	2 stage anti-cavitation	
	P1	=	1 stage low noise cage	
	P2	=	2 stage low noise cage	
	P3	=	3 stage low noise cage	
	S	=	Standard trim	
Trim balancing	B	=	Balanced (available for 6" and 8" valves only)	**U**
	U	=	Unbalanced	
Bonnet type	E	=	Extended	**S**
	S	=	Standard	
Bolting	H	=	High temperature	**S**
	S	=	Standard	
Finish	Blank	=	Standard	
	N	=	ENP coating	
Series	2	=	.2	**.2**
C_{VS}	To be specified			**C_{VS} 16**
Connection type	To be specified			**Flanged Class 300**

Selection example:

1½"	-	K	E	A	4	3	P	T	S	U	S	S		.2	-	C_{VS} 16	-	Flanged Class 300

How to order

Example: 1 off Spirax Sarco SPIRA-TROL 1½" KEA43PTSUSS.2 C_{VS} 16 two-port control valve having flanged ASME Class.