

# M32 (Ammonia) Series Data Sheet



## 3-Pc 2000 WOG Firesafe Direct Mount Ball Valve

Ammonia service requires careful material selection because ammonia is chemically aggressive to certain metals, particularly copper, brass, and zinc alloys, which can crack or corrode rapidly. Carbon steel and some stainless steels are commonly used because they resist ammonia-induced corrosion and stress cracking under normal service conditions. Proper venting is critical since ammonia readily vaporizes and expands with temperature, creating rapid pressure increases in confined spaces. Valves must be thoroughly cleaned prior to ammonia service to remove oils, greases, and contaminants that can react with ammonia or interfere with reliable sealing and operation.



PED CE NACE



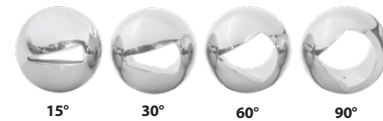
### Features:

- Class 800 (2000 WOG) Size Range 1/4" thru 2" Full Bore: NPT, SW, or BW (SCH 80) End Connections
- Class 600 (1500 WOG) Size Range 2.5" and 3" Full Bore: NPT, SW, or BW (SCH 80) End Connections
- Class 600 (1500 WOG) Size Range 1/2" thru 2" Full Bore: Class 600 Flanged Ends Connections
- ISO 5211 Direct Mount Pad
- Body Wall Thickness ASME B16.34
- Fugitive Emissions ISO 15848
- Firesafe Tested API 607
- Anti-Static Device and Live-Loaded Packing
- Bubble Tight Shut Off
- Blowout Proof, Low Torque Guided Stem Design
- Wide Range of Soft and Metal Seated Options
- Manual, Electric, Pneumatic Operators
- Globally Certified and Approved

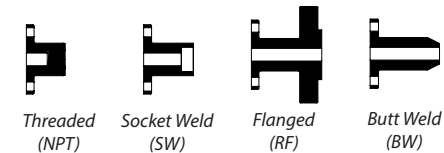
### Certifications & Compliance

**Fire Testing:** API 607 Certified  
**Testing:** API 598, API 6D, ISO 15848, ISO 5208  
**Design:** ASME B16.34, ASME B16.5, ASME B16.10, NACE MR0175  
**Markings:** MSS-SP-25, PED, NACE  
**Certifications:** API 607, SIL, NACE, PED, ABS

### Flow Control & V-Ball Solutions

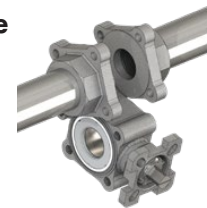


### End Connections



### Swing-Out Maintenance Design

Seats and seals replaceable without having to cut pipe or remove end caps from piping.



### Torques (in-lbs)\*

Size	TFM 1600 Torque	TFM 4215 Torque	50/50 Torque	PEEK Torque
in	in-lbs			
1/4"	63	95	101	127
3/8"	63	95	101	127
1/2"	63	95	101	127
3/4"	70	106	113	141
1"	93	140	149	187
1 1/4"	133	200	213	266
1 1/2"	229	344	367	459
2"	370	555	592	740
2 1/2"	755	922	N/A	N/A
3"	1083	1322	N/A	N/A

### Torques (Nm)\*

Size	TFM 1600 Torque	TFM 4215 Torque	50/50 Torque	PEEK Torque
mm	Nm			
DN08	7	11	12	15
DN10	7	11	12	15
DN15	7	11	12	15
DN20	8	12	13	16
DN25	10.5	16	17	21
DN32	15	23	24	30
DN40	26	39	41	52
DN50	42	63	67	84
DN65	755	922	N/A	N/A
DN80	1083	1322	N/A	N/A

\*Raw torques shown. Minimum 30% safety factor should be added for actuator sizing.

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## Exploded View & Bill of Materials

### Fine-Tuned Design Details

(Four Improvements to the Industry Standard)

#### 1. Larger Stem

Higher margin of safety, more resistant to side loading and fatigue stress.

