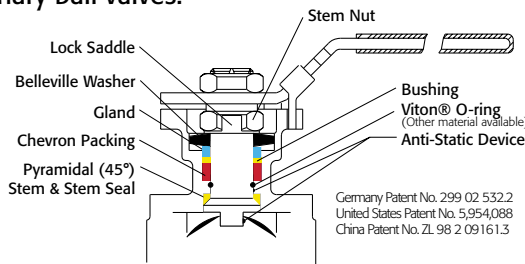




The 88 Series 3-Piece Ball Valves feature a direct mount automation pad. The high quality investment castings feature a fully machined bore. The superior live-loaded packing system is accomplished with Belleville washers, "V" ring packing and a unique primary pyramidal stem seal. This advanced sealing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

A-T Controls, Inc.

Series 88
HIGH PERFORMANCE
3-Piece Design

Sizes 1/4" - 4"

Full Port Design

Conforms to ASME B16.34 (2020)

- Classes up to 600
- 600 to 1480 psi (by size)

316SST, WCB, Alloy 20,
or Hastelloy C-276 (other materials available)

Threaded, Socket Weld, or Butt Weld Ends

Superior Live Loaded Packing System

ISO 5211 Actuator Mounting Pad

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)

End Connections	ASME B16.25, B1.20.1, B16.11
Pressure Testing	API 598
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

TABLE OF CONTENTS:

- 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

A-T Controls, Inc.

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

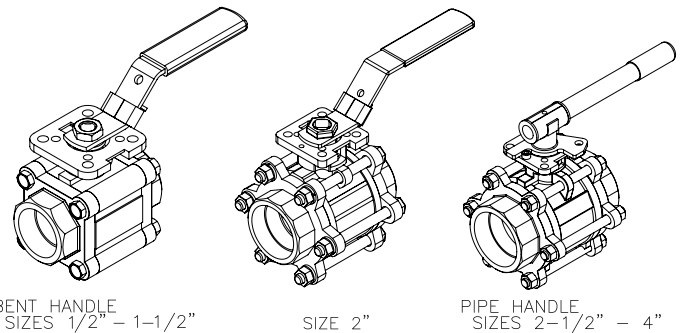
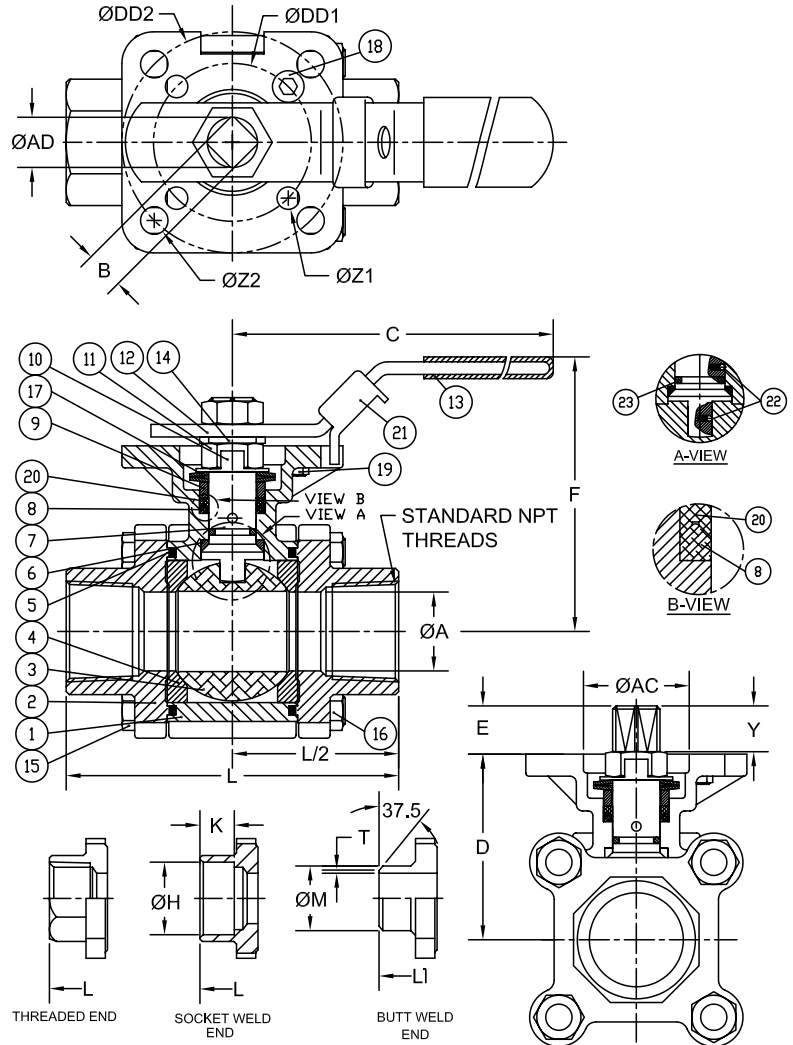
PHONE (513) 247-5465
FAX (513) 247-5462
sales@atcontrols.com

