



## DBOY (S)

SERIES 3 CONTROL VALVE



[www.vaportec.us](http://www.vaportec.us)





## DBOY (S)-3 Control Valve

### Nuclear Power Plant Valves



12" DDBOY(S)(X)



8" DDBOY(S)(X)

DBOY Series Control Valves are rugged, reliable units specially designed for use in steam, water, gas, vapor, and non-corrosive liquid service. The balanced cage-throttling design permits these valves to be operated with small, compact and economical actuators against fluid pressure drops up to 1480 psig and temperatures up to 800°F.

#### SIZES 2" – 8"

#### ANSI CLASS 125/250, 150/300, 600

- 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 Plug 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

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Armstrong owns the exclusive rights to manufacture these legacy brands and OEM spare parts, adhering to the original specifications and drawings, and quality backed by the outstanding service, technical support and expertise Armstrong is known for. Armstrong International and its contractual representatives have exclusive rights to sell these product brands.

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# 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

## OPTIONS

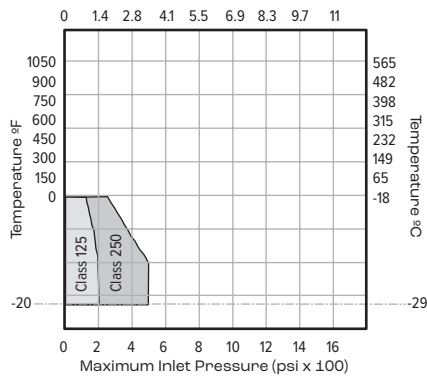
- | 35, 55, 85 or 135 sq. in. Actuator, Reverse or Direct
- | Soft Seats
- | Threaded, Socketweld, Flanged and Butt weld End Connections
- | Positioners
- | Noise and Cavitation Reducing Trim
- | Reduced Flow Cage
- | Alternate Packings for Severe Service
- | High Temperature Trim

## MODELS

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

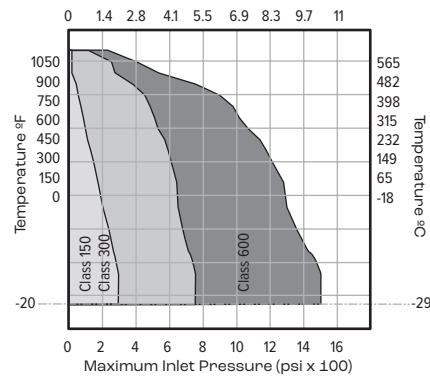
### CAST IRON

A126 Class B Maximum Inlet Pressure (MPa)



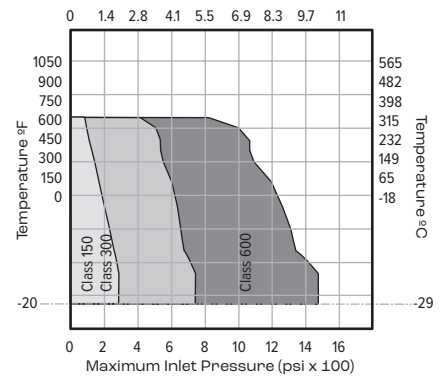
### CHROME MOLY

A2117WC9 Maximum Inlet Pressure (MPa)



### CARBON STEEL

A216 Gr. WCB - Standard Class Maximum Inlet Pressure (MPa)



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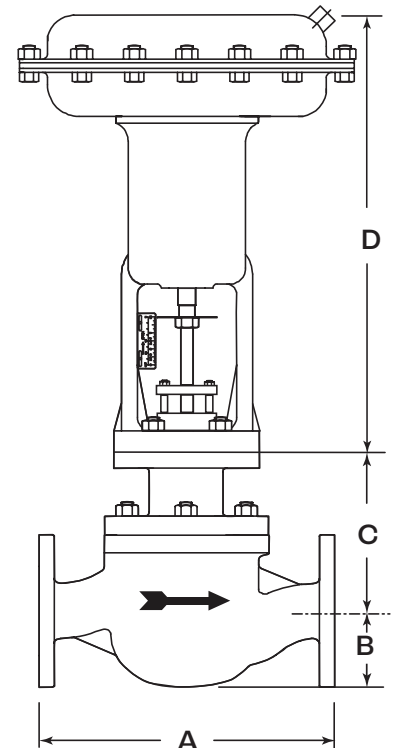
# DBOY (S)-3 Control Valve Dimensions and Weights

