



PRODUCT CATALOG

WHAT'S NEW

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



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FMCWS-CW-650



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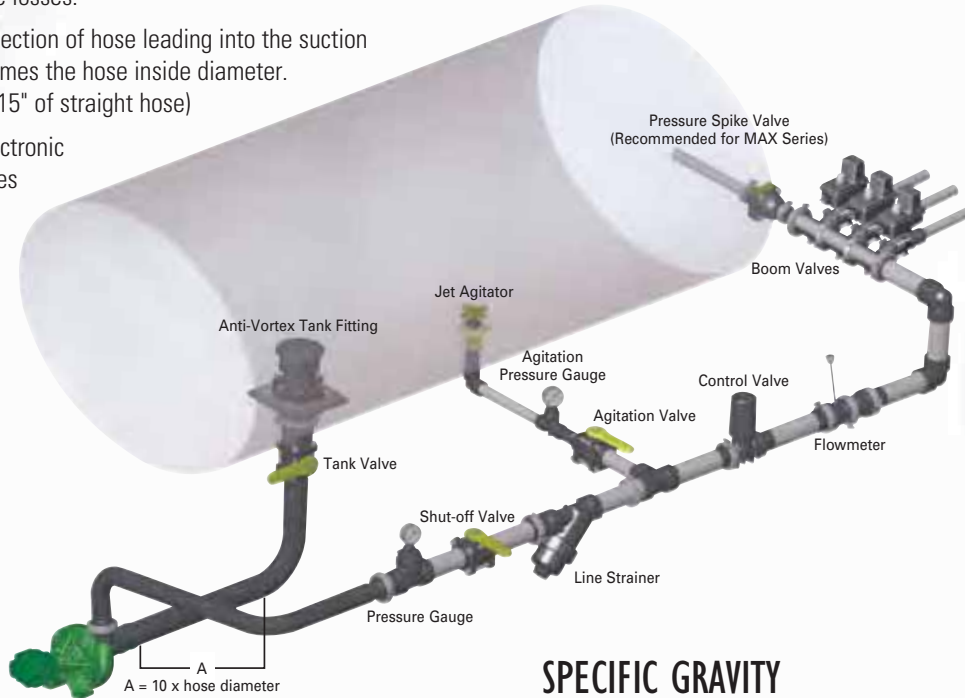
APPLICATION INFORMATION

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)
- Avoid locating electronic spray control valves between the pump and boom.

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

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

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

GPA = Gallons Per Acre

GPM = Gallons Per Minute

MPH = Miles Per Hour

W = Nozzle spacing

(in inches) for broadcast spraying

= Spray width (in inches) for single nozzles, band spraying, or boomless spraying

= Row spacing (in inches) divided by the number of nozzles per row for directed spraying.



Useful Calculations and Friction Tables

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:

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

SOLUTION WEIGHT	SPECIFIC GRAVITY	CONVERSION FACTOR
8.0 lbs./gal.	.96	.98
8.34 lbs./gal.	1.0	1.0
9.0 lbs./gal.	1.08	1.04
10.0 lbs./gal.	1.2	1.1
10.65 lbs./gal.	1.28	1.13
11.0 lbs./gal.	1.32	1.15

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 x 1.13 = 56.5 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.



Ag Worksheet

1 Fill in the application information:

Application Rate (GPA) _____
 Speed (MPH) x _____
 Nozzle Spacing (inches) x _____
 = _____ ÷ 5940 = _____

2 Complete the calculations:

_____ GPM per Nozzle
 x _____ # of Nozzles
 = _____ Boom Flow (GPM)

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)
 _____ x _____ = _____

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

- Severe Duty Silicon Carbide Shaft Seal
- Cast Iron Impeller
- Polypropylene Impeller
- 316 Stainless Steel Impeller
- British Standard Pipe Thread

HYDRAULIC DRIVEN CENTRIFUGAL PUMPS



Hydraulic Selection Guide

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.

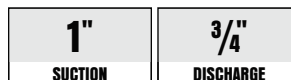
Recommended for:

- 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.

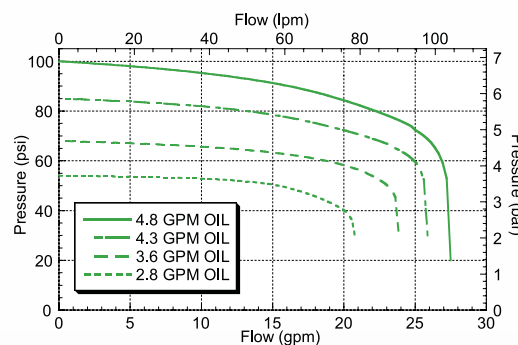
Recommended for:

- 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



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



OIL FLOW	
GPM	LPM
4.8	18.2
4.3	16.3
3.6	13.6
2.8	10.6

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:

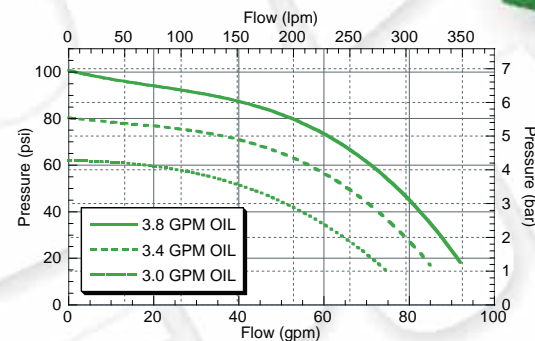
- Large Open Center Systems up to 26.5 GPM (100 LPM) using internal needle valve bypass

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

1 1/4" **1"**
SUCTION **DISCHARGE**



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



Note: Graph for FMC-HYD-204 model.

