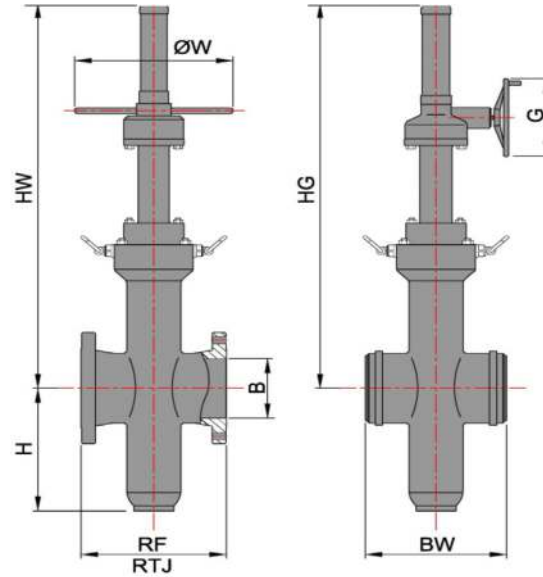


# SLAB GATE VALVE WEIGHTS AND DIMENSIONS



SLAB GATE VALVE CLASS 600										
SIZE IN	RF	RTJ	BW	B	H	HW	W	HG	G	WEIGHT LBS (KG)
2"	11.50 (292)	11.61 (295)	11.50 (292)	1.93 (49)	5.94 (151)	18.90 (480)	9.84 (250)			143 (65)
3"	14.00 (356)	14.13 (359)	14.02 (356)	2.91 (74)	7.80 (198)	28.94 (735)	11.81 (300)			243 (110)
4"	17.00 (432)	17.13 (435)	17.00 (432)	3.94 (100)	9.88 (251)	31.46 (799)	11.81 (300)			331 (150)
6"	22.00 (559)	22.11 (562)	22.00 (559)	5.98 (152)	13.27 (337)	49.72 (1263)	19.69 (500)			628 (285)
8"	26.00 (660)	26.14 (664)	26.00 (660)	8.00 (203)	17.87 (454)	52.20 (1326)	22.05 (560)	52.20 (1326)	18.11 (460)	1433 (650)
10"	31.00 (787)	31.14 (791)	31.00 (787)	10.00 (254)	20.47 (520)	58.00 (1473)	28.35 (720)	58.00 (1473)	18.11 (460)	1984 (900)
12"	33.00 (838)	33.11 (841)	33.00 (838)	12.00 (305)	23.62 (600)	64.84 (1647)	28.35 (720)	64.84 (1647)	24.02 (610)	2425 (1100)
14"	35.00 (889)	35.12 (892)	35.00 (889)	13.15 (334)	25.94 (659)	71.65 (1820)	28.35 (720)	71.65 (1820)	24.02 (610)	3748 (1700)
16"	39.00 (991)	39.13 (994)	39.02 (991)	15.24 (385)	29.50 (749)	80.16 (2036)	35.00 (889)	80.16 (2036)	24.02 (610)	5071 (2300)
18"	43.00 (1092)	43.11 (1095)	43.00 (1092)	17.20 (437)	32.83 (834)			90.75 (2305)	28.00 (710)	6063 (2750)
20"	47.00 (1194)	47.24 (1200)	47.00 (1194)	19.21 (488)	35.91 (912)			94.50 (2400)	28.00 (710)	9259 (4200)
24"	55.00 (1397)	55.39 (1407)	55.00 (1397)	23.19 (589)	42.76 (1086)			116.26 (2953)	28.00 (710)	10913 (4950)
28"	61.00 (1549)	61.50 (1562)	61.00 (1549)	26.93 (684)	48.27 (1226)			132.83 (3374)	28.00 (710)	18188 (8250)
30"	65.00 (1651)	65.50 (1664)	65.00 (1651)	29.00 (737)	51.97 (1320)			137.48 (3492)	39.37 (1000)	20944 (9500)
32"	65.00 (1651)	65.50 (1664)	65.00 (1651)	30.67 (779)	54.50 (1384)			144.49 (3670)	39.37 (1000)	25353 (11500)
36"	82.00 (2083)	82.63 (2099)	82.00 (2083)	34.50 (876)	60.24 (1530)			161.14 (4093)	39.37 (1000)	34172 (15500)

