

Covering your water, oil,  
and gas valve requirements.



## Virgo Threaded Ball Valves

A wide-range of products to cover all your threaded valve applications.





# About Virgo Products



The Virgo line of threaded ball valves for water, oil, gas applications are now part of Emerson Process Management's growing line of flow control solutions. Virgo was acquired by Emerson in 2013 to expand into the shut-off and isolation valve markets and give Emerson the ability to provide customers with a broader solution. To help our customers optimize their processes, Emerson has sales professionals located around the world; this includes a large network of experts in the Virgo product line. Whether your process requires trunnion ball valves, floating ball valves, or WOG valves, either manual or automated, Emerson has the product to fit your needs.

Virgo valves, designed by Emerson, utilize the latest engineering tools including Pro-E, Computational Fluid Dynamics (CFD), and Finite Element Analysis (FEA) to ensure they are safe, reliable and perform as advertised. During manufacturing, Emerson utilizes state-of-the-art equipment and techniques to produce Virgo products cost effectively, with quality standards that often exceed those of other valve manufacturers. In addition to an excellent design team, Emerson has an outstanding supply chain that sources materials and products from global partners in order to provide the value and quality our customers expect. All of this exceptional design and manufacturing is validated with an industry leading in-house test facility. Not only do we ensure Virgo products are

made according to exceptional quality standards, our facility can certify that our products are compliant to the latest standards and regulations.

## So what is our valve proposition?

- **Reliable products at a competitive price** – Emerson's investment in superior manufacturing equipment, an ongoing commitment to keep their employees well-trained and the quest for upper quartile performance are just a few items that drive our mission for the highest in-class quality. At the same time, our global supply chain and manufacturing allows us to produce products at very competitive prices when compared to other high-quality valve manufacturers.
- **Expert project management** – Virgo valves have been supplied to over 2,300 projects around the globe, both large and small. We help our customers maintain project certainty by presale design collaboration, a structured project execution process and maintaining flexibility throughout the manufacturing process. The result is a responsive supplier that supports you throughout the process and meets the promised delivery dates.
- **Single point accountability** – Emerson owns the complete process from design, manufacturing, assembly, automation, proof testing,



integration, and lifecycle coverage. Emerson goes to great lengths to maintain full process accountability that only a few industry-leading manufacturers can provide. This includes having our own in-house foundry, which enables Emerson to maintain the highest quality standards on all Virgo products.

- **Local support and a global presence** – Our vast network of Sales Offices and Local Business Partners (LBPs) are available to support our customers around the globe. We provide our customers superior pre- and post-sales support, local inventory as well as a comprehensive range of other services.
- **Safe, proven products** – We are committed to delivering quality products that meet or exceed our customers' expectations. This commitment starts with thorough testing of our products to ensure they comply with the latest standards and highest safety ratings certified by respected third-party organizations. Our commitment is backed by years of experience in many of the most demanding applications around the globe. We have supplied approximately 1 million valves to more than 150 of the world's leading EPCs, OEMs, and end users and they keep coming back to Emerson over and over.

## APPLICATIONS

Virgo Threaded Ball Valves are designed to support a variety of applications. Whether you require a high performance valve for process quality applications, a valve that's easy to maintain or a valve for general service in chemical plants, petroleum refineries, or pulp and paper mills, we have a valve that meets your needs.

Applications for our threaded ball valve line include:

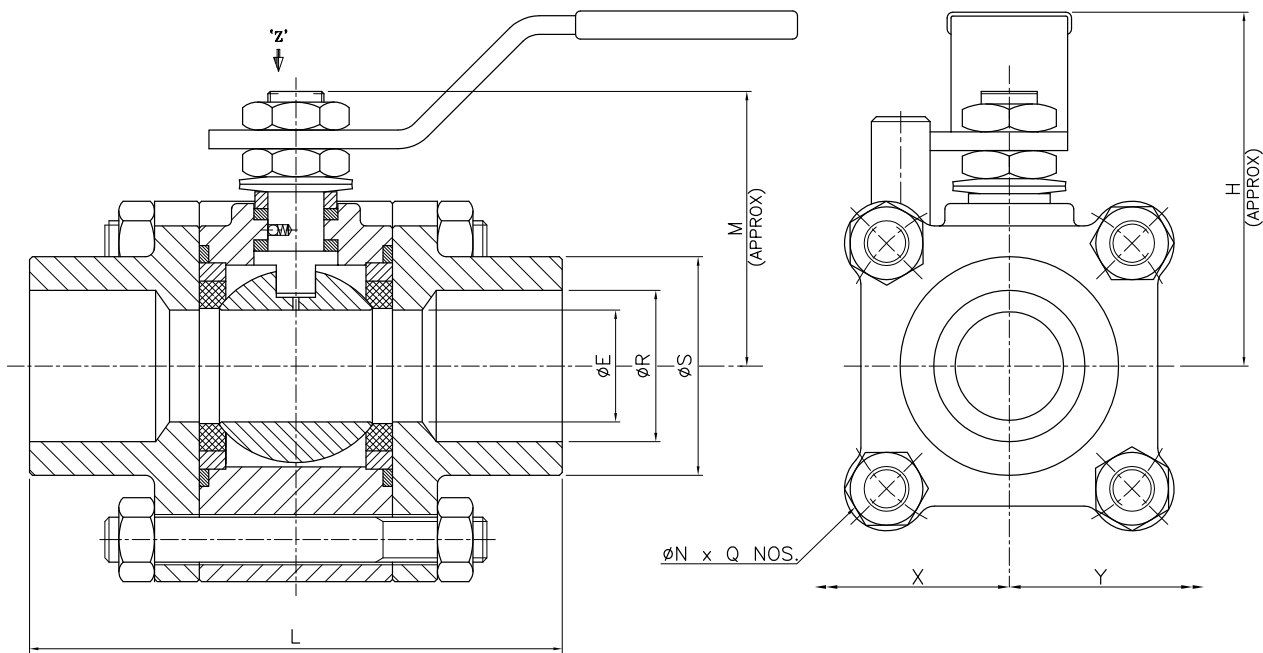
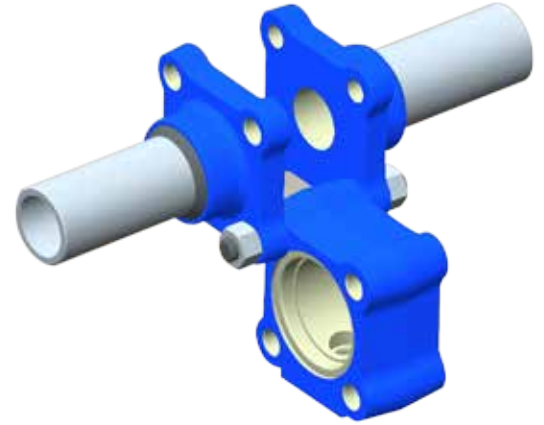
- Industrial process services
- Sampling systems
- Instrument panels
- Hydraulic test stands
- Pneumatic systems
- High-pressure instrument lines
- Gas sampling lines
- Equipment isolation
- Test systems
- Air injection systems
- Gas sampling cylinders
- Handling corrosive and viscous fluids
- Refinery pilot plants
- Water, oil, gas utility services



# Model S - 3 Piece Floating Ball Valve

## Carbon and Stainless Steel With Swing Out Design

- 1/2" - 2" in carbon x SST or full SST
- Configurable to flourish in the most demanding process applications
- Compact designed for easy installation in new and existing construction
- Swing out design allows for fast and efficient maintenance
- Seats, seals, and ball can be replaced quickly without disturbing pipe alignment
- Available with a variety of end connections including threaded, socket weld and butt weld
- Bottom-entry blowout proof stem
- Multiple stem seals provides maximum leak protection
- Live loaded seat ensures additional protection against leakage
- Anti-static design maximizes safety
- NACE
- Fire safe



## Dimensions in mm (inches)

Size	DN15 (1/2")	DN20 (3/4")	DN25 (1")	DN32 (1-1/4")	D40 (1-1/2")	DN50 (2")
<b>ASME 400 FULL BORE</b>						
E	140 (0.55)	19 (0.75)	25 (0.98)	32 (1.25)	38 (1.50)	50 (1.97)
R	21.8 (0.86)	27.4 (1.08)	34.1 (1.34)	42.7 (1.68)	49.0 (1.93)	61.0 (2.40)
S	30.0 (1.18)	36.0 (1.42)	46.0 (1.81)	56 (2.20)	60.5 (2.38)	74 (2.91)
L	66.5 (2.62)	80.5 (3.17)	95.5 (3.76)	111.5 (4.37)	103.5 (4.07)	124.5 (4.88)
G	120 (4.72)	120 (4.72)	200 (7.87)	200 (7.87)	250 (9.84)	250 (9.84)
H	73 (2.87)	83 (3.27)	83.5 (3.29)	88 (3.46)	108.0 (4.25)	118.0 (4.65)
M	42.5 (1.67)	47.0 (1.85)	56.4 (2.22)	61.5 (2.42)	70.5 (2.78)	85.5 (3.37)
WT (Kg) SCRD	0.92 (2.01)	1.35 (2.96)	2.28 (5.01)	3.4 (7.48)	4.67 (10.26)	7.53 (16.56)
WT (Kg) SW	0.88 (1.93)	1.35 (2.94)	2.24 (4.92)	3.35 (7.37)	4.58 (10.07)	7.33 (16.12)
TORQUE (Nm)	8 (71)	9 (80)	16 (142)	25 (221)	35 (310)	44 (390)

