



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.

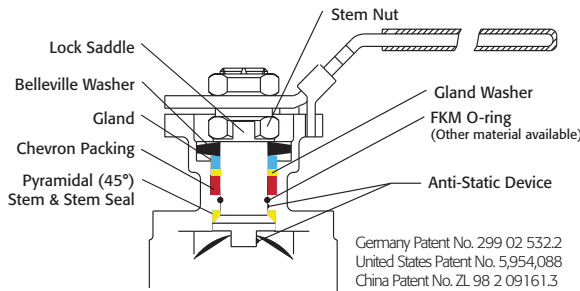
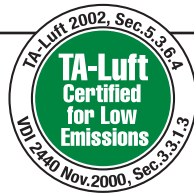


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Easy to Automate!

See automated data sheets for pre-sized assemblies



Pneumatic



Electric



Series 22

DIRECT MOUNT 2-Piece Design

Sizes 1/4" - 3"

Available in 316SS

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

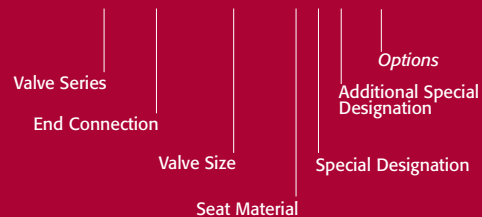
STANDARDS

Design	ASME B16.34 (fully conforms)
End Connections	ASME B1.20.1
Pressure Testing	API 598
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
CE Approval	2014/68/EU Module H
Safety Integrity	SIL 3; IEC 61508:2010
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015

HOW TO ORDER MANUAL VALVES

SAMPLE PART #

22-TH-0200-XXX-X

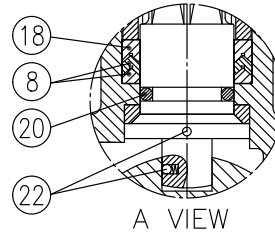
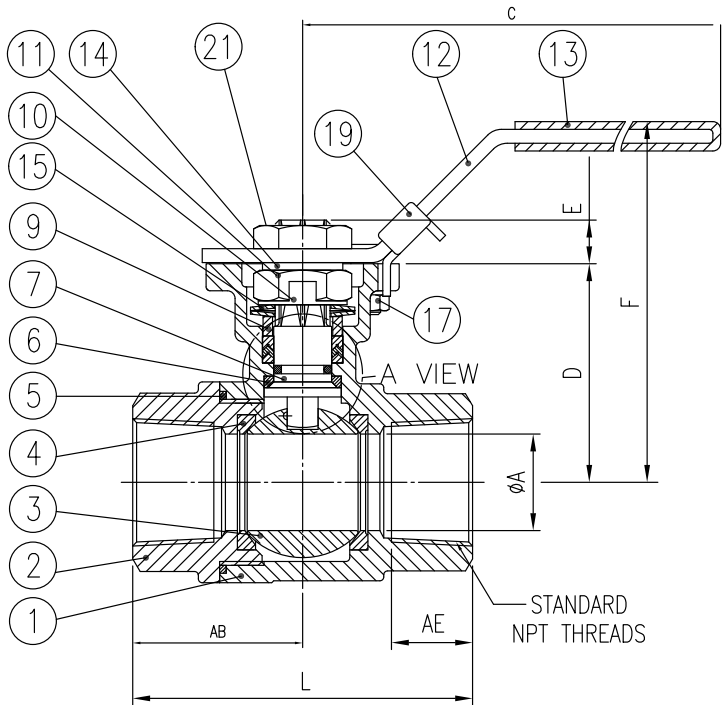
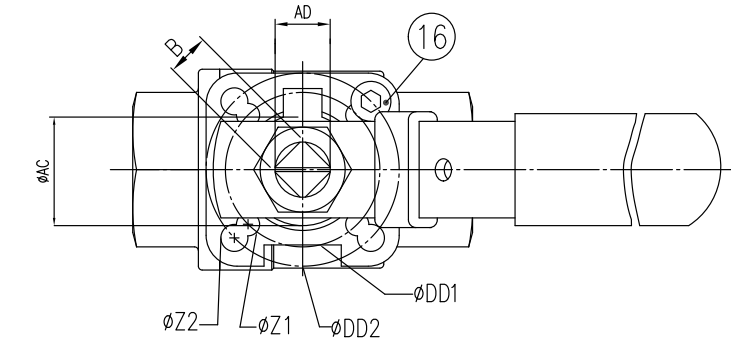