OIL FLOW	
GPM	LPM
3.8	14.4
3.4	12.9
3.0	11.4

150 SERIES **HIGH PERFORMANCE**

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:

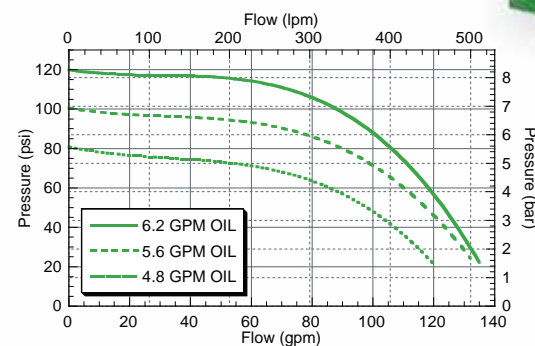
- Pressure Compensating Closed Center Systems
- Load Sensing Closed Center Systems
- Open Center Systems up to 16 GPM (60.6 LPM) using internal needle valve bypass

FMC-150-HYD-206

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



Maximum Flow: 135 GPM (511 LPM)
 Maximum Pressure: 120 PSI (8.3 BAR)



OIL FLOW	
GPM	LPM
6.2	23.5
5.6	21.2
4.8	18.2

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

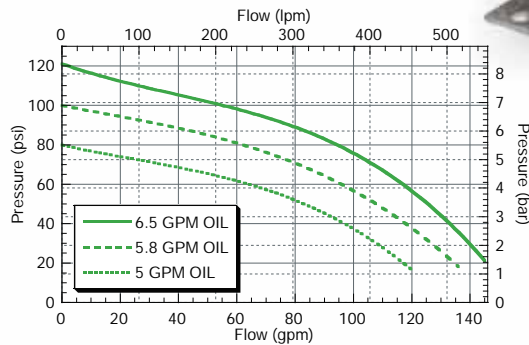
FMC-I50F-HYD-206
FMC-I50FS-HYD-206
FMC-I50F-HYD-304

1½"
220 FLANGE
SUCTION

1¼"
200 FLANGE
DISCHARGE



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-I50F-HYD-206 model.

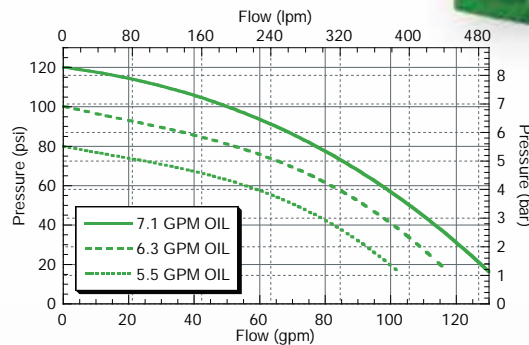
FMC-I50SP-HYD-206

1½"
SUCTION

1¼"
DISCHARGE



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



200 SERIES HIGH FLOW

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

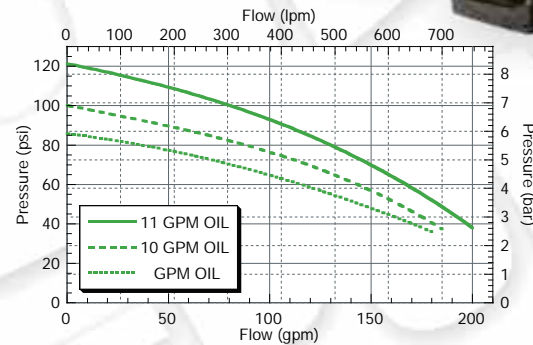
FMC-200-HYD-210
FMC-200-HYD-304
FMC-200SS-HYD-304
FMC-200-HYD-310

2"
SUCTION

1½"
DISCHARGE



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



Note: Graph for FMC-200-HYD-304 model.

OIL FLOW	
GPM	LPM
11	41.6
10	37.9
9	34.1

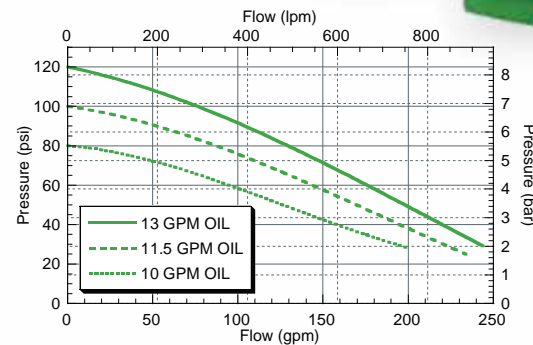
FMC-200F-HYD-304

300
FLANGE
SUCTION

220
FLANGE
DISCHARGE



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



OIL FLOW	
GPM	LPM
13	51.1
11.5	43.5
10	37.9

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

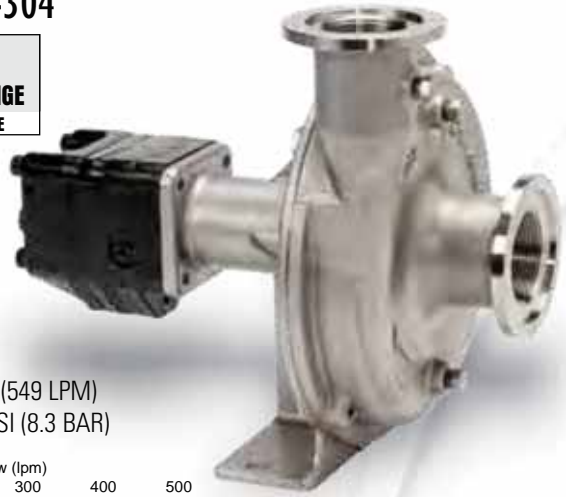
Recommended for:

- 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

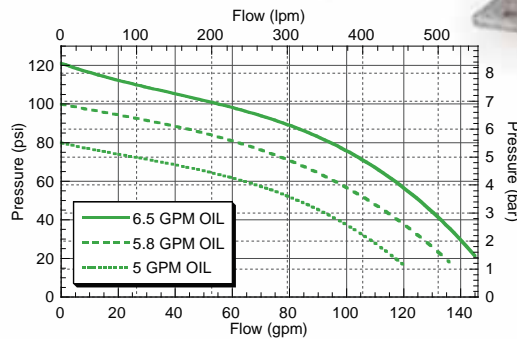
FMSC-155FS-HYD-206 FMSC-155FS-HYD-304

1 1/2"
220 FLANGE
SUCTION

1 1/4"
200 FLANGE
DISCHARGE



Maximum Flow: 145 GPM (549 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)



Note: Graph for FMSC-155FS-HYD-206 model.

