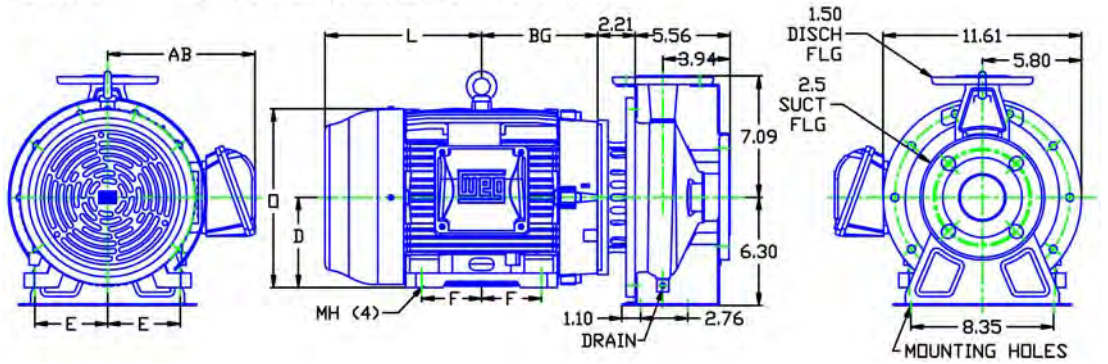
Scot Pump
A WILO COMPANY

# MOTORPUMP™ — 2900 RPM
## 50 HERTZ, 2.50 X 1.50 FLG

325
JM

D325JM21 DRAWING DEPICTS 21JM 15HP TEFC MOTOR




### MOTOR DIMENSIONS

**NEMA PREMIUM EFFICIENT JM FRAME 3 PHASE 2900 RPM**

| HP | Type | Frame | D | E | F | O | AB | BG | L | MH |
|---|---|---|---|---|---|---|---|---|---|---|
| 7.5 | ODP | JM213 | 5.25 | 4.25 | 2.75 | 10.14 | 7.97 | 7.25 | 6.60 | 0.41 |
| 10 | ODP | JM215 | 5.25 | 4.25 | 3.50 | 10.14 | 7.97 | 8.00 | 6.64 | 0.41 |
| * 15 | ODP | TCZ254 | 6.25 | 5.00 | 4.13 | 12.00 | 9.49 | 8.88 | 8.81 | 0.53 |
| 7.5,10 | TEFC | JM215 | 5.25 | 4.25 | 3.50 | 10.37 | 8.19 | 6.77 | 9.16 | 0.41 |
| * 15 | TEFC | TCZ254 | 6.25 | 5.00 | 4.13 | 12.88 | 10.04 | 8.88 | 10.91 | 0.53 |

