

No. 11-107  
July 1995

**Eaton®**  
Medium Duty Piston Motors



741XX



746XX



743XX



713XX

Fixed and Variable Piston Motors  
12,3 cm<sup>3</sup>/r [.75 in<sup>3</sup>/r] to 82,6 cm<sup>3</sup>/r [5.04 in<sup>3</sup>/r]  
Displacements

We Manufacture

**Solutions**

Hydraulics

S  
C  
h  
y  
d  
r  
a  
u  
l  
i  
c  
s

# Features

- Compact
- Lightweight Durable Housing
- Numerous Shaft options
- SAE Mounting Flanges
- SAE O-ring Porting
- Dual Rotation
- Various Porting Options
- Fixed Displacements
- Variable Displacements

# Introduction

Eaton medium duty piston motors convert hydraulic energy supplied by the pump to mechanical energy. These motors are uniquely suited to fit any application that requires continuous rotary motion at a remote location from the power source. Axial piston motors share the design advantages of piston pumps to provide long-lasting power in a light-weight, easily serviceable package.

The chart below provides an overview of features. For a complete list of options, refer to the Model Code section of a given motor displacement.

Motor Type	Mount	Motor Model	Displacement	Shaft			Porting
				Keyed	Spline	Through	
Fixed Displacement 741XX Models	"A"	74111	12,3 cm <sup>3</sup> /r [.75 in <sup>3</sup> /r]	•	•		Side or Rear
	2 Bolt	74118	20,3 cm <sup>3</sup> /r [1.24 in <sup>3</sup> /r]	•	•		
	SAE	74148	20,3 cm <sup>3</sup> /r [1.24 in <sup>3</sup> /r]	•	•	•	Same Side
		74149	12,3 cm <sup>3</sup> /r [.75 in <sup>3</sup> /r]	•	•	•	
Fixed Displacement 743XX Models	"B"	74315	32,9 cm <sup>3</sup> /r [2.01 in <sup>3</sup> /r]	•	•		Side or Rear
	2 Bolt	74318	40,6 cm <sup>3</sup> /r [2.48 in <sup>3</sup> /r]	•	•		
	SAE	74348	40,6 cm <sup>3</sup> /r [2.48 in <sup>3</sup> /r]	•	•	•	Same Side
Fixed Displacement 746XX Models	"B-B"	74624	82,6 cm <sup>3</sup> /r [5.04 in <sup>3</sup> /r]	•	•		Rear or
	2 Bolt	74644	82,6 cm <sup>3</sup> /r [5.04 in <sup>3</sup> /r]	•	•	•	Same Side
Variable Displacement 713XX Models	"B"	71302	40,6 to 21,0 cm <sup>3</sup> /r[2.48 to 1.28 in <sup>3</sup> /r]	•	•		Rear or
	2 Bolt	71442	40,6 to 21,0 cm <sup>3</sup> /r[2.48 to 1.28 in <sup>3</sup> /r]	•	•	•	Opposite Side
		SAE	71492*	40,6 to 21,0 cm <sup>3</sup> /r[2.48 to 1.28 in <sup>3</sup> /r]	•	•	

\*Hydraulic De-stroke Control

# Piston Motor

## Application Information

### Case Drain Installation Requirements

CAUTION - Failure to meet these requirements may result in damage to the piston motor.

- Install piston motors in such a position that the case drain assures an oil level at or above unit center line.
- Oil level must be at or above the unit center line before starting the piston motor.
- Provide a case drain line of adequate size to limit the case pressure to specified maximum.

### Cleanliness

In systems using Eaton medium duty piston motors, the fluid must be maintained at ISO Cleanliness Code 18/13 or better per SAE J1165. This code allows a maximum of 2,500 particles per milliliter greater than 5 µm and a maximum of 80 particles per milliliter greater than 15 µm. When components with different cleanliness requirements are used in the same system, the cleanest standard should be applied.

### Fluid Recommendations

(Refer to Eaton's Hydraulic Fluid Recommendations Technical Data sheet #3-401.)

In hydraulic systems using Eaton's medium duty piston pumps and motors, the optimum viscosity range is 10 - 39 cSt [60 - 180 SUS], at normal operating temperatures. Viscosity should never fall below 6 cSt [45 SUS].

## Contents

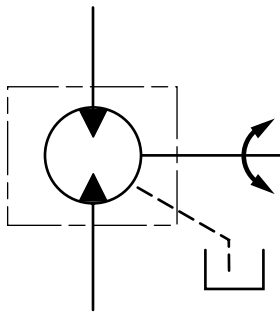
	Page
Features and Introduction .....	2
Application Information .....	3
<b>741XX Models - Fixed Displacement Motor</b>	
Specifications .....	4
Model 74111 Performance Data, 12,3 cm <sup>3</sup> /r [.75 in <sup>3</sup> /r] Displacement .....	5
Model 74118 Performance Data, 20,3 cm <sup>3</sup> /r [1.24 in <sup>3</sup> /r] Displacement .....	6
Model Code .....	7
Installation Drawings .....	8 - 9
<b>743XX Models - Fixed Displacement Motor</b>	
Specifications .....	10
Model 74315 Performance Data, 32,9 cm <sup>3</sup> /r [2.01 in <sup>3</sup> /r] Displacement .....	11
Model 74318 Performance Data, 40,6 cm <sup>3</sup> /r [2.48 in <sup>3</sup> /r] Displacement .....	12
Model Code .....	13
Installation Drawings .....	14 - 19
<b>746XX Models - High Torque Fixed Displacement Motor</b>	
Specifications .....	20
Model 74624 Performance Data, 82,6 cm <sup>3</sup> /r [5.04 in <sup>3</sup> /r] Displacement .....	21
Model Code .....	22
Installation Drawings .....	23 - 25
<b>713XX Models - Variable Displacement Motor</b>	
Specifications .....	26
Model 71302 Performance Data, 40,6 to 21,0 cm <sup>3</sup> /r [2.48 to 1.28 in <sup>3</sup> /r] Displacement .....	27 - 28
Model Code .....	29
Installation Drawings .....	30 - 34
Compatible Eaton Components .....	36

# Fixed Displacement Motor - 741XX Models

2 Bolt SAE "A" Mount

12,3 cm<sup>3</sup>/r [.75 in<sup>3</sup>/r] Displacement

20,3 cm<sup>3</sup>/r [1.24 in<sup>3</sup>/r] Displacement



Specification	Model 74111 / 74149	Model 74118 / 74148
Maximum Displacement	12,3 cm <sup>3</sup> /r [.75 in <sup>3</sup> /r]	20,3 cm <sup>3</sup> /r [1.24 in <sup>3</sup> /r]
Maximum Rated Speed	4500 RPM	3600 RPM
Continuous Rated Pressure †	210 bar [3000 lbf/in <sup>2</sup> ]	210 bar [3000 lbf/in <sup>2</sup> ]
Maximum Rated Pressure ††	345 bar [5000 lbf/in <sup>2</sup> ]	345 bar [5000 lbf/in <sup>2</sup> ]
Maximum Intermittent Pressure †††	370 bar [5400 lbf/in <sup>2</sup> ]	370 bar [5400 lbf/in <sup>2</sup> ]
Input Flow at Rated Speed and Pressure	64 l/min [16.9 GPM]	79 l/min [20.8 GPM]
Output Power at Rated Speed and Pressure	13,8 kW [18.5 hp]	23,2 kW [31.1 hp]
Output Torque at Rated Speed and Pressure	29 N•m [260 lbf•in]	62 N•m [550 lbf•in]
Continuous Allowable Case Pressure	1,7 bar [25 lbf/in <sup>2</sup> ]	1,7 bar [25 lbf/in <sup>2</sup> ]
Continuous Inlet Temperature	107° C [225° F]	107° C [225° F]
Weight/Single Motor (approximate)	4,9 kg [11 lbs]	4,9 kg [11 lbs]

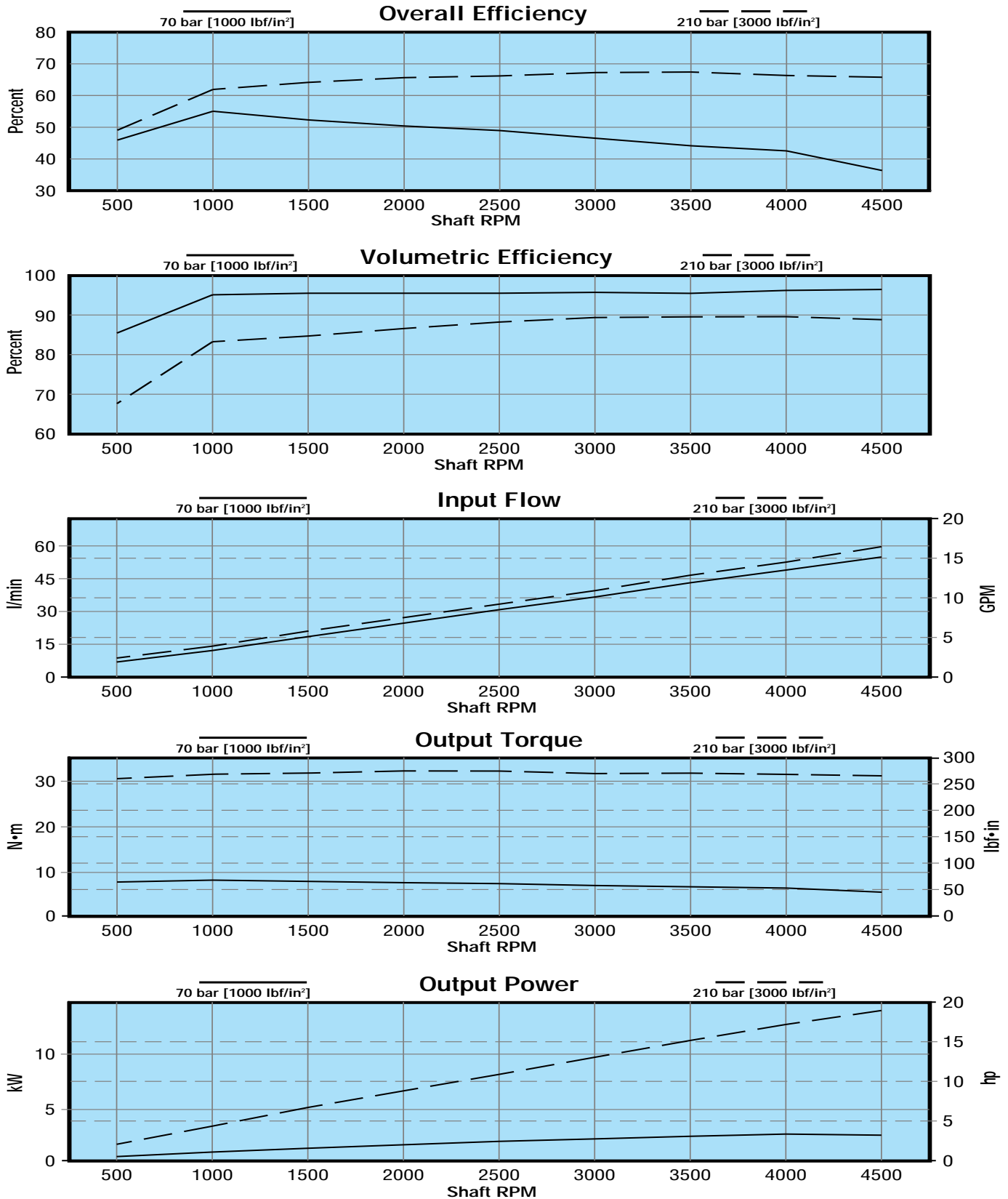
† Continuous Rated Pressure — Motor may run uninterrupted at this pressure.

†† Maximum Rated Pressure — Highest allowable system pressure. (High pressure relief valve setting)

††† Maximum Intermittent Pressure — A pressure spike only for a short period of time, not continuous.

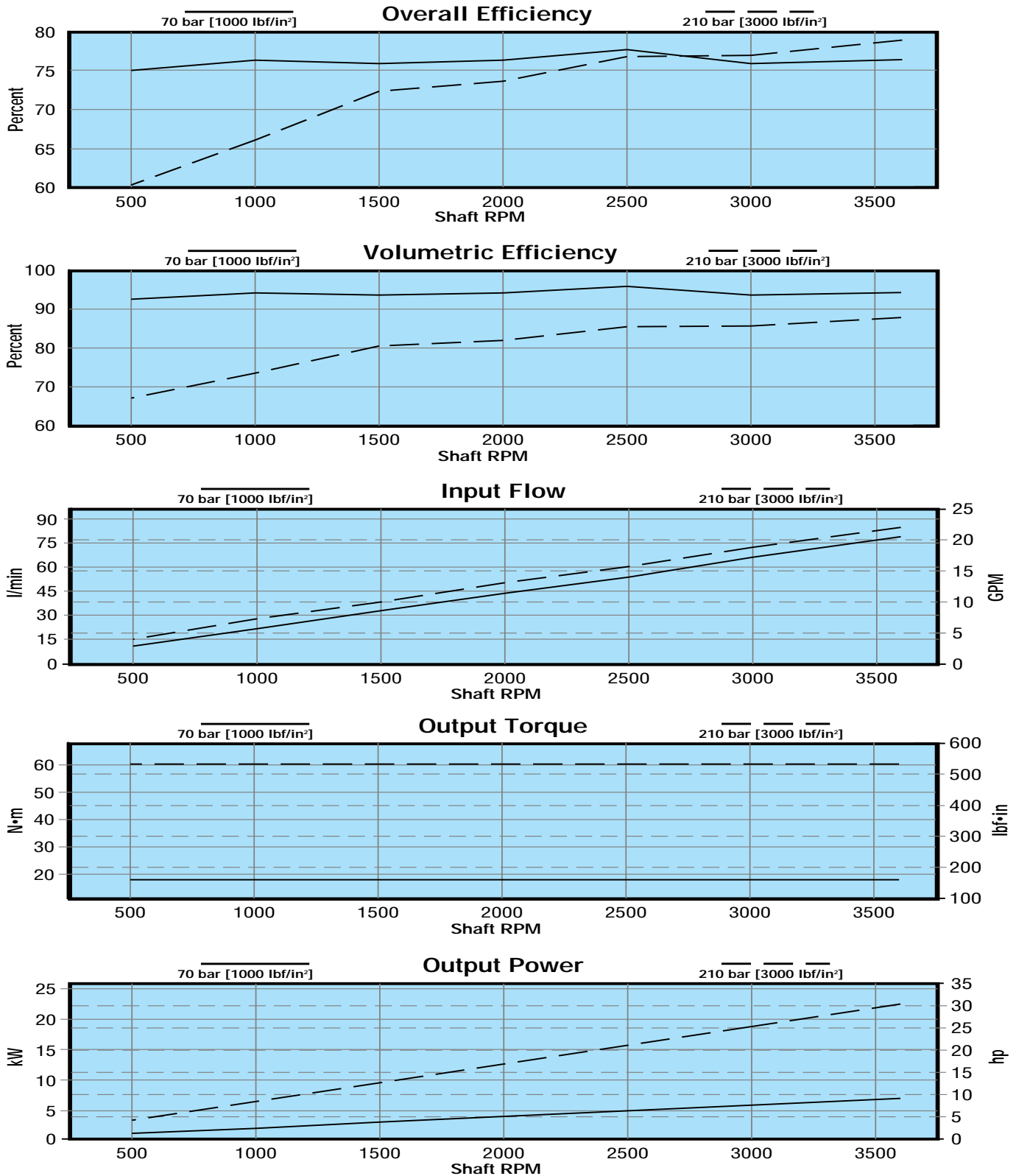
# Model 74111 and 74149 Performance Data

The charts below are representative of a 12,3 cm<sup>3</sup>/r [.75 in<sup>3</sup>/r] displacement piston motor. The tests were run at an oil temperature of 80°C [180°F] with viscosity 7 - 9 cSt [50 - 54 SUS].



# Model 74118 and 74148 Performance Data

The charts below are representative of a 20,3 cm<sup>3</sup>/r [1.24 in<sup>3</sup>/r] displacement piston motor. The tests were run at an oil temperature of 80°C [180°F] with viscosity 7 - 9 cSt [50 - 54 SUS].



# Fixed Displacement Motor - 741XX Model Code

12,3 cm<sup>3</sup>/r [.75 in<sup>3</sup>/r] Displacement

20,3 cm<sup>3</sup>/r [1.24 in<sup>3</sup>/r] Displacement

Fixed displacement piston motors are specified by the following model code. Once a motor is built from the model code, a product number will be assigned to that configuration. Make sure all positions are selected within the 15 digit code for each motor.

**Code Example:**

<b>AAV</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>0</b>	<b>B</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>A</b>	<b>0</b>	<b>0</b>
Position -	1, 2, 3,	4,	5,	6,	7,	8,	9,	10, 11,	12, 13,	14,	15	
								0 0	0 A	0 0		

**Position 1, 2, 3 - Code Title**

AAV = 20,3 cm<sup>3</sup>/r [1.24 in<sup>3</sup>/r] Fixed displacement piston motor frame size.

