SPECIFICATIONS

Hydraulic Piston Motors

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BROCHURE NOTES:

Maximum pressures indicated throughout are the maximum intermittent pressures a component can sustain for occasional, short periods of operation without appreciably reducing the life expectancy. Contact the Dynex sales department for a review of any application which requires operating above the rated pressures, flows, speeds or higher than normal operating temperatures.

Specifications shown were in effect when printed. Since errors or omissions are possible, contact your sales representative for the most current specifications before ordering. Dynex reserves the right to discontinue products or change designs at any time without incurring any obligation.

DYNEX
High Pressure Hydraulics

Compact Motors Available in Fixed and Variable Displacement

These medium-duty valveplate motors deliver high torque for their compact size. Model MF2029, for example, weighs only 38 lb (17,2 kg) and produces torque to 1386 lb•in (157 N•m) at 3000 psi (210 bar) rated pressure.

Because of their similar size, these motors are ideal for hydrostatic drive systems used with PV2000 Series valveplate pumps.

MV2000 Series dual displacement motors provide two speeds, with the cradle angle controlled by an integral solenoid valve.

MF2000 Series
S.A.E. C Mounting

HOW THE MOTORS OPERATE

The valveplate design utilizes a rotating barrel and piston assembly contained in the front housing. Fluid is delivered to and from the barrel through ports in the back cover. The barrel is keyed to the output shaft.

Fluid pressure acts upon the pistons which slide across the angled swashplate surface. Movement of the pistons causes the barrel to rotate, transmitting torque and motion to the output shaft. Torque is developed in proportion to the pressure differential across the motor.

Fixed displacement MF2000 Series motors have a fixed-angle cradle.

Dual displacement MV2000 Series motors provide two speeds. The cradle in these models is biased to full-stroke. Energizing the solenoid valve de-strokes the motor to its lower displacement, providing increased speed and lower torque.

MOTOR SELECTION

MF2000 Series models are bi-rotational; shaft rotation is reversed by changing the direction of flow.

MV2000 Series models are not bi-rotational; rotation (viewed from the shaft end) must be specified.

Model numbers and specifications are indicated in the tables on page 3 (MF2000 Series) and page 4 (MV2000 Series).

Installation and Performance Data

OPERATING RECOMMENDATIONS

Standard Seals

Buna-N (Nitrile)

Fluid

High-grade premium petroleum-based oil, with a combination of anti-wear, demulsibility, rust protection, and oxidation resistance and foam resistance properties. See table, at right, for fluid specifications.

Minimum Filtration Levels

25 µ nominal;
Consistent with recommended hydraulic practice, finer filtration levels than these are desirable and will result in longer component life.

Mounting

Generally, shaft horizontal, with either drain port vertically up. Consult the Dynex sales department for applications requiring other orientations.

Start-Up

Fill motor through upper-most case drain prior to start-up.

MV2 Series Electrical Data

Standard Input Voltage:12 V (D.C.); For other voltages, contact the Dynex sales department.

FLUID SPECIFICATIONS①

Specification	Fluid Grade	
	Summer②	Winter③
Viscosity at 100° F. (37,8° C)	150-300 SUS (38,3-64,9 cSt)	75-200 SUS (14,4-43,1 cSt)
Viscosity at 210° F (98,9° C)	43 SUS (5,2 cSt) Minimum	43 SUS (5,2 cSt) Minimum
Pour Point, Typical	0° F (-17,8° C)	-40° F (-40° C) or Less
Viscosity Index	95 Minimum	95 Minimum

① *If fluid conditions fall outside of the range shown, consult the Dynex sales department.*
② *Warm Weather Grade, Above +40° F (4,4° C)*
③ *Cold Weather Grade, Below +40° F (4,4° C)*

Motor Type
Fixed displacement with keyed shaft; Bi-rotational shaft design.

