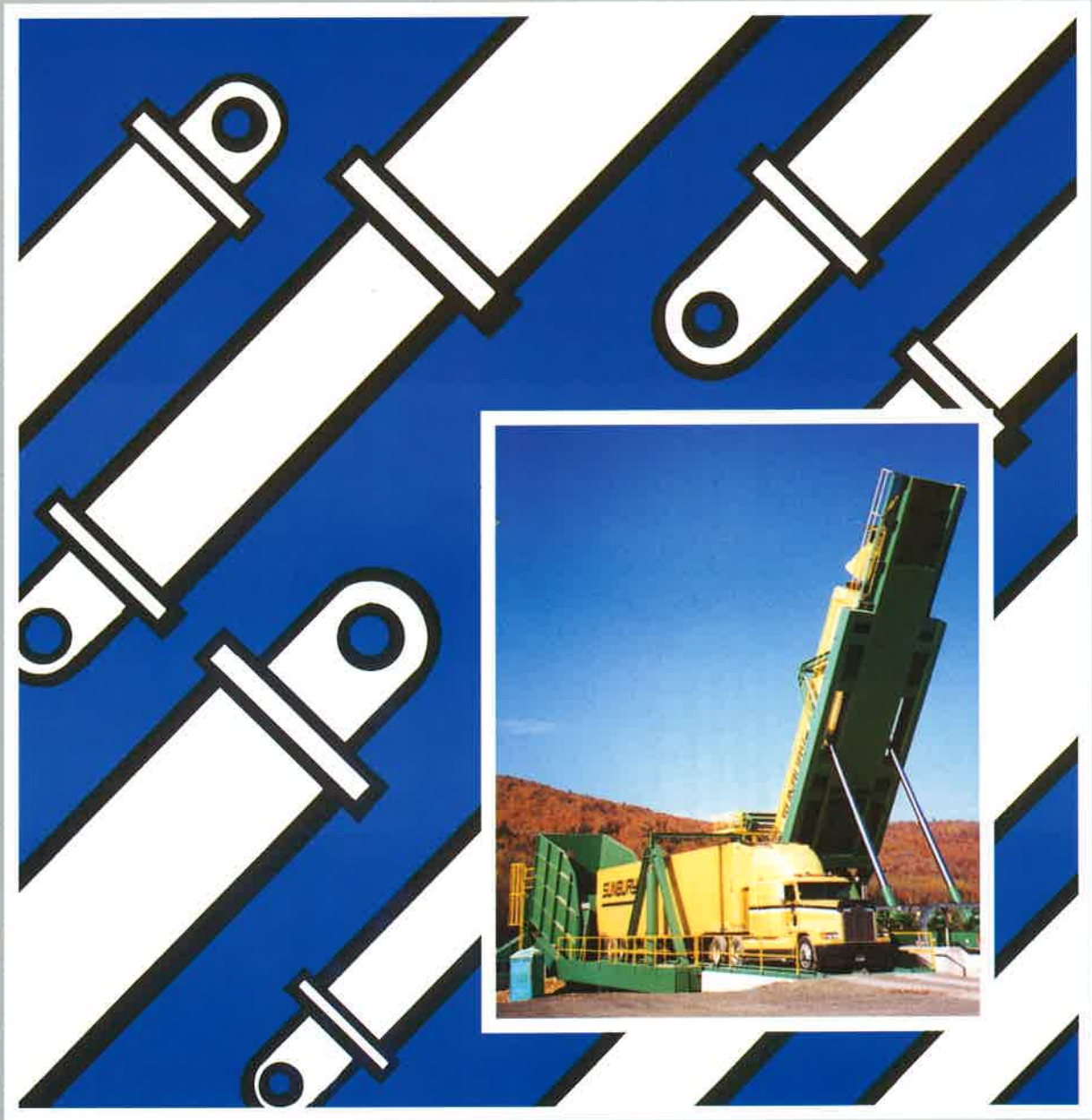
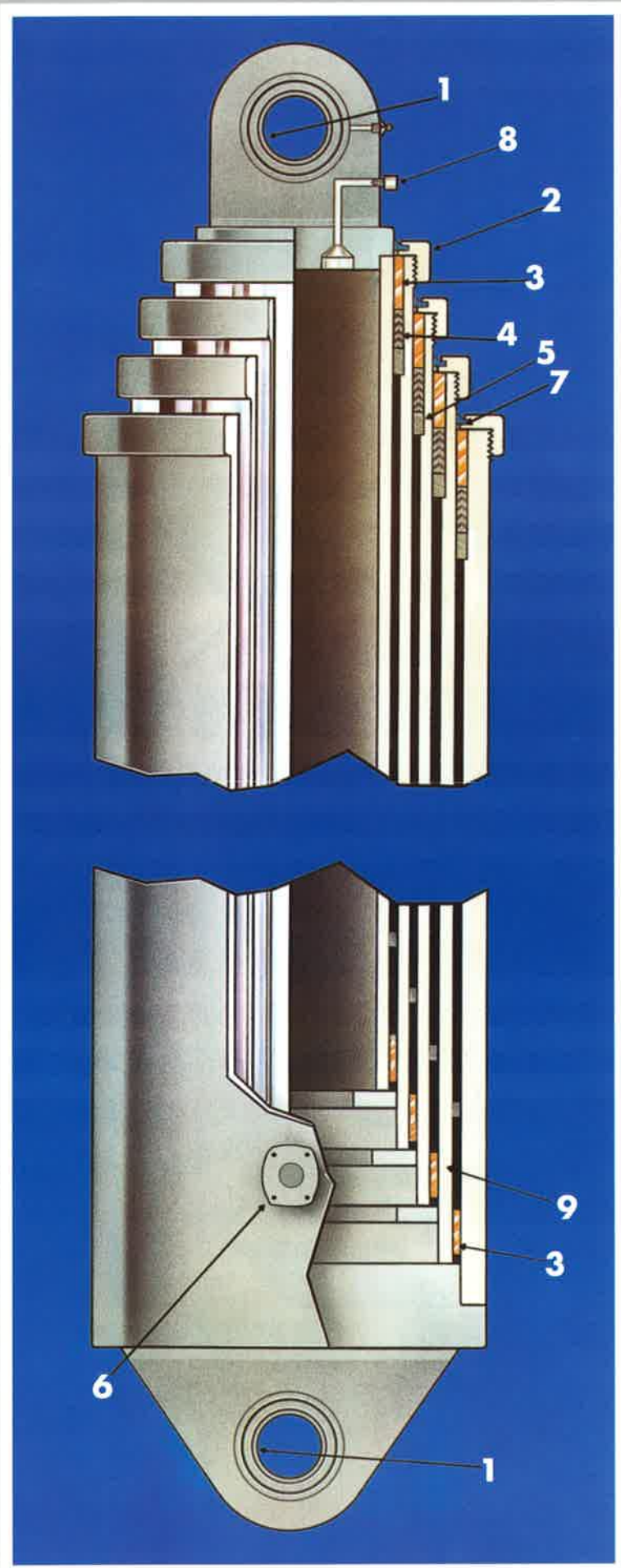




