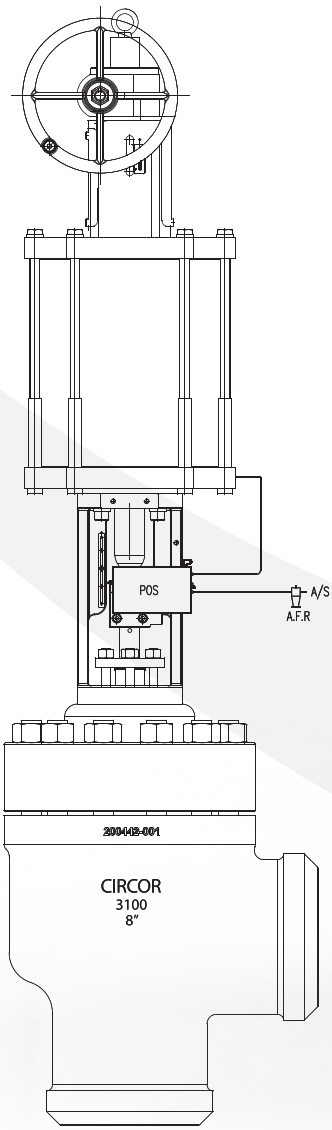
CIRCOR

CIR 3100 Control Valves

Flexibility. Inside & Out



CIRCOR is a market - leading, global provider of integrated flow control solutions specializing in the manufacture of highly engineered valves, pumps, fittings, pipeline products & services and associated products,for critical and severe service applications in the oil and gas power generation and process industries.

Comprised of best-in - class, historically significant product brands, we consistently satisfy our customers mission - critical application needs by utilizing advanced technologies that can with stand extreme temperature and pressure from land - based to sub- sea and in between.

The newly upgraded CIR 3100 valves range is diligently designed to serve an ever increasing range of markets on a global level, including,

- Upstream Oil and Gas
- Midstream Oil and Gas
- Downstream Oil and Gas
- Power Generation
- General Industry
- Processing
- Maritime
- Renewables

CIR 3100 is suitable for throttling and on-off control of a fluid flow such as gas, steam, water or chemical compounds to compensate for the load disturbance and helps to keep the regulated process variable as close as possible to the desired set point.

We offer our customers and the markets we serve, solutions for a various range of general, critical, and severe applications, including but not limited to

- Well hookups
- Gas gathering systems
- Treatment facilities
- Oil & gas transmission
- Liquid level control
- Pressure control
- Process control
- Over pressure protection
- Oil sands
- Mining (Water Management)
- Steam-assisted gravity drainage
- Thermal applications
- Mainline pipeline
- Compressor stations
- Manifold service
- Enhanced oil recovery
- Blow-down
- In-line testing devices
- Turbine Bypass
- Steam Conditioning
- Steam Vent
- Soot Blower
- Desuperheating
- Feedwater Regulator
- Feedwater Recirculation
- Instrumentation
- Balance of Plant
- Sampling Systems
- Heating Control Systems
- Tank Control

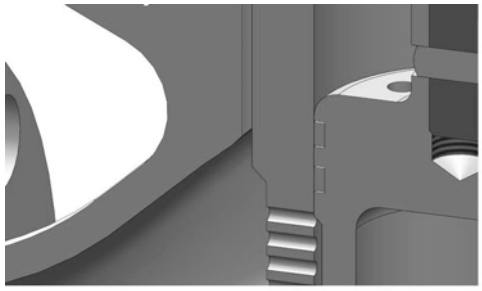
PRODUCT ADVANTAGES

- One common economical valve body with multiple internal options
- Easily interchangeable trims, when process conditions/severity change
- Customizable to suit your process needs
- Class V leakage option available for high temperature applications
- Standardized parts and accessories will keep your inventory and maintenance costs low
- Designed for diversied markets & applications

FEATURES

REDUCED SEAT WEAR/ TIGHTER SHUT OFF

CIR 3100 control valves are specially designed for both low and high pressure drop service. Pressure drop, high velocities and throttling occur only at the cage window and the plug, thereby protecting the seat ring and offers tight shut-off capability to the valve.

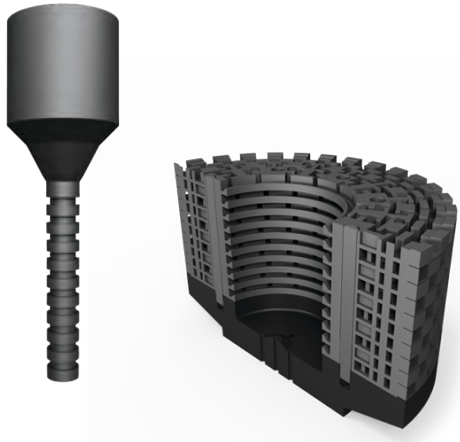


PILOT BALANCED PLUG

Pilot Balanced design offers the excellent shutoff properties of an unbalanced design and reduces actuator thrust as a balanced design.