# Product Selection Code

<b>Design</b>	<b>Construction</b>	-	<b>End Connection</b>	<b>Ratings</b>	-	<b>Bore</b>	-	<b>Body / Adaptors</b>	<b>Ball / Stem</b>	<b>Coating (If Applicable)</b>	-	<b>Seal Insert</b>	-	<b>Seals</b>	-	<b>Operator (If Applicable)</b>	-	<b>Special (If Applicable)</b>
S	3		SW SN NP BW	4		F		C 1 7 L 8 2 4 6 3 5 U W I M	6 2 9 N X 4 5 A U W I M	Y H S C T N Z		T G L D P E		H		B G L A Z		PP SE BE XX

## Design

S Side Entry Soft Seated Floater

## Construction

3 Three Piece

## End Connection

SW Three Piece  
SN Socket Weld with Nipple Extension  
NP Screwed NPT  
BW Butt Weld

## Ratings

4 400#

## Bore

F Full

## Body / Adaptors

C WCB  
1 A105  
7 WCC  
L LCB  
8 LF2  
2 LCC  
4 CF8 or F304  
6 CF8M or F316  
3 CF3 or F304L  
5 CF3M or F316L  
U Duplex (4A or F51)  
W Super Duplex (6A or F55)  
I Inconel®  
M Monel®

## Ball / Stem

6 F316 / F316  
2 F316 / 17-4 ph  
9 F316 / Duplex  
N F316 / Inconel® 718  
X F304L / F304L  
4 F304 / F304  
5 F316L / F316L  
A F6A / F6A  
U 4A / F51  
W 6A / F55  
I Inconel® / Inconel®  
M Monel® / Monel®

## Coating (If Applicable)

Y Overlay  
H Hard Chrome  
S Stellite®  
C Chrome Carbide  
T Tungsten Carbide  
N Chromium Nitride  
Z Other than above

## Seal Insert

T PTFE (Virgin)  
G Modified PTFE / RTFE  
L Devlon™  
D Delrin®  
P PEEK™  
E PCTFE (Kel F)

## Seals

H Graphite Gasket (No O Rings)

## Operator (If Applicable)

B Bare Stem  
G Gear  
L Hand Lever  
A Actuator  
Z Other than above

## Special (If Applicable)

PP Pup Piece  
SE Stem Extension  
BE Bonnet Extension  
XX Special Design - Refer to BOM

## Example:

S	3	-	NP	4	-	F	-	4	2	-	-	G	-	H	-	L	-	-
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S Series side entry, soft seated floating ball valve, 3 piece body, NP threaded ends, 400# class, full port, LCC body, F316 ball and 17-4 stem, RTFE seat inserts, graphite gasket, lever operated

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# CCB-Seal Welded Ball Valves

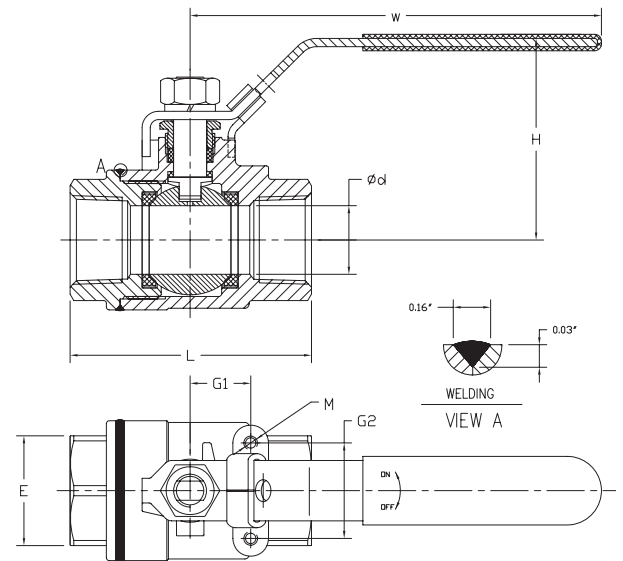
## Seal Welded Carbon Steel Body Full Port Threaded End Ball Valve

