spirax sarco

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CH Issue 3

'C' Series Valve Options

Description
The Spirax Sarco 'C' series valve range has a number of available options. The options relate to valve stem sealing, trim materials, valve flow characteristics and C_V capacity values. They are described in (and may be selected from) this TI.

Valve characteristics
See typical flow characteristic curves chart opposite
The standard characteristic for the 'C' series valve is equal percentage (E), however the following options are available:

Equal percentage	E
Linear	L
Fast opening	F
Modified equal percentage	M

Note: Modified special characteristic trims are designed upon request.

Valve stem sealing
PTFE chevron (P)

Design temperature	14°F to 482°F (-10°C to +250°C)	
Material	PTFE chevron	

Graphite (H)

Design temperature	14°F to 572°F (-10°C to +300°C) standard bonnet	
	14°F to 1004°F(-10°C to +540°C) extended bonnet	

Bellows (B)

Design temperature	14°F to 752°F (-10°C to +400°C)	
Material	Carbon steel housing	ASTM 216 WCB
Pressure rating	ASME (ANSI) 150	

Plug and seat treatment
Hardened (T)

Design temperature	14°F to 797°F (-10°C to +425°C)	
Material	Stainless steel	AISI 431
Leakage	ASME (ANSI) Class IV	

PTFE soft seat (G)

Design temperature	14°F to 356°F (-10°C to +180°C)	
Material	PTFE	
Leakage	ASME (ANSI) Class VI	

Hard face (W)

Design temperature	14°F to 1004°F (-10°C to +540°C)	
Material	Hard faced stellite	AISI 316
Leakage	ASME (ANSI) Class IV or V	

Single and multiple stage cage
Noise reducing perforated cage (P)

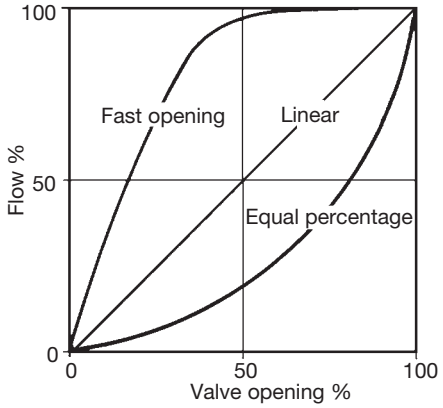
Design temperature	14°F to 1004°F (-10°C to +540°C)	
Material	Stainless steel	AISI 316 ENC

Anti-cavitation cage (A)

Design temperature	14°F to 662°F (-10°C to +350°C)	
Material	Stainless steel	AISI 316 ENC

Valve capacities see overleaf

Typical valve flow characteristics



'C' series valve selection guide

Valve size	1", 1½", 2", 2½", 3", 4", 5", 6" & 8" DN25, 40, 50, 65, 80, 100, 125, 150 & 200	2"
Valve series	C = Cage trim	C
Valve characteristic	E = Equal percentage L = Linear F = Fast opening M = Modified equal percentage	E
Body material	4 = Carbon steel 6 = Stainless steel 8 = Alloy steel	4
Connections	2 = Butt weld (2" to 8") 3 = Flanged 4 = Socket weld (1", 1½" and 2")	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	U
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	1
C_V	To be specified	C_V 35
Connection type	To be specified	ASME 300

2"	C	E	4	3	P	T	C	1	U	S	1	C_V 35	ASME 300

How to order
Example: 1 off 2" CE43PTC1US1 C_V 35 flanged to ASME 300.

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 without notice.

Valve capacities Flow coefficient C_V (US) depending on the various trim options - K_{VS} values are shown in brackets.

