

DLO (S)

SERIES 2 CONTROL VALVE

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DLO (S)-2 Control Valve



The DLO (S)-2 cage-retained control valves are designed for general purpose control of clean, dirty, viscous or corrosive liquids, as well as low to medium pressure, clean or dirty steam and gas service.

The cage-retained seat design eliminates the need or use of any threaded internal parts insuring ease of maintenance and parts replacement even after years in corrosive service. Top entry design also permits easy access to all internal parts for inspection or maintenance without removal of the valve from the pipeline. The DLO-2 class also features the highest Cv capacity of any comparable single seated valve in the industry providing maximum flows and minimum pressure losses. Two point stem guiding provides rigid plug guiding and makes these valves especially suited for controlling dirty liquids or steam.

Through-bolted bonnet on cast steel and stainless steel valves, in lieu of bonnet studs, makes valve servicing easy, even after many years of service in corrosive environments.

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

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DLO (S)-2 Control Valve



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

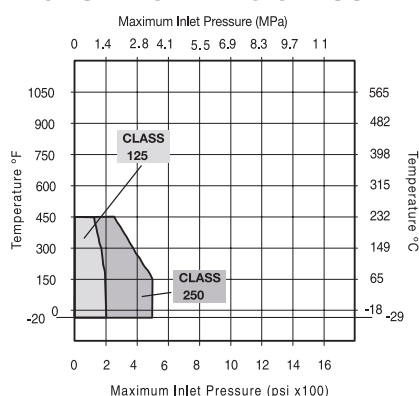
OPTIONS

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

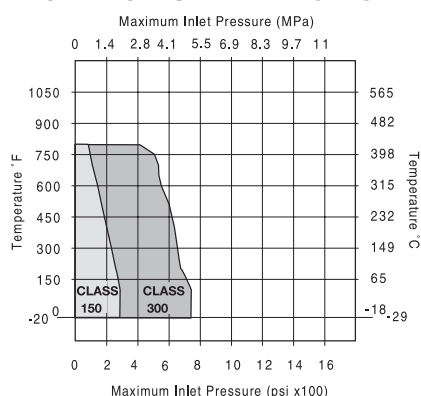
MODELS

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

CAST IRON A126 CLASS B



CARBON STEEL A216WCB



Cv's-Reduced Trim

VALVE SIZE	FULL PORT CV	1/4" MT	1/4"	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"
1/2"	4	.5	1.5	—	—	—	—	—	—	—
3/4"	9	.5	1.5	4.1	—	—	—	—	—	—
1"	15	.5	1.5	4.1	9.1	—	—	—	—	—
1 1/2"	30	—	—	—	9.3	15.2	—	—	—	—
2"	57	—	—	—	—	15.4	30.3	—	—	—
2 1/2"	83	—	—	—	—	—	30.9	57.4	—	—
3"	120	—	—	—	—	—	30.9	58	—	—
4"	201	—	—	—	—	—	—	58.9	—	126

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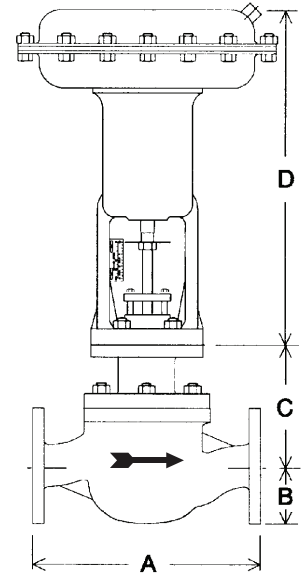


DLO (S)-2 Control Valve

Dimensions and Weights

Dimensions - inches (mm) and Weights - pounds (kg)