See part number matrix for itemized options



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 WASHER	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	



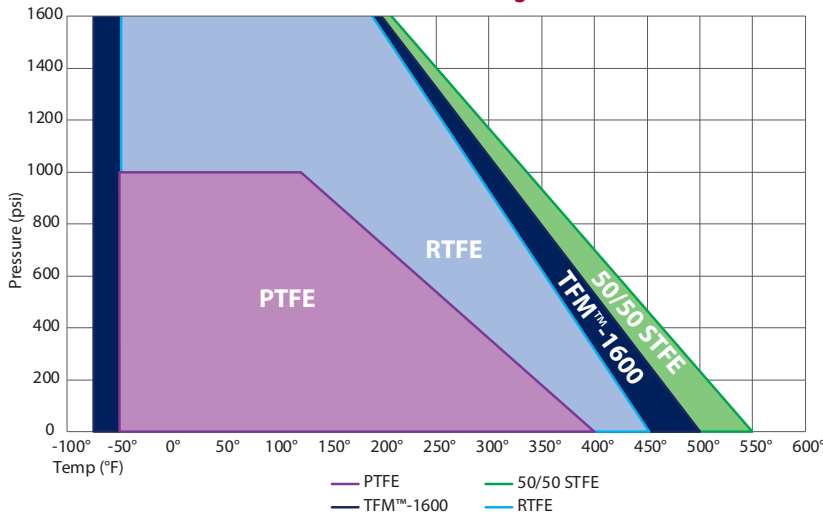
DIMENSIONS (IN)

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 1000 psi

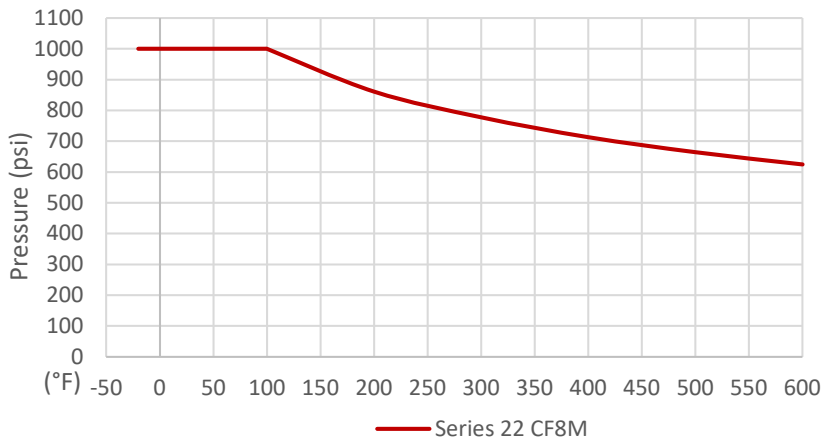
Series 22

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
100°	1000
200°	861
300°	778
400°	713
500°	665
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
	PTFE	-50°F to 400°F
	RTFE (standard)	-50°F to 450°F
	TFM™-1600	-75°F to 500°F
Seats (Other Materials Available)	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

