# MTR, MTRE, SPK, MTH, MTHE, MTA

## Immersible pumps

## 50/60 Hz

GRUNDFOS

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# 1. Introduction

## MTR, SPK and MTH


*MTR, SPK and MTH pumps*

MTR, SPK and MTH pumps are vertical multistage centrifugal pumps designed for pumping of cooling lubricants for machine tools, condensate transfer and similar applications.

The pumps are designed to be mounted on top of tanks with the chamber stack immersed in the pumped liquid.

The pumps come in various sizes and have various numbers of stages to provide the flow rate, the pressure and the installation length required. To meet specific depths of tanks or containers, the immersed length of the pump can be varied using empty chambers.

The pumps consist of two main components: The motor and the pump unit.

The motor is a Grundfos standard MG motor designed to EN standards.

The pump unit consists of optimised hydraulics, various types of connections, a motor stool, a given number of chambers and various other parts.

The pumps are available in two material versions:

- standard range (A-version) with wetted parts of cast iron and stainless steel
- stainless steel version (I-version) with all wetted parts of stainless steel EN/DIN 1.4301 or better.

The mounting flange dimensions are according to EN/DIN 12157. The mechanical shaft seal is according to EN/DIN 12756.

## MTA


*MTA*

The MTA range of single-stage immersible pumps has been designed especially for filtering systems in the machine tool industry.

The MTA pumps efficiently transport liquid containing chips, fibres and abrasive particles to the filtering unit. The semi-open impellers allow the passing of chips up to 10 mm.

These low-pressure pumps are available in 9 different hydraulic variants and come with a choice between top inlet or bottom inlet.

The pumps are designed to be mounted on top of tanks with the pump part immersed into the pumped liquid.

The pumps are designed to be maintenance-free, and therefore do not contain shaft seals or other wear parts.

## When to select an E-pump

Select an E-pump if the following is required:

- controlled operation, that is the consumption fluctuates
- constant pressure
- communication with the pump.

Adaptation of performance through frequency-controlled speed control offers obvious benefits, such as the following:

- energy savings
- increased comfort
- control and monitoring of the pump performance.

## MTRE pumps with built-in frequency converter

TM0820051

*MTRE pumps*

MTRE pumps are MTR pumps with an E-motor, that is a motor with built-in frequency converter. A frequency converter enables continuously variable control of motor speed, making it possible to set the pump to operate in any duty point. The motors of the MTRE pumps are Grundfos MGE motors designed to EN standards.

MTRE pumps are ideal for machining centres which operate with different machining processes and tools, as this will often result in different needs for flow and pressure.

The following features and benefits are typical for choosing an MTRE pump:

- energy savings
- low heat input into the cooling lubricant
- increased cooling efficiency
- better performance of the machining centre
- simple integration with the machining centre
- Safe Torque Off safety function.

## MTHE pumps with built-in frequency converter

The MTHE range with the pump, motor and drive in one unit is a compact solution that makes installation easy.

The pumps are designed to be mounted on top of tanks with the chamber stack immersed in the pumped liquid.

The pumps come in various sizes and have various numbers of stages to provide the flow rate, pressure and installation length required. To meet specific depths of tanks or containers, the immersed length of the pump can be varied using empty chambers.

The pumps are available in two material versions:

- standard range (A-version) with wetted parts of cast iron and stainless steel
- stainless steel version (I-version) with all wetted parts of stainless steel EN/DIN 1.4301 or better.

TM085445

*MTHE, A-version*

TM085441

*MTHE, I-version*

The MTHE range is ideal for machine tool, wash and clean, and chiller applications. It is an all-in-one solution with pump, motor and integrated frequency converter, packed with intelligent features making installation, operation and service effective, and performance efficient and reliable.

The compact, integrated design comes with one drive for use worldwide, and complies with all international standards.

**Features and benefits**

**Compact design:**

- The pump end is inside the tank.
- The pump is close-coupled, there is no coupling.
- There is only one pipe connection.
- Speed is increased, size is decreased.

**Leakage-free design:**

The pump is leakage-free because any potential leakage from the shaft seal stays in the tank.

**Energy efficiency:**

- The pump has the best-in-class hydraulics.
- The pump has a permanent magnet motor (IE5).
- The pump runs at power limit.

**Controllability:**

The pump is controllable, as it includes all standard MGE features.

## ErP compliant

The product is energy-optimized and complies with the ecodesign requirements for water pumps specified in the ErP Directive (Commission Regulation (EC) No 547/2012), which became effective on 1 January 2013. As from this date, all pumps are classified and graduated in the Minimum Efficiency Index (MEI).

## Minimum efficiency index

Minimum efficiency index (MEI) means the dimensionless scale unit for hydraulic pump efficiency at best efficiency point (BEP), part load (PL) and overload (OL). The Commission Regulation (EU) sets efficiency requirements to MEI ≥ 0.10 as from 1 January 2013 and MEI ≥ 0.40 as from 1 January 2015. An indicative benchmark for best-performing water pump available on the market as from 1 January 2013 is determined in the Commission Regulation.

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

### Minimum efficiency index (MEI)

| Pump type | MEI |
|---|---|
| MTR 1s-3/3 | 0.67 |
| MTR 1-3/3 | > 0.70 |
| MTR 3-3/3 | > 0.70 |
| MTR 5-3/3 | 0.57 |
| MTR 8-3/3 | > 0.70 |
| MTR 10-3/3 | > 0.70 |
| MTR 15-3/3 | > 0.70 |
| MTR 20-3/3 | > 0.70 |
| MTR 323/3 | > 0.70 |
| MTR 45-3/3 | > 0.70 |
| MTR 64-3/3 | > 0.70 |
| MTH 2-3/3 | > 0.70 |
| MTH 4-3/3 | > 0.70 |
| MTH 8-3/3 | > 0.64 |
| MTH 10-3/3 | > 0.59 |
| MTH 15-3/3 | > 0.59 |

# 2. Applications

| Application | MTR(E) | SPK | MTH(E) | MTA |
|---|---|---|---|---|
| Boring | • | • | • | • |
| Sawing | - | - | - | • |
| Milling | • | • | • | • |
| Grinding | • | • | • | • |
| Spark erosion | • | • | • | - |
| Wire cutting | • | • | • | - |
| Turning | • | • | • | • |
| Chilling | • | • | • | • |
| Part washing | • | • | • | - |
| Filtration | - | • | • | • |
| Condensate systems | • | • | • | - |
| Wash and clean | • | • | • | - |

• The pump is suitable for this application.

## Machine tool applications

The Grundfos range of high-pressure pumps offers unsurpassed accuracy and stability to make sure that nothing interferes with the delicate machining process. Equally important, high efficiency ensures a remarkably low heat input into the cooling lubricant. Integrated frequency converters can be optionally supplied for increased system efficiency and flexibility. Suitable for machine tool applications are the immersible MTR, SPK, MTH, MTA and MTS, offering a tank-mounted design. For MTS data, see the separate MTS data booklet.

## Machine tool sub applications

### Boring

Grundfos is capable of providing the exact pressure and flow rate required for different materials, bore diameters and tool speeds in both through boring and blind boring. Our flexible range includes pumps supplying a pressure of up to 130 bar (MTS pumps), required for the deep blind-hole boring.

### Milling and turning

The Grundfos range easily meets the individual cooling requirements of different materials in milling and turning, from low flow rate and low pressure to high flow rate and high pressure. The pumps are available in different lengths and customized to fit specific tank sizes. In fact, the modular pump construction allows for more than 1,000,000 individual configurable variants.

### Wire cutting

In wire cutting it is essential that the liquids are clean. This results in a more accurate process and extends the life of the filter. As a steady temperature is required for wire cutting operation, the process will benefit from a Grundfos E-solution.

### Filtration

Reliable filtration is crucial in top-quality machine tool applications, as it prolongs the life of the tool and prevents chips from damaging surfaces or tolerances.

With semi-open impellers, MTA and MTB are ideal for transporting liquids containing chips, fibres and abrasive particles to the filtration system.

For MTB data, see the separate MTB data booklet.

### Part washing

The Grundfos range includes pumps suitable for corrosive liquids and liquids with a high content of particles. Our frequency-converter-operated pumps with high-efficiency motors ensure that systems operate under the best possible conditions with low-energy consumption. MTB and all immersible pumps are suitable for this application.

### Chilling

The reliable and thoroughly-tested pump range for chillers offers a particularly diverse application spectrum. It covers cooling-water circuits, washing plants, industrial circulation systems and general pressure boosting applications. All pumps are available with an E-motor to increase efficiency and perfectly control any process. All immersible pumps are suitable for this application.

### Condensate systems

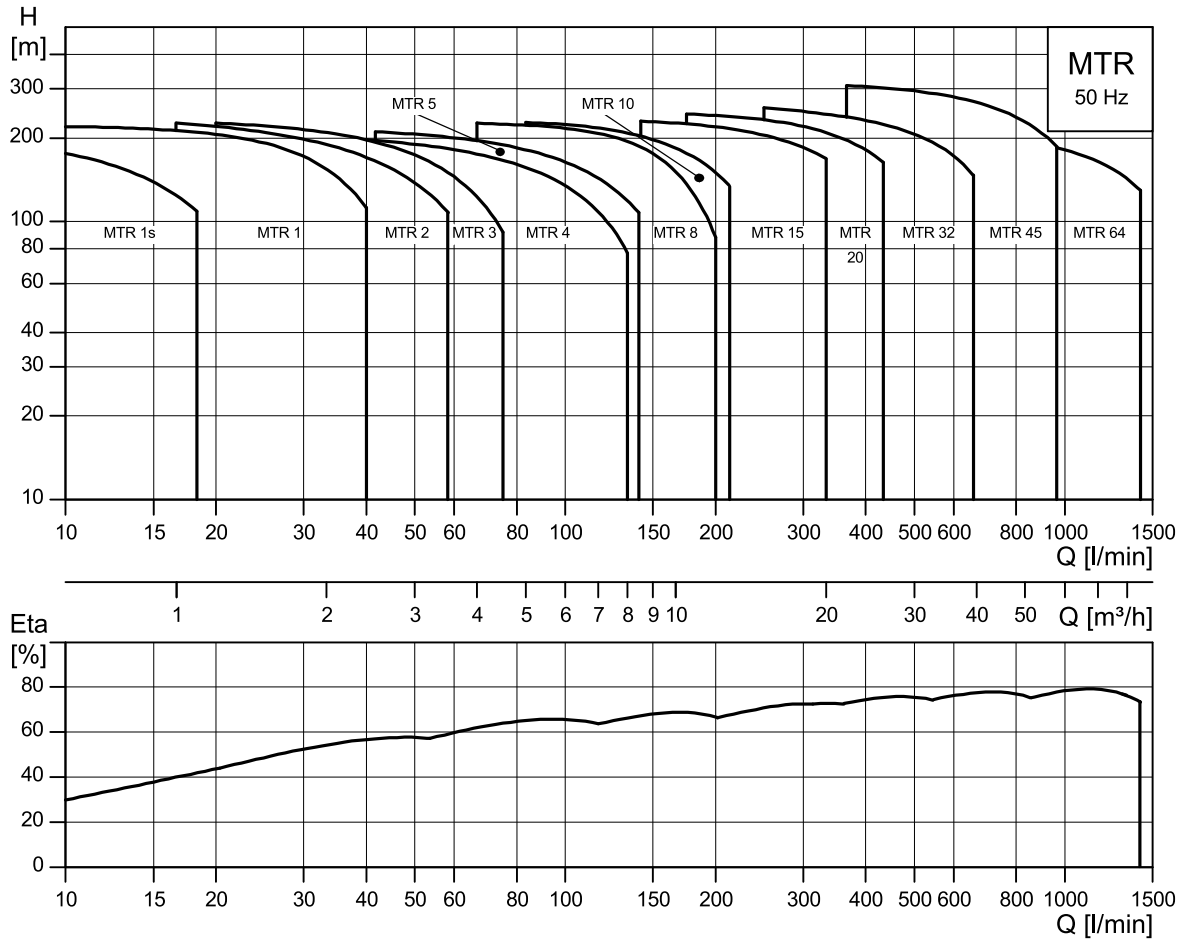
As condensate is normally pumped from a tank, an immersible pump will be a perfect choice. It is a compact solution as half the pump will be in the tank. It has an optimum suction as no pipes or valves are needed in front of the inlet. For temperatures above 90 °C, a 120 °C version is available.

### Wash and clean

As for condensate systems, wash and clean applications are typically based around a tank. The immersible pumps can save space and secure an optimum suction. An A-version in all stainless steel is available for aggressive liquids.

# 3. Performance range

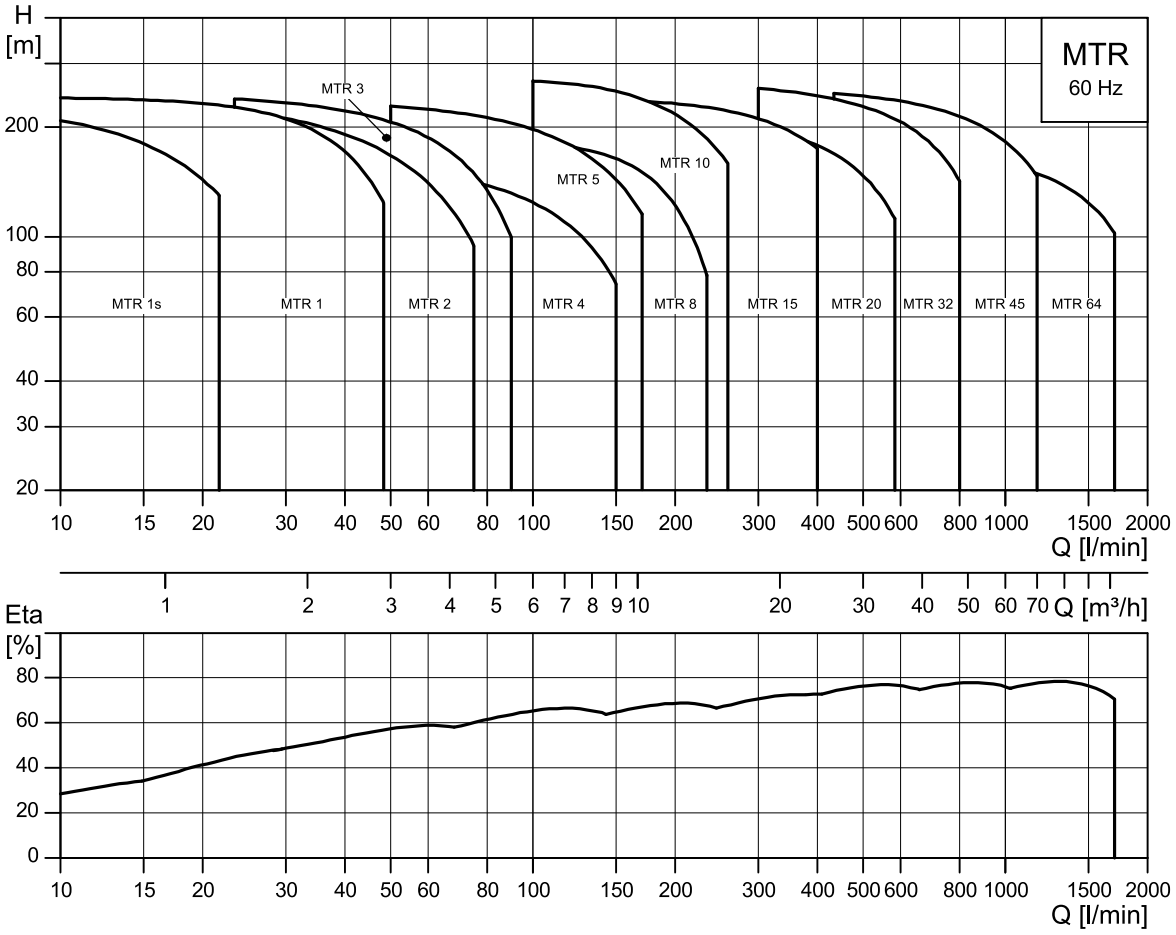
## MTR, 50 Hz




TM027818

For individual performance curves for MTR 2 and 4 pumps, see Grundfos Product Center at www.grundfos.com.

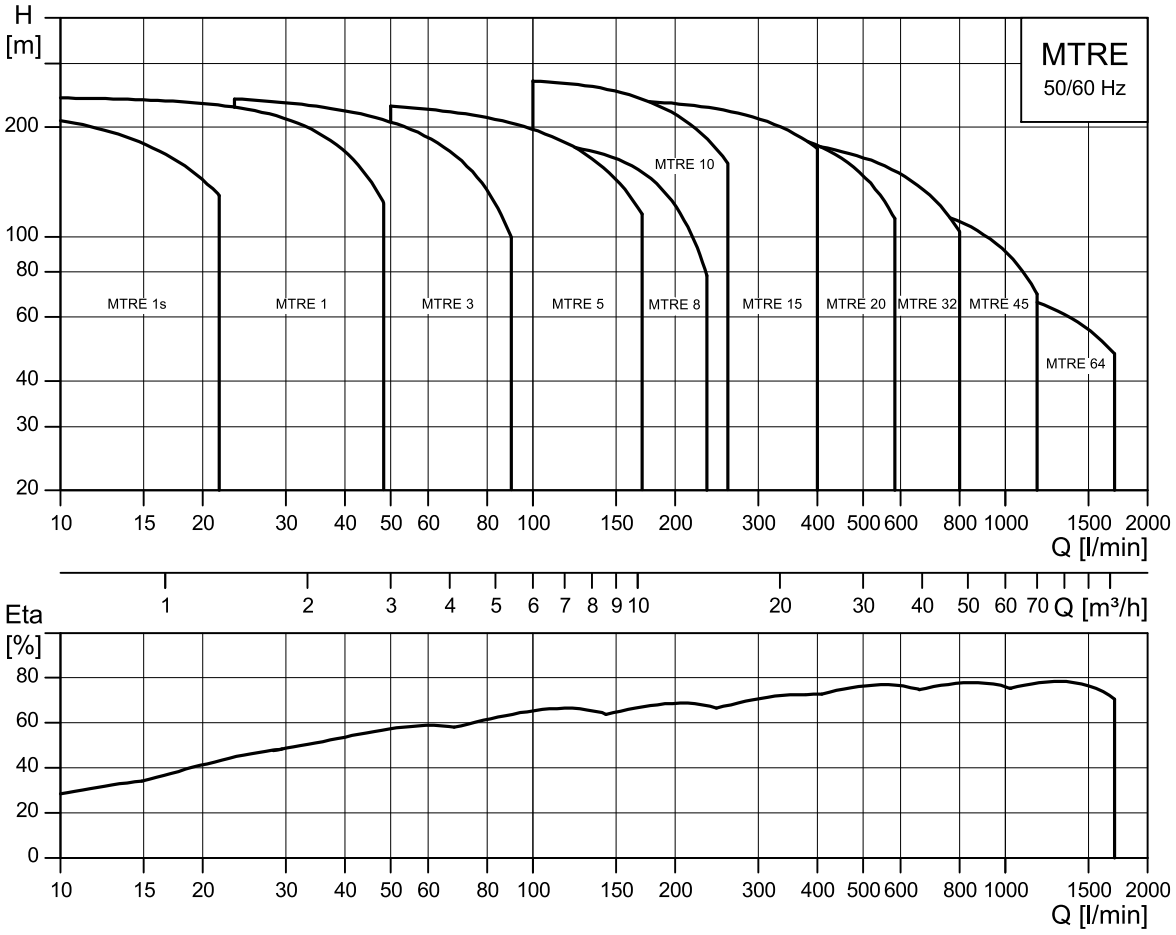
## MTR, 60 Hz




TM028105

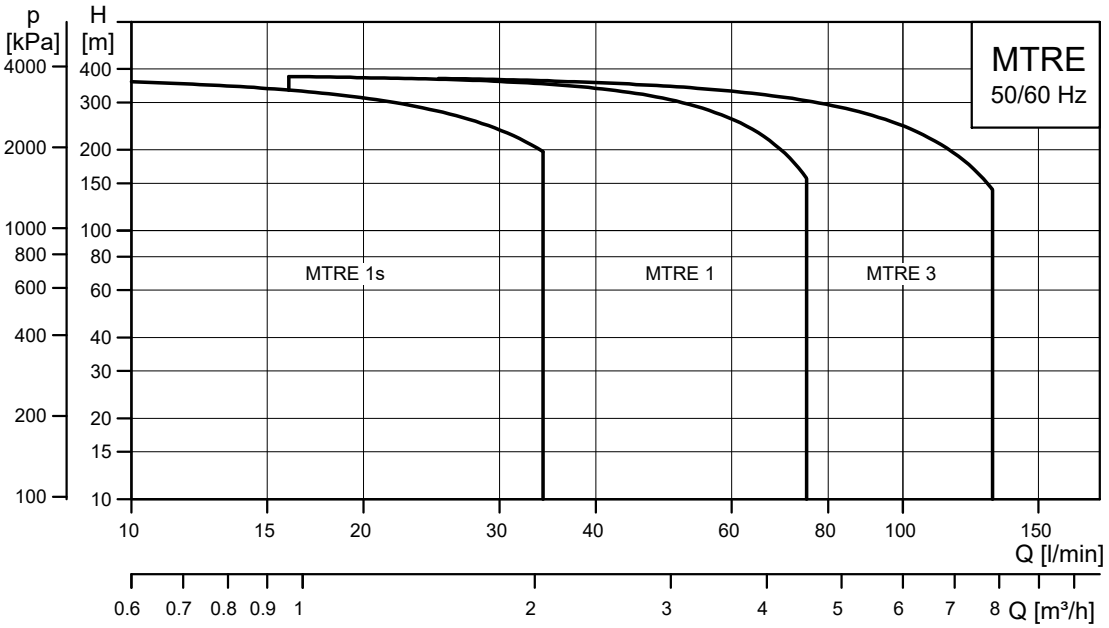
For individual performance curves for MTR 2 and 4 pumps, see Grundfos Product Center at www.grundfos.com.

## MTRE, 50/60 Hz



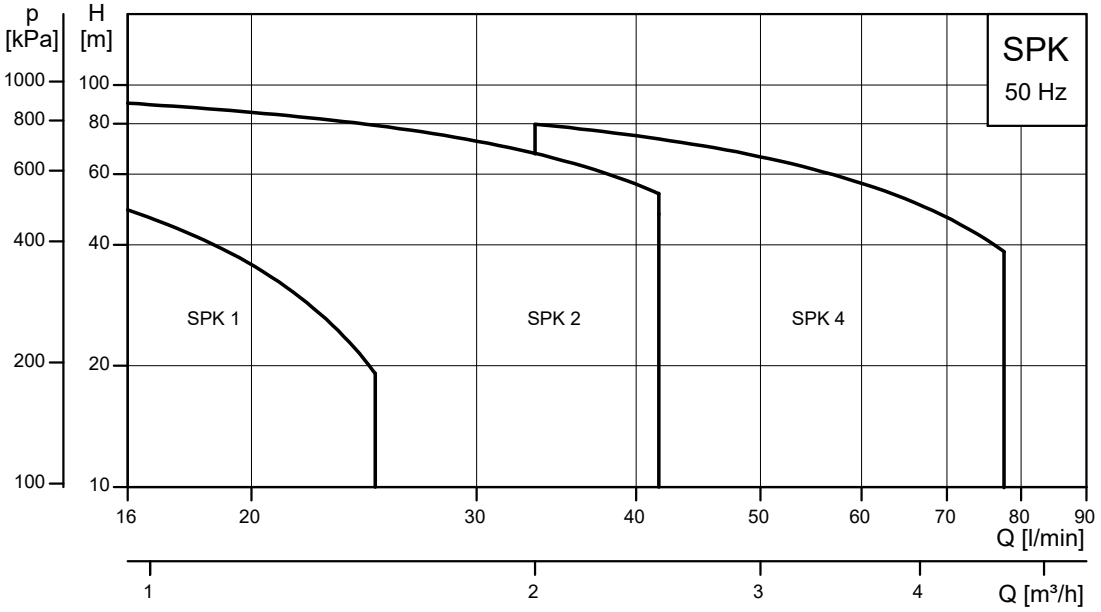

TM028554

## MTRE high pressure, 50/60 Hz



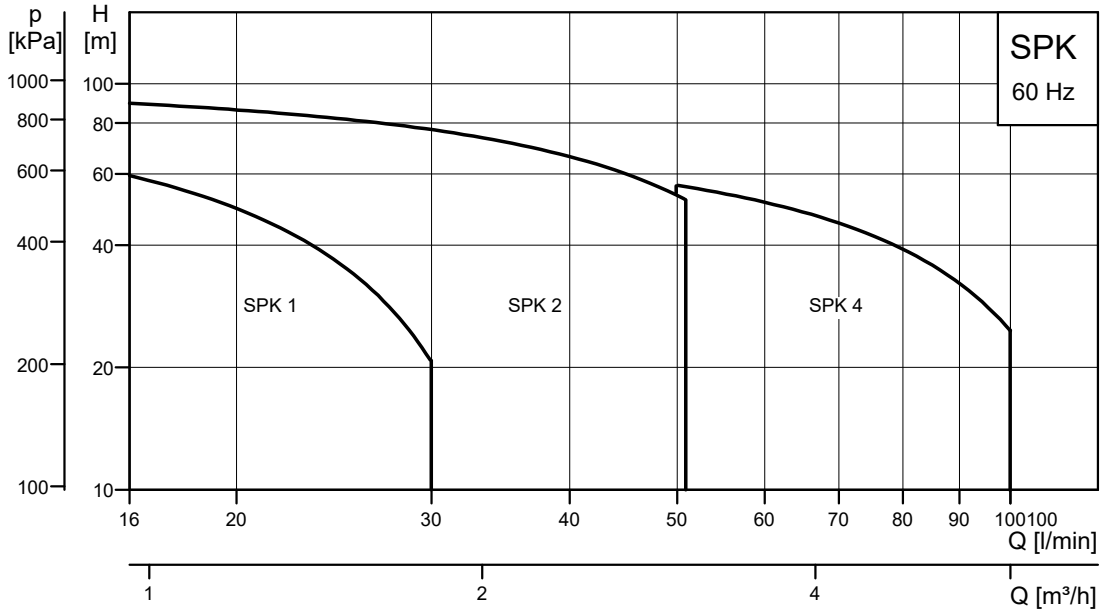

TM051565

## SPK, 50 Hz



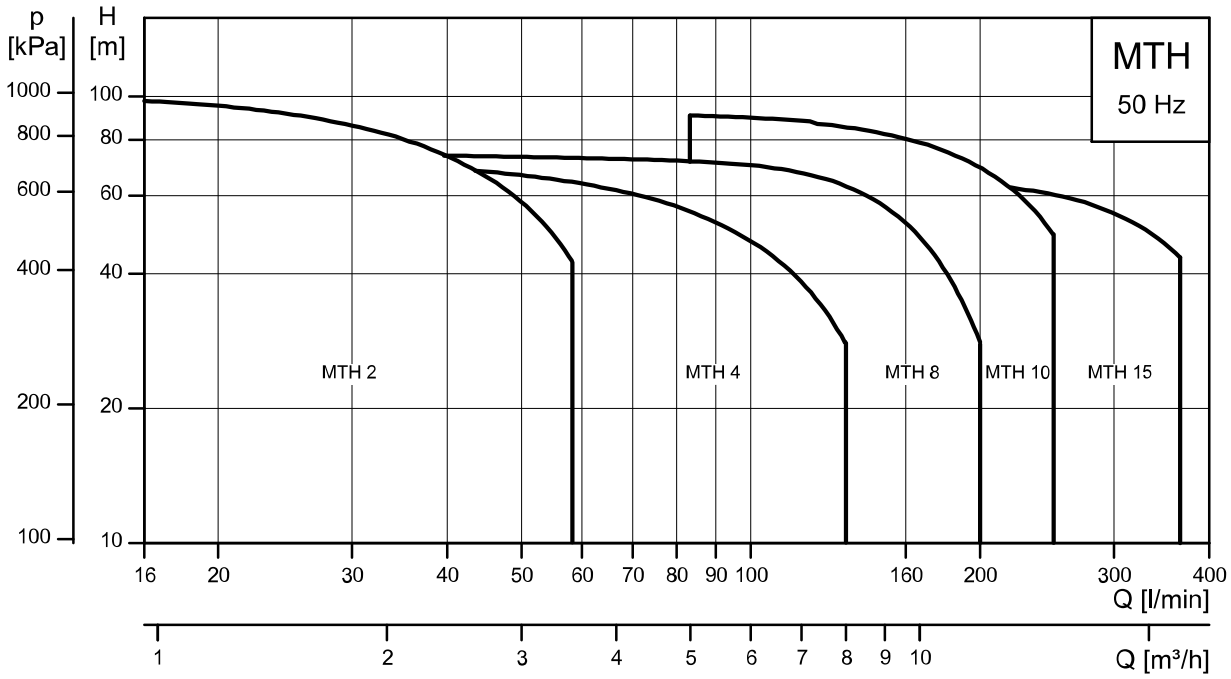

TM008398

## SPK, 60 Hz



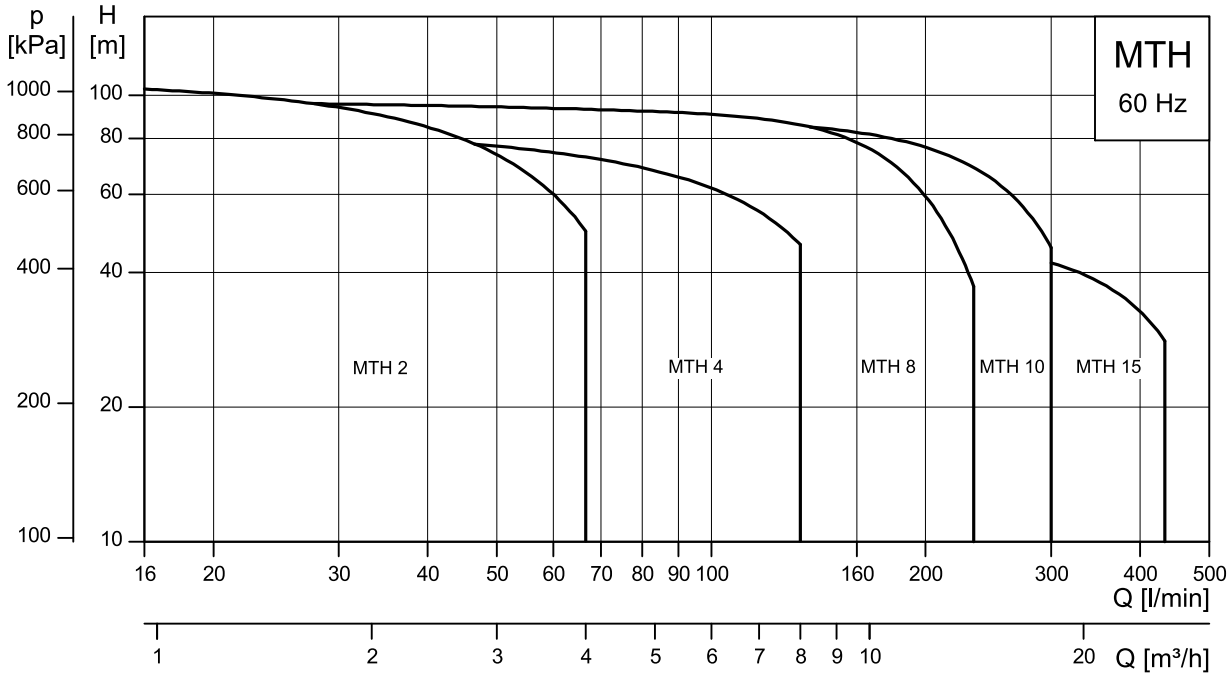

TM008397

## MTH, 50 Hz



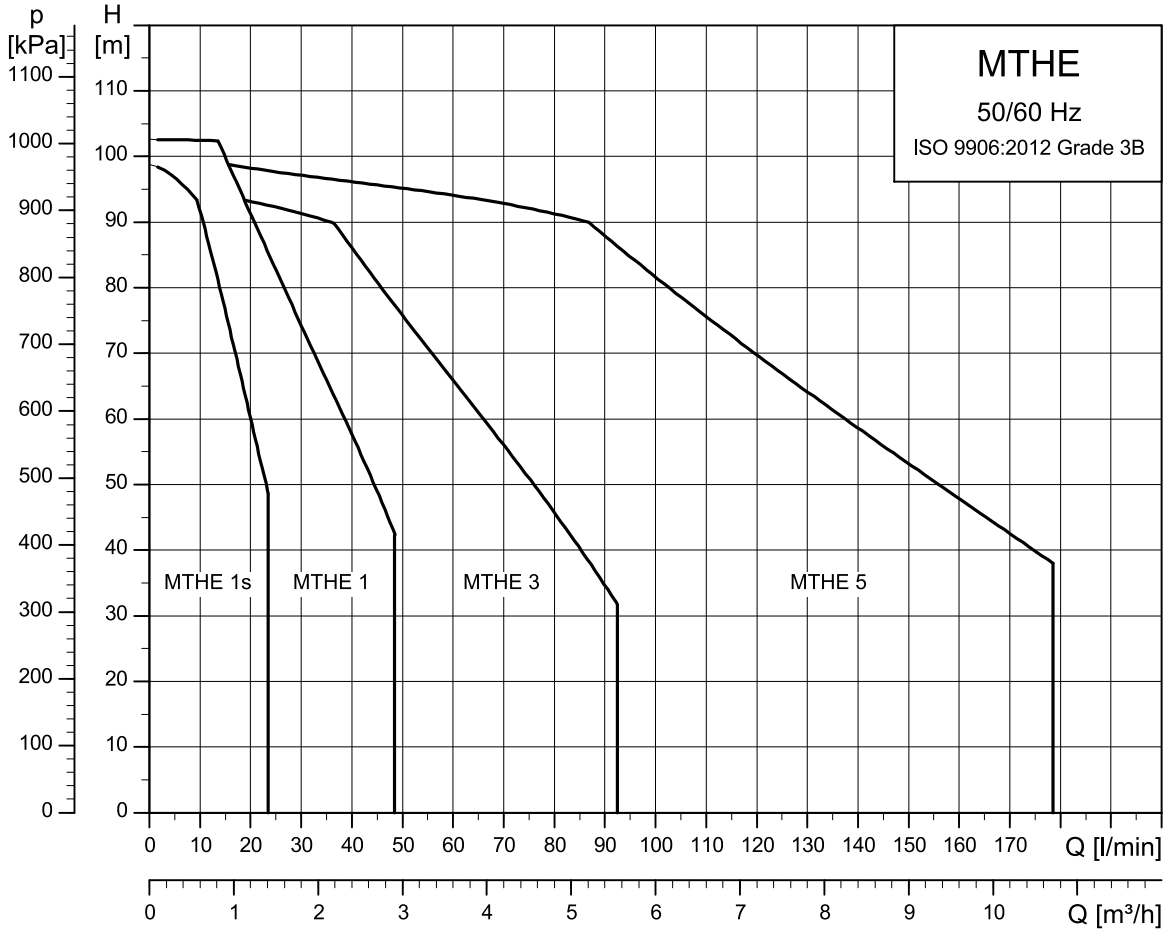

TM027828

## MTH, 60 Hz



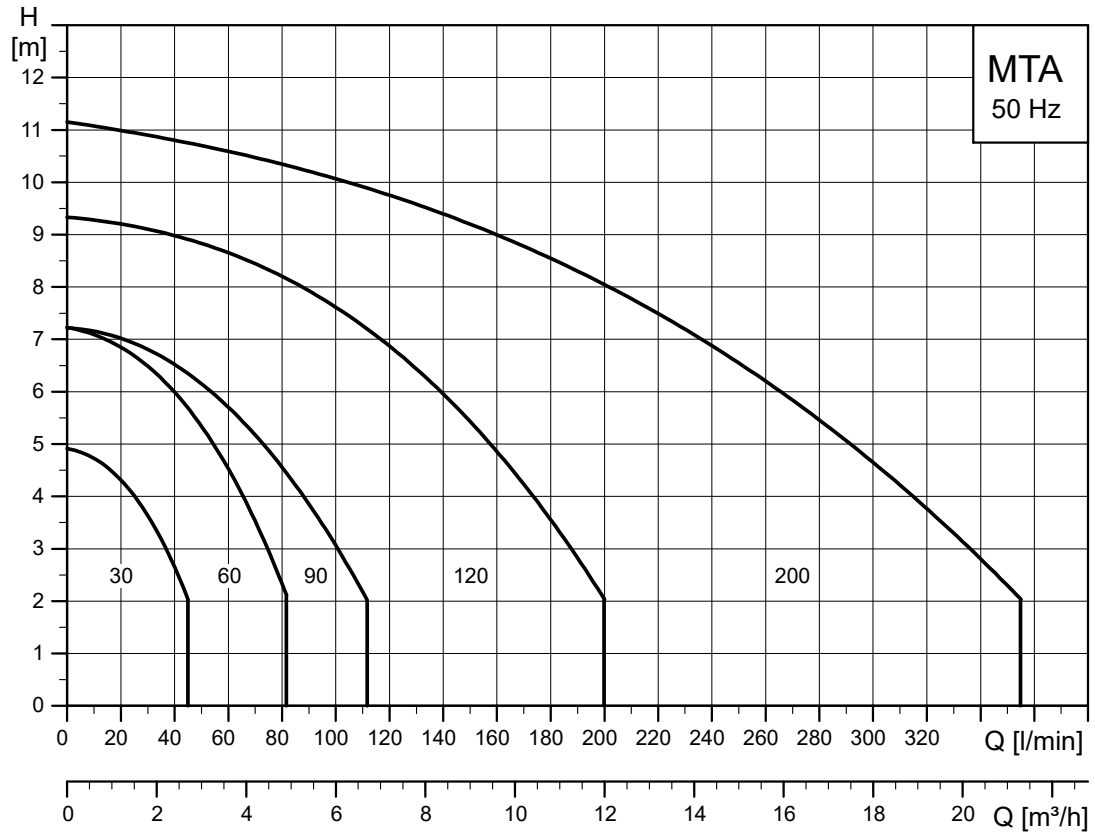

TM027829

## MTHE, 50/60 Hz



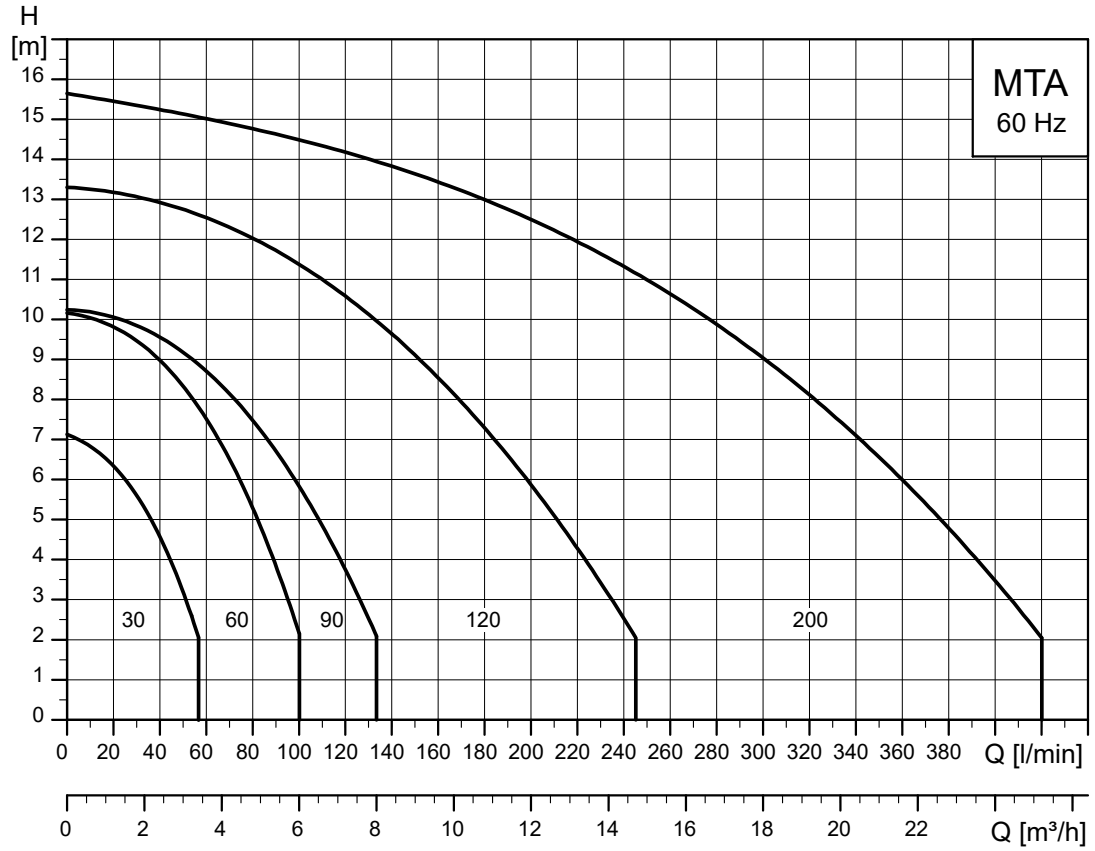

TM082267

## MTA, 50 Hz



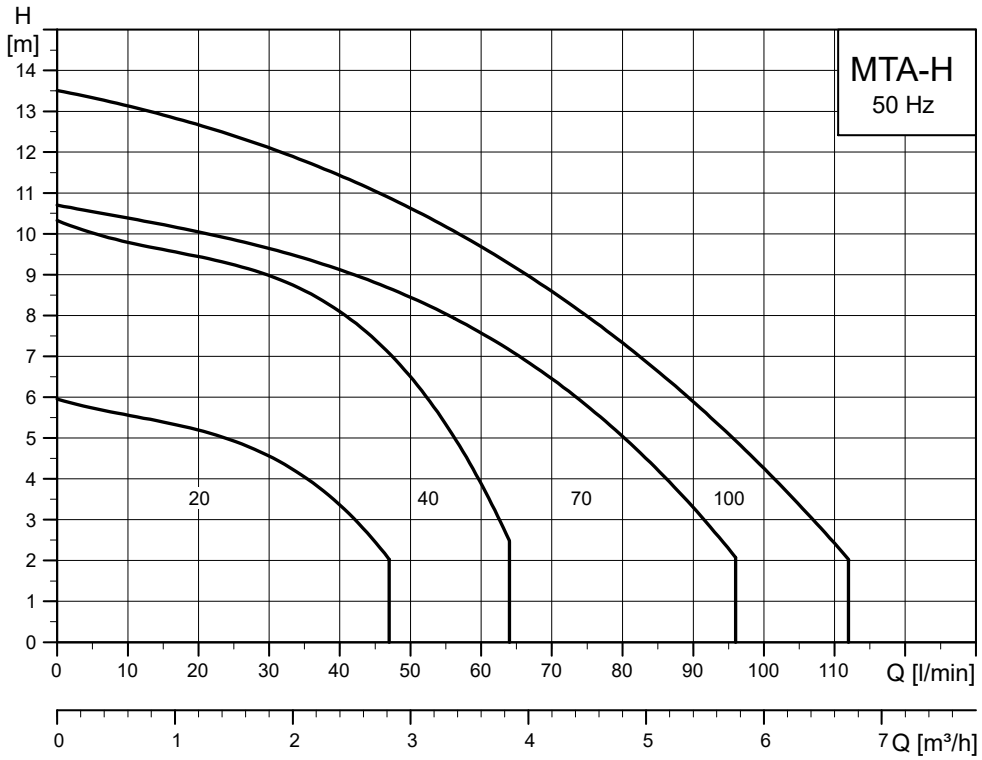

TM049437

## MTA, 60 Hz



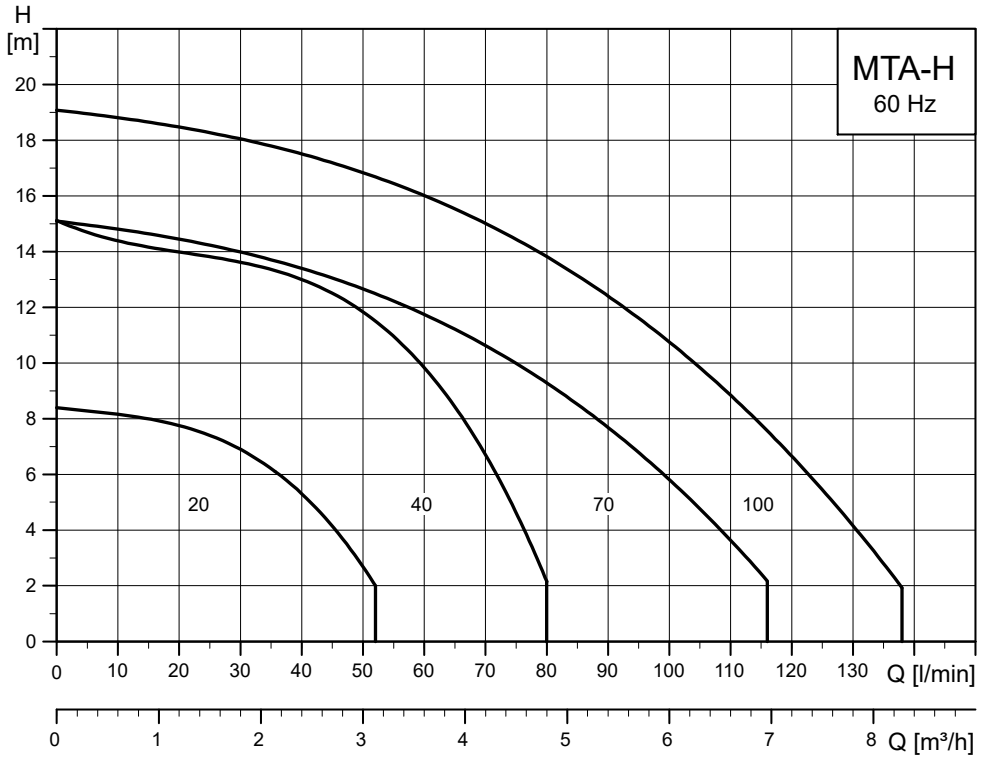

TM049439

## MTA-H, 50 Hz




TM049438

## MTA-H, 60 Hz




TM049440

# 4. Product range

## MTR, MTRE

### 50 Hz

| Pump | MTR, MTRE 1s | MTR, MTRE 1 | MTR, MTRE 3 | MTR, MTRE 5 | MTR, MTRE 8 | MTR, MTRE 10 | MTR, MTRE 15 | MTR, MTRE 20 | MTR, MTRE 32 | MTR, MTRE 45 | MTR, MTRE 64 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rated flow rate [$m^3$/h] | 0.8 | 1 | 3 | 5 | 8 | 10 | 15 | 20 | 32 | 45 | 64 |
| Rated flow rate [l/min] | 13 | 17 | 50 | 83 | 133 | 167 | 250 | 333 | 533 | 750 | 1067 |
| Temperature range [°C] | | | | | | -10 to +90 | | | | | |
| Maximum efficiency [%] | 35 | 48 | 58 | 66 | 62 | 70 | 72 | 72 | 76 | 78 | 80 |
| **MTR pumps** | | | | | | | | | | | |
| Flow range [$m^3$/h] | 0.3 - 1.3 | 0.7 - 2.4 | 1.2 - 4.5 | 2.5 - 8.5 | 4-12 | 5-13 | 8.5 - 23.5 | 10.5 - 29 | 15-40 | 22-58 | 30-85 |
| Flow range [l/min] | 5-22 | 12-40 | 20-75 | 42-142 | 67-200 | 83-217 | 142-392 | 175-483 | 250-667 | 367-967 | 500-1417 |
| Maximum head [bar] | 20 | 22 | 23 | 21 | 25 | 22 | 23 | 24 | 27 | 32 | 22 |
| Motor power[kW] | 0.37 - 1.1 | 0.37 - 2.2 | 0.37 - 3.0 | 0.37 - 5.5 | 0.37 - 7.5 | 0.37 - 7.5 | 1.1 - 15.0 | 1.1 - 18.5 | 1.5 - 30 | 3.0 - 45 | 4.0 - 45 |
| **MTRE pumps** | | | | | | | | | | | |
| Flow range [$m^3$/h] | 0.3 - 1.3 | 0.7 - 2.4 | 1.2 - 4.5 | 2.5 - 8.5 | 4-12 | 5-13 | 8.5 - 23.5 | 10.5 - 29 | 15-40 | 22-58 | 30-85 |
| Flow range [l/min] | 5-22 | 12-40 | 20-75 | 42-142 | 67-200 | 83-217 | 142-392 | 175-483 | 250-667 | 367-967 | 500-1417 |
| Maximum head [bar] | 20 | 22 | 23 | 21 | 25 | 22 | 23 | 24 | 22 | 15 | 11 |
| Motor power[kW] | 0.37 - 1.1 | 0.37 - 2.2 | 0.37 - 3.0 | 0.37 - 5.5 | 0.37 - 7.5 | 0.37 - 7.5 | 1.1 - 15.0 | 1.1 - 18.5 | 1.5 - 22 | 3.0 - 22 | 4.0 - 22 |

### 60 Hz

| Pump | MTR, MTRE 1s | MTR, MTRE 1 | MTR, MTRE 3 | MTR, MTRE 5 | MTR, MTRE 8 | MTR, MTRE 10 | MTR, MTRE 15 | MTR, MTRE 20 | MTR, MTRE 32 | MTR, MTRE 45 | MTR, MTRE 64 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rated flow rate [$m^3$/h] | 1 | 1.2 | 3.6 | 6 | 10 | 12 | 18 | 24 | 38 | 54 | 77 |
| Rated flow rate [l/min] | 17 | 20 | 60 | 100 | 167 | 200 | 300 | 400 | 633 | 900 | 1283 |
| Temperature range [°C] | | | | | | -10 to +90 | | | | | |
| Maximum efficiency [%] | 35 | 49 | 59 | 67 | 61 | 70 | 72 | 72 | 76 | 78 | 79 |
| **MTR pumps** | | | | | | | | | | | |
| Flow range [$m^3$/h] | 0.4 - 1.6 | 0.8 - 2.9 | 1.4 - 5.4 | 3-10 | 4.5 - 14 | 6 - 15.5 | 10 - 28.5 | 13-35 | 18-48 | 26-70 | 36-102 |
| Flow range [l/min] | 7-27 | 13-23 | 48-90 | 50-167 | 75-233 | 100-258 | 167-475 | 217-583 | 300-800 | 433-1167 | 600-1700 |
| Maximum head [bar] | 22 | 24 | 23 | 23 | 19 | 26 | 23 | 21 | 27 | 26 | 18 |
| Motor power[kW] | 0.37 - 1.5 | 0.37 - 2.2 | 0.37 - 4.0 | 0.55 - 7.5 | 0.55 - 7.5 | 0.75 - 11 | 1.5 - 11 | 2.2 - 18.5 | 2.2 - 30 | 5.5 - 45 | 7.5 - 45 |
| **MTRE pumps** | | | | | | | | | | | |
| Flow range [$m^3$/h] | 0.4 - 1.6 | 0.8 - 2.9 | 1.4 - 5.4 | 3-10 | 4.5 - 14 | 6 - 15.5 | 10 - 28.5 | 13-35 | 18-48 | 26-70 | 36-102 |
| Flow range [l/min] | 7-27 | 13-23 | 48-90 | 50-167 | 75-233 | 100-258 | 167-475 | 217-583 | 300-800 | 433-1167 | 600-1700 |
| Maximum head [bar] | 22 | 24 | 23 | 23 | 19 | 26 | 23 | 21 | 18 | 13 | 9 |
| Motor power[kW] | 0.37 - 1.5 | 0.37 - 2.2 | 0.37 - 4.0 | 0.55 - 7.5 | 0.55 - 7.5 | 0.75 - 11.0 | 1.5 - 11.0 | 2.2 - 11.0 | 2.2 - 22 | 5.5 - 22 | 7.5 - 22 |

### Material variants

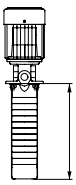
| Pump | MTR, MTRE 1s | MTR, MTRE 1 | MTR, MTRE 3 | MTR, MTRE 5 | MTR, MTRE 8 | MTR, MTRE 10 | MTR, MTRE 15 | MTR, MTRE 20 | MTR, MTRE 32 | MTR, MTRE 45 | MTR, MTRE 64 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pump head (A-version): cast iron, EN-GJL-200 | • | • | • | • | • | • | • | • | • | • | • |
| Pump head (I-version): stainless steel, EN 1.4408 | • | • | • | • | • | • | • | • | • | • | • |

### Pipe connection

| Pump | MTR, MTRE 1s | MTR, MTRE 1 | MTR, MTRE 3 | MTR, MTRE 5 | MTR, MTRE 8 | MTR, MTRE 10 | MTR, MTRE 15 | MTR, MTRE 20 | MTR, MTRE 32 | MTR, MTRE 45 | MTR, MTRE 64 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **A-version** | | | | | | | | | | | |
| Internal thread | G 1 1/4 | G 1 1/4 | G 1 1/4 | G 1 1/4 | G 1 1/4 | G 2 | G 2 | G 2 | - | - | - |
| | - | - | - | - | - | Rp 2 | Rp 2 | Rp 2 | - | - | - |
| Square flange with internal thread | Rp 1 1/4 | Rp 1 1/4 | Rp 1 1/4 | Rp 1 1/4 | Rp 1 1/4 | - | - | - | - | - | - |

| Pump | MTR, MTRE 1s | MTR, MTRE 1 | MTR, MTRE 3 | MTR, MTRE 5 | MTR, MTRE 8 | MTR, MTRE 10 | MTR, MTRE 15 | MTR, MTRE 20 | MTR, MTRE 32 | MTR, MTRE 45 | MTR, MTRE 64 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flange | - | - | - | - | - | - | - | - | DN 65 | DN 80 | DN 80 |
| **I-version** | | | | | | | | | | | |
| Internal thread | G 1 1/4 | G 1 1/4 | G 1 1/4 | G 1 1/4 | G 1 1/4 | G 2 | G 2 | G 2 | - | - | - |
| | Rp 1 1/4 | Rp 1 1/4 | Rp 1 1/4 | Rp 1 1/4 | Rp 1 1/4 | Rp 2 | Rp 2 | Rp 2 | - | - | - |
| Flange | - | - | - | - | - | - | - | - | DN 65 | DN 80 | DN 80 |

## Installation length [mm]

| Pump | MTR, MTRE 1s | MTR, MTRE 1 | MTR, MTRE 3 | MTR, MTRE 5 | MTR, MTRE 8 | MTR, MTRE 10 | MTR, MTRE 15 | MTR, MTRE 20 | MTR, MTRE 32 | MTR, MTRE 45 | MTR, MTRE 64 |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 160-1006 | 160-1006 | 160-1006 | 169-1006 | 196-1006 | 148-1018 | 178-1033 | 178-1033 | 223-1343 | 244-1444 | 249-1487 |

## Shaft seal*

| Pump | MTR, MTRE 1s | MTR, MTRE 1 | MTR, MTRE 3 | MTR, MTRE 5 | MTR, MTRE 8 | MTR, MTRE 10 | MTR, MTRE 15 | MTR, MTRE 20 | MTR, MTRE 32 | MTR, MTRE 45 | MTR, MTRE 64 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HUUV | • | • | • | • | • | • | • | • | • | • | • |

* Other shaft seals on request.

# SPK

## 50 Hz

| Pump | SPK 1 | SPK 2 | SPK 4 |
|---|---|---|---|
| Rated flow rate [$m^3/h$] | 1 | 2 | 4 |
| Rated flow rate [l/min] | 16.7 | 33.3 | 67 |
| Flow range [$m^3/h$] | 0.2 - 1.5 | 0.5 - 2.5 | 2.0 - 5.0 |
| Flow range [l/min] | 3.3 - 25 | 8.3 - 41.7 | 33.3 - 83 |
| Maximum head [bar] | 8.6 | 10.5 | 9.8 |
| Motor power [kW] | 0.06 - 0.55 | 0.06 - 0.75 | 0.06 - 1.1 |
| Liquid temperature range [°C] | -10 to +90 | -10 to +90 | -10 to +90 |
| Maximum efficiency [%] | 40 | 55 | 50 |

## 60 Hz

| Pump | SPK 1 | SPK 2 | SPK 4 |
|---|---|---|---|
| Rated flow rate [$m^3/h$] | 1 | 2 | 4 |
| Rated flow rate [l/min] | 16.7 | 33.3 | 67 |
| Flow range [$m^3/h$] | 0.2 - 1.8 | 0.6 - 3.0 | 2.0 - 6.0 |
| Flow range [l/min] | 3.3 - 30 | 10.0 - 50 | 33.3 - 100 |
| Maximum head [bar] | 8.5 | 10.0 | 7.5 |
| Motor power [kW] | 0.06 - 0.55 | 0.06 - 1.1 | 0.12 - 1.1 |
| Liquid temperature range [°C] | -10 to +90 | -10 to +90 | -10 to +90 |
| Maximum efficiency [%] | 40 | 55 | 50 |

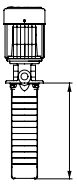
## Material variants

| Pump | SPK 1 | SPK 2 | SPK 4 |
|---|---|---|---|
| Pump head (A-version): cast iron, EN-GJL-200 | • | • | • |
| Pump head (I-version): stainless steel, EN 1.4408 | • | • | • |

## Pipe connection

| Pump | SPK 1 | SPK 2 | SPK 4 |
|---|---|---|---|
| **A-version** | | | |
| Internal thread | G 3/4 | G 3/4 | G 3/4 |
| Square flange with internal thread | Rp 3/4 | Rp 3/4 | Rp 3/4 |
| **I-version** | | | |
| Internal thread | Rp 3/4 | Rp 3/4 | Rp 3/4 |
| | G 3/4 | G 3/4 | G 3/4 |

## Installation length [mm]

| Pump | SPK 1 | SPK 2 | SPK 4 |
|---|---|---|---|
|  | 140-1005 | 140-1005 | 140-1005 |

## Shaft seal*

| Pump | SPK 1 | SPK 2 | SPK 4 |
|---|---|---|---|
| AUUV | • | • | • |

* Other shaft seals on request.

# MTH

## 50 Hz

| Pump | MTH 2 | MTH 4 | MTH 8 | MTH 10 | MTH 15 |
|---|---|---|---|---|---|
| Rated flow rate [$m^3$/h] | 2.5 | 4 | 8 | 12 | 18 |
| Rated flow rate [l/min] | 42 | 67 | 133 | 200 | 300 |
| Temperature range [°C] | | | -10 to +90 | | |
| Maximum efficiency [%] | 45 | 50 | 60 | 60 | 63 |
| Flow range [$m^3$/h] | 0.7 - 3.5 | 1.2 - 8 | 4-12 | 5-15 | 6-22 |
| Flow range [l/min] | 12-58 | 20-133 | 67-200 | 83-250 | 100-370 |
| Maximum head [bar] | 10 | 10 | 8 | 10 | 7 |
| Motor power[kW] | 0.55 - 1.1 | 0.55 - 2.2 | 0.55 - 3 | 1.1 - 4 | 1.1 - 4 |

## 60 Hz

| Pump | MTH 2 | MTH 4 | MTH 8 | MTH 10 | MTH 15 |
|---|---|---|---|---|---|
| Rated flow rate [$m^3$/h] | 3 | 4.8 | 9.6 | 14.4 | 21.6 |
| Rated flow rate [l/min] | 50 | 80 | 160 | 240 | 360 |
| Temperature range [°C] | | | -10 to +90 | | |
| Maximum efficiency [%] | 45 | 50 | 60 | 61 | 66 |
| Flow range [$m^3$/h] | 0.7 - 4 | 1.2 - 8 | 4.6 - 14 | 8-18 | 10-26 |
| Flow range [l/min] | 12-67 | 20-133 | 77-233 | 133-320 | 167-433 |
| Maximum head [bar] | 10 | 10 | 10 | 10 | 5 |
| Motor power[kW] | 0.55 - 1.1 | 0.55 - 2.2 | 0.55 - 4 | 1.1 - 4 | 2.2 - 4 |

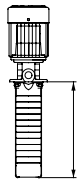
## Material variants

| Pump | MTH 2 | MTH 4 | MTH 8 | MTH 10 | MTH 15 |
|---|---|---|---|---|---|
| Pump head (A-version): cast iron, EN-GJL-200 | • | • | • | • | • |
| Pump head (I-version): stainless steel, EN 1.4408 | • | • | • | • | • |

## Pipe connection

| Pump | MTH 2 | MTH 4 | MTH 8 | MTH 10 | MTH 15 |
|---|---|---|---|---|---|
| **A-version** | | | | | |
| Internal thread | Rp 3/4 | Rp 3/4 | Rp 3/4 | - | - |
| Counterflange | - | - | - | G 1 1/4 | G 1 1/4 |
| **I-version** | | | | | |
| Internal thread | Rp 3/4 | Rp 3/4 | Rp 3/4 | Rp 1 1/4 | Rp 1 1/4 |
| | - | - | - | G 1 1/4 | G 1 1/4 |

## Installation length [mm]

| Pump | MTH 2 | MTH 4 | MTH 8 | MTH 10 | MTH 15 |
|---|---|---|---|---|---|
|  | 145-289 | 145-334 | 145-334 | 105-255 | 105-255 |

## Shaft seal*

| Pump | MTH 2 | MTH 4 | MTH 8 | MTH 10 | MTH 15 |
|---|---|---|---|---|---|
| AQQV | • | • | • | • | • |

* Other shaft seals on request.

