

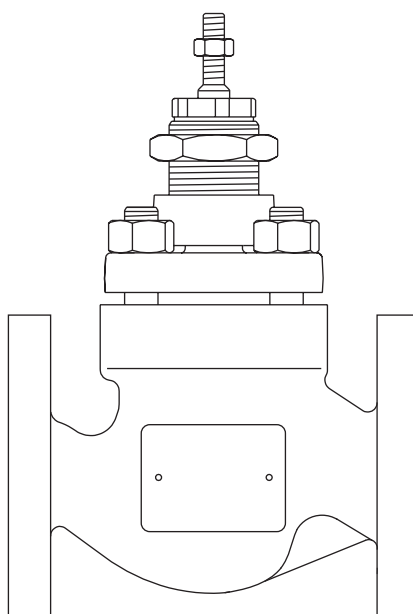


## Spira-trol™ Two-port Control Valves ASME Standard K and L Series ½" to 4"

### 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 four body materials in sizes ranging from (½" to 4"). When used in conjunction with a pneumatic or electric linear actuator they provide characterized modulating or on/off control.

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



### Sizes and pipe connections

Valve Series	Material	Screwed		Flanged						
		NPT	SW	ASME250	ASME125	ASME125	ASME150	ASME300	KS10	KS20
		Up to 2"	Up to 2"	1" and 1½" to 4"		½" to 4" (excluding 1¼")			½" to 4"	
L Series	Cast Iron	•				•				
	Carbon Steel						•		•	
	Stainless Steel						•		•	
K series	SG Iron	•		•	•				•	
	Carbon Steel	•	•					•		•
	Stainless Steel	•	•					•		•

## Compliance

The Spira-trol™ control valve when coupled to the PN9000 series or AEL7 actuator (as defined in the technical information sheets TI-P357-30 and TI-P713-02) complies to the requirements of Machinery Directive 2006/42EC. Please refer to the installation and maintenance instructions for the PN9000 series (IM-P357-29) and the Spira-trol™ valve (IM-S24-42) and the AEL7 (IM-P713-01) for potential hazards and safety information relating to the installation, commissioning, maintenance and disposal of the product assembly and its component parts.

## Standards

Designed in accordance with EN 60534. This product fully complies with the requirements of the EU Pressure Equipment Directive/UK Pressure Equipment (Safety) Regulations and carries the  /  mark when so required.

## Certification

This product is available with certification to EN 10204 3.1. Seat leakage test certificate is available on request.

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

## Food contact

This product is not to be used on steam, liquid or gas that either forms an ingredient of, or comes into direct contact with food products in the EU.

For up to date information on product compliance please visit : [www.spiraxsarco.com/product-compliance](http://www.spiraxsarco.com/product-compliance)

## Spira-trol™ valve characteristic - options:

**LEA and KEA Equal percentage (E)** - Suitable for most modulating process control applications providing good control at all flowrates.

**LLA and KFA Fast opening (F)** - For on/off applications only.

**LFA and KLA Linear (L)** - Primarily for liquid flow control where the differential pressures across the valve is constant.

## Spira-trol™ valve options:

	<b>PTFE chevron seals (P-N)</b>	Standard
<b>Stem sealing</b>	<b>Graphite packing (H)</b>	High temperature applications
	<b>Bellows/graphite secondary seals (D)</b>	Zero emissions and high temperature applications CL150 - up to 797 °F
<b>Seating</b>	<b>Metal-to-metal</b>	431 stainless steel - standard 316L stainless steel
	<b>Soft seating</b>	Up to 306 °F - PTFE for Class VI shut-off for low temperature applications Up to 428 °F PEEK (C and P) for Class VI shut-off
	<b>Hard facing</b>	316L stainless steel with Stellite™ 6 facing
<b>Bonnet type</b>	Standard bonnet	
	Extended bonnet for hot/cold applications	
<b>Trim</b>	Standard trim	
	Low noise and anti-cavitation trim (see TI-S24-59) <b>Note:</b> Not available with Reverseable PEEK Seat (C)	

Spira-trol™ is a modular valve based on 4 body sizes covering DN15-100 sizes (½" - 1", 1¼" - 2", 2½" - 3" and 4") in order to reduce the number of spare parts. The valves are available with a range of accessories including actuators, positioners, solenoid valves, limit switches.

Please refer to respective data sheets.

Special trims, please refer to TI-S24-59

EN version, please refer to TI-S24-71

Please refer to respective data sheets.

Smart positioner, please refer to TI-P706-01, TI-P706-04 and TI-P707-02

Pneumatic Positioners please refer to TI-P704-01

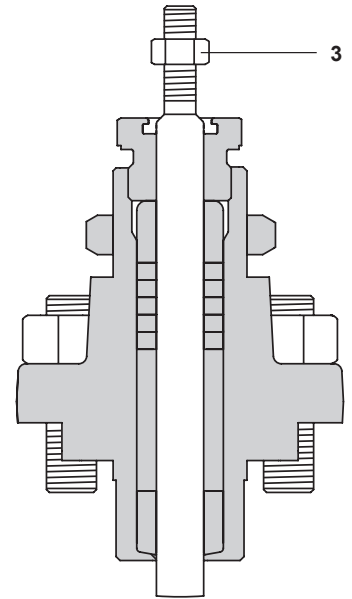
For electro-pneumatic positioners please refer to TI-P703-01 and TI-P703-03

For large size Spira-trol™, please refer to TI-S24-73

## Materials - 1/2" to 4"

	LEA3 1/2" to 4"	KEA7 1/2" to 4"	LEA-KEA4 1/2" to 2"    2 1/2" - 4"	LEA-KEA6 1/2" to 4"
1 <b>Body</b>	A126 Class B	A395	A216 WCB	A351 CF8M
2 <b>Bonnet</b>	A395	A395	A105N    A216 WCB	A351 CF8M
2a <b>Bonnet extension</b>	A216 WCB			A351 CF8M
2b <b>Bellows</b>	Stainless steel 316L			
2c <b>Extended bonnet</b>	A216 WCB			A351 CF8M
3 <b>Stem lock-nut</b>	Stainless steel A2-70			
4 <b>Bonnet gasket</b>	Graphite and Stainless steel			

