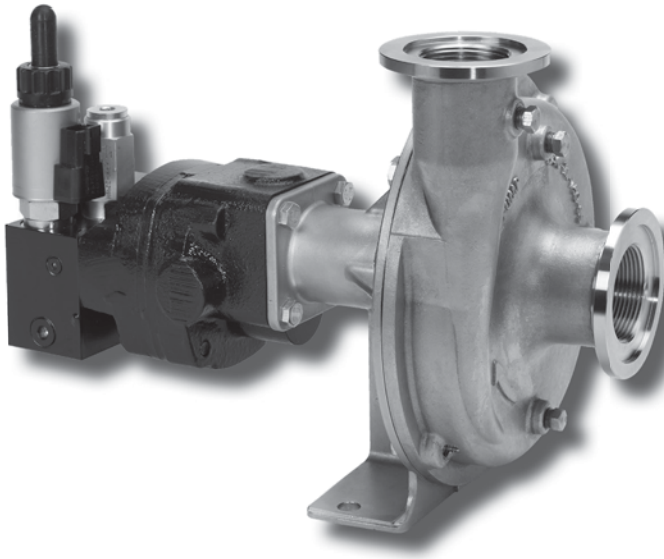




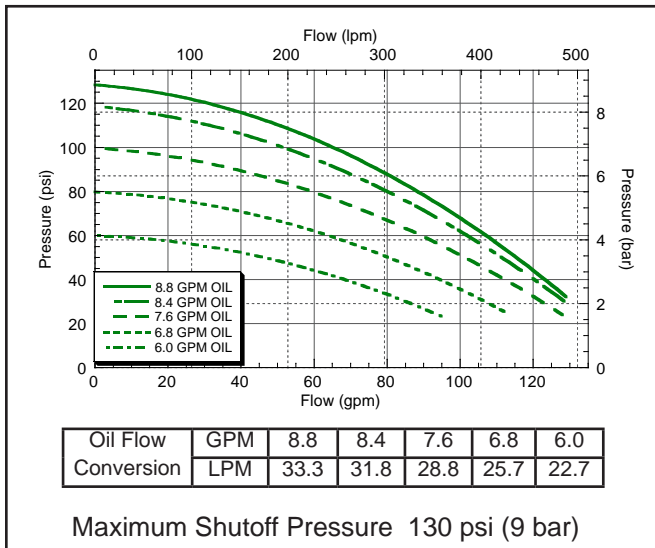
# High Performance Hydraulic Motor Driven Centrifugal Pump

## FM CSC-155FS-HYD-304-PWM

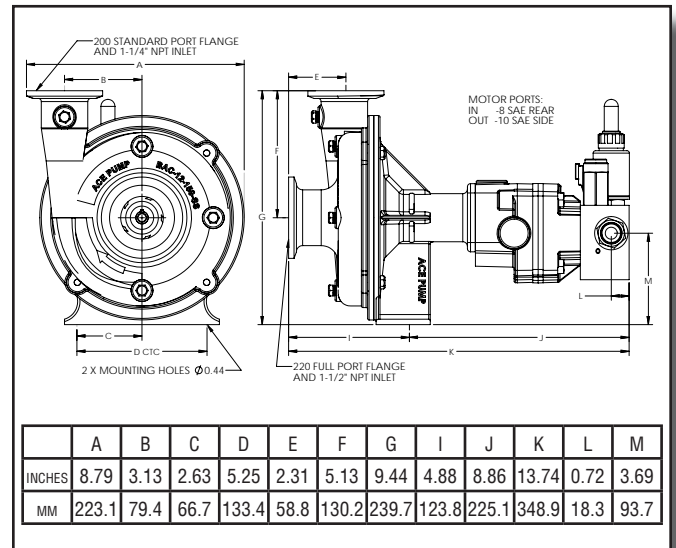


- Suction 220 Flange & 1-1/2" NPT
- Discharge 200 Flange & 1-1/4" NPT
- 316 Stainless Steel Housing
- Integrated Proportional 12V Control Valve for Precision Ag applications using Pulse Width Modulated (PWM) control signals
- Recommended for use on the following Hydraulic Systems:
  - ✓ Pressure Compensating Closed Center
  - ✓ Load Sensing or Pressure Flow Compensating Closed Center
- Severe Duty Silicon Carbide Mechanical Seal with O-ring Seat for Improved Survivability
- Chemical Resistant Thermoplastic Impeller and Optional Cast Iron or Polypropylene available
- Stainless Steel Shaft