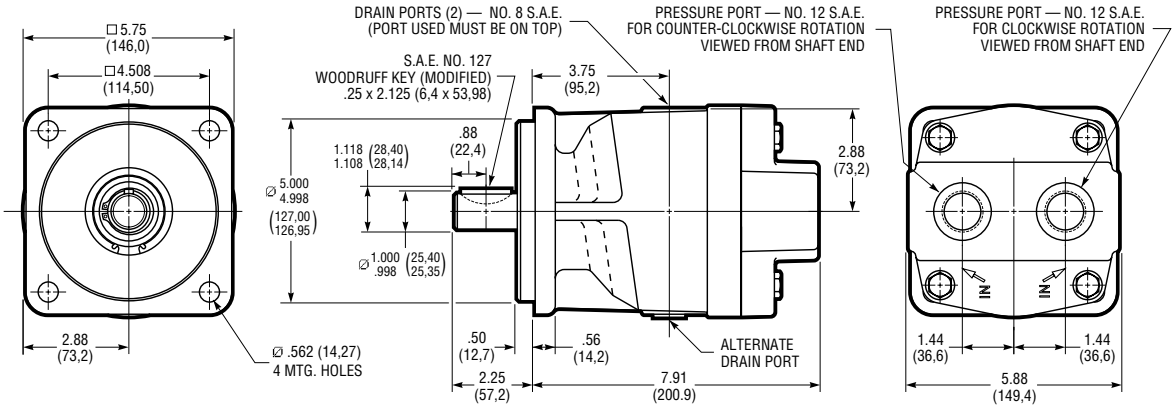
Mounting
S.A.E. C 4-bolt pattern

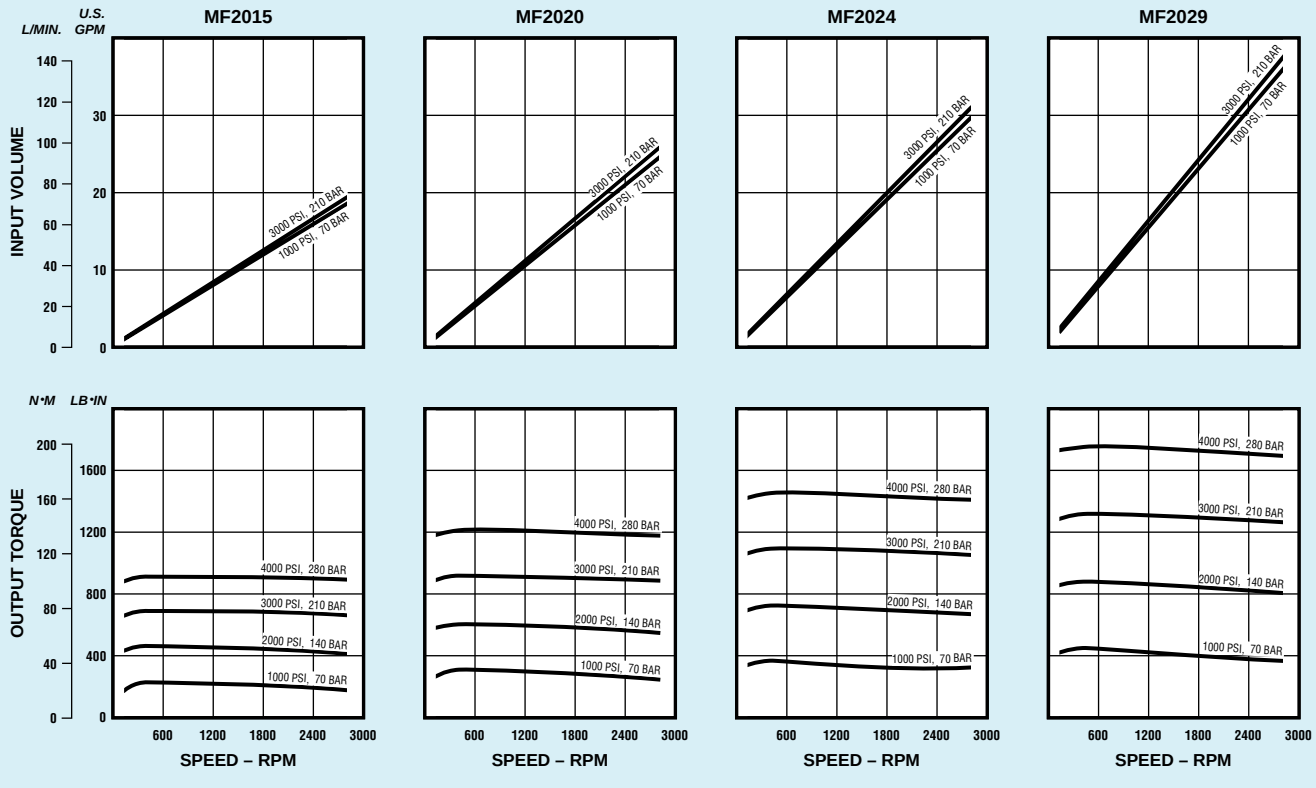
Optional Spline Shaft
1.000/.978 inch diameter standard S.A.E. 15 tooth, 16/32 D.P. 30° involute spline.

