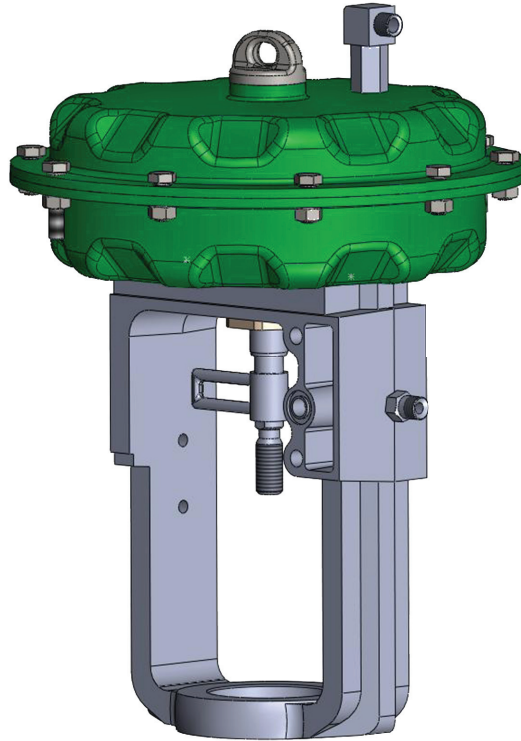


Series ASP Spring and Diaphragm Actuator



FEATURES

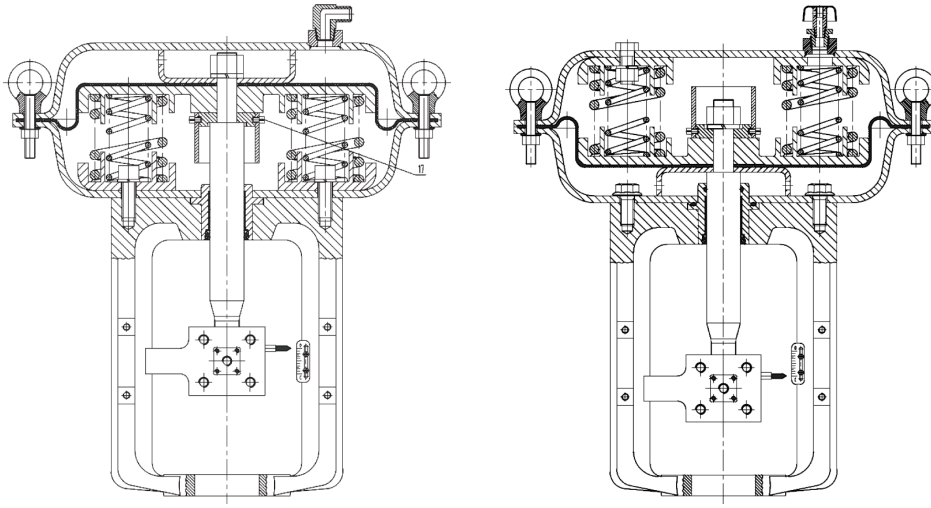
- ▶ Pneumatically operated Multi-Spring Actuator - Field reversible on most sizes
- ▶ Direct or NAMUR Mounting - (Tubeless Option), Instrument air supply between Positioner and Actuator is attained through bores inside the yoke providing reliability and space on conventional designs.
- ▶ Integrated Compression Springs - Helps ensure fail position
- ▶ Manual Override - Optional
- ▶ Multi-Spring Design - Allows interchanging of springs for multiple spring rates. Smaller springs have lower stresses and higher fatigue life. Designed for 1,000,000+ cycles
- ▶ Travel Stop - Optional

*Equipment should be installed, operated, serviced, and maintained only by qualified personnel.
No responsibility is assumed by Schneider Electric for any consequences arising from the use of this material.*

