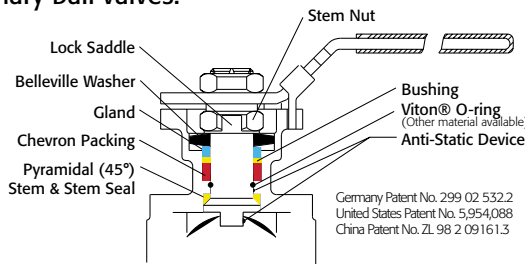




The 88 Series 3 -Piece Ball Valves feature a direct mount automation pad. The high quality investment castings feature a fully machined bore. The superior live-loaded packing system is accomplished with Belleville washers, "V" ring packing and a unique primary pyramidal stem seal. This advanced sealing system provides protection against stem leaks experienced by ordinary ball valves.



**Conforms to ASME B16.34 (2017)**

- SST Body - Class 260 to 600
- WCB Body - Class 254 to 600

RTFE seats are standard, but various options are available for seat materials. The 50/50 STFE seat option is excellent for services that call for higher temperatures and more difficult applications including steam. Call us for details.

**Easy to Automate!**

See automated data sheets for pre-sized assemblies



Pneumatic



Electric



**Series 88**  
**HIGH PERFORMANCE**  
**3-Piece Design**

Sizes 1/4" - 4"

Full Port Design

Conforms to ASME B16.34 (2017)

- Classes up to 600
- 1000 to 2000 psi (BPVC) by size

CF8M, WCB, Alloy 20,  
or Hastelloy C-276 (other materials available)

Threaded, Socket Weld, or Butt Weld Ends

Superior Live Loaded Packing System

Direct Mount

Blowout Proof Stem w/ Dual Anti-Static Devices

RTFE Seats Standard

Pyramidal Stem Seal Design

Monel Ball & Stem Available

Lockable Manual Handle



**STANDARDS**

Conforms to ASME B16.34 (2020)

<b>End Connections</b>	ASME B16.25, B1.20.1, B16.11
<b>Pressure Testing</b>	API 598
<b>Mounting</b>	ISO 5211
<b>Marking System for Valves</b>	MSS SP-25, ISO 5209
<b>Safety Integrity</b>	IEC 61508:2010; SIL 3
<b>Material Certification</b>	EN 10204-3.1 MTR
<b>Quality Assurance</b>	ISO 9001:2015

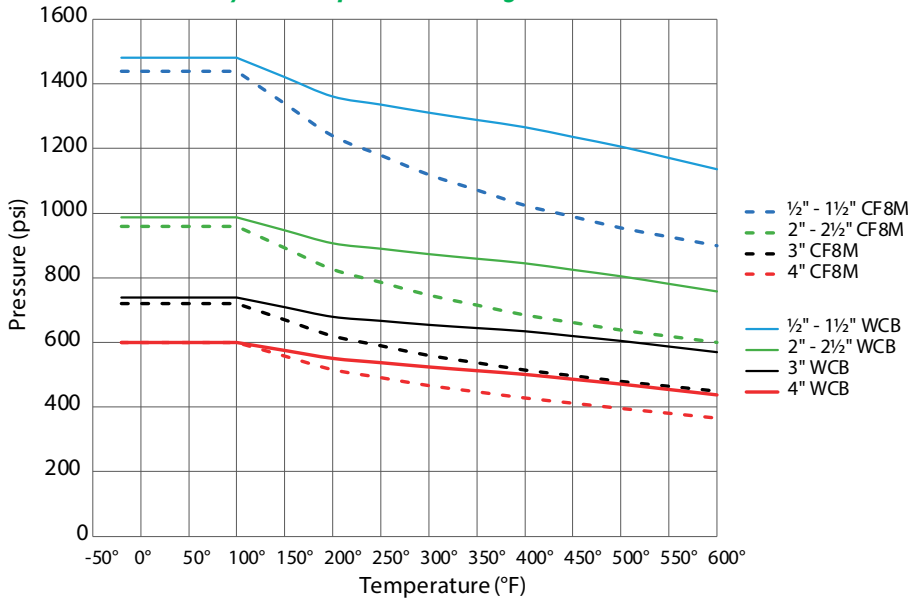
Page 2	Valve Technical Data
Page 3	Valve Materials & Dimensions
Page 4	Double Acting Automation
Page 5	Spring Return Automation
Page 6	Electric Automation
Page 7	How to Order & Options



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Cincinnati, Ohio 45246  
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FAX (513) 247-5462  
sales@atcontrols.com

### Pressure vs. Temperature | Series 88 Body & End Cap Pressure Ratings B16.34-2017



Pressure Class/Rating		
Size	ASME B16.34-2017 Pressure Class	BPVC*-2019 Pressure Rating (psig)
1/4" - 1"	600	2000
1 1/4" - 1 1/2"	600	1500
2"	400	1500
2 1/2"	400	1000
3"	300	1000
4"	260 (88) 259 (88A) 259 (88T) 254 (88C)	1000

