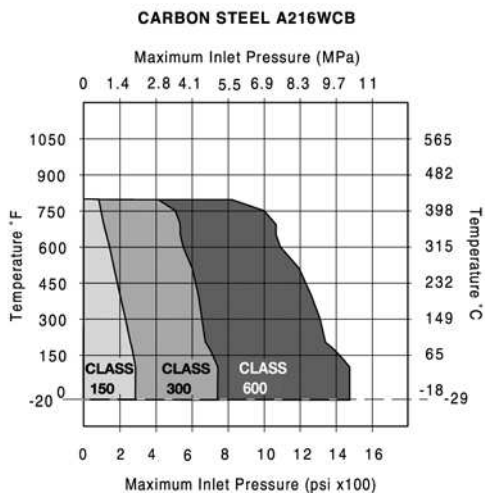
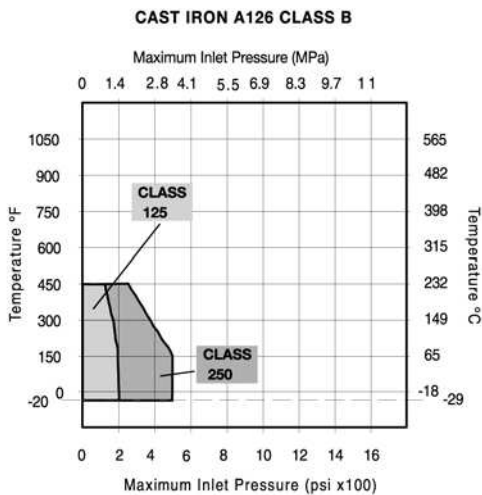




BOSS D SERIES PNEUMATIC CONTROL VALVE

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 & vaporizer, metal cleaning and plating



**BOSS SERIES D
CONTROL VALVE**

SIZES 2" – 8"

ANSI CLASS 125/250, 250/300, 600

- **Available in Pneumatic & Electric Actuators** for modulating control and on/off applications.
- **Electric Actuator Accepts Analog Signals** 4-20 mA, 0-10 VDC or Profibus DP
- **High Flow Capacities** - Valve body flow areas 42% of pipe area, reducing velocities and pressure loss.
- **Controlled Seat Loading** maintains constant seat gasket load.
- **Hung Cage Design** eliminates problems associated with fixed cages.
- **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.
- **Tighter Shut Offs to Class VI** - Superior design provides exceptional performance up to Class VI.

MODELS

- D1 — Cast Iron Stainless Trim, Pneumatic or Electrically Actuated
- D2 — Cast Steel Stainless Trim, Pneumatic or Electrically Actuated

OPTIONS

- 35, 55, 85 or 135 sq. in. Actuator, Reverse or Direct
- Electric Actuator Accepts Analog Signals 4-20 mA, 0-10 VDC or Profibus DP
- Soft Seats
- Thread of Flange Connection
- Moore and PMV Accessories
- Noise and Cavitation Reducing Trim
- Reduced Flow Caging
- Alternate Packings for Severe Service
- High Temperature Trim

APPLICABLE CODES

- ANSI B16.10 Face-To-Face Dimensions and ISA S75.03 Uniform Face-To-Face Dimensions for Flanged Globe Style Control Valves
- ANSI B16.37 Hydrotesting of Control Valves
- ISA S75.02 Control Valve Capacity Test Procedure
- Canadian Registration # OC 0591.9C

BOSS SERIES D CONTROL VALVE SPECIFICATION

All cage-guided control valves shall be designed, built and tested in accordance with the latest revision of applicable industry standards (see previous page). Valve body materials and end connections shall be as specified on the valve data sheets, in accordance with ANSI B16.34 and B16.5. Bonnets shall be through bolted, of the same material as the valve body. Stem packing shall be adjustable and suitable for the intended service. Asbestos or asbestos filled packings are prohibited. If graphite packing is selected or specified, use alternating rings of braided and die-cut anti-extrusion rings. Live-loaded PTFE V-ring packing shall be used to 450°F. Packing gland, clamp, studs and nuts shall be of 300 Series stainless steel. Cage type guiding and throttling shall be used for 2" valves and larger. Valves shall be of a "quick change" trim design utilizing a hung cage in all pressure classes. Seat rings shall be non-threaded and retained by a load spring with laminated graphite seat/body gasket. Trim shall be of 400 Series

