



# Hydraulic Piston Eaton Vickers MFB Motor

## Inline Piston Motors

MFB5U22	MFB5U20	MFB29U10	MFB10U31	MFB20UY10	432095
MFB5UY22	MFB5UY20	MFB29UY10	MFB10UY31	MFB45UY10	270531
857580	MFB5U21	MFB45U10	MFB20U10	MFB5UY21	292747



## General Data

These motors are of axial piston, fixed or variable displacement, inline design. The units can be operated in either direction of rotation. Flow direction is as indicated.

MFB motors are variable horsepower – horsepower being approximately proportional to rpm with a given constant operating pressure. Service may be continuous, intermittent, continuous reversing, or stalled without damage when properly protected by a relief valve.

Output speeds are dependent on input flow. Speed ranges of at least 36:1 are possible at the maximum torque rating by varying flow to the motor.

## Fixed Displacement Inline Piston Motors MFB

Vickers fixed displacement inline piston motors offer a choice of five torque ratings, speed from 100 to 3600 r/min and pressures to 210 bar (3000 psi). Reversible shaft rotation and flange or foot mountings are available.

### High Efficiency

Overall operating efficiency can be as high as 93% and volumetric efficiency as high as 97%, depending on motor size, pressure, speed, fluid viscosity, and temperature.

**Compact, High Performance** High speeds, pressures and efficiencies give Vickers inline piston motors power density. The result is high performance in a compact package that requires minimum installation space.

### Rotation

Rotation can be reversed simply by reversing the direction of flow through the motor ports.

### Low Speed Capability

Minimum speed can vary between 50 and 100 r/min, depending upon motor size and characteristics of the drive load.

### Reliability

Vickers inline design has seen countless hours of rugged service on a variety of machinery applications. This proven design has provided significant cost and weight savings, while taking full advantage of the high efficiency inherent in piston units.

## Serviceability

The simplicity of Vickers design not only permits easy servicing (often without removing the unit), and also increased reliability. Vickers inline motors have fewer parts compared to competitive units.

## Variable Displacement Inline Piston Motors MVB

Vickers variable displacement inline piston motors offer a variety of displacements, speeds, and pressures.

### Rotation

Shaft rotation can be reversed simply by reversing the direction of flow through the motor ports. However, shaft rotation must not be reversed by reversing the motor's displacement control, while the motor is running.

### Controls

A handwheel or lever is used to select displacement. Both controls allow the motor to operate on either side of center, permitting bi-directional shaft rotation. The controls can be assembled on either side of the motor to facilitate motor installation and provide optimum control accessibility.

### Speed Ranges

Output speeds are dependent on input flow and the position of the displacement control. With constant placement to the MVB5 or MVB10 motor, a speed range of 4:1 is possible by varying displacement.

By varying flow to the MVB5 speed ranges of 12:1 (300 to 3600 r/min) and higher are possible with output torques to approximately 31 Nm (270 lb. in.)

By varying flow to the MVB10, speed ranges of 11:1 (300 to 3200 r/min) and higher are possible with output torques to approximately 61 Nm (540 lb.in.)

Both the MVB5 and the MVB10 motor will operate at speeds as low as 50 r/min with appropriate circuit and application considerations.

## Application

Vickers piston motors are designed to meet the specifications shown in the "Ratings" section of this catalog. To ensure maximum performance in conjunction with your specific application, consult your Vickers sales representative if your:

Pressure requirements are above 100 bar (1500 psi).

Speed is above 1800 r/min rating.

Speed is below minimum recommended speed of 100 r/min.

System requires fire resistant or other fluids.

Operating temperature is not within the range of 38 to 66 C (100 to 150 F). With proper application and fluid consideration, a greater temperature range is permissible.

Oil viscosities at operating conditions is not within 100 to 250 SUS.

Application requires an indirect drive.

Oil viscosity at start-up is in excess of 1000 SUS.

Mounting attitude is other than horizontal.

