

Manzel® HP Lubricators

For precisely metered lubricant delivery at pressures up to 60,000 psi.



DESCRIPTION

Manzel Force Feed Lubricators are precision metering pumps operating within rugged cast iron reservoirs which contain the lubricant to be pumped. Each pumping unit supplies a single point of lubrication. Lubricators may be furnished in single or multi-feed units for any number of points of lubrication. They are available with various drive arrangements, for a broad range of lubricants, viscosities, and required line pressures. Each Manzel Lubricator Pumping Unit is fitted with an integral sight feed showing the flow of lubricant into each line.

Manzel High Pressure Lubricators are famous the world over for convenience, positive protection, cost savings and reliability. They are specified by leading equipment builders in the chemical and petrochemical industries in the United States, Europe, Japan and South America.

“Dri-Vac” sealed pumping units may be easily removed for servicing without dis-assembling the complete lubricator from the installation. Individual pumps may also be added or changed to alter the number or pressure rating of individual feeds.

Lubricant is pumped through the Sight Feed Chamber by means of negative pressure, each drip tube indicating the amount of lubricant fed to each point of lubrication. The individually sealed chambers are compatible with both mineral oil and synthetic base lubricants.

Simple hand adjustment of the feed regulator knob provides regulation of feed from a fraction of a drop to full pump capacity.

FEATURES

- Operating pressures to 60,000 p.s.i., for lubricating compressor and circulator cylinder walls, heavily loaded bearings and other moving parts.
- Single plunger force feed principle also highly efficient for injecting lubricants and/or compatible fluids into high pressure systems.
- Vacuum sight feeds on self-contained pumping units show output of lubricant to individual lubrication points.
- All working parts are totally enclosed and self-lubricated.
- Individual pumping units easily removed for service.
- Feed rate infinitely variable from minimum to maximum with simple hand adjustment.

OPERATION

The crankshaft gives a vertical movement to the pump plunger through the regulating lever. Pump displacement is controlled by the position of the regulating lever fulcrum. When the feed regulator nut is turned clockwise to its furthest point, the graduated regulator rod will project its greatest distance. The regulating lever fulcrum will then be at its highest point, and the plunger will displace a maximum of fluid. Fluid displacement occurs in that portion of the cylinder above the inlet port and is a function of plunger travel.

On the downstroke, the plunger creates a negative pressure in the cylinder, positively seating the spring-loaded poppet discharge valve and opening the inlet port from the sight chamber well. This causes the fluid in the sight chamber well to flow into the depressurized pump cylinder, creating a reduction of pressure in the sight feed chamber. As a result of this pressure imbalance, a metered amount of fluid is forced up through the drip tube into the sight well.

On the upstroke, the plunger closes the inlet port and the metered amount of fluid is forced under system pressure over the poppet discharge valve to the point of lubrication. The inlet port provides an annular ring around the plunger and a channel to the Sight Feed Chamber. Any loss of lubricant between the plunger and cylinder on the discharge stroke returns to the Sight Feed Chamber. Because of the pressure balance system, the volume being drawn up from the reservoir is reduced. Hence, the amount seen leaving the drip tube is equivalent to that entering the discharge line.

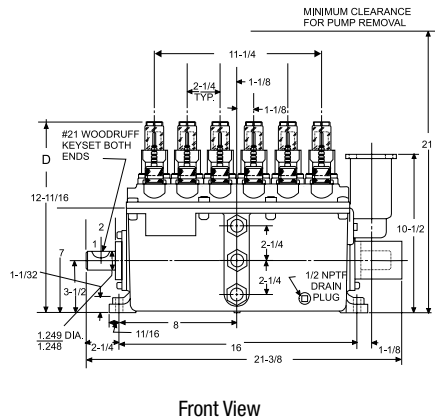
Mounting – Reservoirs have end mounting lugs as shown in outline drawings on page 2. Mounting bases to accommodate complete reservoir and drive systems are also available.

Drive – Crankshaft drive is provided by a rotary power source whose output speed is in the range of 3 to 36 rpm, usually electric motors combined with individual speed reduction units (normally those that will accept NEMA flange motor mounts). Multiple-drive arrangements use double extension output shafts in the gear reduction units, for right and left drives. Parallel drive systems are also possible through chain and sprocket devices.

Tandem drive arrangements are powered through driveshaft couplers. A maximum of three high pressure lubricators may be driven by this method.

