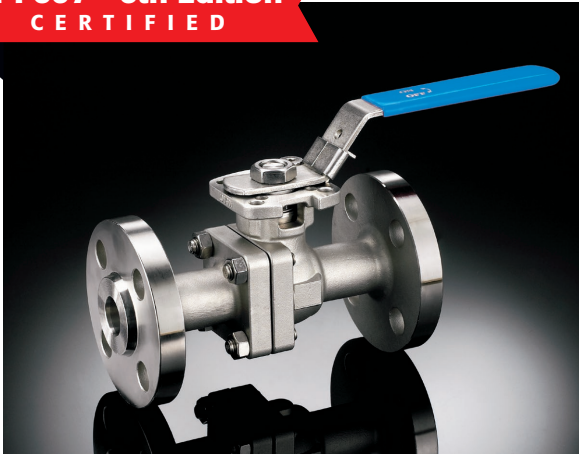
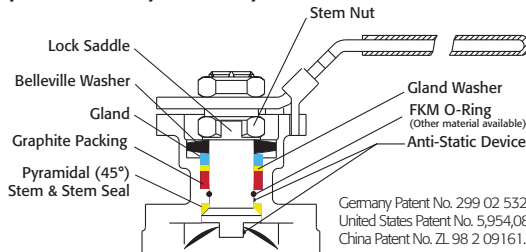


**API 607 - 6th Edition
CERTIFIED**

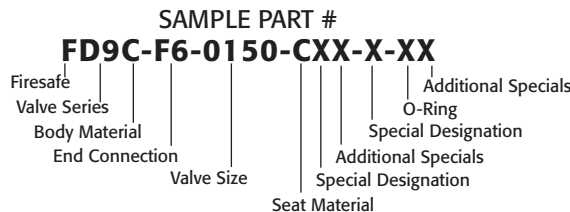


Triac FD9 Series Flanged Ball Valves feature a direct mount automation pad. The high quality investment castings feature a fully machined bore. The superior live-loaded packing system is accomplished with Belleville washers, "V" ring packing and a unique primary pyramidal stem seal. This advanced sealing system provides protection against stem leaks experienced by ordinary ball valves.



CTFE 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

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A-T Controls, Inc.

Series FD9-F6

FIRESAFE

600# Direct Mount Split Body Flanged Ball Valve

Sizes 1/2" – 2"

Available in 316SS or WCB

ASME Class 600

Full Port Design

Superior Live Loaded Packing System

ISO 5211 Actuator Mounting Pad

Blowout Proof Stem w/ Dual Anti-Static Devices

CTFE 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
Sulfide Stress Protection	NACE MR0175
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
Fugitive Emission	ISO 15848-1

TABLE OF CONTENTS:

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- 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

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SERIES FD9-F6 600# Direct Mount Split Body Flanged Ball Valve

