



A-T Controls, Inc.

Product Overview



Valves, Valve Automation & Accessories

	1-Piece	2-Piece				
						
Series	SERIES 10	SERIES 20	SERIES 21C	SERIES 22	SERIES 24	SERIES F23/F26
General Description & Features	1-piece unibody design, end-loaded ball	2-piece general purpose full port, locking handle	2-piece general purpose carbon steel, regular port, locking handle	2-piece high performance direct mount	2-piece high performance 3000 psi	2-piece high pressure seal welded
Automated Pneumatic	Not available	Not available	Not available			Call factory
Automated Electric	Not available	Not available	Not available			Call factory
Sizes	1/4" - 2"	1/4" - 3"	1/4" - 2"	1/4" - 3"	1/4" - 2"	1/4" - 2"
Port	Regular	Full	Regular	Full	See brochure	Full & Regular; See Dimensions
Direct Mount	No	No	No	Yes	Yes	No
Pyramidal Stem Packing	No	No	No	Yes	Yes	No
Body Materials	316SST	316SST	WCB	316SST	316SST	316SST & WCB
Trim Material	316SST	316SST	316SST	316SST	316SST	316SST
Available Seats	RTFE	RTFE	RTFE	RTFE, call for others	Delrin®, PEEK	PEEK Standard Delrin® available non-stock
End Connections	NPT	NPT	NPT	NPT	NPT	NPT
Max Pressure Rating	2000 psi	1000 psi	2000/1500 psi	1000 psi	3000 psi	3600/6000 psi
Options	None	None	None	NACE MR0175, Others call factory	NACE MR0175, Others call factory	Call factory
TA-Luft Certified	No	No	No	Yes	No	No



TA-Luft Certified

3-Piece

					
SERIES 55	SERIES 77	SERIES 8R/83	SERIES F8R/F83	SERIES 88	SERIES F88
3-piece standard service exposed bolt "swing-out" design, locking handle	Cavity and non-cavity filled 3-piece, sanitary clamp or tube O.D. ends	3-piece high performance, locking handle	Firesafe 3-piece high performance, locking handle	3-piece high performance, direct mount, locking handle	Firesafe 3-piece high performance, direct mount, locking handle
					
					
1/4" - 4"	1/2" - 4"	1/4" - 2-1/2"	1/4" - 2-1/2"	1/4" - 4"	1/4" - 4"
Full	Full	Full or Regular	Full or Regular	Full	Full
No	Yes	No	No	Yes	Yes
No	Yes	Yes	Yes	Yes	Yes
316SST & WCB	316L SST	316SST & WCB	316SST & WCB	316SST, WCB & Alloy 20	316SST & WCB
316SST	316L SST	316SST	316SST	316SST, Monel & Hastelloy C	316SST, Monel & Hastelloy C
RTFE, PTFE, 50/50 STFE, CTFE, TFM™-1600 and others	PTFE, cavity filled, non-cavity filled, RTFE, TFM™-1600	RTFE, PTFE, TFM™-1600, 50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK and others	RTFE, PTFE, TFM™-1600, 50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK and others	RTFE, PTFE, TFM™-1600, 50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK and others	RTFE, PTFE, TFM™-1600, 50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK and others
NPT, Socket Weld, Butt Weld	Sanitary clamp, Tube O.D.	NPT, Socket Weld, Butt Weld	NPT, Socket Weld, Butt Weld	NPT, Socket Weld, Butt Weld	NPT, Socket Weld, Butt Weld
1000/800 psi	1000 psi	2000/1500 psi	2000/1500 psi	2000/1500/1000 psi	2000/1500/1000 psi
Vented Ball, Oxygen Cleaned, Gear Operator, Stem Extension and others	Vented Ball, Oxygen Cleaned and Others	Vented Ball, Oxygen Cleaned, Gear Operator, Stem Extension and others	NACE MR0175, Vented Ball, Gear Operator, Stem Extension and others	Vented Ball, Oxygen Cleaned, Gear Operator, Stem Extension and others	NACE MR0175, Vented Ball, Gear Operator, Stem Extension and others
No	No	Yes	No	Yes	No

	150# Flanged				150# & 300# Flanged	600# Flanged
Series						
General Description & Features	SERIES 90 & 93	SERIES F90	SERIES F91	SERIES D9	SERIES FD9	SERIES FD9-F6
	150# flanged 2-piece, full port, with pyramidal stem packing	Firesafe 150# flanged 2-piece, full port with pyramidal stem packing	Firesafe Unibody design 150# flanged regular port Direct mount	Direct mount 150# flanged 2-piece, full port with pyramidal stem packing	Firesafe direct mount 150# and 300# flanged 2-piece, full port with pyramidal stem packing	2-piece split body 600# flanged, full port with pyramidal stem seal
Automated Pneumatic						
Automated Electric						
Sizes	1/2" – 12"	1/2" – 4"	1/2" – 6"	1/2" – 8"	1/2" – 8"	1/2" – 2"
Port	Full	Full	Regular	Full	Full	Full
Direct Mount	No	No	Yes	Yes	Yes	Yes
Pyramidal Stem Packing	Yes	Yes	Yes	Yes	Yes	Yes
Body Materials	316SST, WCB & Alloy 20	316SST & WCB	316SST & WCB	316SST & WCB	316SST & WCB	316SST & WCB
Trim Material	316SST	316SST	316SST	316SST, Monel & Hastelloy C	316SST, Monel & Hastelloy C	316SST
Available Seats	RTFE, PTFE, TFM-1600, 50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK & others	RTFE, PTFE, TFM-1600, 50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK & others	RTFE, PTFE, TFM-1600, 50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK & others	RTFE, PTFE, TFM-1600, 50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK & others	RTFE, PTFE, TFM-1600, 50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK & others	50/50 STFE, CTFE, UHMWPE, Delrin®, PEEK & others
End Connections	150# Flanged	150# Flanged	150# Flanged	150# Flanged	150/300# Flanged	600# Flanged
Max Pressure Rating	285 psi	285 psi	285 psi	285 psi	740 psi	1480 psi
Options	Vented Ball, Oxygen Cleaned, Gear Operator, Stem Extension and others	Vented Ball, Gear Operator, Stem Extension and others	NACE MR0175, Vented Ball, Gear Operator, Stem Extension and others	Vented ball, oxygen cleaned, gear operator, stem extension and others	NACE MR0175, Vented ball, gear operator, stem extension and others	NACE MR0175, Vented ball, gear operator, stem extension and others
	Yes	No	No	Yes	No	No



TA-Luft Certified

Multi-Port		High Performance Multi-Port	Metal Seat Flanged	Metal Seat 3-Piece	V-Port Control Valves
					
SERIES 38	SERIES 30	SERIES 33,43,53	SERIES M (FMU, FMB, FMS)	SERIES M (FMX)	V SERIES
NPT general purpose 3-way	150# & 300# Flanged general purpose 3-way	High performance, 3, 4 or 5-way, NPT, Socket Weld, Butt Weld, Flanged, Sanitary, Direct Mount	150#, 300#, 600#, Split Body Unidirectional & Bidirectional	NPT, Socket Weld, Butt Weld, 3-Piece Class 600 Bidirectional	V-Port Control Valves (V7/V8/V9/FVD9)
					
