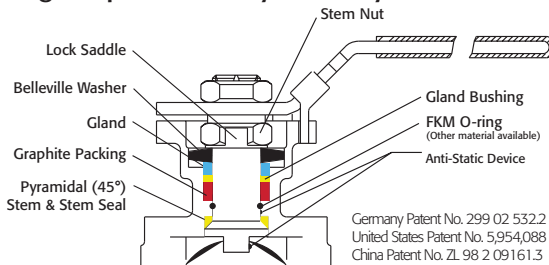


**API 607 - 6th Edition
CERTIFIED**

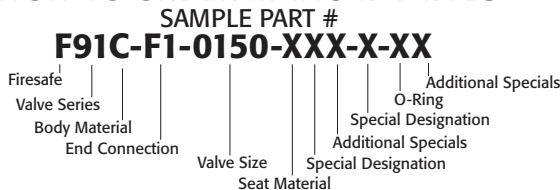


Triac Series F91 unibody flanged ball valves feature a high quality investment cast body and end. They are available in 1/2" through 6" regular port. Superior leak protection is accomplished by using our patented "pyramidal" stem seal system shown in the graphic below. This advanced system protects against wear and leakage 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

A-T Controls, Inc.

Series F91

FIRESAFE

Unibody Direct Mount Flanged Ball Valve

Sizes 1/2" – 6"

Available in 316SST or WCB

ASME Class 150

Regular 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

Lockable Manual Handle

STANDARDS

Design	ASME B16.34 (fully conforms)
Face to Face	ASME B16.10
Flange Dimensions	ASME B16.5
Pressure Testing	API 598
Fire Testing	API 607-6th Edition (6" is 4th Edition)
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25
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

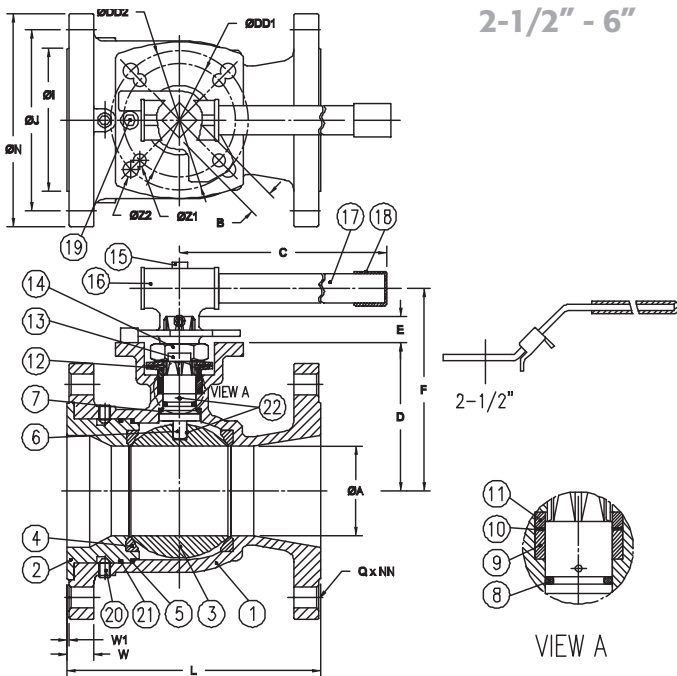
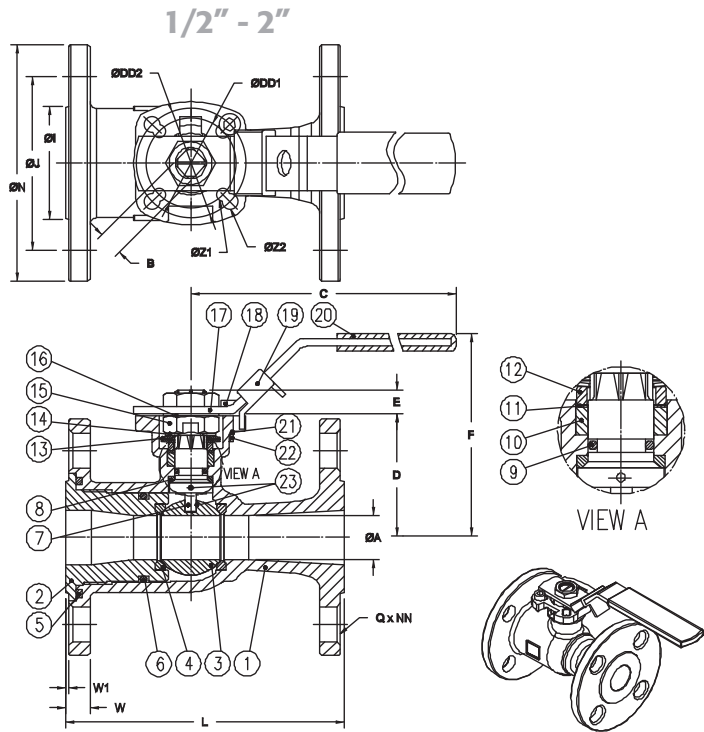
PHONE (513) 247-5465
FAX (513) 247-5462
sales@atcontrols.com

