



# Goodwin

**100 mm DWHH** 90kW 60Hz

**DIRTY WATER HIGH HEAD  
SUBMERSIBLE PUMP**

**NUMBER ONE FOR RELIABILITY, STRENGTH & ENDURANCE**

**TECHNICAL DATA SHEET**

# 100 mm DWHH

## 90kW 60Hz

### SUBMERSIBLE PUMP

Goodwin submersible pumps have been manufactured since 1982 and are recognised as market leaders in terms of performance and reliability. The pumps have been continually developed over 4 decades resulting in machines that can perform in the most demanding environments.

## Standard Engineering Features

- Single piece cast iron motor housing to enhance rigidity and reduce wear
- 3 phase electric motor runs in oil bath to lubricate and cool the motor parts
- Cooling assisted by the pumped fluid passing through the pump body
- Twin volute casing design to reduce rotational imbalance and increase lifetime of bearings and seals
- Carefully chosen wear resistant materials to maximise service lifetime
- Multiple stage, closed vane impellers
- Precision bearings
- Non pressurised mechanical seal

## Applications

- High wall pumping (open pit) applications
- Construction of buildings, dams & harbour walls
- Long distance pumping applications (up to 4 km)
- Agriculture - irrigation water
- Mine dewatering
- Flood level control - industrial, municipal, mining & marine
- Emergency and environmental control

## Pump Performance

|                                     |                        |
|-------------------------------------|------------------------|
| Design fluid handled                | Dirty Water            |
| Maximum fluid SG                    | 1.1 kg/l               |
| Maximum fluid solids content        | 10 % by weight         |
| Maximum particle size               | 10 mm                  |
| Maximum fluid temperature           | 90 °C                  |
| Recommended pH range                | 4-10                   |
| Power                               | 90 kW                  |
| Speed                               | 1760 rpm               |
| Weight                              | 1940 kg                |
| Outlet Diameter                     | 100 mm                 |
| Maximum Flow                        | 195 m <sup>3</sup> /hr |
| Maximum Head                        | 130 m (12.8 bar)       |
| Impeller diameter                   | 430 mm                 |
| Impeller tip speed                  | 39.6 m/s               |
| Peak efficiency                     | 38 %                   |
| Maximum submergence depth*          | 28 m                   |
| Shut off head at maximum pump speed | 130 m                  |

\* as standard, can be deeper if required

## Electrical Data

|                                      |  |
|--------------------------------------|--|
| Motor Type                           | Squirrel-cage induction motor  |
| Frequency                            | 60Hz   |
| Phase                                | 3  |
| Motor rating                         | IEC 60034-1  |
| IP protection rating                 | IP68   |
| Starting method                      | Direct on-line, Soft Start, Variable Speed Drive. Note: Star Delta not available |
| Number of starts per hour            | 10   |
| Voltage variation                    | ± 6%   |
| Voltage imbalance between phases     | Max 2%   |
| Insulation Code                      | H (180°C)  |
| Motor Overload Factor                | 2.2  |
| Duty Rating                          | S1   |
| Efficiency Class                     | IE exempt (integral with pump)   |
| Oil Type                             | Mineral uninhibited to IEC 60269 (04)  |
| Standards complied with              | IEEE 112-2004, IEC 60034-1-2, AS60034-1, JEC 37                                  |
| Noise level at 1m when not submerged | 78 dB  |
| Motor efficiency                     | 82%  |

# Goodwin



## Electrical Data

| Voltage | Rated power (kW) | RPM  | Rated (full load) Current (A) | Inrush Current Soft Start (A) | No Load Current (A) | Power Factor cos $\phi$ (full load) | Power Factor cos $\phi$ (75% load) | Power Factor cos $\phi$ (50% load) | Recommended Over Current Protection (A) |
|---------|------------------|------|-------------------------------|-------------------------------|---------------------|-------------------------------------|------------------------------------|------------------------------------|---|
| 380     | 90               | 1760 | 178                           | 623                           | 39                  | 0.91                                | 0.82                               | 0.81                               | 350                                     |
| 440     | 90               | 1760 | 154                           | 540                           | 35                  | 0.91                                | 0.82                               | 0.81                               | 350                                     |
| 480     | 90               | 1760 | 137                           | 480                           | 33                  | 0.91                                | 0.82                               | 0.81                               | 350                                     |
| 575     | 90               | 1760 | 114                           | 399                           | 26                  | 0.91                                | 0.82                               | 0.81                               | 300                                     |
| 600     | 90               | 1760 | 109                           | 382                           | 25                  | 0.91                                | 0.82                               | 0.81                               | 300                                     |