- Full port, screwed ends, 2 piece carbon steel body
- 316SS Ball and Stem
- Blow-out proof stem
- Adjustable packing gland
- Locking lever handle
- 2000 PSI W.O.G. 1/4" – 2"
- 150 PSI saturated steam
- Threads conform to ANSI B1.20.1, BS21, DIN259 / 2999
- Conforms to NACE MR-01-75 specifications
- Fire test and certified to API 607 4th Edition



## Dimensions

Size	8	10	15	20	25	32	40	50
(mm/in)	(1/4")	(3/8")	(1/2")	(3/4")	(1")	(1 1/4")	(1 1/2")	(2")
A	9 (0.36)	13 (0.49)	15 (0.59)	20 (0.79)	25 (0.98)	32 (1.26)	38 (1.50)	50 (1.97)
B	47 (1.86)	51 (1.99)	53 (2.07)	56 (2.21)	69 (2.72)	75 (2.95)	82 (3.22)	90 (3.54)
C	48 (1.86)	52 (2.04)	64 (2.50)	72 (2.81)	84 (3.31)	94 (3.70)	111 (4.35)	124 (4.86)
D	97 (3.82)	97 (3.82)	110 (4.33)	110 (4.33)	142 (5.57)	142 (5.57)	165 (6.50)	165 (6.50)
E	10-24	10-24	10-24	10-24	10-24	1/4-20	1/4-20	1/4-20
F	12.7 (0.50)	12.7 (0.50)	12.7 (0.50)	12.7 (0.50)	22.4 (0.88)	22.4 (0.88)	22.4 (1.0)	25.4 (1.0)
G	9.7 (1.12)	11.6 (1.12)	12.7 (1.12)	12.7 (1.12)	35 (1.38)	35 (1.38)	38.1 (1.5)	38.1 (1.5)
C <sub>v</sub>	6	9	14	30	60	104	150	360
Weight (lbs)	0.6	0.6	0.8	1.4	2.4	2.7	4.5	6.1



## Materials List

Part	Material
Handle Grip	Vinyl
Handle	Plated CS
Handle Nut	Plated CS
Gland	304SS
Stem	A276 316SS
Packing	PTFE
Thrust Washer	Reinforced Teflon™ 15% GF
Seat	Reinforced Teflon™ 15% GF
Ball	A276 316SS
Tallpiece	A216 WCB
Body	A216 WCB
Body Seal	PTFE

## Assembly Base Numbers

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Assembly Base No.	3025	3038	3050	3075	3100	3125	3150	3200
304SS Trim - Thd	-122N	-122N	-122N	-122N	-122N	-122N	-122N	-122N

# CU-Unibody Ball Valves

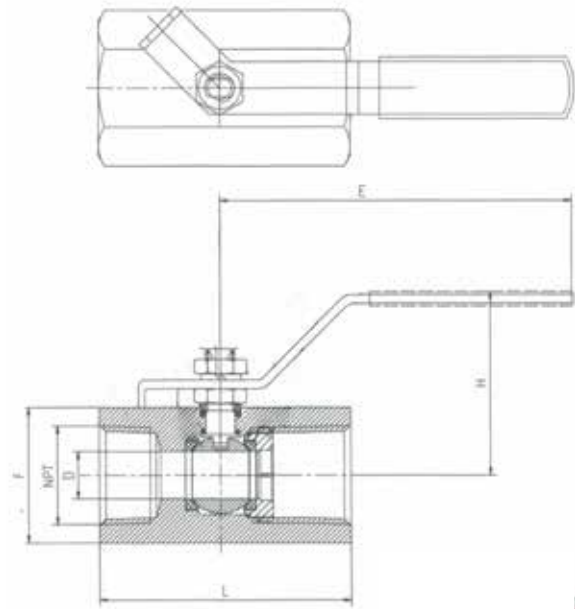
## One Piece Carbon Steel Reduce Port Threaded End Ball Valve

- 304SS Ball and Stem
- Blow-out proof stem
- 2000 PSI W.O.G. 1/4"-2"
- 150 PSI saturated steam
- Threads conform to ANSI B1.20.1, BS21, DIN259 / 2999
- Conforms to NACE MR-01-75 specifications



