

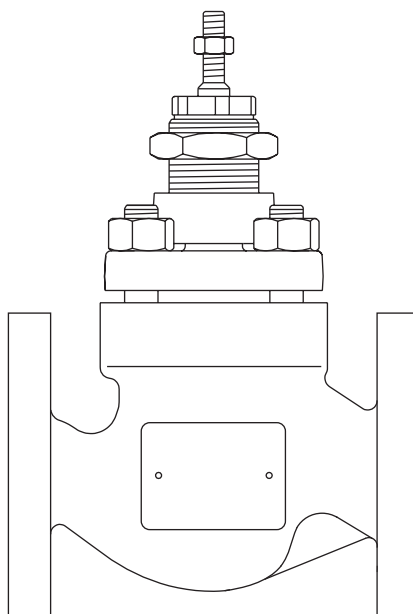


Spira-trol™ Two-port Control Valves ASME Standard K and L Series ½" to 4"

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 European Pressure Equipment Directive 2014/68/EU 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

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:

Stem sealing	PTFE chevron seals (P-N)	Standard
	Graphite packing (H)	High temperature applications
	Bellows/graphite secondary seals (D)	Zero emissions and high temperature applications CL150 - up to 800 °F
Seating	Metal-to-metal	431 stainless steel - standard 316L stainless steel
	Soft seating	Up to 428 °F PEEK (C and P) for Class VI shut-off
	Hard facing	316L stainless steel with Stellite™ 6 facing
	Bonnet type	Standard bonnet Extended bonnet for hot/cold applications
Trim	Standard trim	
	Low noise and anti-cavitation trim (see TI-S24-59)	Note: 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.

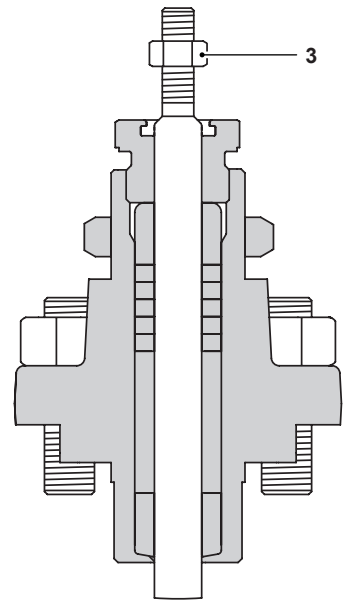
Please refer to respective data sheets.

	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 Body	A126 Class B	A395	A216 WCB	A351 CF8M
2 Bonnet	A395	A395	A105N A216 WCB	A351 CF8M
2a Bonnet extension	A216 WCB			A351 CF8M
2b Bellows	Stainless steel 316L			
2c Extended bonnet	A216 WCB			A351 CF8M
3 Stem lock-nut	Stainless steel A2-70			
4 Bonnet gasket	Graphite and Stainless steel			

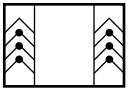
KEA valve with graphite packing



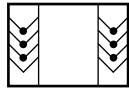
* Graphite packing

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		

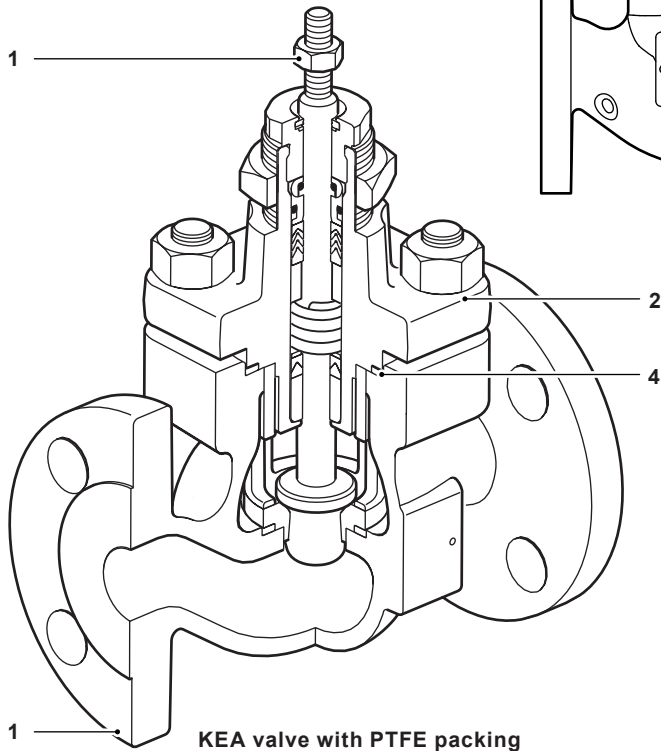
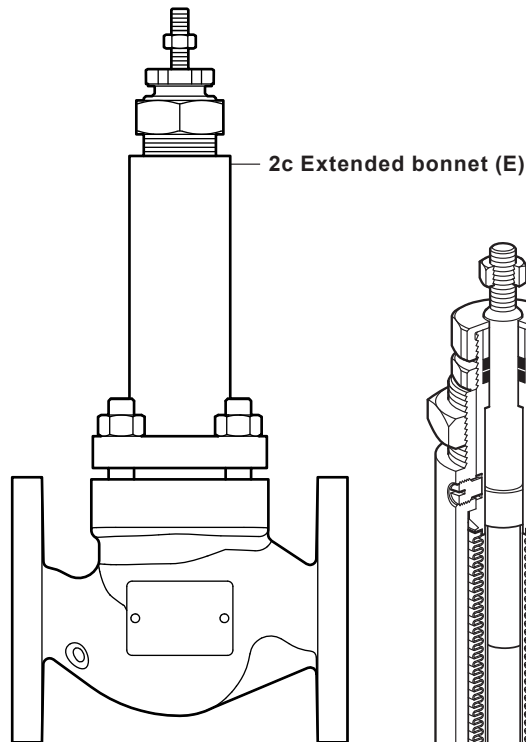
* PTFE stem sealing



