WHAT’S NEW

FMC-CW-75
SC
See page 21

FMC-650FS
SC
See page 19

FMC-150FS
SC CI PI
See page 18

FMC-650FS-HYD
SC
See page 8

FMCSC-155FS-HYD
CI PI
See page 7

FMCSC-205F-HYD-304
FMCSC-205FS-HYD-304
CI SI
See page 7
**SPRAYER PLUMBING SUGGESTIONS**

The primary goal when plumbing a sprayer pump is to route liquid from the pump to the spray boom with minimum restriction. Minimizing restrictions is necessary for achieving the pump’s maximum rated capacity.

- Hoses should be the same size as the pump’s suction and discharge ports.
- Install a pressure gauge and valve on the discharge side of the pump for the purpose of measuring the SHUT-OFF pressure.
- A minimum number of elbows, fittings, and valves should be used to reduce pressure losses.
- Plumb a straight section of hose leading into the suction port equal to 10 times the hose inside diameter. (i.e. 1 1/2" hose = 15" of straight hose)

Following these guidelines is necessary for delivering the highest flow and pressure to the boom.

**PUMP MOUNTING**

The following are basic guidelines for proper pump mounting:

- The pump should be mounted below the tanks to allow gravity to naturally fill the pump with liquid.
- The volute should be oriented with the discharge port pointing up or across the top of the pump which allows air to rise out of the pump.
- A petcock valve may be installed in the top most pipe plug hole to allow air to be bled off each time the tanks are filled.
- Another vent option is to install a 1/4” air bleed line from the top most pipe plug hole to the sprayer tank. This will continually bleed air from the pump housing.
- If the pump must be located above the liquid level, a check valve should be installed to maintain the pump’s prime.

ACE centrifugal pumps are straight centrifugals and must be primed prior to operation. The word “primed” means the pump must be completely full of water and any trapped air vented before operation. Following the pump mounting guidelines will insure proper priming of the pump and avoid premature seal failure.

**USEFUL FORMULAS**

\[
GPA = \frac{5940 \times \text{GPM (per Nozzle)}}{\text{MPH} \times W}
\]

\[
\text{GPM (per Nozzle)} = \frac{\text{GPA} \times \text{MPH} \times W}{5940}
\]

\[
\text{GPA} = \text{Gallons Per Acre}
\]

\[
\text{GPM} = \text{Gallons Per Minute}
\]

\[
\text{MPH} = \text{Miles Per Hour}
\]

\[
W = \text{Nozzle spacing (in inches) for broadcast spraying}
\]

\[
\text{W} = \text{Spray width (in inches) for single nozzles, band spraying, or boomless spraying}
\]

\[
\text{W} = \text{Row spacing (in inches) divided by the number of nozzles per row for directed spraying.}
\]

**SPECIFIC GRAVITY**

Water weighs 8.34 lbs./gallon and has a specific gravity of 1. Since specific gravity is a ratio of the weight of a liquid compared to the weight of water, the specific gravity of a liquid such as 28% nitrogen fertilizer, which weighs 10.65 lbs./gallon would be figured thus:

\[
\frac{10.65 \text{ lbs./gallon}}{8.34 \text{ lbs./gallon}} = 1.28 \text{ specific gravity}
\]

All pump capacities (GPM) in this catalog are based on water. When pumping fluids that are heavier than water, pump capacity will be less than stated on each pump performance table. To compensate for pumping heavy liquids, multiply the required pump capacity in GPM times the appropriate conversion factor from the above chart.

**EXAMPLE:** Required pump capacity is 50 GPM of 28% nitrogen fertilizer.

\[
50 \times 1.13 = 56.5 \text{ GPM}
\]

Then select a pump from the following pages that will deliver 56.5 GPM at the desired pressure.
PUMP SELECTION WORKSHEET

Visit our web site at www.AcePumps.com to use an automated version of this worksheet.

1. Fill in the application information:
   Application Rate (GPA)  ____________________
   Speed (MPH) x ____________________
   Nozzle Spacing (inches) x ____________________
   = ____________________ / H11504 5940 = ____________________ GPM per Nozzle
   x ____________________ # of Nozzles
   = ____________________ Boom Flow (GPM)

2. Complete the calculations:

3. Identify the flow required for AGITATION (typically 5% of tank’s capacity):
   Note: Use of jet agitators may reduce flow needed for agitation.

   25 GPM
   500 Gallon Tank

   37 GPM
   750 Gallon Tank

   50 GPM
   1000 Gallon Tank

   75 GPM
   1500 Gallon Tank

4. Then add:
   (Boom Flow (GPM)) + (Agitation (GPM)) = Total Pump Flow (GPM) required

5. Adjust for heavier fluids:
   (Total Pump Flow (GPM)) x Specific Gravity Conversion Factor = Adjusted Flow (GPM)
   See Specific Gravity on opposite page.