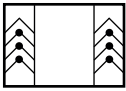
KEA valve with graphite packing



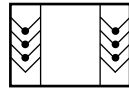
### \* Graphite packing

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

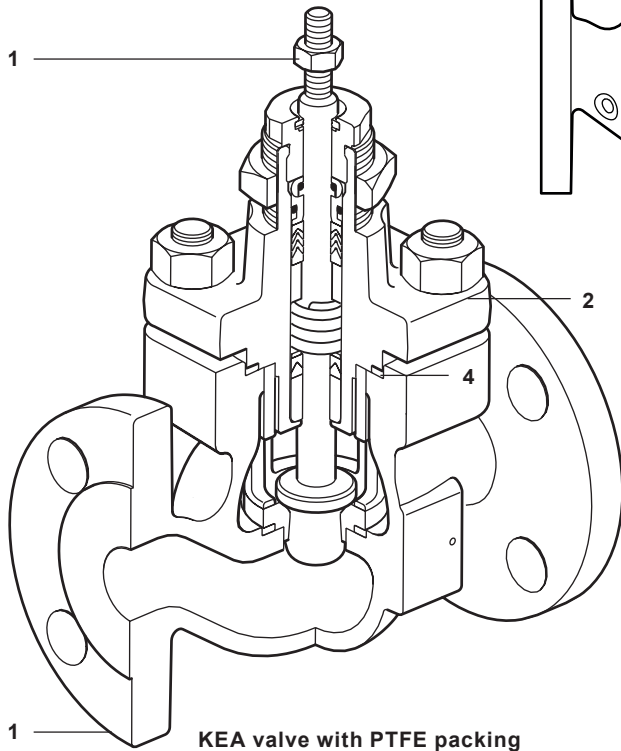
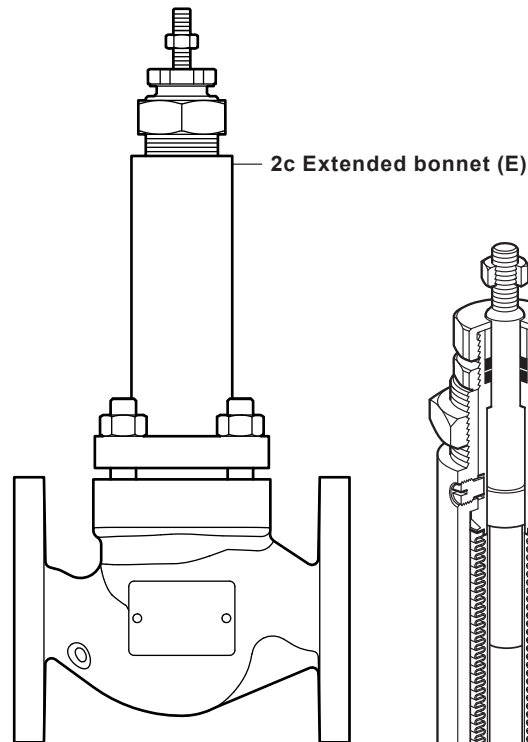
\* PTFE stem sealing



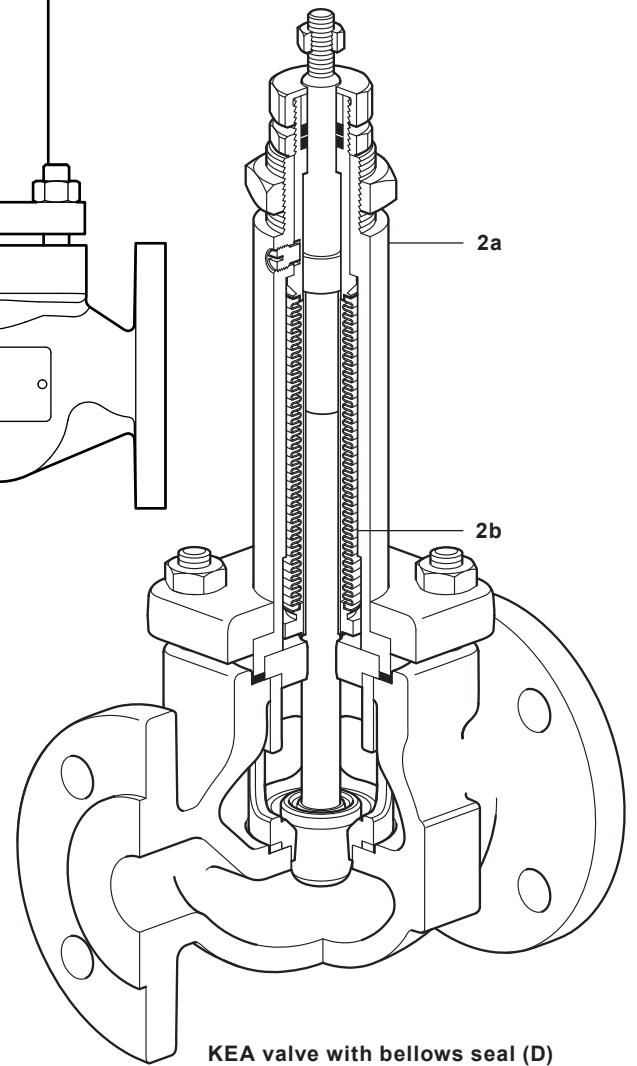
PTFE stem sealing for vacuum service



KE valve with extended bonnet (E)



KEA valve with PTFE packing

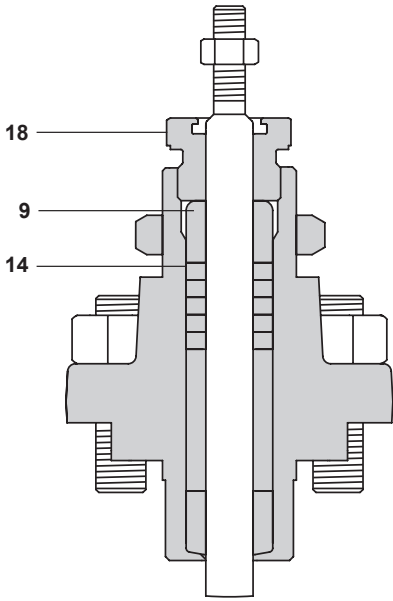


KEA valve with bellows seal (D)

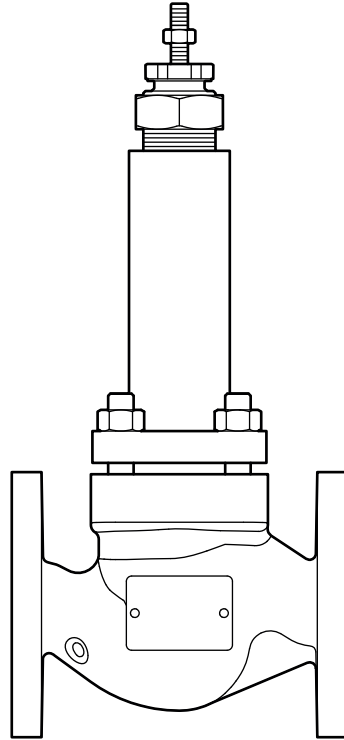
**Materials - ½" to 4" (continued)**

<b>5</b>	<b>Seat retainer</b>	DUPLEX Stainless steel ASME A994 CD4MCuN
	Seat option T	Stainless steel 431
	Seat option S	Stainless steel 316L
<b>6</b>	<b>Valve seat ring</b>	Stainless steel 316L + Stellite™ 6
	Seat option CandP	PEEK
	Seat option G	PTFE + Stainless Steel 316L
<b>7</b>	<b>Seat gasket</b>	Graphite and stainless steel
	Seat option T	Stainless steel 431
	Seat option S	Stainless steel 316L
<b>8</b>	<b>Valve plug and stem</b>	Stainless steel 316L + Stellite™ 6
	Seat option C/P/G	Stainless steel 316L for Stainless steel valve and Stainless steel 431 for all other materials
	Bonnet option P	PTFE glass filled
<b>9</b>	<b>Lower stem guide</b>	Nitronic™ 60
	Bonnet option N	Nitronic™ 60
	Bonnet option H	Stellite™ 6
<b>10</b>	<b>Lower stem wiper</b>	PTFE
<b>11</b>	<b>Packing guard washer</b>	Stainless steel 316L
<b>12</b>	<b>Spring</b>	Stainless steel 316L
<b>13</b>	<b>Packing spacer</b>	Stainless steel 316L
	Bonnet option P - N	PTFE chevron
<b>14</b>	<b>Packing set</b>	Graphite rings
	Bonnet option H	Graphite rings
<b>15</b>	<b>Outer 'O' ring</b>	VITON™
	Bonnet option P	PTFE glass filled
<b>16</b>	<b>Upper stem guide</b>	Nitronic™ 60
	Bonnet option N	Nitronic™ 60
	Bonnet option H	Stellite™ 6
<b>17</b>	<b>Inner 'O' ring</b>	VITON™
<b>18</b>	<b>Gland nut</b>	Stainless steel 316L for stainless steel valve and stainless steel 431 for all others materials
<b>19</b>	<b>Scraper ring</b>	PTFE
	Bonnet option P - N	PTFE
<b>20</b>	<b>Actuator clamp nut</b>	Nickel plated carbon steel
	Stainless steel valve	Nickel plated carbon steel
	All others	Zinc plated carbon steel
<b>22</b>	<b>Bonnet extension gasket</b>	Graphite and stainless steel
<b>26</b>	<b>Spindle lock and anti-rotation nut</b>	Stainless steel
<b>27</b>	<b>Nut</b>	Stainless steel A194 Gr8M for Stainless Steel valve and A194 2H for others valves
<b>28</b>	<b>Stud</b>	Stainless steel A193 GrB8M2 for Stainless Steel valve and A193 B7 for others valves