Weight (Mass) 38 lb (17,2 kg)

SPECIFICATIONS

Motor Model Number	Input Flow at 1000 rpm		Theoretical Torque		Rated Speed (rpm)	Rated Pressure		Maximum Pressure	
	U.S. gpm	L/min	lb•in per 100 psi	N•m per 10 bar		psi	bar	psi	bar
MF2015-3047	7.0	26,5	23.9	3,9	2800	3000	210	4000	280
MF2020-2924	9.0	34,1	31.8	5,2					
MF2024-3048	11.3	42,8	38.5	6,3					
MF2029-3049	13.2	50,0	46.2	7,6					





Motor Type
Dual speed, variable displacement.

Mounting
S.A.E. B 2-bolt pattern

Shaft Data
Standard, S.A.E. B-B spline shaft:
1.000/.978 inch diameter standard S.A.E. 15 tooth, 16/32 D.P. 30° involute spline;

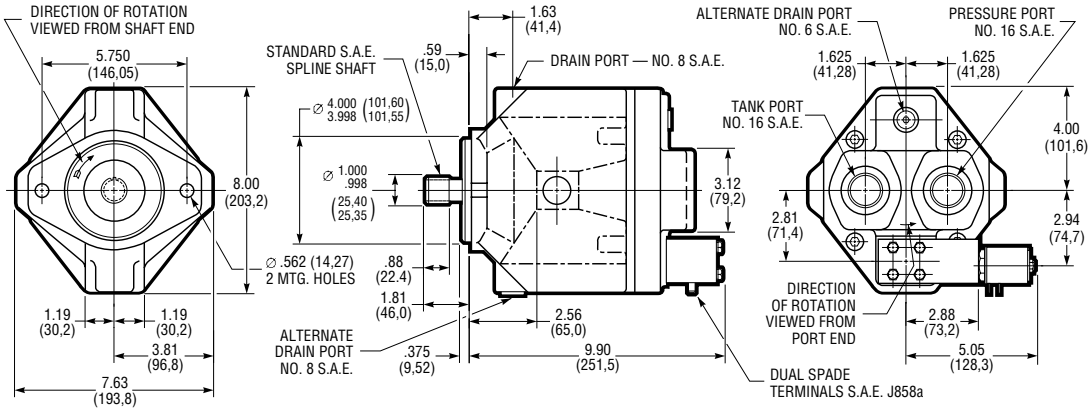
Optional, S.A.E. B-B 1 inch keyed shaft, or S.A.E. B spline shaft:
.875/.853 inch diameter standard S.A.E. 13 tooth, 16/32 D.P. 30° involute spline.