**Position 4, 5 - Output Shaft** (details on page 9)

AA = 13 Tooth 16/32 spline with snap ring groove, min. full spline 22,1 [.87], shaft extension 41,1 [1.62]  
 AE = Straight Shaft, dia. 22,2 [.875], keyway 6,35 [.25] x 25,6 [.97], shaft extension 41,1 [1.62] (key included)

Code	AAV
AA	Std.
AE	Std.

**Position 6 - Main Port, Size and Location**

A = 1-1/16-12 UN-2B straight threaded o-ring ports - opposite sides  
 B = 1-1/16-12 UN-2B straight threaded o-ring ports - rear  
 C = 1-1/16-12 UN-2B straight threaded o-ring ports - same side, only with through shaft

A	Std.
B	Std.
C	Opt.

**Position 7 - Drain Port, Size and Location**

A = 9/16-18 UNF-2B straight thread o-ring port - upper rear  
 B = 9/16-18 UNF-2B straight thread o-ring port - lower rear  
 C = 9/16-18 UNF-2B straight thread o-ring port - bottom rear, with through shaft only (pos. 8,selection 1)

A	Std.
B	Std.
C	Opt.

**Position 8 - Auxiliary Mounting Features (rear)**

0 = No Auxiliary Mounting Feature  
 1\* = Straight through shaft, dia. 19 [.75], with keyway 4,8 x 31 [.189 x 1.22]. 209,3 [8.42] from mounting flange (Key included), 5/16 -18 UNC-2B mounting holes 14,2 [.56] deep min. full thread.

0	Std.
1*	Opt.

**Position 9 - Displacement Options**

0 = As given in code title. - Model 74118 or 74148  
 B = 12,3 cm<sup>3</sup>/r [.75 in<sup>3</sup>/r] destroked from 20,3 cm<sup>3</sup>/r [1.24 in<sup>3</sup>/r] - Model 74111 or 74149

0	Std.
B	Std.

**Position 10, 11 - Special Features**

00 = No Special Feature

00	Std.
----	------

**Position 12, 13 - Paint**

0A = Primer

0A	Std.
----	------

**Position 14 - Identification**

0 = Standard

0	Std.
---	------

**Position 15 - Design Code**

0 = Eaton assigns current design code

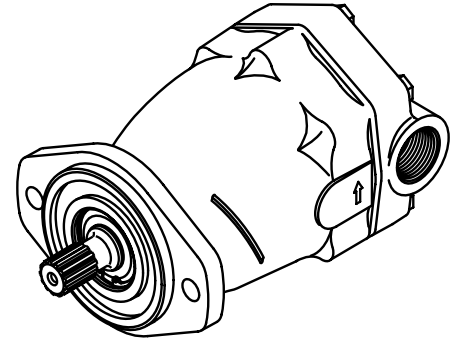
0	Std.
---	------

\* Requires the selection of same-side porting only.  
 Through shaft motor at displacement 1.24 in<sup>3</sup>/r will carry model number 74148.

Note: All ports are SAE (J1926) o-ring ports.

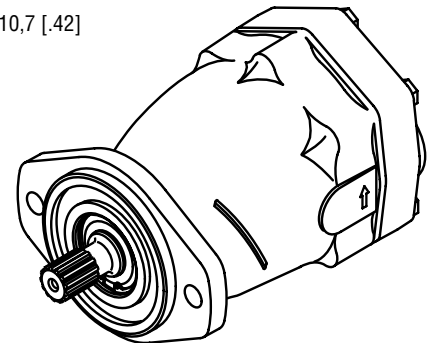
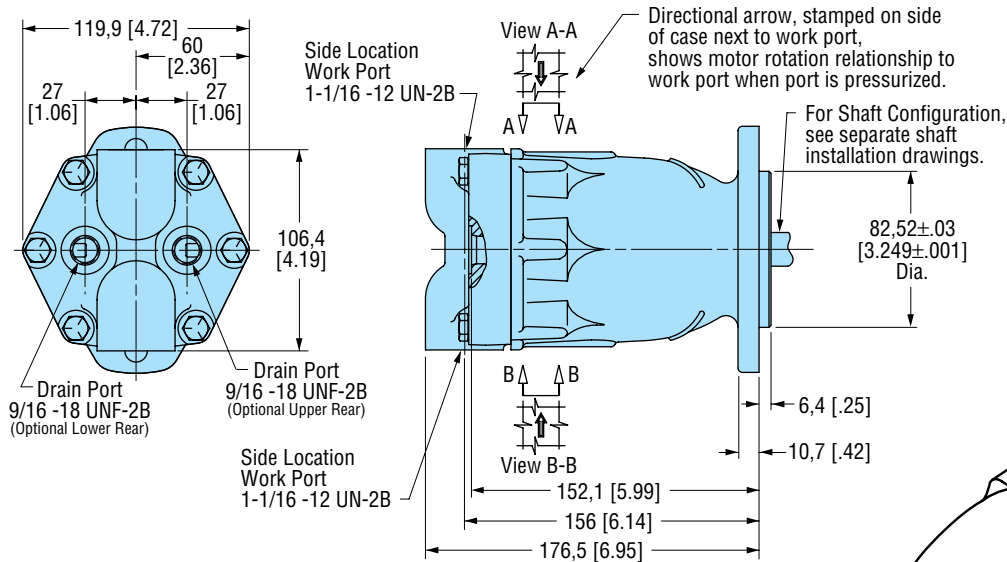


# Model 74111 and 74118 Installation Drawings



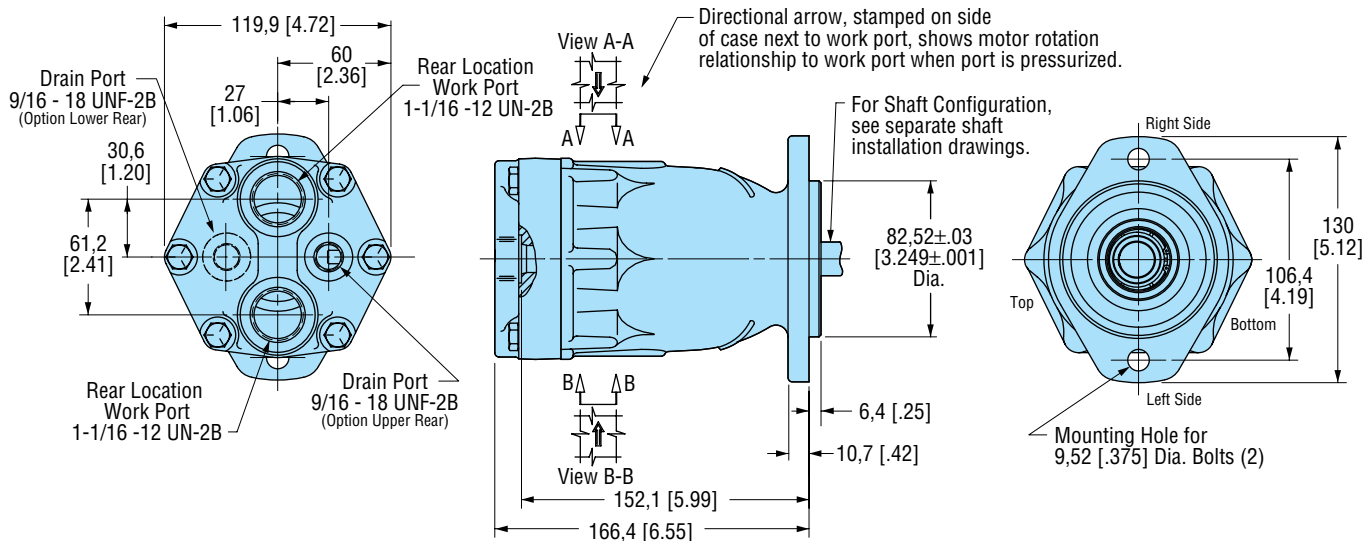
## Opposite Side Porting

(Code position 6, selection A)



## Rear Porting

(Code position 6, selection B)



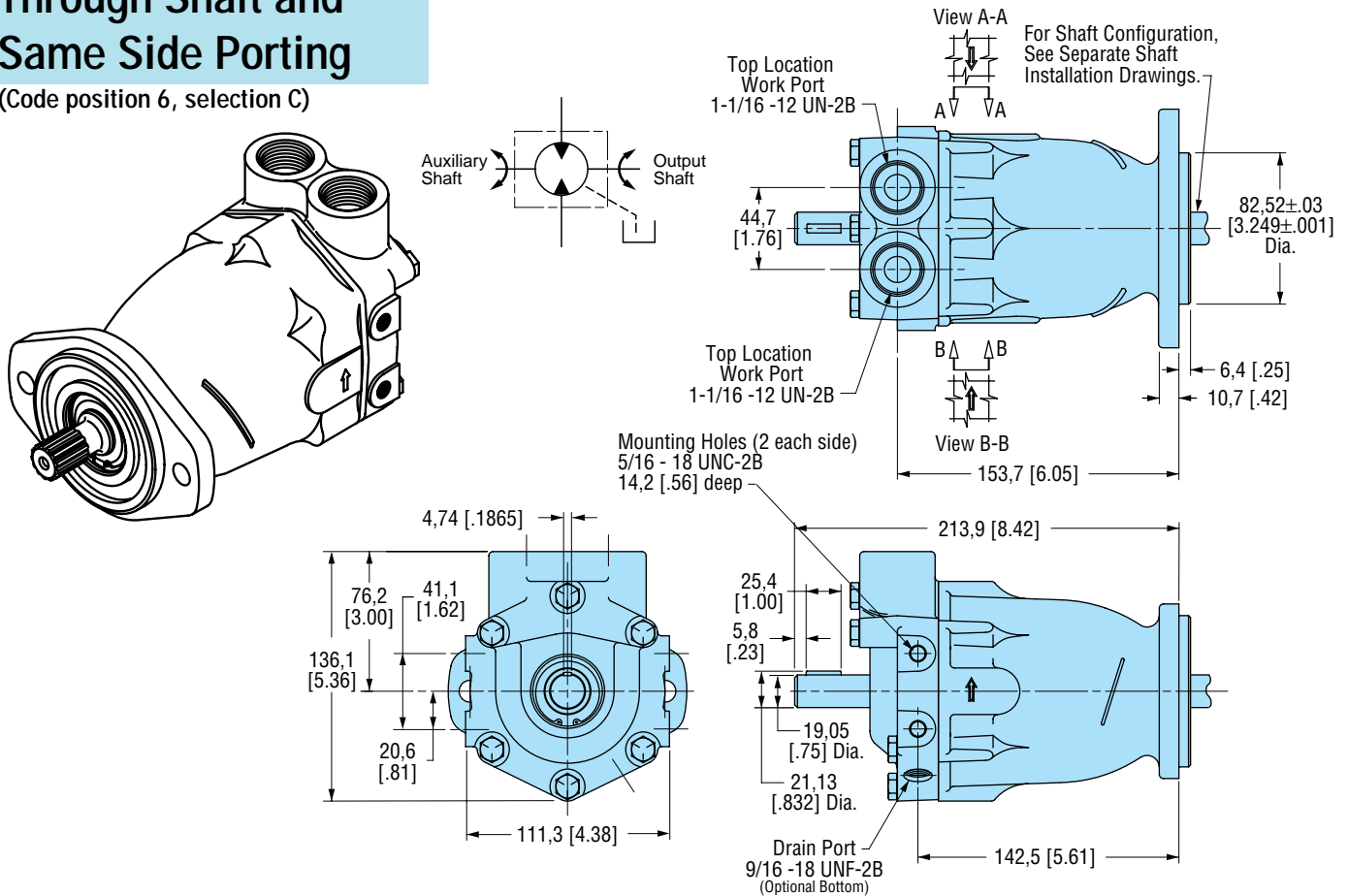
**Note:** All ports are SAE (J1926) o-ring ports. Dimensions are in millimeters [inches], unless otherwise specified.



# Model 74148 and 74149 Installation Drawings

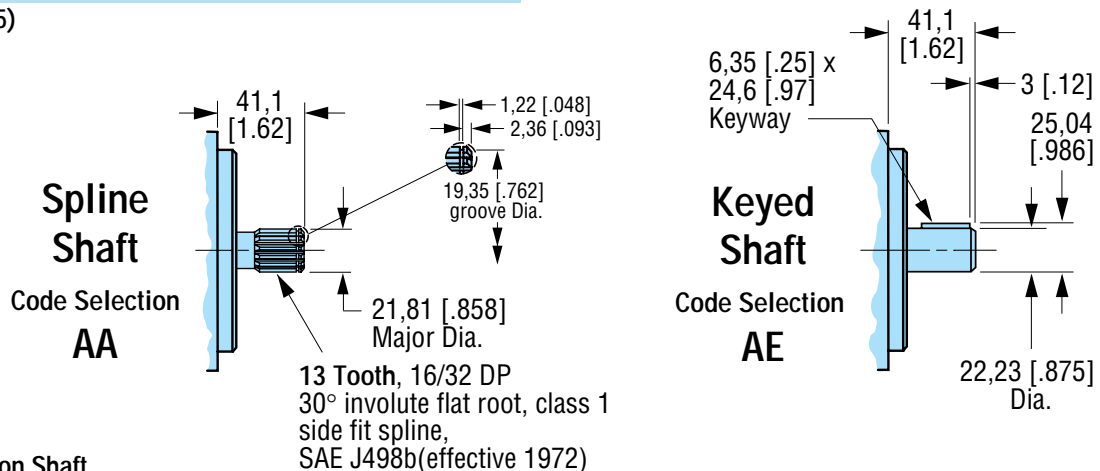
## Through Shaft and Same Side Porting

(Code position 6, selection C)



## Output Shafts - Used for all 741XX Models

(Code position 4, 5)



### Maximum Torque on Shaft

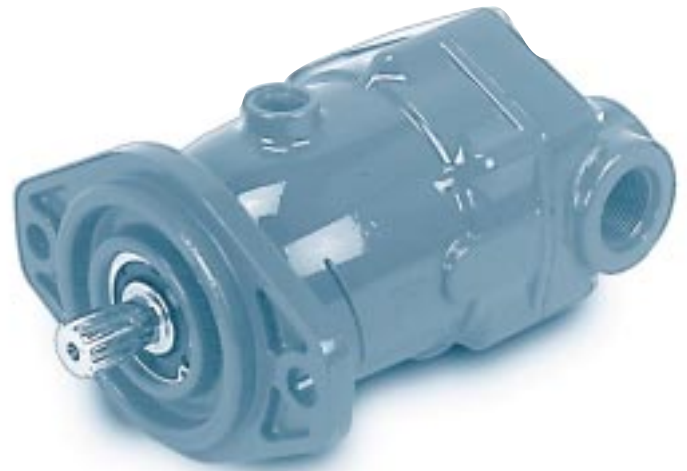
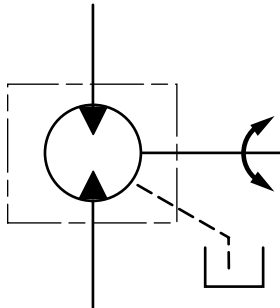
- Shaft AA - 209,3 N·m [1,852 lbf·in]
- Shaft AE - 209,3 N·m [1,852 lbf·in]

# Fixed Displacement Motor - 743XX Models

2 Bolt SAE "B" Mount

32,9 cm<sup>3</sup>/r [2.01 in<sup>3</sup>/r] Displacement

40,6 cm<sup>3</sup>/r [2.48 in<sup>3</sup>/r] Displacement



Specification	Model 74315	Model 74318/ 74348
Maximum Displacement	32,9 cm <sup>3</sup> /r [2.01 in <sup>3</sup> /r]	40,6 cm <sup>3</sup> /r [2.48 in <sup>3</sup> /r]
Maximum Rated Speed	3600 RPM	3600 RPM
Continuous Rated Pressure †	210 bar [3000 lbf/in <sup>2</sup> ]	210 bar [3000 lbf/in <sup>2</sup> ]
Maximum Rated Pressure ††	345 bar [5000 lbf/in <sup>2</sup> ]	345 bar [5000 lbf/in <sup>2</sup> ]
Maximum Intermittent Pressure †††	370 bar [5400 lbf/in <sup>2</sup> ]	370 bar [5400 lbf/in <sup>2</sup> ]
Input Flow at Rated Speed and Pressure	121 l/min [32 GPM]	153,7 l/min [40.6 GPM]
Output Power at Rated Speed and Pressure	35 kW [47 hp]	43 kW [58 hp]
Output Torque at Rated Speed and Pressure	92 N•m [816 lbf•in]	115 N•m [1019 lbf•in]
Continuous Allowable Case Pressure	1,7 bar [25 lbf/in <sup>2</sup> ]	1,7 bar [25 lbf/in <sup>2</sup> ]
Continuous Inlet Temperature	107° C [225° F]	107° C [225° F]
Weight/Single Motor (approximate)	9,1 kg [20 lbs]	9,1 kg [20 lbs]