MATERIALS OF CONSTRUCTION

Key Components

Figure 1. Key Components



Direct Acting

Reverse Acting

Table 1. Key Components

Series	ASP2, ASP3, ASP4, and ASP5
Type	Multi-Spring Pneumatic Diaphragm Actuator
Size	320 cm ² (50 in ²), 720 cm ² (112 in ²), 110cm ² (170 in ²), 1510 cm ² (234 in ²)
Function	Direct Acting (DA): Air Extends Shaft / Reverse Acting (RA): Air Retracts Shaft
Output Force	2.4 - 66 kN (540 - 14835 lbf)
Stroke	10 - 120 mm (0.4 - 4.7 inch)
Air Supply	1.2 - 6.0 Bar (18 - 87 psig) (See actuator data for sizes and rating)
Performance	Hysteresis: Less than 1% of Full Stroke with Positioner Less than 3% of Full Stroke without Positioner Linearity: Less than +/- 1% of Full Stroke with Positioner Less than +/- 5% of Full Stroke without Positioner
Temperature Range	Standard: -29°C to +80°C (-20°F to +180°F) Low Temp: -46°C to +60°C (-50°F to +140°F)
Materials	Diaphragm Case: Carbon Steel Diaphragm NBR (STD) HNBR: Low Temp Drive Shaft: 304 Yoke: Ductile Iron
Painting	Green
Accessories	Smart Positioner E/P Positioner, P/P Positioner, Air-Set, Booster Relay, Air-Valve, Limit Switch, Solenoid Valve, Lock-Valve, Speed Controller, Position Transmitter, Other Options: Contact Global Customer Support
Option	Manual Handwheel, Yoke Material, Special Air Piping, Special Air Fittings, Low-Temp Service, High-Temp Service, Tropical Area Proof, Salt Environment Proof, Cold Area Proof, Various Painting Options

ACTUATOR SPRING RANGES

Figure 2. Direct Acting and Reverse Acting Actuators

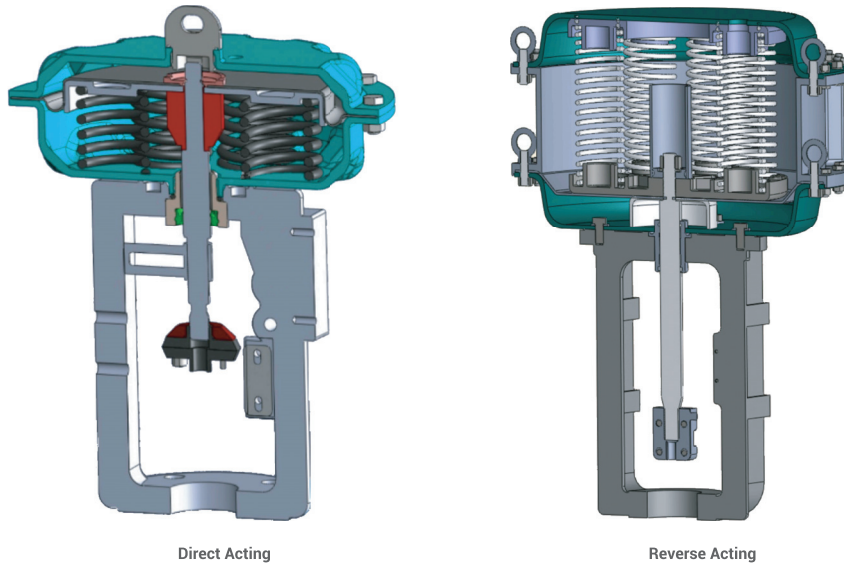


Table 2. ASP2 Actuators Spring Ranges

	Model	Springs Number	Stroke		Spring Range					Model	Springs Number	Stroke		Spring Range			
			mm	inch	bar	psi	mm	inch				bar	psi				
Direct Acting (Air to Close)	ASP2D-73B	3	30	1.18	0.75	1.50	10.9	21.8	Reverse Acting (Air to Open)	ASP2R-73B	3	30	1.18	0.75	1.50	10.9	21.8
	ASP2D-76B	6			1.50	3.00	21.8	43.5		ASP2R-76B	6			1.50	3.00	21.8	43.5
	ASP2D-83B	3	30	1.18	0.75	1.50	10.9	21.8		ASP2R-83B	3	30	1.18	0.75	1.50	10.9	21.8
	ASP2D-86B	6			1.50	3.00	21.8	43.5		ASP2R-86B	6			1.50	3.00	21.8	43.5
	ASP2D-93B	3	20	0.79	0.75	1.50	10.9	21.8		ASP2R-93B	3	20	0.79	0.75	1.50	10.9	21.8
	ASP2D-96B	6			1.50	3.00	21.8	43.5		ASP2R-96B	6			1.50	3.00	21.8	43.5

