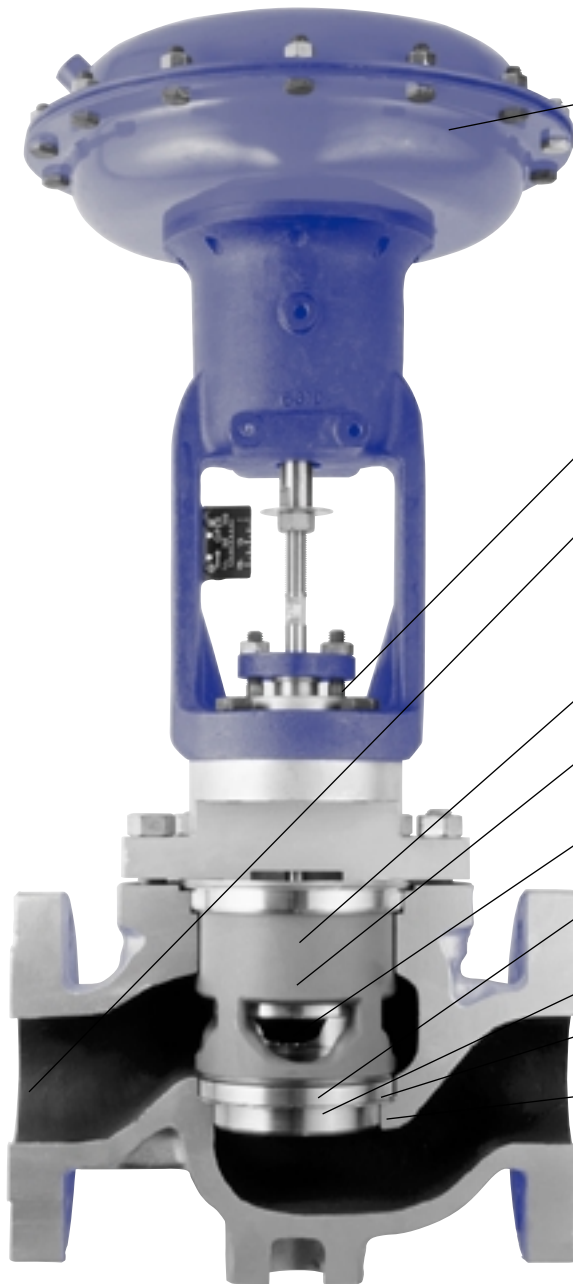


Applications

- 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 & vaporizer, metal cleaning and plating

DBOY Series Pneumatic Control Valve

Pressures to 1550 PSIG
Temperatures to 800°F



Ultra Compact Actuators
install in tight spaces

Bolted Actuator Yoke
Four bolt mounting
guarantees easy disassembly

High Flow Capacities
Provides larger flow area,
reduced body velocity
and pressure loss

Multiple Cage Options
for maximum versatility

Hung Cage Design
allows thermal expansion
without seat damage

Rugged Piston Seal
with three times the wear
surface of competitive valves
for long lasting leak tight seal

Hardened Stainless Steel Trim
provides twice the service
life of 316 stainless trim

Controlled Seat Loading
maintains constant seat gasket load

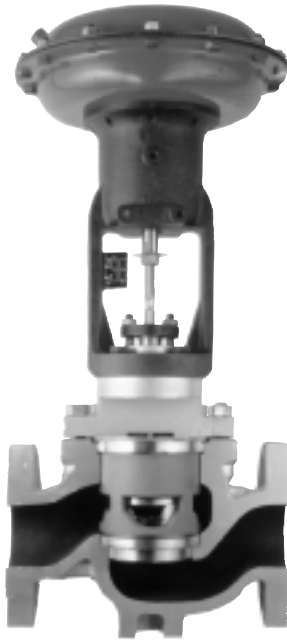
Balanced Plug Design
provides smooth high pressure control

Tighter Shutoffs to Class VI
Superior design provides
exceptional performance up to Class VI

DBOY(S) CONTROL VALVE

SIZES 2" – 8"

