

**Buffalo**pumps

# LUBE OIL PUMPS

*Model E-VCRE Vertical Design*

*For Low to Medium Oil Flows*

Gas & Steam Turbines

Compressors

Engines



“LEADING SUPPLIER OF LUBE OIL PUMPS TO THE POWER GENERATION INDUSTRY FOR OVER 50 YEARS”

ISO 9001 Certified

Bulletin 987

**T**he model E-VCRE vertical lube oil pump is a good solution for applications requiring a pump for low to medium oil flows. This compact design locates the coupling directly below the pump coverplate. This reduces the overall height requirement. Our model E-VCRE has many of the design features that make our model VCRE lube oil pump an industry standard. The E-VCRE Lube Oil pump is a vertically submerged pump that utilizes an ANSI standard hydraulic construction, enclosed bearing housing, and welded piping construction which eliminates the inherent maintenance and leakage problems associated with other pumps. During operation, axial and radial thrust loads are controlled by Buffalo's exclusive modified casing volute and impeller design.

Buffalo Pumps is backed by over 50 years of field-proven experience in designing pumps to handle most any lube oil application. This experience also provides flexibility in assisting OEMs, contractors and end-users in designing a sound installation that ensures maximum life.

## DESIGN FEATURES

- Impellers for the E-VCRE were designed specifically to provide low axial thrust to provide long life bearings.
- Thrust bearing life is maximized through casing, impeller, and impeller balance chamber design to reduce axial forces on the bearing. Impeller position within the casing is maintained in a specific location.
- Bearings are oil lubricated with the pumped oil. Radial bearing life is maximized through our special casing design to reduce radial hydraulic thrust.
- Shafts critical speeds are at least 20% higher than operating speed to provide rigid, worry-free operation.
- Close tolerance machined and rabbeted fits are utilized on all major components. This facilitates the ability to rebuild the original pump assembly in the field.
- Coverplates are a minimum of 7/8" (22mm) thick to provide a rigid, flat and leakproof connection to lube oil tanks. Coverplate dimensions can be customized to fit customer requirements.
- All pump/motor assemblies are factory aligned to ensure field alignment.
- Standard "wrap-flex" coupling design is maintenance free.

## ENGINEERING ASSISTANCE

Buffalo Pumps' Sales Engineers have the training and practical field experience necessary for the correct selection and application of Lube Oil pumps. In addition, they have the full support of Buffalo Pumps' Research and Engineering personnel. This in-depth engineering service is invaluable in assuring proper pump application and installation.

## AVAILABILITY

Buffalo Pumps is dedicated to providing first class service to customers from initial contact to the supply of spare parts after installation. Therefore, Buffalo Pumps maintains extensive stock for Lube Oil pumps and is committed to servicing the market delivery demands. In addition, a complete Repair Parts Department stands ready to service your ordinary maintenance and emergency breakdown needs.

## GENERAL SPECIFICATIONS

Capacity . . . . .to 2000 USGPM (454 m<sup>3</sup>/hr)

Head . . . . .to 700 Feet (213 meters)