# MTHE

### 50 Hz/60 Hz

| Pump | MTHE 1s | MTHE 1 | MTHE 3 | MTHE 5 |
|---|---|---|---|---|
| Rated flow rate [$m^3/h$] | 1.1 | 2.2 | 3.5 | 6.9 |
| Rated flow rate [l/min] | 1 | 37 | 58 | 115 |
| Max. efficiency [%] | 35 | 50 | 60 | 64 |
| Flow range [$m^3/h$] | 0.1 - 1.4 | 0.2 - 2.9 | 0.2 - 6 | 0.2 - 10.5 |
| Flow range [l/min] | 2-23 | 3-4 | 3-100 | 3-175 |
| Max. head [bar] | 10 | 10 | 10 | 10 |
| Motor power [kW] | 0.25 - 0.55 | 0.37 - 0.75 | 0.55 - 1.1 | 1.1 - 2.2 |

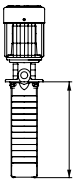
### Material variants

| Pump | MTHE 1s | MTHE 1 | MTHE 3 | MTHE 5 |
|---|---|---|---|---|
| Pump head (A-version): cast iron, EN-GJL-200 | • | • | • | • |
| Pump head (I-version): stainless steel, EN 1.4408 | • | • | • | • |

### Pipe connection

| Pump | MTHE 1s | MTHE 1 | MTHE 3 | MTHE 5 |
|---|---|---|---|---|
| A-version | | | | |
| Internal thread | Rp 3/4 | Rp 3/4 | Rp 3/4 | Rp 3/4 |
| I-version | | | | |
| Internal thread | Rp 3/4 | Rp 3/4 | Rp 3/4 | Rp 3/4 |

### Installation length [mm]

| Pump | MTHE 1s | MTHE 1 | MTHE 3 | MTHE 5 |
|---|---|---|---|---|
|  TM1040629 | 145-289 | 145-289 | 145-289 | 145-334 |

### Shaft seal

| Pump | MTHE 1s | MTHE 1 | MTHE 3 | MTHE 5 |
|---|---|---|---|---|
| AQQV | • | • | • | • |

# MTA

## 50 Hz

| Pump | MTA 30 | MTA 60 | MTA 90 | MTA 120 | MTA 200 | MTA 20H | MTA 40H | MTA 70H | MTA 100H |
|---|---|---|---|---|---|---|---|---|---|
| Rated flow rate [l/min] | 30 | 50 | 80 | 100 | 200 | 20 | 35 | 60 | 90 |
| Temperature range [°C] | | | | | 0-60 | | | | |
| Flow range [l/min] | 0-45 | 0-82 | 0-111 | 0-200 | 0-355 | 0-47 | 0-67 | 0-95 | 0-112 |
| Maximum head [m] | 4.9 | 7.2 | 7.2 | 9.3 | 11.1 | 5.9 | 10.2 | 10.2 | 13.5 |

## 60 Hz

| Pump | MTA 30 | MTA 60 | MTA 90 | MTA 120 | MTA 200 | MTA 20H | MTA 40H | MTA 70H | MTA 100H |
|---|---|---|---|---|---|---|---|---|---|
| Rated flow rate [l/min] | 35 | 60 | 96 | 120 | 250 | 24 | 42 | 72 | 108 |
| Temperature range [°C] | | | | | 0-60 | | | | |
| Flow range [l/min] | 0-56 | 0-100 | 0-134 | 0-245 | 0-420 | 0-52 | 0-81 | 0-114 | 0-138 |
| Maximum head [m] | 7.1 | 10.1 | 10.2 | 13.3 | 15.6 | 8.4 | 14.2 | 14.6 | 19.1 |

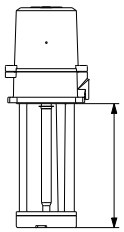
## Pipe connection

| Pump | MTA 30 | MTA 60 | MTA 90 | MTA 120 | MTA 200 | MTA 20H | MTA 40H | MTA 70H | MTA 100H |
|---|---|---|---|---|---|---|---|---|---|
| Internal thread | Rp 3/8 | Rp 1/2 | Rp 3/4 | Rp 1 | Rp 2 | Rp 3/8 | Rp 1/2 | Rp 3/4 | Rp 1 |
| | G 1/2 | G 3/4 | G 3/4 | G 1 1/4 | G 1 1/2 | G 1/2 | G 3/4 | G 3/4 | G 1 |
| | 1/2" NPT | 3/4" NPT | 3/4" NPT | 1 1/4" NPT | 1 1/2" NPT | 1/2" NPT | 3/4" NPT | 3/4" NPT | 1" NPT |

## Material

| Pump | MTA 30 | MTA 60 | MTA 90 | MTA 120 | MTA 200 | MTA 20H | MTA 40H | MTA 70H | MTA 100H |
|---|---|---|---|---|---|---|---|---|---|
| Pump housing | Cast iron | Cast iron | Cast iron | Cast iron | Cast iron | Cast iron | Cast iron | Cast iron | Cast iron |
| Impeller | PAA GF50 | PAA GF50 | PAA GF50 | PAA GF50 | Bronze | Bronze | Bronze | Bronze | Bronze |

## Installation length [mm]

| Pump | MTA 30 | MTA 60 | MTA 90 | MTA 120 | MTA 200 | MTA 20H | MTA 40H | MTA 70H | MTA 100H |
|---|---|---|---|---|---|---|---|---|---|
|  | 150 | 130-350 | 130-350 | 180-350 | 250-350 | 150 | 180 | 250 | 280 |

## Inlet

| Pump | MTA 30 | MTA 60 | MTA 90 | MTA 120 | MTA 200 | MTA 20H | MTA 40H | MTA 70H | MTA 100H |
|---|---|---|---|---|---|---|---|---|---|
| Top inlet | ● | ● | ● | ● | - | ● | ● | ● | ● |
| Bottom inlet | ● | ● | ● | ● | ● | - | - | ● [1] | - |

[1] Impeller material: PAA GF50

# 5. Identification

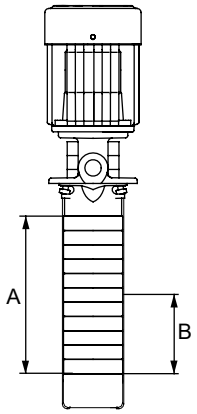
## Type keys for MTR, SPK, MTH

### Type key for MTR, MTRE

Example of a pump type key.

**MTRE 32-2/1-1 A-F-A-HUUV**

| Code | Explanation |
|---|---|
| MTR | Pump type |
| E | Pump with integrated frequency converter |
| 32 | Rated flow rate [$m^3$/h] |
| 2 | Number of chambers |
| 1 | Number of impellers |
| 1 | Number of impellers with reduced diameter |
| A | Code for pump version |
| F | Code for pipe connection |
| A | Code for materials |
| | Code for shaft seal: |
| H | • Shaft seal type designation |
| U | • Seal face material (rotating seal face) |
| U | • Seal face material (stationary seal face) |
| V | • Secondary seal material (rubber parts) |




TM014993

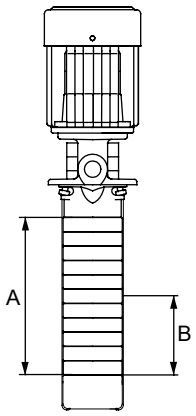
*Number of chambers (A) and number of impellers (B)*

### Type key for SPK

Example of pump a type key.

**SPKE 2-15/8 A-W-A-AUUV**

| Code | Explanation |
|---|---|
| SPK | Pump type |
| E | Pump with integrated frequency converter |
| 2 | Rated flow rate [$m^3$/h] |
| 15 | Number of chambers |
| 8 | Number of impellers |
| A | Code for pump version |
| W | Code for pipe connection |
| A | Code for materials |
| | Code for shaft seal: |
| A | • Shaft seal type designation |
| U | • Seal face material (rotating seal face) |
| U | • Seal face material (stationary seal face) |
| V | • Secondary seal material (rubber parts) |




TM014993

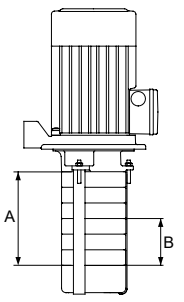
*Number of chambers (A) and number of impellers (B)*

### Type key for MTH, MTHE

Example of a pump type key.

**MTHE 2-6/3 A-W-A-AQQV**

| Code | Explanation |
|---|---|
| MTH | Pump type |
| E | Pump with integrated frequency converter |
| 2 | Rated flow rate [$m^3$/h] |
| 6 | Number of chambers |
| 3 | Number of impellers |
| A | Code for pump version |
| W | Code for pipe connection |
| A | Code for materials |
| | Code for shaft seal: |
| A | • Shaft seal type designation |
| Q | • Seal face material (rotating seal face) |
| Q | • Seal face material (stationary seal face) |
| V | • Secondary seal material (rubber parts) |




TM014992

*Number of chambers (A) and number of impellers (B)*

## Key to codes

Note that each individual pump type is not available in all variants.

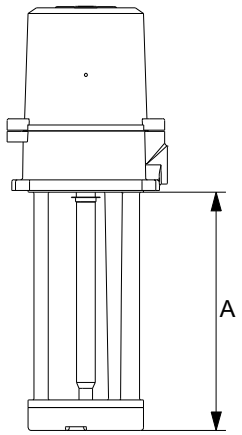
| Code | Description |
|---|---|
| **Pump version** | |
| A | Basic version |
| B | Oversize motor |
| C | Inlet pipe |
| D | Drainage back to tank |
| E | Pump with certificate/approval |
| F | 120 °C version |
| H | Horizontal version |
| HS | High pressure |
| J | E-pump with different maximum speed |
| L | With extension pipe |
| P | Undersize motor |
| T | Double oversize |
| X | Special version |
| **Pipe connection** | |
| F | DIN flange |
| G | ANSI flange |
| J | JIS flange |
| W | Internal thread |
| WB | NPT internal thread |
| X | Special version |
| **Materials** | |
| A | Basic version |
| I | Wetted parts EN/DIN 1.4301 / AISI 304 |
| N | Wetted parts EN/DIN 1.4401 / AISI 316 |
| X | Special version |
| **Shaft seal type designation** | |
| A | O-ring seal with fixed seal driver |
| B | Bellows seal, rubber |
| C | O-ring seal with spring as seal driver |
| H | Balanced cartridge seal with O-ring |
| R | O-ring seal, type A, with reduced seal faces |
| **Seal face material (rotating and stationary seal face)** | |
| A | Carbon, metal-impregnated |
| B | Carbon, synthetic resin-impregnated |
| Q | Silicon carbide |
| U | Cemented tungsten carbide |
| V | Metal oxides, ceramic |
| **Secondary seal material (rubber parts)** | |
| E | EPDM |
| F | FXM (Fluoraz®) |
| K | FFKM (Kalrez®) |
| P | NBR |
| V | FKM (Viton®) |

## Type key for MTA

Example of a pump type key.

**MTA 30 H-150 A-W-A-T**

| Code | Explanation |
|---|---|
| MTA | Pump type |
| 30 | Pump size |
| H | Pressure type |
| 150 | Installation length [mm] |
| A | Code for pump version |
| W | Code for pipe connection |
| A | Impeller material |
| T | Inlet |




TM051021

*Installation length (A)*

## Key to codes

Note that each individual pump type is not available in all variants.

| Code | Description |
|---|---|
| **Pump version** | |
| A | Basic version |
| **Pipe connection** | |
| W | Internal thread |
| WB | NPT internal thread |
| **Impeller material** | |
| A | PAA GF50 |
| B | Bronze |
| **Inlet** | |
| T | Top |
| B | Bottom |

# 6. Motors

## Motors for MTR and SPK pumps

MTR and SPK pumps are fitted with a totally enclosed, fan-cooled, 2-pole Grundfos standard MG motor with principal dimensions according to IEC, DIN and British standards.

Electrical tolerances according to EN 60034.

| | | |
|---|---|---|
| **Mounting designation** | Up to 4 kW | V 18/B 14 |
| | From 5.5 kW | V 1/B 5 |
| **Efficiency class** | 0.06 - 0.55 kW | - |
| | 0.75 - 45 kW | IE3 |
| **Enclosure class** | | IP55 |
| **Insulation class** | | F |
| **Supply voltage, 50 Hz** (- 10 %/+ 10 %) | 0.06 - 45 kW | 3 x 220-240 / 380-415 V |
| | 0.37 - 5.5 kW | 3 x 380-415 V Δ |
| | 7.5 - 45 kW | 3 x 380-415 / 660-690 V |
| **Supply voltage, 60 Hz** (- 10 %/+ 10 %) | 0.06 - 0.18 kW | 3 x 220-277 / 380-480 V |
| | 0.25 - 1.1 kW | 3 x 220-255 / 380-440 V |
| | 1.5 - 45 kW | 3 x 220-277 / 380-480 V |
| | 0.37 - 5.5 kW | 3 x 380-440 V Δ |
| | 7.5 - 45 kW | 3 x 380-480 / 660-690 V |
| MTR pumps are also available for these supply voltages: | | |
| **Supply voltage, 50 Hz** | 0.06 - 22 kW<br>30-45 kW | 3 x 200-220 / 346-380 V |
| **Supply voltage, 60 Hz** | 0.06 - 45 kW<br>30-45 kW | 3 x 200-230 / 346-400 V |
| | 0.25 - 45 kW | 3 x 208-230 / 460-480 V |

For detailed electrical data, see the section on motor data starting at the section on standard motors, MTR and SPK.

On request, Grundfos MG motors are available with cURus approvals carried out by the Underwriters Laboratories Inc. according to UL 1004 Electric motor standard.

### Related information

*Standard motors, MTR and SPK*

## Ambient temperature and installation altitude

The ambient temperature and the installation altitude are important factors for the motor life as they affect the bearings and the insulation system. The installation altitude is the height of the installation site above sea level.

Motors installed up to the maximum ambient temperature and altitude can be loaded 100 %.

If the ambient temperature or the installation altitude exceeds the recommended maximum values, the motor must not be fully loaded due to risk of overheating. Overheating may result from excessive ambient temperatures or high altitudes with low density and low cooling effect of the air.

In such cases, it may be necessary to select an oversized motor with a higher rated output. To determine the motor load, it is necessary to calculate the derated motor power.

## Maximum ambient temperature and altitude for Grundfos MG and Innomotics motors

The table shows the maximum permissible ambient temperature at full load and the maximum permissible installation altitude above sea level at full load.

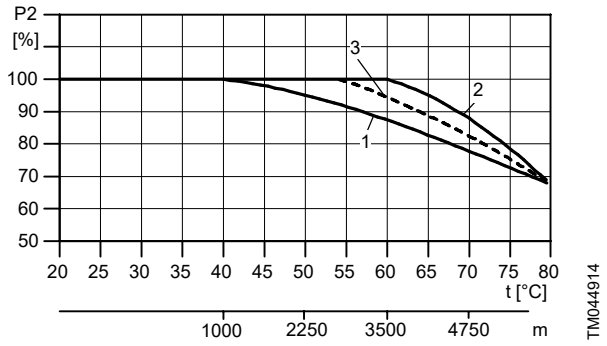
| Motor power [kW] | Motor make | Max. ambient temperature [°C] | Max. altitude [m] |
|---|---|---|---|
| 0.06 - 0.18 | Innomotics | 40 | 1000 |
| 0.25 - 0.55 | Grundfos MG | 40 | 1000 |
| 0.75 - 22 | Grundfos MG | 60 | 3500 |
| 30-45 | Innomotics | 55 | 2750 |

### Motor output derating factors

If the ambient temperature exceeds the maximum permissible temperature value or the pump is installed at an altitude exceeding the maximum permissible altitude value, the motor must not be fully loaded due to the risk of overheating. Overheating may result from excessive ambient temperatures or the low density and consequently low cooling effect of the air.

In such cases, it may be necessary to use a motor with a higher rated output.

### Motor load for Grundfos MG and Innomotics motors




*Maximum motor output in relation to ambient temperature and altitude*

| Derating curve | Motor power [kW] | Motor make | Motor efficiency class |
|---|---|---|---|
| 1 | 0.06 - 0.18 | Innomotics | IE3 |
| 1 | 0.25 - 0.55 | Grundfos MG | IE3 |
| 2 | 0.75 - 22 | Grundfos MG | IE3 |
| 3 | 30-45 | Innomotics | IE3 |

### Example of maximum motor load

Pump with a 2.2 kW IE3 motor (derating curve 2):

- If this pump is installed 4750 m above sea level, the motor must not be loaded more than 88 % of the rated output.
- At an ambient temperature of 75 °C, the motor must not be loaded more than 78 % of the rated output.
- If the pump is installed 4750 m above sea level at an ambient temperature of 75 °C, multiply the derating factors. The motor must not be loaded more than 88 % × 78 % = 68.6 % of the rated output.

If the motor load is not reduced in case the ambient temperature or installation altitude is exceeded, the motor life will be limited, and the warranty is void.

### Motor protection

Single-phase Grundfos motors have a built-in thermal overload switch (IEC 34-11:TP 211).

Three-phase motors must be connected to a motor-protective circuit breaker in accordance with local regulations.

Three-phase Grundfos motors from 3 kW and upwards have a built-in thermistor (PTC) according to DIN 44082 (IEC 34-11:TP 211).

## Motors for MTH pumps

MTH motors are totally enclosed, fan-cooled, 2-pole Grundfos standard motors with principal dimensions according to IEC, DIN and British standards.

| | |
|---|---|
| **Enclosure class** | IP54 |
| **Insulation class** | F |
| **Supply voltage, 50 Hz** (- 5 % / + 5%) | 3 x 220-240 / 380-415 V |
| | 3 x 200-220 / 346-380 V |
| **Supply voltage, 60 Hz** (- 5 % / + 5 %) | 3 x 220-255 / 380-440 V |
| | 3 x 200-230 / 346-400 V |
| | 3 x 208-230 / 460 V |

### Ambient temperature

The motor used on an MTH pump is not shown in the list above, but the maximum ambient temperature at full load is the same as for MG motors.

## Motors for MTA pumps

| | |
|---|---|
| **Efficiency class** (only MTA 200, 750 W) | IE3 |
| **Enclosure class** | IP54 |
| **Insulation class** | F |
| **Supply voltage, 50 Hz** (- 10 %/+ 10 %) | 3 x 220-240 / 380-415 V |
| | 3 x 200 V |
| **Supply voltage, 60 Hz** (- 10 %/+ 10 %) | 3 x 220-240 / 380-440 V |
| | 3 x 200-220 V |
| | 3 x 208-230 / 460 V |

We do not recommend operation via frequency converter.

The motors for MTA pumps are exempt from the efficiency requirements set out under the Ecodesign regulation (EU) 2019/1781 and Regulation (EU) 2021/341 (Ecodesign omnibus amendment). This is due to the following reason: if the pump part is removed from an MTA pump, the motor will be inoperative.

### Ambient temperature

Maximum permissible ambient temperature: 40 °C

## Terminal box positions

### MTR, MTRE, SPK, MTH and MTHE

| Pump | Terminal box positions | | | |
|---|---|---|---|---|
| | 3 o'clock | 6 o'clock (standard) | 9 o'clock | 12 o'clock |
| MTR | ● | ● | ● | ● |
| MTRE | ● | ● | ● | ● |
| SPK | ● | ● | ● | ● |
| MTH | ● | ● | ● | - |
| MTHE | ● | ● | ● | - |

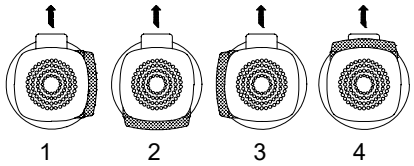
### MTA

| Pump | Terminal box positions | | | |
|---|---|---|---|---|
| | 3 o'clock | 6 o'clock | 9 o'clock (standard) | 12 o'clock |
| MTA 30 | ● | - | ● | - |
| MTA 60 | ● | (●) | ● | (●) |
| MTA 90 | ● | (●) | ● | (●) |
| MTA 120 | (●) | (●) | ● | (●) |
| MTA 200 | (●) | (●) | ● | (●) |
| MTA 20H | ● | - | ● | - |
| MTA 40H | ● | (●) | ● | (●) |
| MTA 70H | ● | (●) | ● | (●) |
| MTA 100H | (●) | (●) | ● | (●) |

● This position is possible. The pump can be ordered with the terminal box in this position, or the terminal box can be turned to this position after delivery.

(●) This position is possible, but the terminal box cannot be turned to this position after delivery. Therefore, the pump must be ordered with the terminal box in this position.

- This position is not possible.




TM027777

*Terminal box positions, top view*

| Pos. | Description |
|---|---|
| 1 | Position 3 o'clock |
| 2 | Position 6 o'clock |
| 3 | Position 9 o'clock |
| 4 | Position 12 o'clock |

## Frequency of starts and stops

| Pump | Motor size [kW] | Maximum number of starts per hour |
|---|---|---|
| MTR<br>SPK<br>MTH | 0.06 - 0.18 | 100 |
| | 0.25 - 2.2 | 250 |
| | 3-4 | 100 |
| | 5.5 - 11 | 50 |
| | 15-22 | 40 |
| | 30 | 90 |
| | 37 | 50 |
| | 45 | 80 |
| MTA | All | 250 |

## Sound pressure level

| Pump | Motor power[kW] | LpA [dB(A)] | |
|---|---|---|---|
| | | 50 Hz | 60 Hz |
| MTR<br>SPK | 0.06 | 41 | 41 |
| | 0.12 | 41 | 41 |
| | 0.18 | 41 | 41 |
| | 0.25 | 56 | 62 |
| | 0.37 | 50 | 55 |
| | 0.55 | 50 | 53 |
| | 0.75 | 50 | 54 |
| | 1.1 | 52 | 57 |
| | 1.5 | 54 | 59 |
| | 2.2 | 54 | 59 |
| | 3.0 | 55 | 60 |
| | 4.0 | 62 | 66 |
| | 5.5 | 60 | 65 |
| | 7.5 | 60 | 65 |
| | 11 | 60 | 65 |
| | 15 | 60 | 65 |
| | 18.5 | 60 | 65 |
| | 22 | 66 | 70 |
| | 30 | 67 | 75 |
| | 37 | 67 | 75 |
| | 45 | 67.5 | 75 |
| MTH | | < 70 | < 70 |
| MTA 30 | | < 45 | < 45 |
| MTA 60 | | < 45 | < 45 |
| MTA 90 | | < 45 | < 45 |
| MTA 120 | | < 62 | < 62 |
| MTA 200 | | < 62 | < 62 |
| MTA 20H | | < 45 | < 45 |
| MTA 40H | | < 45 | < 45 |
| MTA 70H | | < 45 | < 45 |
| MTA 100H | | < 62 | < 62 |

The values have been measured according to EN ISO 4871.

## Optional motors

The Grundfos standard range of motors meets a wide variety of system requirements.

For special applications or operating conditions, we offer custom-built motors, such as the following:

- ATEX-approved motors
- MG motors with anti-condensation heating unit
- motors with thermal protection.

**Related information**

*List of variants, on request*

## Motors for E-pumps

E-pumps, such as MTRE and MTHE, are fitted with a totally enclosed, fan-cooled, 2-pole frequency-controlled Grundfos MGE motor with principal dimensions in accordance with the EN standards.

Electrical tolerances comply with EN 60034.

E-pumps from 0.25 to 26 kW are fitted with three-phase MGE motors as standard.

0.25 to 1.5 kW single-phase MGE motors are available on request.

For more information see Grundfos Product Center at http://product-selection.grundfos.com/.

**Related information**

*17. Grundfos Product Center*

## Electrical data

| | MGE motor |
|---|---|
| Mounting designation | Up to 4 kW: V18<br>5.5 kW and up: V1 |
| Insulation class | F |
| Efficiency class | 0.25 to 26 kW: IE5 level |
| Enclosure class | 0.25 to 26 kW: IP55 (IP66 optional) |
| Supply voltage<br>Tolerance: - 10 %/+ 10 % | P2: 0.25 - 1.5 kW:<br>1 x 200-240 V |
| | P2: 1.1 - 5.5 kW<br>3 x 200-240 V |
| | P2: 0.25 - 11 kW:<br>3 x 380-500 V |
| | P2: 15 - 26 kW:<br>3 x 380-480 V |
| Supply frequency | 50/60 Hz |

## Maximum ambient temperature and altitude for Grundfos MGE motors

The table shows the maximum permissible ambient temperature at full load and the maximum permissible installation altitude above sea level at full load.

Motor efficiency class: IE5

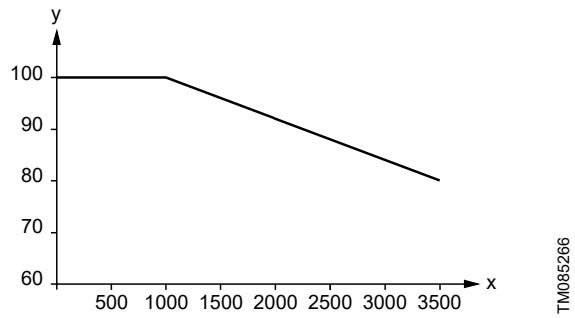
| Motor power [kW] | Motor make | Phase | Max. ambient temperature [°C] | Max. altitude above sea level [m] |
|---|---|---|---|---|
| 0.25 - 1.5 | MGE | 1 | 50 | 1000 |
| 0.25 - 11 | MGE | 3 | 50 [2)] | 1000 |
| 15-22 | MGE | 3 | 50 | 1000 |
| 26 | MGE | 3 | 40 | 1000 |

2) 3 x 200–240 V MGE motors are rated for a maximum ambient temperature of 40 °C.

## Motor load for Grundfos MGE motors

MGE motors can be installed up to 3500 metres above sea level.

Motors installed above the maximum installation altitude of 1000 metres above sea level must not be fully loaded. Use the below curve to calculate the derated motor power. If the required motor output exceeds the derated motor power, select an oversized motor.




*Derating of motor output power P2 % (y-axis) in relation to installation altitude above sea level in metres (x-axis)*

## Motor protection

MGE motors incorporate thermal protection against slow overload and blocking (IEC 34-11:TP 211).

Grundfos pumps with an MGE motor require no external motor protection.

## Communication

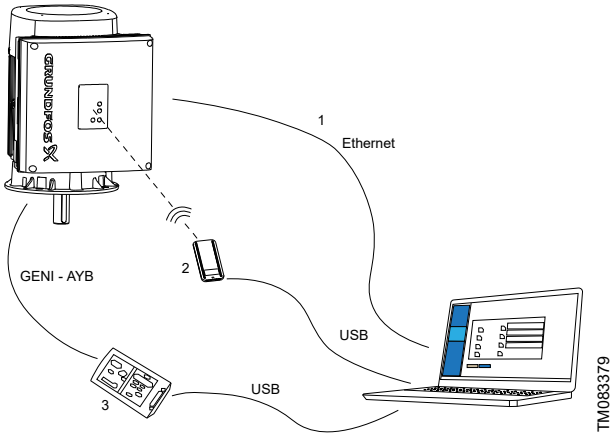
## MGE 0.25 to 2.2 kW

## Grundfos GO Link

The product is designed for wired or wireless communication with Grundfos GO Link.

Grundfos GO Link enables you to set functions and gives you access to status overviews, configuration and current operating parameters.

Use Grundfos GO Link together with these interfaces:



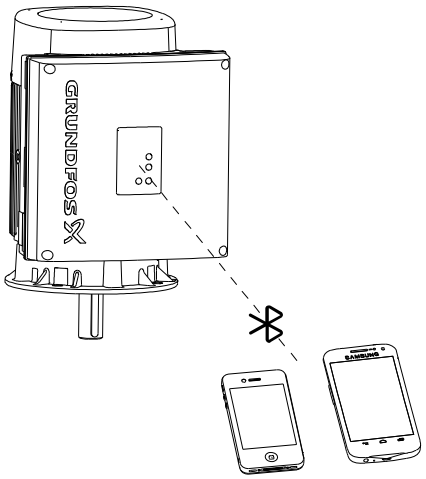

*Grundfos GO Link setup*

| Pos. | Description |
|---|---|
| 1 | Ethernet cable:<br>Standard Ethernet cable CAT5/CAT6. |
| 2 | Grundfos MI 301:<br>Separate module enabling radio communication. Use the module together with a USB cable to connect to a laptop. |
| 3 | Grundfos PC Tool Link:<br>Separate module enabling wired connection to the pump. Use the module together with a USB cable to connect to a laptop. |

## MGE 3 to 26 kW

### Bluetooth

Via the built-in Bluetooth module, the product can communicate with Grundfos GO. Bluetooth communication can take place at distances up to 10 metres.




TM082930

**Bluetooth information**

| | |
|---|---|
| Frequency of operation | 2400 - 2483.5 MHz |
| Modulation type | GFSK |
| Data rate | 2 Mbps |
| Transmit power | 5 dBm EIRP with internal antenna |

**GLoWpan information**

| | |
|---|---|
| Frequency of operation | 2405-2480 MHz |
| Modulation type | GP O-QPSK |
| Data rate | 1 Mbps |
| Transmit power | 5 dBm EIRP with internal antenna |

## Functional module for MGE 0.25 to 2.2 kW

### FM300

The module has a number of inputs and outputs enabling the motor to be used in advanced applications where many inputs and outputs are required.

**Inputs and outputs**

The module has these connections:

- three analog inputs
- one analog output
- two dedicated digital inputs
- two configurable digital inputs or open-collector outputs
- Grundfos Digital Sensor input and output
- two Pt100/1000 inputs
- two LiqTec sensor inputs
- two signal relay outputs
- GENIbus connection.

**Connection terminals**

All inputs and outputs are internally separated from the mains-conducting parts by reinforced insulation and galvanically separated from other circuits. All control terminals are supplied with protective extra-low voltage (PELV), thus ensuring protection against electric shock.

- Signal relay outputs
  - Signal relay 1:

    LIVE:

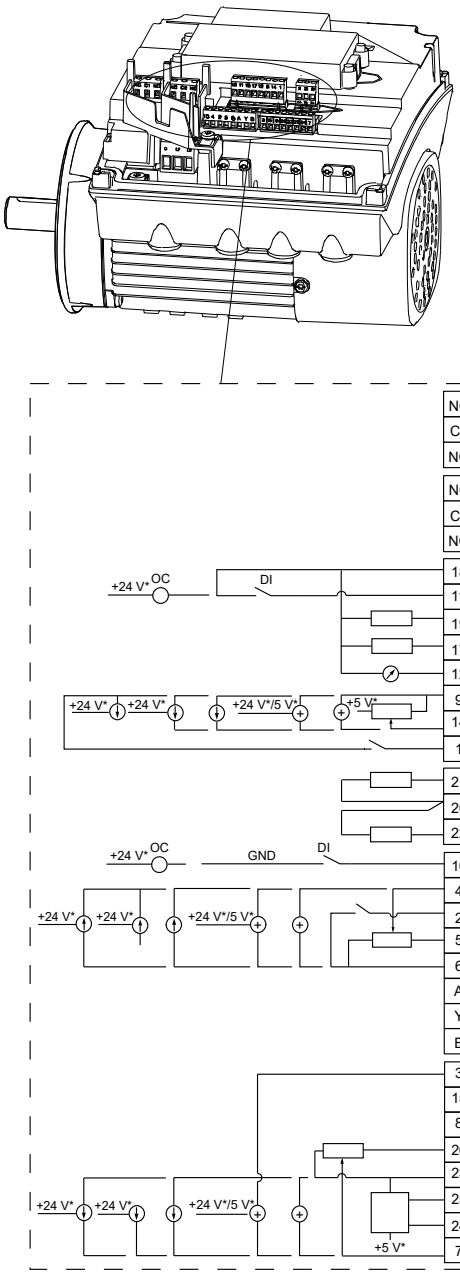
    Power supply voltages up to 250 VAC can be connected to this output.

    PELV:

    The output is galvanically separated from other circuits. Therefore, the supply voltage or protective extra-low voltage can be connected to the output as desired.
  - Signal relay 2:

    PELV:

    The output is galvanically separated from other circuits. Therefore, the supply voltage or protective extra-low voltage can be connected to the output as desired.
- **Power supply** (terminals N, PE, L or L1, L2, L3, PE)




* If an external supply source is used, there must be a connection to GND.

*Connection terminals, FM300 functional module*

| Terminal | Type | Function |
|---|---|---|
| NC | Normally closed contact | Signal relay 1: LIVE or PELV |
| C1 | Common | |
| NO | Normally open contact | |
| NC | Normally closed contact | Signal relay 2: PELV only |
| C2 | Common | |
| NO | Normally open contact | |
| 18 | GND | Signal ground |
| 110.5 - 3.5 V or<br>0-5 V or<br>0-10 V | DI4/OC2 | Digital input/output, configurable<br>Open collector: Maximum 24 V resistive or inductive |
| 19 | Pt100/1000 input 2 | Pt100/1000 sensor input 2 |
| 17 | Pt100/1000 input 1 | Pt100/1000 sensor input 1 |
| 12 | AO | Analog output:<br>• 0-20 mA or 4-20 mA<br>• 0-10 V |
| 9 | GND | Signal ground |

| Terminal | Type | Function |
|---|---|---|
| 14 | AI3 | Analog input:<br>• 0-20 mA or 4-20 mA<br>• 0-10 V |
| 1 | DI2 | Digital input, configurable |
| 21 | LiqTec sensor input 1 | LiqTec sensor input 1<br>White conductor |
| 20 | GND | Signal ground<br>Brown and black conductors |
| 22 | LiqTec sensor input 2 | LiqTec sensor input 2<br>Blue conductor |
| 10 | DI3/OC1 | Digital input/output, configurable<br>Open collector: Maximum 24 V resistive or inductive |
| 4 | AI1 | Analog input:<br>• 0-20 mA or 4-20 mA<br>• 0.5 - 3.5 V, 0-5 V or 0-10 V |
| 2 | DI1 | Digital input, configurable |
| 5 | +5 V | Power supply to a potentiometer and sensor |
| 6 | GND | Signal ground |
| A | GENIbus, A | GENIbus, A (+) |
| Y | GENIbus, Y | GENIbus, GND |
| B | GENIbus, B | GENIbus, B (-) |
| 3 | GND | Signal ground |
| 15 | +24 V | Power supply |
| 8 | +24 V | Power supply |
| 26 | +5 V | Supply to potentiometer and sensor |
| 23 | GND | Signal ground |
| 25 | GDS TX | Grundfos Digital Sensor output |
| 24 | GDS RX | Grundfos Digital Sensor input |
| 7 | AI2 | Analog input:<br>• 0-20 mA or 4-20 mA<br>• 0.5 - 3.5 V, 0-5 V or 0-10 V |

## Functional module for MGE 3 - 26 kW

## FM310 and FM311

### Inputs and outputs

Note that the FM311 functional module does not include Bluetooth connection.

The module has these connections:

- three analog inputs
- one analog output
- two dedicated digital inputs
- two configurable digital inputs or open-collector outputs
- Grundfos Digital Sensor input and output
- two Pt100/1000 inputs
- two LiqTec sensor inputs
- two signal relay outputs
- GENIbus/Modbus connection
- two Safe Torque Off (STO) inputs [3)]
- Ethernet connection
- Bluetooth (BLE) connection. [4)]

3) Safe Torque Off (STO) is a safety function with the purpose to stop the motor from turning without actively braking it. It follows the definition by EN 61800-5-2.

4) FM311 is without Bluetooth.

### Connection terminals

All control terminals are supplied with safety extra-low voltage (SELV), ensuring protection against electric shock.

The inputs and outputs are internally separated from the mains-conducting parts by reinforced insulation and galvanically separated from other circuits.

Cables for the relays and the Ethernet cable must be rated at least 250V/2A.

The relays are approved for overvoltage category II, whether power is supplied from a transformer or the power supply.

### Signal relay outputs

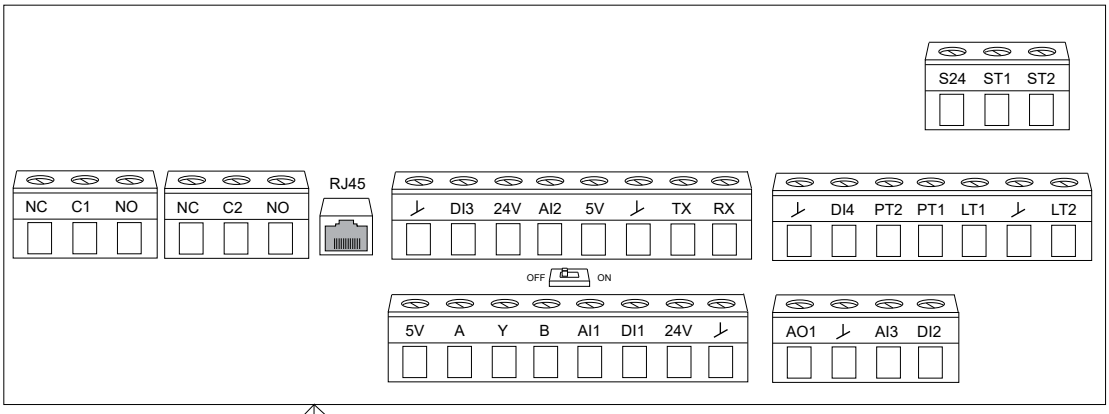
### Signal relay 1

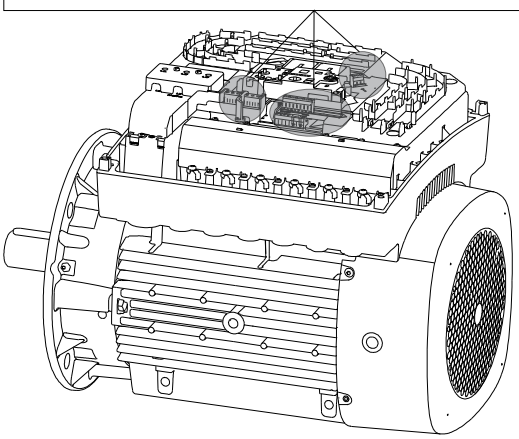
LIVE: You can connect supply voltages up to 250 VAC to the output.

SELV: The output is galvanically separated from other circuits. Therefore, you can connect the supply voltage or safety extra-low voltage to the output as desired.

### Signal relay 2

SELV: The output is galvanically separated from other circuits. Therefore, you can connect the supply voltage or safety extra-low voltage to the output as desired.



TM082862

| Terminal | Type | Function |
|---|---|---|
| NC | Normally closed contact | Signal relay 1: LIVE or SELV |
| C1 | Common | |
| NO | Normally open contact | |
| NC | Normally closed contact | Signal relay 2: SELV only |
| C2 | Common | |

| Terminal | Type | Function |
|---|---|---|
| NO | Normally open contact | |
| RJ45 | Ethernet | Ethernet communication |
| GND | GND | Signal ground |
| DI3 | DI3/OC1 | Digital input/output, configurable<br>Open collector: Maximum 24 V resistive or inductive |
| 24V | +24 V | Power supply |
| AI2 | AI2 | Analog input:<br>• 0-20 mA or 4-20 mA<br>• 0.5 - 3.5 V, 0-5 V or 0-10 V |
| 5V | +5 V | Power supply to a potentiometer or sensor |
| GND | GND | Signal ground |
| TX | GDS TX | Grundfos Digital Sensor output |
| RX | GDS RX | Grundfos Digital Sensor input |
| GND | GND | Signal ground |
| DI4 | DI4/OC2 | Digital input/output, configurable<br>Open collector: Maximum 24 V resistive or inductive |
| PT2 | Pt100/1000 input 2 | Pt100/1000 sensor input 2 |
| PT1 | Pt100/1000 input 1 | Pt100/1000 sensor input 1 |
| LT1 | LiqTec sensor input 1 | LiqTec sensor input 1<br>White conductor |
| GND | GND | Signal ground<br>Brown and black conductors |
| LT2 | LiqTec sensor input 2 | LiqTec sensor input 2<br>Blue conductor |
| 5V | +5 V | Power supply to a potentiometer or sensor |
| A | GENIbus, A | GENIbus, A (+) / Modbus, D1 (+) |
| Y | GENIbus, Y | GENIbus, GND / Modbus, GND |
| B | GENIbus, B | GENIbus, B (-) / Modbus, D0 (-) |
| AI1 | AI1 | Analog input:<br>• 0-20 mA or 4-20 mA<br>• 0.5 - 3.5 V, 0-5 V or 0-10 V |
| DI1 | DI1 | Digital input [5], configurable |
| 24V | +24 V | Power supply |
| GND | GND | Signal ground |
| AO1 | AO | Analog output:<br>• 0-20 mA or 4-20 mA<br>• 0-10 V |
| GND | GND | Signal ground |
| AI3 | AI3 | Analog input:<br>• 0-20 mA or 4-20 mA<br>• 0.5 - 3.5 V, 0-5 V or 0-10 V |
| DI2 | DI2 | Digital input, configurable |
| S24 | +24 V (STO) | Power supply to the Safe Torque Off inputs |
| ST1 | STO1 | Safe Torque Off - Input 1 |
| ST2 | STO2 | Safe Torque Off - Input 2 |

[5] Digital input 1 is factory-set to be start or stop input where an open circuit results in stop. A jumper has been factory-fitted between terminals DI1 and GND. Remove the jumper if digital input 1 is to be used as external start or stop or any other external function.

## Safe Torque Off (STO) function

Safe Torque Off (STO) is a safety function with the purpose to stop the motor from turning, without actively braking it. It follows the definition by EN61800-5-2.

For instructions on how to activate and operate the Safe Torque Off (STO) function, read these installation and operating instructions.

QR92916582

**Safe Torque Off**

**Installation and operating instructions**

http://net.grundfos.com/qr/i/92916582

### Safety approvals

The Safe Torque Off (STO) function of the E-pump with an MGE, MLE motor complies with the following standards:

| Rating | Standard |
|---|---|
| Definition of safety function STO | IEC 61800-5-2:2016 |
| Safety Integrity Level SIL3 | IEC 61508-1/-2:2010 |
| Performance level e (PL e) | EN ISO 13849-1:2015 |
| Category 3 | EN ISO 13849-1:2015 |

# 7. Control of MTRE and MTHE pumps

## Control options

It is possible to communicate with E-pumps via the following platforms:

- the operating panel on the pump
- Grundfos GO
- Grundfos GO Link
- the central management system.

The purpose of controlling an E-pump is to monitor and control the pressure, temperature, flow rate and liquid level of the system.

### Operating panels

The operating panel on the E-pump terminal box makes it possible to change the setpoint settings manually. All settings are saved if the power supply is switched off.

The following operating panels are available as standard:

- HMI 100[6)]
- HMI 200[6)]
- HMI 300.[6)]

6) With an integrated radio module.

The following operating panels are available on request:

- HMI 101[7)]
- HMI 201[7)]
- HMI 301[7)].

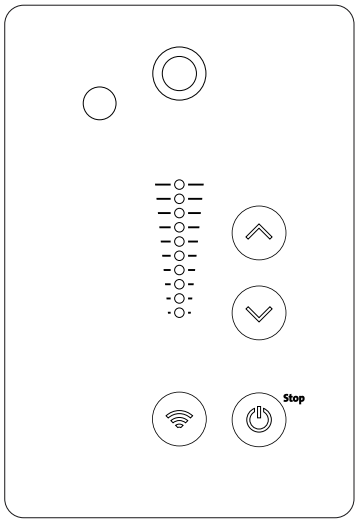
7) Without an integrated radio module.

**Related information**

*List of variants, on request*

### HMI 200

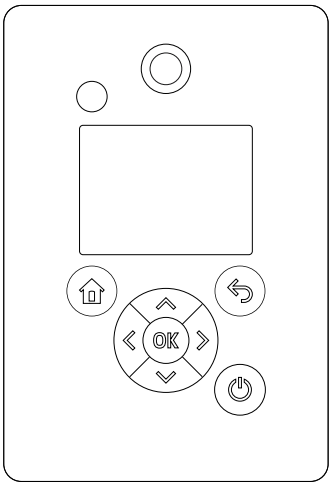
This operating panel is available as standard.




TM084861

### HMI 300

This operating panel is available as either standard or an option, depending on the region.




TM084862

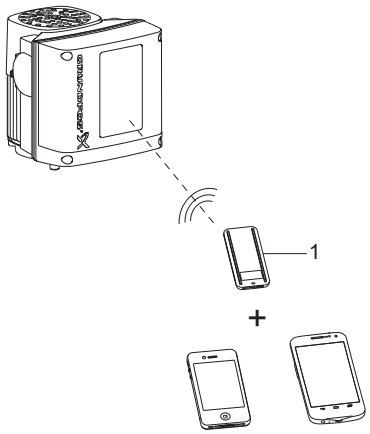
### Grundfos GO

Grundfos GO enables you to set functions and gives you access to status overviews, technical product information and current operating parameters.

**MGE 0.25 to 2.2 kW**

The product is designed for wireless radio or infrared communication with Grundfos GO.

Use Grundfos GO together with the Grundfos MI 301 mobile interface.



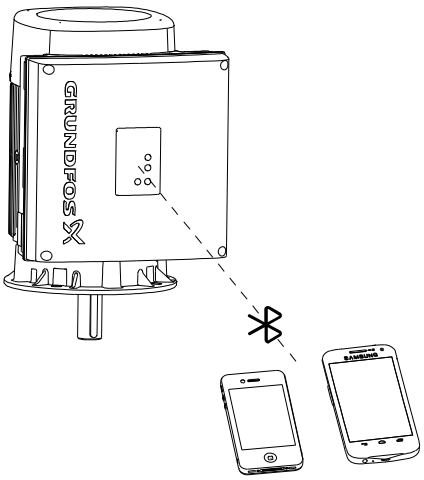

TM066256

| Pos. | Description |
|---|---|
| 1 | Grundfos MI 301:<br>It is a separate module enabling radio or infrared communication. Use the module together with an Android or iOS-based smart device via a Bluetooth connection. |

**MGE 3 to 26 kW**

The product is designed for wireless communication with Grundfos GO using Bluetooth (BLE).

Via the built-in Bluetooth module, the product can communicate with Grundfos GO.

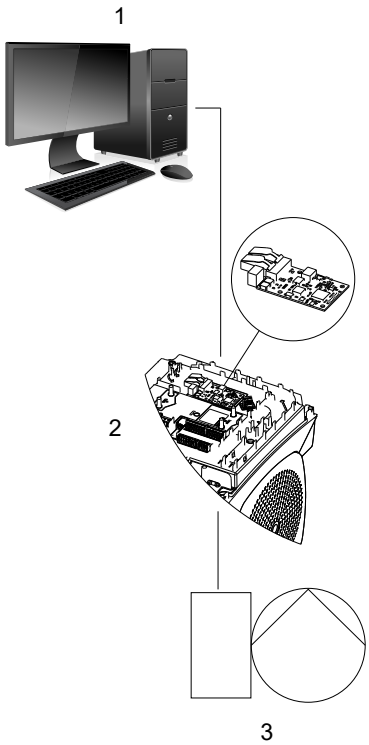



TM082930

## Central management system

Communication with the E-pump is possible even if the operator is not present near the E-pump. Communication is enabled by connecting the E-pump to a central building management system. This allows the operator to monitor the pump and change control modes and setpoint settings.

Communication between E-pumps and a central building management system is enabled via a Grundfos Communication Interface Module (CIM).




TM084691

*Structure of a central management system*

| Pos. | Description |
|---|---|
| 1 | Central management system |
| 2 | CIM<br>(See the section on Communication Interface Modules) |
| 3 | E-pump |

# Control modes for MTRE and MTHE pumps

Grundfos MTRE and MTHE pumps are only available without a pressure sensor.

## E-pumps without a sensor

E-pumps without a sensor are suitable in these situations:

- Uncontrolled operation is required.
- The sensor has been retrofitted to control the flow rate, temperature, differential temperature, liquid level and pH value at some arbitrary point in the system.

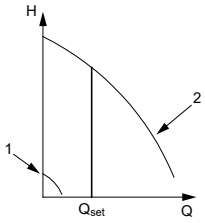
E-pumps without a sensor can be set to any of these control modes:

- constant pressure
- constant differential pressure
- constant temperature
- constant differential temperature
- constant flow rate
- constant level
- constant curve
- constant other value.

E-pumps without a sensor can be set to either of these control modes:

- controlled operation
- uncontrolled operation (factory setting).

In controlled-operation mode, the pump adjusts its performance to the desired setpoint. See the figure below.

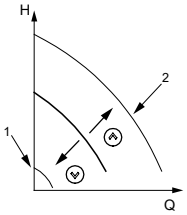



TM027264

*Constant-flow mode*

| Pos. | Description |
|---|---|
| 1 | Min. |
| 2 | Max. |

In uncontrolled-operation mode, the pump operates according to the constant curve set. See the figure below.




TM009323

*Constant-curve mode*

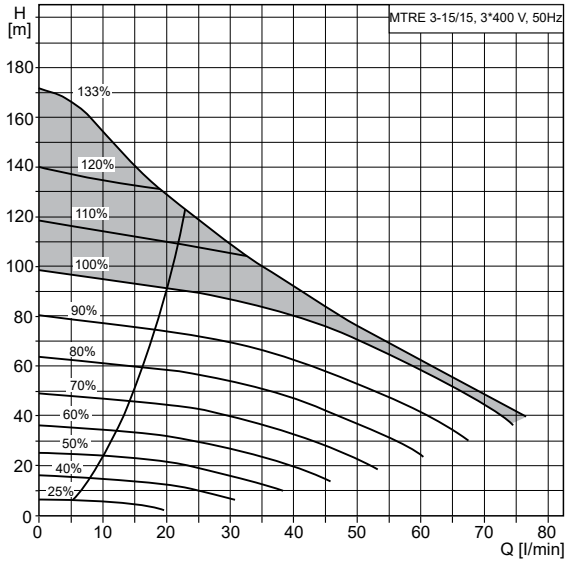
| Pos. | Description |
|---|---|
| 1 | Min. |

| Pos. | Description |
|---|---|
| 2 | Max. |

E-pumps can be fitted with a sensor type meeting the requirements mentioned in the Grundfos E-pumps data booklet available in Grundfos Product Center at www.grundfos.com.

## MTRE 1s, 1, 3, 5, 10, 15 and 20 pumps with extended performance range

Standard MTRE 1s, 1, 3, 5, 10, 15 and 20 pumps can operate in a range above the 100 % curve.




*MTRE 1s, 1, 3, 5, 10, 15 and 20 pumps with extended performance range*

- Pumped liquid: water
- Liquid temperature: 20 °C
- Density: 998.2 kg/$m^3$

The extended range is provided by means of optimised software which uses the MGE motor in an optimum way. The result is that the pump can deliver a higher head and flow rate with the same motor size.

The curve sheets in this data booklet only show the nominal 100 % QH curve.

Grundfos Product Center shows the extended performance range of the pumps.

**Related information**

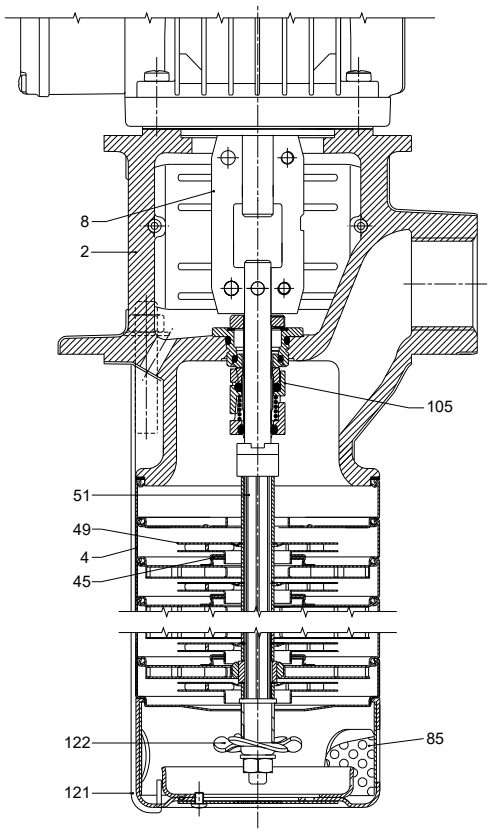
*17. Grundfos Product Center*

# 8. Construction

## Construction of MTR pumps

### MTR, MTRE 1s, 1, 3, 5, 8

**Sectional drawing**



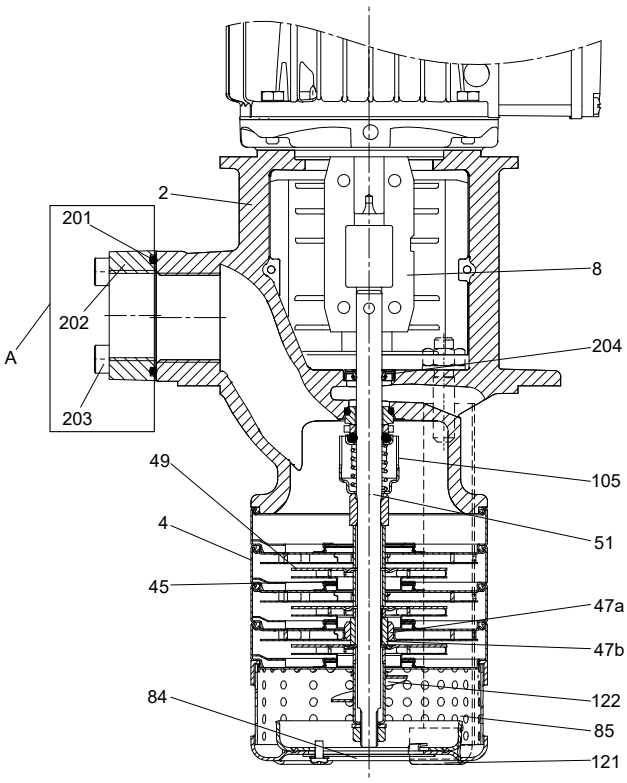

*MTR, MTRE 1s, 1, 3, 5 and 8*

**Materials**

| Pos. | Description | A-version | | | I-version | | | N-version | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM |
| 2 | Pump head | Cast iron | EN-GJL-200 | ASTM 25B | Stainless steel | 1.4408 | CF8M | Stainless steel | 1.4408 | CF8M |
| 4 | Chamber | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 8 | Coupling | Sintered metal | - | - | Sintered metal | - | - | Sintered metal | - | - |
| 45 | Neck ring | PTFE | - | - | PTFE | - | - | PTFE | - | - |
| 47a | Bearing ring, stationary | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 47b | Bearing ring, rotating | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 51 | Pump shaft | Stainless steel | 1.4401 | AISI 316 | Stainless steel | 1.4401 | AISI 316 | Stainless steel | 1.4401 | AISI 316 |
| 84 | Inlet strainer | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 85 | Strainer internal | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 105 | Shaft seal | HUUV/HUUE | - | - | HUUV/HUUE | - | - | HUUV/HUUE | - | - |
| 121 | Strap | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4539 | AISI 904L |
| 122 | Priming screw | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |

## MTR, MTRE 1s, 1, 3, 5 and 8 with drainage back to the tank

### Sectional drawing




TM060196

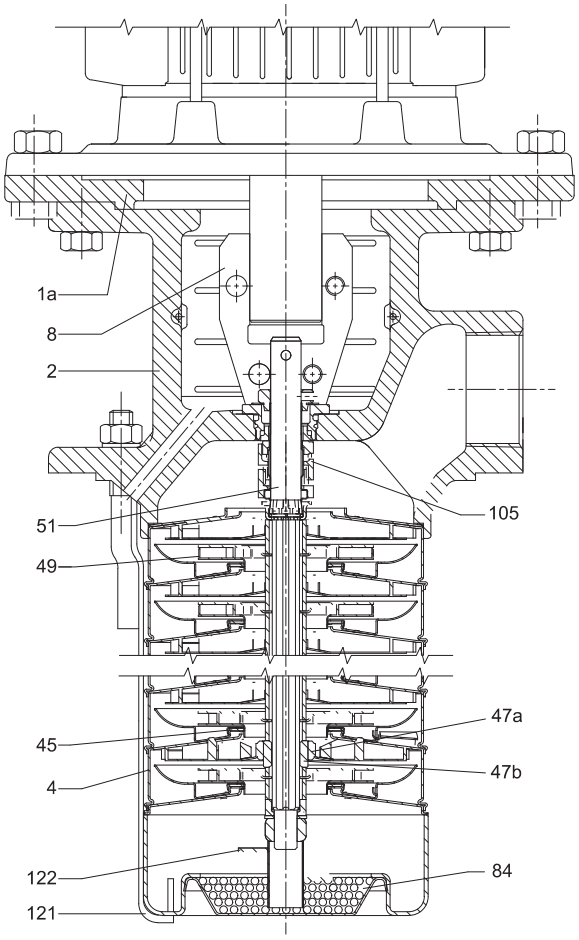
*MTR, MTRE 1s, 1, 3, 5 and 8 with drainage back to the tank. A: Counterflange is only available for A-version*

### Materials

| Pos. | Description | A-version | | | I-version | | | N-version | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM |
| 2 | Pump head | Cast iron | EN-GJL-200 | ASTM 25B | Stainless steel | 1.4408 | CF8M | Stainless steel | 1.4408 | CF8M |
| 4 | Chamber | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 8 | Coupling | Sintered metal | - | - | Sintered metal | - | - | Sintered metal | - | - |
| 45 | Neck ring | PTFE | - | - | PTFE | - | - | PTFE | - | - |
| 47a | Bearing ring, stationary | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 47b | Bearing ring, rotating | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 51 | Pump shaft | Stainless steel | 1.4401 | AISI 316 | Stainless steel | 1.4401 | AISI 316 | Stainless steel | 1.4401 | AISI 316 |
| 84 | Inlet strainer | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 85 | Strainer internal | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 105 | Shaft seal | AQQV/AQQE | - | - | HUUV/HUUE | - | - | HUUV/HUUE | - | - |
| 121 | Strap | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4539 | AISI 904L |
| 122 | Priming screw | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 201 | O-ring | NBR | - | - | - | - | - | - | - | - |
| 202 | Counterflange | Cast iron | EN-GJL-200 | ASTM 25B | - | - | - | - | - | - |
| 203 | Bolt | Stainless steel | - | - | - | - | - | - | - | - |
| 204 | Lip seal | FKM | - | - | FKM | - | - | FKM | - | - |

## MTR, MTRE 10, 15, 20

### Sectional drawing



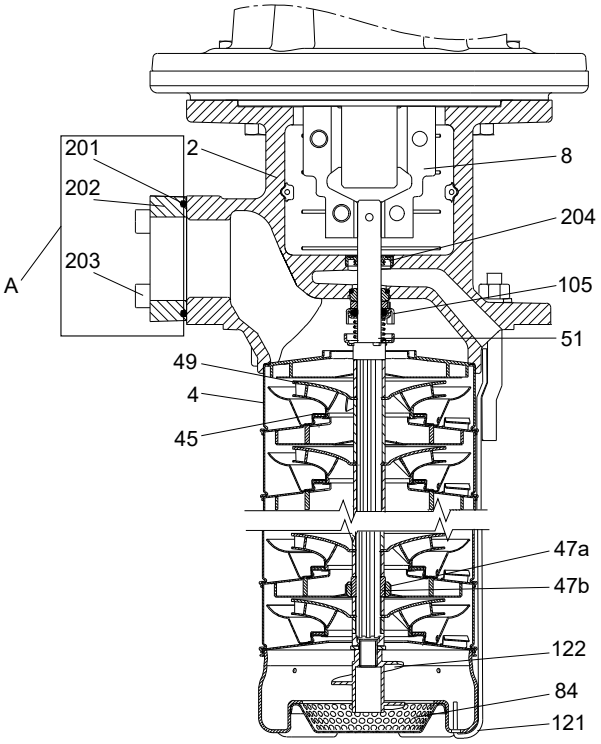

*MTR, MTRE 10, 15 and 20*

### Materials

| Pos. | Description | A-version | | | I-version | | | N-version | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM |
| 1a | Motor stool | Cast iron | EN-GJL-200 | ASTM 25B | Cast iron | EN-GJL-200 | ASTM 25B | Cast iron | EN-GJL-200 | ASTM 25B |
| 2 | Pump head | Cast iron | EN-GJL-200 | ASTM 25B | Stainless steel | 1.4408 | CF8M | Stainless steel | 1.4408 | CF8M |
| 4 | Chamber | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 8 | Coupling | Sintered metal | - | - | Sintered metal | - | - | Sintered metal | - | - |
| 45 | Neck ring | PTFE | - | - | PTFE | - | - | PTFE | - | - |
| 47a | Bearing ring, stationary | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 47b | Bearing ring, rotating | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 51 | Pump shaft | Stainless steel | 1.4057 | AISI 431 | Stainless steel | 1.4460 | | Stainless steel | 1.4460 | |
| 84 | Inlet strainer | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 105 | Shaft seal | HUUV/HUUE | - | - | HUUV/HUUE | - | - | HUUV/HUUE | - | - |
| 121 | Strap | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4539 | AISI 904L |
| 122 | Priming screw | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | - | - | - |

## MTR, MTRE 10, 15 and 20 with drainage back to the tank

### Sectional drawing



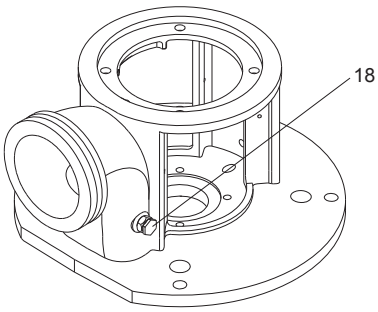

*MTR, MTRE 10, 15 and 20 with drainage back to the tank. A: Counterflange is only available for A-version*

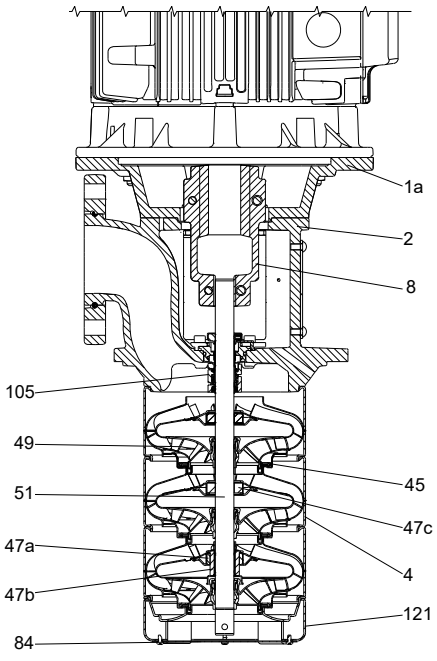
### Materials

| Pos. | Description | A-version | | | I-version | | | N-version | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM |
| 1a | Motor stool | Cast iron | EN-GJL-200 | ASTM 25B | Cast iron | EN-GJL-200 | ASTM 25B | Cast iron | EN-GJL-200 | ASTM 25B |
| 2 | Pump head | Cast iron | EN-GJL-200 | ASTM 25B | Stainless steel | 1.4408 | CF8M | Stainless steel | 1.4408 | CF8M |
| 4 | Chamber | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 8 | Coupling | Sintered metal | - | - | Sintered metal | - | - | Sintered metal | - | - |
| 45 | Neck ring | PTFE | - | - | PTFE | - | - | PTFE | - | - |
| 47a | Bearing ring, stationary | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 47b | Bearing ring, rotating | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 51 | Pump shaft | Stainless steel | 1.4057 | AISI 431 | Stainless steel | 1.4460 | | Stainless steel | 1.4460 | |
| 84 | Inlet strainer | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 105 | Shaft seal | AQQV/AQQE | - | - | HUUV/HUUE | - | - | HUUV/HUUE | - | - |
| 121 | Strap | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4539 | AISI 904L |
| 122 | Priming screw | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | - | - | - |
| 201 | O-ring | NBR | - | - | - | - | - | - | - | - |
| 202 | Counterflange | Cast iron | EN-GJL-200 | ASTM 25B | - | - | - | - | - | - |
| 203 | Bolt | Stainless steel | - | - | - | - | - | - | - | - |
| 204 | Lip seal | FKM | - | - | FKM | - | - | FKM | - | - |

## MTR, MTRE 32, 45, 64

### Sectional drawing




*MTR, MTRE 32, 45 and 64*

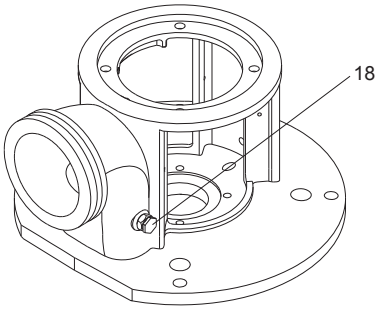
### Materials

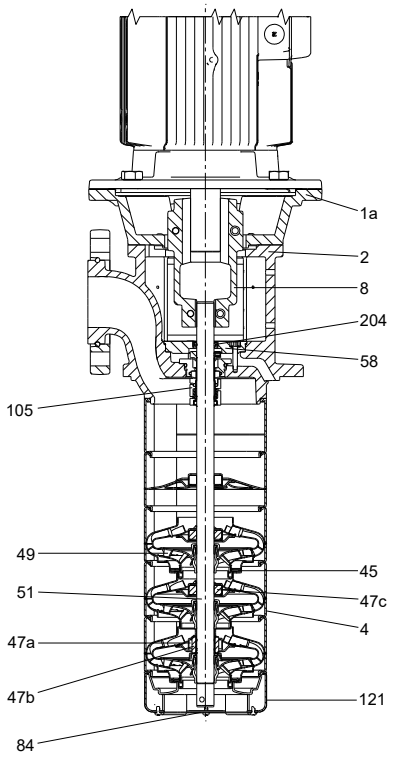
| Pos. | Description | A-version | | | I-version | | | N-version | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM |
| 1a | Motor stool | Cast iron | EN-GJL-200 | ASTM 25B | Cast iron | EN-GJL-200 | ASTM 25B | Cast iron | EN-GJL-200 | ASTM 25B |
| 2 | Pump head | Cast iron | EN-GJL-200 | ASTM 25B | Stainless steel | 1.4408 | CF8M | Stainless steel | 1.4408 | CF8M |
| 4 | Chamber | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 8 | Coupling | Nodular iron | EN-GJS-500-7 | ASTM 80-55-06 | Nodular iron | EN-GJS-500-7 | ASTM 80-55-06 | Nodular iron | EN-GJS-500-7 | ASTM 80-55-06 |
| 18 | Vent screw | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 45 | Neck ring | PTFE | - | - | PTFE | - | - | PTFE | - | - |
| 47a | Bearing ring, stationary | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 47b | Bearing ring, rotating | Silicon carbide | - | - | Silicon carbide | - | - | Silicon carbide | - | - |
| 47c | Bush | Graflon®, HY49 | - | - | Graflon®, HY49 | - | - | Graflon®, HY49 | - | - |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 51 | Pump shaft | Stainless steel | 1.4057 | AISI 431 | Stainless steel | 1.4462 | - | Stainless steel | 1.4462 | - |
| - | O-ring* | A-version: NBR | - | - | Depending on rubber material in shaft seal | - | - | Depending on rubber material in shaft seal | - | - |
| 84 | Inlet strainer | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4401 | AISI 316 |
| 105 | Shaft seal | HUUV/HUUE | - | - | HUUV/HUUE | - | - | HUUV/HUUE | - | - |
| 121 | Strap | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4539 | AISI 904L |

* Only used in pumps with empty chambers.

