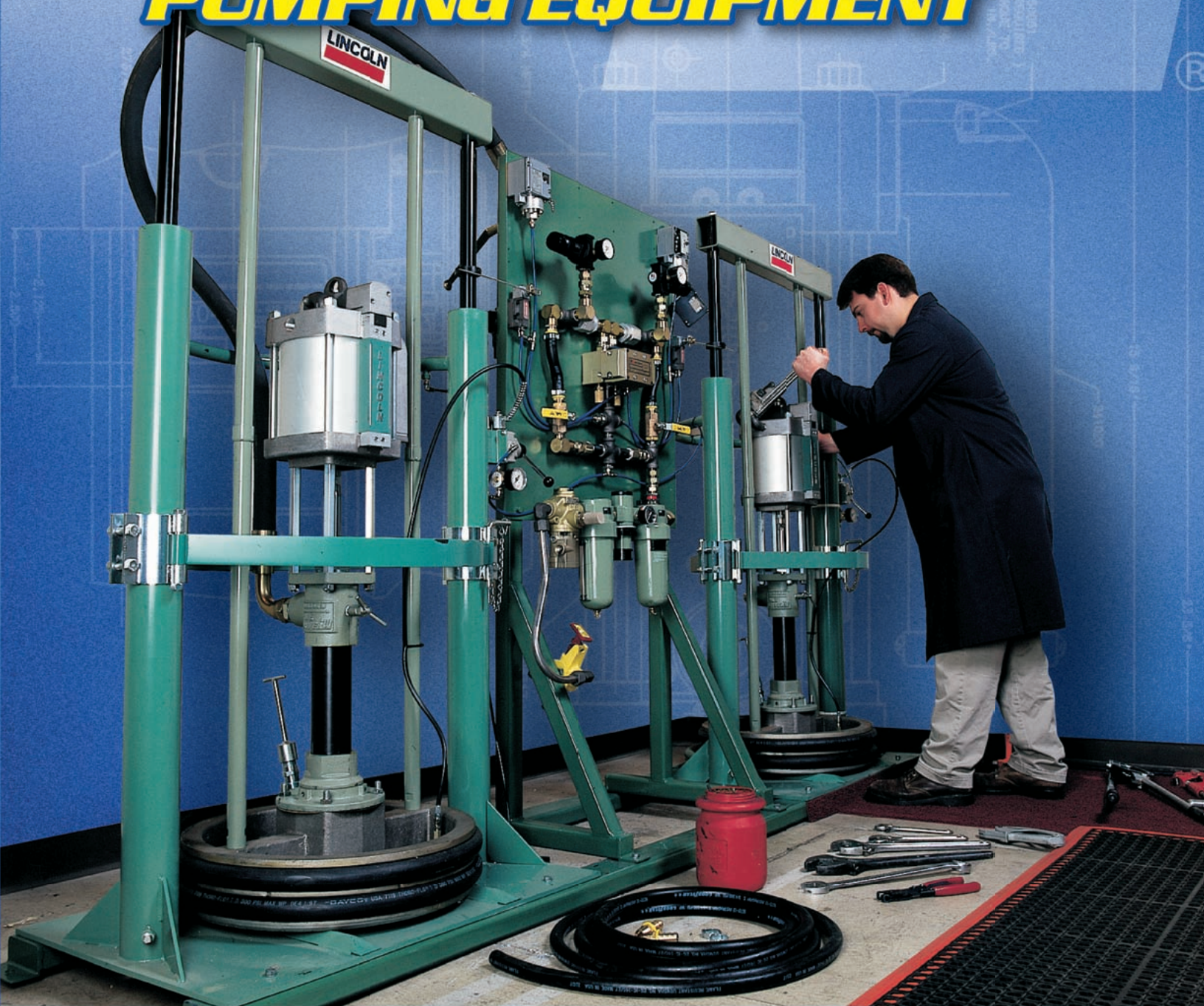


# LINCOLN



## INDUSTRIAL PUMPING EQUIPMENT



Lincoln pumps and pumping stations  
are manufactured and assembled to  
meet the most demanding applications.



# People, Capabilities and Systems to Save Money and Increase Productivity



## Industry Leader

Continually satisfying our customers with the world's best lubrication equipment and pumping systems has made Lincoln the largest and most successful company in our field. For more than 90 years, companies have relied on our technical and quality leadership; our world-class manufacturing and customer service and our vast network of distributors and support facilities.

## Research and Development

In order to provide the best world-wide and regional application solutions, Lincoln develops new products and systems at research and development facilities in the United States, Germany and India.

## Providing Solutions

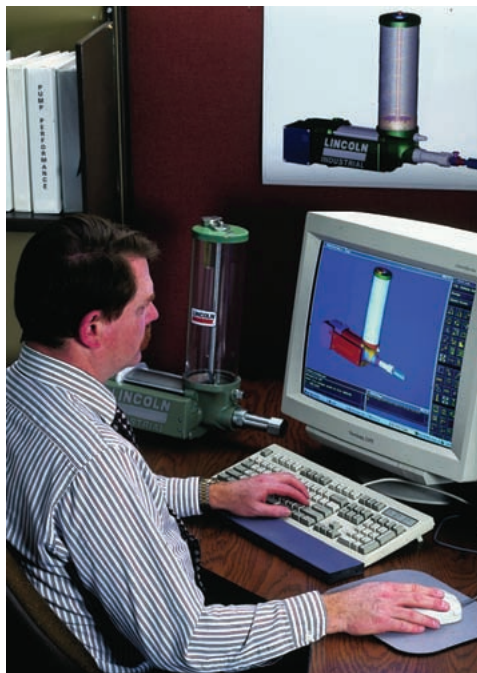
Industrial customers in large processing plants, automotive manufacturing, pulp and paper mills, food and beverage and other manufacturing facilities can depend on solutions from Lincoln. For the toughest mobile applications, on the road or in the field, Lincoln protects heavy equipment used in mining, construction, agriculture and over-the-road trucking. In addition, Lincoln offers the best lubrication equipment to meet the needs of automotive service professionals.

## Complete Product Line

Lincoln supplies automated lubrication systems, pumps and pump stations and top quality lubrication equipment and accessories. Our quality systems in the United States and Germany are ISO 9001 registered and our fittings business is QS 9000 registered.

## Worldwide Support

With five technical support centers on three continents, and a network of distributors supported by regional sales and service offices, our customers can always draw on our worldwide resources.



# Industrial Pumping Equipment

## Introduction



Lincoln provides the technologically advanced pumps required for today's demanding applications because we can draw on over 50 years experience with industrial pumping systems.

Our pumps excel in applications that range from the transfer of lighter fluids (oils, solvents, adhesives, etc.) to the movement of medium-viscosity materials (RTV silicone, greases, coatings, plastisols, offset inks, etc.) to the tough job of pumping very heavy-viscosity materials (ink flushes, epoxies, mastics, etc.).

Our systems are found in diverse industries, including printing and publishing, automotive manufacturing, rotational molding, and other demanding industries that require time-proven systems for application of their materials in manufacturing.

### PowerMaster® III Pumps

Building upon our success with standard drum pumps, we have taken their design into the 21st century with completely pneumatic, modular air motors and six-inch stroke pumps for greater material output. Accessories include an AirBrake™ option for prevention of pump runaway due to an empty container, a broken supply line or other loss of pump prime. A variety of packing materials ensures correct packing based on material compatibility.

### PileDriver® III Pumps

For high volume applications of viscous materials from standard drums or bulk tanks, these industry-standard pumps incorporate the same completely pneumatic, modular air motors. Along with the AirBrake option and a wide variety of packing materials, PileDriver III pumps feature a patented leakless gland design that protects the pump from gland seal failure and subsequent downtime for replacement.

We have a wide range of system accessories, from pressure primers and other mounting accessories to material control valves, ejectors, measuring valves, air controls and system hardware.

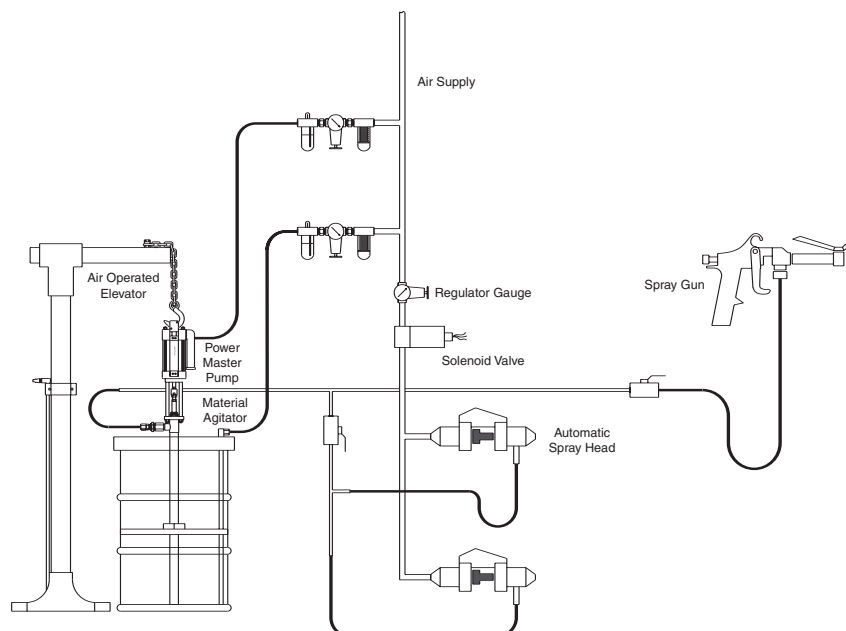
Selection of system accessories is based on general system type and your particular system's needs. Our network of systems house distributors is ready to help design the industrial pumping system that is right for you. Contact the Lincoln Technical Service Department (314-679-4200, ext. 4782) for the name of your nearest Systems House Distributor.



### Spray System

Material is transferred from an original container through a supply line to spray guns or nozzles, which are either airless (material atomized by pressure only), or air-assisted (material atomized after being mixed with air at the gun or nozzle). Spray systems are used for:

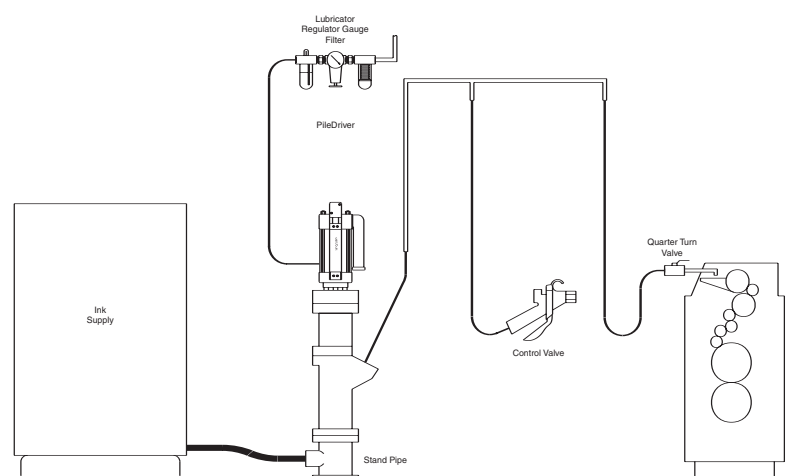
- Airless paint spray-contractors, in plant
- Die lubricant spray
- Trough grease spray in bakeries
- Protective coatings
- Cold roof coatings and restaurant spray systems
- Sound deadener
- Rust proofing
- Adhesives and sealants



