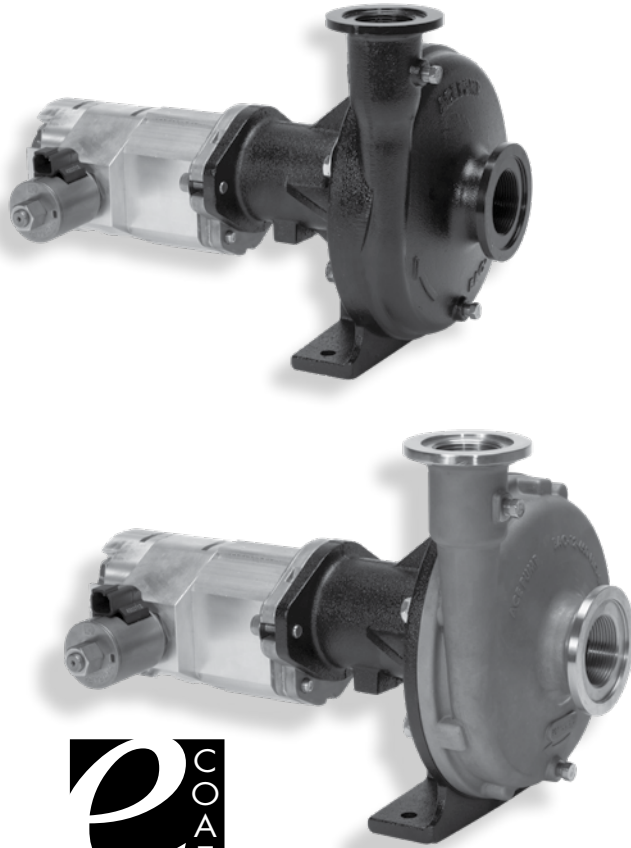




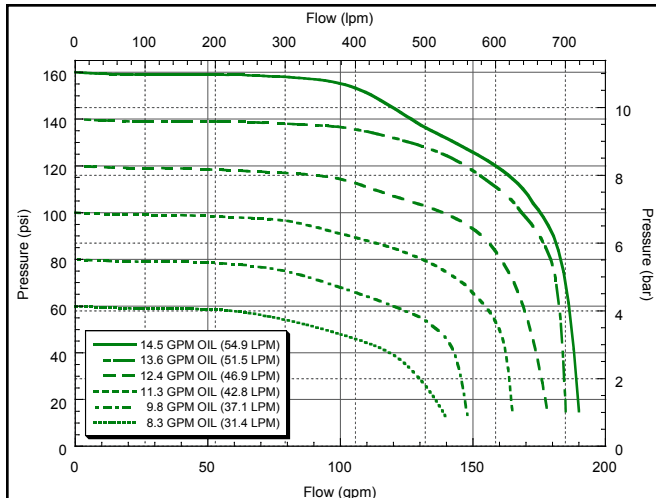
High Performance Hydraulic Motor Driven Centrifugal Pump



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

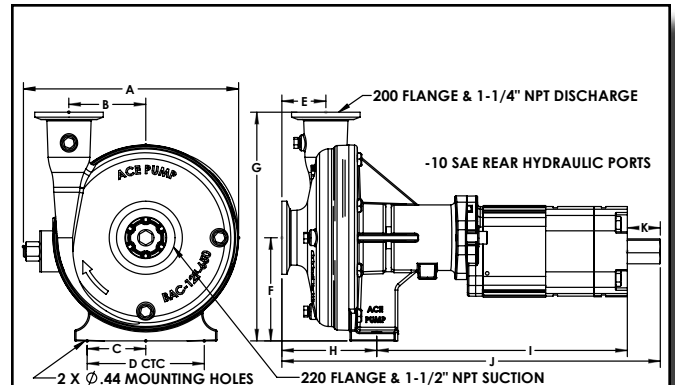
- Suction 220 Flange & 1-1/2" NPT
- Discharge 200 Flange & 1-1/4" NPT
- -FS Model - 316 Stainless Steel Volute, Liner, and Impeller
- High Performance Pump
 - Maximum Flow 170 GPM (644 LPM)
 - Maximum Pressure 160 PSI (11 BAR)
 - Impeller Designed for Higher Pressure at Lower RPM
- Integrated Proportional 12 V Control Valve for Precision Ag Applications Using Pulse Width Modulated (PWM) Control Signals
- Maximum Reliability
 - Operates at Lower RPM for Longer Life
 - Oversized Bearings
 - E-coat Corrosion Protection
 - High Efficiency 4000 PSI (275 BAR) Pressure Plated Gear Motor

PERFORMANCE CHART



Note: Performance with flanged connections and full size plumbing.