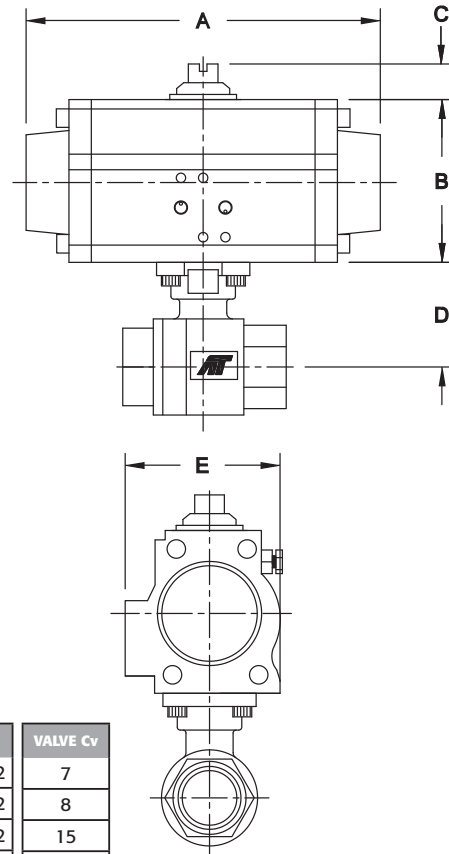
Available in 316SST
 Sizes 1/4" – 3"
 Full Port Valve
 Threaded Ends
 1000 psi
 NACE MR-0175
 2-piece High Cycle Design
 Blowout Proof Stem w/ Dual
 Anti-Static Devices
 RTFE Seats Standard
 Pyramidal Stem Seal Design

STANDARDS

Design	ASME B16.34 (fully conforms)
End Connections	ASME B1.20.1
Pressure Testing	API 598
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
CE Approval	2014/68/EU Module H
Safety Integrity	SIL 3; IEC 61508:2010
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015



2-pc. Direct Mount
1000 psi



DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/4"	6.50	2.84	0.787	1.53	2.82	7
3/8"	6.50	2.84	0.787	1.53	2.82	8
1/2"	6.50	2.84	0.787	1.60	2.82	15
3/4"	6.50	2.84	0.787	1.82	2.82	40
1"	6.50	2.84	0.787	2.24	2.82	70
1-1/4"	6.50	2.84	0.787	2.40	2.82	110
1-1/2"	7.60	3.47	0.787	3.06	3.35	250
2"	7.60	3.47	0.787	3.35	3.35	350
2-1/2"	9.29	4.30	0.787	4.31	4.18	600
3"	11.02	4.61	0.787	4.63	4.27	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-025/3RDD-XX
3/8"	22-TX-038/3RDD-XX
1/2"	22-TX-050/3RDD-XX
3/4"	22-TX-075/3RDD-XX
1"	22-TX-100/3RDD-XX
1-1/4"	22-TX-125/3RDD-XX
1-1/2"	22-TX-150/3RED-XX
2"	22-TX-200/3RED-XX
2-1/2"	22-TX-250/3RFD-XX
3"	22-TX-300/3RGD-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/4"	22-TX-025/3RDD-XX
3/8"	22-TX-038/3RDD-XX
1/2"	22-TX-050/3RDD-XX
3/4"	22-TX-075/3RDD-XX
1"	22-TX-100/3RDD-XX
1-1/4"	22-TX-125/3RDD-XX
1-1/2"	22-TX-150/3RED-XX
2"	22-TX-200/3RED-XX
2-1/2"	22-TX-250/3RFD-XX
3"	22-TX-300/3RHD-XX

OPTIONS		
SUFFIX 1	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
SUFFIX 2	Accessories	Model no.
X	No Specials	
A	TYPE 4 Limit Switch	APL-210N
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

Other options available - call for details
 Actuators are sized based on full differential pressure with clean water. Consult the Application Sizing Guide for assistance with sizing actuators.

SAMPLE PART #
22-TX-100/3RDD-XX

Valve Series	
End Connection	
Seat Material	
Valve Size	
TRIAC Actuator Series	
Actuator Size	
Double Acting	

See automated part number matrix on back cover for complete part number and options.

