

Wilo-EMU FA (customized)





Your advantages

- Can be tailored to suit your exact requirements. For reliable and efficient pumping of pre-treated sewage and untreated sewage.
- Versatile. Optimum pumping of various fluids at all times using different impeller shapes.
- Energy-efficient thanks to optional IE3 motor technology
- Protected against abrasion and corrosion with Ceram coating and special materials
- Suitable for immersed and non-immersed applications, even in continuous duty

Recommended services



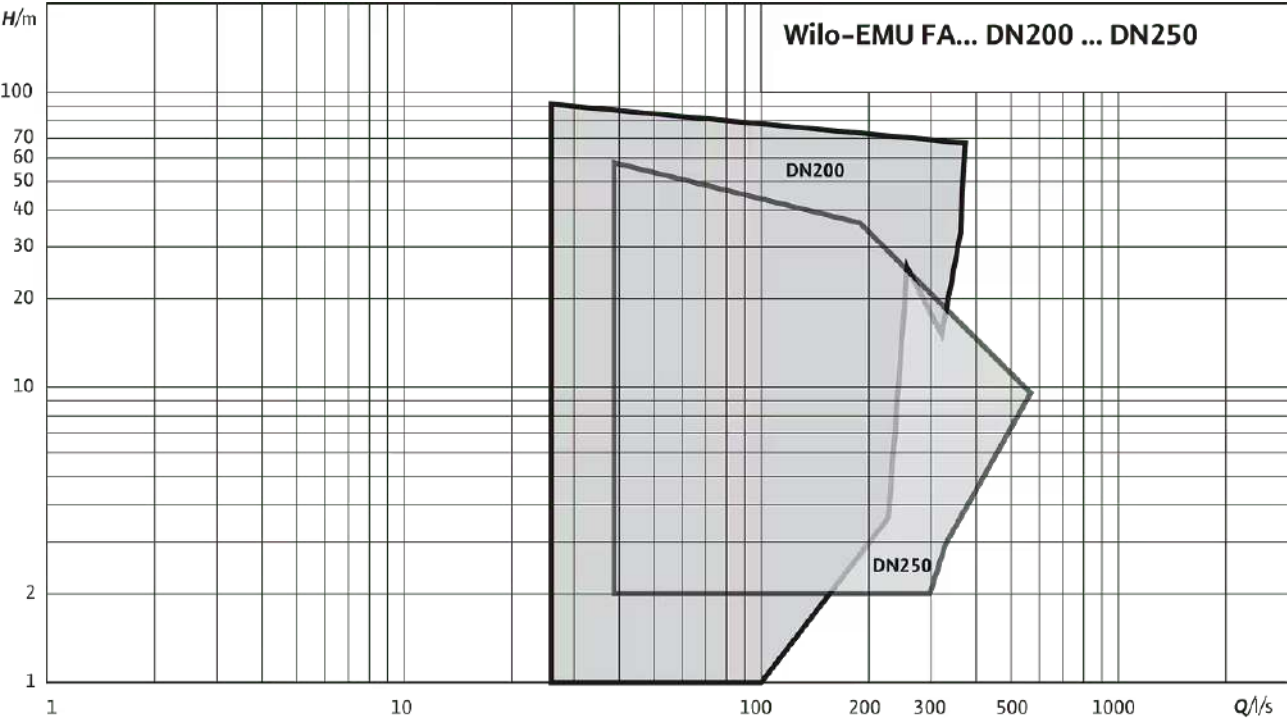
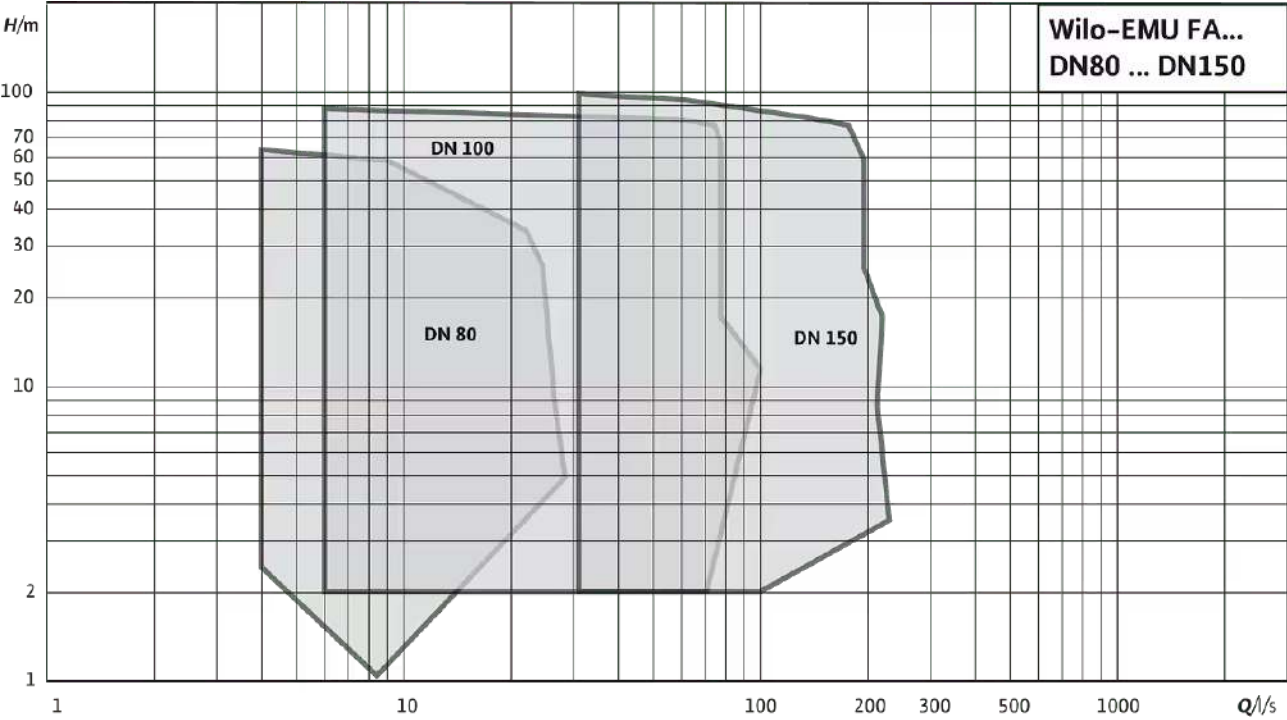
Commissioning

