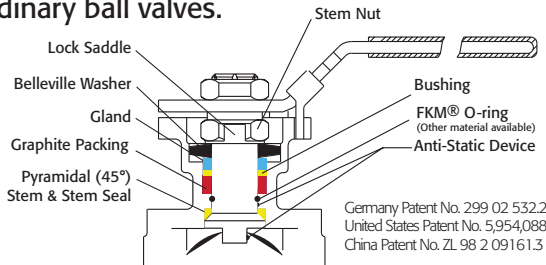


**API 607 - 6th Edition  
CERTIFIED**

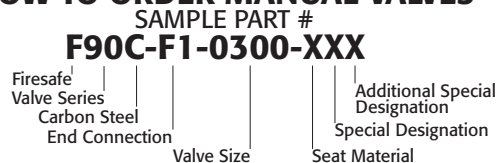


Triac 90 Series Flanged Ball Valves feature a split body design. The high quality investment castings feature a fully machined bore. The superior live-loaded packing system is accomplished with Belleville washers, "V" ring packing and a unique primary pyramidal stem seal. This advanced sealing system provides protection against stem leaks experienced by ordinary ball valves.



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.

### 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

F90-2R-20221227  
Copyright 2013 A-T Controls, Inc.

**A-T Controls, Inc.**

## Series F90

**FIRESAFE**

# Split Body Flanged Ball Valve

Sizes 1/2" - 4"

Available in 316SST or WCB

ANSI Class 150

Full Port Design

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

Design	ANSI/ASME B16.34 (fully conforms)
Face to Face	ANSI/ASME B16.10
Flange Dimensions	ANSI/ASME B16.5
Pressure Testing	API 598
Fire Testing	API 607-6th Edition
Fugitive Emissions	ISO 15848-1
Gas Shut-off Valves	CSA 3.16-15
Mounting	ISO 5211
Marking System for Valves	MSS SP-25
Safety Integrity	IEC 61508:2010; SIL 3
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.**

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Cincinnati, Ohio 45246  
www.atcontrols.com

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

**SERIES F90 Split Body Flanged Ball Valve**  
**Firesafe**

# Series F90

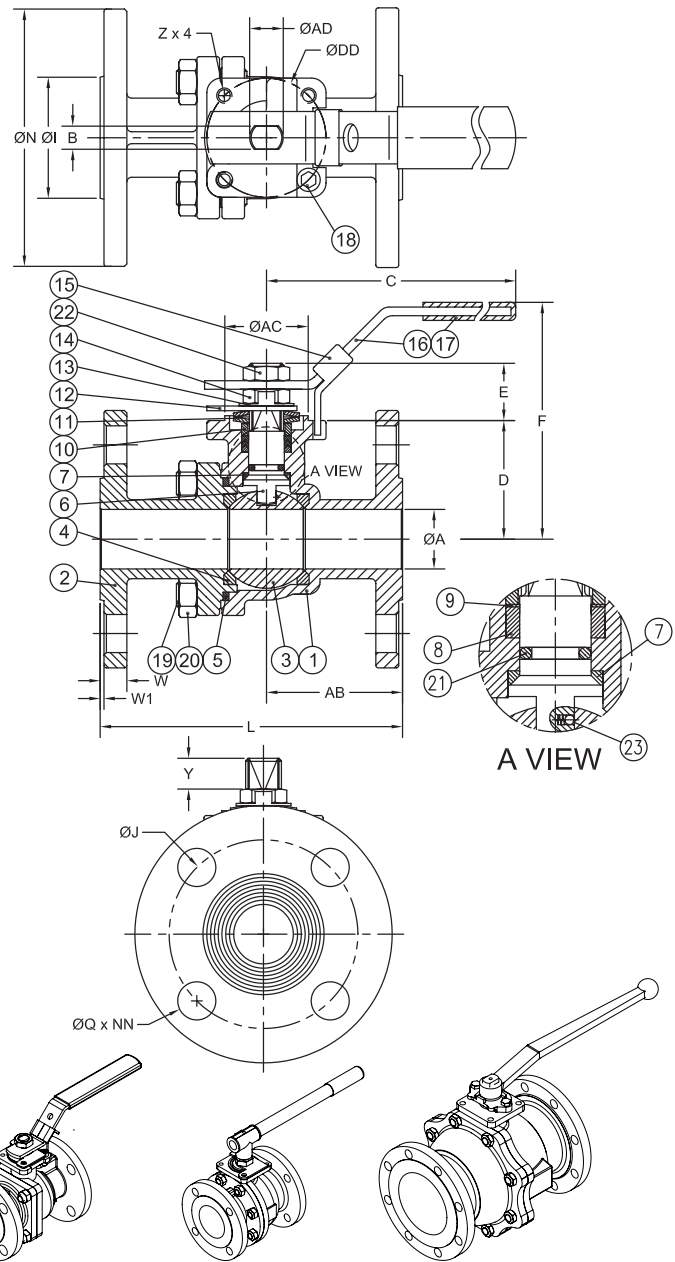
## High Performance Full Port Split Body Flanged Ball Valve Series F90 (ANSI Class 150)

