



SECTION D

ASME FLANGED BALL VALVES

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SECTION D

ASME FLANGED BALL VALVES



FEATURES & BENEFITS

ASME FLANGED BALL VALVES

87A, 87A-F, 87B, 88A, 88A-F, 88B, 88L, & 88L-F SERIES

STANDARDS COMPLIANCE

Except where specifically noted all valves within this family of products complies with the requirements of this listed standard.

- ASME B16.5 "Pipe Flanges and Flanged Fittings"
- ASME B16.10 "Face to Face Dimensions of Valves"
- ASME B16.34 "Valves - Flanged, Threaded, and Welding End"
- ASME B16.33 "Manual Operated Metallic Gas Valves for Use in Gas Piping Systems up to 125 psig"
- ASME B16.38 "Large Metallic Valves for Gas Distribution (Manually Operated NPS 2-1/2" to 12", 125 psig)"
- ASME B31.1 "Power Piping"
- ASME B31.3 "Chemical Plant and Petroleum Refinery Piping"
- ASME B31.8 "Gas Transmission and Distribution Piping Systems"
- API 607 "Fire Test - Soft Seated Quarter Turn Valves" (-24 Option Required). See specific tech sheet for 5th or 6th edition.
- API 608 "Ball Valves - Flanged, Threaded, and Welding End"
- MSS SP-25 "Standard Marking System for Valves"
- MSS SP-61 "Pressure Testing of Steel Valves"
- MSS SP-72 "Ball Valves with Flanged or Butt-weld Ends"
- UL 125 "Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)"
- NSF/ANSI/CAN 61 Section 8, Annex G (1/2" to 12" 87A Series)
- NSF/ANSI 372 Drinking Water System Components - Lead Content (1/2" to 12" 87A Series)

STANDARD FEATURES

Except where specifically noted all valves within this family of products include all listed features as standard.

- Two Position Locking Device (Valves 6" Full Port, 8" Standard Port and smaller)
- Chevron Style Adjustable Stem Seals
- ISO 5211 Mounting Pad Bolt Pattern
- Slot Vented Ball for Thermal Expansion
- Rated up to 150 psig Saturated Steam: ASME Class 150, 300, & 600 Valves
- Rated up to 250 psig Saturated Steam: ASME Class 300 Valves Require the -65 Option
- ASME Class 600 Valves Require the -24-80 Options or -38 Option
- Anti-static Grounded Ball and Stem
- Blowout-Proof Stem Design
- Cast Boss for Bleed / Drain Port
- Vacuum Service to 29 inches of Hg
- NACE MR0175 (2000) Compliance on all 87A/87B/88A/88B/88L Valves with Stainless Steel Ball & Stem
- NACE MR0103 (2003) Compliance on all 87A/87B/88A/88B/88L Valves with Stainless Steel Ball & Stem

PRODUCT APPROVALS

- **CSA* (Reference: ASME B16.33 & B16.38)**

ASME Class 150 & 300 only

- **UL* (Reference: Control Number 195H)**

ASME Class 150 & 300 only

- UL (YSdT) LP-Gas Shut-Off Valves
- UL (MHKZ) Manual Valves
- UL (YRBX) Flammable Liquid Shut-Off Valves
- UL (YRPV) Gas Shut-Off Valves
- UL (YQNZ) Compressed Gas Shut-Off Valves
- UL (YQAR) Anhydrous Ammonia Shut-Off Valves

*Requires "UL" suffix for markings.

- **CE Marking(with "-CE" suffix):**

Marking is available with all the flanged ball valves listed below

- 87A
- 87A (Alloy 20)
- 87B
- 87C
- 87G
- 87J
- 87K
- 87M
- 87R
- 88A
- 88B
- 88L



AVAILABLE VARIATIONS

ASME FLANGED BALL VALVES

VARIATIONS AVAILABLE

REFERENCE DATA				ALLOY SERIES FLANGED BALL VALVES				
SIZE	PORT	ANSI CLASS	DIMENSIONAL DATA PAGE	STAINLESS STEEL	ALLOY 20	HASTELLOY*	NICKEL*	NI-CU*
1-1/2" & 2"	Standard	150	D-1	87A-10X	87A-40X	87H-1HX	87N-1NX	87M-13X
2-1/2" & 3"	Standard	150	D-2	87A-10X	87A-40X	87H-1HX	87N-1NX	N/A
4", 6" & 8"	Standard	150	D-3	87A-10X	87A-40X	87H-1HX	87N-1NX	N/A
10"	Standard	150	D-4	87A-10X	87A-40X	87H-1HX	87N-1NX	N/A
1/2", 3/4" & 1"	Full	150	D-5	87A-20X	87A-50X	87H-2HX	87N-2NX	87M-23X
1-1/2", 2" & 2-1/2"	Full	150	D-6	87A-20X	87A-50X	87H-2HX	87N-2NX	87M-23X
3", 4", & 6"	Full	150	D-7	87A-20X	87A-50X	87H-2HX	87N-2NX	N/A
8", 10" & 12"	Full	150	D-8	87A-20X	87A-50X	87H-2HX	87N-2NX	N/A
1-1/2" & 2"	Standard	300	D-9	87A-70X	87A-80X	87H-7HX	87N-7NX	N/A
2-1/2" & 3"	Standard	300	D-10	87A-70X	87A-80X	87H-7HX	87N-7NX	N/A
4", 6" & 8"	Standard	300	D-11	87A-70X	87A-80X	87H-7HX	87N-7NX	N/A
10"	Standard	300	D-12	87A-70X	87A-80X	87H-7HX	87N-7NX	N/A
1/2", 3/4" & 1"	Full	300	D-13	87A-90X	87A-60X	87H-9HX	87N-9NX	87M-93X
1-1/2", 2" & 2-1/2"	Full	300	D-14	87A-90X	87A-60X	87H-9HX	87N-9NX	87M-93X
3", 4", & 6"	Full	300	D-15	87A-90X	87A-60X	87H-9HX	87N-9NX	N/A
8", 10" & 12"	Full	300	D-16	87A-90X	87A-60X	87H-9HX	87N-9NX	N/A

* Minimum Quantities May Apply

ALLOY MATERIAL OF CONSTRUCTION FOR PRESSURE CONTAINING/RETAINING COMPONENTS

ALLOY	STAINLESS STEEL	ALLOY 20	HASTELLOY*	NICKEL*	NI-CU ALLOY*
Valve Series	87A-100/200, 87A-700/900	87A-400/500, 87A-600/800	87H-1H0/2H0, 87H-7H0/9H0	87N-1N0/2N0, 87N-7N0/9N0	87M-130/230, 87M-730/930
Body	A351-CF8M	A351-CN7M	A494-CW12MW	A494-CZ100	A494-M35-1
Retainer	A351-CF8M or A276-316	A351-CN7M or B473-N08020	A494-CW12MW or B574-C276	A494-CZ100 or B160-200	A494-M35-1 or B164-K400
Ball	A351-CF8M or A276-316	A351-CN7M or B473-N08020	A494-CW12MW or B574-C276	A494-CZ100 or B160-200	A494-M35-1 or B164-K400
Stem	A276-316	B473-N08020	B574-C276	B160-200	B164-K400
Fasteners	A193-B8M, A194-Gr8	A193-B8M, A194-Gr8	A193-B8M, A194-Gr8	A193-B8M, A194-Gr8	A193-B8M, A194-Gr8

* Minimum Quantities May Apply

87M-100 SERIES

MONEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-M35-1
2	Retainer	ASTM A494-M35-1
3	Ball	ASTM B164-NO4400 OR A494-M35-1
4	Stem	ASTM B164-NO4400
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Inconel

VARIATIONS AVAILABLE

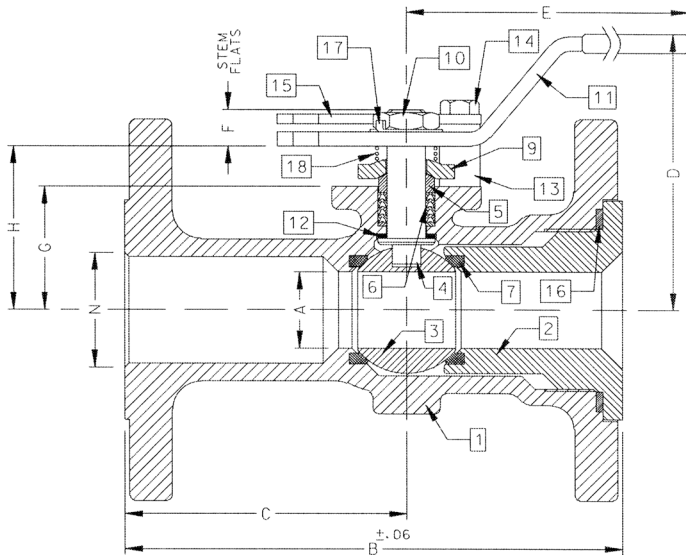
- 87H - Hastelloy
- 87M - Monel (1-1/2" to 2" only)
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

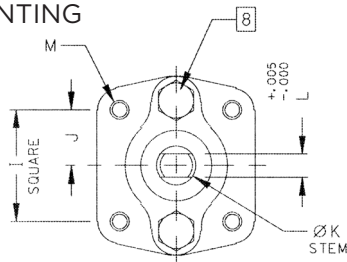
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87M-137-01A	1-1/2"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87M-138-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

Pressure/Temperature Ratings - Page M-9, Graph No. 2

REV. 05JAN21

87A-100 SERIES

STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A351 CF8M
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel

VARIATIONS AVAILABLE

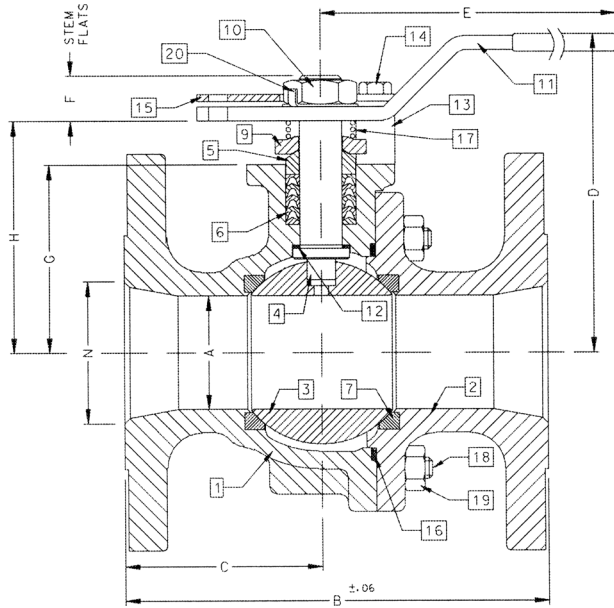
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

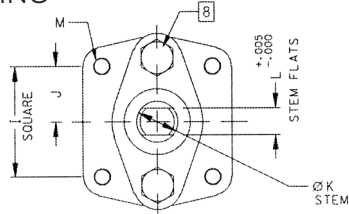
(MORE INFORMATION IN SECTION J)

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(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-109-01	2-1/2"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
87A-100-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

REV. 18JUL19

Pressure/Temperature Ratings - Page M-9, Graph No. 2

87A-100 SERIES

STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A351 CF8M
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel
21	Pipe Handle	Galvanized Steel (not Shown)

VARIATIONS AVAILABLE

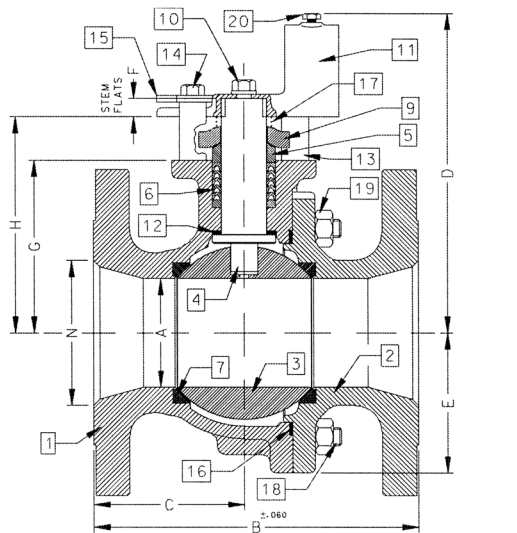
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

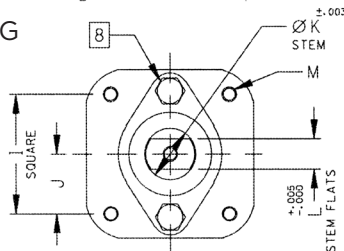
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(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
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-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-10A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
87A-10C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
87A-10E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310

Pressure/Temperature Ratings - Page M-9, Graph No. 2

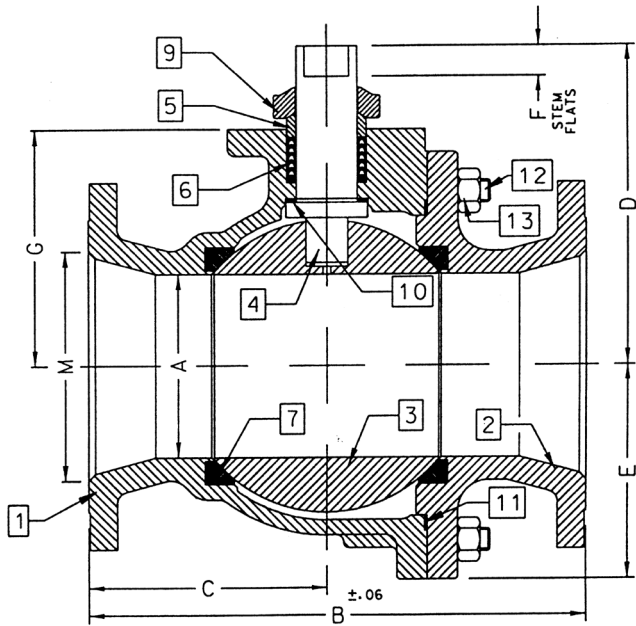
REV. 18JUL19

87A-100 SERIES

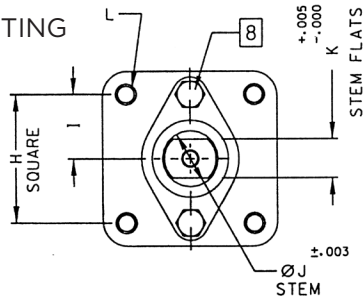
STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

PART	MATERIAL
1	Body
2	Retainer
3	Ball
4	Stem
5	Packing Gland
6	Stem Seals
7	Seats
8	Gland Screws
9	Gland Plate
10	Stem Bearing
11	Body Seal
12	Body Joint Stud
13	Body Joint Nut



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 2

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-10G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00	526

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87M-200 SERIES

MONEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A494-M35-1
2	Retainer	ASTM B164-N04400
3	Ball	ASTM B164-N04400
4	Stem	ASTM B164-N04400
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Inconel

VARIATIONS AVAILABLE

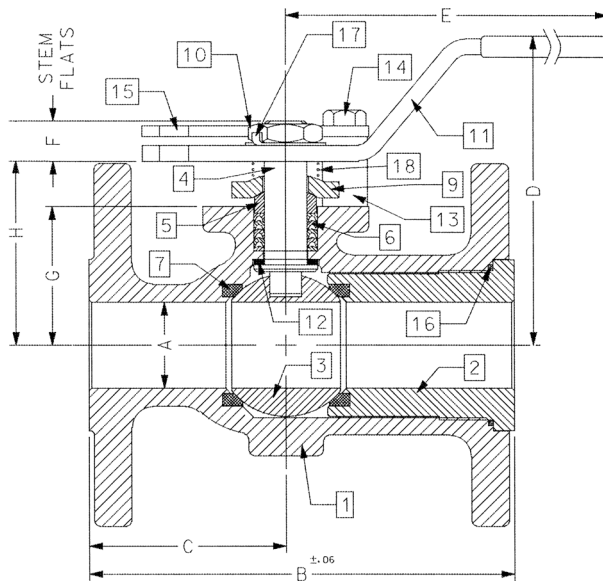
- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

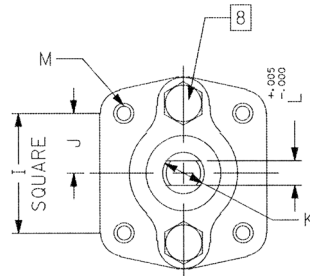
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-9, Graph No. 2

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87M-233-01A	1/2"	0.50	4.25	2.06	2.74	5.12	0.24	1.09	1.44	1.00	0.500	0.375	0.245	10-24	5
87M-234-01A	3/4"	0.75	4.62	2.18	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.312	1/4-20	6
87M-235-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

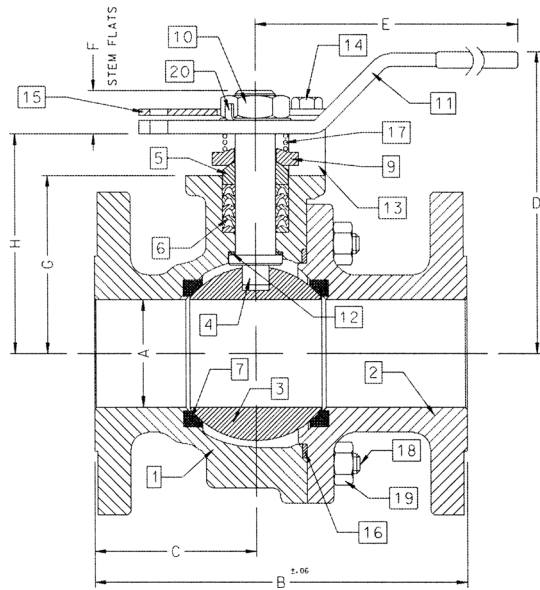
REV. 05JAN21

87M-200 SERIES

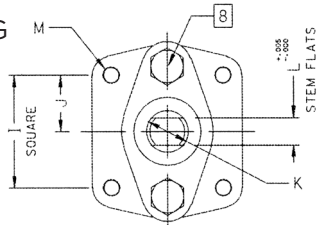
MONEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-M35-1
2	Retainer	ASTM A494-M35-1
3	Ball	ASTM B164-NO4400 OR A494-M35-1
4	Stem	ASTM B164-NO4400
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Inconel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87M-237-01	1-1/2"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
87M-238-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
87M-239-01	2-1/2"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

REV. 05JAN21

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (up to 2-1/2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-MG-	Gear Operator with Standard Handwheel
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

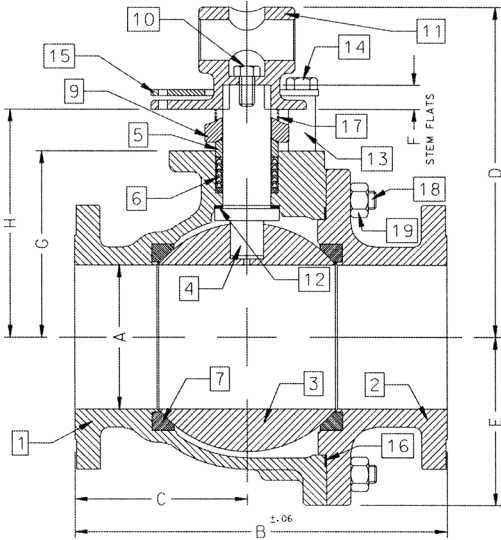
Pressure/Temperature Ratings - Page M-9, Graph No. 2

87A-200 SERIES

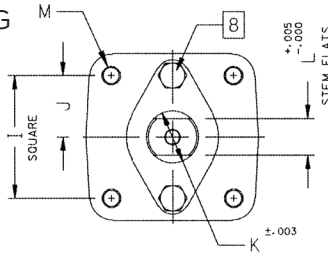
STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A351 CF8M
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-200-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
87A-20A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
87A-20C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

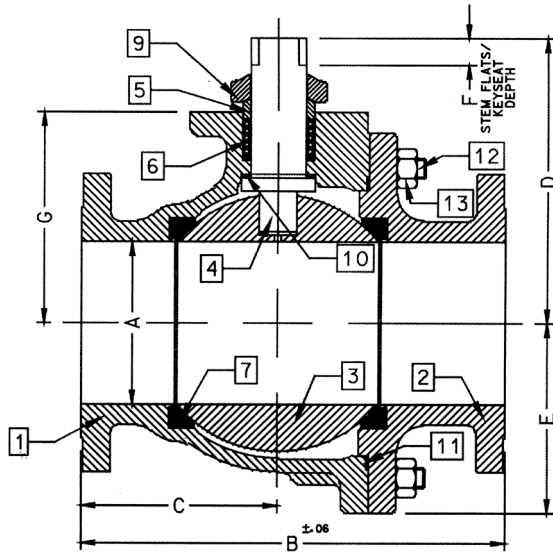
Pressure/Temperature Ratings - Page M-9, Graph No. 2

87A-200 SERIES

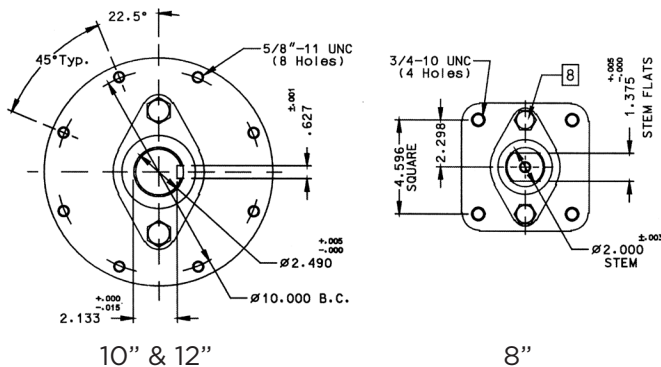
STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A351 CF8M
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 2

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
87A-20E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
87A-20G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
87A-20H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

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87A-700 SERIES

STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 & 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 & 304 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

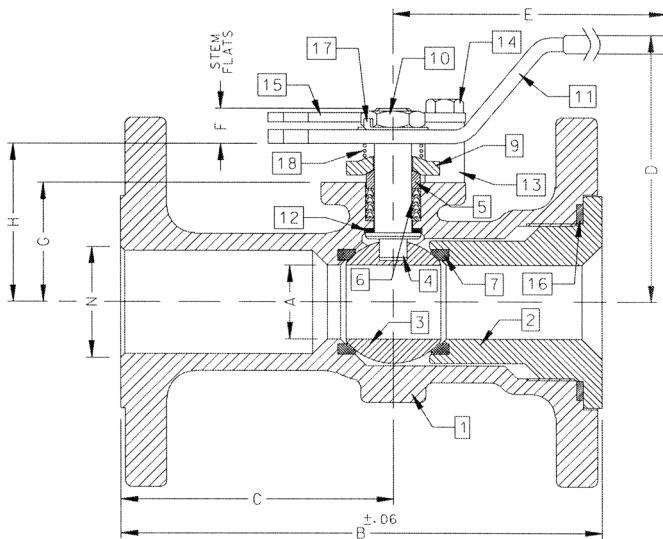
- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

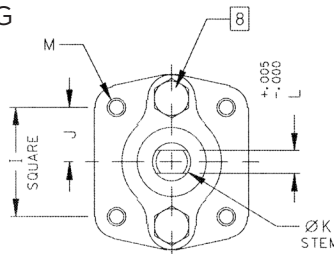
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (See Page J-2)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-11, Graph No. 6

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-707-01A	1-1/2"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	15.7
87A-708-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24.0

REV. 18JUL19

87A-700 SERIES

STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A351 CF8M
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel

VARIATIONS AVAILABLE

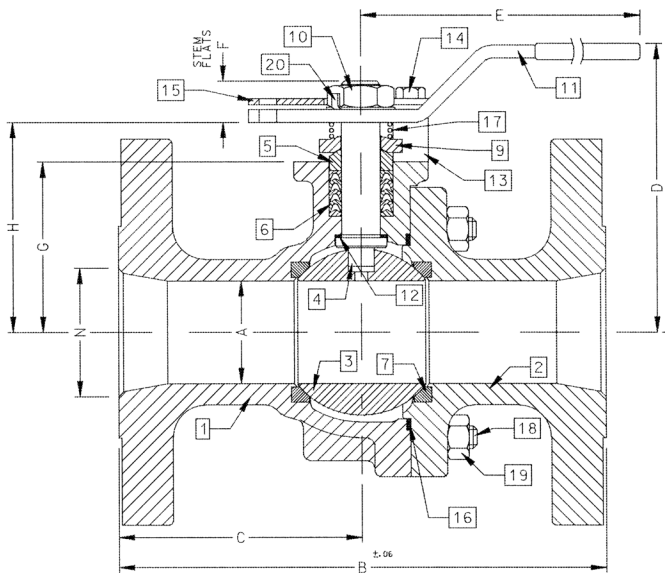
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

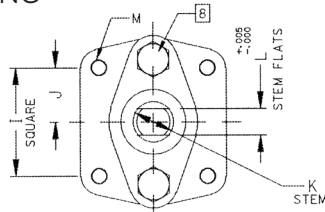
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (2-1/2" only)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-709-01	2-1/2"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
87A-700-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

REV. 18JUL19

Pressure/Temperature Ratings - Page M-11, Graph No. 6

87A-700 SERIES

STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Adapter Screw	18-8 Stainless Steel
21	Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE

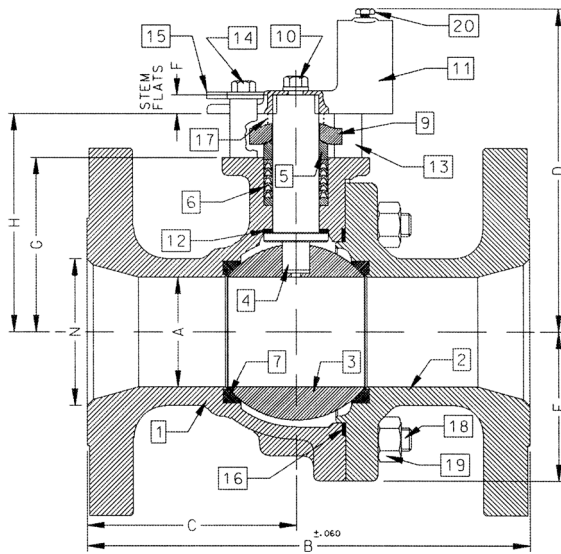
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

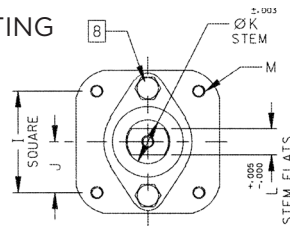
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-70A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
87A-70C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
87A-70E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400

Pressure/Temperature Ratings - Page M-11, Graph No. 6

REV. 18JUL19

87A-700 SERIES

STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A351 CF8M
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE

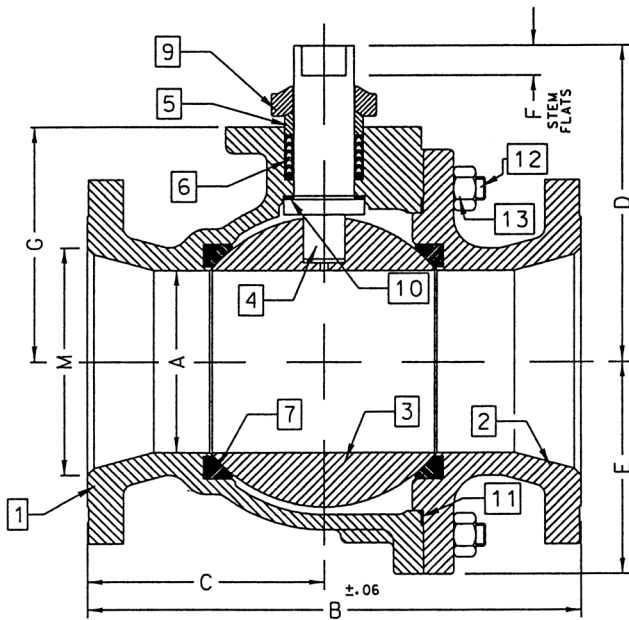
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

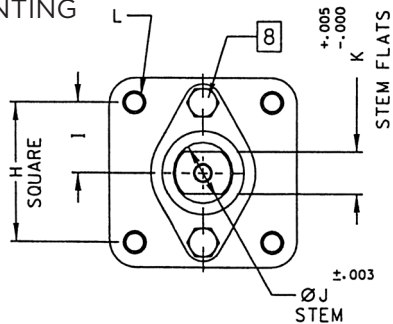
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration (Less Gear Operator)
-14-	Side Vented Ball (See Page J2)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
87A-70G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

REV. 18JUL19

Pressure/Temperature Ratings - Page M-11, Graph No. 6

87A-900 SERIES

STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

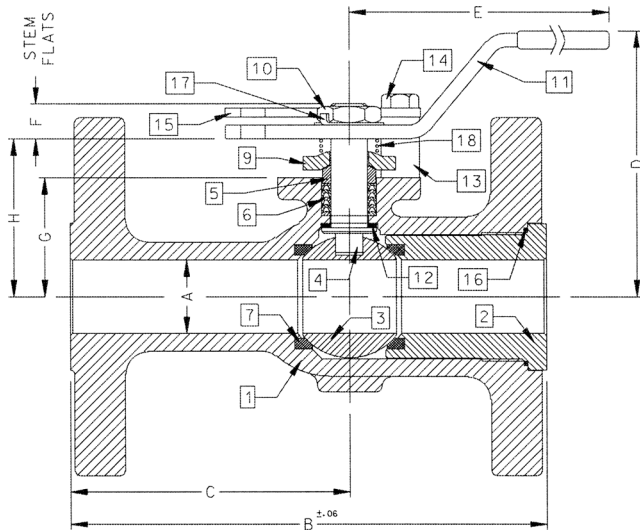
- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

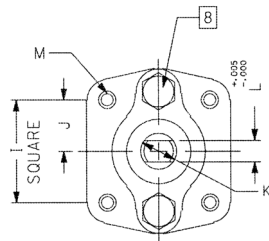
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-11, Graph No. 6

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-903-01A	1/2"	0.50	5.50	3.31	2.74	5.12	0.24	1.09	1.44	1.000	0.500	0.375	0.245	10-24	6
87A-904-01A	3/4"	0.75	6.00	3.56	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	9
87A-905-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	11

