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E R T I F I E D Throughout this catalog, products that have a Lead Free* option will be identified with this logo.

NEAL * LEAD FREE: The wetted surfaces of this product shall contain no more than 0.25% lead by weighted average. Complies with Federal Public Law 111-380.

ANSI 3rd party approved and listed.

**Any imported products are identified as "Apollo International".



ASME FLANGED BALL VALVES

Features and Benefits

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 2.5" 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 Buttweld Ends"
UL 125	"Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)"
NSF/ANSI 61	Section 8, Annex G (1/2" to 4" 87A Series)
NSF-372	Drinking Water System Components - Lead Content (1/2" to 4" 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
- Blow-out 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 SS Ball & Stem
- NACE MR0103 (2003) Compliance on all 87A/87B/88A/88B/88L Valves with SS 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

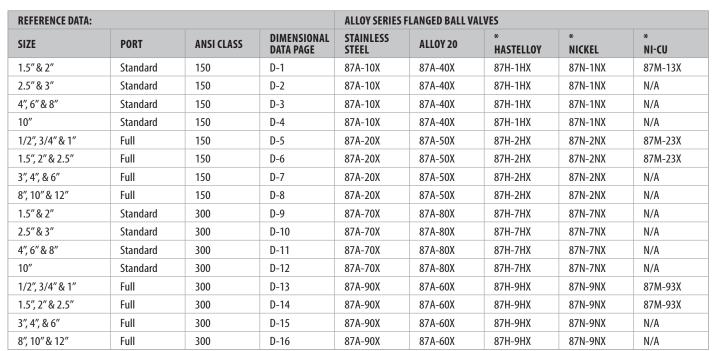
* Requires "UL" suffix for markings.



ASME FLANGED BALL VALVES

87A, 87B, 88A, 88B, & 88L Series

VARIATIONS AVAILABLE:



* Minimum Quantities May Apply

ALLOY MATERIAL OF CONSTRUCTION FOR PRESSURE CONTAINING / RETAINING COMPONENTS:

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

* Minimum Quantities May Apply



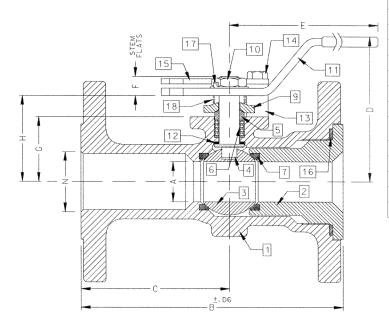
Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 SS with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

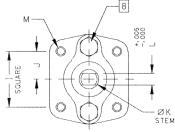
VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87M Monel (1.5" to 2" only)
- 87N Nickel
- 875 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	Ν	WT.
87A-107-01	1.5″	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
87A-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



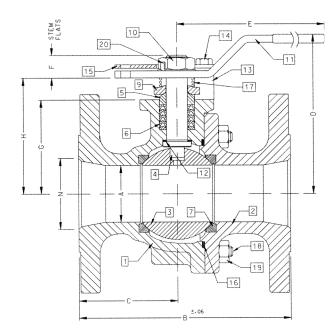
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Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST PART MATERIAL ASTM A351 CF8M 1 Body 2 ASTM A351 CF8M Retainer 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 ASTM A193 B8 Class 1 Gland Screws 9 **Gland Plate** 316 SS 10 Stem Nut 18-8 SS Lever 316 SS 11 12 Stem Bearing RPTFE 13 Stop ASTM A276 Type 316 Stop Screw 14 316 SS Lock Plate 15 302 or 304 SS RPTFE 16 Body Seal Grounding Spring 17 SS 18 **Body Joint Stud** ASTM A193 Grade B8M Body Joint Nut 19 ASTM A194 Grade 8 20 Lockwasher 302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

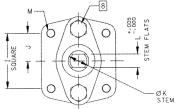
875 - 304L SS

OPTIONS AVAILABLE: (Mre 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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	Ν	WT.
87A-109-01	2.5″	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

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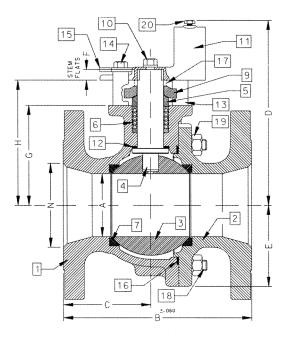


Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STAN	IDARD 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 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS
21	Pipe Handle	Galvanized Steel (not Shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

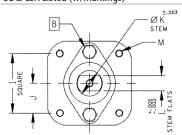
875 - 304LSS

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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	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



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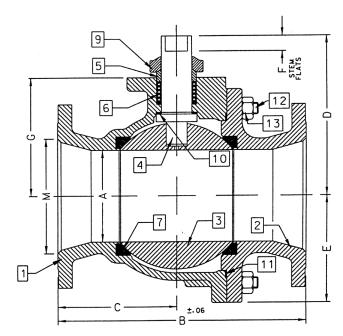
Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

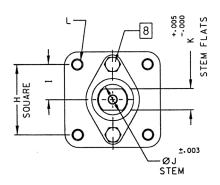
87S - 304L SS

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-	-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-	Multi-Seal (Super TFE)			
-82-	Flat Face Flanges			
-90-	Double Packed 4" Extended Bonnet			
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port			
-EP-	Garlock EVSP Stem Packing w/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 (w/Markings)			



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	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

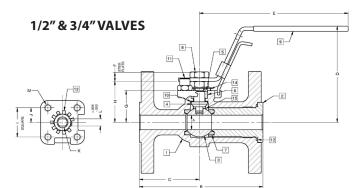
Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	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	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS



									-		В		H		
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
87A-203-01	1/2″	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.00	0.500	0.375	0.245	10-24	5
87A-204-01	3/4″	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	1/4-20	6
87A-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



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VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87M Monel
- 87N Nickel 87S 304L SS

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-	2.25" Stem Extension (Carbon Steel, Zinc Plated)				
-14-	Side Vented Ball (Uni-Directional)				
-15-	Wheel Handle, Steel				
-21-	UHMWPE Seats				
-24-	-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-	-57- Oxygen Cleaned				
-65-	-65- MPTFE Seats and Graphite Packing (Fire Safe)				
-69-	Drilled and Tapped Purge Port with Plugs				
-70-	4" Extended Bonnet				
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler				
-76-	Live Loaded (Lever)				
-77-	Live Loaded (Gear, Actuator)				
-80-	Multi-Seal (Super TFE)				
-82-	Flat Face Flanges				
-90-	Double Packed 4" Extended Bonnet				
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port				
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)				
-KF-					
-MP-	Positive Material Identification				
-TC-	With Test Certificate				
-TD-	Tested to API Spec 6D				
-UL-	UL & CSA Listed (w/Markings)				

STEM FLATS X) -1



ACTUATOR MOUNTING

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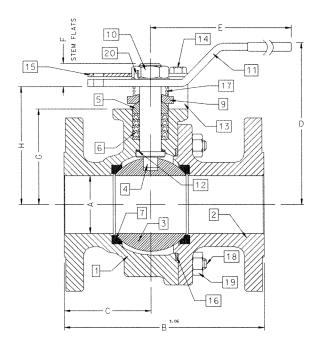
Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Lever	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

VARIATIONS AVAILABLE:	
VARIATIONS AVAILADLE:	

87H - Hastelloy 87M - Monel

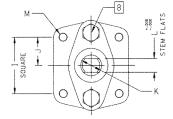
- 87N Nickel
- 87S 304L SS

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.

-01Standard Configuration-04-2.25" Stem Extension (Carbon Steel, Zinc Plated) (up to 2.5")-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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-MG-Gear Operator with Standard Handwheel-9P-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet<	(SUFFIX)	OPTION		
-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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-MG-Gear Operator with Standard Handwheel-9P-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MH-Gear Operator with Standard Handwheel & Locking Device-MI-Gear Operator with Oversize Handwheel & Locking Device-MI-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MI-Gear Operator with Oversize Handwheel & Locking Device-MI-Gear Operator with Oversize Handwheel-MI-Gear Operator with Oversize Handwheel & Locking Device-MI-Gear Operator With Oversize Handwheel & Locking Device-MI-Gear Operator With Oversize Handwheel & Locking Dev	-01	Standard Configuration		
-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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -MG- Gear Operator with Standard Handwheel -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MH- Gear Operator with Standard Handwheel & Locking Device -MJ- Gear Operator with Oversize Handwheel & Lo	-04-	2.25" Stem Extension (Carbon Steel, Zinc Plated) (up to 2.5")		
24Graphite 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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-MG-Gear Operator with Standard Handwheel-90-Double Packed 4" Extended Bonnet-99-Double Packed 4" Extended Bonnet-9P-Garlock EVSP Stem Packing w/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-MH-Gear Operator with Oversize Handwheel-MH-Gear Operator with Oversize Handwheel & Locking Device-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator With Oversize Handwheel & Locking Device-ML-Gear Operator With Oversize Handwheel-MK-Gear Operator With Oversize Handwheel & Locking Device-ML-Gear Operator With Oversize Handwheel & Locking Device-ML-Gear Operator With Oversize Handwheel & Locking Device <td>-14-</td> <td colspan="3">-14- Side Vented Ball (Uni-Directional)</td>	-14-	-14- Side Vented Ball (Uni-Directional)		
-24- RPTFE bearing (ÅPI 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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -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 <td>-21-</td> <td colspan="3">UHMWPE Seats</td>	-21-	UHMWPE Seats		
-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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MH- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Opera	-24-	Graphite packing, spiral wound graphite body seal, RPTFE bearing (API 607, 6th edition, ISO 10497:2010)		
-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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -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	-35-			
-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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MH- Gear Operator with Standard Handwheel -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel & Locking Device -MK- Gear Operator With Oversize Handwheel -MK- Gear Operator With Oversize Handwheel & Locking Device	-38-	PEEK Seats and Graphite Packing		
-65- MPTFE Seats and Graphite Packing (Fire Safe) -69- Drilled and Tapped Purge Ports with Plugs -70- 4" Extended Bonnet -73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MH- Gear Operator with Oversize Handwheel & Locking Device -MJ- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-49-	No Lubrication. Assembled Dry.		
-69- Drilled and Tapped Purge Ports with Plugs -70- 4" Extended Bonnet -73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MH- Gear Operator with Standard Handwheel & Locking Device -MH- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MD- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-57-	Oxygen Cleaned		
 -70- 4" Extended Bonnet -73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -MG- Gear Operator with Standard Handwheel -90- Double Packed 4" Extended Bonnet with Monitoring Port -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MH- Gear Operator with Oversize Handwheel & Locking Device -MJ- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator With Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D 	-65-	MPTFE Seats and Graphite Packing (Fire Safe)		
-73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MH- Gear Operator with Standard Handwheel & Locking Device -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator Ope	-69-	Drilled and Tapped Purge Ports with Plugs		
-76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/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	-70-	4" Extended Bonnet		
-77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/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 -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-73-	316 SS Spiral Wound Gaskets w/PTFE Filler		
-80- Multi-Seal (Super TFE) -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 -EP- Garlock EVSP Stem Packing w/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 -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-76- Live Loaded (Lever)			
-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 -EP- Garlock EVSP Stem Packing w/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 -MD- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-77-	Live Loaded (Gear, Actuator)		
-MG- Gear Operator with Standard Handwheel -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/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 -MK- Gear Operator with Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-80-	Multi-Seal (Super TFE)		
-90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/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 -MK- Gear Operator with Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-82-	Flat Face Flanges		
-9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/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 -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-MG-	Gear Operator with Standard Handwheel		
-EP- Garlock EVSP Stem Packing w/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 -MC- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-90-	Double Packed 4" Extended Bonnet		
-EP- 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 -MK- 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	-9P-	Double Packed 4" Extended Bonnet with Monitoring Port		
-MH- Gear Operator with Standard Handwheel & Locking Device -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-EP-			
-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	-KF-	PCTFE Stem Bearing		
-MK- Gear Operator with Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-MH-	Gear Operator with Standard Handwheel & Locking Device		
-MP- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-MJ-	Gear Operator with Oversize Handwheel		
-TC- With Test Certificate -TD- Tested to API Spec 6D	-МК-	Gear Operator with Oversize Handwheel & Locking Device		
-TD- Tested to API Spec 6D	-MP-	Positive Material Identification		
· · · · · · · · · · · · · · · · · · ·	-TC-	With Test Certificate		
III & CSA Lictod (w/Markings)	-TD-	Tested to API Spec 6D		
	-UL-	UL & CSA Listed (w/Markings)		



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
87A-207-01	1.5″	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-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
87A-209-01	2.5″	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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D-10

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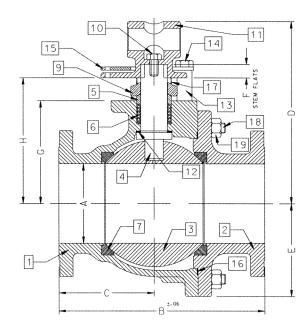


Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE					
8	Gland Screws	ASTM A193 B8 Class 1					
9	Gland Plate	316 SS					
10	Adapter Screw	18-8 SS					
11	Handle Adapter	316 with Vinyl Grip					
12	Stem Bearing	RPTFE					
13	Stop	ASTM A276 Type 316					
14	Stop Screw	316 SS					
15	Lock Plate	302 or 304 SS					
16	Body Seal	RPTFE					
17	Grounding Spring	SS					
18	Body Joint Stud	ASTM A193 Grade B8M					
19	Body Joint Nut	ASTM A194 Grade 8					
20	Pipe Handle	Galvanized Steel (not shown)					



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

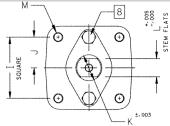
875 - 304L SS

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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	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



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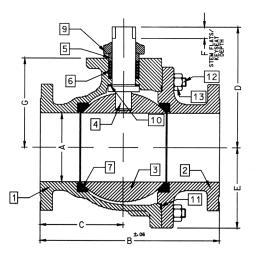
Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

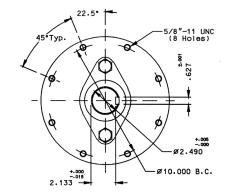
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.

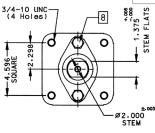


STANDARD MATERIAL LIST

	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
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: 10" & 12"

ACTUATOR MOUNTING: 8"

FUK PRESSU	KE/IEIWIPEK	AIUKE KA	TINGS, KI	CICK IV P	AUE M-9,		0.2	
PRODUCT NUMBER	SIZE	A	В	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

FOR DRECCURE/TEMPERATURE DATINGS DEFER TO DACE M-0. CRADU NO. 2

REV. 12APR16

VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87N Nickel
- 875 304LSS

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	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 (w/Markings)



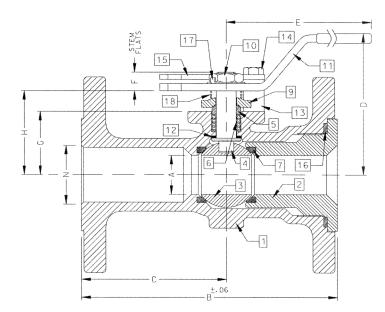
Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 & 304 SS
10	Stem Nut	316 SS
11	Lever	302 & 304 SS with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

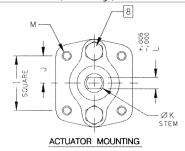


VARIATIONS AVAILABLE:

- 87H Hastelloy 87M - Monel
- 87N Nickel 87S 304L SS

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 -04-2.25" Stem Extension (Carbon Steel, Zinc Plated) -14 -Side Vented Ball (See Page J-2) Wheel Handle, Steel -15-**UHMWPE** Seats -21 -Graphite packing, spiral wound graphite body seal, RPTFE bearing (API 607, 6th edition, ISO 10497:2010) -24--35 -**PTFE Seats and Seals** -38-**PEEK Seats and Graphite Packing** -49-No Lubrication. Assembled Dry. -57-**Oxygen** Cleaned MPTFE Seats and Graphite Packing (Fire Safe) -65--69-Drilled and Tapped Purge Ports with Plugs -70-4" Extended Bonnet -73-316 SS Spiral Wound Gaskets w/PTFE Filler -76-Live Loaded (Lever) -77-Live Loaded (Gear, Actuator) -80-Multi-Seal (Super TFE) -82-Flat Face Flanges -90-Double Packed 4" Extended Bonnet -9P-Double Packed 4" Extended Bonnet with Monitoring Port Garlock EVSP Stem Packing w/Spiral Wound -EP-Graphite Gasket (Fire Safe by Design) -KF-PCTFE Stem Bearing -MP-Positive Material Identification With Test Certificate -TC--TD-Tested to API Spec 6D
 - UL & CSA Listed (w/Markings) -UL-



PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	N	WT.
87A-707-01A	1.5″	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



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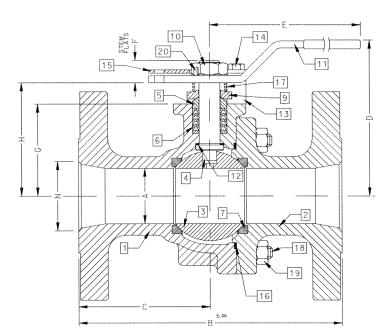
Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Nut	18-8 SS
11	Lever	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

VARIATIONS AVAILABLE:

87H - Hastelloy

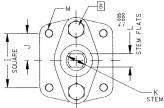
87N - Nickel 87S - 304L SS

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.