## MTR, MTRE 32, 45 and 64 with drainage back to the tank

### Sectional drawing




*MTR, MTRE 32, 45 and 64 with drainage back to the tank*

### Materials

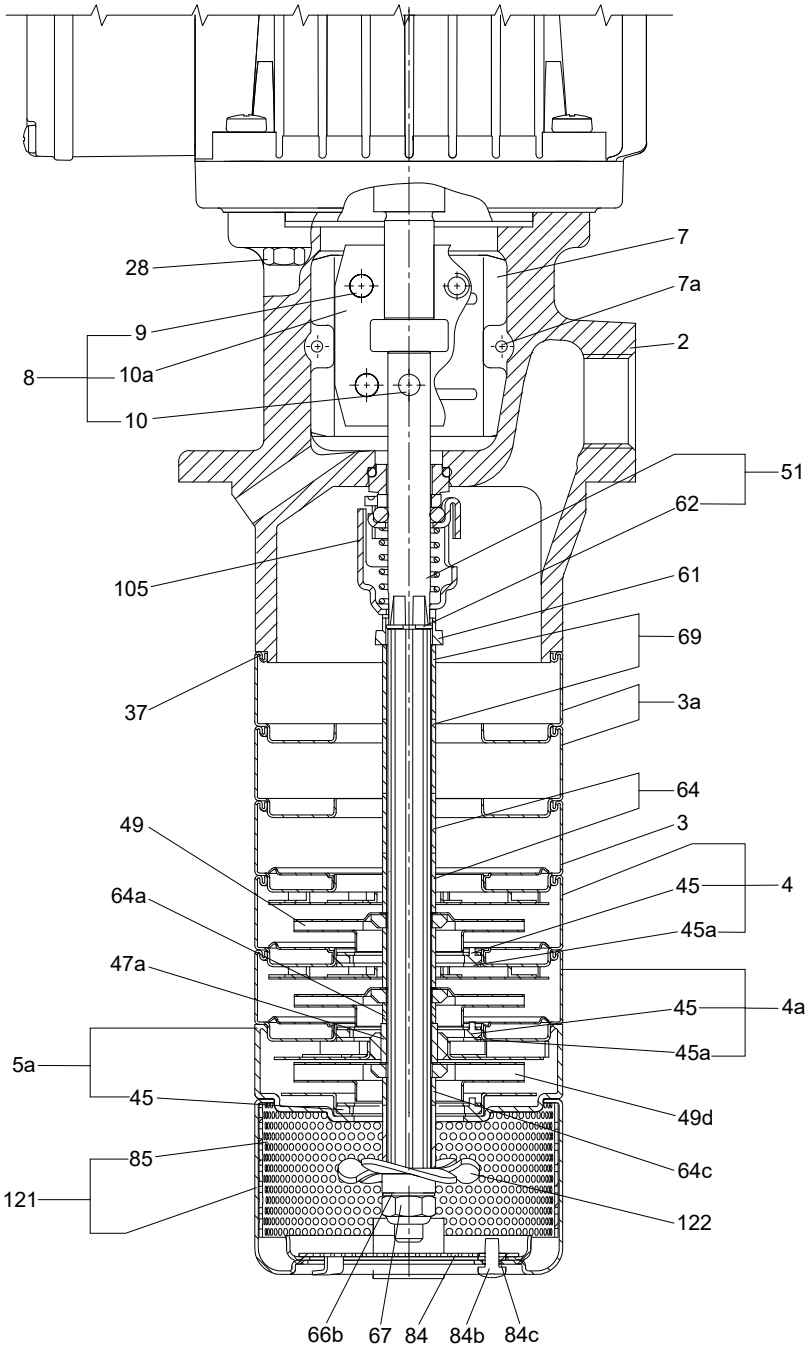
| Pos. | Description | A-version | | |
|---|---|---|---|---|
| | | Materials | EN/DIN | AISI/ASTM |
| 1a | Motor stool | Cast iron | EN-GJL-200 | ASTM 25B |
| 2 | Pump head | Cast iron | EN-GJL-200 | ASTM 25B |
| 4 | Chamber | Stainless steel | 1.4301 | AISI 304 |
| 8 | Coupling | Nodular iron | EN-GJS-500-7 | ASTM 80-55-06 |
| 18 | Vent screw | Stainless steel | 1.4301 | AISI 304 |
| 45 | Neck ring | PTFE | - | - |
| 47a | Bearing ring, stationary | Silicon carbide | - | - |
| 47b | Bearing ring, rotating | Silicon carbide | - | - |
| 47c | Bush | Graflon®, HY49 | - | - |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 |
| 51 | Pump shaft | Stainless steel | 1.4057 | AISI 431 |
| - | O-ring* | A-version: NBR | - | - |
| 84 | Inlet strainer | Stainless steel | 1.4301 | AISI 304 |
| 105 | Shaft seal | HUUV/HUUE | - | - |
| 58 | Shaft seal cover | Cast iron | EN-GJL-200 | ASTM 25B |
| 121 | Strap | Stainless steel | 1.4301 | AISI 304 |
| 204 | Lip seal | FKM | - | - |

* Only used in pumps with empty chambers.

# Construction of SPK pumps

## SPK 1, 2, 4

### Sectional drawing



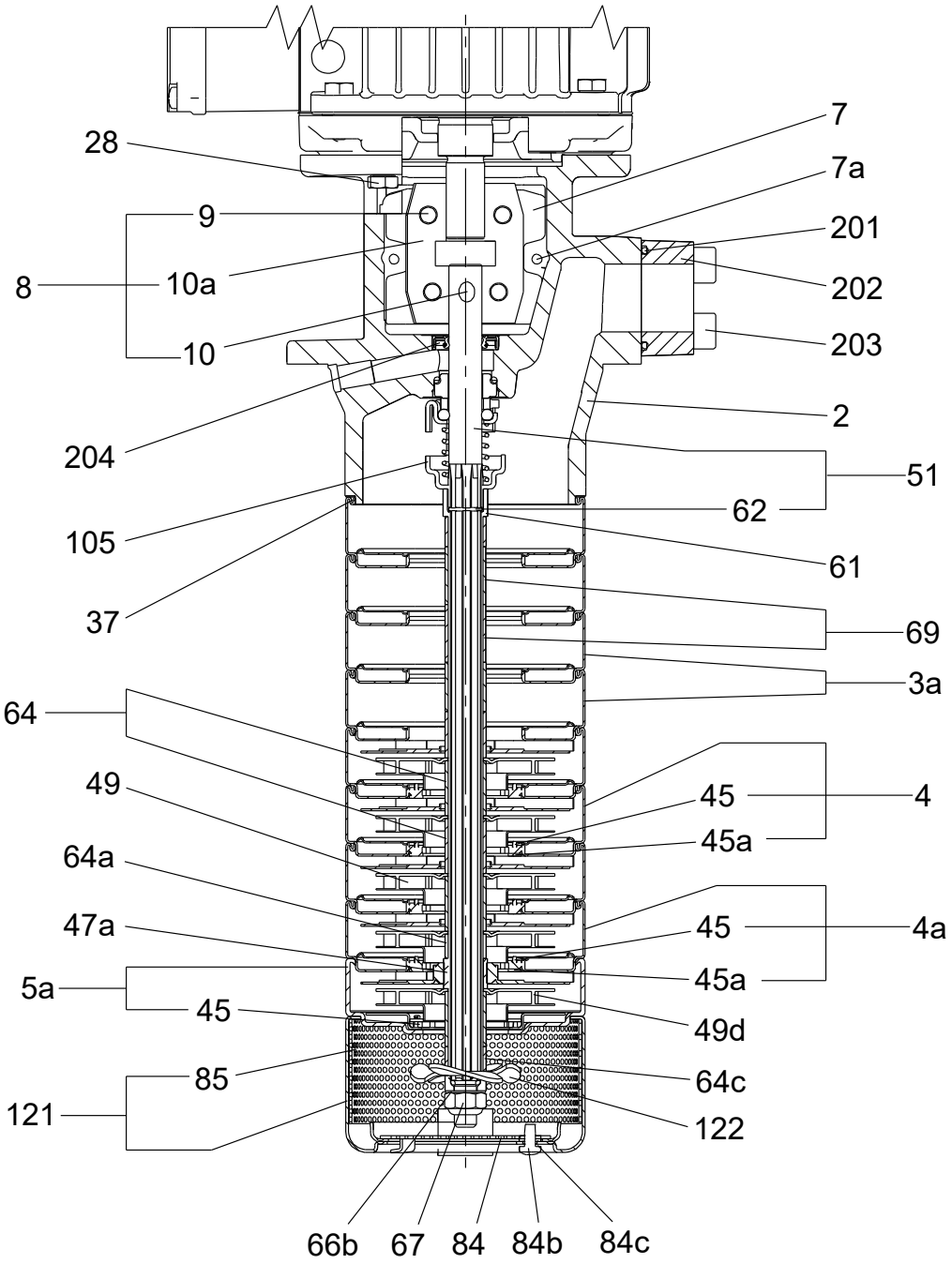

*SPK 1, 2, 4*

### Related information

*SPK materials*

## SPK 1, 2, 4 with drainage back to the tank

### Sectional drawing




*SPK 1, 2, 4 with drainage back to the tank*

### Related information

*SPK materials*

## SPK materials

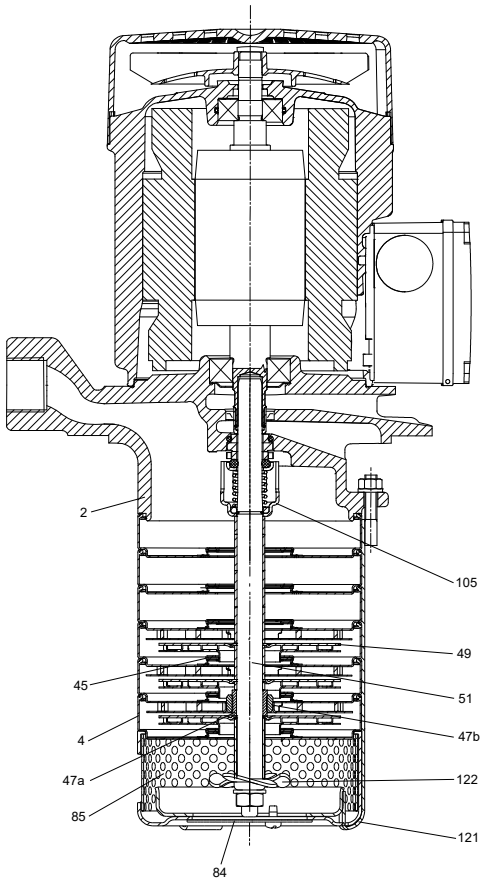
| Pos. | Description | Materials | EN/DIN | AISI/ASTM |
|---|---|---|---|---|
| **Pump head** | | | | |
| 2 | Pump head | A-version: cast iron | EN-GJL-200 | ASTM 25B |
| | | I-version: stainless steel | 1.4408 | AISI 316LN |
| 7 | Coupling guard | Stainless steel | 1.4301 | AISI 304 |
| 7a | Screw | Stainless steel | | |
| 28 | Set screw | Stainless steel | | |
| | Extension pipe | Stainless steel | 1.4301 | AISI 304 |
| **Chamber without bearing** | | | | |
| 3 | Chamber, empty | Stainless steel | 1.4301 | AISI 304 |
| 3a | Chamber, empty | Stainless steel | 1.4301 | AISI 304 |
| 4 | Chamber | Stainless steel | 1.4301 | AISI 304 |
| 45 | Neck ring | PPS with 40 % glass fibre | | |
| | | Tin/bronze | 2.1020.10 | |
| 45a | Disc for neck ring | PTFE | | |
| 64 | Spacing pipe | Stainless steel | 1.4401 | AISI 316 |
| 69 | Spacing pipe | Stainless steel | 1.4401 | AISI 316 |
| **Chamber with bearing** | | | | |
| 4a | Chamber | Stainless steel | 1.4301 | AISI 304 |
| | Bearing in chamber | Ceramic $Al_2O_3$ 95-100 % Hilox$^{TM}$ | | |
| 45 | Neck ring | PPS with 40 % glass fibre | | |
| | | Tin/bronze | 2.1020.10 | |
| 45a | Disc for neck ring | PTFE | | |
| 47a | Bearing ring | Tungsten carbide | | |
| 64a | Spacing pipe | Stainless steel | 1.4401 | AISI 316 |
| 64b | Spacing pipe | Stainless steel | 1.4401 | AISI 316 |
| **Bottom chamber** | | | | |
| 5a | Chamber | Stainless steel | 1.4301 | AISI 304 |
| 45 | Neck ring | PPS with 40 % glass fibre | | |
| 45a | Disc for neck ring | PTFE | | |
| 64c | Spacing pipe | Stainless steel | 1.4401 | AISI 316 |
| **Inlet part** | | | | |
| 84 | Inlet strainer | Stainless steel | 1.4301 | AISI 304 |
| 121 | Inlet part | Stainless steel | 1.4301 | AISI 304 |
| 84b | Set screw | Stainless steel | | |
| **Shaft** | | | | |
| 51 | Spline shaft | Stainless steel | 1.4057 | AISI 431 |
| 61 | Neck ring | Stainless steel | 1.4301 | AISI 304 |
| 62 | Stop ring | Stainless steel | 1.4436 | AISI 316 |
| 64c | Neck ring | Stainless steel | 1.4401 | AISI 316 |
| 66 | Washer | Stainless steel | 1.4301 | AISI 304 |
| 67 | Locking nut | Stainless steel | 1.4401 | AISI 316 |
| 69a | Spacing pipe | Stainless steel | 1.4301 | AISI 304 |
| 112 | Spacing pipe | Stainless steel | 1.4301 | AISI 304 |
| 122 | Priming screw | Stainless steel | 1.4401 | AISI 316 |
| 201 | O-ring | NBR | | |
| 202 | Counterflange | Cast iron | EN-GJL-200 | ASTM 25B |
| 203 | Bolt | Stainless steel | | |
| 204 | Lip seal | FKM | | |
| **Impeller** | | | | |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 |
| 49d | Impeller, lower | Stainless steel | 1.4301 | AISI 304 |
| **Strap** | | | | |

| Pos. | Description | Materials | EN/DIN | AISI/ASTM |
|---|---|---|---|---|
| 26 | Strap | Stainless steel | 1.4301 | AISI 304 |
| 36 | Nut | Stainless steel | | |
| 66a | Washer | Stainless steel | | |
| **Coupling** | | | | |
| 8 | Coupling | Sintered metal | | |
| 9 | Hexagon socket head screw | Steel | | |
| 10 | Shaft pin | Stainless steel | 1.4301 | AISI 304 |

# Construction of MTH pumps

## MTH 2, 4, 8

### Sectional drawing



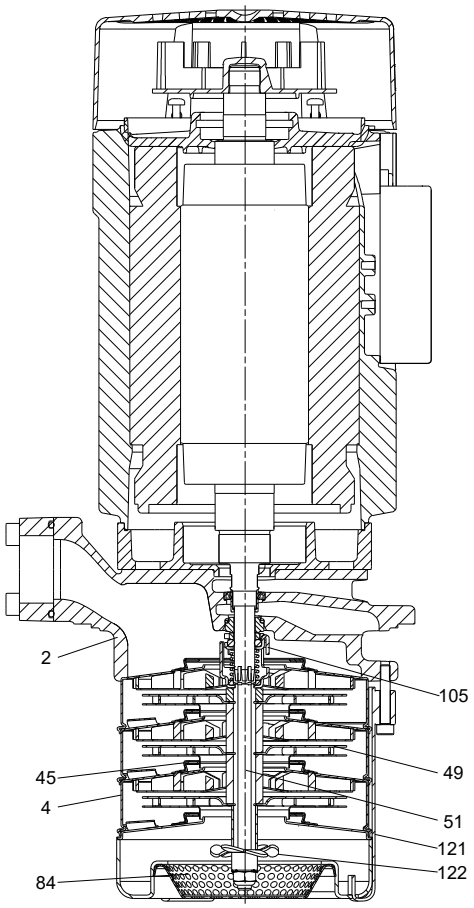

*MTH 2, 4, 8*

### Materials

| Pos. | Description | Materials | EN/DIN | AISI/ASTM |
|---|---|---|---|---|
| 2 | Pump head | A-version: cast iron | EN-GJL-200 | ASTM 25B |
| | | I-version: stainless steel | 1.4408 | AISI 316LN |
| 4 | Chamber | I-version: stainless steel | 1.4301 | AISI 304 |
| 45 | Neck ring | PTFE | - | - |
| 47a | Bearing ring | MTH 2: SiC EkasiC F<br>MTH 4: AL 203-95-100 % (HILOX 961/3)<br>MTH 8: Silicon carbide | - | - |
| 47b | Bearing | MTH 2: SiC EkasiC P<br>MTH 4: Tungsten carbide<br>MTH 8: Silicon carbide | - | - |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 |
| 51 | Pump shaft | Stainless steel | 1.4057 | AISI 431 |
| 84 | Inlet strainer | Stainless steel | 1.4301 | AISI 304 |
| 85 | Strainer, internal | Stainless steel | 1.4301 | AISI 304 |
| 105 | Shaft seal | AQQV | - | - |
| 121 | Strap | Stainless steel | 1.4301 | AISI 304 |
| 122 | Priming screw | Stainless steel | 1.4301 | AISI 304 |

## MTH 10, 15

### Sectional drawing




*MTH 10, 15*

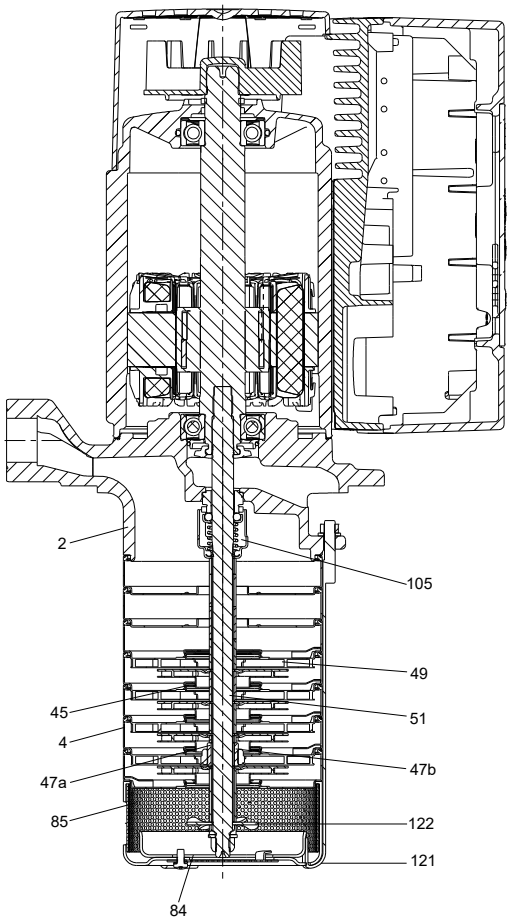
### Materials

| Pos. | Description | A-version | | | I-version | | |
|---|---|---|---|---|---|---|---|
| | | Materials | EN/DIN | AISI/ASTM | Materials | EN/DIN | AISI/ASTM |
| 2 | Pump head | Cast iron | EN-GJL-200 | ASTM 25B | Stainless steel | 1.4408 | CF8M |
| 4 | Chamber | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 |
| 45 | Neck ring | PTFE | - | - | PTFE | - | - |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 |
| 51 | Pump shaft | Stainless steel | 1.4057 | AISI 431 | Stainless steel | 1.4057 | AISI 431 |
| 84 | Inlet strainer | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 |
| 105 | Shaft seal | AQQV | - | - | AQQV | - | - |
| 121 | Strap | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 |
| 122 | Priming screw | Stainless steel | 1.4301 | AISI 304 | Stainless steel | 1.4301 | AISI 304 |

# Construction of MTHE pumps

## MTHE 1s, 1, 3, 5

### Sectional drawing




*MTHE pumps*

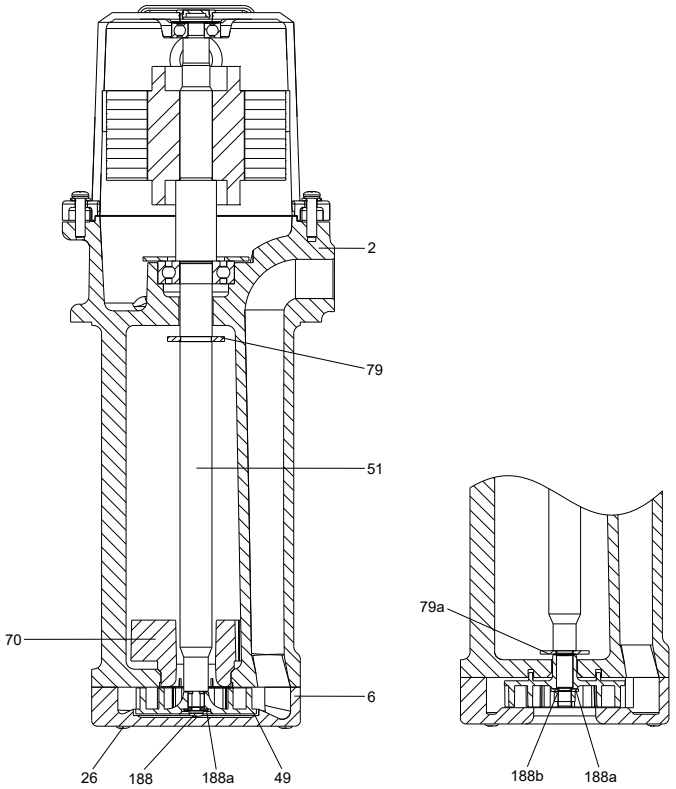
### Materials

| Pos. | Description | Materials | EN/DIN | AISI/ASTM |
|---|---|---|---|---|
| 2 | Pump head | A-version: cast iron | EN-GJL-200 | ASTM 25B |
| | | I-version: stainless steel | 1.4408 | AISI 316LN |
| 4 | Chamber | Stainless steel | 1.4301 | AISI 304 |
| 45 | Neck ring | PTFE | - | - |
| 47a | Bearing ring | Silicon carbide | - | - |
| 47b | Bearing | Silicon carbide | - | - |
| 49 | Impeller | Stainless steel | 1.4301 | AISI 304 |
| 51 | Pump shaft | Stainless steel | 1.4057 | AISI 431 |
| 84 | Strainer, inlet | Stainless steel | 1.4301 | AISI 304 |
| 85 | Strainer, internal | Stainless steel | 1.4301 | AISI 304 |
| 105 | Shaft seal | AQQV | - | - |
| 121 | Strap | Stainless steel | 1.4301 | AISI 304 |
| 122 | Priming screw | Stainless steel | 1.4301 | AISI 304 |

# Construction of MTA pumps

## MTA 30, 60, 90, 20H, 40H, 70H

### Sectional drawing




### Materials

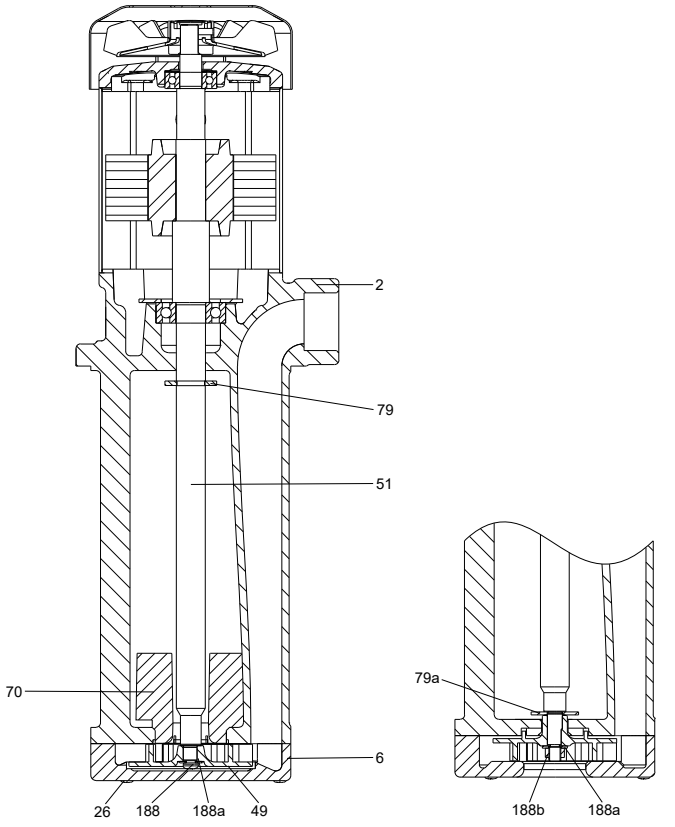
| Pos. | Description | | Materials | EN/DIN | AISI/ASTM | JIS |
|---|---|---|---|---|---|---|
| 2 | Pump head | | Cast iron | GG20 | A48-CL30 | FC200 |
| 6 | Pump housing | | Cast iron | GG20 | A48-CL30 | FC200 |
| 26 | Screw | | Stainless steel | 1.4301 | A276-304 | SUS304 |
| 49 | Impeller | MTA 30, 60, 90, 70H [8] | PAA GF50 | - | - | - |
| | | MTA 20H, 40H, 70H [9] | Bronze casting | G-CuZn-5ZnPb | C92200 | BC7 |
| 51 | Shaft with rotor | | Steel | C45 | A108-1045 | S45C |
| 70 | Vortex preventer | MTA 90 | PP | - | - | - |
| 79 | Thrower | | NBR | - | - | - |
| 79a | Splash ring | | Steel | 1623 ST 12 | A366 | SPCC |
| 188 | Cross-head screw | | Stainless steel | 1.4301 | A276-304 | SUS304 |
| 188a | Washer | | Stainless steel | 1.4301 | A276-304 | SUS304 |
| 188b | Hexagon nut | | Stainless steel | 1.4301 | A276-304 | SUS304 |
| - | Terminal box | | Aluminium | - | - | - |

[8] MTA 70H, bottom inlet.

[9] MTA 70H, top inlet.

## MTA 120, 200, 100H

### Sectional drawing



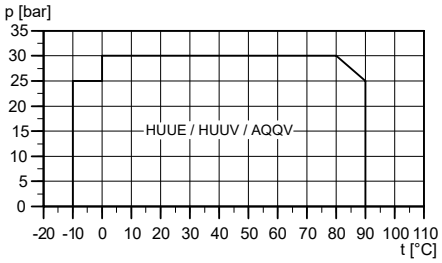

### Materials

| Pos. | Description | | Materials | EN/DIN | AISI/ASTM | JIS |
|---|---|---|---|---|---|---|
| 2 | Pump head | | Cast iron | GG20 | A48-CL30 | FC200 |
| 6 | Pump housing | | Cast iron | GG20 | A48-CL30 | FC200 |
| 26 | Screw | | Stainless steel | 1.4301 | A276-304 | SUS304 |
| 49 | Impeller | | Bronze casting | G-CuZn-5ZnPb | C92200 | BC7 |
| | | MTA 120 | PAA GF 50 | - | - | - |
| 51 | Shaft with rotor | | Steel | C45 | A108-1045 | S45C |
| 70 | Vortex preventer | MTA 120 | PP | - | - | - |
| 79 | Thrower | | NBR | - | - | - |
| 79a | Splash ring | | Steel | 1623 ST 12 | A366 | SPCC |
| 188 | Cross-head screw | | Stainless steel | 1.4301 | A276-304 | SUS304 |
| 188a | Washer | | Stainless steel | 1.4301 | A276-304 | SUS304 |
| 188b | Hexagon nut | | Stainless steel | 1.4301 | A276-304 | SUS304 |
| - | Terminal box | | Aluminium | - | - | - |

# 9. Shaft seals

The operating range of the shaft seal depends on operating pressure, pump type, type of shaft seal and liquid temperature.

## Shaft seals for MTR, MTRE




TM027854

*Maximum permissible operating pressure and liquid temperature for the shaft seal.*

| Shaft seal [10] | Description | Temperature range [°C] |
|---|---|---|
| HUUE/ HUUV | O-ring seal (cartridge type), balanced, tungsten carbide/tungsten carbide, HUUE/HUUV (EPDM/FKM) | -10 to +90 |
| AQQV | O-ring seal with fixed seal driver, silicon carbide, silicon carbide, FKM | -10 to +90 |

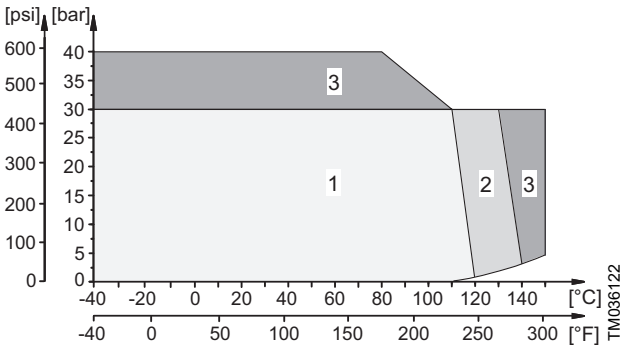
10) Other shaft seals on request.

## Shaft seals for MTRE HS

Special operating ranges apply to these pump types at high-speed operation:

- MTRE 1s-XX/19 HS
- MTRE 1-XX/19 HS
- MTRE 3-XX/19 HS

At high-speed operation, 5400 rpm, MTRE 1s/1/3 HS pumps can operate in range 3.




TM036122

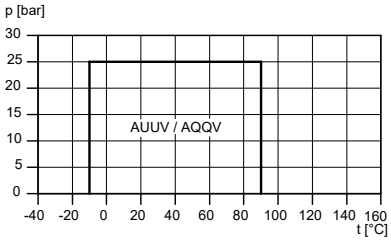
*Three different operating ranges for the HUUE/ HUUV cartridge shaft seals fitted to MTRE HS pumps.*

| Pos. | Description |
|---|---|
| 1 | Optimum operating range with the longest life of the shaft seal. |
| 2 | Risk of periodic noise in connection with startup and variation in pressure and temperature. |
| 3 | Outer operating range where the life of the shaft seal may be reduced. Grundfos recommends a service check every 8000-12,000 hours for operating range 3. |

The standard seal in MTR, MTRE pumps is an HUUV seal, which is applicable in oil-containing liquids within the whole operating range. However, the maximum temperature for the pump is 90 °C.

| Pump type | MTRE 1s/1/3 HS |
|---|---|
| Minimum liquid temperature [°C] | -10 |
| Maximum liquid temperature [°C] | +90 |
| Maximum operating pressure [bar] | 38 |

## Shaft seals for SPK

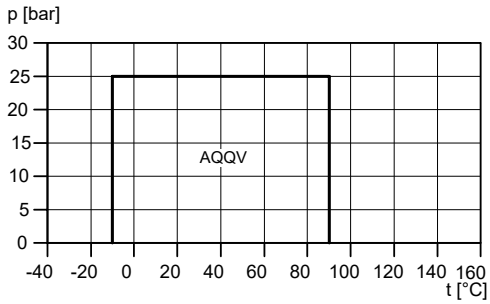



TM030023

| Shaft seal [11] | Description | Temperature range [°C] |
|---|---|---|
| AUUV | O-ring seal with fixed seal driver, tungsten carbide/tungsten carbide, FKM | -10 to +90 |
| AQQV | O-ring seal with fixed seal driver, silicon carbide, silicon carbide, FKM | -10 to +90 |

11) Other shaft seals on request.

## Shaft seals for MTH, MTHE




TM058897

| Shaft seal [12] | Description | Temperature range [°C] |
|---|---|---|
| AQQV | O-ring seal with fixed seal driver, silicon carbide, silicon carbide, FKM | -10 to +90 |

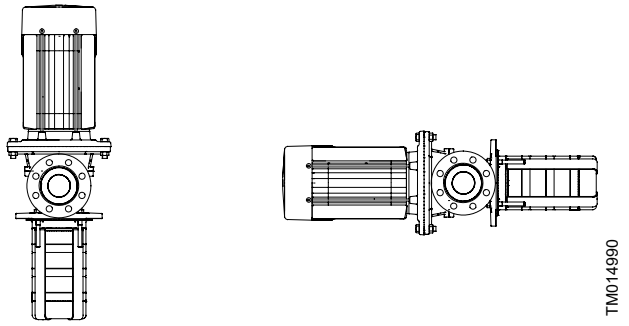
12) Other shaft seals on request.

# 10. Installation

## Installation of MTR, MTRE pumps

MTR, MTRE 1s, 1, 2, 3, 4, 5, 8, 10, 15 and 20 pumps can be installed both vertically and horizontally. For further information, see the section on horizontal mounting.

MTR, MTRE 32, 45, 64 pumps must be installed in a vertical position.




*Installation of an MTR, MTRE pump. Left: vertical. Right: horizontal*

**Related information**

*Horizontal mounting*

## Inlet conditions

The bottom of the pump strainer must be at least 25 mm above the bottom of the tank.

The pumps are designed to provide full performance down to a level of A mm above the bottom of the strainer.

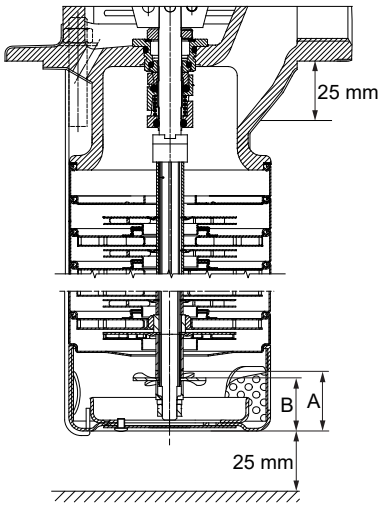
At a liquid level between A and B mm above the bottom of the strainer, the built-in priming screw protects the pump against dry running.

MTR 32, 45 and 64 pumps have no priming screw.

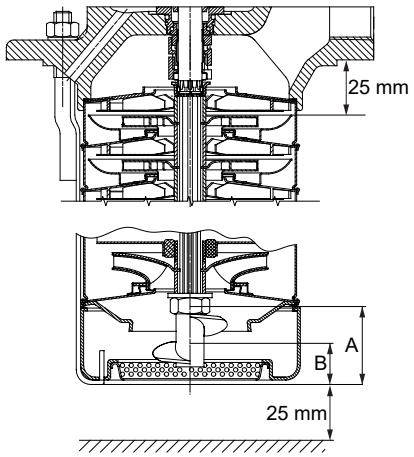
| Pump type | A [mm] | B [mm] |
|---|---|---|
| MTR 1s, 1, 2, 3, 4, 5, 8 | 41 | 28 |
| MTR 10, 15, 20 | 50 | 25 |
| MTR 32, 45, 64 | 70 | - |

The distance between the flange and the liquid level must be minimum 25 mm.

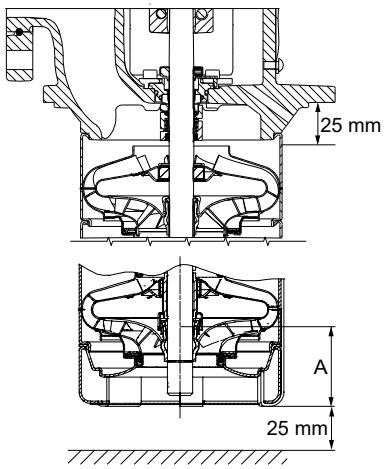
The distance between the pump and the tank bottom must be minimum 25 mm.




*MTR 1s, 1, 2, 3, 4, 5, 8*



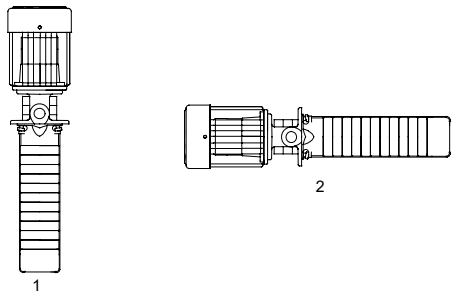

*MTR 10, 15, 20*




*MTR 32, 45, 64*

## Installation of SPK pumps

SPK pumps can be installed both vertically and horizontally. If the SPK pump is installed horizontally, the drain hole in the pump head must be closed. For further information, see the section on horizontal mounting.

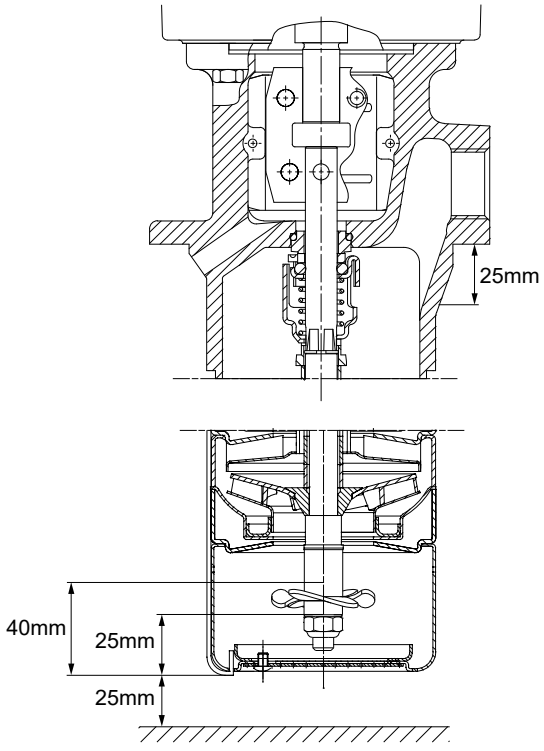



*Installation of an SPK pump. 1: vertical. 2: horizontal*

To enable a very low liquid level of 40 mm above the bottom of the inlet strainer, a priming screw is fitted below the bottom chamber. This protects the pump against dry running down to 25 mm above the bottom of the inlet strainer.

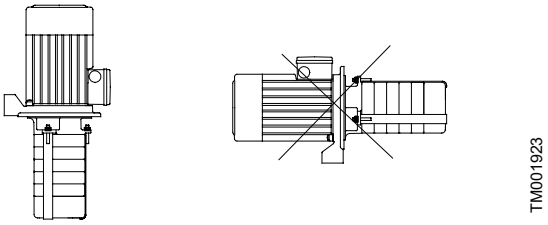
The distance between the flange and the liquid level must be minimum 25 mm.

The distance between the pump and the tank bottom must be minimum 25 mm.




## Installation of MTH, MTHE pumps

MTH and MTHE pumps must be installed vertically.

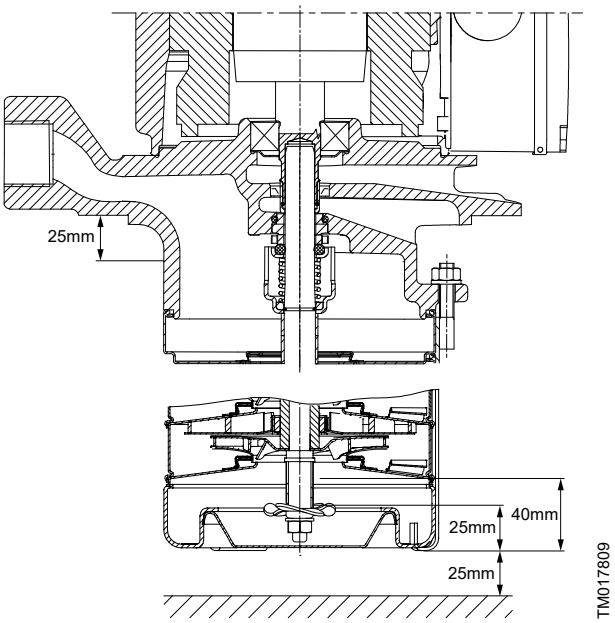



*Installation of MTH and MTHE pumps. Left: vertical. Right: horizontal*

To enable a low liquid level of 40 mm above the bottom of the inlet strainer, a priming screw is fitted below the bottom chamber. This protects the pump against dry running down to 25 mm above the bottom of the inlet strainer.

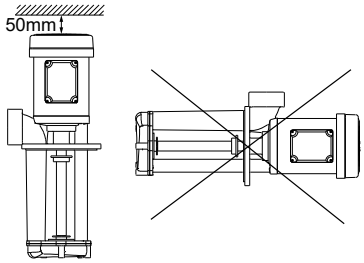
The distance between the flange and the liquid level must be minimum 25 mm.

The distance between the pump and the tank bottom must be minimum 25 mm.



## Installation of MTA pumps

MTA pumps are designed for vertical installation in a tank.




TM1040216

*Installation of an MTA pump. Left: vertical. Right: horizontal*

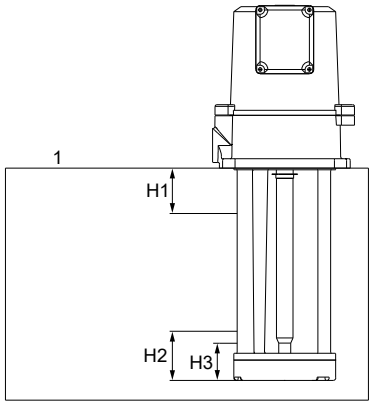
Provide a clearance of minimum 50 mm above the motor to ensure cooling of fan-cooled motors (MTA 120, 200 and 100H).

The pump is designed for indoor operation only.

Note that the motor must not be exposed to direct water/ liquid sprays.

### Liquid level

#### MTA with top inlet



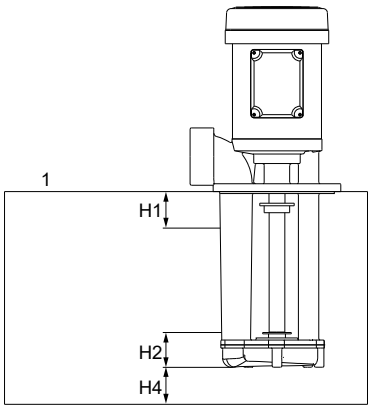

TM047992

*MTA with top inlet*

| Pos. | Description |
|---|---|
| 1 | Tank |
| H1 | Maximum liquid level |
| H2 | Minimum liquid level (full performance) |
| H3 | Minimum permissible liquid level (reduced performance) |

| Pump | H1 [mm] | H2 [mm] | H3 [mm] |
|---|---|---|---|
| MTA 30 | 15 | 60 | 50 |
| MTA 60 | 20 | 70 | 45 |
| MTA 90 | 20 | 85 | 58 |
| MTA 120 | 20 | 110 | 70 |
| MTA 20H | 15 | 50 | 40 |
| MTA 40H | 20 | 70 | 40 |
| MTA 70H | 20 | 80 | 50 |
| MTA 100H | 20 | 110 | 60 |

#### MTA with bottom inlet




TM047993

*MTA with bottom inlet*

| Pos. | Description |
|---|---|
| 1 | Tank |
| H1 | Maximum liquid level |
| H2 | Minimum liquid level (full performance) |
| H4 | Minimum liquid level |

| Pump | H1 [mm] | H2 [mm] | H4 [mm] |
|---|---|---|---|
| MTA 30 | 15 | 20 | 10 |
| MTA 60 | 20 | 20 | 10 |
| MTA 90 | 20 | 25 | 15 |
| MTA 120 | 20 | 25 | 20 |
| MTA 200 | 25 | 50 | 30 |

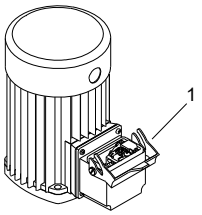
## Electrical installation

### Electrical installation

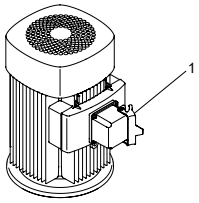
MTR, SPK and MTH pumps can be fitted with a 10-pin multiplug connection, type Han® 10 ES.

The purpose of a multiplug connection is to make the electrical installation and the service of the pump easier. The multiplug functions as a plug-and-pump device.

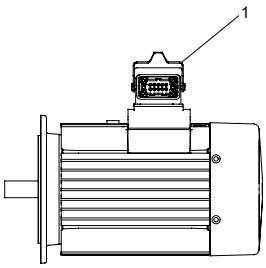
The following drawings show where the multiplug is positioned on the motor.




TM058900




TM018713




TM028518

*Multiplug connection type Han® 10 ES on a Grundfos MG motor (1)*

On request, the following motors can be supplied with a multiplug connection (type Han® 10 ES):

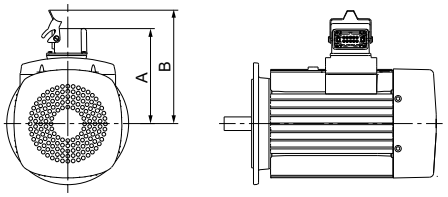
- motors for MTR/SPK up to 7.5 kW
- all MTH motors.

## Technical data for multiplug

### Material description

| Material | Description |
|---|---|
| Material | GD-Al Si 8 Cu 3 |
| Surface | Powder paint |
| Clip for locking | Stainless steel |
| Housing gasket | NBR rubber |
| Temperature range [°C] | -40 to +125 |
| Enclosure class | IP65 at DIN 40050 in closed position |
| Type | Han® 10E |

### Dimensions

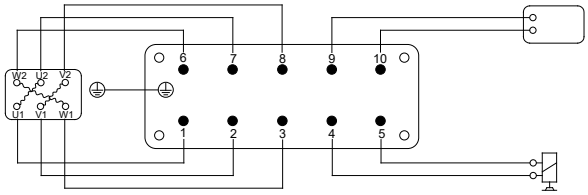



TM045756

*Motor with multiplug*

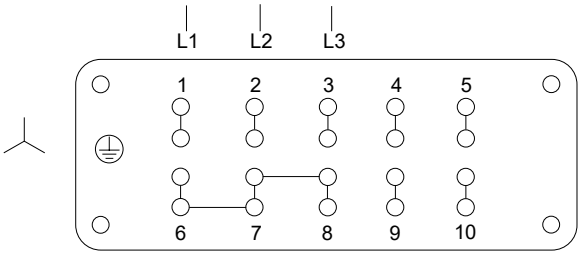
| Motor | Frame size | A [mm] | B [mm] |
|---|---|---|---|
| MG | 71 | 131 | 162 |
| MG | 80 | 131 | 162 |
| MG | 90 | 173 | 204 |
| MG | 100 | 183 | 214 |
| MG | 112 | 197 | 228 |
| MG (5.5 kW) | 132 | 197 | 228 |
| MG (7.5 kW) | 132 | 222 | 253 |

### Plug connections



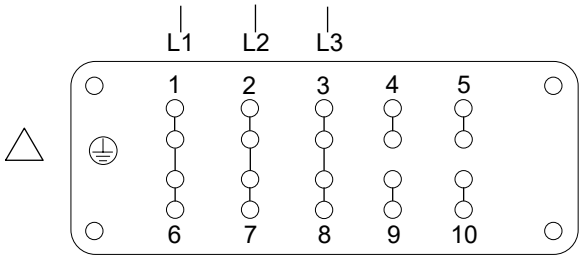

TM018702

*From motor*




TM018703

*Plug connections for star connection*




TM018704

*Plug connections for delta connection. Fishplates for connections are located in the plug.*

# 11. Selection and sizing

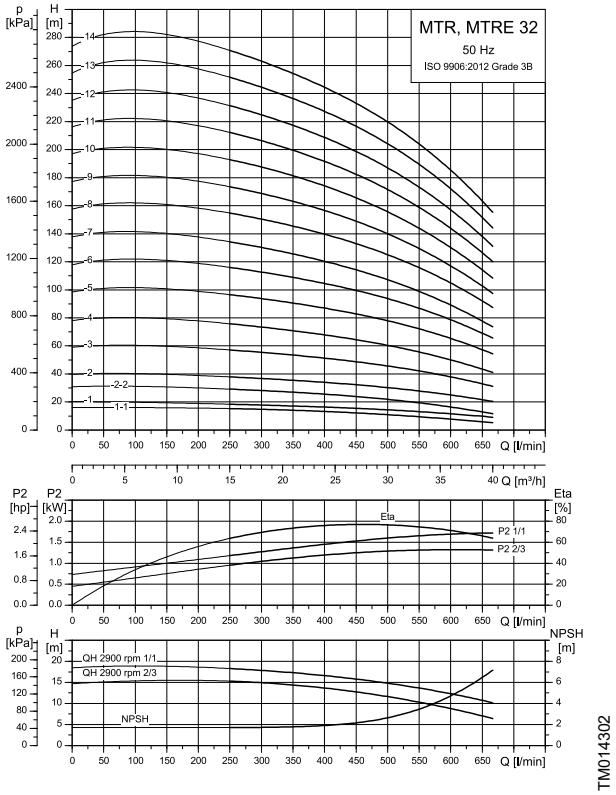
## Selection of pumps

Selection of pumps must be based on the following parameters:

- the duty point of the pump
- dimensional data such as pressure loss as a result of height differences, friction loss in the pipes, pump efficiency
- minimum inlet pressure - NPSH.

### Duty point of the pump

From a duty point you can select a pump on the basis of the curve charts shown in the section on performance curves and technical data.




TM014302

*Example of a curve chart*

**Related information**

*How to read the curve charts*

## Sizing data

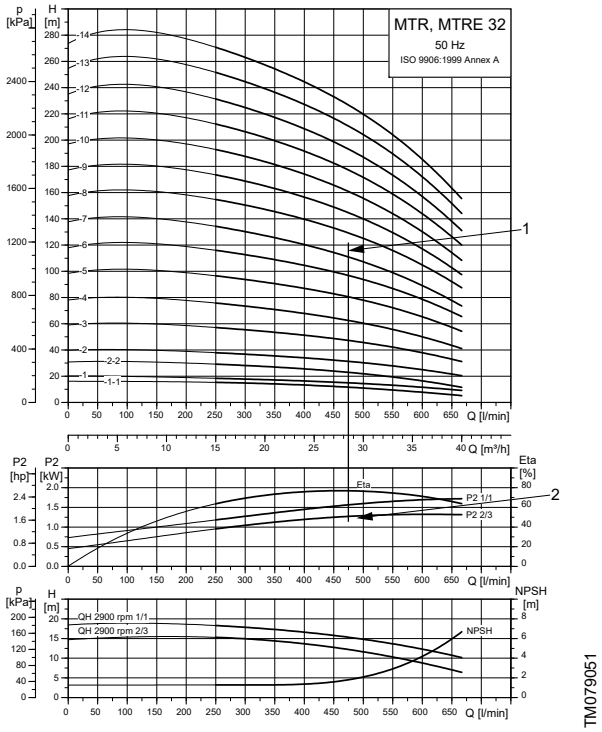
When sizing a pump the following aspects must be taken into account:

- required flow rate and pressure at the draw-off point
- pressure loss as a result of height differences ($H_{geo}$)
- friction loss in the pipes ($H_f$). It may be necessary to account for pressure loss in connection with, for example, long pipes, bends or valves.
- best efficiency at the estimated duty point
- NPSH value. For calculation of the NPSH value, see the section on minimum inlet pressure - NPSH.

### Efficiency

Before determining the point of best efficiency, you need to identify the operating pattern of the pump.

If the pump is expected always to operate in the same duty point, select a pump which is operating at a duty point corresponding to the best efficiency of the pump.

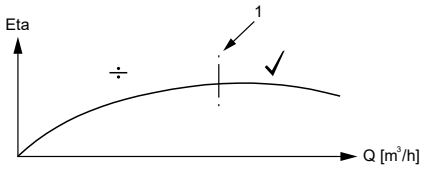



TM079051

*Example of a pump's duty point*

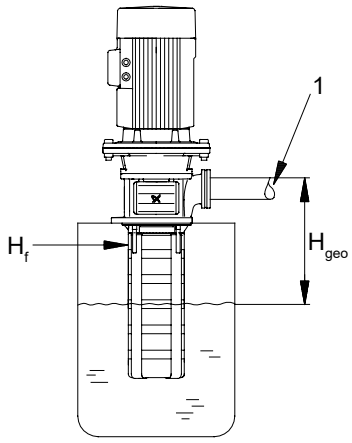
| Pos. | Description |
|---|---|
| 1 | Duty point |
| 2 | Best efficiency |

As the pump is sized on the basis of the highest possible flow rate, it is important always to have the duty point to the right on the efficiency curve (eta) in order to keep efficiency high when the flow rate drops.




TM009190

*Best efficiency (1)*




TM027531

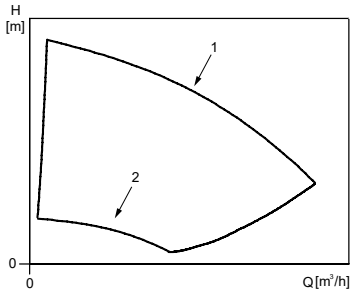
*Dimensional data*

| Pos. | Description |
|---|---|
| 1 | Required flow rate, required pressure |

Normally, MTRE pumps are used in applications characterized by a variable flow rate. Consequently, you cannot select a pump that is operating constantly at optimum efficiency. To achieve optimum operating economy, you must select the pump on the basis of the following criteria:

- The maximum duty point must be as close as possible to the QH curve of the pump.
- The required duty point must be positioned so that P2 is close to the maximum point of the QH curve.

Between the minimum and maximum performance curves, MTRE pumps have an infinite number of performance curves each representing a specific speed. Therefore, you may not be able to select a duty point close to the maximum curve.




TM014916

*Minimum and maximum performance curves*

| Pos. | Description |
|---|---|
| 1 | Maximum curve |
| 2 | Minimum curve |

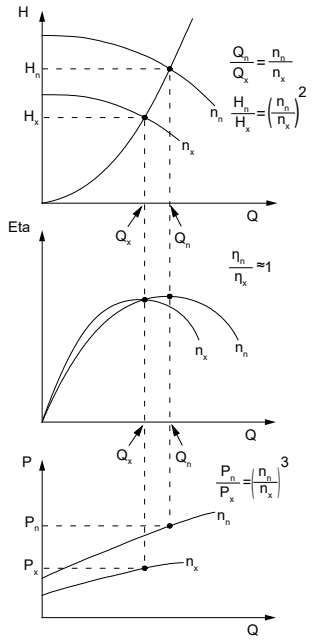
## Affinity equations

In situations where you cannot select a duty point close to the maximum curve, you can use the affinity equations below. The head (H), the flow rate (Q) and the input power (P) are all the appropriate variables you need to be able to calculate the motor speed (n).

The approximated formulas apply on condition that the system characteristic remains unchanged for $n_n$ and $n_x$ and that it is based on the formula $H = k \times Q^2$ where k is a constant.

The power equation implies that the pump efficiency is unchanged at the two speeds. In practice this is not quite correct.

Finally, the efficiencies of the frequency converter and the motor must be taken into account if you want a precise calculation of the power saving resulting from a reduction of the pump speed.




TM008720

*Affinity equations*

**Legend**

| | |
|---|---|
| $H_n$ | Rated head [m] |
| $H_x$ | Current head [m] |
| $Q_n$ | Flow rate [$m^3/h$] |
| $Q_x$ | Current flow rate [$m^3/h$] |
| $n_n$ | Rated motor speed [$min^{-1}$] |
| $n_x$ | Current motor speed [$min^{-1}$] |
| $\eta_n$ | Rated efficiency [%] |
| $\eta_x$ | Current efficiency [%] |

## Grundfos Product Center

The Grundfos Product Center is an online product selection and sizing tool which you can use to calculate the specific duty point and energy consumption of the pump.

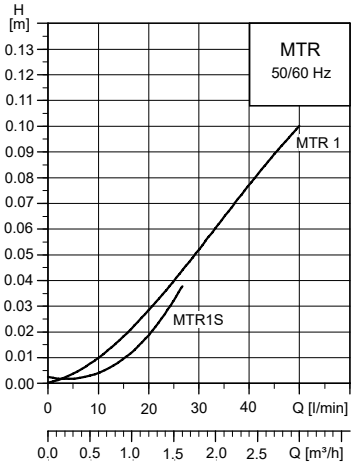
For further information, see the section in Grundfos Product Center.

## Pressure loss

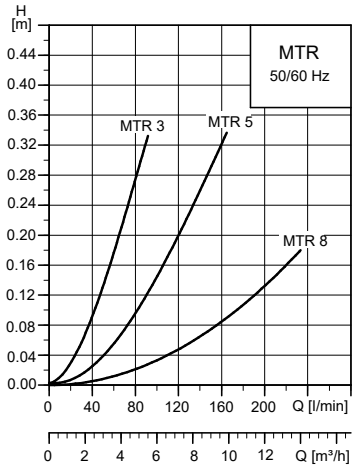
During operation, pressure loss occurs in all centrifugal pumps.

When using front-end configuration in GPC, the pressure loss is automatically included.

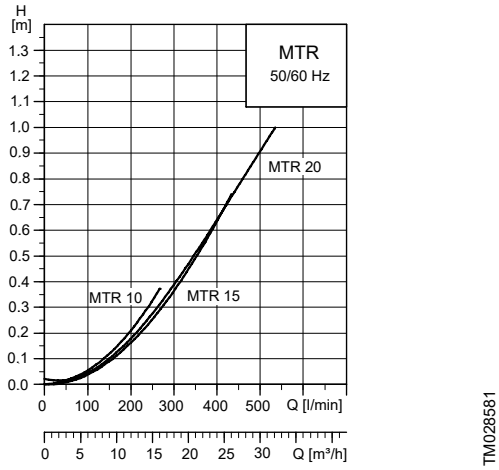
The below curves illustrate the pressure losses for pumped liquid passing through one empty chamber. An empty chamber is a chamber without an impeller.




*Pressure losses of pumped liquid passing through an empty chamber for MTR 1s and MTR 1 pumps*




*Pressure losses of pumped liquid passing through an empty chamber for MTR 3, MTR 5 and MTR 8 pumps*




*Pressure losses of pumped liquid passing through an empty chamber for MTR 10, MTR 15 and MTR 20 pumps*

As MTR, MTRE 32, 45 and 64 pumps have holes in the guide vanes, no pressure losses occur in the empty chambers of these pumps.

## Calculation of the reduced head of a pump and pressure loss in empty chambers

By combining the pressure loss curves and the performance curves for each pump type, you can calculate the reduced head of a pump with empty chambers.

You can do the calculation as shown below.

Example:

| | |
|---|---|
| **Pump type** | MTR 5-18/7 |
| **Flow rate Q (duty point)** | 6 [$m^3$/h] |
| **Head (duty point)** | 90 [m] |

The selected pump is an MTR 5-18/7 with 11 empty chambers. See type keys in the section on the MTR, MTRE type key.

