

PIN-PIN CYLINDERS

SINGLE-ACTING TELESCOPIC



HIGH PERFORMANCE IN A LIGHTER CYLINDER

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 increase safety for dumping applications and prevent accidents due to vehicle roll-over.



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

QUALITY MATERIALS

- All steel tubing is made from seamless hot rolled steel, resulting in higher tensile tubes for increased column strength and stiffness
- Stages have no welded seams, allowing for higher pressure capabilities
- Steel quality 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 capable of withstanding high and low pressures

MODEL NUMBER CONSTRUCTION

8 - 5 - 265 - A - 00

SERIES (NOMINAL DIAMETER)
(8, 7, 6, 5)

NUMBER OF STAGES
(5, 4, 3)

DESIGN CODE

STYLE: A - PIN TO PIN

NOMINAL STROKE (in.)
84" - 285"

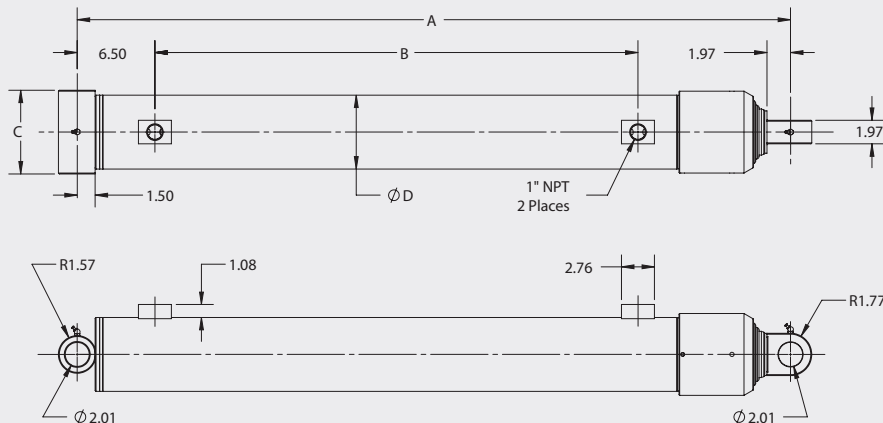
Note: Some options are limited to specific models; please contact customer service for more information.

DIMENSIONS

AVAILABLE MODELS (ENGLISH MEASUREMENTS: in., gal., 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	Gallons to Extend	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	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	5.26	220
6-3-084-A00	84.02	39.57 / 123.59	20.3	7.00	6.18	5.31 / 4.57 / 3.86	6.12	189
6-3-104-A00	102.28	47.32 / 149.60	28.3	7.00	6.18	5.31 / 4.57 / 3.86	7.35	255
6-3-110-A00	109.61	49.76 / 159.37	30.8	7.00	6.18	5.31 / 4.57 / 3.86	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	8.55	280
6-3-126-A00	126.02	54.96 / 180.98	36.0	7.00	6.18	5.31 / 4.57 / 3.86	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	9.24	300
6-3-140-A00	140.00	59.80 / 199.80	40.6	7.00	6.18	5.31 / 4.57 / 3.86	10.19	329
7-3-110-A00	109.69	49.92 / 159.61	30.8	8.23	6.93	6.06 / 5.31 / 4.57	10.62	303
7-4-135-A00	135.67	47.67 / 183.43	27.6	8.23	6.93	6.06 / 5.31 / 4.57 / 3.86	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	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	14.14	374
7-4-167-A00	167.01	55.39 / 222.40	36.5	8.23	6.93	6.06 / 5.31 / 4.57 / 3.86	14.44	374
8-4-170-A00	168.98	56.65 / 225.63	36.7	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57	19.15	467
8-5-169-A00	168.94	47.95 / 216.89	28.4	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57 / 3.86	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	18.70	464
8-5-220-A00	219.92	59.88 / 279.80	39.1	9.49	7.87	6.85 / 6.06 / 5.31 / 4.57 / 3.86	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	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	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	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	29.55	690

Notes: All cylinders MAX pressure: 2,750 PSI due to NPT ports (rated MAX pressure 2,900 PSI)



ADDITIONAL INSTALLATION HARDWARE

OPTIONS FOR ALL CYLINDERS

PIN-EYE MOUNT SPACERS

PART NUMBER	DESCRIPTION
18T42906-181025	3.00 OD X 1.81 ID X 0.25 W
18T42906-181050	3.00 OD X 1.81 ID X 0.50 W
18T42906-181075	3.00 OD X 1.81 ID X 0.75 W
18T42906-181100	3.00 OD X 1.81 ID X 1.00 W
18T42906-212025	3.00 OD X 2.12 ID X 0.25 W
18T42906-212050	3.00 OD X 2.12 ID X 0.50 W
18T42906-212075	3.00 OD X 2.12 ID X 0.75 W
18T42906-212200	3.00 OD X 2.12 ID X 1.00 W

OPTIONS FOR "A00" CYLINDERS ONLY

PIN-EYE BUSHING FOR TOP PIN

PART NUMBER	DESCRIPTION
18T42905-131200	2.00 OD X 1.31 ID X 2.00 W
18T42905-150150	2.00 OD X 1.50 ID X 1.50 W
18T42905-150200	2.00 OD X 1.50 ID X 2.00 W
18T42905-168200	2.00 OD X 1.68 ID X 2.00 W
18T42905-175150	2.00 OD X 1.75 ID X 1.50 W
18T42905-175200	2.00 OD X 1.75 ID X 2.00 W

