



EAT•N Hydraulics

Medium Duty Piston Motors

Variable Displacement
Fixed Displacement



Medium Duty Piston Motors

Table of Contents

Contents

Features and Introduction	3
Application Information	3
741XX Models - Fixed Displacement Motor	
Specifications	4
Model 74111 Performance Data, 12,3 cm ³ /r [0.75 in ³ /r] Displacement	5
Model 74118 Performance Data, 20,3 cm ³ /r [1.24 in ³ /r] Displacement	7
Model Code	9
Installation Drawings	10-11
743XX Models - Fixed Displacement Motor	
Specifications	12
Model 74315 Performance Data, 32,9 cm ³ /r [2.01 in ³ /r] Displacement	13-14
Model 74318 Performance Data, 40,6 cm ³ /r [2.48 in ³ /r] Displacement	15-16
Model 74328 Performance Data, 49,2 cm ³ /r [3.0 in ³ /r] Displacement	17-18
Model Code	19
Installation Drawings	20-26
746XX Models - High Torque Fixed Displacement Motor	
Specifications	27
Model 74624 Performance Data, 82,6 cm ³ /r [5.04 in ³ /r] Displacement	28-29
Model Code	30
Installation Drawings	31-33
713XX Models - Variable Displacement Motor	
Specifications	34
Model 71302 Performance Data, 40,6 to 21,0 cm ³ /r [2.48 to 1.28 in ³ /r] Displacement	35-38
Model Code	39
Installation Drawings	40-43
72450 Models - Servo Controlled, Variable Displacement Motor	
Model Code	44
Specifications	45
Installation Drawings	45

Medium Duty Piston Motors

General Overview

Features

- Compact
- Lightweight Durable Housing
- Numerous Shaft Options
- SAE Mounting Flanges
- SAE O-Ring Porting
- Dual Rotation
- Various Porting Options
- Fixed 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.

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].

Motor Type	Mount	Motor Model	Displacement	Shaft Keyed	Shaft Spline	Shaft Through	Porting
Fixed Displacement	"A"	74111	12, 3 cm ³ /r [1.75 in ³ /r]	•	•		Same or Opp./Side or Rear
741XX Models	2 Bolt	74118	20, 3 cm ³ /r [1.24 in ³ /r]	•	•		Same or Opp./Side or Rear
	SAE	74148	20, 3 cm ³ /r [1.24 in ³ /r]	•	•	•	Same Side
		74149	12, 3 cm ³ /r [1.75 in ³ /r]	•	•	•	Same Side
Fixed Displacement	"B"	74315	32, 9 cm ³ /r [2.01 in ³ /r]	•	•		Same or Opp./Side or Rear
743XX Models	2 Bolt	74318	40, 6 cm ³ /r [2.48 in ³ /r]	•	•		Same or Opp./Side or Rear
	SAE	74328	49 cm ³ /r [3.0 in ³ /r]	•	•		Same or Opp./Side or Rear
		74348	40, 6 cm ³ /r [2.48 in ³ /r]	•	•	•	Same Side
Fixed Displacement	"B-B"	74624	82, 6 cm ³ /r [5.04 in ³ /r]	•	•		Same Side or Rear
476XX Models	2 Bolt	74644	82, 6 cm ³ /r [5.04 in ³ /r]	•	•	•	Same Side or Rear
Variable Displacement	"B"	71302	40, 6 to 21,0 cm ³ /r [2.48 to 1.28 in ³ /r]	•	•		Opposite Side or Rear
713XX Models	SAE	71392	40, 6 to 21,0 cm ³ /r [2.48 to 1.28 in ³ /r]	•	•		Opposite Side or Rear
Servo Control 72450	"B"	72450	40, 6 to 21, 0 cm ³ /r [2.48 to 1.28 in ³ /r]	•	•	•	Same Side
Variable Displacement	2 Bolt SAE	72450	49, 2 to 24, 6 cm ³ /r [3.0 to 1.5 in ³ /r]	•	•	•	Same Side

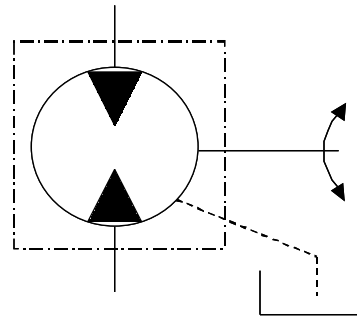
Medium Duty Piston Motors

741XX Models

2Bolt SAE "A" Mount

12, 3 cm³/r [.75 in³/r] Displacement

20, 3 cm³/r [1.24 in³/r] Displacement



Typical Product

Number	Model Code
74111-DAC-01	AAVAAA0B000A0B
74111-DAF-01	AAVAEA0B000A0B
74111-DAS-01	AAVAABA0B000A0B
74111-DAU-01	AAVAEBA0B000A0B
74115-DAC-01	AAVAEA0A000A0B
74115-DAF-01	AAVAABA0A000A0B
74118-DAJ-01	AAVAAA00000A0B
74118-DAS-01	AAVAAA0B00000A0B
74118-DBJ-01	AAVAAAC00000A0B
74118-DAP-01	AAVAEA00000A0B
74118-DBA-01	AAVAABA00000A0B
74118-DBH-01	AAVAEBA00000A0B
74148-DAF-01	AAVAECC10000A0B

SPECIFICATIONS

Maximum Displacement	12,3 cm ³ /r [.75 in ³ /r]	20,3 cm ³ /r [1.24 in ³ /r]
Maximum Rated Speed	4500 RPM	3600 RPM
Continuous Rated Pressure †	210 bar [3000 lbf/in ²]	210 bar [3000 lbf/in ²]
Maximum Rated Pressure ††	345 bar [5000 lbf/in ²]	345 bar [5000 lbf/in ²]
Maximum Intermittent Pressure †††	370 bar [5400 lbf/in ²]	370 bar [5400 lbf/in ²]
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 ²]	1,7 bar [25 lbf/in ²]
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]

MODEL 74111/74119

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

MODEL 74118/74148

Maximum Displacement	20,3 cm ³ /r [1.24 in ³ /r]
Maximum Rated Speed	3600 RPM
Continuous Rated Pressure †	210 bar [3000 lbf/in ²]
Maximum Rated Pressure ††	345 bar [5000 lbf/in ²]
Maximum Intermittent Pressure †††	370 bar [5400 lbf/in ²]
Input Flow at Rated Speed and Pressure	79 l/min [20.8 GPM]
Output Power at Rated Speed and Pressure	23,2 kW [31.1 hp]
Output Torque at Rated Speed and Pressure	62 N•m [550 lbf•in]
Continuous Allowable Case Pressure	1,7 bar [25 lbf/in ²]
Continuous Inlet Temperature	107° C [225° F]
Weight/Single Motor (approximate)	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)

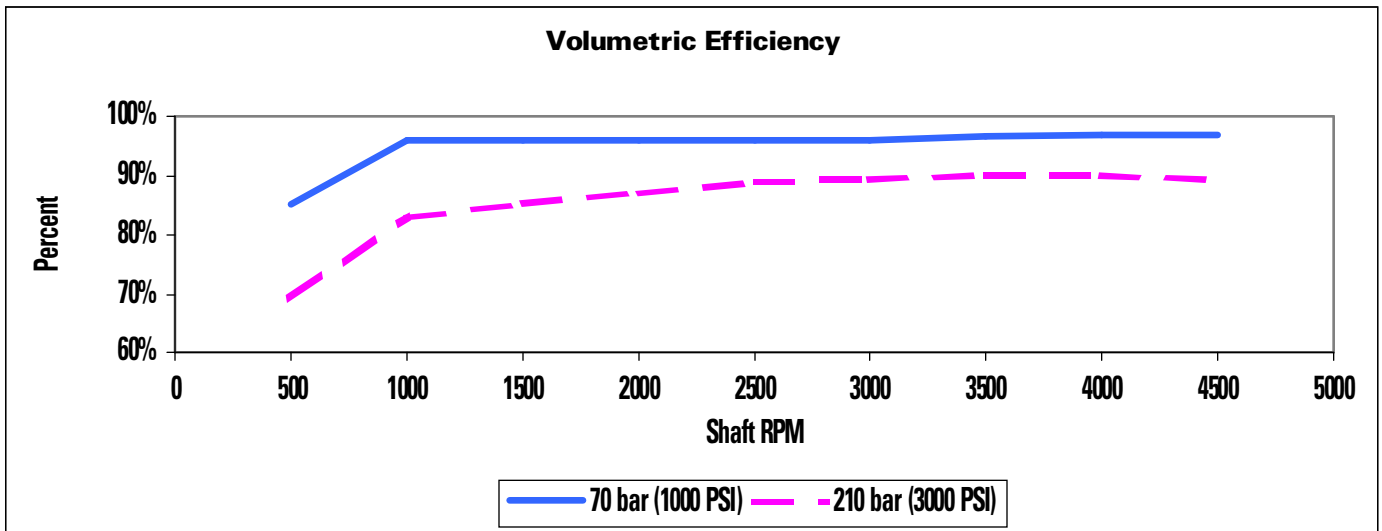
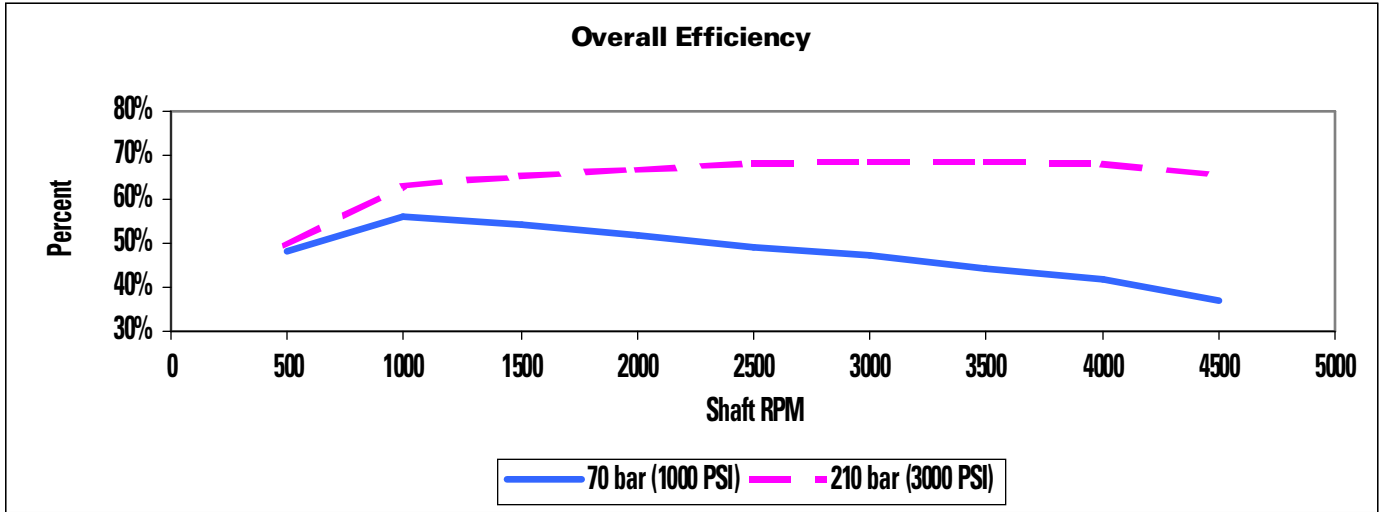
††† Maximum Intermittent Pressure - A pressure spike only for a short period of time, not continuous.

Medium Duty Piston Motors

Model 74111 & 74149

Performance Data

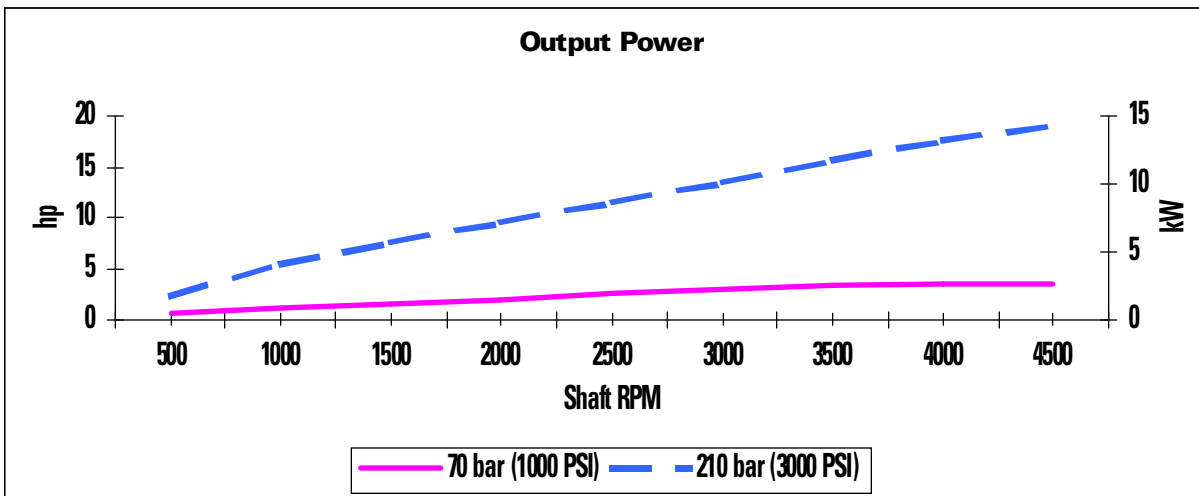
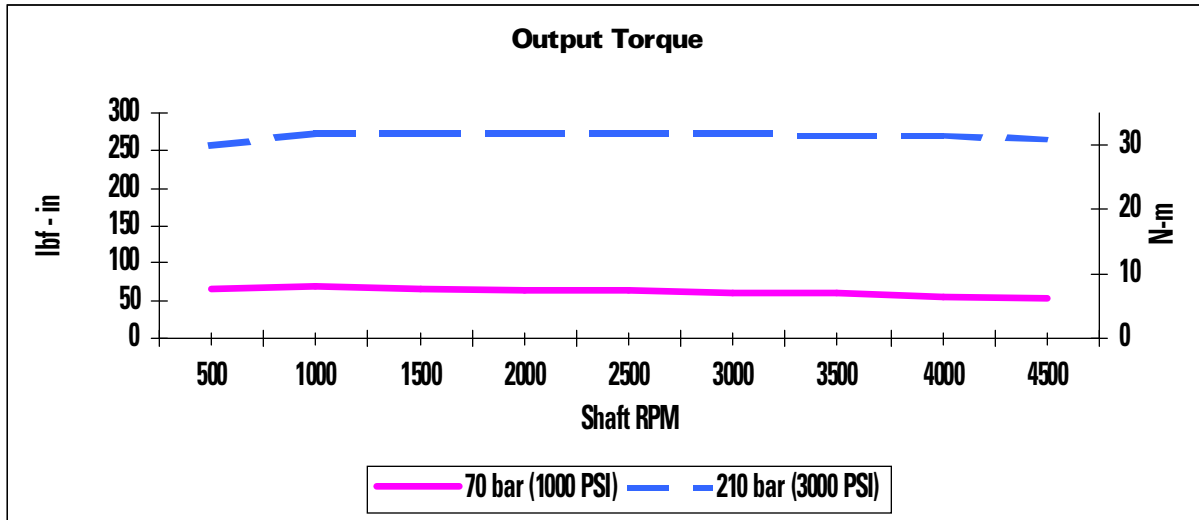
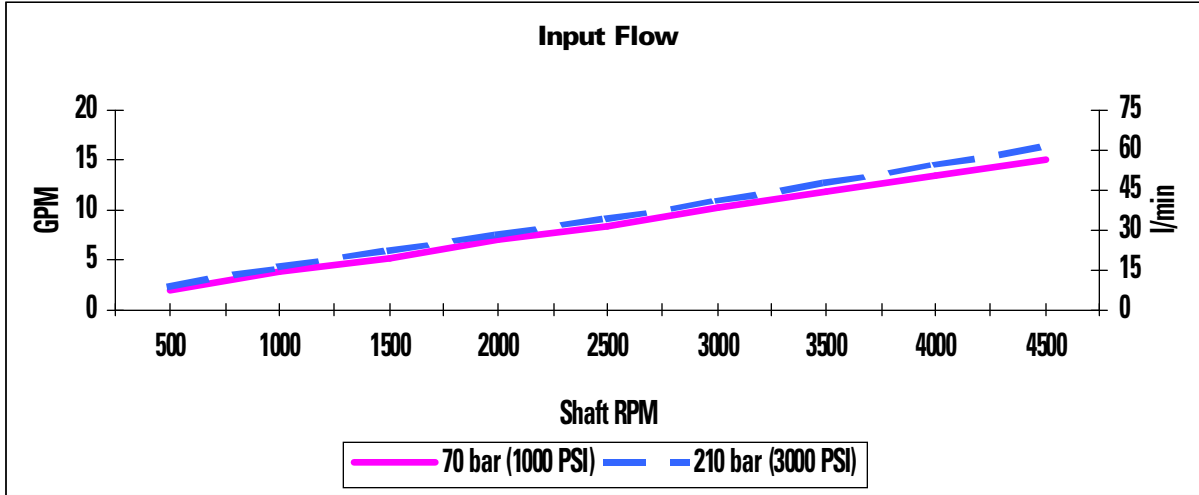
The charts below are representative of a 12,3 cm³/r [.75 in³/r] displacement piston motor. The tests were run at an oil temperature of 80° C [180°F] with viscosity 7-9 cSt [50-54 SUS].



Medium Duty Piston Motors

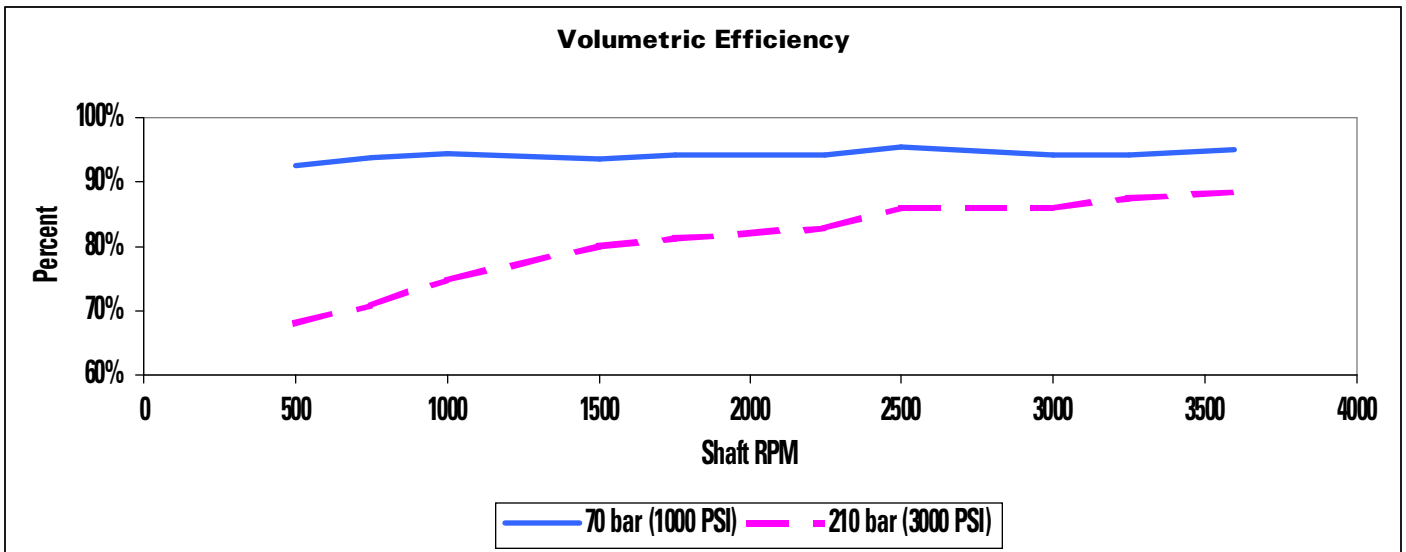
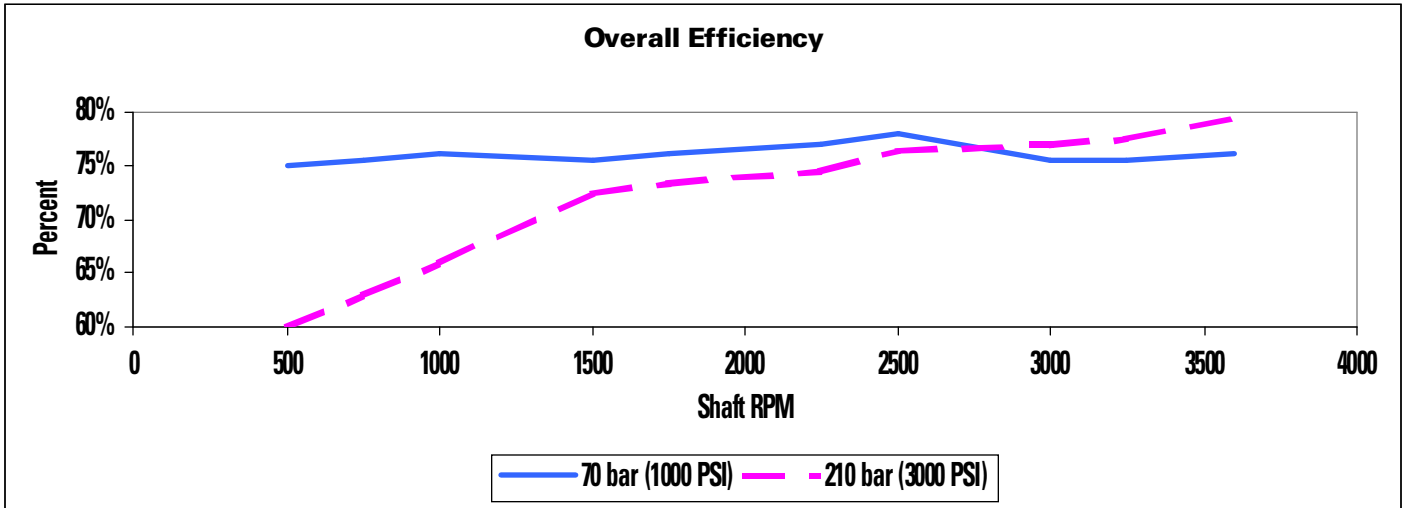
Model 74111 & 74149

