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**SERIES 746HP**

# **POLYURETHANE LINED HIGH PERFORMANCE KNIFE GATE VALVES**

TECHNICAL SALES MANUAL



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**Bray**<sup>®</sup>

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THE HIGH PERFORMANCE COMPANY

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## TECHNICAL DATA

### OVERVIEW

The Bray Series 746HP features a one-piece polyurethane liner molded throughout the body and chest providing Zero Leakage in the most abrasive applications. The liner extends over the front face of the body, ensuring total protection from abrasive media and eliminating the need for additional gaskets.

The one-piece, durable ductile iron body is offered in a compact wafer style for ease of handling and installation.

### SPECIFICATIONS

<b>Size Range</b>	NPS 2 to 24   DN 50 to 600
<b>Temperature Range</b>	Polyurethane: -20°F to 194°F   -29°C to 90°C
<b>Pressure Rating</b>	150psi   10bar      232psi   16bar
<b>Body Style</b>	One-Piece - Wafer

### DESIGN STANDARDS

<b>Face-to-Face</b>	MSS SP-81
<b>Flange Drilling</b>	ASME B16.5 CL150
<b>Design Standard</b>	Manufacturer Standard
<b>Testing Standard</b>	MSS SP-151

### STANDARD CONSTRUCTION

<b>Body</b>	Ductile Iron
<b>Gate</b>	10bar   316 Stainless Steel    16bar   2205
<b>Liner</b>	Polyurethane
<b>Stem</b>	304
<b>Gland</b>	Carbon Steel
<b>Packing</b>	PTFE Impregnated Synthetic Fiber + Quad Seal
<b>Topworks</b>	Carbon Steel

### ACTUATOR OPTIONS

Direct Mounted Handwheel | Bevel Gear Operator

Double Acting Pneumatic | Hydraulic | Electric



### MATERIAL OPTIONS

<b>Body</b>	Ductile Iron
<b>Gate</b>	304, 317 Stainless Steel 17-4PH Stainless Steel SAF 2507 Duplex SAF 2205 Duplex Hastelloy® C Monel®
<b>Stem</b>	316
<b>Packing</b>	PTFE w/Copper Wiper   Graphite PTFE w/Viton Quad Seal

## FEATURES & BENEFITS

### FEATURES

- 1 Upper and lower protective stem cover is standard in all models, increasing cycle life in hazardous environments.
- 2 Multi-layer square packing with energized quad seal provides exceptional gland sealing.
- 3 Standard one-piece ductile iron body with polyurethane molded liner throughout. Polyurethane body liner is rated up to 194°F/90°C and completely protects valve body from abrasive line media.
- 4 Unrestricted flow path with minimal pressure drop achieved through full port valve design for extended valve life.
- 5 Available in a wide range of corrosion-resistant alloys, the robust tapered edge gate efficiently cuts through thick slurries or solids in the flow.
- 6 Seat and port designed to be flush eliminating cavities where media can collect and prevent full gate closure.



### INDUSTRIES

#### Wastewater

- > Slurry/Sludge Lines

#### Mining

- > Mineral Mining
- > Coal Washeries
- > Coal Preparation

#### Power

- > Fly Ash | Bottom Ash
- > Branch Lines

#### Chemical

- > Process Fluids & Chemicals
- > Petroleum Products

# OPTIONS

## BODY STYLES

### SOLID FLANGE

NPS 2 to 12



### DOUBLE FLANGE

NPS 14 to 24



## PACKING MAXIMUM TEMPERATURE RANGE

<b>Pure PTFE</b>	500°F
	260°C
<b>PTFE Impregnated Synthetic Fiber</b>	450°F
	232°C
<b>PTFE w/Buna-N Quad Seal<sup>1</sup></b>	194°F
	90°C
<b>PTFE w/Viton<sup>®</sup> Quad Seal<sup>1</sup></b>	392°F
	200°C
<b>PTFE w/EPDM Quad Seal<sup>1</sup></b>	248°F
	120°C
<b>PTFE w/Copper Wiper</b>	450°F
	232°C