### Transfer System

Material is transferred from its original container to another point. Typically, the simple transfer of low-viscosity fluids through relatively short supply lines requires low-pressure, high-volume pumps. If higher viscosity fluids are involved, or longer supply lines are required, a pump capable of higher pressures becomes necessary. Transfer systems transfer:

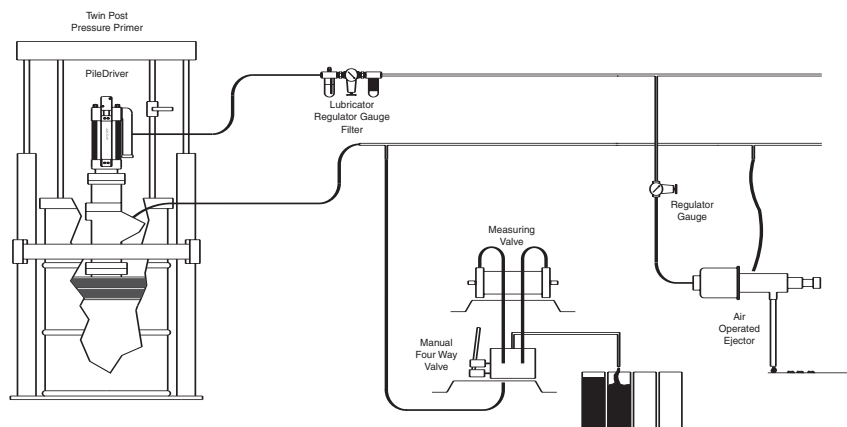
- Printing inks to press fountains
- Adhesives to reservoirs on packaging machinery
- Lubricants to smaller containers in remote locations
- Materials to high-pressure pumps for spray or flow applications



### Measure System

Material is pumped from original containers through the supply lines to measuring valves or ejectors, which in turn meter precise amounts of material to a work piece. Typical measure systems include:

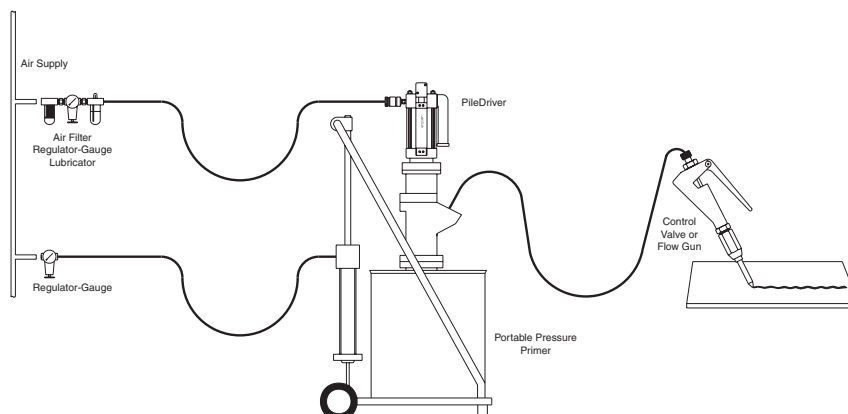
- Multiple shots in patterns of adhesives used to bond substrates, such as automobile hoods and doors
- Measured lubricant applied to electric motors in appliance manufacturing
- Single-shot applications of adhesives or sealants used in manufacturing
- Cartridge filling lines



### Flow System

Material is pumped from the original container through the supply line to a flow gun which applies the material to a work piece. Typical flow systems include:

- Adhesives applied to substrates for bonding in construction and other industries
- Adhesives used in the manufacture of modular or mobile homes
- Sealants applied during manufacturing to various parts of vehicles, including sun shields, tail lights, weld lines and hem flanges







### Features

- State of the art, fully pneumatic Air Motors, 3–4–6–8 inches (76–101–152–203 mm) diameter.
- Full 6" stroke for greater output per cycle.
- Modular design for easy repair.
- Only 5 moving parts, no metal to metal contact.
- Newly designed pump tubes offer ratios and outputs to fit any application.
- Available to fit any drum or pail size.
- Offered in carbon steel, stainless steel or hard chrome plated.
- Complete selection of packing materials available.
- Full line of priming equipment and mounting devices.
- Ball style for fluid materials, shovel foot style for high viscosity non-fluid materials.

### Series III Air Motors

- Full pneumatic operation for longer life and durability—only five moving parts.
- Total modular design for ease of service and maintenance.
- Quiet operation—meets or exceeds OSHA requirements at all recommended operation air pressures.
- Interchangeable with all PowerMaster® III Pump Tubes.
- Acceptability of Pump Monitors and controls.



### AirBrake™

- Shuts down pump immediately when excessive pump cycle speed (runaway) occurs.
- Prevents pump damage due to a runaway condition.
- Indicates system fault caused by empty container or broken supply line.
- Limits spills due to pump outlet hose failure.
- Sends fault signal to remote alarm locations with optional 244398 signal kit.
- Can be ordered already installed (refer to Pump Specification Chart).
- Can be added later. Order Model 85317.
- Easy to install and set—graduated dial with detents
- Kit 273429 upgrades existing AirBrake-equipped pumps to the latest specifications



*See Pump Selection Chart in this section.*



Model 84985

### Pump Tubes—Ball Foot Design

- For light to medium viscosity, fluid materials.
- Available in 3 styles: stub length for bulk mounting, 55 gallon or 16 gallon drum size.
- Complete packing selection for total chemical compatibility.
- Ratios from 6:1—42:1, outputs to 3.9 gpm (14.6 lit/min.).
- Complete interchangeability with all Series III Air Motors.
- Exclusive, patented, “leakless” gland assembly kit is available as an accessory.



Model 84991

### Pump Tubes—Shovel Foot Design, Plunger and Bushing Style

- For medium to high viscosity, non-fluid materials.
- Available in 55 gallon or 16 gallon drum lengths, or mounts on pressure primer for very high viscosity materials.
- Full range of ratios: 12:1 through 84:1 for all applications.
- Selected fit, hardened steel plunger and bushing is particularly well suited to viscous lubricants.
- No washers, o-rings or packings to replace on pump piston for ease of maintenance.
- Shovel foot adds mechanical priming to normal suction, assures positive prime with the most viscous of lubricants.
- Complete interchangeability with all Series III Air Motors.
- Exclusive patented, leakless gland assembly kit (to protect gland seal—the only seal in pump tube) is available as an accessory.



Model 84976

### Pump Tubes—Shovel Foot Design, Packed Piston Style

- Furnished with exclusive, patented, leakless gland assembly.
- For medium to high viscosity, non-fluid materials.
- Available in 55 gallon or 16 gallon drum lengths; also suitable for mounting on priming equipment or standpipe mounting for bulk delivery.
- Full range of packing materials available for product compatibility.
- Complete interchangeability with all Series III Air Motors.
- Full range of ratios: 10:1 through 80:1.
- Specifically designed to enhance growing market for dispensing industrial type materials: sealants, adhesives, urethanes, inks, etc. . .

*See Pump Selection Chart in this section.*

# Industrial Pumping Equipment

## PowerMaster® III Pump Selection Chart



### Low to Medium Viscosity Pumps—Carbon Steel for Transfer of Non-Corrosive Materials

#### Ball Pumps

Ratio	Pump Model Std. Air Motor Only	Pump Tube Style	Air Motor Model	Diameter in. / mm	Pump Tube Model	Material Outlet N.P.T.F.	Output Per Cycle cu. in. / cc	Approximate Cycles per gal / liters
24:1	2021	55 gal	Std. 84806 w/ AirBrake *94906	6 / 152	84985	¾"	11.9 / 195	20 / 5
12:1	2001	55 gal	Std. 84804 w/ AirBrake *94904	4¼ / 108	84985			
	2014	Stub			84986			
6:1	2052	55 gal	Std. 84803	3 / 76	84985			
	2051	Stub			84986			

#### Shovel Foot Pumps—Packed Piston

32:1	*2076	16 gal	Std. 84804 w/ AirBrake *94904	4¼ / 108	84979	¾"	4.6 / 75	51 / 13
20:1	*2075	16 gal			84977		6.7 / 110	35 / 9
10:1	*2066	55 gal	Std. 84803	3 / 76	84976			

#### Shovel Foot Pumps—Plunger and Bushing

80:1	2023	55 gal	Std. 84806 w/ AirBrake *94906	6 / 152	84993	¾"	3.7 / 61	63 / 16
75:1	2004	55 gal	Std. 84804 w/ AirBrake *94904	4¼ / 108	84997		2.1 / 34	111 / 29
	2008	16 gal			84998			
50:1	2010	55 gal			84995		3.0 / 49	78 / 20
	2011	16 gal			84996			
24:1	2002	55 gal			84991		6.1 / 100	38 / 10

\* Order pump tube and air motor separately for these models or when ordering AirBrake™ equipped models.

### Other PowerMaster Air Motor/Pump Tube Combinations (all feature ¾" NPTF Material Outlet)

#### Carbon Steel Ball Type

Ratio	Pump Tube Style	Air Motor Model	Pump Tube Model	Max. GPM/LPM Free Delivery 70 CPM
42:1	55 gal	Std. 84808 w/ AirBrake *94908	84985	3.9 / 14.6
	16 gal		84984	
	Stub		84986	
24:1	16 gal	Std. 84806 w/ AirBrake *94906	84984	
	Stub		84986	
12:1	16 gal	Std. 84804 w/ AirBrake*94904	84984	
6:1	55 gal	Std. 84803	84985	
	Stub		84986	

#### Carbon Steel Shovel Type Packed Piston

Ratio	Pump Tube Style	Air Motor Model	Pump Tube Model	Max. GPM/LPM Free Delivery 70 CPM
80:1	55 gal	Std. 84808 w/ AirBrake *94908	84976	2.2 / 8.2
	16 gal		84977	
64:1	55 gal	Std. 84806 w/ AirBrake *94906	84978	1.5 / 5.7
	16 gal		84979	
44:1	55 gal	Std. 84804 w/ AirBrake *94904	84976	2.2 / 8.2
	16 gal		84977	
32:1	55 gal	Std. 84803	84978	1.5 / 5.7
22:1	55 gal		84976	
15:1	55 gal	Std. 84803	84978	1.5 / 5.7
	16 gal		84979	
10:1	16 gal		84977	2.2 / 8.2

#### Carbon Steel Shovel Type Plunger & Bushing

Ratio	Pump Tube Style	Air Motor Model	Pump Tube Model	Max. GPM/LPM Free Delivery 70 CPM
84:1	55 gal	Std. 84808 w/ AirBrake *94908	84991	2.0 / 7.5
	16 gal		84992	
80:1	16 gal	Std. 84806 w/ AirBrake *94906	84994	1.2 / 4.5
48:1	55 gal		84991	2.0 / 7.5
	16 gal	Std. 84804 w/ AirBrake *94904	84992	
40:1	55 gal		84993	1.2 / 4.5
24:1	16 gal		84994	2.0 / 7.5
	16 gal	Std. 84803	84992	
36:1	55 gal		84997	0.7 / 2.6
	16 gal		84998	
24:1	55gal		84995	1.0 / 3.7
	16 gal		84996	
20:1	55 gal		84993	1.2 / 4.5
	16 gal		84994	
12:1	55 gal		84991	2.0 / 7.5
	16 gal		84992	

\* Order pump tube and air motor separately.