| Size       | “A”, “B” and “C” Dimensions - inches (mm) |                     |                                           |                 |             |                                            |                   |                    |              |              |
|------------|-------------------------------------------|---------------------|-------------------------------------------|-----------------|-------------|--------------------------------------------|-------------------|--------------------|--------------|--------------|
|            | A                                         |                     |                                           |                 | B           |                                            |                   |                    | C            |              |
|            | NPT                                       | 125, 150<br>(ND-16) | 250, 300<br>(ND-25 <sup>2</sup><br>ND-40) | 600<br>(ND-100) | CI          | CS<br>NPT <sup>1</sup> ,<br>150<br>(ND-16) | CS 300<br>(ND-40) | CS 600<br>(ND-100) | CI           | CS           |
| 2<br>(50)  | 9¼<br>(235)                               | 10<br>(254)         | 10½<br>(267)                              | 11¼<br>(286)    | 3¾<br>(95)  | 3<br>(76)                                  | 3¼<br>(83)        | 3¼<br>(83)         | 7¼<br>(184)  | 7⅞<br>(181)  |
| 2½<br>(65) | —                                         | 10⅞<br>(276)        | 11½<br>(292)                              | 12¼<br>(311)    | 4⅞<br>(111) | 3½<br>(89)                                 | 3¾<br>(95)        | 3¾<br>(95)         | 6⅞<br>(168)  | 6⅞<br>(168)  |
| 3<br>(80)  | —                                         | 11¾<br>(299)        | 13¼<br>(337)                              | 13¼<br>(337)    | 4½<br>(114) | 3¾<br>(95)                                 | 4⅞<br>(105)       | 4⅞<br>(105)        | 6⅞<br>(175)  | 6⅞<br>(175)  |
| 4<br>(100) | —                                         | 13⅞<br>(352)        | 14½<br>(368)                              | 15½<br>(394)    | 5½<br>(140) | 4½<br>(114)                                | 5<br>(127)        | 5⅜<br>(137)        | 8⅞<br>(206)  | 8⅞<br>(219)  |
| 6<br>(150) | —                                         | 17¾<br>(451)        | 18⅞<br>(473)                              | 20<br>(508)     | 5⅞<br>(149) | 5½<br>(140)                                | 6¼<br>(159)       | 7<br>(178)         | 9¾<br>(248)  | 9¾<br>(248)  |
| 8<br>(200) | —                                         | 21⅞<br>(543)        | 22⅞<br>(568)                              | 24<br>(610)     | 7⅞<br>(194) | 6¾<br>(172)                                | 7½<br>(191)       | 8¼<br>(210)        | 12¼<br>(311) | 12¼<br>(311) |

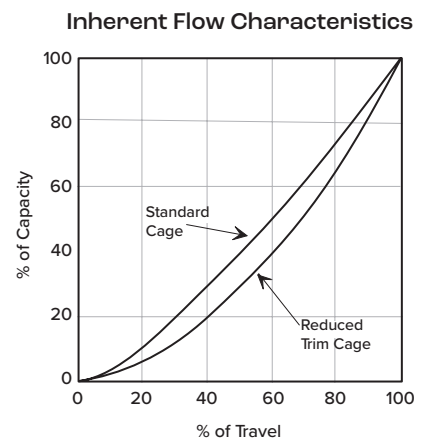
| Size       | “D” Dimensions - inches (mm) |              |              |             |              |             |              |              |              |              |              |              |
|------------|------------------------------|--------------|--------------|-------------|--------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|
|            | D                            |              |              |             |              |             |              |              |              |              |              |              |
| 2<br>(50)  | 35                           | 35R          | 55           | 55R         | 55(A)        | 55AR        | 85           | 85R          | 85A          | 85AR         | 135          | 135R         |
| 2<br>(50)  | 12⅜<br>(314)                 | 12⅜<br>(314) | 15¼<br>(387) | 18<br>(457) | —            | —           | —            | —            | —            | —            | —            | —            |
| 2½<br>(65) | —                            | —            | —            | —           | 15¼<br>(387) | 18<br>(457) | 19⅞<br>(499) | 23¼<br>(591) | —            | —            | —            | —            |
| 3<br>(80)  | —                            | —            | —            | —           | 15¼<br>(387) | 18<br>(457) | 19⅞<br>(499) | 23¼<br>(591) | —            | —            | —            | —            |
| 4<br>(100) | —                            | —            | —            | —           | 15¼<br>(387) | 18<br>(457) | 19⅞<br>(499) | 23¼<br>(591) | —            | —            | —            | —            |
| 6<br>(150) | —                            | —            | —            | —           | —            | —           | —            | —            | 22¼<br>(565) | 25⅞<br>(657) | 27⅞<br>(695) | 32¼<br>(819) |
| 8<br>(200) | —                            | —            | —            | —           | —            | —           | —            | —            | —            | —            | 27⅞<br>(695) | 32¼<br>(819) |

