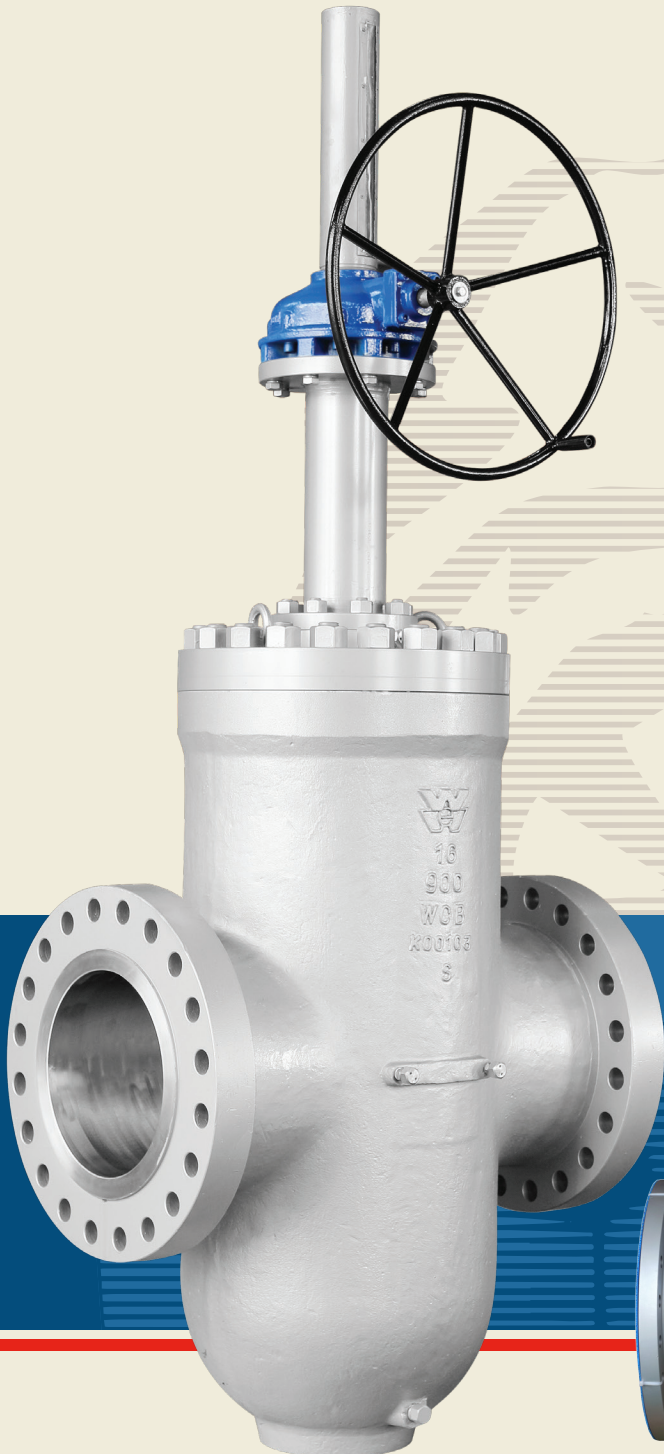


# WILLIAMS VALVE

## API-6D THROUGH CONDUIT VALVES



*“Our goal is to produce high quality valves, with fully traceable quality records, at competitive prices and deliveries required in today’s business world”*

## A MESSAGE FROM THE PRESIDENT

Founded in 1918, the William E. Williams Valve Corporation has continuously produced rugged reliable quality valves for industrial and commercial applications including: upstream & midstream oil /gas, steam distribution, terminal storage, chemical processing, power generation, mining, paper, pharmaceutical processes, as well as commercial and naval shipbuilding.

Williams’ valves are designed, manufactured and tested to meet or exceed all applicable specifications. Williams commitment to ongoing improvement means we are always ready to meet the latest industry design and environmental regulations. Our goal is to produce high quality valves, with fully traceable quality records, at competitive prices, and deliveries to match the “just in time” requirements of today’s business world. To accomplish this goal, we maintain large inventories of finished products to support our distribution network.

Williams’ has decades of experience meeting our customer’s special needs: in house install of actuators or gear operators, emergency shut-off valve mods, by-pass valve installations, and extended bonnets are no challenge for Williams and can be performed in house from our stock inventory.

Williams’ Valve record of quality and service is unmatched in the valve industry. We are a privately owned family business whose success has been achieved through the dedication of our knowledgeable employees. Our aim is to provide the highest standard of excellence to you, our present and future customers.

This pipeline gate valve catalog provides an overview of our midstream products. Detailed drawings are available in several formats from our website [www.williamsvalve.com](http://www.williamsvalve.com). We appreciate your business and look forward to being your first choice for all your industrial valve needs.

Sincerely,



**Nick Sherman**  
President





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24" CL150 Slab Gates



Williams Valve China API-6D Factory



20" CL150 Slab Gates installed at Oklahoma Facility



Expanding Gate Valve Installation

Williams Valve manufactures API 6D Pipeline Gate Valves in both Slab and Expanding gate designs. Both types are full bore, bi-directional, capable of double block and bleed sealing, and ideal for pipeline pigging operations. These valves are a top entry design with floating seats, and thus both are serviceable while installed in the flow line. Manufactured to API-6D requirements Williams Valves also carry the API 6D monogram, audited and issued by the American Petroleum Institute.

## COMPARING THE SLAB AND EXPANDING GATE VALVE

Slab and Expanding Gate Valves are both widely used, particularly in the Midstream Pipeline and Terminal Storage Industry. Which valve is better depends entirely on the application.

### THE SLAB GATE VALVE

The Slab Gate Valve is the “work-horse” of pipeline gate valves. When reliability, ease of maintenance, and cost are the primary factors, a Williams Slab Gate Valve is the optimal choice. The simplest of all piggable pipeline valves, this design has the fewest moving parts. The large seat to seal area tolerates minor scratches better than ball valves, and unlike a trunnion ball valve the long life cycle of a slab gate can be further extended thanks to its ease of repair. The valve is most often used as a pipeline block valve for applications requiring a full bore and API-6D Double Block & Bleed sealing.



### THE EXPANDING GATE VALVE

The Expanding Gate Valve manufactured by Williams is a premium engineered product for critical applications. Like a Slab Gate the internal pipeline pressure aids in creating a tight seal, but the primary seal is created by the mechanical action of the expanding gate against the floating seats. This provides a higher degree of security in situations where extreme pressure differential is of concern. The Expanding Gate design is often the preferred valve for pigging operations where the gate is the only pressure barrier to the atmosphere. The unique feature of the Expanding Gate valve is the Double Isolation and Bleed (DIB) function. This provides the ability to vent the body cavity even when there is high pressure on only one side of the valve. DIB is achieved by the mechanical gate to seat contact which provides a positive low pressure seal. The mechanical contact between gate and seats also help prevent debris or solids in the flow-line from entering the body cavity. Low torque manual operation is preferred.



# SLAB GATE DESIGN FEATURES



1. Floating metal seat rings (Fig. A) are equipped with soft face seals (1) and are held in constant contact with the gate by dynamically energized Spring (2) located behind the metal seat ring.
2. The full-bore through conduit gate valve is fully piggable without danger of damage to the valve seats
3. Precise machining of the slab and seats leaves little space in the bore, minimizing pipeline turbulence and a heavy 3 Mil ENP coating that protects the surface from damage and corrosion.
4. Fire safe design is optional (Fig. B), in the event of a fire and damage to the soft O-ring and seat insert, graphite wire rod and metal to metal between seat & gate can provide a temporary seal.
5. After isolation of the valve and relief of any internal pressure, the top entry bonnet may be removed and the internal trim components can be replaced with the valve installed in the flow line.
6. In case of seat failure emergency sealant can be pumped through body fittings directly into a groove on the face of the seat (FIG A).

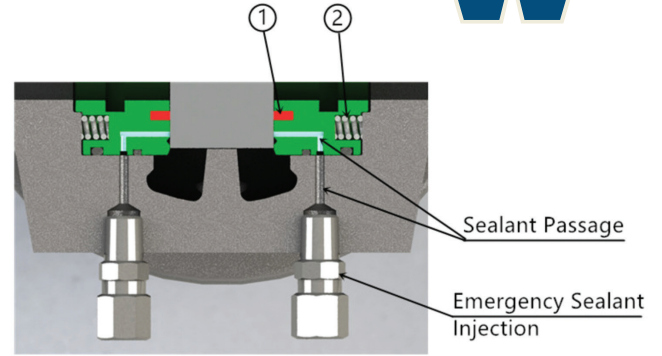


Figure A

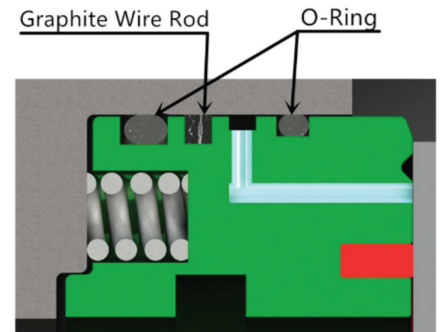


Figure B

## ADJUSTABLE PACKING SYSTEM

Williams 6D gate valves have a API-622 qualified low emission braided graphite packing arrangement with a unique internal packing retainer that allows for in service adjustment while the valve is under pressure. The ability to adjust the packing over time greatly increases the life of the packing, eliminating downtime. The stem seal packing box is provided with fittings for emergency

packing injection. Additionally, since the packing is retained independently of the yoke, the yoke can be removed while the valve is under pressure, allowing for easier maintenance or replacement of actuators. The yoke also has an integrally machined locator (Fig. C) that makes reassembly simple.