-01Standard Configuration-04-2.25" Stem Extension (Carbon Steel, Zinc Plated) (2.5" 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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet-9P-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel & Locking Device-MV-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MV-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D </th <th>(SUFFIX)</th> <th>OPTION</th>	(SUFFIX)	OPTION
-14- Side Vented Ball (Uni-Directional) -21- UHMWPE Seats -24- Graphite packing, spiral wound graphite body seal, RPITE 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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -FP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing	-01	Standard Configuration
-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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MH-Gear Operator with Standard Handwheel-MH-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	-04-	2.25" Stem Extension (Carbon Steel, Zinc Plated) (2.5" only)
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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Obuble Packed 4" Extended Bonnet-9P-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel & Locking Device-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	-14-	Side Vented Ball (Uni-Directional)
-24- RPTFE bearing (ÅPI 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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -FP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MI- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MP- Positive Material Identification <td>-21-</td> <td></td>	-21-	
-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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-24-	
-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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- 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	-35-	PTFE Seats and Seals
-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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -FP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-38-	PEEK Seats and Graphite Packing
-65- MPTFE Seats and Graphite Packing (Fire Safe) -69- Drilled and Tapped Purge Ports with Plugs -70- 4" Extended Bonnet -73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -FP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-49-	No Lubrication. Assembled Dry.
-69- Drilled and Tapped Purge Ports with Plugs -70- 4" Extended Bonnet -73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -FP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- 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	-57-	Oxygen Cleaned
-70- 4" Extended Bonnet -73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MH- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-EP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	-69-	Drilled and Tapped Purge Ports with Plugs
-76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-70-	4" Extended Bonnet
-77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-76-	Live Loaded (Lever)
-82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) - -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel -MD- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-77-	Live Loaded (Gear, Actuator)
-90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-80-	Multi-Seal (Super TFE)
-9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/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 -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-82-	Flat Face Flanges
-EP- Garlock EVSP Stem Packing w/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 Handwh	-90-	Double Packed 4" Extended Bonnet
-EP- 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 -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-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 -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-EP-	
-MH- Gear Operator with Standard Handwheel & Locking Device -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-KF-	PCTFE Stem Bearing
-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	-MG-	Gear Operator with Standard Handwheel
-MK- Gear Operator with Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-MH-	Gear Operator with Standard Handwheel & Locking Device
-MP- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-MJ-	Gear Operator with Oversize Handwheel
-TC- With Test Certificate -TD- Tested to API Spec 6D	-МК-	Gear Operator with Oversize Handwheel & Locking Device
-TD- Tested to API Spec 6D	-MP-	Positive Material Identification
	-TC-	With Test Certificate
-UL- UL & CSA Listed (w/Markings)	-TD-	Tested to API Spec 6D
	-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	N	WT.
87A-709-01	2.5″	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



Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Adapter Screw	18-8 SS
21	Pipe Handle	Galvanized Steel (not shown)

20 15 10 14 11 LATS 9 17 13 \bigcirc 6 12 4 ŧ 18 1 19 16 ±.060 В

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

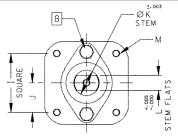
87S - 304L SS

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 SS Spiral Wound Gaskets w/PTFE Filler					
-76-	Live Loaded (Lever)					
-77-	Live Loaded (Gear, Actuator)					
-80-	Multi-Seal (Super TFE)					
-82-	Flat Face Flanges					
-90-	Double Packed 4" Extended Bonnet					
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port					
-EP-	Garlock EVSP Stem Packing w/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					
-МК-	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 (w/Markings)					



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	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



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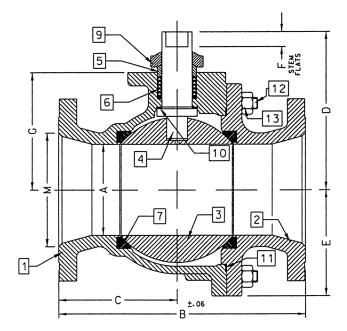
Stainless Steel ASME Class 300 Flanged Standard Port Ball Valve - 10"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

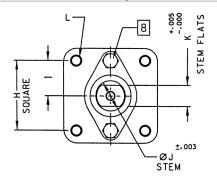
VARIATIONS AVAILABLE:

87H - Hastelloy 87N - Nickel 875 - 304L SS

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-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	С	D	E	F	G	H	I	J	К	L	М
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. 12APR16

Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	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	RPTFE							
8	Stem Nut	300 Series Stainless Steel							
9	Lever	300 Series Stainless Steel w/ Vinyl Grip							
10	Stem Bearing	RPTFE							
11	Stop	300 Series Stainless Steel							
12	Body Seal	RPTFE							
13	Lockwasher	300 Series Stainless Steel							
14	Grounding Spring	ASTM A313 Stainless Steel							
15	Grounding Spring	ASTM A313 Stainless Steel							
	PART (1" VALVES)	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	RPTFE							
8	Gland Screws	ASTM A193 B8 Class 1							
9	Gland Plate	302 or 304 SS							
10	Stem Nut	316 SS							
11	Lever	302 or 304 with Vinyl Grip							
12	Stem Bearing	RPTFE							
13	Stop	ASTM A276 Type 316							
14	Stop Screw	18-8 SS							
15	Lock Plate	302 or 304 SS							
16	Body Seal	RPTFE							
17	Lockwasher	302 or 304 SS							
17	Grounding Spring	502 01 50 1 55							

VARIATIONS AVAILABLE:

87H - Hastelloy

87M - Monel

87N - Nickel

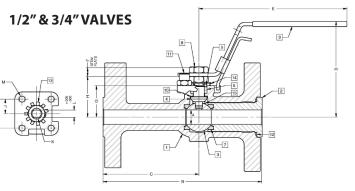
875 - 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-UL-	UL & CSA Listed (w/Markings)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

								ŀ	-		- B				
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
87A-903-01	1/2″	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	6
87A-904-01	3/4″	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	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

S T E M F L A T S

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1"VALVE

ACTUATOR MOUNTING

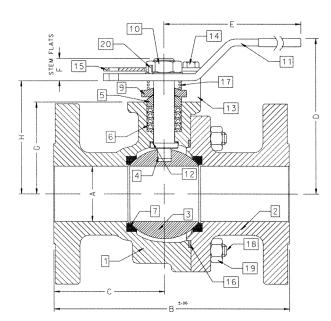
Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Nut	18-8 SS
11	Lever	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

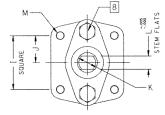
VARIATIONS AVAILABLE:

- 87H Hastelloy 87M - Monel
- 87N Nickel
- 87S 304L SS

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.

-01Standard Configuration-04-2.25" 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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-EP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-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 (w/Markings)	(SUFFIX)	OPTION
-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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MK-Gear Operator with Oversize Handwheel & Locking Device-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	-01	Standard Configuration
-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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet-9P-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	-04-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
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 Dry57.Oxygen Cleaned-65.MPTFE Seats and Graphite Packing (Fire Safe)-69.Drilled and Tapped Purge Ports with Plugs-70.4" Extended Bonnet-73.316 SS Spiral Wound Gaskets w/PTFE Filler-76.Live Loaded (Lever)-77.Live Loaded (Gear, Actuator)-80.Multi-Seal (Super TFE)-82.Flat Face Flanges-90.Double Packed 4" Extended Bonnet-9P.Double Packed 4" Extended Bonnet-9P.Double Packed 4" Extended Bonnet-9P.Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF.PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MF-Positive Material Identification-TC.With Test Certificate-TD-Tested to API Spec 6D	-14-	Side Vented Ball (Uni-Directional)
-24-RPTFE bearing (ÅPI 607, 6th edition, ISO 10497:2010)-35-PTFE Seats and Seals-38-PEEK Seats and Graphite Packing (3" Only)-49-No Lubrication. Assembled Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	-21-	UHMWPE Seats
-38-PEEK Seats and Graphite Packing (3" Only)-49-No Lubrication. Assembled Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-EP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	-24-	
-49-No Lubrication. Assembled Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-EP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	-35-	PTFE Seats and Seals
 -57- Oxygen Cleaned -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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet with Monitoring Port -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- 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 	-38-	PEEK Seats and Graphite Packing (3" Only)
-65- MPTFE Seats and Graphite Packing (Fire Safe) -69- Drilled and Tapped Purge Ports with Plugs -70- 4" Extended Bonnet -73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -FP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-49-	No Lubrication. Assembled Dry.
-69- Drilled and Tapped Purge Ports with Plugs -70- 4" Extended Bonnet -73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -FP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-57-	Oxygen Cleaned
-70- 4" Extended Bonnet -73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -FP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-EP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	-69-	Drilled and Tapped Purge Ports with Plugs
-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-EP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator With Oversize Handwheel-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	-70-	4" Extended Bonnet
-77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-76-	Live Loaded (Lever)
-82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-77-	Live Loaded (Gear, Actuator)
-90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-80-	Multi-Seal (Super TFE)
-9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-82-	Flat Face Flanges
-EP- Garlock EVSP Stem Packing w/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 -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-90-	Double Packed 4" Extended Bonnet
-EP- 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 -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-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 -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-EP-	
-MH- Gear Operator with Standard Handwheel & Locking Device -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-KF-	PCTFE Stem Bearing
-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	-MG-	Gear Operator with Standard Handwheel
-MK- Gear Operator with Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-MH-	Gear Operator with Standard Handwheel & Locking Device
-MP- Positive Material Identification -TC- With Test Certificate -TD- Tested to API Spec 6D	-MJ-	Gear Operator with Oversize Handwheel
-TC- With Test Certificate -TD- Tested to API Spec 6D	-MK-	Gear Operator with Oversize Handwheel & Locking Device
-TD- Tested to API Spec 6D	-MP-	Positive Material Identification
	-TC-	With Test Certificate
-UL- UL & CSA Listed (w/Markings)	-TD-	Tested to API Spec 6D
	-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	WT.
87A-907-01	1.5″	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	2.5″	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



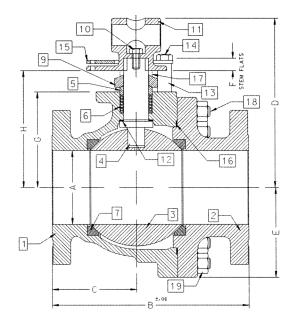
Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

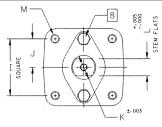
VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87N Nickel 87S 304L SS

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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	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 (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	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



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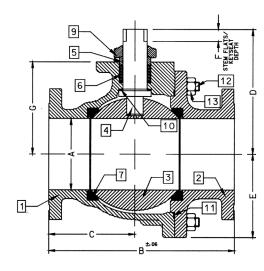
Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

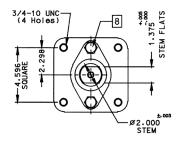
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
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: 8"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 6

PRODUCT NUMBER	SIZE	A	В	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

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VARIATIONS AVAILABLE:

87H - Hastelloy

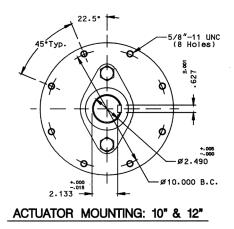
87N - Nickel 87S - 304L SS

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

UPTION
Standard Configuration
Side Vented Ball (Uni-Directional)
UHMWPE Seats
Graphite packing, spiral wound graphite body seal, RPTFE bearing (API 607, 6th edition, ISO 10497:2010)
PTFE Seats and Seals
No Lubrication. Assembled Dry.
Oxygen Cleaned
MPTFE Seats and Graphite Packing (Fire Safe)
Drilled and Tapped Purge Ports with Plugs
4" Extended Bonnet (8" Only)
Live Loaded (Gear, Actuator)
Multi-Seal (Super TFE)
Flat Face Flanges
Double Packed 4" Extended Bonnet
Double Packed 4" Extended Bonnet with Monitoring Port
Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
PCTFE Stem Bearing
Gear Operator with Standard Handwheel
Gear Operator with Standard Handwheel & Locking Device
Gear Operator with Oversize Handwheel
Gear Operator with Oversize Handwheel & Locking Device
Positive Material Identification
With Test Certificate
Tested to API Spec 6D
UL & CSA Listed (w/Markings)



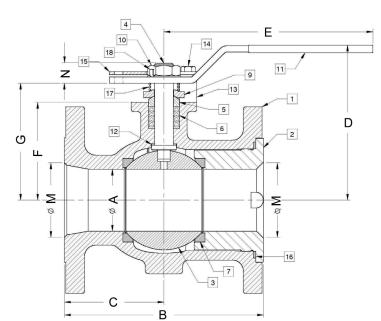


Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Nut	18-8 SS
11	Lever	316 SS with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

V	/Α	R	A	Γŀ	0	NS	AV	ΆΙ	LA	BLE:	

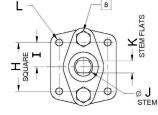
87H - Hastelloy 87N - Nickel 875 - 304L SS

OPTIONS AVAILABLE: (More information in Section J) • Minimum quantities apply

YEAR warranty

- 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-	2.25" 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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	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



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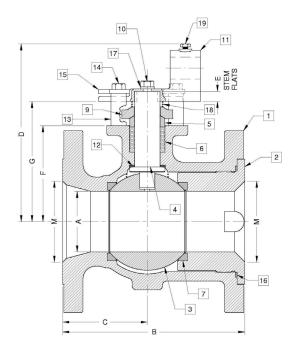
Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" - 10" Short Pattern

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS
19	Adapter Screw	18-8 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 2

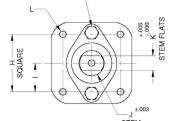
VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87N Nickel
- 87S 304L SS

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-	2.25" 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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	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 (w/Markings)
	8



												STEM			
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	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

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Apollo Valves

Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.

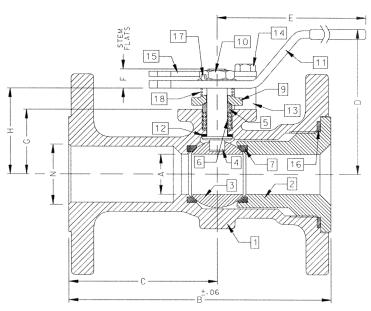


STANDARD MATERIAL LIST

	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	ASTM A194 Grade 8
11	Lever	302 or 304 SS with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS, ASTM A313

VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87M Monel (1.5" to 2" only)
- 87N Nickel
- 875 304LSS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

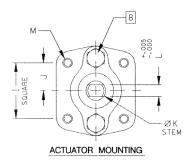
numerical order shown below. NOTE: Not all suffixes can be combined together. (SUFFIX) OPTION

· Minimum quantities apply

OPTIONS AVAILABLE: (More information in Section J)

• 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

(JULIN)	of flow
-01	Standard Configuration
-04-	2.25" 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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 (w/Markings)



PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	Ν	WT.
87J-107-01	1.5″	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

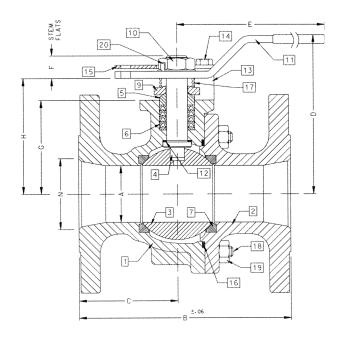


Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST PART MATERIAL 1 ASTM A995 4A Body 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 RPTFE Seats ASTM A193 B8 Class 1 8 Gland Screws 9 **Gland Plate** 316 SS ASTM A194 Grade 8 SS 10 Stem Nut Lever 316 SS 11 12 Stem Bearing RPTFE 13 Stop ASTM A276 Type 316 14 Stop Screw 316 SS Lock Plate 15 302 or 304 SS Body Seal RPTFE 16 17 **Grounding Spring** SS, ASTM A313 18 **Body Joint Stud** ASTM A193 Grade B8M 19 **Body Joint Nut** ASTM A194 Grade 8 Lockwasher 20 302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

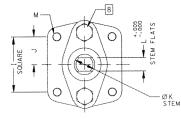
875 - 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	N	WT.
87J-109-01	2.5″	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





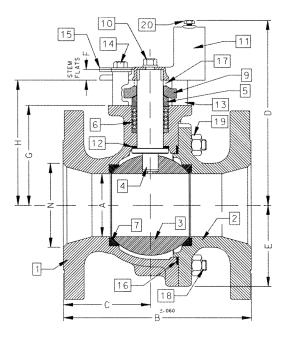
Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS, ASTM 313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS
21	Pipe Handle	Galvanized Steel (not Shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

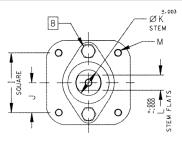
VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87N Nickel
- 875 304L SS

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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	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



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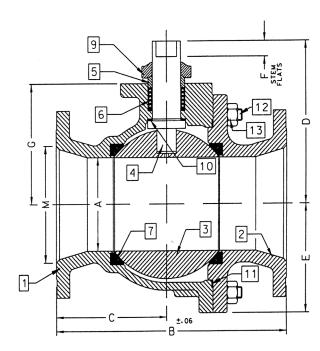
Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
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:

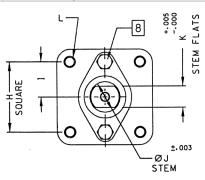
87H - Hastelloy 87N - Nickel 87S - 304L SS

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

FOR PRESSUR	E/TEMPERA	TURE RAT	INGS, REI	ER TO PA	GE M-28,	GRAPH N	0.40						001111		
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	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

Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.