Series F91

High Performance, Regular Port Unibody Flanged Ball Valve Series F91 (ASME Class 150)

MATERIALS LIST

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



MATERIALS LIST

NO.	PART NAME	QTY	STAINLESS STEEL	CARBON STEEL	REPAIR KIT
1	BODY	1	ASTM A351 GRADE CF8M	ASTM A216 GRADE WCB	
2	RETAINER	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 316SST	ASTM A276 316SST	
7	STEM SEAL	1	TFM™-1600	TFM™-1600	✓
8	STEM O-RING	1	FKM	FKM	✓
9	GLAND PACKING	1	GRAPHITE	GRAPHITE	✓
10	GLAND WASHER	1	RTFE	RTFE	✓
11	GLAND BUSHING	1	AISI 304	AISI 304	
12	BELLEVILLE WASHER	2	AISI 301	AISI 301	
13	STOP WASHER	1	AISI 304	AISI 304	
14	STEM NUT	1	AISI 304	AISI 304	
15	HANDLE BOLT	2	AISI 304	AISI 304	
16	HANDLE HUB	1	AISI 304	AISI 304	
17	HANDLE BAR	1	AISI 304	AISI 304	
18	HANDLE SLEEVE	1	VINYL	VINYL	
19	STOP PIN	1	AISI 304	AISI 304	
20	SCREW	*	AISI 304	AISI 304	
21	BODY O-RING	1	FKM	FKM	✓
22	ANTI-STATIC DEVICE	2	AISI 316	AISI 316	

* QTY = 4 for 2-1/2" thru 4", and QTY = 6 for 6"
NOTE: 2-1/2" thru 6" valves are not to be used in dead end service on retainer side

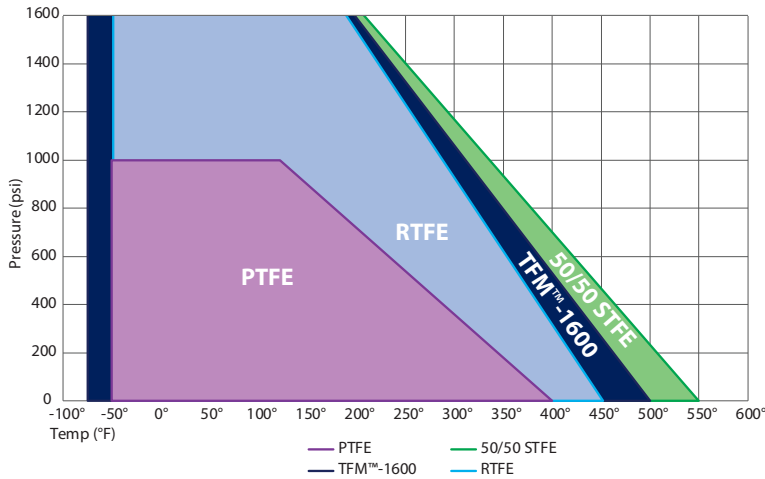
DIMENSIONS (IN)