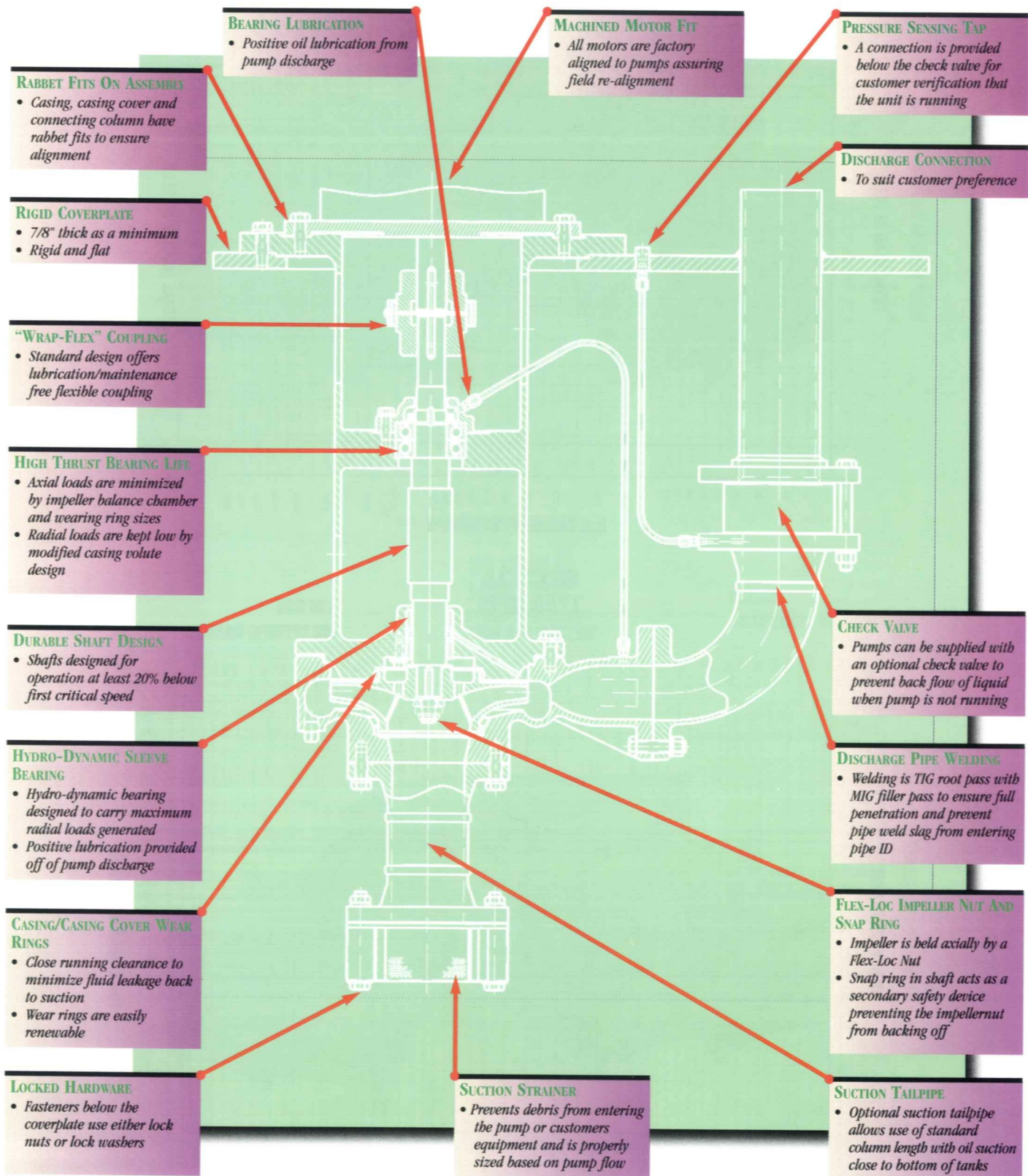
RPM . . . . .1450, 1750, 2950 & 3550

Horsepower . . . .to 150 (112 kw) at 3550 rpm, 125 (93 kw) at 2950 rpm

- Standard materials of construction include a ductile iron casing and a cast iron or bronze impeller. Carbon and alloy steel materials are also available.
- Working pressures as standard to 235 psi (1.62 MPa) and up to 400 psi (2.76 MPa) for higher-pressure applications.