5 YEAR WARRANTY

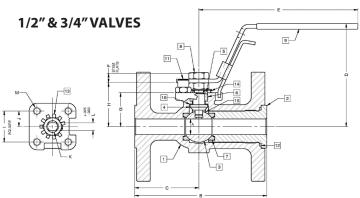
STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	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	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
15	LUCK FIGLE	502 01 50 1 55
15 16	Body Seal	RPTFE
-		

VARIATIONS AVAILABLE: 87H - Hastelloy 87M - Monel 87N - Nickel 875 - 304L SS 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 2.25" Stem Extension (Carbon Steel, Zinc Plated) -04--14-Side Vented Ball (Uni-Directional) -15-Wheel Handle, Steel

-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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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

T



											B				
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	WT.
87J-203-01	1/2″	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.00	0.500	0.375	0.245	10-24	5
87J-204-01	3/4″	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	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



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ACTUATOR MOUNTING

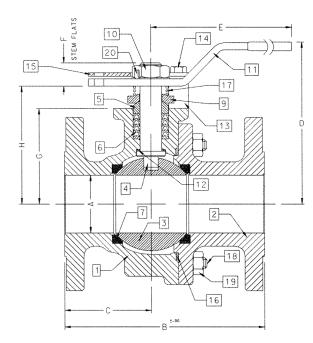
1" VALVE

Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Lever	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

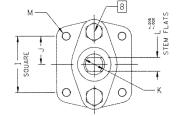
VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87M Monel
- 87N Nickel
- 875 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-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
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	WT.
87J-207-01	1.5″	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	2.5″	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

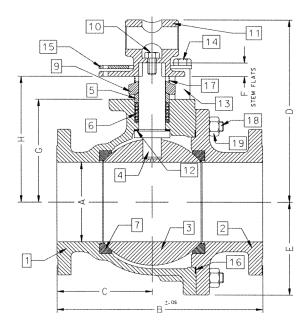


Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE				
8	Gland Screws	ASTM A193 B8 Class 1				
9	Gland Plate	316 SS				
10	Adapter Screw	18-8 SS				
11	Handle Adapter	316 with Vinyl Grip				
12	Stem Bearing	RPTFE				
13	Stop	ASTM A276 Type 316				
14	Stop Screw	316 SS				
15	Lock Plate	302 or 304 SS				
16	Body Seal	RPTFE				
17	Grounding Spring	SS				
18	Body Joint Stud	ASTM A193 Grade B8M				
19	Body Joint Nut	ASTM A194 Grade 8				
20	Pipe Handle	Galvanized Steel (not shown)				



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

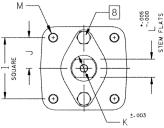
875 - 304LSS

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.

-01Standard 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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-97-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MF-Positive Material Identification-TC-With Test Certificate-TD-Tested to API Spec 6D	(SUFFIX)	OPTION
-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 Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MP-Positive Material Identification-MF-PCTE-MF-Portive Material Identification	-01	Standard Configuration
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 Dry57.Oxygen Cleaned-65.MPTFE Seats and Graphite Packing (Fire Safe)-69.Drilled and Tapped Purge Ports with Plugs-70.4" Extended Bonnet-73.316 SS Spiral Wound Gaskets w/PTFE Filler-76.Live Loaded (Lever)-77.Live Loaded (Gear, Actuator)-80.Multi-Seal (Super TFE)-82.Flat Face Flanges-90.Double Packed 4" Extended Bonnet-9P.Double Packed 4" Extended Bonnet with Monitoring Port-9P.Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF.PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MP.Positive Material Identification-TC-With Test Certificate	-14-	Side Vented Ball (Uni-Directional)
-24-RPTFE bearing (fire safe "by design")-35-PTFE Seats and Seals-38-PEEK Seats and Graphite Packing-49-No Lubrication. Assembled Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral Wound-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-TC-With Test Certificate	-21-	UHMWPE Seats
-38-PEEK Seats and Graphite Packing-49-No Lubrication. Assembled Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-EP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-MF-Positive Certificate	-24-	
-49-No Lubrication. Assembled Dry57-Oxygen Cleaned-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral Wound-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MP-Positive Material Identification-TC-With Test Certificate	-35-	PTFE Seats and Seals
 -57- Oxygen Cleaned -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 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet with Monitoring Port -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate 	-38-	PEEK Seats and Graphite Packing
-65-MPTFE Seats and Graphite Packing (Fire Safe)-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral WoundGraphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MH-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MP-Positive Material Identification-TC-With Test Certificate	-49-	No Lubrication. Assembled Dry.
-69-Drilled and Tapped Purge Ports with Plugs-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-FP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MF-Positive Material Identification-TC-With Test Certificate	-57-	Oxygen Cleaned
-70-4" Extended Bonnet-73-316 SS Spiral Wound Gaskets w/PTFE Filler-76-Live Loaded (Lever)-77-Live Loaded (Gear, Actuator)-80-Multi-Seal (Super TFE)-82-Flat Face Flanges-90-Double Packed 4" Extended Bonnet-9P-Double Packed 4" Extended Bonnet with Monitoring Port-EP-Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)-KF-PCTFE Stem Bearing-MG-Gear Operator with Standard Handwheel-MH-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel-MK-Gear Operator with Oversize Handwheel & Locking Device-MP-Positive Material Identification-TC-With Test Certificate	-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-73- 316 SS Spiral Wound Gaskets w/PTFE Filler -76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -FP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate	-69-	Drilled and Tapped Purge Ports with Plugs
-76- Live Loaded (Lever) -77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate	-70-	4" Extended Bonnet
-77- Live Loaded (Gear, Actuator) -80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate	-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-80- Multi-Seal (Super TFE) -82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel -MK- Gear Operator with Identification -MP- Positive Material Identification -TC- With Test Certificate	-76-	Live Loaded (Lever)
-82- Flat Face Flanges -90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate	-77-	Live Loaded (Gear, Actuator)
-90- Double Packed 4" Extended Bonnet -9P- Double Packed 4" Extended Bonnet with Monitoring Port -BP- Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design) - -KF- PCTFE Stem Bearing -MG- Gear Operator with Standard Handwheel -MH- Gear Operator with Oversize Handwheel -MK- Gear Operator With Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate	-80-	Multi-Seal (Super TFE)
-9P- Double Packed 4" Extended Bonnet with Monitoring Port -EP- Garlock EVSP Stem Packing w/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 -MF- Positive Material Identification -TC- With Test Certificate	-82-	Flat Face Flanges
-EP- Garlock EVSP Stem Packing w/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 -MK- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate	-90-	Double Packed 4" Extended Bonnet
-EP- 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	-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-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 -MK- Gear Operator with Oversize Handwheel & Locking Device -MF- Positive Material Identification -TC- With Test Certificate	-EP-	
-MH- Gear Operator with Standard Handwheel & Locking Device -MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MK- Poerator with Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate	-KF-	PCTFE Stem Bearing
-MJ- Gear Operator with Oversize Handwheel -MK- Gear Operator with Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate	-MG-	Gear Operator with Standard Handwheel
-MK- Gear Operator with Oversize Handwheel & Locking Device -MP- Positive Material Identification -TC- With Test Certificate	-MH-	Gear Operator with Standard Handwheel & Locking Device
-MP- Positive Material Identification -TC- With Test Certificate	-MJ-	Gear Operator with Oversize Handwheel
-TC- With Test Certificate	-MK-	Gear Operator with Oversize Handwheel & Locking Device
	-MP-	Positive Material Identification
-TD- Tested to API Spec 6D	-TC-	With Test Certificate
	-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	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



REV. 12APR16

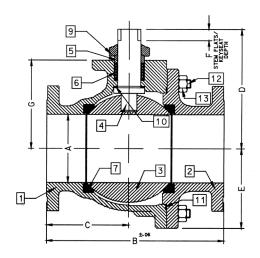
Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

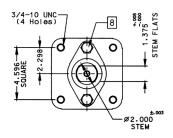
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.

YEAR warranty

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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
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: 8"

12.00

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40								
PRODUCT NUMBER	SIZE	A	В	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

24.00

12.09

20.31

13.40

VARIATIONS AVAILABLE:

87H - Hastelloy

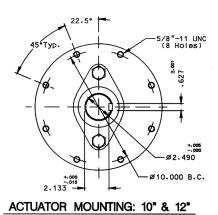
87N - Nickel 875 - 304LSS

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



Apollo Valves



12″

Г

D-30

87J-20H-01

2.31

14.92

Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.

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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 & 304 SS
10	Stem Nut	ASTM A194 Grade 8
11	Lever	302 & 304 SS with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS, ASTM A313

STEM FLATS 14 15 1 11 ц. 9 18 12 16 2 1

VARIATIONS AVAILABLE:

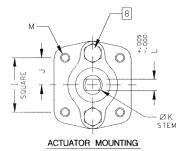
- 87H Hastelloy 87M - Monel
- 87N Nickel 87S 304L SS

OPTIONS AVAILABLE: (More information in Section J)

YEAR warranty

- 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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



FOR PRESSUR	E/TEMPERA	TURE RAT	INGS, RE	FER TO PA	GE M-28,	GRAPH N	0.41							
	SIZE	Α	В	C	D	E	F	G	H	I	J	K	L	

6.53

6.65

0.47

0.72



1.5"

2″

1.25

1.50

7.50

8.50

4.50

5.19

4.85

4.62

87J-707-01A

87J-708-01

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1.85

2.41

2.38

3.09

1.392

1.949

0.696

0.974

0.500

0.625

0.287

0.412

REV. 12APR16

Ν

1.50

2.00

Μ

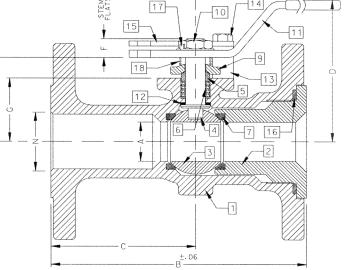
1/4-20

5/16-18

WT.

15.7

24.0



Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Nut	ASTM A194 Grade 8 SS
11	Lever	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS, ASTM A313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

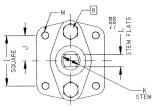
875 - 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	N	WT.
87J-709-01	2.5″	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

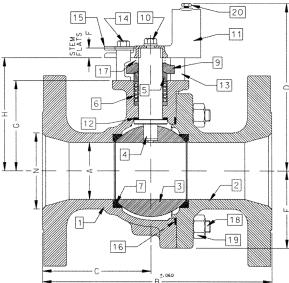


Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS, ASTM 313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Adapter Screw	302 or 304 SS
21	Pipe Handle	Galvanized Steel (not Shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41

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	0		

875 - 304L SS

87H - Hastellov 87N - Nickel

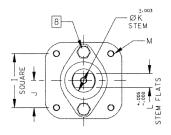
OPTIONS AVAILABLE: (More information in Section J)

Y E A R warranty

Minimum guantities apply

VARIATIONS AVAILABLE:

- 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 Side Vented Ball (Uni-Directional) -14--21-UHMWPE Seats Graphite packing, spiral wound graphite body seal, -24-RPTFE bearing (fire safe "by design") PTFE Seats and Seals -35--49-No Lubrication. Assembled Dry. -57-Oxygen Cleaned MPTFE Seats and Graphite Packing (Fire Safe) -65--69-Drilled and Tapped Purge Ports with Plugs -70-4" Extended Bonnet -73-316 SS Spiral Wound Gaskets w/PTFE Filler -76-Live Loaded (Lever) -77-Live Loaded (Gear, Actuator) Multi-Seal (Super TFE) -80--82-Flat Face Flanges -90-Double Packed 4" Extended Bonnet -9P-Double Packed 4" Extended Bonnet with Monitoring Port Garlock EVSP Stem Packing w/Spiral Wound -EP-Graphite Gasket (Fire Safe by Design) -KF-**PCTFE Stem Bearing** Gear Operator with Standard Handwheel -MG--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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	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



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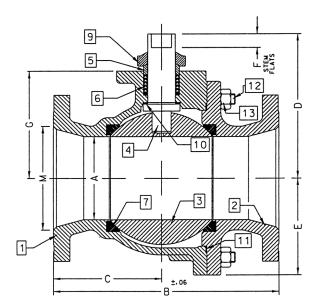
Duplex Stainless Steel ASME Class 300 Flanged Standard Port Ball Valve - 10"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
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

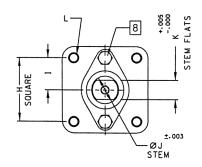
875 - 304L SS

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.

(СПЕСІА)	OPTION
(SUFFIX)	
-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-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

FOR PRESSUR	FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41														
PRODUCT NUMBER	SIZE	A	В	с	D	E	F	G	Н	I	J	K	L	М	
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	

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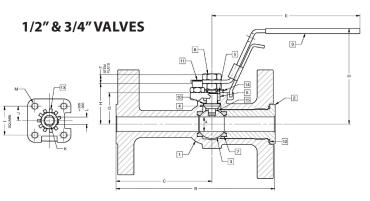
Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	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	RPTFE							
8	Stem Nut	300 Series Stainless Steel							
9	Lever	300 Series Stainless Steel w/ Vinyl Grip							
10	Stem Bearing	RPTFE							
11	Stop	300 Series Stainless Steel							
12	Body Seal	RPTFE							
13	Lockwasher	300 Series Stainless Steel							
14	Grounding Spring	ASTM A313 Stainless Steel							
15	Grounding Spring	ASTM A313 Stainless Steel							
	PART (1" VALVES)	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	RPTFE							
8	Gland Screws	ASTM A193 B8 Class 1							
9	Gland Plate	302 or 304 SS							
10	Stem Nut	316 SS							
11	Lever	302 or 304 with Vinyl Grip							
12	Stem Bearing	RPTFE							
13	Stop	ASTM A276 Type 316							
14	Stop Screw	18-8 SS							
15	Lock Plate	302 or 304 SS							
16	Body Seal	RPTFE							
17	Lockwasher	302 or 304 SS							
18	Grounding Spring	SS, ASTM A313							



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	Ι	J	K	L	М	WT.
87J-903-01	1/2″	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	6
87J-904-01	3/4″	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	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



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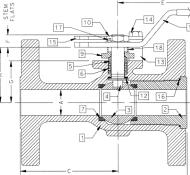
VARIATIONS AVAILABLE:

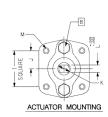
- 87H Hastelloy 87M - Monel 87N - Nickel
- 875 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
5 W	





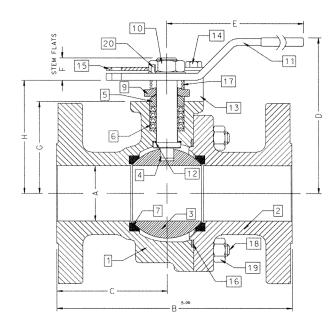
Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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/A479 Alloy 2205
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Nut	18-8 SS
11	Lever	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS, ASTM A313
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS



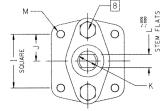
VARIATIONS AVAILABLE:

- 87H Hastelloy 87M - Monel
- 87M Monei 87N - Nickel
- 87S 304L SS

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
- no specify multiple options, replace the off 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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
87J-907-01	1.5″	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	2.5″	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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FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41

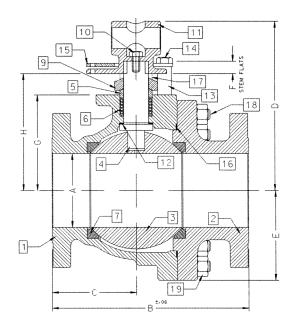


Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS, 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)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41

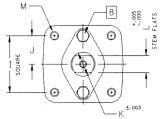
VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87N Nickel
- 875 304L SS

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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	Ι	J	К	L	М	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



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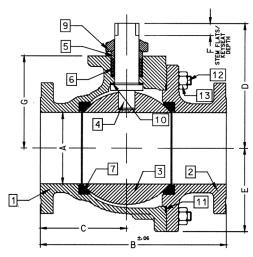
Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

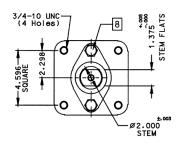
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
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: 8"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41
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PRODUCT NUMBER	SIZE	A	В	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



D-38

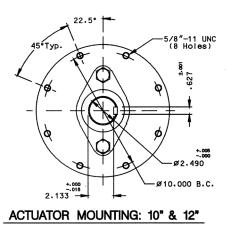
VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87N Nickel
- 875 304LSS

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D





Super Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 SS with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

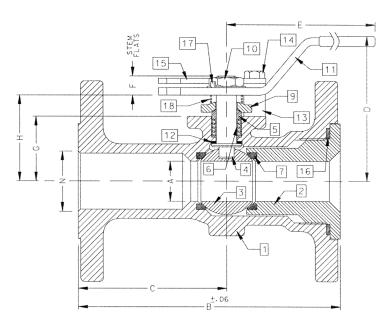
VARIATIONS AVAILABLE:

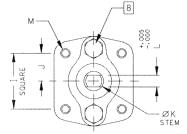
- 87H Hastelloy 87M - Monel (1.5" to 2" only)
- 87N Nickel
- 875 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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





ACTUATOR MOUNTING

FOR PRESSUR	FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 4						0. 41									
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	N	WT.
87K-107-01	1.5″	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



REV. 12APR16

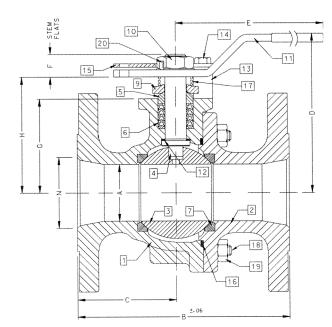
Super Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Nut	18-8 SS
11	Lever	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

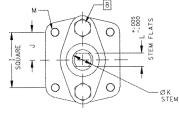
875 - 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded 87A/88A Series (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	N	WT.
87K-109-01	2.5″	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. 12APR16



Super Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

8 Minimum autentices apply

OPTION

Standard Configuration

UHMWPE Seats

PTFE Seats and Seals

Oxygen Cleaned

Side Vented Ball (Uni-Directional)

RPTFE bearing (fire safe "by design")

No Lubrication. Assembled Dry.

