

# SURE SEAL™

INCORPORATED  
PART OF OPW FLUID TRANSFER GROUP  
A DOVER™ COMPANY



## Sure Seal Actuators and Accessories

Sure Seal Actuators and Accessories offer dependable, automated flow control for demanding applications in petroleum, chemical and industrial process applications such as refined fuels, hazardous chemicals and sanitary applications. These Actuators and Accessories are designed and manufactured with the highest standards in the industry and are guaranteed to exceed your application expectations. Sure Seal, part of OPW Fluid Transfer Group, stands behind all of its actuators and accessories sold and serviced.

## Take a look inside and find out the Sure Torque Advantage



SureTorque's Series ST is a proven winner in today's market. With over 14 sizes and 90°, 120°, 135°, 180°, 240° and 270° rotation, the SureTorque actuator can accommodate any situation. Double acting units start at 100 in.lbs. and go up to 37,200 in.lbs. of output torque at 80 PSI. Fail safe, spring

return models have output torques of 17 to 15,600 in.lbs. All units will operate from -10° F to 195° F and from 20 PSIG to The SureTorque actuator body is extruded, machined, anodized internally and externally, then polyester powder epoxy painted for maximum external and internal protection.

SureTorque pistons are diecast aluminum and the pinion is carbon steel, electroless nickel plated. Both pistons incorporate a large Delrin 500 wear pad which significantly increases the actuator cycle life. Upper and lower Delrin 500 bushings 150 PSIG input pressure with optional high and low temp. seals and bearings. All SureTorque actuators can be easily field converted from double acting to spring return by inserting the correct number of spring cartridges to the double acting unit, thus eliminating bulky housing extensions, saving weight and space. Specially designed, preloaded self-contained spring cartridges are completely contained before end cap screws release, ensuring the safest installation and removal.

The SureTorque Series ST is an uncomplicated compact design. Internal porting eliminates the need for costly, external tubing. Accessory mounting is to NAMUR standards. Solenoid mounting to NAMUR specifications is available, and is standard on sizes STU148 and above. minimize wear and increase actuator duty cycle. The DLS feature allows travel stop adjustment in both directions of travel.

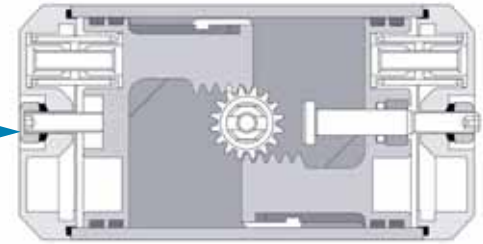
The SureTorque Series ST is available with a variety of accessories. Direct mount solenoids are available in NEMA 4, 7, and 9 in standard and special voltages. Limit switches are available in NEMA 4, 7 and 9. Positioners can be supplied to receive 3-15 PSI or 4-20 mA input control signals. Declutchable manual gear overrides are available for all size actuators.

The actuator drive side directly mounts to Sure Seal Butterfly Valves. Available in ISO 5211 Dimensional Standards to meet your needs.

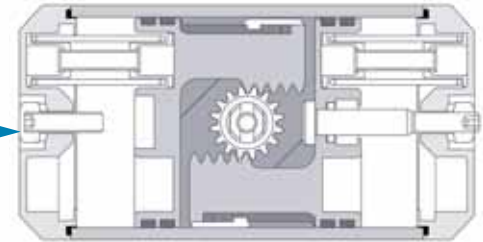
Safe, compact, versatile, rugged, long-lasting and economical. The SureTorque Series ST is the best choice for your actuation needs. Call or write for further information.

## Dual Limit Stop (DLS)

Adjustment for open (CCW) stroke at left side of actuator when facing ports. Screw CCW to increase travel

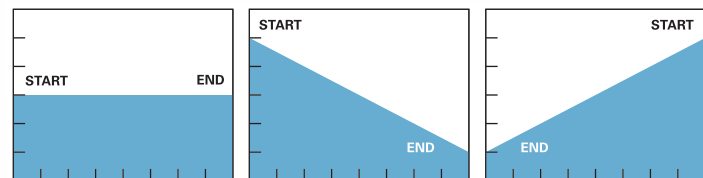


Adjustment for close (CW) stroke at right side of actuator when facing ports. Screw CW to increase travel



The DLS configuration available on SureTorque actuators allows quicker and safer adjustments of the stroke travel stops. The DLS adds no increase in external dimensions nor requires additional hardware to make adjustments.