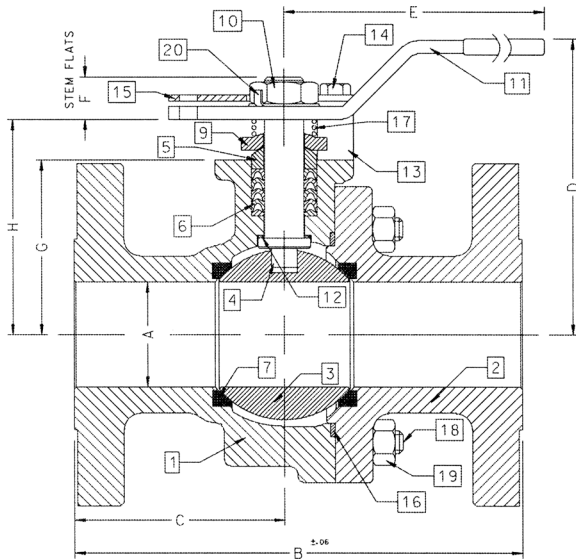
REV. 10SEP19

87A-900 SERIES

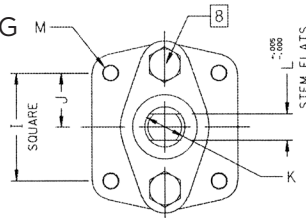
STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A351 CF8M
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-907-01	1-1/2"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
87A-908-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
87A-909-01	2-1/2"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

REV. 18JUL19

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-11, Graph No. 6

87A-900 SERIES

STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A351 CF8M
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE

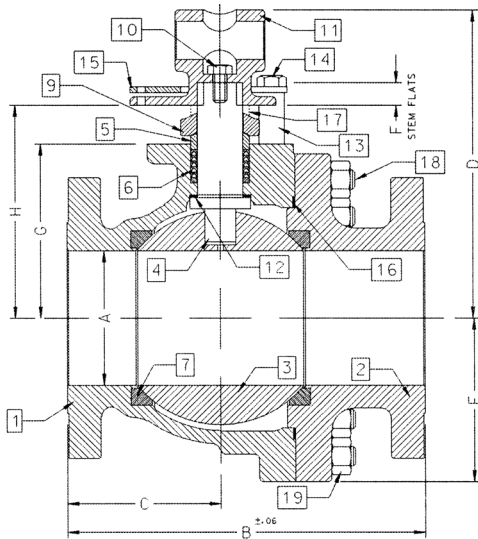
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

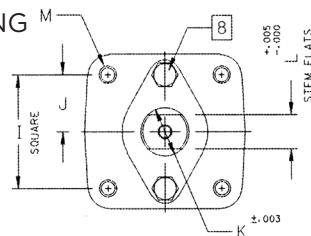
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-900-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
87A-90A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
87A-90C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	329

Pressure/Temperature Ratings - Page M-11, Graph No. 6

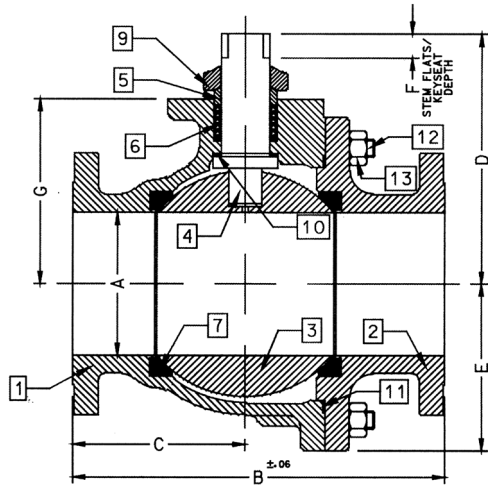
REV. 18JUL19

87A-900 SERIES

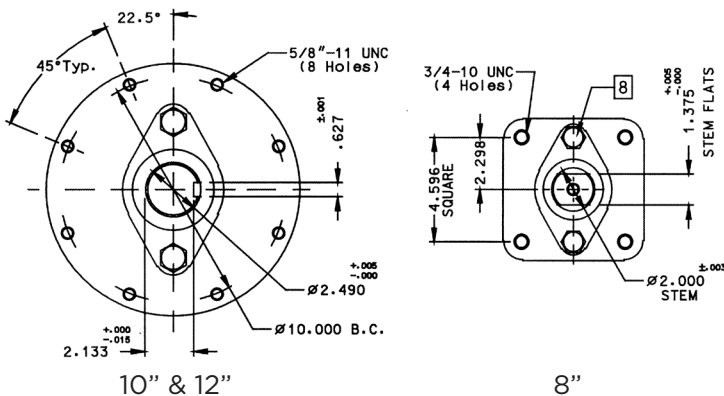
STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A351 CF8M
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-11, Graph No. 6

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
87A-90E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
87A-90G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
87A-90H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

REV. 18JUL19

87B-100 SERIES

STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Lockwasher	302 or 304 Stainless Steel

VARIATIONS AVAILABLE

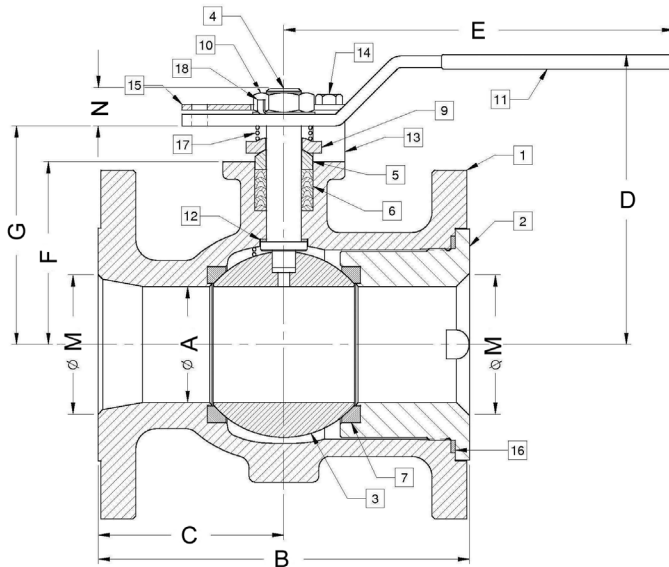
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

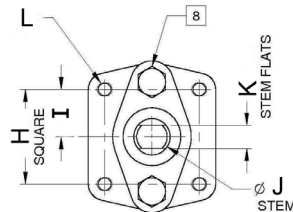
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87B-100-01	3"	2.50	8.00	4.00	6.23	8.40	3.93	4.70	1.949	0.974	0.750	0.477	5/16-18	3.00	0.77	43

Pressure/Temperature Ratings - Page M-9, Graph No. 2

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87B-100 SERIES

STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
4" THRU 10" SHORT PATTERN

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A276 Type 316 or A351 CF8M
4	Stem	ASTM A276 Type 316
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel
19	Adapter Screw	18-8 Stainless Steel

VARIATIONS AVAILABLE

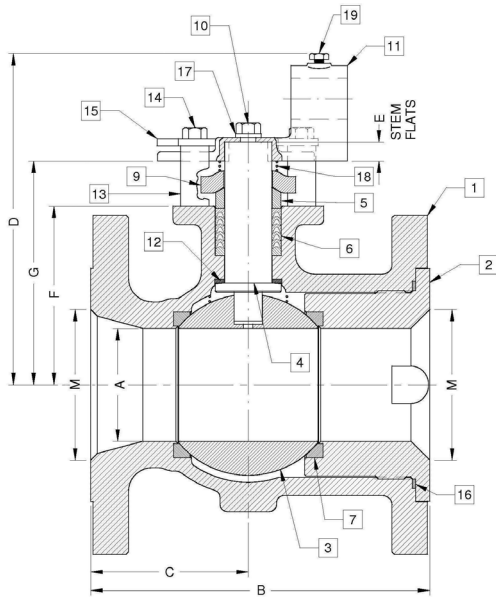
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

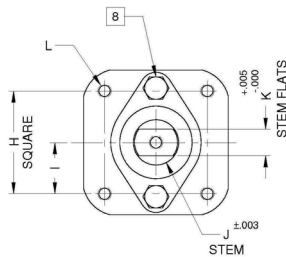
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87B-10A-01	4"	3.00	9.00	4.18	8.80	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	72
87B-10C-01	6"	4.00	10.50	5.25	9.99	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	110
87B-10E-01	8"	6.00	11.50	5.75	13.61	1.00	7.63	9.36	4.596	2.298	2.000	1.375	3/4-10	8.00	210
87B-10G-01	10"	8.00	13.00	6.50	N/A	1.00	9.50	11.23	4.596	2.298	2.000	1.375	3/4-10	10.0	350

Pressure/Temperature Ratings - Page M-9, Graph No. 2

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87J-100 SERIES

DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A276/A479 Alloy 2205
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8
11	Lever	302 or 304 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel, ASTM A313

VARIATIONS AVAILABLE

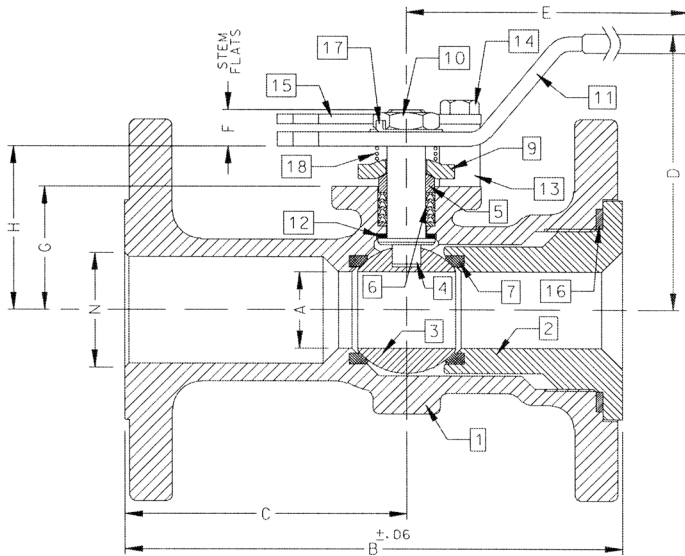
- 87H - Hastelloy
- 87M - Monel (1-1/2" to 2" only)
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

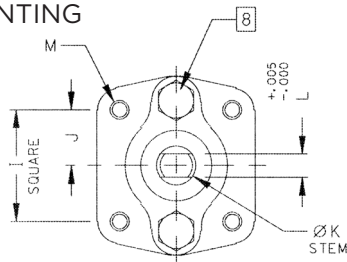
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-107-01	1-1/2"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87J-108-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

Pressure/Temperature Ratings - Page M-28, Graph No. 40

REV. 18JUL19

87J-100 SERIES

DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel, ASTM A313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel

VARIATIONS AVAILABLE

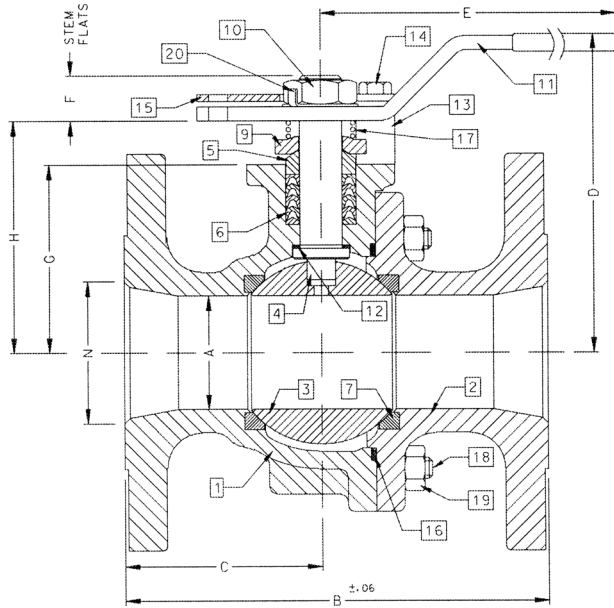
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

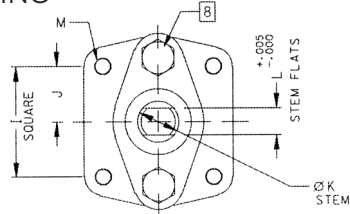
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-109-01	2-1/2"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
87J-100-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

REV. 18JUL19

Pressure/Temperature Ratings - Page M-28, Graph No. 40

87J-100 SERIES

DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel, ASTM 313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel
21	Pipe Handle	Galvanized Steel (not Shown)

VARIATIONS AVAILABLE

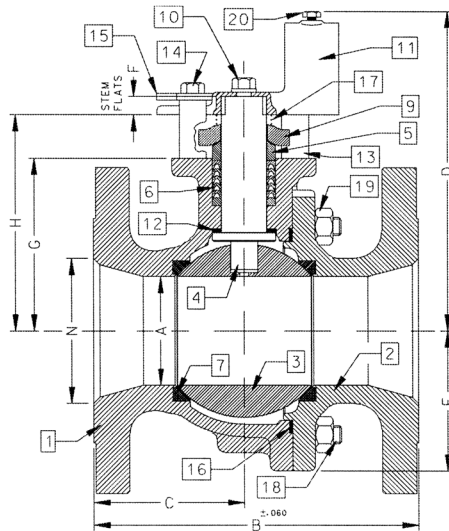
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

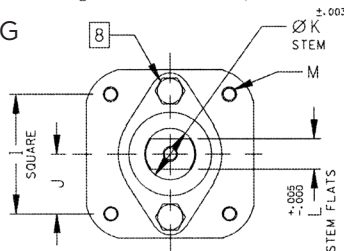
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-10A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
87J-10C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
87J-10E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310

Pressure/Temperature Ratings - Page M-28, Graph No. 40

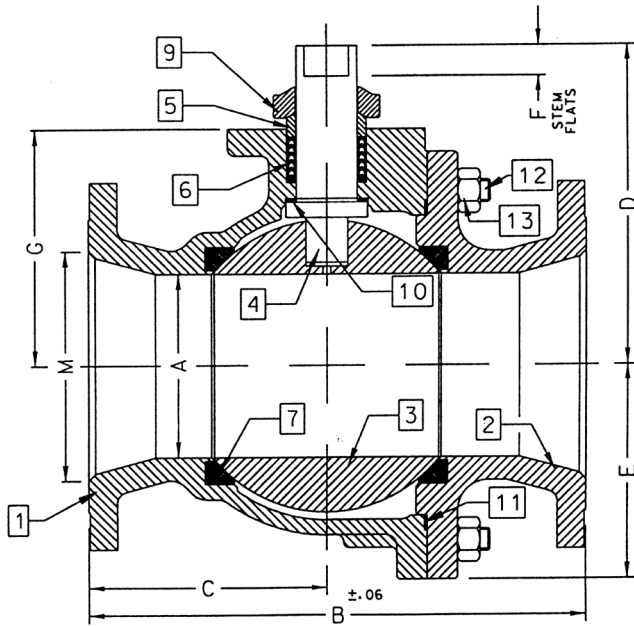
REV. 18JUL19

87J-100 SERIES

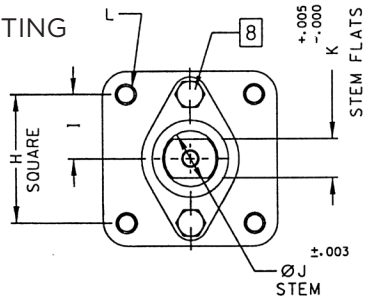
DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 40

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-10G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00	526

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87J-200 SERIES

DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A276/A479 Alloy 2205
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

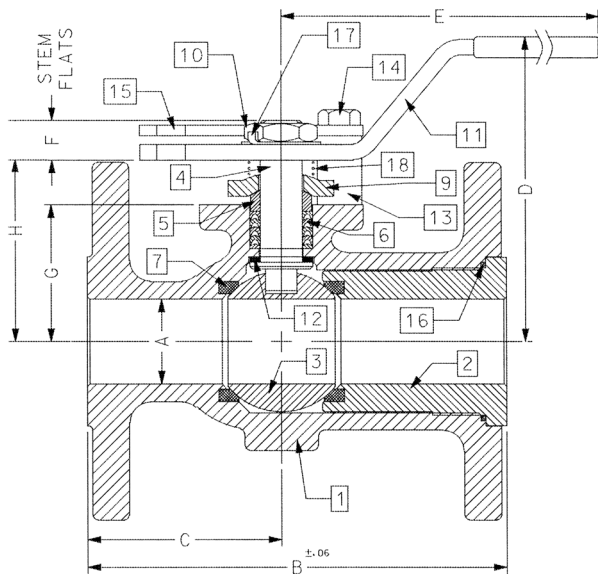
- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

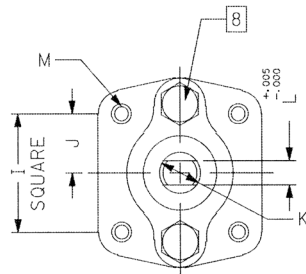
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-203-01A	1/2"	0.50	4.25	2.06	2.74	5.12	0.24	1.09	1.44	1.00	0.500	0.375	0.245	10-24	5
87J-204-01A	3/4"	0.75	4.62	2.18	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	6
87J-205-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

Pressure/Temperature Ratings - Page M-28, Graph No. 40

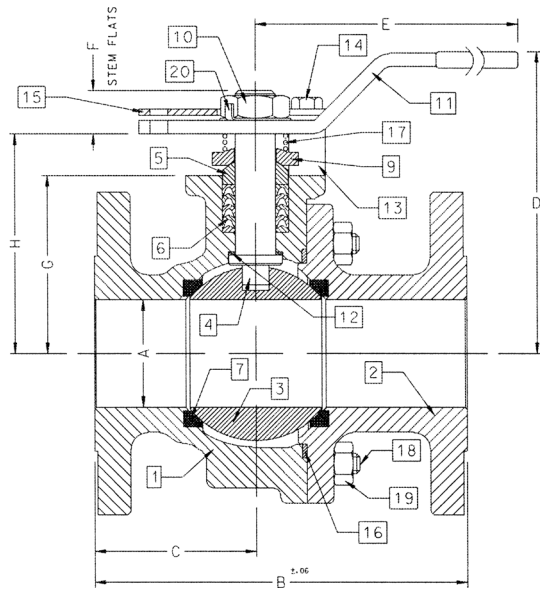
REV. 10SEP19

87J-200 SERIES

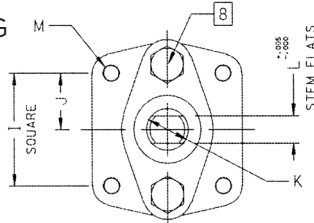
DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-207-01	1-1/2"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
87J-208-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
87J-209-01	2-1/2"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

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VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-MG-	Gear Operator with Standard Handwheel
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

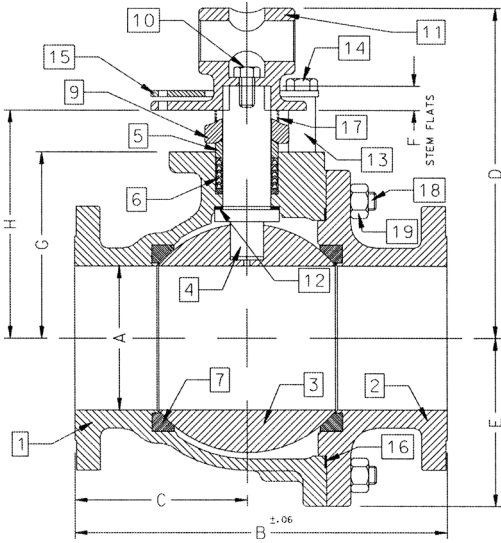
Pressure/Temperature Ratings - Page M-28, Graph No. 40

87J-200 SERIES

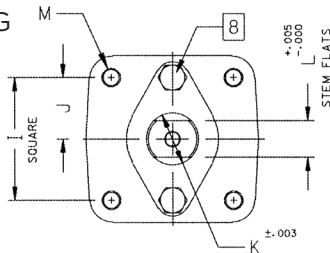
DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-200-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
87J-20A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
87J-20C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 40

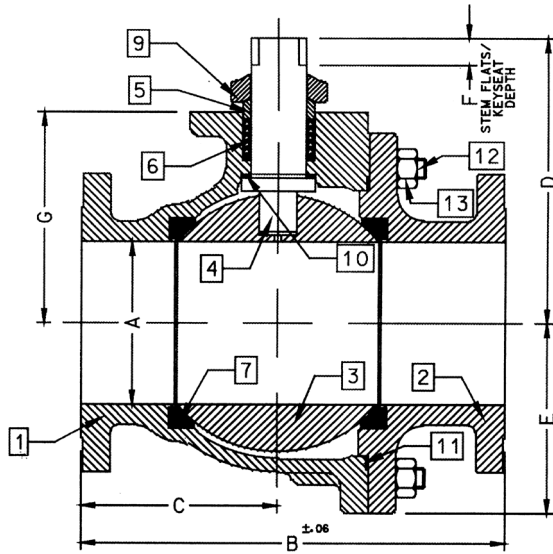
REV. 18JUL19

87J-200 SERIES

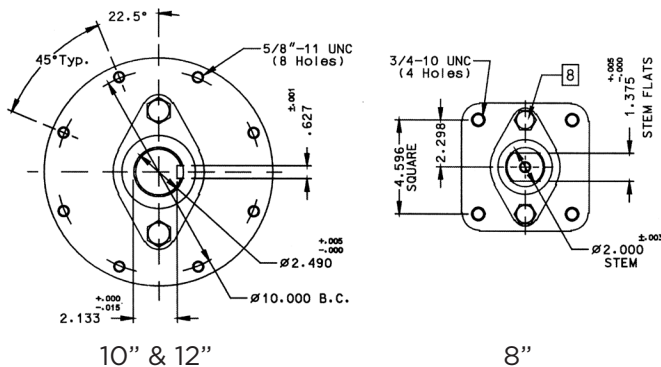
DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (B" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 40

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
87J-20E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
87J-20G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
87J-20H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

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87J-700 SERIES

DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 & 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8
11	Lever	302 & 304 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel, ASTM A313

VARIATIONS AVAILABLE

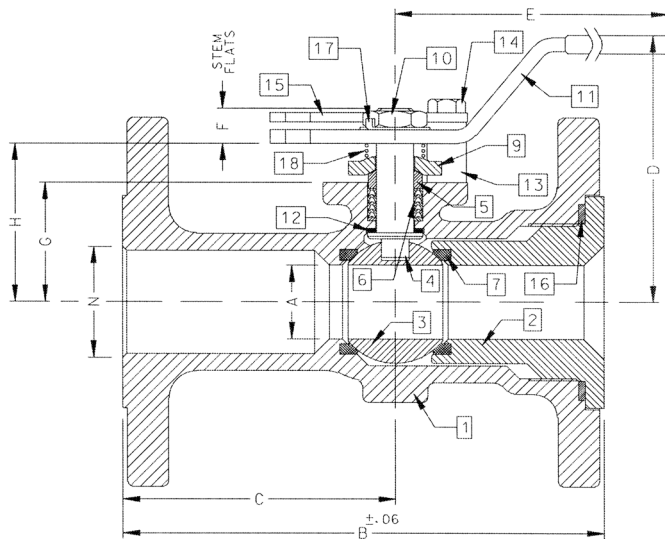
- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

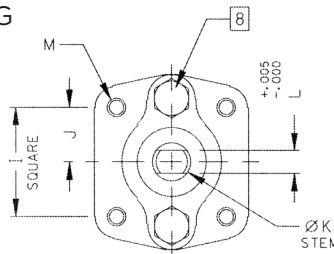
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (See Page J-2)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-28, Graph No. 41

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-707-01A	1-1/2"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	15.7
87J-708-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24.0

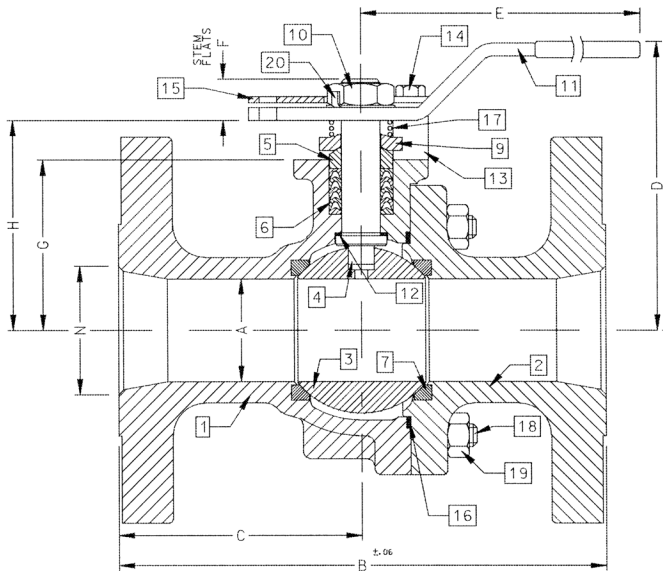
REV. 18JUL19

87J-700 SERIES

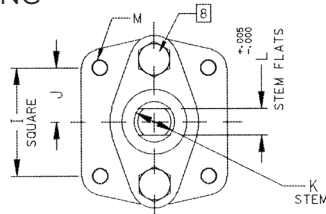
DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel, ASTM A313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-709-01	2-1/2"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
87J-700-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

REV. 18JUL19

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 41

87J-700 SERIES

DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel, ASTM 313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Adapter Screw	302 or 304 Stainless Steel
21	Pipe Handle	Galvanized Steel (not Shown)

VARIATIONS AVAILABLE

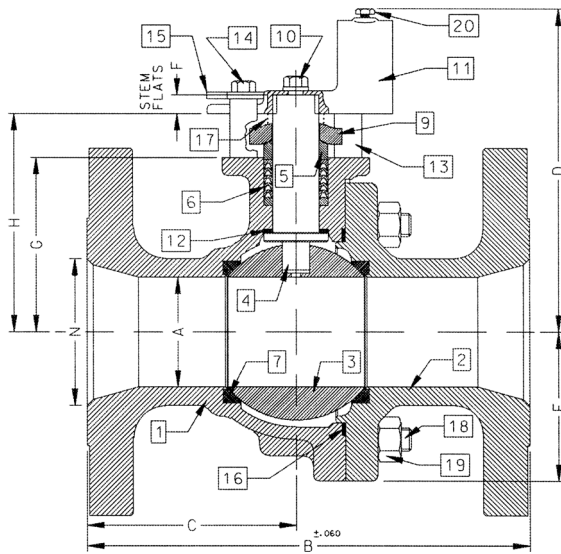
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

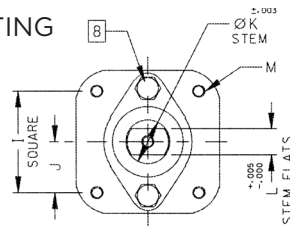
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87J-70A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
87J-70C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
87J-70E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400

Pressure/Temperature Ratings - Page M-28, Graph No. 41

REV. 18JUL19

87J-700 SERIES

DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8

VARIATIONS AVAILABLE

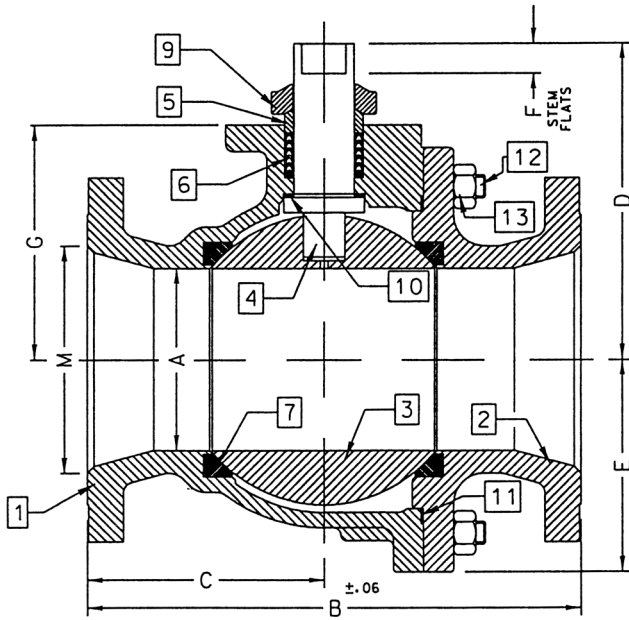
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

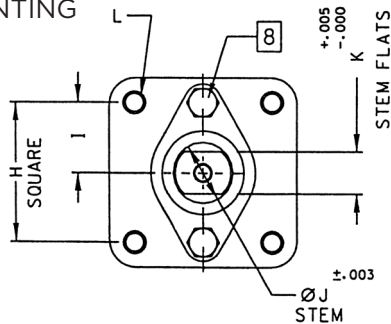
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration (Less Gear Operator)
-14-	Side Vented Ball (See Page J2)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
87J-70G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

REV. 18JUL19

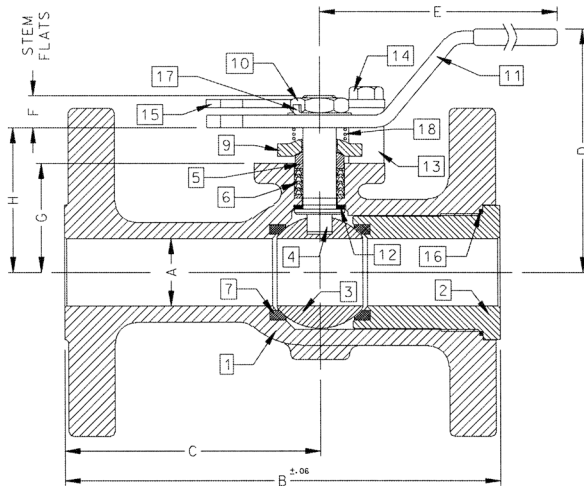
Pressure/Temperature Ratings - Page M-28, Graph No. 41

87J-900 SERIES

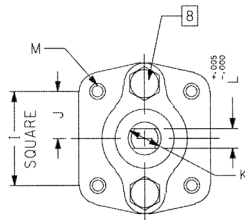
DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A276/A479 Alloy 2205
3	Ball	ASTM A276/A479 Alloy 2205
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel, ASTM A313



