

# 8" High Efficiency System



 **Franklin Electric**  
**HIGH EFFICIENCY SYSTEM**



# Quality in the Well

# Table of contents

## 8" High Efficiency System and High Efficiency Solar System

|                                  |        |
|----------------------------------|--------|
| System .....                     | 4 - 5  |
| Performance Data .....           | 6      |
| Motor .....                      | 7- 11  |
| Variable Speed Drive (VFD) ..... | 12- 13 |
| Output Filter .....              | 14- 15 |
| SS Pump .....                    | 16     |

## Accessories

|                            |    |
|----------------------------|----|
| Motor Filling Liquid ..... | 17 |
| Motor Filling Kit .....    | 17 |
| PT 100 .....               | 17 |
| Motor Coupling 8" .....    | 18 |

# 8" High Efficiency System

Franklin Electric is pleased to announce the range extension up to 150kW for its successful High Efficiency Submersible Borehole Systems (HES). The system consists of an 8" synchronous submersible NEMA motor with associated variable frequency drive and matching output filter.

Ever since their introduction, our 6" HES have proven their world-class efficiency in more than 400 applications to date, saving up to 20% of electrical energy when compared to standard asynchronous motor system



## System Product advantages:

- One-stop shop - perfectly matched components guarantee first class performance/ efficiency
  - ⇒ *System payback < 2 years*
- Up to **8% improved motor efficiency** with excellent partial load behaviour\*
  - ⇒ *SKU Reduction*
- Significantly lower motor heat rise
  - ⇒ *Increased lifetime*
- Higher power density
  - ⇒ *Lightweight*
- Easy set-up due to tailored pre-setting, user interface, own **Franklin Electric software** and Quick Installation Guide (QIG)
- Speed control
  - ⇒ *Optimum aggregate operation - pump matches system any time*
- Incorporated Soft start and protection features
  - ⇒ *Increased lifetime*
  - ⇒ *No additional investment*
- Reduced amps
  - ⇒ *Smaller drop lead cross size*
- Power factor corrected input
  - ⇒ *No power compensation needed*
- Connectivity: built in Modbus, optional Profibus and Ethernet

\* in comparison to current asynchronous technology

## System Technical Specification:

- Rating: 75 / 100 / 150kW
- System Power Supply: Voltage 400V +/- 10%  
Frequency 50Hz +/- 6%

## Model Numbers

### 400V-50Hz High Efficiency System (Synchronous Motor, VFD & Filter)

| P<br>[kW]  | For panel mount |              | For wall mount - IP54 |              |
|------------|-----------------|--------------|-----------------------|--------------|
|            | dV/dt Filter    | Sinus Filter | dV/dt Filter          | Sinus Filter |
| <b>75</b>  | 308 014 001     | 308 014 101  | 308 014 201           | 308 014 301  |
| <b>100</b> | 308 016 001     | 308 016 101  | 308 016 201           | 308 016 301  |
| <b>150</b> | 308 017 001     | 308 017 101  | 308 017 201           | 308 017 301  |

Non-stock items

For lead length > 120m please consult Franklin Electric

### System Options:

- Plug-in card 6x DI/DO - 308 170 201
- Plug-in card PT100 - 308 170 202
- Plug-in card Profibus - 308 170 203
- Plug-in card 1x AI & 2x AO 308 170 206
- Other voltages
- Sinus output filters in IP54 and IP00
- PT100 protection
- Motors in 316SS and 904L

### Control modes and necessary sensor technologies

| Process reference   | Control reference | Flow meter | Pressure sensor | Level sensor | PT100 sensor & Drive slot card |
|---------------------|-------------------|------------|-----------------|--------------|--------------------------------|
| <b>Q - Flow</b>     | No (Optional)     | mandatory  |                 |              |                                |
|                     | P                 | mandatory  | mandatory       |              |                                |
|                     | H                 | mandatory  |                 | mandatory    |                                |
| <b>P - pressure</b> | No (Optional)     | Yes*       | mandatory       |              |                                |
|                     | Q                 | mandatory  | mandatory       |              |                                |
|                     | H                 |            | mandatory       | mandatory    |                                |
| <b>H - level</b>    | No (Optional)     | Yes*       |                 | mandatory    |                                |
|                     | Q                 | mandatory  |                 | mandatory    |                                |
|                     | P                 |            | mandatory       | mandatory    |                                |
| <b>Manual Mode</b>  | No                |            |                 |              | Yes*                           |

\*please consult Franklin Electric



### Performance Data 400V-50Hz

|             | P [kW] | Thrust F [kN] | $n_N$ [min <sup>-1</sup> ] | $I_N$ [A] | $I_A / I_N^*$ [A] | $\eta$ [%] | cos $\phi$ [%] | $T_N$ [Nm] | $T_A / T_N^*$ [Nm] |
|-------------|--------|---------------|----------------------------|-----------|-------------------|------------|----------------|------------|--------------------|
| 308 014 X01 | 45     | 45            | 3000                       | 74        | 1                 | 93,3       | 0,96           | 143        | 1                  |
|             | 55     | 45            | 3000                       | 91        | 1                 | 93,3       | 0,96           | 175        | 1                  |
|             | 67     | 45            | 3000                       | 112       | 1                 | 93         | 0,96           | 213        | 1                  |
|             | 75     | 45            | 3000                       | 128       | 1                 | 92,5       | 0,96           | 239        | 1                  |
| 308 016 X01 | 75     | 45            | 3000                       | 129       | 1                 | 93,5       | 0,95           | 239        | 1                  |
|             | 83     | 45            | 3000                       | 143       | 1                 | 93,3       | 0,95           | 264        | 1                  |
|             | 93     | 45            | 3000                       | 162       | 1                 | 93         | 0,95           | 296        | 1                  |
|             | 100    | 45            | 3000                       | 178       | 1                 | 92,7       | 0,95           | 319        | 1                  |
| 308 017 X01 | 100    | 45            | 3000                       | 176       | 1                 | 94,2       | 0,94           | 319        | 1                  |
|             | 110    | 45            | 3000                       | 193       | 1                 | 94,2       | 0,94           | 350        | 1                  |
|             | 130    | 45            | 3000                       | 229       | 1                 | 94         | 0,94           | 413        | 1                  |
|             | 150    | 45            | 3000                       | 270       | 1                 | 93,4       | 0,94           | 477        | 1                  |

