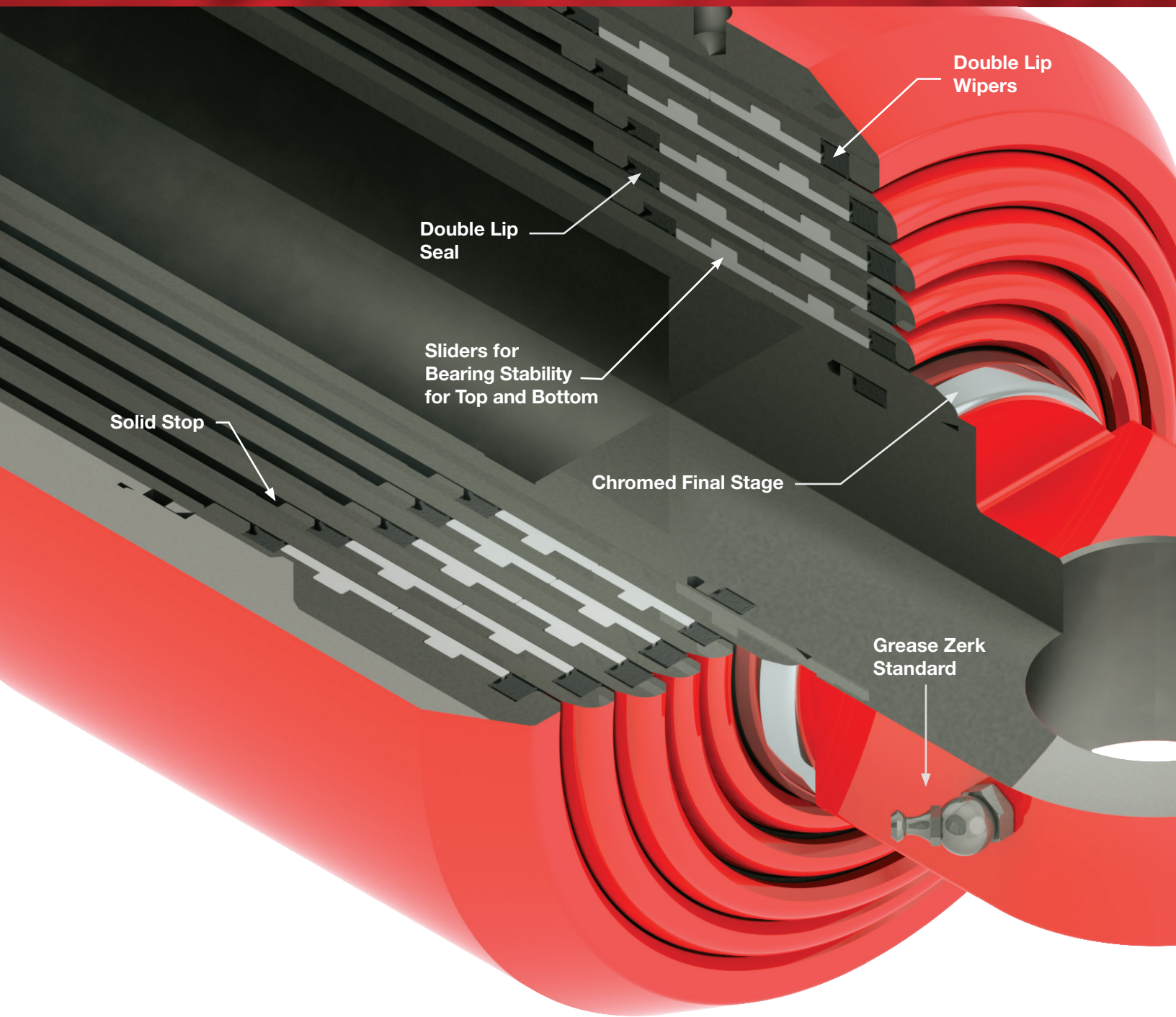




CYLINDERS

SINGLE ACTING TELESCOPIC CYLINDERS





CONSTRUCTION ELEMENTS

- Seamless one piece, high tensile tubes
- Machined end stops with extra overlap
- High column strength and stiffness
- Large bearing surface area
- Robust/high durability design
- Self-bleeding design
- No packing or packing nuts - one head nut that does not need adjustments
- Tight tolerances and machining
- Small tube clearance for smaller bending moment
- Precision ground finish for optimum performance and seal life

The combination of strict machining tolerances, solid stop contact faces and larger overlap between the stages has resulted in one of the strongest and most stable cylinder columns currently available on the market. These improvements help to increase safety for dumping applications, helping to prevent accidents due to vehicle roll-over.

