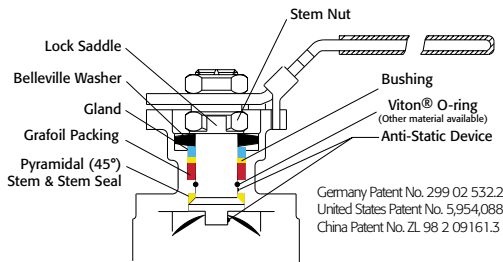


**API 607 - 6th Edition
CERTIFIED**



The F88 Series Firesafe Ball Valves have successfully passed the API-607 6th Edition test. They are available with CF8M or WCB body. These high quality investment cast valves 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 up 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 F88
FIRESAFE
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 or WCB

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 (2017)

| | |
|---------------------------|------------------------------|
| End Connections | ASME B16.25, B1.20.1, B16.11 |
| Pressure Testing | API 598 |
| Fire Testing | API 607-6th Edition |
| Sulfide Stress Protection | NACE MR0175 |
| 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 |

| | |
|--------|------------------------------|
| 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 |

**SERIES F88
3-Piece
Firesafe**

A-T Controls, Inc.

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

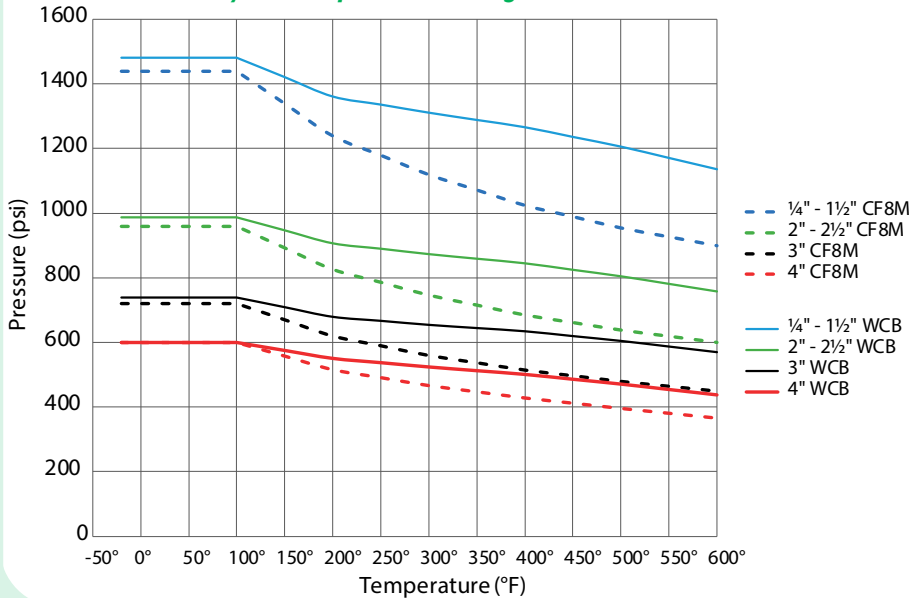
PHONE (513) 247-5465
FAX (513) 247-5462
sales@atcontrols.com

Series F88

API 607 - 6th Edition
CERTIFIED

Pressure vs. Temperature | Series F88

Pressure vs. Temperature | Series F88 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 (F88) 254 (F88C) | 1000 |

*ASME Boiler Pressure Vessel Code

Break Away Torque for RTFE Seats

| SIZE | IN-LBS. |
|--------|---------|
| 1/4" | 70 |
| 3/8" | 70 |
| 1/2" | 75 |
| 3/4" | 100 |
| 1" | 145 |
| 1 1/4" | 220 |
| 1 1/2" | 300 |
| 2" | 420 |
| 2 1/2" | 560 |
| 3" | 900 |
| 4" | 1,500 |