ANSI CLASS 125/250, 150/300, 600



DBOY(S)-3 CONTROL VALVE

APPLICATION DATA

- Control systems for food, pulp and paper, chemical, petrochemical, power & 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

- **High Flow Capacities** provide larger flow area, reduced body velocity and pressure loss
- **Bolted Actuator Yoke** guarantees easy disassembly
- **Controlled Seat Loading** maintains constant seat gasket load
- **Hung Cage Design** allows thermal expansion without seat damage
- **Hardened/Stainless Steel Trim** provides twice the service life of 316 stainless trim
- **Rugged Piston Seal** with three times the wear surface of competitive valves for long lasting leak tight seal
- **Multiple Cage Options** for maximum versatility
- **Balanced Plug Design** provides smooth high pressure control
- **Ultra Compact Actuators** install in tight spaces
- **Tighter Shutoff** design provides exceptional performance up to Class VI

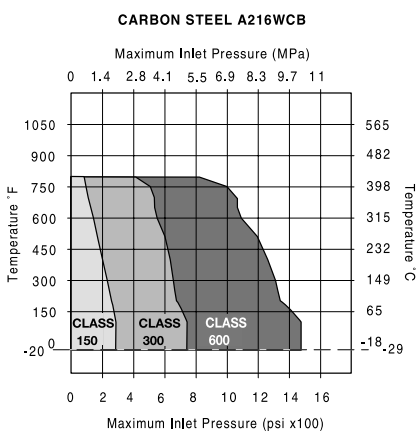
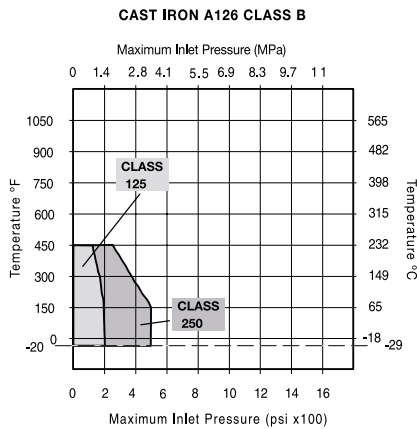
MODELS

- U841 — Cast Iron
- U843 — Carbon Steel
- U845 — Chrome Moly

OPTIONS

- 35, 55, 85 or 135 sq. in. Actuator, Reverse or Direct
- Soft Seats
- Threaded, Socketweld, Flanged and Butt-weld End Connections
- Positioners
- Noise and Cavitation Reducing Trim
- Reduced Flow Cage
- Alternate Packings for Severe Service
- High Temperature Trim

APPLICABLE CODES *See Reference Section*

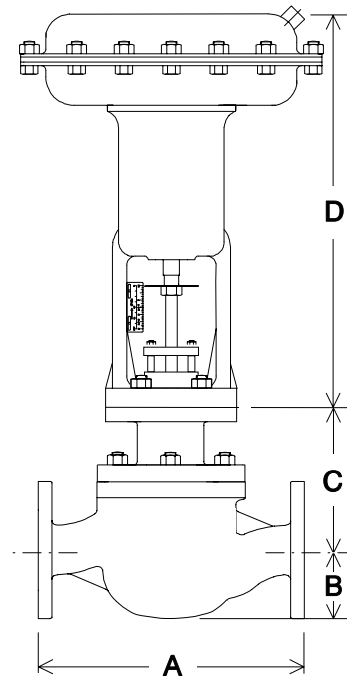


DBOY(S) CONTROL VALVE

WEIGHTS pounds (kg)

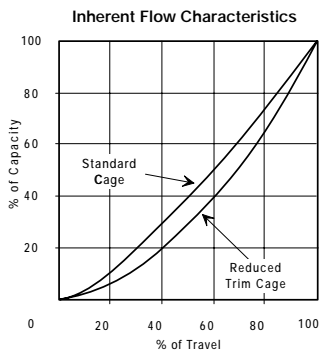
Size	CI			CS			
	NPT	125	250	NPT	150	300	600
2 (50)	80 (36.3)	85 (39)	88 (40)	45 (20.4)	85 (39)	88 (40)	90 (41)
2 1/2 (65)	—	125 (57)	130 (59)	—	125 (57)	130 (59)	135 (61)
3 (80)	—	145 (66)	152 (69)	—	145 (66)	152 (69)	158 (72)
4 (100)	—	190 (86)	198 (90)	—	190 (86)	198 (90)	205 (93)
6 (160)	—	460 (209)	480 (218)	—	450 (204)	470 (213)	485 (220)
8 (200)	—	625 (284)	640 (290)	—	600 (272)	635 (288)	660 (299)

*Weights are approximate.