#### 2. Gaskets to Fill the Gaps

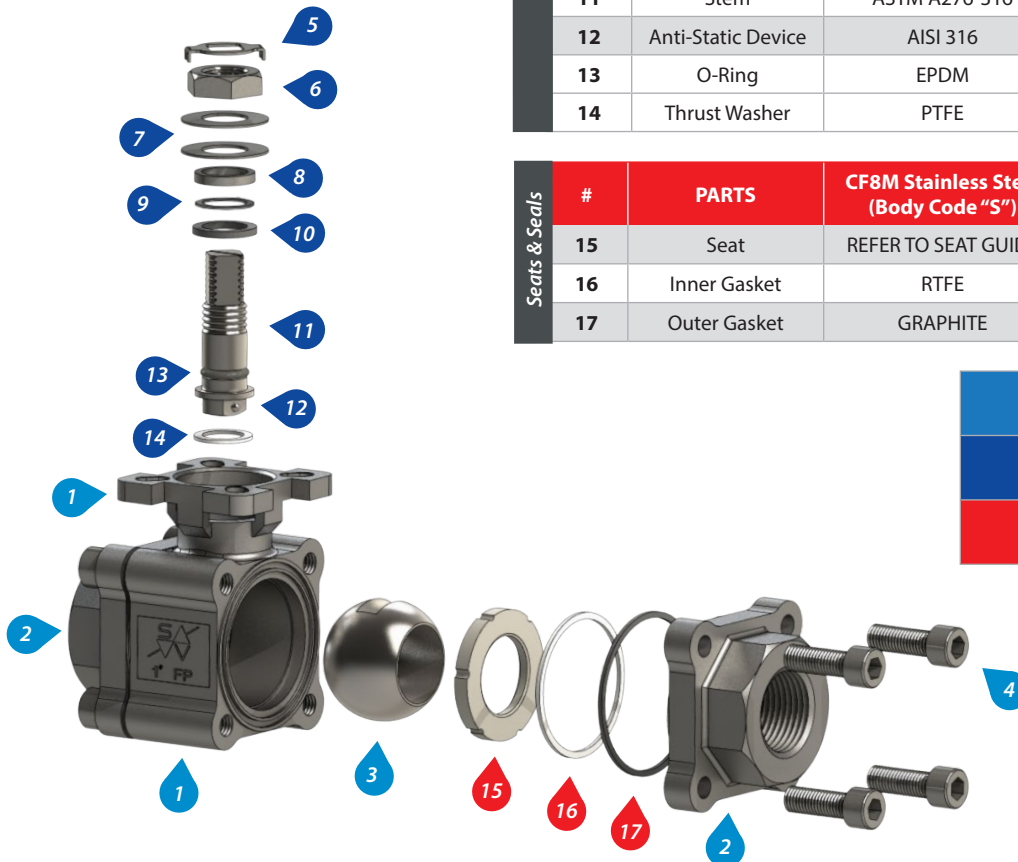
50% thicker than industry standard, graphite firesafe.

#### 3. Thicker Body Walls

ASME B16.34 body wall thickness provides extra safety factor should the valve be overpressurized

#### 4. Precision Machined Sealing Areas

Less dimensional variation allows for less seat compression, resulting in lower and more consistent torques.



Body & Ball	#	PARTS	CF8M Stainless Steel (Body Code "S")	WCB Carbon Steel (Body Code "C")
	1	Body	ASTM A351-CF8M	ASTM A216-WCB
	2	End Cap	ASTM A351-CF8M	ASTM A216-WCB
	3	Ball	ASTM A351-CF8M/316	ASTM A276-304
	4	Bolts	ASTM A193 B8	ASTM A193 B8

Stem & Packing	#	PARTS	CF8M Stainless Steel (Body Code "S")	WCB Carbon Steel (Body Code "C")
	5	Nut Lock	AISI 304	AISI 304
	6	Nut	AISI 304	AISI 304
	7	Belleville Washers	AISI 301	AISI 301
	8	Gland	AISI 304	AISI 304
	9	Packing Protector	CTFE	CTFE
	10	Stem Packing	GRAPHITE	GRAPHITE
	11	Stem	ASTM A276-316	ASTM A276-316
	12	Anti-Static Device	AISI 316	AISI 316
	13	O-Ring	EPDM	EPDM
	14	Thrust Washer	PTFE	PTFE