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 41

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-903-01A	1/2"	0.50	5.50	3.31	2.74	5.12	0.24	1.09	1.44	1.000	0.500	0.375	0.245	10-24	6
87J-904-01A	3/4"	0.75	6.00	3.56	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	9
87J-905-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	11

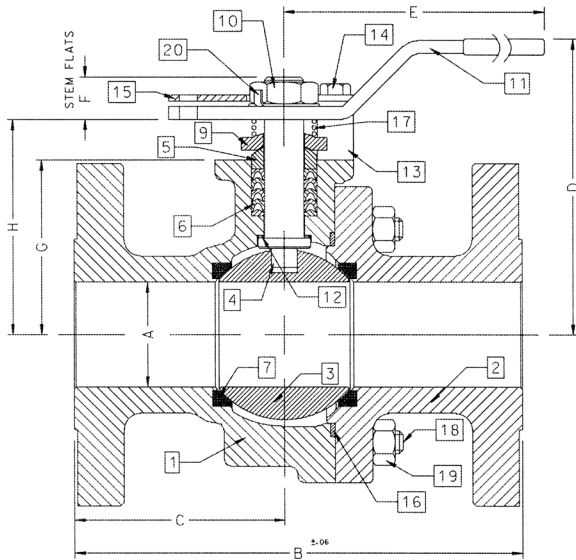
REV. 10SEP19

87J-900 SERIES

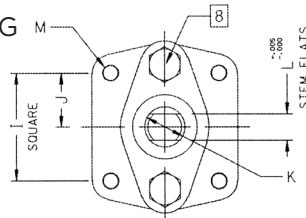
DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276/A479 Alloy 2205
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel, ASTM A313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-907-01	1-1/2"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
87J-908-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
87J-909-01	2-1/2"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

REV. 18JUL19

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

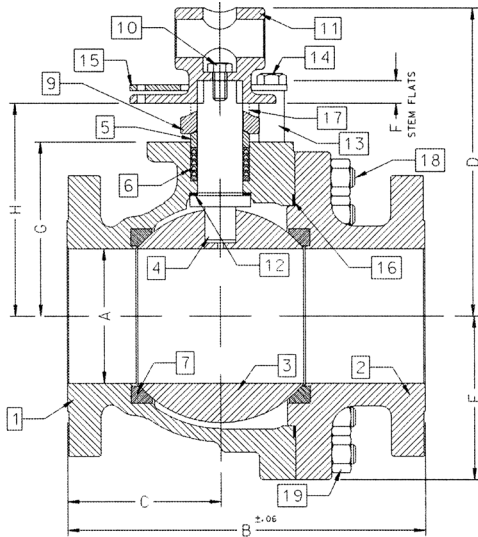
Pressure/Temperature Ratings - Page M-28, Graph No. 41

87J-900 SERIES

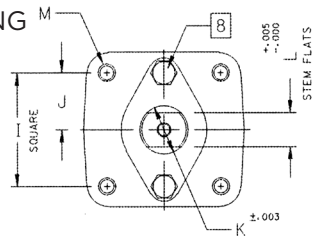
DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276/A479 Alloy 2205
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel, ASTM A313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87J-900-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
87J-90A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
87J-90C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	329

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 41

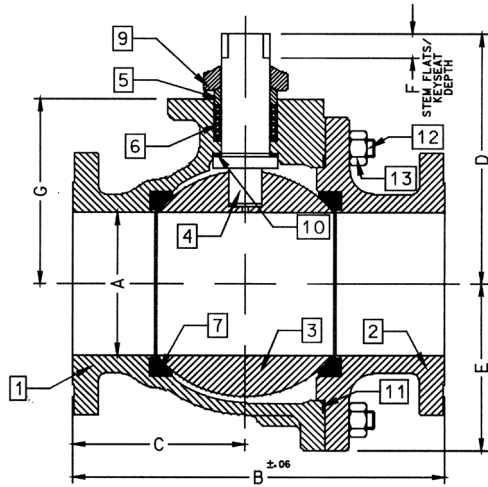
REV. 18JUL19

87J-900 SERIES

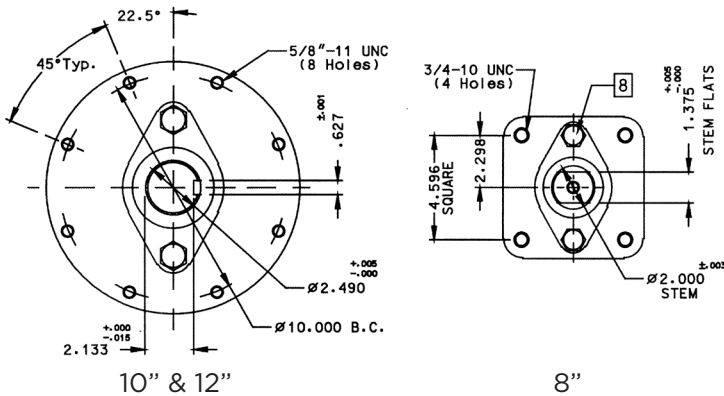
DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 4A
2	Retainer	ASTM A995 4A
3	Ball	ASTM A276/A479 Alloy 2205 or A995 4A
4	Stem	ASTM A276/A479 Alloy 2205
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 40

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
87J-90E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
87J-90G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
87J-90H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

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87K-100 SERIES

SUPER DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A276/A479 Alloy 2507
3	Ball	ASTM A276/A479 Alloy 2507
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

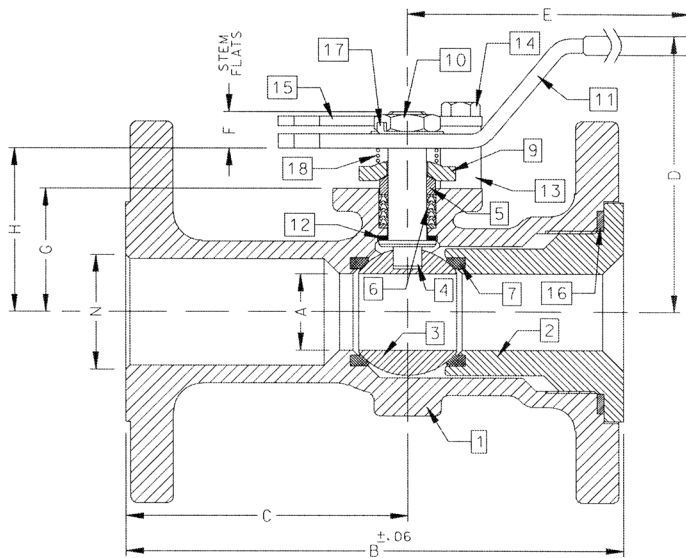
- 87H - Hastelloy
- 87M - Monel (1-1/2" to 2" only)
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

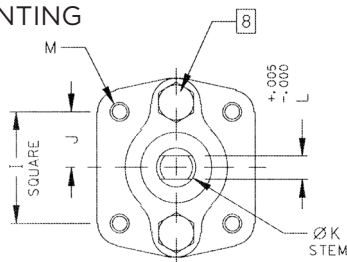
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-107-01	1-1/2"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87K-108-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

Pressure/Temperature Ratings - Page M-28, Graph No. 41

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87K-100 SERIES

SUPER DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel

VARIATIONS AVAILABLE

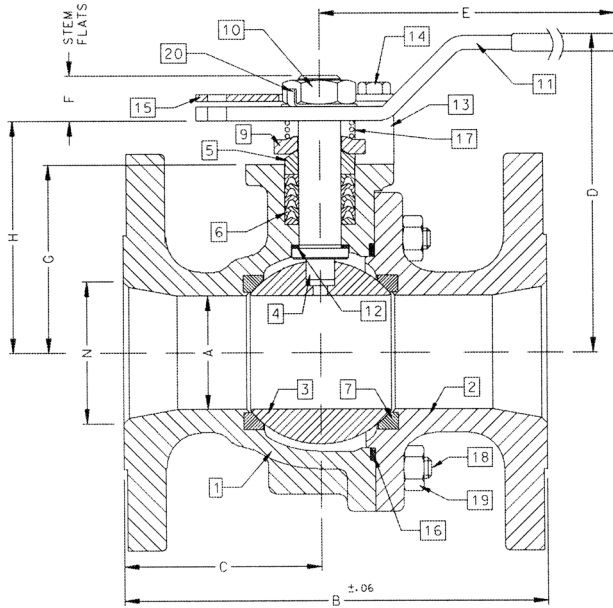
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

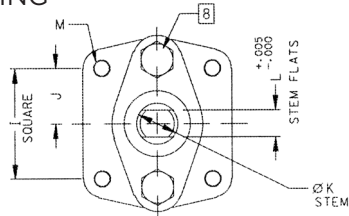
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-109-01	2-1/2"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
87K-100-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

REV. 18JUL19

Pressure/Temperature Ratings - Page M-28, Graph No. 40

87K-100 SERIES

SUPER DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A995 6A or A276/A479 Alloy 2507
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel
21	Pipe Handle	Galvanized Steel (not Shown)

VARIATIONS AVAILABLE

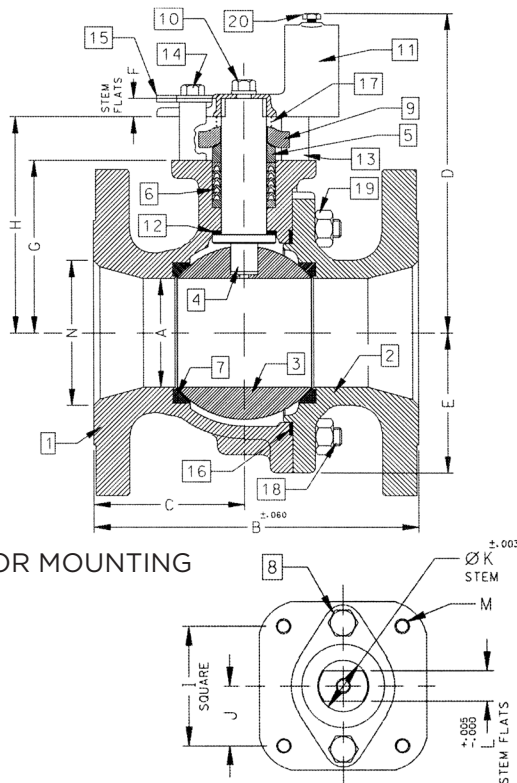
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING

Pressure/Temperature Ratings - Page M-28, Graph No. 40

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-10A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
87K-10C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
87K-10E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310

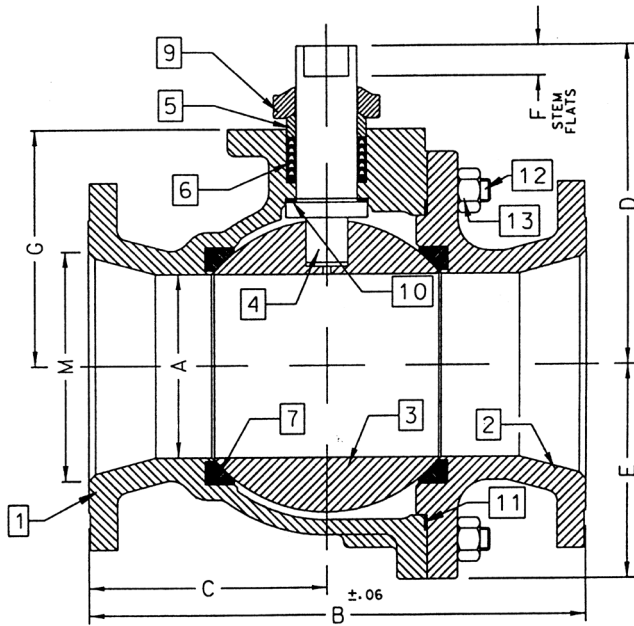
REV. 18JUL19

87K-100 SERIES

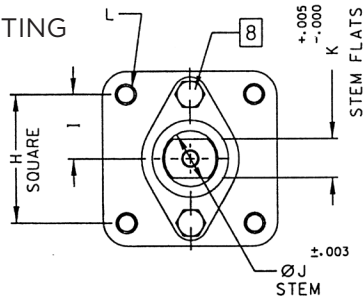
SUPER DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276 A995 6A
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 40

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-10G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00	526

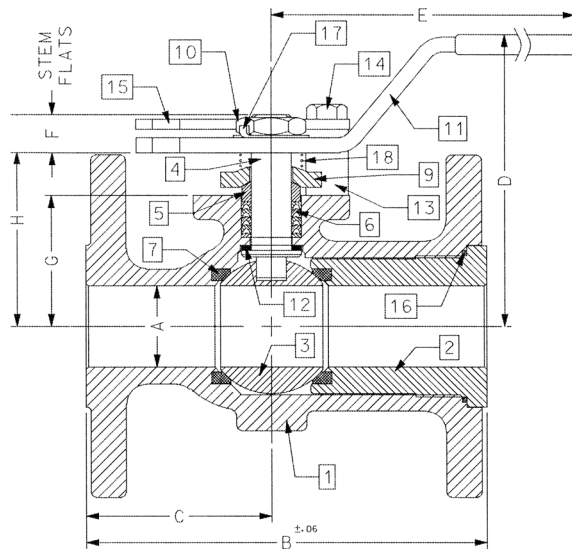
REV. 18JUL19

87K-200 SERIES

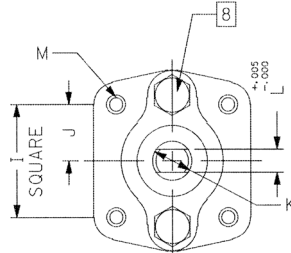
SUPER DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A995 6A
2	Retainer	ASTM A276 /A479 Alloy 2507
3	Ball	ASTM A276 /A479 Alloy 2507
4	Stem	ASTM A276 /A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel, ASTM A313



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 40

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-203-01A	1/2"	0.50	4.25	2.06	2.74	5.12	0.24	1.09	1.44	1.00	0.500	0.375	0.245	10-24	5
87K-204-01A	3/4"	0.75	4.62	2.18	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	6
87K-205-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

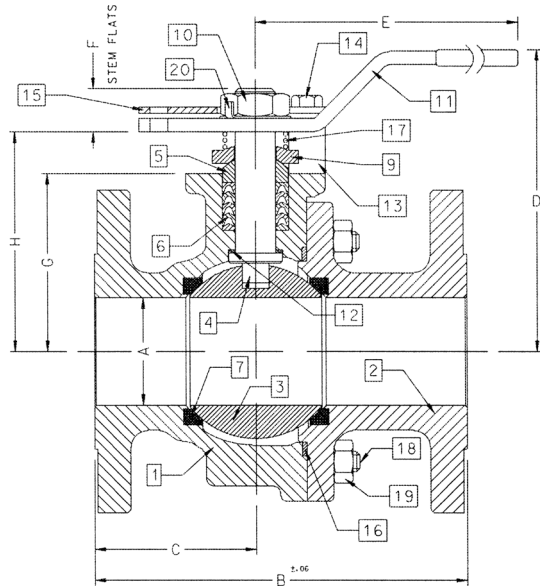
REV. 10SEP19

87K-200 SERIES

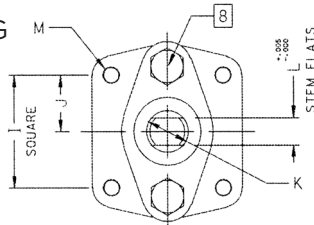
SUPER DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276/ A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-207-01	1-1/2"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
87K-208-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
87K-209-01	2-1/2"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

REV. 18JUL19

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

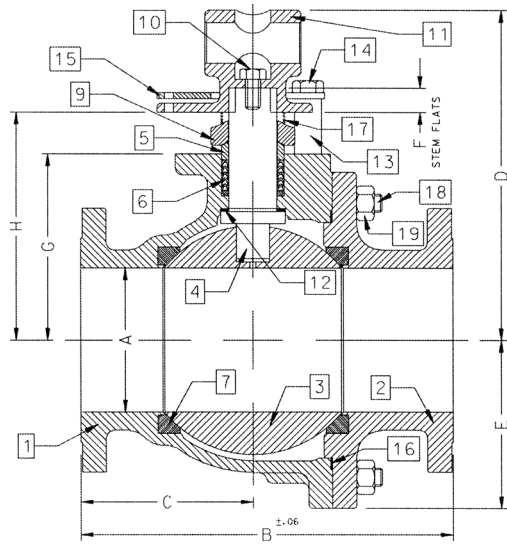
Pressure/Temperature Ratings - Page M-28, Graph No. 40

87K-200 SERIES

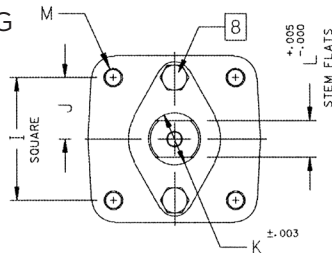
SUPER DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-200-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
87K-20A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
87K-20C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 40

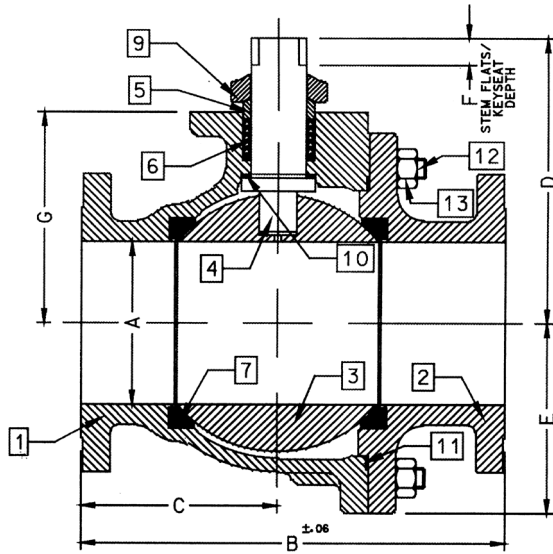
REV. 18JUL19

87K-200 SERIES

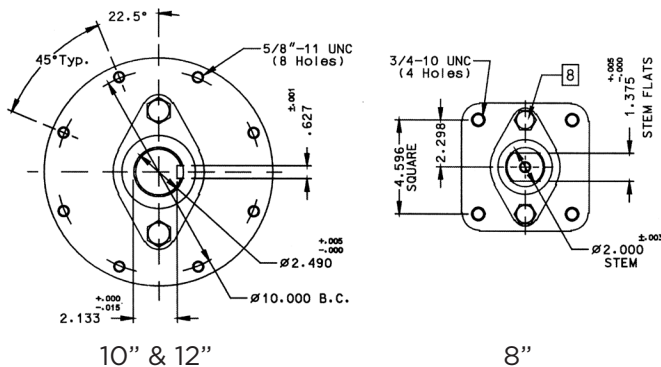
SUPER DUPLEX STAINLESS STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy or A995 6A
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (B" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 40

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
87K-20E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
87K-20G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
87K-20H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

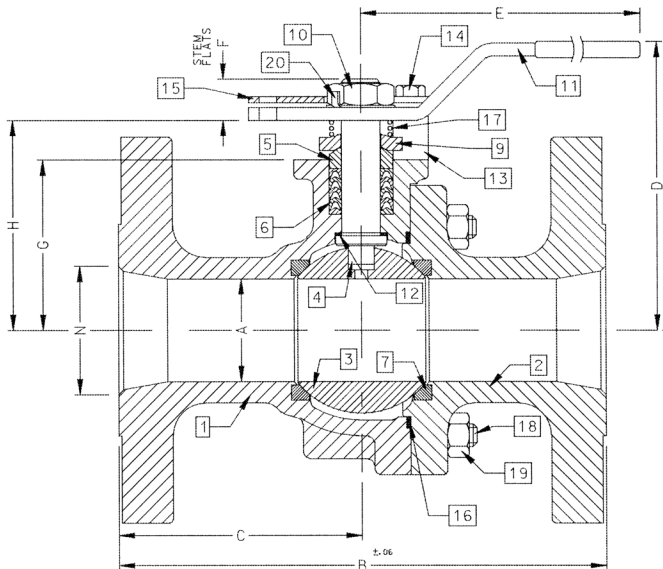
REV. 18JUL19

87K-700 SERIES

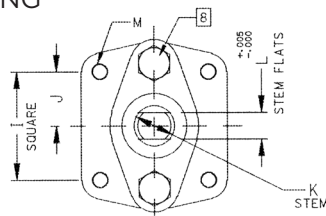
SUPER DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-709-01	2-1/2"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
87K-700-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

REV. 18JUL19

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 41

87K-700 SERIES

SUPER DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A276/A479 Alloy 2507
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Adapter Screw	18-8 Stainless Steel
21	Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE

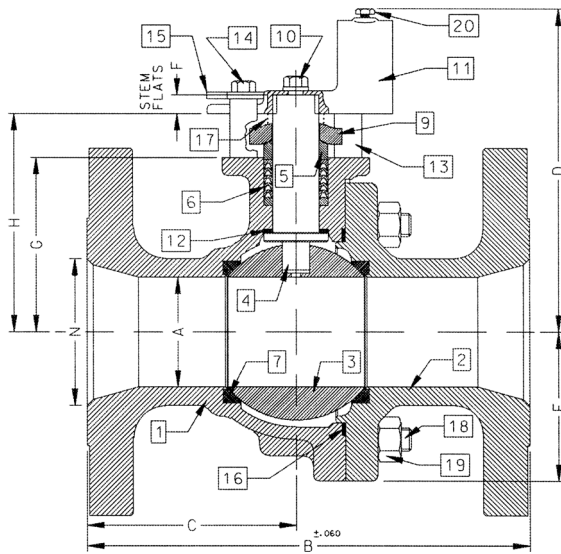
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

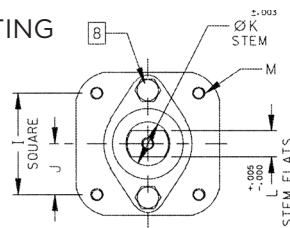
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87K-70A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
87K-70C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
87K-70E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400

Pressure/Temperature Ratings - Page M-28, Graph No. 41

REV. 18JUL19

87K-700 SERIES

SUPER DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE 10"

STANDARD MATERIAL LIST

PART	MATERIAL
1	Body
2	Retainer
3	Ball
4	Stem
5	Packing Gland
6	Stem Seals
7	Seats
8	Gland Screws
9	Gland Plate
10	Stem Bearing
11	Body Seal
12	Body Joint Stud
13	Body Joint Nut

VARIATIONS AVAILABLE

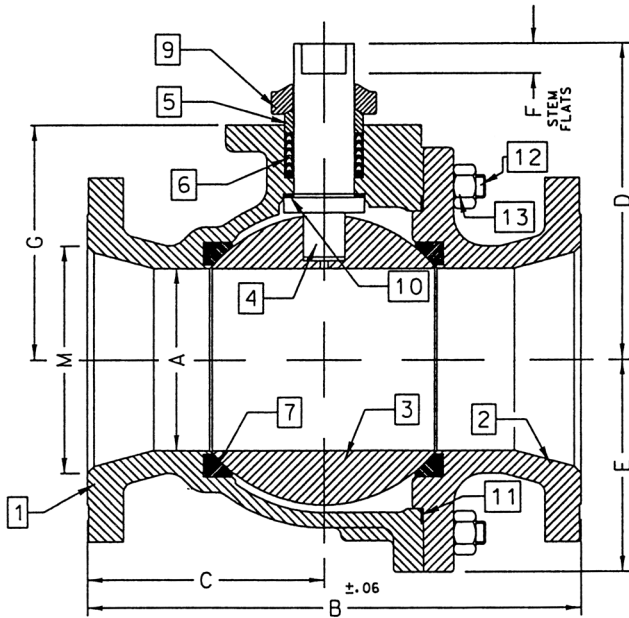
- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

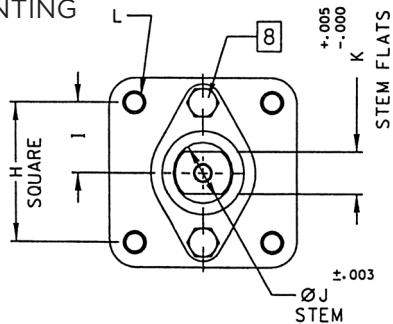
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration (Less Gear Operator)
-14-	Side Vented Ball (See Page J2)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-28, Graph No. 41

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
87K-70G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

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87K-900 SERIES

SUPER DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

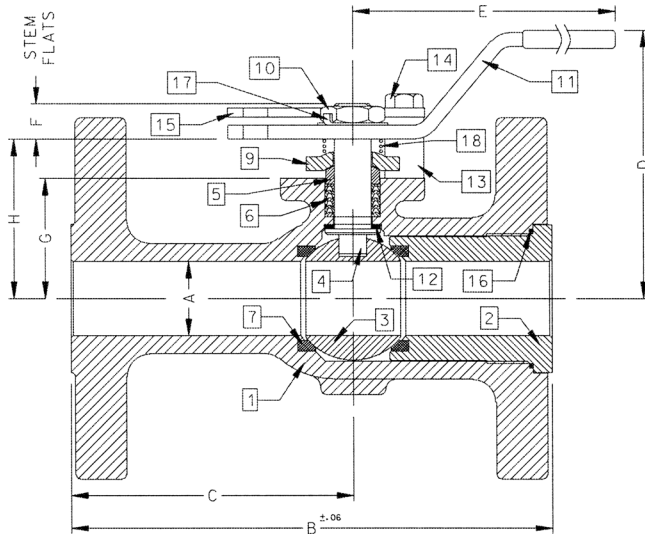
- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

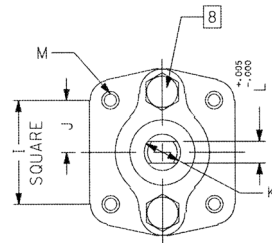
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-903-01A	1/2"	0.50	5.50	3.31	2.74	5.12	0.24	1.09	1.44	1.000	0.500	0.375	0.245	10-24	6
87K-904-01A	3/4"	0.75	6.00	3.56	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	9
87K-905-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	11

Pressure/Temperature Ratings - Page M-28, Graph No. 41

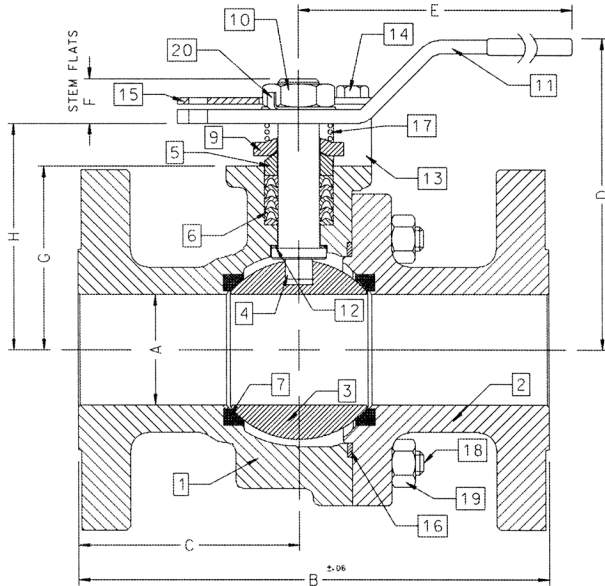
REV. 10SEP19

87K-900 SERIES

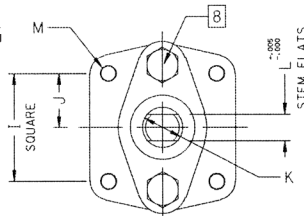
SUPER DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-907-01	1-1/2"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
87K-908-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
87K-909-01	2-1/2"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

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VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

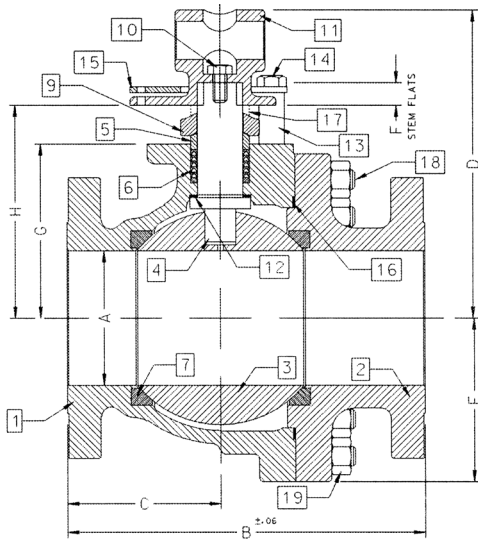
Pressure/Temperature Ratings - Page M-28, Graph No. 41

87K-900 SERIES

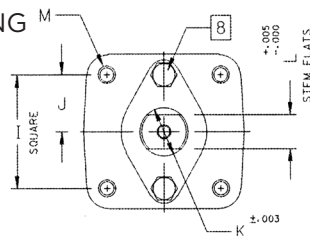
SUPER DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87K-900-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
87K-90A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
87K-90C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	329

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 41

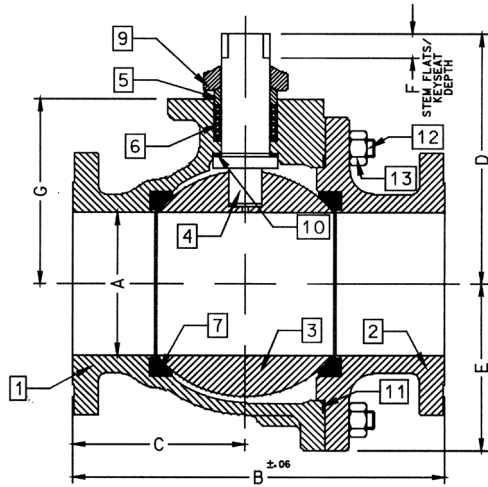
REV. 18JUL19

87K-900 SERIES

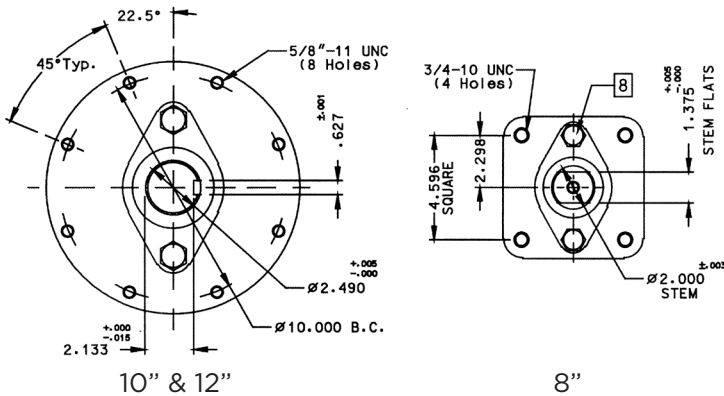
SUPER DUPLEX STAINLESS STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
3	Ball	ASTM A276/A479 Alloy 2507 or A995 6A
4	Stem	ASTM A276/A479 Alloy 2507
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" standard suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (Fire Safe "By Design")
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-28, Graph No. 41

