

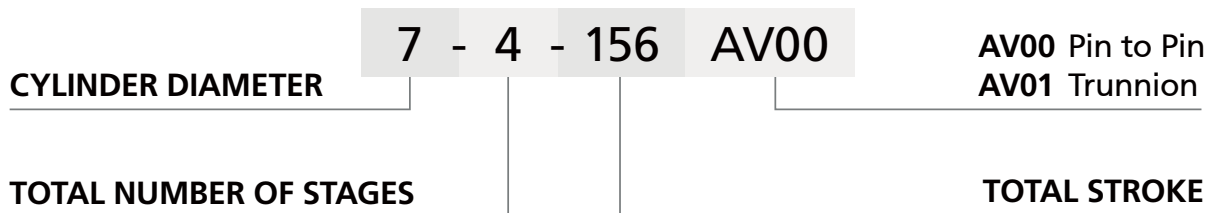
Hydraulic cylinders

Discover our line of Binotto cylinders

Bezares is continuing its efforts to offer a complete range of high quality products to accentuate its already proven line of PTO's, pumps, valves, and tanks. The latest addition is the line of Binotto high quality telescopic cylinders, designed for the dump body and dump trailer markets. Some of the design features include a Pin to Pin and a Trunnion design, ranging from 90-285 inches in overall stroke. In the next pages you will find their key features and benefits.



Part Number Breakdown



Pin to pin	6-3-120AV00	7-4-135AV00	8-5-190AV00	8-5-250AV00
	6-3-126AV00	7-4-156AV00	8-5-220AV00	8-5-265AV00
Trunnion	4.5-3-090AV01	5.5-3-140AV01	6.5-4-160AV01	6.5-4-180AV01
	5.5-3-130AV01	6.5-4-150AV01	6.5-4-170AV01	7.5-4-185AV01

Key Features & Benefits

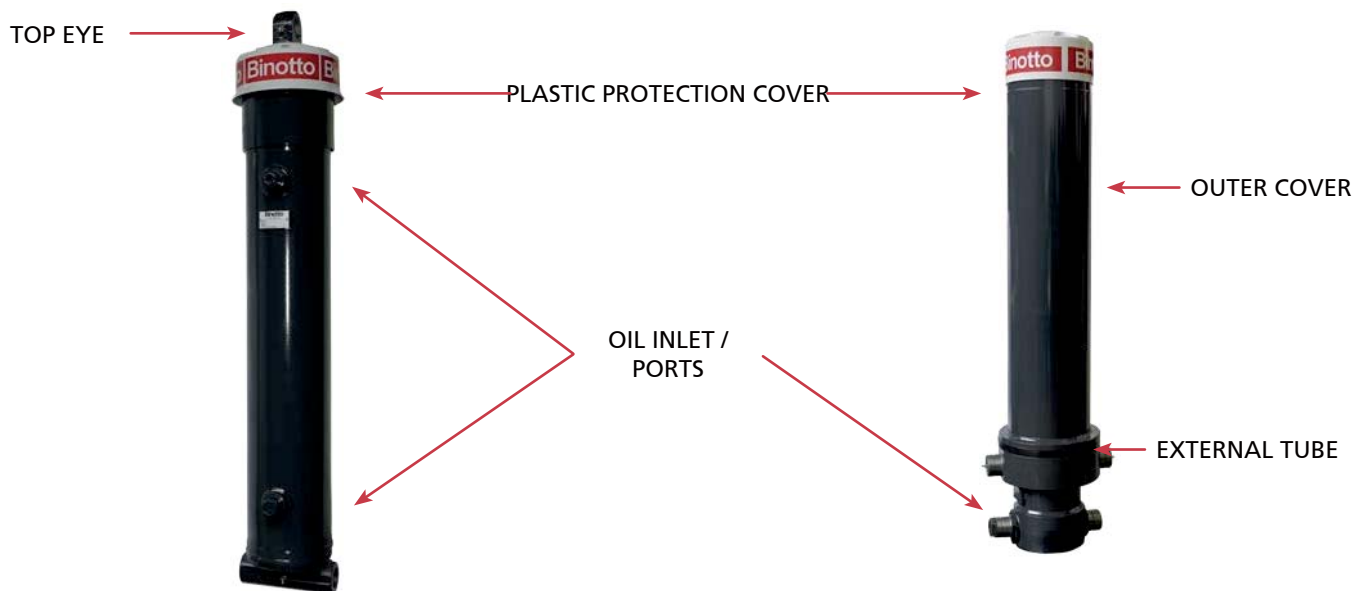
- ✓ **Ideal for dump bodies and dump trailers applications**, our cylinders cover a stroke range of 90-265 inches.
- ✓ **Seamless steel tubes** with high tensile strength and rocky resistance without weak points.
- ✓ **Solid design:** Stop-limit machined on the pure pipe in order to provide the user with maximum safety when the cylinder is fully extended.
- ✓ **Special clearance** between stages guarantees greater stability and safety when tipping.
- ✓ **Special finishing process** performed both inside and outside of the tubes, increasing the density of material and ensuring better performance and **longer seal life**.
- ✓ Patented cushion system to ensure **maximum safety**.
- ✓ **Hard chromed** final stage.
- ✓ **Low cylinder weight**, more payload capacity.
- ✓ **Low oil volume requirement**, lower oil expense, faster dumping.
- ✓ **Polyurethane double seal system**, proved to work in the most extreme environmental conditions.
- ✓ **Delrin sliders**, performing at both high and low pressures.
- ✓ **Low maintenance** requirements.
- ✓ **No adjusting nuts**.
- ✓ **Self-bleeding design**.
- ✓ **Two year warranty**.