## Materials

|                    |                                     |
|--------------------|-------------------------------------|
| Pump body castings | SG Iron                             |
| Impeller           | Hardened stainless steel            |
| Casing             | SG Iron                             |
| Wear plate         | SG Iron                             |
| Shaft              | Martensitic stainless steel         |
| Mechanical seal    | Stainless steel and silicon carbide |
| O-rings            | Nitrile rubber                      |
| Fasteners          | Stainless steel                     |

## Coating System

|                     |   |
|---------------------|---|
| Surface preparation | Class 2.5   |
| Undercoat           | Two component high build epoxy coating. 125 $\mu$ m thickness (typical).                              |
| Top coat            | Acrylic polyurethane high gloss. 50 $\mu$ m thickness (typical). Yellow to RAL 1003 / BS4800 08-E-51. |

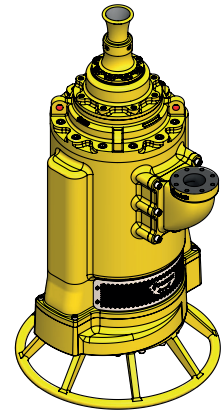
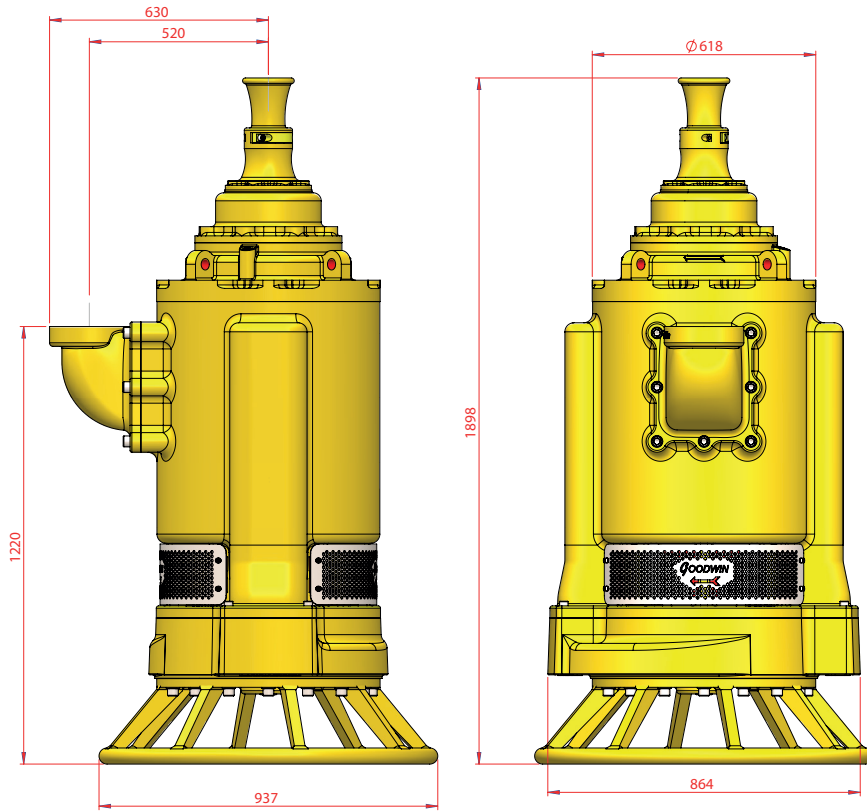
## Other Data

|                            |   |  |              |
|----------------------------|---|--|--------------|
| Recommended cable          | Heavy duty 70mm <sup>2</sup> 3 phase + earth copper cored cable with black chlorinated polyethylene (CPE) rubber sheathing. To standard EN 50525-2-21. Voltage rating 750V. Outer sheath is oil resistant to IEC 60811-404, flame resistant to IEC 60332-1-2. Maximum external diameter 46.7mm. Weight 4.2kg/m. |  |              |
| Recommended lifting chains | Length: 0.6 m   | Material: Steel  | SWL: 3200 kg |
| Hose connection            | Outlet flange configuration   | 100mm PN16 M16*2.0P 8 places $\varnothing$ 180mm PCD   |              |
| Cable gland                | Material  | Nickel plated brass (stainless steel optional)   |              |
|                            | Specification   | BS6121:Part 1:1989   |              |
| Control panel              | Rating  | IP65   |              |
|                            | Weight  | 108kg  |              |
|                            | Description   | Voltage protection, earth leakage protection, phase imbalance, automatic operation with level switch and timer. Soft start as standard (VSD optional). |              |

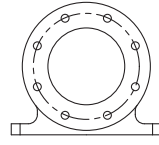
# 100 mm DWHH SUBMERSIBLE PUMP

90kW 60Hz

## Weights & Dimensions



100mm  
DWHH Flange  
Connections



DN100 - PN16  
M16\*2.0P  
8 Places  $\varnothing$ 180mm PCD

## Pump Curve

