



Triac Series 22 Ball Valves feature a high quality investment cast body and end. They are available in sizes from 1/4" to 3". Superior leak protection is accomplished by using our patented "Pyramidal" stem seal system shown in the graphic below. This advanced system protects against wear and leakage experienced by other ordinary ball valves.

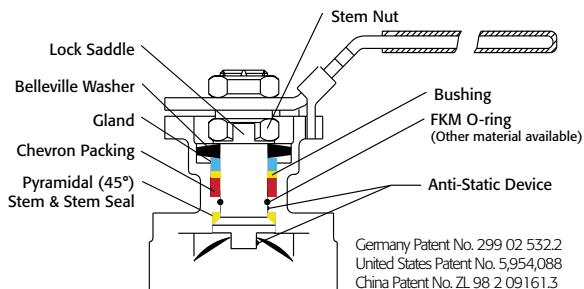
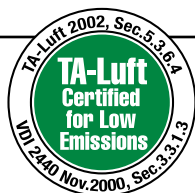


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Easy to Automate!

See automated data sheets for pre-sized assemblies



Pneumatic



Electric



Series 22

**DIRECT MOUNT
2-Piece Design**

Sizes 1/4" - 3"

Available in 316SST

Full Port Valve

Threaded Ends

1000 psi

NACE MR-0175

2-piece High Cycle Design

ISO 5211 Direct Actuator Mount

Blowout Proof Stem w/ Dual
Anti-Static Devices

RTFE Seats Standard

Pyramidal Stem Seal Packing
System

Lockable Manual Handle

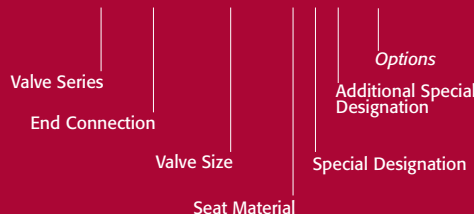
STANDARDS

Design	ASME B16.34 (fully conforms)
End Connections	ASME B1.20.1
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25, MSS SP-55
Safety Integrity	IEC 61508:2010; SIL 3
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015