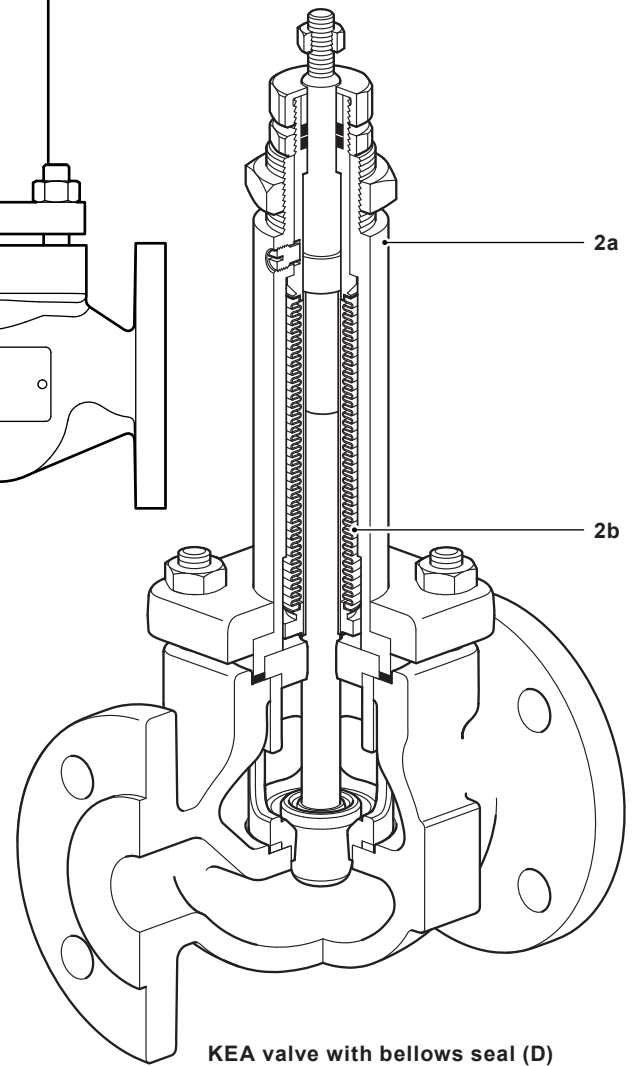
PTFE stem sealing for vacuum service



KE valve with extended bonnet (E)



KEA valve with PTFE packing

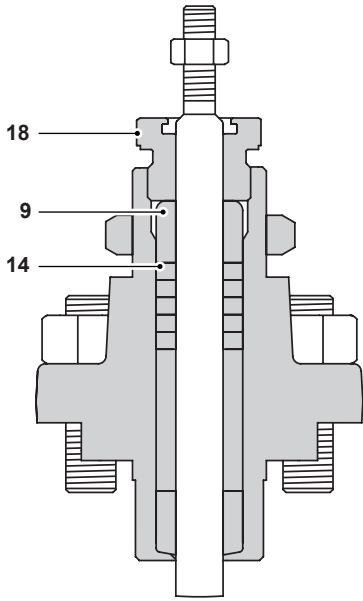


KEA valve with bellows seal (D)

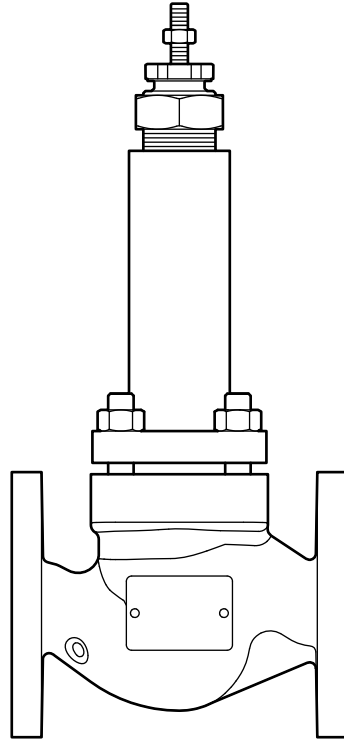
Materials - ½" to 4" (continued)