\*ASME Boiler Pressure Vessel Code

88 Component Temperature Ratings		
Component	Material	Temperature
Stem Packing	PTFE	-50°F to 450°F
Stem Seal	TFM™-1600	-75°F to 500°F
Gaskets	TFM™-1600	-75°F to 500°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
O-Rings	50/50 STFE	-50°F to 550°F
	FKM (standard)	-20°F to 450°F
	Markez® Z1028	5°F to 608°F
	Kalrez® 4079	30°F to 600°F
	Chemraz® 505	-22°F to 446°F
	Kalrez® 6375	-4°F to 527°F
	Perlast® G75M	5°F to 500°F
	Chemraz® 564	-40°F to 445°F
	Low Temp Buna	-65°F to 275°F
	EPDM	-70°F to 250°F
Silicone	-60°F to 400°F	

#### Break Away Torque for RTFE Seats

SIZE	IN-LBS.
1/4"	58
3/8"	58
1/2"	58
3/4"	83
1"	120
1 1/4"	171
1 1/2"	235
2"	398
2 1/2"	672
3"	894
4"	1,509

#### Cv

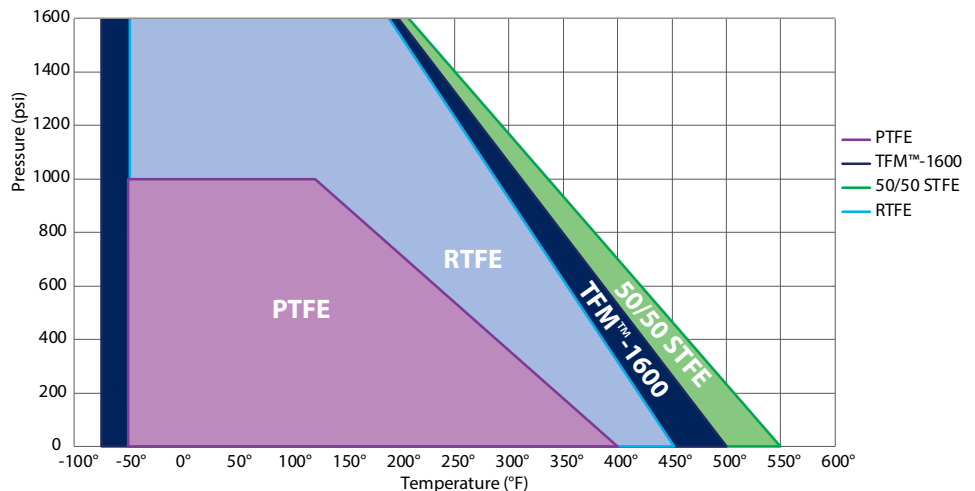
SIZE	Cv
1/4"	7
3/8"	8
1/2"	15
3/4"	40
1"	70
1 1/4"	110
1 1/2"	250
2"	430
2 1/2"	600
3"	1,100
4"	2,000

Pressure Class B16.34 (2017)				
Size	CF8M		WCB	
	Class	Rating (psi)	Class	Rating (psi)
1/4"	600	1440	600	1480
3/8"	600	1440	600	1480
1/2"	600	1440	600	1480
3/4"	600	1440	600	1480
1"	600	1440	600	1480
1 1/4"	600	1440	600	1480
1 1/2"	600	1440	600	1480
2"	400	960	400	986
2 1/2"	400	960	400	986
3"	300	720	300	740
4"	260	600	254	600

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

### Pressure vs. Temperature | Series 88 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		



# High Performance, Full Port 3-Piece Ball Valve ISO 5211 Direct Mount

Classes up to 600  
1000 - 2000 psi by size  
1/4" to 4"

