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ISO 9001

TI-F12-25
CH Issue 2

CE83 5" (DN125) to 8" (DN200) Alloy Steel Cage Design, Two Port Control Valves

Description

The CE83 series is a range of alloy steel two port, cage trim, control valves conforming to ANSI B16.34, ASME VIII standards in sizes 5" to 8" (DN125 to DN200) available with ANSI and PN flange connections. When used in conjunction with a pneumatic linear actuator the 'C' series valve will provide characterised modulating or on/off control.

Compatible actuators and positioners:

Pneumatic actuators	PN1000 series, spring-to-close
	PN2000 series, spring-to-open
Positioners	PP5 (pneumatic)
	EP5 (electropneumatic)
	SP2 (smart electropneumatic)

Refer to the relevant Technical Information Sheet for further details.

Sizes and pipe connections

5", 6" and 8" (DN125, 150 and 200)
Flanged to ANSI 150, ANSI 300, ANSI 600 (Raised face or ring type joint), PN16, PN25, PN40, PN63, and PN100 (Raised face with ANSI face-to-face dimension).

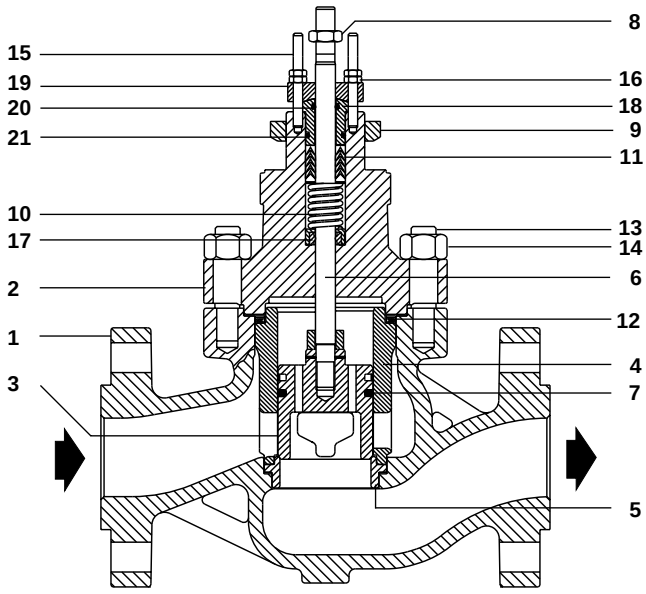
Options

Trim	Equal %, linear, fast opening (on/off) characteristics, soft seat, hard faced, low noise and anti-cavitation (single and multi-cage).
Stem seal	PTFE chevron, graphite packing and bellows.
Plug	Balanced or unbalanced to ANSI Class IV, V or VI shut-off.

See 'C' series valve options Technical Information Sheet TI-F12-23.

Technical data

Plug design	Unbalanced plug		
	PTFE sealed balanced plug		
	Graphite sealed balanced plug		
Trim design	Cage trim with equal percentage, linear and fast opening flow characteristic options.		
Leakage	Class IV	Metal-to-metal seat	IEC 534-4
	Class IV & V	Hard face stellite	IEC 534-4
	Class VI	PTFE soft seat	IEC 534-4
Flow characteristic	CE valves	Equal percentage	
	CF valves	Fast opening	
	CL valves	Linear	
	CM valves	Modified equal percentage	
Rangeability	50:1 Equal percentage		
	30:1 Linear		
Travel	5" and 6" (DN125 and DN150)		2½" (65 mm)
	8" (DN200)		3" (75 mm)



Materials

No.	Part	Material	
1	Body	Alloy steel	ASTM A217 WC6
2	Bonnet	Alloy steel	ASTM A217 WC6
3	Valve plug	Stainless steel	AISI 431 hardened
4	Valve cage	Stainless steel	AISI 316 ENC
5	Valve seat	Stainless steel	AISI 431
6	Valve stem	Stainless steel	AISI 316
7	Valve plug sealing rings	PTFE and graphite or graphite	
8	Lock-nut	Stainless steel	AISI 316
9	Mounting nut	Zinc plated carbon steel	
10	Gland spring	Stainless steel	AISI 302
11	Gland seal	PTFE chevron or graphite	
12	Bonnet gasket	Reinforced exfoliated graphite	
13	Bonnet studs	Alloy steel	ASTM A 193 B16
14	Bonnet nuts	Alloy steel	ASTM A 194 GRD4
15	Stuffing box studs	Alloy steel	ASTM A 193 B16
16	Stuffing box nuts	Alloy steel	ASTM A 194 GRD4
17	Stem scraper	Glass filled PTFE	
18	Stuffing box bush	Stainless steel	AISI 316
19	Stuffing box ring	Stainless steel	AISI 316
20	Valve stem wiper	Fluoelastomer	
21	'O' ring	Fluoelastomer	