KEA valve with graphite packing



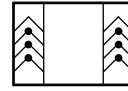
KE valve with extended bonnet (E)



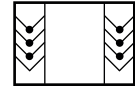
\* Graphite packing

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

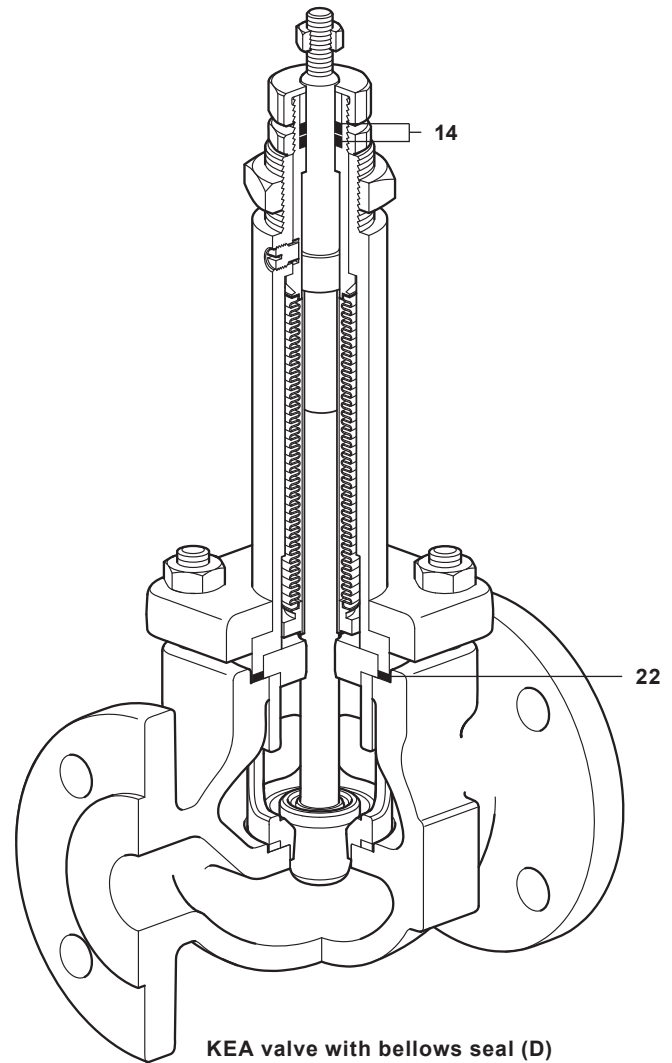
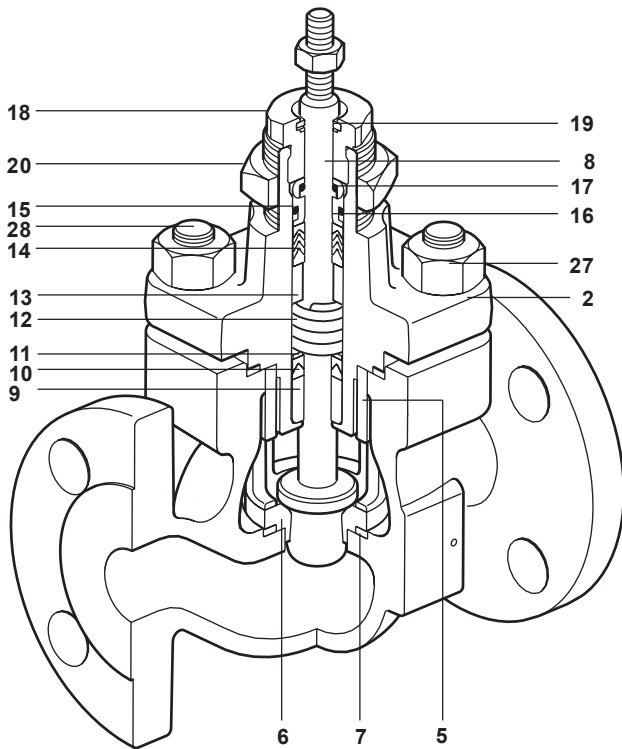
\* PTFE stem sealing



PTFE stem sealing for vacuum service



KEA valve with PTFE packing



KEA valve with bellows seal (D)

**C<sub>V</sub> (US) values**  
**C<sub>V</sub> (US) = C<sub>V</sub> (UK) x 1.2009**

Valve size		½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	
<b>Standard trim</b>	<b>High capacity</b> Equal %	5.7	8.3		20.2	36.0	53.0				
	<b>Full port</b>	Equal %	4.6	7.3	12.0	18.0	29.0	42.0	85.0	116.0	185.0
		Linear	4.6	7.3	12.0	18.0	29.0	42.0	85.0	116.0	185.0
		Fast opening	5.7	8.3	12.7	21.0	36.0	58.0	104.0	135.0	208.0
	<b>Reduced trim 1</b>	Equal %	2.9	4.6	7.3	12.0	18.0	29.0	42.0	85.0	116.0
		Linear	2.9	4.6	7.3	12.0	18.0	29.0	42.0	85.0	116.0
	<b>Reduced trim 2</b>	Equal %	1.8	2.9	4.6	7.3	12.0	18.0	29.0	42.0	73.0
		Linear	1.8	2.9	4.6	7.3	12.0	18.0	29.0	42.0	73.0
	<b>Reduced trim 3</b>	Equal %	1.2	1.8	2.9	4.6	7.3	12.0	18.0	29.0	42.0
		Linear	1.2	1.8	2.9	4.6	7.3	12.0	18.0	29.0	42.0
	<b>Reduced trim 4</b>	Equal %		1.2	1.8		4.6	7.3		18.0	
		Linear		1.2	1.8		4.6	7.3		18.0	
	<b>Reduced trim 5</b>	Equal %			1.2			4.6			
		Linear			1.2			4.6			
	<b>Microflute (linear only)</b> (not available with C Seat option)		0.58	0.58	0.6						
			0.23	0.23	0.23						
			0.12	0.12	0.12						
			0.081	0.081	0.081						
			0.012	0.012	0.012						

**Note:** For low noise and anti-cavitation C<sub>V</sub> please see TI-S24-59

**Spira-trol Series Valve**

\*(Except K<sub>v</sub> 0.01 : 5 mm)

Nominal Size	DN	½" - 2"	2½" - 4"	½" - 2"	2½" - 4"	½" - 2"	2½" - 4"	½" - 2"	2½" - 4"
Travel *	mm	20*	30	20*	30	20*	30	20*	30
Nominal Pressure		Class 125		Class 250		Class 150	Class 300	Class 150	Class 300
Body Material		LEA3		KEA7		LEA4	KEA4	LEA6	KEA6