FEATURES AND BENEFITS

<p>Material</p>	<ul style="list-style-type: none"> • All Muncie cylinders are made of hot rolled solid seamless tubes. • Allow for higher pressures due to higher strength material, no weak points and Muncie's focus on quality. • Increased resistance to mechanical stress and longer life.
<p>High Precision Machining Process</p>	<ul style="list-style-type: none"> • Solid stop faces are machined into each stage. This creates a single solid component with no need for stop rings, bushings or gland nuts.
<p>Seals / Wipers</p>	<ul style="list-style-type: none"> • Made of polyurethane, with a double lip design, the seals and wipers assure optimum performance in all climate conditions (-40°F to 212°F / -40°C to 100°C). • Muncie cylinders do not require packing due to the top quality material, paired with the precision machining of the stages.
<p>Sliders</p>	<ul style="list-style-type: none"> • Made of DELRIN®, they are compatible with all types of hydraulic oils approved by pump makers and are capable of withstanding high and low pressures. • Each cylinder is equipped with sliders at both the top and bottom of each stage.
<p>Overlap & Column Stability</p>	<ul style="list-style-type: none"> • Longer stages have greater overlap to improve column stability.
<p>Weight Savings</p>	<ul style="list-style-type: none"> • Muncie's cylinder design offers one of the lightest solutions available on the market. This results in greater payloads, less oil consumption and faster dumping.
<p>Low Maintenance</p>	<ul style="list-style-type: none"> • Muncie cylinders have low maintenance requirements and offer many years of top performance without additional expenses. • Self-bleeding design without stage packing nuts reduces time spent maintaining cylinder. • Chrome plated final stage extends the life of the cylinder. • Easy assembly and disassembly process. • Muncie cylinders are able to be reconditioned at low cost due to the solid machining, high steel grade and dimensional stability of the cylinder during its work cycle.
<p>Two Year Warranty</p>	<ul style="list-style-type: none"> • Standard for Muncie cylinders.