					
1/4" - 2"	1-1/2" - 12"	1/4" - 4"	150#/300#: 1/2" - 8" 600#: 1/2" - 6"	600#: 1/2" - 2"	1/2" - 6"
Regular	Full	Full	Full	Full	30°, 60°, 90°, others on request
No	No	Yes	No	No	Some
No	No	Yes	No	No	Yes
316SST	316SST & WCB	316SST	316SST, WCB, 316L SST, 317SST, Duplex & others	316SST, WCB, 316L SST, 317SST, Duplex & others	316SST & WCB
316SST	316SST	316SST	Tungsten Carbide, HCr, Chrome Carbide	Tungsten Carbide, HCr, Chrome Carbide	316SST
RTFE	RTFE, PTFE, 50/50 STFE, CTFE, others on request	RTFE, PTFE, 50/50 STFE, cavity fillers, others on request	Tungsten Carbide 316SST, Stellite®, Chrome Carbide 316SST	Tungsten Carbide 316SST, Stellite®, Chrome Carbide 316SST	RTFE, PTFE, 50/50 STFE, call with application
NPT	150/300/600# Flanged	NPT, Socket Weld, Butt Weld, Sanitary, 150/300# Flanged	150/300/600# Flanged	NPT, Socket Weld & Butt Weld	NPT, Socket Weld, Butt Weld, Flanged, Tube O.D. & Sanitary Clamp
1000 psi	See spec. sheets	See spec. sheets	See spec. sheets	See spec. sheets	See spec. sheets
"L" or "T" port	"L" or "T" port	3, 4, 5-way, "L", "T", "LL", "I", "X", "TT" ports, various options	Scraper seat, Black Liquor, See spec. sheets	See spec. sheets	Various, please call with requirements
No	No	Yes	No	No	Yes (per model)

	Segmented Valves	Butterfly Valves		Trunnion Mounted Ball Valves		
		Resilient Seated	High Performance			
Series	 VS/VV/VM SERIES	 OC/OS SERIES	 AS SERIES	 PS/PF/PM/PH SERIES P1S/P1F/P1M/P1H SERIES	 TS SERIES	 TM SERIES
General Description & Features	Unibody V-Port Segmented	Resilient Butterfly Valves	PFA Lined Butterfly Valves	High Performance Butterfly Valves	Trunnion Mounted Soft Seat Ball Valves TS2 - 2 pc cast TS3 - 3 pc forged	Trunnion Mounted Metal Seat Ball Valves TM3 - 3 pc cast
Automated Pneumatic					Call factory for Rack & Pinion or THD automation options	Call factory for Rack & Pinion or THD automation options
Automated Electric					Call factory for Electric automation options	Call factory for Electric automation options
Sizes	1" - 16"	1-1/2" - 36" Stock (up to 126" available)	2" - 12" Stock, (CF for 14"-24")	2" - 36" Stock, larger available	2" - 48"	2" - 24"
Port	Segmented	Stub shaft disc	Stub shaft 1-pc disc	Through shaft disc	Full/Regular	Full
Direct Mount	No	Yes	Yes	No	ISO 5211	No
Pyramidal Stem Packing	No	No	No	No	No	No
Body Materials	CF8M, WCB, 317SST, Duplex & others	Ductile iron, 316SST	316SST, WCB, & others	316SST, WCB, & others	A105N, WCB, LF2, LCC, F316, CF8M & others	WCB, CF8M & others
Trim Material	See spec. sheet	Ductile Iron, Aluminum Bronze, 316SST, Nylon coated, TFE coated, & others	PFA/304SST, PFA/316SST & others	316SST, Alloy 20, Duplex, & others	See spec sheet	See spec sheet
Available Seats	50/50 STFE, Stellite® Inlay, Tungsten Carbide Coated 316SST	Buna, EPDM, Food Grade EPDM, High Temp EPDM, Viton®, PTFE & others	PTFE	RTFE (G2TFE), 50/50 STFE, 316L SST, Inconel®, TFM-1600™ & others	RPTFE, Devlon®, PEEK (See spec sheet)	Tungsten Carbide, Chrome Carbide, Hard Chrome (See spec sheet)
End Connections	150/300#, Flanged or Wafer	150# Wafer or Lug	150# Wafer or Lug	150/300# Wafer or Lug	Raised Face, Weld End, RTJ	Raised Face, RTJ
Max Pressure Rating	See spec. sheet	See spec. sheet	See spec. sheets	See spec. sheets	See spec sheet	See spec sheet
Options	See spec. sheet	Call factory	Call factory	Call factory	Call factory	Call factory

	Pig Valve	Dual Valve Isolation Assemblies	Cryogenic	FM Approved Assemblies	Tank Bottom	
Series	 P1 SERIES	 WB SERIES	 W6 SERIES	 C8/CR SERIES	 FM	 TB SERIES
General Description & Features	Full schedule 10 pipe diameter for pigging applications	Dual Valve Isolation Block and Bleed valves, 2000 psi, Firesafe API-607 6th Ed.	Dual Valve Isolation Block and Bleed valves, 6000 psi, Firesafe API-607 5th Ed.	3-Piece Extended Bonnet	FM Approved Assemblies for gas safety shutoff applications	3-piece tank bottom valve
Automated Pneumatic		N/A	N/A			
Automated Electric		N/A	N/A		Not Available	
Sizes	2", 3", 4"	3/8" - 2"	1/2"-2"	1/2" - 2"	1/4" - 6"	2", 3", 4"
Port	SCH 10 Pipe Diameter	Full	Full & Regular	Full & Regular	Full	Full
Direct Mount	Yes	No	No	Yes	Yes	No
Pyramidal Stem Packing	Yes	No	No	Yes	Yes	No
Body Materials	316SST	316SST	316SST	316SST	316SST & WCB	316SST
Trim Material	316SST	316SST	316SST	316SST	316SST	316SST
Available Seats	PTFE & RTFE	CTFE	PEEK	PCTFE	RTFE	RTFE, PTFE, 50/50 STFE, CTFE, others on request
End Connections	150# Flanged, Socket Weld	NPT	NPT, Female x Male Block Valve, Female End Bleed Valve	NPT & Socket Weld	150/300# Flanged, NPT, Socket Weld & Butt Weld	Tank weld pad + NPT, Socket Weld, Butt Weld, or Flanged
Max Pressure Rating	400/285 psi	2000 psi	6000 psi	See spec. sheet	See spec. sheet	1000 psi
Options	See spec. sheet	NACE MR0175	NACE MR0175	See spec. sheet	See spec. sheet	Vented Ball, Oxygen Cleaned, Gear Operator, & others

	Heavy Duty Actuators	Pneumatic Scotch Yoke Actuators	Pneumatic Rack & Pinion Actuators	180° Pneumatic Actuators	Stainless Steel Pneumatic Actuators	Declutchable Gear Operators
						
Series	THD SERIES	SY SERIES	2R, 2K, 2CI SERIES	180-AL SERIES	SS SERIES	2RDGO, 2CDGO, and 2KDGO SERIES
General Description & Features	Pneumatic and hydraulic scotch yoke design, Symmetrical and Canted yoke	Pneumatic Scotch Yoke design	Pneumatic Actuators designed to direct mount on ball & butterfly valves	180° Rack & Pinion pneumatic actuators	Corrosion Resistant Stainless steel Rack & Pinion design	"Sandwich" mount, gear overrides
Models	Full range of torques to 1,600,000 in-lbs	Five pressure group models 1,465-12,191 in-lbs, Twenty spring cartridge models 537-10,900 in-lbs	Thirteen models 60-35,550 in-lbs (Double Acting) 96-24,500 in-lbs (Spring Return)	Five models 740 –6200 in-lbs (Double Acting only)	Seven models 143-6,200 in-lbs (Double Acting) 85-3,788 in-lbs (Spring Return)	Six models
Variations	Double Acting, Spring Return	Double Acting, Spring Return	ISO 5211, Keystone®, and Centerline® patterns stock, others on request	180° Dribble and batch control	Double Acting, Spring Return	ISO 5211, Keystone®, and Centerline® patterns stock, others on request
Types	Pneumatic and hydraulic	Pneumatic	Eleven sizes rack & pinion, two sizes scotch yoke	Pneumatic	Pneumatic	Declutchable
Materials	Ductile iron center body	Ductile iron center body	Hard anodized aluminum body	Hard anodized aluminum body	316SST	Ductile iron
Features	Torque stabilizer bar, Dual travel stops, female drive	Identical mounting configuration on both sides, Flip 180° to change rotation of actuator, Dual travel stops	Dual travel stops	Excellent for multi-port valve automation	ISO 5211 mounting	Easy declutch mechanism, low profile
Options	Manual overrides, various controls, high/low temp, accumulator tanks, Dribble control, 3-position control & others	Dribble control, 3-position control, Various control accessories	High & low temp seals, Extended travel stops, Reduced cycle times available, Marine epoxy coating on end caps, Dribble control, 3-position control, Various accessories	Dribble control, 3-position control	Dribble control, 3-position control, Various control accessories	Dump valves, NAMUR adaptor plates