From the above pressure loss curve of MTR 5, it appears that the pressure loss of each empty chamber at 6 $m^3$/h is 0.14 [m]. This results in the following total pressure loss:

(Total pressure loss) = 0.14 × 11 = 1.54 [m]

The reduced head of the MTR 5-18/7 pump including pressure losses caused by empty chambers is:

Head = 33 - 1.54 = 31.46 [m]

The head 33 metres is read from the performance curve for an MTR 5-18/7. See the section on MTR, MTRE 5, 50 Hz.

**Related information**

*MTR, MTRE 5, 50 Hz*

## Viscosity

| Pump | Maximum kinematic viscosity of pumped liquid [cSt] = [mm²/s] |
|---|---|
| MTR 1s, 1, 3, 5, 8 | 50 |
| MTR 10, 15, 20, 32, 45, 64 | 100 |
| SPK | 50 |
| MTH | 50 |
| MTA | 75 |

Pumping liquids with densities or kinematic viscosities higher than those of water will cause a considerable pressure drop, a drop in the hydraulic performance and a rise in the power consumption.

In such situations you must equip the pump with a larger motor. If in doubt, contact Grundfos.

For further information about pump performance when pumping liquids with densities or kinematic viscosities higher than those of water, see Grundfos Product Center at http://product-selection.grundfos.com/.

**Related information**

*17. Grundfos Product Center*

## Minimum inlet pressure, NPSH

We recommend that you calculate the inlet pressure "H" when the following aspects apply:

- The liquid temperature is high.
- The flow is significantly higher than the flow rate.
- Water is drawn from depths.
- Water is drawn through long pipes.
- Inlet conditions are poor.

To avoid cavitation, make sure that there is a minimum pressure on the inlet side of the pump. You can calculate the maximum suction lift "H" in metres head as follows:

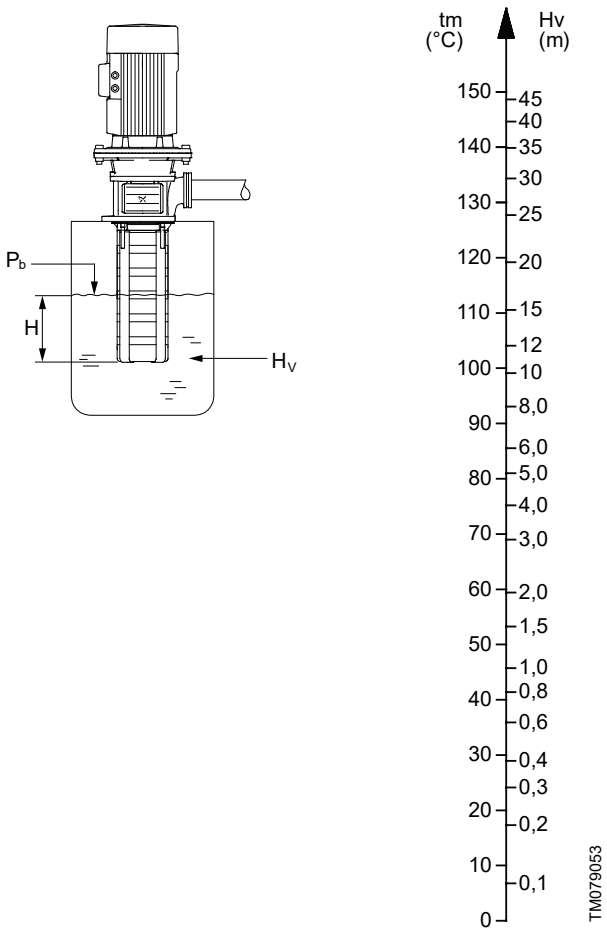
$H = NPSH + H_v + H_s - p_b \times 10.2$

| | | |
|---|---|---|
| $p_b$ | = | Barometric pressure in bar. You can set the barometric pressure to 1 bar. In closed systems, $p_b$ indicates the system pressure in bar. |
| NPSH | = | Net Positive Suction Head in metres head. To be read from the NPSH curve at the highest flow rate the pump will be delivering. |
| $H_v$ | = | Vapour pressure in metres head. |
| $H_s$ | = | Safety margin = minimum 0.5 metre head. |

If the calculated "H" is positive, the value shows how high the liquid level must be as minimum above the inlet strainer.

If the "H" calculated is negative, the value shows how deep the pump is able to suck in theory.

However, you have to fulfil the requirements of the minimum liquid level above the inlet strainer. See the section on installation of MTR, MTRE pumps.




*Minimum inlet pressure - NPSH*

To avoid cavitation, never select a pump whose duty point is too far to the right on the NPSH curve.

Always check the NPSH value of the pump at the highest possible flow rate.

**Related information**

*Installation of MTR, MTRE pumps*

## Pumped liquids

The pumps are designed to pump non-explosive liquids that do not chemically attack the pump materials.

When pumping liquids with a density and/or viscosity higher than that of water, oversized motors may be required.

Whether a pump is suitable for a particular liquid depends on several factors of which the most important are the chloride content, pH-value, temperature and content of chemicals and oils.

Please note that aggressive liquids may attack or dissolve the protective oxide film of the stainless steel and thus cause corrosion.

### Pumping of solid particles

### MTR, SPK and MTH pumps

These pumps are fitted with an inlet strainer. The strainer prevents large solid particles from entering and damaging the pump. The table below describes the size of the passage in the strainer and the impeller.

| Pump | Strainer passage [mm] | Free strainer passage [$cm^2$] | Impeller passage [mm] |
|---|---|---|---|
| MTR(E) 1s, MTHE 1s | ∅2 | 23 | 2.5 |
| MTR(E) 1, MTHE 1 | ∅2 | 23 | 2.5 |
| MTR(E) 3, MTHE 3 | ∅2 | 23 | 3.1 |
| MTR(E) 5, MTHE 5 | ∅4 | 28 | 5.5 |
| MTR(E) 8 | ∅4 | 28 | 5.5 |
| MTR(E) 10 | ∅4 | 43 | 5.5 |
| MTR(E) 15 | ∅4 | 43 | 6.0 |
| MTR(E) 20 | ∅4 | 43 | 8.0 |
| MTR(E) 32 | ∅4 | 56 | 8.0 |
| MTR(E) 45 | ∅4 | 56 | 9.5 |
| MTR(E) 64 | ∅4 | 56 | 13.0 |
| SPK 1 | ∅2 | - | 2.5 |
| SPK 2 | ∅2 | - | 2.5 |
| SPK 4 | ∅2 | - | 2.5 |
| SPK 8 | ∅4 | - | 4.0 |
| MTH 2 | ∅2 | 23 | 2.0 |
| MTH 4 | ∅4 | 28 | 4.0 |
| MTH 8 | ∅4 | 28 | 5.5 |
| MTH 10 | ∅4 | 43 | 5.5 |
| MTH 15 | ∅4 | 43 | 5.5 |

If the pumped liquid contains solid particles larger than the size of the holes in the strainer, the strainer passage may be blocked. In such situations the performance will drop because of a reduced pump flow.

Note that if you remove the strainer from the inlet port, solid particles may enter the pump and cause a seizure or even damage the pump.

In grinding applications Grundfos recommends that the pumped liquid is screened for abrasive particles before entering the pump. When pumped, abrasive particles reduce the life of the pump components.

Wear of the pump components caused by abrasive particles starts when the concentration exceeds 20 ppm.

### MTA pumps

MTA pumps are not fitted with an inlet strainer.

| Pump | Max. particle size [mm] |
|---|---|
| MTA 30 | 4-5 |
| MTA 60 | |
| MTA 90 | 8-10 |
| MTA 120 | |
| MTA 200 | |
| MTA 20H | 2-3 |
| MTA 40H | |
| MTA 70H | |
| MTA 100H | |

## List of pumped liquids

A number of typical liquids are listed in the table below.

Other pump versions or shaft seals may be applicable, but those stated in the list are considered to be the best choices.

The table is intended as a general guide only, and it cannot replace actual testing of the pumped liquids and pump materials under specific working conditions.

However, the list must be applied with some caution as factors such as concentration of the pumped liquid, liquid temperature or pressure may affect the chemical resistance of a specific pump version.

Safety precautions must be taken when pumping hazardous or flammable liquids.

| Pumped liquid | Note | Liquid concentration, liquid temperature | Recommended pump version/shaft seal | |
|---|---|---|---|---|
| | | | MTR, MTRE | |
| | | | A-version | I-version |
| | | | (standard range, all wetted parts of cast iron and stainless steel) | (stainless-steel version, all wetted parts of stainless steel EN/DIN 1.4301) |
| Acetic acid, $CH_3COOH$ | - | 5 %, 20 °C | - | HUUE |
| Alkaline degreasing agent | D, F | - | HUUE | - |
| Ammonium bicarbonate, $NH_4HCO_3$ | E | 20 %, 30 °C | - | HUUE |
| Ammonium hydroxide, $NH_4OH$ | - | 20 %, 40 °C | HUUE | - |
| Benzoic acid, $C_6H_5COOH$ | H | 0.5 %, 20 °C | - | HUUV |
| Boiler water | - | < 90 °C | HUUE | - |
| Calcareous water | - | < 90 °C | HUUE | - |
| Calcium acetate (as coolant with inhibitor) $Ca(CH_3COO)_2$ | D, E | 30 %, 50 °C | HUUE | - |
| Calcium hydroxide, $Ca(OH)_2$ | E | Saturated solution, 50 °C | HUUE | - |
| Chloride-containing water | F | < 30 °C, max. 500 ppm | - | HUUE |
| Citric acid, $HOC(CH_2CO_2H)_2COOH$ | H | 5 %, 40 °C | - | HUUE |
| Completely desalinated water (demineralised water) | - | < 90 °C | - | HUUE |
| Condensate | - | < 90 °C | HUUE | - |
| Copper sulphate, $CuSO_4$ | E | 10 %, 30 °C | - | HUUE |
| Corn oil | D, E, 3 | 100 %, 80 °C | HUUV | - |
| Domestic hot water (potable water) | - | < 120 °C | HUUE | - |
| Ethylene glycol, $HOCH_2CH_2OH$ | D, E | 50 %, 50 °C | HUUE | - |
| Formic acid, HCOOH | - | 2 %, 20 °C | - | HUUE |
| Glycerine (glycerol), $OHCH_2CH(OH)CH_2OH$ | D, E | 50 %, 50 °C | HUUE | - |
| Hydraulic oil (mineral) | E, 2, 3 | 100 %, 100 °C | HUUV | - |
| Hydraulic oil (synthetic) | E, 2, 3 | 100 %, 100 °C | HUUV | - |
| Lactic acid, $CH_3CH(OH)COOH$ | E, H | 10 %, 20 °C | - | HUUV |
| Linoleic acid, $C_{17}H_{31}COOH$ | E, 3 | 100 %, 20 °C | HUUV | - |
| Motor oil | E, 2, 3 | 100 %, 80 °C | HUUV | - |
| Cutting oil | E | 90 °C | HUUV | - |
| Water-based cooling lubricant | E | 90 °C | HUUV | - |
| Naphthalene, $C_{10}H_8$ | E, H | 100 %, 80 °C | HUUV | - |
| Nitric acid, $HNO_3$ | F | 1 %, 20 °C | - | HUUE |
| Oil-containing water | - | < 90 °C | HUUV | - |
| Olive oil | D, E, 3 | 100 %, 80 °C | HUUV | - |
| Oxalic acid, $(COOH)_2$ | H | 1 %, 20 °C | - | HUUE |
| Peanut oil | D, E, 3 | 100 %, 80 °C | HUUV | - |
| Phosphoric acid, $H_3PO_4$ | E | 20 %, 20 °C | - | HUUE |
| Propylene glycol, $CH_3CH(OH)CH_2OH$ | D, E | 50 %, 90 °C | HUUE | - |
| Potassium carbonate, $K_2CO_3$ | E | 20 %, 50 °C | HUUE | - |
| Potassium formate (as coolant with inhibitor), KOOCH | D, E | 30 %, 50 °C | HUUE | - |
| Potassium hydroxide, KOH | E | 20 %, 50 °C | - | HUUE |
| Potassium permanganate, $KMnO_4$ | - | 1 %, 20 °C | - | HUUE |

| Pumped liquid | Note | Liquid concentration, liquid temperature | Recommended pump version/shaft seal | |
|---|---|---|---|---|
| | | | MTR, MTRE | |
| | | | A-version | I-version |
| | | | (standard range, all wetted parts of cast iron and stainless steel) | (stainless-steel version, all wetted parts of stainless steel EN/DIN 1.4301) |
| Rape seed oil | D, E, 3 | 100 %, 80 °C | HUUV | - |
| Salicylic acid, $C_6H_4(OH)COOH$ | H | 0.1 %, 20 °C | - | HUUE |
| Silicone oil | E, 3 | 100 % | HUUV | - |
| Sodium bicarbonate, $NaHCO_3$ | E | 10 %, 60 °C | - | HUUE |
| Sodium chloride (as coolant), NaCl | D, E | 30 %, < 5 °C, pH > 8 | HUUE | - |
| Sodium hydroxide, NaOH | E | 20 %, 50 °C | - | HUUE |
| Sodium nitrate, $NaNO_3$ | E | 10 %, 60 °C | - | HUUE |
| Sodium phosphate, $Na_3PO_4$ | E, H | 10 %, 60 °C | - | HUUE |
| Sodium sulphate, $Na_2SO_4$ | E, H | 10 %, 60 °C | - | HUUE |
| Softened water | - | < 120 °C | - | HUUE |
| Soya oil | D, E, 3 | 100 %, 80 °C | HUUV | - |
| Unsalted swimming pool water | - | Approx. 2 ppm free chlorine ($Cl_2$) | HUUE | - |

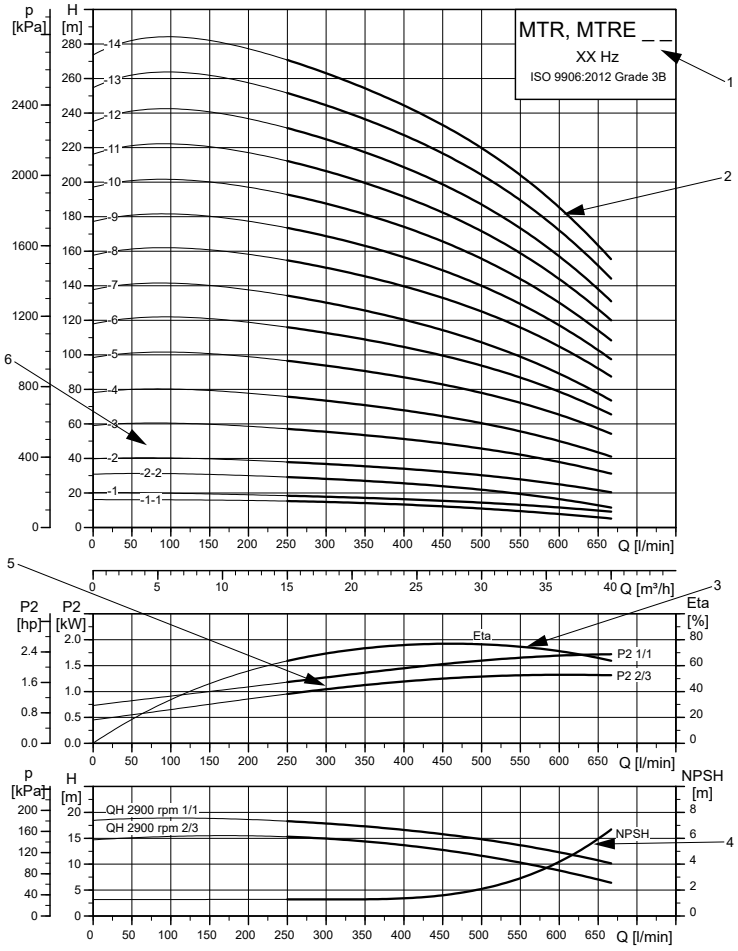
## List of notes

| | |
|---|---|
| D | Often with additives. |
| E | Density and/or viscosity differ from that of water. Allow for this when calculating motor output and pump performance. |
| F | Pump selection depends on many factors. Contact Grundfos. |
| H | Risk of crystallisation/precipitation in shaft seal. |
| 1 | The pumped liquid is easily ignited. |
| 2 | The pumped liquid highly flammable. |
| 3 | Insoluble in water. |
| 4 | Low self-ignition point. |

# 12. Performance curves and technical data

## Introduction to performance curves

### How to read the curve charts

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*Example of an MTR, MTRE curve chart*

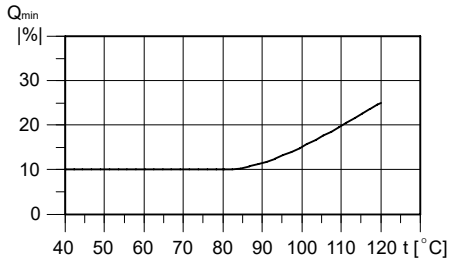
| Pos. | Description |
|---|---|
| 1 | Pump type, frequency and ISO standard. |
| 2 | QH curve for the individual pump. The bold curves indicate the recommended performance range for best efficiency. |
| 3 | The eta curve shows the efficiency of the pump. The eta curve is an average curve of all the pump types shown in the chart. |
| 4 | The NPSH curve is a maximum curve for all the variants shown. When sizing the pumps, add a safety margin of at least 0.5 m. |
| 5 | The power curves indicate pump input power per stage. Curves are shown for complete (1/1) and reduced (2/3) impellers. |
| 6 | Number of stages. First figure: number of stages; second figure: number of reduced-diameter impellers. |

## Guidelines to performance curves

The guidelines below apply to the performance curves shown on the following pages:

1. Tolerances to ISO 9906:2012 Grade 3B, if indicated.
2. The motors used for the measurements are standard Grundfos motors (MG or MGE).
3. Measurements have been made with airless water at a temperature of 20 °C.
4. The curves apply to a kinematic viscosity of u = 1 $mm^2/s$ (1 cSt).
5. Due to the risk of overheating, the pumps must not be used at a flow below the minimum flow rate.
6. QH curves of the individual pumps are based on current motor speeds.

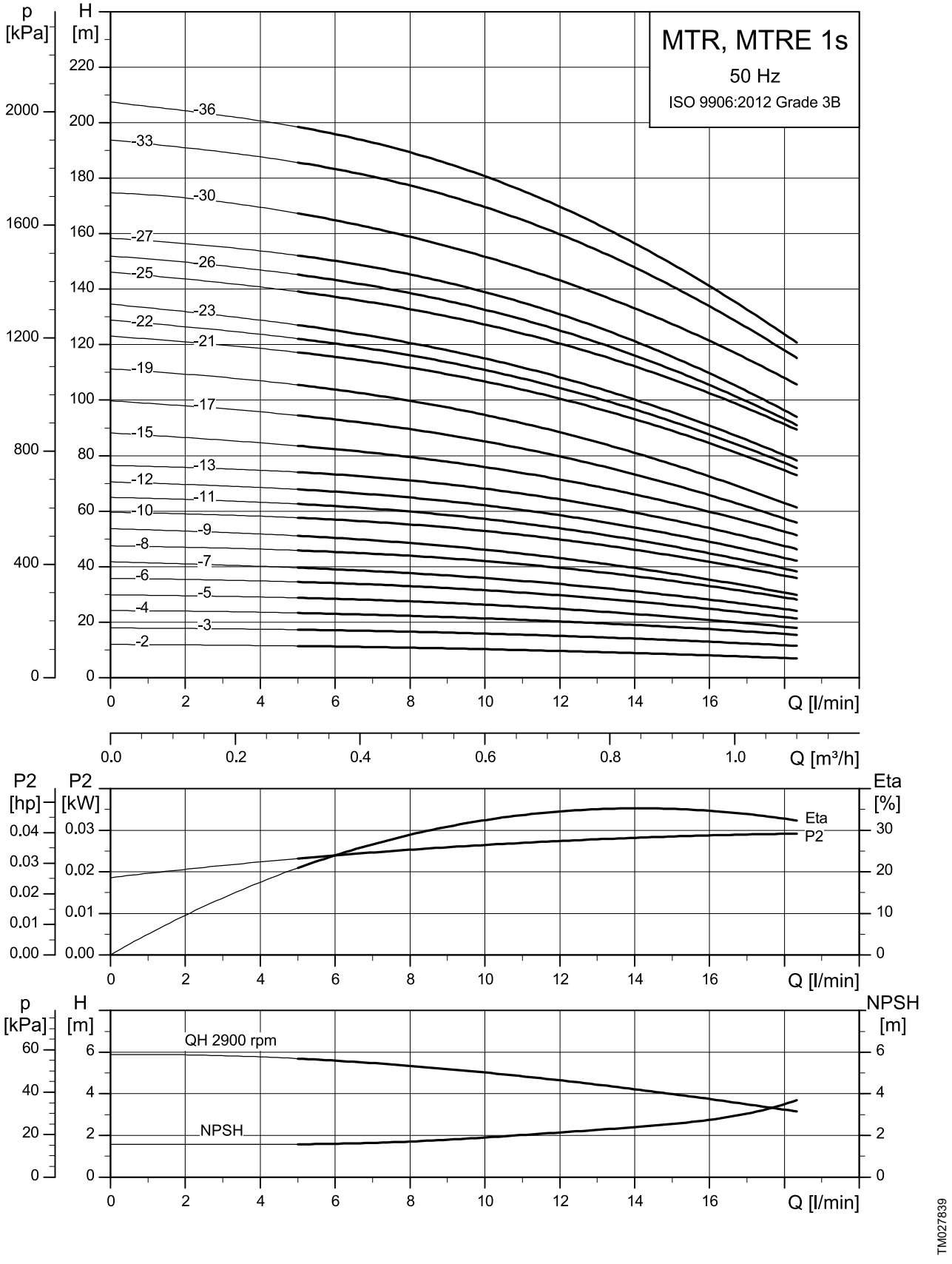
The curve below shows the minimum flow rate as a percentage of the nominal flow rate in relation to the liquid temperature.




*Minimum flow rate*

# MTR, MTRE, 50 Hz

## MTR, MTRE 1s, 50 Hz

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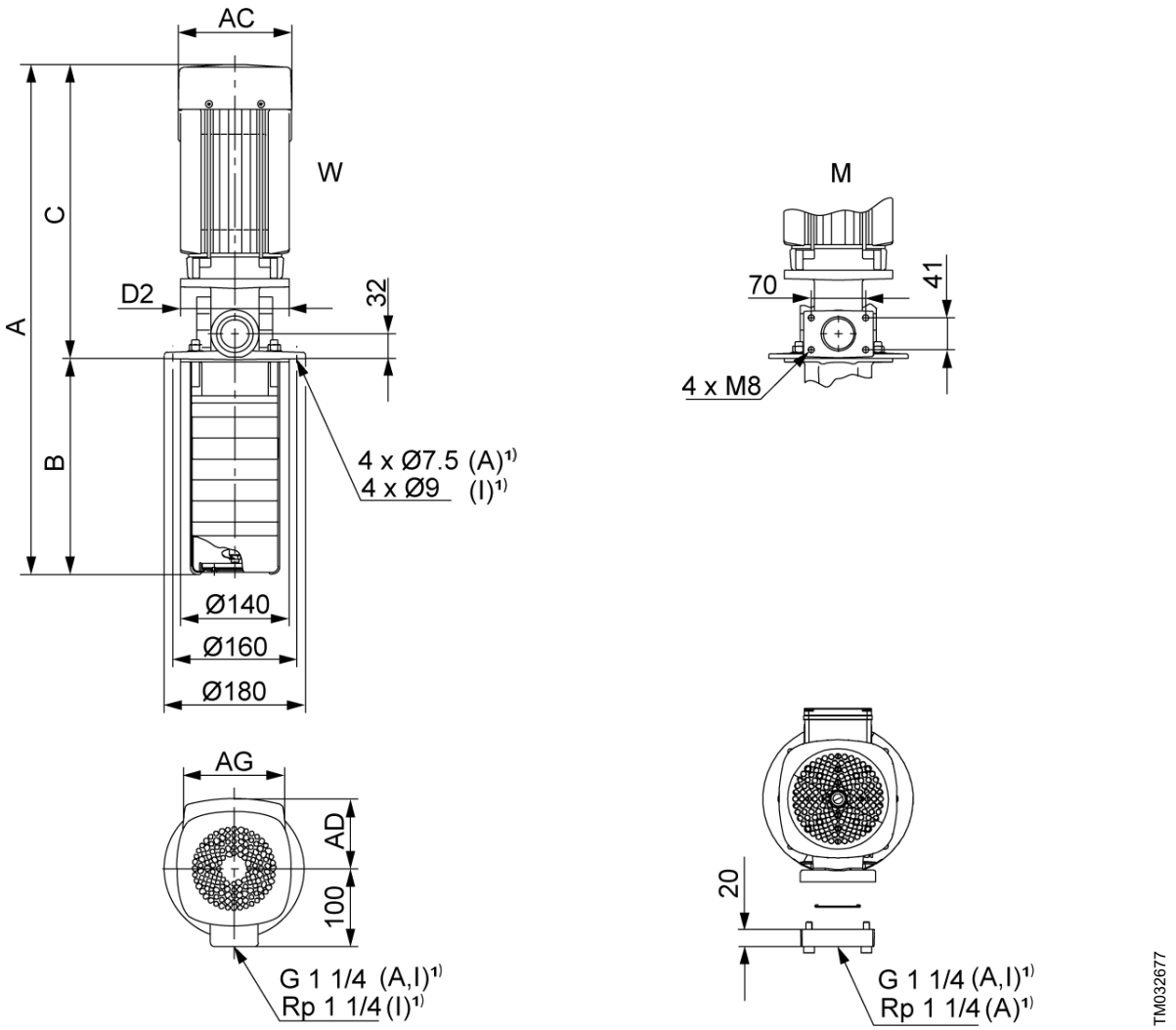
### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

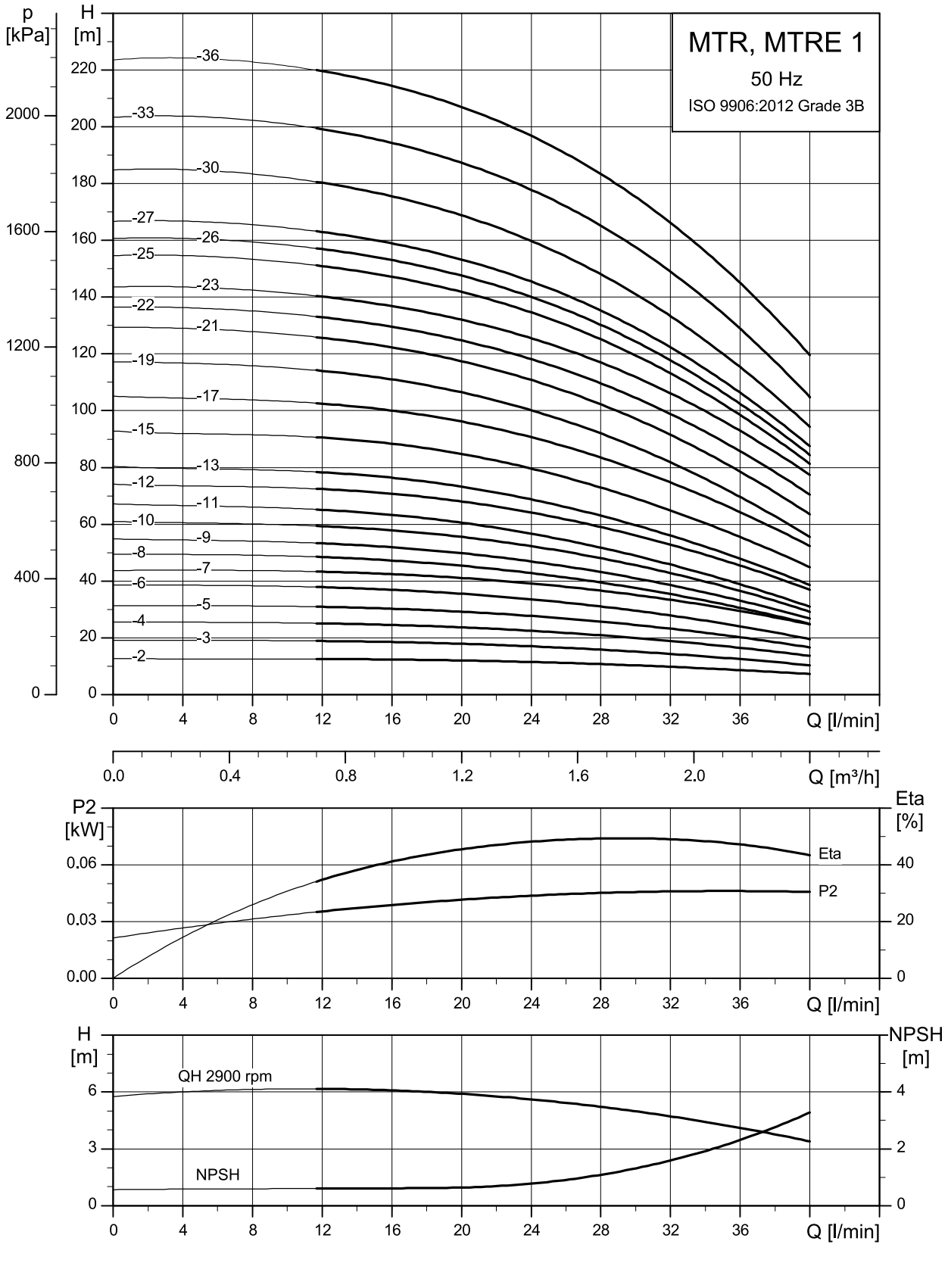
### Dimensions and weights

| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 1s-2/2 | 0.37 | 462 | 160 | 302 | 141 | 140 | 109 | 82 | 12.9 | - | - | - | - | - | - | - | - |
| MTR 1s-3/3 | 0.37 | 480 | 178 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR 1s-4/4 | 0.37 | 498 | 196 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-5/5 | 0.37 | 516 | 214 | 302 | 141 | 140 | 109 | 82 | 13 | 579 | 214 | 365 | 122 | 140 | 158 | 268 | 17.4 |
| MTR 1s-6/6 | 0.37 | 534 | 232 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR 1s-7/7 | 0.37 | 552 | 250 | 302 | 141 | 140 | 109 | 82 | 13.1 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-8/8 | 0.37 | 570 | 268 | 302 | 141 | 140 | 109 | 82 | 13.1 | 633 | 268 | 365 | 122 | 140 | 158 | 268 | 17.5 |
| MTR 1s-9/9 | 0.37 | 588 | 286 | 302 | 141 | 140 | 109 | 82 | 13.1 | - | - | - | - | - | - | - | - |
| MTR 1s-10/10 | 0.37 | 606 | 304 | 302 | 141 | 140 | 109 | 82 | 13.1 | - | - | - | - | - | - | - | - |
| MTR 1s-11/11 | 0.37 | 624 | 322 | 302 | 141 | 140 | 109 | 82 | 13.1 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-12/12 | 0.37 | 642 | 340 | 302 | 141 | 140 | 109 | 82 | 13.2 | 705 | 340 | 365 | 122 | 140 | 158 | 268 | 17.6 |
| MTR 1s-13/13 | 0.37 | 660 | 358 | 302 | 141 | 140 | 109 | 82 | 13.2 | - | - | - | - | - | - | - | - |
| MTR 1s-15/15 | 0.55 | 696 | 394 | 302 | 141 | 140 | 109 | 82 | 12.7 | - | - | - | - | - | - | - | - |
| MTR 1s-17/17 | 0.55 | 732 | 430 | 302 | 141 | 140 | 109 | 82 | 12.7 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-19/19 | 0.55 | 768 | 466 | 302 | 141 | 140 | 109 | 82 | 12.8 | 831 | 466 | 365 | 122 | 140 | 158 | 268 | 17.7 |
| MTR 1s-21/21 | 0.75 | 844 | 502 | 342 | 141 | 140 | 109 | 82 | 15.1 | - | - | - | - | - | - | - | - |

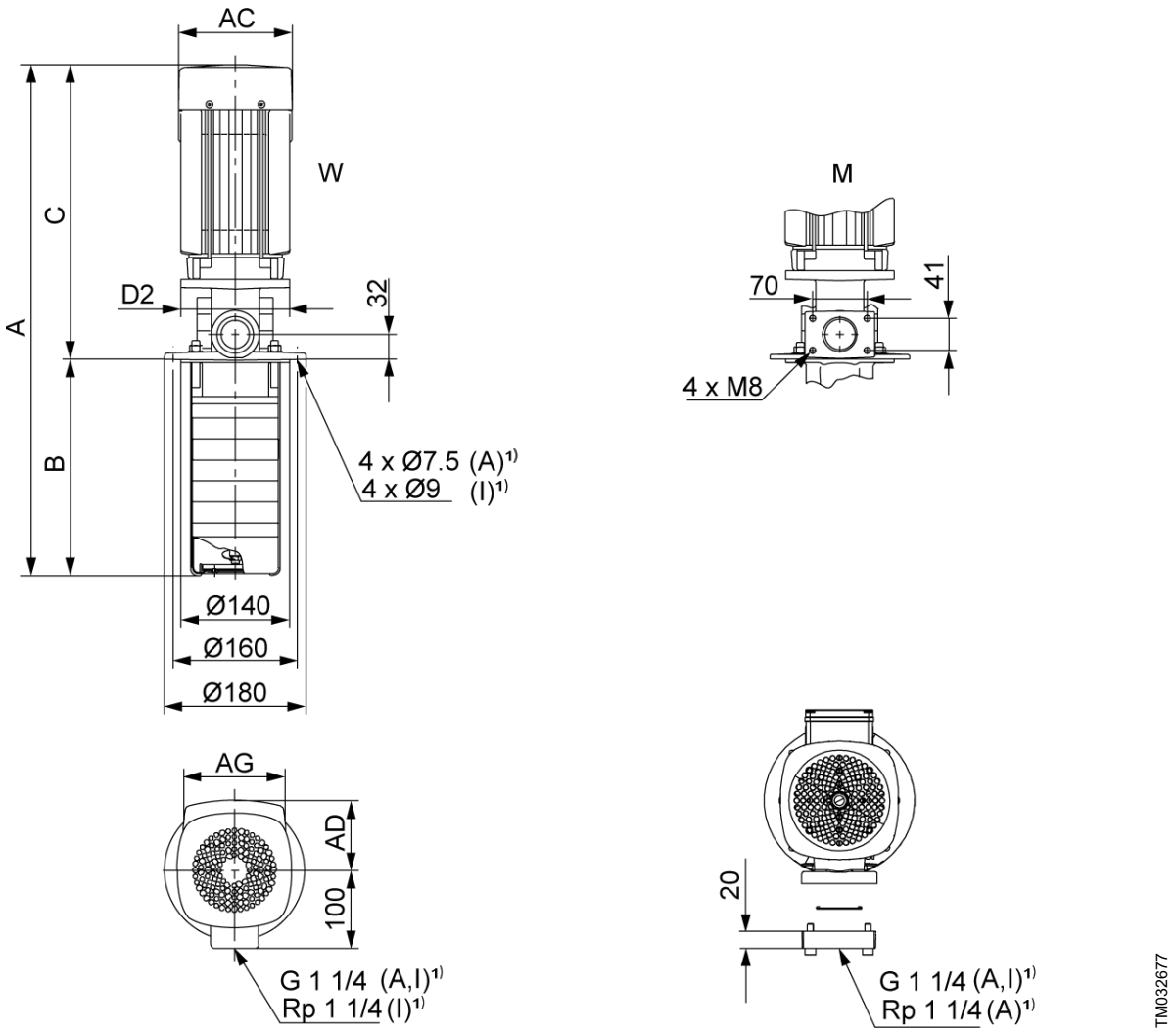
| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 1s-22/22 | 0.75 | 862 | 520 | 342 | 141 | 140 | 109 | 82 | 15.1 | - | - | - | - | - | - | - | - |
| MTR 1s-23/23 | 0.75 | 880 | 538 | 342 | 141 | 140 | 109 | 82 | 15.2 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-25/25 | 0.75 | 916 | 574 | 342 | 141 | 140 | 109 | 82 | 15.2 | 939 | 574 | 365 | 122 | 140 | 158 | 268 | 17.9 |
| MTR 1s-26/26 | 0.75 | 934 | 592 | 342 | 141 | 140 | 109 | 82 | 15.2 | - | - | - | - | - | - | - | - |
| MTR 1s-27/27 | 1.1 | 972 | 610 | 362 | 141 | 140 | 109 | 82 | 17.2 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-30/30 | 1.1 | 1026 | 664 | 362 | 141 | 140 | 109 | 82 | 17.3 | 1029 | 664 | 365 | 122 | 140 | 158 | 268 | 18.8 |
| MTR 1s-33/33 | 1.1 | 1080 | 718 | 362 | 141 | 140 | 109 | 82 | 17.4 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-36/36 | 1.1 | 1134 | 772 | 362 | 141 | 140 | 109 | 82 | 17.4 | 1137 | 772 | 365 | 122 | 140 | 158 | 268 | 18.9 |

The maximum immersion depth is 1006 mm.

## MTR, MTRE 1, 50 Hz



### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

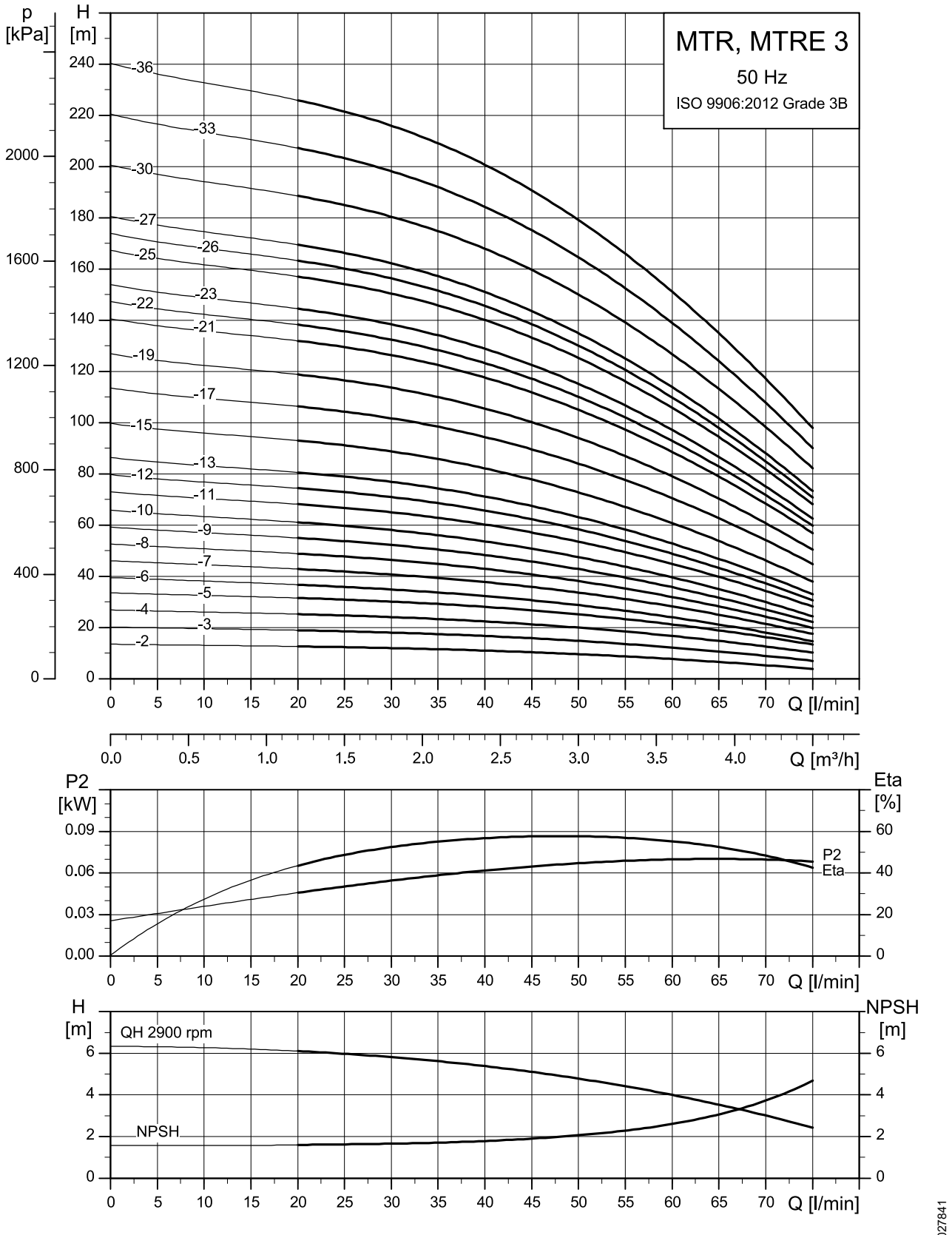
### Dimensions and weights

| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 1-2/2 | 0.37 | 462 | 160 | 302 | 141 | 140 | 109 | 82 | 12.9 | - | - | - | - | - | - | - | - |
| MTR 1-3/3 | 0.37 | 480 | 178 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR 1-4/4 | 0.37 | 498 | 196 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-5/5 | 0.37 | 516 | 214 | 302 | 141 | 140 | 109 | 82 | 13 | 579 | 214 | 365 | 122 | 140 | 158 | 268 | 17.4 |
| MTR 1-6/6 | 0.37 | 534 | 232 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR 1-7/7 | 0.37 | 552 | 250 | 302 | 141 | 140 | 109 | 82 | 13.1 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-8/8 | 0.55 | 570 | 268 | 302 | 141 | 140 | 109 | 82 | 12.5 | 633 | 268 | 365 | 122 | 140 | 158 | 268 | 17.5 |
| MTR 1-9/9 | 0.55 | 588 | 286 | 302 | 141 | 140 | 109 | 82 | 12.6 | - | - | - | - | - | - | - | - |
| MTR 1-10/10 | 0.55 | 606 | 304 | 302 | 141 | 140 | 109 | 82 | 12.6 | - | - | - | - | - | - | - | - |
| MTR 1-11/11 | 0.55 | 624 | 322 | 302 | 141 | 140 | 109 | 82 | 12.6 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-12/12 | 0.75 | 682 | 340 | 342 | 141 | 140 | 109 | 82 | 14.9 | 705 | 340 | 365 | 122 | 140 | 158 | 268 | 17.7 |
| MTR 1-13/13 | 0.75 | 700 | 358 | 342 | 141 | 140 | 109 | 82 | 14.9 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-15/15 | 0.75 | 736 | 394 | 342 | 141 | 140 | 109 | 82 | 15 | 759 | 394 | 365 | 122 | 140 | 158 | 268 | 17.7 |
| MTR 1-17/17 | 1.1 | 792 | 430 | 362 | 141 | 140 | 109 | 82 | 17 | - | - | - | - | - | - | - | - |
| MTR 1-19/19 | 1.1 | 828 | 466 | 362 | 141 | 140 | 109 | 82 | 17.1 | - | - | - | - | - | - | - | - |
| MTR 1-21/21 | 1.1 | 864 | 502 | 362 | 141 | 140 | 109 | 82 | 17.1 | - | - | - | - | - | - | - | - |

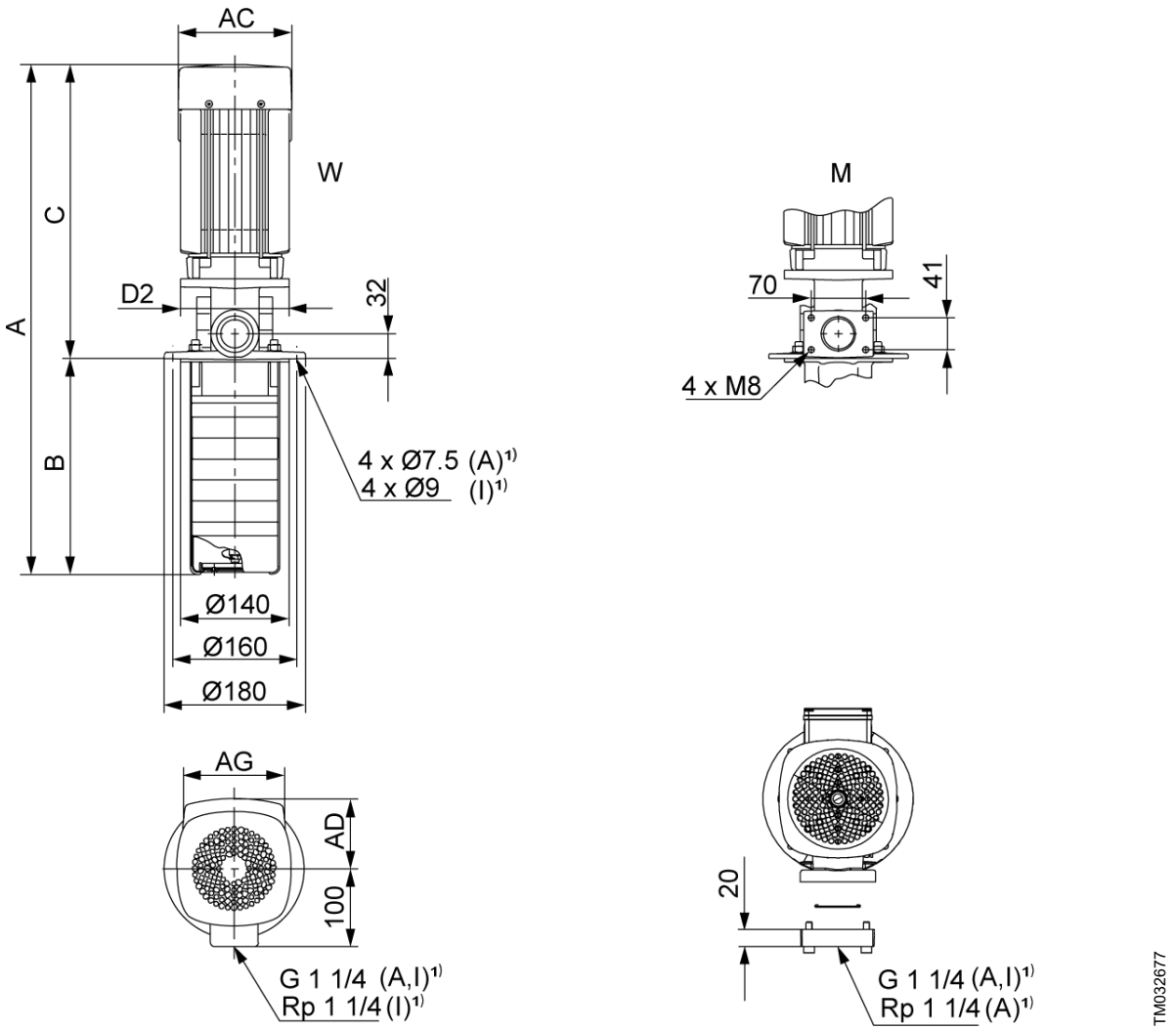
| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 1-22/22 | 1.1 | 882 | 520 | 362 | 141 | 140 | 109 | 82 | 17.1 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-23/23 | 1.1 | 900 | 538 | 362 | 141 | 140 | 109 | 82 | 17.2 | 903 | 538 | 365 | 122 | 140 | 158 | 268 | 18.7 |
| MTR 1-25/25 | 1.5 | 966 | 574 | 392 | 178 | 140 | 110 | 162 | 23.6 | - | - | - | - | - | - | - | - |
| MTR 1-26/26 | 1.5 | 984 | 592 | 392 | 178 | 140 | 110 | 162 | 23.6 | - | - | - | - | - | - | - | - |
| MTR 1-27/27 | 1.5 | 1002 | 610 | 392 | 178 | 140 | 110 | 162 | 23.6 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-30/30 | 1.5 | 1056 | 664 | 392 | 178 | 140 | 110 | 162 | 23.7 | 1049 | 664 | 385 | 122 | 140 | 158 | 268 | 21.7 |
| MTR 1-33/33 | 2.2 | 1150 | 718 | 432 | 178 | 140 | 110 | 162 | 27.6 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-36/36 | 2.2 | 1204 | 772 | 432 | 178 | 140 | 110 | 162 | 27.6 | 1157 | 772 | 385 | 122 | 140 | 158 | 268 | 23.3 |

The maximum immersion depth is 1006 mm.

## MTR, MTRE 3, 50 Hz



### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

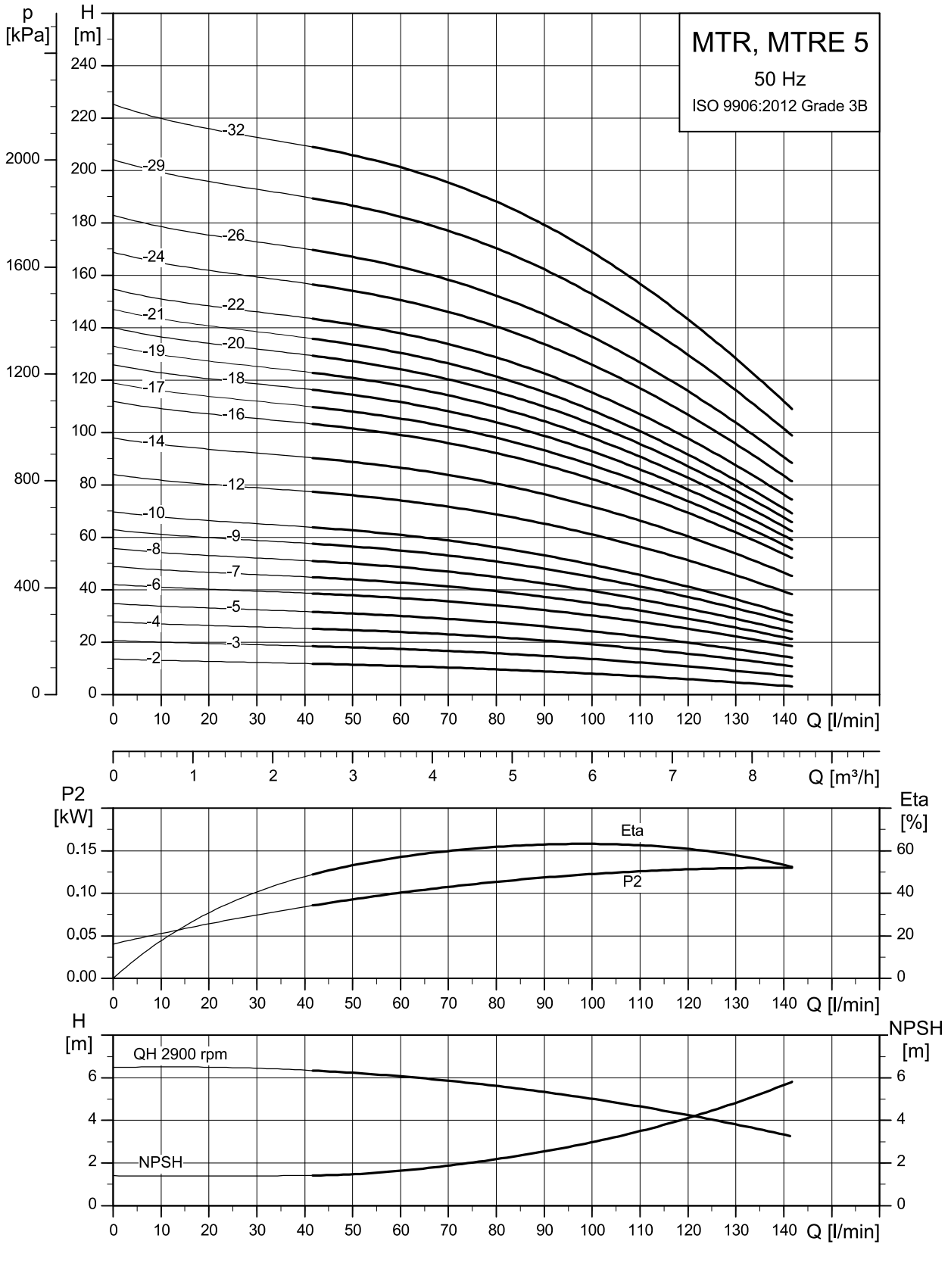
### Dimensions and weights

| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 3-2/2 | 0.37 | 462 | 160 | 302 | 141 | 140 | 109 | 82 | 12.9 | - | - | - | - | - | - | - | - |
| MTR 3-3/3 | 0.37 | 480 | 178 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR 3-4/4 | 0.37 | 498 | 196 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-5/5 | 0.37 | 516 | 214 | 302 | 141 | 140 | 109 | 82 | 13 | 579 | 214 | 365 | 122 | 140 | 158 | 268 | 17.4 |
| MTR 3-6/6 | 0.55 | 534 | 232 | 302 | 141 | 140 | 109 | 82 | 12.5 | - | - | - | - | - | - | - | - |
| MTR 3-7/7 | 0.55 | 552 | 250 | 302 | 141 | 140 | 109 | 82 | 12.5 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-8/8 | 0.75 | 610 | 268 | 342 | 141 | 140 | 109 | 82 | 14.8 | 633 | 268 | 365 | 122 | 140 | 158 | 268 | 17.6 |
| MTR 3-9/9 | 0.75 | 628 | 286 | 342 | 141 | 140 | 109 | 82 | 14.8 | - | - | - | - | - | - | - | - |
| MTR 3-10/10 | 0.75 | 646 | 304 | 342 | 141 | 140 | 109 | 82 | 14.9 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-11/11 | 0.75 | 664 | 322 | 342 | 141 | 140 | 109 | 82 | 14.9 | 687 | 322 | 365 | 122 | 140 | 158 | 268 | 17.6 |
| MTR 3-12/12 | 1.1 | 702 | 340 | 362 | 141 | 140 | 109 | 82 | 16.9 | - | - | - | - | - | - | - | - |
| MTR 3-13/13 | 1.1 | 720 | 358 | 362 | 141 | 140 | 109 | 82 | 16.9 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-15/15 | 1.1 | 756 | 394 | 362 | 141 | 140 | 109 | 82 | 17 | 759 | 394 | 365 | 122 | 140 | 158 | 268 | 18.5 |
| MTR 3-17/17 | 1.5 | 822 | 430 | 392 | 178 | 140 | 110 | 162 | 23.4 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-19/19 | 1.5 | 858 | 466 | 392 | 178 | 140 | 110 | 162 | 23.4 | 851 | 466 | 385 | 122 | 140 | 158 | 268 | 21.5 |
| MTR 3-21/21 | 2.2 | 934 | 502 | 432 | 178 | 140 | 110 | 162 | 27.3 | - | - | - | - | - | - | - | - |

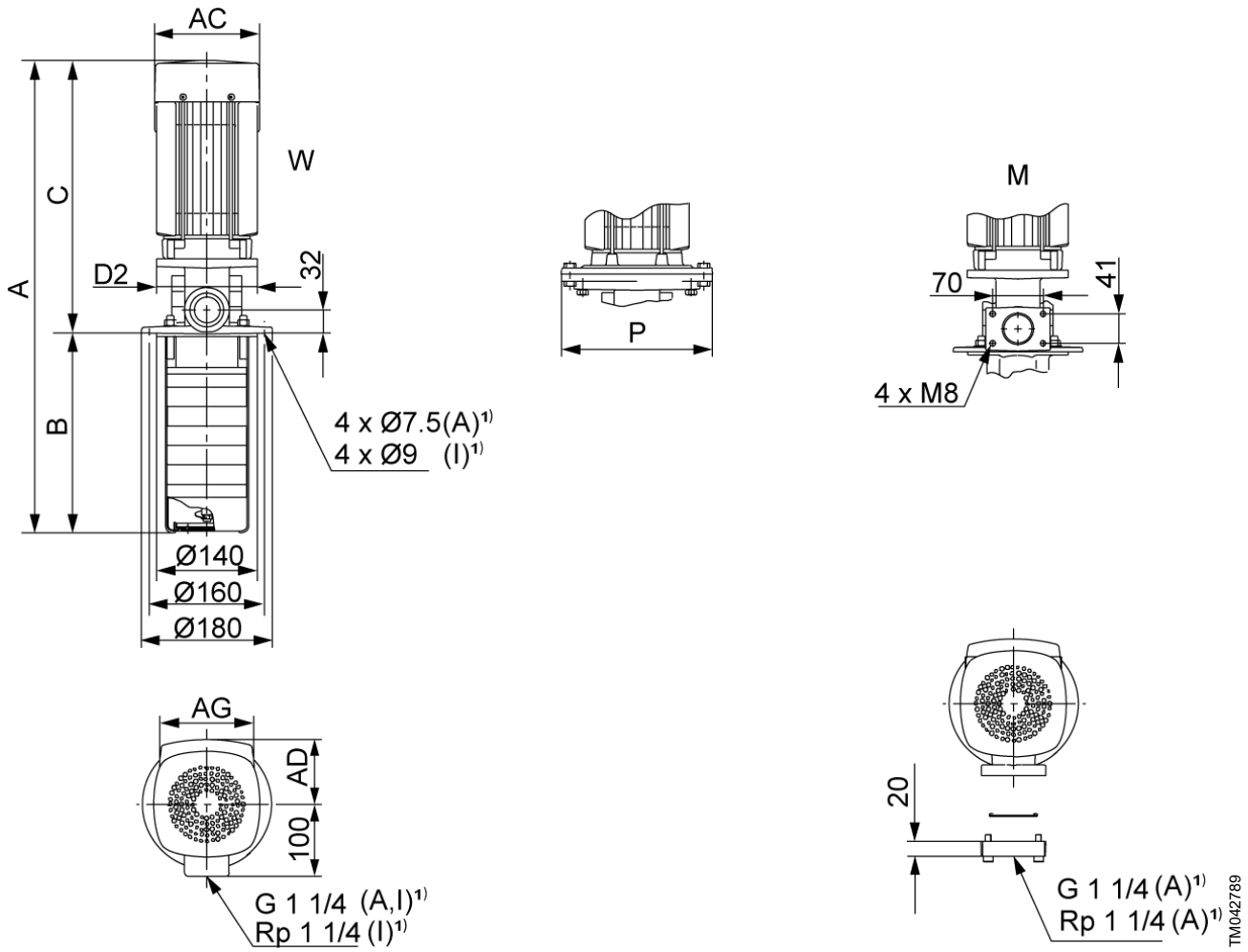
| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 3-22/22 | 2.2 | 952 | 520 | 432 | 178 | 140 | 110 | 162 | 27.3 | - | - | - | - | - | - | - | - |
| MTR 3-23/23 | 2.2 | 970 | 538 | 432 | 178 | 140 | 110 | 162 | 27.3 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-25/25 | 2.2 | 1006 | 574 | 432 | 178 | 140 | 110 | 162 | 27.4 | 959 | 574 | 385 | 122 | 140 | 158 | 268 | 23 |
| MTR 3-26/26 | 2.2 | 1024 | 592 | 432 | 178 | 140 | 110 | 162 | 27.4 | - | - | - | - | - | - | - | - |
| MTR 3-27/27 | 2.2 | 1042 | 610 | 432 | 178 | 140 | 110 | 162 | 27.4 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-30/30 | 3 | 1110 | 664 | 446 | 198 | 160 | 120 | 162 | 32.5 | 1109 | 664 | 445 | 191 | 160 | 201 | 291 | 32.4 |
| MTR 3-33/33 | 3 | 1164 | 718 | 446 | 198 | 160 | 120 | 162 | 32.6 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-36/36 | 3 | 1218 | 772 | 446 | 198 | 160 | 120 | 162 | 32.6 | 1217 | 772 | 445 | 191 | 160 | 201 | 291 | 32.5 |

The maximum immersion depth is 1006 mm.