Cylinder components

FIG. 01 A: pin-to-pin cylinder

FIG. 01 B: trunnion type cylinder



To protect the seals and other components, our cylinders have several safety features that remove dust particles from the top of the tubes and stop them from entering the hydraulic system:

Fist Seal (FIG. 02 A/B, REF. 01) placed in the upper section of the cylinder

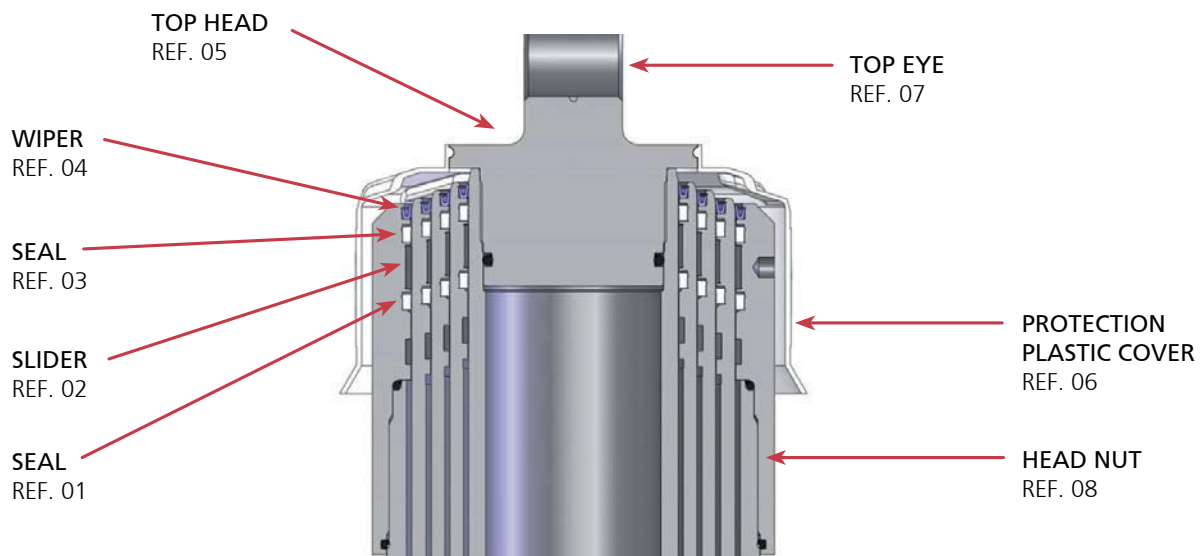
Slider (FIG. 02 A/B, REF. 02) better support of the stages' sliding while operating

Second Seal (FIG. 02 A/B, REF. 03)