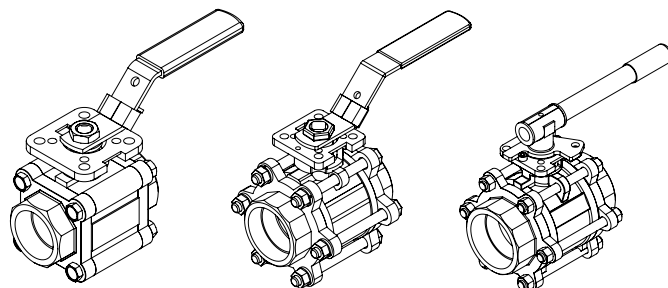
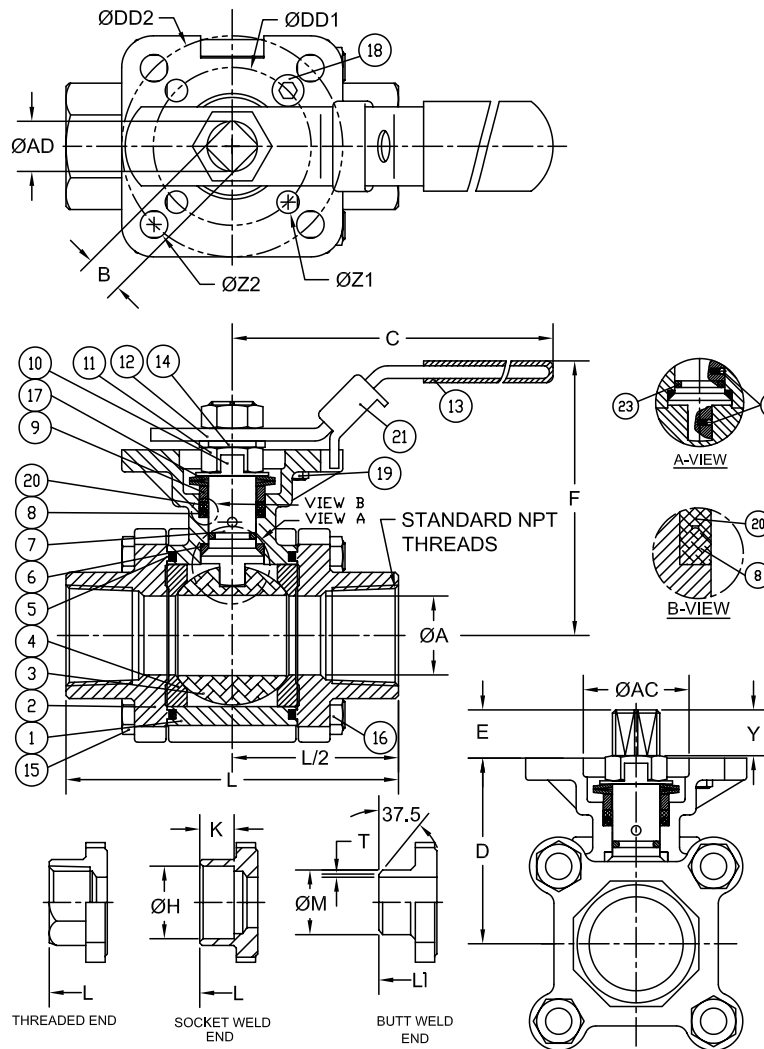
# Series 88

### MATERIALS LIST

NO.	PART NAME	QTY	STAINLESS STEEL	CARBON STEEL	ALLOY 20	HASTELLOY C-276	REPAIR KIT
1	BODY	1	ASTM A351 GRADE CF8M	ASTM A216 GRADE WCB	ASTM A351 GRADE CN7M	ASTM A494 GRADE CW12MW	
2	TH END CAP	2	ASTM A351 GRADE CF8M	ASTM A216 GRADE WCB	ASTM A351 GRADE CN7M	ASTM A494 GRADE CW12MW	
2	BW/SW END CAP	2	ASTM A351 GRADE CF3M	ASTM A216 GRADE WCB	ASTM A351 GRADE CN7M	ASTM A494 GRADE CW12MW	
3	BALL	1	1/4" THRU 3/8" ASTM A276 SS316	1/4" THRU 3/8" ASTM A276 SS316	ASTM A351 GRADE CN7M	ASTM A494 GRADE CW12MW	
3	BALL	1	1/2" THRU 4" ASTM A351 GRADE CF8M	1/2" THRU 4" ASTM A351 GRADE CF8M	ASTM A351 GRADE CN7M	ASTM A494 GRADE CW12MW	
4	SEAT	2	RTFE	RTFE	RTFE	TFM™-1600	✓
5	JOINT GASKET	2	TFM™-1600	TFM™-1600	TFM™-1600	TFM™-1600	✓
6	STEM SEAL	1	TFM™-1600	TFM™-1600	TFM™-1600	TFM™-1600	✓
7	STEM	1	ASTM A276 SS316	ASTM A276 SS316	ASTM A351 GRADE CN7M	ASTM B574 UNS N10276	
8	GLAND PACKING	1 <sup>^</sup>	PTFE	PTFE	PTFE	TFM™-1600	✓
9	GLAND BUSHING	1	AISI 304	AISI 304	AISI 304	AISI 304	
10	LOCK SADDLE	1	AISI 304	AISI 304	AISI 304	AISI 304	
11	STEM NUT	1	AISI 304	AISI 304	AISI 304	AISI 304	
12	HANDLE	1	AISI 304	AISI 304	AISI 304	AISI 316	
13	HANDLE SLEEVE	1	VINYL	VINYL	VINYL	VINYL	
14	STEM WASHER	1	AISI 304	AISI 304	AISI 304	AISI 304	
15	BODY BOLT/STUD	*	ASTM A193 GRADE B8	ASTM A193 GRADE B8	ASTM A193 GRADE B8	ISO 3506-1 A4-70	
16	BODY NUT	#	ASTM A194 GRADE 8	ASTM A194 GRADE 8	ASTM A194 GRADE 8	ISO 3506-2 A4-70	
17	BELLEVILLE WASHER	2	AISI 301	AISI 301	AISI 301	AISI 301	
18	STOP BOLT	1	AISI 304	AISI 304	AISI 304	AISI 304	
19	STOP BOLT NUT	1	AISI 304	AISI 304	AISI 304	AISI 304	
20	GLAND WASHER	1	RTFE	RTFE	RTFE	TFM™-1600	✓
21	HANDLE LOCK	1	AISI 304	AISI 304	AISI 304	AISI 316	
22	ANTI-STATIC DEVICE	2	AISI 316	AISI 316	AISI 316	AISI 316	
23	STEM O-RING	1	FKM	FKM	FKM	FKM	✓