## Installation Data

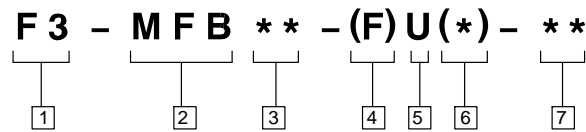
Horizontal mounting is recommended to maintain the necessary case fluid level. The case drain line must be full size and unrestricted, and connected from the uppermost drain port directly to the reservoir in such a manner that the housing remains filled with fluid. The piping of the drain line must prevent siphoning. The drain line should be piped so that it terminates below the reservoir fluid level. No other lines are to be connected to the drain line. Caution must be exercised to never exceed 0,35 bar (5 psi) unit case pressure.

## Starting

Before starting, fill case with system fluid through the uppermost drain port. Housing must be kept full at all times to provide internal lubrication.

# MFB Model Series

## Model Code



### 1 Special Seals

F3 – Seals for use with mineral oil or fire resistant fluids.  
Blank – Omit if not required

### 2 Model Series

M – Motor  
F – Fixed displacement  
B – Inline type

### 3 GPM Rating @ 1800 rpm

5 – 19 L/min (5 USgpm)  
10 – 37,9 L/min (10 USgpm)  
20 – 75,7 L/min (20 USgpm)  
29 – 109,8 L/min (29 USgpm)  
45 – 170,3 L/min (45 USgpm)

### 4 Mounting Type

F – Foot bracket  
(For separate foot bracket kit, order model model FB–A–10)  
Blank – Omit for flange mounting

### 5 Rotation

U – Either direction

### 6 Shaft End (MFB5/10 only)

Y – Standard Shaft  
Blank – Optional shaft

\* Optional shaft is available only to provide interchangeability with earlier (– 10 design) units. (Not recommended for operation above 1800 r/min and 100 bar (1500 psi).

### 6 Port Connections (MFB 45)

F – SAE 4-bolt Flanged Ports

### 7 Design Number

Subject to change

21 – 21 Design (MFB5)  
31 – 31 Design (MFB10)  
10 – 10 Design (MFB 20, 29, 45)

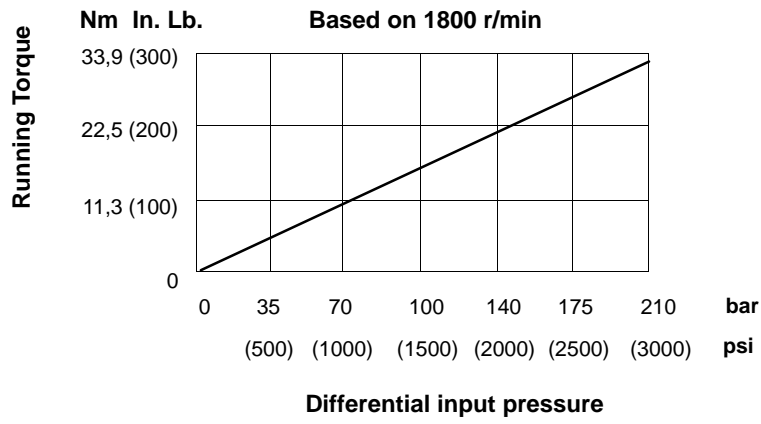
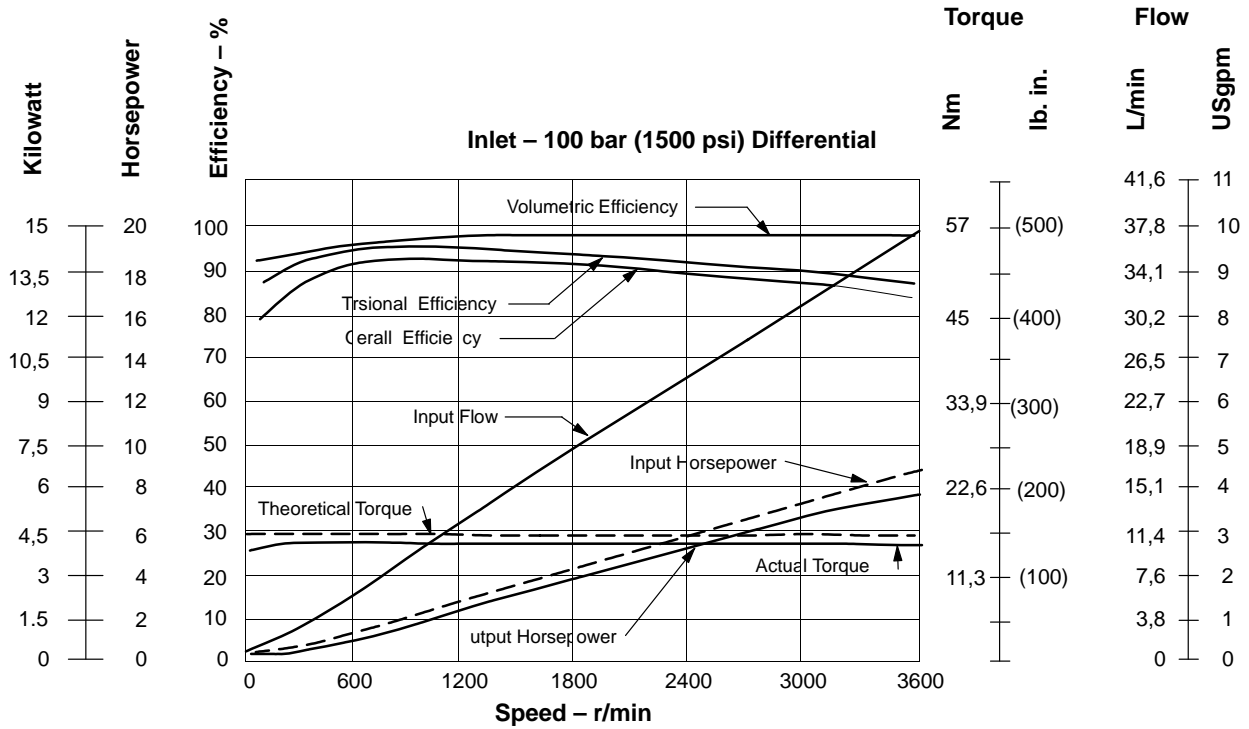
## Specifications

