



15 series

**POWER to be the Best!**

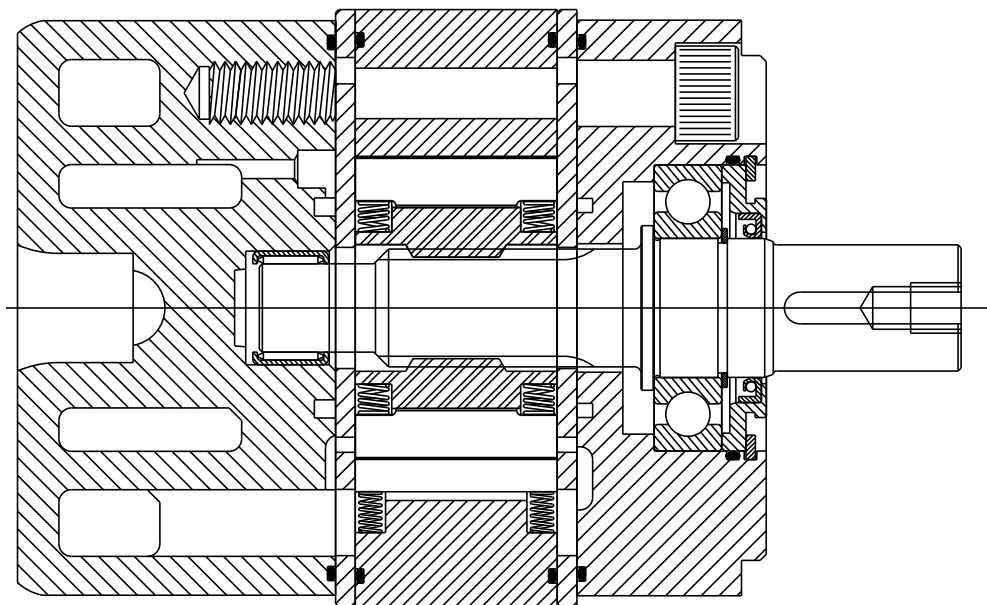
**MOTOR SELECTION GUIDE**

**Features of the 15 Series Standard Motor:  
Standard Motor - 3000 PSI (Code 61)**

- Eight fixed displacement motors ranging from 6 in<sup>3</sup> to 15 in<sup>3</sup>.
- Starting and stall torques equal to 90-94% of theoretical torque.
- Speed to 2,000 RPM continuous.
- Up to 75 HP continuous.
- Conforms to SAE 'C' mounting specification.
- Weighs 43 lbs.



CROSS SECTION



## 15 Series Wheel Motor

Weight = 58 lbs.

- Tapered roller bearings for radial and axial loading.
- Available in single or two speed.
- Eight displacements ranging from 6 in<sup>3</sup> to 15 in<sup>3</sup>.
- Envelope dimensions remain the same regardless of displacement.
- Starting and stall torques equal to 90-94% theoretical torque.
- Speed to 2,000 RPM continuous.



## 15 Series Two Speed

Weight = 51 lbs.



- All available displacements of standard motor.
- Spool valve shift from full to partial displacement.
- Standard shift ratio is 2:1 - Some special ratios available.
- Shift on the run.
- Typical applications - winch, track and wheel drives.