Performance Data

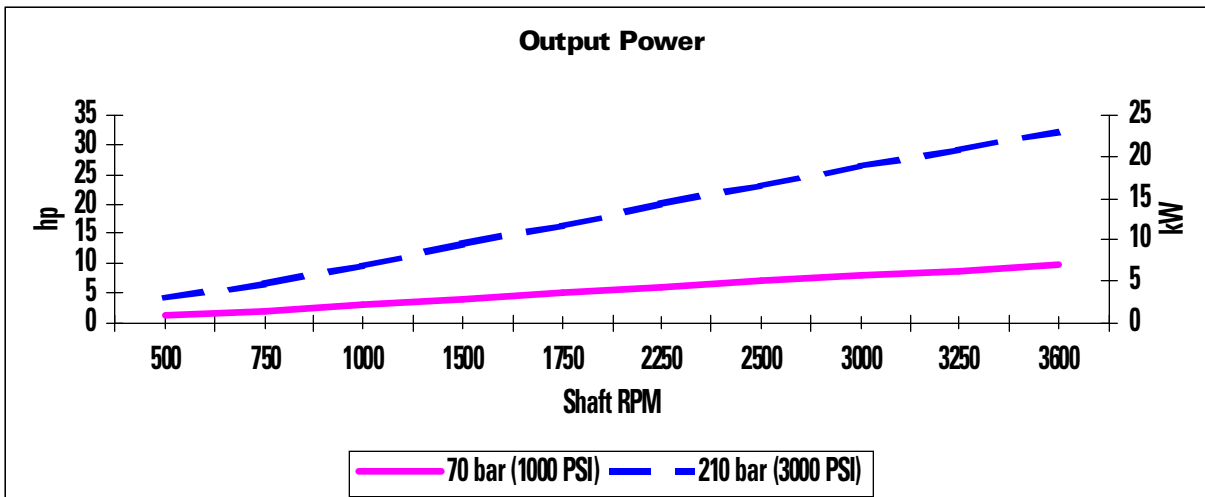
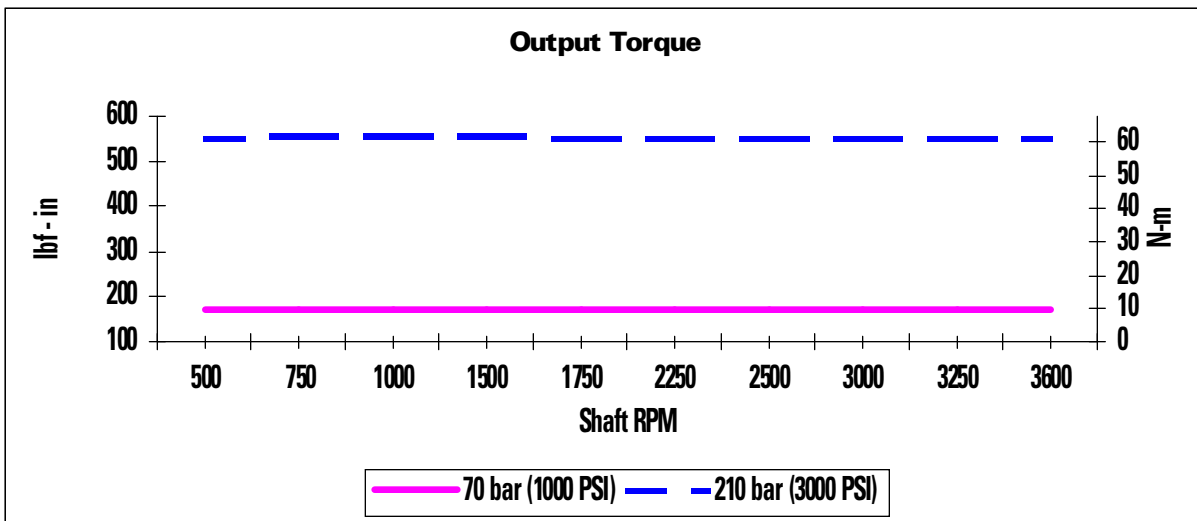
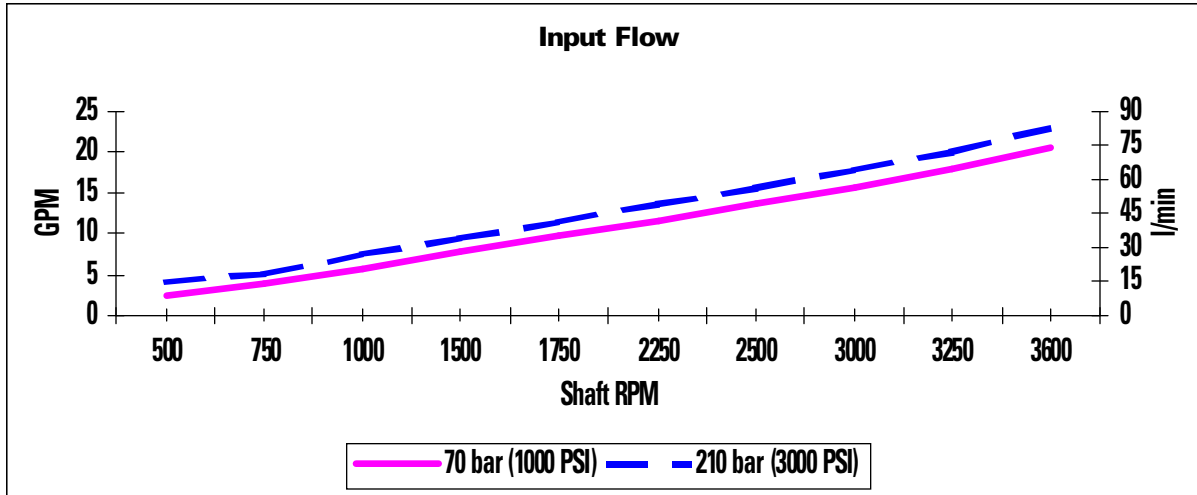


Medium Duty Piston Motors Model 74118 & 74148 Performance Data

The charts below are representative of a 20,3 cm³/r [1.24 in³/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].



Medium Duty Piston Motors Model 74118 & 74148 Performance Data



Medium Duty Piston Motors

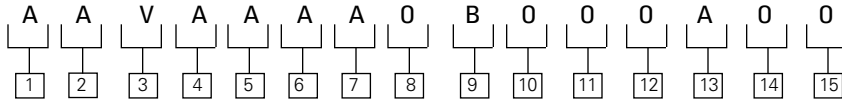
Fixed Displacement Motor

741XX Model Code

12,3 cm³/r [.75 in³/r] Displacement

20,3 cm³/r [1.24 in³/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.



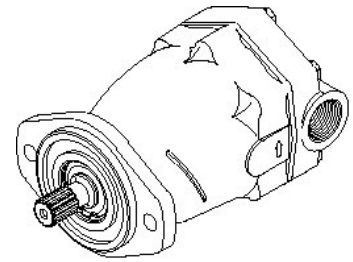
CODE POSITION	FEATURE	CODE	DESCRIPTION
1, 2, 3	Code Title	AAV	20,3 cm ³ /r [1.24 in ³ /r] Fixed displacement piston motor frame size
4, 5	Output Shaft	AA AE	13 Tooth 16/32 spline with snap ring groove, min. full spline 22,1 [.87], shaft extension 41,1 [1.62], (std.) Straight shaft, dia. 22,2 [.875], keyway 6,35 [.25] x 25,6 [.97], shaft extension 41,1 [1.62] (key included), (std.)
6	Main Port, Size, & Location	A B C	1-1/16-12 UN-2B straight thread o-ring ports- opposite sides, (std.) 1-1/16-12 UN-2B straight thread o-ring ports- rear, (std.) 1-1/16-12 UN-2B straight thread o-ring ports- same side, only with through shaft, (opt.)
7	Drain Port, Size and Location	A B C	9/16-18 UNF-2B straight thread o-ring port - upper rear, (std.) 9/16-18 UNF-2B straight thread o-ring port - lower rear, (std.) 9/16-18 UNF-2B straight thread o-ring port - bottom rear, with through shaft only (pos. 8, selection 1), (std.)
8	Auxiliary Mounting Features (rear)	0 1*	No Auxiliary Mounting Feature 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, (opt.)

CODE POSITION	FEATURE	CODE	DESCRIPTION
9	Displacement Options	0 A B C D	As given in code title. - Model 74118 or 74148, (std.) 16,6 cm ³ /r [1.01 in ³ /r] destroked from 20,3 cm ³ /r [1.24 in ³ /r], (opt.) 12,3 cm ³ /r [.75 in ³ /r] destroked from 20,3 cm ³ /r [1.24 in ³ /r] - Model 74111 or 74149, (std.) 9,8 m ³ /r [.60 in ³ /r] destroked from 20,3 cm ³ /r [1.24 in ³ /r], (opt.) 14,96 m ³ /r [.91 in ³ /r] destroked from 20,3 cm ³ /r [1.24 in ³ /r], (opt.)
10, 11	Special Feature	00	No special feature, (std.)
12, 13	Paint	0A 0B	Primer, (std.) Black Paint, (std.)
14	Identification	0	Standard, (std.)
15	Design Code	0	Eaton assigns current design code, (std.)

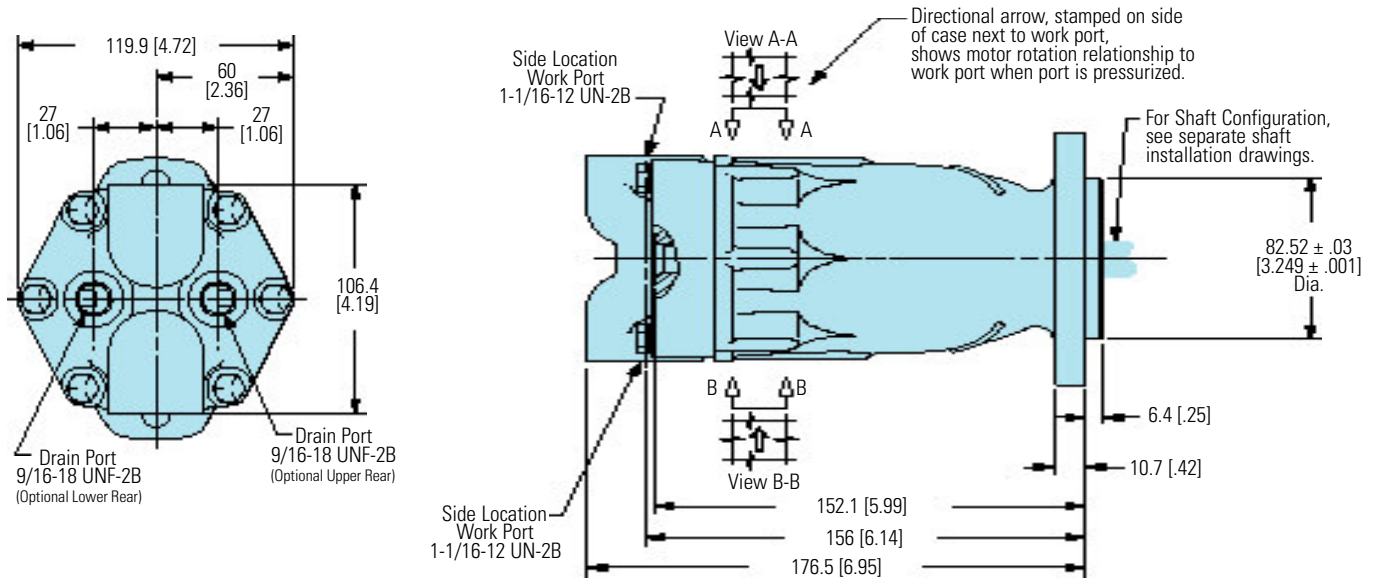
*Requires the selection of same-side porting only.
Through shaft motor at displacement 1.24 in³/r will carry model number 74148.

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

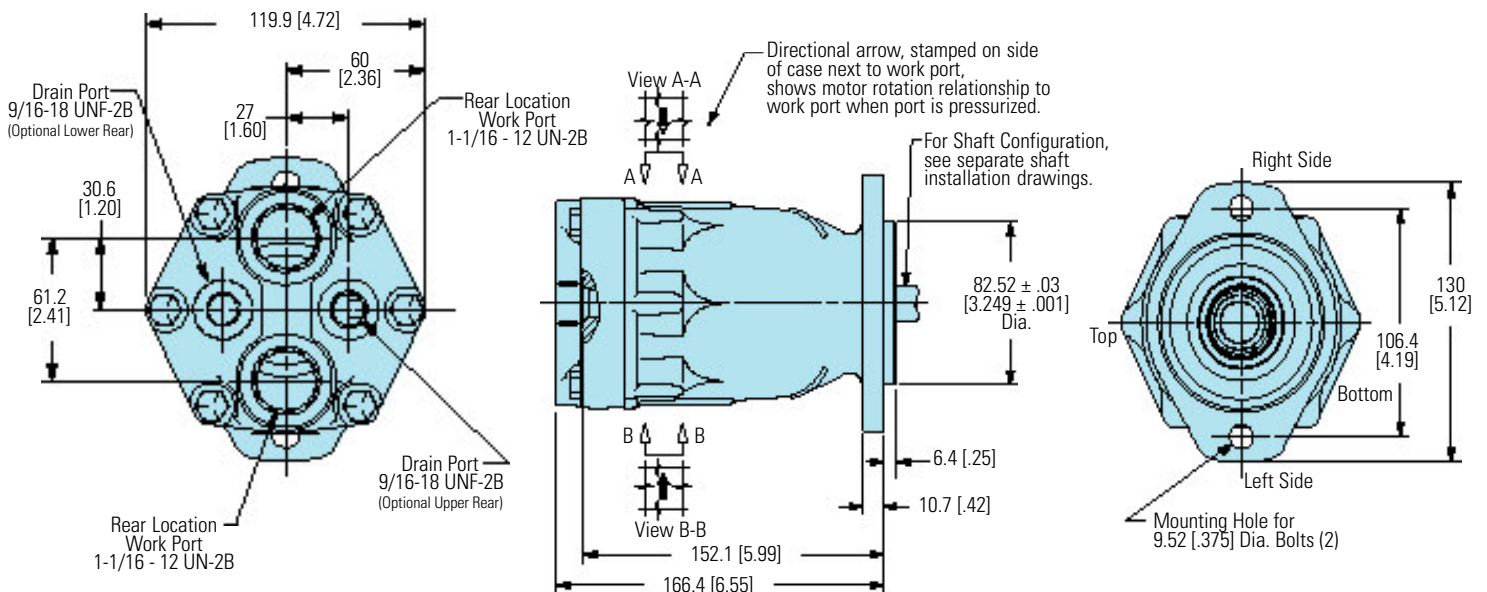
Medium Duty Piston Motors Model 74111 & 74118 Installation Drawings



Opposite Side Porting (Code position 6, selection A)

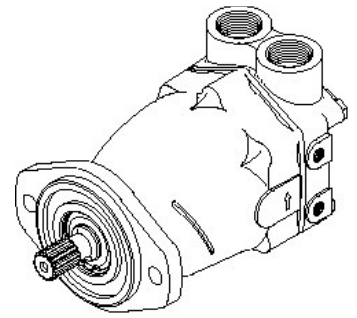


Rear Porting (Code position 6, selection B)

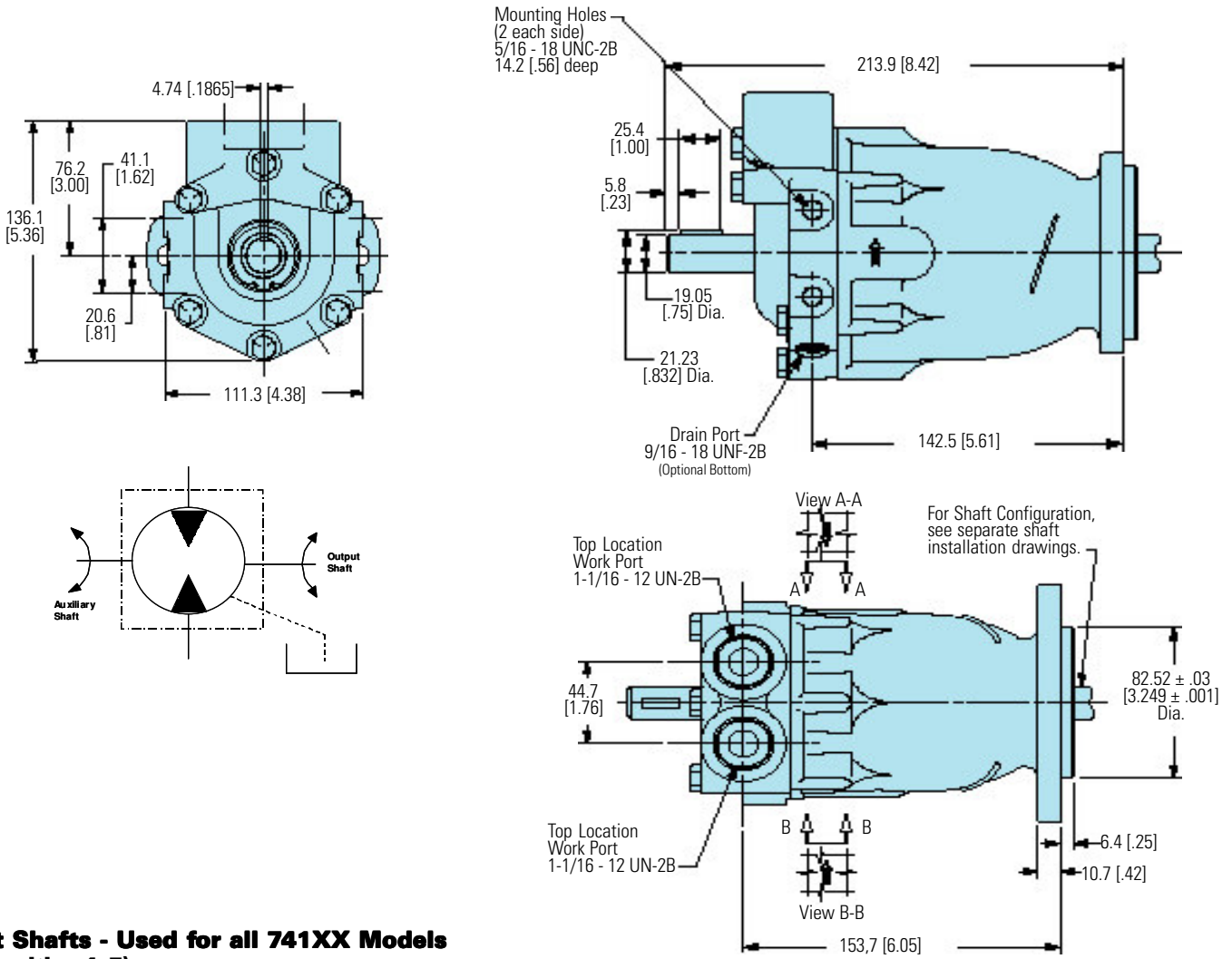


Note: All ports are SAE (J1926) o-ring ports. Dimensions are in millimeters [inches], unless otherwise specified.

Medium Duty Piston Motors Model 74148 & 74149 Installation Drawings



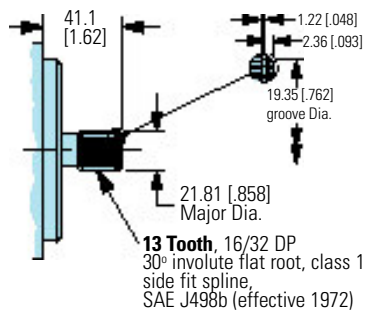
Through Shaft and Same Side Porting (Code position 6, selection C)



Output Shafts - Used for all 741XX Models (Code position 4, 5)

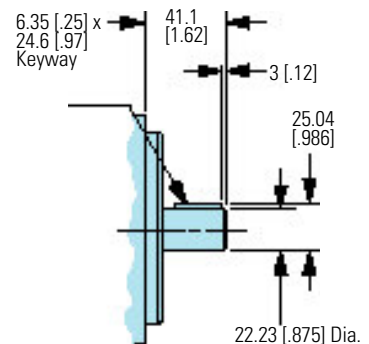
Spline Shaft Code Selection AA

Maximum Torque on Shaft
209,3 N·m [1,852 lbf·in]



Keyed Shaft Code Selection AE

Maximum Torque on Shaft
209,3 N·m [1,852 lbf·in]



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

Medium Duty Piston Motors

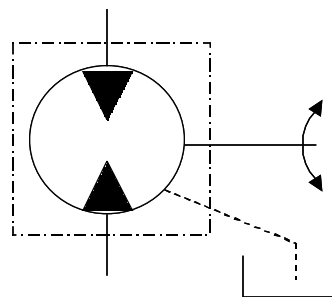
Fixed Displacement Motor 743XX Models

2 Bolt SAE "B" Mount

32, 9 cm³/r [2.01 in³/r] Displacement

40, 6 cm³/r [2.48 in³/r] Displacement

49, 2 cm³/r [3.00 in³/r] Displacement



Typical Product
Number

Model Code

Typical Product Number	Model Code
74315-DAL	AAJAADB0AAD0A0B
74315-DBB	AAJAADA0AAM0A0B
74315-DBD	AAJABDA0A000A0B
74315-DBG	AAJABDA0AAD0A0B
74315-DBM	AAJABDA0AAM0A0B
74315-DBW	AAJAABA0A000A0B
74318-DAA	AAJAADA00000A0B
74318-DAB	AAJAABA00000A0B
74318-DAC	AAJAACA00000A0B
74318-DAE	AAJAABB00000A0B
74318-DAF	AAJABCG00000A0B
74318-DAG	AAJABBA00000A0B
74318-DBD	AAJABDA00AD0A0B
74318-DBM	AAJABDA00AM0A0B
74318-DBR	AAJABDB00AD0A0B
74318-DBY	AAJABDA00000A0B
74318-DCW	AAJAADA00AD0A0B
74318-DDA	AAJABCA00000A0B
74328-DAA	AAKABAJ00000A0B
74328-DAB	AAKAAB0000000B
74348-DAF	AAJABDA30AD0A0B



SPECIFICATION

	MODEL 74315	MODEL 74318 / 74348	MODEL 74328
Maximum Displacement	32,9 cm ³ /r [2.01 in ³ /r]	40,6 cm ³ /r [2.48 in ³ /r]	49,2 cm ³ /r [3.0 in ³ /r]
Maximum Rated Speed	3600 RPM	3600 RPM	3000 RPM
Continuous Rated Pressure †	210 bar [3000 lbf/in ²]	210 bar [3000 lbf/in ²]	210 bar [3000 lbf/in ²]
Maximum Rated Pressure ††	345 bar [5000 lbf/in ²]	345 bar [5000 lbf/in ²]	328 bar [4750 lbf/in ²]
Maximum Intermittent Pressure †††	370 bar [5400 lbf/in ²]	370 bar [5400 lbf/in ²]	345 bar [5000 lbf/in ²]
Input Flow at Rated Speed and Pressure	121 l/min [32 GPM]	153, 7 l/min [40.6 GPM]	156, 3 l/min [41.3 GPM]
Output Power at Rated Speed and Pressure	35 kW [47 hp]	43 kW [58 hp]	43 kW [58 hp]
Output Torque at Rated Speed and Pressure	92 N•m [816 lbf•in]	115 N•m [1019 lbf•in]	138 N•m [122.5 lbf•in]
Continuous Allowable Case Pressure	1,7 bar [25 lbf/in ²]	1,7 bar [25 lbf/in ²]	1,7 bar [25 lbf/in ²]
Continuous Inlet Temperature	107°C [225° F]	107° C [225° F]	107° C [225° F]
Weight/Single Motor (approximate)	9,1 kg [20 lbs]	9,1 kg [20 lbs]	9,1 kg [20 lbs]