6. Find your pump:
   Hydraulic Driven Centrifugal Pumps 3-7
   MAX Series Hydraulic Driven Centrifugal Pumps 8-10
   PTO Driven Centrifugal Pumps 11-12
   Gasoline Engine Driven Centrifugal Pumps 13-15
   Belt Driven Centrifugal Pumps (Counterclockwise) 16-21
   Belt Driven Centrifugal Pumps (Clockwise) 21-23
   Electric Motor Driven Centrifugal Pumps 24
   ACE/VALVTEC™ Ball Valves 24

PUMP OPTIONS KEY

SC  Severe Duty Silicon Carbide Shaft Seal
CI  Cast Iron Impeller
PI  Polypropylene Impeller
SI  316 Stainless Steel Impeller
BSP  British Standard Pipe Thread
HYDRAULIC DRIVEN CENTRIFUGAL PUMPS

General Advantages

Ace developed the first hydraulic motor driven pump at the request of John Deere in 1969. Ace continues to develop a comprehensive range of reference materials and hydraulic accessories allowing the pumps to be effectively applied on the full range of hydraulic systems.

Centrifugal pump design provides good resistance to abrasive solutions and extra flow for agitation. All hydraulic driven pumps are equipped with a stainless steel shaft and wear ring for excellent corrosion resistance.

The advantages of ACE hydraulic motor driven pumps are:

- **MOUNTING VERSATILITY:** The location of the pump is not tied to the PTO or engine drive shaft; the pump may be mounted in a variety of locations to suit application requirements.

- **CUSTOMIZED PERFORMANCE:** The performance is dependent on the supply of hydraulic oil to the motor and not necessarily tied to engine speed. A hydraulic driven pump can produce higher pressures than PTO or belt driven pumps. They may also hold constant pressure at varying engine speeds on closed center hydraulic systems.

- **EASY MAINTENANCE:** On a hydraulic driven pump there are no belts to align or break. Separate pump and hydraulic motor shafts simplify repair and replacement. Two main pump bearings support shaft loads. All pumps are equipped with easily replaceable mechanical seals.

- **EFFICIENCY:** The Ace gear type hydraulic motor is more efficient than gerotor type motors, and is less subject to damage by contamination than the gerotor design. A built-in needle valve allows for the bypass of up to 9 GPM (34 LPM) excess hydraulic fluid on open center systems. The standard motor has a reverse flow check valve which prevents backward hookup and a coasting check which protects the motor seal from the flywheel effect of the impeller. A restrictor orifice is included with pump models recommended for pressure compensating closed center systems.

Features

- Designed for starter fertilizer and small sprayer applications.

- Replaces 12V diaphragm pumps and roller pumps.

- Tall Blade Impeller design - higher pressure at lower speed.

- All Polypropylene corrosion resistant construction.

- The 204R motor requires 4 GPM (15.1 LPM) maximum hydraulic fluid input.

  Recommended for:
  - Pressure Compensating Closed Center Systems
  - Open Center Systems up to 13 GPM (49.2 LPM) using internal needle valve

- The 206R motor requires 7 GPM (26.5 LPM) maximum hydraulic fluid input.

  Recommended for:
  - Pressure Compensating Closed Center Systems
  - Load Sensing Closed Center Systems
  - Open Center Systems up to 16 GPM (60.6 LPM) using internal needle valve

**FMC-75-HYD-204**

**FMC-75-HYD-206**

<table>
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<tr>
<th>1” SUCTION</th>
<th>3/4” DISCHARGE</th>
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</table>

- Maximum Flow: 27 GPM (102 LPM)
- Maximum Pressure: 100 PSI (6.9 BAR)

Note: Graph for FMC-75-HYD-204 model.
Features

- The farm industry standard since 1969.
- The 202 and 203 motors require 2 GPM (7.6 LPM) and 3 GPM (11.4 LPM) hydraulic fluid input. Recommended for engineered systems with limited oil flow.
- The 204 motor requires 4 GPM (15.1 LPM) maximum hydraulic fluid input.
  Recommended for:
  – Pressure Compensating Closed Center Systems
  – Open Center Systems up to 13 GPM (49.2 LPM) using internal needle valve bypass
- The 210 motor requires 10 GPM (37.9 LPM) maximum hydraulic fluid input.
  Recommended for:
  – Load Sensing Closed Center Systems
  – Open Center Systems up to 17 GPM (64.4 LPM) using internal needle valve bypass
- The 310 motor requires 17.5 GPM (66.2 LPM) maximum hydraulic fluid input.
  Recommended for:
  – Large Open Center Systems up to 26.5 GPM (100 LPM) using internal needle valve bypass

Features

- Provides higher pressure and greater volume for applications with large tanks and longer spray booms.
- The 206 motor requires 7 GPM (26.5 LPM) maximum hydraulic fluid input and fits virtually all tractor hydraulic systems.
  Recommended for:
  – Pressure Compensating Closed Center Systems
  – Load Sensing Closed Center Systems
  – Open Center Systems up to 16 GPM (60.6 LPM) using internal needle valve bypass