## Torque Curves

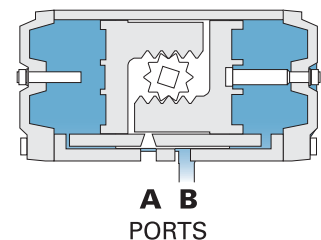
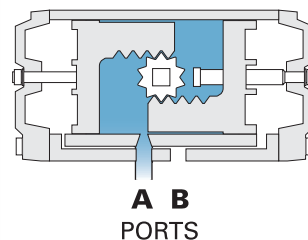


Constant output torque throughout travel

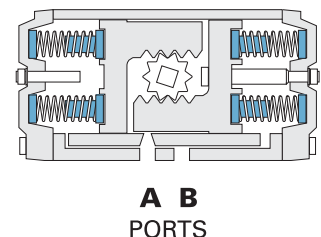
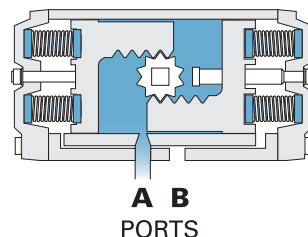
Air Stroke with counterclockwise rotation

Spring Stroke with clockwise rotation

## Double Acting Operation

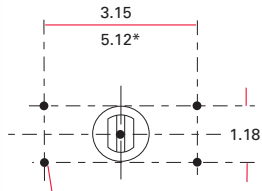


## Spring Return Operation

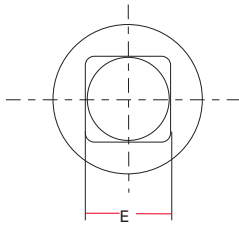




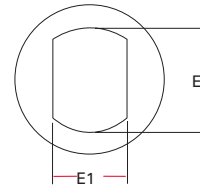
# Dimensional Data



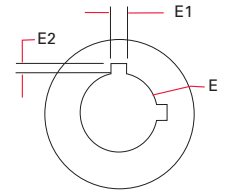
M5 X .31 DEEP. 4 PL  
STU586 AND LARGER  
TOP MOUNTING DETAIL



