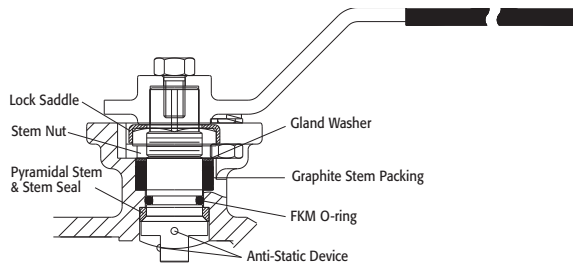


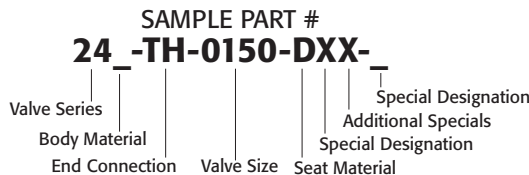


Triac Series 24 High Pressure Ball Valves feature a high quality investment cast body and end. They are available in 1/4" through 2" (all are full port except the 2" size). Superior leak protection is accomplished by using our patented Pyramidal Stem Seal Packing System shown in the graphic below. This advanced system protects against wear and leakage experienced by other ball valves.



Delrin® seats are standard in these high performance valves. See pressure temperature chart for performance particulars.

HOW TO ORDER MANUAL VALVES



See part number matrix for itemized options.

Easy to Automate!

See automated data sheets for pre-sized assemblies



Pneumatic



Electric



Series 24

FIRESAFE

HIGH PRESSURE 2-Piece Design

Sizes 1/4" – 2"
(1/4" – 1-1/2" Full Port, 2" Regular Port)

Available in 316SST

Direct Mount

3000 psi

High Cycle Design

Pyramidal Stem Seal Packing System

Compliant to NACE MR0175

Blowout Proof Stem

Delrin® Seats Standards

ISO 5211 Actuator Mounting Pad

Lockable Manual Handle

STANDARDS

Design	ASME B16.34, (fully conforms), Firesafe design
End Connections	ASME B1.20.1
Pressure Testing	API 598
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25, MSS SP-72, ISO 5209
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015

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- Page 2 - Materials & Dimensions
- Page 3 - Technical Data
- Page 4 - Double Acting
- Page 5 - Spring Return
- Page 6 - Electric
- Page 7 - How to Order - Manual
- Page 8 - How to Order - Automated