SIZE	A	B	C	D	E	F	I	J	L	N	Q	W	W1	Z1	Z2	DD1	DD2	NN	LBS.	ISO 5211
1/2"	0.50	0.433	6.50	1.80	0.37	3.22	1.38	2.38	4.26	3.50	0.63	0.44	0.06	0.26	0.28	1.654	1.969	4	4	F04/F05
3/4"	0.59	0.433	6.50	2.02	0.39	3.44	1.69	2.75	4.62	3.88	0.63	0.44	0.06	0.26	0.28	1.654	1.969	4	4.5	F04/F05
1"	0.79	0.433	6.50	2.19	0.39	3.61	2.00	3.12	5.00	4.25	0.63	0.44	0.06	0.26	0.28	1.654	1.969	4	6	F04/F05
1-1/2"	1.26	0.551	8.46	2.86	0.51	4.71	2.88	3.88	6.50	5.00	0.63	0.56	0.06	0.30	0.35	1.969	2.756	4	11	F05/F07
2"	1.50	0.748	10.35	3.51	0.75	5.68	3.62	4.75	7.02	6.00	0.75	0.63	0.06	0.39	0.47	2.756	4.016	4	18.5	F07/F10
2-1/2"	1.97	0.748	10.35	3.0	0.75	5.97	4.12	5.50	7.50	7.00	0.75	0.69	0.06	0.39	0.47	2.756	4.016	4	26	F07/F10
3"	2.56	0.748	14.37	4.57	0.75	6.31	5.00	6.00	8.00	7.50	0.75	0.75	0.06	0.39	0.47	2.756	4.016	4	35	F07/F10
4"	3.15	0.866	14.37	5.22	0.91	7.13	6.19	7.50	9.00	9.00	0.75	0.94	0.06	0.47	0.55	4.016	4.921	8	56	F10/F12
6"	4.37	1.063	29.53	7.07	1.12	9.63	8.50	9.50	10.50	11.00	0.87	1.00	0.06	0.55	0.71	4.921	5.512	8	103	F12/F14

High Performance, Regular Port
Unibody Flanged Ball Valve
Series F91 (ASME Class 150)

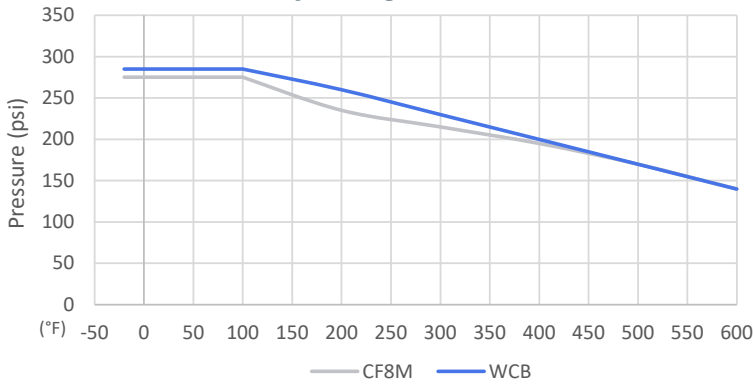
Series F91

Pressure vs. Temperature - Series F91
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 F91
Body Ratings ASME B16.34



Temp (°F)	WCB psi	CF8M psi
-20°	285	275
100°	285	275
200°	260	235
300°	230	215
400°	200	195
500°	170	170
600°	140	140

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.

Break Away Torques	
SIZE	IN-LBS
1/2"	45
3/4"	73
1"	91
1-1/2"	149
2"	230
2-1/2"	297
3"	535
4"	768
6"	1250

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

SIZE	Cv
1/2"	9
3/4"	15
1"	42
1-1/2"	125
2"	165
2-1/2"	245
3"	350
4"	680
6"	1020

NOTE: For other seat material, consult factory.

