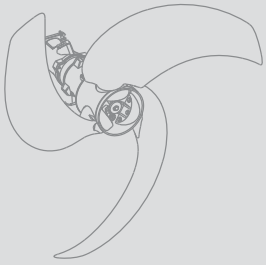
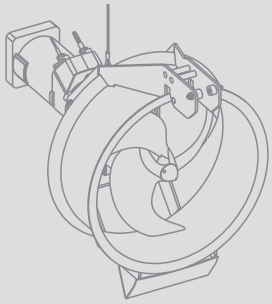
WILO
Pumpen Intelligenz.

Catalogue Drainage and Sewage

Submersible Mixers

Mixers, Re-circulation Pumps,
Jet Cleaners, Grit Collector Pumps and
Accessories for Municipal Applications
in Water Treatment Systems





WILO EMU Technologie

Catalogue C4 – 50 Hz – 2008

C4

Program Overview and Fields of Application

Submersible mixers

Mixers and re-circulation pumps

Product type	Propeller version					Main fields of application						
	Cast propeller	Steel propeller	PUR propeller	PUR/GFK propeller	GFK propeller	Activated sludge tank	Bioreactors	Chemical and process engineering industry	Landfill drainage	De-icing	Faecal sludge tank	Fish hatcheries
Miniprop submersible mixers												
Wilo-EMU TR 14...	–	–	•	–	–	–	–	–	–	–	–	–
Wilo-EMU TR 16...	–	–	•	–	–	–	–	–	–	–	–	–
Wilo-EMU TR 21...	–	•	•	–	–	•	–	–	•	–	•	•
Wilo-EMU TR 28...	–	–	•	–	–	•	–	–	•	–	•	•
Uniprop submersible mixers, directly driven												
Wilo-EMU TR 22...	•	•	–	–	–	•	•	•	•	•	•	•
Wilo-EMU TR 25...	–	•	–	–	–	•	•	•	•	•	•	•
Wilo-EMU TR 36...	–	•	•	–	–	•	•	•	•	•	•	•
Wilo-EMU TR 40...	–	–	•	–	–	•	•	•	•	•	•	•
Uniprop submersible mixers with transmission ratio												
Wilo-EMU TR 50-2...	–	•	•	–	–	•	•	•	•	•	•	–
Wilo-EMU TR 60-2...	–	•	•	–	–	•	•	•	•	•	•	–
Wilo-EMU TR 75-2...	–	–	•	–	–	•	•	•	•	•	•	–
Wilo-EMU TR 80-1...	–	•	•	–	–	•	•	•	•	•	•	–
Wilo-EMU TR 90-2...	–	–	–	•	–	•	•	•	•	•	•	•
Maxi- / Megaprop submersible mixers												
Wilo-EMU TR 2xx...	–	–	–	–	•	•	•	•	•	•	–	•
Wilo-EMU TR 3xx...	–	–	–	–	•	•	•	•	•	•	–	•
Rezijet re-circulation pump												
Wilo-EMU RZP 20...	–	•	•	–	–	–	–	–	–	–	–	•
Wilo-EMU RZP 25...	–	•	•	–	–	–	–	–	–	–	–	•
Wilo-EMU RZP 50-3...	–	•	•	–	–	–	–	–	–	–	–	–
Wilo-EMU RZP 60-3...	–	•	•	–	–	–	–	–	–	–	–	–
Wilo-EMU RZP 80-1...	–	•	•	–	–	–	–	–	–	–	–	–

Mixers and re-circulation pumps

Key:

- • available / permitted
- – not available / not permitted

Main fields of application									
Cooling basin	Off-shore and ocean technology	Paper material 4 %	Pump sump	Rain spillway basin	Re-circulation	Sludge tank	Destruction of floating sludge	Generation of flow	Page
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Contents

General Notes and Abbreviations

Abbreviations and what they mean

Abbreviation	Meaning
°d H	Degree of German water hardness, unit for assessing water hardness
1/min	Revolutions per minute (rpm)
1~	1-phase alternating current
3~	3-phase alternating current
-A	Float switch attached
Autopilot	Automatic adjustment of pump performance during setback phases, e.g. boiler setback operation overnight
BA	Building automation
Cap	Capacitors
Control input 0 - 10 V	Analogue input for external control of functions
D	Direct activation
DM	3-phase AC motor
DN	Nominal diameter of the flange connection
Δp	Pressure loss
Δp-c	Control mode for constant differential pressure
Δp-T	Control mode for differential-pressure control as a function of fluid temperature
Δp-v	Control mode for variable differential pressure
ΔT	Control mode for differential temperature
ECM technology	Electronically commutated motor with new wet rotor encapsulation, newly developed glandless drive concept for high-efficiency pumps
EM	1-phase AC motor
EnEV	German Energy Savings Ordinance (Energieeinsparverordnung (EnEV))
Ext. Aus	Control input "Overriding Off"
Ext. Min	Control input "Overriding Min", e.g. for setback operation without autopilot
GRD	Mechanical seal
GTW	Special cast iron: white malleable cast iron
H	Delivery head
H_z	Approval range for sprinkler pumps
I_A	Start-up current
IF	Interface
I_N	Rated current (current at P_2)
Inst.	Installation: H = horizontal, V = vertical
Int. MS	Internal motor protection: Pumps with internal protection against unacceptably high winding temperatures
IR	Infrared interface
I_W	Current consumption for shaft power requirement P_W

Abbreviation	Meaning
KTL coating	Cataphoretic painting: Paintwork with high adhesive strength for long-lasting corrosion protection
KTW	Authorisation for products with plastics, for utilisation in secondary hot water applications
LB	Delivery readiness (in the case of warehoused goods, this involves standard articles in the standard material version with cables for 400 V/50 Hz)
LON	Local operating network (open, non- manufacturer-dependent, standardised data bus system in LONWORKS networks)
max. Ø	Maximum unit diameter incl. cable
MOT	Motor module (drive motor + impeller + terminal box/electronics module) for replacement in the TOP ... Series
PLR	Pump central control, Wilo-specific data interface
P_N	Rated motor power (P_2)
PN	Pressure class in bar (e.g. PN10 = suitable up to 10 bar)
PT 100	Platinum temperature sensor with a resistance of 100 Ω at 0 °C
P_W	Power requirement of the pump hydraulics
Q (= $\dot{V}$)	Volume flow
Q_z	Approval range for sprinkler pumps
rbc	Blocking current-proof, no motor protection
RCD	Residual-current device
RMOT	Spare motor (drive motor + impeller + terminal box/electronic module) for replacement
RV	Non-return valve
RVF	Non-return valve, spring-mounted
-S	Float switch attached
SBM	Run signal or collective run signal
SSM	Fault signal or collective fault signal
TrinkwV 2001	German Drinking Water Ordinance of 2001 (valid from 01.01.2003)
TRS	PTC thermistor sensor
TWC	Thermal winding contacts (in motor for monitoring winding temperature, full motor protection through additional tripping unit)
V	Speed
VDI 2035	VDI guideline for the prevention of damage in hot-water heating installations
Wilo-Control	Building automation management with pumps and accessories
WRAS	Water Regulations Advisory Scheme (secondary hot water approval for Great Britain and Northern Ireland)
Y/Δ	Star/delta switching

Abbreviations and what they mean

Abbreviation	Meaning
	Operating mode of twin-head pumps: Individual operation of the respective operating pump
	Operating mode of twin-head pumps: Parallel operation of both pumps
	Number of poles of electric motors: 2-poled motor = approx. 2900 rpm at 50 Hz
	Number of poles of electric motors: 4-poled motor = approx. 1450 rpm at 50 Hz
	Number of poles of electric motors: 6-poled motor = approx. 950 rpm at 50 Hz

Material designations and their meaning

Material	Meaning
1.4021	Chrome steel X20Cr13
1.4057	Chrome steel X17CrNi16-2
1.4112	Chrome steel X 90 Cr Mo V 18
1.4122	Chrome steel X39CrMo17-1
1.4301	Chrome nickel steel X5CrNi18-10
1.4305	Chrome nickel steel X8CrNiS18-9
1.4306	Chrome nickel steel X2CrNi19-11
1.4308	Chrome nickel steel GX5CrNi19-10
1.4401	Chrome nickel molybdenum steel X5CrNiMo17-12-2
1.4408	Chrome nickel molybdenum steel GX5CrNiMo19-11-2
1.4462	Chrome nickel molybdenum steel X2CrNiMoN22-5-3
1.4470	Chrome nickel molybdenum steel GX2CrNiMoN22-5-3
1.4517	Chrome nickel molybdenum steel with copper added GX2CrNiMoCuN25-6-3-3
1.4541	Chrome nickel steel with titanium added X6CrNiTi18-10
1.4542	Chrome nickel steel with copper and niobium added X5CrNiCuNb16-4
1.4571	Chrome nickel molybdenum steel with titanium added X6CrNiMoTi17-12-2
1.4581	Chrome nickel molybdenum steel with niobium added GX5CrNiMoNb19-11-2
Abrasite	Chilled cast iron material for use in strongly abrasive fluids
Al	Light metal material (aluminium)
Ceram	Ceramic coating; Coating with very high adhesion, protection against corrosion and abrasion
Composite	High-strength plastic material
EN-GJL	Cast iron (cast iron with lamellar graphite)
EN-GJS	Cast iron (cast iron with spheroidal graphite, also called spheroidal cast iron)
G-CuSn 10	Zinc-free bronze

Material	Meaning
GfK	Fibreglass plastic
GG	See EN-GJL
GGG	See EN-GJS
Inox	Stainless steel
NiAl-Bz	Nickel aluminium bronze
Noryl	Fibreglass-reinforced plastic
PE-HD	Polyethylene with high density
PP-GF30	Polypropylene, reinforced with30% fibreglass
PUR	Polyurethane
SiC	Silicone carbide
ST	Steel
St.vz.	Galvanized steel
V2A (A2)	Material group, e.g. 1.4301, 1.4306
V4A (A4)	Material group, e.g. 1.4404, 1.4571

Wear and tear

Pumps or pump components are subject to wear and tear and abrasion in accordance with state-of-the-art technology (DIN 31051/ DIN-EN 13306). This wear may vary depending on operating parameters (temperature, pressure, speed, water conditions) and the installation/usage situation and may result in the malfunction or failure at different times of the aforementioned products/components, including their electrical/electronic circuitry.

Wearing parts are all components subject to rotary or dynamic strain, including electronic components under tension, in particular:

- Seals/gaskets (including rotating mechanical seals), seal ring
- Bearing and shaft, stuffing box
- Capacitor, relay / contactor / switch, electronic circuit, semiconductor components, etc.
- Impellers and pump part, wearing ring / wearing plate, counter ring and stationary wear ring

In the case of flow machines, such as submersible mixers and re-circulation pumps, the protective coating (2K- or Ceram coating) is subject to constant wear due to the abrasive constituents in the fluid. For these units, the protective coating is therefore also included among the wear parts. We do not accept liability for faults or defects arising from natural wear and tear.

WILO – General Terms of Delivery and Service

The latest version of our general terms of delivery and service can be found on the Internet at **www.wilo.com**.

Structure of a water treatment system

A water treatment system is for cleaning sewage, which has been collected from the sewer system and has been transported to it.

To clean the undesirable sewage contents, mechanical, biological and chemical methods are used. Modern water treatment systems are designed with multi-stages accordingly. The first water treatment system on the European continent was put into operation in Frankfurt am Main in 1882.

System parts

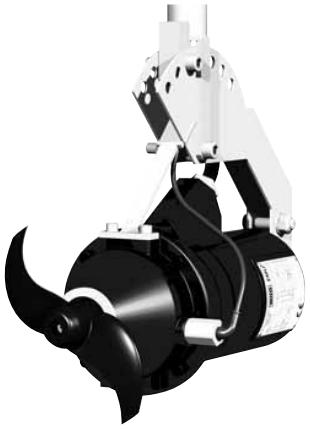
Rain relief

When feeding sewage to the water treatment system, two sewer systems are to be distinguished, the mixing and the separating system.

In the case of the mixing system, the rainwater and wastewater are fed into a common drainage pipe of the water treatment system. Here, the sewage network usually has to be relieved by a rain overflow or a rain spillway basin so that the water treatment system isn't hydraulically overloaded. This can be done using a rain spillway basin (RÜB), either already in the sewage network or later in the water treatment system. If such facilities are not available, the water treatment system must be provided with the corresponding reserve capacity.

The incoming rainwater is especially strongly contaminated after long dry periods. Depositing occurs there due to the long dwell times in the RÜB. These deposits can lead to major odour problems in an anaerobic environment. Here, we use Wilo jet cleaners. These are equipped with submersible motor pumps and can therefore also be operated in submerged state. The jet cleaners add oxygen to the fluid and prevent solids from depositing.

Another option for suspending potential deposits in the RÜB is the use of our directly driven Miniprop submersible mixers. These can be fastened directly to the reservoir floor or wall and generate sufficient turbulence to work against the depositing of solids.



In the case of the separating system, the wastewater is fed to a separate pipeline of the water treatment system while the rainwater is conducted through its own drainage pipe, possibly after cleaning in a rainwater treatment basin, directly to a body of surface water.

Rake

In the raking system, the sewage is conducted through a rake or sieve drum. The coarse contaminants, such as monthly hygiene articles, condoms, toilet paper, Q-tips, stones or even leaves and dead animals are caught in the rake. The more narrow the passage for the sewage, the less coarse material is contained in the sewage after the rake, which has a positive effect on the wear of the machines in the subsequent cleaning stages.

One can distinguish fine raking with a few millimetres and coarse raking with a few centimetres gap width. The material caught in the rake is mechanically washed to remove the faecal matter. The water is removed with a rake material press (to save weight) and then the material is burned, composted (fertilizer) or is brought to a landfill.

Grit chamber

A grit chamber is a deposit reservoir with a defined dwell time, and its job is to remove coarse, depositable contaminants from the sewage, such as sand, stones or shards of glass. These substances can easily lead to operational malfunctions (wear, clogging). The goal is to separate inorganic particulate substances from organic constituents, which will be eliminated in further cleaning stages and which contribute to gas production in the sludge decay.

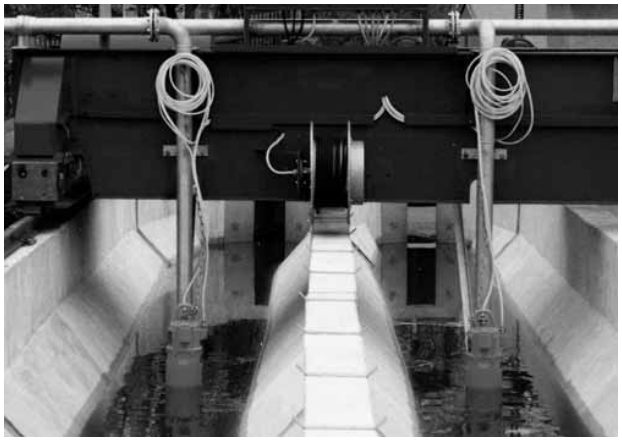
Possible designs include:
- Long grit chamber
- Ventilated long grit chamber, in which greases and oils on the surface are separated as well
- Round grit chamber
- Deep grit chamber

There is ventilation installed on the basin floor, through which turbulence is generated. Due to the blown-in air, the density of the sewage is reduced. Based on these effects, the heavy mineral-containing particles (mostly sand) is deposited on the floor of the basin.

Structure of a water treatment system

In the case of modern systems, the sand collected is washed after removing it from the grit chamber, i.e. it is freed of organic constituents in order to make better drainage and subsequent recycling possible (for example in street construction).

When emptying the grit chamber, high demands are put on the wear-resistance of the used pumps. Deposits (especially sand) must be stirred up and pumped out. Wilo offers grit collector pumps for this. There are mostly Wilo-EMU FA pumps with vortex impellers. With these, the sand is only stirred up in the area of the pump inlet. Solid deposits are loosened up and can be pumped. Due to the narrowly limited flow zone, the depositing of sand is not disturbed. The smooth pipe cylinder can usually be rinsed free of long fibrous substances on its own. Since the mixer head is subject to a high amount of wear, it is made of the chilled cast iron material abrasite. The pumps are directly fastened to the chamber bridge and submerged in the fluid.



Primary clarifier
The hydraulic dwell time in the primary clarifier is a lot longer than in the grit chamber. For this reason, the grain size of the particles eliminated here by means of sedimentation is much smaller than in the grit chamber. Undissolved substances (faecal matter, paper, etc.) are deposited or float on the surface. Approximately 30 % of organic matter can be removed this way. Primary sludge is formed, which goes into so-called pre-thickeners in most water treatment systems. It is thickened there, together with the surplus sludge from the sludge activation system: The sludge is deposited and the surplus water (cloudy water) is removed to achieve a higher dry substance content. The cloudy water is fed back to the cleaning circuit of the water treatment system. The thickened sludge is pumped into the digestion tank for further anaerobic treatment.

In the case of modern systems with nitrogen elimination, this part of the system can be omitted or often has small dimensions. This is justified by the necessary presence of organic substances in sewage for supporting denitrification.

Also, this system part is not used for water treatment systems with simultaneous, aerobic sludge stabilisation in the biological stage, since otherwise non-stabilised primary sludge would continue to accumulate.

Biological stage
In this process stage, the undesirable sewage constituents are biologically degraded by microorganisms, the so-called activated sludge. To do this, the sewage is oxygenated. Numerous methods have been developed: The activated sludge method, the percolating filter method and the fixed bed reactor method.

As an example, the activated sludge method will be described below. The majority of municipal water treatment systems in central Europe are operated according to this method.

Activated sludge tank
In the sludge activation method, the organic sewage constituents are oxidatively degraded to CO_2 and H_2O in so-called activated sludge tanks by aerating the suspension made up of sewage and activated sludge. Simultaneously, the contained nitrogen compounds are oxidized to form nitrate, which is the first step of nitrogen elimination.

The second step, denitrification, occurs under anoxic conditions (absence of dissolved oxygen). For this reason, it must take place at a different time/place than nitrification.

The activated sludge method is run continuously. This means that sewage and activated sludge are continuously fed into the activated sludge tank. Simultaneously, the suspension from the sewage and activated sludge takes place to the same degree. By adding flocculating agents, the nutrient phosphorus can also be removed by means of chemical reactions.

In the activated sludge tank, Maxi-/Megaprop submersible mixers are used to ensure sufficient mixing and flow rate during the non-aerated phases (denitrification).

Secondary clarifier
The secondary clarifier forms a process unit with the activated sludge tank. The activated sludge is separated here by depositing out of the sewage. One part of the sludge is fed back into the activated sludge tank (return sludge) in order to keep the concentration of microorganisms in the activated sludge tank constant.

Structure of a water treatment system

The surplus (growth of biomass, surplus sludge) is conducted away to the pre-thickener for further treatment, usually together with the sludge of the primary clarifier.

The feeding back of the sludge is ensured by re-circulation pumps. These are able to pump high flow volumes over low heights.

The activated sludge must have good depositing properties. If this isn't the case, for example due to massive growth of fibrelike micro-organisms, the activated sludge drifts out of the secondary clarifier into the following body of water. This phenomenon is called bulking and floating sludge and contaminates the receiving water.

Digestion tank
The growth of biomass created by the degradation of sewage constituents is eliminated as sewage sludge, but usually degraded in so-called digestion tanks under anaerobic conditions by other micro-organisms to form digested sludge and combustible digester gas (mostly a mixture of methane and carbon dioxide). The processes run analogously to those in a biogas system.

The digester gas (in cleaned form) is often used in gas motors (or even in combined heat and power units) for covering the current (and heat) requirements for the plant's own needs.

The digested sludge is then conducted to a post-thickener. There it is thickened by means of depositing in order to further reduce the volume and water content. The cloudy water is specifically removed with special height-adjustable removal mechanism. Wilo Uniprop submersible mixers are used for homogenising the thickened sludges there.

The formed sludge can be used in agriculture as an organic fertilizer if it's free of toxic substances and poisons. Otherwise, more water is removed in chamber filter presses or centrifuges and it is burned in garbage combustion systems or is disposed of in other ways.

Treatment processes
1. stage: Mechanical processes usually make up the first treatment stage. Here, about 20–30 % of the solid (undissolved) floating and suspended matter is removed. In advanced wastewater treatment and in industrial water management, adsorption, filtration and stripping are used.

2. stage: Biological processes are used in the second treatment stage of municipal wastewater treatment systems and for degrading organically highly contaminated sewage in aerobic and anaerobic wastewater treatment. They use microbiological degrading processes. Here, the degradable organic sewage constituents are mineralised as completely as possible, which means, in aerobic wastewater treatment, the sewage is degraded down to the inorganic end products water, carbon dioxide, nitrate, phosphate and sulphate.

In anaerobic wastewater treatment, they are converted to organic acids, methane and carbon dioxide. Usually, the carbon compounds are removed from the sewage this way. Also, organically bonded nitrogen and ammonium are removed by means of bacterial nitrification and denitrification. Phosphorus is also being increasingly bacterially eliminated in medium-sized and large water treatment systems.

3. stage: Chemical methods: Abiotic/chemical methods make use of chemical reactions, such as oxidation and precipitation without the participation of microorganisms. In municipal wastewater treatment, they mostly serve to remove phosphorus using precipitation reactions. This process is very important for avoiding the eutrophication of the receiving water. In addition, abiotic/chemical methods are used for precipitation in industrial water management and for advanced wastewater treatment (for example flocculation/precipitation/filtration).

Structure of a water treatment system

Physical processes

Process	Water treatment system components	Purpose
Sieving	Rake, revolving drum sieve, microsieve	Removal of larger solids and floating substances
Separation	Floating substance / oil separator	Removal of greases and oils
Sedimentation	Grit chamber, deposit reservoir, centrifugal separator, primary and secondary clarifier	Removal of smaller floating substances, sand, flocculated suspended matter; removal of activated sludge from the treated sewage
Filtration	Sand filter	Removal of suspended matter
Flotation	Flotation tank, grease collector	Removal of fine dirt particles by blowing in air
Adsorption	Active carbon filter	Adsorption of halogenised hydrocarbon compounds (AOX), for example, or dyes

Biological processes

Process	Water treatment system components	Purpose
Biochemical oxidation	Activated sludge method, percolating filter	Aerobic degradation of organic constituents to inorganic end products (H_2O, CO_2, NO_3^-, N_2, PO_4^{3-}, SO_4^{2-}) by means of activated sludge (activated sludge tank) or slime mould (percolating filter). By means of suitable management of activated sludge systems, the phosphorus absorption in the biomass can be optimised (Bio-P). Thus, less flocculating agent is required to eliminate phosphorus. The basic objective is always to convert the sewage constituents to be removed by means of biological processes (respiration, biomass growth) into forms which can be removed from the sewage by sedimentation or stripping (gaseous expulsion) and also are as harmless as possible.
Biochemical oxidation, in the case of small water treatment systems	Constructed wetland system, activated sludge process, percolating filter	Aerobic and anaerobic degradation in flat basins and subsequent ground penetration in the case of constructed wetland water treatment systems or degradation by means of activated sludge in activated sludge tanks or by slime mould in percolating filters
Sludge digestion	Digestion tank	Anaerobic degradation of organic constituents of the primary or surplus sludge to form inorganic end products: Carbon dioxide (CO_2), methane (CH_4), ammonia (NH_3), hydrogen sulphide (H_2S)
Anaerobic wastewater treatment	Reactor	Anaerobic degradation of organic constituents to form inorganic end products: Carbon dioxide (CO_2), methane (CH_4), ammonia (NH_3), hydrogen sulphide (H_2S). Especially suited for severely organically contaminated sewage (for example: food industry, carcass disposal).

Chemical processes

Process	Water treatment system components	Purpose
Flocculation	Flocculation basin	Removal of colloidal substances and fine dirt particles by adding flocculating agents or adjusting the pH value
Neutralisation / pH value	Neutralisation basin	Adjusting the pH value by adding acids or bases
Precipitation	Precipitation basin, Bio-P basin	Precipitation of phosphate ions (PO_4^{3-}) with iron and aluminium salts
Simultaneous precipitation	Activated sludge tank / secondary clarifier	Removal of phosphorus (as phosphate) by adding iron or aluminium salts to the activated sludge.
Primary precipitation	Mixing reservoir/primary clarifier	Removal of phosphorus (as phosphate) by adding iron or aluminium salts before the primary clarifier.
Precipitation	Mixing reservoir/deposit reservoir after the secondary clarifier	Removal of phosphorus (as phosphate) by adding iron or aluminium salts after the primary clarifier.
Abiotic oxidation	Special reservoir	Destruction of organic compounds which cannot be degraded by means of biotic methods, such as by means of ozone or UV light. Possibly with the purpose of being able to degrade the rest biotically (for example by bleaching the sewage)
Disinfection	Special reservoir	Killing germs by adding chlorine or ozone or by UV radiation

Structure of a water treatment system

Load parameters

The load of water treatment systems is determined according to the total number of inhabitants and population equivalents (PT). Here, this is the sum of the actual inhabitants (population, P) and the population equivalent (PE). The population equivalent is the agreed quantity of sewage emissions assumed for one standard inhabitant.

For commercial, industrial and agricultural production, the loads are indicated with reference to the production amounts (for example 10 PT BOD_5 per hectares vineyard acreage). It is to be observed, however, that the ratios between the individual parameters can vary. Sewage can have a higher concentration (less sewage volume for the same amount of contamination), or they can be full of organic carbon compounds and have fewer nutrients.

The content of biodegradable substances is quantified with the sum parameter "Biochemical Oxygen Demand", or BOD for short. Usually, it is measured in milligrams with biochemical oxygen consumption within 5 days under standard conditions of 20 °C and is referred to as BOD_5. For biodegradation, a nutrient ratio of BOD_5:N:P of about 100:5:1 is advantageous in order to supply the microorganisms with a sufficient amount of nitrogen and phosphorus. This is based on the assumption that about 50 % of the degraded organic substances are used for biomass growth and that the biomass consists of about 10 % nitrogen and about 2 % phosphorus.

The total number of inhabitants and population equivalents, or PT for short, corresponds to the following parameters:

Amount of sewage
Formerly, a wastewater accrual of 150 to 200 litres per inhabitant and day were assumed as a load of the water treatment system with sewage. The wastewater accrual is approximately equivalent to the water consumption. For new planning or advance planning, the location-specific water consumption is determined and an estimation is attempted to be made for the future. Usually, wastewater volumes around 130 litres per inhabitant and day are assumed.

This value takes the usual values for dense sewage networks in Central Europe into account. For dimensioning the water treatment system, however, usually an added amount is considered for foreign water (leaky channels, feed from drainage, etc.). This can amount to up to 100 % of the wastewater accrual. The volume of foreign water refers to the connected sealed surface and should not be more than 0.15 l/(s*ha).

In the case of mixed sewer systems (rainwater and wastewater in one channel), the corresponding added amounts for processing the rainwater are to be taken into account, which are usually assumed to be 100 % of the daily peak value during dry weather.

For the hydraulic calculation (number and size of the pumps) of the water treatment system, the daily load curve is also significant. For dimensioning, then, the average daily sewage amount is not to be divided by 24 hours but by a smaller number (10 to 14) for the maximum hourly value.

Degree of contamination

BOD_5
For the BOD_5 value, the biochemical oxygen demand during a measured time of 5 days under standard conditions, that oxygen demand is measured which arises due to the oxidation of organic substances by aerobic microorganisms. It belongs to the so-called sum parameters, since the degradation of single compounds cannot be determined with it.

A usual value for BOD_5 are 60 g per PT and day.
Of this, about 20 g can be removed in the primary clarifier by means of sedimentation.

Chemical oxygen demand
The chemical oxygen demand, or COD for short, is also among the so-called sum parameters, since no individual compounds can be quantified with it. It is determined by means of oxidation of the sewage contents by potassium chromate and measures the oxygen demand for oxidizing a majority of organic substances. If there are also oxydizable inorganic compounds, like sulphites, in the sewage, these are also registered as COD.

This parameter is also used for balancing the system.

For the COD, a value of 120 g per PT and day is assumed.

Nitrogen
In untreated sewage, nitrogen is mainly organically bonded (e.g. in proteins, nucleic acids, urea) and in the form of ammonium ions (NH_4^+) as well as in small amounts in the form of nitrate (NO_3^-) and nitrite ions (NO_2^-).

Here, about 10 to 12 g per PT and day are assumed.

Phosphorus
Phosphorus occurs organically bonded as a phosphate group and as free phosphate ions.

Here, about 1.8 g per PT and day are assumed.

Cost and energy efficiency of Wilo submersible mixers

The right selection

For the operator of water treatment systems, it isn't easy to make a decision for the most economical mixing system. The least expensive investment price should not be the determining factor under any circumstances, but economical mixers should be compared taking all relevant influencing factors into account. This only makes sense, however, when all factors involved in the mixing process have been considered.

Among these are:
- Investment costs
- Installation and commissioning costs
- Energy and operating costs
- Maintenance and repair costs
- Operating failure costs
- Disposal costs

Only once the above-listed influencing factors have been expressed in euros it is possible to make an objective mixer comparison.

Energy costs

Since many mixer applications require permanent operation, the energy costs have a considerable influence. The decisive characteristic quantities of submersible mixer are thrust (F*) and the consumed electric power at the duty point ($P_{1.1}$*).

This allows important power parameters to be determined.

Specific thrust power [N/kW] = thrust [F] / power [$P_{1.1}$]
This parameter can be used to compare the energy efficiency of different products.

Specif. power density = power [$P_{1.1}$ges] / reservoir volume
This parameter is the measure for comparing different mixer designs and gives an indication of the expected energy costs.

Cost calculation

A small calculation example shows that considerable cost savings are possible with a mixer design optimised with regard to energy.

Reservoir volume: 2950 m³
Mixer selection:
- According to investment costs: 3.63 W/m³ (specif. power density)
- Optimized according to operating costs:1.7 W/m³ (specif. power density)

The optimisation according to operating costs brings an advantage of 1.93 W/m³, which corresponds to a savings for this basin of approx. 5700 W.

For an annual operating time of 8760 hours and a kilowatt price of 0.15 €, this means a cost savings of 7480 € per basin per year.

These savings are possible by using highly efficient submersible mixers from Wilo.

Expertise

WILO selects submersible mixers with the help of modern design software for your specific application, and can therefore offer you the most economical alternative. Give us your design-relevant basin and fluid data. Please observe the checklist on the opposite side of this page.

WILO is the right contact partner when economic solutions have to be found at a cost-effective price/performance ratio. We would be happy to offer you optimised solutions with flexible and robust system technology.

From initial planning, over the realisation time period and up to the final acceptance testing, we'll be there for you with an expert team of employees.

We would like to prove our performance to you.
That is "Pumpen Intelligenz".

*in acc. with DIN ISO 21630

Ceram liquid ceramic coating

Modern corrosion and abrasion protection
Units which come into contact with the fluid are subject both to highly corrosive as well as abrasive influences. For this, WILO offers its fluid ceramic coating, Ceram. This provides reliable protection against this type of stress.

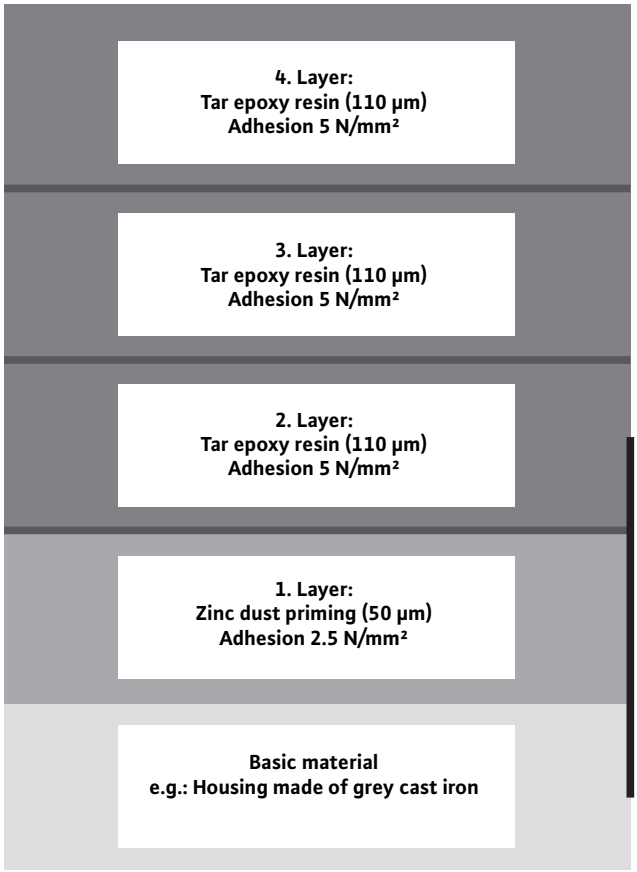
Normal heavy corrosion protection methods, such as zinc dust priming with three coats of tar epoxy resin are so-called onion layer models. The advantage of the zinc dust priming is that the zinc dust sacrifices and the zinc carbonate can seal microscopic cracks. This is referred to as the self-healing effect of the coating. The disadvantage is that the wet adhesion of this zinc dust priming isn't very high. Because of the onion layer model of conventional solvent-containing coatings, the adhesive force depends on the quality of the individual layers.

The Ceram coating, on the other hand, is based on the diamond model. It unifies the positive properties of two materials by combining ceramic particles in one polymer matrix.

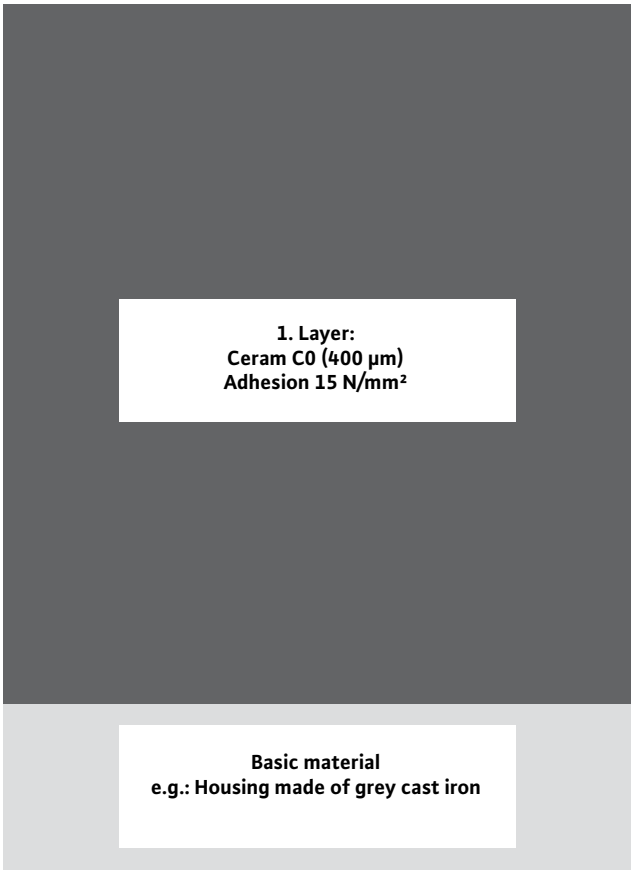
The ceramic particles are enclosed in the matrix. Thus, there are no set breaking points and the adhesion is very high, e.g. in the case of Ceram C0 from 15 N/mm². Since Ceram is solvent-free, these coatings can be applied with one layer.

Ceram coatings are available in four quality levels. These distinguish themselves with regard to their durability against abrasive corrosion. While the corrosion resistance is very good for all four quality levels, the resistance to abrasion increases the higher the ordinal number (C0 = low protection from abrasion; C3 = very good protection from abrasion) of the coating, since coarser and coarser ceramic particles are processed. The individual layers get thicker and thicker and the mixture of large, medium-sized and small aluminium oxide particles is such that even in the case of abrasion with fine sand, the coatings are very stable.

The four Ceram qualities:
- Ceram C0: The coating is applied using the airless method in one layer of 0.4 mm.



The graphics show the structure of a tar epoxy resin coating with a zinc dust priming layer. The coating consists of 4 individual layers with a total coating thickness of 380 µm. The three dark grey lines represent the weak points of this coating. The black line is the intended breaking point.



The graphics show the structure of a Ceram C0 coating. The coating consists of individual layers with a total coating thickness of 400 µm. By applying it using the airless spraying method, a very high surface quality is achieved.

Ceram liquid ceramic coating

- Ceram C1: The coating is applied with a paintbrush and can consist of up to three coats. The layer thickness is then 1.5 mm.
- Ceram C2: The coating is applied with a spatula. The layer thickness is 1.5 mm and consists of one coat.
- Ceram C3: The coating is applied with a spatula. The layer thickness is 3 mm and consists of one coat. For tight gaps/play, a mechanical process is necessary.

For use in special fluids, the individual Ceram qualities can be combined with one another, e.g. C2+C1.

The Ceram coating is also very well suited for use in maritime environments. For its Ceram C0 coating, Wilo grants a warranty of 5 years for use in seawater. The precondition is that the coating is intact.

Increase efficiency, lower costs

Since water is being used more and more conservatively, there are more and more contaminants relative to the amount of water. This means that the concentration of corrosive and abrasive constituents is higher.

Sewage units are always exposed to this aggressive fluid. Corrosion and abrasion influence the surfaces and material structures of the units, sometimes with considerable impairments in the material, and thus also in the performance.

This significantly reduces the hydraulic efficiency. This results in the units having an increased current consumption. For another thing, the pumps no longer work at their optimum, the radial forces increase, there is more stress on the bearings and mechanical seals, and the service life of the machines goes down.

When standard materials are used, such as grey cast iron, under high stress, it may be necessary to exchange the components already after 500 hours of operation. Ceram coatings make it possible to prolong the service life by a factor of 4– and this at the same high efficiency, which means minimum energy costs.

When one considers the overall costs over the entire service life of the pump, the investment cost for a unit coated with Ceram, less than 10 %, is negligible. Also, there is a high savings potential due to fewer necessary repairs, which means a lot fewer system downtimes. The amortization is then usually quickly reached due to the higher efficiency.

Use of the various Ceram qualities

Ceram C0 is used for the complete outer and inner coating. It's excellently suited for corrosion protection.

Ceram C1 is used for the inner coating of pump components. The main area of use here is the impeller and suction piece coating.

Ceram C2 and C3 are used for the inner coating of pump components. The main area of use here is the coating of the pump housing.

In order to guarantee protection even in especially aggressive and corrosive fluids, the Ceram types are combined with each other, e.g. C2+C1 or C3+C1.

Ceram liquid ceramic coating

Ceram C0 Technical data

Description

Ceram C0 is a sprayable, solvent-free two-component polymer coating substance with a ceramic basis for protecting our products against corrosion when there is additional strong mechanical stress.

Composition

Solvent-free epoxy polymer with solvent-free polyamine hardener and various extenders.

Properties

- Tough and durable coating with high mechanical and chemical resistance and very good abrasion strength.
- Excellent wet adhesion and compatibility with cathodic corrosion protection as single-layer coating on steel surfaces.
- Very good adhesion to steel surfaces.
- Replaces tar-containing coatings.
- Cost-saving due to the long service life, low maintenance and easy reparability.
- Tested by the "Bundesanstalt für Wasserbau" (Federal Institute for Hydraulic Engineering) (BAW).
- Solvent-free.
- Hardened coating has a high-gloss finish.

Technical data

Density (mixture) adhesion / steel	ASTM D 792 ISO 4624	1.4 g/cm³ 15 N/mm²
Impact resistance / strength	DIN EN ISO 6272	9 J
Temperature resistance: dry, long-term		60 °C
Temperature resistance: dry, short-term		120 °C
Temperature resistance: wet / liquid	Depending on the fluid; on request	
Solid content (mixture)	Volume Weight	97 % 98 %

Stability table

Fluid	Temperature	Factor
Sewage, alkaline (pH 11)	+20 °C	1
Sewage, alkaline (pH 11)	+40 °C	1
Sewage, slightly acidic (pH 6)	+20 °C	1
Sewage, slightly acidic (pH 6)	+40 °C	1
Sewage, strongly acidic (pH 1)	+20 °C	2
Sewage, strongly acidic (pH 1)	+40 °C	3
Ammonium hydroxide (5%)	+40 °C	3
Decanol (fatty alcohol)	+20 °C	1
Decanol (fatty alcohol)	+50 °C	1
Ethanol (40%)	+20 °C	1
Ethanol (96%)	+20 °C	3
Ethylene glycol	+20 °C	1
Heating oil/diesel	+20 °C	1
Compressor oil	+20 °C	1

Stability table

Fluid	Temperature	Factor
Methyl-ethyl-ketone (MEK)	+20 °C	3
Sodium hydroxide (5%)	+20 °C	1
Sodium hydroxide (5%)	+50 °C	2
Sodium chloride solution (10%)	+20 °C	1
Hydrochloric acid (5%)	+20 °C	2
Hydrochloric acid (10%)	+20 °C	2
Hydrochloric acid (20%)	+20 °C	3
Sulphuric acid (10%)	+20 °C	2
Sulphuric acid (20%)	+20 °C	3
Nitric acid (5%)	+20 °C	3
Toluene	+20 °C	2
Water (cooling/industrial water)	+50 °C	1
Xylene	+20 °C	1

Key: 1 = stable; 2 = stable, short-term; 3 = overflow-stable, immediate cleaning; 4 = not recommended for direct contact

Ceram liquid ceramic coating

Ceram C1 Technical data

Description

Ceram C1 is a cold-hardening, solvent-free ceramic compound material based on two components with selected reinforcement fillers and extenders.

Composition

Polymer/ceramic compound material made of a matrix and reinforcement.
Matrix: A modified polymer made up of two parts with an aliphatic hardening agent.
Reinforcement: A mixture (protected by proprietary rights) made up of aluminium oxide and extenders.
This ceramic mixture has excellent abrasion strength and can be applied very easily.

Properties

- The completely hardened Ceram coating C1 has a glossy finish, has no pores and is easy to clean, mechanically very stable, abrasion-proof and has excellent adhesion.
- Ceram C1 hardens without shrinking and is stable against a large number of chemicals, oils, greases, solvents, diluted organic and inorganic acids and bases and saline solutions.
- Ceram C1 reduces friction and improves flow and efficiency.
- Excellent corrosion protection.

Technical data		
Hardness	Buchholz	115
Density / mixture	ASTM D 792	1.4 g/cm³
Shrinkage during hardening	ASTM D 2566	0.002 mm/cm
Tension / shear resistance	ASTM D 1002	13.8 N/mm²
Tensile strength / ultimate strain	ASTM D 638	26.2 N/mm²
Compressive strength	ASTM D 695	60 N/mm²
Bending strength	ASTM D 790	55.2 N/mm²
Adhesion / steel	ISO 4624	13.8 N/mm²
Impact resistance / strength	ASTM D 256	11 J/m
Coefficient of linear expansion	ASTM D 696	34.5 x 10^{-61} 1/K
Electric resistance	ASTM D 257	8 Ω cm
Heat conductance	ASTM C 177	0.7 W/m x K
Porosity test	Test stress	5 V/µm Layer thickness
Temperature stability, dry	ASTM D 648	140 °C
Temperature stability, wet	ASTM D 648	60 °C

Stability table	
Fluid	**Factor**
Acids	
10 % sulphuric acid	2
20 % sulphuric acid	3
5 % hydrochloric acid	1
10 % hydrochloric acid	2
20 % hydrochloric acid	3
5 % nitric acid	1
10 % nitric acid	3
5 % phosphoric acid	1
20 % phosphoric acid	3
Bases and bleaches	
10 % sodium hydroxide	1
50 % sodium hydroxide	1
5 % ammonia	2
28 % ammonium hydroxide	1
10 % potassium hydroxide	1
50 % potassium hydroxide	1
6 % fixing salt	1
5 % soap solution	1
Cement mortar / concrete	1
Other compounds	
Isopropanol	1
Kerosene	1
Naphtha	1
Salt water	1
Sewage	1
Toluene	1
Xylene	1
Bunker C	1
Diesel oil	1

Tested at 20 °C. Sample hardened 12 days at 20 °C. Longer hardening improves the chemical resistance.
Key: 1 = stable; 2 = stable, short-term; 3 = overflow-stable, immediate cleaning; 4 = not recommended for direct contact

Ceram liquid ceramic coating

Ceram C2 Technical data

Description

Ceram C2 is a high-performance ceramic compound material for repairing and protecting all metal surfaces which are subject to abrasion, corrosion, cavitation and chemical exposure. Ceram C2 is applied with a coating thickness of 1.5 mm. It does not shrink and consists of almost 100 % solids. Ceram C2 contains a high percentage of carbides for use under extremely abrasive operating conditions which involve complex and expensive repair measures. The material can either be used for restoring abraded metal surfaces or as a preventive coating which is superior to the original metal with regard to abrasive strength. Ceram C2 can be used instead of metal application, tiles, rubber fillers, etc. The thermal load capacity is outstanding.

Composition

Polymer/ceramic compound material made of a matrix and reinforcement.
Matrix: A modified polymer made up of two parts with an aliphatic hardening agent.
Reinforcement: A mixture (protected by proprietary rights) made up of aluminium oxide and silicon carbide particles.
This ceramic mixture has excellent abrasion strength and can be applied very easily.

Properties

Excellent abrasion resistance ensures long operation and usually lasts longer than a welded-on metal coating. Can be easily moulded to any metal surface.
Its tough synthetic resin structure resists temperature shocks and impacts.
Excellent adhesion ensures reliability and prevents stripping.
Simple application reduces work expenses and downtimes.
Withstands chemically varying operating conditions when metals fail.
Practical 4:1 weight and volume mixture ratio.