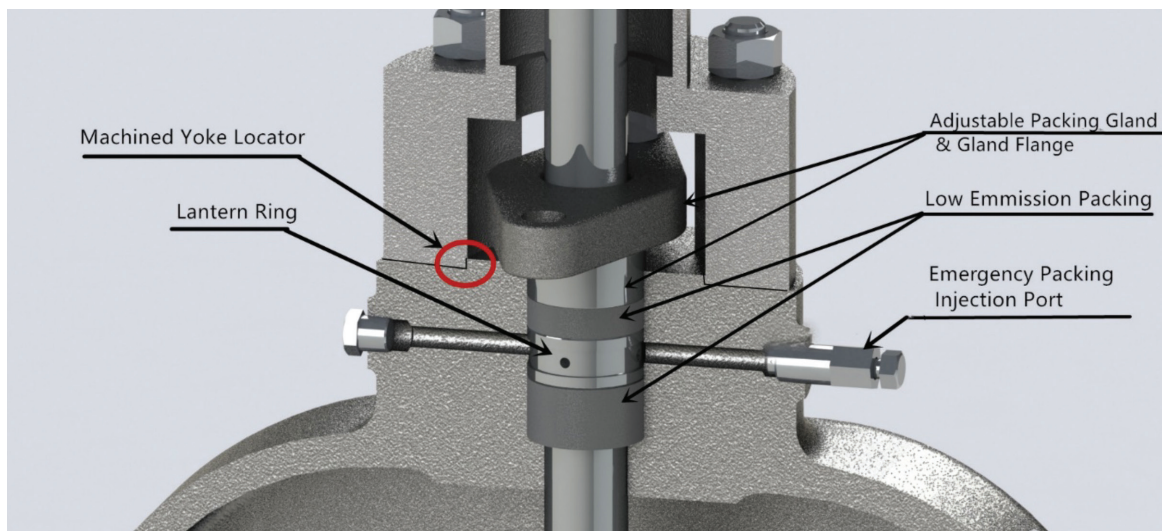
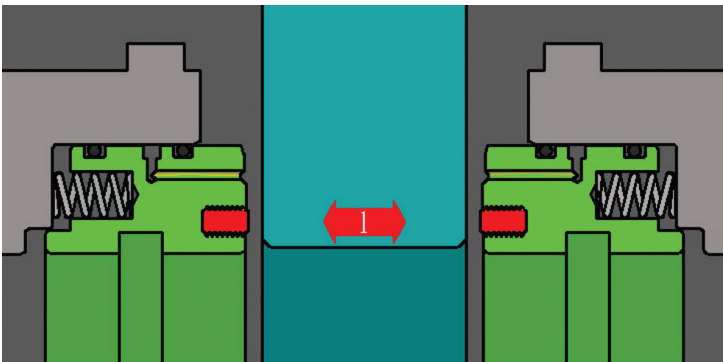
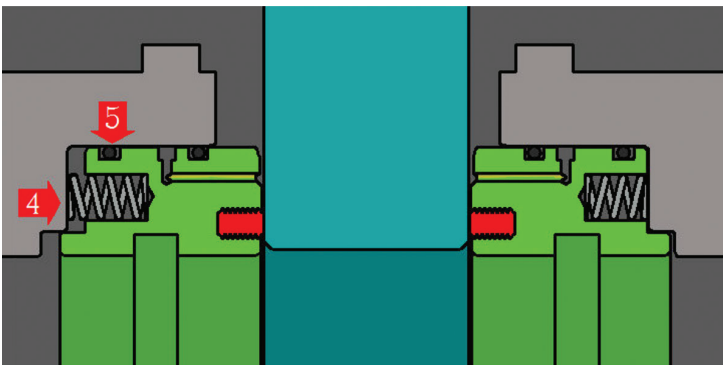


Figure C

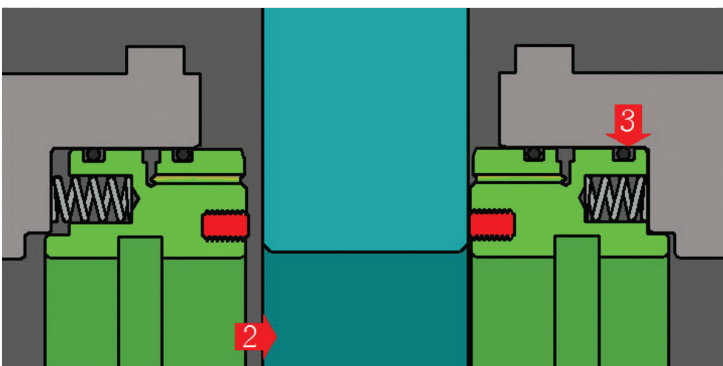
## SPRING ENERGIZED SEAT DESIGN AUTOMATIC RELIEF OF EXCESS BODY PRESSURE



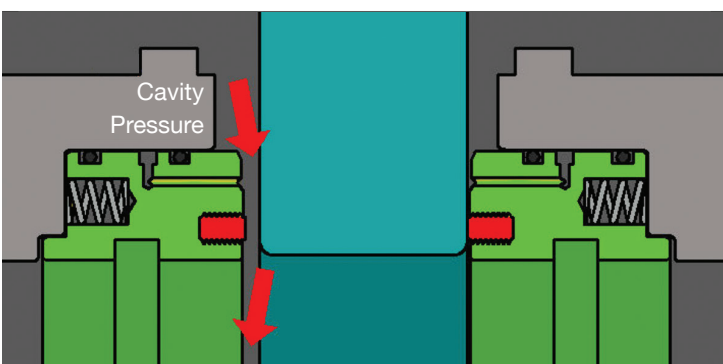
During operation an initial seal (1) is formed by the raised plastic ring on the faces of the seats. The seat inserts clean both sides of the gate each time the valve is opened or closed.



In low pressure situations the initial upstream seal is provided by the force of line pressure acting against the upstream seat (4), moving the seat against the gate and providing a tight plastic-to-metal seal. At the same time, the O-ring (5) forms a tight seal with the seat recess.

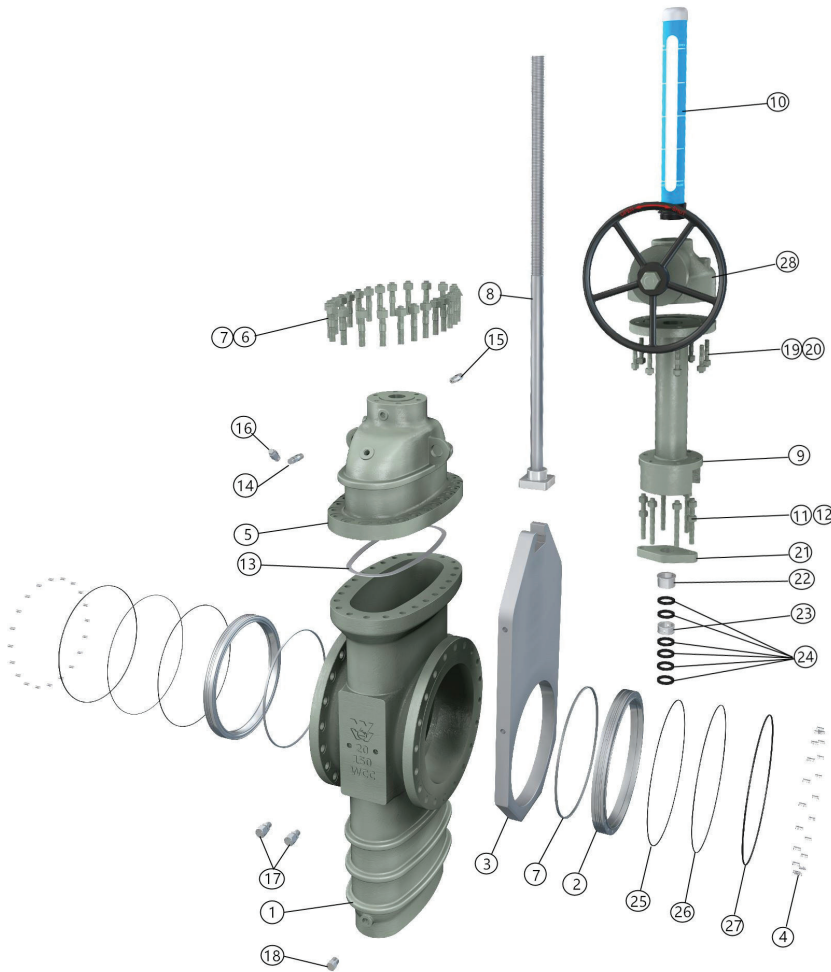


As line pressure (2) is applied to the valve, it acts on the gate, forcing it against the plastic ring on the downstream seat and compressing it until the gate rests against the steel seat. Thus, a double seal is formed; first, a plastic-to-metal seal then metal-to-metal. The seal is also forced firmly into its recess. The O-ring (3) prevents any downstream flow around the seat.