Model	Theoretical Displ. cm <sup>3</sup> /rev (in <sup>3</sup> /rev)	Flow L/min (USgpm) @ Rated r/min	Operating Speed r/min		Pressure bar (psi)		Output Torque Nm (lb in)		Dry Weight kg (lb)
			Rated	Max	Rated	Max	Rated	Max	
MFB5	10,5 (0.643)	19.0 (5.0)	1800	3600	100 (1500)	210 (3000)	15,25 (135)	30,5 (270)	5,0 (11)
MFB10	21,12 (1.29)	37,9 (10.0)	1800	3200	100 (1500)	210 (3000)	32,1 (284)	64,2 (568)	9,5 (21)
MFB20	42,8 (2.61)	75,7 (20)	1800	2400	100 (1500)	175 (2500)	50,85 (450)	101,7 (900)	18,5 (49)
MFB29	61,6 (3.76)	109,8 (29)	1800	2400	70 (1000)	140 (2000)	58,75 (520)	117,5 (1040)	18,5 (49)
MFB45	94,4 (5.76)	170,3 (45)	1800	2200	100 (1500)	210 (3000)	135,6 (1200)	271,2 (2400)	33 (73)

# MFB5 Model Series

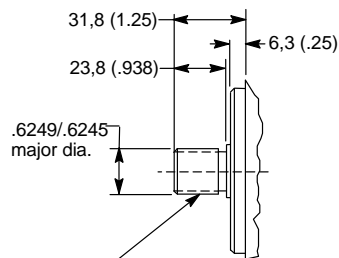
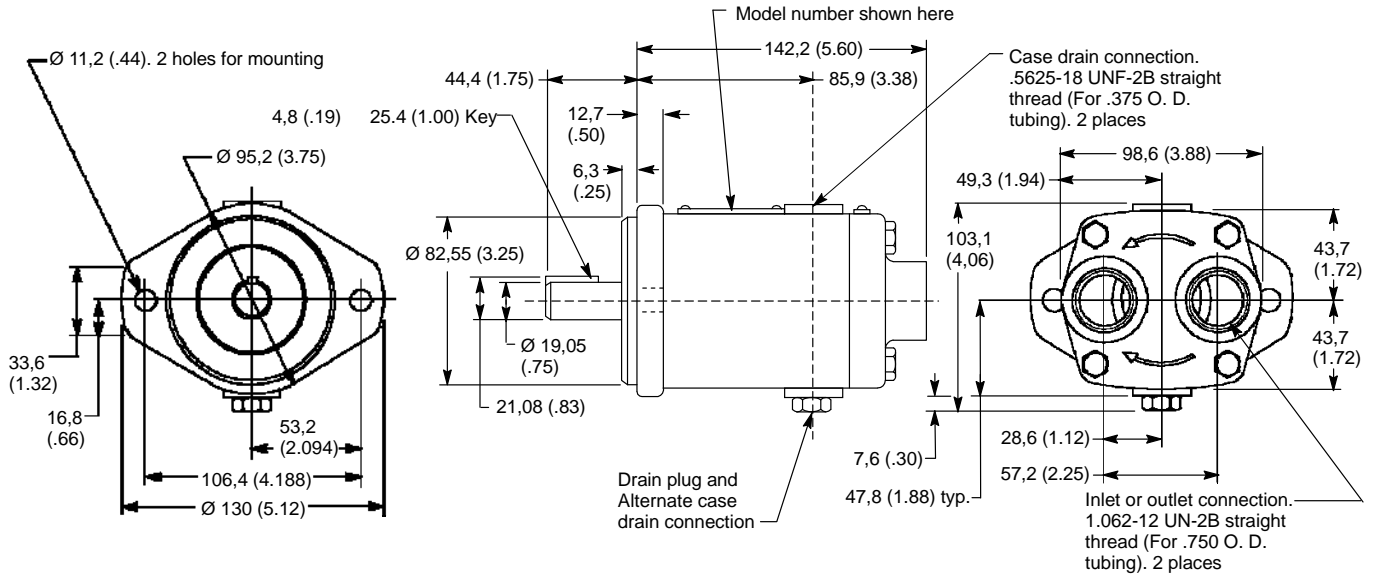
## Performance Characteristics

Based on oil temperature of 49 C (120 F) – Atmospheric Outlet



# Installation Dimensions

Millimeters (inches)

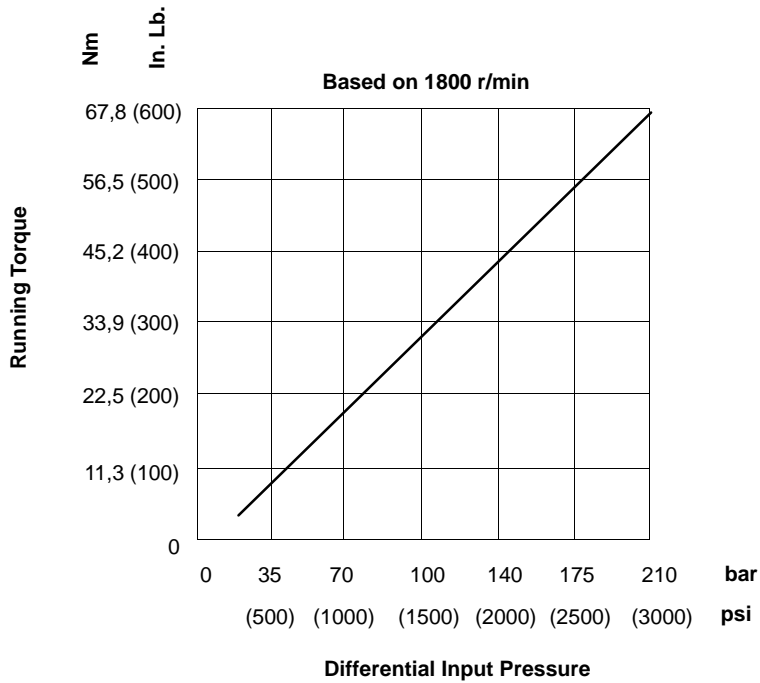
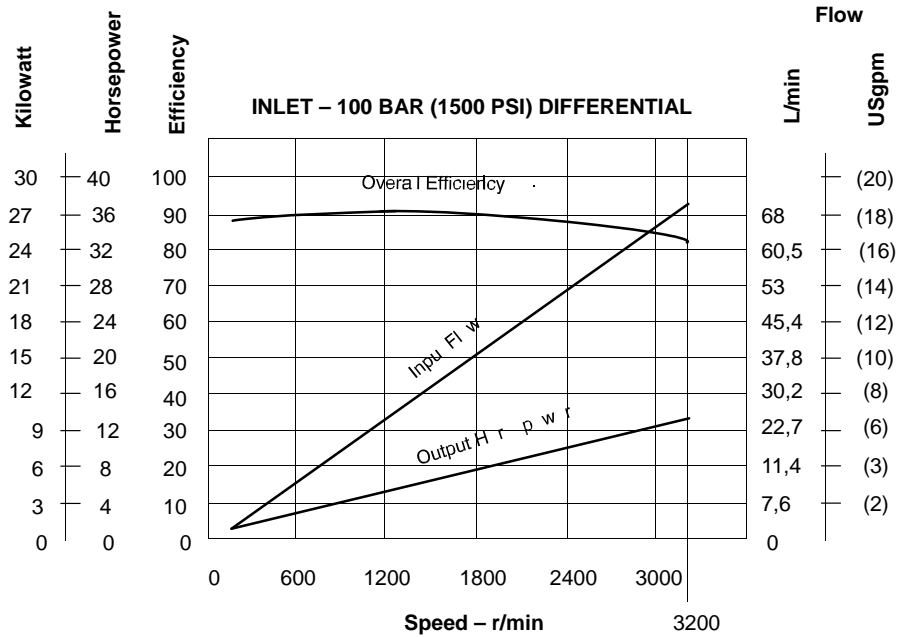


