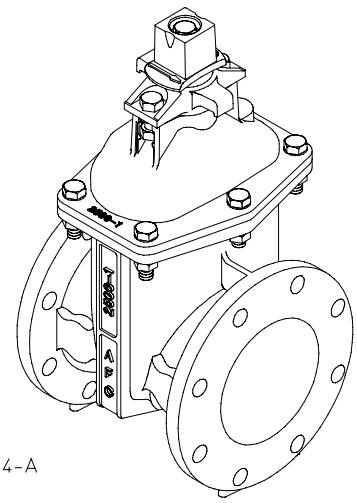
INDEX
Series 2500 Ductile Iron Resilient Wedge Gate Valve

SERIES 2500 RESILIENT WEDGE GATE VALVE



IL2524-A

The **Series 2500 Ductile Iron** Resilient Wedge Gate Valve has a rated working pressure of 250 p.s.i.g. and is designed for use in drinking water, sewage, fire protection systems as well as irrigation and backflow control systems.

The **Series 2500** Resilient Wedge Gate Valve can be furnished in configurations that are Listed by Underwriters Laboratories, Inc. and Approved by Factory Mutual Research.

FEATURES AND BENEFITS

FEATURES

American Flow Control's Series 2500 Ductile Iron Resilient Wedge Gate Valves are suitable for use in drinking water, sewage and fire protection systems. These valves have a rated working pressure of 250 p.s.i.g. The valve seals 100% leak tight. The waterway is clear, unobstructed and free from pockets.

ADVANTAGES WHEN COMPARED TO BUTTERFLY VALVES

- No disc in waterway to restrict flow or to increase pumping costs.
- Allows passage of pigging devices.
- Internal parts can be serviced without cutting valve out of pipeline.
- 250 p.s.i.g. rating allows working pressure to be increased above the 150 p.s.i.g. pressure rating found on most butterfly valves.

ADVANTAGES WHEN COMPARED TO DOUBLE DISC GATE VALVES

- 100% bottle tight seal. No more time consuming testing to determine allowable leakage rate.
- No pocket in bottom of valve to collect sediment or trap debris.
- Lower torque requirements to operate valve.
- 250 p.s.i.g. pressure rating compared to the 200 p.s.i.g. rating found on most double disc gate valves.
- Fusion bonded epoxy coated inside and out.
- Lower total valve weight.

SERIES 2500 RESILIENT WEDGE GATE VALVE STANDARD FEATURES:

- 250 p.s.i.g. rated working pressure.
- Ductile iron body, bonnet, wedge, operating nut and stuffing box.
- Triple O-ring stem seals.
- Thrust washers.
- Fusion bonded epoxy coating.
- 100% bottle tight closure.
- Rubber encapsulated wedge.
- Flat features on valve body so valve stands upright for storage or during installation.
- Optional geared actuators.
- 4" thru 48" valves are certified to ANSI/NSF Standard 61.
- Fusion bonded epoxy coating material used on 2" thru 48" valves is certified to ANSI/NSF Standard 61.

BENEFITS

DUCTILE IRON CONSTRUCTION

The ductile iron body and bonnet provide superior strength and allow a pressure rating of 250 p.s.i.g. The strength of ductile iron is double that provided by gray iron. This added strength and higher pressure rating is provided in a compact, lighter design.

FUSION BONDED EPOXY COATING

The Series 2500 valve is epoxy coated both on the interior as well as the exterior of the valve. The fusion bonded coating is applied after the valve body is shot blasted clean. The coating is applied to all ferrous surfaces so that even the bolt holes and body--to-bonnet flange surfaces are epoxy coated.

THRUST WASHERS

Thrust washers are located above and below the stem collar ensuring trouble-free operation of the valve.

DUCTILE IRON LIFTING LUGS

The stuffing box is constructed of high strength ductile iron with integral lifting lugs on most sizes. Lifting lugs allow the valve to be lifted safely, without risk of the valve falling or damaging the valve by lifting from the operating nut.

TRIPLE O-RING STEM SEALS

This valve features triple O-ring stem seals. Two O--rings are located above the thrust collar and one O--ring is located below the thrust collar. The O-ring directly above and below the stem collar provide a permanently sealed lubrication chamber. This feature assures the ease of operation for long periods of time without the need for constant maintenance required for other designs. The upper O-ring acts as a shield, sealing the stem from dirt and grit that might otherwise enter the stuffing box in buried and sewage service applications.

NO FLAT GASKETS

The stuffing box gasket and bonnet gasket are pressure energized rubber O-rings. This assures bottle tight seals without the need for excessive bolt loading as is required of flat gaskets. The O-ring seals are reusable which eliminates the need for time consuming cleaning, scrapping and cutting of new gaskets.

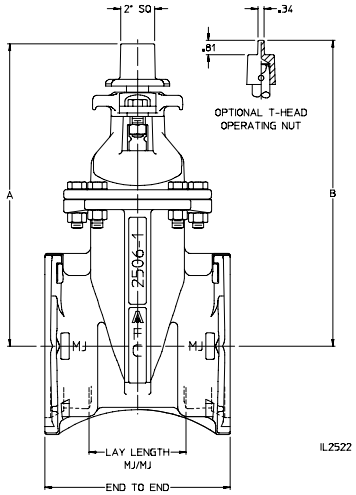
UL-FM RATED VALVES ARE AVAILABLE

The Series 2500 valve can be furnished in configurations that are listed by Underwriters Laboratories, Inc. and Approved by Factory Mutual Research.

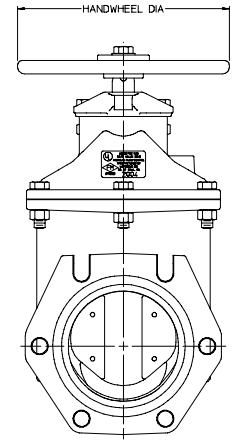
Configurations not available as UL/FM:

- NRS with handwheel
- Open right (NRS or OS & Y)
- NRS with gearing
- 2" NRS

SERIES 2500 - STANDARD NRS DIMENSIONS, 2"- 24" SIZES



SHOWN WITH 2" OPERATING NUT



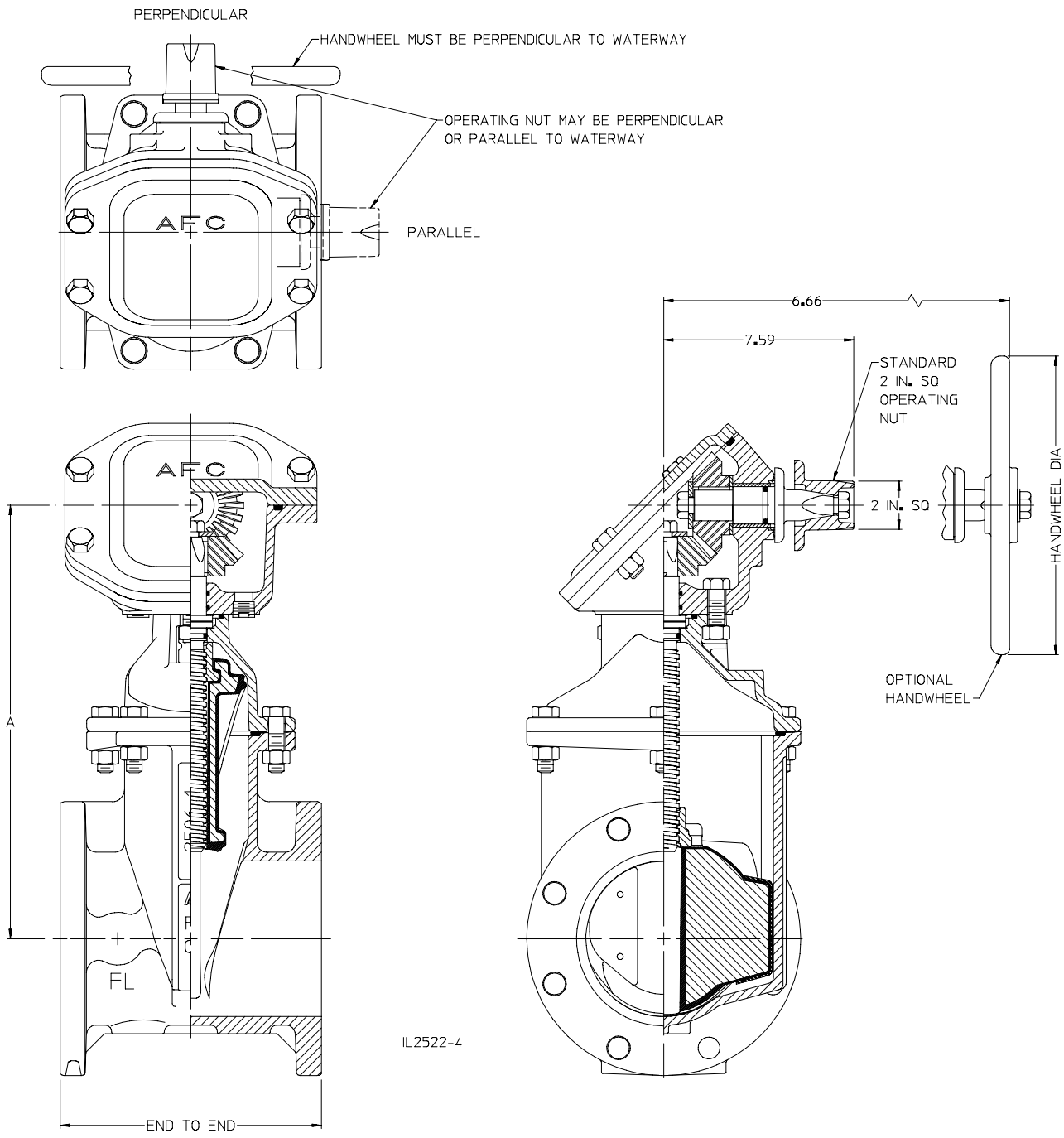
SHOWN WITH OPTIONAL HANDWHEEL

Dimension	Valve Size												
	Series 2500			Series 2500-1					Series 2500				
	2"	2- 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
A	9.25	11.03	11.84	13.91	17.12	20.47	24.06	27.59	33.25	36.75	39.62	43.25	51.25
B	10.22	12.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
End to End - MJ/MJ	8.25	N/A	8.62	10.00	10.50	11.50	12.50	13.50	20.25	20.62	22.75	23.25	25.25
Lay Length - MJ/MJ	3.25	N/A	3.62	5.00	5.50	6.50	7.50	8.50	13.25	13.62	15.75	16.25	18.25
End to End - FL/FL (Class 125)	7.00	7.50	8.00	9.00	10.50	11.50	13.00	14.00	15.00	16.00	17.00	18.00	20.00
End to End - FL/FL (Class 250)	N/A	N/A	11.12	12.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	31.00
End to End - TY/TY	N/A	N/A	N/A	13.00	15.88	17.50	18.75	19.75	N/A	N/A	N/A	N/A	N/A
End to End - PO/PO (Push-On)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	22.12	24.62	N/A	N/A	N/A
End to End - FL/MJ (Class 125)	N/A	N/A	N/A	9.50	10.50	12.38	13.62	14.38	17.62	18.31	19.88	20.62	22.62
End to End - FL/TY (Class 125)	N/A	N/A	N/A	11.00	13.19	14.50	15.88	16.88	N/A	N/A	N/A	N/A	N/A
End to End - PVC/-PVC	10.75	11.12	11.38	13.00	15.88	17.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A
End to End - Threaded	6.25	7.38	7.38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
End to End - FX/FX (Flex-Ring)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	34.50
Lay Length - FX/FX (Flex-Ring)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16.62
Handwheel Diameter	8.06	8.00	8.00	10.00	12.00	14.00	15.50	15.50	20.00	20.00	20.00	28.00	28.00
No. of Turns to Open	9	11	13	14	20	26	32	38	44	50	56	62	73

NOTES:

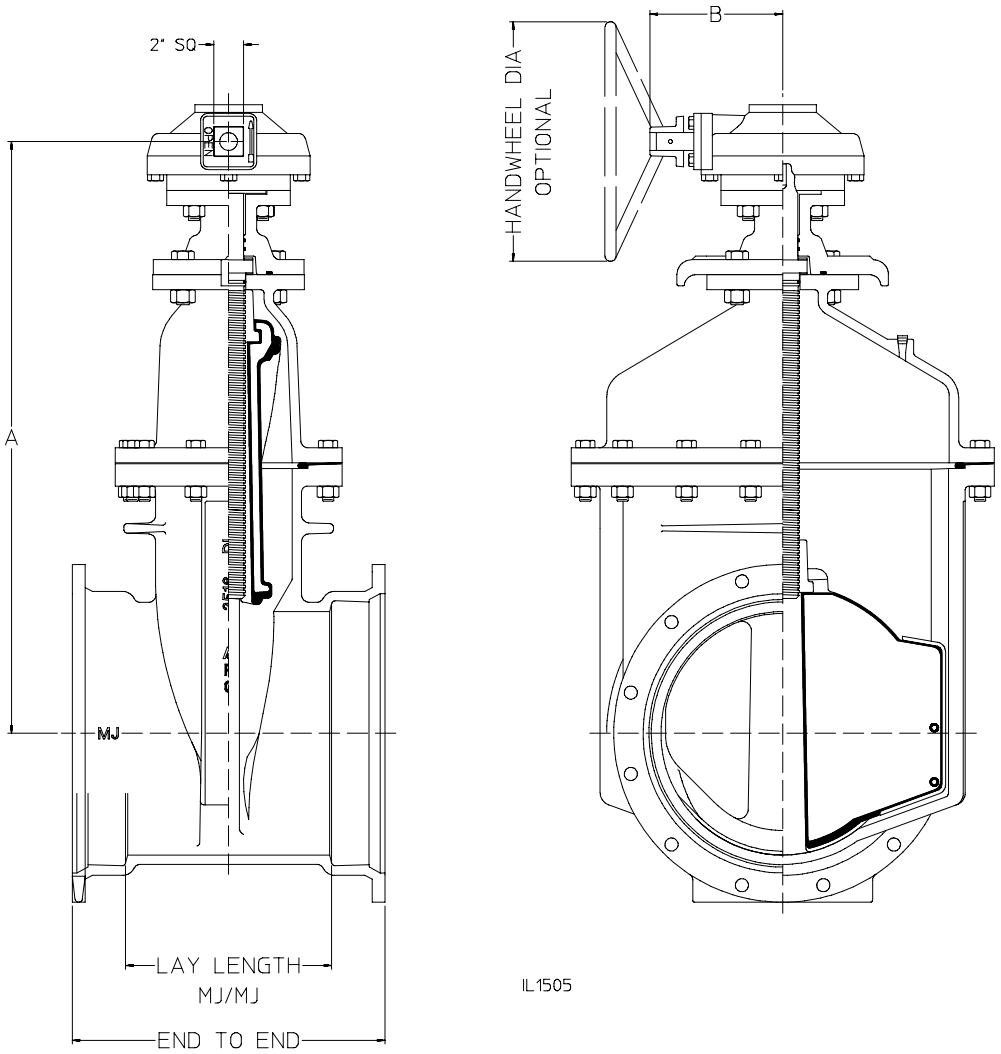
1. 3" thru 36" valves meet or exceed requirements of ANSI/AWWA C515.
2. 2-1/2" thru 16" valves may be ordered in configurations which are UL Listed and/or FM Approved.
3. 2" thru 48" valves have 250 p.s.i.g. AWWA rated working pressure.
4. 2-1/2" thru 12" valves have 250 p.s.i.g. UL and FM rated working pressure.
5. 14" and 16" valves have 200 p.s.i.g. UL and 250 p.s.i.g. FM rated working pressure.
6. Fusion bonded epoxy coating meets or exceeds requirements of ASME/AWWA C550.
7. Flanged ends are in accordance with ANSI/AWWA C110/A21.10 (ASME B16.1, Class 125).
8. Threaded ends are in accordance with ASME B16.4, Class 125.
9. Mechanical joint ends are in accordance with ANSI/AWWA C111/A21.11.
10. Tyton® ends and push-on ends are in accordance with ANSI/AWWA C111/A21.11 for use on cast iron (CI) size ductile iron pipe.
11. PVC ends are suitable for use on steel (IPS) sizes of PVC or steel pipe.
12. 4" thru 48" valves are certified to ANSI/NSF Standard 61.
13. It is recommended that stems be vertical in raw sewage applications.

SERIES 2500 - NRS WITH ENCLOSED MITER GEARING DIMENSIONS, 3”-12” SIZES



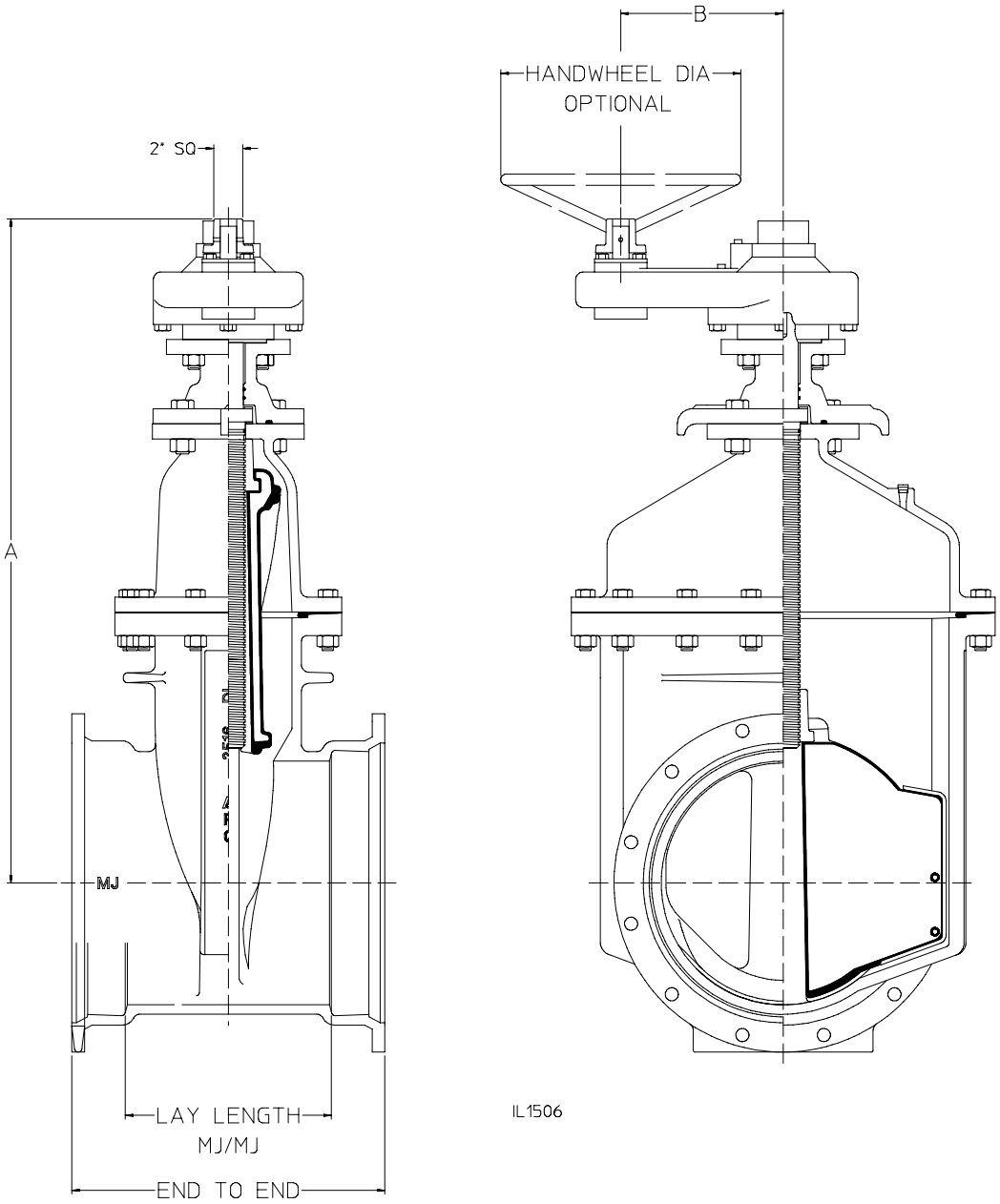
Model	Valve Size	Dimension		
		A	End to End Flange x Flange	Handwheel Diameter
Series 2500	3”	12.72	8.00	8.00
Series 2500-1	4”	14.16	9.00	10.00
	6”	17.03	10.50	12.00
	8”	20.59	11.50	14.00
	10”	24.22	13.00	14.00
	12”	27.66	14.00	14.00