The valve automatically relieves itself of excessive body pressure. When body pressure exceeds line pressure from causes such as thermal expansion, the upstream seat is forced back into its recess and the excess pressure in the body is bled between the seat and the gate into the line.

# SLAB GATE VALVE COMPONENTS AND TRIM CHART



ITEM NO.	PART NAME
1	BODY
2	SEAT
3	GATE
4	SPRING
5	BONNET
6	BONNET BOLT
7	BONNET NUT
8	STEM
9	WELDING YOKE
10	STEM COVER
11	BOLT
12	NUT
13	GASKET
14	PACKING FITTING
15	PLUG
16	VENT VALVE
17	INJECTION FITTING
18	DRAIN PLUG
19	BOLT
20	NUT
21	GLAND FLANGE
22	GLAND
23	LANTERN RING
24	PACKING
25	O-RING
26	GRAPHITE WIRE ROD
27	O-RING
28	GEAR BOX

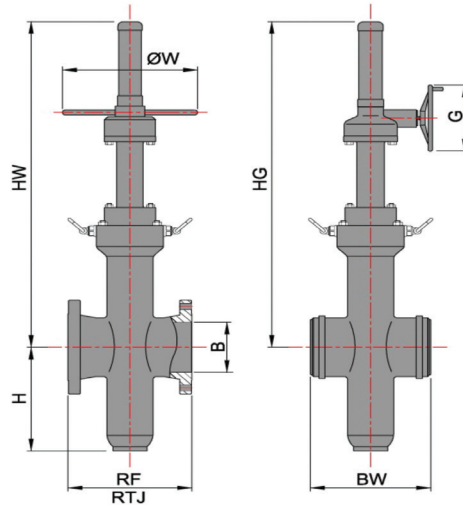
ITEM	DESCRIPTION	TEMPERATURE RANGE		
		CARBON STEEL -29°C (-20°F) TO 176°C (350°F)	CARBON STEEL -29°C (-20°F) TO 176°C (350°F)	LOW TEMP. CARBON STEEL -46°C (-51°F) TO 176°C (350°F)
1	Body	A216 WCB/WCC	A216 WCB/WCC	A352 LCC
2	Bonnet	A216 WCB/WCC/A105N	A216 WCB/WCC/A105N	A352 LCC / LF2
3	Welding yoke	ANSI 1020	ANSI 1020	A350 LF2
4	*Gate	A515 GR.70/ENP	A515 GR.70/ENP	A350 LF2/ENP
5	*Stem	A182 F316	A182 F316	A182 F316
6	Seat Insert	RPTFE/DEVLON	RPTFE/DEVLON	RPTFE/DEVLON
7	Seat Seal (O-Ring)	Viton A	**Viton A + Graphite	HNBR
8	*Seat	A105N/ENP	A105N/ENP	A350 LF2/ENP
9	Body/Bonnet Studs	A193 B7M	A193 B7M	A320 L7M
10	Body/Bonnet Nuts	A194 2HM	A194 2HM	A194 7M
11	Packing	GRAPHITE	GRAPHITE	GRAPHITE
12	Packing Fitting	SS316	SS316	SS316
13	Packing Plug/Vent	SS316	SS316	SS316

\*3-Mil Electroless Nickel Plating

\*\*Fire Safe API-6FA Certified

# SLAB GATE VALVE WEIGHTS AND DIMENSIONS

WILLIAMS VALVE

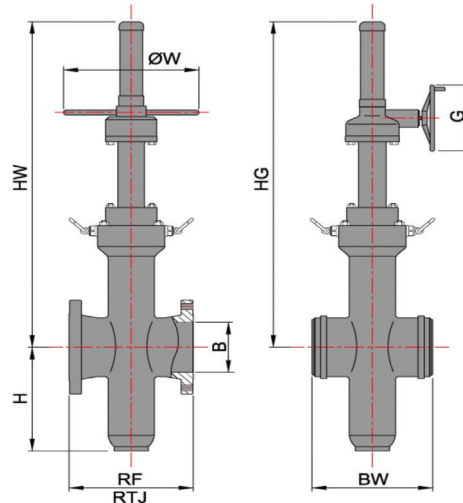


SLAB GATE VALVE CLASS 150										
SIZE IN	RF	RTJ	BW	B	H	HW	W	HG	G	WEIGHT LBS (KG)
2"	7.00 (178)	7.52 (191)	8.50 (216)	1.93 (49)	5.91 (150)	18.50 (470)	9.84 (200)			77 (35)
3"	8.00 (203)	8.50 (216)	11.14 (283)	2.91 (74)	7.74 (196.5)	27.36 (695)	10.63 (300)			121 (55)
4"	9.00 (229)	9.50 (241)	12.00 (305)	3.94 (100)	9.76 (248)	31.50 (800)	11.81 (300)			187 (85)
6"	10.50 (267)	11.00 (279)	15.87 (403)	5.98 (152)	13.54 (344)	42.91 (1090)	13.78 (350)			309 (140)
8"	11.50 (292)	12.00 (305)	16.50 (419)	8.00 (203)	16.38 (416)	49.72 (1263)	13.78 (350)	49.72 (1263)	12.20 (310)	529 (240)
10"	13.00 (330)	13.50 (343)	18.00 (457)	10.00 (254)	19.69 (500)	55.75 (1416)	15.75 (400)	55.75 (1416)	12.20 (310)	772 (350)
12"	14.00 (356)	14.50 (368)	19.76 (502)	12.00 (305)	22.72 (577)	62.68 (1592)	19.69 (500)	62.68 (1592)	12.20 (310)	992 (450)
14"	15.00 (381)	15.51 (394)	22.50 (572)	13.15 (334)	24.21 (615)	69.49 (1765)	19.69 (500)	69.49 (1765)	18.11 (460)	1323 (600)
16"	16.00 (406)	16.50 (419)	24.00 (610)	15.24 (385)	27.60 (701)	79.69 (2024)	22.05 (560)	79.80 (2027)	18.11 (460)	1653 (750)
18"	17.00 (432)	17.50 (445)	26.00 (660)	17.20 (437)	31.26 (794)	88.58 (2250)	25.20 (640)	89.17 (2265)	24.00 (610)	1962 (890)
20"	18.00 (457)	18.50 (470)	28.00 (711)	19.21 (488)	34.96 (888)	92.50 (2350)	25.20 (640)	92.52 (2350)	24.00 (610)	2469 (1120)
24"	20.00 (508)	20.50 (521)	32.00 (813)	23.19 (589)	41.73 (1060)			111.42 (2830)	24.00 (610)	4409 (2000)
28"	24.00 (610)		36.00 (914)	26.93 (686)	47.91 (1217)			128.54 (3265)	28.00 (710)	5842 (2650)
30"	26.00 (660)		36.00 (914)	29.02 (737)	52.13 (1324)			123.78 (3144)	28.00 (710)	6504 (2950)
32"	28.00 (711)		38.00 (965)	30.67 (779)	47.09 (1196)			140.55 (3570)	28.00 (710)	7716 (3500)
36"	32.00 (813)		40.00 (1016)	34.50 (876)	59.72 (1517)			130.39 (3312)	28.00 (710)	11904 (5400)
40"	36.00 (914)		-	38.50 (978)	66.14 (1680)			170.20 (4323)	35.43 (900)	14881 (6750)

SLAB 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)	1.93 (49)	5.94 (151)	18.50 (470)	7.87 (200)			119 (54)
3"	11.14 (283)	11.73 (298)	11.14 (283)	2.91 (74)	7.64 (194)	27.36 (695)	11.81 (300)			187 (85)
4"	12.00 (305)	12.64 (321)	12.00 (305)	3.94 (100)	9.76 (248)	31.50 (800)	11.81 (300)			242 (110)
6"	15.87 (403)	16.50 (419)	15.87 (403)	5.87 (152)	13.74 (349)	42.87 (1089)	13.78 (350)			529 (240)
8"	16.50 (419)	17.13 (435)	16.50 (419)	7.99 (203)	16.57 (421)	52.20 (1326)	15.75 (400)	52.20 (1326)	12.20 (310)	772 (350)
10"	18.00 (457)	18.62 (473)	18.00 (457)	10.00 (254)	19.88 (505)	55.75 (1416)	19.69 (500)	55.75 (1416)	12.20 (310)	1124 (510)
12"	19.75 (502)	20.39 (518)	19.76 (502)	12.00 (305)	22.91 (582)	64.84 (1647)	19.69 (500)	64.84 (1647)	18.11 (460)	1653 (750)
14"	30.00 (762)	30.63 (778)	30.00 (762)	13.15 (334)	24.65 (626)	69.50 (1765)	22.05 (560)	69.50 (1765)	18.11 (460)	2314 (1050)
16"	33.00 (838)	33.62 (854)	33.00 (838)	15.16 (385)	28.66 (728)	79.96 (2031)	25.20 (640)	79.96 (2031)	18.11 (460)	3219 (1460)
18"	36.00 (914)	36.61 (930)	36.00 (914)	17.20 (437)	30.79 (782)			90.75 (2305)	24.00 (610)	4519 (2050)
20"	39.00 (991)	39.76 (1010)	39.00 (991)	19.21 (488)	34.02 (864)			92.52 (2350)	24.00 (610)	5842 (2650)
24"	45.00 (1143)	45.87 (1165)	45.00 (1143)	23.19 (589)	41.73 (1060)			114.29 (2903)	28.00 (710)	9259 (4200)
28"	53.00 (1346)	54.00 (1372)	53.00 (1346)	26.93 (684)	47.50 (1206)			124.96 (3174)	28.00 (710)	12125 (5500)
30"	55.00 (1397)	56.00 (1422)	55.00 (1397)	29.00 (737)	51.38 (1305)			131.18 (3332)	28.00 (710)	14330 (6500)
32"	60.00 (1524)	61.14 (1553)	60.00 (1524)	30.67 (779)	53.70 (1364)			142.52 (3620)	31.50 (800)	15873 (7200)
36"	68.00 (1727)	69.13 (1756)	68.00 (1727)	34.50 (876)	59.72 (1517)			156.42 (3973)	31.50 (800)	19621 (8900)



