

Series 227

Pneumatic Rack & Pinion Actuator Datasheet



Pneumatic Rack & Pinion Actuator Series 227



Standard Construction Specifications

Pressure Range

40 to 142 psi

Temperature Range *

-4 to 176 degrees F

Stroke

90 degrees +/- 5 degrees

Media

Dry or lubricated air.

Use of lubricated air, once started, cannot be discontinued.

Lubrication

All moving parts are factory lubricated.

No additional lubrication required.

Construction

Suitable for indoor and outdoor installation.

Mounting Dimension

ABZ standard for direct mounting capabilities.

Model 210, 240, and 270 are designed to

ISO mount standards.

See dimension charts on pages 4 – 6

* High temp and low temp configurations available.

Features and Benefits

- Thirteen models
- Rack and Pinion
- Double Acting and Spring Return
- Four different break and seat torque combinations per model using the pre-loaded spring cartridges
- NAMUR interface for easy solenoid mounting
- Mid-body NAMUR interface for easy air and electrical connections
- Anodized aluminum cylinders and epoxy coated end-caps secured with stainless steel fasteners for corrosion resistance
- Large piston guides and rings provide minimum cylinder wear and optimum contact between the rack and pinion
- Dual travel stops

Double Acting Torque Chart (inch pounds)

Model	40PSI	60PSI	80PSI	100PSI	120PSI	Weight		Volume Cu. In.	
						Lbs	Kg	CW	CCW
50DA	77	115	154	192	231	2.9	1.3	7.9	6.2
63DA	136	203	272	340	409	3.5	1.6	16.0	10.8
75DA	269	404	539	673	808	6.4	2.9	29.5	21.2
88DA	424	636	847	1,060	1,272	9.3	4.2	45.8	35.9
100DA	614	921	1,227	1,534	1,842	12.3	5.6	65.0	50.0
115DA	997	1,494	1,992	2,490	2,989	20.0	9.1	105.0	79.8
125DA	1,282	1,922	2,562	3,202	3,844	22.0	10.0	137.9	103.7
145DA	2,016	3,023	4,031	5,039	6,047	30.4	13.8	224.5	165.8
160DA	2,630	3,944	5,259	6,574	7,889	46.9	21.3	288.8	213.7
180DA	3,551	5,326	7,101	8,877	10,652	59.0	26.8	420.0	279.4
210DA	4,929	7,394	9,858	12,323	14,789	80.8	36.7	569.6	382.0
240DA	10,342	15,513	20,684	25,855	31,025	133.0	60.0	989.0	769.0
270DA	14,336	21,504	28,671	35,839	43,007	190.0	86.0	1,391.0	1,080.0



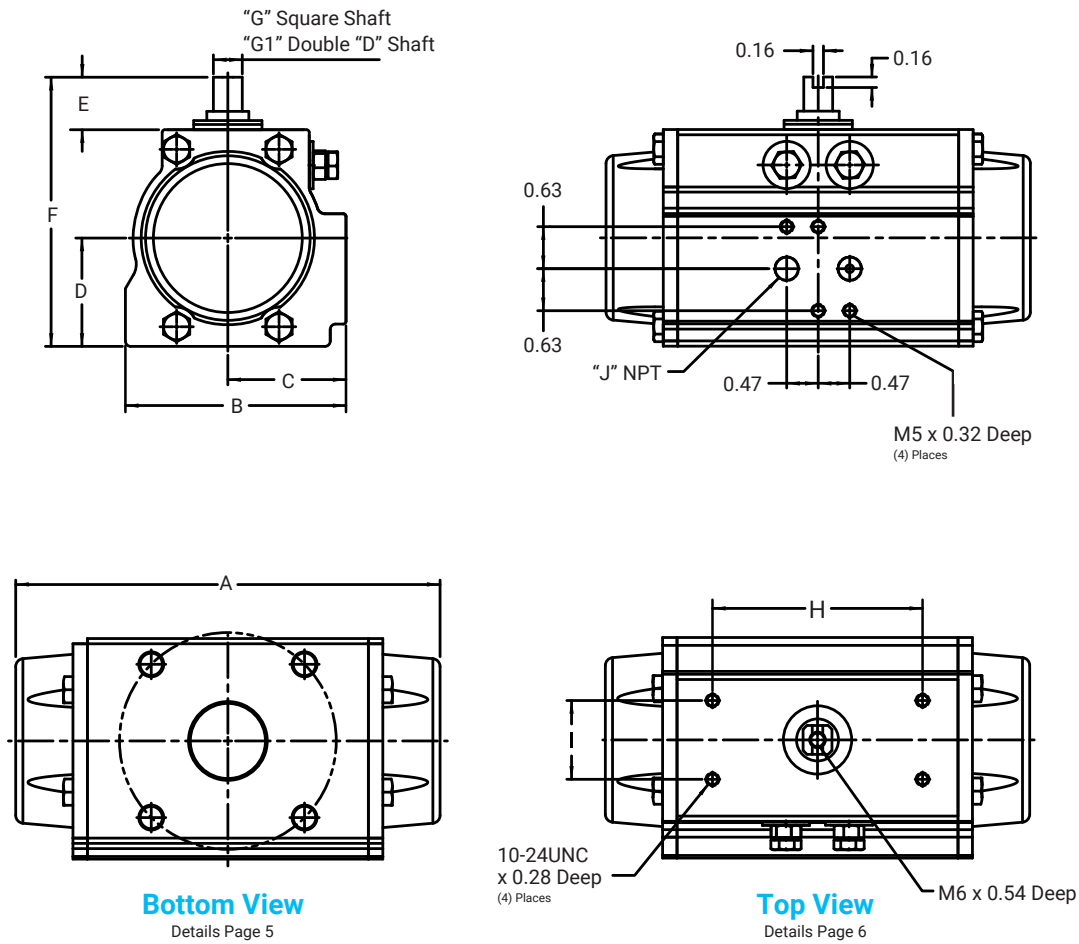
Pneumatic Rack & Pinion Actuator Series 227