### Performance Data 500V-50Hz

|             | P [kW] | Thrust F [kN] | $n_N$ [min <sup>-1</sup> ] | $I_N$ [A] | $I_A / I_N^*$ [A] | $\eta$ [%] | cos $\phi$ [%] | $T_N$ [Nm] | $T_A / T_N^*$ [Nm] |
|-------------|--------|---------------|----------------------------|-----------|-------------------|------------|----------------|------------|--------------------|
| 308 024 X01 | 45     | 45            | 3000                       | 60        | 1                 | 93,2       | 0,95           | 143        | 1                  |
|             | 55     | 45            | 3000                       | 74        | 1                 | 93,2       | 0,95           | 175        | 1                  |
|             | 67     | 45            | 3000                       | 91        | 1                 | 93         | 0,95           | 213        | 1                  |
|             | 75     | 45            | 3000                       | 103       | 1                 | 92,5       | 0,95           | 239        | 1                  |
| 308 026 X01 | 75     | 45            | 3000                       | 105       | 1                 | 93,5       | 0,94           | 239        | 1                  |
|             | 83     | 45            | 3000                       | 116       | 1                 | 93,3       | 0,94           | 264        | 1                  |
|             | 93     | 45            | 3000                       | 131       | 1                 | 93,2       | 0,94           | 296        | 1                  |
|             | 100    | 45            | 3000                       | 143       | 1                 | 92,9       | 0,94           | 319        | 1                  |
| 308 027 X01 | 100    | 45            | 3000                       | 140       | 1                 | 93,9       | 0,95           | 319        | 1                  |
|             | 110    | 45            | 3000                       | 154       | 1                 | 93,8       | 0,95           | 350        | 1                  |
|             | 130    | 45            | 3000                       | 183       | 1                 | 93,7       | 0,95           | 413        | 1                  |
|             | 150    | 45            | 3000                       | 216       | 1                 | 93,2       | 0,95           | 477        | 1                  |

### Performance Data 480V-60Hz

|              | $P_N$ [kW/HP] | $P_{max.}$ [kW/HP] | Thrust F [kN] | $n_N$ [min <sup>-1</sup> ] | $I_{max.}$ [A] | $I_A / I_{max.}^*$ [A] | $\eta$ [%] | cos $\phi$ [%] | $T_N$ [Nm] | $T_A / T_N^*$ [Nm] |
|--------------|---------------|--------------------|---------------|----------------------------|----------------|------------------------|------------|----------------|------------|--------------------|
| 308 014 X01X | 45 / 60       | 52 / 70            | 45            | 3600                       | 74             | 1                      | 93,3       | 0,96           | 143        | 1                  |
|              | 55 / 74       | 63 / 84            | 45            | 3600                       | 91             | 1                      | 93,3       | 0,96           | 175        | 1                  |
|              | 67 / 90       | 77 / 103           | 45            | 3600                       | 112            | 1                      | 93         | 0,96           | 213        | 1                  |
|              | 75 / 100      | 86 / 115           | 45            | 3600                       | 128            | 1                      | 92,5       | 0,96           | 239        | 1                  |
| 308 016 X01X | 75 / 100      | 86 / 115           | 45            | 3600                       | 129            | 1                      | 93,5       | 0,95           | 239        | 1                  |
|              | 83 / 111      | 95 / 127           | 45            | 3600                       | 143            | 1                      | 93,3       | 0,95           | 264        | 1                  |
|              | 93 / 125      | 107 / 143          | 45            | 3600                       | 162            | 1                      | 93         | 0,95           | 296        | 1                  |
|              | 100 / 134     | 115 / 154          | 45            | 3600                       | 178            | 1                      | 92,7       | 0,95           | 319        | 1                  |
| 308 017 X01X | 100 / 134     | 115 / 154          | 45            | 3600                       | 176            | 1                      | 94,2       | 0,94           | 319        | 1                  |
|              | 110 / 147     | 126 / 169          | 45            | 3600                       | 193            | 1                      | 94,2       | 0,94           | 350        | 1                  |
|              | 130 / 174     | 150 / 201          | 45            | 3600                       | 229            | 1                      | 94         | 0,94           | 413        | 1                  |
|              | 150 / 201     | 172 / 230          | 45            | 3600                       | 270            | 1                      | 93,4       | 0,94           | 477        | 1                  |

Performance data are based on measurements with Franklin Electric original equipment!

\*Since this is an integrated system (motor plus electronics) these figures relate to VFD input



# 8" High Efficiency Motor

## Motor Features:

- 8" Motor in 304SS / CI (Powder Coated)
- PE2/PA winding as a standard
- SandFighter® SIC seal system
- Non-contaminating FES93 filling
- All motors pre-filled and 100% tested
- Max. storage temperature -15 ... +60°C
- Drinking water approved

## Motor Technical Specification:

- 75 / 100 / 150kW
- Power supply 400V/100Hz
- 8" NEMA flange
- Protection IP68
- 10 Starts per hour
- Installation vertical ( for horizontal operation please consult FE)
- Motor lead in 6 m length
- 30°C nominal ambient temperature with 0,5m/sec cooling flow

## Motor Options:

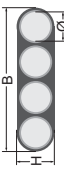
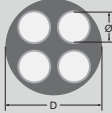
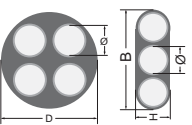

- Other voltages
- PT100 temperature sensor (retrofitable)
  - ⇒ VFD PT100 Plug-in Card (308 170 202) necessary
- Motors complete in 316SS and 904L available



| System model number | P<br>[kW] | 400V / 100 Hz 304SS/CI<br>Motor model number |
|---------------------|-----------|--|
| 308 014 xxx         | 75        | 263 014 5311                                 |
| 308 016 xxx         | 100       | 263 016 5311                                 |
| 308 017 xxx         | 150       | 263 017 5311                                 |