# 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

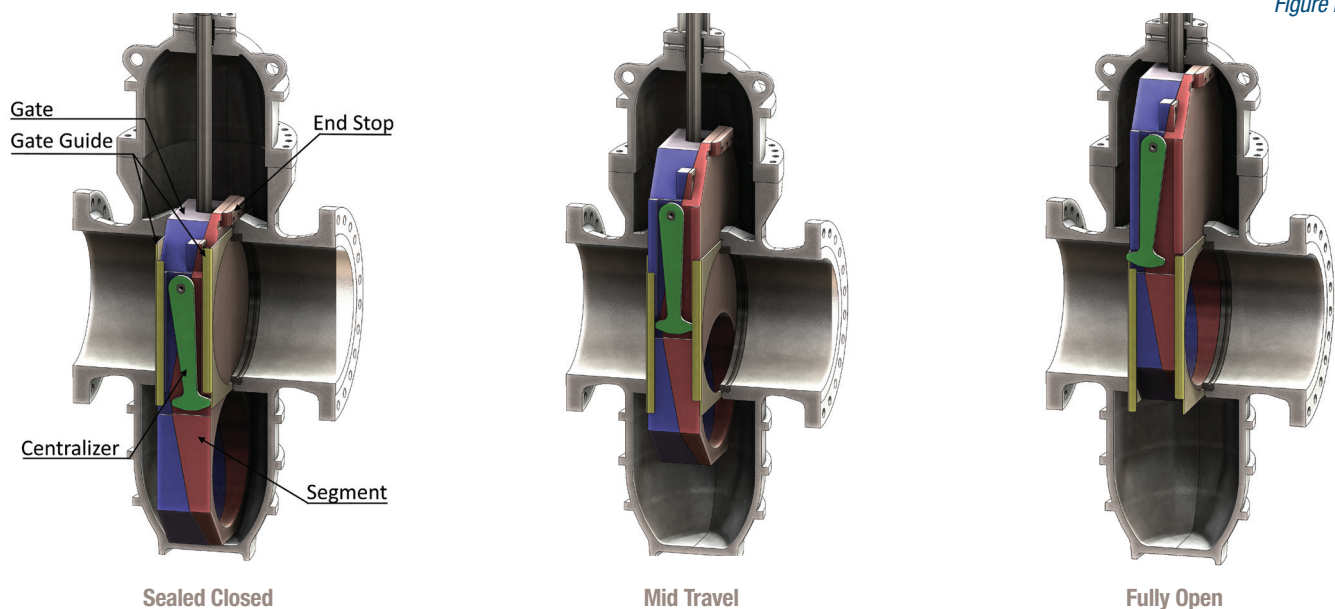
1. The Williams Expanding Gate Valve provides a positive mechanical seal to ensure a bubble-tight shut-off at both high and low pressure. The mechanical seal is unaffected by vibration or variation in line pressure. The valve seals bi-directionally and will achieve Double Isolation & Bleed per API-6D 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.

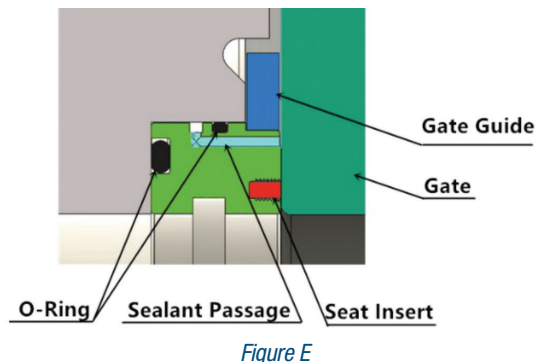
Figure D





## 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).



## 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.

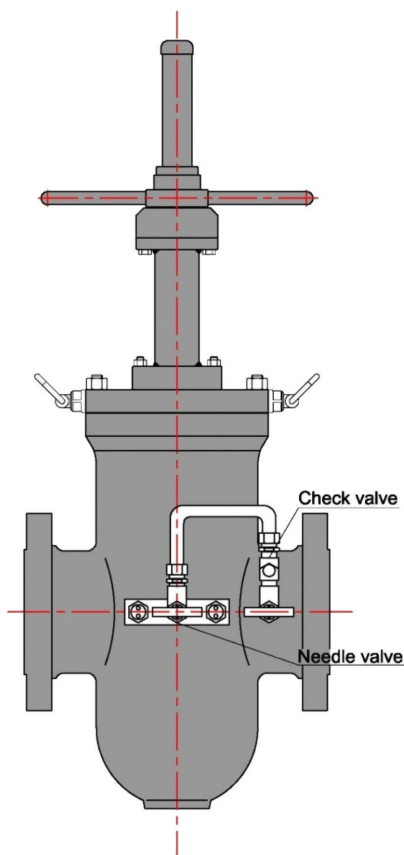
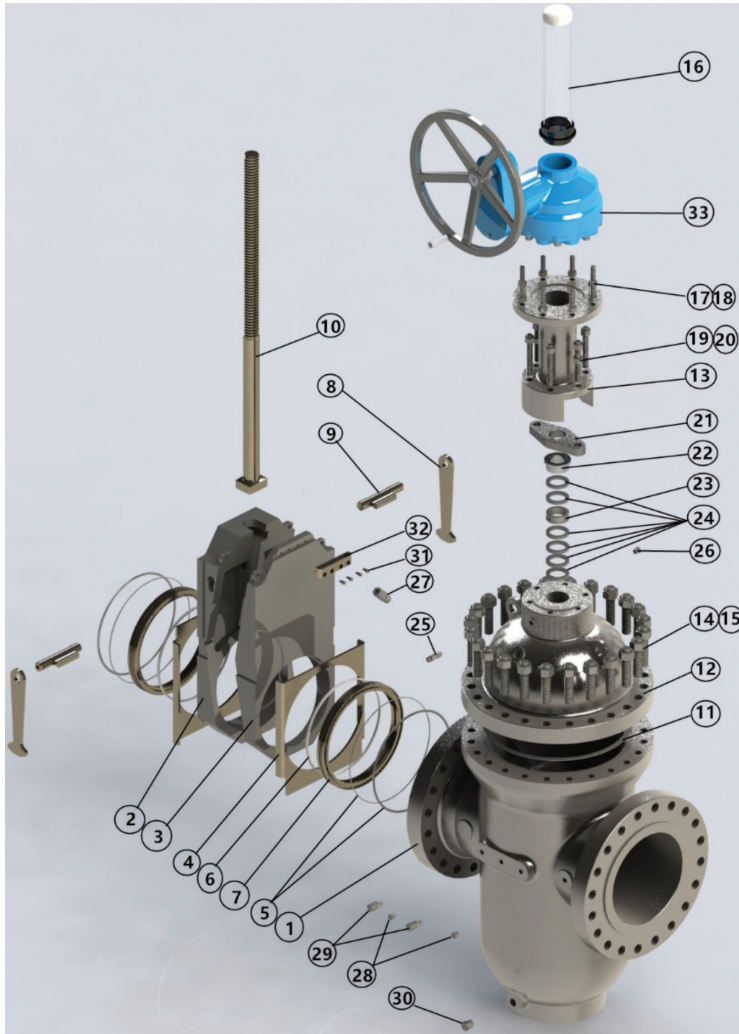


Figure F

# EXPANDING GATE VALVE COMPONENTS AND TRIM CHART

WILLIAMS VALVE

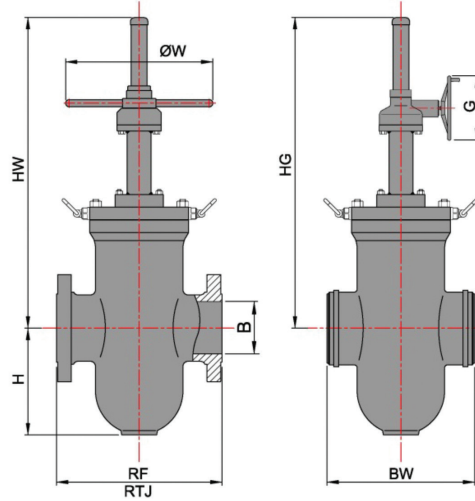


ITEM NO.	PART NAME
1	BODY
2	GATE
3	SEGMENT
4	SKIRT PLATE
5	O-Ring
6	SEAT INSERT
7	SEAT RING
8	CENTRALIZER
9	PIN
10	STEM
11	GASKET
12	BONNET
13	YOKE
14	BOLT
15	NUT
16	STEM COVER
17	BOLT
18	NUT
19	BOLT
20	NUT
21	GLAND FLANGE
22	GLAND
23	LANTERN RING
24	PACKING
25	PACKING FITTING
26	PLUG
27	AUTOVENT VALVE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