MATERIALS LIST

NO.	PART NAME	QTY	STAINLESS STEEL	CARBON STEEL	ALLOY 20	HASTELLOY C-276
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 [^]	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

[^] 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 SEAT RETAINER RINGS.



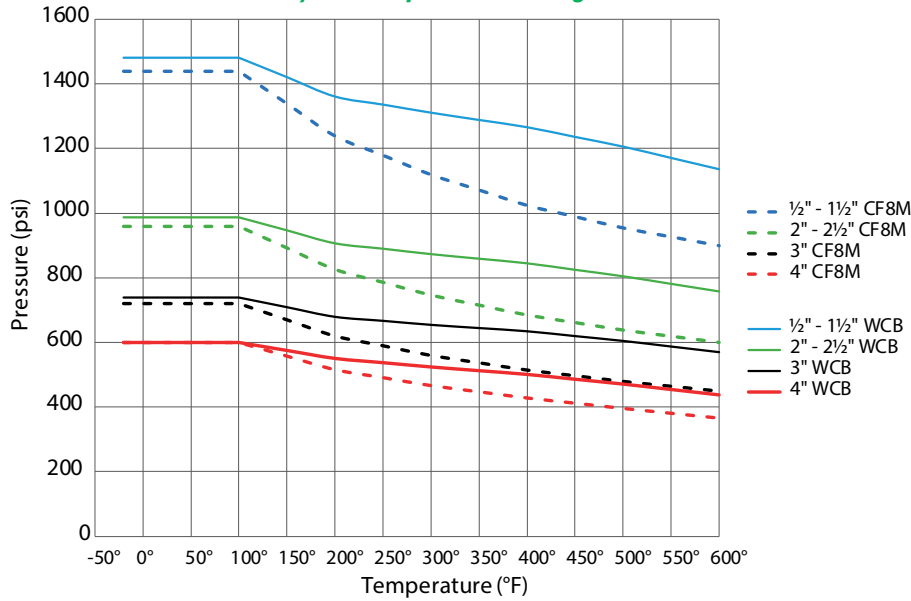
DIMENSIONS (IN)

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	N/A	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	N/A	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	N/A	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.

Technical Data

Pressure vs. Temperature | Series 88 Body & End Cap Pressure Ratings



Pressure Class/Rating		
Size	ASME B16.34-2020 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)	1000
	259 (88A)	
	259 (88T)	
	254 (88C)	

*ASME Boiler Pressure Vessel Code

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

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

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 (2020)