## PERFORMANCE CHART

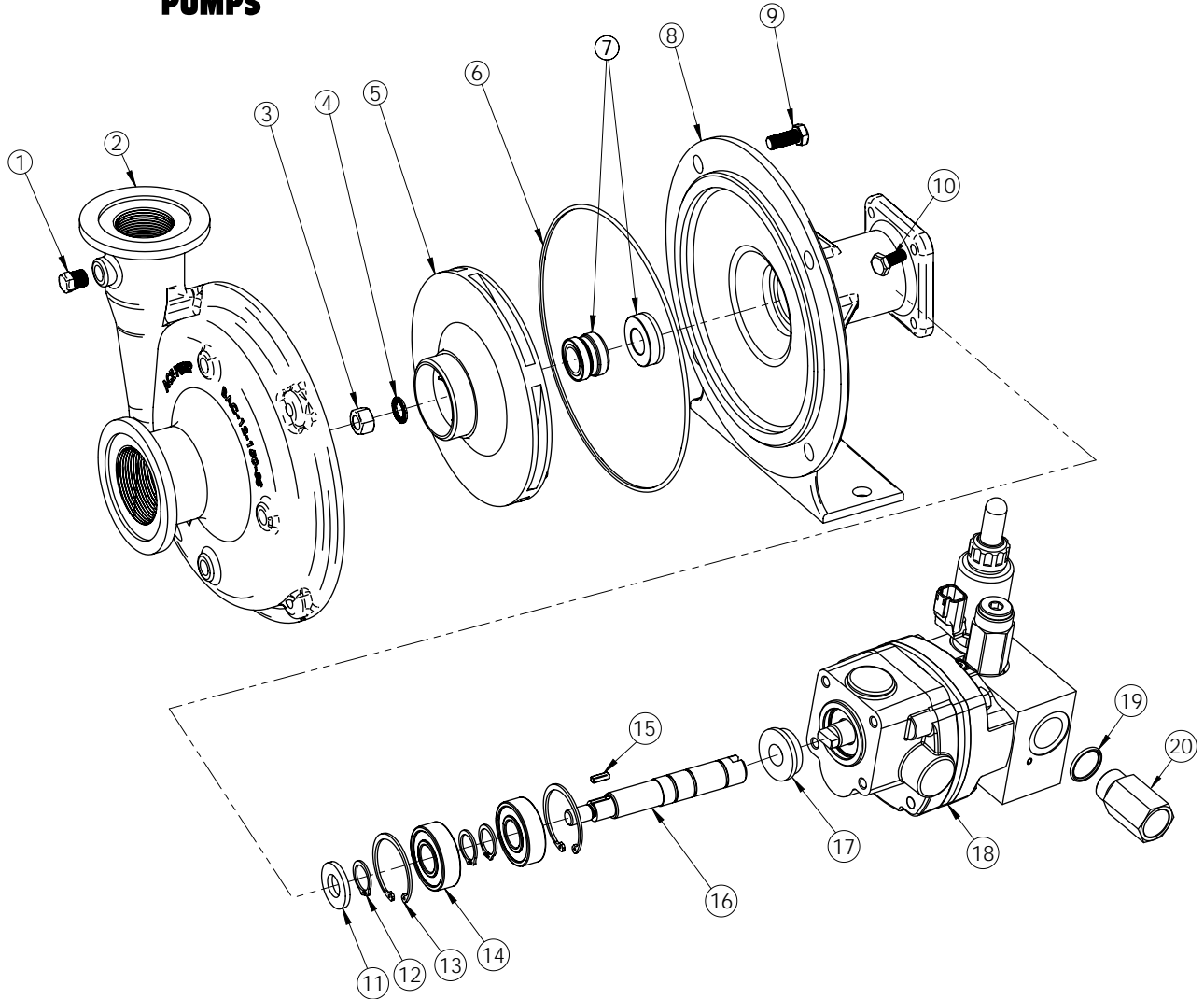


## DIMENSIONS





# FMCS-155FS-HYD-304-PWM

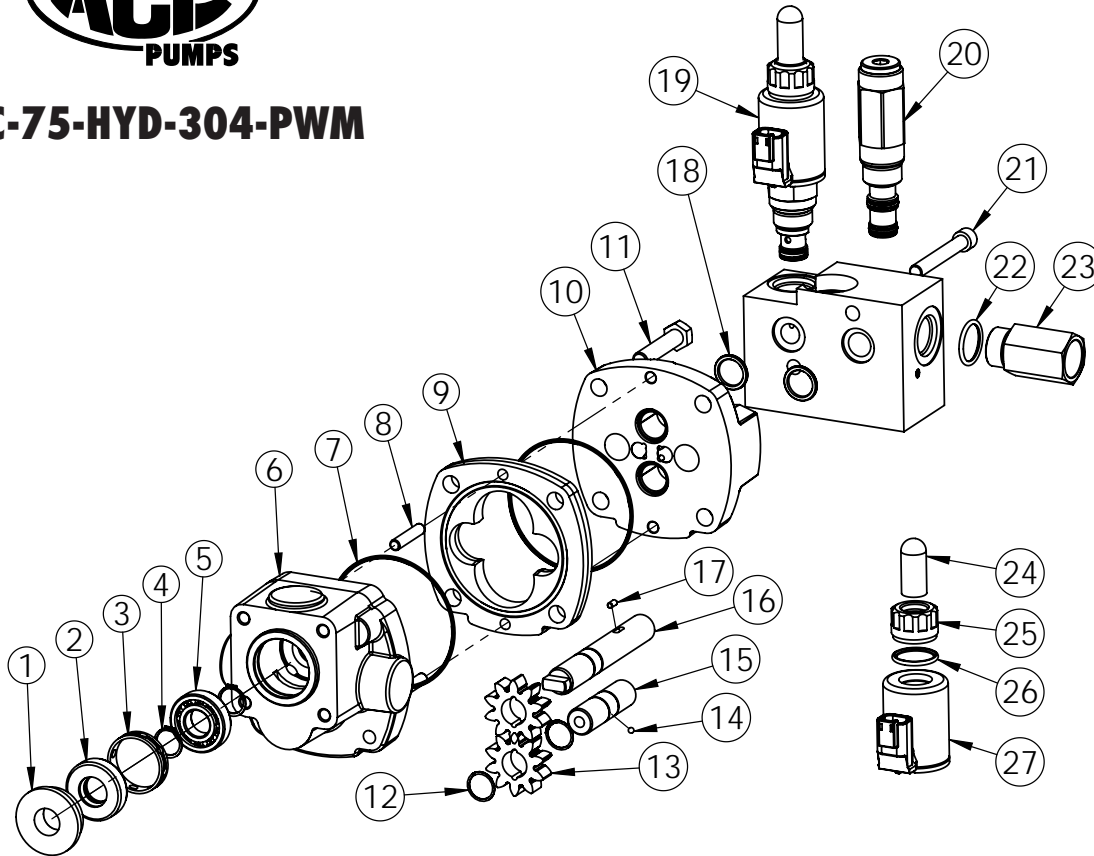


REF. #	PART NUMBER	EDP #	DESCRIPTION	REQ.
1	41120	41120	Pipe plug, stainless steel	4
2	BAC-12-150-SS	40249	Volute, 316 stainless steel , NPT & flanged	1
3	BAC-23-B-SS	40393	Nut, 3/8" NF, stainless steel	1
4	BAC-24-B-SS	42702	Washer, 3/8", stainless steel, vibration proof	1
5	BAC-26-150-P	40446	Impeller, thermoplastic, keyway	1
5	BAC-26-150-CI	40445	Impeller, cast iron, keyway (optional)	1
5	BAC-26-150-PI	40448	Impeller, polypropylene, keyway (optional)	1
6 <sup>①</sup>	BAC-4-150	40015	O-ring, body seal	1
7 <sup>①</sup>	BAC-7SC-205V	40149	Seal, silicon carbide	1
8	BAC-14-155-HYD-SS	40348	Mounting frame, 316 stainless steel	1
9	40930	40930	Cap screw, 3/8" NC x 3/4" hex head, stainless steel	4
10	41330	41330	Cap screw, 5/16" NC x 3/4" hex head	4
11	BAC-54	41130	Slinger	1
12	BACH-32-HD	40385	Snap ring, external, shaft	3
13	BACH-33	40820	Snap ring, internal, mounting frame	2
14	40880	40880	Ball bearing, sealed	2
15	BACH-25	40420	Key, 1/8" x 1/8" x 1/2"	1
16	BAC-6-155-HYD-SS	40072	Shaft, 5/8" diameter, keyway and tang slot, stainless steel	1
17	S305	40163	Seal support spacer for 305 Series HYD motor	1
18	BAC-75-HYD-304-PWM	41348	Hydraulic motor, 11 GPM, PWM	1
19	41445	41445	O-ring, #10 SAE fitting	1
20	BAC-78-10X10SAE	41467	Reverse check valve, #10 SAE male x #10 SAE female	1
①	RK-FMCS-155	52713	Repair kit for FMC-155 series with silicon carbide shaft seal	-
#	RK-BAC-75-HYD-300-L	41362	Repair kit for 300 Series motor	-