## 8" Rewindable Motors - Motor Leads\*

| DOL   |                    |                      |            |           |             |      |                |                                 |                              |
|---|--------------------|----------------------|------------|-----------|-------------|------|----------------|---------------------------------|------------------------------|
| Lead  | kW                 | Ø (mm <sup>2</sup> ) | B / H (mm) |           | Lengths (m) | Qty. | Lead Mod.- Nr. | Lead seal Kit 304/316 Mod.- Nr. | Lead seal Kit 904L Mod.- Nr. |
|    | 75                 | 4G16                 | B          | 38,0      | 6           | 1    | 308 710 108    | 308 660 618                     | 308 660 620                  |
|   |                    |                      | H          | 12,8      |             |      |                |                                 |                              |
|    | 100                | 4G25                 | D          | 32        | 6           | 1    | 308 710 140    | 308 660 633                     | 308 660 634                  |
|     | 150                | 4G25 + 3X25          | D          | 32        | 6           | 1    | 308 710 141    | 308 660 635                     | 308 660 636                  |
|   |                    |                      | B X H      | 37,5 x 16 |             |      |                |                                 |                              |
| Ground lead (optional)  | kW                 | Ø (mm <sup>2</sup> ) | D (mm)     |           | Lengths (m) | Qty. | Mod.-Nr.       |                                 |                              |
|  | <b>all ratings</b> | 1G25                 | 13,0       |           | 8           | 1    | 308 053 080    |                                 |                              |
| <b>Lead opening seal kit</b>  |                    |                      |            |           |             |      | Mod.- Nr.:     | 304/316                         | 308 660 617                  |
|   |                    |                      |            |           |             |      |                | 904L                            | 308 660 625                  |

For PE2/PA engines additionally the special Tape 700 541 688 is absolutely necessary

\*Cables are designed for submerged operation. For air operation please consult Franklin Electric..

## Motor Drop Lead

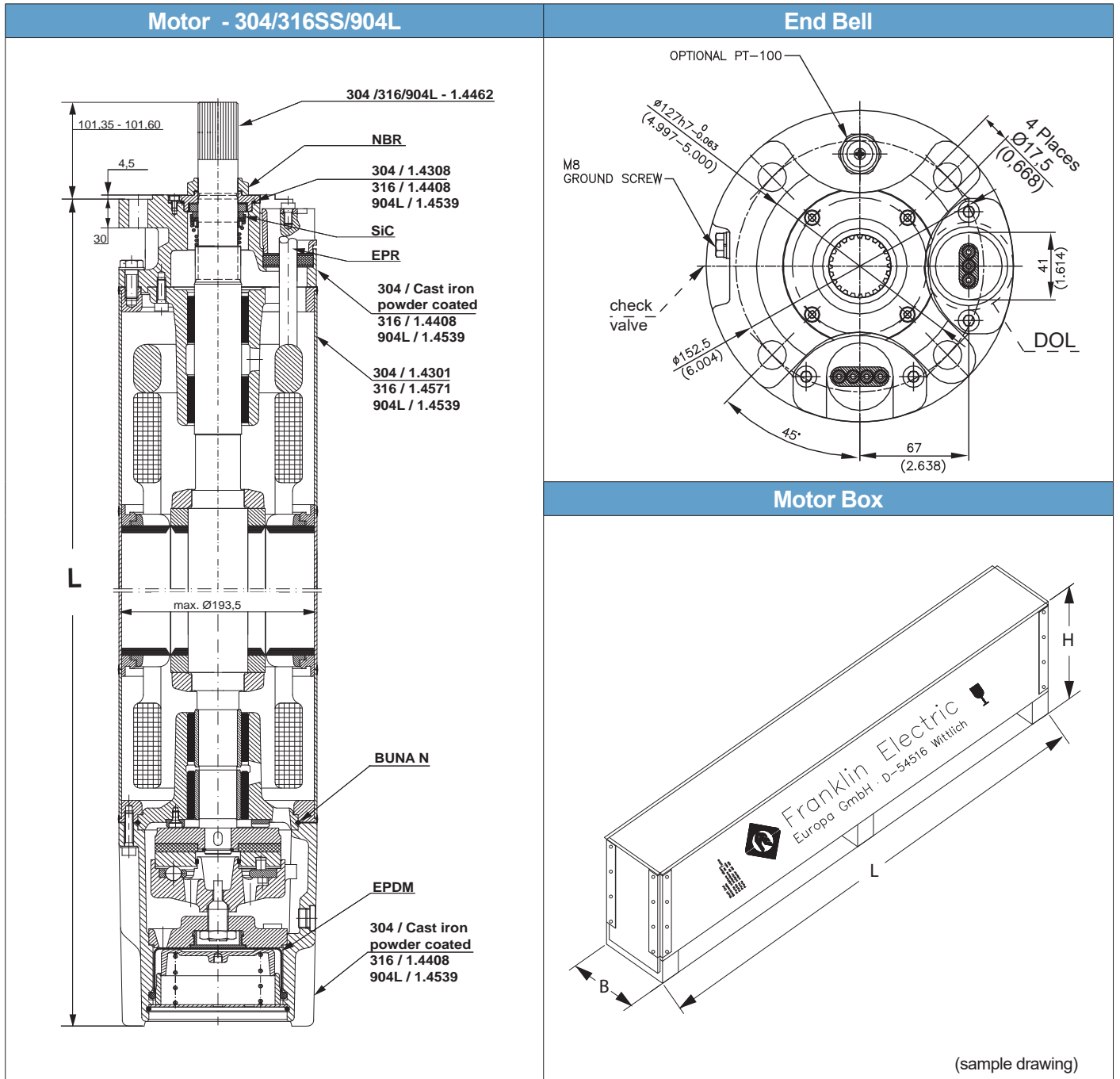
Lead lengths in meters for 400V-50Hz / 460V-60Hz and max. 3% voltage drop at 50°C ambient