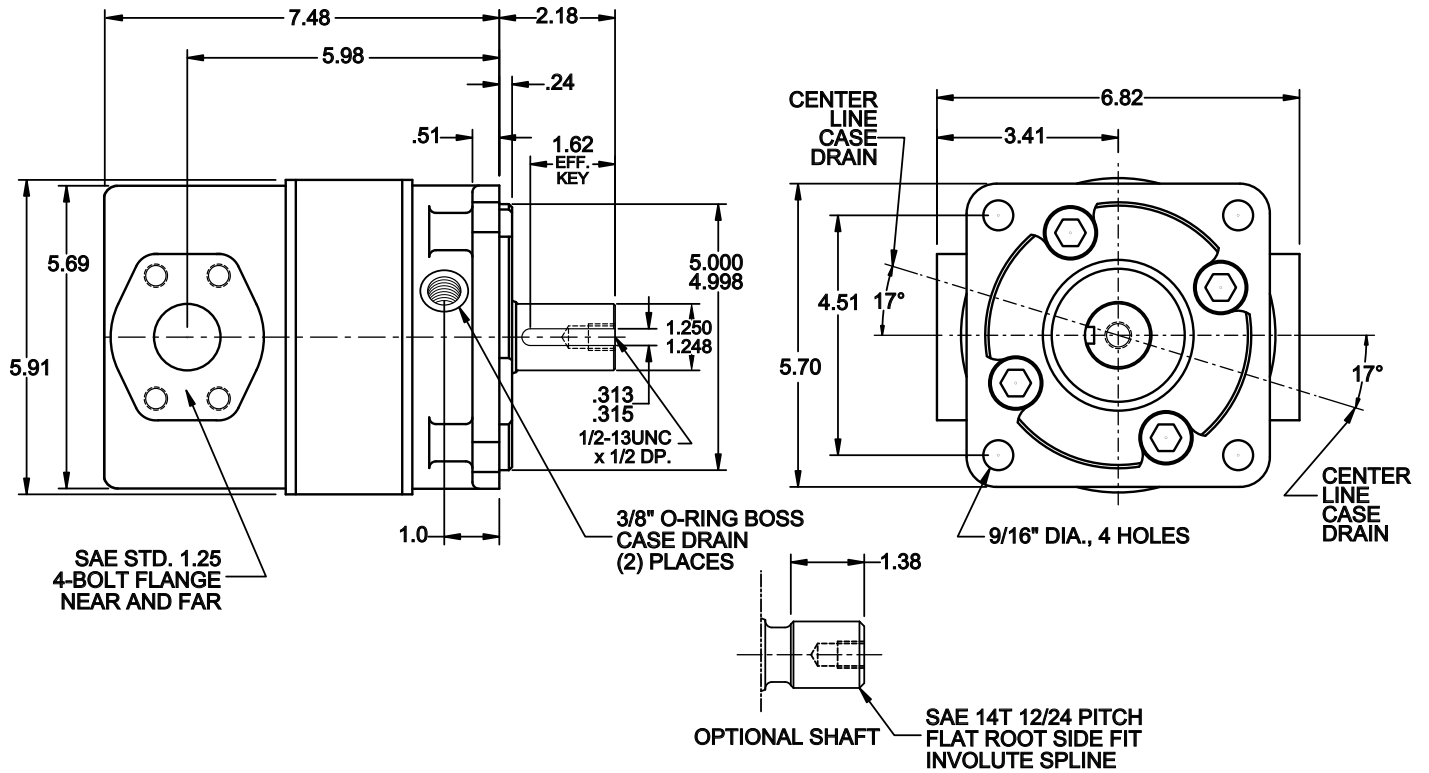
## 15 Series Retractable

Weight = 61 lbs.

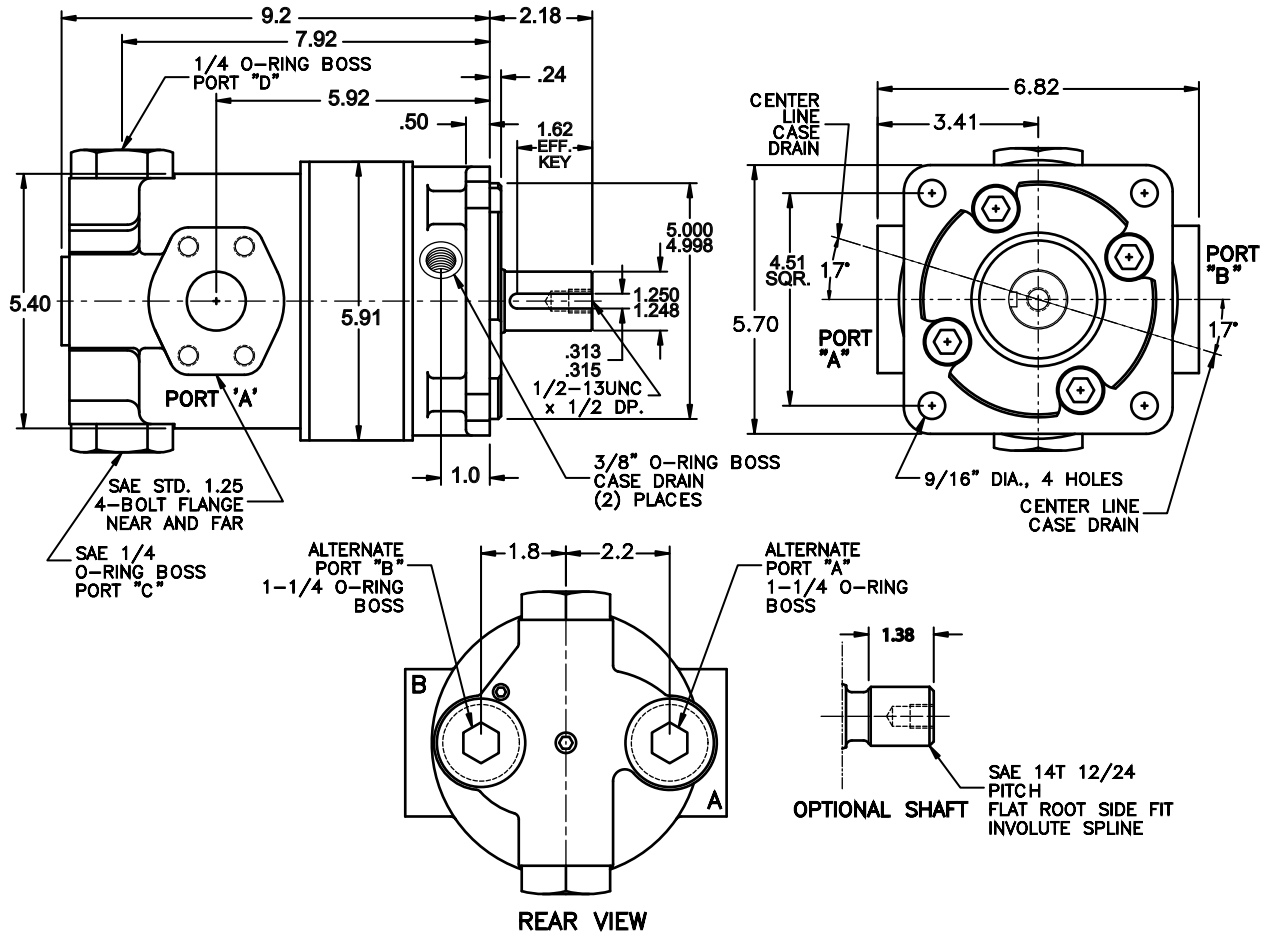
- Shaft easily retracted from driven mechanism while allowing full torque through SAE C mount.
- Manual rear knob for fast, easy disengagement.
- Spring loaded shaft engages easily back into mechanism.
- Shaft held in retracted position by user supplied spacer between knob and rear housing.