Optional drive shaft.  
SAE standard involute spline.  
Flat root major diameter fit.  
9 teeth 16/32 pitch.  
.5625 pitch diameter ref.  
.4835/.4725 minor diameter

# MFB10 Model Series

## Performance Characteristics

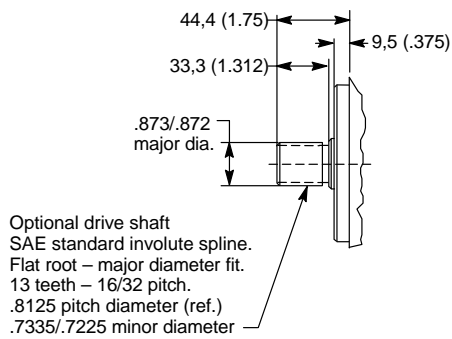
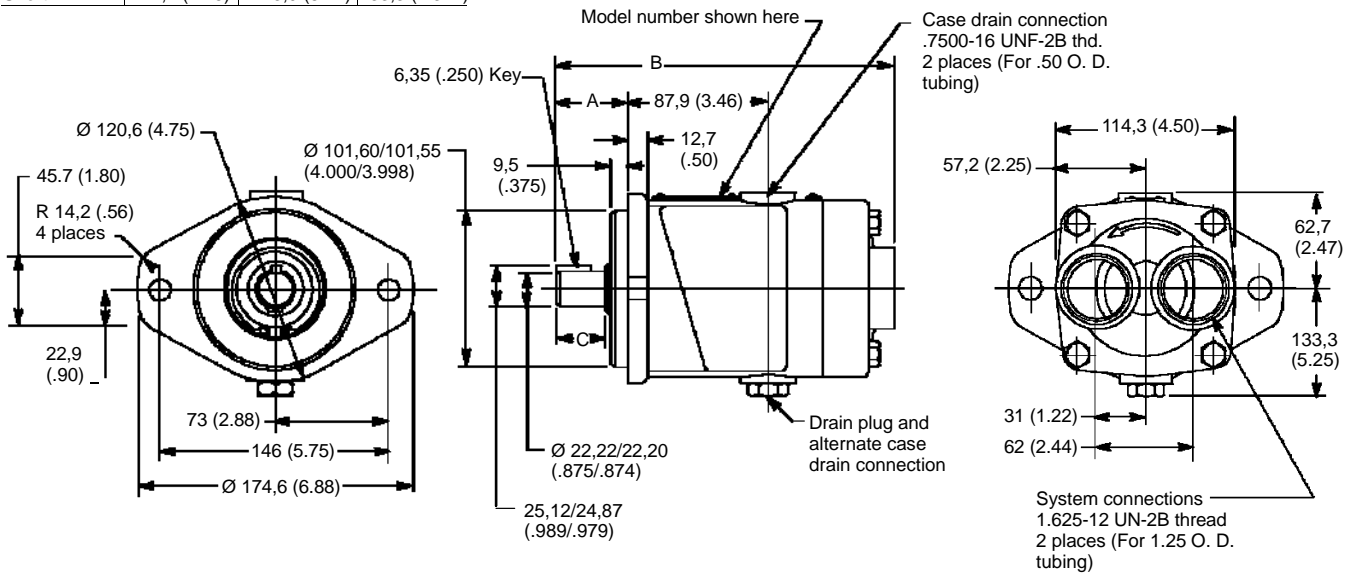
Based on oil temperature of 49 °C (120 °F), 20.6 cSt (100 SUS) and atmospheric outlet