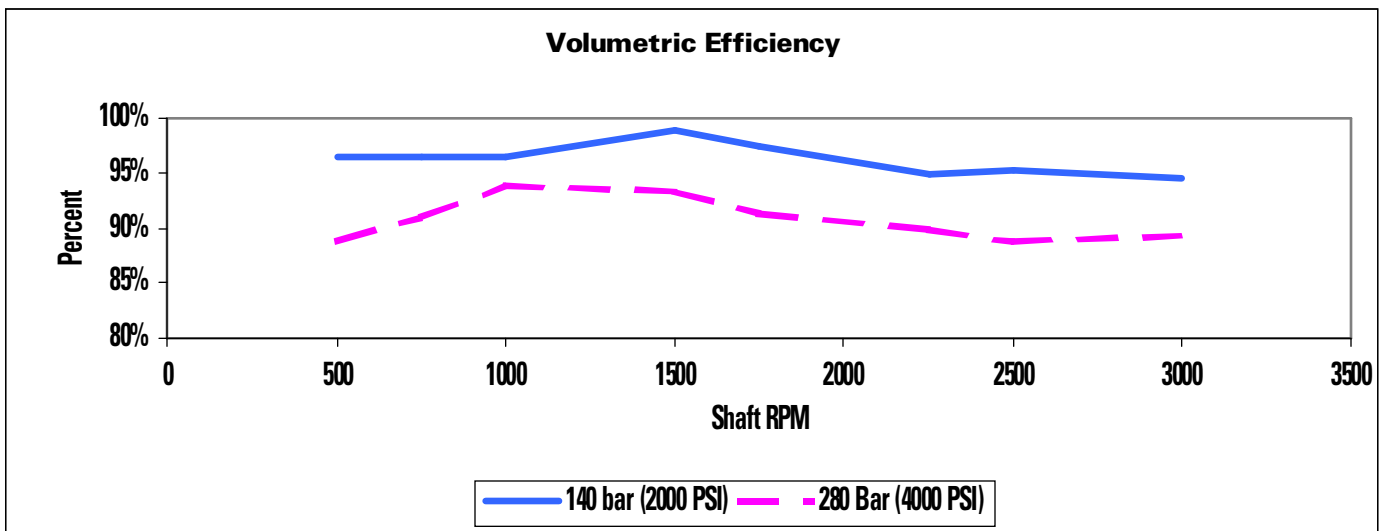
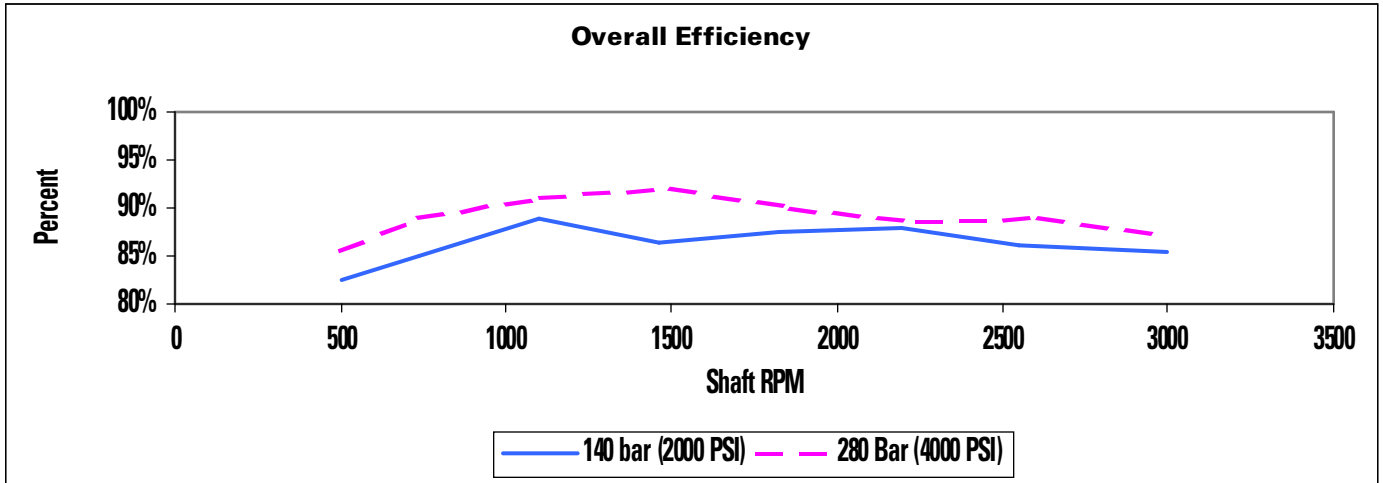
† Continuous Rated Pressure - Motor may run uninterrupted at this pressure.

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

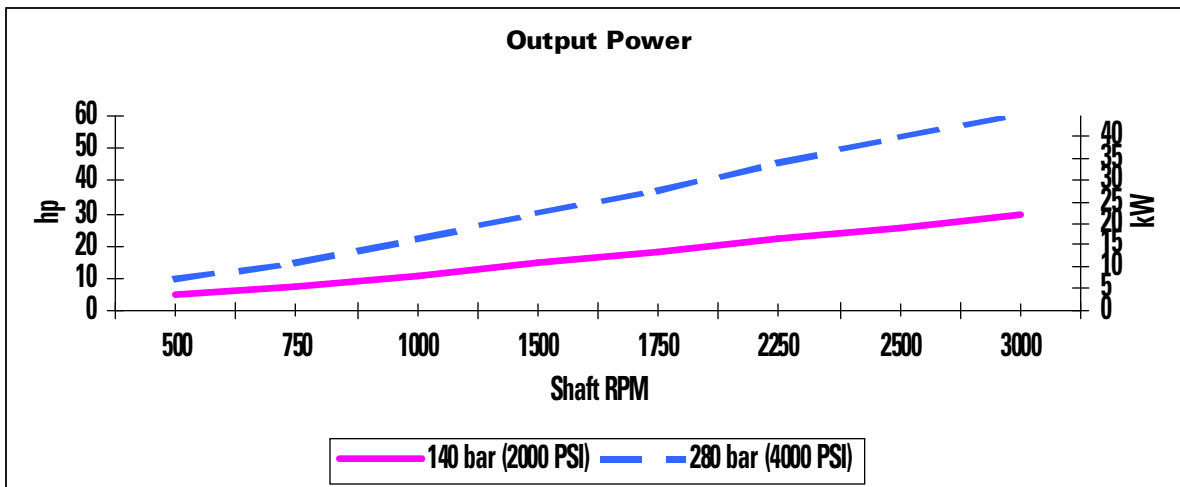
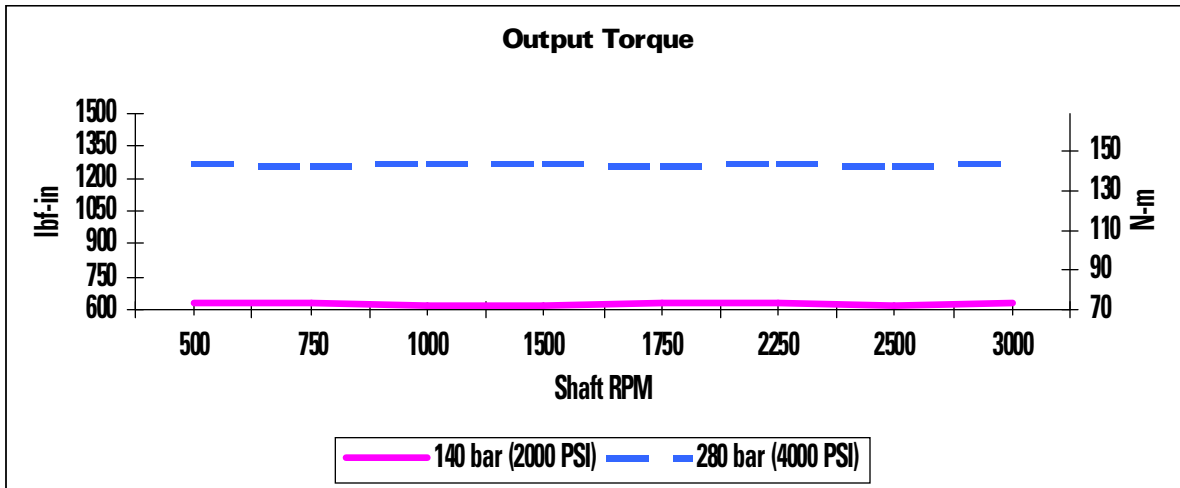
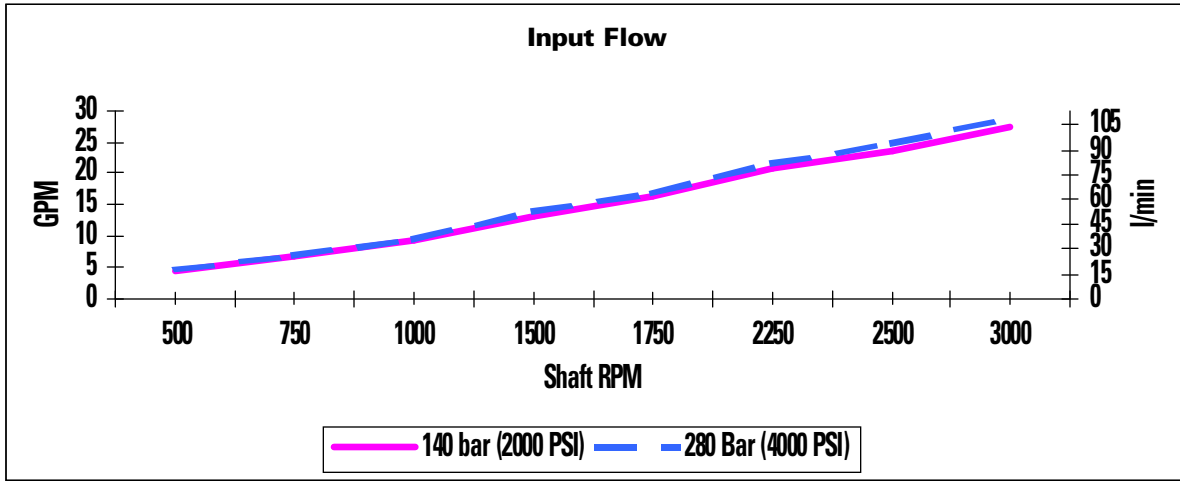
††† Maximum Intermittent Pressure - A pressure spike only for a short period of time, not continuous.

Medium Duty Piston Motors Model 74315 Performance Data

The charts below are representative of a 32,9 cm³/r [2.01 in³/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].

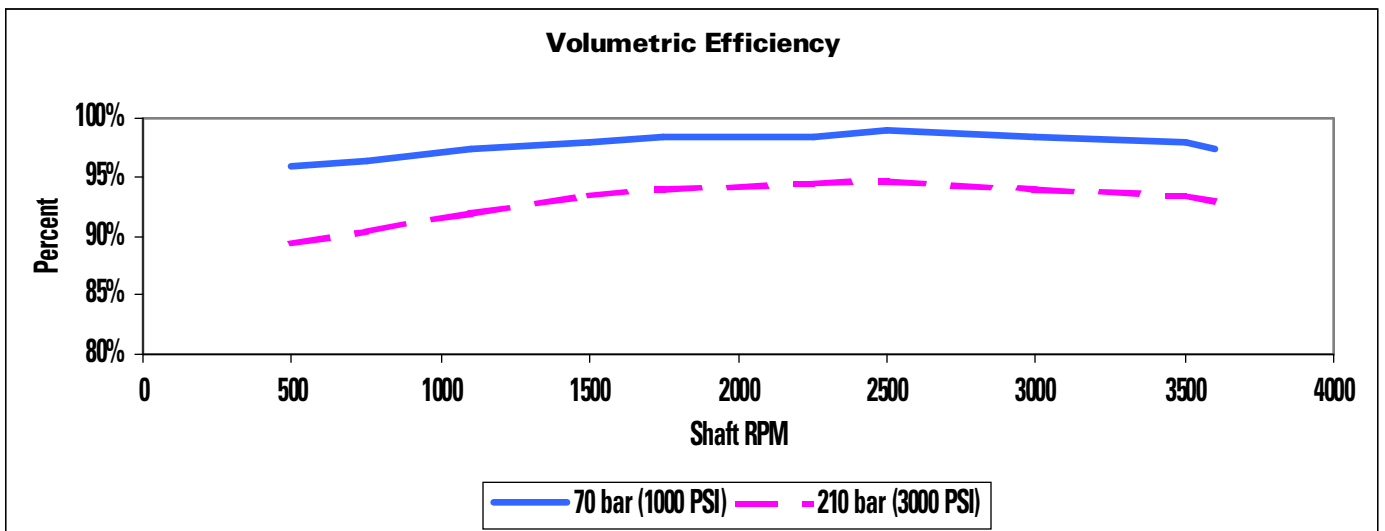
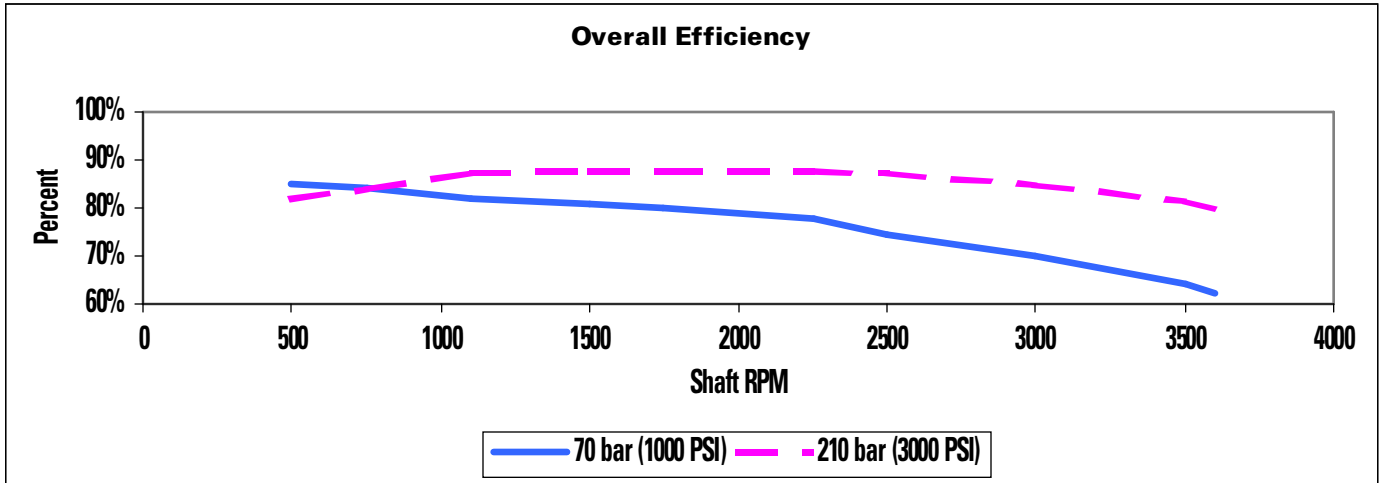


Medium Duty Piston Motors Model 74315 Performance Data

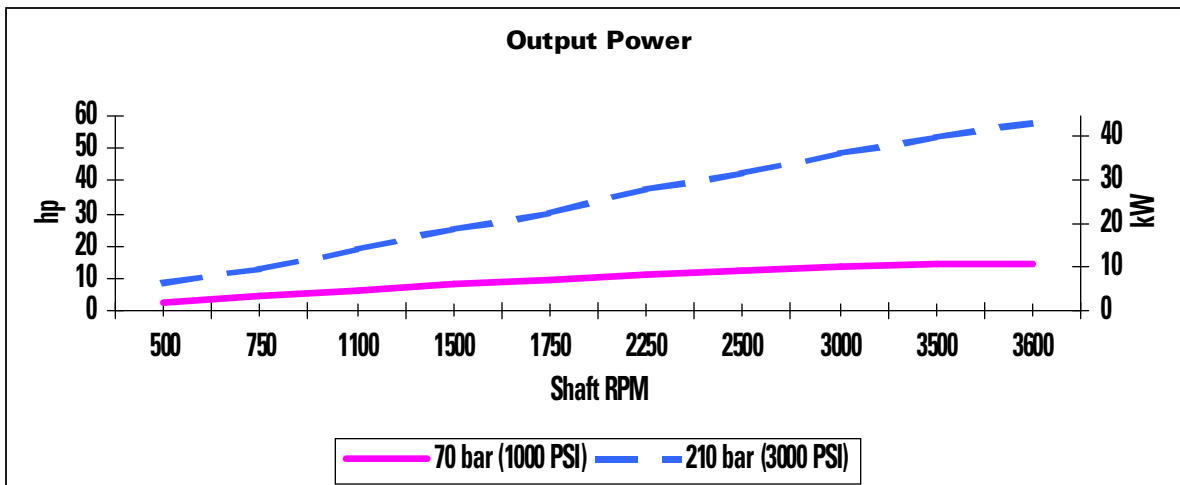
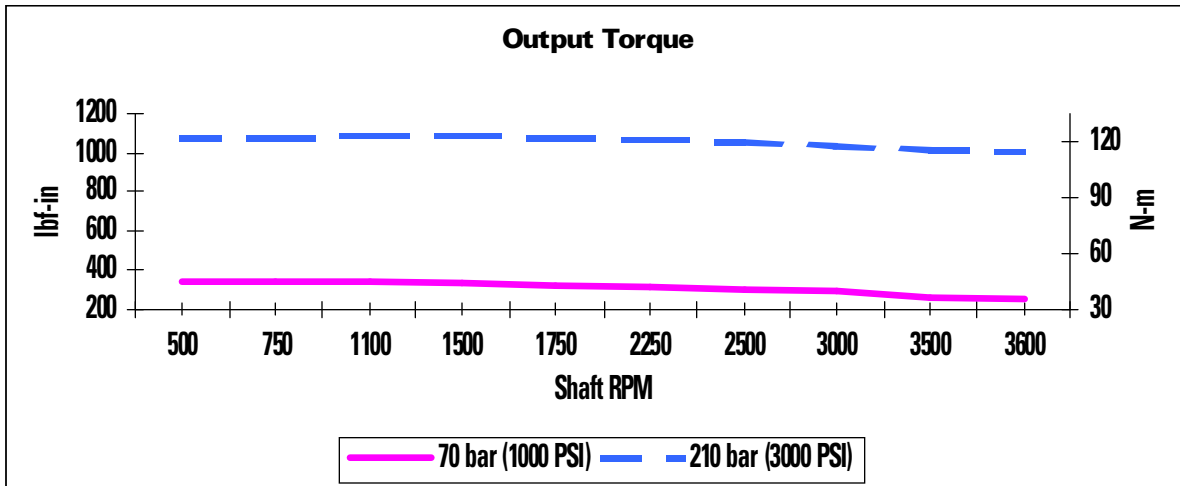
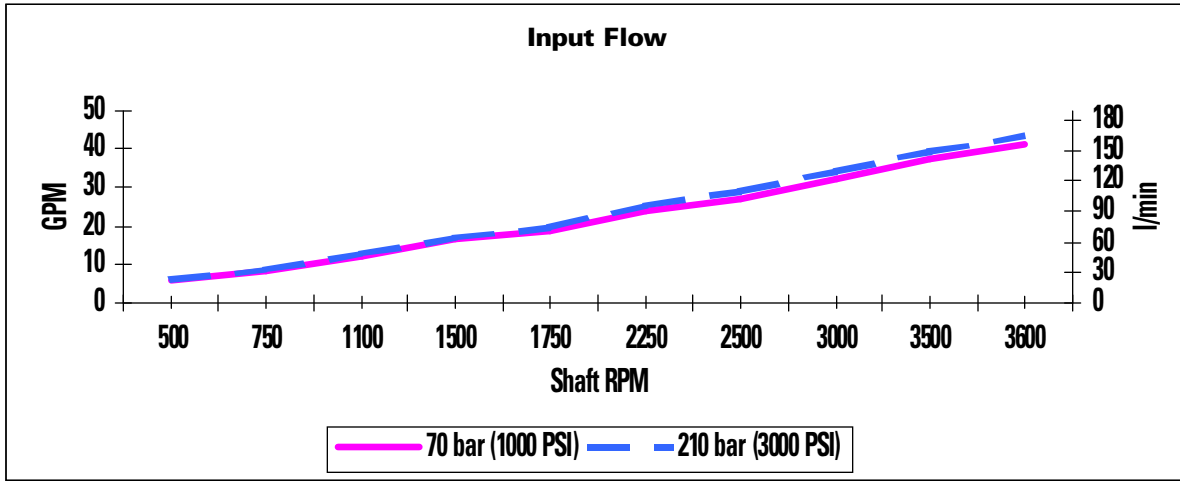


Medium Duty Piston Motors Model 74318 Performance Data

The charts below are representative of a 40,6 cm³/r [2.48 in³/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].