SERIES 2500 - NRS WITH BEVEL GEARING DIMENSIONS, 14"- 66" SIZES



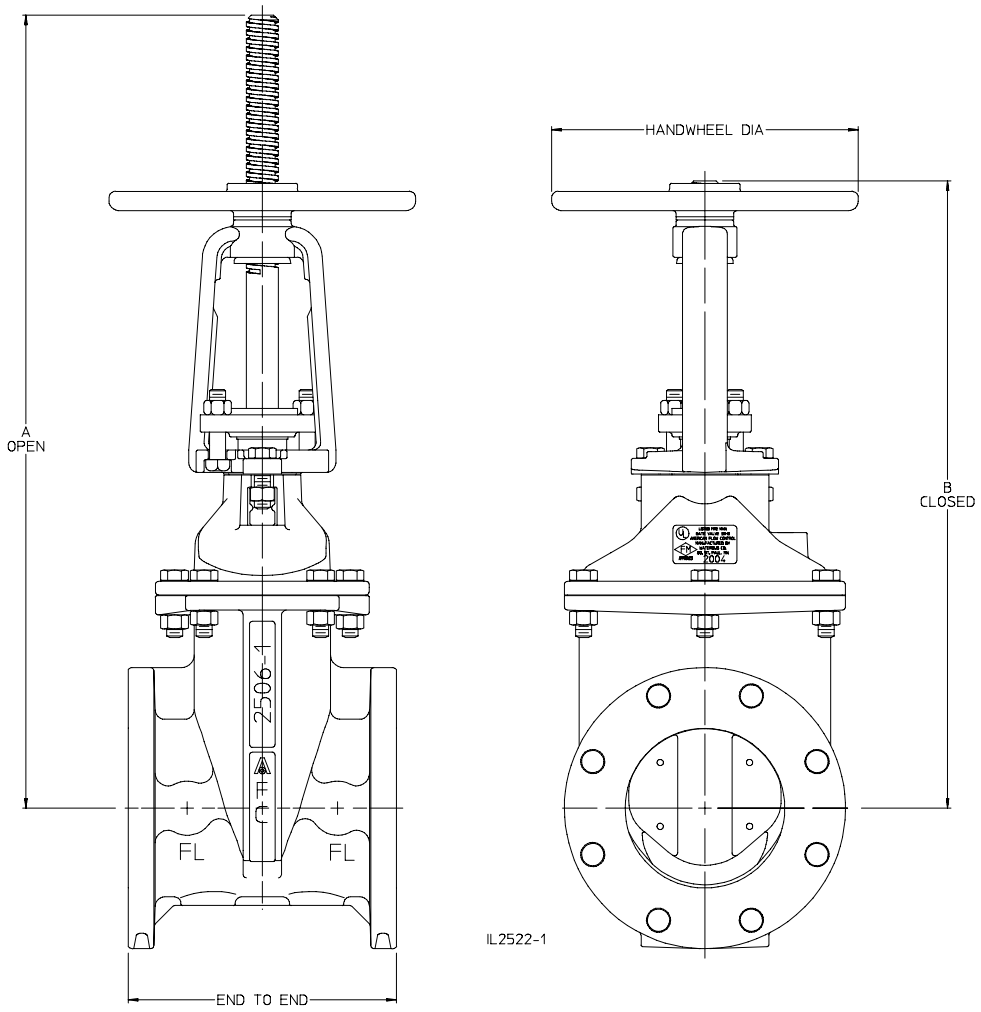
Dimension	Valve Size											
	Series 2500											
	14"	16"	18"	20"	24"	30"	36"	42"	48"	54"	60"	66"
A	35.56	39.12	42.38	43.00	51.12	62.62	74.31	86.31	96.00	96.00	118.00	118.00
B	7.62	7.62	8.88	8.88	8.88	13.12	14.88	14.88	19.19	19.19	19.12	19.12
End to End - MJ/MJ	20.25	20.62	22.75	23.25	25.25	33.50	37.50	42.75	45.00	N/A	N/A	N/A
Lay Length - MJ/MJ	13.25	13.62	15.75	16.25	18.25	25.50	29.50	34.75	37.00	N/A	N/A	N/A
End to End - FL/FL (Class 125)	15.00	16.00	17.00	18.00	20.00	26.00	30.00	38.00	43.00	48.00	53.00	58.00
End to End - PO/PO (Push-On)	22.12	24.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
End to End - FL/MJ (Class 125)	17.62	18.31	19.88	20.62	22.62	29.75	33.75	40.38	44.00	N/A	N/A	N/A
End to End - FX/FX (Flex-Ring)	N/A	N/A	N/A	N/A	34.50	41.00	44.50	53.50	62.00	N/A	N/A	N/A
Lay Length - FX/FX (Flex-Ring)	N/A	N/A	N/A	N/A	16.62	21.75	25.25	31.75	37.25	N/A	N/A	N/A
Handwheel Diameter	12.00	12.00	12.00	20.00	20.00	20.00	20.00	32.00	32.00	32.00	36.00	36.00
No. of Turns to Open	88	100	112	186	219	379	448	694	789	789	984	984

SERIES 2500 - NRS WITH SPUR GEARING DIMENSIONS, 14”- 66” SIZES



Dimension	Valve Size											
	Series 2500											
	14”	16”	18”	20”	24”	30”	36”	42”	48”	54”	60”	66”
A	39.81	43.38	47.19	47.75	55.88	71.00	83.00	98.75	108.50	108.50	128.31	128.31
B	8.62	8.62	10.81	10.81	10.81	13.12	14.00	14.00	16.00	16.00	16.00	16.00
End to End - MJ/MJ	20.25	20.62	22.75	23.25	25.25	33.50	37.50	42.75	45.00	N/A	N/A	N/A
Lay Length - MJ/MJ	13.25	13.62	15.75	16.25	18.25	25.50	29.50	34.75	37.00	N/A	N/A	N/A
End to End - FL/FL (Class 125)	15.00	16.00	17.00	18.00	20.00	26.00	30.00	38.00	43.00	48.00	53.00	58.00
End to End - PO/PO (Push-On)	22.12	24.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
End to End - FL/MJ (Class 125)	17.62	18.31	19.88	20.62	22.62	29.75	33.75	40.38	44.00	N/A	N/A	N/A
End to End - FX/FX (Flex-Ring)	N/A	N/A	N/A	N/A	34.50	41.00	44.50	53.50	62.00	N/A	N/A	N/A
Lay Length - FX/FX (Flex-Ring)	N/A	N/A	N/A	N/A	16.62	21.75	25.25	31.75	37.25	N/A	N/A	N/A
Handwheel Diameter	12.00	12.00	12.00	20.00	20.00	20.00	20.00	32.00	32.00	32.00	36.00	36.00
No. of Turns to Open	88	100	112	186	219	379	448	694	789	789	984	984

SERIES 2500 - OS & Y DIMENSIONS, 2"-12" SIZES

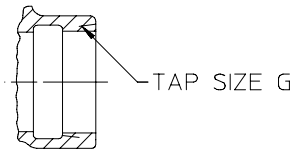


Dimension	Valve Size							
	Series 2500			Series 2500-1				
	2"	2-1/2"	3"	4"	6"	8"	10"	12"
A (Valve Open) +/- 1/4	13.62	16.78	18.12	23.47	30.97	38.16	48.41	53.66
B (Valve Closed) +/- 1/4	11.50	14.12	14.94	19.12	24.59	29.91	38.16	41.78
Handwheel Diameter	8.00	8.00	8.00	10.00	12.00	14.00	16.00	16.00
End to End - FL/FL (Class 125)	7.00	7.50	8.00	9.00	10.50	11.50	13.00	14.00
No. of Turns to Open	9	11	13	14	20	25	31	38
End to End - FL/FL (Class 250)	N/A	N/A	11.19	12.00	15.88	16.50	18.00	19.75

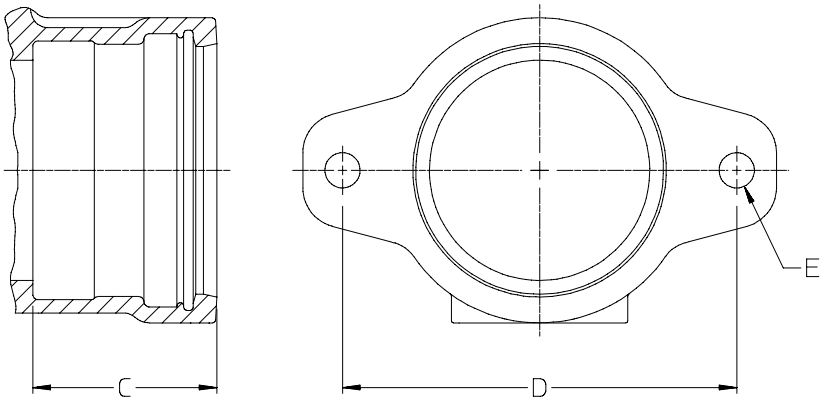
NOTES:

1. 3" thru 12" valves meet or exceed requirements of ANSI/AWWA C515.
2. Valve may be ordered in configurations which are UL Listed and FM Approved.
3. 250 p.s.i.g. rated working pressure.
4. Fusion bonded epoxy coating meets or exceeds requirements of ANSI/AWWA C550.
5. Class 125 flanged ends are in accordance with ASME B16.1, Class 125 for cast iron flanges and ANSI/AWWA C110/A21.10.
6. Class 250 flanged ends are in accordance with ASME B16.1, Class 250 for cast iron flanges.
7. 4" thru 12" valves are certified to ANSI/NSF Standard 61.

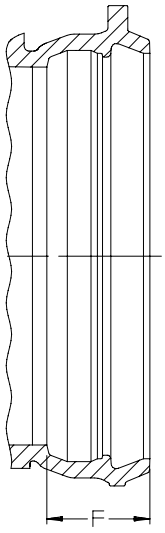
SERIES 2500 - OPTIONAL END CONNECTIONS, ALL SIZES



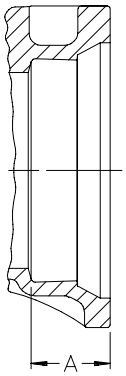
THREADED (SCREW)



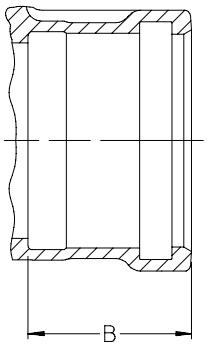
TYTON® (TY) (4"-12" SIZES)
PUSH-ON (PO) (14" & 16" SIZES)



FLEX-RING® (FX)



MECHANICAL JOINT (MJ)



PVC

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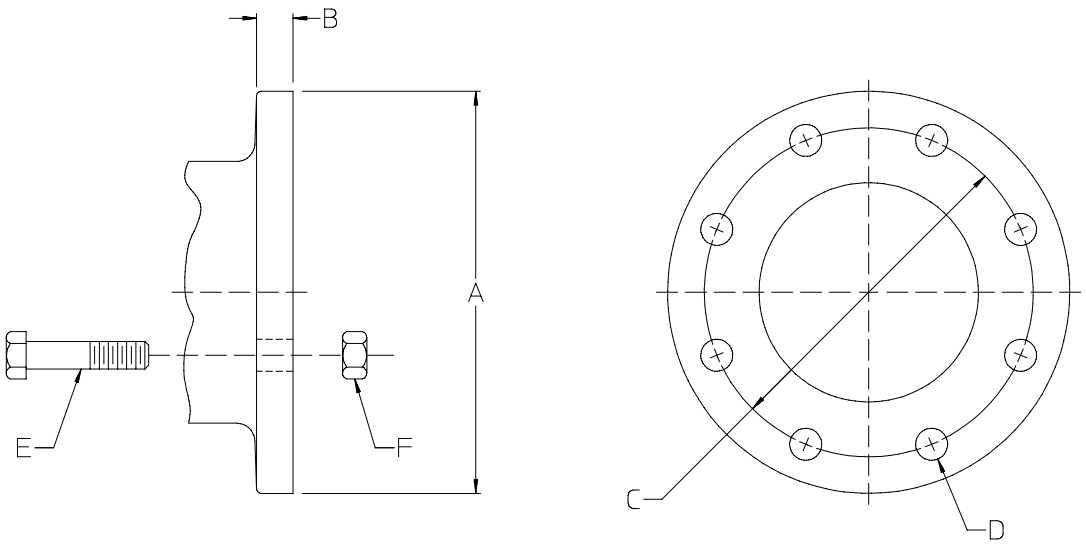
Dimension	Valve Size																				
	Series 2500			Series 2500-1					Series 2500												
	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"	54"	60"	66"
A (MJ)	2.50	N/A	2.50	2.50	2.50	2.50	2.50	2.50	3.50	3.50	3.50	3.50	3.50	4.00	4.00	4.00	4.00	N/A	N/A	N/A
B (PVC)	3.75	4.00	4.00	4.00	5.22	5.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C (PO)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.62	5.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C (TY)	N/A	N/A	N/A	4.00	5.22	5.50	5.62	5.62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D (TY)	N/A	N/A	N/A	9.00	11.19	13.50	15.88	18.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
E DIA (TY)	N/A	N/A	N/A	1.00	1.00	1.00	1.31	1.31	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F (FX)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.94	9.62	9.62	10.88	12.38	N/A	N/A	N/A
G (Threaded)	2" NPT	2-1/2" NPT	3" NPT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Class 125 Flange	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Class 250 Flange	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A

"X" denotes Class 125 and Class 250 flange ends are available for sizes indicated.

NOTE:

1. Class 125 flange end dimensions and Class 250 flange end dimensions are shown on separate pages. See "Class 125 flange dimensions" on page 3A-10 and "Class 250 flange dimensions" on page 3A-11.

SERIES 2500 - CLASS 125 FLANGE DIMENSIONS



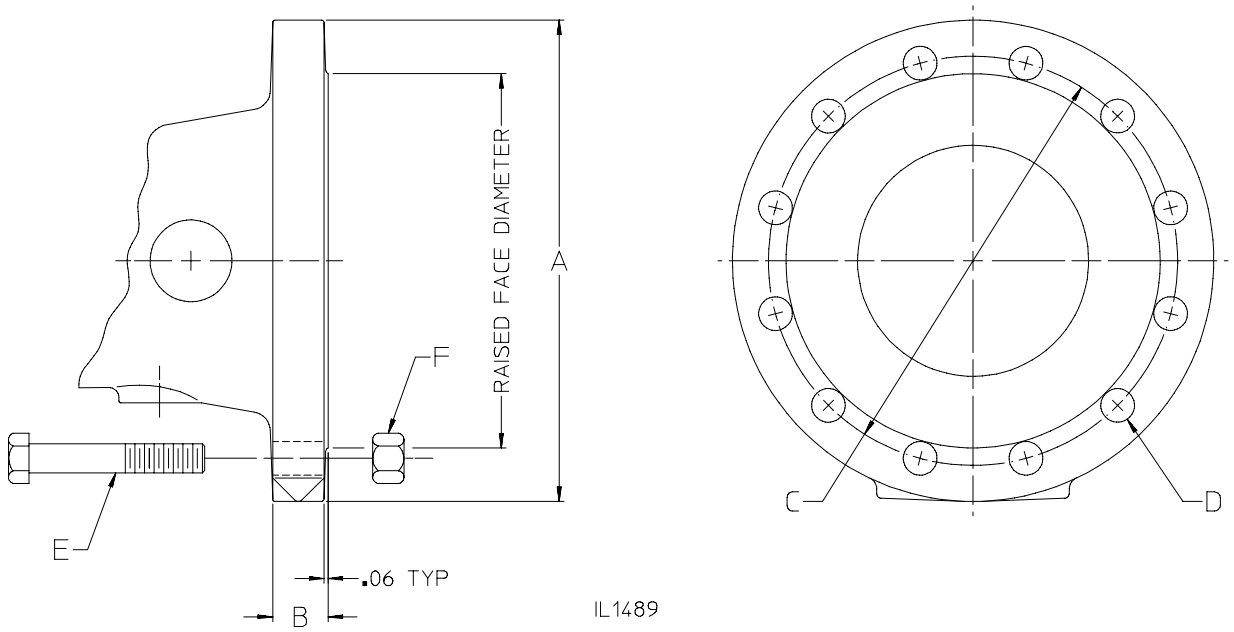
IL1451

Model	Valve Size	A	B	C	D		E	F
		Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Bolt Holes		Bolt Size See Note 2	No. of Hex Nuts Required
					No.	Size		
Series 2500	2”	6.00	.62	4.75	4	.75	5/8-11 x 2-1/2	4
	2-1/2”	7.00	.69	5.50	4	.75	5/8-11 x 2-1/2	4
	3”	7.50	.75±.12	6.00	4	.75	5/8-11 x 2-1/2	4
Series 2500-1	4”	9.00	.94±.12	7.50	8	.75	5/8-11 x 3	8
	6”	11.00	1.00±.12	9.50	8	.88	3/4-10 x 3-1/2	8
	8”	13.50	1.12±.12	11.75	8	.88	3/4-10 x 3-1/2	8
	10”	16.00	1.19±.12	14.25	12	1.00	7/8-9 x 4	12
	12”	19.00	1.25±.12	17.00	12	1.00	7/8-9 x 4	12
Series 2500	14”	21.00	1.38±.19	18.75	12	1.12	1”-8 x 4-1/2	12
	16”	23.50	1.44±.19	21.25	16	1.12	1”-8 x 4-1/2	16
	18”	25.00	1.56±.19	22.75	16	1.25	1-1/8-7 x 5	16
	20”	27.50	1.69±.19	25.00	20	1.25	1-1/8-7 x 5	20
	24”	32.00	1.88±.19	29.50	20	1.38	1-1/4-7 x 5-1/2	20
	30”	38.75	2.12±.25	36.00	28	1.38	1-1/4-7 x 6-1/2	28
	36”	46.00	2.38±.25	42.75	32	1.62	1-1/2-6 x 7	32
	42”	53.00	2.62±.25	49.50	36	1.62	1-1/2-6 x 7-1/2	36
	48”	59.50	2.75±.25	56.00	44	1.62	1-1/2-6 x 8	44
	54”	66.25	3.00±.25	62.75	44	2.00	1-3/4-5 x 8-1/2	44
	60”	73.00	3.12±.25	69.25	52	2.00	1-3/4-5 x 9	52
	66”	80.00	3.38±.25	76.00	52	2.00	1-3/4-5 x 9-1/2	52

NOTES:

1. Flange dimensions shown are per ASME B16.1, Class 125 for cast iron flanges and ANSI/AWWA C110/A21.10. Flange thickness tolerances shown are per ANSI/AWWA C110/A21.10.
2. Bolt lengths shown are for standard cast iron flange thicknesses with through holes. Steel or ductile iron flanges with reduced thickness or valves or fittings with tapped holes may require shorter bolts.

SERIES 2500 - CLASS 250 FLANGE DIMENSIONS

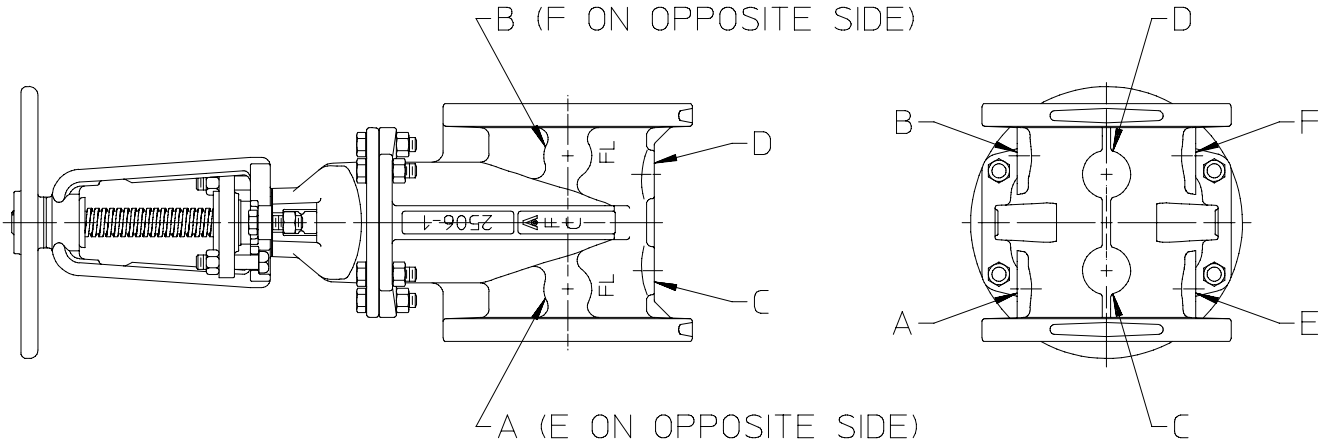


Model	Valve Size	A	B	C	D		E	F	Raised Face Dia.
		Diameter of Flange	Flange Thickness	Bolt Circle Diameter	Bolt Holes		Bolt Size See Note 2	No. of Hex Nuts Required	
					No.	Size			
Series 2500	3”	8.25	1.12	6.62	8	.88	3/4-10 x 3-1/2	8	5.69
Series 2500-1	4”	10.00	1.25	7.88	8	.88	3/4-10 x 4	8	6.94
	6”	12.50	1.44	10.62	12	.88	3/4-10 x 4	12	9.69
	8”	15.00	1.62	13.00	12	1.00	7/8-9 x 4-1/2	12	11.94
	10”	17.50	1.88	15.25	16	1.12	1”-8 x 5-1/2	16	14.06
	12”	20.50	2.00	17.75	16	1.25	1-1/8-7 x 5-1/2	16	16.44
Series 2500	14”	23.00	2.12	20.25	20	1.25	1-1/8-7 x 6	20	18.94
	16”	25.50	2.25	22.50	20	1.38	1-1/4-7 x 6-1/2	20	21.06
	18”	28.00	2.38	24.75	24	1.38	1-1/4-7 x 6-1/2	24	23.31
	20”	30.50	2.50	27.00	24	1.38	1-1/4-7 x 7	24	25.56
	24”	36.00	2.75	32.00	24	1.62	1-1/2-6 x 7-1/2	24	30.31
	30”	Not Available with Class 250 Raised Face Flanged Ends							
	36”								
	42”								
	48”								
	54”								
	60”								
	66”								

NOTES:

1. Flange dimensions shown are per ASME B16.1, Class 250 for cast iron flanges.
2. Bolt lengths shown are for standard cast iron flange thicknesses with thru holes. Steel or ductile iron flanges with reduced thickness or valves or fittings with tapped holes may require shorter bolts.