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
87K-90E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
87K-90G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
87K-90H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

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88A-100 SERIES

CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A216 WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108, Carbon Steel, Chrome Plated or ASTM A276, Type 316 Stainless Steel
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

- 88A-140 Series (316 Stainless Steel Ball & Stem)
- 88A-130 Series (Ni-Cu Ball & Stem)

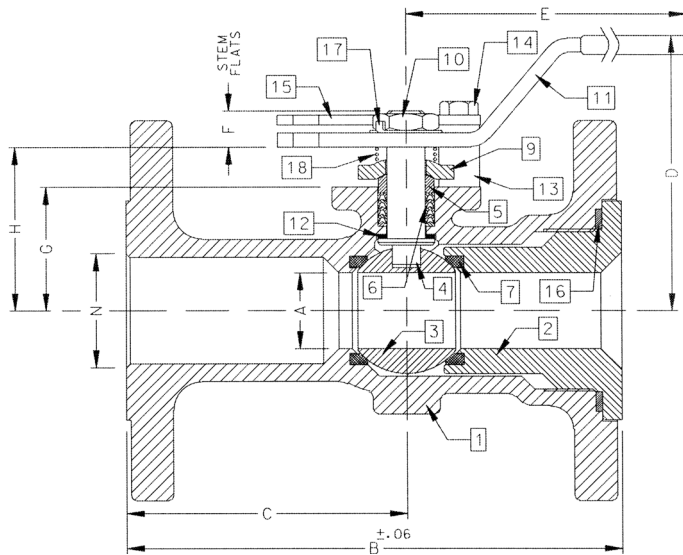
OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

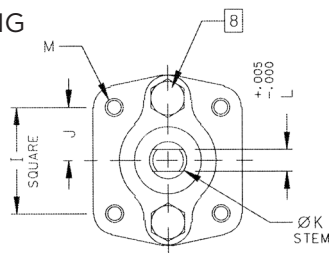
- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 5th Edition, ISO 10497-5:2004)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 1



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-107-01A	1-1/2"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
88A-108-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

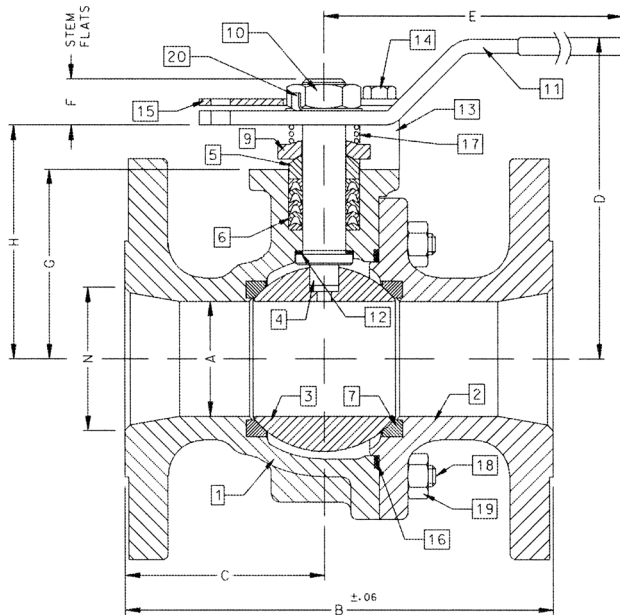
REV. 18JUL19

88A-100 SERIES

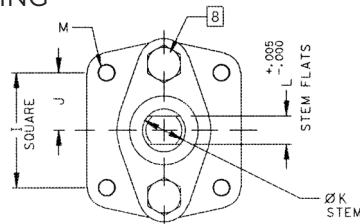
CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-109-01	2-1/2"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
88A-100-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

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VARIATIONS AVAILABLE

- 88A-140 Series (316 Stainless Steel Ball & Stem)
- 88A-130 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 1

88A-100 SERIES

CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Adaptor Screw	316 Stainless Steel
11	Handle Adapter	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Adapter Screw	18-8 Stainless Steel
21	Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE

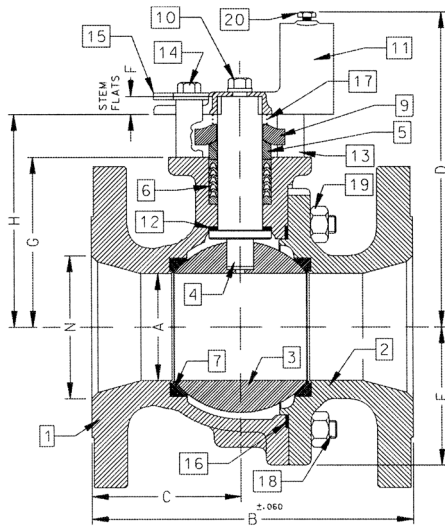
- 88A-140 Series (316 Stainless Steel Ball & Stem)
- 88A-130 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

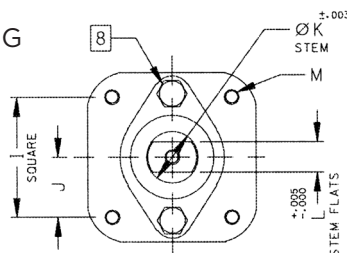
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Fire Safe - Graphite Packing & Seals (API 607, 5th edition, ISO 10497-5:2004) 4" & 6" (API 607, 6th edition, ISO 0497:2010) 8"
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-10A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
88A-10C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
88A-10E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310

Pressure/Temperature Ratings - Page M-9, Graph No. 1

REV. 18JUL19

88A-100 SERIES

CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or 216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE

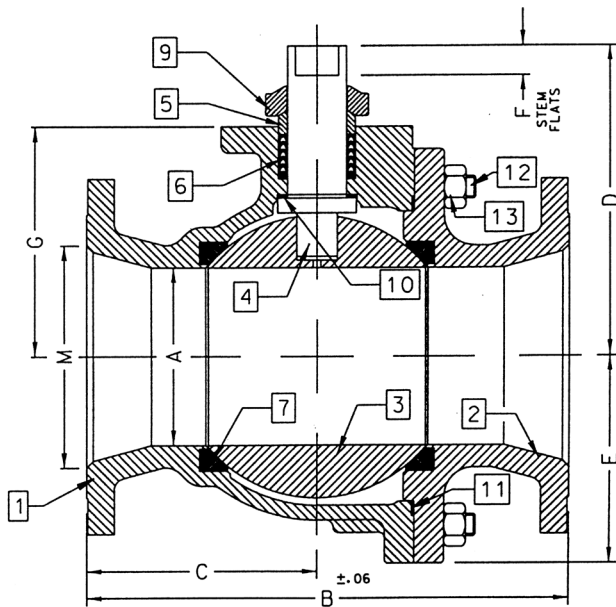
- 88A-130 Series (Ni-Cu Ball & Stem)
- 88A-140 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

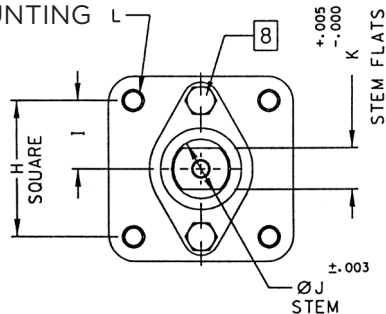
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 5th Edition, ISO 10497-5:2004)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
88A-10G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

REV. 18JUL19

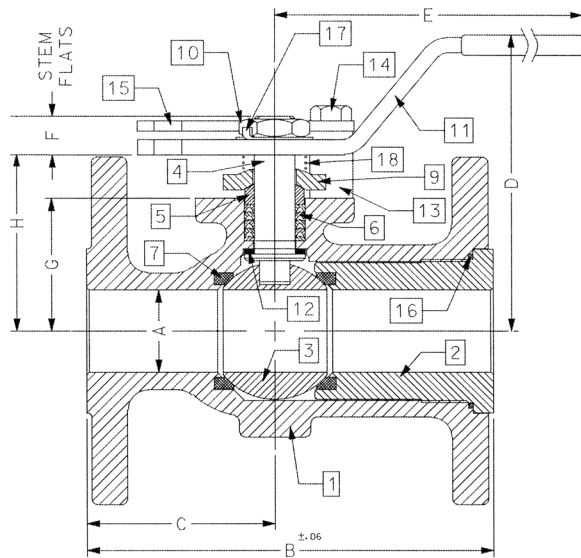
Pressure/Temperature Ratings - Page M-9, Graph No. 1

88A-200 SERIES

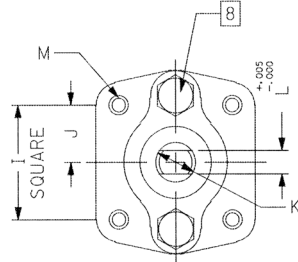
CARBON STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A216 WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108 Type 1215 Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-203-01A	1/2"	0.50	4.25	2.06	2.74	5.12	0.24	1.09	1.44	1.002	0.501	0.375	0.245	10-24	5
88A-204-01A	3/4"	0.75	4.62	2.18	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.312	1/4-20	6
88A-205-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

VARIATIONS AVAILABLE

- 88A-240 Series (316 Stainless Steel Ball & Stem)
- 88A-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 5th Edition, ISO 10497-5:2004)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 1

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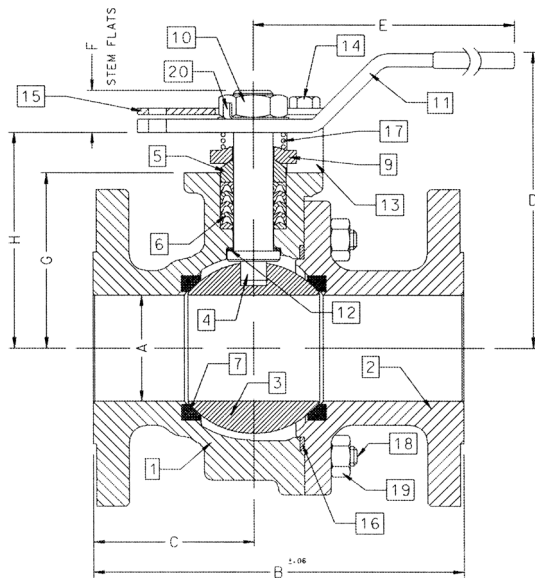


88A-200 SERIES

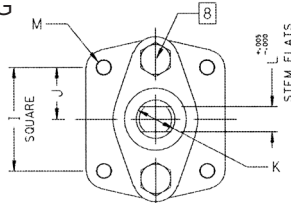
CARBON STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8I
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-207-01	1-1/2"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
88A-208-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
88A-209-01	2-1/2"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

VARIATIONS AVAILABLE

- 88A-240 Series (316 Stainless Steel Ball & Stem)
- 88A-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe - Graphite Packing & Seals (API 607, 5th edition, ISO 10497-5:2004) 1-1/2" & 2" (API 607, 6th edition, ISO 10497:2010) 2-1/2"
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 1

REV. 18JUL19

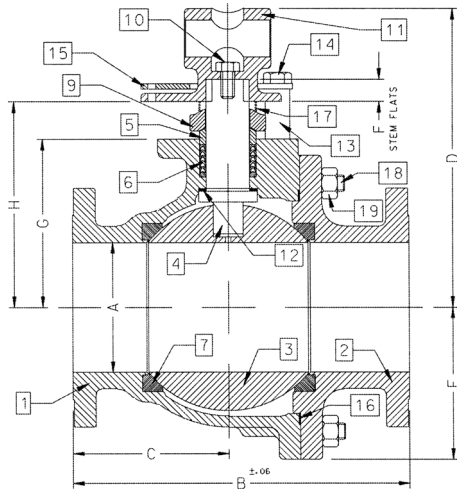


88A-200 SERIES

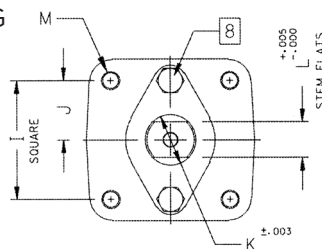
CARBON STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	316 Stainless Steel
11	Handle Adapter	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-200-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
88A-20A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
88A-20C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

VARIATIONS AVAILABLE

- 88A-240 Series (316 Stainless Steel Ball & Stem)
- 88A-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 1

REV. 18JUL19

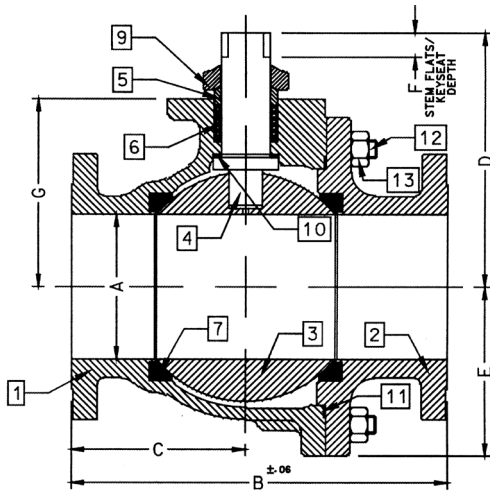


88A-200 SERIES

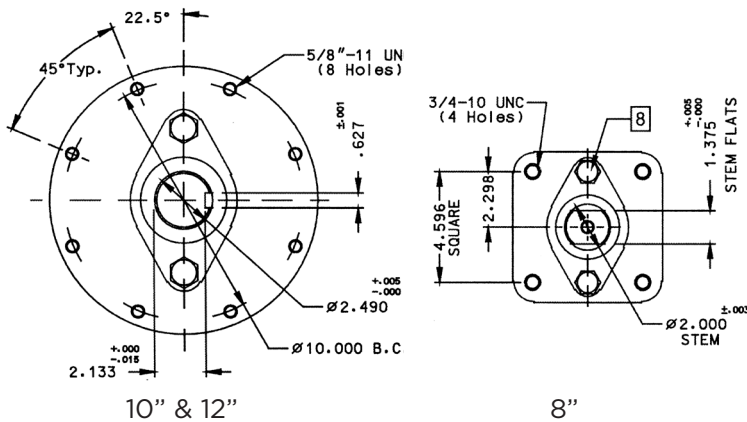
CARBON STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 88A-230 Series (Ni-Cu Ball & Stem)
- 88A-240 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gas - CS Valves
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 1

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
88A-20E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
88A-20G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
88A-20H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

REV. 18JUL19

88A-700 SERIES

CARBON STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108, Carbon Steel, Chrome Plated or ASTM A276, Type 316 Stainless Steel
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

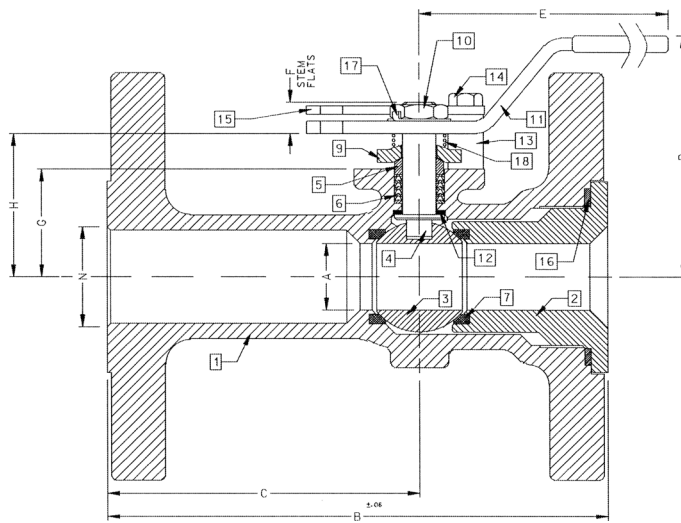
- 88A-740 Series (316 Stainless Steel Ball & Stem)
- 88A-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

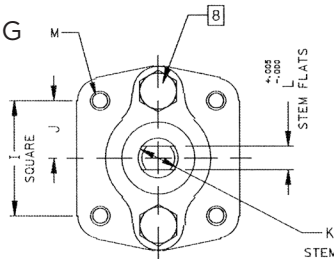
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 5th Edition, ISO 10497-5:2004)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-707-01	1-1/2"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	16
88A-708-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24

Pressure/Temperature Ratings - Page M-11, Graph No. 5

REV. 18JUL19

88A-700 SERIES

CARBON STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 Stainless Steel

VARIATIONS AVAILABLE

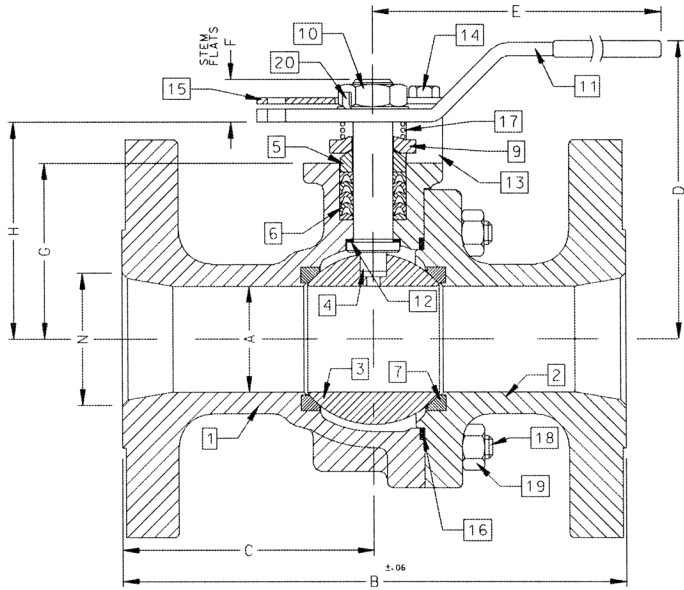
- 88A-740 Series (316 Stainless Steel Ball & Stem)
- 88A-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

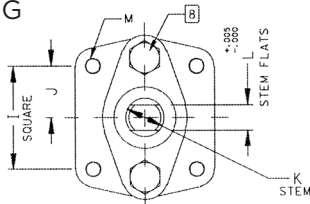
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-709-01	2-1/2"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
88A-700-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

Pressure/Temperature Ratings - Page M-11, Graph No. 5

REV. 18JUL19

88A-700 SERIES

CARBON STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	316 Stainless Steel
11	Handle Adapter	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Adapter Screw	316 Stainless Steel
21	Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE

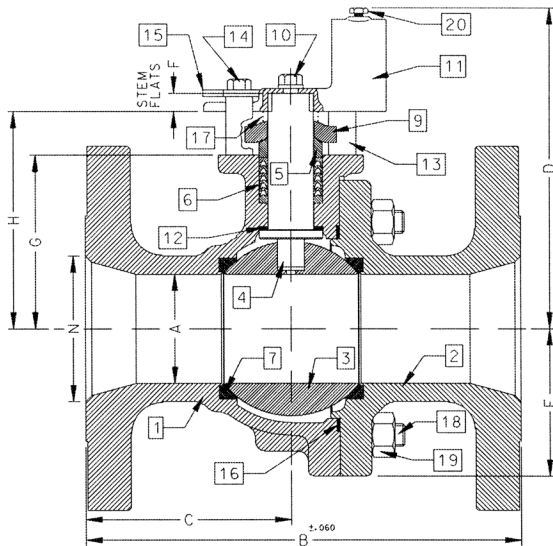
- 88A-740 Series (316 Stainless Steel Ball & Stem)
- 88A-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

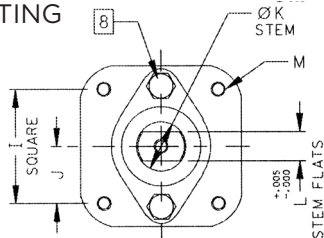
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Fire Safe - Graphite Packing & Seals (API 607, 5th edition, ISO 10497-5:2004) 4" & 6" (API 607, 6th edition, ISO 10497:2010) 8"
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88A-70A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
88A-70C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
88A-70E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400

Pressure/Temperature Ratings - Page M-11, Graph No. 5

REV. 18JUL19

88A-700 SERIES

CARBON STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H

VARIATIONS AVAILABLE

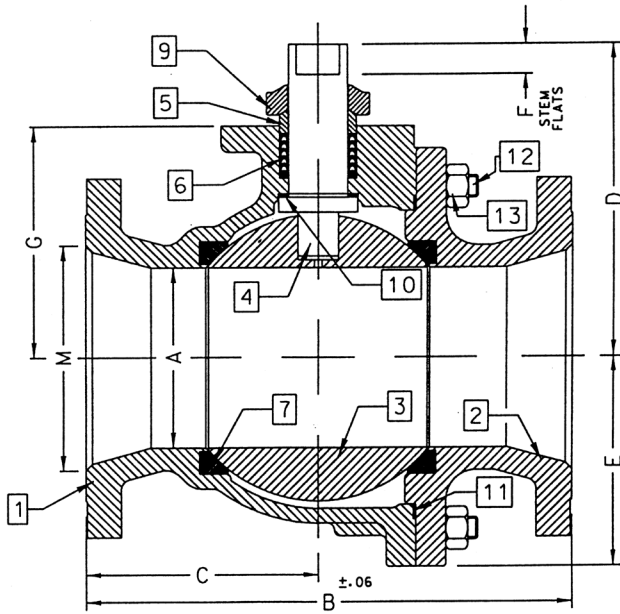
- 88A-730 Series (Ni-Cu Ball & Stem)
- 88A-740 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

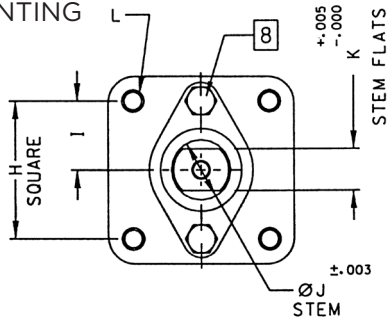
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 5th Edition, ISO 10497-5:2004)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
88A-70G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

REV. 18JUL19

Pressure/Temperature Ratings - Page M-11, Graph No. 5

88A-900 SERIES

CARBON STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108 Type 1215 Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

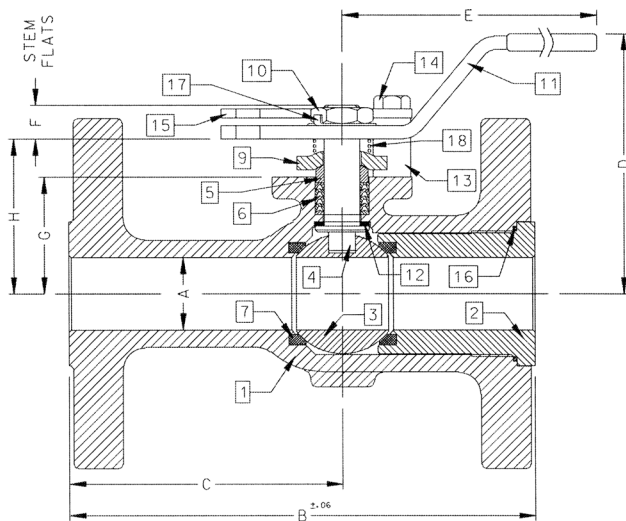
- 88A-940 Series (316 Stainless Steel Ball & Stem)
- 88A-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

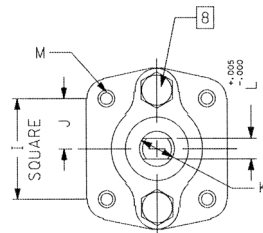
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 5th Edition, ISO 10497-5:2004)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-11, Graph No. 5

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-903-01A	1/2"	0.50	5.50	3.31	2.74	5.12	0.24	1.09	1.44	1.000	0.500	0.375	0.245	10-24	7.0
88A-904-01A	3/4"	0.75	6.00	3.56	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	9.0
88A-905-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	10.5

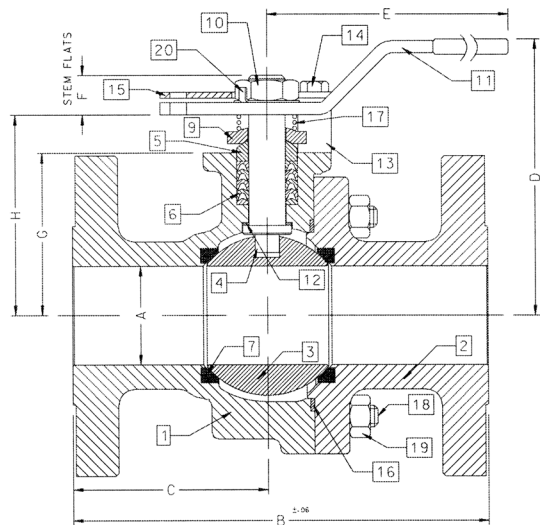
REV. 10SEP19

88A-900 SERIES

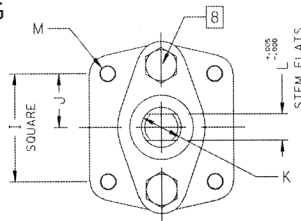
CARBON STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8I
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-907-01	1-1/2"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
88A-908-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
88A-909-01	2-1/2"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

REV. 18JUL19

VARIATIONS AVAILABLE

- 88A-940 Series (316 Stainless Steel Ball & Stem)
- 88A-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe - Graphite Packing & Seals (API 607, 5th edition, ISO 10497-5:2004) 1-1/2" & 2" (API 607, 6th edition, ISO 10497:2010) 2-1/2"
-26-	Chlorine Service, Vented, Special Cleaning, Assembled Dry, (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication, Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

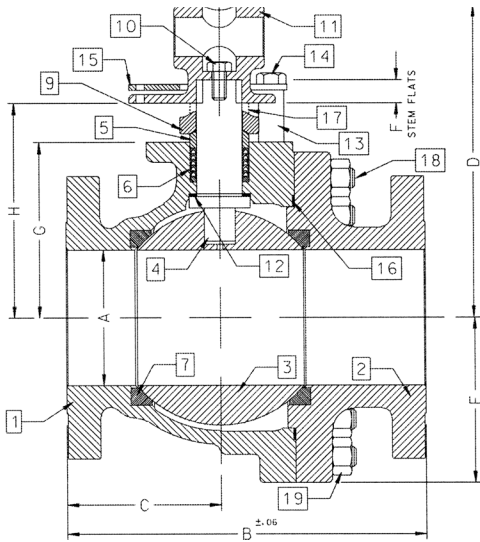
Pressure/Temperature Ratings - Page M-11, Graph No. 5

88A-900 SERIES

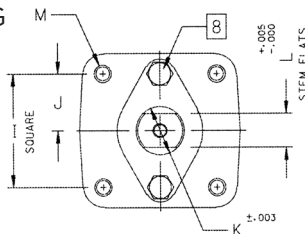
CARBON STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	316 Stainless Steel
11	Handle Adapter	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88A-900-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
88A-90A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
88A-90C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.296	2.000	1.375	3/4-10	329

VARIATIONS AVAILABLE

- 88A-940 Series (316 Stainless Steel Ball & Stem)
- 88A-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-11, Graph No. 5

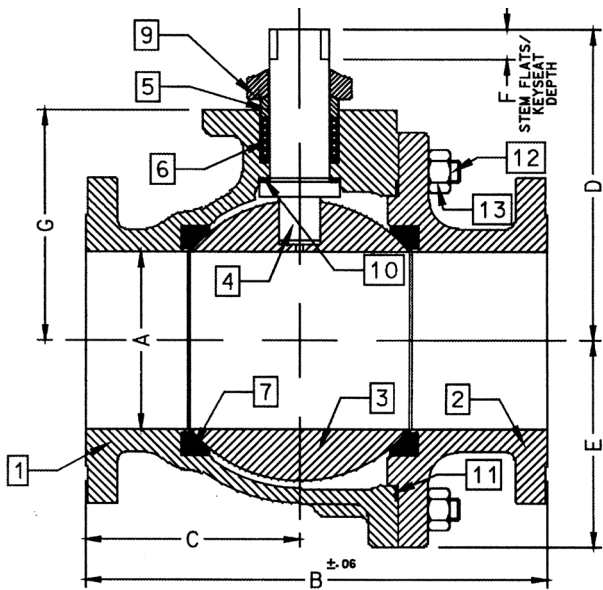


88A-900 SERIES

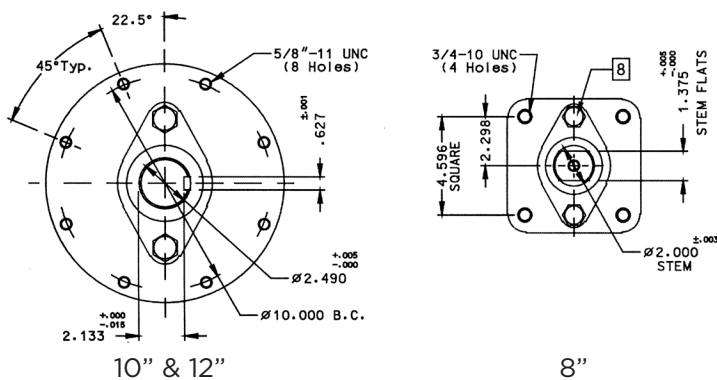
CARBON STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or A216 WCB
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
88A-90E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
88A-90G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
88A-90H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

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VARIATIONS AVAILABLE

- 88A-930 Series (Ni-Cu Ball & Stem)
- 88A-940 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gas
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