# Industrial Pumping Equipment

## PowerMaster® III Pump Selection Chart



### Ball Pumps

Gallons / Liters Per Minute			Minimum I.D. Air Supply Hose in. / mm	Air Consumption Per Cycle			
30 CPM	50 CPM	70 CPM		S.C.F.M. @ 70 psig	M <sup>3</sup> /Min. @ 4.8 bar	S.C.F.M. @ 100 psig	M <sup>3</sup> /Min. @ 6.8 bar
1.5 / 5.8	2.6 / 9.7	3.9 / 14.6	1/2" / 12	1.1	0.031	1.6	0.045
				0.8	0.023	1.1	0.031
			3/8" / 10	0.5	0.014	0.7	0.02

### Shovel Foot Pumps—Packed Piston

0.6 / 2.3	1.0 / 3.8	1.5 / 5.7	1/2" / 12	0.8	0.023	1.1	0.031
0.9 / 3.3	1.5 / 5.5	2.2 / 8.2					
0.9 / 3.3	1.5 / 5.5	2.2 / 8.2	3/8" / 10	0.5	0.014	0.7	0.02

### Shovel Foot Pumps—Plunger and Bushing

0.5 / 1.8	0.8 / 3.0	1.2 / 4.5	1/2" / 12	1.1	0.031	1.6	0.045
0.3 / 1.0	0.5 / 1.7	0.7 / 2.6		0.8	0.023	1.1	0.031
0.4 / 1.5	0.6 / 2.5	1.0 / 3.7					
0.8 / 3.0	1.3 / 5.0	2.0 / 7.5					

**Note:** Air motors and pump tubes shipped separately. Assembly required.

### Other PowerMaster Air Motor/Pump Tube Combinations (all feature 3/4" NPTF Material Outlet)

#### Hardened Steel Ball Type

Ratio	Pump Tube Style	Air Motor Model	Pump Tube Model	Max. GPM / LPM Free Delivery 70 CPM
42:1	55 gal	84808 w/ AirBrake *94908	84983	3.9 / 14.6
24:1		84806 w/ AirBrake *94906		
12:1		84804 w/ AirBrake *94904		
6:1		84803		

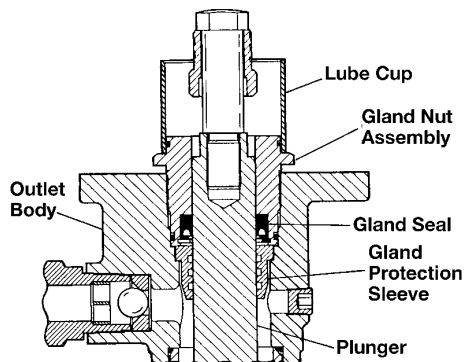
#### Chrome Plated Ball Type

Ratio	Pump Tube Style	Air Motor Model	Pump Tube Model	Max. GPM / LPM Free Delivery 70 CPM
42:1	55 gal	84808 w/ AirBrake *94908	84982	3.9 / 14.6
24:1		84806 w/ AirBrake *94906		
12:1		84804 w/ AirBrake *94904		
6:1		84803		

#### Stainless Steel Ball Type

Ratio	Pump Tube Style	Air Motor Model	Pump Tube Model	Max. GPM / LPM Free Delivery 70 CPM
42:1	55 gal	84808 w/ AirBrake *94908	84981	3.9 / 14.6
	Stub		84987	
24:1	55 gal	84806 w/ AirBrake *94906	84981	
	Stub		84987	
12:1	55 gal	84804 w/ AirBrake *94904	84981	
	Stub		84987	
6:1	55 gal	84803	84981	
	Stub		84987	





### Patented\* Leakless Gland Assembly

The gland seal of all reciprocating positive displacement pumps is its weakest point and is the single most common cause of pump failure, lost downtime and maintenance expense. Lincoln's new gland design uniquely addresses the causes for premature gland seal failure.

A special protective bushing (or sleeve) with concentric grooves creates a labyrinth path to reduce the internal operational pressure as well as the pressure fluctuations developed during pump stroke changeover.

Leakless Gland Assembly is standard with Packed Piston Pumps and is available for all PowerMaster III Pumps, as an accessory.

\* U.S. Patent No. 4,976,192

### Gland Protection Sleeves



Model 86214



Model 86213

Order Model	For Pump Tubes
86214	All Ball Foot Design Pump Tubes
86215	84997 & 84998
86216	84993 & 84994
86217	84995 & 84996
86218	84991 & 84992

### Model 86213 Lube Cup Kit

For all PowerMaster® III pump tubes. Used in conjunction with the gland protection sleeve to prolong service life of gland packing. Prevents material from drying out on plunger.

### Packing Kits for PowerMaster® III Pump Tubes

Lincoln offers alternate packing kits of Teflon® for some PowerMaster III Pump Tubes because many materials used in today's manufacturing environment may not be compatible with the standard seals. Please consult Lincoln for compatibility of the material to be dispensed with standard packings or alternate packing kits.

Teflon® is a registered trade mark of the Dupont Company.



Model 84502

Pump Tube	Teflon® Kit
84982	84502
84984	
84985	
84986	
84987	



Model 81412



Model 83166



Model 81538



Model 83369



Model 83132



Model 84963



Model 84826



Model 84945



Model 16177



Model 84377



Model 83727

### Drum Covers

#### Model 81412

Standard 55 gallon drum cover for mounting PowerMaster III series drum pumps on full open drums.

#### Model 83166

Special 55 gallon drum cover for mounting PowerMaster III series drum pumps on full open drums. Includes port for installation of material agitator.

#### Model 81538

Standard 16 gallon drum cover for mounting PowerMaster III series drum pumps on full open drums.

### Follower Plates

#### Model 83369

For 400 pound drums.

#### Model 84780

For 120 pound drums.

### Model 83132 Bung Bushing

This 55 gallon drum bung bushing screws into the bung opening of the drum to secure any Lincoln PowerMaster III Pump.

### Model 84963 Flange Mounting Assembly

Used for rigid mounting of PowerMaster III Pumps to the top of fabricated bulk tanks.

### Model 84826 Wall Mount Bracket Kit

For PowerMaster III Air Motor assemblies.

### Model 84945 Suction Kit

Used with PowerMaster III Stub Pumps for convenient transfer of petroleum products from drums, bulk tanks or reservoirs. Includes bung bushing suction tube, hose and coupling assembly and other hardware.

**Note:** 2"x1" bell reducer required—not included.

### Model 16177 Foot Valve Adapter

Converts inlet of Models 84984 and 84985 Ball Type PowerMaster III Pumps to 1½" NPTF female thread for attaching extension pipe.

### Drum Dollies

#### Model 84377

55 gallon (400 lbs) band-type drum dolly with four swivel casters and screw clamps.

#### Model 84192

16 gallon (120 lbs) band-type drum dolly with four swivel casters and screw clamps.

### Model 83727 Standpipe/Model 83732 Adapter Kit

Use of Model 83732 Adapter & Bracket Kit will enable PowerMaster III pumps to be assembled to Model 83727 Stand Pipe for pumping from bulk tanks. Inlet 3" NPT female.



Model 1709



Model 2716

### Elevator, Primer and Pressure Primers

Lincoln's mounting accessories include an elevator (Model 1709) to facilitate drum change-over by lifting the pump from an empty drum and lowering it into a new drum with minimum effort. Primers and Pressure Primers are available for positive priming of viscous materials which are forced into the pump inlet by the downward force of the follower. Models are available for most applications from five gallon pails to 55 gallon drums. Models include followers with O-ring seals (single O-rings for 5 gallon pail units and double O-rings for 55 gallon drum units) which seal the container of material from outside contamination and drying while wiping the container's sides clean.

Pressure Primers include a four-way valve which permits the air supply to be coupled to the unit at all times. Use of an air regulator and gauge is recommended. In order to prevent damage to pumps caused by operating after a drum is empty, a low level air cut-off assembly is recommended.



Model 1701



Model 1704



Model 1736

Model	For Drum Size Gal.	Description	Operating Air Pressure psi / bar	Priming Pressures PSI / Bar		Height		Base Dim. in. / mm
				@70 4.9	@100 7	Lowered in. / cm	Raised in. / cm	
1709	55	Single Post Elevator	50-200 3-14	NA	NA	73 185.4	112 284.5	NA Beam Length 19 / .5 360° Rotation
2716	55	Single Post Pump Hoist & Follower for low to med. viscosity materials 100K to 200K centipoise range	50-200 3-14	NA	NA	73 185.4	110½ 280.7	12½ x 14 317.5 x 355.5
1701**	5	Single Post for viscous material over 500K centipoise	30-150 3-10	4.4 .3	6.3 .44	42½ 108	50½ 128	22¼ x 22¼ 600 x 600
1704	55		40-100 3-7	5 .35	7.1 .5	89 226	89 226	26 x 26 700 x 700
1736	55	Twin Post for viscous materials in the 200K to 500K centipoise range	40-150 3-10	2.7 .2	3.7 .26	66½ 167.6	103 261.6	24 x 36 600 x 1000

#### Notes:

\*\*Model 83943 portability kit is available for Model 1701. Includes axle and wheels.

For Pressure Primers for 120 lb. drum pumps or for follower rings of materials other than standard Buna-N, contact Lincoln Technical Services.





### Low Level Air Cut-Off Assembly

#### Model 83811

For use with Model 1704 Pressure Primer. Mounts directly to elevator support. Automatically shuts off air flow to pump when drum of material is emptied. Eliminates unnecessary parts wear caused by continuous pump action when drum is empty. Inlet  $\frac{3}{4}$ " N.P.T.(F).

#### Model 83970

Same as Model 83811, except for use with Model 2716.

#### Model 84143

Same as Model 83811 except for use with Model 1736.



### Chimeless Drum Kits

Because some materials are supplied in straight sided or chimeless drums, Lincoln has developed hold-down kits which facilitate follower and pump extraction from these drums. Kits are available as follows:

Kit No.	For Model
84167	1704
84503	1736



Model 85387-8  
Included in 84144 Kit

### Airline Kits for Primer and Pressure Primers

#### Model 84144

Includes filter-lubricator-regulator, bracket and fittings to adapt air accessories to models 2716, 1736 and 1704. Includes  $\frac{1}{2}$ " controls.

#### Model 84141

Same as Model 84144, except includes  $\frac{3}{4}$ " controls.



Model 84722

### Model 84722 Series III Air Motor Exhaust Adapter

Replaces standard muffler. Converts exhaust port to  $\frac{3}{4}$ " NPT female thread.



Model 84723

### Model 84723 Series III Air Motor Cover Panel Kit

Metal cover fits over tie rods. Encloses moving plunger rod.



### Series III Air Motor Features

- These fully pneumatic Air Motors reverse stroke direction without mechanical linkages and are simpler and more reliable than older designs.
- Air motors are 3-4-6-8-10 inches (76-101-152-203-254mm) diameter.
- An air Signal Valve activates a Relay Valve at the end of each stroke.
- The shifting Relay Valve changes the Power Valve position.
- The Power Valve shifts air flow to the opposite side of the Power Piston to reverse stroke direction.
- Modular Construction: Air Motors are easy to install, maintain, and upgrade with options like AirBrake™.
- Built-in Muffler: Meets or exceeds OSHA requirements at recommended air pressures.
- AirBrake Options: Stops runaway pump, prevents product spills, damage and excess wear, and activates an optional remote alarm device. AirBrake available already installed (refer to pump specification charts) or can be ordered separately as Model 85317. For remote monitoring of AirBrake, order model 244398 signal kit.