Notes:

1. Actuator area is 320 cm², 50 in².
2. Maximum air supply is 6 barg, 87 psig.
3. Full stroke ranges of the actuator springs are shown, partial stroke versions of the actuator are available.

Table 3. ASP3 Actuators Spring Ranges

	Model	Springs Number	Stroke		Spring Range					Model	Springs Number	Stroke		Spring Range			
			mm	inch	bar		psi					mm	inch	bar		psi	
Direct Acting (Air to Close)	ASP3D-33B	3	30	1.18	0.75	1.50	10.9	21.8	Reverse Acting (Air to Open)	ASP3R-33B	3	30	1.18	0.75	1.50	10.9	21.8
	ASP3D-36B	6			1.50	3.00	21.8	43.5		ASP3R-36B	6			1.50	3.00	21.8	43.5
	ASP3D-39B	9			1.80	3.70	26.1	53.7		ASP3R-39B	9			1.80	3.70	26.1	53.7
	ASP3D-30B	12			2.20	4.40	31.9	63.8		ASP3R-30B	12			2.20	4.40	31.9	63.8
	ASP3D-43B	3	60	2.36	0.75	1.50	10.9	21.8		ASP3R-43B	3	60	2.36	0.75	1.50	10.9	21.8
	ASP3D-46B	6			1.50	3.00	21.8	43.5		ASP3R-46B	6			1.50	3.00	21.8	43.5
	ASP3D-49B	9			1.70	3.60	24.7	52.2		ASP3R-49B	9			1.70	3.60	24.7	52.2
	ASP3D-40B	12			2.00	4.30	29.0	62.4		ASP3R-40B	12			2.00	4.30	29.0	62.4

Notes:

1. Actuator area is 720 cm², 112 in².
2. Maximum air supply is 6 barg, 87 psig.
3. Full stroke ranges of the actuator springs are shown, partial stroke versions of the actuator are available.

Table 4. ASP4 Actuators Spring Ranges

	Model	Springs Number	Stroke		Spring Range					Model	Springs Number	Stroke		Spring Range			
			mm	inch	bar		psi					mm	inch	bar		psi	
Direct Acting (Air to Close)	ASP4D-23	3	30	1.18	0.80	1.40	11.6	20.3	Reverse Acting (Air to Open)	ASP4R-23	3	30	1.18	0.80	1.40	11.6	20.3
	ASP4D-26	6			1.70	2.90	24.7	42.1		ASP4R-26	6			1.70	2.90	24.7	42.1
	ASP4D-29	9			2.00	3.60	29.0	52.2		ASP4R-29	9			2.00	3.60	29.0	52.2
	ASP4D-20	12			2.50	4.50	36.3	65.3		ASP4R-20	12			2.50	4.50	36.3	65.3
	ASP4D-33	3	60	2.36	0.80	1.40	11.6	20.3		ASP4R-33	3	60	2.36	0.80	1.40	11.6	20.3
	ASP4D-36	6			1.50	2.50	21.8	36.3		ASP4R-36	6			1.50	2.50	21.8	36.3
	ASP4D-43	3	38	1.50	0.80	1.40	11.6	20.3		ASP4R-43	3	38	1.50	0.80	1.40	11.6	20.3
	ASP4D-46	6	40	1.57	1.50	2.50	21.8	36.3		ASP4R-46	6	40	1.57	1.50	2.50	21.8	36.3
	ASP4D-53	3	50	1.97	0.80	1.40	11.6	20.3		ASP4R-53	3	50	1.97	0.80	1.40	11.6	20.3
	ASP4D-56	6			1.50	2.50	21.8	36.3		ASP4R-56	6			1.50	2.50	21.8	36.3
	ASP4D-63	3	60	2.36	0.80	1.40	11.6	20.3		ASP4R-63	3	60	2.36	0.80	1.40	11.6	20.3
	ASP4D-66	6			1.50	2.50	21.8	36.3		ASP4R-66	6			1.50	2.50	21.8	36.3
	ASP4D-73	3	75	2.95	0.80	1.40	11.6	20.3		ASP4R-73	3	75	2.95	0.80	1.40	11.6	20.3
	ASP4D-76	6			1.50	3.00	21.8	43.5		ASP4R-76	6			1.50	3.00	21.8	43.5