| Size       | Weights <sup>3</sup> - pounds (kg) |              |              |              |              |              |              |
|------------|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
|            | CI                                 |              |              | CS           |              |              |              |
|            | NPT                                | 125          | 250          | NPT          | 150          | 300          | 600          |
| 2<br>(50)  | 80<br>(36.3)                       | 85<br>(39)   | 88<br>(40)   | 45<br>(20.4) | 85<br>(39)   | 88<br>(40)   | 90<br>(41)   |
| 2½<br>(65) | —                                  | 125<br>(57)  | 130<br>(59)  | —            | 125<br>(57)  | 130<br>(59)  | 135<br>(61)  |
| 3<br>(80)  | —                                  | 145<br>(66)  | 152<br>(69)  | —            | 145<br>(66)  | 152<br>(69)  | 158<br>(72)  |
| 4<br>(100) | —                                  | 190<br>(86)  | 198<br>(90)  | —            | 190<br>(86)  | 198<br>(90)  | 205<br>(903) |
| 6<br>(150) | —                                  | 460<br>(209) | 480<br>(218) | —            | 450<br>(204) | 470<br>(213) | 485<br>(220) |
| 8<br>(200) | —                                  | 625<br>(284) | 640<br>(290) | —            | 600<br>(272) | 635<br>(288) | 660<br>(299) |

1. NPT available in 2" only.
2. BWE same as 300
3. Weights are approximate.



Note:  
Go to [controlvalvesandheaters.com](http://controlvalvesandheaters.com)  
for 10/0.4.3 and 10/0.4.4 for Actuator  
dimensions with HOD and Handjack



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# DBOY (S)-3 Control Valve Hung Cage Design



Unlike competitor's valves (which use the cage to compress the seat ring into the body), our 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 hung cage design utilizes a 17-4 Ph stainless steel Belleville load ring to maintain a constant seat gasket load, even in high temperature cycling service.

Our DBOY (S)-3 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.



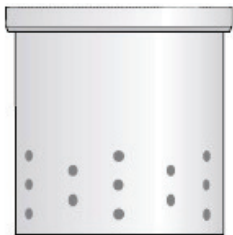
## Standard Cage

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 flow per given body size.



## 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.



## Anti-Cavitation Cage

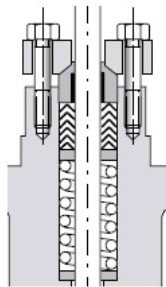
The Les-Cav cage controls the effects of valve cavitation providing a normal valve/trim life expectancy in cavitating conditions. Diametrically opposed holes, increase the valves cavitation index (Kc) and direct impinging flow to the center of the cage, preventing mechanical trim/body damage.



## Noise Reducing Cage

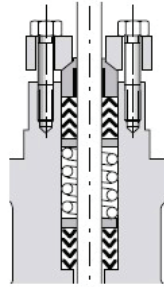
The Les-Sonic cage is designed to reduce fluid generated noise up to 10dBA in steam, gas or any compressible fluid service. When used in conjunction with a Les-Sonic silencing orifice, noise attenuations of 15-20dBA can be achieved.