HOW TO ORDER MANUAL VALVES

SAMPLE PART #

22-TH-0200-XXX-X



See part number matrix for itemized options

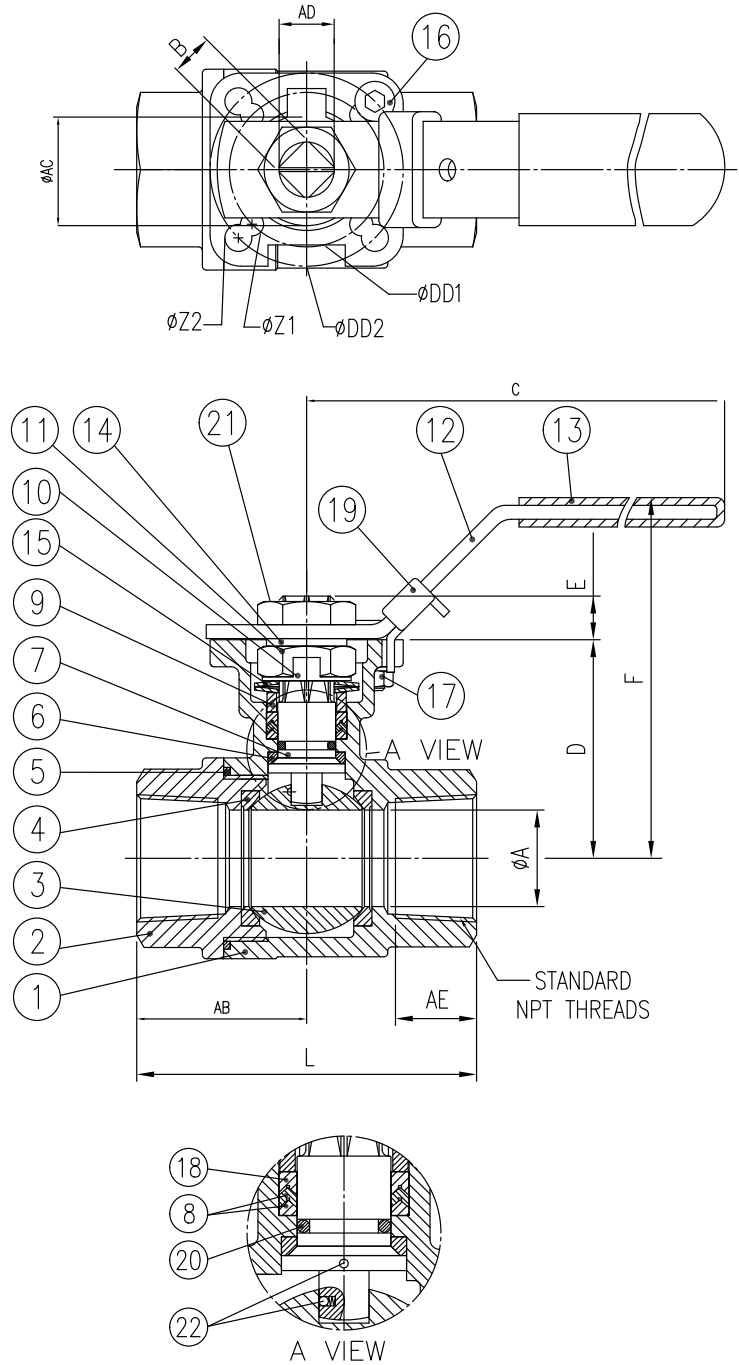


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MATERIAL LIST

NO.	PART NAME	QTY	MATERIAL	REPAIR KIT
1	BODY	1	ASTM A351 GRADE CF8M	
2	END CAP	1	ASTM A351 GRADE CF8M	
3	BALL	1	1/4" THRU 3/8" ASTM A276 SS316	
3	BALL	1	1/2" THRU 3" ASTM A351 GRADE CF8M	
4	SEAT	2	RTFE	✓
5	JOINT GASKET	1	PTFE	✓
6	STEM SEAL	1	RTFE	✓
7	STEM	1	ASTM A276 SS316	
8	GLAND PACKING	1	PTFE	✓
9	GLAND BUSHING	1	AISI 304	✓
10	LOCK SADDLE	1	AISI 304	
11	STEM NUT	1	AISI 304	
12	HANDLE	1	AISI 304	
13	HANDLE SLEEVE	1	VINYL	
14	STEM WASHER	1	AISI 304	
15	BELLEVILLE WASHER	2	AISI 301	
16	STOP BOLT	1	AISI 304	
17	BOLT NUT	1	AISI 304	
18	GLAND PACKING	1	RTFE	
19	HANDLE LOCK	1	AISI 304	
20	O-RING	1	FKM	✓
21	HANDLE NUT	1	AISI 304	
22	ANTI-STATIC DEVICE	2	AISI 316	



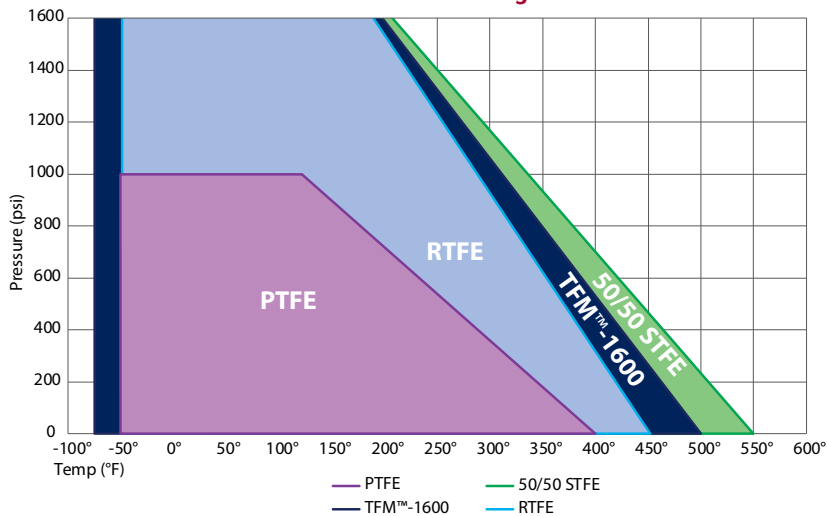
DIMENSIONS (IN)