NOTE: For other seat material, consult factory

Cv

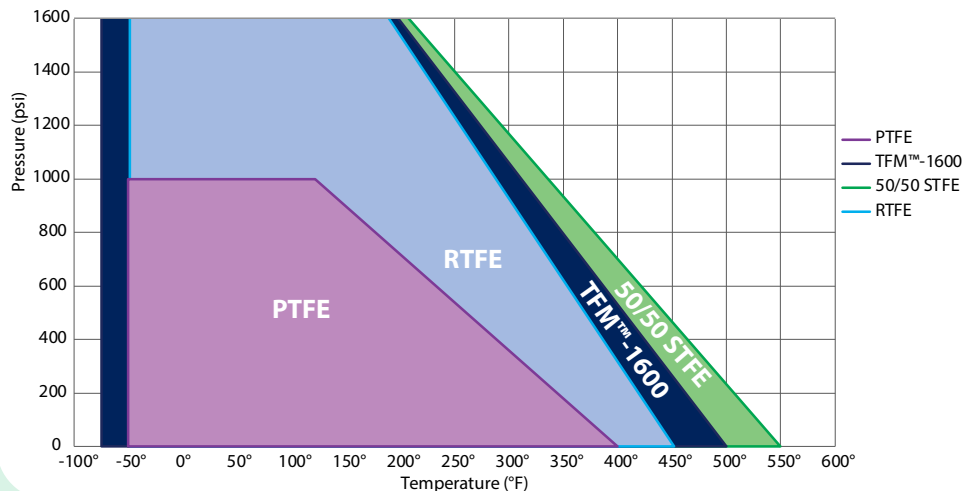
| SIZE | Cv |
|--------|-------|
| 1/4" | 7 |
| 3/8" | 8 |
| 1/2" | 15 |
| 3/4" | 40 |
| 1" | 70 |
| 1 1/4" | 110 |
| 1 1/2" | 250 |
| 2" | 430 |
| 2 1/2" | 600 |
| 3" | 1,100 |
| 4" | 2,000 |

| 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 |

| F88 Component Temperature Ratings | | |
|-----------------------------------|-----------------|------------------|
| Component | Material | Temperature |
| Stem Packing | Graphite | -100°F to 1100°F |
| Stem Seal | TFM™-1600 | -75°F to 500°F |
| Gaskets | Graphite | -100°F to 1100°F |
| | PTFE | -50°F to 400°F |
| Seats (other materials available) | RTFE (standard) | -50°F to 450°F |
| | TFM™-1600 | -75°F to 500°F |
| | 50/50 STFE | -50°F to 550°F |
| O-Rings | 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 | |

Pressure vs. Temperature | Series F88 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 | | |

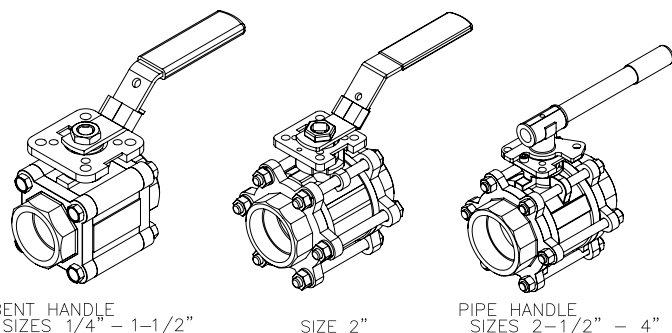
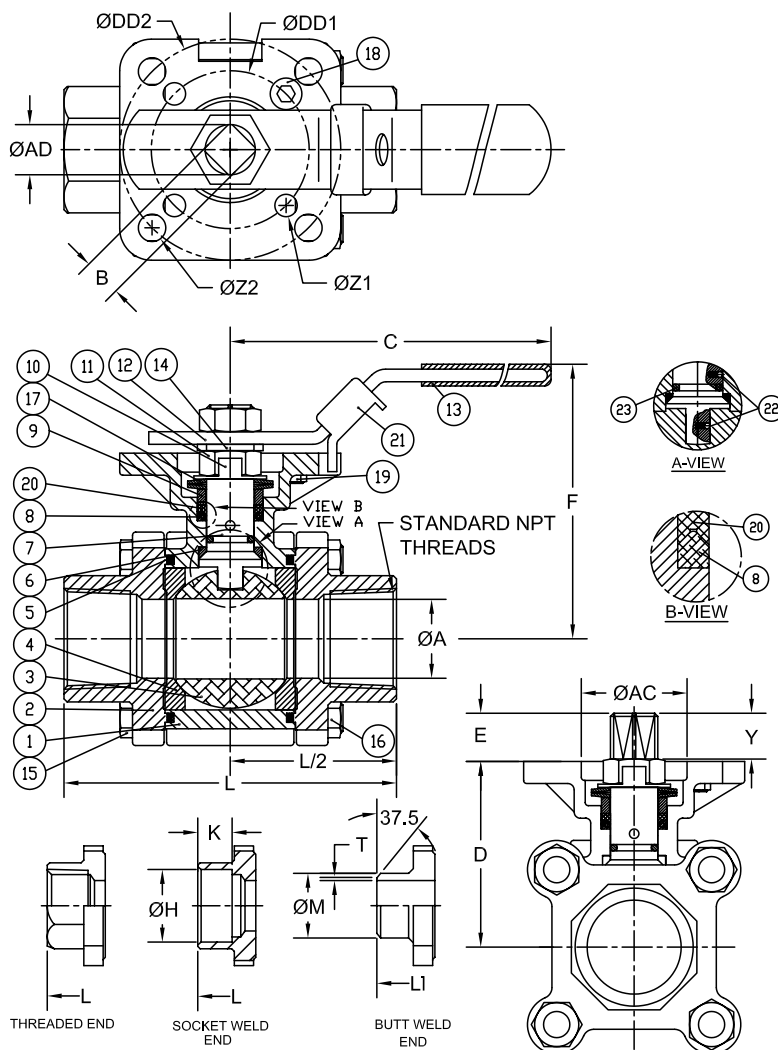