\*Model 84921

Model 84904

### PileDriver Series III Pump Tube Features

- Machined inlet casting: Set screws secure the inlet assembly and permit 360° outlet adjustment to facilitate system plumbing and provide for easy pump removal/replacement.
- Cartridge type gland with scrapers and patented protection bushing: Extends the life of gland packings by protecting them from excessive material build up and pressure fluctuations. Cartridge removes easily for routine service.
- Straight through pump tube and piston port design: Reduces internal friction and the opportunity for solids entrapment.
- Load bearing, chrome-plated internal pump tube surface: Distributes forces between gland and pump tube to prolong seal life.
- Choice of inlets: Shovel type for thick material or flat check for higher flow rates.

\* Air motor available separately.



Model 85400

### PileDriver® III Severe Duty Pump Tube Model 85400

Lincoln has developed this severe duty pump for use in applications involving abrasive materials such as undercoating, heat-set off-set inks, etc. Internal surfaces are hard chromed for extra abrasion resistance. Check ball and seat are made of a tungsten carbide matrix material. Straight through flow design reduces erosion of internal components.

Ratio	Air Motor Size in. / mm	Air Motor Model	Maximum Discharge Pressure psig / bar
45:1	10 / 254	86810	4,500 / 311
30:1	8 / 203	84808	3,000 / 207
18:1	6 / 152	84806	1,800 / 124
8:1	4 1/4 / 108	84804	1,600 / 110
4:1	3 / 76	84803	300 / 21

Ratio	Output per Cycle cu. in. / cc	Stroke Length in. / mm	Min. Air Supply Hose in. / mm	Max. Operating Air Pressure psig / bar	Operating Temperature °F / °C
45:1	18 / 295	6 / 152	¾ / 20	100 / 7	30° to 200° -34° to +93°
30:1					
18:1			½ / 12	200 / 14	
8:1					
4:1			⅜ / 10		

**Note:** Pump should be installed upright for operation. Use Model 83727 stand pipe for bulk material dispensing. Locate pump as close to tank as possible and use a minimum 3 inch/76mm I.D. inlet hose or pipe.

Order Air Motor and Pump Tube separately.



# Industrial Pumping Equipment

## PileDriver® III Pump Selection Chart



Ratio	Pump Model STD. Air Motor only	Air Motor Model & Dia. in. / mm	Pump Tube Model	Pump Tube Style	Output Per Cycle		Approximate Cycles per gal / liters	Stroke Length in. / mm
					cu. in.	cc		
75:1	2375	Std. 86810	84902	Shovel	12	196	20 / 5	6 / 152
42:1	2342	w/ AirBrake	84900	Shovel	22	360	11 / 3	
20:1	2320	94910	84921	Shovel	44	721	5 / 1	
20:1	2321	10 / 254	84922	Flat Check	46	754	5 / 1	
45:1	2322	Std. 84808	84902	Shovel	12	196	20 / 5	6 / 152
35:1	2323	w/ AirBrake	84901	Shovel	17	278	14 / 4	
25:1	2325	*94908	84900	Shovel	22	360	11 / 3	
13:1	2326		84921	Shovel	44	721	5 / 1	
6:1	2328	8 / 203	84923	Flat Check	85	1393	3 / ½	6 / 152
25:1	2349	Std. 84806	84902	Shovel	12	196	20 / 5	
20:1	2350	w/ AirBrake	84901	Shovel	17	278	14 / 4	
15:1	2352	*94906	84900	Shovel	22	360	11 / 3	
7:1	2353		84921	Shovel	44	721	5 / 1	6 / 152
3:1	2356	6 / 152	84923	Flat Check	85	1393	3 / ½	
7:1	*2367	Std. 84804 w/ AirBrake	84900	Shovel	22	360	11 / 3	
3:1	*2368	*94904 4¼ / 108	84921	Shovel	44	721	5 / 1	

\* Order Pump Tube and Air Motor separately when selecting 3" and 4" air motors, and AirBrake equipped models.



Model 84913

### Packing Kit Selection Chart

Pump Tube	Standard Polyurethane Kit	Teflon® Kit	UHMW Polyethylene Kit
84900	84907	84912	84913
84901	84911	84905	84906
84902	84908	84914	84915
84904	84909	—	84917
84921	84927	84928	84929
84922	84930	84931	—
84923	84924	84925	—

**Note:** Standard polyurethane seal kits include all soft seals. Teflon® and UHMW polyethylene seal kits include gland and piston u-cups only.

### Gland Seal Kits

Pump Tube	Standard Polyurethane Kit	Teflon® Kit	UHMW Polyethylene Kit
84900	85311	85321	85327
84901	—	—	—
84902	—	85323	—
84904	85314	85324	—
84921	85315	85325	—
84922	85315	85325	—
84923	—	85326	—

**Note:** Gland seal kits include gland u-cup and o-ring only.



Model 85311

# Industrial Pumping Equipment

## PileDriver® III Pump Selection Chart



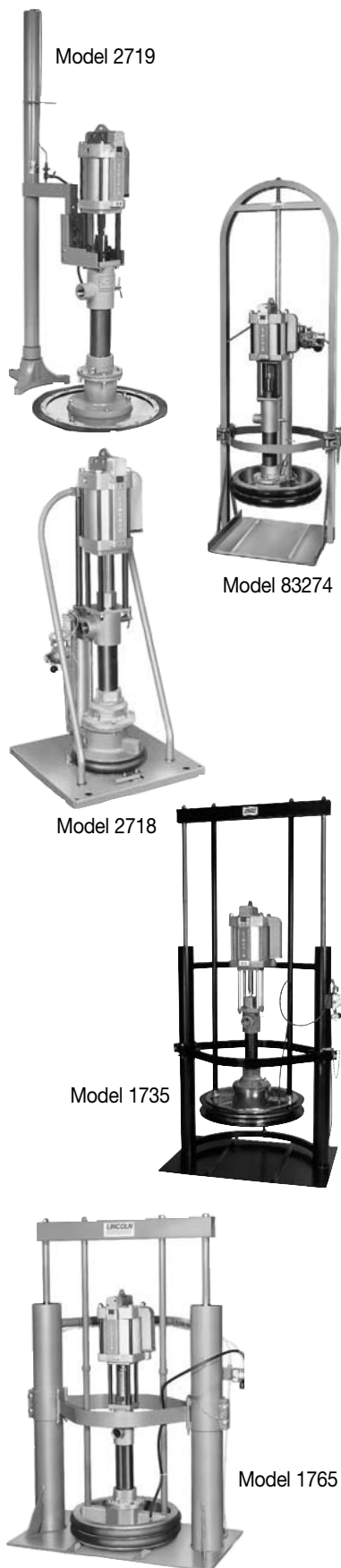
Air Inlet	Pump Output GPM / LIT/Min.			Max. Outlet Press. psi / bar	Min. I.D. of Air Supply Hose in. / mm	Material Outlet	Approximate Air Consumption per Cycle	
	@ 30 cpm**	@ 50 cpm**	@ 75 cpm**				SCFM @ 70 psig M³/Min @ 4.8 bar	SCFM @ 100 psig M³/Min @ 6.8 bar
¾" NPT Female	1.5 / 5.9	2.6 / 9.8	3.9 / 14.9	7500 / 517	¾ / 20	1½ NPT Female	2.5 / 0.071	3.6 / 0.10
	2.8 / 10.8	4.8 / 18.0	7.1 / 27.0	4200 / 290				
	5.7 / 21.6	9.5 / 36.0	14.3 / 54.0	2000 / 138				
	5.8 / 22.6	9.9 / 37.7	14.9 / 56.5	2000 / 138				
¾" NPT Female	1.5 / 5.9	2.6 / 9.8	3.9 / 14.9	4500 / 310	¾ / 20	1½ NPT Female	1.9 / 0.054	2.6 / 0.074
	2.2 / 8.3	3.7 / 13.9	5.5 / 20.8	3500 / 241				
	2.8 / 10.8	4.8 / 18.0	7.1 / 27.0	2500 / 172				
	5.7 / 21.6	9.5 / 36.0	14.3 / 54.0	1300 / 90				
¾" NPT Female	1.5 / 5.9	2.6 / 9.8	3.9 / 14.9	2500 / 172	¾ / 20	1½ NPT Female	1.1 / 0.031	1.6 / 0.045
	2.2 / 8.3	3.7 / 13.9	5.5 / 20.8	2000 / 138				
	2.8 / 10.8	4.8 / 18.0	7.1 / 27.0	1500 / 104				
	5.7 / 21.6	9.5 / 36.0	14.3 / 54.0	700 / 48				
¾" NPT Female	2.8 / 10.8	4.8 / 18.0	7.1 / 27.0	1400 / 97	½ / 12	1½ NPT Female	0.8 / 0.023	1.1 / 0.031
	5.7 / 21.6	9.5 / 36.0	14.3 / 54.0	600 / 41				
¾" NPT Female					¾ / 10	1½ NPT Female	0.5 / 0.014	0.7 / 0.020

**Note:** Air motors and pump tubes shipped separately. Assembly required.

\*\* Cycles per minute.

### Other PileDriver Pump Tube/PowerMaster Air Motor Combinations

Ratio	Air Motor Model & Diameter in. / mm	Pump Tube Model	Pump Tube Style	Max. GPM / LPM Free Delivery @ 75 cpm	Max. Outlet Pressure psi / bar
55:1	Std. 86810	84901	Shovel	5.5 / 20.8	5500 / 379
45:1	w/ AirBrake *94910	84904	Flat Check	5.8 / 22.0	4500 / 311
10:1	10 / 254	84923	Flat Check	27.6 / 104.5	1000 / 69
30:1	Std. 84808	84904	Flat Check	5.8 / 22.0	3000 / 207
13:1	w/ AirBrake *94908 8 / 203	84922	Flat Check	14.9 / 56.5	1300 / 90
18:1	Std. 84806	84904	Flat Check	5.8 / 22.0	1800 / 124
7:1	w/ AirBrake *94906 6 / 152	84922	Flat Check	14.9 / 56.5	700 / 48
12:1	Std. 84804	84902	Shovel	3.9 / 14.9	2400 / 166
10:1	w/ AirBrake *94904	84901	Shovel	5.5 / 20.8	2000 / 138
8:1		84904	Flat Check	5.8 / 22.0	1600 / 110
3:1		84922	Flat Check	14.9 / 56.5	600 / 41
1.5:1	4 ¼ / 108	84923	Flat Check	27.6 / 104.5	300 / 41
6:1	Std. 84803	84902	Shovel	3.9 / 14.9	1200 / 83
4:1		84901	Shovel	5.5 / 20.8	800 / 55
3:1		84900	Shovel	7.1 / 27.0	600 / 41
1.5:1		84921	Shovel	14.3 / 54.0	300 / 21
4:1		84904	Flat Check	5.8 / 22.0	300 / 21
1.5:1		84922	Flat Check	14.9 / 56.5	300 / 21
1:1		84923	Flat Check	27.6 / 104.5	200 / 14
	3 / 76				



### Pressure Primer Features

- Positive priming force on the material.  
Downward force of the follower forces material into the pump inlet.  
This assures positive priming of high viscosity materials.
- Follower has an Elastomer seal.  
Wipers, single o-rings or double o-rings seal against the material container's sides. This prevents drying and contamination of the material and wipes the container's sides clean.
- Four-way air valve control.  
This directional valve controls up/down movement of the follower.  
Primer unit remains coupled to the air system at all times.  
(Use of an air regulator and gauge is recommended).
- Primers available for a wide range of material container sizes.  
Lincoln has primers for 5, 55 and 300 gallon material containers.  
You can match the primer to the container size required for your application.

