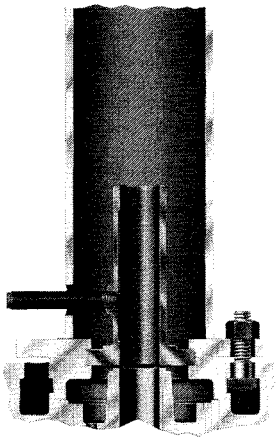
ENGINEERING DATA
PUMP AND LINE BEARINGS

BEARING TYPE	PUMP CONSTRUCTION	BEARING HOUSING MATERIAL	BUSHING MATERIAL				
			IRON	BRONZE	CUTLESS RUBBER	GRAPHITAR	FILLED TEFLON
STANDARD BEARING FOR PIT DEPTHS UNDER 10'	BRONZE FITTED	BRONZE			NO BUSHINGS REQUIRED		
	ALL BRONZE	BRONZE					
	ALL IRON	IRON					
	STAINLESS STEEL	STAINLESS STEEL					X
RELIEF BEARING STANDARD FOR PIT DEPTHS 10' AND DEEPER	BRONZE FITTED	STEEL		X			
	ALL BRONZE	BRONZE		X			
	ALL IRON	STEEL	X				
	STAINLESS STEEL	STAINLESS STEEL					X
STANDARD LUBRICATION			GREASE		PUMPED LIQUID		
OPTIONAL LUBRICATION			WATER FLUSH-OIL (1)		WATER FLUSH (2)	WATER FLUSH-GREASE (2)	WATER FLUSH

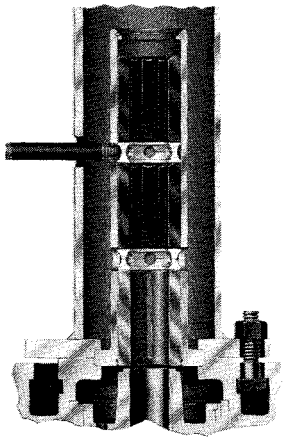
BEARING TYPE	PUMP CONSTRUCTION	BEARING HOUSING MATERIAL	BUSHING MATERIAL				
			IRON	BRONZE	CUTLESS RUBBER	GRAPHITAR	FILLED TEFLON
OPTIONAL RELIEF BEARING	ALL BRONZE	BRONZE		X	X	X	X
	BRONZE FITTED	STEEL		X	X	X	X
	ALL IRON	STEEL	X		X	X	X
	STAINLESS STEEL	STAINLESS STEEL			X	X	X
OPTIONAL SPOOL BEARING	BRONZE FITTED	STEEL		X	X	X	X
	ALL IRON	STEEL	X		X	X	X
	STAINLESS STEEL	STAINLESS STEEL			X	X	X
STANDARD LUBRICATION			GREASE		PUMPED LIQUID		
OPTIONAL LUBRICATION			WATER FLUSH-OIL (1)		WATER FLUSH (2)	WATER FLUSH-GREASE (2)	WATER FLUSH

(1) OIL - FOR LINE SHAFT BEARINGS ONLY.
(2) WATER FLUSH - RELIEF HOUSING ONLY.