Technical data

Hardness	Shore D	90
Density	ASTM D 792	1.85 g/cm²
Shrinkage during hardening	ASTM D 2566	0 mm/cm
Tension / shear resistance	ASTM D 1002	13.24 N/mm²
Tensile strength / ultimate strain	ASTM D 638	27 N/mm²
Compressive strength	ASTM D 695	103.4 N/mm²
Bending strength	ASTM D 790	69.0 N/mm²
Adhesion / steel	ASTM C 633	---
Impact resistance / strength	ASTM D 256	3.3 J/m
Coefficient of linear expansion	ASTM D 696	---
Electric resistance	ASTM D 257	---
Heat conductance	ASTM C 177	---
Electric dielectric strength	ASTM D 149	4 KV/mm
Temperature stability, dry	ASTM D 648	250 °C
Temperature stability, wet	ASTM D 648	80 °C

Stability table

Fluid	Factor
Acids	
10 % sulphuric acid	1
20 % sulphuric acid	2
5 % hydrochloric acid	1
10 % hydrochloric acid	2
20 % hydrochloric acid	3
5 % acetic acid	2
10 % acetic acid	4
Bases and bleaches	
10 % sodium hydroxide	1
30 % sodium hydroxide	1
28 % ammonium hydroxide	1
10 % potassium hydroxide	1
50 % potassium hydroxide	1
Other compounds	
Isopropyl alcohol	1
Kerosene	1
Naphtha	1
Salt water	1
Sewage	1
Toluene	1
Xylene	1
Bunker C	1
Diesel	1

Tested at 20 °C. Sample hardened 7 days at 20 °C. Longer hardening improves the chemical resistance.
Key: 1 = stable; 2 = stable, short-term; 3 = overflow-stable, immediate cleaning; 4 = not recommended for direct contact

Ceram liquid ceramic coating

Ceram C3 Technical data

Description

Ceram C3 is a high-performance ceramic compound material for repairing and protecting all metal surfaces which are subject to abrasion, corrosion, cavitation and chemical exposure. Ceram C3 is applied with a coating thickness of 3 mm. It does not shrink and consists of almost 100 % solids. Ceram C3 contains a high percentage of carbides for use under extremely abrasive operating conditions which involve complex and expensive repair measures. The material can either be used for restoring abraded metal surfaces or as a preventive coating which is superior to the original metal with regard to abrasive strength. Ceram C3 can be used instead of metal application, rubber fillers, etc.

Composition

Polymer/ceramic compound material made of a matrix and reinforcement.
Matrix: A modified polymer made up of two parts with an aliphatic hardening agent.
Reinforcement: A mixture (protected by proprietary rights) made up of aluminium oxide and silicon carbide particles.
This ceramic mixture has excellent abrasion strength and can be applied very easily.

Properties

- Excellent abrasion resistance ensures long operation and usually lasts longer than a welded-on metal coating.
- Its tough synthetic resin structure resists temperature shocks and impacts.
- Excellent adhesion ensures reliability and prevents stripping.
- Simple application reduces work expenses and downtimes.
- Withstands chemically varying operating conditions when metals fail.
- Can be easily moulded to any metal surface.
- Practical 4:1 weight and volume mixture ratio.

Technical data		
Hardness	Shore D	90
Density	ASTM D 792	1.87 g/cm²
Shrinkage during hardening	ASTM D 2566	0 mm/cm
Tension / shear resistance	ASTM D 1002	17 N/mm²
Tensile strength / ultimate strain	ASTM D 638	29.7 N/mm²
Compressive strength	ASTM D 695	103 N/mm²
Bending strength	ASTM D 790	69 N/mm²
Adhesion / steel	ASTM C 633	15.9 N/mm²
Impact resistance / strength	ASTM D 256	12 J/m
Coefficient of linear expansion	ASTM D 696	61.8 x 10^{-61} 1/K
Electric resistance	ASTM D 257	8 W cm
Heat conductance	ASTM C 177	0.75 w/m x K
Electric dielectric strength	ASTM D 149	13.4 KV/mm
Temperature stability, dry	ASTM D 648	190 °C
Temperature stability, wet	ASTM D 648	65 °C

Stability table	
Fluid	**Factor**
Acids	
10 % sulphuric acid	1
20 % sulphuric acid	2
5 % hydrochloric acid	1
10 % hydrochloric acid	2
20 % hydrochloric acid	3
5 % acetic acid	2
10 % acetic acid	4
Bases and bleaches	
10 % sodium hydroxide	1
30 % sodium hydroxide	1
28 % ammonium hydroxide	1
10 % potassium hydroxide	1
50 % potassium hydroxide	1
Other compounds	
Isopropyl alcohol	1
Kerosene	1
Naphtha	1
Salt water	1
Sewage	1
Toluene	1
Xylene	1
Bunker C	1
Diesel	1

Tested at 20 °C. Sample hardened 7 days at 20 °C. Longer hardening improves the chemical resistance.
Key: 1 = stable; 2 = stable, short-term; 3 = overflow-stable, immediate cleaning; 4 = not recommended for direct contact

Ex protection

Wilo submersible mixers and re-circulation pumps are approved for use in potentially explosive areas. For this, the units are certified according to two different standards: The European ATEX standard as well as the American FM standard.

Atex standard

The units are constructed according to the "EU directive 94/09/EG" (ATEX 95) and the European standards DIN EN 60079°-0, EN 60079°-1 They may be operated in potentially explosive atmospheres which require electrical devices of device group II, category 2.

Thus, use in zone 1 and zone 2 is possible. These units may not be used in zone 0.

Wilo submersible mixers and re-circulation pumps are characterized as follows: II 2 G Ex d IIB T4

- II = Device group II
  Meaning: Meant for potentially explosive locations except for mines
- 2 = Category
- G = Substance group
  Meaning: Gases
- Ex = Ex-protected device in acc. with European standard
- d = Ignition protection class, motor housing
  Meaning: Pressure-proof enclosure
- IIB = Explosion group
  Meaning: For use together with gases of subdivision B, all gases except for H2, C2H2, CS2
- T4 = Temperature class
  Meaning: Max. surface temperature of the device is 135 °C

FM standard

The units are certified and approved by the recognized testing and approval authority "FM Approvals" in accordance with the standards FM 3600, 3615, 3615.80 and ANSI/UL-1004. They may be operated in potentially explosive areas which require electrical devices with the protection class "explosion-proof, class 1, division 1". Thus, operation in areas with the required protection class "explosion-proof, class 1, division 2" according to the FM standard is also possible.

Wilo submersible mixers and re-circulation pumps are characterized as follows:
Class 1; Division 1; Groups C, D
Class 2; Division 1; Groups E, F, G
Class 3
T3C

- Class 1; Division 1; Groups C, D
  Meaning: Gases, vapours, mists; Explosive atmosphere present constantly or occasionally during normal conditions; Gas groups: Ethylene (C), propane (D)
- Class 2; Division 1; Groups E, F, G
  Meaning: Dusts; Explosive atmosphere present constantly or occasionally during normal conditions; Dust groups: Metal (E), carbon (F), grain (G)
- Class 3
  Meaning: Fibres and lint
- T3C = Temperature class
  Meaning: Max. surface temperature of the machine 160 °C

Temperature monitoring

Standard explosion-certified motors are equipped with a temperature monitor. This includes:

- Motors of size T 12 and T 13
  Winding: Temperature limiter 140 °C
- Motors of size T 17 and T 20
  Temperature controller 130 °C, temperature limiter 140 °C

The temperature monitor is to be connected so that automatic reactivation can occur when the "temperature controller" is triggered. When the "temperature limiter" is triggered, the reactivation should only be possible when the "release button" has been pressed by hand.

Frequency converter operation

For operation with a frequency converter, the motors must be equipped with a PTC thermistor temperature sensor. Specify the intended use when making your order so that we can equip the motors accordingly.

Sealing chamber control

The units can be equipped with external sealing chamber control. This can also be installed later. If the unit is equipped with an external sealing chamber control, this may only be connected to an intrinsically safe electric circuit.

Definition of the Ex zones

The Ex zones are defined in the respective standards. The marking of zones in the operating area of the units must be done by the operator. When ordering, indicate which Ex standard you are using as a basis and in which zone you want to operate the unit.

Contents

Mixers

Submersible Mixers

Mixers

Series overview Wilo-EMU Miniprop, Uniprop, Maxiprop, Megaprop

Series: Wilo-EMU Miniprop

> Submersible mixer
> Application:
- Swirling of deposits and solids in pump shafts and rain reservoirs
- Prevention of floating sludge layers

Series: Wilo-EMU Uniprop - directly driven

> Submersible mixer
> Application:
- Swirling of deposits and solids in pump shafts and rain reservoirs
- Prevention of floating sludge layers

Series: Wilo-EMU Uniprop - with gear

> Submersible mixer
> Application:
- Generation of flow
- Suspension of solids
- Homogenisation
- Prevention of floating sludge layers

Series: Wilo-EMU Maxiprop / Megaprop

> 2- or 3- submersible mixer with blades
> Application:
- Generation of flow
- Suspension of solids
- Homogenisation

Series overview Wilo-EMU Miniprop, Uniprop, Maxiprop, Megaprop

Series: Wilo-EMU Miniprop

> Product advantages:
- Low power consumption
- Wall and floor fixation
- Fixation via pipe adapters in narrow shafts
- Self-cleaning propellers with helix hub
- Propeller in steel or PUR version
- Propeller diameter from 140 mm to 280 mm
- Optionally with sealing chamber control and Ceram coating

> Additional information: **Page**

Series: Wilo-EMU Uniprop – directly driven

> Product advantages:
- Small propeller diameter for wall and floor fixation
- Installation via lowering device
- Operation at different angles and heights for optimum flow generation
- Self-cleaning propellers with helix hub
- Propeller in cast iron, steel or PUR version
- Propeller diameter from 220 mm to 400 mm
- Optionally with sealing chamber control and Ceram coating

> Additional information: **Page**

Series: Wilo-EMU Uniprop – with gear

> Product advantages:
- 1-stage planetary gear for adapting the propeller speed
- Installation via lowering device
- Operation at different angles and heights for optimum flow generation
- Self-cleaning propeller blades
- Propeller in steel, PUR or GFK/PUR version
- Propeller diameter from 500 mm to 900 mm
- Optionally with sealing chamber control and Ceram coating

> Additional information: **Page**

Series: Wilo-EMU Maxiprop / Megaprop

> Product advantages:
- 2-stage planetary gear for adapting the propeller speed
- Installation via tripod unit
- Free placement for optimum flow generation
- Self-cleaning propeller blades, individually exchangeable
- Propeller in GFK version
- Propeller diameter from 1500 mm to 2400 mm
- Optionally with sealing chamber control and Ceram coating

> Additional information: **Page**

Series description Wilo-EMU Miniprop

Wilo-EMU Miniprop
Submersible mixer

Type key

Example: **Wilo-EMU TR 14.145-4/6 S17**

TR	Submersible mixer
14	x10 propeller diameter [mm]
145	x10 propeller speed [rpm]
4	No. of poles
6	x10 package length [mm]
S17	propeller code for steel propeller (without = PUR propeller)

Application

TR 14 ... 28
Despite their compact dimensions, the directly driven MINIPROP mixers offer maximum output within a minimum amount of space. Due to their small dimensions, they are excellently suited for use in pump shafts or rain spillway basins with small installation openings. Later installation in existing buildings proves to be very easy.

Due to the small propeller diameter, installation at the basin floor is possible, which makes operation possible even when water levels are low. For special applications in pump shafts, the submersible mixer can be installed on the basin wall or ceiling via a flexible pipe bracket.

There are many areas of application and, in the case of problematic fluids, can also be found in water treatment technology, industry, agriculture and water supply. Among these are mainly the destruction of floating sludge layers and the cleaning of pump sumps.

Construction

Propeller
2-bladed propeller made of PUR or rust-proof steel (see overview matrix). Propeller diameter from 140 mm to 280 mm entwining-free construction due to backward-curved incoming flow edge and patented helix hub.

Motor
Air-filled dry motor of the T-series. The motor heat is given off directly to the fluid via the housing. The housing parts are made of grey cast iron. The screwed connections are made of rust-proof steel. The winding is equipped with a temperature monitor.

Sealing
Double shaft sealing with sealing chamber, on the motor and fluid side, with a corrosion-resistant and wear-proof mechanical seal made of the solid material silicon carbide.

Cable
The power cable is type H07 for heavy mechanical loads. The power cable is inserted in the motor housing via a water pressure-tight cable inlet with strain relief and bend protection.

Options

- Thermistors, cold type
- Internal or external sealing chamber control
- Liquid ceramic coating Ceram C0
- Ex protection in accordance with ATEX or FM
- Cable length as per customer request

Series description Wilo-EMU Miniprop

Technical set-up

Motor
Wilo submersible motor of the T-series with standard connection, and therefore simple, efficient adaptation of the motor power classes

Cable inlet
Water pressure-tight, encapsulated cable inlet with strain relief

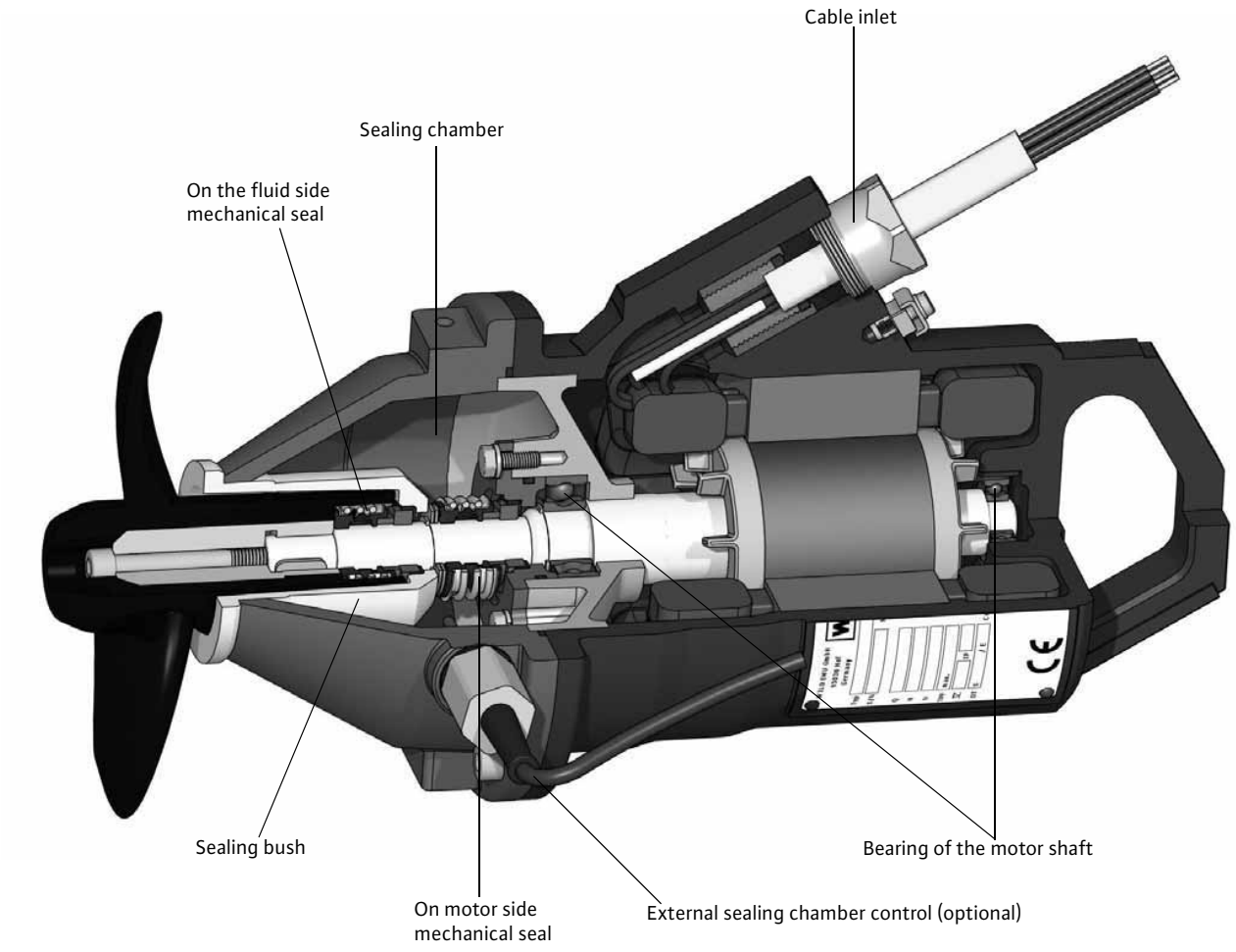
Motor bearings
Large dimensioned grooved ball bearings guarantee a long service life

Sealing chamber
Large volume sealing chamber for accommodating the leakage of the mechanical seal; upon request also with internal or external sealing chamber control; there are no bearings or gear wheels in the sealing chamber

Sealing
On the fluid and motor side by mechanical seal made of solid material silicon carbide

Sealing bush
Made of stainless steel, guarantees long-term corrosion-protected fit of the mechanical seal

Propeller
2-bladed propeller; entwining-free construction due to backward-curved incoming flow edge and patented helix hub. The propeller blades are permanently fixed, which guarantees the best possible hydraulic efficiency.

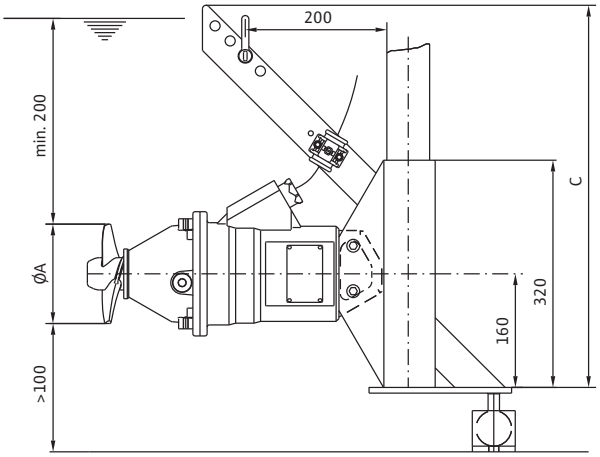


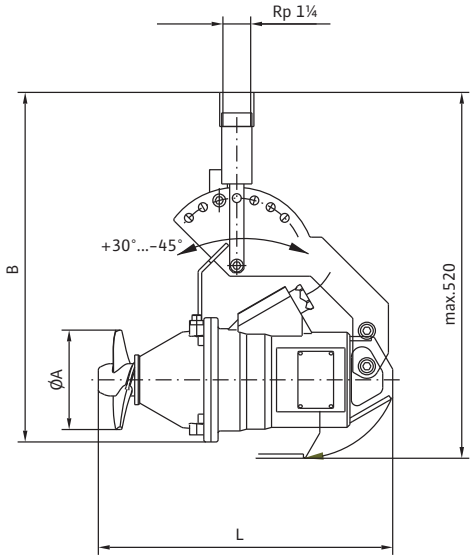
Submersible Mixers

MINIPROP Mixers

Wilo-EMU TR 14

Dimension drawing





Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 14.145-4/6	140	495	540	415	20

Wilo-EMU TR 14

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 14.145-4/6	T 12-4/6G	0.24	1336	1.000	45

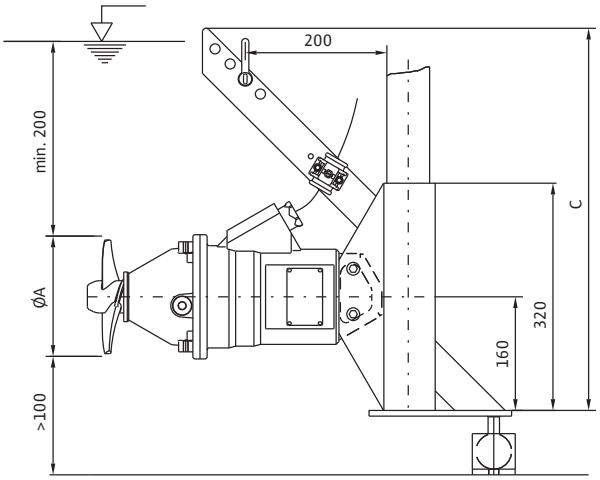
Motor data

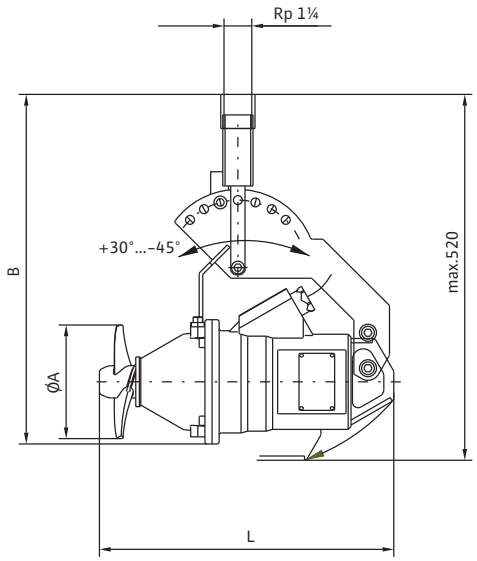
Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 12-4/6G	0.50	0.73	1.42	1336	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU TR 16

Dimension drawing





Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 16.145-4/6	160	495	540	415	20

Wilo-EMU TR 16

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 16.145-4/6	T 12-4/6G	0.30	1336	1.000	65

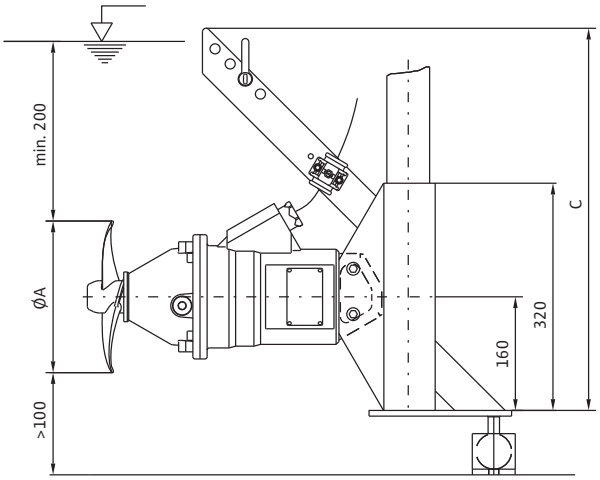
Motor data

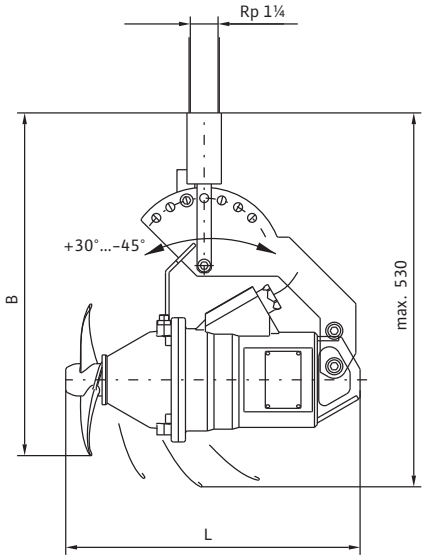
Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 12-4/6G	0.50	0.73	1.42	1336	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU TR 21

Dimension drawing





Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 21.145-4/6	220	480	540	415	20
TR 21.145-4/11	220	480	540	470	26
TR 21.145-4/6 S5	210	480	540	415	22
TR 21.145-4/11 S10	210	480	540	470	28

Wilo-EMU TR 21

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 21.145-4/6	T 12-4/6G	0.45	1336	1.000	100
TR 21.145-4/11	T 12-4/11G	0.50	1392	1.000	110
TR 21.145-4/6 S5	T 12-4/6G	0.50	1336	1.000	100
TR 21.145-4/11 S10	T 12-4/11G	0.85	1392	1.000	175
TR 21.145-4/11 S14	T 12-4/11G	1.20	1392	1.000	240

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 12-4/6G	0.50	0.73	1.42	1336	ATEX, FM
T 12-4/11G	1.30	1.74	3.30	1392	ATEX, FM

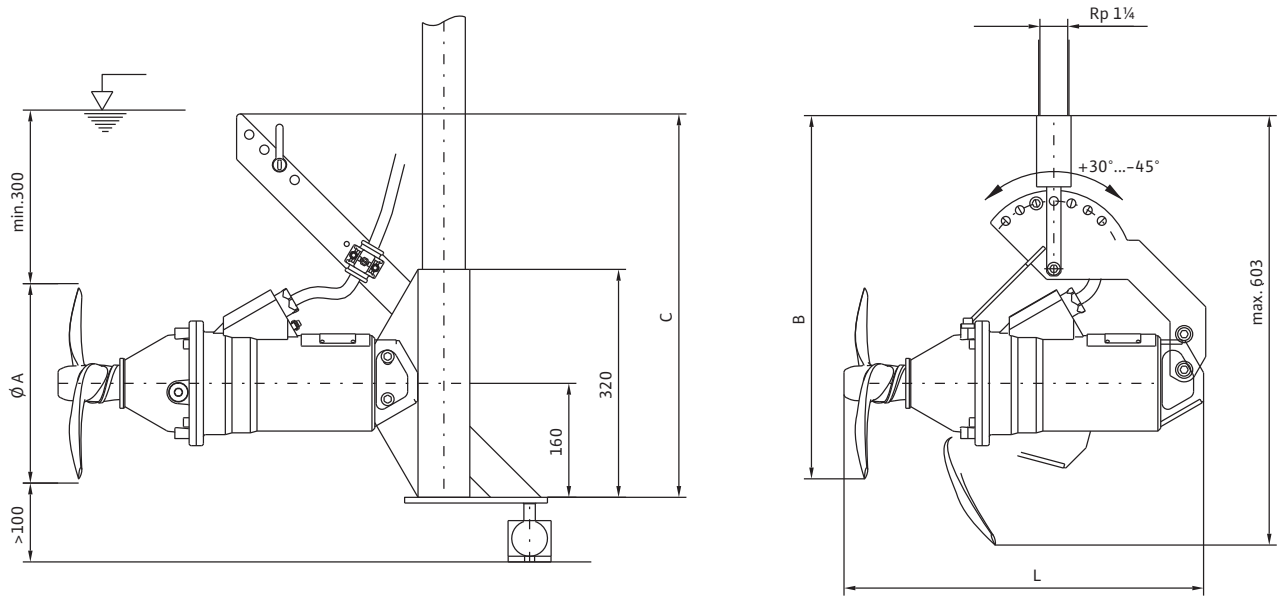
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Submersible Mixers

MINIPROP Mixers

Wilo-EMU TR 28

Dimension drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 28.145-4/11	280	515	540	507	27

Wilo-EMU TR 28

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 28.145-4/11	T 12-4/11G	1.40	1392	1.000	360

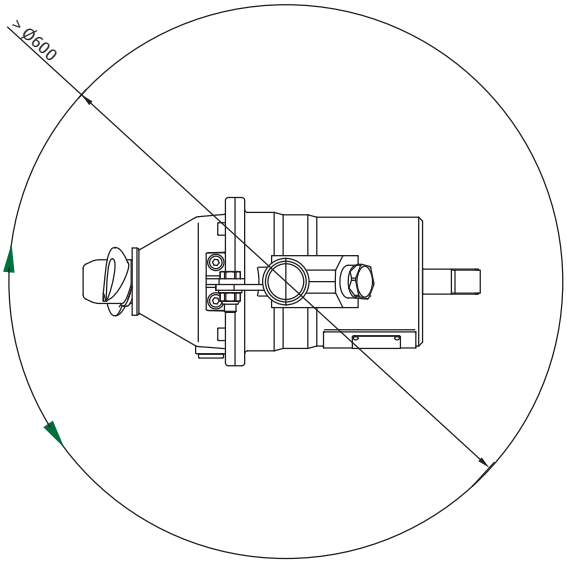
Motor data

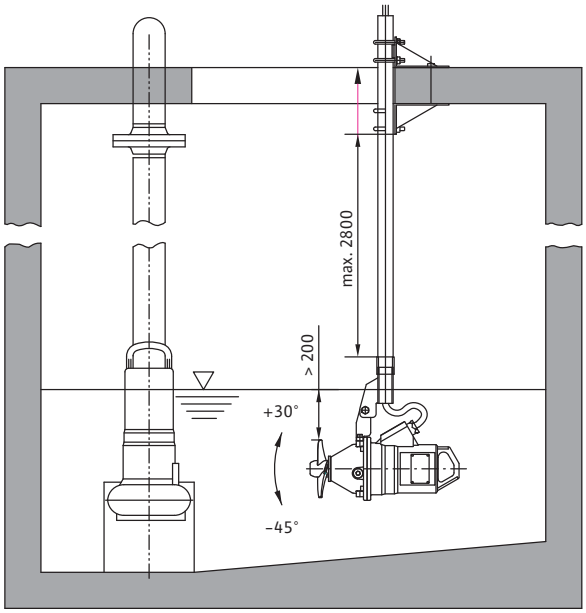
Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 12-4/11G	1.30	1.74	3.30	1392	ATEX, FM

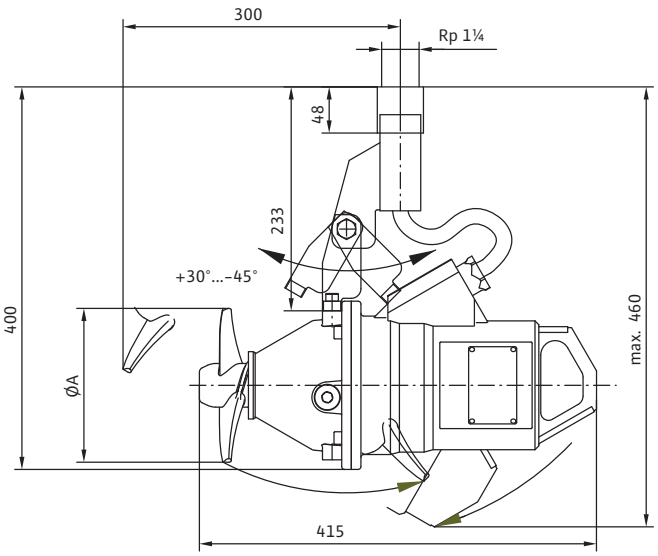
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Installation example

Wilo-EMU Mixer TR 14 with pipe installation

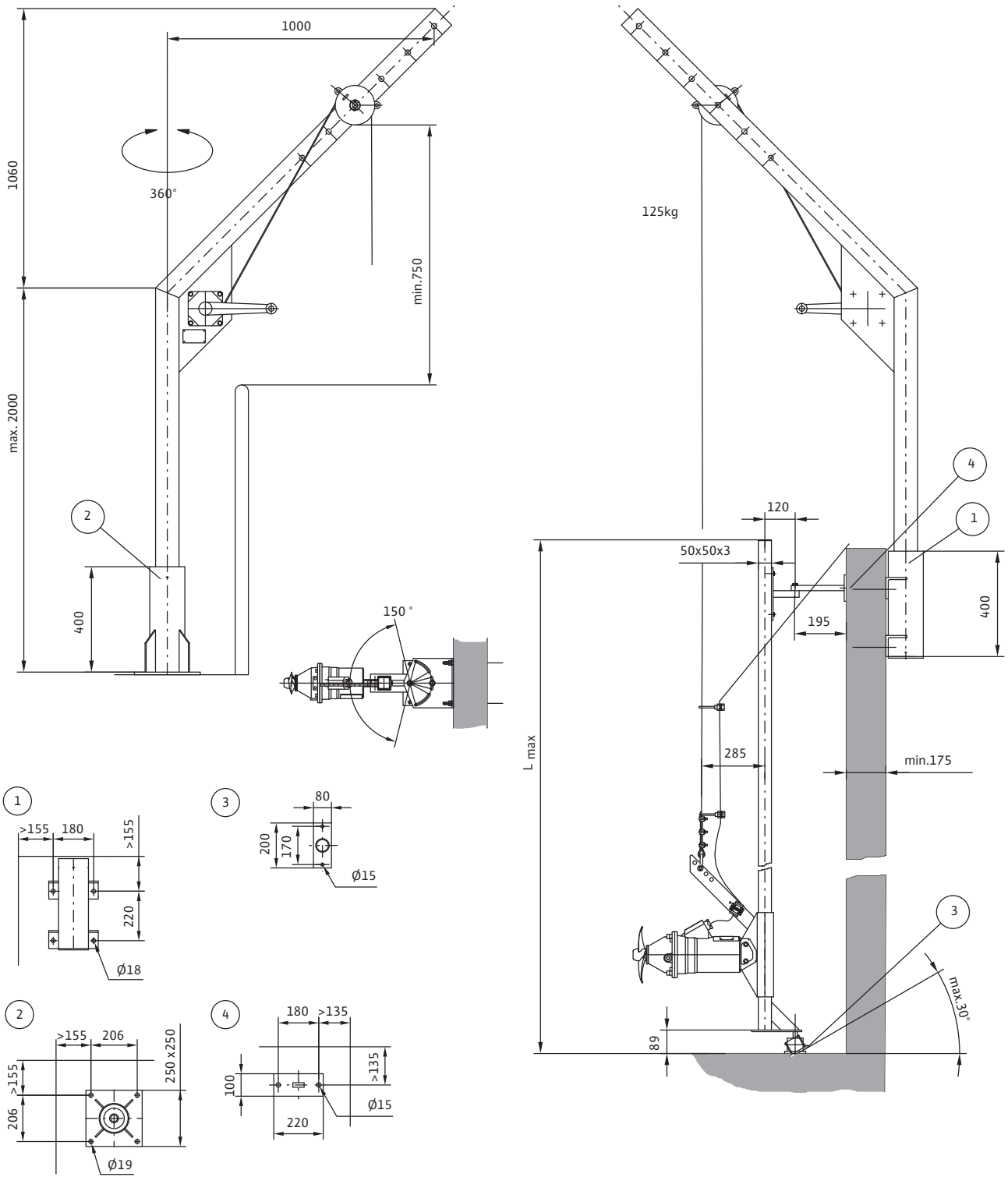




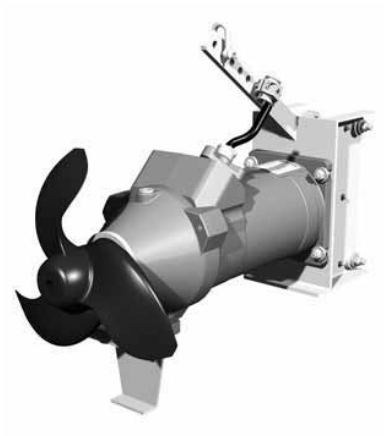


Installation example

Wilo-EMU Mixer TR 21 with lowering device AVU50



Series description Wilo-EMU Uniprop – directly driven



Wilo-EMU Uniprop
Submersible mixers

Type key

Example: **Wilo-EMU TR 36.95-6/8 S17**

TR	Submersible mixer
36	x10 propeller diameter [mm]
95	x10P propeller speed [rpm]
6	No. of poles
8	x10 package length [mm]
S17	Propeller code for steel propellers (without = PUR propeller)

Application

TR 22 ... 40
Despite their compact dimensions, the directly driven Uniprop mixers offer maximum output within a minimum amount of space. Due to their small dimensions, they are excellently suited for use in pump shafts or rain spillway basins with small installation openings. Later installation in existing buildings proves to be very easy.

Due to the smaller propeller diameter, installation at the basin floor is possible, which makes operation possible even when water levels are low. Furthermore, these submersible mixers can also be installed via flexible lowering devices.

There are many areas of application and, in the case of problematic fluids, can also be found in water treatment technology, industry and agriculture. Among these are mainly the destruction of floating sludge layers and the cleaning of pump sumps.

Construction

Propeller
2- or 3-bladed propeller made of PUR or rust-proof steel (see overview matrix). Propeller diameter from 220 mm to 400 mm entwining-free construction due to backward-curved incoming flow edge, PUR propeller with helix hub.

Motor
Air-filled dry motor of the T-series. The motor heat is given off directly to the fluid via the housing. The housing parts are made of grey cast iron. The screwed connections are made of rust-proof steel. The winding is equipped with a temperature monitor.

Sealing
Double shaft sealing with sealing chamber, on the fluid side, with a corrosion-resistant and wear-proof mechanical seal made of the solid material silicon carbide. The sealing on the motor side is realized with a radial shaft seal.

Cable
The power cable is type H07 for heavy mechanical loads. The power cable is inserted in the motor housing via a water pressure-tight cable inlet with strain relief and bend protection. The individual wires as well as the cable sheath are additionally sealed to keep out fluids.

Options

- Thermistors, cold type
- External sealing chamber control
- Liquid ceramic coating Ceram C0
- Ex protection in accordance with ATEX or FM
- Cable length as per customer request

Series description Wilo-EMU Uniprop - directly driven

Technical set-up

Motor
Wilo submersible motor of the T-series with standard connection, and therefore simple, efficient adaptation of the motor power classes

Cable inlet
Water pressure-tight, encapsulated cable inlet with strain relief

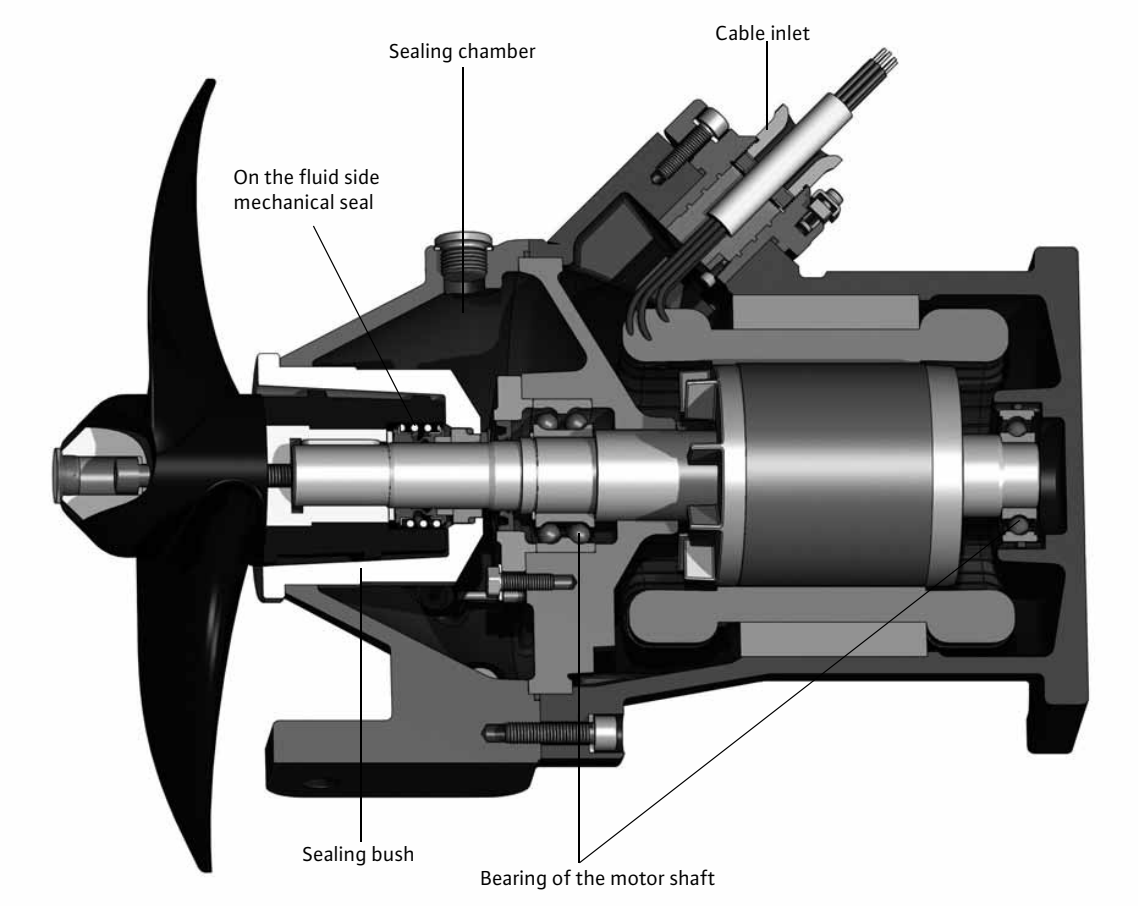
Motor bearings
Large dimensioned inclined and grooved ball bearings guarantee a long service life

Sealing chamber
Large volume sealing chamber for accommodating the leakage of the mechanical seal; upon request also with internal or external sealing chamber control; there are no bearings or gear wheels in the sealing chamber

Sealing
On the fluid side by means of a mechanical seal made of the solid material silicon carbide; on the motor side by a radial shaft seal.

Sealing bush (TR 36/40)
Made of stainless steel, guarantees long-term corrosion-protected fit of the mechanical seal

Propeller
2- or 3-bladed propeller; entwining-free construction due to backward-curved incoming flow edge. The propeller blades are permanently fixed, which guarantees the best possible hydraulic efficiency.