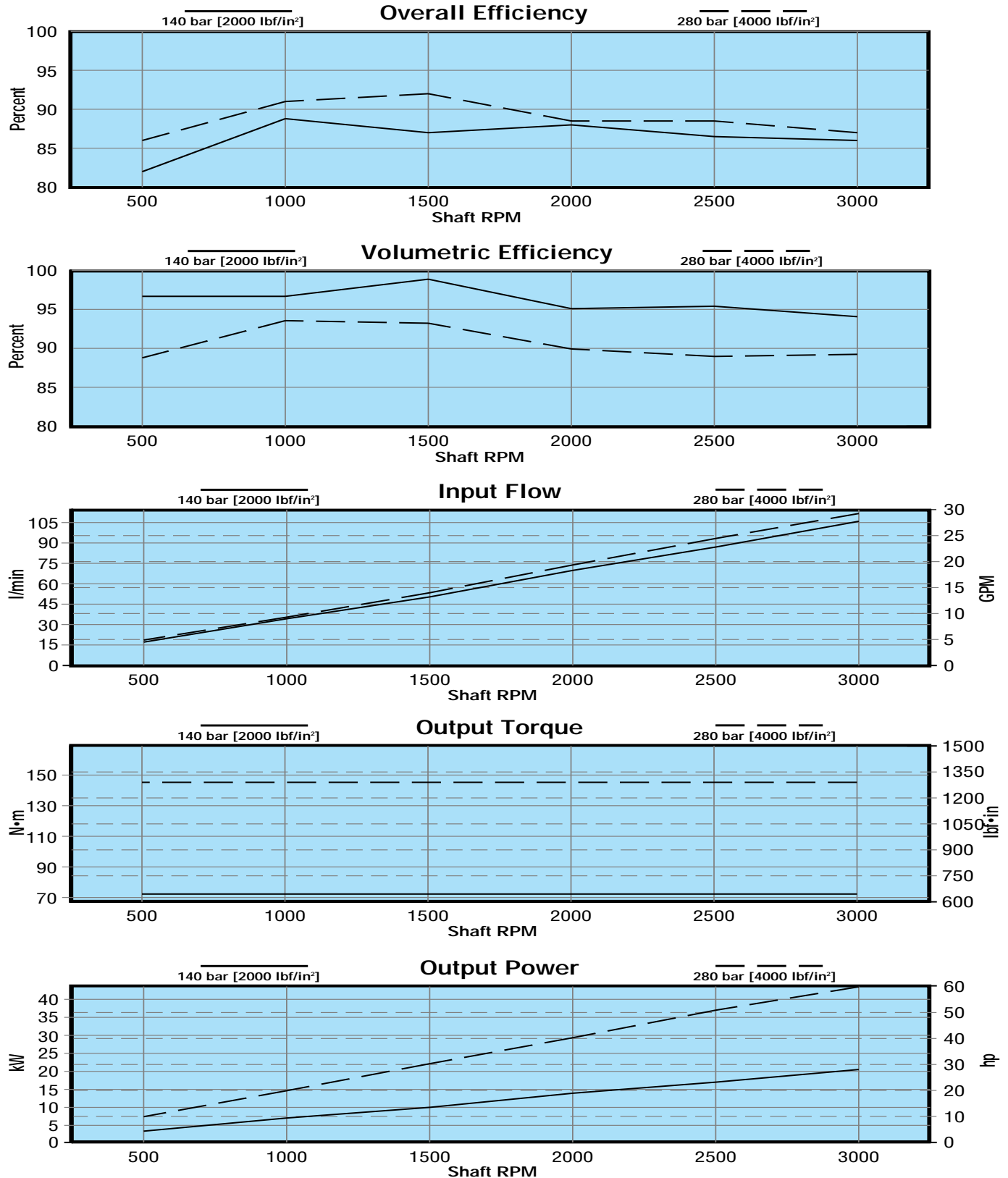
† Continuous Rated Pressure — Motor may run uninterrupted at this pressure.

†† Maximum Rated Pressure — Highest allowable system pressure. (High pressure relief valve setting)

††† Maximum Intermittent Pressure — A pressure spike only for a short period of time, not continuous.

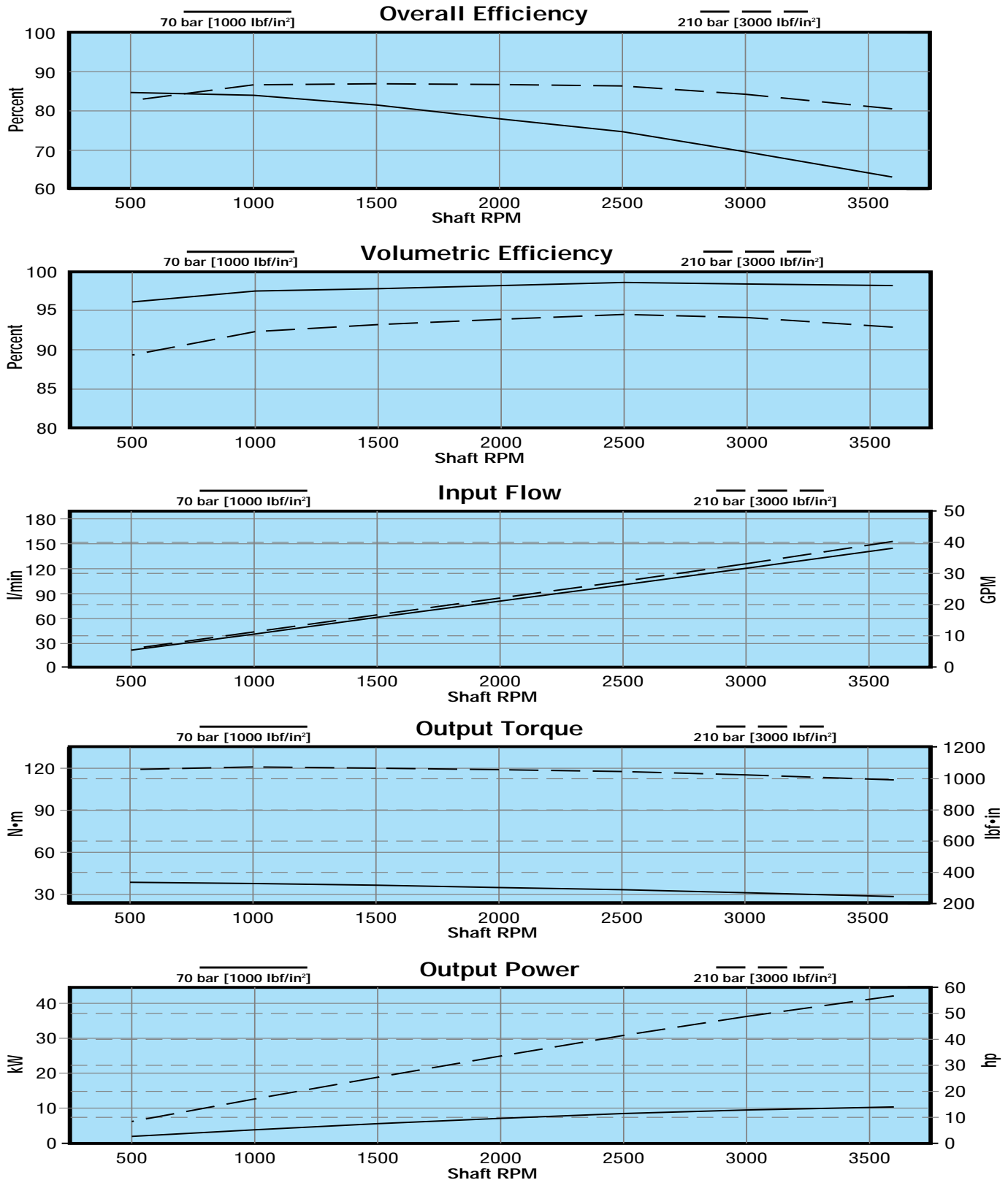
# Model 74315 Performance Data

The charts below are representative of a 32,9 cm<sup>3</sup>/r [2.01 in<sup>3</sup>/r] displacement piston motor. The tests were run at an oil temperature of 50°C [120°F] with viscosity 19 - 24 cSt [117-143 SUS].



# Model 74318 Performance Data

The charts below are representative of a 40,6 cm<sup>3</sup>/r [2.48 in<sup>3</sup>/r] displacement piston motor. The tests were run at an oil temperature of 50°C [120°F] with viscosity 19 - 24 cSt [117-143 SUS].



# Fixed Disp. Motor - 743XX Model Code

32,9 cm<sup>3</sup>/r [2.01 in<sup>3</sup>/r] Displacement

40,6 cm<sup>3</sup>/r [2.48 in<sup>3</sup>/r] Displacement

Fixed displacement piston motors are specified by the following model code. Once a motor is built from the model code, a product number will be assigned to that configuration. Make sure all positions are selected within the 15 digit code for each motor.

**Code Example:**    **AAJ    A   A   A   A   0   B   0   0   0   A   0   0**

**Position -**    **1, 2, 3,    4,   5,   6,   7,   8,   9,   10, 11,   12, 13, 14, 15**


**Position 1, 2, 3 - Code Title**

AAJ = 40,6 cm<sup>3</sup>/r [2.48 in<sup>3</sup>/r] Fixed displacement piston motor frame size.

**Position 4, 5 - Output Shaft**

AA = 13 Tooth 16/32 spline, shaft extension 41,1 [1.62]  
 AB = 15 Tooth 16/32 spline, shaft extension 46 [1.81]  
 AD = Straight Shaft, dia. 28,58 [1.125], keyway 7,9 [.31] x 32,5 [1.28], shaft extension 46 [1.81] (key included)  
 AE = Straight Shaft, dia. 22,2 [.875], keyway 6,3 [.25] x 24,6 [.97], shaft extension 41,1 [1.62] (key included)

Code	AAJ
AA	Std.
AB	Opt.
AD	Opt.
AE	Std.

**Position 6 - Main Port, Size and Location**

A = 1-1/16 -12 UN-2B straight threaded o-ring ports - opposite sides  
 B = 1-5/16 -12 UN-2B straight threaded o-ring ports - opposite sides  
 C = 1-5/16 -12 UN-2B straight threaded o-ring ports - rear  
 D = 1-5/16 -12 UN-2B straight threaded o-ring ports - same side, Top  
 E = 1-1/16 -12 UN-2B straight threaded o-ring ports - rear  
 J = 1-1/16 -12 UN-2B straight threaded o-ring ports - same side, Top

A	Opt.
B	Std.
C	Std.
D	Opt.
E	Opt.
J	Opt.

**Position 7 - Drain Port, Size and Location**

A = 3/4 -16 UNF-2B straight thread o-ring port - Top of Housing  
 B = 3/4 -16 UNF-2B straight thread o-ring port - Top and bottom of Housing, bottom plugged  
 G = 3/4 -16 UNF-2B straight thread o-ring port - Upper rear of Backplate  
 J = 9/16 -18 UNF-2B straight thread o-ring port - Upper rear of Backplate

A	Std.
B	Opt.
G	Opt.
J	Opt.

**Position 8 - Auxiliary Mounting Features (rear)**

0 = No Auxiliary Mounting Feature  
 3 = Straight Through shaft, dia. 22,23 [.875], with keyway 4,75 x 26,9 [.187 x 1.06] (Key included, 19 [.75] long).  
 Side Mounting Pad holes both sides, 4 x .3125 -18. **Note:** Requires the selection in position 6 of same side porting.

0	Std.
3	Opt.

**Position 9 - Displacement Options**

0 = As given in code title, 40,6 cm<sup>3</sup>/r [2.48 in<sup>3</sup>/r] - Model 74318 or 74348  
 A = 32,9 cm<sup>3</sup>/r [2.01 in<sup>3</sup>/r] destroked from 40,6 cm<sup>3</sup>/r [2.48 in<sup>3</sup>/r] - Model 74315

0	Std.
A	Opt.

**Position 10, 11 - Special Features**

00 = No Special Feature  
 AD = Shuttle Valve and Charge Pressure Valve set at 15-17 bar [220-250 lbf/in<sup>2</sup>]  
 AM = Shuttle Valve and Charge Pressure Valve set at 10-12 bar [150-175 lbf/in<sup>2</sup>]  
 AP = Speed Sensor Hall Effect Pickup (9 pulse), lead wire 127 mm [5.0 in] long

00	Std.
AD	Opt.
AM	Opt.
AP	Opt.

**Position 12, 13 - Paint**

0A = Primer

0A	Std.
----	------

**Position 14 - Identification**

0 = Standard

0	Std.
---	------

**Position 15 - Design Code**

0 = Eaton assigns current design code

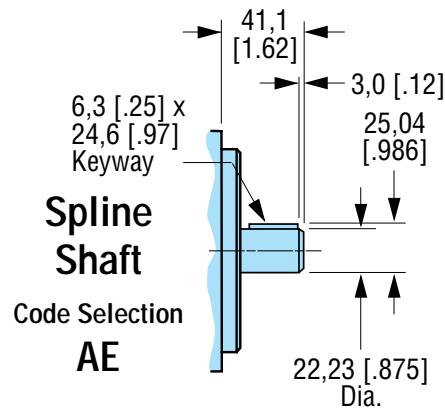
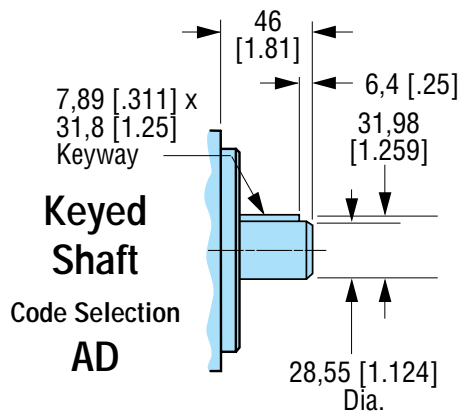
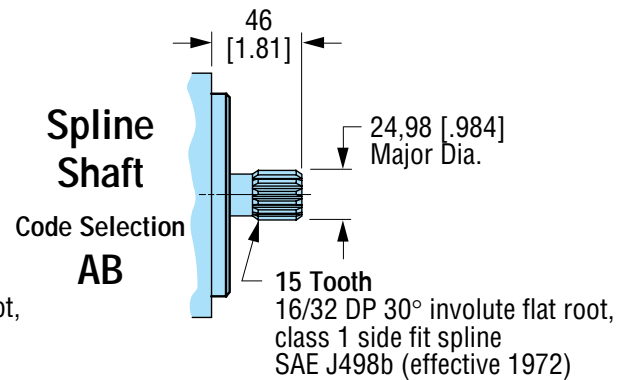
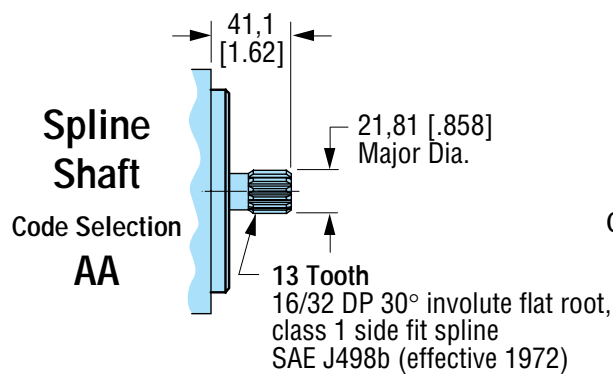
0	Std.
---	------

**Note:** All ports are SAE (J1926) o-ring ports.

# Model 74315, 74318 and 74348 Installation Drawings

## Output Shafts - Used for all 743XX Models

(Code position 4, 5)