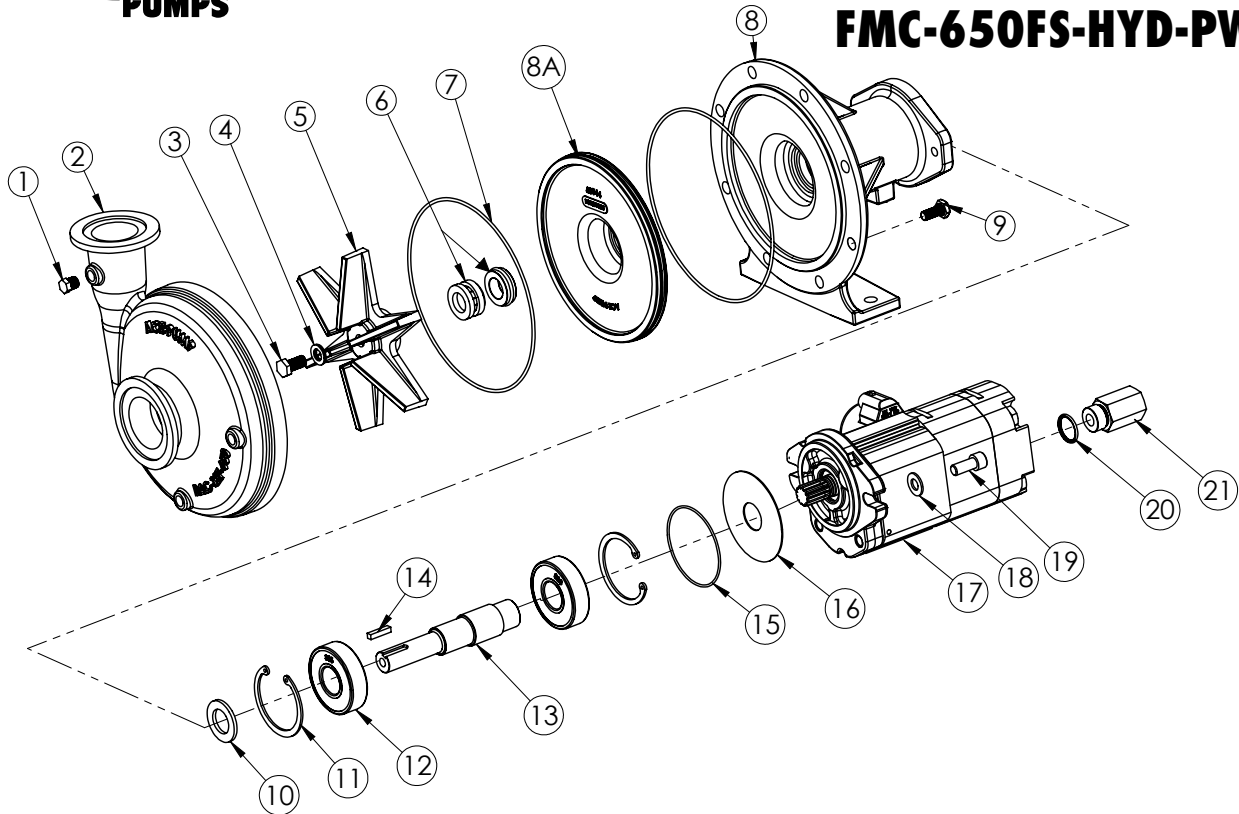
DIMENSIONS



	A	B	C	D	E	F	G	H	I	J	K
INCHES	9.64	3.50	2.63	5.25	2.00	4.63	10.3	4.31	11.23	16.96	1.50
MM	244.9	88.9	66.8	133.3	50.8	117.6	261.6	109.5	285.2	430.8	38.1



