

TRUNNION MOUNT

TELESCOPIC CYLINDERS



HIGH PERFORMANCE IN A LIGHTER CYLINDER

Muncie Trunnion Mount cylinders not only offer the mounting style that allows for increased capacity in the dump body by allowing for significant reduction or elimination of the dog house but also many other features. With the strict machining tolerances, solid stop contact faces* and larger overlap between stages the Muncie cylinders are one of the strongest and most stable cylinders on the market.



KEY FEATURES

- Self-bleeding design for easier installation process
- No packing or head nuts on each stage. Only one head nut that doesn't need adjustments
- Chrome-plated final stage extends the life of the cylinder
- Solid stops machined into top and bottom of each stage, eliminating stop rings and threaded stops
- Stages are machined and precision ground inside and out to allow for optimal seal/wiper performance
- Each cylinder is equipped with bearing supports at both the top and bottom. Longer stages have increased overlap for improved column stability.
- Tight machining tolerances cause smaller tube clearances that result in increased rigidity
- One of the lightest cylinders on the market which translates to greater payloads, less oil consumption and faster dumping
- Low maintenance requirements offer many years of top performance without additional expenses
- Easily remove outer cover for ease of service

QUALITY MATERIALS

- All steel tubing are made from seamless hot rolled steel, this results in higher tensile tubes for increased column strength and stiffness*
- Stages have no welded seems allowing for higher pressure capabilities
- The quality steel used increases resistance to mechanical stress and increases cylinder life
- Seals and wipers are made of polyurethane and feature a double lip design assuring optimum performance in all climate conditions (-40°F to 212°F/-40°C to 100°C)
- Bearing supports are 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

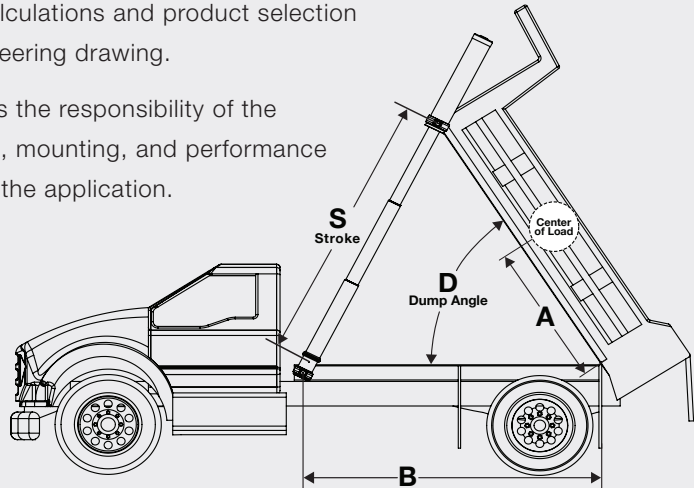
* Note: Not available with 3.5 & 4.5 series models

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° and 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"	.670	.683	.696	.708	.720	.732	.744	.756	.767	.778	.789	.800	.810	.821	.830	.840

CYLINDER STROKE

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

- Example: B = 180" and Desired Dump Angle = 50°
- Approximate Cylinder Stroke = 162" x .767
- Approximate Cylinder Stroke = 138"

REQUIRED FORCE

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

- Example: Load = 40,000 lbs., A = 90", and B = 180"
- Force required = [40,000 lbs. x 90"] / 180"
- Force Required = 20,988 lbs.

LIFTING CAPACITY AT GIVEN PRESSURES FOR EACH STAGE DIAMETER

Stage Dia. (in.)	Eff. Area (in. ²)	800 PSI	1,000 PSI	1,500 PSI	2,000 PSI	2,500 PSI	2,900 PSI*	3,200 PSI*
6.65	34.73	27,786	34,732	52,098	69,465	86,831	100,724	111,143
5.87	27.06	21,650	27,062	40,594	54,125	67,656	78,481	86,600
5.08	20.27	16,215	20,268	30,402	40,537	50,671	58,778	64,859
4.37	15.00	11,999	14,999	22,498	29,997	37,497	43,496	47,996
3.74	10.99	8,789	10,986	16,479	21,972	27,465	31,859	35,155
3.54	9.84	7,874	9,842	14,763	19,685	24,606	28,543	31,495
2.95	6.83	5,468	6,835	10,252	13,670	17,087	19,821	21,872
2.36	4.37	3,499	4,374	6,562	8,749	10,936	12,686	13,998
1.77	2.46	1,968	2,461	3,691	4,921	6,151	7,136	7,874

Notes:

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).