Wiper (FIG. 02 A/B, REF. 04)

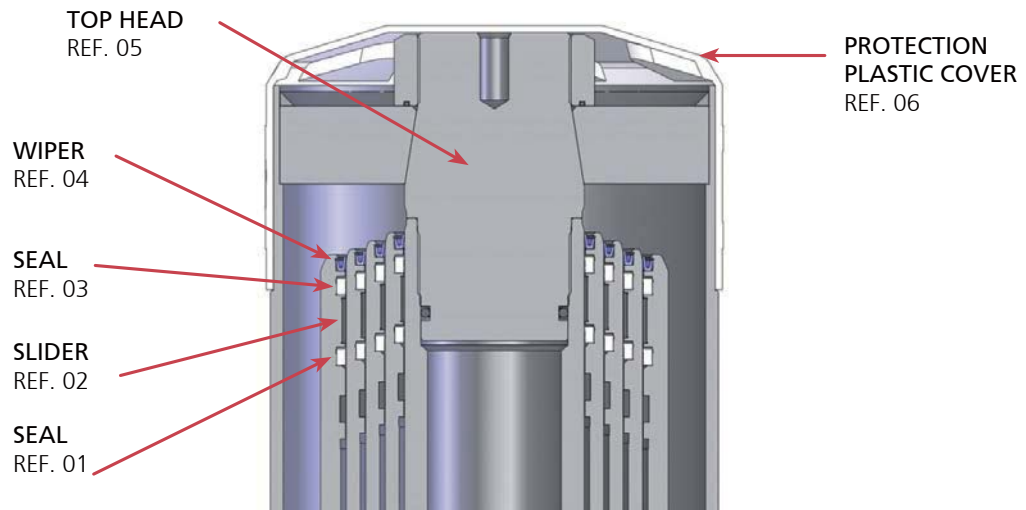
Plastic cover (FIG. 02 A/B, REF.06) protects the top of the cylinder from dust and impurities. It is very important to install it and replace it in case of damages.

FIG. 02 A: pin-to-pin cylinder



Our cylinder is recognized all over the world as the #1 cylinder in terms of design quality, reliability and strength.