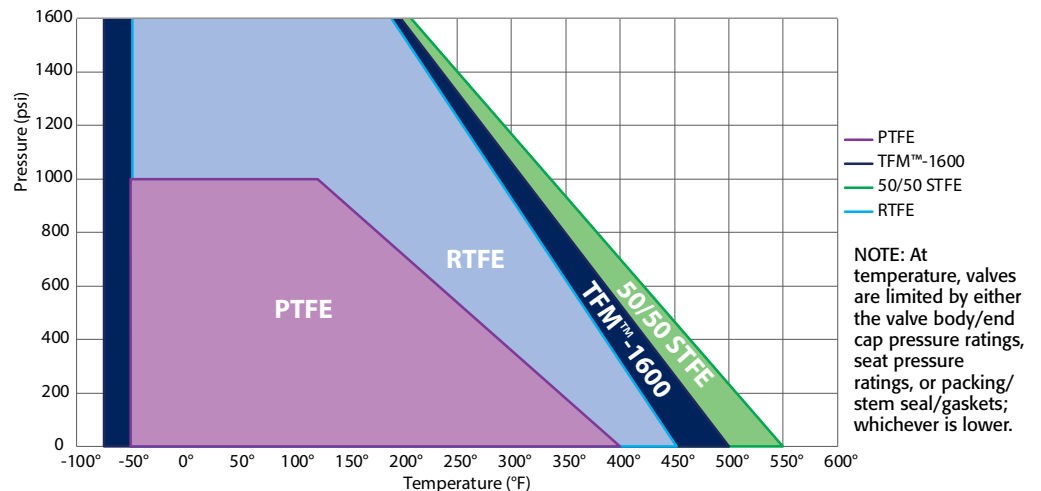
Size	Stainless Steel		Carbon Steel	
	Class	Rating (psi)	Class	Rating (psi)
1/4"	600	1440	600	1480
3/8"	600	1440	600	1480
1/2"	600	1440	600	1480
3/4"	600	1440	600	1480
1"	600	1440	600	1480
1 1/4"	600	1440	600	1480
1 1/2"	600	1440	600	1480
2"	400	960	400	986
2 1/2"	400	960	400	986
3"	300	720	300	740
4"	260	600	254	600

Component Temperature Ratings

Component	Material	Temperature
Stem Packing, Stem Seal, Gaskets	PTFE	-50°F to 400°F
	TFM™-1600	-75°F to 500°F
O-Rings	FKM (standard)	-20°F to 400°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	

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		



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 88
3-Piece Ball Valve

Sizes 1/4" - 4"

Full Port Design

Conforms to ASME B16.34 (2020)

- Classes up to 600
- 600 to 1480 psi (by size)

316SST, 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

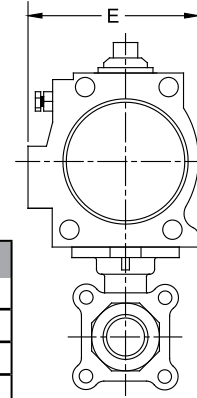
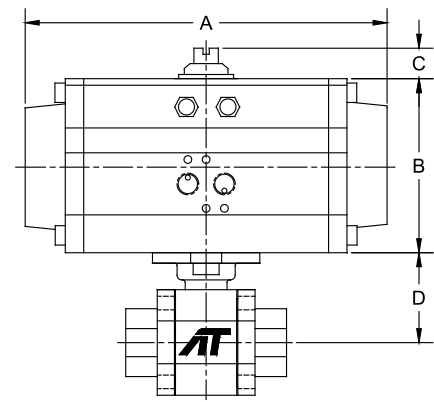
Monel Ball & Stem Available

STANDARDS

Conforms to ASME B16.34 (2020)
 End Connections ASME B16.25, B1.20.1, B16.11
 Pressure Testing API 598
 Mounting ISO 5211
 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



3-pc. Direct Mount



SERIES 88 Direct Mount

DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/4"	6.50	2.84	0.79	1.66	2.66	7
3/8"	6.50	2.84	0.79	1.66	2.66	8
1/2"	6.50	2.84	0.79	1.66	2.66	15
3/4"	7.60	3.47	0.79	1.83	3.35	40
1"	7.60	3.47	0.79	2.31	3.35	70
1 1/4"	7.60	3.47	0.79	2.46	3.35	110
1 1/2"	7.60	3.47	0.79	3.11	3.35	250
2"	9.29	4.30	0.79	3.42	4.18	430
2 1/2"	9.29	4.30	0.79	4.28	4.18	600
3"	11.02	4.61	0.79	4.63	4.27	1,100
4"	11.02	4.61	0.79	5.26	4.27	2,000



DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

SIZED FOR 80 psi AIR SUPPLY

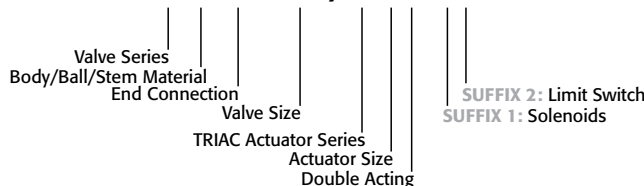
SIZE	MODEL
1/4"	88-TX-025/3RDD-XX
3/8"	88-TX-038/3RDD-XX
1/2"	88-TX-050/3RDD-XX
3/4"	88-TX-075/3RED-XX
1"	88-TX-100/3RED-XX
1 1/4"	88-TX-125/3RED-XX
1 1/2"	88-TX-150/3RED-XX
2"	88-TX-200/3RFD-XX
2 1/2"	88-TX-250/3RFD-XX
3"	88-TX-300/3RGD-XX
4"	88-TX-400/3RHD-XX

SIZED FOR 60 psi AIR SUPPLY

SIZE	MODEL
1/4"	88-TX-025/3RDD-XX
3/8"	88-TX-038/3RDD-XX
1/2"	88-TX-050/3RDD-XX
3/4"	88-TX-075/3RED-XX
1"	88-TX-100/3RED-XX
1 1/4"	88-TX-125/3RED-XX
1 1/2"	88-TX-150/3RED-XX
2"	88-TX-200/3RFD-XX
2 1/2"	88-TX-250/3RGD-XX
3"	88-TX-300/3RHD-XX
4"	88-TX-400/3RJD-XX

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 #
88C-TX-050/3RDD-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

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 (2020)

- Classes up to 600
- 600 to 1480 psi (by size)

316SST, 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

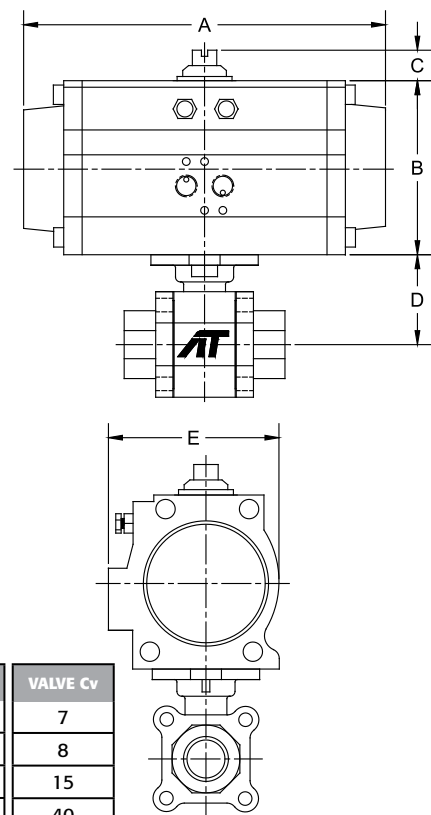
Monel Ball & Stem Available

STANDARDS

Conforms to ASME B16.34 (2020)
 End Connections ASME B16.25, B1.20.1, B16.11
 Pressure Testing API 598
 Mounting ISO 5211
 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



3-pc. Direct Mount



DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/4"	6.50	2.84	0.79	1.66	2.66	7
3/8"	6.50	2.84	0.79	1.66	2.66	8
1/2"	6.50	2.84	0.79	1.66	2.66	15
3/4"	7.60	3.47	0.79	1.83	3.35	40
1"	9.29	4.30	0.79	2.31	4.18	70
1 1/4"	9.29	4.30	0.79	2.46	4.18	110
1 1/2"	9.29	4.30	0.79	3.11	4.18	250
2"	11.02	4.61	0.79	3.42	4.27	430
2 1/2"	13.39	6.14	0.79	4.28	5.59	600
3"	13.39	6.14	0.79	4.63	5.59	1,100
4"	15.35	6.81	1.18	5.26	5.98	2,000

DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY



SIZED FOR 80 psi AIR SUPPLY

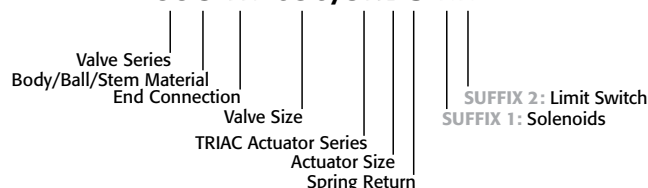
SIZE	MODEL
1/4"	88-TX-025/3RDS-XX
3/8"	88-TX-038/3RDS-XX
1/2"	88-TX-050/3RDS-XX
3/4"	88-TX-075/3RES-XX
1"	88-TX-100/3RFS-XX
1 1/4"	88-TX-125/3RFS-XX
1 1/2"	88-TX-150/3RFS-XX
2"	88-TX-200/3RGS-XX
2 1/2"	88-TX-250/3RJS-XX
3"	88-TX-300/3RJS-XX
4"	88-TX-400/3RKS-XX

SIZED FOR 60 psi AIR SUPPLY

SIZE	MODEL
1/4"	88-TX-025/3RD4-XX
3/8"	88-TX-038/3RD4-XX
1/2"	88-TX-050/3RD4-XX
3/4"	88-TX-075/3RE4-XX
1"	88-TX-100/3RF4-XX
1 1/4"	88-TX-125/3RF4-XX
1 1/2"	88-TX-150/3RG4-XX
2"	88-TX-200/3RH4-XX
2 1/2"	88-TX-250/3RJ4-XX
3"	88-TX-300/3RK4-XX
4"	88-TX-400/3RM4-XX

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 # 88C-TX-050/3RDS-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
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 (2020)

- Classes up to 600
- 600 to 1480 psi (by size)

316SST, 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

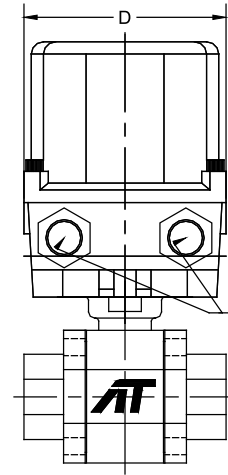
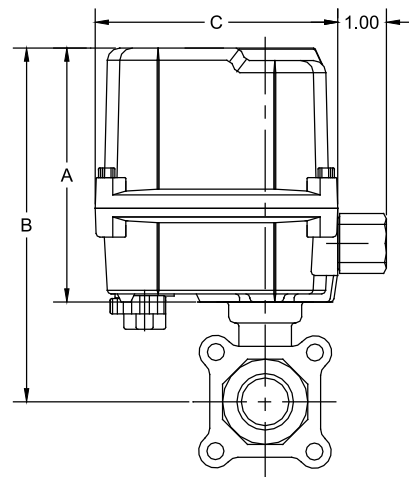
Monel Ball & Stem Available

STANDARDS

Conforms to ASME B16.34 (2020)
 End Connections ASME B16.25, B1.20.1, B16.11
 Pressure Testing API 598
 Mounting ISO 5211
 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



3-pc. Direct Mount



SERIES 88 Direct Mount

DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	VALVE Cv
1/4"	5.24	6.90	4.94	4.08	7
3/8"	5.24	6.90	4.94	4.08	8
1/2"	5.24	6.90	4.94	4.08	15
3/4"	5.24	7.07	4.94	4.08	40
1"	5.24	7.55	4.94	4.08	70
1 1/4"	5.24	7.70	4.94	4.08	110
1 1/2"	5.24	8.35	4.94	4.08	250
2"	5.24	8.66	4.94	4.08	430
2 1/2"	9.25	13.53	6.69	10.16	600
3"	10.55	15.18	9.02	13.31	1100
4"	10.55	15.81	9.02	13.31	2000

