



DLO CONTROL VALVE

DLO(S)-2 CONTROL VALVE

SIZES 1/2" – 4"
ANSI CLASS 125/250, 150/300

- **Cage Retained Seat** eliminates threaded internal parts
- **Top Entry** permits easy in line maintenance
- **Highest Cv's** of any comparable single seated valve
- **Two Point Stem Guide** minimizes trim wear and seat leakage
- **Tight Shutoff** with choice of seat materials for Class IV, V or VI
- **Multiple Trim Selections** to suit a wide variety of applications
- **One Piece Plug and Stem** ensures proper alignment and will not separate
- **Bolted Actuator Yoke** guarantees easy disassembly
- **Ultra Compact Actuators** install in tight spaces

APPLICATION DATA

- Process control systems for food, pulp and paper, chemical, petrochemical & other industries
- HVAC systems
- Feed water and fuel system controls in boiler rooms
- Packaged systems (OEM) such as heat exchangers, water purification systems & vaporizers, metal cleaning and plating

OPTIONS

- Soft Seats
- Threaded, Flanged, Butt weld or Socket weld Connections
- Reduced Port Trim

MODELS

- U851 — Cast Iron
- U853 — Cast Steel
- U854 — SST

APPLICABLE CODES See Reference Section on page 195

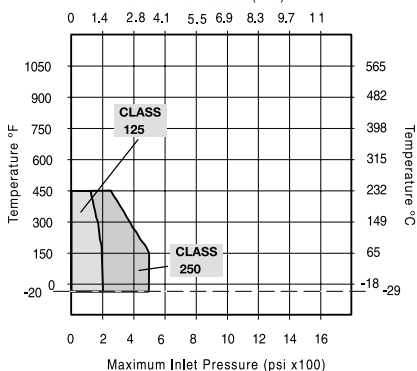
RANGEABILITIES

Trim Type	Ratio
1/4" MT (Microtaper®)	55:1
1/4-1/2"	25:1
3/4-2"	35:1
2 1/2-3"	40:1
4"	50:1

Valve Size	Full Port Cv	Cv's-Reduced Trim								
		¾"MT	¾"	½"	¾"	1"	1½"	2"	2½"	3"
½"	4	.5	1.5	—	—	—	—	—	—	—
¾"	9	.5	1.5	4.1	—	—	—	—	—	—
1"	15	.5	1.5	4.1	9.1	—	—	—	—	—
1½"	30	—	—	—	9.3	15.2	—	—	—	—
2"	57	—	—	—	—	15.4	30.3	—	—	—
2½"	83	—	—	—	—	—	30.9	57.4	—	—
3"	120	—	—	—	—	—	30.9	58.0	83.0	—
4"	201	—	—	—	—	—	—	58.9	83.0	120

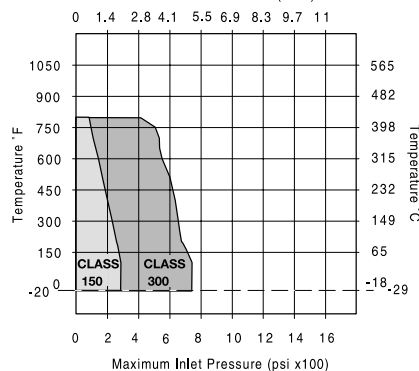
CAST IRON A126 CLASS B

Maximum Inlet Pressure (MPa)



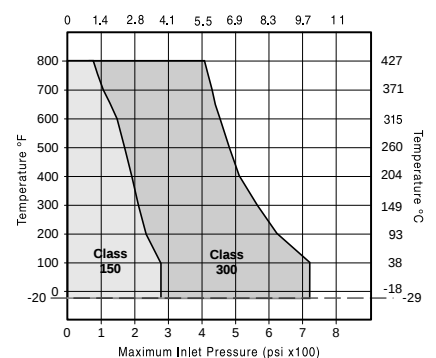
CARBON STEEL A216 Gr. WCB - Standard Class

Maximum Inlet Pressure (MPa)



316 STAINLESS STEEL CF8M CLASS A - Standard

Maximum Inlet Pressure (MPa)



DLO(S)-2 CONTROL VALVE

SPECIFICATION

LINEAR

BODY ASSEMBLY:

Style: Single seated, top entry bolted bonnet, globe style body, cage retained seat, unbalanced plug

ANSI Body Ratings:

Cast Iron: Class 125 & 250
(DIN ND16 & ND25)

Steel and alloys: Class 150 & 300
(DIN ND 16 & ND40)

BODY/BONNET MATERIALS:

Cast Iron, ASTM A126 Class B
Carbon Steel, ASTM A216 Gr WCB
316 stainless steel, ASTM A351 Gr CF8M

Note: See ANSI B16.1 (cast iron) or ANSI B16.34 (other materials) for pressure/temp. limits of body/bonnet assemblies.