	Gear Operators	Electric Actuators			Fail Safe Electric Actuators	
						
Series	Q SERIES	WE/XE/SE SERIES	XC SERIES	KE SERIES	FSE SERIES	BFS SERIES
General Description & Features	Manual gear operators for quarter-turn valves	Eighteen sizes of electric actuators, On-off & modulating	Ten sizes of CSA Explosion-Proof electric actuators, On-off & modulating	Four sizes Weather-Proof electric actuators, On-Off & Modulating	CSA Weather-Proof Spring Return electric actuators, On-Off & Modulating	IP67, Type 4,4X Weather-Proof Battery backup electric actuators, On-Off & Modulating
Models	Eight standard sizes, Larger sizes available to 410,000 in-lbs	WE-350 to WE-80000 XE-690 to XE-25900 SE-690 to SE-25900	XC-00690 to XC-25900	KE-440 to KE-3500	Four sizes, FSE-440 to FSE-2300	Four sizes, BFS-690 to BFS-2640
Variations	ISO 5211 mounting in inventory, others on request	On-off & modulating, Various AC & DC Voltages	On-off & modulating, Various AC & DC Voltages	On-Off & Modulating, 12VDC, 24VDC, 24VAC, 110VAC, 220VAC/1PH	On-Off & Modulating, 24VDC, 110VAC, 220VAC/1PH	On-Off & Modulating, 110VAC, 220VAC/1PH
Types	Quarter-turn	Type 4, 4X, 7, Explosion-proof ATEX, submersible, IP68 10M 72HR	 CSA Type 4, 4X, 6 & 7, Explosion-proof	IP67 Weather-Proof	IP67 & CSA Type 4,4X Weather-Proof	IP67 & Type 4,4X Weather-Proof
Materials	Cast iron	Die cast aluminum Epoxy coated enclosure	Die cast aluminum Epoxy coated enclosure	Die cast aluminum Epoxy coated enclosure	Die cast aluminum Epoxy coated enclosure	Die cast aluminum Epoxy coated enclosure
Features	Dual travel stops	AWWA-C540-93, Manual override, Four switches standard, Heater & stat standard, Self-locking gear train	AWWA-C540-93, Manual override, Four switches standard, Heater & stat standard, Self-locking gear train	Self-Locking worm gear train, manual override with wrench, (2) Aux switches, Heater & Stat	Fail-Safe Spring Return, (2) Aux switches, Heater & stat, Visual Dome Indicator	Fail-Safe Battery back-up, (2) Aux switches, Heater & stat, Visual Dome Indicator, Manual override
Options	Top-mounted limit switches, others	Vibration and shock resistant, Fireproof coated enclosure, Intelligent and integral control unit, Analog & digital modulating control cards	Vibration and shock resistant, Fireproof coated enclosure, Intelligent and integral control unit, Analog & digital modulating control cards	Analog Modulating Control Module	Manual override, Analog Modulating Control Module	Analog Modulating Control Module

	Limit Switches		Solenoids	Positioners	Control Options	Other Accessories
						
Series	APL SERIES	EX, EC, ES, EY & EW SERIES	TVCS, TVC5, TVC6 & others	PPR, EPR, SS2, SS3 & SS5		
General Description & Features	Various models of CSA limit switch boxes	Various limit switch boxes	NAMUR mount, solenoids or pipe mounted	Pneumatic, electro-pneumatic, digital or "smart"	Speed controls, flow controls, lock-up valves	Filter regulators, dribble controls, & others
Models	APL-2, APL-3, APL-4, APL-5, APL-9	EX, EC, ES, EY & EW Series	TVCS, TVC5, TVC6 & others	EPR1000, PPR1200, 760, PS2, TZIDC, SS2, SS3, SS5	Various, Call Factory	Various, Call Factory
Variations	Materials, switch types	Materials, switch types	Weatherproof, Explosion-proof, 3, 4 or 5-way	Pneumatic, electro-pneumatic, digital "smart" HART, FieldBus	Various, Call factory	Various, Call factory
Types	 CSA Type 4, 4X, 7, SPDT, proximity, low voltage, high amp. AS-i & others	SPDT, proximity, low voltage, high amp. AS-i & others	2-position, 3-position, single or dual coil	Rotary or linear	Various, Call factory	Various, Call factory
Materials	Aluminum, plastic or stainless steel	Aluminum, plastic or stainless steel	Aluminum or SS	Aluminum body	Various, Call factory	Various, Call factory
Features	2-way & 3-way position indicators	2-way & 3-way position indicators	Direct-mount	Easy to calibrate, repeatable	Various, Call factory	Various, Call factory
Options	Several types of communication options	Several types of communication options	Various voltages & configurations	Transmitters, limit switches, mounting hardware, call with requirements	Various, Call factory	Various, Call factory

Additional Ball Valve Options and Variations

Oval Handle

The oval shaped handle allows for operation without the chance of dislodging a standard design handle that clothing or other equipment may catch in passing by a valve.

Spring Return Fail-Safe Handle

This handle is designed for use in critical services where the open or closed position must be maintained by manual positioning. Manual release of the handle will result in spring-to-close or spring-to-open as the application requires. Sizes 1/4" to 1 1/2" available on direct mount valves.



Side Vented Ball Option

Vents pressure to the upstream side. Equalizes pressure in the valve caused by thermal expansion of liquid. Maintains seat seal and prevents blowout of the seats. (Stem slot is vented as standard.)