### Maximum Torque on Shaft

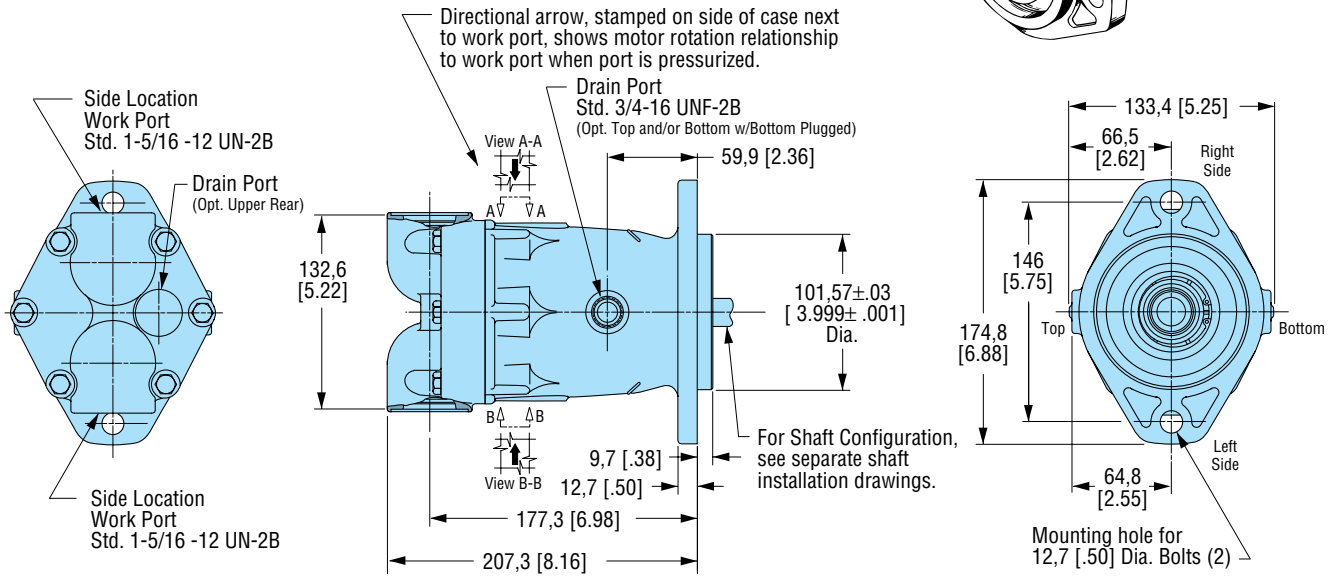
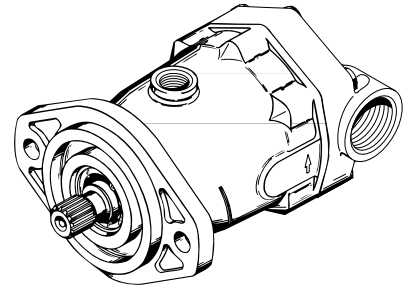
- Shaft AA - 209,3 N·m [1852 lbf·in]
- Shaft AB - 337,5 N·m [2987 lbf·in]
- Shaft AD - 337,5 N·m [2987 lbf·in]
- Shaft AE - 209,3 N·m [1852 lbf·in]

# Model 74315 and 74318 Installation Drawings

## Opposite Side Porting

(Code position 6, selection A or B)

74315  
and  
74318

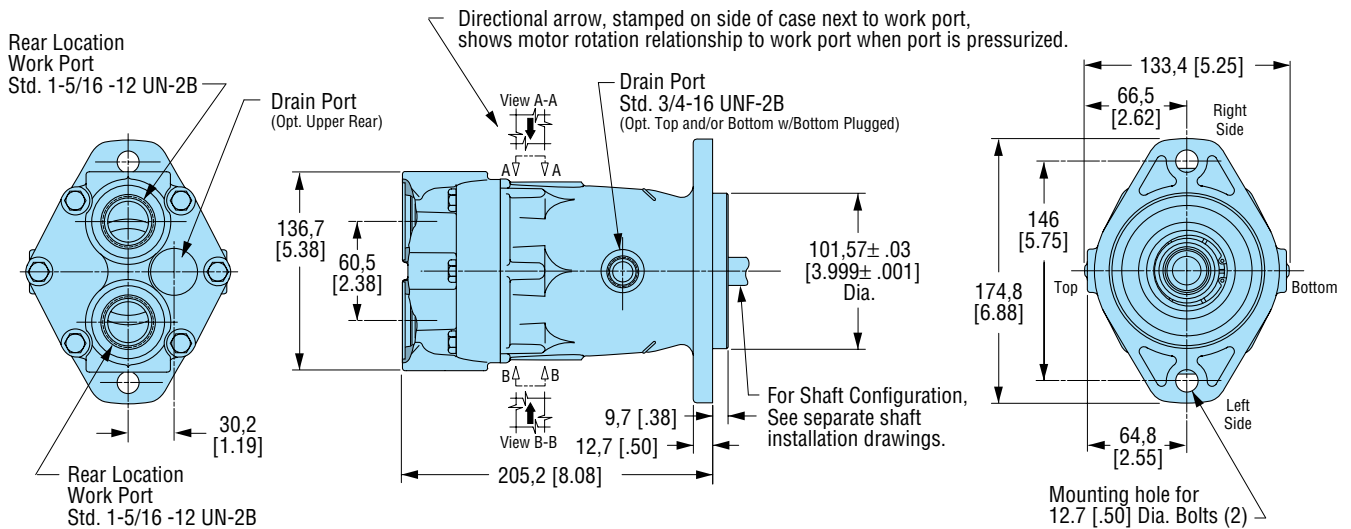
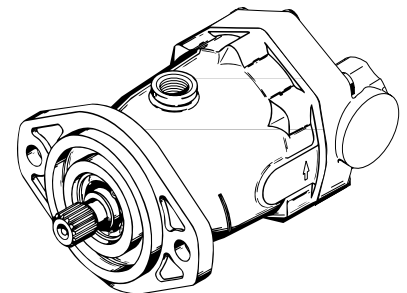


Note: All ports are SAE (J1926) o-ring ports.

## Rear Porting

(Code position 6, selection C or D)

74315  
and  
74318

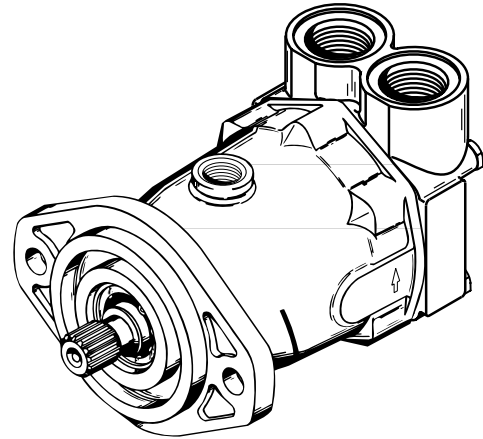




# Model 74315 and 74318 Installation Drawings

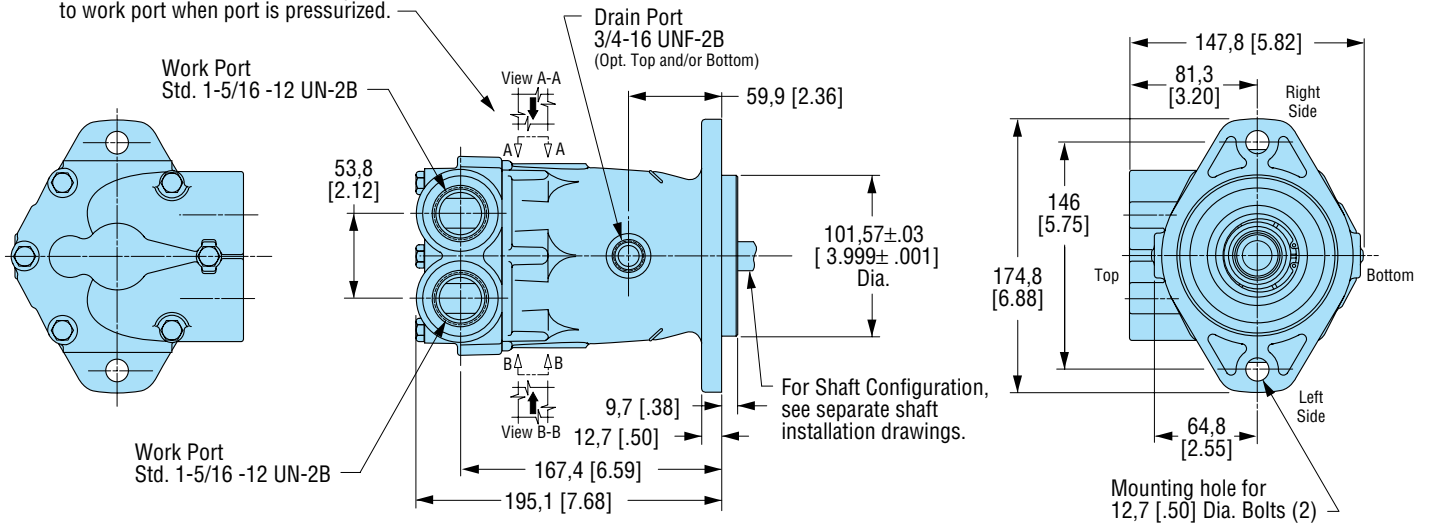
## Same Side Porting

(Code position 6, selection D)



74315  
and 74318

Directional arrow, stamped on side of case next to work port, shows motor rotation relationship to work port when port is pressurized.

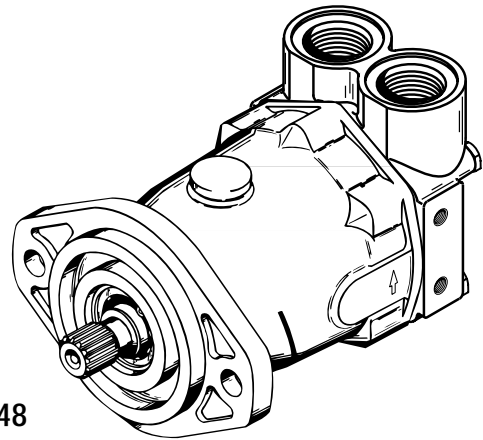


Note: All ports are SAE (J1926) o-ring ports.

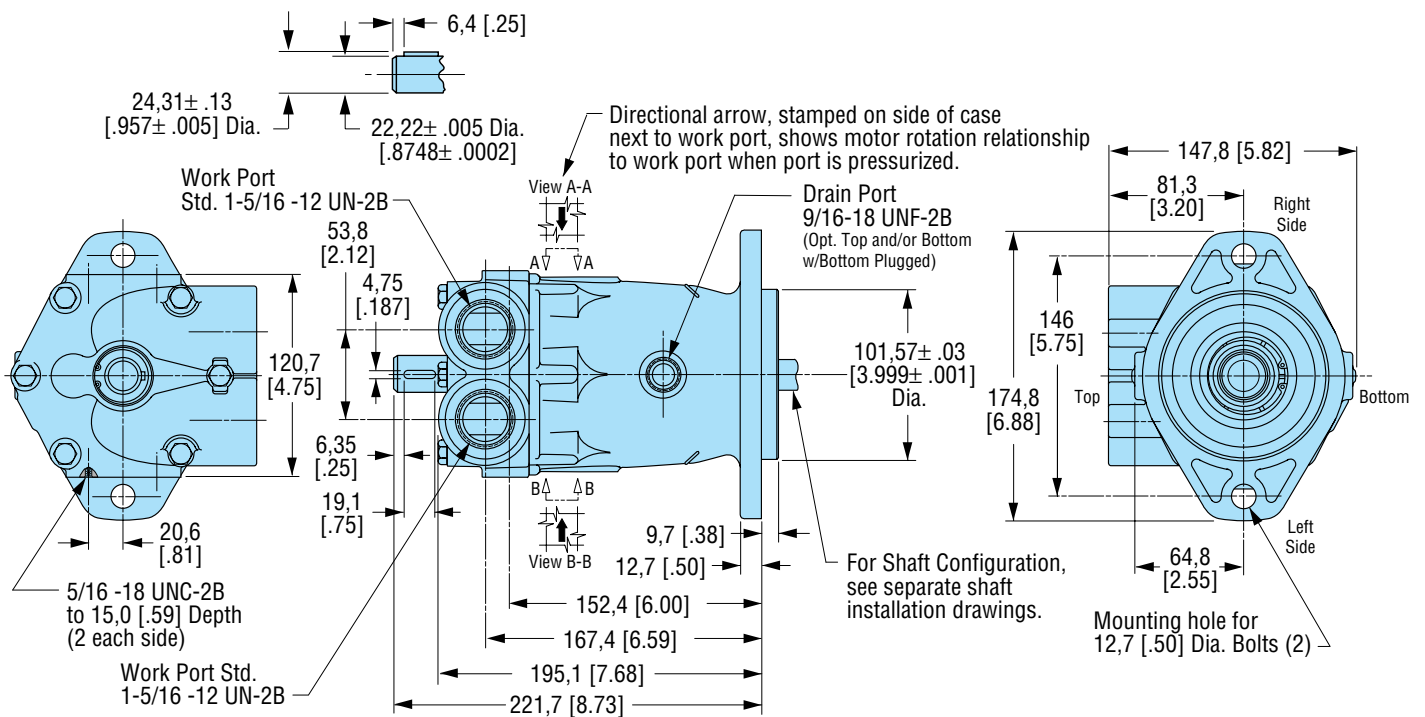
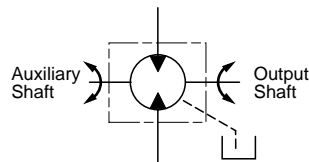
# Model 74348 Installation Drawings

**Same Side Porting  
with Through shaft for brake mounting.**

(Code position 6, selection D  
w/Code position 8, selection 3)



74348

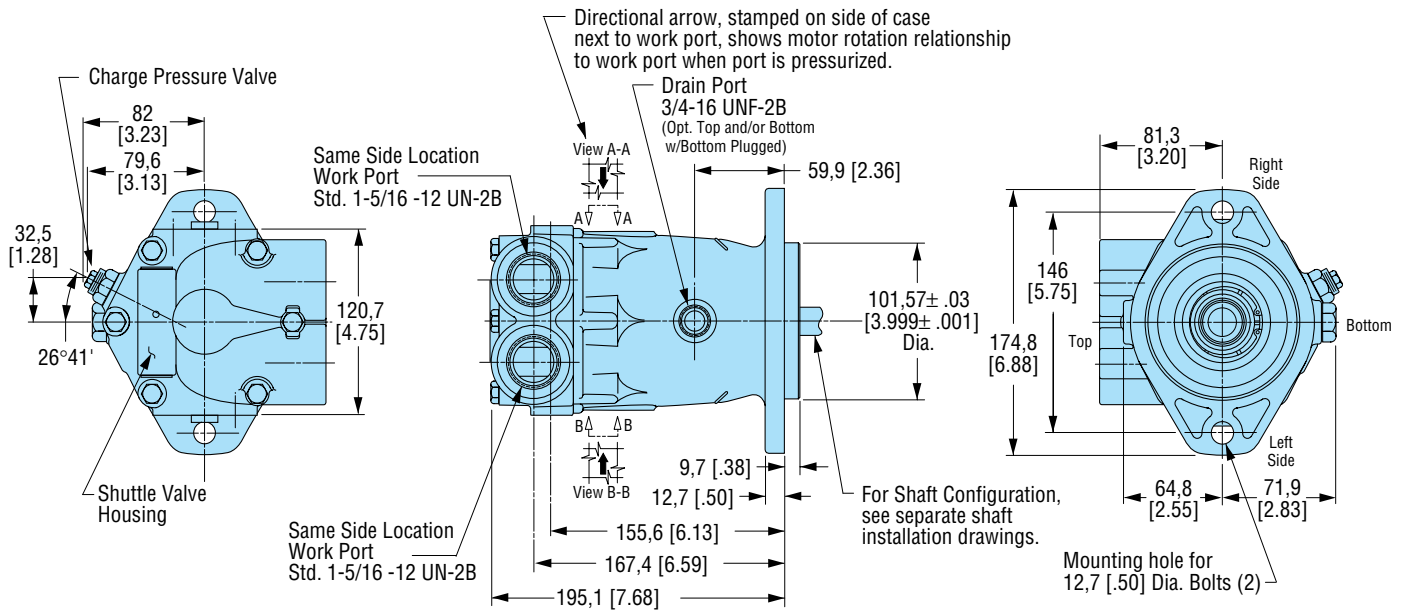
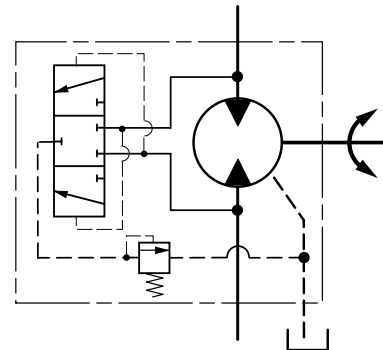


# Model 74315 and 74318 Installation Drawings

## Same Side Porting w/Shuttle Valve and Charge Pressure Valve

(Code position 10, 11, selection AD or AM)

The shuttle and charge pressure valve work together to bypass closed loop oil. This allows the oil to be cooled, filtered, and returned to tank.



The shuttle valve flow is listed below in relationship to the charge pressure valve setting.

Charge Pressure	Flow	Code Selection
10 to 12 bar [145 to 175 lbf/in <sup>2</sup> ]	5,68 to 9,46 l/min [1.5 to 2.5 gal/min]	AM
15 to 17 bar [220 to 250 lbf/in <sup>2</sup> ]	9,46 to 13,25 l/min [2.5 to 3.5 gal/min]	AD

Note: All ports are SAE (J1926) o-ring ports.  
Dimensions are in millimeters [inches], unless otherwise specified.