Model	For U.S. Drum Size gal	Description	Operating Air Pressure psi / bar	Priming Pressure psi / bar	
				@70/5	@100/7
2718*	5	Single Post for viscous material over 500 K centipoise	30-150 2-10	4.4 .3	6.3 .44
83274	55		40-100 3-7	5 .35	7.1 .5
2719	55	Single Post Pump Hoist & Follower for low to medium viscosity materials 100K to 200K centipoise range	40-200 3-14	**Not applicable	**Not applicable
1735	55	Twin Post (Twin 3") for viscous materials in the 200K to 500K centipoise range	40-150 3-10	2.7 .2	3.7 .26
1765	55	Twin Post (Twin 6") for viscous materials over 500K centipoise	40-100 3-7	8.5 .57	12 .8

\*\* Gravity priming pressure

Model	Height		Base Dimensions in. / mm
	Lowered in. / cm	Raised in. / cm	
2718*	42.5 108	50.25 128	22.25 x 22.25 600 x 600
83274	89 226	89 226	26 x 26 700 x 700
2719	73 185.4	110.5 280.7	12.5 x 14 317.5 x 355.5
1735	66.125 167.6	103 261.6	24 x 36 600 x 1000
1765	66.125 167.6	103 261.6	24 x 36 600 x 1000

\*Model 83943 portability kit is available for Model 2718. Includes axle and wheels.

**Note:** Units show pumps for illustrative purposes only. Order pump separately.



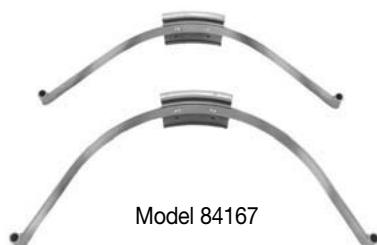


Model 83727

### Model 83727 Standpipe Assembly

Mounts PileDriver III pump on floor to accept suction line from bulk tank.

Model	Inlet	Height	Diameter
83727	3" NPTF	7½" / 190 mm	8" / 200mm



Model 84167

### Chimeless Drum Kits

Because some materials are supplied in straight sided or chimeless drums, Lincoln has developed hold-down kits which facilitate follower and pump extraction from these drums. Kits are available as follows:

Kit No.	For Model
84167	83274
84503	1735



Model 84722

### Model 84722 Series III Air Motor Exhaust Adapter

Replaces standard muffler. Converts exhaust port to ¾" NPT female thread.



Model 84723

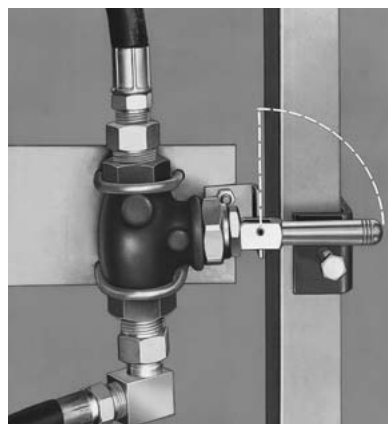
### Model 84723 Series III Air Motor Cover Panel Kit

Metal cover fits over tie rods. Encloses moving plunger rod.

### Low Level Air Cutoff Kits

Shuts air off when drum is empty. Prevents pump damage and introduction of air into supply line. ¾" NPT female connections.

Model	For Primer
83811	83274
83970	2719
84143	1735, 1765



Model 83811

### Air Line Kits for Primers

Includes filter-lubricator-regulator-gauge, bracket and fittings for models 2719, 1735, 1765 and 83274.

Model	Description
84144	½" Air Line Kit
84141	¾" Air Line Kit



Model 85387-8  
Included in 84144 Kit



Model 85300

### Hydraulic Motor for PowerMaster® III and PileDriver® III Pump Tubes

- Safe to use where electric or pneumatic motors may be hazardous.
- Virtually eliminates concerns about air supply condition and exhaust emissions.
- Efficiently generates high material pressure and flow rate with minimum hydraulic power consumption.
- Few internal moving parts. No mechanical linkages or solenoids to fail or wear out.
- A completely internal changeover circuit requires no external signal for reciprocating action.
- A balanced cylinder design eliminates the need for separate up and down stroke adjustments.
- All key components are machined from steel or aluminum to ensure long service life in the toughest applications.
- Hydro-PowerMaster was designed and is manufactured under the strict conditions of an ISO 9001 registered quality system.

Model	Cylinder Diameter in. / cm	Piston Rod Dia. in. / cm	Stroke Length in. / cm	Hydraulic Fluid Inlet	Hydraulic Fluid Outlet
85300	2 / 5	1 1/8 / 3.5	6 / 15	SAE 8 female	SAE 10 female

Hydraulic Operating Pressure Range psi / bar	Operating Temperature Range	Hydraulic Fluid Flow Consumption Rate	Maximum Recommended Continuous Speed	Wetted Part Materials
300 to 1500 20.4 to 103	-30°F to 200°F -34°C to 93°C	18.8 cu. in./cycle or 1 gallon/12 cycles	75 cycles/minute	steel, aluminum bronze, Nitrile, Teflon® polyurethane



Model 2501

### PowerMaster® III Hydraulic Powered Pumps with 85300 Hydro-PowerMaster® Hydraulic Motor

With This Pump Tube	Nominal Ratio	Drum Size	Material Outlet NPTF	Max. Hydraulic Inlet Pressure psi / bar*	Maximum Delivery Pressure psi / bar	Max. Free Del. @75 Cycles/Min. Gallons / Liters	
84985	1.5:1	55 gal	¾"	1500 / 103	2250 / 155	3.9 / 14.6	
84983							
84982							
84981		16 gal					
84984							
84986		Stub					
84987							
84976	2.5:1	55 gal			3750 / 258	2.2 / 8.2	
84977		16 gal					
84978	4:1	55 gal			6000 / 412	1.5 / 5.7	
84979		16 gal					
84991	3:1	55 gal			4500 / 310	2.0 / 7.5	
84992		16 gal					
84993	4.5:1	55 gal			7500 / 317	1.2 / 4.5	
84994		16 gal					
84995	5:1	55 gal		1250 / 86		1.0 / 3.7	
84996		16 gal					
84997	7:1	55 gal		850 / 58	7650 / 527	0.7 / 2.6	
84998		16 gal					

See PowerMaster III section for pump tube specifications, mounting devices and accessories.

\***Caution:** Do not exceed maximum hydraulic inlet pressure listed for each motor/pump tube combination.



Model 2567

### PileDriver® III Hydraulic Powered Pumps with 85300 Hydro-PowerMaster® Hydraulic Motor

With This Pump Tube	Nominal Ratio	Material Outlet NPTF	Maximum Hydraulic Inlet Pressure psi / bar*	Maximum Delivery Pressure psi / bar	Maximum Free Delivery @75 Cycles/Min. Gallons / Liters
84900	0.8:1	1½"	1500 / 103	1200 / 83	7.1 / 27.0
84901	1:1			1500 / 103	5.5 / 20.8
84902	1.5:1			2250 / 155	3.9 / 14.9
84904	1:1			1500 / 103	5.8 / 22.0
84921	0.4:1			600 / 41	14.3 / 54.0
84922					14.9 / 56.5
84923	0.2:1			300 / 21	27.6 / 104.5

See PileDriver III section for pump tube specifications, mounting devices and accessories.

\***Caution:** Do not exceed maximum hydraulic inlet pressure listed for each motor/pump tube combination.



# Industrial Pumping Equipment

## Magna-Ram™ Four Post Pressure Primer



### 300 Gallon Pressure Primer for Central Feed of High-Volume Applications

- Powerful four-post design
- Replaceable air cylinders
- Positive vent mechanism
- Cast aluminum follower: twin grooves, twin seals, flat surface
- Built-in crossover for dual primer applications
- Low level warning
- Empty drum automatic pump shut-off
- Wide range pump capability
- More compact envelope than competitive models
- Accommodates two PileDriver® III pumps

**Note:** Pumps shown for illustrative purpose only. Order pumps separately.

* Model	Max. Air Pressure	Priming Pressure		Weight lbs / kgs	Follower Diameter in. / m	Envelope Size Lowered in. / m	Envelope Size Raised in. / m
		@70 psi 5 bar	@100 psi 7 bar				
1785	100 psi	9 psi	13 psi	4000	42½	65½" x 51" x 84¼"	65½" x 51" x 141"
1786	7 bar	.63 kg/cm²	.91 kg/cm²	1819	1.08	1.7m x 1.3m x 2.1m	1.7m x 1.3m x 3.6m

\* **Model 1785** has left-hand controls. **Model 1786** has right-hand controls.

**Note:** A minimum 14 ft. (4.3 m) ceiling clearance is recommended.

### Material Shut-Off Valves

Lincoln recommends the use of material shut-off valves between the supply pump and the material supply line pipe. This enables you to disconnect the pump for service without voiding the supply line of material. Shut-off valves also can be used at the material outlets of the drop lines to control the flow of material in transfer systems.



Model 884

### Needle Type Valves

Model	Inlet & Outlet	Max. Working Pressure - psi / bar
884	$\frac{3}{8}$ " NPT Female	10000 / 690
885	$\frac{1}{2}$ " NPT Female	10000 / 690



Model 69503

### Quarter Turn (Ball) Valves

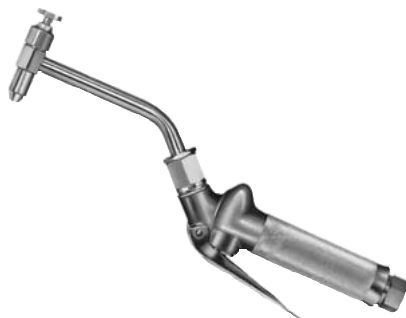
Model	Inlet & Outlet	Max. Working Pressure - psi / bar
69503	$\frac{1}{2}$ " NPT Female	2500 / 172
69425	$\frac{3}{4}$ " NPT Female	2500 / 172
69423	1" NPT Female	2500 / 17
69422	$1\frac{1}{2}$ " NPT Female	2000 / 138

### Low Pressure Control Valves

Ideal for controlling flow of materials in transfer systems.



Model 775



Model 780

Model	Max. Inlet Pressure psi / bar	Inlet Size	Outlet Size	Extension	Features/Benefits
82906	1000 / 68	$\frac{1}{2}$ " NPTF	$\frac{1}{2}$ " NPTF	Optional	High flow rate means fast transfer of low to medium viscosity fluids
775				Rigid with cap	
776				Flexible with non-drip nozzle	
780				Rigid with swivel & non-drip nozzle	Swivel extension aids access to hard to reach areas



Model 85905



Model 83586

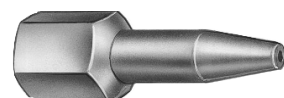
### High Pressure Control Valves

Ideal for controlling flow of materials in higher pressure transfer systems and extrusion systems.

Model	Max. Inlet Pressure psi / bar	Inlet Size	Outlet Size	Extension	Features/Benefits	Options/Kits Accessories
85905	5000 / 345	1/2" NPTF	1/2" NPTF	Optional	Trigger latch reduces operator fatigue during continuous use	91935 carboloy seat for abrasive materials
83586	5000 / 345	1/4" NPTF	1/8" NPTF	2" rigid with 3/32" orifice	Slim, lightweight design w/ adjustable trigger spring for precise, easy operation. "The Palm Gun" has Tungsten Carbide needle and seat	
83587			Fixed		Same as 83586 except has hardened steel needle and seat located in tip for drip control	
81495	10,000 / 680	3/8" NPTF	1/8" NPTF	Optional	Heavy duty machined steel construction for high viscosity, high pressure, extreme service applications	66001 Ball 12071 seat for high volume flow. Max. pressure limited to 2000 psi/ 138 bar 69133, 92168 T.C. Ball & Seat for abrasive material applications



Model 68874



Model 102622



Model 5803

### Nozzles and Extensions

Nozzles			
Model	Orifice - in. / mm	Inlet Size	Length - in. / mm
68874	Brush	1/8" NPT Female	1 / 25.4
14237	3/32 / 2.4	1/8" NPT Male	1 1/8 / 48
102622	3/64 / 1.2	1/8" NPT Female	1 1/2 / 38
5803	1/32 / .8	1/8" NPT Female	2 3/4 / 70
11196	1/16 / 1.6	1/8" NPT Female	1 1/8 / 29

Extensions 1/8" NPT Male	
Model	Length - in. / mm
62028	6 / 150
62061	12 / 300
62117	18 / 450



Model 81728



Model 82072

### Swivels

Designed for use between the material hose and control valve to give the operator more flexibility and mobility and to reduce fatigue.