<sup>^</sup> PACKING SET  
\* 1/4" THRU 1 1/2" QTY = 4 PCS  
\* 2" THRU 4" QTY = 6 PCS  
\*\* 1/4" THRU 1 1/2" QTY = 4 PCS  
\*\* 2" THRU 4" QTY = 12 PCS

NOTE: Sizes 2 1/2" thru 4" include stainless steel seat retainer rings.



### DIMENSIONS (IN)

SIZE	øA	B	C	D	E	F	H	K	L	L1	M	T	Y	AC	AD	DD1	DD2	øZ2	øZ1	(LBS)	ISO 5211
1/4"	0.45	0.354	5.47	1.66	0.25	3.00	0.55	0.39	2.95	2.95	0.85	0.13	0.25	1.04	0.44	1.654	1.969	0.28	0.28	1.6	F04/F05
3/8"	0.50	0.354	5.47	1.66	0.25	3.00	0.69	0.39	2.95	2.95	0.85	0.11	0.25	1.04	0.44	1.654	1.969	0.28	0.28	1.6	F04/F05
1/2"	0.59	0.354	5.47	1.66	0.25	3.00	0.85	0.39	2.85	2.95	0.85	0.06	0.25	1.07	0.44	1.654	1.969	0.28	0.28	2.0	F04/F05
3/4"	0.79	0.354	5.47	1.83	0.33	3.20	1.07	0.51	3.36	3.54	1.07	0.06	0.33	1.07	0.44	1.969	2.756	0.34	0.28	3.0	F05/F07
1"	0.98	0.433	6.50	2.31	0.41	3.86	1.34	0.51	4.15	4.33	1.34	0.06	0.41	1.34	0.56	1.969	2.756	0.34	0.28	4.5	F05/F07
1 1/4"	1.26	0.433	6.50	2.46	0.41	4.00	1.69	0.51	4.37	4.53	1.68	0.06	0.41	1.34	0.56	1.969	2.756	0.34	0.28	6.0	F05/F07
1 1/2"	1.50	0.551	8.46	3.11	0.53	5.04	1.92	0.51	5.01	5.12	1.91	0.06	0.53	1.54	0.74	1.969	2.756	0.34	0.28	10.0	F05/F07
2"	1.97	0.551	8.46	3.42	0.53	5.35	2.40	0.63	5.62	5.62	2.38	0.06	0.53	1.54	0.74	1.969	2.756	0.35	0.30	13.0	F05/F07
2 1/2"	2.56	0.748	10.31	4.28	0.66	6.60	2.89	0.63	7.28	7.28	3.00	0.08	0.66	2.09	0.94	2.756	4.016	0.47	0.39	26.0	F07/F10
3"	3.15	0.748	10.31	4.63	0.70	6.96	3.54	0.63	8.07	8.07	3.54	0.08	0.70	2.09	0.94	2.756	4.016	0.47	0.39	34.0	F07/F10
4"	3.94	0.748	12.28	5.26	0.66	7.59	4.54	0.79	9.45	9.45	4.57	0.08	0.66	2.09	0.94	2.756	4.016	0.47	0.39	52.0	F07/F10

A-T Controls reserves the right to change product designs and technical/dimensional specifications without notice.