# Model 743XX Installation Drawing

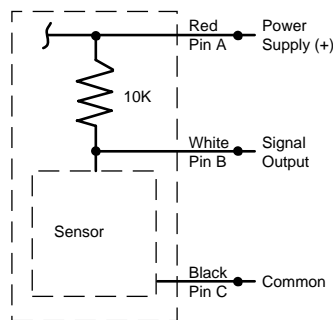
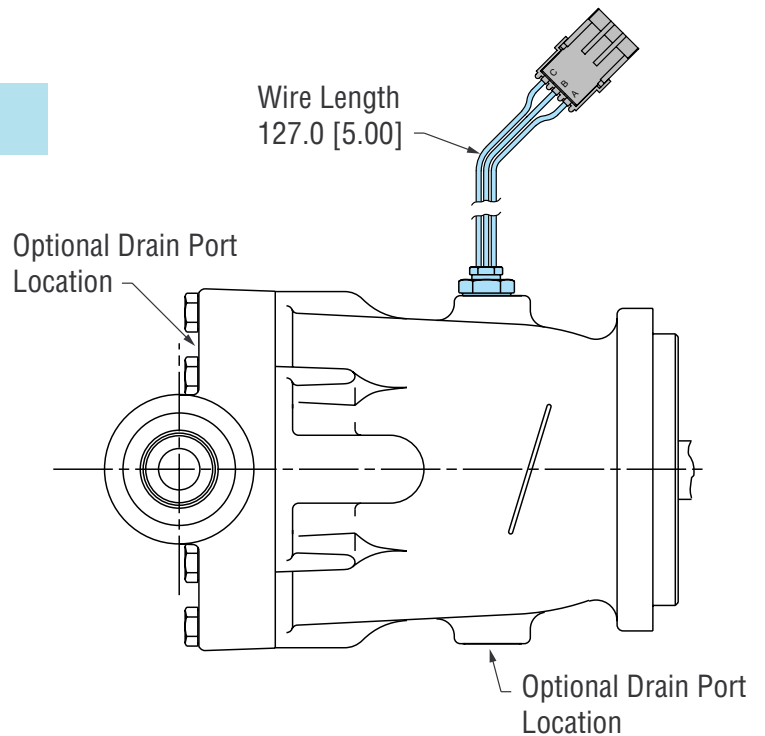
## Motor Speed Sensor

(Code position 10, 11, selection AP)

The Hall Effect speed sensor is compatible with the mobile vehicle electrical systems and gives a reliable digital on/off signal over a wide speed and temperature range.

The rugged design is fully protected against reverse polarity or short circuit hook up. A built-in pull up resistor simplifies installation with control systems.

The motor speed sensor is a factory installed option.



### Specification

Supply Voltage:	(Vs) 12 V dc (Nominal)
Supply Current:	(Is) 20 mA (including internal pull up resistor)
Output Voltage High:	Supply Voltage minus .5 V dc min. (Open Collector with 10K $\Omega$ Pull Up Resistor)
Output Voltage Low:	(Vol) 0.5 V dc Maximum at 10 mA
Min. Shaft RPM:	50
Pulses per Revolution:	9

### Connection Requirements

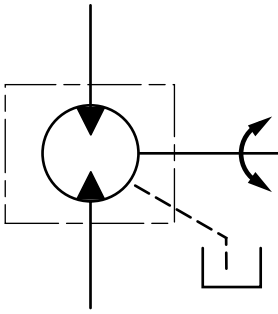
Cable: 18 AWG Recommended wire .100 nominal O.D. for proper seal, 1 black, 1 red, 1 white.

Packard Electric Weather Pack Series: Mating female assembly #12015793 connector and #12089188 terminal (3).

# Fixed Displacement Motor - 746XX Models

2 Bolt SAE "B-B" Mount

82,6 cm<sup>3</sup>/r [5.04 in<sup>3</sup>/r] Displacement



Specification	Model 74624 or 74644
Maximum Displacement	82,6 cm <sup>3</sup> /r [5.04 in <sup>3</sup> /r]
Maximum Rated Speed	1500 RPM
Continuous Rated Pressure †	240 bar [3500 lbf/in <sup>2</sup> ]
Maximum Rated Pressure ††	240 bar [3500 lbf/in <sup>2</sup> ]
Maximum Intermittent Pressure †††	265 bar [3900 lbf/in <sup>2</sup> ]
Input Flow at Rated Speed and Pressure	129 l/min [34 GPM]
Output Power at Rated Speed and Pressure	43,3 kW [58.0 hp]
Output Torque at Rated Speed and Pressure	280,3 N•m [2481 lbf•in]
Continuous Allowable Case Pressure	7 bar [100 lbf/in <sup>2</sup> ]
Continuous Inlet Temperature	107° C [225° F]
Weight/Single Motor (approximate)	10,9 kg [24 lbs]

† Continuous Rated Pressure — Motor may run uninterrupted at this pressure.

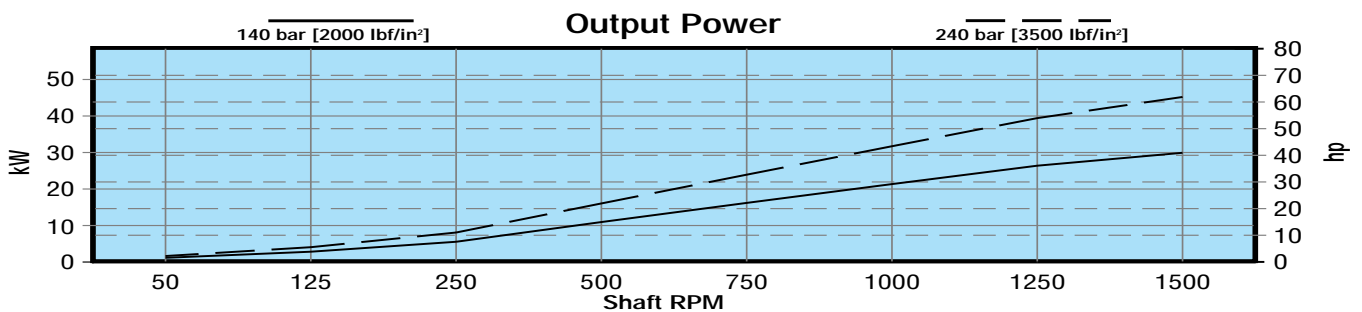
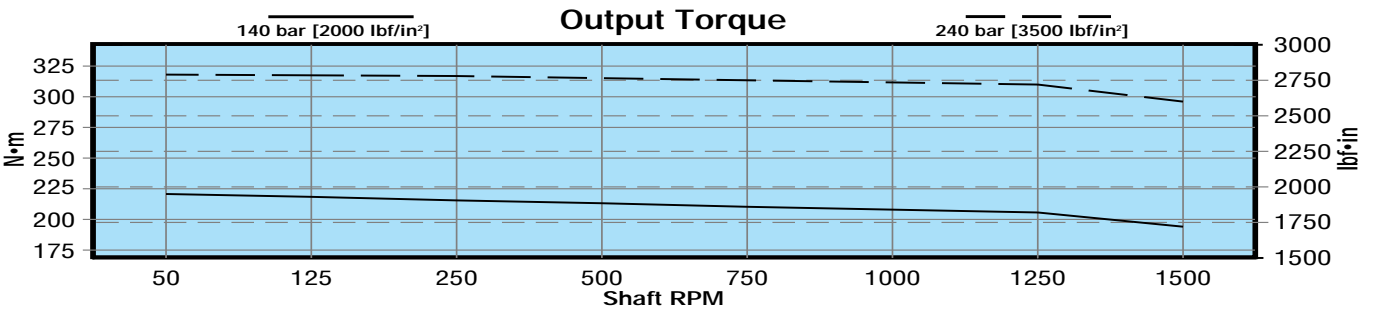
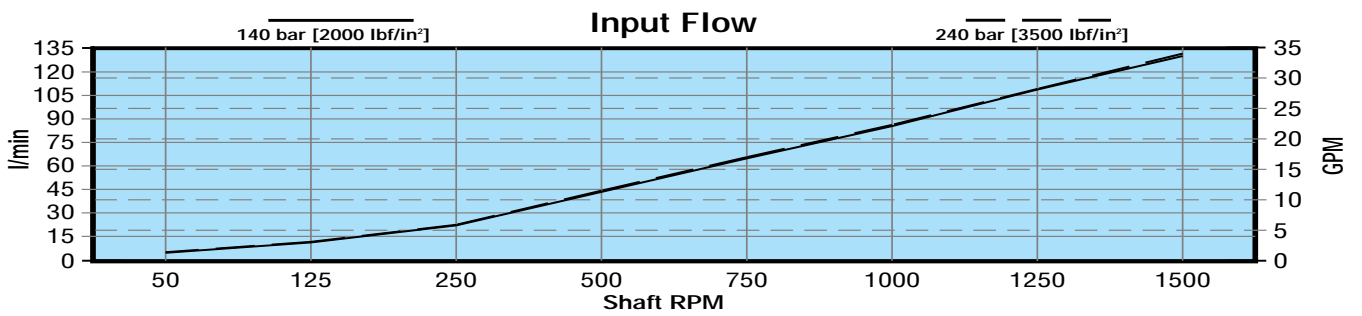
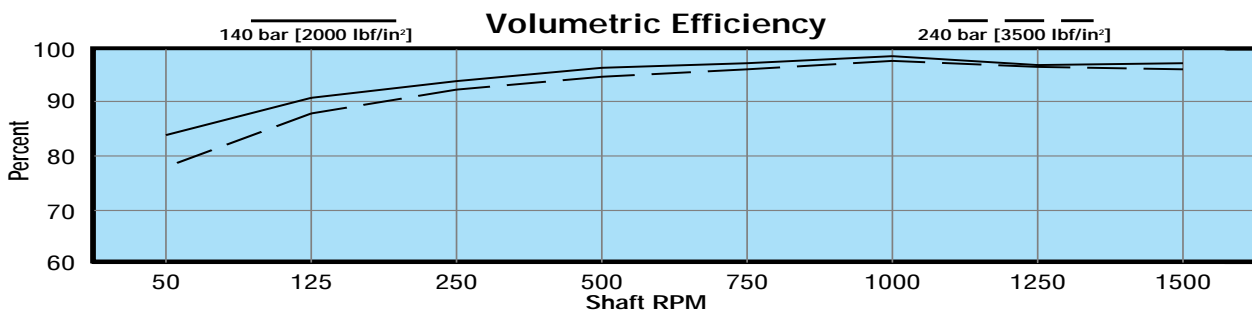
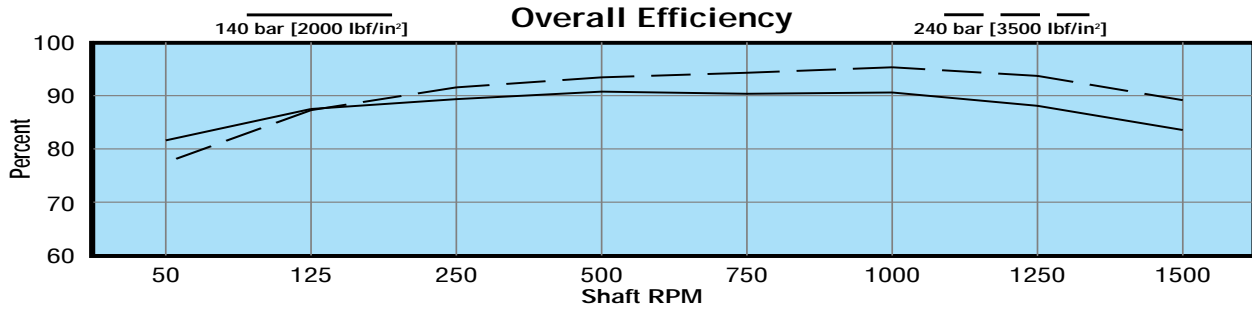
†† Maximum Rated Pressure — Highest allowable system pressure. (High pressure relief valve setting)

††† Maximum Intermittent Pressure — A pressure spike only for a short period of time, not continuous.

Note: Maintain a minimum of 4 bar [50 lbf/in<sup>2</sup>] above case pressure on return side of loop.

# Model 74624 Performance Data

The charts below are representative of a 82,6 cm<sup>3</sup>/r [5.04 in<sup>3</sup>/r] piston motor. The tests were run at an oil temperature of 80°C [180°F] with viscosity 7 - 9 cSt [50 - 54 SUS].



# Fixed Displacement Motor - 746XX Model Code

## 82,6 cm<sup>3</sup>/r [5.04 in<sup>3</sup>/r] Displacement

High torque fixed displacement piston motors are specified by the following model code. Once a motor is built from the model code, a product number will be assigned to that configuration. Make sure all positions are selected within the 14 digit code for each motor.

**Code Example:**    **AAZ**   **A**   **A**   **A**   **A**   **0**   **0**   **0**   **0**   **A**   **0**   **0**

Position -    1, 2, 3,   4,   5,   6,   7,   8,   9,   10,   11,   12,   13,   14

--	--	--	--	--	--	--	--	--	--	--	--	--	--

**Position 1, 2, 3 - Code Title**

AAZ = 82,6 cm<sup>3</sup>/r [5.04 in<sup>3</sup>/r] High Torque Fixed disp. piston motor frame size

**Position 4, 5 - Output Shaft**

AA = Straight Shaft, dia. 25,4 [1.00], keyway 6,30 [.248] x 37,3 [1.47], shaft extension 63,5 [2.50] (key included)  
 AD = 15 Tooth 16/32 spline with snap ring groove, shaft extension 46 [1.81]

Code	AAZ
AA	Std.
AD	Std.

**Position 6 - Main Port, Size and Location**

A = 1 1/16-12 UN-2B straight threaded o-ring ports - rear  
 B = 1 1/16-12 UN-2B straight threaded o-ring ports - same side, top

A	Std.
B	Opt.

**Position 7 - Drain Port, Size and Location**

A = 9/16-18 UNF-2B straight threaded o-ring port - Horizontal top rear of unit  
 B = 9/16-18 UNF-2B straight threaded o-ring port - Vertical top rear of unit

A	Std.
D	Opt.

**Position 8 - Auxiliary Mounting Features (rear)**

0 = No Auxiliary Mounting Feature - Model 74624  
 A\* = Straight Through shaft, dia. 25,4 [1.00], w/ keyway 6,35 x 25,4 [.250 x 1.00], Shaft length from mounting flange 274,3 [10.80] (key included); 2 mounting holes .3125-18 UNC-2B Thd, 13,3 [.53] min. full thread (bottom rear of unit) - Model 74644  
 C\* = 15 Tooth 16/32 spline, shaft length from mounting flange 258,6 [10.18]; 2 mounting holes .3125-18 UNC-2B Thd, 13,3 [.53] min. full Thd (bottom rear of unit) - Model 74644

0	Std.
A*	Opt.
C*	Opt.

**Position 9, 10 - Special Features**

00 = No Special Feature

00	Std.
----	------

**Position 11, 12 - Paint**

0A = Primer

0A	Std.
----	------

**Position 13 - Identification**

0 = Standard

0	Std.
---	------

**Position 14 - Design Code**

0 = Eaton assigns current design code

0	Std.
---	------

\* Requires the selection of same side porting only.

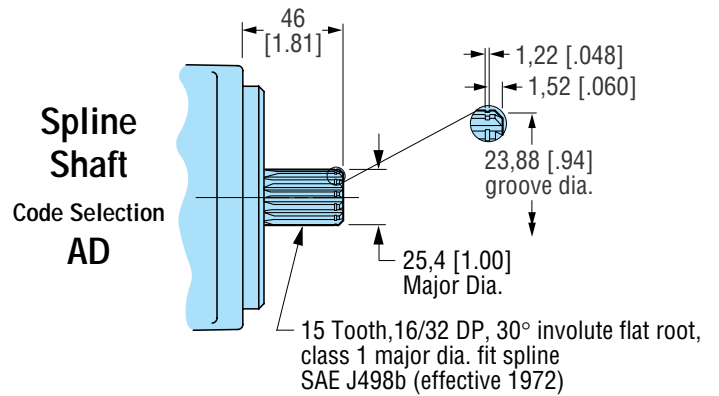
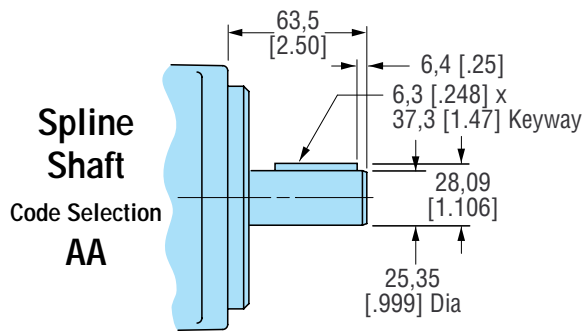
Note: All ports are SAE (J1926) o-ring ports.