Model	Style	Threads	Max. Working Pressure psi / bar
81728	Straight	1/2" NPT Male x 3/8" NPT Male	6400 435
82072	Straight	1/2" NPT Male x 1/2" NPT Male	
82087	90°	1/2" NPT Male x 1/2" NPT Male	
81729	Universal	1/2" NPT Male x 3/8" NPT Male	
82073	Universal	1/2" NPT Male x 1/2" NPT Male	

**Important Note:** For lubricant use only. Not recommended for abrasive or corrosive materials.



Model 66689

### Material Pressure Gauges

Model	Pressure Range	Connection	Remarks
66689	0-2000 psi 0-140 kg/cm²	1/4" NPT Male Bottom	2 1/2"/65mm dial, black steel case & ring, bronze bushed movement & front recalibration with stabilizer in shank.
68946	0-2000 psi 0-140 kg/cm²	1/4" NPT Male Bottom	Same as 66689 except dual needles. Red needle indicates maximum pressure recorded. Black needle indicates actual pressure being developed.
69827	0-3000 psi 0-210 kg/cm²	1/4" NPT Male Back	2 1/2"/65mm dial, black steel case, glass filled. Nylon movement.
69844	0-3000 psi 0-210 kg/cm²	1/4" NPT Male Bottom	Same as 69827 except bronze bushed movement.



Model 66111

Model	Pressure Range	Connection	Remarks
66111	0-5000 psi 0-350 kg/cm²	1/4" NPT Male Bottom	3 1/2"/75mm dial, glass filled nylon movement.
69910	0-6000 psi 0-420 kg/cm²	1/4" NPT Male Back	2 1/2"/65mm dial, black steel case and plain movement.
69039	0-5000 psi 0-350 kg/cm²	1/4" NPT Male Bottom	2 1/2"/65mm dial, black steel case & plain movement with dual needles. Red needle indicates maximum pressure recorded, black needle indicates actual pressure being developed.

**Important Note:** For lubricant use only. Not recommended for abrasive or corrosive materials.



# Industrial Pumping Equipment

## Air Operated Ejectors



Model 83664



Model 85250



Model 84564

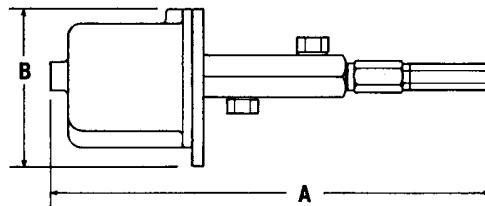


Model 84540

Designed to be combined with PowerMaster® or PileDriver® pumping systems to dispense measured shots of mastics, epoxies, sealants, greases and other viscous materials. The ejectors are true positive displacement measuring devices which accurately dispense material onto the work piece.

- Positive displacement measuring/dispensing
- Steel plunger & body assembly
- Adjustable plunger stop
- High air/material ratio
- Maintain extreme accuracy and repeatability, even where temperature, viscosity and material/air supply pressure are variable. (Repeatability suffers with competitive timed metering systems as the variables change.)
- Displacement volume can be adjusted
- High viscosity capability
- High speed capability

Model	Ratio	Operating Air Pressure	Max. Priming Pressure	Output per Cycle	Dimensions		Air Inlet NPT Female	Mat'l Inlet NPT Female	Mat'l Outlet Female
					A	B			
83664	27:1	80-100 psi 5.5-7 bar	1,000 psi 68 bar	.005-.045in <sup>3</sup> .08-.74cc	11¼" 286mm	4" 102mm	⅛"	¼"	⅛"
85250	35:1	100 psi 7 bar	1,500 psi 102 bar	.015-.200in <sup>3</sup> .25-3.3cc	13¾" 337mm	3⅝" 98mm	⅛"	¼"	¼"
84564	36:1	100 psi 7 bar	2,000 psi 138 bar	.1-1.0in <sup>3</sup> 1.6-16cc	20⅞" 522mm	5¼" 133mm	⅜"	⅜"	⅜"
84540	35:1	100 psi 7 bar	2,000 psi 138 bar	.5-2.5in <sup>3</sup> 8-41cc	21" 536mm	8⅜" 213mm	½"	½"	½"



# Industrial Pumping Equipment

## Measuring Valves



Designed to be combined with PowerMaster® or PileDriver® pumping systems to dispense accurate volumes of adhesives, sealants, plastisols, lubricants, and other medium to high viscosity fluids. These positive displacements valves address the following applications:

- Product packaging (pump material from 400 lb. drum to fill 16 oz. paper cartridges)
- Process fill (vinyl plastisol into product molds)
- Product fill (measure fluid into gear boxes, drives)

### All Lincoln Measuring Valves feature:

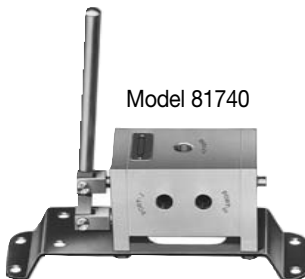
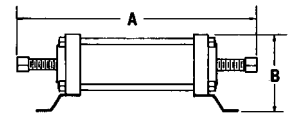
- Positive displacement piston design
- Adjustable piston stops
- Horizontal or vertical mounting capability
- One moving part

### With these benefits:

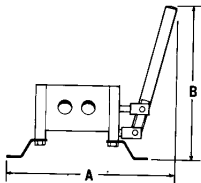
- Accuracy and repeatability that cannot be matched by other measuring systems such as timed flow
- Capacity to “fine tune” and “lock in” output volume
- Reliability
- Long component life



Model 81741



Model 81740



Model	Description	Max. Mat'l. Supply Press.		Output Per Cycle			Dimensions in. / mm		Mat'l. Inlet / Outlet
		psi	bar	cu. in.	cc	fl. oz.	A	B	
81741	Require 4-way valves	5000	340	0-7.5	0-123	0-4	13 / 330	4 <sup>7</sup> / <sub>16</sub> / 113	1/4" NPTF

\* Index head permits 10 adjustable outputs.

## Manual 4-Way Valve

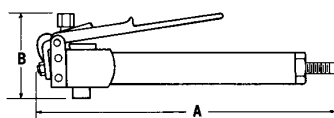
Model	Max. Material Supply Pressure		Material Inlet NPT	Material Outlet NPT Female	Air Inlet Female	Dimensions in. / mm	
	psi	bar				A	B
81740	5000	340	1/4" NPTF	1/4" NPTF	—	7 <sup>1</sup> / <sub>4</sub> / 184	8 <sup>3</sup> / <sub>16</sub> / 208

## Manual Measuring Valves

Manual High Pressure Measuring Valves include handle for manual (hand, foot or knee) operation, or can be actuated with an air cylinder.



Model 84523



Model	Max. Mat'l. Supply Press.		Output Per Cycle			Dimensions in. / mm		Mat'l. Inlet	Mat'l. Outlet
	psi	bar	cu. in.	cc	fl. oz.	A	B		
84523	5000	340	.081-1.8	1.3-30	.045-1	14 <sup>1</sup> / <sub>16</sub> / 376	4 / 101	1/4" NPTF	1/8" NPTF

Minimum supply pressure 500 psi (35 bar).

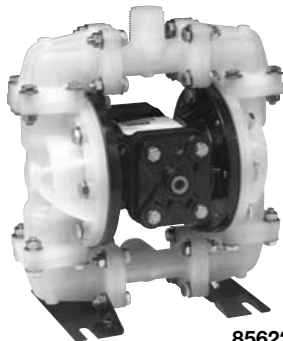
### 1/4" - 2" Air Operated Pumps



85359



85628



85622

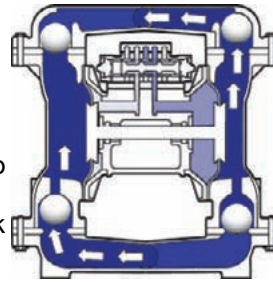


84811

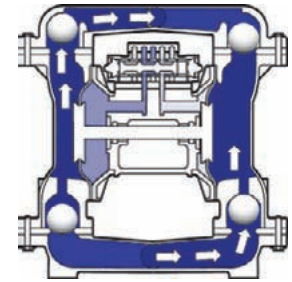
#### Basic Design Features

Diaphragm pumps are driven by compressed air. The directional air distribution valve and pilot valve—the “air end”—are located in the center section of the pump. Liquid moves through two manifolds and outer chambers of the pump—the “wet end”. Generally, check valves are located at the top and bottom of each outer chamber or on a common manifold. The two outer chambers are connected by suction and discharge manifolds. Lincoln’s double diaphragm self-priming design offers many advantages over other pumps.

- **Pump abrasive and sheer-sensitive materials.** Low interval velocities move abrasives easily with no damage. Gentle pumping action does not sheer fragile materials.
- **Pumps viscous materials.** Even heavy or solids-laden materials can be pumped.
- **Environmentally friendly.** No motors, seals or packing to leak.
- **Self-priming.** Able to dry prime under most suction lift or flooded suction conditions.
- **Variable flow.** Regulate the inlet air supply to adjust flow.
- **Runs dry without damage.**
- **Deadheads against closed discharge.** Excessive back pressure stops operation without damage until discharge opens. Eliminates bypass systems or relief valves.
- **Explosion-proof.** Eliminates sparking concerns of other electrical or rotating pumps.

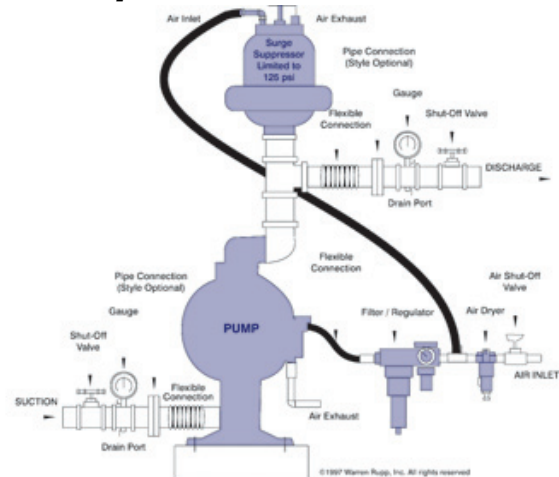


Right chamber—discharge  
Left chamber—suction



Left chamber—discharge  
Right chamber—suction

#### Pump Installation Guide



#### WARNING

The pump exhaust should be piped to an area for safe disposal of product being pumped in the event of a diaphragm failure.