Pure PTFE



PTFE Impregnated Synthetic Fiber



PTFE w/Buna-N Quad Seal



PTFE w/Viton<sup>®</sup> Quad Seal



PTFE w/EPDM Quad Seal



PTFE w/Copper Wiper

**NOTE** <sup>1</sup> Pure PTFE or PTFE Impregnated Synthetic Fiber can be used.

AVAILABLE ACCESSORIES



PNEUMATIC FAILSAFE



MANUAL OVERRIDE



GATE GUARD



PROXIMITY SENSOR



MECHANICAL LIMIT SWITCH



ELECTRO PNEUMATIC POSITIONER



CHAIN WHEEL

ACTUATOR OPTIONS



DIRECT MOUNTED HANDWHEEL



BEVEL GEAR OPERATOR



DOUBLE ACTING PNEUMATIC ACTUATOR



HYDRAULIC ACTUATOR



ELECTRIC ACTUATOR

ACTUATOR SELECTION

VALVE SIZE	NPS	2	3	4	6	8	10	12	14	16	18	20	24
	DN	50	80	100	150	200	250	300	350	400	450	500	600
ACTUATOR SIZING	10bar / 16bar	C3	C4	C6	C8	C10	C12	C14	C16	C20	C20	C24	C32

NOTES

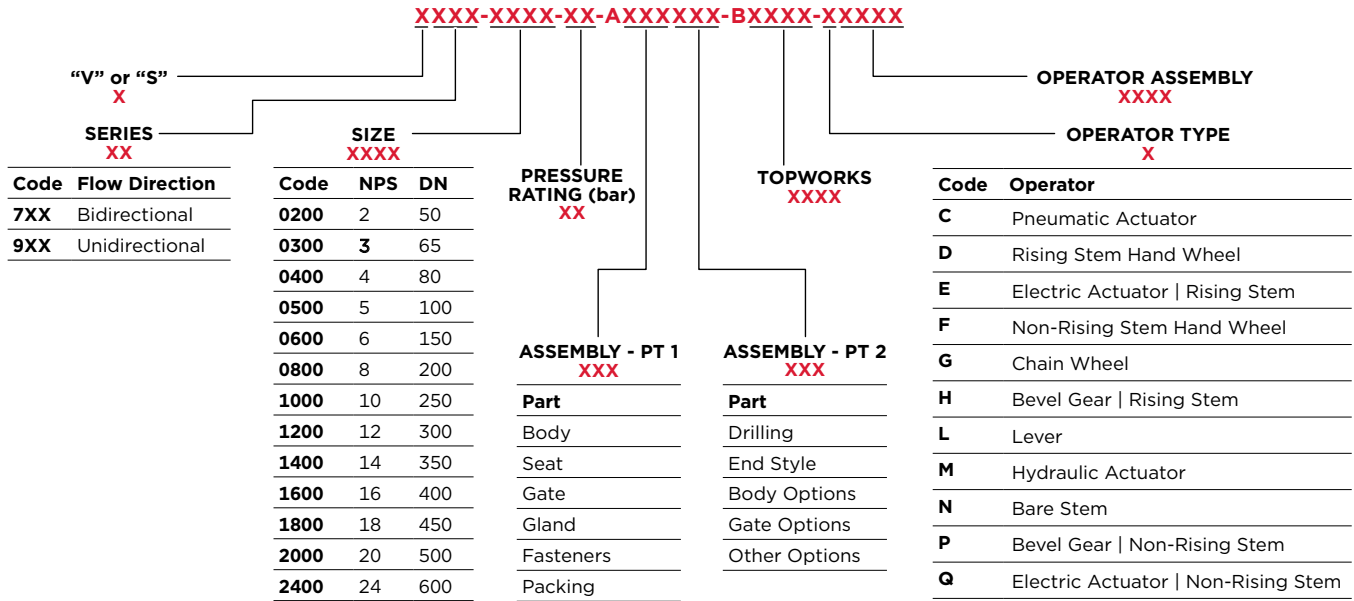
- 1 Actuator sizing done based on actuator supply pressure of 5 bar
- 2 Factor Of Safety (FOS) on design thrust >= 2.0



# VALVE SELECTION

## VALVE PART NUMBERING SYSTEM

Select one code from each category to build a complete valve order number.



**NOTES:**

**1** For a complete list of standard materials and descriptions, refer to MATERIALS OF CONSTRUCTION. Other materials are available, please contact Bray for additional information.