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

KEA valve with graphite packing



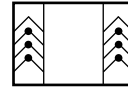
KE valve with extended bonnet (E)



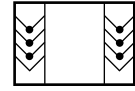
*** Graphite packing**

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

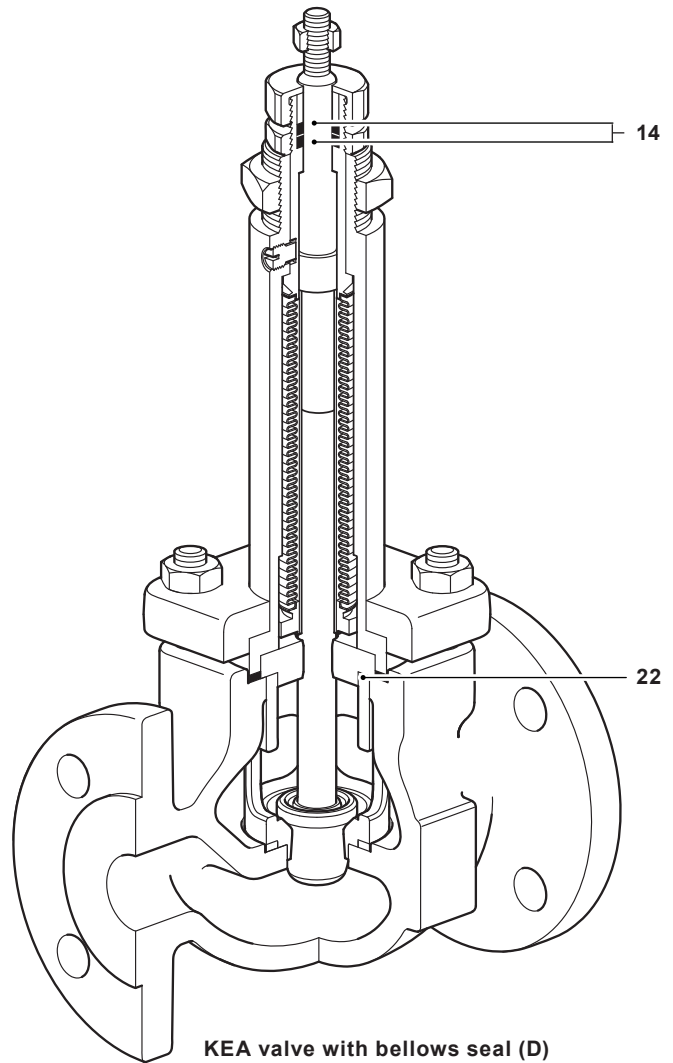
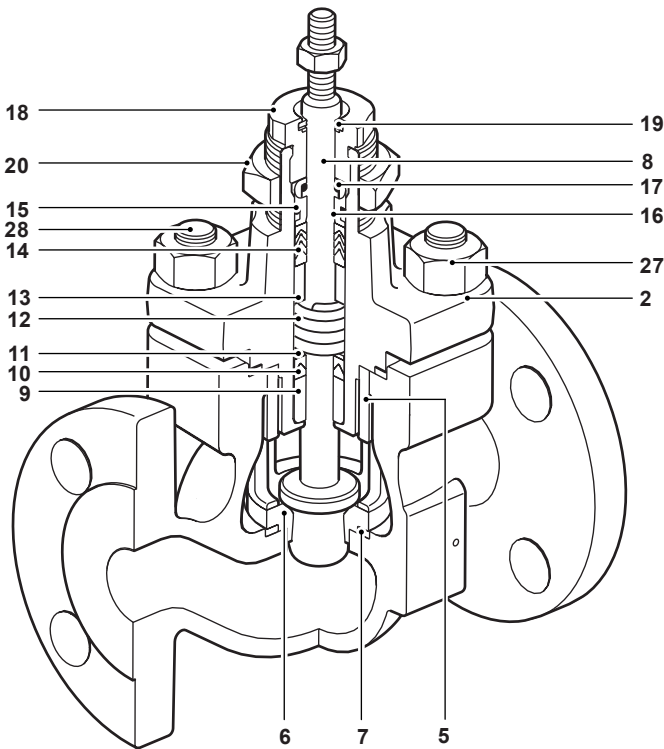
*** PTFE stem sealing**



PTFE stem sealing for vacuum service



KEA valve with PTFE packing



KEA valve with bellows seal (D)