## Dimensions

Size	8	10	15	20	25	32	40	50
(mm/in)	(1/4")	(3/8")	(1/2")	(3/4")	(1")	(1 1/4")	(1 1/2")	(2")
A	60 (2.36)	80 (3.15)	90 (3.54)	100 (3.94)	110 (4.33)	110 (4.33)	130 (5.12)	130 (5.12)
B	41 (1.61)	47 (1.85)	58 (2.28)	65 (2.56)	77 (3.03)	90 (3.54)	98 (3.86)	110 (4.33)
C	30 (1.18)	30 (1.18)	54 (2.13)	66 (2.60)	68 (2.68)	71 (2.80)	75 (2.95)	80 (3.15)
D	5 (0.20)	7 (0.28)	9 (0.35)	12.5 (0.49)	15 (0.59)	20 (0.79)	25 (0.98)	32 (1.26)
C <sub>v</sub>	1.5	3.5	4.5	8	15	33	40	70
Weight (lbs)	0.5	0.5	0.6	0.8	1.4	2.4	3.1	5.0



## Materials List

Part	Material
Handle Grip	Vinyl
Handle	Plated CS
Handle Nut	Plated CS
Packing Bushing	Plated CS
Packing	PTFE
Stem	A276 316SS
Thrust Washer	Reinforced Teflon™ 15% GF
Seat Retainer	A108 CS GR1020
Seat	Reinforced Teflon™ 15% GF
Gasket	PTFE
Ball	A276 316SS
Body	CS A108 GR1020
Stem Washer	Plated CS

## Assembly Base Numbers

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Assembly Base No.	3025	3038	3050	3075	3100	3125	3150	3200
304SS Trim - Thd	-121N	-121N	-121N	-121N	-121N	-121N	-121N	-121N

# CSB-Seal Welded Ball Valves

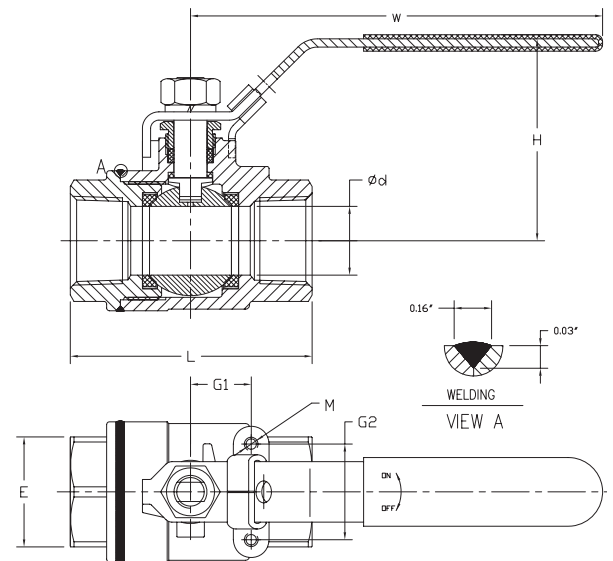
## Seal Welded CF8M Stainless Steel Body Full Port Threaded End Ball Valve

- 316SS Ball and Stem
- Blow-out proof stem / Floating ball
- Adjustable packing gland
- Locking lever handle
- Actuator mounting pad
- 2000 PSI W.O.G. 1/4" – 2"
- 150 PSI saturated steam
- Threads conform to ANSI B1.20.1, BS21, DIN259 / 2999
- Conforms to NACE MR-01-75 specifications
- Fire test and certified to API 607 4th Edition



## Dimensions

Size	8	10	15	20	25	32	40	50
(mm/in)	(1/4")	(3/8")	(1/2")	(3/4")	(1")	(1 1/4")	(1 1/2")	(2")
A	9 (0.36)	13 (0.49)	15 (0.59)	20 (0.79)	25 (0.98)	32 (1.26)	38 (1.50)	50 (1.97)
B	47 (1.86)	51 (1.99)	53 (2.07)	56 (2.21)	69 (2.72)	75 (2.95)	82 (3.22)	90 (3.54)
C	48 (1.86)	52 (2.04)	64 (2.50)	72 (2.81)	84 (3.31)	94 (3.70)	111 (4.35)	124 (4.86)
D	97 (3.82)	97 (3.82)	110 (4.33)	110 (4.33)	142 (5.57)	142 (5.57)	165 (6.50)	165 (6.50)
E	10-24	10-24	10-24	10-24	10-24	1/4-20	1/4-20	1/4-20
F	12.7 (0.50)	12.7 (0.50)	12.7 (0.50)	22.4 (0.88)	22.4 (0.88)	22.4 (0.88)	22.4 (1.0)	25.4 (1.0)
G	9.7 (1.12)	11.6 (1.12)	12.7 (1.12)	35 (1.38)	35 (1.38)	35 (1.38)	38.1 (1.5)	38.1 (1.5)
C <sub>v</sub>	6	9	14	30	60	104	150	360
Weight (lbs)	0.6	0.6	0.8	1.4	2.7	2.7	4.5	6.1