| P <sub>N</sub> [kW] | cable size mm <sup>2</sup> , copper wire - 90°C rated insulation |     |     |     |     |     |     |     |     |     |     |     |
|---------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                     | 16   | 25  | 35  | 50  | 70  | 95  | 120 | 150 | 185 | 240 | 300 | 400 |
| <b>45</b>           | 65   | 100 | 140 | 200 | 280 | 370 | 460 |     |     |     |     |     |
| <b>55</b>           |  | 85  | 120 | 170 | 230 | 300 | 370 | 450 |     |     |     |     |
| <b>67</b>           |  |     | 90  | 130 | 180 | 240 | 300 | 360 | 420 |     |     |     |
| <b>75</b>           |  |     | 80  | 115 | 160 | 200 | 260 | 310 | 370 | 460 |     |     |
| <b>83</b>           |  |     |     | 100 | 140 | 190 | 235 | 285 | 340 | 420 |     |     |
| <b>93</b>           |  |     |     |     | 115 | 160 | 200 | 240 | 290 | 350 | 410 |     |
| <b>110</b>          |  |     |     |     | 100 | 140 | 170 | 210 | 250 | 305 | 360 | 440 |
| <b>130</b>          |  |     |     |     |     | 115 | 145 | 175 | 210 | 260 | 305 | 370 |
| <b>150</b>          |  |     |     |     |     |     | 120 | 150 | 175 | 215 | 255 | 310 |

For lead length > 120m please consult Franklin Electric.

Further potential energy saving due to more conservative lead sizing (< 3% voltage drop)

## 8" Rew Motor Design

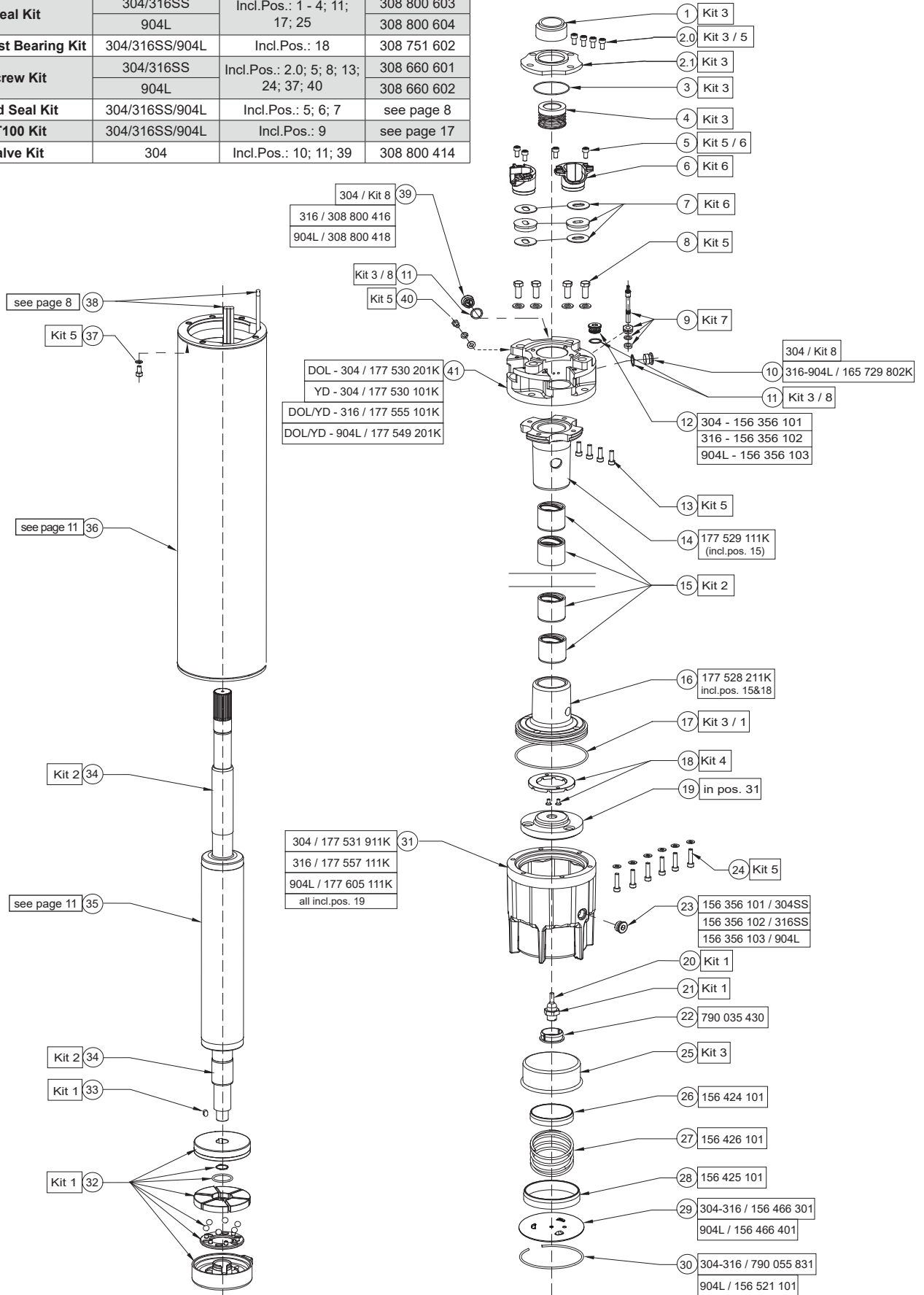


| P<br>[kW]  | Motor Lengths<br>L [mm] | Motor Weights [kg] |                 | Motor Shipping Size [mm] |     |      |
|------------|-------------------------|--------------------|-----------------|--------------------------|-----|------|
|            | 304 / 316 / 904L        | 304 / 316 / 904L   | Incl. Pack [kg] | B                        | H   | L    |
| <b>75</b>  | 1205                    | 150                | 179             | 310                      | 472 | 1596 |
| <b>100</b> | 1316                    | 169                | 198             | 310                      | 472 | 1596 |
| <b>150</b> | 1594                    | 215                | 252             | 310                      | 472 | 1996 |