SIZES: ½" - 4"

END CONNECTIONS:

ANSI Class 125/150 Integral Flanged, 1" - 4"
ANSI Class 250/300 Integral Flanged, 1" - 4"
Threaded, NPT - ½" - 2":

Cast iron - ANSI Class 250 rated

Steel & alloys - ANSI Class 300 rated

Socketweld ends (Sch. 40) ½" - 2"

Buttweld ends (Sch. 40) 2½" - 4"

DIN Flanges: ND-16, ND-25,
ND-40

BONNET:

Through-bolted bonnet

BODY/BONNET BOLTING:

ASTM A-193 GRB7 Studs

ASTM A-194 GR2H Nuts

STEM PACKING:

PTFE V-Rings, -40 to 460°F (-22 to 238°C)

Braided PTFE/Graphite (Split-ring),
-40 to 500°F (-22 to 260°C)

Laminated Graphite, -320 to 800°
(-195 to 426°C)

PACKING STUDS, NUTS & FOLLOWER:

300 Series Stainless Steel

GASKETS:

Body gasket: Spiral wound AISI Type 316L

Seat/Body Gasket:

DLO-2 - Filled PTFE, 460°F (238°C)

DLOS-2 - Graphite filled Inconel* 600
750°F (399°C)

TRIM SIZES:

Full, reduced port, Microtaper®

TRIM MATERIAL:

316SS; 316SS/Stellited

FLOW CHARACTERISTICS:

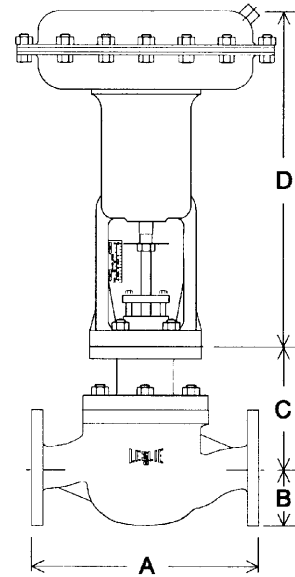
Linear or equal percent - standard

Modified linear - optional

SHUT-OFF CLASS:

Metal/metal seats - ANSI/ISA 70-2 Class IV,
Class V optional to 750°F (399°C)

Metal/PTFE seats - ANSI/ISA 70-2 Class VI,
bubble-tight to 460°F (238°C)

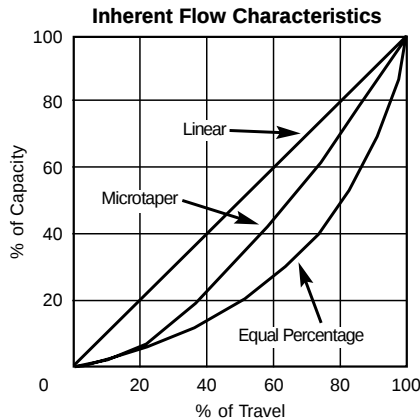
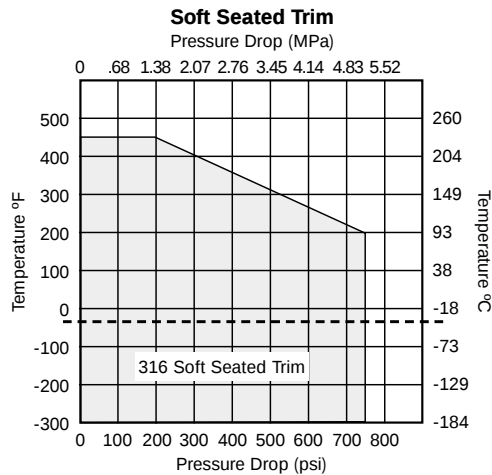
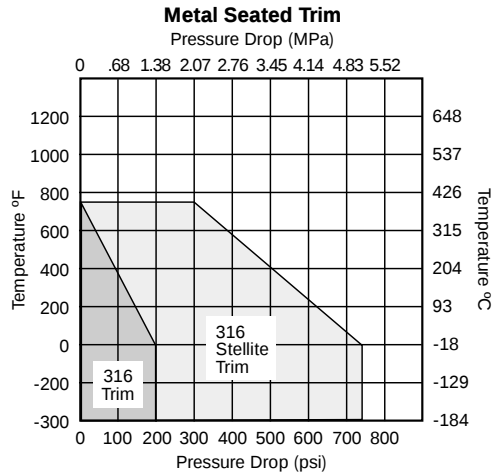