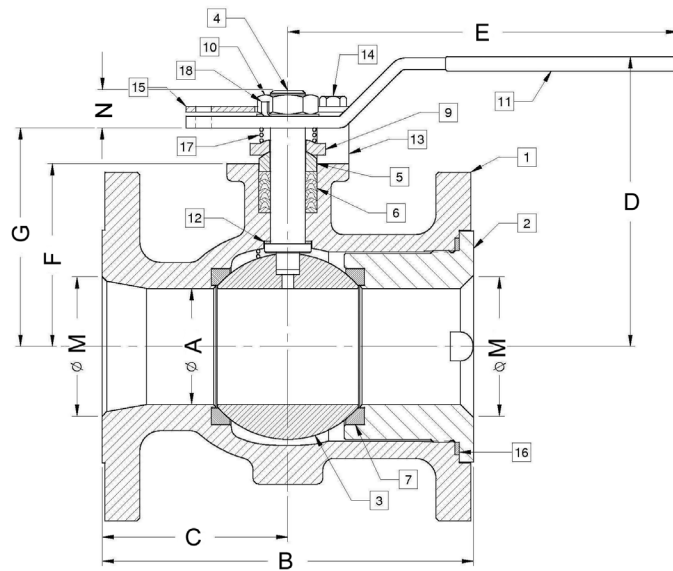
Pressure/Temperature Ratings - Page M-11, Graph No. 5

88B-100 SERIES

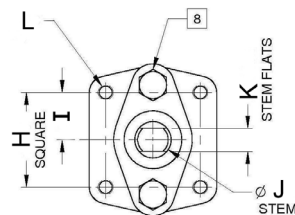
CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108 Type 1215 Chrome Plated
4	Stem	ASTM A108 Type 1215 Chrome Plated
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 88B-130 Series (Ni-Cu Ball & Stem)
- 88B-140 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 1

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88B-100-01	3"	2.50	8.00	4.00	6.23	8.40	3.93	4.70	1.949	0.974	0.750	0.477	5/16-18	3.00	0.77	43

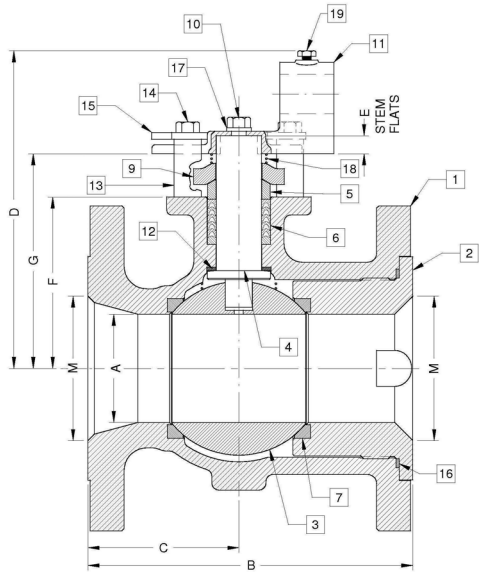
REV. 18JUL19

88B-100 SERIES

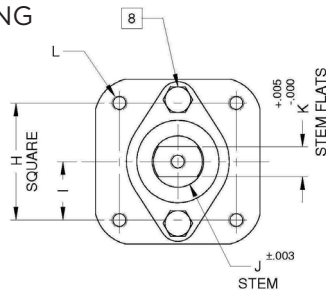
CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
4" THRU 10" SHORT PATTERN

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108 Type 1215 (Chrome Plate)
4	Stem	ASTM A108 Type 1215 (Chrome Plate)
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel
19	Adapter Screw	18-8 Stainless Steel
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88B-10A-01	4"	3.00	9.00	4.18	8.80	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	72
88B-10C-01	6"	4.00	10.50	5.25	9.99	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	110
88B-10E-01	8"	6.00	11.50	5.75	13.61	1.00	7.63	9.36	4.596	2.298	2.000	1.375	3/4-10	8.00	210
88B-10G-01	10"	8.00	13.00	6.50	N/A	1.00	9.50	11.23	4.596	2.298	2.000	1.375	3/4-10	10.0	350

REV. 18JUL19

VARIATIONS AVAILABLE

- 88B-130 Series (Ni-Cu Ball & Stem)
- 88B-140 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-9, Graph No. 1

88L-140 SERIES

LOW TEMP. CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

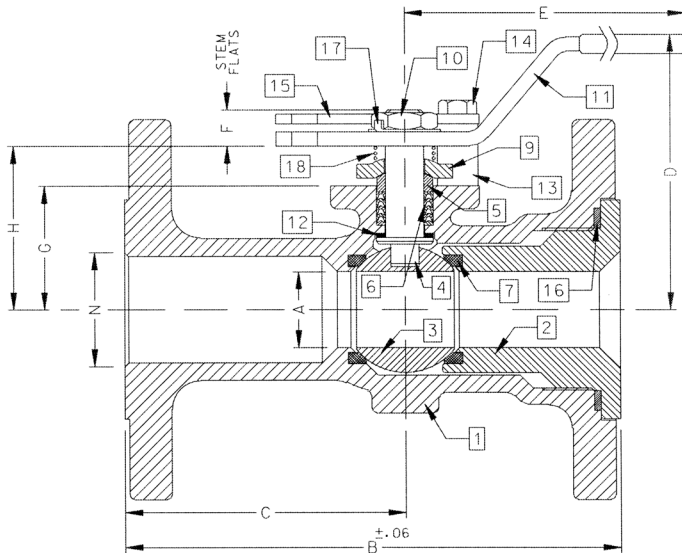
- 88L-130 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

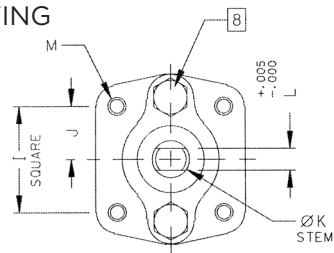
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-147-01A	1-1/2"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
88L-148-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

Pressure/Temperature Ratings - Page M-23, Graph No. 31

REV. 18JUL19

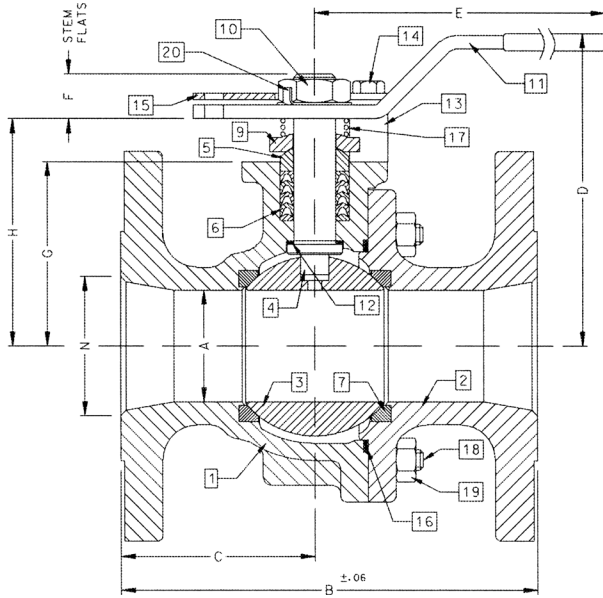


88L-140 SERIES

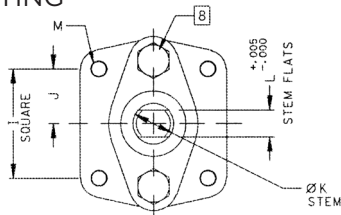
LOW TEMP. CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-149-01	2-1/2"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
88L-140-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

REV. 18JUL19

VARIATIONS AVAILABLE

- 88L-140 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

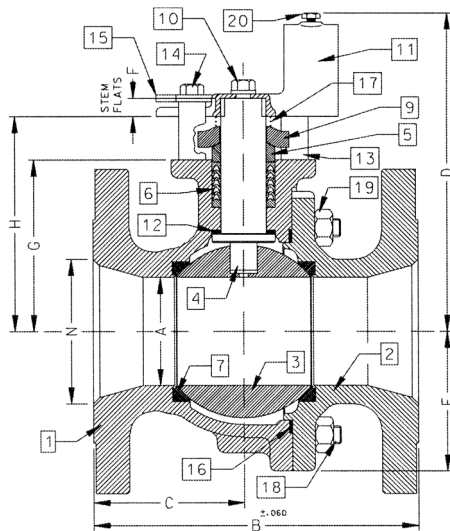
Pressure/Temperature Ratings - Page M-23, Graph No. 31

88L-140 SERIES

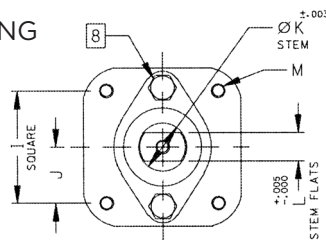
LOW TEMP. CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Adaptor Screw	316 Stainless Steel
11	Handle Adapter	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Adapter Screw	18-8 Stainless Steel
21	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-14A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
88L-14C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
88L-14E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310

VARIATIONS AVAILABLE

- 88L-140 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-Cu)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

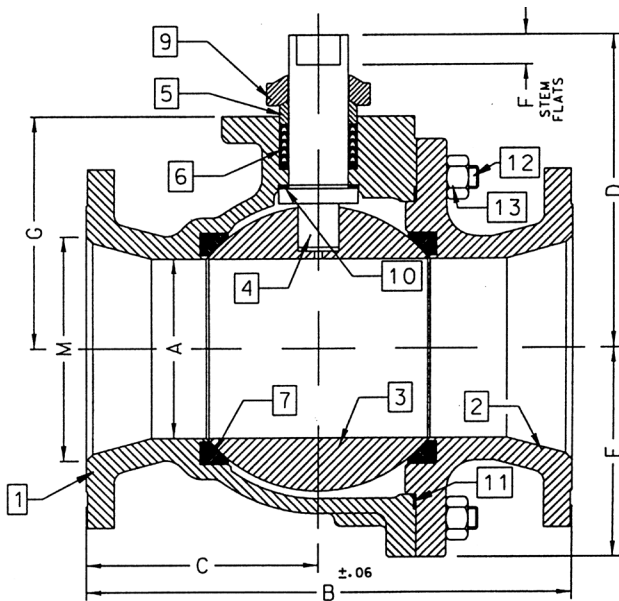
Pressure/Temperature Ratings - Page M-23, Graph No. 31

88L-140 SERIES

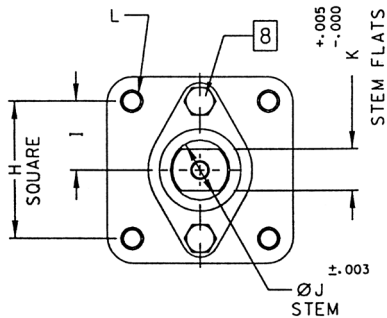
LOW TEMP. CARBON STEEL ASME CLASS 150 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
88L-14G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

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VARIATIONS AVAILABLE

- 88L-130 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

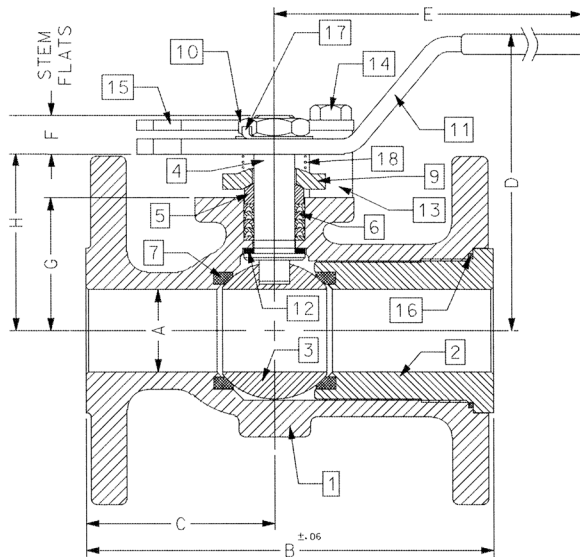
Pressure/Temperature Ratings - Page M-23, Graph No. 31

88L-240 SERIES

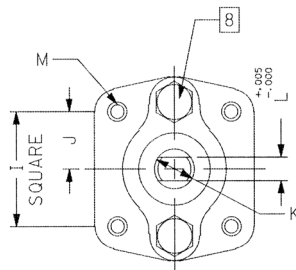
LOW TEMP. CARBON STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-243-01A	1/2"	0.50	4.25	2.06	2.74	5.12	0.24	1.09	1.44	1.002	0.501	0.375	0.245	10-24	5
88L-244-01A	3/4"	0.75	4.62	2.18	3.43	5.53	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	6
88L-245-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

VARIATIONS AVAILABLE

- 88L-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

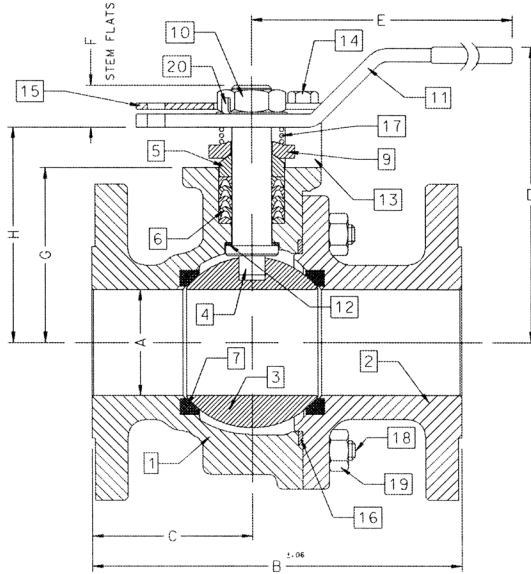
Pressure/Temperature Ratings - Page M-23, Graph No. 31

88L-240 SERIES

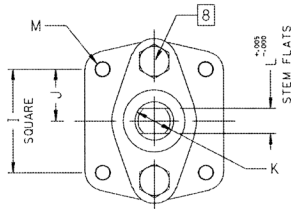
LOW TEMP. CARBON STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8I
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 88L-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (up to 2")
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-23, Graph No. 31

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-247-01	1-1/2"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
88L-248-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
88L-249-01	2-1/2"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

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88L-240 SERIES

LOW TEMP. CARBON STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	316 Stainless Steel
11	Handle Adapter	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE

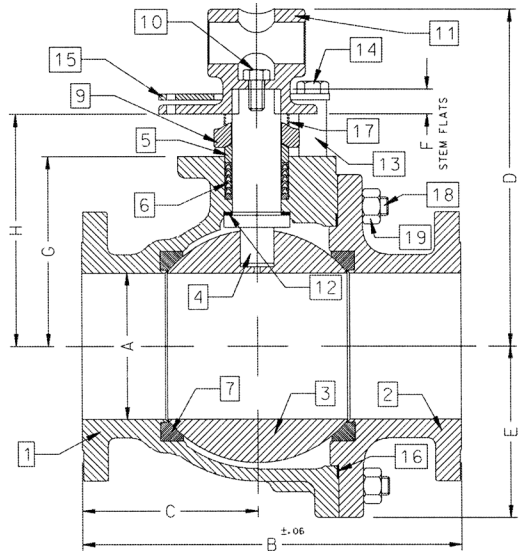
- 88L-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

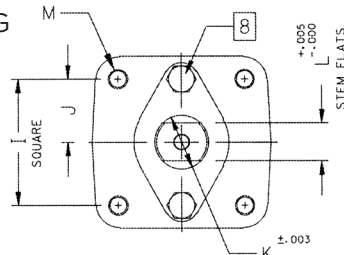
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-240-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
88L-24A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
88L-24C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

Pressure/Temperature Ratings - Page M-23, Graph No. 31

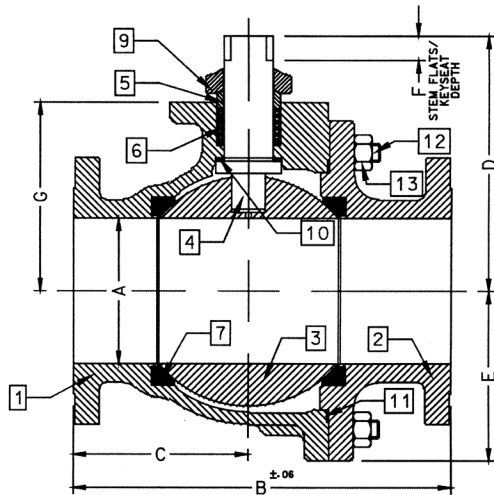
REV. 18JUL19

88L-240 SERIES

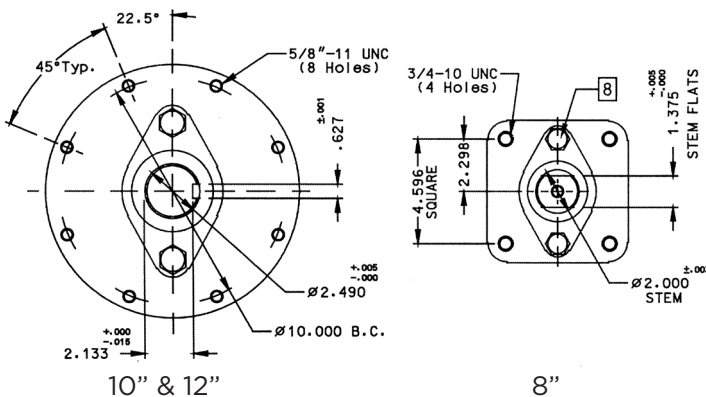
LOW TEMP. CARBON STEEL ASME CLASS 150 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

PART	MATERIAL
1	Body
2	Retainer
3	Ball
4	Stem
5	Packing Gland
6	Stem Seals
7	Seats
8	Gland Screws
9	Gland Plate
10	Stem Bearing
11	Body Seal
12	Body Joint Stud
13	Body Joint Nut



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 88L-230 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gas
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-23, Graph No. 31

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
88L-24E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
88L-24G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
88L-24H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

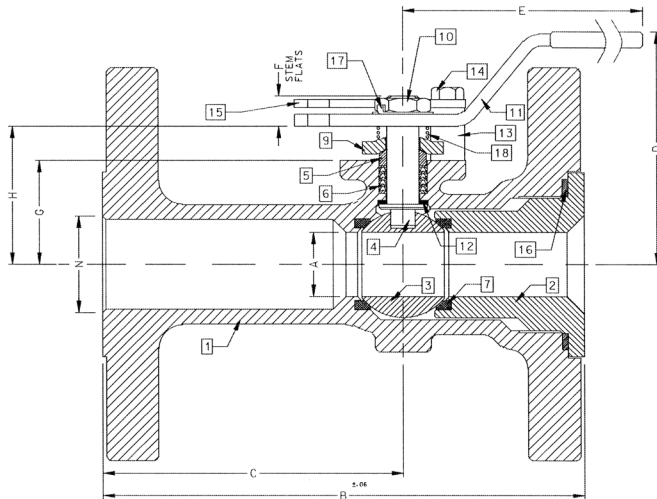
REV. 18JUL19

88L-740 SERIES

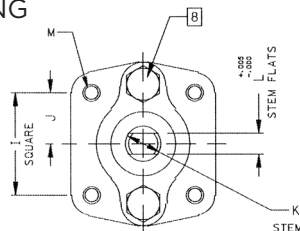
LOW TEMP. CARBON STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 88L-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-23, Graph No. 32

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-747-01	1-1/2"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	16
88L-748-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24

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88L-740 SERIES

LOW TEMP. CARBON STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 Stainless Steel

VARIATIONS AVAILABLE

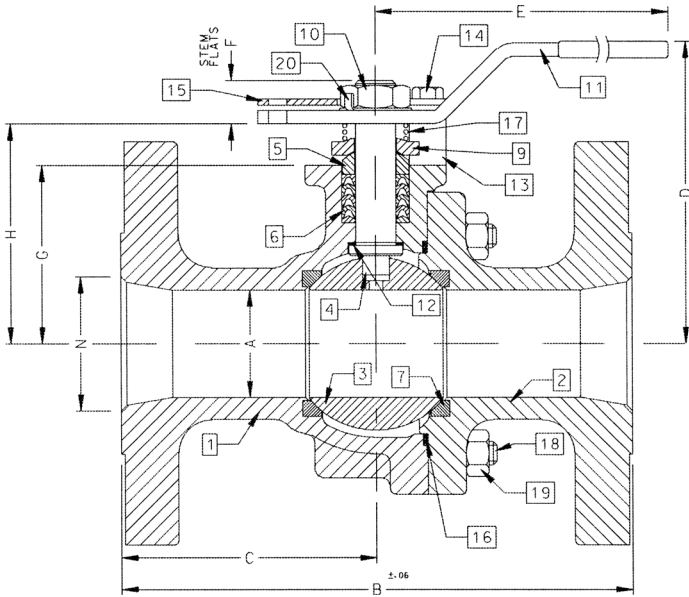
- 88L-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

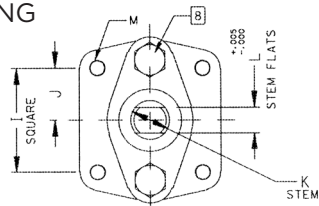
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-749-01	2-1/2"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
88L-740-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

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Pressure/Temperature Ratings - Page M-23, Graph No. 32

88L-740 SERIES

LOW TEMP. CARBON STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	316 Stainless Steel
11	Handle Adapter	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Adapter Screw	316 Stainless Steel
21	Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE

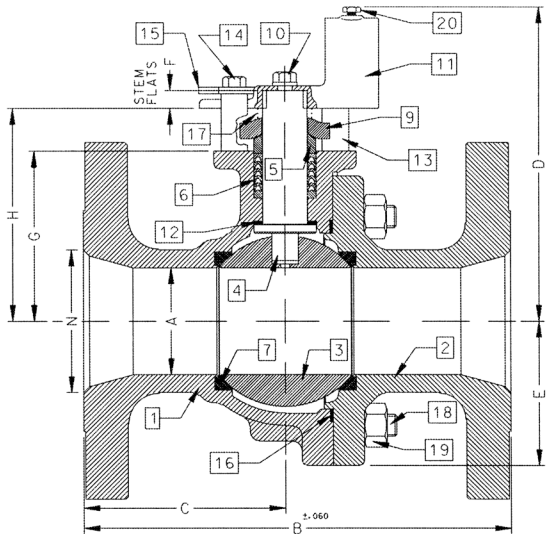
- 88L-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

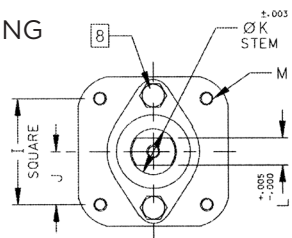
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
88L-74A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
88L-74C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
88L-74E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400

Pressure/Temperature Ratings - Page M-23, Graph No. 32

REV. 18JUL19

88L-740 SERIES

LOW TEMP. CARBON STEEL ASME CLASS 300 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

PART	MATERIAL
1	Body
2	Retainer
3	Ball
4	Stem
5	Packing Gland
6	Stem Seals
7	Seats
8	Gland Screws
9	Gland Plate
10	Stem Bearing
11	Body Seal
12	Body Joint Stud
13	Body Joint Nut

VARIATIONS AVAILABLE

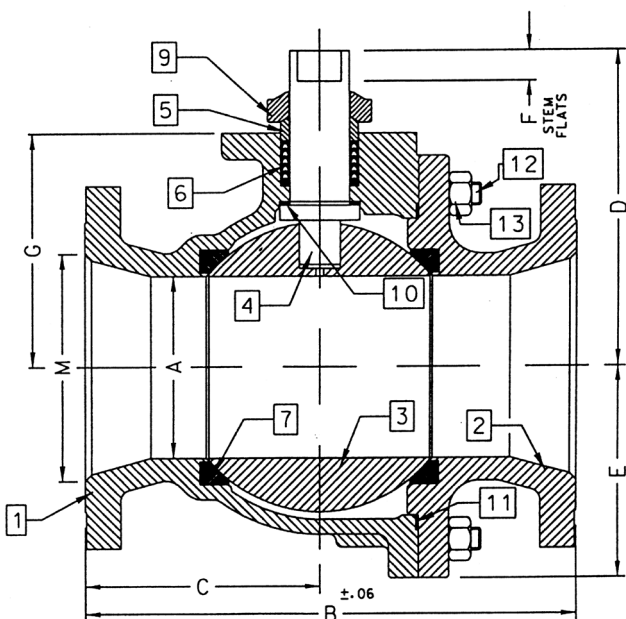
- 88L-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

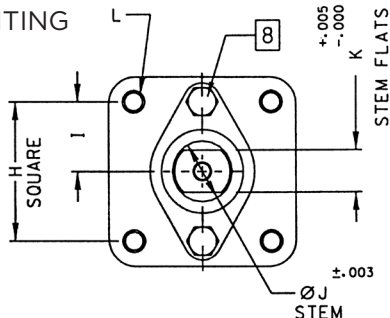
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
88L-74G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

REV. 18JUL19

Pressure/Temperature Ratings - Page M-23, Graph No. 32

88L-940 SERIES

LOW TEMP. CARBON STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

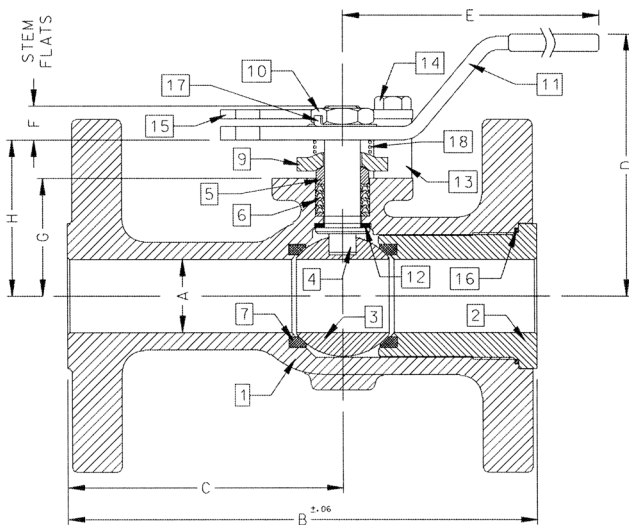
- 88L-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

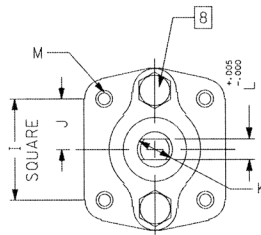
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-10-	Stainless Steel Lever and Nut
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuated)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-23, Graph No. 32

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-943-01A	1/2"	0.50	5.50	3.31	2.74	5.12	0.24	1.09	1.44	1.000	0.500	0.375	0.245	10-24	7.0
88L-944-01A	3/4"	0.75	6.00	3.56	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	9.0
88L-945-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	10.5

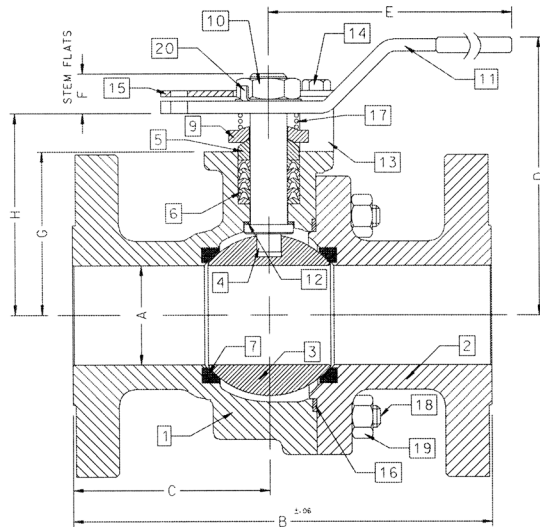
REV. 10SEP19

88L-940 SERIES

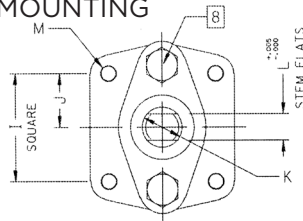
LOW TEMP. CARBON STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 Stainless Steel
10	Stem Nut	ASTM A194 Grade 8I
11	Lever	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 88L-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (up to 2")
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-23, Graph No. 32

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-947-01	1-1/2"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
88L-948-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
88L-949-01	2-1/2"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

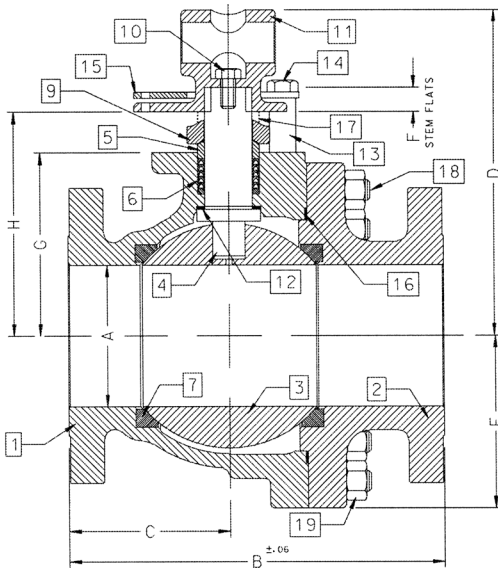
REV. 18JUL19

88L-940 SERIES

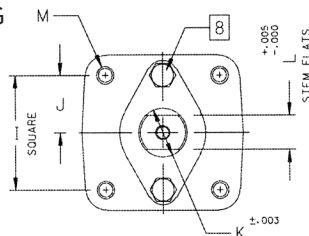
LOW TEMP. CARBON STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	316 Stainless Steel
11	Handle Adapter	ASTM A366 Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A108 Type 1215
14	Stop Screw	SAE J429 Grade 2
15	Lock Plate	ASTM A366 Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
88L-940-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
88L-94A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
88L-94C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.296	2.000	1.375	3/4-10	329

VARIATIONS AVAILABLE

- 88L-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-59-	Stainless Steel External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-23, Graph No. 32