SERIES 2500 - OPTIONAL TAPS ON CLASS 125 & CLASS 250 FLANGE X FLANGE BODIES



LOCATION OF POSSIBLE TAPS
ON FLANGE X FLANGE VALVES

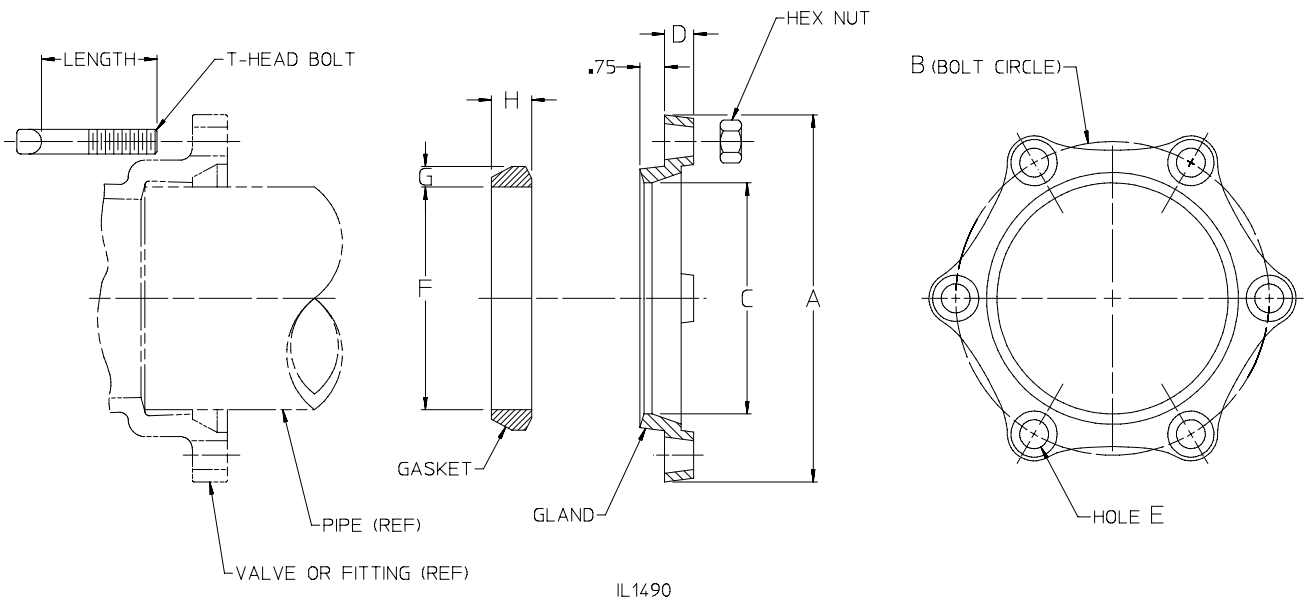
IL2522-6

Model	Valve Size	Available Tap Sizes for Boss Locations A, B, C, D, E & F
Series 2500	2”	1/2, 3/4 NPT
	2-1/2”	1/2, 3/4 NPT
	3”	1/2, 3/4 NPT
Series 2500-1	4”	1/2, 3/4, 1” NPT
	6”	1/2, 3/4, 1” NPT
	8”	1/2, 3/4, 1” NPT
	10”	1/2, 3/4, 1” NPT
	12”	1/2, 3/4, 1” NPT

NOTES:

1. Valve body tap locations are in accordance with MSS SP-45.
2. Taps are available on any valve with flanged ends, whether it is an NRS or OS & Y type valve.

SERIES 2500 - MECHANICAL JOINT ACCESSORIES

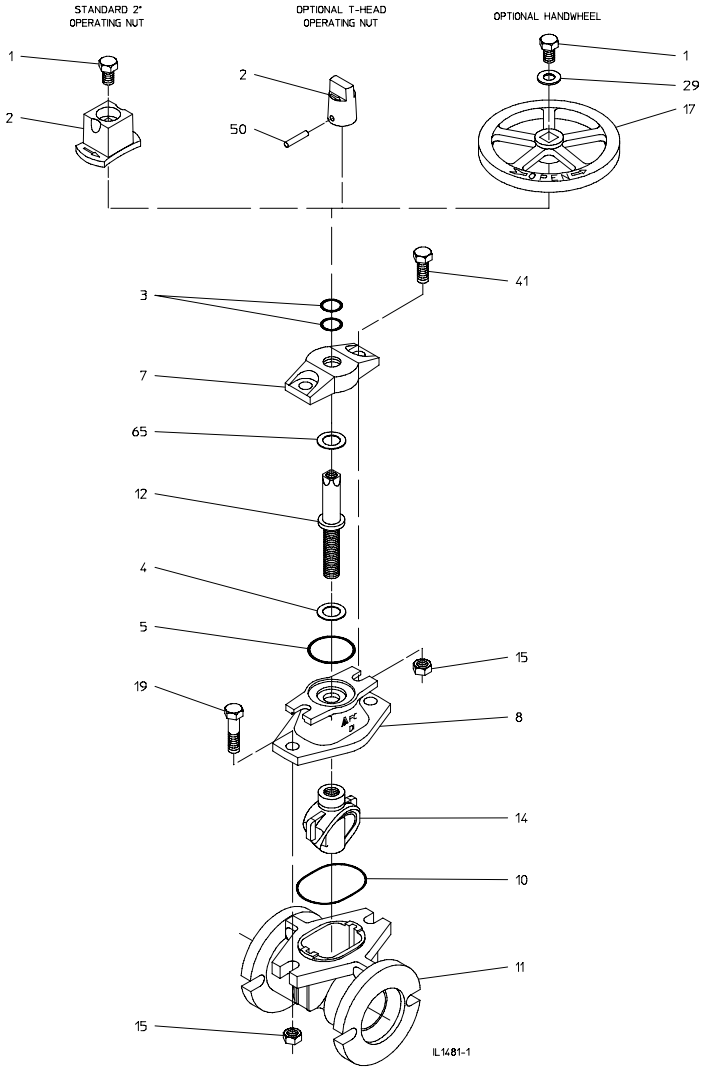


Model	Pipe or Valve Size	Gland							Gasket						T-Head Bolt		
		A Dia	B Dia	C Diameter		D	E		F Dia		G		H		Qty	Size	Length
				Std. Gland	Pit- - Cast Gland		Qty	Size	Standard Gasket	Transition Gasket	Standard Gasket	Transition Gasket	Standard Gasket	Transition Gasket			
Series 2500	2”	6.25	4.75	2.61	N/A	.62	2	.75	2.48	2.33	.48	.56	1.05	1.11	2	5/8-11	3”
	3”	7.69	6.19	4.06	N/A	.62	4	.75	3.86	3.45	.48	.70	1.05	1.11	4	5/8-11	3”
Series 2500-1	4”	9.12	7.50	4.90	5.13	.75	4	.88	4.68	4.43	.62	.77	1.22	1.26	4	3/4-10	3-1/2”
	6”	11.12	9.50	7.00	7.24	.88	6	.88	6.73	6.53	.62	.76	1.22	1.25	6	3/4-10	3-1/2”
	8”	13.37	11.75	9.15	9.46	1.00	6	.88	8.85	8.50	.62	.82	1.22	1.27	6	3/4-10	4”
	10”	15.62	14.00	11.20	11.53	1.00	8	.88	10.87	10.59	.62	.79	1.22	1.26	8	3/4-10	4”
	12”	17.88	16.25	13.30	13.63	1.00	8	.88	12.95	12.56	.62	.84	1.22	1.28	8	3/4-10	4”
Series 2500	14”	20.25	18.75	15.44	N/A	1.25	10	.88	14.99	N/A	.62	N/A	1.22	N/A	10	3/4-10	4-1/2”
	16”	22.50	21.00	17.54	N/A	1.31	12	.88	17.07	N/A	.62	N/A	1.22	N/A	12	3/4-10	4-1/2”
	18”	24.75	23.25	19.64	N/A	1.38	12	.88	19.13	N/A	.62	N/A	1.22	N/A	12	3/4-10	4-1/2”
	20”	27.00	25.50	21.74	N/A	1.44	14	.88	21.20	N/A	.62	N/A	1.22	N/A	14	3/4-10	4-1/2”
	24”	31.50	30.00	25.94	N/A	1.56	16	.88	25.34	N/A	.62	N/A	1.22	N/A	16	3/4-10	5”
	30”	39.12	36.88	32.17	N/A	2.00	20	1.12	31.47	N/A	.73	N/A	1.54	N/A	20	1”-8	6”
	36”	46.00	43.75	38.47	N/A	2.00	24	1.12	37.67	N/A	.73	N/A	1.54	N/A	24	1”-8	6”
	42”	53.12	50.62	44.67	N/A	2.00	28	1.38	43.78	N/A	.73	N/A	1.54	N/A	28	1-1/4-7	6-1/2”
	48”	60.00	57.50	50.97	N/A	2.00	32	1.38	49.98	N/A	.73	N/A	1.54	N/A	32	1-1/4-7	6-1/2”

NOTES:

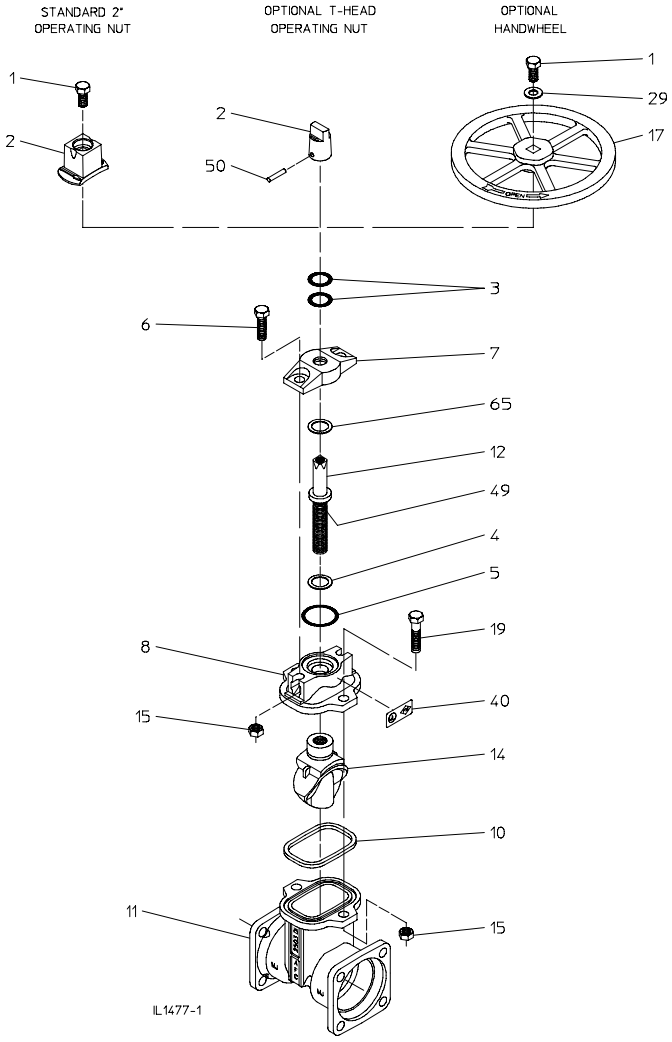
1. Dimensions shown for standard glands and gaskets in 2” thru 48” sizes are in accordance with ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53.
2. Dimensions shown are nominal.
3. T-head bolts and nuts are high-strength, low-alloy steel.
4. Glands are ductile iron.

SERIES 2500 - STANDARD NRS PARTS LIST, 2” SIZE



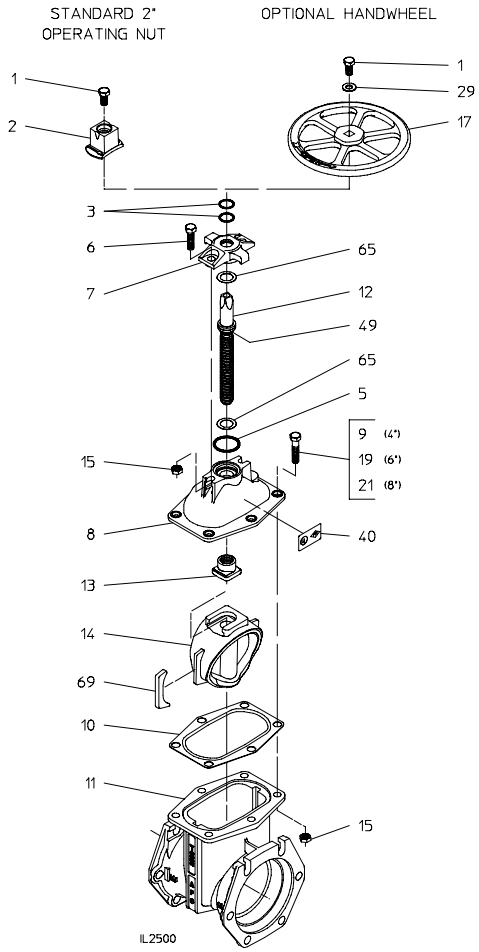
Reference Number	Description	Material	Qty Series 2500
1	Hex Head Bolt, 5/8-11 x 1”	Stainless Steel	1
2	Operating Nut, 2” Square Operating Nut, T-Head (Optional)	Ductile Iron	1
3	O-ring	Nitrile Rubber	2
4	Lower Thrust Washer	Nylon	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1
7	Stuffing Box	Ductile Iron	1
8	Bonnet	Ductile Iron	1
10	Bonnet Gasket	Nitrile Rubber	1
11	Body	Ductile Iron	1
12	Stem	Manganese Bronze	1
14	Resilient Wedge	Cast Bronze, Coated with EPDM Rubber	1
15	Hex Nut, 5/8-11	Stainless Steel	4
17	Handwheel	Cast Aluminum	1
19	Hex Head Bolt, 5/8-11 x 2-1/4”	Stainless Steel	2
29	Flat Washer, 5/8	Stainless Steel	1
41	Hex Head Bolt, 5/8-11 x 1-1/2”	Stainless Steel	2
50	Spirol Pin, 5/16 x 1-1/2”	Stainless Steel	1
65	Upper Thrust Washer	Stainless Steel	1

SERIES 2500 - STANDARD NRS PARTS LIST, 2-1/2" AND 3" SIZES



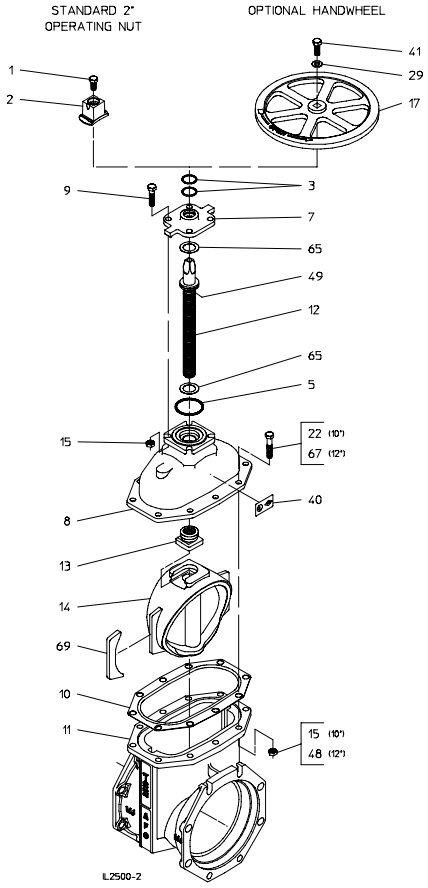
Reference Number	Description	Material	Qty Series 2500	
			2-1/2"	3"
1	Hex Head Bolt, 5/8-11 x 1"	Stainless Steel	1	1
2	Operating Nut, 2" Square	Ductile Iron	1	1
	Operating Nut, T-Head (Optional)		1	-
3	O-ring	Nitrile Rubber	2	2
4	Lower Thrust Washer	Nylon	1	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1
6	Hex Head Bolt, 5/8-11 x 1-3/4"	Stainless Steel	2	2
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	Nitrile Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem	Manganese Bronze	1	1
14	Resilient Wedge	Cast Bronze, Coated with EPDM Rubber	1	1
15	Hex Nut, 5/8-11	Stainless Steel	4	4
17	Handwheel	Ductile Iron	1	1
19	Hex Head Bolt, 5/8-11 x 2-1/4"	Stainless Steel	2	2
29	Flat Washer, 5/8	Stainless Steel	1	1
40	UL/FM Label	Pressure Sensitive Acrylic Film	1	1
49	O-ring	Nitrile Rubber	1	1
50	Spirol Pin, 5/16 x 1-1/2"	Stainless Steel	1	-
65	Upper Thrust Washer	Stainless Steel	1	1

SERIES 2500 - STANDARD NRS PARTS LIST, 4" - 8" SIZES



Reference Number	Description	Material	Qty Series 2500-1		
			4"	6"	8"
1	Hex Head Bolt, 5/8-11 x 1"	Stainless Steel	1	1	1
2	Operating Nut, 2" Square	Ductile Iron	1	1	1
3	O-ring	Nitrile Rubber	2	2	2
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1	1
6	Hex Head Bolt, 5/8-11 x 1-3/4"	Stainless Steel	2	2	2
7	Stuffing Box	Ductile Iron	1	1	1
8	Bonnet	Ductile Iron	1	1	1
9	Hex Head Bolt, 5/8-11 x 2"	Stainless Steel	4	-	-
10	Bonnet Gasket	EPDM Rubber	1	1	1
11	Body	Ductile Iron	1	1	1
12	Stem	Manganese Bronze	1	1	1
13	Wedge Nut	Manganese Bronze	1	1	1
14	Resilient Wedge	Ductile Iron, Encapsulated with EPDM Rubber	1	1	1
15	Hex Nut, 5/8-11	Stainless Steel	6	8	10
17	Handwheel	Ductile Iron	1	1	1
19	Hex Head Bolt, 5/8-11 x 2-1/4"	Stainless Steel	-	6	-
21	Hex Head Bolt, 5/8-11 x 2-1/2"	Stainless Steel	-	-	8
29	Flat Washer, 5/8	Stainless Steel	1	1	1
40	UL/FM Label	Pressure Sensitive Acrylic Film	1	1	1
49	O-ring	Nitrile Rubber	1	1	1
65	Thrust Washer	Stainless Steel	2	2	2
69	Wedge Cover	Acetal	2	2	2

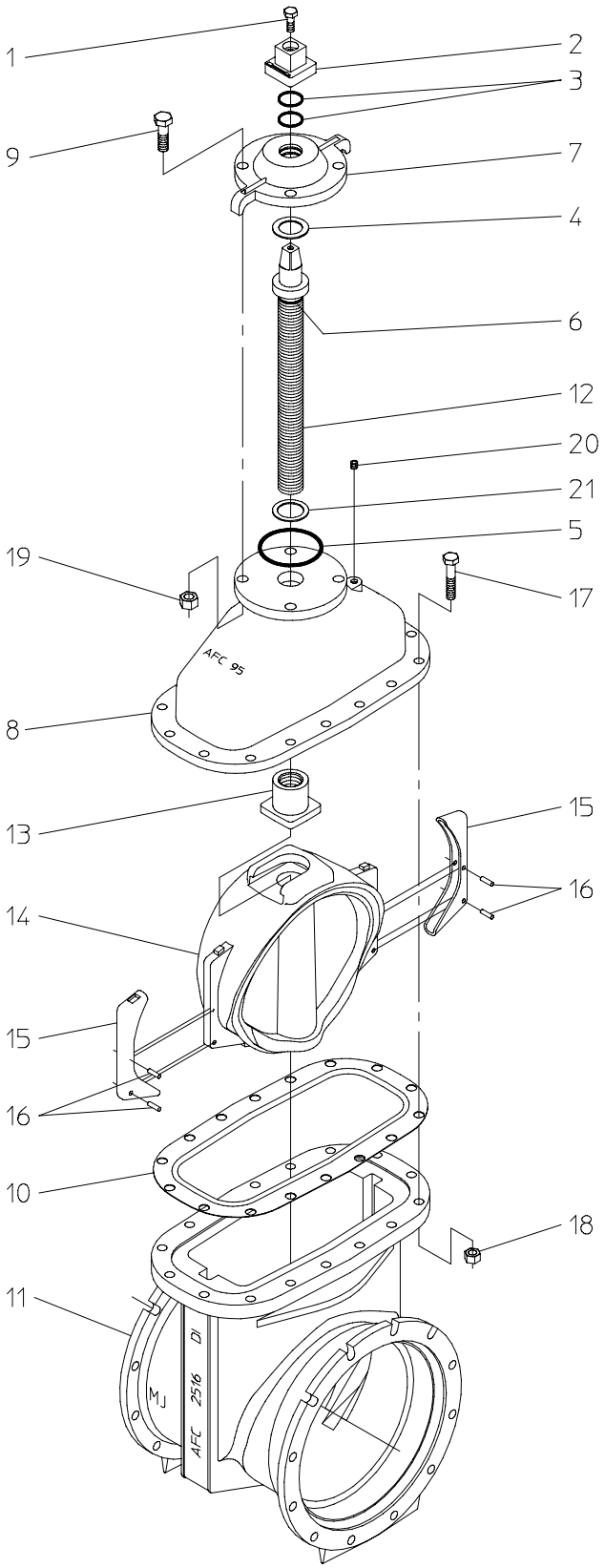
SERIES 2500 - STANDARD NRS PARTS LIST, 10” & 12” SIZES