**2** No assigned code, ASSEMBLY NUMBER is generated by Engineering configurator.

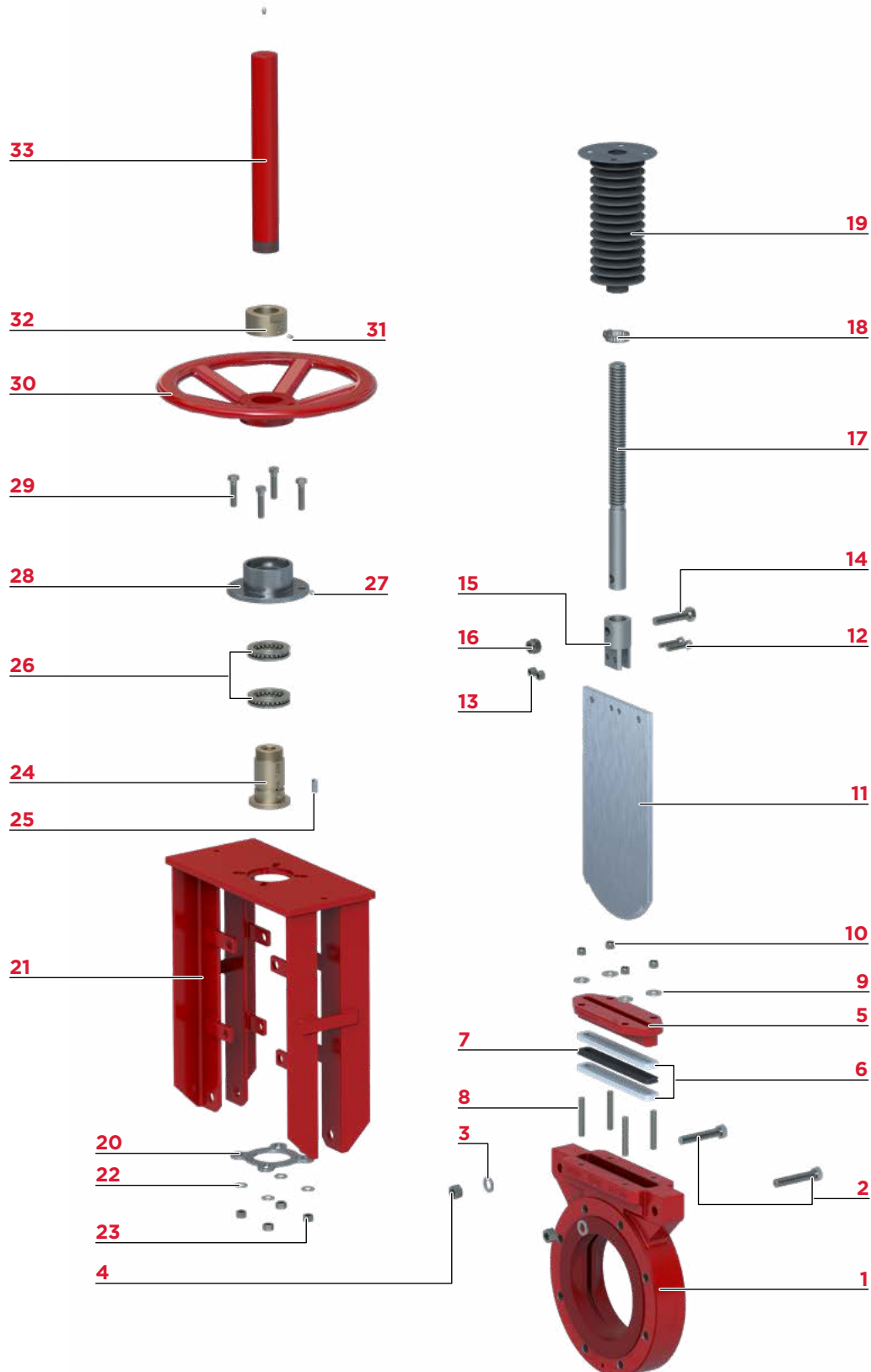
### EXAMPLE

**S746-0800-10-A610610-B0610-D6110**

- > Bidirectional, Slurry
- > 8 inch (200 mm)
- > 150 psi (10 bar) rated valve
- > Standard build assembly
- > Rising Stem Hand Wheel