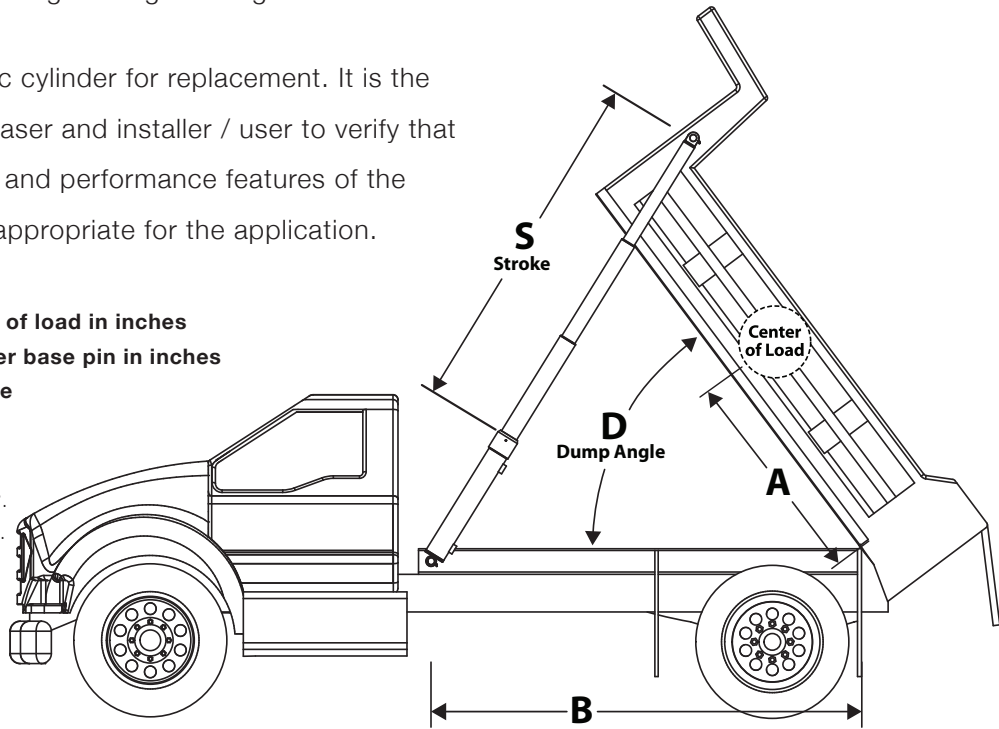
DUMP BODY CYLINDER CALCULATIONS

These calculations provide approximate values. Final calculations and product selection should be determined by a qualified engineer and engineering drawing.

When selecting a hydraulic cylinder for replacement. It is the responsibility of the purchaser and installer / user to verify that all dimensions, mounting, and performance features of the replacement cylinder are appropriate for the application.

- A = Dump hinge pin to center of load in inches**
- B = Dump hinge pin to cylinder base pin in inches**
- D = Dump body to frame angle**
- S = Stroke of cylinder**

*Normal Minimum dump angle is 45°.
Normal Maximum dump angle is 57°.



Dump Angle*	42°	43°	44°	45°	46°	47°	48°	49°	50°	51°	52°	53°	54°	55°	56°	57°
"D"	.715	.733	.750	.765	.780	.797	.813	.830	.845	.861	.877	.892	.903	.923	.939	.954

To calculate the appropriate cylinder stroke to achieve a determined dump angle:

Approximate Stroke (inches) = "B" x "D"

- Example: B = 162" and Desired Dump Angle = 49°
- Approximate Cylinder Stroke = 162" x .830
- Approximate Cylinder Stroke = 135"

To calculate the initial required cylinder force to lift a load:

Force required to lift a load = [Load (lbs) x "A"]/"B"

- Example: Load = 40,000 lbs, A = 85", and B = 162"
- Force required = [40,000 lbs x 85"]/162"
- Force Required = 20,988 lbs

LIFTING CAPACITY AT GIVEN PRESSURES FOR EACH STAGE DIAMETER

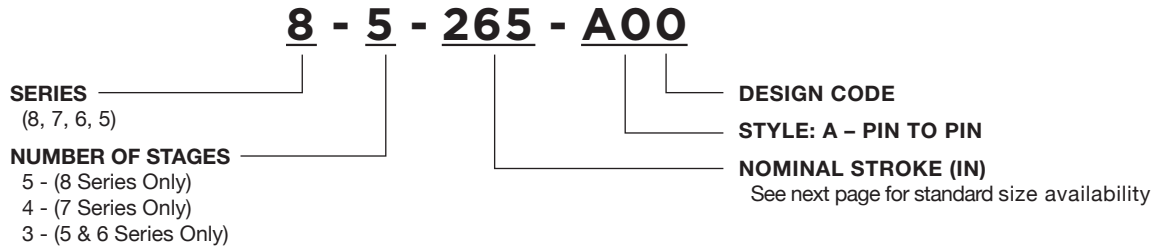
Series*	Stage Dia. (in)	Eff. Area (in ²)	800 psi	1000 psi	1500 psi	2000 psi	2500 psi
8	6.85	36.85	29,482	36,853	55,279	73,706	92,132
7	6.06	28.84	23,074	28,843	43,264	57,685	72,107
6	5.31	22.15	17,716	22,145	33,218	44,290	55,363
5	4.57	16.40	13,122	16,403	24,604	32,806	41,007
-	3.86	11.70	9,362	11,702	17,553	23,404	29,255
-	3.11	7.60	6,077	7,596	11,395	15,193	18,991

*For a given series, the largest(first) stage is given in the column to the right of the "Series" column. The second stage of that cylinder series is listed directly below the first stage. Therefore the first stage of the "8" Series is 6.85 in. diameter, while the second stage is the 6.06 in. diameter, and finally the last is the 3.86 in. diameter.