# VERTICAL LUBE OIL PUMP

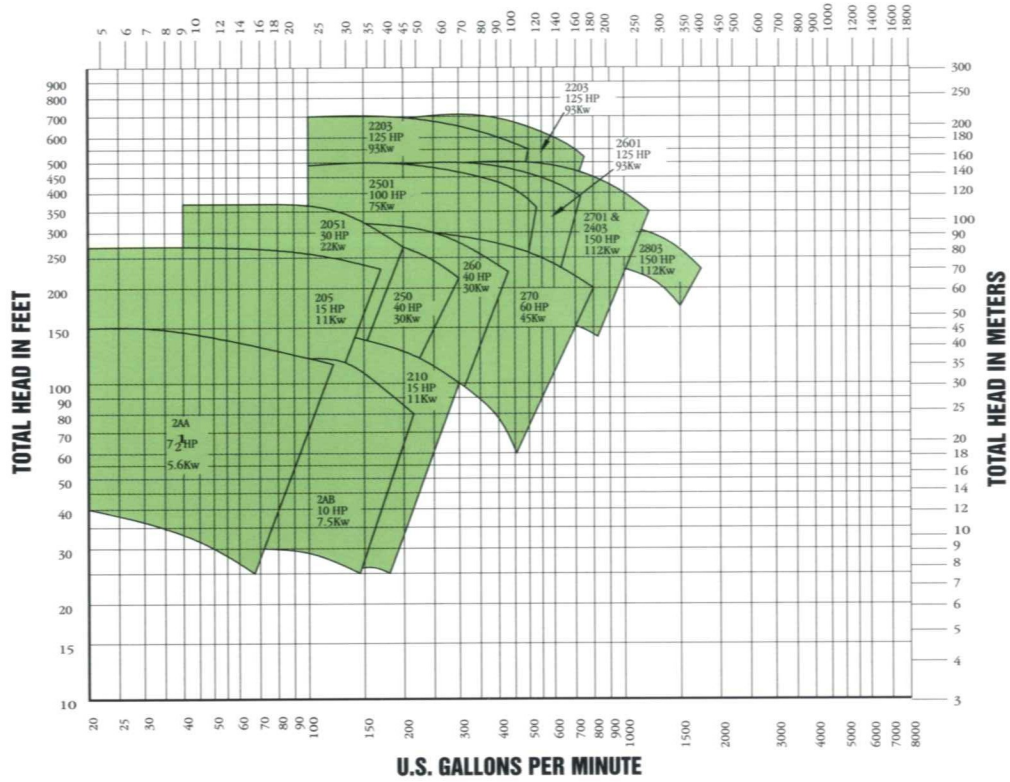
## MODEL E-VCRE



# PERFORMANCE DATA:

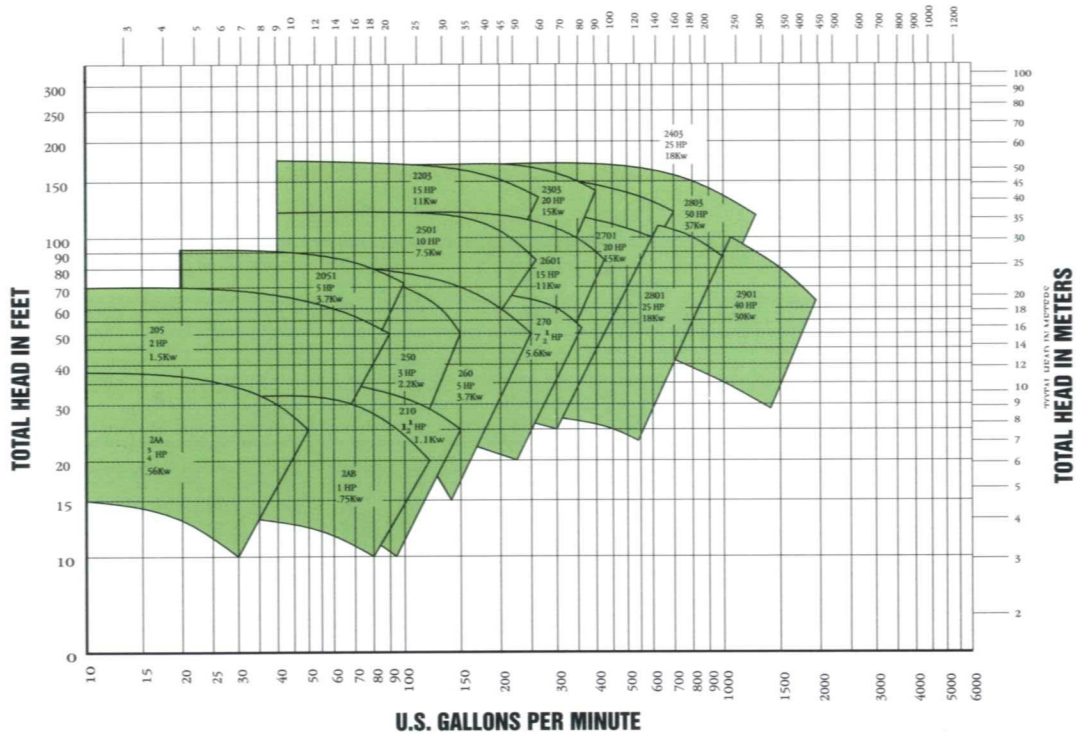
**60 CYCLE  
3500 RPM**  
METERS<sup>3</sup> PER HOUR