SLAB GATE VALVE CLASS 900										
SIZE IN	RF	RTJ	BW	B	H	HW	W	HG	G	WEIGHT LBS (KG)
2"	14.50 (368)	14.61 (371)	14.50 (368)	1.93 (49)	6.14 (156)	26.38 (670)	9.84 (250)			198 (90)
3"	15.00 (381)	15.12 (384)	15.00 (381)	3.00 (76)	9.09 (231)	28.94 (735)	11.81 (300)			357 (162)
4"	18.00 (457)	18.11 (460)	18.00 (457)	4.00 (102)	10.63 (270)	31.46 (799)	17.72 (450)			628 (285)
6"	24.00 (610)	24.13 (613)	24.00 (610)	6.00 (152)	16.89 (429)	52.87 (1343)	19.69 (500)			1168 (530)
8"	29.00 (737)	29.13 (740)	29.00 (737)	8.00 (203)	18.15 (461)	52.20 (1326)	28.35 (720)	52.20 (1326)	18.11 (460)	2094 (950)
10"	33.00 (838)	33.11 (841)	33.00 (838)	10.00 (254)	20.59 (523)	61.93 (1573)	28.35 (720)	61.93 (1573)	24.02 (610)	2866 (1300)
12"	38.00 (965)	38.11 (968)	38.00 (965)	12.00 (305)	24.21 (615)			65.63 (1667)	24.02 (610)	4322 (1960)
14"	40.50 (1029)	40.87 (1038)	40.51 (1029)	12.76 (324)	26.38 (670)			71.65 (1820)	28.00 (710)	5842 (2650)
16"	44.50 (1130)	44.88 (1140)	44.50 (1130)	14.76 (375)	30.28 (769)			85.67 (2176)	28.00 (710)	7055 (3200)
18"	48.00 (1219)	48.50 (1232)	48.00 (1219)	16.73 (425)	35.04 (890)			88.46 (2247)	31.50 (800)	8818 (4000)
20"	52.00 (1321)	52.50 (1334)	52.00 (1321)	18.62 (473)	36.34 (923)			98.46 (2501)	31.50 (800)	11464 (5200)
24"	61.00 (1549)	61.73 (1568)	61.00 (1549)	22.50 (572)	43.58 (1107)			116.93 (2970)	39.37 (1000)	20282 (9200)