## 8" PM Rewindable Spare Parts 304 / 316SS / 904L

|                                    |                |   |             |
|------------------------------------|----------------|---|-------------|
| <b>Kit 1 Thrust Bearing Kit</b>    | 304/316SS/904L | Incl.Pos.: 17; 20; 21;<br>32; 33        | 308 750 601 |
| <b>Kit 2 Radial Bearing Kit</b>    | 304/316SS/904L | Incl.Pos.: 15; 34                       | 308 751 603 |
| <b>Kit 3 Seal Kit</b>              | 304/316SS      | Incl.Pos.: 1 - 4; 11;<br>17; 25         | 308 800 603 |
|                                    | 904L           |   | 308 800 604 |
| <b>Kit 4 Up-Thrust Bearing Kit</b> | 304/316SS/904L | Incl.Pos.: 18                           | 308 751 602 |
| <b>Kit 5 Screw Kit</b>             | 304/316SS      | Incl.Pos.: 2.0; 5; 8; 13;<br>24; 37; 40 | 308 660 601 |
|                                    | 904L           |   | 308 660 602 |
| <b>Kit 6 Lead Seal Kit</b>         | 304/316SS/904L | Incl.Pos.: 5; 6; 7                      | see page 8  |
| <b>Kit 7 PT100 Kit</b>             | 304/316SS/904L | Incl.Pos.: 9                            | see page 17 |
| <b>Kit 8 Valve Kit</b>             | 304            | Incl.Pos.: 10; 11; 39                   | 308 800 414 |



**304 / 316SS Stator and Rotor Model numbers 400V / 50Hz**  
 (Motors starting 08.2017)

| P [kW] | Stator (incl. winding and 6m motor lead) |              | Rotor        |
|--------|--|--------------|--------------|
|        | U <sub>N</sub> [V]                       | DOL [PE2/PA] |              |
| 75     | 400V                                     | 327 154 702K | 161 123 811K |
| 100    | 400 V                                    | 327 155 702K | 161 123 812K |
| 150    | 400 V                                    | 327 156 704K | 161 123 813K |

**304 / 316SS Stator and Rotor Model numbers 400V / 50Hz**  
 (Motors up to 07.2017)

| P [kW] | Stator (incl. winding and 6m motor lead) |              | Rotor        |
|--------|--|--------------|--------------|
|        | U <sub>N</sub> [V]                       | DOL [PE2/PA] |              |
| 75     | 400V                                     | 327 154 901K | 161 123 801K |
| 100    | 400 V                                    | 327 155 901K | 161 123 802K |
| 150    | 400 V                                    | 327 156 904K | 161 123 803K |

**Windings 400V-50Hz**

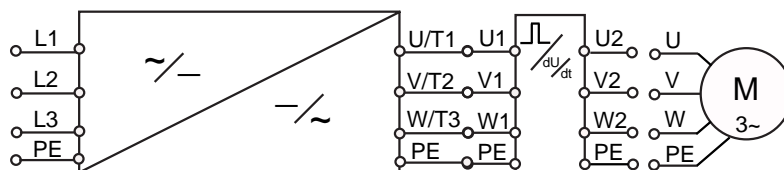
| P [kW] | U <sub>N</sub> [V] | Mod.-No. Windingkit | Turns per coil | Wire diameter [mm]       | Type of Isolation | Group connection | Total Wire length [m] | Resistance coil [Ω] | Resistance DOL (U1-V1) [Ω] |
|--------|--------------------|---------------------|----------------|--------------------------|-------------------|------------------|-----------------------|---------------------|----------------------------|
| 75     | 400                | 327 154 999         | 16             | 1,9/2,1&1,8/2,8 (2GR II) | PE2/PA            | Parallel Y       | 290                   | 0,146               | 0,146                      |
|        | 500                | 327 151 999         | 20             | 2,3/3,5 (2GR II)         |                   |                  | 350                   | 0,235               | 0,235                      |
| 100    | 400                | 327 155 999         | 12             | 2,0/3,1&2,1/3,3 (2GR II) | PE2/PA            | Parallel Y       | 260                   | 0,103               | 0,103                      |
|        | 500                | 327 144 999         | 17             | 2,5/3,8 (2GR II)         |                   |                  | 350                   | 0,213               | 0,213                      |
| 150    | 400                | 327 156 999         | 16             | 1,9/2,1&1,8/2,8 (4GR II) | PE2/PA            | Parallel Y       | 432                   | 0,114               | 0,057                      |
|        | 500                | 327 145 999         | 20             | 2,3/3,5 (4GR II)         |                   |                  | 540                   | 0,188               | 0,094                      |

**Insulation resistance (20°C / 500 VDC)**

|                               |       |    |
|-------------------------------|-------|----|
| New motor without drop cable  | 400 > | MΩ |
| Used motor without drop cable | 20 >  | MΩ |
| New motor with drop cable     | 4 >   | MΩ |
| Used motor with drop cable    | 1     | MΩ |

**Motor Repair Instructions**

|  |          |             |
|--|----------|-------------|
| <b>Pictured Repair Instructions 304SS / 316SS / 904L</b> | Mod.Nb.: | 308 018 697 |
|--|----------|-------------|

**Electrical Connection**
**DOL**


| U     | V    | W     | PE           |
|-------|------|-------|--------------|
| brown | grey | black | yellow/green |

# Variable Speed Drive (VFD)

## VFD Features:

- Supports induction and permanent magnet motors
- Top class protection IP54/21 enclosure classes
- Optimized for submersible permanent motor feeding – first class performance (Tailored pre-setting, user interface and software)