SIZE	A	B	C	D	E	F	L	Z1	Z2	AB	AC	AD	AE	DD1	DD2	LBS	ISO 5211
1/4"	0.45	0.354	5.88	1.53	0.26	2.99	2.56	0.26	0.28	1.28	0.92	0.43	0.55	1.417	1.969	1.23	F03/F04/F05
3/8"	0.49	0.354	6.12	1.52	0.26	2.99	2.56	0.26	0.28	1.28	0.92	0.43	0.53	1.417	1.969	1.23	F03/F04/F05
1/2"	0.59	0.354	5.83	1.60	0.26	3.05	2.56	0.26	0.28	1.28	0.92	0.43	0.53	1.417	1.969	1.23	F03/F04/F05
3/4"	0.79	0.354	5.88	1.82	0.28	3.23	2.94	0.26	0.28	1.47	0.91	0.43	0.61	1.417	1.969	1.32	F03/F04/F05
1"	0.98	0.433	6.77	2.24	0.43	3.74	3.46	0.26	0.28	1.73	1.26	0.56	0.72	1.654	1.969	2.40	F04/F05
1-1/4"	1.26	0.433	6.77	2.40	0.43	3.92	4.02	0.24	0.27	2.01	1.26	0.56	0.81	1.654	1.969	3.31	F04/F05
1-1/2"	1.50	0.551	8.51	3.06	0.55	4.00	4.33	0.29	0.35	2.17	1.53	0.75	0.76	1.969	2.756	5.62	F05/F07
2"	1.97	0.551	8.51	3.35	0.56	5.16	4.92	0.29	0.35	2.46	1.53	0.75	0.89	1.969	2.756	7.93	F05/F07
2-1/2"	2.56	0.669	10.53	4.31	0.67	6.18	6.32	0.39	0.48	3.16	2.07	0.88	1.09	2.756	4.016	16.38	F07/F10
3"	3.15	0.669	11.88	4.63	0.71	6.80	7.01	0.39	0.48	3.51	2.08	0.88	1.19	2.756	4.016	22.81	F07/F10

Direct Mount High Cycle Full Port Ball Valve

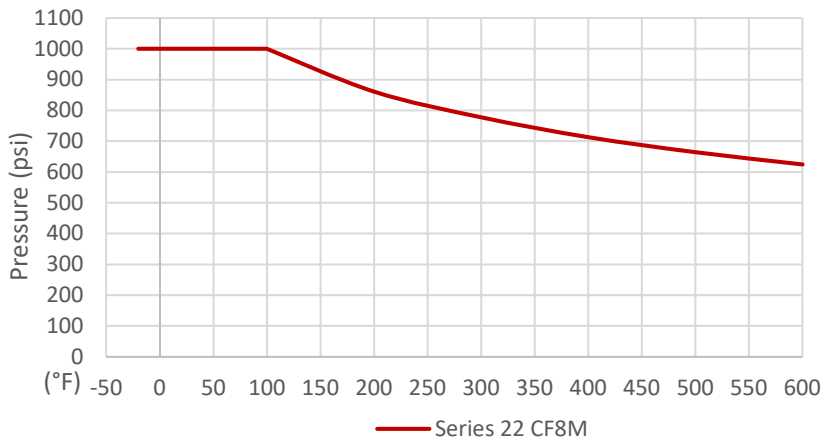
Series 22

Pressure vs. Temperature - Series 22
Seat Pressure Ratings



Temp	Pressure - Seat Material			
	RTFE	STFE	PTFE	TFM™-1600
-75°				2000
-50°	2000	2000	1000	2000
100°	2000	2000	1000	2000
122°	2000	2000	1000	2000
150°	1829	1869	899	1852
200°	1524	1636	719	1587
250°	1220	1402	540	1323
300°	915	1168	360	1058
350°	610	935	180	794
400°	305	701	0	529
450°	0	467		265
500°		234		0
550°		0		

Pressure vs. Temperature - Series 22



Temp (°F)	Series 22 CF8M
	psi
-20°	1000
50°	1000
75°	1000
90°	1000
99°	1000
100°	1000
200°	861.11
300°	777.77
400°	713.33
500°	664.72
600°	625

Break Away Torque for RTFE Seats	
SIZE	IN-LBS.
1/4"	50
3/8"	50
1/2"	50
3/4"	60
1"	100
1-1/4"	120
1-1/2"	180
2"	225
2-1/2"	487
3"	900

Published torques are based on full differential pressure with clean water. Consult the Application Sizing Guide for assistance with sizing actuators.

SIZE	Cv
1/4"	7
3/8"	8
1/2"	15
3/4"	40
1"	70
1-1/4"	110
1-1/2"	250
2"	350
2-1/2"	600
3"	900

Component Temperature Ratings		
COMPONENT	MATERIAL	TEMPERATURE
Stem Packing	PTFE	-50°F to 400°F
Stem Seal	RTFE	-50°F to 450°F
Gaskets	PTFE	-50°F to 400°F
Seats (Other Materials Available)	PTFE	-50°F to 400°F
	RTFE (standard)	-50°F to 450°F
	TFM™-1600	-75°F to 500°F
	50/50 STFE	-50°F to 550°F

NOTE: At temperature, valves are limited by either the valve body/end cap pressure ratings, seat pressure ratings, or packing/stem seal/gaskets; whichever is lower.

