



Cert. No. LRQ 0963008

ISO 9001

# spirax sarco

## CE83

TI-F12-20  
CH Issue 4

### 1" (DN25) to 4" (DN100)

## 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 B 16.34, ASME VIII standards in sizes 1" to 4" (DN25 to DN100) 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:

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

Refer to the relevant Technical Information Sheet for further details.

### Sizes and pipe connections

1", 1½", 2", 2½", 3" and 4" (DN25, 40, 50, 65, 80 and 100) 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), 1", 1½" and 2" socket weld.

### Options

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

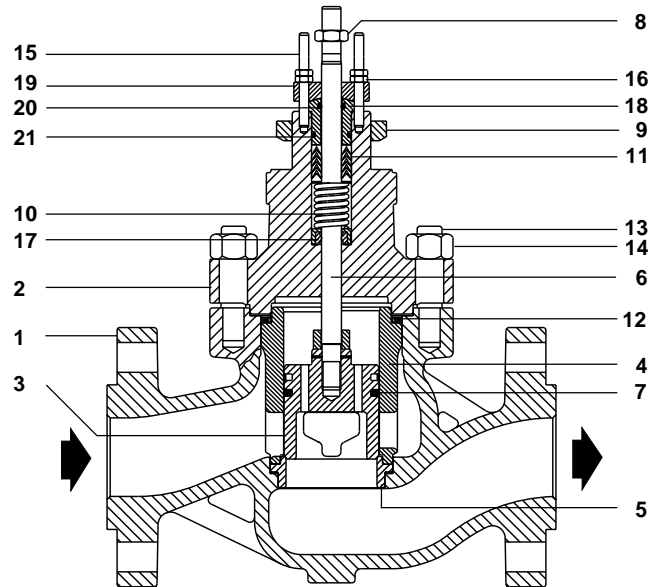
See 'C' series valve options Technical Information Sheet TI-F12-23.

### Technical data

	Unbalanced plug		
<b>Plug design</b>	PTFE sealed balanced plug Graphite sealed balanced plug		
<b>Trim design</b>	Cage trim with equal percentage, linear and fast opening flow characteristic options.		
	Class IV	Metal-to-metal seat	IEC 534-4
<b>Leakage</b>	Class IV & V	Hard face stellite	IEC 534-4
	Class VI	PTFE soft seat	IEC 534-4
	CE valves	Equal percentage	
<b>Flow characteristic</b>	CF valves	Fast opening	
	CL valves	Linear	
	CM valves	Modified characteristic (special)	
<b>Rangeability</b>	50:1 Equal percentage 30:1 Linear		
	1" and 1½"	(DN25 and 40)	¾" (20 mm)
<b>Travel</b>	2"	(DN50)	1⅜" (30 mm)
	2½" and 3"	(DN65 and 80)	1½" (38 mm)
	4"	(DN100)	2" (50 mm)

### Limiting conditions

<b>Body design conditions</b>	ANSI 600		
	Standard PTFE chevron stem seals	14°F to +482°F	(-10°C to +250°C)
<b>Design temperature</b>	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)
<b>Designed for a maximum cold hydraulic test pressure of:</b>	(ANSI 600)	2250 psi g	(155 bar g)
<b>Maximum differential pressure</b>	See relevant actuator TI		



### 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	Fluoroelastomer	
21	'O' ring	Fluoroelastomer	

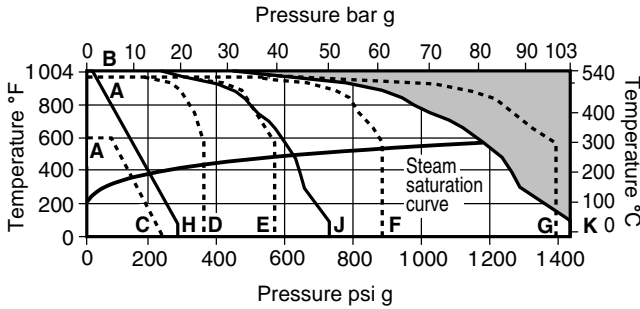
Local regulations may restrict the use of this product to below the conditions quoted.

In the interests of development and improvement of the product, we reserve the right to change the specification.