Reference Number	Description	Material	Qty Series 2500-1	
			10”	12”
1	Hex Head Bolt, 5/8-11 x 1”	Stainless Steel	1	1
2	Operating Nut, 2” Square	Ductile Iron	1	1
3	O-ring	Nitrile Rubber	2	2
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
9	Hex Head Bolt, 5/8-11 x 2”	Stainless Steel	4	4
10	Bonnet Gasket	EPDM Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem	Manganese Bronze	1	1
13	Wedge Nut	Manganese Bronze	1	1
14	Resilient Wedge	Ductile Iron, Encapsulated with EPDM Rubber	1	1
15	Hex Nut, 5/8-11	Stainless Steel	14	4
17	Handwheel	Ductile Iron	1	1
22	Hex Head Bolt, 5/8-11 x 2-3/4”	Stainless Steel	10	-
29	Flat Washer, 5/8	Stainless Steel	1	1
40	UL/FM Label	Pressure Sensitive Acrylic Film	1	1
41	Hex Head Bolt, 5/8-11 x 1-1/2”	Stainless Steel	1	1
48	Hex Nut, 3/4-10	Stainless Steel	-	10
49	O-ring	Nitrile Rubber	1	1
65	Thrust Washer	Stainless Steel	2	2
67	Hex Head Bolt, 3/4-10 x 3”	Stainless Steel	-	10
69	Wedge Cover	Acetal	2	2

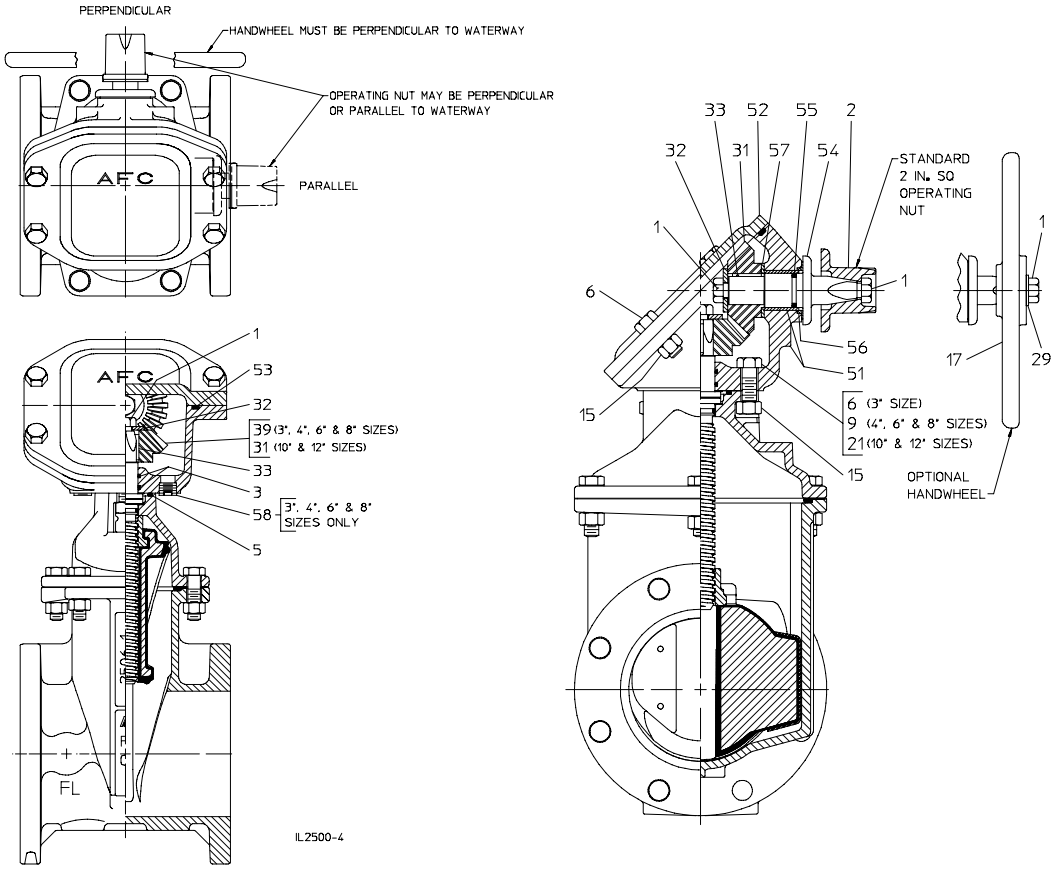
SERIES 2500 - STANDARD NRS PARTS LIST, 14" - 24" SIZES

Ref No.	Description	Material	Qty				
			Series 2500				
			14"	16"	18"	20"	24"
1	Hex Head Bolt, 5/8-11 x 1-3/4"	Stainless Steel	1	1	1	1	1
2	Operating Nut, 2" Square	Ductile Iron	1	1	1	1	1
3	O-ring	Nitrile Rubber	2	2	2	2	2
4	Upper Thrust Washer	Stainless Steel	1	1	1	1	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1	1	1	1
6	O-ring	Nitrile Rubber	1	1	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1	1	1
8	Bonnet	Ductile Iron	1	1	1	1	1
9	Hex Hd Bolt, 7/8-9 x 3"	Stainless Steel	4	4	4	-	-
9	Hex Hd Bolt, 7/8-9 x 4"	Stainless Steel	-	-	-	4	4
10	Bonnet Gasket	Nitrile Rubber	1	1	1	1	1
11	Body	Ductile Iron	1	1	1	1	1
12	Stem	Manganese Bronze	1	1	1	1	1
13	Wedge Nut	Manganese Bronze	1	1	1	1	1
14	Resilient Wedge	Ductile Iron, Coated /w EPDM Rubber	1	1	1	1	1
15	Wedge Cover	Delrin	2	2	2	2	2
16	Wedge Cover Pin	Delrin	4	4	4	4	4
17	Hex Hd Bolt, 3/4-10 x 3-1/2"	Stainless Steel	14	16	-	-	-
17	Hex Hd Bolt, 7/8-9 x 4"	Stainless Steel	-	-	16	-	-
17	Hex Hd Bolt, 7/8-9 x 4-1/2"	Stainless Steel	-	-	-	18	-
17	Hex Hd Bolt, 7/8-9 x 5"	Stainless Steel	-	-	-	-	20
18	Hex Nut, 3/4-10	Stainless Steel	14	16	-	-	-
18	Hex Nut, 7/8-9	Stainless Steel	-	-	16	18	20
19	Hex Nut, 7/8-9	Stainless Steel	4	4	4	4	4
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1	1	1	1
21	Lower Thrust Washer	Delrin	1	1	1	1	1



IL1507-2

SERIES 2500 - NRS WITH ENCLOSED MITER GEARING PARTS LIST
3" - 12" SIZES

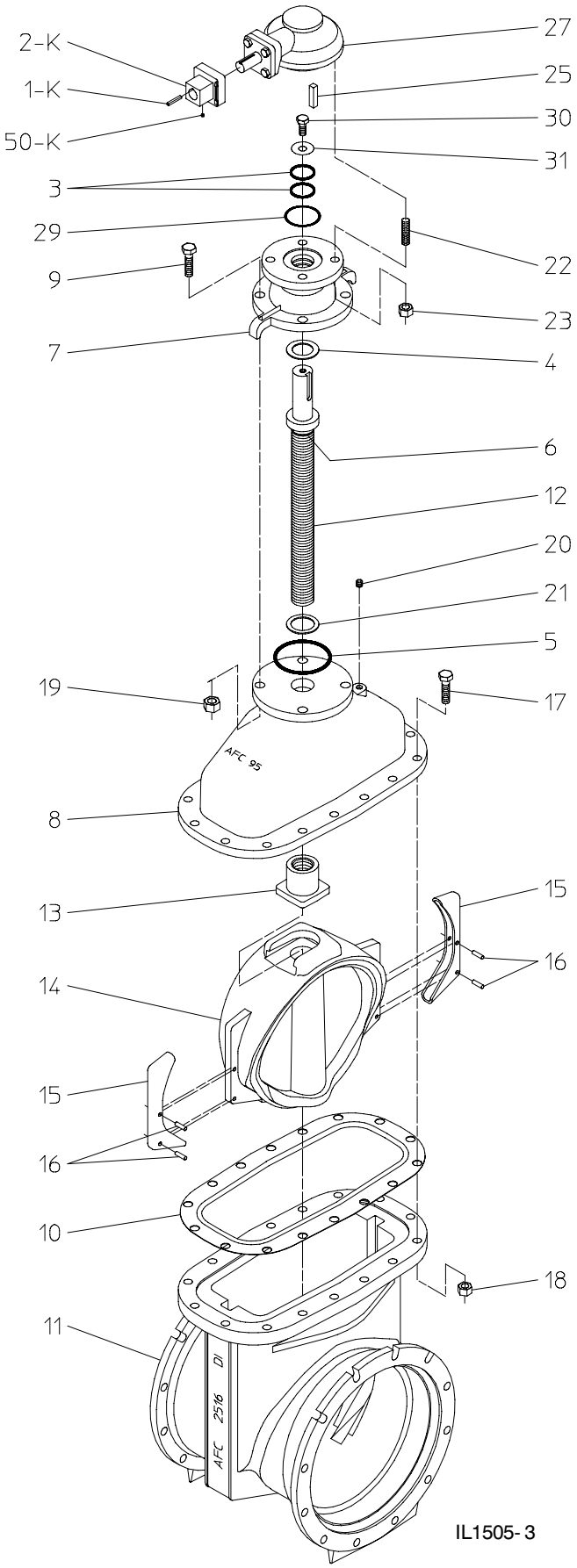


Ref. No.	Description	Material	Qty					
			Series 2500	Series 2500-1				
			3"	4"	6"	8"	10"	12"
1	Hex Head Bolt, 5/8-11 x 1"	Stainless Steel	3	3	3	3	3	3
2	Operating Nut, 2" Square	Ductile Iron	1	1	1	1	1	1
3	O-ring	Nitrile Rubber	2	2	2	2	2	2
5	Stuffing Box Gasket	Nitrile Rubber	1	1	1	1	1	1
6	Hex Hd Bolt, 5/8-11 X 1-3/4"	Stainless Steel	6	4	4	4	4	4
9	Hex Head Bolt, 5/8-11 x 2"	Stainless Steel	-	2	2	2	-	-
15	Hex Nut, 5/8-11	Stainless Steel	6	6	6	6	8	8
17	Handwheel (Optional)	Ductile Iron	1	1	1	1	1	1
21	Hex Hd Bolt, 5/8-11 x 2-1/2"	Stainless Steel	-	-	-	-	4	4
29	Flat Washer, 5/8	Stainless Steel	1	1	1	1	1	1
31	Miter Gear	Steel	1	1	1	1	2	2
32	Flat Washer	Aluminum	2	2	2	2	2	2
33	Square Key, 1/4"	Stainless Steel	2	2	2	2	2	2
39	Miter Gear	Steel	1	1	1	1	-	-
51	Gear Housing Assembly	Ductile Iron with Sintered Bronze Bushing	1	1	1	1	1	1
52	Gear Housing Cover	Ductile Iron	1	1	1	1	1	1
53	Housing Gasket	Nitrile Rubber	1	1	1	1	1	1
54	Gear Shaft	Ductile Iron	1	1	1	1	1	1
55	O-ring	Nitrile Rubber	1	1	1	1	1	1
56	Thrust Bushing	Sintered Bronze	1	1	1	1	1	1
57	Thrust Washer	Sintered Bronze	1	1	1	1	1	1
58	Headless Pipe Plug, 1/2 NPT	Brass	2	2	2	2	-	-

NOTE: See standard NRS dimension drawing and parts list drawing for dimensions and material descriptions not shown.

SERIES 2500 - NRS WITH BEVEL GEARING PARTS LIST, 14" - 18" SIZES

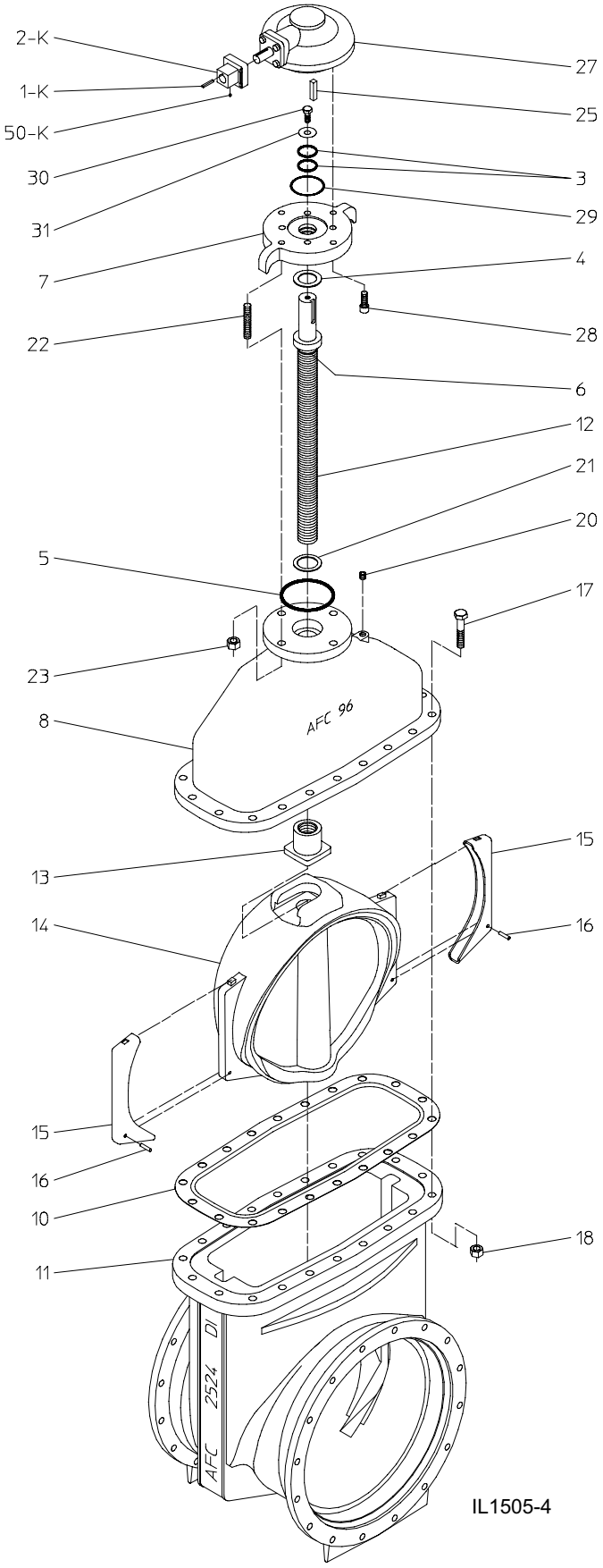
Ref No.	Description	Material	Qty Series 2500		
			14"	16"	18"
1-K	Key, 8 mm x 7 mm x 55 mm	Steel	1	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1	1
3	O-ring	Nitrile Rubber	2	2	2
4	Upper Thrust Washer	Stainless Steel	1	1	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1	1
6	O-ring	Nitrile Rubber	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1
8	Bonnet	Ductile Iron	1	1	1
9	Hex Hd Bolt, 7/8-9 x 3"	Stainless Steel	4	4	4
10	Bonnet Gasket	Nitrile Rubber	1	1	1
11	Body	Ductile Iron	1	1	1
12	Stem	Manganese Bronze	1	1	1
13	Wedge Nut	Manganese Bronze	1	1	1
14	Resilient Wedge	Ductile Iron, Coated with EPDM Rubber	1	1	1
15	Wedge Cover	Delrin	2	2	2
16	Wedge Cover Pin	Delrin	2	4	4
17	Hex Hd Bolt, 3/4-10 x 3-1/2"	Stainless Steel	14	16	-
17	Hex Hd Bolt, 7/8-9 x 4"	Stainless Steel	-	-	16
18	Hex Nut, 3/4-10	Stainless Steel	14	16	-
18	Hex Nut, 7/8-9	Stainless Steel	-	-	16
19	Hex Nut, 7/8-9	Stainless Steel	4	4	4
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1	1
21	Lower Thrust Washer	Delrin	1	1	1
22	Stud, 5/8-11 x 2-3/4"	Stainless Steel	4	4	4
23	Hex Nut, 5/8-11	Stainless Steel	4	4	4
25	Square Key, 5/16 x 2-1/2"	Stainless Steel	1	1	1
27	Bevel Gear Operator, 2:1	EXEECO IB5	1	1	1
29	Actuator Gasket	Nitrile Rubber O-ring	1	1	1
30	Hex Hd Bolt, 3/8-16 x 3/4"	Zinc Plated Steel	1	1	1
31	Washer	Steel	1	1	1
50-K	Set Screw, M8-1.25 x 8 mm	Stainless Steel	1	1	1



IL1505-3

SERIES 2500 - NRS WITH BEVEL GEARING PARTS LIST, 20" & 24" SIZES

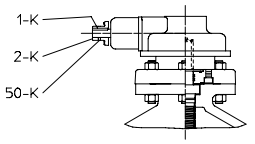
Ref No.	Description	Material	Qty Series 2500	
			20"	24"
1-K	Key, 8 mm x 7 mm x 55 mm	Steel	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1
3	O-ring	Nitrile Rubber	2	2
4	Upper Thrust Washer	Stainless Steel	1	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1
6	O-ring	Nitrile Rubber	1	1
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	Nitrile Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem	Manganese Bronze	1	1
13	Wedge Nut	Manganese Bronze	1	1
14	Resilient Wedge	Ductile Iron, Coated with EPDM Rubber	1	1
15	Wedge Cover	Delrin	2	2
16	Wedge Cover Pin	Delrin	4	4
17	Hex Hd Bolt, 7/8-9 x 4-1/2"	Stainless Steel	18	-
17	Hex Hd Bolt, 7/8-9 x 5"	Stainless Steel	-	20
18	Hex Nut, 7/8-9	Stainless Steel	18	20
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1
21	Lower Thrust Washer	Delrin	1	1
22	Stud, 7/8-9 x 3-1/2"	Stainless Steel	4	4
23	Hex Nut, 7/8-9	Stainless Steel	4	4
25	Square Key, 1/2 x 2-3/4"	Stainless Steel	1	1
27	Bevel Gear Operator, 3:1	EXEECO IB7	1	1
28	Socket Hd Cap Screw, 3/4-10 x 2"	Stainless Steel	4	4
29	Actuator Gasket	Nitrile Rubber O-ring	1	1
30	Hex Hd Bolt, 1/2-13 x 1"	Zinc Plated Steel	1	1
31	Washer	Steel	1	1
50-K	Set Screw, M8-1.25 x 8 mm	Stainless Steel	1	1