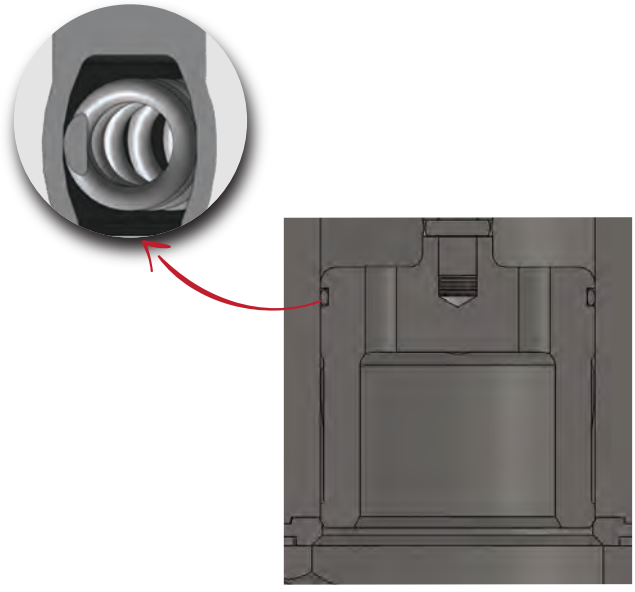
MULTI-STAGE TRIMS

- MZ plug are multi staged micro flow trims specially designed for very fine control of low-flows and high pressure drop application.
- Zick twist trim designs are Multi-path Pressure Reduction technology which are custom made and designed to control the potentially destructive effects of high velocity fluids experienced in the control valve.



RUGGED PLUG SEAL

Heavy cup washer style PTFE plug seal has three times the cross-sectional area and with minimal friction for tightest resolution. Pressure energized to provide a tight seal at low and high pressures providing tight shut off.



SPECIFICATIONS

Body Assembly	Globe, Angle
Valve Size	1” (DN 25) to 16” (DN 400)
Pressure Class	1” to 8” - 150# to 1500# & 10” to 16” - 150# to 600#
End Connections	Socket Weld (<2"), Buttweld, RF, RTJ
Plug Type	MZ plug (UB)[1], Contour Plug (UB), Drilled Cone Plug (UB/PiB), Standard Plug (PiB/PB)
Cage Type	Standard Ported Cage, Les Sonic I & II, Les Cav I, Zick Twist[1]
Flow Characteristic	Linear, Equal Percent, Modified
Packing Type	Single/Double PTFE, Single/Double Graphite, Low Emission PTFE/Graphite[1]
Body Material	A216 Gr WCC, A352 Gr LCC, A217 Gr WC6, A217 Gr WC9, A351 Gr CF8M
Trim Material	Refer Table 1.1, 1.2, 1.3
Cv Range	Refer Table 2.1, 2.2, 2.3
Leakage Class	Class IV and Class V
Actuation	Pneumatic, Electric, Electro-Hydraulic, Hydraulic
Certications/Compliance	IBR, NACE, PED/CE

Trim Type	Trim	Max Service Temp	Cage/Seat Rtnr.	Plug & Seat Ring	Stem	Shutoff
Post Guided (UB)	SS410	427°C / 800°F	SS410	SS410 Hardened	A479 TY316	IV & V
	DIN1.4122	593°C / 1100°F	DIN 1.4122	DIN 1.4122 Nitrided	DIN 1.4122 Nitrided	IV & V
Unbalanced Cage Guided (UB)	SS410	427°C / 800°F	CA15 / SS410 Nitrided	CA15 / SS410 Nitrided	A479 TY316	IV & V
	SS316	427°C / 800°F	A351 CF8M Nitrided	A351 CF8M Nitrided	A479 TY316	IV & V
	SS316 ST	427°C / 800°F	A351 CF8M Cr. Plated	A351 CF8M Stellited	A479 TY316	IV & V
	CA6NM Hi-Temp	538°C / 1000°F	ASTM A487 CA6NM Nitrided	ASTM A487 CA6NM Nitrided	ASTM A638 Gr 660 / Inconel X750	IV & V

Table 1.1

1-Non standard

Trim Type	Trim	Max Service Temp	Cage	Plug & Seat Ring	Stem	Plug Seal	Shutoff
Plug Balanced – Cage Guided (PB)	SS410	427°C / 800°F	CA15 / SS410 Nitrided	CA15 / SS410 Nitrided	A479 TY316	C300 Spring Loaded Seal 300°C / 527°F Max	V
						Flex Graphite 427°C / 800°F Max	IV
	SS316	427°C / 800°F	A351 CF8M Nitrided	A351 CF8M Nitrided	A479 TY316	C300 Spring Loaded Seal 300°C / 527°F Max	V
						Flex Graphite 427°C / 800°F Max	IV
	SS316 ST	427°C / 800°F	A351 CF8M Cr. Plated	A351 CF8M Stellited	A479 TY316	C300 Spring Loaded Seal 300°C / 527°F Max	V
						Flex Graphite 427°C / 800°F Max	IV
	CA6NM Hi-Temp	538°C / 1000°F	ASTM A487 CA6NM Nitrided	ASTM A487 CA6NM Nitrided	ASTM A638 Gr 660 / Inconel X750	Flex Graphite 538°C / 1000°F	IV