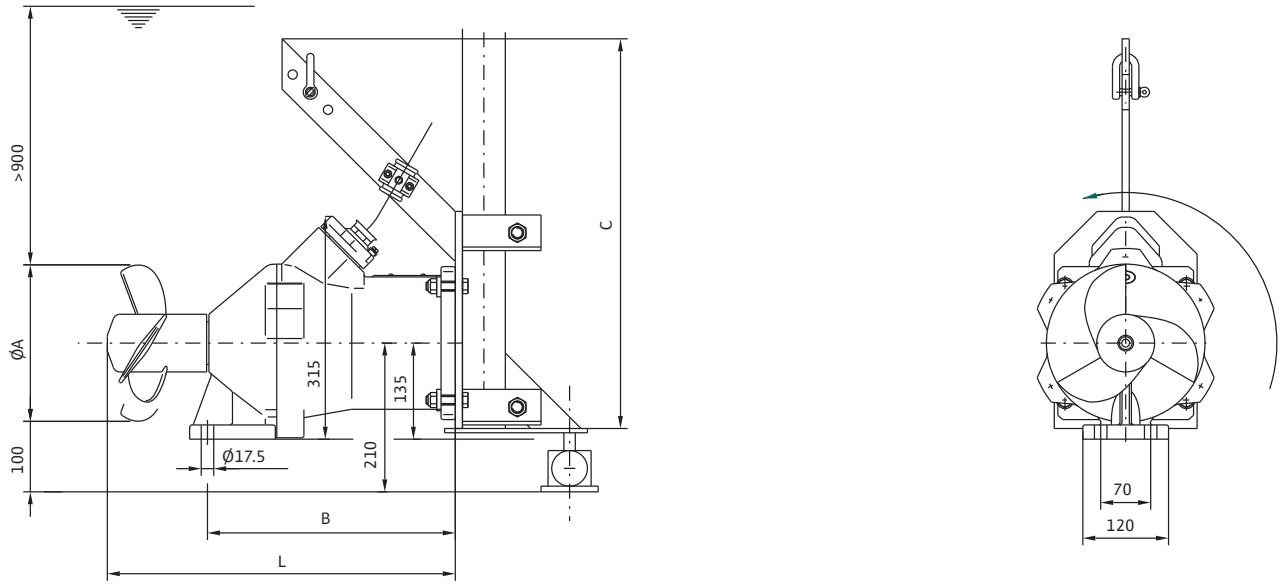


Submersible Mixers

UNIPROP Mixers

Wilo-EMU TR 22

Dimension Drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 22.95-6/8	220	347	545	487	70
TR 22.145-4/8V	220	347	545	487	70
TR 22.145-4/8	220	347	545	487	70
TR 22.145-4/12	220	382	545	522	78

Wilo-EMU TR 22

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 22.95-6/8	T 17-6/8R	1.40	915	1.000	230
TR 22.145-4/8V	T 17-4/8V	2.40	1400	1.000	400
TR 22.145-4/8	T 17-4/8R	3.20	1410	1.000	460
TR 22.145-4/12	T 17-4/12R	3.20	1405	1.000	460

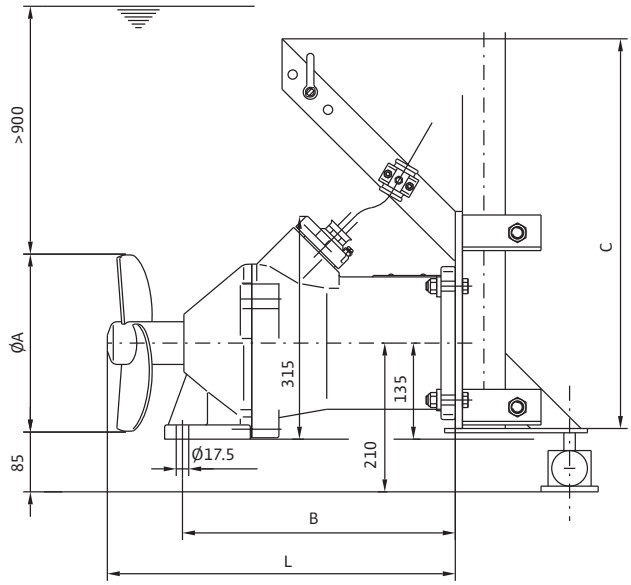
Motor data

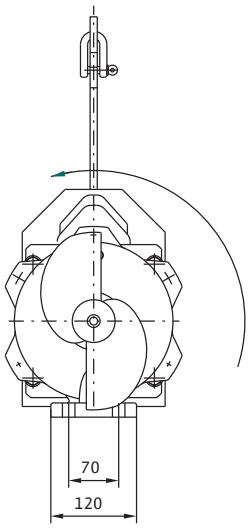
Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU TR 25

Dimension Drawing





Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 25.74-8/8	250	347	545	452	65
TR 25.95-6/8	250	347	545	452	65
TR 25.145-4/12	250	382	545	487	73

Wilo-EMU TR 25

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 25.74-8/8	T 17-8/8R	1.40	700	1.000	200
TR 25.95-6/8	T 17-6/8R	2.20	915	1.000	340
TR 25.145-4/12	T 17-4/12R	4.90	1405	1.000	600

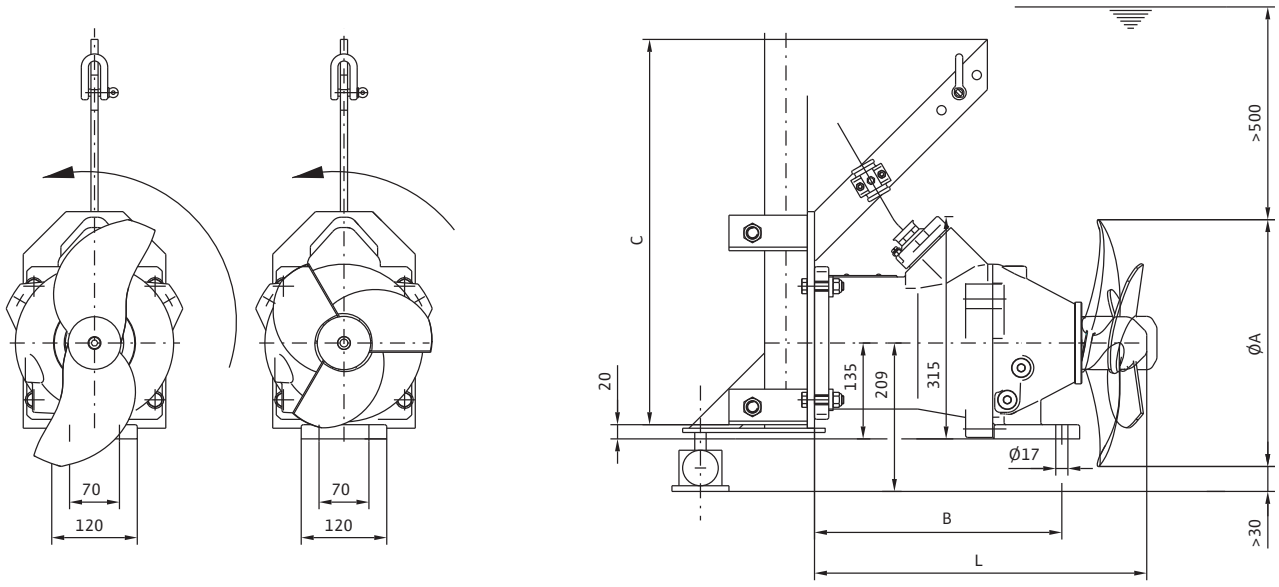
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-8/8R	1.10	1.67	3.20	700	ATEX, FM
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU TR 36

Dimension Drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 36.74-8/8	360	347	545	466	61
TR 36.95-6/8	360	347	545	466	61
TR 36.145-4/12	360	382	545	501	69
TR 36.74-8/8 S21	250	347	545	480	65
TR 36.95-6/8 S17	250	347	545	480	65
TR 36.145-4/12 S12	250	382	545	515	73
TR 36.145-4/12 S17	250	382	545	515	73
TR 36.145-4/16	360	420	545	539	80
TR 36.145-4/16 S17	250	420	545	553	84
TR 36.145-4/16 S21	250	420	545	553	84

Wilo-EMU TR 36

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 36.74-8/8	T 17-8/8R	0.65	700	1.000	220
TR 36.95-6/8	T 17-6/8R	1.25	915	1.000	380
TR 36.145-4/12	T 17-4/12R	4.45	1405	1.000	820
TR 36.74-8/8 S21	T 17-8/8R	1.10	700	1.000	225
TR 36.95-6/8 S17	T 17-6/8R	1.60	915	1.000	325
TR 36.145-4/12 S12	T 17-4/12R	3.75	1405	1.000	565
TR 36.145-4/12 S17	T 17-4/12R	5.10	1405	1.000	700
TR 36.145-4/16	T 17-4/16R	4.45	1400	1.000	820
TR 36.145-4/16 S17	T 17-4/16R	5.20	1400	1.000	720
TR 36.145-4/16 S21	T 17-4/16R	6.95	1400	1.000	825

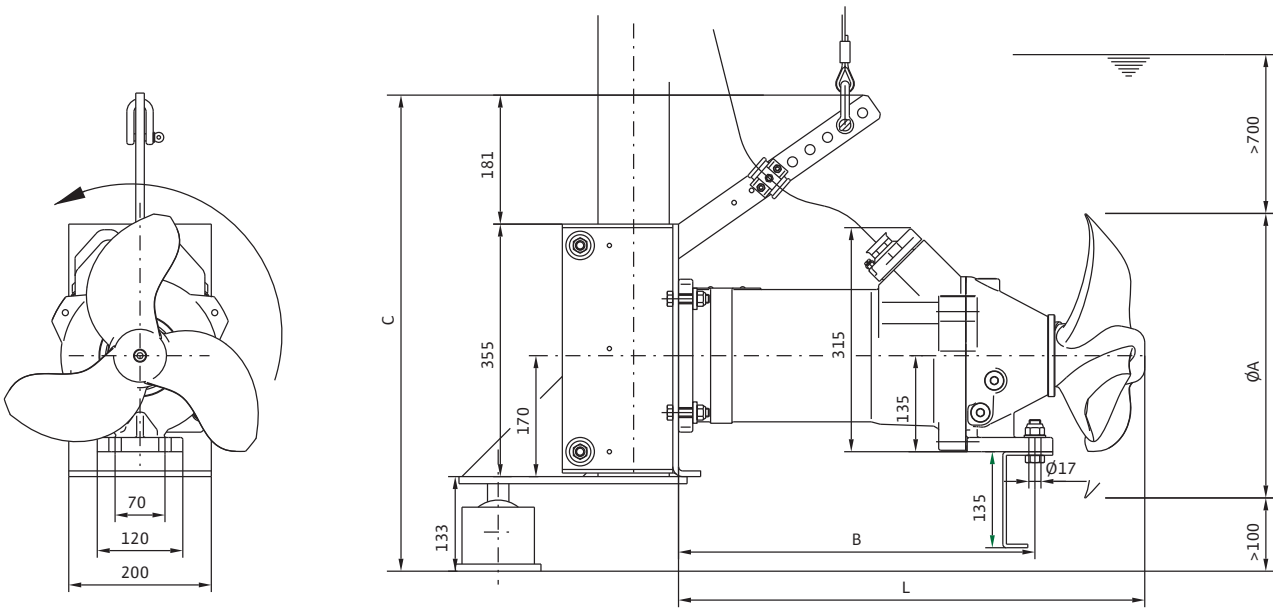
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-8/8R	1.10	1.67	3.20	700	ATEX, FM
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM
T 17-4/16R	6.50	8.20	13.50	1400	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU TR 40

Dimension Drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 40.74-8/16	400	420	669	574	84
TR 40.74-8/24	400	500	669	654	93
TR 40.95-6/24	400	500	669	645	93

Wilo-EMU TR 40

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 40.74-8/16	T 17-8/16R	2.40	710	1.000	640
TR 40.74-8/24	T 17-8/24R	2.70	705	1.000	670
TR 40.95-6/24	T 17-6/24R	5.00	927	1.000	1160

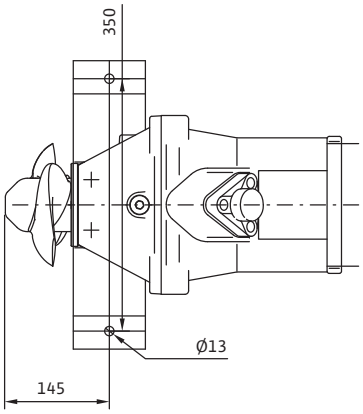
Motor data

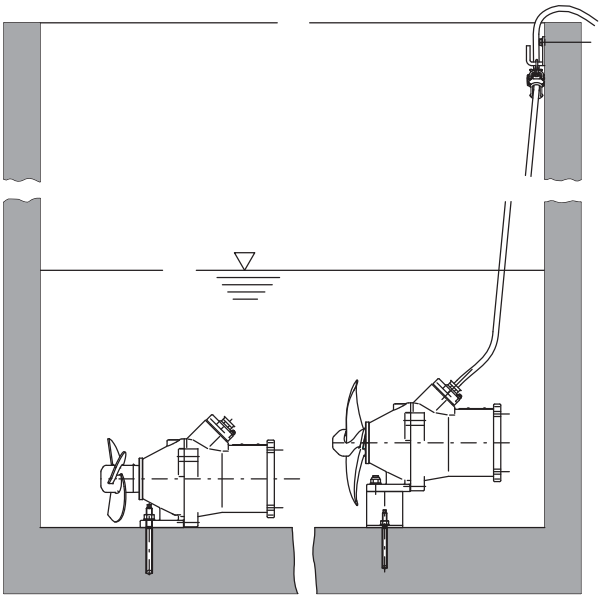
Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-8/16R	2.75	3.95	7.40	710	ATEX, FM
T 17-8/24R	5.10	7.70	14.30	705	ATEX, FM
T 17-6/24R	6.00	7.70	13.60	927	ATEX, FM

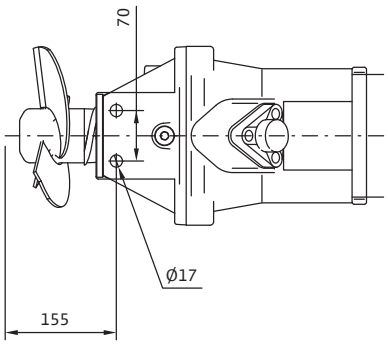
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

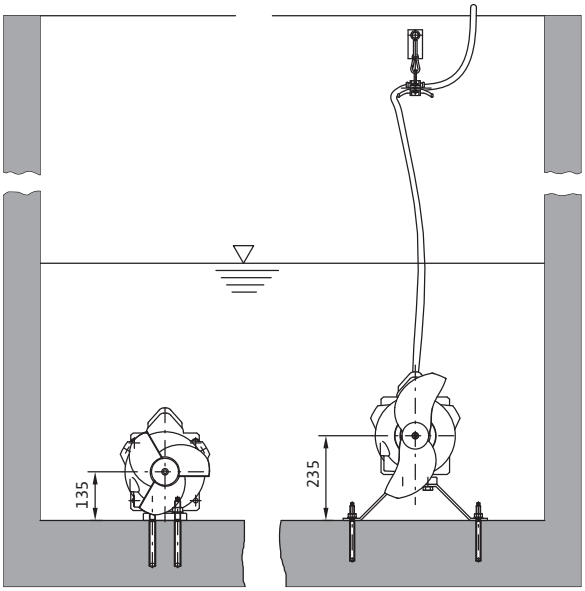
Installation example

Wilo-EMU Mixer TR 36/40 with floor installation



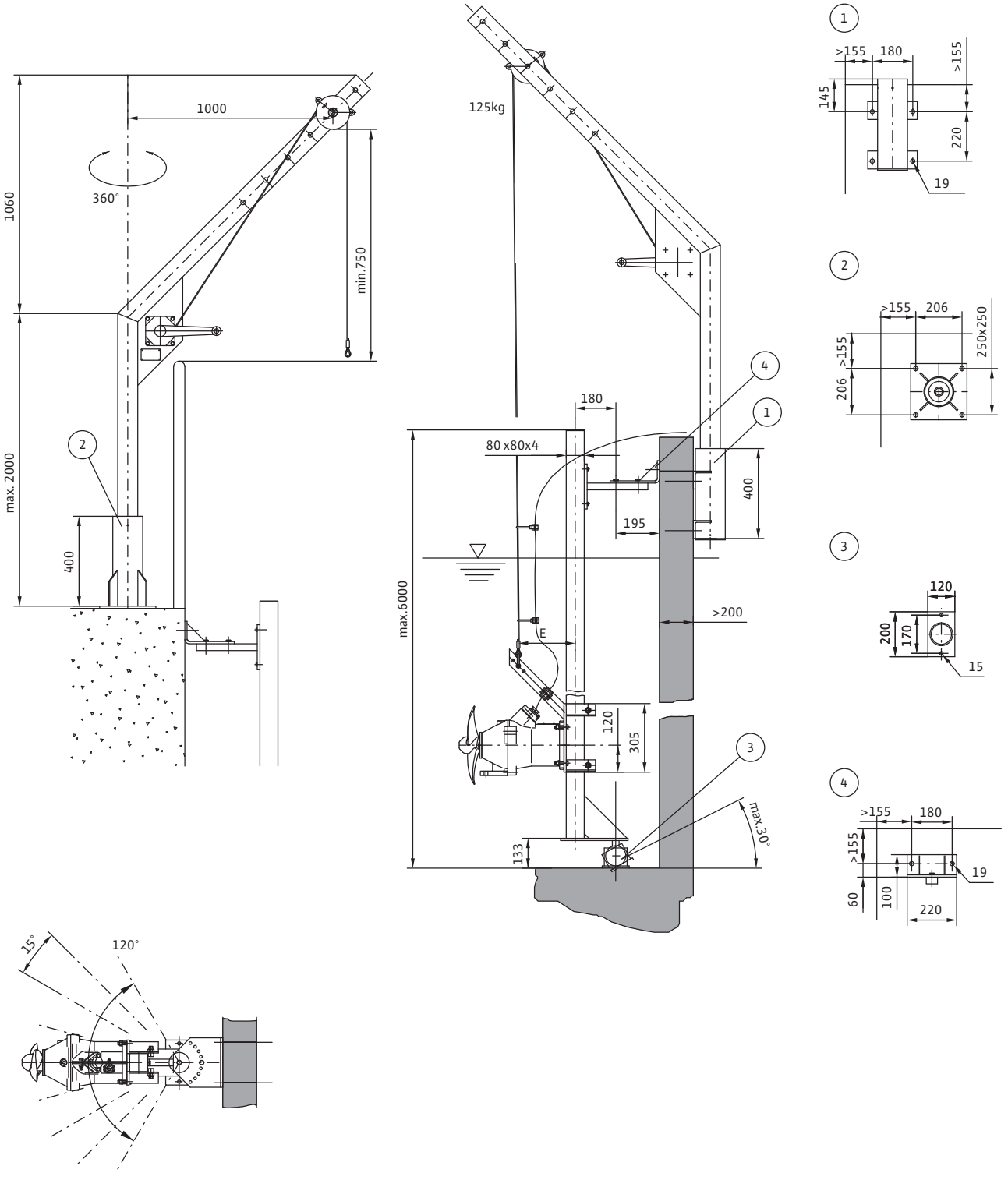






Installation example

Wilo-EMU Mixer TR 36/40 with lowering device AVU80



Series description Wilo-EMU Uniprop – with gear unit

Wilo-EMU Uniprop
Submersible mixers

Type key

Example: **Wilo-EMU TR 80-1.30-4/30 S20**

TR	submersible mixer
80	x10 propeller diameter [mm]
1	Model
30	x10 propeller speed [rpm]
4	No. of poles
30	x10 package length [mm]
S20	Propeller code for steel propeller (without = PUR propeller)*

*In the case of the submersible mixers TR 50-2 / TR 60-2 the propeller material is not indicated in the designation. Here, there is a special chapter for each of the different propellers.

Application

TR 50-2 ... 90-2
Uniprop submersible mixers are modularly arranged, which makes adaptation to a wide range of operating conditions possible. By varying the propeller diameter, transmission ratio and the propeller speed, optimum mixing results can be achieved. The units are suitable for permanent operation.

The installation of the Uniprop submersible mixers on flexible lowering devices or fixed tripod units allows use in a wide variety of basin geometries. Lowering devices have the advantage that the submersible mixers can be operated at various horizontal angles. Using auxiliary hoisting gear, operation is also possible at various heights.

When using a tripod unit, the submersible mixer can be freely installed in the basin. If one installs this tripod unit on a concrete slab, it is even possible to install it later in a filled basin.

There are many areas of application and, in the case of problematic fluids, can also be found in water treatment technology, industry and agriculture. Among these are mainly sludges with different TS contents and viscosities, balancing tanks with fluctuating water levels as well as activated sludge tanks.

Construction

Propeller
2- or 3-bladed propeller made of PUR or rust-proof steel (see overview matrix). Propeller diameter from 500 mm to 900 mm. Entwining-free construction due to backward-curved incoming flow edge.

Motor
Air-filled dry motor of the T-series. The motor heat is given off directly to the fluid via the housing. The housing parts are made of grey cast iron. The screwed connections are made of rust-proof steel. The winding is equipped with a temperature monitor.

Sealing
The sealing is guaranteed by a 3-chamber system (prechamber, gear chamber and sealing chamber). The sealing between the fluid and the prechamber, as well as between the gear and sealing chamber are realized by a corrosion-resistant and wear-proof mechanical seal made of the solid material silicon carbide. The sealing between the prechamber and gear chamber as well as between the sealing chamber and motor are realized by radial sealing rings.

Gear
1-stage planetary gear with exchangeable transmissions. The gear shaft is made of seawater-resistant stainless steel 1.4462. The gear bearings are dimensioned so that the resulting mixing forces are absorbed and are not transferred to the motor bearings.

Cable
The power cable is type H07 for heavy mechanical loads. The power cable is inserted in the motor housing via a water pressure-tight cable inlet with strain relief and bend protection. The individual wires as well as the cable sheath are additionally sealed to keep out fluids.

Options

- Thermistors, cold type
- External sealing chamber control
- Liquid ceramic coating Ceram C0
- Ex protection in accordance with ATEX or FM
- Cable length as per customer request

Series description Wilo-EMU Uniprop - with gear unit

Technical set-up

Motor
Wilo submersible motor of the T-series with standard connection, and therefore simple, efficient adaptation of the motor power classes

Cable inlet
Water pressure-tight, encapsulated cable inlet with strain relief

Motor bearings
Large-dimensioned inclined (not for TR 80-1) and grooved ball bearings guarantee a long service life

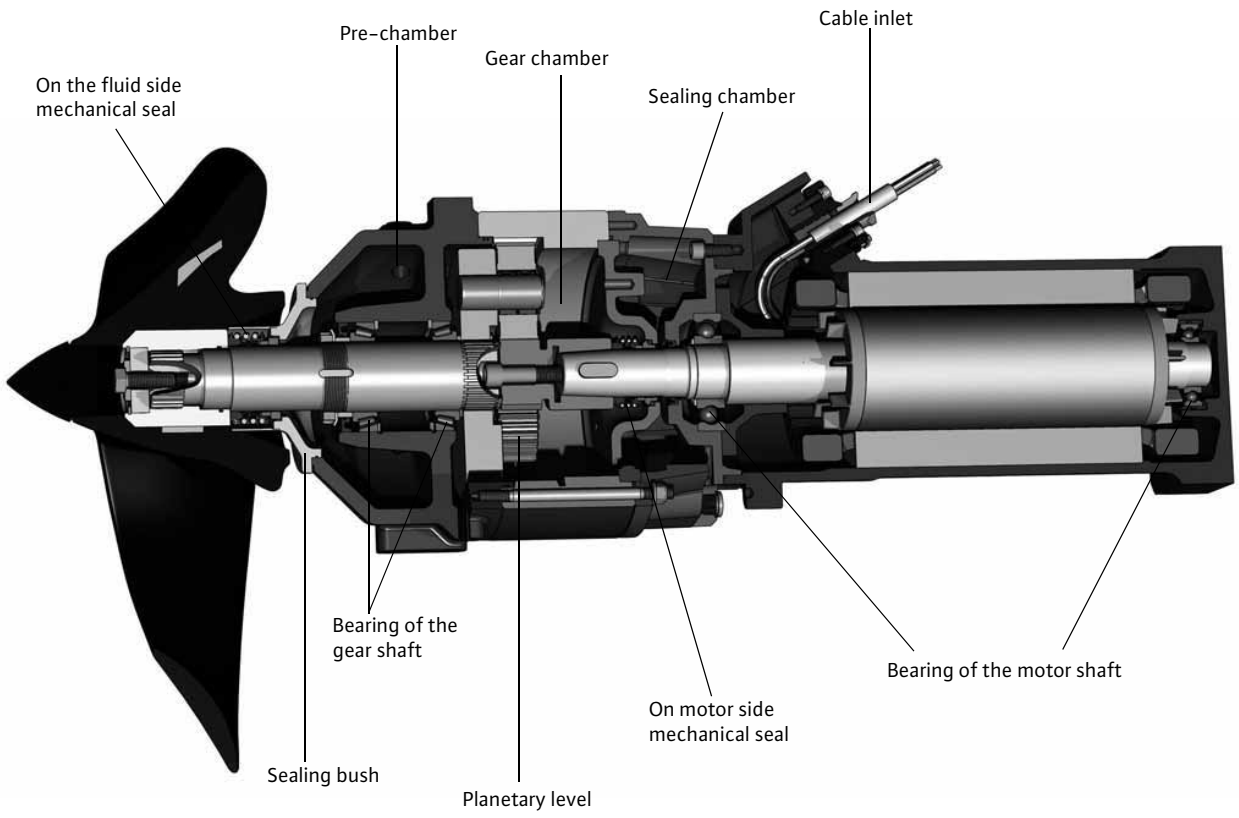
Pre- and sealing chamber
Large volume pre- and sealing chamber for accommodating the leakage of the mechanical seal; upon request also with external sealing chamber control.

Sealing
On the fluid and motor side by mechanical seal made of solid-material silicon carbide

Sealing bush
Made of stainless steel, guarantees long-term corrosion-protected fit of the mechanical seal

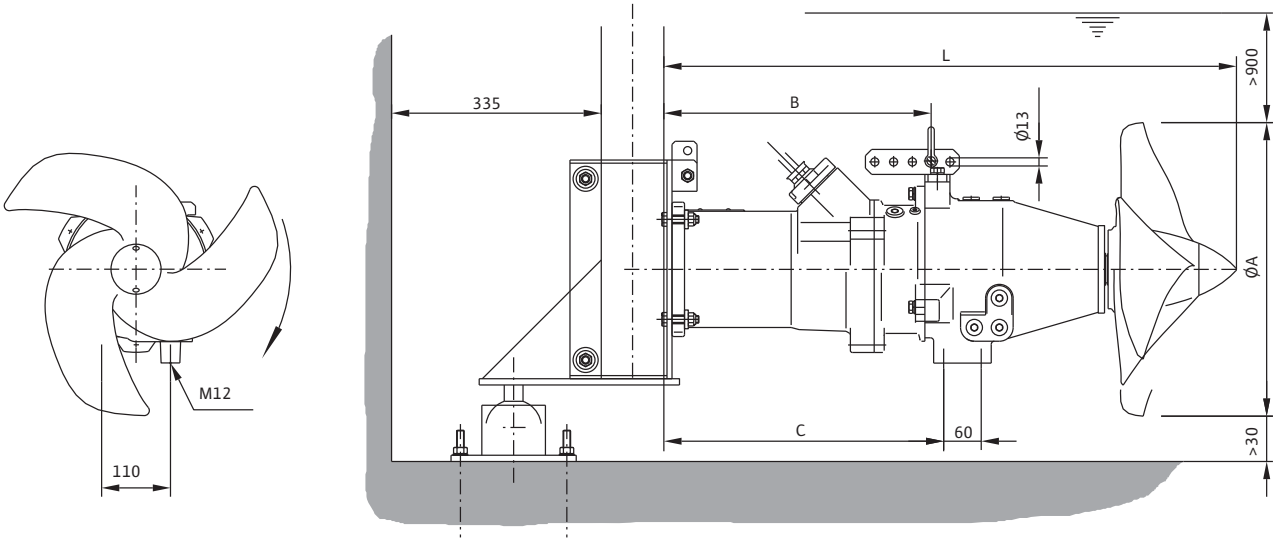
Propeller
2- or 3-bladed propeller; entwining-free construction due to backward-curved incoming flow edge. The propeller blades are permanently fixed, which guarantees the best possible hydraulic efficiency.

Gear
1-stage planetary gear with exchangeable planetary levels.



Wilo-EMU TR 50-2 (PUR)

Dimension drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 50-2.25-6/8	500	295	374	842	102
TR 50-2.28-6/8	500	295	374	842	102
TR 50-2.29-6/8	500	295	374	842	102
TR 50-2.30-6/8	500	295	374	842	102
TR 50-2.25-6/16	500	340	447	915	121
TR 50-2.30-4/8V	500	295	374	842	102
TR 50-2.31-4/8V	500	295	374	842	102
TR 50-2.34-4/8V	500	295	374	842	102
TR 50-2.37-4/8V	500	295	374	842	102
TR 50-2.30-4/8	500	295	374	842	102
TR 50-2.31-4/8	500	295	374	842	102
TR 50-2.34-4/8	500	295	374	842	102
TR 50-2.37-4/8	500	295	374	842	102
TR 50-2.42-4/12	500	330	409	877	110
TR 50-2.45-4/12	500	330	409	877	110
TR 50-2.47-4/12	500	330	409	877	110
TR 50-2.43-4/16	500	340	447	915	121
TR 50-2.46-4/16	500	340	447	915	121
TR 50-2.48-4/16	500	340	447	915	121
TR 50-2.52-2/22	600	455	527	985	129
TR 50-2.55-2/22	600	455	527	985	129
TR 50-2.59-2/22	600	455	527	985	129
TR 50-2.61-2/22	600	455	527	985	129

Wilo-EMU TR 50-2 (PUR)

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 50-2.25-6/8	T 17-6/8R	1.20	250	3.880	350
TR 50-2.28-6/8	T 17-6/8R	1.50	288	3.364	380
TR 50-2.29-6/8	T 17-6/8R	1.90	292	3.167	440
TR 50-2.30-6/8	T 17-6/8R	2.10	306	3.000	530
TR 50-2.25-6/16	T 17-6/16R	1.30	250	3.880	350
TR 50-2.30-4/8V	T 17-4/8V	1.70	298	4.900	520
TR 50-2.31-4/8V	T 17-4/8V	2.10	312	4.714	570
TR 50-2.34-4/8V	T 17-4/8V	2.60	344	4.250	700
TR 50-2.37-4/8V	T 17-4/8V	3.00	371	3.880	800
TR 50-2.30-4/8	T 17-4/8R	1.80	299	4.900	520
TR 50-2.31-4/8	T 17-4/8R	2.20	312	4.714	570
TR 50-2.34-4/8	T 17-4/8R	2.70	345	4.250	700
TR 50-2.37-4/8	T 17-4/12R	3.10	372	3.880	800
TR 50-2.42-4/12	T 17-4/12R	4.30	428	3.364	1050
TR 50-2.45-4/12	T 17-4/12R	5.00	452	3.167	1180
TR 50-2.47-4/12	T 17-4/12R	5.70	473	3.000	1280
TR 50-2.43-4/16	T 17-4/16R	4.50	434	3.364	1130
TR 50-2.46-4/16	T 17-4/16R	5.00	458	3.167	1200
TR 50-2.48-4/16	T 17-4/16R	5.70	479	3.000	1310
TR 50-2.52-2/22	T 17-2/22R	7.30	528	5.590	1550
TR 50-2.55-2/22	T 17-2/22R	8.40	552	5.330	1710
TR 50-2.59-2/22	T 17-2/22R	10.20	598	4.900	1900
TR 50-2.61-2/22	T 17-2/22R	11.40	619	4.714	2100

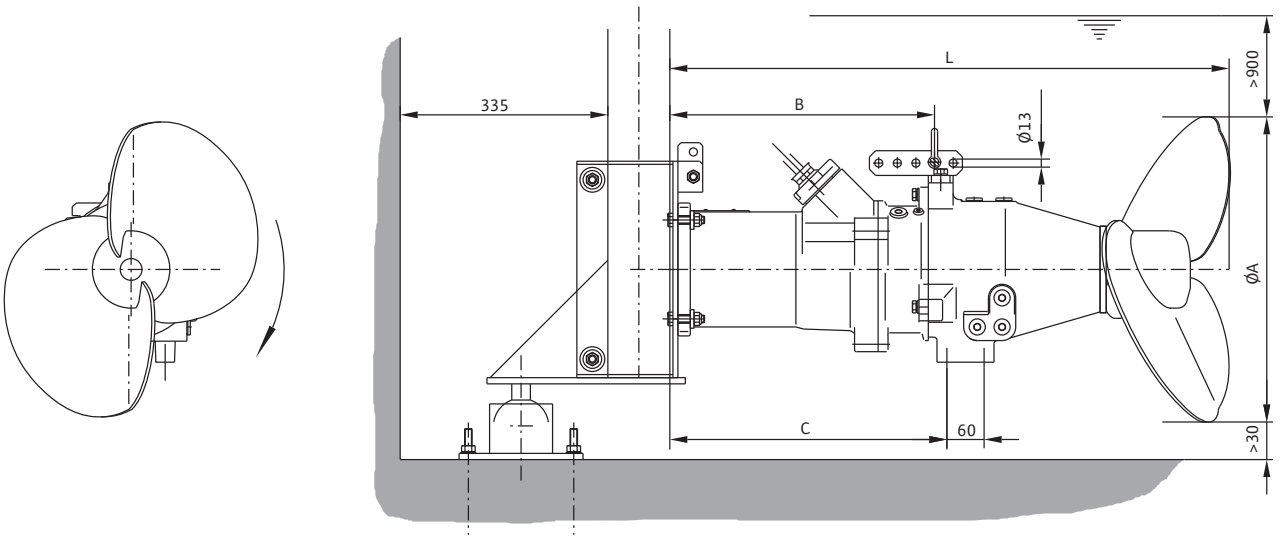
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM
T 17-4/16R	6.50	8.20	13.50	1400	ATEX, FM
T 17-6/16R	3.70	5.20	9.10	931	ATEX, FM
T 17-2/22R	10.50	12.30	20.50	2907	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU TR 50-2 (St.)

Dimension drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 50-2.22-6/8	500	325	374	842	110
TR 50-2.24-6/8	500	325	374	842	110
TR 50-2.25-4/8V	500	325	374	842	110
TR 50-2.28-4/8V	500	325	374	842	110
TR 50-2.30-4/8	500	325	374	842	110
TR 50-2.34-4/8	500	325	374	842	110
TR 50-2.31-4/12	500	360	409	877	118
TR 50-2.34-4/12	500	360	409	877	118
TR 50-2.36-4/12	500	360	409	877	118
TR 50-2.34-4/16	500	340	447	915	129
TR 50-2.37-4/16	500	340	447	915	129
TR 50-2.40-4/16	500	340	447	915	129
TR 50-2.42-4/16	500	340	447	915	129
TR 50-2.37-4/24	500	455	527	985	138
TR 50-2.40-4/24	500	455	527	985	138
TR 50-2.43-4/24	500	455	527	985	138
TR 50-2.45-4/24	500	455	527	985	138
TR 50-2.47-4/24	500	455	527	985	138

Wilo-EMU TR 50-2 (St.)

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 50-2.22-6/8	T 17-6/8R	1.40	229	4.250	450
TR 50-2.24-6/8	T 17-6/8R	1.80	247	3.880	540
TR 50-2.25-4/8V	T 17-4/8V	1.90	251	5.875	600
TR 50-2.28-4/8V	T 17-4/8V	2.90	296	4.900	820
TR 50-2.30-4/8	T 17-4/8R	3.00	306	4.714	850
TR 50-2.34-4/8	T 17-4/8R	4.10	334	4.250	1030
TR 50-2.31-4/12	T 17-4/12R	3.00	309	4.714	830
TR 50-2.34-4/12	T 17-4/12R	3.90	338	4.250	980
TR 50-2.36-4/12	T 17-4/12R	5.20	367	3.880	1200
TR 50-2.34-4/16	T 17-4/16R	4.20	344	4.250	1000
TR 50-2.37-4/16	T 17-4/16R	5.50	373	3.880	1220
TR 50-2.40-4/16	T 17-4/16R	6.60	399	3.600	1370
TR 50-2.42-4/16	T 17-4/16R	7.90	421	3.364	1540
TR 50-2.37-4/24	T 17-4/24R	5.50	379	3.880	1220
TR 50-2.40-4/24	T 17-4/24R	6.80	406	3.600	1450
TR 50-2.43-4/24	T 17-4/24R	8.10	433	3.364	1600
TR 50-2.45-4/24	T 17-4/24R	9.50	453	3.167	1690
TR 50-2.47-4/24	T 17-4/24R	11.00	475	3.000	1810

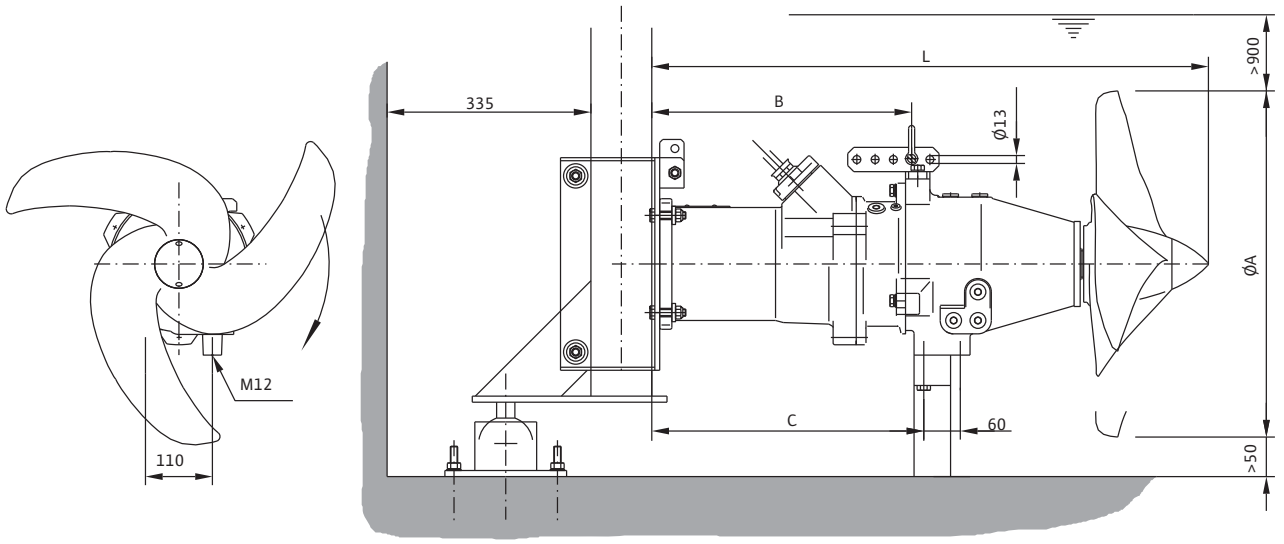
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM
T 17-4/16R	6.50	8.20	13.50	1400	ATEX, FM
T 17-4/24R	1.000	12.20	21.00	1417	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU TR 60-2 (PUR)

Dimension drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 60-2.23-6/8	600	295	374	842	103
TR 60-2.25-6/8	600	295	374	842	103
TR 60-2.29-6/8	600	295	374	842	103
TR 60-2.30-4/8V	600	295	374	842	103
TR 60-2.31-4/8V	600	295	374	842	103
TR 60-2.30-4/8	600	295	374	842	103
TR 60-2.33-4/8	600	295	374	842	103
TR 60-2.34-4/12	600	330	409	877	111
TR 60-2.37-4/12	600	330	409	877	111
TR 60-2.38-4/12	600	330	409	877	111
TR 60-2.38-4/16	600	340	447	915	122
TR 60-2.41-4/16	600	340	447	915	122
TR 60-2.43-4/16	600	340	447	915	122
TR 60-2.45-4/16	600	340	447	915	122
TR 60-2.41-4/24	600	360	557	995	130
TR 60-2.43-4/24	600	360	557	995	130
TR 60-2.46-4/24	600	360	557	995	130
TR 60-2.48-4/24	600	360	557	995	130
TR 60-2.49-2/22	600	360	557	995	130
TR 60-2.52-2/22	600	360	557	995	130
TR 60-2.54-2/22	600	360	557	995	130

Wilo-EMU TR 60-2 (PUR)

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 60-2.23-6/8	T 17-6/8R	1.20	229	4.250	500
TR 60-2.25-6/8	T 17-6/8R	1.70	250	3.880	600
TR 60-2.29-6/8	T 17-6/8R	2.30	288	3.364	790
TR 60-2.30-4/8V	T 17-4/8V	2.70	297	4.900	980
TR 60-2.31-4/8V	T 17-4/8V	2.90	308	4.714	1050
TR 60-2.30-4/8	T 17-4/8R	2.70	297	4.900	980
TR 60-2.33-4/8	T 17-4/8R	3.70	337	4.250	1220
TR 60-2.34-4/12	T 17-4/12R	3.70	341	4.250	1250
TR 60-2.37-4/12	T 17-4/12R	4.50	367	3.880	1420
TR 60-2.38-4/12	T 17-4/12R	5.40	389	3.600	1540
TR 60-2.38-4/16	T 17-4/16R	4.90	373	3.880	1480
TR 60-2.41-4/16	T 17-4/16R	5.80	400	3.600	1680
TR 60-2.43-4/16	T 17-4/16R	6.60	424	3.364	1780
TR 60-2.45-4/16	T 17-4/16R	7.80	447	3.167	2010
TR 60-2.41-4/24	T 17-4/24R	5.90	405	3.600	1690
TR 60-2.43-4/24	T 17-4/24R	6.60	430	3.364	1800
TR 60-2.46-4/24	T 17-4/24R	7.90	460	3.167	2050
TR 60-2.48-4/24	T 17-4/24R	8.60	480	3.000	2150
TR 60-2.49-2/22	T 17-2/22R	9.80	497	5.875	2250
TR 60-2.52-2/22	T 17-2/22R	11.00	520	5.590	2420
TR 60-2.54-2/22	T 17-2/22R	11.95	544	5.330	2650

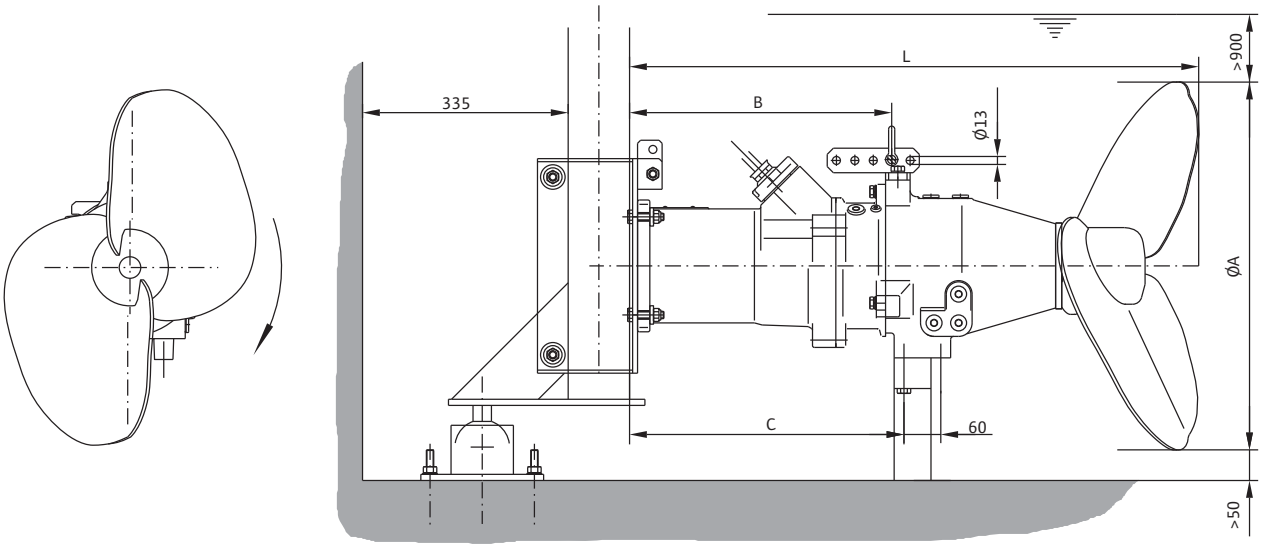
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM
T 17-4/16R	6.50	8.20	13.50	1400	ATEX, FM
T 17-4/24R	10.00	12.20	21	1417	ATEX, FM
T 17-2/22R	10.50	12.30	20.50	2907	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU TR 60-2 (St.)

Dimension drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 60-2.19-6/8	600	325	374	880	112
TR 60-2.22-4/8V	600	325	374	880	112
TR 60-2.23-4/8	600	325	374	880	112
TR 60-2.24-4/8	600	325	374	880	112
TR 60-2.24-4/12	600	360	409	915	120
TR 60-2.25-4/12	600	360	409	915	120
TR 60-2.26-4/16	600	340	447	950	131
TR 60-2.27-4/16	600	340	447	950	131
TR 60-2.29-4/16	600	340	447	950	131
TR 60-2.30-4/16	600	340	447	950	131
TR 60-2.30-4/24	600	360	557	1030	140
TR 60-2.31-4/24	600	360	557	1030	140
TR 60-2.34-4/24	600	360	557	1030	140
TR 60-2.36-4/24	600	360	557	1030	140

Wilo-EMU TR 60-2 (St.)