Cv (US) values
Cv (US) = Cv (UK) x 1.2009

Valve size		½"	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	
Standard trim	High capacity Equal %	5.7	8.3		20.2	36.0	53.0				
	Full port	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
	Reduced trim 1	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
	Reduced trim 2	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
	Reduced trim 3	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
	Reduced trim 4	Equal %		1.2	1.8		4.6	7.3		18.0	
		Linear		1.2	1.8		4.6	7.3		18.0	
	Reduced trim 5	Equal %			1.2			4.6			
		Linear			1.2			4.6			
	Microflute (linear only) (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 Cv please see TI-S24-59

Spira-trol Series Valve

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				
		431S29	T	800 °F				
		316L	S					
		316L/ Stellite™ 6	W					
	Stem seal	P and N	482 °F					
		H	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		

Note: Consider the limitation of all of the constructive components when selecting a valve

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					
Bellows	D		364 °F @ 147 psi g		389 °F @ 203 psi g		386 °F @ 196 psi g *		
Leakage Class	In accordance to IEC 60534-4	PEEK	Class VI						
		Metal	Class IV (Class V on request)						
		Stellite™							
		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"						

Note: Consider the limitation of all of the constructive components when selecting a valve

* Limitation to CL150

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				
		Actuator thrust																											
PN9120E 0.2-1.0	192	40																											
PN9120E 0.4-1.2	384	40	25		40	17.6	26.5	0.6		12.2				5.1															
PN9126E 1.0-2.0	960	40	40	25	40	25	40	40	25	40	40	25	25	40	29.5	25	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	25	40	40	25	40	40	25	25	40	40	40	25	40	40	40	40	25	25	36.4	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	9.5	3.4	6.9	3.6	0.3	2.2	2.3	1.2	1				
PN9123E 2.0-4.0	1920	40	40	25	40	40	25	40	38.4	25	38.8	30.9	25	29.1	23	14.2	10.9	12.7	10.8	8.1	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	17.7	11.6	8	4.7	6.6	5.8	3.2	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
- (Pneumatic 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	
PN9230E 0.2-1.0	680	2.8		1.2																
		Stem sealing																		
PN9230E 0.4-1.2	1360	16.6	6.3	15	5.4	0.9	4.7	3.2	2.7	0.9										
		Actuator thrust																		
PN9236E 1.0-2.0	3400	40	40	25	23.4	18.9	22.7	16	12.8	15.5	8.2	6.4	7.9	4.7	3.5	4.5	2.5	1.8	2.4	
PN9233E 2.0-4.0	6800	40	40	25	40	40	25	37.4	34.2	21	20.2	18.4	19.9	12.4	11.2	12.2	7.3	6.6	7.2	
PN9330E 0.2-1.0	1340	16.2	5.9	14.6	5.2	0.7	4.5	3	2.5	0.9	0.6									
PN9330E 0.4-1.2	2680	40	33.2	25	17	12.5	16.3	11.5	8.3	11	5.6	3.8	5.3	3.1	1.9	2.9	1.5	0.7	1.4	
PN9336E 1.0-2.0	6700	40	40	25	40	40	25	36.7	33.5	25	19.8	18	19.5	12.2	11	12	7.1	6.4	7	
PN9337E 2.5-3.5	16750	40	40	25	40	40	25	40	40	25	40	40	25	34.9	33.8	25	21.3	20.6	21.2	

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

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		
Acuator Type	C _v	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	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	38.3	30.5	25
AEL71T	900	40	40	25	40	40	25	40	39.7	25	40	24.2	25	40	24.8	9.9	18.3	18.1	6.3	13	13.5	3.9	9.3	9.3	9.9	2.1	6.5	6.5
AEL71	1200	40	40	25	40	40	25	40	40	25	40	40	25	40	39.7	24.8	25	29.9	18.1	24.8	23	13.5	18.9	17.6	9.9	14.2	14.2	
AEL72/82	2000	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	25	40	38.9	25	38.3	30.5	25	
AEL72T	2100	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	25	40	40	25	40	33.1	25	
AEL73	4000	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	25	40	40	25	40	40	25	
AEL83	4500	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25	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