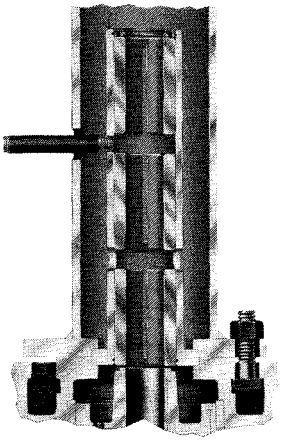
STANDARD

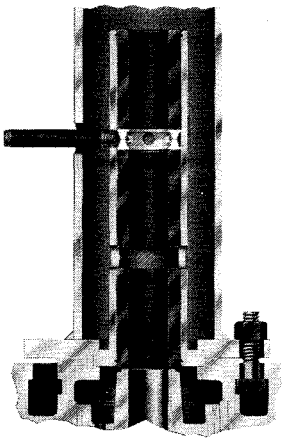


CUTLESS RUBBER

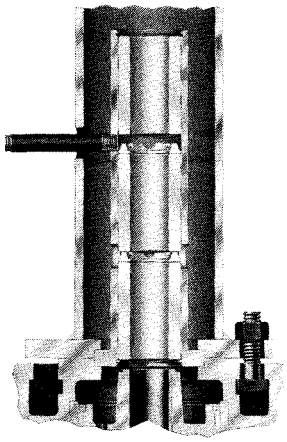


RELIEF

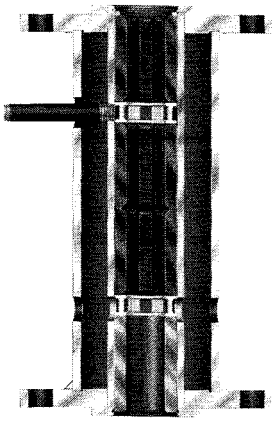




GRAPHITAR



GLASS-FILLED TEFLON*



SPOOL

MODEL 531A - 532A
ENGINEERING DATA
PUMP AND LINE BEARINGS

Two important parts in any sump pump construction are the pump and line bearings as they are immersed in the liquid. The line bearings frequently run wet or dry depending on the varying liquid level in the sump. A complete line of bearings for all types of service conditions is available. Line bearings are provided as standard on 6'-2" pump settings and for each additional 5' of setting thereafter.

STANDARD

All 530 Series pumps (except for 10 foot and deeper settings at 1750 R.P.M.) are furnished with bronze sleeve type bearing unless an optional style is specified and is also the standard lineshaft bearing for all settings. The bearing is mounted directly above the impeller and receives lubrication from individual external grease lines. This bearing is also available in cast iron or ni-resist material. The majority of all vertical wet pit pump applications can be handled by this standard bearing. However, when pumping conditions are severe, abrasives are present in the liquid or the liquid temperature exceeds 140°F., one of the following optional bearings should be selected.

GRAPHITAR (OPTIONAL BEARING)

The wearing surface of the graphitar bearing is made of nonmetallic material. It consists of a carbon steel relief-type bearing housing and three graphitar bushings. Lubrication can be supplied by the liquid being pumped when used as a pump bearing. When used as an optional lineshaft bearing, water flush lubrication is provided. The waterflush lines may be connected to the pump discharge pipe or a secondary city water supply, depending upon the application. The flush lines can be equipped with "zerk fittings" for optional grease lubrication. This bearing can also be used in conjunction with STANDARD lineshaft bearings which are also capable of being lubricated with grease (standard lubrication) or waterflush (optional lubrication). The graphitar bearing configuration is recommended for use on applications where the temperature of the liquid exceeds 140°F. Stainless steel shafting is recommended for use with this bearing. DO NOT APPLY THIS OPTION WHEN THE LIQUID BEING PUMPED CONTAINS ABRASIVES; IN SUCH CASES, SELECT ONE OF THE OTHER BEARING OPTIONS.

CUTLESS RUBBER (OPTIONAL BEARING)

This bearing consists of a carbon steel relief-type bearing housing and two cutless rubber bushings. A third bushing located at bottom of bearing housing is made of bronze on standard fitted or all bronze pumps and is a third cutless rubber bushing on all iron or stainless steel pumps. The standard metal bushing carries most of the shaft bearing loads. As wear occurs, the bearing loads are gradually distributed among the remaining cutless rubber bushings, thus increasing total bearing life. Lubrication can be supplied by the liquid being pumped when used as a pump bearing. When used as an optional lineshaft bearing, water flush lubrication is provided. The water flush lines may be connected to the pump discharge pipe or a secondary city water supply, depending upon the application. Grease lubrication is not recommended. Cutless rubber bearings may be used in conjunction with STANDARD lineshaft bearings which are also capable of water flush lubrication. This option is recommended for applications where abrasives are held in suspension in the liquid pumped. The excellent abrasive-resistant characteristics of rubber give this bearing several times the wear life of a standard bearing. Stainless steel shafting is recommended. DO NOT APPLY THIS OPTION WHEN THE LIQUID TEMPERATURE EXCEEDS 140° F.; IN SUCH CASES, SELECT ONE OF THE OTHER BEARING OPTIONS.

GLASS-FILLED TEFLON* (OPTIONAL BEARING)

This bearing consists of a carbon steel relief-type bearing housing with three glass-filled Teflon* bushings as the bearing surface. The self-lubricating, low-friction and inert qualities of filled Teflon* make it ideal for handling hot liquids, chemicals and solvents which may attack standard bearing materials. Lubrication can be supplied by the liquid being pumped when used as a pump bearing. When used as an optional lineshaft bearing, waterflush lubrication is provided. The water flush lines may be connected to the pump discharge pipe or a secondary city water supply, depending upon the application. Grease lubrication is not recommended for use with this bearing. Stainless steel shafting is recommended. This bearing may be used in conjunction with STANDARD lineshaft bearings which are also capable of water flush lubrication.