Firesafe

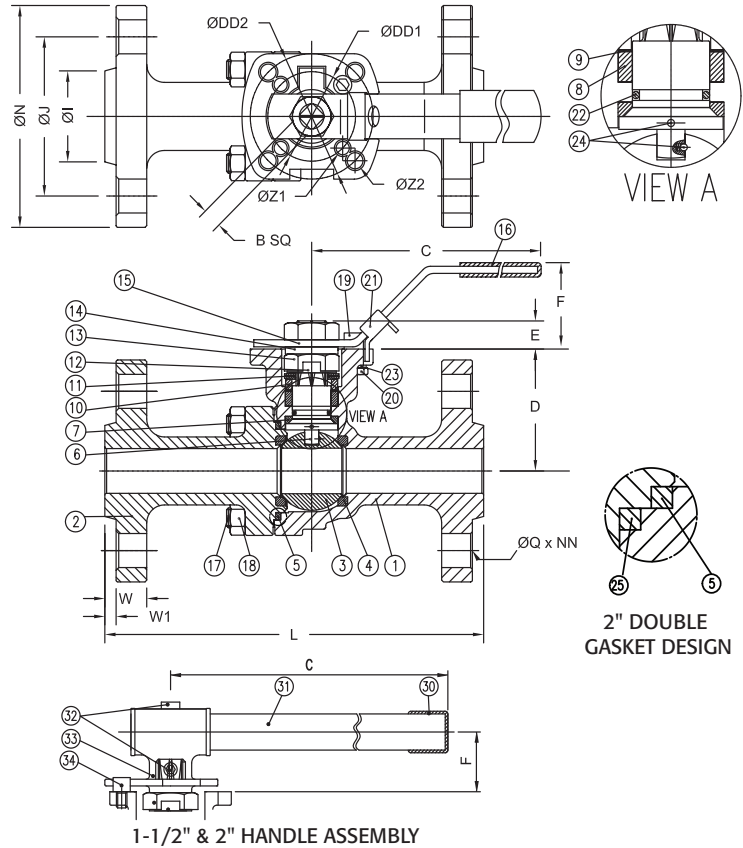
Series FD9-F6

High Performance, Full Port 600# Split Body Flanged Ball Valve Series FD9-F6 (ASME Class 600)

API 607 - 6th Edition
CERTIFIED FIRESAFE

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	CTFE	CTFE	✓
5	JOINT GASKET	1	\$	\$	✓
6	STEM	1	ASTM A276 316SST	ASTM A276 316SST	
7	STEM SEAL	1	TFM™-1600	TFM™-1600	✓
8	GLAND PACKING	1	GRAPHITE	GRAPHITE	✓
9	GLAND WASHER	1	RTFE	RTFE	✓
10	GLAND BUSHING	1	AISI 304	AISI 304	
11	BELLEVILLE WASHER	2	AISI 301	AISI 301	
12	LOCK SADDLE	1	AISI 304	AISI 304	
13	STEM NUT	2	AISI 304	AISI 304	
14	STEM WASHER	1	AISI 304	AISI 304	
15	HANDLE	1	AISI 304	AISI 304	
16	HANDLE SLEEVE	1	VINYL	VINYL	
17	BODY BOLT	*	ASTM A193 GRADE B8M	ASTM A193 GRADE B7M	
18	BODY BOLT NUT	*	ASTM A194 GRADE 8M	ASTM A194 GRADE 2HM	
19	STOP BOLT	1	AISI 304	AISI 304	
20	STOP NUT	1	AISI 304	AISI 304	
21	HANDLE LOCK	1	AISI 304	AISI 304	
22	O-RING	1	FKM	FKM	✓
23	STOP BOLT WASHER	1	AISI 304	AISI 304	
24	ANTI-STATIC DEVICE	2	AISI 316	AISI 316	
25	JOINT GASKET	1	\$\$	\$\$	✓
30	HANDLE SLEEVE	1	VINYL	VINYL	
31	HANDLE BAR	1	AISI 304	AISI 304	
32	HANDLE BOLT	2	AISI 304	AISI 304	
33	HANDLE HUB	1	AISI 304	AISI 304	
34	STOP BOLT	1	AISI 304	AISI 304	



*FOR 1/2"-1-1/2" : 4 PCS. OF BOLTS AND NUTS

*FOR 2" : 8 PCS. OF BOLTS AND BOLT NUTS

\$ FOR 1/2" - 1-1/2" : GRAPHITE

\$ FOR 2" - PTFE: TFM™-1600 GRAPHITE

\$\$ ONLY PRESENT IN 2" DESIGN

DIMENSIONS (IN)