Note: A properly designed system should operate at approximately 800 psi or less during the start of the lift. The load imposed on a cylinder by a dump body is dynamic, and as such, your system pressure will be changing to accommodate the difference in force required to lift the changing load. You will see system pressure

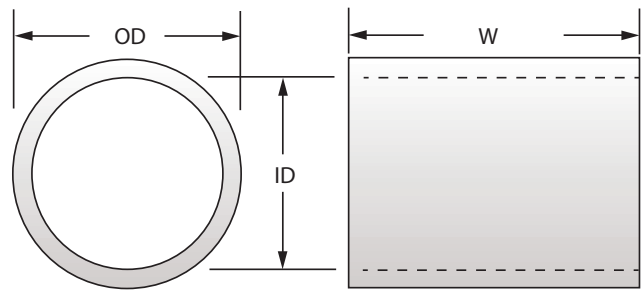
increase as your cylinder extends from stage to stage. You will also see a decrease in cycle time due to the effective volume change from stage to stage as the cylinder extends (your cylinder will move faster).

MODEL NUMBER CONSTRUCTION



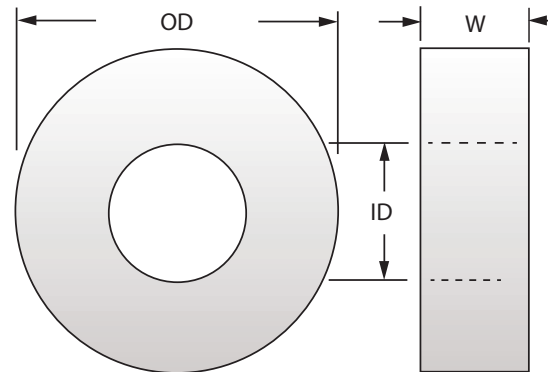
PIN-EYE BUSHINGS FOR TOP PIN

Description	Part Number
2.00 OD X 1.31 ID X 2.00 W	18T42905-131200
2.00 OD X 1.50 ID X 1.50 W	18T42905-150150
2.00 OD X 1.50 ID X 2.00 W	18T42905-150200
2.00 OD X 1.68 ID X 2.00 W	18T42905-168200
2.00 OD X 1.75 ID X 1.50 W	18T42905-175150
2.00 OD X 1.75 ID X 2.00 W	18T42905-175200



PIN-EYE MOUNT SPACERS

Description	Part Number
3.00 OD X 1.81 ID X 0.25 W	18T42906-181025
3.00 OD X 1.81 ID X 0.50 W	18T42906-181050
3.00 OD X 1.81 ID X 0.75 W	18T42906-181075
3.00 OD X 1.81 ID X 1.00 W	18T42906-181100
3.00 OD X 2.12 ID X 0.25 W	18T42906-212025
3.00 OD X 2.12 ID X 0.50 W	18T42906-212050
3.00 OD X 2.12 ID X 0.75 W	18T42906-212075
3.00 OD X 2.12 ID X 1.00 W	18T42906-212100