# Pneumatic Double Acting Automated Ball Valve Package

## Series 88 3-Piece Ball Valve

Sizes 1/4" - 4"

Full Port Design

Conforms to ASME B16.34 (2017)

- Classes up to 600
- 1000 to 2000 psi (BPVC)

CF8M, WCB, Alloy 20  
or Hastelloy C-276 (others available)

TH, SW, or BW Ends

Superior Live Loaded Packing  
System

Blowout Proof Stem w/ Dual  
Anti-Static Devices

RTFE Seats Standard

Pyramidal Stem Seal Design

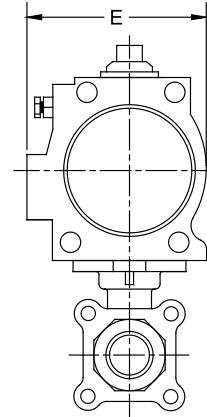
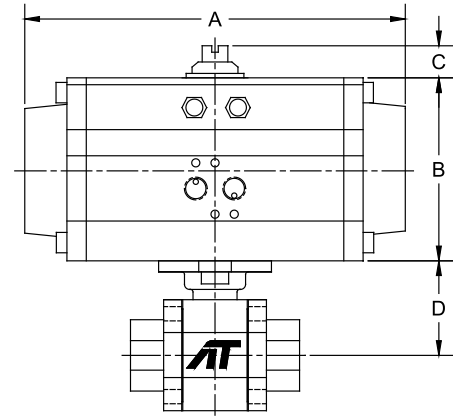
Monel Ball & Stem Available

### STANDARDS

Conforms to ASME B16.34 (2020)	
End Connections	ASME B16.25, B1.20.1, B16.11
Pressure Testing	API 598
Mounting	ISO 5211
Marking System for Valves	MSS SP-25, ISO 5209
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
1/4"	5.98	2.76	0.79	1.66	2.58
3/8"	5.98	2.76	0.79	1.66	2.58
1/2"	5.98	2.76	0.79	1.66	2.58
3/4"	7.95	3.43	0.79	1.83	3.29
1"	7.95	3.43	0.79	2.31	3.29
1 1/4"	7.95	3.43	0.79	2.46	3.29
1 1/2"	9.29	4.49	0.79	3.11	4.41
2"	9.29	4.49	0.79	3.42	4.41
2 1/2"	10.87	4.88	0.79	4.28	4.82
3"	11.46	5.28	0.79	4.63	5.20
4"	13.90	6.18	0.79	5.26	6.04

DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY



### SIZED FOR 80 psi AIR SUPPLY

SIZE	MODEL
1/4"	88-TX-025/TR1D-XX
3/8"	88-TX-038/TR1D-XX
1/2"	88-TX-050/TR1D-XX
3/4"	88-TX-075/2R2D-XX
1"	88-TX-100/2R2D-XX
1 1/4"	88-TX-125/2R2D-XX
1 1/2"	88-TX-150/2R3D-XX
2"	88-TX-200/2R3D-XX
2 1/2"	88-TX-250/2R4D-XX
3"	88-TX-300/2R5D-XX
4"	88-TX-400/2R6D-XX

### SIZED FOR 60 psi AIR SUPPLY

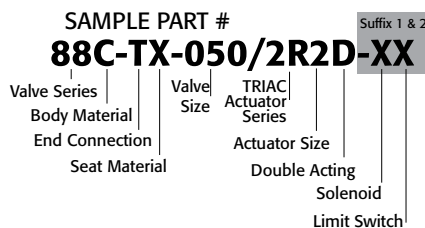
SIZE	MODEL
1/4"	88-TX-025/TR1D-XX
3/8"	88-TX-038/TR1D-XX
1/2"	88-TX-050/TR1D-XX
3/4"	88-TX-075/2R2D-XX
1"	88-TX-100/2R2D-XX
1 1/4"	88-TX-125/2R2D-XX
1 1/2"	88-TX-150/2R3D-XX
2"	88-TX-200/2R3D-XX
2 1/2"	88-TX-250/2R4D-XX
3"	88-TX-300/2R5D-XX
4"	88-TX-400/2R6D-XX

### OPTIONS

Suffix1	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

Suffix2	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

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



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



# Pneumatic Spring Return Automated Ball Valve Package

## Series 88 3-Piece Ball Valve

Sizes 1/4" - 4"  
 Full Port Design  
 Conforms to ASME B16.34 (2017)  
 - Classes up to 600  
 - 1000 to 2000 psi (BPVC)  
 CF8M, WCB, Alloy 20  
 or Hastelloy C-276 (others available)

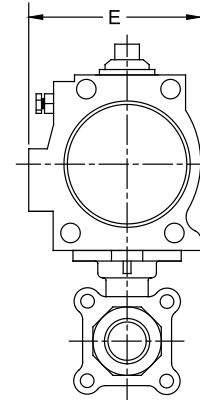
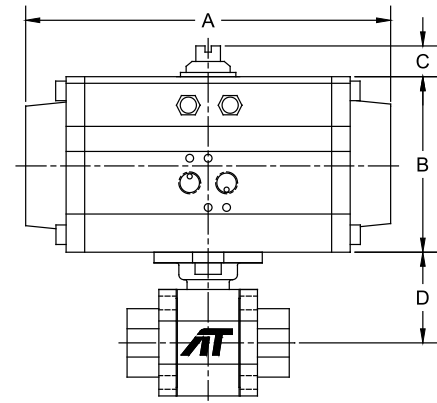
TH, SW, or BW Ends  
 Superior Live Loaded Packing System  
 Blowout Proof Stem w/ Dual Anti-Static Devices  
 RTFE Seats Standard  
 Pyramidal Stem Seal Design  
 Monel Ball & Stem Available