## Materials List

Part	Material
Handle Grip	Vinyl
Handle	A276 304SS
Handle Nut	A276 304SS
Gland	A276 304SS
Stem	A276 304SS
Packing	PTFE
Thrust Washer	Reinforced Teflon™ 15% GF
Seat	Reinforced Teflon™ 15% GF
Ball	A276 316SS
Tallpiece	CF8M
Body	CF8M
Body Seal	PTFE

## Assembly Base Numbers

Size	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Assembly Base No.	3025	3038	3050	3075	3100	3125	3150	3200
304SS Trim - Thd	-222N	-222N	-222N	-222N	-222N	-222N	-222N	-222N



# CH-High Pressure Ball Valves

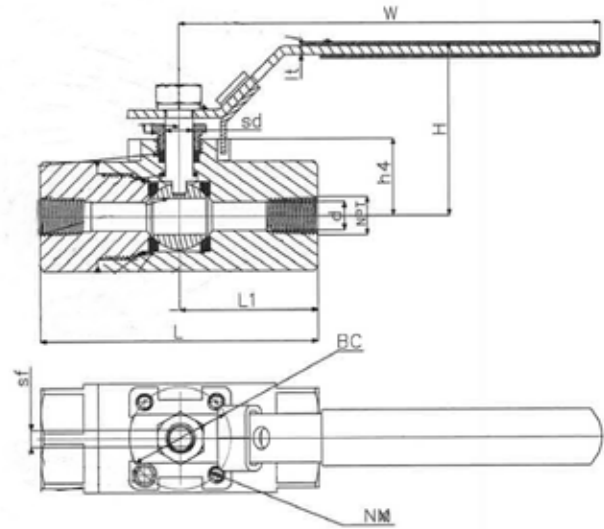
## Three Piece Low Temperature Carbon Steel Body Threaded End Ball Valve

- Blow-out proof stem
- 316 SS Ball and Stem
- 3000 PSI Sizes 1/4" – 2" Full Port
- Fire tested and certified to API 607 4th Addition
- Standard locking handle
- Actuator mounting pad
- TFM Seats Standard
- Conforms to NACE MR-01-75 Standard and ANSI B16.34
- Ball includes pressure equalization hole to prevent trapped pressure in body cavity



## Dimensions

Size	8	15	20	25	40	50
(mm/in)	(1/4")	(1/2")	(3/4")	(1" FP)	(1 1/2")	(2" FP)
D Bore	12.7	12.7	19.1	25.4	38.1	50.8
Sizes FXF	(0.50)	(0.50)	(0.75)	(1.00)	(1.50)	(2.0)
A End to End FXF	76.2	101.6	108.0	114.3	133.4	158.8
	(3.00)	(4.00)	(4.25)	(4.50)	(5.25)	(6.25)
A End to End SW	127	127	171	171	217	250
	(5.0)	(5.0)	(6.73)	(6.73)	(8.54)	(9.84)
L Length of Lever	165.0	165.0	205.7	205.7	254.0	315
	(6.50)	(6.50)	(8.10)	(8.10)	(10.0)	(12.4)
H Center to Lever	82.7	82.7	93.2	99.75	104.9	160
	(1.92)	(1.92)	(2.56)	(3.93)	(4.13)	(6.3)
C <sub>v</sub>	6	15	30	60	130	360
Weight (lbs)	1.61	1.61	2.93	5.16	10.70	11.29



## Materials List

Part	Material
Body	ASTM A352 LCC / LCB
Ball Seat	PEEK™
O-Ring	VITON®
Cap	ASTM A352 LCC / LCB
Ball	ASTM A276 316
Thrust Washer	PEEK™
Packing	GRAPHITE
Gland	ASTM A276 304
Stem	ASTM A276 316
Washer	ASTM A276 304
Stem Nut	A2-70
Handle	1/4"-1": SS201 1-1/4"-2": CS
Locking Device	1/4"-1": SS201 1-1/4"-2": CS
Handle Grip	PVC
Stop Cap Screw	A2-70
Cap Screw	201SS