## MTR, MTRE 5, 50 Hz



### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

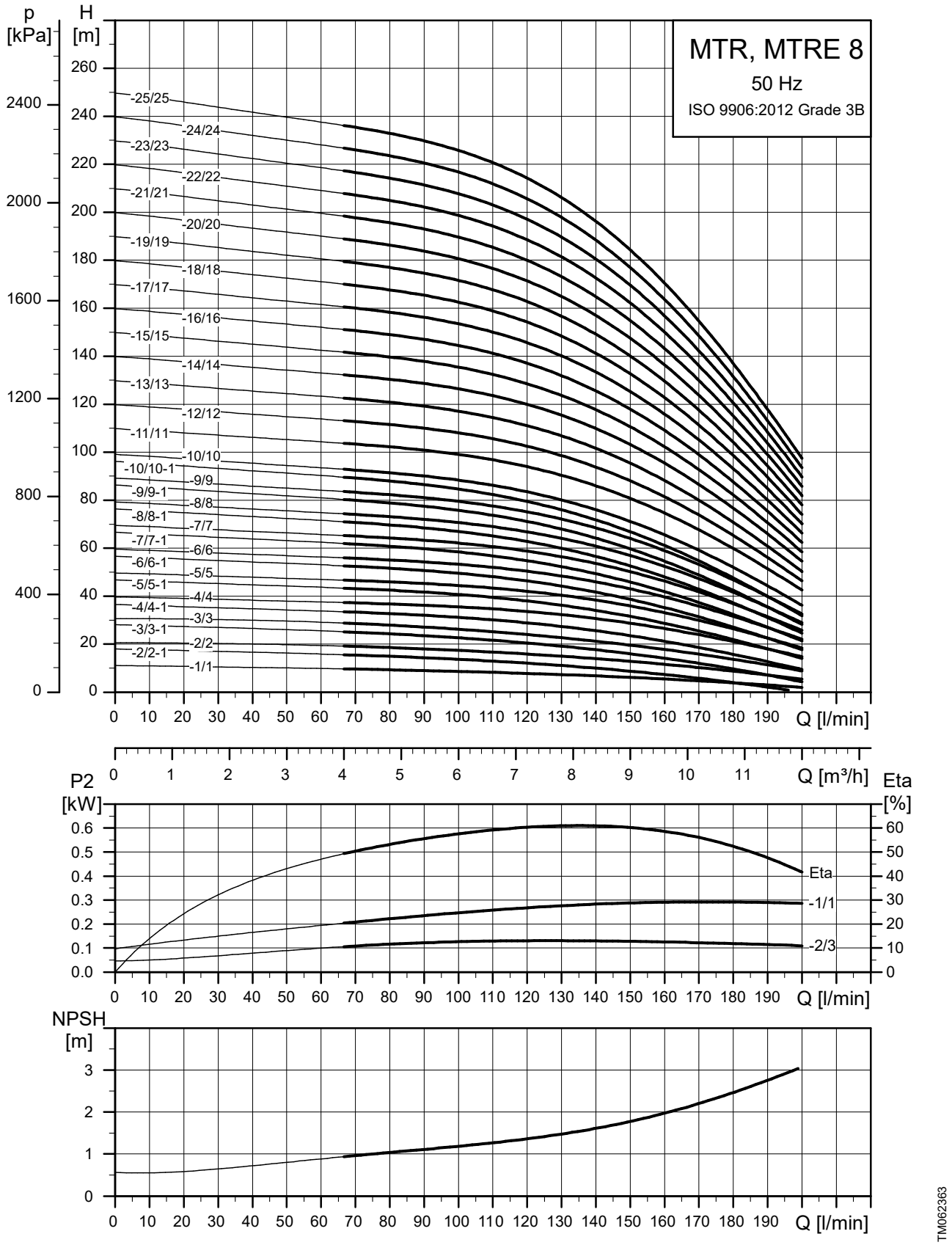
### Dimensions and weights

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 5-2/2 | 0.37 | 471 | 169 | 302 | 141 | 140 | - | 109 | 82 | 13.2 | 534 | 169 | 365 | 122 | 140 | - | 158 | 268 | 17.6 |
| MTR 5-3/3 | 0.55 | 498 | 196 | 302 | 141 | 140 | - | 109 | 82 | 12.7 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-4/4 | 0.55 | 525 | 223 | 302 | 141 | 140 | - | 109 | 82 | 12.7 | 588 | 223 | 365 | 122 | 140 | - | 158 | 268 | 17.7 |
| MTR, MTRE 5-5/5 | 0.75 | 592 | 250 | 342 | 141 | 140 | - | 109 | 82 | 15.1 | 615 | 250 | 365 | 122 | 140 | - | 158 | 268 | 17.8 |
| MTR 5-6/6 | 1.1 | 639 | 277 | 362 | 141 | 140 | - | 109 | 82 | 17.1 | - | - | - | - | - | - | - | - | - |
| MTR 5-7/7 | 1.1 | 666 | 304 | 362 | 141 | 140 | - | 109 | 82 | 17.1 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-8/8 | 1.1 | 693 | 331 | 362 | 141 | 140 | - | 109 | 82 | 17.2 | 696 | 331 | 365 | 122 | 140 | - | 158 | 268 | 18.7 |
| MTR 5-9/9 | 1.5 | 750 | 358 | 392 | 178 | 140 | - | 110 | 162 | 25.3 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-10/10 | 1.5 | 777 | 385 | 392 | 178 | 140 | - | 110 | 162 | 25.3 | 770 | 385 | 385 | 122 | 140 | | 158 | 268 | 21.7 |
| MTR 5-12/12 | 2.2 | 871 | 439 | 432 | 178 | 140 | - | 110 | 162 | 28.5 | - | - | - | - | - | - | - | - | - |
| MTR 5-14/14 | 2.2 | 925 | 493 | 432 | 178 | 140 | - | 110 | 162 | 28.6 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-16/16 | 2.2 | 979 | 547 | 432 | 178 | 140 | - | 110 | 162 | 28.6 | 932 | 547 | 385 | 122 | 140 | - | 158 | 268 | 23.2 |
| MTR 5-17/17 | 3 | 1020 | 574 | 446 | 198 | 160 | - | 120 | 162 | 32.7 | - | - | - | - | - | - | - | - | - |
| MTR 5-18/18 | 3 | 1047 | 601 | 446 | 198 | 160 | - | 120 | 162 | 32.7 | - | - | - | - | - | - | - | - | - |
| MTR 5-19/19 | 3 | 1074 | 628 | 446 | 198 | 160 | - | 120 | 162 | 32.7 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-20/20 | 3 | 1101 | 655 | 446 | 198 | 160 | - | 120 | 162 | 32.8 | 1100 | 655 | 445 | 191 | 160 | - | 201 | 291 | 32.6 |
| MTR 5-21/21 | 3 | 1128 | 682 | 446 | 198 | 160 | - | 120 | 162 | 32.8 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-22/22 | 4 | 1192 | 709 | 483 | 220 | 160 | - | 134 | 202 | 44.5 | 1154 | 709 | 445 | 191 | 160 | | 201 | 291 | 35.8 |

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR 5-24/24 | 4 | 1246 | 763 | 483 | 220 | 160 | - | 134 | 202 | 44.6 | - | - | - | - | - | - | - | - | - |
| MTR 5-26/26 | 4 | 1300 | 817 | 483 | 220 | 160 | - | 134 | 202 | 44.7 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-29/29 | 4 | 1381 | 898 | 483 | 220 | 160 | - | 134 | 202 | 44.8 | 1343 | 898 | 445 | 191 | 160 | - | 201 | 291 | 36.0 |
| MTR, MTRE 5-32/32 | 5.5 | 1506 | 979 | 527 | 220 | - | 300 | 134 | 202 | 62.1 | 1480 | 979 | 501 | 191 | 300 | 300 | 201 | 291 | 57.4 |

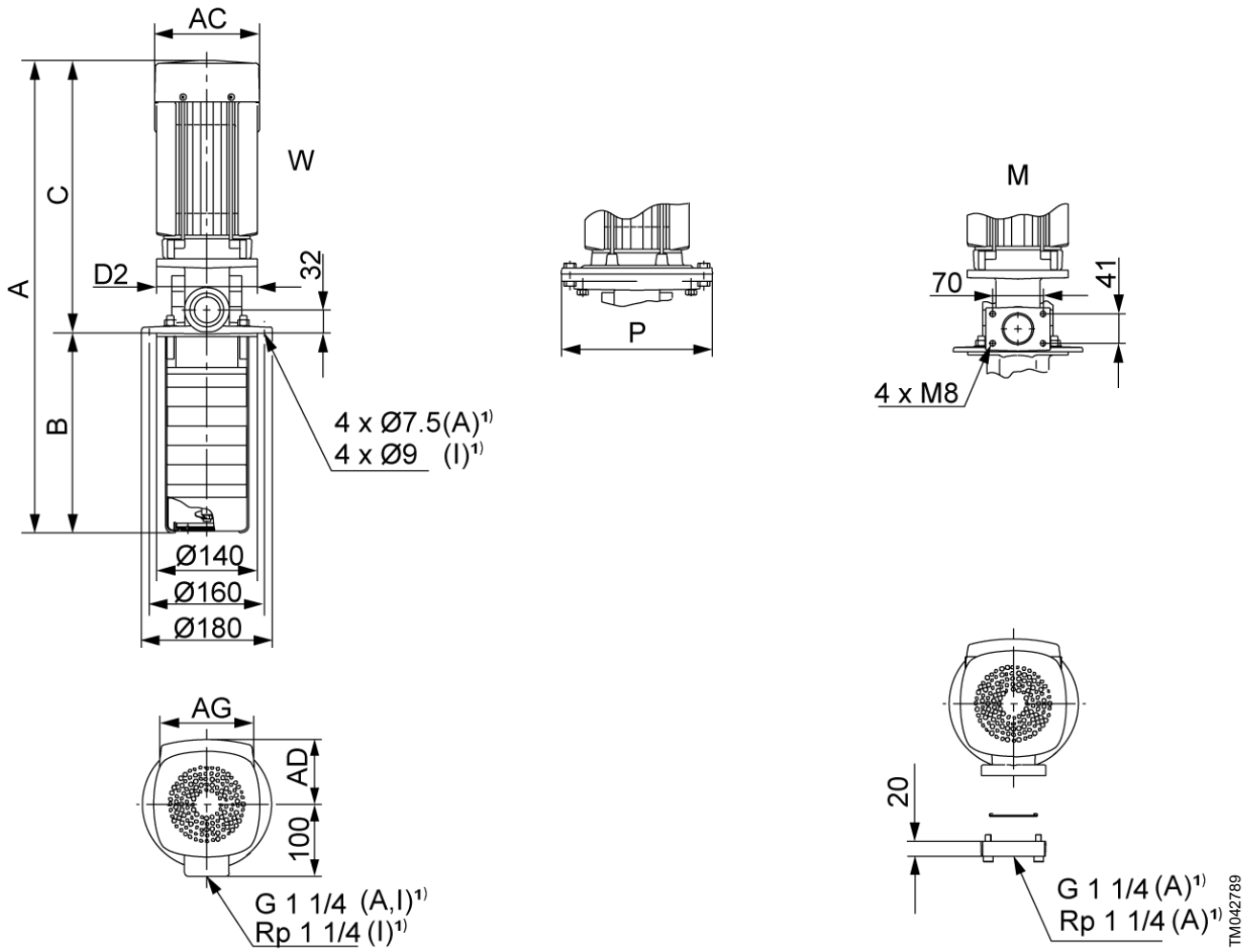
The maximum immersion depth is 1006 mm.

## MTR, MTRE 8, 50 Hz




TM062363

**Dimensional sketches**




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

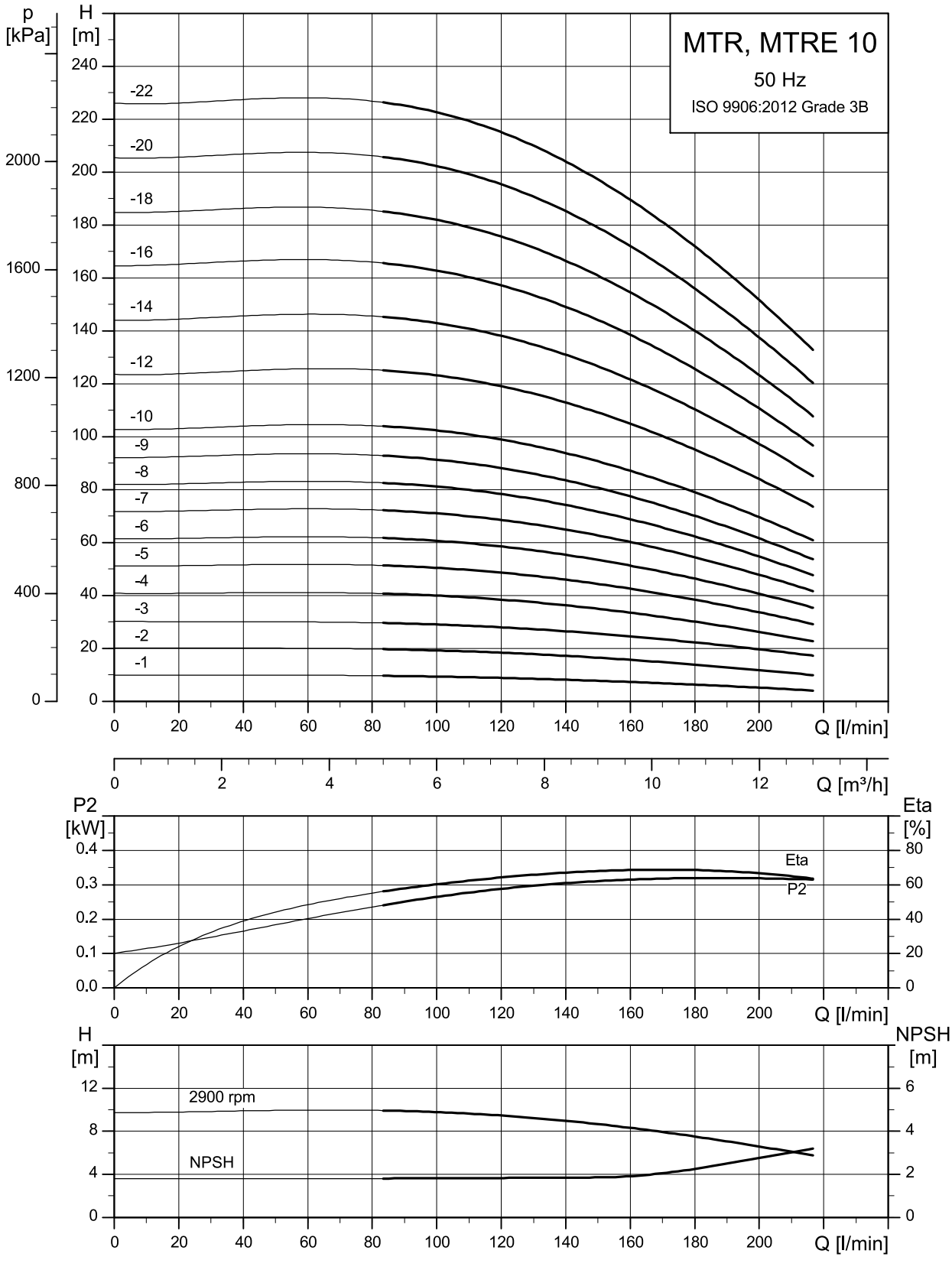
**Dimensions and weights**

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 8-1/1 | 0.37 | 498 | 196 | 302 | 141 | 140 | - | 109 | 82 | 17.6 | 561 | 196 | 365 | 122 | 140 | - | 158 | 268 | 22.0 |
| MTR, MTRE 8-2/2-1 | 0.55 | 525 | 223 | 302 | 141 | 140 | - | 109 | 82 | 17.1 | 588 | 223 | 365 | 122 | 140 | - | 158 | 268 | 22.0 |
| MTR 8-2/2 | 0.75 | 565 | 223 | 342 | 141 | 140 | - | 109 | 82 | 19.4 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-3/3-1 | 0.75 | 592 | 250 | 342 | 141 | 140 | - | 109 | 82 | 19.4 | 615 | 250 | 365 | 122 | 140 | | 158 | 268 | 22.1 |
| MTR 8-3/3 | 1.1 | 612 | 250 | 362 | 141 | 140 | - | 109 | 82 | 21.4 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-4/4-1 | 1.1 | 639 | 277 | 362 | 141 | 140 | - | 109 | 82 | 21.4 | 642 | 277 | 365 | 122 | 140 | - | 158 | 268 | 22.9 |
| MTR 8-4/4 | 1.5 | 669 | 277 | 392 | 178 | 140 | - | 110 | 162 | 27.8 | - | - | - | - | - | - | - | - | - |
| MTR 8-5/5-1 | 1.5 | 696 | 304 | 392 | 178 | 140 | - | 110 | 162 | 27.8 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-5/5 | 2.2 | 736 | 304 | 432 | 178 | 140 | - | 110 | 162 | 31.6 | 689 | 304 | 385 | 122 | 140 | - | 158 | 268 | 27.3 |
| MTR 8-6/6-1 | 2.2 | 763 | 331 | 432 | 178 | 140 | - | 110 | 162 | 31.7 | - | - | - | - | - | - | - | - | - |
| MTR 8-6/6 | 2.2 | 763 | 331 | 432 | 178 | 140 | - | 110 | 162 | 31.7 | - | - | - | - | - | - | - | - | - |
| MTR 8-7/7-1 | 2.2 | 790 | 358 | 432 | 178 | 140 | - | 110 | 162 | 31.7 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-7/7 | 2.2 | 790 | 358 | 432 | 178 | 140 | - | 110 | 162 | 31.7 | 743 | 358 | 385 | 122 | 140 | - | 158 | 268 | 27.3 |
| MTR 8-8/8-1 | 3 | 831 | 385 | 446 | 198 | 160 | - | 120 | 162 | 36.8 | - | - | - | - | - | - | - | - | - |
| MTR 8-8/8 | 3 | 831 | 385 | 446 | 198 | 160 | - | 120 | 162 | 36.8 | - | - | - | - | - | - | - | - | - |
| MTR 8-9/9-1 | 3 | 858 | 412 | 446 | 198 | 160 | - | 120 | 162 | 36.8 | - | - | - | - | - | - | - | - | - |
| MTR 8-9/9 | 3 | 858 | 412 | 446 | 198 | 160 | - | 120 | 162 | 36.8 | - | - | - | - | - | - | - | - | - |
| MTR 8-10/10-1 | 3 | 885 | 439 | 446 | 198 | 160 | - | 120 | 162 | 36.8 | - | - | - | - | - | - | - | - | - |

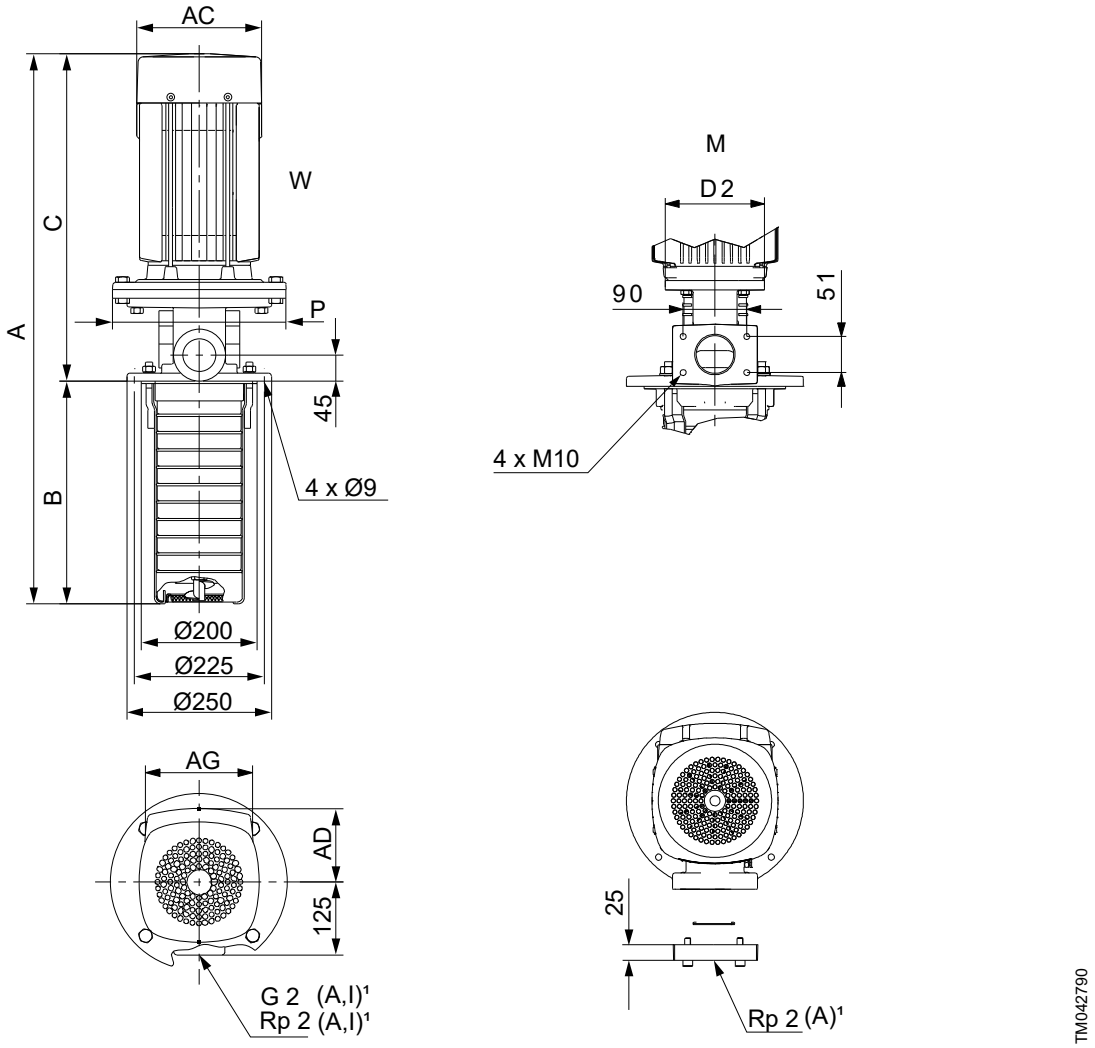
| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 8-10/10 | 3 | 885 | 439 | 446 | 198 | 160 | - | 120 | 162 | 36.8 | 884 | 439 | 445 | 191 | 160 | - | 201 | 291 | 36.7 |
| MTR 8-11/11 | 4 | 949 | 466 | 483 | 220 | 160 | - | 134 | 202 | 48.6 | - | - | - | - | - | - | - | - | - |
| MTR 8-12/12 | 4 | 976 | 493 | 483 | 220 | 160 | - | 134 | 202 | 48.6 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-13/13 | 4 | 1003 | 520 | 483 | 220 | 160 | - | 134 | 202 | 48.6 | 965 | 520 | 445 | 191 | 160 | - | 201 | 291 | 39.9 |
| MTR 8-14/14 | 5.5 | 1074 | 547 | 527 | 220 | 300 | 300 | 134 | 202 | 65.9 | - | - | - | - | - | - | - | - | - |
| MTR 8-15/15 | 5.5 | 1101 | 574 | 527 | 220 | 300 | 300 | 134 | 202 | 65.9 | - | - | - | - | - | - | - | - | - |
| MTR 8-16/16 | 5.5 | 1128 | 601 | 527 | 220 | 300 | 300 | 134 | 202 | 65.9 | - | - | - | - | - | - | - | - | - |
| MTR 8-17/17 | 5.5 | 1155 | 628 | 527 | 220 | 300 | 300 | 134 | 202 | 66.0 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-18/18 | 5.5 | 1182 | 655 | 527 | 220 | 300 | 300 | 134 | 202 | 66.0 | 1156 | 655 | 501 | 191 | 300 | 300 | 201 | 291 | 61.3 |
| MTR 8-19/19 | 7.5 | 1197 | 682 | 515 | 260 | 300 | 300 | 159 | 203 | 75.8 | - | - | - | - | - | - | - | - | - |
| MTR 8-20/20 | 7.5 | 1224 | 709 | 515 | 260 | 300 | 300 | 159 | 203 | 75.9 | - | - | - | - | - | - | - | - | - |
| MTR 8-21/21 | 7.5 | 1251 | 736 | 515 | 260 | 300 | 300 | 159 | 203 | 75.9 | - | - | - | - | - | - | - | - | - |
| MTR 8-22/22 | 7.5 | 1278 | 763 | 515 | 260 | 300 | 300 | 159 | 203 | 75.9 | - | - | - | - | - | - | - | - | - |
| MTR 8-23/23 | 7.5 | 1305 | 790 | 515 | 260 | 300 | 300 | 159 | 203 | 76.0 | - | - | - | - | - | - | - | - | - |
| MTR 8-24/24 | 7.5 | 1332 | 817 | 515 | 260 | 300 | 300 | 159 | 203 | 76.0 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-25/25 | 7.5 | 1359 | 844 | 515 | 260 | 300 | 300 | 159 | 203 | 76.0 | 1369 | 844 | 525 | 255 | 300 | 300 | 237 | 346 | 70.9 |

The maximum immersion depth is 1006 mm.

## MTR, MTRE 10, 50 Hz



## Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

## Dimensions and weights

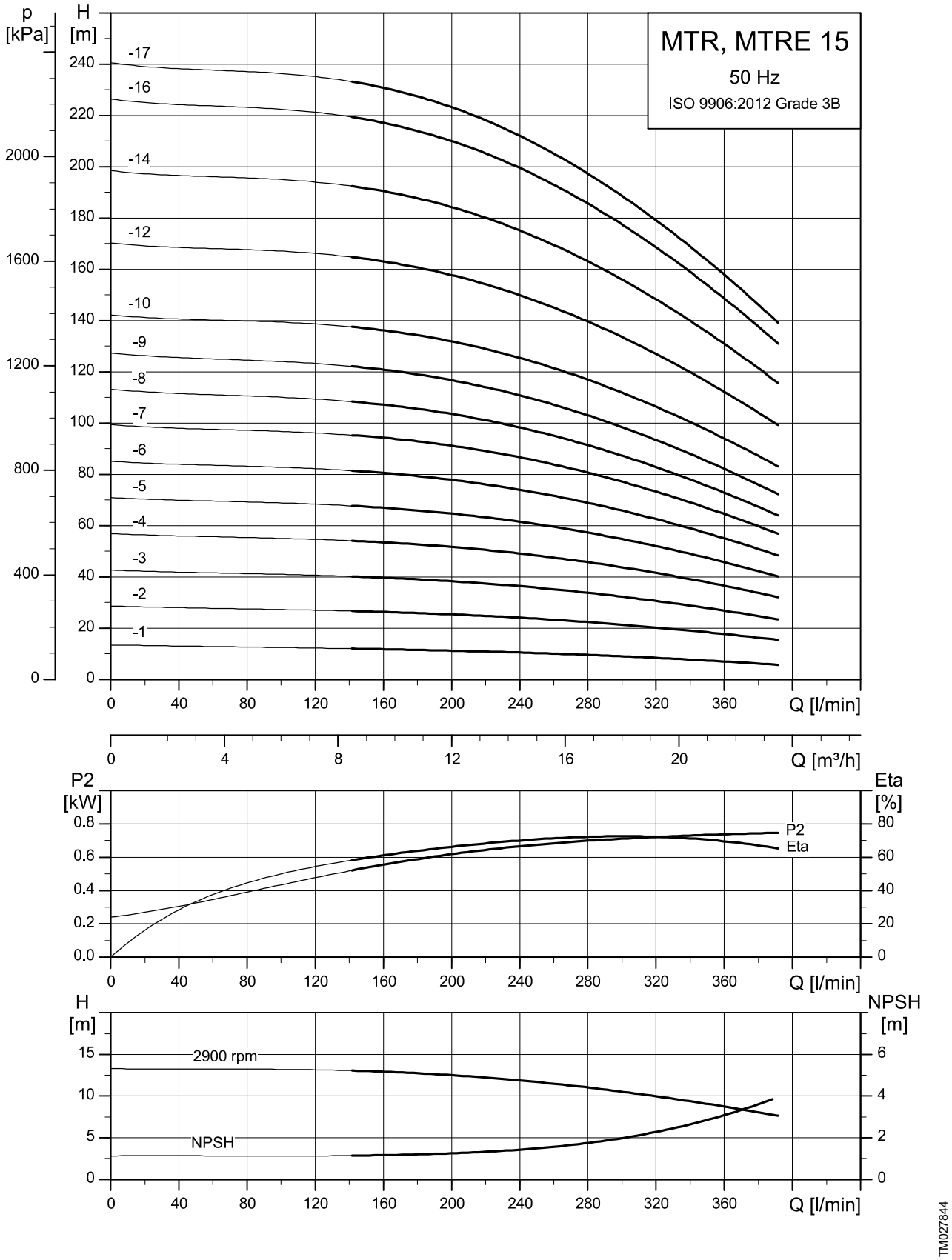
| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [13)] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 10-2/1 | 0.75 | 519 | 148 | 371 | 141 | 140 | - | 109 | 82 | 22.7 | 542 | 148 | 394 | 122 | 140 | - | 158 | 268 | 25.5 |
| MTR, MTRE 10-2/2 | 0.75 | 519 | 148 | 371 | 141 | 140 | - | 109 | 82 | 22.7 | 542 | 148 | 394 | 122 | 140 | - | 158 | 268 | 25.5 |
| MTR, MTRE 10-3/3 | 1.1 | 569 | 178 | 391 | 141 | 140 | - | 109 | 82 | 24.8 | 572 | 178 | 394 | 122 | 140 | - | 158 | 268 | 26.3 |
| MTR, MTRE 10-4/4 | 1.5 | 629 | 208 | 421 | 178 | 140 | - | 110 | 162 | 31.2 | 622 | 208 | 414 | 122 | 140 | - | 158 | 268 | 29.3 |
| MTR 10-5/5 | 2.2 | 699 | 238 | 461 | 178 | 140 | - | 110 | 162 | 35.1 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 10-6/6 | 2.2 | 729 | 268 | 461 | 178 | 140 | - | 110 | 162 | 35.2 | 682 | 268 | 414 | 122 | 140 | | 158 | 268 | 30.8 |
| MTR 10-7/7 | 3 | 773 | 298 | 475 | 198 | 160 | - | 120 | 162 | 40.3 | - | - | - | - | - | - | - | - | - |
| MTR 10-8/8 | 3 | 803 | 328 | 475 | 198 | 160 | - | 120 | 162 | 40.4 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 10-9/9 | 3 | 833 | 358 | 475 | 198 | 160 | - | 120 | 162 | 40.4 | 832 | 358 | 474 | 191 | 160 | - | 201 | 291 | 40.3 |
| MTR 10-10/10 | 4 | 900 | 388 | 512 | 220 | 160 | - | 134 | 202 | 52.2 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 10-12/12 | 4 | 960 | 448 | 512 | 220 | 160 | - | 134 | 202 | 52.3 | 922 | 448 | 474 | 191 | 160 | - | 201 | 291 | 43.6 |
| MTR 10-14/14 | 5.5 | 1063 | 508 | 555 | 220 | 300 | 300 | 134 | 202 | 64.7 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 10-16/16 | 5.5 | 1123 | 568 | 555 | 220 | 300 | 300 | 134 | 202 | 64.8 | 1097 | 568 | 529 | 191 | 300 | 300 | 201 | 291 | 60.1 |

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [13] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR 10-18/18 | 7.5 | 1171 | 628 | 543 | 260 | 300 | 300 | 159 | 203 | 74.8 | - | - | - | - | - | - | - | - | - |
| MTR 10-20/20 | 7.5 | 1231 | 688 | 543 | 260 | 300 | 300 | 159 | 203 | 74.9 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 10-22/22 | 7.5 | 1291 | 748 | 543 | 260 | 300 | 300 | 159 | 203 | 75 | 1301 | 748 | 553 | 255 | 300 | 300 | 237 | 346 | 69.9 |

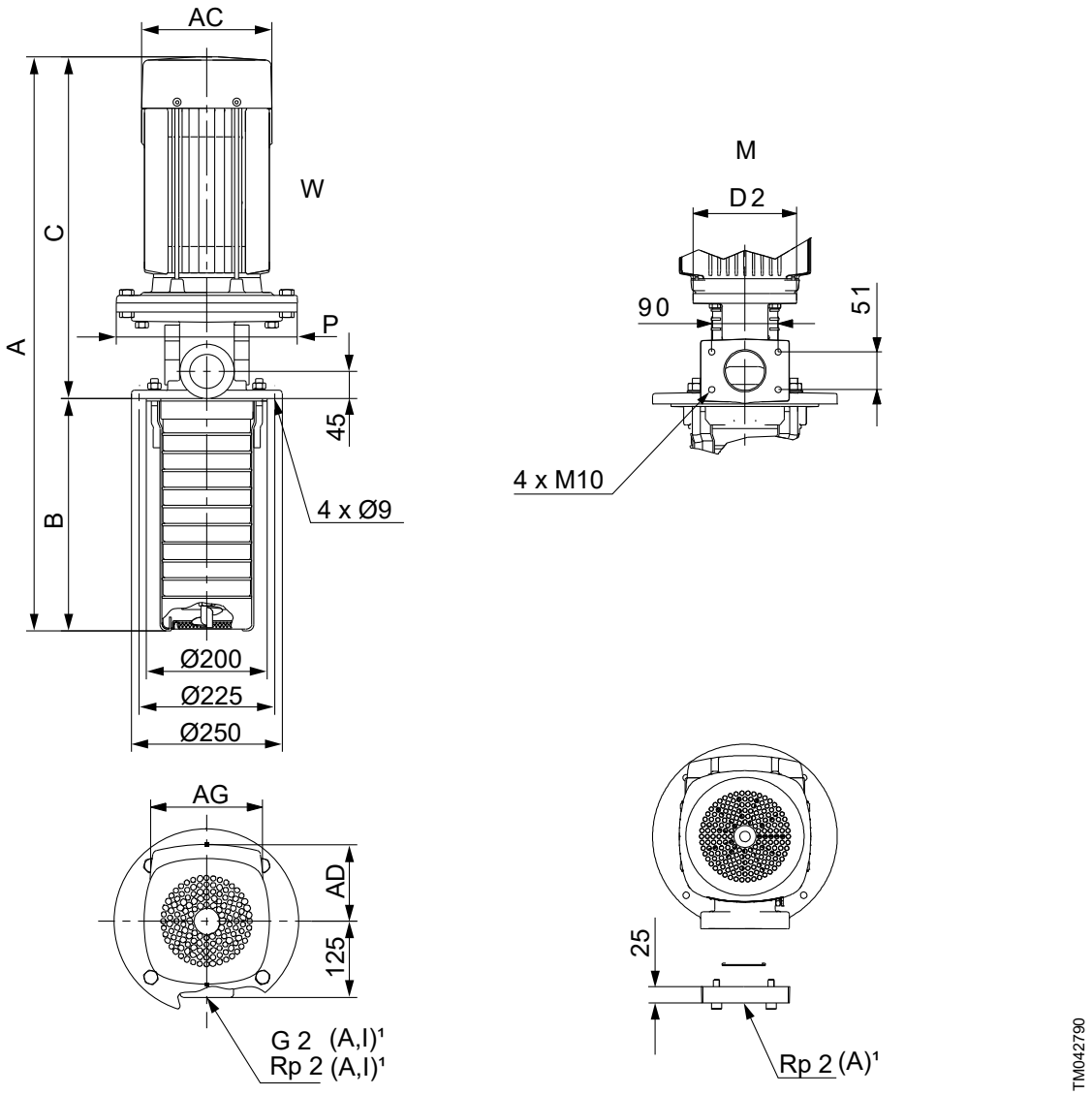
13) C+10 mm for MTR 10, 15 and 20 pumps with drainage back to the tank.

The maximum immersion depth is 1018 mm.

## MTR, MTRE 15, 50 Hz



### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

### Dimensions and weights

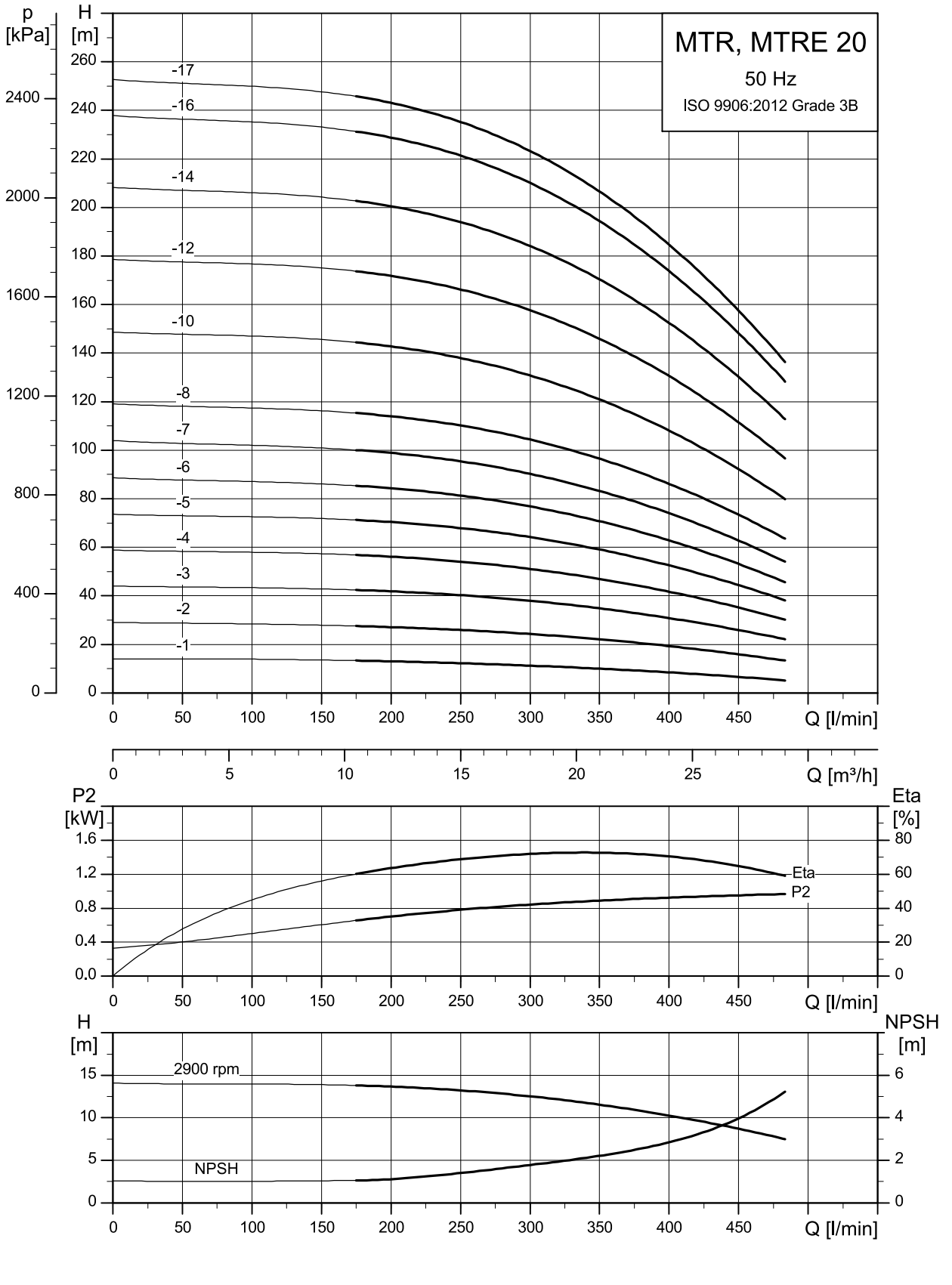
| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [14)] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 15-2/1 | 1.1 | 569 | 178 | 391 | 141 | 140 | - | 109 | 82 | 25.8 | 572 | 178 | 394 | 122 | 140 | - | 158 | 268 | 27.3 |
| MTR, MTRE 15-2/2 | 2.2 | 639 | 178 | 461 | 178 | 140 | - | 110 | 162 | 35.9 | 592 | 178 | 414 | 122 | 140 | - | 158 | 268 | 31.6 |
| MTR, MTRE 15-3/3 | 3 | 698 | 223 | 475 | 198 | 160 | - | 120 | 162 | 41.1 | 697 | 223 | 474 | 191 | 160 | - | 201 | 291 | 40.9 |
| MTR 15-4/4 | 4 | 780 | 268 | 512 | 220 | 160 | - | 134 | 202 | 52.9 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 15-5/5 | 4 | 825 | 313 | 512 | 220 | 160 | - | 134 | 202 | 53 | 787 | 313 | 474 | 191 | 160 | - | 201 | 291 | 44.2 |
| MTR 15-6/6 | 5.5 | 913 | 358 | 555 | 220 | 300 | 300 | 134 | 202 | 65.3 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 15-7/7 | 5.5 | 958 | 403 | 555 | 220 | 300 | 300 | 134 | 202 | 65.4 | 932 | 403 | 529 | 191 | 300 | 300 | 201 | 291 | 60.7 |
| MTR 15-8/8 | 7.5 | 991 | 448 | 543 | 260 | 300 | 300 | 159 | 203 | 75.3 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 15-9/9 | 7.5 | 1036 | 493 | 543 | 260 | 300 | 300 | 159 | 203 | 75.4 | 1046 | 493 | 553 | 255 | 300 | 300 | 237 | 346 | 70.3 |
| MTR 15-10/10 | 11 | 1214 | 538 | 676 | 318 | 350 | 350 | 204 | 243 | 113 | - | - | - | - | - | - | - | - | - |
| MTR 15-12/12 | 11 | 1304 | 628 | 676 | 318 | 350 | 350 | 204 | 243 | 113.2 | - | - | - | - | - | - | - | - | - |

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [14)] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 15-14/14 | 11 | 1394 | 718 | 676 | 318 | 350 | 350 | 204 | 243 | 113.4 | 1318 | 718 | 600 | 255 | 350 | 350 | 237 | 346 | 90 |
| MTR 15-16/16 | 15 | 1484 | 808 | 676 | 318 | 350 | 350 | 204 | 243 | 125.4 | - | - | - | - | - | - | - | - | - |
| MTR 15-17/17 | 15 | 1529 | 853 | 676 | 318 | 350 | 350 | 204 | 243 | 125.5 | - | - | - | - | - | - | - | - | - |

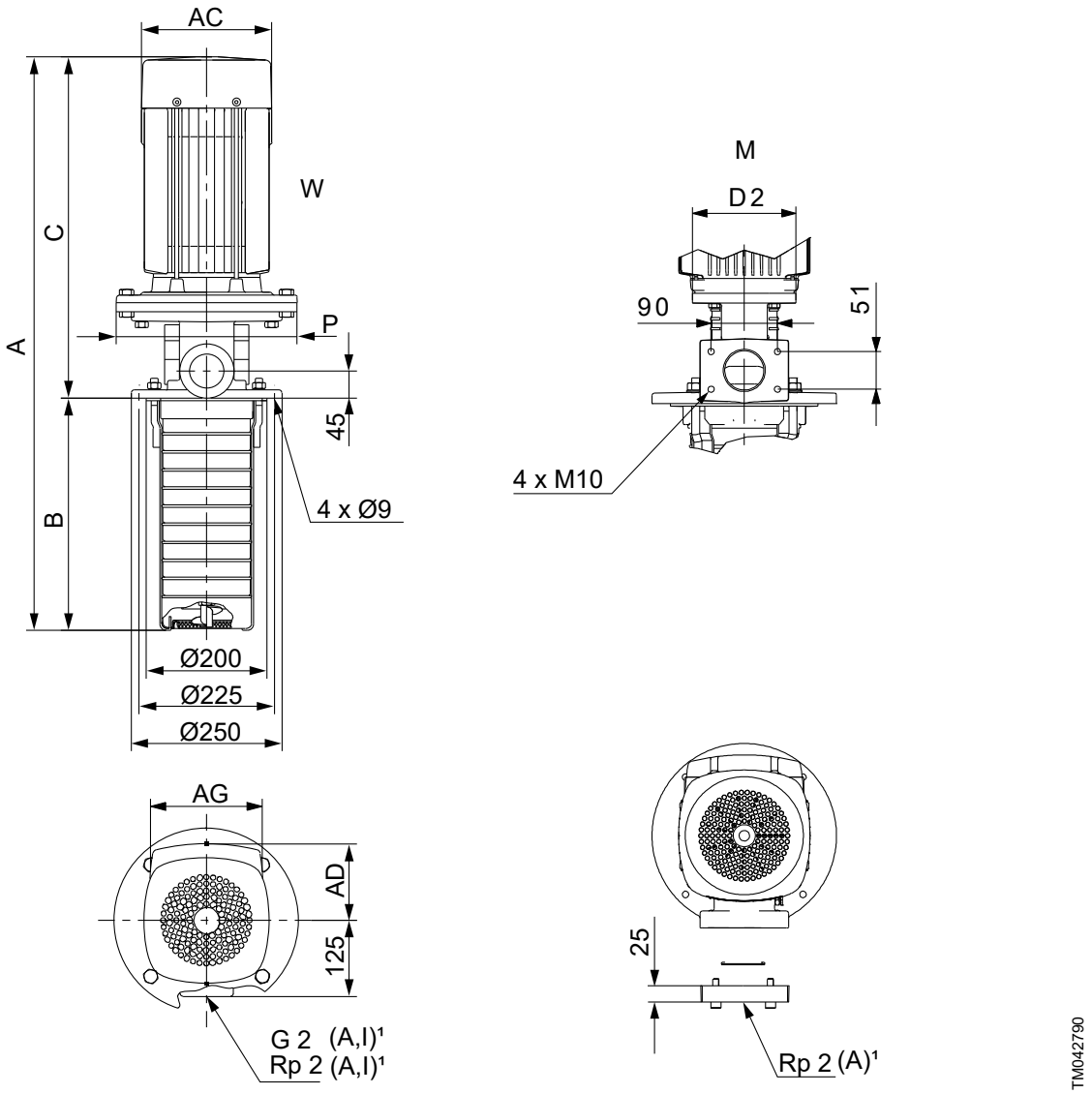
14) C+10 mm for MTR 10, 15 and 20 pumps with drainage back to the tank.

The maximum immersion depth is 1033 mm.

## MTR, MTRE 20, 50 Hz



### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

### Dimensions and weights

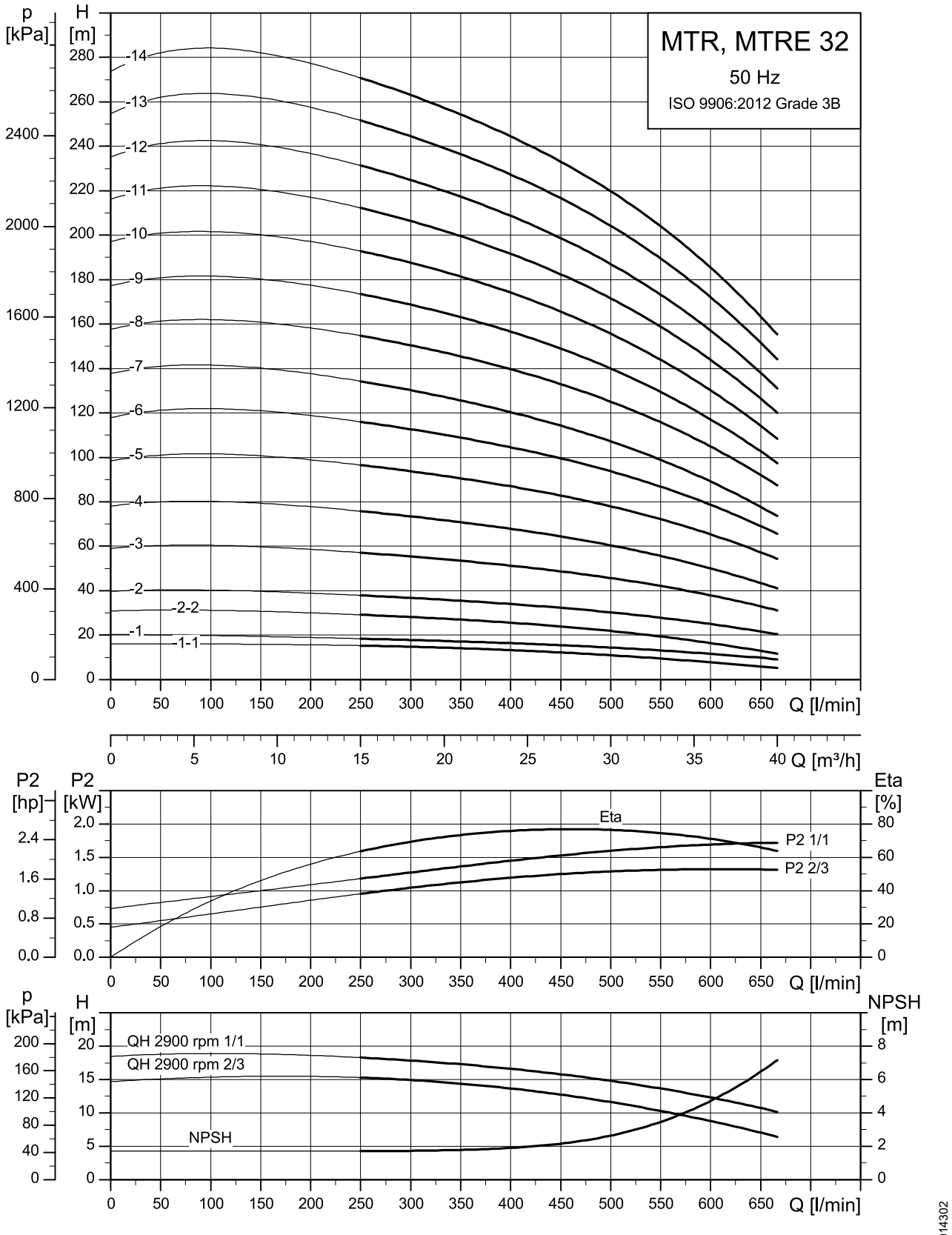
| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [15)] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 20-2/1 | 1.1 | 569 | 178 | 391 | 141 | 140 | - | 109 | 82 | 25.8 | 572 | 178 | 394 | 122 | 140 | - | 158 | 268 | 27.3 |
| MTR, MTRE 20-2/2 | 2.2 | 639 | 178 | 461 | 178 | 140 | - | 110 | 162 | 35.9 | 592 | 178 | 414 | 122 | 140 | - | 158 | 268 | 31.6 |
| MTR, MTRE 20-3/3 | 4 | 735 | 223 | 512 | 220 | 160 | - | 134 | 202 | 52.8 | 697 | 223 | 474 | 191 | 160 | - | 201 | 291 | 44 |
| MTR 20-4/4 | 5.5 | 823 | 268 | 555 | 220 | 300 | 300 | 134 | 202 | 65.1 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 20-5/5 | 5.5 | 868 | 313 | 555 | 220 | 300 | 300 | 134 | 202 | 65.2 | 842 | 313 | 529 | 191 | 300 | 300 | 201 | 291 | 60.5 |
| MTR 20-6/6 | 7.5 | 901 | 358 | 543 | 260 | 300 | 300 | 159 | 203 | 75.1 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 20-7/7 | 7.5 | 946 | 403 | 543 | 260 | 300 | 300 | 159 | 203 | 75.2 | 956 | 403 | 553 | 255 | 300 | 300 | 237 | 346 | 70.1 |
| MTR 20-8/8 | 11 | 1124 | 448 | 676 | 318 | 350 | 350 | 204 | 243 | 112.8 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 20-10/10 | 11 | 1214 | 538 | 676 | 318 | 350 | 350 | 204 | 243 | 113 | 1138 | 538 | 600 | 255 | 350 | 350 | 237 | 346 | 89.6 |
| MTR 20-12/12 | 15 | 1304 | 628 | 676 | 318 | 350 | 350 | 204 | 243 | 125 | - | - | - | - | - | - | - | - | - |

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [15)] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR 20-14/14 | 15 | 1394 | 718 | 676 | 318 | 350 | 350 | 204 | 243 | 125.2 | - | - | - | - | - | - | - | - | - |
| MTR 20-16/16 | 18.5 | 1528 | 808 | 720 | 318 | 350 | 350 | 204 | 243 | 138.1 | - | - | - | - | - | - | - | - | - |
| MTR 20-17/17 | 18.5 | 1573 | 853 | 720 | 318 | 350 | 350 | 204 | 243 | 138.2 | - | - | - | - | - | - | - | - | - |

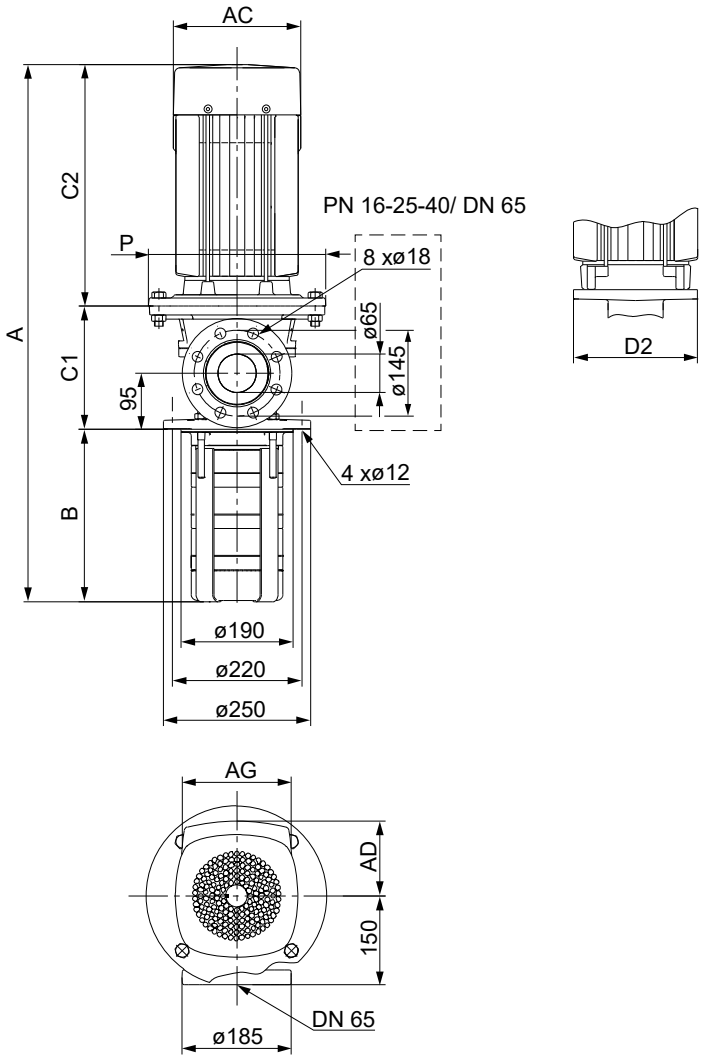
15) C+10 mm for MTR 10, 15 and 20 pumps with drainage back to the tank.

The maximum immersion depth is 1033 mm.

## MTR, MTRE 32, 50 Hz



**Dimensional sketches**




Note that A and C1 are higher for drainage back to the tank versions.

**Dimensions and weights**

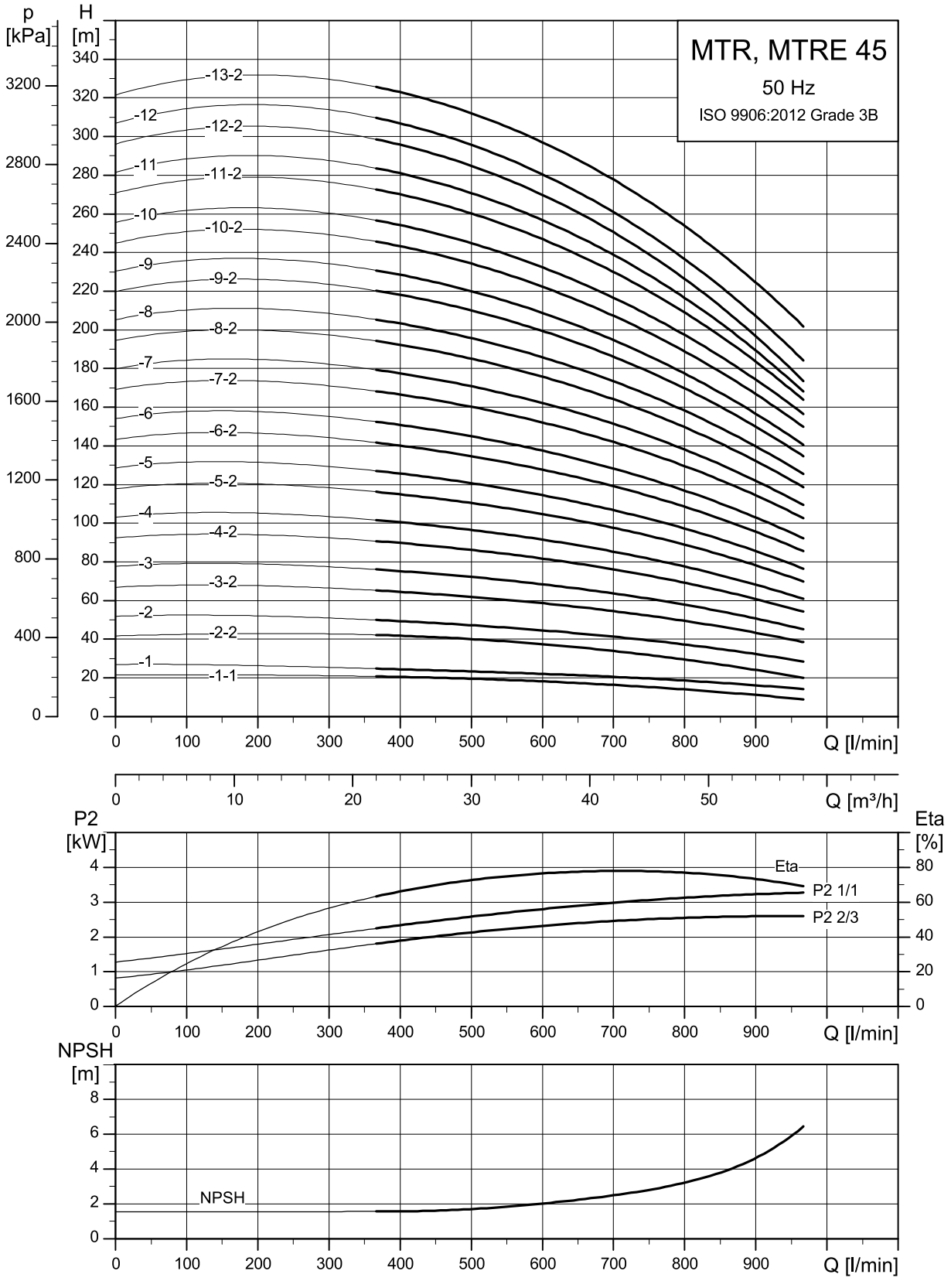
| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [16)] | B | C1 [16)] | C2 | AC | D2 | P | AD | AG | | A [16)] | B | C1 [16)] | C2 | AC | D2 | P | AD | AG | |
| MTR, MTRE 32-2/1-1 | 1.5 | 642 | 223 | 138 | 281 | 178 | 198 | - | 110 | 162 | 53.2 | 635 | 223 | 138 | 274 | 122 | 198 | - | 158 | 268 | 51.4 |
| MTR, MTRE 32-2/1 | 2.2 | 682 | 223 | 138 | 321 | 178 | 198 | - | 110 | 162 | 57.1 | 635 | 223 | 138 | 274 | 122 | 198 | - | 158 | 268 | 52.8 |
| MTR, MTRE 32-2/2-2 | 3 | 696 | 223 | 138 | 335 | 198 | 198 | - | 120 | 162 | 61.3 | 695 | 223 | 138 | 334 | 191 | 198 | - | 201 | 291 | 61.1 |
| MTR, MTRE 32-2/2 | 4 | 733 | 223 | 138 | 372 | 220 | 198 | - | 134 | 202 | 73 | 695 | 223 | 138 | 334 | 191 | 198 | - | 201 | 291 | 64.2 |
| MTR, MTRE 32-3/3 | 5.5 | 893 | 293 | 209 | 391 | 220 | 298 | 300 | 134 | 202 | 87.9 | 867 | 293 | 209 | 365 | 191 | 298 | 300 | 201 | 291 | 83.2 |
| MTR, MTRE 32-4/4 | 7.5 | 951 | 363 | 209 | 379 | 260 | 298 | 300 | 159 | 203 | 98 | 961 | 363 | 209 | 389 | 255 | 298 | 300 | 237 | 346 | 92.9 |
| MTR 32-5/5 | 11 | 1124 | 433 | 209 | 482 | 318 | 350 | 350 | 204 | 243 | 135.2 | - | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 32-6/6 | 11 | 1194 | 503 | 209 | 482 | 318 | 350 | 350 | 204 | 243 | 135.5 | 1118 | 503 | 209 | 406 | 255 | 350 | 350 | 237 | 346 | 112.1 |
| MTR 32-7/7 | 15 | 1264 | 573 | 209 | 482 | 318 | 350 | 350 | 204 | 243 | 147.6 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-8/8 | 15 | 1334 | 643 | 209 | 482 | 318 | 350 | 350 | 204 | 243 | 147.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-9/9 | 18.5 | 1448 | 713 | 209 | 526 | 318 | 350 | 350 | 204 | 243 | 160.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-10/10 | 18.5 | 1518 | 783 | 209 | 526 | 318 | 350 | 350 | 204 | 243 | 161 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-11/11 | 22 | 1614 | 853 | 209 | 552 | 318 | 350 | 350 | 204 | 243 | 176.5 | - | - | - | - | - | - | - | - | - | - |

| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [16)] | B | C1 [16)] | C2 | AC | D2 | P | AD | AG | | A [16)] | B | C1 [16)] | C2 | AC | D2 | P | AD | AG | |
| MTR 32-12/12 | 22 | 1684 | 923 | 209 | 552 | 318 | 350 | 350 | 204 | 243 | 176.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-13/13 | 30 | 1813 | 993 | 209 | 611 | 396 | 400 | 400 | 315 | 265 | 276.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-14/14 | 30 | 1883 | 1063 | 209 | 611 | 396 | 400 | 400 | 315 | 265 | 277.1 | - | - | - | - | - | - | - | - | - | - |

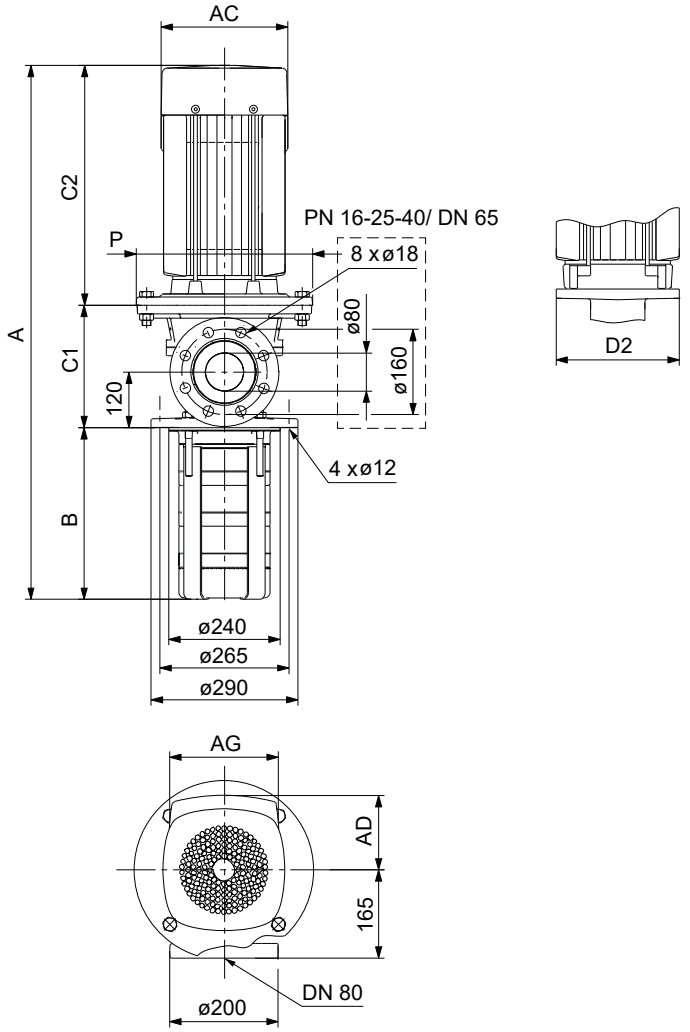
16) A+20 mm for MTR, MTRE pumps with drainage back to the tank.

The maximum immersion depth is 1343 mm.