Table 1.2

Trim Type	Trim	Max Service Temp	Cage	Plug & Seat Ring	Stem	Piston Ring	Shutoff
Pilot Plug Balanced – Cage Guided (PiB)	SS410	427°C / 800°F	CA15 SS410 Nitrided	CA15 /SS410 Nitrided	A479 TY316	Nitronic 60	IV & V
	SS316	427°C / 800°F	A351 CF8M Nitrided	A351 CF8M Nitrided	A479 TY316	Nitronic 60	IV & V
	SS316 ST	427°C / 800°F	A351 CF8M Cr. Plated	A351 CF8M Stellited	A479 TY316	Nitronic 60	IV & V
	CA6NM Hi-Temp	538°C / 1000°F	ASTM A487 CA6NM Nitrided	ASTM A487 CA6NM Nitrided	ASTM A638 Gr 660 / Inconel X750	Nitronic 60	IV & V
	DIN 1.4122	593°C / 1100°F	DIN 1.4122 Nitrided	DIN 1.4122 Nitrided	DIN 1.4122 Nitrided	DIN 1.4122 Nitrided	IV & V

Table 1.3

TRIM TYPES

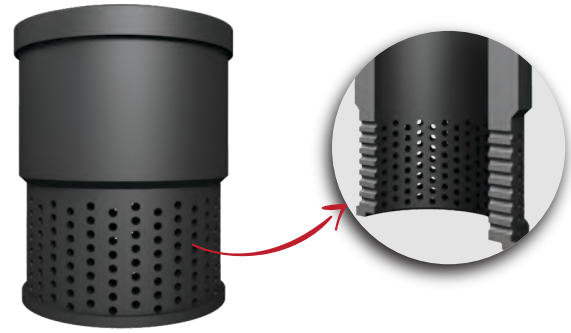
Contoured Plug (UB): Contour plug is a top guided design provides valve plug stability with less chance of a sticking valve plug due to non-lubricating or sticky process fluids which reduce vibration, mechanical noise, and trim wear and suitable for all general services.

Contour Plug

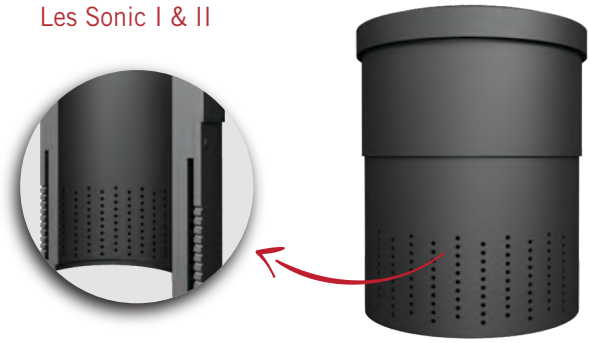
Drilled Cone (UB/PiB): Drilled cone plug is a top guided design which has a significant impact on the overall pressure recovery of the valve. The hole pattern drilled onto the plug determines the trim characteristics and hence can be customized based on flow data. Generally this trim is used for both moderate and higher pressure drop applications.

Drilled Cone

Les-Sonic Cage: Les sonic trims control aerodynamic noise that is effective for vapour, gas or steam flow applications. The Les-Sonic cage is designed to reduce fluid generated noise up to 15 - 20 dBA, using single or dual stages for any compressible fluid service. When used in conjunction with a Les-Sonic silencing orice plate, noise attenuation of greater than 20 dBA can be achieved. Available stages are up to two stages, Les Sonic I and Les Sonic II.

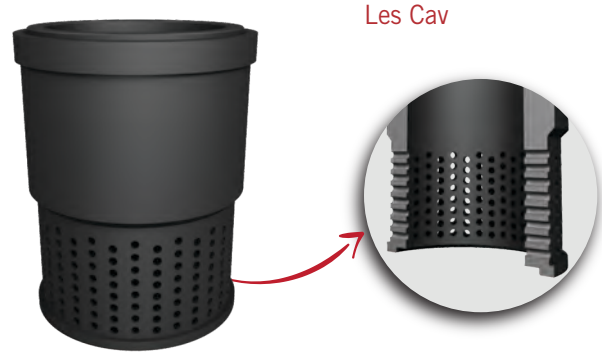


Les Sonic I & II

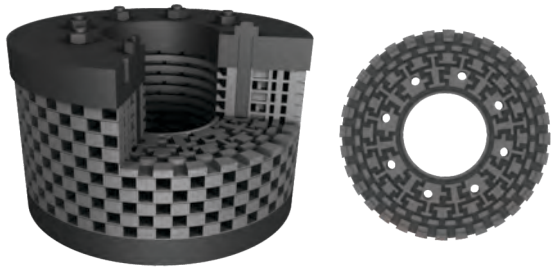


Les-Cav Cage: Les Cav trims are used for cavitating services in both globe and angle valve bodies which provides feature of both pressure drop staging & expanding flow area thereby effectively eliminate cavitation and also prevent valve damage.