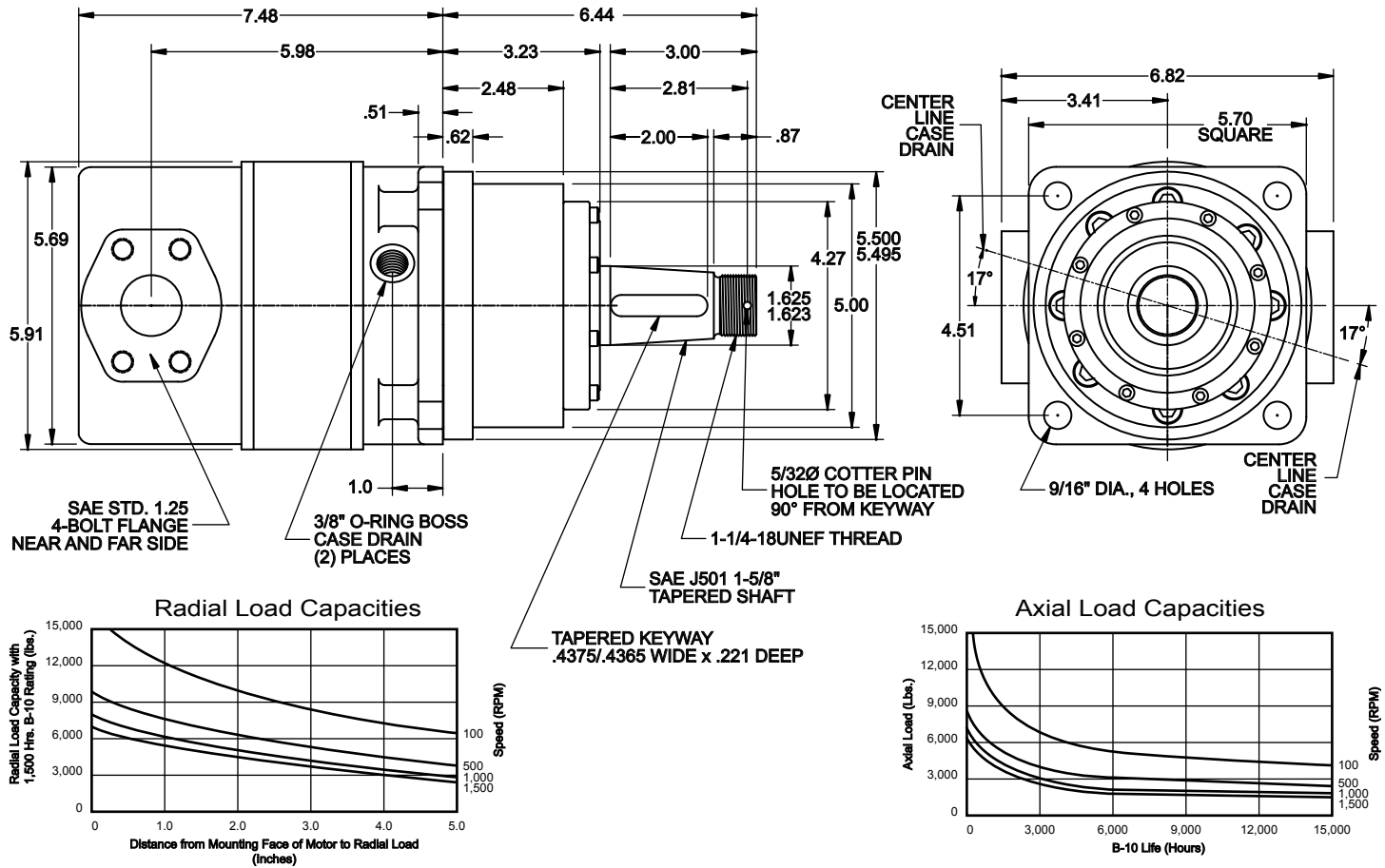
### 15 Series Standard Motor Envelope



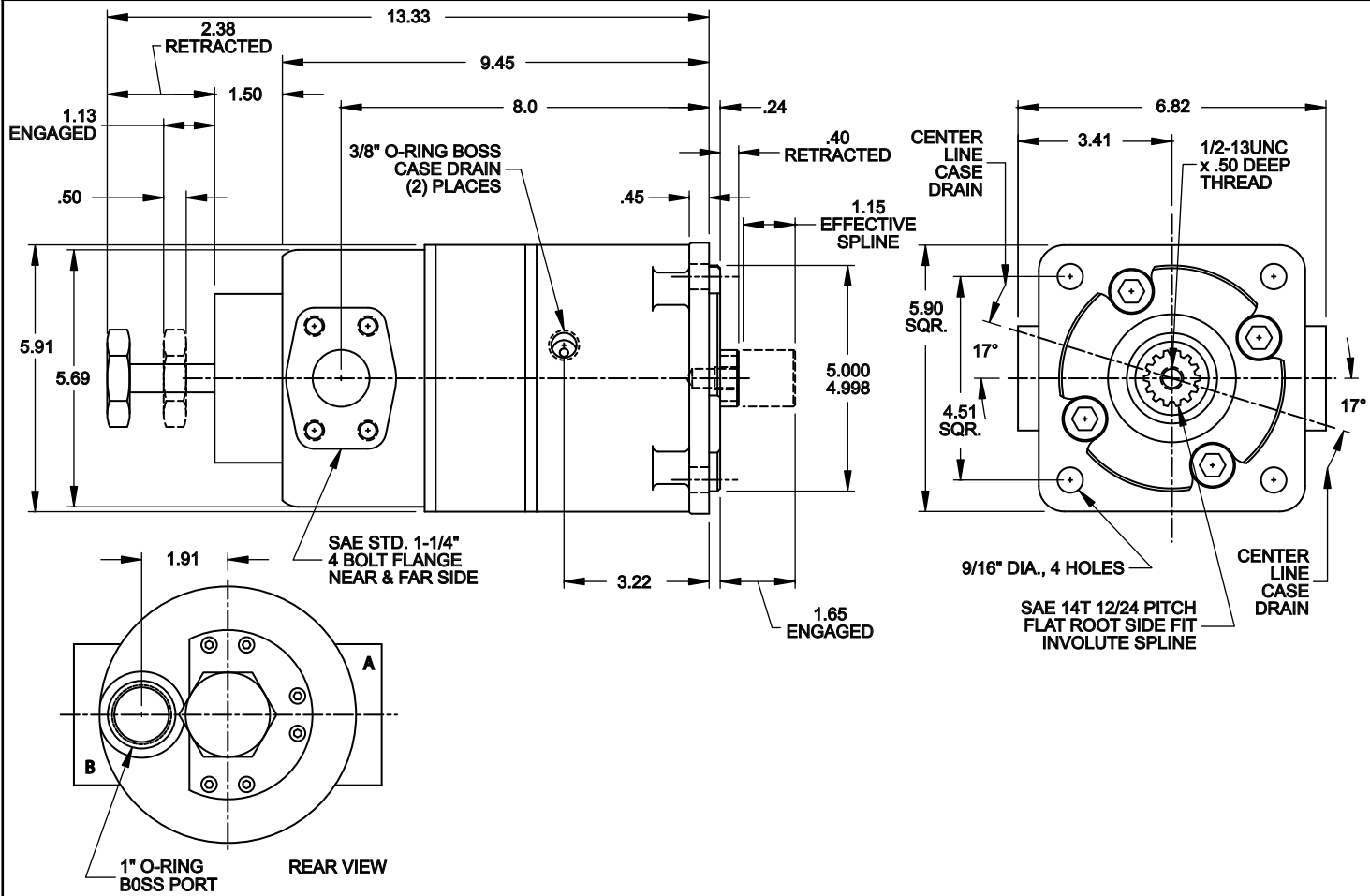
### 15 Series Two Speed Envelope



## 15 Series Wheel Motor Envelope



## 15 Series Retractable Envelope



## Technical Information - All Styles

### VANE CROSSING VANE

The Rineer patented vane crossing vane design produces much higher volumetric and mechanical efficiencies than is possible with a standard vane type design. This design provides a sealing vane between cavities to improve mechanical and volumetric efficiencies.

### STARTING AND STALL TORQUE

The Rineer motor produces torque curves which are virtually flat, with starting and stall torque equal to approximately 90-94% of theoretical torque.

### MORE POWER STROKES PER REVOLUTION

The 15 Series has four stator cavities and 10 rotor vanes. Each rotor vane works in each stator cavity once per revolution, which results in 40 power strokes per revolution. This helps produce higher mechanical efficiency and flatter torque curves.

### BEARING LOADING

The bearings in the 15 Series can accept radial load per the radial capacity chart. Thrust load is not recommended under most conditions. Consult with a Rineer Application Engineer for optional bearing configurations to match your application.