Pneumatic Double Acting

Series F91 Unibody Direct Mount Flanged Ball Valve

Firesafe

Sizes 1/2" - 6"

Available in 316SST or WCB

ASME Class 150

Regular Port Design

Superior Live Loaded Packing System

Blowout Proof Stem w/ Dual Anti-Static Devices

RTFE Seats Standard

Pyramidal Stem Seal Design

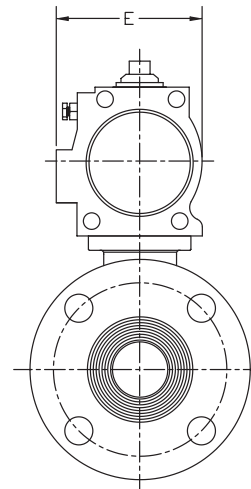
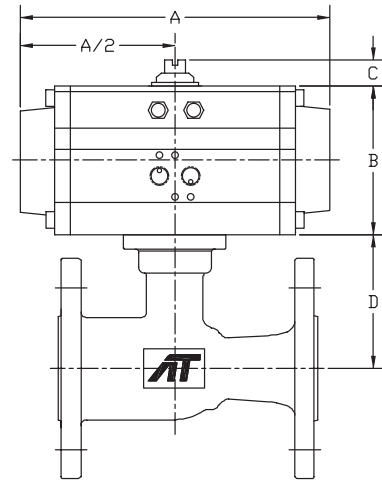
STANDARDS

Design	ASME B16.34 (fully conforms)
Face to Face	ASME B16.10
Flange Dimensions	ASME B16.5
Pressure Testing	API 598
Fire Testing	API 607-6th Edition (6" is 4th Edition)
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25
Safety Integrity	SIL 3; IEC 61508:2010
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015

**API 607 - 6th Edition
CERTIFIED**



ASME Class 150 Flanged
Firesafe Tested to API 607



DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/2"	6.50	2.84	0.787	1.80	2.82	9
3/4"	6.50	2.84	0.787	2.02	2.82	15
1"	6.50	2.84	0.787	2.19	2.82	42
1-1/2"	7.60	3.47	0.787	2.86	3.35	125
2"	9.29	4.30	0.787	3.51	4.18	165
2-1/2"	9.29	4.30	0.787	3.80	4.18	245
3"	9.29	4.30	0.787	4.57	4.18	350
4"	13.39	6.14	0.787	5.22	5.59	680
6"	15.35	6.81	1.181	7.07	5.98	1020

DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

**SERIES F91
Unibody Flanged**

Firesafe

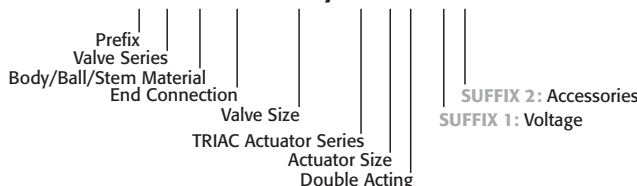
SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/2"	F91-F1-050/3RDD-XX
3/4"	F91-F1-075/3RDD-XX
1"	F91-F1-100/3RDD-XX
1-1/2"	F91-F1-150/3RED-XX
2"	F91-F1-200/3RFD-XX
2-1/2"	F91-F1-250/3RFD-XX
3"	F91-F1-300/3RFD-XX
4"	F91-F1-400/3RJD-XX
6"	F91-F1-600/3RKD-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/2"	F91-F1-050/3RDD-XX
3/4"	F91-F1-075/3RDD-XX
1"	F91-F1-100/3RDD-XX
1-1/2"	F91-F1-150/3RED-XX
2"	F91-F1-200/3RFD-XX
2-1/2"	F91-F1-250/3RFD-XX
3"	F91-F1-300/3RGD-XX
4"	F91-F1-400/3RJD-XX
6"	F91-F1-600/3RKD-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 # F91C-F1-150/3RED-XX