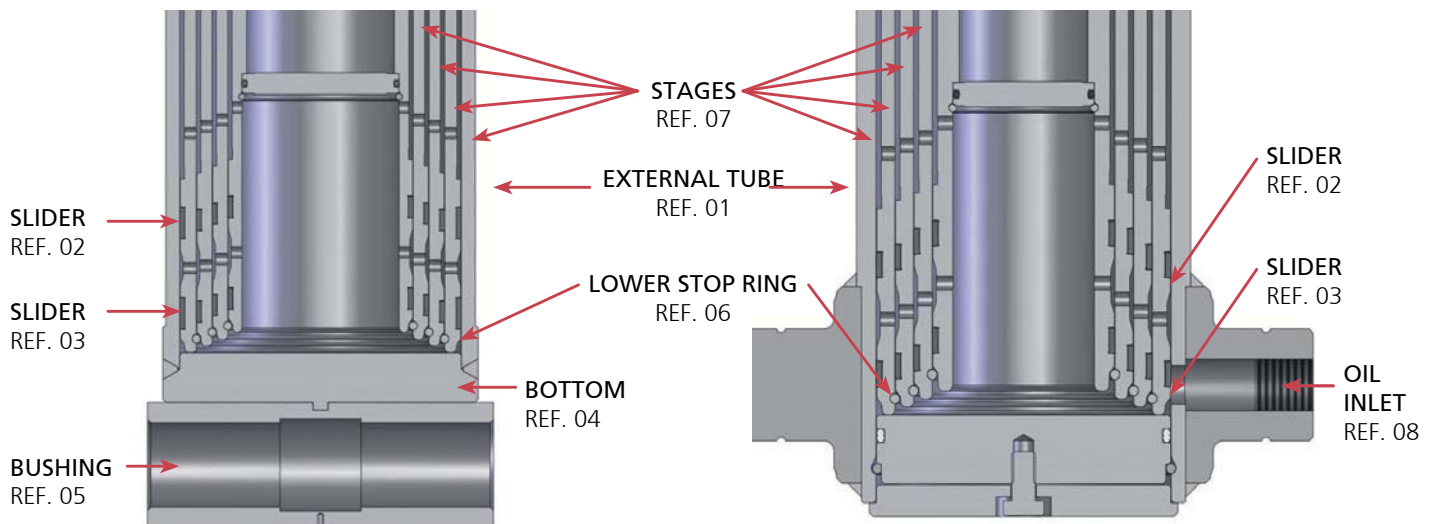
FIG. 02 B: trunnion type cylinder



In the lower section of the cylinders there are two sliders (FIG. 03 A/B, REF. 02, 03) at the end of each stage (FIG. 03 A/B, REF. 07) and a lower stop ring (FIG. 03 A/B, REF.06) to keep the internal stages.

FIG. 03 A: pin-to-pin cylinder

FIG. 03 B: trunnion type cylinder

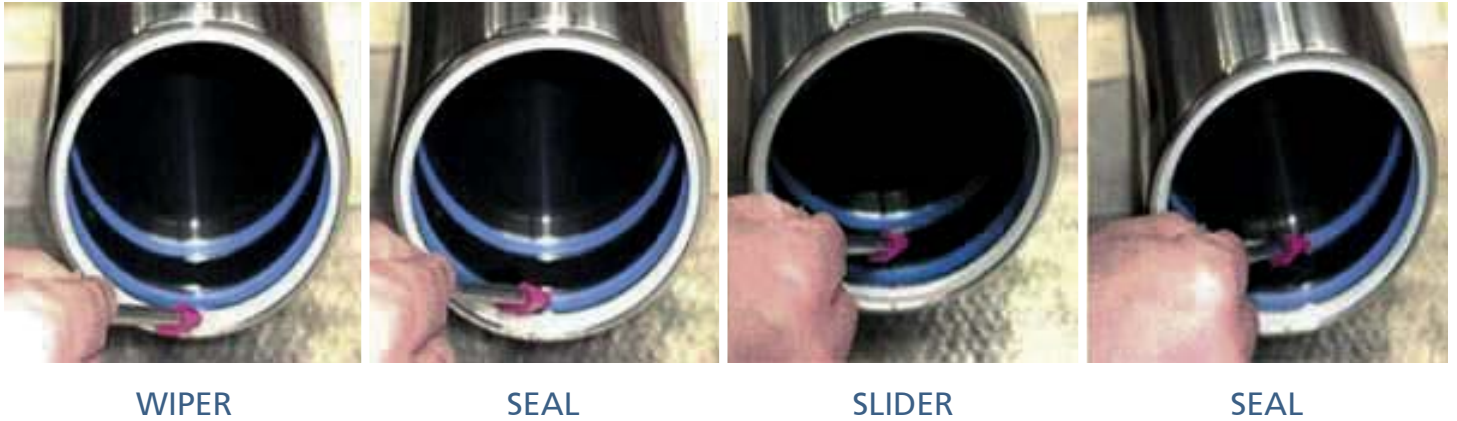


Strength points of the cylinder

Thanks to their special design our cylinders are superior to any other in the market. This is highlighted in the following aspects:

- a) Special polyurethane seals (material and design) with longer lasting life (compared to other cylinders available in the market).

FIG. 04: seal, slider and wiper configuration



- b) Double seal system for a major safety (reducing risk of oil leaking)

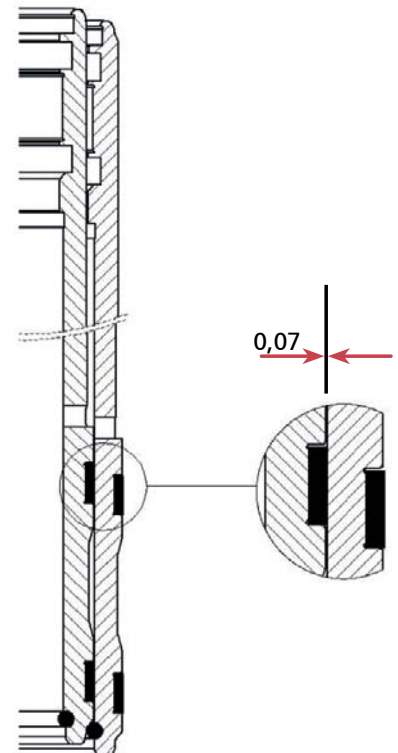
- c) Minimum clearance on the market.
As FIG. 05 shows, the clearance between the stages is 0,07 mm, which ensures major stability and a better side-load resistance.

