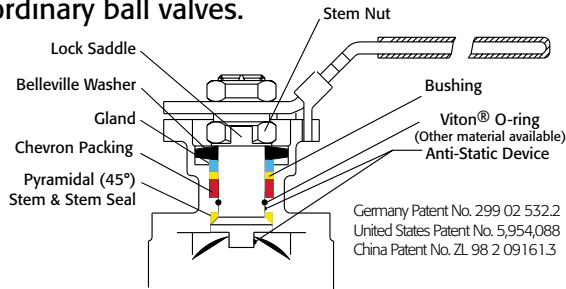




Triac 90 Series Flanged Ball Valves feature a split body design. The high quality investment castings feature a fully machined bore. The superior live-loaded packing system is accomplished with Belleville washers, "V" ring packing and a unique primary pyramidal stem seal. This advanced sealing system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



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
6"	5,150
8"	10,000
10"	15,000
12"	21,000

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



Series 90/93^{*} Split Body Flanged Ball Valve

Sizes 1/2" - 12"

ANSI Class 150

Full Port Design

316SST, WCB, Alloy 20
or Hastelloy C-276 (1" - 4")

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



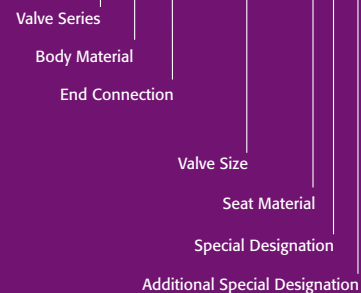
STANDARDS

DESIGN	ANSI/ASME B16.34
FACE TO FACE	ANSI/ASME B16.10
FLANGE DIMENSIONS	ANSI/ASME B16.5
PIPELINE VALVES	API 6D (Series 90* only)
PRESSURE TESTING	API 598
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 9001:2008

HOW TO ORDER MANUAL VALVES

SAMPLE PART #

90C-F1-0300-XXX



See part number matrix for itemized options

^{*}Series 93 denotes sand cast 6"-12". TA-Luft certification applies to Series 90 only.