Pneumatic Double Acting Automated Ball Valve Package

Series 22
Direct Mount

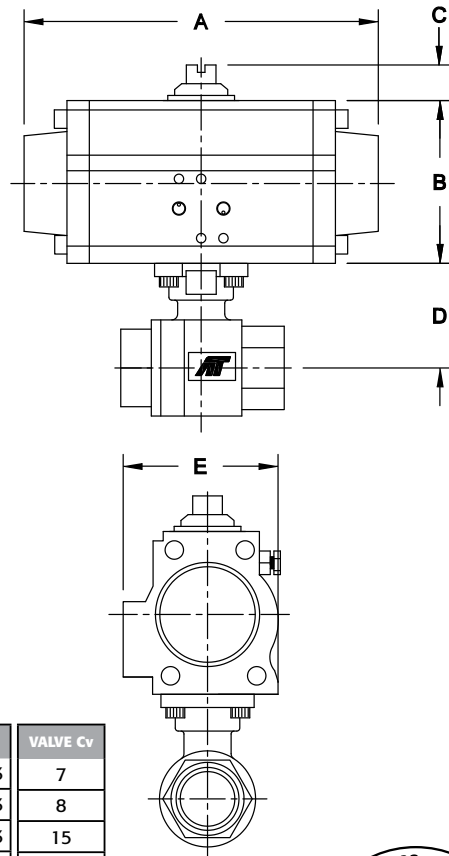
- Available in 316SST
- Sizes 1/4" – 3"
- Full Port Valve
- Threaded Ends
- 1000 psi
- NACE MR-0175
- 2-piece High Cycle Design
- Blowout Proof Stem w/ Dual Anti-Static Devices
- RTFE Seats Standard
- Pyramidal Stem Seal Design

STANDARDS

Design	ASME B16.34 (fully conforms)
End Connections	ASME B1.20.1
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25, MSS SP-55
Safety Integrity	IEC 61508:2010; SIL 3
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015



Direct Mount



DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/4"	4.57	1.91	0.79	1.53	1.93	7
3/8"	4.57	1.91	0.79	1.53	1.93	8
1/2"	4.57	1.91	0.79	1.60	1.93	15
3/4"	5.98	2.76	0.79	1.82	2.58	40
1"	5.98	2.76	0.79	2.24	2.58	70
1-1/4"	7.95	3.43	0.79	2.40	3.29	110
1-1/2"	7.95	3.43	0.79	3.06	3.29	250
2"	7.95	3.43	0.79	3.35	3.29	350
2-1/2"	9.29	4.49	0.79	4.31	4.41	600
3"	10.87	4.88	0.79	4.63	4.69	900

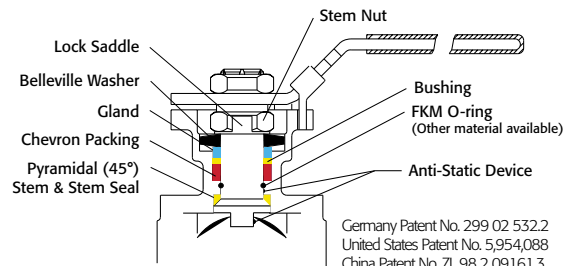
DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

SERIES 22 2-Piece Direct Mount



SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/4"	22-TX-025/TRYD-XX
3/8"	22-TX-038/TRYD-XX
1/2"	22-TX-050/TRYD-XX
3/4"	22-TX-075/TR1D-XX
1"	22-TX-100/TR1D-XX
1-1/4"	22-TX-125/2R2D-XX
1-1/2"	22-TX-150/2R2D-XX
2"	22-TX-200/2R2D-XX
2-1/2"	22-TX-250/2R3D-XX
3"	22-TX-300/2R4D-XX

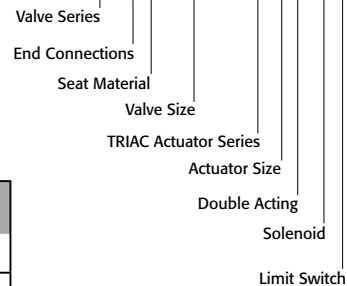
SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/4"	22-TX-025/TRYD-XX
3/8"	22-TX-038/TRYD-XX
1/2"	22-TX-050/TRYD-XX
3/4"	22-TX-075/TR1D-XX
1"	22-TX-100/TR1D-XX
1-1/4"	22-TX-125/2R2D-XX
1-1/2"	22-TX-150/2R3D-XX
2"	22-TX-200/2R3D-XX
2-1/2"	22-TX-250/2R3D-XX
3"	22-TX-300/2R4D-XX



Germany Patent No. 299 02 532.2
United States Patent No. 5,954,088
China Patent No. ZL 98 2 09161.3

SAMPLE PART

22-TX-100/2R3D-XX



See valve part number matrix for complete part number and options.