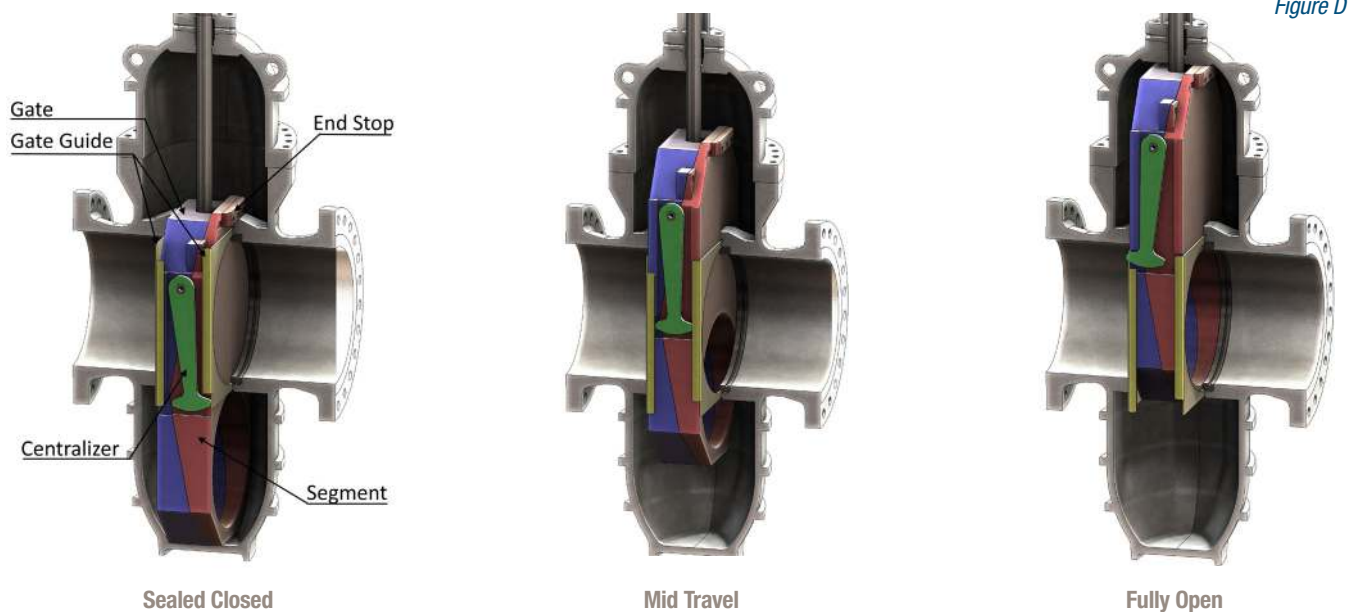
## EXPANDING GATE VALVE DESIGN FEATURES

1. The Williams Expanding Gate Valve provides a positive mechanical seal to ensure a bubble-tight shut-off at both high and low pressure. The mechanical seal is unaffected by vibration or variation in line pressure. The valve seals bi-directionally and will achieve Double Isolation & Bleed per API-6D requirements.
2. Floating seats have a soft, resilient face. Various sealing materials are available to meet customer requirements. Top entry bonnet design allows for inline maintenance and replacement of the resilient seat.
3. Fittings are provided for either seat lubrication or emergency seat sealant injection.
4. The full-bore through conduit gate valve is fully piggable without damage to the valve seats.
5. In the event of a fire and damage to the soft O-ring and face seals, metal to metal contact between the gate, the downstream seat, and the body provide a secondary seal.
6. The stem seal packing box is provided with fittings for emergency packing injection if needed (Fig. C, page 5) Alternative stem seal designs are available to meet customer requirements.
7. After isolation of the valve and relief of any internal pressure, the top entry bonnet may be removed and the seats and/or gate assembly replaced with the valve installed in the flow line.

## EXPANDING GATE MECHANICS:

Williams Expanding Gate Valve assembly consists of a Gate and Segment. Attached to the Stem the Gate has angles machined on one surface with matching angles machined on the Segment (Fig. D). While traveling up or down, a Centralizer Mechanism holds the gate/segment assembly in a collapsed position with the mating inclined surfaces in full contact with one another. The Centralizer mechanism consists of the centralizer arms, the gate guides, and an internal

cam that moves the centralizer arm based on the movement of the stem. The gate guides restrict the movement of the centralizer arm, and by that action the gate assembly, while the valve is in any position besides full open or full closed. This keeps the gate assembly collapsed while the valve is either opening or closing which reduces wear on the seats and keeps operating torques low.



# EXPANDING GATE VALVE FEATURES



## PRIMARY & SECONDARY SEATING:

Williams expanding gate assembly maintains positive mechanical contact and seals against the upstream and downstream seats simultaneously. Each seat contains a primary resilient seal press-fit into the metal seat ring. In the event of a fire and damage to the primary seals metal to metal contact between the gate assembly, the seats, and the body provide a temporary seal. Injection fittings are also present for emergency sealing (Fig. E).

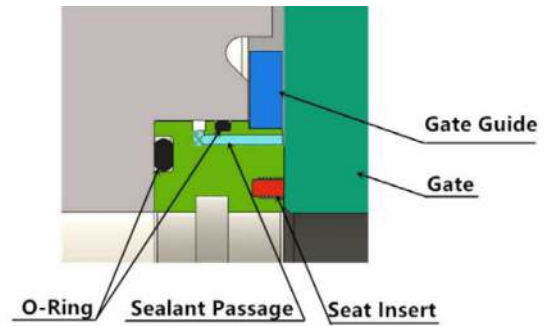


Figure E

## THERMAL BODY CAVITY RELIEF

In the event of variations in temperature, Williams Expanding Gate Valves are designed with options for relief of internal body pressure due to thermal expansion. The thermal relief configuration is installed according to the customer's requirements. An upstream bypass

system with a needle valve and a check valve can be fitted. This provides for relief of excessive body pressure to the upstream flow conduit. The needle valve must be kept open while the valve is in service, and can be closed to test and service the check valve.