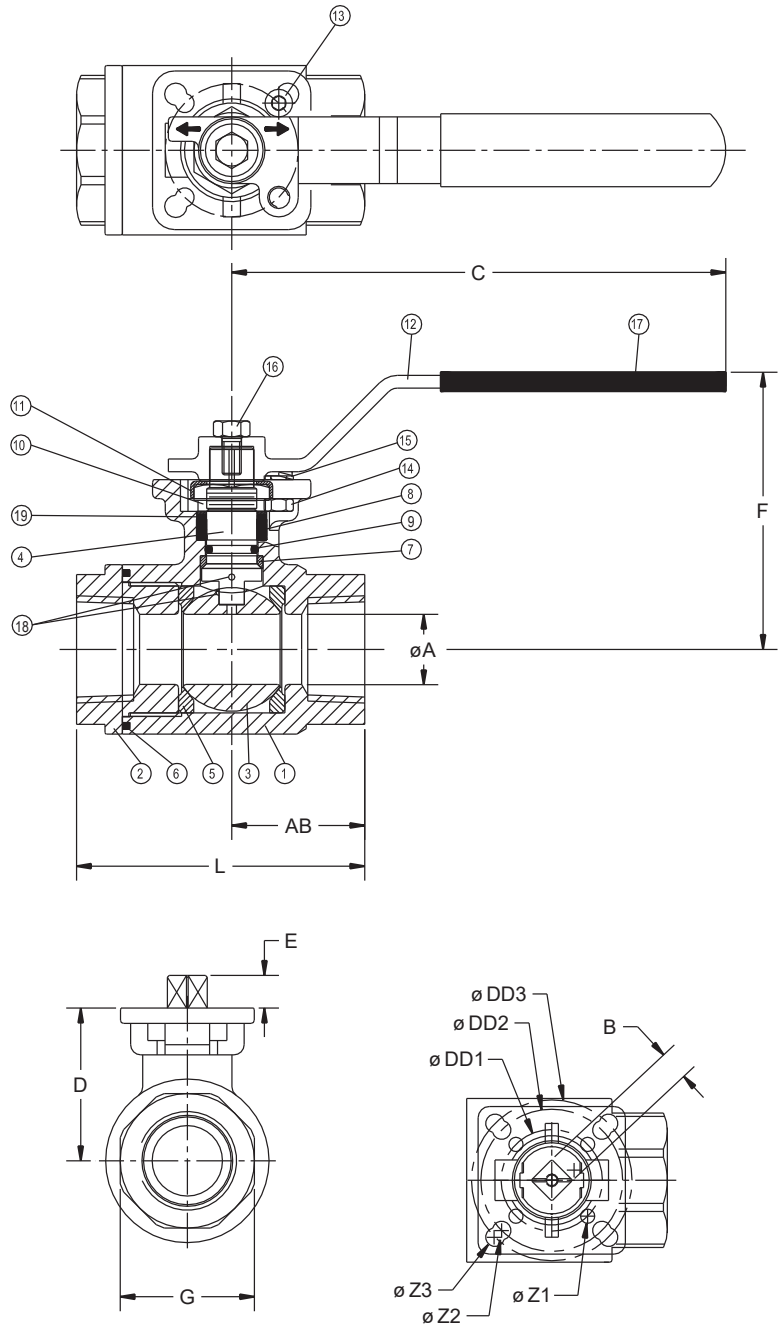


Series 24

2-Piece Direct Mount Ball Valve 3000 psi Integrated ISO 5211 Actuator Mounting Pad 1/4" to 1-1/2" Full Port 2" Regular Port

MATERIALS LIST

NO.	PART NAME	QTY	STAINLESS STEEL	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 2" ASTM A351 GRADE CF8M	
4	STEM	1	ASTM A276 SS316	
5	SEAT	2	DELTRIN®	✓
6	JOINT GASKET	1	GRAPHITE	✓
7	STEM SEAL	1	DELTRIN®	✓
8	STEM PACKING	1	GRAPHITE	✓
9	O-RING	1	FKM	✓
10	STEM NUT	1	AISI 304	
11	LOCK SADDLE	1	AISI 304	
12	HANDLE	1	AISI 304	
13	STOP BOLT	1	AISI 304	
14	STOP NUT	1	AISI 304	
15	STOP WASHER	1	AISI 304	
16	HANDLE BOLT	1	AISI 304	
17	HANDLE SLEEVE	1	VINYL	
18	ANTI-STATIC DEVICE	2	AISI 316	
19	GLAND WASHER	1	RTFE	✓



DIMENSIONS (IN)

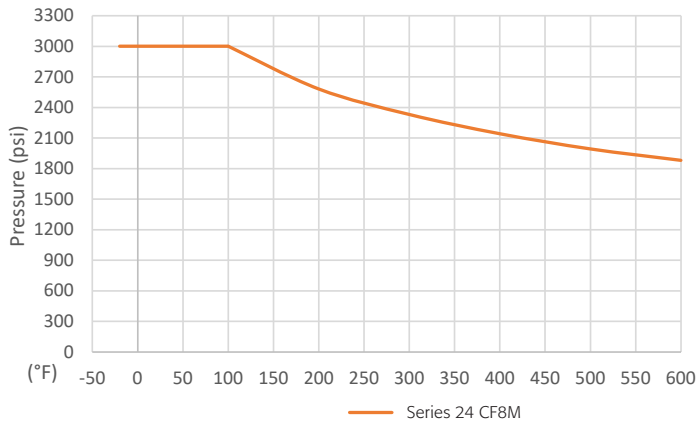
SIZE	A	B	C	D	E	F	G	L	AB	DD1	DD2	DD3	Z1	Z2	Z3	ISO 5211
1/4"	0.38	0.354	4.96	1.61	0.31	2.83	1.02	2.95	1.417	1.417	1.654	1.969	0.24	0.24	0.28	F03/F04/F05
3/8"	0.38	0.354	4.96	1.61	0.31	2.83	1.02	2.95	1.417	1.417	1.654	1.969	0.24	0.24	0.28	F03/F04/F05
1/2"	0.50	0.354	4.96	1.61	0.31	2.83	1.28	2.95	1.417	1.417	1.654	1.969	0.24	0.24	0.28	F03/F04/F05
3/4"	0.69	0.354	4.96	1.72	0.31	2.87	1.51	3.19	1.417	1.417	1.654	1.969	0.24	0.24	0.28	F03/F04/F05
1"	0.87	0.433	6.14	2.11	0.39	3.43	1.86	3.58	1.654	1.654	1.969	—	0.24	0.28	—	F04/F05
1-1/4"	1.14	0.433	6.14	2.32	0.39	3.66	2.32	4.33	1.654	1.654	1.969	—	0.24	0.28	—	F04/F05
1-1/2"	1.37	0.551	7.13	2.96	0.51	4.49	2.61	4.76	1.969	1.969	2.756	—	0.28	0.34	—	F05/F07
2" RP	1.37	0.551	7.13	2.96	0.51	4.49	3.23	5.71	1.969	1.969	2.756	—	0.28	0.34	—	F05/F07