* With standard actuator

DIMENSIONS inches (mm)



Size	A				B				C		D
	NPT	125,150 (ND-16)	250,300 (ND-25 ND-40)	600 (ND-100)	CI	CS *NPT,150 (ND-16)	CS 300 (ND-40)	CS 600 (ND-100)	CI	CS	
2 (50)	9 1/4 (235)	10 (254)	10 1/2 (267)	11 1/4 (286)	3 3/4 (95)	3 (76)	3 1/4 (83)	3 1/4 (83)	7 1/4 (184)	7 1/2 (181)	12 3/8 (314)
2 1/2 (65)	—	10 3/8 (276)	11 1/2 (292)	12 1/4 (311)	4 3/8 (111)	3 1/2 (89)	3 3/4 (95)	3 3/4 (95)	6 3/8 (168)	6 3/4 (168)	15 1/4 (387)
3 (80)	—	11 1/4 (299)	12 1/2 (318)	13 1/4 (337)	4 1/2 (114)	3 3/4 (95)	4 1/4 (105)	4 1/4 (105)	6 3/4 (175)	6 3/4 (175)	15 1/4 (387)
4 (100)	—	13 1/4 (352)	14 1/2 (368)	15 1/2 (394)	5 1/2 (140)	4 1/2 (114)	5 (127)	5 1/4 (137)	8 1/4 (206)	8 3/4 (219)	15 1/4 (387)
6 (160)	—	17 1/4 (451)	18 3/4 (473)	20 (508)	5 3/4 (149)	5 1/2 (140)	6 1/4 (159)	7 (178)	9 1/4 (248)	9 3/4 (248)	19 3/8 (499)
8 (200)	—	21 1/4 (543)	22 3/4 (568)	24 (610)	7 3/4 (194)	6 3/4 (172)	7 1/2 (191)	8 1/4 (210)	12 1/4 (311)	12 3/4 (311)	27 1/8 (695)

*NPT available in 2" only.

Valve Size	Full Port		40% Red.		Les-Sonic		Les-Cav		Stroke (in.)	Seat Dia.	Unbalanced Area (in ²)
	Cv	Range	Cv	Range	Cv	Range	Cv	Range			
2	65	30:1	26	20:1	48	30:1	32	14:1	0.750	2.3	0.14
2 1/2	90	40:1	36	25:1	70	40:1	40	17:1	0.875	2.9	0.18
3	125	40:1	50	25:1	97	40:1	63	20:1	1.00	3.5	0.21
4	205	50:1	82	30:1	156	50:1	103	25:1	1.25	4.6	0.28
6	435	50:1	174	30:1	349	50:1	217	25:1	2.00	6.9	0.42
8	760	50:1	304	30:1	579	50:1	304	25:1	2.75	9.2	0.56

DBOY SPECIFICATIONS

BODY ASSEMBLY:

Style: Single seated, top entry bolted bonnet, globe style body, cage guided balanced plug

ANSI Body Ratings:

Class 125 & 250 Cast Iron
Class 150, 300, & 600 Steel and Alloy

BODY/BONNET MATERIALS:

Cast Iron, ASTM A126 Class B
Carbon Steel, ASTM A216 Gr WCB
Chrome Moly, ASTM A217 Gr WC-9

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

See Reference Section

SIZES: 2"-8" (50-200mm)

END CONNECTIONS:

ANSI Class 125/150 Integral Flanged, 2-8"
ANSI Class 250/300 Integral Flanged, 2-8"
ANSI Class 600 Integral Flanged, 2-8"
Threaded, NPT - 2" only, (ANSI 250 Cast Iron Bodies), (ANSI 600 Carbon Steel & Alloy)
Socketweld - 2" only, (ANSI 600 Class)
Buttweld Ends
DIN Flanges: ND-16, ND-25,
ND-40, ND-64, ND-100

BONNET:

Bolted Bonnet, Standard

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)
PTFE/Graphite, -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/Bonnet and Seat Ring/Body:
Filled 304 stainless steel
500°F (260°C) Max.
Inconel/Graphite:
800°F (426°C) Max.