### STANDARDS

Conforms to ASME B16.34 (2020)  
 End Connections ASME B16.25, B1.20.1, B16.11  
 Pressure Testing API 598  
 Mounting ISO 5211  
 Marking System for Valves MSS SP-25, ISO 5209  
 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
1/4"	7.95	3.43	0.79	1.66	3.29
3/8"	7.95	3.43	0.79	1.66	3.29
1/2"	7.95	3.43	0.79	1.66	3.29
3/4"	9.29	4.49	0.79	1.83	4.41
1"	9.29	4.49	0.79	2.31	4.41
1 1/4"	9.29	4.49	0.79	2.46	4.41
1 1/2"	9.29	4.49	0.79	3.11	4.41
2"	10.87	4.88	0.79	3.42	4.82
2 1/2"	11.46	5.28	0.79	4.28	5.20
3"	15.16	6.93	1.18	4.63	6.69
4"	15.16	6.93	1.18	5.26	6.69

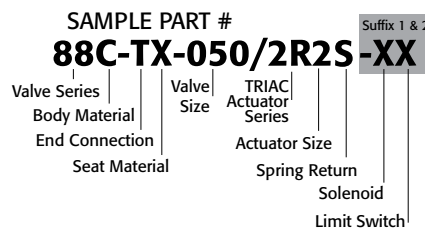
DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY



SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/4"	88-TX-025/2R2S-XX
3/8"	88-TX-038/2R2S-XX
1/2"	88-TX-050/2R2S-XX
3/4"	88-TX-075/2R3S-XX
1"	88-TX-100/2R3S-XX
1 1/4"	88-TX-125/2R3S-XX
1 1/2"	88-TX-150/2R3S-XX
2"	88-TX-200/2R4S-XX
2 1/2"	88-TX-250/2R5S-XX
3"	88-TX-300/2R7S-XX
4"	88-TX-400/2R7S-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/4"	88-TX-025/2R2S-XX
3/8"	88-TX-038/2R2S-XX
1/2"	88-TX-050/2R2S-XX
3/4"	88-TX-075/2R3S-XX
1"	88-TX-100/2R3S-XX
1 1/4"	88-TX-125/2R3S-XX
1 1/2"	88-TX-150/2R4S-XX
2"	88-TX-200/2R4S-XX
2 1/2"	88-TX-250/2R6S-XX
3"	88-TX-300/2R7S-XX
4"	88-TX-400/2R7S-XX

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



OPTIONS		
Suffix1	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
Suffix2	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

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

# Electric Automated Ball Valve Package

## Series 88 3-Piece Ball Valve

- Sizes 1/4" - 4"
- Full Port Design
- Conforms to ASME B16.34 (2017)
  - Classes up to 600
  - 1000 to 2000 psi (BPVC)

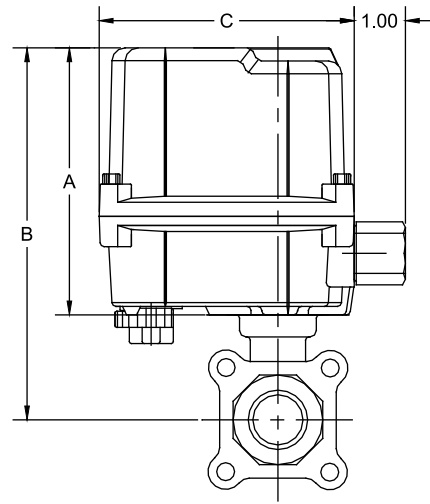
CF8M, WCB, Alloy 20  
or Hastelloy C-276 (others available)

TH, SW, or BW Ends  
Superior Live Loaded Packing  
System

Blowout Proof Stem w/ Dual  
Anti-Static Devices  
RTFE Seats Standard  
Pyramidal Stem Seal Design  
Monel Ball & Stem Available