Delrin® is a registered trademark of DuPont Performance Polymers.

2-Piece Direct Mount Ball Valve
Integrated ISO 5211 1/4" to 1-1/2" Full Port
Actuator Mounting Pad **3000 psi**
2" Regular Port

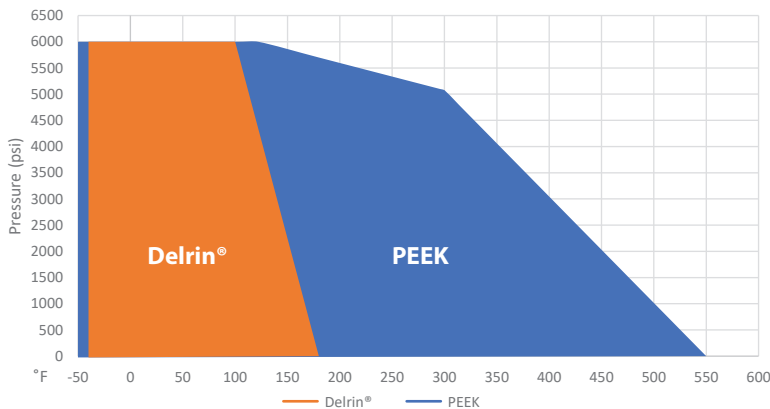
Series 24

Pressure vs. Temperature Chart - Series 24



Temp (°F)	Class 1250 CF8M
	psi
-20°	3000
100°	3000
200°	2580
300°	2330
400°	2141
500°	1992
600°	1880

Pressure vs. Temperature Chart - Series 24
Seat Pressure Ratings



Pressure - Seat Material			
Temp (°F)	Delrin®	Temp (°F)	PEEK
-40°	6000	-50°	6000
0°	6000	100°	6000
99°	6000	122°	6000
100°	6000	180°	5700
108°	5400	238°	5400
116°	4800	295°	5100
124°	4200	300°	5076
132°	3600	314°	4800
140°	3000	337°	4320
148°	2400	361°	3840
156°	1800	385°	3360
164°	1200	408°	2880
172°	600	432°	2400
180°	0	455°	1920
		479°	1440
		503°	960
		526°	480
		550°	0

Component Temperature Ratings		
COMPONENT	MATERIAL	TEMPERATURE
Stem Seal	Delrin®	-40°F to 180°F
Gaskets	Graphite	-100°F to 1100°F
Seats (Other Materials Available)	Delrin®	-40°F to 180°F
	PEEK	-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.

Delrin® is a registered trademark of DuPont Performance Polymers.

BREAK AWAY TORQUES w/Delrin® Seats	
SIZE	IN-LBS
1/4"	75
3/8"	75
1/2"	75
3/4"	130
1"	170
1-1/4"	330
1-1/2"	500
2"	500

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

Pneumatic Double Acting

Automated Ball Valve Package

Series 24
Firesafe
High Pressure 2-Piece Design

Sizes 1/4" – 2"
Full Port 1/4" – 1-1/2" Regular Port 2"

Available in 316SST

Direct Mount

3000 psi

High Cycle Design

Pyramidal Stem Seal Packing System

Compliant to NACE MR0175

Blowout Proof Stem

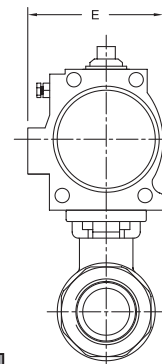
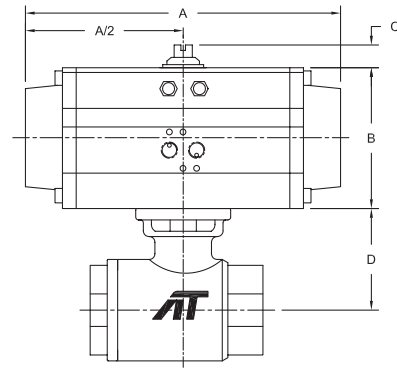
Delrin® Seats Standard