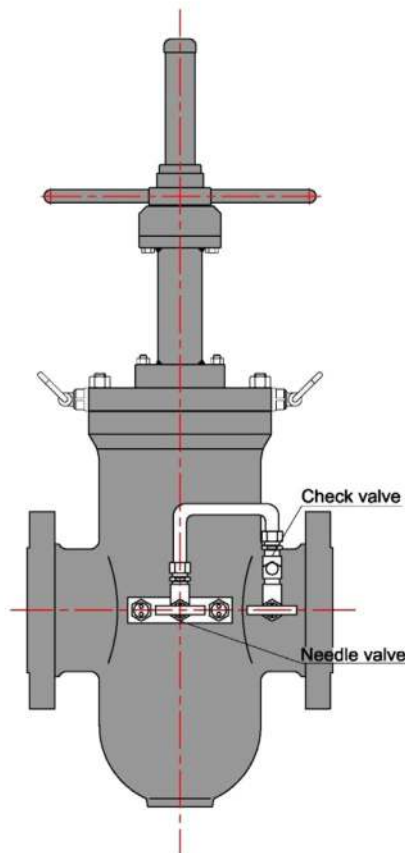
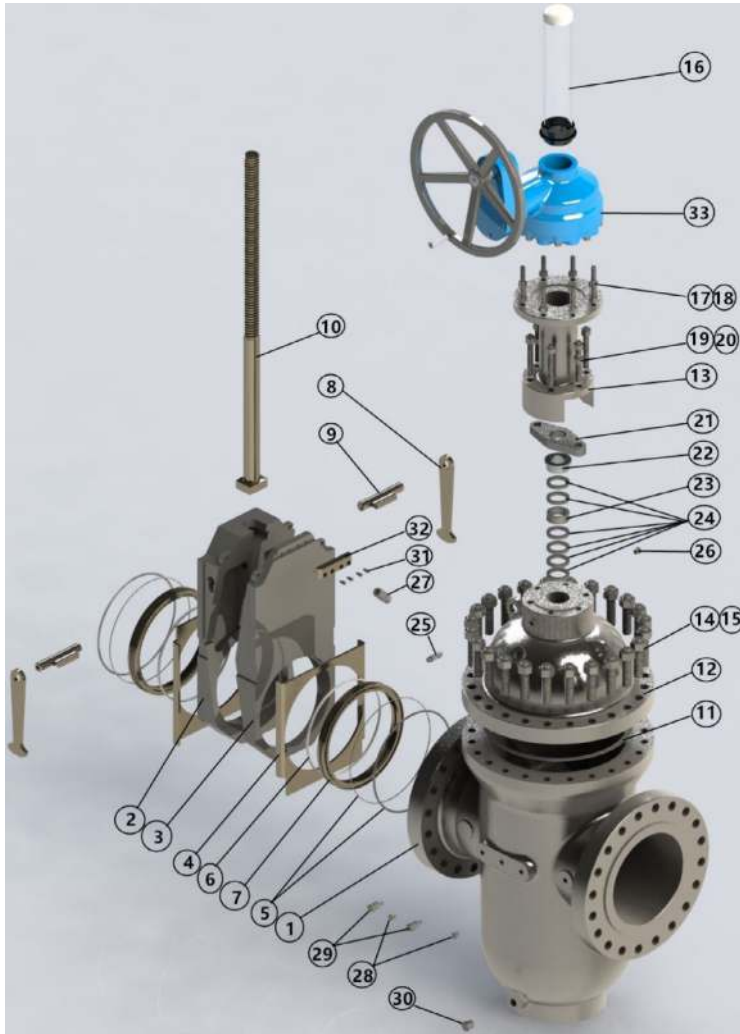