DIMENSIONS¹ inches (mm) AND WEIGHTS pounds (kg)

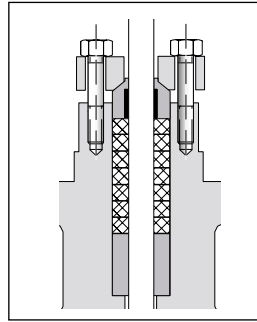
SIZE	A		B		C	D	WEIGHT				
	THD, 250,300 ² (ND25,40)	125,150 (ND16)	CI	CS			THD	125 (ND16)	150 (ND16)	250 (ND25)	300 (ND40)
½ (15)	7¼ (197)	—	2¾ (60)	—	5¼ ₁₆ (145)	12¾ (314)	54 (23.6)	—	—	—	—
¾ (20)	7¼ (197)	—	2¾ (60)	—	5¼ ₁₆ (145)	12¾ (314)	54 (23.6)	—	—	—	—
1 (25)	7¼ (197)	7¼ (184)	2¾ (57)	2¾ (57)	5¼ ₁₆ (145)	12¾ (314)	54 (23.6)	54 (28.6)	54 (28.6)	56 (25.4)	65 (25.4)
1½ (40)	9¼ (235)	8¾ (222)	2¾ (60)	2¾ (60)	7¾ (187)	12¾ (314)	63 (28.6)	70 (31.8)	70 (31.8)	70 (32.7)	72 (32.7)
2 (50)	10½ (267)	10 (254)	3 (76)	3 (76)	7¾ (194)	15¼ (387)	70 (31.8)	91 (41.3)	91 (41.3)	95 (43.2)	95 (43.2)
2½ (65)	11½ (292)	10¾ (276)	3¾ (92)	3¾ (98)	8 (203)	15¼ (387)	—	108 (59)	107 (57.7)	114 (51.7)	115 (52.7)
3 (80)	12½ (318)	11¾ (298)	3¾ (98)	3¾ (98)	8¾ (213)	15¼ (387)	—	130	127	141 (64.1)	138 (62.7)
4 (100)	14½ (393)	13¾ (385)	5 (127)	4¾ (123)	10¾ ₁₆ (259)	19¾ (499)	—	231 (104.8)	271 (98.5)	248 (112.5)	236 (107.1)

1. Threaded available in 1/2" to 2" only.

2. BWE same as 300# Flanged.

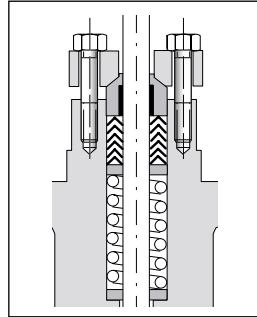


PACKING CONFIGURATIONS



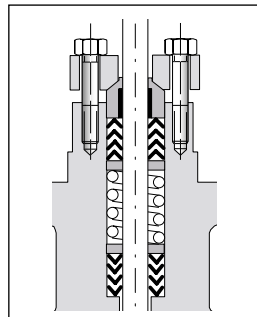
BRAIDED TEFLON GRAPHITE

Split rings allow packing replacement without removal of actuator. Graphite impregnated PTFE provides 500°F (260°C) service temperature, better memory and sealing than pure PTFE rings, lowered stem hysteresis, and is ideal for fluids that contain suspended particles.