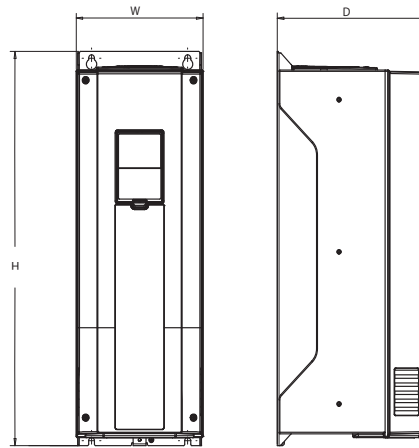


## VFD Technical Specification:

| Technical Data   |                          |   |
|--|--------------------------|---|
| Power supply   | Input voltage $U_{IN}$   | 380 - 500V ; -10%....+10%   |
|  | Input frequency $f_{IN}$ | 47 - 65Hz   |
|  | Starts per hour          | 20 ; with min 3min rest period  |
| Motor connection   | Output voltage           | 0 - $U_N$   |
|  | Output current           | $I_N$ at rated Ambient temperature (40°C)<br>Overload:IP21: 1,1 x $I_N$ |
|  | Output frequency         | 0- $f_N$ , resolution 0,01Hz  |
| Performance  | Efficiency               | 97,5%   |
| Control characteristics  | Switching frequency      | 3,6 ..... 6 kHz; default setting 4 kHz                                  |
| Ambient conditions   | Operation temperature    | -10°C...+50°C (>40°C with derating)                                     |
|  | Storage temperature      | -40°C ....+70°C   |
|  | Altitude                 | 3000m (>1000m with derating)  |
| EMC  | Immunity & Emissions     | Complies with EN 61800-3, Category C2 - first and second environment    |
| Communication  | RS 485                   | Standard: Modbus  |
|  | Ethernet                 | Standard: Modbus  |
| I/O connections  | Digital Input (DI)       | 6x  |
|  | Analog Input (AI)        | 2x  |
|  | Analog Output (AO)       | 1x  |
|  | Relay Output (RO)        | 2x (change-over contact)  |
| For further details please see separate Franklin Electric Quick Installation guide and VFD literature. |                          |   |

## VFD Model Numbers and Dimensions 400-500V / 50-60Hz

IP54/21/00



### VFD Model Numbers and Dimensions

| System Model Number | AC Drive Type | IP Type | $I_N$ [A] | Dimensions WxHxD [mm] | Weight [kg] |
|---------------------|---------------|---------|-----------|-----------------------|-------------|
| 308 014 001/101     | 314 000 116   | 21      | 140       | 290x966x343           | 66          |
| 308 016 001/101     | 314 000 117   | 21      | 205*      | 290x966x343           | 66          |
| 308 017 001/101     | 314 000 118   | 00      | 310*      | 480x971x365           | 104         |
| 308 014 201/301     | 314 000 113   | 54      | 140       | 290x966x343           | 66          |
| 308 016 201/301     | 314 000 114   | 54      | 205*      | 290x966x343           | 66          |
| 308 017 201/301     | 314 000 115   | 54      | 310*      | 480x1150x365          | 108         |

\* Without derating for default switching frequency setting

### VFD Options:

- Plug-in card 6x DI/DO 308 170 201
- Plug-in card PT100 308 170 202
- Plug-in card Profibus 308 170 203
- Plug-in card 1x AI & 2x AO 308 170 206
- Replacement Battery VFD 308 170 205



# Output Filter

## Output Filter Features:

- dV/dt filter for lead lengths up to 120m, for lead lengths >120m please consult Franklin Electric.
- filter available in IP54 and IP00
- Optimized for submersible permanent magnet motor feeding



## Output Filter Technical Specification:

- Voltage → 380 - 500V
- Frequency → 0 - 120 Hz
- Switching Frequency → 4kHz
- Ambient Temperature → < 40°C

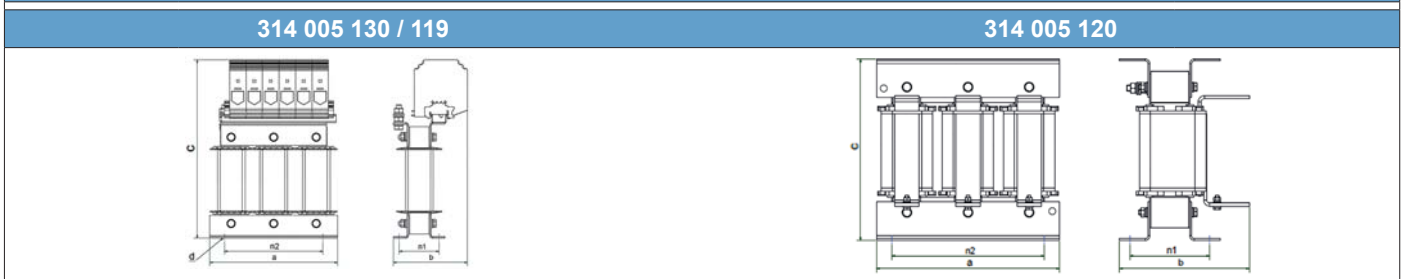
## Output Filter Options:

- Sinus filter in IP54 and IP00 for lead length >120m and/ or special applications
- Other voltages

### 400/500V dV/dt Output Filter Model Data - Protection Class IP00

| System model number | Filter order code | I <sub>N</sub> [A] | Dimensions** [mm] |     |     |     |     |    | weight [kg] | terminal           |     | clamping torque |         |
|---------------------|-------------------|--------------------|-------------------|-----|-----|-----|-----|----|-------------|--------------------|-----|-----------------|---------|
|                     |                   |                    | a                 | b   | c   | n1  | n2  | d  |             | main               | PE  | main            | PE      |
|                     |                   |                    |                   |     |     |     |     |    |             | [mm <sup>2</sup> ] |     | [Nm]            |         |
| 308 014 001         | 314 005 130       | 140                | 240               | 139 | 335 | 75  | 185 | 10 | 14          | 150                | M10 | 25 - 30         | 46 - 50 |
| 308 016 001         | 314 005 119       | 205                | 240               | 149 | 335 | 85  | 185 | 10 | 19          | 150                | M10 | 25 - 30         | 46 - 50 |
| 308 017 001         | 314 005 120       | 310                | 300               | 168 | 256 | 107 | 224 | 10 | 35          | 200                | M10 | 79 - 85         | 46 - 50 |