Valve size		DN32 to DN50 (1/4" to 2")																							
		4.6			7.2			12			18			20.2-21			29			36-42			53-58		
Actuator type	C _v	N-P		H		D		N-P		H		D		N-P		H		D		N-P		H		D	
		Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing	Actuator thrust	Stem sealing
AEL3	2000	40	40	25	40	25	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	4.1	8.5	8.3	2.2	5.6	2.9	1.5	1.8	0.6	0.6	0.6				
AEL71	1200	40	40	25	40	27.3	25	15.5	20.9	12	16.4	14.4	8.3	11.8	6.2	2.9	4.8	4.4	1.8	3.3	2.5	0.6	1.7		
AEL72/82	2000	40	40	25	40	40	25	40	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	25	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	40	25	40	40	25	37.1	33.8	25	29.1	26.5	25	20.1	18.2	19.3		
AEL74/84	6000	40	40	25	40	40	25	40	40	40	25	40	40	25	40	40	25	40	40	25	40	40	25		
AEL83	4500	40	40	25	40	40	25	40	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	DN65 to DN100 (2½" to 4")																					
	Valve size			18			29			42			73-85-104			116-135			185-208			
	C _v	Stem sealing	Actuator thrust	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	P	H	D	
AEL71T	900		7.3	1.3	5.6	0.6	0.3															
AEL71	1200		13.4	4	11.8	3.3	2.2			1.7	0.4											
AEL72/82	2000		29.7	19.3	25	11	6.6	10.3	7.2	4	6.7	3.2	1.4	2.9	0.4	1.3	0.5				0.4	
AEL72T	2100		31.7	21.3	25	11.9	7.4	11.2	7.8	4.6	7.3	3.6	1.8	3.3	0.6	1.6	0.6				0.5	
AEL73	4000		40	40	25	28.7	24.2	25	19.8	16.6	19.3	10.3	8.5	10	6	4.9	3.3	2.6	3.2			
AEL74/84	6000		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	5.4	6		
AEL75/85	8000		40	40	25	40	40	40	40	40	25	24.4	22.6	24.1	15.1	13.9	14.9	9	8.2	8.9		
AEL76/86	12000		40	40	25	40	40	40	40	40	25	38.6	36.8	25	24.2	23	24	14.6	13.9	14.5		
AEL77/87	15000		40	40	25	40	40	40	40	40	25	40	40	25	30.9	29.8	25	18.8	18.1	18.7		
AEL78	20000		40	40	25	40	40	40	40	40	25	40	40	25	40	40	25	25.9	25.2	25		
AEL83	4500		40	40	25	40	40	40	40	40	25	40	40	25	40	40	25	25.9	25.2	25		
			Only for 431 trim																			

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	N-P	H	D			
Actuator Type	C _v																								
	Stem sealing																								
	Actuator thrust																								
PN9126E 1.0-2.0	960	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19			
	1920	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19			
PN9123E 2.0-4.0	960	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19			
	1920	19	19	19	19	19	19	19	19	19	19	19	19	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	N-P	H	D
Actuator Type	C _v												
	Stem sealing												
	Actuator thrust												
PN9126E 1.0-2.0	960	19	17.6	19	19	13.8	19	18.6	10.9	15.3	19	19	19
	1920	19	19	19	19	19	19	19	19	19	19	19	19
PN9123E 2.0-4.0	960	19	17.6	19	19	13.8	19	18.6	10.9	15.3	19	19	19
	1920	19	19	19	19	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

Valve size		DN32 to DN50 (1 1/4" 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								
Actuator Type	C _v																								
	Stem sealing Actuator thrust																								
PN9126E 1.0-2.0	960	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16
PN9123E 2.0-4.0	1920	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16
PN9220E 0.2-1.0	680	19	17.4	19	8.9	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16
PN9220E 0.4-1.2	1360	19	19	19	19	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16	19	16
PN9226E 1.0-2.0	3400																								

Valve size		DN65 to DN100 (2 1/2" to 4")																							
		18		29		42		73-85-104		116-135		185-208													
		P	H	P	H	P	H	P	H	P	H	P	H												
Actuator Type	C _v																								
	Stem sealing Actuator thrust																								
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	19	8.6	4.1	7.9	5.8	2.6	5.3	2.9	1.1	2.7	1.7	0.5	1.5	0.9	0.1	0.8						
PN9236E 1.0-2.0	3400	19	19	19	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																								
PN9330E 0.2-1.0	1340	19	10.7	19	8.4	3.9	7.7	5.7	2.5	5.2	2.9	1.1	2.6	1.6	0.5	1.4	0.8	0.1	0.7						
PN9330E 0.4-1.2	2680	19	19	19	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	19	19	19	19	13.8	12.6	13.6	8.4	7.7	8.3												
PN9337E 2.5-3.5	16750	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	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
- (Electric Actuators)

Actuator Type	Valve size	DN15 to DN25											
		Upto Cv7.3			8.3			12			12.7		
		Stem sealing		Actuator thrust	Stem sealing		Actuator thrust	Stem sealing		Actuator thrust	Stem sealing		Actuator thrust
		P	H		P	H		P	H		P	H	
AEL3	2000	10	10	10	10	10	10	10	10	10	10	10	10
AEL71T	900	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	17.1	19	
AEL72/82	2000	19	19	19	19	19	19	19	19	19	19	19	

Actuator Type	Valve size	DN32 to DN50 (1¼" to 2")																							
		4.6			7.2			12			18			20.2-21			29			36-42			53-58		
		Stem sealing		Actuator thrust	Stem sealing		Actuator thrust	Stem sealing		Actuator thrust	Stem sealing		Actuator thrust	Stem sealing		Actuator thrust	Stem sealing		Actuator thrust	Stem sealing		Actuator thrust	Stem sealing		Actuator thrust
		P	H		P	H		P	H		P	H		P	H		P	H		P	H		P	H	
AEL3	2000	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10.2	8.3	9.4
AEL71T	900	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	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	
AEL72/82	2000	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	
AEL83	2300 (reduced thrust)																		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.