Cleaned For Industrial Gases

(SUFFIX)

-01

-14-

-21-

-24-

-35-

-49-

-57-

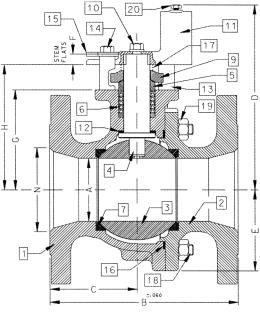
-65-

-67--69-

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST PART MATERIAL 1 ASTM A995 6A Body 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 RPTFE Seats 8 **Gland Screws** ASTM A193 B8 Class 1 9 **Gland Plate** 316 SS 10 Adapter Screw 18-8 SS Handle Adapter 316 SS 11 12 Stem Bearing RPTFE 13 Stop ASTM A276 Type 316 14 Stop Screw 316 SS Lock Plate 302 or 304 SS 15 RPTFE 16 Body Seal 17 Grounding Spring SS ASTM A193 Grade B8M 18 **Body Joint Stud** 19 **Body Joint Nut** ASTM A194 Grade 8 20 Lockwasher 302 or 304 SS **Pipe Handle** Galvanized Steel (not Shown) 21



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

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ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	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



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-70-	Extended Bonnet
-73-	316 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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

URRIGNO RYANLABLED bre information in Section J)

87 specify perception, replace the "01" standard suffix with the suffix of the option.

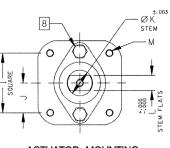
879 specify 04 tight options, replace the "01" suffix with the desired suffixes in the

numerical order shown below. NOTE: Not all suffixes can be combined together.

Graphite packing, spiral wound graphite body seal,

MPTFE Seats and Graphite Packing (Fire Safe)

Drilled and Tapped Purge Ports with Plugs



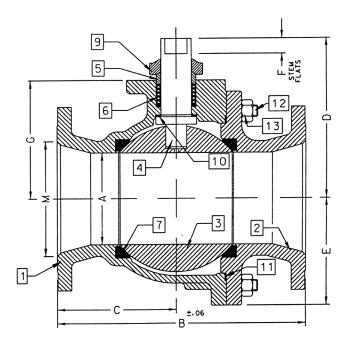
Super Duplex Stainless Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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 A995 6A
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 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

VARIATIONS AVAILABLE:

87H - Hastelloy

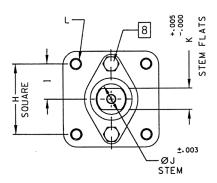
87N - Nickel 87S - 304L SS

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	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





Super Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



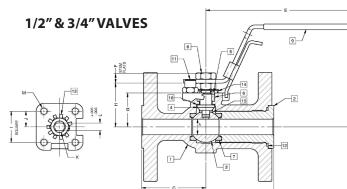
STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	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	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS, ASTM A313

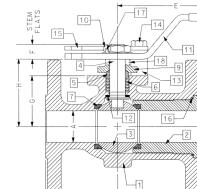
VARIATIONS AVAILABLE: 87H - Hastelloy 87M - Monel 87N - Nickel 87S - 304L SS OPTIONS AVAILABLE: (More information in Section J) • Minimum quantities apply • To specify an option, replace the "01" standard suffix with the suffix of the option. • To specify multiple options, replace the "01" suffix with the desired suffixes in the

numerical order shown below. NOTE: Not all suffixes can be combined together.

(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40





ACTUATOR MOUNTING

									-		B				
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
87K-203-01	1/2″	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.00	0.500	0.375	0.245	10-24	5
87K-204-01	3/4″	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	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



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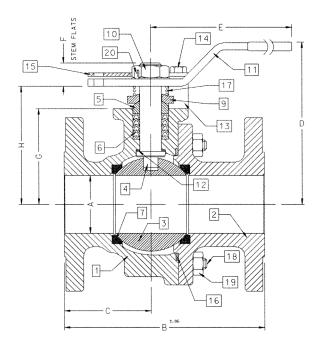
Super Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Lever	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

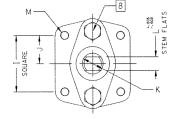
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V	Ά	R	IA	Т	10		IS	A	V	Ά	IL	A	B	LE	:	

- 87H Hastelloy
- 87M Monel
- 87N Nickel
- 875 304LSS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	WT.
87K-207-01	1.5″	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	2.5″	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

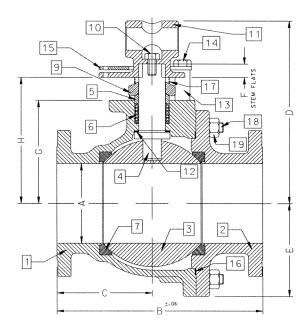


Super Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STAN	IDARD MATERIA	LLIST
	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	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



FOR PRESSUR	E/TEMPER#	TURE RAT	INGS, REI	ER TO PA	GE M-28,	GRAPH N	0.40				ACTUA	ТС
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	
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
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
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

VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

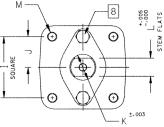
875 - 304L SS

OPTIONS AVAILABLE: (More information in Section J)

• Minimum guantities 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
	M



OR MOUNTING

UCT SER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
00-01	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
0A-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
0C-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
															-



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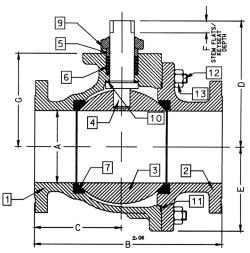
Super Duplex Stainless Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

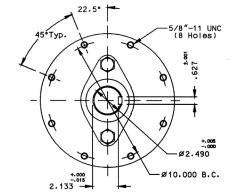
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8





STEM FLATS

ACTUATOR MOUNTING: 10" & 12"

D-46

ACTUATOR MOUNTING: 8"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 40

PRODUCT NUMBER	SIZE	A	В	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
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VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87N Nickel
- 875 304L SS

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



Super Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 & 304 SS
10	Stem Nut	316 SS
11	Lever	302 & 304 SS with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS

STEM FLATS 14 10 15 1 11 ц., 18 16 1 1 <u>±.06</u> В ——

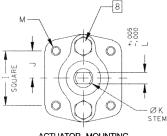
VARIATIONS AVAILABLE:

- 87H Hastelloy
- 87M Monel
- 87N Nickel
- 875 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41																
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	Ν	WT.
87K-707-01A	1.5″	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
87K-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



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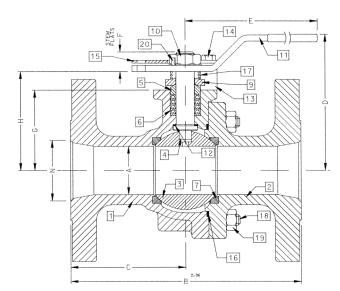
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Super Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



	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	316 SS
10	Stem Nut	18-8 SS
11	Lever	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS



VARIATIONS AVAILABLE:

87H - Hastelloy

87N - Nickel

87S - 304LSS

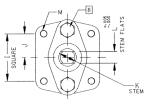
OPTIONS AVAILABLE: (More information in Section J)

YEAR warranty

• 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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	N	WT.
87K-709-01	2.5″	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

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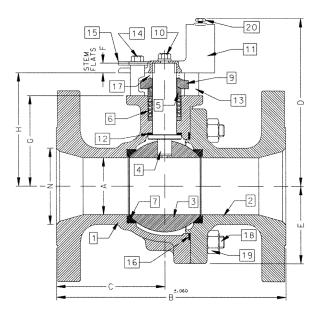


Super Duplex Stainless Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.

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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Adapter Screw	18-8 SS
21	Pipe Handle	Galvanized Steel (not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41
FOR FRESSORE/TEMIFERATORE RATINGS, REFER TO FAGE M 20, GRAFTING, 41

VARIATIONS AVAILABLE:

87H - Hastelloy 87N - Nickel 87S - 304L SS

OPTIONS AVAILABLE: (More information in Section J)

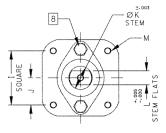
Minimum quantities apply

• To specify an option, replace the "01" standard suffix with the suffix of the option.

YEAR warranty

 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-TC-	With lest certificate



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	Ν	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



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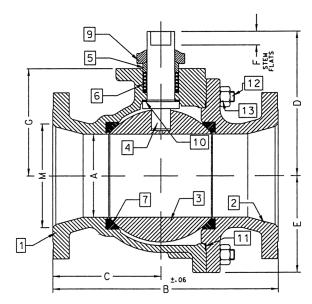
Super Duplex Stainless Steel ASME Class 300 Flanged Standard Port Ball Valve - 10"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.

YEAR warranty

STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A995 6A
2	Retainer	ASTM A995 6A
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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B8M
13	Body Joint Nut	ASTM A194 Grade 8



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41

VARIATIONS AVAILABLE:

87H - Hastelloy

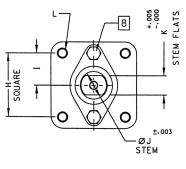
87N - Nickel 87S - 304L SS

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-	Multi-Seal (Super TFE) 87A/88A Series
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М
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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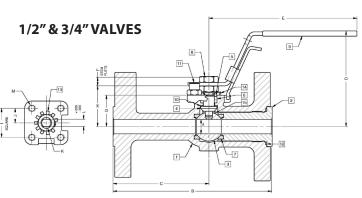
Super Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	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	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/ Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lockwasher	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
11	Lever	302 or 304 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	18-8 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Lockwasher	302 or 304 SS
18	Grounding Spring	SS



VARIATIONS AVAILABLE:

87H - Hastelloy 87M - Monel

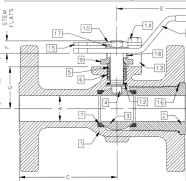
87N - Nickel 87S - 304L SS

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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
2	





FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41										

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
87K-903-01	1/2″	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	6
87K-904-01	3/4″	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	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



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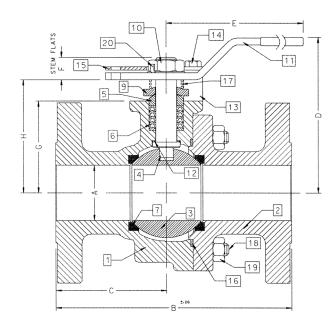
REV. 12APR16

Super Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



	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	316 SS
10	Stem Nut	18-8 SS
11	Lever	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41

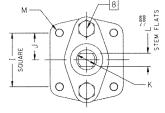
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V	/A	R	IA	T	IC) \	IS	A	V	Ά	IL.	A	В	LI	E:		

- 87H Hastelloy
- 87M Monel
- 87N Nickel 87S - 304L SS
- 5/5 304L 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-	2.25" 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	WT.
87K-907-01	1.5″	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	2.5″	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



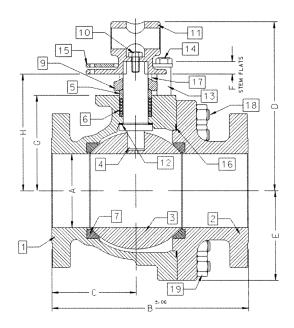
Super Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
18	Body Joint Stud	ASTM A193 Grade B8M
19	Body Joint Nut	ASTM A194 Grade 8
20	Pipe Handle	Galvanized Steel (not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-28, GRAPH NO. 41

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	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



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VARIATIONS AVAILABLE:

87H - Hastelloy

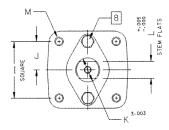
87N - Nickel 87S - 304L SS

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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

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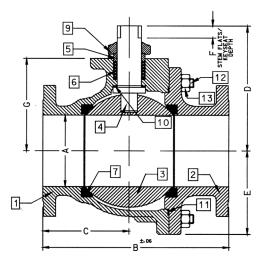
Super Duplex Stainless Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

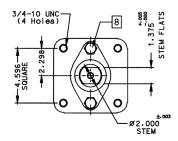
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
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: 8"

PRODUCT NUMBER	SIZE	A	В	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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87H - Hastelloy

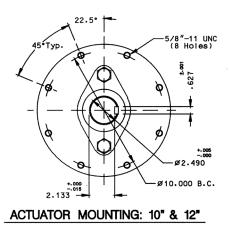
- 87N Nickel
- 875 304L SS

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



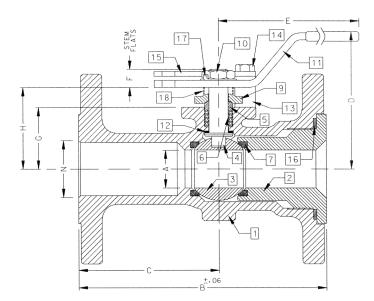


Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



	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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
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 SS
18	Grounding Spring	SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

VARIATIONS AVAILABLE: 88A-140 Series (316 SS Ball & Stem) 88A-130 Series (Ni-Cu Ball & Stem)

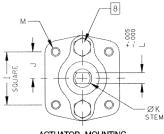
OPTIONS AVAILABLE: (More information in Section J)

- Minimum quantities apply
- To specify an option, replace the "01" standard suffix with the suffix of the option.

YEAR warranty

 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-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	N	WT.
88A-107-01A	1.5″	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



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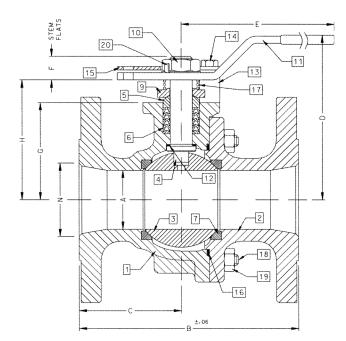
Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

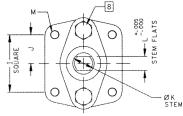
	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	ASTM A194 Grade 8
11	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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

VARIATIONS AVAILABLE: 88A-140 Series (316 SS 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-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	N	WT.
88A-109-01	2.5″	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



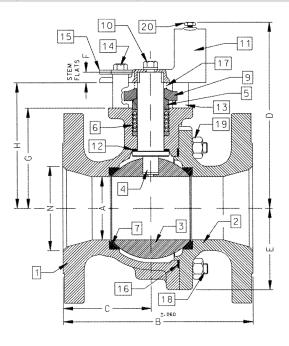
Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Adaptor Screw	316 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Adapter Screw	18-8 SS
21	Pipe Handle	Galvanized Steel (not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

88A-140 Se 88A-130 Se OPTIONS • Minimum qu • To specify an • To specify mu numerical or	option, replace the "01" standard suffix with the suffix of the option. Itiple options, replace the "01" suffix with the desired suffixes in the der 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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-MG-	Gear Operator with Standard Handwheel

 -MG Gear Operator with Standard Handwheel

 -MH Gear Operator with Standard Handwheel & Locking Device

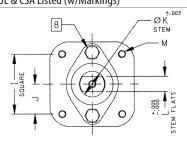
 -MJ Gear Operator with Oversize Handwheel

 -MK Gear Operator with Oversize Handwheel & Locking Device

 -TC With Test Certificate

 -TD Tested to API Spec 6D

-UL- UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	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



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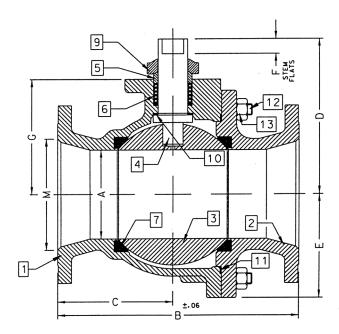
Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE					
8	Gland Screws	ASTM A193 B7					
9	Gland Plate	316 SS					
10	Stem Bearing	RPTFE					
11	Body Seal	RPTFE					
12	Body Joint Stud	ASTM A193 Grade B7					
13	Body Joint Nut	ASTM A194 Grade 2H					



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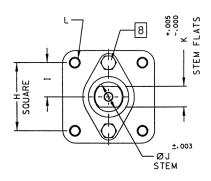
VARIATIONS AVAILABLE: 88A-130 Series (Ni-Cu Ball & Stem) 88A-140 Series (316 SS Ball & Stem)

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSU	RE/TEMPER	ATURE RA	TINGS, RE	FER TO P	AGE M-9,	0.1								
PRODUCT NUMBER	SIZE	Α	В	C	D	E	F	G	H	I	J	K	L	М
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



Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.