MATERIALS LIST

| NO. | PART NAME | QTY | STAINLESS STEEL | CARBON STEEL | REPAIR KIT |
|-----|--------------------|-----|-----------------------------------|-----------------------------------|------------|
| 1 | BODY | 1 | ASTM A351 GRADE CF8M | ASTM A216 GRADE WCB | |
| 2 | TH END CAP | 2 | ASTM A351 GRADE CF8M | ASTM A216 GRADE WCB | |
| 2 | BW/SW END CAP | 2 | ASTM A351 GRADE CF3M | ASTM A216 GRADE WCB | |
| 3 | BALL | 1 | 1/4" THRU 3/8" ASTM A276 SS316 | 1/4" THRU 3/8" ASTM A276 SS316 | |
| 3 | BALL | 1 | 1/2" THRU 4" ASTM A351 GRADE CF8M | 1/2" THRU 4" ASTM A351 GRADE CF8M | |
| 4 | SEAT | 2 | RTFE | RTFE | ✓ |
| 5 | JOINT GASKET | 2 | GRAPHITE | GRAPHITE | ✓ |
| 6 | STEM SEAL | 1 | TFM™-1600 | TFM™-1600 | ✓ |
| 7 | STEM | 1 | ASTM A276 SS316 | ASTM A276 SS316 | |
| 8 | GLAND PACKING | 1 | GRAPHITE | GRAPHITE | ✓ |
| 9 | GLAND BUSHING | 1 | AISI 304 | AISI 304 | |
| 10 | LOCK SADDLE | 1 | AISI 304 | AISI 304 | |
| 11 | STEM NUT | 1 | AISI 304 | AISI 304 | |
| 12 | HANDLE | 1 | AISI 304 | AISI 304 | |
| 13 | HANDLE SLEEVE | 1 | VINYL | VINYL | |
| 14 | STEM WASHER | 1 | AISI 304 | AISI 304 | |
| 15 | BODY BOLT/STUD | * | ASTM A193 GRADE B8M | ASTM A193 GRADE B7M | |
| 16 | BODY NUT | # | ASTM A194 GRADE 8M | ASTM A194 GRADE 2HM | |
| 17 | BELLEVILLE WASHER | 2 | AISI 301 | AISI 301 | |
| 18 | STOP BOLT | 1 | AISI 304 | AISI 304 | |
| 19 | STOP BOLT NUT | 1 | AISI 304 | AISI 304 | |
| 20 | GLAND WASHER | 1 | RTFE | RTFE | ✓ |
| 21 | HANDLE LOCK | 1 | AISI 304 | AISI 304 | |
| 22 | ANTI-STATIC DEVICE | 2 | AISI 316 | AISI 316 | |
| 23 | STEM O-RING | 1 | FKM | FKM | ✓ |

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

* 1/4" THRU 1 1/2" QTY = 4 PCS # 1/2" THRU 1 1/2" QTY = 8 PCS
 * 2" THRU 4" QTY = 6 PCS # 2" THRU 4" QTY = 12 PCS
 # 1/4" THRU 3/8" QTY = 4 PCS



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 F88 3-Piece Ball Valve

Firesafe

Sizes 1/4" - 4"

Full Port Design

Conforms to ASME B16.34 (2017)