Figure F

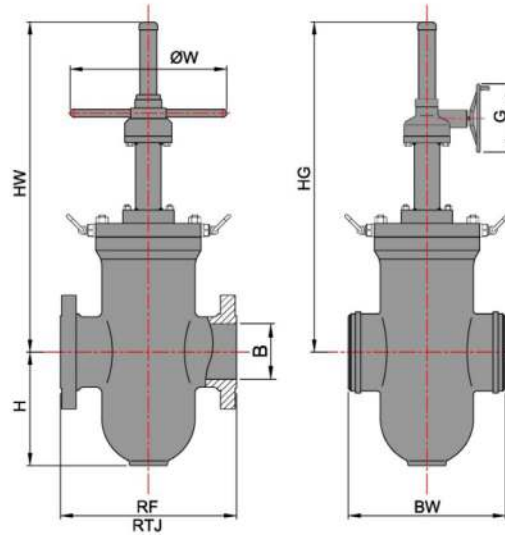


ITEM NO.	PART NAME
1	BODY
2	GATE
3	SEGMENT
4	SKIRT PLATE
5	O-Ring
6	SEAT INSERT
7	SEAT RING
8	CENTRALIZER
9	PIN
10	STEM
11	GASKET
12	BONNET
13	YOKE
14	BOLT
15	NUT
16	STEM COVER
17	BOLT
18	NUT
19	BOLT
20	NUT
21	GLAND FLANGE
22	GLAND
23	LANTERN RING
24	PACKING
25	PACKING FITTING
26	PLUG
27	AUTOVENT VALVE
28	PLUG
29	INJECTION FITTING
30	PLUG
31	BOLT
32	STOPPER
33	GEAR BOX

ITEM	DESCRIPTION	CARBON STEEL -29°C (-20°F) TO 176°C (350°F)	LOW TEMP. CARBON STEEL -46°C (-51°F) TO 176°C (350°F)
1	Body	A216 WCB/WCC	A352 LCC
2	Bonnet	A216 WCB/WCC	A352 LCC / LF2
3	Welding yoke	ANSI 1020	A350 LF2
4	*Gate & Segment	A216 WCB/WCC/ENP	A352 LCB/LCC/ENP
5	Skirt plate	13Cr	13Cr
6	Centralizer	13Cr	13Cr
7	Stem	A182 F316	A182 F316
8	Seat Insert	RPTFE/DEVLON	RPTFE/DEVLON
9	Seat seal (O-Ring)	Viton A	HNBR
10	*Seat ring	A105N/ENP	A350 LF2/ENP
11	Body/Bonnet Studs	A193 B7M	A320 L7M
12	Body/Bonnet Nuts	A194 2HM	A194 7M
13	Packing	GRAPHITE	GRAPHITE
14	Packing Fitting	SS316	SS316
15	Packing Plug/Vent	SS316	SS316

\*3-Mil Electroless Nickel Plating

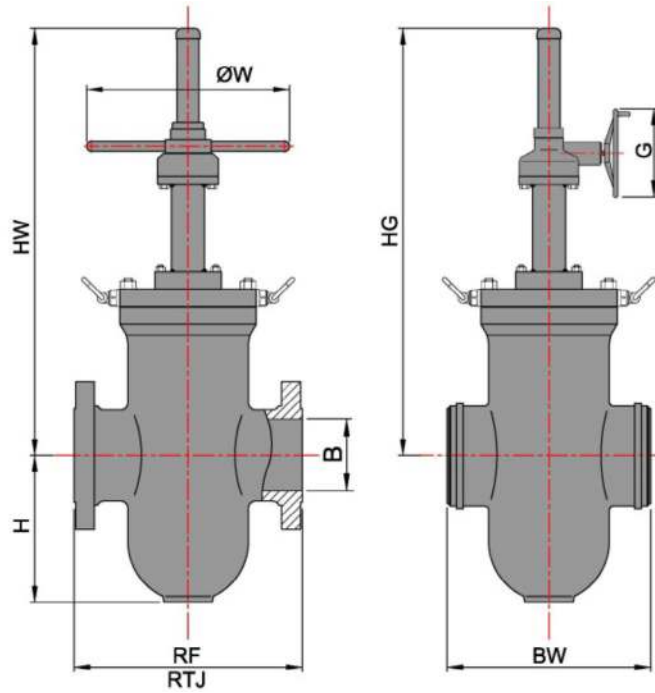
# EXPANDING GATE VALVE WEIGHTS AND DIMENSIONS