Les Cav



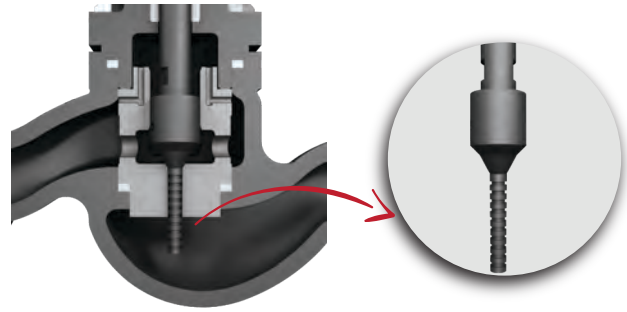
Zick Twist: It is custom made design to meet the specific needs of the process. Multi-Stage Multi-Path Pressure Reduction technology which are specially designed to control the potentially destructive effects of high velocity fluids experienced in the control valve.



Zick Twist

It breaks the larger pressure drop across the valve trim into a series of smaller pressure drops by forcing the liquid through torturous flow paths which results in reduced vibration and noise.

MZ Plug (UB): Specially designed trim for very fine control in low-flow/ high pressure drop liquid applications.



MZ Plug

Valve Size	Stroke	Rating	Low Flow Plug - Linear
1 Inch (DN 25)	20 mm	150~1500	0.12, 0.25, 0.5, 0.75, 1.25
1.5 Inch (DN 40)	20 mm	150~1500	0.25, 0.5, 0.75, 1.25

Table 2.1 - Unbalanced(UB), Top Guided

Valve Size	Stroke	Rating	Contour Plug Linear	Contour Plug Equal	Contour Plug Modified	Drilled Cone Linear	Drilled Cone Equal	Drilled Cone Modified
1 Inch (DN 25)	20 mm	150~1500	3.5, 6, 9, 11			3,5, 6		
	30 mm	150~1500	–			9, 11	–	
1.5 Inch (DN 40)	20 mm	150~1500	3.5,6			3.5, 6		
	30 mm	150~1500	14, 23,32			14, 23, 32	10	12
2 Inch (DN 50)	20 mm	150~1500	3.5, 9	3.5		3.5	3.5, 6	
	30 mm	150~1500	14, 23, 35			14, 23, 32	10	12
	40 mm	150~1500	45, 49			45, 49	20, 27	20, 30
3 Inch (DN 80)	30 mm	150~1500	35			32	–	–
	40 mm	150~1500	49,75,95			49,75	27	30
	50 mm	150~1500	–			95	45	55
4 Inch (DN 100)	40 mm	150~1500	49, 75			49	–	
	50 mm	150~1500	110, 175			95	45	55

Table 2.2 - Unbalanced(UB), Top Guided

Valve Size	Stroke	Rating	Ported Cage Linear	Ported Cage Eq %	Les Cav I Linear	Les Sonic I Linear	Les Sonic II Linear
2 Inch (DN 50)	40 mm	150~1500	30,45,60	27,41,54	34, 51	26,43	18,30
3 Inch (DN 80)	50 mm	150~1500	62,93,124	56,84,112	61,91	55,86	75
4 Inch (DN 100)	50 mm	150~1500	96, 144, 192	86, 130, 173	71, 112	86, 122	100
6 Inch (DN 150)	60 mm	150~1500	180, 270, 360, 400	160, 240, 320, 400	162, 243, 324	159, 223, 303	140,180
8 Inch (DN 200)	75 mm	150~600	320, 480, 640, 800	302, 454, 605, 756	243, 350, 471, 578	276, 423, 551	220,280
		900~1500	288, 432, 576, 720	272, 408, 544, 680	213, 304, 411, 502	293, 440	200,245
10 Inch (DN 250)	100 mm	150~600	520, 780, 1040, 1300	440, 660, 880, 1100	365, 547, 750	411, 616, 792	360,450
12 Inch (DN 300)	100 mm	150~600	720, 1080, 1440, 1800	576, 864, 1152, 1440	426, 629, 831, 1095	469, 675, 909, 1114	450,550
16 Inch (DN 400)	125 mm	150~600	1240, 1860, 2300, 2800	920, 1380, 1840, 2300	735, 1115, 1470, 1749	871, 1271, 1707	675,810