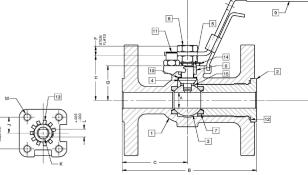


STANDARD MATERIAL LIST

	PART (1/2"& 3/4" VALVES)	MATERIAL							
1	Body	ASTM A216 WCB							
2	Retainer	ASTM A108 Type 1215							
3	Ball	ASTM A108 Type 1215							
4	Stem	ASTM A108 Type 1215							
5	Packing Gland	ASTM A108 Type 1215							
6	Stem Seals	PTFE							
7	Seats	RPTFE							
8	Stem Nut	300 Series Stainless Steel							
9	Lever	300 Series Stainless Steel w/Vinyl Grip							
10	Stem Bearing	RPTFE							
11	Stop	300 Series Stainless Steel							
12	Body Seal	RPTFE							
13	Lock Washer	300 Series Stainless Steel							
14	Grounding Spring	ASTM A313 Stainless Steel							
15	Grounding Spring	ASTM A313 Stainless Steel							
	PART (1" VALVES)	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	RPTFE							
8	Gland Screws	ASTM A193 B7							
9	Gland Plate	302 or 304 SS							
10	Stem Nut	316 SS							
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 SS							
18	Grounding Spring	SS							

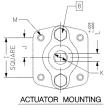
 88A-240 Se 88A-230 Se OPTIONS Minimum qua To specify an To specify mu numerical or 	option, replace the "01" standard suffix with the suffix of the option. Itiple options, replace the "01" suffix with the desired suffixes in the der shown below. NOTE: Not all suffixes can be combined together.
(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)

1/2" & 3/4" VALVES



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1		
	c	
		- R





PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	WT.
88A-203-01	1/2″	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.002	0.501	0.375	0.245	10-24	5
88A-204-01	3/4″	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	1.392	0.696	0.500	0.287	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



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STEM FLATS

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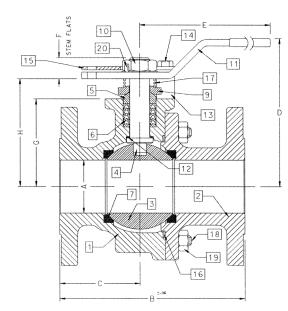
Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** and **STANDARD FEATURES** refer to page D-3.



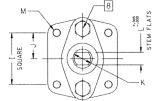
STANDARD MATERIAL LIST

	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	RPTFE							
8	Gland Screws	ASTM A193 B7							
9	Gland Plate	302 & 304 SS							
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	SS							
18	Body Joint Stud	ASTM A193 Grade B7							
19	Body Joint Nut	ASTM A194 Grade 2H							
20	Lockwasher	302 or 304 SS							



88A-240 Se 88A-230 Se OPTIONS • Minimum qu • To specify an • To specify mu numerical or	option, replace the "01" standard suffix with the suffix of the option. Iltiple options, replace the "01" suffix with the desired suffixes in the der shown below. NOTE: Not all suffixes can be combined together.
(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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) 1.5" & 2" (API 607, 6th edition, ISO 10497:2010) 2.5"
-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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 & CSA Listed (w/Markings)



FOR PRESSU	RE/TEMPER	ATURE RA	TINGS, RE	FER TO P	AGE M-9,	GRAPH N	0.1	ACTUATOR MOUNTING							
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
88A-207-01	1.5″	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	2.5″	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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Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

VARIATIONS AVAILABLE: 88A-240 Series (316 SS Ball & Stem) 88A-230 Series (Ni-Cu Ball & Stem)

OPTION

Standard Configuration

UHMWPE Seats

PTFE Seats and Seals

SS External Trim

4" Extended Bonnet

Live Loaded (Lever)

Multi-Seal (Super TFE)

Flat Face Flanges

PCTFE Stem Bearing

With Test Certificate

N

Tested to API Spec 6D

UL & CSA Listed (w/Markings)

(F)

PEEK Seats and Graphite Packing

No Lubrication. Assembled Dry.

Cleaned For Industrial Gases

Live Loaded (Gear, Actuator)

Double Packed 4" Extended Bonnet

Graphite Gasket (Fire Safe by Design)

Gear Operator with Standard Handwheel

Gear Operator with Oversize Handwheel

Ф

Garlock EVSP Stem Packing w/Spiral Wound

Double Packed 4" Extended Bonnet with Monitoring Port

Gear Operator with Standard Handwheel & Locking Device

Gear Operator with Oversize Handwheel & Locking Device

(F)

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MPTFE Seats and Graphite Packing (Fire Safe)

Drilled and Tapped Purge Port with Plug

316 SS Spiral Wound Gaskets w/PTFE Filler

· Minimum quantities apply

(SUFFIX)

-01

-14-

-21-

-24-

-26-

-35-

-38--49-

-59-

-65-

-67-

-69-

-70-

-73--76-

-77-

-80-

-82-

-90-

-9P-

-EP-

-KF-

-MG-

-MH--MJ-

-MK--TC-

-TD-

-UL-

OPTIONS AVAILABLE: (More information in Section J)

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.

Side Vented Ball (Uni-Directional). Not available with plated CS ball.

(for CS, Hastelloy and Ni-Cu valves. Ball must be Hastelloy or Ni-CU)

Graphite packing, spiral wound graphite body seal,

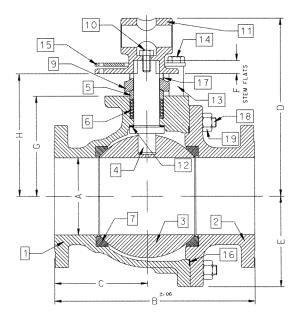
RPTFE bearing (API 607, 6th edition, ISO 10497:2010) Chlorine Service. Vented. Special Cleaning. Assembled dry.

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE						
8	Gland Screws	ASTM A193 B7						
9	Gland Plate	316 SS						
10	Adapter Screw	316 SS						
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	SS						
18	Body Joint Stud	ASTM A193 Grade B7						
19	Body Joint Nut	ASTM A194 Grade 2H						
20	Pipe Handle	Galvanized Steel (not shown)						



FOR PRESSU	RE/TEMPER	AGE M-9,	0.1	ACTUATOR MOUNTING											
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	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

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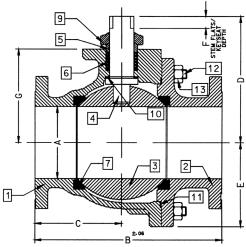
Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

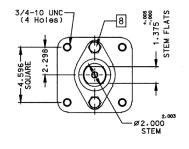
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE							
8	Gland Screws	ASTM A193 B7							
9	Gland Plate	316 SS							
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: 8"

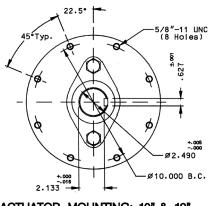
FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1								
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G
88A-20E-01	8″	8.00	18.00	8.88	12.83	9.18	1.00	10.22
88A-20G-01	10″	10.00	21.00	10.26	18.57	11.33	2.31	12.80
88A-20H-01	12″	12.00	24.00	12.09	20.31	13.40	2.31	14.92

VARIATIONS AVAILABLE: 88A-230 Series (Ni-Cu Ball & Stem) 88A-240 Series (316 SS 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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 & CSA Listed (w/Markings)



ACTUATOR MOUNTING: 10" & 12"

Apollo

Valves



Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



	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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 SS
10	Stem Nut	316 SS
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 SS
18	Grounding Spring	SS

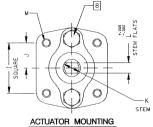
VARIATIONS AVAILABLE: 88A-740 Series (316 SS Ball & Stem) 88A-730 Series (Ni-Cu Ball & Stem)

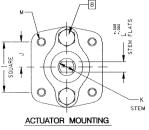
OPTIONS AVAILABLE: (More information in Section J)

• 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-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)

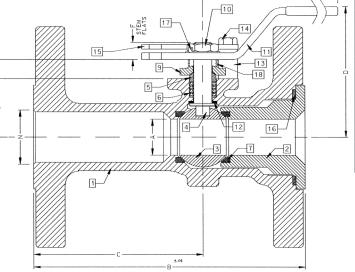




PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	N	WT.
88A-707-01	1.5″	1.25	7.50	4.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	16
88A-708-01	2″	1.50	8.50	5.19	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	24



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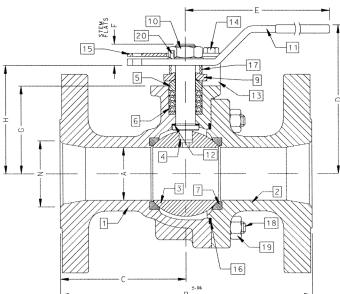
Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 SS

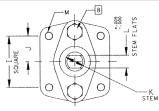


FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

88A-740 Series (316 SS 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 -04-2.25" Stem Extension (Carbon Steel, Zinc Plated) -10-SS Lever and Nut -14-Side Vented Ball (Uni-Directional). Not available with plated CS ball. -15-Wheel Handle, Steel -21-**UHMWPE** Seats Graphite packing, spiral wound graphite body seal, -24-RPTFE bearing (API 607, 6th edition, ISO 10497:2010) Chlorine Service. Vented. Special Cleaning. Assembled dry. -26-(for CS, Hastelloy and Ni-Cu valves. Ball must be Hastelloy or Ni-CU) -35-PTFE Seats and Seals **PEEK Seats and Graphite Packing** -38--49-No Lubrication. Assembled Dry. -59-SS External Trim MPTFE Seats and Graphite Packing (Fire Safe) -65--67-**Cleaned For Industrial Gases** -69-Drilled and Tapped Purge Port with Plug -70-4" Extended Bonnet -73-316 SS Spiral Wound Gaskets w/PTFE Filler -76-Live Loaded (Lever) -77-Live Loaded (Gear, Actuator) Multi-Seal (Super TFE) -80-

VARIATIONS AVAILABLE:

-00-	
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 & CSA Listed (w/Markings)



ACTUATOR	MOUNTING

Apollo

Valves

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	N	WT.
88A-709-01	2.5″	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

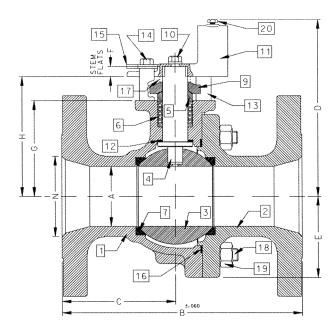
Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Adapter Screw	316 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Adapter Screw	316 SS
21	Pipe Handle	Galvanized Steel (not shown)

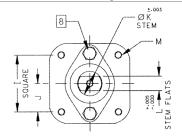


FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

VARIATI	ONS AVAILABLE:				
88A-740 Series (316 SS Ball & Stem)					
88A-730 Series (Ni-Cu Ball & Stem)					
	S AVAILABLE: (More information in Section J)				
Minimum que					
	option, replace the "01" standard suffix with the suffix of the option. Iltiple options, replace the "01" suffix with the desired suffixes in the				
numerical or	der 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				
	Fire Safe - graphite packing & seals				
-24-	(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.				
-26-	(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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler				
-76-	Live Loaded (Lever)				
-77-	Live Loaded (Gear, Actuator)				
-80-	Multi-Seal (Super TFE)				
-82-	Flat Face Flanges				
-90-	Double Packed 4" Extended Bonnet				
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port				
-EP-	Garlock EVSP Stem Packing w/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					

-TC- With Test Certificate -TD- Tested to API Spec 6D

-UL- UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	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



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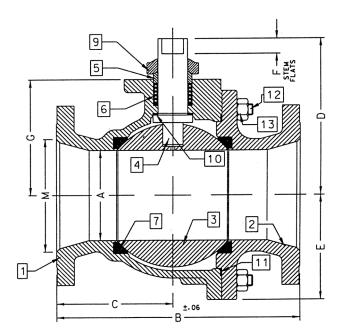
Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 10"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
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 SS Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J)

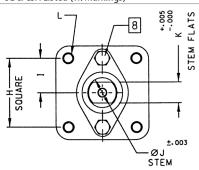
Minimum quantities apply

- 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.
- numerical order shown below. NOTE: Not all suffixes can be combined together.

 (SUFFIX)
 OPTION

 -01
 Standard Configuration

-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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSUR	NO. 5													
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М
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

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- Apollo Valves

Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

VARIATIONS AVAILABLE: 88A-940 Series (316 SS Ball & Stem) 88A-930 Series (Ni-Cu Ball & Stem)

OPTION

Standard Configuration

SS Lever and Nut

Wheel Handle, Steel **UHMWPE** Seats

PTFE Seats and Seals

4" Extended Bonnet

Live Loaded (Lever)

Flat Face Flanges

PCTFE Stem Bearing

With Test Certificate Tested to API Spec 6D

PEEK Seats and Graphite Packing

No Lubrication. Assembled Dry.

Cleaned For Industrial Gases

Live Loaded (Gear, Actuator) Multi-Seal (Super TFE)

Double Packed 4" Extended Bonnet

Graphite Gasket (Fire Safe by Design)

Garlock EVSP Stem Packing w/Spiral Wound

MPTFE Seats and Graphite Packing (Fire Safe)

Drilled and Tapped Purge Port with Plug

316 SS Spiral Wound Gaskets w/PTFE Filler

· Minimum quantities apply

(SUFFIX)

-01

-04--10-

-14--15-

-21-

-24-

-26-

-35-

-38-

-49-

-65--67-

-69--70-

-73-

-76-

-77-

-80--82-

-90-

-9P-

-EP-

-KF-

-TC-

-TD-

-UL-

OPTIONS AVAILABLE: (More information in Section J)

• 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.

2.25" Stem Extension (Carbon Steel, Zinc Plated)

Graphite packing, spiral wound graphite body seal,

RPTFE bearing (API 607, 5th edition, ISO 10497-5:2004) Chlorine Service. Vented. Special Cleaning. Assembled dry.

(for CS, Hastelloy and Ni-Cu valves. Ball must be Hastelloy or Ni-CU)

Double Packed 4" Extended Bonnet with Monitoring Port

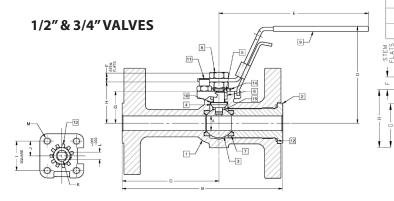
Side Vented Ball (Uni-Directional). Not available with plated CS ball.

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

	PART (1/2"& 3/4" VALVES)	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A108 Type 1215
3	Ball	ASTM A108 Type 1215
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lock Washer	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
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 SS
18	Grounding Spring	SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

											- B				
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
88A-903-01	1/2″	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	7.0
88A-904-01	3/4″	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	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



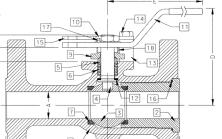
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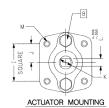
1/4-20	9.0

0

1"VALVE



UL & CSA Listed (w/Markings)



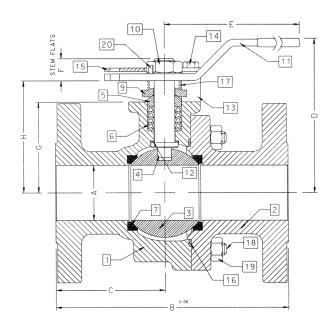
Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

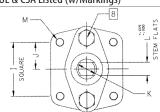
	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 SS
10	Stem Nut	ASTM A194 Grade 8I
11	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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 SS



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

88A-940 Se 88A-930 Se OPTIONS • Minimum qua • To specify an • To specify mu	ONS AVAILABLE: ries (316 SS Ball & Stem) ries (Ni-Cu Ball & Stem) S AVAILABLE: (More information in Section J) antities apply option, replace the "01" standard suffix with the suffix of the option. Itiple options, replace the "01" suffix with the desired suffixes in the der shown below. NOTE: Not all suffixes can be combined together.
(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" 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) 1.5" & 2" (API 607, 6th edition, ISO 10497:2010) 2.5"
-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-	SS External Trim
-65-	MPTFE Seats and Graphite Packing (Fire Safe)
-67-	Cleaned For Industrial Gases
60	Drillod and Tannod Durgo Ports with Plugs

-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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	WT.
88A-907-01	1.5″	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	2.5″	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



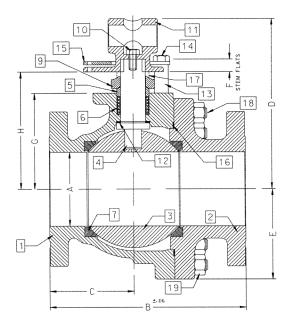
Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

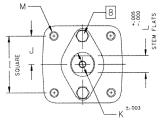
	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or ASTM A216 WCB Chrome Plated
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Adapter Screw	316 SS
11	Handle Adapter	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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Pipe Handle	Galvanized Steel (not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-11, GRAPH NO. 5

VARIATIONS AVAILABLE:								
88A-940 Series (316 SS Ball & Stem)								
	ries (Ni-Cu Ball & Stem)							
	S AVAILABLE: (More information in Section J)							
 Minimum qua To specify an 	option, replace the "01" standard suffix with the suffix of the option.							
	Itiple options, replace the "01" suffix with the desired suffixes in the							
numerical or	der 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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler							
-76-	Live Loaded (Lever)							
-77-	Live Loaded (Gear, Actuator)							
-80-	Multi-Seal (Super TFE)							
-82-	Flat Face Flanges							
-90-	Double Packed 4" Extended Bonnet							
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port							
-EP-	Garlock EVSP Stem Packing w/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							

- -TC- With Test Certificate
- -TD- Tested to API Spec 6D
- -UL- UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	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