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



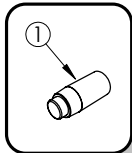
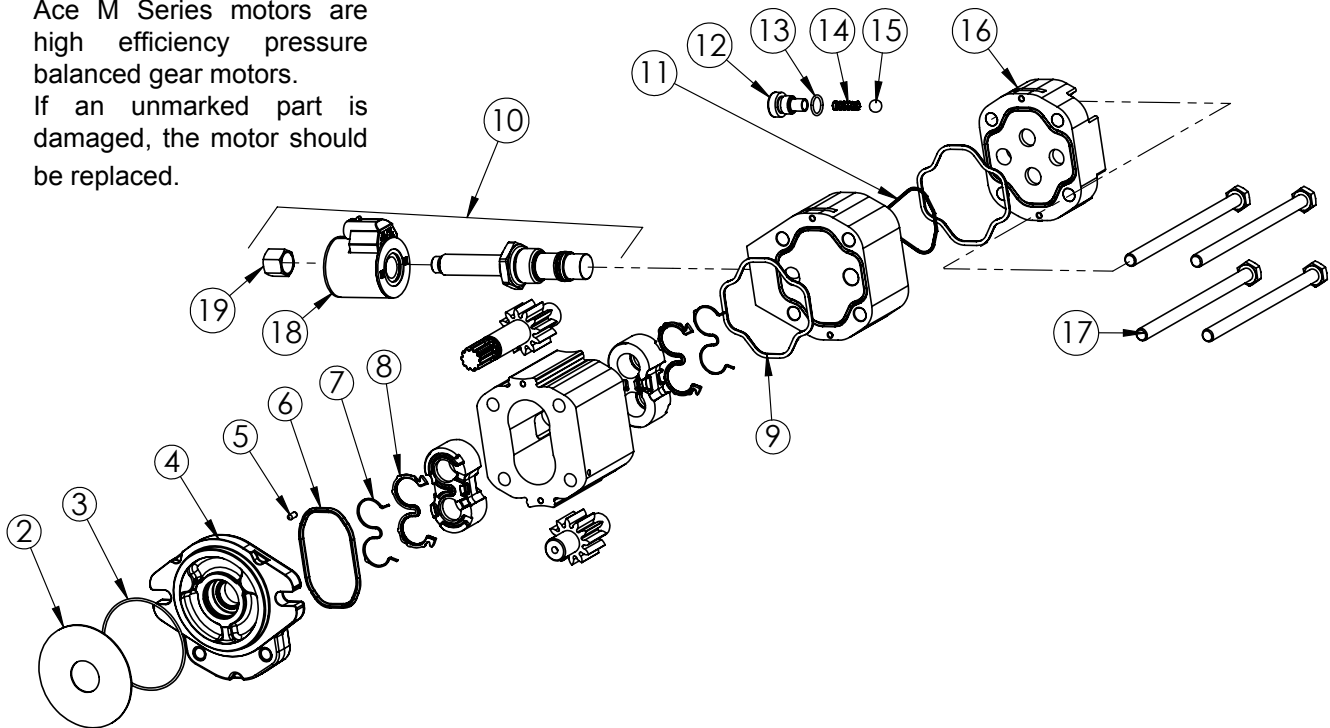
REF. #	PART NUMBER	EDP #	DESCRIPTION	REQ.
1	BAC-53	41110	Pipe plug, 1/8" NPT, hex head	3
1	41120	41120	Pipe plug, 1/8" NPT, hex head, stainless steel (optional) (FS model)	3
2	BAC-12-650-FLG	30159	Volute, NPT & 220 flange x NPT & 200 flange (F model)	1
2	BAC-12-650-FLG-SS	30156	Volute, NPT & 220 x NPT & 200, 316 stainless steel (FS model)	1
3	40930	40930	Cap screw, 3/8" NC x 3/4" hex head, stainless steel	1
4 ^{①②}	30029	30029	Washer, 3/8" O.D., sealing, stainless steel	1
5	BAC-26-650	30169	Impeller, cast iron, e-coated	1
5	BAC-26-650-SS	30191	Impeller, stainless steel (optional) (standard on FS model)	1
6 ^①	BAC-7-650	40145	Seal, carbon/ceramic/FKM, 3/4"	1
6 ^②	BAC-7SC-650	40146	Seal, silicon carbide/FKM, 3/4" (optional)	1
6	BAC-7-650B	40144	Seal, carbon/ceramic/Buna N, 3/4" (for aqua ammonia)	1
7 ^{①②}	BAC-4-150	40015	O-ring, volute seal (2 needed for FS model)	1
8	BAC-14-650-HYD	40325	Mounting frame, cast iron, e-coated	1
8	BAC-14-650-HYD-LIN	40343	Mounting frame for liner, cast iron, e-coated, (FS model)	1
8a	BAC-16-650-LIN	40344	Liner, 316 stainless steel (FS model)	1
9	40950	40950	Cap screw, 3/8" NC x 3/4" hex head	8
9	40930	40930	Cap screw, 3/8" NC x 3/4" hex head, stainless steel (optional) (FS model)	8
10	BAC-54-650	41132	Slinger, 1.5" OD x 7/8" ID	1
11	41943	41943	Snap ring, internal, mounting frame	2
12	40875	40875	Bearing, FMC-650 models	2
13	BAC-6-650-HYD-SS	40051	Shaft, 1.13" dia., 11T female spline, stainless steel	1
14	41085	41085	Key, .188 x .188 x .875, FMC-650 models	1
15	43419	43419	O-ring, flange, M Series	1
16	43414	43414	Pad, absorbent, M Series	1
17	BAC-75-HYD-M16-PWM	41327	Motor, hydraulic, pressure plated gear, 14.5 gpm	1
18	42701	42701	Washer, 3/8"	2
19	41907	41907	Cap screw, 3/8" NC x 1", socket head	2
20	41445	41445	O-ring, #10 SAE fitting	2
21	BAC-78-10X10SAE	41467	Reverse check, #10 SAE male x #10 SAE female	1
①	RK-FMC-650	52720	Repair kit, carbon/ceramic/FKM seal, FMC-650 models	--
②	RK-FMCS-650	52721	Repair kit, silicon carbide/FKM seal, FMC-650 models	--