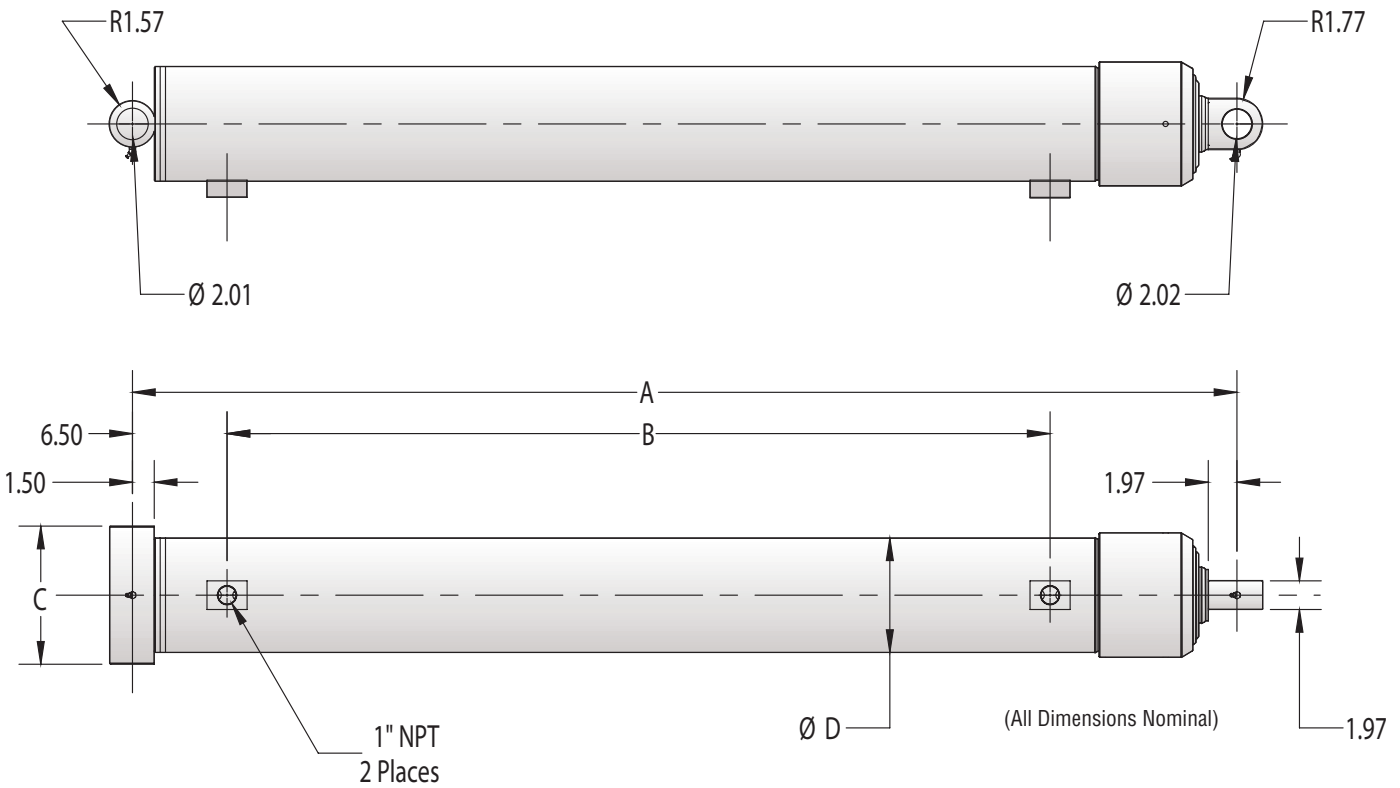


CYLINDER SEAL AND REBUILD KITS

Cylinder Model	Seal Kit No.	Rebuild Kit No.
5-3-084-A00	GSK-53-00	RBK-53-00
5-3-104-A00	GSK-53-00	RBK-53-01
6-3-084-A00	GSK-63-00	RBK-63-01
6-3-104-A00 to 6-3-140-A00	GSK-63-00	RBK-63-00
7-3-110-A00	GSK-73-00	RBK-73-00
7-4-135-A00 to 7-4-167-A00	GSK-74-00	RBK-74-00
8-5-169-A00 to 8-5-285-A00	GSK-85-00	RBK-85-00

Seal kits contain all seals and wipers needed for each stage. Rebuild kits contain all seals, wipers and bearing supports needed for each stage.

DIMENSIONAL DRAWINGS



ENGLISH MEASUREMENTS - Inches (in), Gallons (Gal), Pounds (lbs)