**150 SSU  
.88 SPECIFIC GRAVITY**



**60 CYCLE  
1750 RPM**  
METERS<sup>3</sup> PER HOUR

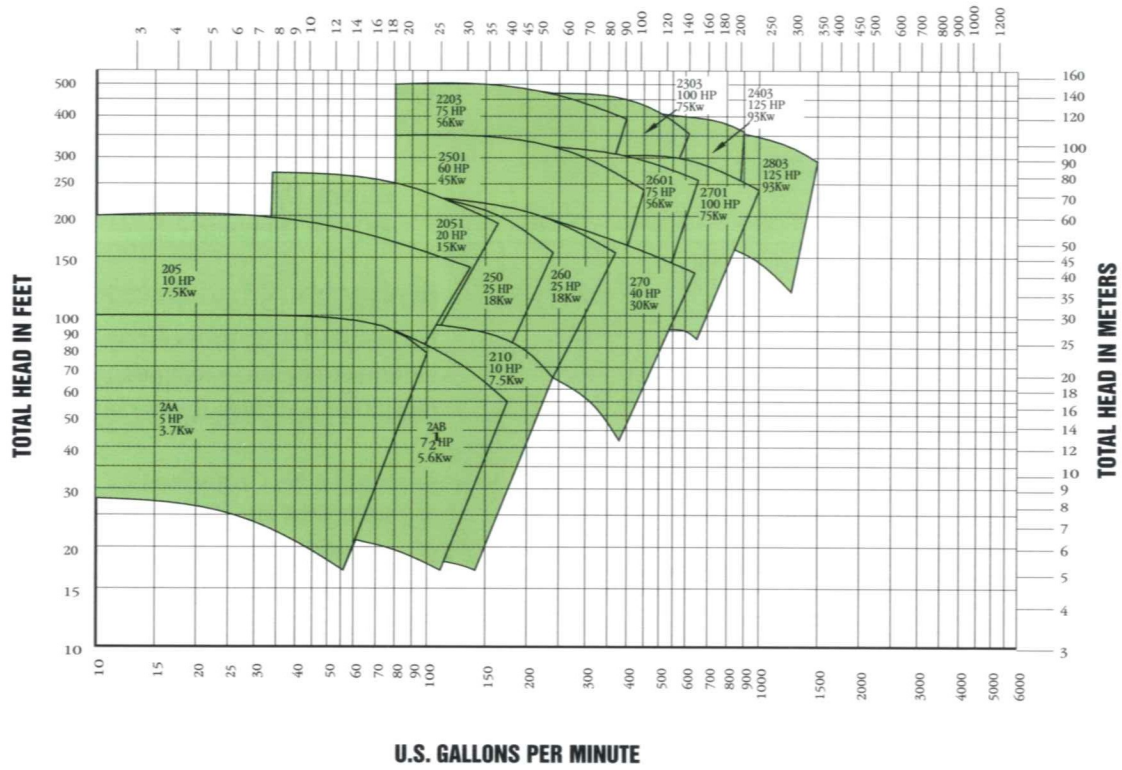
**150 SSU  
.88 SPECIFIC GRAVITY**



# PERFORMANCE DATA:

**50 CYCLE  
2900 RPM  
METERS<sup>3</sup> PER HOUR**

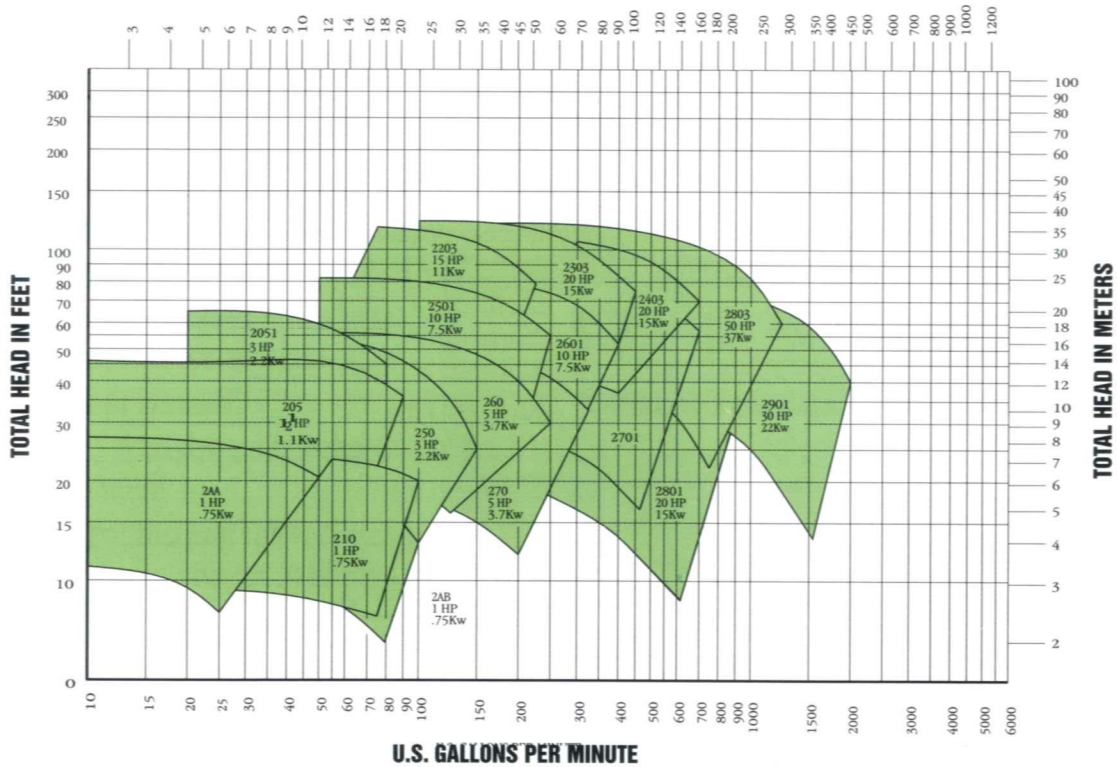
**150 SSU  
.88 SPECIFIC GRAVITY**



**U.S. GALLONS PER MINUTE**

**50 CYCLE  
1450 RPM  
METERS<sup>3</sup> PER HOUR**

**150 SSU  
.88 SPECIFIC GRAVITY**



**U.S. GALLONS PER MINUTE**

# LUBE OIL PUMP APPLICATION DATA WORKSHEET

**Visit our Internet website at [www.buffalopumps.com](http://www.buffalopumps.com)  
to Submit this data for Buffalo Pumps selection and quotation**

**Project reference:** \_\_\_\_\_  
\_\_\_\_\_

**Service:** Main AC LO pump \_\_\_\_\_  
Emergency DC LO pump \_\_\_\_\_  
AC Seal Oil pump \_\_\_\_\_  
DC Seal Oil pump \_\_\_\_\_

**Additional specifications attached:** yes \_\_\_\_\_  
no \_\_\_\_\_

**Flow required:** \_\_\_\_\_ US GPM  
\_\_\_\_\_ cubic meters / hour

**Lube Oil:** ISO Grade \_\_\_\_\_  
normal operating temperature \_\_\_\_\_ F/C  
minimum operating temperature \_\_\_\_\_ F/C  
maximum operating temperature \_\_\_\_\_ F/C