# Installation Dimensions

Millimeters (inches)

Shaft Type	A	B	C
Std. (Code Y)	58,7 (2.31)	228,1 (8.98)	47,6 (1.874)
Short	44,4 (1.75)	213,9 (8.42)	33,3 (1.312)



# MFB20 & MFB29 Model Series

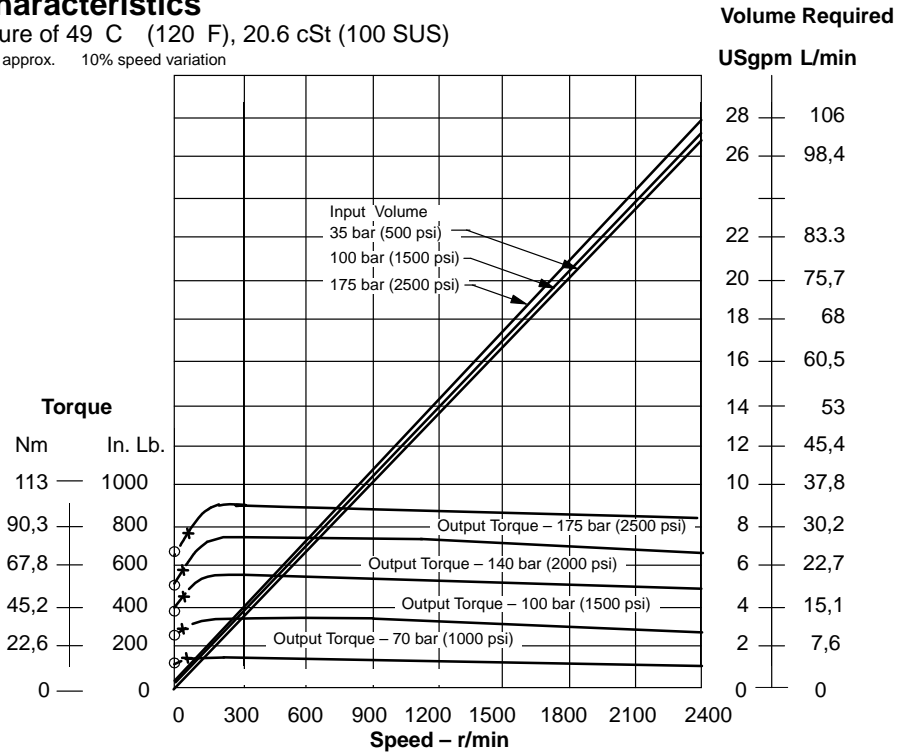
## Performance Characteristics

Based on oil temperature of 49 C (120 F), 20.6 cSt (100 SUS)