API 607 - 6th Edition  
CERTIFIED

### MATERIAL LIST

NO.	PART NAME	QTY	STAINLESS STEEL	CARBON STEEL	REPAIR KIT
1	BODY	1	ASTM A351 GRADE CF8M	ASTM A216 GRADE WCB	
2	END CAP	1	ASTM A351 GRADE CF8M	ASTM A216 GRADE WCB	
3	BALL	1	ASTM A351 GRADE CF8M	ASTM A351 GRADE CF8M	
4	SEAT	2	RTFE	RTFE	✓
5	JOINT GASKET	1	GRAPHITE	GRAPHITE	✓
6	STEM	1	ASTM A276 SS316	ASTM A276 SS316	
7	STEM SEAL	1	TFM™-1600	TFM™-1600	✓
8	GLAND PACKING	1	GRAPHITE	GRAPHITE	✓
9	GLAND WASHER	1	TFM™-1600	TFM™-1600	✓
10	GLAND BUSHING	1	AISI 304	AISI 304	
11	BELLEVILLE WASHER	2	AISI 301	AISI 301	
12	LOCKING PLATE	1	AISI 304	AISI 304	
13	LOCK SADDLE	1	AISI 304	AISI 304	
14	STEM NUT	1	AISI 304	AISI 304	
15	HANDLE LOCK	1	AISI 304	AISI 304	
16	HANDLE	1	AISI 304	AISI 304	
17	HANDLE SLEEVE	1	VINYL	VINYL	
18	STOP BOLT	1	AISI 304	AISI 304	
19	BODY STUD	*	ASTM A193 GRADE B8	ASTM A193 GRADE B8	
20	BODY NUT	*	ASTM A194 GRADE 8	ASTM A194 GRADE 8	
21	STEM O-RING	1	FKM	FKM	✓
22	HANDLE NUT	1	AISI 304	AISI 304	
23	ANTI-STATIC DEVICE	2	AISI 316	AISI 316	

\* 1/2" THRU 2" QTY = 4 PCS  
\* 2-1/2" THRU 4" QTY = 8 PCS



BENT HANDLE SIZES 1/2" - 2-1/2"  
PIPE HANDLE SIZES 3" - 4"  
CAST HANDLE SIZES 6"

NOTE: A-T CONTROLS RECOMMENDS A GEAR FOR 6" VALVES AND LARGER. 6" SERIES 93 VALVES DO NOT HAVE LOCKABLE HANDLES.