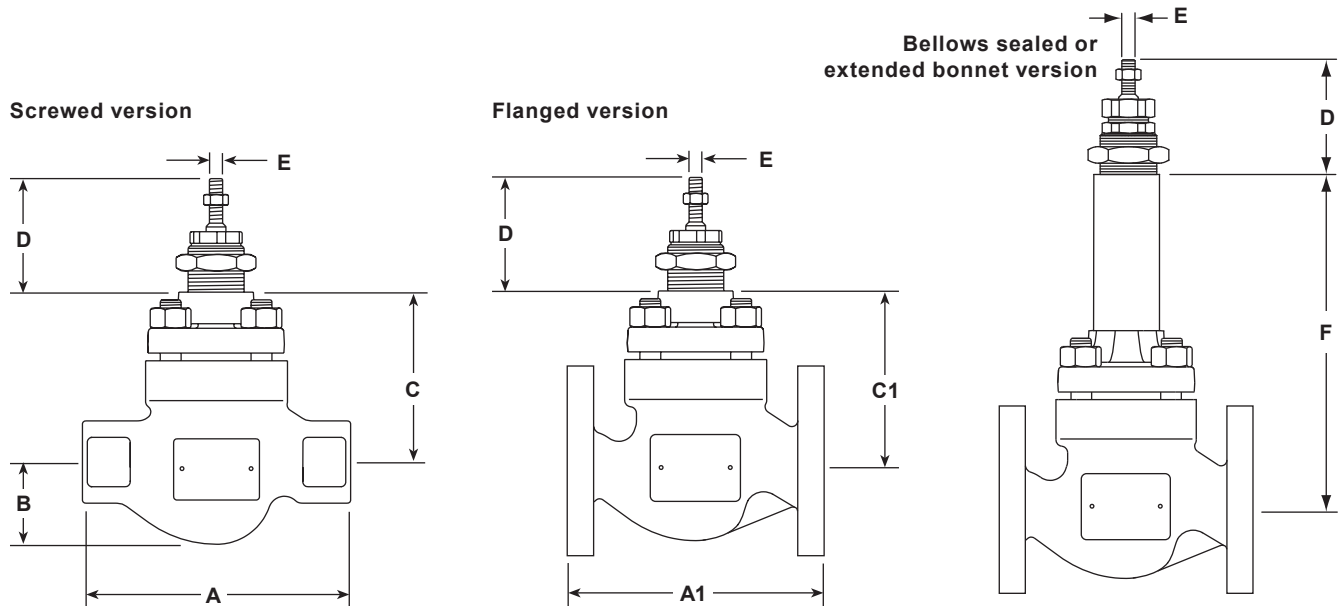
Maximum differential pressures for Class VI shut-off
- Resilient Seated (P&C)
- FLOW UNDER
- standard trim
- (Electric Actuators)
- continued

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	1															
		18.2	7.8	16.6	7.2	2.7	6.4	4.8	1.6	4.3	2.1	1.3	1.1	0.6	0.5										
AEL71	1200	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						
AEL72/82	2000	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						
AEL72T	2100										12.3	10.5	12	7.6	6.5	7.5	4.6	3.9	4.5						
AEL73	4000										19	17.6	19	12.2	11	12	7.4	6.7	7.3						
AEL74/84	6000																								
AEL75/85	8000																								
AEL76/86	12000																								
AEL77/87	15000																								
AEL83	2300 (reduced thrust)	19	19	19	16.8	12.3	16.1	10.5	7.3	10															
AEL83	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 Thread	Bellows Seals and Extended bonnet	
	A	B	C	A1		C1			F	
				KS 10 ASME 125 and 150	KS 20 ASME 250 and 300				mm	inches
DN15 (½")	165 (6½")	44 (1¼")	102 (4")	184 (7¼")	190 (7½")	102 (4")	69 (2¾")	M8	216	8.5
DN20 (¾")	165 (6½")	44 (1¼")	102 (4")	184 (7¼")	190 (7½")	102 (4")			218	8.58
DN25 (1")	197 (7¾")	57 (2¼")	102 (4")	184 (7¼")	197 (7¾")	102 (4")			214	8.42
DN32 (1¼")	216 (8½")	57 (2¼")	127 (5")	222 (8¾")	127 (8¾")	127 (5")			243	9.57
DN40 (1½")	235 (9¼")	63 (2½")	127 (5")	222 (8¾")	235 (9¼")	127 (5")			238	9.37
DN50 (2")	267 (10½")	76 (3")	127 (5")	254 (10")	267 (10½")	127 (5")			351	13.82
DN65 (2½")				276 (10¾")	292 (11½")	200 (7¾")	81 (3")	M12	365	14.37
DN80 (3")				298 (11¾")	317 (12½")	200 (7¾")				
DN100 (4")				349 (13¾")	368 (14½")	216 (8½")				