FMC-HYD-202  FMC-HYD-206
FMC-HYD-203  FMC-HYD-210
FMC-HYD-204  FMC-HYD-310

Maximum Flow: 92 GPM (350 LPM)
Maximum Pressure: 100 PSI (6.9 BAR)

FMC-150-HYD-206

Maximum Flow: 135 GPM (511 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)
HYDRAULIC DRIVEN CENTRIFUGAL PUMPS

150 SERIES
HIGH PERFORMANCE

Features
- F model equipped with NPT ports and industry standard flanged connections.
- FS model constructed of 316 stainless steel with NPT ports and industry standard flanged connections.
- SP model is self-priming making it perfect for load and spray applications.
- Provides higher pressure and greater volume for applications with large tanks and longer spray booms.
- The 206 motor requires 7 GPM (26.5 LPM) maximum hydraulic fluid input and fits virtually all tractor hydraulic systems.

Recommended for:
- Pressure Compensating Closed Center Systems
- Load Sensing Closed Center Systems
- Open Center Systems up to 16 GPM (60.6 LPM) using internal needle valve bypass
- The 304 motor requires 11 GPM (41.6 LPM) maximum hydraulic fluid input.

Recommended for:
- Pressure Compensating Closed Center Systems
- Load Sensing Closed Center Systems
- Open Center Systems up to 20 GPM (75.7 LPM) using internal needle valve bypass

Maximum Flow: 145 GPM (549 LPM)
155 GPM (587 LPM) for 304
Maximum Pressure: 120 PSI (8.3 BAR)
130 PSI (9 BAR) for 304

Note: Graph for FMC-150F-HYD-206 model.

Maximum Flow: 130 GPM (492 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)
Features

- Ideal for spraying, large tank agitation, liquid transfer, and spray-transfer combinations.
- F model equipped with industry standard flanged connections.
- 200SS model has 316 stainless steel wet end including impeller (SI), volute, and seal plate.
- The 210 motor requires 10 GPM (37.9 LPM) maximum hydraulic fluid input.

Recommended for:
- Pressure Compensating Closed Center Systems
- Load Sensing Closed Center Systems
- Open Center Systems up to 17 GPM (64.4 LPM) using internal needle valve bypass
- The 304 motor requires 13 GPM (51.1 LPM) maximum hydraulic fluid input.

Recommended for:
- Pressure Compensating Closed Center Systems
- Load Sensing Closed Center Systems
- Open Center Systems up to 20 GPM (75.7 LPM) using internal needle valve bypass
- The 310 motor requires 25.7 GPM (97.3 LPM) maximum hydraulic fluid input.

Recommended for:
- Large Open Center Systems up to 34.7 GPM (131.4 LPM) using internal needle valve bypass

Maximum Flow: 200 GPM (757 LPM)
Maximum Pressure: 120 PSI (8.3 BAR), 80 PSI (5.5 BAR) for 210

Maximum Flow: 240 GPM (908 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)
HYDRAULIC DRIVEN CENTRIFUGAL PUMPS

155 SERIES
HIGH PERFORMANCE

Features
• Severe duty silicon-carbide shaft seal (SC) standard with o-ring seat for improved survivability.
• 316 stainless steel housings with NPT ports and industry standard flanged connections.
• Larger bearings for extended life.
• Provides higher pressure and greater volume for applications with large tanks and longer spray booms.
• The 206 motor requires 7 GPM (26.5 LPM) maximum hydraulic fluid input and fits virtually all tractor hydraulic systems.

Recommended for:
— Pressure Compensating Closed Center Systems
— Load Sensing Closed Center Systems
— Open Center Systems up to 16 GPM (60.6 LPM) using internal needle valve bypass

• The 304 motor requires 11 GPM (41.6 LPM) maximum hydraulic fluid input.

Recommended for:
— Pressure Compensating Closed Center Systems
— Load Sensing Closed Center Systems
— Open Center Systems up to 20 GPM (75.7 LPM) using internal needle valve bypass

205 SERIES
HIGH FLOW

Features
• Severe duty silicon-carbide shaft seal (SC) standard with o-ring seat for improved survivability.
• F model equipped with industry standard full-port flanged connections for high-flow applications.
• FS model has a 316 stainless steel wet end including impeller (SI), volute, and frame with industry standard full-port flanged connections for maximum performance.
• Larger bearings for extended life.
• Ideal for spraying, large tank agitation, liquid transfer, and spray - transfer combinations.
• The 304 motor requires 13 GPM (51.1 LPM) maximum hydraulic fluid input.

Recommended for:
— Pressure Compensating Closed Center Systems
— Load Sensing Closed Center Systems
— Open Center Systems up to 20 GPM (75.7 LPM) using internal needle valve bypass

Maximum Flow: 240 GPM (908 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)
**General Advantages**

Ace’s MAX Series pumps were designed from the ground up for today’s demanding applications. Each model is engineered for maximum reliability and performance. A durable e-coat finish provides extra corrosion resistance on all surfaces inside and out. The 4000 psi high efficiency pressure plated gear motors provide higher output with less oil flow. The impellers are designed to develop higher pressure at lower shaft speeds. A splined motor to pump shaft connection strengthens the power train while allowing for easy repair and maintenance. Oversized bearings round out the list of features for long, trouble free life.