Model No.	Stroke Length (in)	A=Closed/Open Length (in)	B=Port to Port (in)	C=Base Pin Width (in)	D=Tube OD (in)	Stage Diameter (in) 1 / 2 / 3 / 4 / 5	Fill / Extend (Gal)	Cylinder Weight (lbs)
5-3-084-A00	85.91	39.57 / 125.48	20.3	7.00	5.39	4.57 / 3.86 / 3.11	0.52 / 4.40	179
5-3-104-A00	103.23	47.32 / 150.55	28.3	7.00	5.39	4.57 / 3.86 / 3.11	0.62 / 5.26	220
6-3-084-A00	84.02	39.57 / 123.59	20.31	7.00	6.18	5.31 / 4.57 / 3.86	0.60 / 6.12	189
6-3-104-A00	102.28	47.32 / 149.6	28.3	7.00	6.18	5.31 / 4.57 / 3.86	0.72 / 7.35	255
6-3-110-A00	109.61	49.76 / 159.37	30.79	7.00	6.18	5.31 / 4.57 / 3.86	0.76 / 7.93	278
6-3-120-A00	118.35	52.48 / 170.83	33.5	7.00	6.18	5.31 / 4.57 / 3.86	0.82 / 8.55	280
6-3-126-A00 ²	126.02	54.96 / 180.98	36.0	7.00	6.18	5.31 / 4.57 / 3.86	0.88 / 9.18	300
6-3-130-A00	128.46	55.75 / 184.21	36.0	7.00	6.18	5.31 / 4.57 / 3.86	0.88 / 9.24	300
6-3-140-A00 ³	140.00	59.80 / 199.80	40.6	7.00	6.18	5.31 / 4.57 / 3.86	0.92 / 10.19	329
7-3-110-A00	109.69	49.92 / 159.61	30.79	8.23	6.93	6.06 / 5.31 / 4.57	0.88 / 10.62	303
7-4-135-A00	135.67	47.76 / 183.43	27.6	8.23	6.93	6.06 / 5.31 / 4.57 / 3.86	1.04 / 11.49	330
7-4-156-A00	157.68	52.91 / 210.59	33.5	8.23	6.93	6.06 / 5.31 / 4.57 / 3.86	1.19 / 13.43	365
7-4-161-A00	162.99	55.39 / 218.38	36.5	8.23	6.93	6.06 / 5.31 / 4.57 / 3.86	1.24 / 14.14	374
7-4-167-A00 ⁴	167.01	55.39 / 222.40	36.5	8.23	6.93	6.06 / 5.31 / 4.57 / 3.86	1.29 / 14.44	374
8-4-170-A00	168.98	56.65 / 225.63	36.65	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57	1.42 / 19.15	467
8-5-169-A00	168.94	47.95 / 216.89	28.35	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57 / 3.86	1.37 / 16.87	425
8-5-190-A00	188.98	53.98 / 242.96	32.1	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57 / 3.86	1.53 / 18.70	464
8-5-220-A00	219.92	59.88 / 279.8	39.1	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57 / 3.86	1.75 / 21.74	531
8-5-235-A00	235.00	64.53 / 299.53	44.9	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57 / 3.86	1.89 / 23.34	584
8-5-250-A00	246.89	68.35 / 315.24	44.9	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57 / 3.86	1.95 / 24.53	588
8-5-265-A00	265.83	69.72 / 335.55	48.7	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57 / 3.86	2.09 / 26.35	620
8-5-285-A00	285.98	75.87 / 361.85	56.8	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57 / 3.86	2.28 / 29.55	690