hardened stainless steel. Plugs shall be balanced unless otherwise noted. Where specified or required, valves shall be provided with stellite seating surfaces on 400 Series hardened stainless steel plug and seat ring. Seat stellite thickness shall be 3/32" minimum. Valve characteristic shall be modified linear or equal percent. Valve leakage shall be ANSI/ISA 70-2 Class IV unless otherwise specified. Valve stems shall be 316 stainless steel with a minimum 16 RMS finish. Plug/stem assemblies shall be of a two piece threaded and pinned design. Actuators shall be of the spring and diaphragm type or electrically driven. Pneumatic Actuators shall be capable of shutting off the valve without the use of line pressure assist. Pneumatic Actuator yokes shall be of cast iron unless otherwise specified and bolted or clamped to the valve bonnet. Locknut mounting is not preferred. Electric Actuators shall have integral handwheel permitting easy manual operation when power is lost. Top mounted handwheel manual overrides shall be provided where specified. Rim pull required to operate valve shall not exceed 40 pounds. Valve body size shall not be less than 1/2 the nominal inlet pipe size. Provide reduced window cages where required. Valves shall be sized to control within manufacturers published rangeability. Size valve to pass 110% of maximum stated flow. Valve generated noise shall not exceed 85 dBA when measured 3 feet downstream and 3 feet away from the pipe.

BOSS SERIES D
CONTROL VALVE

MATERIALS OF CONSTRUCTION

BODY ASSEMBLY:

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

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.

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 and 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 % (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:

ACTUATORS:

Standard: Spring & Diaphragm
Digi Electric

Optional: Piston Double Acting/Spring Return
Hydraulic

PRESSURE RECOVERY FACTOR:

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

ANSI BODY RATINGS:

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

BOSS SERIES D ORDERING CODE

Model	Orifice	Size	Connections	Trim	Packing-	Actuator	Spring	Positioner	Posit. Set	Accessories	Inlet Pressure												
D	1	T	H	1	1	1	- 3	4	D	A	M	I	2	2	- # #	#							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
Model - Position 1 & 2 D1 - Cast Iron D2 - Cast Steel			Connections - Position 5 1 = 150 RF Flg 2 = 125# 3 = 300RF Flg 4 = 250# 6 = 600 RF Flg 9 = Threaded			Actuator - Position 8 & 9 01 = None 02 = ST5112-34 03 = ST5113-07 04 = ST5114-17 34 = 35 35 = 35R 52 = 55 53 = 55R 54 = 55A 55 = 55AR 82 = 85 83 = 85R 84 = 85A 85 = 85AR 86 = 135 87 = 135R			Spring - Position 10 & 11 AA = None TA - 38422 TB - 41968 TC - 23239 TD - 35014 TE - 24296 TF - 24297 TG - 24299 TH - 24301 TJ - 42489 TK - 23996 TL - 61264 TM - 42489/ 25390			Positioner - Position 12 & 13 AA = None MI = Moore I/P MP = Moore P 4P = PMV P4 P 5I = PMV P5 I/P			Positioner Set - Position 14 & 15 1 = None 2 = Std 3-15 3 = S.R. 3-9 4 = S.R. 9-15			Accessories - Position 16 & 17 1 = None 2 = Limit Switch, Mechanical 3 = Limit Switch, Proximity Switch 4 = Feedback Potentiometer 1K			Inlet Pressure - Position 18, 19 & 20 _ _ _ = Actual Setting		
Orifice - Position 3 T = STD P = 40% Q = Seco-Sonic R = Seco-Cav			Trim - Position 6 1 = Metal 2 = Soft 3 = Hi-Temp 4 = Stellite			Packing - Position 7 1 = V-ring 2 = Graphite 3 = Hi-Temp			Size - Position 4 H = 2 J = 2½ K = 3 M = 4 P = 6 Q = 8														