**Features**

- Tall Blade Impeller design develops higher pressure at lower RPM.
- F model equipped with NPT ports and industry standard flanged connections.
- FS model has a 316 stainless steel wet end including impeller (SI), volute, and seal plate with industry standard full-port flanged connections for maximum performance.
- The M16 motor requires 14 GPM (53 LPM) maximum hydraulic fluid input.

Recommended for:

- Pressure Compensating Closed Center Systems
- Load Sensing Closed Center Systems
- Open Center Systems up to 14 GPM (53 LPM)
Ace won an AE50 award for Outstanding Innovations in Product Technology with the first wet seal pump for agricultural spraying in 2009. Since that time, Ace has continued to lead the market in development of this innovative design. Today there are three pump sizes and nine models available which may be customized to fit virtually any application.

The WS-650 MAX, 750 MAX and 855 MAX pump models feature our Oasis™ WetSeal Technology. The dual shaft seals run in a pressurized barrier fluid which is specially formulated for seal face lubrication and heat dissipation. The liquid being pumped never comes into contact with the seal surfaces so abrasive wear failures are prevented. Additionally, the buffer fluid lubricates and cools the seal faces even when run dry to eliminate costly failure.

Features

- Pressure balanced impeller eliminates thrust load on bearings.
- Hydraulic motor case drain option for extended seal life on engineered systems.
- Separate motor and pump shafts for easy maintenance.

OASIS-RES

Features

- Use with all Oasis WetSeal™ Technology Pumps.
- Excellent visibility and easy service regardless of the pump location.
- Provides extra barrier fluid for extended service intervals.
- Connect air supply to machine air or charge manually.
- Regulator assures ideal air pressure at all times.
### Features

- The M30 motor requires 23 GPM (87 LPM) maximum hydraulic fluid input with #6 SAE case drain port and is standard on the 855 MAX pump.
  
  Recommended for:
  - Pressure Compensating Closed Center Systems
  - Load Sensing Closed Center Systems
  - Open Center Systems up to 23 GPM (87 LPM)

- The M22 motor requires 18 GPM (68.1 LPM) maximum hydraulic fluid input.
  
  Recommended for:
  - Pressure Compensating Closed Center Systems
  - Load Sensing Closed Center Systems
  - Open Center Systems up to 18 GPM (68.1 LPM)

- The M25 motor requires 20 GPM (75.7 LPM) maximum hydraulic fluid input.
  
  Recommended for:
  - Pressure Compensating Closed Center Systems
  - Load Sensing Closed Center Systems
  - Open Center Systems up to 20 GPM (75.7 LPM)

- The M30 motor requires 23 GPM (87 LPM) maximum hydraulic fluid input with #6 SAE case drain port and is standard on the 855 MAX pump.
  
  Recommended for:
  - Pressure Compensating Closed Center Systems
  - Load Sensing Closed Center Systems
  - Open Center Systems up to 23 GPM (87 LPM)
PTO DRIVEN CENTRIFUGAL PUMPS

General Advantages
PTO belt driven centrifugal pumps were first introduced by Ace in 1964 and enabled the applicator to mount centrifugal pumps directly on 540 RPM and 1000 RPM tractor PTO shafts. The simple, yet durable design of the PTOC pump has withstood the test of time while many attempts at imitation have come and gone.

The key to success of the Ace belt driven pump has been the Spring Loaded Idler. The idler maintains proper belt tension which minimizes the load on the pump bearings. More importantly, the idler helps absorb the shock of PTO engagement that can destroy cog belts or gears.

Model PTOC belt driven pumps are easy to operate and maintain. Belts can be replaced in the field with minimum downtime and at little cost. Maintenance features also include sealed ball bearings and a readily replaceable mechanical seal. The belt guard provides complete coverage of the pulleys, shaft and belt. All PTO driven pumps are equipped with a stainless steel shaft and wear ring for excellent corrosion resistance.

Features
• Maximum Flow: 65 GPM (246 LPM)
• Maximum Pressure: 80 PSI (5.5 BAR)
• The original belt drive standard since 1964.

• Time tested and field proven design.
• Widespread parts and service availability.
• Most Economical belt drive.