OPTIONS

DESCRIPTION	PART NO. SUFFIX	DESCRIPTION	PART NO. SUFFIX
NEMA 4 Solenoid	(A)	NEMA 4 Limit Switch (2) spdt	(A)
NEMA 7 Solenoid	(B)	NEMA 7 Limit Switch (2) spdt	(B)
Intrinsically Safe Solenoid	(C)	Intrinsically Safe Limit Switch	(C)

Other options available - call for details
Actuators are sized based on clean/clear fluid.

Pneumatic Spring Return

Automated Ball Valve Package

Series 22
Direct Mount

Available in 316SST

Sizes 1/4" – 3"

Full Port Valve

Threaded Ends

1000 psi

NACE MR-0175

2-piece High Cycle Design

Blowout Proof Stem w/ Dual
Anti-Static Devices

RTFE Seats Standard

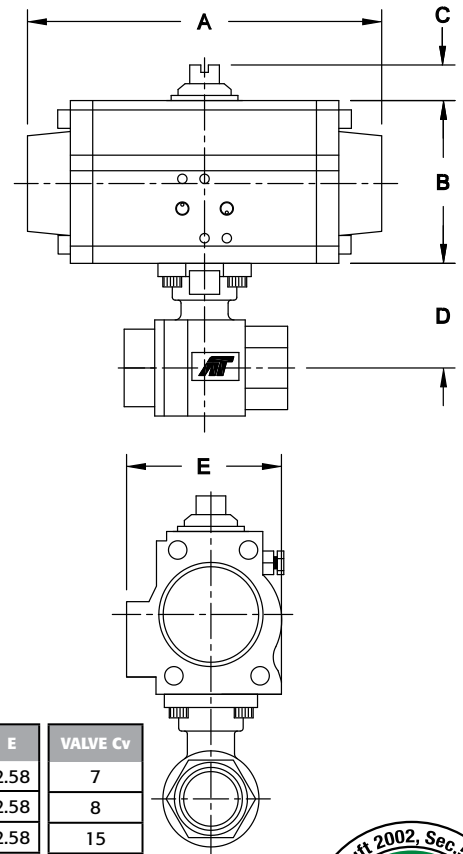
Pyramidal Stem Seal Design

STANDARDS

Design	ASME B16.34 (fully conforms)
End Connections	ASME B1.20.1
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25, MSS SP-55
Safety Integrity	IEC 61508:2010; SIL 3
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015



Direct Mount



DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/4"	7.60	2.76	0.79	1.53	2.58	7
3/8"	7.60	2.76	0.79	1.53	2.58	8
1/2"	7.60	2.76	0.79	1.60	2.58	15
3/4"	7.95	3.43	0.79	1.82	3.29	40
1"	7.95	3.43	0.79	2.24	3.29	70
1-1/4"	9.29	4.49	0.79	2.40	4.41	110
1-1/2"	9.29	4.49	0.79	3.06	4.41	250
2"	9.29	4.49	0.79	3.35	4.41	350
2-1/2"	11.46	5.28	0.79	4.31	5.20	600
3"	13.90	6.18	0.79	4.63	6.04	900

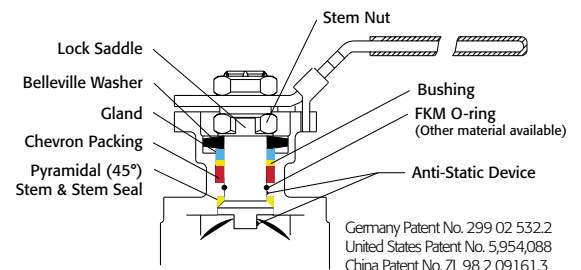
DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY



SERIES 22 2-piece Direct Mount

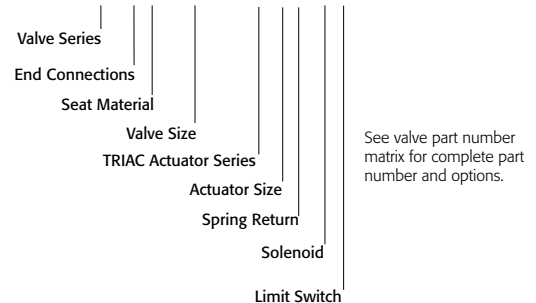
SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/4"	22-TX-025/TR1S-XX
3/8"	22-TX-038/TR1S-XX
1/2"	22-TX-050/TR1S-XX
3/4"	22-TX-075/2R2S-XX
1"	22-TX-100/2R2S-XX
1-1/4"	22-TX-125/2R3S-XX
1-1/2"	22-TX-150/2R3S-XX
2"	22-TX-200/2R3S-XX
2-1/2"	22-TX-250/2R5S-XX
3"	22-TX-300/2R6S-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/4"	22-TX-025/TR1S-XX
3/8"	22-TX-038/TR1S-XX
1/2"	22-TX-050/TR1S-XX
3/4"	22-TX-075/2R2S-XX
1"	22-TX-100/2R3S-XX
1-1/4"	22-TX-125/2R3S-XX
1-1/2"	22-TX-150/2R4S-XX
2"	22-TX-200/2R4S-XX
2-1/2"	22-TX-250/2R5S-XX
3"	22-TX-300/2R6S-XX



Germany Patent No. 299 02 532.2
United States Patent No. 5,954,088
China Patent No. ZL 98 2 09161.3

SAMPLE PART # 22-TX-100/2R3S-XX



See valve part number matrix for complete part number and options.