## PACKING CONFIGURATIONS



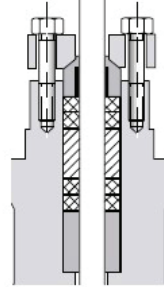
### PTFE – V-ring

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)



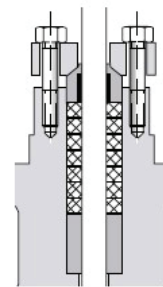
### Double PTFE – V-ring

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).



### 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.

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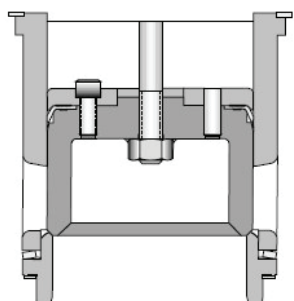
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Our balanced Plug design allows line pressure under the plug to build up above the plug, effectively cancelling out any unbalanced stem force due to pressure. In addition to providing smooth, high pressure control, balanced plugs allow use of small, 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 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.

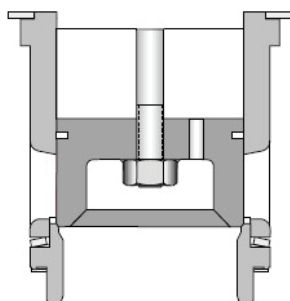
| Balance Plug Trim Material |                    |                               |                                 |                  |                    |                       |
|----------------------------|--------------------|-------------------------------|---------------------------------|------------------|--------------------|-----------------------|
| Trim                       | Max. Service Temp. | Plug                          | Seat Ring                       | Stem             | Gaskets            | ANSI/ISA 70-2 Shutoff |
| Standard Balanced          | 500°F (260°C)      | AISI 410 SS w/PTFE            | AISI Type 400 SS <sup>1</sup>   | AISI Type 316 SS | Filled Type 304 SS | IV                    |
| High Temperature           | 800°F (426°)       | AISI 410 SS w/ Ni-Resist Seal | AISI Type 400 SS Stellite®      | AISI Type 316 SS | Inconel Graphite   | III                   |
| Soft Seated                | 460°F (238°)       | AISI 410 SS w/ PTFE Seal      | AISI Type 400 SS w/ PTFE Insert | AISI Type 316 SS | Filled Type 304 SS | VI                    |

1. Stellite® seat optional. STELLITE® is a trademark of Stoodly Deloro Stellite, Inc.



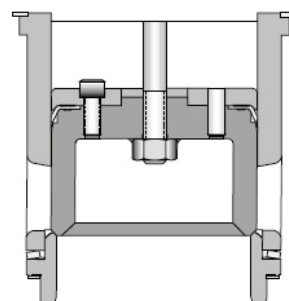
## Standard Balanced Plug

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 plug seal provides ANSI Class IV tight shutoff to temperatures of 500°F (260°C). (Flow over seat only)



## High-Temp Balanced Plug

Balanced plug with high-temp ni-resist or carbon plug seal provides ANSI Class III shutoff at temperatures up to 800°F (426°C).