PTOC-600
PTOC-1000

1¼" SUCTION 1" DISCHARGE

On trailer mounted units the hitch pin must be centered between the pump and tractor PTO shafts to minimize vibration transferred to the pump when turning.
PTO Shaft Options

-6SP  
1 3/8" (34.9 MM)  
6 spline shaft for  
540 RPM models

-6SPQC  
Instant-attach quick coupler for  
540 RPM models

-21SP  
21 spline 1 3/8" (34.9 MM)  
split bore shaft with  
locking collar for  
1000 RPM models

-20SP  
20 spline 1 3/4" (44.5 MM)  
split bore shaft with  
locking collar for  
1000 RPM models

-B  
1" (25.4 MM) stub shaft  
for installation on trailer sprayers driven by  
PTO tumblerod

150 SERIES
HIGH PERFORMANCE

PTOC-150-600  
PTOC-150F-600  
PTOC-150-1000  
PTOC-150F-1000

1 1/2" SUCTION  
1 1/4" DISCHARGE

SC  CI  PI  BSP

Features

• Maximum Flow: 100 GPM (378 LPM)
• Maximum Pressure: 110 PSI (7.6 BAR)
• The High Performance Pump. 100 PSI (6.9 BAR)  
at 40 GPM (151 LPM) due to increased pulley ratio and larger 1 1/2" x 1 1/4" construction.
• Provides higher pressure and greater volume for applications with large tanks and long spray booms.
• Allows fuel savings by operating at lower engine speeds while maintaining adequate spraying pressures.
• F model equipped with NPT ports and industry standard flanged connections.

PTOC-150-600

PTOC-150-1000
GASOLINE ENGINE DRIVEN CENTRIFUGAL PUMPS

General Advantages
Ace offers a complete line of Gasoline Engine Driven Centrifugal Pumps. The pumps provide service where power sources are limited or unavailable. The pumps are ideally suited to develop pressure for spray or transfer applications.

The pumps feature a direct coupled design with an easily replaceable mechanical seal and slinger ring between the pump and engine to prevent liquid from damaging the engine.

The pumps are available complete or less engine (-LE). Complete units come assembled on the specified engine ready to install and run. Less engine (-LE) units come with all hardware necessary to mount on the specified engine.

GE-75 Features
- Tall Blade Impeller design – higher pressure at standard engine speeds.
- GE-75 Impeller attaches directly to 5/8" (1.59 CM) keyed shaft engine.
- All Polypropylene corrosion resistant construction.
- GE-75 available complete or less engine (-LE).

GE-85 Features
- Tall Blade Impeller design – higher pressure at standard engine speeds.
- All Polypropylene corrosion resistant construction.
- GE-85 Impeller attaches directly to 3/4" (1.91 CM) keyed shaft engine.
- GE-85 available less engine (-LE).

GE-75
Maximum Flow: 25 GPM (95 LPM)
Maximum Pressure: 70 PSI (4.8 BAR)

GE-85
Maximum Flow: 24 GPM (91 LPM)
Maximum Pressure: 65 PSI (4.5 BAR)

Note: Graph for GE-75 model with Honda GX-100 engine.
Note: Graph for GE-85 model with Honda GC-160 engine.
GE-100-A Features
- Impeller attaches directly to 5/8" (1.59 CM) NF threaded shaft on 3 HP (2.8 KW) to 5.5 HP (4.1 KW) engine.
- Stainless steel shaft sleeve with o-ring leak protection.
- All iron construction.
- Available complete or less engine (-LE).

GE-650 Features
- Impeller attaches directly to 5/8" (1.59 CM) NF threaded shaft on 5.5 HP (4.1 KW) engine.
- Stainless steel shaft sleeve with o-ring leak protection.
- All iron construction.
- Available less engine (-LE).

GE-660 Features
- Impeller attaches directly to 3/4" (1.91 CM) keyed shaft on 5.5 HP (4.1 KW) engine.
- Optional electric start engine.
- All iron construction.
- Optional E-Coat finish (-EC) provides extra corrosion resistance on all surfaces inside and out.
- Available complete or less engine (-LE).

GE-100-A

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Maximum Flow: 50 GPM (189 LPM)
Maximum Pressure: 50 PSI (3.4 BAR)

GE-650

GE-660

<table>
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<th>Flow (gpm)</th>
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Maximum Flow: 110 GPM (416 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)
GE-800 Features
- Impeller attaches directly to 1" (2.54 CM) - 14 NF threaded shaft on 8 HP (5.9 KW) to 10 HP (7.5 KW) engine.
- Stainless steel shaft sleeve with double o-ring leak protection.
- All iron construction.
- Available less engine (-LE).

GE-800
- Impeller attaches directly to 1" (2.54 CM) - 14 NF threaded shaft on 8 HP (5.9 KW) to 10 HP (7.5 KW) engine.
- Stainless steel shaft sleeve with double o-ring leak protection.
- All iron construction.
- Available less engine (-LE).

GE-860 Features
- Impeller attaches directly to 1" (2.54 CM) - 14 NF threaded shaft on 8 HP (5.9 KW) to 10 HP (7.5 KW) engine.
- Optional electric start engine.
- All iron construction.
- Available complete or less engine (-LE).

GE-800
- Impeller attaches directly to 1" (2.54 CM) - 14 NF threaded shaft on 8 HP (5.9 KW) to 10 HP (7.5 KW) engine.
- All iron construction.
- Available complete or less engine (-LE).