- d) Seamless steel tubes (to avoid any weak point along the welding line)

- e) Special steel tubes sourced only by very high quality certified suppliers (steel type TB 47 / E470 / MW450) with unbeatable elongation specifications:

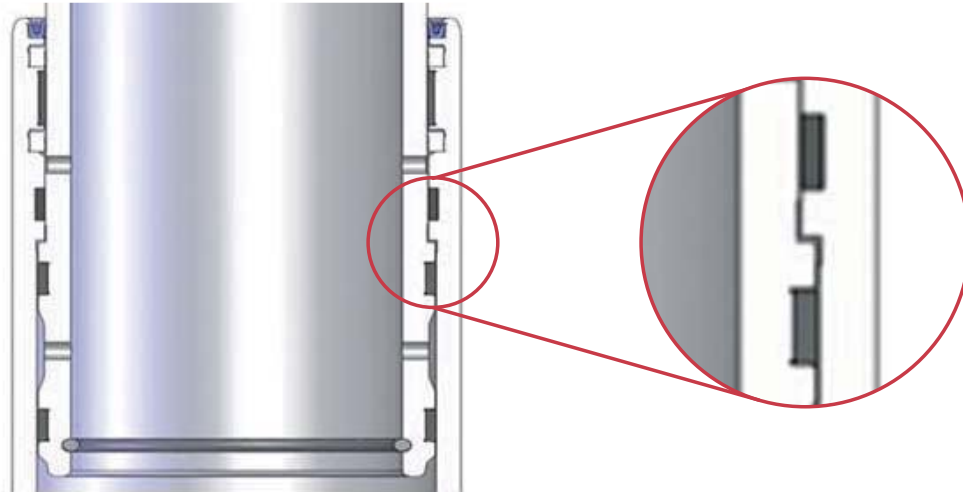
SPECIFICATIONS OF THE TUBES	
High yield point	RS > 48 kgs/mm ²
Tensile strenght	R > 65 kgs/mm ²
Elongation	18%

FIG. 05: clearance



- f) Stop limits machined directly on the tubes (FIG. 06): steel against steel, without any additional clipped components (o’ring, bronze sliders, etc.) which could fall and spoil the cylinder operation and damage the vehicle or injure people.

FIG. 06: our “solid design” system stops the stages when they reach the end of stroke



The end of stroke stop limiter, machined directly inside the external tubes of each stage (FIG. 06), will meet an angular portion machined directly outside the internal tubes.