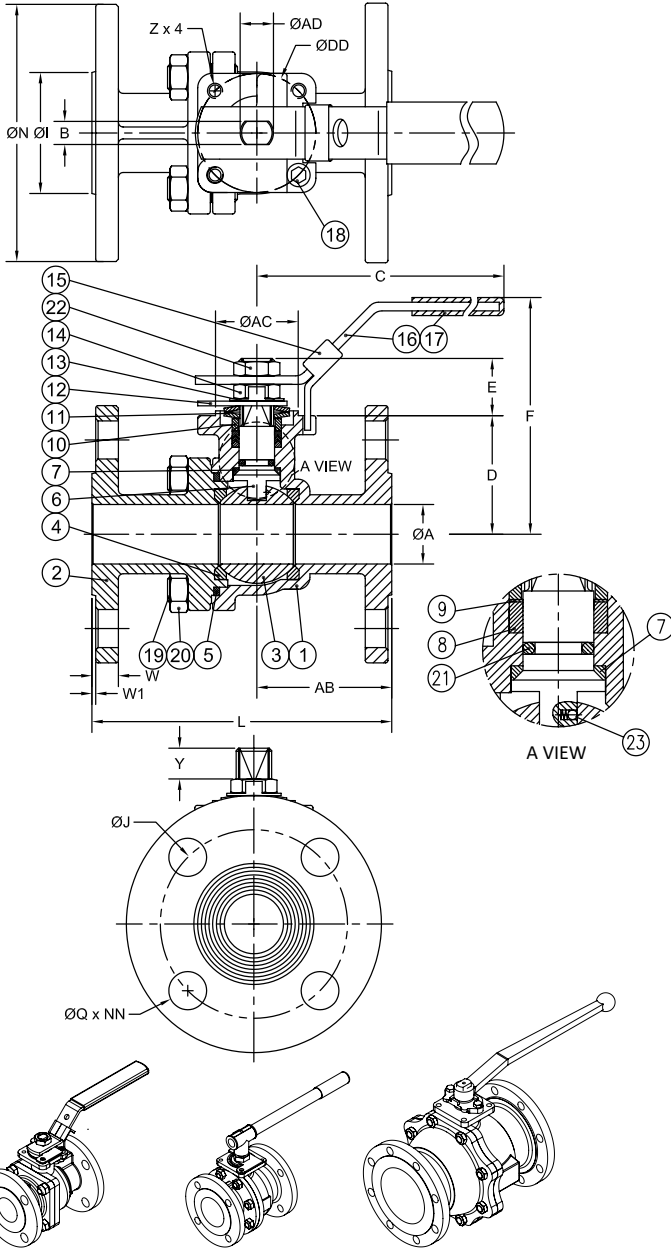


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Series 90/93

High Performance, Full Port Split Body Flanged Ball Valve Series 90 (ANSI Class 150)



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) INVESTMENT CAST BODY

SIZE	A	B	C	D	E	F	I	J	L	N	Q	W	WI	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

SAND CAST BODY

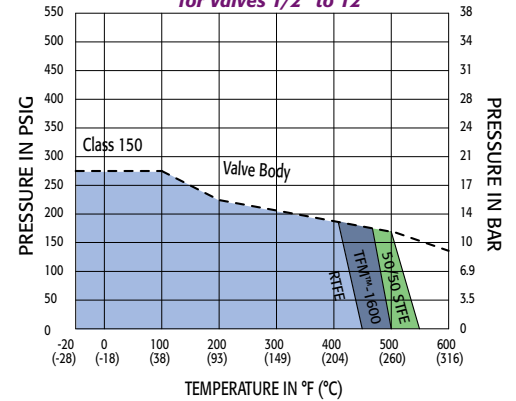
6"	6.00	0.910	21.00	6.61	2.64	11.25	8.50	9.50	15.51	10.98	0.87	1.00	0.06	1.57	1/2-13	7.06	CF	1.64	4.921	8	168.0	F12
8"	8.00	0.910	N/A	8.86	2.40	13.26	10.63	11.75	17.99	13.50	0.87	1.13	0.06	1.26	1/2-13	8.40	CF	1.64	4.921	8	232.0	F12
10"	9.84	1.181	N/A	10.43	3.94	15.86	12.76	14.25	20.98	15.95	0.98	1.21	0.06	1.42	5/8-11	CF	CF	1.97	5.512	12	430.0	F14
12"	11.81	1.378	N/A	12.83	4.09	18.18	15.00	17.00	24.02	19.02	0.98	1.25	0.06	1.50	5/8-11	CF	CF	1.97	5.512	12	551.0	F14

Viton® is a registered trademark of E.I. DuPont de Nemours.
A-T Controls reserves the right to change product designs and technical/dimensional specifications without notice.

BREAKAWAY TORQUES	
SIZE	IN-LBS
1/2"	92
3/4"	127
1"	150
1-1/2"	311
2"	396
2-1/2"	657
3"	980
4"	1,700
6"	4,800
8"	10,300
10"	18,000
12"	CF

NOTE: For other seat material, consult factory.

Pressure vs. Temperature Chart for Valves 1/2" to 12"



NOTE: Dotted line shows the rating for valve body. Solid line shows the rating for valve seat. Both ratings need to be considered when determining the limitation of the valve for specific application. Consult factory for other seat materials.