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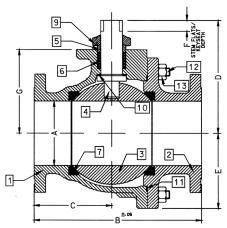
Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

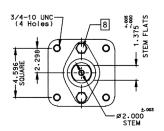
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

	PART	MATERIAL
1	Body	ASTM A216 WCB
2	Retainer	ASTM A216 WCB
3	Ball	ASTM A108 Type 1215 or A216 WCB
4	Stem	ASTM A108 Type 1215
5	Packing Gland	ASTM A108 Type 1215
6	Stem Seals	PTFE
7	Seats	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
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: 8"

FOR PRESSUR	RE/TEMPER/	TURE RAT	'INGS, RE	FER TO P/	AGE M-11,	, GRAPH N	10.5	
PRODUCT NUMBER	SIZE	A	В	С	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

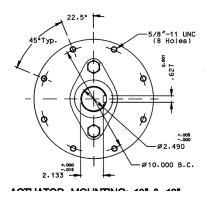
VARIATIONS AVAILABLE: 88A-930 Series (Ni-Cu Ball & Stem) 88A-940 Series (316 SS Ball & Stem)

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 & CSA Listed (w/Markings)





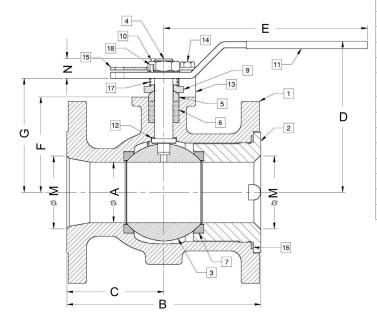
REV. 29JUN16

Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Stem Nut	18-8 SS
11	Lever	316 SS 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	SS
18	Lockwasher	302 or 304 SS



VARIATIONS AVAILABLE: 88B-130 Series (Ni-Cu Ball & Stem)

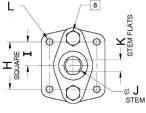
88B-140 Series (316 SS Ball & Stem)

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-	2.25" 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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL & CSA Listed (w/Markings)



ACTUATOR MOUNTING

FOR PRESSUR	RE/TEMPER/	ATURE RAT	TINGS, RE	FER TO P	AGE M-9,	GRAPH N	0.1									
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	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



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REV. 29JUN16



Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 4"-10" Short Pattern

VARIATIONS AVAILABLE: 88B-130 Series (Ni-Cu Ball & Stem) 88B-140 Series (316 SS Ball & Stem)

OPTION

Standard Configuration

UHMWPE Seats

PTFE Seats and Seals

4" Extended Bonnet

Live Loaded (Lever)

Flat Face Flanges

PCTFE Stem Bearing

With Test Certificate

H SQUARE

1

Tested to API Spec 6D

UL & CSA Listed (w/Markings) 8

Multi-Seal (Super TFE)

PEEK Seats and Graphite Packing

No Lubrication. Assembled Dry.

Cleaned for Industrial Gases

Live Loaded (Gear, Actuator)

Double Packed 4" Extended Bonnet

Graphite Gasket (Fire Safe by Design)

Gear Operator with Standard Handwheel

Gear Operator with Oversize Handwheel

Ô

Garlock EVSP Stem Packing w/Spiral Wound

MPTFE Seats and Graphite Packing (Fire Safe)

Drilled and Tapped Purge Ports with Plugs

Minimum quantities apply

(SUFFIX)

-01 -14-

-21-

-24-

-26-

-35-

-38-

49

-65-

-67--69-

-70--76-

-77-

-80-

-82-

-90-

-9P-

-EP-

-KF-

-MG-

-MH-

-MJ-

-MK-

-TC-

-TD-

-UL-

OPTIONS AVAILABLE: (More information in Section J)

• 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.

Side Vented Ball (Uni-Directional). Not available with plated CS ball.

(for CS, Hastelloy and Ni-Cu valves. Ball must be Hastelloy or Ni-CU)

Double Packed 4" Extended Bonnet with Monitoring Port

Gear Operator with Standard Handwheel & Locking Device

Gear Operator with Oversize Handwheel & Locking Device

K FLATS .005

±.003

STEM

STEM

Graphite packing, spiral wound graphite body seal,

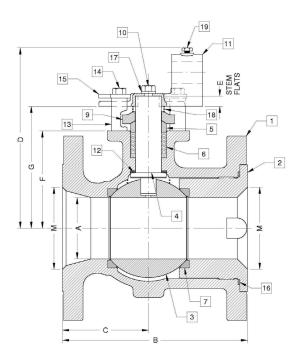
RPTFE bearing (API 607, 6th edition, ISO 10497:2010) Chlorine Service. Vented. Special Cleaning. Assembled dry.

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 SS
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 SS
18	Grounding Spring	SS
19	Adapter Screw	18-8 SS
20	Pipe Handle	Galvanized Steel (not shown)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-9, GRAPH NO. 1

PRODUCT SIZE F WT. A B C D E G Н L J K L М NUMBER 9.00 88B-10A-01 4″ 3.00 4.18 8.80 0.50 4.75 5.95 2.840 1.420 1.250 0.725 3/8-16 4.00 72 6″ 5.25 5.94 88B-10C-01 4.00 10.50 9 99 0.50 7.13 2.840 1.420 1.250 0.725 3/8-16 6.00 110 8″ 88B-10E-01 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 2.298 2.000 1.375 3/4-10 10.0 350 11.23 4.596

REV. 29JUN16





Low Temperature Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 1.5" through 2"

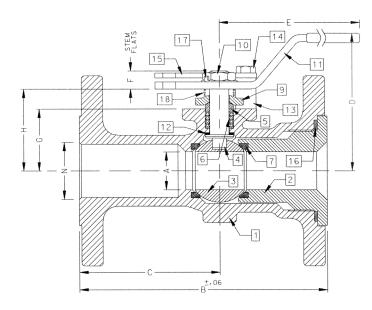
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
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 SS
18	Grounding Spring	SS

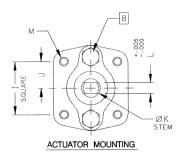
VARIATIONS AVAILABLE: 88L-130 Series (Ni-Cu Ball & Stem)



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-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



FOR PRESSURI	E/TEMPERA	TURE RAT	INGS, REF	ER TO PA	GE M-23,	GRAPH N	0.31									
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	N	WT.
88L-147-01A	1.5″	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



REV. 29JUN16

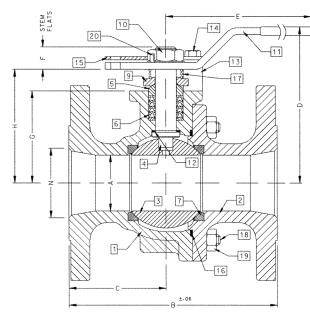
Low Temperature Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** refer to page D-3. STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 SS

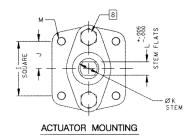
VARIATIONS AVAILABLE: 88L-140 Series (316 SS Ball & Stem)



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-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	N	WT.
88L-149-01	2.5″	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

Apollo Valves





Low Temperature Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 4" through 8"

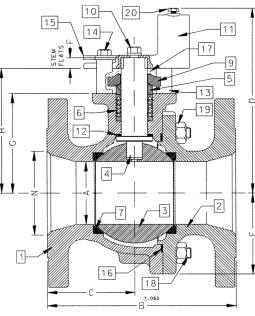
For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Adaptor Screw	316 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Adapter Screw	18-8 SS
21	Pipe Handle	Galvanized Steel (not shown)

VARIATIONS AVAILABLE:

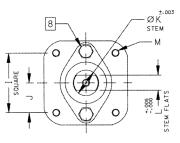
88L-140 Series (316 SS Ball & Stem)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

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** Standard Configuration -01 -14-Side Vented Ball (Uni-Directional). Not available with plated CS ball. -21-**UHMWPE** Seats Graphite packing, spiral wound graphite body seal, -24-RPTFE bearing (API 607, 6th edition, ISO 10497:2010) Chlorine Service. Vented. Special Cleaning. Assembled dry. -26-(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-SS 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 SS Spiral Wound Gaskets w/PTFE Filler -76-Live Loaded (Lever) -77-Live Loaded (Gear, Actuator) -80-Multi-Seal (Super TFE) Flat Face Flanges -82--90-Double Packed 4" Extended Bonnet -9P-Double Packed 4" Extended Bonnet with Monitoring Port Garlock EVSP Stem Packing w/Spiral Wound -EP-Graphite Gasket (Fire Safe by Design) -KF-**PCTFE Stem Bearing** Gear Operator with Standard Handwheel -MG--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



ACTUATOR MOUNTING

REV. 29JUN16

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	Ν	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



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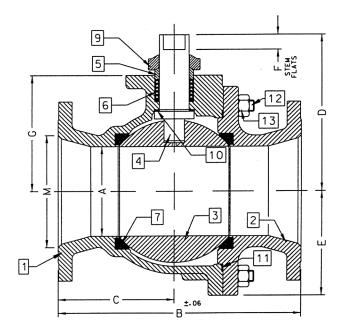


Low Temperature Carbon Steel ASME Class 150 Flanged Std. Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H



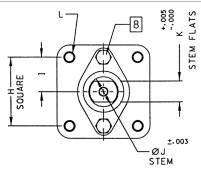
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YEAR warranty

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

FOR PRESSUR	E/TEMPERA	TURE RAT	INGS, REF	ER TO PA	GE M-23,	GRAPH NO	0.31							
PRODUCT NUMBER	SIZE	A	В	С	D	E	F	G	H	I	J	K	L	М
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

REV. 29JUN16

D-76

Apollo Vaives

Low Temperature Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** refer to page D-3. STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).

STANDARD MATERIAL LIST

	PART (1/2"& 3/4" VALVES)	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	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lock Washer	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
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 SS
18	Grounding Spring	SS

VARIATIONS AVAILABLE:

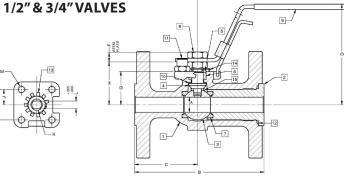
88L-230 Series (Ni-Cu Ball & Stem)

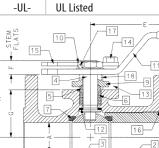
OPTIONS AVAILABLE: (More information in Section J) • Minimum quantities apply

- 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-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-KF-	PCTFE Stem Bearing
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D







1"VALVE

ACTUATOR MOUNTING

REV. 29JUN16

D-77

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

											B		•		
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
88L-243-01	1/2″	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.002	0.501	0.375	0.245	10-24	5
88L-244-01	3/4″	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	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



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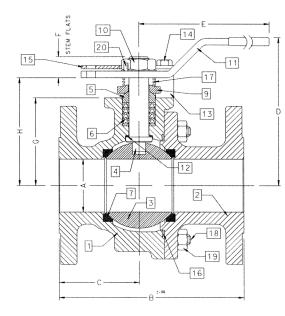
Low Temperature Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 SS

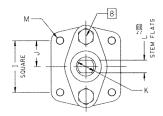
VARIATIONS AVAILABLE: 88L-230 Series (Ni-Cu Ball & Stem)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

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** Standard Configuration -01 -04-2.25" Stem Extension (Carbon Steel, Zinc Plated) (up to 2") -10-SS Lever and Nut -14-Side Vented Ball (Uni-Directional). Not available with plated CS ball. -15-Wheel Handle, Steel -21-**UHMWPE** Seats Graphite packing, spiral wound graphite body seal, -24-RPTFE bearing (API 607, 6th edition, ISO 10497:2010) Chlorine Service. Vented. Special Cleaning. Assembled dry. -26-(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 No Lubrication. Assembled Dry. -49--59-SS 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 316 SS Spiral Wound Gaskets w/PTFE Filler -73--76-Live Loaded (Lever) -77-Live Loaded (Gear, Actuator) -80-Multi-Seal (Super TFE) Flat Face Flanges -82--90-Double Packed 4" Extended Bonnet -9P-Double Packed 4" Extended Bonnet with Monitoring Port Garlock EVSP Stem Packing w/Spiral Wound -EP-Graphite Gasket (Fire Safe by Design) -KF-**PCTFE Stem Bearing** Gear Operator with Standard Handwheel -MG--MH-Gear Operator with Standard Handwheel & Locking Device Gear Operator with Oversize Handwheel -MJ--MK-Gear Operator with Oversize Handwheel & Locking Device -TC-With Test Certificate -TD-Tested to API Spec 6D -UL-**UL** Listed



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	WT.
88L-247-01	1.5″	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	2.5″	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





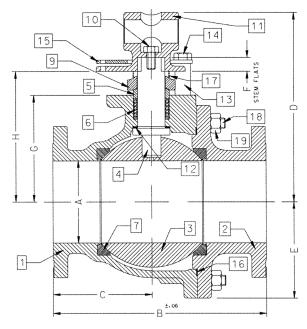
Low Temperature Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Adapter Screw	316 SS
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	SS
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)



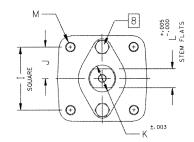
FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31

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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	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



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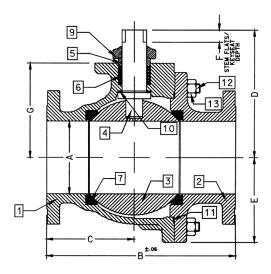


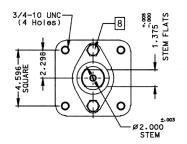
Low Temperature Carbon Steel ASME Class 150 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
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: 8"

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 31								
PRODUCT NUMBER	SIZE	A	В	С	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

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

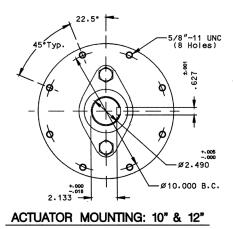
OPTIONS AVAILABLE: (More information in Section J) • Minimum quantities apply

• To specify an option, replace the "01" standard suffix with the suffix of the option.

YEAR warranty

 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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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





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REV. 29JUN16

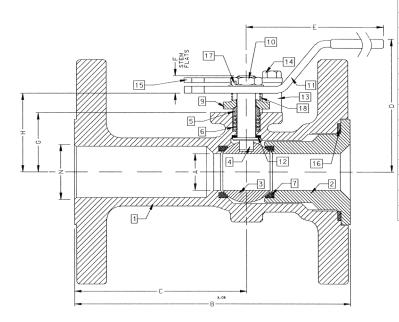


Low Temperature Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

STANDARD MATERIAL LIST

	DADT	
	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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 SS
10	Stem Nut	316 SS
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 SS
18	Grounding Spring	SS



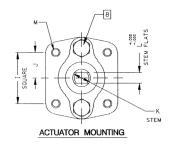
VARIATIONS AVAILABLE: 88L-730 Series (Ni-Cu Ball & Stem)

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-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



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PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	N	WT.
88L-747-01	1.5″	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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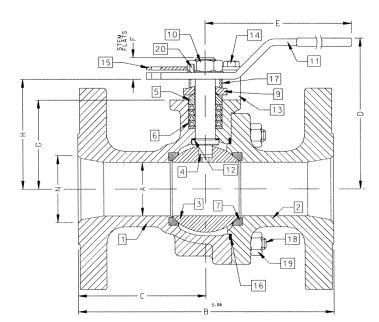
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Low Temperature Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 2.5" through 3"

For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 SS



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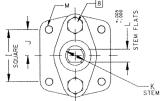
88L-730 Series (Ni-Cu Ball & Stem)

OPTIONS AVAILABLE: (More information in Section J) Minimum quantities apply

YEAR warranty

- 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-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed



FOR PRESSUR	E/TEMPERA	TURE RAT	INGS, REI	ER TO PA	GE M-23,	GRAPH N	0.32				ACTUAT	OR MOU	NTING	orem.		
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	N	WT.
88L-749-01	2.5″	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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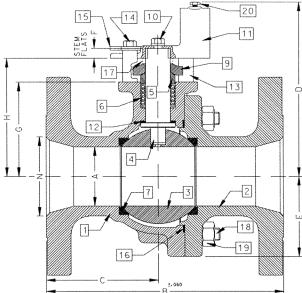


Low Temperature Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 4" through 8"

For **STANDARDS COMPLIANCE** refer to page D-3. STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Adapter Screw	316 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Adapter Screw	316 SS
21	Pipe Handle	Galvanized Steel (not shown)



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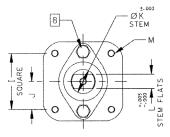


88L-730 Series (Ni-Cu Ball & Stem)

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-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	Ν	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



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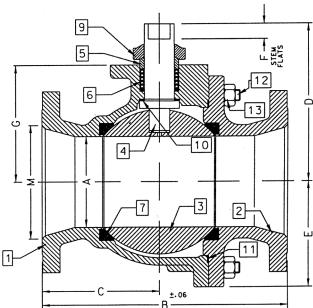


Low Temperature Carbon Steel ASME Class 300 Flanged Std. Port Ball Valve - 10"

For **STANDARDS COMPLIANCE** refer to page D-3. STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Stem Bearing	RPTFE
11	Body Seal	RPTFE
12	Body Joint Stud	ASTM A193 Grade B7
13	Body Joint Nut	ASTM A194 Grade 2H

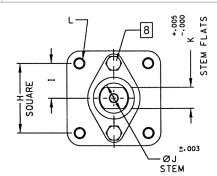


FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

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

OPTIONS AVAILABLE: (More information in Section J) · Minimum quantities apply

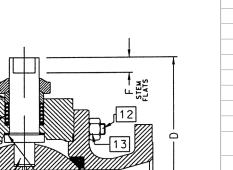
- To specify an option, replace the "01" standard suffix with the suffix of the option.
- To specify multiple options, replace the "01" suffix with the desired suffixes in the numerical order shown below. NOTE: Not all suffixes can be combined together.
- (SUFFIX) **OPTION** -01 Standard Configuration Side Vented Ball (Uni-Directional). Not available with plated CS ball. -14--21-**UHMWPE** Seats Graphite packing, spiral wound graphite body seal, -24-RPTFE bearing (API 607, 6th edition, ISO 10497:2010) Chlorine Service. Vented. Special Cleaning. Assembled dry. -26-(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** MPTFE Seats and Graphite Packing (Fire Safe) -65--67-**Cleaned For Industrial Gases** -69-**Drilled and Tapped Purge Port with Plugs** -70-4" Extended Bonnet -77-Live Loaded (Gear, Actuator) -80-Multi-Seal (Super TFE) -82-Flat Face Flanges -90-Double Packed 4" Extended Bonnet -9P-Double Packed 4" Extended Bonnet with Monitoring Port Garlock EVSP Stem Packing w/Spiral Wound -EP-Graphite Gasket (Fire Safe by Design) -KF-PCTFE Stem Bearing Gear Operator with Standard Handwheel -MG--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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М
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







Low Temperature Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 1/2" through 1"

For **STANDARDS COMPLIANCE** refer to page D-3. STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).