**For Full Temperature/pressure operating curves, please refer to IM-S24-42**

Maximum Operating Pressure	Flanged	ASME125	200 psi g	200 psi g						
		ASME250		500 psi g						
		ASME150			285 psi g		275 psi g			
		ASME300				740 psi g		720 psi g		
		KS10		189 psi g	203 psi g		203 psi g			
		KS20				493 psi g		493 psi g		
	Threaded	NPT	200 psi g	500 psi g		740 psi g		720 psi g		
SW					740 psi g		720 psi g			
Operating temperature range		Std. Bonnet	-20 to +450 °F	-20 to +450 °F	-20 to +482 °F		-20 to +482 °F			
		Ext. Bonnet	-20 to +450 °F	-20 to +450 °F	-20 to +800 °F		-20 to +800 °F			
		Bellows	-20 to +450 °F	-20 to +450 °F	-20 to +800 °F		-20 to +800 °F			
Maximum Operating temperature	Seat	PEEK	C	428 °F						
		PEEK	P	428 °F						
		PTFE insert	G	306 °F						
		431S29	T	800 °F						
		316L	S							
		316L/ Stellite™ 6	W							
	Stem seal	P and N		482 °F						
		H		572 °F	800 °F					
		Bellows D		800 °F						
Maximum operating temperature	Flanged	ASME125	450 °F	450 °F						
		ASME250		450 °F						
		ASME150			800 °F		800 °F			
		ASME300				800 °F		800 °F		
		KS10		450 °F	572 °F		572 °F			
		KS20				752 °F		752 °F		
	Threaded	NPT	450 °F	450 °F		800 °F		800 °F		
SW					800 °F		800 °F			

\* Reduce travel on Microflute trim

**Spira-trol Series Valve**

Body Material			LEA3	KEA7	LEA4	KEA4	LEA6	KEA6	
Maximum Saturated Steam Service	Body	Flanged	ASME125	364 °F @ 147 psi g	364 °F @ 147 psi g				
			ASME250		415 °F @ 279 psi g				
			ASME150			389 °F @ 203 psi g		386 °F @ 196 psi g	
			ASME300				490 °F @ 607 psi g	468 °F @ 490 psi g	
			KS10		379 °F @ 180 psi g	383 °F @ 189 psi g		383 °F @ 189 psi g	
			KS20				457 °F @ 437 psi g	457 °F @ 437 psi g	
	Threaded	NPT	364 °F @ 147 psi g	415 °F @ 279 psi g		490 °F @ 607 psi g	468 °F @ 490 psi g		
		SW				490 °F @ 607 psi g	468 °F @ 490 psi g		
	Seat	C/P		414 °F @ 276 psi g					
		G		306 °F @ 58 psi g					
Bellows	D		389 °F @ 203 psi g				386 °F @ 196 psi g		
Leakage Class	In accordance to IEC 60534-4	PEEK	Class VI						
		PTFE	Class VI						
		Metal	Class IV (Class V on request)						
		Stellite™	Class IV (Class V on request)						
		Balanced	Class IV						
Characteristic	Equal %			Linear			Fast Acting		
Rangeability	50 : 1			30 : 1			10 : 1		
Travel	Ø½" to Ø2" : 20 mm/¾" (Reduce travel on Microflute trim) Ø2½" to Ø4" : 30 mm/1¼"								

**Bellows D Service Life Expectancy**

Valve			Process		Estimated life expectancy (operations)	
Inlet Size	Stem Ø	No. Ply	Pressure	Temperature	100% Stroke	25-75% modulation
DN15 to DN50	12 mm	3	10.6 bar g (153.7 psi g)	20 °C (68 °F)	220,000	>2,000,000
			10.6 bar g (153.7 psi g)	185 °C (365 °F)	150,000	>2,000,000
			17.1 bar g (247.9 psi g)	400 °C (752 °F)	30,000	750,000
DN65 to DN100	16 mm	3	10.6 bar g (153.7 psi g)	20 °C (68 °F)	200,000	>2,000,000
			10.6 bar g (153.7 psi g)	185 °C (365 °F)	140,000	2,000,000
			17.1 bar g (247.9 psi g)	400 °C (752 °F)	30,000	150,000

**Note:** 316L material. Refer to IM-S24-42 for valve body material pressure and temperature limitations



Maximum differential pressures for Class IV shut-off  
 - Metal Seated (T&S)  
 - FLOW UNDER  
 - standard trim  
 - (Pneumatic Actuators)

Valve DN		DN15 to DN25 (½" to 1")																										
		0.012- 0.23			0.58-1.2			1.8			2.9			4.6			5.7-7.3			8.3			12			12.7		
Actuator Type	Cv	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D			
	Stem sealing Actuator trust																											
PN9120E 0.2-1.0	192	40																										
PN9120E 0.4-1.2	384	40	25		17.6	26.5	0.6		12.2					5.1														
PN9126E 1.0-2.0	960	40	40	25	40	40	25	40	40	40	25	40	25	40	29.5	25	27.8	12.9	21.3	20.5	8.7	15.4	15.4	5.8	11.2	11.4	3.7	8
PN9123E 2.0-4.0	1920	40	40	25	40	40	25	40	40	40	25	40	25	40	40	25	40	40	40	40	40	25	40	25	36.2	28.5	25	

**Maximum differential pressures for Class IV shut-off**  
**- Metal Seated (T&S)**  
**- FLOW UNDER**  
**- standard trim**  
**- (Pneumatic Actuators)**  
**- continued**

Actuator type	Valve size	DN32 to DN50 (1/4" to 2")																							
		4.6			7.2			12			18			20.2-21			29			36-42			53-58		
		N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D
PN9120E 0.4-1.2	384	7.9																							
PN9126E 1.0-2.0	960	40	31.5	25	30.3	15.4	23.8	17.4	7.8	13.2	5.6	10.1	3.4	6.9	2.2	2.3	1.2								
PN9123E 2.0-4.0	1920	40	40	25	40	40	25	40	38.4	25	38.8	30.9	25	29.1	12.7	10.8	9.6	7	5.1	6.2					
PN9220E 0.2-1.0	680	33.2	7.6	22.1	16.3	1.4	9.9	8.5	4.3	6.2	2.7	3.8	1.2	0.5											
PN9220E 0.4-1.2	1360	40	40	25	40	35.2	25	30.1	20.6	25	24.1	16.2	20.6	11.6	15	8	6.6	4.7	3.5	1.6	2.7				
PN9226E 1.0-2.0	3400	40	40	25	40	40	25	40	40	25	40	40	25	40	25	30.5	27.2	25	23.8	21.2	22.7	16.3	14.4	15.5	
PN9223E 2.0-4.0	6800	40	40	25	40	40	25	40	40	25	40	40	25	40	25	40	40	25	40	40	25	37.7	35.8	25	



Maximum differential pressures for Class IV shut-off  
 - Metal Seated (T&S)  
 - FLOW UNDER  
 - standard trim  
 - (Electric Actuators)

Actuator Type	Valve DN	DN15 to DN25																										
		0.012- 0.23			0.58-1.2			1.8			2.9			4.6			5.7-7.3			8.3			12			12.7		
		N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D			
AEL3	2000	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
		40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
AEL71T	900	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
		40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
AEL71	1200	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
		40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
AEL72	2000	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
		40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
AEL72T	2100	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
		40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
AEL73	4000	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
		40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
AEL62	2300	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
		40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
AEL63	4500	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
		40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			