Note: 3.5-4.5 Series MAX Pressure 3,200 PSI (220 BAR), 5.5-7.5 Series MAX Pressure 2,900 PSI (200 BAR)

MODEL NUMBER CONSTRUCTION

6.5 - 4 - 160 - B - 00

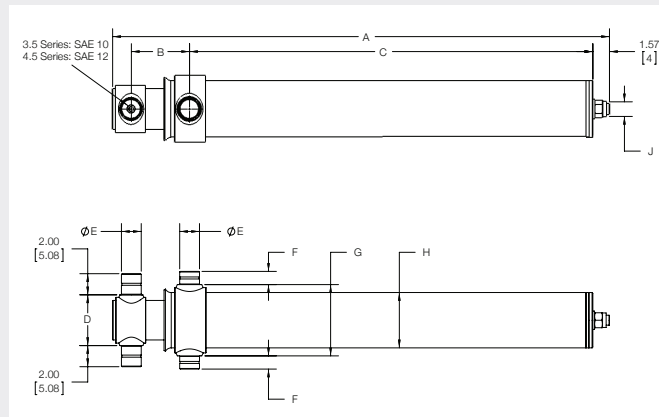
<p>SERIES (7.5, 6.5, 5.5, 4.5, 3.5)</p> <p>NUMBER OF STAGES 4 - (7.5 & 6.5 series only) 3 - (5.5, 4.5 & 3.5 series only)</p>	<p>DESIGN CODE</p> <p>MOUNT TYPE B - Trunnion</p> <p>NOMINAL STROKE (IN) See next page for standard size availability</p>
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DIMENSIONS

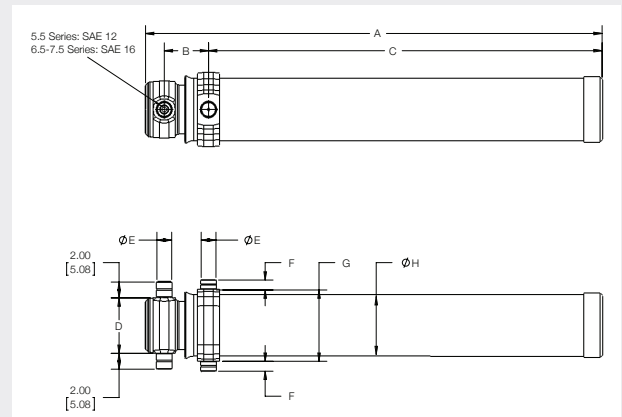
ENGLISH MEASUREMENTS (in., gal., lbs.)

MODEL NO.	STROKE LENGTH (in.)	A	B	C	D	E	F	G	H	J	STAGE DIAMETER (in) 1/2/3/4/5	FILL / EXTEND (gal.)	CYLINDER WEIGHT (lbs.)
3.5-3-082-B00	82	36.8	5.51	28.0	4.8	1.87	1.26	6.75	5.24	M24x3	2.95 / 2.36 / 1.17	0.29 / 1.6	128
3.5-3-110-B00	111	47.05	5.51	38.19	4.8	1.87	1.26	6.75	5.24	M24x3	2.95 / 2.36 / 1.17	0.36 / 2.2	161
4.5-3-090-B00	90	40.16	5.24	31.59	5.75	1.87	1.26	8.03	6.26	M39x3	3.54 / 2.95 / 2.36	0.36 / 2.7	198
4.5-3-110-B00	111	47.00	5.50	38.20	5.75	1.87	1.26	8.03	6.26	M39x3	3.54 / 2.95 / 2.36	0.48 / 3.3	225
4.5-3-120-B00	120	50.0	5.40	41.20	5.75	1.87	1.26	8.03	6.26	M39x3	3.54 / 2.95 / 2.36	0.51 / 3.6	238
5.5-3-100-B00	100	45.8	5.59	37.9	6.99	1.87	1.26	9.0	7.6	-	5.08 / 4.37 / 3.74	0.67 / 6.6	286
5.5-3-121-B00	121	52.9	5.59	44.9	6.99	1.87	1.26	9.0	7.6	-	5.08 / 4.37 / 3.74	0.79 / 8.1	319
5.5-3-138-B00	138	57.6	5.59	49.7	6.99	1.87	1.26	9.0	7.6	-	5.08 / 4.37 / 3.74	0.90 / 9.1	356
6.5-4-146-B00	146	48.5	6.85	39.3	7.99	2.24	1.50	10.2	8.6	-	5.87 / 5.08 / 4.37 / 3.74	1.1 / 11.4	397
6.5-4-160-B00	160	53.2	6.85	44.0	7.99	2.24	1.50	10.2	8.6	-	5.87 / 5.08 / 4.37 / 3.74	1.2 / 12.7	431
6.5-4-170-B00	169	55.0	6.85	45.8	7.99	2.24	1.50	10.2	8.6	-	5.87 / 5.08 / 4.37 / 3.74	1.2 / 13.5	444
6.5-4-180-B00	180	55.0	6.85	45.8	7.99	2.24	1.50	10.2	8.6	-	5.87 / 5.08 / 4.37 / 3.74	1.3 / 14.4	444
7.5-4-182-B00	182	61.1	8.78	49.7	9.02	2.24	1.50	12.8	9.63	-	6.65 / 5.87 / 5.08 / 4.37	1.6 / 19.4	667
7.5-4-194-B00	194	61.1	8.78	49.7	9.02	2.24	1.50	12.8	9.63	-	6.65 / 5.87 / 5.08 / 4.37	1.7 / 20.2	667