Notes:

1. Actuator area is 1100 cm², 170 in².
2. Maximum air supply is 5.5 barg, 80 psig.
3. Full stroke ranges of the actuator springs are shown, partial stroke versions of the actuator are available.

Table 5. ASP5D Actuators Spring Ranges

	Model	Springs Number	Stroke		Spring Range			
			mm	inch	bar		psi	
Direct Acting (Air to Close)	ASP5D-14	3	38	1.50	1.1	1.57	16.0	22.8
	ASP5D-16	6			40	1.57	1.63	2.36
	ASP5D-18	8	2.17	3.15			31.5	45.7
	ASP5D-24	4	50	1.97			1.10	1.69
	ASP5D-26	6			1.63	2.54	23.6	36.8
	ASP5D-34, 84	4	60	2.36	1.10	1.81	16.0	26.2
	ASP5D-36, 86	6			1.63	2.72	23.6	39.4
	ASP5D-44	4	75	2.95	1.10	2.00	16.0	29.0
	ASP5D-46	6			1.63	3.00	23.6	43.5
	ASP5D-54, 74	4	100	3.94	1.10	2.50	16.0	36.3
	ASP5D-56, 76	6			1.65	3.75	23.9	54.4
	ASP5D-64	4	120	4.72	0.82	2.50	11.9	36.3
	ASP5D-66	6			1.22	3.75	17.7	54.4

Notes:

1. Actuator area is 1501 cm², 234 in².
2. Maximum air supply is 6 barg, 87 psig
3. Full stroke ranges of the actuator springs are shown, partial stroke versions of the actuator are available.

Table 6. ASP5R Actuators Spring Ranges

	Model	Springs Number	Stroke		Spring Range			
			mm	inch	bar		psi	
Reverse Acting (Air to Close)	ASP5R-14	4	38	1.50	1.33	1.81	19.3	26.2
	ASP5R-16	6			40	1.57	1.99	2.72
	ASP5R-18	8	50	1.97			2.65	3.63
	ASP5R-24	4			60	2.36	1.33	1.93
	ASP5R-26	6	75	2.95			1.99	2.90
	ASP5R-34	4			100	3.94	1.33	2.05
	ASP5R-36	6	120	4.72			1.99	3.08
	ASP5R-38	8			75	2.95	38.4	15.8
	ASP5R-44	4	100	3.94			1.33	2.24
	ASP5R-46	6			120	4.72	1.99	3.35
	ASP5R-48	8	100	3.94			2.65	4.47
	ASP5R-54	4			120	4.72	1.09	2.50
	ASP5R-56	6	120	4.72			1.65	3.75
	ASP5R-58	8			120	4.72	2.19	5.00
	ASP5R-66	6	120	4.72			1.22	3.75
	ASP5R-68	9			120	4.72	1.63	5.00

Notes:
 1. Actuator area is 1501 cm², 234 in².
 2. Maximum air supply is 6 barg, 87 psig
 3. Full stroke ranges of the actuator springs are shown, partial stroke versions of the actuator are available.