PARTS CALLOUT



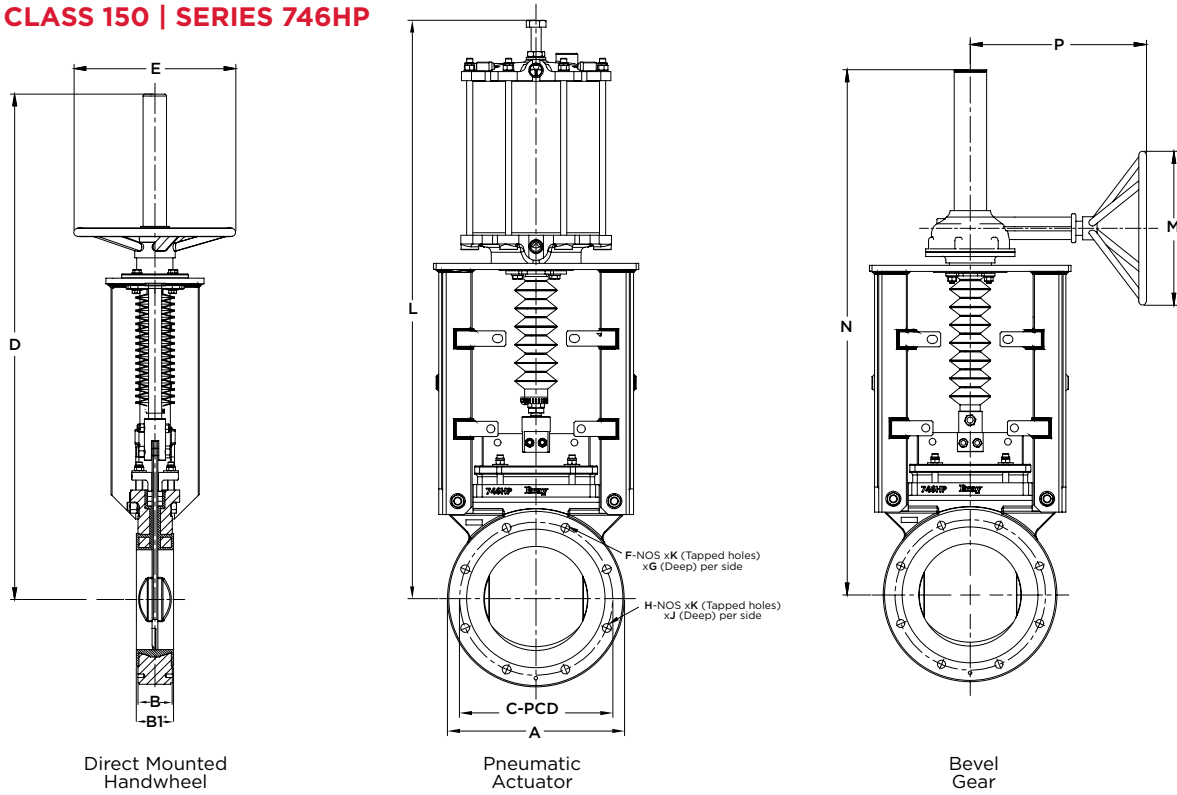
**PARTS LIST AND MATERIAL SPECIFICATIONS**

ITEM	DESCRIPTION	MATERIAL
1	Body (Polyurethane Lined)	Ductile Iron
2	Tower Mounting Bolt	Carbon steel
3	Tower Mounting Washer	Carbon steel
4	Tower Mounting Nut	Carbon steel
5	Gland	Carbon steel
6	Gland Packing	PTFE Impregnated Synthetic Fiber
7	Quad Seal	Viton
8	Gland Mounting Stud	Carbon steel
9	Gland Mounting Washer	Carbon steel
10	Gland Mounting Nut	Carbon steel
11	Gate	SS316 / SS 2205
12	Clevis Gate Bolt	SS 304
12	Clevis Gate Nut	SS 316
14	Stem Clevis Bolt	SS 304
15	Clevis	SS 316
16	Stem Clevis Nut	SS 316
17	Stem	SS 304
18	Bellows Hose Clip	Steel
19	Bellows	Canvaas
20	Bellow Flange	Carbon steel
21	Superstructure/Tower Assembly	Carbon steel
22	Handwheel Mounting Washer	Carbon steel
23	Handwheel Mounting Nut	Carbon steel
24	Stem Nut	Brass
25	Key	Carbon steel
26	Thrust Ball Bearing	Steel
27	Handwheel Grease Nipple	Stainless Steel
28	Handwheel Housing	Carbon steel
29	Handwheel Housing Bolt	Carbon steel
30	Handwheel	Ductile Iron
31	Grub Screw	Carbon steel
32	Handwheel Lock Nut	Brass
33	Stem Guard	Carbon steel

