

### MOTOR DIMENSIONS

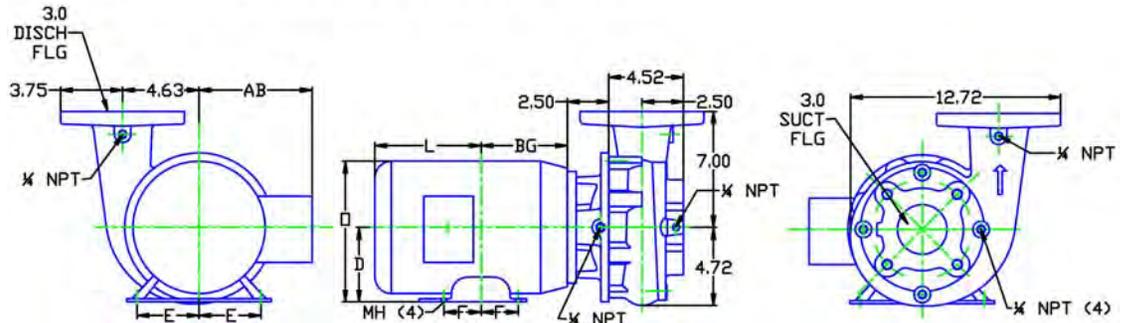
NEMA JM FRAME 3 PHASE 1450 RPM

HP	Type	Frame	D	E	F	O	AB	BG	L	MH
1.5	ODP	JM145	3.50	2.75	2.50	6.72	5.87	5.25	4.20	0.34
2	ODP	JM182	4.50	3.75	2.25	8.56	6.70	5.75	6.65	0.41
1.5	TEFC	JM145	3.50	2.75	2.50	7.00	6.25	5.06	6.34	0.34
2	TEFC	JM182	4.50	3.75	2.25	8.85	7.57	5.01	7.14	0.41

Dimensions are the next larger 60Hz motor derated for 50Hz operation.