OIL FLOW	
GPM	LPM
6.5	24.6
5.8	21.9
5	18.9

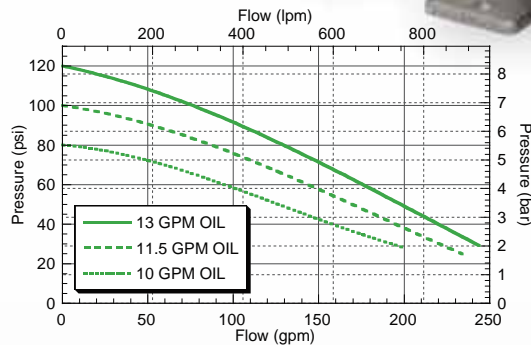
FMSC-205F-HYD-304 FMSC-205FS-HYD-304

300
FLANGE
SUCTION

220
FLANGE
DISCHARGE



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



OIL FLOW	
GPM	LPM
13	51.1
11.5	43.5
10	37.9

MAX SERIES HYDRAULIC DRIVEN CENTRIFUGAL PUMPS



Hydraulic Selection Guide

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.

650

MAX SERIES

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)

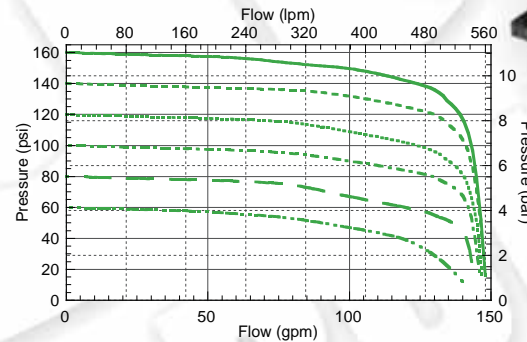
FMC-650-HYD

1½"
SUCTION

1¼"
DISCHARGE



Maximum Flow: 140 GPM (530 LPM)
Maximum Pressure: 160 PSI (11 BAR)



OIL FLOW	
GPM	LPM
14.3	54.1
13.5	51.1
12.5	47.3
11.2	42.4
9.6	36.3
8	30.3

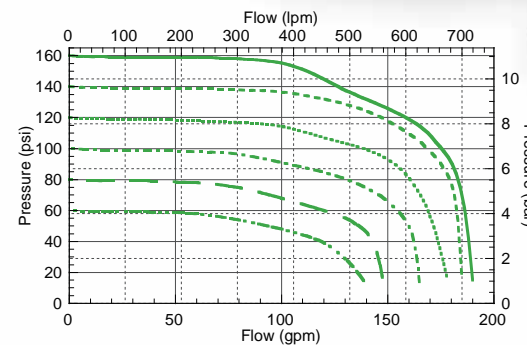
FMC-650F-HYD FMC-650FS-HYD

1½"
220 FLANGE
SUCTION

1¼"
200 FLANGE
DISCHARGE



Maximum Flow: 170 GPM (643.5 LPM)
Maximum Pressure: 160 PSI (11 BAR)



OIL FLOW	
GPM	LPM
14.5	54.9
13.6	51.5
12.4	46.9
11.3	42.8
9.8	37.1
8.3	31.4

MAX SERIES HYDRAULIC DRIVEN CENTRIFUGAL PUMPS WITH



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.



650

MAX SERIES

FMCWS-650F-HYD
FMCWS-650FS-HYD

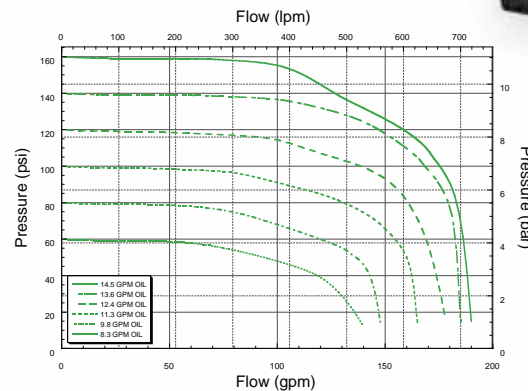
1½" SUCTION
220 FLANGE



1¼" DISCHARGE
200 FLANGE



Maximum Flow: 170 GPM (643.5 LPM)
Maximum Pressure: 160 PSI (11 BAR)



OIL FLOW	
GPM	LPM
14.5	54.9
13.6	51.5
12.4	46.9
11.3	42.8
9.8	37.1
8.3	31.4

Features

- 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 (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)



OasisWetSeal.com

750 MAX SERIES

Features

- 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:

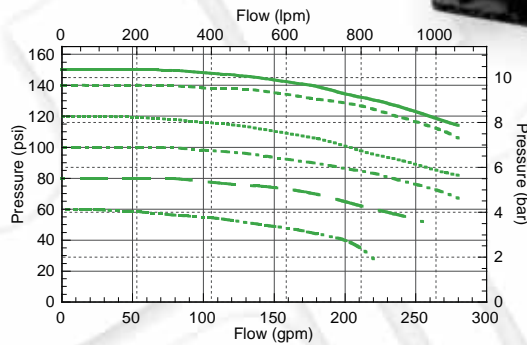
- Pressure Compensating Closed Center Systems
- Load Sensing Closed Center Systems
- Open Center Systems up to 20 GPM (75.7 LPM)

FMC-750F-HYD-M22 FMC-750F-HYD-M25

300 FLANGE SUCTION	220 FLANGE DISCHARGE
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Maximum Flow: 290 GPM (1097 LPM)
Maximum Pressure: 150 PSI (10.3 BAR)



OIL FLOW	
GPM	LPM
18	68.1
17.4	65.9
15.9	60.2
14.8	56
13.2	49.9
11.2	42.4

855 MAX SERIES

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:

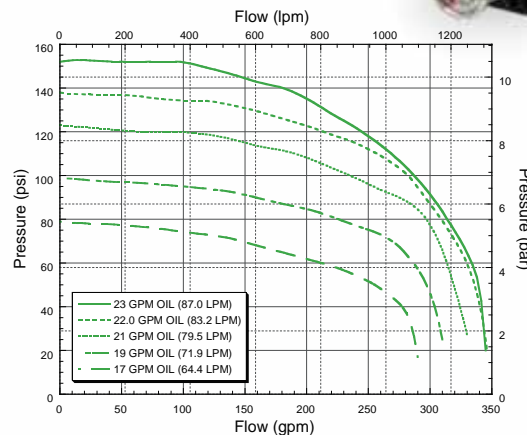
- Pressure Compensating Closed Center Systems
- Load Sensing Closed Center Systems
- Open Center Systems up to 23 GPM (87 LPM)