Maximum differential pressures for Class IV shut-off  
 - Metal Seated (T&S)  
 - FLOW UNDER  
 - standard trim  
 - (Electric Actuators)  
 - continued

Actuator type	Valve size	DN32 to DN50 (1/4" to 2")																							
		4.6			7.2			12			18			20.2-21			29			36-42			53-58		
		N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D
AEL3	2000	40	40	25	40	40	25	40	33	25	30.7	24.6	25	15	11.7	13.6	11.5	8.8	10.3	7.5	5.6	6.7			
AEL71T	900	40	26.4	25	27.3	12.4	20.8	15.5	5.9	11.3	8.5	8.3	2.2	5.6	2.9	1.5	1.8		0.6	0.6					
AEL71	1200	40	40	25	40	27.3	25	15.5	20.9	19.8	12	16.4	14.4	8.3	11.8	6.2	4.4	1.8	3.3	2.5	0.6	1.7			
AEL72	2000	40	40	25	40	40	25	40	33	25	30.7	24.6	25	15	11.7	13.6	11.5	8.8	10.3	7.5	5.6	6.7			
AEL72T	2100	40	40	25	40	40	25	40	35.6	25	32.7	26.6	25	16.1	12.8	14.7	12.4	9.7	11.2	8.1	6.2	7.3			
AEL73	4000	40	40	25	40	40	25	40	40	25	40	40	25	37.1	33.8	25	29.1	26.5	25	20.1	18.2	19.3			
AEL74	8000	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			
AEL62	2300	40	40	25	40	40	25	40	40	25	40	40	25	37.1	33.8	25	29.1	26.5	25	20.1	18.2	19.3			
AEL63	4500	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25			

Maximum differential pressures for Class IV shut-off  
 - Metal Seated (T&S)  
 - FLOW UNDER  
 - standard trim  
 - (Electric Actuated)  
 - continued

Actuator Type	Valve size															
	DN65 to DN100 (2½" to 4")															
	18		29		42		73-85-104		116-135		185-208					
C <sub>v</sub>	P	H	D	P	H	D	P	H	D	P	H	D				
	Stem sealing		Actuator trust													
AEL71T	7.3	1.3	5.6	0.6	0.3											
AEL71	13.4	4	11.8	3.3	2.2	1.7	0.4	0.1								
AEL72	29.7	19.3	25	11	6.6	10.3	7.2	4	6.7	3.2	1.4	2.9	1.5	0.4	1.3	0.5
AEL72T	31.7	21.3	25	11.9	7.4	11.2	7.8	4.6	7.3	3.6	1.8	3.3	1.7	0.6	1.6	0.6
AEL73	40	40	25	28.7	24.2	25	19.8	16.6	19.3	10.3	8.5	10	6	4.9	5.9	3.3
AEL74	40	40	25	40	40	25	32.3	29.1	25	17.4	15.6	17.1	10.6	9.4	10.4	6.1
AEL75	40	40	25	40	40	25	40	40	25	24.4	22.6	24.1	15.1	13.9	14.9	9
AEL76	40	40	25	40	40	25	40	40	25	38.6	36.8	25	24.2	23	24	14.6
AEL77	40	40	25	40	40	25	40	40	25	40	40	25	30.9	29.8	25	18.8
AEL78	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	25.9
AEL62	35.8	25.4	25	40	40	25	40	40	25	40	40	25	30.9	29.8	25	18.8
AEL63	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	25.9
Only for 431 trim													25	25.2	25	

**Maximum differential pressures for Class VI shut-off**  
- Resilient Seated (P&C)  
- FLOW UNDER  
- standard trim  
- (Pneumatic Actuators)

Valve size		DN15 to DN25																												
		0.01-0.081		0.12-0.23		0.58		1.2		1.8		2.9		4.6		5.7-7.3														
		N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D	N-P	H	D											
Actuator Type	Stem sealing Actuator trust	192	19			19			19			19			19			19			19			19			19			
			384	19			19			19			19			19			19			19			19			19		
			960	19			19			19			19			19			19			19			19			19		
			1920	19			19			19			19			19			19			19			19			19		

Valve size		DN15 to DN25													
		8.3		12		12.7									
		N-P	H	D	N-P	H	D	N-P	H	D					
Actuator Type	Stem sealing Actuator trust	192													
			384	6.7		1.6	5		0.9	3.7		0.4			
			960	19		17.6	19		13.8	19		18.6	10.9	15.3	
			1920	19		19	19		19	19		19	19	19	

**Note :** Maximum differential pressure for saturated steam. Refer to Spirax Sarco for other liquids or gases.

**Maximum differential pressures for Class VI shut-off**  
**- Resilient Seated (P&C)**  
**- FLOW UNDER**  
**- standard trim**  
**- (Pneumatic Actuators)**  
**- continued**

Actuator Type	Valve size	DN32 to DN50 (1½" to 2")																							
		4.6		7.2		12		18		20.2-21		29		36-42		53-58									
		N-P	H	N-P	H	N-P	H	N-P	H	N-P	H	N-P	H	N-P	H	N-P	H	D							
PN9120E 0.4-1.2	384	17.7	6.6	9.1	2.7	5	0.9	3.8	0.4	2.6	0.8	0.4	0.4												
PN9126E 1.0-2.0	960	19	16	19	16	19	11.1	14.3	8.2	11.7	7.1	3.8	5.7	2.8	4.3	3.6	1.7	2.8							
PN9123E 2.0-4.0	1920	19	16	19	16	19	16	19	16	19	16	17.7	14.4	16	13.9	11.3	12.8	9.7	8.8						
PN9220E 0.2-1.0	680	19	17.4	19	8.9	16	14.5	4.9	10.3	11.6	3.7	8.2	8.6	2.5	6	3	0.4	1.9	1.1						
PN9220E 0.4-1.2	1360	19	16	19	16	19	16	19	16	19	16	11.5	8.2	10.1	9	6.4	7.9	6.1	4.3	5.3					
PN9226E 1.0-2.0	3400															19	19	16	19	16					

Actuator Type	Valve size	DN65 to DN100 (2½" to 4")																							
		18		29		42		73-85-104		116-135		185-208													
		P	H	P	H	P	H	P	H	P	H	P	H	P	H	D									
PN9230E 0.2-1.0	680	7.6	6	2.6	1.9	1.6	1.1	0.5	0.3	0.1															
PN9230E 0.4-1.2	1360	19	11.1	8.6	4.1	7.9	5.8	2.6	5.3	2.7	1.7	0.5	1.5	0.9	0.1	0.8									
PN9236E 1.0-2.0	3400			19	19	19	18.7	15.5	18.2	10.2	8.4	9.9	6.3	5.1	6.1	3.7	3	3.6							
PN9233E 2.0-4.0	6800									19	19	14	12.8	13.8	8.5	7.8	8.4								
PN9330E 0.2-1.0	1340	19	10.7	8.4	3.9	7.7	5.7	2.9	5.2	2.6	1.6	0.5	1.4	0.8	0.1	0.7									
PN9330E 0.4-1.2	2680			19	15.7	19	14.1	10.9	13.6	7.6	5.8	7.3	4.7	3.5	4.5	2.7	2	2.6							
PN9336E 1.0-2.0	6700									19	19	13.8	12.6	13.6	8.4	7.7	8.3								
PN9337E 2.5-3.5	16750														19	19	19	19							