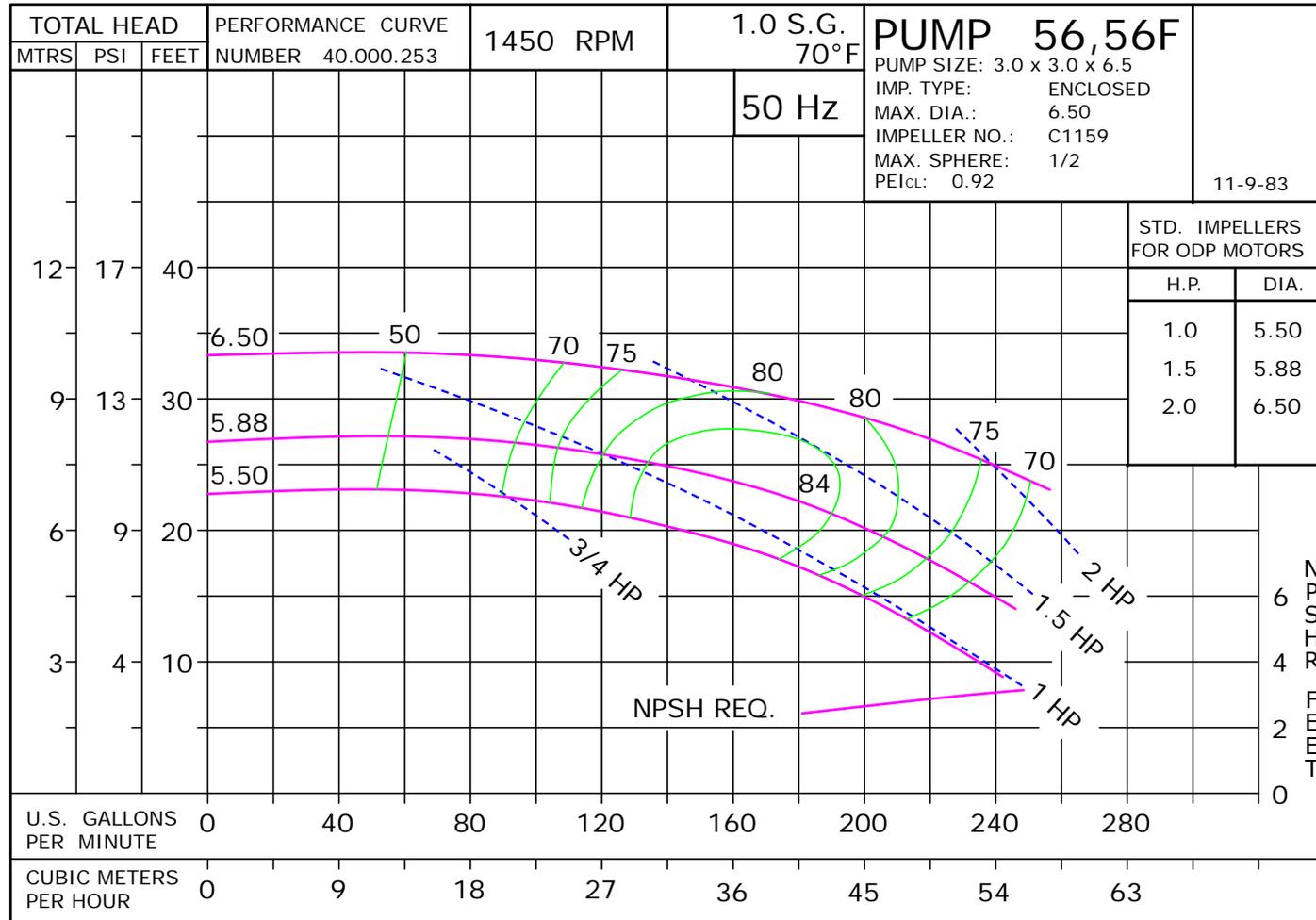
D056FJM182

DRAWING DEPICTS JM182 3HP ODP MOTOR



**ALL DIMENSIONS IN INCHES**

DRAWING REPRESENTS APPROXIMATE PUMP DIMENSIONS.



056F10TE

D056FJM182  
0561450

# 56F JM

056F1450JM  
81.001.415 M19

# 50 Hertz Pump & Motor Data

A 3-phase 50 Hertz Motorpump™ can be obtained in several ways. The most common options are listed below:

1. Most 60 Hz pumps available from Scot Pump can be operated on a 3-phase 50 Hz 190/380V power. However, when operated on 50 Hz power, the speed is reduced by approximately 20%, and a significant reduction in performance is realized. The charts below indicate these reductions in performance.
2. Pumps will produce the performance indicated in the performance curves when operated on 50 Hz power. The motors for these selections can be obtained through *derated 60 Hz motors* and *wound 50 Hz motors* (see below).

Contact factory for 1 Phase applications.

## Derated 60 Hz Motors

The most common practice and readily available method of obtaining a 50 Hz motor is by using the next larger 60 Hz motor and derating it to the desired horsepower on 50 Hz. We will require the country the motor is being exported to, frequency in hertz and specific voltage to ensure that a nameplate with applicable efficiency and country markings (if required) is supplied. In utilizing this practice, service factors may be derated to 1.0. Please contact the factory for approval of the rating for your specific application.

## Wound 50 Hz Motors

Specially wound 50 Hz motors are available. These motors are not normally a stock item and require an extended lead time.

The impeller and horsepower combination sized (taking the reduction in speed into consideration) may not be suitable for operation on 60 Hz power. The increase in speed, performance and load may overload the system and the electric motors. **Pumps sized for 50 Hz operation SHOULD NOT be tested on 60 Hz.**