DIMENSIONS AND WEIGHTS

Figure 3. Actuator With or Without Top Mounted Handwheel

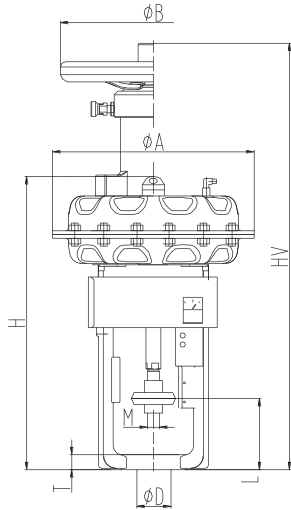


Figure 4. Actuator With Side Mounted Handwheel

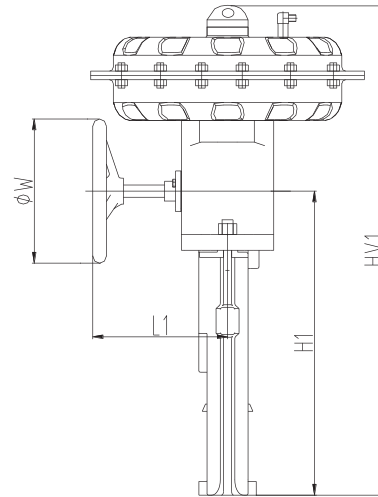


Figure 5. Actuator With Mechanical Travel Stop

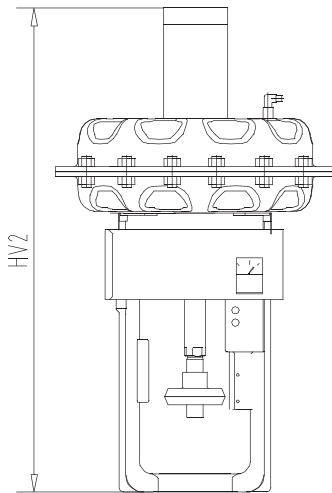


Table 7. Dimensions for ASP2 and ASP3 Actuators, Imperial/Metric

Model	Stroke		Φ A		Φ D		M	H		L		T		Weight	
	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	kg	lbs
ASPD/R-14	16/20	.39/.63	208	8.2	65	2.6	M12	248	9.8	120	4.7	20	0.8	8.5	19
ASP2D/R-7X	16/20/30	.39/.63/.79	270	10.6	65	2.60	M12	380	15.0	120	4.7	20	0.8	16	35
ASP2D/R-8X	20/30	.79/1.18	270	10.6	76	3.00	M14/M18x1.5	425	16.7	142	5.6	25	1.0	18	40
ASP2D/R-9X	20	0.79	270	10.6	76	3.00	M18X1.5	405	15.9	142	5.6	25	1.0	18	40
ASP3D/R-3X	10/20/30	.39/.79/1.18	400	15.7	76	3.00	M14	505	19.9	142	5.6	25	1.0	36	79
ASP3D/R-4X	45/60	1.77/2.36	400	15.7	76	3.00	M18X1.5	595	23.4	192	7.6	30	1.2	44	97
ASP3D/R-6X	10/16/20	.39/.63/.79	400	15.7	65	2.60	M14	505	19.9	142	5.6	20	0.8	36	79

Table 8. Dimensions for ASP2 and ASP3 Actuators, Metric

Model	Stroke	Φ B	HV	L1	H1	Φ W	HV1	HV2	Weight side handwheel	Weight top handwheel	Weight mechanical limit stop
	mm	mm	mm	mm	mm	mm	mm	mm	kg	kg	kg
ASP2D/R-7X	10/16/20	200	540	159	308	200	500	550	25	24	20
ASP2D/R-8X	20/30		580		331		545	595	28	27	22
ASP2D/R-9X	20		560		331		525	550	28	27	22
ASP3D/R-3X	10/20/30	250	780	197	424	250	685	690	59	58	44
ASP3D/R-4X	45/60		920		498		825	830	65	64	52
ASP3D/R-6X	10/16/20		780		424		685	690	59	58	44