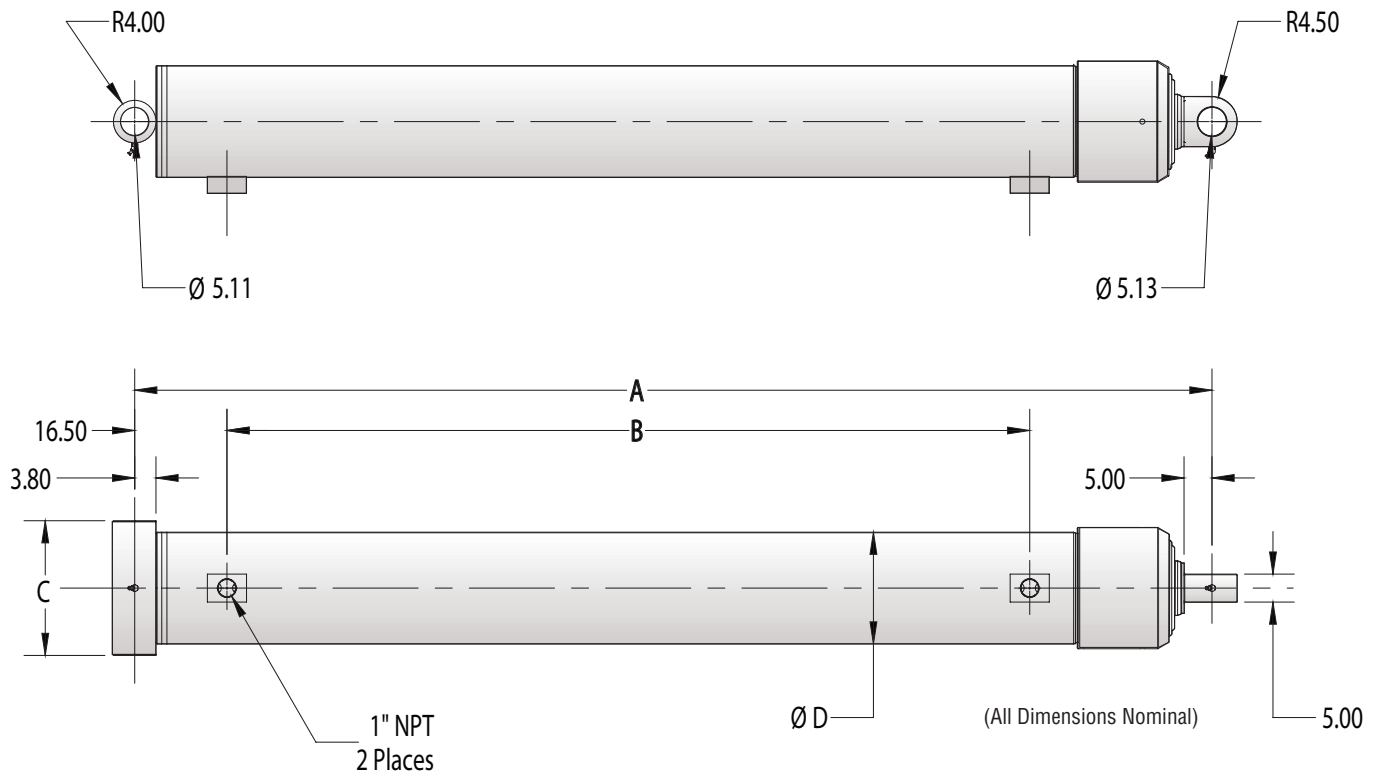
Notes:

- All cylinders MAX Pressure: 2750 psi due to NPT ports (Rated for 2,900 psi)
- 6-3-126-A00 cylinders with serial numbers starting with "12 or 13" will have a stroke of 128.46".

- 6-3-140-A00 cylinders with serial numbers starting with "12 or 13" will have a stroke of 135.47" and closed "A" length of 59.65".

- 7-4-167-A00 cylinders with serial numbers starting with "12 or 13" will have a stroke of 171.42".

DIMENSIONAL DRAWINGS



METRIC MEASUREMENTS - Centimeters(cm), Litres(L), Kilograms(kg)