**Note :** Maximum differential pressure for saturated steam. Refer to Spirax Sarco for other liquids or gases.



**Maximum differential pressures for Class VI shut-off**  
**- Resilient Seated (P&C)**  
**- FLOW UNDER**  
**- standard trim**  
**- (Electric Actuators)**

Actuator Type	Valve size	DN15 to DN25															
		Upto Cv7.3				8.3				12				12.7			
		Stem sealing		Actuator trust		Stem sealing		Actuator trust		Stem sealing		Actuator trust		Stem sealing		Actuator trust	
		P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	
AEL3	2000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	
AEL71T	900	19	19	19	19	15.2	19	19	11.9	17.3	17.1	9.3	13.7				
AEL71	1200	19	19	19	19	19	19	19	19	19	19	17.1	19				
AEL72	2000	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	

Actuator Type	Valve size	DN32 to DN50 (1 1/4" to 2")																															
		4.6				7.2				12				18				20.2-21				29				36-42				53-58			
		Stem sealing		Actuator trust		Stem sealing		Actuator trust		Stem sealing		Actuator trust		Stem sealing		Actuator trust		Stem sealing		Actuator trust		Stem sealing		Actuator trust		Stem sealing		Actuator trust					
		P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D					
AEL3	2000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10					
AEL71T	900	19	19	19	19	19	19	19	19	19	19	17.3	17.4	9.5	14	13.1	7	10.4	6.5	3.2	5	4.9	2.3	3.8	3.3	1.4	2.4						
AEL71	1200	19	19	19	19	19	19	19	19	19	19	19	19	17.4	19	19	13.1	16.6	9.8	6.5	8.3	7.6	4.9	6.4	5.1	3.3	4.3						
AEL72	2000	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	18.6	15.3	17.1	14.6	12	13.5	10.2	8.3	9.4						
AEL72T	2100																					15.5	12.9	14.1	10.8	8.9	10						
AEL62	2300																					17.3	14.6	16.1	12.1	10.2	11.2						

**Note :** Maximum differential pressure for saturated steam. Refer to Spirax Sarco for other liquids or gases.

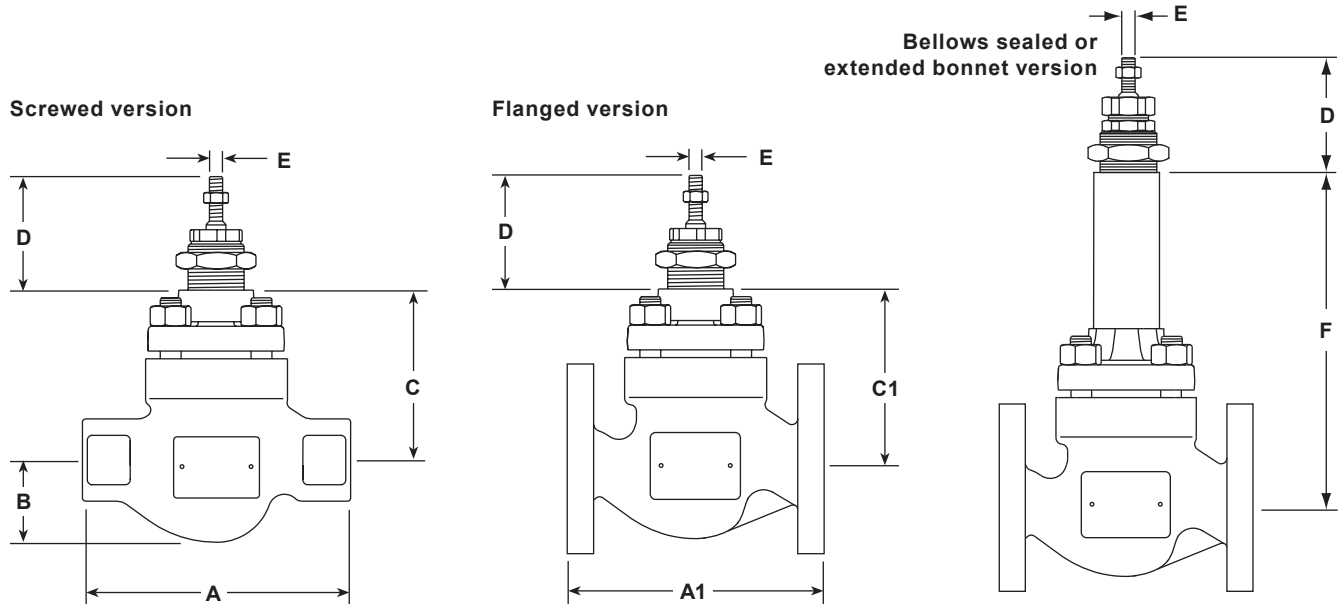
**Maximum differential pressures for Class VI shut-off**  
**- Resilient Seated (P&C)**  
**- FLOW UNDER**  
**- standard trim**  
**- (Electric Actuators)**  
**- continued**

Actuator Type	Valve size	DN65 to DN100 (2½" to 4")																								
		18			29			42			73-85-104			116-135			185-208									
		P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D							
AEL71T	900	12.1	1.7	10.4	4.5	3.8	2.9	2.4	1.3																	
		18.2	7.8	16.6	7.2	2.7	6.4	4.8	1.6	4.3	2.4	0.6	2.1	1.3												0.5
AEL72	2000	19	19	19	14.2	9.7	13.5	9.9	6.6	9.4	5.2	3.4	4.9	3.1	2	2.9	1.8	1	1.7							
AEL72T	2100	15.1	4.7	19	14.2	9.7	13.5	10.5	7.3	10	5.6	3.8	5.3	3.3	2.2	3.2	1.9	1.2	1.8							
AEL73	4000										12.3	10.5	12	7.6	6.5	7.5	4.6	3.9	4.5							
AEL74	6000										19	17.6	19	12.2	11	12	7.4	6.7	7.3							
AEL75	8000															16.7	15.5	16.5	10.2	9.5	10.1					
AEL76	12000																15.9	15.2	15.8							
AEL77	15000																19	19	19							
AEL62	2300	17.2	6.8	19	14.2	9.7	13.5	10.5	7.3	10	5.6	3.8	5.3	3.3	2.2	3.2	1.9	1.2	1.8							
AEL63	4500										12.3	10.5	12	7.6	6.5	7.5	4.6	3.9	4.5							

**Note :** Maximum differential pressure for saturated steam. Refer to Spirax Sarco for other liquids or gases.

**Dimensions** for the **Spira-trol™ two-port control valve** approximate in mm and (inches)

Valve size	Screwed NPT			Flanged			D	E	F		
	A	B	C	A1		C1			Thread	Bellows seals	Extended bonnet
				KS 10 ASME 125 and 150	KS 20 ASME 250 and 300						
DN15 (½")	165 (6½")	44 (1¼")	102 (4")	184 (7¼")	190 (7½")	102 (4")	69 (2¾")	M8	237 (9")	213.5 (8.41")	
DN20 (¾")	165 (6½")	44 (1¼")	102 (4")	184 (7¼")	190 (7½")	102 (4")					
DN25 (1")	197 (7¾")	57 (2¼")	102 (4")	184 (7¼")	197 (7¾")	102 (4")					
DN32 (1¼")	216 (8½")	57 (2¼")	127 (5")	222 (8¾")	127 (8¾")	127 (5")					
DN40 (1½")	235 (9¼")	63 (2½")	127 (5")	222 (8¾")	235 (9¼")	127 (5")					
DN50 (2")	267 (10½")	76 (3")	127 (5")	254 (10")	267 (10½")	127 (5")	81 (3")	M12	368 (14½")	345.6 (13.61")	
DN65 (2½")				276 (10¾")	292 (11½")	200 (7¾")					
DN80 (3")				298 (11¾")	317 (12½")	200 (7¾")					
DN100 (4")				349 (13¾")	368 (14½")	216 (8½")					