TRIM SIZES:

Full Port
40% reduced

PLUG (PISTON) SEAL MATERIALS:

Standard TFE/Graphite, max. temp. 500°
(Class IV shutoff)
Ni-Resist, max. temp. 800°F (Class III shutoff)

FLOW CHARACTERISTICS:

Modified Linear, Standard
Equal Percentage (w/ CAM Characterized Positioner)

SHUTOFF CLASS (ANSI /ISA 70-2):

Standard trim, 0-500°F(-18 to 260°C) Max.
Class IV (.01% Cv).
Metal/PTFE seats - Class VI, bubble tight to 460°F (238°C).
High-temp trim, 0-800°F(-18 to 426°C),
Class III (.1% Cv).
For optional Class IV or V shutoff above 500°F, contact factory.

TRIM MATERIAL COMBINATIONS:

See chart on following page

ACTUATORS:

Standard: Spring and Diaphragm
Optional:
Piston, Double Acting/Spring Return
Hydraulic
Electric
Electro-Hydraulic

PRESSURE RECOVERY FACTOR:

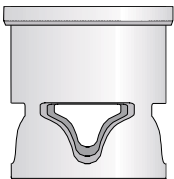
Liquid: $F_L = 0.8$
Gas: $X_T = 0.7$

Linear Valve Specification Form

DBOY HUNG CAGE DESIGN

Unlike competitor's valves (which use the cage to compress the seat ring into the body), Leslie's cage is suspended in the body from a machined shoulder. This eliminates bonnet gasket leakage, cage deformation, sticking plugs, seat gasket and body washout which can occur with cage retained seat designs. The Leslie hung cage design utilizes a 17-4 Ph stainless steel Belleville load ring to maintain a constant seat gasket load, even in temperature cycling service.

The Leslie DBOY Control Valves are specifically designed for high pressure drop service. Pressure drop, high velocities and throttling occur between the cage window and the plug, thereby protecting the seat ring and tight shutoff capability of the valve.

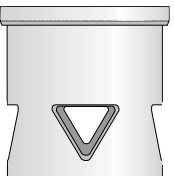
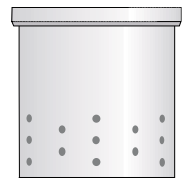


STANDARD CAGE

The full ported, standard cage, provides maximum flow with minimum pressure drop. The inherent modified linear flow characteristic provides excellent low flow control, high rangeability and maximum flows per given body size.

ANTI-CAVITATION CAGE

The Les-Cav cage eliminates the effects of valve cavitation providing a normal valve/trim life expectancy in cavitating conditions. Diametrically opposed holes, increase the valves cavitation index (Kc) and direct impinging flows to the center of the cage, preventing mechanical trim/body damage.

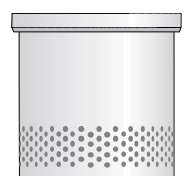


40% REDUCED TRIM CAGE

This optional cage reduces the maximum Cv and flow to 40% of the normal, full port valve. Used to provide body velocity control, future flow expandability, or to correct for oversized valve conditions.

NOISE REDUCING CAGE

The Les-Sonic cage is designed to reduce valve generated noise up to 10dBA in steam, gas or any compressible fluid service. When used in conjunction with a Les-Sonic silencing orifice, noise attenuations of 15-20dBA can be achieved.



DBOY TRIM MATERIAL SELECTION

Balanced Plug design allows line pressure under the plug to build up above the plug, effectively cancelling out any unbalanced stem force due to pressure. In addition to providing smooth, high pressure control, balanced plugs allow use of small, light, cost effective actuators. Class III, IV or VI shutoff can be provided.