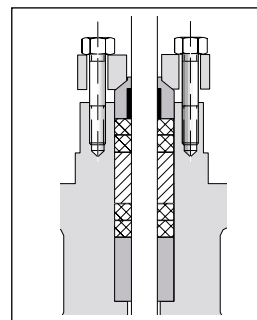
PTFE - V-RING

Live-loaded PTFE V-ring packing provides the most maintenance free stem seal. The V-ring packing is both pressure energized and live-loaded by a 304 stainless steel spring to automatically compensate for packing wear. Maximum service temperature is 460°F (238°C).



DOUBLE PTFE V-RING

Inverted sets of PTFE V-ring packing provide tight sealing in valves which may be controlling pressure or vacuum at different times. Maximum temperature 460°F (238°C).



HIGH TEMPERATURE LAMINATED GRAPHITE

Precision die-cut laminated graphite rings provide a reliable, tight stem seal to operating temperatures of 800°F (426°C).

DLO TRIM SELECTION



Trim	Maximum Service Temp.	Plug ¹	Seat Ring	Stem	Cage	Guide Bushings	ANSI/ISA 70-2 Shutoff
Standard	450/750°F ² (232/398°C) ²	AISI Type 316 SS	AISI Type ³ 316 SS	AISI Type 316 SS	ASTM A351 CF8M SS	Nitronic 60	IV,V ⁴
High Temperature	750°F (398°C)	AISI Type 316 SS Stellite	AISI Type 316 SS Stellite	AISI Type 316 SS	ASTM A351 CF8M SS	Nitronic 60	IV,V ⁴
Soft Seated	460°F (238°C)	AISI Type 316 SS	AISI Type 316 SS w/PTFE Insert	AISI Type 316 SS	ASTM A351 CF8M SS	Nitronic 60	VI

1. Microtaper plugs are solid stellite alloy.
2. Maximum is 450°F when used with Cast Iron bodies.
3. Stellite seat optional.
4. On application.

DLO(S)-2 ORDER CODE

Class	Material				Valve Size	End Conn.	Actuator	Bonnet Packing	Trim Size	Trim Type	Accessories
U	8	5	1	A	1	A	1	D	F	0	
1	2	3	4	5	6	7	8	9	10	11	

Class - Position 1 U
Material - Position 2, 3 & 4 851 = Iron 853 = Carbon Steel 854 = SST
Valve Size - Position 5 A = ½ B = ¾ C = 1 E = 1½ F = 2 G = 2½ H = 3 J = 4
End Connection - Position 6 1 = Threaded 2 = Flanged 125/150 3 = Flanged 250/300 4 = SWE Sch. 40 (steel only) 5 = BWE Sch. 40 (steel only) 6 = ND16 (steel only) 7 = ND40 8 = SWE Sch. 80 (steel only) 9 = BWE Sch. 80 (steel only) 0 = Other (Specify)

Actuator - Position 7 A = 35 B = 35R C = 35 HOD D = 35R HOD E = 55 F = 55R G ¹ = 55A H ¹ = 55AR I = 55 HOD J = 55R HOD K ¹ = 55A HOD L ¹ = 55AR HOD M = 85 N = 85R P = 85 HOD Q = 85R HOD X = w/o Actuator
Bonnet & Packing - Position 8 1 = Std. Bonnet, BTG 2 = Std. Bonnet, Teflon® V-Ring 3 = Std. Bonnet, LG 4 = Std. Bonnet, Double Teflon®

Trim Size - Position 9 B ² = ¼ D = ½ G = ¾ J = 1 L = 1½ M = 2 N = 2½ P = 3 R = 4
Trim Type - Position 10 B ² = Micro-Taper F = Equal % 316 SS G ³ = Equal % 316 SS/TFE (RES) H = Equal % 316 SS/Stellite J = Linear 316 SS K ³ = Linear 316 SS/TFE (RES) L = Linear 316 SS/Stellite
Number of Accessories - Position 11 1 = 1 accessory 2 = 2 accessories 3 = 3 accessories 4 = 4 accessories 5 = 5 accessories 6 = 6 accessories 7 = 7 accessories 8 = 8 accessories 9 = 9 accessories 0 = 0 accessories