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

CF8M or WCB

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

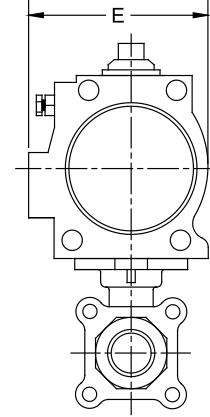
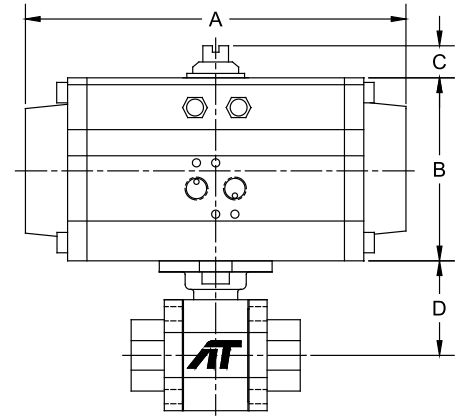
STANDARDS

| | |
|--------------------------------|------------------------------|
| Conforms to ASME B16.34 (2017) | |
| End Connections | ASME B16.25, B1.20.1, B16.11 |
| Pressure Testing | API 598 |
| Fire Testing | API-6th Edition |
| Sulfide Stress Protection | NACE MR0175 |
| 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 |

API 607 - 6th Edition CERTIFIED



Direct Mount
Firesafe tested to API-607



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

SERIES F88

Firesafe

SIZED FOR 80 psi AIR SUPPLY

| SIZE | MODEL |
|--------|--------------------|
| 1/4" | F88-TX-025/TR1D-XX |
| 3/8" | F88-TX-038/TR1D-XX |
| 1/2" | F88-TX-050/TR1D-XX |
| 3/4" | F88-TX-075/2R2D-XX |
| 1" | F88-TX-100/2R2D-XX |
| 1 1/4" | F88-TX-125/2R2D-XX |
| 1 1/2" | F88-TX-150/2R3D-XX |
| 2" | F88-TX-200/2R3D-XX |
| 2 1/2" | F88-TX-250/2R4D-XX |
| 3" | F88-TX-300/2R5D-XX |
| 4" | F88-TX-400/2R6D-XX |

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

SIZED FOR 60 psi AIR SUPPLY

| SIZE | MODEL |
|--------|--------------------|
| 1/4" | F88-TX-025/TR1D-XX |
| 3/8" | F88-TX-038/TR1D-XX |
| 1/2" | F88-TX-050/TR1D-XX |
| 3/4" | F88-TX-075/2R2D-XX |
| 1" | F88-TX-100/2R2D-XX |
| 1 1/4" | F88-TX-125/2R2D-XX |
| 1 1/2" | F88-TX-150/2R3D-XX |
| 2" | F88-TX-200/2R3D-XX |
| 2 1/2" | F88-TX-250/2R4D-XX |
| 3" | F88-TX-300/2R5D-XX |
| 4" | F88-TX-400/2R6D-XX |

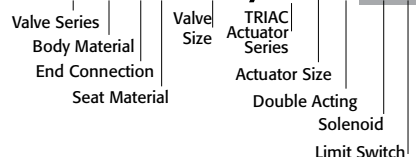
OPTIONS

| 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 |

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

SAMPLE PART # F88C-TX-075/2R2D-XX



Pneumatic Spring Return Automated Ball Valve Package

Series F88 3-Piece Ball Valve

Firesafe

Sizes 1/4" - 4"

Full Port Design

Conforms to ASME B16.34 (2017)

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

CF8M or WCB

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

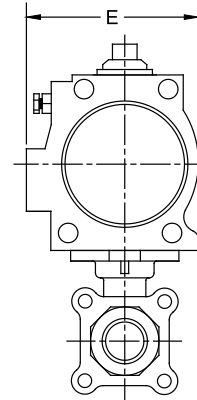
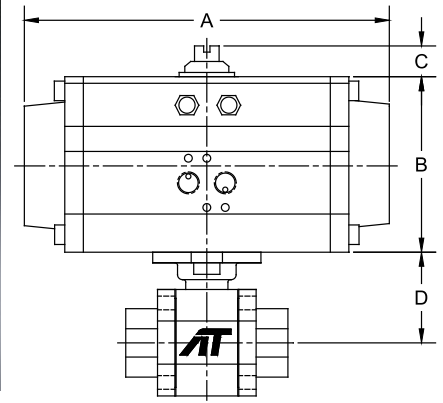
Conforms to ASME B16.34 (2017)

| | |
|---------------------------|------------------------------|
| End Connections | ASME B16.25, B1.20.1, B16.11 |
| Pressure Testing | API 598 |
| Fire Testing | API-6th Edition |
| Sulfide Stress Protection | NACE MR0175 |
| 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 |