### Filter outlines\*\*

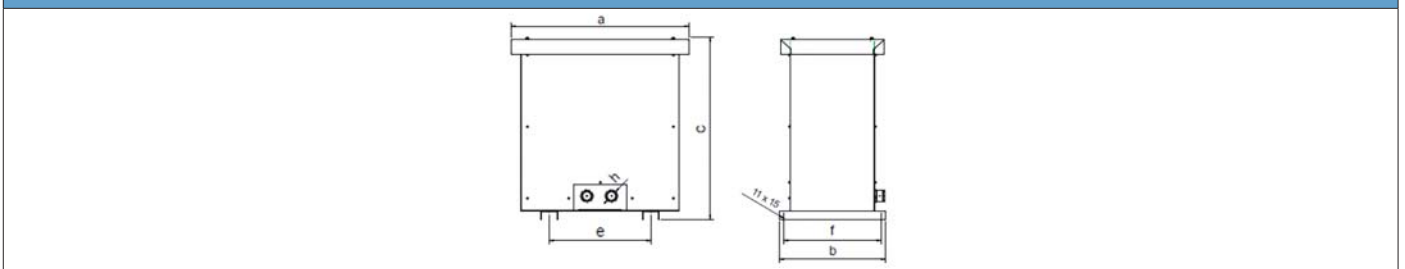


### 400/500V dV/dt Output Filter Model Data - Protection Class IP54

| System model number | Filter order code | I <sub>N</sub> [A] | Dimensions** [mm] |     |     |         |     | cable Ø [mm] | weight [kg] | terminal           |     | clamping torque |         |
|---------------------|-------------------|--------------------|-------------------|-----|-----|---------|-----|--------------|-------------|--------------------|-----|-----------------|---------|
|                     |                   |                    | a                 | b   | c   | e       | f   |              |             | main               | PE  | main            | PE      |
|                     |                   |                    |                   |     |     |         |     |              |             | [mm <sup>2</sup> ] |     | [Nm]            |         |
| 308 014 201         | 314 005 124*      | 140                | 550               | 560 | 550 | 137-289 | 520 | 6x23-35,5    | 52          | 95                 | M10 | 15 - 20         | 46 - 50 |
| 308 016 201         | 314 005 125*      | 205                | 560               | 560 | 550 | 137-289 | 520 | 6x23-35,5    | 62          | 150                | M10 | 25 - 30         | 46 - 50 |
| 308 017 201         | 314 005 126*      | 310                | 560               | 560 | 550 | 137-289 | 520 | 6x23-35,5    | 81          | 240                | M10 | 25 - 30         | 46 - 50 |

\*Floor mount

### Floor mount outlines\*\*



\*By changing the supplier it can be differentiated with the dimensions!

**400/500V Sinus Filter Model Data - Protection Class IP00**

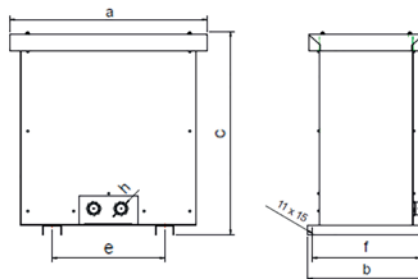
| System model number | Filter order code | $I_N$ [A] | Dimensions** [mm] |     |     |     |     |    | weight [kg] | terminal           |     | clamping torque |         |
|---------------------|-------------------|-----------|-------------------|-----|-----|-----|-----|----|-------------|--------------------|-----|-----------------|---------|
|                     |                   |           | a                 | b   | c   | n1  | n2  | d  |             | main               | PE  | main            | PE      |
|                     |                   |           |                   |     |     |     |     |    |             | [mm <sup>2</sup> ] |     | [Nm]            |         |
| 308 014 101         | 314 005 121       | 140       | 360               | 311 | 413 | 157 | 264 | 10 | 87          | 95                 | M10 | 15 - 20         | 46 - 50 |
| 308 016 101         | 314 005 122       | 205       | 420               | 335 | 460 | 173 | 316 | 13 | 105         | 150                | M10 | 25 - 30         | 46 - 50 |
| 308 017 101         | 314 005 123       | 310       | 420               | 365 | 460 | 173 | 346 | 13 | 140         | 200                | M10 | 79 - 85         | 46 - 50 |

**Filter outlines\*\***
**314 \*\*\* 121 / 122**
**314 \*\*\* 123**

**400/500V Sinus Filter Model Data - Protection Class IP54**

| System model number | Filter order code | $I_N$ [A] | Dimensions** [mm] |     |     |          |     | cable $\varnothing$ [mm] | weight [kg] | terminal           |     | clamping torque |         |
|---------------------|-------------------|-----------|-------------------|-----|-----|----------|-----|--------------------------|-------------|--------------------|-----|-----------------|---------|
|                     |                   |           | a                 | b   | c   | e        | f   |                          |             | main               | PE  | main            | PE      |
|                     |                   |           |                   |     |     |          |     |                          |             | [mm <sup>2</sup> ] |     | [Nm]            |         |
| 308 014 301         | 314 005 127*      | 140       | 770               | 610 | 620 | 357-509  | 570 | 6x23-35,5                | 167         | 95                 | M10 | 15 - 20         | 46 - 50 |
| 308 016 301         | 314 005 128*      | 205       | 1150              | 920 | 890 | 407-1081 | 880 | 6x23-35,5                | 303         | 150                | M10 | 25 - 30         | 46 - 50 |
| 308 017 301         | 314 005 129*      | 310       | 1150              | 920 | 890 | 407-1081 | 880 | 6x23-35,5                | 429         | 240                | M10 | 25 - 30         | 46 - 50 |

\*Floor mount

**Floor mount outlines\*\***


\*\* By changing the supplier it can be differentiated with the dimensions!