### SEALS

Buna N seals are supplied as standard on the Rineer 15 series motors. Viton seals may be ordered as an option.

### ROTATING GROUP - 1S or 1H

Under most operating conditions, 1S (standard rotating group parts) should be used. Under some high speed conditions 1H can be specified.

### ROTATION

The 15 Series Motor rotates equally well in either direction and smoothly throughout its entire pressure and speed range. Looking into the end of the shaft, rotation is clockwise when oil is supplied to port "A".

### HORSEPOWER LIMITATION

Maximum horsepower limitations may vary with different applications. **When using the 15 Series Motor above 75 HP, consult a Rineer Application Engineer.**

### FILTRATION

25 micron minimum.

### FLUID

We suggest premium grade fluids containing high quality rust, oxidation and foam inhibitors, along with anti-wear additives. For best performance, viscosity should be maintained between 100 and 200 SUS at operating temperature. Fluid temperature should not exceed 180° F. Elevated fluid temperature will adversely affect seal life while accelerating oxidation and fluid breakdown. Fire resistant fluids may be used with certain limitations. Contact Rineer for additional information.

### CASE DRAIN

The 15 Series Motor is designed for either internal or external case drain. Two case drain ports are supplied. When using internal case drain, simply plug the two ports. When using external case drain, use the port at the highest elevation. We recommend case drain pressure of 35 PSI or less when using the standard seals.

### CASE DRAIN CIRCULATION

Fluid should be circulated through the case when a temperature differential exists between the motor and the system in excess of 50° F. **Should this occur, contact a Rineer Application Engineer.**

### MOUNTING

The mounting position is unrestricted. The shafts, pilots, and mounting faces should be within .002 TIR.

### INTERMITTENT CONDITIONS

Intermittent conditions are to be less than 10% of every minute.

### OTHER AVAILABLE MOTORS

For information on additional Rineer Motors, request one of the following publications:

37 Series .....	Publication DS371003
57 Series .....	Publication DS571003
125 Series .....	Publication DS1251003

## Technical Information - Retractable Shaft Motor

### RETRACTING THE SHAFT

The shaft is spring loaded into the engaged position. Pulling on the knob attached to the shaft at the rear of the motor will move the shaft 1.25 inches into the motor.

**CAUTION: Retracting the shaft must be done when the motor and driven mechanism are not in operation and are unloaded.**

### RETAINING SHAFT IN RETRACTED POSITION

The shaft is retained in the retracted position by inserting a 2.0 inch wide spacer between the rear housing and the knob attached to the shaft. Depending on the application and mounting position of the motor, the spacer design may vary. Spacers are not supplied with the motor.

### RE-ENGAGING THE SHAFT

This is accomplished by releasing the shaft, then rotating it clockwise until the splines of the shaft line up and engage the splines of the driven mechanism.

**CAUTION: Re-engaging the shaft must be done when the motor and driven mechanism are not in operation and are unloaded.**

### BEARING LOADING

The 15 series Retractable is not suitable for applications which require radial or axial loading of the shaft.

### MOUNTING

The mounting position is unrestricted. **CAUTION: The shaft extension and knob at the rear of the motor rotates when the motor is in operation.**

# Technical Information - Two Speed Motor

## DISPLACEMENT CHANGE

When a motor is shifted from full to partial displacement the motor is changed to 50%, 35%, or 28% of its original displacement depending on its shift ratio.

## STANDARD SHIFT RATIO

The standard 15 Series displacements of 15, 13, 9.5, 8, 7, and 6 CID are available in the 15 Series Two Speed with a shift ratio of 2:1. For example, a 15 CID motor shifted to partial displacement becomes a 7.5 CID motor.

## SPECIAL SHIFT RATIOS

There are two special displacements available in the 15 Series Two Speed which offer higher shift ratios, the 10.5 and the 11.5 CID. The 10.5 CID motor has a shift ratio of 3.5:1, which when shifted becomes a 3 CID motor. The 11.5 CID motor has a shift ratio of 2.875:1, which when shifted becomes a 4 CID motor.

## SHIFTING METHOD

Selecting between full and partial displacement is accomplished by shifting the two-position spool valve incorporated in the motor. Motors are available in either single or double pilot configurations.

## SINGLE PILOT

Single pilot motors require a pilot line to be connected to port "C". When port "C" is pressurized the spool shifts the motor to partial displacement. When port "C" is vented to tank, an internal spring shifts the spool, returning the motor to full displacement.

## DOUBLE PILOT

Double pilot motors require two pilot lines. One line is connected to port "C" while the other line is connected to port "D". The motor is in full displacement when port "D" is pressurized and port "C" is vented to tank. The motor is in partial displacement when port "C" is pressurized and port "D" is vented to tank.

## OPEN DURING CROSSOVER SPOOLS

Open during crossover spools allow port "A" to be directly connected to port "B" when the spool is shifting between full and partial displacement. Motors with -62 or -65 designations are open during crossover.