OPTIONS

SUFFIX 1	Voltage/Accessory	Model no.
X	No Specials	
A	TYPE 4 Solenoid 120VAC	TVCS-X411-4N-A120
B	TYPE 7 Solenoid 120VAC	TVC6-X411-7N-A120
C	Intrinsically Safe Solenoid	TVIS-X411-4N-D24
D	TYPE 4 Solenoid 24VDC	TVCS-X411-4N-D24
F	TYPE 7 Solenoid 24VDC	TVC6-X411-7N-D24
Q	TYPE 4 SST Solenoid 120VAC	TVSS-X411-4N-A120
M	TYPE 7 SST Solenoid 120VAC	TVSS-X411-7N-A120
L	TYPE 4 SST Solenoid 24VDC	TVSS-X411-4N-D24
N	TYPE 7 SST Solenoid 24VDC	TVSS-X411-7N-D24
P	Pneumatic Positioner	PPR-1200
E	Electro-Pneumatic Positioner	EPR-1000
SUFFIX 2	Accessories	Model no.
X	No Specials	
A	TYPE 4 Limit Switch	APL210-N
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

Series F91 Unibody Direct Mount Flanged Ball Valve

Firesafe

Sizes 1/2" - 6"

Available in 316SST or WCB

ASME Class 150

Regular Port Design

Superior Live Loaded Packing System

Blowout Proof Stem w/ Dual Anti-Static Devices

RTFE Seats Standard

Pyramidal Stem Seal Design

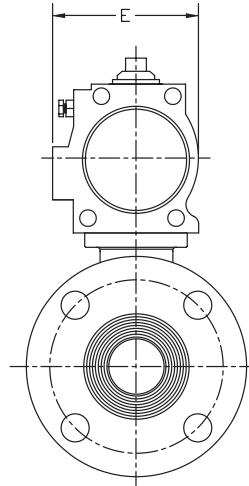
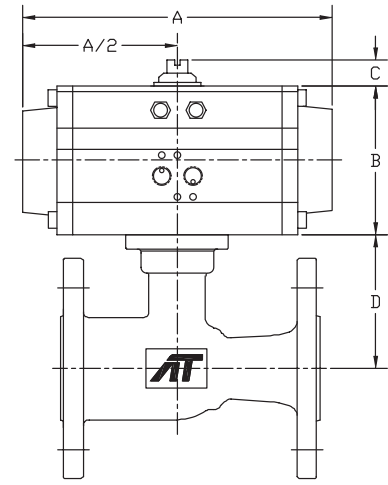
STANDARDS

Design	ASME B16.34 (fully conforms)
Face to Face	ASME B16.10
Flange Dimensions	ASME B16.5
Pressure Testing	API 598
Fire Testing	API 607-6th Edition (6" is 4th Edition)
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25
Safety Integrity	SIL 3; IEC 61508:2010
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015

**API 607 - 6th Edition
CERTIFIED**



ASME Class 150 Flanged
Firesafe Tested to API 607



DIMENSIONS (IN)

VALVE SIZE	A	B	C	D	E	VALVE Cv
1/2"	6.50	2.84	0.787	1.80	2.82	9
3/4"	7.60	3.47	0.787	2.02	3.35	15
1"	7.60	3.47	0.787	2.19	3.35	42
1-1/2"	9.29	4.30	0.787	2.86	4.18	125
2"	9.29	4.30	0.787	3.51	4.18	165
2-1/2"	11.02	4.61	0.787	3.80	4.27	245
3"	13.39	6.14	0.787	4.57	5.59	350
4"	13.39	6.14	0.787	5.22	5.59	680
6"	15.35	6.81	1.181	7.07	5.98	1020

DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

**SERIES F91 Unibody Flanged
Firesafe**

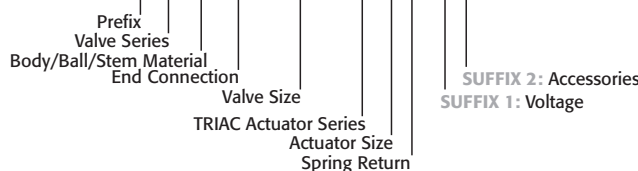
SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/2"	F91-F1-050/3RDS-XX
3/4"	F91-F1-075/3RES-XX
1"	F91-F1-100/3RES-XX
1-1/2"	F91-F1-150/3RFS-XX
2"	F91-F1-200/3RFS-XX
2-1/2"	F91-F1-250/3RGS-XX
3"	F91-F1-300/3RJS-XX
4"	F91-F1-400/3RJS-XX
6"	F91-F1-600/3RKS-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/2"	F91-F1-050/3RD4-XX
3/4"	F91-F1-075/3RE4-XX
1"	F91-F1-100/3RF4-XX
1-1/2"	F91-F1-150/3RF4-XX
2"	F91-F1-200/3RG4-XX
2-1/2"	F91-F1-250/3RG4-XX
3"	F91-F1-300/3RJ4-XX
4"	F91-F1-400/3RK4-XX
6"	F91-F1-600/3RL4-XX