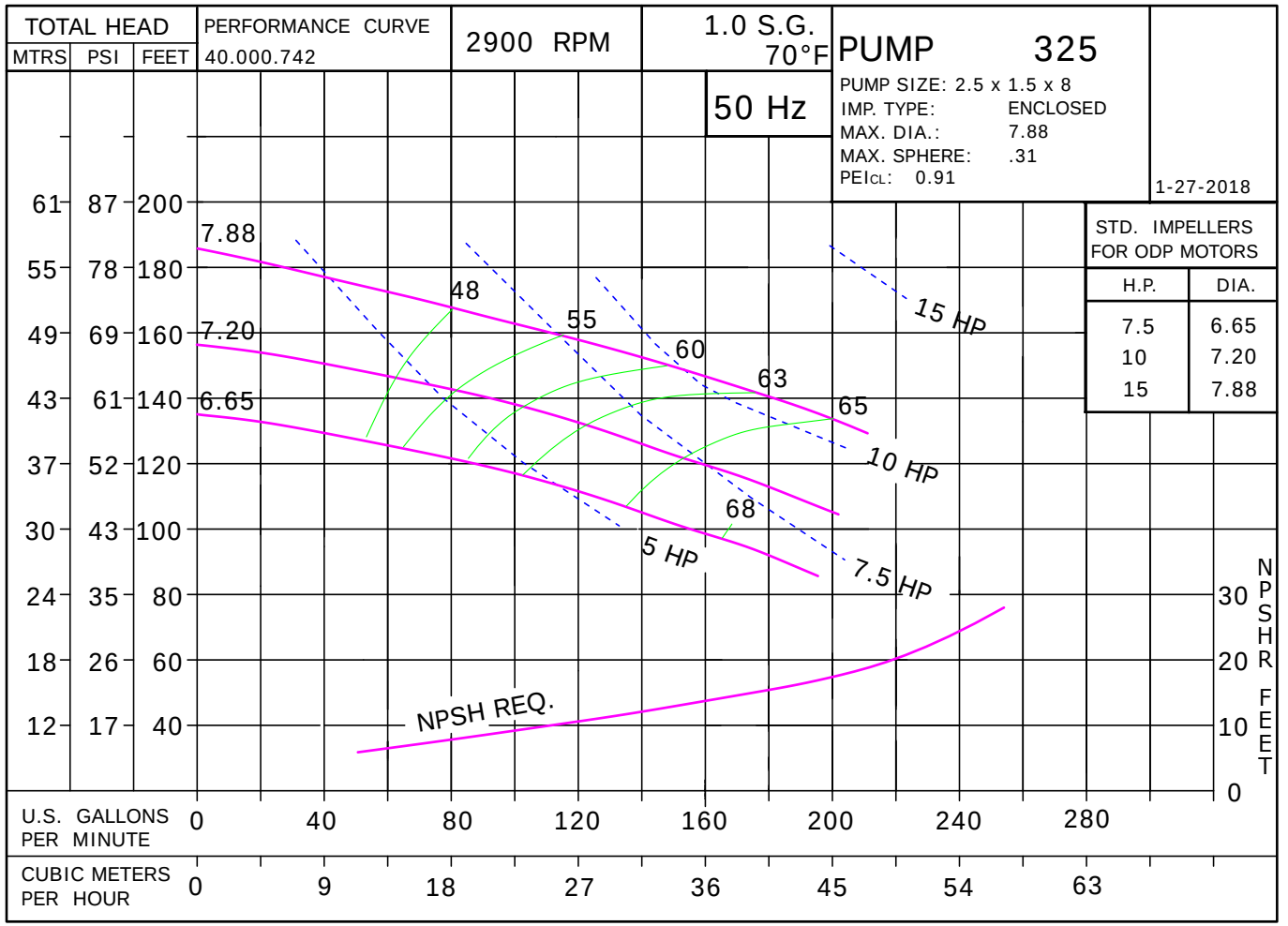
* 215JM Shaft

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

**ALL DIMENSIONS IN INCHES.**

**DRAWING REPRESENTS APPROXIMATE PUMP DIMENSIONS. ATOCAD DRAWING TO SCALE AVAILABLE FROM FACTORY.**

**PUMP TO BE INSTALLED ONLY IN THE HORIZONTAL POSITION AS SHOWN.**




32520TE D325JM21
3252900

325
JM

3252900JM
81.002.227 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*.

*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. 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***.

### 60 Hz Pump on 50 Hz Power

### No Impeller Change

| *50 Hz* | *60 Hz* | *Factor* |
|---|---|---|
| GPM = | GPM x | 0.829 |
| Head = | Head x | 0.687 |
| BHP = | HP x | 0.569 |

### To Size 60 Hz Pump Using 50 Hz Data,

### Obtain 60 Hz Data As Follows:

| *60 Hz* | *50 Hz* | *Factor* |
|---|---|---|
| GPM = | GPM x | 1.2 |
| Head = | Head x | 1.45 |
| BHP = | HP = | $\frac{\text{GPM x Head x SG of}}{\text{3960 x Eff}}$ |