**WARNING! IN SOME WINCH APPLICATIONS, OPEN DURING CROSSOVER SPOOLS (-62 or -65) ARE NOT RECOMMENDED.**

## CLOSED DURING CROSSOVER SPOOLS

Closed during crossover spools do not allow port "A" to be directly connected to port "B" when the spool is shifting between full and partial displacement. Motors with -63 or -67 designations are closed during crossover. These motors contain an internal factory preset relief valve. This valve protects the motor during shifting only and is not a system relief valve.

## PILOT PRESSURE

A minimum of 100 PSI over case drain pressure is required to shift the spool. The maximum allowable pressure to port "C" or "D" is 3,500 PSI.

## SHIFT ON THE RUN

The 15 Series Two Speed Motor may be shifted on the run while loaded or unloaded.

## MAXIMUM SPEED

Maximum rated speed is the same for either full or partial displacement as stated in the performance data.

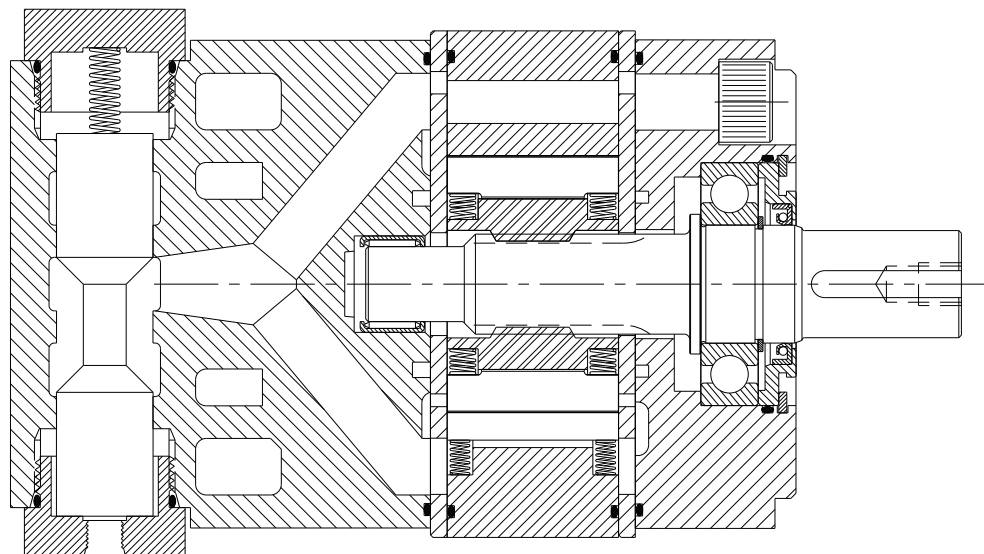
## CASE DRAIN AND CROSS PORT LEAKAGE

The combined case drain and cross port leakage of the 15 Series Two Speed Motor is approximately 1 GPM per 1,000 PSI. This will vary with the oil viscosity.

## OTHER INFORMATION

All other information as specified under Technical Information also applies to the 15 Series Two Speed Motor. (See page 5)

## Cross Section - Two Speed Motor

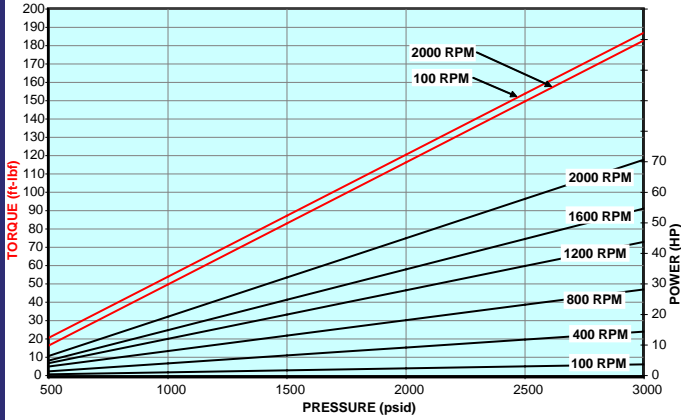




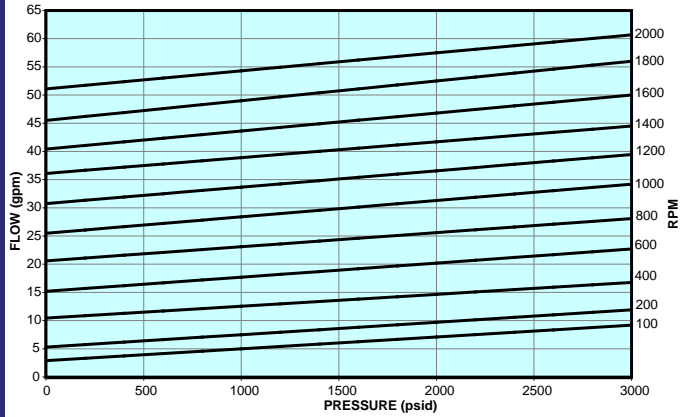
# Performance Data - Selected Displacements