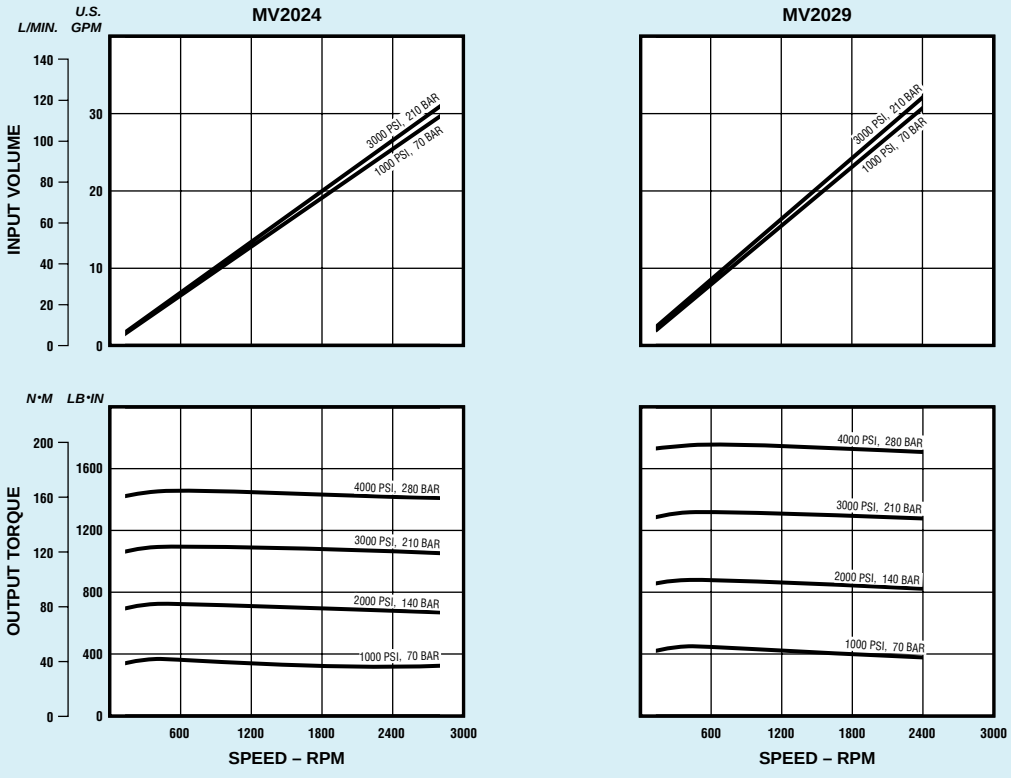
Weight (Mass) 57 lb (25,9 kg)

SPECIFICATIONS

Model Number (Rotation)①	Input Flow at 1000 rpm		Theoretical Torque		Rated Speed (rpm)	Rated Pressure		Maximum Pressure	
	U.S. gpm	L/min	lb•in per 100 psi	N•m per 10 bar		psi	bar	psi	bar
MV2024-3050 (Clockwise) MV2024-3051 (Counter-Clockwise)	7.0 to 11.3	26,5 to 42,8	23.9 to 38.5	3,9 to 6,3	2800	3000	210	4000	280
MV2029-3052 (Clockwise) MV2029-3052 (Counter-Clockwise)	8.2 to 13.2	31,0 to 50,0	28.6 to 46.2	4,7 to 7,6	2400	3000	210	4000	280

① *Rotation viewed from shaft end. These models are dual displacement with the cradle biased to full-stroke. Energizing an integral solenoid valve de-strokes the pump to its lower displacement.*





Motors Withstand Pressure Spikes and Severe Vibration

Heavy-duty MF5000 Series motors deliver steady power with smooth speed variation. These motors keep operating even when subjected to extreme changes in pressure, severe vibration and tough duty cycles.

They operate reliably in systems with constant starting and stopping, and sudden direction reversals.

MF5000 Series
S.A.E. D Mounting

HOW THE MOTORS OPERATE

The valveplate design utilizes a rotating barrel and piston assembly contained in the center housing. Fluid is delivered to and from the barrel through ports in the back cover. The barrel is keyed to the output shaft.

