

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 [m ³ /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

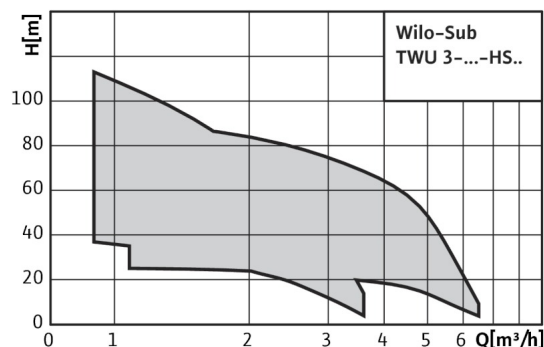
Special features/product advantages

- 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:

- Power supply:
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 motor flow: 0.08 m/s



Equipment/function

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

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

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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

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.

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).

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

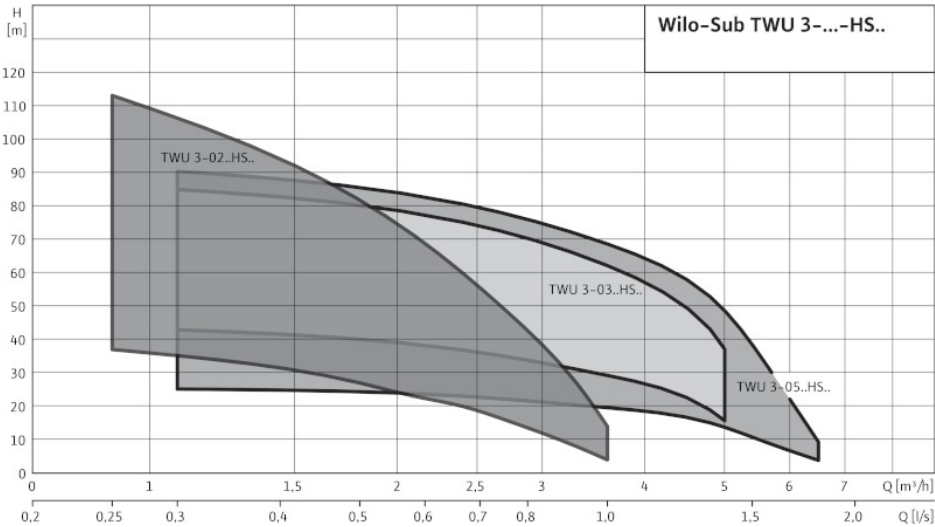
Options

- 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

Product list: Wilo-Sub TWU 3 HS

Pump type	Mains connection	Max. volume flow	Max. delivery head	Motor diameter	Pressure connection	Nominal motor power	Art no.
		$Q_{max}/m^3/h$	H_{max}/m	$\varnothing /"$		P_2/kW	
TWU 3-0202-HS-E-CP	1~230 V, 50/60 Hz	3	43	3	Rp 1	0.60	6064266
TWU 3-0202-HS-I	1~230 V, 50/60 Hz	3	43	3	Rp 1	0.60	6064276
TWU 3-0204-HS-E-CP	1~230 V, 50/60 Hz	3	85	3	Rp 1	0.90	6064267
TWU 3-0204-HS-I	1~230 V, 50/60 Hz	3	85	3	Rp 1	0.90	6064277
TWU 3-0205-HS-E-CP	1~230 V, 50/60 Hz	3	107	3	Rp 1	0.90	6064268
TWU 3-0205-HS-I	1~230 V, 50/60 Hz	3	107	3	Rp 1	0.90	6064278
TWU 3-0206-HS-E-CP	1~230 V, 50/60 Hz	3	128	3	Rp 1	1.50	6064269
TWU 3-0206-HS-I	1~230 V, 50/60 Hz	3	128	3	Rp 1	1.50	6064279
TWU 3-0302-HS-E-CP	1~230 V, 50/60 Hz	5	46	3	Rp 1	0.60	6062862
TWU 3-0302-HS-I	1~230 V, 50/60 Hz	5	46	3	Rp 1	0.60	6064280
TWU 3-0303-HS-E-CP	1~230 V, 50/60 Hz	5	69	3	Rp 1	0.90	6062863
TWU 3-0303-HS-I	1~230 V, 50/60 Hz	5	69	3	Rp 1	0.90	6064281
TWU 3-0304-HS-E-CP	1~230 V, 50/60 Hz	5	91	3	Rp 1	1.50	6062864
TWU 3-0304-HS-I	1~230 V, 50/60 Hz	5	91	3	Rp 1	1.50	6064282
TWU 3-0501-HS-E-CP	1~230 V, 50/60 Hz	6	26	3	Rp 1	0.60	6062865
TWU 3-0501-HS-I	1~230 V, 50/60 Hz	6	26	3	Rp 1	0.60	6064283
TWU 3-0503-HS-E-CP	1~230 V, 50/60 Hz	6	75	3	Rp 1	0.90	6062866
TWU 3-0503-HS-I	1~230 V, 50/60 Hz	6	75	3	Rp 1	0.90	6064284
TWU 3-0504-HS-E-CP	1~230 V, 50/60 Hz	6	96	3	Rp 1	1.50	6062867
TWU 3-0504-HS-I	1~230 V, 50/60 Hz	6	96	3	Rp 1	1.50	6064285