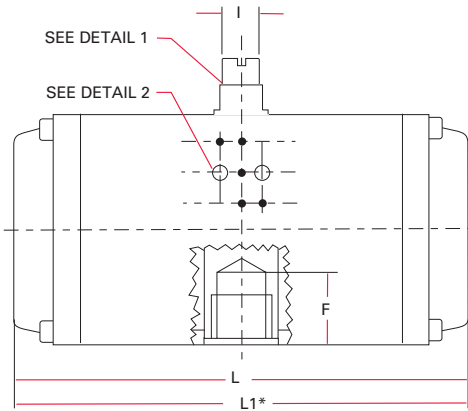
MODEL STM10-STM52  
OUTPUT SHAFT



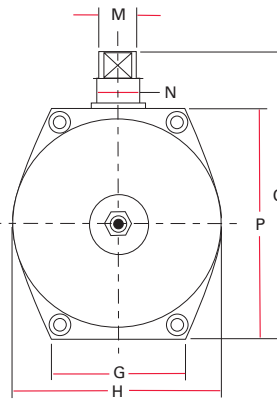
MODEL STU73-STU148  
OUTPUT SHAFT



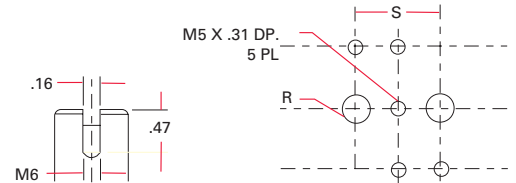
MODEL STU222-STU3720  
OUTPUT SHAFT



SIDE VIEW

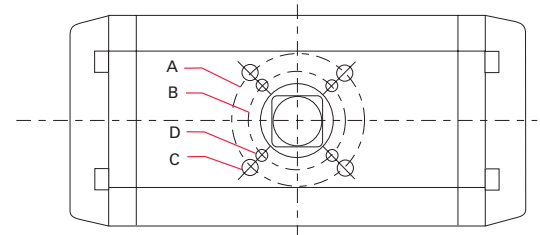


END VIEW



DETAIL 1

DETAIL 2

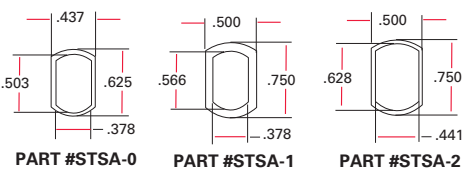


BOTTOM VIEW

Model	A	FO	B	FO	C*	D*	E	E1	E2	F	G	H	I	L	L1*	M	N	P	Q	R	S
STM10	1.65	FO4	1.42	FO3	#10-32	#10-32	.433	-	-	.55	1.77	2.05	.35	4.25	-	.472	.472	2.60	3.39	1/8	.87
STM20	1.97	FO5	1.42	FO3	1/4-20	#10-32	.551	-	-	.55	1.97	2.32	.39	5.00	7.52	.472	.472	2.91	3.70	1/8	.87
STM30	2.76	FO7	1.97	FO5	5/16-18	1/4-20	.551	-	-	.71	2.36	2.76	.39	5.24	7.72	.472	.472	3.46	4.25	1/8	.87
STM52	2.76	FO7	1.97	FO5	5/16-18	1/4-20	.669	-	-	.75	2.56	3.27	.39	6.10	9.09	.551	.707	3.94	4.73	1/8	.87
STU73	2.76	FO7	1.97	FO5	5/16-18	1/4-20	.753	.503	-	1.65	2.56	3.58	.39	6.97	10.43	.551	.707	4.25	5.04	1/8	.87
STU103	2.76	FO7	1.97	FO5	5/16-18	1/4-20	.753	.503	-	1.65	2.76	3.94	.55	7.99	11.97	.788	.984	4.61	5.40	1/8	.87
STU148	4.02	F10	2.76	FO7	3/8-16	5/16-18	.753	.503	-	1.65	3.54	4.72	.55	8.50	12.48	.788	.984	5.51	6.30	1/4	.94
STU222	4.02	F10	2.76	FO7	3/8-16	5/16-18	1.125	.250	.125	2.30	3.54	4.72	.79	11.18	16.46	1.102	1.575	5.51	6.30	1/4	.94
STU295	4.02	F10	2.76	FO7	3/8-16	5/16-18	1.125	.250	.125	2.32	4.06	5.39	.79	11.42	17.36	1.102	1.575	6.30	7.10	1/4	.94
STU470	4.92	F12	4.02	F10	1/2-13	3/8-16	1.128	.250	.125	2.32	4.33	6.77	.79	13.27	-	1.102	1.575	7.80	8.98	1/4	.94
STU586	4.92	F12	4.02	F10	1/2-13	3/8-16	1.128	.250	.125	2.32	4.33	6.77	1.10	14.49	21.89	1.417	1.575	7.80	8.98	1/4	.94
STU900	5.51	F14	-	-	5/8-11	-	1.128	.250	.125	2.32	5.31	8.82	1.26	17.72	-	1.417	2.362	10.00	11.18	1/4	.94
STU1213	5.51	F14	-	-	5/8-11	-	1.628	.375	.188	3.37	5.31	8.82	1.26	17.72	26.61	1.850	2.362	10.00	11.18	1/4	.94
STU2366	6.50	F16	-	-	3/4-10	-	1.878	.38X.50	.188	4.57	6.26	10.71	1.26	23.07	34.84	1.850	2.362	11.89	13.07	1/4	.94
STU2958	6.50	F16	-	-	3/4-10	-	1.878	.38X.50	.188	4.53	6.26	10.71	1.26	26.22	-	1.850	2.362	11.89	13.07	1/4	.94
STU3720	6.50	F16	-	-	3/4-10	-	1.878	.38X.50	.188	4.53	6.30	14.17	1.26	26.89	-	1.850	2.362	14.17	15.35	1/2	1.97

Top mounting dimensions for accessories to Namur standard. Bottom mounting is to DIN-ISO standards. Solenoid mounting to Namur specifications is available on all units and is standard on units STM52 and higher. C\* & D\* UNC bolt sizes. L1\* 180 end-to-end dimensions.