OPTIONS

DESCRIPTION	PART NO. SUFFIX	DESCRIPTION	PART NO. SUFFIX
NEMA 4 Solenoid	(A)	NEMA 4 Limit Switch (2) spdt	(A)
NEMA 7 Solenoid	(B)	NEMA 7 Limit Switch (2) spdt	(B)
Intrinsically Safe Solenoid	(C)	Intrinsically Safe Limit Switch	(C)

Other options available - call for details
Actuators are sized based on clean/clear fluid.

Electric Automated Ball Valve Package

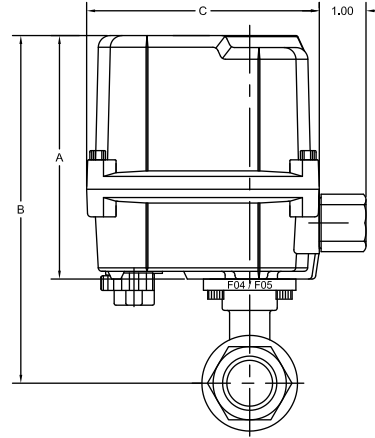
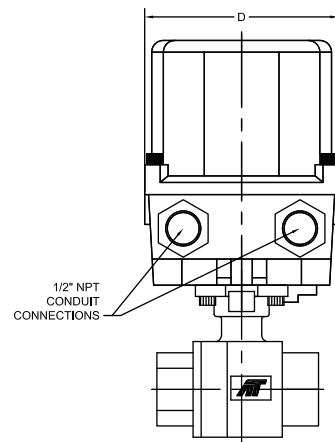
Series 22
Direct Mount

Available in 316SS
Sizes 1/4" – 3"
Full Port Valve
Threaded Ends
1000 psi
NACE MR-0175
2-piece High Cycle Design
Blowout Proof Stem w/ Dual
Anti-Static Devices
RTFE Seats Standard
Pyramidal Stem Seal Design

STANDARDS	
Design	ASME B16.34 (fully conforms)
End Connections	ASME B1.20.1
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25, MSS SP-55
Safety Integrity	IEC 61508:2010; SIL 3
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015



Direct Mount



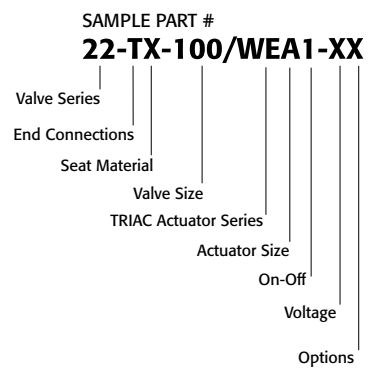
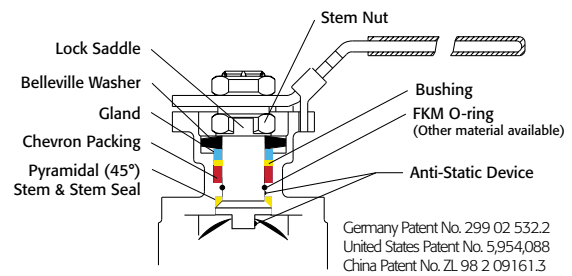
DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	VALVE Cv
1/4"	5.24	6.77	4.94	4.08	7
3/8"	5.24	6.77	4.94	4.08	8
1/2"	5.24	6.84	4.94	4.08	15
3/4"	5.24	7.06	4.94	4.08	40
1"	5.24	7.48	4.94	4.08	70
1-1/4"	5.24	7.64	4.94	4.08	110
1-1/2"	5.24	8.30	4.94	4.08	250
2"	5.24	8.59	4.94	4.08	350
2-1/2"	9.25	13.56	6.69	10.16	600
3"	10.55	15.18	9.02	13.31	900