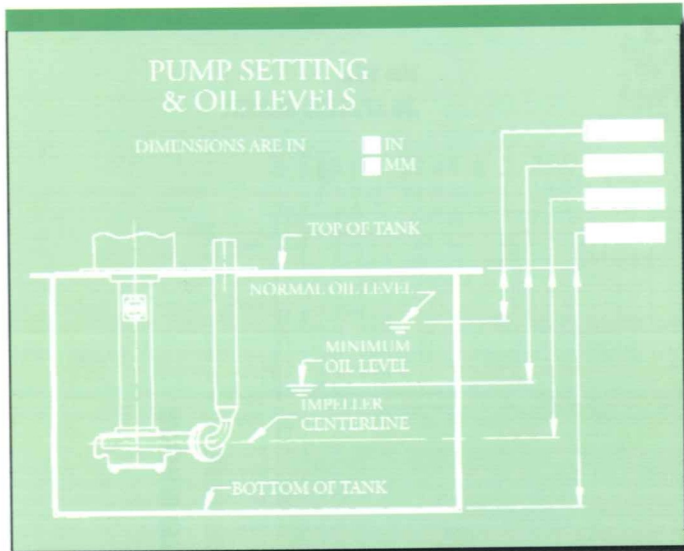
**Pressure required:** \_\_\_\_\_ psig  
\_\_\_\_\_ feet  
\_\_\_\_\_ meters  
\_\_\_\_\_ bar

**Pump performance test required:**  
\_\_\_\_\_ at 150 SSU oil viscosity  
\_\_\_\_\_ at \_\_\_\_\_ SSU oil viscosity

**Design point conditions to be measured at:**  
\_\_\_\_\_ impeller centerline  
\_\_\_\_\_ discharge flange above cover

**Tank opening:** \_\_\_\_\_ x \_\_\_\_\_  
\_\_\_\_\_ diameter  
\_\_\_\_\_ recommended by Buffalo Pumps

**Discharge pipe:** \_\_\_\_\_ none required  
\_\_\_\_\_ terminated above cover  
\_\_\_\_\_ inch 150 lb ANSI flange  
\_\_\_\_\_ inch 300 lb ANSI flange  
\_\_\_\_\_ mm PN10 DIN 2501 flg.  
\_\_\_\_\_ mm PN16 DIN 2501 flg.  
\_\_\_\_\_ 90 degree elbow  
\_\_\_\_\_ straight up from cover  
\_\_\_\_\_ install check valve



**Materials of Construction:**

Buffalo Pumps Standard \_\_\_\_\_  
or

Impeller \_\_\_\_\_  
Casing \_\_\_\_\_  
Shaft \_\_\_\_\_  
Discharge pipe \_\_\_\_\_

**Motor requirements:** specification attached \_\_\_\_\_  
design point BHP to be \_\_\_\_\_ % below nameplate HP / KW  
motor to be sized \_\_\_\_\_ ssu cold oil temperature  
\_\_\_\_\_ ssu normal oil temperature

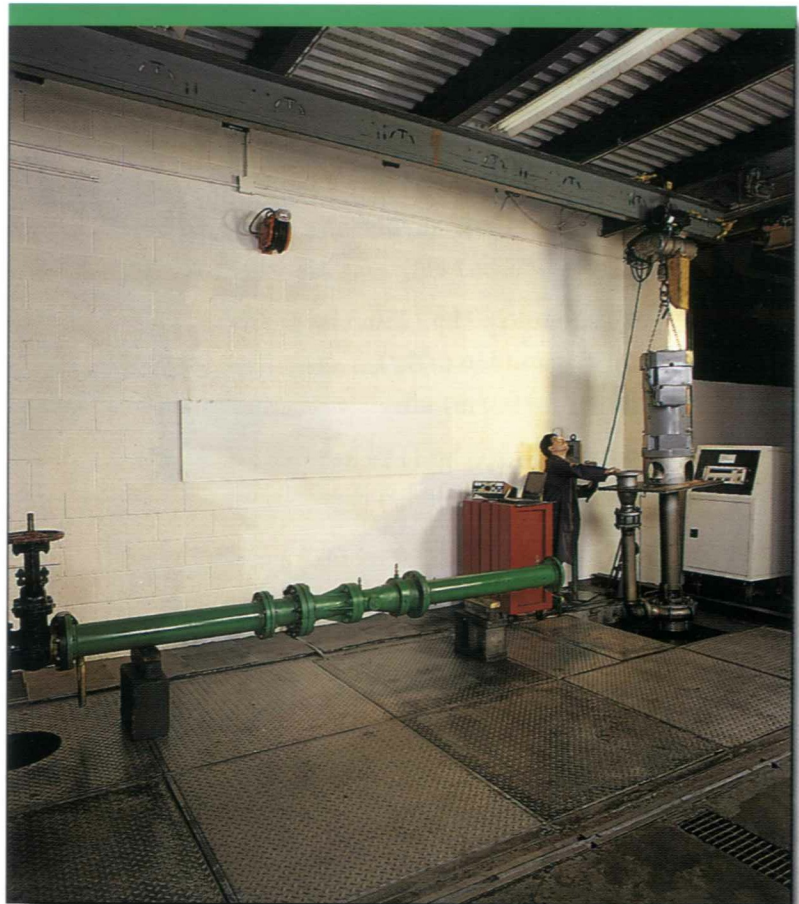
\_\_\_\_\_ HP / KW, \_\_\_\_\_ rpm,  
\_\_\_\_\_ voltage \_\_\_\_\_ enclosure,  
\_\_\_\_\_ class \_\_\_\_\_ insulation  
\_\_\_\_\_ rise \_\_\_\_\_ service factor,  
\_\_\_\_\_ C ambient \_\_\_\_\_ extra severe duty,  
\_\_\_\_\_ CE marked, \_\_\_\_\_ volt space heater