Ball Valve Seat Materials

We offer a variety of seat materials to cover numerous flow and service applications. Below is a brief description of the seat materials. Some are stock and others are available upon special request. *Temperatures are for reference only. Refer to pressure-temperature charts on individual valve sheets.*

Name	Material Composition	Max. Temp.	Application & Benefits
RTFE	Reinforced Teflon®	450°F	Glass fiber reinforced PTFE is our standard seat material. Has chemical resistance of PTFE with the improved wear and abrasion resistance. Versatile temperature characteristics.
50/50 STFE	50% SST Powder/ 50% PTFE	550°F	The 50/50 composition gives this seat material good sealing and temperature resistant properties. Good for steam and abrasive applications. Better cold flow properties than RTFE.
PTFE	Virgin Teflon®	400°F	Good chemical resistance and lower torque values. Used for many general applications. Good for low cycle life applications
TFM™-1600	Modified Teflon®	500°F	Second generation PTFE. Offers better creep resistance. Lower coefficient of friction provides lower torque values and resists deformation. Ideal for applications requiring higher purity such as semi-conductor. Resists "popcorning" in monomer service, like Butadine.
CTFE	25% Carbon Graphite/ 75% PTFE	480°F	Good for low pressure steam applications and abrasive and slurry services.
PCTFE	Polychlorotrifluorethene	212°F	Ideal for applications with low or cryogenic temperatures.
PEEK	Polyether Ether Ketone	550°F	Good chemical resistance with higher temperature tolerance.
Delrin®	DuPont™ Polyoxymethylene	180°F	Good for high pressure applications.
UHMWPE	Ultra High Molecular Weight Polyethylene	180°F	UHMWPE has good abrasion resistance, good for abrasive and slurry services. Torques are significantly higher than RTFE. Good for tobacco and nuclear services.
MG1241	5% Graphite/ 20% Glass Fiber/ 75% PTFE	480°F	Good for high cycle applications and abrasive service.
Stellite®/ 316SST	Stellite® Inlay/ 316SST*	661°F	Unidirectional or Bidirectional shut-off. *Other base material available.
TC/316SST	Tungsten Carbide Coated 316SST*	842°F	Unidirectional or Bidirectional shut-off. *Other base material available.
CrC/316SST	Chrome Carbide Coated 316SST*	932°F	Unidirectional or Bidirectional shut-off. *Other base material available.

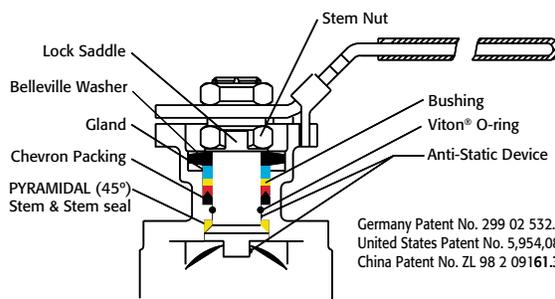
"V" Port Control Ball

"V" ported balls give better flow control properties to a traditionally round ported ball valve. They are available with a 15°, 30°, 60° or 90° "V" port. The 15° and 30° ports allow for finer control at lower flow rates. The 60° and 90° ports allow more precise control for higher Cv applications. Custom openings are also available per application. Also available in segment V-Ball.

Featuring Standard

Anti-Static Grounding
Blowout Proof Stems
Pyramidal Stem Seal Packing System

The best performing stem seal packing system on the market



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

*See individual product specification brochures for additional seat options and applications.

Manual Ball Valve Part Number Matrix

1 Firesafe Designation	
F	Firesafe Tested

2 Valve Series	
10	1pc. Regular Port 2000 WOG
20	2pc. Full Port 2000 WOG
21	2pc. Regular Port 1000 WOG
22	2pc. Direct Mount 1000/800 WOG, Full Port
23	2pc. 3600 WOG, Seal-Welded
24	2pc. 3000 WOG
26	2pc. 6000 WOG, Seal-Welded
30	3-Way Flanged Full Port
33	3, 4, 5-Way Full Port, Multiport
38	3-Way NPT, Regular Port
55	3pc. 1000 WOG, Full Port
77	3pc. 1000 WOG, Full Port, Sanitary
83	3pc. 2000/1500 WOG, Full Port
8R	3pc. 2000/1500 WOG, Regular Port
88	3pc. Direct Mount 2000/1500 WOG, Full Port
R8	3pc. Direct Mount 2000/1500 WOG, Regular Port
90	2pc. Flanged Full Port (Investment Cast)
91	Unibody Regular Port Flanged
93	2pc. Flanged Full Port (Sand Cast)
V7	3pc. Sanitary, V-Port
V8	3pc. V-Port
V9	Flanged V-Port
D9	Direct Mount Flanged
T5	Tank Bottom 3pc.
C8	Cryogenic 3pc. Full Port
CR	Cryogenic 3pc. Regular Port
DR	3-Way Bottom Entry Diverter Valve
P1	Schedule 10 Piggable Valve
MU	Metal Seat Unidirectional Shutoff, Floating Ball
MB	Metal Seat Bidirectional Shutoff, Floating Ball
MS	Metal Seat Scraper Seat Design
MX	Metal Seat 3 pc. Bidirectional, Floating Ball
M3	3-Way Metal Seat
VS	Segment V-Port, Soft
VM	Segment V-Port, Metal Graphite Packing
VV	Segment V-Port, Metal Viton® Packing
WB	Block and Bleed Isolation Valve, 2000 WOG
W6	Block and Bleed Isolation Valve, 6000 WOG

3 Body Material	
Blank	No Designation=SST Body and Trim
A	Alloy 20
C	Carbon Steel Body
L	Low Carbon 316L Stainless Steel
J	Low Carbon 304 Stainless Steel
H	Carbon Body /Hastelloy Ball & Stem
Q	Carbon Steel Body/Monel Ball & Stem
R	316 SST Body/Monel Ball & Stem
T	Hastelloy C-276 Body & Trim
E	Electropolished Stainless Steel
Z	Epoxy Coated Carbon Steel
D	CD3MN Duplex SST
G	CE3MN Super Duplex SST
4	F316H Forged
5	LCB
8	LCC
6	WC6
9	WC9

4 End Connection	
TH	NPT Ends
SW	Socket Weld Ends
BW	Butt Weld Ends
EW	Extended Butt Weld Ends
F1	150# Flanged Ends
F3	300# Flanged Ends
F6	600# Flanged Ends
FR	600# RTJ Flanged Ends
SA	Sanitary Clamp Ends
SF	Sanitary Clamp Ends w/ Cavity Filler
DA	Tube O.D. Ends
DF	Tube O.D. Ends w/ Cavity Filler
TE	NPT x Extended Butt Weld
TS	NPT x Socket Weld
MF	Male NPT x Female NPT
QQ	Tube Socket Weld
W1	150# Wafer
W3	300# Wafer
W6	600# Wafer

5 Valve Size	
0025	1/4"
0038	3/8"
0050	1/2"
0075	3/4"
0100	1"
0125	1-1/4"
0150	1-1/2"
0200	2"
0250	2-1/2"
0300	3"
0400	4"
0600	6"
0800	8"
1000	10"
1200	12"

6 Seat, Lining & Trim Materials	
X	Reinforced TFE Seats (RTFE)
P	Virgin TFE (PTFE)
U	UHMWPE Seats
D	Delrin®
S	50/50 STFE Seats
C	25% CS Powder/ 75% TFE Seats (CTFE)
T	TFM™-1600
F	TFE Cavity Filler
K	PCTFE (Cryogenic)
L	PFA Lined
M	MG1241
Z	PEEK
2	Tungsten Carbide Coated 316 SST Seats & Ball
3	HCr Coated Ball/Stellite® Inlay Seats
4	Chrome Carbide Coated 316 SST Seats & Ball
8	Inconel® 718+CrC

7 Special Designations	
X	No Specials
G	Gear Operator
R	Regular Port Valve
O	Oval Handle (available on some)
S	Spring Return Handle (Direct Mount only)

8 Additional Specials	
X	No Specials
O	Oxygen Cleaned
Z	Special End Configuration
V	Vented Ball
E	Bonnet Extension Lockable Handle
F	Fugitive Emissions Bonnet
D	Degreased & Bagged

9 Special Designation	
3	30° V-Port (v-ball)
6	60° V-Port (v-ball)
9	90° V-Port (v-ball)
Blank	No Designation = 316 SST Stem
A	17-4 PH® Stem
B	XM-19 (Nitronic 50) Stem
C	Duplex 2205 Stem
D	Inconel® 718 Stem
L	L-Port 3-Way arrangement
T	T-Port 3-Way arrangement

HOW TO ORDER MANUAL VALVES										
1	-	2 3	-	4	-	5	-	6 7 8	-	9
↓		↓ ↓		↓		↓		↓		↓
F	-	88 C	-	TH	-	0150	-	X X X		

Viton® is a registered trademark of E.I. DuPont de Nemours.
 Delrin® is a registered trademark of DuPont Performance Polymers.
 17-4 PH® is a registered trademark of AK Steel Corporation.
 TFM™ is a trademark of Dyneon™, a 3M Company.
 Stellite® is a registered trademark of the Deloro Stellite Company, Inc.
 Inconel® is a registered trademark of Inco Alloys/Special Metals Corporation.