SUFFIX 1: Solenoids
SUFFIX 2: Limit Switch

Pneumatic Spring Return Automated Ball Valve Package

Series 22
Direct Mount

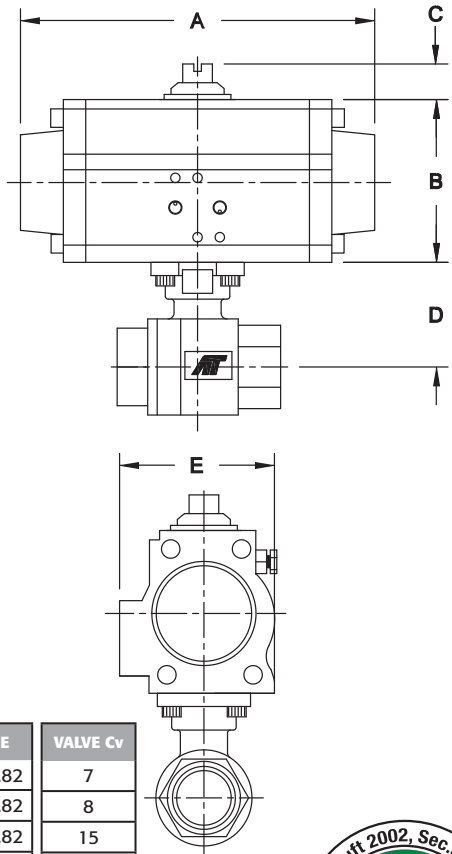
Available in 316SS
 Sizes 1/4" – 3"
 Full Port Valve
 Threaded Ends
 1000 psi
 NACE MR-0175
 2-piece High Cycle Design
 Blowout Proof Stem w/ Dual
 Anti-Static Devices
 RTFE Seats Standard
 Pyramidal Stem Seal Design

STANDARDS

Design	ASME B16.34 (fully conforms)
End Connections	ASME B1.20.1
Pressure Testing	API 598
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
CE Approval	2014/68/EU Module H
Safety Integrity	SIL 3; IEC 61508:2010
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015



2-pc. Direct Mount
1000 psi



DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/4"	6.50	2.84	0.787	1.53	2.82	7
3/8"	6.50	2.84	0.787	1.53	2.82	8
1/2"	6.50	2.84	0.787	1.60	2.82	15
3/4"	6.50	2.84	0.787	1.82	2.82	40
1"	7.60	3.47	0.787	2.24	3.35	70
1-1/4"	9.29	4.30	0.787	2.40	4.18	110
1-1/2"	9.29	4.30	0.787	3.06	4.18	250
2"	9.29	4.30	0.787	3.35	4.18	350
2-1/2"	11.50	5.28	0.787	4.31	5.78	600
3"	13.39	6.14	0.787	4.63	5.59	900

DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY



SERIES 22 2-piece Direct Mount

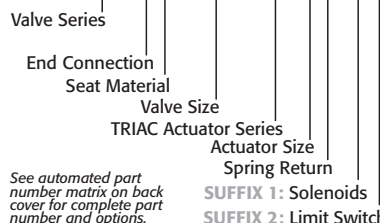
SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/4"	22-TX-025/3RDS-XX
3/8"	22-TX-038/3RDS-XX
1/2"	22-TX-050/3RDS-XX
3/4"	22-TX-075/3RDS-XX
1"	22-TX-100/3RES-XX
1-1/4"	22-TX-125/3RFS-XX
1-1/2"	22-TX-150/3RFS-XX
2"	22-TX-200/3RFS-XX
2-1/2"	22-TX-250/3RHS-XX
3"	22-TX-300/3RJS-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/4"	22-TX-025/3RD4-XX
3/8"	22-TX-038/3RD4-XX
1/2"	22-TX-050/3RD4-XX
3/4"	22-TX-075/3RE4-XX
1"	22-TX-100/3RF4-XX
1-1/4"	22-TX-125/3RF4-XX
1-1/2"	22-TX-150/3RF4-XX
2"	22-TX-200/3RG4-XX
2-1/2"	22-TX-250/3RJ4-XX
3"	22-TX-300/3RK4-XX

OPTIONS		
SUFFIX 1	Accessories/Options	Model no.
X	No Specials	
A	TYPE 4 Solenoid 120VAC	TVCS-X411-4N-A120
B	TYPE 7 Solenoid 120VAC	TVCS-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	TVCS-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
SUFFIX 2	Accessories	Model no.
X	No Specials	
A	TYPE 4 Limit Switch	APL-210N
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

Other options available - call for details
 Actuators are sized based on full differential pressure with clean water. Consult the Application Sizing Guide for assistance with sizing actuators.