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 60-2.19-6/8	T 17-6/8R	2.20	195	4.714	640
TR 60-2.22-4/8V	T 17-4/8V	2.90	221	6.571	860
TR 60-2.23-4/8	T 17-4/8R	3.40	234	6.200	940
TR 60-2.24-4/8	T 17-4/8R	3.90	245	5.875	1020
TR 60-2.24-4/12	T 17-4/12R	3.90	245	5.875	1020
TR 60-2.25-4/12	T 17-4/12R	4.30	256	5.590	1090
TR 60-2.26-4/16	T 17-4/16R	4.80	260	5.590	1190
TR 60-2.27-4/16	T 17-4/16R	5.30	272	5.330	1250
TR 60-2.29-4/16	T 17-4/16R	6.40	293	4.900	1420
TR 60-2.30-4/16	T 17-4/16R	7.30	303	4.714	1610
TR 60-2.30-4/24	T 17-4/24R	6.10	300	4.900	1470
TR 60-2.31-4/24	T 17-4/24R	7.20	310	4.714	1600
TR 60-2.34-4/24	T 17-4/24R	9.50	340	4.250	1970
TR 60-2.36-4/24	T 17-4/24R	12.00	367	3.880	2340

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM
T 17-4/16R	6.50	8.20	13.50	1400	ATEX, FM
T 17-4/24R	10.00	12.20	21	1417	ATEX, FM

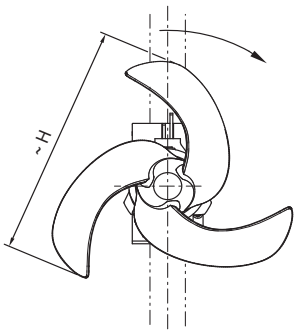
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

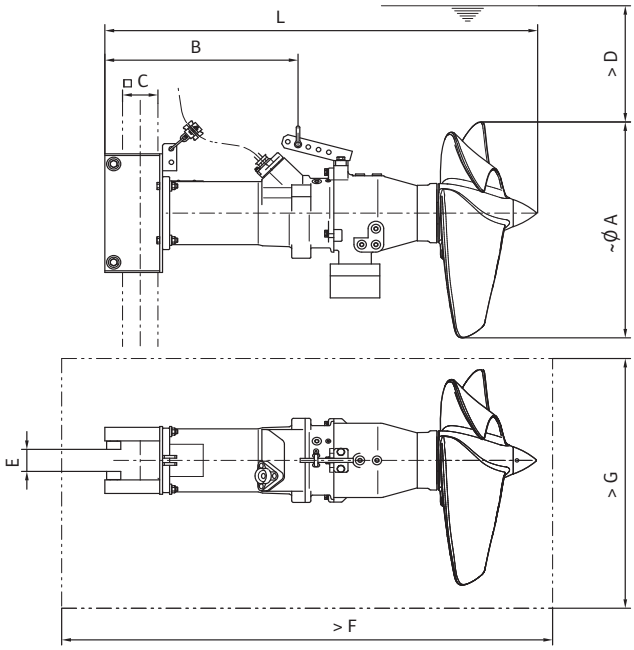
Submersible Mixers

UNIPROP Mixers

Wilo-EMU TR 75-2

Dimension drawing





Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 75-2.15-6/16	750	700	525	1150	127
TR 75-2.16-6/16	750	700	525	1150	127
TR 75-2.17-6/16	750	700	525	1150	127
TR 75-2.18-6/16	750	700	525	1150	127
TR 75-2.19-6/24	750	780	545	1230	135
TR 75-2.20-6/24	750	780	545	1230	135
TR 75-2.21-6/24	750	780	545	1230	135
TR 75-2.19-4/16	750	700	525	1150	127
TR 75-2.21-4/16	750	700	525	1150	127
TR 75-2.19-4/24	750	780	545	1230	135
TR 75-2.21-4/24	750	780	545	1230	135
TR 75-2.23-4/24	750	780	545	1230	135
TR 75-2.24-4/24	750	780	545	1230	135
TR 75-2.25-4/24	750	780	545	1230	135
TR 75-2.26-4/24	750	780	545	1230	135

Wilo-EMU TR 75-2

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 75-2.15-6/16	T 17-6/16R	3.05	156	6.200	1150
TR 75-2.16-6/16	T 17-6/16R	3.40	163	5.875	1210
TR 75-2.17-6/16	T 17-6/16R	3.70	170	5.590	1350
TR 75-2.18-6/16	T 17-6/16R	4.00	176	5.330	1380
TR 75-2.19-6/24	T 17-6/24R	5.20	194	4.900	1630
TR 75-2.20-6/24	T 17-6/24R	6.30	201	4.714	1800
TR 75-2.21-6/24	T 17-6/24R	7.30	216	4.250	1970
TR 75-2.19-4/16	T 17-4/16R	5.00	193	7.500	1670
TR 75-2.21-4/16	T 17-4/16R	7.00	217	6.571	1990
TR 75-2.19-4/24	T 17-4/24R	5.10	197	7.500	1700
TR 75-2.21-4/24	T 17-4/24R	7.00	219	6.571	2050
TR 75-2.23-4/24	T 17-4/24R	8.90	233	6.200	2350
TR 75-2.24-4/24	T 17-4/24R	9.95	244	5.875	2650
TR 75-2.25-4/24	T 17-4/24R	10.75	254	5.590	2980
TR 75-2.26-4/24	T 17-4/24R	11.80	266	5.330	3200

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/16R	6.50	8.20	13.50	1400	ATEX, FM
T 17-6/24R	6.00	7.70	13.60	927	ATEX, FM
T 17-6/16R	3.70	5.20	9.10	931	ATEX, FM
T 17-4/24R	10.00	12.20	21	1417	ATEX, FM

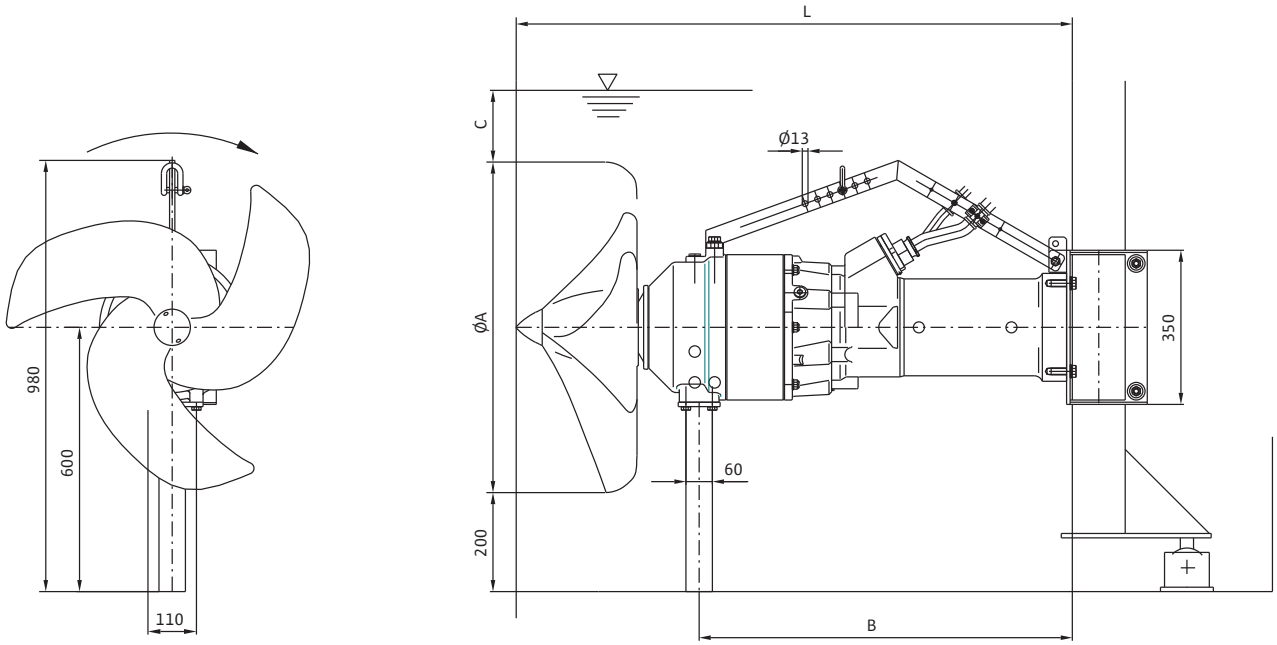
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Submersible Mixers

UNIPROP Mixers

Wilo-EMU TR 80-1

Dimension drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 80-1.24-6/27	785	847	1000	1260	298
TR 80-1.25-6/32	785	847	1000	1260	303
TR 80-1.27-6/32	785	847	1000	1260	303
TR 80-1.26-4/22	785	797	900	1210	284
TR 80-1.23-4/27	785	847	1000	1260	298
TR 80-1.27-4/27	785	847	1000	1260	298
TR 80-1.23-4/30	785	847	1100	1260	303
TR 80-1.27-4/30	785	847	1100	1260	303
TR 80-1.30-4/30	785	847	1100	1260	303
TR 80-1.30-4/30 S20	785	847	1100	1260	321

Wilo-EMU TR 80-1

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 80-1.24-6/27	T 20-6/27R	10.50	243	4.000	2740
TR 80-1.25-6/32	T 20-6/32R	12.60	258	3.720	3010
TR 80-1.27-6/32	T 20-6/32R	14.50	272	3.500	3350
TR 80-1.26-4/22	T 20-4/22R	14.20	269	5.286	3300
TR 80-1.23-4/27	T 20-4/27R	10.50	239	6.000	2600
TR 80-1.27-4/27	T 20-4/27R	14.30	272	5.286	3330
TR 80-1.23-4/30	T 20-4/30R	10.80	240	6.000	2600
TR 80-1.27-4/30	T 20-4/30R	14.40	274	5.286	3400
TR 80-1.30-4/30	T 20-4/30R	18.10	301	4.750	4100
TR 80-1.30-4/30 S20	T 20-4/30R	18.10	301	4.750	3400

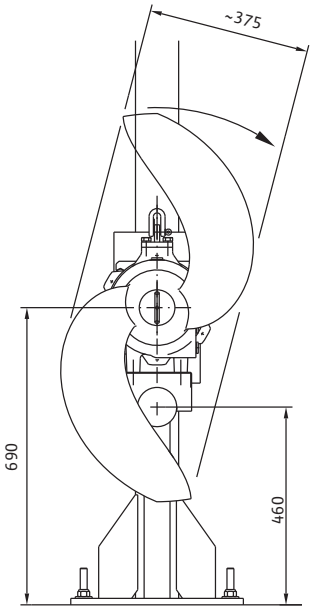
Motor data

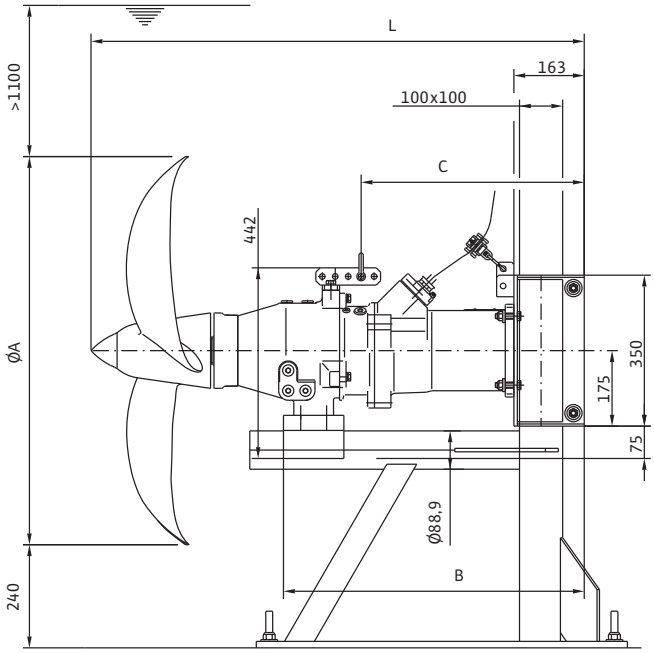
Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 20-6/27R	11.50	14.10	24.50	930	ATEX, FM
T 20-6/32R	12.50	14.90	26	930	ATEX, FM
T 20-4/22R	12.50	15.30	26	1430	ATEX, FM
T 20-4/27R	16.00	18.90	32	1430	ATEX, FM
T 20-4/30R	18.50	22.00	36.50	1435	ATEX, FM
T 20-6/22R	9.00	11.20	19.40	930	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU TR 90-2

Dimension drawing





Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 90-2.9-8/8	900	760	485	1075	107
TR 90-2.11-8/8	900	760	485	1075	107
TR 90-2.12-8/8	900	760	485	1075	107
TR 90-2.12-6/8	900	760	485	1075	107
TR 90-2.14-6/8	900	760	485	1075	107
TR 90-2.15-6/8	900	760	485	1075	107
TR 90-2.16-6/8	900	760	485	1075	107
TR 90-2.19-4/8V	900	760	485	1075	107
TR 90-2.19-4/8	900	760	485	1075	107
TR 90-2.21-4/8	900	760	485	1075	107
TR 90-2.21-4/12	900	795	510	1110	117
TR 90-2.23-4/12	900	795	510	1110	117
TR 90-2.24-4/12	900	795	510	1110	117
TR 90-2.25-4/12	900	795	510	1110	117

Wilo-EMU TR 90-2

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 90-2.9-8/8	T 17-8/8R	0.75	98	7.500	480
TR 90-2.11-8/8	T 17-8/8R	1.05	116	6.200	650
TR 90-2.12-8/8	T 17-6/8R	1.35	126	5.590	760
TR 90-2.12-6/8	T 17-6/8R	1.25	129	7.500	800
TR 90-2.14-6/8	T 17-6/8R	1.70	145	6.751	970
TR 90-2.15-6/8	T 17-6/8R	1.90	153	6.200	1050
TR 90-2.16-6/8	T 17-6/8R	2.30	166	5.590	1160
TR 90-2.19-4/8V	T 17-4/8V	3.10	192	7.500	1510
TR 90-2.19-4/8	T 17-4/8R	3.15	193	7.500	1550
TR 90-2.21-4/8	T 17-4/8R	4.15	215	6.571	1800
TR 90-2.21-4/12	T 17-4/12R	4.20	219	6.571	1900
TR 90-2.23-4/12	T 17-4/12R	4.75	230	6.200	2050
TR 90-2.24-4/12	T 17-4/12R	5.35	241	5.875	2200
TR 90-2.25-4/12	T 17-4/12R	5.80	251	5.590	2250

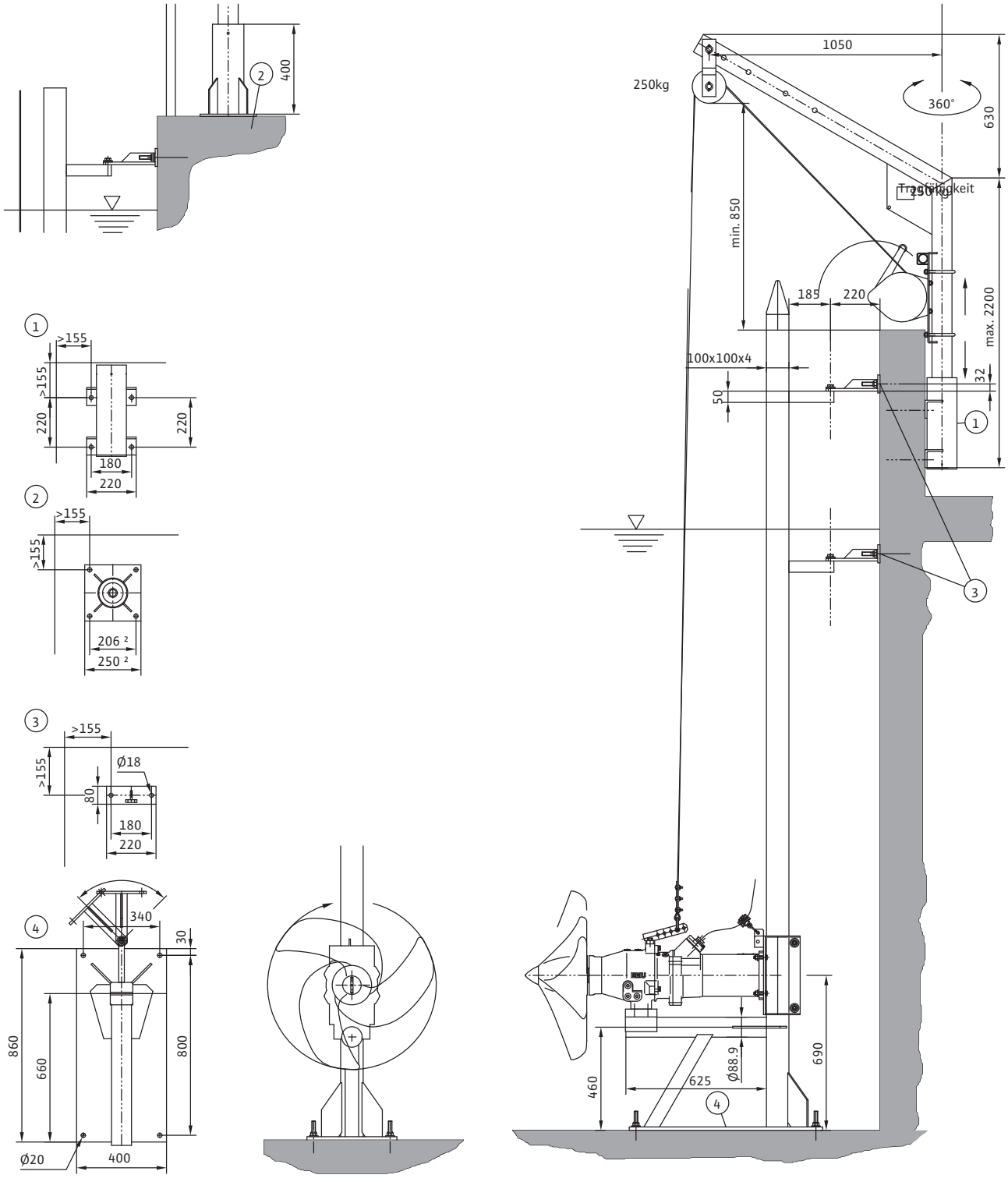
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-8/8R	1.10	1.67	3.20	700	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

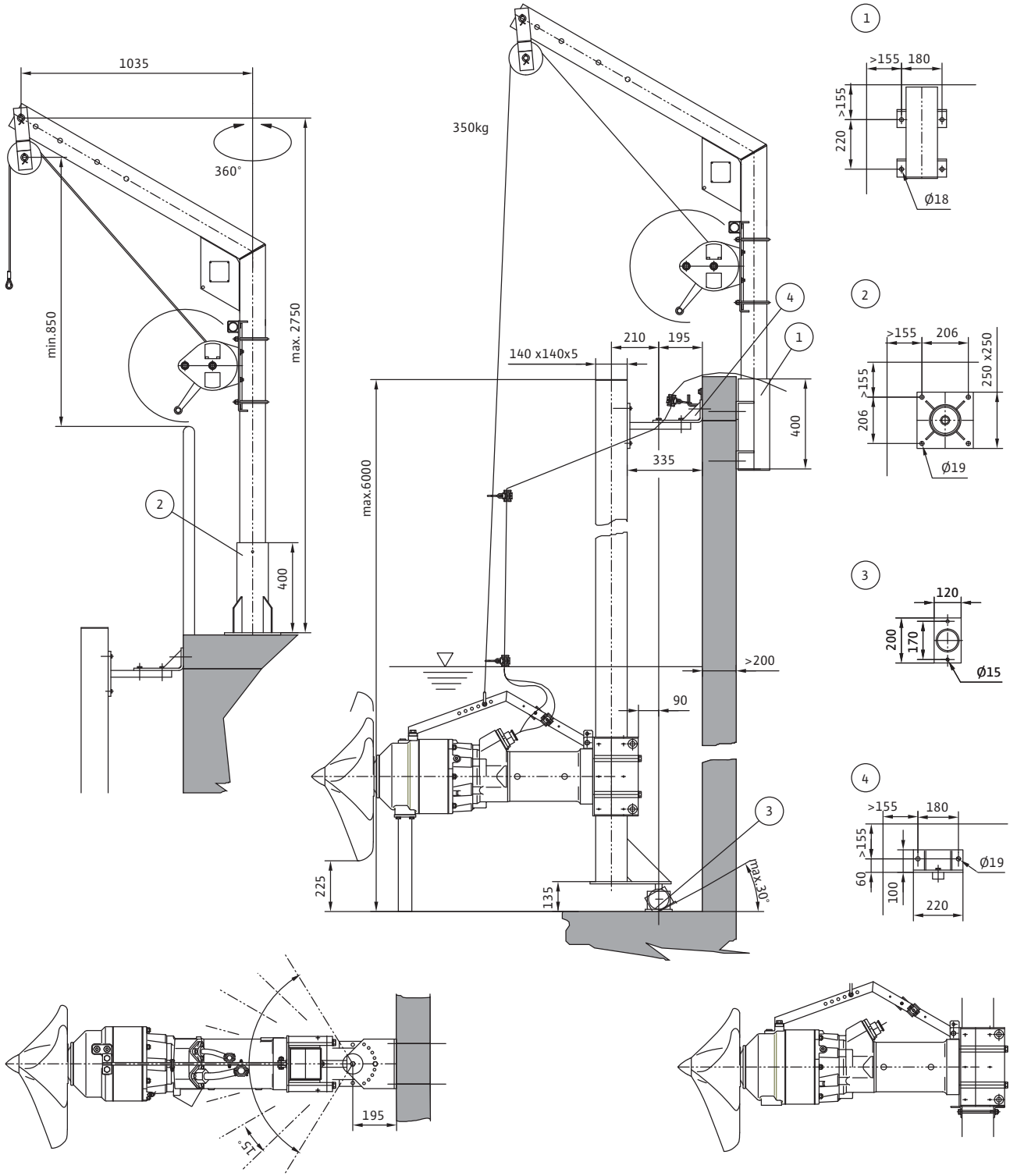
Installation example

Wilo-EMU Mixer TR 75-2 with lowering device AVUSHH



Installation example

Wilo-EMU Mixer TR 80-1 with lowering device AVU140



Submersible Mixers

Mixers

Series description Wilo-EMU Maxiprop / Megaprop

Wilo-EMU Maxiprop / Megaprop
Submersible mixers

Type key

Example: **Wilo-EMU TR 315.24-6/8**

TR	submersible mixer
3	number of propeller blades
15	x100 propeller diameter [mm]
24	propeller speed [rpm]
6	No. of poles
8	x10 package length [mm]

Application

Maxiprop TR 215 ... 225 / Megaprop TR 315 ... 325
Maxiprop and Megaprop submersible mixers are modularly arranged, which makes adaptation to a wide range of operating conditions possible. By using large propeller diameters and low propeller speeds, considerable thrusts can be achieved at low power requirements. This makes efficient mixing possible with optimum results.

Megaprop submersible mixers have low blade loads compared to Maxiprop submersible mixers at the same thrust. This way, when incoming flow conditions are unfavourable, they run smoothly and have a longer service life. Similar observations have been made with wind turbines.

When designing Maxiprop and Megaprop submersible mixers, an exact installation suggestion is made for every special application. Installation is done on fixed tripod units. There are free-standing tripod units for a wide range of reservoir geometries which conduct the reactive forces away directly into the reservoir floor. In the case of operating bridges which can be walked on or platforms, tripod units with an upper fastening point are preferably used. This reliably prevents the free end of the guide tube from swinging back and forth.

There is a variety of areas of application and can also be found in the case of problematic fluids in water treatment technology and industry. Among these are especially applications for mixing, flow generation and oxygen distribution in nitrification and denitrification reservoirs.

Construction

Propeller
2- or 3-bladed propellers made of GFK in sandwich design; the blade hub is made of rust-proof steel. Propeller diameter from 1500 mm to 2400 mm. Entwining-free construction due to backward-curved incoming flow edge.

Motor
Air-filled dry motor of the T-series. The motor heat is given off directly to the fluid via the housing. The housing parts are made of grey cast iron. The screwed connections are made of rust-proof steel. The winding is equipped with a temperature monitor.

Sealing
The sealing is guaranteed by a 3-chamber system (prechamber, gear chamber and sealing chamber). The sealing between the fluid and the prechamber, as well as between the gear and sealing chamber are realized by a corrosion-resistant and wear-proof mechanical seal made of the solid material silicon carbide. The sealing between the prechamber and gear chamber as well as between the sealing chamber and motor are realized by radial sealing rings.

Gear
2-stage planetary gear with exchangeable transmissions. The gear shaft is made of seawater-resistant stainless steel 1.4462. The gear bearings are dimensioned so that the resulting mixing forces are absorbed and are not transferred to the motor bearings.

Cable
The power cable is type H07 for heavy mechanical loads. The power cable is inserted in the motor housing via a water pressure-tight cable inlet with strain relief and bend protection. The individual wires as well as the cable sheath are additionally sealed to keep out fluids.

Options

- Thermistors, cold type
- External sealing chamber control
- Liquid ceramic coating Ceram C0
- Ex protection in accordance with ATEX or FM
- Cable length as per customer request

Series description Wilo-EMU Maxiprop / Megaprop

Technical set-up

Motor
Wilo submersible motor of the T-series with standard connection, and therefore simple, efficient adaptation of the motor power classes

Cable inlet
Water pressure-tight, encapsulated cable inlet with strain relief

Motor bearings
Large dimensioned inclined and grooved ball bearings guarantee a long service life

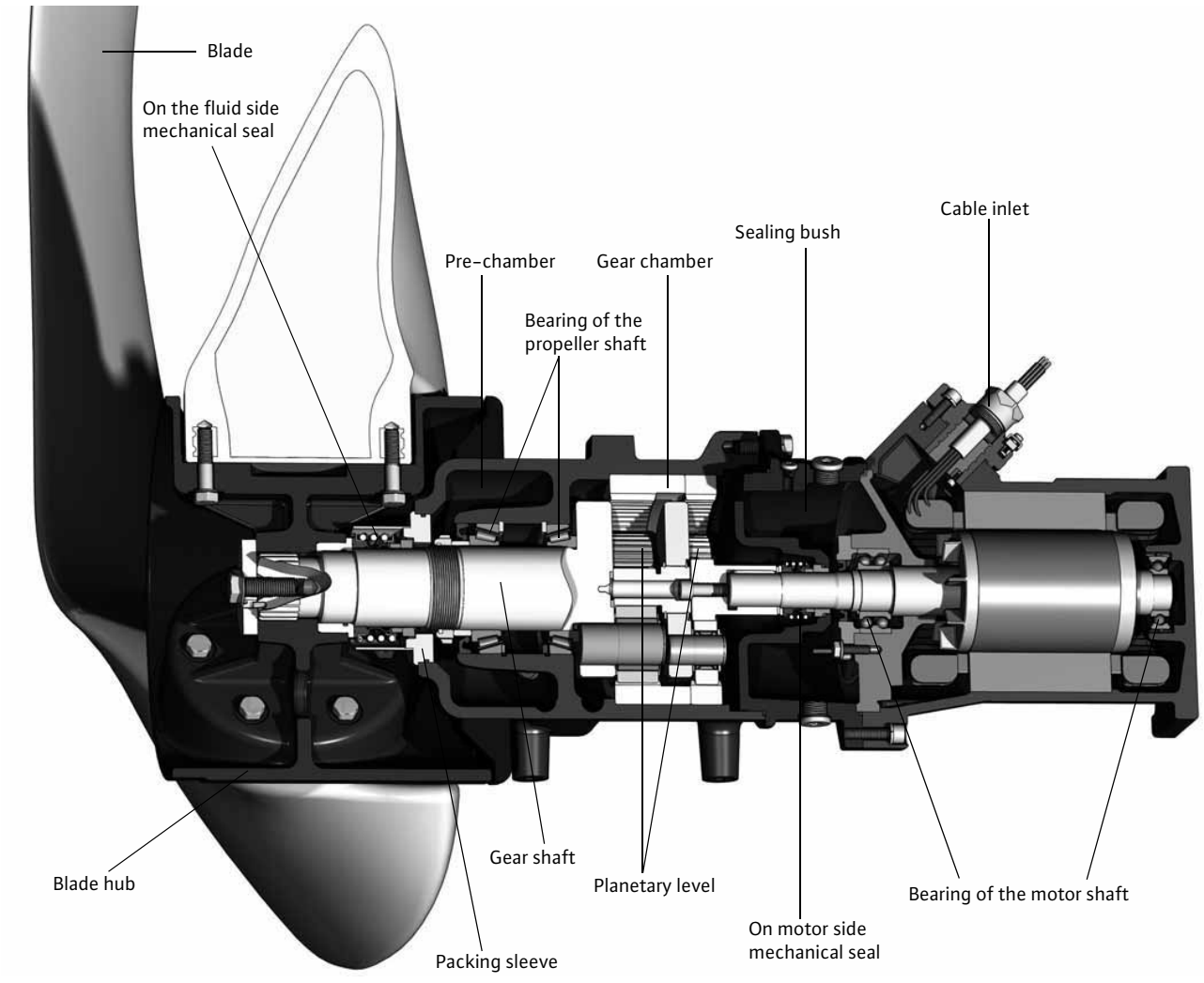
Pre- and sealing chamber
Large volume pre- and sealing chamber for accommodating the leakage of the mechanical seal; upon request also with external sealing chamber control.

Sealing
On the fluid and motor side by mechanical seal made of solid-material silicon carbide

Sealing bush
Made of stainless steel, guarantees long-term corrosion-protected fit of the mechanical seal

Propeller
2- or 3-bladed propeller; entwining-free construction due to backward-curved incoming flow edge. The propeller blades are permanently fixed, which guarantees the best possible hydraulic efficiency.

Gear
2-stage planetary gear with a fixed and exchangeable planetary level

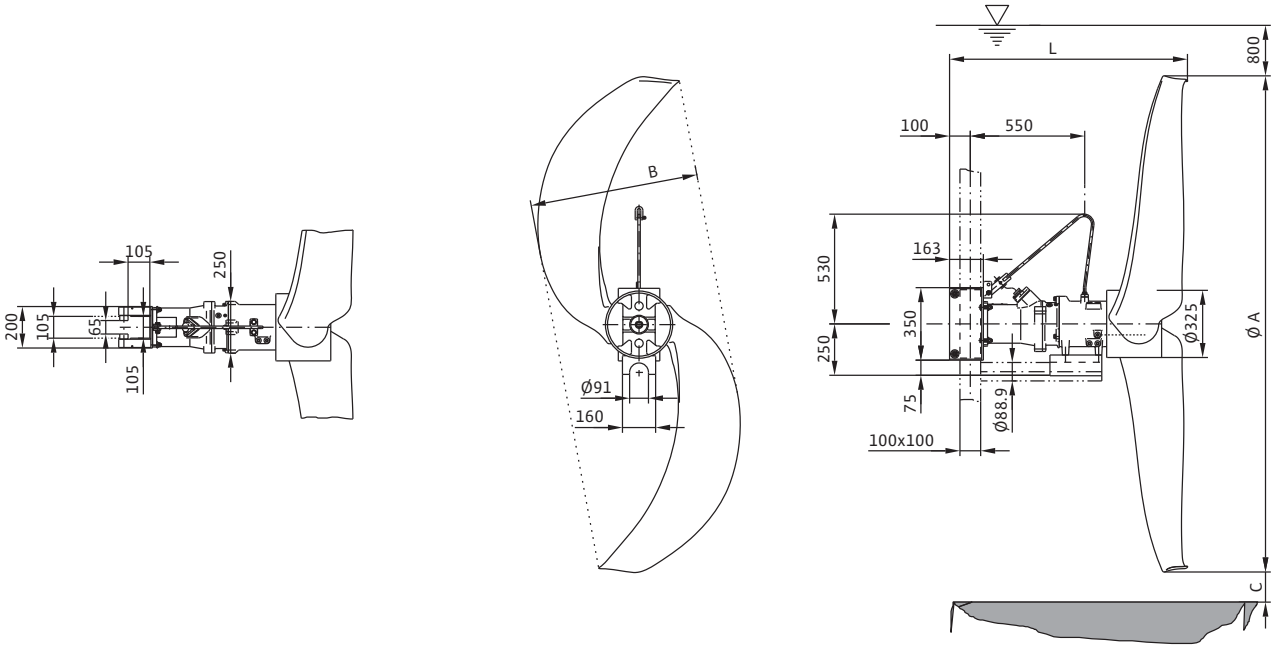


Submersible Mixers

MAXIPROP Mixers

Wilo-EMU TR 215

Dimension drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 215.17-6/8	1500	800	423	1155	172
TR 215.19-6/8	1500	800	423	1155	172
TR 215.21-6/8	1500	800	423	1155	172
TR 215.22-6/8	1500	800	423	1155	172
TR 215.23-6/8	1500	800	423	1155	172
TR 215.24-6/8	1500	800	423	1155	172
TR 215.26-4/8V	1500	800	423	1155	172
TR 215.29-4/8V	1500	800	423	1155	172
TR 215.31-4/8V	1500	800	423	1155	172
TR 215.33-4/8V	1500	800	423	1155	172
TR 215.34-4/8V	1500	800	423	1155	172
TR 215.36-4/8V	1500	800	423	1155	172
TR 215.39-4/8V	1500	800	423	1155	172
TR 215.40-4/8V	1500	800	423	1155	172
TR 215.44-4/8	1500	800	423	1155	172
TR 215.40-4/8	1500	800	423	1155	172
TR 215.53-4/12	1500	800	423	1190	182
TR 215.57-4/12	1500	800	423	1190	182

Wilo-EMU TR 215

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 215.17-6/8	T 17-6/8R	0.60	17	56.250	300
TR 215.19-6/8	T 17-6/8R	0.60	19	49.283	450
TR 215.21-6/8	T 17-6/8R	0.60	21	46.500	500
TR 215.22-6/8	T 17-6/8R	0.70	22	44.063	560
TR 215.23-6/8	T 17-6/8R	0.70	23	41.925	600
TR 215.24-6/8	T 17-6/8R	0.80	24	39.975	630
TR 215.26-4/8V	T 17-4/8V	0.90	26	56.250	700
TR 215.29-4/8V	T 17-4/8V	1.10	29	49.283	850
TR 215.31-4/8V	T 17-4/8V	1.30	31	46.500	900
TR 215.33-4/8V	T 17-4/8V	1.50	33	44.063	1000
TR 215.34-4/8V	T 17-4/8V	1.70	34	41.925	1100
TR 215.36-4/8V	T 17-4/8V	2.00	36	39.975	1200
TR 215.39-4/8V	T 17-4/8V	2.30	39	36.750	1360
TR 215.40-4/8V	T 17-4/8V	2.50	40	35.355	1420
TR 215.44-4/8	T 17-4/8R	3.30	44	31.875	1700
TR 215.40-4/8	T 17-4/8R	2.50	40	35.355	1420
TR 215.53-4/12	T 17-4/12R	4.90	53	27.000	2400
TR 215.57-4/12	T 17-4/12R	5.80	57	25.200	2560

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

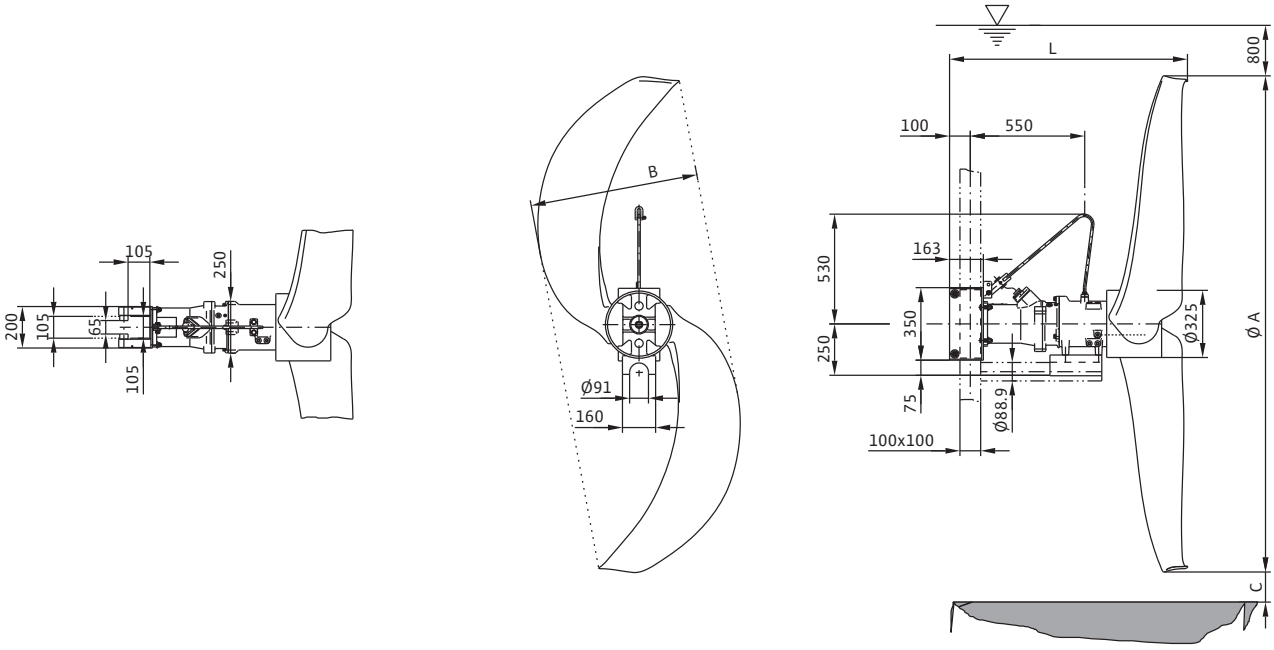
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Submersible Mixers

MAXIPROP Mixers

Wilo-EMU TR 220

Dimension drawing



Dimensions, weights					
Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 220.17-6/8	1900	900	465	1155	177
TR 220.19-6/8	1900	900	465	1155	177
TR 220.20-6/8	1900	900	465	1155	177
TR 220.21-6/8	1900	900	465	1155	177
TR 220.22-6/8	1900	900	465	1155	177
TR 220.23-6/8	1900	900	465	1155	177
TR 220.25-6/8	1900	900	465	1155	177
TR 220.26-4/8V	1900	900	465	1155	177
TR 220.29-4/8V	1900	900	465	1155	177
TR 220.30-4/8V	1900	900	465	1155	177
TR 220.32-4/8V	1900	900	465	1155	177
TR 220.33-4/8V	1900	900	465	1155	177
TR 220.35-4/8V	1900	900	465	1155	177
TR 220.38-4/8	1900	900	465	1155	177
TR 220.40-4/12	1900	900	465	1190	187
TR 220.44-4/12	1900	900	465	1190	187

Wilo-EMU TR 220

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 220.17-6/8	T 17-6/8R	0.70	17	56.250	470
TR 220.19-6/8	T 17-6/8R	0.80	19	49.283	600
TR 220.20-6/8	T 17-6/8R	0.80	20	46.500	670
TR 220.21-6/8	T 17-6/8R	0.90	21	44.063	750
TR 220.22-6/8	T 17-6/8R	1.00	22	41.925	820
TR 220.23-6/8	T 17-6/8R	1.20	23	39.975	900
TR 220.25-6/8	T 17-6/8R	1.30	25	36.750	1050
TR 220.26-4/8V	T 17-4/8V	1.20	26	56.250	1100
TR 220.29-4/8V	T 17-4/8V	1.50	29	49.283	1400
TR 220.30-4/8V	T 17-4/8V	1.70	30	46.500	1500
TR 220.32-4/8V	T 17-4/8V	1.90	32	44.063	1660
TR 220.33-4/8V	T 17-4/8V	2.20	33	41.925	1860
TR 220.35-4/8V	T 17-4/8V	2.40	35	39.975	1930
TR 220.38-4/8	T 17-4/8	3.00	38	36.750	2280
TR 220.40-4/12	T 17-4/12R	3.60	40	35.355	2500
TR 220.44-4/12	T 17-4/12R	4.20	44	31.875	2850

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

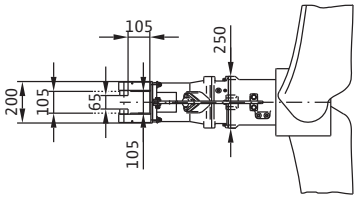
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

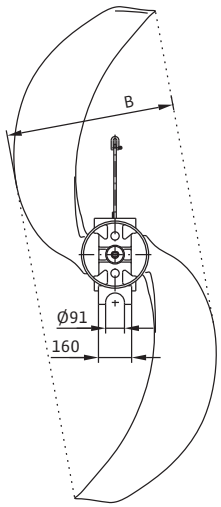
Submersible Mixers

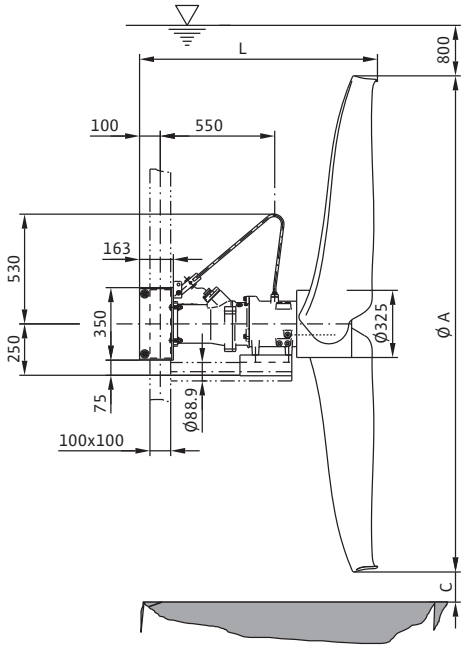
MAXIPROP Mixers

Wilo-EMU TR 221

Dimension drawing







Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 221.25-8/8	2100	950	390	1155	178
TR 221.27-8/8	2100	950	390	1155	178
TR 221.30-8/8	2100	950	390	1155	178
TR 221.32-8/8	2100	950	390	1155	178
TR 221.33-6/8	2100	950	390	1155	178
TR 221.36-6/8	2100	950	390	1155	178
TR 221.39-6/8	2100	950	390	1155	178
TR 221.41-4/8V	2100	950	390	1155	178
TR 221.45-4/8V	2100	950	390	1155	178
TR 221.46-4/8	2100	950	390	1155	178
TR 221.50-4/8	2100	950	390	1155	178
TR 221.53-4/8	2100	950	390	1155	178
TR 221.57-4/12	2100	950	390	1190	188
TR 221.59-4/12	2100	950	390	1190	188

Wilo-EMU TR 221

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 221.25-8/8	T 17-8/8R	0.60	25	29.227	650
TR 221.27-8/8	T 17-8/8R	0.80	27	26.350	800
TR 221.30-8/8	T 17-8/8R	1.00	30	24.056	950
TR 221.32-8/8	T 17-8/8R	1.10	32	22.320	1100
TR 221.33-6/8	T 17-6/8R	1.20	33	29.227	1200
TR 221.36-6/8	T 17-6/8R	1.40	36	26.350	1400
TR 221.39-6/8	T 17-6/8R	1.70	39	24.056	1700
TR 221.41-4/8V	T 17-4/8V	1.70	41	34.658	1850
TR 221.45-4/8V	T 17-4/8V	2.00	45	30.380	2150
TR 221.46-4/8	T 17-4/8R	2.50	46	30.380	2200
TR 221.50-4/8	T 17-4/8R	3.10	50	29.227	2600
TR 221.53-4/8	T 17-4/8R	3.70	53	26.350	2900
TR 221.57-4/12	T 17-4/12R	4.20	57	26.350	3400
TR 221.59-4/12	T 17-4/12R	4.90	59	24.056	3650

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-8/8R	1.10	1.67	3.20	700	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

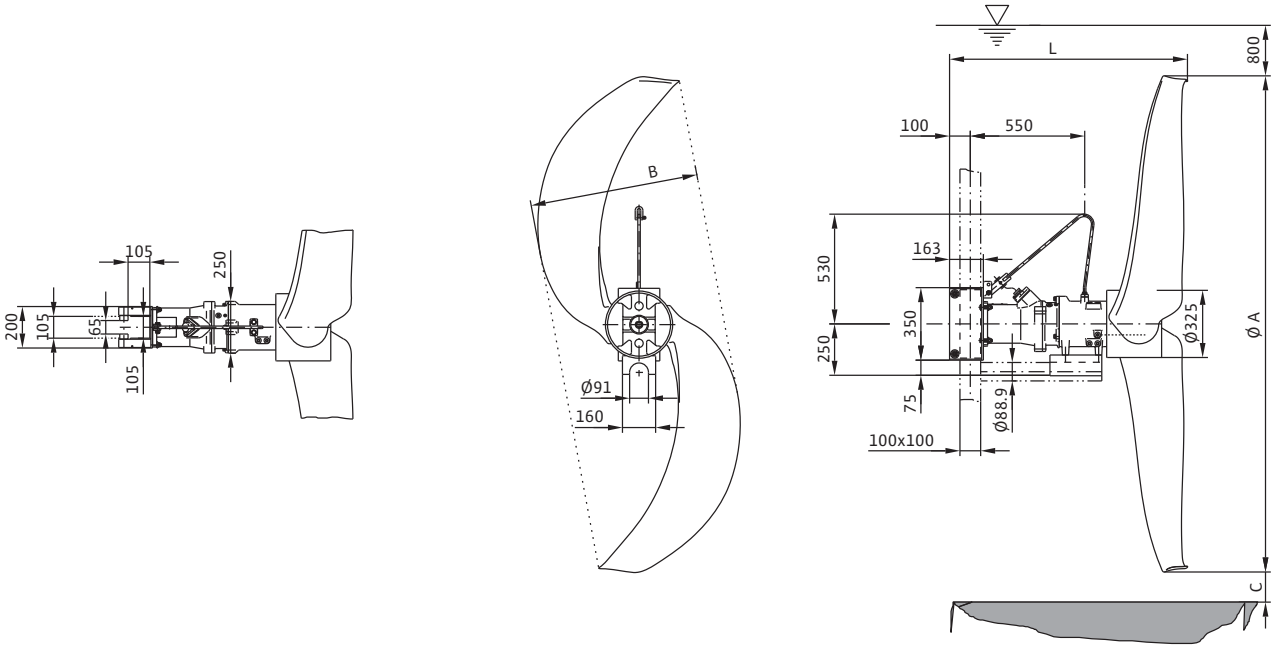
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Submersible Mixers

MAXIPROP Mixers

Wilo-EMU TR 225

Dimension drawing



Dimensions, weights					
Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 225.13-8/8	2400	950	495	1155	180
TR 225.14-8/8	2400	950	495	1155	180
TR 225.15-8/8	2400	950	495	1155	180
TR 225.16-8/8	2400	950	495	1155	180
TR 225.17-6/8	2400	950	495	1155	180
TR 225.19-6/8	2400	950	495	1155	180
TR 225.20-6/8	2400	950	495	1155	180
TR 225.21-6/8	2400	950	495	1155	180
TR 225.22-6/8	2400	950	495	1155	180
TR 225.23-6/8	2400	950	495	1155	180
TR 225.25-4/8V	2400	950	495	1155	180
TR 225.29-4/8V	2400	950	495	1155	180
TR 225.30-4/8V	2400	950	495	1155	180
TR 225.31-4/8	2400	950	495	1155	180
TR 225.34-4/8	2400	950	495	1155	180
TR 225.35-4/12	2400	950	495	1190	190
TR 225.38-4/12	2400	950	495	1190	190

Wilo-EMU TR 225

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 225.13-8/8	T 17-8/8R	0.50	13	56.250	600
TR 225.14-8/8	T 17-8/8R	0.60	14	49.283	700
TR 225.15-8/8	T 17-8/8R	0.65	15	46.500	800
TR 225.16-8/8	T 17-8/8R	0.70	16	44.063	950
TR 225.17-6/8	T 17-6/8R	0.80	17	56.250	1010
TR 225.19-6/8	T 17-6/8R	1.00	19	49.283	1240
TR 225.20-6/8	T 17-6/8R	1.10	20	46.500	1300
TR 225.21-6/8	T 17-6/8R	1.20	21	44.063	1380
TR 225.22-6/8	T 17-6/8R	1.50	22	41.925	1730
TR 225.23-6/8	T 17-6/8R	1.70	23	39.975	1880
TR 225.25-4/8V	T 17-4/8V	1.90	25	56.250	2070
TR 225.29-4/8V	T 17-4/8V	2.60	29	49.283	2570
TR 225.30-4/8V	T 17-4/8V	3.10	30	46.500	2800
TR 225.31-4/8	T 17-4/8R	3.60	31	44.063	3100
TR 225.34-4/8	T 17-4/8R	4.10	34	41.925	3510
TR 225.35-4/12	T 17-4/12R	4.80	35	39.975	3700
TR 225.38-4/12	T 17-4/12R	5.40	38	36.750	4000

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-8/8R	1.10	1.67	3.20	700	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

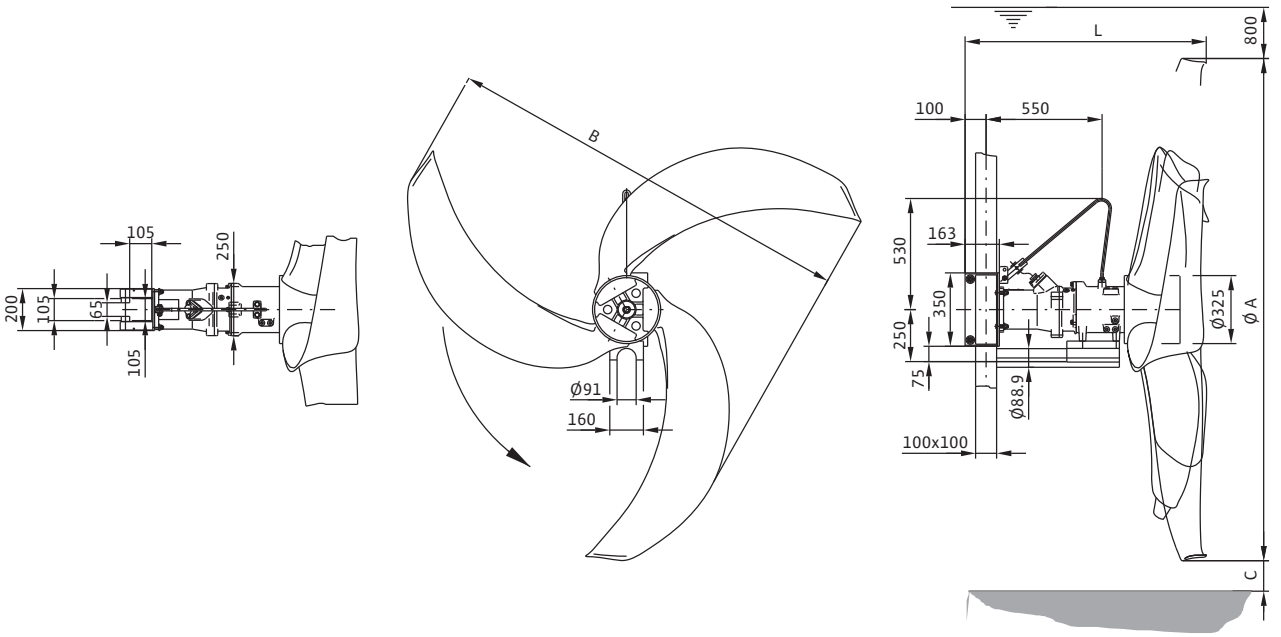
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Submersible Mixers

MEGAPROP Mixers

Wilo-EMU TR 315

Dimension drawing



Dimensions, weights					
Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 315.17-6/8	1500	1250	425	1155	190
TR 315.19-6/8	1500	1250	425	1155	190
TR 315.21-6/8	1500	1250	425	1155	190
TR 315.22-6/8	1500	1250	425	1155	190
TR 315.23-6/8	1500	1250	425	1155	190
TR 315.24-6/8	1500	1250	425	1155	190
TR 315.26-4/8V	1500	1250	425	1155	190
TR 315.29-4/8V	1500	1250	425	1155	190
TR 315.31-4/8V	1500	1250	425	1155	190
TR 315.32-4/8V	1500	1250	425	1155	190
TR 315.34-4/8V	1500	1250	425	1155	190
TR 315.36-4/8V	1500	1250	425	1155	190
TR 315.38-4/8V	1500	1250	425	1155	190
TR 315.40-4/8	1500	1250	425	1155	190
TR 315.44-4/12	1500	1250	425	1190	200