Spring Return Torque Chart (inch pounds)

Model	Set	Spring Torque		40 PSI		60 PSI		80 PSI		100 PSI		120 PSI		Weight 5 Spring		Volume Cu. In.	
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Lbs	Kg	Spring	Air
50SR	3/3	48	33	44	29	83	67							3.1	1.4	7.9	6.2
	4/4	66	46			70	50	109	89	148	128						
	5/5	82	56					98	72	136	111	166	141				
	6/6	99	68					86	56	124	94	154	124				
63SR	3/3	85	59	80	49	148	118							3.7	1.7	16.0	10.8
	4/4	114	76			129	89	198	158	266	226						
	5/5	142	93					180	129	248	198	299	249				
	6/6	170	112					161	101	230	169	281	220				
75SR	3/3	175	112	158	95	294	231							7.0	3.2	29.5	21.2
	4/4	233	149			256	172	391	307	526	442						
	5/5	291	186					354	249	488	383	590	485				
	6/6	349	223					316	190	451	325	552	427				
88SR	3/3	292	185	239	133	451	345							10.4	4.7	45.8	35.9
	4/4	389	246			390	248	602	461	815	670						
	5/5	486	309					542	364	752	575	912	734				
	6/6	583	370					480	267	691	478	850	637				
100SR	3/3	398	256	361	219	670	528							14.1	6.4	65.0	50.0
	4/4	530	340			584	395	884	697	1,201	1,012						
	5/5	662	427					801	566	1,115	880	1,347	1,111				
	6/6	794	511					715	434	1,031	748	1,263	979				
115SR	3/3	661	413	582	335	1,081	834							21.1	9.6	105.0	79.8
	4/4	883	551			942	613	1,441	1,112	1,939	1,609						
	5/5	1,101	690					1,303	891	1,802	1,390	2,176	1,764				
	6/6	1,320	827					1,165	670	1,663	1,169	2,038	1,544				
125SR	3/3	831	530	754	454	1,395	1,093							25.3	11.5	137.9	103.7
	4/4	1,110	706			1,219	818	1,859	1,458	2,499	2,099						
	5/5	1,387	883					1,684	1,183	2,324	1,823	2,804	2,303				
	6/6	1,664	1,059					1,509	907	2,149	1,548	2,630	2,028				
145SR	3/3	1,302	832	1,185	718	2,195	1,728							37.4	17.0	224.5	165.8
	4/4	1,732	1,110			1,916	1,294	2,926	2,304	3,936	3,314						
	5/5	2,169	1,387					2,648	1,871	3,658	2,880	4,416	3,638				
	6/6	2,597	1,664					2,369	1,436	3,380	2,447	4,137	3,204				
160SR	3/3	1,673	1,134	1,496	951	2,812	2,268							54.0	24.5	288.8	213.7
	4/4	2,236	1,513			2,433	1,706	3,749	3,023	5,065	4,339						
	5/5	2,791	1,883					3,371	2,462	4,687	3,779	5,673	4,766				
	6/6	3,354	2,261					2,992	1,902	4,308	3,219	5,295	4,206				
180SR	3/3	2,387	1,597	1,958	1,164	3,733	2,937							70.5	32.0	420.0	279.4
	4/4	3,186	2,127			3,202	2,142	4,976	3,916	6,750	5,691						
	5/5	3,985	2,660					4,446	3,122	6,220	4,896	7,551	6,226				
	6/6	4,775	3,186					3,916	2,327	5,691	4,101	7,021	5,432				
210SR	3/3	3,178	2,143	2,790	1,756	5,257	4,224							94.3	42.8	569.6	382.0
	4/4	4,237	2,858			4,542	3,164	7,009	5,631	9,476	8,098						
	5/5	5,296	3,573					6,295	4,571	8,762	7,039	10,612	8,889				
	6/6	6,356	4,287					5,579	3,511	8,048	5,979	9,898	7,830				
240SR	3/3	7,082	4,730	5,292	2,815	10,879	8,526	16,731	14,377					154.0	70.0	989.0	769.0
	4/4	9,444	6,301			9,307	6,166	15,159	12,023	21,012	17,875						
	5/5	11,804	7,877			7,733	3,805	13,588	9,661	19,438	15,512	24,569	20,436				
	6/6	14,168	9,453					12,015	7,298	17,866	13,150	22,912	17,951				
270SR	3/3	9,958	6,643	7,449	3,961	15,311	11,998	23,542	20,229					225.0	102.0	1,391.0	1,080.0
	4/4	13,278	8,859			13,091	8,676	21,322	16,908	29,555	25,139						
	5/5	16,597	11,073			10,880	5,355	19,111	13,587	27,342	21,818	34,559	28,744				
	6/6	19,917	13,287					16,900	10,266	25,131	18,497	32,228	25,250				