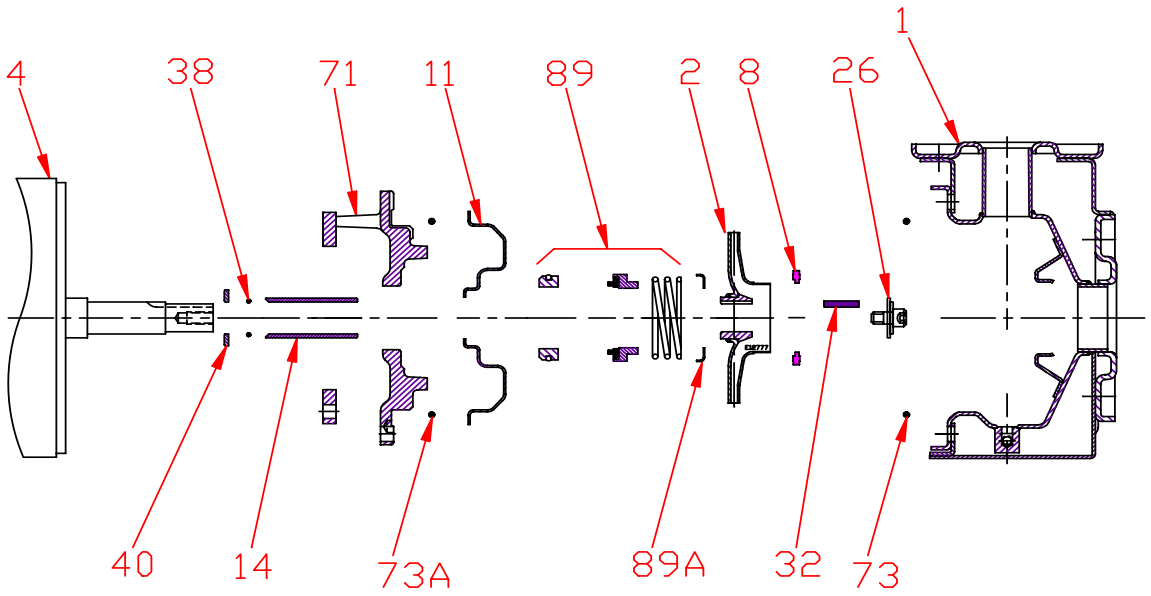
### Change of Speed (RPM)

| | *How Varies:* | *Examples* |
|---|---|---|
| GPM | Directly | Double RPM = (2)(RPM) = (2)(GPM)<br>Triple RPM = (3)(RPM) = (3)(GPM) |
| Head | Square | Double RPM = (2)(RPM) = $(2)^2$ = (2)(2) = (4)(Head)<br>Triple RPM = (3)(RPM) = $(3)^2$ = (3)(3) = (9)(Head) |
| BHP | Cube | Double RPM = (2)(RPM) = $(2)^3$ = (2)(2) (2)= (8)(BHP)<br>Triple RPM = (3)(RPM) = $(3)^3$ = (3)(3)(3) = (27)(BHP) |

### Change of Impeller Diameter (Dia.)

| | *How Varies:* | *Examples* |
|---|---|---|
| GPM | Directly | Double Dia. = (2)(Dia.) = (2)(GPM)<br>Triple Dia. = (3)(Dia.) = (3)(RPM) |
| Head | Square | Double Dia. = (2)(Dia.) = $(2)^2$ = (2)(2) = (4)(Head)<br>Triple Dia. = (3)(Dia.) = $(3)^2$ = (3)(3) = (9)(Head) |
| BHP | Cube | Double Dia. = (2)(Dia.) = $(2)^3$ = (2)(2) (2) = (8)(BHP)<br>Triple Dia. = (3)(Dia.) = $(3)^3$ = (3)(3)(3) = (27)(BHP) |