Model No.	Stroke Length (cm)	A = Closed/Open Length (cm)	B = Port to Port (cm)	C = Base Pin Width (cm)	D = Tube OD (cm)	Stage Diameter (cm) 1 / 2 / 3 / 4 / 5	Fill / Extend (L)	Cylinder Weight (kg)
5-3-084-A00	218.2	100.5 / 318.7	51.6	17.78	13.69	11.60 / 9.80 / 7.90	1.97 / 16.65	81
5-3-104-A00	262.2	120.2 / 382.4	71.9	17.78	13.69	11.60 / 9.80 / 7.90	2.35 / 19.91	100
6-3-084-A00	213.4	100.5 / 313.9	51.6	17.78	15.70	13.49 / 11.60 / 9.80	2.27 / 23.16	86
6-3-104-A00	259.8	120.2 / 380.1	71.9	17.78	15.70	13.49 / 11.60 / 9.80	2.73 / 27.82	116
6-3-110-A00	278.4	126.4 / 404.8	78.2	17.78	15.70	13.49 / 11.60 / 9.80	2.88 / 30.02	126
6-3-120-A00	300.6	133.3 / 433.9	85.1	17.78	15.70	13.49 / 11.60 / 9.80	3.10 / 32.36	127
6-3-126-A00 ²	320.1	139.6 / 459.7	91.4	17.78	15.70	13.49 / 11.60 / 9.80	3.33 / 34.74	136
6-3-130-A00	326.3	141.6 / 467.9	91.4	17.78	15.70	13.49 / 11.60 / 9.80	3.33 / 34.97	136
6-3-140-A00 ³	355.6	151.9 / 507.5	103.1	17.78	15.70	13.49 / 11.60 / 9.80	3.48 / 38.57	149
7-3-110-A00	278.6	126.8 / 405.4	78.2	20.90	17.60	15.39 / 13.49 / 11.60	3.33 / 40.20	137
7-4-135-A00	344.6	121.3 / 465.9	70.0	20.90	17.60	15.39 / 13.49 / 11.60 / 9.80	3.94 / 43.49	150
7-4-156-A00	400.5	134.4 / 534.9	85.0	20.90	17.60	15.39 / 13.49 / 11.60 / 9.80	4.50 / 50.83	166
7-4-161-A00	414.0	140.7 / 544.7	92.6	20.90	17.60	15.39 / 13.49 / 11.60 / 9.80	4.69 / 53.52	170
7-4-167-A00 ⁴	424.2	140.7 / 564.9	92.6	20.90	17.60	15.39 / 13.49 / 11.60 / 9.80	4.88 / 54.65	170
8-4-170-A00	429.2	143.9 / 573.1	93.1	24.10	19.99	17.40 / 15.39 / 13.49 / 11.60	5.40 / 72.5	211.8
8-5-169-A00	429.1	121.8 / 550.9	72.0	24.10	19.99	17.40 / 15.39 / 13.49 / 11.60 / 9.80	5.19 / 63.85	193
8-5-190-A00	480.0	137.1 / 617.1	81.6	24.10	19.99	17.40 / 15.39 / 13.49 / 11.60 / 9.80	5.79 / 70.78	210
8-5-220-A00	558.6	152.1 / 710.7	99.3	24.10	19.99	17.40 / 15.39 / 13.49 / 11.60 / 9.80	6.62 / 82.28	241
8-5-235-A00	596.9	163.9 / 760.8	114.1	24.10	19.99	17.40 / 15.39 / 13.49 / 11.60 / 9.80	7.15 / 88.34	265
8-5-250-A00	627.1	173.6 / 800.7	114.1	24.10	19.99	17.40 / 15.39 / 13.49 / 11.60 / 9.80	7.38 / 92.85	267
8-5-265-A00	675.2	177.1 / 852.3	123.8	24.10	19.99	17.40 / 15.39 / 13.49 / 11.60 / 9.80	7.91 / 99.73	281
8-5-285-A00	726.4	192.7 / 919.1	144.3	24.10	19.99	17.40 / 15.39 / 13.49 / 11.60 / 9.80	8.63 / 111.85	313

Notes:

1. All cylinders MAX pressure: 189.7 BAR due to NPT ports (rated for 200 BAR)
2. 6-3-126-A00 cylinders with serial numbers starting with "12 or 13" will have a stroke of 320.1cm.

3. 6-3-140-A00 cylinders with serial numbers starting with "12 or 13" will have a stroke of 355.6cm and closed "A" length of 151.9cm.
4. 7-4-167-A00 cylinders with serial numbers starting with "12 or 13" will have a stroke of 424.2cm.

TWO-YEAR CYLINDER WARRANTY

Muncie's trunnion mount cylinder is warranted against any defect in material and workmanship which existed at the time of sale by Muncie Power Products, Inc., according to the following provisions, subject to the requirements that the cylinder must be used only in accordance with catalog and package instructions.

The cylinder is warranted for a period of two years from the date of installation. If during the warranty period the cylinder fails to operate to Muncie's specifications due to a defect in any part, material or workmanship that existed at the time of sale by Muncie, the defective part will be repaired or replaced, at Muncie's election, at no charge, if the defective part is returned to Muncie with transportation prepaid.

WARNING: The warranty shall terminate if any alterations or repairs are made to the cylinder other than at a Muncie Power Products facility, or if the cylinder is used on any equipment other than the equipment upon which first installed.

The foregoing warranties are in lieu of all other obligations and liabilities, including negligence and all warranties of merchantability and suitability, expressed or implied and state Muncie Power Products' entire and exclusive liability and buyer's exclusive remedy for any claim of damages in connection with the sale, repair or replacement of above goods, their design, installation or operation. Muncie Power Products will in no event be liable for any direct, indirect, special, incidental or consequential damages whatsoever, and our liability under no circumstances will exceed the contract price for the goods for which liability is claimed.



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