BOSS SERIES D CONTROL VALVE

DIMENSIONS

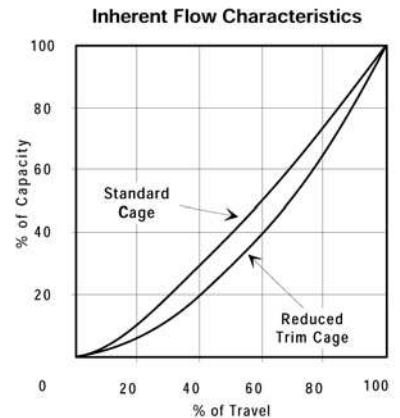
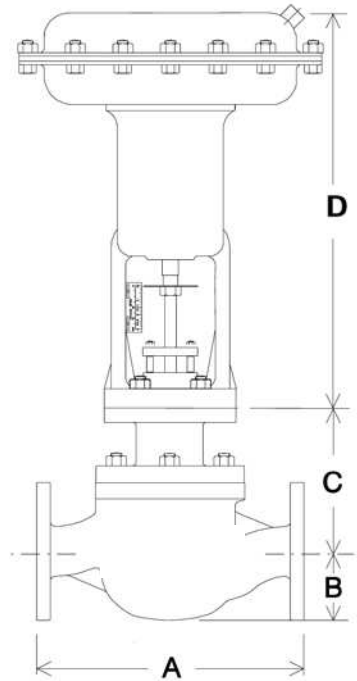
PNEUMATIC ACTUATOR

**BOSS
DIMENSIONS**

CONTROL VALVE – CAST IRON DIMENSIONS IN INCHES						CONTROL VALVE – CAST STEEL DIMENSIONS IN INCHES					
SIZE	A	B	C	D*	WGT.*	SIZE	A	B	C	D*	WGT.*
THREADED						THREADED					
2	9 ¹ / ₄	3 ³ / ₄	7 ¹ / ₄	12 ² / ₈	80 lb.	2	9 ¹ / ₄	3	7 ¹ / ₈	12 ² / ₈	45 lb.
125 LB. ANSI FLANGE STANDARD						150 LB. ANSI FLANGE STANDARD					
2	10	3 ³ / ₄	7 ¹ / ₄	12 ² / ₈	85 lb.	2	10	3	7 ¹ / ₈	12 ² / ₈	85 lb.
2½	10 ⁷ / ₈	4 ³ / ₈	6 ⁵ / ₈	15 ¹ / ₄	125 lb.	2½	10 ⁷ / ₈	3½	6 ⁵ / ₈	15 ¹ / ₄	125 lb.
3	11 ³ / ₄	4½	6 ⁷ / ₈	15 ¹ / ₄	145 lb.	3	11 ³ / ₄	3¾	6 ⁷ / ₈	15 ¹ / ₄	145 lb.
4	13 ³ / ₈	5½	8 ¹ / ₈	15 ¹ / ₄	190 lb.	4	13 ³ / ₈	4½	8 ⁵ / ₈	15 ¹ / ₄	190 lb.
6	17 ³ / ₄	5 ⁷ / ₈	9 ³ / ₄	19 ⁵ / ₈	460 lb.	6	17 ³ / ₄	5½	9 ³ / ₄	19 ⁵ / ₈	450 lb.
8	21 ³ / ₈	7 ⁵ / ₈	12 ¹ / ₄	27 ³ / ₈	625 lb.	8	21 ³ / ₈	6¾	12 ¹ / ₄	27 ³ / ₈	600 lb.
250 LB. ANSI FLANGE STANDARD						300 LB. ANSI FLANGE STANDARD					
2	10½	3¾	7¼	12 ² / ₈	88 lb.	2	10½	3¼	7¼	12 ² / ₈	88 lb.
2½	11½	4 ³ / ₈	6 ⁵ / ₈	15 ¹ / ₄	130 lb.	2½	11½	3¾	6 ⁵ / ₈	15 ¹ / ₄	130 lb.
3	12½	4½	6 ⁷ / ₈	15 ¹ / ₄	152 lb.	3	12½	4 ¹ / ₈	6 ⁷ / ₈	15 ¹ / ₄	152 lb.
4	14½	5½	8½	15 ¹ / ₄	198 lb.	4	14½	5	8 ⁵ / ₈	15 ¹ / ₄	198 lb.
6	18 ⁵ / ₈	5 ⁷ / ₈	9 ³ / ₄	19 ⁵ / ₈	480 lb.	6	18 ⁵ / ₈	6¼	9 ³ / ₄	19 ⁵ / ₈	470 lb.
8	22 ² / ₈	7 ⁵ / ₈	12¼	27 ³ / ₈	640 lb.	8	22 ² / ₈	7½	12¼	27 ³ / ₈	635 lb.
600 LB. ANSI FLANGE STANDARD						600 LB. ANSI FLANGE STANDARD					
—	—	—	—	—	—	2	11¼	3¼	7¼	12 ² / ₈	90 lb.
—	—	—	—	—	—	2½	12¼	3¾	6 ⁵ / ₈	15 ¹ / ₄	135 lb.
—	—	—	—	—	—	3	13¼	4 ¹ / ₈	6 ⁷ / ₈	15 ¹ / ₄	158 lb.
—	—	—	—	—	—	4	15½	5 ⁵ / ₈	8 ⁵ / ₈	15 ¹ / ₄	205 lb.
—	—	—	—	—	—	6	20	7	9 ³ / ₄	19 ⁵ / ₈	485 lb.
—	—	—	—	—	—	8	24	8¼	12¼	27 ³ / ₈	660 lb.
DIMENSIONS IN MILLIMETERS						DIMENSIONS IN MILLIMETERS					
SIZE	A	B	C	D*	WGT.*	SIZE	A	B	C	D	WGT.*
THREADED						THREADED					
50	235	95	184	314	36.3 kg	50	235	76	181	314	20.4 kg
DIN 2533 FLANGE STANDARD (ND-16)						DIN 2543 FLANGE STANDARD (ND-16)					
50	254	95	184	314	39 kg	50	254	76	181	314	39 kg
65	276	111	168	387	57 kg	65	276	89	168	387	57 kg
80	299	114	175	387	66 kg	80	299	95	175	387	66 kg
100	352	140	206	387	86 kg	100	352	114	219	387	86 kg
160	451	149	248	499	209 kg	160	451	140	248	499	204 kg
200	543	194	311	695	284 kg	200	543	172	311	695	272 kg
DIN 2534 FLANGE STANDARD (ND-25)						DIN 2545 FLANGE STANDARD (ND-40)					
50	267	95	184	314	40 kg	50	267	83	181	314	40 kg
65	292	111	168	387	59 kg	65	292	95	168	387	59 kg
80	318	114	175	387	69 kg	80	318	105	175	387	69 kg
100	368	140	206	387	90 kg	100	368	127	219	387	90 kg
160	473	149	248	499	218 kg	160	473	159	248	499	213 kg
200	568	194	311	695	290 kg	200	568	191	311	695	288 kg
DIN 2547 FLANGE STANDARD (ND-100)						DIN 2547 FLANGE STANDARD (ND-100)					
—	—	—	—	—	—	50	286	83	181	314	41 kg
—	—	—	—	—	—	65	311	95	168	387	61 kg
—	—	—	—	—	—	80	337	105	175	387	72 kg
—	—	—	—	—	—	100	394	137	219	387	93 kg
—	—	—	—	—	—	160	508	178	248	499	220 kg
—	—	—	—	—	—	200	610	210	311	695	299 kg