# Model 74624 and 74644 Installation Drawings

## Output Shafts - Used for all 746XX Models

(Code position 4 & 5, selection AA or AD)



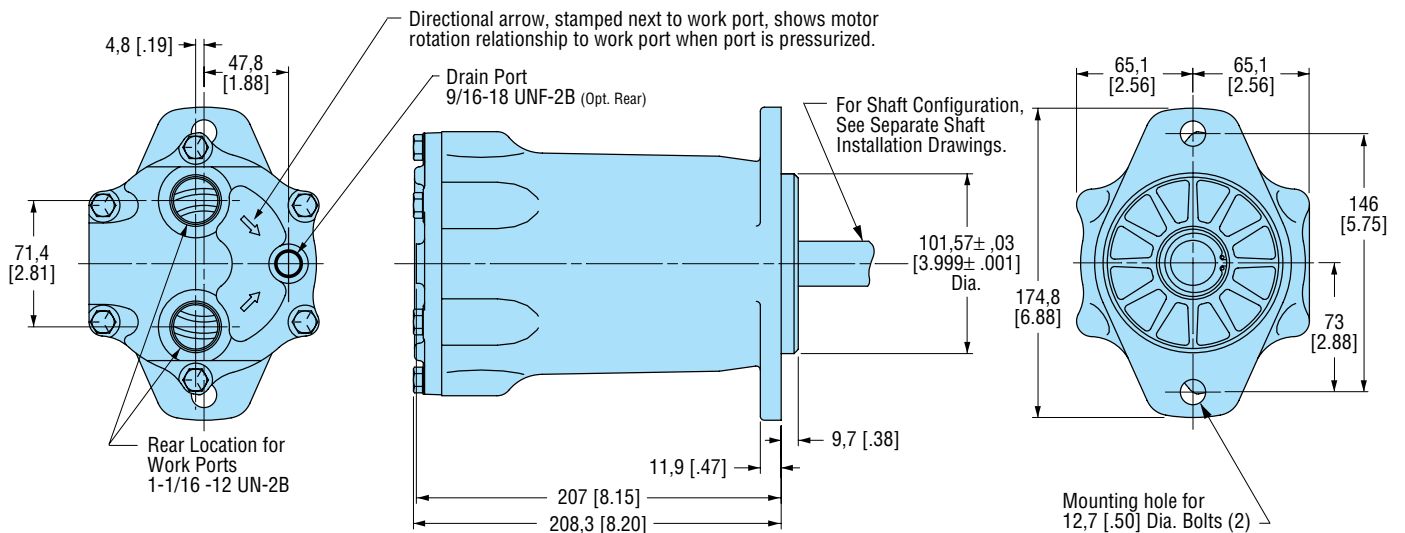
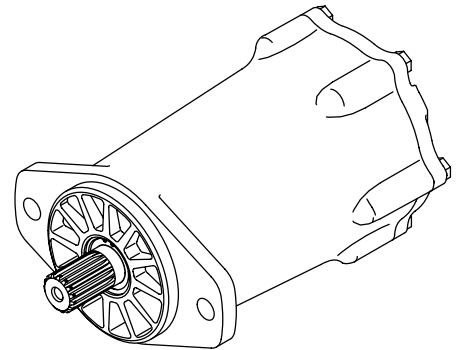
### Maximum Torque on Shaft

Shaft AA - 337,5 N·m [2987 lbf·in]

Shaft AD - 337,5 N·m [2987 lbf·in]

## Rear Porting

(Code position 6, selection A)

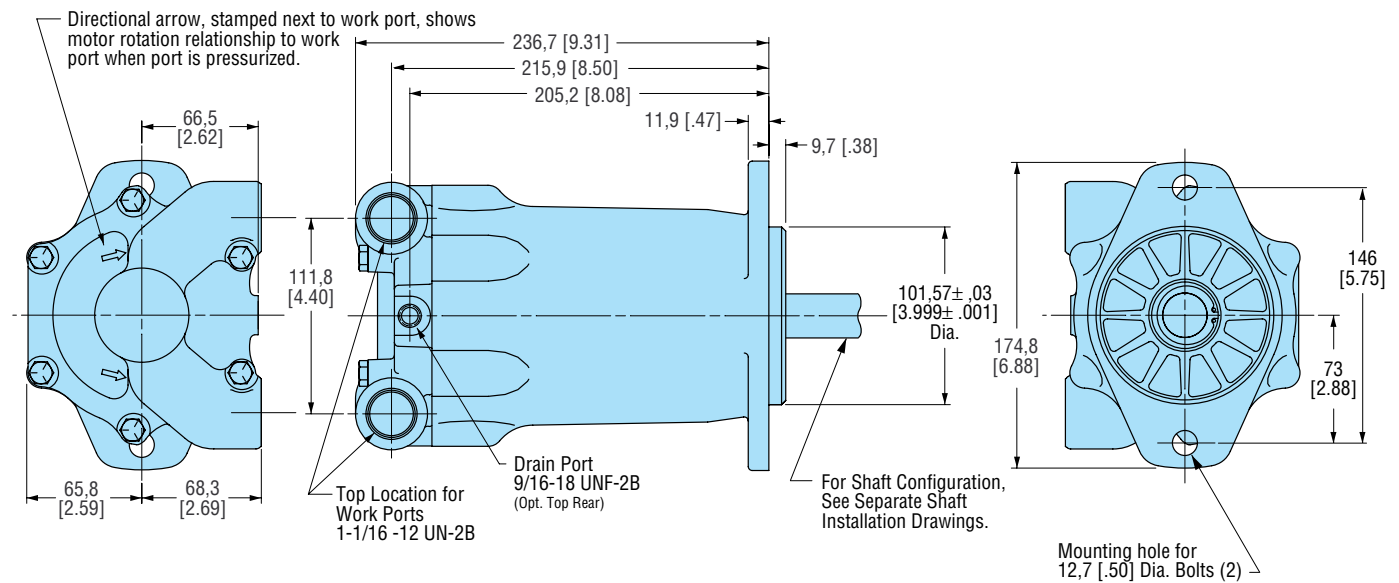
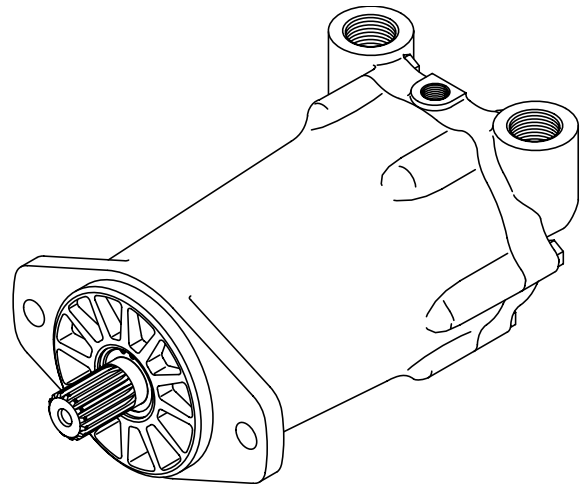


Note: All ports are SAE (J1926) o-ring ports.  
Dimensions are in millimeters [inches], unless otherwise specified.

# Model 74624 Installation Drawings

## Same Side Porting

(Code position 6, selection B)

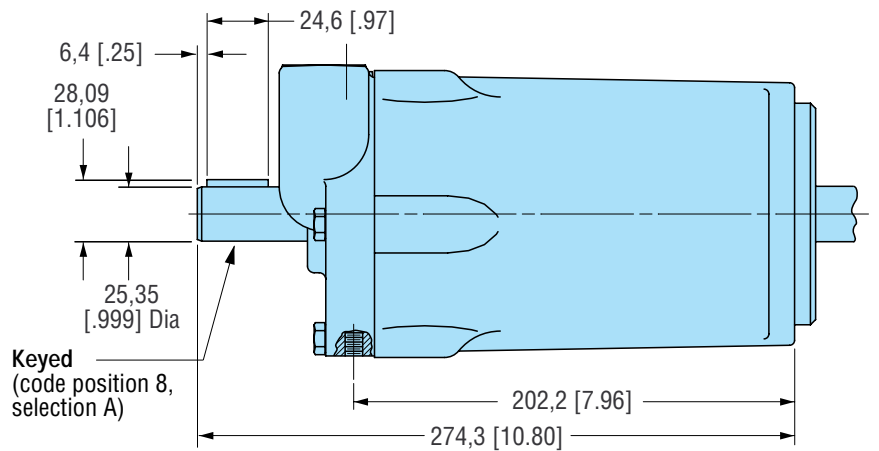
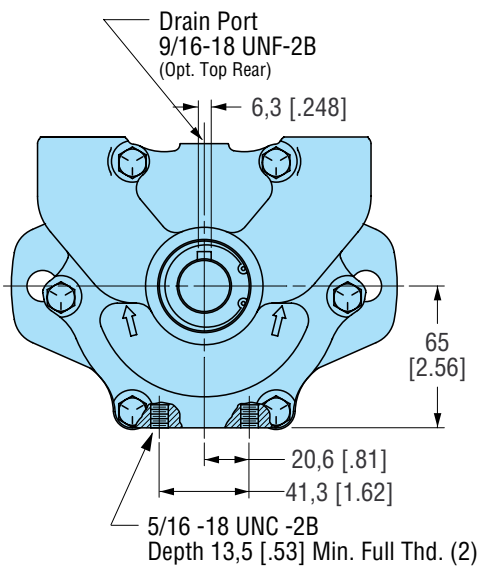
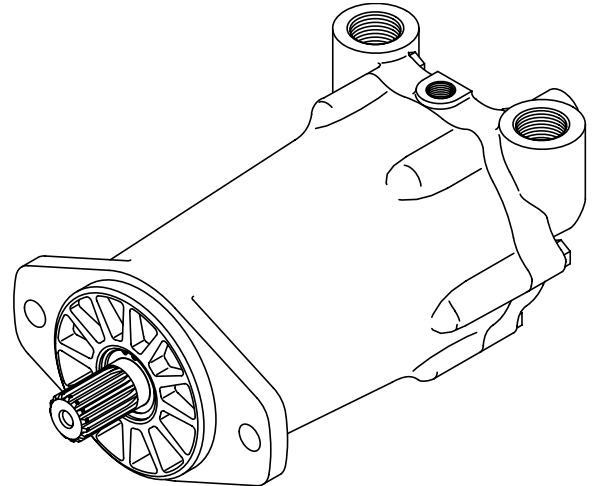


**Note:** All ports are SAE (J1926) o-ring ports.  
Dimensions are in millimeters [inches], unless otherwise specified.

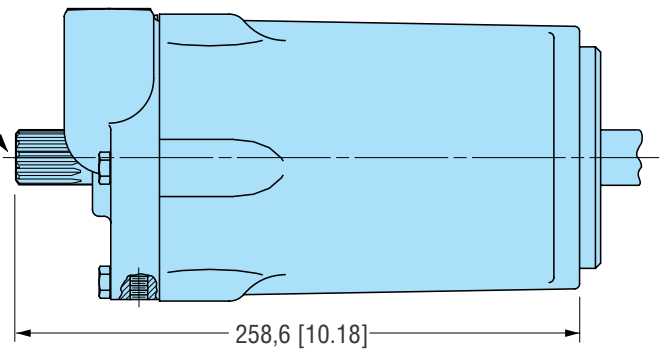
# Model 74644 Installation Drawings

## Through Shaft for Brake Mounting

(Code position 8, selection A or C)



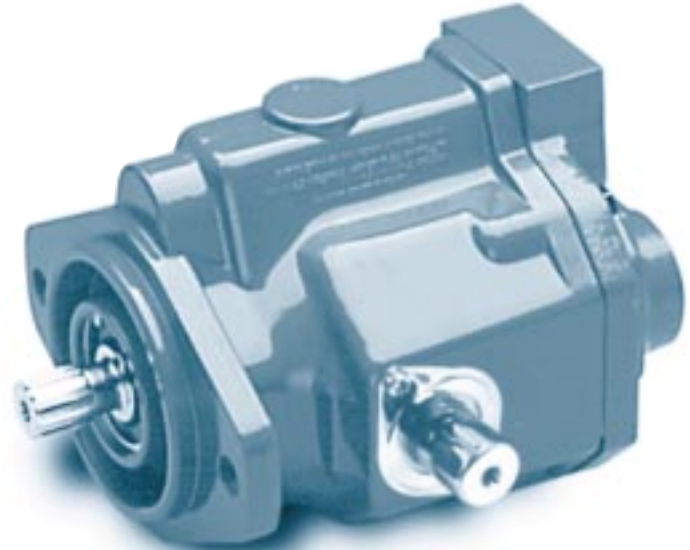
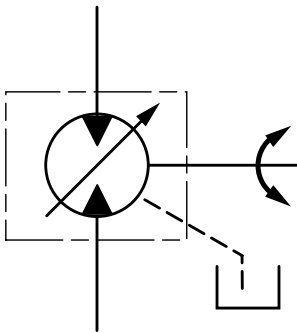
15 Tooth, 16/32 DP, 30° involute  
flat root class 1 side fit spline  
SAE J498b (effective 1972)  
(code position 8, selection C)



Note: All ports are SAE (J1926) o-ring ports.  
Dimensions are in millimeters [inches], unless otherwise specified.

# Variable Displacement Motor - 713XX Models

40,6 to 21,0 cm<sup>3</sup>/r [2.48 to 1.28 in<sup>3</sup>/r] Displacement



Specification	Model 71302 / 71442 / 71492
Maximum Displacement	40,6 to 21,0 cm <sup>3</sup> /r [2.48 to 1.28 in <sup>3</sup> /r]
Maximum Rated Speed	3600 RPM at 17° control angle 4500 RPM at 9° control angle
Continuous Rated Pressure †	210 bar [3000 lbf/in <sup>2</sup> ]
Maximum Rated Pressure ††	345 bar [5000 lbf/in <sup>2</sup> ]
Maximum Intermittent Pressure †††	370 bar [5400 lbf/in <sup>2</sup> ]
Input Flow at Rated Speed and Pressure	126,4 l/min [34 GPM] at 17° control angle
Output Power at Rated Speed and Pressure	38,8 kW [52.0 hp] at 17° control angle
Output Torque at Rated Speed and Pressure	127 N•m [1125 lbf•in] at 17° control angle
Continuous Allowable Case Pressure	1,7 bar [25 lbf/in <sup>2</sup> ]
Continuous Inlet Temperature	107° C [225° F]
Weight/Single Motor (approximate)	9,5 kg [21 lbs]

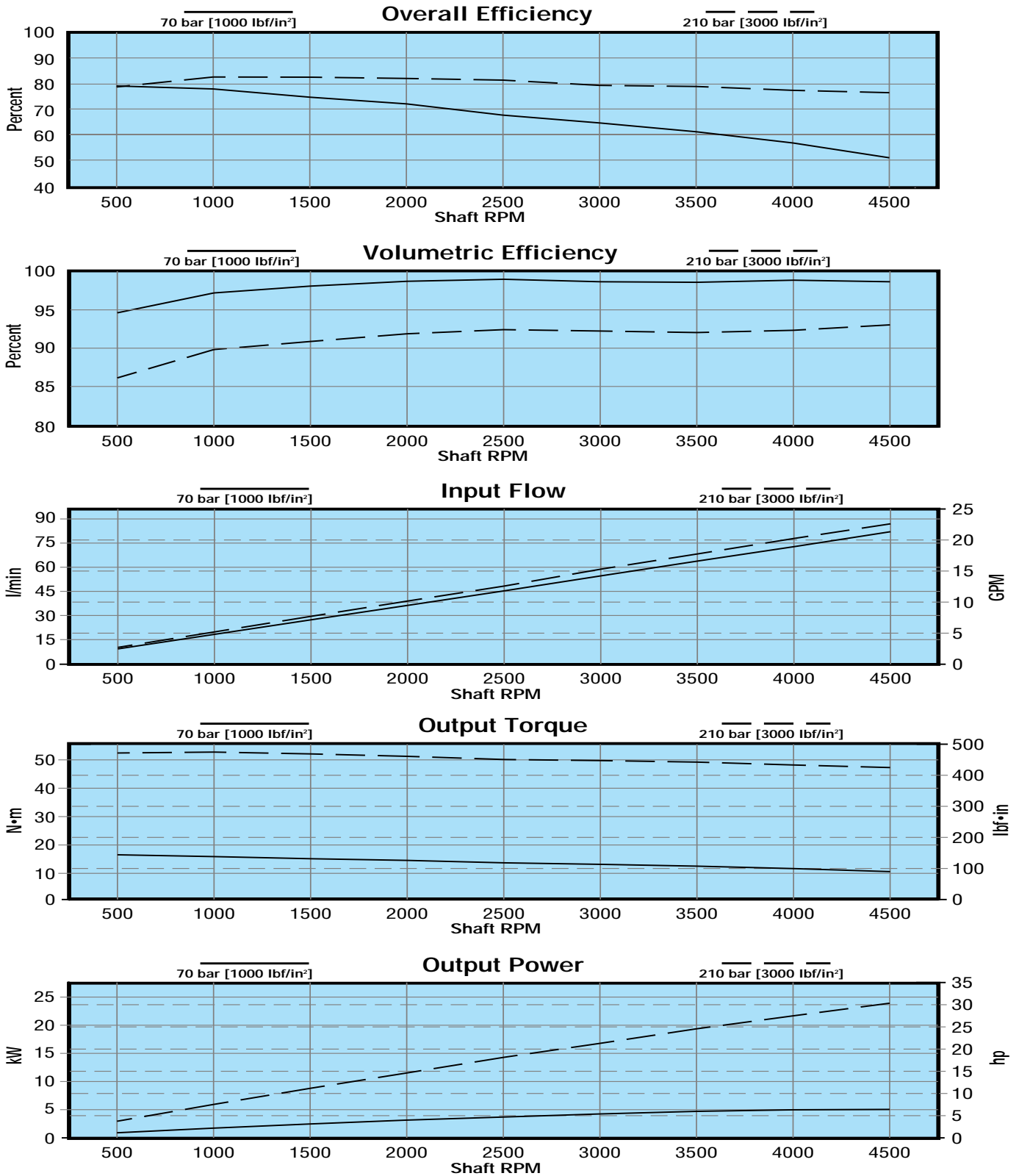
† Continuous Rated Pressure — Motor may run uninterrupted at this pressure.