# Pump 325 • 304SS • JM Frame • 2900 RPM




| KEY NO. | PART NAME | PUMP 325 |
|---|---|---|
| 1 | CASE, 304SS, 2.5 x 1.5, FLG | 137.002.977 |
| 2 | IMPELLER, STAINLESS, ENCLOSED, 7/8" KEYED: | |
| | 6.65" DIA | 137.002.970 |
| | 7.20" DIA | 137.002.937 |
| | 7.88" DIA | 137.002.938 |
| 4 | MOTOR, JM210 | See 60hz Chart |
| | MOTOR, TCZ250 | See 60hz Chart |
| 8 | RING | 137.002.929 |
| 11 | COVER, 304SS | 137.002.919 |
| 14* | SHAFT SLEEVE, 304SS | 137.002.904 |
| 26* | IMPELLER RETAINER, 304SS | 118.000.111A |
| 32* | KEY, 303SS | 102.000.102 |
| 38* | O-RING, SHAFT, BUNA | 116.000.117 |
| 40* | FLINGER, 304SS | 104.000.165 |
| 71 | ADAPTER, IRON, JM210/250 | 137.002.926 |
| 73* | GASKET, CASE, BUNA | 137.002.922 |
| 73A* | GASKET, COVER, BUNA | 137.003.013 |
| 89* | 1-1/4" SEALS | |
| | TYPE 21, BN-CARB/CM | 137.002.949 |
| | TYPE 21, VN-CARB/CM | 137.002.950 |
| | TYPE 21, VN-CARB/SIL | 137.002.952 |
| | TYPE 21, VN-SIL/SIL | 137.002.953 |
| | TYPE 21, EPDM-CARB/SIL | 137.002.951 |
| 89A | SEAL RETAINER, STAINLESS | 137.002.948 |
| -- | REPAIR KITS: | |
| | BN-CARB/CM SEAL | 118.000.675 |
| | VN-CARB/CM SEAL | 118.000.675A |
| | VN-CARB/SIL SEAL | 118.000.675D |
| | VN-SIL/SIL SEAL | 118.000.675B |
| | EPDM-CARB/SIL SEAL | 118.000.675C |
| * DENOTES COMPONENTS INCLUDED IN REPAIR KIT. | | |

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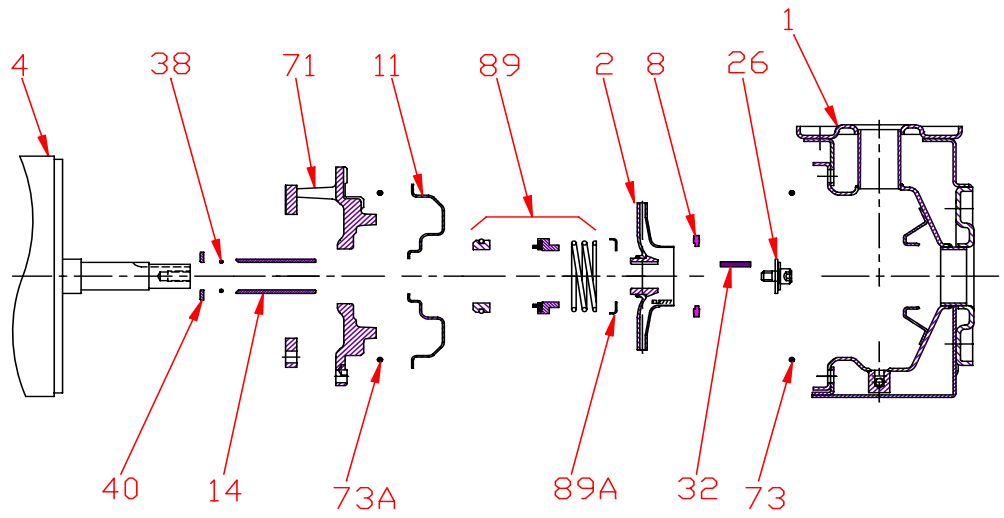


| CONSTRUCTION OPTIONS | | |
|---|---|---|
| **KEY** | **PART NAME** | **STANDARD FITTED** |
| 1 | Case | 304SS |
| 2 | Impeller | 304SS |
| 8 | Impeller Ring | POLYPHENYLENE OXIDE 20% GLASS |
| 11 | Cover | 304SS |
| 14 | Sleeve | 304SS |
| 26 | Retainer Assembly | 304SS |
| 32 | Key | 303SS |
| 38 | O-ring, Shaft | BUNA |
| 40 | Flinger | 304SS |
| 71 | Motor Disc | Cast Iron |
| 73 | Gasket, Case | Buna |
| 73A | Gasket, Cover | Buna |
| 89 | Seal Assembly | BN-CARB/CM |
| 89A | Seal Retainer | 304SS |