API 607 - 6th Edition
CERTIFIED



Direct Mount
Firesafe tested to API-607



DIMENSIONS (IN)

| VALVE SIZE | A | B | C | D | E |
|------------|-------|------|------|------|------|
| 1/4" | 7.60 | 2.76 | 0.79 | 1.66 | 2.58 |
| 3/8" | 7.60 | 2.76 | 0.79 | 1.66 | 2.58 |
| 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

SERIES F88

Firesafe

| SIZED FOR 80 psi AIR SUPPLY | |
|-----------------------------|--------------------|
| SIZE | MODEL |
| 1/4" | F88-TX-025/TR1S-XX |
| 3/8" | F88-TX-038/TR1S-XX |
| 1/2" | F88-TX-050/2R2S-XX |
| 3/4" | F88-TX-075/2R3S-XX |
| 1" | F88-TX-100/2R3S-XX |
| 1 1/4" | F88-TX-125/2R3S-XX |
| 1 1/2" | F88-TX-150/2R3S-XX |
| 2" | F88-TX-200/2R4S-XX |
| 2 1/2" | F88-TX-250/2R5S-XX |
| 3" | F88-TX-300/2R7S-XX |
| 4" | F88-TX-400/2R7S-XX |

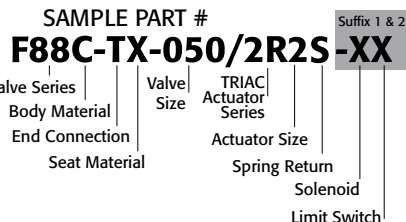
| SIZED FOR 60 psi AIR SUPPLY | |
|-----------------------------|--------------------|
| SIZE | MODEL |
| 1/4" | F88-TX-025/TR1S-XX |
| 3/8" | F88-TX-038/TR1S-XX |
| 1/2" | F88-TX-050/2R2S-XX |
| 3/4" | F88-TX-075/2R3S-XX |
| 1" | F88-TX-100/2R3S-XX |
| 1 1/4" | F88-TX-125/2R3S-XX |
| 1 1/2" | F88-TX-150/2R4S-XX |
| 2" | F88-TX-200/2R5S-XX |
| 2 1/2" | F88-TX-250/2R6S-XX |
| 3" | F88-TX-300/2R7S-XX |
| 4" | F88-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 | 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 |

| 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 for complete part number and options.

Electric Automated Ball Valve Package

Series F88 3-Piece Ball Valve

- Firesafe
- Sizes 1/4" - 4"
- Full Port Design
- Conforms to ASME B16.34 (2017)
 - Classes up to 600
 - 1000 to 2000 psi (BPVC)
- CF8M or WCB
- 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 (2017)
- End Connections: ASME B16.25, B1.20.1, B16.11
- Pressure Testing: API 598
- Fire Testing: API-6th Edition
- Sulfide Stress Protection: NACE MR0175
- 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

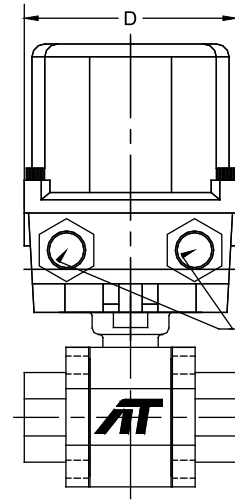
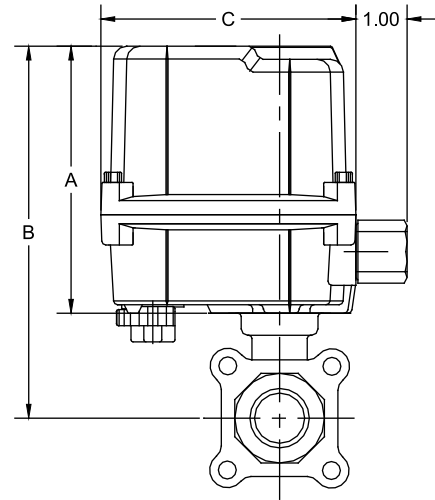
**API 607 - 6th Edition
CERTIFIED**