### DIMENSIONS (IN)

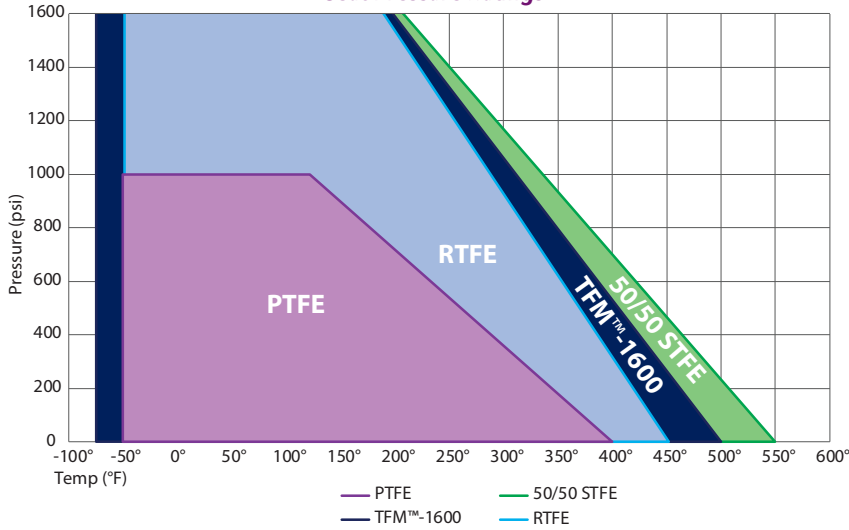
SIZE	A	B	C	D	E	F	I	J	L	N	Q	W	W1	Y	Z	AB	AC	AD	DD	NN	LBS	ISO 5211
1/2"	0.59	0.315	6.69	1.34	0.92	3.15	1.47	2.38	4.26	3.50	0.63	0.44	0.06	0.36	M5	1.82	1.17	0.43	1.654	4	3.7	F04
3/4"	0.79	0.315	6.69	1.65	0.94	3.43	1.82	2.75	4.62	3.88	0.63	0.44	0.06	0.40	M5	2.17	1.17	0.43	1.654	4	4.6	F04
1"	0.98	0.382	8.05	1.95	0.94	3.85	2.08	3.13	5.00	4.26	0.63	0.44	0.06	0.42	M6	2.20	1.37	0.56	1.969	4	6.8	F05
1-1/2"	1.50	0.472	10.28	3.08	1.37	6.02	2.88	3.88	6.50	5.00	0.63	0.56	0.06	0.58	M8	2.81	2.17	0.75	2.756	4	13.6	F07
2"	1.97	0.472	10.28	3.40	1.37	6.38	3.62	4.75	7.02	6.00	0.75	0.63	0.06	0.58	M8	3.38	2.17	0.75	2.756	4	19.2	F07
2-1/2"	2.56	0.472	10.28	3.83	1.37	6.81	4.12	5.50	7.49	7.00	0.75	0.69	0.06	0.58	M8	3.02	2.17	0.75	2.756	4	30.0	F07
3"	3.15	0.591	13.94	4.23	1.81	6.95	5.00	6.00	8.01	7.50	0.75	0.75	0.06	0.93	M10	4.01	2.76	0.94	4.016	4	41.0	F10
4"	3.94	0.591	13.94	4.82	1.79	7.52	6.19	7.50	9.04	9.00	0.75	0.94	0.06	0.93	M10	4.06	2.76	0.94	4.016	8	65.0	F10