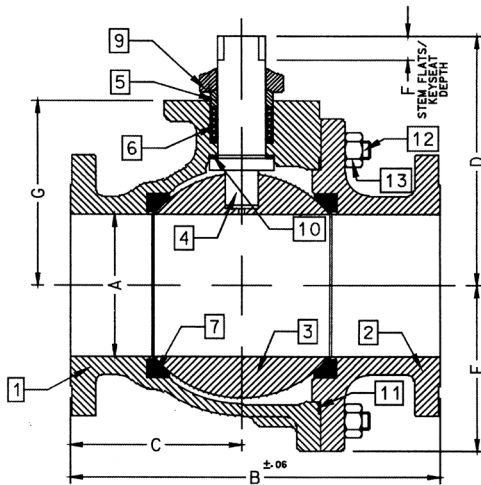


88L-940 SERIES

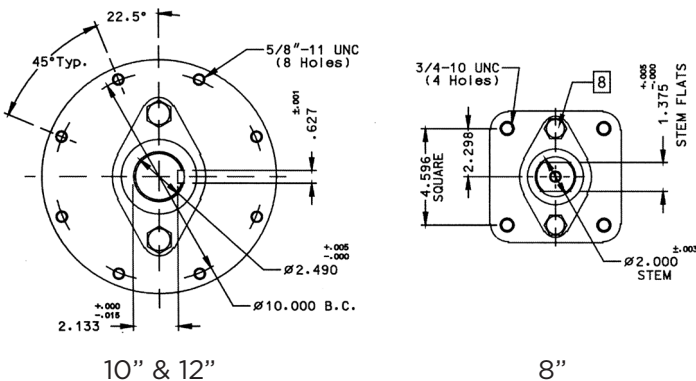
LOW TEMP. CARBON STEEL ASME CLASS 300 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A351-CF8M
4	Stem	ASTM A276-316
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 88L-930 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gas
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-23, Graph No. 32

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
88L-94E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
88L-94G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
88L-94H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

REV. 18JUL19

87A-400 SERIES

ALLOY 20 ASME CLASS 150 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

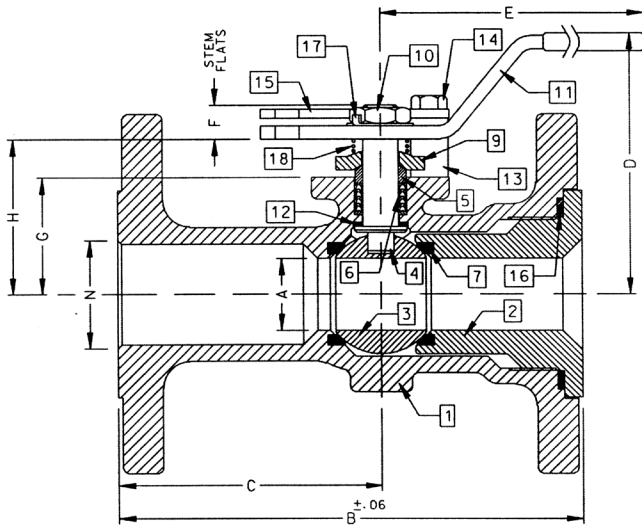
	PART	MATERIAL
1	Body	ASTM A351 CN7M
2	Retainer	ASTM B473 (UNS N08020)
3	Ball	ASTM B473 (UNS N08020)
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel
19	Grounding Spring	Inconel (not shown)

OPTIONS AVAILABLE

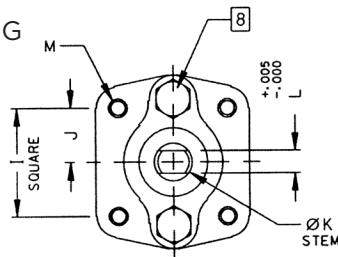
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-PM-	Positive Material Identification
-TC-	With Test Certificate
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-16, Graph No. 18

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-407-01A	1-1/2"	1.00	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87A-408-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

REV. 18JUL19

87A-400 SERIES

ALLOY 20 ASME CLASS 150 FLANGED STD. PORT BALL VALVE
3"

STANDARD MATERIAL LIST

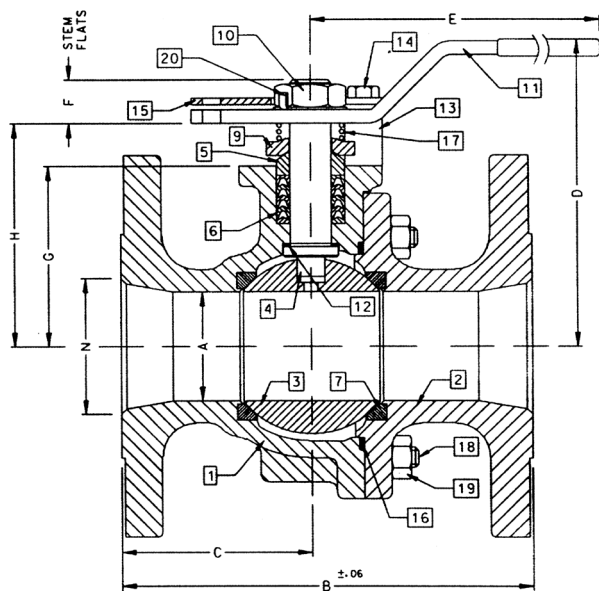
	PART	MATERIAL
1	Body	ASTM A351 CN7M
2	Retainer	ASTM A351 CN7M
3	Ball	ASTM B473 (UNS N08020) or CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel
21	Grounding Spring	Inconel (not shown)

OPTIONS AVAILABLE

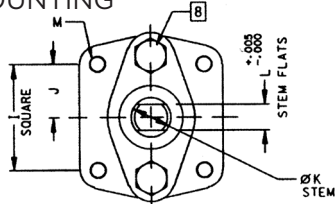
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-400-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34.3

REV. 18JUL19

Pressure/Temperature Ratings - Page M-16, Graph No. 18

87A-400 SERIES

ALLOY 20 ASME CLASS 150 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

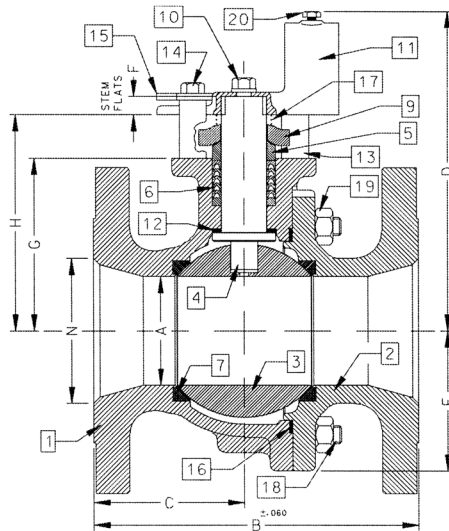
PART	MATERIAL	
1	Body	ASTM A351 CN7M
2	Retainer	ASTM A351 CN7M
3	Ball	ASTM B473 (UNS N08020) or CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Adapter Screw	18-8 Stainless Steel
21	Pipe Handle	Galvanized Steel (not shown)
22	Grounding Spring	Inconel (not shown)

OPTIONS AVAILABLE

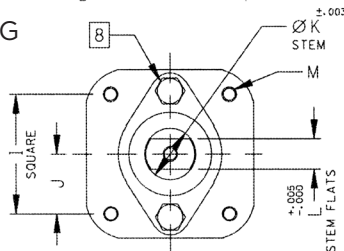
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87A-40A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
87A-40C-01	6"	4.00	10.50	4.69	9.99	5.13	.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
87A-40E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310

Pressure/Temperature Ratings - Page M-16, Graph No. 18

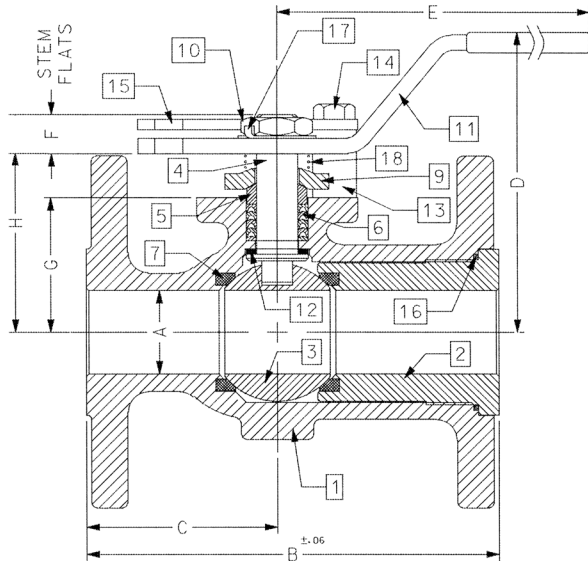
REV. 18JUL19

87A-500 SERIES

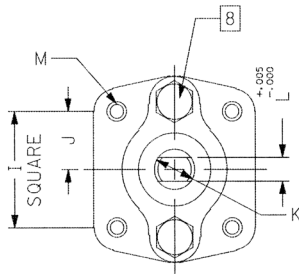
ALLOY 20 ASME CLASS 150 FLANGED FULL.. PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CN7M
2	Retainer	ASTM B473 (UNS N08020)
3	Ball	ASTM B473 (UNS N08020)
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel
19	Grounding Spring	Inconel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-503-01A	1/2"	0.50	4.25	2.06	2.74	5.12	0.24	1.09	1.44	1.000	0.500	0.375	0.245	10-24	5
87A-504-01A	3/4"	0.75	4.62	2.18	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	6
87A-505-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

REV. 10SEP19

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	Alloy 20 Spiral Wound Gaskets with PTFE Filler
-74-	Alloy 20 Spiral Wound Gaskets with Graphite Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

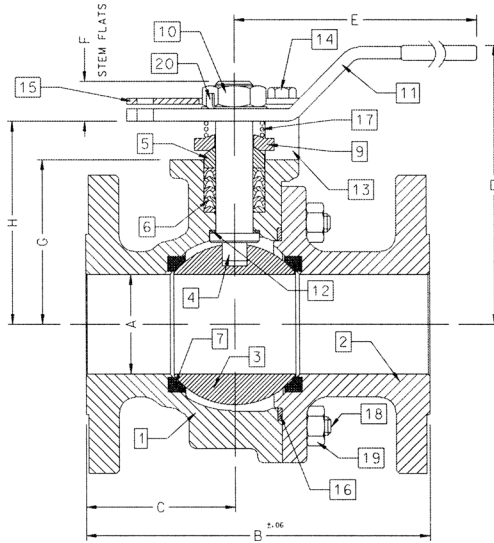
Pressure/Temperature Ratings - Page M-16, Graph No. 18

87A-500 SERIES

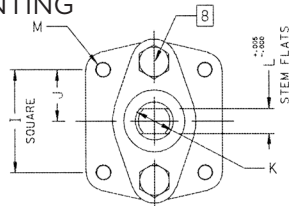
ALLOY 20 ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

PART	PART	MATERIAL
1	Body	ASTM A351 CN7M
2	Retainer	ASTM A351 CN7M
3	Ball	ASTM B473 (UNS N08020) or A351 CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel
21	Grounding Spring	Inconel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-507-01	1-1/2"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
87A-508-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
87A-509-01	2-1/2"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	Alloy 20 Spiral Wound Gaskets with PTFE Filler
-74-	Alloy 20 Spiral Wound Gaskets with Graphite Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

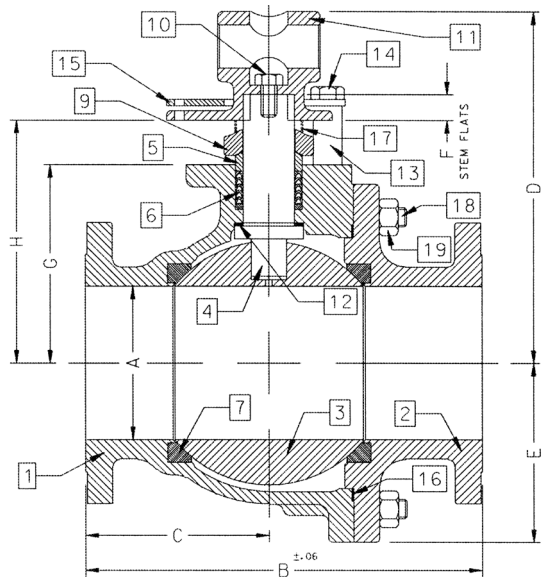
Pressure/Temperature Ratings - Page M-16, Graph No. 18

87A-500 SERIES

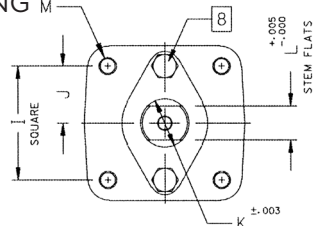
ALLOY 20 ASME CLASS 150 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A351 CN7M
2	Retainer	ASTM A351 CN7M
3	Ball	ASTM B473 (UNS N08020 or A351 CN7M)
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)
21	Grounding Spring	Inconel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-500-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
87A-50A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
87A-50C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

REV. 08JUL19

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Fire Safe (Graphite Packing and Seal)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	Extended Bonnet
-73-	Alloy 20 Spiral Wound Gaskets with PTFE Filler
-74-	Alloy 20 Spiral Wound Gaskets with Graphite Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-16, Graph No. 18

87H-100 SERIES

HASTELLOY C ASME CLASS 150 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

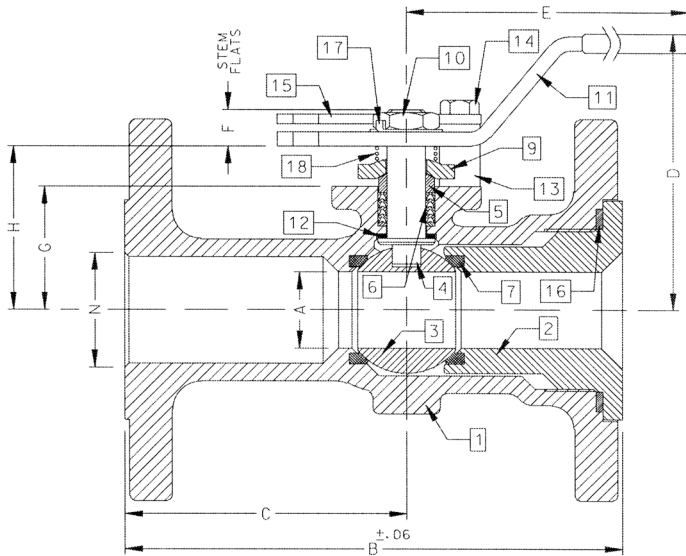
	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Hastelloy C

OPTIONS AVAILABLE

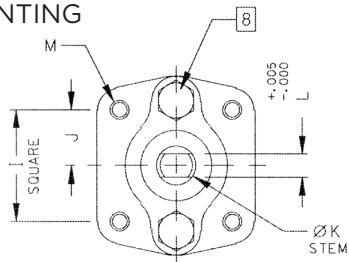
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plug
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87H-107-01	1-1/2"	1.25	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87H-108-01	2"	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18

Pressure/Temperature Ratings - Page M-32, Graph No. 48

87H-100 SERIES

HASTELLOY C ASME CLASS 150 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

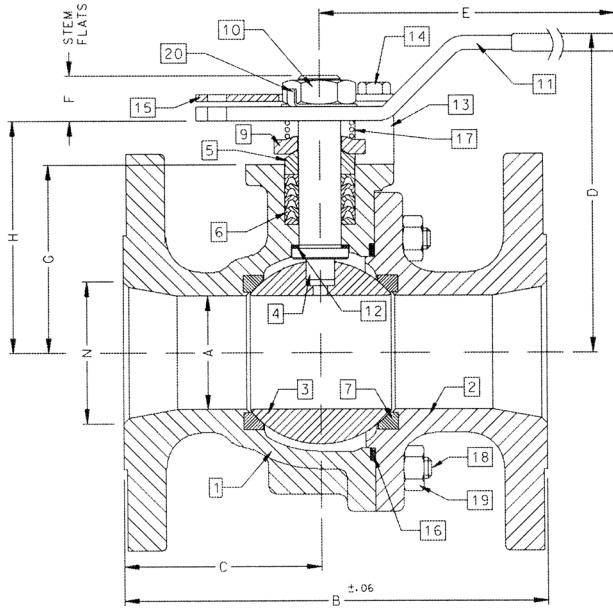
	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Hastelloy C
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel

OPTIONS AVAILABLE

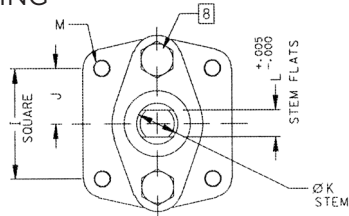
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87H-109-01	2-1/2"	2.00	7.50	3.50	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	27
87H-100-01	3"	2.50	8.00	3.51	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	34

Pressure/Temperature Ratings - Page M-32, Graph No. 48

87H-100 SERIES

HASTELLOY C ASME CLASS 150 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

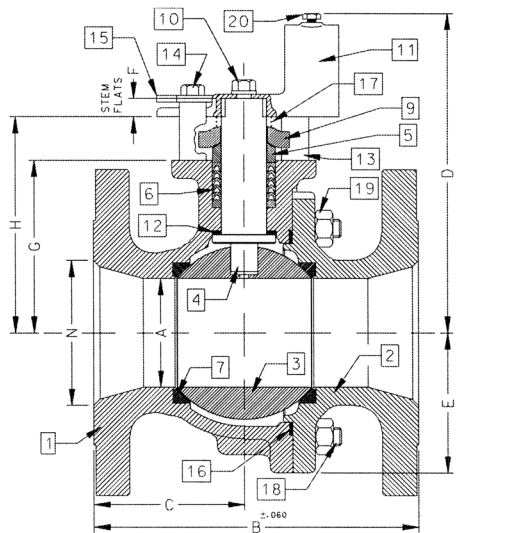
	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Hastelloy C
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel
21	Pipe Handle	Galvanized Steel (not Shown)

OPTIONS AVAILABLE

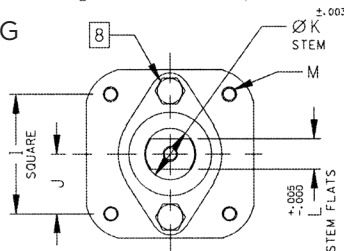
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned for Industrial Gases
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87H-10A-01	4"	3.00	9.00	4.18	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	73
87H-10C-01	6"	4.00	10.50	4.69	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	117
87H-10E-01	8"	6.00	18.00	9.00	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	310

Pressure/Temperature Ratings - Page M-32, Graph No. 48

87H-100 SERIES

HASTELLOY C ASME CLASS 150 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

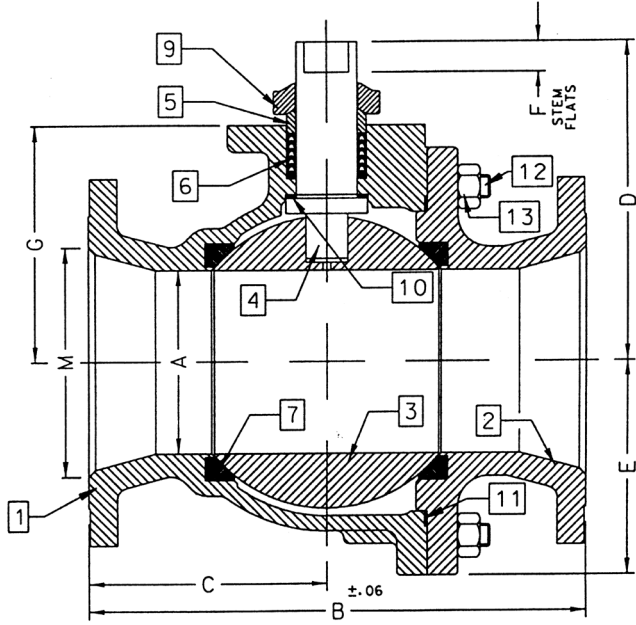
PART	MATERIAL
1	Body
2	Retainer
3	Ball
4	Stem
5	Packing Gland
6	Stem Seals
7	Seats
8	Gland Screws
9	Gland Plate
10	Stem Bearing
11	Body Seal
12	Body Joint Stud
13	Body Joint Nut

OPTIONS AVAILABLE

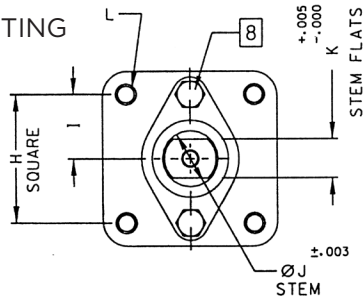
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87H-10G-01	10"	8.00	21.00	10.37	12.83	9.18	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00	526

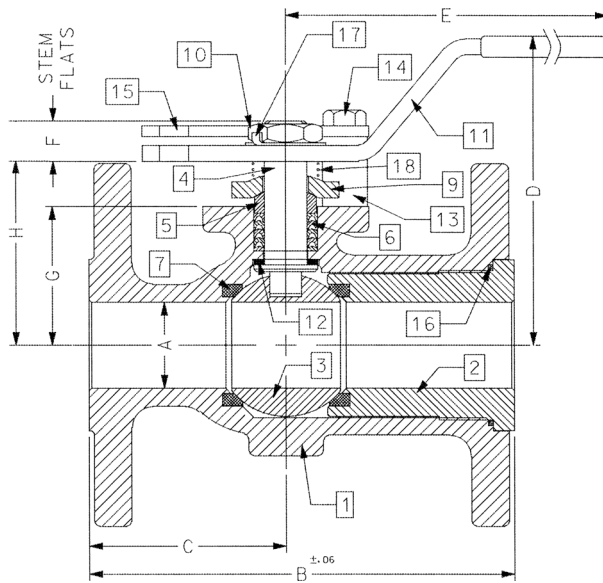
Pressure/Temperature Ratings - Page M-32, Graph No. 48

87H-200 SERIES

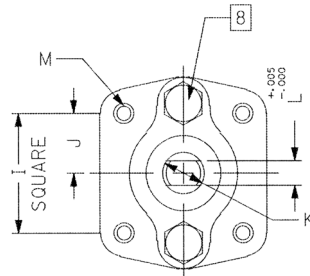
HASTELLOY C ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM 1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Hastelloy C



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87H-203-01A	1/2"	0.50	4.25	2.06	2.74	5.12	0.24	1.09	1.44	1.00	0.500	0.375	0.245	10-24	5
87H-204-01A	3/4"	0.75	4.62	2.18	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.312	1/4-20	6
87H-205-01	1"	1.00	5.00	2.32	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	7

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

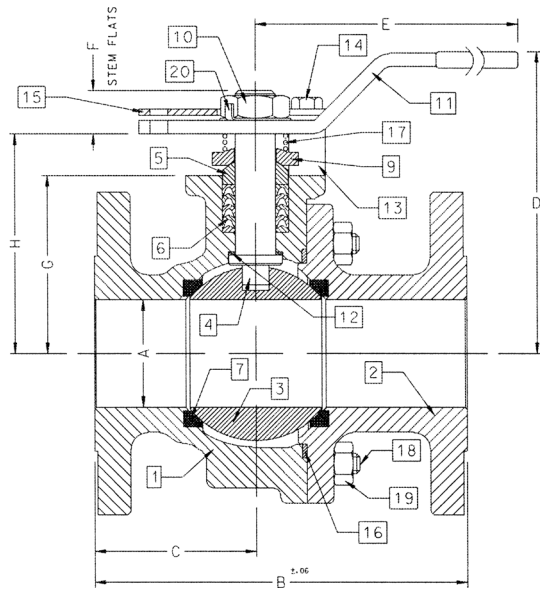
Pressure/Temperature Ratings - Page M-32, Graph No. 48

87H-200 SERIES

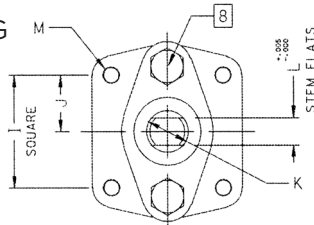
HASTELLOY C ASME CLASS 150 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Hastelloy C
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87H-207-01	1-1/2"	1.50	6.50	3.00	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	14
87H-208-01	2"	2.00	7.00	3.04	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	25
87H-209-01	2-1/2"	2.50	7.50	3.34	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	30

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (up to 2-1/2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-MG-	Gear Operator with Standard Handwheel
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

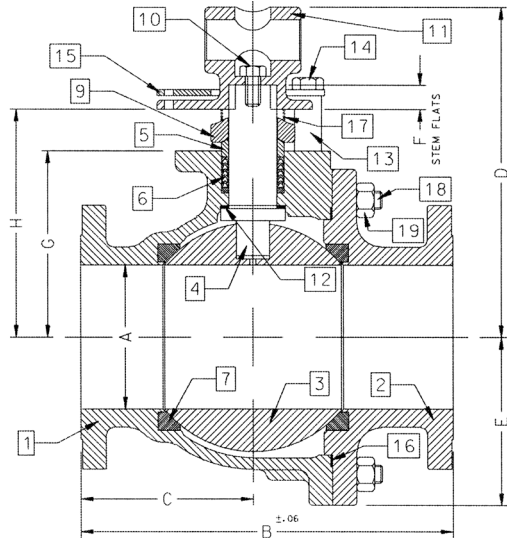
Pressure/Temperature Ratings - Page M-32, Graph No. 48

87H-200 SERIES

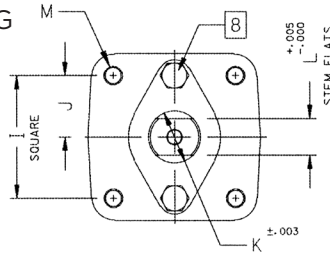
HASTELLOY C ASME CLASS 150 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Hastelloy C
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87H-200-01	3"	3.00	8.00	3.68	8.80	3.88	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	60
87H-20A-01	4"	4.00	9.00	3.94	9.99	5.13	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	91
87H-20C-01	6"	6.00	15.50	7.19	13.73	7.00	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	248

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

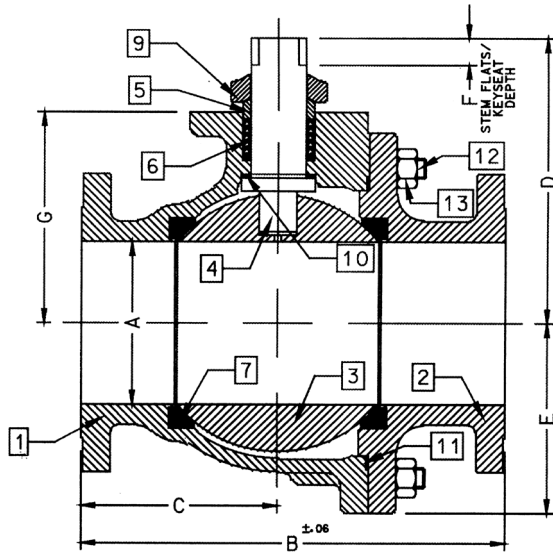
Pressure/Temperature Ratings - Page M-32, Graph No. 48

87H-200 SERIES

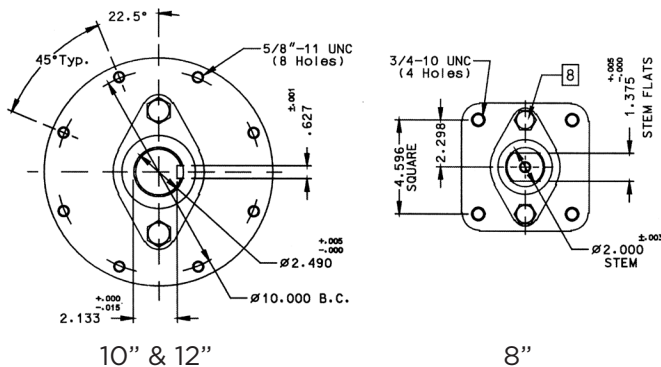
HASTELLOY C ASME CLASS 150 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-32, Graph No. 48

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
87H-20E-01	8"	8.00	18.00	8.88	12.83	9.18	1.00	10.22
87H-20G-01	10"	10.00	21.00	10.26	18.57	11.33	2.31	12.80
87H-20H-01	12"	12.00	24.00	12.09	20.31	13.40	2.31	14.92

87A-600 SERIES

ALLOY 20 ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1/2" THRU 1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CN7M
2	Retainer	ASTM B473 (UNS N08020)
3	Ball	ASTM B473 (UNS N08020)
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Stainless Steel

VARIATIONS AVAILABLE

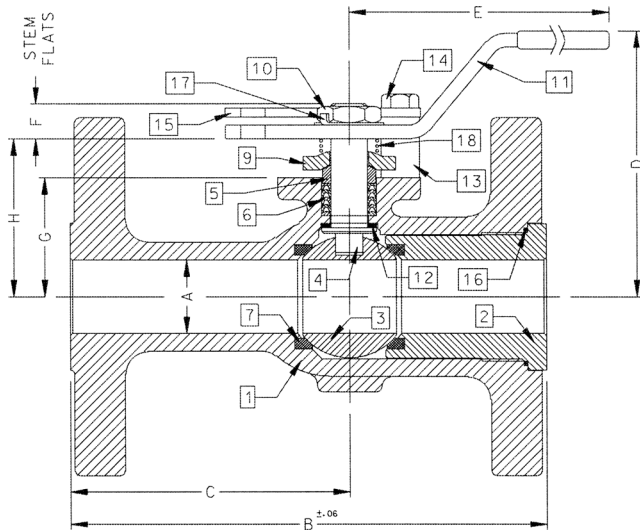
- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

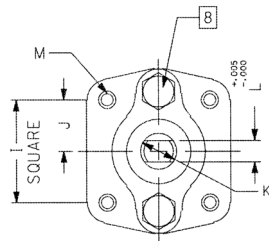
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EF-	Graphite Packing (API 641 Compliant) (Not Available on 1/2" Size)
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-31, Graph No. 47

DIMENSIONS

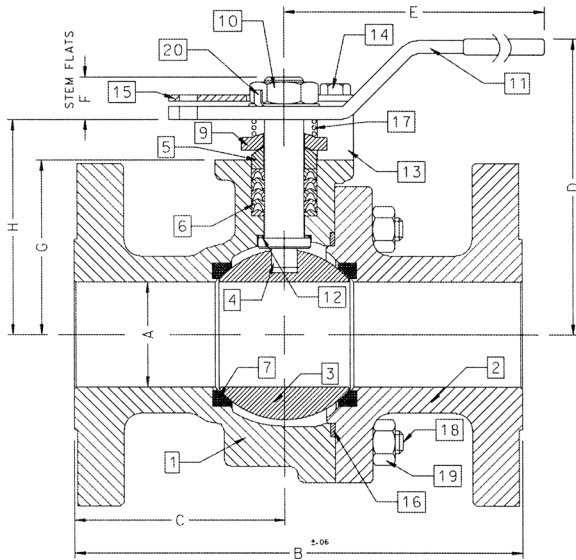
PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-603-01A	1/2"	0.50	5.50	3.31	2.74	5.12	0.24	1.09	1.44	1.000	0.500	0.375	0.245	10-24	6
87A-604-01A	3/4"	0.75	6.00	3.56	3.43	5.54	0.22	1.65	2.13	1.392	0.696	0.500	0.287	1/4-20	9
87A-605-01	1"	1.00	6.50	3.82	4.62	6.53	0.47	1.62	2.15	1.392	0.696	0.500	0.287	1/4-20	11