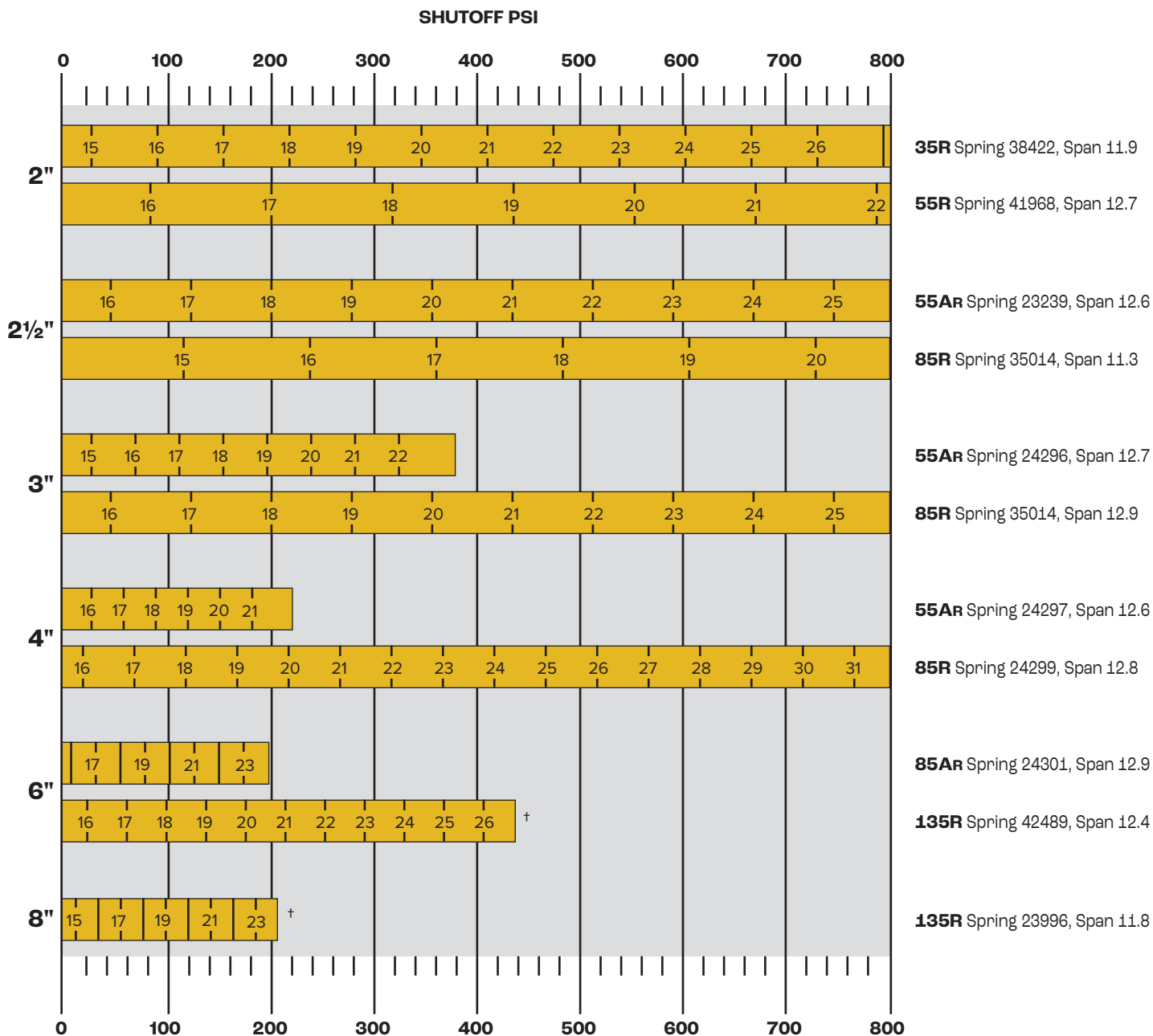
## Soft Seated Trim

Balanced plug with PTFE plug seal and an optional seat design with PTFE insert provide ANSI Class VI bubble tight shut-off at temperatures up to 460°F (238°C). (Flow over seat only)