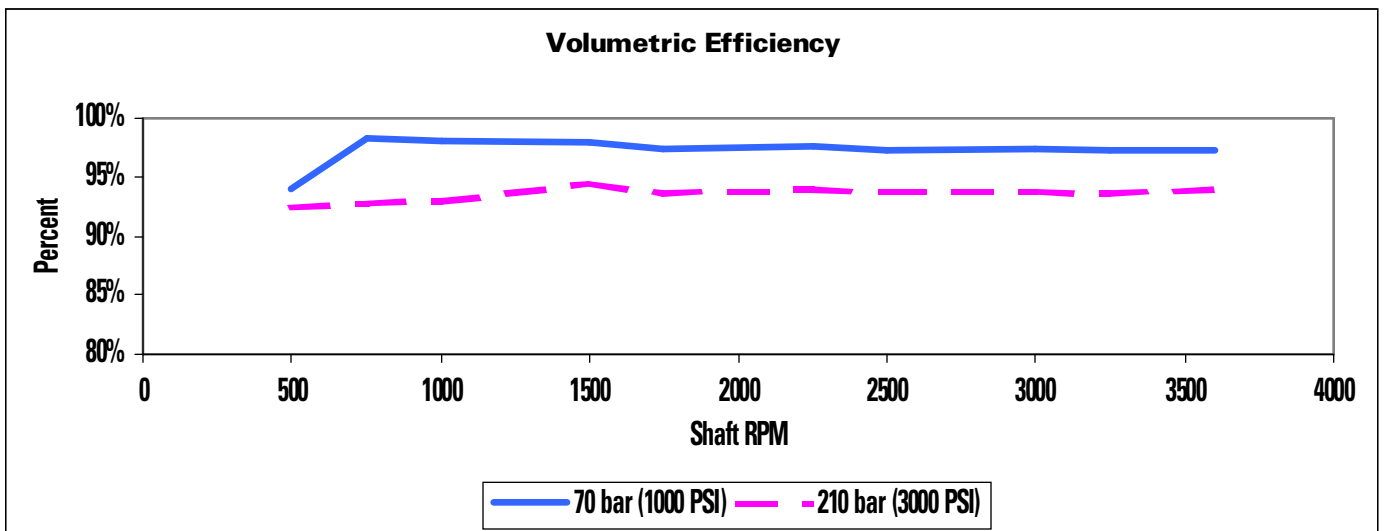
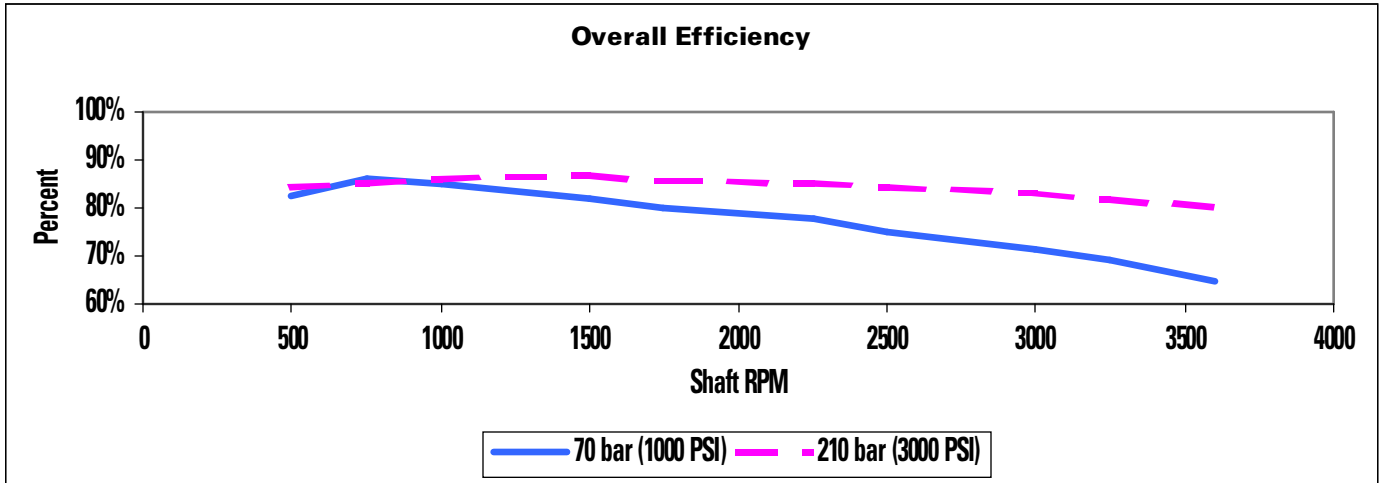


Medium Duty Piston Motors Model 74318 Performance Data

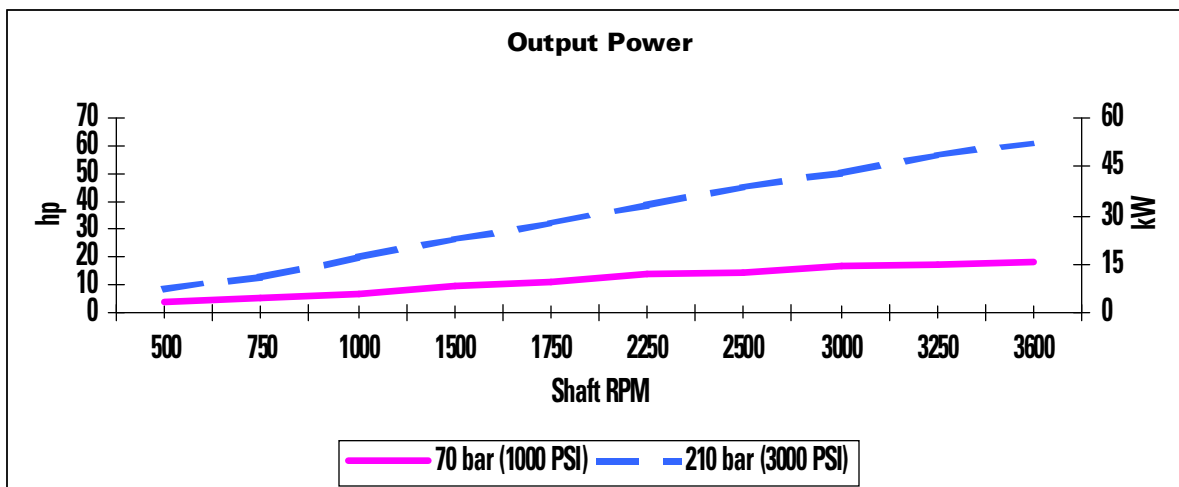
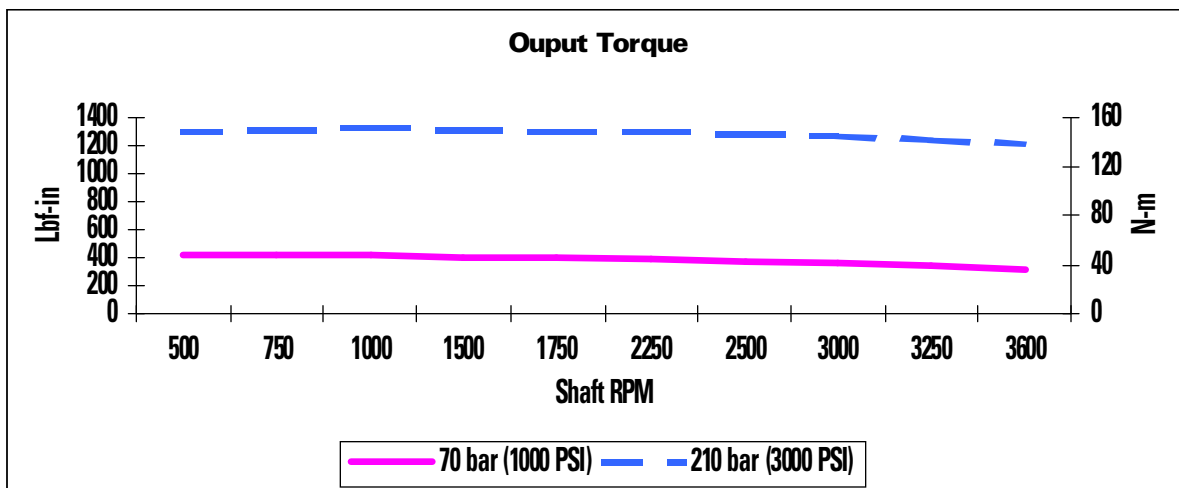
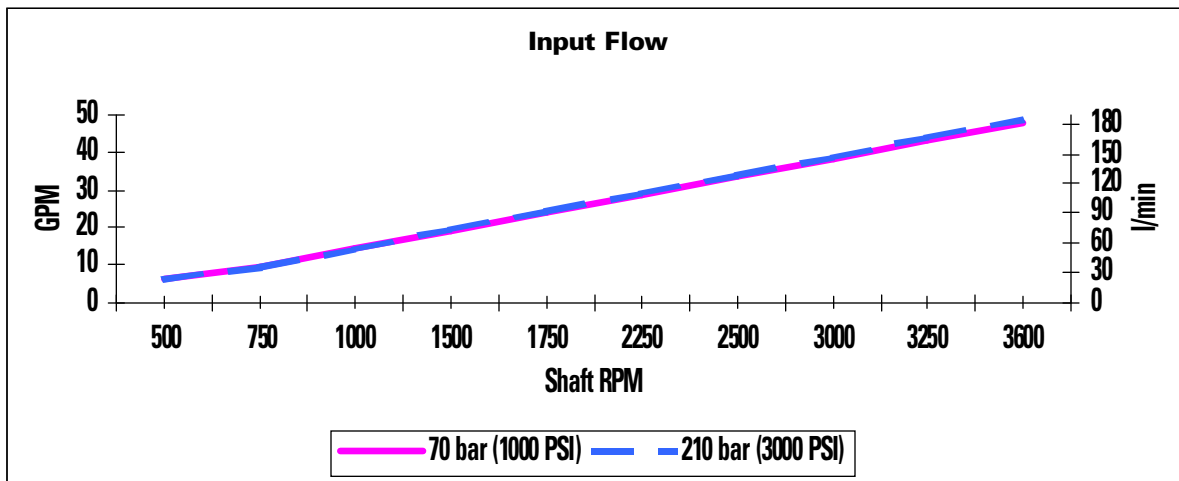


Medium Duty Piston Motors Model 74328 Performance Data

The charts below are representative of a 49,2 cm³/r[3.00 in³/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].



Medium Duty Piston Motors Model 74328 Performance Data



Medium Duty Piston Motors

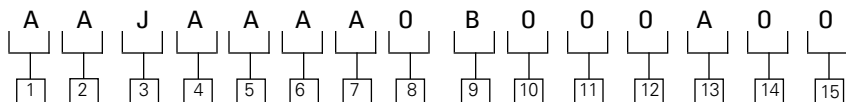
Fixed Displacement Motor 743XX Models

32,9 cm³/r [2.01 in³/r] Displacement

40,6 cm³/r [2.48 in³/r] Displacement

49,2 cm³/r [3.00 in³/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 POSITION	FEATURE	CODE	DESCRIPTION	CODE POSITION	FEATURE	CODE	DESCRIPTION
1, 2, 3	Code Title	AAJ	40,6 cm ³ /r [2.48 in ³ /r] Fixed displacement piston motor frame size	8	Auxiliary Mounting Features (rear)	0	No Auxiliary Mounting Feature, (std.)
		AAK	49,2 cm ³ /r [3.0 in ³ /r] Fixed displacement piston motor frame size			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. (opt.)
4, 5	Output Shaft	AA	13 Tooth 16/32 spline shaft extension 41,1 [1.62], (std.)	9	Displacement Options	0	As given in code title, 40,6 cm ³ /r [2.48 in ³ /r] - Model 74318 or 74348, (std.)
		AB	15 Tooth 16/32 spline, shaft extension 46 [1.81], (opt.)			A	32,9 cm ³ /r [2.01 in ³ /r] destroyed from 40,6 cm ³ /r [2.48 in ³ /r] - Model 74315, (opt.)
		AD	Straight Shaft, dia. 28, 58 [1.125], keyway 7,9 [.31] x 32,5 [1.28], shaft extension 46 [1.81] (key included), (opt.)			B	24 cm ³ /r [1.50 in ³ /r] destroyed from 40,6 cm ³ /r [2.48], (opt.)
		AE	Straight Shaft, dia. 22,2 [.875], keyway 6,3 [.25] x 24, 6 [.97], shaft extension 41,1 [1.62] (key included), (std.)	10, 11	Special Features	00	No special feature, (std.)
6	Main Port, Size, & Location	A	1-1/16-12-12 UN-2B straight thread o-ring ports- opposite sides, (opt.)			AD	Shuttle Valve and Charge Pressure Valve set at 15-17 bar [220-250 lbf/in ²], (opt.)
		B	1-5/16-12 UN-2B straight thread o-ring ports- opposite sides, (std.)			AM	Shuttle Valve and Charge Pressure Valve set at 10-12 bar [150-175 lbf/in ²], (opt.)
		C	1-5/16-12 UN-2B straight thread o-ring ports- rear, (std.)			AP	Speed Sensor Hall Effect Pickup (9 pulse), lead wire 127mm [5.0in] long,(opt.)
		D	1-5/16-12 UN-2B straight thread o-ring ports- same side, Top, (opt.)			CA	Speed Sensor, Hall Effect Pickup (9 pulse) with M12 connector (opt.)
		E	1-1/16-12 UN-2B straight thread o-ring ports- rear, (opt.)	12, 13	Paint	0A	Primer, (std.)
		J	1-1/16-12 UN-2B straight thread o-ring ports- same side, Top, (opt.)			0B	Black Paint, (std.)
7	Drain Port, Size and Location	A	3/4-16 UNF-2B straight thread o-ring port - Top of Housing, (std.)	14	Indentification	0	Standard
		B	3/4-16 UNF-2B straight thread o-ring port - Top and bottom of Housing, bottom plugged, (opt.)	15	Design Code	0	Eaton assigns current design code, (std.)
		G	3/4-16 UNF-2B straight thread o-ring port - upper rear of Backplate, (opt.)				
		J	9/16-18 UNF-2B straight thread o-ring port-upper rear of Backplate, (opt.)				

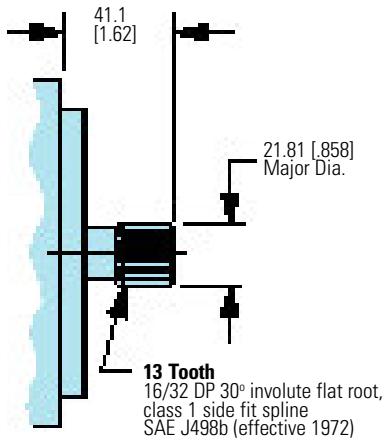
Note: All ports are SAE (J1926) o-ring ports.

Medium Duty Piston Motors Model 74315, 74318 and 74328 Installation Drawings

Output Shafts - Used for all 743XX Models (Code position 4, 5)

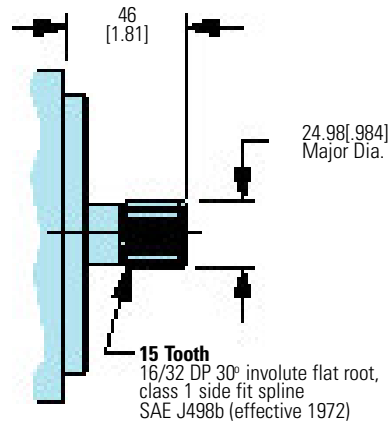
Spline Shaft Code Selection AA

Maximum Torque on Shaft 209,3 N-m [1,852 lbf-in]



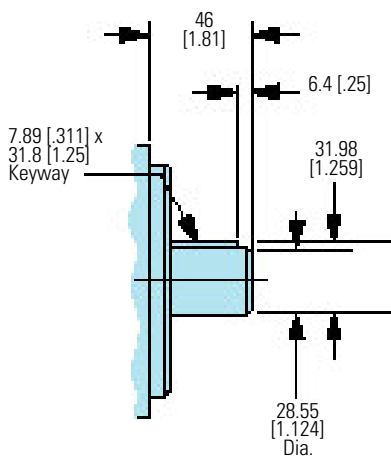
Spline Shaft Code Selection AB

Maximum Torque on Shaft 337,5 N-m [2,987 lbf-in]



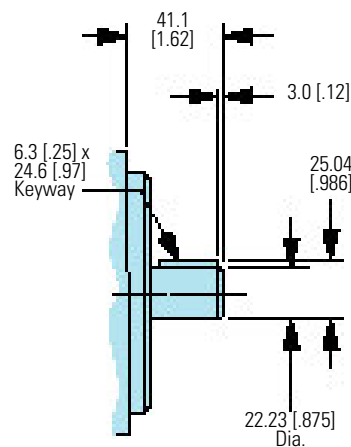
Keyed Shaft Code Selection AD

Maximum Torque on Shaft 337,5 N-m [2,987 lbf-in]



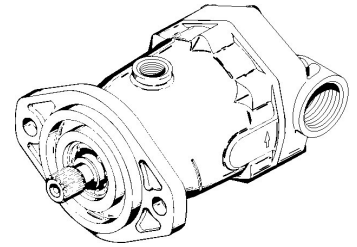
Keyed Shaft Code Selection AE

Maximum Torque on Shaft 209,3 N-m [1,852 lbf-in]

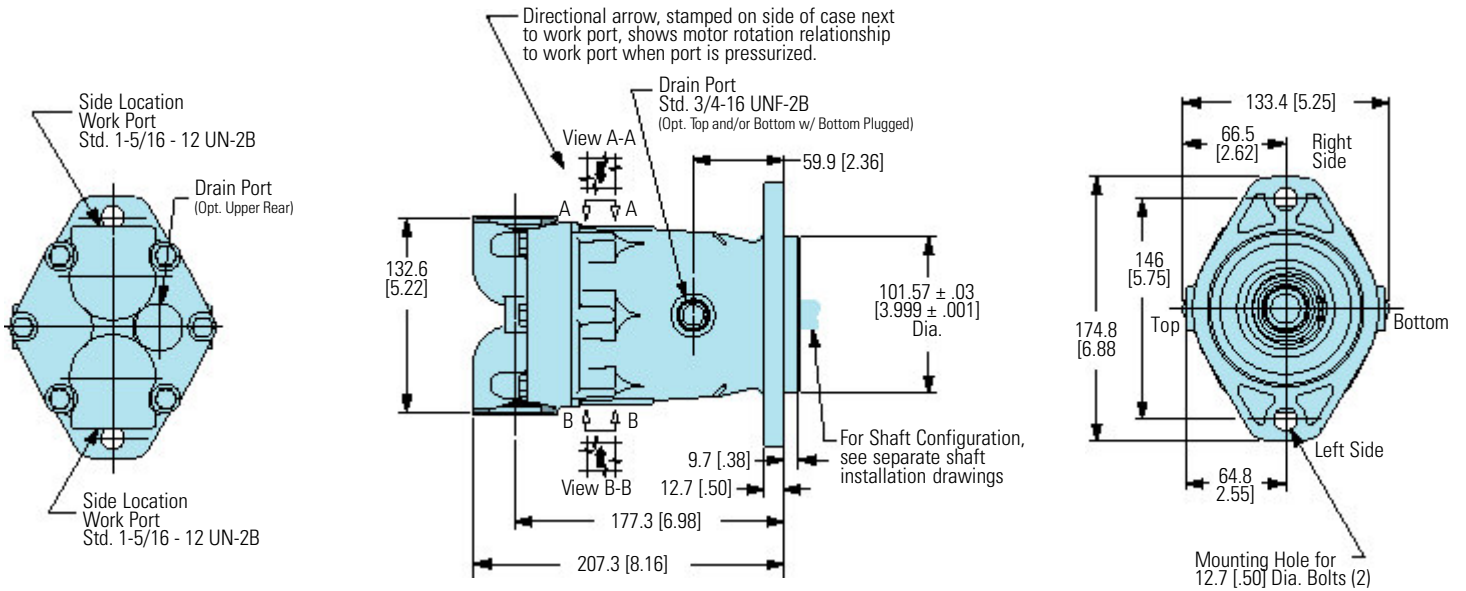


Note: All ports are SAE (J1926) o-ring ports. Dimensions are in millimeters [inches], unless otherwise specified.

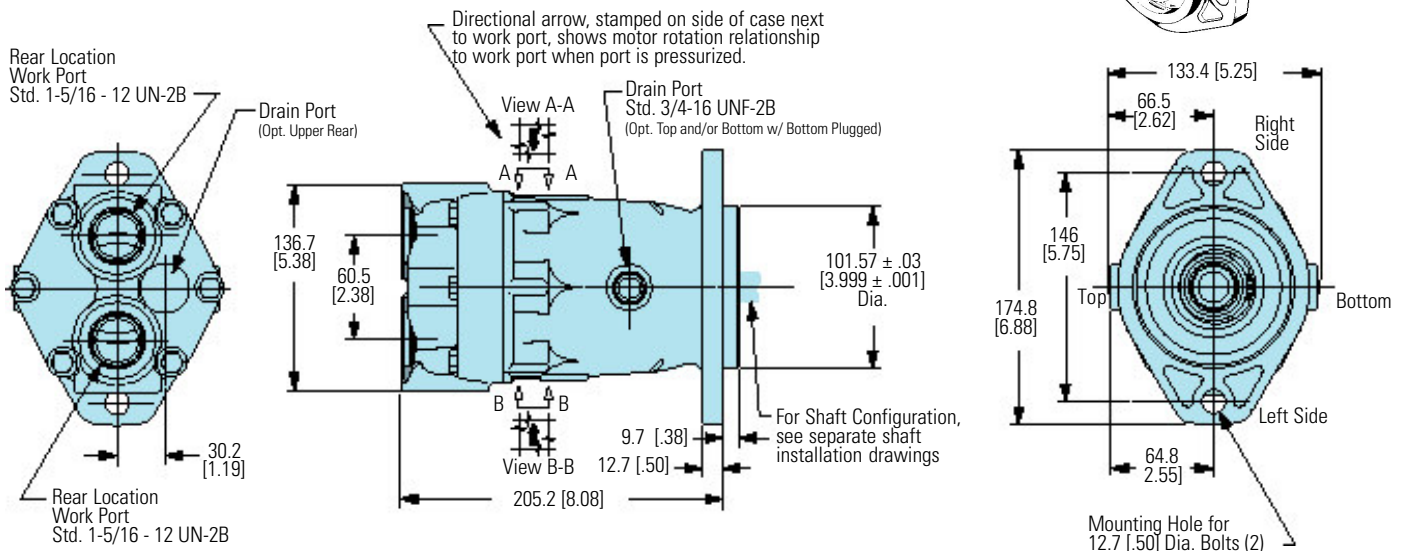
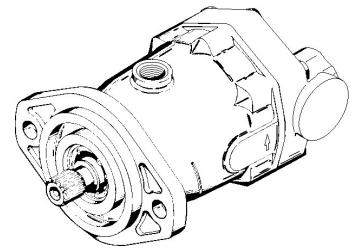
Medium Duty Piston Motors Model 74315, 74318 and 74328 Installation Drawings



Opposite Side Porting (Code position 6, selection A or B)