**NOTES**

- 1 Material specifications provided for reference only, and are subject to change without notice.
- 2 Additional materials available upon request.

ASME CLASS 150 | SERIES 746HP

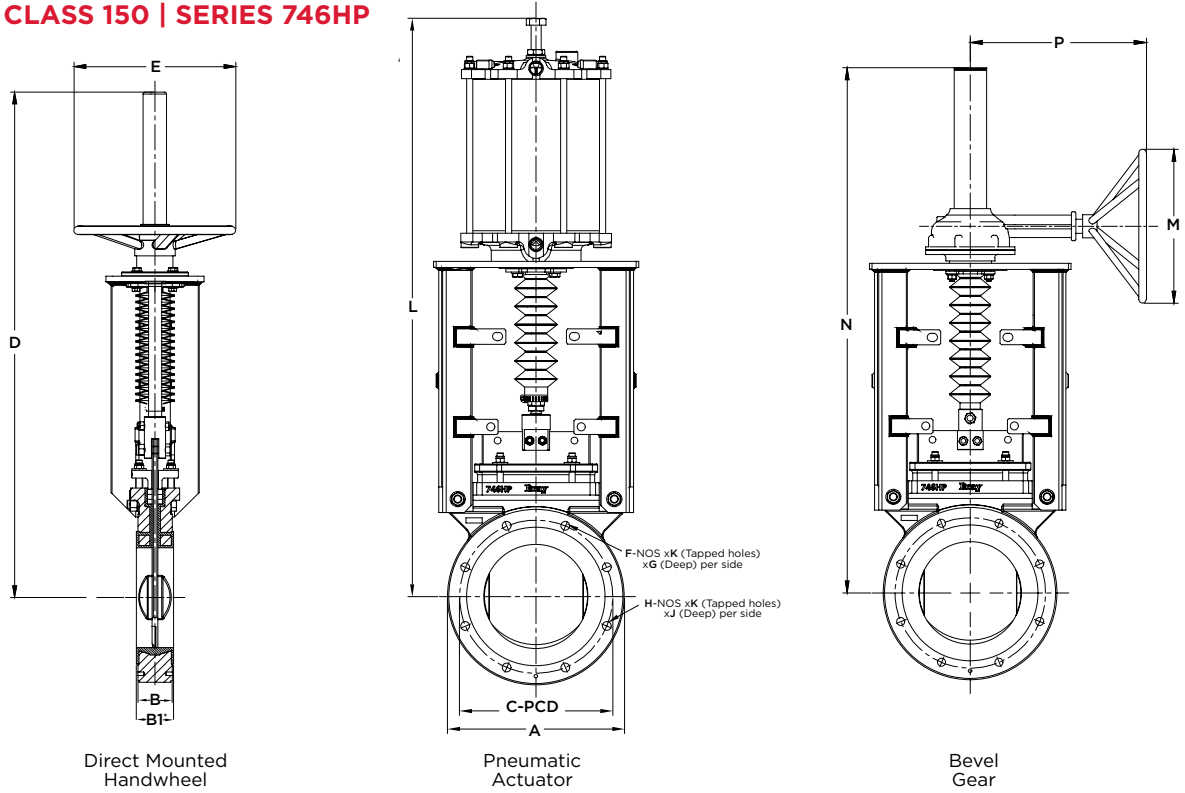


DIMENSIONS (inch)															WEIGHT (lbs)			
NPS	A	B	B1*	C-PCD	D	ØE	F	G	H	J	K	L	ØM	N	P	HAND WHEEL	PNEUMATIC ACTUATOR	GEAR OPERATOR
2	6.5	1.89	2.13	4.75	21.26	11.81	2	0.39	2	0.79	5/8"-11 UNC	21.46	11.81	19.09	9.06	60	49	57
3	7.9	2.01	2.24	6.00	23.43	11.81	2	0.39	2	0.79	5/8"-11 UNC	25.20	11.81	22.83	9.06	73	64	68
4	9.1	2.01	2.24	7.50	26.57	11.81	2	0.39	6	0.79	5/8"-11 UNC	28.74	11.81	25.39	9.06	88	90	86
6	11.4	2.24	2.48	9.50	35.04	15.75	2	0.47	6	0.79	3/4"-10 UNC	37.40	11.81	36.22	13.39	154	172	150
8	13.6	2.76	2.99	11.75	39.57	19.69	2	0.51	6	1.18	3/4"-10 UNC	42.91	11.81	38.98	13.39	203	238	196
10	16.1	2.76	2.99	14.25	46.06	19.69	4	0.55	8	1.18	7/8"-9 UNC	51.38	11.81	45.87	13.39	273	348	267
12	19.1	2.99	3.23	17.00	-	-	4	0.55	8	1.18	7/8"-9 UNC	57.48	19.69	50.79	18.7	-	505	379
14	21.0	2.99	3.23	18.75	-	-	6	0.55	6	1.18	1"-8 UNC	65.16	19.69	55.71	18.7	-	706	432
16	23.6	3.50	3.74	21.25	-	-	8	0.63	8	1.38	1"-8 UNC	73.43	19.69	63.98	22.83	-	1065	661
18	25.2	3.50	3.74	22.75	-	-	8	0.63	8	1.57	1-1/8"-8 UN	77.95	19.69	68.90	22.83	-	1157	763
20	28.1	4.49	4.72	25.00	-	-	12	0.79	8	1.57	1-1/8"-8 UN	87.20	29.53	74.61	22.83	-	1841	992
24	33.1	4.49	4.72	29.50	-	-	12	0.83	8	1.77	1-1/4"-8 UN	101.18	39.37	88.98	25.2	-	2469	1598

NOTES

- 1 Consult factory for hydraulic and electric actuator dimensions.