Pneumatic Rack & Pinion Actuator Series 227

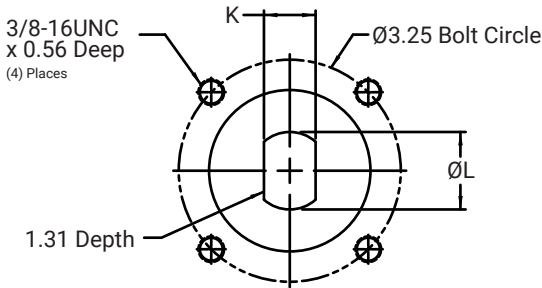


Dimensions

Model	Dimensions										
	A	B	C	D	E	F	G	G1	H	I	J
50	5.43	3.11	1.57	1.54	0.79	3.82	0.43	NA	3.15	1.18	1/8"
63	6.43	3.31	1.77	1.62	0.79	4.07	0.43	NA	3.15	1.18	1/8"
75	8.17	3.72	2.07	1.91	0.79	4.72	0.67	NA	3.15	1.18	1/8"
88	9.56	4.30	2.37	2.22	0.79	5.33	0.67	NA	3.15	1.18	1/4"
100	10.60	4.88	2.72	2.52	0.79	5.89	0.67	NA	3.15	1.18	1/4"
115	12.09	5.41	2.87	2.85	0.79	6.52	0.67	NA	3.15	1.18	1/4"
125	13.37	5.69	3.15	3.11	1.18	7.38	1.06	NA	5.12	1.18	1/4"
145	15.84	6.63	3.54	3.52	1.18	8.23	1.06	NA	5.12	1.18	1/4"
160	16.97	7.34	3.94	3.82	1.18	8.74	1.06	NA	5.12	1.18	1/4"
180	18.74	8.03	4.02	4.37	1.18	9.92	NA	1.18 x 1.67 dia	5.12	1.18	1/4"
210	21.13	8.78	4.39	4.80	1.18	10.79	NA	1.18 x 1.67 dia	5.12	1.18	1/4"
240	26.63	10.43	5.22	5.75	1.18	12.52	NA	1.18 x 1.67 dia	5.12	1.18	1/4"
270	30.00	12.04	6.02	6.36	1.18	13.9	NA	1.18 x 1.67 dia	5.12	1.18	1/4"