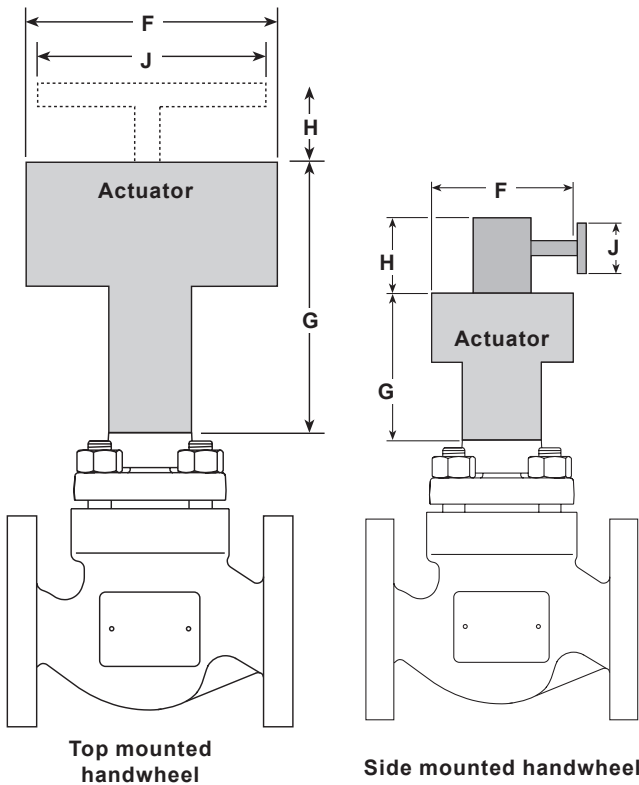


Weights approximate in kg (and lbs)

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 $\frac{7}{8}$ "	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 $\frac{7}{8}$ "	300	11 $\frac{7}{8}$ "	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 $\frac{7}{8}$ "	65	2 $\frac{3}{16}$ "	350	13 $\frac{3}{4}$ "	27	59.50	+7.20	+15.75
PN9320R					150	15 $\frac{7}{8}$ "					+3.77	+8.50
PN9330E	390	15 $\frac{1}{2}$ "	335	13 $\frac{3}{8}$ "	65	2 $\frac{3}{16}$ "	350	13 $\frac{3}{4}$ "	27	59.50	+7.20	+15.75
PN9330R					150	15 $\frac{7}{8}$ "					+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

Spare parts

Spira-trol™ two-port control valve DN15 to DN100 - 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
	PTFE packing	C
Stem seal kits	Graphite packing	C1
	Graphite seal set	C2
	* Equal percentage trim (No gaskets supplied)	D, E
Plug stem and seat kit	Fast opening trim (No gaskets supplied)	D1, E
	Linear trim (No gaskets supplied)	D2, E

* Specify if reduced trim.