Wilo-EMU TR 315

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 315.17-6/8	T 17-6/8R	0.60	17	56.250	450
TR 315.19-6/8	T 17-6/8R	0.70	19	49.283	500
TR 315.21-6/8	T 17-6/8R	0.70	21	46.500	580
TR 315.22-6/8	T 17-6/8R	0.80	22	44.063	650
TR 315.23-6/8	T 17-6/8R	0.80	23	41.925	700
TR 315.24-6/8	T 17-6/8R	0.90	24	39.975	750
TR 315.26-4/8V	T 17-4/8V	1.10	26	56.250	830
TR 315.29-4/8V	T 17-4/8V	1.40	29	49.283	1000
TR 315.31-4/8V	T 17-4/8V	1.70	31	46.500	1200
TR 315.32-4/8V	T 17-4/8V	2.00	32	44.063	1350
TR 315.34-4/8V	T 17-4/8V	2.20	34	41.925	1500
TR 315.36-4/8V	T 17-4/8V	2.70	36	39.975	1650
TR 315.38-4/8V	T 17-4/8V	3.10	38	36.750	1780
TR 315.40-4/8	T 17-4/8R	3.40	40	35.355	1920
TR 315.44-4/12	T 17-4/12R	4.60	44	31.875	2450

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

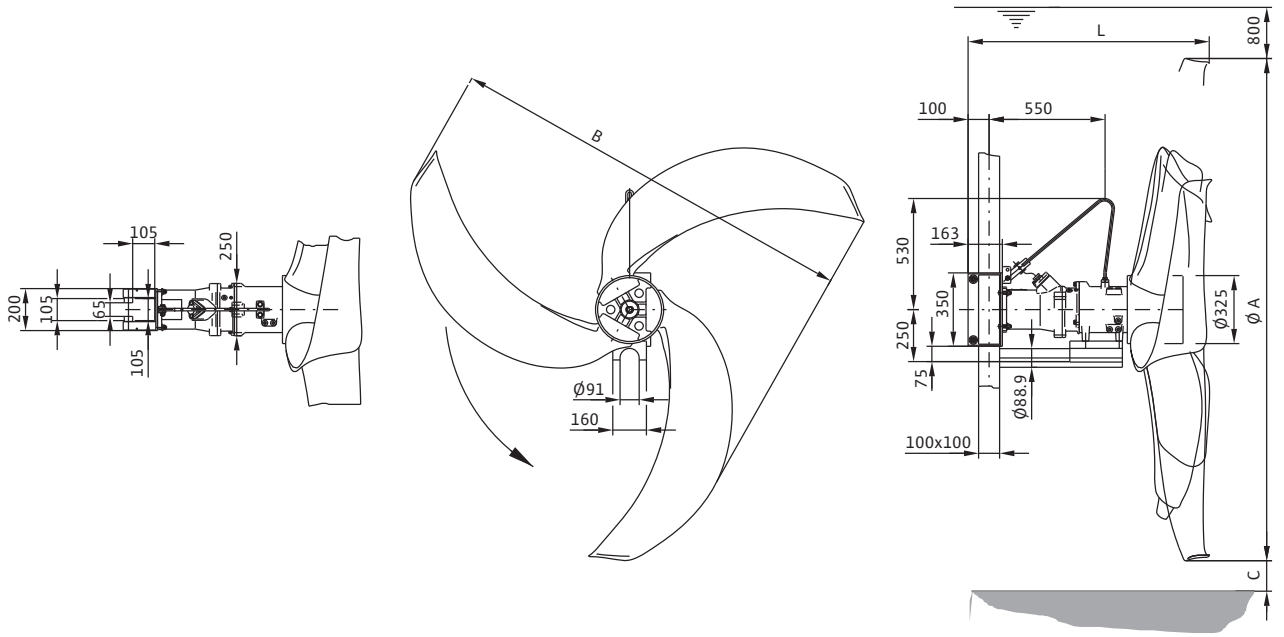
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Submersible Mixers

MEGAPROP Mixers

Wilo-EMU TR 320

Dimension drawing



Dimensions, weights

Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 320.17-6/8	1900	1650	490	1155	197
TR 320.19-6/8	1900	1650	490	1155	197
TR 320.20-6/8	1900	1650	490	1155	197
TR 320.21-6/8	1900	1650	490	1155	197
TR 320.22-6/8	1900	1650	490	1155	197
TR 320.23-6/8	1900	1650	490	1155	197
TR 320.25-4/8V	1900	1650	490	1155	197
TR 320.28-4/8V	1900	1650	490	1155	197
TR 320.30-4/8V	1900	1650	490	1155	197
TR 320.31-4/8V	1900	1650	490	1155	197
TR 320.32-4/8	1900	1650	490	1155	197
TR 320.34-4/8	1900	1650	490	1155	197
TR 320.35-4/8	1900	1650	490	1155	197
TR 320.38-4/12	1900	1650	490	1190	207

Wilo-EMU TR 320

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 320.17-6/8	T 17-6/8R	0.80	17	56.250	850
TR 320.19-6/8	T 17-6/8R	1.00	19	49.283	1000
TR 320.20-6/8	T 17-6/8R	1.10	20	46.500	1100
TR 320.21-6/8	T 17-6/8R	1.20	21	44.063	1250
TR 320.22-6/8	T 17-6/8R	1.30	22	41.925	1300
TR 320.23-6/8	T 17-6/8R	1.40	23	39.975	1400
TR 320.25-4/8V	T 17-4/8V	1.50	25	56.250	1420
TR 320.28-4/8V	T 17-4/8V	2.10	28	49.283	1840
TR 320.30-4/8V	T 17-4/8V	2.40	30	46.500	2000
TR 320.31-4/8V	T 17-4/8V	2.60	31	44.063	2100
TR 320.32-4/8	T 17-4/8R	2.70	32	44.063	2200
TR 320.34-4/8	T 17-4/8R	3.10	34	41.925	2450
TR 320.35-4/8	T 17-4/8R	3.60	35	39.975	2800
TR 320.38-4/12	T 17-4/12R	4.50	38	36.750	3200

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

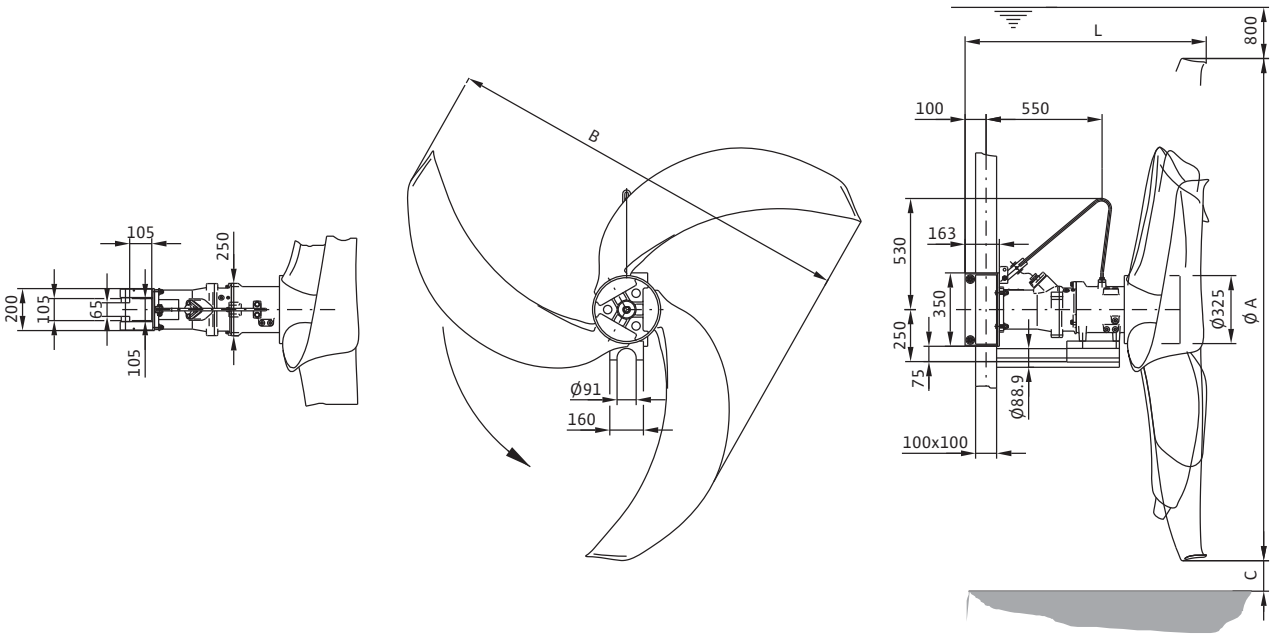
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Submersible Mixers

MEGAPROP Mixers

Wilo-EMU TR 321

Dimension drawing



Dimensions, weights					
Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 321.23-8/8	2100	1800	425	1155	199
TR 321.25-8/8	2100	1800	425	1155	199
TR 321.28-8/8	2100	1800	425	1155	199
TR 321.31-8/8	2100	1800	425	1155	199
TR 321.33-6/8	2100	1800	425	1155	199
TR 321.35-6/8	2100	1800	425	1155	199
TR 321.36-4/8V	2100	1800	425	1155	199
TR 321.39-4/8V	2100	1800	425	1155	199
TR 321.41-4/8	2100	1800	425	1155	199
TR 321.45-4/8	2100	1800	425	1155	199
TR 321.49-4/12	2100	1800	425	1190	209
TR 321.52-4/12	2100	1800	425	1190	209

Wilo-EMU TR 321

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 321.23-8/8	T 17-8/8R	0.70	23	30.380	750
TR 321.25-8/8	T 17-8/8R	0.90	25	29.227	900
TR 321.28-8/8	T 17-8/8R	1.10	28	26.350	1150
TR 321.31-8/8	T 17-8/8R	1.30	31	22.320	1300
TR 321.33-6/8	T 17-6/8R	1.50	33	29.227	1450
TR 321.35-6/8	T 17-6/8R	1.80	35	26.350	1650
TR 321.36-4/8V	T 17-4/8V	1.80	36	40.740	1800
TR 321.39-4/8V	T 17-4/8V	2.30	39	36.425	2100
TR 321.41-4/8	T 17-4/8R	2.50	41	34.658	2250
TR 321.45-4/8	T 17-4/8R	3.20	45	33.046	2700
TR 321.49-4/12	T 17-4/12R	4.00	49	29.227	3250
TR 321.52-4/12	T 17-4/12R	4.90	52	26.350	3700

Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-8/8R	1.10	1.67	3.20	700	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

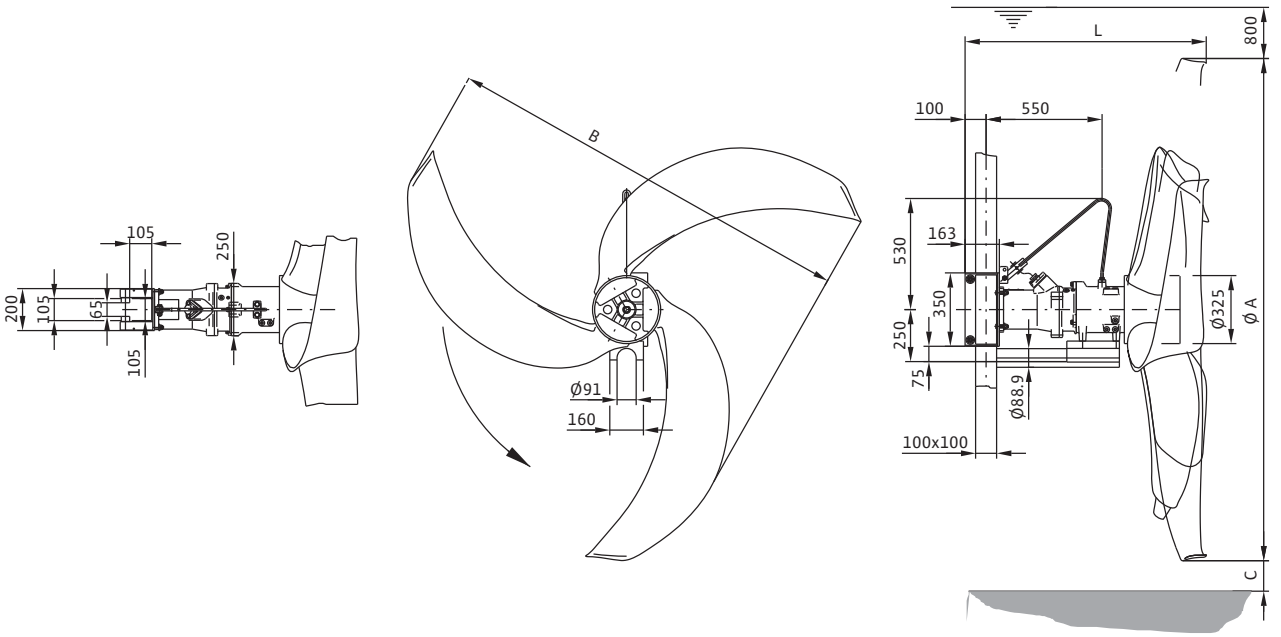
The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Submersible Mixers

MEGAPROP Mixers

Wilo-EMU TR 325

Dimension drawing



Dimensions, weights					
Wilo-EMU...	Dimensions				Weight
	A	B	C	L	Unit
	[mm]				[kg]
TR 325.13-8/8	2400	1960	495	1155	202
TR 325.14-8/8	2400	1960	495	1155	202
TR 325.15-8/8	2400	1960	495	1155	202
TR 325.16-8/8	2400	1960	495	1155	202
TR 325.17-6/8	2400	1960	495	1155	202
TR 325.19-6/8	2400	1960	495	1155	202
TR 325.20-6/8	2400	1960	495	1155	202
TR 325.21-6/8	2400	1960	495	1155	202
TR 325.22-6/8	2400	1960	495	1155	202
TR 325.23-6/8	2400	1960	495	1155	202
TR 325.24-6/8	2400	1960	495	1155	202
TR 325.25-4/8V	2400	1960	495	1155	202
TR 325.28-4/8	2400	1960	495	1155	202
TR 325.29-4/12	2400	1960	495	1190	212
TR 325.30-4/12	2400	1960	495	1190	212
TR 325.32-4/12	2400	1960	495	1190	212

Wilo-EMU TR 325

Technical data

Wilo-EMU...	Motor type	Power consumption	Propeller speed	Transmission	Thrust
	–	max. $P_{1.1}$	n	–	F
	–	[kW]	[rpm]	–	[N]
TR 325.13-8/8	T 17-8/8/R	0.50	13	56.250	700
TR 325.14-8/8	T 17-8/8/R	0.60	14	49.283	850
TR 325.15-8/8	T 17-8/8/R	0.80	15	46.500	1000
TR 325.16-8/8	T 17-8/8/R	0.90	16	44.063	1100
TR 325.17-6/8	T 17-6/8R	1.00	17	56.250	1200
TR 325.19-6/8	T 17-6/8R	1.30	19	49.283	1600
TR 325.20-6/8	T 17-6/8R	1.50	20	46.500	1750
TR 325.21-6/8	T 17-6/8R	1.70	21	44.063	1950
TR 325.22-6/8	T 17-6/8R	2.00	22	41.925	2070
TR 325.23-6/8	T 17-6/8R	2.20	23	39.975	2120
TR 325.24-6/8	T 17-6/8R	2.40	24	36.750	2300
TR 325.25-4/8V	T 17-4/8V	2.60	25	56.250	2500
TR 325.28-4/8	T 17-4/8R	3.60	28	49.283	3160
TR 325.29-4/12	T 17-4/12R	4.00	29	49.283	3500
TR 325.30-4/12	T 17-4/12R	4.30	30	46.500	3730
TR 325.32-4/12	T 17-4/12R	5.00	32	44.063	3900

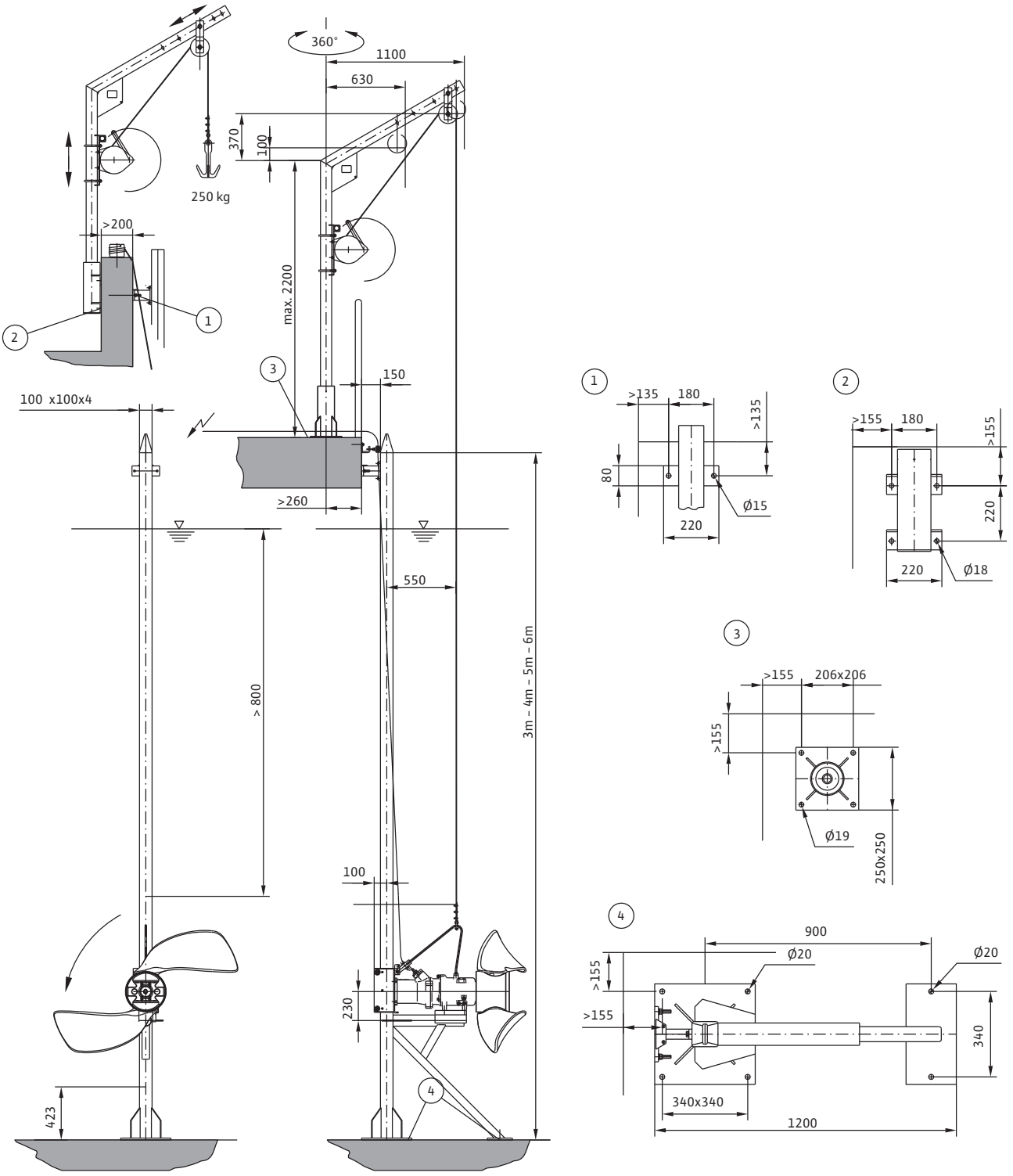
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM
T 17-8/8R	1.10	1.67	3.20	700	ATEX, FM
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

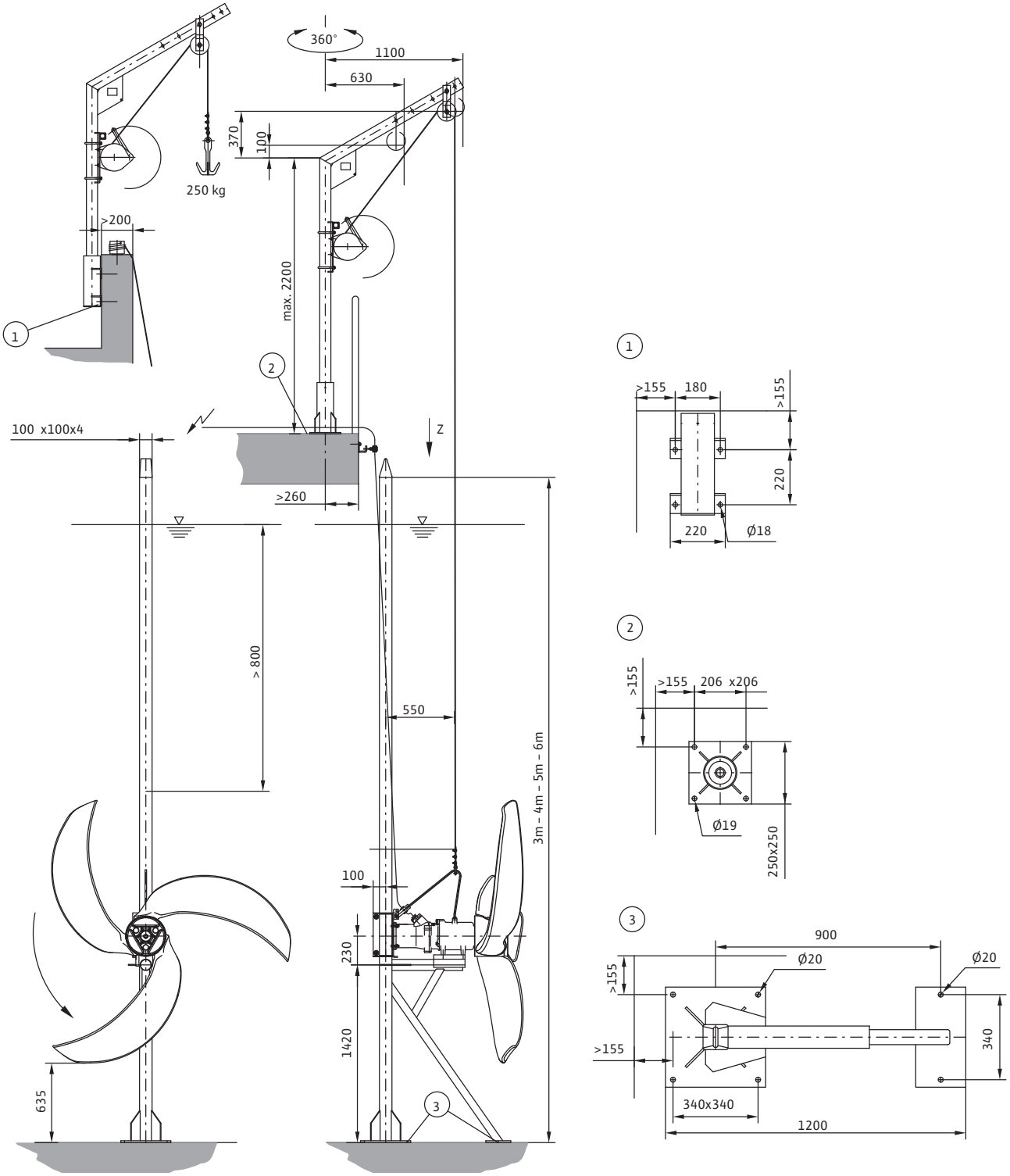
Installation example

Wilo-EMU Mixer TR 215 with lowering device AVMSH



Installation example

Wilo-EMU Mixer TR 325 with lowering device AVMS



Submersible Mixers

Contents

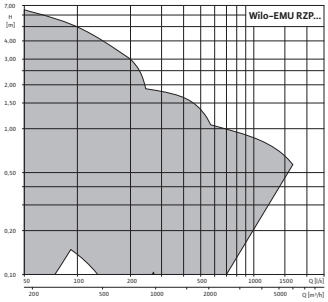
Re-circulation pumps

Submersible Mixers

Re-circulation pumps

Series overview Wilo-EMU Rezijet

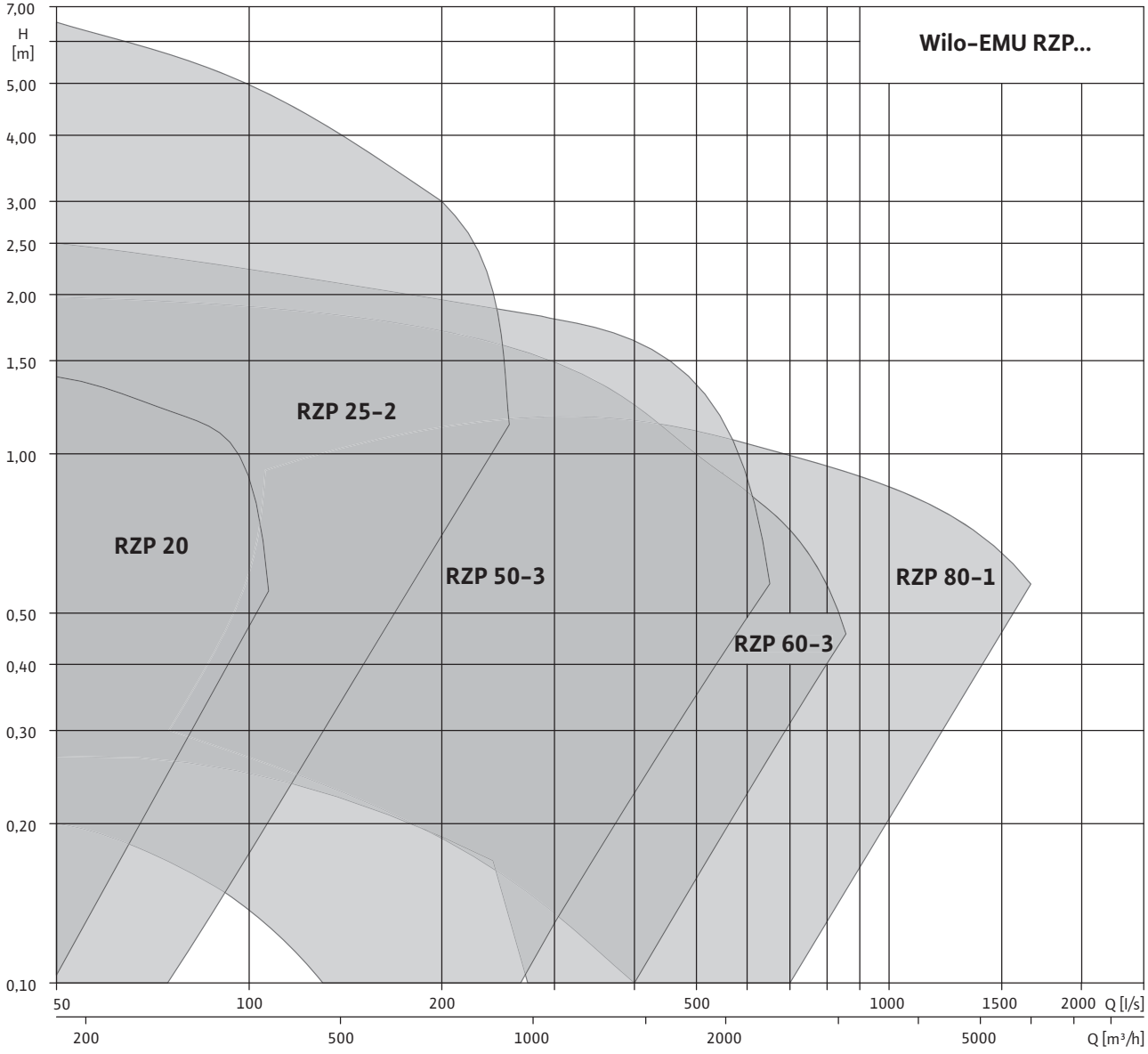
Series: Wilo-EMU Rezijet



> Re-circulation pump

> Application:

- Pumping sewage via low delivery heads at high flow rates, e.g. between balancing, nitrification and denitrification basins
- Pumping of industrial, raw, pure and cooling water, e.g. in paint finishing systems or for secondary hot water treatment



Series overview Wilo-EMU Rezijet

Series: Wilo-EMU Rezijet

> Product advantages:

- Fixation by flange directly on the flow pipe, via a lowering device or by means of inline construction
- Self-cleaning propeller blades
- Propeller in steel or PUR version
- Propeller diameter from 200 mm to 800 mm
- Optionally with sealing chamber control and Ceram coating

> Additional information: **Page**

Series description Wilo-EMU Rezijet

Wilo-EMU Rezijet
Re-circulation pump

Type key

Example: **Wilo-EMU RZP 50-3.25-4/8 S25**

RZP	Re-circulation pump
50	x10 nominal diameter of the propeller [mm]
3	Model
25	x10 propeller speed [rpm]
4	No. of poles
8	x10 package length [mm]
S25/K3	Steel propeller with specification of the blade angle [°] PUR propeller with specification of the no. of blades

Application

RZP 20 ... 80-1
The process control of biological treatment systems often requires running through the biological stages several times. In these continuous processes, high flow rates must be transported via small delivery heads.

Re-circulation pumps pump activated sludge and sewage against the natural fall of the water treatment system from the secondary clarifier back to the activated sludge tank.

The re-circulation pumps are designed so that they can be used in a frequency range from 30 ... 60 Hz in permanent operation with a frequency converter.

Construction

Propeller
2- or 3-bladed propellers made of PUR or steel or 4-bladed propellers made of steel. Propeller diameter from 200 mm to 800 mm entwining-free construction due to backward-curved incoming flow edge, PUR propeller up to 250 mm with helix hub.

Motor
Air-filled dry motor of the T-series. The motor heat is given off directly to the fluid via the housing. The housing parts are made of grey cast iron. The screwed connections are made of rust-proof steel. The winding is equipped with a temperature monitor.

Sealing
RZP 20 ... 25-2
Double shaft sealing with sealing chamber, on the fluid side, with a corrosion-resistant and wear-proof mechanical seal made of the solid material silicon carbide. Sealing on the motor side with radial shaft seal.

RZP 50-3 ... 80-1
Double shaft sealing with pre-chamber and sealing chamber, on the motor and fluid side, with a corrosion-resistant and wear-proof mechanical seal made of the solid material silicon carbide. The sealing between the individual chambers is realized with radial sealing rings.

Gear
RZP 50-3 ... 80-1
1-stage planetary gear with exchangeable transmissions. The gear shaft is made of seawater-resistant stainless steel 1.4462. The gear bearings are dimensioned so that the resulting mixing forces are absorbed and are not transferred to the motor bearings.

Cable
The power cable is type H07 for heavy mechanical loads. The power cable is inserted in the motor housing via a water pressure-tight cable inlet with strain relief and bend protection. The individual wires as well as the cable sheath are additionally sealed to keep out fluids.

Options

- Thermistors, cold type
- External sealing chamber control
- Liquid ceramic coating Ceram C0
- Ex protection in accordance with ATEX or FM
- Cable length as per customer request

Series description Wilo-EMU Rezijet

Technical set-up

Motor
Wilo submersible motor of the T-series with standard connection, and therefore simple, efficient adaptation of the motor power classes

Cable inlet
Water pressure-tight, encapsulated cable inlet with strain relief

Motor bearings
Large dimensioned inclined and grooved ball bearings guarantee a long service life

Sealing chamber (RZP 20 ... 25-2)
Large volume sealing chamber for accommodating the leakage of the mechanical seal; upon request also with internal or external sealing chamber control;

Pre-chamber and sealing chamber (RZP 50-3 ... 80-1)
Large volume pre- and sealing chamber for accommodating the leakage of the mechanical seal; upon request also with external sealing chamber control.

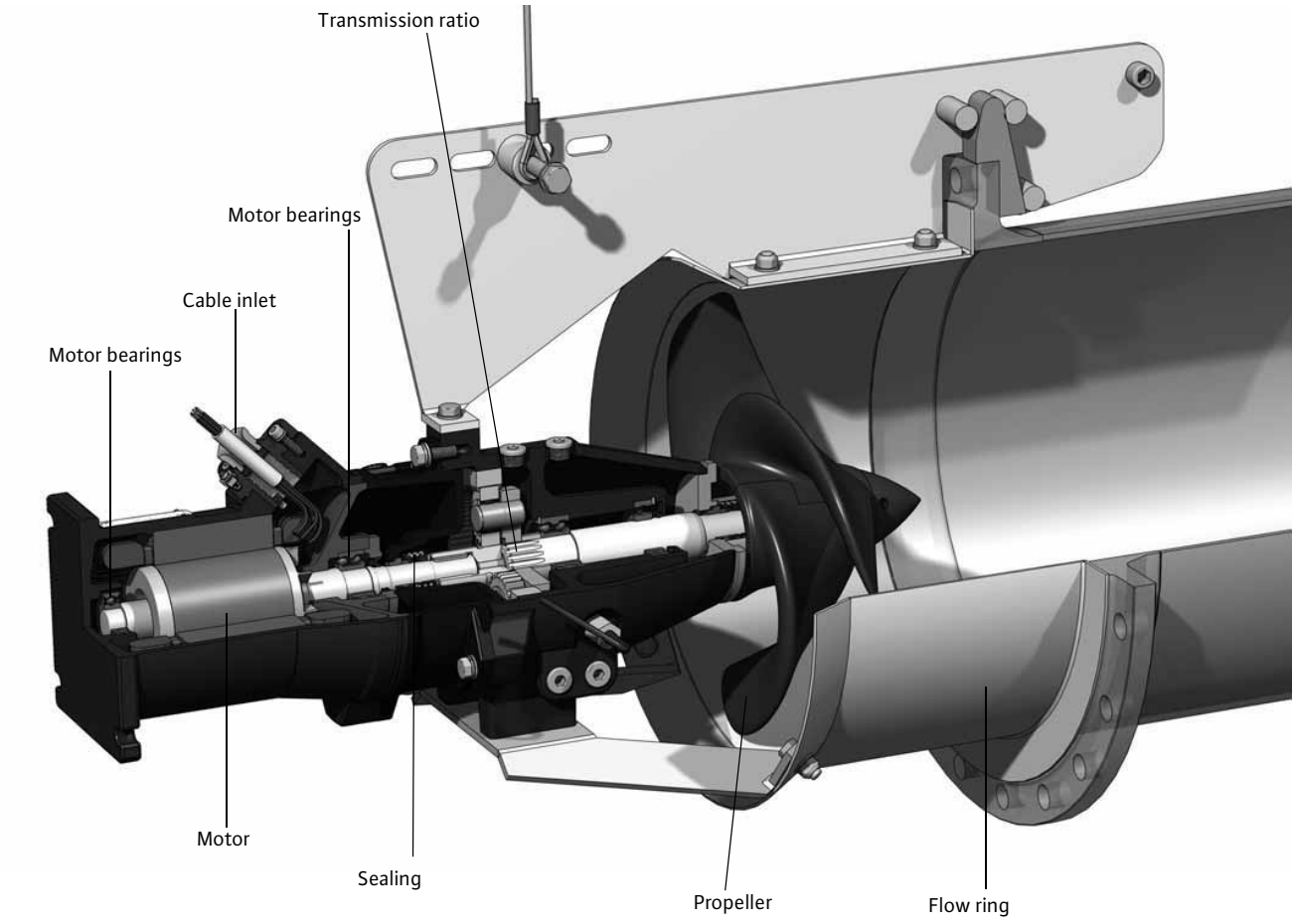
Sealing
RZP 20 ... 25-2
On the fluid side by means of a mechanical seal made of the solid material silicon carbide; on the motor side by a radial shaft seal.

RZP 50-3 ... 80-1
On the fluid and motor side by mechanical seal made of solid-material silicon carbide

Sealing bush
Made of stainless steel, guarantees long-term corrosion-protected fit of the mechanical seal

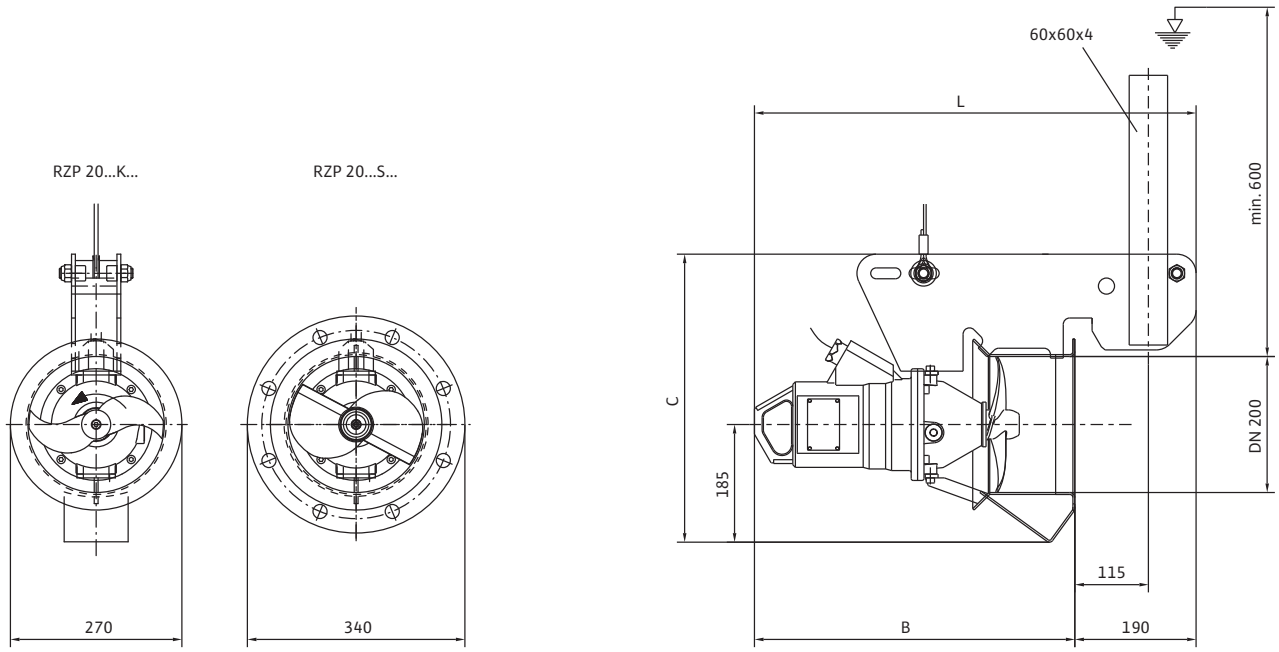
Propeller
2-, 3- or 4-bladed propeller; entwining-free construction due to backward-curved incoming flow edge. The propeller blades are permanently fixed, which guarantees the best possible hydraulic efficiency.

Gear unit (RZP 50-3 ... 80-1)
1-stage planetary gear with exchangeable planetary levels.



Wilo-EMU RZP 20...4/6

Dimension drawing

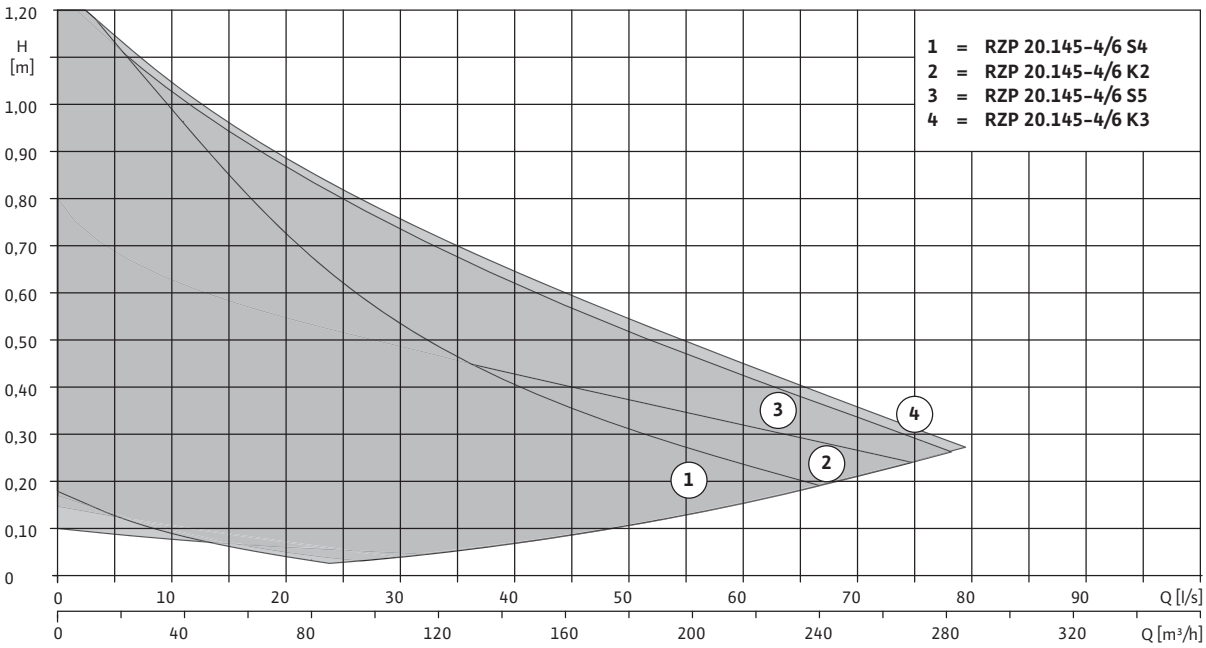


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 20.145-4/6 K2	500	450	690	35
RZP 20.145-4/6 K3	500	450	690	35
RZP 20.145-4/6 S4	500	450	690	37
RZP 20.145-4/6 S5	500	450	690	37

Wilo-EMU RZP 20...4/6

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 20.145-4/6 K2	T 12-4/6G	1336	1.000
RZP 20.145-4/6 K3	T 12-4/6G	1336	1.000
RZP 20.145-4/6 S4	T 12-4/6G	1336	1.000
RZP 20.145-4/6 S5	T 12-4/6G	1336	1.000

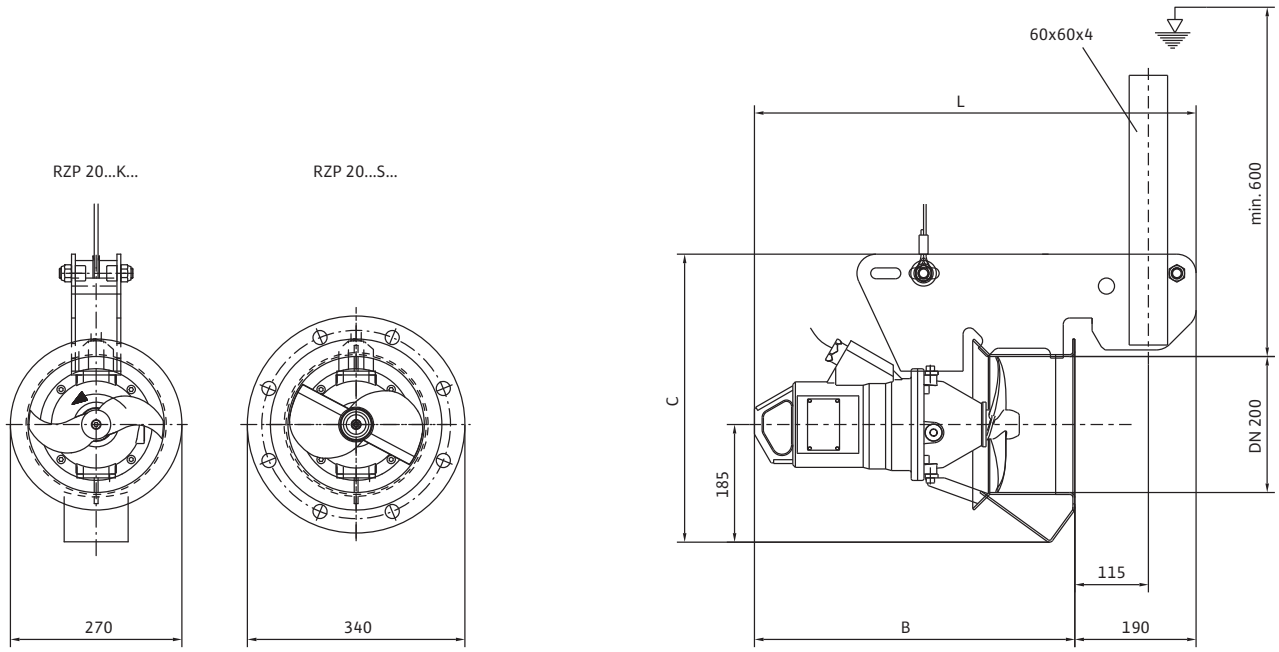
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 12-4/6G	0.50	0.73	1.42	1336	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 20...4/11