FMC-855F-HYD

300 FLANGE SUCTION	220 FLANGE DISCHARGE
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Maximum Flow: 345 GPM (1306 LPM)
Maximum Pressure: 150 PSI (10.3 BAR)



OIL FLOW	
GPM	LPM
23	87
22	83.2
21	79.5
19	71.9
17	64.4

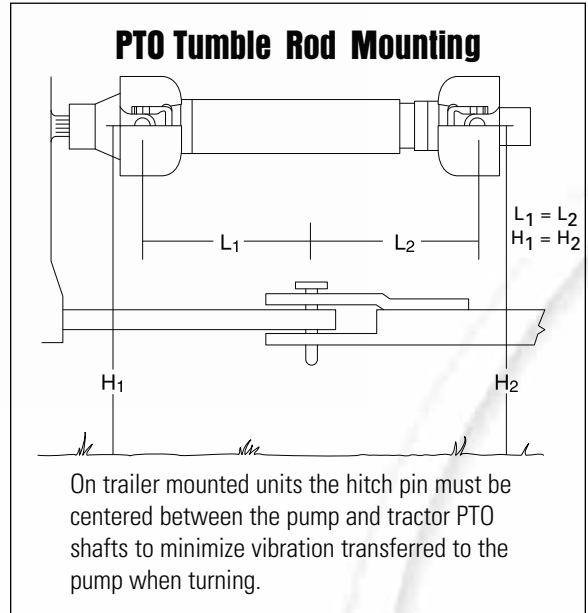
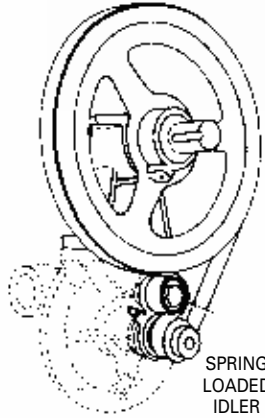
PTO DRIVEN CENTRIFUGAL PUMPS

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.



PTOC-600
PTOC-1000

1 1/4" SUCTION	1" DISCHARGE
--------------------------	------------------------

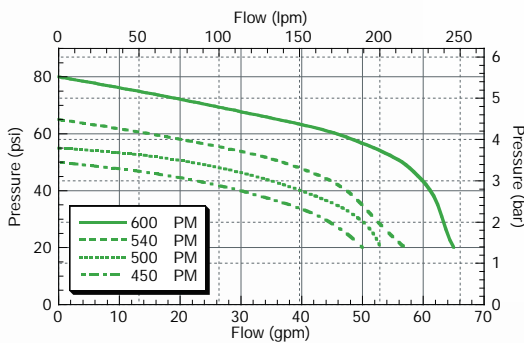


Features

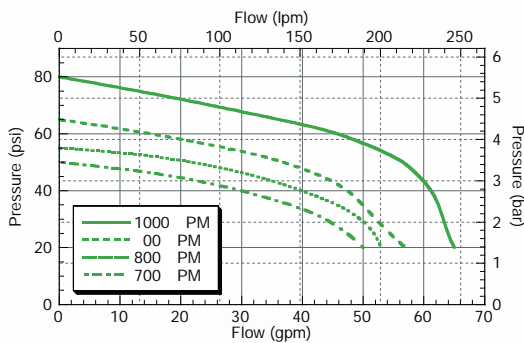
- Maximum Flow: 65 GPM (246 LPM)
- Maximum Pressure: 80 PSI (5.5 BAR)
- The original belt drive standard since 1964.
- Time tested and field proven design.
- Widespread parts and service availability.
- Most Economical belt drive.



PTOC-600



PTOC-1000



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

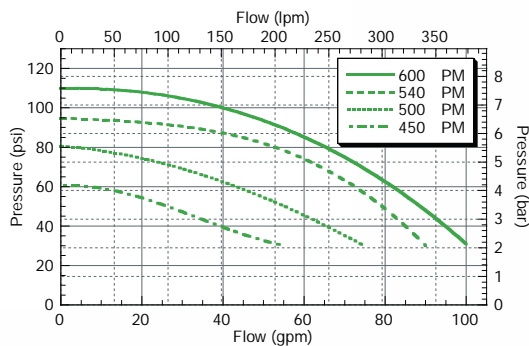


Features

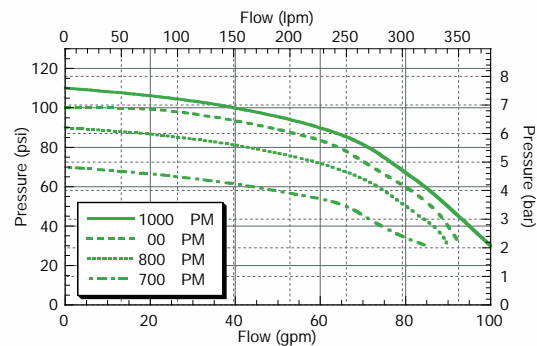
- Maximum Flow: 100 GPM (378 LPM)
- Maximum Pressure: 110 PSI (7.6 BAR)
- The High Performance Pump. 100 PSI (6.9 BAR) at 40 GPM (151 LPM) due to increased pulley ratio and larger 1 1/2" x 1 1/4" construction.
- Provides higher pressure and greater volume for applications with large tanks and long spray 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

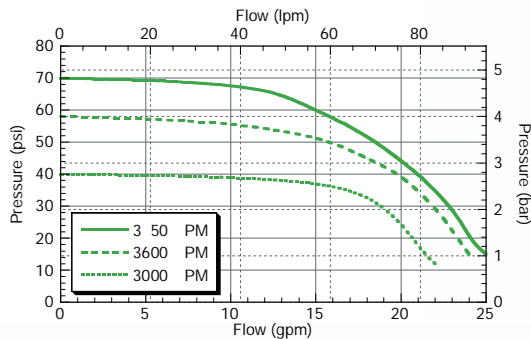
- Tall Blade Impeller design – higher pressure at standard engine speeds.
- All Polypropylene corrosion resistant construction.
- GE-85 Impeller attaches directly to 3/4" (1.91 CM) keyed shaft engine.
- GE-85 available less engine (-LE).