OPTIONS		
SUFFIX 1	Voltage/Accessory	Model no.
X	No Specials	
A	TYPE 4 Solenoid 120VAC	TVCS-X411-4N-A120
B	TYPE 7 Solenoid 120VAC	TVC6-X411-7N-A120
C	Intrinsically Safe Solenoid	TVIS-X411-4N-D24
D	TYPE 4 Solenoid 24VDC	TVCS-X411-4N-D24
F	TYPE 7 Solenoid 24VDC	TVC6-X411-7N-D24
Q	TYPE 4 SST Solenoid 120VAC	TVSS-X411-4N-A120
M	TYPE 7 SST Solenoid 120VAC	TVSS-X411-7N-A120
L	TYPE 4 SST Solenoid 24VDC	TVSS-X411-4N-D24
N	TYPE 7 SST Solenoid 24VDC	TVSS-X411-7N-D24
P	Pneumatic Positioner	PPR-1200
E	Electro-Pneumatic Positioner	EPR-1000
SUFFIX 2	Accessories	Model no.
X	No Specials	
A	TYPE 4 Limit Switch	APL210-N
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

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 # F91C-F1-150/3RFS-XX



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

Electric

Series F91 Unibody Direct Mount Flanged Ball Valve

Firesafe

Sizes 1/2" - 6"

Available in 316SST or WCB

ANSI Class 150

Regular Port Design

Superior Live Loaded Packing
System

Blowout Proof Stem w/ Dual
Anti-Static Devices

RTFE Seats Standard

Pyramidal Stem Seal Design

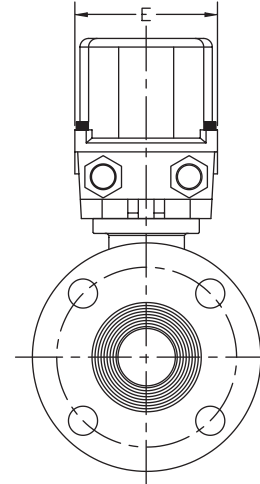
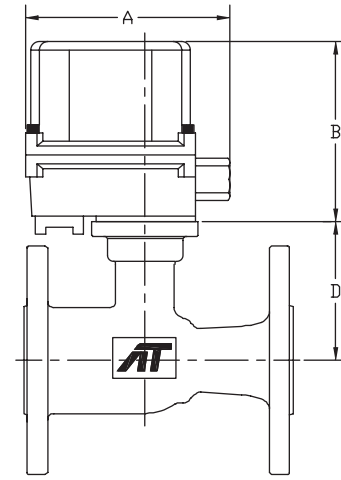
STANDARDS

Design	ASME B16.34 (fully conforms)
Face to Face	ASME B16.10
Flange Dimensions	ASME B16.5
Pipeline Valves	API 6D
Pressure Testing	API 598
Fire Testing	API 607-6th Edition (6" is 4th Edition)
Sulfide Stress Protection	NACE MR0175
Mounting	ISO 5211
Marking System for Valves	MSS SP-25
Safety Integrity	SIL 3; IEC 61508:2010
Material Certification	EN 10204-3.1 MTR
Quality Assurance	ISO 9001:2015

**API 607 - 6th Edition
CERTIFIED**



**ASME Class 150 Flanged
Firesafe Tested to API 607**



DIMENSIONS (IN)