SAMPLE PART #
22-TX-100/3RES-XX



HOW TO ORDER: Manual Valves

Series 22

MANUAL VALVE

SAMPLE PART #

22-TH-0200-XXX-X-XX

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

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

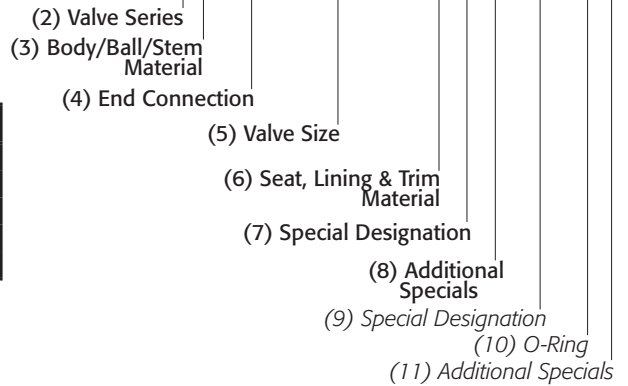
4	End Connection
TH	NPT Ends

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 Seats (PTFE)
U	UHMWPE Seats
S	50/50 STFE Seats
T	TFM™-1600 Seats

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

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

10	O-Ring
Blank	No Designation, Valve Series Standard
X	Multiple Option Designation

11	Additional Specials
E	CE/PED Certified

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 (316SST)

4	End Connection
T	NPT Ends

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

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

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 (A) Pneumatic Actuator - 3R, 3N, 3P Series			
3RC	3R10	3RM	3R850
3RD	3R20	3RN	3R1000
3RE	3R40	3RP	3R1200
3RF	3R80	3RR	3R1750
3RG	3R130	3RS	3R2400
3RH	3R200	3RT	3R2500
3RJ	3R300	3RU	3R2700
3RK	3R500	3RV	3R3300
3RL	3R700	3RW	3R3500

3R=Standard, 3N=Electroless Nickel Plating, 3P=Teflon™ (PTFE) Coating

7 (A) Pneumatic Actuator - S2 Series			
S2C	S2-052	S2G	S2-125
S2D	S2-063	S2H	S2-140
S2E	S2-083	S2J	S2-160
S2F	S2-105	S2K	S2-210

7 (B) Pneumatic Action	
D	Double Acting (DA)
S	Spring CW (5 springs)*
O	Spring CCW (5 springs)*
4	Spring CW (4 springs)**
F	Spring CCW (4 springs)**

*2500 & 3500 80 psig spring

**2500 & 3500 60 psig spring

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	TVCG-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	TVCG-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
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	

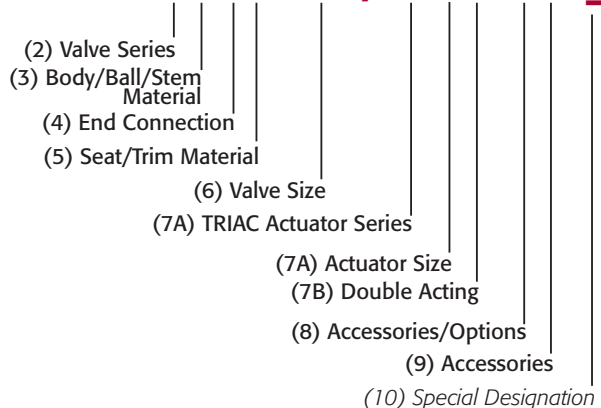
10	Special Designation	
Blank	No Designation, SST Stem	
E	CE/PED Certified	
F	Viton® Seal for Pneumatic Actuators (0°F to 300°F)	

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AUTOMATED VALVE

SAMPLE PART #

22-TX-100/3RDD-XX-



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