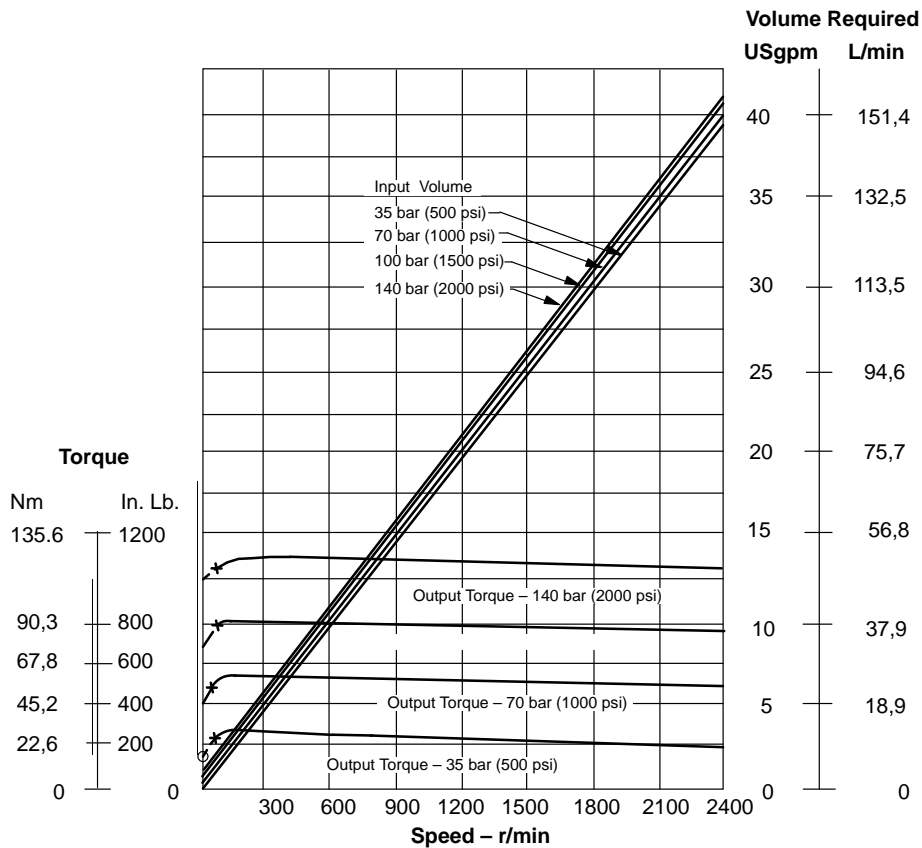
X indicates minimum speed with approx. 10% speed variation

O indicates stall torque

### MFB20



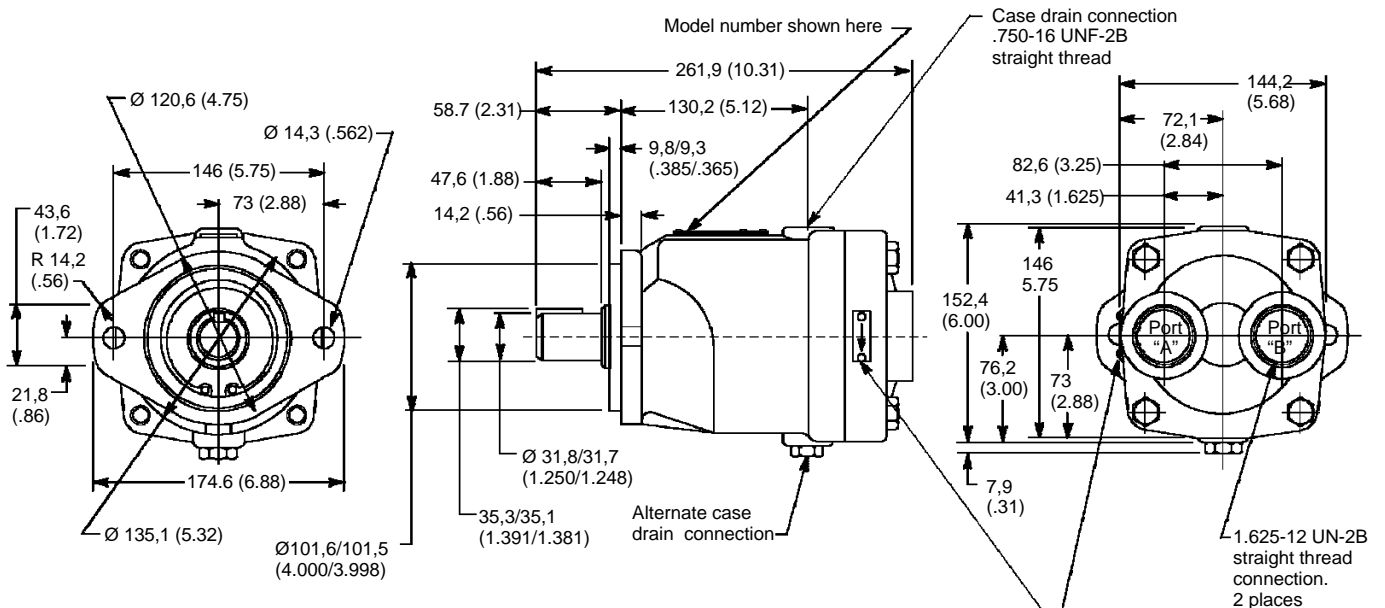
### MFB29



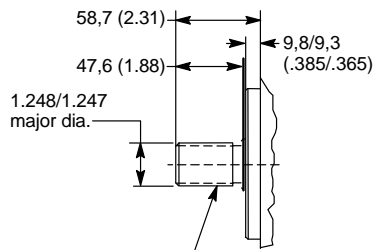


# Installation Dimensions

Millimeters (inches)