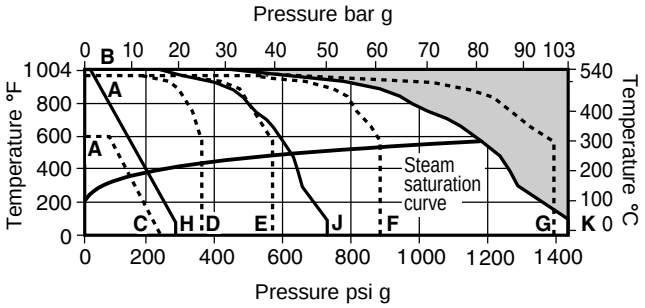
Limiting conditions

Body design conditions	ANSI 300 and ANSI 600			
Design temperature	Standard PTFE chevron stem seals		14°F to +482°F	(-10°C to +250°C)
	Graphite packing stem seals	Standard bonnet	14°F to +572°F	(-10°C to +300°C)
		Extended bonnet	14°F to +1004°F	(-10°C to +540°C)
	Graphite sealed balanced plug	(Class IV)	1004°F	(540°C)
	PTFE sealed balanced plug	(Class VI)	356°F	(180°C)
Designed for a maximum cold hydraulic test pressure of:		(ANSI 300)	1125 psi g	(77.6 bar g)
		(ANSI 600)	2250 psi g	(155 bar g)
Maximum differential pressure		See relevant actuator TI		

Local regulations may restrict the use of this product to below the conditions quoted.
In the interests of development and improvement of the product, we reserve the right to change the specification.

Operating range for body material and flange type only.

Note: See limiting conditions for stem and plug limitations.

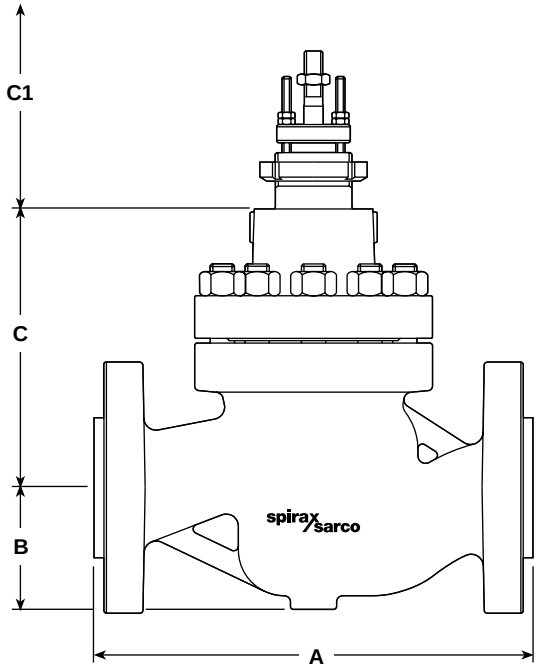


The product must not be used in this region.

A-C PN16, **A-D** PN25, **A-E** PN40, **A-F** PN63, **A-G** PN100
B-H ANSI 150, **B-J** ANSI 300, **B-J** ANSI 600

Dimensions (approximate) in inches and (mm)

Valve size		5" DN125	6" DN150	8" DN200
A	ANSI 300 PN25 - PN40	16¾" (425)	18⅝" (473)	22⅜" (568)
	ANSI 600 PN63 - PN100	18" (457)	20" (508)	24" (610)
B		6½" (165)	7" (178)	8¼" (210)
C		11⅜" (290)	13 6/16" (339)	14⅝" (370)
C1	Extended bonnet	16 11/16" (425)	18 11/16" (474)	19 14/16" (505)
	Bellows sealed bonnet	27" (690)	29" (739)	30¼" (770)



Weights (approximate) in lbs and (kg)

Valve size	5" DN125	6" DN150	8" DN200
Weights	264 (120)	396 (180)	660 (300)

Valve flow coefficients at 100% lift

Cv (US) for single stage trims (K_{VS} shown in brackets).

Size	Equal % C_V (K_{VS})	F_L
5" (DN125)	293 (250)	0.85
6" (DN150)	386 (330)	0.85
8" (DN200)	560 (480)	0.85

Three reduced C_V are available for equal percentage and linear trims, for further details see TI-F12-23 'C' series valve options.

For conversion C_V (UK) = C_V (US) x 0.833 K_{VS} = C_V (US) x 0.855

Sizing

Please consult Spirax Sarco.

Installation

The valve should be installed in a horizontal pipeline with the direction of flow as indicated by the arrow on the valve name-plate. The actuator position will depend on the type fitted to the valve. Full instructions are supplied with the product.

'C' series valve selection guide

Valve size	5", 6" and 8" DN125, 150 and 200	**5"**
Valve series	C = Cage trim	**C**
Valve characteristic	E = Equal percentage F = Fast opening L = Linear M = Modified equal percentage	**E**
Body material	8 = Alloy steel	**8**
Connections	2 = Butt weld (5" to 8") 3 = Flanged	**3**
Stem sealing options	P = PTFE chevron H = Graphite B = Bellows	**P**
Seating options	T = AISI 431 hardened G = PTFE soft seat W = Hard faced stellite AISI 316	**T**
Type of trim	C = Standard cage P = Noise reducing perforated cage A = Anti-cavitation cage	**C**
Number of stages	1 = One 2 = Two 3 = Three Other = To be specified	**1**
Trim balancing	B = Balanced U = Unbalanced	**B**
Bonnet type	S = Standard H = Extended for high temperature L = Extended for low temperature	**S**
Reduced trim	0 = No Reduction 1 = 1 Reduction 2 = 2 Reductions 3 = 3 Reductions	**0**
C_V	To be specified	**C_V 293**
Connection type	To be specified	**ANSI 300**

5"	C	E	8	3	P	T	C	1	B	S	0	C_V 293	ANSI 300

How to order

Example: 1 off 5" CE83PTC1BS0 C_V 293 flanged to ANSI 300.

Spare parts

See TI-F12-22