†† Maximum Rated Pressure — Highest allowable system pressure. (High pressure relief valve setting)

††† Maximum Intermittent Pressure — A pressure spike only for a short period of time, not continuous.

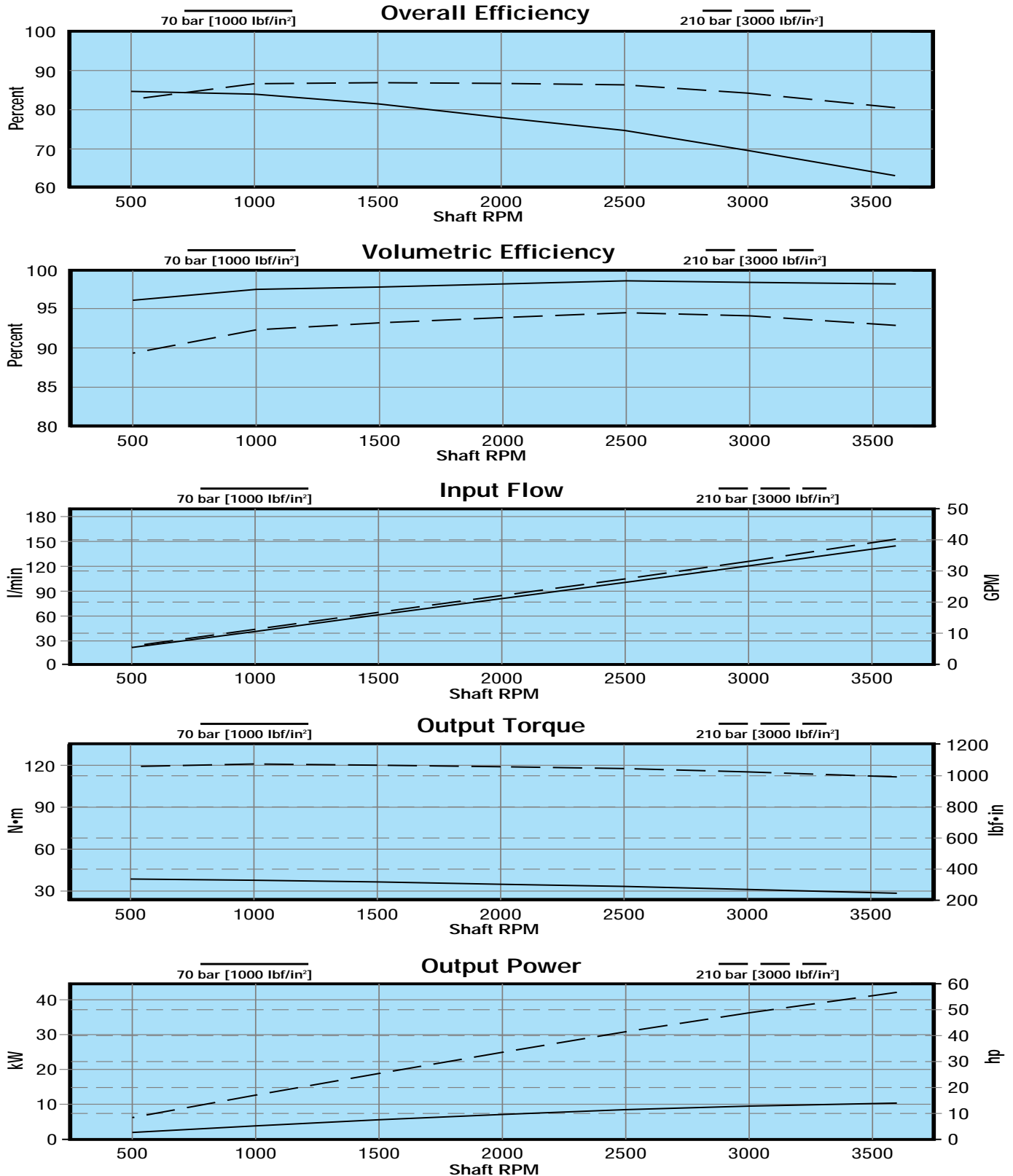
# Model 71302 Performance Data @ 7° 35' control angle

The charts below are representative of a 18 cm<sup>3</sup>/r [1.10 in<sup>3</sup>/r] variable displacement piston motor at 7° 35' control angle . The tests were run at an oil temperature of 50°C [120°F] with viscosity 19 - 24 cSt [117-143 SUS].



# Model 71302 Performance Data @ 17° control angle

The charts below are representative of a 40.6 cm<sup>3</sup>/r [2.48 in<sup>3</sup>/r] variable displacement piston motor at 17° control angle . The tests were run at an oil temperature of 50°C [120°F] with viscosity 19 - 24 cSt [117-143 SUS].



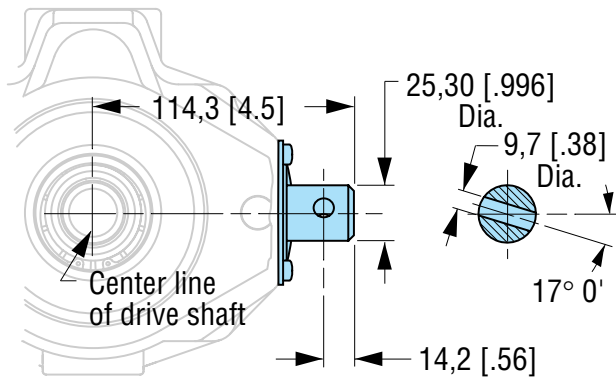




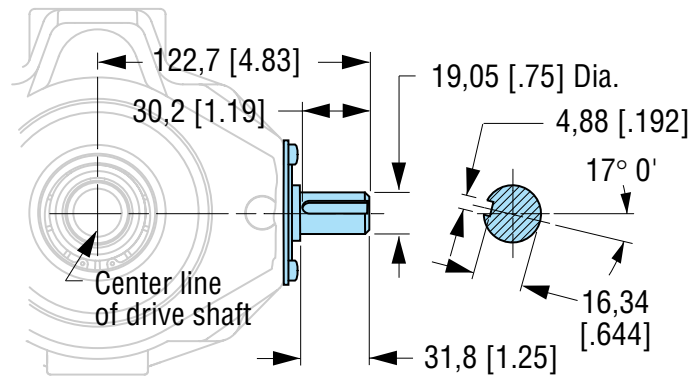
# Model 71302, 71442, and 71492 Installation Drawings

## Control Shaft and Location

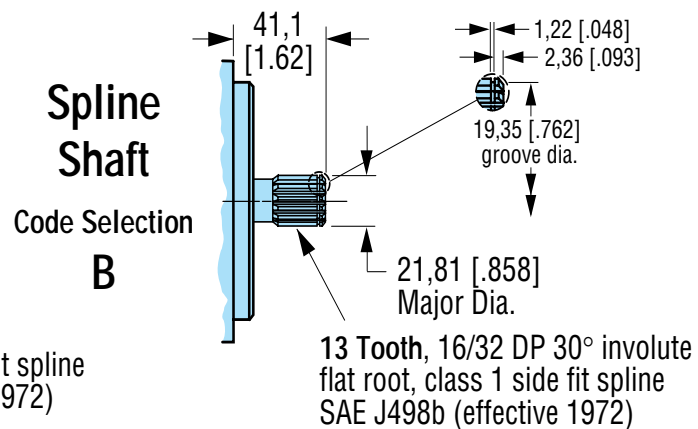
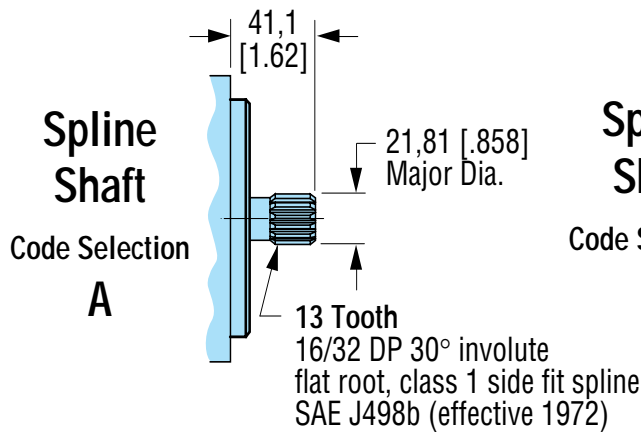
Code Position 4, Selection A or B  
Shown: Right side location at full control angle.



Code Position 4, Selection C or D  
Shown: Right side location at full control angle.



## Output Shaft (Code Position 5)



**Maximum Torque on Shaft**  
Shaft A - 209,3 N·m [1852 lbf·in]  
Shaft B - 209,3 N·m [1852 lbf·in]

Note: Dimensions are in millimeters [inches], unless otherwise specified.

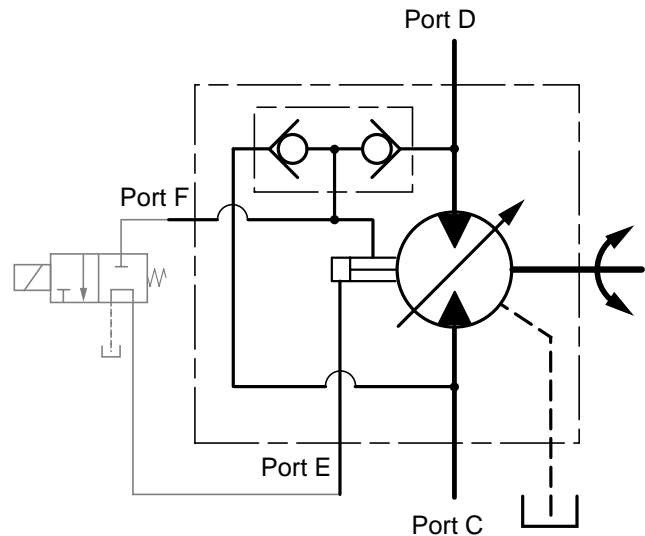
# Model 71492 Installation Drawings

## Hydraulic De-stroke Control

(Code Position 4, selection F or G)

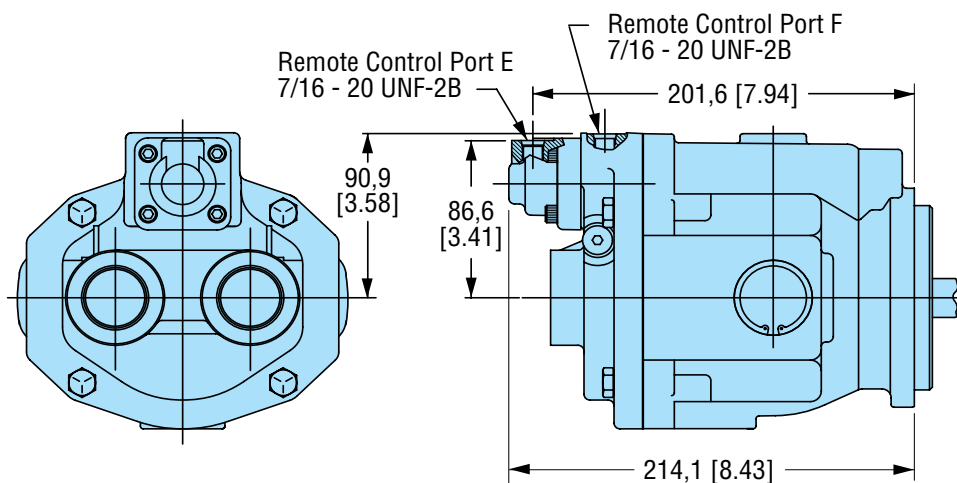
The Hydraulic De-stroke Control feature allows the operator to control the motor without any mechanical linkage to the motor.

A normally closed valve is required to provide maximum displacement to the motor. The valves must be rated for maximum system pressure.



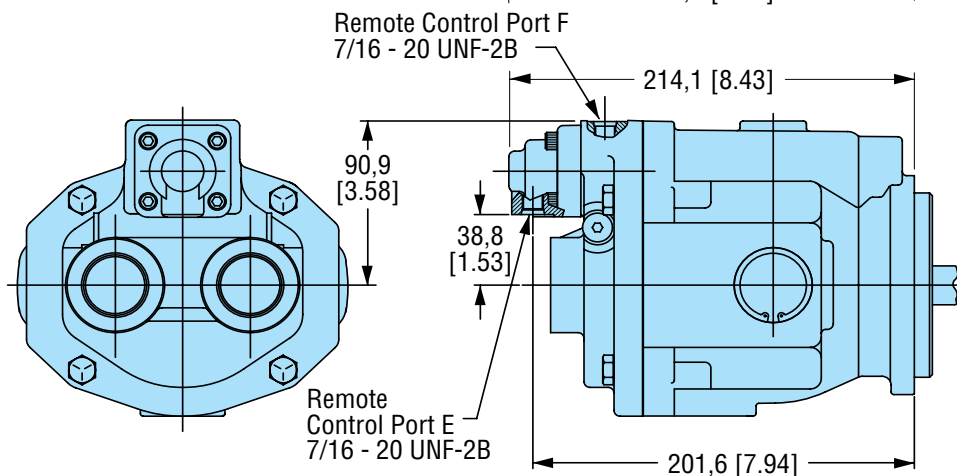
### Control Port Up

(Code Position 4, selection G)



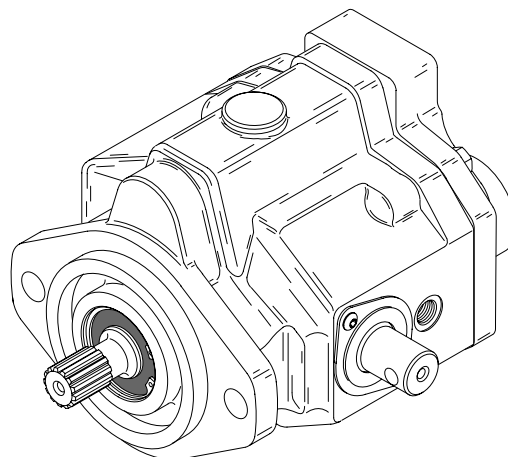
### Control Port Down

(Code Position 4, selection F)



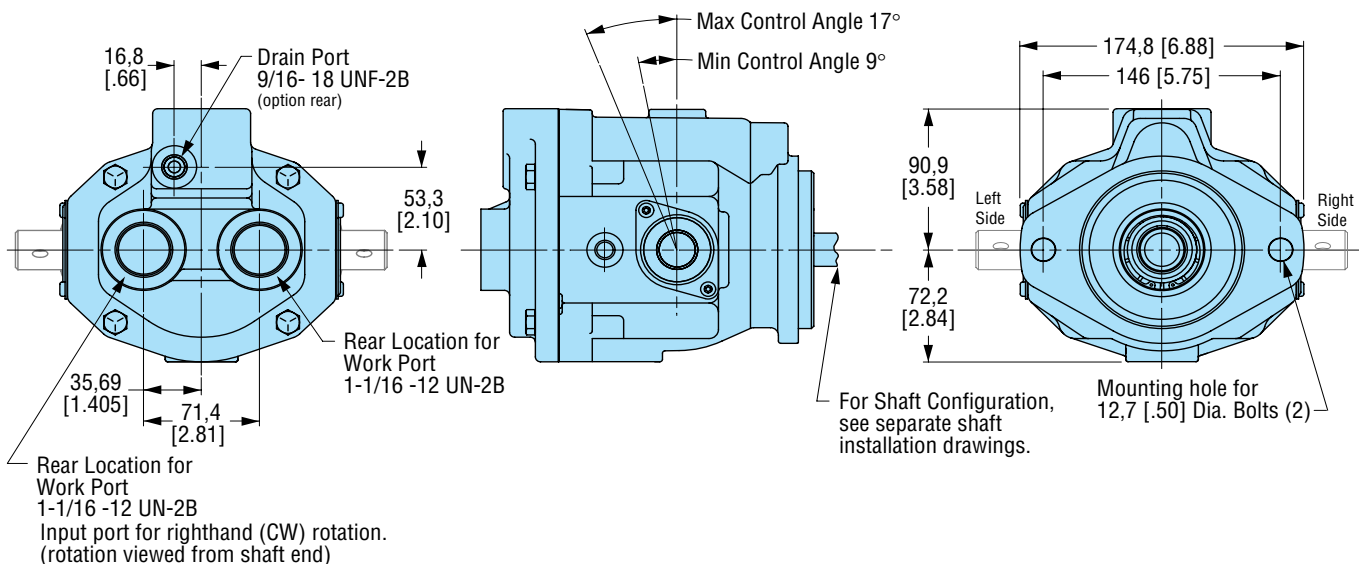
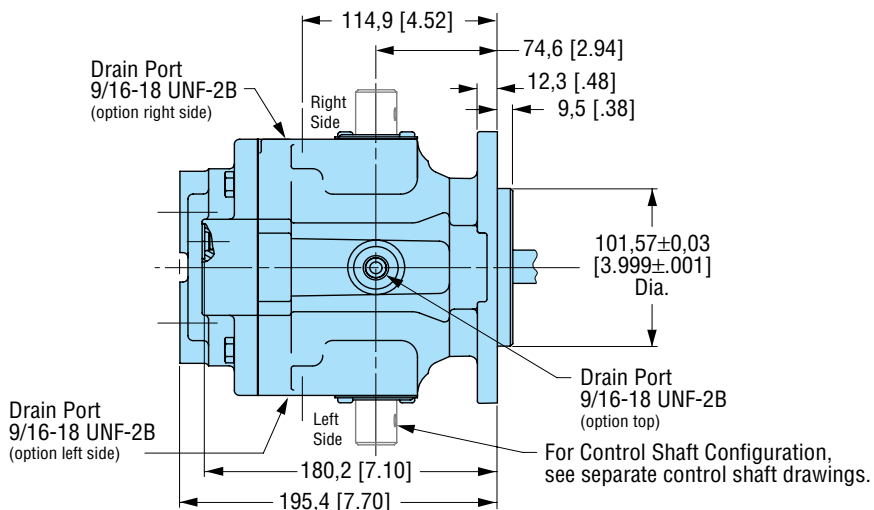
Note: All ports are SAE (J1926) o-ring ports.  
Dimensions are in millimeters [inches], unless otherwise specified.