Dimension drawing

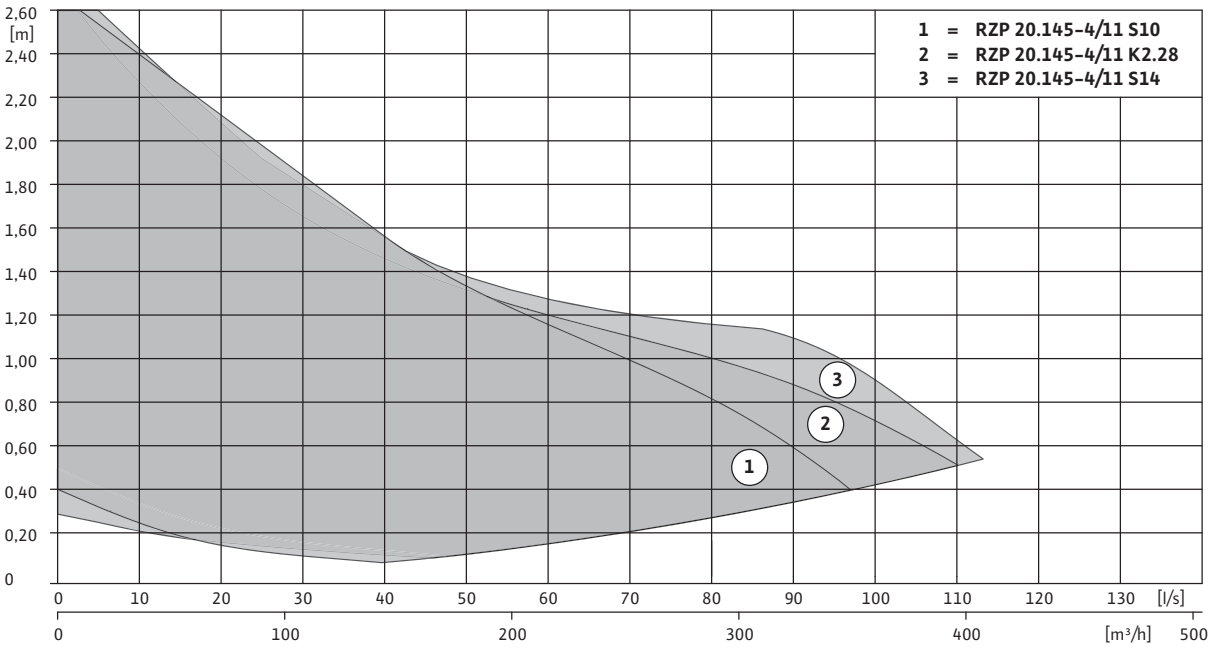


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 20.145-4/11 K2.28	596	450	786	41
RZP 20.145-4/11 S10	596	450	786	43
RZP 20.145-4/11 S14	596	450	786	43

Wilo-EMU RZP 20...4/11

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 20.145-4/11 K2.28	T 12-4/11G	1392	1.000
RZP 20.145-4/11 S10	T 12-4/11G	1392	1.000
RZP 20.145-4/11 S14	T 12-4/11G	1392	1.000

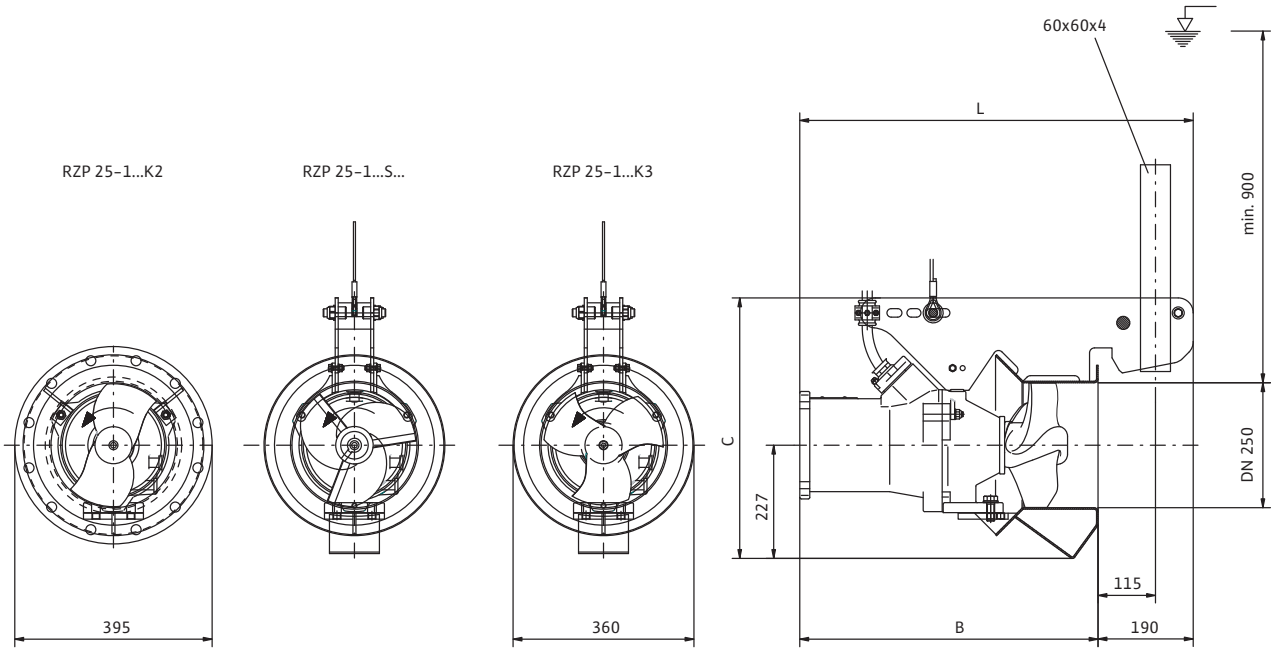
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 12-4/11G	1.30	1.74	3.30	1392	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 25-2...6/8

Dimension drawing

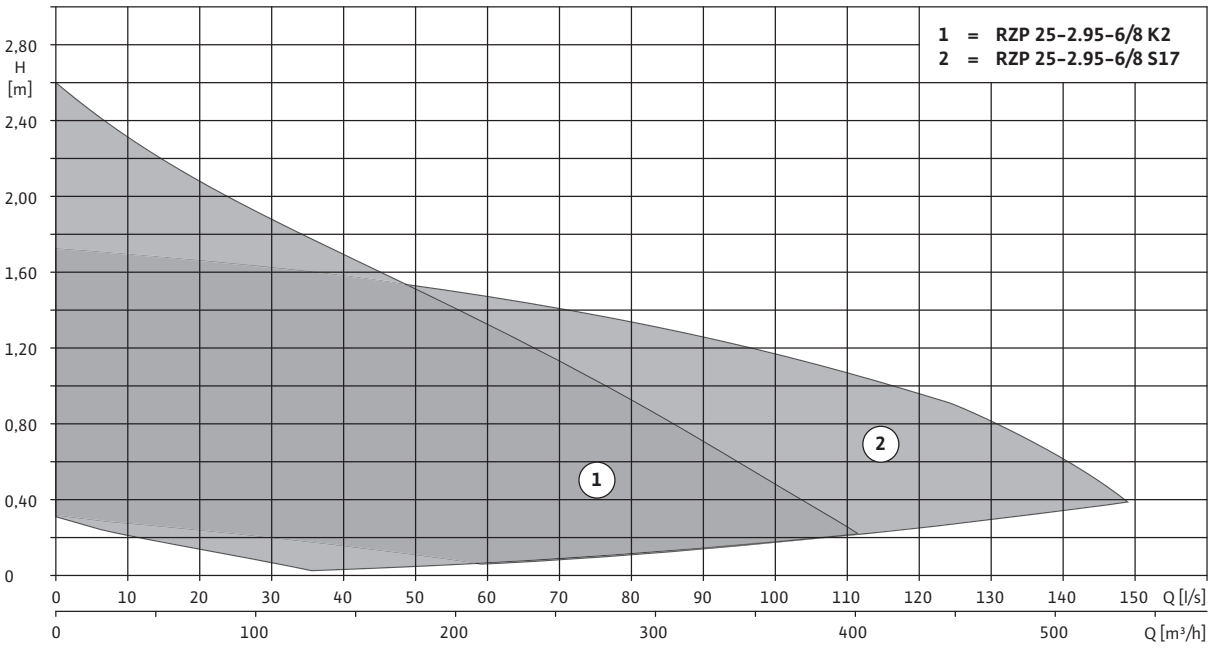


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 25-2.95-6/8 K2	562	522	752	65
RZP 25-2.95-6/8 S17	562	522	752	69

Wilo-EMU RZP 25-2...6/8

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 25-2.95-6/8 K2	T 17-6/8R	915	1.000
RZP 25-2.95-6/8 S17	T 17-6/8R	915	1.000

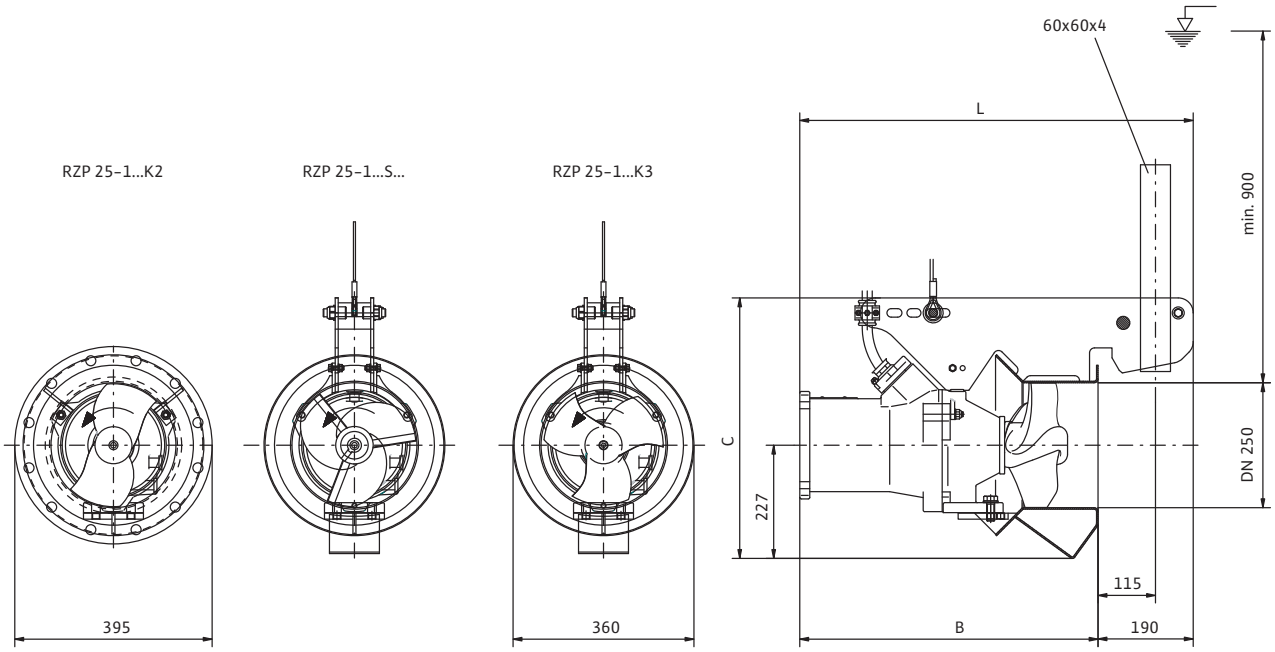
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-6/8R	1.75	2.50	4.45	915	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 25-2...6/16

Dimension drawing

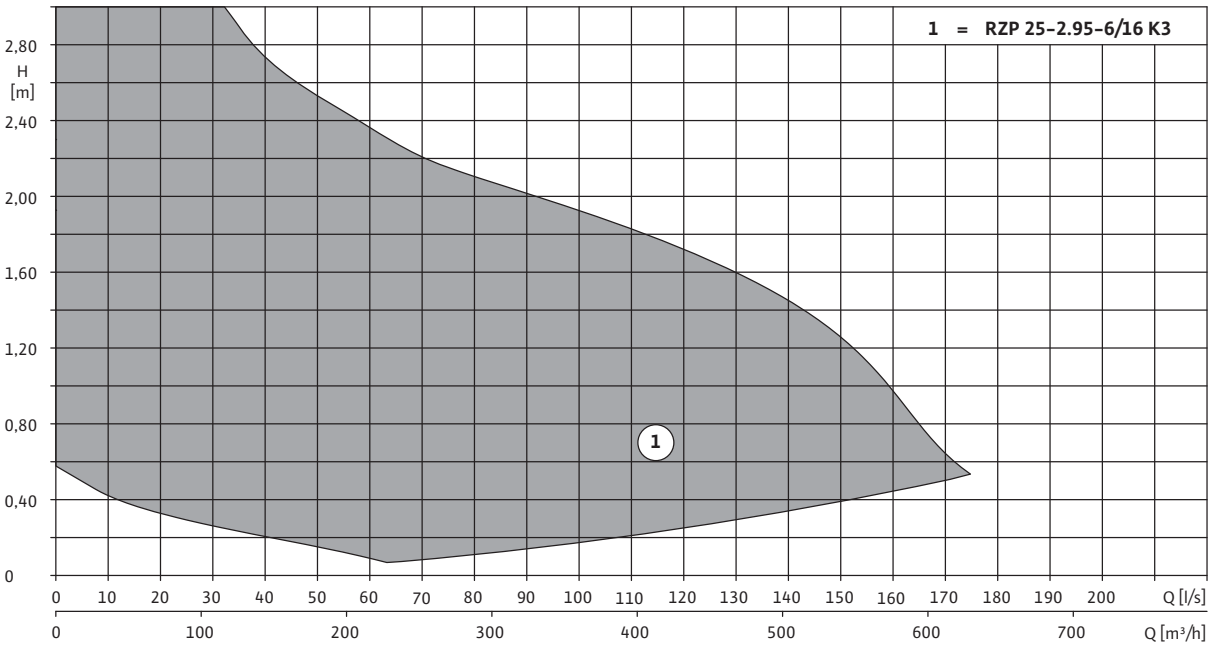


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 25-2.95-6/16 K3	635	522	825	85

Wilo-EMU RZP 25-2...6/16

Pump curves



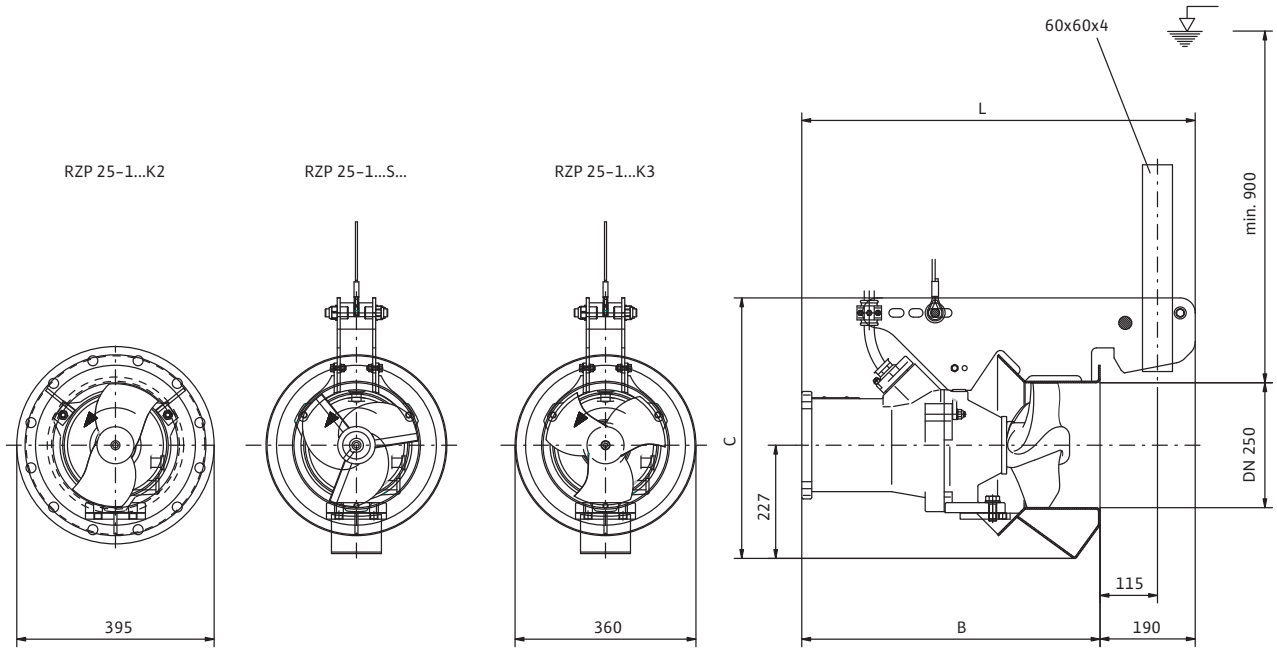
Technical data			
Wilo-EMU...	**Motor type**	**Propeller speed**	**Transmission**
	–	**n**	**–**
	–	**[rpm]**	**–**
RZP 25-2.95-6/16 K3	T 17-6/16R	931	1.000

Motor data					
Wilo-EMU...	**Nominal power**	**Power consumption**	**Nominal current**	**Nominal speed**	**Ex protection**
	P_2	**P_1**	**I_N**	**n**	**–**
	[kW]		**[A]**	**[rpm]**	**–**
T 17-6/16R	3.70	5.20	9.10	931	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 25-2...4/8V

Dimension drawing

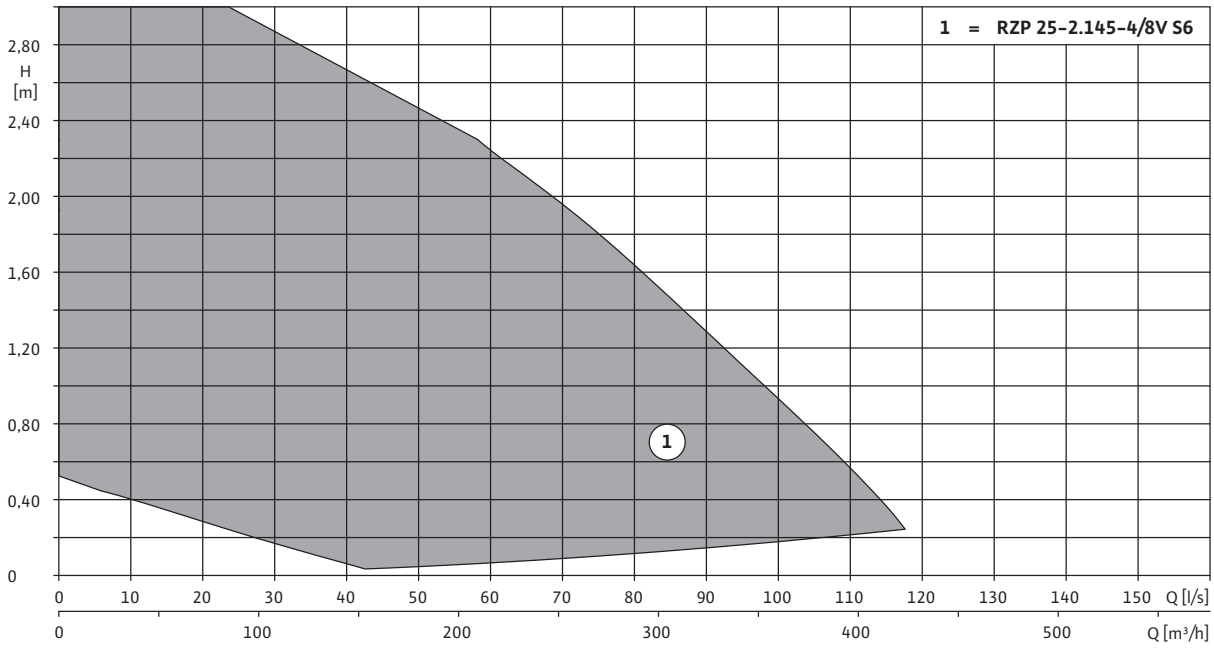


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 25-2.145-4/8V S6	562	522	752	71

Wilo-EMU RZP 25-2...4/8V

Pump curves



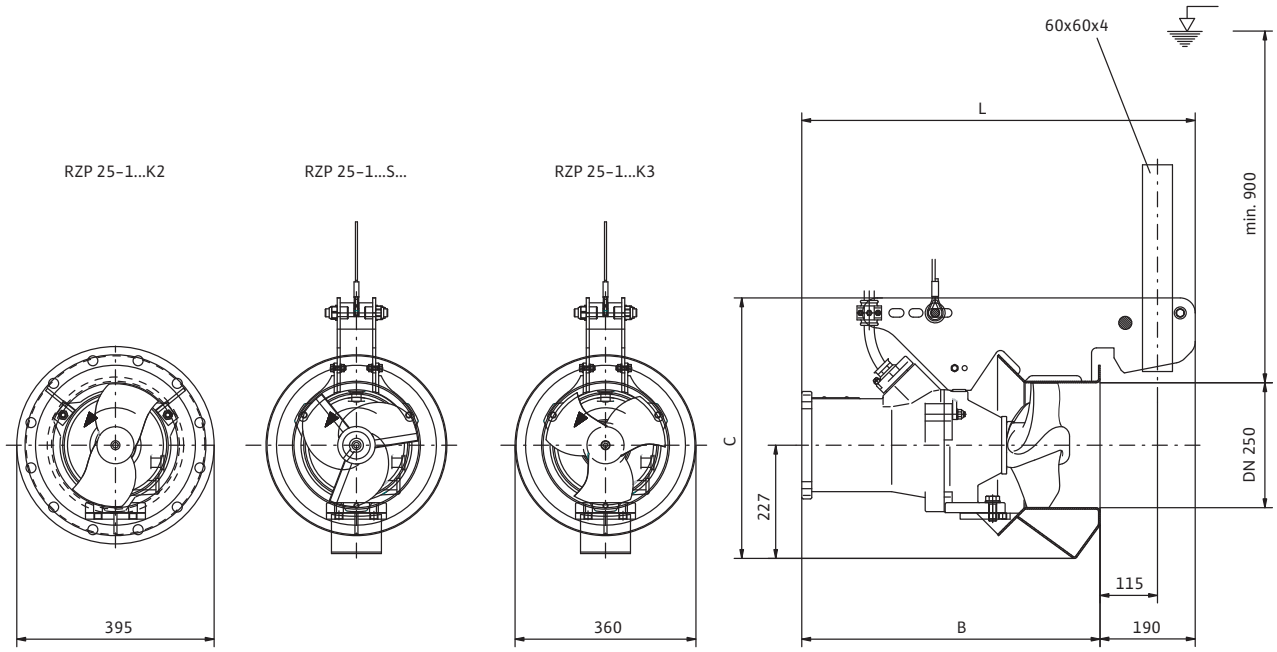
Technical data			
Wilo-EMU...	**Motor type**	**Propeller speed**	**Transmission**
	–	**n**	**–**
	–	**[rpm]**	**–**
RZP 25-2.145-4/8V S6	T 17-4/8V	1400	1.000

Motor data					
Wilo-EMU...	**Nominal power**	**Power consumption**	**Nominal current**	**Nominal speed**	**Ex protection**
	P_2	**P_1**	**I_N**	**n**	**–**
	[kW]		**[A]**	**[rpm]**	**–**
T 17-4/8V	2.50	3.50	5.90	1400	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 25-2...4/8

Dimension drawing

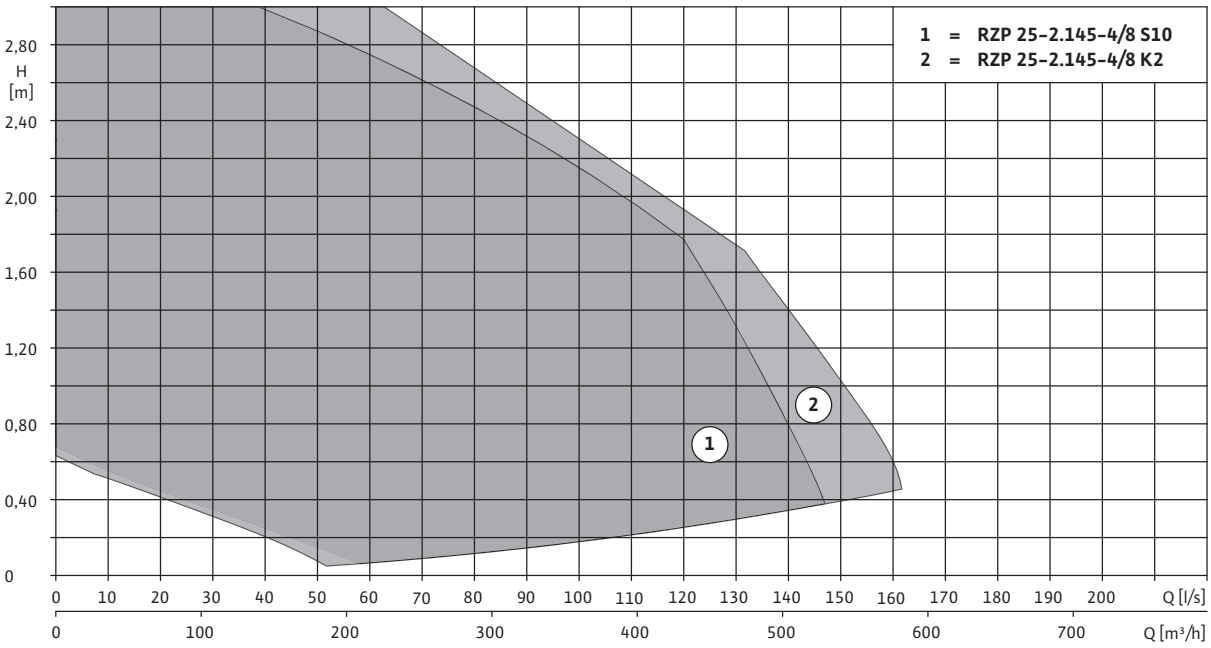


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 25-2.145-4/8 K2	562	522	752	67
RZP 25-2.145-4/8 S10	562	522	752	71

Wilo-EMU RZP 25-2...4/8

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 25-2.145-4/8 K2	T 17-4/8R	1410	1.000
RZP 25-2.145-4/8 S10	T 17-4/8R	1410	1.000

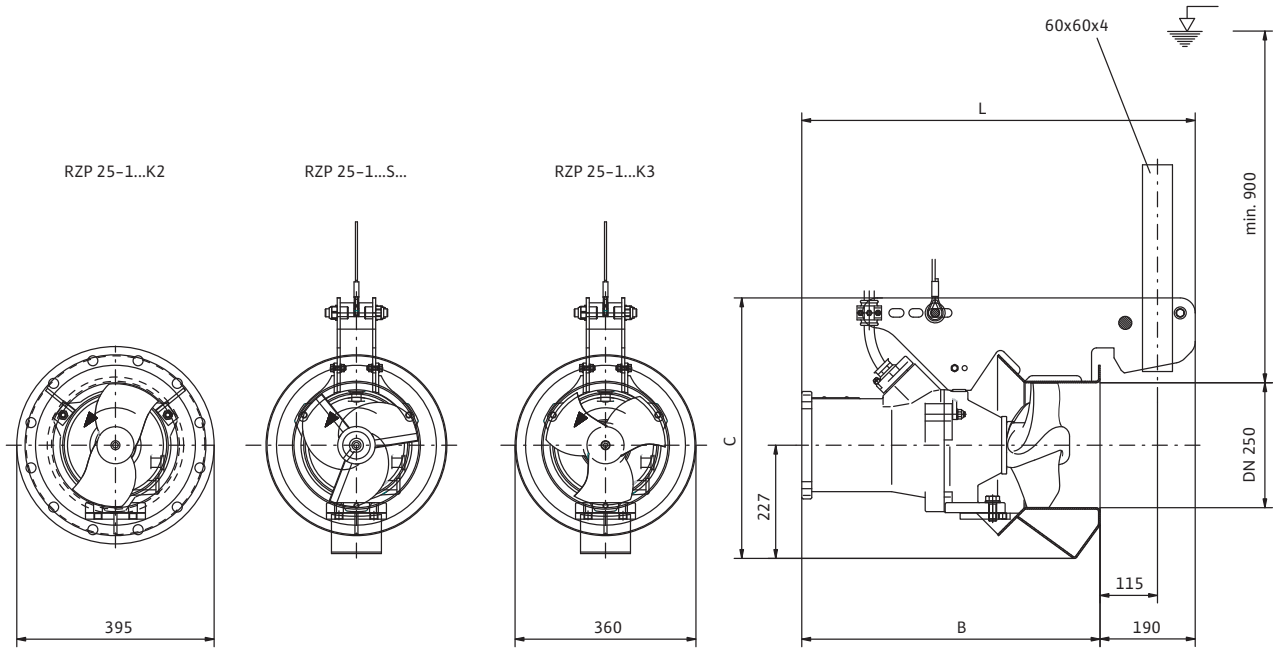
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 25-2...4/12

Dimension drawing

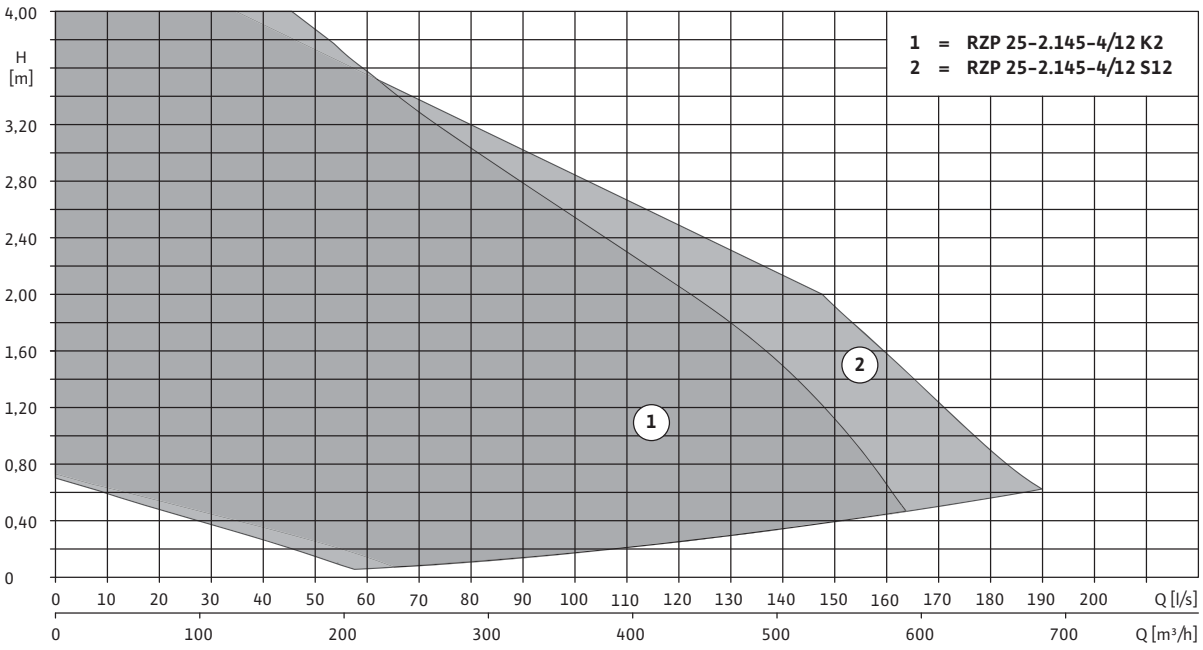


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 25-2.145-4/12 K2	597	522	787	73
RZP 25-2.145-4/12 S12	597	522	787	77

Wilo-EMU RZP 25-2...4/12

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 25-2.145-4/12 K2	T 17-4/12R	1405	1.000
RZP 25-2.145-4/12 S12	T 17-4/12R	1405	1.000

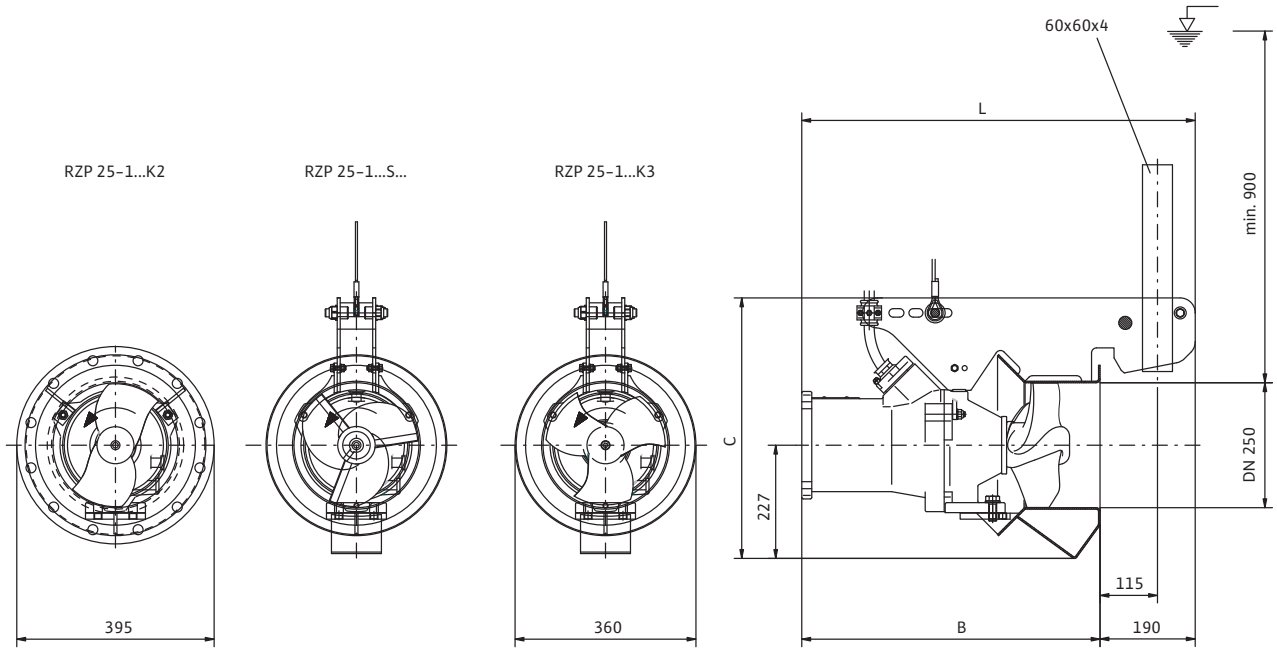
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm³.

Wilo-EMU RZP 25-2...4/16

Dimension drawing

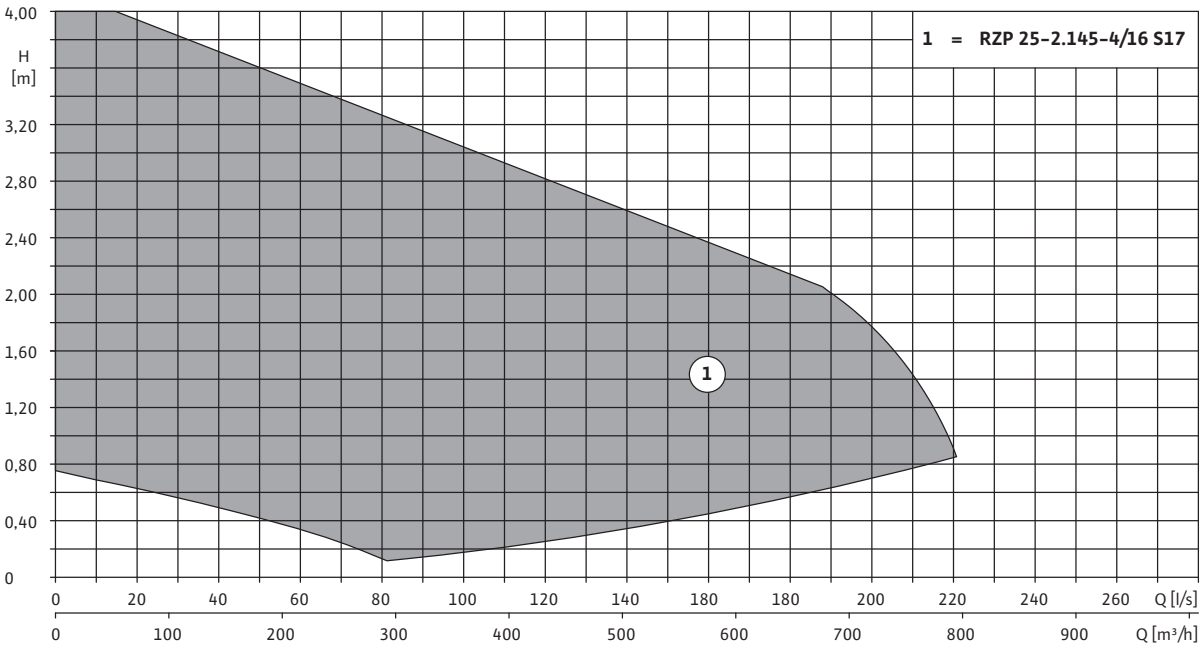


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 25-2.145-4/16 S17	635	522	825	89

Wilo-EMU RZP 25-2...4/16

Pump curves



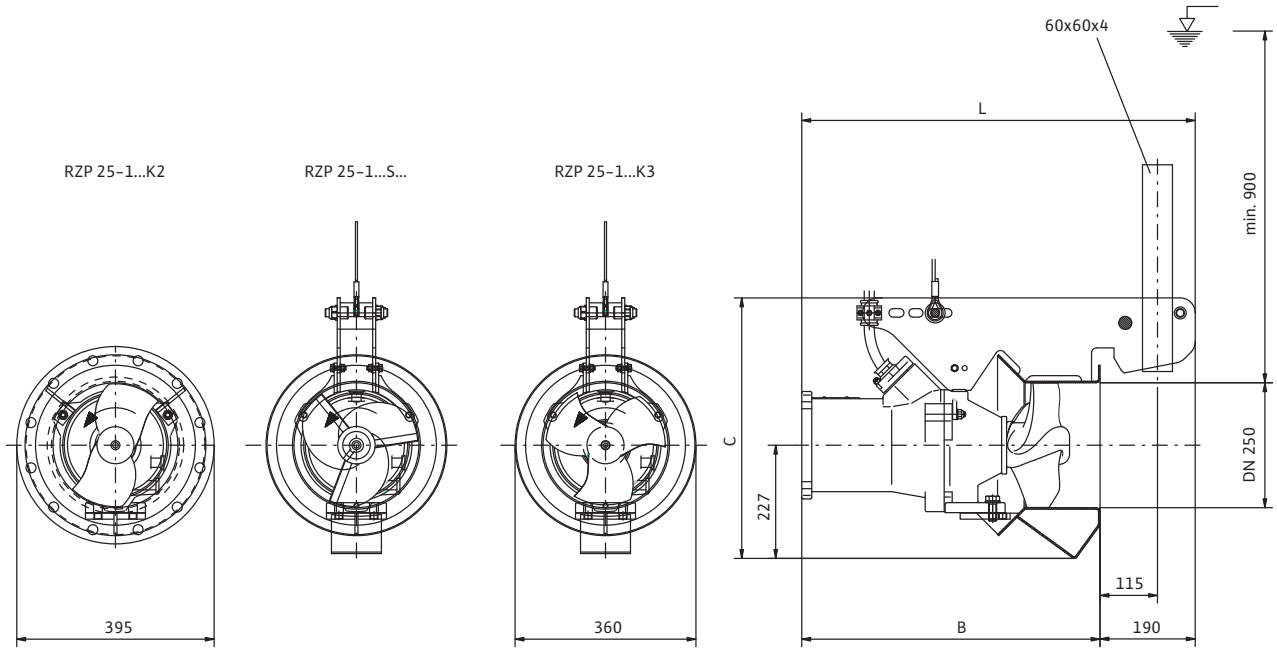
Technical data			
Wilo-EMU...	**Motor type**	**Propeller speed**	**Transmission**
	–	**n**	**–**
	–	**[rpm]**	**–**
RZP 25-2.145-4/16 S17	T 17-4/16R	1400	1.000

Motor data					
Wilo-EMU...	**Nominal power**	**Power consumption**	**Nominal current**	**Nominal speed**	**Ex protection**
	P_2	**P_1**	**I_N**	**n**	**–**
	[kW]		**[A]**	**[rpm]**	**–**
T 17-4/16R	6.50	8.20	13.50	1400	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm³.