LINEAR

TRIM AVAILABILITY CHART

TRIM DIA	CV ⁴	STROKE	BODY SIZE (IN)								ACTUATOR ¹			
			½	¾	1	1½	2	2½	3	4	35(R)	55 (R)	55A(R)	85(R)
½MT	0.5	¾	●	●	●	—	—	—	—	—	●	●	—	—
¼	1.5	¾	●	●	●	—	—	—	—	—	●	●	—	—
½	4	¾	●	●	●	—	—	—	—	—	●	●	—	—
¾	9	¾	—	●	●	●	—	—	—	—	●	●	—	—
1	15	¾	—	—	●	*	●	—	—	—	●	●	—	—
1½	30	¾	—	—	—	●	*	●	●	—	●	●	—	—
2	57	1	—	—	—	—	●	*	*	●	—	—	●	●
2½	83	1½	—	—	—	—	—	●	—	—	—	—	●	●
3	120	1½	—	—	—	—	—	—	●	—	—	—	●	●
4	201	2	—	—	—	—	—	—	—	●	—	—	●	●

1. 55A(R) used on trim sizes 2 through 4 only (Stem Connection 1/2").
2. Microtaper is available in 1/4" Stellite only Code BB.
3. Resilient seat DLOA, DLOAS available with full size trim only.
4. Minimum Cv controllable is Cv from table divided by rangeability.

* Consult factory.

DLO(S)-2 Linear Valve Specification Form



A Division of CIRCOR International, Inc.
12501 Telecom Drive · Tampa, Florida 33637
(813) 978-1000 · FAX: (813)-978-0984

CONTROL VALVE SPEC SHEET

Project/Job _____
Unit/Customer _____
P.O./LCO File # _____
Item _____
Contract _____
MFR Serial# _____

Data Sheet _____ of _____
Spec _____
Tag _____
Dwg _____
Service _____

Fluid

☐ Steam ☐ Water ☐ Gas _____ ☐ Liquid _____

Crit Pres PC

Service Conditions

Flow ☐ #/hr ☐ gpm ☐ scfh ☐ _____
Inlet Pressure ☐ psig ☐ psia ☐ _____
Outlet Pressure ☐ psig ☐ psia ☐ _____
Temperature ☐ °C ☐ °F _____
Max Press/Temperature: _____ / _____
Density/MW/SG _____ / _____ / _____
Viscosity _____ CP
Vapor Pressure ☐ psia ☐ _____
Required C_v _____ Noise (dBA) Allowable _____

Max. Flow

Norm. Flow

Min. Flow

Shut-off Pressure

Line Info

Pipe Size In _____ /Sch _____ Pipe Size Out _____ /Sch _____

Valve, Body & Bonnet

Body Size in. ☐ ½ ☐ ¾ ☐ 1 ☐ 1½ ☐ 2 ☐ 2½ ☐ 3 ☐ 4
ANSI Class ☐ 125 ☐ 150 ☐ 250 ☐ 300 ☐ Other _____
Body/Bonnet Material: ☐ Cast Iron ☐ Cast Steel ☐ SST ☐ Other _____
End Conn. Inlet/Outlet: ☐ NPT ☐ SWE ☐ BWE Sch. _____ ☐ Int. Flanges ☐ Other _____
Packing Material: ☐ PTFE ☐ BTG ☐ Laminated Graphite ☐ DTFE ☐ Other _____

Trim Size

☐ MT ☐ ¼ ☐ ½ ☐ ¾ ☐ 1 ☐ 1½ ☐ 2 ☐ 3 ☐ 4
☐ MT ☐ =% ☐ Linear
☐ 316SS ☐ 316SS / Stellite ☐ 316SS / TFE

Actuator

Spring Action: ☐ Air to Open ☐ Air to Close ☐ Last Position ☐ Other _____ ☐ None
Available Air Supply Pressure: Max. _____ Min. _____
Manual Override: ☐ Yes ☐ No ☐ Type _____

Solenoid

☐ Yes ☐ No ☐ Type _____ ☐ Voltage _____

Positioner

☐ Yes ☐ No ☐ Type _____ ☐ Pneu ☐ E/P

Switch

☐ Yes ☐ No ☐ Type _____ ☐ Voltage _____

Air Set

☐ Yes ☐ No ☐ Type: _____ ☐ Range: _____

Other Accessories

☐ Yes ☐ No ☐ Type _____

Test

ANSI/FCI Leakage Class: ☐ IV ☐ V ☐ VI

QUESTIONS? CALL LESLIE CONTROLS @ (813) 978-1000 PLEASE FAX COMPLETED FORM TO: (813) 977-0174