RELIEF

A RELIEF-TYPE PUMP BEARING WILL BE SUPPLIED AS STANDARD FOR 10 FOOT AND DEEPER SETTINGS AT 1750 R.P.M., and is otherwise optionally available. The relief-type bearing housing has three metal bushings inserted into the housing. When in operation, the liquid being pumped goes through the lower portion of the bearing under pressure and is vented to the sump through the annular ring. This venting action permits only a small amount of liquid, with a fraction of the abrasive content, to enter into the top half of the bearing housing; as a result, the upper portion which is not subject to pumping pressure wears at a much slower rate. The life expectancy of this optional design will be two to four times longer than the standard bearing. Since this relief-type bearing housing is also used with the other bushing materials (Graphitar, Cutless Rubber and Teflon*) the same venting principle applies to these bushing materials. All three bushings can be constructed of different materials, therefore opening a wide range of applications. The STANDARD bearing is normally provided with this option on all lineshaft bearings; however, the GRAPHITAR, CUTLESS RUBBER, or TEFLON* options can also be provided for use as a relief-type lineshaft bearing. The liquid being pumped provides the required lubrication for the lower bushing. An external grease line lubricates the upper bushings when bronze or iron bushings are provided. When other bushing materials are specified, they are water-flush lubricated from either the pump discharge pipe or a secondary city water supply, depending upon the application.

SPOOL (OPTIONAL BEARING)

This bearing can be supplied as an optional bearing for any pump setting. It is intended for use as a rigid pump bearing for unusually rugged pump applications. It retains the lubrication characteristics of the relief bearing previously discussed. The housing can be equipped with different bushing materials (Iron, Bronze, Graphitar, Cutless Rubber, or Glass-Filled Teflon*) depending upon the application. The bearing housing is of rigid "double-wall" metal construction and is flanged at each end. The outer pipe acts as a rigid support while the inner pipe serves as a bushing carrier. This construction allows the bearing housing to be bolted to the support pipe at the upper flange and to the pump casing at the lower flange, thus making this housing a rigid and integral part of the pump support piping system. Undesirable bearing housing deflections under high shaft loads are eliminated by this rigid construction thus providing positive pump shaft guidance. The additional length of this bearing provides increased bearing area for rugged applications. A lubrication line attached to the bearing housing may be connected to the pump discharge pipe or a secondary city water supply, or grease lubricated, depending upon the application. This bearing may be used in conjunction with STANDARD LINESHAFT bearings which are also capable of water flush or grease lubrication.

*E.I. DuPont Registered TM

LUBRICATION AND OPTIONAL EQUIPMENT

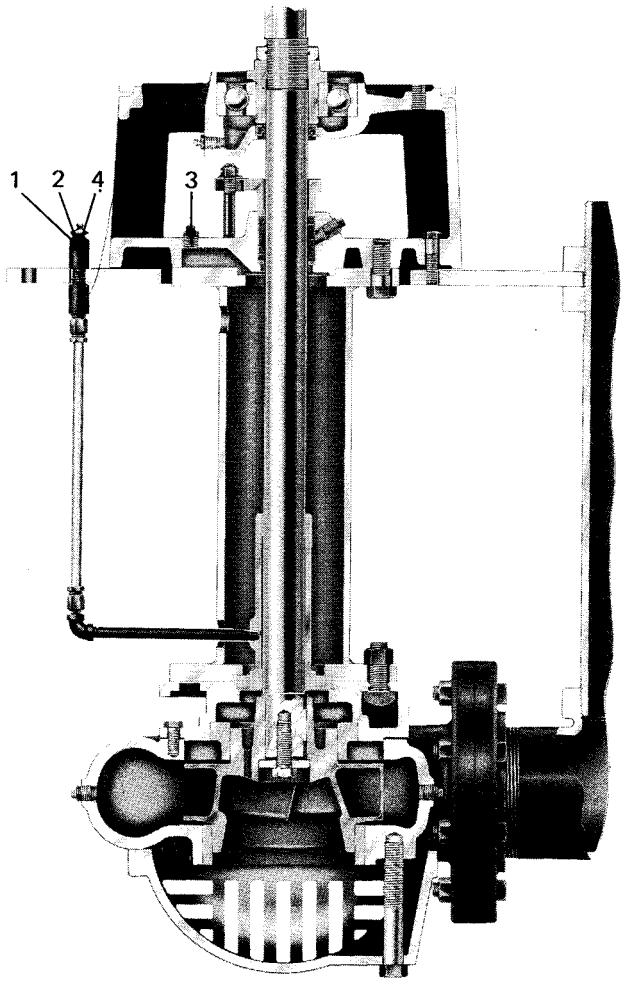
1. GREASE FITTINGS—STANDARD
Individual forced feed grease lubrication lines are provided to each Standard or Relief Type pump and line bearing.