Automated Ball Valve Part Number Matrix

1 Firesafe Designation	
F	Firesafe Tested

2 Valve Series	
10	1pc. Regular Port 2000 WOG
20	2pc. Full Port 2000 WOG
21	2pc. Regular Port 1000 WOG
22	2pc. Direct Mount 1000/800 WOG, Full Port
24	2pc. 3000 WOG
30	3-Way Flanged Full Port
33	3, 4, 5-Way Full Port, Multiport
38	3-Way NPT, Regular Port
55	3pc. 1000 WOG, Full Port
77	3pc. 1000 WOG, Full Port, Sanitary
83	3pc. 2000/1500 WOG, Full Port
8R	3pc. 2000/1500 WOG, Regular Port
88	3pc. Direct Mount 2000/1500 WOG, Full Port
R8	3pc. Direct Mount 2000/1500 WOG, Regular Port
90	2pc. Flanged Full Port (Investment Cast)
91	Unibody Regular Port Flanged
93	2pc. Flanged Full Port (Sand Cast)
V7	3pc. Sanitary, V-Port
V8	3pc. V-Port
V9	Flanged V-Port
D9	Direct Mount Flanged
T5	Tank Bottom 3pc.
C8	Cryogenic 3pc. Full Port
CR	Cryogenic 3pc. Regular Port
DR	3-Way Bottom Entry Diverter Valve
P1	Schedule 10 Piggable Valve
VS	Segment V-Port, Soft
VM	Segment V-Port, Metal Graphite Packing
VV	Segment V-Port, Metal Viton® Packing

3 Body Material	
Blank	No Designation=SST Body and Trim
A	Alloy 20
C	Carbon Steel Body
L	Low Carbon 316 Stainless Steel
J	Low Carbon 304 Stainless Steel
H	Carbon Body /Hastelloy Ball & Stem
Q	Carbon Steel Body/Monel Ball & Stem
R	316 SST Body/Monel Ball & Stem
T	Hastelloy C-276 Body & Trim
E	Electropolished Stainless Steel
Z	Epoxy Coated Carbon Steel
D	CD3MN Duplex SST
G	CE3MN Super Duplex SST
4	F316H Forged
5	LCB
8	LCC
6	WC6
9	WC9

4 End Connection	
T	NPT Ends
S	Socket Weld Ends
B	Butt Weld Ends
E	Extended Butt Weld Ends
F	150# Flanged Ends
3	300# Flanged Ends
6	600# Flanged Ends
R	600# RTJ Flanged Ends
C	Sanitary Clamp Ends
D	Tube O.D. Ends
M	NPT x Socket Weld
Q	Tube Socket Weld

5 Seat, Lining & Trim Materials	
1	Valve Series Standard
X	Reinforced TFE Seats (RTFE)
P	Virgin TFE (PTFE)
U	UHMWPE Seats
D	Delrin®
S	50/50 STFE Seats
C	25% CS Powder/ 75% TFE Seats (CTFE)
T	TFM™-1600
F	TFE Cavity Filler
K	PCTFE (Cryogenic)
L	PFA Lined
M	MG1241
Z	PEEK
2	Tungsten Carbide Coated 316SST Seats & Ball
3	HCr Coated Ball/Stellite® Inlay Seats
4	Chrome Carbide Coated 316 SST Seats & Ball
8	Inconel® 718+CrC

6 Valve Size			
025	1/4"	250	2-1/2"
038	3/8"	300	3"
050	1/2"	400	4"
075	3/4"	600	6"
100	1"	800	8"
125	1-1/4"	AAA	10"
150	1-1/2"	BBB	12"
200	2"		

7 Actuators - Pneumatic (DA)	
TRYD	TR10 Double Acting
TR1D	TR20 Double Acting
2R2D	2R40 Double Acting
2R3D	2R80 Double Acting
2R4D	2R130 Double Acting
2R5D	2R200 Double Acting
2R6D	2R300 Double Acting
2R7D	2R500 Double Acting
2R8D	2R850 Double Acting
2R9D	2R1200 Double Acting
2R0D	2R1750 Double Acting
2RAD	2R2500 Double Acting
2RBD	2R3500 Double Acting

7 Actuators - Pneumatic (SR)	
TR1S	TR20 Spring Return
2R2S	2R40 Spring Return
2R3S	2R80 Spring Return
2R4S	2R130 Spring Return
2R5S	2R200 Spring Return
2R6S	2R300 Spring Return
2R7S	2R500 Spring Return
2R8S	2R850 Spring Return
2R9S	2R1200 Spring Return
2R0S	2R1750 Spring Return
2RAS	2R2500 Spring Return
2RBS	2R3500 Spring Return

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		

7 Actuator - Pneumatic Stainless (DA)	
SS1D	SS45DA Double Acting
SS2D	SS60DA Double Acting
SS3D	SS85DA Double Acting
SS4D	SS105DA Double Acting
SS5D	SS125DA Double Acting
SS6D	SS140DA Double Acting
SS7D	SS160DA Double Acting

7 Actuator - Pneumatic Stainless (SR)	
SS1S	SS45SR Spring Return
SS2S	SS60SR Spring Return
SS3S	SS85SR Spring Return
SS4S	SS105SR Spring Return
SS5S	SS125SR Spring Return
SS6S	SS140SR Spring Return
SS7S	SS160SR Spring Return

8 Accessories/Options	
X	No Specials
A	TYPE 4 Solenoid 120VAC
B	TYPE 7 Solenoid 120VAC
C	Intrinsically Safe Solenoid
D	TYPE 4 Solenoid 24VDC
F	TYPE 7 Solenoid 24VDC
Q	TYPE 4 SST Solenoid
M	TYPE 7 SST Solenoid
P	Pneumatic Positioner
E	Electro-Pneumatic Positioner
R	24VDC Electric Actuator
S	220VAC Electric Actuator
T	Other Voltage Electric Actuator
W	12VDC Electric Actuator
Y	24VAC Electric Actuator
Blank	*No voltage specified on electric assemblies denotes 120VAC

9 Accessories	
X	No Specials
A	TYPE 4 Limit Switch
B	TYPE 7 Limit Switch
C	Intrinsically Safe Limit Switch
Q	TYPE 4 SST Limit Switch
M	TYPE 7 SST Limit Switch
Z	180 degree Operation
1	HS1 High Speed Electric
2	HS2 High Speed Electric

10 Special Designation	
3	30° V-Port (v-ball)
6	60° V-Port (v-ball)
9	90° V-Port (v-ball)
Blank	No Designation = 316 SST Stem
A	17-4 PH® Stem
B	XM-19 (Nitronic 50) Stem
C	Duplex 2205 Stem
D	Inconel® 718 Stem
L	L-Port 3-Way arrangement
T	T-Port 3-Way arrangement