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	END CAP	1	ASTM A351 GRADE CF8M	ASTM A216 GRADE WCB	ASTM A351 GRADE CN7M	ASTM A494 Grade CW12MW
3	BALL	1	ASTM A351 GRADE CF8M	ASTM A351 GRADE CF8M	ASTM A351 GRADE CN7M	ASTM A494 Grade CW12MW
4	SEAT	2	RTFE	RTFE	RTFE	TFM™-1600
5	JOINT GASKET	1	PTFE	PTFE	PTFE	TFM™-1600
6	STEM	1	ASTM A276 SS316	ASTM A276 SS316	ASTM A351 GRADE CN7M	UNS N10276
7	STEM SEAL	1	RTFE	RTFE	RTFE	TFM™-1600
8	GLAND PACKING	1^	PTFE	PTFE	PTFE	TFM™-1600
9	GLAND WASHER	1	RTFE	RTFE	RTFE	TFM™-1600
10	GLAND BUSHING	1	AISI 304	AISI 304	AISI 304	AISI 304
11	BELLEVILLE WASHER	2	AISI 301	AISI 301	AISI 301	AISI 301
12	LOCKING PLATE	1	AISI 304	AISI 304	AISI 304	AISI 304
13	LOCK SADDLE	1	AISI 304	AISI 304	AISI 304	AISI 304
14	STEM NUT	1	AISI 304	AISI 304	AISI 304	AISI 304
15	HANDLE LOCK	1	AISI 304	AISI 304	AISI 304	AISI 316
16	HANDLE	1	AISI 304	AISI 304	AISI 304	AISI 316
17	HANDLE SLEEVE	1	VINYL	VINYL	VINYL	VINYL
18	STOP BOLT	1	AISI 304	AISI 304	AISI 304	AISI 304
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	Body Bolts	1/2"-2"	ASTM A193 GRADE B8			ISO 3506-1 A4-70
		2 1/2"-4"	ISO 3506-1 A2-70			
		6"-12"	ASTM A193 GRADE B8	ASTM A193 GRADE B7	ASTM A193 GRADE B8	N/A
20	Body Nuts	1/2"-2"	ASTM A194 GRADE 8			ISO 3506-2 A4-70
		2 1/2"-4"	ISO 3506-2 A2-70			
		6"-12"	ASTM A194 GRADE 8	ASTM A194 GRADE 2H	ASTM A194 GRADE 8	N/A
21	O-RING**	1**	VITON®	VITON®	VITON®	VITON®
22	HANDLE NUT	1	AISI 304	AISI 304	AISI 304	AISI 304
23	ANTI-STATIC DEVICE	2	AISI 316	AISI 316	AISI 316	AISI 316

^ PACKING SET *QTY = 8 PCS for 2-1/2" THRU 6" » Call for material details on Hastelloy C-276 valves
**O-Ring n/a on 93 series QTY = 12 PCS for 8" QTY = 16 PCS for 10" THRU 12"

Series 93 note:
Due to differences between sand cast and investment cast valves, A-T Controls requires that each valve be measured for the correct stem height and width before making a mounting adaptation.

Standard manual valves should be ordered with an automation gland if A-T Controls is not making the mounting kit.

Dimensions B, E, and Y are for reference only.



Pneumatic Double Acting

Automated Ball Valve Package

Series 90/93
ANSI Class 150
Flanged Ball Valve

Sizes 1/2" - 12"

Available in 316SST, WCB or Alloy 20

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

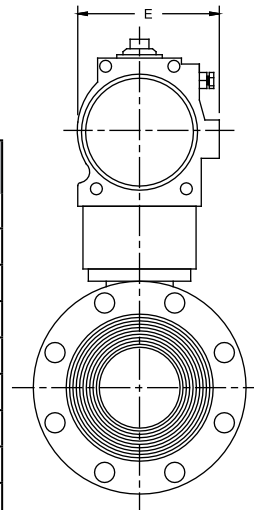
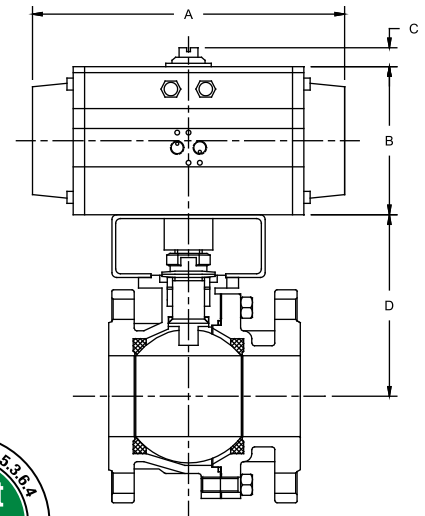
Monel Ball & Stem Available