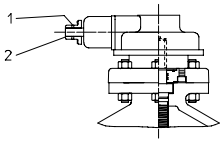
IL1505-4

SERIES 2500 - NRS WITH BEVEL GEARING PARTS LIST, 30" - 66" SIZES

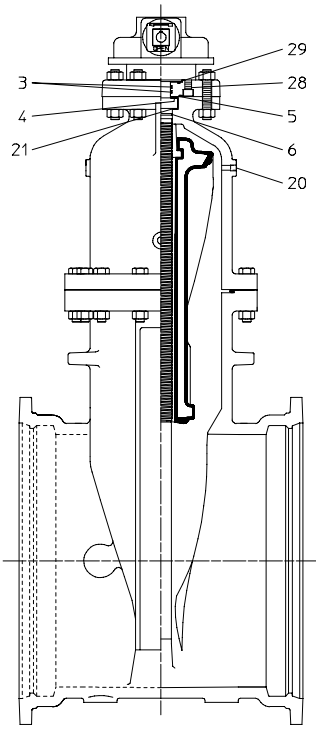
Ref No.	Description	Material	Qty Series 2500						
			30"	36"	42"	48"	54"	60"	66"
1	Pin, 1/4 x 2"	Stainless Steel	-	-	1	-	-	-	-
1	Pin, 1/4 x 2-3/4"	Stainless Steel	-	-	-	1	1	1	1
1-K	Key, 8 mm x 7 mm x 55 mm	Steel	1	1	-	-	-	-	-
2	Operating Nut, 2" Square	Ductile Iron	-	-	1	1	1	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1	-	-	-	-	-
3	O-ring	Nitrile Rubber	2	2	2	2	2	2	2
4	Upper Thrust Washer	Delrin	1	1	1	1	1	1	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1	1	1	1	1	1
6	O-ring	Nitrile Rubber	1	1	1	1	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1	1	1	1	1
8	Bonnet	Ductile Iron	1	1	1	1	1	1	1
10	Bonnet Gasket	Nitrile Rubber	1	1	1	1	1	1	1
11	Body	Ductile Iron	1	1	1	1	1	1	1
12	Stem	Manganese Bronze	1	1	1	1	1	-	-
12	Stem	Stainless Steel	-	-	-	-	-	1	1
13	Wedge Nut	Manganese Bronze	1	1	1	1	1	-	-
13	Wedge Nut	Bronze	-	-	-	-	-	1	1
14	Resilient Wedge	Ductile Iron, Coated with EPDM Rubber	1	1	1	1	1	1	1
15	Wedge Cover	Delrin	2	2	2	2	2	2	2
16	Wedge Cover Pin	Delrin	2	2	2	2	2	2	2
17	Hex Head Bolt, 1"-8 x 6"	Stainless Steel	22	-	-	-	-	-	-
17	Hex Head Bolt, 1-1/4-7 x 7"	Stainless Steel	-	26	-	-	-	-	-
17	Hex Head Bolt, 1-1/4-7 x 7-1/2"	Stainless Steel	-	-	32	-	-	-	-
17	Hex Head Bolt, 1-3/8-6 x 8-1/2"	Stainless Steel	-	-	-	36	36	32	32
18	Hex Nut, 1"-8	Stainless Steel	22	-	-	-	-	-	-
18	Hex Nut, 1-1/4-7	Stainless Steel	-	26	32	-	-	-	-
18	Hex Nut, 1-3/8-6	Stainless Steel	-	-	-	36	36	32	32
20	Pipe Plug, 3/8 NPT	Stainless Steel	3	4	-	-	-	-	-
20	Pipe Plug, 1/2 NPT	Stainless Steel	-	-	4	4	4	4	4
21	Lower Thrust Washer	Delrin	1	1	1	1	1	1	1
22	Stud, 1"-8 x 6"	Stainless Steel	6	-	-	-	-	-	-
22	Stud, 1"-8 x 6-1/2"	Stainless Steel	-	8	-	-	-	-	-
22	Stud, 1-1/4-7 x 7-1/2"	Stainless Steel	-	-	8	-	-	8	8
22	Stud, 1-1/4-7 x 7-3/4"	Stainless Steel	-	-	-	8	8	-	-
23	Hex Nut, 1"-8	Stainless Steel	12	16	-	-	-	-	-
23	Hex Nut, 1-1/4-7	Stainless Steel	-	-	16	16	16	16	16
25	Square Key, 1/2 x 3-1/2"	Hardened Steel	1	-	-	-	-	-	-
25	Square Key, 5/8 x 4"	Hardened Steel	-	1	-	-	-	-	-
25	Square Key, 3/4 x 4-1/2"	Hardened Steel	-	-	1	1	1	1	1
27	Bevel Gear Operator, 4:1	EXEECO IB8	1	-	-	-	-	-	-
27	Bevel Gear Operator, 4:1	EXEECO IB10	-	1	-	-	-	-	-
27	Bevel Gear Operator, 8:1	EXEECO IB12	-	-	1	1	1	1	1
28	Socket Head Cap Screw, 3/4-10 x 2"	Stainless Steel	4	-	-	-	-	-	-
28	Socket Head Cap Screw, 5/8-11 x 2"	Stainless Steel	-	8	-	-	-	-	-
28	Socket Head Cap Screw, 3/4-10 x 2-1/2"	Stainless Steel	-	-	8	8	8	8	8
29	Actuator Gasket	Nitrile Rubber O-ring	1	1	1	1	1	1	1
30	Hex Head Bolt, 3/4-10 x 1"	Zinc Plated Steel	1	1	-	-	-	-	-
30	Hex Head Bolt, 7/8-9 x 1-1/2"	Zinc Plated Steel	-	-	1	1	1	1	1
31	Washer	Steel	1	1	1	1	1	1	1
50-K	Set Screw, M8-1.25 x 8 mm	Stainless Steel	1	1	-	-	-	-	-
55	Blind Flange	Ductile Iron	-	-	-	-	-	1	1
56	Stud, 5/8-11 x 3"	Stainless Steel	-	-	-	-	-	8	8
57	Hex Nut, 5/8-11	Stainless Steel	-	-	-	-	-	8	8



30" & 36" SIZES ONLY



42" THRU 66" SIZES ONLY



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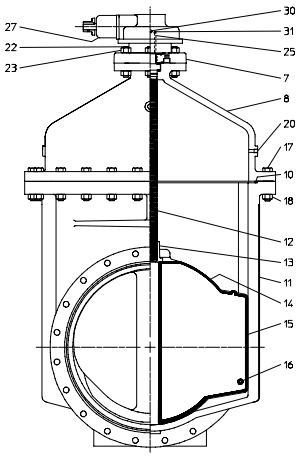
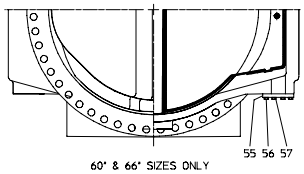
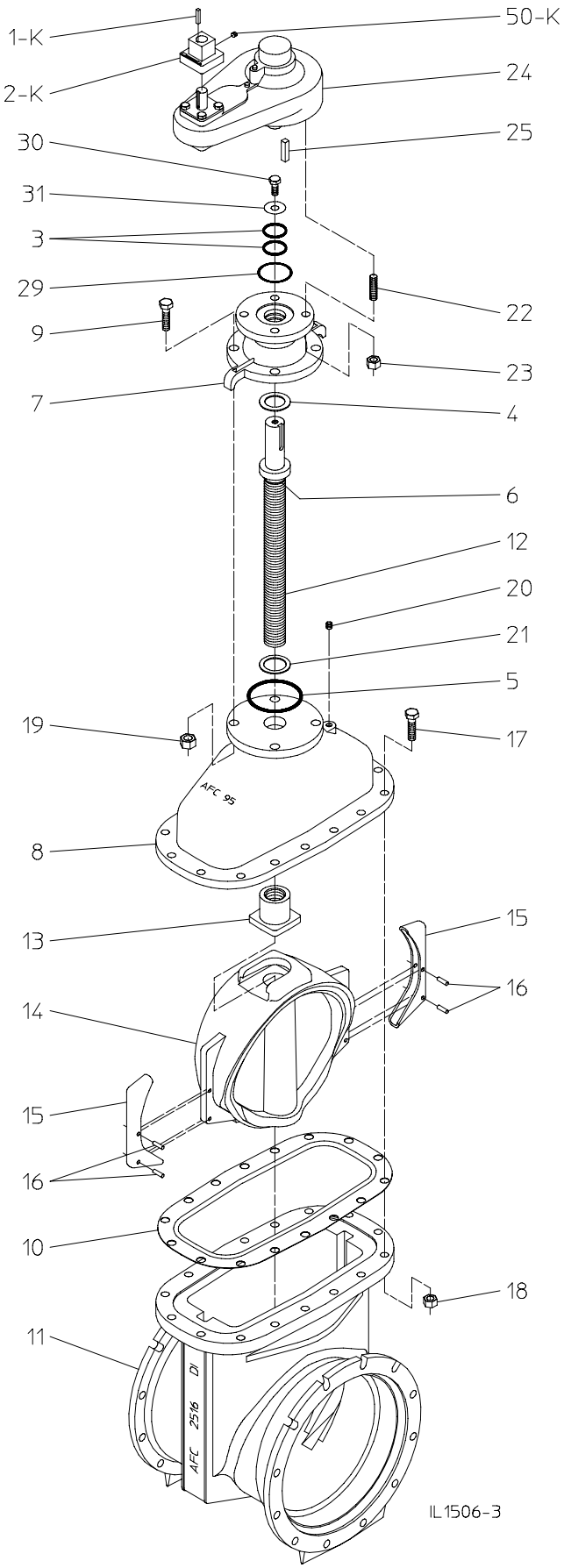




60" & 66" SIZES ONLY

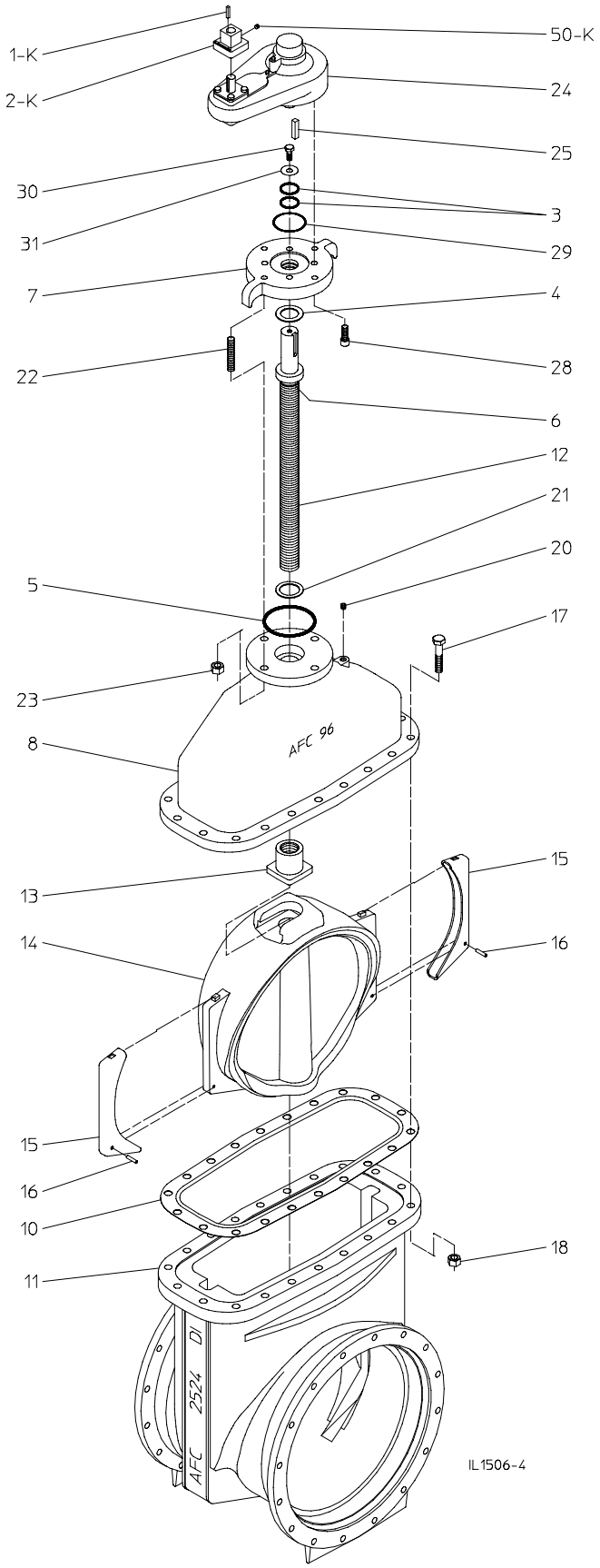
SERIES 2500 - NRS WITH SPUR GEARING PARTS LIST, 14" - 18" SIZES

Ref No.	Description	Material	Qty Series 2500		
			14"	16"	18"
1-K	Key, 8 mm x 7 mm x 55 mm	Steel	1	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1	1
3	O-ring	Nitrile Rubber	2	2	2
4	Upper Thrust Washer	Stainless Steel	1	1	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1	1
6	O-ring	Nitrile Rubber	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1
8	Bonnet	Ductile Iron	1	1	1
9	Hex Hd Bolt, 7/8-9 x 3"	Stainless Steel	4	4	4
10	Bonnet Gasket	Nitrile Rubber	1	1	1
11	Body	Ductile Iron	1	1	1
12	Stem	Manganese Bronze	1	1	1
13	Wedge Nut	Manganese Bronze	1	1	1
14	Resilient Wedge	Ductile Iron, Coated with EPDM Rubber	1	1	1
15	Wedge Cover	Delrin	2	2	2
16	Wedge Cover Pin	Delrin	2	4	4
17	Hex Hd Bolt, 3/4-10 x 3-1/2"	Stainless Steel	14	16	-
17	Hex Hd Bolt, 7/8-9 x 4"	Stainless Steel	-	-	16
18	Hex Nut, 3/4-10	Stainless Steel	14	16	-
18	Hex Nut, 7/8-9	Stainless Steel	-	-	16
19	Hex Nut, 7/8-9	Stainless Steel	4	4	4
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1	1
21	Lower Thrust Washer	Delrin	1	1	1
22	Stud, 5/8-11 x 2-3/4"	Stainless Steel	4	4	4
23	Hex Nut, 5/8-11	Stainless Steel	4	4	4
24	Spur Gear Operator, 2:1	EXEECO IS5	1	1	1
25	Square Key, 5/16 x 2-1/2"	Stainless Steel	1	1	1
29	Actuator Gasket	Nitrile Rubber O-ring	1	1	1
30	Hex Hd Bolt, 3/8-16 x 3/4"	Zinc Plated Steel	1	1	1
31	Washer	Steel	1	1	1
50-K	Set Screw, M8-1.25 x 8 mm	Stainless Steel	1	1	1



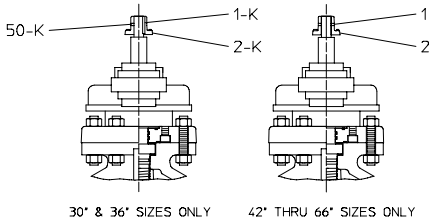
SERIES 2500 - NRS WITH SPUR GEARING PARTS LIST, 20” & 24” SIZES

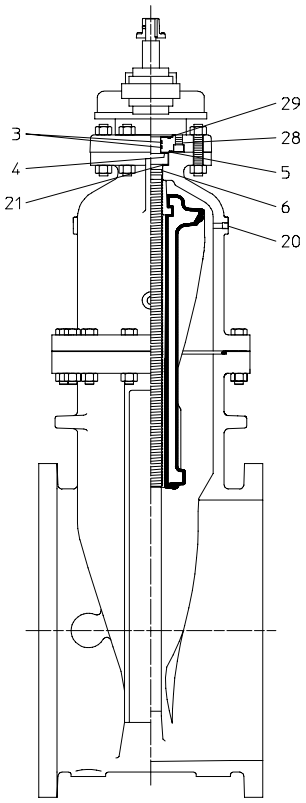
Ref No.	Description	Material	Qty Series 2500	
			20”	24”
1-K	Key, 8 mm x 7 mm x 55 mm	Steel	1	1
2-K	Operating Nut, 2” Square	Ductile Iron	1	1
3	O-ring	Nitrile Rubber	2	2
4	Upper Thrust Washer	Stainless Steel	1	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1
6	O-ring	Nitrile Rubber	1	1
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	Nitrile Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem	Manganese Bronze	1	1
13	Wedge Nut	Manganese Bronze	1	1
14	Resilient Wedge	Ductile Iron, Coated with EPDM Rubber	1	1
15	Wedge Cover	Delrin	2	2
16	Wedge Cover Pin	Delrin	4	4
17	Hex Hd Bolt, 7/8-9 x 4-1/2”	Stainless Steel	18	-
17	Hex Hd Bolt, 7/8-9 x 5”	Stainless Steel	-	20
18	Hex Nut, 7/8-9	Stainless Steel	18	20
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1
21	Lower Thrust Washer	Delrin	1	1
22	Stud, 7/8-9 x 3-1/2”	Stainless Steel	4	4
23	Hex Nut, 7/8-9	Stainless Steel	4	4
24	Spur Gearing Operator, 3:1	EXEECO IS7	1	1
25	Square Key, 1/2 x 2-3/4”	Stainless Steel	1	1
28	Socket Hd Cap Screw, 3/4-10 x 2”	Stainless Steel	4	4
29	Actuator Gasket	Nitrile Rubber O-ring	1	1
30	Hex Hd Bolt, 1/2-13 x 1”	Zinc Plated Steel	1	1
31	Washer	Steel	1	1
50-K	Set Screw, M8-1.25 x 8 mm	Stainless Steel	1	1



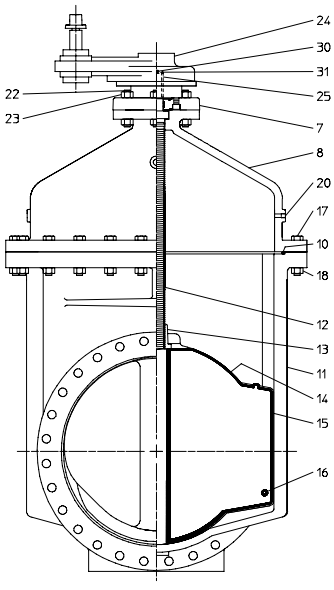
SERIES 2500 - NRS WITH SPUR GEARING PARTS LIST, 30" - 66" SIZES

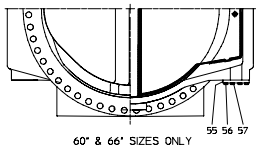
Ref No.	Description	Material	Qty Series 2500						
			30"	36"	42"	48"	54"	60"	66"
1	Pin, 1/4 x 2"	Stainless Steel	-	-	1	-	-	-	-
1	Pin, 1/4 x 2-3/4"	Stainless Steel	-	-	-	1	1	1	1
1-K	Key, 8 mm x 7 mm x 55 mm	Steel	1	1	-	-	-	-	-
2	Operating Nut, 2" Square	Ductile Iron	-	-	1	1	1	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1	-	-	-	-	-
3	O-ring	Nitrile Rubber	2	2	2	2	2	2	2
4	Upper Thrust Washer	Delrin	1	1	1	1	1	1	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1	1	1	1	1	1
6	O-ring	Nitrile Rubber	1	1	1	1	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1	1	1	1	1
8	Bonnet	Ductile Iron	1	1	1	1	1	1	1
10	Bonnet Gasket	Nitrile Rubber	1	1	1	1	1	1	1
11	Body	Ductile Iron	1	1	1	1	1	1	1
12	Stem	Manganese Bronze	1	1	1	1	1	-	-
12	Stem	Stainless Steel	-	-	-	-	-	1	1
13	Wedge Nut	Manganese Bronze	1	1	1	1	1	-	-
13	Wedge Nut	Bronze	-	-	-	-	-	1	1
14	Resilient Wedge	Ductile Iron, Coated with EPDM Rubber	1	1	1	1	1	1	1
15	Wedge Cover	Delrin	2	2	2	2	2	2	2
16	Wedge Cover Pin	Delrin	2	2	2	2	2	2	2
17	Hex Head Bolt, 1"-8 x 6"	Stainless Steel	22	-	-	-	-	-	-
17	Hex Head Bolt, 1-1/4-7 x 7"	Stainless Steel	-	26	-	-	-	-	-
17	Hex Head Bolt, 1-1/4-7 x 7-1/2"	Stainless Steel	-	-	32	-	-	-	-
17	Hex Head Bolt, 1-3/8-6 x 8-1/2"	Stainless Steel	-	-	-	36	36	32	32
18	Hex Nut, 1"-8	Stainless Steel	22	-	-	-	-	-	-
18	Hex Nut, 1-1/4-7	Stainless Steel	-	26	32	-	-	-	-
18	Hex Nut, 1-3/8-6	Stainless Steel	-	-	-	36	36	32	32
20	Pipe Plug, 3/8 NPT	Stainless Steel	3	4	-	-	-	-	-
20	Pipe Plug, 1/2 NPT	Stainless Steel	-	-	4	4	4	4	4
21	Lower Thrust Washer	Delrin	1	1	1	1	1	1	1
22	Stud, 1"-8 x 6"	Stainless Steel	6	-	-	-	-	-	-
22	Stud, 1"-8 x 6-1/2"	Stainless Steel	-	8	-	-	-	-	-
22	Stud, 1-1/4-7 x 7-1/2"	Stainless Steel	-	-	8	-	-	8	8
22	Stud, 1-1/4-7 x 7-3/4"	Stainless Steel	-	-	-	8	8	-	-
23	Hex Nut, 1"-8	Stainless Steel	12	16	-	-	-	-	-
23	Hex Nut, 1-1/4-7	Stainless Steel	-	-	16	16	16	16	16
24	Spur Gear Operator, 4:1	EXEECO IS8	1	-	-	-	-	-	-
24	Spur Gear Operator, 4:1	EXEECO IS10	-	1	-	-	-	-	-
24	Spur Gear Operator, 8:1	EXEECO IS12	-	-	1	1	1	1	1
25	Square Key, 1/2 x 3-1/2"	Hardened Steel	1	-	-	-	-	-	-
25	Square Key, 5/8 x 4"	Hardened Steel	-	1	-	-	-	-	-
25	Square Key, 3/4 x 4-1/2"	Hardened Steel	-	-	1	1	1	1	1
28	Socket Head Cap Screw, 3/4-10 x 2"	Stainless Steel	4	-	-	-	-	-	-
28	Socket Head Cap Screw, 5/8-11 x 2"	Stainless Steel	-	8	-	-	-	-	-
28	Socket Head Cap Screw, 3/4-10 x 2-1/2"	Stainless Steel	-	-	8	8	8	8	8
29	Actuator Gasket	Nitrile Rubber O-ring	1	1	1	1	1	1	1
30	Hex Head Bolt, 3/4-10 x 1"	Zinc Plated Steel	1	1	-	-	-	-	-
30	Hex Head Bolt, 7/8-9 x 1-1/2"	Zinc Plated Steel	-	-	1	1	1	1	1
31	Washer	Steel	1	1	1	1	1	1	1
50-K	Set Screw, M8-1.25 x 8 mm	Stainless Steel	1	1	-	-	-	-	-
55	Blind Flange	Ductile Iron	-	-	-	-	-	1	1
56	Stud, 5/8-11 x 3"	Stainless Steel	-	-	-	-	-	8	8
57	Hex Nut, 5/8-11	Stainless Steel	-	-	-	-	-	8	8