other \_\_\_\_\_  
\_\_\_\_\_

# UNIQUE TESTING CAPABILITY – ON SITE LUBE OIL TESTING FACILITY

All performance testing is done with a volume of 6000 U.S. gallons of ISO VG 46 oil as the test liquid

- AC lube oil pumps – to 250 HP capability to simulate voltage and frequency ranges utilized world wide
- DC lube oil pumps – to 40 HP/125V and 75 HP/240V; in-rush current regulation and acceleration time monitoring
- Testing at design operating viscosity conditions of 80 SSU to 400 SSU utilizing liquid temperature controls
- Testing at actual installation oil levels for high, normal, low, and emergency level conditions
- Can simulate the relationship of the pump suction to tank bottom and sides as exists in the actual installation
- All testing is performed in accordance with Hydraulic Institute Standards, with capabilities to test to American Petroleum Institute, British Standard 5316, and ISO requirements
- Full range or point of rating hydraulic performance testing available
- Measurement of vibration levels with dynamic signal analysis equipment
- Measurement of acoustic characteristics with dynamic signal analysis equipment
- Measurement of bearing operating temperatures during break in hours of operation
- Analysis of air entrapment, priming time, and all other hydraulic characteristics



# Complete Line of Lube Oil Pumps

## Model VCRE Lube Oil Pumps

Pump designs available for capacities up to 4500 GPM (1023 m<sup>3</sup>/hr) at discharge heads to 700 Feet (213 meters). The coupling is located above the pump coverplate. This allows field repair or replacement of the motor and coupling without removing the pump from the tank. Grease or oil lubricated thrust bearing is accessible at coverplate. *For more information, contact us and ask for bulletin #986.*

### TYPICAL APPLICATIONS

- Main and Auxiliary AC Lube Oil Pumps for Normal Operating Bearing Lubrication
- Emergency DC Lube Oil Pumps for Emergency Bearing Lubrication During AC Power Interruptions
- Seal Oil Pumps with AC/DC Motors for Operation During Normal and Emergency Situations

### SIZE RANGES TO:

- 3500 rpm: 14 sizes to 250 hp (186.5 kw)  
1500 gpm (341 m<sup>3</sup>/hr)  
700 feet (213 m) tdh
- 1750 rpm: 21 sizes to 250 hp (186.5 kw)  
4500 gpm (1023 m<sup>3</sup>/hr)  
260 feet (79 m) tdh
- 2900 rpm: 14 sizes to 250 hp (186.5 kw)  
2050 gpm (466 m<sup>3</sup>/hr)  
490 feet (149 m) tdh
- 1450 rpm: 21 sizes to 200 hp (149 kw)  
4000 gpm (909 m<sup>3</sup>/hr)  
175 feet (53 m) tdh



## Buffalopumps

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 **Hydraulic**  
INSTITUTE



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