STANDARDS

DESIGN	ANSI/ASME B16.34
FACE TO FACE	ANSI/ASME B16.10
FLANGE DIMENSIONS	ANSI/ASME B16.5
PIPELINE VALVES	API 6D
PRESSURE TESTING	API 598
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 9001:2008



150# Flanged



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
6"	20.95	8.31	1.18	9.96	7.64	5,150
8"	24.37	10.12	1.18	12.21	9.29	10,000

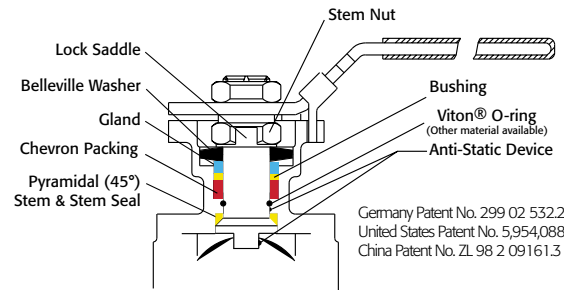
DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

SERIES 90/93 150# Flanged

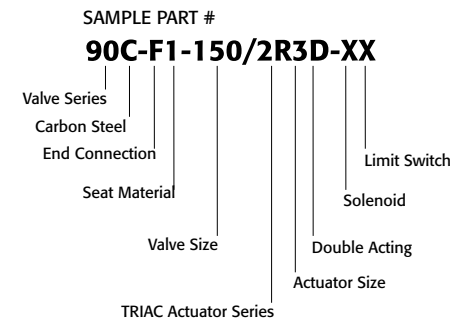
SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/2"	90-F1-050/TR1D-XX
3/4"	90-F1-075/TR1D-XX
1"	90-F1-100/2R2D-XX
1-1/2"	90-F1-150/2R3D-XX
2"	90-F1-200/2R3D-XX
2-1/2"	90-F1-250/2R4D-XX
3"	90-F1-300/2R5D-XX
4"	90-F1-400/2R6D-XX
6"	93-F1-600/2R8D-XX
8"	93-F1-800/2R0D-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/2"	90-F1-050/TR1D-XX
3/4"	90-F1-075/2R2D-XX
1"	90-F1-100/2R2D-XX
1-1/2"	90-F1-150/2R3D-XX
2"	90-F1-200/2R3D-XX
2-1/2"	90-F1-250/2R5D-XX
3"	90-F1-300/2R6D-XX
4"	90-F1-400/2R6D-XX
6"	93-F1-600/2R9D-XX
8"	93-F1-800/2RAD-XX

Series 90 denotes investment cast / 93 sand cast



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



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 90/93
ANSI Class 150
Flanged Ball Valve

Sizes 1/2" - 12"

Available in 316SST, WCB or Alloy 20

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

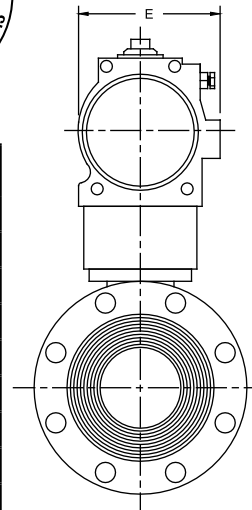
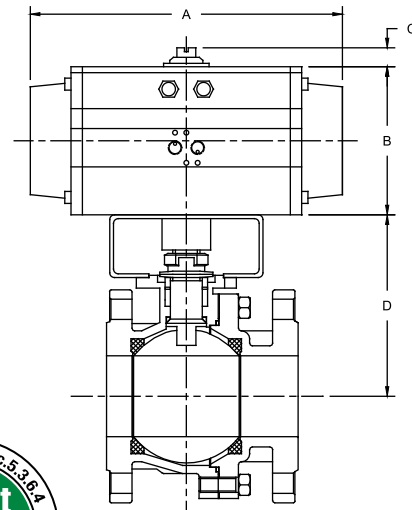
Monel Ball & Stem Available