Seats & Seals	#	PARTS	CF8M Stainless Steel (Body Code "S")	WCB Carbon Steel (Body Code "C")
	15	Seat	REFER TO SEAT GUIDE	REFER TO SEAT GUIDE
	16	Inner Gasket	RTFE	RTFE
	17	Outer Gasket	GRAPHITE	GRAPHITE

Light Blue = Body & Ball

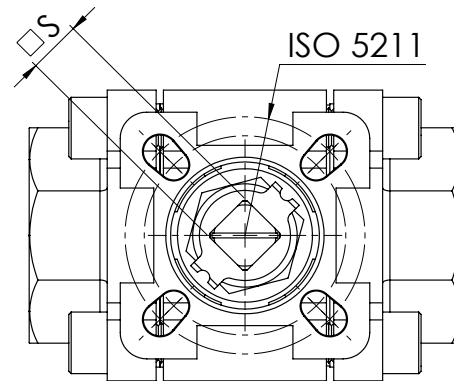
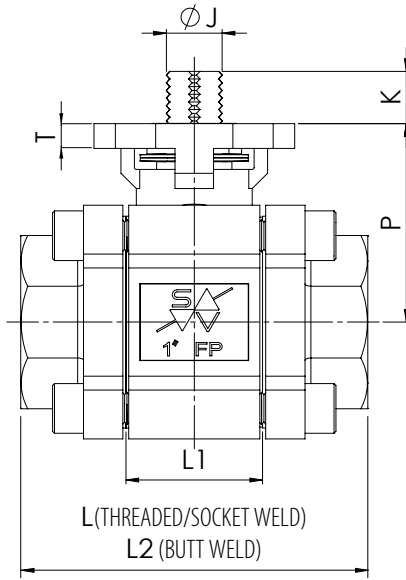
Blue = Stem & Packing

Red = Seats & Seals

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## Dimensional Data



## Standard Dimensions (in)

Size	BORE	□S	Ø J	K	L (Threaded / Socket Weld)	L1	L2 (Butt Weld)	P	T	ISO 5211	WEIGHT
in	in	in	in	in		in		in	in		lbs
1/4"	0.43	0.354	0.47	0.35	2.62	0.90	4.33	1.65	0.16	F03-F04	1.7
3/8"	0.49	0.354	0.47	0.35	2.62	0.90	5.35	1.65	0.16	F03-F04	1.8
1/2"	0.59	0.354	0.47	0.35	2.76	0.90	6.50	1.65	0.16	F03-F04	1.9
3/4"	0.79	0.354	0.47	0.35	3.15	1.20	7.48	1.77	0.16	F03-F04	2.6
1"	1.00	0.433	0.55	0.55	3.54	1.39	8.50	2.05	0.26	F04-F05	4.2
1 1/4"	1.26	0.433	0.55	0.55	4.13	1.65	9.02	2.30	0.26	F04-F05	5.9
1 1/2"	1.50	0.551	0.75	0.80	4.72	2.10	9.49	2.68	0.28	F05-F07	9
2"	1.97	0.551	0.75	0.80	5.51	2.75	11.50	3.41	0.30	F05-F07	15
2 1/2"	2.50	0.669	0.94	0.87	6.61	3.71	12.99	4.39	0.41	F07-F10	27.7
3"	2.99	0.669	0.94	0.87	7.60	4.26	14.02	4.78	0.41	F07-F10	39.6