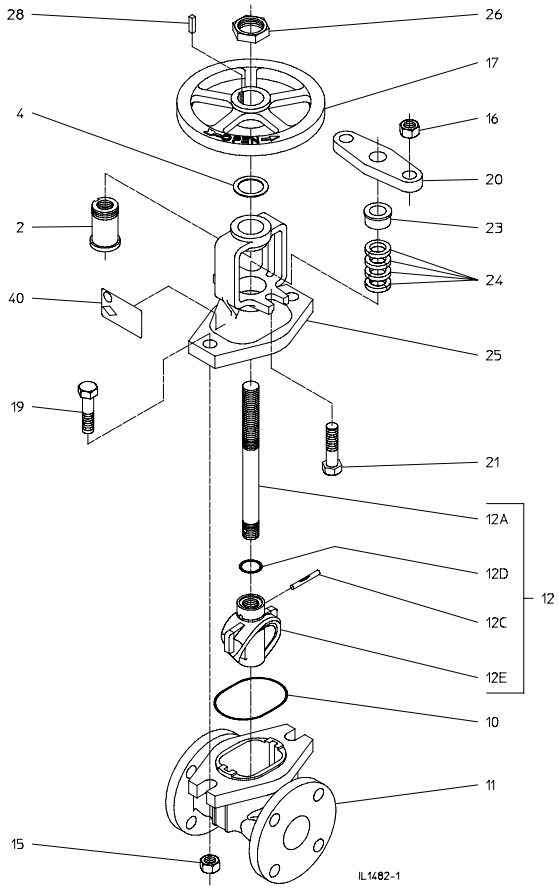
IL 1506-5





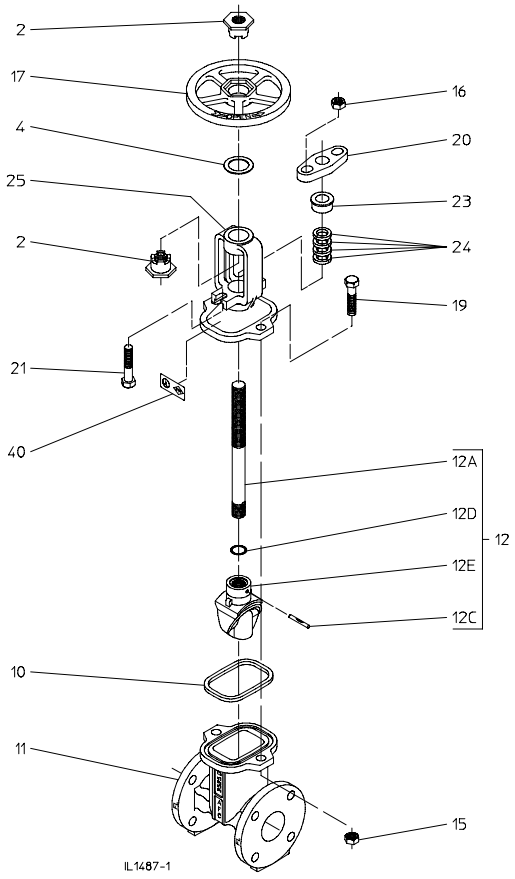
SERIES 2500 - NRS WITH SPUR GEARING PARTS LIST

SERIES 2500 - OS & Y PARTS LIST, 2" SIZE



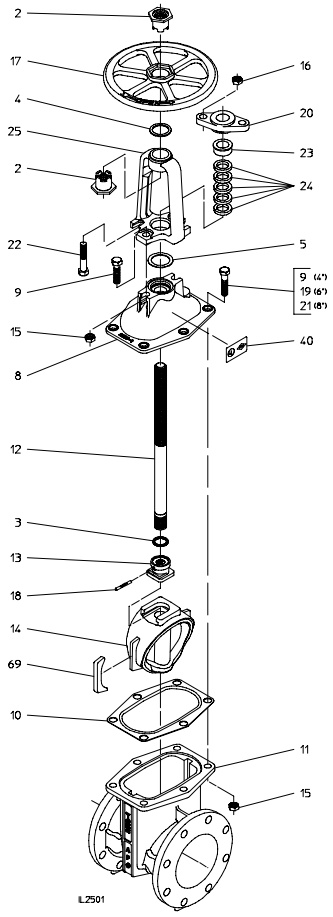
Ref No.	Description	Material	Qty
			Series 2500
2	Stem Nut	Free Cutting Brass	1
4	Handwheel Washer	Nylon	1
10	Bonnet Gasket	Nitrile Rubber	1
11	Body	Ductile Iron	1
12	Stem & Wedge Assembly	See Below	1
12A	Stem	Free Cutting Brass	1
12C	Groove Pin	Stainless Steel	1
12D	O-ring	Nitrile Rubber	1
12E	Resilient Wedge	Cast Bronze, Coated with EPDM Rubber	1
15	Hex Nut, 5/8-11	Stainless Steel	2
16	Hex Nut, 5/8-11	Brass	2
17	Handwheel	Gray Iron	1
19	Hex Head Bolt, 5/8-11 x 2-1/4"	Stainless Steel	2
20	Gland Follower	Ductile Iron	1
21	Hex Head Bolt, 5/8-11 x 2-1/2"	Stainless Steel	2
23	Gland	Sintered Bronze, Oil Impregnated	1
24	Packing Ring	Tallow Impregnated Flax	4
25	Bonnet	Ductile Iron	1
26	Handwheel Nut	Cast Bronze	1
28	Square Key	Stainless Steel	1
40	UL/FM Label	Pressure Sensitive Acrylic Film	1

SERIES 2500 - OS & Y PARTS LIST, 2-1/2” & 3” SIZES



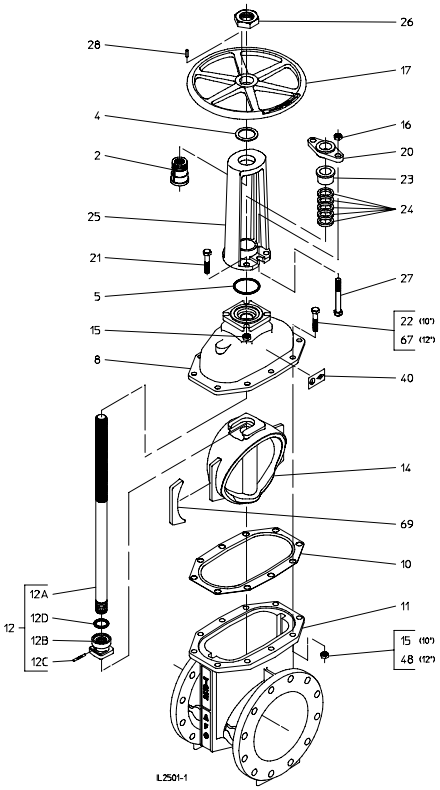
Ref No.	Description	Material	Qty Series 2500	
			2-1/2”	3”
2	Stem Nut	Forging Brass	2	2
4	Handwheel Washer	Nylon	1	1
10	Bonnet Gasket	Nitrile Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem & Wedge Assembly	See Below	1	1
12A	Stem	Free Cutting Brass	1	1
12C	Groove Pin	Stainless Steel	1	1
12D	O-ring	Nitrile Rubber	1	1
12E	Resilient Wedge	Cast Bronze, Coated with EPDM Rubber	1	1
15	Hex Nut, 5/8-11	Stainless Steel	2	2
16	Hex Nut, 5/8-11	Brass	2	2
17	Handwheel	Ductile Iron	1	1
19	Hex Head Bolt, 5/8-11 x 2-1/4”	Stainless Steel	2	2
20	Gland Follower	Ductile Iron	1	1
21	Hex Head Bolt, 5/8-11 x 2-1/2”	Stainless Steel	2	2
23	Gland	Sintered Bronze, Oil Impregnated	1	1
24	Packing Ring	Tallow Impregnated Flax	4	4
25	Bonnet	Ductile Iron	1	1
40	UL/FM Label	Pressure Sensitive Acrylic Film	1	1

SERIES 2500 - OS & Y PARTS LIST, 4" - 8" SIZES



Ref No.	Description	Material	Qty Series 2500-1		
			4"	6"	8"
2	Stem Nut	Bronze	2	2	2
3	O-ring	Nitrile Rubber	1	1	1
4	Handwheel Washer	Brass	1	1	1
5	Stuffing Box Gasket	Nitrile Rubber	1	1	1
8	Bonnet	Ductile Iron	1	1	1
9	Hex Head Bolt, 5/8-11 x 2"	Stainless Steel	6	2	2
10	Bonnet Gasket	EPDM Rubber	1	1	1
11	Body	Ductile Iron	1	1	1
12	Stem	Free Cutting Brass	1	1	1
13	Wedge Nut	Ductile Iron	1	1	1
14	Resilient Wedge	Ductile iron, Encapsulated with EPDM Rubber	1	1	1
15	Hex Nut, 5/8-11	Stainless Steel	6	8	10
16	Hex Nut, 5/8-11	Brass	2	2	2
17	Handwheel	Ductile Iron	1	1	1
18	Groove Pin	Stainless Steel	1	1	1
19	Hex Head Bolt, 5/8-11 x 2-1/4"	Stainless Steel	-	6	-
20	Gland Follower	Ductile Iron	1	1	1
21	Hex Head Bolt, 5/8-11 x 2-1/2"	Stainless Steel	-	-	8
22	Hex Head Bolt, 5/8-11 x 2-3/4"	Stainless Steel	2	2	2
23	Gland	Sintered Bronze, Oil Impregnated	1	1	1
24	Packing Ring	Tallow Impregnated Flax	5	5	5
25	Yoke	Ductile Iron	1	1	1
40	UL/FM Label	Pressure Sensitive Acrylic Film	1	1	1
69	Wedge Cover	Acetal	2	2	2

SERIES 2500 - OS & Y PARTS LIST, 10” & 12” SIZES



Ref No.	Description	Material	Qty Series 2500-1	
			10”	12”
2	Yoke Nut	Manganese Bronze	1	1
4	Handwheel Washer	Brass	1	1
5	Stuffing Box Gasket	Nitrile Rubber O-ring	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	EPDM Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem & Wedge Assembly	See Below	1	1
12A	Stem	Free Cutting Brass	1	1
12B	Wedge Nut	Ductile Iron	1	1
12C	Groove Pin	Stainless Steel	1	1
12D	O-ring	Nitrile Rubber	1	1
14	Resilient Wedge	Ductile Iron, Encapsulated with EPDM Rubber	1	1
15	Hex Nut, 5/8-11	Stainless Steel	14	4
16	Hex Nut, 5/8-11	Brass	2	2
17	Handwheel	Ductile Iron	1	1
20	Gland Follower	Ductile Iron	1	1
21	Hex Head Bolt, 5/8-11 x 2-1/2”	Stainless Steel	4	4
22	Hex Head Bolt, 5/8-11 x 2-3/4”	Stainless Steel	10	-
23	Gland	Bronze	1	1
24	Packing Ring	Tallow Impregnated Flax	5	5
25	Yoke	Ductile Iron	1	1
26	Handwheel Nut	Cast Bronze	1	1
27	Hex Head Bolt, 5/8-11 x 4-1/4”	Stainless Steel	2	2
28	Square Key	Stainless Steel	1	1
40	UL/FM Label	Pressure Sensitive Acrylic Film	1	1
48	Hex Nut, 3/4-10	Stainless Steel	-	10
67	Hex Head Bolt, 3/4-10 x 3”	Stainless Steel	-	10
69	Wedge Cover	Acetal	2	2

SERIES 2500 - STRENGTH OF DUCTILE IRON VALVES VERSUS GRAY IRON VALVES

A key principle of design engineering is the selection of material for an engineered product. Cost and durability are strong factors in selecting the material. Two materials with a long service history in the water works industry are gray and ductile iron. These two alloys are similar in chemical analysis but are quite different in mechanical properties. In gray iron, the graphite exists in an interconnected flake structure with the iron. Gray iron will fracture more readily along this continuous graphite- iron flake structure. In ductile iron the graphite exists as discrete graphite nodules with more substantial areas of iron in between, forming a stronger alloy. These differences in the microstructure are reflected in the mechanical properties. Ductile iron has superior mechanical properties and behaves more like steel in an engineering sense than does gray iron. By observing a few mechanical tests such as those defined in the American Society for Testing Materials (ASTM) E- 8 standard test procedures, you can easily see the difference in the superior mechanical properties of ductile iron.

Tensile Test

Using a common tensile test with specimens of 11/32" diameter, you should see differences in the elongation of gray versus ductile iron. It is apparent that ductile has a certain amount of elongation and plasticity before fracture. Gray iron is a brittle material with plastic elongation so close to zero that it is not reported on a tensile test.

Charpy V-Notch Test

An additional engineering test used to characterize the toughness of a material is the Charpy V- Notch test. This is an impact test that measures the amount of energy required to fracture a standard 10mm x 10mm notched specimen. The greater the energy requirements, the tougher the material. Charpy tests are not routinely performed on gray iron as the results are always near zero, which indicates very low resistance to cracking. Ductile iron Charpy impact values range from 5 to 15 ft- lbs. The real value of ductile iron is its toughness and resistance to rough handling.

After considering the mechanical properties of a particular material, our design engineers are able to apply design rules to determine the section thickness and reinforcing scheme to meet the intended service conditions. AFC engineers have used the superior mechanical properties of ductile iron to design a more rugged valve than required under the ANSI/- AWWA C- 509 standard. To demonstrate this point we tested two (2) 12" American Flow Control gate valves, one made of gray iron, one made of ductile iron, to see how the mechanical properties we have discussed apply to the effectiveness of a completed product.

Pressure Test

The 12" Series 500 Gray Iron Resilient Seated Gate Valve is manufactured according to ANSI/AWWA C- 509 Resilient Seated Gate Valve Standard. The valve is rated at 200 p.s.i.g. and has a safety factor to withstand significant pressure surges. This pressure test results in fracture of the bonnet flange at a pressure of 850 p.s.i.g.

The 12" Series 2500 Ductile Iron Resilient Seated Gate Valve is manufactured to conform to the requirements of the new reduced wall Resilient Seated Gate Valve Standard ANSI/AWWA C- 515. It is rated at 250 p.s.i.g. with sufficient safety factor to withstand significant pressure surges. Pressure testing of the valve shell to failure generally results in "dishing" of the bonnet and body flange connection such that the bonnet gasket is "blown out" past the flange. The test case "blew" the bonnet gasket at 1500 p.s.i.g. without failure due to fracture of the shell. Although lighter in weight, the ductile iron valve is a more rugged design with the ability to withstand abuse during installation and possible extreme surge pressures.

Beam Load Test

Flanged end valve and piping components are not designed to bear a substantial beam load. It is recommended that installations be executed in such a way that all beam loads on flanged components be eliminated. Unfortunately, settling of structures, slight misalignment, vibration, etc. can often result in induced beam loads, thus placing undue stress on flanged systems. To simulate an induced beam load, two lengths of flanged ductile iron pipe were connected to a 12" flange by flange gray iron valve with the valve closed and one end of the piping system pressurized to 100 p.s.i.g. A vertical press was used to apply the load to the valve bonnet while supporting the ends of the pipe. This resulted in both hydrostatic and beam loads on the flanges of the valve and piping system. The vertical load on the valve was increased until the flange fractured. This occurred at a beam load of 78,000 ft- lbs. with a vertical deflection of 7/8". Failure occurred by fracture of the gray iron valve flange.

Similar testing was performed on a 12" flange by flange reduced wall ductile iron valve with the valve closed and one side of the system pressurized to 100 p.s.i.g. The vertical load was applied incrementally until fracture. In this case, failure occurred by fracture of the pipe flange. This occurred at a beam load of 135,000 ft- lbs. with a vertical displacement of two inches.

Gray iron or ductile iron? Ductile iron has the strength, durability and reliability to meet and exceed the requirements of the water works industry. Our ductile iron valves have the ability to resist high stress from internal and external loads. What better product than **AFC's Series 2500** Ductile Iron Resilient Seated Gate Valve?

SERIES 2500 - WEIGHTS

NRS Valve - Series 2500

End Connections	Valve Size														
	Series 2500														
	2”	2-1/2 ”	3”	14”	16”	18”	20”	24”	30”	36”	42”	48”	54”	60”	66”
MJ x MJ	42	-	44	670	820	1100	1520	2300	4100	7450	11210	15870	-	-	-
FL x MJ (Class 125)	-	-	-	680	840	1110	1525	2300	4100	7450	11210	15870	-	-	-
FL x FL (Class 125)	38	46	52	690	870	1120	1530	2300	4100	7450	11210	15870	16970	29490	31200
FL x FL (Class 250)	-	-	68	875	1080	1370	1880	2300	-	-	-	-	-	-	-
TY x TY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FL x TY (Class 125)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PO x PO	-	-	-	650	830	-	-	-	-	-	-	-	-	-	-
PVC x PVC	35	41	47	-	-	-	-	-	-	-	-	-	-	-	-
Threaded x Threaded (Screw x Screw)	30	36	41	-	-	-	-	-	-	-	-	-	-	-	-
FL x MJ (Tapping)	-	-	-	680	845	1110	1525	2300	4100	7450	11210	15870	-	-	-
FX x FX (Flex-Ring)	-	-	-	-	-	-	-	2300	4100	7450	11210	15870	-	-	-

NRS Valve - Series 2500-1

End Connections	Valve Size				
	Series 2500-1				
	4”	6”	8”	10”	12”
MJ x MJ	57	96	149	228	331
FL x MJ (Class 125)	63	102	162	246	364
FL x FL (Class 125)	71	108	177	268	400
FL x FL (Class 250)	93	162	251	378	549
TY x TY	70	110	177	263	370
FL x TY (Class 125)	70	109	176	264	384
PO x PO	-	-	-	-	-
PVC x PVC	58	110	158	-	-
Threaded x Threaded (Screw x Screw)	-	-	-	-	-
FL x MJ (Tapping)	64	102	162	246	365
FX x FX (Flex-Ring)	-	-	-	-	-

OS & Y Valve - Series 2500 and 2500-1

End Connections	Valve Size							
	Series 2500			Series 2500-1				
	2”	2-1/2”	3”	4”	6”	8”	10”	12”
FL x FL (Class 125)	49	47	53	88	131	205	313	446
FL x FL (Class 250)	-	-	69	110	185	279	423	595

NOTE: All weights are in pounds.

AMERICAN FLOW CONTROL®
SERIES 2500 DUCTILE IRON RESILIENT WEDGE GATE VALVE

SUBMITTAL SHEET

AMERICAN FLOW CONTROL®
American-Darling Valve & Waterous
A Division of
American Cast Iron Pipe Company

Qty	2”	2-1/2”	3”	4”	6”	8”	10”	12”	14”	16”	18”	20”	24”	30”	36”	42”	48”	54”	60”	66”

Actuator (Check One)

- ☐ NRS with 2” Sq. Oper. Nut
- ☐ NRS with T-Head Oper. Nut
- ☐ NRS with Handwheel
- ☐ Post Indicator Valve (PIV)

3”-12” VALVES ONLY

- ☐ NRS with Enclosed Miter gearing

ALSO SPECIFY

- ☐ 2” Sq. Oper. Nut Parallel to Waterway
- ☐ 2” Sq. Oper. Nut Perpendicular to Waterway
- ☐ Handwheel Perpendicular to Waterway

14” - 66” VALVES ONLY

- ☐ NRS with Bevel Gears
- ☐ NRS with Spur Gears

ALSO SPECIFY

- ☐ 2” Sq. Oper. Nut
- ☐ Handwheel

- ☐ OS & Y with Handwheel (2” - 12” Valves Only)

Open Direction: ☐ Left (C.C.W.) ☐ Right (C.W.)

End Connections:

Mechanical Joint Accessories: ☐ Yes ☐ No

UL Listed, FM Approved: ☐ Yes ☐ No

Other Requirements (List on a Separate Sheet):

Available Configurations	Valve Size																			
	Series 2500			Series 2500-1					Series 2500											
	2”	2-1/2”	3”	4”	6”	8”	10”	12”	14”	16”	18”	20”	24”	30”	36”	42”	48”	54”	60”	66”
ACTUATORS																				
NRS with 2” Sq. Oper. Nut	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NRS with T-Head Operating Nut	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NRS with Handwheel	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Post Indicator Valve (PIV)	X	X	X	X	X	X	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NRS with Enclosed Miter gearing	N/A	N/A	X	X	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NRS with Bevel Gears	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X
NRS with Spur Gears	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X
OS & Y	X	X	X	X	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
END CONNECTIONS																				
Mech Joint x Mech Joint (MJ x MJ)	X	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	N/A	N/A
Flange x Flange, Class 125 (FL x FL, 125)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Flange x Flange, Class 250 (FL x FL, 250)	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tyton® x Tyton® (TY x TY)	N/A	N/A	N/A	X	X	X	X	X	Order Push-On Ends											
Push-on x Push-on (PO x PO)	Order Tyton® x Tyton® Ends								X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PVC x PVC (PVC x PVC)	X	X	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Threaded x Threaded (Thd x Thd)	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flange, Class 125 x Mech Joint (FL x MJ)	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N/A	N/A	N/A
Flange, Class 125 x Tyton® (FL x TY)	N/A	N/A	N/A	X	X	X	X	X	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flex-Ring x Flex-Ring (FX x FX)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	X	X	X	X	X	N/A	N/A	N/A

KEY: X = Available N/A = Not Available Visit our web site at http://www.acipco.com/afc

NOTES:

1. 3” thru 36” valves meet or exceed requirements of ANSI/AWWA C515 with 250 p.s.i.g. rated working pressure.
2. 2”, 2-1/2”, 42”, 48”, 54”, 60” and 66” valves have 250 p.s.i.g. rated working pressure but are not included in AWWA standard.
3. 4” thru 48” valves are certified to ANSI/NSF Standard 61.
4. Fusion bonded epoxy coating material used on 2” thru 48” valves is certified to ANSI/NSF Standard 61.
5. Fusion bonded epoxy coating meets or exceeds requirements of AWWA C550.
6. See separate submittal sheet for tapping valves.
7. 2” thru 16” valves may be furnished in configurations that are Listed by Underwriters Laboratories, Inc. and Approved by Factory Mutual Research.