STANDARDS

DESIGN	ANSI/ASME B16.34
FACE TO FACE	ANSI/ASME B16.10
FLANGE DIMENSIONS	ANSI/ASME B16.5
PIPELINE VALVES	API 6D
PRESSURE TESTING	API 598
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 9001:2008



150# Flanged



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	5.05	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
6"	27.38	10.12	1.18	10.61	9.29	5,150
8"	40.50	10.12	1.18	14.86	9.29	10,000

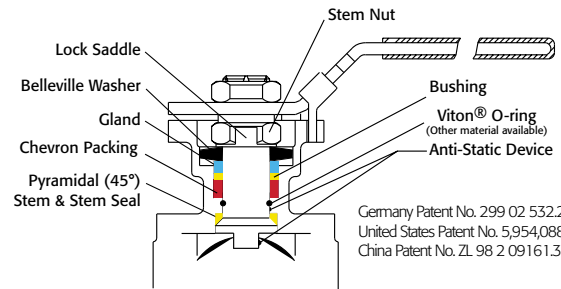
DIMENSIONS SHOWN ARE FOR ASSEMBLIES SIZED FOR 80 PSI SUPPLY

SERIES 90/93 150# Flanged

SIZED FOR 80 psi AIR SUPPLY	
SIZE	MODEL
1/2"	90-F1-050/2R2S-XX
3/4"	90-F1-075/2R3S-XX
1"	90-F1-100/2R3S-XX
1-1/2"	90-F1-150/2R3S-XX
2"	90-F1-200/2R4S-XX
2-1/2"	90-F1-250/2R6S-XX
3"	90-F1-300/2R6S-XX
4"	90-F1-400/2R7S-XX
6"	93-F1-600/2RAS-XX
8"	93-F1-800/2RBS-XX

SIZED FOR 60 psi AIR SUPPLY	
SIZE	MODEL
1/2"	90-F1-050/2R3S-XX
3/4"	90-F1-075/2R3S-XX
1"	90-F1-100/2R3S-XX
1-1/2"	90-F1-150/2R4S-XX
2"	90-F1-200/2R5S-XX
2-1/2"	90-F1-250/2R6S-XX
3"	90-F1-300/2R6S-XX
4"	90-F1-400/2R7S-XX
6"	93-F1-600/2RAS-XX
8"	93-F1-800/2RBS-XX

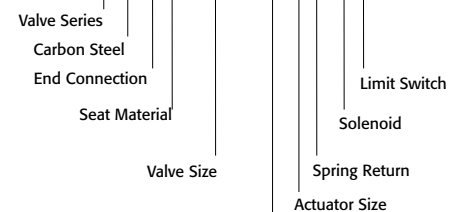
Series 90 denotes investment cast / 93 sand cast



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

SAMPLE PART #

90C-F1-150/2R3S-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.



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Electric

Automated Ball Valve Package

Series 90/93
ANSI Class 150
Flanged Ball Valve

Sizes 1/2" - 12"

Available in 316SST, WCB or Alloy 20

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
FACE TO FACE	ANSI/ASME B16.10
FLANGE DIMENSIONS	ANSI/ASME B16.5
PIPELINE VALVES	API 6D
PRESSURE TESTING	API 598
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 9001:2008

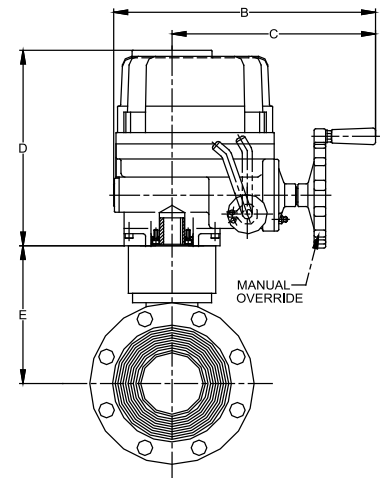
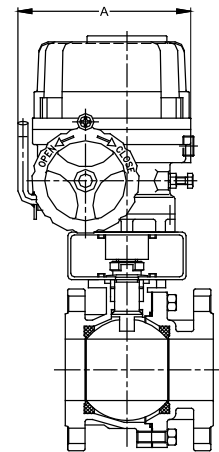