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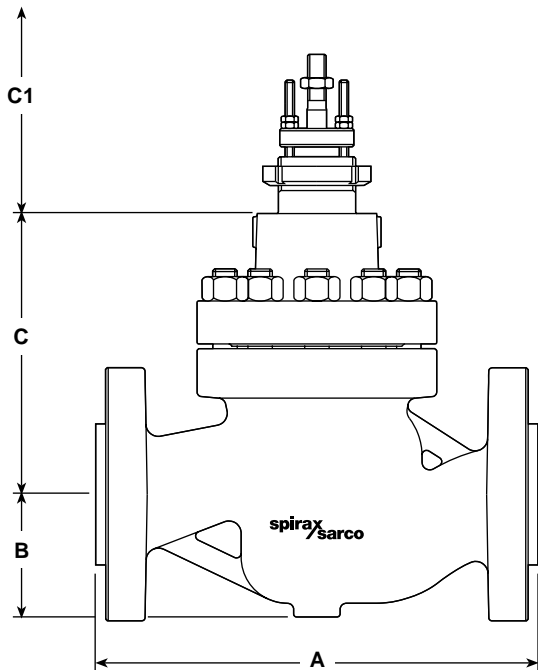
## Operating range for body material and flange type only.

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-K** ANSI 600

Valve size	1" DN25	1½" DN40	2" DN50	2½" DN65	3" DN80	4" DN100
<b>A</b>						
<b>ANSI 300 PN25 - PN40</b>	7¾" (197)	9¼" (235)	10½" (267)	11½" (292)	12½" (317)	14½" (368)
<b>ANSI 600 PN63 - PN100</b>	8¼" (210)	9⅞" (251)	11¼" (286)	12¼" (311)	13¼" (337)	15½" (394)
<b>B</b>						
	2½" (62)	3" (80)	3" (80)	3¾" (95)	4⅞" (105)	5" (128)
<b>C</b>						
	5½" (141)	7" (179)	7⅞" (183)	8¼" (209)	8¼" (209)	9¾" (247)
<b>C1</b>						
<b>Extended bonnet</b>	10" (255)	11½" (293)	11⅝" (296)	13½" (344)	13½" (344)	15" (382)
<b>Bellows sealed bonnet</b>	15" (380)	16½" (419)	18¼⅞" (480)	20" (506)	20" (506)	25" (634)



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

Valve size	1" DN25	1½" DN40	2" DN50	2½" DN65	3" DN80	4" DN100
<b>Weights</b>	29 (13)	48 (22)	59 (27)	92 (42)	130 (59)	213 (97)

## Valve flow coefficients at 100% lift

C<sub>v</sub> (US) for single stage trims (K<sub>vs</sub> shown in brackets).

Size	Equal % C <sub>v</sub> (K <sub>vs</sub> )	F <sub>L</sub>
<b>1" (DN25)</b>	18.00 (15.00)	0.94
<b>1½" (DN40)</b>	36.00 (31.00)	0.94
<b>2" (DN50)</b>	60.00 (51.00)	0.94
<b>2½" (DN65)</b>	99.00 (85.00)	0.92
<b>3" (DN80)</b>	136.00 (116.00)	0.90
<b>4" (DN100)</b>	223.00 (191.00)	0.89

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

For conversion C<sub>v</sub> (UK) = C<sub>v</sub> (US) x 0.833 K<sub>vs</sub> = C<sub>v</sub> (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

<b>Valve size</b>	1", 1½", 2", 2½", 3" and 4" DN25, 40, 50, 65, 80 and 100	<input type="text" value="2"/>
<b>Valve series</b>	C = Cage trim	<input type="text" value="C"/>
<b>Valve characteristic</b>	E = Equal percentage F = Fast opening L = Linear M = Modified equal percentage	<input type="text" value="E"/>
<b>Body material</b>	8 = Alloy steel	<input type="text" value="8"/>
<b>Connections</b>	3 = Flanged 4 = Socket weld (1", 1½" and 2")	<input type="text" value="3"/>
<b>Stem sealing options</b>	P = PTFE chevron H = Graphite B = Bellows	<input type="text" value="P"/>
<b>Seating options</b>	T = AISI 431 hardened G = PTFE soft seat W = Hard faced stellite AISI 316	<input type="text" value="T"/>
<b>Type of trim</b>	C = Standard cage P = Noise reducing perforated cage A = Anti-cavitation cage	<input type="text" value="C"/>
<b>Number of stages</b>	1 = One 2 = Two 3 = Three Other = To be specified	<input type="text" value="1"/>
<b>Trim balancing</b>	B = Balanced U = Unbalanced	<input type="text" value="U"/>
<b>Bonnet type</b>	S = Standard H = Extended for high temperature L = Extended for low temperature	<input type="text" value="S"/>
<b>Reduced trim</b>	0 = No Reduction 1 = 1 Reduction 2 = 2 Reductions 3 = 3 Reductions	<input type="text" value="1"/>
<b>C<sub>v</sub></b>	To be specified	<input type="text" value="Cv 35"/>
<b>Connection type</b>	To be specified	<input type="text" value="ANSI 300"/>

## How to order

Example: 1 off 2" CE83PTC1U51 C<sub>v</sub> 35 flanged to ANSI 300.

## Spare parts

See TI-F12-22