Storage

Valves are palletized when shipped which provides suitable protection from weather and sunlight during storage. If palletizing is disbanded and valves removed, remaining valves should be suitably covered or stored elsewhere with the valve stem vertical.

- Always store valves fully closed.
- When possible, keep valves out of the weather.
- In cold climates, keep the inside of the valve drained of any water to prevent freezing.
- Whenever possible, cover valves with a waterproof covering.
- Protect all parts of the valve at all times.

Inspection Before Installation

- Check to make sure that the valve end connections are clean and that the valve is not damaged.
- Check opening direction and other details against specification.
- Open and close the valve to make sure it works properly.
- Clean the inside of the valve to remove all contaminants that may affect water system purity.
- Keep the valve closed when placing in trench.

Installation

1. Handle the valve carefully.
2. Check all bolts for tightness. Gaskets may shrink during storage and might leak if the bolts are not re-tightened.
3. Prepare pipe ends in accordance with pipe manufacturer's instructions.
4. Install the valve as per appropriate instructions for the specified joint (flanged, mechanical joint, PVC, asbestos cement, etc.)

   NOTE: Use 1/8" thick rubber "ring" type gaskets or Toruseal® full face gaskets. Do not use composition or flat full face gaskets.
5. Be sure that the water main is properly supported to avoid line stress on the valve.
6. In buried applications, make sure that the valve box does not transmit traffic loads or other stress to the valve.
7. Do not use valves to force a pipeline into position. Do not deflect any valve/pipe joint.

Reference Material

These reference materials are available and should be helpful in the installation and testing of gate valve products.

AWWA C515	Reduced-wall, Resilient-Seated Gate Valves
AWWA C500	Metal-Seated Gate Valves - 3 thru 48 inch
AWWA C600	Installation of Ductile-Iron Water Mains
AWWA M23	PVC Pipe - Design and Installation

All installation, operation and maintenance instructions issued by the manufacturer of the pipe and the valves.

Valve user guides as published by MSS.

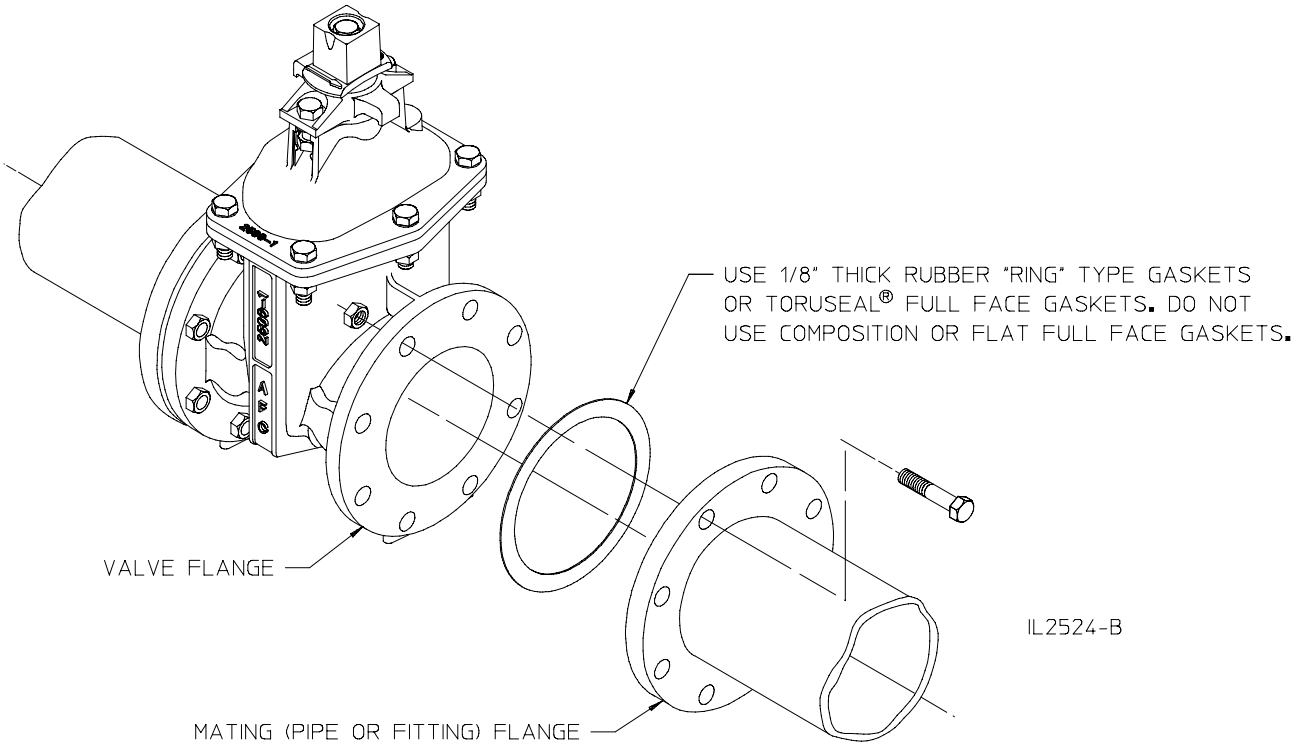
NFPA-24	Private Fire Service Mains and Their Appurtenances

These industry practices have been listed to help you make a safe and acceptable installation of a gate valve.

Testing Procedure

1. Do not backfill around valves before hydrostatic system test. Leave the valves and end joints exposed while the pipeline is being pressurized.
2. Check to see that all valve joints and pressure containing bolting are tight.
3. Valves can be tested (but not operated) at up to two times the rated pressure of the valve.
4. After testing, steps should be taken to relieve any trapped pressure in the body of the valve.

SERIES 2500 - CLASS 125 FLANGED VALVE INSTALLATION, 4" - 12" SIZES



Operation

1. Direction of opening is indicated by an arrow cast on the handwheel or wrench nut of the valve.
2. Operate gate valves from full closed to full open position and back before applying pressure.
3. Close gate valve slowly against pressure to avoid damage from surge or water hammer.
4. Valves installed on liquid service subject to freezing conditions should be protected to prevent trapping of liquid in the bonnet cavity, expansion on freezing and subsequent damage. The same is true of valves which are subject to considerable temperature increases. Trapped pressure should be vented back to the upstream side to prevent buildup of pressure in the valve bonnet due to high temperature expansion.
5. Valves should be opened and closed without the use of excessive torque applied to the handwheel or wrench nut. Excessive torque may damage the valve.

Maintenance

1. Operate gate valves from full open to full close at regular intervals. The length of time between operations depends upon the time of installation and the service conditions.
2. Use Mystik® FG-2 Food Machinery Grease for the stem threads and thrust collar.
3. Chipped spots in the epoxy coating should be repaired with a liquid two part epoxy.

⚠ WARNING

To prevent possible personal injury, do not remove bonnet bolts with valve under pressure.

Spare Parts

Under most conditions, the only spare parts needed for the valve would be upper and lower stem O-rings. Under rigorous service, stems, wedges, upper and lower stem O-rings and thrust washers should be carried as spare parts.

Use parts list drawings as a guide for disassembly and ordering repair parts. Also refer to disassembly/reassembly instructions.

Typical Operating Torque At Rated Working Pressure

Valve Size	Closing Torque Ft-lbs	Opening Torque Ft-lbs
2”	15-20	15-20
2-1/2”	15-20	15-20
3”	30-40	30-40
4”	30-40	30-40
6”	50-60	50-80
8”	70-80	60-90
10”	90-100	125-150
12”	100-125	140-175
14”	Contact Factory	
16”	Contact Factory	
18”	Contact Factory	
20”	Contact Factory	
24”	Contact Factory	
30”	Contact Factory	
36”	Contact Factory	
42”	Contact Factory	
48”	Contact Factory	
54”	Contact Factory	
60”	Contact Factory	
66”	Contact Factory	

SERIES 2500 - TROUBLESHOOTING GUIDE

<table>
<tr><th>Problem</th><th>Solution</th></tr>
<tr><td>Leakage</td><td>Depending on the location of the leakage, the following should be examined.
1. SEAT: Foreign material may be stuck under the valve wedge. Open valve only enough to get high velocity flow to flush out valve. Repeat several times until leak stops. If this does not solve the problem it is then necessary to open the valve and check for damage to the rubber encapsulated wedge. If it is damaged or severely cut, replace the wedge.
2. STEM: The stem seals are of the O-ring type and the valve has a thrust collar (electric actuated valves normally do not have thrust collars). The seals can be replaced while the valve is under water pressure by back seating the valve in the open position. On OS&Y valves leakage can be stopped by evenly tightening the packing gland bolts. If leakage cannot be stopped, the valve should be repacked.
3. BODY: Check for cracked or damaged valve body or bonnet. If damage has occurred, contact manufacturer for further instructions.
4. BOLTED CONNECTIONS: Check for loose bonnet to body bolts, stuffing box bolts or end joint bolts and tighten as necessary. This should be done prior to pressurization of the line. If line is pressurized, pressure should be relieved prior to tightening any bolts. Do not tighten bolts past the yield strength of the bolt. Reinstall all bolts and nuts and tighten alternately to 70-90 ft.-lbs. of torque.</td></tr>
<tr><td>Valve is Hard to Operate or is Inoperable</td><td>1. A valve can become inoperable or hard to operate during testing of the pipeline. Prior to relieving pipeline pressure, the valve should be opened to relieve any trapped pressure.
2. The application of excessive torque on a valve can cause permanent damage to the operating parts. A common source of excessive torque is from the use of portable power actuators. Output torques generated by these machines should be adjusted to be suitable for the valve size. The last or first turns of operation should be done by hand.
Number of Turns to Open/Close
<table>
<tr><th colspan="3">Series 2500</th><th colspan="5">Series 2500-1</th><th colspan="14">Series 2500</th></tr>
<tr><td>2”</td><td>2-1/2”</td><td>3”</td><td>4”</td><td>6”</td><td>8”</td><td>10”</td><td>12”</td><td>14”</td><td>16”</td><td>18”</td><td>20”</td><td>24”</td><td>30”</td><td>36”</td><td>42”</td><td>48”</td><td>54”</td><td>60”</td><td>66”</td></tr>
<tr><td>9</td><td>11</td><td>13</td><td>14</td><td>20</td><td>26</td><td>32</td><td>38</td><td>44</td><td>50</td><td>56</td><td>62</td><td>73</td><td>568</td><td>672</td><td>694</td><td>789</td><td>789</td><td>984</td><td>984</td></tr>
</table>
3. If valve has not been operated periodically, excessive buildup could occur that would affect valve operation. The valve should be exercised one turn at a time and cycled from open to closed as necessary to attempt removal of internal buildup.</td></tr>
<tr><td>Valve Leaks During Testing</td><td>1. Resilient seated gate valves per AWWA C-515 have a zero allowable leakage rate. If a leak is detected while testing, it is necessary to find the cause.
2. If seat leakage is detected, it may be due to trapped air in the line or foreign material. Open the valve enough to get high velocity flow to flush out valve. Repeat several times until leakage stops.
3. If testing between valves, allow enough time to fill the valve and vent off air.</td></tr>
</table>

Disassembly

⚠ WARNING

To prevent possible personal injury, do not make repairs while valve is under pressure.

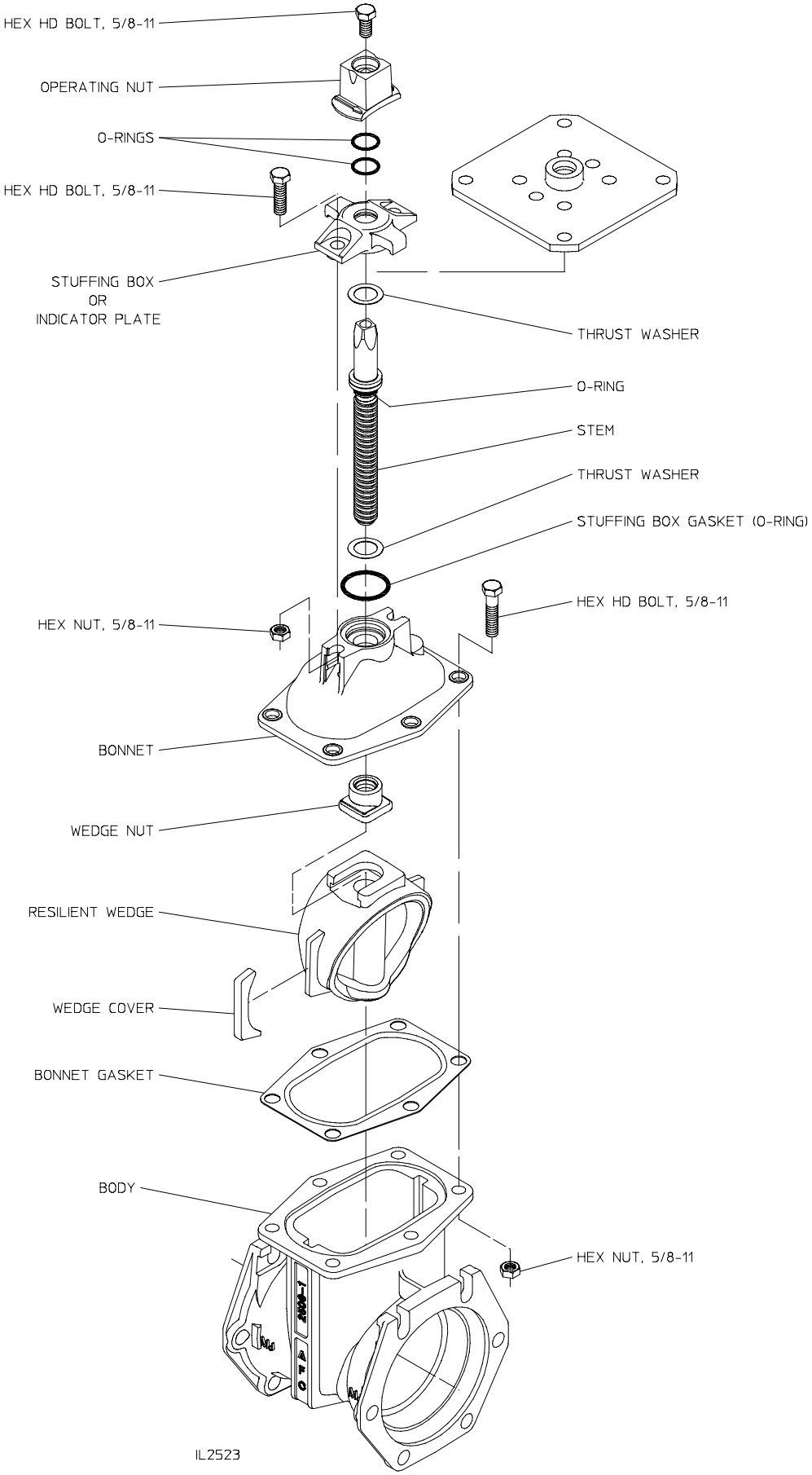
1. Remove bolts and nuts that attach operating nut and stuffing box.
2. Remove operating nut and stuffing box.
3. Back stem out of bonnet by turning in the closing direction.
4. Inspect O-rings and, if damaged, remove from stuffing box and stem. Replace with new O-rings and lubricate with food grade grease.
5. Inspect thrust washers and stuffing box gasket (O-ring) and replace if damaged.
6. Remove bolts and nuts that attach bonnet to valve body. Remove bonnet to inspect bonnet gasket, wedge nut, wedge and interior of valve body. Replace parts if damaged.

Reassembly

Reassembly is the reverse of disassembly while paying attention to the following points.

1. Make sure wedge nut is seated fully into slot in wedge.
2. Make sure the bonnet gasket is positioned correctly on the valve body flange when bonnet is assembled onto valve body.
3. Lubricate stem threads with Mystik® FG-2 Food Machinery Grease before installing into bonnet and threading into wedge nut. Turn stem in opening direction.
4. Position stuffing box gasket in top of bonnet and slide stuffing box onto stem being careful not to cut the stem seal O-rings.
5. Reinstall all bolts and nuts and tighten alternately to 70-90 ft.-lb. of torque.

SERIES 2500 - STANDARD NRS REPAIRS



Disassembly

⚠ WARNING

To prevent possible personal injury, do not make repairs while valve is under pressure.

Disassembling Miter gearing

1. Remove bolts and nuts that attach gear housing cover.
2. Remove bolt that attaches miter gear to gear shaft.
3. Slide shaft out of opening in the gear housing.
4. Remove bolt that attaches miter gear to valve stem and pull miter gear from stem.
5. Remove gear housing from valve.
6. Inspect O-rings and if damaged, remove from gear housing and stem. Replace with new O-rings and lubricate with food grade grease.

Disassembling Valve

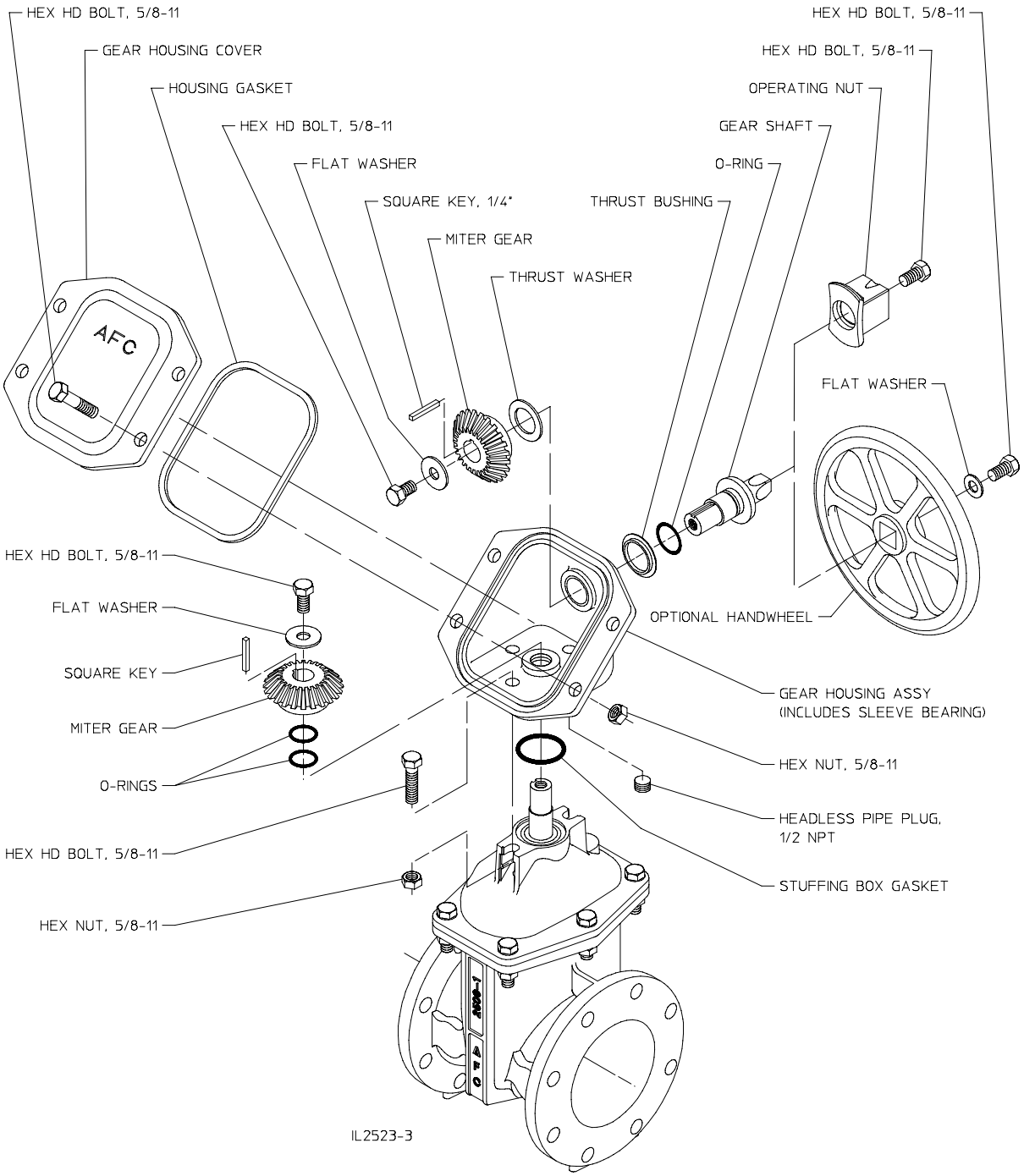
1. Back stem out of bonnet by turning in the closing direction.
2. Inspect O-rings and, if damaged, remove from gear housing and stem. Replace with new O-rings and lubricate with food grade grease.
3. Inspect thrust washers and stuffing box gasket (O-ring) and replace if damaged.
4. Remove bolts and nuts that attach bonnet to valve body. Remove bonnet to inspect bonnet gasket, wedge nut, wedge and interior of valve body. Replace parts if damaged.