# High Performance Full Port Split Body Flanged Ball Valve Series F90 (ANSI Class 150)

# Series F90

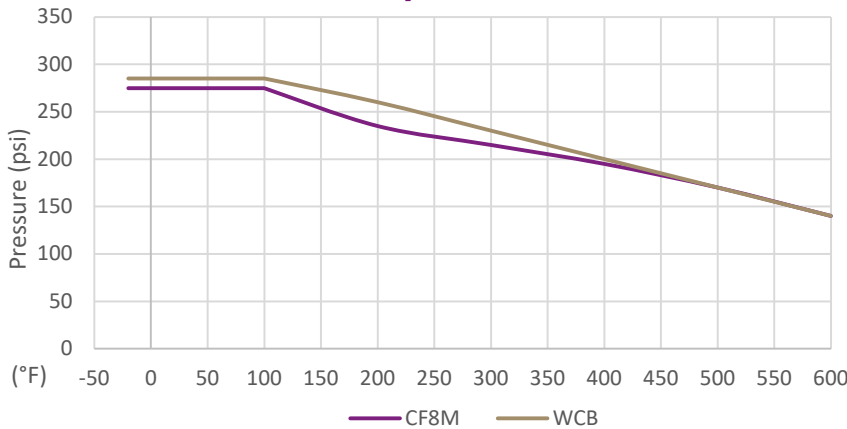
API 607 - 6th Edition  
CERTIFIED

**Pressure vs. Temperature - F90**  
Seat Pressure Ratings



Temp	Pressure - Seat Material			
	RTFE	STFE	PTFE	TFM™-1600
-75°				2000
-50°	2000	2000	1000	2000
100°	2000	2000	1000	2000
122°	2000	2000	1000	2000
150°	1829	1869	899	1852
200°	1524	1636	719	1587
250°	1220	1402	540	1323
300°	915	1168	360	1058
350°	610	935	180	794
400°	305	701	0	529
450°	0	467		265
500°		234		0
550°		0		

**Pressure vs. Temperature - Series F90**



Temp	CF8M psi	WCB psi
-20°	275	285
50°	275	285
75°	275	285
90°	275	285
99°	275	285
100°	275	285
200°	235	260
300°	215	230
400°	195	200
500°	170	170
600°	140	140

F90 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
Seats (Other Materials Available)	PTFE	-50°F to 400°F
	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

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.

BREAKAWAY TORQUES	
SIZE	IN-LBS
1/2"	45
3/4"	73
1"	91
1-1/2"	230
2"	297
2-1/2"	535
3"	768
4"	1250

VALVE SIZE	VALVE Cv
1/2"	15
3/4"	45
1"	85
1-1/2"	275
2"	460
2-1/2"	700
3"	1,100
4"	2,200

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 F90**  
**ANSI Class 150**  
**Flanged Ball Valve**

Firesafe

Sizes 1/2" - 4"

Available in 316SST or WCB

ANSI Class 150

Full Port Design

Superior Live Loaded Packing System

Blowout Proof Stem w/ Dual  
Anti-Static Devices

RTFE Seats Standard

Pyramidal Stem Seal Design

Monel Ball & Stem Available

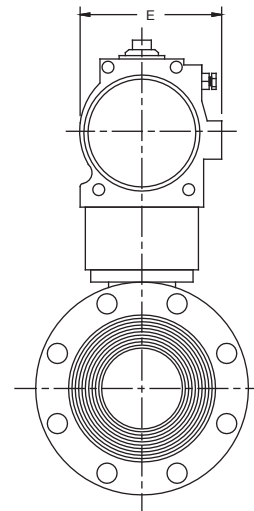
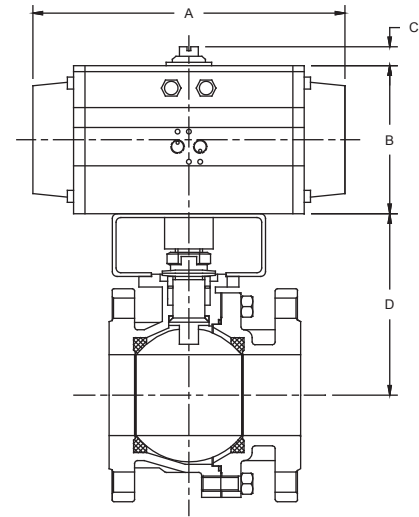
### STANDARDS