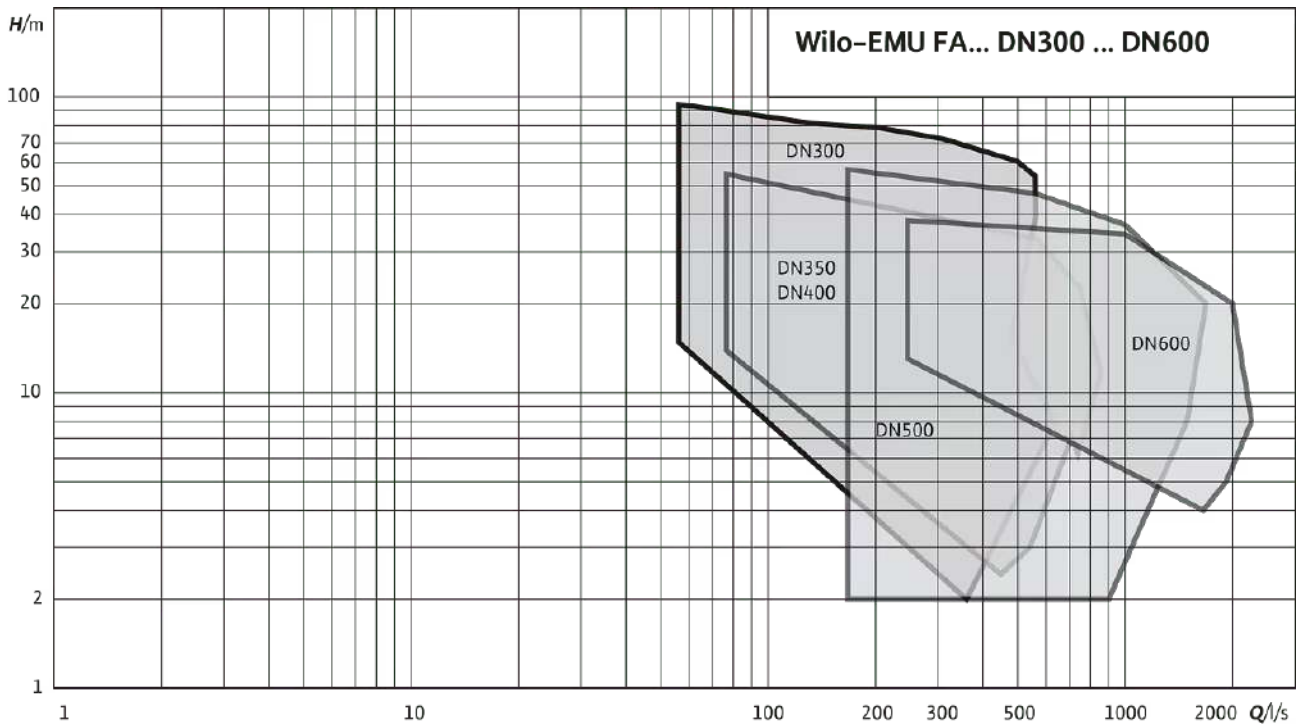


Maintenance



ZONE 1





Design

Submersible sewage pump with and without active cooling system for continuous duty in the stationary and portable wet well installation, as well as for stationary dry well installation.

Application

Pumping of

- > Untreated sewage with faeces and long-fibre components
- > Sewage containing faeces
- > Pre-cleaned sewage without faeces and long-fibre components
- > Process water
- > Wastewater

Equipment/function

- > Heavy-duty version made of grey cast iron
- > Surface-cooled motor or self-cooling motor with 1-chamber or 2-chamber system
- > Optionally with Ex protection in accordance with ATEX or FM
- > Motor-dependent monitoring devices:
 - > Winding temperature
 - > Moisture monitoring in the sealing chamber and motor/terminal room
 - > Motor bearing temperature
- > Installed accessories according to customer requirements

Typekey

Example:	Wilo-EMU FA 20.54E + FK 17.1-6/16KEx
Hydraulics:	FA 20.54E
FA	Submersible sewage pump
20	x10 = nominal diameter discharge port, e.g. DN 200
54	Performance indicator
	Type of impeller:
	W = Vortex impeller
E	E = Single-channel impeller
	Z = Two-channel impeller
	D = Three-channel impeller
	V = Four-channel impeller
Motor:	FK 17.1-6/16KEx
	Motor type:
	T = surface-cooled motor without cooling system
FK	FK, FKT, HC = self-cooling motor with active cooling system
	Size
17.1	Number of poles
6	x10 = package length in mm
16	Seal version:
	H = rotary shaft seal/mechanical seal
K	G = two separate mechanical seals
	K = block seal cartridge with two mechanical seals
Ex	Ex-rated

Technical data

- > Mains connection: 3–400 V, 50 Hz
- > Submerged operating mode: S1
- > Non-immersed operating mode: S1 or S2
- > Protection class: IP68
- > Insulation class: H
- > Fluid temperature: 3...40 °C, higher temperatures on request
- > Free ball passage of 45...130 mm
- > Max. immersion depth: 20 m

Materials

- > Housing components: EN-GJL or EN-GJS
- > Impeller: EN-GJL or EN-GJS
- > Static gaskets: NBR or FPM
- > Fluid-side seal: Mechanical seal made of SiC/SiC
- > Seal on the motor side:
 - > Rotary shaft seal NBR
 - > Mechanical seal made of SiC/SiC or carbon ceramic
- > Shaft: Stainless steel 1.4021

Construction

Submersible sewage pump as submersible monobloc unit for stationary and portable wet well and dry well installation.