3.5 & 4.5 MODELS



5.5 - 7.5 MODELS



METRIC MEASUREMENTS (cm., L., Kgs.)

MODEL NO.	STROKE LENGTH (cm)	A	B	C	D	E	F	G	H	J	STAGE DIAMETER (cm.) 1/2/3/4/5	FILL / Extend (L)	CYLINDER WEIGHT (Kg.)
3.5-3-082-B00	208.3	93.5	14.0	71.0	12.2	4.76	3.2	17.1	13.3	M24x3	7.5 / 6.0 / 4.5	1.1 / 6.1	58.1
3.5-3-110-B00	281.9	119.5	14.0	97.0	12.2	4.76	3.2	17.1	13.3	M24x3	7.5 / 6.0 / 4.5	1.4 / 8.3	73.0
4.5-3-090-B00	228.6	102.0	13.3	80.2	14.6	4.76	3.2	20.4	15.9	M39x3	9.0 / 7.5 / 6.0	1.4 / 10.2	89.8
4.5-3-110-B00	281.9	119.5	14.0	97.0	14.6	4.76	3.2	20.4	15.9	M39x3	9.0 / 7.5 / 6.0	1.8 / 12.5	102.1
4.5-3-120-B00	304.8	127.0	13.8	104.7	14.6	4.76	3.2	20.4	15.9	M39x3	9.0 / 7.5 / 6.0	1.9 / 13.6	107.9
5.5-3-100-B00	254.00	116.4	14.2	96.2	17.78	4.76	3.2	22.86	19.3	-	12.9 / 11.1 / 9.5	2.5 / 35.1	129.7
5.5-3-121-B00	307.30	134.4	14.2	114.1	17.78	4.76	3.2	22.86	19.3	-	12.9 / 11.1 / 9.5	3.0 / 30.5	144.7
5.5-3-138-B00	350.52	146.3	14.2	126.2	17.75	4.76	3.2	22.86	19.3	-	12.9 / 11.1 / 9.5	3.4 / 34.4	161.5
6.5-4-146-B00	370.84	123.2	17.4	99.82	20.29	5.69	3.81	25.91	21.84	-	14.9 / 12.9 / 11.1 / 9.5	4.0 / 43.1	180.1
6.5-4-160-B00	406.00	135.1	17.4	111.8	20.29	5.69	3.81	25.91	21.84	-	14.9 / 12.9 / 11.1 / 9.5	4.4 / 48.1	195.5
6.5-4-170-B00	429.26	139.7	17.4	116.3	20.29	5.69	3.81	25.91	21.84	-	14.9 / 12.9 / 11.1 / 9.5	4.6 / 51.1	201.4
6.5-4-180-B00	457.20	139.7	17.4	116.3	20.29	5.69	3.81	25.91	21.84	-	14.9 / 12.9 / 11.1 / 9.5	4.8 / 54.5	201.4
7.5-4-182-B00	462.28	155.2	22.3	126.2	22.91	5.69	3.81	32.51	24.46	-	16.9 / 14.9 / 12.9 / 11.1	6.1 / 73.4	302.6
7.5-4-194-B00	492.76	155.2	22.3	126.2	22.91	5.69	3.81	32.51	24.46	-	16.9 / 14.9 / 12.9 / 11.1	6.3 / 76.5	302.6

Note: MAX Pressure(s): 3.5-4.5 Series = 3,200 PSI (220 BAR), 5.5-7.5 Series = 2,900 PSI (200 BAR)

CYLINDER SEAL AND REBUILD KITS

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

CYLINDER MODEL	SEAL KIT NO.	REBUILD KIT NO.
3.5-3-XXX-B00	GSK-3.53-00	RBK-3.53-00
4.5-3-XXX-B00	GSK-3.53-00	RBK-4.53-00
5.5-3-XXX-B00	GSK-5.53-00	RBK-5.53-00
6.5-4-XXX-B00	GSK-6.54-00	RBK-6.54-00
7.5-4-XXX-B00	GSK-7.54-00	RBK-7.54-00



**Muncie®
Power
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