EXPANDING GATE VALVE CLASS 300										
SIZE IN	RF	RTJ	BW	B	H	HW	W	HG	G	WEIGHT LBS (KG)
2"	8.50 (216)	9.13 (232)	8.50 (216)	2.00 (51)	5.71 (145)	18.50 (470)	9.84 (250)			
3"	11.14 (283)	11.73 (298)	11.14 (283)	3.00 (76)	7.13 (181)	27.36 (695)	9.84 (250)			
4"	12.00 (305)	12.64 (321)	12.00 (305)	4.00 (102)	9.76 (248)	31.50 (800)	11.81 (300)			
6"	15.87 (403)	16.50 (419)	15.87 (403)	5.98 (152)	12.76 (324)	42.87 (1089)	22.05 (560)			
8"	16.50 (419)	17.13 (435)	16.50 (419)	7.99 (203)	15.28 (388)	52.20 (1326)	22.05 (560)	52.20 (1326)	12.20 (310)	12.20 (310)
10"	18.00 (457)	18.62 (473)	18.00 (457)	10.00 (254)	19.17 (487)	55.75 (1416)	22.05 (560)	55.75 (1416)	18.11 (460)	18.11 (460)
12"	19.76 (502)	20.39 (518)	19.76 (502)	12.00 (305)	22.71 (577)	64.84 (1647)	25.20 (640)	64.84 (1647)	24.00 (610)	24.00 (610)
14"	30.00 (762)	30.63 (778)	30.00 (762)	13.23 (336)	25.28 (642)	69.50 (1765)	28.35 (720)	69.50 (1765)	24.00 (610)	24.00 (610)
16"	33.00 (838)	33.62 (854)	33.00 (838)	15.16 (385)	28.54 (725)			79.96 (2031)	24.00 (610)	24.00 (610)
18"	36.00 (914)	36.61 (930)	36.00 (914)	17.24 (438)	31.50 (800)			90.75 (2305)	24.00 (610)	24.00 (610)
20"	39.02 (991)	39.76 (1010)	39.02 (991)	19.25 (489)	35.16 (893)			92.52 (2350)	28.00 (610)	28.00 (610)
24"	45.00 (1143)	45.87 (1165)	45.00 (1143)	23.23 (590)	42.91 (1090)			114.29 (2903)	28.00 (710)	28.00 (710)
28"	53.00 (1346)	54.00 (1372)	53.00 (1346)	26.93 (684)	47.48 (1206)			124.96 (3174)	28.00 (710)	28.00 (710)
30"	55.00 (1397)	56.00 (1422)	55.00 (1397)	29.00 (737)	51.38 (1305)			131.18 (3332)	39.37 (1000)	39.37 (1000)
32"	60.00 (1524)	61.14 (1553)	60.00 (1524)	30.67 (779)	53.70 (1364)			142.50 (3620)	39.37 (1000)	39.37 (1000)
36"	68.00 (1727)	69.13 (1756)	68.00 (1727)	34.50 (876)	59.72 (1517)			156.42 (3973)	39.37 (1000)	39.37 (1000)