Hydraulic Cylinders





- 1** Self-aligning ball bushings.
Top and bottom on pin mount models.
- 2** External gland nuts.
- 3** Extra wide bronze bearing rings, top and bottom.
- 4** V-packings and poly pack available.
- 5** Steel Stop Rings are welded in, eliminating troublesome snaprings.
- 6** Flanged O-ring port.
- 7** Molythane wipers.
- 8** Air bleeder.
- 9** Heavy duty construction with generous lap between stages.

Phelps Industries started designing and manufacturing cylinders in 1980. Our improvements and facility expansions allowed us to offer a quality cylinder into the market place.

Phelps' cylinders are engineered to achieve truer and smoother operation in heavy duty applications. All of our cylinders are manufactured at our facility using mill purchased 1026 DOM tubing. Other parts including castings and bearings are machined and then tagged to assure proper specifications. Our fully welded type construction, which incorporates a generous lap between stages for more stability and rigidity, allows our cylinders to have a higher stress and side-loading threshold.

We offer many types of large diameter cylinders . Telescopic multi-stage cylinders and large single ram type cylinders are the majority of our competitive edge. We also manufacture a variety of custom cylinders to fit our customer's needs.



The use of extra-wide internal bronze bearings allow for a smoother operation. This wider bearing surface aids in the prevention of side-loading, which ultimately causes scoring within the tube and sends damaging metal particles throughout the hydraulic system.

The sealing system unit is stacked

V-packing rings. Nitrile rubber V-packings V-packings are used for standard hydraulic oil applications. Special fluids requiring the use of viton and metallic base V-packings are available. Where V-packing is not used, a Polyurethane U-seal is installed. This is also known industry wide as poly-pak.

Packing is accessible under external gland nuts, removable with a supplied spanner wrench, allowing ease of packing adjustment or replacement.

Our quality control program is continuous throughout the production of each cylinder. All cylinders are pressure tested before leaving our plant, and designed to operate at a maximum of 2,000 PSI. Hard chrome plating is available and recommended to increase the life of the hydraulic cylinder (.0015 thickness).



SELECTING/SIZING FOR PHELPS HYDRAULIC CYLINDERS

You can use the following formula as a guideline to meet your requirements.

$$K + N(2) + \frac{\text{required stroke}}{N} = \text{closed length}$$

N = number of stages
number of stages range from 2
moving to 5 moving stages

K = represents a constant, for different size
and moving stage cylinders

1 3/4" first moving stage required; K = 37"

1 1/2" first moving stage required; K = 33"