* With standard actuator

Dimensions are subject to change without notice.
Request certified drawings for installation purposes



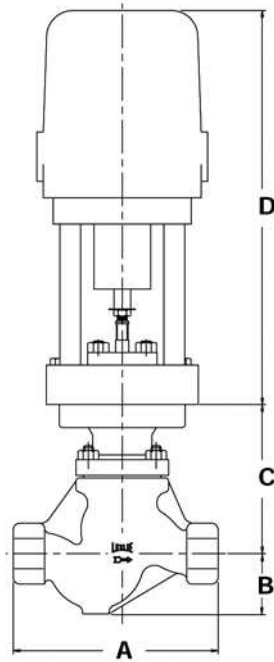
C_v TABLE

Valve Size	Full Port		40% Red.		Seco-Sonic		Seco-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
2½	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

BOSS SERIES D CONTROL VALVE

DIMENSIONS

ELECTRIC ACTUATOR



ELECTRIC ACTUATORS SPECIFICATIONS, DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Model	Std. Stroke (in)	Max Thrust (lb/f)	Stroke Time (sec)	Sec./Inch	Rating	Power Supply	Power Consumption	Ambient Temp. Limits	D	Wgt.
ST5112-34	1.57	674	39	25	IP-65	24V(DC), 115V, 230V, 50/60 Hz	18VA	-68°F to 158°F	16 ¹ / ₁₆ (424)	12 (5.5)
ST5113-07	2.36	1348	38	16	IP-55	24V(DC), 115V, 230V, 50/60 Hz	72VA	-68°F to 140°F	21 ¹ / ₁₆ (541)	23 (10.5)
ST5114-17	3.14	2248	91	29	IP-55	24V(DC), 115V, 230V, 50/60 Hz	66VA	-68°F to 140°F	21 ¹ / ₁₆ (558)	23 (10.5)