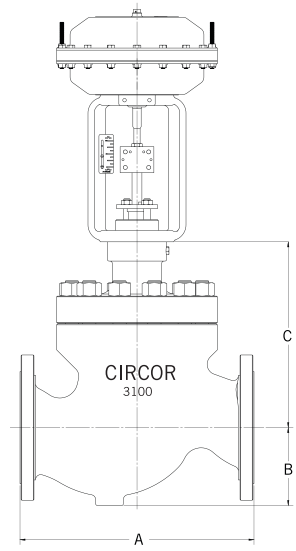
Table 2.3 - Plug Balanced(PB) & Pilot Balanced(PiB) – Cage Guided

ACTUATION & ACCESSORIES

The CIR 3100 valves are offered with pneumatic actuator as standard but can also be offered with wide range of actuator options namely electric, hydraulic, electro hydraulic and standalone manual actuation too.

The actuators are selected & bundled with appropriate accessories like Air Iter regulator, Positioner, Solenoid valves, volume booster etc based on the minimum operating site conditions & also any speed or control requirement with respect to each valve.

DIMENSION & WEIGHT



Raised Face (RF) DIMENSIONS Inches (mm)

		A					B					C	
Size	NPT	150	300	600	900	1500	150	300	600	900	1500	150~600	900~1500
1 (25)		7.75 (197)	8.27 (210)	8.27 (210)	10.75 (273)	10.75 (273)	2.24 (57)			2.13 (54)		5.87 (149)	6.77 (172)
1.5 (40)		9.25 (235)	9.76 (248)	9.88 (251)	13.11 (333)	13.11 (333)	2.17 (55)			3.11 (79)		7.6 (193)	8.58 (218)
2 (50)	11.26 (286)	10 (254)	10.51 (267)	11.26 (286)	14.76 (375)	14.76 (375)	2.76 (70)			2.87 (73)	2.87 (73)	8.84 (224.5)	
3 (80)		11.73 (298)	12.52 (318)	13.27 (337)	17.36 (441)	18.11 (460)	3.54 (90)			3.54 (90)	3.77 (96)	11.14 (283)	
4 (100)		13.86 (352)	14.49 (368)	15.51 (394)	20.11 (511)	20.86 (530)	3.94 (100)			4.64 (118)	5.31 (135)	11.89 (302)	
6 (150)		17.76 (451)	18.62 (473)	20 (508)	28.11 (714)	30.23 (768)	5.91 (150)			6.77 (172)	7.28 (185)	14.1 (358)	
8 (200)		21.34 (543)	22.36 (568)	24.02 (610)	35.98 (914)	38.26 (972)	7.6 (193)			8.66 (220)	9.5 (241)	16.78 (426)	
		A					B					C	
												150~300	600
10 (250)		26.5 (673)	27.9 (708)	29.6 (752)	–	–	9.7 (245)		9.3 (235)	–	–	22.7 (576)	23 (586)
12 (300)		29 (737)	30.5 (775)	32.2 (819)	–	–	10.6 (270)			–	–	23.9 (606)	24 (611)
16 (400)		40 (1016)	41.6 (1057)	43.6 (1108)	–	–	13.2 (334)	13.6 (344.5)	13.8 (350)	–	–	23.5 (599)	

NPT Available in 2” only.

Table 3.1

Ring Type Joint (RTJ) DIMENSIONS Inches (mm)														
Size		A					B					C		
	NPT	150	300	600	900	1500	150	300	600	900	1500	150 300	600	900 1500
1 (25)		7.75 (197)	8.27 (210)	8.27 (210)	10.75 (273)	10.75 (273)	2.24 (57)			2.13 (54)		5.87 (149)		6.77 (172)
1.5 (40)		9.25 (235)	9.76 (248)	9.88 (251)	13.11 (333)	13.11 (333)	2.17 (55)			3.11 (79)		7.6 (193)		8.58 (218)
2 (50)		10.50 (267)	11.14 (283)	11.37 (289)	14.88 (378)	14.88 (378)	2.76 (70)			2.87 (73)	2.87 (73)	8.84 (224.5)		
3 (80)		12.24 (311)	13.12 (334)	13.40 (340)	17.50 (444)	18.22 (463)	3.54 (90)			3.54 (90)	3.77 (96)	11.14 (283)		
4 (100)		14.37 (365)	15.10 (384)	15.62 (397)	20.23 (514)	21 (533)	3.94 (100)			4.64 (118)	5.31 (135)	11.89 (302)		
6 (150)		18.26 (464)	19.25 (489)	20.11 (511)	28.22 (717)	30.50 (774)	5.91 (150)			6.77 (172)	7.28 (185)	14.10 (358)		
8 (200)		21.90 (556)	23.00 (584)	24.13 (613)	36.10 (917)	38.70 (982)	7.60 (193)			8.66 (220)	9.50 (241)	16.78 (426)		
10 (250)		27.0 (686)	28.5 (724)	29.7 (755)	–	–	9.7 (245)		9.3 (235)	–	–	22.7 (576)	23.0 (586)	–
12 (300)		29.5 (750)	31.1 (791)	32.4 (822)	–	–	10.5 (270)			–	–	23.9 (606)	24.0 (611)	–
16 (400)		40.5 (1029)	42.2 (1073)	43.7 (1111)	–	–	13.2 (334)	13.6 (344.5)	13.8 (350)	–	–	23.5 (599)		–