# DBOY (S)-3 Control Valve Shut-Off Table – Reverse Acting



## ACTUATOR SHUTOFF TABLE

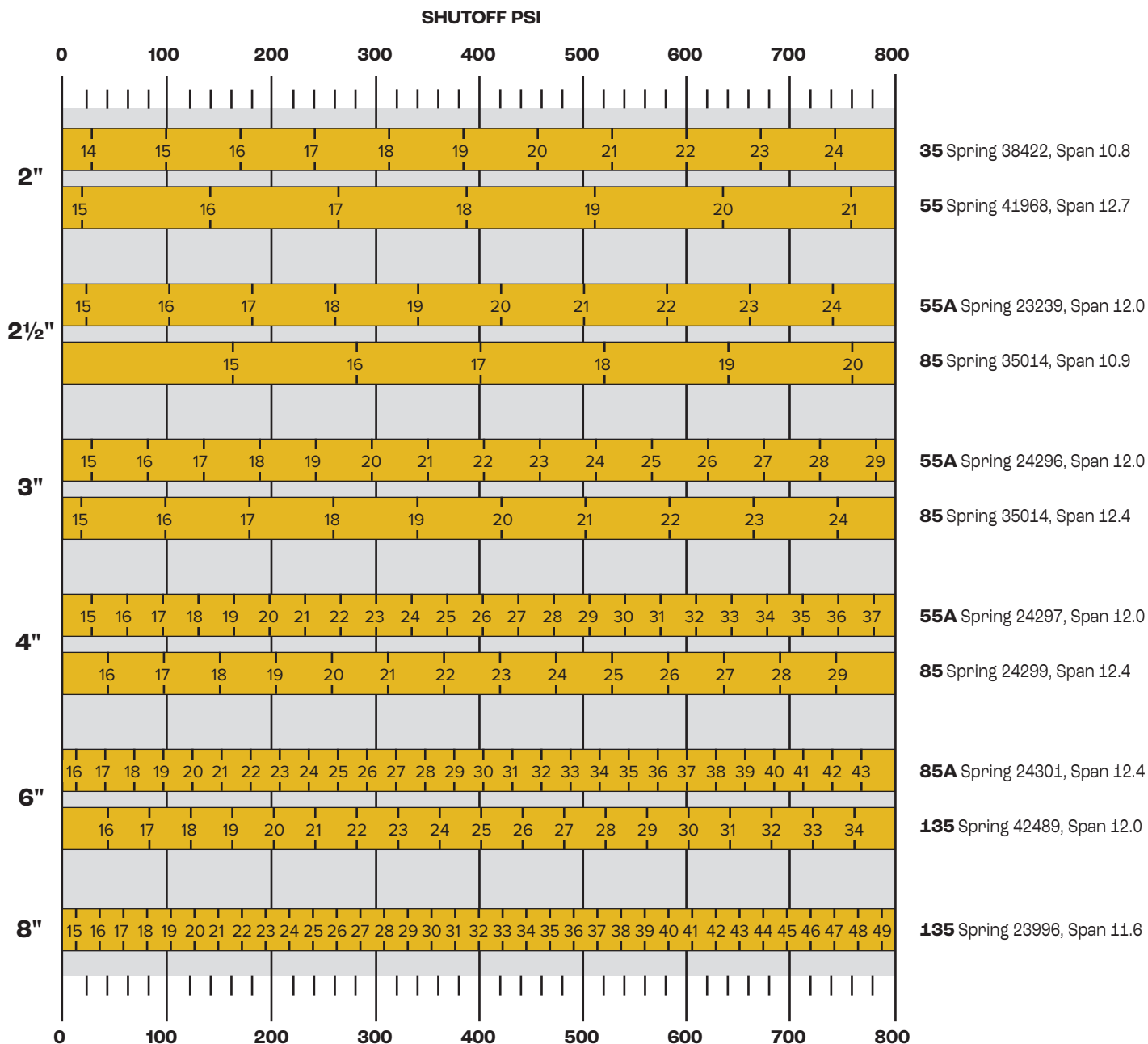


† For shutoff pressure above this value, consult factory.



# DBOY (S)-3 Control Valve Shut-Off Table – Direct Acting

## ACTUATOR SHUTOFF TABLE



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# DBOY (S)-3 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 Steel

## BODY/BONNET MATERIALS

- Cast Iron, ASTM A126 Class B
- Carbon Steel, ASTM A216 Gr WCB
- Chrome Moly, ASTM A217 Gr WC9

## SIZES

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

## END CONNECTIONS

- ANSI Class all Integral Flanged, 2-8" Threaded, NPT - 2" only, (ANSI 250 Cast Iron Bodies), (ANSI 600 Carbon Steel & Alloy Steel)
- 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
- Custom, contact factory

## PLUG (PISTON) SEAL MATERIALS

- Standard TFE/Graphite - max. temp. 500°F (260°C) (Class IV shutoff)
- Ni-Resist - max. temp. 800°F (426°C) (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, (260°C) contact factory