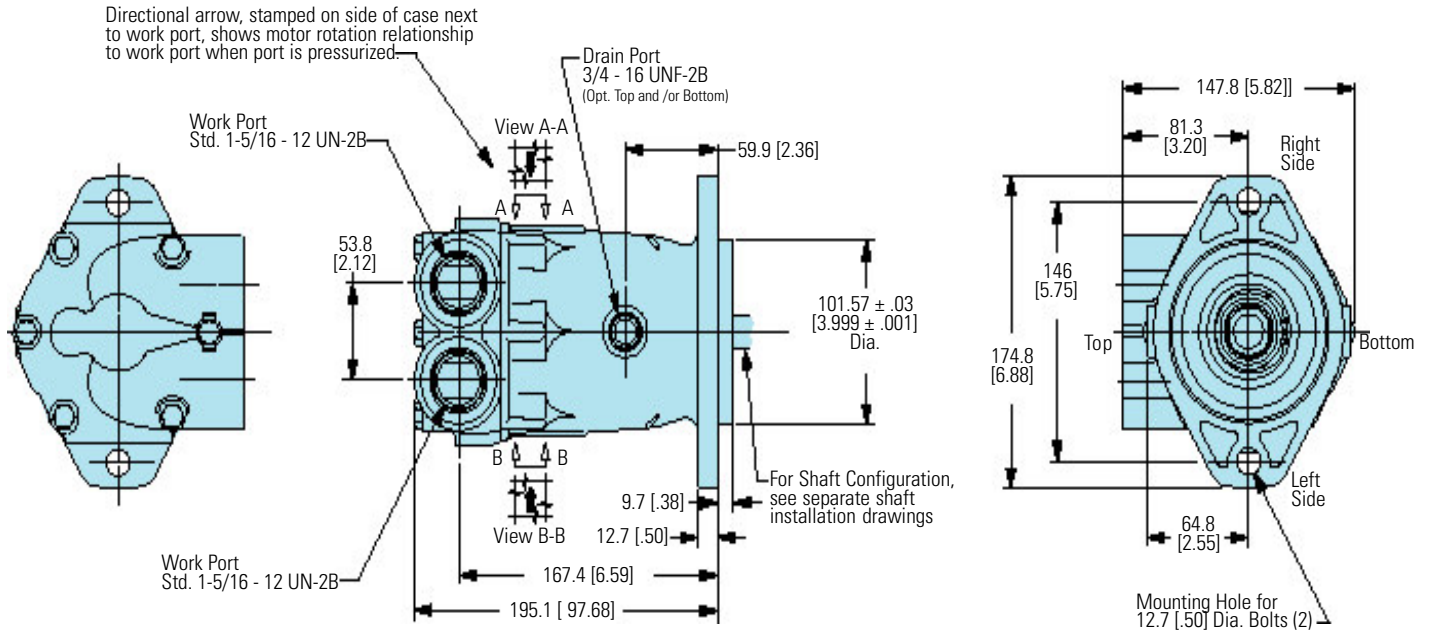
Rear Porting (Code position 6, selection C or D)



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

Medium Duty Piston Motors Model 74315, 74318 and 74328 Installation Drawings

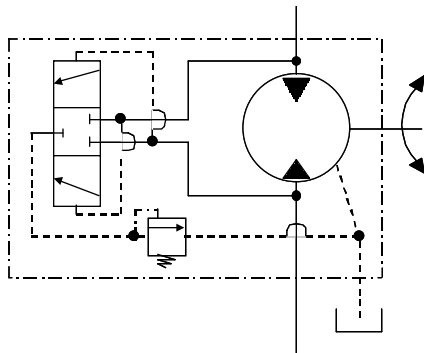
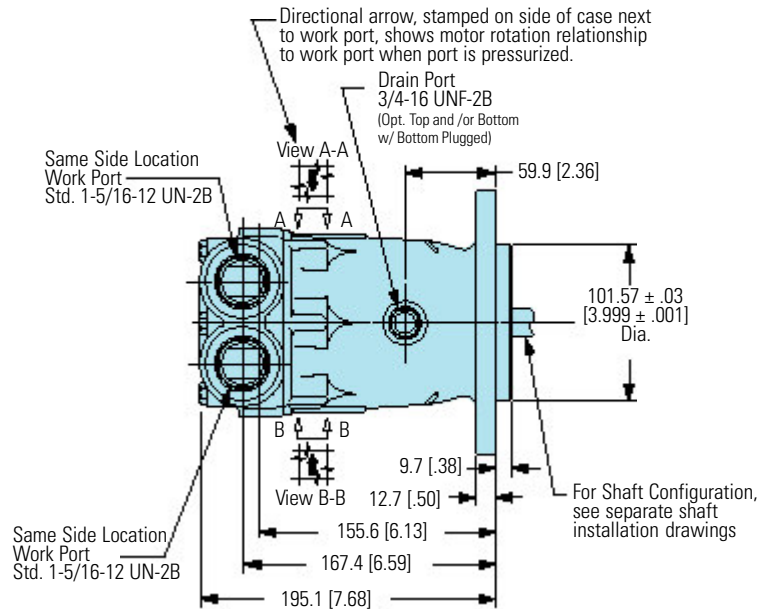
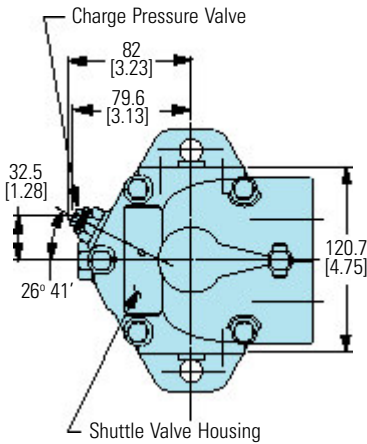
Same Side Porting (Code position 6, selection D)



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

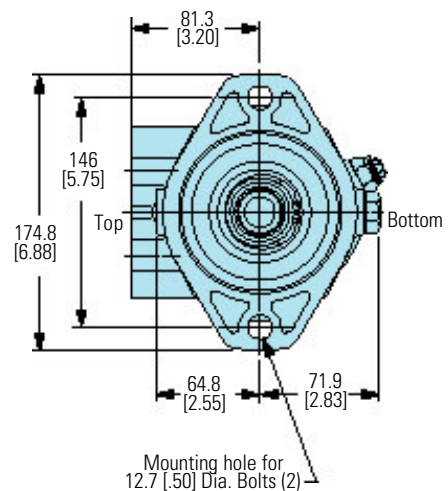
Medium Duty Piston Motors Model 74315, 74318 and 74328 Installation Drawings

Same Side Porting w/Shuttle Valve and Charge Pressure Valve (Code position 10, 11 selection AD or AM)



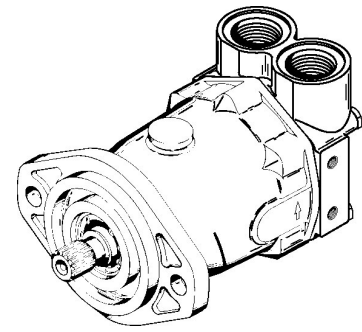
The shuttle and charge pressure valve work together to bypass closed loop oil. This allows the oil to be cooled, filtered, and returned to tank. The shuttle valve flow is listed below in relationship to the charge pressure valve setting.

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

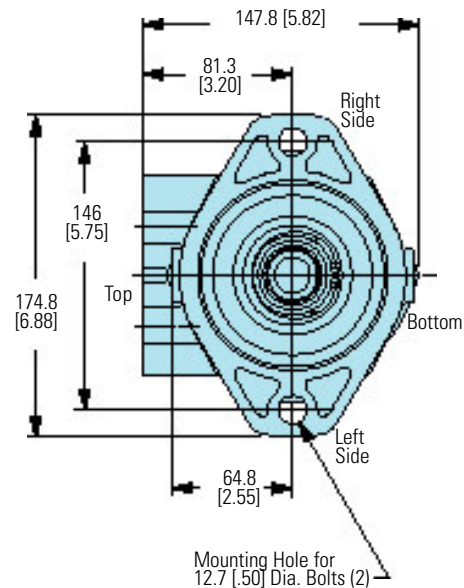
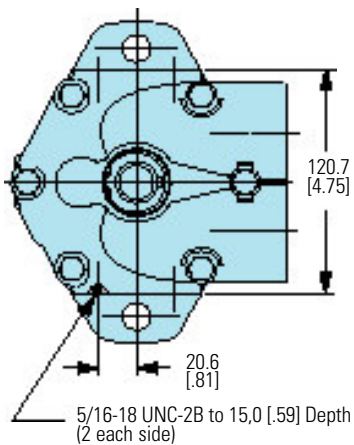
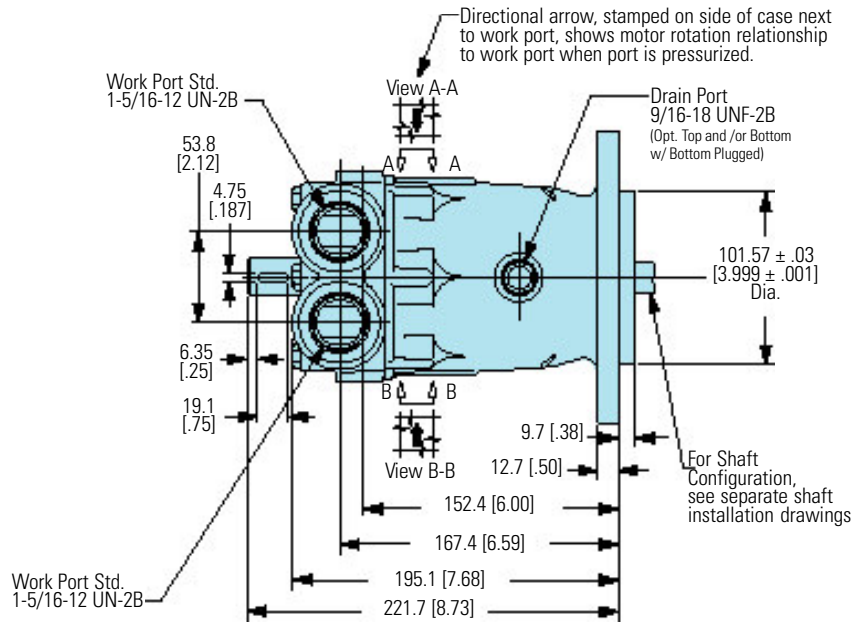
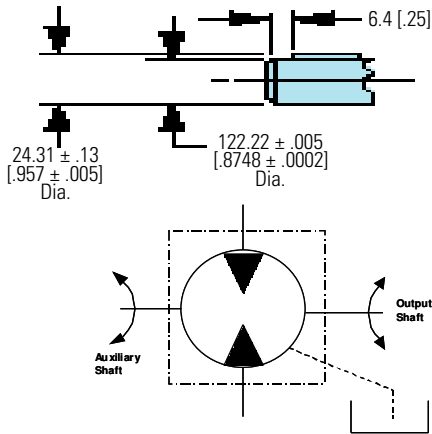


Note: All ports are SAE (J1926) o-ring ports. Dimensions are in millimeters [inches], unless otherwise specified.

Medium Duty Piston Motors Model 74348 Installation Drawings



Same Side Porting with Through shaft for brake mounting (Code position 6, selection D) (Code position 8, selection 3)



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

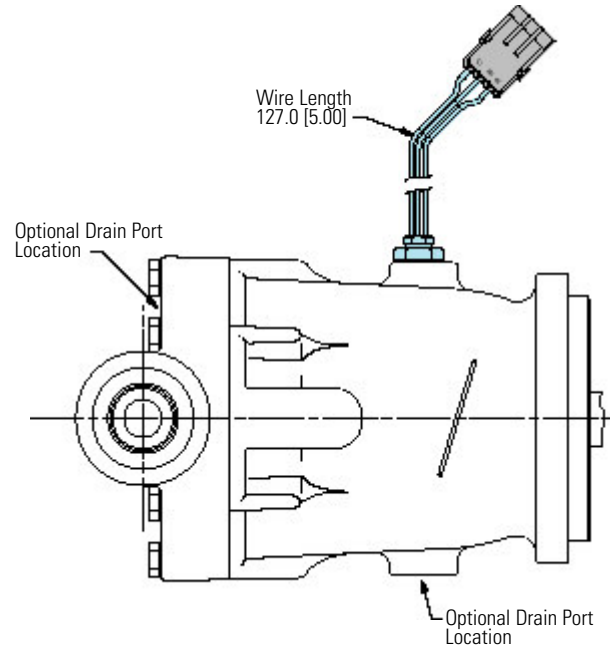
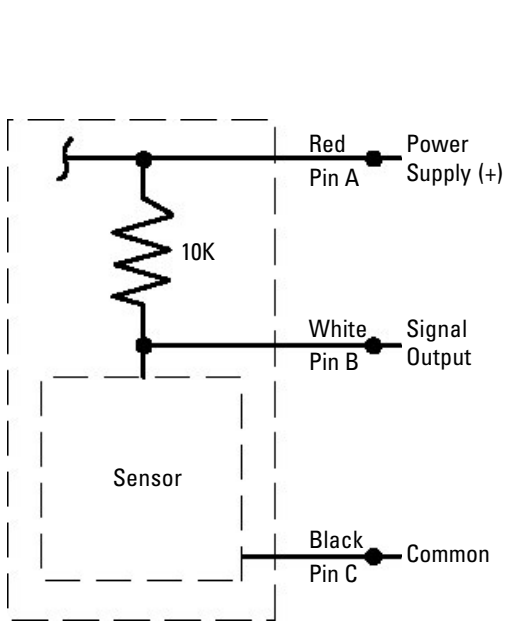
Medium Duty Piston Motors Model 743XX Installation Drawing

Motor Speed Sensor (Code position 10, 11 selectionAP)

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 Volt DC (Nominal Vehicle Power)
Supply Current:	(Is) 20 mA (including internal pull up resistor)
Output Voltage High:	Supply Voltage minus 0.5 Volt DC min. (Open Collector with 10k Ω pull up resistor)
Output Voltage Low:	(Vol) 0.5 Volt 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).

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

Medium Duty Piston Motors Model 743XX Installation Drawing

Motor Speed Sensor - M12 Quadrature Code position 10, 11 selection CA

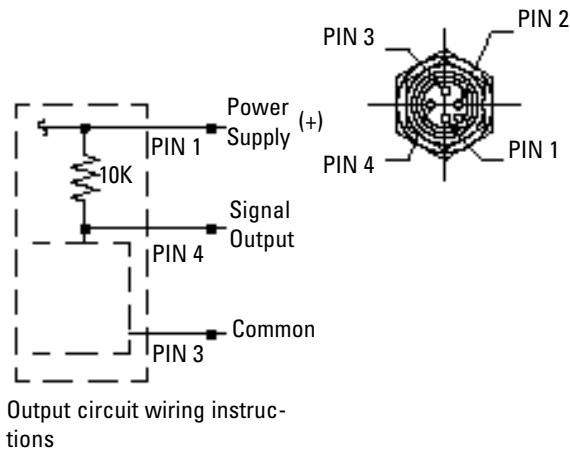
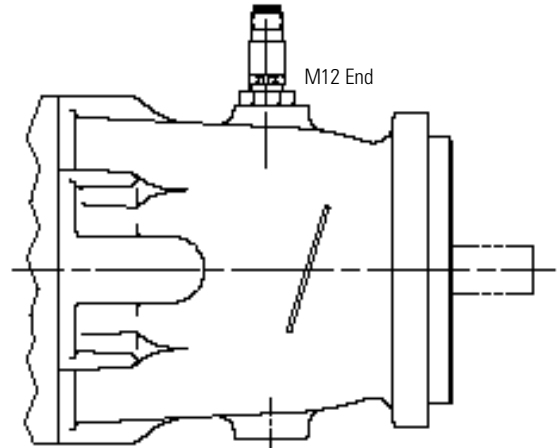
Eaton has developed a new speed and direction sensor, based on the field proven technology of our Hall Effect and Magnetic sensor. This sensor is based on the principle of quadrature and is designed for use in the demanding off-road, mobile equipment environment.

Outputs – Digital signals from NPN transistors (open collector output with internal 10K pull up resistors).

This sensor has reverse polarity protection, short circuit protection, load dump protection, and EMC (Electrical Magnetic Capability) protection (the customer should qualify the EMC protection in their specific application)

Supply Voltage: 8 to 24 Volt DC* (compatible with 12V vehicle conditions)

* Note: This sensor will operate at lower regulated voltages (5 Volt DC +/- 10%) but the EMC protection will be reduced.



Output circuit wiring instructions

SPECIFICATION

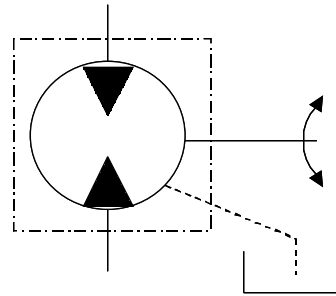
Supply Voltage:	(Vs) 12 Volt DC (Nominal Vehicle Power)
Supply Current:	(Is) 20 mA (including internal pull up resistor)
Output Voltage High:	Supply Voltage minus 0.5 Volt DC min. (Open Collector with 10k Ω pull up resistor)
Output Voltage Low:	(Vol) 0.5 Volt DC Maximum at 10 mA
Min. Shaft RPM:	50
Pulses per Revolution:	9

Connection Requirements

- Cable: 18 AWG Recommended wire .100 nominal O.D. for proper seal, 1 black, 1 red, 1 white.
- Mates with DC Micro connectors or equivalent:
- Turk Eurofast WKCVC 4T cable
- Brad Harrison Micro-Change single keyway plugs
- Lumberg Micro style 12mm DC connector

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

**Medium Duty
Piston Motors
Fixed Displacement Motor
746XX Models
2 Bolt SAE "B-B" Mount
82,6 cm³/r [5.04 in³/r] Displacement**



Typical Product Number	Model Code
74624-DAH	AAZAAA0000A0B
74624-DAV	AAZAABB0000A0B
74644-DAJ	AAZAABBA000A0B
74624-DAB	AAZADAA0000A0B
74644-DAJ	AAZAABBA000A0B

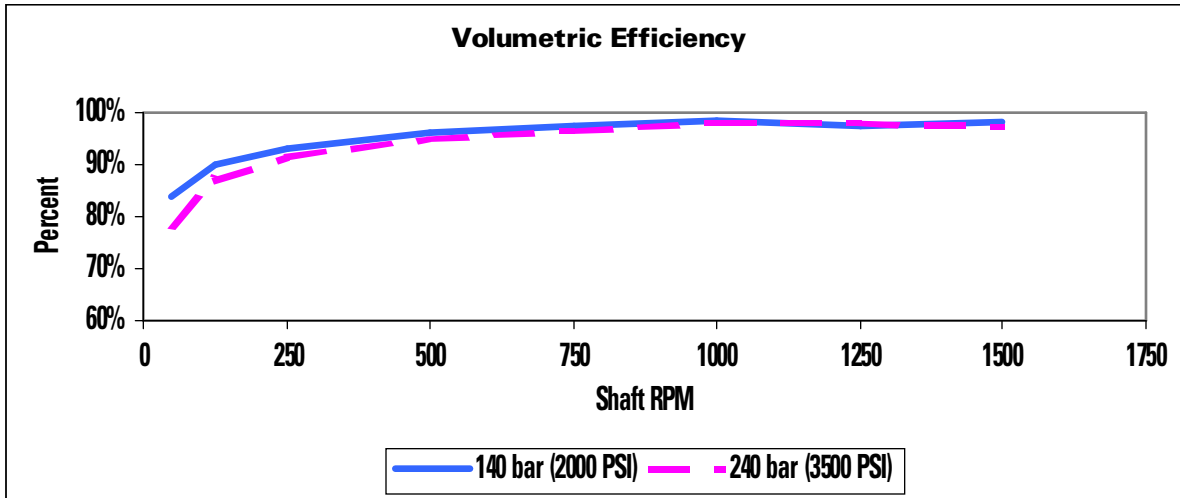
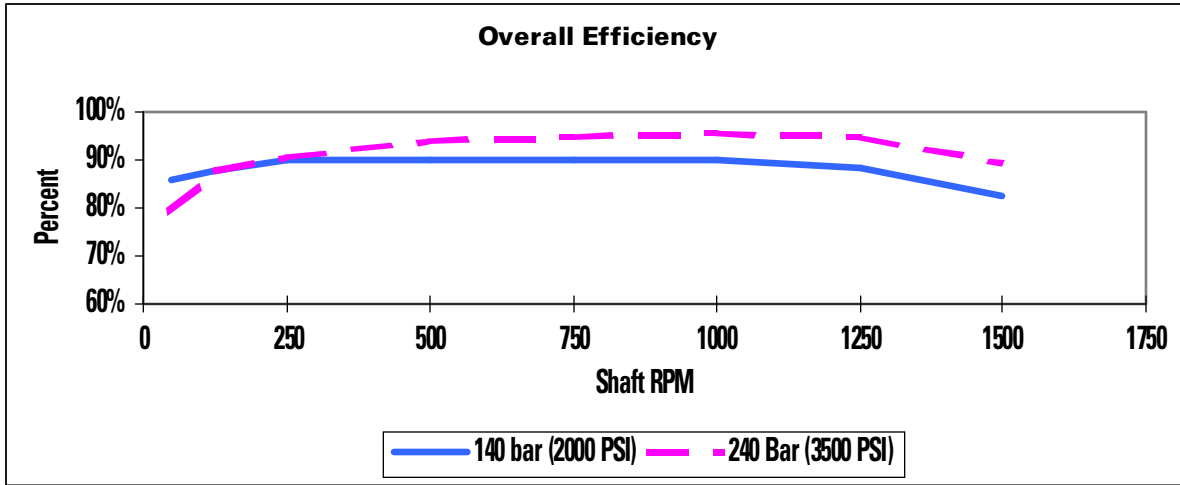


Specification	Model 74624 or 74644
Maximum Displacement	82,6 cm ³ /r [5.04 in ³ /r]
Maximum Rated Speed	1500 RPM
Continuous Rated Pressure †	240 bar [3500 lbf/in ²]
Maximum Rated Pressure ††	240 bar [3500 lbf/in ²]
Maximum Intermittent Pressure †††	265 bar [3900 lbf/in ²]
Input Flow at Rated Speed and 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 ²]
Continuous Inlet Temperature	107°C [225° F]
Weight/Single Motor (approximate)	10,9 kg [24 lbs]