Table 9. Dimensions for ASP2 and ASP3 Actuators, Imperial

Model	Stroke	Φ B	HV	L1	H1	Φ W	HV1	HV2	Weight side handwheel	Weight top handwheel	Weight mechanical limit stop
	inch	inch	inch	inch	inch	inch	inch	inch	lb.	lb.	lb.
ASP2D/R-7X	.39/.63/.79	8.0	21.0	6.0	12.0	8	20	22	55	53	44
ASP2D/R-8X	.79/1.18		23.0		13.0		21	23	62	59	48
ASP2D/R-9X	0.79		22.0		13.0		21	22	62	59	48
ASP3D/R-3X	.39/.63/.79	10.0	31.0	8.0	17.0	10	27	27	130	128	97
ASP3D/R-4X	1.77/2.36		36.0		20.0		32	33	143	141	114
ASP3D/R-6X	.39/.63/.79		31.0		17.0		27	27	130	128	97

Figure 6. Actuator Without Handwheel

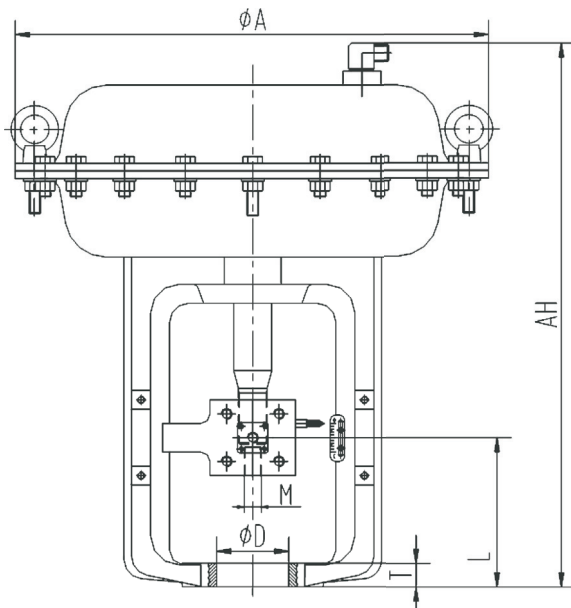


Figure 7. Actuator With Side Mounted Handwheel

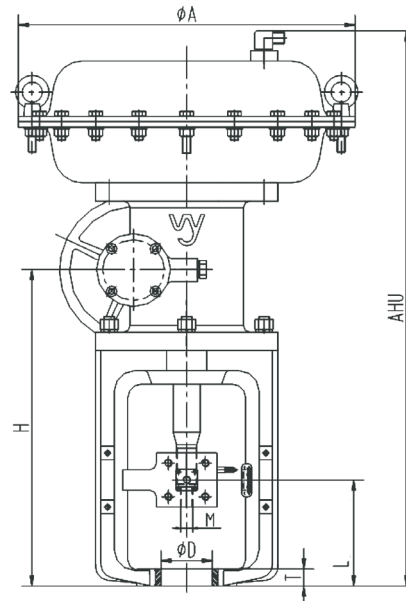


Table 10. Dimensions for ASP4 without Handwheel

Model	Stroke		Φ A mm (inch)	Φ D mm (inch)	M	AHU		L Direct		L Reverse		T		Weight	
	mm	inch				mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
ASP4D-1X	20	0.79	500 (19.7)	76 (3.00)	M18X1.5	590	23.2	148	5.8	112	4.4	25	1.0	95	210
ASP4D-2X	30	1.18			M14/M18x1.5			158	6.2						
ASP4D-3X	60	2.36			M1.8X1.5			210	8.3						
ASP4D-4X	38/40	1.50/1.57		90 (3.54)	M1.8X1.5	750	29.5	226	8.9	172	6.8	35	1.4		
ASP4D-5X	50	1.97						236	9.3						
ASP4D-6X	60	2.36						246	9.7						
ASP4D-7X	75	2.95						256	10.1						