STANDARDS

Design	ASME B16.34, (fully conforms), Firesafe design
End Connections	ASME B1.20.1
Pressure Testing	API 598
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25, MSS SP-72, ISO 5209
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015



2-pc. Direct Mount
3000 psi



SERIES 24 Direct Mount

DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/4"	6.50	2.84	0.787	1.61	2.82	7
3/8"	6.50	2.84	0.787	1.61	2.82	8
1/2"	6.50	2.84	0.787	1.61	2.82	15
3/4"	6.50	2.84	0.787	1.72	2.82	35
1"	7.60	3.47	0.787	2.11	3.35	50
1-1/4"	9.29	4.30	0.787	2.32	4.18	95
1-1/2"	9.29	4.30	0.787	2.96	4.18	180
2"	9.29	4.30	0.787	2.96	4.18	210

DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/4"	24-TD-025/3RDD-XX
3/8"	24-TD-038/3RDD-XX
1/2"	24-TD-050/3RDD-XX
3/4"	24-TD-075/3RDD-XX
1"	24-TD-100/3RED-XX
1-1/4"	24-TD-125/3RFD-XX
1-1/2"	24-TD-150/3RFD-XX
2"	24-TD-200/3RFD-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/4"	24-TD-025/3RDD-XX
3/8"	24-TD-038/3RDD-XX
1/2"	24-TD-050/3RED-XX
3/4"	24-TD-075/3RED-XX
1"	24-TD-100/3RED-XX
1-1/4"	24-TD-125/3RFD-XX
1-1/2"	24-TD-150/3RFD-XX
2"	24-TD-200/3RFD-XX

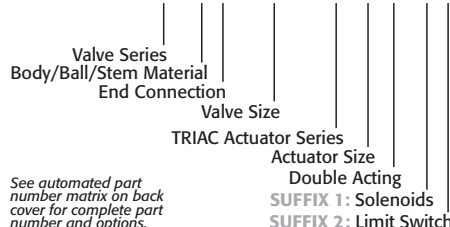
OPTIONS		
SUFFIX 1	Accessories/Options	Model no.
X	No Specials	
A	TYPE 4 Solenoid 120VAC	TVCS-X411-4N-A120
B	TYPE 7 Solenoid 120VAC	TVCS-X411-7N-A120
C	Intrinsically Safe Solenoid	TVIS-X411-4N-D24
D	TYPE 4 Solenoid 24VDC	TVCS-X411-4N-D24
F	TYPE 7 Solenoid 24VDC	TVCS-X411-7N-D24
Q	TYPE 4 SST Solenoid 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
H	NEMA 4 Std. Enc.	APL-310N

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.

Delrin® is a registered trademark of DuPont Performance Polymers.

SAMPLE PART # 24-TD-050/3RDD-XX



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

**Pneumatic
Spring Return
Automated
Ball Valve Package**
Series 24
Firesafe
High Pressure 2-Piece Design

Sizes 1/4" – 2"
Full Port 1/4" – 1-1/2" Regular Port 2"

Available in 316SS

Direct Mount

3000 psi

High Cycle Design

Pyramidal Stem Seal Packing
System

Compliant to NACE MR0175

Blowout Proof Stem

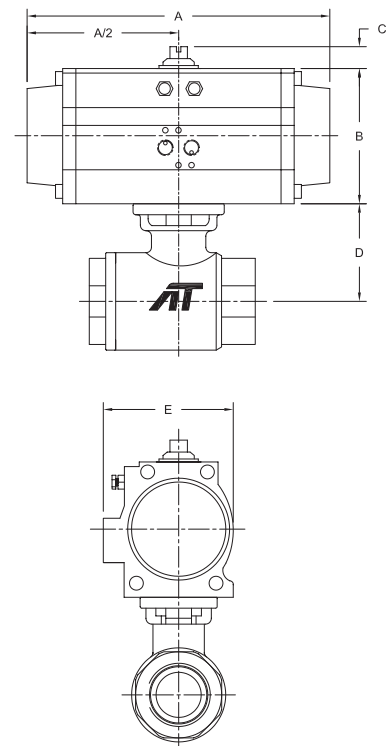
Delrin® Seats Standard

STANDARDS

Design	ASME B16.34, (fully conforms), Firesafe design
End Connections	ASME B1.20.1
Pressure Testing	API 598
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25, MSS SP-72, ISO 5209
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015