GE-75
GE-85



GE-75

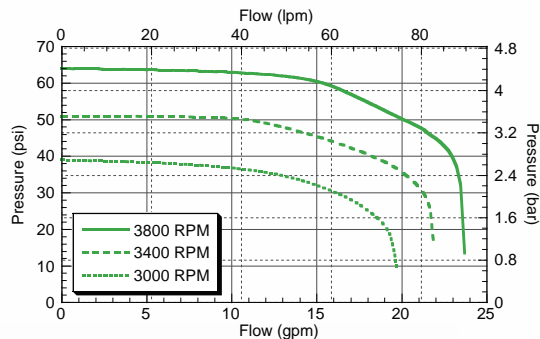
Maximum Flow: 25 GPM (95 LPM)
Maximum Pressure: 70 PSI (4.8 BAR)



Note: Graph for GE-75 model with Honda GX-100 engine.

GE-85

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



Note: Graph for GE-85 model with Honda GC-160 engine.

GE-100-A Features

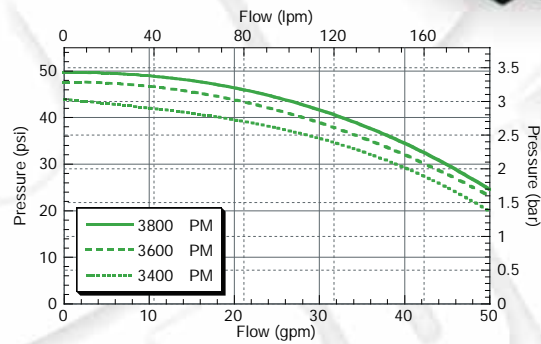
- Impeller attaches directly to $\frac{5}{8}$ " (1.59 CM) NF threaded shaft on 3 HP (2.8 KW) to 5.5 HP (4.1 KW) engine.
- Stainless steel shaft sleeve with o-ring leak protection.
- All iron construction.
- Available complete or less engine (-LE).

GE-100-A

1¼" SUCTION	1" DISCHARGE
-----------------------	------------------------



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



GE-650 Features

- Impeller attaches directly to $\frac{5}{8}$ " (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).

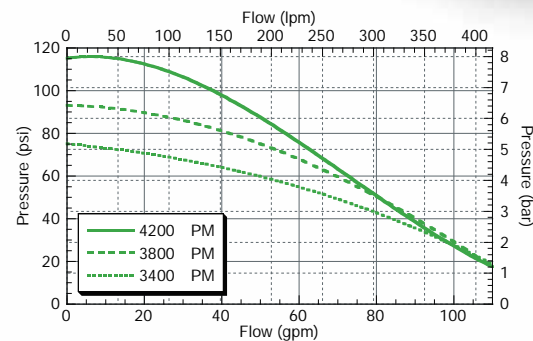
GE-650 GE-660

1½" SUCTION	1¼" DISCHARGE
-----------------------	-------------------------

SC (GE-660 only)



Maximum Flow: 110 GPM (416 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)



GE-660 Features

- Impeller attaches directly to $\frac{3}{4}$ " (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).

GASOLINE ENGINE DRIVEN CENTRIFUGAL PUMPS

GE-800 Features

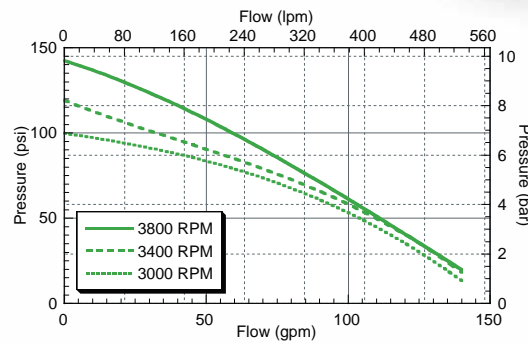
- Impeller attaches directly to 1" (2.54 CM) - 14 NF threaded shaft on 8 HP (5.9 KW) to 10 HP (7.5 KW) engine.
- Stainless steel shaft sleeve with double o-ring leak protection.
- All iron construction.
- Available less engine (-LE).

GE-800 GE-860

2" SUCTION	1½" DISCHARGE
----------------------	-------------------------



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



GE-860 Features

- Impeller attaches directly to 1" (2.54 CM) keyed 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-1600 Features

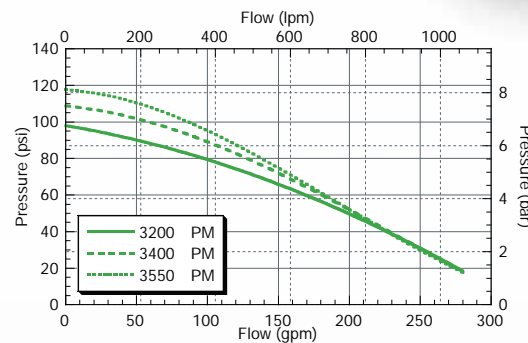
- Impeller attaches directly to 1" (2.54 CM) - 14 NF threaded shaft on 16 HP (12 KW) to 20 HP (15 KW) engine.
- Standard 16 HP (12 KW) electric start engine.
- Stainless steel shaft sleeve with double o-ring leak protection.
- All iron construction.
- Available complete or less engine (-LE).

GE-1600

2½" SUCTION	2" DISCHARGE
-----------------------	------------------------



Maximum Flow: 280 GPM (1060 LPM)
Maximum Pressure: 120 PSI (8.3 BAR)



BELT DRIVEN CENTRIFUGAL PUMPS

General Advantages

FRAME MOUNT ADVANTAGES

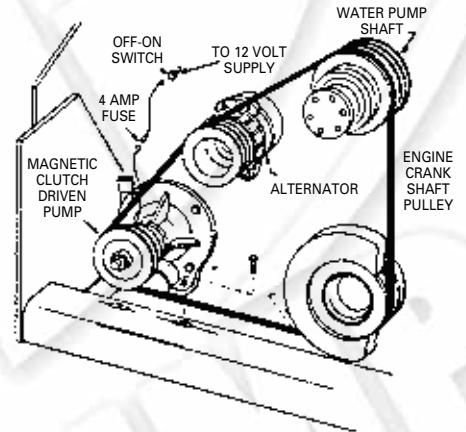
Ace belt driven pumps are available in a variety of models which may be belt driven or direct coupled to a power source. The pumps are available in either clockwise or counterclockwise rotation. The standard bare shaft pumps are designed with a keyway for mounting a drive pulley or coupling.