## Metric Dimensions (mm)

Size	BORE	□S	Ø J	K	L (Threaded / Socket Weld)	L1	L2 (Butt Weld)	P	T	ISO 5211	WEIGHT
mm	mm	mm	mm	mm		mm		mm	mm		kg
DN08	11	9	12	9	66.5	22.9	110	42	4	F03-F04	0.7
DN10	12.5	9	12	9	66.5	22.9	136	42	4	F03-F04	0.8
DN15	15	9	12	9	70	22.9	165	42	4	F03-F04	0.9
DN20	20	9	12	9	80	30.4	190	45	4	F03-F04	1.2
DN25	25.4	11	14	14	90	35.4	216	52	6.5	F04-F05	1.9
DN32	32	11	14	14	105	41.9	229	58.5	6.5	F04-F05	2.7
DN40	38	14	19	20.3	120	53.4	241	68	7	F05-F07	4.1
DN50	50	14	19	20.3	140	69.9	292	86.5	7.5	F05-F07	6.9
DN65	63.5	17	24	22	168	94.2	330	111.5	10.5	F07-F10	12.5
DN80	76	17	24	22	193	108.2	356	121.5	10.5	F07-F10	18.0

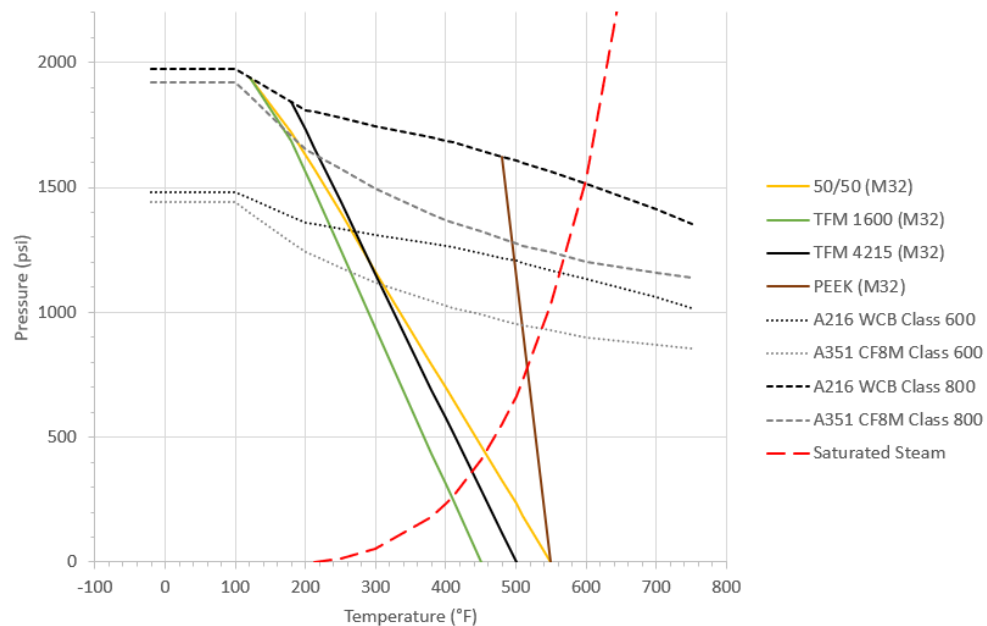
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## M32N Series Seat Guide

TFM 1600 (MODIFIED PTFE)	TFM 4215	50/50 (PTFE + 316SS)	PEEK
<b>RECOMMENDED</b>	<b>RECOMMENDED</b>	<b>RECOMMENDED</b>	<b>RECOMMENDED</b>
Chemical Environments, Steam, Moderate Pressures	Higher Steam than standard TFM 1600. Moderate abrasives	Saturated Steam, High Temperatures, Abrasives	High Temperatures, High Pressures
<b>NOT RECOMMENDED</b>	<b>NOT RECOMMENDED</b>	<b>NOT RECOMMENDED</b>	<b>NOT RECOMMENDED</b>
Fluorinated Chemicals	Fluorinated Chemicals	Chlorine Solutions	Low Torque Requirements, Some Acids
<b>TEMPERATURE</b>	<b>TEMPERATURE</b>	<b>TEMPERATURE</b>	<b>TEMPERATURE</b>
-45°C to +232°C (-50°F to +450°F)	-40°C to +260°C (-40°F to +500°F)	-45°C to +288°C (-50°F to +550°F)	-45°C to +288°C (-50°F to +550°F)
<b>COLOR</b>	<b>COLOR</b>	<b>COLOR</b>	<b>COLOR</b>
 Translucent White	 Dark Grey	 Dark Grey	 Beige