Design	ANSI/ASME B16.34 (fully conforms)
Face to Face	ANSI/ASME B16.10
Flange Dimensions	ANSI/ASME B16.5
Pressure Testing	API 598
Fire Testing	API 607-6th Edition
Fugitive Emissions	ISO 15848-1
Gas Shut-off Valves	CSA 3.16-15
Mounting	ISO 5211
Marking System for Valves	MSS SP-25
Safety Integrity	IEC 61508:2010; SIL 3
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015

**API 607 - 6th Edition**  
**CERTIFIED**



**150# Flanged**  
**Firesafe tested to API-607**



### DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/2"	5.98	2.76	0.79	2.91	2.58	15
3/4"	5.98	2.76	0.79	3.21	2.58	45
1"	7.95	3.43	0.79	3.52	3.29	85
1-1/2"	9.29	4.49	0.79	5.04	4.41	275
2"	9.29	4.49	0.79	5.37	4.41	460
2-1/2"	10.87	4.88	0.79	5.80	4.82	700
3"	11.46	5.28	0.79	6.85	5.20	1,100
4"	13.90	6.18	0.79	7.44	6.04	2,200

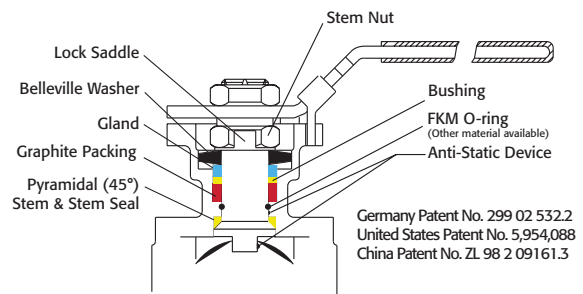
DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

**SERIES F90 150# Flanged**

**Firesafe**

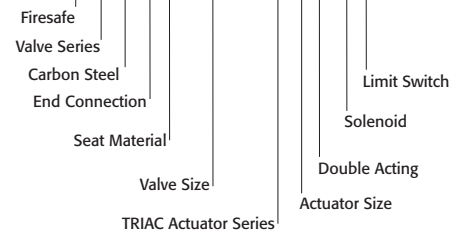
SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/2"	F90-F1-050/TR1D-XX
3/4"	F90-F1-075/TR1D-XX
1"	F90-F1-100/2R2D-XX
1-1/2"	F90-F1-150/2R3D-XX
2"	F90-F1-200/2R3D-XX
2-1/2"	F90-F1-250/2R4D-XX
3"	F90-F1-300/2R5D-XX
4"	F90-F1-400/2R6D-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/2"	F90-F1-050/TR1D-XX
3/4"	F90-F1-075/2R2D-XX
1"	F90-F1-100/2R2D-XX
1-1/2"	F90-F1-150/2R3D-XX
2"	F90-F1-200/2R3D-XX
2-1/2"	F90-F1-250/2R5D-XX
3"	F90-F1-300/2R6D-XX
4"	F90-F1-400/2R6D-XX



SAMPLE PART #

**F90C-F1-0150/2R3D-XX**



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

### OPTIONS

DESCRIPTION	PART NO. SUFFIX	DESCRIPTION	PART NO. SUFFIX
NEMA 4 Solenoid	(A)	NEMA 4 Limit Switch (2) spdt	(A)
NEMA 7 Solenoid	(B)	NEMA 7 Limit Switch (2) spdt	(B)
Intrinsically Safe Solenoid	(C)	Intrinsically Safe Limit Switch	(C)

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

# Pneumatic Spring Return Automated Ball Valve Package

**Series F90  
ANSI Class 150  
Flanged Ball Valve**

Firesafe

Sizes 1/2" - 4"