**Direct Mount
Firesafe tested to API-607**

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 |



1/2" NPT
CONDUIT
CONNECTION

SERIES F88

Firesafe

ON-OFF

| SIZE | MODEL |
|--------|--------------------|
| 1/4" | F88-TX-025/WEA1-XX |
| 3/8" | F88-TX-038/WEA1-XX |
| 1/2" | F88-TX-050/WEA1-XX |
| 3/4" | F88-TX-075/WEA1-XX |
| 1" | F88-TX-100/WEA1-XX |
| 1 1/4" | F88-TX-125/WEA1-XX |
| 1 1/2" | F88-TX-150/WEA1-XX |
| 2" | F88-TX-200/WEA1-XX |
| 2 1/2" | F88-TX-250/WEB1-XX |
| 3" | F88-TX-300/WEC1-XX |
| 4" | F88-TX-400/WED1-XX |

MODULATING

| SIZE | MODEL |
|--------|--------------------|
| 1/4" | F88-TX-025/WEA2-XX |
| 3/8" | F88-TX-038/WEA2-XX |
| 1/2" | F88-TX-050/WEA2-XX |
| 3/4" | F88-TX-075/WEA2-XX |
| 1" | F88-TX-100/WEA2-XX |
| 1 1/4" | F88-TX-125/WEA2-XX |
| 1 1/2" | F88-TX-150/WEA2-XX |
| 2" | F88-TX-200/WEA2-XX |
| 2 1/2" | F88-TX-250/WEB2-XX |
| 3" | F88-TX-300/WEC2-XX |
| 4" | F88-TX-400/WED2-XX |

OPTIONS

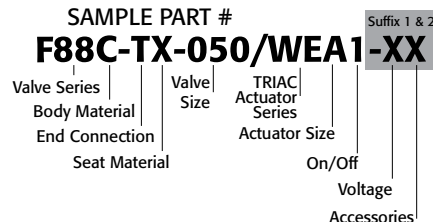
| Suffix 1 | Voltage / Accessory | Model No. |
|----------|---------------------------------|-----------|
| X | No Specials | |
| R | 24VDC Electric Actuator | |
| S | 220VAC Electric Actuator | |
| T | Other Voltage Electric Actuator | |
| W | 12VDC Electric Actuator | |
| Y | 24VAC Electric Actuator | |

* 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 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.

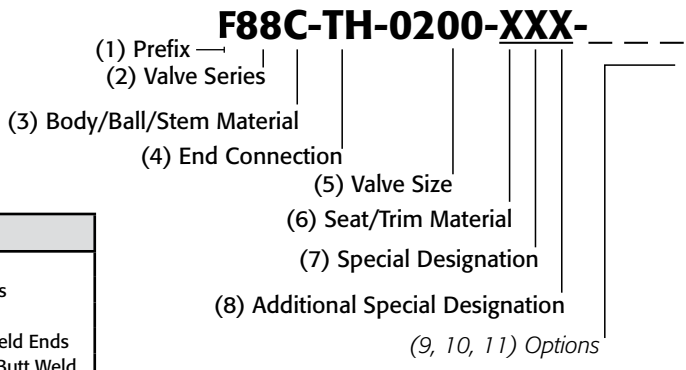


How to Order | Series F88

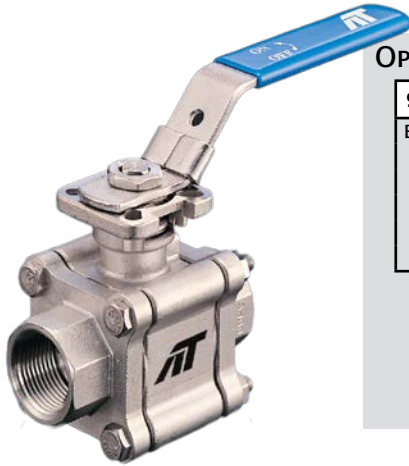
| | | | |
|----------------------------------|---|-----------------------|-----------------------------|
| 1 Prefix | | 2 Valve Series | |
| F | Firesafe Tested | 88 | 3pc. Direct Mount Full Port |
| 3 Body/Ball/Stem Material | | | |
| Blank | Valve Series Standard | | |
| A | Alloy 20 Body, Ball, & 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 | | |
| B | 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



| 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 | | 10 O-Ring | | 11 Additional Specials | |
| Blank | No Designation, Valve Series Standard | Blank | Standard | Blank | 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 | M | Marine Epoxy Coating |
| C | Duplex 2205 Stem | 5 | Chemraz® 505 | | |
| D | Inconel® 718 Stem | 6 | Kalrez® 6375 | | |
| | | 7 | Perlast® G75M | | |
| | | 9 | Chemraz® 564 | | |
| | | B | Low Temp Buna | | |
| | | E | EPDM | | |
| | | S | Silicone | | |

Related Series

- **88 Series** 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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