HYDRAULIC MOTOR PARTS LIST

BAC-75-HYD-M16-PWM

Ace M Series motors are high efficiency pressure balanced gear motors. If an unmarked part is damaged, the motor should be replaced.



Important: The seal installation tool ① is required to install the shaft seal. This tool is included with the repair kit RK-BAC-75-M (40138). It prevents damage to the seal lips during installation over the splined shaft.

REF #	Part #	EDP #	DESCRIPTION	REQ.
1①	43416	43416	Installation tool, shaft seal	1
2①	43414	43414	Absorbent pad	1
3①	43419	43419	O-ring, flange	1
4①	43418	43418	Drive plate assembly, flange, M motors	1
5	43420	43420	Pin, motor assembly	6
6	43425	43425	Housing seal, front external	1
7	43430	43430	Anti-extrusion seal, M motors	2
8	43435	43435	Compensation seal, M motors	2
9	43440	43440	Housing seal, rear external	2
10	PWM-18-PRO-18	74224	Valve assembly, 12V proportional	1
11	41850	41850	O-ring, housing seal	1
12	43445	43445	Cap, coasting check	1
13	43450	43450	O-ring, coasting check cap	1
14	43455	43455	Spring, coasting check	1
15	43460	43460	Ball, coasting check	1
16	43465	43465	End plate, cover, #10 SAE end ports	1
17	43477	43477	Cap screw, motor assembly, hex head, M16-PWM	4
18	74229	74229	Coil, 12V for PWM-18-PRO-18	1
19	74233	74233	Nut, coil attachment, PWM-18-PRO-18	1
①	RK-BAC-75-M	40138	RK-BAC-75-M, Repair kit includes 1, 2, 3, & 4	--

REGULATING HYDRAULIC FLOW TO THE SPRAYER PUMP

There are three general types of hydraulic systems:

- 1) Load Sensing (LS), also known as Pressure-Flow Compensating (PFC) Closed Center
- 2) Pressure Compensating Closed Center (PC)
- 3) Open Center (OPEN)

This product is designed to operate on both Closed Center Hydraulic Systems. It should not be used with Open Center systems. Please consult the Tractor Hydraulic System Pump Selection Guide(HSG), Internet Hydraulic Selection Guide (IHSG) at www.AcePumps.com, or your tractor dealer to determine your tractor's hydraulic system.

All PWM controllers are slightly different in the terminology used and setup procedures. Please consult your controller documentation or their technical service department for additional assistance with your specific application and implement in use.

Link to Ace Pump
IHSG

<http://www.acepumps.com/ihsg/>



Link to Ace Pump
PWM Technical File

http://www.acepumps.com/_Assets/Literature/PWM_Technical_File.pdf



The screenshot shows the ACE PUMPS logo and the IHSG title. Below the title, there is a grid of logos for various tractor brands: AGCO, Case IH, Versatile, Challenger, Kubota, Massey Ferguson, New Holland, and White. The ACE Pump Corporation contact information is listed at the bottom: P.O. Box 13187 • 1650 Channel Avenue • Memphis, TN 38113. Phone: (901) 948-8514 • Fax: (901) 774-6147.

The screenshot shows the title "PWM Technical File" with the ACE PUMPS logo. It includes a section on "PWM Control Basics and Terminology" with a diagram of a PWM signal (Figure 1) showing a 50% duty cycle. The text explains that PWM is used to control current to a proportional electrical hydraulic valve. Other terms defined include Dither, Stiction, and Hysteresis. A section on "Valve Settings & Performance" includes a graph (Figure 2) showing typical valve performance with current (mA) on the y-axis and pressure (PSI) on the x-axis. The ACE Pump Corporation contact information is repeated at the bottom.