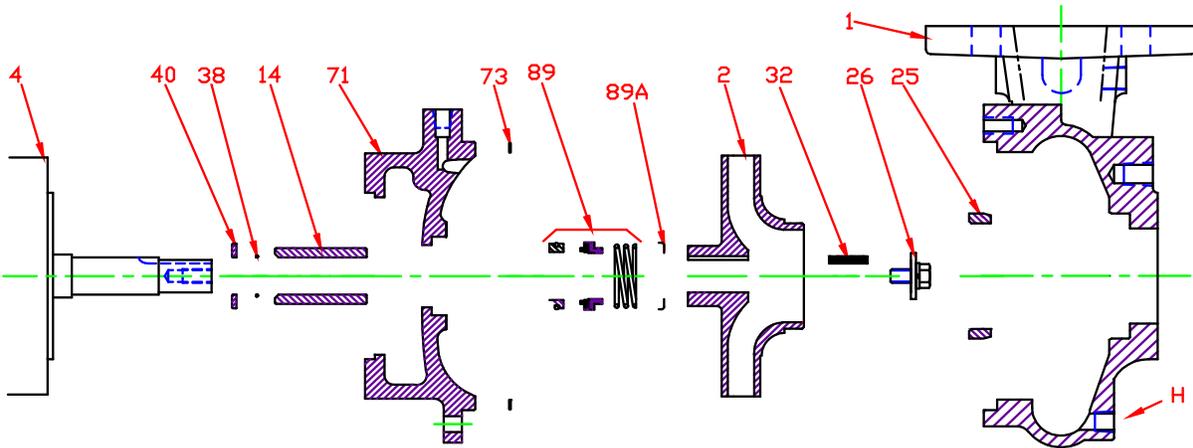
<b>60 Hz Pump on 50 Hz Power</b>		
<b>No Impeller Change</b>		
<b>50 Hz</b>	<b>60 Hz</b>	<b>Factor</b>
GPM =	GPM x	0.829
Head =	Head x	0.687
BHP =	HP x	0.569

<b>To Size 60 Hz Pump Using 50 Hz Data,</b>		
<b>Obtain 60 Hz Data As Follows:</b>		
<b>60 Hz</b>	<b>50 Hz</b>	<b>Factor</b>
GPM =	GPM x	1.2
Head =	Head x	1.45
BHP =	HP =	$\frac{\text{GPM} \times \text{Head} \times \text{SG of}}{3960 \times \text{Eff}}$

<b>Change of Speed (RPM)</b>		
	<b>How Varies:</b>	<b>Examples</b>
GPM	Directly	Double RPM = (2)(RPM) = (2)(GPM) Triple RPM = (3)(RPM) = (3)(GPM)
Head	Square	Double RPM = (2)(RPM) = (2) <sup>2</sup> = (2)(2) = (4)(Head) Triple RPM = (3)(RPM) = (3) <sup>2</sup> = (3)(3) = (9)(Head)
BHP	Cube	Double RPM = (2)(RPM) = (2) <sup>3</sup> = (2)(2)(2) = (8)(BHP) Triple RPM = (3)(RPM) = (3) <sup>3</sup> = (3)(3)(3) = (27)(BHP)

<b>Change of Impeller Diameter (Dia.)</b>		
	<b>How Varies:</b>	<b>Examples</b>
GPM	Directly	Double Dia. = (2)(Dia.) = (2)(GPM) Triple Dia. = (3)(Dia.) = (3)(RPM)
Head	Square	Double Dia. = (2)(Dia.) = (2) <sup>2</sup> = (2)(2) = (4)(Head) Triple Dia. = (3)(Dia.) = (3) <sup>2</sup> = (3)(3) = (9)(Head)
BHP	Cube	Double Dia. = (2)(Dia.) = (2) <sup>3</sup> = (2)(2)(2) = (8)(BHP) Triple Dia. = (3)(Dia.) = (3) <sup>3</sup> = (3)(3)(3) = (27)(BHP)

