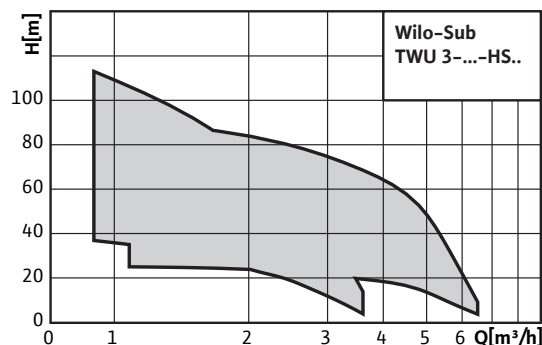


Series description: Wilo-Sub TWU 3 HS



TWU 3--HS-ECP TWU 3--HS-I



Design

Submersible pump, multistage

Application

- For private water supply from boreholes, wells and rainwater storage tanks
- For domestic water supply, sprinkling and irrigation
- For pumping water without long-fibre and abrasive constituents

Type key

| e.g. | Wilo sub TWU 3-0305-HS-E-CP |
|------------|---|
| TWU | Submersible pump |
| 3 | Diameter of the hydraulic unit in inches ["] |
| 03 | Nominal volume flow [m³/h] |
| 05 | Number of hydraulic stages |
| HS | High-speed version |
| E | Frequency converter version E = external frequency converter I = external frequency converter |
| CP | Control function CP = constant pressure control without = fixed speed with up to 8400 rpm |

Special features/product advantages

- Expanded flow capacity by increased rotation speed (up to 8400 rpm)
- Rewindable motor
- Integrated non-return valve
- Parts that come in contact with fluids are corrosion-free
- Including frequency converter (HS-E...: external, installed in the piping; HS-I...: built into the motor)
- Vertical and horizontal installation possible

Technical data

Submersible pump:

- Supply voltage:
HS-E...: 1~230 V, 50/60 Hz (connection to the AC mains supply by a frequency converter)
HS-I...: 1~230 V, 50/60 Hz (direct connection to the AC mains supply)
- Immersed operating mode: S1
- Fluid temperature: 3-35 °C
- Minimum flow rate at motor: 0.08 m/s

Materials

- Hydraulic housing: Stainless steel 1.4301
- Impellers: Polycarbonate
- Hydraulics shaft: 1.4104 stainless steel
- Motor housing: Stainless steel 1.4301
- Motor shaft: 1.4305 stainless steel

Description/design

Submersible pump for vertical or horizontal installation.

Hydraulics

Multistage submersible pump with radial impellers with sectional construction. Integrated non-return valve. All parts in contact with the fluid are made of corrosion-free materials.

Motor

Corrosion-free asynchronous motor for connection to the frequency converter supplied (HS-E...) or for direct connection to the mains power supply (HS-I...). Rewindable oil-filled motor with self-lubricating bearings, designed for high speeds up to 8400 rpm.

Frequency converter

External frequency converter or frequency converter integrated within the motor, for operation of the pump at speeds up to 8400 rpm, including the following functions:

- Soft starter
 - Undervoltage, overvoltage and short-circuit protection
 - Thermal overload protection of the motor and the frequency converter
- The version "HS-E..." with external frequency converter offers the following additional equipment features:
- Control function "CP": Constant pressure
 - Avoidance of frequent switching (cycling) by leakage monitoring
 - Dry-running protection with automatic reset
 - Change of direction of rotation
 - Setting for max. flow and target pressure
 - Pressure is shown on the display
 - Settings, operating statuses and error messages are shown by LEDs or on the display.

The frequency converter always must be installed outside the fluid where it will be protected against overflows!

Control function "CP": Constant pressure

Operation with the frequency converter means the rotation speed of the unit is adapted to the current water requirements automatically. As a result, the submersible pump always delivers a constant pressure.

Cooling

The motor is cooled by the fluid. The motor must always be operated in submerged state. The limit values for the max. fluid temperature and the minimum flow rate must not be exceeded.

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- Max. sand content: 50 g/m³
 - Max. number of starts: 30 /h
 - Max. immersion depth: 150 m
 - Protection class: IP 58
 - Pressure connection: Rp 1
- Frequency converter for version "HS-E...":
- Mains connection: 1~230 V, 50/60 Hz
 - Output: 3~230 V/max.140 Hz/max.2.2 kW
 - Fluid temperature: 3-50 °C
 - Max. pressure: 8 bar
 - Protection class: IP X5
 - Connection: G 1¼

Equipment/function

- Multistage submersible-motor pump with radial impellers
- Integrated non-return valve
- Including frequency converter (HS-E...: external, HS-L...: built-in)
- Thermal motor protection built into the frequency converter

In cases of vertical installation, a cooling jacket must be provided depending on the diameter of the bore. In cases of horizontal installation, a cooling jacket must always be provided .