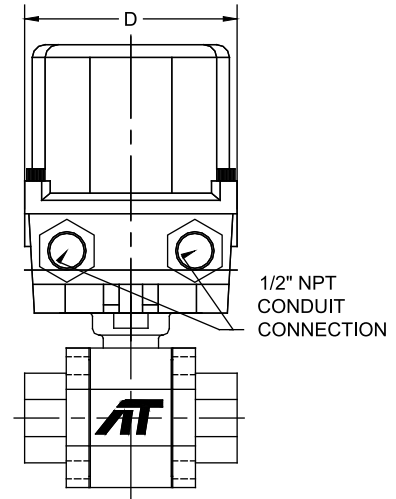
### STANDARDS

Conforms to ASME B16.34 (2020)  
End Connections ASME B16.25, B1.20.1, B16.11  
Pressure Testing API 598  
Mounting ISO 5211  
Marking System for Valves MSS SP-25, ISO 5209  
Safety Integrity IEC 61508:2010; SIL 3  
Material Certification EN 10204-3.1 MTR  
Quality Assurance ISO 9001:2015



### DIMENSIONS (IN)

VALVE SIZE	A	B	C	D
1/4"	5.24	6.90	4.94	4.08
3/8"	5.24	6.90	4.94	4.08
1/2"	5.24	6.90	4.94	4.08
3/4"	5.24	7.07	4.94	4.08
1"	5.24	7.55	4.94	4.08
1 1/4"	5.24	7.70	4.94	4.08
1 1/2"	5.24	8.35	4.94	4.08
2"	5.24	8.66	4.94	4.08
2 1/2"	9.25	13.53	6.69	10.16
3"	10.55	15.18	9.02	13.31
4"	10.55	15.81	9.02	13.31



SERIES 88 Direct Mount

ON-OFF	
SIZE	MODEL
1/4"	88-TX-025/WEA1-XX
3/8"	88-TX-038/WEA1-XX
1/2"	88-TX-050/WEA1-XX
3/4"	88-TX-075/WEA1-XX
1"	88-TX-100/WEA1-XX
1 1/4"	88-TX-125/WEA1-XX
1 1/2"	88-TX-150/WEA1-XX
2"	88-TX-200/WEA1-XX
2 1/2"	88-TX-250/WEB1-XX
3"	88-TX-300/WEC1-XX
4"	88-TX-400/WED1-XX

MODULATING	
SIZE	MODEL
1/4"	88-TX-025/WEA2-XX
3/8"	88-TX-038/WEA2-XX
1/2"	88-TX-050/WEA2-XX
3/4"	88-TX-075/WEA2-XX
1"	88-TX-100/WEA2-XX
1 1/4"	88-TX-125/WEA2-XX
1 1/2"	88-TX-150/WEA2-XX
2"	88-TX-200/WEA2-XX
2 1/2"	88-TX-250/WEB2-XX
3"	88-TX-300/WEC2-XX
4"	88-TX-400/WED2-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

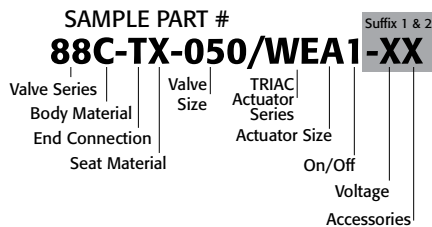
\* No voltage specified on electric assemblies denotes 120VAC.

#### Suffix 2 Accessories

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

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

NOTE: Heater and thermostat standard  
(2) auxiliary switches standard  
Other options available - call for details  
Actuators are sized based on clean/clear fluid.



# How to Order | Series 88

2 Valve Series	
88	3pc. Direct Mount Full Port

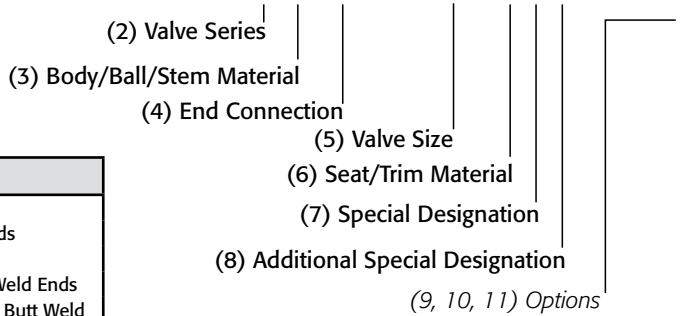
3 Body/Ball/Stem Material	
Blank	Valve Series Standard
A	Alloy 20 Body, Ball, & Stem
C	Carbon Steel Body
L	Low Carbon 316L Stainless Steel
J	Low Carbon 304 Stainless Steel
H	Carbon Body /Hastelloy Ball & Stem
Q	Carbon Body/Monel Ball & Stem
R	316 SST Body/Monel Ball & Stem
T	Hastelloy C-276 Body, Ball & Stem
E	Electropolished Stainless Steel
D	CD3MN Body/Duplex SST Ball & Stem
G	CE3MN Body/Super Duplex SST Ball & Stem
8	LCC Body
P	CF8 (304 SST) Body/304 SST Ball & Stem