EXPANDING GATE VALVE CLASS 600										
SIZE IN	RF	RTJ	BW	B	H	HW	W	HG	G	WEIGHT LBS (KG)
2"	11.50 (292)	11.61 (295)	11.50 (292)	2.00 (51)	5.91 (150)	18.90 (480)	9.84 (250)			143 (65)
3"	14.00 (356)	14.13 (359)	14.00 (356)	3.00 (76)	7.48 (190)	28.94 (735)	9.84 (250)			243 (110)
4"	17.00 (432)	17.13 (435)	17.00 (432)	4.00 (102)	10.24 (260)	31.46 (799)	19.69 (500)			331 (150)
6"	22.00 (559)	22.13 (562)	22.00 (559)	5.98 (152)	12.95 (329)	49.72 (1263)	20.05 (560)			628 (285)
8"	26.00 (660)	26.14 (664)	26.00 (660)	8.00 (203)	16.54 (420)	52.20 (1326)	28.35 (720)	52.20 (1326)	18.11 (460)	1433 (650)
10"	31.00 (787)	31.14 (791)	31.00 (787)	10.00 (254)	19.49 (495)	58.00 (1473)	28.35 (720)	58.00 (1473)	24.00 (610)	1984 (900)
12"	33.00 (838)	33.11 (841)	33.00 (838)	12.00 (305)	23.23 (590)	64.84 (1647)	28.35 (720)	64.84 (1647)	24.00 (610)	2425 (1100)
14"	35.00 (889)	35.12 (892)	35.00 (889)	13.23 (336)	25.79 (655)			71.65 (1820)	24.00 (610)	3748 (1700)
16"	39.00 (991)	39.13 (994)	39.00 (991)	15.16 (385)	29.21 (742)			80.16 (2036)	28.00 (710)	5071 (2300)
18"	43.00 (1092)	43.11 (1095)	43.00 (1092)	17.17 (436)	32.68 (830)			90.75 (2305)	31.50 (800)	6063 (2750)
20"	47.00 (1194)	47.24 (1200)	47.00 (1194)	19.25 (489)	36.81 (935)			94.50 (2400)	31.50 (800)	9259 (4200)
24"	55.00 (1397)	55.39 (1407)	55.00 (1397)	23.19 (589)	43.70 (1111)			116.26 (2953)	31.50 (800)	10913 (4950)
28"	61.00 (1549)	61.50 (1562)	61.00 (1549)	26.93 (684)	48.27 (1226)			132.83 (3374)	35.43 (900)	18188 (8250)
30"	65.00 (1651)	65.50 (1664)	65.00 (1651)	29.00 (737)	51.97 (1320)			137.50 (3492)	39.37 (1000)	20944 (9500)
32"	65.00 (1651)	65.50 (1664)	65.00 (1651)	30.67 (779)	54.50 (1384)			144.50 (3670)	39.37 (1000)	25353 (11500)
36"	74.00 (1880)	74.61 (1895)	74.00 (1880)	34.50 (876)	60.24 (1530)			161.14 (4093)	39.37 (1000)	34172 (15500)

# EXPANDING GATE VALVE WEIGHTS AND DIMENSIONS



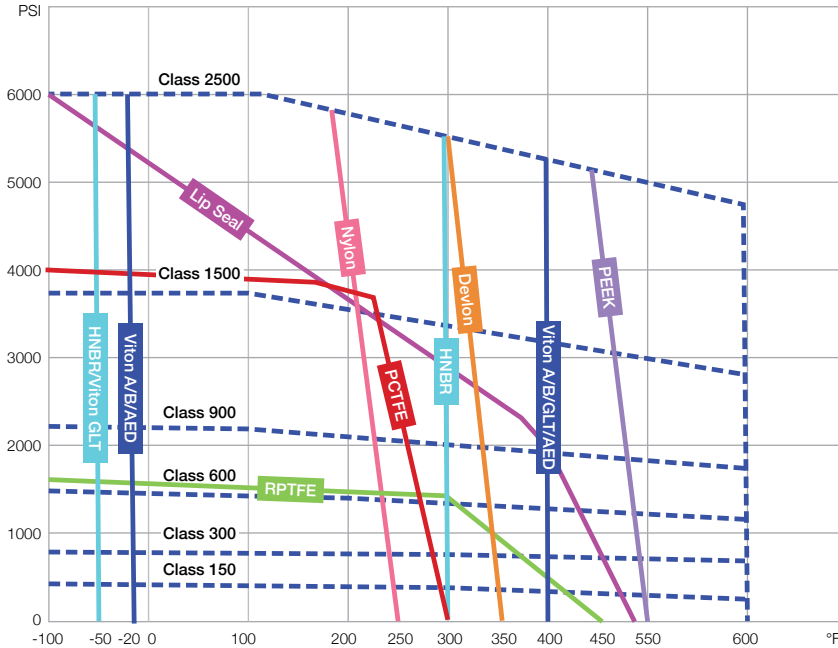
EXPANDING GATE VALVE CLASS 900										
SIZE IN	RF	RTJ	BW	B	H	HW	W	HG	G	WEIGHT LBS (KG)
2"	14.50 (368)	14.61 (371)	14.50 (368)	1.93 (51)	6.14 (156)	26.38 (670)	9.84 (250)			198 (90)
3"	15.00 (381)	15.12 (384)	15.00 (381)	3.00 (76)	9.09 (231)	28.94 (735)	15.75 (400)			370 (162)
4"	18.00 (457)	18.11 (460)	18.00 (457)	4.00 (102)	10.63 (270)	31.46 (799)	19.69 (500)			628 (285)
6"	24.00 (610)	24.13 (613)	24.00 (610)	6.00 (152)	13.54 (344)	52.87 (1343)	22.05 (560)			1168 (530)
8"	29.00 (737)	29.13 (740)	29.00 (737)	8.00 (203)	18.46 (469)	52.20 (1326)	28.35 (720)	52.20 (1326)	18.11 (305)	2094 (950)
10"	33.00 (838)	33.11 (841)	33.00 (838)	10.00 (254)	19.69 (500)	61.93 (1573)	28.35 (720)	61.93 (1573)	18.11 (610)	2866 (1300)
12"	38.00 (965)	38.11 (968)	38.00 (965)	12.00 (305)	24.21 (615)			65.63 (1667)	28.00 (710)	4321 (1960)
14"	40.50 (1029)	40.87 (1038)	40.50 (1029)	12.76 (324)	26.38 (670)			71.75 (1820)	28.00 (710)	5842 (2650)
16"	44.50 (1130)	44.88 (1140)	44.50 (1130)	14.69 (373)	29.53 (750)			85.67 (2176)	28.00 (710)	7055 (3200)
18"	48.00 (1219)	48.50 (1232)	48.00 (1219)	16.73 (425)	35.04 (890)			88.46 (2247)	35.43 (900)	8818 (4000)
20"	52.00 (1321)	52.52 (1334)	52.00 (1321)	18.62 (473)	36.34 (923)			98.46 (2501)	35.43 (900)	11464 (5200)
24"	61.00 (1549)	61.73 (1568)	61.00 (1549)	22.52 (572)	43.58 (1107)			116.93 (2970)	35.43 (900)	20282 (9200)