Pneumatic Rack &
Pinion Actuator
Series 227

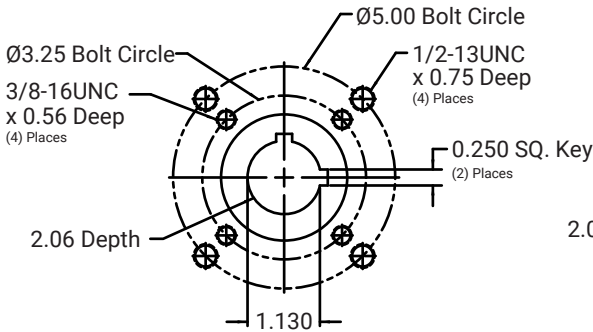
Bottom Mounting Dimensions



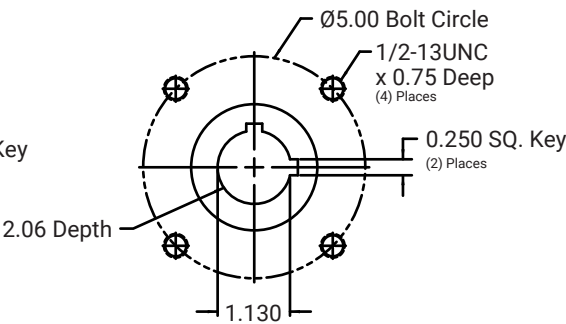
Actuator Mounting
Models 50 thru 100

Bore Dimensions

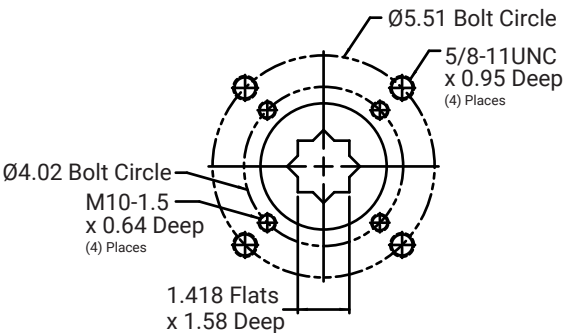
Model	Dimensions	
	K	L
50	.378	.568
63	.378	.568
75	.503	.755
88	.503	.755
100	.503	.755



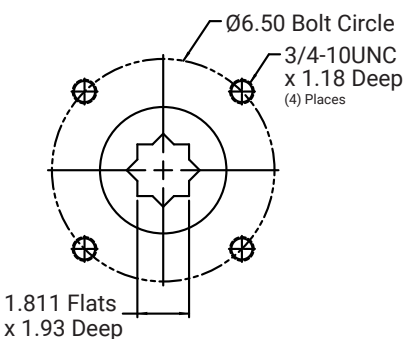
Actuator Mounting
Models 115 thru 160



Actuator Mounting
Model 180



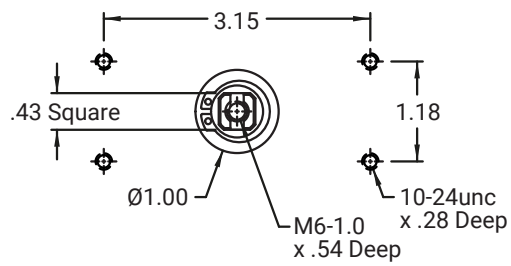
Actuator Mounting
Model 210



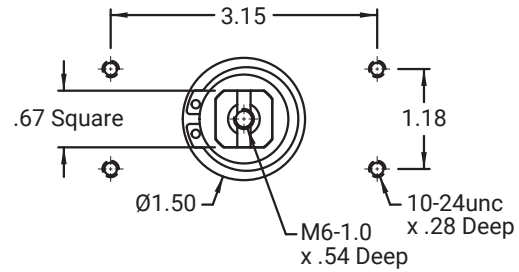
Actuator Mounting
Model 240 thru 270

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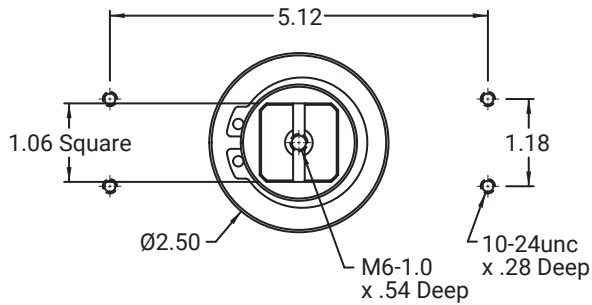
Top Mounting Dimensions – Accessories & Controls