The piston seal is critical to maintaining tight shutoff in any cage valve. The DBOY's heavy cupwasher style PTFE plug seal has three times the cross sectional area and wear surface of competitive valves. This provides tight shutoff longer than competitor's designs at both low and high pressures.

Table 1	Maximum Service Temp.	Plug	Seat Ring	Stem	Gaskets	ANSI/ISA 70-2 Shutoff
Standard Balanced Trim	500°F (260°C)	AISI 410 SS w/PTFE Seal	AISI Type 400 SS*	AISI Type 316 SS	Filled Type 304 SS	IV
High Temp. Trim	800°F (426°C)	AISI 410 SS w/ Ni-Resist Seal	AISI Type 400 SS Stellite	AISI Type 316 SS	Inconel Graphite	III
Soft-Seated Trim	500°F (260°C)	AISI 410 SS w/PTFE Seal	AISI Type 400 SS w/PTFE Insert	AISI Type 316 SS	Filled Type 304 SS	VI

* Stellite seat optional.



STANDARD BALANCED PLUG

Balanced plug design eliminates large stem forces allowing the use of small, cost-effective actuators. Provides smooth throttling control even at pressures to 1000 psi. Standard PTFE piston seal provides ANSI Class IV tight shutoff to temperatures of 500°F.

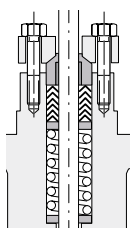
HIGH-TEMP BALANCED PLUG

Balanced plug with high-temp ni-resist or carbon piston seal provides ANSI Class III shutoff at temperatures up to 800°F.

SOFT SEATED TRIM

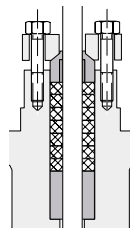
Balanced plug with PTFE piston seal and an optional seat design with PTFE insert provide ANSI Class VI bubble tight shutoff at temperatures up to 460°F.

PACKING CONFIGURATIONS



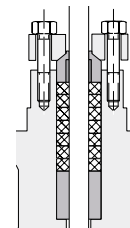
PTFE - V-RING

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). V-rings can be inverted for vacuum service.



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.