## Pressure Temperature Chart



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## Cv Values

### V-Port

Size	V-Port	Percent Open (Angle of Rotation)										
		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
		(0°)	(9°)	(18°)	(27°)	(36°)	(45°)	(54°)	(63°)	(72°)	(81°)	(90°)
1/2"	15°	0.00	0.04	0.18	0.44	0.69	0.99	1.64	2.12	2.85	3.64	4.30
	30°	0.00	0.04	0.23	0.47	0.77	1.19	1.83	2.47	3.43	4.65	5.58
	60°	0.00	0.05	0.28	0.73	1.11	1.83	2.92	4.29	7.00	9.43	12.78
	90°	0.00	0.06	0.47	0.85	1.28	2.05	3.24	4.74	8.26	11.61	14.72
3/4"	15°	0.00	0.05	0.24	0.56	0.90	1.34	2.15	2.75	3.76	4.75	5.56
	30°	0.00	0.07	0.30	0.61	0.99	1.57	2.42	3.25	4.52	6.12	7.34
	60°	0.00	0.08	0.35	0.93	1.46	2.42	3.85	5.64	9.21	12.41	16.28
	90°	0.00	0.09	0.59	1.11	1.69	2.69	4.27	6.24	10.85	15.28	19.39
1"	15°	0.00	0.06	0.32	0.95	1.50	2.35	3.80	4.70	6.50	8.50	9.85
	30°	0.00	0.08	0.45	1.25	2.06	3.54	5.30	7.70	10.49	12.84	15.48
	60°	0.00	0.09	0.68	1.74	2.78	5.13	8.00	11.88	18.71	23.22	32.84
	90°	0.00	0.12	0.93	2.78	5.09	7.74	12.20	17.33	24.48	26.79	43.89
1 1/4"	15°	0.00	0.03	0.27	0.83	1.65	2.79	4.09	5.88	7.99	10.84	12.85
	30°	0.00	0.06	0.48	1.37	2.47	4.12	6.08	8.82	11.76	14.87	17.39
	60°	0.00	0.07	0.67	2.04	3.41	6.47	10.80	15.39	22.35	33.37	44.20
	90°	0.00	0.09	0.78	2.92	5.41	10.23	17.28	19.48	34.93	51.76	66.00
1 1/2"	15°	0.00	0.06	0.38	1.17	2.28	3.85	5.59	8.10	10.99	14.86	17.85
	30°	0.00	0.08	0.65	1.88	3.39	5.66	8.36	12.12	16.17	20.44	23.90
	60°	0.00	0.09	0.92	2.81	4.69	8.89	14.85	21.16	30.73	45.88	59.74
	90°	0.00	0.11	1.07	4.01	7.44	14.06	23.76	26.78	48.03	71.17	90.50
2"	15°	0.00	0.06	0.69	2.26	4.45	7.30	10.68	15.40	21.39	28.75	35.05
	30°	0.00	0.09	1.18	3.79	7.53	12.26	17.83	26.44	36.45	48.09	55.92
	60°	0.00	0.11	1.51	5.80	10.39	20.60	33.98	48.75	69.04	104.2	136.5
	90°	0.00	0.17	1.89	7.28	13.58	25.38	42.30	55.56	87.04	129.8	167.3
2 1/2"	15°	0.00	0.08	0.77	2.44	5.25	8.08	11.75	16.44	22.36	27.24	32.10
	30°	0.00	0.10	1.15	4.42	7.91	13.39	20.05	30.43	41.92	69.75	77.20
	60°	0.00	0.14	1.46	5.91	11.90	23.24	37.92	59.31	83.29	113.7	162.5
	90°	0.00	0.18	1.83	7.29	16.45	31.16	53.53	77.89	118.3	177.3	240.1
3"	15°	0.00	0.08	0.92	2.98	6.65	9.60	13.50	19.62	26.69	31.80	38.40
	30°	0.00	0.13	1.20	4.15	9.49	15.96	26.78	38.91	53.31	69.77	85.91
	60°	0.00	0.16	2.89	6.70	15.82	29.36	46.32	73.60	106.7	149.9	193.2
	90°	0.00	0.21	4.12	8.65	21.09	41.09	69.27	105.9	161.0	237.2	359.2