The external frequency converter is also cooled by the fluid. For this the frequency converter must be installed directly in the piping outside the fluid (overflow-proof).

General notes - ErP (ecological design-) directive

- The benchmark for most efficient water pumps is MEI \geq 0.70
- The efficiency of a pump with a trimmed impeller is usually lower than that of a pump with the full impeller diameter. The trimming of the impeller will adapt the pump to a fixed duty point, leading to reduced energy consumption. The minimum efficiency index (MEI) is based on the full impeller diameter.
- The operation of this water pump with variable duty points may be more efficient and economic when controlled, for example, by the use of a variable speed drive that matches the pump duty to the system.
- Information on benchmark efficiency is available at www.europump.org/efficiencycharts

Configuration

- No suction mode is possible with these units!
- The unit must be fully immersed in water during operation.
- An adapter of Rp 1 to G 1¼ in required for installation. This must be provided on site!

Scope of delivery

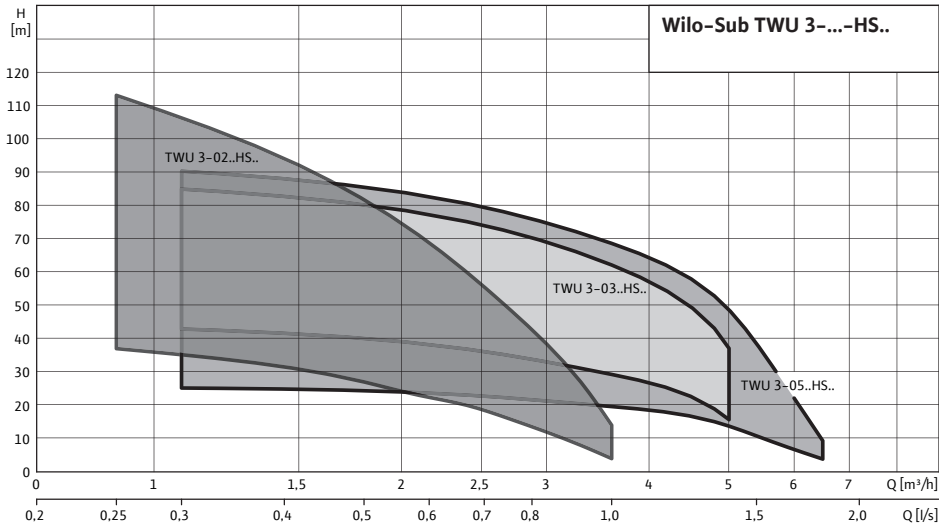
- Hydraulics + motor ready assembled
- Frequency converter
- 1.75 m connecting cable approved for potable water (cross-section: 4x1.5 mm²)
- Installation and operating instructions

Options

- Special cable lengths on request

Duty chart: Wilo-Sub TWU 3 HS

Pump curves



1~230 V, 50 Hz, $\rho = 1 \text{ kg/dm}^3$, $\nu = 1 \times 10^{-6} \text{ m}^2/\text{s}$,
 ISO 9906 Annex A, η = pump efficiency

Equipment/function: Wilo-Sub TWU 3 HS

| Design | |
|--|-----------------|
| NEMA connection | • |
| Standardised connection | – |
| Integrated non-return valve | • |
| Without non-return valve | – |
| Single-phase AC motor | • |
| Three-phase motor | – |
| Direct activation | • |
| Star-delta activation | – |
| FC operation | • |
| Motor with cast stator | – |
| Rewindable motor | • |
| Oil motor filling | • |
| Water-glycol motor filling | – |
| Potable water motor filling | – |
| Hydraulics/motor preassembled | • |
| Application | |
| Horizontal installation | • |
| Vertical installation | • |
| Equipment/function | |
| Motor temperature monitoring, PT100 | – |
| Motor temperature monitoring, PTC | – |
| Capacitor box for 1~230 V | – |
| Dry-running protection system | – |
| Integrated lightning protection | – |
| Accessories | |
| Bearing brackets for horizontal installation | – |
| Cooling jacket | optional |
| Non-return valve | – |
| Pressure shroud | – |
| Materials | |
| Pump housing | Stainless steel |
| Pump housing (special version) | – |
| Impeller | Plastic |
| Impeller (special version) | – |
| Motor housing | Stainless steel |
| Motor housing (special version) | – |

• = available, – = not available