## 6 C.I.D.

ACTUAL TORQUE AND POWER 6-CID

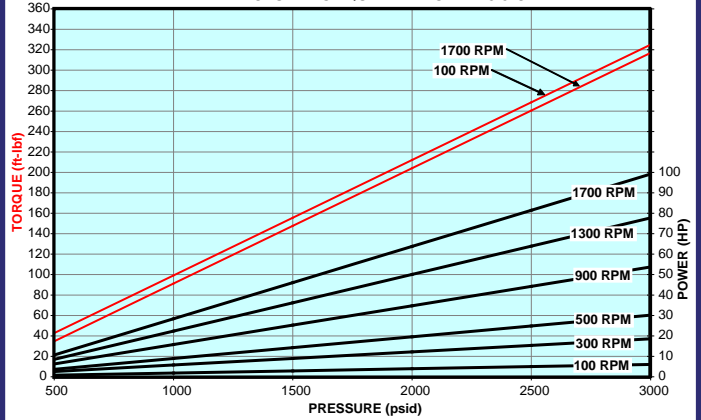


ACTUAL FLOW - 6 CID

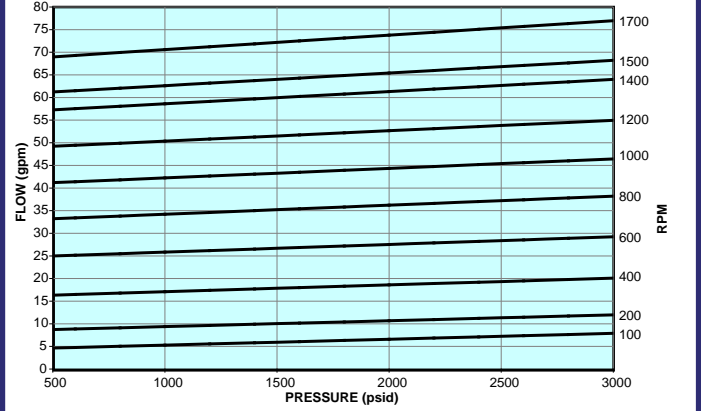


## 9.5 C.I.D.

ACTUAL TORQUE AND POWER 9.5-CID

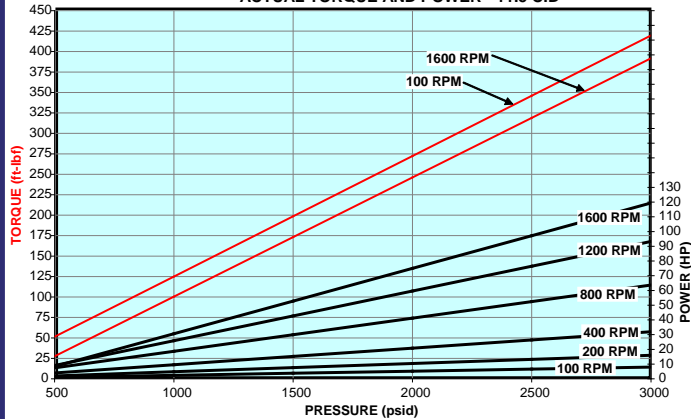


ACTUAL FLOW - 9.5 CID

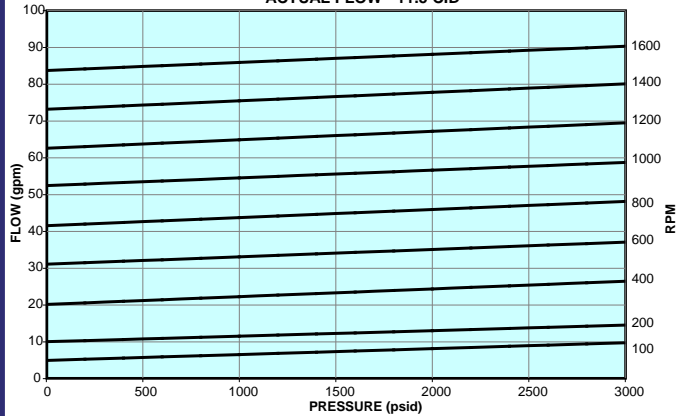


## 11.5 C.I.D.

ACTUAL TORQUE AND POWER - 11.5 CID

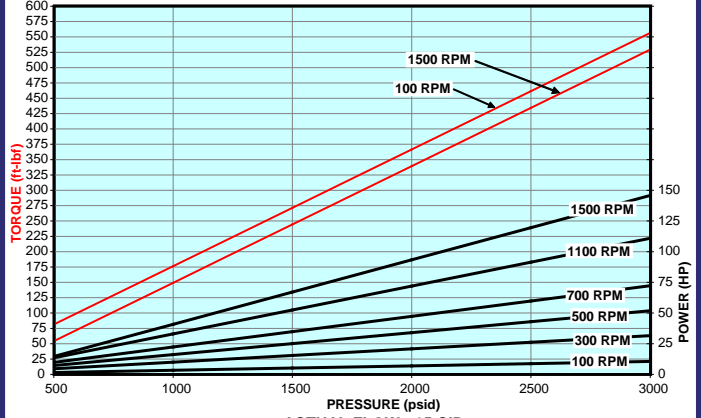


ACTUAL FLOW - 11.5 CID

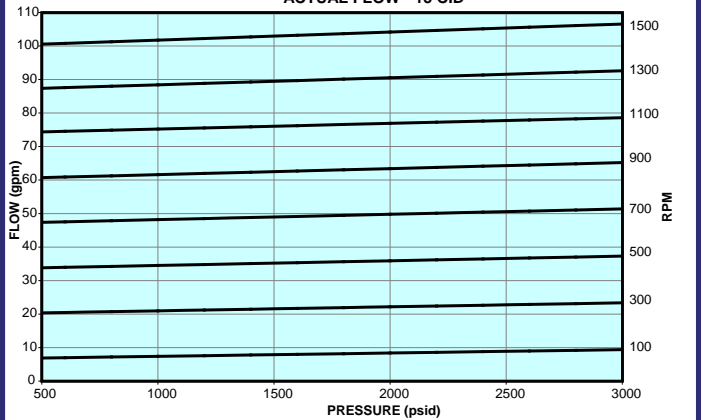


## 15 C.I.D.

ACTUAL TORQUE AND POWER - 15 CID



ACTUAL FLOW - 15 CID



The above performance data was obtained at 140°F with ISO 46(DTE 25). These values must be maintained to obtain the performance indicated. Contact Rineer Hydraulics, Inc. for additional displacements.

# Model Code

**M015 - 61/62**

M015 - 61 = 015 Single Speed  
M015 - 62 = 015 Two Speed

**Options:**

62 = Two Speed Single Pilot  
Open During Crossover  
63 = Two Speed Single Pilot  
Closed During Crossover  
65 = Two Speed Double Pilot  
Open During Crossover  
67 = Two Speed Double Pilot  
Closed During Crossover

**-1S**

1S = Std.  
1H = High Speed

**-015**

**-31**

**-B1**

**-TV**

**-000**

Special Code Designator

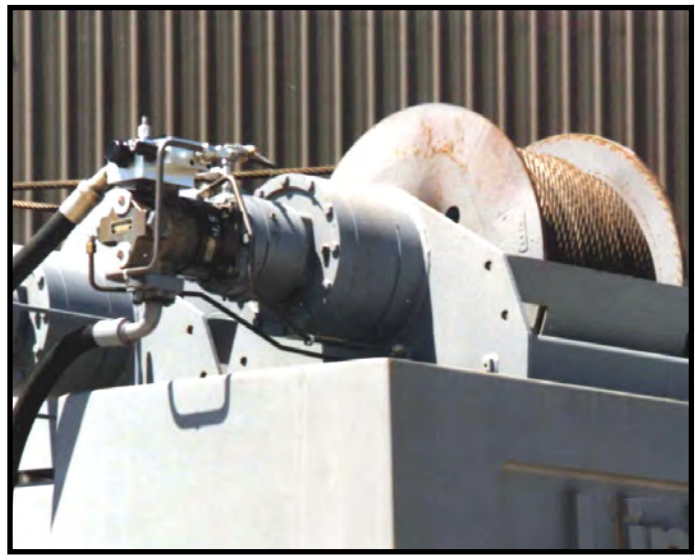
Seal - Package Selection

Bearing Package Selection

30 = Keyed Shaft  
31 = Splined Shaft  
32 = Wheel Motor  
34 = Double Key  
50 = Retractable  
53 = API Thread

006 = 6 in<sup>3</sup> (98cc)/rev.    010 = 10.5 in<sup>3</sup> (172cc)/rev.  