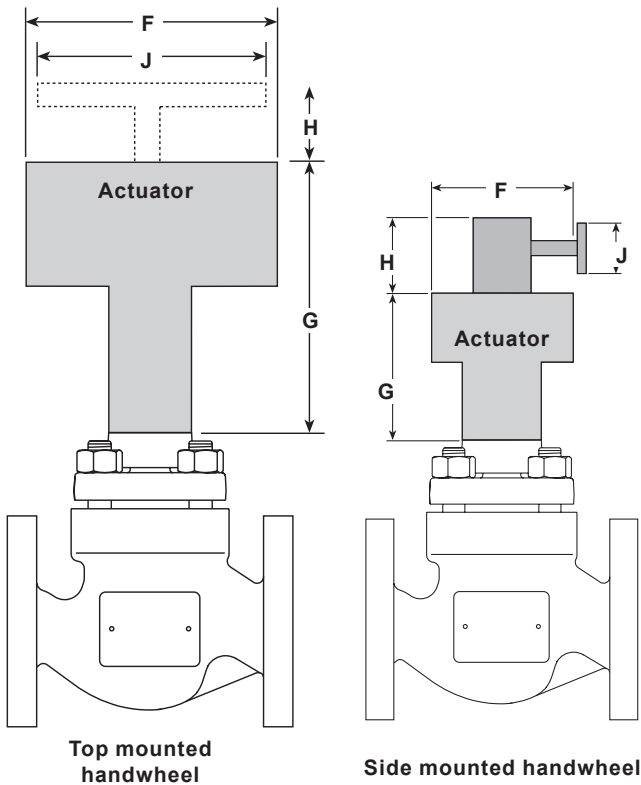


**Weights** approximate in kg (and lbs)

Valve size	KEA valves				LEA valves				Additional bellows and Extended bonnet
	KEA43	KEA63	KEA73	KEA41 KEA42 KEA61 KEA62 KEA71	LEA31	LEA33	LEA43	LEA63	
DN15 (½")	7.3 (16)	7.3 (16)	7.3 (16)	7.3 (16)	7.3 (16)	7.3 (16)	7.3 (16)	7.3 (16)	4.5 (10)
DN20 (¾")	8.2 (18)	8.2 (18)	8.2 (18)	7.3 (16)	7.3 (16)	8.2 (18)	8.2 (18)	8.2 (18)	
DN25 (1")	9.1 (20)	9.1 (20)	9.1 (20)	10 (22)	10 (22)	13.2 (29)	13.6 (30)	13.6 (30)	
DN32 (1¼")	14.1 (31)	14.1 (31)	13.2 (29)	11.3 (25)	11.3 (25)	13.6 (30)	14.1 (31)	14.1 (31)	5.5 (12)
DN40 (1½")	16.3 (36)	16.3 (36)	14.1 (31)	14.1 (31)	14.1 (31)	14.1 (31)	16.3 (36)	16.3 (36)	
DN50 (2")	17.2 (38)	18.1 (40)	17.2 (38)	15 (33)	15 (33)	17.2 (38)	17.2 (38)	17.2 (38)	
DN65 (2½")	35.4 (78)	35.4 (78)	38.1 (84)			38 (84)	38 (84)	38 (84)	10 (21)
DN80 (3")	39 (86)	40.4 (89)	41.3 (91)			41 (91)	40 (89)	40 (89)	
DN100 (4")	56.2 (124)	56.2 (124)	59.9 (132)			60 (132)	56 (124)	56 (124)	

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

Actuator range and variants	F		G		H		J		Weight			
	mm	inches	mm	inches	mm	inches	mm	inches	Actuator		With handwheel	
									kg	lbs	kg	lbs
PN9100E	170	6 A"	275	10 $\frac{1}{8}$ "	55	2 $\frac{3}{16}$ "	225	8 $\frac{7}{8}$ "	6	13.25	+5.86	+13.00
PN9100R					140	5 $\frac{1}{2}$ "					+2.50	+5.50
PN9200E	300	11 $\frac{1}{8}$ "	300	11 $\frac{1}{8}$ "	55	2 $\frac{3}{16}$ "	225	8 $\frac{7}{8}$ "	17	37.50	+7.20	+15.75
PN9200R					140	5 $\frac{1}{2}$ "					+3.77	+8.50
PN9320E	390	15 $\frac{1}{2}$ "	325	12 $\frac{1}{2}$ "	65	2 $\frac{9}{16}$ "	350	13 $\frac{3}{4}$ "	27	59.50	+7.20	+15.75
PN9320R					150	15 $\frac{1}{8}$ "					+3.77	+8.50
PN9330E	390	15 $\frac{1}{2}$ "	335	13 $\frac{3}{8}$ "	65	2 $\frac{9}{16}$ "	350	13 $\frac{3}{4}$ "	27	59.50	+7.20	+15.75
PN9330R					150	15 $\frac{1}{8}$ "					+3.77	+8.50
TN2100E	405	16"	369	14 $\frac{1}{2}$ "	402	15 $\frac{3}{64}$ "	330	13"	37	83.25	+23.00	+51.75
TN2100R												
TN2100DA	405	16"	369	14 $\frac{1}{2}$ "					30	67.50		



**Dimensions/weights** for the **AEL actuator ranges**

approximate in mm and kgs (and in inches and lbs)

Actuator	F		G		Weight	
	mm	inches	mm	inches	kg	lbs
AEL3	230	9	283	11 $\frac{1}{4}$	5.7	12.5
AEL71T	162	6	490	19 $\frac{1}{4}$	8.7	19.5
AEL72T			508	20	9.3	20.5
AEL71	129	5	292	11 $\frac{1}{2}$	2.1	5
AEL72-3	173	7	379	15	4.8	11
AEL74	211	8 $\frac{1}{4}$	474	18 $\frac{3}{4}$	8.0	18
AEL75-7	259	10 $\frac{1}{4}$	527	20 $\frac{3}{4}$	15.0	33
AEL78	283	11 $\frac{1}{4}$	657	26	19.0	42
AEL62-3	180	7	459	18	5.0	11
AEL64			490	19 $\frac{1}{4}$	7.0	15.5
AEL65			557	22	10.0	22
AEL66	226	9	760	30	20.0	44

## Spare parts

### Spira-trol™ two-port control valve DN15 to DN100 - 1/2" 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

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

\* Specify if reduced trim.