Available in 316SST or WCB

ANSI Class 150

Full Port Design

Superior Live Loaded Packing System

Blowout Proof Stem w/ Dual  
Anti-Static Devices

RTFE Seats Standard

Pyramidal Stem Seal Design

Monel Ball & Stem Available

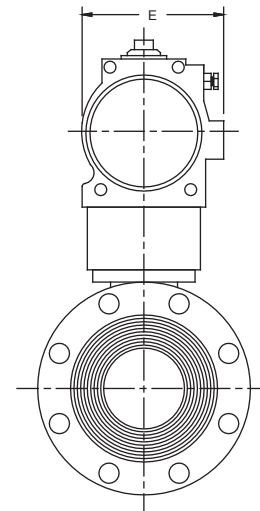
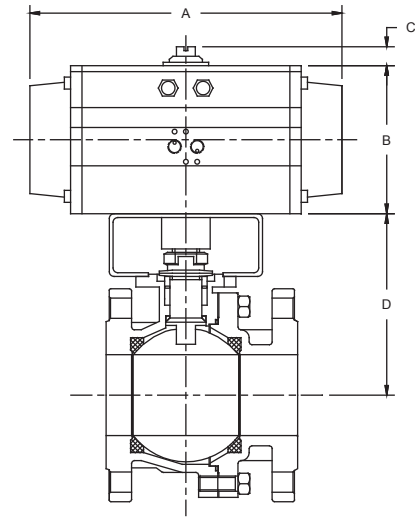
### STANDARDS

Design	ANSI/ASME B16.34 (fully conforms)
Face to Face	ANSI/ASME B16.10
Flange Dimensions	ANSI/ASME B16.5
Pressure Testing	API 598
Fire Testing	API 607-6th Edition
Fugitive Emissions	ISO 15848-1
Gas Shut-off Valves	CSA 3.16-15
Mounting	ISO 5211
Marking System for Valves	MSS SP-25
Safety Integrity	IEC 61508:2010; SIL 3
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015

**API 607 - 6th Edition  
CERTIFIED**



**150# Flanged  
Firesafe tested to API-607**



### DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/2"	7.95	3.43	0.79	2.90	3.29	15
3/4"	7.95	3.43	0.79	3.20	3.29	45
1"	9.29	4.49	0.79	3.52	4.41	85
1-1/2"	9.29	4.49	0.79	5.04	4.41	275
2"	10.87	4.88	0.79	5.37	4.82	460
2-1/2"	13.90	6.18	0.79	5.80	6.04	700
3"	13.90	6.18	0.79	6.85	6.04	1,100
4"	15.16	6.93	0.79	7.44	6.69	2,200

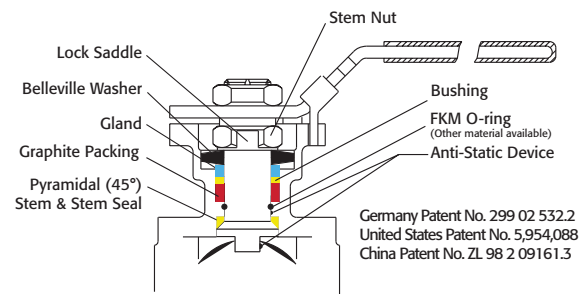
DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

**SERIES F90 150# Flanged**

**Firesafe**

SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/2"	F90-F1-050/2R2S-XX
3/4"	F90-F1-075/2R3S-XX
1"	F90-F1-100/2R3S-XX
1-1/2"	F90-F1-150/2R3S-XX
2"	F90-F1-200/2R4S-XX
2-1/2"	F90-F1-250/2R6S-XX
3"	F90-F1-300/2R6S-XX
4"	F90-F1-400/2R7S-XX

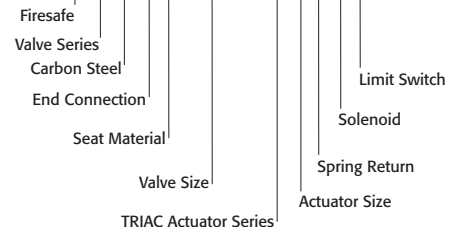
SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/2"	F90-F1-050/2R3S-XX
3/4"	F90-F1-075/2R3S-XX
1"	F90-F1-100/2R3S-XX
1-1/2"	F90-F1-150/2R4S-XX
2"	F90-F1-200/2R5S-XX
2-1/2"	F90-F1-250/2R6S-XX
3"	F90-F1-300/2R6S-XX
4"	F90-F1-400/2R7S-XX