Table 11. Dimensions for ASP4 with Handwheel

Model	Stroke		Φ A mm (inch)	Φ D mm (inch)	M	AHU		L Direct		L Reverse		T		Weight	
	mm	inch				mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
ASP4D-1X	20	0.79	500 (19.7)	76 (3.00)	M18X1.5	840	33	148	5.8	112	4.4	25	1.0	165	364
ASP4D-2X	30	1.18			M14/M18x1.5			158	6.2						
ASP4D-3X	60	2.36			M1.8X1.5			210	8.3						
ASP4D-4X	38/40	1.50/1.57		90 (3.54)	M1.8X1.5	1065	42	226	8.9	172	6.8	35	1.4		
ASP4D-5X	50	1.97						236	9.3						
ASP4D-6X	60	2.36						246	9.7						
ASP4D-7X	75	2.95						256	10.1						

Figure 8. Actuator Without Handwheel

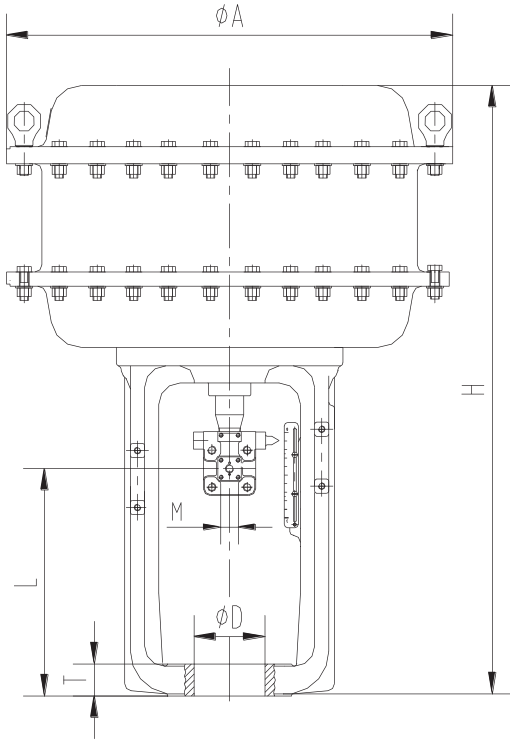


Figure 9. Actuator With Top Mounted Handwheel

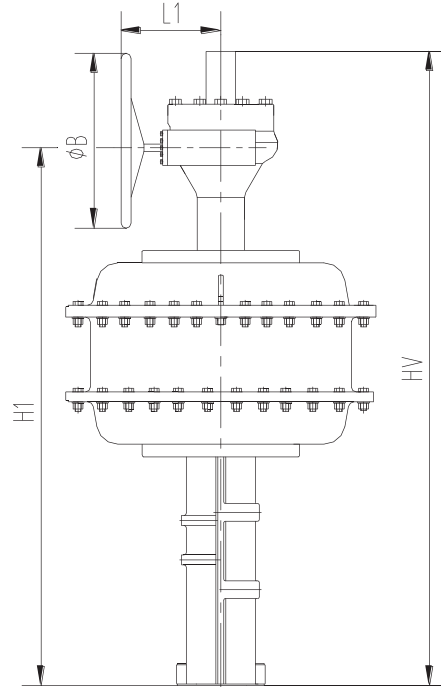


Table 12. Dimensions for ASP5

Model	Stroke		Φ A mm (inch)	Φ B mm (inch)	Φ D		M	H		HV		L		T		Weight	
	mm	inch			mm	inch		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
ASP5D	45/60	1.77/2.36	630 (24.8)	350 (13.8)	76	2.99	M18X1.5	890	35	1265	50	198	7.8	30	1.2	150	330
	100	3.94			100	3.94	M27X2	920	36	1295	51	337	13.3	45	1.8	220	485
	120	4.72			100	3.94	M27X2	920	36	1370	54	137	5.4	30	1.2	150	330
ASP5R	45/60	1.77/2.36	630 (24.8)	350 (13.8)	76	2.99	M18X1.5	890	35	1370	54	137	5.4	30	1.2	150	330
	100	3.94			100	3.94	M27x2	920	36	1400	55	237	9.3	45	1.8	220	485
	120	4.72			100	3.94	M27x2	920	36	1400	55	216	8.5	45	1.8	220	485

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