## MTR, MTRE 45, 50 Hz



## Dimensional sketches




## Dimensions and weights

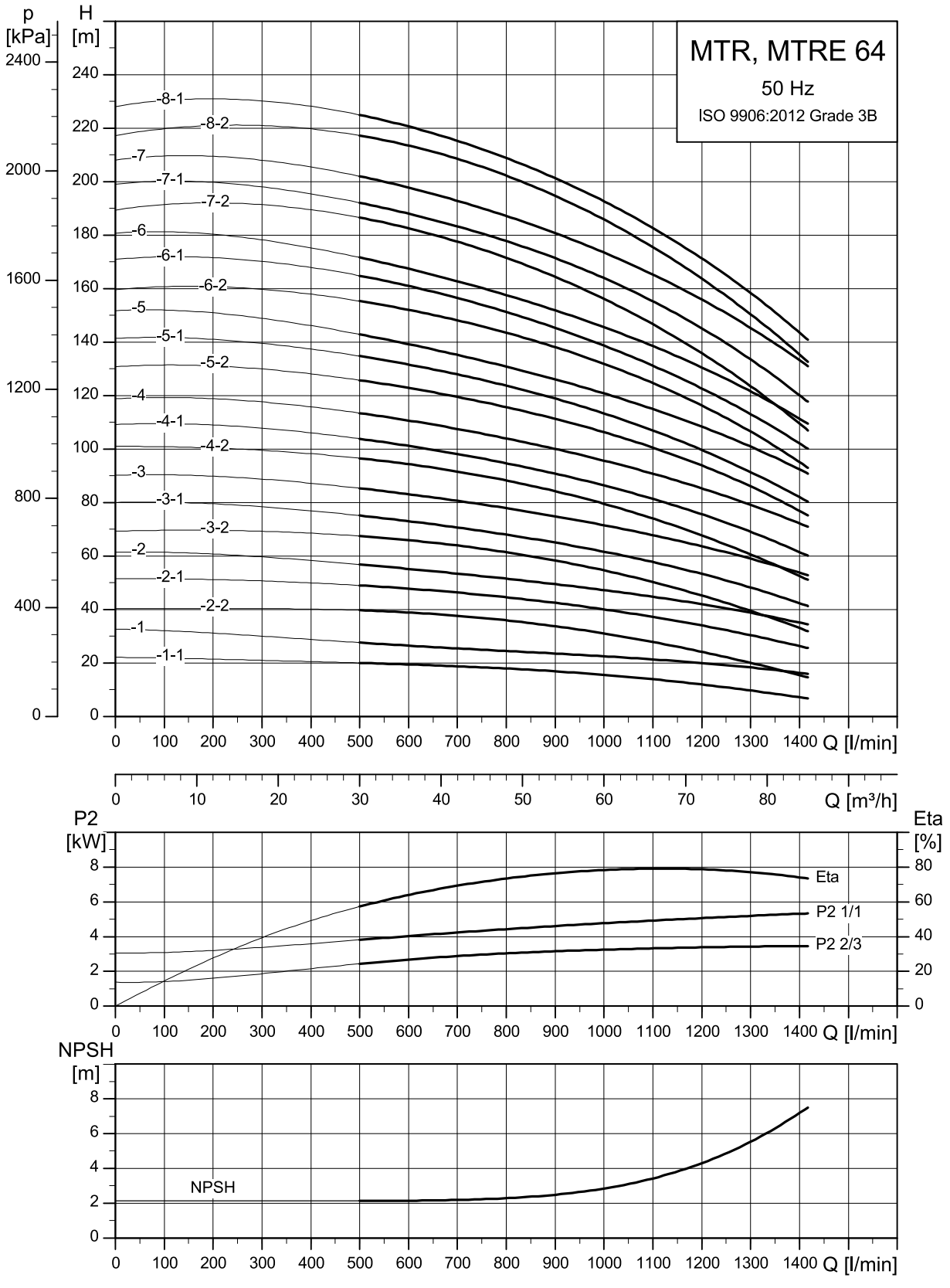
| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [17] | B | C1 [17] | C2 | AC | D2 | P | AD | AG | | A [17] | B | C1 [17] | C2 | AC | D2 | P | AD | AG | |
| MTR, MTRE 45-2/1-1 | 3 | 748 | 244 | 169 | 335 | 198 | 198 | - | 120 | 162 | 70.9 | 747 | 244 | 169 | 334 | 191 | 198 | - | 201 | 291 | 70.8 |
| MTR, MTRE 45-2/1 | 4 | 785 | 244 | 169 | 372 | 220 | 198 | - | 134 | 202 | 82.6 | 747 | 244 | 169 | 334 | 191 | 198 | - | 201 | 291 | 73.9 |
| MTR, MTRE 45-2/2-2 | 5.5 | 875 | 244 | 240 | 391 | 220 | 298 | 300 | 134 | 202 | 96.3 | 849 | 244 | 240 | 365 | 191 | 298 | 300 | 201 | 291 | 91.6 |
| MTR, MTRE 45-2/2 | 7.5 | 863 | 244 | 240 | 379 | 260 | 298 | 300 | 159 | 203 | 106.1 | 873 | 244 | 240 | 389 | 255 | 298 | 300 | 237 | 346 | 101 |
| MTR 45-3/3-2 | 11 | 1046 | 324 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 144.4 | - | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 45-3/3 | 11 | 1046 | 324 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 144.4 | 970 | 324 | 240 | 406 | 255 | 350 | 350 | 237 | 346 | 121.1 |
| MTR 45-4/4-2 | 15 | 1126 | 404 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 156.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-4/4 | 15 | 1126 | 404 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 156.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-5/5-2 | 18.5 | 1250 | 484 | 240 | 526 | 318 | 350 | 350 | 204 | 243 | 169.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-5/5 | 18.5 | 1250 | 484 | 240 | 526 | 318 | 350 | 350 | 204 | 243 | 169.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-6/6-2 | 22 | 1356 | 564 | 240 | 552 | 318 | 350 | 350 | 204 | 243 | 185 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-6/6 | 22 | 1356 | 564 | 240 | 552 | 318 | 350 | 350 | 204 | 243 | 185 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-7/7-2 | 30 | 1495 | 644 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 285.1 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-7/7 | 30 | 1495 | 644 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 285.1 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-8/8-2 | 30 | 1575 | 724 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 285.4 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-8/8 | 30 | 1575 | 724 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 285.4 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-9/9-2 | 30 | 1655 | 804 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 285.7 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-9/9 | 37 | 1680 | 804 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 310.7 | - | - | - | - | - | - | - | - | - | - |

| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [17] | B | C1 [17] | C2 | AC | D2 | P | AD | AG | | A [17] | B | C1 [17] | C2 | AC | D2 | P | AD | AG | |
| MTR 45-10/10-2 | 37 | 1760 | 884 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 311 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-10/10 | 37 | 1760 | 884 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 311 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-11/11-2 | 45 | 1931 | 964 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 413.7 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-11/11 | 45 | 1931 | 964 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 413.7 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-12/12-2 | 45 | 2011 | 1044 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 414 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-12/12 | 45 | 2011 | 1044 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 414 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-13/13-2 | 45 | 2091 | 1124 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 414.3 | - | - | - | - | - | - | - | - | - | - |

[17] A+20 mm for MTR, MTRE pumps with drainage back to the tank.

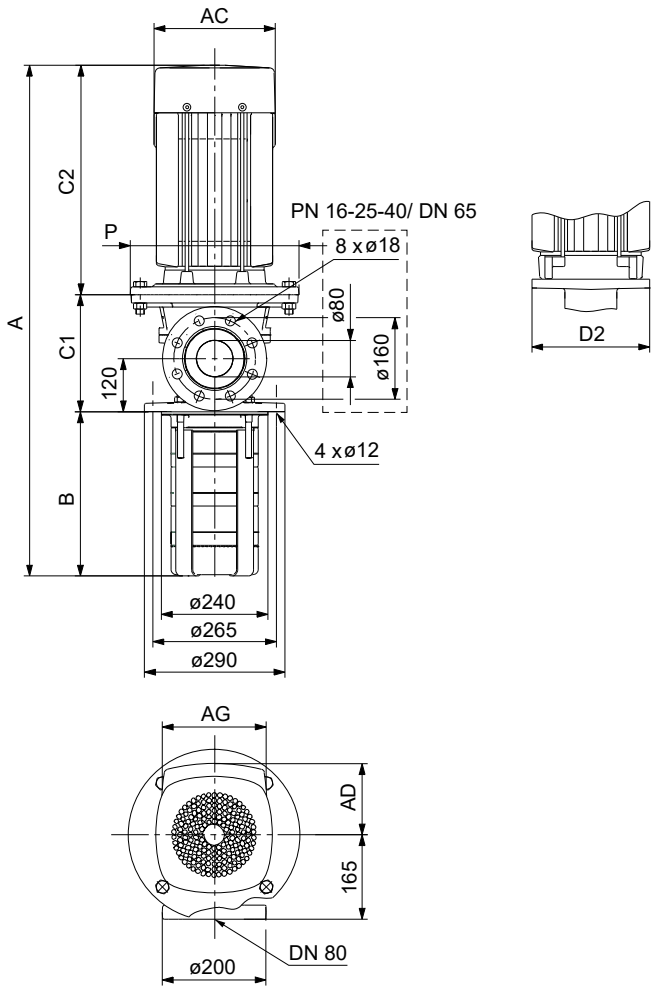
The maximum immersion depth is 1444 mm.

## MTR, MTRE 64, 50 Hz




TM014304

## Dimensional sketches




TM042792

## Dimensions and weights

| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [18)] | B | C1 [18)] | C2 | AC | D2 | P | AD | AG | | A [18)] | B | C1 [18)] | C2 | AC | D2 | P | AD | AG | |
| MTR, MTRE 64-2/1-1 | 4 | 790 | 249 | 169 | 372 | 220 | 198 | - | 134 | 202 | 85.7 | 752 | 249 | 169 | 334 | 191 | 198 | - | 201 | 291 | 76.9 |
| MTR, MTRE 64-2/1 | 5.5 | 880 | 249 | 240 | 391 | 220 | 298 | 300 | 134 | 202 | 99.4 | 854 | 249 | 240 | 365 | 191 | 298 | 300 | 201 | 291 | 94.6 |
| MTR, MTRE 64-2/2-2 | 7.5 | 868 | 249 | 240 | 379 | 260 | 298 | 300 | 159 | 203 | 109.2 | 878 | 249 | 240 | 389 | 255 | 298 | 300 | 237 | 346 | 104.0 |
| MTR 64-2/2-1 | 11 | 971 | 249 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 147.2 | - | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 64-2/2 | 11 | 971 | 249 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 147.2 | 895 | 249 | 240 | 406 | 255 | 350 | 350 | 237 | 346 | 123.8 |
| MTR 64-3/3-2 | 15 | 1054 | 332 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 159.3 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-3/3-1 | 15 | 1054 | 332 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 159.3 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-3/3 | 18.5 | 1098 | 332 | 240 | 526 | 318 | 350 | 350 | 204 | 243 | 172.0 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-4/4-2 | 18.5 | 1180 | 414 | 240 | 526 | 318 | 350 | 350 | 204 | 243 | 172.3 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-4/4-1 | 22 | 1206 | 414 | 240 | 552 | 318 | 350 | 350 | 204 | 243 | 187.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-4/4 | 22 | 1206 | 414 | 240 | 552 | 318 | 350 | 350 | 204 | 243 | 187.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-5/5-2 | 30 | 1348 | 497 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 287.6 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-5/5-1 | 30 | 1348 | 497 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 287.6 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-5/5 | 30 | 1348 | 497 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 287.6 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-6/6-2 | 30 | 1430 | 579 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 287.9 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-6/6-1 | 37 | 1455 | 579 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 312.9 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-6/6 | 37 | 1455 | 579 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 312.9 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-7/7-2 | 37 | 1538 | 662 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 313.2 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-7/7-1 | 37 | 1538 | 662 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 313.2 | - | - | - | - | - | - | - | - | - | - |

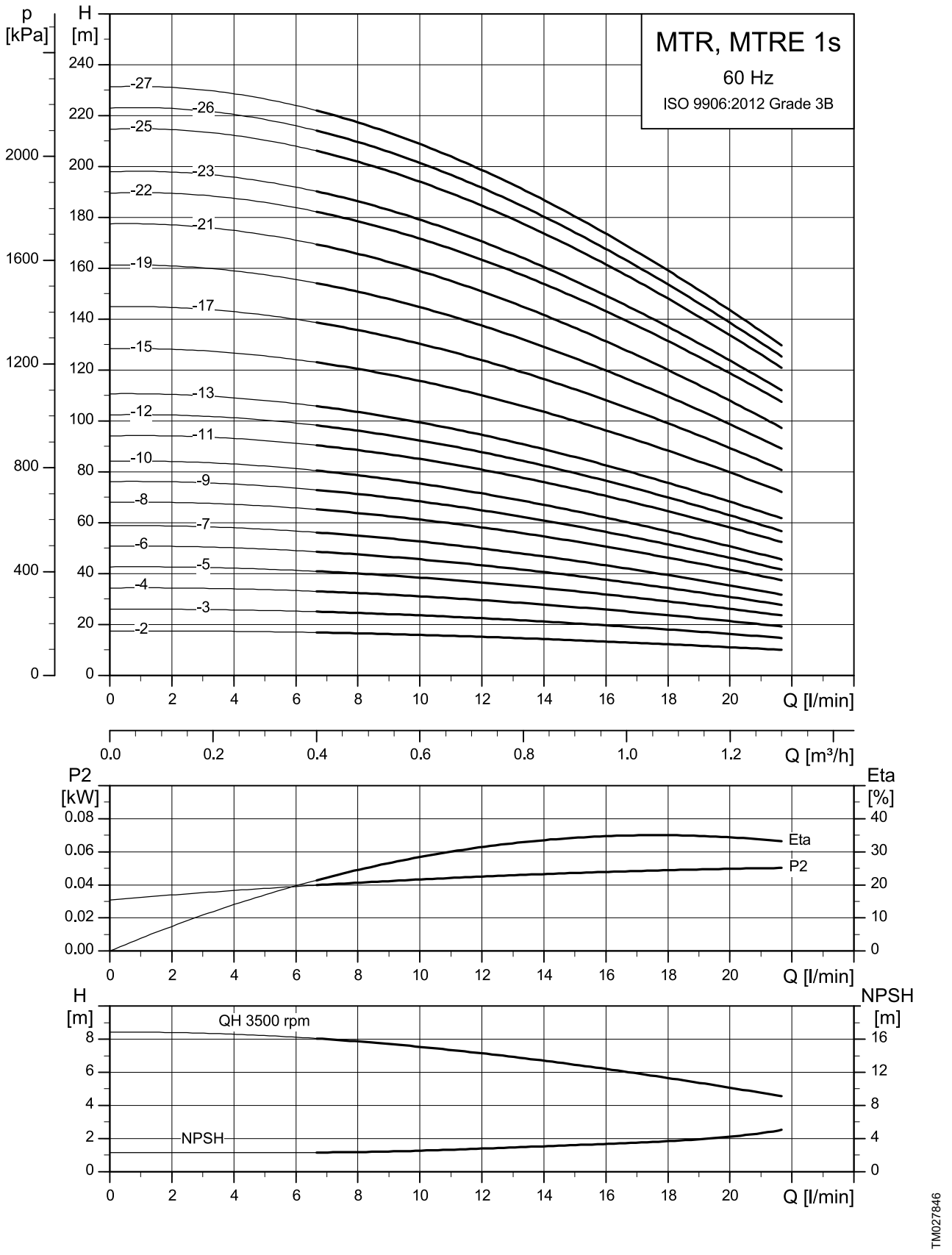
| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [18)] | B | C1 [18)] | C2 | AC | D2 | P | AD | AG | | A [18)] | B | C1 [18)] | C2 | AC | D2 | P | AD | AG | |
| MTR 64-7/7 | 45 | 1629 | 662 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 415.6 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-8/8-2 | 45 | 1711 | 744 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 415.9 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-8/8-1 | 45 | 1711 | 744 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 415.9 | - | - | - | - | - | - | - | - | - | - |

[18)] A+20 mm for MTR, MTRE pumps with drainage back to the tank.

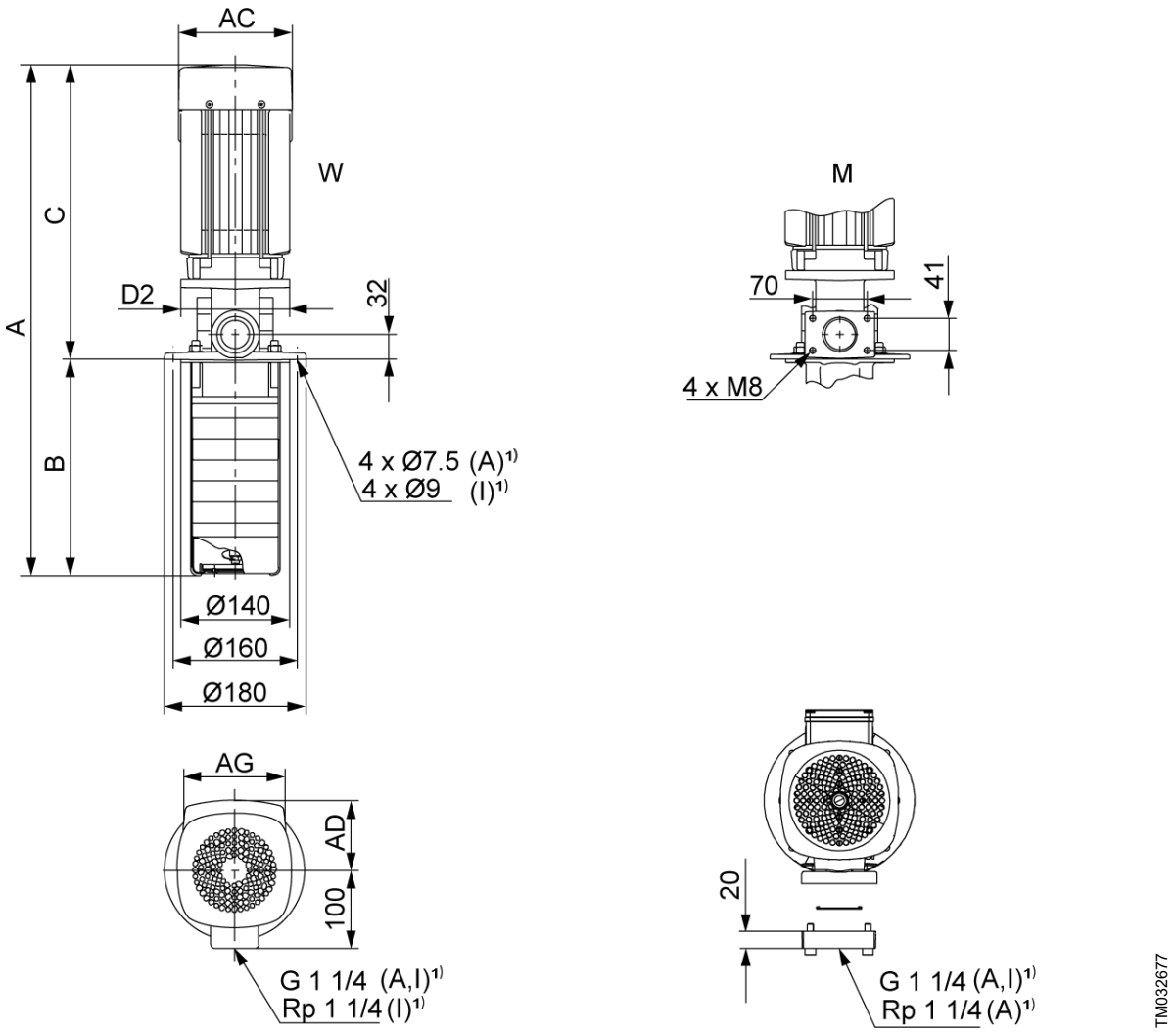
The maximum immersion depth is 1487 mm.

# MTR, MTRE, 60 Hz

## MTR, MTRE 1s, 60 Hz



## Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

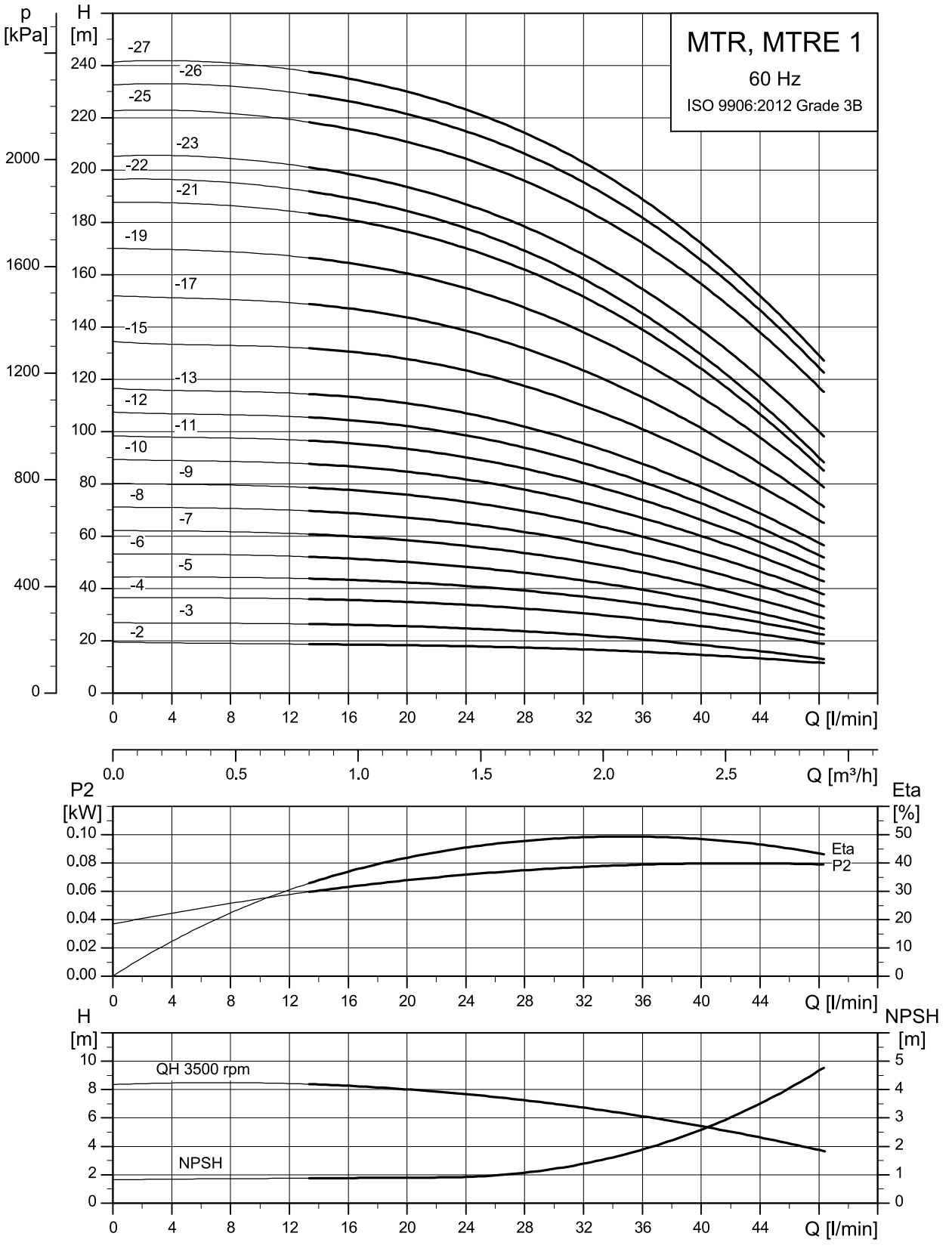
## Dimensions and weights

| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 1s-2/2 | 0.37 | 462 | 160 | 302 | 141 | 140 | 109 | 82 | 12.93 | - | - | - | - | - | - | - | - |
| MTR 1s-3/3 | 0.37 | 480 | 178 | 302 | 141 | 140 | 109 | 82 | 12.95 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-4/4 | 0.37 | 498 | 196 | 302 | 141 | 140 | 109 | 82 | 12.98 | 561 | 196 | 365 | 122 | 140 | 158 | 268 | 17.4 |
| MTR 1s-5/5 | 0.37 | 516 | 214 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR 1s-6/6 | 0.37 | 534 | 232 | 302 | 141 | 140 | 109 | 82 | 13.02 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-7/7 | 0.37 | 552 | 250 | 302 | 141 | 140 | 109 | 82 | 13.05 | 615 | 250 | 365 | 122 | 140 | 158 | 268 | 17.5 |
| MTR 1s-8/8 | 0.55 | 570 | 268 | 302 | 141 | 140 | 109 | 82 | 12.53 | - | - | - | - | - | - | - | - |
| MTR 1s-9/9 | 0.55 | 588 | 286 | 302 | 141 | 140 | 109 | 82 | 12.55 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-10/10 | 0.55 | 606 | 304 | 302 | 141 | 140 | 109 | 82 | 12.57 | 669 | 304 | 365 | 122 | 140 | 158 | 268 | 17.5 |
| MTR 1s-11/11 | 0.75 | 664 | 322 | 342 | 141 | 140 | 109 | 82 | 14.88 | - | - | - | - | - | - | - | - |
| MTR 1s-12/12 | 0.75 | 682 | 340 | 342 | 141 | 140 | 109 | 82 | 14.9 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-13/13 | 0.75 | 700 | 358 | 342 | 141 | 140 | 109 | 82 | 14.92 | 723 | 358 | 365 | 122 | 140 | 158 | 268 | 17.7 |
| MTR 1s-15/15 | 1.1 | 756 | 394 | 362 | 141 | 140 | 109 | 82 | 16.97 | - | - | - | - | - | - | - | - |
| MTR 1s-17/17 | 1.1 | 792 | 430 | 362 | 141 | 140 | 109 | 82 | 17.01 | - | - | - | - | - | - | - | - |
| MTR 1s-19/19 | 1.1 | 828 | 466 | 362 | 141 | 140 | 109 | 82 | 17.06 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-21/21 | 1.1 | 864 | 502 | 362 | 141 | 140 | 109 | 82 | 17.1 | 867 | 502 | 365 | 122 | 140 | 158 | 268 | 18.6 |

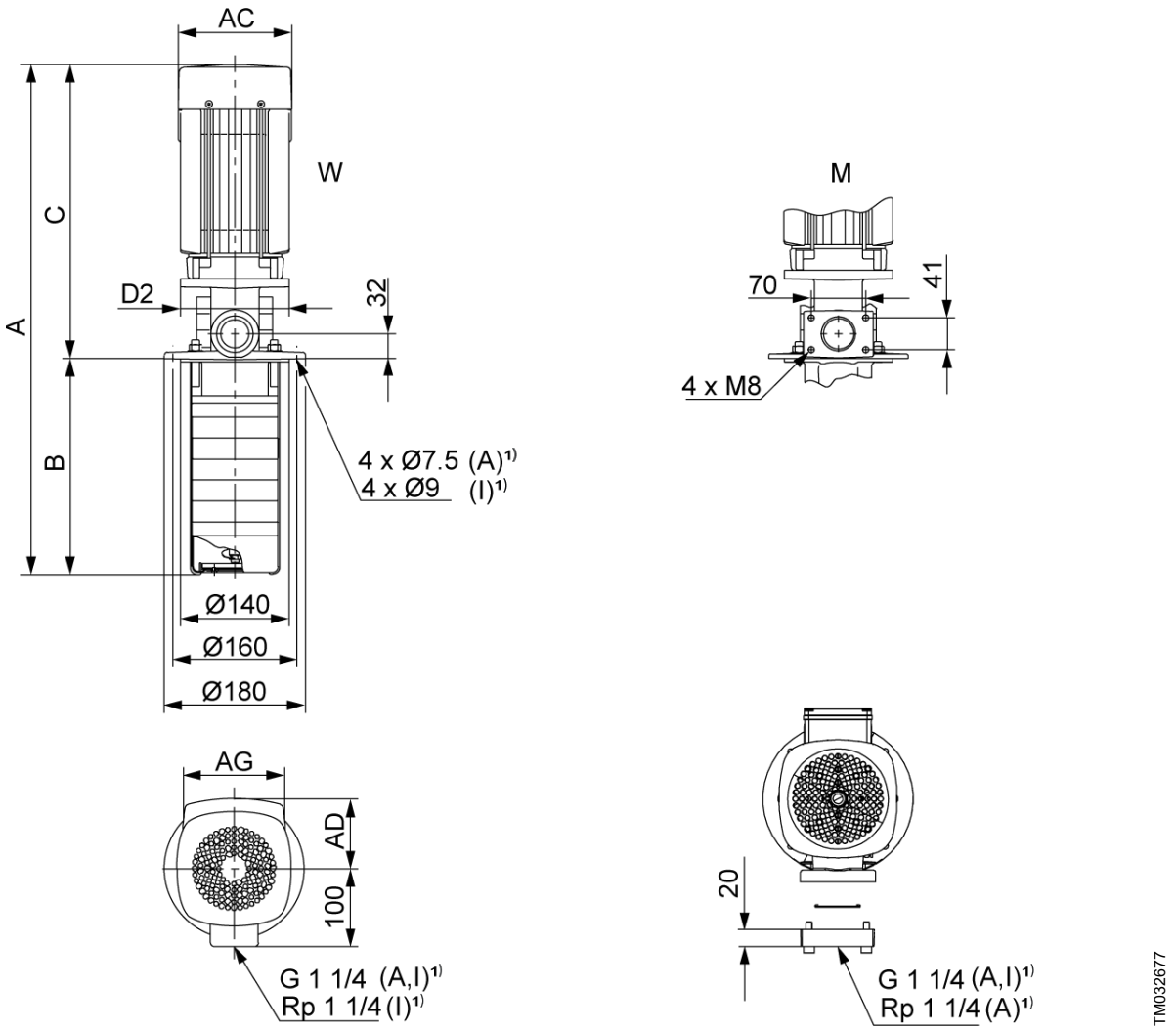
| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 1s-22/22 | 1.5 | 912 | 520 | 392 | 178 | 140 | 110 | 162 | 23.48 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-23/23 | 1.5 | 930 | 538 | 392 | 178 | 140 | 110 | 162 | 23.51 | 923 | 538 | 385 | 122 | 140 | 158 | 268 | 21.6 |
| MTR 1s-25/25 | 1.5 | 966 | 574 | 392 | 178 | 140 | 110 | 162 | 23.55 | - | - | - | - | - | - | - | - |
| MTR 1s-26/26 | 1.5 | 984 | 592 | 392 | 178 | 140 | 110 | 162 | 23.57 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1s-27/27 | 1.5 | 1002 | 610 | 392 | 178 | 140 | 110 | 162 | 23.6 | 995 | 610 | 385 | 122 | 140 | 158 | 268 | 21.7 |

The maximum immersion depth is 1006 mm.

## MTR, MTRE 1, 60 Hz



### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

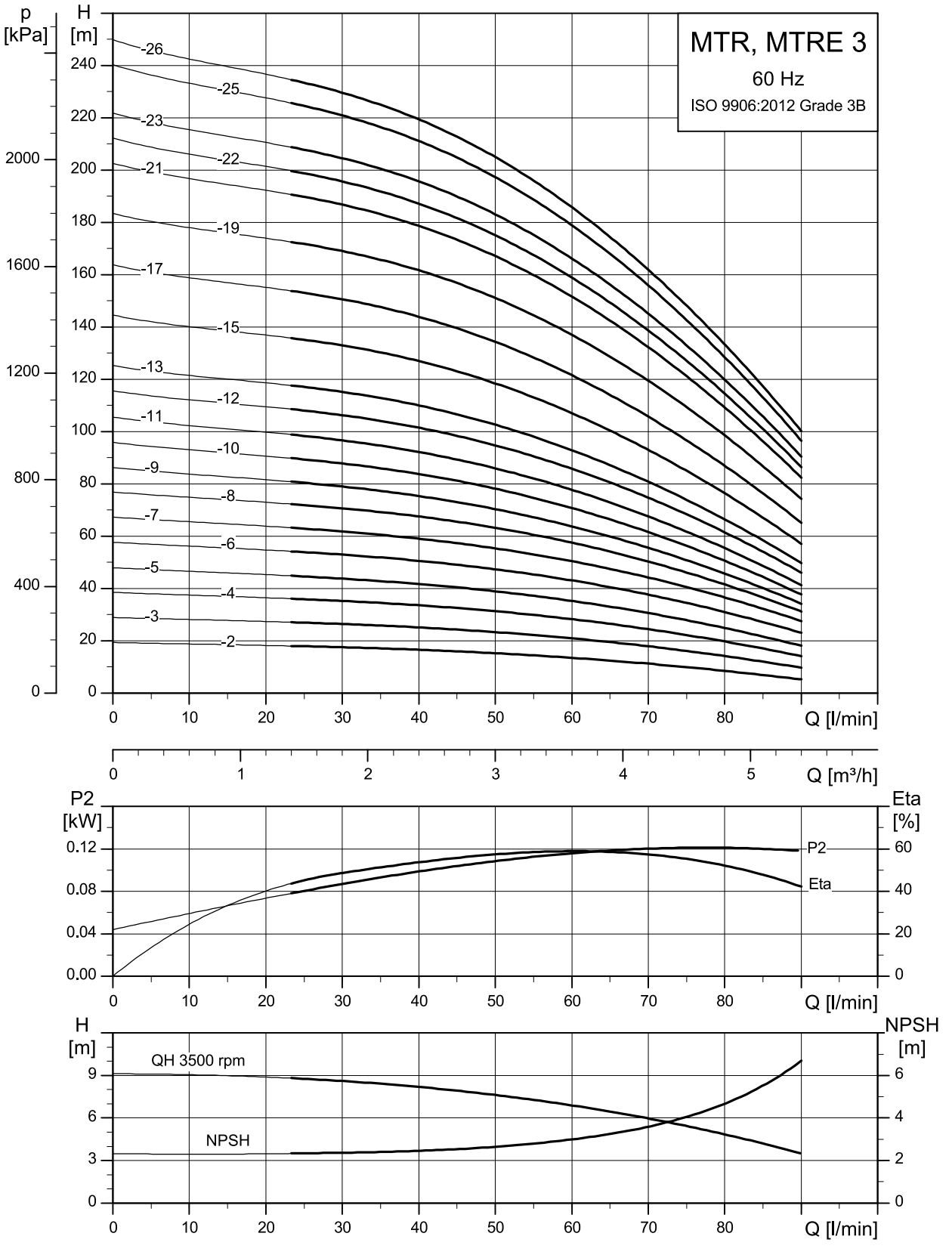
### Dimensions and weights

| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 1-2/2 | 0.37 | 462 | 160 | 302 | 141 | 140 | 109 | 82 | 12.9 | - | - | - | - | - | - | - | - |
| MTR 1-3/3 | 0.37 | 480 | 178 | 302 | 141 | 140 | 109 | 82 | 13 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-4/4 | 0.37 | 498 | 196 | 302 | 141 | 140 | 109 | 82 | 13 | 561 | 196 | 365 | 122 | 140 | 158 | 268 | 17.4 |
| MTR 1-5/5 | 0.55 | 516 | 214 | 302 | 141 | 140 | 109 | 82 | 12.5 | - | - | - | - | - | - | - | - |
| MTR 1-6/6 | 0.55 | 534 | 232 | 302 | 141 | 140 | 109 | 82 | 12.5 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-7/7 | 0.75 | 592 | 250 | 342 | 141 | 140 | 109 | 82 | 14.8 | 615 | 250 | 365 | 122 | 140 | 158 | 268 | 17.5 |
| MTR 1-8/8 | 0.75 | 610 | 268 | 342 | 141 | 140 | 109 | 82 | 14.8 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-9/9 | 0.75 | 628 | 286 | 342 | 141 | 140 | 109 | 82 | 14.8 | 651 | 286 | 365 | 122 | 140 | 158 | 268 | 17.6 |
| MTR 1-10/10 | 1.1 | 666 | 304 | 362 | 141 | 140 | 109 | 82 | 16.9 | - | - | - | - | - | - | - | - |
| MTR 1-11/11 | 1.1 | 684 | 322 | 362 | 141 | 140 | 109 | 82 | 16.9 | - | - | - | - | - | - | - | - |
| MTR 1-12/12 | 1.1 | 702 | 340 | 362 | 141 | 140 | 109 | 82 | 16.9 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-13/13 | 1.1 | 720 | 358 | 362 | 141 | 140 | 109 | 82 | 16.9 | 723 | 358 | 365 | 122 | 140 | 158 | 268 | 18.4 |
| MTR 1-15/15 | 1.5 | 786 | 394 | 392 | 178 | 140 | 110 | 162 | 23.3 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-17/17 | 1.5 | 822 | 430 | 392 | 178 | 140 | 110 | 162 | 23.4 | 815 | 430 | 385 | 122 | 140 | 158 | 268 | 21.4 |
| MTR 1-19/19 | 2.2 | 898 | 466 | 432 | 178 | 140 | 110 | 162 | 27.2 | - | - | - | - | - | - | - | - |
| MTR 1-21/21 | 2.2 | 934 | 502 | 432 | 178 | 140 | 110 | 162 | 27.3 | - | - | - | - | - | - | - | - |

| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR, MTRE 1-22/22 | 2.2 | 952 | 520 | 432 | 178 | 140 | 110 | 162 | 27.3 | 905 | 520 | 385 | 122 | 140 | 158 | 268 | 23 |
| MTR 1-23/23 | 2.2 | 970 | 538 | 432 | 178 | 140 | 110 | 162 | 27.3 | - | - | - | - | - | - | - | - |
| MTR 1-25/25 | 2.2 | 1006 | 574 | 432 | 178 | 140 | 110 | 162 | 27.4 | - | - | - | - | - | - | - | - |
| MTR 1-26/26 | 3 | 1038 | 592 | 446 | 198 | 160 | 120 | 162 | 32.4 | - | - | - | - | - | - | - | - |
| MTR, MTRE 1-27/27 | 3 | 1056 | 610 | 446 | 198 | 160 | 120 | 162 | 32.4 | 1055 | 610 | 445 | 191 | 160 | 201 | 291 | 32.3 |

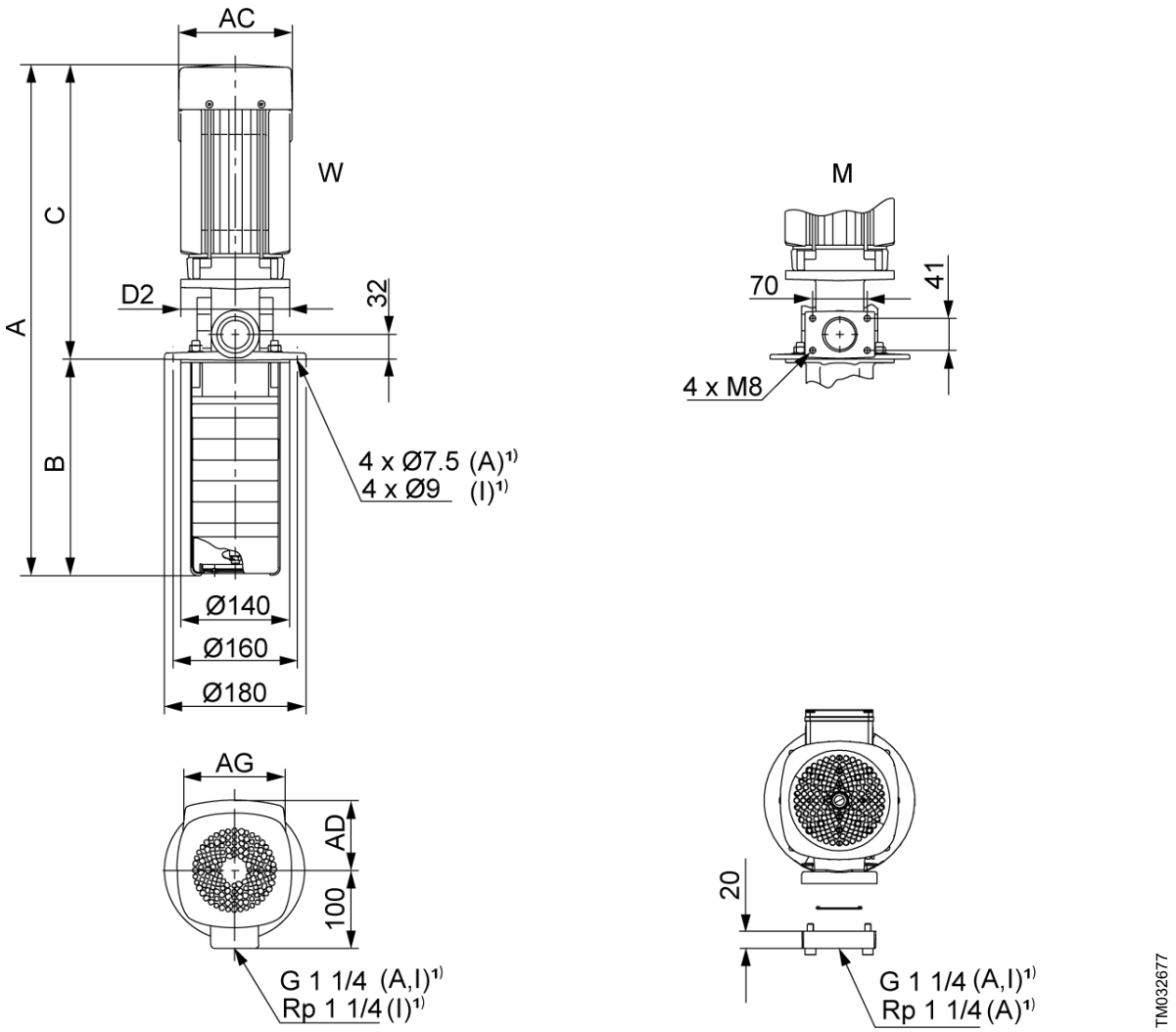
The maximum immersion depth is 1006 mm.

## MTR, MTRE 3, 60 Hz




TM027848

### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

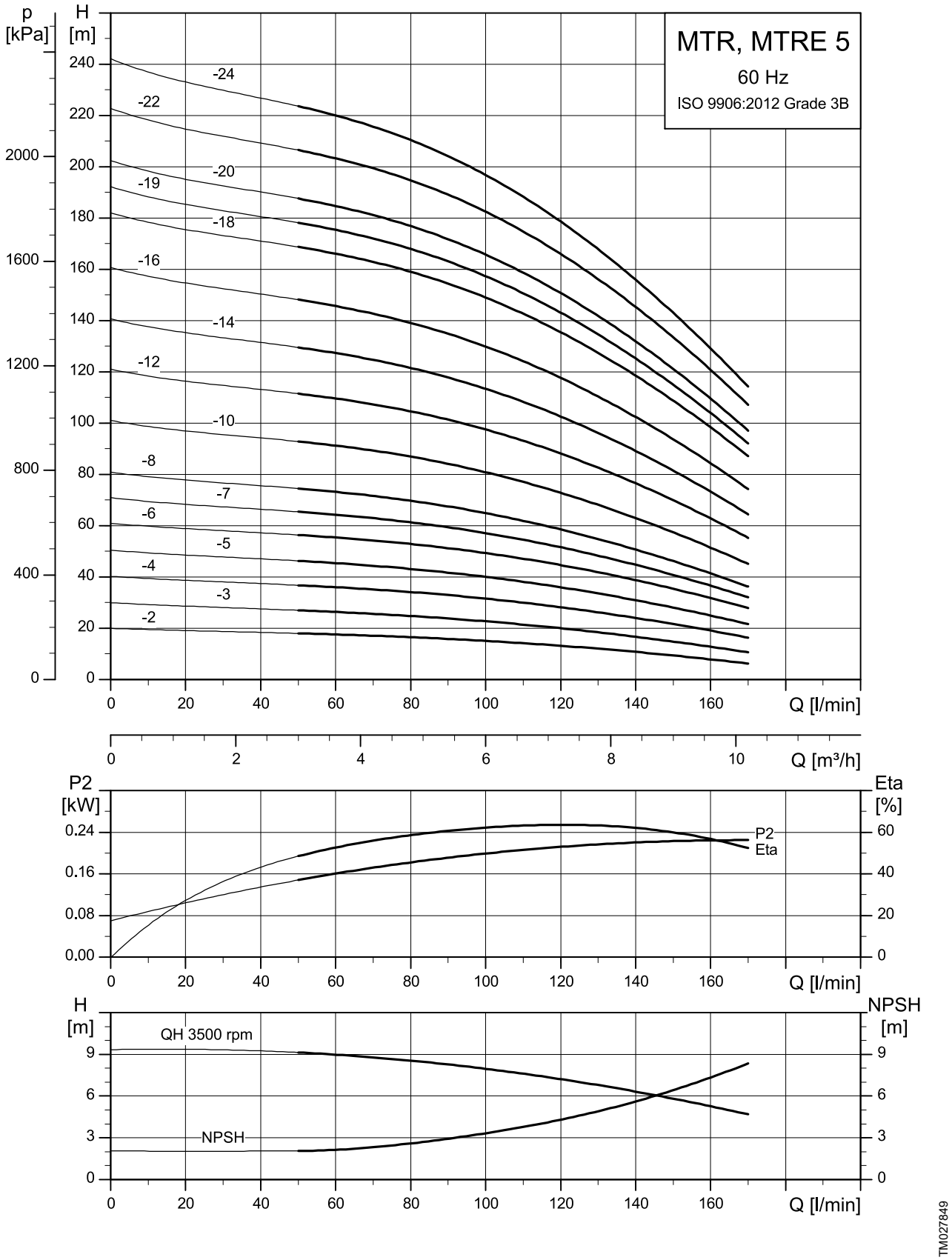
### Dimensions and weights

| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 3-2/2 | 0.37 | 462 | 160 | 302 | 141 | 140 | 109 | 82 | 12.9 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-3/3 | 0.55 | 480 | 178 | 302 | 141 | 140 | 109 | 82 | 12.4 | 543 | 178 | 365 | 122 | 140 | 158 | 268 | 17.4 |
| MTR, MTRE 3-4/4 | 0.55 | 498 | 196 | 302 | 141 | 140 | 109 | 82 | 12.4 | 561 | 196 | 365 | 122 | 140 | 158 | 268 | 17.4 |
| MTR 3-5/5 | 0.75 | 556 | 214 | 342 | 141 | 140 | 109 | 82 | 14.7 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-6/6 | 1.1 | 594 | 232 | 362 | 141 | 140 | 109 | 82 | 16.8 | 597 | 232 | 365 | 122 | 140 | 158 | 268 | 18.3 |
| MTR 3-7/7 | 1.1 | 612 | 250 | 362 | 141 | 140 | 109 | 82 | 16.8 | - | - | - | - | - | - | - | - |
| MTR 3-8/8 | 1.1 | 630 | 268 | 362 | 141 | 140 | 109 | 82 | 16.8 | - | - | - | - | - | - | - | - |
| MTR 3-9/9 | 1.5 | 678 | 286 | 392 | 178 | 140 | 110 | 162 | 23.2 | - | - | - | - | - | - | - | - |
| MTR 3-10/10 | 1.5 | 696 | 304 | 392 | 178 | 140 | 110 | 162 | 23.2 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-11/11 | 1.5 | 714 | 322 | 392 | 178 | 140 | 110 | 162 | 23.2 | 707 | 322 | 385 | 122 | 140 | 158 | 268 | 21.3 |
| MTR 3-12/12 | 2.2 | 772 | 340 | 432 | 178 | 140 | 110 | 162 | 27.1 | - | - | - | - | - | - | - | - |
| MTR 3-13/13 | 2.2 | 790 | 358 | 432 | 178 | 140 | 110 | 162 | 27.1 | - | - | - | - | - | - | - | - |
| MTR 3-15/15 | 2.2 | 826 | 394 | 432 | 178 | 140 | 110 | 162 | 27.1 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-17/17 | 2.2 | 862 | 430 | 432 | 178 | 140 | 110 | 162 | 27.2 | 815 | 430 | 385 | 122 | 140 | 158 | 268 | 22.8 |
| MTR 3-19/19 | 3 | 912 | 466 | 446 | 198 | 160 | 120 | 162 | 32.3 | - | - | - | - | - | - | - | - |
| MTR 3-21/21 | 3 | 948 | 502 | 446 | 198 | 160 | 120 | 162 | 32.3 | - | - | - | - | - | - | - | - |

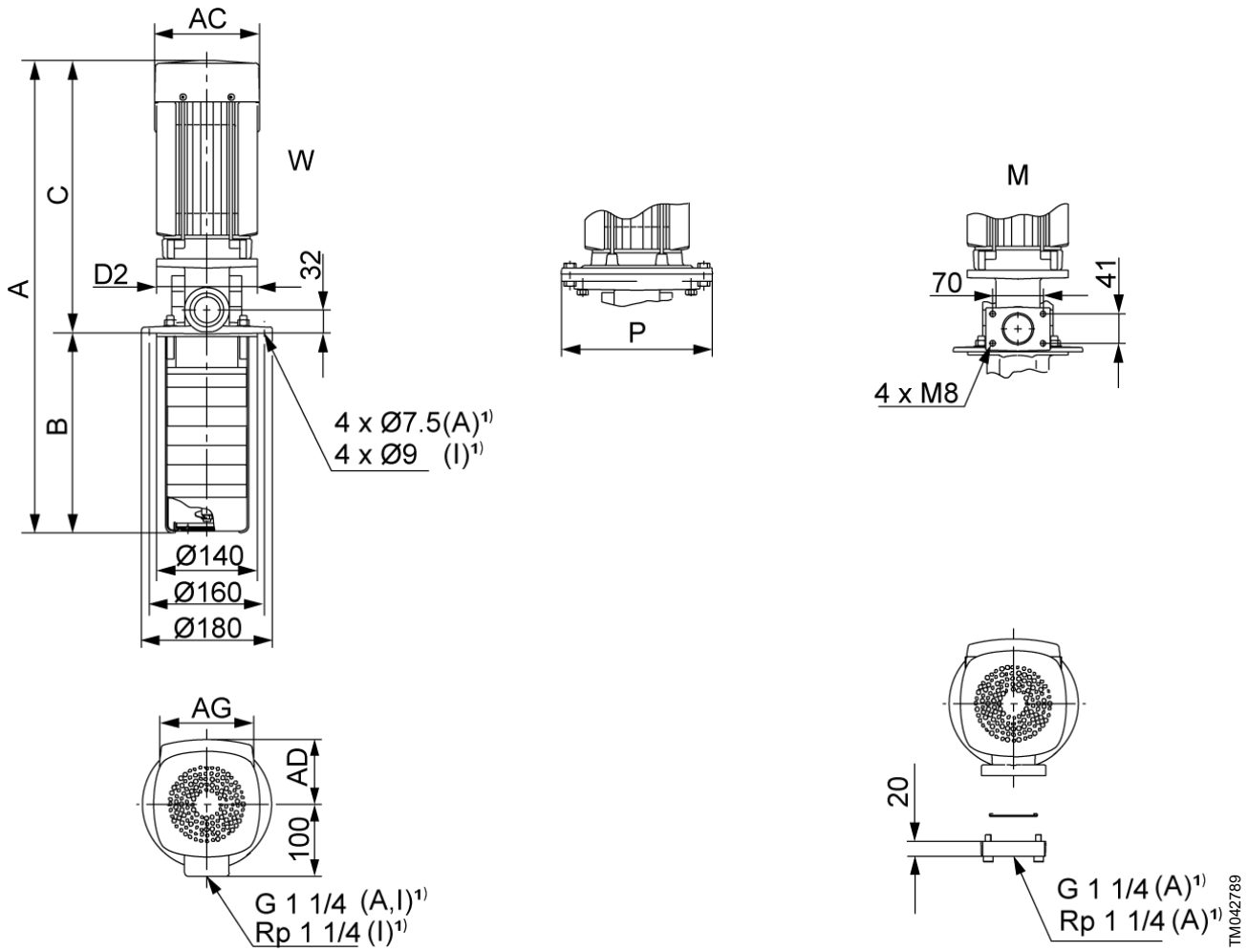
| Pump type | P2 [kW] | MTR | | | | | | | | MTRE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | AD | AG | | A | B | C | AC | D2 | AD | AG | |
| MTR 3-22/22 | 3 | 966 | 520 | 446 | 198 | 160 | 120 | 162 | 32.3 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-23/23 | 3 | 984 | 538 | 446 | 198 | 160 | 120 | 162 | 32.4 | 983 | 538 | 445 | 191 | 160 | 201 | 291 | 32.2 |
| MTR 3-25/25 | 4 | 1057 | 574 | 483 | 220 | 160 | 134 | 202 | 44.1 | - | - | - | - | - | - | - | - |
| MTR, MTRE 3-26/26 | 4 | 1075 | 592 | 483 | 220 | 160 | 134 | 202 | 44.1 | 1037 | 592 | 445 | 191 | 160 | 201 | 291 | 35.4 |

The maximum immersion depth is 1006 mm.

## MTR, MTRE 5, 60 Hz



### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

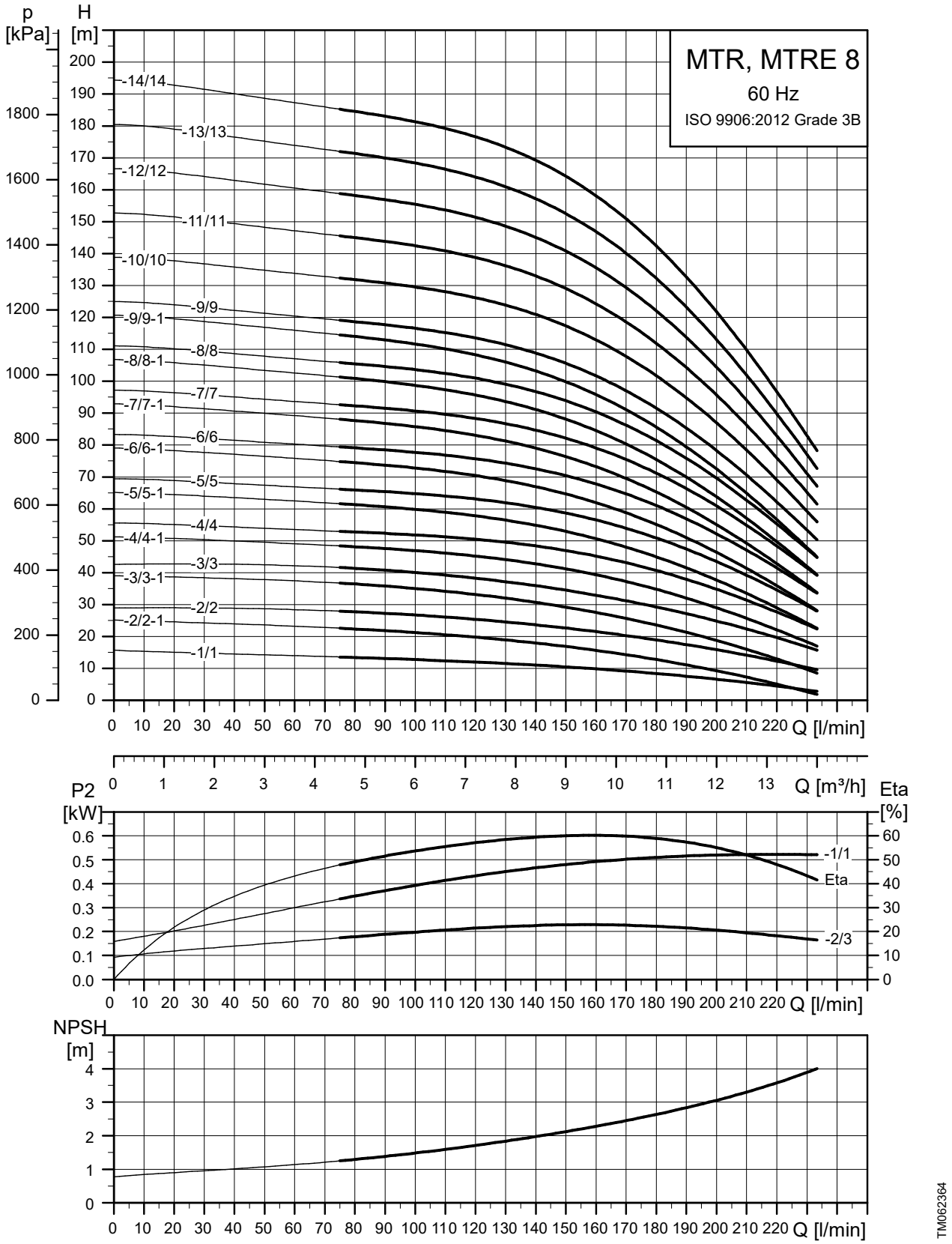
1) A: Basic version, cast iron. I: Stainless steel version.

### Dimensions and weights

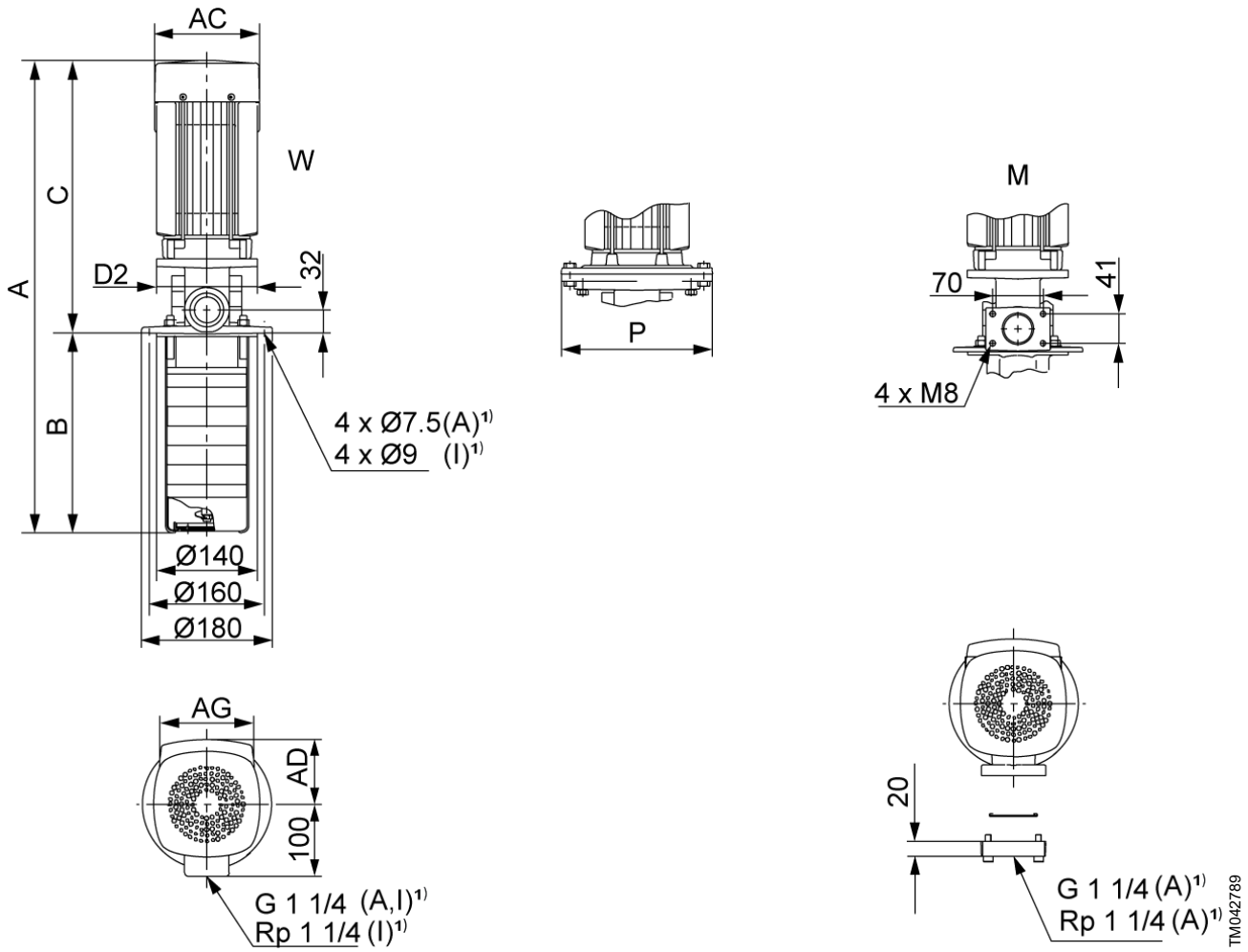
| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 5-2/2 | 0.55 | 471 | 169 | 302 | 141 | 140 | - | 109 | 82 | 12.7 | 534 | 169 | 365 | 122 | 140 | - | 158 | 268 | 17.6 |
| MTR 5-3/3 | 1.1 | 558 | 196 | 362 | 141 | 140 | - | 109 | 82 | 17 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-4/4 | 1.1 | 585 | 223 | 362 | 141 | 140 | - | 109 | 82 | 17 | 588 | 223 | 365 | 122 | 140 | - | 158 | 268 | 18.5 |
| MTR, MTRE 5-5/5 | 1.5 | 642 | 250 | 392 | 178 | 140 | - | 110 | 162 | 23.4 | 635 | 250 | 385 | 122 | 140 | - | 158 | 268 | 21.5 |
| MTR 5-6/6 | 2.2 | 709 | 277 | 432 | 178 | 140 | - | 110 | 162 | 27.3 | - | - | - | - | - | - | - | - | - |
| MTR 5-7/7 | 2.2 | 736 | 304 | 432 | 178 | 140 | - | 110 | 162 | 27.3 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-8/8 | 2.2 | 763 | 331 | 432 | 178 | 140 | - | 110 | 162 | 27.3 | 716 | 331 | 385 | 122 | 140 | - | 158 | 268 | 23 |
| MTR 5-10/10 | 3 | 831 | 385 | 446 | 198 | 160 | - | 120 | 162 | 32.4 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-12/12 | 3 | 885 | 439 | 446 | 198 | 160 | - | 120 | 162 | 32.5 | 884 | 439 | 445 | 191 | 160 | - | 201 | 291 | 32.4 |
| MTR 5-14/14 | 4 | 976 | 493 | 483 | 220 | 160 | - | 134 | 202 | 44.3 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-16/16 | 4 | 1030 | 547 | 483 | 220 | 160 | - | 134 | 202 | 44.3 | 992 | 547 | 445 | 191 | 160 | - | 201 | 291 | 35.6 |
| MTR 5-18/18 | 5.5 | 1128 | 601 | 527 | 220 | 300 | 300 | 134 | 202 | 61.6 | - | - | - | - | - | - | - | - | - |
| MTR 5-19/19 | 5.5 | 1155 | 628 | 527 | 220 | 300 | 300 | 134 | 202 | 61.6 | - | - | - | - | - | - | - | - | - |
| MTR 5-20/20 | 5.5 | 1182 | 655 | 527 | 220 | 300 | 300 | 134 | 202 | 61.7 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 5-22/22 | 5.5 | 1236 | 709 | 527 | 220 | 300 | 300 | 134 | 202 | 61.7 | 1210 | 709 | 501 | 191 | 300 | 300 | 201 | 291 | 57 |
| MTR, MTRE 5-24/24 | 7.5 | 1278 | 763 | 515 | 260 | 300 | 300 | 159 | 203 | 71.6 | 1288 | 763 | 525 | 255 | 300 | 300 | 237 | 346 | 66.5 |

The maximum immersion depth is 1006 mm.