# PERFORMANCE CHART & ORDERING



## SOFT SEAT PERFORMANCE CHART

The Performance Chart used as general guide and final Application to be taken by customer, based on characteristics and specified application



## HOW TO ORDER - WILLIAMS FIGURE NUMBER (PIPELINE GATE VALVES)

SIZE	A		B		C		D		E		G	
	BODY MATERIAL PREFIX		CLASS AND VALVE TYPE		ENDS		TRIM		BODY SUFFIX		ACCESSORIES	
S	S	Stainless / Alloy	18	150# Slab Gate	F	RF Flanged	0	Special Trim	none	ASTM A216 Grade WCB/WCC	none	Handwheel
			19	150# Expanding Gate	W	Butt Weld	1D	ENP Trim with Devlon Seat	LCC	ASTM A352 Grade LCC	BP	Bypass
			38	300# Slab Gate	R	RTJ	1N	ENP Trim with Nylon Seat	LCB	ASTM A352 Grade LCB	GO	Gear Operator
			39	300# Expanding Gate			1RT	ENP Trim with Reinforced Teflon Seat	WC6	ASTM A217 Grade WC6	MO	Motor Operated
			68	600# Slab Gate			61D	316 Stem/ENP Wedge with Devlon Seat	WC9	ASTM A217 Grade WC9	BS	Bare Stem
			69	600# Expanding Gate			61N	316 Stem/ENP Wedge with Nylon Seat	WC11	ASTM A217 Grade WC11	Lrk	Liquid Relief Kit
			98	900# Slab Gate			61RT	316 Stem/ENP Wedge with Reinforced Teflon Seat	C5	ASTM A217 Grade C5		
			99	900# Expanding Gate			66D	316 Stem/316 Wedge with Devlon Seat	C12	ASTM A217 Grade C12		
			158	1500# Slab Gate			66N	316 Stem/316 Wedge with Nylon Seat	C12A	ASTM A217 Grade C12A		
			159	1500# Expanding Gate			66RT	316 Stem/316 Wedge with Reinforced Teflon Seat	316	CF8M/316		

## BALL VALVE EXAMPLE

SIZE	A	B	C	D	E	F
	—	68	F	1RT	—	GO

10" 600# Slab Gate Valve, WCC Body and ENP Trim, Bolted Bonnet with Gear Operator – 10" 68F-1RT GO