HOW TO ORDER AUTOMATED VALVES

1	2	3	-	4	5	-	6	/	7	-	8	9	-	10
↓	↓	↓		↓	↓		↓		↓		↓	↓		↓
F	88	C	-	T	X	-	025	/	2R2D	-	X	X		

Resilient Seated Butterfly Valve Part Number Matrix

A-T Controls OC/OS Series Resilient Seated Butterfly Valves

1 Valve Series	
OC	A-T BFV with DD Stem (14" and larger)
OS	A-T BFV with Square Stem (2-12") (Standard)

2 Body Material	
blank	(No Designation) = Stainless Steel (SST) Body
B	Ductile Iron (Standard)

3 End Connection	
L1	125/150# Lug
W1	125/150# Wafer with Guide Holes
W2	125/150# Wafer (no Guide Holes)

4 Valve Size			
0150	1-1/2"	1400	14"
0200	2"	1600	16"
0250	2-1/2"	1800	18"
0300	3"	2000	20"
0400	4"	2400	24"
0500	5"	3000	30"
0600	6"	3600	36"
0800	8"		
1000	10"		
1200	12"		

5 Seat Material/Style			
B	Buna	P	PTFE
E	EPDM	V	Viton®
F	Food Grade EPDM		
H	High Temp EPDM		

6 Disc Material/Style	
B	Aluminum Bronze
D	Ductile Iron (Nickel Plated)
N	Nylon Coated Ductile Iron
S	316 SST
U	Undercut Aluminum Bronze
W	Polished 316 SST
Y	Undercut Polished 316 SST (6" and larger only)
Z	Undercut 316 SST (6" and larger only)

7 Stem Bushing	
R	PTFE (Standard)
B	Lubricated Bronze

8 Operator Designation	
X	Bare Stem
H	Standard 10 point Handle
S	Stainless Steel 10 point Handle
I	Infinite Adjustment Handle
G	Gear Operator

9 Stem	
blank	(No Designation) = 316 SST Stem
E	416 SST Stem (Standard)
F	431 SST Stem (Standard with PTFE seat)

HOW TO ORDER MANUAL RESILIENT SEATED BUTTERFLY VALVES	
1 2 - 3 - 4 - 5 6 7 - 8 9	
↓↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	
OSB - W1 - 0200 - EDR - X E	

AS Series Lined Resilient Seated Butterfly Valves

1 Valve Series			
AS	A-T Split Body Lined Butterfly Valve		
2 Body Material			
blank	(No Designation) = Stainless Steel (SST) Body		
C	Carbon Steel (ASTM A216 Grade WCB)		
3 End Connection			
L1	125/150# Lug		
W1	125/150# Wafer		
4 Valve Size			
0150	1-1/2"	1400	14"
0200	2"	1600	16"
0250	2-1/2"	1800	18"
0300	3"	2000	20"
0400	4"	2400	24"
0500	5"		
0600	6"		
0800	8"		
1000	10"		
1200	12"		
5 Seat Material/Style			
P	PTFE		
6 Disc Material/Style			
F	PFA Encapsulated over 304 SST (standard with WCB body)		
M	PFA Encapsulated over 316 SST (standard with SST body)		
7 Stem Bushing			
R	PTFE		
8 Operator Designation			
X	Bare Stem		
H	Standard 10 point Handle		
S	Stainless Steel 10 point Handle		
G	Gear Operator		
9 Stem			
A	17-4 PH® Stem		

EXAMPLE:
ASC-L1-0600-PFR-XA
(6" A-T Controls Split Body Lined Butterfly Valve, ASTM A216 Grade WCB Body, 150# Lug Style, PTFE Seat, PFA Encapsulated over 304 SST Disc, PTFE Stem Bushing, 17-4 PH Stem.)

HOW TO ORDER MANUAL AS SERIES BUTTERFLY VALVES	
1 2 - 3 - 4 - 5 6 7 - 8 9	
↓↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	
ASC - L1 - 0600 - PFR - X A	

HOW TO ORDER AUTOMATED RESILIENT SEATED BUTTERFLY VALVES	
1 2 - 3 - 4 - 5 6 7 - 8 9 / actuator size - options	
↓↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	
OSB - W1 - 0200 - EDR - XE / 2R3S - XX	
(see Actuator Size Legend)	

High Performance Butterfly Valve Part Number Matrix

A-T Controls **POWER-SEAL** High Performance Butterfly Valves

1 Valve Series	
PS	Power-Seal Soft seat
PF	Power-Seal Firesafe Seat
PM	Power-Seal Metal seat
PH	Power-Seal Metal Seat High Temp
P1S	Power-Seal P1S Soft seat
P1F	Power-Seal P1F Firesafe Seat
P1M	Power-Seal P1M Metal seat
P1H	Power-Seal P1H Metal Seat High Temp

2 Body Material			
<i>blank</i>	(No Designation)= Stainless Steel (SST) Body		
C	Carbon Steel	5	LCB
A	Alloy 20	N	Inconel 625
M	Monel	B	Aluminum-Bronze
D	CD3MN Duplex SST	*	Other
W	Hastelloy C-276		

3 End Connection	
L1	Class 150 Lug
L3	Class 300 Lug
W1	Class 150 Wafer with Guide Holes
W3	Class 300 Wafer with Guide Holes

4 Valve Size			
0200	2"	2000	20"
0250	2-1/2"	2400	24"
0300	3"	2600	26"
0400	4"	2800	28"
0500	5"	3000	30"
0600	6"	3200	32"
0800	8"	3600	36"
1000	10"	4000	40"
1200	12"	4400	44"
1400	14"	4800	48"
1600	16"		
1800	18"		

5 Seat Material			
P	PTFE	6	316L SST <i>(Standard on PM & P1M)</i>
R	RTFE <i>(Standard on PS)</i>	7	Inconel 625 <i>(Standard on PH & P1H)</i>
G	G2TFE <i>(Standard on P1S)</i>	F	RTFE/316L SST <i>(Standard on PF)</i> G2TFE/316L SST <i>(Standard on P1F)</i>
S	50/50 STFE		
T	TFM-1600		

6 Disc Material/Style	
S	316 SST <i>(Standard on CS and SST body PS & P1S)</i>
X	Same as Body Material
7	316 SST/Stellite <i>(Standard on PH & P1H)</i>
6	316 SST/HCr <i>(Standard on PM, P1M, PF & P1F)</i>

7 Stem Bearing	
R	PTFE Composite <i>(Standard with Soft Seat)</i>
C	Carbon Graphite <i>(Standard with Firesafe & Metal Seat)</i>
B	Bronze
*	Other

8 Operator Designation	
X	Bare Stem
H	Standard 10 point Handle
G	Gear Operator

9 Stem	
A	17-4 PH® Stem <i>(Standard)</i>
B	XM-19
*	Other

10 Packing (Live Loaded)	
G	Graphite <i>(Standard)</i>
P	PTFE V-Ring <i>(Standard for P1S)</i>
V	PTFE Inverted V-Ring (Vacuum Service)
D	PTFE Pressure & Vacuum V-Ring

How to Order **POWER-SEAL** High Performance Butterfly Valves

How To Order Manual Power-Seal High Performance Butterfly Valves	
1 2 - 3 - 4 - 5 6 7 - 8 9 10	
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	
P1SC - W1 - 0300 - GS R - X A P	

How To Order Automated Power-Seal High Performance Butterfly Valves	
1 2 - 3 - 4 - 5 6 7 - 8 9 10 / actuator size - options	
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	
P1SC - W1 - 0300 - GS R - X A P / 2R5S - XX	
(see Actuator Size Legend & Automated Accessories)	

How to Order Triac Pneumatic Actuators



TRIAC® Model Number Matrix for Pneumatic Rack & Pinion Actuators

- 2** TRIAC® Rack & Pinion Actuator with double travel stops
- T** TRIAC® Rack & Pinion Actuator with single travel stop (TR10DA, TR20DA, TR20SR only)