Germany Patent No. 299 02 532.2  
United States Patent No. 5,954,088  
China Patent No. ZL 98 2 09161.3

SAMPLE PART #

**F90C-F1-0150/2R3S-XX**



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

### OPTIONS

DESCRIPTION	PART NO. SUFFIX	DESCRIPTION	PART NO. SUFFIX
NEMA 4 Solenoid	(A)	NEMA 4 Limit Switch (2) spdt	(A)
NEMA 7 Solenoid	(B)	NEMA 7 Limit Switch (2) spdt	(B)
Intrinsically Safe Solenoid	(C)	Intrinsically Safe Limit Switch	(C)

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

# Electric

## Automated Ball Valve Package

### Series F90 ANSI Class 150 Flanged Ball Valve

Firesafe

Sizes 1/2" - 4"

Available in 316SST or WCB

ANSI Class 150

Full Port Design

Superior Live Loaded Packing System

Blowout Proof Stem w/ Dual Anti-Static Devices

RTFE Seats Standard

Pyramidal Stem Seal Design

Monel Ball & Stem Available

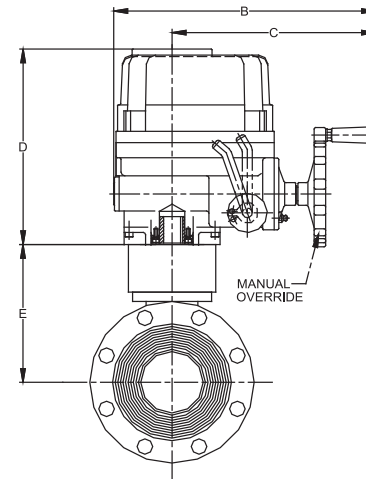
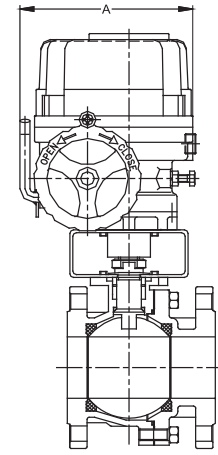
#### STANDARDS

Design	ANSI/ASME B16.34 (fully conforms)
Face to Face	ANSI/ASME B16.10
Flange Dimensions	ANSI/ASME B16.5
Pressure Testing	API 598
Fire Testing	API 607-6th Edition
Fugitive Emissions	ISO 15848-1
Gas Shut-off Valves	CSA 3.16-15
Mounting	ISO 5211
Marking System for Valves	MSS SP-25
Safety Integrity	IEC 61508:2010; SIL 3
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015