Type of cage trim	Flow characteristic	Valve size	C_V (K_{VS}) by valve size and trim reduction								
			1" DN25	1½" DN40	2" DN50	2½" DN65	3" DN80	4" DN100	5" DN125	6" DN150	8" DN200
		Travel	¾" (20 mm)		1 3/16" (30 mm)	1½" (38 mm)		2" (50 mm)	2½" (65 mm)		3" (75 mm)
One stage standard	Fast opening Linear and Equal %	Full area	19 (16)	35 (30)	63 (54)	95 (81)	130 (111)	216 (185)	293 (250)	386 (330)	560 (480)
		Reduction 1	- -	19 (16)	35 (30)	63 (54)	95 (81)	130 (111)	216 (185)	293 (250)	386 (330)
		Reduction 2	- -	- -	19 (16)	35 (30)	63 (54)	95 (81)	130 (111)	216 (185)	293 (250)
		Reduction 3	- -	- -	- -	19 (16)	35 (30)	63 (54)	95 (81)	130 (111)	216 (185)
One stage low noise	Linear	Maximum	15 (13)	35 (30)	60 (51)	100 (86)	140 (120)	250 (214)	320 (274)	425 (364)	650 (556)
		Reduction 1	- -	15 (13)	35 (30)	60 (51)	100 (86)	140 (120)	250 (214)	320 (274)	425 (364)
		Reduction 2	- -	- -	15 (13)	35 (30)	60 (51)	100 (86)	140 (120)	250 (214)	320 (274)
		Reduction 3	- -	- -	- -	15 (13)	35 (30)	60 (51)	100 (86)	140 (120)	250 (214)
	Modified Equal %	Maximum	15 (13)	30 (26)	55 (47)	85 (73)	120 (103)	200 (171)	250 (214)	360 (308)	530 (453)
		Reduction 1	- -	15 (13)	30 (26)	55 (47)	85 (73)	120 (103)	200 (171)	250 (214)	360 (308)
		Reduction 2	- -	- -	15 (13)	30 (26)	55 (47)	85 (73)	120 (103)	200 (171)	250 (214)
		Reduction 3	- -	- -	- -	15 (13)	30 (26)	55 (47)	85 (73)	120 (103)	200 (171)
	Equal %	Maximum	15 (13)	25 (21)	45 (39)	75 (64)	95 (81)	150 (128)	210 (178)	280 (240)	425 (364)
		Reduction 1	- -	15 (13)	25 (21)	45 (39)	75 (64)	95 (81)	150 (128)	210 (178)	280 (240)
		Reduction 2	- -	- -	15 (13)	25 (21)	45 (39)	75 (64)	95 (81)	150 (128)	210 (178)
		Reduction 3	- -	- -	- -	15 (13)	25 (21)	45 (39)	75 (64)	95 (81)	150 (128)
Two stage low noise (Flow under)	Linear	Maximum	- -	17(14.5)	28 (24)	46 (39)	70 (60)	125 (107)	170 (145)	250 (214)	440 (376)
		Reduction 1	- -	- -	17 (14.5)	28 (24)	46 (39)	70 (60)	125 (107)	170 (145)	250 (214)
		Reduction 2	- -	- -	- -	17 (14.5)	28 (24)	46 (39)	70 (60)	125 (107)	170 (145)
		Reduction 3	- -	- -	- -	- -	17(14.5)	28 (24)	46 (39)	70 (60)	125 (107)
	Modified Equal %	Maximum	- -	15 (13)	26 (22)	43 (37)	65 (56)	115 (98)	155 (133)	230 (197)	400 (342)
		Reduction 1	- -	- -	15 (13)	26 (22)	43 (37)	65 (56)	115 (98)	155 (133)	230 (197)
		Reduction 2	- -	- -	- -	15 (13)	26 (22)	43 (37)	65 (56)	115 (98)	155 (133)
		Reduction 3	- -	- -	- -	- -	15 (13)	26 (22)	43 (37)	65 (56)	115 (98)
	Equal %	Maximum	- -	13 (11)	22 (19)	40 (34)	60 (52)	110 (94)	145 (125)	210 (180)	370 (317)
		Reduction 1	- -	- -	13 (11)	22 (19)	40 (34)	60 (52)	110 (94)	145 (125)	210 (180)
		Reduction 2	- -	- -	- -	13 (11)	22 (19)	40 (34)	60 (52)	110 (94)	145 (125)
		Reduction 3	- -	- -	- -	- -	13 (11)	22 (19)	40 (34)	60 (52)	110 (94)
Three stage low noise (Flow under)	Linear	Maximum	- -	13 (11)	20 (17)	35 (30)	50 (43)	85 (73)	105 (90)	155 (133)	280 (240)
		Reduction 1	- -	- -	13 (11)	20 (17)	35 (30)	50 (43)	85 (73)	105 (90)	155 (133)
		Reduction 2	- -	- -	- -	13 (11)	20 (17)	35 (30)	50 (43)	85 (73)	105 (90)
		Reduction 3	- -	- -	- -	- -	13 (11)	20 (17)	35 (30)	50 (43)	85 (73)
	Modified Equal %	Maximum	- -	10 (8.5)	15 (13)	30 (26)	45 (39)	75 (64)	95 (81)	145 (124)	250 (214)
		Reduction 1	- -	- -	10 (8.5)	15 (13)	30 (26)	45 (39)	75 (64)	95 (81)	145 (124)
		Reduction 2	- -	- -	- -	10 (8.5)	15 (13)	30 (26)	45 (39)	75 (64)	95 (81)
		Reduction 3	- -	- -	- -	- -	10 (8.5)	15 (13)	30 (26)	45 (39)	75 (64)
	Equal %	Maximum	- -	7 (6)	10 (8.5)	25 (21.5)	30 (26)	55 (47)	75 (64)	115 (99)	200 (171)
		Reduction 1	- -	- -	7 (6)	10 (8.5)	25(21.5)	30 (26)	55 (47)	75 (64)	115 (99)
		Reduction 2	- -	- -	- -	7 (6)	10 (8.5)	25(21.5)	30 (26)	55 (47)	75 (64)
		Reduction 3	- -	- -	- -	- -	7 (6)	10 (8.5)	25(21.5)	30 (26)	55 (47)
One stage Anti-cavitation (Flow over)	Linear	Maximum	15 (13)	30 (26)	55 (47)	85 (73)	120 (103)	200 (171)	250 (214)	360 (308)	530 (453)
		Reduction 1	- -	15 (13)	30 (26)	55 (47)	85 (73)	120 (103)	200 (171)	250 (214)	360 (308)
		Reduction 2	- -	- -	15 (13)	30 (26)	55 (47)	85 (73)	120 (103)	200 (171)	250 (214)
		Reduction 3	- -	- -	- -	15 (13)	30 (26)	55 (47)	85 (73)	120 (103)	200 (171)
Two stage Anti-cavitation (Flow over)	Linear	Maximum	- -	15 (13)	26 (22)	43 (37)	65 (56)	115 (98)	155 (133)	230 (197)	400 (342)
		Reduction 1	- -	- -	15 (13)	26 (22)	43 (37)	65 (56)	115 (98)	155 (133)	230 (197)
		Reduction 2	- -	- -	- -	15 (13)	26 (22)	43 (37)	65 (56)	115 (98)	155 (133)
		Reduction 3	- -	- -	- -	- -	15 (13)	26 (22)	43 (37)	65 (56)	115 (98)

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