#### How to order spares

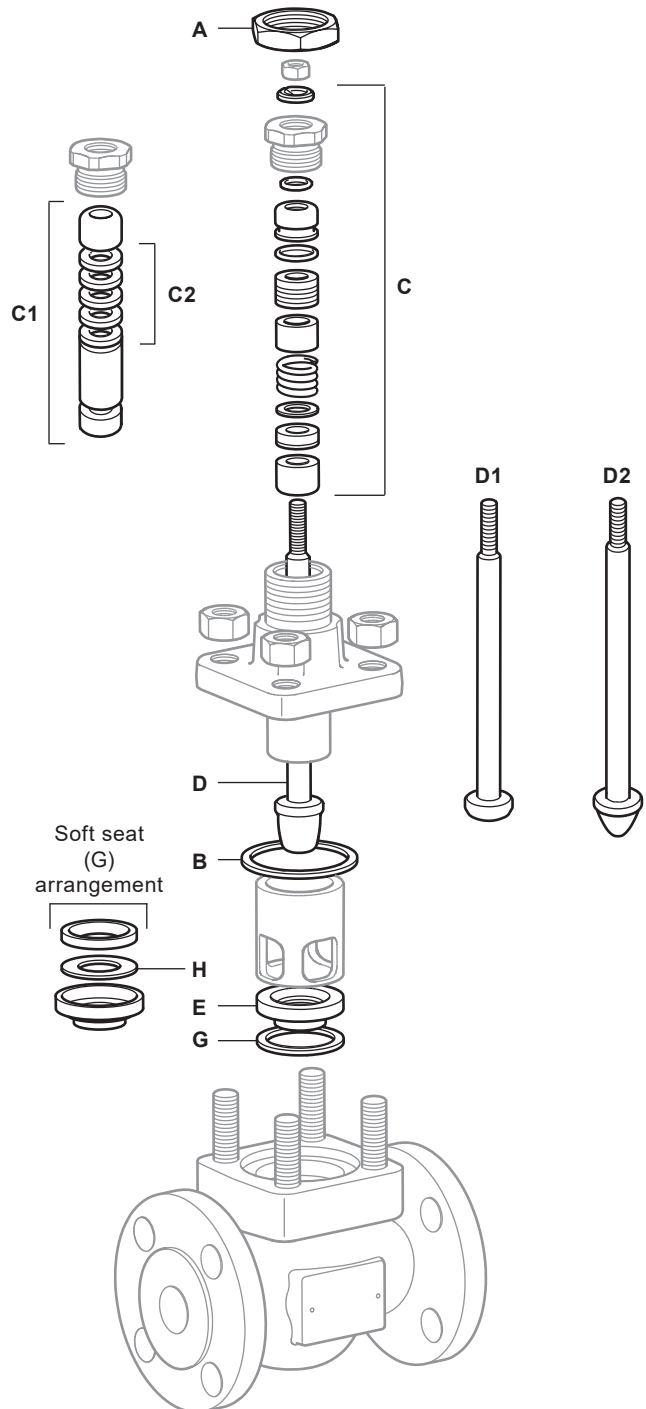
Always order spares by using the description given in the column headed 'Available spares', and state the size and type of valve including the full product description of the product.

#### Example:

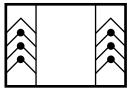
1 - PTFE stem seal kit for a Spirax Sarco 1" Spira-trol™ two-port KE43 PTSUSS.2 Cv 12 control valve.

#### How to fit spares

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



#### \* PTFE stem sealing



#### PTFE stem sealing for vacuum service



## Spare parts

### Spira-trol™ two-port control valve with bellows seal - Type D DN15 to DN100 - ½" to 4"

The spare parts available are shown in solid outline. Parts drawn in a grey 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

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

Specify if reduced trim.

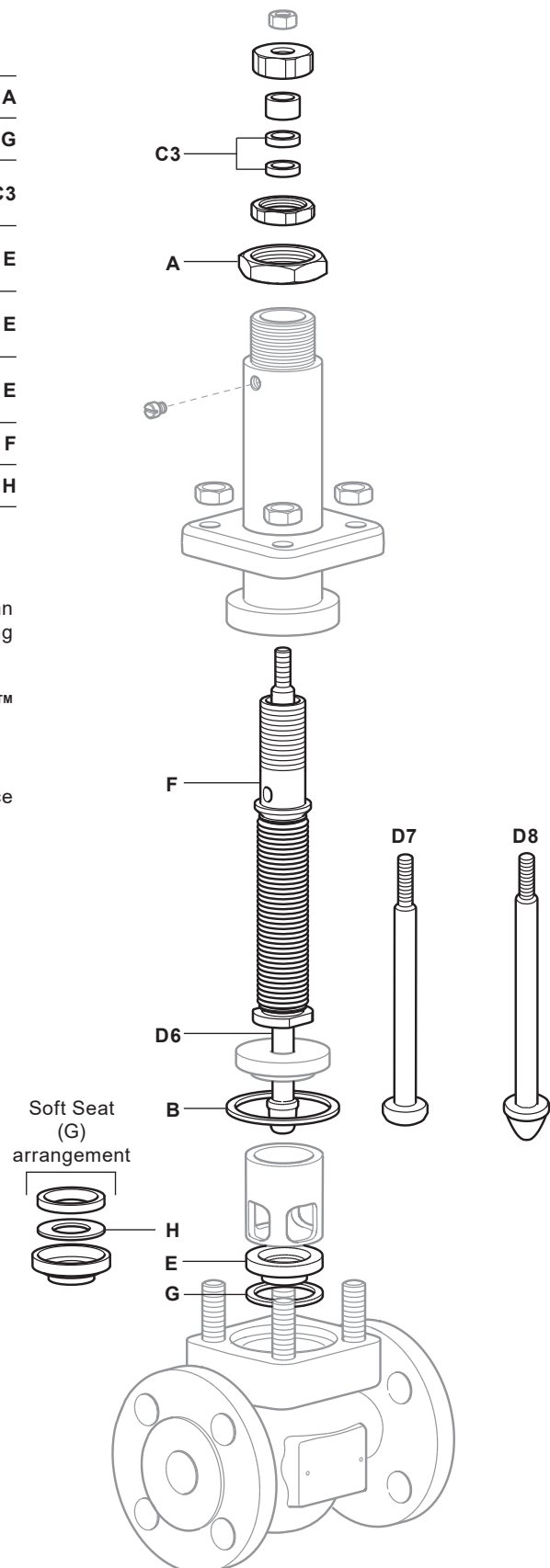
#### How to order spares

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 DN25 Spira-trol™ two-port KE43 DTSUSS.2 Cv12 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:

<b>Valve size</b>	ASME standard = ½", ¾", 1", 1¼", 1½", 2", 2½", 3" and 4"	1½"
<b>Valve series</b>	K = K series 2-port control valve L = L Series 2-port control valve	K
<b>Valve characteristic</b>	E = Equal percentage F = Fast opening L = Linear	E
<b>Flange type</b>	A = ASME	A
<b>Flow</b>	Blank = under T = over	Blank
<b>Body material</b>	3 = Cast iron 4 = Carbon steel 6 = Stainless steel 7 = SG iron	4
<b>Connections</b>	1 = Screwed 2 = Socket weld 3 = Flanged	3
<b>Stem sealing</b>	D = Bellows/graphite secondary seals H = Graphite N = PTFE with Nitronic™ bush - DN15 to DN50 only P = PTFE V = PTFE for vacuum service	P
<b>Seating</b>	C = Reverseable PEEK Seat G = PTFE soft seat P = Full PEEK S = 316L stainless steel T = 431 stainless steel W = 316L with stellite™ 6 facing	T
<b>Type of trim</b>	A1 = 1 stage anti-cavitation 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	S
<b>Trim balancing</b>	B = Balanced (not available with seating option C) U = Unbalanced	U
<b>Bonnet type</b>	E = Extended S = Standard	S
<b>Bolting</b>	S = Standard	S
<b>Series</b>	2 = .2	.2
<b>Cv</b>	To be specified	Cv29
<b>Connection type</b>	To be specified	Flanged Class 300

### Selection example:

1½"	-	K	E	A	4	3	P	T	S	U	S	S		.2	-	Cv29	-	Flanged Class 300
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### How to order

**Example:** 1 off Spirax Sarco Spira-trol™ 1.5" KEA43PTSUSS.2 Cv29 two-port control valve having flanged Class 300 connections.