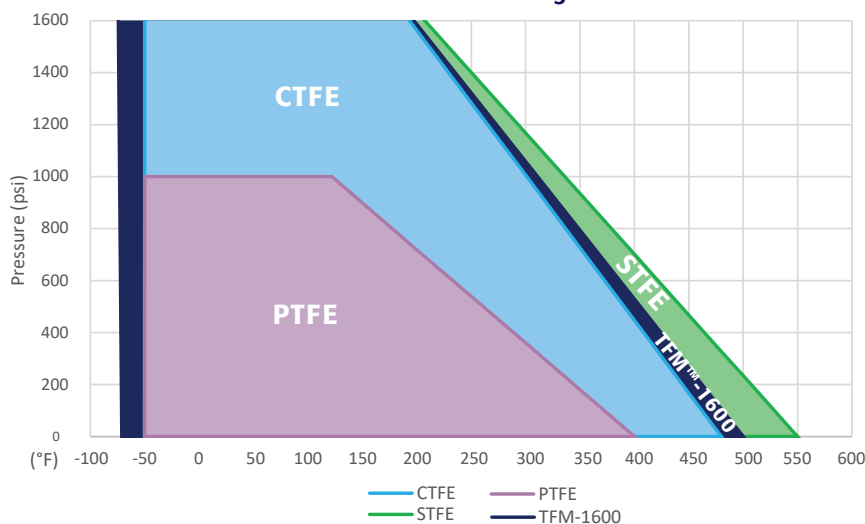
SIZE	A	B	C	D	E	F	I	J	L	N	Q	W	W1	Z1	Z2	DD1	DD2	NN	LBS	ISO
1/2"	0.59	0.433	8.39	1.92	0.39	1.89	1.38	2.63	6.50	3.75	0.63	0.81	0.25	0.26	0.28	1.654	1.969	4	6.5	F04/F05
3/4"	0.79	0.433	8.39	2.5	0.41	1.89	1.69	3.25	7.50	4.63	0.75	0.87	0.25	0.26	0.28	1.654	1.969	4	10.5	F04/F05
1"	0.98	0.551	10.37	2.68	0.51	1.93	2.00	3.5	8.50	4.88	0.75	0.94	0.25	0.30	0.35	1.969	2.756	4	14	F05/F07
1-1/2"	1.50	0.748	14.57	3.51	0.75	1.74	2.88	4.5	9.50	6.13	0.88	1.13	0.25	0.39	0.47	2.756	4.016	4	27	F07/F10
2"	1.97	0.748	14.57	4.33	0.75	1.74	3.63	5.00	11.50	6.50	0.75	1.25	0.25	0.39	0.47	2.756	4.016	8	39	F07/F10

High Performance, Full Port 600# Split Body Flanged Ball Valve Series FD9-F6 (ASME Class 600)

Series FD9-F6

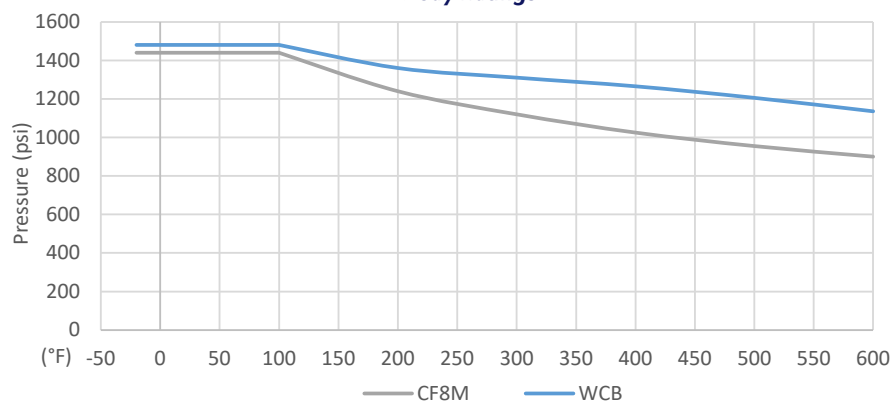
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CERTIFIED FIRESAFE

Pressure vs. Temperature - Series D9/FD9-F6
Seat Pressure Ratings



Temp	Pressure - Seat Material			
	CTFE	STFE	PTFE	TFM™-1600
-75°				2000
-50°	2000	2000	1000	2000
100°	2000	2000	1000	2000
122°	2000	2000	1000	2000
150°	1843.6	1869	899	1852
200°	1564.3	1636	719	1587
250°	1284.9	1402	540	1323
300°	1005.6	1168	360	1058
350°	726.2	935	180	794
400°	446.9	701	0	529
450°	167.6	467		265
480°	0	327.1		105.8
500°		234		0
550°		0		