Reassembly

Reassembly is the reverse of disassembly while paying attention to the following points.

1. Make sure wedge nut is seated fully into slot in wedge.
2. Make sure the bonnet gasket is positioned correctly on the valve body flange when bonnet is assembled onto valve body.
3. Lubricate stem threads with Mystik® FG-2 Food Machinery Grease before installing into bonnet and threading into wedge nut. Turn stem in opening direction.
4. Position stuffing box gasket in top of bonnet and slide gear housing onto stem being careful not to cut the stem seal O-rings.
5. Reinstall all bolts and nuts and tighten alternately to 70-90 ft.-lb. of torque.
6. Make sure the thrust washer is on the pilot of the miter gear when it is assembled onto the gear shaft. A dab of Mystik® FG-2 Food Machinery Grease on the thrust washer will hold it on the gear.
7. The gear housing should be filled approximately half full with food grade grease.

SERIES 2500 - NRS WITH ENCLOSED MITER GEARING REPAIRS



Disassembly

⚠ WARNING

The valve waterway should not be under pressure.

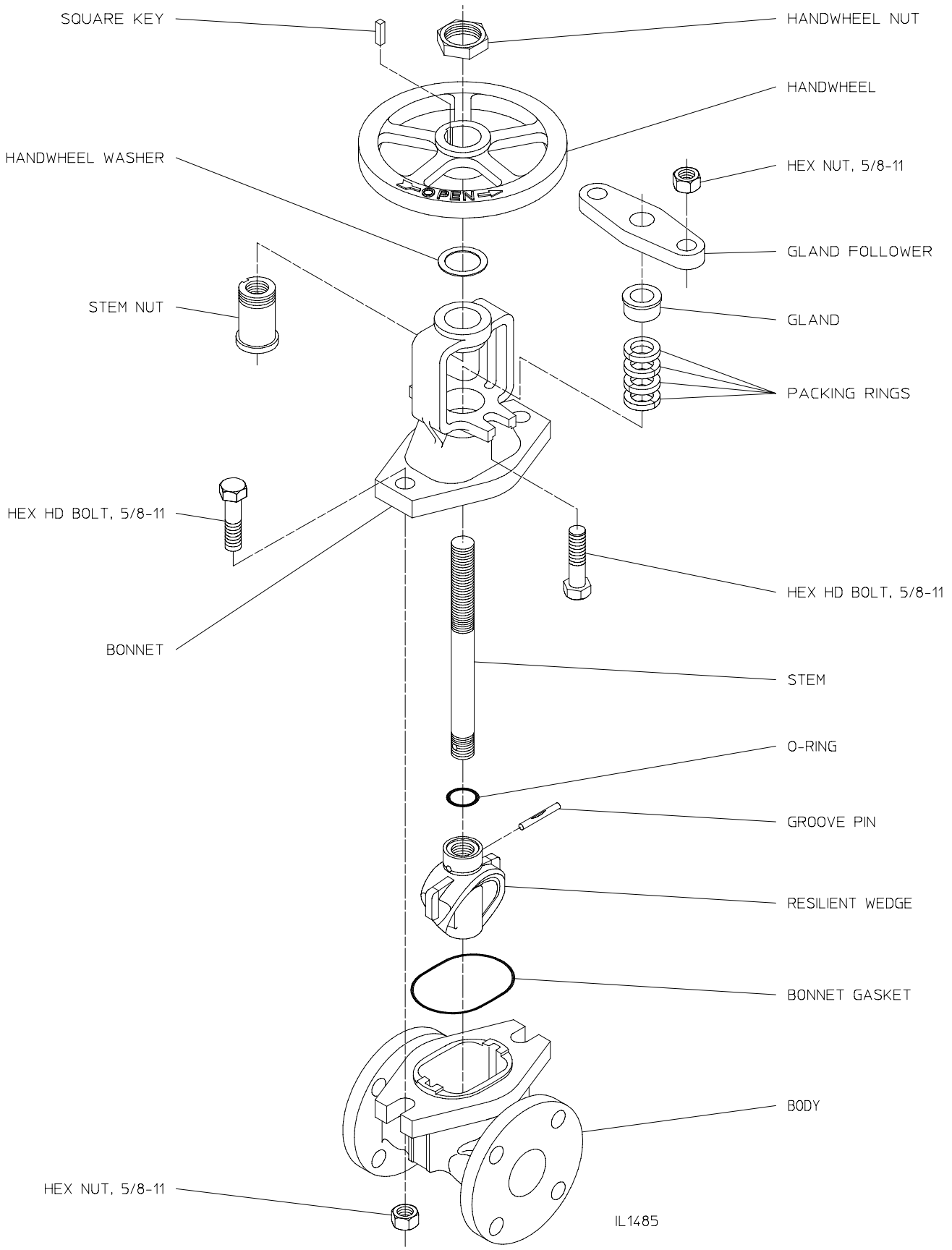
1. Turn the handwheel to fully close the valve.
2. Loosen the packing gland nuts and remove the two bolts fastening the bonnet to the valve body.
3. Turn the handwheel to raise the bonnet away from the valve body and unthread the stem assembly from the stem.
4. Pull the wedge and stem assembly out the valve throat.
5. Remove the packing gland nuts, gland, gland follower and packing rings if necessary.
6. Loosen and remove the handwheel nut and stem nut to remove handwheel. Do not lose the square key.
7. Drive out the pin in the wedge nut and unscrew the stem from the wedge.

Reassembly

Reassembly is the reverse of disassembly with the following notes:

1. Carefully inspect and replace any damaged components. Lubricate all O-rings with Mystik® FG-2 Food Machinery Grease.
2. Make sure the bonnet gasket is properly positioned on the valve body flange when the bonnet is assembled onto the valve body.
3. Place the bonnet part-way onto the stem and insert the gland and gland-follower onto the stem. Raise the bonnet again and thread the stem nut partially onto the stem.
4. Place the bonnet onto the lower stem nut and turn the stem nut and bonnet onto the stem until the bonnet contacts the throat gasket.
5. Using two hex head bolts, fasten the bonnet to the valve body.
6. Place the handwheel washer over the stem and onto the top of the yoke.
7. Slip the handwheel over the stem and onto the stem nut. Insert the square key and replace the handwheel nut, tightening securely.
8. Raise the gland and gland-follower and replace the packing rings so that the joints in the rings are not aligned. Use the same number of packing rings as were removed.
9. Replace the gland-follower nuts and tighten only enough to prevent leakage of water past the stem.

SERIES 2500 - OS & Y REPAIRS, 2" SIZE



Disassembly

⚠ WARNING

The valve waterway should not be under pressure.

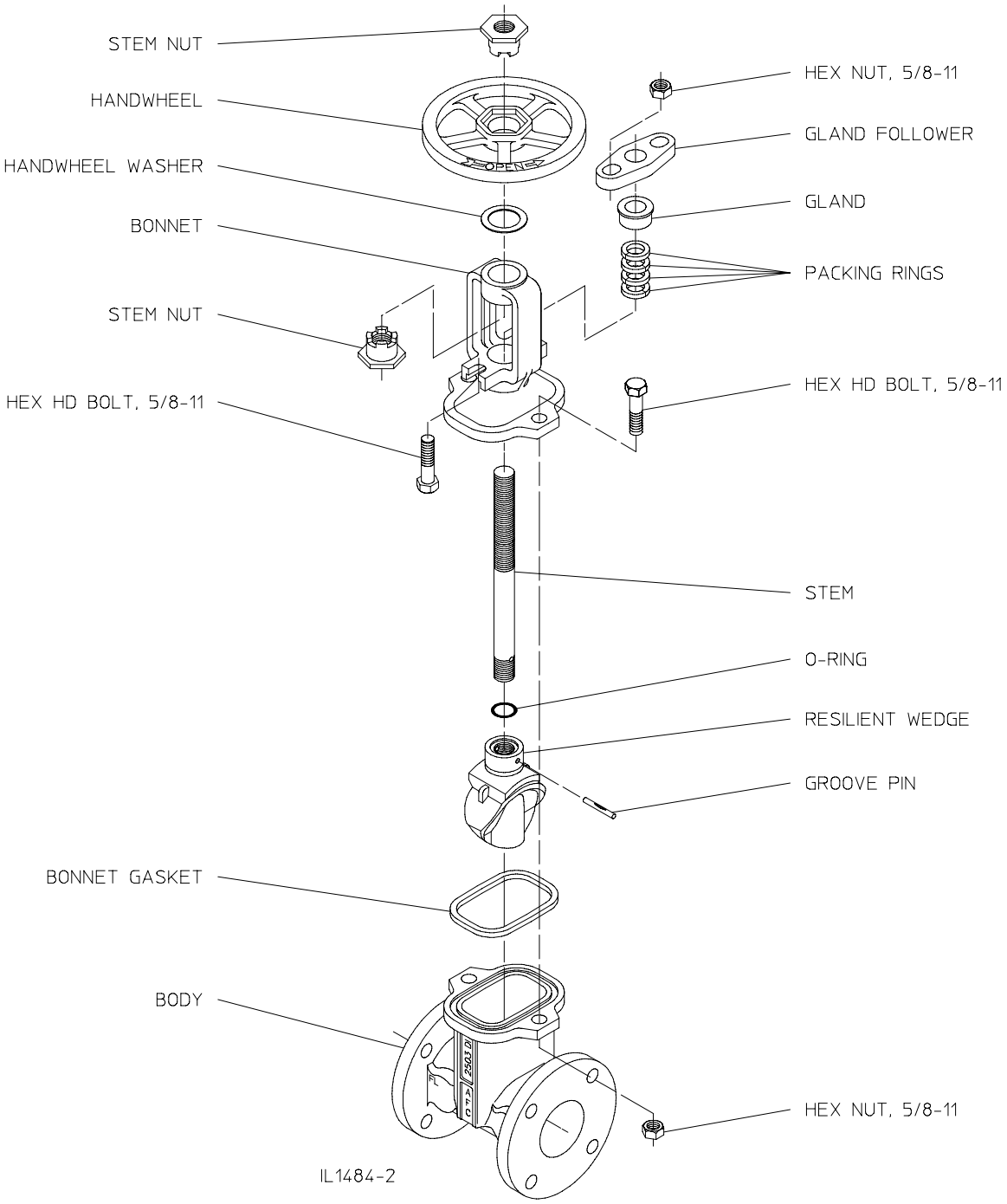
1. Turn the handwheel to fully close the valve.
2. Mark the two stem nuts in line with each other - one mark on the top of the upper stem nut and one mark on the same side of the lower stem nut flange.
3. Remove the two hex-head bolts from the bonnet.
4. Loosen the gland-follower nuts.
5. Turn the handwheel in the closing direction to unscrew the pair of stem-nuts from the stem. The handwheel, bonnet and handwheel washer will also be removed as they are trapped between the stem-nuts. When the upper stem nut is fully unthreaded from the stem, the handwheel can be removed. When the lower stem nut is unthreaded from the stem, the bonnet, gland and gland-follower can be removed.
6. Grasping the stem, withdraw the stem and wedge assembly from the valve.
7. Drive the groove pin out of the wedge nut and unscrew the stem from the wedge nut.

Reassembly

Reassembly is the reverse of disassembly with the following notes:

1. Carefully inspect and replace any damaged components. Lubricate all O-rings with Mystik® FG-2 Food Machinery Grease.
2. Make sure the bonnet gasket is properly positioned on the valve body flange when the bonnet is assembled onto the valve body.
3. Place the bonnet part-way onto the stem tipping the top of the bonnet's yoke to the side. Raise the yoke off the top of the stem and place the gland and gland-follower onto the stem. Raise the yoke again and thread the lower stem nut partially onto the stem. Note the position of the alignment mark and place the yoke onto the lower stem nut.
4. Place the handwheel washer on the top of the yoke.
5. Note the location of the alignment mark on the upper stem nut and place the nut in the handwheel. Place the handwheel and upper stem nut onto the yoke, engaging the teeth of the stem nuts so that the marks are aligned.
6. Turn the handwheel and yoke as a unit onto the stem until the yoke is nearly touching the bonnet.
7. Using two hex head bolts, fasten the bonnet to the valve body.
8. Raise the gland and gland-follower and replace the packing rings so that joints in the rings are not aligned. Use the same total number of packing rings as were removed.
9. Replace and tighten the gland-follower nuts.

SERIES 2500 - OS & Y REPAIRS, 2-1/2" & 3" SIZES



Disassembly

⚠ WARNING

The valve waterway should not be under pressure.

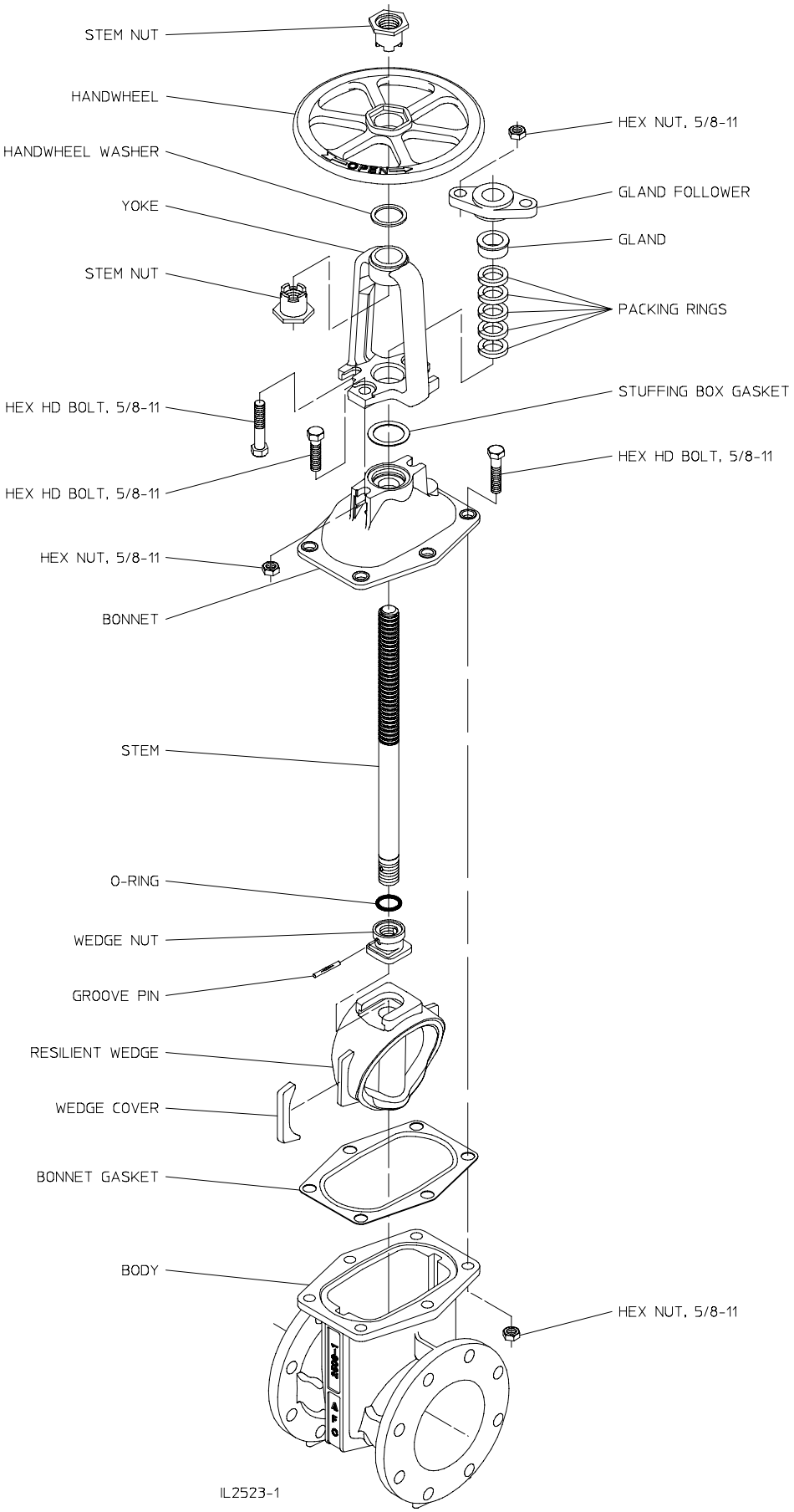
1. Turn the handwheel to fully close the valve.
2. Mark the two stem nuts in line with each other, one mark on the top of the upper stem nut and one mark on the same side of the lower stem nut flange.
3. Remove the two hex-head bolts from the yoke.
4. Loosen the gland-follower nuts.
5. Turn the handwheel in the closing direction to unscrew the pair of stem-nuts from the stem. The handwheel, yoke and handwheel washer will also be removed as they are trapped between the stem-nuts. When the upper stem nut is fully unthreaded from the stem, the handwheel can be removed. When the lower stem nut is unthreaded from the stem, the yoke, gland and gland-follower can be removed.
6. Remove the bonnet bolts and grasping the stem, withdraw the bonnet and wedge assembly from the valve.
7. Withdraw the stem and wedge assembly from the bonnet and remove the wedge from the stem by sliding the wedge nut out the side of the wedge slot.
8. Drive the groove pin out of the wedge nut and unscrew the stem from the wedge nut.

Reassembly

Reassembly is the reverse of disassembly with the following notes:

1. Carefully inspect and replace any damaged components. Lubricate all O-rings with Mystik® FG-2 Food Machinery Grease.
2. Make sure the wedge nut is fully seated into the slot in the wedge.
3. Make sure the bonnet gasket is properly positioned on the valve body flange when the bonnet is assembled onto the valve body.
4. After installing the wedge assembly and bonnet, place one packing ring in the bonnet then position the stuffing box gasket in the bonnet recess.
5. Place the yoke part-way onto the stem tipping the top of the yoke to the side. Raise the yoke off of the top of the stem and place the gland and gland-follower onto the stem. Raise the yoke again and thread the lower stem nut partially onto the stem. Note the position of the alignment mark and place the yoke onto the lower stem nut.
6. Place the handwheel washer on the top of the yoke.
7. Note the location of the alignment mark on the upper stem nut and place the nut in the handwheel. Place the handwheel and upper stem nut onto the yoke, engaging the teeth of the stem nuts so that the marks are aligned.
8. Turn the handwheel and yoke as a unit onto the stem until the yoke is nearly touching the bonnet.
9. Using two hex head bolts, fasten the yoke to the bonnet.
10. Raise the gland and gland-follower and replace the packing rings so that joints in the rings are not aligned. Use the same total number of packing rings as were removed.
11. Replace and tighten the gland-follower nuts.

SERIES 2500 - OS & Y REPAIRS, 4" - 8" SIZES



Disassembly

⚠ WARNING

The valve waterway should not be under pressure.

1. Turn the handwheel to fully close the valve.
2. Loosen the packing gland nuts and remove the four bolts fastening the yoke to the bonnet.
3. Turn the handwheel to raise the yoke away from the bonnet and unthread the assembly from the stem. Do not lose the square key.
4. Remove the bolts from the bonnet and lift the bonnet over and off of the stem.
5. Disengage the stem and wedge nut from the wedge by sliding the nut out of the slot in the wedge.
6. Drive out the pin in the wedge nut and unscrew the stem from the wedge nut.
7. Pull the wedge out of the valve throat.

Reassembly

Reassembly is the reverse of disassembly with the following notes:

1. Carefully inspect and replace any damaged components. Lubricate all O-rings with Mystik® FG-2 Food Machinery Grease.
2. Make sure the wedge nut is fully seated into the slot in the wedge.
3. Make sure the bonnet gasket is properly positioned on the valve body flange when the bonnet is assembled onto the valve body.
4. After installing the stem and wedge assembly and bonnet, position the stuffing box gasket in the bonnet recess.
5. Place the yoke part-way onto the stem tipping the top of the yoke to the side. Raise the yoke off the top of the stem and place the gland and gland-follower onto the stem. Raise the yoke again and thread the stem nut partially onto the stem. Place the yoke onto the lower stem nut.
6. Turn the lower stem nut and yoke onto the stem until the yoke contacts the bonnet.
7. Using four hex head bolts, fasten the yoke to the bonnet.
8. Place the handwheel washer over the stem and onto the top of the yoke.
9. Slip the handwheel over the stem and onto the stem nut. Insert the square key and replace the handwheel nut, tightening securely.
10. Raise the gland and gland-follower and replace the packing rings so that joints in the rings are not aligned. Use the same number of packing rings as were removed.
11. Replace and tighten the gland-follower nuts.

SERIES 2500 - OS & Y REPAIRS, 10" & 12" SIZES