## MTR, MTRE 8, 60 Hz



**Dimensional sketches**




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

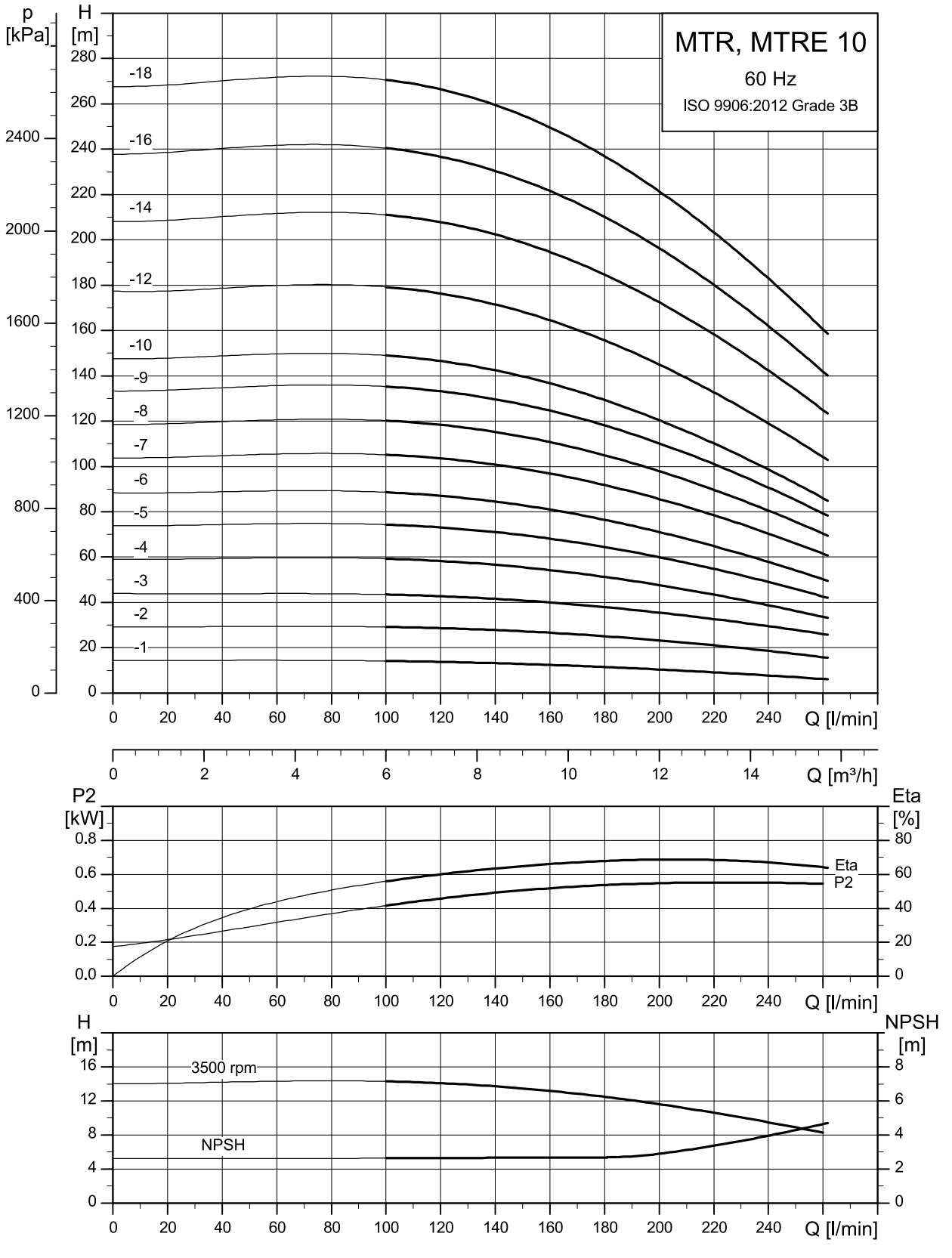
**Dimensions and weights**

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 8-1/1 | 0.75 | 538 | 196 | 342 | 141 | 140 | - | 109 | 82 | 19.3 | 561 | 196 | 365 | 122 | 140 | - | 158 | 268 | 22.1 |
| MTR, MTRE 8-2/2-1 | 1.1 | 585 | 223 | 362 | 141 | 140 | - | 109 | 82 | 21.4 | 588 | 223 | 365 | 122 | 140 | - | 158 | 268 | 22.9 |
| MTR, MTRE 8-2/2 | 1.1 | 585 | 223 | 362 | 141 | 140 | - | 109 | 82 | 21.4 | 588 | 223 | 365 | 122 | 140 | - | 158 | 268 | 22.9 |
| MTR, MTRE 8-3/3-1 | 1.5 | 642 | 250 | 392 | 178 | 140 | - | 110 | 162 | 27.8 | 635 | 250 | 385 | 122 | 140 | - | 158 | 268 | 25.8 |
| MTR 8-3/3 | 2.2 | 682 | 250 | 432 | 178 | 140 | - | 110 | 162 | 31.6 | - | - | - | - | - | - | - | - | - |
| MTR 8-4/4-1 | 2.2 | 709 | 277 | 432 | 178 | 140 | - | 110 | 162 | 31.6 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-4/4 | 2.2 | 709 | 277 | 432 | 178 | 140 | - | 110 | 162 | 31.6 | 662 | 277 | 385 | 122 | 140 | - | 158 | 268 | 27.2 |
| MTR 8-5/5-1 | 3 | 750 | 304 | 446 | 198 | 160 | - | 120 | 162 | 36.7 | - | - | - | - | - | - | - | - | - |
| MTR 8-5/5 | 3 | 750 | 304 | 446 | 198 | 160 | - | 120 | 162 | 36.7 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-6/6-1 | 3 | 777 | 331 | 446 | 198 | 160 | - | 120 | 162 | 36.7 | 776 | 331 | 445 | 191 | 160 | - | 201 | 291 | 36.6 |
| MTR 8-6/6 | 4 | 814 | 331 | 483 | 220 | 160 | - | 134 | 202 | 48.4 | - | - | - | - | - | - | - | - | - |
| MTR 8-7/7-1 | 4 | 841 | 358 | 483 | 220 | 160 | - | 134 | 202 | 48.4 | - | - | - | - | - | - | - | - | - |
| MTR 8-7/7 | 4 | 841 | 358 | 483 | 220 | 160 | - | 134 | 202 | 48.4 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-8/8-1 | 4 | 868 | 385 | 483 | 220 | 160 | - | 134 | 202 | 48.5 | 830 | 385 | 445 | 191 | 160 | - | 201 | 291 | 39.7 |
| MTR 8-8/8 | 5.5 | 912 | 385 | 527 | 220 | 300 | 300 | 134 | 202 | 65.7 | - | - | - | - | - | - | - | - | - |
| MTR 8-9/9-1 | 5.5 | 939 | 412 | 527 | 220 | 300 | 300 | 134 | 202 | 65.7 | - | - | - | - | - | - | - | - | - |
| MTR 8-9/9 | 5.5 | 939 | 412 | 527 | 220 | 300 | 300 | 134 | 202 | 65.7 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-10/10 | 5.5 | 966 | 439 | 527 | 220 | 300 | 300 | 134 | 202 | 65.7 | 940 | 439 | 501 | 191 | 300 | 300 | 201 | 291 | 61 |

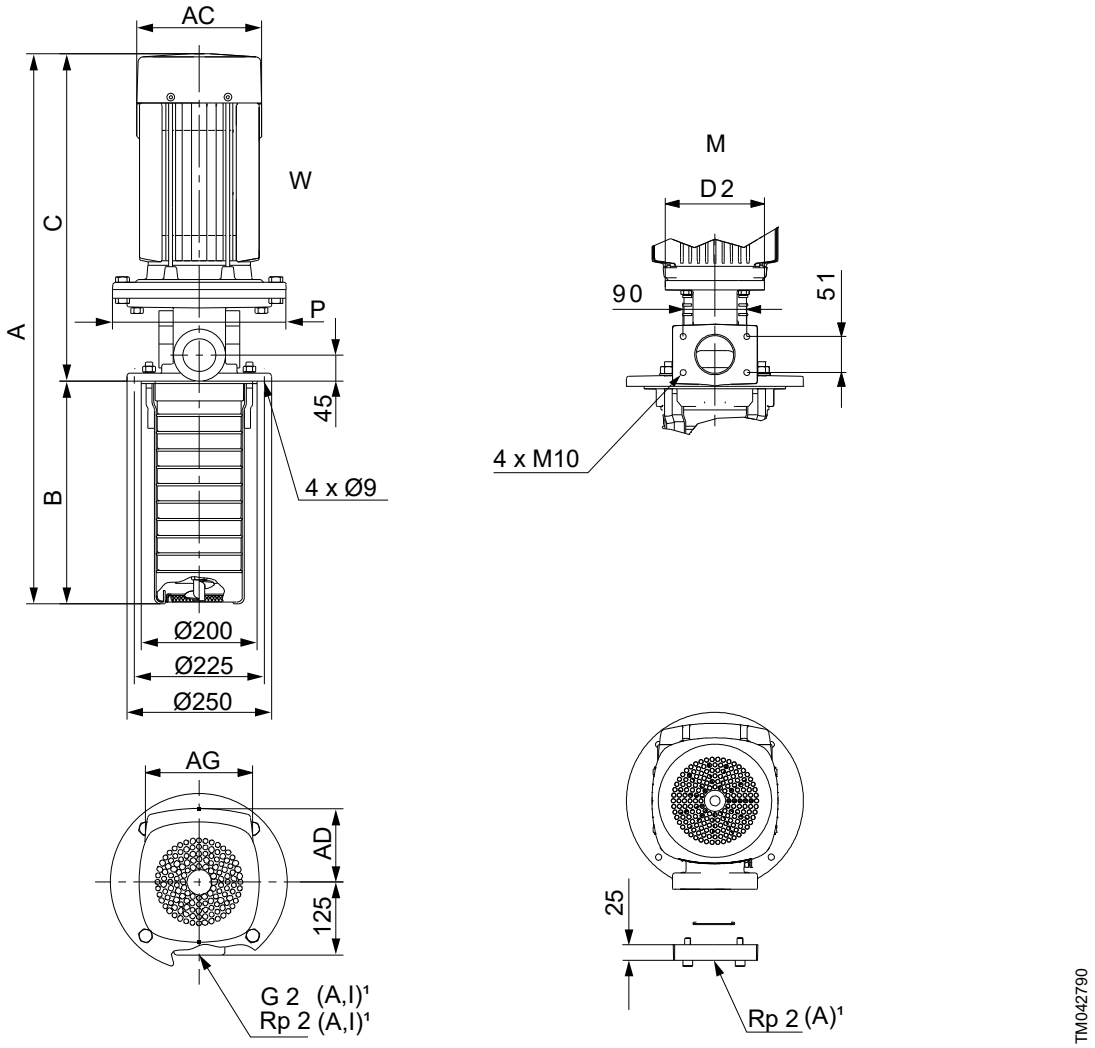
| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR 8-11/11 | 7.5 | 981 | 466 | 515 | 260 | 300 | 300 | 159 | 203 | 75.6 | - | - | - | - | - | - | - | - | - |
| MTR 8-12/12 | 7.5 | 1008 | 493 | 515 | 260 | 300 | 300 | 159 | 203 | 75.6 | - | - | - | - | - | - | - | - | - |
| MTR 8-13/13 | 7.5 | 1035 | 520 | 515 | 260 | 300 | 300 | 159 | 203 | 75.6 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 8-14/14 | 7.5 | 1062 | 547 | 515 | 260 | 300 | 300 | 159 | 203 | 75.7 | 1072 | 547 | 525 | 255 | 300 | 300 | 237 | 346 | 70.5 |

The maximum immersion depth is 1006 mm.

## MTR, MTRE 10, 60 Hz



## Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

## Dimensions and weights

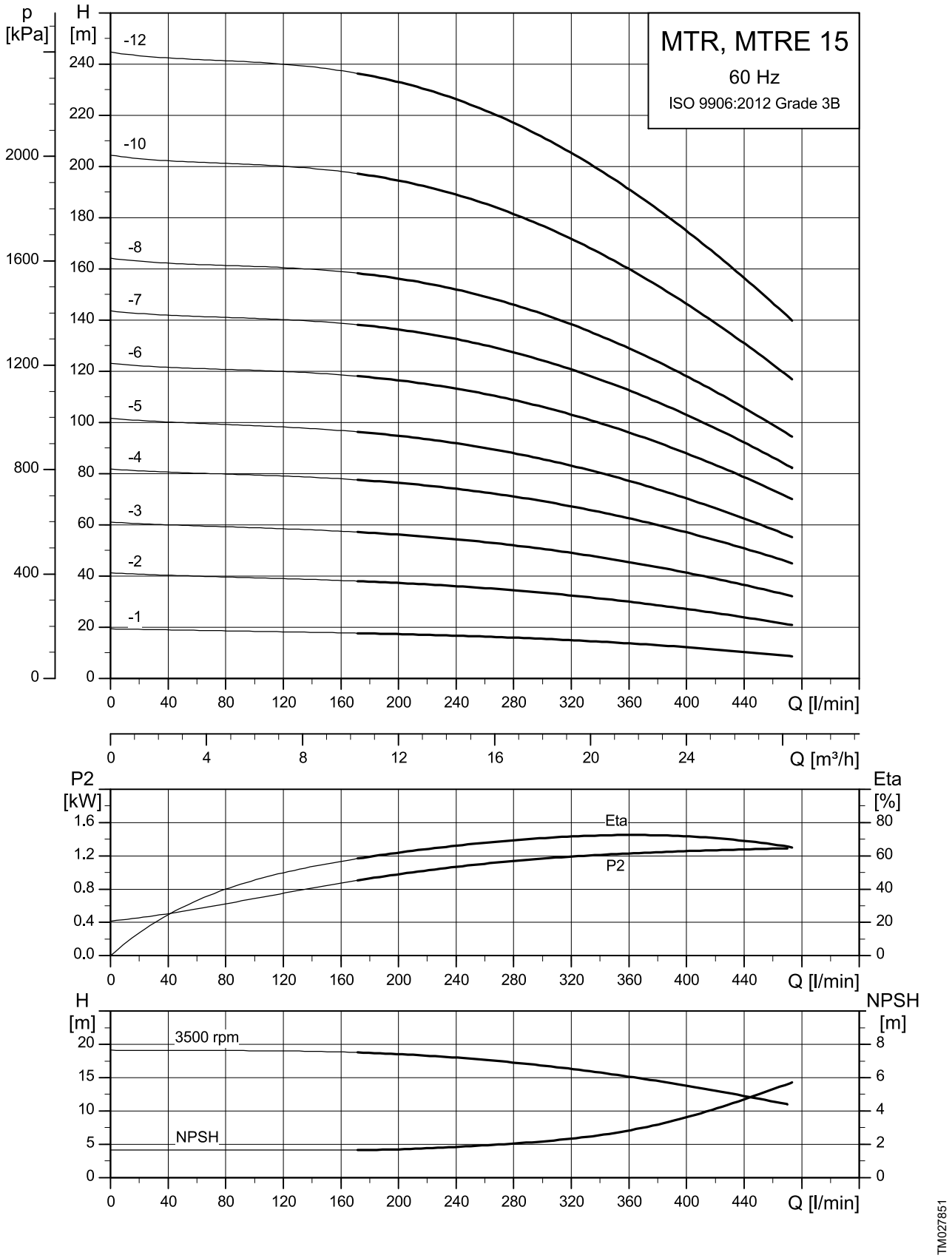
| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [19)] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 10-2/1 | 0.75 | 519 | 148 | 371 | 141 | 140 | - | 109 | 82 | 22.7 | 542 | 148 | 394 | 122 | 140 | - | 158 | 268 | 25.5 |
| MTR, MTRE 10-2/2 | 1.5 | 569 | 148 | 421 | 178 | 140 | - | 110 | 162 | 31.1 | 562 | 148 | 414 | 122 | 140 | - | 158 | 268 | 29.2 |
| MTR, MTRE 10-3/3 | 2.2 | 639 | 178 | 461 | 178 | 140 | - | 110 | 162 | 35 | 592 | 178 | 414 | 122 | 140 | - | 158 | 268 | 30.6 |
| MTR 10-4/4 | 3 | 683 | 208 | 475 | 198 | 160 | - | 120 | 162 | 40.1 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 10-5/5 | 3 | 713 | 238 | 475 | 198 | 160 | - | 120 | 162 | 40.1 | 712 | 238 | 474 | 191 | 160 | - | 201 | 291 | 40 |
| MTR, MTRE 10-6/6 | 4 | 780 | 268 | 512 | 220 | 160 | - | 134 | 202 | 51.9 | 742 | 268 | 474 | 191 | 160 | - | 201 | 291 | 43.2 |
| MTR 10-7/7 | 5.5 | 853 | 298 | 555 | 220 | 300 | 300 | 134 | 202 | 64.2 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 10-8/8 | 5.5 | 883 | 328 | 555 | 220 | 300 | 300 | 134 | 202 | 64.3 | 857 | 328 | 529 | 191 | 300 | 300 | 201 | 291 | 59.5 |
| MTR 10-9/9 | 5.5 | 913 | 358 | 555 | 220 | 300 | 300 | 134 | 202 | 64.3 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 10-10/10 | 7.5 | 931 | 388 | 543 | 260 | 300 | 300 | 159 | 203 | 74.2 | 941 | 388 | 553 | 255 | 300 | 300 | 237 | 346 | 69.1 |
| MTR, MTRE 10-12/12 | 7.5 | 991 | 448 | 543 | 260 | 300 | 300 | 159 | 203 | 74.3 | 1001 | 448 | 553 | 255 | 300 | 300 | 237 | 346 | 69.2 |
| MTR 10-14/14 | 11 | 1184 | 508 | 676 | 318 | 350 | 350 | 204 | 243 | 112 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 10-16/16 | 11 | 1244 | 568 | 676 | 318 | 350 | 350 | 204 | 243 | 112.1 | 1168 | 568 | 600 | 255 | 350 | 350 | 237 | 346 | 82.1 |

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [19] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 10-18/18 | 11 | 1304 | 628 | 676 | 318 | 350 | 350 | 204 | 243 | 112.3 | 1228 | 628 | 600 | 255 | 350 | 350 | 237 | 346 | 88.9 |
| MTR 10-20/18 | 11 | 1364 | 688 | 676 | 318 | 350 | 350 | 204 | 243 | 112.4 | - | - | - | - | - | - | - | - | - |
| MTR 10-22/18 | 11 | 1424 | 748 | 676 | 318 | 350 | 350 | 204 | 243 | 112.5 | - | - | - | - | - | - | - | - | - |

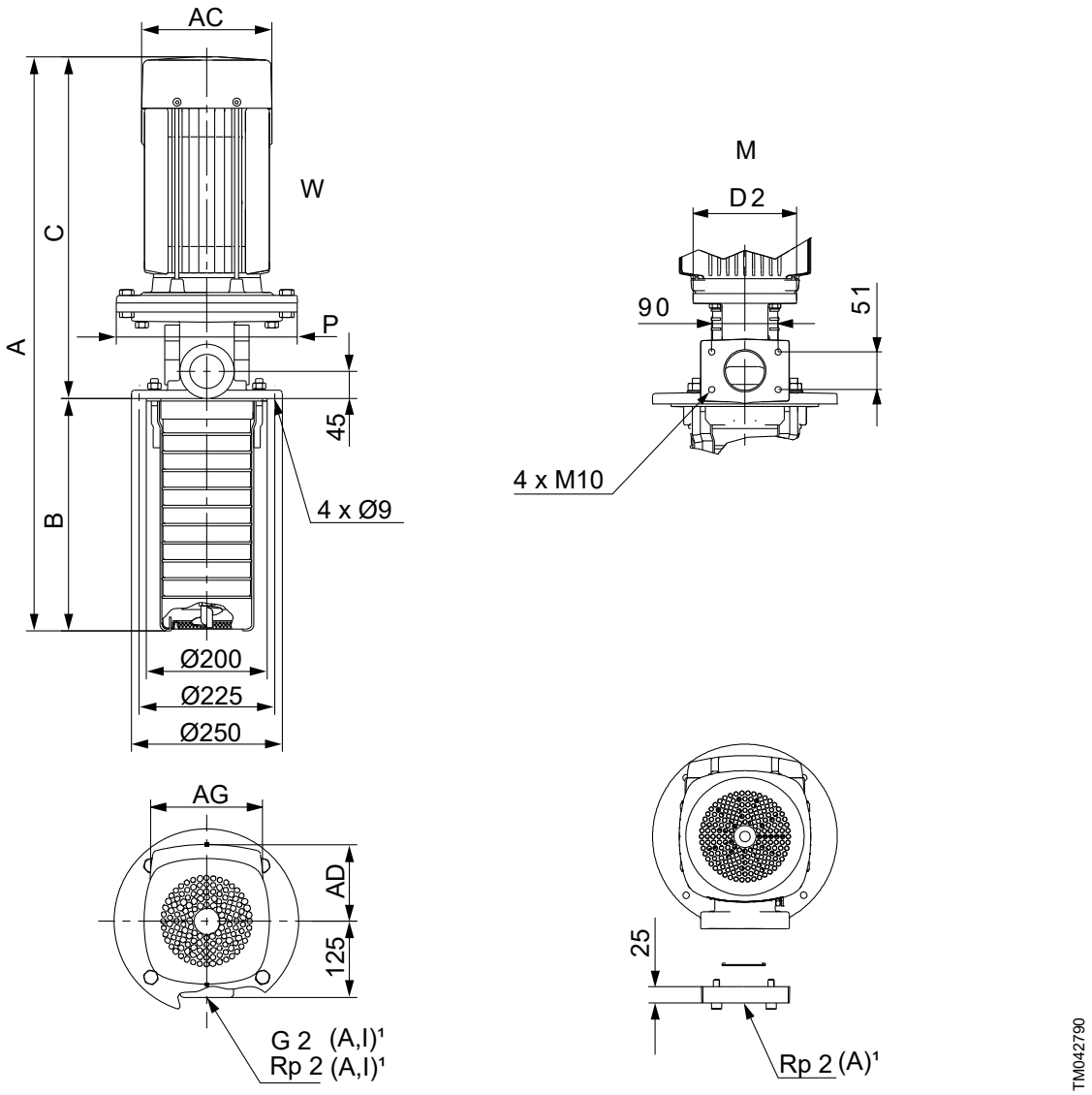
[19] C+10 mm for MTR 10, 15 and 20 pumps with drainage back to the tank.

The maximum immersion depth is 1018 mm.

## MTR, MTRE 15, 60 Hz



### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

### Dimensions and weights

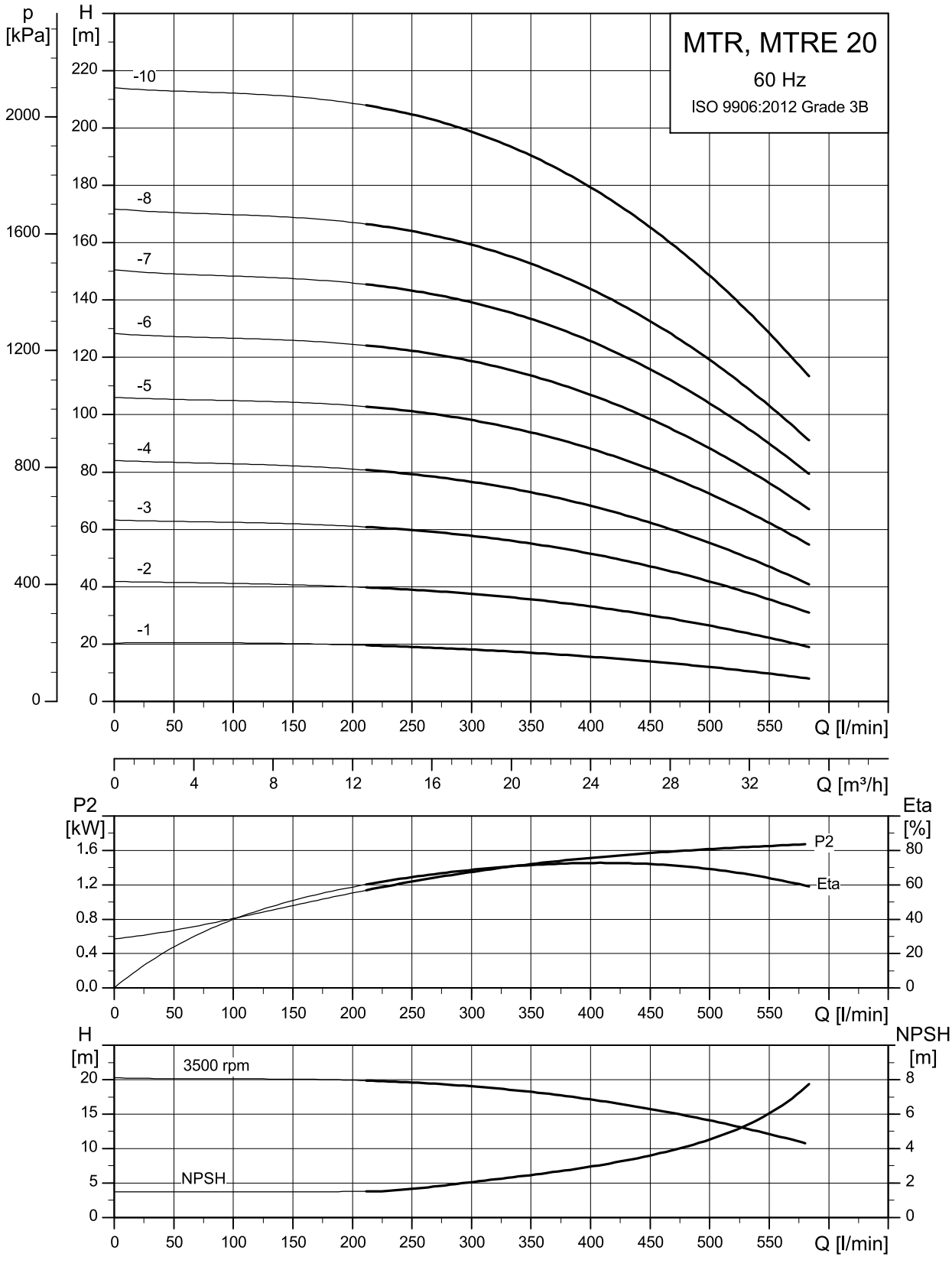
| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [20] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 15-2/1 | 1.5 | 599 | 178 | 421 | 178 | 140 | - | 110 | 162 | 32.1 | 592 | 178 | 414 | 122 | 140 | - | 158 | 268 | 30.2 |
| MTR, MTRE 15-2/2 | 3 | 653 | 178 | 475 | 198 | 160 | - | 120 | 162 | 41 | 652 | 178 | 474 | 191 | 160 | - | 201 | 291 | 40.8 |
| MTR, MTRE 15-3/3 | 4 | 735 | 223 | 512 | 220 | 160 | - | 134 | 202 | 52.8 | 697 | 223 | 474 | 191 | 160 | - | 201 | 291 | 44 |
| MTR, MTRE 15-4/4 | 5.5 | 823 | 268 | 555 | 220 | 300 | 300 | 134 | 202 | 65.1 | 797 | 268 | 529 | 191 | 300 | 300 | 201 | 291 | 60.4 |
| MTR, MTRE 15-5/5 | 7.5 | 856 | 313 | 543 | 260 | 300 | 300 | 159 | 203 | 75 | 866 | 313 | 553 | 255 | 300 | 300 | 237 | 346 | 69.9 |
| MTR 15-6/6 | 11 | 1034 | 358 | 676 | 318 | 350 | 350 | 204 | 243 | 112.6 | - | - | - | - | - | - | - | - | - |
| MTR 15-7/7 | 11 | 1079 | 403 | 676 | 318 | 350 | 350 | 204 | 243 | 112.7 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 15-8/8 | 11 | 1124 | 448 | 676 | 318 | 350 | 350 | 204 | 243 | 112.8 | 1048 | 448 | 600 | 255 | 350 | 350 | 237 | 346 | 89.4 |
| MTR, MTRE 15-10/10 | 15 | 1214 | 538 | 676 | 318 | 350 | 350 | 204 | 243 | 124.8 | 1214 | 538 | 676 | 318 | 350 | 350 | 303 | 420 | 107.6 |
| MTR, MTRE 15-12/12 | 18.5 | 1348 | 628 | 720 | 318 | 350 | 350 | 204 | 243 | 137.7 | 1304 | 628 | 720 | 318 | 350 | 350 | 303 | 420 | 112.3 |

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [20] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR 15-14/12 | 18.5 | 1438 | 718 | 720 | 318 | 350 | 350 | 204 | 243 | 137.9 | - | - | - | - | - | - | - | - | - |
| MTR 15-16/12 | 18.5 | 1528 | 808 | 720 | 318 | 350 | 350 | 204 | 243 | 138.1 | - | - | - | - | - | - | - | - | - |
| MTR 15-17/12 | 18.5 | 1573 | 853 | 720 | 318 | 350 | 350 | 204 | 243 | 138.2 | - | - | - | - | - | - | - | - | - |

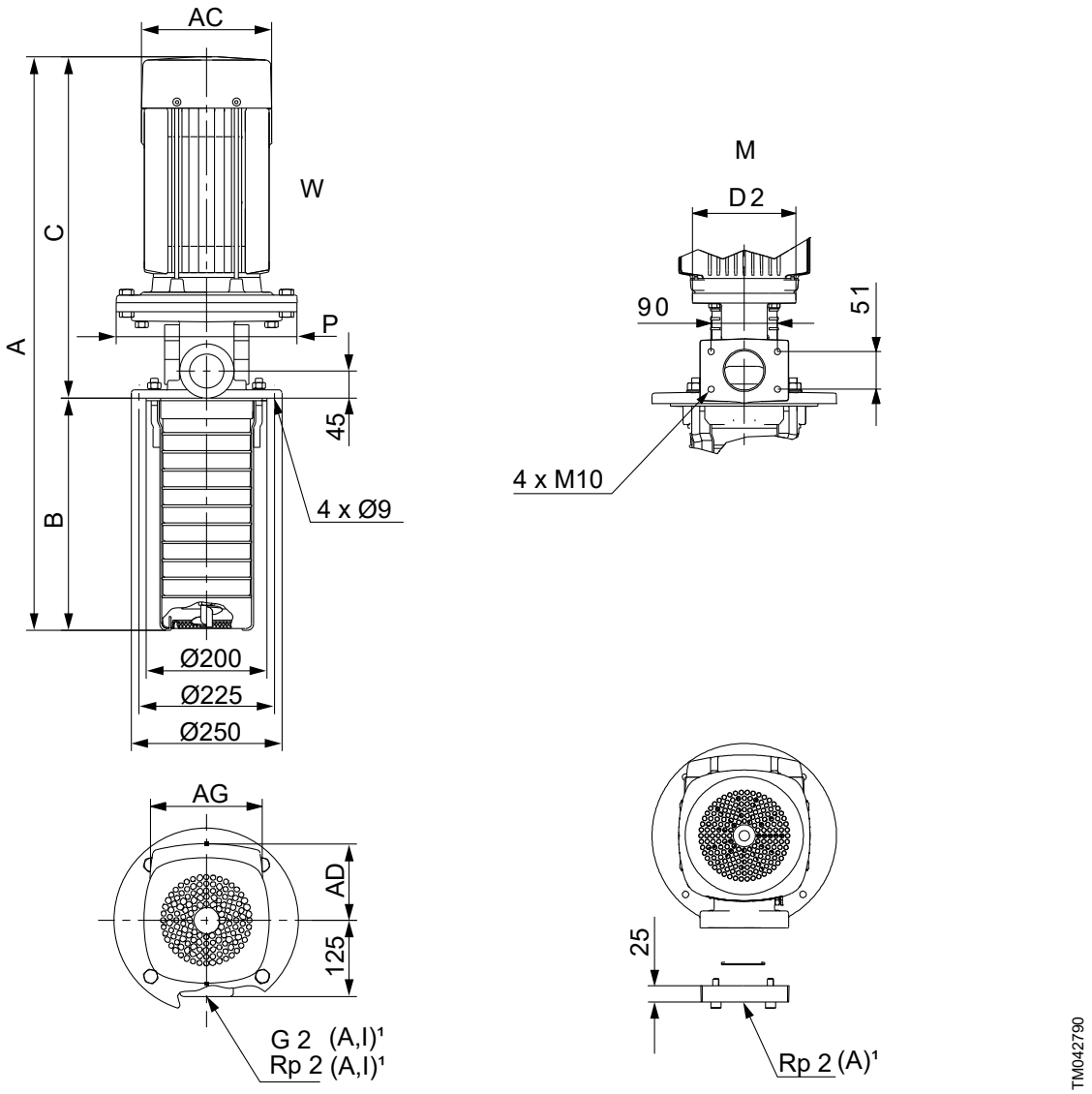
[20] C+10 mm for MTR 10, 15 and 20 pumps with drainage back to the tank.

The maximum immersion depth is 1033 mm.

## MTR, MTRE 20, 60 Hz



### Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

### Dimensions and weights

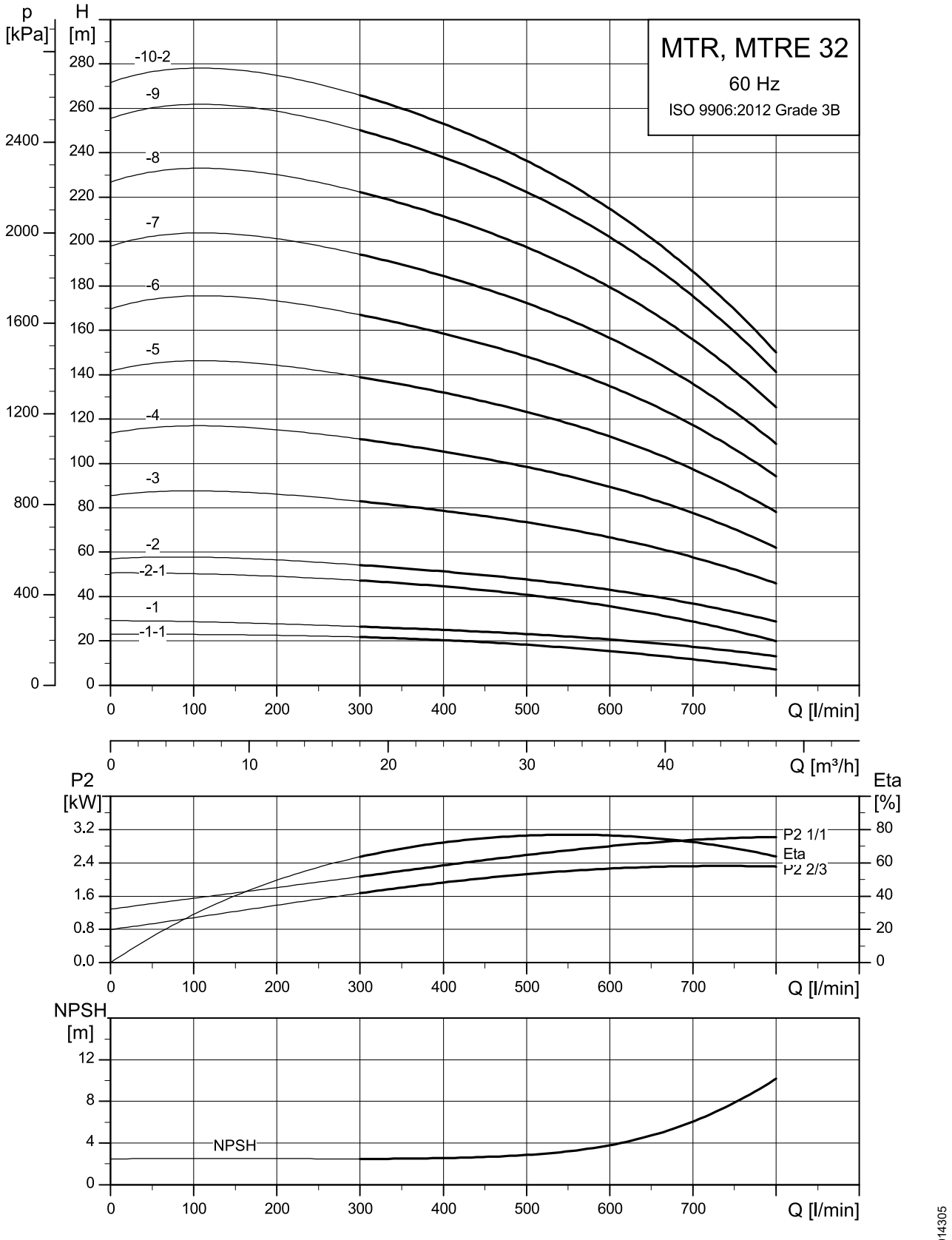
| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [21)] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR, MTRE 20-2/1 | 2.2 | 639 | 178 | 461 | 178 | 140 | - | 110 | 162 | 35.9 | 592 | 178 | 414 | 122 | 140 | - | 158 | 268 | 31.6 |
| MTR, MTRE 20-2/2 | 4 | 690 | 178 | 512 | 220 | 160 | - | 134 | 202 | 52.7 | 652 | 178 | 474 | 191 | 160 | - | 201 | 291 | 43.9 |
| MTR, MTRE 20-3/3 | 5.5 | 778 | 223 | 555 | 220 | 300 | 300 | 134 | 202 | 65 | 752 | 223 | 529 | 191 | 300 | 300 | 201 | 291 | 60.3 |
| MTR, MTRE 20-4/4 | 7.5 | 811 | 268 | 543 | 260 | 300 | 300 | 159 | 203 | 74.9 | 821 | 268 | 553 | 255 | 300 | 300 | 237 | 346 | 69.8 |
| MTR 20-5/5 | 11 | 989 | 313 | 676 | 318 | 350 | 350 | 204 | 243 | 112.5 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 20-6/6 | 11 | 1034 | 358 | 676 | 318 | 350 | 350 | 204 | 243 | 112.6 | 958 | 358 | 600 | 255 | 350 | 350 | 237 | 346 | 89.2 |
| MTR 20-7/7 | 15 | 1079 | 403 | 676 | 318 | 350 | 350 | 204 | 243 | 124.5 | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 20-8/8 | 15 | 1124 | 448 | 676 | 318 | 350 | 350 | 204 | 243 | 124.6 | 1124 | 448 | 676 | 318 | 350 | 350 | 303 | 420 | 107.4 |
| MTR, MTRE 20-10/10 | 18.5 | 1258 | 538 | 720 | 318 | 350 | 350 | 204 | 243 | 137.5 | 1214 | 538 | 676 | 318 | 350 | 350 | 303 | 420 | 112.1 |
| MTR 20-12/10 | 18.5 | 1348 | 628 | 720 | 318 | 350 | 350 | 204 | 243 | 137.7 | - | - | - | - | - | - | - | - | - |

| Pump type | P2 [kW] | MTR | | | | | | | | | MTRE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | Net weight [kg] |
| | | A | B | C [21)] | AC | D2 | P | AD | AG | | A | B | C | AC | D2 | P | AD | AG | |
| MTR 20-14/10 | 18.5 | 1438 | 718 | 720 | 318 | 350 | 350 | 204 | 243 | 137.9 | - | - | - | - | - | - | - | - | - |
| MTR 20-16/10 | 18.5 | 1528 | 808 | 720 | 318 | 350 | 350 | 204 | 243 | 138.1 | - | - | - | - | - | - | - | - | - |
| MTR 20-17/10 | 18.5 | 1573 | 853 | 720 | 318 | 350 | 350 | 204 | 243 | 138.2 | - | - | - | - | - | - | - | - | - |

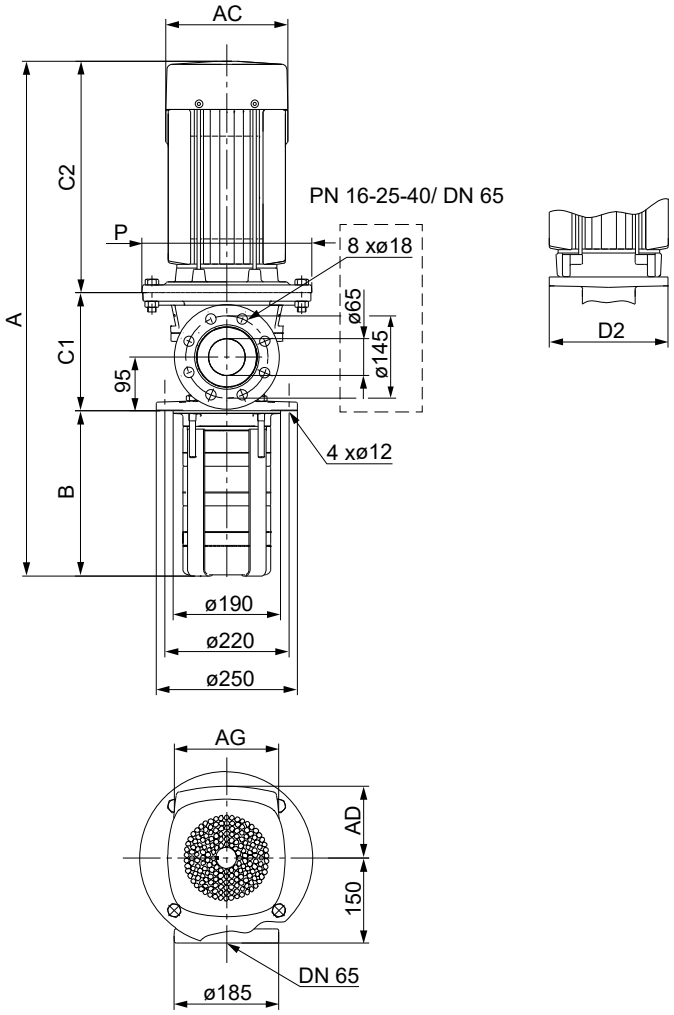
21) C+10 mm for MTR 10, 15 and 20 pumps with drainage back to the tank.

The maximum immersion depth is 1033 mm.

## MTR, MTRE 32, 60 Hz



### Dimensional sketches




Note that A and C1 are higher for drainage back to the tank versions.

### Dimensions and weights

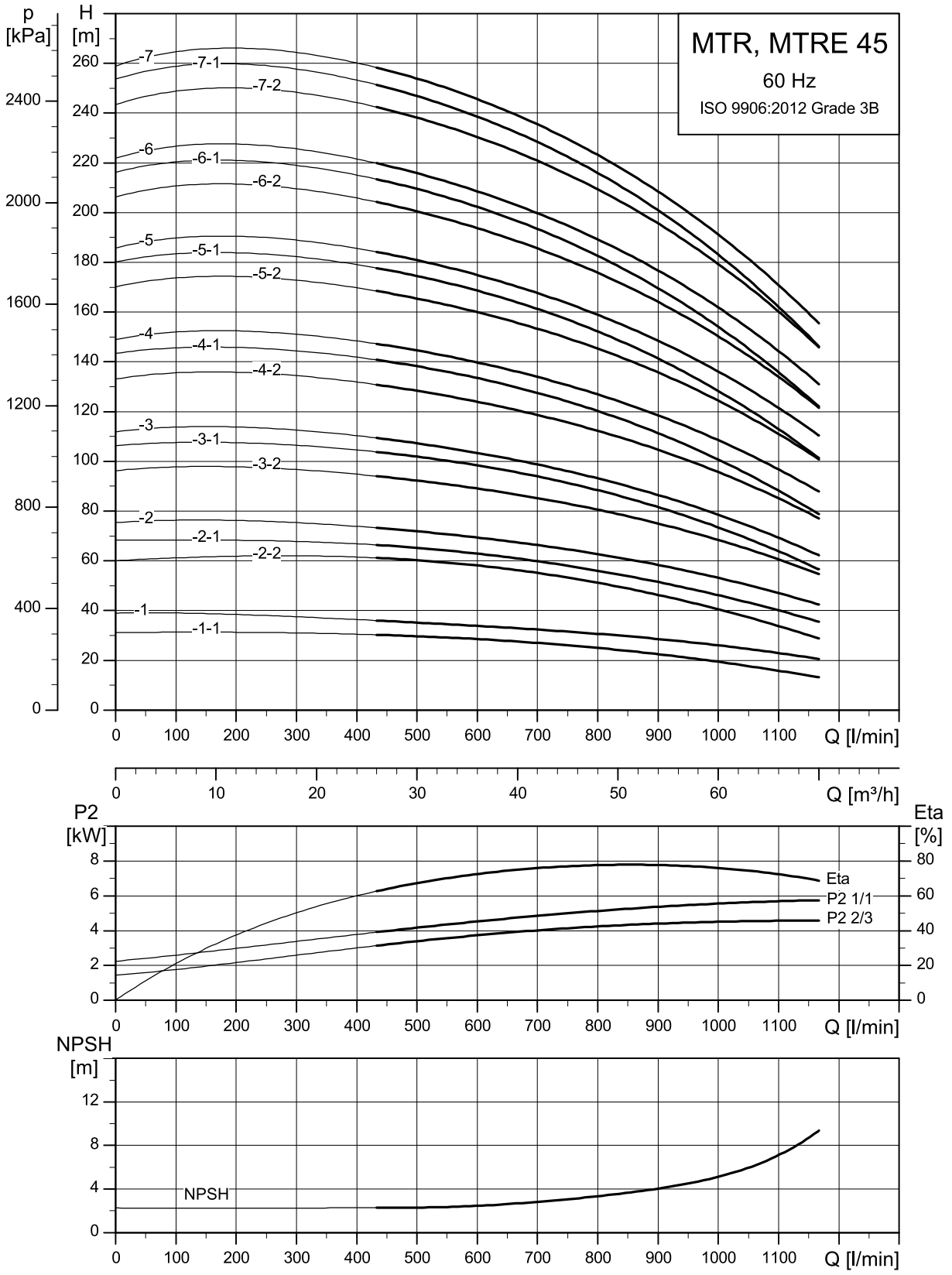
| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [22)] | B | C1 [22)] | C2 | AC | D2 | P | AD | AG | | A [22)] | B | C1 [22)] | C2 | AC | D2 | P | AD | AG | |
| MTR, MTRE 32-2/1-1 | 2.2 | 682 | 223 | 138 | 321 | 178 | 198 | - | 110 | 162 | 57.1 | 635 | 223 | 138 | 274 | 12 | 198 | - | 158 | 268 | 52.8 |
| MTR, MTRE 32-2/1 | 3 | 696 | 223 | 138 | 335 | 198 | 198 | - | 120 | 162 | 61.3 | 695 | 223 | 138 | 334 | 191 | 198 | - | 201 | 291 | 61.1 |
| MTR, MTRE 32-2/2-1 | 5.5 | 823 | 223 | 209 | 391 | 220 | 298 | 300 | 134 | 202 | 87.7 | 797 | 223 | 209 | 365 | 191 | 298 | 300 | 201 | 291 | 82.9 |
| MTR, MTRE 32-2/2 | 7.5 | 811 | 223 | 209 | 379 | 260 | 298 | 300 | 159 | 203 | 97.5 | 821 | 223 | 209 | 389 | 255 | 298 | 300 | 237 | 346 | 92.3 |
| MTR, MTRE 32-3/3 | 11 | 984 | 293 | 209 | 482 | 318 | 350 | 350 | 204 | 243 | 134.7 | 908 | 293 | 209 | 406 | 255 | 350 | 350 | 237 | 346 | 111.3 |
| MTR, MTRE 32-4/4 | 15 | 1054 | 363 | 209 | 482 | 318 | 350 | 350 | 204 | 243 | 146.8 | 1054 | 363 | 209 | 482 | 318 | 350 | 350 | 303 | 420 | 129.6 |
| MTR 32-5/5 | 18.5 | 1168 | 433 | 209 | 526 | 318 | 350 | 350 | 204 | 243 | 159.7 | - | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 32-6/6 | 18.5 | 1238 | 503 | 209 | 526 | 318 | 350 | 350 | 204 | 243 | 160 | 1194 | 503 | 209 | 482 | 318 | 350 | 350 | 303 | 420 | 134.6 |
| MTR, MTRE 32-7/7 | 22 | 1334 | 573 | 209 | 552 | 318 | 350 | 350 | 204 | 243 | 175.5 | 1290 | 573 | 209 | 508 | 318 | 350 | 350 | 303 | 420 | 148.8 |
| MTRE 32-8/8 | 26 | - | - | - | - | - | - | - | - | - | - | 1290 | 573 | 209 | 508 | 318 | 350 | 350 | 303 | 420 | 150.4 |
| MTR 32-8/8 | 30 | 1463 | 643 | 209 | 611 | 396 | 400 | 400 | 315 | 265 | 275.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-9/9 | 30 | 1533 | 713 | 209 | 611 | 396 | 400 | 400 | 315 | 265 | 275.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-10/10-2 | 30 | 1603 | 783 | 209 | 611 | 396 | 400 | 400 | 315 | 265 | 276 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-11/10-2 | 30 | 1673 | 853 | 209 | 611 | 396 | 400 | 400 | 315 | 265 | 276.3 | - | - | - | - | - | - | - | - | - | - |

| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [22)] | B | C1 [22)] | C2 | AC | D2 | P | AD | AG | | A [22)] | B | C1 [22)] | C2 | AC | D2 | P | AD | AG | |
| MTR 32-12/10-2 | 30 | 1743 | 923 | 209 | 611 | 396 | 400 | 400 | 315 | 265 | 276.6 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-13/10-2 | 30 | 1813 | 993 | 209 | 611 | 396 | 400 | 400 | 315 | 265 | 276.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 32-14/10-2 | 30 | 1883 | 1063 | 209 | 611 | 396 | 400 | 400 | 315 | 265 | 277.1 | - | - | - | - | - | - | - | - | - | - |

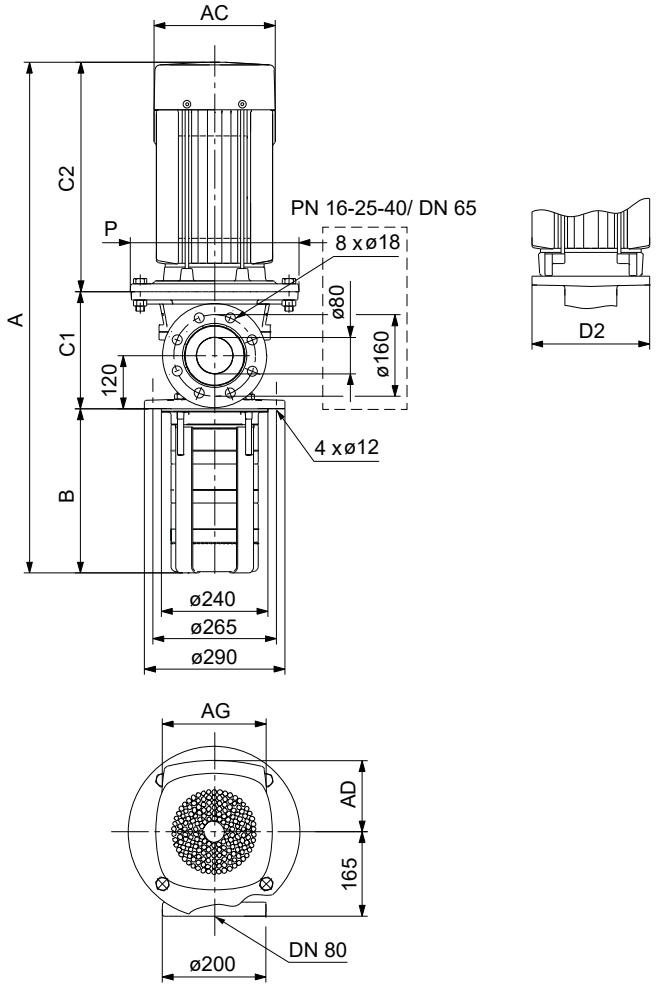
22) A+20 mm for MTR, MTRE pumps with drainage back to the tank.

The maximum immersion depth is 1343 mm.

## MTR, MTRE 45, 60 Hz



## Dimensional sketches




TM042792

## Dimensions and weights

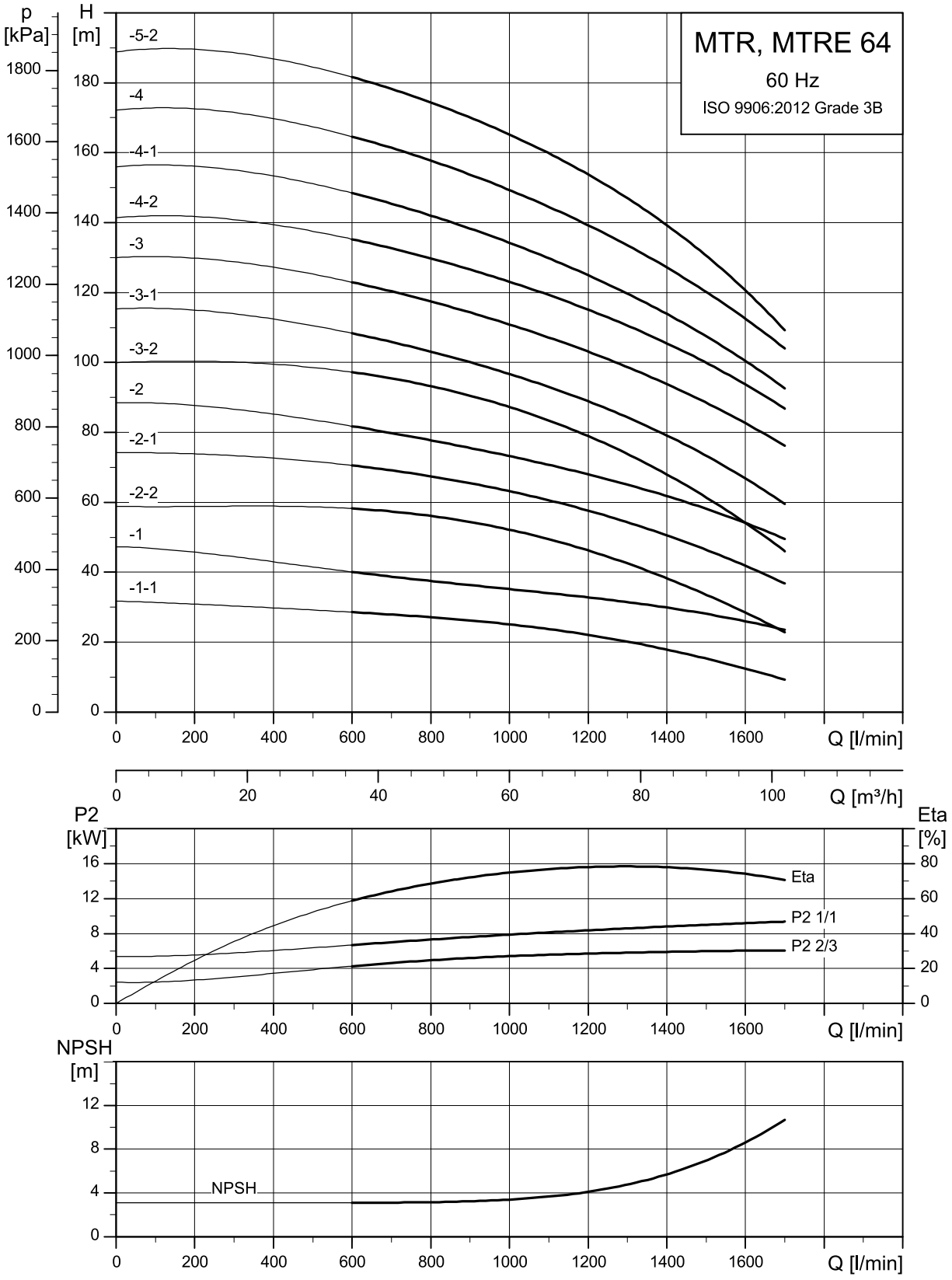
| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [23] | B | C1 [23] | C2 | AC | D2 | P | AD | AG | | A [23] | B | C1 [23] | C2 | AC | D2 | P | AD | AG | |
| MTR, MTRE 45-2/1-1 | 5.5 | 875 | 244 | 240 | 391 | 220 | 298 | 300 | 134 | 202 | 96.3 | 849 | 244 | 240 | 365 | 191 | 298 | 300 | 201 | 291 | 91.6 |
| MTR, MTRE 45-2/1 | 7.5 | 863 | 244 | 240 | 379 | 260 | 298 | 300 | 159 | 203 | 106.1 | 873 | 244 | 240 | 389 | 255 | 298 | 300 | 237 | 346 | 101 |
| MTR, MTRE 45-2/2-2 | 11 | 966 | 244 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 144.1 | - | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 45-2/2-1 | 11 | 966 | 244 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 144.1 | 890 | 244 | 240 | 406 | 255 | 350 | 350 | 237 | 346 | 120.8 |
| MTR, MTRE 45-2/2 | 15 | 966 | 244 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 155.9 | 966 | 244 | 240 | 482 | 318 | 350 | 350 | 303 | 420 | 138.7 |
| MTR 45-3/3-2 | 18.5 | 1090 | 324 | 240 | 526 | 318 | 350 | 350 | 204 | 243 | 168.9 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-3/3-1 | 18.5 | 1090 | 324 | 240 | 526 | 318 | 350 | 350 | 204 | 243 | 168.9 | - | - | - | - | - | - | - | - | - | - |
| MTR, MTRE 45-3/3 | 18.5 | 1090 | 324 | 240 | 526 | 318 | 350 | 350 | 204 | 243 | 168.9 | 1046 | 324 | 240 | 482 | 318 | 350 | 350 | 303 | 420 | 143.5 |
| MTR, MTRE 45-4/4-2 | 22 | 1196 | 404 | 240 | 552 | 318 | 350 | 350 | 204 | 243 | 184.4 | 1152 | 404 | 240 | 508 | 318 | 350 | 350 | 303 | 420 | 157.8 |
| MTRE 45-4/4 | 26 | - | - | - | - | - | - | - | - | - | - | 1152 | 404 | 240 | 508 | 318 | 350 | 350 | 303 | 420 | 158.0 |
| MTR 45-4/4-1 | 30 | 1255 | 404 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 284.2 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-4/4 | 30 | 1255 | 404 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 284.2 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-5/5-2 | 30 | 1335 | 484 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 284.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-5/5-1 | 30 | 1335 | 484 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 284.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-5/5 | 30 | 1335 | 484 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 284.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-6/6-2 | 37 | 1440 | 564 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 309.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-6/6-1 | 37 | 1440 | 564 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 309.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-6/6 | 37 | 1440 | 564 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 309.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-7/7-2 | 45 | 1611 | 644 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 412.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-7/7-1 | 45 | 1611 | 644 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 412.5 | - | - | - | - | - | - | - | - | - | - |

| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [23)] | B | C1 [23)] | C2 | AC | D2 | P | AD | AG | | A [23)] | B | C1 [23)] | C2 | AC | D2 | P | AD | AG | |
| MTR 45-7/7 | 45 | 1611 | 644 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 412.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-8/7 | 45 | 1691 | 724 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 412.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-9/7 | 45 | 1771 | 804 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 413.1 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-10/7 | 45 | 1851 | 884 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 413.4 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-11/7 | 45 | 1931 | 964 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 413.7 | - | - | - | - | - | - | - | - | - | - |
| MTR 45-12/7 | 45 | 2011 | 1044 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 414 | - | - | - | - | - | - | - | - | - | - |

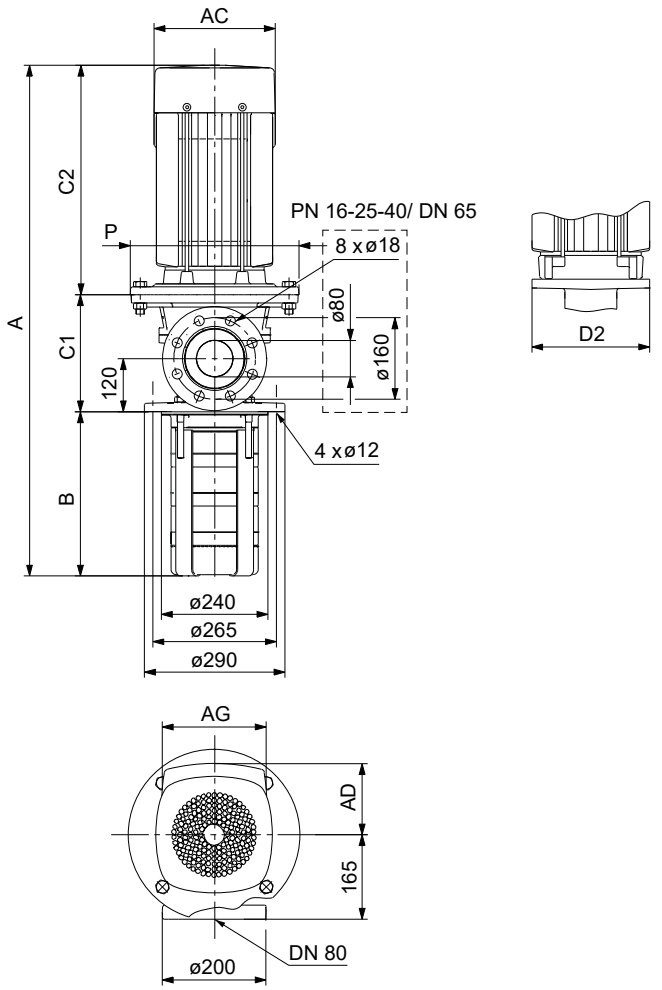
23) A+20 mm for MTR, MTRE pumps with drainage back to the tank.