Fluid pressure acts upon the pistons which slide across the angled swashplate surface. Movement of the pistons causes the barrel to rotate, transmitting torque and motion to the output shaft.

Torque is developed in proportion to the pressure differential across the motor.

HIGH TORQUE SAVES SPACE

These efficient high torque motors can reduce the size and weight of your system components. Model MF5060, for example, weighs 130 lb (59 kg) and produces torque to 4775 lb•in (540 N•m) at 5000 psi (350 bar) rated pressure.

IDEAL FOR ADVERSE CONDITIONS

These motors provide long life operating at pressures to 6000 psi; 8000 psi intermittent (420 bar; 560 bar intermittent).

Large radial bearings absorb piston reaction forces and provide balanced loading. Forged bronze barrels and hardened steel pistons provide long life under adverse conditions.

CONSISTENT SPEED/TORQUE

These motors are ideal for machines that experience severe hydraulic shock and vibration.

Stalling, caused by barrel lift-off, is prevented by an *optional* hold-down feature. Barrel lift-off is controlled by limiting the maximum valveplate clearance. This enables the rotating group to continue turning with full torque.

For information on *optional* hold-down models, contact the Dynex sales department.

Installation and Performance Data

OPERATING RECOMMENDATIONS

Standard Seals Buna-N (Nitrile)

Fluid
High-grade premium petroleum-based oil, with a combination of anti-wear, demulsibility, rust protection, and oxidation resistance and foam resistance properties.

See table at right for fluid specifications.

Minimum Filtration Levels
25 µ nominal;
Consistent with recommended hydraulic practice, finer filtration levels than these are desirable and will result in longer component life.

Mounting
Generally, shaft horizontal, with either drain port vertically up. Consult the Dynex sales department for applications requiring other orientations.

Start-Up
Fill motor through upper-most case drain prior to start-up.

FLUID SPECIFICATIONS①

Specification	Fluid Grade	
	Summer②	Winter③
Viscosity at 100° F. (37,8° C)	150-300 SUS (38,3-64,9 cSt)	75-200 SUS (14,4-43,1 cSt)
Viscosity at 210° F (98,9° C)	43 SUS (5,2 cSt) Minimum	43 SUS (5,2 cSt) Minimum
Pour Point, Typical	0° F (-17,8° C)	-40° F (-40° C) or Less
Viscosity Index	95 Minimum	95 Minimum

① *If fluid conditions fall outside of the range shown, consult the Dynex sales department.*
② *Warm Weather Grade, Above +40° F (4,4° C)*
③ *Cold Weather Grade, Below +40° F (4,4° C)*

Motor Type
Fixed displacement with a choice of keyed or spline shaft;
Bi-rotational shaft design.

Mounting
S.A.E. D 4-bolt pattern

Spline Shaft
Standard keyed shaft as shown, or spline shaft:
1.748/1.747 inch diameter standard S.A.E. 13 tooth, 8/16 D.P. 30° involute spline.

Weight (Mass) 130 lb (60,0 kg)

SPECIFICATIONS

Motor Model Number①	Input Flow at 1000 rpm		Theoretical Torque		Rated Speed (rpm)	Rated Pressure		Maximum Pressure	
	U.S. gpm	L/min	lb•in per 100 psi	N•m per 10 bar		psi	bar	psi	bar
KEYED SHAFT MODELS									
MF5036-2921	16.7	63,2	57.3	9,4	2000	6000	420	8000	560
MF5045-2194	20.5	77,6	71.1	11,6	2000	6000	420	8000	560
MF5060-2922	25.7	97,3	95.5	15,6	2000	5000	350	5000	350
SPLINE SHAFT MODELS									
MF5036-2168	16.7	63,2	57.3	9,4	2000	6000	420	8000	560
MF5045-2165	20.5	77,6	71.1	11,6	2000	6000	420	8000	560
MF5060-2925	25.7	97,3	95.5	15,6	2000	5000	350	5000	350

① *Models shown do not include mechanical hold-down feature. For additional information on this option and complete model numbers, contact the Dynex sales department.*