150# Flanged



DIMENSIONS (IN)

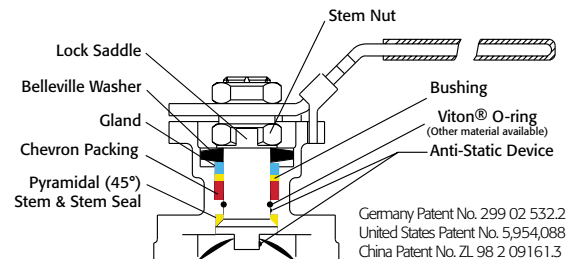
VALVE SIZE	A	B	C	D	E	VALVE Cv
1/2"	4.94	4.08	N/A	5.24	2.90	15
3/4"	4.94	4.08	N/A	5.24	3.20	45
1"	4.94	4.08	N/A	5.24	3.52	85
1-1/2"	4.94	4.08	N/A	5.24	5.05	275
2"	4.94	4.08	N/A	5.24	5.37	460
2-1/2"	9.02	13.31	10.43	10.55	5.80	700
3"	9.02	13.31	10.43	10.55	6.85	1,100
4"	10.20	14.49	11.26	11.42	7.44	2,200
6"	11.69	16.14	12.09	12.99	9.96	5,150
8"	12.58	16.14	12.09	22.17	14.86	10,000



SERIES 90/93 150# Flanged

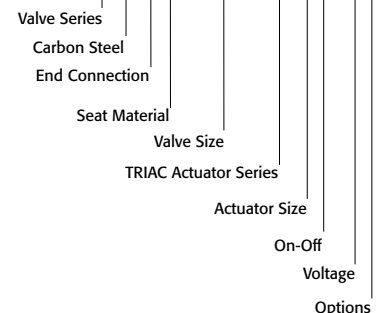
ON-OFF	
SIZE	MODEL
1/2"	90-F1-050/WEA1-XX
3/4"	90-F1-075/WEA1-XX
1"	90-F1-100/WEA1-XX
1-1/2"	90-F1-150/WEA1-XX
2"	90-F1-200/WEB1-XX
2-1/2"	90-F1-250/WEC1-XX
3"	90-F1-300/WEC1-XX
4"	90-F1-400/WEE1-XX
6"	93-F1-600/WEH1-XX
8"	93-F1-800/WEK1-XX

MODULATING	
SIZE	MODEL
1/2"	90-F1-050/WEA2-XX
3/4"	90-F1-075/WEA2-XX
1"	90-F1-100/WEA2-XX
1-1/2"	90-F1-150/WEA2-XX
2"	90-F1-200/WEB2-XX
2-1/2"	90-F1-250/WEC2-XX
3"	90-F1-300/WEC2-XX
4"	90-F1-400/WEE2-XX
6"	93-F1-600/WEH2-XX
8"	93-F1-800/WEK2-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 # 90C-F1-150/WEA1-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.

Series 90_93EL-20160121
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Valve Options

Various Seat Materials

PTFE, RTFE, 50/50 STFE, 25% CTFE, Delrin, PEEK, UHMWPE, TFM-1600

Operator Options

Quarter-turn Gear Operators
Spring Return "Deadman" Handles
Oval handles, TEE Handles

Specials and Solutions

Steam Jackets
Stem Extensions
V-ported Control Valves
Multi-port Valve Solutions
Fugitive Emissions Bonnets (TSM's)
Oxygen Cleaning
Lockout Brackets
Vented Balls
"No Play" Mounting Kits

• FM Approved Valves and Assemblies



Manual and automated valve assemblies for gas burner management applications and safety shutoff

Other Products

Special Seats Balls and Seal Designs



Steam Jacketed Valves



Floor Mounted Damper Drives



Limit Switches Mounted on Manual Valves



Fusible Link Assemblies



180° Actuators



Lockout Mounting Kits



Stem Extensions



Special Multi-Port Valves



Dual Valve Assemblies