Size	A		B		C	D	Weight				
	THD. 250,300 (ND25,40)	125,150 (ND16)	CI	CS			THD	125 (ND16)	150 (ND16)	250 (ND25)	300 (ND40)
1/2 (15)	7 3/4 (197)	—	2 3/8 (60)	—	5 1 1/16 (145)	12 3/8 (314)	54 (23.6)	—	—	—	—
3/4 (20)	7 3/4 (197)	—	2 3/8 (60)	—	5 1 1/16 (145)	12 3/8 (314)	54 (23.6)	—	—	—	—
1 (25)	7 3/4 (197)	7 1/4 (184)	2 1/4 (57)	2 1/4 (57)	5 1 1/16 (145)	12 3/8 (314)	54 (23.6)	54 (28.6)	54 (28.6)	56 (25.4)	56 (25.4)
1 1/2 (40)	9 1/4 (235)	8 3/4 (222)	2 3/8 (60)	2 3/8 (60)	7 3/8 (187)	12 3/8 (314)	63 (28.6)	70 (31.8)	70 (31.8)	70 (32.7)	70 (32.7)
2 (50)	10 1/2 (267)	10 (254)	3 (76)	3 (76)	7 5/8 (194)	15 1/4 (387)	70 (31.8)	91 (41.3)	91 (41.3)	95 (43.2)	95 (43.2)
2 1/2 (65)	11 1/2 (292)	10 7/8 (276)	3 5/8 (92)	3 7/8 (98)	8 (203)	15 1/4 (387)	—	108 (59)	107 (57.7)	114 (51.7)	115 (52.7)
3 (80)	12 1/2 (318)	11 3/4 (298)	3 7/8 (98)	3 7/8 (98)	8 3/8 (213)	15 1/4 (387)	—	130	127	141 (64.1)	138 (62.7)
4 (100)	14 1/2 (393)	13 7/8 (385)	5 (127)	4 3/4 (123)	10 3/16 (259)	19 5/8 (499)	—	231 (104.8)	271 (98.5)	248 (112.5)	236 (107.1)



* Threaded Cast Iron available in 1/2" to 2" only. Threaded Carbon Steel available in 1", 1-1/2" and 2" only.
Flanged valves available in 1" to 4" only.

DLO (S)-2 Specifications

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 & ND40)
Steel and alloys: Class 150 & 300 (DIN ND16 & ND25)

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

1/2"-4" (13-102mm)

END CONNECTIONS

ANSI Class 125/150 Integral Flanged, 1"-4"
ANSI Class 250/300 Integral Flanged 1"-4" threaded,
NPT 1/2" - 2":
• Cast Iron - ANSI Class 250 rated
• Steel & alloys - ANSI Class 300 rated

Socketweld ends (Sch. 40) 1/2" - 2"
Buttweld ends (Sch. 40) 2 1/2" - 4"
DIN Flanges: ND16, ND25, ND40

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°F (-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 Port
Reduced Port
Microtaper®

TRIM MATERIAL

316SS
316SS/Stellited

FLOW CHARACTERISTICS

Linear or equal percent - standard
Modified linear - optional

SHUTOFF CLASS

Metal/metal seats - ANSI/ISA 70-2 Class IV, Class V optional to 450°F (399°C)
Metal/PTFE seats - ANSI/ISA 70-2 Class IV, bubble-tight to 460°F (238°C)

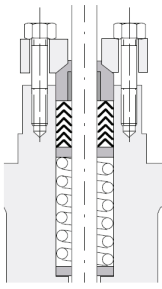
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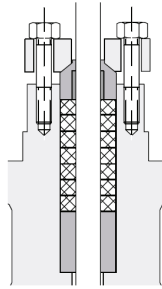


PACKING CONFIGURATIONS



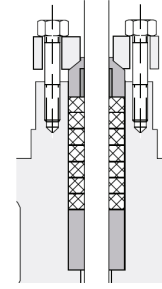
PTFE - V-Ring

PTFE V-ring packing provides the most maintenance free stem seal. The V-ring packing is both pressure and spring energized to automatically compensate for packing wear. Maximum service temperature is 460°F (238°C). V-rings can be inverted for vacuum service.



PTFE/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.



High Temperature Laminated Graphite

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

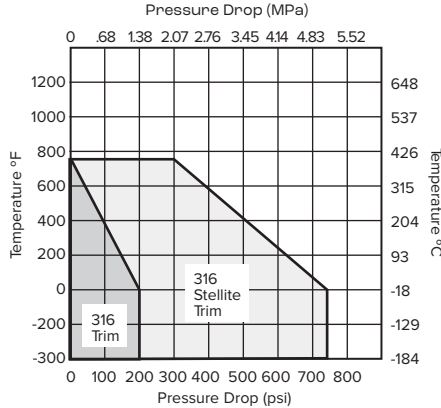
DLO TRIM SELECTION

Balance Plug Trim Material

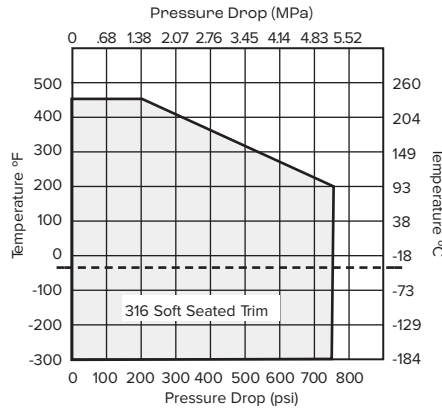
Trim Type	Max. Service Temp.	Plug†	Seat Ring	Stem	Cage	Guide Bushings	ANSI/ISA 70-2 Shutoff
Standard	450/750°F†††† (232/398°C)††††	AISI Type 316 SS	AISI Type 316 SS††	AISI Type 316 SS	ASTM A351 CF8M SS	Nitronic 60	IV, V†††
High Temperature	750°F (398°C)	AISI Type 316 SS Stellite	AISI Type 316 SS Stellite	AISI Type 316 SS	ASTM A351 CF8M SS	Nitronic 60	IV, V†††
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