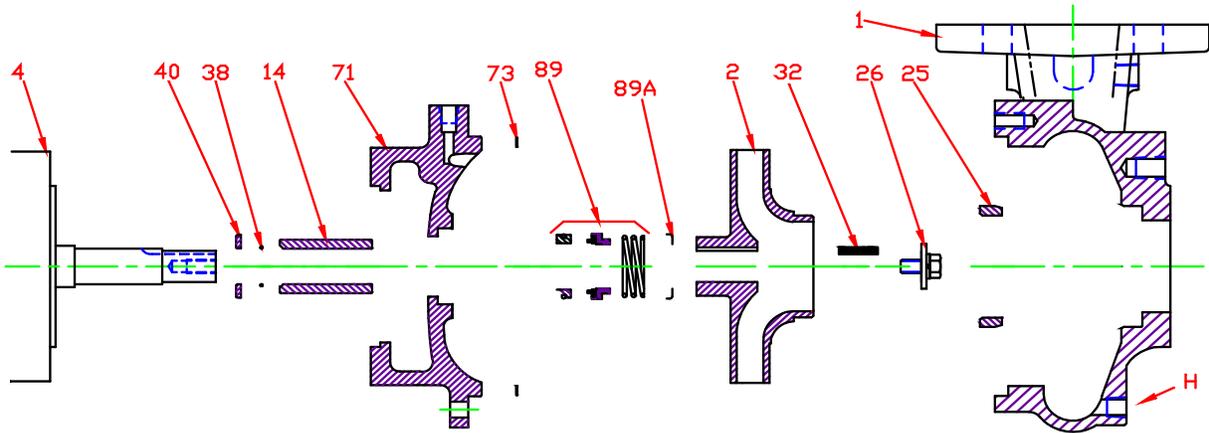
**Pump 56F • Iron • JM Frame • 1450 RPM**



KEY NO.	PART NAME	PUMP NO. 56F
1+	CASE, IRON, 3 x 3 FLG	130.000.185X
2	IMPELLER, 7/8" KEYED, ENCLOSED, SPECIFY DIAMETER: IRON	131.000.809
4	MOTOR, JM140/180	See 60HZ Chart
14*	SHAFT SLEEVE, BRONZE SHAFT SLEEVE, STAINLESS	110.000.178 110.000.192
25	WEAR RING, BRONZE WEAR RING, STEEL	103.000.138 103.000.152
26*	IMPELLER RETAINER, STAINLESS	118.000.163A
32*	KEY, STAINLESS	102.000.102
38*	O-RING, SHAFT, BUNA O-RING, SHAFT, VITON	116.000.117 116.000.105
40*	FLINGER, STAINLESS	104.000.165
71	ADAPTER, IRON - JM140/180	132.000.202X
73*	GASKET, CASE, FIBER	116.000.157
89*	1½" SEALS:	
	BN-CARB/CM	101.000.168
	VN-CARB/CM	101.000.191
	VN-CARB/SIL	101.000.175
	VN-SIL/SIL	101.000.204
	EPDM-CARB/SIL	101.000.175B
	EPDM-SIL/SIL	101.000.204A
89A*	SEAL RETAINER, STAINLESS	104.000.174
--	° REPAIR KITS:	
	BN-CARB/CM SEAL	118.000.344
	VN-CARB/CM SEAL (S)	118.000.344A
	VN-CARB/CM SEAL	118.000.344K
	VN-CARB/SIL SEAL	118.000.344B
	VN-SIL/SIL SEAL (S)	118.000.344F
	EPDM-CARB/SIL SEAL	118.000.344C
EPDM-SIL/SIL SEAL	118.000.344D	

\* DENOTES COMPONENTS INCLUDED IN REPAIR KIT.  
 + INCLUDES BRONZE WEAR RING. FOR STEEL WEAR RING, REPLACE SUFFIX "X" WITH "X1".  
 ° ALL REPAIR KITS INCLUDE THE BRONZE SHAFT SLEEVE EXCEPT THE (S) INDICATED, WHICH IS STAINLESS WITH VITON SHAFT O-RING.

**Pump 56F • Iron • JM Frame • 1450 RPM**



CONSTRUCTION OPTIONS			
KEY	PART NAME	STANDARD FITTED	ALL IRON
1	Case	Iron	Iron
2	Impeller	Iron	Iron
14	Shaft Sleeve	Bronze	Stainless
25	Wear Ring	Bronze	Steel
26	Impeller Retaining Assy	Stainless	Stainless
32	Key	Stainless	Stainless
38	Shaft O-Ring	BUNA	BUNA
40	Flinger	Stainless	Stainless
71	Adapter	Iron	Iron
73	Gasket, Case	Fiber	Fiber
89	Mechanical Seal, Type 21 BN-CM	Standard	Standard
89A	Seal Spring Retainer	Stainless	Stainless
H	Plug, Drain	Brass	Plated Steel

E054FJM

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