Table 3.2

Buttweld (BWE) DIMENSIONS Inches (mm)													
Size	A						B					C	
	NPT	150	300	600	900	1500	150	300	600	900	1500	150-600	900-1500
1 (25)		8.27 (210)			10.98 (279)		2.24 (57)			2.13 (54)		5.87 (149)	6.77 (172)
1.5 (40)		9.88 (251)			12.99 (330)		2.17 (55)			3.11 (79)		7.6 (193)	8.58 (218)
2 (50)		11.25 (286)			14.80 (375)		2.76 (70)			2.87 (73)	2.87 (73)	8.84 (224.5)	
3 (80)		13.26 (337)			18.11 (460)		3.54 (90)			3.54 (90)	3.77 (96)	11.14 (283)	
4 (100)		15.50 (394)			20.90 (530)		3.94 (100)			4.64 (118)	5.31 (135)	11.89 (302)	
6 (150)		20.00 (508)			30.23 (768)		5.91 (150)			6.77 (172)	7.28 (185)	14.10 (358)	
8 (200)		24.00 (610)			32.75 (832)		7.60 (193)			8.66 (220)	9.50 (241)	16.78 (426)	
	Butt Weld End (A)						B					C	
												150-300	600
10 (250)		29.6 (752)		29.6 (752)	–	–	9.7* (245)		9.3 (235)	–		22.7 (576)	23.0 (586)
12 (300)		32.2 (819)		32.2 (819)	–	–	10.6* (270)			–		23.9 (606)	24.0 (611)
16 (400)		43.6 (1108)		43.6 (1108)	–	–	13.6 (344.5)		13.8 (350)	–		23.5 (599)	
*Designs vary to meet required Cv's													

Table 3.3

Size	THD	Raised Face Body - lbs(kg)				
	NPT	150	300	600	900	1500
1 (25)		17.6 (8)	19.8 (9)	22 (10)	55.1 (25)	55.1 (25)
1.5 (40)		41.9 (19)	44.1 (20)	46.3 (21)	97 (44)	97 (44)
2 (50)	50.7 (23)	50.7 (23)	58.2 (26.4)	61.7 (28)	119 (54)	119 (54)
3 (80)		105.4 (47.8)	117.3 (53.2)	123 (55.8)	204.2 (92.6)	243.6 (110.5)
4 (100)		158.7 (72)	176.4 (80)	201.7 (91.5)	338.75 (151.4)	403 (182.8)
6 (150)		275.6 (125)	326.3 (148)	395.1 (179.2)	577.4 (261.9)	843.9 (382.8)
8 (200)		553.8 (251.2)	603.6 (273.8)	816.8 (370.5)	1021.6 (463.4)	1469.4 (666.5)
10 (250)		683 (310)	877 (398)	1281 (581)	–	–
12 (300)		1032 (468)	1327 (602)	1847 (838)	–	–
16 (400)		1656 (751)	2277 (1033)	3084 (1399)	–	–

Table 3.4

Size	Ring Type Joint Body - lbs(kg)				
	150	300	600	900	1500
1 (25)	17.6 (8)	19.8 (9)	22 (10)	55.1 (25)	55.1 (25)
1.5 (40)	41.9 (19)	44.1 (20)	46.3 (21)	97 (44)	97 (44)
2 (50)	51.6 (23.4)	59.5 (27)	62.2 (28.2)	120.2 (54.5)	120.2 (54.5)
3 (80)	107.6 (48.8)	120.6 (54.7)	124.1 (56.3)	205.7 (93.3)	245.8 (111.5)
4 (100)	161.6 (73.3)	182.3 (82.7)	202.6 (91.9)	335.5 (152.2)	405.4 (183.9)
6 (150)	277.8 (126)	332.6 (150.9)	397 (180.1)	578.7 (262.5)	848.1 (384.7)
8 (200)	558.2 (253.2)	612.9 (278)	820.1 (372)	1026.3 (465.5)	1480.2 (671.4)
10 (250)	690 (313)	888 (403)	1285 (583)	–	–
12 (350)	1043 (473)	1343 (609)	1852 (840)	–	–
16 (400)	1669 (757)	2299 (1043)	3093 (1403)	–	–