**API 607 - 6th Edition  
CERTIFIED**



150# Flanged  
Firesafe tested to API-607



#### DIMENSIONS (IN)

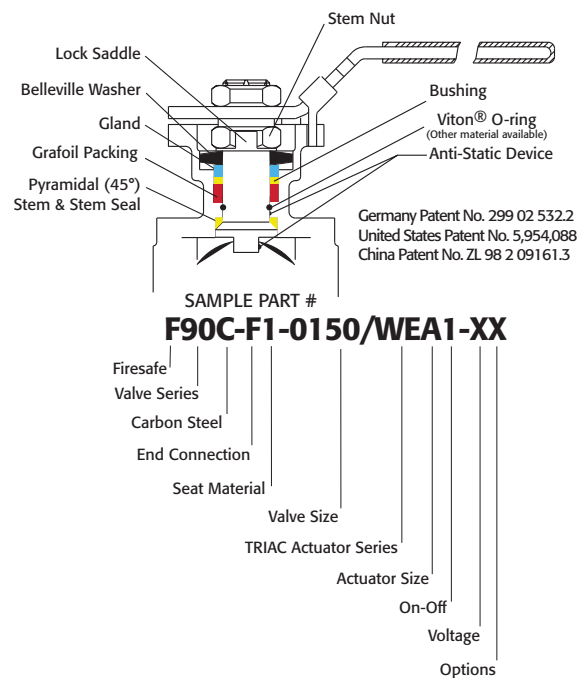
VALVE SIZE	A	B	C	D	E	VALVE Cv
1/2"	4.94	4.08	N/A	5.24	2.90	15
3/4"	4.94	4.08	N/A	5.24	3.20	45
1"	4.94	4.08	N/A	5.24	3.52	85
1-1/2"	4.94	4.08	N/A	5.24	5.05	275
2"	4.94	4.08	N/A	5.24	5.37	460
2-1/2"	9.02	13.31	10.43	10.55	5.80	700
3"	9.02	13.31	10.43	10.55	6.85	1,100
4"	10.20	14.49	11.26	11.42	7.44	2,200

**SERIES F90 150# Flanged**

**Firesafe**

ON-OFF	
SIZE	MODEL
1/2"	F90-F1-050/WEA1-XX
3/4"	F90-F1-075/WEA1-XX
1"	F90-F1-100/WEA1-XX
1-1/2"	F90-F1-150/WEA1-XX
2"	F90-F1-200/WEB1-XX
2-1/2"	F90-F1-250/WEC1-XX
3"	F90-F1-300/WEC1-XX
4"	F90-F1-400/WEE1-XX

MODULATING	
SIZE	MODEL
1/2"	F90-F1-050/WEA2-XX
3/4"	F90-F1-075/WEA2-XX
1"	F90-F1-100/WEA2-XX
1-1/2"	F90-F1-150/WEA2-XX
2"	F90-F1-200/WEB2-XX
2-1/2"	F90-F1-250/WEC2-XX
3"	F90-F1-300/WEC2-XX
4"	F90-F1-400/WEE2-XX



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

#### OPTIONS

DESCRIPTION
24 VAC/24 VDC/220VAC
Feedback potentiometer

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: Manual Valves

1	Prefix
F	Firesafe Tested <i>(see valve series for details &amp; testing)</i>

2	Valve Series
90	2pc. Flanged Full Port (Investment Cast)

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

4	End Connection
F1	150# Flanged Ends

5	Valve Size	
0050	1/2"	0200 2"
0075	3/4"	0250 2 1/2"
0100	1"	0300 3"
0150	1 1/2"	0400 4"

6	Seat, Lining & Trim Materials
X	Reinforced TFE Seats (RTFE)
P	Virgin TFE Seats (PTFE)
U	UHMWPE Seats
S	50/50 STFE Seats
C	25% CS Powder / 75% TFE Seats (CTFE)
T	TFM™-1600
A	50% SS Powder / 50% TFM™-1600 (STFM)
F	PTFE Cavity Filler
M	MG1241
Z	PEEK

7	Special Designations
X	No Specials/Series Standard
O	Oval Handle <i>(available on some)</i>
4	4" Lockable Stem Extension

8	Additional Specials
X	No Specials, Series Standard
O	Oxygen Cleaned
V	Vented Ball
F	Fugitive Emissions Bonnet
D	Degreased & Bagged
A	Vented Ball, Degreased & Bagged
B	Vented Ball, Oxygen Cleaned

### OPTIONS:

9	Special Designation
Blank	No Designation, Valve Series Standard
X	Multiple Option Designation
A	17-4 PH® Stem
H	Hard Coated (HMF) Ball

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

11	Additional Specials
Blank	Standard
X	Multiple Option Designation
B	B7M Bolting
M	Marine Epoxy Coating
C	CSA 3.16 Certified (F90/F88/93 Series)

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Chemraz® is a registered trademark of Greene, Tweed & Co.  
Markez® is a registered trademark of Marco Rubber & Plastic Products Inc.  
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