STANDARD MATERIAL LIST

	PART (1/2"& 3/4" VALVES)	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	RPTFE
8	Stem Nut	300 Series Stainless Steel
9	Lever	300 Series Stainless Steel w/Vinyl Grip
10	Stem Bearing	RPTFE
11	Stop	300 Series Stainless Steel
12	Body Seal	RPTFE
13	Lock Washer	300 Series Stainless Steel
14	Grounding Spring	ASTM A313 Stainless Steel
15	Grounding Spring	ASTM A313 Stainless Steel
	PART (1" VALVES)	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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 or 304 SS
10	Stem Nut	316 SS
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 SS
18	Grounding Spring	SS



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

OPTIONS AVAILABLE: (More information in Section J)

· Minimum quantities apply

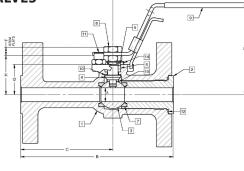
• To specify an option, replace the "01" standard suffix with the suffix of the option. • To specify multiple options, replace the "01" suffix with the desired suffixes in the n halow NOTE Nat all wife

numerical ord	ler shown below. NOTE: Not all suffixes can be combined together.
(SUFFIX)	OPTION
-01	Standard Configuration
-04-	2.25" Stem Extension (Carbon Steel, Zinc Plated)
-10-	SS 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 SS Spiral Wound Gaskets w/PTFE Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded(Gear, Actuated)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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 1" VALVE

16

1/2" & 3/4" VALVES





FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

											В				
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
88L-943-01	1/2″	0.50	5.50	3.31	3.31	5.11	0.30	1.09	1.38	1.000	0.500	0.375	0.245	10-24	7.0
88L-944-01	3/4″	0.75	6.00	3.56	3.89	5.53	0.36	1.65	1.99	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



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STEM FLATS

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1

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ACTUATOR MOUNTING

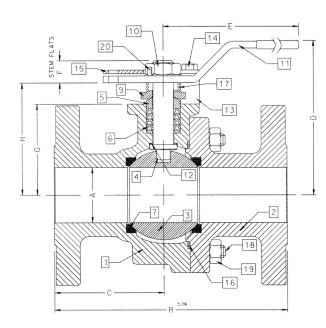
Low Temperature Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 1.5" through 2.5"

For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	302 & 304 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Lockwasher	302 or 304 SS

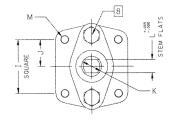
VARIATIONS AVAILABLE: 88L-930 Series (Ni-Cu Ball & Stem)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

OPTIONS AVAILABLE: (M(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** Standard Configuration -01 -04-2.25" 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 Graphite packing, spiral wound graphite body seal, -24-RPTFE bearing (API 607, 6th edition, ISO 10497:2010) Chlorine Service. Vented. Special Cleaning. Assembled dry. -26-(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-SS External Trim MPTFE Seats and Graphite Packing (Fire Safe) -65--67-**Cleaned For Industrial Gases** -69-Drilled and Tapped Purge Ports with Plugs -70-4" Extended Bonnet -73-316 SS Spiral Wound Gaskets w/PTFE Filler -76-Live Loaded (Lever) -77-Live Loaded (Gear, Actuator) -80-Multi-Seal (Super TFE) -82-Flat Face Flanges -90-Double Packed 4" Extended Bonnet -9P-Double Packed 4" Extended Bonnet with Monitoring Port Garlock EVSP Stem Packing w/Spiral Wound -EP-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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	Ι	J	К	L	М	WT.
88L-947-01	1.5″	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	2.5″	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







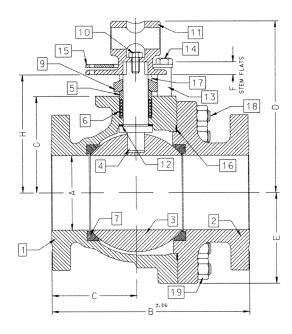
Low Temperature Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 3" through 6"

For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
10	Adapter Screw	316 SS
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	SS
18	Body Joint Stud	ASTM A193 Grade B7
19	Body Joint Nut	ASTM A194 Grade 2H
20	Pipe Handle	Galvanized Steel (not shown)

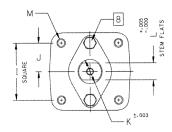
VARIATIONS AVAILABLE: 88L-930 Series (Ni-Cu Ball & Stem)



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32

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** Standard Configuration -01 -14-Side Vented Ball (Uni-Directional). Not available with plated CS ball. -21-**UHMWPE** Seats Graphite packing, spiral wound graphite body seal, -24-RPTFE bearing (API 607, 6th edition, ISO 10497:2010) Chlorine Service. Vented. Special Cleaning. Assembled dry. -26-(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 No Lubrication. Assembled Dry. -49--59-SS External Trim MPTFE Seats and Graphite Packing (Fire Safe) -65--67-**Cleaned For Industrial Gases** -69-Drilled and Tapped Purge Ports with Plugs -70-4" Extended Bonnet 316 SS Spiral Wound Gaskets w/PTFE Filler -73--76-Live Loaded (Lever) -77-Live Loaded (Gear, Actuator) -80-Multi-Seal (Super TFE) Flat Face Flanges -82-Double Packed 4" Extended Bonnet -90--9P-Double Packed 4" Extended Bonnet with Monitoring Port Garlock EVSP Stem Packing w/Spiral Wound -EP-Graphite Gasket (Fire Safe by Design) -KF-**PCTFE Stem Bearing** -MG-Gear Operator with Standard Handwheel Gear Operator with Standard Handwheel & Locking Device -MH--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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	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



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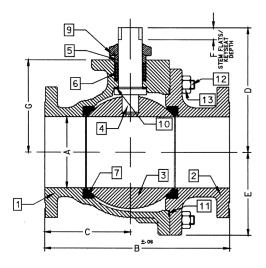


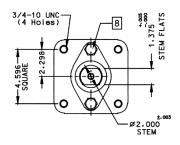
Low Temperature Carbon Steel ASME Class 300 Flanged Full Port Ball Valve - 8" through 12"

For **STANDARDS COMPLIANCE** refer to page D-3. **STANDARD FEATURES** refer to page D-3 and Rated to -50°F (-46°C).

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	RPTFE
8	Gland Screws	ASTM A193 B7
9	Gland Plate	316 SS
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: 8"

FOR PRESSUR	FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-23, GRAPH NO. 32								
PRODUCT NUMBER	SIZE	A	В	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	

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VARIATIONS AVAILABLE:

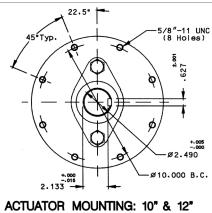
88L-930 Series (Ni-Cu Ball & Stem)

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-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D
-UL-	UL Listed



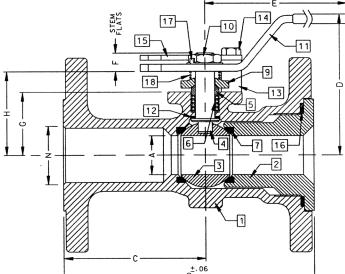


Alloy 20 ASME Class 150 Flanged Standard Port Ball Valve - 1.5" through 2"

For **STANDARDS COMPLIANCE** refer to page D-3. STANDARD FEATURES refer to page D-3 and Rated to -50°F (-46°C).

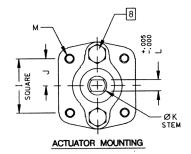
STANDARD MATERIAL LIST

	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	RPTFE							
8	Gland Screws	ASTM A193 B8 Class 1							
9	Gland Plate	302 or 304 SS							
10	Stem Nut	316 SS							
11	Lever	302 or 304 SS with Vinyl Grip							
12	Stem Bearing	RPTFE							
13	Stop	ASTM A276 Type 316							
14	Stop Screw	18-8 SS							
15	Lock Plate	302 or 304 SS							
16	Body Seal	RPTFE							
17	Lockwasher	302 or 304 SS							
18	Grounding Spring	SS							
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** Standard Configuration -01 -04-2.25" Stem Extension (Carbon Steel, Zinc Plated) -14-Side Vented Ball (Uni-Directional) Wheel Handle, Steel -15--21-**UHMWPE** Seats -24-Fire Safe (Graphite Packing and Seal) **PTFE Seats and Seals** -35--38-**PEEK Seats and Graphite Packing** -49-No Lubrication. Assembled Dry. -57-Oxygen Cleaned -65-MPTFE Seats and Graphite Packing (Fire Safe) Drilled and Tapped Purge Port with Plug -69-4" Extended Bonnet -70-Live Loaded (Lever) -76--77-Live Loaded (Gear, Actuator) -80-Multi-Seal (Super TFE) -82-Flat Face Flanges -90-Double Packed 4" Extended Bonnet -9P-Double Packed 4" Extended Bonnet with Monitoring Port Garlock EVSP Stem Packing w/Spiral Wound -EP-Graphite Gasket (Fire Safe by Design) -KF-PCTFE Stem Bearing Positive Material Identification -PM-With Test Certificate -TC--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

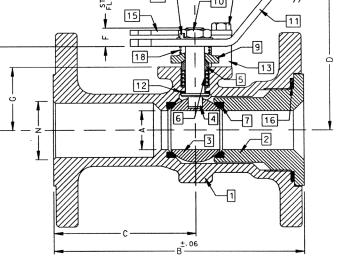


FOR PRESSUR	E/TEMPERA	TURE RAT	INGS, REI	ER TO PA	GE M-16,	GRAPH N	0.18									
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	Ν	WT.
87A-407-01A	1.5″	1.00	6.50	3.50	4.85	6.53	0.47	1.85	2.38	1.392	0.696	0.500	0.287	1/4-20	1.50	9
87A-408-01	2″	1.50	7.00	3.69	4.62	6.65	0.72	2.41	3.09	1.949	0.974	0.625	0.412	5/16-18	2.00	18



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Alloy 20 ASME Class 150 Flanged Standard Port Ball Valve - 3"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



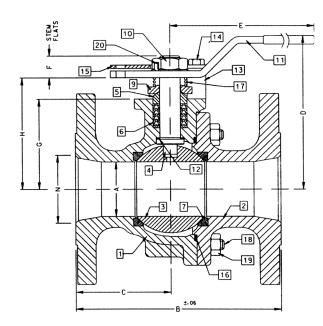
STANDARD MATERIAL LIST

	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	RPTFE								
8	Gland Screws	ASTM A193 B8 Class 1								
9	Gland Plate	316 SS								
10	Stem Nut	18-8 SS								
11	Lever	316 SS with Vinyl Grip								
12	Stem Bearing	RPTFE								
13	Stop	ASTM A276 Type 316								
14	Stop Screw	316 SS								
15	Lock Plate	302 or 304 SS								
16	Body Seal	RPTFE								
17	Grounding Spring	SS								
18	Body Joint Stud	ASTM A193 Grade B8M								
19	Body Joint Nut	ASTM A194 Grade 8								
20	Lockwasher	302 or 304 SS								
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-	2.25" 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-	-77- Live Loaded (Gear, Actuator)				
-80-	Multi-Seal (Super TFE)				
-82-	Flat Face Flanges				
-90-	Double Packed 4" Extended Bonnet				
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port				
-EP-	Garlock EVSP Stem Packing w/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				



STEW FLATS	ØK STEM

ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-16, GRAPH NO. 18																
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	К	L	М	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

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Valves

Alloy 20 ASME Class 150 Flanged Standard Port Ball Valve - 4" through 8"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

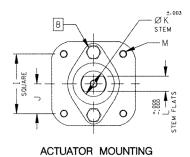
	PART	MATERIAL							
1	Body	ASTM A351 CN7M							
2	Retainer	ASTM A351 CN7M							
3	Ball	ASTM B473 (UNS N08020) or CN7M							
4	Stem	ASTM B473 (UNS N08020)							
5	Packing Gland	ASTM A276 Type 316							
6	Stem Seals	PTFE							
7	Seats	RPTFE							
8	Gland Screws	ASTM A193 B8 Class 1							
9	Gland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

10 20 15 11 17 LATS 9 13 19 6 12 4 2 ЦĽ 16 18 B —

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-	Multi-Seal (Super TFE)						
-82-	Flat Face Flanges						
-90-	Double Packed 4" Extended Bonnet						
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port						
-EP-	Garlock EVSP Stem Packing w/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						



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-16, GRAPH NO. 18

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	K	L	М	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



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Alloy 20 ASME Class 150 Flanged Full Port Ball Valve - 1/2" through 1"

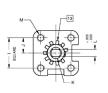
For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.

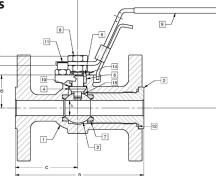


STANDARD MATERIAL LIST

	PART (1/2" & 3/4" VALVES)	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	RPTFE								
8	Stem Nut	300 Series Stainless Steel								
9	Lever	300 Series Stainless Steel w/ Vinyl Grip								
10	Stem Bearing	RPTFE								
11	Stop	300 Series Stainless Steel								
12	Body Seal	RPTFE								
13	Lockwasher	300 Series Stainless Steel								
14	Grounding Spring	ASTM A313 Stainless Steel								
15	Grounding Spring	ASTM A313 Stainless Steel								
	PART (1" VALVES)	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	RPTFE								
8	Gland Screws	ASTM A193 B8 Class 1								
9	Gland Plate	302 or 304 SS								
10	Stem Nut	316 SS								
11	Lever	302 or 304 with Vinyl Grip								
12	Stem Bearing	RPTFE								
13	Stop	ASTM A276 Type 316								
14	Stop Screw	18-8 SS								
15	Lock Plate	302 or 304 SS								
16	Body Seal	RPTFE								
17	Lockwasher	302 or 304 SS								
18	Grounding Spring	SS								
19	Grounding Spring	Inconel (not shown)								

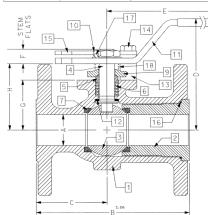
1/2" & 3/4" Valves



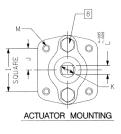


OPTIONS AVAILABLE: (More information in Section J) • Minimum quantities apply

- 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** Standard Configuration -01 -04-2.25" Stem Extension (Carbon Steel, Zinc Plated) Side Vented Ball (Uni-Directional) -14-Wheel Handle, Steel -15--21-**UHMWPE** Seats Fire Safe (Graphite Packing and Seal) -24-**PTFE Seats and Seals** -35--38-**PEEK Seats and Graphite Packing** -49-No Lubrication. Assembled Dry. **Oxygen** Cleaned -57--65-MPTFE Seats and Graphite Packing (Fire Safe) Drilled and Tapped Purge Port with Plugs -69--70-4" Extended Bonnet Alloy 20 Spiral Wound Gaskets w/PTFE Filler -73--74-Alloy 20 Spiral Wound Gaskets w/Graphite Filler -76-Live Loaded (Lever) -77-Live Loaded (Gear, Actuator) -80-Multi-Seal (Super TFE) Flat Face Flanges -82--90-Double Packed 4" Extended Bonnet -9P-Double Packed 4" Extended Bonnet with Monitoring Port Garlock EVSP Stem Packing w/Spiral Wound -EP-Graphite Gasket (Fire Safe by Design) PCTFE Stem Bearing -KF--MP-Positive Material Identification -TC-With Test Certificate -TD-Tested to API Spec 6D



1" Valve



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-16, GRAPH NO. 18

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	WT.
87A-503-01	1/2″	0.50	4.25	2.06	3.31	5.11	0.30	1.09	1.41	1.000	0.500	0.375	0.245	10-24	5
87A-504-01	3/4″	0.75	4.62	2.18	3.89	5.53	0.36	1.65	1.99	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