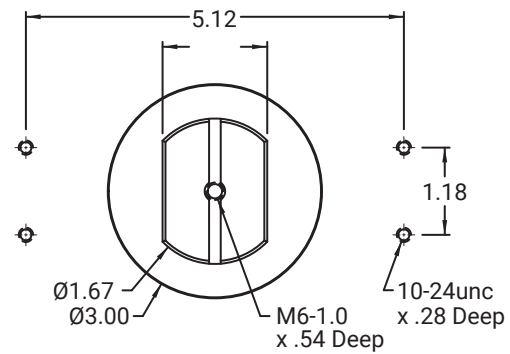
Models 50 thru 63



Models 75 thru 115



Models 125 thru 160

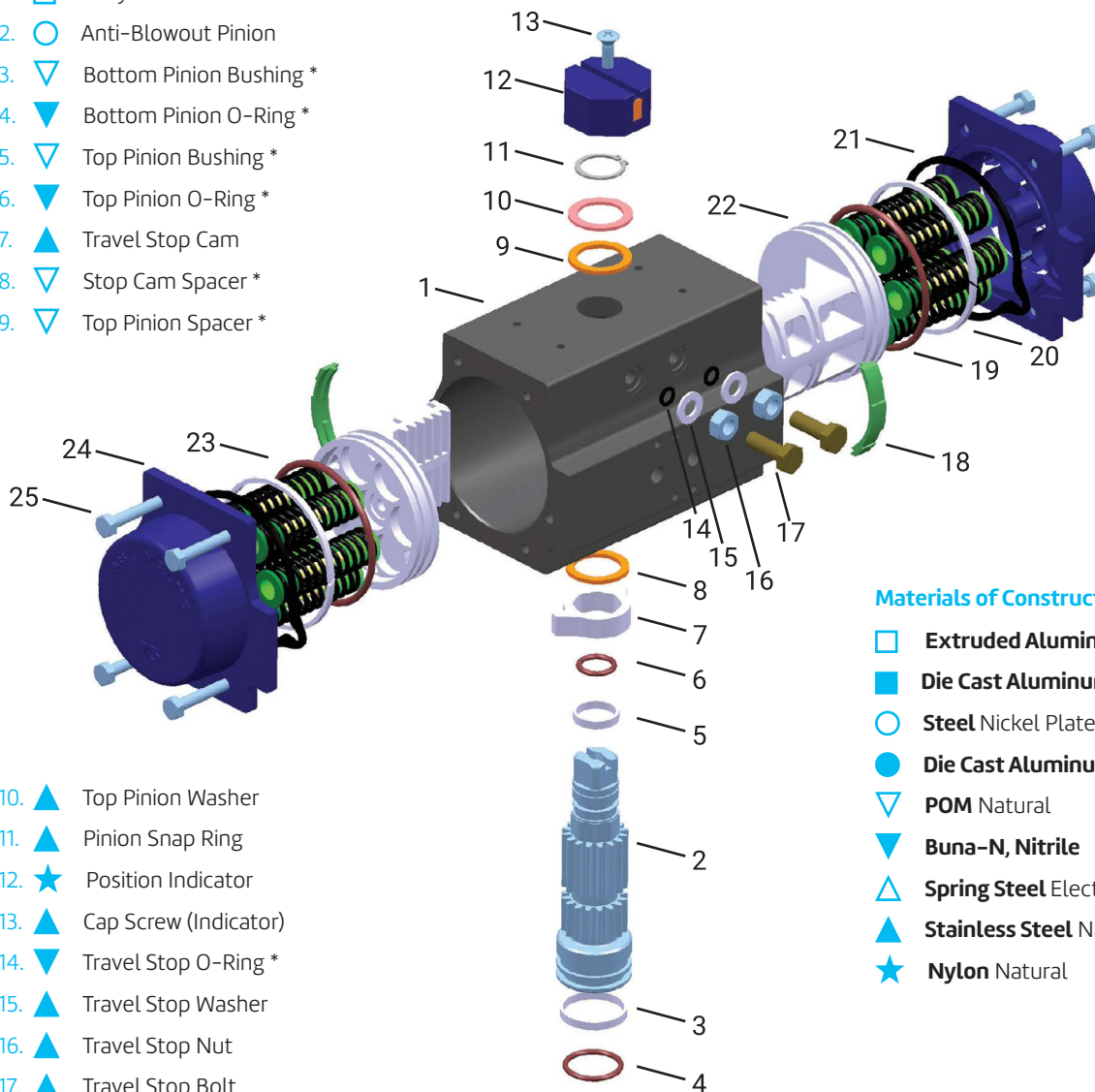


Models 180 thru 270

Pneumatic Rack & Pinion Actuator Series 227

No. Name

1.  Body
2.  Anti-Blowout Pinion
3.  Bottom Pinion Bushing *
4.  Bottom Pinion O-Ring *
5.  Top Pinion Bushing *
6.  Top Pinion O-Ring *
7.  Travel Stop Cam
8.  Stop Cam Spacer *
9.  Top Pinion Spacer *



10.  Top Pinion Washer
11.  Pinion Snap Ring
12.  Position Indicator
13.  Cap Screw (Indicator)
14.  Travel Stop O-Ring *
15.  Travel Stop Washer
16.  Travel Stop Nut
17.  Travel Stop Bolt
18.  Piston Guide Plate *
19.  Piston O-Ring *
20.  Piston Guide Ring *
21.  End Cap Seals *
22.  Piston
23.  Spring Cartridge
24.  End Cap
25.  End Cap Bolts

Materials of Construction

-  **Extruded Aluminum alloy** Hard Anodized
-  **Die Cast Aluminum** Blue Epoxy Coated
-  **Steel** Nickel Plated
-  **Die Cast Aluminum alloy** Natural
-  **POM** Natural
-  **Buna-N, Nitrile**
-  **Spring Steel** Electrophoretic
-  **Stainless Steel** Natural
-  **Nylon** Natural

* Recommended Spare Parts Kit

Pneumatic Rack & Pinion Actuator Series 227



Example: 227-88SO4B

The designation for an ASC Series 227, model 88, spring return, fail counterclockwise, rack & pinion actuator with Buna-N seals, 4 springs and standard travel stops in both directions, is: 227-88SO4B.

How to Order Series 227

227	-	88	SO	4	B	
Series		Model	Action	Springs per Side	Seals	Options
Series		Model	Action	Springs per Side	Seals	Options