Maximum Flow: 140 GPM (530 LPM)
Maximum Pressure: 140 PSI (9.7 BAR)

GE-1600 Features
- Impeller attaches directly to 1" (2.54 CM) - 14 NF threaded shaft on 16 HP (12 KW) to 20 HP (15 KW) engine.
- Standard 16 HP (12 KW) electric start engine.
- Stainless steel shaft sleeve with double o-ring leak protection.
- All iron construction.
- Available complete or less engine (-LE).

GE-1600
- Impeller attaches directly to 1" (2.54 CM) - 14 NF threaded shaft on 16 HP (12 KW) to 20 HP (15 KW) engine.
- Standard 16 HP (12 KW) electric start engine.
- All iron construction.
- Available complete or less engine (-LE).

Maximum Flow: 280 GPM (1060 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)
BELT DRIVEN CENTRIFUGAL PUMPS

General Advantages

FRAME MOUNT ADVANTAGES
Ace belt driven pumps are available in a variety of models which may be belt driven or direct coupled to a power source. The pumps are available in either clockwise or counterclockwise rotation. The standard bare shaft pumps are designed with a keyway for mounting a drive pulley or coupling.

MAGNETIC CLUTCH DRIVEN ADVANTAGES
The integral magnetic clutch driven centrifugal pump design was first offered by Ace in 1982. These models enabled the operator to free the PTO shaft and hydraulic system for other uses. The 12 volt DC magnetic clutch is driven by a v-belt from the engine drive shaft. The clutch is idle until engaged by an on-off toggle switch located at the driver’s seat.

-MAG-D CLUTCH
- 58 ft. lb. (78.6 NM) torque capacity.
- Forged machined pulley for maximum strength.
- Solid forged rotor to maximize torque.
- E-coated for maximum corrosion protection.
- High temperature epoxy coil.
- Two bearings with high temperature, long life grease.
- Single or double belt drive.
- 4 3/4" (12.1 CM) pitch diameter.

-X FRAME OPTION
- 3/4" (1.91 CM) diameter stainless steel shaft, standard models 5/8" diameter (1.59 CM).
- Larger bearings for extended life.
- Available with MAG-D clutch.
- 5 1/4" (13.34 cm) mounting bolt spacing.
- -X3 frame has 3" (7.62 CM) bolt spacing.

Pump Rotation

The direction of rotation is always determined WHEN FACING THE SHAFT. This rule applies for the pump shaft and the drive shaft. Ace Frame Mounted pumps are available in both clockwise (CW) and counter-clockwise (CCW) rotation. Ace model numbers which include a “CW” have a clockwise rotation; all other models are counterclockwise rotation.

When direct coupling shafts, always MATCH THE OPPOSITE ROTATION pump with the shaft. As illustrated, a gasoline engine with CCW rotation will direct couple to a FMC-CW-800 pump with clockwise rotation. When mounting a pump with belts and pulleys, either pump rotation can be used to match the drive shaft rotation and the desired direction of the pump.

The rotation of several common power sources are as follows: Gasoline engine and electric motor shafts rotate in a counterclockwise direction; a tractor PTO shaft rotates in a clockwise direction; the front tractor engine crankshaft rotates in a counterclockwise direction.

Typical Clutch Installation
Ace magnetic clutch driven frame mounted centrifugal pump models are available with counterclockwise (ccw) rotation and clockwise (cw) rotation. The direction of rotation is determined when facing the shaft. Sizes available are 1 1/4" x 1", 1 1/2" x 1 1/4", and 2" x 1 1/2".
BELT DRIVEN CENTRIFUGAL PUMPS
COUNTERCLOCKWISE ROTATION

Features

- Counterclockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic or optional Cast Iron Impeller.
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal.
- X option includes larger 3/4" (1.9 cm) diameter shaft and larger bearings for longer life.

FMC
FMC-MAG-D

1 1/4” SUCTION 1” DISCHARGE

SC CI BSP

Maximum Flow: 70 GPM (265 LPM)
Maximum Pressure: 170 PSI (11.7 BAR)
Maximum Power: 4.2 HP (3.1 KW)

FMC-150
FMC-150-MAG-D

1 1/2” SUCTION 1 1/4” DISCHARGE

SC CI PI BSP

Maximum Flow: 130 GPM (492 LPM)
Maximum Pressure: 130 PSI (9 BAR)
Maximum Power: 10 HP (7.5 KW)
150 SERIES
HIGH PERFORMANCE

Features
- Counterclockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic, optional Cast Iron (CI) or optional Polypropylene (PI) Impeller.
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal (SC).
- SP model is self-priming making it perfect for load and spray applications.
- F model equipped with NPT ports and industry standard flanged connections.
- FS model constructed of 316 stainless steel with NPT ports and industry standard flanged connections.