## TRIM MATERIAL COMBINATIONS

- See chart on page 5

## ACTUATORS

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

| DBO(Y)(S)-3 C <sub>v</sub> |                             |       |                             |       |                             |       |                             |       |              |           | Sizing Coefficients                |           |                |                |     |
|----------------------------|-----------------------------|-------|-----------------------------|-------|-----------------------------|-------|-----------------------------|-------|--------------|-----------|------------------------------------|-----------|----------------|----------------|-----|
| Valve Size (in.)           | Full Port                   |       | 40% Reduced                 |       | Les Sonic                   |       | Les Cav                     |       | Stroke (in.) | Seat Dia. | Unbalanced Area (in <sup>2</sup> ) | Case Type | Liquid         |                | Gas |
|                            | C <sub>v</sub> <sup>1</sup> | Range | C <sub>v</sub> <sup>1</sup> | Range | C <sub>v</sub> <sup>1</sup> | Range | C <sub>v</sub> <sup>1</sup> | Range |              |           |                                    |           | C <sub>L</sub> | K <sub>C</sub> |     |
| 2                          | 65                          | 30:1  | 26                          | 20:1  | 48                          | 30:1  | 32                          | 14:1  | 0.750        | 2.3       | 0.14                               | Standard  | .8             | .65            | .7  |
| 2½                         | 90                          | 40:1  | 36                          | 25:1  | 70                          | 40:1  | 40                          | 17:1  | 0.875        | 2.9       | 0.18                               | Les Cav   | .9             | .79            | N/A |
| 3                          | 125                         | 40:1  | 50                          | 25:1  | 97                          | 40:1  | 63                          | 20:1  | 1.00         | 3.5       | 0.21                               | Les Sonic | N/A            | N/A            | .65 |
| 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                               |           |                |                |     |

1. Minimum C<sub>v</sub> controllable is C<sub>v</sub> from table divided by rangeability.

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# DBOY (S)-3 Control Valve Order Code

|          | Class | Material |   |   | Valve Size | End Connection | Actuator | Bonnet Packing | Trim Form | Trim Material | Accessories |
|----------|-------|----------|---|---|------------|----------------|----------|----------------|-----------|---------------|-------------|
| Code     | U     | 8        | 4 | 1 | F          | 2              | A        | 1              | S         | J             | 4           |
| Position | 1     | 2        | 3 | 4 | 5          | 6              | 7        | 8              | 9         | 10            | 11          |

| Class - Position 1                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| U                                                                                                                                                                                                                                                                                                                                                   |
| Material - Position 2, 3 & 4                                                                                                                                                                                                                                                                                                                        |
| 841 = Iron<br>843 = Carbon Steel<br>845 = Chrome Moly, WC9<br>XXX = Other                                                                                                                                                                                                                                                                           |
| Valve Size - Position 5                                                                                                                                                                                                                                                                                                                             |
| F = 2<br>G = 2½<br>H = 3<br>J = 4<br>K = 6<br>L = 8                                                                                                                                                                                                                                                                                                 |
| End Connection - Position 6                                                                                                                                                                                                                                                                                                                         |
| 1 = Threaded<br>2 = Flanged 150 Steels, Flanged 125 Iron<br>3 = Flanged 300 Steels, Flanged 250 Iron<br>4 = SWE Steels<br>5 = BWE 40 Steels<br>6 = ND 16 Steels & Iron<br>7 = ND 40 Steels, ND 10 Iron (8" only)<br>9 = BWE 80 Steels<br>0 = ND 100 Steels<br>A = RTJ 300 Steels<br>B = RTJ 600 Steels<br>C = SWE Sch. 80 Steels<br>D = ND64 Steels |

| Actuator - Position 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A = 35<br>B = 35R<br>C = 35 HOD<br>D = 35R HOD<br>E = 55 <sup>1</sup><br>F = 55R <sup>1</sup><br>G = 55A<br>H = 55AR <sup>1</sup><br>I = 55 HOD <sup>1</sup><br>J = 55R HOD <sup>1</sup><br>K = 55A HOD <sup>1</sup><br>L = 55AR HOD <sup>1</sup><br>M = 85/85A <sup>2</sup><br>N = 85R/85AR <sup>2</sup><br>P = 85/85A HOD <sup>2</sup><br>Q = 85R/85AR HOD <sup>2</sup><br>R = 135<br>S = 135R<br>T = 135 HOD<br>U = 135R HOD<br>V = 270<br>W = 270R<br>X = w/o Actuator<br>Y = 270 HOD<br>Z = 270R HOD |
| <b>DigiDBOY: Specify X for actuator (position 7). Specify actuator, mounting kit and each option as a separate line item. See page 10.</b>                                                                                                                                                                                                                                                                                                                                                                |