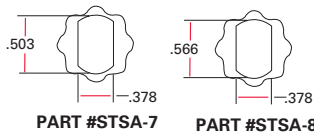
# Adapter Dimensions



PART #STSA-0

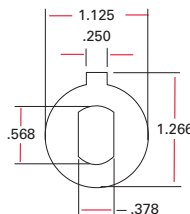
PART #STSA-1

PART #STSA-2

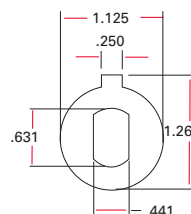


PART #STSA-7

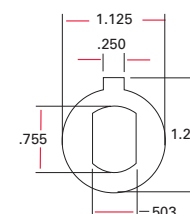
PART #STSA-8



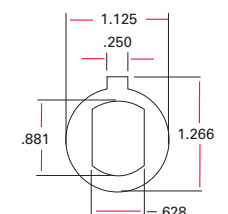
PART #STSA-3



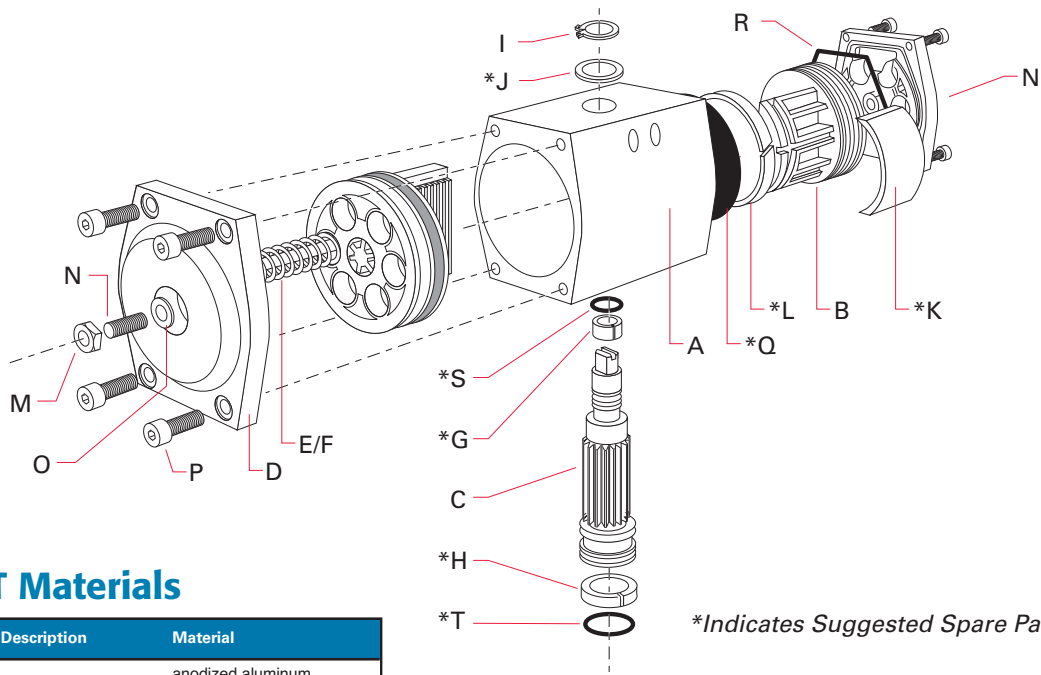
PART #STSA-4



PART #STSA-5



PART #STSA-6



## Series ST Materials

Qty.	Description	Material
A	1 body	anodized aluminum polyester epoxy coating
B	2 piston**	die cast aluminum
C	1 pinion	E.N.P. ASTM B656 Steel
D	2 end cap**	epoxy coated aluminum
E	Max 12 spring	epoxy coated steel
F	Max 12 spring cartridge	Delrin/brass
G	1 upper pinion bearing	Delrin 500
H	1 lower pinion bearing	Delrin 500
I	1 circlip	E.N.P. ASTM B656 Steel
J	1 pinion washer	Delrin 500
K	2 piston skate	Delrin 500
L	2 piston guide ring	Delrin 500
M	2 sealing nut	304 Stainless Steel
N	2 travel stop	304 Stainless Steel
O	2 travel stop o-ring	BUNA N
P	8 end cap screw	304 Stainless Steel
Q	2 piston o-ring	BUNA N
R	2 end cap o-ring	BUNA N
S	1 upper pinion o-ring	BUNA N
T	1 lower pinion o-ring	BUNA N

## Weight in Pounds

Model	90°	120°	180°	K6
STM 10	1.00	-	-	1.20
STM 20	1.98	2.20	2.65	2.20
STM 30	2.98	3.26	3.97	3.42
STM 52	4.30	4.74	5.95	5.07
STU 73	5.51	5.95	7.94	6.39
STU 103	7.39	8.16	11.25	8.38
STU 148	10.58	11.47	13.56	12.79
STU 222	14.99	16.90	20.68	17.86
STU 295	18.74	20.73	26.02	22.49
STU 470	-	-	-	-
STU 586	34.40	39.69	55.79	42.78
STU 900	-	-	-	-
STU 1213	68.80	81.14	106.94	86.66
STU 2366	132.32	146.63	173.60	180.81
STU 2958	160.97	177.60	-	209.48
STU 3720	205.00	-	-	267.00

## Air Consumption

Model	90°	120°	180°	K6
STM 10	12.8	-	-	6.7
STM 20	15.3	17.1	28.1	7.3
STM 30	22.0	24.4	41.5	9.2
STM 52	36.6	42.7	68.3	15.3
STU 73	52.5	61.0	99.5	22.0