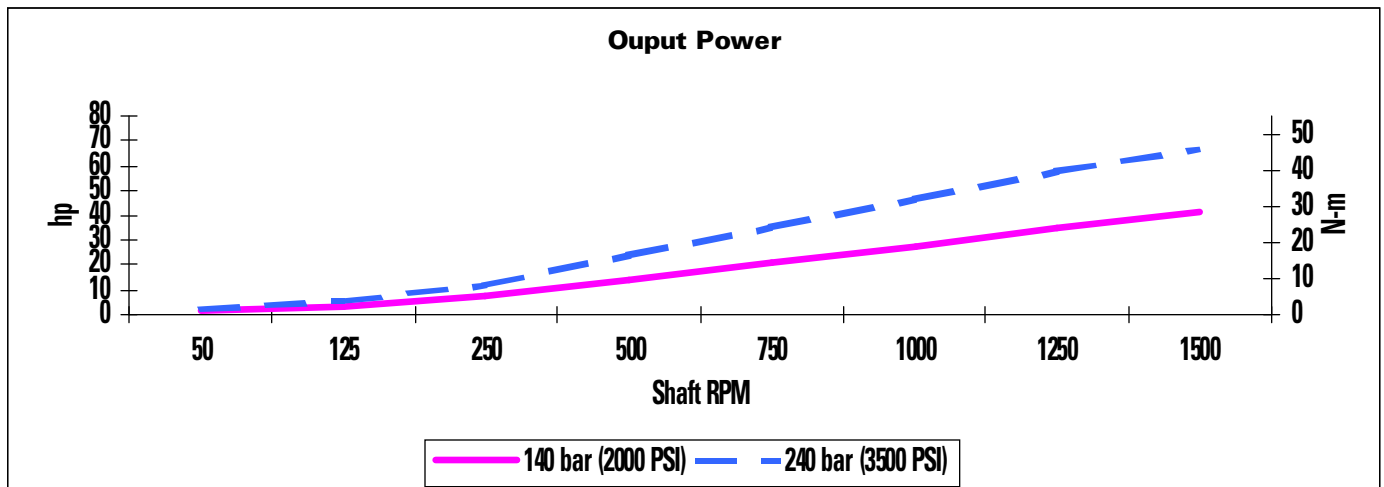
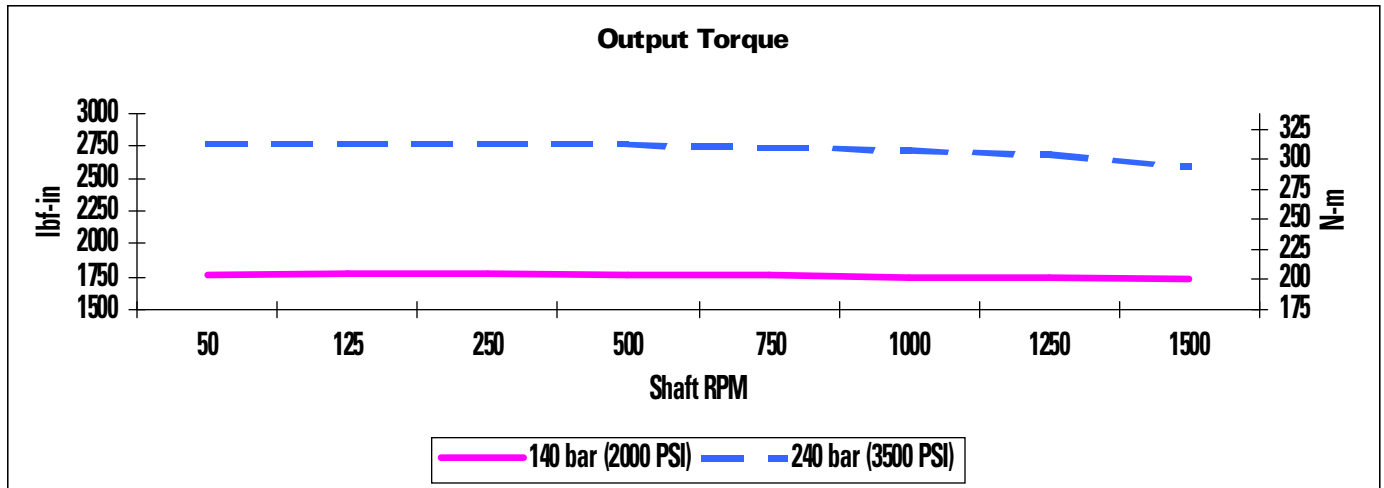
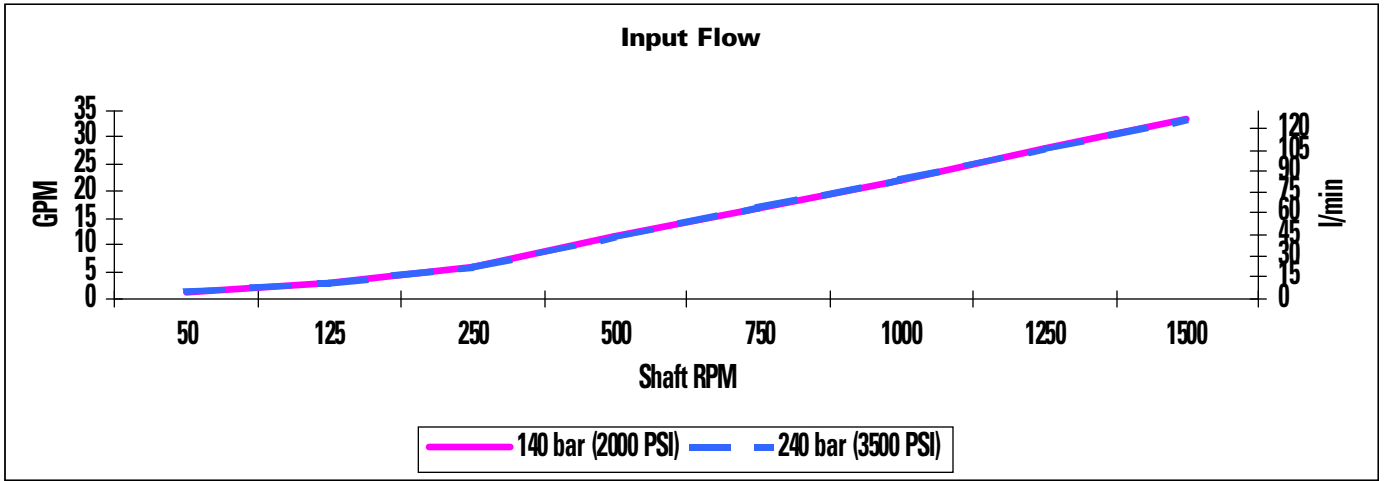
† Continuous Rated Pressure - Motor may run uninterrupted at this pressure.
 †† Maximum Rated Pressure - Highest allowable system pressure. (High pressure relief valve setting)
 ††† Maximum Intermittent Pressure - A pressure spike only for a short period of time, not continuous.

Medium Duty Piston Motors Model 74624 Performance Data

The charts below are representative of a 82,6 cm³/r [5.04 in³/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].



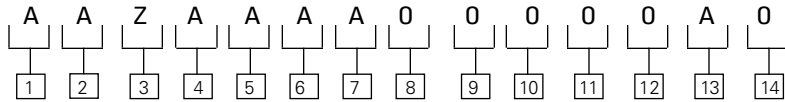
Medium Duty Piston Motors Model 74624 Performance Data



Medium Duty Piston Motors

Fixed Displacement Motor 746XX Models 82,6 cm³/r [5.04 in³/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.

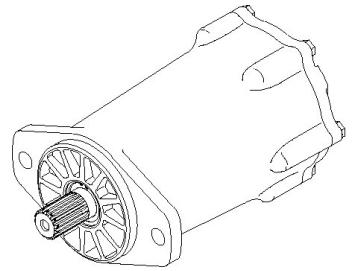


CODE POSITION	FEATURE	CODE	DESCRIPTION
1, 2, 3	Code Title	AAZ	82, 6 cm ³ /r [5.04 in ³ /r] High Torque Fixed displacement piston motor frame size
4, 5	Output Shaft	AA	Straight Shaft, dia. 25,4 [1.00], keyway 6,30 [248] x 37,3 [1.47], shaft extension 63,5 [2.50] (key included), (std.)
		AD	15 Tooth 16/32 spline with snap ring groove, shaft extension 46 [1.81], (std.)
6	Main Port, Size, & Location	A	1-1/16-12 UN-2B straight thread o-ring ports- rear, (std.)
		B	1-1/16 UN-2B straight thread o-ring ports- same side, top, (opt.)
7	Drain Port, Size and Location	A	9/16-18 UNF-2B straight thread o-ring port - Horizontal top rear of unit, (std.)
		B	9/19-18 UNF-2B straight thread o-ring port - Vertical top rear of unit, (opt.)
8	Auxiliary Mounting Features (rear)	0	No Auxiliary Mounting Feature - Model 74624, (std.)
		A*	Straight through shaft, dia. 25,4 [1.00], with keyway 6,35 x 25,4 [250 x 1.00], Shaft length from mounting flange 274,3 [10.80] (key included); 2 mounting holes 5/16-18 UNC-2B Thd, 13,3 [53] min. full thread (bottom rear of unit) - Model 74644, (opt.)
		C*	15 Tooth 16/32 spline, shaft length from mounting flange 258,6 [10.18]; 2 mounting holes 5/16-18 UNC-2B Thd, 13,3 [53] min. full Thd (bottom rear of unit) - Model 74644, (opt.)
9, 10	Special Features	00	No special Features, (std.)
11, 12	Paint	0A	Primer, (std.)
		0B	Black Paint, (std.)
13	Identification	0	Standard, (std.)
14	Design Code	0	Eaton assigns current design code, (std.)

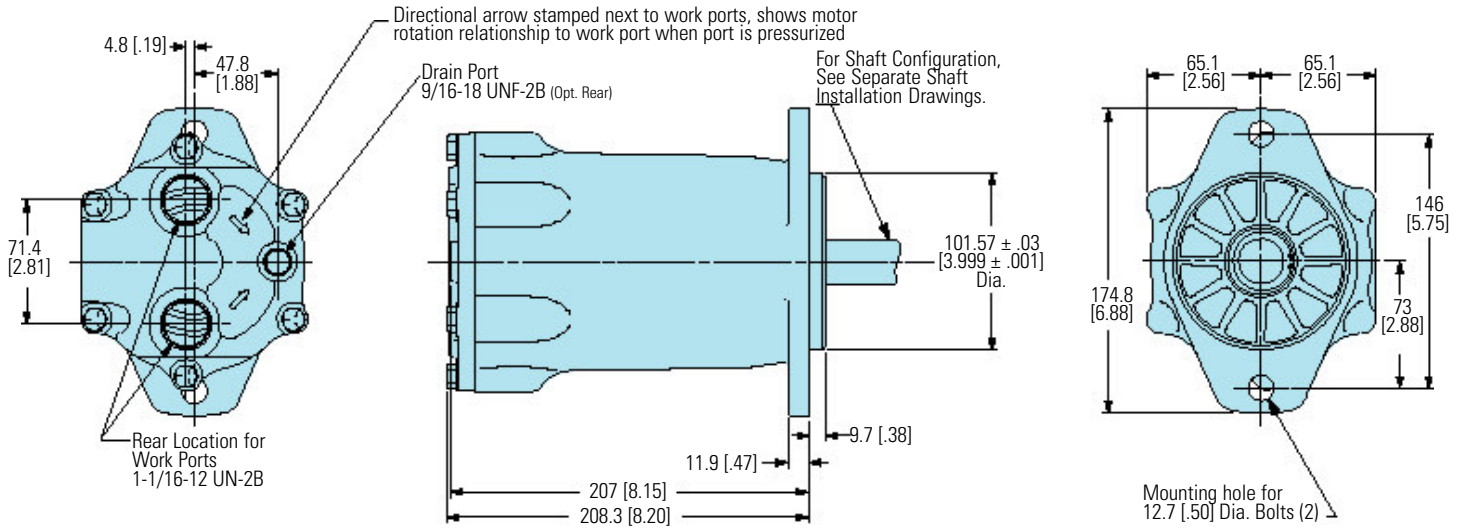
* Requires the selection of same side porting only.

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

Medium Duty Piston Motors Model 74624 and 74644 Installation Drawings



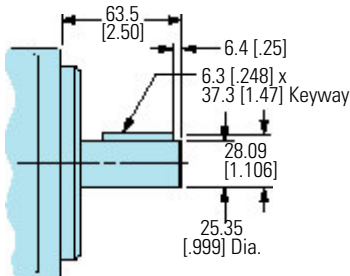
Rear Porting (Code position 6, selection A)



Output Shafts Used for all 746XX Models (Code position 4 & 5, selection AA or AD)

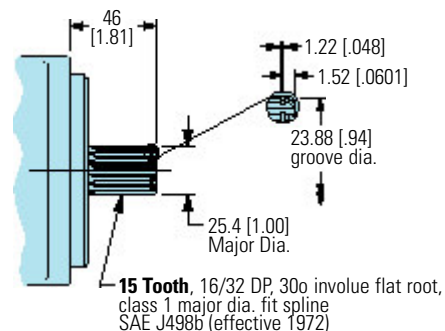
Spline Shaft (Code Selection AA)

Maximum Torque on Shaft
Shaft AA - 337,5 N•m [2987 lbf•in]



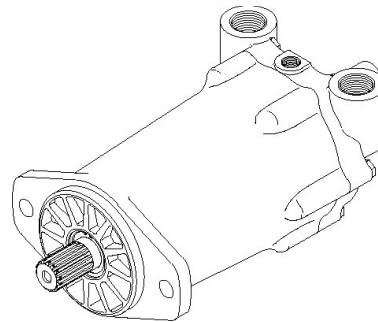
Spline Shaft (Code Selection AD)

Maximum Torque on Shaft
Shaft AD - 337,5 N•m [2987 lbf•in]

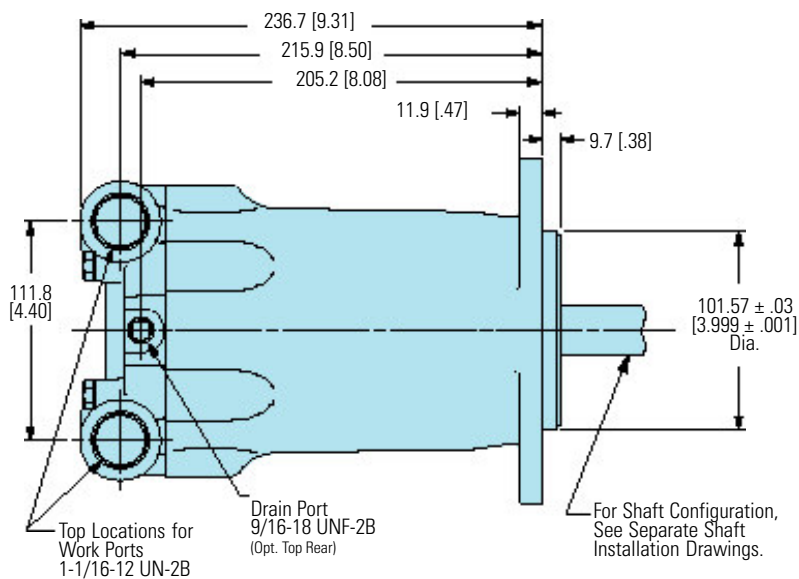
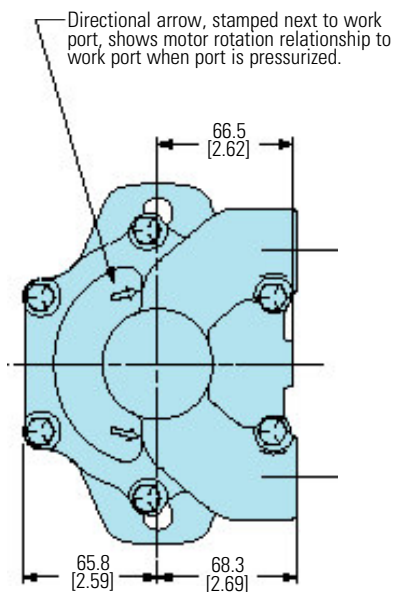
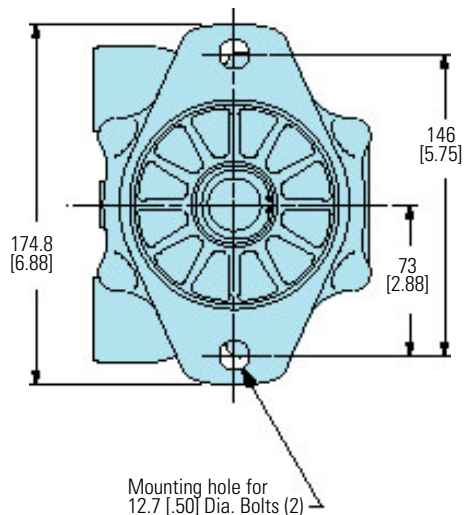


Note: All ports are SAE (J1926) o-ring ports. Dimensions are in millimeters [inches], unless otherwise specified.

Medium Duty Piston Motors Model 74624 Installation Drawings

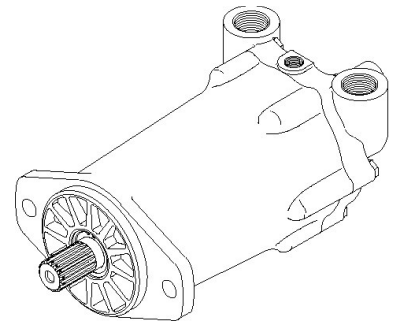


Same Side Porting (Code position 6, selection B)

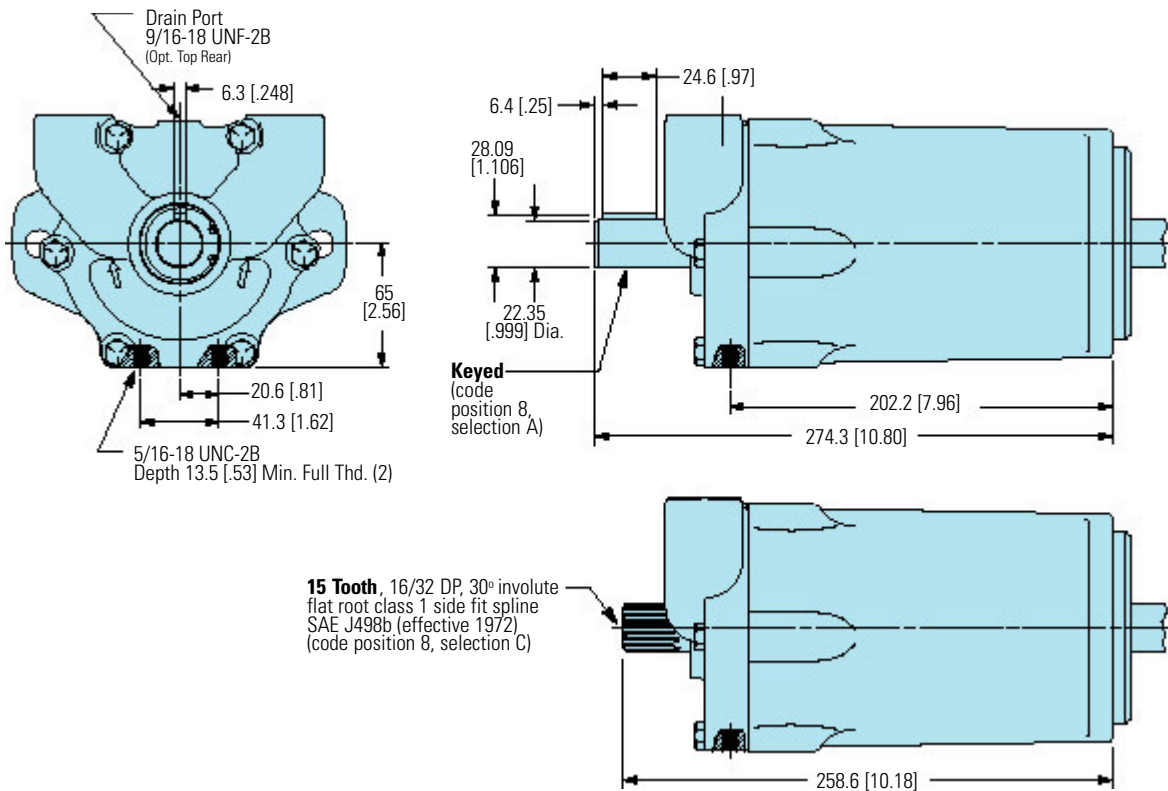


Note: All ports are SAE (J1926) o-ring ports. Dimensions are in millimeters [inches], unless otherwise specified.

Medium Duty Piston Motors Model 74644 Installation Drawings

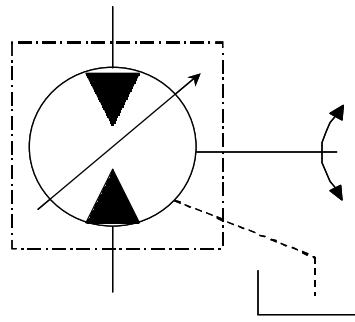


Through Shaft for Brake Mounting (Code position 8, selection A or C)



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

**Medium Duty
Piston Motors
Variable Displacement Motor
713XX Models
40,6 to 21,0 cm³/r [2.48 to 1.28 in³/r]
Displacement**



Typical Product Number	Model Code
71302-DAP	AAMAB140H000AOC
71302-DAE	AAMAB330D000AOC
71302-DAK	AAMBA110C000AOC
71392-DAE	AAMGA110M000AOC
71392-DAE	AAMGA110M000AOC
71392-DAC	AAMGA210D000AOC
71392-DAJ	AAMGA210H000AOC
71392-DAB	AAMGA260H000AOC

SPECIFICATIONS

Maximum Displacement
 Maximum Rated Speed
 Continuous Rated Pressure †
 Maximum Rated Pressure ††
 Maximum Intermittent Pressure †††
 Input Flow at Rated Speed and Pressure
 Output Power at Rated Speed and Pressure
 Output Torque at Rated Speed and Pressure
 Continuous Allowable Case Pressure
 Continuous Inlet Temperature
 Weight/Single Motor (approximate)