227	Pneumatic Actuator with Dual Travel Stops	Rack & Pinion 50 63 75 88 100 115 125 145 160 180 210 240 270	SC Spring Return, Fail Clockwise (CW) DA Double Acting (CW to close) Non-Standard SO Fail CCW (Counter Clockwise) DR Double Acting (Reverse acting)	No Code <blank> DA & DR Rack & Pinion, SC, SO 1 1 spring 2 2 springs 3 3 springs 4 4 springs 5 <Std> 5 springs 6 6 springs	B <Std> Buna-N, Nitrile [standard] -5°F to 175°F Non-Standard V Viton® 0°F to 300°F L Low temperature Silicone (-45°F to 175°F)	Options No Code <blank> Standard Ports 1/8" NPT 50 thru 75 1/4" NPT 88 thru 270 E Extra long travel stops (1)

(1) Not available in size 50

Note:

Responsibility for proper selection, use and maintenance of any product remains solely with the purchaser and end user. We reserve the right to modify or improve the designs or specifications of any product at any time without notice.



About ASC Engineered Solutions

ASC Engineered Solutions is defined by quality—in its products, services and support. With nearly 2,000 employees, the company's portfolio of precision-engineered piping support, valves and connections provides products to more than 4,000 customers across industries, such as mechanical, industrial, fire protection, oil and gas, and commercial and residential construction. Its portfolio of leading brands includes ABZ Valve®, AFCON®, Anvil®, Anvil EPS, Anvil Services, Basic-PSA, Beck®, Catawissa, Cooplet®, FlexHead®, FPPI®, Gruvlok®, J.B. Smith, Merit®, North Alabama Pipe, Quadrant®, SCI®, Sharpe®, SlideLOK®, SPF®, SprinkFLEX®, Trenton Pipe and VEP. With headquarters in Oak Brook, IL, ASC also has ISO 9001:2015 certified production facilities in PA, TN, IL, TX, AL, LA, KS, and RI.



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