By providing each bearing with a constant supply of grease the expense and necessity for replacing bearings is held to a minimum. Grease is forced through zerk fittings conveniently located on the baseplate and then through flexible 3/8" O.D. Nylon tubing directly into each bearing.

2. SOLENOID OIL LUBRICATOR
A solenoid valve operated oiler mounted on the lower head allows oil to be released by gravity from a reservoir by a normally closed electric solenoid valve to single or multiple sight feed valves for individual flow to each bearing.

3. DRIP OILER
In lieu of lubrication lines to line bearings a drip oiler is available and mounts in a tap in the lower head.

4. SOLENOID WATER LUBRICATOR
A solenoid operated clear water valve can also be substituted for the zerk fittings. This option automatically provides water lubrication to pump and line shaft bearings while the pump is running.

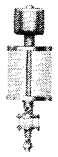


PUMP AND LINE LUBRICATION BEARING METHODS

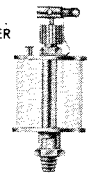
GREASE
1
ZERK FITTINGS



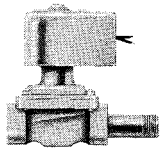
OIL
2
SOLENOID OILER



OIL
3
DRIP OILER

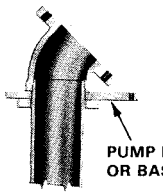


WATER
4 SOLENOID VALVE



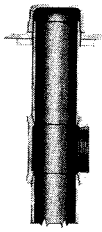
OPTIONAL EQUIPMENT

FLANGED DISCHARGE ELBOW

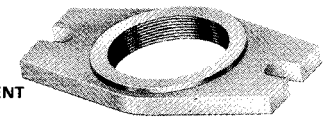


PUMP PLATE OR BASIN COVER

BELOW SURFACE DISCHARGE

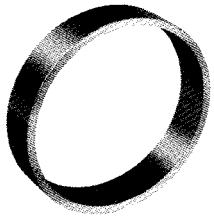


PUMP PLATE OR BASIN COVER



VENT

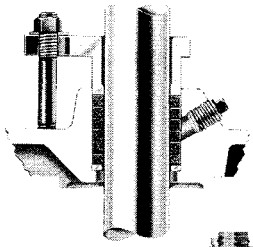
IMPELLER WEARING RINGS



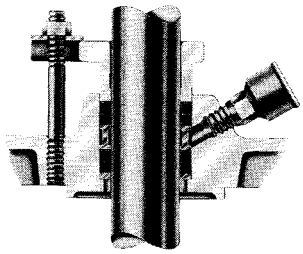


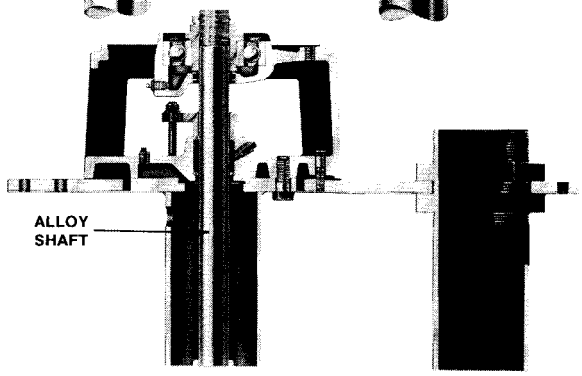
SEMI-OPEN IMPELLER

STANDARD PACKING



LANTERN RING





(28" BASEPLATES & LARGER - NOT AVAILABLE ON OVALS)