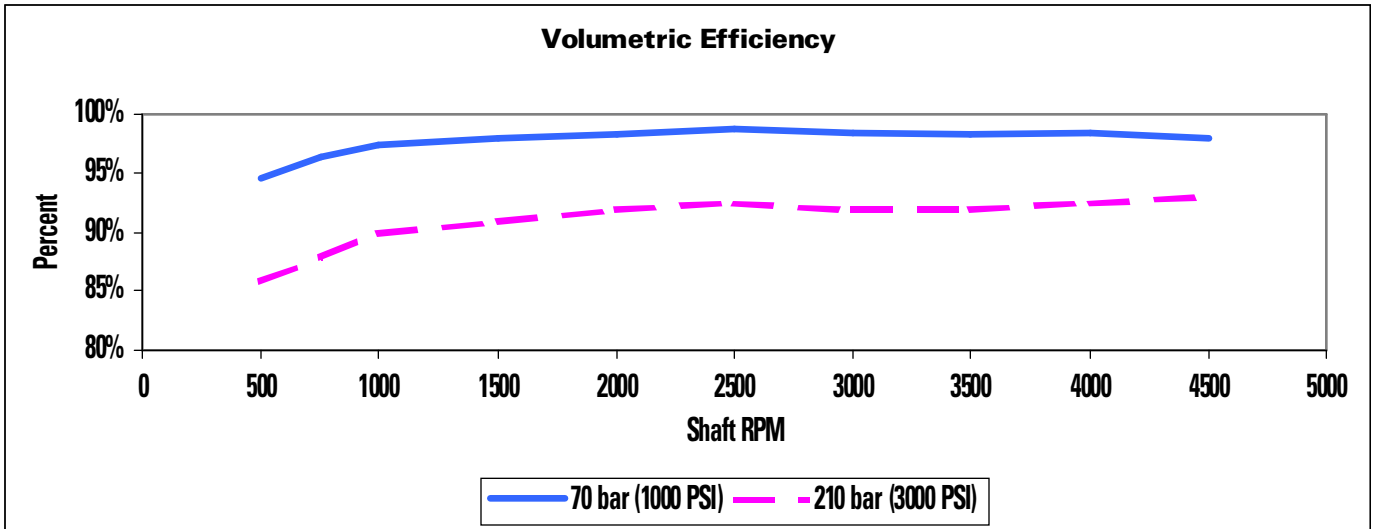
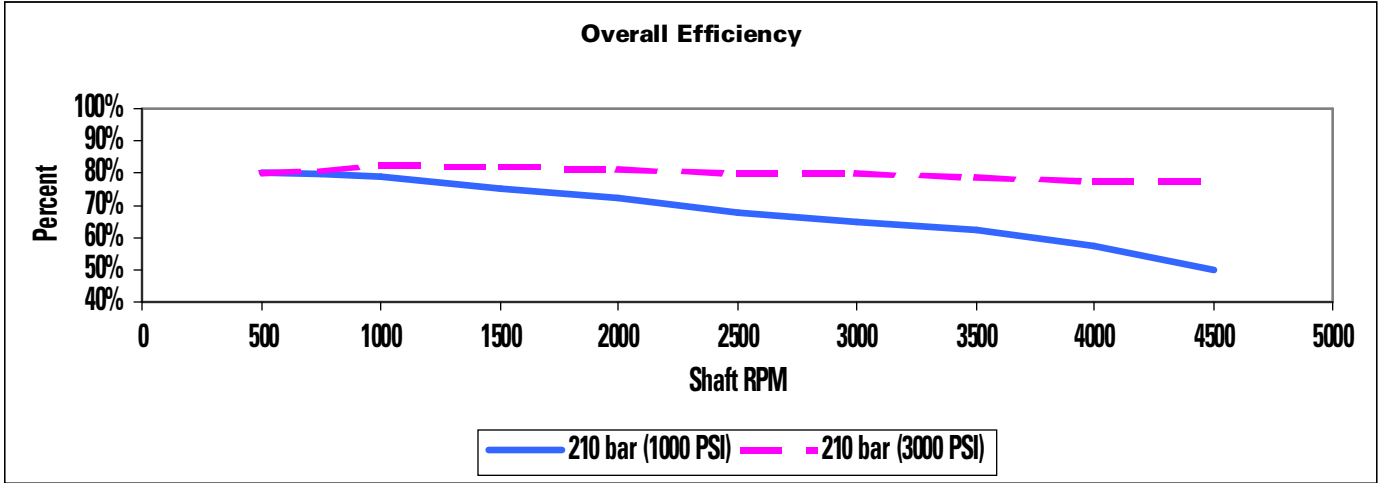
MODEL 71302 / 71392

40,6 to 21,0 cm³/r [2.48 to 1.28 in³/r]
 3600 RPM at 17° control angle 4500 RPM at 9° control angle
 210 bar [3000 lbf/in²]
 345 bar [5000 lbf/in²]
 370 bar [5400 lbf/in²]
 126,4 l/min [34 GPM] at 17° control angle
 38,8 kW [52.0 hp] at 17° control angle
 127 N•m [1125 lbf•in] at 17° control angle
 1,7 bar [25 lbf/in²]
 107°C [225° F]
 9,5 kg [21 lbs]

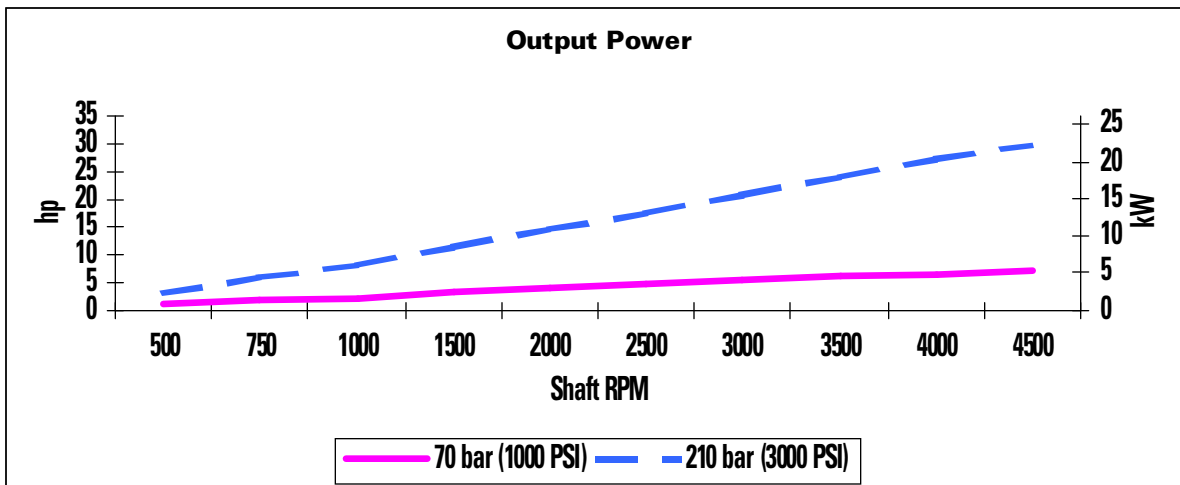
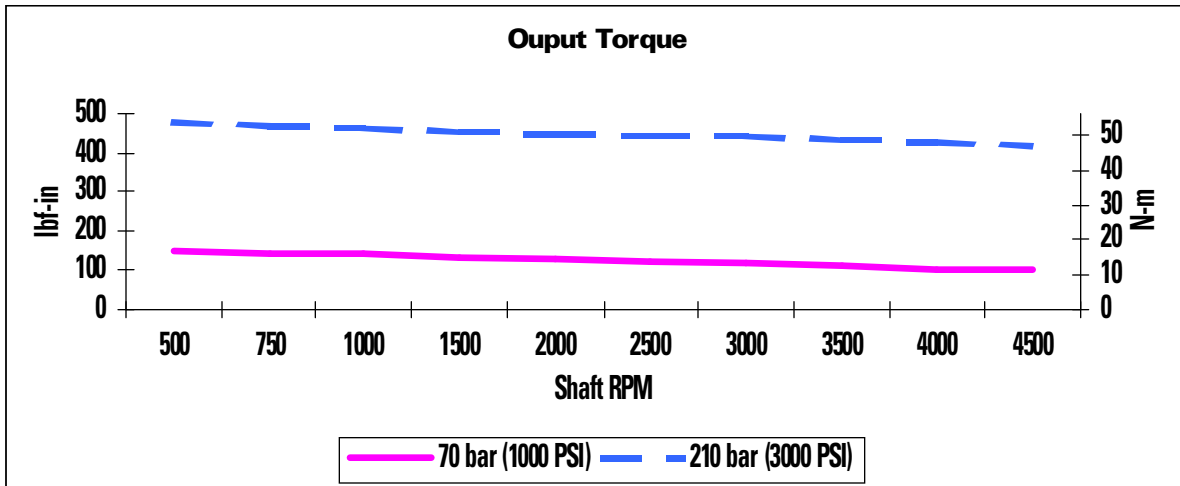
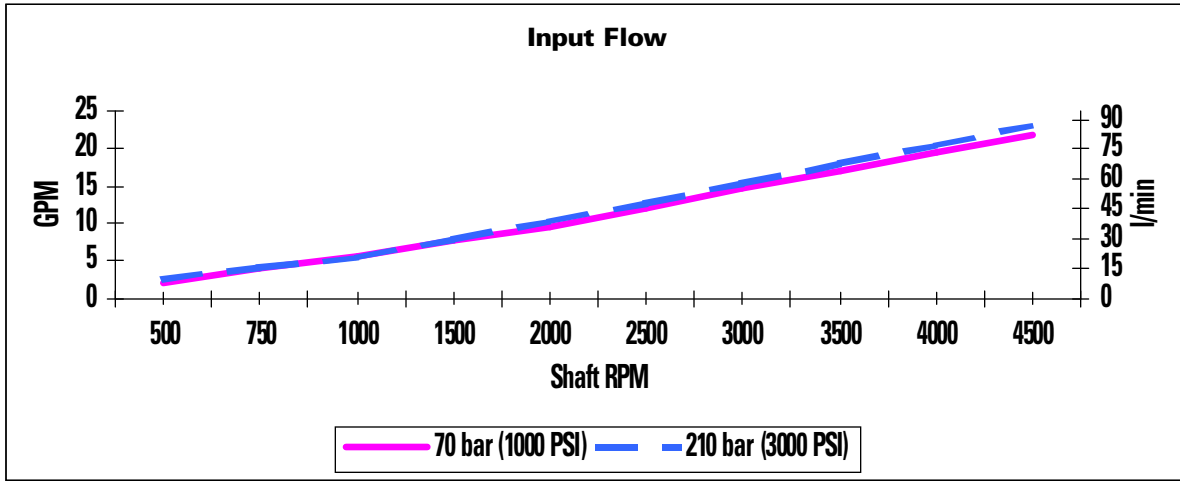
† Continuous Rated Pressure - Motor may run uninterrupted at this pressure.
 †† Maximum Rated Pressure - Highest allowable system pressure. (High pressure relief valve setting)
 ††† Maximum Intermittent Pressure - A pressure spike only for a short period of time, not continuous.

Medium Duty Piston Motors Model 71302 Performance Data @7° 35' Control Angle

The charts below are representative of a 18 cm³/r [1.10 in³/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].

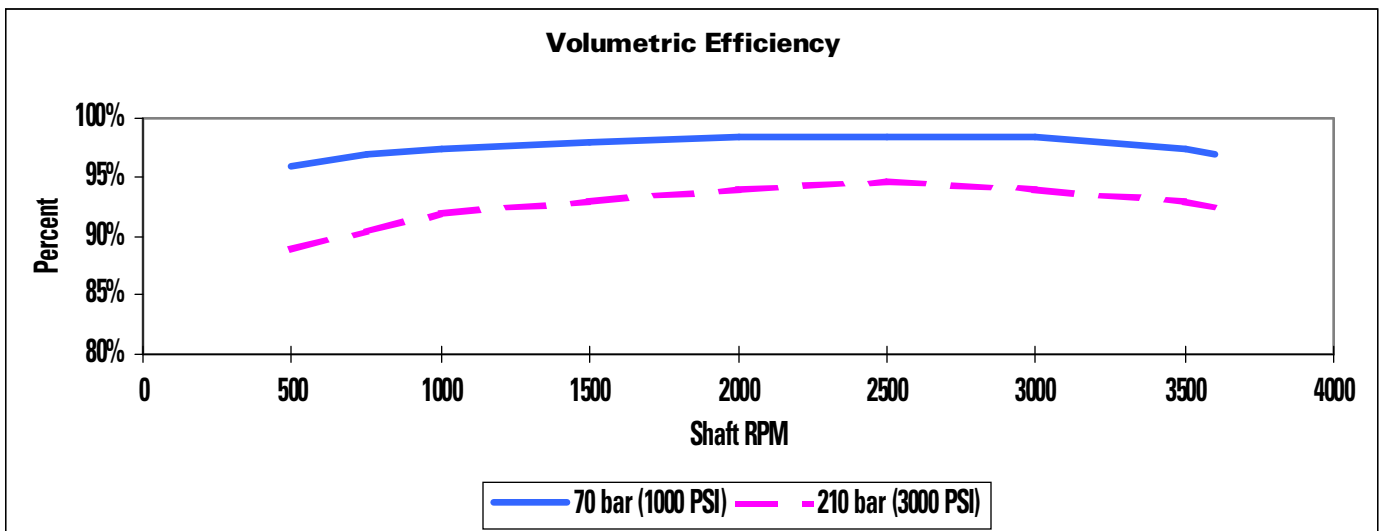
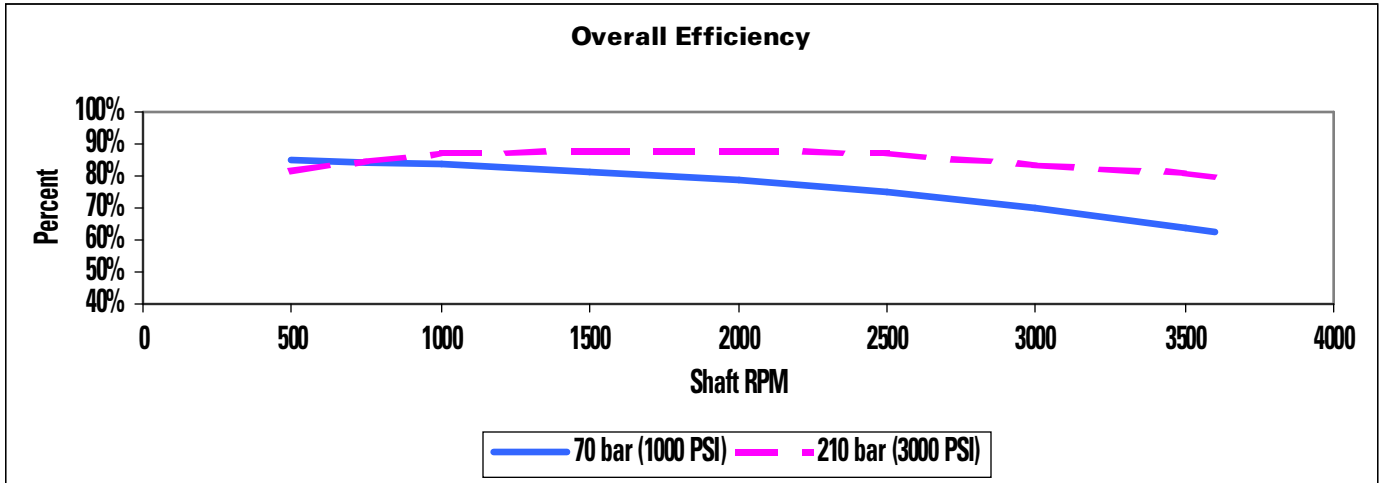


**Medium Duty
Piston Motors
Model 71302
Performance Data
@7° 35' Control Angle**

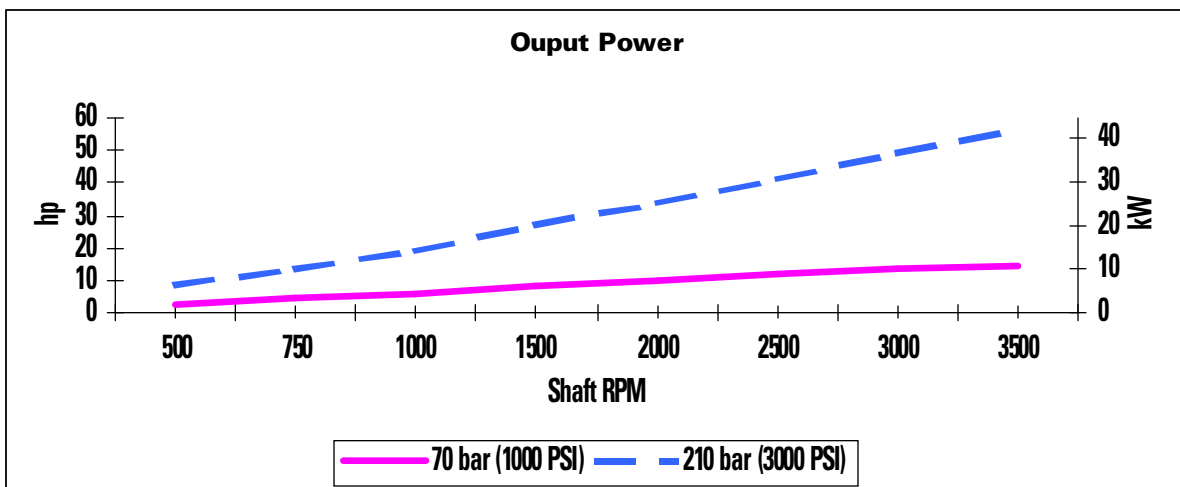
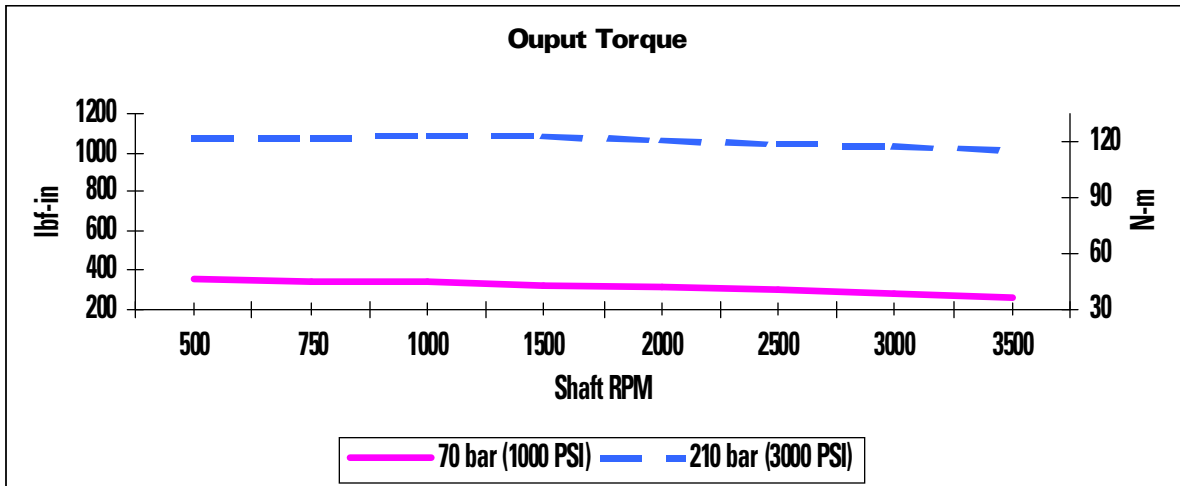
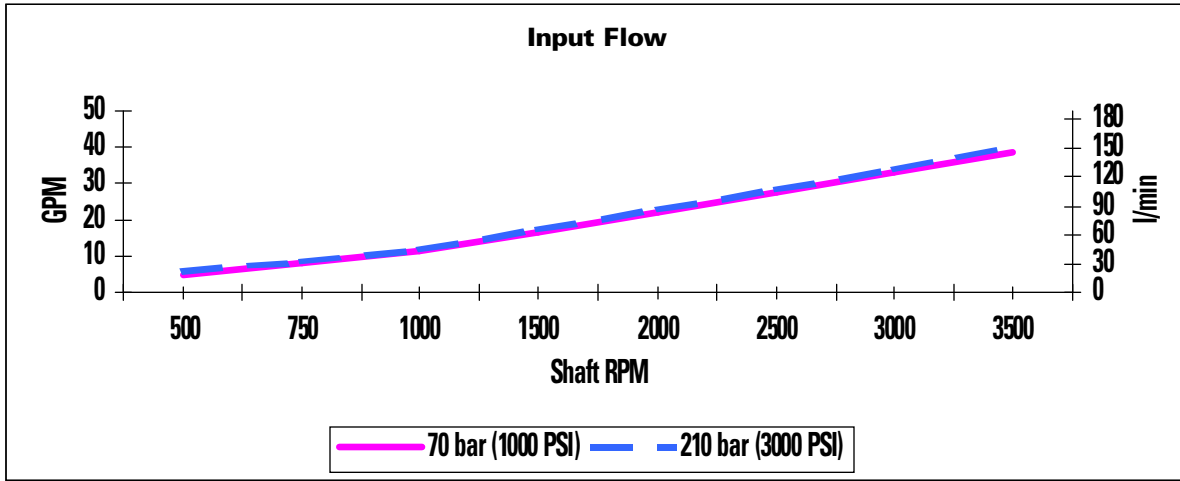


Medium Duty Piston Motors Model 71302 Performance Data @17° Control Angle

The charts below are representative of a 40.6 cm³/r [2.48 in³/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].



**Medium Duty
Piston Motors
Model 71302
Performance Data
@17° Control Angle**

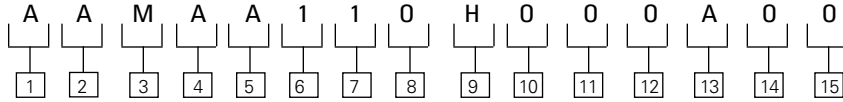


Medium Duty Piston Motors

Variable Displacement Motor 713XX Model Code

40,6 cm³/r [2.48 in³/r] Displacement

Variable 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 POSITION	FEATURE	CODE	DESCRIPTION
1, 2, 3	Code Title	AAM	40, 6 cm ³ /r [2.48 in ³ /r] Variable displacement piston motor frame size
4	Control Options	A	Control Shaft 25,3 [.996] Dia. left of centerline with through hole 9,6 [.378] Dia., (std.)
		B	Control Shaft 25,3 [.996] Dia. right of centerline with through hole 9,6 [.378] Dia., (std.)
		C	Control Shaft 19,05 [.750] Dia. right of centerline with keyway 4,88 x 30,2 [.192 x 1.19], (opt.)
		D	Control Shaft 19,05 [.750] Dia. right of centerline with keyway 4,88 x 30,2 [.192 x 1.19], (opt.)
		F	Hydraulic De-stroke Control, Remote Port Down - Model 71392, (opt.)
		G	Hydraulic De-stroke Control, Remote Port Up - Model 71392, (opt.)
5	Output Shaft	A	13 Tooth 16/32 spline, shaft extension 41,1 [1.62], (std.)
		B	13 Tooth 16/32 spline, with snap ring groove, shaft extension 41,1 [1.62], (opt.)
6	Main Port, Size and Location	1	1 1/16-12 UN-2B straight thread o-ring ports - Rear, (std.)
		2	1 1/16-12 UN-2B straight thread o-ring ports - Opposite Sides, (std.)
7	Drain Port, Size and Location	1	9/16-18 UNF-2B straight thread o-ring port - Right Side, (std.)
		3	9/16-18 UNF-2B straight thread o-ring port - Rear of Backplate, (opt.)
		4	9/16-18 UNF-2B straight thread o-ring port - Right Side and Left Side, (opt.)
		6	9/16-18 UNF-2B straight thread o-ring port - Top, (opt.)

CODE POSITION	FEATURE	CODE	DESCRIPTION
8	Auxiliary Mounting Features (rear)	0	No Auxiliary Mounting Feature, (std.)
		1*	13 Tooth 16/32 Ext. Tapered spline with tapped hole, bottom pad with 5/16-18 UNC-2B mounting holes, (opt.)
9	Min-Max Displacements & Control Angles	C	12,3 to 40,6 cm ³ /r [.70 to 2.48 in ³ /r], 5° 17' maximum - 9° 0' minimum control angle, (std.)
		D	17,9 to 40,6 cm ³ /r [1.09 to 2.78 in ³ /r], 7° 40' maximum - 9° 0' minimum control angle, (std.)
		H	21,0 to 40,6 cm ³ /r [1.28 to 2.48 in ³ /r], 17° 0' maximum - 9° 0' minimum control angle, (std.)
		M	27,9 to 40,6 cm ³ /r [1.7 to 2.48 in ³ /r], 11° 50' maximum - 9° 0' minimum control angle, (std.)
10, 11	Special Features	00	No Special Feature, (std.)
12, 13	Paint	0A	Primer, (std.)
		0B	Black Paint, (std.)
14	Identification	0	Standard, (std.)
15	Design Code	0	Eaton assigns current design code

* Requires the selection of opposite side porting only.