VALVE SIZE	A	B	D	E	VALVE Cv
1/2"	5.94	5.24	1.80	4.15	9
3/4"	5.94	5.24	2.02	4.15	15
1"	5.94	5.24	2.19	4.15	42
1-1/2"	5.94	5.24	2.86	4.15	125
2"	5.94	5.24	3.51	4.15	165
2-1/2"	5.94	5.24	3.80	4.15	245
3"	13.31	10.55	4.57	9.02	350
4"	14.49	11.42	5.22	10.20	680
6"	14.49	11.42	7.07	10.20	1020

DIMENSIONS FOR ON/OFF ACTUATORS ONLY, MODULATING NOT SHOWN 3" THRU 6" HAVE HANDWHEELS THAT ARE NOT SHOWN

**SERIES F91 Unibody Flanged
Firesafe**

ON-OFF

SIZE	MODEL
1/2"	F91-F1-050/WEA1-XX
3/4"	F91-F1-075/WEA1-XX
1"	F91-F1-100/WEA1-XX
1-1/2"	F91-F1-150/WEA1-XX
2"	F91-F1-200/WEA1-XX
2-1/2"	F91-F1-250/WEA1-XX
3"	F91-F1-300/WEE1-XX
4"	F91-F1-400/WEE1-XX
6"	F91-F1-600/WEE1-XX

MODULATING

SIZE	MODEL
1/2"	F91-F1-050/WEA2-XX
3/4"	F91-F1-075/WEA2-XX
1"	F91-F1-100/WEA2-XX
1-1/2"	F91-F1-150/WEA2-XX
2"	F91-F1-200/WEA2-XX
2-1/2"	F91-F1-250/WEA2-XX
3"	F91-F1-300/WEE2-XX
4"	F91-F1-400/WEE2-XX
6"	F91-F1-600/WEE2-XX

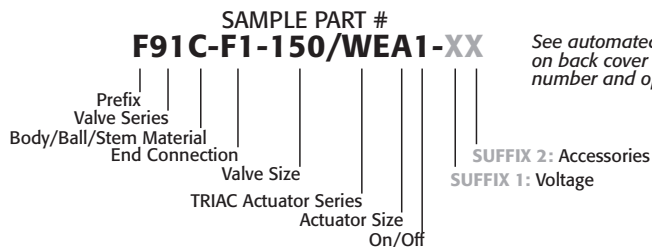
NOTE: Heater and thermostat standard
(2) auxiliary switches standard

OPTIONS

Suffix 1	Voltage / Accessory	Model No.
X	No Specials	
R	24VDC Electric Actuator	
S	220VAC Electric Actuator	
T	Other Voltage Electric Actuator	
W	12VDC Electric Actuator	
Y	24VAC Electric Actuator	
* No voltage specified on electric assemblies denotes 120VAC		
Suffix 2 Accessories		
X	No Specials	
1	HS1 High Speed Electric	
2	HS2 High Speed Electric	

Other options available - call for details.

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



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

HOW TO ORDER: Manual Valves

Series F91

1	Prefix
F	Firesafe Tested (see valve series for details & testing)

2	Valve Series
91	Unibody Regular Port Flanged

HOW TO ORDER MANUAL VALVES													
1	2	3	-	4	-	5	-	6	7	8	9	10	11
↓	↓	↓		↓		↓		↓	↓	↓	↓	↓	↓
F	91	C	-	F1	-	0150	-	X	X	X			

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

4	End Connection
F1	150# Flanged Ends

5	Valve Size	
0050	1/2"	0250 2-1/2"
0075	3/4"	0300 3"
0100	1"	0400 4"
0150	1-1/2"	0600 6"
0200	2"	

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 Seats
A	50% SS Powder / 50% TFM™-1600 (STFM) Seats
F	PTFE Cavity Filler Seats
M	MG1241 Seats
Z	PEEK Seats

7	Special Designations
X	No Specials/Series Standard
O	Oval Handle (available on some)
S	Spring Return (Direct Mount Only)
4	4" Lockable Stem Extension

8	Additional Specials
X	No Specials, Series Standard
O	Oxygen Cleaned
V	Vented Ball
E	Bonnet Extension Lockable Handle
D	Degreased & Bagged
A	Vented Ball, Degreased & Bagged
B	Vented Ball, Oxygen Cleaned

OPTIONS:

9	Special Designation
Blank	No Designation, Valve Series Standard
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	Kalrez 4079
5	Chemraz 505
6	Kalrez 6375
7	Perlast® G75M
9	Chemraz® 564
B	Low Temp Buna
E	EPDM

11	Additional Specials
X	Multiple Option Designation
M	Marine Epoxy Coating

17-4 PH® is a registered trademark of AK Steel Corporation.
Chemraz® is a registered trademark of Greene, Tweed & Co.
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.