PIN-EYE BUSHING FOR LOWER PIN

PART NUMBER	DESCRIPTION
18T43492-150700	2.00 OD X 1.51 ID X 6.80 W
18T43492-168700	2.00 OD X 1.69 ID X 6.80 W
18T43492-175700	2.00 OD X 1.76 ID X 6.80 W

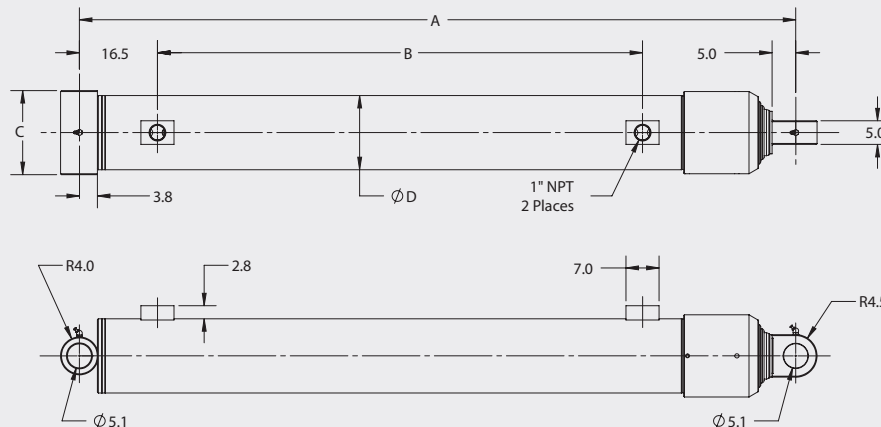
(Note: Lower Bushing Designed for 5 & 6 in. models only)

DIMENSIONS

AVAILABLE MODELS (METRIC MEASUREMENTS: cm, L, Kgs.)

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)	Liters to Extend	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	16.65	81
5-3-104-A00	262.2	120.2 / 328.4	71.9	17.78	13.69	11.60 / 9.80 / 7.90	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	23.16	86
6-3-104-A00	259.8	120.2 / 380.1	71.9	17.78	15.70	13.19 / 11.60 / 9.80	27.82	116
6-3-110-A00	278.4	126.4 / 404.8	78.2	17.78	15.70	13.49 / 11.60 / 9.81	30.02	126
6-3-120-A00	300.6	133.3 / 433.9	85.1	17.78	15.70	13.19 / 11.60 / 9.81	32.36	127
6-3-126-A00	320.1	139.6 / 459.7	91.4	17.78	15.70	13.49 / 11.60 / 9.82	34.74	136
6-3-130-A00	326.3	141.6 / 467.9	91.4	17.78	15.70	13.19 / 11.60 / 9.82	34.74	136
6-3-140-A00	355.6	151.9 / 507.5	103.1	17.78	15.70	13.49 / 11.60 / 9.83	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	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	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	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	53.52	170
7-4-167-A00	424.2	140.7 / 564.9	92.6	20.90	17.60	15.39 / 13.49 / 11.60 / 9.80	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	72.50	212
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	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	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	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	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	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	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	111.85	313

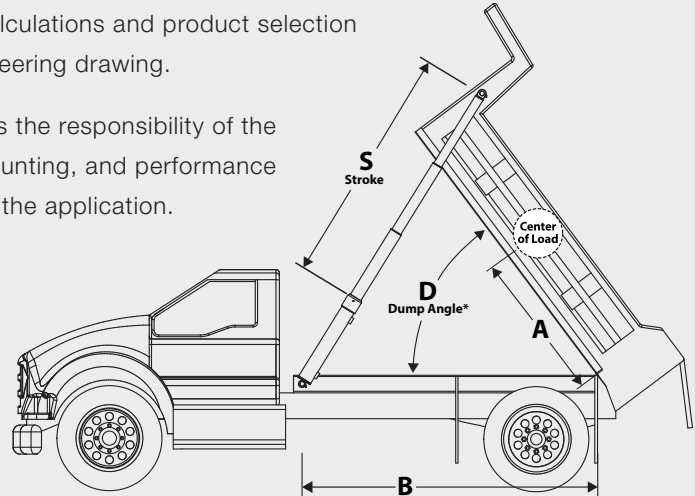
Note: All cylinders MAX pressure: 189.7 BAR due to NPT ports (rated MAX pressure 200 BAR)



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 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"	.715	.733	.750	.765	.780	.797	.813	.830	.845	.861	.877	.892	.903	.923	.939	.954

CYLINDER STROKE

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

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

REQUIRED FORCE

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

- Example: Load = 40,000 lbs., A = 85 in., and B = 162 in.
- Force Required = [40,000 lbs. × 85 in.] / 162 in.
- 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	2,750 PSI*	2,900 PSI*
6.85	36.85	29,482	36,853	55,279	73,706	92,132	101,345	106,873
6.06	28.84	23,074	28,843	43,264	57,685	72,107	79,317	83,644
5.31	22.15	17,716	22,145	33,218	44,290	55,363	60,899	64,221
4.57	16.40	13,122	16,403	24,604	32,806	41,007	45,108	47,569
3.86	11.70	9,362	11,702	17,553	23,404	29,255	32,181	33,936
3.11	7.60	6,077	7,596	11,395	15,193	18,991	20,890	22,030

Note: MAX Pressure: 2,750 PSI (189.7 BAR) due to NPT ports (rated for 2,900 PSI (200 BAR))

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; therefore, 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).