### Full Port

Size	Cv
1/4"	7
3/8"	10
1/2"	15
3/4"	35
1"	68
1-1/4"	110
1-1/2"	155
2"	300
2-1/2"	500
3"	600

# M32 (Ammonia) Series Data Sheet



## M32N (Ammonia) Series Part # Builder

A - Figure	-	B - Size	-	C - Body	D - Trim	E - Type	F - Seat	-	G - Operator	-	H - Special
M32N	-	01	-	S	6	R	F	-	L	-	J3

## Example Part # M32N-01-S6RF-LJ3

**EXAMPLE DESCRIPTION:** 1" FLOATING 3-PC 2000 WOG FULL PORT BALL VALVE, SESTO M32 SERIES, NPT X NPT ENDS, ASTM A351 CF8M BODY, ASTM A351 CF8M \*\*VENTED\*\* BALL, ASTM A276-316 STEM, TFM SEATS, EPDM O-RING, GRAPHITE FIRE SAFE PACKING, AISI 304 SS BOLTS, API 607, NACE, LOCKING LEVER OPERATOR, CLEANED FOR AMMONIA SERVICE.

A - FIGURE	B - SIZE	C - BODY
<b>M32N</b> - FLOATING 3-PC 2000 WOG BALL VALVE, NPT X NPT ENDS, FULL BORE	0Q - 1/4"	1M - 1 1/2"
<b>M32S</b> - FLOATING 3-PC 2000 WOG BALL VALVE, SW X SW ENDS, FULL BORE	0R - 3/8"	02 - 2"
<b>M32T</b> - FLOATING 3-PC 2000 WOG BALL VALVE, SW X NPT ENDS, FULL BORE	0M - 1/2"	2M - 2 1/2"
<b>M32B</b> - FLOATING 3-PC 2000 WOG BALL VALVE, BUTT WELD ENDS SCH80, FULL BORE	0T - 3/4"	03 - 3"
<b>M32X</b> - FLOATING 3-PC 2000 WOG BALL VALVE, EXTENDED BW ENDS SCH80, FULL BORE	01 - 1"	
		C - ASTM A216 - WCB S - ASTM A351 CF8M 9 - SPECIAL

D - TRIM	E - TYPE	F - SEATS	G - OPERATOR	H - SPECIAL
6 - 316 SS BALL / 316 SS STEM 9 - SPECIAL	V - VENTED R - RELIEF VENTED BALL 9 - SPECIAL	F - TFM 1600 G - TFM 4215 S - 50/50 P - PEEK 9 - SPECIAL	L - LOCKING LEVER E - OVAL HANDLE (2" & UNDER) 9 - SPECIAL	J3 - EPDM O-RING, CLEANED FOR AMMONIA SERVICE

\*Note: 1) Not all combinations available, and special solutions not shown are possible. Please call factory for details. 2) Max-Air Technology reserves the right to change or modify products without prior notice & without incurring any obligation to make such changes on products previously or subsequently sold.

### Material Recommendations for Ammonia Service

Valve Parts	Wet Ammonia	Dry Ammonia
Body/Ends	A351-CF8M	A216-WCB / A351-CF8M
Ball/Stem	A351-CF8M/316SS	A351-CF8M / 316SS
Seats	TFM1600 / TFM4215 / PEEK	TFM1600 / TFM4215 / PEEK
Seats	PTFE / GRAPHITE	PTFE / GRAPHITE
O-Ring	EPDM	EPDM