- R** ISO / DIN mounting configuration
- CI** Direct mount to Center Line® BFV**
- K** Direct mount to Keystone® / ABZ / Ultraflow® BFV
- N** Direct mount to Nibco® BFV (special order: CF)
- D** Direct mount to Demco® BFV (special order: CF)

Note: Others available, call for details

0000 Actuator size (10, 20, 40, 80, 130, 200, 300, 500, 850, 1200, 1750, 2500, 3500)

- DA** Double acting configuration
- DAR** Double acting (reverse acting) configuration
- SR** Spring return fail clockwise configuration
- SO** Spring return fail counter-clockwise configuration

- Blank** Standard Buna seals (-5°F to 175°F)
- V** Viton® seals (0°F to 300°F)
- LT** Low temperature Buna seals (-45°F to 175°F)

- Blank** 5 springs per side (SR & SO only) (See brochure for 2CI model numbers)
- 0** Specify number of springs per side (1-6) (SR & SO only)
(See brochure for 2CI model numbers)

- E** Extra long travel stops

Example: 2R80SRE (TRIAC Model 80 Rack & Pinion Actuator with Travel Stop in both directions, Spring Return fail clockwise, with Extra long travel stops)

**Note: When ordering a 2CI actuator, please specify the valve size per the 2CI model numbers on page 9 of our Rack & Pinion brochure (LIT0004).

Triac WE / XE Series Part Number Reference

Model	
WE	Weather Proof, CSA TYPE 4, 4X, IP67
XE	Explosion Proof Design, ATEX & IECEx Ex d IIB T4 Gb, IP67
FE	Fire Proof Unit (1050°F for 50 Min)
SE	Submersible unit (IP68, 10 meters for 72 Hours)

Control	
Blank	(2) Position Control (Open / Close)
M	Standard Modulating Control Card (TMC3) with 4-20mA transmitter
D	High Resolution Modulating Card (TDC) (TDC-100 or TDC-400; see Misc. Options for transmitter)
P	Profibus DP On/Off
R	Modbus RTU (RS485) On/Off
L	Boiler Feed (4-20mA) <i>TSM extension recommended</i>
S	Boiler Feed (0-135ohm) <i>TSM extension recommended</i>



Actuator	
Size	
-350	350 In-Lbs
-350HS	270 In-Lbs
-500	500 In-Lbs
-690	690 In-Lbs
-1350	1350 In-Lbs
-1700	1700 In-Lbs
-2640	2640 In-Lbs
-4400	4400 In-Lbs
-5200	5200 In-Lbs
-6900	6900 In-Lbs
-10500	10500 In-Lbs
-17500	17500 In-Lbs
-25900	25900 In-Lbs
-53000	53000 In-Lbs
-80000	80000 In-Lbs

Motor	
X	115VAC/1PH <i>Place holder only - Omit when at end of part number</i>
A	24 VDC/VAC - On/Off (Sizes 350 - 2640)
B	12VDC (XE-690 only)
C	24VDC WED/XED/SED models only (Sizes 500 - 2640)
C2	24VDC - 3 wire On/Off (Sizes 500 - 2640)
D	24VAC/1PH WED/XED/SED models only (Sizes 500 - 2640)
E	220VAC/1PH
F	220VAC/3PH (Sizes 1350 - 80000)
G	380VAC/3PH (Sizes 1350 - 80000)
H	440/460/480VAC/3PH (Sizes 1350 - 80000)

Options	
X	No options (Place holder only) <i>Omit when at end of part number</i>
B	Semi-integral Control Unit (1PH/3PH) (Sizes 13500 - 25900)
C	Intelligent Digital Control Unit (3PH) (Sizes 13500 - 80000)
D	Local / Remote Control Switches (Sizes 500 - 25900)
E	RCT Electronic Speed Control Module - 115 VAC only (Sizes 500 - 25900)
F	AMI 2-Wire Relay & Speed Control - 115 VAC only (Sizes 500 - 25900)
G	End of travel time delay (same in both directions)
HS1/HS2	See High Speed Options
R	2 Wire Control, Relay - 115 VAC control voltage
S	2 Wire Control, Relay - 24 VAC control voltage
T	2 Wire Control, Relay - 24 VDC control voltage

Miscellaneous Options Note: Add all miscellaneous options to end of part number	
Blank	No options
T	4-20mA Transmitter <i>Modulating "D" only</i>
N	1000 Ohm Potentiometer
O	5000 Ohm Potentiometer
P	10K Ohm Potentiometer
Y	180° Operation (Sizes 690 thru 10500)
Y-3P	180° Operation, 3 Position Control (Sizes 690 thru 10500)
L	-40°F Low Temp Kit (Sizes 500 thru 25900)
I	Visual LED Indicator (Open, Close, Power) (Sizes 690 thru 10500)
S	(4) Auxillary limit switches (6 total) (Sizes 690 thru 25900)
	Floor Drive Mounting Configuration - See Floor Drive Catalog

Examples

WEM-1350
(Weather Proof Housing, Modulating Control, model size 1350, 115VAC / 1PH)

WEM-1350XXT
(Weather Proof Housing, Modulating Control, model size 1350, 115VAC / 1PH, 4-20mA Transmitter)

A-T Controls reserves the right to change product designs and technical/dimensional specifications without notice.

TRIAC® XC Series CSA Approved Explosion Proof Actuators

Model	
XC	Explosion Proof, CSA Class I, Division 1, Groups C, D; T4 Type 4, 4X, 6 & 7, IP66/IP67 Ex d IIB T4 Gb Class I, Zone 1, AEx d IIB T4 Gb

Part Number Reference

Control	
Blank	(2) Position Control (Open / Close)
D	TDC Modulating Card (Provides 450 points of resolution) (Sizes 01350 - 25900)

Actuator Size	Output Torque			
	110 VAC	220 VAC	24V AC/DC	12 VDC
-00690	690	690	620	350
-00860	860	790	700	440
-01350	1350	1350	1350	-
-01700	1700	1590	1410	-
-02640	2640	2300	2120	-
-04400	3980	3980	-	-
-06900	6900	6900	-	-
-10500	9600	8300	-	-
-17500	17500	17500	-	-
-25900	25900	25900	-	-

Motor	
X	110VAC/1PH
A	24V AC/DC (Sizes 00690 - 02640)
B	12VDC (Sizes 00690 & 00860)
C	24VDC XCD MODELS ONLY (Sizes 00690 - 02640)
D	24VAC/1PH XCD MODELS ONLY (Sizes 00690 - 02640)
E	220VAC/1PH

Miscellaneous Options Note: Add all miscellaneous options to end of part number

Blank	No options
T	4-20mA Transmitter (XCD models only)
Y	180° Operation

NOTE: Class 1, Division 2 areas require a certified seal-off fitting during installation

Example

XC-01350X - Triac Explosion Proof Electric Actuator, 1350 In-Lbs (150Nm), 21 Second Operation, 110VAC/1PH, 50-60Hz, 2 FLA, Two Position Control, ISO Mounting, 10 Watts Compartment Heater & Thermostat, (2) Auxiliary Limit Switches with Independent Cams, (2) Torque Switches, Diecast Anodized Aluminum Polyester Coated Construction, Class F Extended Duty Fan Motor, Manual Override, (2) 3/4" NPT Conduit Connections, F07/F10 ISO Mounting Pad, 19MM (0.748) Star Output Drive, cCSAus Approved Class I, Division 1, Groups C, D; T4, Ex d IIB Gb T4, Class I, Zone 1, AEx d IIB Gb T4, Type 4, 4X, 6 & 7, IP66, IP67, Ambient Temp = -20°C to +60°C; Color - Silver

A-T Controls reserves the right to change product designs and technical/dimensional specifications without notice. See website for updates.