- 2 Dimensions are approximate and subject to change. Consult factory for certified drawings.
- 3 Drilling in conformance with ASME B16.5, Class 150 for sizes NPS 2 (DN50) through NPS 24 (DN600.)
- \* in-built with PU gasket and does not require additional flange gasket

ASME CLASS 150 | SERIES 746HP



DIMENSIONS (mm)																WEIGHT (kg)		
DN	A	B	B1*	C-PCD	D	ØE	F	G	H	J	K	L	ØM	N	P	HAND WHEEL	PNEUMATIC ACTUATOR	GEAR OPERATOR
50	165	48	54	120.6	540	300	2	10	2	20	5/8"-11 UNC	545	300	485	230	27	22	26
80	200	51	57	152.4	595	300	2	10	2	20	5/8"-11 UNC	640	300	580	230	33	29	31
100	230	51	57	190.5	675	300	2	10	6	20	5/8"-11 UNC	730	300	645	230	40	41	39
150	290	57	63	241.3	890	400	2	12	6	20	3/4"-10 UNC	950	300	920	340	70	78	68
200	345	70	76	298.4	1005	500	2	13	6	30	3/4"-10 UNC	1090	300	990	340	92	108	89
250	408	70	76	362.0	1170	500	4	14	8	30	7/8"-9 UNC	1305	300	1165	340	124	158	121
300	485	76	82	431.8	-	-	4	14	8	30	7/8"-9 UNC	1460	500	1290	475	-	229	172
350	533	76	82	476.2	-	-	4	16	6	30	1"-8 UNC	1655	500	1415	475	-	320	196
400	600	89	95	539.8	-	-	6	16	8	35	1"-8 UNC	1865	500	1625	580	-	483	300
450	640	89	95	577.8	-	-	6	18	8	40	1-1/8"-8 UN	1980	500	1750	580	-	525	345
500	715	114	120	635.0	-	-	10	20	8	40	1-1/8"-8 UN	2215	750	1895	580	-	835	450
600	840	114	120	749.3	-	-	12	21	8	45	1-1/4"-8 UN	2570	1000	2260	640	-	1120	725

- NOTES**
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- \* in-built with PU gasket and does not require additional flange gasket

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