STU 103	67.1	82.4	131.2	27.5
STU 148	112.9	137.3	189.2	41.5
STU 222	152.6	176.9	341.7	67.1
STU 295	218.5	241.0	415.0	86.7
STU 470	-	-	-	-
STU 586	416.2	476.0	790.2	174.5
STU 900	-	-	-	-
STU 1213	872.6	1013.0	1293.7	360.0
STU 2366	1586.6	1861.2	2471.5	701.8
STU 2958	1922.2	2288.4	-	1037.4
STU 3720	2955.0	-	-	1594.0

\*\*ST10-ST20 utilize polyilamide materials

Cubic Inches per Cycle (Open/Close)

## Accessories



### Positioners

The Series SP/SE from Sure Torque is designed and manufactured to offer years of trouble free and economical operation. Every component has been field tested and field proven to exceed your expectations of performance and reliability. The Series SP/SE simply outperforms every other positioner in its class.



### Limit Switches

Sure Seal's Watchman VPT Series are ruggedly designed to meet industrial process requirements for reliable cost effective feedback systems. Sure Seal's Sentinel VPT Series are ruggedly designed to keep up with today's advanced process control technology. The Sentinel VPT is an accurate, versatile valve position transmitter.



### Solenoids

Sure Seal Solenoids are constructed with quality Anodized Aluminum for the body, phosphate treated black steel springs copper shading coil and stainless steel core and core tube. We are committed to providing the strength and performance you demand.

OPW Fluid Transfer Group (OPWFTG), part of Dover Corporation (NYSE:DOV), is comprised of market-leading operating companies, each dedicated to designing, manufacturing and distributing world-class solutions for the safe handling and transporting of hazardous bulk products. In addition to these companies, OPWFTG has manufacturing plants in North America, Europe, Brazil and India; and sales offices in Singapore, and China.