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/WEC2-XX
3"	88-TX-300/WEC2-XX
4"	88-TX-400/WED2-XX

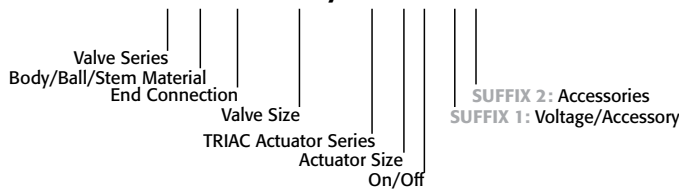
NOTE: Heater and thermostat standard
(2) auxiliary switches standard

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 # 88C-TX-050/WEA1-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

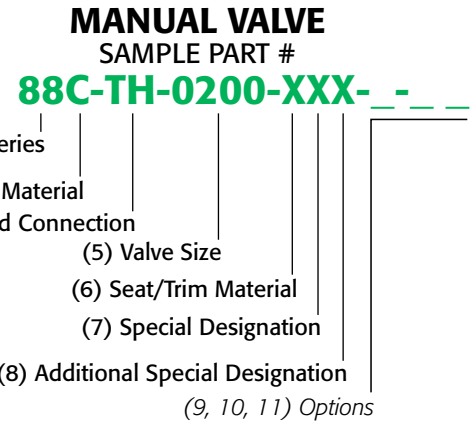
Suffix 2 Accessories	
X	No Specials
1	HS1 High Speed Electric
2	HS2 High Speed Electric

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

HOW TO ORDER: Manual Valves

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



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 Seats (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® Seats	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 Seats		D Degreased & Bagged
	E All TFM™-1600 Seats, Seals, & Packing		A Vented Ball, Degreased & Bagged
	A 50% SS Powder/50% TFM™-1600 Seats (STFM)		B Vented Ball, Oxygen Cleaned
	F PTFE Cavity Filler Seats		
	M MG1241 Seats		
	Z PEEK Seats		



OPTIONS:

9 Special Designation	10 O-Ring	11 Additional Specials
Blank No Designation, Valve Series Standard	Blank No Designation, Valve Series Standard	Blank No Designation, Valve Series Standard
X Multiple Option Designation	X Multiple Option Designation	X Multiple Option Designation
A 17-4 PH® Stem	2 Markez® Z1028	B B7M Bolting
B XM-19 (Nitronic 50) Stem	4 Kalrez® 4079	E CE/PED Certified
C Duplex 2205 Stem	5 Chemraz® 505	M Marine Epoxy Coating
D Inconel® 718 Stem	6 Kalrez® 6375	
	7 Perlast® G75M	
	9 Chemraz® 564	
	B Low Temp Buna	
	E EPDM	
	S Silicone	

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



17-4 PH® is a registered trademark of AK Steel Corporation. Kalrez® are registered trademarks of E.I. DuPont de Nemours. Chemraz® is a registered trademark of Greene, Tweed & Co. Delrin® is a registered trademark of DuPont Performance Polymers. Markez® is a registered trademark of Marco Rubber & Plastic Products Inc. Perlast® is a registered trademark of Precision Polymer Engineering Limited. TFM™ is a trademark of Dyneon™, a 3M Company. Stellite® is a registered trademark of the Deloro Stellite Company, Inc. Inconel® is a registered trademark of Inco Alloys/Special Metals Corporation.

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 Seats (PTFE)
U	UHMWPE Seats
D	Delrin® Seats
S	50/50 STFE Seats
C	25% CS Powder/ 75% TFE Seats (CTFE)
T	TFM™-1600 Seats
E	All TFM™-1600 Seats, Seals, & Packing
A	50% SS Powder/50% TFM™-1600 Seats (STFM)
F	PTFE Cavity Filler Seats
M	MG1241 Seats
Z	PEEK Seats

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 (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	3R3500
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		

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	

*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
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
E	CE/PED Certified
F	Viton® Seal for Pneumatic Actuators (0°F to 300°F)