FMC-150F
FMC-150FS
FMC-150F-MAG-D

Maximum Flow: 130 GPM (492 LPM)
Maximum Pressure: 130 PSI (9 BAR)
Maximum Power: 10 HP (7.5 KW)

FMC-150SP
FMC-150SP-MAG-D

Maximum Flow: 130 GPM (492 LPM)
Maximum Pressure: 130 PSI (9 BAR)
Maximum Power: 10 HP (7.5 KW)
BELT DRIVEN CENTRIFUGAL PUMPS
COUNTERCLOCKWISE ROTATION

650 MAX SERIES

Features

• Counterclockwise Rotation when facing shaft end.
• Tall Blade Impeller design develops higher pressure at lower RPM.
• F model equipped with NPT ports and industry standard flanged connections.
• FS model has a 316 stainless steel wet end including impeller, volute, and seal plate with industry standard full-port flanged connections for maximum performance.
• E-Coat protection for excellent corrosion resistance.

OASIS WetSeal Technology
OasisWetSeal.com

Features

• Counterclockwise Rotation when facing shaft end.
• Equipped with Oasis™ Wetseal Technology.
• Tall Blade Impeller design develops higher pressure at lower RPM.
• F model equipped with NPT ports and industry standard flanged connections.
• FS model has a 316 stainless steel wet end including impeller, volute, and seal plate with industry standard full-port flanged connections for maximum performance.
• E-Coat protection for excellent corrosion resistance.

FMC-650 FMC-650-MAG-D
FMC-650F FMC-650F-MAG-D
FMC-650FS FMC-650FS-MAG-D

1½” 220 FLANGE
1¼” 200 FLANGE
SUCTION DISCHARGE

Maximum Flow: 140 GPM (530 LPM)
Maximum Pressure: 160 PSI (11 BAR)
Maximum Power: 22 HP (16.4 KW)

SC SI

FMCWS-650F
FMCWS-650FS
FMCWS-650F-MAG-D
FMCWS-650FS-MAG-D

1½” 220 FLANGE
1¼” 200 FLANGE
SUCTION DISCHARGE

Maximum Flow: 140 GPM (530 LPM)
Maximum Pressure: 160 PSI (11 BAR)
Maximum Power: 22 HP (16.4 KW)
**Features**

- Counterclockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic, optional Cast Iron (CI) or optional Stainless Steel (SI) Impeller.
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal (SC).
- 200SS model has 316 stainless steel wet end including impeller (SI), volute, and seal plate.
- X option includes larger \( \frac{3}{8} \)" (1.9 cm) diameter shaft and larger bearings for longer life.

**Pulley Ratio**

To get the desired performance from an ACE Frame Mounted Pump, the proper speed ratio between the pump and drive source must be established. The following formula should be helpful:

\[
\frac{\text{Pump RPM}}{\text{Drive Pulley Diameter (in)}} = \frac{\text{Drive Pulley Diameter (in)}}{\text{Pump RPM}}
\]

For example: To drive an FMC-150-MAG pump at 5000 RPM with a drive source RPM of 3600 and knowing that the clutch pulley diameter on the pump is 4.75" (12 CM), what should the diameter of the drive pulley be?

\[
\frac{5000}{3600} = \frac{\text{Drive Pulley Diameter}}{4.75}
\]

**ENGLISH**

1) \( 5000 \times 4.75 = 23750 \)
2) \( 23750 \div 3600 = 6.59 \)

**METRIC**

1) \( 5000 \times 12 = 60000 \)
2) \( 60000 \div 3600 = 16.67 \)

The drive pulley diameter, when rounded off should be 6.5" (17 CM).

**Belt Alignment and Tension**

Proper belt alignment and belt tension will prevent premature bearing failure in the clutch and/or the pump. Use a straight edge held on the faces of the pulleys to check alignment. To provide proper belt tension, lay the straight edge on the tops of both pulleys as shown. Use mild force to deflect the belt as shown. Use a ruler to measure the amount of deflection. Proper tension will allow \( \frac{1}{2} \)" (1 CM) of deflection for each 12" (30 CM) of distance between the pulleys.

For example: If the distance between the pulleys is 3' (90 CM), the deflection should be 1 1/2" (3 CM).
BELT DRIVEN CENTRIFUGAL PUMPS
CLOCKWISE ROTATION

Features
- Clockwise Rotation when facing shaft end.
- Designed for lower flow applications.
- Replaces 12V diaphragm pumps and roller pumps.
- Tall Blade Impeller design - higher pressure at lower shaft speed.
- All Polypropylene corrosion resistant construction.