#### Diaphragm Pump Materials Profile

Material/ Profile	Operating Temperatures		
	Maximum	Minimum	Optimum
<b>Buna-N</b> General purpose, oil resistant. Good solvent oil, water and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons.	190°F / 88°C	-10°F / -23°C	50° to 140° F / 10° to 60° C
<b>Conductive Acetyl</b> Tough, impact resistant, ductile. Good abrasion resistance and low friction surface. Generally inert, with good chemical resistance except for strong acids and oxidizing agents.	Governed by diaphragm material of pump		
<b>Polypropylene</b> Thermoplastic polymer. high tensile and flex strength. Resist strong acids and alkalis. Attacked by chlorine, fuming nitric acid and other strong oxidizing agents.	150°F / 66°C	40°F / 5°C	40° to 150° F / 5° to 66° C
<b>Hytre®</b> Good on acids, bases, amines and glycols at room temperature only.	190°F / 88°C	-10°F / -23°C	50° to 140° F / 10° to 60° C
<b>Urethane</b> Good resistance to abrasives. Poor resistance to most solvents and oils.	150°F / 66°C	32°F / 0°C	50° to 110° F / 10° to 60° C
<b>Santoprene®</b> Injection molded thermoplastic elastomer with no fabric layer. Long mechanical flex life. Excellent abrasion resistance.	212°F / 100°C	-10°F / -23°C	50° to 212° F / 10° to 43° C
<b>Teflon®</b> (PFA/TFE) Chemically inert, virtually impervious. Very few chemicals are known to chemically react with Teflon®: molten alkali metals, turbulent liquid or gaseous fluorine, and a few fluoro-chemicals such as chlorine trifluoride or oxygen difluoride which readily liberate free fluorine at elevated temperatures.	212°F / 100°C	-35°F / -37°C	50° to 212° F / 10° to 43° C

# Industrial Pumping Equipment

## Low Pressure Stationary Diaphragm Pumps/Accessories



### 1:1 Air Operated Diaphragm Pump Line

Model Number	Replaces	Pump Desc.	Pump Body	Wetted or Soft Parts	Pump Inlet/Outlet NPT	Max. Free Delivery gpm	Air Inlet NPT(F)	Max. Rec. Inlet Air Pressure	Max. Susp. Solids
85361		1/4"	Polyprop	Buna-N	1/4" / 1/4"	4	1/8"	125 psi	1/64"
85631	284840	1/2"	Aluminum	Buna-N	1/2" / 1/2"	15	1/4"	100 psi	1/8"
85632	84841	1/2"	Aluminum	Teflon®	1/2" / 1/2"	15	1/4"	100 psi	1/8"
85633	84840	1/2"	Aluminum	Hytrel	1/2" / 1/2"	15	1/4"	100 psi	1/8"
85622	85353	1/2"	Polyprop	Santoprene	1/2" / 1/2" *	14	1/4"	100 psi	1/8"
85623	85354	1/2"	Polyprop	Teflon®	1/2" / 1/2" *	14	1/4"	100 psi	1/8"
85626	284846	1/2"	Polyprop	Buna-N	1/2" / 1/2" *	14	1/4"	100 psi	1/8"
85629	84852, 284852	1"	Aluminum	Hytrel	1" / 1"	45	1/2"	125 psi	1/4"
85628	84853	1"	Aluminum	Teflon®	1" / 1"	45	1/2"	125 psi	1/4"
85627	84855, 284855	1"	Aluminum	Buna-N	1" / 1"	45	1/2"	125 psi	1/4"
85621	84862, 284862	1 1/2"	Aluminum	Buna-N	1 1/2" / 1 1/2"	106	3/4"	125 psi	1/4"
85624	84870, 284870	2"	Aluminum	Buna-N	2" / 2"	150	3/4"	125 psi	1/4"

### U.L. Listed

84811		1" UL	Aluminum	Buna-N	1" / 3/4"	37	1/4"	50 psi	1/8"
84812		1" UL	Aluminum	Teflon®	1" / 3/4"	37	1/4"	50 psi	1/8"

\* Can be converted to dual 1/2" outlet.



### Wall Mount Brackets

#### Model 85255 Wall Mount Bracket

Wall mount bracket for 1/4" to 1/2" air operated diaphragm pumps.

#### Model 84817 Wall Mount Bracket

Wall mount bracket for 1/2" to 2" air operated diaphragm pumps.

### Other Accessories

#### Model 240994 Drum Adapter Kit

For use with 1/2" polypropylene AOD pumps. Includes 2" NPT(f) bung bushing, 1" x 36" suction tube and adapter.

### Transfer Pump Accessories

#### Suction Kits

#### Model 84945 Remote Suction Kit

For use with 1" AOD pumps. Includes 2" NPT(f) bung bushing, 1" x 32" suction tube, 5' oil hose and coupling assembly, low level cutoff and hardware.

### Used Fluid Overfill Warning Valves

Float rises with used fluid to activate "whistle" warning at prescribed level.

#### Model 84815 Single Wall

For single wall tanks & drums in used fluid systems and above ground tanks.

#### Model 84824 Double Wall

Same as 84815 except for double walled tanks and above ground tanks.

### 4-Way Valve

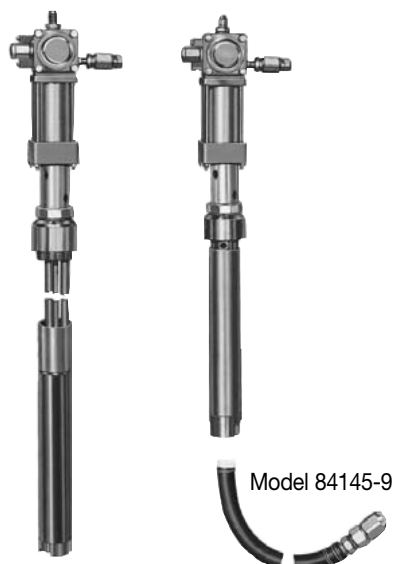
#### Model 84816

Four port, two position valve used in waste fluid systems. Enables one pump to pump into and out of drum or tank.



### Transfer Systems

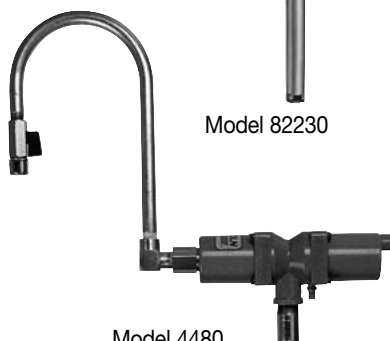
Pump material from one container or reservoir to another. Typical applications involve high volume transfer of low to medium viscosity fluids.



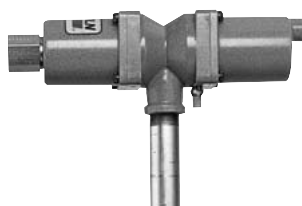
Model 84080-9



Model 82230



Model 4480



Model 4475

Model	Container Size	Ratio	Maximum Discharge Pressure psi / bar	Maximum Delivery GPM/ LPM	Pump Tube Construction	Packings	Pump Outlet
84080-9	55 gal.	3:1	375 / 26	2.5 / 9.5	316 Stainless Steel	Teflon®	½" NPTF
84145-9	Bulk						
82230*	16 gal. or 55 gal.	1:1	150 / 10	22 / 82	Carbon Steel	Leather	¾" - 1 ½" A.N.
84829	16 gal., 55 gal. or Bulk			16.5 / 66	Tube-Carbon Outlet Body Valox	Buna-N	¾" NPTF

\* Accessories for 82230: 82715-Teflon® Kit; 91172-Hose & Nozzle <sup>2</sup>

Model	Special Features
84080-9	2" bung bushing and ¼" NPTF return inlet.
84145-9	Wall mount kit, and suction hose check. <sup>1</sup>
82230	Built-in air control valve for throttling air supply to pump to control material output. Operates on pressure as low as 20 psi (1.4 bar). Self adjusting bung bushing.
84829	Light weight and efficient. The pump will stall against pressure and can be controlled by a fluid dispensing valve.

#### Notes:

1. Suction hose or tube (not included) should be compatible with pumped product and not exceed 10' (3 m) long nor less than ¾" (19 mm) I.D.
2. 91172 transfer pump hose. 8 feet (2.5 m) ¾" (19 mm) I.D. standard hose and curved spout, with inlet threaded ¾" - 11 - ½" A.N. to fit outlet of 82230 pump.
3. For transfer systems involving long supply lines, PowerMaster III Stub Pumps are available. Consult Lincoln for your application needs.

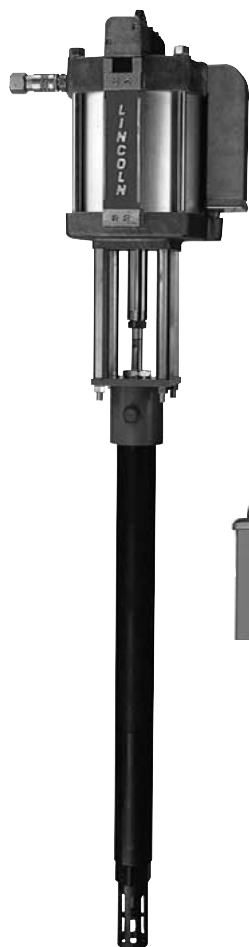
### Model 4475 Series Pump

The Model 4475 pump is a reciprocating-piston, low-pressure single action pump. Air powers the pump's piston on the dispensing, or working, stroke. An internal spring returns the piston and resets it for the working stroke. It pumps continuously when the dispensing (fluid outlet) valve is open and 20-120 psig air is supplied to the pump.

### Specifications

Model No.	Description	Material Outlet	Operation	Pump Tube Length	Attachment
4475	Bare Pump	½" NPTF	Pneumatic pressure delivery stroke, spring return stroke	34" (86 cm)	2" Bung, adjustable for 55 & 16 gal. drums, bench & portable tanks
4480	Spigot Pump	Spigot extension with on/off valve			

Model No.	Effective Pump Ratio	Inlet Air Pressure	Output/Stroke	Free Delivery
4475	Approx. 0.7:1 to 0.8:1 depending on inlet air pressure	Max: 120 psi (8.3 bar)	2.9 in³ (48 cm³)	Up to 4 gpm (15 lpm)
4480		Min: 20 psig (1.4 bar)		



Model 2390



Model 2360



Model 83496

### Ultra High Pressure Pumps for Pressure Control Applications

Designed specifically for oil well services such as wireline and plug valve applications. In wireline applications, these pumps are used to seal against the well-head pressure as the well is being logged or perforated. In plug valve applications, they are used to pump heavy grease into the valve or “Christmas tree valves” to seal any gas leaks.

#### Series III PowerMaster 4, 6, 8

Pump Model	Ratio	Pump Tube	Air Motor	Max. Delivery Pressure psig (bar)	Max. Air Pressure psig (bar)	Pump Tube Length
2390	250:1	85304	84808	20,000 (1380)	80 (5.5)	33 $\frac{3}{4}$ " 85.70cm
2392	140:1		84806	14,000 (965)	100 (6.9)	
2394	70:1		85804	14,000 (965)	200 (13.8)	
2391	250:1	85305	84808	20,000 (1380)	80 (5.5)	27 $\frac{1}{8}$ " 68.90cm
2393	140:1		84806	14,000 (965)	100 (6.9)	
2395	70:1		85804	14,000 (965)	200 (13.8)	

Max. Deliv. Pressure psig (bar)	Average Output/Cycle	Output at 75 cycles/min	Operating Temperature Range	Wetted Parts Materials	Pump Stroke	Material Outlet	Gauge Port
20,000 (1380)	2 in <sup>3</sup> (33cc)	0.67 GPM (2.5 LPM)	-40°F to +180°F -40°C to +82°C	Carbon Steel, Brass, Polyurethane	6" (152mm)	Autoclave Engineers Medium Pressure Port for $\frac{5}{16}$ " Tube, $\frac{13}{16}$ -16 Thread	Autoclave Engineers Medium Pressure Port for $\frac{1}{4}$ " Tube, $\frac{7}{16}$ -20 Thread

#### Series II PowerMaster 6

Max. Delivery	Avg. Output	Piston Packing	Gland Packing	Pump Type	Mat'l. Outlet
.42 gal/min 1.6 l/min	1.4 in <sup>3</sup> /cycle 23 cc/cycle	Bushing & Plunger	Molybdenum Disulfide Urethane Stacked V	Shovel	$\frac{1}{2}$ " NPTF(F)

Model No.	Drum Size	Pump Ratio	Air Motor Size	Max. Discharge Press.	Air Inlet
2360	55 gal.	140:1	6 in	14000 psi	$\frac{3}{4}$ " NPTF(F)
2361	16 gal.		150 mm	952 bar	

### Supply Line Booster Pump Tube

Ensures proper supply line pressure over long distances. The booster pump picks up low material pressure and “boosts” it back up to the desired pressure in the line. Pumping distance, pipe size and material viscosity determines number and spacing of booster pumps.