Wilo-EMU RZP 25-2...4/24

Dimension drawing

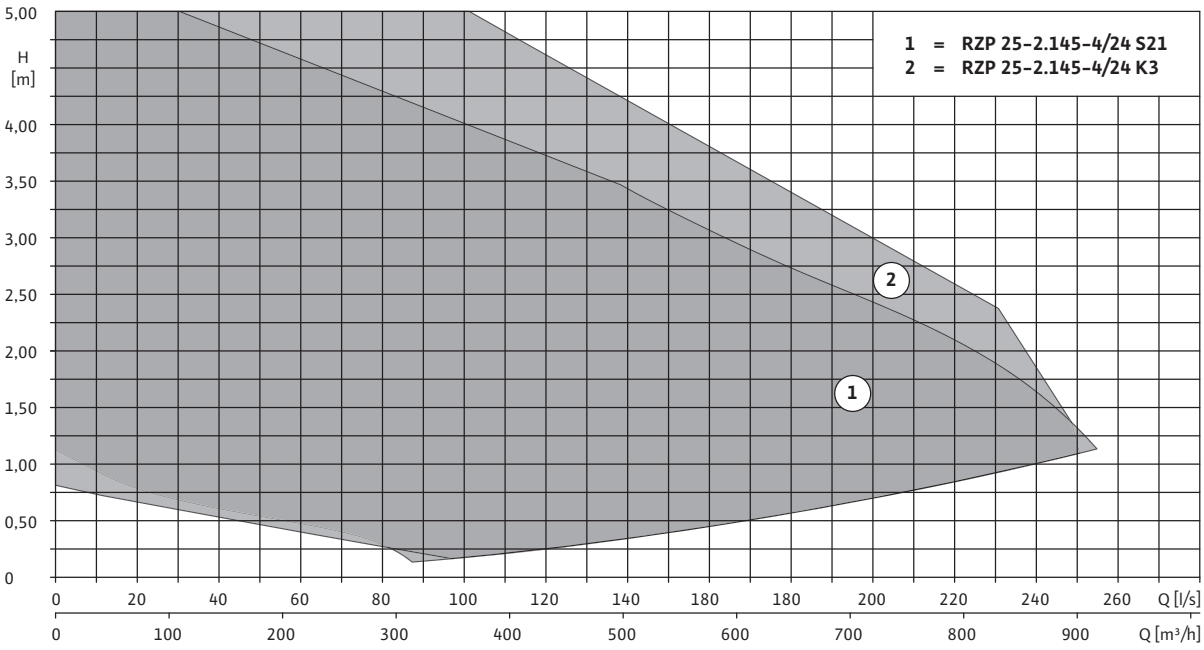


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 25-2.145-4/24 K3	715	522	905	101
RZP 25-2.145-4/24 S21	715	522	905	104

Wilo-EMU RZP 25-2...4/24

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 25-2.145-4/24 K3	T 17-4/24R	1417	1.000
RZP 25-2.145-4/24 S21	T 17-4/24R	1417	1.000

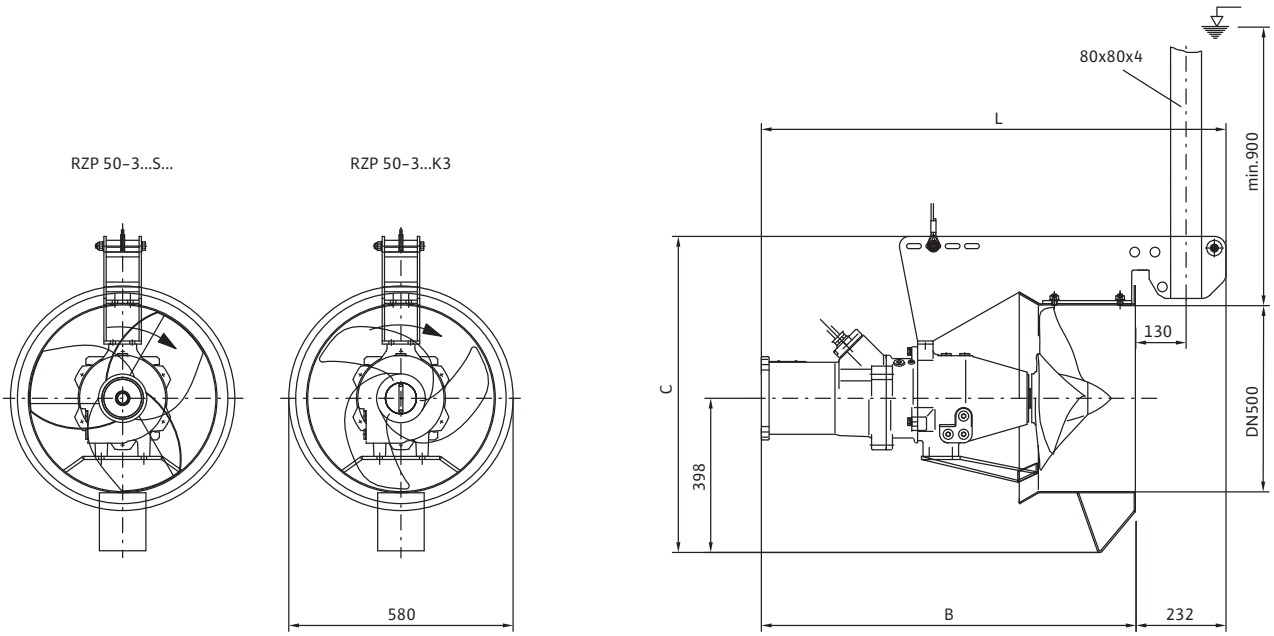
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/24R	10.00	12.20	21	1417	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 50-3...4/8

Dimension drawing

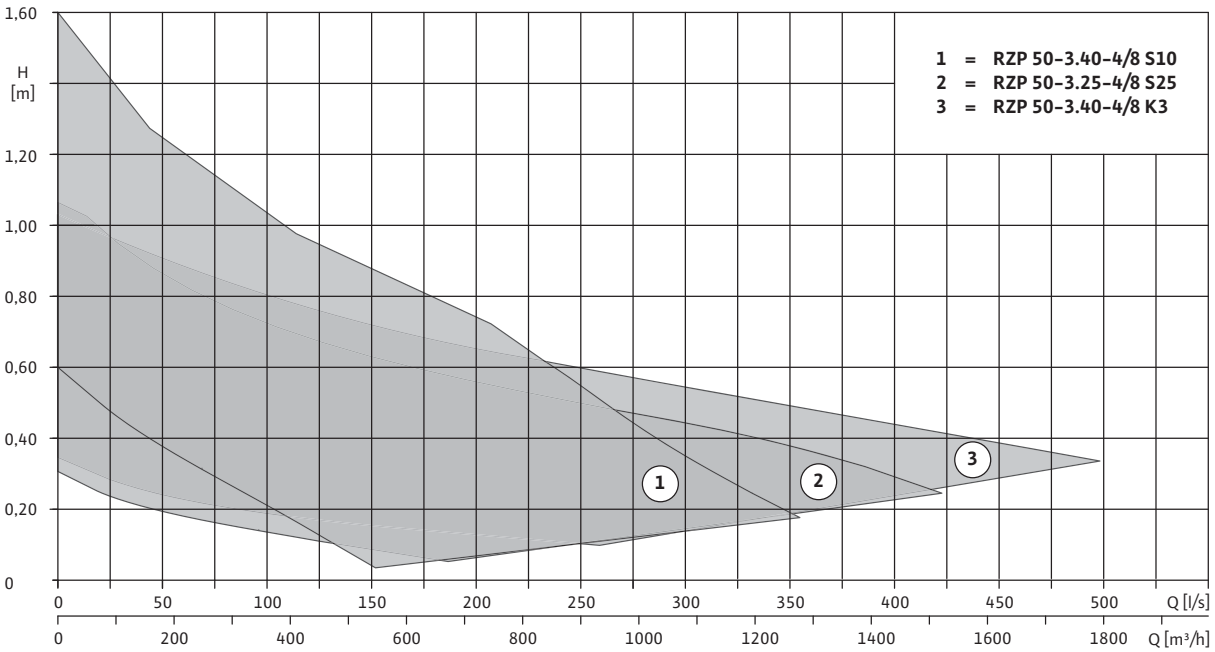


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 50-3.25-4/8 S25	897	816	1129	140
RZP 50-3.40-4/8 K3	897	816	1129	129
RZP 50-3.40-4/8 S10	897	816	1129	140

Wilo-EMU RZP 50-3...4/8

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 50-3.25-4/8 S25	T 17-4/8R	250	5.590
RZP 50-3.40-4/8 K3	T 17-4/8R	400	3.600
RZP 50-3.40-4/8 S10	T 17-4/8R	400	3.600

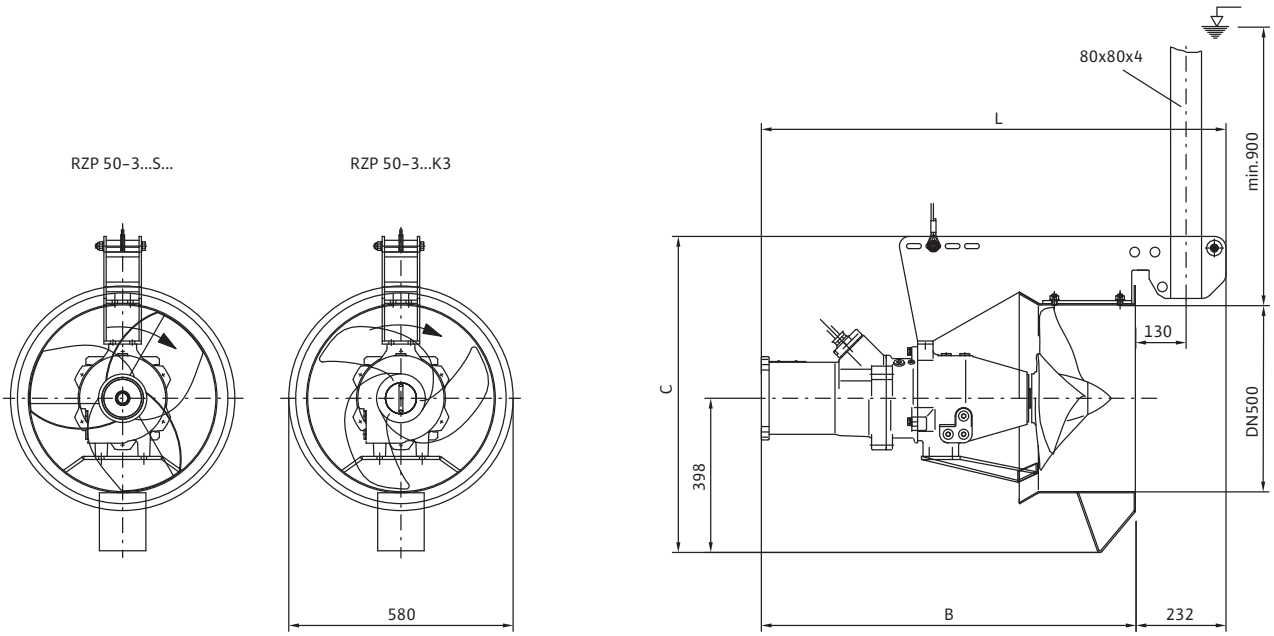
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/8R	3.50	4.50	7.90	1410	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 50-3...4/12

Dimension drawing

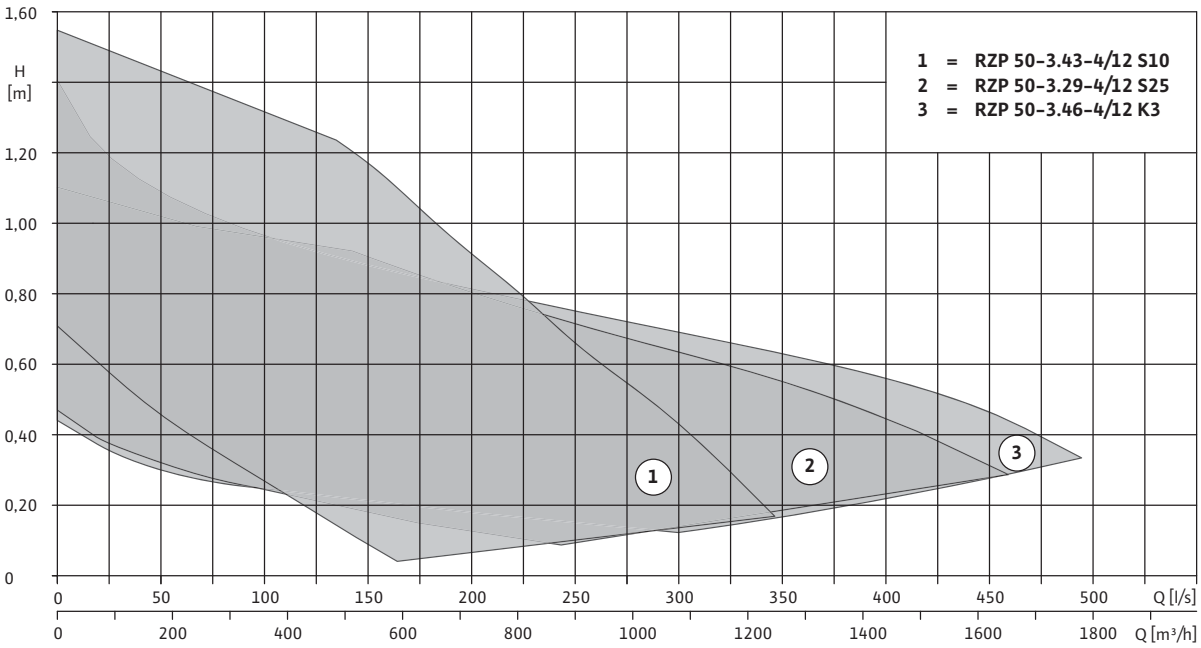


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 50-3.29-4/12 S25	932	816	1164	148
RZP 50-3.43-4/12 S10	932	816	1164	148
RZP 50-3.46-4/12 K3	932	816	1164	137

Wilo-EMU RZP 50-3...4/12

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 50-3.29-4/12 S25	T 17-4/12R	290	4.900
RZP 50-3.43-4/12 S10	T 17-4/12R	430	3.364
RZP 50-3.46-4/12 K3	T 17-4/12R	460	3.167

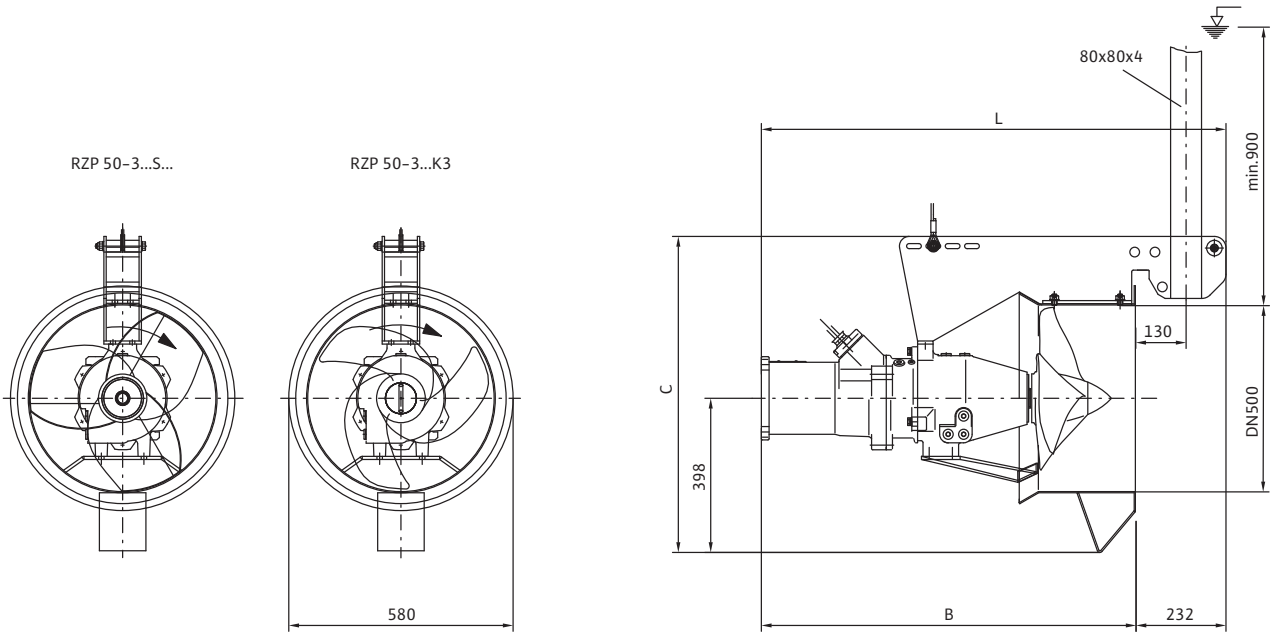
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 50-3...4/16

Dimension drawing

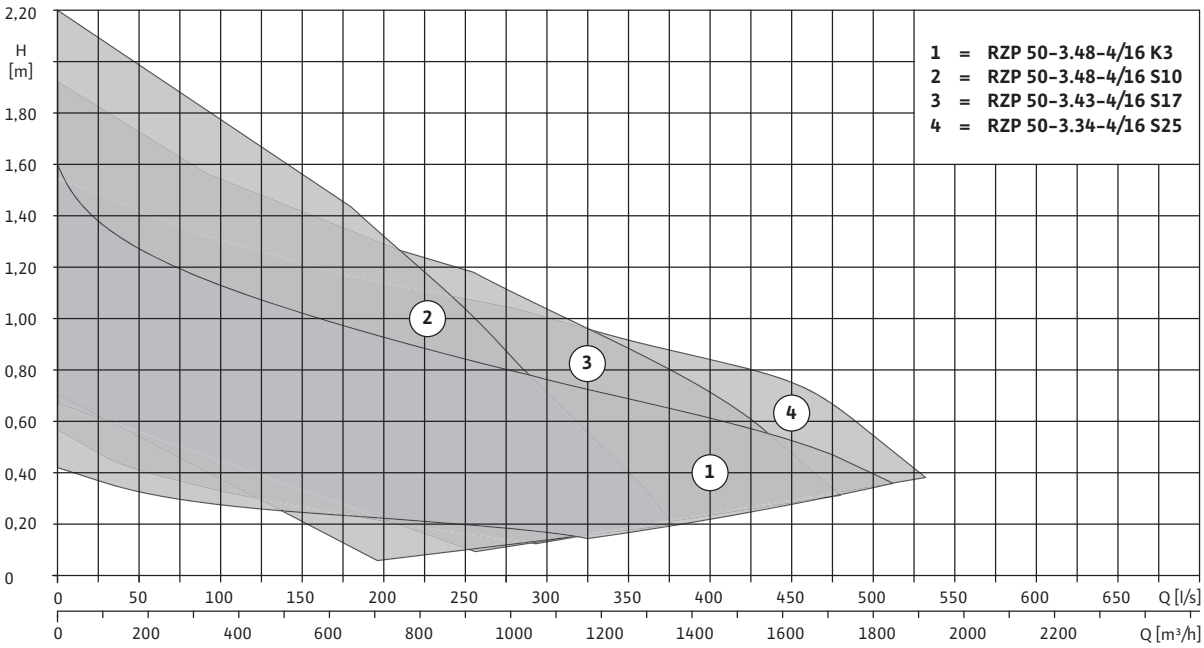


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 50-3.34-4/16 S25	970	816	1202	158
RZP 50-3.43-4/16 S17	970	816	1202	158
RZP 50-3.48-4/16 S10	970	816	1202	158
RZP 50-3.48-4/16 K3	970	816	1202	147

Wilo-EMU RZP 50-3...4/16

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 50-3.34-4/16 S25	T 17-4/16R	340	4.250
RZP 50-3.43-4/16 S17	T 17-4/16R	430	3.364
RZP 50-3.48-4/16 S10	T 17-4/16R	480	3.000
RZP 50-3.48-4/16 K3	T 17-4/16R	480	3.000

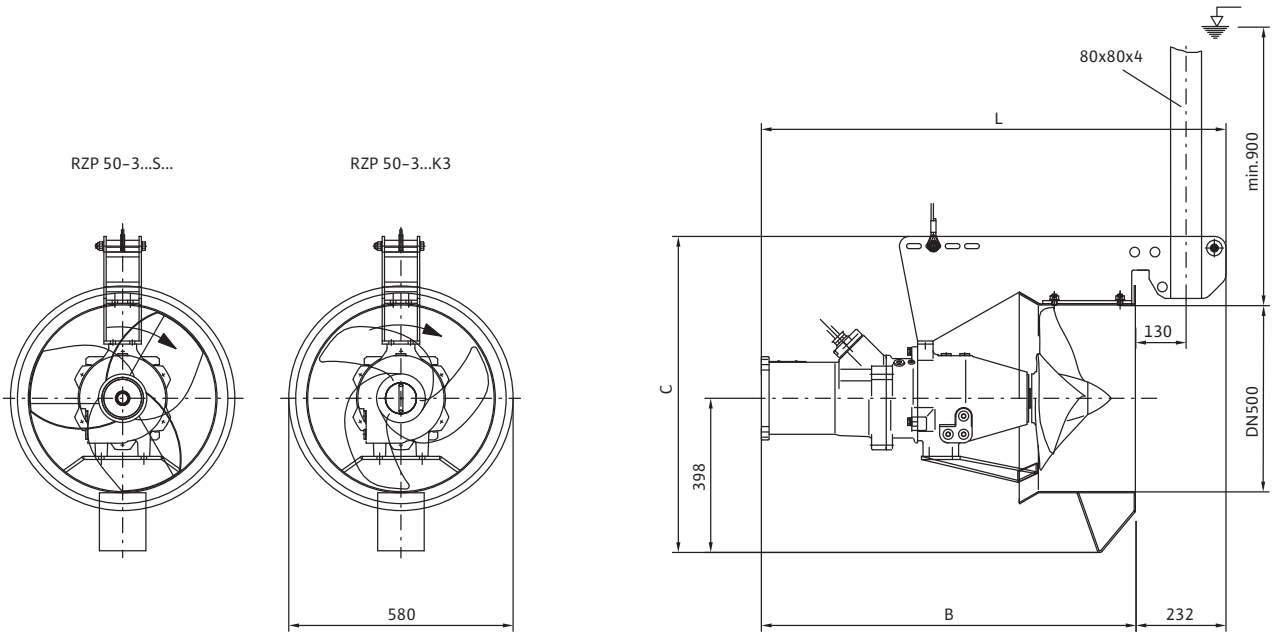
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/16R	6.50	8.20	13.50	1400	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 50-3...4/24

Dimension drawing

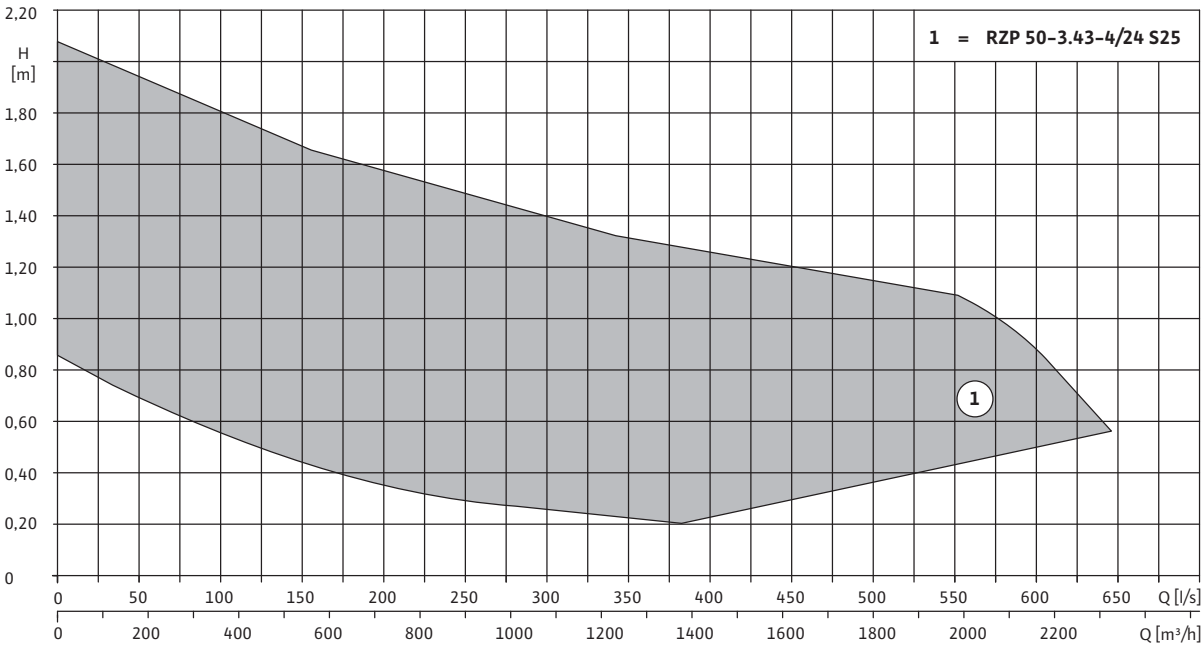


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 50-3.43-4/24 S25	1050	816	1282	170

Wilo-EMU RZP 50-3...4/24

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 50-3.43-4/24 S25	T 17-4/24R	430	3.364

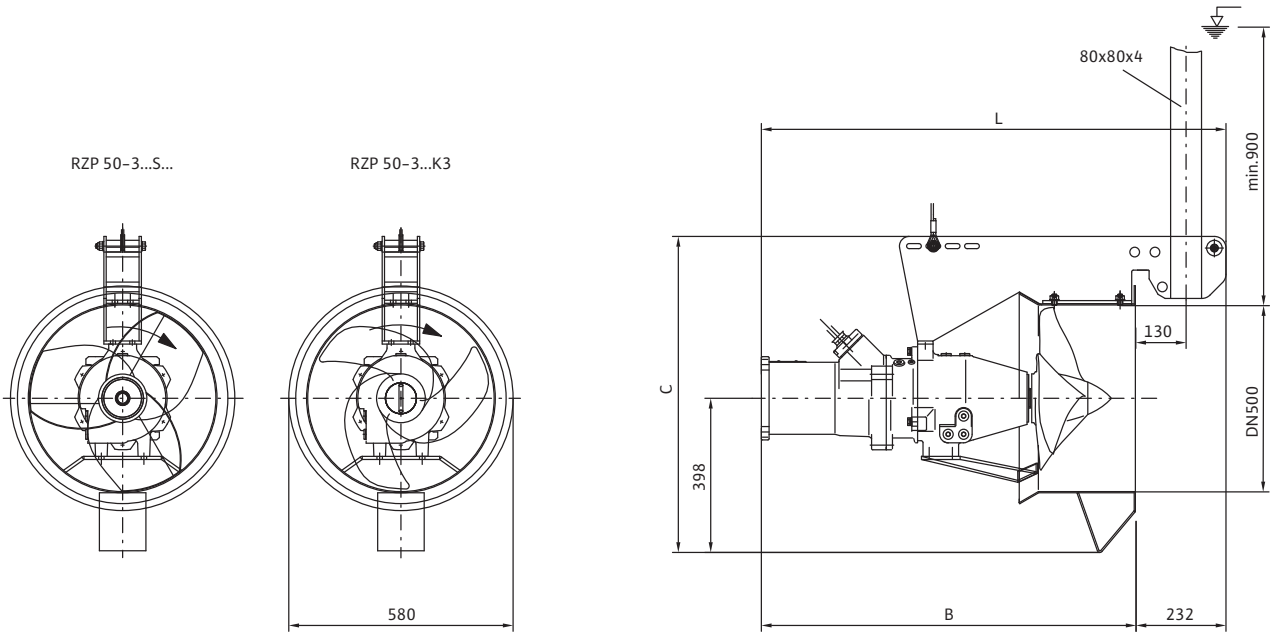
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/24R	10	12.20	21	1417	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 50-3...2/22

Dimension drawing

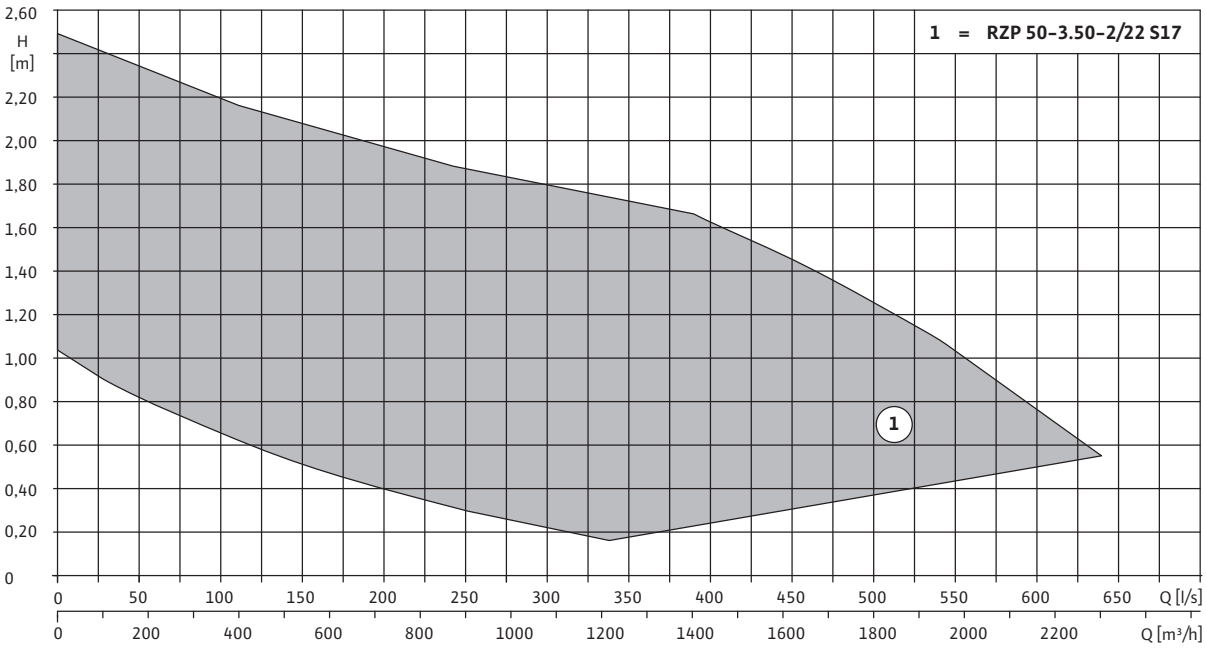


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 50-3.50-2/22 S17	1050	816	1282	174

Wilo-EMU RZP 50-3...2/22

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 50-3.50-2/22 S17	T 17-2/22R	500	5.875

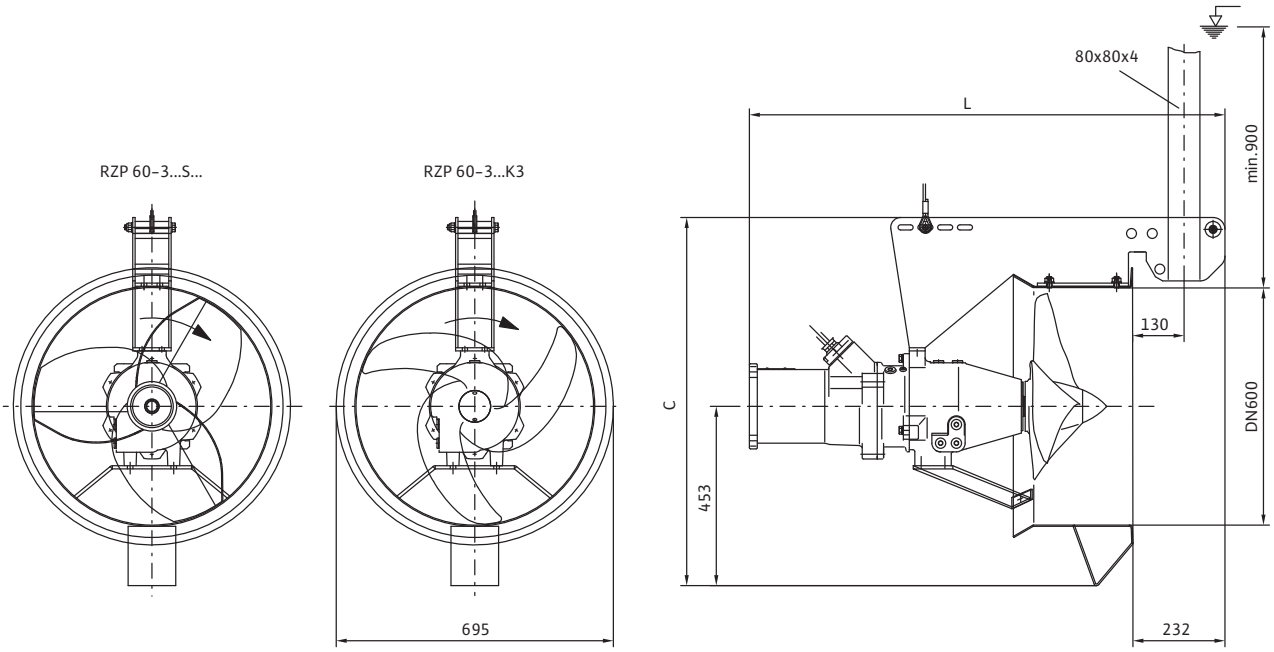
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-2/22R	10.50	12.30	20.50	2907	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 60-3...4/12

Dimension drawing

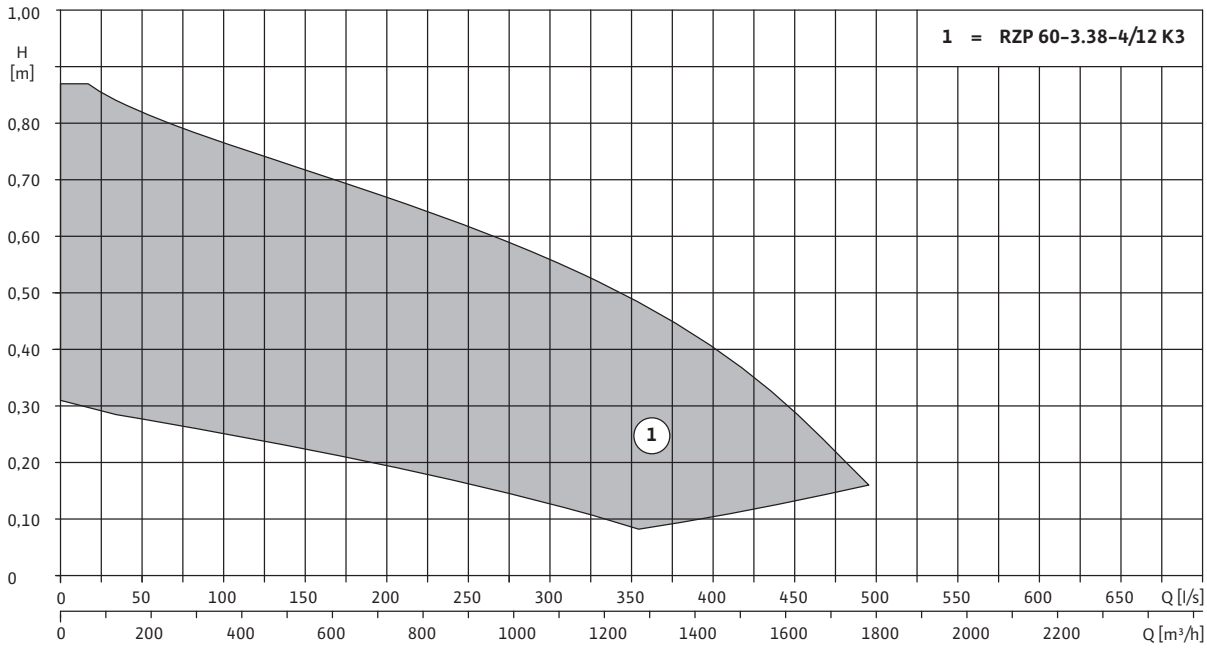


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 60-3.38-4/12 K3	920	930	1152	143

Wilo-EMU RZP 60-3...4/12

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 60-3.38-4/12 K3	T 17-4/12R	380	3.880

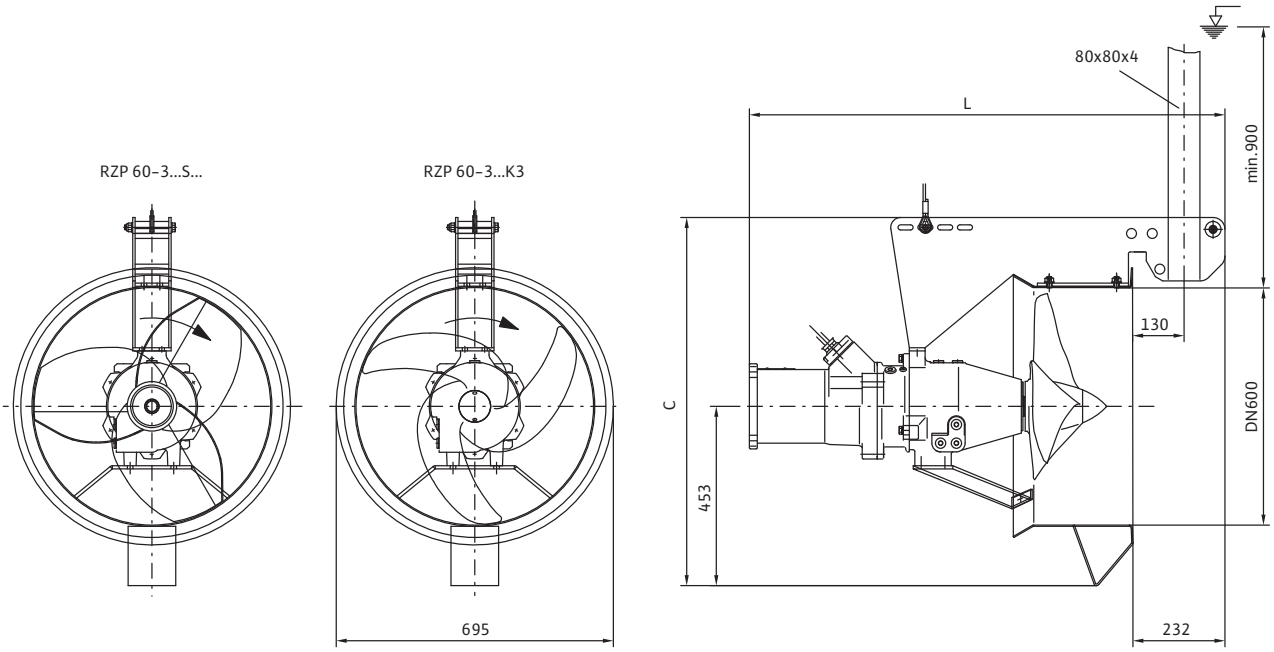
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/12R	4.50	5.80	9.40	1405	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 60-3...4/16

Dimension drawing

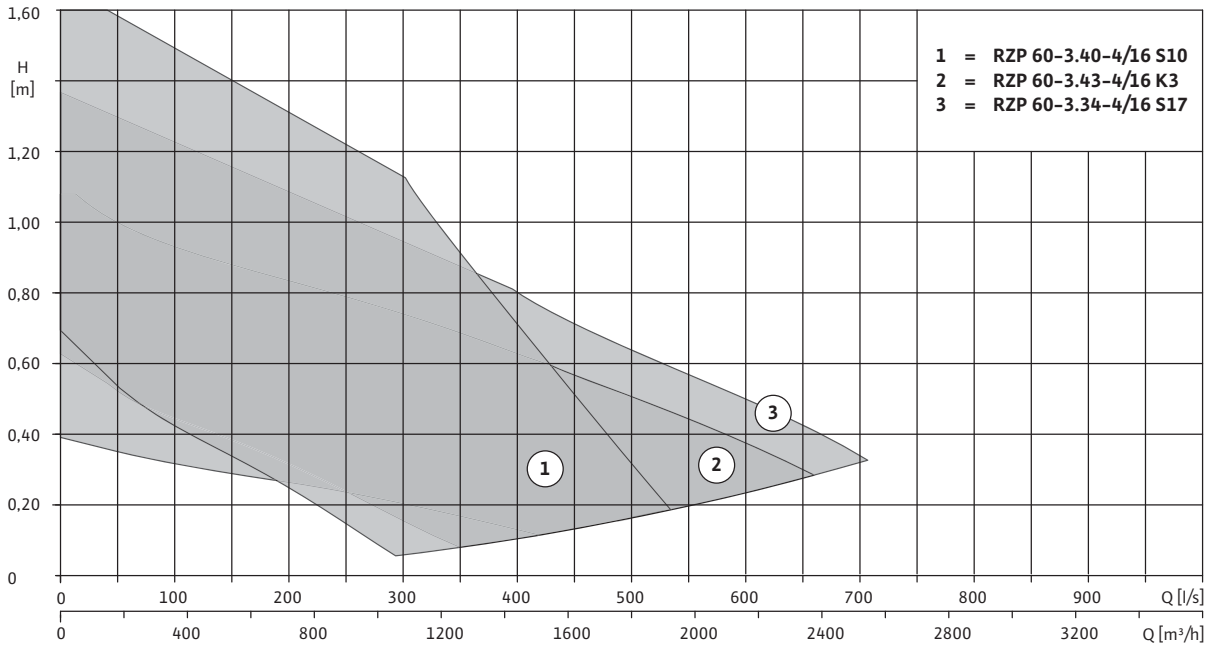


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 60-3.34-4/16 S17	958	930	1190	164
RZP 60-3.40-4/16 S10	958	930	1190	164
RZP 60-3.43-4/16 K3	958	930	1190	153

Wilo-EMU RZP 60-3...4/16

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 60-3.34-4/16 S17	T 17-4/16R	340	4.250
RZP 60-3.40-4/16 S10	T 17-4/16R	400	3.600
RZP 60-3.43-4/16 K3	T 17-4/16R	430	3.364

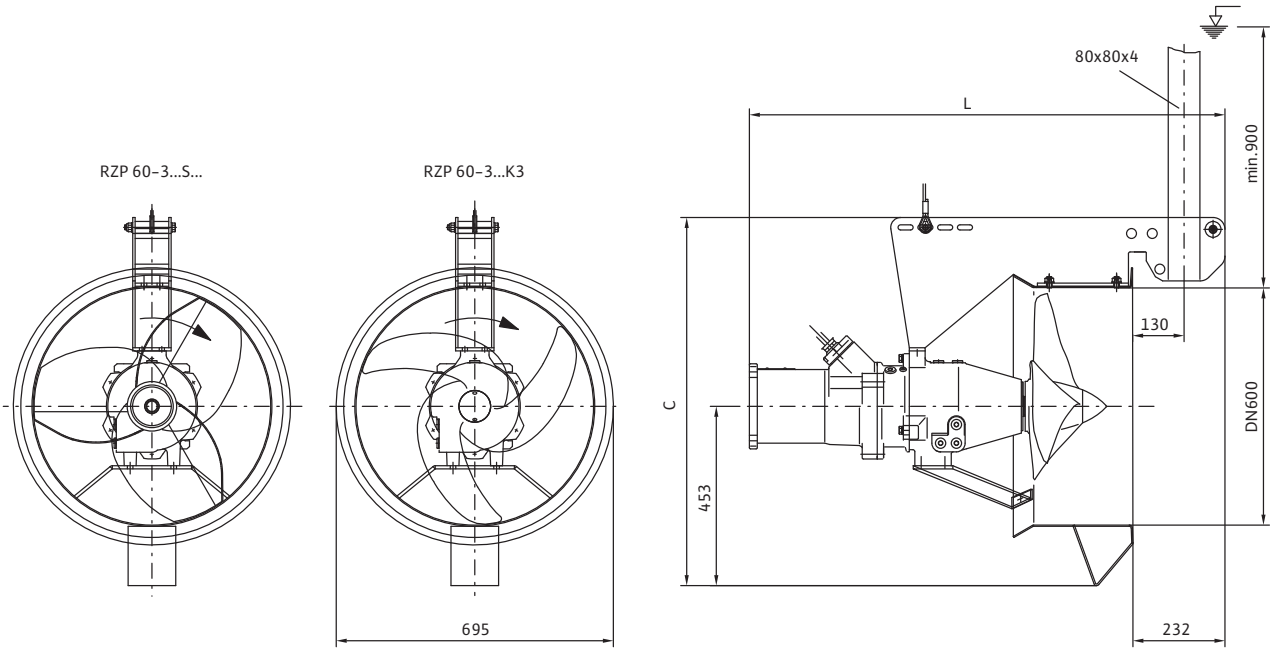
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/16R	6.50	8.20	13.50	1400	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 60-3...4/24

Dimension drawing

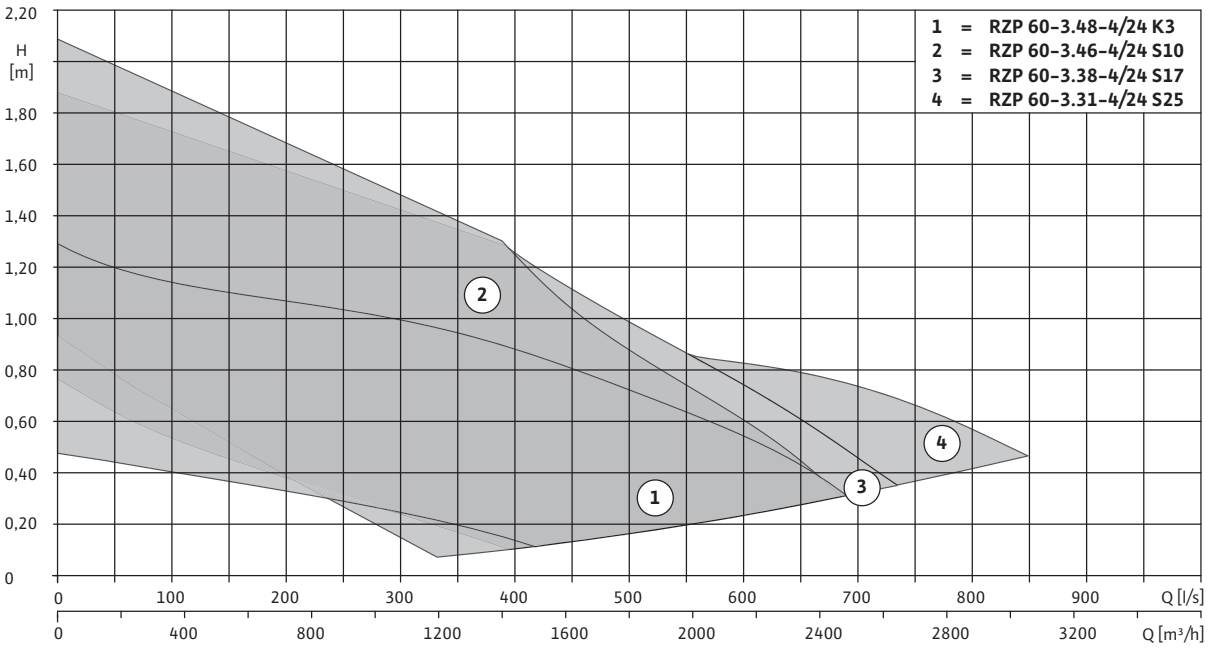


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 60-3.31-4/24 S25	1038	930	1270	176
RZP 60-3.38-4/24 S17	1038	930	1270	176
RZP 60-3.46-4/24 S10	1038	930	1270	176
RZP 60-3.48-4/24 K3	1038	930	1270	165

Wilo-EMU RZP 60-3...4/24

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 60-3.31-4/24 S25	T 17-4/24R	310	4.714
RZP 60-3.38-4/24 S17	T 17-4/24R	380	3.880
RZP 60-3.46-4/24 S10	T 17-4/24R	460	3.167
RZP 60-3.48-4/24 K3	T 17-4/24R	480	3.000

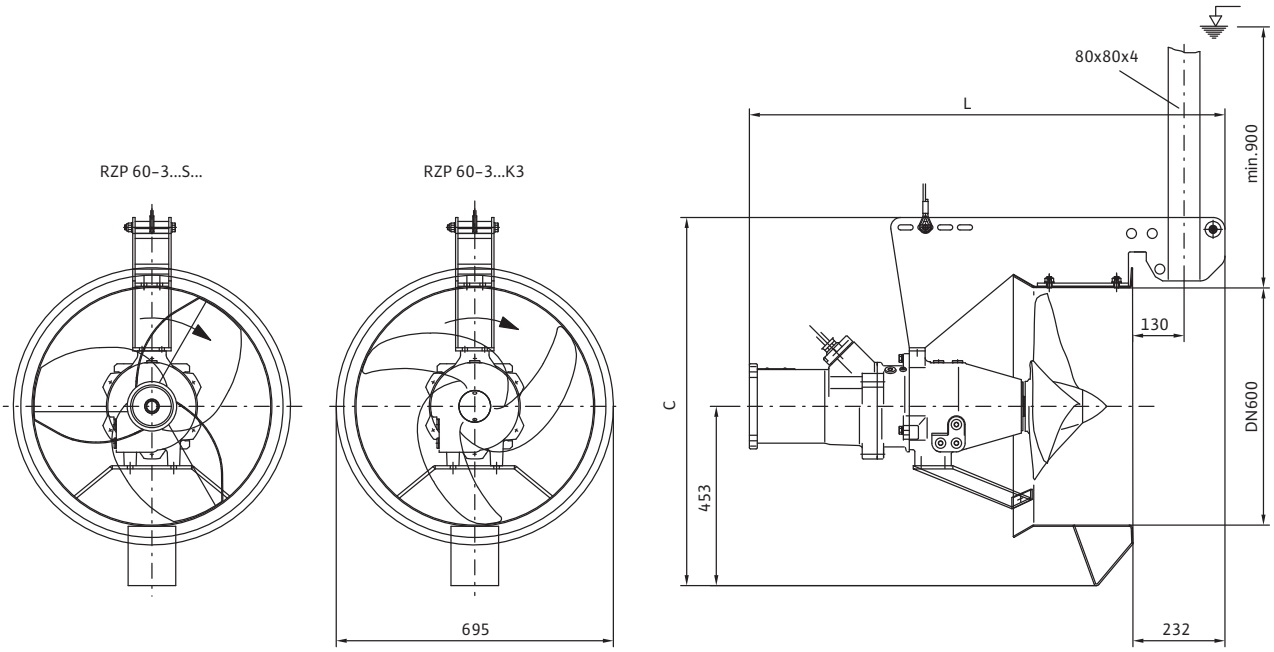
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-4/24R	10	12.20	21	1417	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 60-3...2/22

Dimension drawing

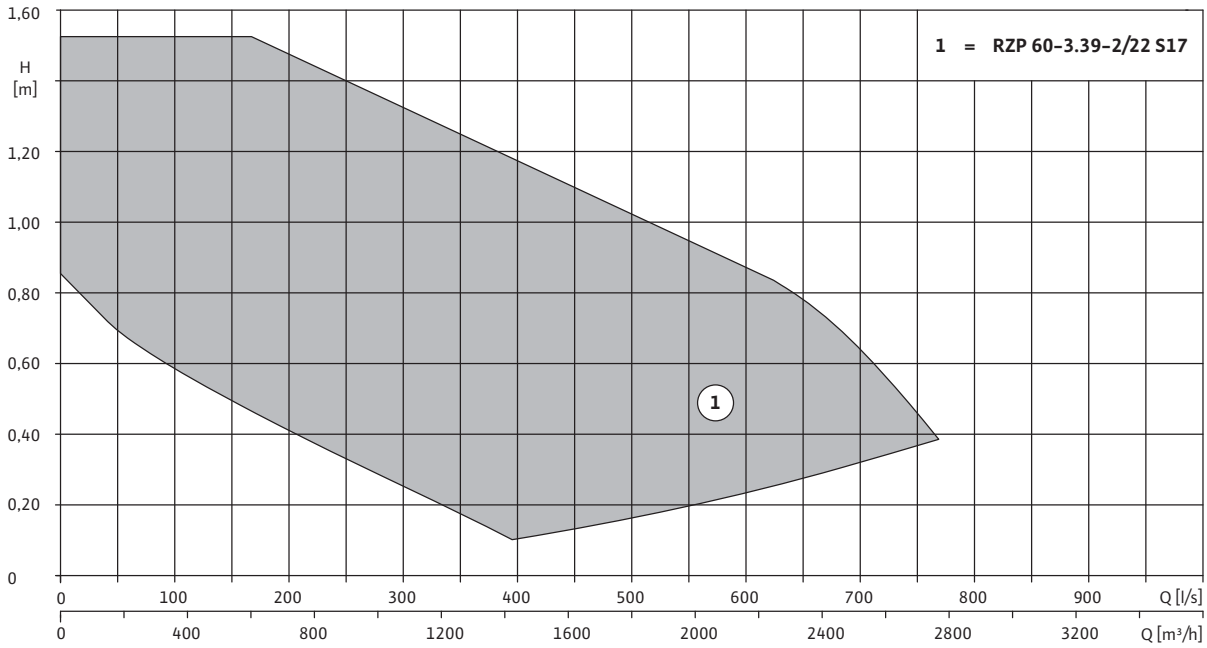


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 60-3.39-2/22 S17	1038	930	1270	174