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.

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".



FMC-CW-200-MAG-D

-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.



FMC-CW-200-X

-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.

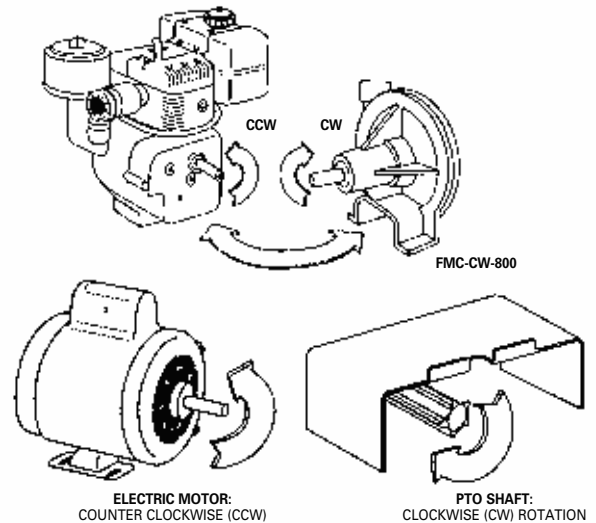


Pump Rotation

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.



BELT DRIVEN CENTRIFUGAL PUMPS

COUNTERCLOCKWISE ROTATION

Features

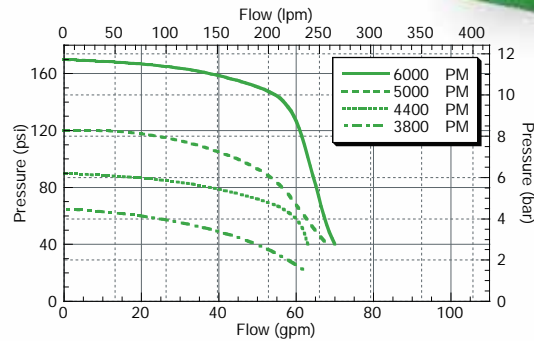
- Counterclockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic or optional Cast Iron Impeller. **CI**
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal. **SC**
- X option includes larger 3/4" (1.9 cm) diameter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

FMC
FMC-MAG-D

1 1/4" SUCTION	1" DISCHARGE
--------------------------	------------------------



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



150 SERIES **HIGH PERFORMANCE**

Features

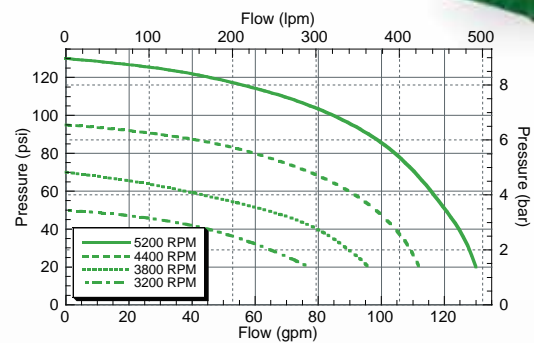
- Counterclockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic, optional Cast Iron **CI**, or optional Polypropylene **PI** Impeller.
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal. **SC**

FMC-150
FMC-150-MAG-D

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



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

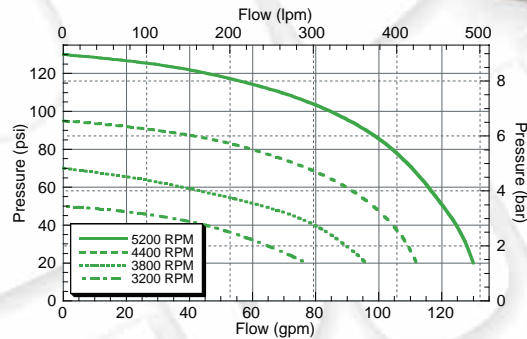


**FMC-150F
FMC-150FS
FMC-150F-MAG-D**

1½" SUCTION	1¼" DISCHARGE
-----------------------	-------------------------



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



**150 SERIES
HIGH PERFORMANCE**

Features

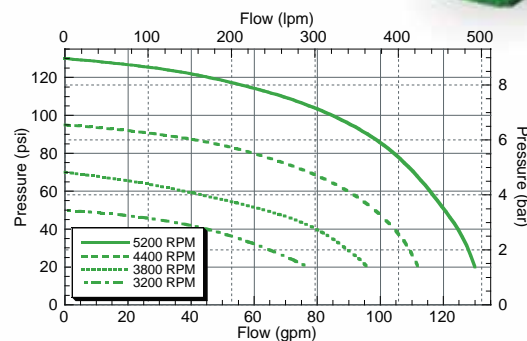
- Counterclockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic, optional Cast Iron (CI), or optional Polypropylene (PI) Impeller.
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal. (SC)
- SP model is self-priming 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-150SP
FMC-150SP-MAG-D**

1½" SUCTION	1¼" DISCHARGE
-----------------------	-------------------------



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 **SI**, volute, and seal plate with industry standard full-port flanged connections for maximum performance.
- E-Coat protection for excellent corrosion resistance.

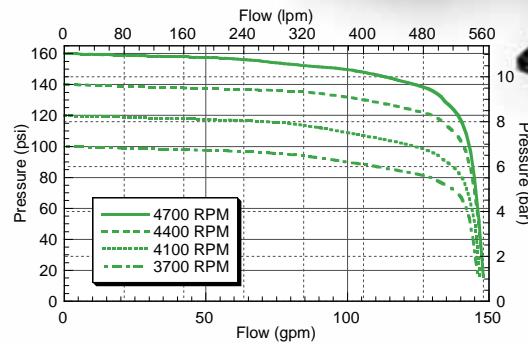
FMC-650 FMC-650-MAG-D
FMC-650F FMC-650F-MAG-D
FMC-650FS FMC-650FS-MAG-D

1 1/2"
220 FLANGE
SUCTION

1 1/4"
200 FLANGE
DISCHARGE



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



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 **SI**, volute, and seal plate with industry standard full-port flanged connections for maximum performance.
- E-Coat protection for excellent corrosion resistance.