SERIES 22 2-Piece Direct Mount

ON-OFF	
SIZE	MODEL
1/4"	22-TX-025/WEA1-XX
3/8"	22-TX-038/WEA1-XX
1/2"	22-TX-050/WEA1-XX
3/4"	22-TX-075/WEA1-XX
1"	22-TX-100/WEA1-XX
1-1/4"	22-TX-125/WEA1-XX
1-1/2"	22-TX-150/WEA1-XX
2"	22-TX-200/WEA1-XX
2-1/2"	22-TX-250/WEB1-XX
3"	22-TX-300/WEC1-XX

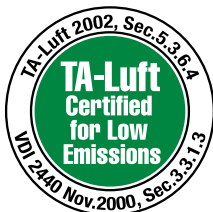
MODULATING	
SIZE	MODEL
1/4"	22-TX-025/WEA2-XX
3/8"	22-TX-038/WEA2-XX
1/2"	22-TX-050/WEA2-XX
3/4"	22-TX-075/WEA2-XX
1"	22-TX-100/WEA2-XX
1-1/4"	22-TX-125/WEA2-XX
1-1/2"	22-TX-150/WEA2-XX
2"	22-TX-200/WEA2-XX
2-1/2"	22-TX-250/WEB2-XX
3"	22-TX-300/WEC2-XX



See valve part number matrix for complete part number and options.

OPTIONS
DESCRIPTION
24 VAC/24 VDC/220VAC
Feedback potentiometer

Other options available - call for details
Actuators are sized based on clean/clear fluid.



HOW TO ORDER: Manual Valves

Series 22

2	Valve Series
22	2pc. Direct Mount 1000 psi, Full Port

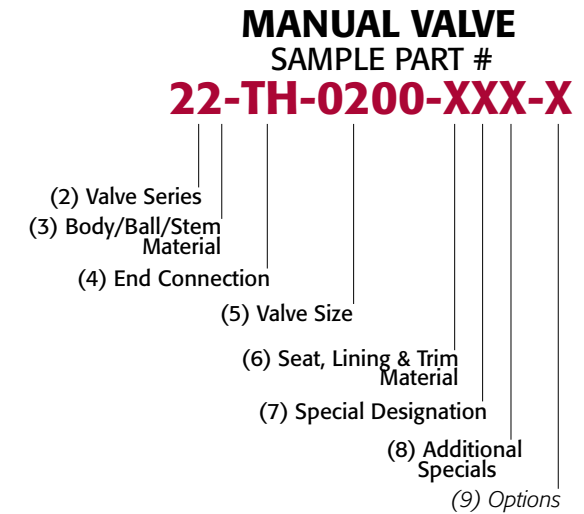
3	Body/Ball/Stem Material
Blank	Valve Series Standard (316SST)

4	End Connection
TH	NPT Ends

5	Valve Size	
0025	1/4"	0125 1-1/4"
0038	3/8"	0150 1-1/2"
0050	1/2"	0200 2"
0075	3/4"	0250 2-1/2"
0100	1"	0300 3"

6	Seat, Lining & Trim Materials
X	Reinforced TFE Seats (RTFE)
P	Virgin TFE (PTFE)
U	UHMWPE Seats
S	50/50 STFE Seats
T	TFM™-1600

7	Special Designation
X	No Specials/Series Standard
O	Oval Handle (<i>available on some</i>)
S	Spring Return (<i>Direct Mount Only</i>)
4	4" Lockable Stem Extension



8	Additional Specials
X	No Specials, Series Standard
O	Oxygen Cleaned
V	Vented Ball
E	Bonnet Extension Lockable Handle
D	Degreased & Bagged
A	Vented Ball, Degreased & Bagged
B	Vented Ball, Oxygen Cleaned

OPTIONS:

9	Special Designation
Blank	No Designation, Valve Series Standard
X	Multiple Option Designation

TFM™ is a trademark of Dyneon™, a 3M Company.

HOW TO ORDER: Automated Valves w/ Options

2	Valve Series
22	2pc. Direct Mount 1000 psi, Full Port

3	Body/Ball/Stem Material
Blank	Valve Series Standard (316SS)

4	End Connection
T	NPT Ends

5	Seat, Lining & Trim Materials
X	Reinforced TFE Seats (RTFE)
P	Virgin TFE (PTFE)
U	UHMWPE Seats
S	50/50 STFE Seats
T	TFM™-1600

6	Valve Size	
025	1/4"	125 1 1/4"
038	3/8"	150 1 1/2"
050	1/2"	200 2"
075	3/4"	250 2 1/2"
100	1"	300 3"

7	Actuator - Pneumatic (DA)			
TRYD	TR10DA	2R7D	2R500DA	
TR1D	TR20DA	2R8D	2R850DA	
2R2D	2R40DA	2R9D	2R1200DA	
2R3D	2R80DA	2R0D	2R1750DA	
2R4D	2R130DA	2RAD	2R2500DA	
2R5D	2R200DA	2RBD	2R3500DA	
2R6D	2R300DA			