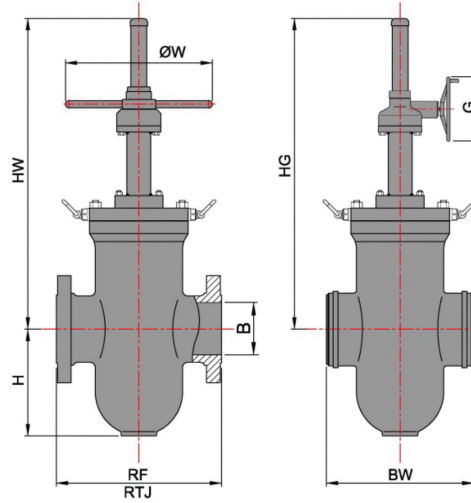


EXPANDING GATE VALVE CLASS 300										
SIZE IN	RF	RTJ	BW	B	H	HW	W	HG	G	WEIGHT LBS (KG)
2"	8.50 (216)	9.13 (232)	8.50 (216)	2.00 (51)	5.71 (145)	18.50 (470)	9.84 (250)			
3"	11.14 (283)	11.73 (298)	11.14 (283)	3.00 (76)	7.13 (181)	27.36 (695)	9.84 (250)			
4"	12.00 (305)	12.64 (321)	12.00 (305)	4.00 (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)

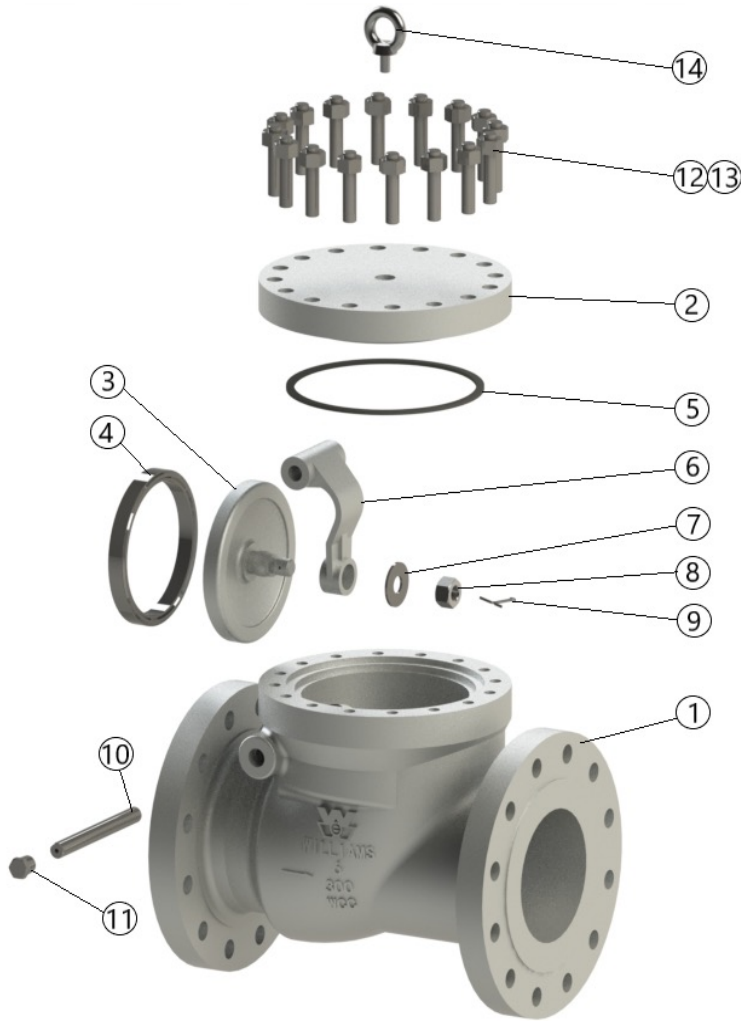
# EXPANDING GATE VALVE WEIGHTS AND DIMENSIONS

WILLIAMS VALVE



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)

# SWING CHECK VALVE COMPONENTS AND TRIM CHART

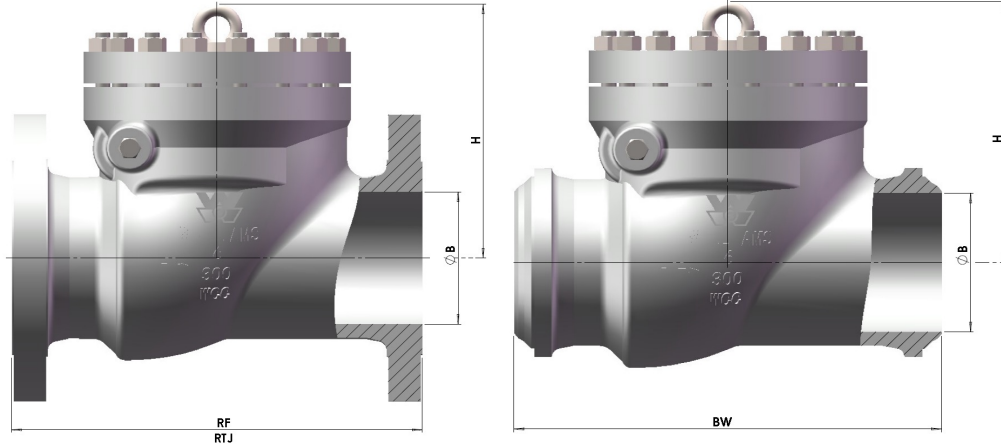


ITEM NO.	PART NAME
1	BODY
2	COVER
3	DISC
4	SEAT RING
5	GASKET
6	HINGE
7	WASHER
8	NUT
9	COTTER PIN
10	HINGE PIN
11	PLUG
12	STUD
13	NUT
14	LIFTING LUG

ITEM	DESCRIPTION	CARBON STEEL	LOW TEMP. CARBON STEEL
		-29°C (-20°F) TO 425°C (797°F)	-46°C (-51°F) TO 345°C (653°F)
1	BODY	A216 WCB/WCC	A352 LCC
2	COVER	A105N	A350 LF2
3	DISC	A216 WCB/WCC+13Cr	A352 LCC+SS316
4	SEAT RING	A105N+STL.6	A350 LF2+STL.6
5	GASKET	SPW GRAPHITE+SS304	SPW GRAPHITE+SS316
6	HINGE	A216 WCB/WCC	A352 LCC
7	WASHER	SS410	SS316
8	NUT	SS304	SS316
9	COTTER PIN	SS304	SS316
10	HINGE PIN	A182 F6a	A182 F316
11	PLUG	A105N	A350 LF2
12	STUD	A193 B7M	A320 L7M
13	NUT	A194 2HM	A194 7M
14	LIFTING LUG	AISI 1035	AISI 1035