| Bonnet & Packing - Position 8                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 = Standard Bonnet, braided Teflon® graphite package<br>2 = Standard Bonnet, PTFE package<br>3 = Standard bonnet, laminated graphite package<br>4 = Standar bonnet, double Teflon® package |
| Trim Form - Position 9                                                                                                                                                                      |
| S = Full capacity<br>T = Reduced 40% capacity<br>V = Les cav<br>W = Les sonic                                                                                                               |
| Trim Material - Position 10                                                                                                                                                                 |
| J = Standard 400 SS<br>L = Stellite® hard faced<br>P = DBOS, Hi-Temp HF<br>V = TFE soft seat                                                                                                |
| Accessories - Position 11                                                                                                                                                                   |
| 1 = 1 Accessory<br>2 = 2 Accessory<br>3 = 3 Accessory<br>4 = 4 Accessory<br>5 = 5 Accessory<br>6 = 6 Accessory<br>7 = 7 Accessory<br>8 = 8 Accessory<br>9 = 9 Accessory<br>0 = 0 Accessory  |

1. 55/R used on 2" D(D)BOY(S)-3; 55A/AR used on 2½" - 4" valves. 2. 85A/AR used on 6" D(D)BOY(S)-3; 85/R used on 2½" - 4" valves.

## Applications

### FEEDWATER CONTROL regulates level of water in boiler drum.

The drum design is commonly based on HP, IP & LP applications. Valve receives water flow from pump and supplies water to drum to make up for that used to produce steam.

**FEEDWATER RECIRCULATION** valve insures that adequate flow is maintained through feedwater pump. The pump manufacturer calculates minimum flow required to prevent risk of premature pump failure due to bearings overheating or excessive thermal expansion of impeller blades.

### AUXILIARY STEAM PRESSURE REDUCTION

- 1) Soot Blowers increase thermal efficiencies. Valve controls steam supplied to header from super heated source. PRV sees high pressure drop, intermittent operation and rapid load swings.
- 2) Building Heat, extraction steam control.
- 3) Pegging, Deaerators use super heated steam to heat and remove air from condensate normally closed against high differential pressure.

**DRAIN VALVES**, the presence of condensate in the turbine at startup or shutdown can be extremely damaging. As the steam temperature and pressure increase, the drain valves gradually throttle closed. These valves see a wide range of conditions, cool condensate followed by increasing temperature and pressure.

**GLAND SEAL STEAM**, valves are used to maintain constant steam pressure in gland to seal air from turbine. Application requires HP steam, throttling a low flow at high DP. Typically these valves operate in a split range mode. One pressure signal either loads or vents the gland.

**ATTEMPERATOR SPRAY, SUPERHEAT, REHEAT** - Spray Control valve – is used for controlling steam temperature to turbine. The purpose of valve is to maintain a tight temperature band resulting in maximum efficiency.

- 1) Superheat spray, low DP, turndown and accuracy are important.
- 2) Reheat spray, high DP, with Cavitation and seat leakage concerns as the valve operates close to the seat.

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# DBOY (S)-3 Linear Valve Specification Form



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 Cv \_\_\_\_\_ 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. ☐ 2 ☐ 2½ ☐ 3 ☐ 4 ☐ 6 ☐ 8  
 ANSI Class ☐ 125 ☐ 150 ☐ 250 ☐ 300 ☐ 600 ☐ Other \_\_\_\_\_  
 Body/Bonnet Material ☐ Cast Iron ☐ Cast Steel ☐ Cr Mo ☐ Other \_\_\_\_\_  
 End Conn. Inlet/Outlet: ☐ NPT ☐ SWE ☐ BWE Sch. \_\_\_\_\_ ☐ Int. Flanges ☐ Other \_\_\_\_\_

**TRIM SIZE** ☐ 100% ☐ 40% ☐ Les-Cav ☐ Les-sonic ☐ Other \_\_\_\_\_

## 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:** ☐ III ☐ IV ☐ V ☐ VI

Questions? Call (269) 279-3631.

Please submit completed form to: LCV@armstronginternational.com



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