7	Actuator - Pneumatic (SR)			
TR1S	TR20SR	2R7S	2R500SR	
2R2S	2R40SR	2R8S	2R850SR	
2R3S	2R80SR	2R9S	2R1200SR	
2R4S	2R130SR	2R0S	2R1750SR	
2R5S	2R200SR	2RAS	2R2500SR	
2R6S	2R300SR	2RBS	2R3500SR	

7	Actuator - Pneumatic Stainless (DA)			
S21D	S2-052DA	S25D	S2-125DA	
S22D	S2-063DA	S26D	S2-140DA	
S23D	S2-083DA	S27D	S2-160DA	
S24D	S2-105DA	S28D	S2-210DA	

7	Actuator - Pneumatic Stainless (SR)			
S21S	S2-052SR	S25S	S2-125SR	
S22S	S2-063SR	S26S	S2-140SR	
S23S	S2-083SR	S27S	S2-160SR	
S24S	S2-105SR	S28S	S2-210SR	

7	Actuator - Electric (On-Off)			
WEX1	WE-350	WEG1	WE-5200	
WEA1	WE-500	WEH1	WE-6900	
WEB1	WE-690	WEJ1	WE-10500	
WEC1	WE-1350	WEK1	WE-17500	
WED1	WE-1700	WEL1	WE-25900	
WEE1	WE-2640	WEM1	WE-53000	
WEF1	WE-4400	WEN1	WE-80000	

7	Actuator - Electric (Modulating)			
WEA2	WEM-500	WEH2	WEM-6900	
WEB2	WEM-690	WEJ2	WEM-10500	
WEC2	WEM-1350	WEK2	WEM-17500	
WED2	WEM-1700	WEL2	WEM-25900	
WEE2	WEM-2640	WEM2	WEM-53000	
WEF2	WEM-4400	WEN2	WEM-80000	
WEG2	WEM-5200			

OPTIONS:

8	Accessories/Options	Model no.
X	No Specials	
A	TYPE 4 Solenoid 120VAC	TVCS-X411-4N-A120
B	TYPE 7 Solenoid 120VAC	TVC6-X411-7N-A120
C	Intrinsically Safe Solenoid	TVIS-X411-4N-D24
D	TYPE 4 Solenoid 24VDC	TVCS-X411-4N-D24
F	TYPE 7 Solenoid 24VDC	TVC6-X411-7N-D24
Q	TYPE 4 SST Solenoid 120VAC	TVSS-X411-4N-A120
M	TYPE 7 SST Solenoid 120VAC	TVSS-X411-7N-A120
L	TYPE 4 SST Solenoid 24VDC	TVSS-X411-4N-D24
N	TYPE 7 SST Solenoid 24VDC	TVSS-X411-7N-D24
P	Pneumatic Positioner	PPR-1200
E	Electro-Pneumatic Positioner	EPR-1000
R	24VDC Electric Actuator	
S	220VAC Electric Actuator	
T	Other Voltage Electric Actuator	
W	12VDC Electric Actuator	
Y	24VAC Electric Actuator	

** No voltage specified on electric assemblies denotes 120VAC*

9	Accessories	Model no.
X	No Specials	
A	TYPE 4 Limit Switch	APL-210N/APL-310N
B	TYPE 7 Limit Switch	APL-510N
C	Intrinsically Safe Limit Switch	APL-218N
Q	TYPE 4 SST Limit Switch	APL-910N
M	TYPE 7 SST Limit Switch	APL-510S
1	HS1 High Speed Electric	
2	HS2 High Speed Electric	

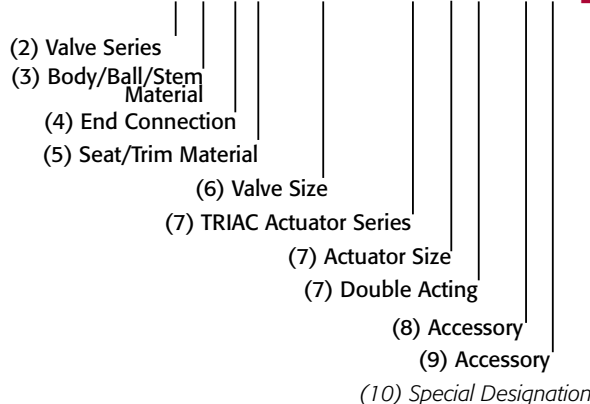
10	Special Designation
Blank	No Designation, SST Stem

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AUTOMATED VALVE

SAMPLE PART #

22-TX-100/2R3D-XX-



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