† Microtaper plugs are solid stellite alloy. †† Stellite seat optional. ††† On application. †††† Maximum is 450°F when used with cast iron bodies.

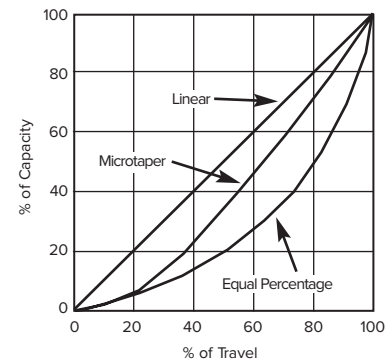
Metal Seated Trim



Soft Seated Trim



Inherent Flow Characteristics



LINEAR CONTOUR



EQUAL PERCENTAGE



MICROTAPER®



Rangeabilities

Trim Type (inches)	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

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Designs, materials, weights and performance ratings are approximate and subject to change without notice. Visit controlvalvesandheaters.com for up-to-date information.



DLO (S)-2 Control Valve Order Code

	Class	Material			Valve Size	End Connection	Actuator	Bonnet Packing	Trim Size	Trim Type
Code	U	8	5	1	A	1	A	1	D	F
Position	1	2	3	4	5	6	7	8	9	10

Class - Position 1

U

Material - Position 2, 3 & 4

851 = Iron
853 = Carbon Steel
854 = SST

Valve Size - Position 5

A = 1/2
B = 3/4
C = 1
E = 1 1/2
F = 2
G = 2 1/2
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 = ND 16 Steel only
7 = ND 40 Steel
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 = 55A[†]
H = 55AR[†]
I = 55 HOD
J = 55R HOD
K = 55A HOD[†]
L = 55AR HOD[†]
M = 85
N = 85R
P = 85 HOD
Q = 85R HOD
X = w/o Actuator

Bonnet & Packing - Position 8

1 = Standard Bonnet, braided Teflon[®] graphite package
2 = Standard Bonnet, Teflon[®] package
3 = Standard bonnet, laminated graphite package
4 = Standar bonnet, double Teflon[®] package

Trim Size - Position 9

B = 1/4
D = 1/2
G = 3/4
J = 1
L = 1 1/2
M = 2
N = 2 1/2
P = 3
R = 4

Trim Type - Position 10

B^{††} = Microtaper[®]
F = Equal % 316 SS
G = Equal % 316 SS/TFE
H = Equal % 316 SS/Stellite
J = Linear 316 SS
K = Linear 316 SS/TFE
L = Linear 316 SS/Stellite

[†] 55A(R) used on 2", 3" and 4" D(D)LO(A)(S)-2 only. 55R used on all other applicable valves.

^{††} Microtaper[®] is available in 1/4" Stellite only, code BB. Resilient sear DLOA. DLOAS available full size trim.

Trim Availability Chart

Trim Dia.	CV	Stroke	Body Size (inches)								Actuator			
			1/2	3/4	1	1 1/2	2	2 1/2	3	4	35(R)	55(R)	55A(R)	85(R)
1/4 MT	0.5	3/4	•	•	•	—	—	—	—	—	•	•	—	—
1/4	1.5	3/4	•	•	•	—	—	—	—	—	•	•	—	—
1/2	4	3/4	•	•	•	—	—	—	—	—	•	•	—	—
3/4	9	3/4	—	•	•	•	—	—	—	—	•	•	—	—
1	15	3/4	—	—	•	*	•	—	—	—	•	•	—	—
1 1/2	30	3/4	—	—	—	•	*	•	•	—	•	•	—	—
2	57	1	—	—	—	—	•	*	*	•	—	—	•	•
2 1/2	83	1 1/4	—	—	—	—	—	•	—	—	—	—	•	•
3	120	1 1/2	—	—	—	—	—	—	•	—	—	—	•	•
4	201	2	—	—	—	—	—	—	—	•	—	—	•	•

* Consult factory.

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