# SWING CHECK VALVE WEIGHTS AND DIMENSIONS

WILLIAMS VALVE

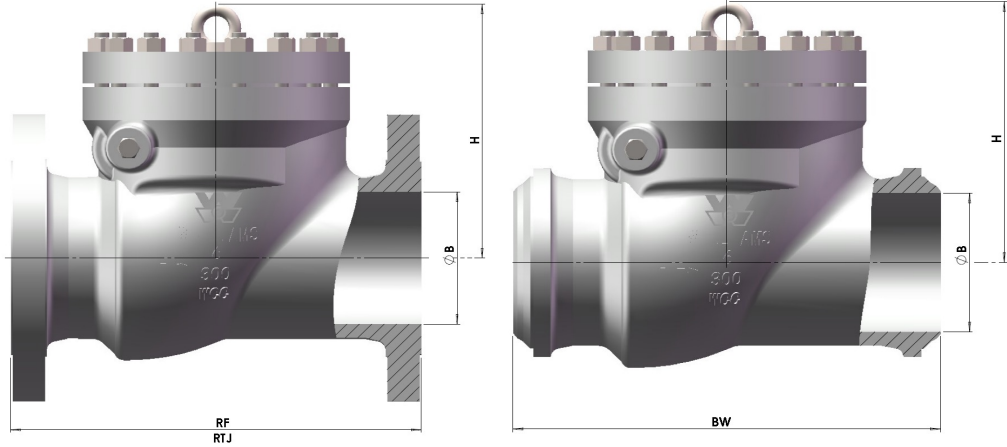


FULL OPENING SWING CHECK VALVE CLASS 150							
SIZE IN	RF	RTJ	BW	B	H	LBS (KG) (RF/RTJ)	LBS (KG) (BW)
2"	7.99 (203)	8.5 (216)	7.99 (203)	1.93 (49)	5.71 (145)	39.6 (18)	26.4 (12)
2.5"	8.5 (216)	9.02 (229)	8.5 (216)	2.44 (62)	6.1 (155)	48.4 (22)	33 (15)
3"	9.49 (241)	10 (254)	9.49 (241)	2.91 (74)	6.5 (165)	66 (30)	46.2 (21)
4"	11.5 (292)	12.01 (305)	11.5 (292)	3.94 (100)	8.46 (215)	88 (40)	57.2 (26)
6"	14.02 (356)	14.49 (368)	14.02 (356)	5.91 (150)	11.02 (280)	149.6 (68)	136.4 (62)
8"	19.49 (495)	20 (508)	19.49 (495)	7.91 (201)	13.39 (340)	279.4 (127)	200.2 (91)
10"	24.49 (622)	25 (635)	24.49 (622)	9.92 (252)	16.14 (410)	475.2 (216)	448.8 (204)
12"	27.52 (699)	27.99 (711)	27.52 (699)	11.93 (303)	17.91 (455)	715 (325)	644.6 (293)
14"	30.98 (787)	31.5 (800)	30.98 (787)	13.15 (334)	20.28 (515)	871.2 (396)	774.4 (352)
16"	34.02 (864)	34.49 (876)	34.02 (864)	15.16 (385)	22.64 (575)	1067 (485)	1192.4 (542)
18"	38.5 (978)	39.02 (991)	38.5 (978)	17.17 (436)	23.78 (604)	1463 (665)	1575.2 (716)
20"	38.5 (978)	39.02 (991)	38.5 (978)	19.17 (487)	24.8 (630)	1557.6 (708)	1874.4 (852)
24"	50.98 (1295)	51.5 (1308)	50.98 (1295)	23.19 (589)	29.29 (744)	2989.8 (1359)	3520 (1600)
30"	60 (1524)		60 (1524)	28.94 (735)	38.39 (975)	4741 (2155)	4417.6 (2008)
36"	77.01 (1956)		77.01 (1956)	34.41 (874)	39.53 (1004)	7370 (3350)	6930 (3150)
40"	85 (2159)		85 (2159)	38.43 (976)	TBD	TBD	TBD

FULL OPENING SWING CHECK VALVE CLASS 300							
SIZE IN	RF	RTJ	BW	B	H	LBS (KG) (RF/RTJ)	LBS (KG) (BW)
2"	10.51 (267)	11.14 (283)	10.51 (267)	1.93 (49)	5.91 (150)	52.8 (24)	46.2 (21)
2.5"	11.5 (292)	12.13 (308)	11.5 (292)	2.44 (62)	6.22 (158)	81.4 (37)	77 (35)
3"	12.52 (318)	13.11 (333)	12.52 (318)	2.91 (74)	7.09 (180)	99 (45)	77 (35)
4"	14.02 (356)	14.61 (371)	14.02 (356)	3.94 (100)	9.45 (240)	149.6 (68)	112.2 (51)
6"	17.52 (445)	18.11 (460)	17.52 (445)	5.91 (150)	11.61 (295)	301.4 (137)	242 (110)
8"	20.98 (533)	21.61 (549)	20.98 (533)	7.91 (201)	13.39 (340)	484 (220)	400.4 (182)
10"	24.49 (622)	25.12 (638)	24.49 (622)	9.92 (252)	16.14 (410)	594 (270)	462 (210)
12"	27.99 (711)	28.62 (727)	27.99 (711)	11.93 (303)	18.11 (460)	1089 (495)	1012 (460)
14"	32.99 (838)	33.62 (854)	32.99 (838)	13.15 (334)	20.28 (515)	1496 (680)	1155 (525)
16"	34.02 (864)	34.61 (879)	34.02 (864)	15.16 (385)	22.64 (575)	2090 (950)	1760 (800)
18"	38.5 (978)	39.13 (994)	38.5 (978)	17.17 (436)	26.57 (675)	2640 (1200)	2134 (970)
20"	40 (1016)	40.75 (1035)	40 (1016)	19.17 (487)	28.35 (720)	3300 (1500)	2640 (1200)
24"	52.99 (1346)	53.86 (1368)	52.99 (1346)	23.19 (589)	30.71 (780)	4840 (2200)	3916 (1780)
30"	62.76 (1594)	63.74 (1619)	62.76 (1594)	28.94 (735)	44.88 (1140)	6160 (2800)	5280 (2400)
36"	82.01 (2083)	83.11 (2111)	82.01 (2083)	34.41 (874)	51.93 (1319)	11000 (5000)	9460 (4300)



# SWING CHECK VALVE WEIGHTS AND DIMENSIONS

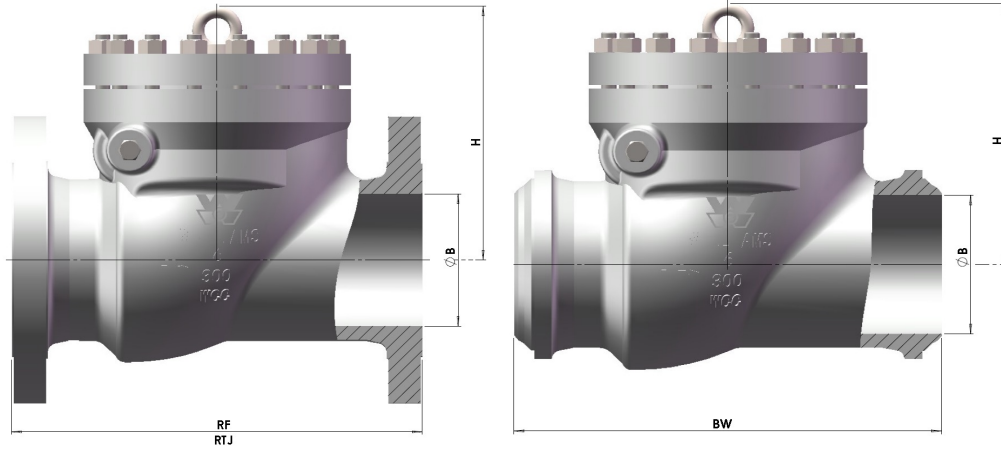


FULL OPENING SWING CHECK VALVE CLASS 600							
SIZE IN	RF	RTJ	BW	B	H	LBS (KG) (RF/RTJ)	LBS (KG) (BW)
2"	11.5 (292)	11.61 (295)	11.5 (292)	1.93 (49)	5.91 (150)	88 (40)	68.2 (31)
2.5"	12.99 (330)	13.11 (333)	12.99 (330)	2.44 (62)	6.5 (165)	121 (55)	99 (45)
3"	14.02 (356)	14.13 (359)	14.02 (356)	2.91 (74)	7.09 (180)	158.4 (72)	132 (60)
4"	17.01 (432)	17.13 (435)	17.01 (432)	3.94 (100)	9.45 (240)	253 (115)	176 (80)
6"	22.01 (559)	22.13 (562)	22.01 (559)	5.91 (150)	11.61 (295)	550 (250)	451 (205)
8"	25.98 (660)	26.14 (664)	25.98 (660)	7.91 (201)	13.39 (340)	924 (420)	803 (365)
10"	30.98 (787)	31.14 (791)	30.98 (787)	9.92 (252)	16.14 (410)	1346.4 (612)	1082.4 (492)
12"	32.99( 838)	33.11 (841)	32.99 (838)	11.93 (303)	18.11 (460)	1782 (810)	1573 (715)
14"	35 (889)	35.12 (892)	35 (889)	13.15 (334)	20.28 (515)	2420 (1100)	1936 (880)
16"	39.02 (991)	39.13 (994)	39.02 (991)	15.16 (385)	22.64 (575)	3630 (1650)	2948 (1340)
18"	42.99 (1092)	43.11 (1095)	42.99 (1092)	17.17 (436)	32.44 (824)	3960 (1800)	3190 (1450)
20"	47.01 (1194)	47.24 (1200)	47.01 (1194)	19.17 (487)	31.34 (796)	6160 (2800)	5170 (2350)
24"	55 (1397)	55.39 (1407)	55 (1397)	23.19 (589)	34.02 (864)	7180.8 (3264)	5640.8 (2564)
30"	65 (1651)	65.51 (1664)	65 (1651)	28.94 (735)	40.55 (1030)	11000 (5000)	9460 (4300)
36"	82.01 (2083)	82.64 (2099)	82.01 (2083)	34.41 (874)	60.71 (1542)	16500 (7500)	13640 (6200)

FULL OPENING SWING CHECK VALVE CLASS 900							
SIZE IN	RF	RTJ	BW	B	H	LBS (KG) (RF/RTJ)	LBS (KG) (BW)
2"	14.49 (368)	14.61 (371)	14.49 (368)	1.93 (49)	9.84 (250)	154 (70)	110 (50)
2.5"	16.5 (419)	16.61 (422)	16.5 (419)	2.44 (62)	11.81 (300)	209 (95)	191.4 (87)
3"	15 (381)	15.12 (384)	15 (381)	2.91 (74)	11.54 (293)	242 (110)	209 (95)
4"	17.99 (457)	18.11 (460)	17.99 (457)	3.94 (100)	12.72 (323)	470.8 (214)	382.8 (174)
6"	24.02 (610)	24.13 (613)	24.02 (610)	5.91 (150)	17.01 (432)	836 (380)	660 (300)
8"	29.02 (737)	29.13 (740)	29.02 (737)	7.91 (201)	23.15 (588)	1372.8 (624)	1086.8 (494)
10"	32.99 (838)	33.11 (841)	32.99 (838)	9.92 (252)	22.95 (583)	2530 (1150)	2090 (950)
12"	37.99 (965)	38.11 (968)	37.99 (965)	11.93 (303)	26.3 (668)	3190 (1450)	2596 (1180)
14"	40.51 (1029)	40.87 (1038)	40.51 (1029)	12.68 (322)	28.11 (714)	3850 (1750)	3190 (1450)
16"	44.49 (1130)	44.88 (1140)	44.49 (1130)	14.69 (373)	30.87 (784)	5324 (2420)	4510 (2050)
18"	47.99 (1219)	48.5 (1232)	47.99 (1219)	16.65 (423)	33.03 (839)	7150 (3250)	5940 (2700)
20"	52.01 (1321)	52.52 (1334)	52.01 (1321)	18.54 (471)	36.69 (932)	8800 (4000)	7260 (3300)
24"	60.98 (1549)	61.73 (1568)	60.98 (1549)	22.44 (570)	36.38 (924)	12760 (5800)	9900 (4500)