Shaft Rotation	Outlet Port
Right hand	"A"
Left hand	"B"



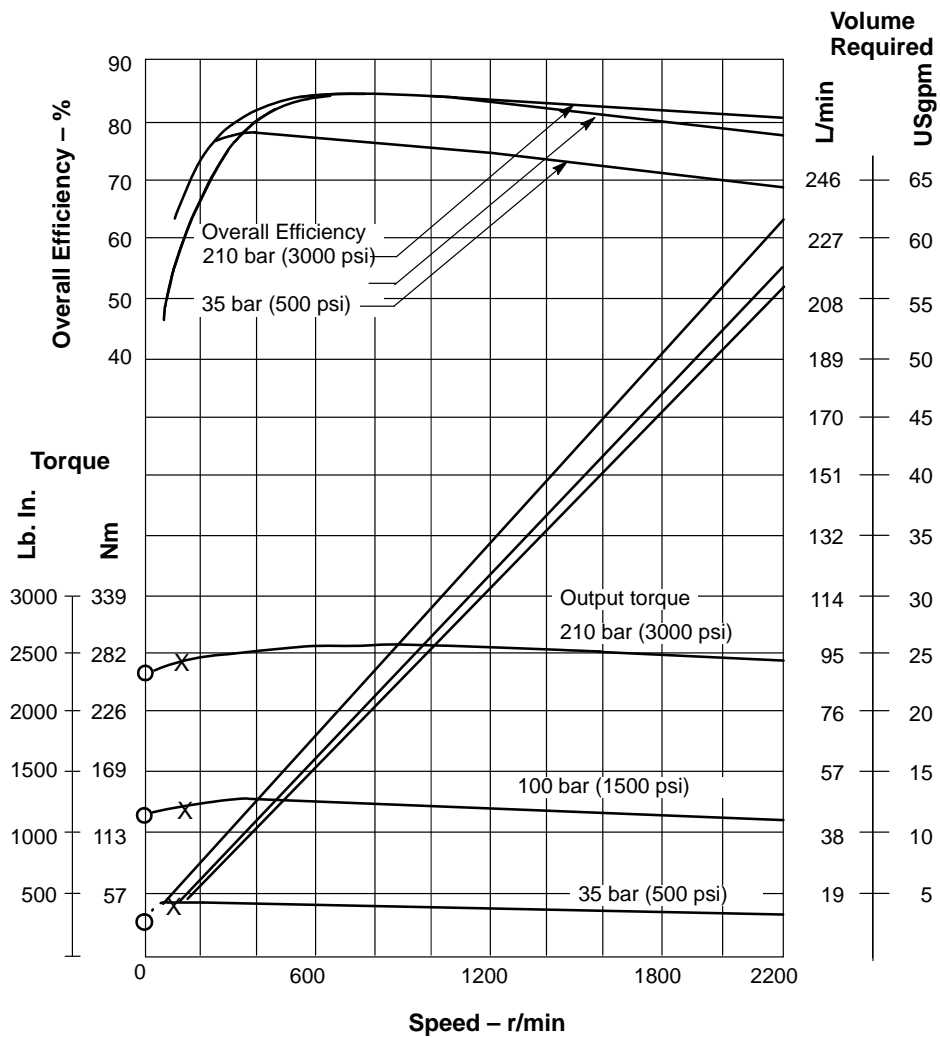
Optional drive shaft  
SAE standard involute spline.  
Flat root – major diameter fit.  
14 teeth – 12/24 pitch.  
1.1667 pitch diameter (ref.)  
1.0627/1.0497 minor diameter

# MFB45 Model Series

## Performance Characteristics

Based on oil temperature of 49 °C (120 °F), 20.6 cSt (100 SUS)

X indicates minimum speed with approximate 10 % speed variation  
 O indicates stall torque



# Installation Dimensions

Millimeters (inches)