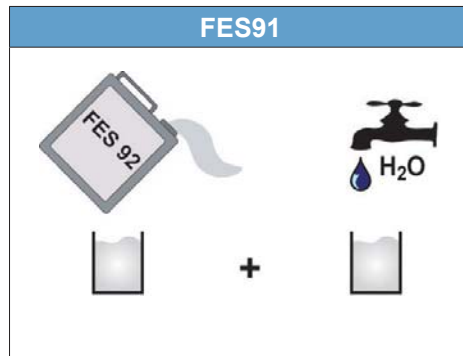


# SS Pump

For any pump support please refer to:  
<http://www.etechnpumps.com>



## Motor Filling Liquid



**Mod.Nb.:**  
**308 353 941**

## Motor Filling Kit

This kit contains all necessary tools to check and replenish Franklin Electric submersible motors with FES 91, 92 or 93 filling liquid (fill solution/concentrate rate must be ordered separately).

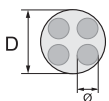


## PT100 8" Rewindable Motor

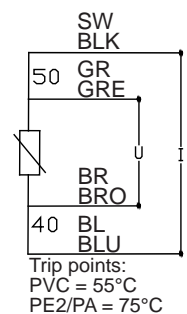
### Application

- Fitted into the upper end bell flange, all end bells 8" Rewindable are prepared for installation PT100
- Measures the temperature of the filling liquid
- Conductor with a resistance proportional to the temperature
- Allows monitoring the temperature continuously

The above-ground equipment is not available from Franklin Electric and is typically part of a custom panel or data acquisition system. PT100 sensor retrofit kits from Franklin Electric come with complete instructions and allow for easy field installation.



|               | Ø<br>[mm <sup>2</sup> ] | D<br>[mm] | Lead<br>Lengths<br>[m] | Mod.- No.: | 8" Rewindable |             |
|---------------|-------------------------|-----------|------------------------|------------|---------------|-------------|
|               |                         |           |                        |            | 304/316       | 904L        |
| <b>PT 100</b> | 4X0,5                   | 8         | 10                     | Mod.- No.: | 308 016 401   | 308 016 422 |
| <b>PT 100</b> | 4X0,5                   | 8         | 20                     | Mod.- No.: | 308 016 402   | -           |
| <b>PT 100</b> | 4X0,5                   | 8         | 30                     | Mod.- No.: | 308 016 403   | -           |
| <b>PT 100</b> | 4X0,5                   | 8         | 50                     | Mod.- No.: | 308 016 405   | 308 016 426 |





## 8" Motor/Pump Couplings

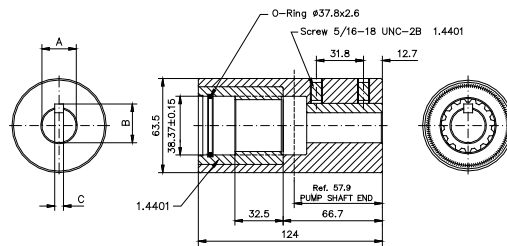
**Application:** Allow connection of pump to motors shaft.

- Specification:**
- Material: 304SS / 316 SS
  - NEMA standard measuring on motor shaft
  - separation washer between motor & pump shafts



## 8" Motor/Pump Couplings

**Outline Drawing:**



**Ordering information**

| Part No.    | Coupling Material<br>DIN / AISI | Dimension A (mm)<br>Max. / Min. | Dimension B (mm)<br>Max. / Min. | Dimension C (mm)<br>Max. / Min. |
|-------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 156 563 901 | 1.4005 (304)                    | 25,425 / 25,413                 | 28,27 / 28,17                   | 6,38 / 6,32                     |
| 156 563 921 | 1,4404 (316SS)                  |                                 |                                 |                                 |
| 156 563 902 | 1.4005 (304)                    | 30,188 / 30,175                 | 33,73 / 33,63                   | 7,96 / 7,91                     |
| 156 563 922 | 1,4404 (316SS)                  |                                 |                                 |                                 |
| 156 563 903 | 1.4005 (304)                    | 31,775 / 31,763                 | 35,36 / 35,26                   | 7,96 / 7,91                     |
| 156 563 923 | 1,4404 (316SS)                  | 38,125 / 38,113                 |                                 |                                 |
| 156 563 904 | 1.4005 (304)                    | 38,125 / 38,113                 | 42,37 / 42,27                   | 9,55 / 9,50                     |
| 156 563 924 | 1,4404 (316SS)                  | 38,125 / 38,113                 |                                 |                                 |
| 156 563 905 | 1.4005 (304)                    | 19,085 / 19,063                 | 20,70 / 20,52                   | 4,84 / 4,79                     |
| 156 563 906 | 1.4005 (304)                    | 30,188 / 30,175                 | 33,02 / 32,92                   | 6,38 / 6,32                     |
| 156 563 926 | 1,4404 (316SS)                  |                                 |                                 |                                 |
| 156 563 907 | 1.4005 (304)                    | 22,250 / 22,238                 | 24,54 / 24,36                   | 6,43 / 6,38                     |
| 156 563 908 | 1.4005 (304)                    | 22,024 / 22,011                 | 25,53 / 25,32                   | 8,03 / 7,98                     |
| 156 563 931 | 1,4404 (316SS)                  |                                 |                                 |                                 |
| 156 563 929 | 1,4404 (316SS)                  | 42,888 / 42,850                 | 47,12 / 47,04                   | 9,55 / 9,50                     |
| 156 563 909 | 1.4005 (304)                    | 25,024 / 25,011                 | 28,70 / 28,30                   | 8,03 / 7,98                     |
| 156 563 932 | 1,4404 (316SS)                  |                                 |                                 |                                 |





**Franklin Electric**

Franklin Electric Europa GmbH  
Rudolf Diesel Strasse 20  
54516 Wittlich / Germany

[franklinwater.eu](http://franklinwater.eu)

DOC.NB. 308-018-700EN REV. 15 08-17