2-pc. Direct Mount
3000 psi



SERIES 24 Direct Mount

DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/4"	7.60	3.47	0.787	1.61	3.35	7
3/8"	7.60	3.47	0.787	1.61	3.35	8
1/2"	7.60	3.47	0.787	1.61	3.35	15
3/4"	9.29	4.30	0.787	1.72	4.18	35
1"	9.29	4.30	0.787	2.11	4.18	50
1-1/4"	11.02	4.61	0.787	2.32	4.27	95
1-1/2"	11.50	5.28	0.787	2.96	5.78	180
2"	11.50	5.28	0.787	2.96	5.78	210

DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/4"	24-TD-025/3RES-XX
3/8"	24-TD-038/3RES-XX
1/2"	24-TD-050/3RES-XX
3/4"	24-TD-075/3RFS-XX
1"	24-TD-100/3RFS-XX
1-1/4"	24-TD-125/3RGS-XX
1-1/2"	24-TD-150/3RHS-XX
2"	24-TD-200/3RHS-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/4"	24-TD-025/3RE4-XX
3/8"	24-TD-038/3RE4-XX
1/2"	24-TD-050/3RE4-XX
3/4"	24-TD-075/3RF4-XX
1"	24-TD-100/3RF4-XX
1-1/4"	24-TD-125/3RG4-XX
1-1/2"	24-TD-150/3RJ4-XX
2"	24-TD-200/3RJ4-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
H	NEMA 4 Std. Enc.	APL-310N

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.

Delrin® is a registered trademark of DuPont Performance Polymers.

SAMPLE PART #
24-TD-050/3RES-XX

Valve Series
Body/Ball/Stem Material
End Connection

Valve Size
TRIAC Actuator Series
Actuator Size
Spring Return

SUFFIX 1: Solenoids
SUFFIX 2: Limit Switch

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

Electric

Automated Ball Valve Package

Series 24
Firesafe
High Pressure 2-Piece Design

Sizes 1/4" – 2"

Full Port 1/4" – 1-1/2" Regular Port 2"

Available in 316SST

Direct Mount

3000 psi

High Cycle Design

Pyramidal Stem Seal Packing System

Compliant to NACE MR0175

Blowout Proof Stem

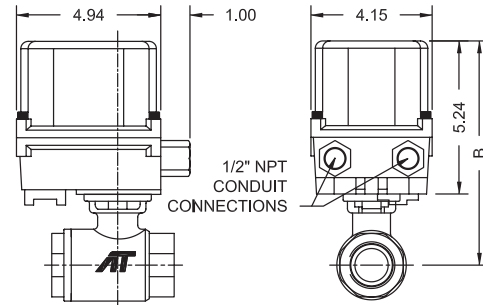
Delrin® Seats Standard

STANDARDS

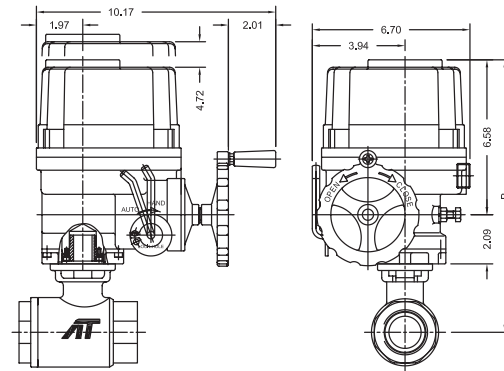
Design	ASME B16.34, (fully conforms), Firesafe design
End Connections	ASME B1.20.1
Pressure Testing	API 598
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25, MSS SP-72, ISO 5209
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015



2-pc. Direct Mount
3000 psi



1/4" thru 1-1/4"



1-1/2" & 2"

ELECTRIC ON/OFF SERIES

VALVE SIZE	B	VALVE Cv
1/4"	6.85	7
3/8"	6.85	8
1/2"	6.85	15
3/4"	6.96	35
1"	7.35	50
1-1/4"	7.56	95
1-1/2"	11.62	180
2"	11.62	210

FOR SPECIALS, CONSULT FACTORY.