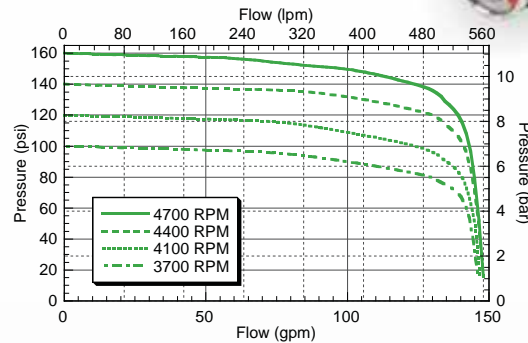
FMCWS-650F
FMCWS-650FS
FMCWS-650F-MAG-D
FMCWS-650FS-MAG-D

1 1/2"
220 FLANGE
SUCTION

1 1/4"
200 FLANGE
DISCHARGE



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



200 SERIES HIGH FLOW

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 3/4" (1.9 cm) diameter shaft and larger bearings for longer life.

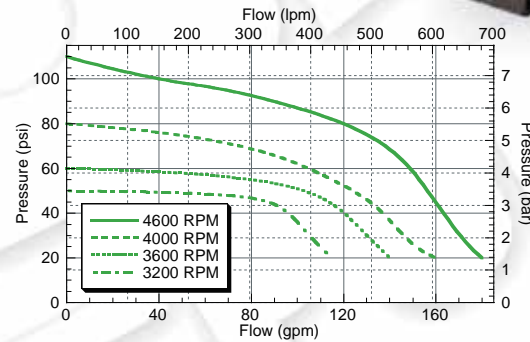
FMC-200
FMC-200-MAG-D
FMC-200SS-MAG-DX

2"
SUCTION

1 1/2"
DISCHARGE



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



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:

$$\frac{\text{Pump RPM}}{\text{Driveshaft RPM}} = \frac{\text{Drive Pulley Diameter}}{\text{Pump Pulley Diameter}}$$

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?

$$\frac{5000 \text{ RPM}}{3600 \text{ RPM}} = \frac{\text{Drive Pulley Diameter}}{4.75" (12 \text{ CM})}$$

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

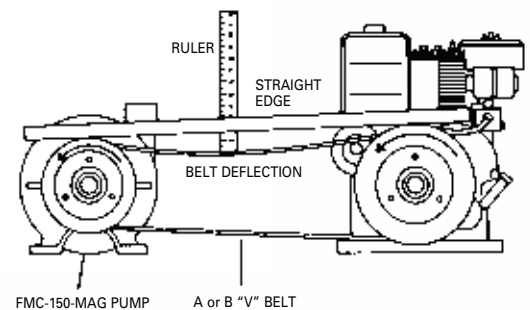
METRIC
1) $5000 \times 12 = 60000$
2) $60000 \div 3600 = 16.67$

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 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

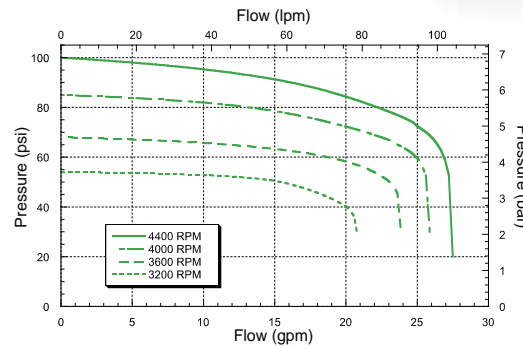
- Clockwise Rotation when facing shaft end.
- Designed for lower flow applications.
- Replaces 12V diaphragm pumps and roller pumps.
- Tall Blade Impeller design - higher pressure at lower shaft speed.
- All Polypropylene corrosion resistant construction.

FMC-CW-75

1" SUCTION	3/4" DISCHARGE
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Maximum Flow: 27 GPM (102 LPM)
Maximum Pressure: 100 PSI (6.9 BAR)



Features

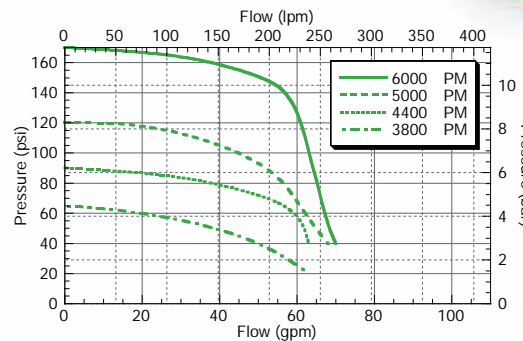
- Clockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic or optional Cast Iron Impeller.
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal.
- MAG-D models equipped with heavy duty 12V clutch.
- X option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

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)



150 SERIES

HIGH PERFORMANCE

Features

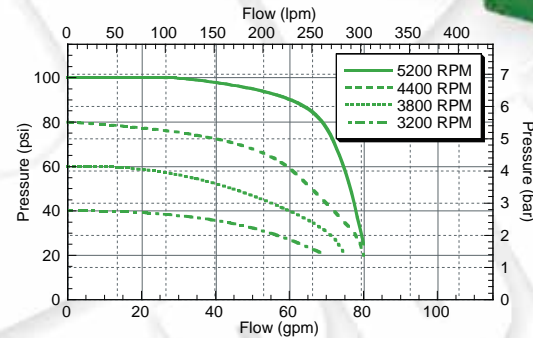
- Clockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic or optional Cast Iron Impeller. **CI**
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal. **SC**
- MAG-D models equipped with heavy duty 12V clutch.
- 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

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



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



650

MAX SERIES

Features

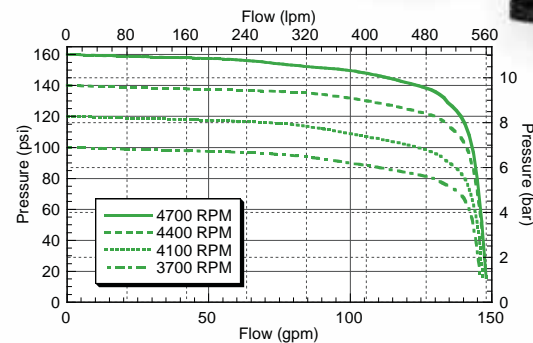
- Clockwise Rotation when facing shaft end.
- Tall Blade Impeller design develops higher pressure at lower RPM.
- E-Coat protection for excellent corrosion resistance.
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal. **SC**
- MAG-D models equipped with heavy duty 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

1 1/2"	1 1/4"
220 FLANGE	200 FLANGE
SUCTION	DISCHARGE



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



©Spra-Coupe is a registered trademark of AGCO Corporation.