FMC-CW-75

1” SUCTION 3/4” DISCHARGE

Maximum Flow: 27 GPM (102 LPM)
Maximum Pressure: 100 PSI (6.9 BAR)

FMC-CW
FMC-CW-MAG-D

1 1/4” SUCTION 1” DISCHARGE

Maximum Flow: 70 GPM (265 LPM)
Maximum Pressure: 170 PSI (11.7 BAR)
Maximum Power: 4.2 HP (3.1 KW)

Features
- Clockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic or optional Cast Iron Impeller.
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal.
- MAG-D models equipped with heavy duty 12V clutch.
- X option includes larger 3/4” (1.9 cm) diameter shaft and larger bearings for longer life.
150 SERIES
HIGH PERFORMANCE

Features
• Clockwise Rotation when facing shaft end.
• Stainless Steel Shaft and Wear Ring.
• Chemical resistant thermoplastic or optional Cast Iron Impeller.
• Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal.
• MAG-D models equipped with heavy duty 12V clutch.
• X option includes larger 3/4" (1.9 cm) diameter shaft and larger bearings for longer life.
• X3 model has 3 1/2" (8.89 CM) spacing on mounting base. All other models have 5 1/4" (13.34 CM).
• DX3 model for Spra-Coupe® Models: 3430, 3440, 3630, 3640, 4440, 4640.

FMC-CW-150
FMC-CW-150-MAG-D
FMC-CW-150-MAG-DX3

Maximum Flow: 80 GPM (303 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)
Maximum Power: 4.7 HP (3.5 KW)

650 SERIES

Features
• Clockwise Rotation when facing shaft end.
• Tall Blade Impeller design develops higher pressure at lower RPM.
• E-Coat protection for excellent corrosion resistance.
• Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal.
• MAG-D models equipped with heavy duty 12V clutch.
• WS model equipped with Oasis™ Wetseal Technology.

FMC-CW-650
FMC-CW-650-MAG-D
FMCWS-CW-650
FMCWS-CW-650-MAG-D

Maximum Flow: 140 GPM (530 LPM)
Maximum Pressure: 160 PSI (11 BAR)
Maximum Power: 22 HP (16.4 KW)
BELT DRIVEN CENTRIFUGAL PUMPS
CLOCKWISE ROTATION

200 SERIES
HIGH FLOW

Features
• Clockwise Rotation when facing shaft end.
• Stainless Steel Shaft and Wear Ring.
• Chemical resistant thermoplastic or optional Cast Iron Impeller.
• Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal.
• MAG-D models equipped with heavy duty 12V clutch.
• X option includes larger 3/4” (1.9 cm) diameter shaft and larger bearings for longer life.

Features
• Clockwise Rotation when facing shaft end.
• Large diameter impeller provides higher pressure at slower speeds.
• Easily replaceable mechanical seal.
• Stainless Steel Shaft.
• All iron construction.
• Heavy duty double row ball bearings.
• Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal.

FMC-CW-200
FMC-CW-200-MAG-D

2” SUCTION 1½” DISCHARGE

Maximum Flow: 200 GPM (757 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)
Maximum Power: 7.5 HP (5.6 KW)

FMC-CW-800
FMC-CW-800-MAG-D

2” SUCTION 1½” DISCHARGE

Maximum Flow: 180 GPM (681 LPM)
Maximum Pressure: 170 PSI (11.7 BAR)
Maximum Power: 14.2 HP (10.6 KW)
ELECTRIC MOTOR DRIVEN CENTRIFUGAL PUMP

Features

- For most industrial and agricultural blending, mixing, seed treating and liquid transfer applications.
- Easily replaceable mechanical seal.
- Non-overloading 3/4 HP (.56 KW) 3450 RPM single phase totally enclosed fan cooled electric motor, for use in all dusty, dirty or weather exposed locations.
- Optional silicon carbide seal available for abrasive solutions.
- Chemical resistant thermoplastic or optional Cast Iron Impeller.

A complete line of electric motor driven pumps is available. Contact the factory for details.

ACE/VALVTEC™ BALL VALVES

General Advantages

ACE/VALVTEC™ ball valves are the premium valves for critical uses. The valves are available with ratchet or quarter turn handle designs. ACE/VALVTEC™ puts the durability of metal where performance counts.

Features

- Unique diagonally split valve body for easy cleaning and service.
- Ratchet on/off or quarter turn operation.
- Rugged all-metal bodies in cast iron, aluminum, or bronze.
- Hard chrome plated or stainless steel balls.
- Withstand working pressures up to 400 PSI (27.6 BAR).

SERIES 16 STANDARD PORT

Available with 1/4-turn handle or ratchet handle. Operation of ratchet handle may be cable, chain, cord, or push-pull rods. Available in cast iron, aluminum, or bronze. Choice of hard chrome plated carbon steel balls or stainless balls. Size range 1/2" to 3" NPT.

RATCHET HANDLES

Ratchet handles are available for Series 16 valves and can be supplied for right or left handed operation and either with flow or crossflow. An open-closed indicator is provided with ratchet handle model. Operation of ratchet handle may be cable, chain, cord, or push-pull rods. Please specify when ordering.

Maximum Flow: 40 GPM (151 LPM)
Maximum Pressure: 30 PSI (2.1 BAR)

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Data based on 1 foot lift through unrestricted suction hose and fittings with full 1 1/4" I.D.
WE BUILD THE BEST SPRAYER
PUMPS
IN THE WORLD. PERIOD.