Max. Delivery	Gland Packing	Material Inlet & Outlet
1 gal/min 3.8 l/min	Polyurethane U-cup	3" NPTF(M)

Booster Pump Model	Air Motor Model	Pump Ratio	Air Motor Size in. / mm	Max. Discharge Pressure psi / bar	Air Inlet NPTF(F)
83496	82737	7.5:1	2 $\frac{1}{2}$ / 65	1500 / 102	$\frac{1}{4}$ "
	82895	10.5:1	3 / 75	2100 / 142.8	$\frac{1}{2}$ "
	82730	21.5:1	4 $\frac{1}{4}$ / 110	4300 / 292.4	$\frac{1}{2}$ "
	82736	43:1	6 / 150	4300 / 292.4	$\frac{3}{4}$ "



Model 85801

### Dispense Pak #1 Model 85801

For 5 gallon pail, single gun applications not exceeding 26 cu. in. (426 cc) per minute.

Air Inlet	Material Outlet	Control Valve Inlet	Control Valve Outlet
¼" NPTF	½" NPTF	¼" NPTF	⅛" NPTF①

Extrusion Volume Per Linear Foot (Beads)			
Diameter-in. / mm	cu. in. / cc	Gallons / Liters	Ft. per Gal.
⅛" / 3.2	.1473 / 2.41	.00064 / .0024	1565
¼" / 6.35	.5891 / 9.65	.00255 / .0096	392
⅜" / 9.525	1.3562 / 22.2	.00574 / .021	174
½" / 12.7	2.3562 / 38.6	.01020 / .038	98
⅝" / 15.875	3.8612 / 63.3	.01592 / .060	63
¾" / 19.05	5.3005 / 86.8	.02295 / .086	44

85801 consists of 1725 Pump Assy., 67176 Coupling, 83586 Flow Gun, 83594 Universal Swivel, 85817 20' x ½" ID Moisture-Lok Hose Assy.

### Dispense Pak #2 Model 85802

For 5 gallon pail, single or multiple gun applications not exceeding 100 cu. in. (1639 cc) per minute.

Air Inlet	Material Outlet	Control Valve Inlet	Control Valve Outlet
½" NPTF	¾" NPTF	½" NPTF	¼" NPTF①

Extrusion Volume Per Linear Foot (Beads)			
Diameter-in. / mm	cu. in. / cc	Gallons / Liters	Ft. per Gal.
⅛" / 3.2	.1473 / 2.41	.00064 / .0024	1565
¼" / 6.35	.5891 / 9.65	.00255 / .0096	392
⅜" / 9.525	1.3562 / 22.2	.00574 / .021	174
½" / 12.7	2.3562 / 38.6	.01020 / .038	98
⅝" / 15.875	3.8612 / 63.3	.01592 / .060	63
¾" / 19.05	5.3005 / 86.8	.02295 / .086	44

**Material: General Purpose RTV Silicone**

**Viscosity: 600,000 CPS, Brookfield #7 Spindle 24 RPM**

Air Pressure to Pump psi / bar	Air Pressure to Ram psi / bar	Output/Minute cu. in. / cc
50 / 3.4	100 / 6.8	42.2 / 691.6
75 / 5.1	100 / 6.8	81.6 / 1337.4
100 / 6.8	100 / 6.8	126.8 / 2078.2

**Note:**

Dispense Pak includes 20 ft. (6 m) drop line, swivel and control valve. Header piping, connections, valving and additional drop lines are to be ordered separately.

① For additional nozzle selections refer to page 22.

85802 consists of 84977 Pump Tube, 84804 Air Motor, 1701 Pressure Primer, 12080 Bushing, 67179 Coupling, 82072 Straight Swivel, 83168 Air Control, 85817 20' x ½" ID Moisture-Lok Hose, 85905 Flow Gun, 238394 Coupler.



Model 85803

### Dispense Pak #3 Model 85803

For 5 gallon pail, multiple gun applications not exceeding 200 in.<sup>3</sup> (3278 cc) per minute.

Air Inlet	Material Outlet	Control Valve Inlet	Control Valve Outlet
½" NPTF	1½" NPTF	½" NPTF	¼" NPTF <sup>①</sup>

Extrusion Volume Per Linear Foot (Beads)			
Diameter-in. / mm	cu. in. / cc	Gallons / Liters	Ft. per Gal.
⅛" / 3.2	.1473 / 2.41	.00064 / .0024	1565
¼" / 6.35	.5891 / 9.65	.00255 / .0096	392
⅜" / 9.525	1.3562 / 22.2	.00574 / .021	174
½" / 12.7	2.3562 / 38.6	.01020 / .038	98
⅝" / 15.875	3.8612 / 63.3	.01592 / .060	63
¾" / 19.05	5.3005 / 86.8	.02295 / .086	44

**Material:** General Purpose RTV Silicone  
**Viscosity:** 600,000 CPS, Brookfield #7 Spindle 24 RPM

Air Pressure to Pump psi / bar	Air Pressure to Ram psi / bar	Output/Minute cu. in. / cc
50 / 3.4	100 / 6.8	68.0 / 1114.5
75 / 5.1	100 / 6.8	146.8 / 2406.0
100 / 6.8	100 / 6.8	230.1 / 3771.3

85803 consists of 2349 Pump, 2718 Hoist & Follower, 250089 Adapter, 67224 Pipe Plug, 12080 Bushing, 67179 Coupling, 82072 Straight Swivel, 83168 Air Control, 85817 20' x ½" ID Moisture-Lok Hose, 85905 Flow Gun, 238394 Coupler.

### Dispense Pak #4 Model 85804

For 55 gallon drum applications to multiple work stations through header system not exceeding 1000 cu. in. (16390 cc) per min.

Air Inlet	Material Outlet	Control Valve Inlet	Control Valve Outlet
¾" NPTF	1½" NPTF	½" NPTF	¼" NPTF <sup>①</sup>

Extrusion Volume Per Linear Foot (Beads)			
Diameter-in. / mm	cu. in. / cc	Gallons / Liters	Ft. per Gal.
⅛" / 3.2	.1473 / 2.41	.00064 / .0024	1565
¼" / 6.35	.5891 / 9.65	.00255 / .0096	392
⅜" / 9.525	1.3562 / 22.2	.00574 / .021	174
½" / 12.7	2.3562 / 38.6	.01020 / .038	98
⅝" / 15.875	3.8612 / 63.3	.01592 / .060	63
¾" / 19.05	5.3005 / 86.8	.02295 / .086	44

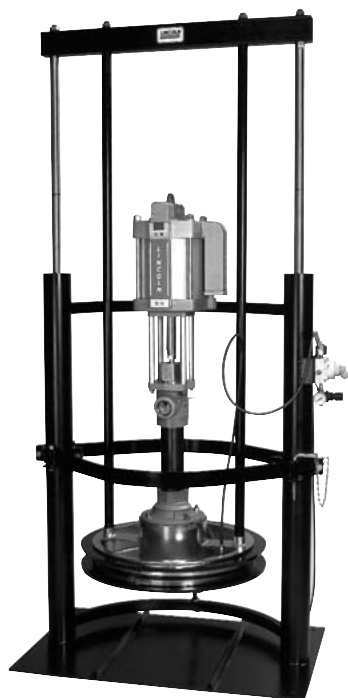
**Material:** General Purpose RTV Silicone  
**Viscosity:** 600,000 CPS, Brookfield #7 Spindle 24 RPM  
**Pump Output:** 1015 cu. in./minute

**Recommended Pipe Sizes - Material Header**  
**Pipe:** Seamless steel sch. 80 ASTM-A53, or ASTM-A105  
**Fittings:** 3000 lb forged steel

Length	I.D. (Min)
0-50' / 0-15 m	1.25" / 32 mm
50-100' / 15-30 m	1.5" / 38 mm
100-150' / 30-16 m	2" / 51 mm

**Note:**

Dispense Pak includes 20 ft. (6 m) drop line, swivel and control valve. Header piping, connections, valving and additional drop lines are to be ordered separately.



Model 85804



① For additional nozzle selections refer to page 22.

85804 consists of 84902 PD Pump Tube, 84806 Air Motor, 1735 Pressure Primer, 12080 Bushing, 67179 Coupling, 82072 Straight Swivel, 84141 Air Line Kit, 85817 20' x ½" ID Moisture-Lok Hose, 85905 Flow Gun, 238394 Coupler.





Model 1725

### Model 1725

Portable package designed for original five gallon pails. Portable pressure primer includes reversible steel cleats for securing both straight-sided and tapered pails. Follower with wiper blade cleans sides of pail as material is dispensed. Air assisted follower extraction.

Model No.	Pump Ratio	Drum Size	Max. Del. gal./min. l./min.	Max. Dischrg. Pressure psi / bar	Hose Description	Standard Accessories
1725	25:1	5 gal.	0.25 / 0.95	5000 / 340	NA	NA

Hose rated to 1500 psi / 102 bar.

**Note:** Order hose, flow gun, etc. separately.



Model 252

### Model 252

For dispensing heavy greases, NLGI #3. Includes a screw prime follower.

**Note:** Model includes 7 ft. of 1/4" high pressure hose, 81387 universal swivel, and 740 control valve. Pressure switch is factory set to shut-off pump at 5,000 psi lubricant pressure and to start pump when pressure drops to 2,500 psi.

Dimensions	Output	Power Requirements	Lubricant Capacity
36 $\frac{1}{4}$ " x 28" x 17 $\frac{1}{2}$ " 921 x 711 x 445 mm	6 oz. / min. 177.6 cc / min	115/230 volt 5.4 / 2.7 amp	30 lbs. 13.6 kg.

# Industrial Pumping Equipment

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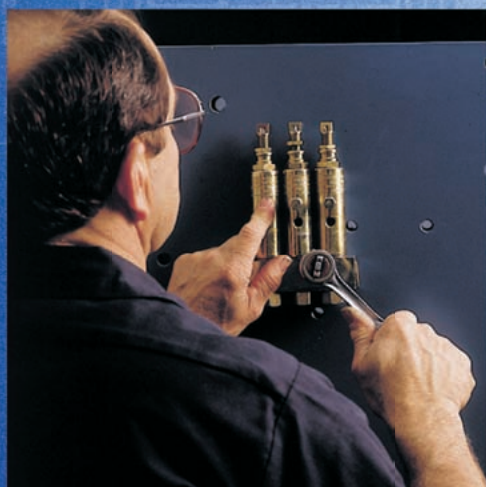


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