BELT DRIVEN CENTRIFUGAL PUMPS

CLOCKWISE ROTATION

200 SERIES **HIGH FLOW**

Features

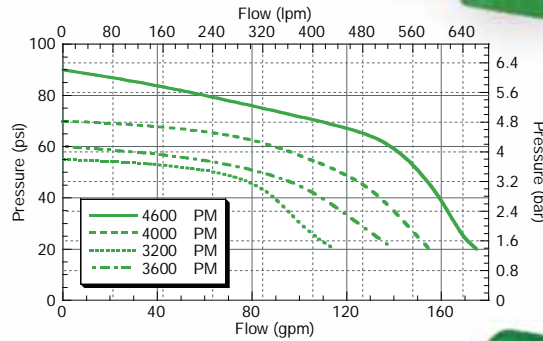
- Clockwise Rotation when facing shaft end.
- Stainless Steel Shaft and Wear Ring.
- Chemical resistant thermoplastic or optional Cast Iron Impeller. **CI**
- Standard Carbon/Ceramic seal or optional Severe Duty Silicon Carbide Mechanical seal. **SC**
- MAG-D models equipped with heavy duty 12V clutch.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

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)

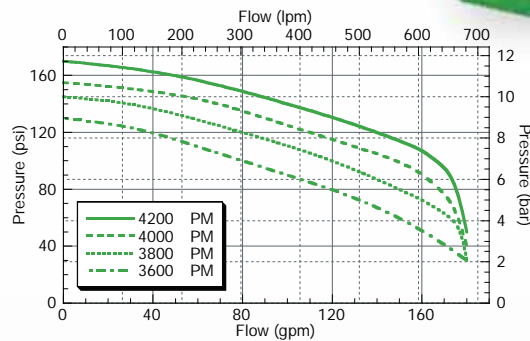


FMC-CW-800
FMC-CW-800-MAG-D

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)



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. **SC**

ELECTRIC MOTOR DRIVEN CENTRIFUGAL PUMP

ACH-55

1 1/4" SUCTION	1" DISCHARGE
--------------------------	------------------------



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 (SC) available for abrasive solutions.
- Chemical resistant thermoplastic or optional Cast Iron Impeller. (CI)

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

ENGLISH UNITS			METRIC UNITS		
PRESSURE	FLOW	FLOW	PRESSURE	FLOW	FLOW
PSI	GPM	GPH	BAR	LPM	LPH
30	10	600	2.1	37.85	2271
25	20	1200	1.7	75.70	4542
23	30	1800	1.6	113.56	6813
19	40	2400	1.3	151.42	9085

Data based on 1 foot lift through unrestricted suction hose and fittings with full 1 1/4" I.D.

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).

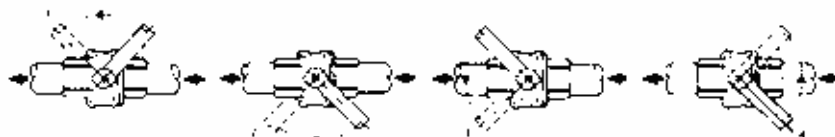
SERIES 16 STANDARD PORT

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.



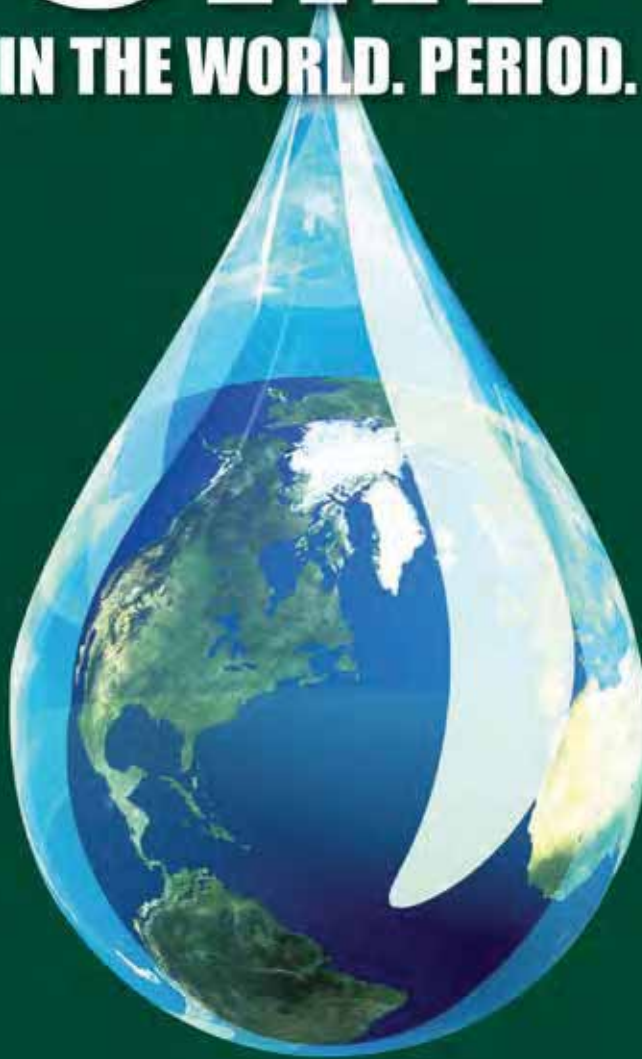
1. L.H. WITH FLOW

2. R.H. WITH FLOW

3. L.H. CROSS FLOW

4. R.H. CROSS FLOW

WE BUILD THE BEST SPRAYER
PUMPS
IN THE WORLD. PERIOD.



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