## Assembly Base Numbers

Size	1/4"	1/2"	3/4"	1"	1 1/2"	2"
Assembly Base No.	3025	3050	3075	3100	3150	3200
316 SS TRIM	3122N	3122N	3122N	3122N	3122N	3122N

# CH-High Pressure Ball Valves

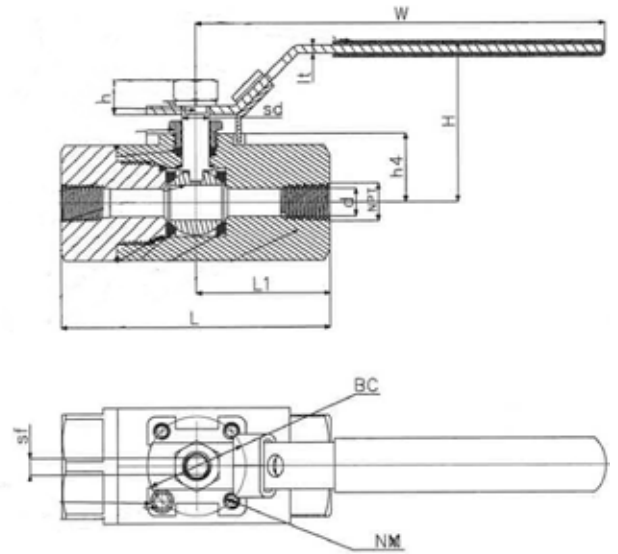
## Three Piece Low Temperature Carbon Steel Body Threaded End Ball Valve

- Blow-out proof stem
- 316 SS Ball and Stem
- 6000 PSI Sizes – 1/4" – 2" Full Port
- Fire tested and certified to API 607 4th Addition
- Standard locking handle
- Actuator mounting pad
- Peek™ Seats Standard
- Conforms to NACE MR-01-75 Standard and ANSI B16.34
- Ball includes pressure equalization hole to prevent trapped pressure in body cavity



## Dimensions

Size	8	15	20	25	40	50
(mm/in)	(1/4")	(1/2")	(3/4")	(1" FP)	(1 1/2")	(2" FP)
D Bore	12.7	12.7	19	25.4	38	50.8
Sizes FXF	(0.05)	(0.05)	(0.75)	(1.00)	(1.50)	(2.0)
A End to End FXF	98	111	98	137	160	188
	(3.86)	(4.37)	(3.86)	(5.40)	(6.30)	(7.4)
A End to End SW	127	127	171	215	217	250
	(5.0)	(5.0)	(6.73)	(8.47)	(8.54)	(9.84)
L Length of Lever	165	165	205	205	255	315
	(6.50)	(6.50)	(8.07)	(8.07)	(10.0)	(12.4)
H Center to Lever	82.7	82.7	93.2	99.75	134.5	160
	(3.26)	(3.26)	(3.67)	(3.93)	(5.30)	(6.30)
C <sub>v</sub>	6	15	30	60	130	360
Weight (lbs)	1.61	1.61	2.93	5.16	10.70	11.29



## Materials List

Part	Material
Body	ASTM A352 LCC / LCB
Ball Seat	PEEK™
O-Ring	VITON®
Cap	ASTM A352 LCC / LCB
Ball	ASTM A276 316
Thrust Washer	PEEK™
Stem Packing	GRAPHITE
Gland	ASTM A276 304
Stem	ASTM A276 316
Washer	ASTM A276 304
Stem Nut	A2-70
Handle	1/4"-1": SS201 1-1/4"-2": CS
Locking	1/4"-1": SS201 1-1/4"-2": CS
Handle Grip	PVC
Stop Cap Screw	SS201
Cap Screw	A2-70