4 End Connection	
TH	NPT Ends
SW	Socket Weld Ends
BW	Butt Weld Ends
EW	Extended Butt Weld Ends
TE	NPT x Extended Butt Weld
TS	NPT x Socket Weld

## MANUAL VALVE

SAMPLE PART #

**88C-TH-0200-XXX-**



5 Valve Size	6 Seat, Lining & Trim Materials	7 Special Designations	8 Additional Specials
0025 1/4" 0200 2"	X Reinforced TFE Seats (RTFE)	X No Specials, Series Standard	X No Specials, Series Standard
0038 3/8" 0250 2 1/2"	P Virgin TFE (PTFE)	G Gear Operator	O Oxygen Cleaned
0050 1/2" 0300 3"	U UHMWPE Seats	H Gear Operator with Lockout Plate	Z Special End Configuration
0075 3/4" 0400 4"	D Delrin®	O Oval Handle (available on some)	V Vented Ball
0100 1"	S 50/50 STFE Seats	S Spring Return Handle (Direct Mount only)	E Bonnet Extension Lockable Handle
0125 1 1/4"	C 25% CS Powder/ 75% TFE Seats (CTFE)	4 4" Lockable Stem Extension	F Fugitive Emissions Bonnet
0150 1 1/2"	T TFM™-1600		D Degreased & Bagged
	F PTFE Cavity Filler		A Vented Ball, Degreased & Bagged
	M MG1241		B Vented Ball, Oxygen Cleaned
	Z PEEK		



### OPTIONS:

9 Special Designation	
Blank	No Designation, Valve Series Standard
X	Multiple Option Designation
A	17-4 PH® Stem
B	XM-19 (Nitronic 50) Stem
C	Duplex 2205 Stem
D	Inconel® 718 Stem

10 O-Ring	
Blank	Standard
X	Multiple Option Designation
2	Markez® Z1028
4	Kalrez® 4079
5	Chemraz® 505
6	Kalrez® 6375
7	Perlast® G75M
9	Chemraz® 564
B	Low Temp Buna
E	EPDM
S	Silicone

11 Additional Specials	
Blank	Standard
X	Multiple Option Designation
B	B7M Bolting
M	Marine Epoxy Coating

## Related Series

- **F88 Series** Firesafe 3-pc High Performance Ball Valve
- **83 & 8R Series** 3-pc Full & Regular Port Ball Valves
- **F83 & F8R Series** 3-pc Full & Regular Port Firesafe Ball Valves
- **88 Series** *Painless Stainless* SST Automated Packages
- **V8** V-Port Control Valves



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2 Valve Series	
88	3pc. Direct Mount Full Port

3 Body/Ball/Stem Material	
Blank	Valve Series Standard
A	Alloy 20 Body, Ball, & Stem
C	Carbon Steel Body
L	Low Carbon 316L Stainless Steel
J	Low Carbon 304 Stainless Steel
H	Carbon Body /Hastelloy Ball & Stem
Q	Carbon Body/Monel Ball & Stem
R	316 SST Body/Monel Ball & Stem
T	Hastelloy C-276 Body, Ball & Stem
E	Electropolished Stainless Steel
D	CD3MN Body/Duplex SST Ball & Stem
G	CE3MN Body/Super Duplex SST Ball & Stem
8	LCC Body
P	CF8 (304 SST) Body/304 SST Ball & Stem

4 End Connection	
T	NPT Ends
S	Socket Weld Ends
B	Butt Weld Ends
E	Extended Butt Weld Ends
M	NPT x Socket Weld

5 Seat, Lining & Trim Materials	
1	Valve Series Standard
X	Reinforced TFE Seats (RTFE)
P	Virgin TFE (PTFE)
U	UHMWPE Seats
D	Delrin®
S	50/50 STFE Seats
C	25% CS Powder/ 75% TFE Seats (CTFE)
T	TFM™-1600
F	PTFE Cavity Filler
M	MG1241
Z	PEEK

6 Valve Size			
025	1/4"	200	2"
038	3/8"	250	2 1/2"
050	1/2"	300	3"
075	3/4"	400	4"
100	1"		
125	1 1/4"		
150	1 1/2"		

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		

8 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
R	24VDC Electric Actuator	
S	220VAC Electric Actuator	
T	Other Voltage Electric Actuator	
W	12VDC Electric Actuator	
Y	24VAC Electric Actuator	
<i>* No voltage specified on electric assemblies denotes 120VAC</i>		

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
Z	180° Operation	
1	HS1 High Speed Electric	
2	HS2 High Speed Electric	

10 Special Designation	
Blank	No Designation, SST Stem
A	17-4 PH® Stem
B	XM-19 (Nitronic 50) Stem
C	Duplex 2205 Stem
D	Inconel® 718 Stem