Hydraulics

The outlet on the pressure side is designed as horizontal flange connection. The maximum possible dry matter content is 8 %, depending on the hydraulics and impeller type. The following impeller shapes are used:

- > Vortex impeller (W)
- > Single-channel impeller (E)
- > Two-channel impeller (Z)
- > Three-channel impeller (D)
- > Four-channel impeller (V)

The sewer hydraulics are equipped with an impeller wear ring and casing wear ring made of hardened material. These contribute long-term to ensuring the uniform efficiency of the unit and minimizing maintenance costs.

Motor

Surface-cooled motors (T motor) do not have a cooling system of their own and emit their heat directly to the surrounding fluid via the housing parts. The motors can therefore be used in immersed state for continuous duty. Depending on their size, they can also be used in non-immersed state for short-time duty.

The self-cooling motors (FK, FKT, HC motors) have an active cooling system and transfer their waste heat to the medium being pumped by means of an integrated heat exchanger. Therefore, these motors are suitable for continuous duty in immersed and non-immersed condition, and therefore also for dry well installation.

All motors have a sealing chamber that protects the motor from fluid ingress. It can be accessed from the outside and can optionally be monitored with a rod electrode. All filling fluids used are potentially biodegradable and environmentally safe.

The connection cable has bare cable ends and a length of 10 m or a customer-specific length. The cable inlet on T, HC and FKT motors is longitudinally watertight.

Seal

Fluid-side and motor-side sealing is possible in the following versions depending on the motor type:

- > Version H: Mechanical seal for the fluid side, rotary shaft seal for the motor side
- > Version G: Two independently-acting mechanical seals
- > Version K: Block seal cartridge with two independently acting mechanical seals

High efficiency motors

In addition to the standard motors, high-efficiency motors with IE3 classification (in accordance with IEC 60034-30) are also available. As these have the same basis as the standard motors, they have the same features and functions. This means that the same hydraulic systems are also available.

Ex rating

The motors are available with Ex rating in accordance with ATEX and FM.

Scope of delivery

- > Submersible sewage pump ready for connection
- > Connection cable with bare cable end
- > Fitted accessories
- > Operating and maintenance manual

Options

- > Special voltages
- > Winding monitoring with PTC thermistor sensor
- > Monitoring devices for
 - > Sealing chamber
 - > Motor/terminal room
 - > Storage temperature
- > Ceram coating for abrasive and corrosive fluids
- > Ex-rated according to ATEX or FM

Accessories

- > Suspension unit or pump support foot
- > Various pressure outlets and Storz couplings
- > Chains
- > Fixation sets with anchor bolts
- > Switchgear, relays and plugs

Commissioning

Operation in wet well installation with non-immersed motor

The surfacing of self-cooling motors (FK, FKT, HC motors) is permitted at any time in continuous duty.

Surface-cooled motors (T motors) can be non-immersed only if an operating mode is specified for non-immersed operation! The maximum running time with non-immersed motor depends on the medium and ambient temperatures. The precise details of the operating mode must be read from the rating plate.

Dry-running protection system

The hydraulics housing must always be immersed to prevent air from being drawn in. In the case of fluctuating fluid levels, the system should shut down automatically once the minimum water submersion is reached.

Horizontal installation

Horizontal installation is only possible in coordination with Wilo customer service!

WILO SE
Wilopark 1
44263 Dortmund
Germany
T +49 231 4102-0
F +49 231 4102-7363
wilo@wilo.com
www.wilo.com