SERIES 24 Direct Mount

ON-OFF	
SIZE	MODEL
1/4"	24-TD-025/WEA1-XX
3/8"	24-TD-038/WEA1-XX
1/2"	24-TD-050/WEA1-XX
3/4"	24-TD-075/WEA1-XX
1"	24-TD-100/WEA1-XX
1-1/4"	24-TD-125/WEA1-XX
1-1/2"	24-TD-150/WEB1-XX
2"	24-TD-200/WEB1-XX

MODULATING	
SIZE	MODEL
1/4"	24-TD-025/WEA2-XX
3/8"	24-TD-038/WEA2-XX
1/2"	24-TD-050/WEA2-XX
3/4"	24-TD-075/WEA2-XX
1"	24-TD-100/WEA2-XX
1-1/4"	24-TD-125/WEA2-XX
1-1/2"	24-TD-150/WEB2-XX
2"	24-TD-200/WEB2-XX

OPTIONS

Suffix 1	Voltage / Accessory	Model No.
X	No Specials	
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.

Suffix 2 Accessories

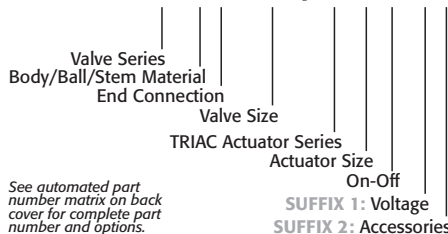
X	No Specials
1	HS1 High Speed Electric
2	HS2 High Speed Electric

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.

Delrin® is a registered trademark of DuPont Performance Polymers.

SAMPLE PART # 24-TD-050/WEA1-XX



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

HOW TO ORDER: Manual Valves w/ Options

Series 24

2	Valve Series
24	2pc. 3000 psi, Direct Mount

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

HOW TO ORDER MANUAL VALVES							
2	3	-	4	-	5	-	6 7 8 - 9
↓	↓		↓		↓		↓ ↓ ↓ ↓ ↓
24	_	-	TH	-	0150	-	D X X - _

4	End Connection
TH	NPT Ends

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

6	Seat, Lining & Trim Material
D	Delrin® Seats
Z	PEEK Seats

7	Special Designation
X	No Specials/Series Standard Handle
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
A	17-4 PH® Stem

17-4 PH® is a registered trademark of AK Steel Corporation.
Delrin® is a registered trademark of DuPont Performance Polymers.
TFM™ is a trademark of Dyneon™, a 3M Company.

HOW TO ORDER: Automated Valves w/ Options

2	Valve Series
24	2pc. 3000 psi, Direct Mount

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

4	End Connection
T	NPT Ends

5	Seat, Lining & Trim Material
D	Delrin® Seats
Z	PEEK Seats

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

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)**
6	Spring CW (6 springs)
H	Spring CCW (6 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
H	NEMA 4 Std. Enc.	APL-310N
1	HS1 High Speed Electric	
2	HS2 High Speed Electric	

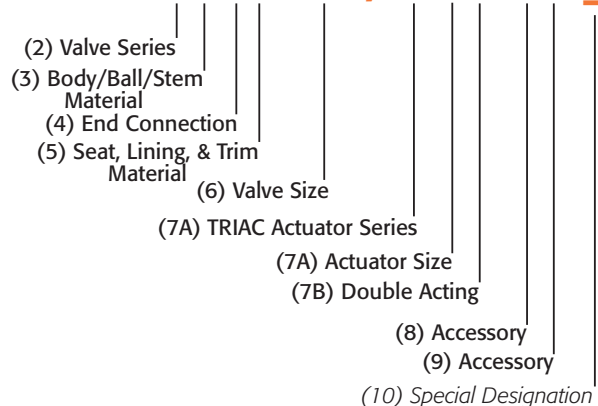
10	Special Designation
Blank	No Designation, Valve Series Standard SST Stem
A	17-4 PH® Stem

17-4 PH® is a registered trademark of AK Steel Corporation.
Delrin® is a registered trademark of DuPont Performance Polymers.
TFM™ is a trademark of Dyneon™, a 3M Company.

AUTOMATED VALVE

SAMPLE PART #

24-TD-100/3RED-XX-



9955 International Blvd.
Cincinnati, Ohio 45246
www.atcontrols.com

PHONE (513) 247-5465
FAX (513) 247-5462
sales@atcontrols.com