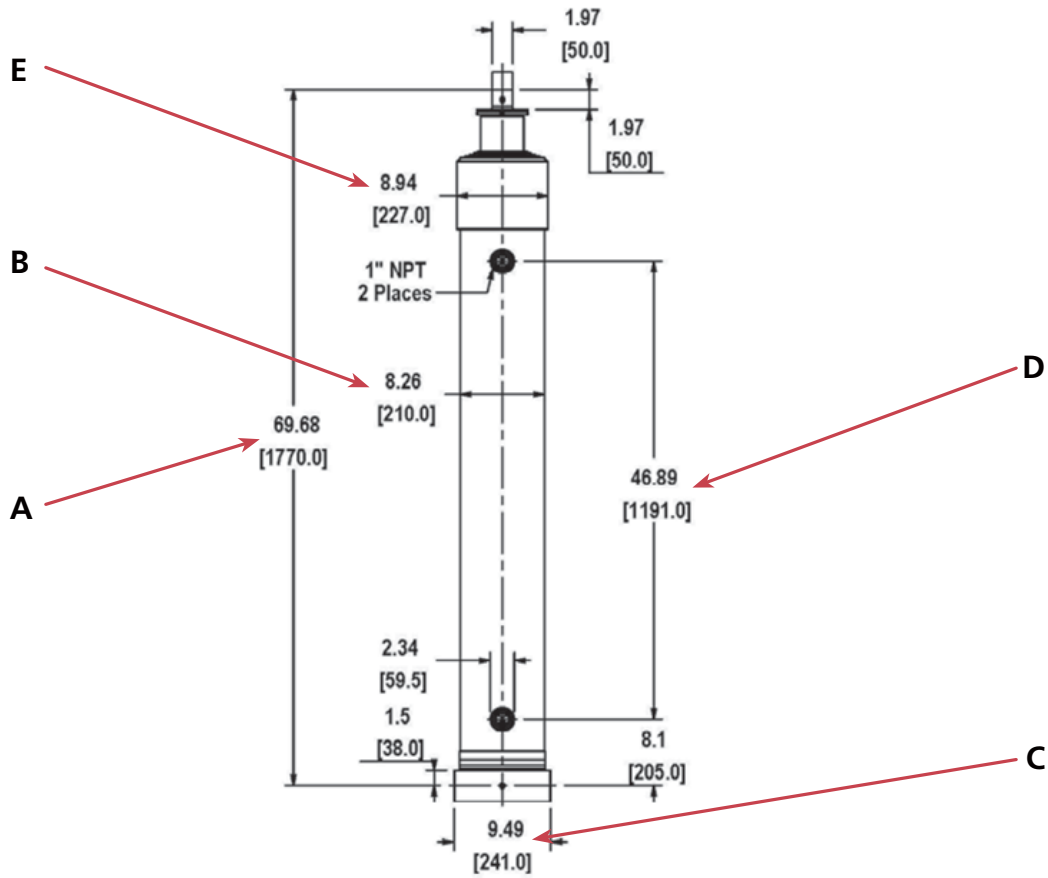
- e) The Inner roller burnishing process (internal and external) is a standard finishing treatment. The process allows:
- A very smooth surface which preserves the seals and inner parts. Our seals have an average life up to three times longer than any other in the market.
 - A very hard surface for a better side-loads resistance.

FIG. 08: superficial roughness level of our hard rolled stages



- f) Maximum working pressure: 200 bar / 2900 psi. Thanks to all our construction features, our cylinder is able to work at the worst conditions, where other cylinders will not.

Pin to pin mount cylinders



PART NUMBER	NUMBER OF STAGES	CRITICAL DIMENSIONS (IN)			
		A	B	C	D
6-3-120AV00	3	52.83	6.49	7.00	31.93
6-3-126AV00	3	55.20	6.49	7.00	34.41
7-4-135AV00	4	47.67	7.36	8.23	26.77
7-4-156AV00	4	52.99	7.36	8.23	31.93
8-5-190AV00	5	59.93	8.26	9.49	30.55
8-5-220AV00	5	59.84	8.26	9.49	37.52
8-5-250AV00	5	68.30	8.26	9.49	43.35
8-5-265AV00	5	69.68	8.26	9.49	46.89