87A-600 SERIES

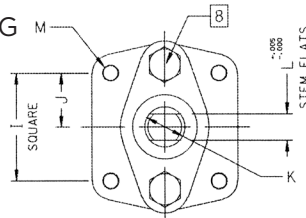
ALLOY 20 ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CN7M
2	Retainer	ASTM A351 CN7M
3	Ball	ASTM B473 (UNS N08020) or CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-607-01	1-1/2"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
87A-608-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
87A-609-01	2-1/2"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87M - Monel
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

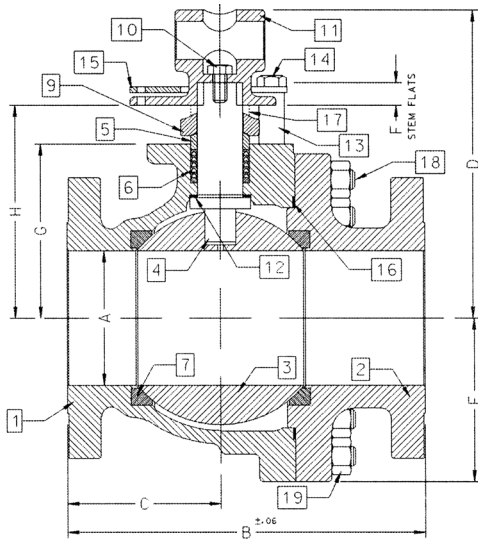
Pressure/Temperature Ratings - Page M-31, Graph No. 47

87A-600 SERIES

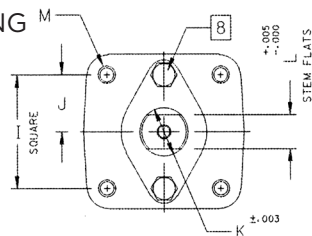
ALLOY 20 ASME CLASS 300 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

PART	MATERIAL	
1	Body	ASTM A351 CN7M
2	Retainer	ASTM A351 CN7M
3	Ball	ASTM B473 (UNS N08020) or CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Stainless Steel
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-31, Graph No. 47

DIMENSIONS

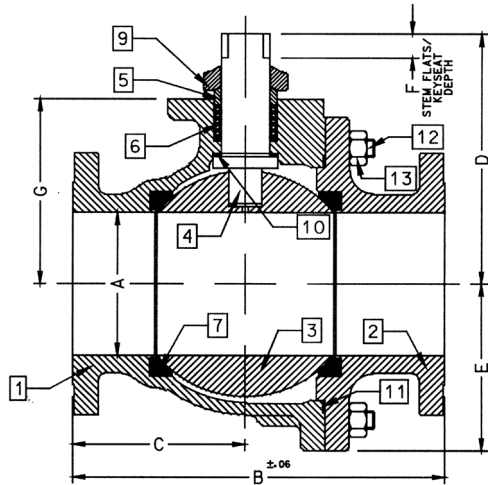
PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87A-600-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
87A-60A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
87A-60C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	329

87A-600 SERIES

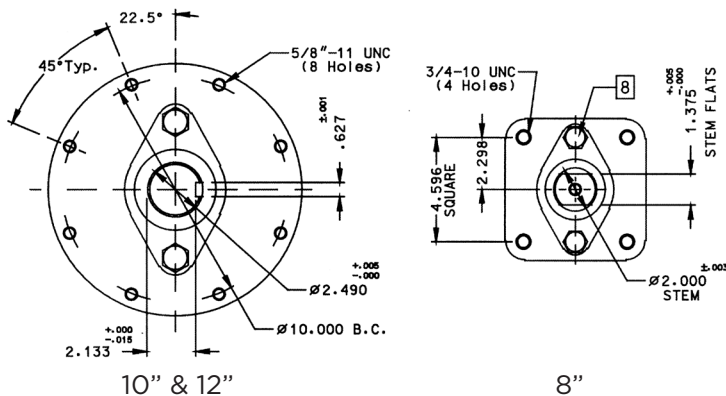
ALLOY 20 ASME CLASS 300 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351 CN7M
2	Retainer	ASTM A351 CN7M
3	Ball	ASTM B473 (UNS N08020) or CN7M
4	Stem	ASTM B473 (UNS N08020)
5	Packing Gland	ASTM A276 Type 316
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



VARIATIONS AVAILABLE

- 87H - Hastelloy
- 87N - Nickel
- 87S - 304L Stainless Steel

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-31, Graph No. 47

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G
87A-60E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
87A-60G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
87A-60H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

87H-700 SERIES

HASTELLOY C ASME CLASS 300 FLANGED STD. PORT BALL VALVE
1-1/2" THRU 2"

STANDARD MATERIAL LIST

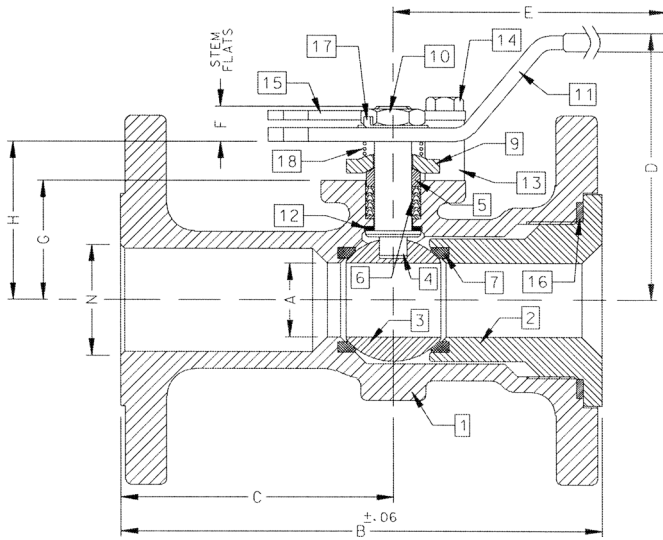
	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 & 304 Stainless Steel
10	Stem Nut	316 Stainless Steel
11	Lever	302 & 304 Stainless Steel with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 Stainless Steel
18	Grounding Spring	Hastelloy C

OPTIONS AVAILABLE

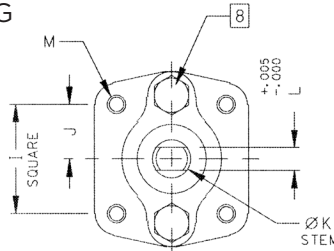
(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (See Page J-2)
-15-	Wheel Handle, Steel
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-32, Graph No. 49

DIMENSIONS

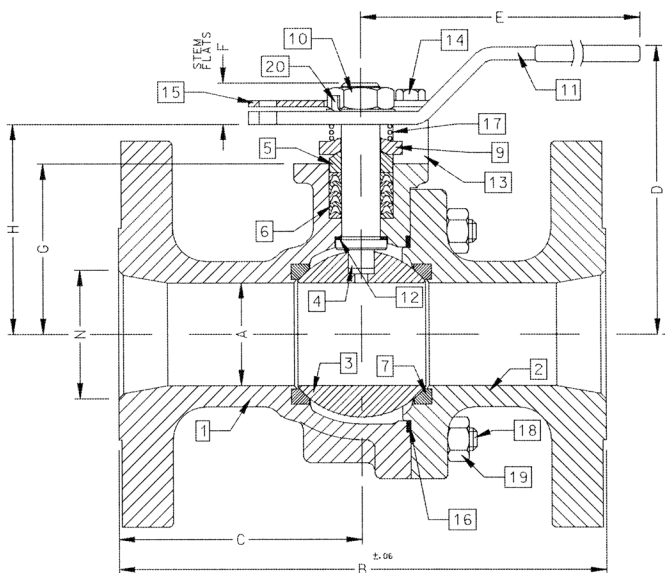
PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87H-707-01A	1-1/2"	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	15.7
87H-708-01	2"	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24.0

87H-700 SERIES

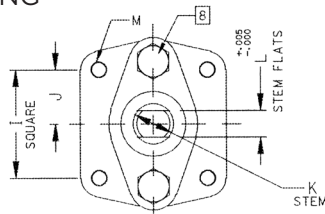
HASTELLOY C ASME CLASS 300 FLANGED STD. PORT BALL VALVE
2-1/2" THRU 3"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Hastelloy C
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87H-709-01	2-1/2"	2.00	9.50	4.75	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	2.50	39
87H-700-01	3"	2.50	11.12	5.56	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	3.00	55

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (2-1/2" only)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

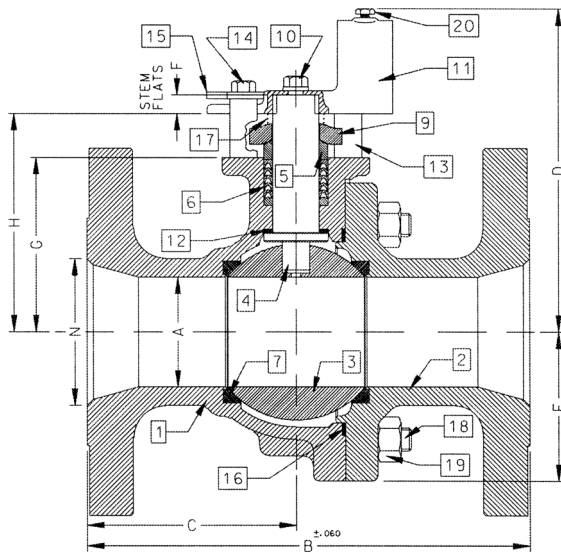
Pressure/Temperature Ratings - Page M-32, Graph No. 49

87H-700 SERIES

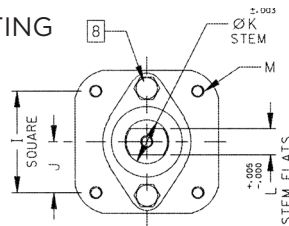
HASTELLOY C ASME CLASS 300 FLANGED STD. PORT BALL VALVE
4" THRU 8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Hastelloy C
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Adapter Screw	18-8 Stainless Steel
21	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	WT.
87H-70A-01	4"	3.00	12.00	5.68	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	4.00	95
87H-70C-01	6"	4.00	15.88	7.38	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	6.00	187
87H-70E-01	8"	6.00	19.75	9.00	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	8.00	400

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

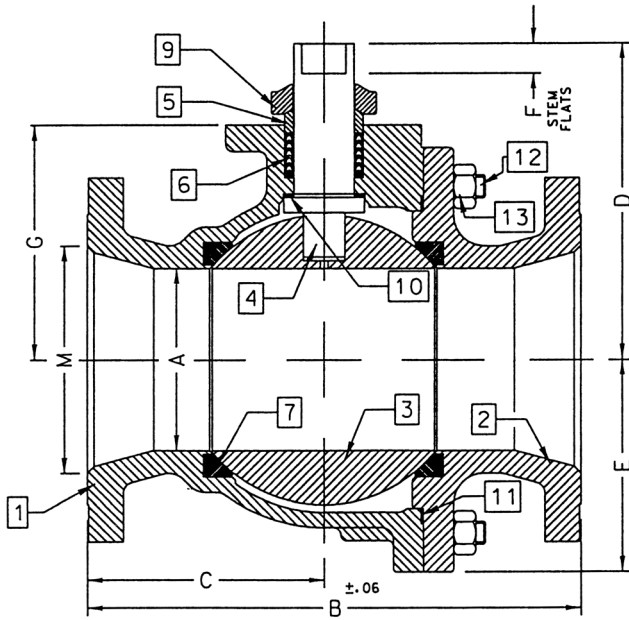
Pressure/Temperature Ratings - Page M-32, Graph No. 49

87A-700 SERIES

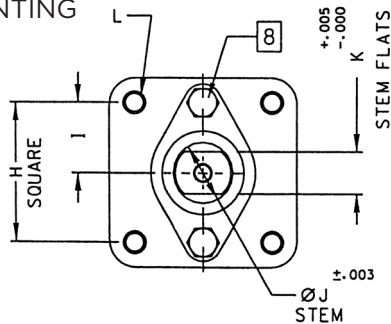
HASTELLOY C ASME CLASS 300 FLANGED STD. PORT BALL VALVE
10"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
87H-70G-01	10"	8.00	22.38	10.69	12.83	9.56	1.00	10.22	4.596	2.298	2.000	1.375	3/4-10	10.00

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration (Less Gear Operator)
-14-	Side Vented Ball (See Page J2)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-77-	Live Loaded 87A/88A Series (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

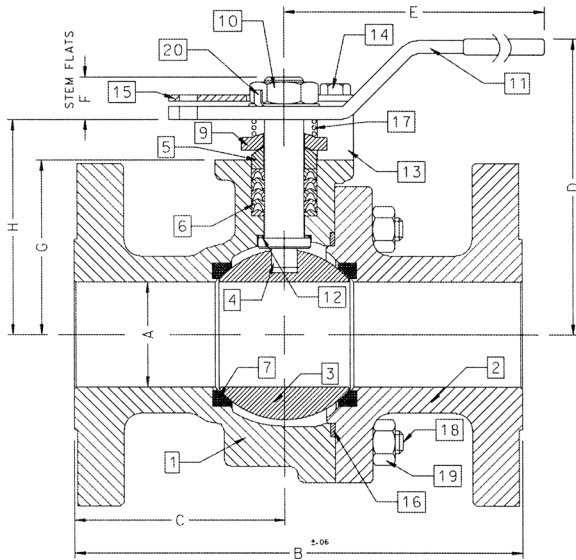
Pressure/Temperature Ratings - Page M-32, Graph No. 49

87H-900 SERIES

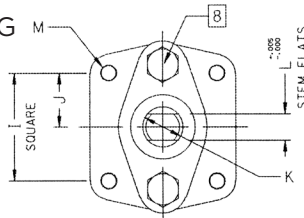
HASTELLOY C ASME CLASS 300 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Nut	18-8 Stainless Steel
11	Lever	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Hastelloy C
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87H-907-01	1-1/2"	1.50	7.50	3.50	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	21
87H-908-01	2"	2.00	8.50	4.00	5.61	8.41	0.80	3.31	4.08	1.949	0.974	0.750	0.477	5/16-18	37
87H-909-01	2-1/2"	2.50	9.50	4.44	6.24	8.41	0.80	3.94	4.71	1.949	0.974	0.750	0.477	5/16-18	57

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OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated)
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

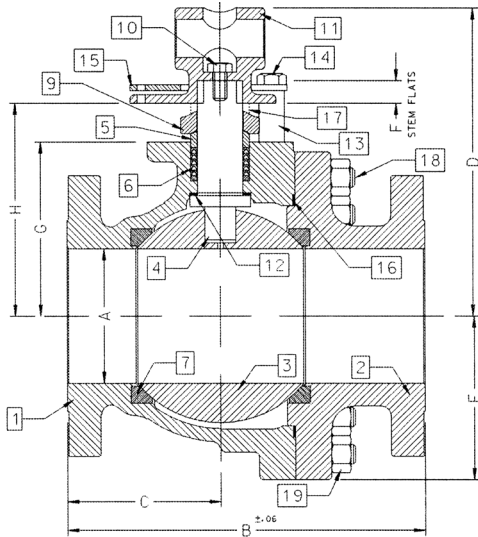
Pressure/Temperature Ratings - Page M-32, Graph No. 49

87H-900 SERIES

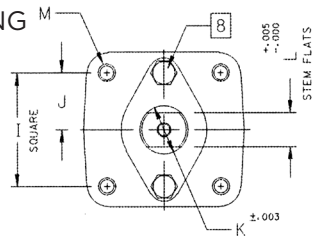
HASTELLOY C ASME CLASS 300 FLANGED FULL PORT BALL VALVE
3" THRU 6"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Adapter Screw	18-8 Stainless Steel
11	Handle Adapter	316 Stainless Steel
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 Stainless Steel
15	Lock Plate	302 or 304 Stainless Steel
16	Body Seal	RPTFE
17	Grounding Spring	Hastelloy C
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	WT.
87H-900-01	3"	3.00	11.12	5.24	8.80	4.06	0.50	4.75	5.95	2.840	1.420	1.250	0.725	3/8-16	78
87H-90A-01	4"	4.00	12.00	5.44	9.99	5.25	0.50	5.94	7.13	2.840	1.420	1.250	0.725	3/8-16	133
87H-90C-01	6"	6.00	15.88	6.82	13.73	7.30	1.00	7.75	9.48	4.596	2.298	2.000	1.375	3/4-10	329

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-38-	PEEK Seats and Graphite Packing (3" Only)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-73-	316 Stainless Steel Spiral Wound Gaskets with PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

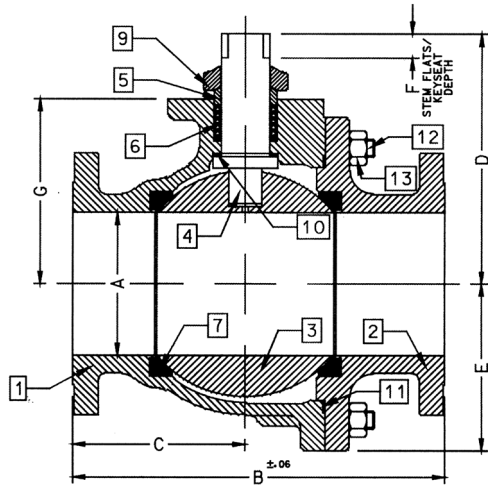
Pressure/Temperature Ratings - Page M-32, Graph No. 49

87H-900 SERIES

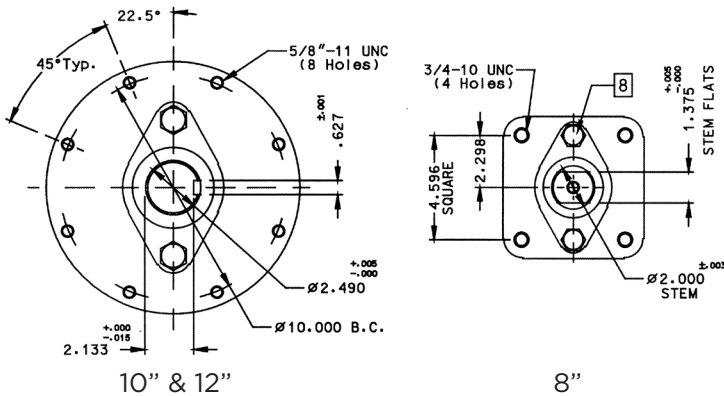
HASTELLOY C ASME CLASS 300 FLANGED FULL PORT BALL VALVE
8" THRU 12"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A494-CW12MW
2	Retainer	ASTM A494-CW12MW
3	Ball	ASTM B574-C276
4	Stem	ASTM B574-C276
5	Packing Gland	ASTM B574-C276
6	Stem Seals	PTFE
7	Seats	TFM1700
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 Stainless Steel
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Minimum quantities apply.
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-35-	PTFE Seats and Seals
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-69-	Drilled and Tapped Purge Ports with Plugs
-70-	4" Extended Bonnet (8" Only)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UA-	AIS (American Iron & Steel) Compliant
-UL-	UL & CSA Listed (with Markings)
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-32, Graph No. 49

DIMENSIONS

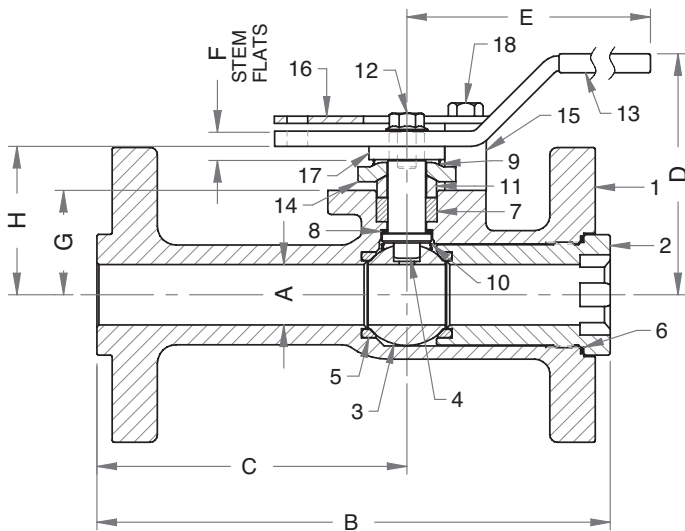
PART NO.	SIZE	A	B	C	D	E	F	G
87H-90E-01	8"	8.00	19.75	9.38	12.83	9.56	1.00	10.22
87H-90G-01	10"	10.00	22.38	10.95	18.57	11.33	2.31	12.80
87H-90H-01	12"	12.00	25.50	12.84	20.31	13.40	2.31	14.92

87A-F00 SERIES

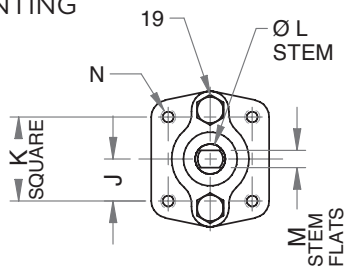
STAINLESS STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A351-CF8M or ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A276 Type 316
12	Stem Screw	Steel Zinc Plated
13	Lever & Grip	316 Stainless Steel with Vinyl Grip
14	Gland Plate	316 Stainless Steel
15	Stops	ASTM A276 Type 316
16	Lock Plate	302 or 304 Stainless Steel
17	Spacer	ASTM A276 type 316
18	Stop Screws	316 Stainless Steel
19	Gland Plate Screws	ASTM A193-B8



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
87A-F05-XX	1"	1.00	8.50	5.13	3.99	6.65	0.45	a1.730	2.460	0.98	1.95	0.625	0.412	5/16-18	13.0

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (1" - 2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-25, Graph No. 34

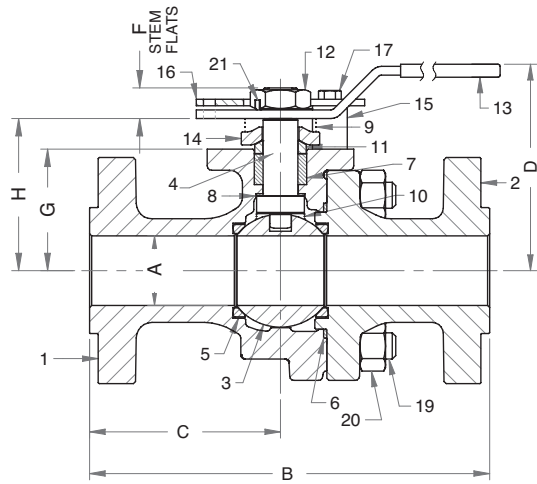
REV. 08JUL19

87A-F00 SERIES

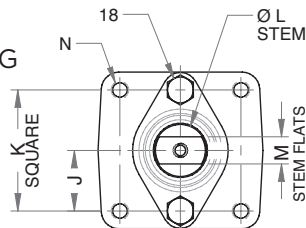
STAINLESS STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	Retainer	ASTM A351-CF8M
3	Ball	ASTM A351-CF8M or ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A276 Type 316
12	Stem Nut	ASTM A194 Grade 8
13	Lever & Grip	316 Stainless Steel with Vinyl Grip
14	Gland Plate	316 Stainless Steel
15	Stops	ASTM A276 Type 316
16	Lock Plate	302 or 304 Stainless Steel
17	Stop Screws	18-8 Stainless Steel
18	Gland Plate Screws	ASTM A193-B8
19	Body Joint Stud	ASTM A193-B8 Grade B8M
20	Body Joint Nut	ASTM A194-Grade 8
21	Lock Washer	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
87A-F07-XX	1-1/2"	1.50	9.50	3.62	5.03	8.40	0.74	2.730	3.500	0.98	1.95	0.750	0.477	5/16-18	31.5
87A-F08-XX	2"	2.00	11.50	5.49	6.06	12.06	0.84	3.490	4.370	1.42	2.84	1.000	0.620	3/8-16	53.0
87A-F09-XX	2-1/2"	2.50	13.00	6.02	6.63	12.06	0.84	4.190	5.070	1.42	2.84	1.000	0.620	3/8-16	65.0

REV. 08JUL19

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (1" - 2")
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-25, Graph Nos. 34 & 35

87A-F00 SERIES

STAINLESS STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
3" THRU 4"

STANDARD MATERIAL LIST

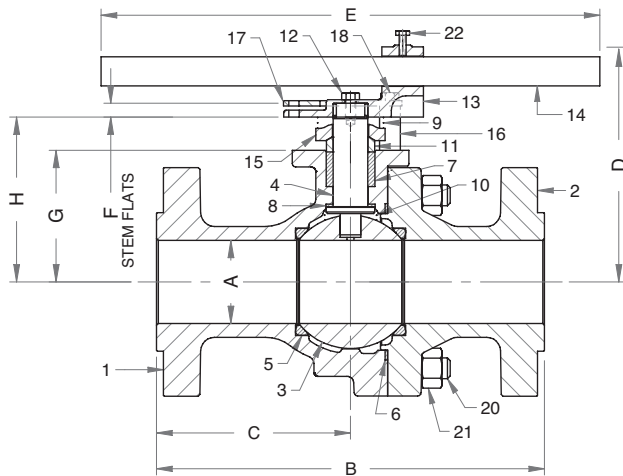
	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	Retainer	ASTM A351-CF8M
3	Ball	ASTM A351-CF8M or ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A276 Type 316
12	Stem Screw	304 Stainless Steel
13	Handle Adapter	316 Stainless Steel
14	Pipe Handle	Galvanized Steel
15	Gland Plate	ASTM A351-CF8M
16	Stops	ASTM A276 Type 316
17	Lock Plate	302 or 304 Stainless Steel
18	Stop Screws	18-8 Stainless Steel
19	Gland Plate Screws	ASTM A193-B8
20	Body Joint Stud	ASTM A193-B8M
21	Body Joint Nut	ASTM A194 Grade 8
22	Adapter Screw	18-8 Stainless Steel

OPTIONS AVAILABLE

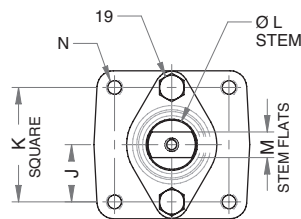
(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
87A-F00-XX	3"	3.00	14.00	7.00	8.55	18.00	0.50	4.750	5.946	1.42	2.84	1.250	0.725	3/8-16	101.0
87A-F0A-XX	4"	4.00	17.00	7.19	11.20	34.00	0.75	6.630	8.081	1.74	3.48	1.500	0.780	1/2-13	194.0

Pressure/Temperature Ratings - Page M-25, Graph No. 35

REV. 08JUL19

87A-F00 SERIES

STAINLESS STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
6"

STANDARD MATERIAL LIST

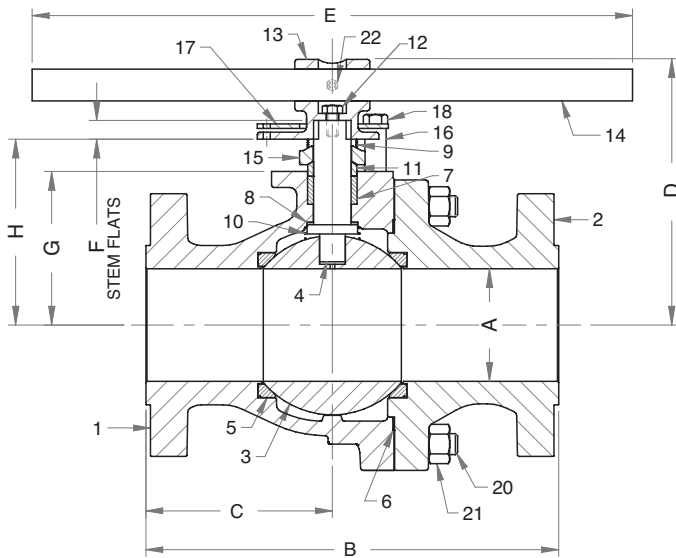
PART	MATERIAL	
1	Body	ASTM A351-CF8M
2	Retainer	ASTM A351-CF8M
3	Ball	ASTM A351-CF8M or ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A276 Type 316
12	Stem Screw	304 Stainless Steel
13	Handle Adapter	316 Stainless Steel
14	Pipe Handle	Galvanized Steel
15	Gland Plate	316 Stainless Steel
16	Stops	ASTM A276 Type 316
17	Lock Plate	302 or 304 Stainless Steel
18	Stop Screws	316 Stainless Steel
19	Gland Plate Screws	ASTM A193-B8
20	Body Joint Stud	ASTM A193-B8M
21	Body Joint Nut	ASTM A194 Grade 8
22	Adapter Screw	18-8 Stainless Steel

OPTIONS AVAILABLE

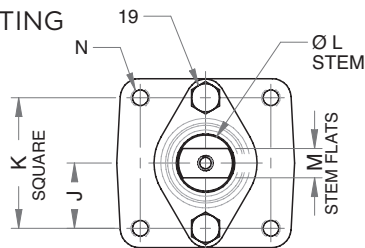
(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below.
- NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
87A-F0C-XX	6"	6.00	22.00	9.94	14.17	45.00	1.00	8.190	9.915	2.298	4.59	2.00	1.375	3/4-10	500.0

REV. 08JUL19

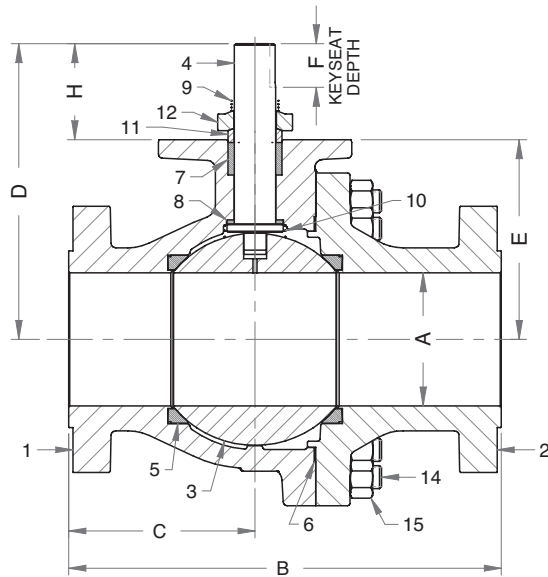
Pressure/Temperature Ratings - Page M-26, Graph No. 36