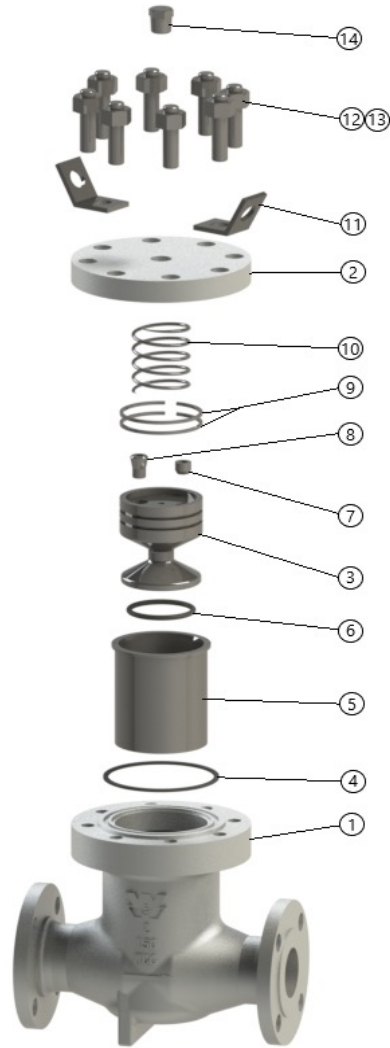
# SWING CHECK VALVE WEIGHTS AND DIMENSIONS

WILLIAMS VALVE



FULL OPENING SWING CHECK VALVE CLASS 1500							
SIZE IN	RF	RTJ	BW	B	H	LBS (KG) (RF/RTJ)	LBS (KG) (BW)
2"	14.49 (368)	14.61 (371)	14.49 (368)	1.93 (49)	9.84 (250)	154 (70)	110 (50)
2.5"	16.5 (419)	16.61 (422)	16.5 (419)	2.44 (62)	11.81 (300)	209 (95)	191.4 (87)
3"	18.5 (470)	18.62 (473)	18.5 (470)	2.91 (74)	12.76 (324)	374 (170)	297 (135)
4"	21.5 (546)	21.61 (549)	21.5 (546)	3.94 (100)	15.94 (405)	660 (300)	539 (245)
6"	27.76 (705)	27.99 (711)	27.76 (705)	5.67 (144)	18.39 (467)	1535.6 (698)	1232 (560)
8"	32.76 (832)	33.11 (841)	32.76 (832)	7.56 (192)	24.41 (620)	2618 (1190)	1529 (695)
10"	39.02 (991)	39.37 (1000)	39.02 (991)	9.41 (239)	25.63 (651)	4070 (1850)	3267 (1485)
12"	44.49 (1130)	45.12 (1146)	44.49 (1130)	11.3 (287)	34.45 (875)	7326 (3330)	6072 (2760)
14"	49.49 (1257)	50.24 (1276)	49.49 (1257)	12.4 (315)	37.4 (950)	7920 (3600)	6237 (2835)
16"	54.49 (1384)	55.39 (1407)	54.49 (1384)	14.17 (360)	40.16 (1020)	10780 (4900)	8580 (3900)
18"	60.51 (1537)	61.38 (1559)	60.51 (1537)	15.98 (406)	45.16 (1147)	14520 (6600)	11550 (5250)
20"	65.51 (1664)	66.38 (1686)	65.51 (1664)	17.87 (454)	50.55 (1284)	17930 (8150)	14190 (6450)
24"	76.5 (1943)	77.64 (1972)	76.5 (1943)	21.5 (546)	60.59 (1539)	25850 (11750)	19800 (9000)

# PISTON CHECK VALVE COMPONENTS AND TRIM CHART

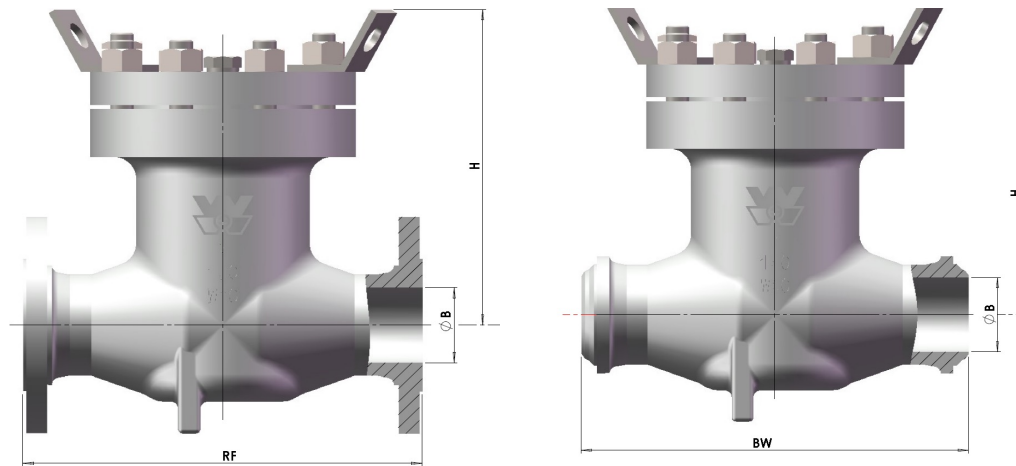


ITEM NO.	PART NAME
1	BODY
2	COVER
3	DISC
4	GASKET
5	SLEEVE
6	O-RING
7	RETAINER SCREW
8	CHECK VALVE
9	PISTON RING
10	SPRING
11	LIFTING LUG
12	STUD
13	NUT
14	PLUG

ITEM	DESCRIPTION	CARBON STEEL	LOW TEMP. CARBON STEEL
		-29°C (-20°F) TO 204°C (400°F)	-46°C (-51°F) TO 204°C (400°F)
1	BODY	A216 WCB/WCC	A352 LCC
2	COVER	A105N	A350 LF2
3	DISC	A182 F6a	A182 F316
4	GASKET	VITON A	VITON GLT
5	SLEEVE	AISI 1020+ENP	A182 F316
6	O-RING	VITON A	VITON GLT
7	RETAINER SCREW	A193 B7	A182 F316
8	CHECK VALVE	A182 F316	A182 F316
9	PISTON RING	AISI 1066	AISI 1066
10	SPRING	INCONEL X-750	INCONEL X-750
11	LIFTING LUG	A283 GRC	A283 GRC
12	STUD	A193 B7M	A320 L7M
13	NUT	A194 2HM	A194 7M
14	PLUG	A105N	A350 LF2

# PISTON CHECK VALVE WEIGHTS AND DIMENSIONS

WILLIAMS VALVE



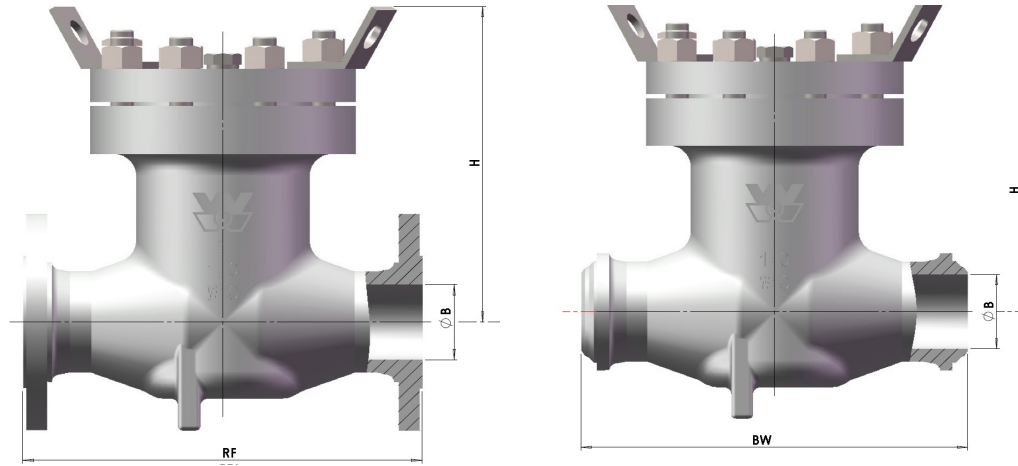
## PISTON CHECK VALVE CLASS 150

SIZE IN	RF	RTJ	BW	B	H	LBS (KG)
2"	10.51 (267)	11.14 (283)	10.51 (267)	1.93 (49)	6.5 (165)	33 (15)
2.5"	11.5 (292)	12.13 (308)	11.5 (292)	2.44 (62)	7.09 (180)	48.4 (22)
3"	12.52 (318)	13.11 (333)	12.52 (318)	2.91 (74)	7.99 (203)	61.6 (28)
4"	14.02 (356)	14.61 (371)	14.02 (356)	3.94 (100)	11.26 (286)	92.4 (42)
6"	17.52 (445)	18.11 (460)	17.52 (445)	5.91 (150)	16.14 (410)	173.8 (79)
8"	20.98 (533)	21.61 (549)	20.98 (533)	7.91 (201)	16.73 (425)	288.2 (131)
10"	24.49 (622)	25.12 (638)	24.49 (622)	9.92 (252)	18.5 (470)	389.4 (177)
12"	27.99 (711)	28.62 (727)	27.99 (711)	11.93 (303)	22.52 (572)	620.4 (282)