TRIAC THD Model Number Matrix

TRIAC® THD Model Number Matrix



THD Series

- S** - Symmetrical Scotch Yoke
- C** - Canted Scotch Yoke (N/A in S09 model)

Model (Center Body)

- 09**
- 11**
- 13**
- 16**
- 20**
- 27**

Actuator Action

- DA** - Double Acting
- SC** - Spring Return Fail Clockwise
- SO** - Spring Return Fail Counter-Clockwise

Pressure Group

- | | |
|------------|-------------|
| 200 | 735 |
| 280 | 785 |
| 335 | 835 |
| 385 | 935 |
| 435 | 985 |
| 485 | 1020 |
| 535 | |
| 585 | |
| 685 | |

Spring Cartridge

- Blank** - Double Acting
- Select spring code from spring return torque charts for specific actuator

Manual Override

- Blank** - No Override
- D** - Declutchable Gear (S09 only)
- J** - Jackscrew
- H** - Hydraulic (N/A on S09)

Seals & Grease

- Blank** - Standard Seals (-29°C to 93°C) (-20°F to 200°F)
- V** - High Temperature Seals (-18°C to 177°C) (0°F to 350°F)
- L** - Low Temperature Seals (-40°C to 82°C) (-40°F to 180°F)
- L1** - Low/High Temperature Seals (-50°C to 177°C) (-58°F to 350°F)

Example:

S 13 SC 435 CB H - L

S13SC435CBH-L: Triac S13 435 Pressure Group Heavy Duty Spring Return, Spring Cartridge SCS13CE, Spring Clockwise, Symmetrical Scotch Yoke Actuator with Travel Stop Adjustment in Both Directons, 11.73" Bolt Circle ISO 5211 Valve Mounting, 1/2" NPT Air Supply Connection Complete with Hydraulic Override and Low Temperature Seals

How To Order

TRUNNION MOUNTED BALL VALVES PART NUMBER MATRIX

Fire Safe Designation (must be included)

- X Non-Firesafe
- F Firesafe (standard)

Port

- F Full Port
- R Regular Port

Valve Series

- TS2 Soft seat Trunnion, 2 pc design (cast)
- TS3 Soft seat Trunnion, 3 pc design (forged)
- TSW Soft seat Trunnion, seal welded
- TM3 Metal seat Trunnion, 3 pc design (cast)
- TMW Metal seat Trunnion, seal welded

Body Material

- C A216 WCB (-20°F to 800°F)
 - 5 A352 LCB (-50°F to 800°F)
 - 8 A352 LCC (-50°F to 650°F)
 - X CF8M 316 SST (-450°F to 1200°F)
 - L CF3M 316L SST (-450°F to 800° F)
 - 7 A105N Forged Steel (-20°F to 800°F)
 - D CD3MN Duplex SST (-50°F to 550°F)
 - G CE3MN Super Duplex SST (-50°F to 550°F)
 - 6 WC6, A217 (-20° F to 1100° F)
 - 9 WC9, A217 (-20° F to 1100° F)
 - F A350 LF2 (-50° F to 800° F)
 - 4 A182 F316 (-450°F to 1200°F)
- (other options: consult factory)

End Connection

- | | | | |
|-----|---------|-----|----------|
| F1 | 150 RF | R1 | 150 RTJ |
| F3 | 300 RF | R3 | 300 RTJ |
| F6 | 600 RF | R6 | 600 RTJ |
| F9 | 900 RF | R9 | 900 RTJ |
| F15 | 1500 RF | R15 | 1500 RTJ |
| F25 | 2500 RF | R25 | 2500 RTJ |

- WE Weld End (*please see chart)
- X Special Configuration (BW x Flanged, etc.)

Bevel

- XX Standard Bevel or not applicable
- *See chart below for various options

* Weld End Connections Chart for ordering

Pipe Schedule	ANSI Class						
	150	300	600	900	1500	2500	Special
10	AA	AB	AC	AD	AE	AF	AY
20	BA	BB	BC	BD	BE	BF	BY
30	CA	CB	CC	CD	CE	CF	CY
40	DA	DB	DC	DD	DE	DF	DY
60	EA	EB	EC	ED	EE	EF	EY
80	FA	FB	FC	FD	FE	FF	FY
XH	GA	GB	GC	GD	GE	GF	GY
100	HA	HB	HC	HD	HE	HF	HY
120	JA	JB	JC	JD	JE	JF	JY
140	KA	KB	KC	KD	KE	KF	KY
160	LA	LB	LC	LD	LE	LF	LY
XXH	MA	MB	MC	MD	ME	MF	MY
Spec	YA	YB	YC	YD	YE	YF	YY

Valve Size

- | | | | |
|------|-----|------|-----|
| 0200 | 2" | 1600 | 16" |
| 0300 | 3" | 1800 | 18" |
| 0400 | 4" | 2000 | 20" |
| 0600 | 6" | 2400 | 24" |
| 0800 | 8" | 3000 | 30" |
| 1000 | 10" | 3600 | 36" |
| 1200 | 12" | 4200 | 42" |
| 1400 | 14" | 4800 | 48" |

Ball

- S 316 SS
- 9 LF2 / ENP
- 7 A105N / ENP
- 2 Tungsten Carbide Coated 316SST
- 3 316SST / HCr
- 4 Chrome Carbide Coated 316SST

Stem

- H 4140 / ENP
- A 17-4 PH®
- B XM-19
- S 316SST
- D Inconel® 718
- C Duplex 2205
- 9 A350 LF2 / ENP
- 7 A105N / ENP

Seat

- R1 RTFE (Single Piston)
- R2 RTFE (Double Piston)
- V1 Devlon® (Single Piston)
- V2 Devlon® (Double Piston)
- Z1 PEEK (Single Piston)
- Z2 PEEK (Double Piston)
- 3 316/Stellite®
- 2 Tungsten Carbide Coated 316SS
- 4 Chrome Carbide Coated 316SS

Packing

- G Graphite packing (standard)
- P TFE packing

Seals

- E EPDM
- B HNBR
- N HNBR AED
- W FKM
- V FKM AED
- X Custom Material/Compound

Paint

- X Standard
- S Special (Customer Specified Coating)

Options

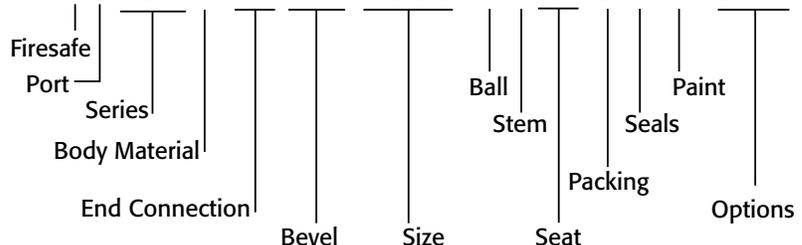
- H Wrench Operated to 4"
 - G Gear Operator
 - L Gear Operator w/ Locking Plate
 - X Bare Stem
 - V Vented Ball
 - E Extended Bonnet (specify extension length required)
 - B Bypass Piping w/ 2-way valve
 - F Factory Acceptance Test
 - C Customer to specify custom testing
 - S Spool Piece Mounting Kit for Automation
 - M Channel Design Mounting Kit for Automation
- (other options: consult factory)



HOW TO ORDER

A-T Trunnion Mounted Ball Valves:

FFTS27-F1XX-0600-77R1GWX-GBF



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