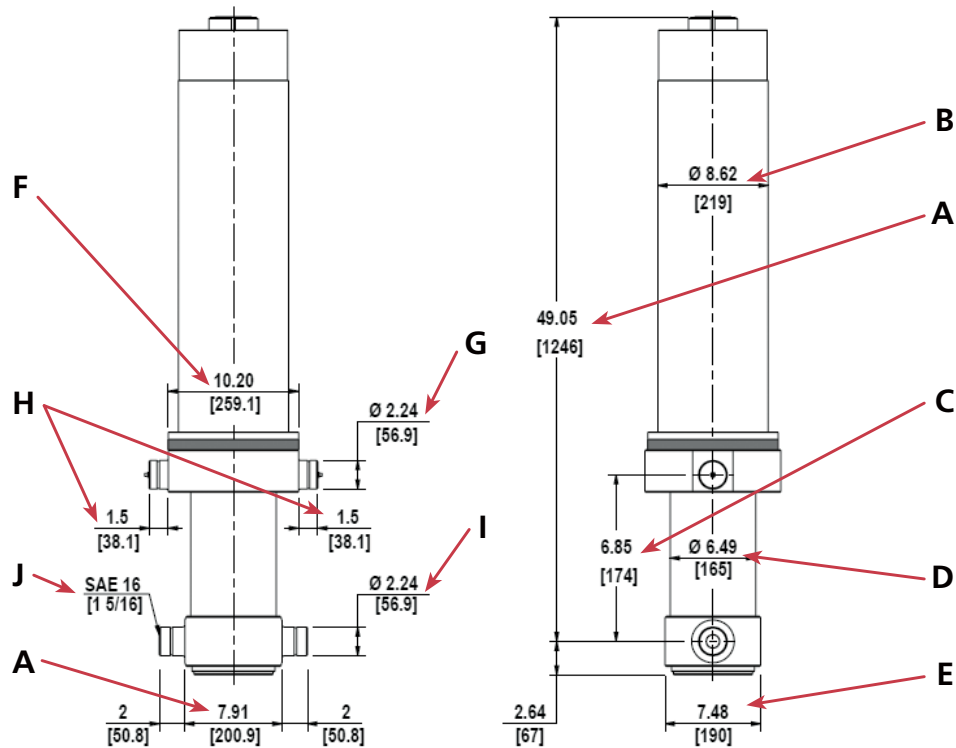
Technical Information

- The max tipping weight that can be raised by the cylinder is the body weight plus the max payload.
- Max pressure 2750 PSI due to NPT ports (Rated for 2900 PSI).
- Chrome plated 20µm on the smallest stage.
- Cylinder painted RAL7021.
- For oil specification refer to the user manual.
- Hydraulic oil temperature allowable range between -40°F to 212°F.
- Maximum extension speed cannot exceed 0.656 ft/s.

$$\text{Extended Length} = \text{Closed Length (A)} + \text{Total Stroke}$$

E	TOTAL STROKE (IN)	WEIGHT (LB)	MAX. OIL CAPACITY (GAL)	LAST STAGE DIAMETER (IN)
7.28	118.35	295	10.05	4.21
7.28	126.03	316	10.70	4.21
8.07	135.75	367	13.51	4.21
8.07	157.80	397	15.71	4.21
8.94	190.36	517	22.18	4.21
8.94	221.85	560	25.85	4.21
8.94	251.38	651	29.29	4.21
9.49	268.70	687	31.30	4.21

Trunnion mount cylinders



PART NUMBER	NUMBER OF STAGES	CRITICAL DIMENSIONS (IN)							
		A	B	C	D	E	F	G	H
4.5-3-090AV01	3	41.25	5.98	4.72	4.96	6.30	7.91	1.87	1.26
5.5-3-130AV01	3	53.23	7.68	5.59	5.71	6.89	9.02	1.87	1.26
5.5-3-140AV01	3	56.77	7.68	5.59	5.71	6.89	9.02	1.87	1.26
6.5-4-150AV01	4	49.05	8.62	6.85	6.49	7.48	10.20	2.24	1.5
6.5-4-160AV01	4	51.02	8.62	6.85	6.49	7.48	10.20	2.24	1.5
6.5-4-170AV01	4	53.39	8.62	6.85	6.49	7.48	10.20	2.24	1.5
6.5-4-180AV01	4	56.93	8.62	6.85	6.49	7.48	10.20	2.24	1.5
7.5-4-185AV01	4	56.93	9.61	8.86	7.36	8.66	12.95	2.24	1.50



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Extended Length = Closed Length (A) + Total Stroke

I	J	K	TOTAL STROKE (IN)	WEIGHT (LB)	MAX. OIL CAPACITY (GAL)	LAST STAGE DIAMETER (IN)
1.87	SAE 12 (1 1/16)	5.79	90.00	271	3.79	2.71
1.87	SAE 12 (1 1/16)	7.01	126.00	421	7.76	3.46
1.87	SAE 12 (1 1/16)	7.01	137.00	465	8.42	3.46
2.24	SAE 16 (1 5/16)	7.91	147.56	459	10.90	3.46
2.24	SAE 16 (1 5/16)	7.91	157.80	474	11.66	3.46
2.24	SAE 16 (1 5/16)	7.91	168.00	496	12.42	3.46
2.24	SAE 16 (1 5/16)	7.91	182.20	551	13.47	3.46
2.24	SAE 16 (1 5/16)	9.02	182.20	728	18.14	4.21