DIGIBOSS MATERIALS AND DIMENSIONS

CARBON STEEL AND CHROME MOLY VALVE BODY ASSEMBLY

DIMENSIONS[†] inches (mm) AND WEIGHTS pounds (kg)

SIZE	A				B	C	WEIGHT	
	THD	150	300	600			THD	FLG
2 (50)	9 ¹ / ₄ (235)	10 (254)	10 ¹ / ₂ (267)	11 ¹ / ₂ (286)	2 ¹ / ₂ (67)	7 ¹ / ₈ (181)	85 (39)	90 (41)
2 ¹ / ₂ (65)	—	10 ³ / ₈ (276)	11 ¹ / ₄ (292)	12 ¹ / ₄ (311)	3 ¹ / ₄ (83)	6 ³ / ₈ (172)	—	135 (61)
3 (80)	—	11 ¹ / ₄ (299)	12 ¹ / ₂ (318)	13 ¹ / ₄ (337)	3 ³ / ₈ (92)	6 ¹ / ₂ (175)	—	158 (72)
4 (100)	—	13 ¹ / ₈ (352)	14 ¹ / ₂ (368)	15 ¹ / ₂ (394)	4 ¹ / ₂ (105)	8 ¹ / ₈ (206)	—	205 (93)
6 (160)	—	17 ¹ / ₈ (451)	18 ³ / ₈ (473)	20 (508)	5 ¹ / ₂ (140)	9 ¹ / ₈ (248)	—	485 (220)
8 (200)	—	21 ¹ / ₈ (543)	22 ³ / ₈ (568)	24 (610)	7 ¹ / ₂ (184)	12 ¹ / ₄ (311)	—	660 (299)

† Threaded Carbon Steel & Chrome Moly available in 2" only.
Flanged (150, 300 & 600#) Carbon Steel & Chrome Moly available in 2" to 8".

CLASS IV SHUTOFF

VALVE SIZE	VALVE STROKE (IN)	MAXIMUM DELTA P (PSI)		
		ST5112-34	ST5113-07	ST5114-17
2	3/4	750	—	—
2 1/2	7/8	600	—	—
3	1	600	750	—
4	1 1/4	—	750	—
6	2	—	350	500
8	2 3/4	—	—	300

DIGI ACTUATOR OPTIONS

Model	Prod. Ref. No.
Heater, 12 volt	E68717
Heater, 115 volt	E68718
Heater, 230 volt	E68719
Limit Switch Set	E68720
Field Bus	*

* Consult factory.

DIGI MOUNTING KITS

Actuator Code**	Model	Valve Size	Prod. Ref. No.
02	ST5112-34	1/2 to 1 1/2 2 to 4	U009005096 U009005097
03	ST5113-07	1/2 to 1 1/2 2 to 4	U009005096 U009005097
04	ST5114-17	1/2 to 1 1/2 2 to 4	U009005096 U009005097

** Use Actuator Code for ordering.

CAST IRON VALVE BODY ASSEMBLY

DIMENSIONS[†] inches (mm) AND WEIGHTS pounds (kg)

SIZE	A			B	C	WEIGHT	
	THD	125	250			THD	FLG
2 (50)	9 ¹ / ₄ (235)	10 (254)	10 ¹ / ₂ (267)	3 ³ / ₈ (95)	7 ¹ / ₈ (181)	85 (39)	90 (41)
2 1/2 (65)	—	10 ³ / ₈ (276)	11 ¹ / ₄ (292)	4 ¹ / ₂ (111)	6 ³ / ₈ (172)	—	135 (61)
3 (80)	—	11 ¹ / ₄ (299)	12 ¹ / ₂ (318)	4 ¹ / ₂ (114)	6 ¹ / ₂ (175)	—	158 (72)
4 (100)	—	13 ¹ / ₈ (352)	14 ¹ / ₂ (368)	5 ¹ / ₂ (140)	8 ¹ / ₈ (206)	—	205 (93)
6 (160)	—	17 ¹ / ₈ (451)	18 ³ / ₈ (473)	5 ³ / ₈ (149)	9 ¹ / ₈ (245)	—	485 (220)
8 (200)	—	21 ¹ / ₈ (543)	22 ³ / ₈ (568)	7 ¹ / ₂ (194)	12 ¹ / ₄ (311)	—	660 (299)

† Threaded Cast Iron available in 2" only.
Flanged (125 and 250#) Cast Iron available in 2" to 8".