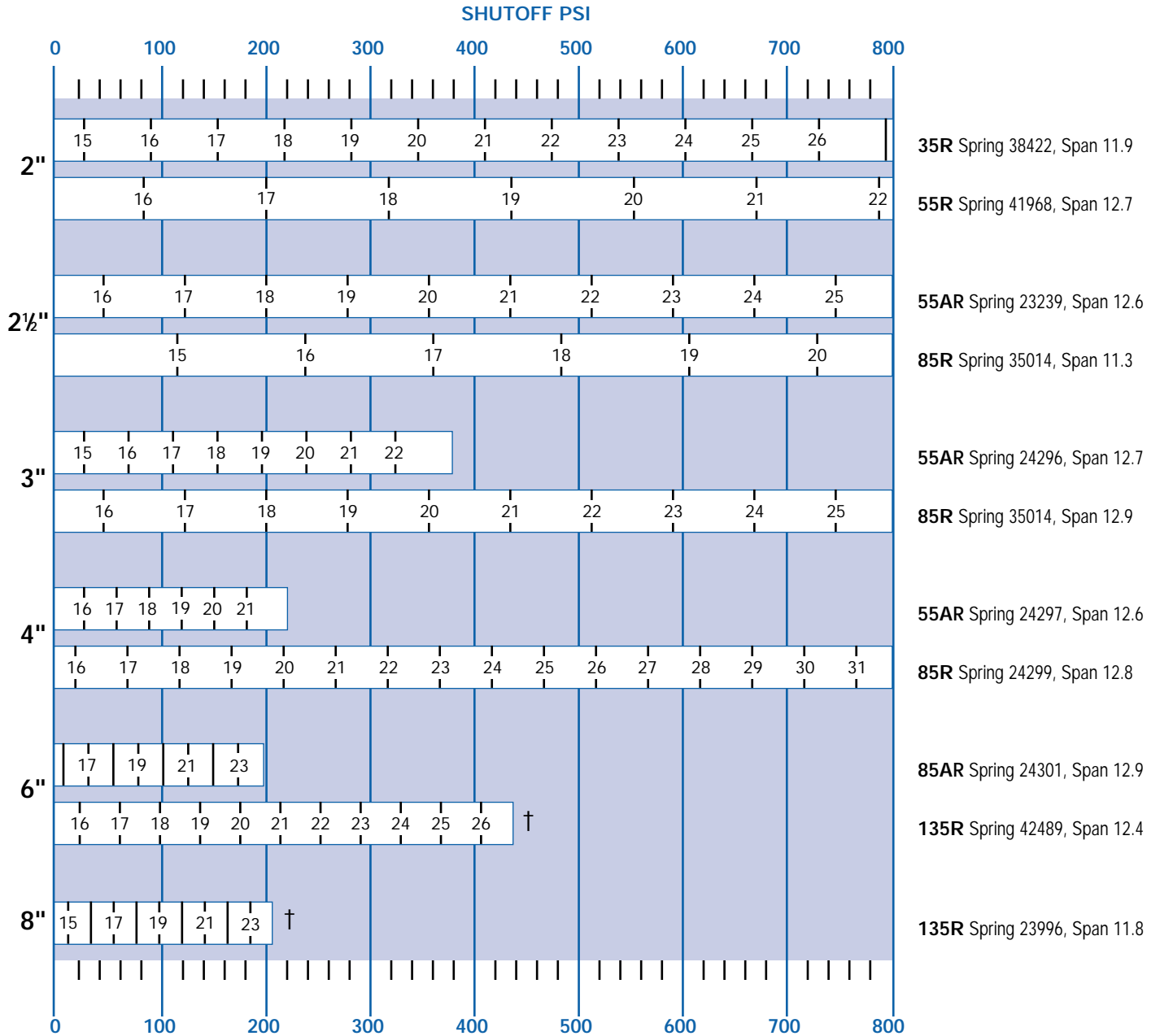


HIGH TEMPERATURE LAMINATED GRAPHITE

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

DBOY SHUTOFF TABLE - REVERSE ACTING

ACTUATOR SHUTOFF TABLE

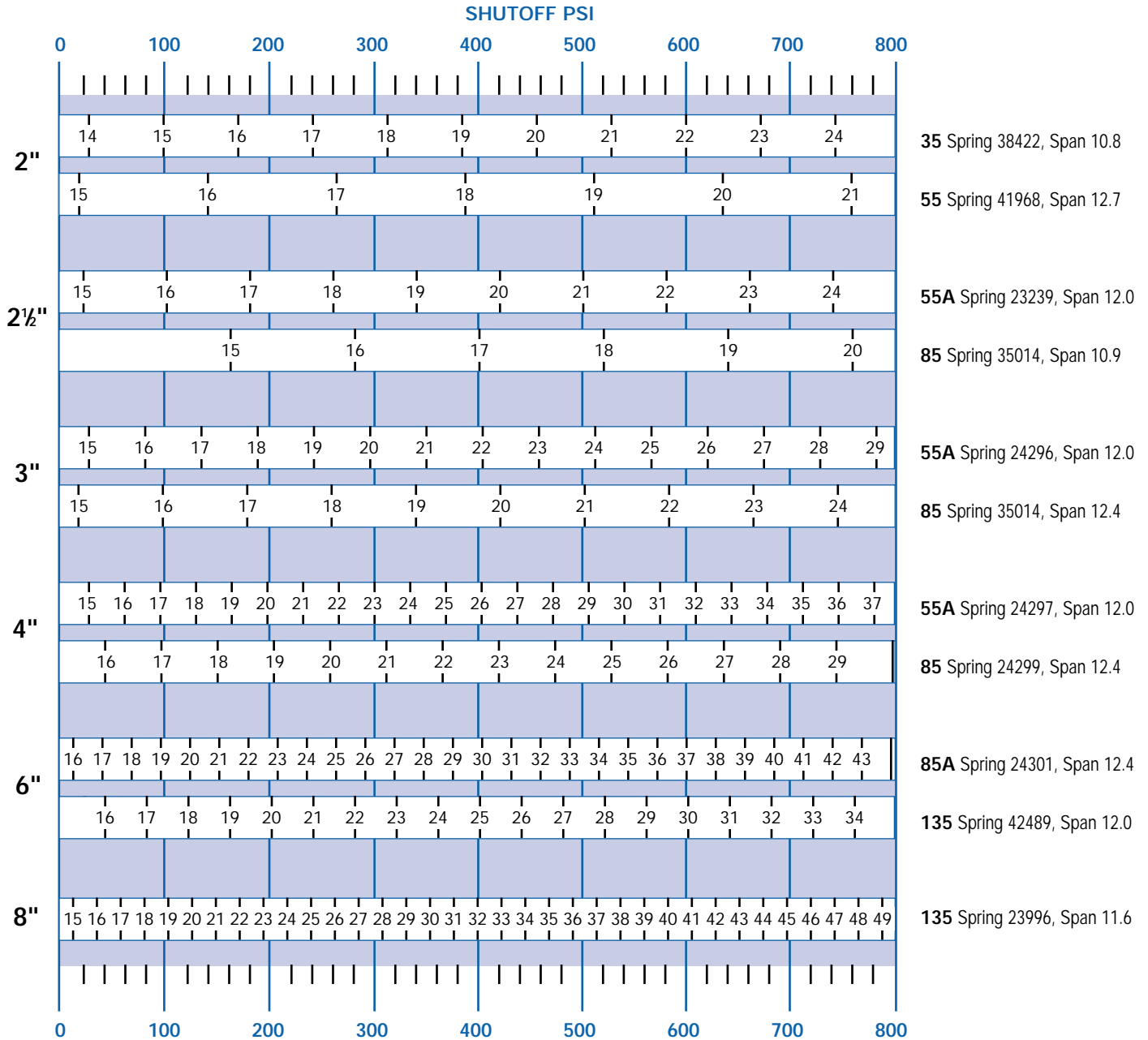


† For shutoff pressure above this value, consult factory.



DBOY SHUTOFF TABLE - DIRECT ACTING

ACTUATOR SHUTOFF TABLE



DBOY ORDER CODE

Class	Material			Valve Size	End Conn.	Actuator	Bonnet Packing	Trim Form	Trim Mat'l.
U	8	4	1	F	1	A	1	S	J
1	2	3	4	5	6	7	8	9	10

Class - Position 1 U
Material - Position 2, 3 & 4 841 = Iron 843 = Carbon Steel 845 = Chrome Moly, WC9
Valve Size - Position 5 F = 2 G = 2½ H = 3 J = 4 K = 6 L = 8
End Connection - Position 6 1 = Threaded 2 = Flanged 150 Steel Flanged 125 Iron 3 = Flanged 300 Steel Flanged 250 Iron 4 = SWE Steel 5 = BWE 40 Steel 6 = ND 16 Steel & Iron 7 = ND 40 Steel ND 10 Iron† 8 = Flanged 600† Steel 9 = BWE 80 Steel 0 = ND 100 Steel X = Other (Specify)

† 8" (200 mm) to
12" (300 mm)

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 = 85/85A††† N = 85R/85AR††† P = 85/85A HOD††† Q = 85R/85AR HOD††† R = 135 S = 135R T = 135 HOD U = 135R HOD V = 270* W = 270R* X = w/o Actuator or special Y = 270 HOD* Z = 270R HOD*
Bonnet & Packing - Position 8 1 = Std. Bonnet, Braided Teflon® Graphite Pkg. 2 = Std. Bonnet, Teflon® Pkg. 3 = Std. Bonnet, Laminated Graphite Pkg. 4 = Std. Bonnet, Double Teflon® Pkg.
Trim Form - Position 9 S = Full Capacity T = Reduced 40% Capacity V = Les-Cav W = Les-Sonic
Trim Material - Position 10 J = Standard 400 SS L = Stellite Hard faced P = DBOS, Hi-Temp HF V = TFE Soft Seat

†† 55/R used on 2"
D(D)BOY(S)-3;
55A/AR used on
2-1/2" - 4" valves.

††† 85A/AR used on
6" D(D)BOY(S)-3;
85/R used on
2-1/2" - 4" valves.

* Consult factory