How to order spares

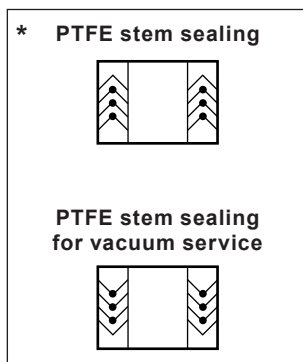
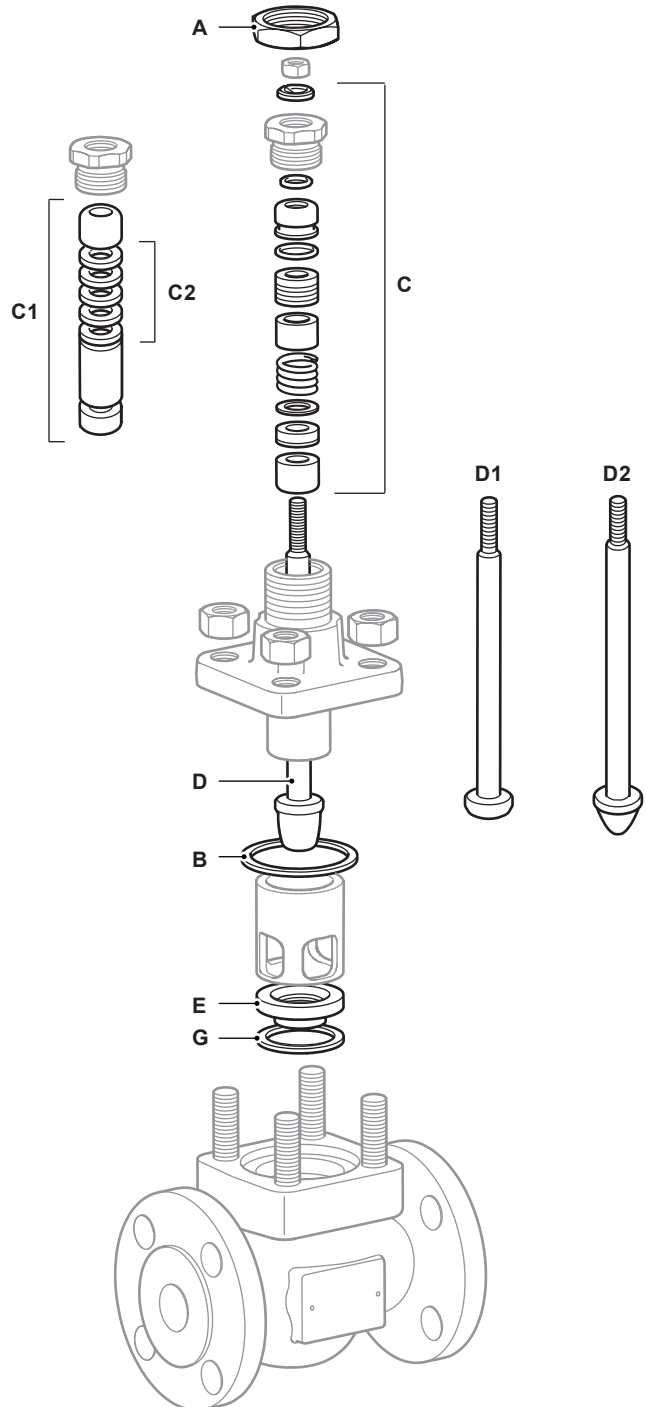
Always order spares by using the description given in the column headed 'Available spares', and state the size and type of valve including the full product description of the product.

Example:

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

How to fit spares

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



Spare parts

Spira-trol™ two-port control valve with bellows seal - Type D DN15 to DN100 - 1/2" 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

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

* Specify if reduced trim.

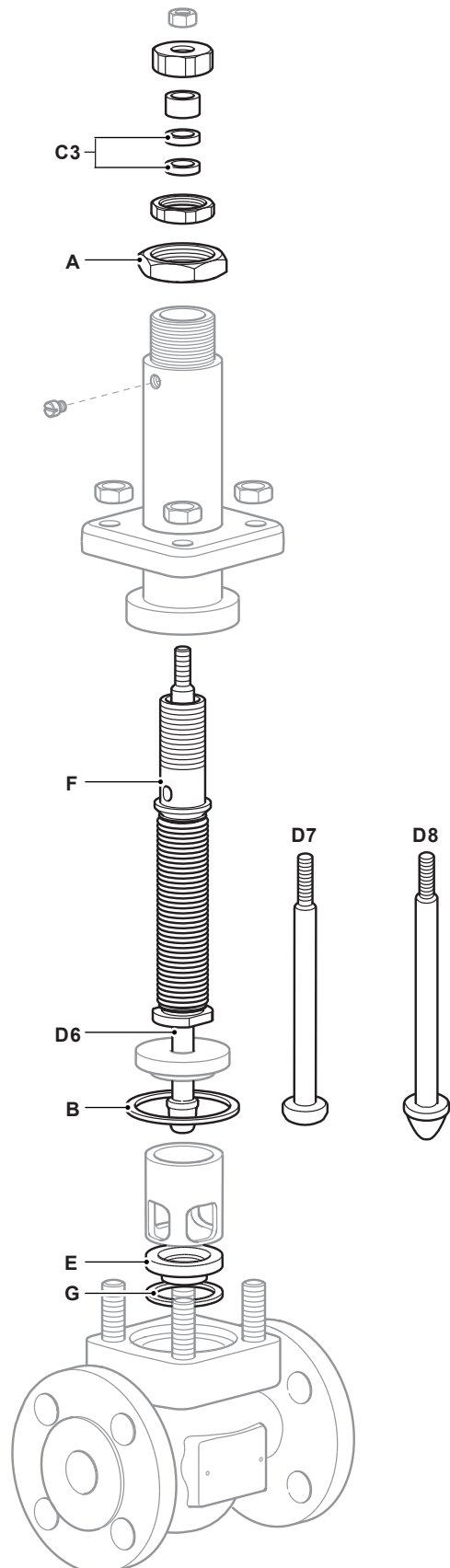
How to order spares

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:

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