87A-F00 SERIES

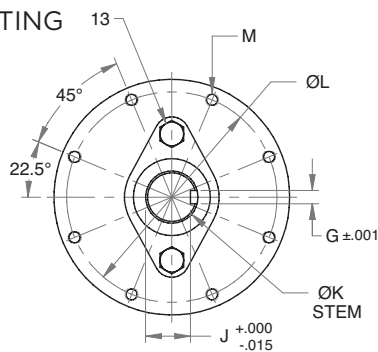
STAINLESS STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
8"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	Retainer	ASTM A351-CF8M
3	Ball	ASTM A351-CF8M or ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A276 Type 316
12	Gland Plate	316 Stainless Steel
13	Gland Plate Screws	ASTM A193-B8
14	Body Joint Stud	ASTM A193 Grade B8M
15	Body Joint Nut	ASTM A194 Grade 8



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
87A-F0E-XX	8"	8.00	26.00	11.20	17.77	12.00	2.25*	0.627	5.77	2.133	2.49	10.00	5/8-11	920.0

*Keyway Length

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional)
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-57-	Oxygen Cleaned
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-26, Graph No. 36

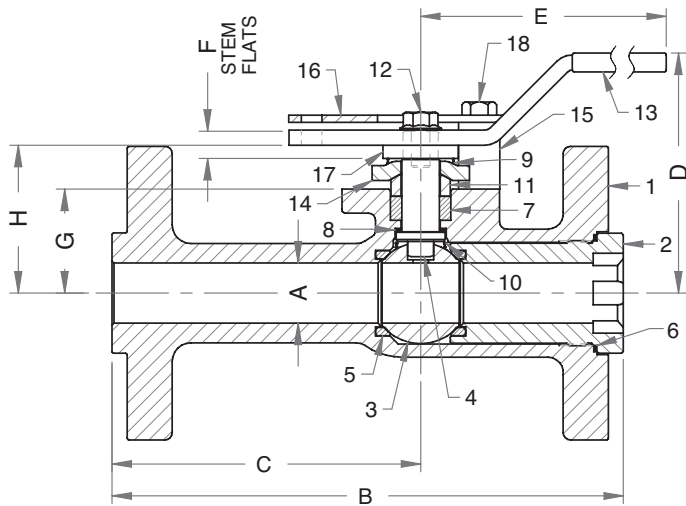
REV. 08JUL19

88A-F00 SERIES

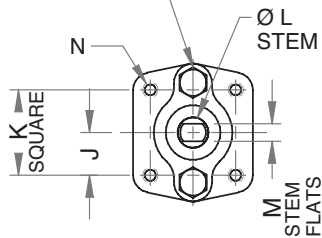
CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	Retainer	ASTM A108 Type 1018
3	Ball	ASTM A108 Type 1215 Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A108 Type 1215
12	Stem Screw	Steel Zinc Plated
13	Lever & Grip	ASTM A366 Steel with Vinyl Grip
14	Gland Plate	302 or 304 Stainless Steel
15	Stops	ASTM A108 Type 1215
16	Lock Plate	ASTM A366 Steel
17	Spacer	ASTM A276 Type 316
18	Stop Screws	SAE J429 Grade 2 Steel Zinc Plated
19	Gland Plate Screws	ASTM A193-B7



ACTUATOR MOUNTING 19



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88A-F05-XX	1"	1.00	8.50	5.13	3.99	6.65	0.45	1.730	2.460	0.98	1.95	0.625	0.412	5/16-18	13.0

REV. 08JUL19

VARIATIONS AVAILABLE

- 88A-F40 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials must be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (1" - 2")
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-99P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

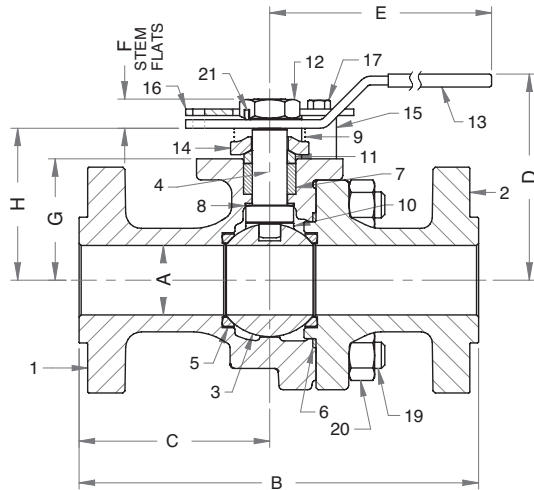
Pressure/Temperature Ratings - Page M-25, Graph No. 34

88A-F00 SERIES

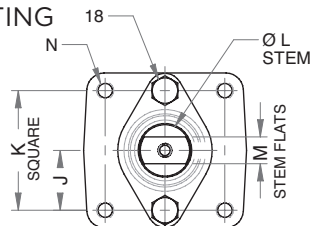
CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	Retainer	ASTM A216-WCB
3	Ball	ASTM A108 Type 1215 or A216-WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A108 Type 1215
12	Stem Nut	ASTM A194 Grade 8
13	Lever & Grip	ASTM A366 Steel with Vinyl Grip
14	Gland Plate	302 & 304 Stainless Steel
15	Stops	ASTM A108 Type 1215
16	Lock Plate	ASTM A366 Steel
17	Stop Screws	SAE J429 Grade 2
18	Gland Plate Screws	ASTM A193-B7
19	Body Joint Stud	ASTM A193-Grade B7
20	Body Joint Nut	ASTM A194-Grade 2H
21	Lock Washer	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88A-F07-XX	1-1/2"	1.50	9.50	3.62	5.03	8.40	0.74	2.730	3.500	0.98	1.95	0.750	0.477	5/16-18	31.5
88A-F08-XX	2"	2.00	11.50	5.49	6.06	12.06	0.84	3.490	4.370	1.42	2.84	1.000	0.620	3/8-16	53.0
88A-F09-XX	2-1/2"	2.50	13.00	6.02	6.63	12.06	0.84	4.190	5.070	1.42	2.84	1.000	0.620	3/8-16	65.0

VARIATIONS AVAILABLE

- 88A-F40 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials must be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (1" - 2")
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-25, Graph Nos. 34 & 35

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88A-F00 SERIES

CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
3" THRU 4"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	Retainer	ASTM A216-WCB
3	Ball	ASTM A108 Type 1215 or A216-WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A108 Type 1215
12	Stem Screw	304 Stainless Steel
13	Handle Adapter	ASTM A366 Steel with Vinyl Grip
14	Pipe Handle	Galvanized Steel (not shown)
15	Gland Plate	316 Stainless Steel
16	Stops	ASTM A108 Type 1215
17	Lock Plate	ASTM A366 Steel
18	Stop Screws	SAE J429 Grade 2
19	Gland Plate Screws	ASTM A193-B7
20	Body Joint Stud	ASTM A193- Grade B7
21	Body Joint Nut	ASTM A194- Grade 2H
22	Adapter Screw	18-8 Stainless Steel

VARIATIONS AVAILABLE

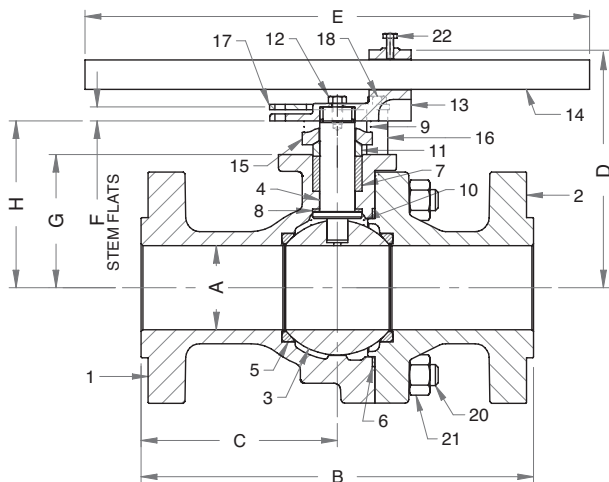
- 88A-F40 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

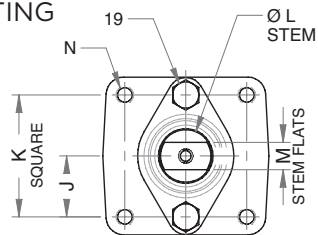
(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88A-F00-XX	3"	3.00	14.00	7.00	8.55	18.00	0.50	4.750	5.946	1.42	2.84	1.250	0.725	3/8-16	101.0
88A-F0A-XX	4"	4.00	17.00	7.19	11.20	34.00	0.75	6.630	8.081	1.74	3.48	1.500	0.780	1/2-13	194.0

REV. 08JUL19

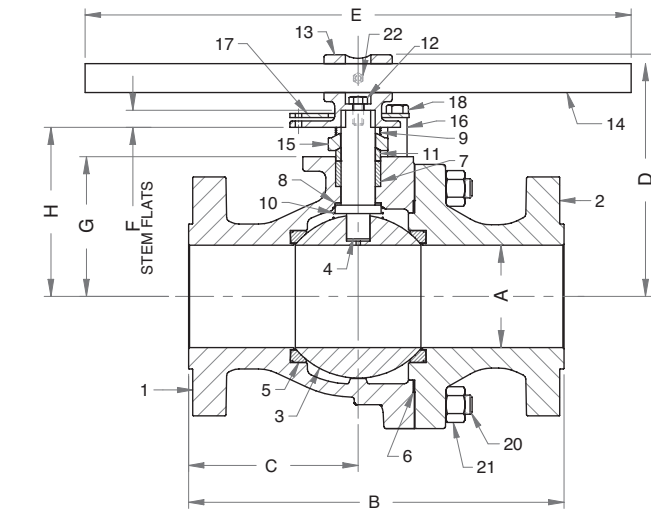
Pressure/Temperature Ratings - Page M-25, Graph No. 35

88A-F00 SERIES

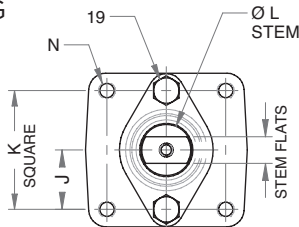
CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
6"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216-WCB
2	Retainer	ASTM A216-WCB
3	Ball	ASTM A108 Type 1215 or A216-WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A108 Type 1215
12	Stem Screw	304 Stainless Steel
13	Handle Adapter	316 Stainless Steel
14	Pipe Handle	Galvanized Steel (not shown)
15	Gland Plate	316 Stainless Steel
16	Stops	ASTM A108 Type 1215
17	Lock Plate	ASTM A366 Steel
18	Stop Screws	SAE J429 Grade 2
19	Gland Plate Screws	ASTM A193-B7
20	Body Joint Stud	ASTM A193-Grade B7
21	Body Joint Nut	ASTM A194-Grade 2H
22	Adapter Screw	18-8 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88A-F0C-XX	6"	6.00	22.00	9.94	14.17	45.00	1.00	8.190	9.915	2.298	3.48	2.000	1.375	3/4-10	500.0

VARIATIONS AVAILABLE

- 88A-F40 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-26, Graph No. 36

REV. 08JUL19

88A-F00 SERIES

CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
8"

STANDARD MATERIAL LIST

PART	MATERIAL
1	Body
2	Retainer
3	Ball
4	Stem
5	Seats
6	Body Seal
7	Stem Seals
8	Stem Bearing
9	Grounding Spring
10	Grounding Spring
11	Packing Gland
12	Gland Plate
13	Gland Plate Screws
14	Body Joint Stud
15	Body Joint Nut

VARIATIONS AVAILABLE

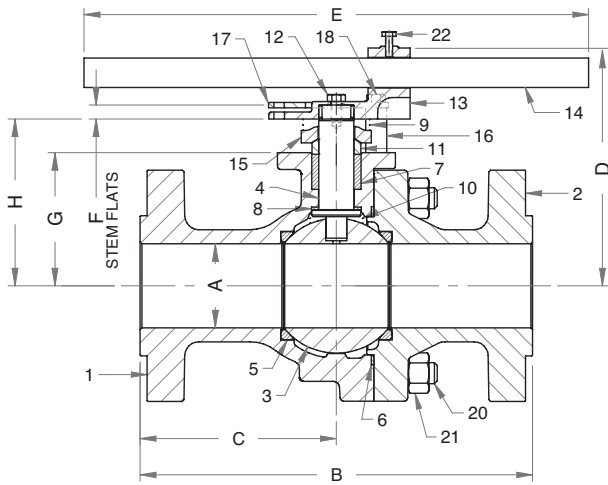
- 88A-F40 Series (316 Stainless Steel Ball & Stem)

OPTIONS AVAILABLE

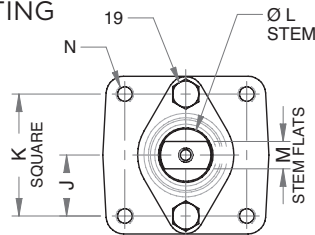
(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials must be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



Pressure/Temperature Ratings - Page M-26, Graph No. 36

DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
88A-F0E-XX	8"	8.00	26.00	11.20	17.77	12.00	2.25*	0.627	5.77	2.133	2.49	10.00	5/8-11	920.0

*Keyway Length

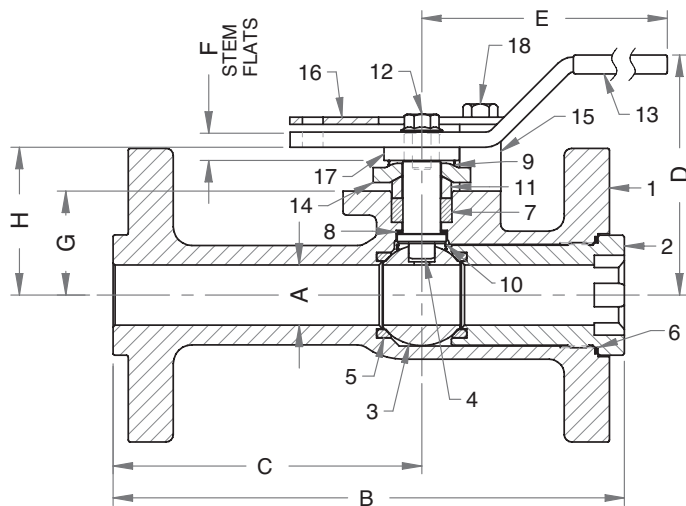
REV. 08JUL19

88L-F40 SERIES

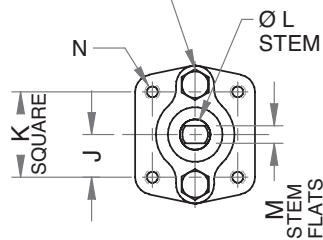
LOW TEMP. CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
1"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316
4	Stem	ASTM A276-316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	See Options Available
12	Stem Screw	Steel, Zinc Plated
13	Lever	ASTM A366 Steel with Vinyl Grip
14	Gland Plate	302 or 304 Stainless Steel
15	Stop	ASTM A108 Type 1215
16	Lock Plate	ASTM A366 Steel
17	Spacer	ASTM A276 Type 216
18	Stop Screw	SAE J429 Grade 2 Steel Zinc Plated
19	Gland Plate Screws	ASTM A193 B7



ACTUATOR MOUNTING 19



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88L-F45-XX	1"	1.00	8.50	5.13	3.99	6.65	0.45	1.730	2.460	0.98	1.95	0.625	0.412	5/16-18	13.0

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-04-	2-1/4" Stem Extension (Carbon Steel, Zinc Plated) (1" - 2")
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-26, Graph No. 36

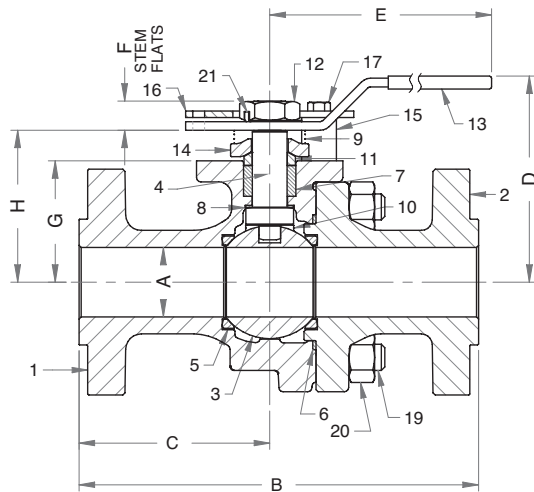
REV. 08JUL19

88L-F40 SERIES

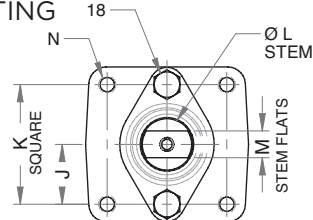
LOW TEMP. CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
1-1/2" THRU 2-1/2"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A108 Type 1215
12	Stem Nut	ASTM A194 Grade 8
13	Lever	ASTM A366 Steel with Vinyl Grip
14	Gland Plate	302 or 304 Stainless Steel
15	Stop	ASTM A108 Type 1215
16	Lock Plate	ASTM A366 Steel
17	Stop Screw	SAE J429 Grade 2
18	Gland Plate Screws	ASTM A193 B7
19	Body Joint Stud	ASTM A193 Grade B7
20	Body Joint Nut	ASTM A194 Grade 2H
21	Lock Washer	302 or 304 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88L-F47-XX	1-1/2"	1.50	9.50	3.62	5.03	8.40	0.74	2.730	3.500	0.98	1.95	0.750	0.477	5/16-18	31.5
88L-F48-XX	2"	2.00	11.50	5.49	6.06	12.06	0.84	3.490	4.370	1.42	2.84	1.000	0.620	3/8-16	53.0
88L-F49-XX	2-1/2"	2.50	13.00	6.02	6.63	12.06	0.84	4.190	5.070	1.42	2.84	1.000	0.620	3/8-16	65.0

REV. 08JUL19

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

**Pressure/Temperature Ratings -
Page M-26 & M-27, Graph Nos. 37 & 38**

88L-F40 SERIES

LOW TEMP. CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
3" THRU 4"

STANDARD MATERIAL LIST

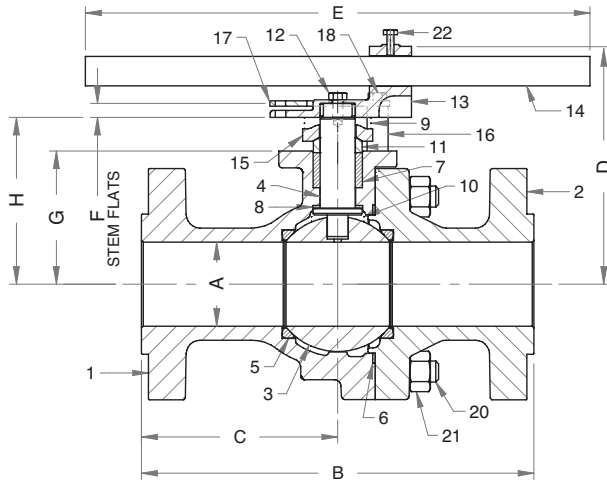
	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276 Type 316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A108 Type 1215
12	Stem Screw	304 Stainless Steel
13	Handle Adapter	ASTM A366 Steel with Vinyl Grip
14	Pipe Handle	Galvanized Steel (not shown)
15	Gland Plate	316 Stainless Steel
16	Stops	ASTM A108 Type 1215
17	Lock Plate	ASTM A366 Steel
18	Stop Screws	SAE J429 Grade 2
19	Gland Plate Screws	ASTM A193-B7
20	Body Joint Stud	ASTM A193 Grade B7
21	Body Joint Nut	ASTM A194 Grade 2H
22	Adapter Screw	18-8 Stainless Steel

OPTIONS AVAILABLE

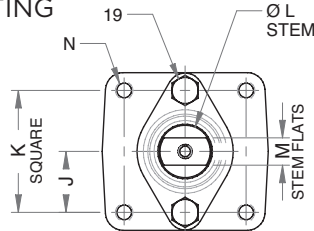
(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88L-F40-XX	3"	3.00	14.00	7.00	8.55	18.00	0.50	4.750	5.946	1.42	2.84	1.250	0.725	3/8-16	101.0
88L-F4A-XX	4"	4.00	17.00	7.19	11.20	34.00	0.75	6.630	8.081	1.74	3.48	1.500	0.780	1/2-13	194.0

Pressure/Temperature Ratings - Page M-27, Graph No. 38

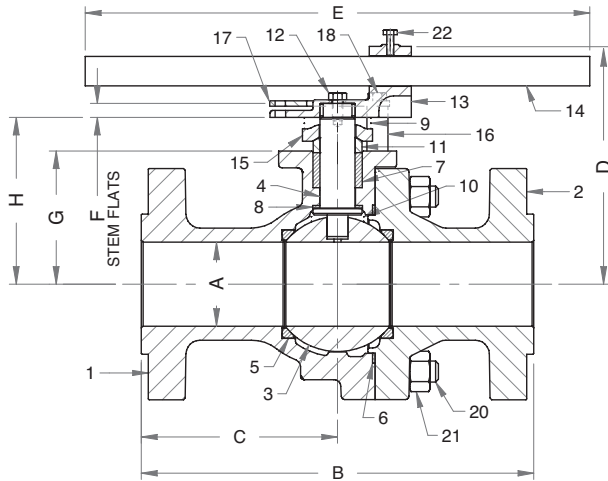
REV. 08JUL19

88L-F40 SERIES

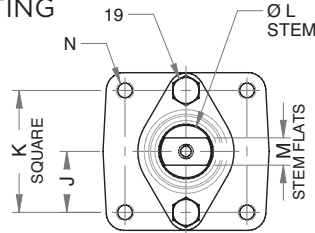
LOW TEMP. CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
6"

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276-316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined by Seat Suffix Selected
9	Grounding Spring	316 Stainless Steel
10	Grounding Spring	316 Stainless Steel
11	Packing Gland	ASTM A108 Type 1215
12	Stem Screw	304 Stainless Steel
13	Handle Adapter	ASTM A366 Steel with Vinyl Grip
14	Pipe Handle	Galvanized Steel (not shown)
15	Gland Plate	316 Stainless Steel
16	Stops	ASTM A108 Type 1215
17	Lock Plate	ASTM A366 Steel
18	Stop Screws	SAE J429 Grade 2
19	Gland Plate Screws	ASTM A193-B7
20	Body Joint Stud	ASTM A193-Grade B7
21	Body Joint Nut	ASTM A194-Grade 2H
22	Adapter Screw	18-8 Stainless Steel



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	N	WT.
88L-F4C-XX	6"	6.00	22.00	9.94	13.64	45.00	1.00	8.190	9.915	2.298	3.48	2.000	1.375	3/4-10	500.0

REV. 08JUL19

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

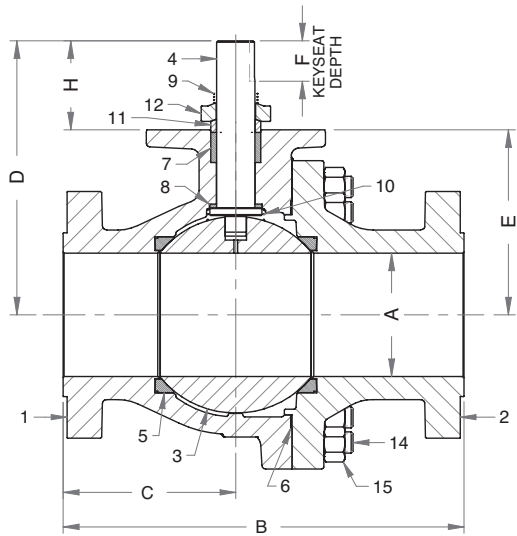
Pressure/Temperature Ratings - Page M-27, Graph No. 39

88L-F40 SERIES

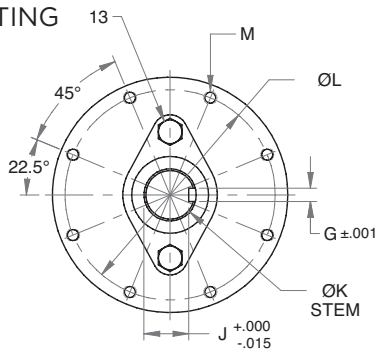
LOW TEMP. CARBON STEEL ASME CLASS 600 FLANGED FULL PORT BALL VALVE
8"

STANDARD MATERIAL LIST

PART	MATERIAL
1	Body
2	Retainer
3	Ball
4	Stem
5	Seats
6	Body Seal
7	Stem Seals
8	Stem Bearing
9	Grounding Spring
10	Grounding Spring
11	Packing Gland
12	Gland Plate
13	Gland Plate Screws
14	Body Joint Stud
15	Body Joint Nut



ACTUATOR MOUNTING



DIMENSIONS

PART NO.	SIZE	A	B	C	D	E	F	G	H	J	K	L	M	WT.
88L-F4E-XX	8"	8.00	26.00	11.20	17.77	12.00	2.25*	0.627	5.77	2.133	2.49	10.00	5/8-11	920.0

* Keyway Length

OPTIONS AVAILABLE

(MORE INFORMATION IN SECTION J)

- Complete the product number by adding a suffix (or multiple suffixes) to the base product number. A suffix for seat & seal materials **must** be selected.
- To specify multiple options, add the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- Minimum quantities may apply.

(SUFFIX)	OPTION
-14-	Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball
-21-	UHMWPE Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-24-	Graphite Packing, Spiral Wound Graphite Body Seal, RPTFE Bearing (API 607, 6th Edition, ISO 10497:2010)
-26-	Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
-38-	PEEK Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-45-	Less Lever and Nut (Bare Stem)
-49-	No Lubrication. Assembled Dry
-67-	Cleaned for Industrial Gas (CS Only)
-69-	Drilled & Tapped Purge Port with Plugs
-70-	4" Extended Bonnet
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® Seats, Graphite Packing, Spiral Wound Graphite Body Seal, PEEK Bearing
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-CE-	CE Marking. See Page D-3 "Product Approvals" for Availability
-EF-	Graphite Packing (API 641 Compliant)
-EP-	Garlock EVSP Stem Packing with Spiral Wound Graphite Gasket (Fire Safe by Design)
-KB-	Kolsterised Ball
-MG-	Gear Operator with Standard Handwheel
-MH-	Gear Operator with Standard Handwheel & Locking Device
-MJ-	Gear Operator with Oversize Handwheel
-MK-	Gear Operator with Oversize Handwheel & Locking Device
-PH-	17-4 PH Stem
-TC-	Hydrostatic Test with Certified Report
-TD-	API 6D Test (Hydrostatic Testing)
-TR-	Hydrostatic Test with Certified Report & MTR
-TW-	Hydrostatic Test with Certified Report & Witnessed
-ZP1-	Fugitive Emissions Packing (Viton)
-ZP2-	Fugitive Emissions Packing (Buna-N)
-ZP3-	Fugitive Emissions Packing (Kalrez)

Pressure/Temperature Ratings - Page M-27, Graph No. 39

REV. 08JUL19

PAGE	DATE	DESCRIPTION
D-5 THRU D-22	18JUL19	Added "-UA" (AIS (American Iron & Steel) Compliant) suffix option
D-5 THRU D-54	08JUL19	Changed option suffix "-80" to TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
	29APR19	Changed seat material to TFM 1700 Added suffix "-EF", "-ZP1", "-ZP2", "-ZP3" API 641 Compliant Packings
	04MAY17	Added suffix "-CE" CE Marking
	12APR16	Added suffix "-KF", PCTFE Stem Bearing
D-9, D-17, D-27, D-35, D-43, D-51, D-59, D-67, D-77, D-85, D-92	10SEP19	Changed 1/2" & 3/4" Dimensions - D, E, F, H; added "A" to end of Part No.
	29APR19	Removed 1/2" & 3/4" Standard Materials List and drawing. All sizes now have the same design.
D-55 THRU D-72	18JUL19	Added "-UA" (AIS (American Iron & Steel) Compliant) suffix option
D-55 THRU D-88	08JUL19	Changed option suffix "-80" to TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
	29APR19	Changed seat material to TFM 1700 Added suffix "-EF", "-ZP1", "-ZP2", "-ZP3" API 641 Compliant Packings
	04MAY17	Added suffix "-CE" CE Marking
	29JUN16	Changed option suffix "-14" to Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball Changed option suffix "-26" to Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)
	12APR16	Added suffix "-KF", PCTFE Stem Bearing
D-95 THRU D-102	08JUL19	Changed option suffix "-80" to TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
	29APR19	Changed seat material to TFM 1700 Added suffix "-EF", "-ZP1", "-ZP2", "-ZP3" API 641 Compliant Packings
	04MAY17	Added suffix "-CE" CE Marking
	12APR16	Added suffix "-KF", PCTFE Stem Bearing
D-115 THRU D-119	08JUL19	Changed option suffix "-80" to TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
	29APR19	Added suffix "-EF", "-ZP1", "-ZP2", "-ZP3" API 641 Compliant Packings
	04MAY17	Added suffix "-CE" CE Marking Clarified the text under Options Available Header
D-120 THRU D-129	18JUL19	Changed option suffix "-80" to TFM 1600 Seats, PTFE Chevron Packing, Spiral Wound PTFE Body Seal, PEEK Bearing
	29APR19	Added suffix "-EF", "-ZP1", "-ZP2", "-ZP3" API 641 Compliant Packings
	04MAY17	Added suffix "-CE" CE Marking Clarified the text under Options Available Header
	08MAR17	Removed "-MP" option
	29JUN16	Changed option suffix "-14" to Side Vented Ball (Uni-Directional). Not Available with Plated CS Ball Changed option suffix "-26" to Chlorine Service. Vented. Special Cleaning. Assembled Dry. (for CS, Hastelloy and Ni-Cu Valves. Ball Must be Hastelloy or Ni-CU)