Series F91

HOW TO ORDER: Automated Valves w/ Options

1	Prefix
F	Firesafe Tested (see valve series for details & testing)

2	Valve Series
91	Unibody Regular Port Flanged

3	Body/Ball/Stem Material
Blank	Valve Series Standard (316SS)
C	Carbon Steel Body

4	End Connection
F	150# Flanged Ends

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

6	Valve Size	
050	1/2"	250 2-1/2"
075	3/4"	300 3"
100	1"	400 4"
150	1-1/2"	600 6"
200	2"	

7 (A) Pneumatic Actuator - 3R, 3N, 3P Series

3RC	3R10	3RM	3R850
3RD	3R20	3RN	3R1000
3RE	3R40	3RP	3R1200
3RF	3R80	3RR	3R1750
3RG	3R130	3RS	3R2400
3RH	3R200	3RT	3R2500
3RJ	3R300	3RU	3R2700
3RK	3R500	3RV	3R3300
3RL	3R700	3RW	3R3500

3R=Standard, 3N=Electroless Nickel Plating, 3P=Teflon™ (PTFE) Coating

7 (A) Pneumatic Actuator - S2 Series

S2C	S2-052	S2G	S2-125
S2D	S2-063	S2H	S2-140
S2E	S2-083	S2J	S2-160
S2F	S2-105	S2K	S2-210

7 (B) Pneumatic Action

D	Double Acting (DA)
S	Spring CW (5 springs)*
O	Spring CCW (5 springs)*
4	Spring CW (4 springs)**
F	Spring CCW (4 springs)**

*2500 & 3500 80 psig spring

**2500 & 3500 60 psig spring

7 Actuator - Electric (On-Off)

WEX1	WE-350	WEG1	WE-5200
WEA1	WE-500	WEH1	WE-6900
WEB1	WE-690	WEJ1	WE-10500
WEC1	WE-1350	WEK1	WE-17500
WED1	WE-1700	WEL1	WE-25900
WEE1	WE-2640	WEM1	WE-53000
WEF1	WE-4400	WEN1	WE-80000

7 Actuator - Electric (Modulating)

WEA2	WEM-500	WEH2	WEM-6900
WEB2	WEM-690	WEJ2	WEM-10500
WEC2	WEM-1350	WEK2	WEM-17500
WED2	WEM-1700	WEL2	WEM-25900
WEE2	WEM-2640	WEM2	WEM-53000
WEF2	WEM-4400	WEN2	WEM-80000
WEG2	WEM-5200		

OPTIONS:

8	Accessories/Options	Model no.
X	No Specials	
A	TYPE 4 Solenoid 120VAC	TVCS-X411-4N-A120
B	TYPE 7 Solenoid 120VAC	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

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
1	HS1 High Speed Electric	
2	HS2 High Speed Electric	

10 Special Designation

Blank	No Designation, Valve Series Standard
X	Multiple Option Designation
A	17-4 PH® Stem
F	Viton® Seal for Pneumatic Actuators (0°F to 300°F)

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

AUTOMATED VALVE SAMPLE PART # F91C-F1-150/3RED-XX-

(1) Prefix																
(2) Valve Series																
(3) Body/Ball/Stem Material																
(4) End Connection																
(5) Seat, Lining & Trim Material																
(6) Valve Size																
(7A) TRIAC Actuator Series																
(7A) Actuator Size																
(7B) Double Acting																
(8) Accessory																
(9) Accessory																
(10) Special Designation																



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