Table 3.5

Size	Butt Weld End Body - lbs(kg)				
	150	300	600	900	1500
1 (25)	15.4 (7)			39.7 (18)	
1.5 (40)	35.3 (16)			77.2 (35)	
2 (50)	51.4 (23.3)			86.6 (39.3)	
3 (80)	98.3 (44.6)			185.2 (84.0)	
4 (100)	148.2 (67.2)			316.1 (143.4)	
6 (150)	298.7 (135.5)			647.5 (293.7)	
8 (200)	704.8 (319.7)			1015.0 (460.4)	
10 (250)	807 (366)		1049 (476)	–	–
12 (350)	1199 (544)		1572 (713)	–	–
16 (400)	2044 (927)		2635 (1195)	–	–

Table 3.6

CIR 3100 - Ordering Code

1&2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Model	Body Style	Trim Type	Size	Rating	End Conn.	Bonnet & Flow Type	Trim & Char.	Cv	Packing type	Body Matl	Trim Matl	Comp-liance	Special	Actuator Type	Actuator Model	Acc's Qty
31	1	1	3	A	A	1	A	A	1	A	A	1	X	A	1	1

Position - 1&2 | Model

31

Position - 3 | Body Style

1 - Cast-Globe
2 - Cast-Angle
3 - Forged-Globe
4 - Forged-Angle

Position - 4 | Trim Type

1 - Unbalance - Top Guided
2 - Unbalanced - Cage Guided
3 - Balanced - Cage Guided - Omni Seal
4 - Balanced - Cage Guided - Graphite Seal
5 - Pilot Balanced - Cage Guided

Position - 5 | Size

3 - 1"
4 - 1.5"
5 - 2"
6 - 3"
7 - 4"
8 - 6"
9 - 8"
A - 10"
B - 12"
D - 16"

Position - 6 | Rating

A - 150#
B - 300#
C - 600#
D - 900#
E - 1500#
F - 2500#
G - 4500#
H - 150# SPL
J - 300# SPL
K - 600# SPL
L - 900# SPL
M - 1500# SPL
N - 2500# SPL
Z - Special

Position -7 | End Connection

A - RF
B - RTJ
G - SWE
H - THD
R - BWE 40
U - BWE 60
V - BWE 80
1 - BWE XS
5 - BWE 160
Z - Special

Position - 8 | Bonnet & Flow Type

1 - Standard - UTP
2 - Standard - OTP
Z - Special/other

Position - 9 | Trim & characteristics

A - Micro Flow <1 Cv
B - Cont. Plug - Linear
C - Cont. Plug - Equal %
D - Cont. Plug - Modified
E - Drilled Cone - Linear
F - Drilled Cone - Equal %
G - Drilled Cone - Modified
H - Standard - Linear
J - Standard - Equal %
K - Les Sonic I - Linear
L - Les Sonic II - Linear
M - Les Cav I - Linear
N - Les Cav II - Linear
P - Zick Twist - Linear
Q - Zick Twist - Modified
R - MZ Plug - Modified
Z - Special/Custom

Position -10 | Cv

A - 10%
B - 20%
C - 30%
D - 40%
E - 50%
F - 60%
G - 70%
H - 80%
J - 90%
K - 100%
Z - Custom

Position -11 | Packing type

1 - STD PTFE
2 - STD GRAPH
3 - STD DBL PTFE
4 - STD DBL GRAPH
5 - Live Load - PTFE
6 - Live Load - GRAPH
7 - Low Emiss. GRAPH (CL B)
8 - Low Emiss. DBL GRAPH (CL B)
9 - Live Load DBL PTEF
10 - Live Load DBL GRAPH
Z - Special

Position -12 | Body Matl

A - A216 Gr WCC - Globe
B - A352 Gr LCC - Globe
C - A217 Gr WC6 - Globe
D - A217 Gr WC9 - Globe
E - A217 Gr C12A - Globe
F - A351 Gr CF8M - Globe
G - A216 Gr WCC - Angle
H - A352 Gr LCC - Angle
J - A217 Gr WC6 - Angle
K - A217 Gr WC9 - Angle
L - A217 Gr C12A - Angle
M - A351 Gr CF8M - Angle
N - A 105 - Globe
P - A182 Gr F11 - Globe
Q - A182 Gr F22 - Globe
R - A182 Gr F91 - Globe
S - A182 Gr F316 - Globe
T - A 105 - Angle
U - A182 Gr F11 - Angle
V - A182 Gr F22 - Angle
W - A182 Gr F91 - Angle
Y - A182 Gr F316 - Angle
Z - Special

Position -13 | Trim Matl

A - SS 410 Hardened
B - SS 410 Nitrided
C - SS 316 Nitrided
D - SS316 + Stellite
E - CA6NM Hardened
F - 440C Hardened
G - DIN 1.4122 + Nitriding
Z - Special