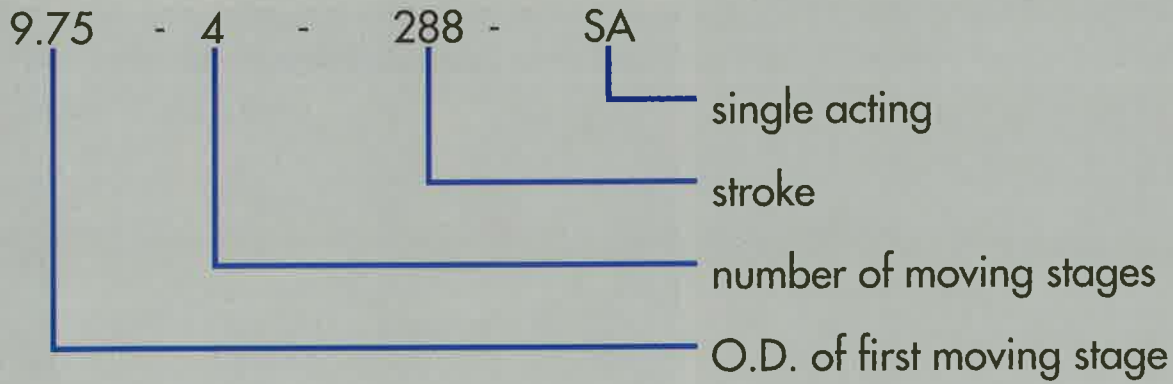
9/4" first moving stage required; K = 24.5"

8/4" first moving stage required; K = 18.5"



MODEL NUMBER SELECTING

Example:



*Phelps engineering will finalize all calculations for cylinder requirements

TUBE SIZES AVAILABLE

4"	8¼"	13¼"
5"	9¾"	15⅞"
6"	10"	18"
7"	11½"	



We specialize in large, multiple stage, telescopic hydraulic cylinders, offering a full line of four stage, single acting, with five typical standard series of size, ranging from smallest moving stage O.D. size of 5 inches to largest of 10 inches (refer to chart).

We also have the capability for replacing or retrofitting of Phelps' cylinders to existing truck dumper applications, with components to meet or exceed O.E.M. specifications. Phelps' engineering department can also design and manufacture custom cylinders.

You can use the chart and formulas to aid in your design. A multitude of mounting styles are also available, these involve trunnion, clevis, single tang, pin hole and flange. Inlet fittings are S.A.E. four bolt flange O-ring style with an integral fixed orifice. Other port fittings are available.

All cylinders have a comprehensive warranty program. Proper maintenance and Phelps service can also extend the life of your cylinder.

Hydraulic power units, with certain design criteria and circuitry, can be supplied complete. Controls can be arranged to extend a single cylinder to operate a series of cylinders. Reservoir sizes can range from 60 gallon to 2,000 gallons.



Standard sizes of 4-stage, single acting, telescoping, hydraulic cylinders.

MODEL	STROKE	CLOSED LENGTH	VOL. AT REST US GA.	VOL. TO EXTEND US GAL.	PORT SIZE	WEIGHT
10" Final						
7700-575	575	192"	59.5	324.7	2"	7,739
8" Final						
7600-500	500	170"	47	210	1½"	4,520
7" Final						
7000-320	320	109½"	26.5	96	1½"	2,696
7000-334	334	124½"	31	100.4	1½"	2,764
7000-360	360	131"	33	108.2	1½"	2,903
7000-388	388	130"	32.3	116.6	1½"	3,362
7000-408	408	142"	35.7	122.6	1½"	3,720
7000-410	410½	142½"	35.8	122.6	1½"	3,720
7000-414	414	144½"	36.5	124.4	1½"	3,190
7000-450	450	153½"	39	135.2	1½"	3,382
7000-473	473	159½"	38.9	142.1	1½"	3,475
6" Final						
7100-230	230	90"	18.8	34.8	1"	1,331
7100-260	260	97½"	20.6	54.8	1"	1,431
7100-288	288	105½"	22.3	60.7	1"	1,529
7100-296	296	99"	21	62.4	1"	1,546
7100-300	300	107½"	23.1	63.2	1"	1,567
7100-320	320	112½"	24	68	1"	1,688
7100-360	360	122½"	26	75.9	1"	1,769
5" Final						
7200-136	136	60½"	8.6	21.2	1"	747
7200-190	190	74"	11	28.7	1"	891
7200-230	230	84"	12.8	34.8	1"	999
7200-258	258	91"	14	39	1"	1,073
7200-262	262	92"	14.3	42	1"	1,185
7200-320	320	106½"	17.8	48.4	1"	1,210

Please consult us about special single acting telescoping cylinders. Single stage cylinders are also available. Produced from high quality materials with the utmost care. For more information fax your inquiries or give us a call today.



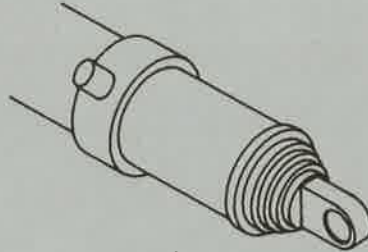
TYPICAL MOUNTING STYLES



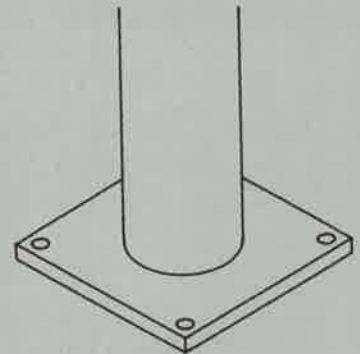
**Single
Tang**



Clevis



Trunnion



Flange



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