Pressure vs. Temperature - Series D9/FD9-F6
Body Ratings



Temp (°F)	WCB psi	CF8M psi
-20°	1480	1440
100°	1480	1440
200°	1360	1240
300°	1310	1120
400°	1265	1025
500°	1205	955
600°	1135	900

FD9-F6 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
	CTFE (standard)	-50°F to 480°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 Torque for CTFE Seats

SIZE	IN-LBS.
1/2"	150
3/4"	200
1"	260
1-1/2"	525
2"	610

VALVE SIZE	VALVE Cv
1/2"	28
3/4"	50
1"	95
1-1/2"	260
2"	485

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

HOW TO ORDER: Manual Valves

Series FD9-F6

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

2	Valve Series
D9	Direct Mount Flanged

HOW TO ORDER MANUAL VALVES											
1	2	3	-	4	-	5	-	6	7	8-9	10 11
↓	↓	↓		↓		↓		↓	↓	↓	↓
F	D9	C	-	F6	-	0150	-	C	X	X	

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

4	End Connection
F6	600# Flanged Ends

5	Valve Size
0050	1/2"
0075	3/4"
0100	1"
0150	1-1/2"
0200	2"

6	Seat, Lining & Trim Materials
P	Virgin TFE Seats (PTFE)
S	50/50 STFE Seats
C	25% CS Powder / 75% TFE Seats (CTFE) <i>(standard)</i>
T	TFM™-1600 Seats
A	50% SS Powder / 50% TFM™-1600 Seats (STFM)
Z	PEEK Seats

7	Special Designations
X	No Specials/Series Standard
G	Gear Operator
H	Gear Operator with Lockout Plate
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
B	B7M Bolting
E	CE/PED Certified
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
Viton® is a registered trademark of E. I. DuPont de Nemours...
TFM™ is a trademark of Dyneon™, a 3M Company.

Series FD9-F6

HOW TO ORDER: Automated Valves w/ Options

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

2	Valve Series
D9	Direct Mount Flanged

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

4	End Connection
6	600# Flanged Ends

5	Seat, Lining & Trim Materials
P	Virgin TFE Seats (PTFE)
S	50/50 STFE Seats
C	25% CS Powder / 75% TFE Seats (CTFE) <i>(standard)</i>
T	TFM™-1600 Seats
A	50% SS Powder / 50% TFM™-1600 Seats (STFM)
Z	PEEK Seats

6	Valve Size
050	1/2"
075	3/4"
100	1"
150	1-1/2"
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	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
R	24VDC Electric Actuator	
S	220VAC Electric Actuator	
T	Other Voltage Electric Actuator	
W	12VDC Electric Actuator	
Y	24VAC Electric Actuator	

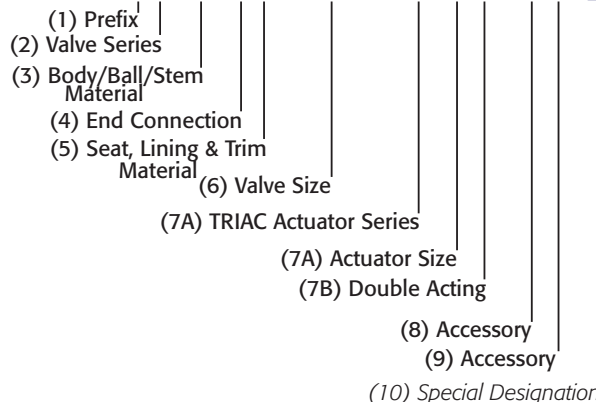
* No voltage specified on electric assemblies denotes 120VAC

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

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Viton® is a registered trademark of E. I. DuPont de Nemours.
TFM™ is a trademark of Dyneon™, a 3M Company.

AUTOMATED VALVE SAMPLE PART # FD9-6C-150/3RFD-XX-



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