System Connections – It is recommended that each pumping unit be installed with a Manzel High Pressure Check Valve in the discharge line adjacent to the pump discharge connection, so that pump assembly may be removed from reservoir without loss of lubricant in lines. The installation of a second of these valves at the point of lubrication is always recommended to prevent line drainage, and as a positive means of avoiding feedback of system pressure to pump.

Manzel Model HP-15



Reservoir Capacity 7 qts. from Centerline of Top Gauge Glass to Centerline of Bottom Gauge Glass.

OPERATION (Continued)

Lubricant Types and Viscosities — Manzel HP Lubricators are suitable for use with mineral oil or synthetic base lubricants with viscosities in the range of 100 to 5,000 SUS under pumping conditions.

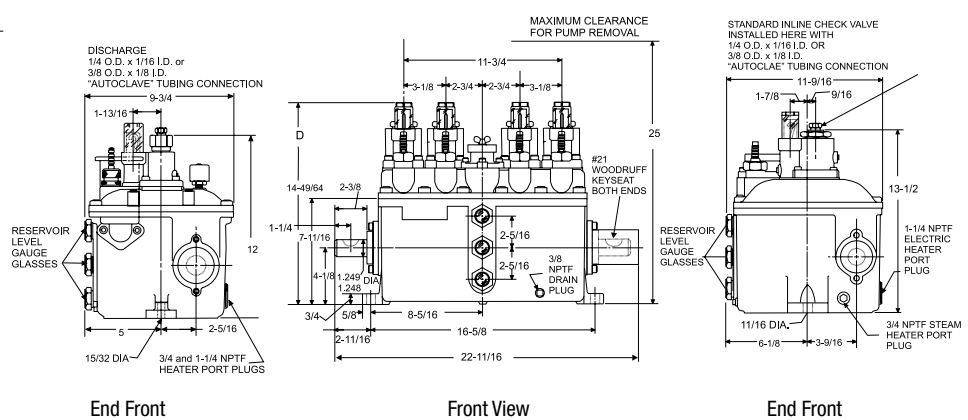
Heaters and Other Accessories — Both electrical and steam heater assemblies for low ambient temperatures and/or high viscosities are available on special order.

Also available are low level, low level/shaft rotation alarms and auto fill devices.

Finish — The exteriors of all pumping units are Parco-Lubrited, as well as the inside and outside of the cast reservoir and its cover. This makes painting unnecessary, and eliminates many of the problems of handling synthetic lubricants.

Service — Pumping units include a hardened cylinder and plunger which are lapped to a selective fit. It is therefore recommended that pumps be returned to the factory for service. To insure uninterrupted equipment operation, spare pumps should be available.

Manzel Model HP-50, HP-60



Reservoir Capacity 9 qts. from Centerline of Top Gauge Glass to Centerline of Bottom Gauge Glass.

MATERIALS OF CONSTRUCTION

Reservoir and Cover — Heavily ribbed cast iron.

Cylinder — Hardened alloy steel, precision-honed.

Plunger — Hardened alloy steel, precision-ground and fitted.

Valves — Poppet type, flat face, hardened and ground alloy steel.

Valve Seats — Hardened and ground alloy steel.

Driveshaft — Integral crankshaft type, hardened, ground and polished alloy steel, machined from solid bar.

Bearings — Bronze bushed, high load capacity, long-life, self-lubricating type.

Regulating Lever — Forged steel.

LUBRICATOR CHARACTERISTICS												
Model	Number of Feeds	Maximum Operating Pressure	Reservoir Capacity (Quarts) (1)	Plunger Diameter (Inches)	Pumping Unit Displacements [2]							
					Drops / Stroke		Cu. In./ Stroke		C.C. / Stroke		Strokes / Min.	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
HP-15	1 to 6	18,000	7	1/4	4	1	.008	.002	.133	.033	36	3
HP-50	1 to 4	50,000	9	1/4	4	1	.008	.002	.133	.033	36	3
HP-60	1 to 4	60,000	9	1/4	4	1	.008	.002	.133	.033	36	3

[1] Usable reservoir Capacity, as measured from centerline of top gauge glass to centerline of bottom gauge glass (see drawings).

[2] All displacements are based on SAE 30 oil (500 SUS at 100°F.) at room temperature. Volumetric equivalents of drops are: 14,115 drops equal 1 pint, 490 drops equal 1 cu. in., 30 drops equal 1cc.

All written and visual data contained in this document are based on the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

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