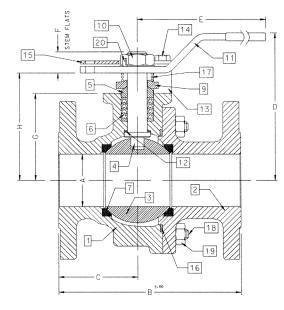
Alloy 20 ASME Class 150 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

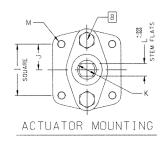
	PART	MATERIAL							
1	Body	ASTM A351 CN7M							
2	Retainer	ASTM A351 CN7M							
3	Ball	ASTM B473 (UNS N08020) or A351 CN7M							
4	Stem	ASTM B473 (UNS N08020)							
5	Packing Gland	ASTM A276 Type 316							
6	Stem Seals	PTFE							
7	Seats	RPTFE							
8	Gland Screws	ASTM A193 B8 Class 1							
9	Gland Plate	316 SS							
10	Adapter Screw	18-8 SS							
11	Lever	316 SS							
12	Stem Bearing	RPTFE							
13	Stop	ASTM A276 Type 316							
14	Stop Screw	316 SS							
15	Lock Plate	302 or 304 SS							
16	Body Seal	RPTFE							
17	Grounding Spring	SS							
18	Body Joint Stud	ASTM A193 Grade B8M							
19	Body Joint Nut	ASTM A194 Grade 8							
20	Lockwasher	302 or 304 SS							
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-	2.25" 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 w/PTFE Filler
-74-	Alloy 20 Spiral Wound Gaskets w/Graphite Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-16, GRAPH NO. 18

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	I	J	К	L	М	WT.
87A-507-01	1.5″	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	2.5″	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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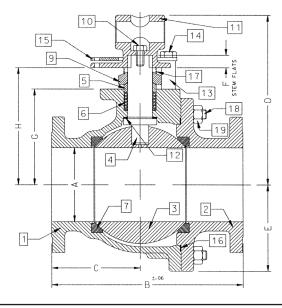
Alloy 20 ASME Class 150 Flanged Full Port Ball Valve - 3" through 6"

For STANDARDS COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	RPTFE
8	Gland Screws	ASTM A193 B8 Class 1
9	Gland Plate	316 SS
10	Adapter Screw	18-8 SS
11	Handle Adapter	316 with Vinyl Grip
12	Stem Bearing	RPTFE
13	Stop	ASTM A276 Type 316
14	Stop Screw	316 SS
15	Lock Plate	302 or 304 SS
16	Body Seal	RPTFE
17	Grounding Spring	SS
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)

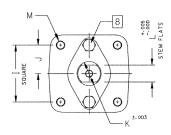


FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-16, GRAPH NO. 18

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 w/PTFE Filler
-74-	Alloy 20 Spiral Wound Gaskets w/Graphite Filler
-76-	Live Loaded (Lever)
-77-	Live Loaded (Gear, Actuator)
-80-	Multi-Seal (Super TFE)
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear Operator with Oversize Handwheel & Locking Device
-MP-	Positive Material Identification
-TC-	With Test Certificate
-TD-	Tested to API Spec 6D



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	I	J	K	L	М	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

Valves



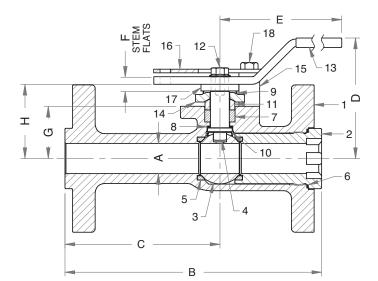
Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 1"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

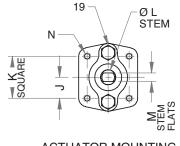
	PART	MATERIAL
1	Body	ASTM A351-CF8M
2	Retainer	ASTM A276 Type 316
3	Ball	ASTM A351-CF8M or ASTM A276 Type 316
4	Stem	ASTM A276 Type 316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	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 w/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



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 <u>must</u> 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-	2.25" 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	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 indentification
-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



FOR PRESSUR	FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 34										<u>AC</u>	IUAIC	<u>NR MOL</u>	<u>JN HNG</u>	
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	K	L	М	N	WT.
87A-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



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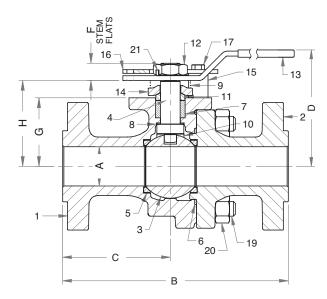
Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



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 w/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						

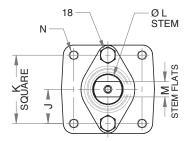


FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 34 & 35

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 <u>must</u> 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-	2.25" 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/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 indentification
- 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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	К	L	М	N	WT.
87A-F07-XX	1.5″	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	2.5″	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

87A-FOO SERIES

Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 3" through 4"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST PART MATERIAL 1 Body ASTM A351-CF8M 2 ASTM A351-CF8M Retainer ASTM A351-CF8M or 3 Ball ASTM A276 Type 316 ASTM A276 Type 316 4 Stem Defined by Seat Suffix Selected 5 Seats See "95" or "80" also "38" & "21" Body Seal 6 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

Galvanized Steel

ASTM A351-CF8M ASTM A276 Type 316

18-8 Stainless Steel

ASTM A193-B8

ASTM A193-B8M

302 or 304 Stainless Steel

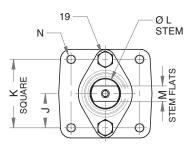
20	Douj sonic staa	
21	Body Joint Nut	ASTM A194 Grade 8
22	Adapter Screw	18-8 Stainless Steel
T ()		E 2 18 -22 -13 14 7 10 2 6 -20 21

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 35

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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	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 indentification
-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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	K	L	М	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



14

15

16

17

18

19

20

Pipe Handle

Gland Plate

Lock Plate

Stop Screws

Gland Plate Screws

Body Joint Stud

Stops

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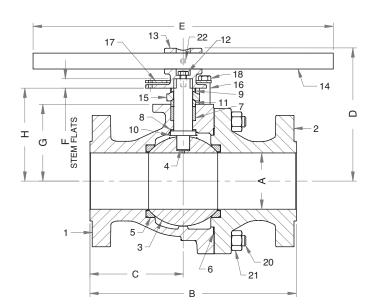
Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 6"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

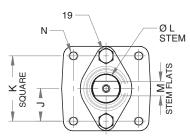
	PART	MATERIAL						
1	Body	ASTM A351-CF8M						
2	Retainer	ASTM A351-CF8M						
3	Ball	ASTM A351-CF8M or ASTM A276 Type 316						
4	Stem	ASTM A276 Type 316						
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"						
6	Body Seal	Defined by Seat Suffix Selected						
7	Stem Seals	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 <u>must</u> 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	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 indentification
-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



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26, GRAPH NO. 36							0.36								
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	K	L	М	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





87A-FOO SERIES

Stainless Steel ASME Class 600 Flanged Full Port Ball Valve - 8"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



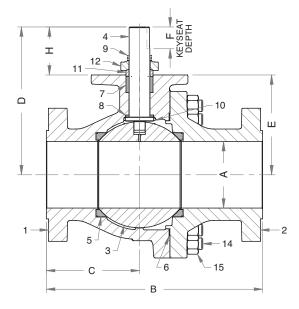
STANDARD MATERIAL LIST

	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						

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 <u>must</u> 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/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
-МК-	Gear operator with oversize handwheel & locking device
-MP-	Positive material indentification
-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



											J ^{+.000} 015	STEN	/1	
FOR PRESSUR	RE/TEMPERA	0.36	A	CTUAT	OR MOL	INTING								
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	К	L	М	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											DEV -



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13

45

22.5°

М

ØL

G ±.001

ØK STEM

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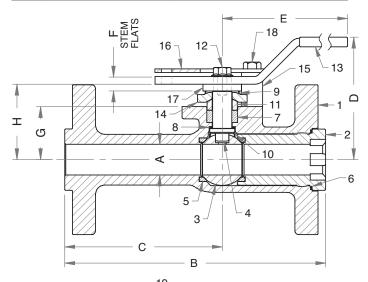
Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 1"

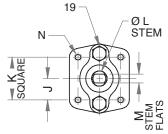
For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



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 w/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

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-25, GRAPH NO. 34						0.34									
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	J	К	L	М	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

D-100

88A-F40 Series (316 SS 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 <u>must</u> 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-	2.25" 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	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

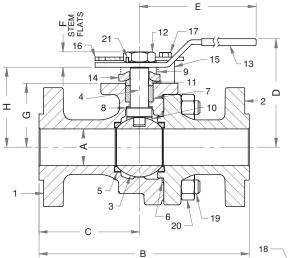
Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 1.5" through 2.5"

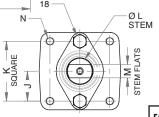
For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	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 w/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						





VARIATIONS AVAILABLE:

88A-F40 Series (316 SS 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 <u>must</u> 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-	2.25" 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	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

ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	К	L	М	N	WT.
88A-F07-XX	1.5″	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	2.5″	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



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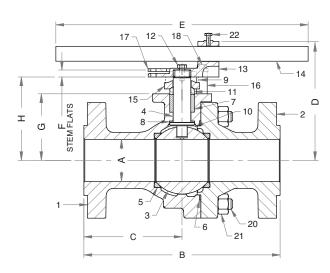
Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 3" through 4"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-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	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



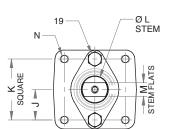
VARIATIONS AVAILABLE:

88A-F40 Series (316 SS 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. • 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	Kolsterised ball
-MG-	Gear operator with standard handwheel
-MH-	Gear operator with standard handwheel & locking device
-MJ-	Gear operator with oversize handwheel
-МК-	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



FOR PRESSUR	E/TEMPERA	TURE RAT	INGS, REF	ER TO PA	GE M-25,	0.35		ACTUA	TOR MO	UNTING					
PRODUCT NUMBER	F	G	H	J	К	L	М	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

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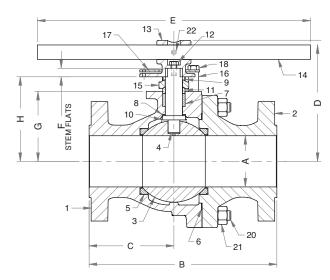
Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 6"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-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	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



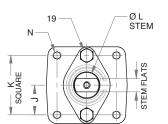
VARIATIONS AVAILABLE:

88A-F40 Series (316 SS 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 <u>must</u> 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	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



FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26, GRAPH NO. 36									<u>ACTUA</u>	TOR MO	<u>UNTING</u>				
PRODUCT SIZE A B C D E F									H	J	K	L	М	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



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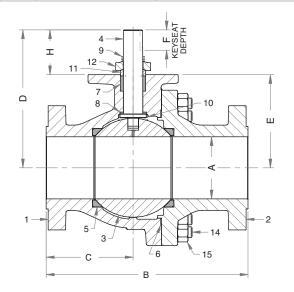
Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 8"

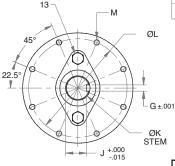
For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	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	Gland Plate	316 Stainless Steel
13	Gland Plate Screws	ASTM A193-B7
14	Body Joint Stud	ASTM A193 Grade B7
15	Body Joint Nut	ASTM A194 Grade 2H





ACTUATOR MOUNTING

VARIATIONS AVAILABLE:

88A-F40 Series (316 SS 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 <u>must</u> 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	Kolsterised ball
-MG-	Gear operator with standard handwheel
-MH-	Gear operator with standard handwheel & locking device
-MJ-	Gear operator with oversize handwheel
-МК-	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

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	Н	J	K	L	М	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

Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 1"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



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

Е - F STEM FLATS 18 16 12 13 15 9 17 11 I 14 Т 7 8 വ 2 Ú 10 ∢ 6 5 3 С

В

(SUFFIX)	OPTION
-04-	2.25" 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 bear
-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 beari
-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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal seats, PTFE chevron packing, spiral wound PTFE body seal, PEEK beari
-82-	Flat Face Flanges
-90-	Double Packed 4" Extended Bonnet
-95-	Devlon® seats, graphite packing, spiral wound graphite body seal, PEEK beari
-9P-	Double Packed 4" Extended Bonnet with Monitoring Port
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	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

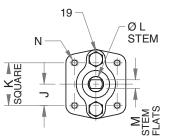
Hydrostatic test with certified report & witnessed

OPTIONS AVAILABLE: (More information in Section J)

number. A suffix for seat & seal materials must be selected.

• Complete the product number by adding a suffix (or multiple suffixes) to the base product

• To specify multiple options, add the desired suffixes in the numerical order shown below.



-TW-

FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26, GRAPH NO. 37							0.37	1	ACTUA	TOR M	OUNT	ING			
PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	K	L	М	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



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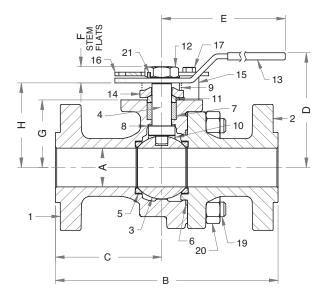
Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 1.5" through 2.5"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-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	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 SS

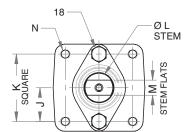


FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-26-27, GRAPH NO. 37 & 38

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 <u>must</u> 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	К	L	М	N	WT.
88L-F47-XX	1.5″	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	2.5″	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



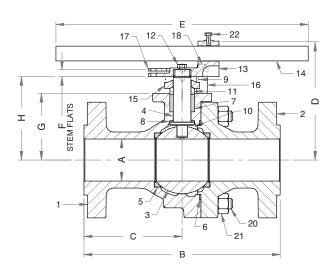
Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 3" through 4"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



STANDARD MATERIAL LIST

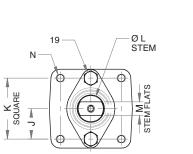
	PART	MATERIAL
1	Body	ASTM A352-LCC
2	Retainer	ASTM A352-LCC
3	Ball	ASTM A276-316 or A351-CF8M
4	Stem	ASTM A276 Type 316
5	Seats	Defined by Seat Suffix Selected See "95" or "80" also "38" & "21"
6	Body Seal	Defined by Seat Suffix Selected
7	Stem Seals	Defined by Seat Suffix Selected
8	Stem Bearing	Defined 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 <u>must</u> 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/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



ACTUATOR MOUNTING

FOR PRESSURE/TEMPERATURE RATINGS, REFE	R TO PAGE M-27, GRAPH NO. 38	8

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	K	L	М	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



REV. 08MAR17

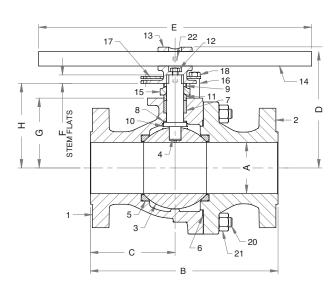
Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 6"

For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-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	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

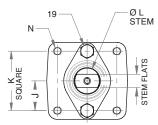


FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-27, GRAPH NO. 39

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 <u>must</u> 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	Kolsterised ball
-MG-	Gear operator with standard handwheel
-MH-	Gear operator with standard handwheel & locking device
-MJ-	Gear operator with oversize handwheel
-МК-	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



ACTUATOR MOUNTING

PRODUCT NUMBER	SIZE	A	В	C	D	E	F	G	H	J	K	L	М	Ν	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





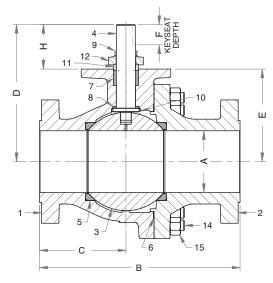
Low Temperature Carbon Steel ASME Class 600 Flanged Full Port Ball Valve - 8"

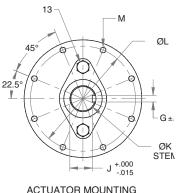
For STANDARD COMPLIANCE and STANDARD FEATURES refer to page D-3.



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	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	Gland Plate	316 Stainless Steel							
13	Gland Plate Screws	ASTM A193-B7							
14	Body Joint Stud	ASTM A193 Grade B7							
15	Body Joint Nut	ASTM A194 Grade 2H							





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 <u>must</u> 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 operated)
-77-	Live loaded (gear operator or actuator)
-80-	Multiseal 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
-EP-	Garlock EVSP Stem Packing w/Spiral Wound Graphite Gasket (Fire Safe by Design)
-КВ-	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

	<u>ACTU</u>	ATOR M	OUNTIN	G			FO	FOR PRESSURE/TEMPERATURE RATINGS, REFER TO PAGE M-27, GRAPH NO. 39						
SIZE	A	В	C	D	E	F	G	Н	J	K	L	М	WT.	
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

PRODUCT

NUMBER

88L-F4E-XX



REV. 08MAR17

SECTION D – ASME FLANGED BALL VALVES

REVISIONS

PAGE	DATE	DESCRIPTION				
D5 thru D54	12APR16	Added suffix "-KF". PCTFE stem bearing.				
D55 thru D88	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.				
D89 thru D94	12APR16	Added suffix "-KF". PCTFE stem bearing.				
D95 thru D99	22FEB17	Clarified the text under Options Available header				
	08MAR17	Removed "-MP" option.				
	22FEB17	Clarified the text under Options Available header				
D100 thru D109	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)				