Wilo-EMU RZP 60-3...2/22

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 60-3.39-2/22 S17	T 17-2/22R	390	7.500

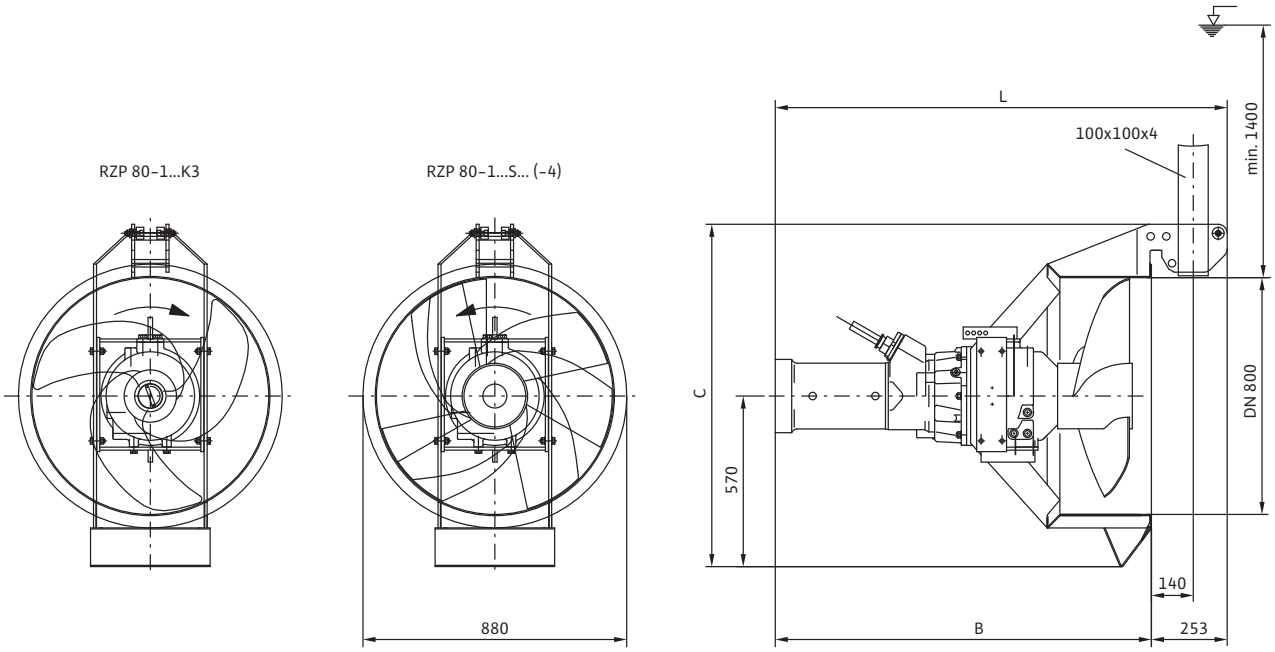
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 17-2/22R	10.50	12.30	20.50	2907	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

Wilo-EMU RZP 80-1...4/30

Dimension drawing

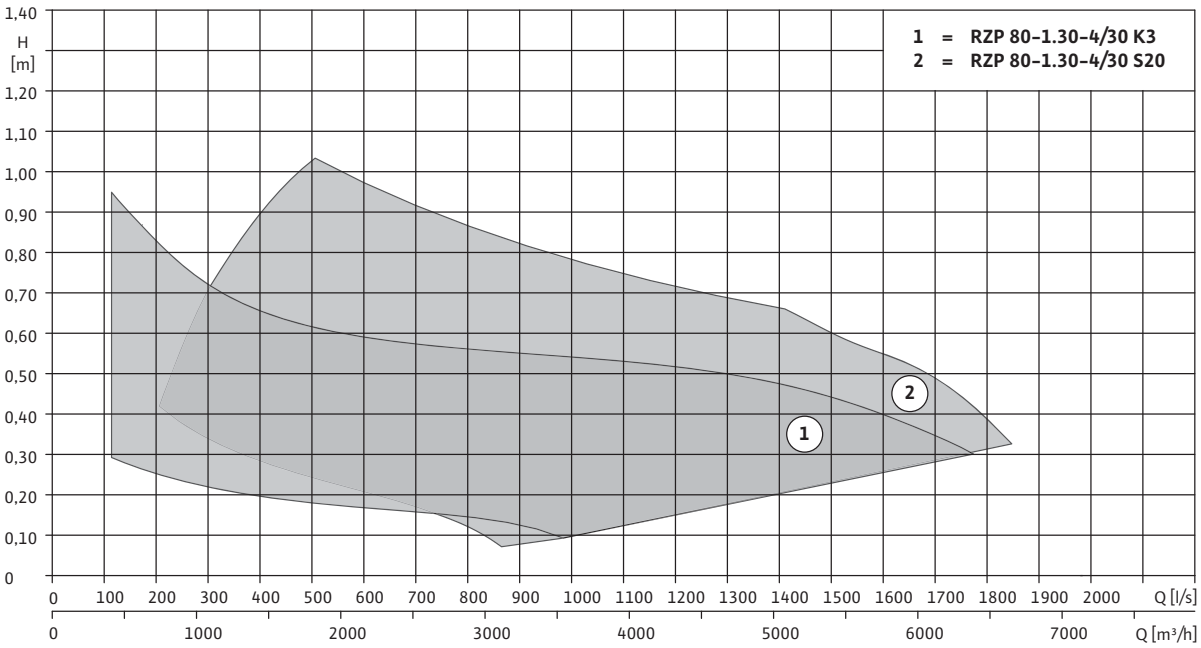


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 80-1.30-4/30 K3	1260	1154	1510	365
RZP 80-1.30-4/30 S20	1260	1154	1510	385

Wilo-EMU RZP 80-1...4/30

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 80-1.30-4/30 K3	T 20-4/30R	300	4.750
RZP 80-1.30-4/30 S20	T 20-4/30R	300	–

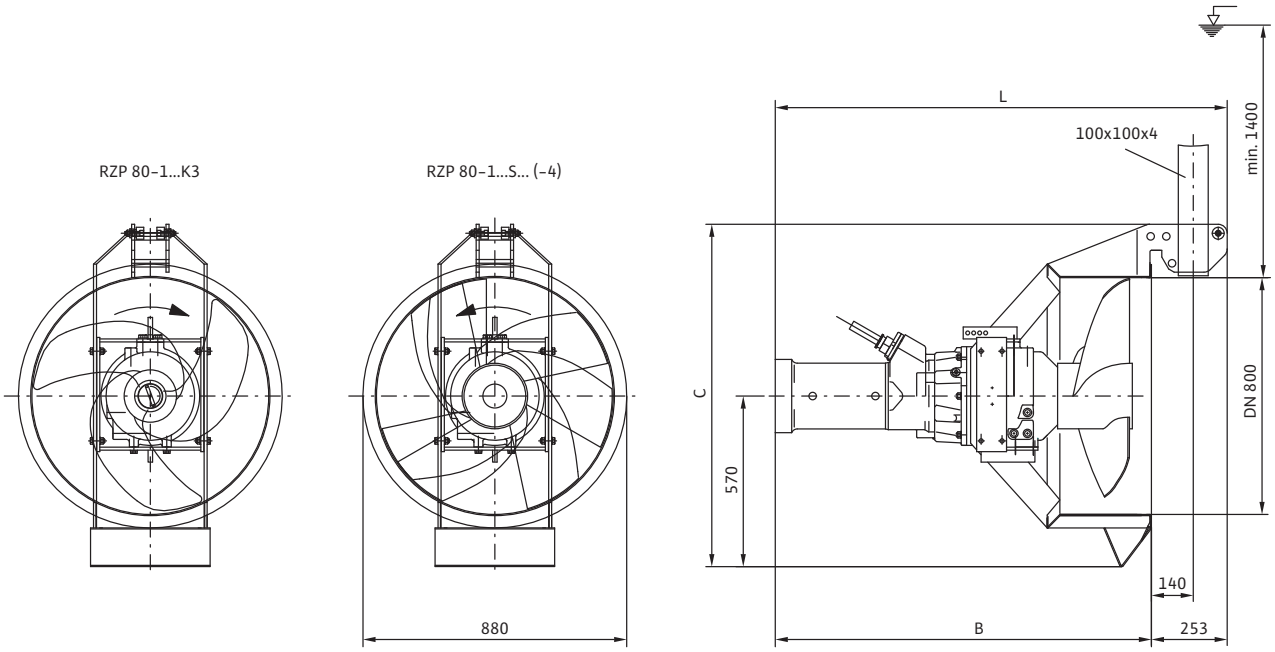
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[W]		[A]	[rpm]	–
T 20-4/30R	16.00	18.90	36.50	1435	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm³.

Wilo-EMU RZP 80-1...4/30

Dimension drawing

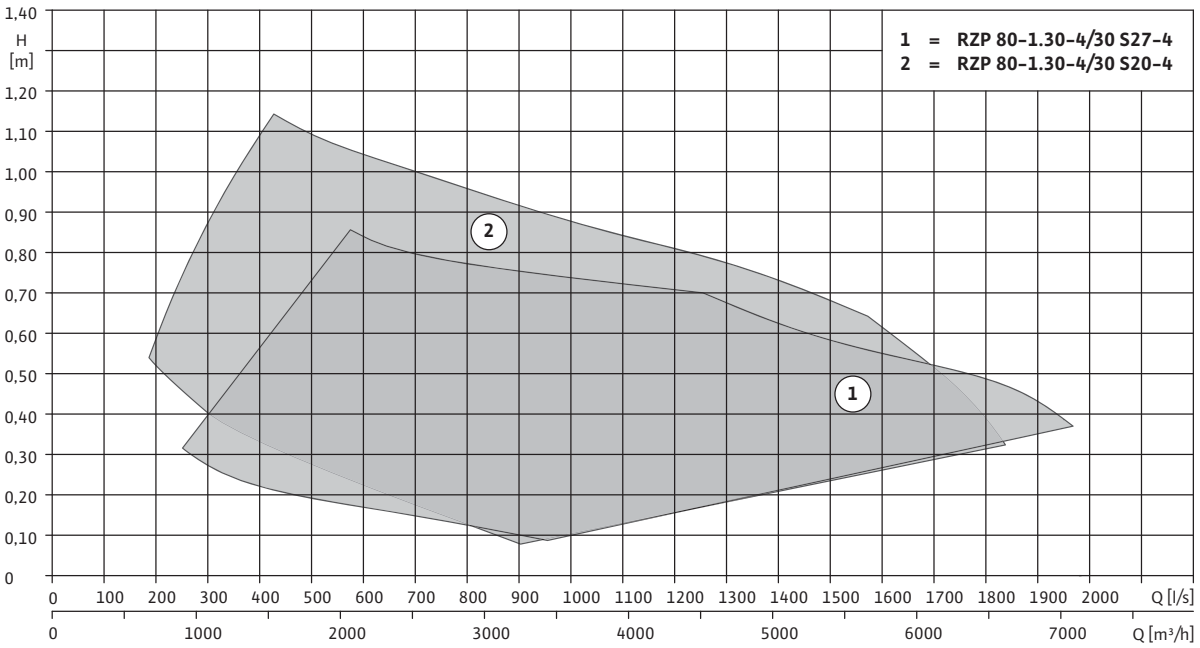


Dimensions, weights

Wilo-EMU...	Dimensions			Weight
	B	C	L	Unit
	[mm]			[kg]
RZP 80-1.24-4/30 S27-4	1260	1154	1510	390
RZP 80-1.30-4/30 S20-4	1260	1154	1510	390

Wilo-EMU RZP 80-1...4/30

Pump curves



Technical data

Wilo-EMU...	Motor type	Propeller speed	Transmission
	–	n	–
	–	[rpm]	–
RZP 80-1.24-4/30 S27-4	T 20-4/30R	240	6.000
RZP 80-1.30-4/30 S20-4	T 20-4/30R	300	4.750

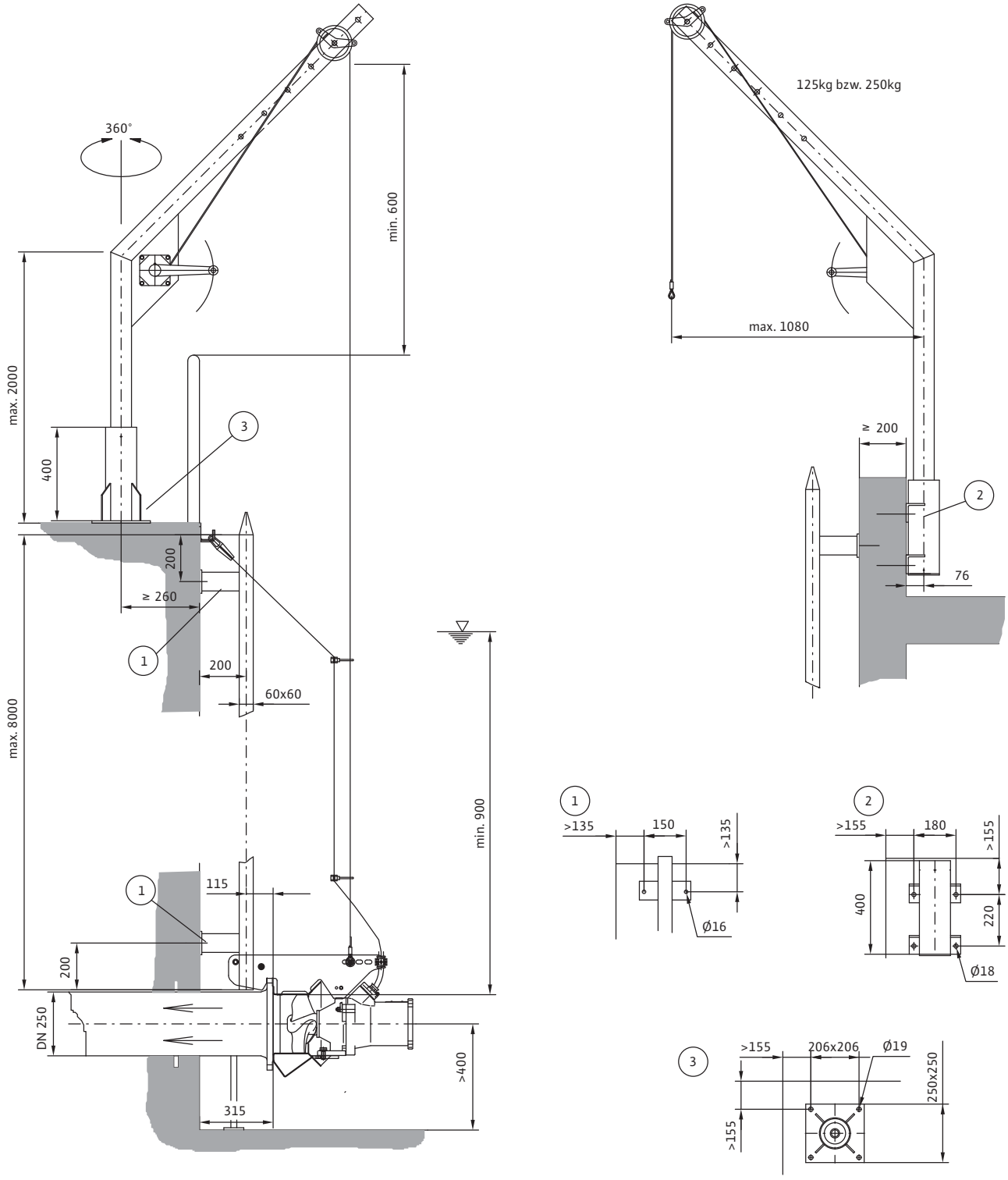
Motor data

Wilo-EMU...	Nominal power	Power consumption	Nominal current	Nominal speed	Ex protection
	P_2	P_1	I_N	n	–
	[kW]		[A]	[rpm]	–
T 20-4/30R	18.50	22.00	36.50	1435	ATEX, FM

The value $P_{1.1}$ corresponds to the power consumption in the duty point. P_1 refers to the maximum power consumption.
All data are valid for 400 V, 50 Hz and a density of 1 kg/dm^3.

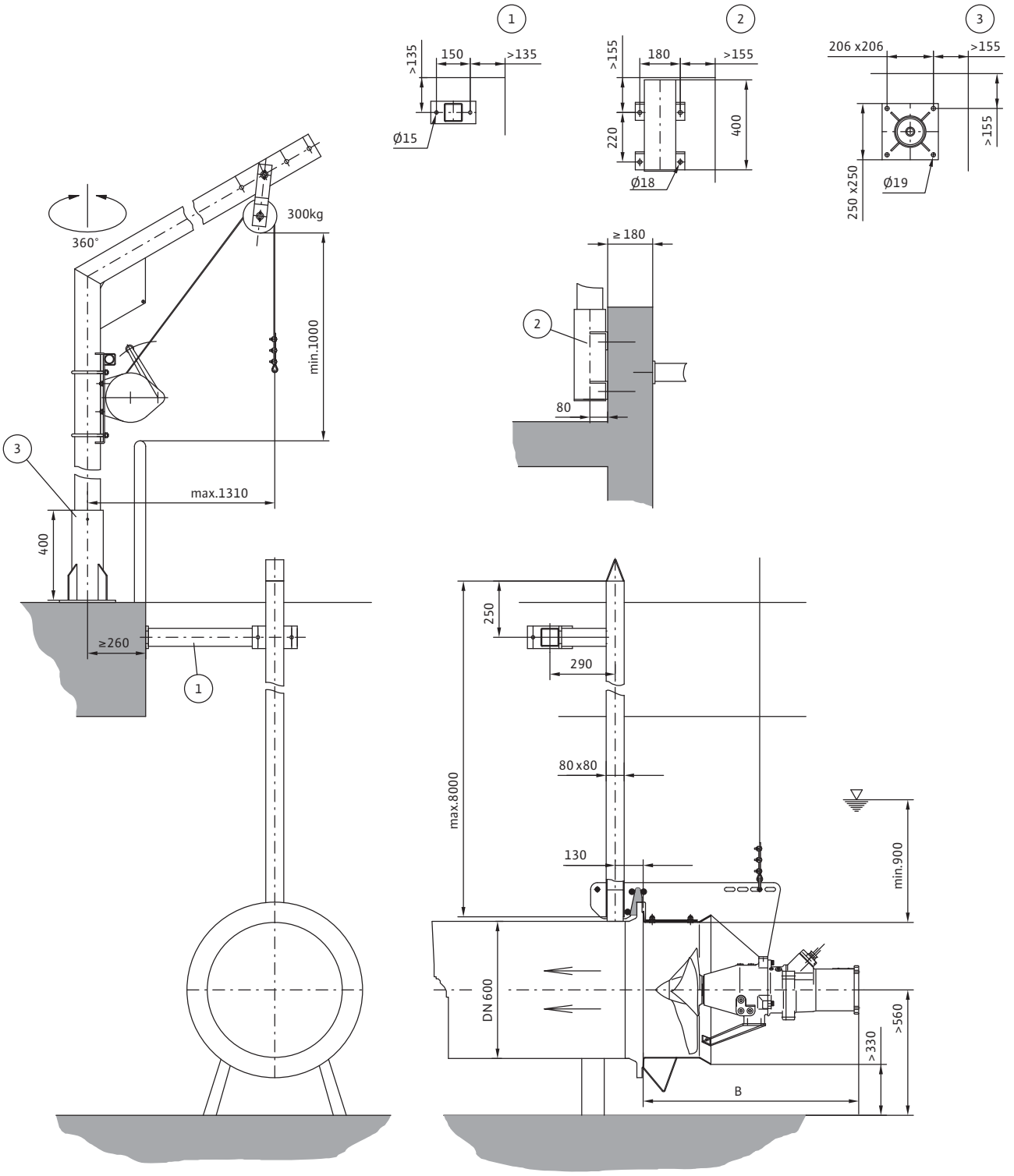
Installation example

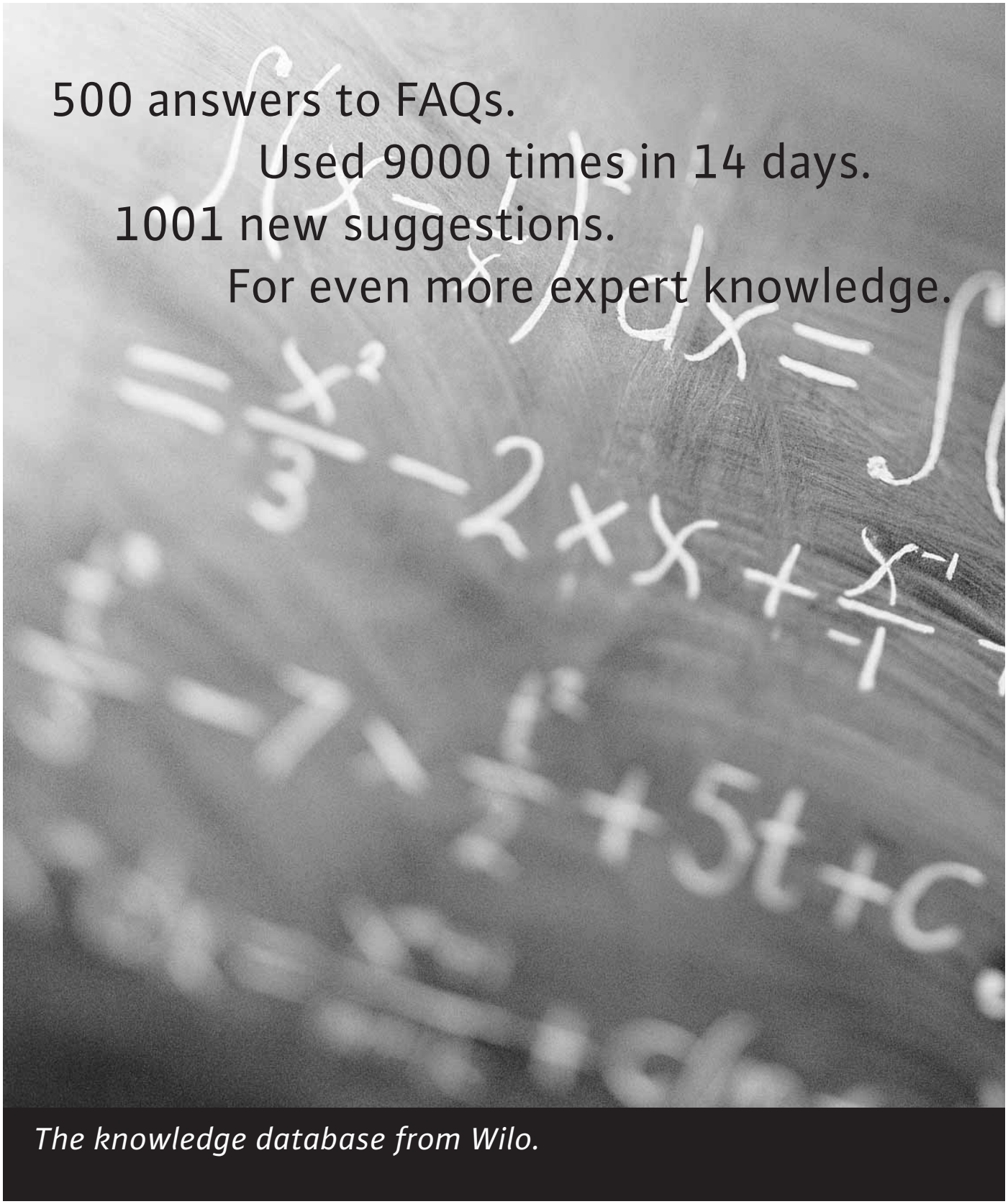
Wilo-EMU re-circulation pump RZP 25-2 with lowering device AVR



Installation example

Wilo-EMU re-circulation pump RZP 60-3 with lowering device AVRZD





Did you know? The knowledge database from Wilo will give you good and quick advice: with approx. 500 responses to the most frequently asked questions (FAQs) all about pumps, installations and systems. It is already being visited extensively by many skilled craftsmen.This is proven by 9000 utilisations in only 14 days, which we recently registered. The best thing: With every new question which you ask us with the contact form, we all become wiser together. Because the corresponding answer is naturally incorporated as soon as possible.
Know-how? We call this Pumpen Intelligenz.

www.wilo.com

WILO

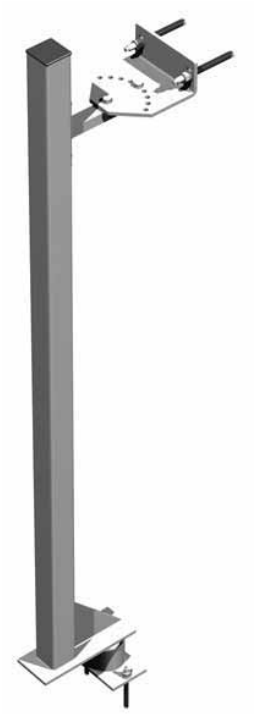
Pumpen Intelligenz.

Contents

Accessories for mixers and re-circulation pumps

Lowering devices

Lowering device AVU... for Miniprop and Uniprop submersible mixers



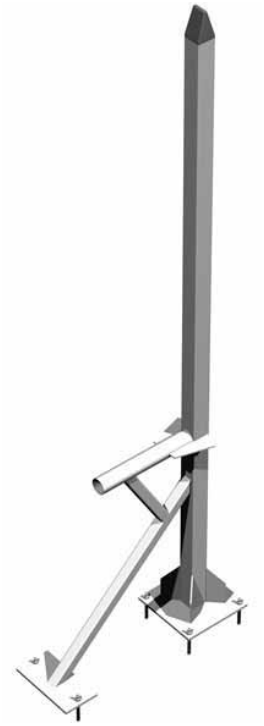
The lowering devices of type AVU... are flexible systems for wall mounting. Due to a ball joint made of plastic, even slight unevenness is smoothed out during installation. The lowering device absorbs the mixing forces which arise and transfer them to the structure. A high resisting torque in the guide tubes, plastic linings in the sliding carriage and large-area rubberised supports for large mixers guarantee high mounting security and long service life.

For optimum mixing results, the mixer can be swivelled horizontally. In connection with auxiliary hoisting gear, the mixer can also be operated at different heights.

The material of the lowering device depends on the sewage constituents, such as the chloride content. Wilo can process and deliver the materials common in water treatment system construction: galvanized steel, A2-steel (1.4301) and A4-steel (1.4571). Standard lengths up to 6 m are available. Custom lengths available on request.

Installation is complete without welding work. The lowering device is installed using building-approved anchor bolts directly on the structure. In the case of fixation to steel construction parts, installation is done using rust-proof screwed connections.

Lowering device AVM... for Uniprop, Maxiprop and Megaprop submersible mixers



The lowering devices of type AVM... are fixed tripod systems for free installation in basins. With these, mixers can be placed for optimum mixing results. The lowering device absorbs the mixing forces which arise and transfer them to the structure. A high resisting torque in the guide tubes, plastic linings in the sliding carriage and large-area rubberised supports guarantee high mounting security and long service life.

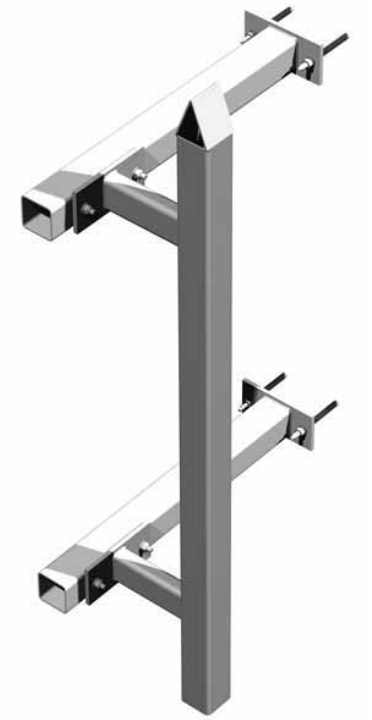
If the lowering device is mounted to a concrete slab, this can be installed later in an already filled basin.

The material of the lowering device depends on the sewage constituents, such as the chloride content. Wilo can process and deliver the materials common in water treatment system construction: galvanized steel, A2-steel (1.4301) and A4-steel (1.4571). Standard lengths up to 6 m are available. Custom lengths available on request.

Installation is complete without welding work. The lowering device is installed using building-approved anchor bolts directly on the structure. In the case of fixation to steel construction parts, installation is done using rust-proof screwed connections.

Lowering devices

Lowering device AVR... for the Rezijet re-circulation pumps



The lowering devices of type AVR... are fixed tripod systems for wall mounting. Re-circulation pumps can be directly flanged on the discharge pipe using these. Due to the different variants of the lowering device, installations are also possible on the basin walls.

The material of the lowering device depends on the sewage constituents, such as the chloride content. Wilo can process and deliver the materials common in water treatment system construction: galvanized steel, A2-steel (1.4301) and A4-steel (1.4571). Standard lengths up to 6 m are available. Custom lengths available on request.

Installation is complete without welding work. The lowering device is installed using building-approved anchor bolts directly on the structure. In the case of fixation to steel construction parts, installation is done using rust-proof screwed connections.

Auxiliary hoisting gear

Auxiliary hoisting gear 125 kg ... 350 kg

By using auxiliary hoisting gear, the submersible mixers or re-circulation pumps can be easily installed at any time or be lifted out of the basin for maintenance purposes. The auxiliary hoisting gear consists of a holding sleeve and the auxiliary hoisting gear itself. This way, auxiliary hoisting gear can be used for several units. The holding sleeve can be mounted on the floor or laterally on the wall.

In the case of Miniprop and smaller Uniprop submersible mixers, the hoisting gear can be used to operate the unit at different heights.

The auxiliary lifting gear as well as the holding sleeves are made of the materials: galvanized steel, A2 steel (1.4301) and A4 steel (1.4571) and have a maximum bearing capacity of 125 kg, 250 kg, 300 kg or 350 kg. The rope pulley as well as the sliding segments in the holding sleeve are made of sewage-resistant plastic. The hoisting gear can be equipped with a hand winch made of aluminium or stainless steel. This is continuously height-adjustable starting from the 250 kg version.

All auxiliary hoisting gear has been tested and certified by the LGA and have the GS mark.

Auxiliary hoisting gear Z / ZT1 / ZT2

By using auxiliary hoisting gear, the submersible mixers or re-circulation pumps can be easily installed at any time or be lifted out of the basin for maintenance purposes. The auxiliary hoisting gear consists of a holding sleeve, a supporting tube and up to three booms (Z, ZT1, ZT2). By using several holding sleeves, auxiliary hoisting gear can be used for several units. The holding sleeve can be mounted on the floor or laterally on the wall.

In the case of Miniprop and smaller Uniprop submersible mixers, the hoisting gear can be used to operate the unit at different heights.

The auxiliary hoisting gear as well as the holding sleeves are made of A2 steel (1.4301) and have a max. bearing capacity between 500 kg with a jib length of 1.6 m to 250 kg with a jib length of 3.2 m. The rope pulley as well as the sliding segments in the holding sleeve are made of sewage-resistant plastic. The hoisting gear can be equipped with a hand winch made of aluminium or stainless steel. This is continuously height-adjustable.

All auxiliary hoisting gear has been tested and certified by the LGA and have the GS mark.

Special accessories

Rope anchoring

In most cases, the power lines are fastened to the traction cable and are installed upwards.

At high flow rates, very strong traction forces act on the traction cable and on the power lines. To relieve both, additional rope anchoring made of polyamide can be used. The traction forces are then absorbed by the polyamide rope.

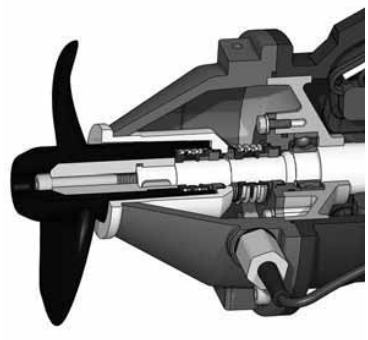
Furthermore, rope anchoring is recommended when using a catch hook or catch device, since here the traction cable does not remain in the basin.

Rope fixation (rope bollard)

When using auxiliary hoisting gear for several units, the traction cable must be removed after lowering from the auxiliary hoisting gear.

In order to securely fasten the traction cable, we recommend the use of a rope fixation. This is mounted on the edge of the basin near the holding sleeve. Here, the traction cable can be wound up and fastened with a rope clamp.

Leakage monitoring



All units are equipped with a pre-chamber and/or sealing chamber. This is filled with oil and takes on the leakage which penetrates through the outer mechanical seal.

In order to guarantee optimum control, an external sealing chamber electrode can be attached. As soon as a certain amount of water is in the sealing chamber, this can be signalized by a lamp or the unit can be switched off.

The external sealing chamber electrode can be retrofitted on all units.

Special accessories

Catch hook

When the units are installed, the traction cable usually stays in the fluid. Here, it is subject to considerable traction forces, however, and is therefore subject to a high amount of wear.

When a catch hook is used, the unit can be lowered as usual. Once the unit has been lowered onto the support, the catch hook is released and can be pulled out of the fluid again. This way, the traction cable is not subject to the fluid.

The catch hook is suitable for use in shallow depths up to max. 3 m.

The combination catch hook and auxiliary hoisting gear is especially a good choice when auxiliary hoisting gear is to be used for several units. Then one doesn't have to remove the traction cable from the auxiliary hoisting gear and doesn't require any more equipment for securing the traction cable.

Catch device with guide element

When the units are installed, the traction cable usually stays in the fluid. Here, it is subject to considerable traction forces, however, and is therefore subject to a high amount of wear.

When using the catch device with a guide element, the unit can be lowered as usual. Once the unit has been lowered onto the support, the catch device is released and can be pulled out of the fluid again. This way, the traction cable is not subject to the fluid.

The catch device with guide element is a further development of the normal catch hook. If one has to know exactly where the catch clip is with this one, a guide element is used. This is simply stuck onto the guide tube of the lowering device and lowered on this. Thus, lifting the units is also no problem, since the catch device automatically engages in the catch clip.

The combination catch device with guide element and auxiliary lifting gear is especially a good choice when auxiliary hoisting gear is to be used for several units. Then one doesn't have to remove the traction cable from the auxiliary hoisting gear and doesn't require any more equipment for securing the traction cable.

Custom-made products upon customer request

Since Wilo manufactures its accessories completely in-house, it is possible to accommodate special customer wishes. For example, lowering devices can also be made for depths deeper than 6 m.

Furthermore, special versions can also be made for special customer requirements. For example, a special lowering device was designed for a water treatment system. This lowering device had to be fastened to a concrete bridge and the mixers had to be installed while the system was in operation.

For another water treatment system, a mixer was installed in a floating raft. This way, it was possible to optimally position the mixer for different requirements. The raft was stabilized by four ropes. In order to lift the mixer out of the raft for maintenance purposes, a lowering device was also built into the raft.

Wilo has the possibility of accommodating the wishes of its customers with custom-made solutions. That is "Pumpen Intelligenz".

Submersible Mixers

Contents

Technical equipment

Jet cleaner

Cleaning of rain basins

In mixed water sewer systems, rain spillway basins are placed before the water treatment system. They serve as buffers between the sewer system and the water treatment system. In the event of hydraulic overload, these basins take up the surge of water with its high amount of wastewater load, intermediately store the rainwater, and after the precipitation dies down, it releases the rainwater according to the maximum water treatment system capacity.

The rainwater is especially strongly contaminated after long dry spells. Because of the long emptying times, there is depositing in the basin. After emptying the basin, these deposits must be removed, since otherwise the sedimentation begins to decay, which can result in strongly unpleasant odours.

In order to keep the basin cleaning problem under control, a series of basin cleaning equipment, like the mechanical evacuation, the rinsing/dumping or jet cleaning devices were developed and used. The cleaning equipment, some of which is very complex, make a considerable improvement, but all have one thing in common: They only are put into action when the basin is already empty.

All of these solutions did not achieve satisfactory cleaning results. The water treatment system personnel still have to clean the basin by hand, which is very time-consuming.

Function of the jet cleaner

Due to the jet cleaner, a type of cleaning has been developed for rain basins which unify many advantages. Already during the beginning of draining the rain spillway basin, the jet cleaner is put into operation and suspends the solids and dirt particles. These leave the basin together with the water.

The jet cleaner consists of a Wilo submersible sewage pump with injector, air suction pipe and jet pipe. The jet cleaner can be installed in nearly any new basin and can be retrofitted in already existing basins.

The Wilo submersible sewage pump sucks the rainwater out of the drain channel and pumps it through the injector nozzle via the jet pipe and back into the basin.

According to the principle of the water jet pump, air is sucked simultaneously via the air suction pipe during this operation. The sucked air mixes with the rainwater in the jet pipe. The exiting air/water drive jet is under high pressure and reaches far into the basin. This causes a turbulent flow, which, in turn, prevents solids from depositing.

Advantages of the jet cleaner

Due to the incline of the basin onsite of 2–3 % to the drainage channel, there is a return flow just as strong during the circulation operation. During this operation, organic and inorganic substances are stirred up and transported to the drainage channel. Besides the cleaning effect, the water is simultaneously enriched with oxygen. This side-effect can be considered to be significant since the water cannot go bad when it's in the basin for a long time.

This means:

- No odour emissions due to escaping gases
- No loading of the water treatment system by spoiling water, which brings energy savings for cleaning the sewage water
- Elimination of a hazard of the further channels due to hydrogen sulphide
- Prevention of biofilm build-up
- No use of foreign water for cleaning operation. Rainwater is used
- The cleaning operation already begins when the basin is being drained and continues until the final basin drainage
- The dirt particles distribute themselves nearly evenly over the outflowing basin water
- The water treatment system is not subject to a flow surge
- The basin walls are washed off by the occurring wave action
- The rainwater is constantly being enriched with oxygen. As a result, no formation of hydrogen sulphide and no unpleasant odours
- Comminution and dissolving of organic coarser solids
- Low investment and maintenance costs, and longer service life of equipment
- Overall, lower operating costs due to efficient operation and fully automatic operating sequence

Jet cleaner

Basin design

For using the jet cleaner as a cleaning device, the following design features should be observed when planning a rain basin:

Rectangular basin

- The ratio of width to length should ideally be 1:2
- The bottom of the basin should be horizontal without any transverse inclines, but be designed with a longitudinal incline of 2–3 % to the drainage channel
- The volume of the drainage channel is to be adapted to the basin size and should include a useable volume of at least 3 % of the basin area; The drainage channel serves, for one thing, for taking on the inorganic solids and, for another thing, as a water reservoir for the remaining cleaning of the bottom of the basin. The incline in the channel is to be as steep as possible toward the outlet flap or to the drainage sump (5 %)
- The basin should be drained as quickly as possible. While this is guaranteed during the pumping operation, when draining via the outlet flaps it must be made sure that these are installed so high that they aren't blocked by the external water level during draining
- The basin inlet is to be placed on the side of the outlet channel. If there should be small deposits in the channel from the last cleaning operation, they are rinsed off during the ventilation operation.
- The jet cleaner is installed on the bottom of the basin directly next to the drainage channel

Round basin

- In the case of a round basin, the bottom is to be horizontal with no transverse inclines, and with an incline of 2–3 % on one side toward the basin wall (like a disc)
- There should also be a rinsing-in channel in a round basin
- The other design features of the rectangular basin are to be observed

Technical data with design criteria

When selecting the jet cleaner, observe that the energy density should lie at 30–40 Watt/m³ (based on 30 % of the basin content).

The motors are also available in Ex version. Fastening mechanism and jet pipe are made of hot-dip galvanised steel or of stainless steel.

Control and switching systems

The cleaning operation is always automatic. Depending on the requirements, the jet cleaner works intermittently or in permanent operation initially. If a defined remaining water level has been reached in the basin, the cleaning operation runs in permanent operation until the basin is completely drained.

In the switching system, all switching, control and display devices are installed which are required for the function and monitoring of the cleaning equipment. Further basin monitoring and recording equipment can be additionally installed. The electro-pneumatic level control, electro-capacitive control or the echo-sounder control are recommended as jet cleaner controls.

Further information about the used units can be found in our catalogue C2.

Technical data

Wilo-EMU...	Pump	Motor	Circulation capacity [m³]	Rectangular basin maximum [m]	Round basin maximum [m]
SR100 D55	FA 10.51E-179	FK 17.1-4/8K Ex FO 172-4/8	~100	4x8	6
SR100 D65	FA 10.51E-195	FK 17.1-4/12K Ex FO 172-4/12	~110	5x10	8
SR100 D65	FA 10.82E-215	FK 17.1-4/16K Ex FK 202-4/12	~145	6x12	10
SR100 D65	FA 10.82E-230	HC 20.1-4/17K Ex FK 202-4/12	~165	8x16	13
SR100 D70	FA 10.82E-240 FA 10.82E-245	HC 20.1-4/17K Ex FK 202-4/17	~185	9x18	14
SR150 D70	FA 15.52E-260	HC 20.1-4/22K Ex FK 202-4/22	~200	10x20	15

Submersible Mixers

Technical equipment

Grit collector pumps

A grit chamber is a deposit reservoir with the job of removing rough, depositable contaminants from the sewage, such as sand, stones or shards of glass. These substances would easily lead to operational malfunctions in the water treatment system (wear, clogging).

Clearing out the grit chamber therefore poses extreme demands with regard to the wear-resistance of the pump. Furthermore, solidified sand deposits are to be loosened up and the unit must be frost- and weather-proof.

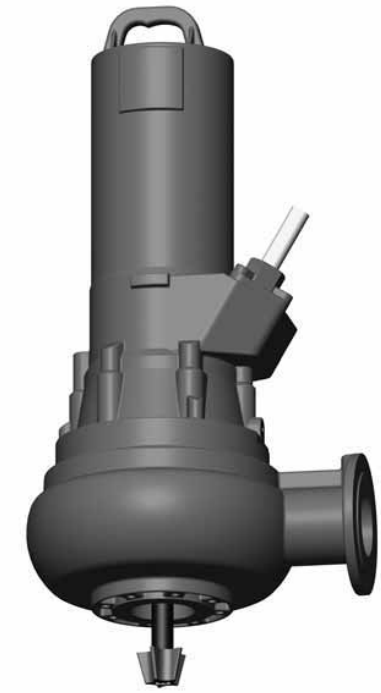
Therefore, sewage pumps are used more and more often in sand-catcher systems. For this area of application, Wilo offers its proven submersible sewage pumps of type FA. The submersible sewage pumps are submersible and can be directly submerged in the fluid. Thus, suction problems can be avoided and machine housing is not necessary.

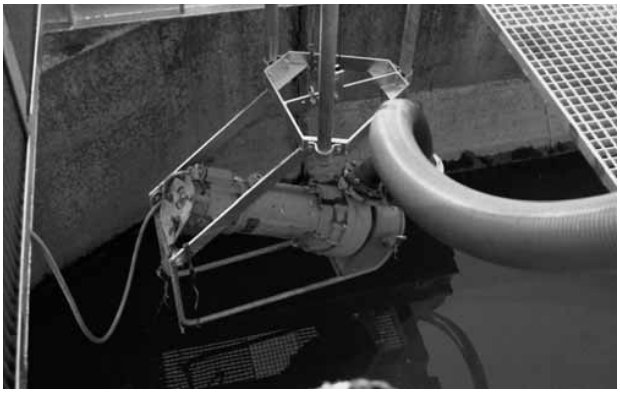
For this application, the Wilo submersible sewage pump is equipped with a vortex impeller and a mixing device. The mixing device is screwed directly onto the impeller. It consists of a smooth pipe cylinder and a mixer head, which is ground s-shaped on the front surface.

With these, the sand is only stirred up in the area of the pump inlet. Solid deposits are loosened up and can be pumped. Due to the narrowly limited flow zone, the depositing of sand is not disturbed. The smooth pipe cylinder can usually be rinsed free of long fibrous substances on its own. Since the mixer head is subject to a high amount of wear, it is made of the chilled cast iron material abrasite.

The combination of wear-proof materials and coatings ensures long-term and malfunction-free operation.

Further information about Wilo submersible sewage pumps of type FA can be found in the catalogue C2.





Wilo Catalogue System 2008

Heating, air-conditioning, cooling
Circulating pumps
Glandless pumps and accessories, package heat exchanger assembly

Catalogue A1

Heating, air-conditioning, cooling
Glanded pumps
Pumps in in-line design and accessories

Catalogue A2

Heating, air-conditioning, cooling, water supply
Monobloc and norm pumps, axially split case pumps
Pumps and accessories

Catalogue A3

Water supply
Domestic water supply, rainwater utilisation
Pumps, systems and accessories

Catalogue B1

Water supply
Borehole pumps 3" to 24"
Pumps and systems for building engineering / building services, domestic, municipal and industrial water supply

EMU Technologie

Catalogue B2

Water supply
High-pressure multistage centrifugal pumps
Pumps and accessories

Catalogue B3

Water supply
Pressure boosting systems
Single and multiple-pump systems in dry sump installations and accessories

Catalogue B4

Water supply
Sprinkler pumps with VdS-approval
Borehole pumps and accessories

EMU Technologie

Catalogue B5

Drainage and sewage
Drainage pumps
Submersible pumps, self-priming pumps and accessories

EMU Technologie

Catalogue C1

Drainage and sewage
Sewage pumps DN 32 to DN 600
Submersible pumps and accessories for building engineering / services, municipal and industrial applications

EMU Technologie

Catalogue C2

Drainage and sewage
Wastewater and sewage lifting units, pumps stations
Pump systems and accessories

Catalogue C3

Drainage and sewage
Submersible mixers
Mixers, re-circulation pumps, jet cleaners, grit collector pumps and accessories for municipal applications in water treatment systems

EMU Technologie

Catalogue C4

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