## PISTON CHECK VALVE CLASS 300

SIZE IN	RF	RTJ	BW	B	H	LBS (KG)
2"	10.51 (267)	11.14 (283)	10.51 (267)	1.93 (49)	6.5 (165)	44 (20)
2.5"	11.5 (292)	12.13 (308)	11.5 (292)	2.44 (62)	7.09 (180)	66 (30)
3"	12.52 (318)	13.11 (333)	12.52 (318)	2.91 (74)	7.99 (203)	88 (40)
4"	14.02 (356)	14.61 (371)	14.02 (356)	3.94 (100)	11.26 (286)	143 (65)
6"	17.52 (445)	18.11 (460)	17.52 (445)	5.91 (150)	16.14 (410)	259.6 (118)
8"	20.98 (533)	21.61 (549)	20.98 (533)	7.91 (201)	16.73 (425)	424.6 (193)
10"	24.49 (622)	25.12 (638)	24.49 (622)	9.92 (252)	18.5 (470)	682 (310)
12"	27.99 (711)	28.62 (727)	27.99 (711)	11.93 (303)	22.52 (572)	990 (450)

# PISTON CHECK VALVE WEIGHTS AND DIMENSIONS

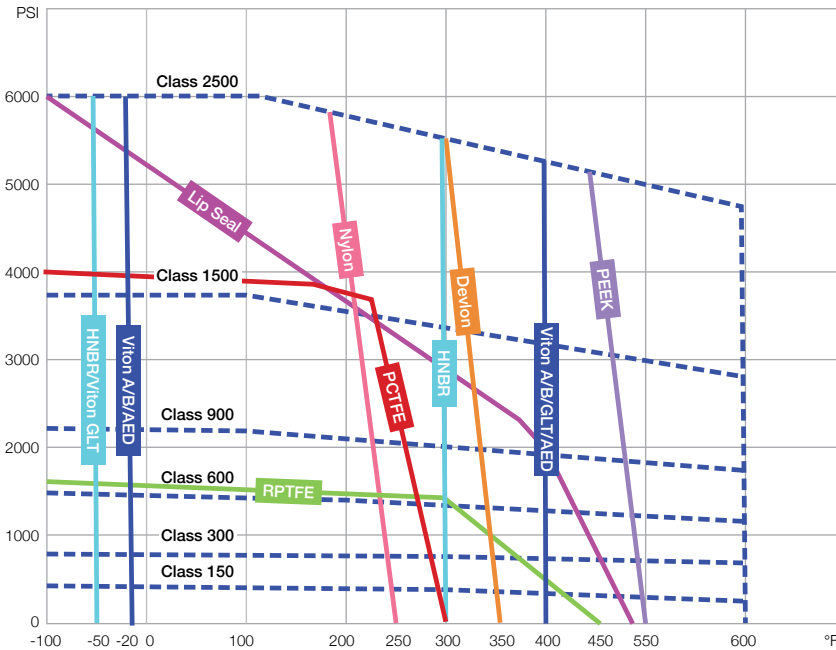


PISTON CHECK VALVE CLASS 600						
SIZE IN	RF	RTJ	BW	B	H	LBS (KG)
2"	11.5 (292)	11.61 (295)	11.5 (292)	1.93 (49)	6.73 (171)	74.8 (34)
2.5"	12.99 (330)	13.11 (333)	12.99 (330)	2.44 (62)	7.28 (185)	94.6 (43)
3"	14.02 (356)	14.13 (359)	14.02 (356)	2.91 (74)	8.27 (210)	121 (55)
4"	17.01 (432)	17.13 (435)	17.01 (432)	3.94 (100)	11.5 (292)	204.6 (93)
6"	22.01 (559)	22.13 (562)	22.01 (559)	5.91 (150)	16.38 (416)	457.6 (208)
8"	25.98 (660)	26.14 (664)	25.98 (660)	7.91 (201)	16.73 (425)	745.8 (339)
10"	30.98 (787)	31.14 (791)	30.98 (787)	9.92 (252)	18.5 (470)	1203.4 (547)
12"	32.99 (838)	33.11 (841)	32.99 (838)	11.93 (303)	22.52 (572)	1573 (715)

PISTON CHECK VALVE CLASS 900						
SIZE IN	RF	RTJ	BW	B	H	LBS (KG)
2"	14.49 (368)	14.61 (371)	14.49 (368)	1.93 (49)	7.01 (178)	154 (70)
2.5"	16.5 (419)	16.61 (422)	16.5 (419)	2.44 (62)	7.68 (195)	220 (100)
3"	15 (381)	15.12 (384)	15 (381)	2.91 (74)	8.5 (216)	242 (110)
4"	17.99 (457)	18.11 (460)	17.99 (457)	3.94 (100)	11.89 (302)	330 (150)
6"	24.02 (610)	24.13 (613)	24.02 (610)	5.91 (150)	16.73 (425)	671 (305)
8"	29.02 (737)	29.13 (740)	29.02 (737)	7.91 (201)	16.73 (425)	1122 (510)
10"	32.99 (838)	33.11 (841)	32.99 (838)	9.92 (252)	18.5 (470)	1782 (810)
12"	37.99 (965)	38.11 (968)	37.99 (965)	11.93 (303)	22.52 (572)	2464 (1120)

## 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 NUMBERS

A	B		C	D		E	F						
SIZE	CLASS AND VALVE TYPE		ENDS	TRIM		BODY SUFFIX	OPTIONS						
18	CL150 Slab Gate API-6D	1517	CL150 Full Port Swing Check 6D	F	RF Flanged	0	Special Trim	25HA	316SS faced Disc / HF Seat Ring / HNBR AED Seat	none	ASTM A216 Grade WCC	none	Handwheel
19	CL150 Expanding Gate API-6D	1517L	CL150 Piston Check 6D	W	Butt Weld	1D	ENP Trim with Devlon Seat	61D	316 Stem/ENP Slab with Devlon Seat	LCC	ASTM A352 Grade LCC	BS	Bare Stem
38	CL300 Slab Gate API-6D	3017	CL300 Full Port Swing Check 6D	R	RTJ	1N	ENP Trim with Nylon Seat	61N	316 Stem/ENP Slab with Nylon Seat	LCB	ASTM A352 Grade LCB	DTR	Cavity Relief
39	CL300 Expanding Gate API-6D	3017L	CL300 Piston Check 6D			1RT	ENP Trim with Reinforced Teflon Seat	61RT	316 Stem/ENP Slab with Reinforced Teflon Seat	WCB	ASTM A217 Grade WCB	GO	Gear Operator
68	CL600 Slab Gate API-6D	6017	CL600 Full Port Swing Check 6D			24	13% Cr faced Disc / HF Seat Ring / HNBR Seat	66D	316 Stem/316 Slab with Devlon Seat	WC9	ASTM A217 Grade WC9	HO	Hydraulic Operator
69	CL600 Expanding Gate API-6D	6017L	CL600 Piston Check 6D			24H	13% Cr faced Disc / HF Seat Ring / HNBR Seat	66N	316 Stem/316 Slab with Nylon Seat	C5	ASTM A217 Grade C5	MO	Motor Operated
98	CL900 Slab Gate API-6D	9017	CL900 Full Port Swing Check 6D			24HA	13% Cr faced Disc / HF Seat Ring / HNBR Seat	66RT	316 Stem/316 Slab with Reinforced Teflon Seat	C12	ASTM A217 Grade C12	NN	Non-NACE
99	CL900 Expanding Gate API-6D	9017L	CL900 Piston Check 6D			25	316SS faced Disc / HF Seat Ring	71D	17-4PH Stem/ENP Slab with Devlon Seat	C12A	ASTM A217 Grade C12A	PO	Pneumatic Operator
158	CL1500 Slab Gate API-6D	15017	CL1500 Full Port Swing Check 6D			25H	316SS faced Disc / HF Seat Ring / HNBR Seat	71RT	17-4PH Stem/ENP Slab with Reinforced Teflon Seat	CF8M	ASTM A351 Grade CF8M	S#	BW Weld Prep Schedule
159	CL1500 Expanding Gate API-6D	25017	CL2500 Full Port Swing Check 6D							WCB	ASTM A216 Grade WCB		

## SLAB GATE VALVE EXAMPLE

A	B	C	D	E	F
10	68	W	71D	WCB	GO-S80

10" CL600 BW S80 Slab Gate Valve, WCB Body, 17-4PH Stem/Enp Slab, Devlon Seat, Bolted Bonnet with Gear Operator:

**10" 68W-71D-WCB-GO-S80**



# WILLIAMS VALVE

## WILLIAMS VALVE

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