Throughout the world, OPWFTG companies are hard at work ensuring the safe processing, loading, transporting and unloading of hazardous bulk products and safeguarding against costly petroleum and chemical spills, tank overfills and fugitive vapor emissions. Whether your need is in the chemical plant, at the terminal loading rack, or outfitting a fleet of rail tank cars, cargo tanks or dry-bulk trailers, OPWFTG systems set the standard for safety, performance and peace-of-mind assurance in the most rigorous and demanding applications. If the safe, profitable handling of hazardous liquids and dry bulk commodities such as gasoline and diesel, chlorine, chlor-alkali products, LPG, acids, cement, flour and starch, among others, is your concern, trust OPWFTG.

### EXPERT SOLUTIONS FOR THE SAFE HANDLING & TRANSPORTING OF HAZARDOUS BULK PRODUCTS

	Applications	Processing	Load	Transporting		Unload
<b>PETROLEUM</b>	<ul style="list-style-type: none"> <li>Gasoline</li> <li>Ethanol</li> <li>Alcohols</li> <li>Fuel Oil</li> <li>LPG</li> </ul>	<ul style="list-style-type: none"> <li>Bellow Sealed Valves</li> <li>Sample Valves</li> <li>Lined Ball Valves</li> <li>Lined Butterfly Valves</li> <li>Industrial Valves</li> <li>ISO Rings</li> <li>Sight Flow Indicators</li> <li>Globe Valves</li> <li>Swivels</li> <li>Dry Disconnects</li> </ul>	<ul style="list-style-type: none"> <li>Loading Arms</li> <li>Couplers</li> <li>Rack Monitors</li> <li>Dry Disconnects</li> <li>API Coupler</li> <li>Swivels</li> </ul>	<b>Cargo Tanks</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Vapor Vents</li> <li>Electronics</li> <li>Internal Valves</li> <li>API Adaptors</li> <li>Sealed Parcel</li> <li>Pneumatic Controls</li> <li>Manifold Systems</li> </ul>	<b>Rail Tank Cars</b> <ul style="list-style-type: none"> <li>Pressure Relief Valves</li> <li>Plug Valves</li> <li>Ball Valves</li> <li>Level Measurement</li> <li>Autoloks</li> <li>Kamaloks</li> <li>Dryloks</li> <li>Rupture Disc Devices</li> <li>Angle Valves</li> </ul>	<ul style="list-style-type: none"> <li>Drylok Couplers</li> <li>Adaptors</li> <li>Delivery Elbows</li> <li>Vapor Recovery Elbows</li> <li>Swivels</li> </ul>
<b>CHEMICALS</b>	<ul style="list-style-type: none"> <li>Chlorine</li> <li>Acids &amp; Bases</li> <li>Amines</li> <li>Anhydrous Ammonia</li> <li>Propylene</li> <li>Butadiene</li> <li>Hazardous Liquids</li> </ul>	<ul style="list-style-type: none"> <li>Bellow Sealed Valves</li> <li>Sample Valves</li> <li>Lined Ball Valves</li> <li>Lined Butterfly Valves</li> <li>Industrial Valves</li> <li>ISO Rings</li> <li>Sight Flow Indicators</li> <li>Globe Valves</li> <li>Swivels</li> <li>Dry Disconnects</li> <li>Quick Disconnects</li> <li>Epsilon</li> </ul>	<ul style="list-style-type: none"> <li>Loading Arms</li> <li>Autoloks</li> <li>Kamaloks</li> <li>Dryloks</li> <li>Loading Manholes</li> <li>Valves</li> <li>Actuators</li> <li>Swivels</li> <li>Epsilon</li> </ul>	<b>Cargo Tanks</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Vapor Vents</li> <li>Electronics</li> <li>Internal Valves</li> <li>Sealed Parcel</li> <li>Epsilon</li> </ul>	<b>Rail Tank Cars</b> <ul style="list-style-type: none"> <li>Safety Valves</li> <li>Plug Valves</li> <li>Ball Valves</li> <li>Level Measurement</li> <li>Autoloks</li> <li>Kamaloks</li> <li>Dryloks</li> <li>Rupture Disc Devices</li> <li>Angle Valves</li> <li>Epsilon</li> </ul>	<ul style="list-style-type: none"> <li>Loading Arms</li> <li>Autoloks</li> <li>Kamaloks</li> <li>Dryloks</li> <li>Valves</li> <li>Actuators</li> <li>Safety Breakaways</li> <li>Swivels</li> <li>Epsilon</li> </ul>