Position -14 | Compliance

1 - IBR
2 - PED / CE
3 - NACE
X - NA
Z - Special/other

Position -15 | Special

X - NA
S - Special

Position -16 | Actuator Type

A - Multi Spring & Diaphragm w/o HW
B - Multi Spring & Diaphragm w/ TMH
C - Multi Spring & Diaphragm w/ SMH
D - Single Spring & Diaphragm w/o HW
E - Single Spring & Diaphragm w/ TMH
F - Single Spring & Diaphragm w/ SMH
G - Piston - SASR w/o HW
H - Piston - SASR w/ SMH
J - Piston - DASR w/o HW
K - Piston - DASR w/ SMH
L - Piston - DA w/o HW
M - Piston - DA w/ SMH
N - Electric
P - Hydraulic
Q - Electo-Hydraulic
R - Manual Handwheel
X - None
Z - Special

Position -17 | Actuator Model

2 - CM35
3 - CM60
4 - CM75
5 - M-230
6 - M-385
7 - M-700
8 - M-1400
9 - S-225
A - S-320
B - S-550
C - S-700
D - S-960
E - S-1400
F - PA150
G - PA250
H - PA330
J - PA400
K - PA500
L - SMH 250
M - SMH 330
N - SMH 400
P - SMH 500
Q - CP12
R - CP14
S - CP16
T - CP20
U - CP24
X - None
Z - Special

Position -18 | Accessories

1 - 1
2 - 2
3 - 3
4 - 4
5 - 5
6 - 6
7 - 7
8 - 8
9 - 9
X - NA
Z - Other

SPECIFICATION CIR3100

Plant Name :	Project Name :	End User :	Application :
Tag No:	Qty:	Fluid :	Critical Pressure :

SERVICE/CONDITIONS

Sizing Properties	Units	Min Flow	Norm Flow	Max Flow	Shut-Off
Flow Rate					—
Inlet Pressure					
Outlet Pressure					—
Inlet Temperature					
Vapor Pressure					—
Rel. Density					—
Absolute Viscosity					—
Specific Heat Ratio					—
Molecular Weight					—
Compressibility Factor					—
Allowable Noise (dBA)					—

LINE

- Inlet Pipe Size & Sch.
- Outlet Pipe Size & Sch.
- Pipe Insulation

VALVE/BODY/BONNET

- Body Type
- Body Size
- Pressure Class
- Design Press. & Temp
- Body/Bonnet Mat'l
- End Connection
- Flow Direction
- Type of Bonnet
- Packing Mat'l

TRIM

- Trim Type
- Cage Type
- Characteristic
- Trim Material

LOC.

- Equip. Location
- Amb. Temp. Min/Max
- Area Classification
- PED Category

ACTUATOR

- Type
- Service
- Air Fail Action
- Min & Max. Allow. Press.
- Orientation
- Handwheel
- Tubing & Fittings

POSITIONER

- Input Signal
- Type/Protocol
- Gauges
- By-Pass
- Position Feedback
- Certification / Compliance

AIR SET

- Range
- Filter
- Gauge
- Set Pressure

SOL

- Type
- Quantity
- Voltage
- Certification / Compliance

SWITCHES

- Type
- Contacts/Rating
- Actuation Points
- Certification / Compliance

TEST

- Hydrotest
- Seat Leakage
- Special Testing

Special Notes

OUR CREDENTIALS

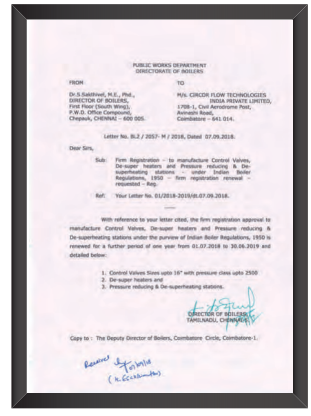
ISO 9001-2015

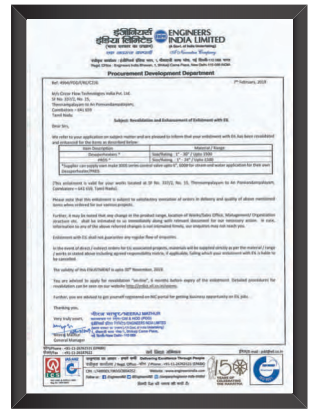
IMS: ISO 14001:2015 & ISO 45001:2018

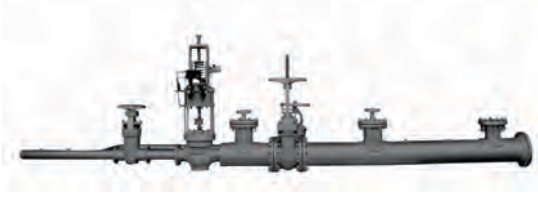
Indian Boiler Regulation approved

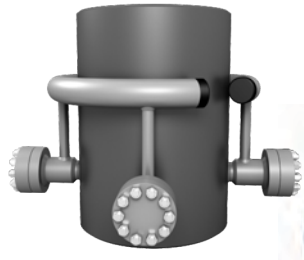
Certified PED 2014/68/EU & CE Marked

Enlisted / Approved by major customers









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Ver1.2/Sep/2019