# Model 71302 Installation Drawings



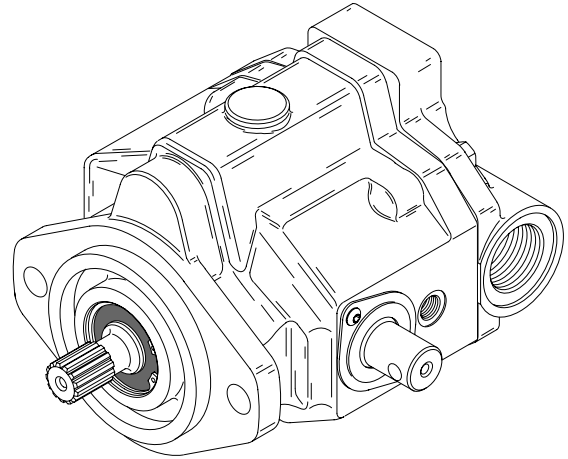
## Rear Porting

(Code Position 6, Selection 1)

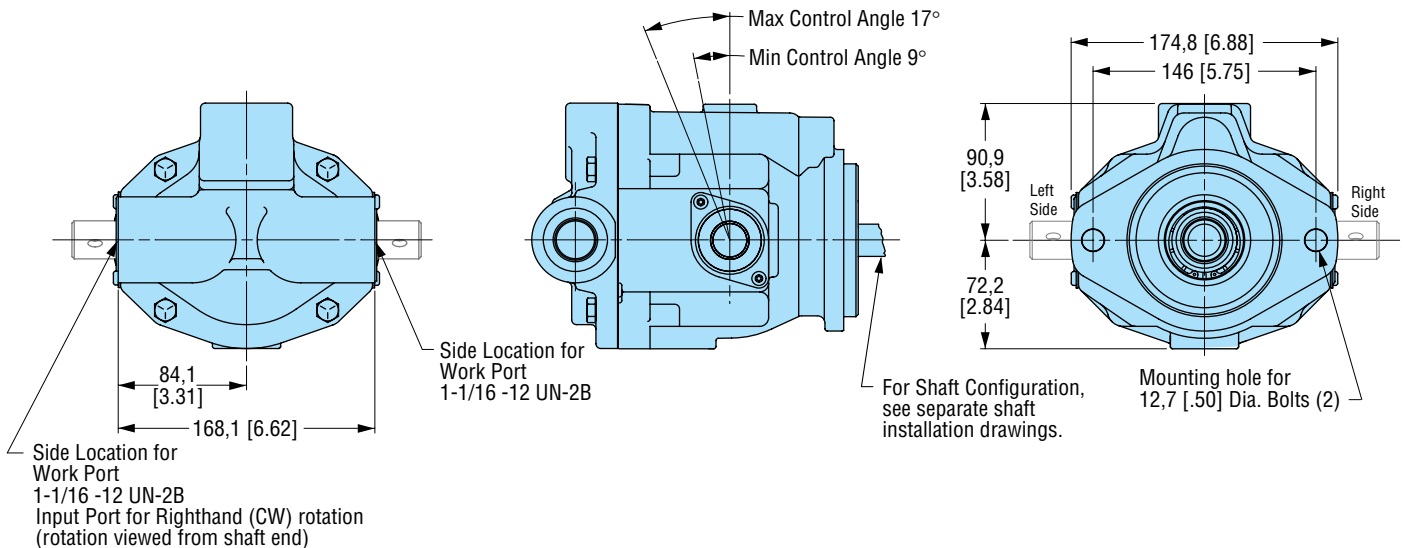
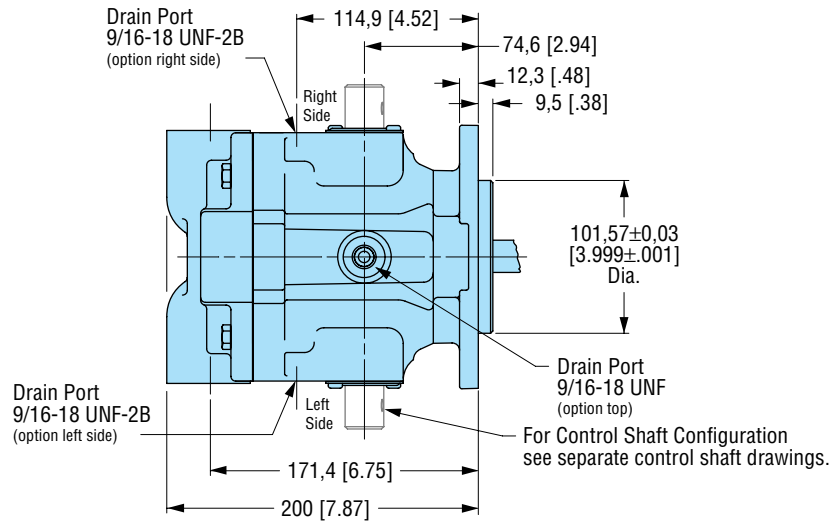


Note: All ports are SAE (J1926) o-ring ports.  
Dimensions are in millimeters [inches], unless otherwise specified.

# Model 71302 Installation Drawings



## Opposite Side Porting (Code position 6, selection 2)

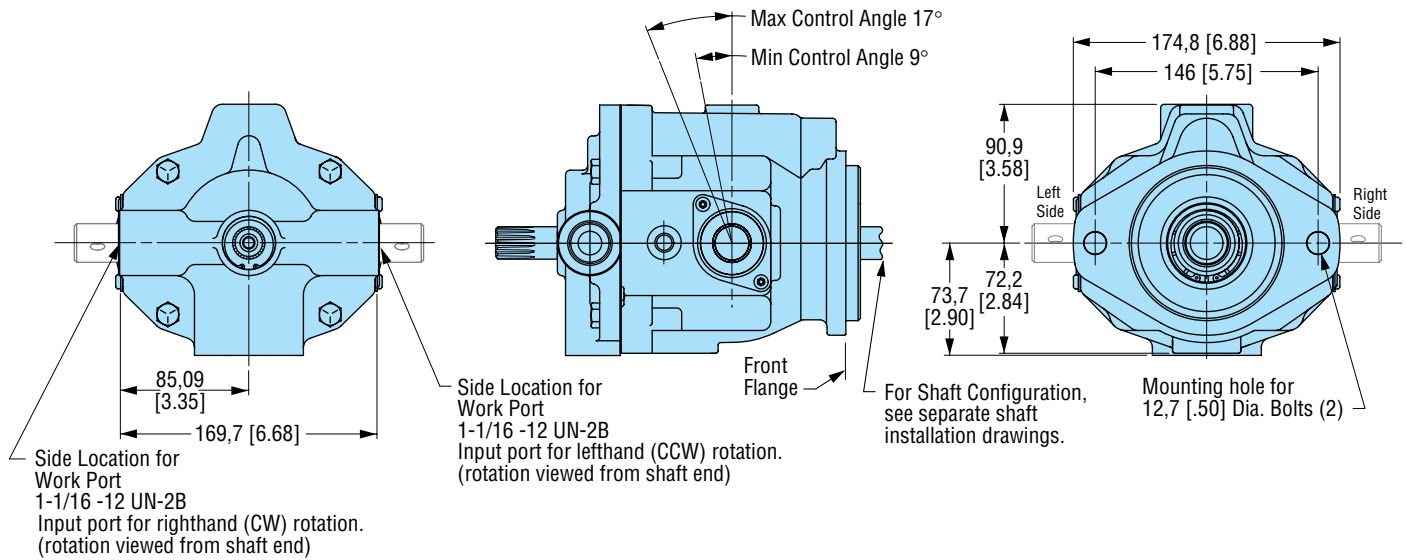
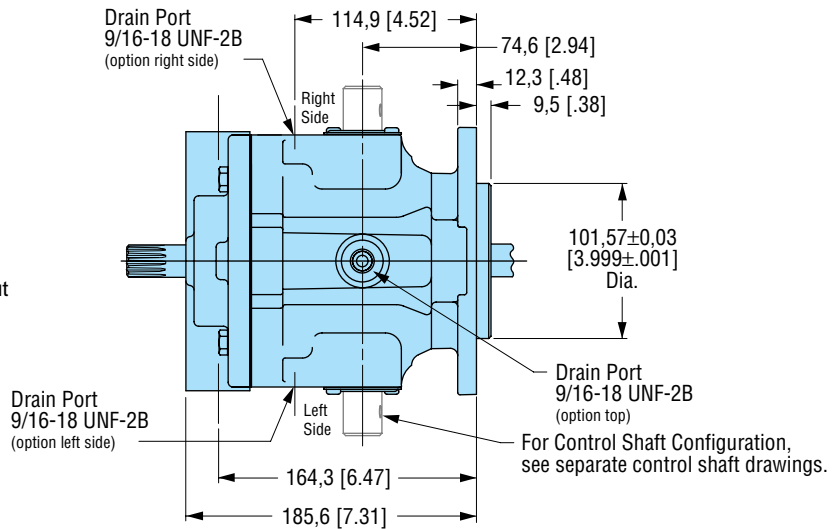
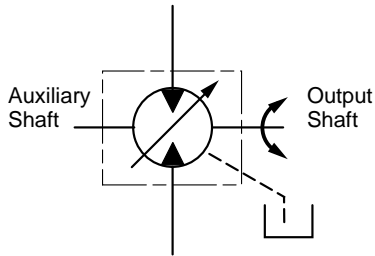


Note: All ports are SAE (J1926) o-ring ports.  
Dimensions are in millimeters [inches], unless otherwise specified.

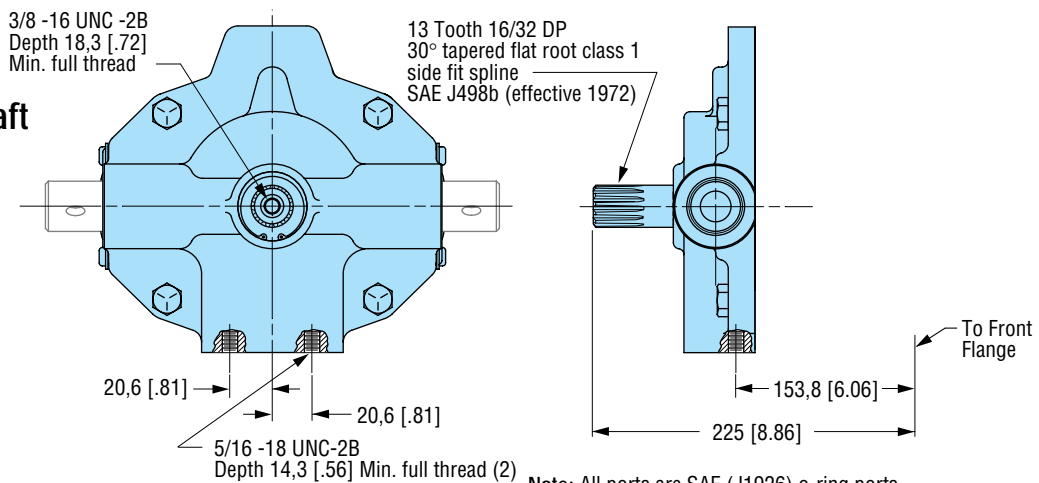
# Model 71442 Installation Drawings

## Through Shaft

(Code Position 8, selection 1)



## Through Shaft Mounting



Note: All ports are SAE (J1926) o-ring ports. Dimensions are in millimeters [inches], unless otherwise specified.

## Compatibility with other Eaton Hydraulic Products

The Medium duty piston motors may be used with a wide variety of Eaton piston pumps and gear pumps including those listed below. For complete performance data and installation information, refer to the appropriate product catalog.

### **Gear Pumps:**

Series 26 Gear Pump - Catalog 11-609

Model 26000 - 7 Through 31 cm<sup>3</sup>/r [.40 Through 1.87 in<sup>3</sup>/r] disp. - 241 bar [3500 lbf/in<sup>2</sup>] rating.

### **Medium Duty Piston Pumps:**

Pressure or Pressure-Flow Compensated Piston Pumps - Catalog 11-603

Models 70122 (19 cm<sup>3</sup>/r [1.16 in<sup>3</sup>/r]), 70422 (38 cm<sup>3</sup>/r [2.32 in<sup>3</sup>/r]), 70423(45 cm<sup>3</sup>/r [2.77 in<sup>3</sup>/r])

Manual Variable Displacement Piston Pumps - Catalog 11-611

Model 70142/70144 (20,3 cm<sup>3</sup>/r [1.24 in<sup>3</sup>/r]) & 70145 (23,6 cm<sup>3</sup>/r [1.44 in<sup>3</sup>/r])

Model 70360 (40,6 cm<sup>3</sup>/r [2.48 in<sup>3</sup>/r])

Servo Controlled Variable Displacement Piston Pump - Catalog 11-611

Model 72400 (40,6 cm<sup>3</sup>/r [2.48 in<sup>3</sup>/r])

### **Heavy Duty Hydrostatic Piston Pumps:**

Heavy Duty Hydrostatic Piston Pumps - Catalog 11-866

Models 33, 39, 46, 54, 64, and 76 (54,4 Through 124,8 cm<sup>3</sup>/r [3.32 Through 7.62 in<sup>3</sup>/r])



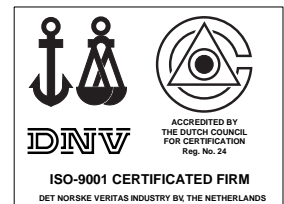
Eaton Corporation is a global manufacturer of highly engineered products that serve industrial, vehicle, construction, commercial and semiconductor markets. Principal products include electrical power distribution and control equipment, truck drivetrain systems, engine components, hydraulic products, ion implanters and a wide variety of controls. Headquartered in Cleveland, the company has 49,000 employees and 143 manufacturing sites in 26 countries around the world. Sales for 1997 were \$7.6 billion.

Information contained in this catalog is accurate as of the publication date and is subject to change without notice. Performance values are typical values. Customers are responsible for selecting products for their applications using normal engineering methods.

Eaton Corporation  
**Hydraulics Division**  
15151 Highway 5  
Eden Prairie, MN 55344  
Telephone: 612/937-7254  
Fax: 612/937-7130

Eaton Ltd.  
**Hydraulics Division**  
Glenrothes, Fife  
Scotland, KY7 4NW  
Telephone: +44 (0) 1592-771-771  
Fax: +44 (0) 1592-773-184

Eaton GmbH  
**Hydraulics Division**  
Am Schimmersfeld 7  
40880 Ratingen, Germany  
Telephone: +49 (0) 2102-406-830  
Fax: +49 (0) 2102-406-800



**Quality System Certified**  
Products in this catalog are  
manufactured in an  
ISO-9001-certified site.

[www.eatonhydraulics.com](http://www.eatonhydraulics.com)

Copyright Eaton Corporation, 1995  
All rights reserved.  
Printed in U.S.A

Form No. 11-107