# HYDRAULIC MOTOR PARTS LIST

## BAC-75-HYD-304-PWM



REF #	PART #	EDP #	DESCRIPTION	REQ.
1	S305	40163	Seal support spacer, S305 for 205 Series pumps	1
2 <sup>o</sup>	BAC-75-300-TLS	40154	Seal cartridge, BAC-75-300-TLS	1
3	43056	43056	Spacer seal/bearing, perforated, 300 series motor	1
4	43205	43205	Retaining ring, bearing	2
5	43225	43225	Ball bearing	1
6	43016	43016	Drive plate	1
7 <sup>o</sup>	43130	43130	O-ring, housing seal	2
8	43085	43085	Dowel pin, housing	2
9	43005	43005	Gear housing	1
10	43023	43023	End plate, 300-PWM series motor	1
11	43185	43185	Cap screw, 3/8" N.C. hex head	4
12	43240	43240	Retaining ring, gear	2
13	43035	43035	Gear	2
14	43250	43250	Ball, idler shaft	1
15	43235	43235	Idler shaft	1
16	43046	43046	Drive shaft	1
17	43195	43195	Dowel pin, drive shaft	1
18	74205	74205	O-ring, port sealing, manifold to motor	2
19	PWM-18-PRO-11	74220	Valve assembly, 12V proportional	1
20	PWM-18-PRV-11	74210	Valve assembly, pressure reducing	1
21	41251	41251	Cap screw, 5/16" N.C. x 2.25" socket head	2
22	41445	41445	O-ring, #10 SAE fitting	1
23	BAC-78-10X10SAE	41467	Reverse check assembly, #10 SAE x #10 SAE	1
24	74235	74235	Protector, manual override, PWM-18-PRO	1
25	74230	74230	Nut, coil retainer for PWM-18-PRO	1
26	41445	41445	O-ring, coil nut	1
27	74225	74225	Coil, 12V for PWM-18-PRO	1
28	BAC-75-HYD-304P	41328	Motor, BAC-75-HYD-304-PWM, less manifold	-
#	PWM-1	74200	Manifold assembly, 304-PWM, includes 18 - 23	-
Ⓛ	RK-BAC-75-HYD-300-L	41362	Motor repair kit, includes item 2 & 7	-

# Item not shown.

# 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](http://www.AcePumps.com), or your tractor dealer to determine your tractor's hydraulic system.

The two valve design limits the maximum oil flow to the motor and prevents overspeeding. So the Restrictor Orifice and Flow Limiter are not needed with this product.

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](http://www.acepumps.com/_Assets/Literature/PWM_Technical_File.pdf)



The screenshot shows the Ace Pump IHSG website. At the top left is the ACE PUMPS logo. Below it are links for 'HSG Homepage' and 'ACE Pumps Website'. The main heading is 'IHSG Internet Hydraulic Selection Guide'. Below this, there is a brief instruction: 'Simply select a tractor make on this page and the model number from the following page. The system will then display which ACE pump models to use.' Below that, it says 'You may also choose to print the results of your search along with the setup instructions for your hydraulic system type.' A grid of tractor brand logos is displayed, including AGCO, CASE, Challenger, JOHN DEERE, KUBOTA, MASSEY FERGUSON, VERSATILE, and WHITE. At the bottom, the ACE PUMP CORPORATION contact information is provided: P.O. Box 13187 • 1650 Channel Avenue • Memphis, TN 38113. Phone: (901) 948-8514 • Fax: (901) 774-6147.

The screenshot shows the 'ACE Pumps PWM Technical File' document, updated 12/2015. It covers 'PWM Control Basics and Terminology'. It defines PWM (Pulse Width Modulated) control systems and their use in agriculture. It includes a diagram of a PWM signal (Figure 1) showing a square wave with a 1 Hz cycle and duty cycles of 60%, 25%, and 75% on. It also defines terms like Dither, Stiction, and Hysteresis. A section on 'Valve Settings & Performance' includes a graph (Figure 2) showing 'Typical Valve Performance Graph' with LS (psi) on the y-axis (0 to 40) and (1/2 V) (A) on the x-axis (0 to 1.8). The graph shows several curves representing different valve models. At the bottom, the contact information for ACE PUMP CORPORATION is repeated: P.O. BOX 13187 • 1650 CHANNEL AVENUE • MEMPHIS, TN 38113.