<b>DRY BULK</b>	<ul style="list-style-type: none"> <li>Cement</li> <li>Flour/Starch</li> <li>Pharmaceuticals</li> </ul>	<ul style="list-style-type: none"> <li>Industrial Valves</li> <li>Sight Flow Indicators</li> <li>Butterfly Valves</li> <li>Swivels</li> </ul>	<ul style="list-style-type: none"> <li>Loading Arms</li> <li>Aerators</li> <li>Hatch Covers</li> <li>Swivels</li> </ul>	<b>Cargo Tanks</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Check Valves</li> <li>Hopper Tees</li> <li>Butterfly Valves</li> <li>Aerators</li> <li>Weld Rings</li> </ul>	<b>Rail Cars</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Hatches</li> <li>Access Ports</li> <li>Check Valves</li> <li>Hopper Tees</li> <li>Butterfly Valves</li> <li>Aerators</li> <li>Pressure Vacuum Valves</li> </ul>	<ul style="list-style-type: none"> <li>Aerators</li> <li>Butterfly Valves</li> <li>Tank Hatches</li> <li>Pressure Relief</li> <li>Vacuum Relief</li> <li>Temperature Monitoring</li> </ul>
<b>INDUSTRIAL/GENERAL</b>	<ul style="list-style-type: none"> <li>Food Processing</li> <li>Pharmaceuticals</li> <li>Waste Water</li> <li>High-Purity Liquids</li> <li>Breweries</li> <li>Pulp and Paper</li> <li>Steel Processing</li> </ul>	<ul style="list-style-type: none"> <li>Lined Ball Valves</li> <li>Lined Butterfly Valves</li> <li>Sample Systems</li> <li>Sight Flow Indicators</li> <li>ISO Rings</li> <li>Dry Disconnects</li> <li>Swivels</li> <li>Quick Disconnects</li> <li>High-Performance Butterfly Valves</li> <li>Epsilon</li> </ul>	<ul style="list-style-type: none"> <li>Loading Arms</li> <li>Couplers</li> <li>Rack Monitors</li> <li>Swivels</li> <li>Dry Disconnects</li> <li>Quick Disconnects</li> <li>Butterfly Valves</li> <li>Epsilon</li> </ul>	<b>Cargo Tanks</b> <ul style="list-style-type: none"> <li>Manholes</li> <li>Vapor Vents</li> <li>Electronics</li> <li>Weld Rings</li> <li>Hopper Tees</li> <li>Pneumatic Controls</li> <li>Sealed Parcel</li> <li>Dry Disconnects</li> <li>Epsilon</li> </ul>	<b>Rail Tank Cars</b> <ul style="list-style-type: none"> <li>Safety Valves</li> <li>Plug Valves</li> <li>Ball Valves</li> <li>Level Measurement</li> <li>Autoloks</li> <li>Kamaloks</li> <li>Dryloks</li> <li>Rupture Disc Devices</li> <li>Angle Valves</li> <li>Epsilon</li> </ul>	<ul style="list-style-type: none"> <li>Loading Arms</li> <li>Couplers</li> <li>Rack Monitors</li> <li>Swivels</li> <li>Dry Disconnects</li> <li>Quick Disconnects</li> <li>Butterfly Valves</li> <li>Epsilon</li> </ul>

#### Chemical & Industrial Processing Market Unit

- Food Processing
- Chemical Plants
- Petroleum Loading Stations
- Steel Processing, Pulp & Paper
- Waste Water Treatment
- Pharmaceutical
- Breweries
- High-Purity Liquids

#### Rail Market Unit

- Pressure & General Purpose Rail Tank Cars
- Dry Bulk Rail Cars
- Ethanol Rail Tank Cars

#### Cargo Tank Market Unit

- Gasoline & Diesel
- Dry Bulk
- Ethanol



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