007 = 7 in<sup>3</sup> (115cc)/rev.    011 = 11.5 in<sup>3</sup> (189cc)/rev.  
008 = 8 in<sup>3</sup> (131cc)/rev.    013 = 13 in<sup>3</sup> (213cc)/rev.  
009 = 9.5 in<sup>3</sup> (156cc)/rev.    015 = 15 in<sup>3</sup> (246cc)/rev.

# Applications



**For durable hydraulic motors that meet your demands, specify Rineer.**  
For over 35 years, we have specialized in only one thing - engineering the right motor for your needs.  
Rineer delivers the performance you can count on.



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**Limited Warranty Policy**

Rineer Hydraulics, Inc. warrants that, at the time of shipment to Purchaser, our product will be free of defects in the material and workmanship. The above warranty is LIMITED to defective products returned by Purchaser to Rineer Hydraulics, Inc., freight prepaid within four hundred and fifty-five (455) days from date of shipment, or one (1) year from date of first use, whichever expires first. We will repair or replace any product or part thereof which is proved to be defective in workmanship or material. There is no other warranty, expressed or implied, and in no event shall Rineer Hydraulics, Inc. be liable for consequential or special damages. Dismantling the product, operation of the product beyond the published capabilities or for purposes other than that for which the product was designed, shall void this warranty.



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