## Assembly Base Numbers

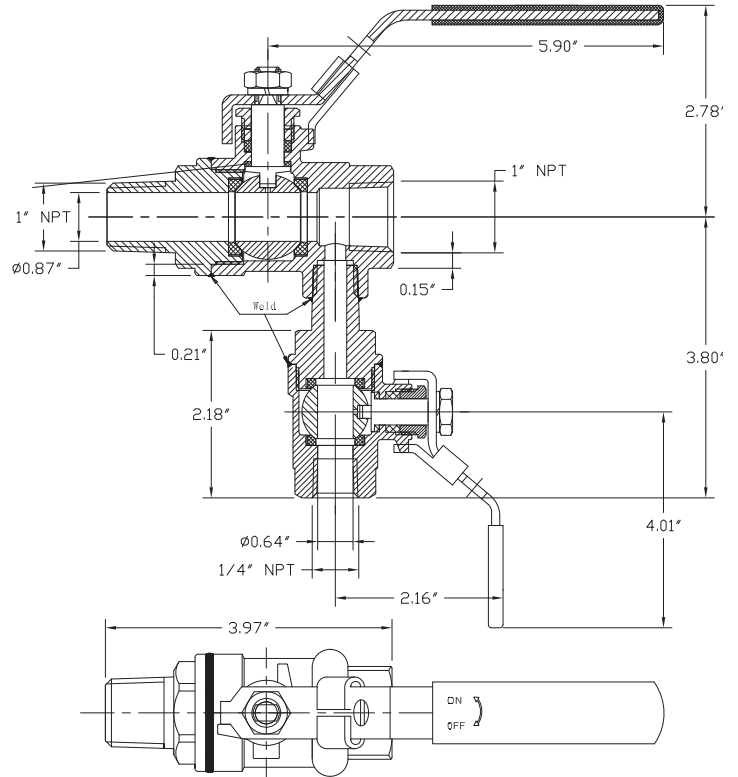
Size	1/4"	1/2"	3/4"	1"	1 1/2"	2"
Assembly Base No.	3025	3050	3075	3100	3150	3200
316 SS TRM	6122N	6122N	6122N	6122N	6122N	6122N

# CIV Isolator Valves

## Seal Welded Carbon and SST Isolator Valves

- Fully seal welded construction
- Standard latch locking handles
- 71% reduction in leak paths
- 2000# WOG - 1"
- 1500# WOG - 2"
- 316 SS Ball and Stem
- Conforms to NACE MR-01-75 Standard and ANSI B16.34
- Easy installation vs. conventional piping

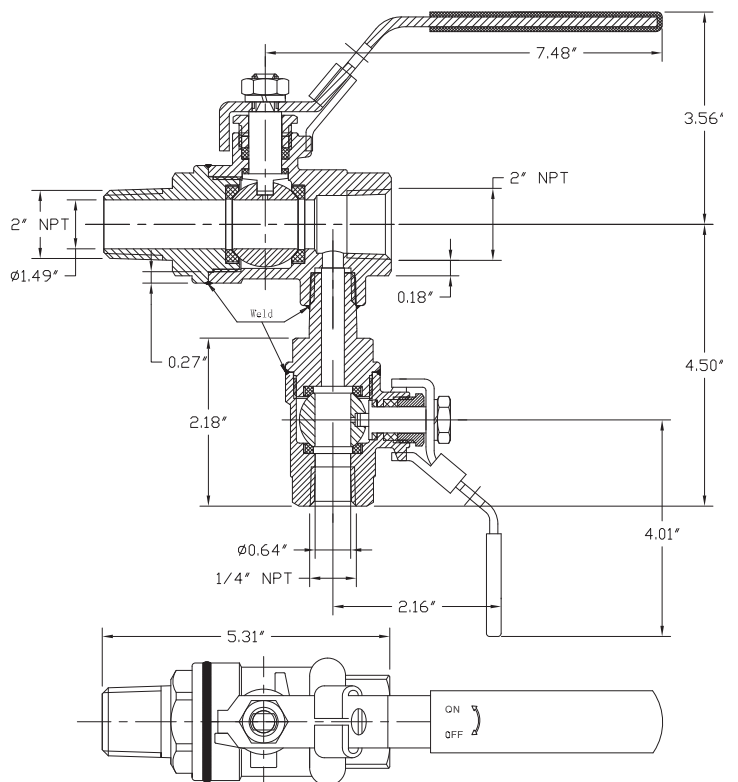
## Isolator Valve Series CIV 1 in RP2000 MXF THD\_3100-222NIV



## Materials List

Part Name	Stainless Steel	Carbon Steel
Body	C8FM	WCB
Ball	SS316	SS316
Cap	C8FM	WCB
Seat	RTFE	RTFE
Thrust Washer	RTFE	RTFE
Gland Bush	SS304	SS304
Stem	SS316	SS316
Washer	SS304	CS
Nut	A2-70	A2-70
Locking	SS201	SS201
Handle	SS201	SS201
Handle Cover	PVC	PVC

## Isolator Valve Series CIV 1 in RP2000 MXF THD\_3100-222NIV



**Note:** Stem packing on the CIV 2 is RTFE.



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