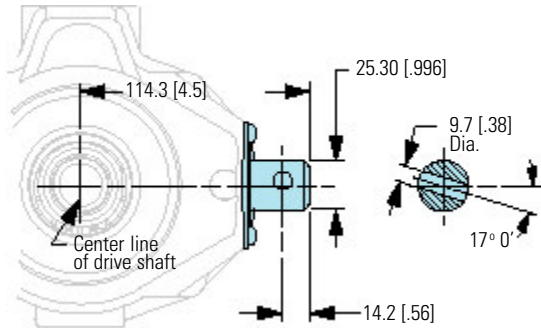
Note: All ports are SAE (J1926) o-ring ports.

Medium Duty Piston Motors Model 71302 and 71392 Installation Drawings

Control Shaft and Location

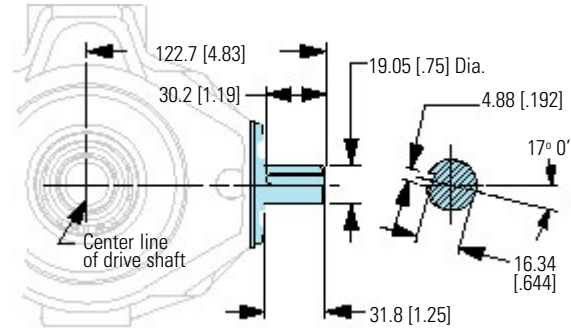
(Code position 4, selection A or B)

Shown: Right side location at full control angle.



(Code position 4, selection C or D)

Shown: Right side location at full control angle

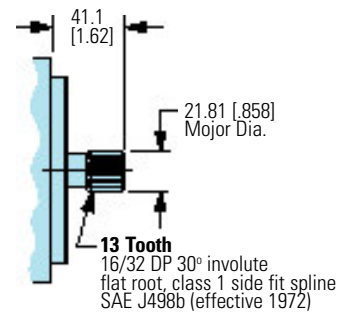


Output Shaft

(Code position 5)

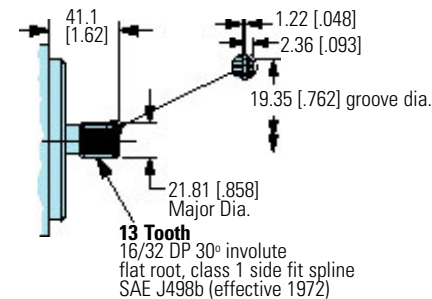
Spline Shaft (Code selection A)

Maximum Torque on Shaft 209,3 N·m [1,852 lbf·in]



Spline Shaft (Code selection B)

Maximum Torque on Shaft 209,3 N·m [1,852 lbf·in]



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

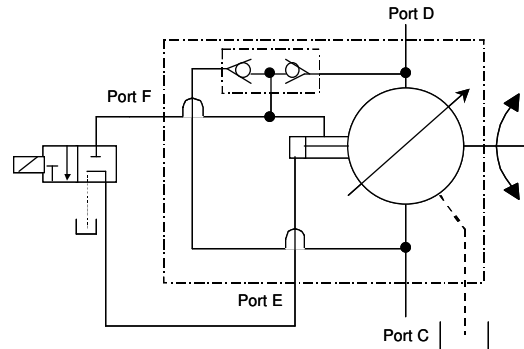
Medium Duty Piston Motors

Model 71392

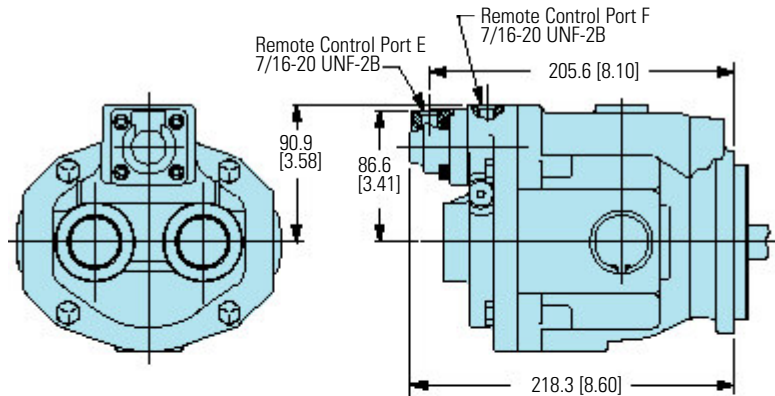
Installation Drawings

Hydraulic De-stroke Control Code position 4, selection F or G

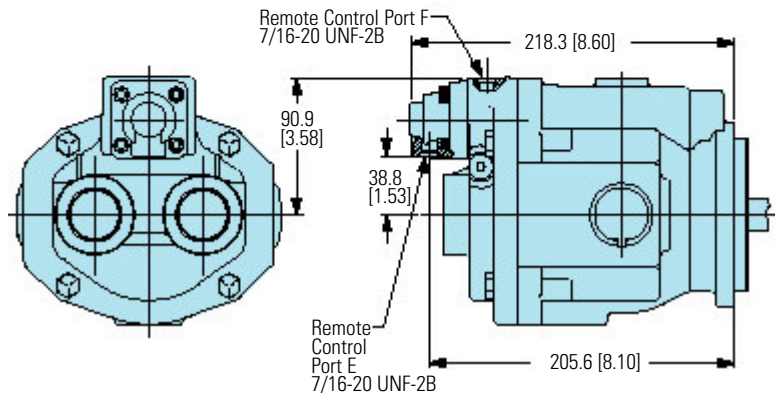
The Hydraulic De-stroke Control feature allows the operator to control the motor without any mechanical linkage to the motor. A normally closed valve is required to provide maximum displacement to the motor. The valves must be rated for maximum system pressure.



Control Port up (Code position 4, selection G)

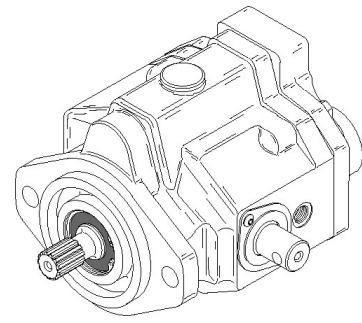


Control Port Down (Code position 4, selection F)

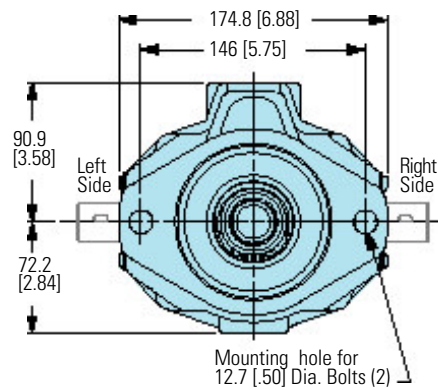
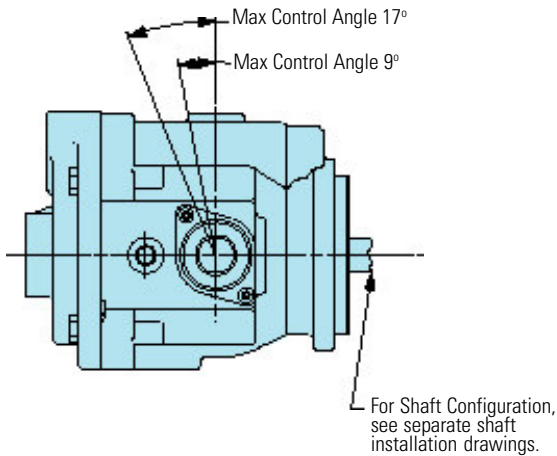
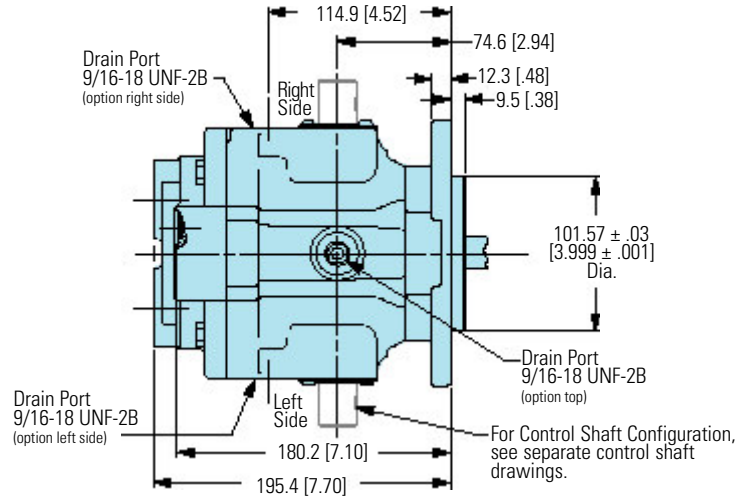
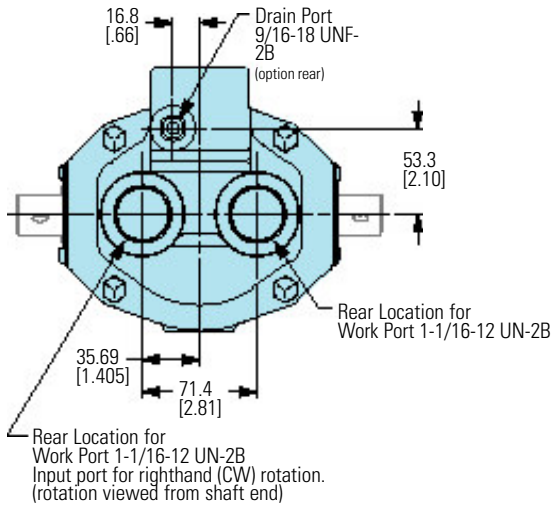


Note: All ports are SAE (J1926) o-ring ports. Dimensions are in millimeters [inches], unless otherwise specified.

Medium Duty Piston Motors Model 71302 Installation Drawings

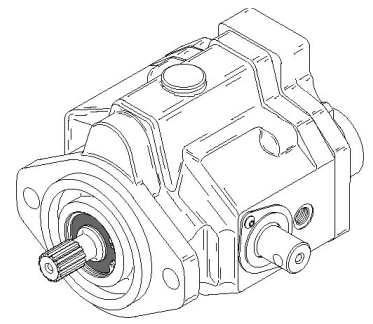


Rear Porting (Code position 6, selection 1)

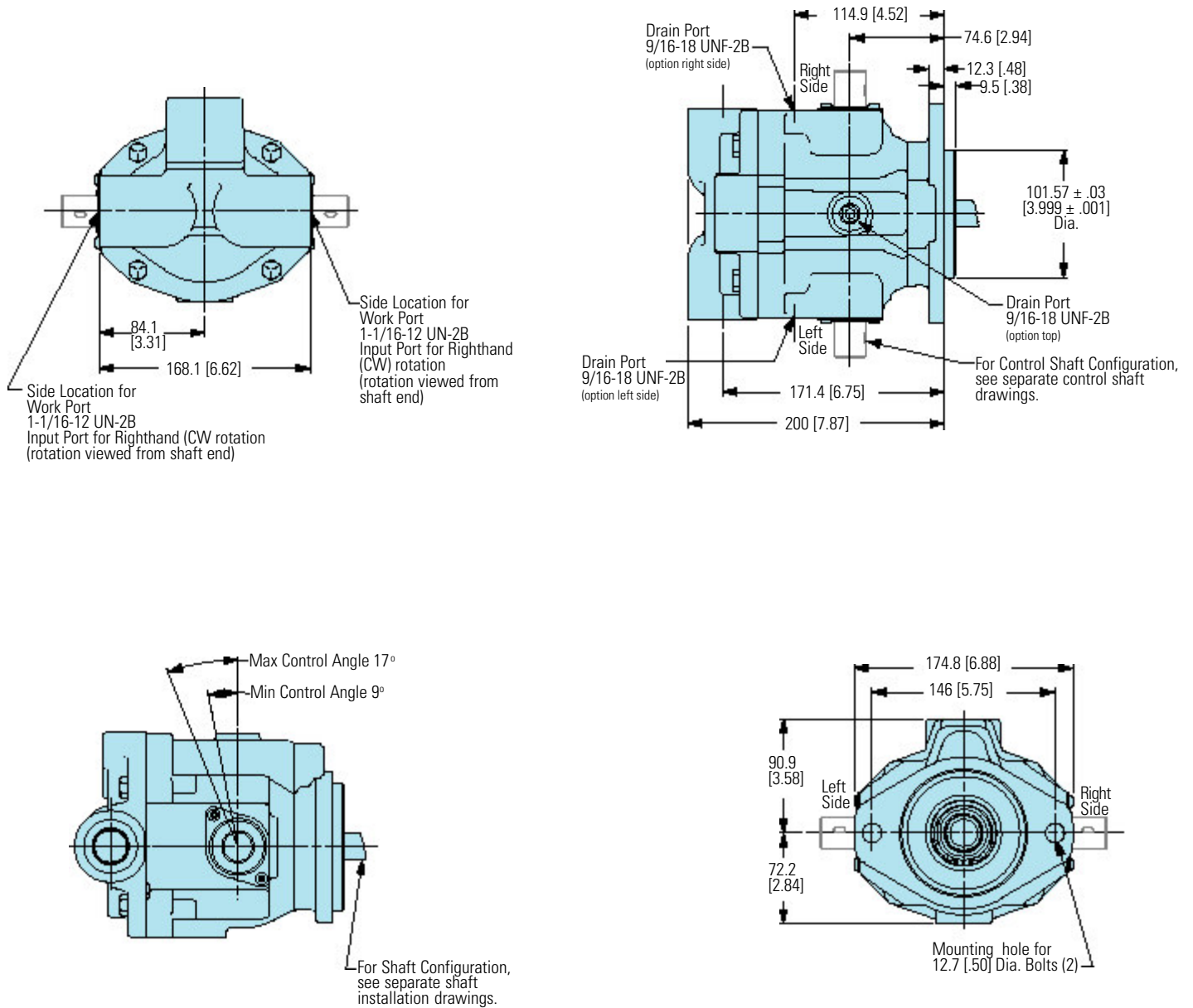


Note: All ports are SAE (J1926) o-ring ports. Dimensions are in millimeters [inches], unless otherwise specified.

Medium Duty Piston Motors Model 71302 Installation Drawings

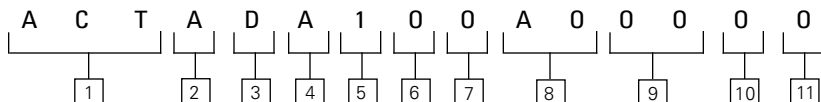


Opposite Side Porting (Code position 6, selection 2)



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

Medium Duty Piston Motors 72450 Series Servo Motor



CODE POSITION	FEATURE	CODE	DESCRIPTION
1	Code Title	ACT	40,6 cm ³ /r [2.48 in ³ /r] Servo Controlled Variable Displacement piston motor
		***	49,2 cm ³ /r (3.00 in ³ /r) Servo Controlled Variable Displacement motor
2	Output Shaft	A	13 Tooth 1/32 spline, Shaft extension 41,4mm (1.62 in)
3	Auxiliary Mounting Features (rear)	0	No Auxiliary Mounting Features
		A	Diameter 22.22 mm (.875 in) taper shaft
4	Drain Port, Size and Location	A	1-1/16-12 UN-2B SAE o-ring, left and right side
		B	1-1/16-12 UN-2B SAE o-ring, left and right side. Right side plugged.
		C	1-1/16-12 UN-2B SAE o-ring, left and right side. Left side plugged.
5	Main Port Size and Location	1	1-5/16-12 UN-2B SAE o-ring (A&B) same side (right side)
		2	1-5/16-12 UN-2B SAE o-ring (A&B) same side (left side)
6	Control Assembly	00	No control assembly
		—	Port plate control
7	Min-Max Displacements	A	20.5-40.6 cm ³ /r (1.25-2.48 in ³ /r) 8° 45 minutes min. - 17° 0 minutes max.
		B	22.5-40.6 cm ³ /r (1.37-2.48 in ³ /r) 9° 34 minutes min. - 17° 0 minutes max.
		F	24.5-49.2 cm ³ /r [1.49-3.00 in ³ /r] 8° 34 minutes min. - 17° 0 minutes max.
		G	29.5-49.2 cm ³ /r [1.80-3.00 in ³ /r] 10° 28 minutes min. - 17° 0 minutes max.

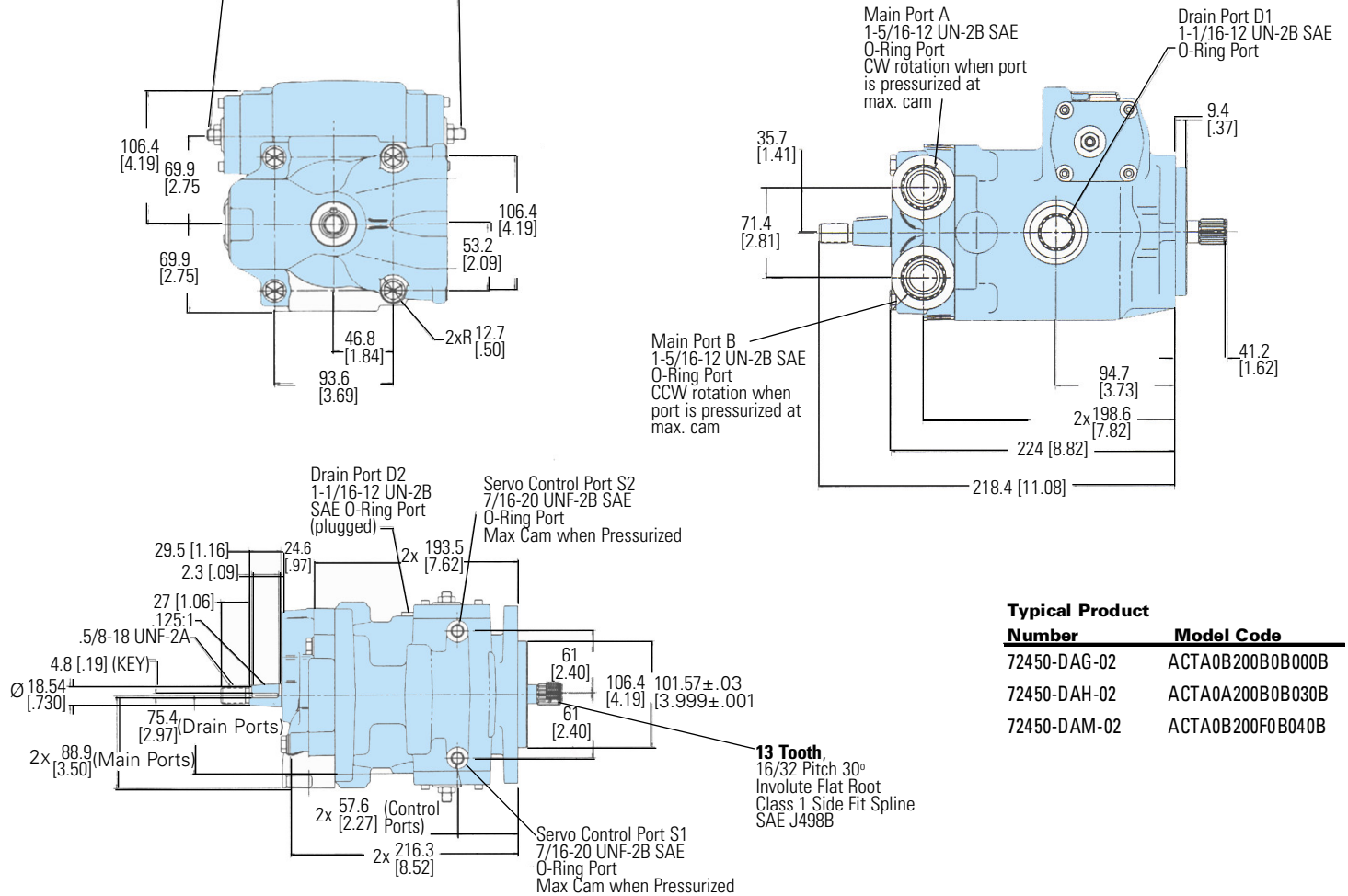
CODE POSITION	FEATURE	CODE	DESCRIPTION
8	Paint	0A	Primer Paint
		0B	Black Paint
9	Special Features	00	None
		03	Shuttle valve and back-pressure valve set 15.2-17.2 Bar (220-250 PSI) rear facing S1, S2 servo control ports
		***04	Ref. code title
		07	Spring biased to max. displacement
10	Customer Identification	0	Standard Identification
11	Design Code	0	Eaton assigns current design code, (std.)

Medium Duty Piston Motors 72450 Series Servo Installation Drawings



Through Shaft Same Side Porting

WARNING - Do not attempt to adjust screw or nut. Tampering with factory settings may void the warranty and cause system failure.



Typical Product Number	Model Code
72450-DAG-02	ACTA0B200B0B000B
72450-DAH-02	ACTA0A200B0B030B
72450-DAM-02	ACTA0B200F0B040B

SPECIFICATION

	MODEL 72450
Maximum Displacement	40 cm ³ /r [2.48 in ³ /r]
Minimum RPM Rated Speed	4500 RPM at minimum stroke angle
Maximum RPM Rated Speed	3600 RPM at maximum stroke angle
Continuous Rated Pressure	210 bar [3000 lbf/in ²]
Maximum Rated Pressure	345 bar [5000 lbf/in ²]
Maximum Intermittent Pressure	345 bar [5000 lbf/in ²]

MODEL 724XX

Maximum Displacement	49 cm ³ /r [3.00 in ³ /r]
Minimum RPM Rated Speed	4500 RPM at minimum stroke angle
Maximum RPM Rated Speed	3600 RPM at maximum stroke angle
Continuous Rated Pressure	172 bar [2500 lbf/in ²]
Maximum Rated Pressure	310 bar [4500 lbf/in ²]
Maximum Intermittent Pressure	310 bar [4500 lbf/in ²]

Performance:

Max closed loop temp. 107° C (225°F)

Max allowable case pressure 1.72 Bar (25 PSI)

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

Eaton
14615 Lone Oak Road
Eden Prairie, MN 55344
USA
Telephone 952/937-9800
Fax 952/937-7130
www.hydraulics.eaton.com

Eaton
20 Rosamond Road
Footscray
Victoria 3011
Australia
Tel: (61) 3 9319 8222
Fax: (61) 3 9318 5714

Eaton
Dr.-Reckeweg-Str.1
D-76532 Baden-Baden
Germany
Tel: (49) 7221 682-0
Fax: (49) 7221 682-788



Hydraulics

©2003 Eaton Corporation
All Rights Reserved
Printed in USA
Document No. E-MOPI-TM001-E
September 2003