The maximum immersion depth is 1444 mm.

## MTR, MTRE 64, 60 Hz



## Dimensional sketches




TM042792

## Dimensions and weights

| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [24] | B | C1 [24] | C2 | AC | D2 | P | AD | AG | | A [24] | B | C1 [24] | C2 | AC | D2 | P | AD | AG | |
| MTR, MTRE 64-2/1-1 | 7.5 | 868 | 249 | 240 | 379 | 260 | 298 | 300 | 159 | 203 | 109.2 | 878 | 249 | 240 | 389 | 255 | 298 | 300 | 237 | 346 | 104 |
| MTR, MTRE 64-2/1 | 11 | 971 | 249 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 147.2 | 895 | 249 | 240 | 406 | 255 | 350 | 350 | 237 | 346 | 123.8 |
| MTR, MTRE 64-2/2-2 | 15 | 971 | 249 | 240 | 482 | 318 | 350 | 350 | 204 | 243 | 159 | 971 | 249 | 240 | 482 | 318 | 350 | 350 | 303 | 420 | 141.8 |
| MTR, MTRE 64-2/2-1 | 18.5 | 1015 | 249 | 240 | 526 | 318 | 350 | 350 | 204 | 243 | 171.7 | 971 | 249 | 240 | 482 | 318 | 350 | 350 | 303 | 420 | 146.3 |
| MTR, MTRE 64-2/2 | 22 | 1041 | 249 | 240 | 552 | 318 | 350 | 350 | 204 | 243 | 186.9 | 997 | 249 | 240 | 508 | 318 | 350 | 350 | 303 | 420 | 160.2 |
| MTR, MTRE 64-3/3-2 | 22 | 1124 | 332 | 240 | 552 | 318 | 350 | 350 | 204 | 243 | 187.2 | 1080 | 332 | 240 | 508 | 318 | 350 | 350 | 303 | 420 | 160.5 |
| MTRE 64-3/3-1 | 26 | - | - | - | - | - | - | - | - | - | - | 1080 | 332 | 240 | 508 | 318 | 350 | 350 | 303 | 420 | 160.6 |
| MTR 64-3/3-1 | 30 | 1183 | 332 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 287 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-3/3 | 30 | 1183 | 332 | 240 | 611 | 396 | 400 | 400 | 315 | 265 | 287 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-4/4-2 | 37 | 1290 | 414 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 312.3 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-4/4-1 | 37 | 1290 | 414 | 240 | 636 | 396 | 400 | 400 | 315 | 265 | 312.3 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-4/4 | 45 | 1381 | 414 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 414.7 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-5/5-2 | 45 | 1464 | 497 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 415 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-6/5-2 | 45 | 1546 | 579 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 415.3 | - | - | | | - | - | - | - | - | - |
| MTR 64-7/5-2 | 45 | 1629 | 662 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 415.6 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-8/5-2 | 45 | 1711 | 744 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 415.9 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-9/5-2 | 45 | 1794 | 827 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 416.2 | - | - | - | - | - | - | - | - | - | - |

| Pump type | P2 [kW] | MTR | | | | | | | | | | MTRE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | | | | | Net weight [kg] | Dimensions [mm] | | | | | | | | | Net weight [kg] |
| | | A [24)] | B | C1 [24)] | C2 | AC | D2 | P | AD | AG | | A [24)] | B | C1 [24)] | C2 | AC | D2 | P | AD | AG | |
| MTR 64-10/5-2 | 45 | 1876 | 909 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 416.5 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-11/5-2 | 45 | 1959 | 992 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 416.8 | - | - | - | - | - | - | - | - | - | - |
| MTR 64-12/5-2 | 45 | 2041 | 1074 | 259 | 708 | 449 | 450 | 450 | 338 | 266 | 417.1 | - | - | - | - | - | - | - | - | - | - |

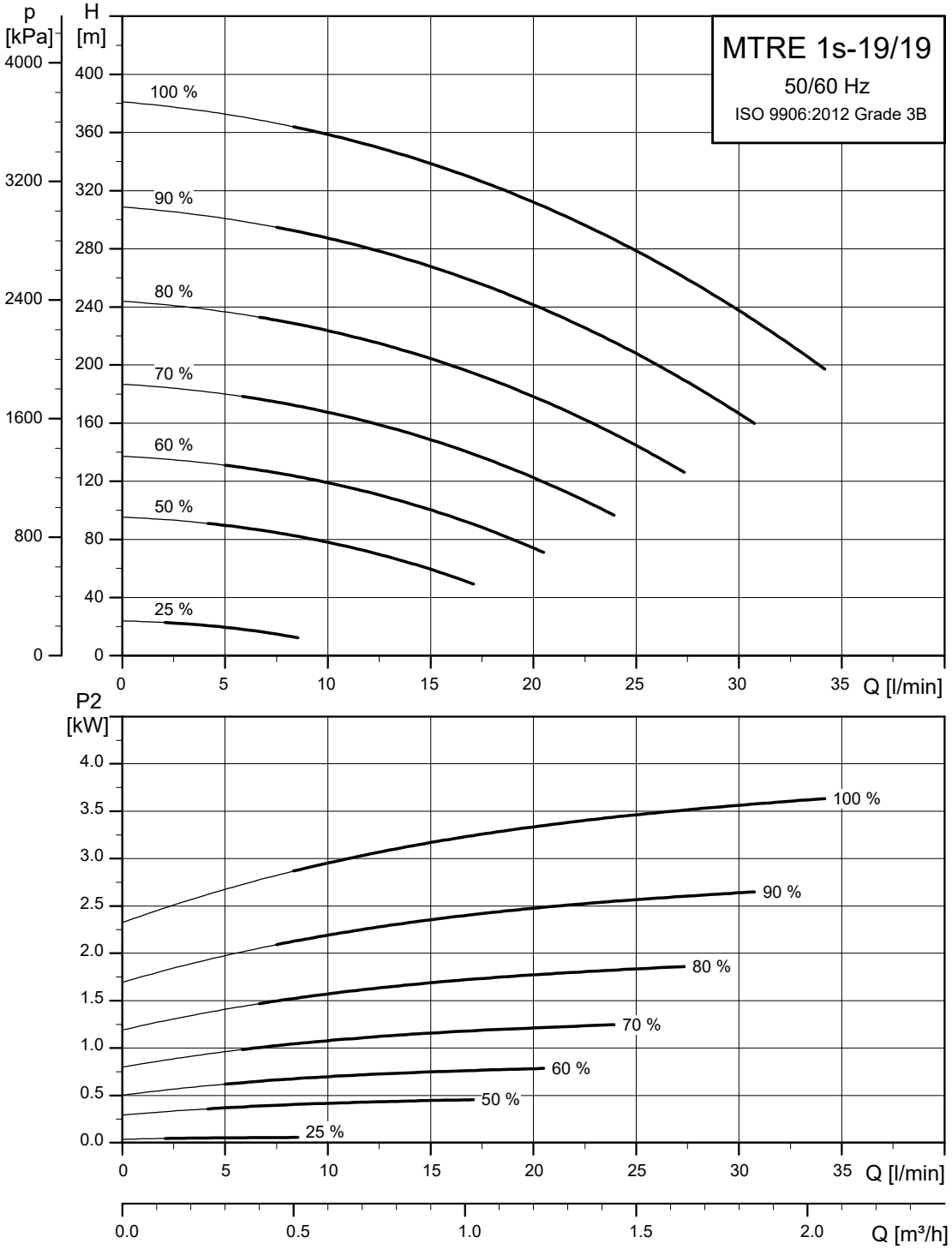
24) A+20 mm for MTR, MTRE pumps with drainage back to the tank.

The maximum immersion depth is 1487 mm.

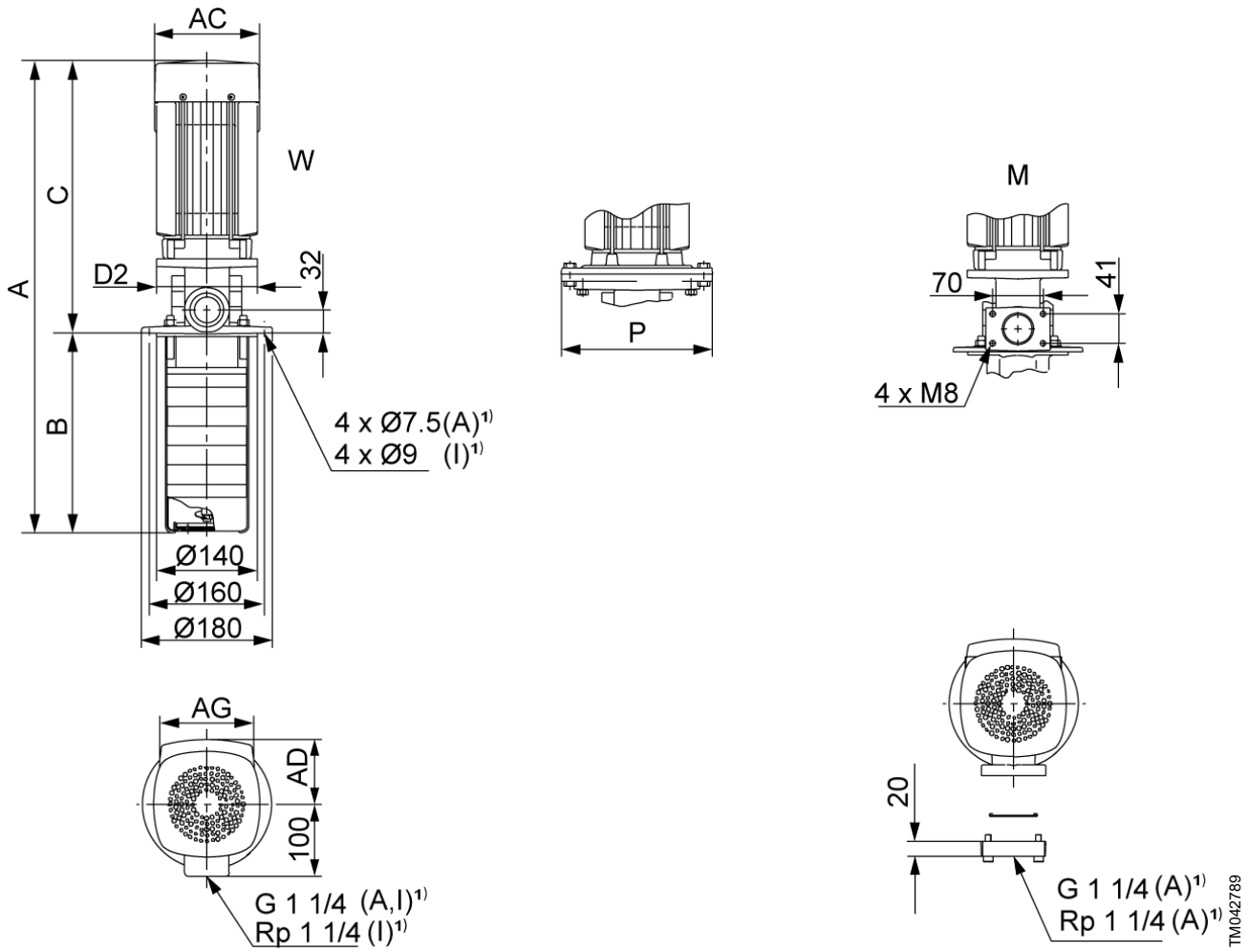
## MTRE for high-pressure applications

For high-pressure applications, Grundfos offers a unique MTR pump capable of generating up to 38 bar. These pumps are equipped with a high-speed motor, type MGE.

**MTRE 1s high-pressure pump**



**Dimensional sketches**




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

**Dimensions and weight**

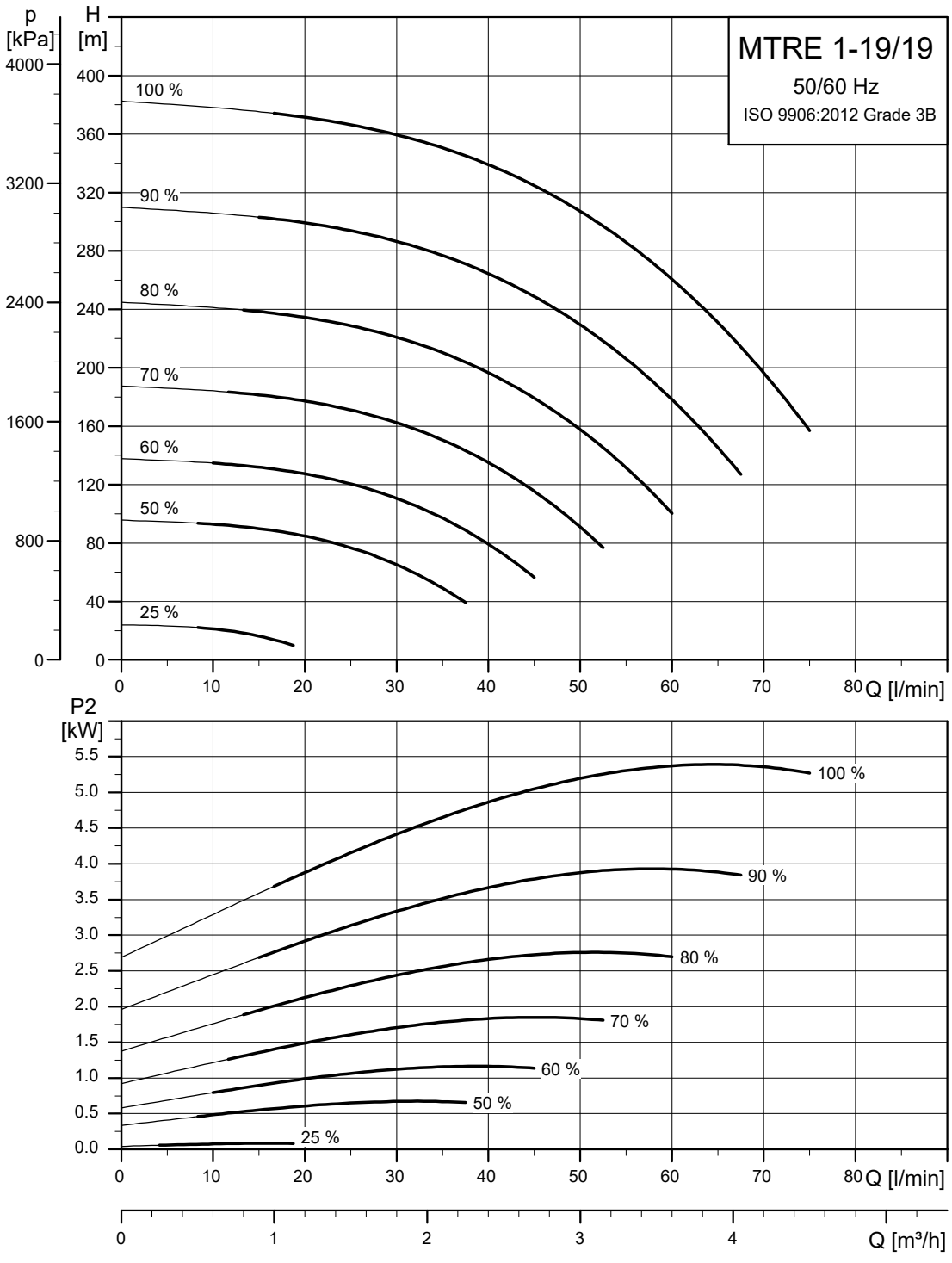
| Pump type | P2 [kW] | Dimensions [mm] | | | | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | P | AD | AG | |
| MTRE1s-19/19 HS | 4 | 968 | 466 | 502 | 191 | 140 | | 201 | 291 | 51.2 |

The maximum immersion depth is 1006 mm.

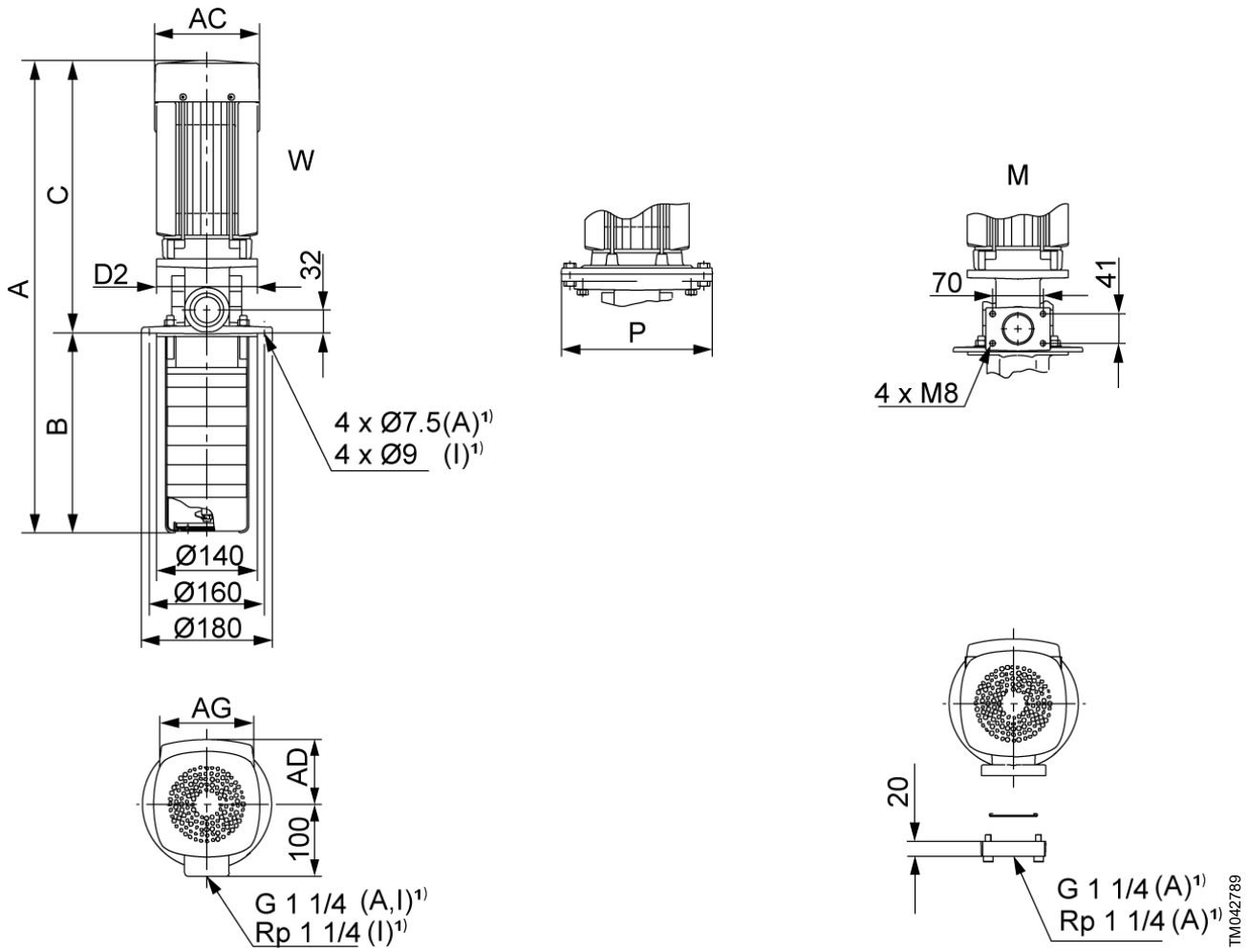
**Electrical data**

| Voltage | P2 [kW] | Type | $I_{1/1}$ [A] | Power factor $\cos \varphi_{1/1}$ | Motor efficiency | | Max. motor speed [$min^{-1}$] |
|---|---|---|---|---|---|---|---|
| | | | | | η [%] | Class | |
| 3 x 380-500 V, 50/60 Hz | 4 | MGE112MC | 7.60 - 6.10 | 0.87 - 0.92 | 91.3 | IE5 | 5900 |

**MTRE 1 high-pressure pump**



**Dimensional sketches**




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

**Dimensions and weight**

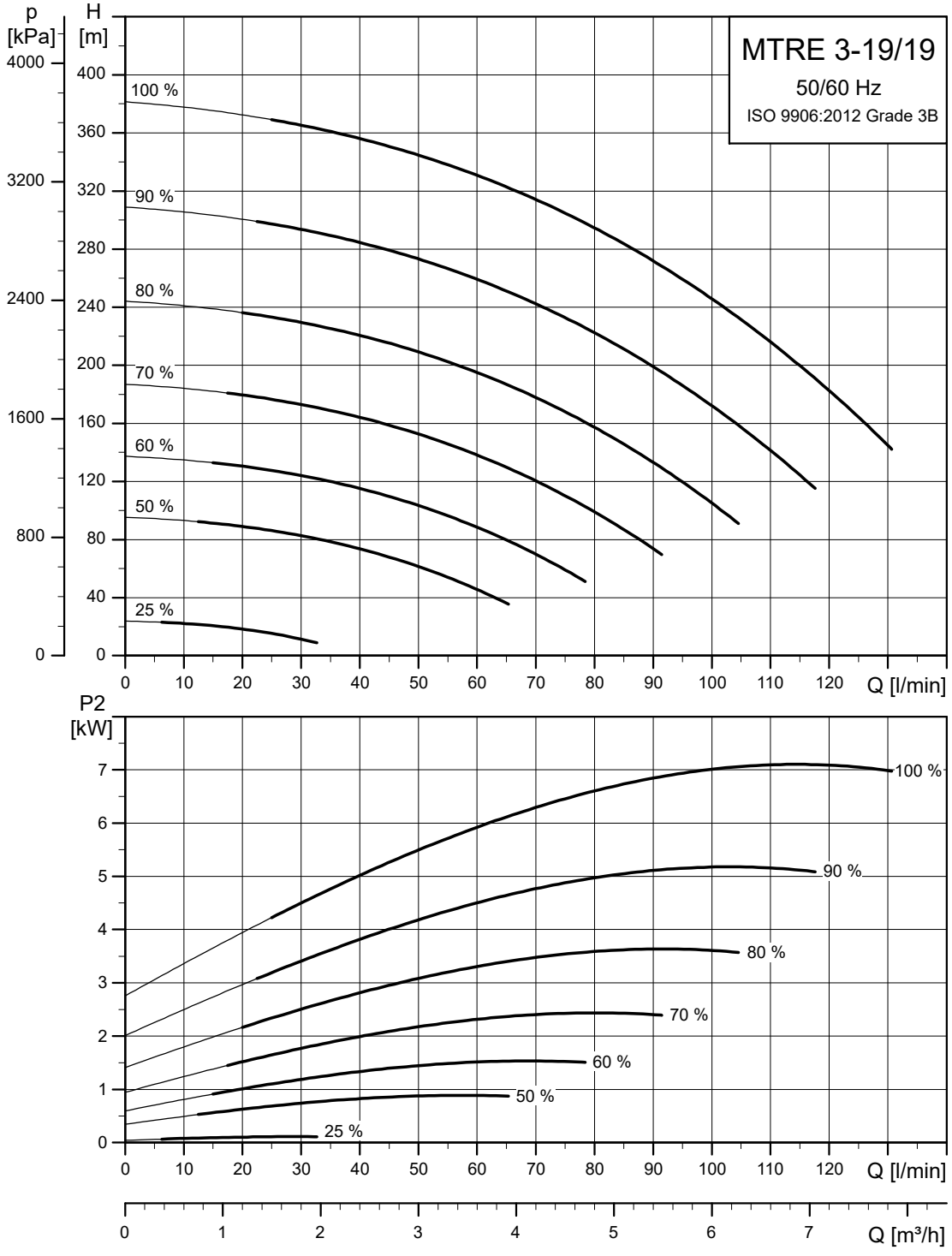
| Pump type | Dimensions [mm] | | | | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | AC | D2 | P | AD | AG | |
| MTRE1-19/19 HS | 1019 | 466 | 553 | 191 | 160 | 300 | 201 | 291 | 68.3 |

The maximum immersion depth is 1006 mm.

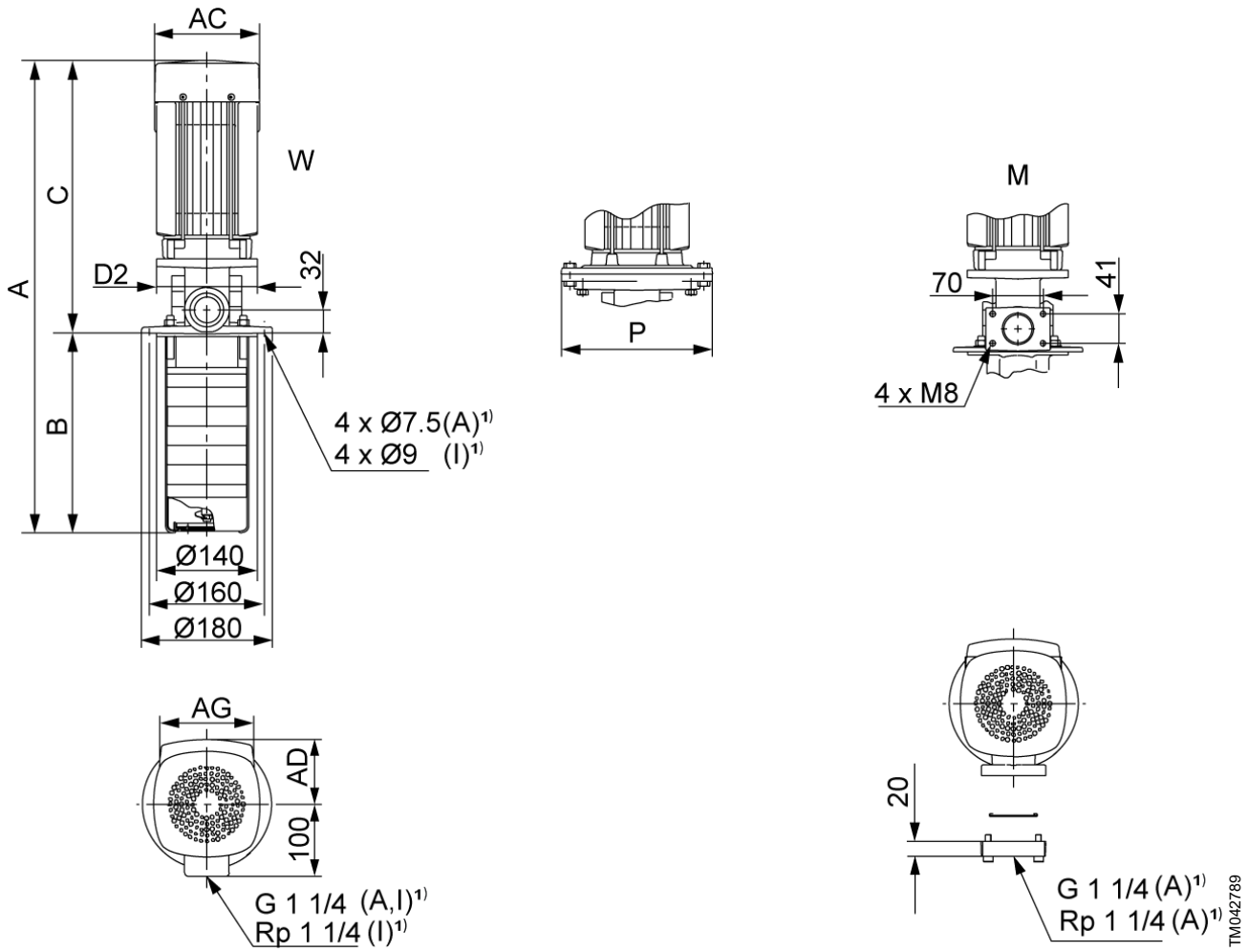
**Electrical data**

| Voltage | P2 [kW] | Type | $I_{1/1}$ [A] | Power factor cos $\varphi_{1/1}$ | Motor efficiency | | Max. motor speed [$min^{-1}$] |
|---|---|---|---|---|---|---|---|
| | | | | | η [%] | Class | |
| 3 x 380-500 V, 50/60 Hz | 5.5 | MGE132SE | 10.5 - 8.30 | 0.92 - 0.88 | 90.5 | IE5 | 5900 |

**MTRE 3 high-pressure pump**



**Dimensional sketches**




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

**Dimensions and weight**

| Pump type | Dimensions [mm] | | | | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | AC | D2 | P | AD | AG | |
| MTRE3-19/19 HS | 1037 | 466 | 571 | 255 | 160 | 300 | 237 | 346 | 73.9 |

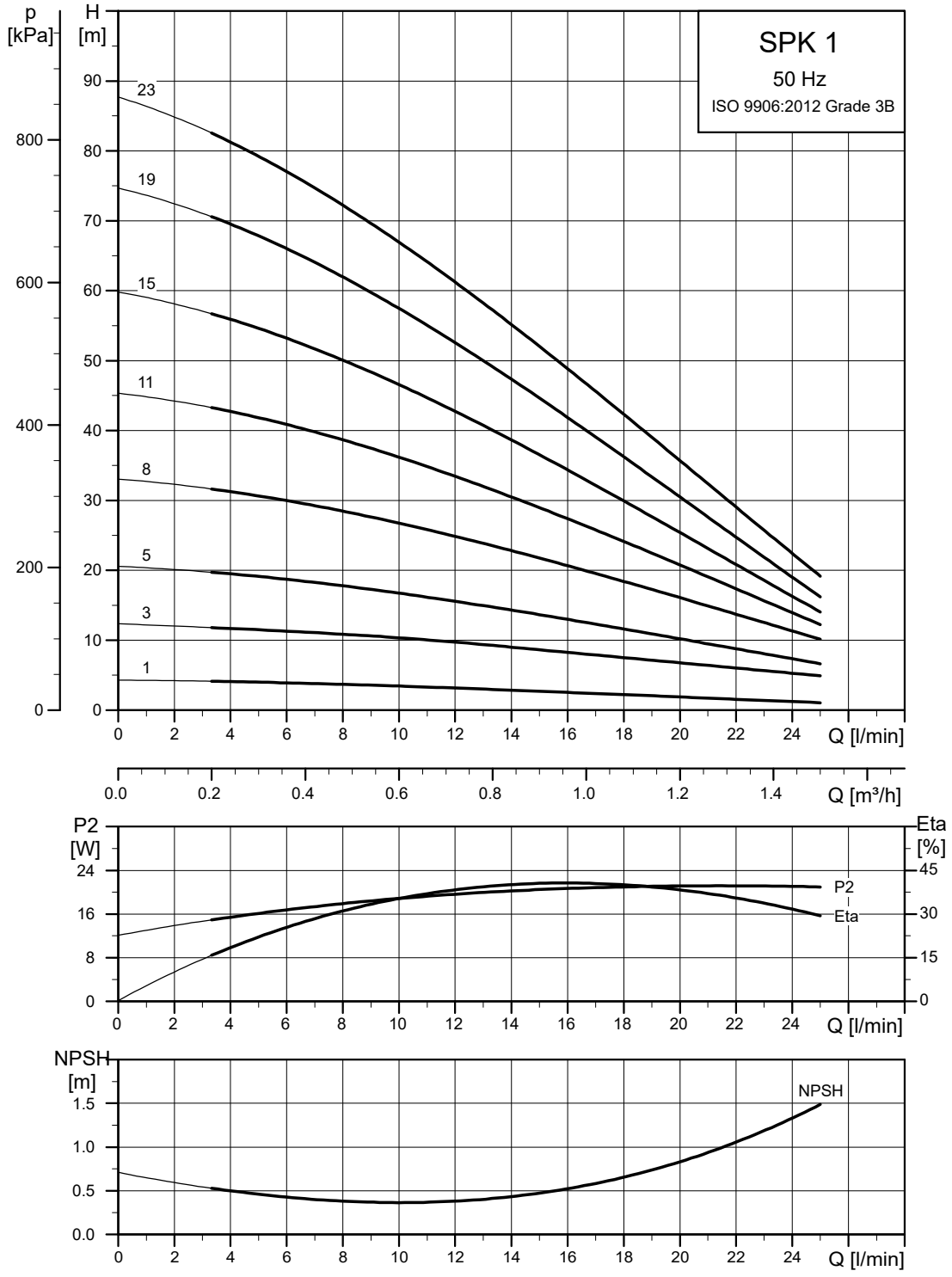
The maximum immersion depth is 1006 mm.

**Electrical data**

| Voltage | P2 [kW] | Type | $I_{1/1}$ [A] | Power factor $\cos \varphi_{1/1}$ | Motor efficiency | | Max. motor speed [$min^{-1}$] |
|---|---|---|---|---|---|---|---|
| | | | | | η [%] | Class | |
| 3 x 380-500 V, 50/60 Hz | 7.5 | MGE132SF | 14.2 - 11.3 | 0.93 - 0.89 | 90.9 | IE5 | 5900 |

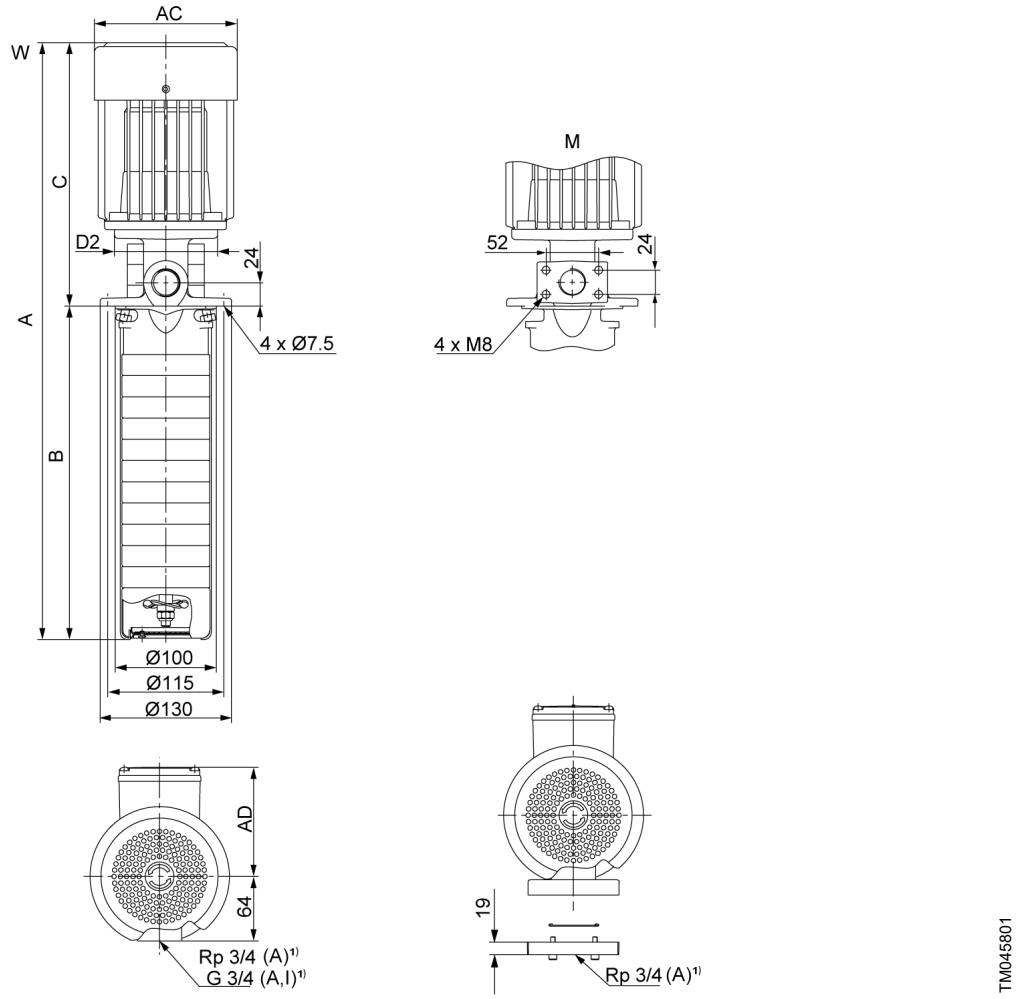
## SPK, 50 Hz

### SPK 1, 50 Hz




TM001930

## Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

## Dimensions and weights

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 25) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 1-1/1 | 0.06 | 395 | 140 | 255 | 124 | 90 | 101 | 9.3 |
| SPK 1-3/3 | 0.12 | 437 | 182 | 255 | 124 | 90 | 101 | 8.7 |
| SPK 1-5/5 | 0.12 | 479 | 224 | 255 | 124 | 90 | 101 | 9.3 |
| SPK 1-8/8 | 0.18 | 543 | 287 | 256 | 124 | 90 | 101 | 10.1 |
| SPK 1-11/11 | 0.25 | 596 | 350 | 246 | 141 | 102 | 109 | 12.6 |
| SPK 1-15/15 | 0.37 | 701 | 434 | 267 | 141 | 102 | 109 | 14 |
| SPK 1-19/19 | 0.37 | 785 | 518 | 267 | 141 | 102 | 109 | 15.1 |
| SPK 1-23/23 | 0.55 | 869 | 602 | 267 | 141 | 102 | 109 | 15.7 |

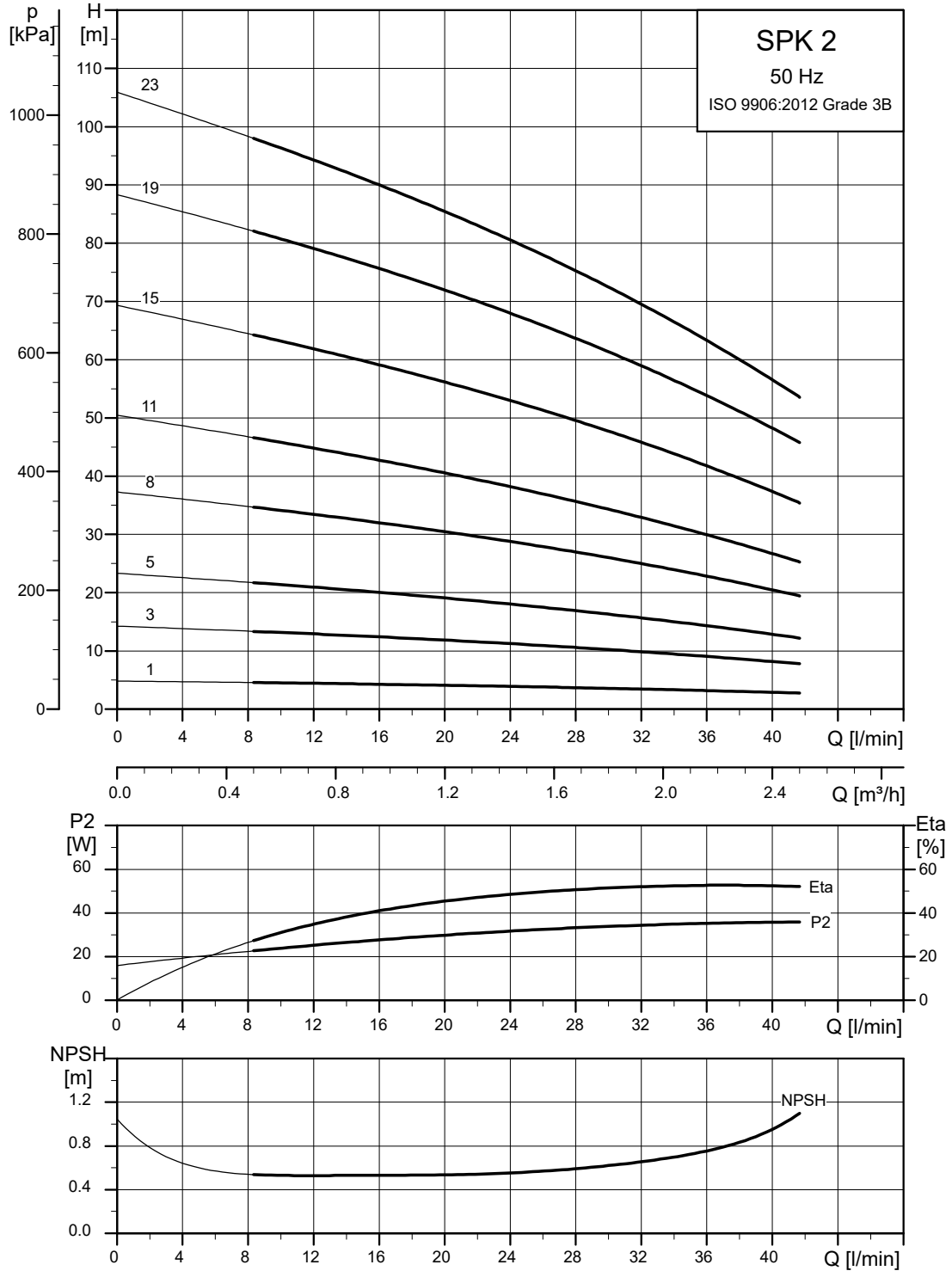
## SPK with extension pipe

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 25) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 1-23/23 | 0.55 | 1272 | 1005 | 267 | 141 | 102 | 109 | 20.3 |

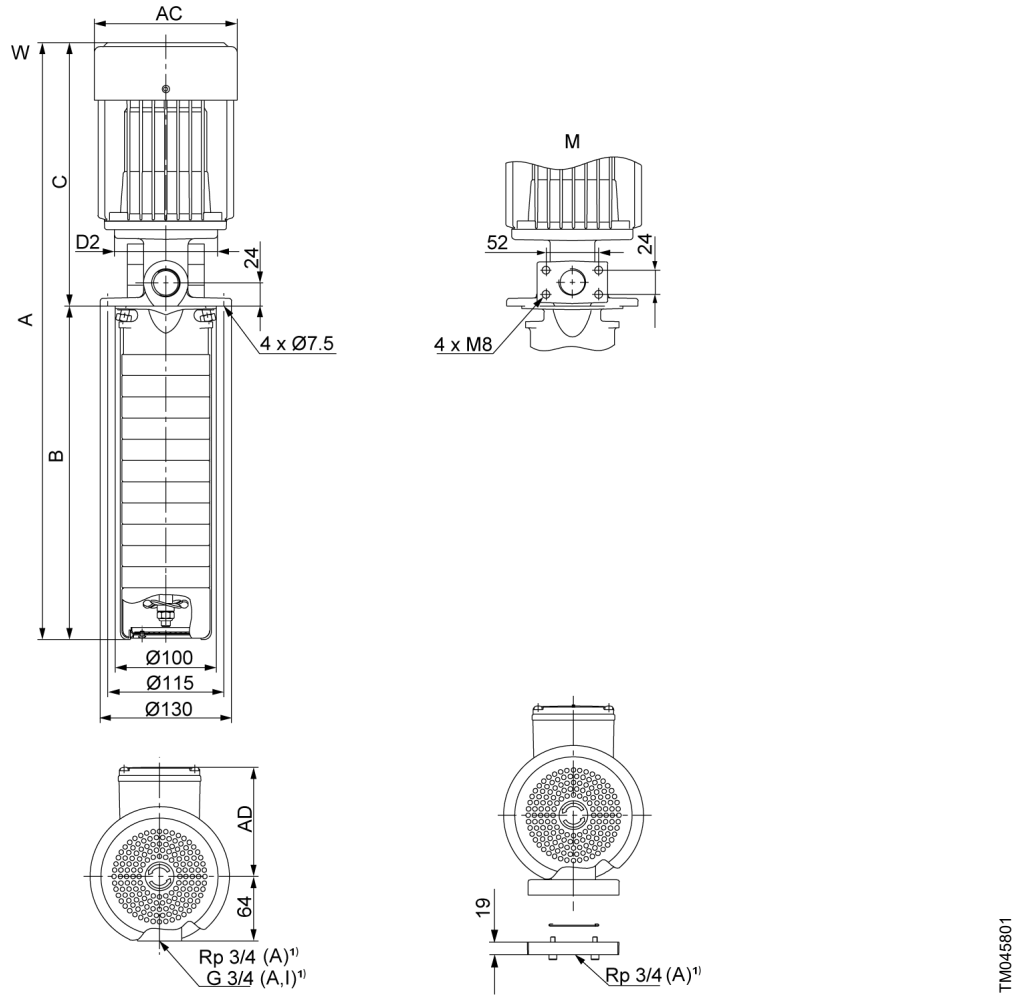
25) The weights apply to the standard range (A-version). For the stainless steel versions (I-version), add 1 kg.

For information about electrical data, see the section on electrical data.

## SPK 2, 50 Hz


SPK 2
50 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
23
19
15
11
8
5
3
1
Q [l/min]
Q [m³/h]
P2 [W]
Eta [%]
Eta
P2
NPSH [m]
NPSH
TM001932

## Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

## Dimensions and weights

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 26) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 2-1/1 | 0.06 | 395 | 140 | 255 | 124 | 90 | 101 | 9.3 |
| SPK 2-3/3 | 0.12 | 437 | 182 | 255 | 124 | 90 | 101 | 8.8 |
| SPK 2-5/5 | 0.18 | 480 | 224 | 256 | 124 | 90 | 101 | 9.3 |
| SPK 2-8/8 | 0.37 | 554 | 287 | 267 | 141 | 102 | 109 | 12.1 |
| SPK 2-11/11 | 0.37 | 617 | 350 | 267 | 141 | 102 | 109 | 12.9 |
| SPK 2-15/15 | 0.55 | 701 | 434 | 267 | 141 | 102 | 109 | 13.6 |
| SPK 2-19/19 | 0.75 | 825 | 518 | 307 | 141 | 120 | 109 | 17.2 |
| SPK 2-23/23 | 0.75 | 909 | 602 | 307 | 141 | 120 | 109 | 18.4 |

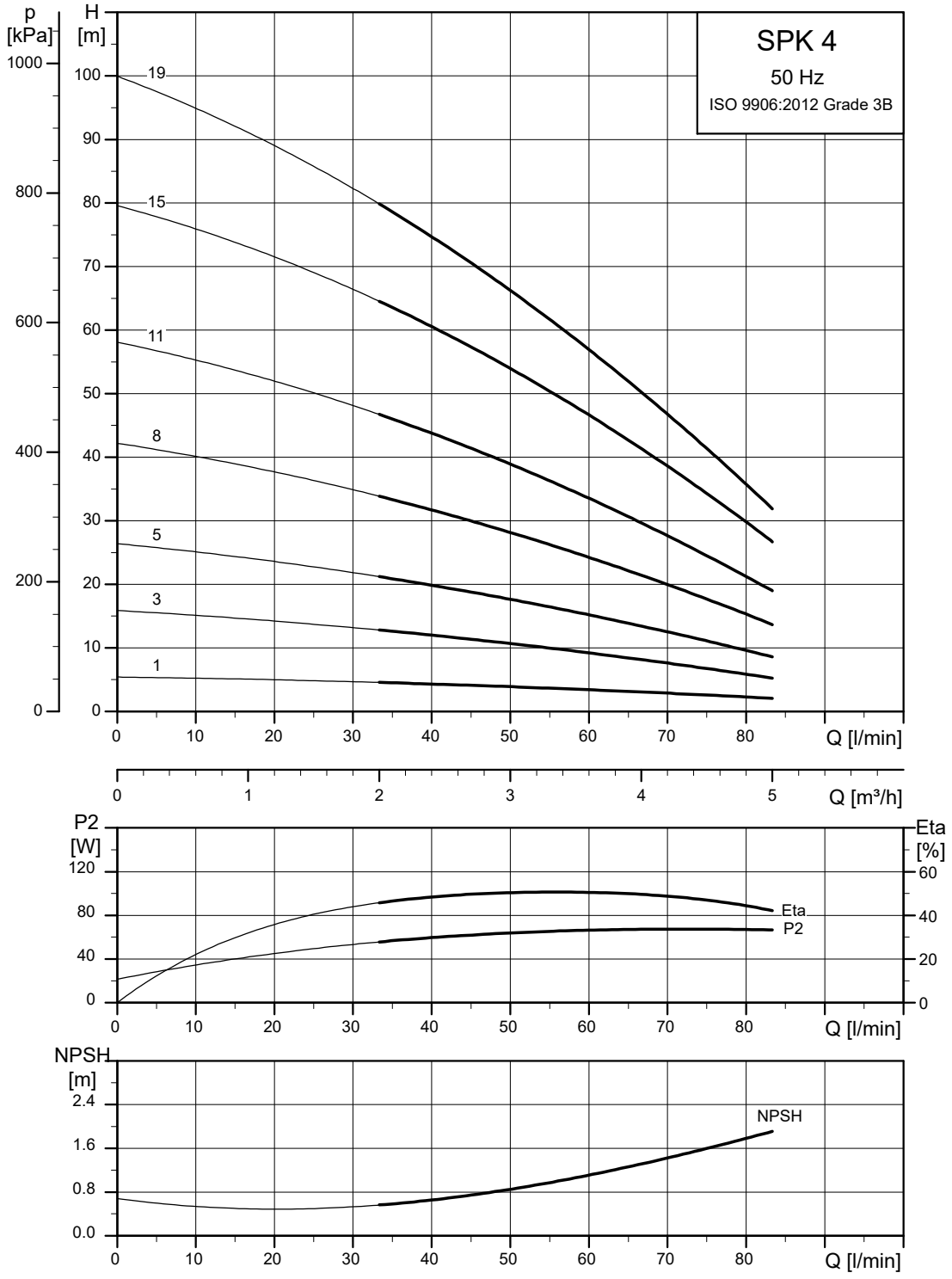
26) The weights apply to the standard range (A-version). For the stainless steel versions (I-version), add 1 kg.

## SPK with extension pipe

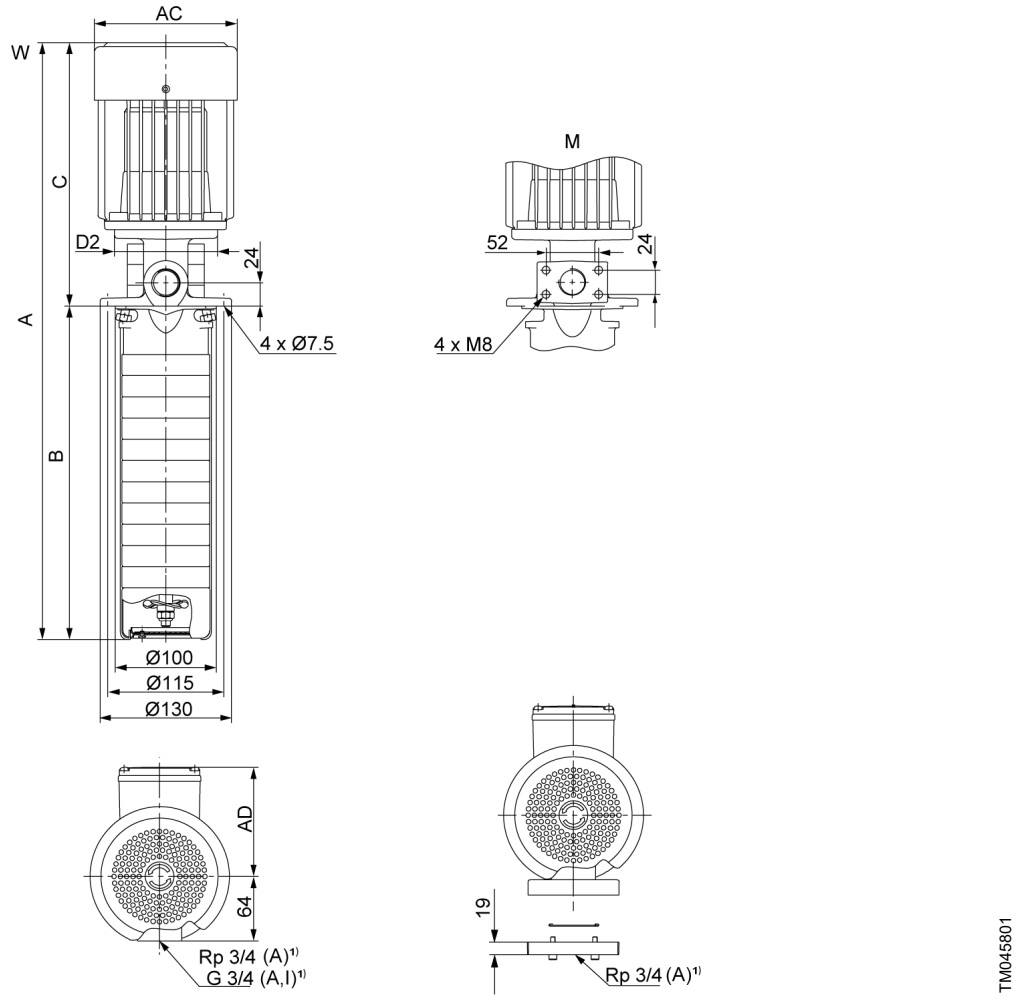
| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 26) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 2-23/23 | 0.75 | 1312 | 1005 | 307 | 141 | 120 | 109 | 23 |

For information about electrical data, see the section on electrical data.

**SPK 4, 50 Hz**


SPK 4
50 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
19
15
11
8
5
3
1
Q [l/min]
Q [m³/h]
P2 [W]
Eta [%]
Eta
P2
NPSH [m]
NPSH
TM001934

## Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

## Dimensions and weights

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 27) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 4-1/1 | 0.12 | 395 | 140 | 255 | 124 | 90 | 101 | 8.3 |
| SPK 4-3/3 | 0.25 | 428 | 182 | 246 | 141 | 102 | 109 | 10.3 |
| SPK 4-5/5 | 0.37 | 491 | 224 | 267 | 141 | 102 | 109 | 10.8 |
| SPK 4-8/8 | 0.55 | 554 | 287 | 267 | 141 | 102 | 109 | 10.7 |
| SPK 4-11/11 | 0.75 | 657 | 350 | 307 | 141 | 120 | 109 | 13.6 |
| SPK 4-15/15 | 1.1 | 761 | 434 | 327 | 141 | 120 | 109 | 16.3 |
| SPK 4-19/19 | 1.1 | 845 | 518 | 327 | 141 | 120 | 109 | 16.9 |

27) The weights apply to the standard range (A-version). For the stainless steel versions (I-version), add 1.3 kg.

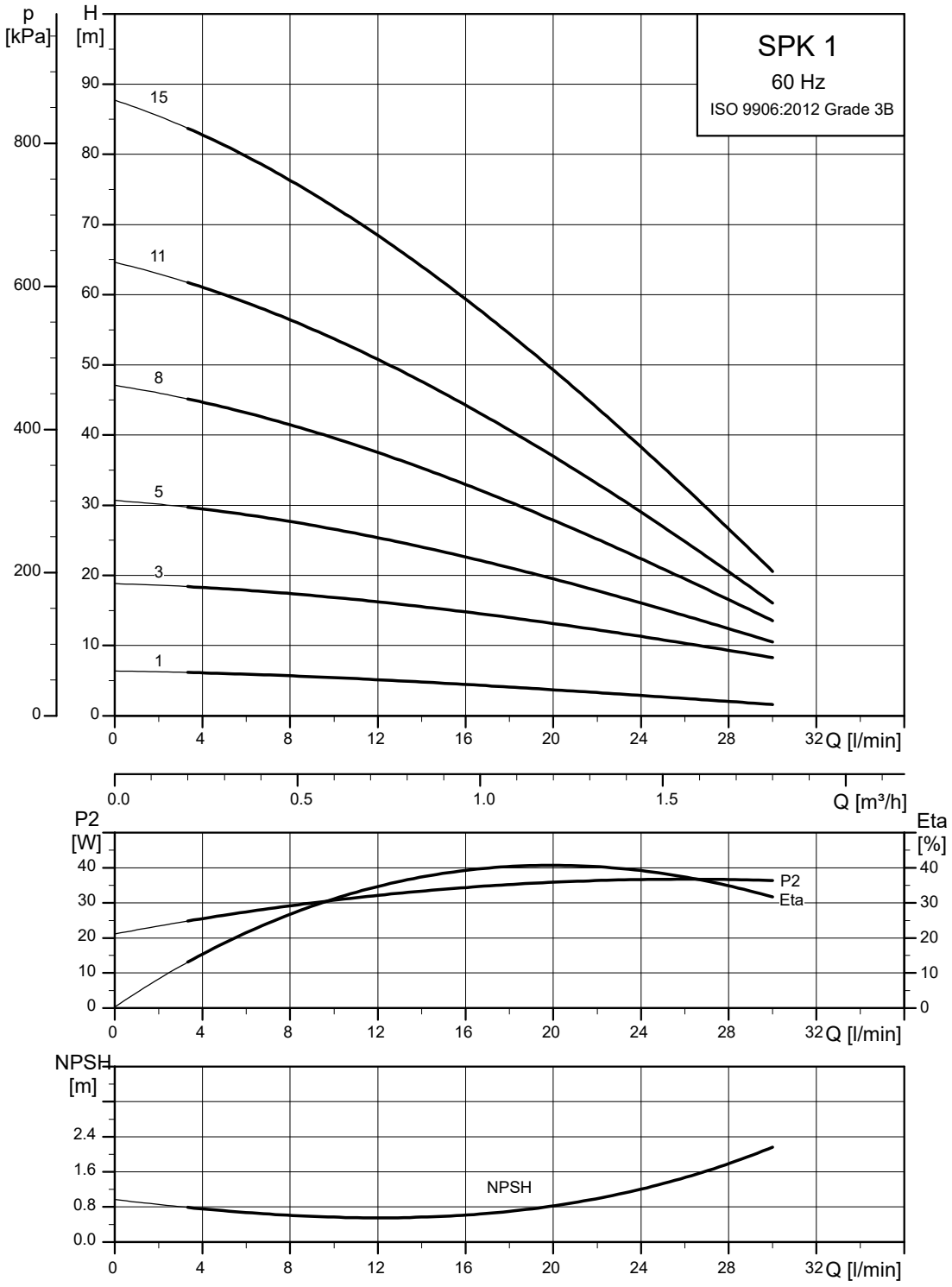
## SPK with extension pipe

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 27) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 4-19/19 | 1.1 | 1332 | 1005 | 327 | 141 | 120 | 109 | 22.1 |

For information about electrical data, see the section on electrical data.

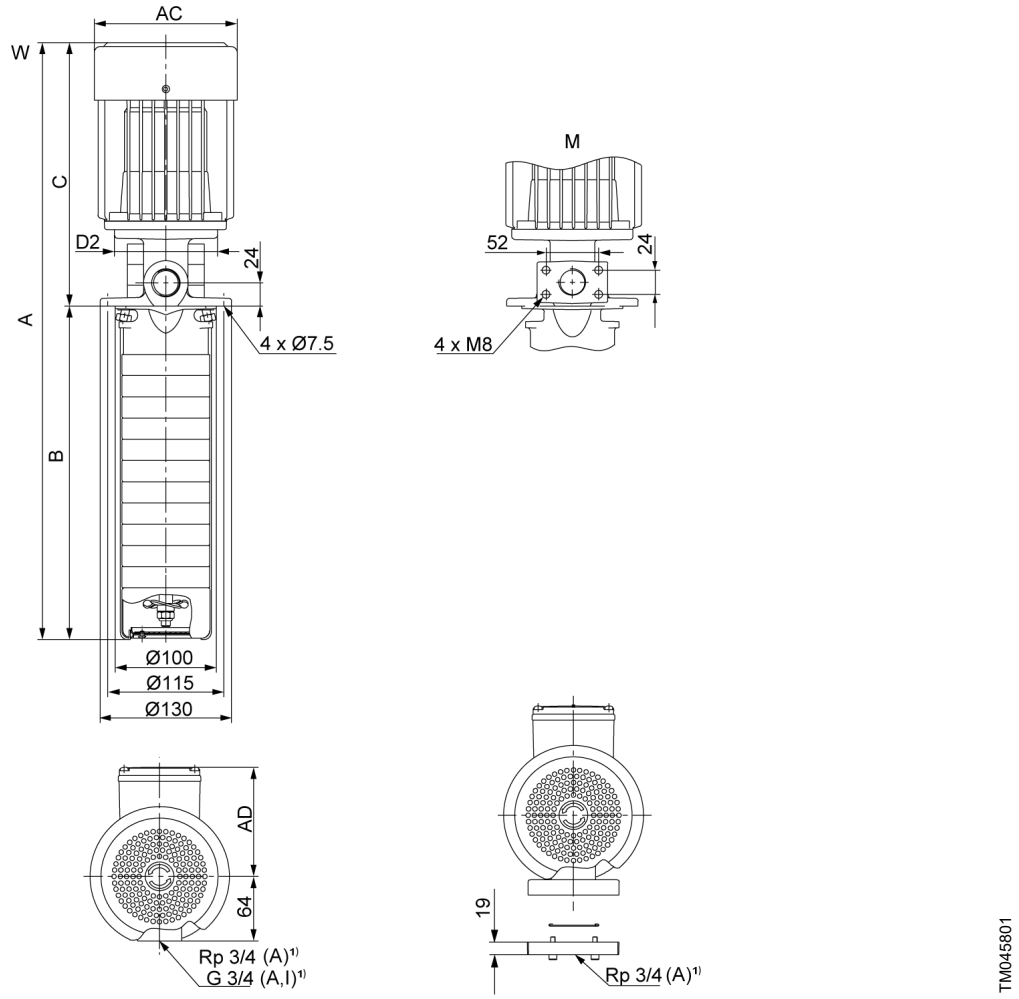
## SPK, 60 Hz

### SPK 1, 60 Hz




TM001931

## Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

## Dimensions and weights

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 28) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 1-1/1 | 0.06 | 395 | 140 | 255 | 124 | 90 | 101 | 9.3 |
| SPK 1-3/3 | 0.12 | 437 | 182 | 255 | 124 | 90 | 101 | 8.7 |
| SPK 1-5/5 | 0.25 | 479 | 224 | 255 | 141 | 90 | 109 | 9 |
| SPK 1-8/8 | 0.25 | 533 | 287 | 246 | 141 | 102 | 109 | 11.8 |
| SPK 1-11/11 | 0.37 | 617 | 350 | 267 | 141 | 102 | 109 | 12.8 |
| SPK 1-15/15 | 0.55 | 701 | 434 | 267 | 141 | 102 | 109 | 13.4 |
| SPK 1-19/15 | 0.55 | 785 | 518 | 267 | 141 | 102 | 109 | 13.8 |
| SPK 1-23/15 | 0.55 | 869 | 602 | 267 | 141 | 102 | 109 | 14.3 |

28) The weights apply to the standard range (A-version). For the stainless steel versions (I-version), add 1 kg.

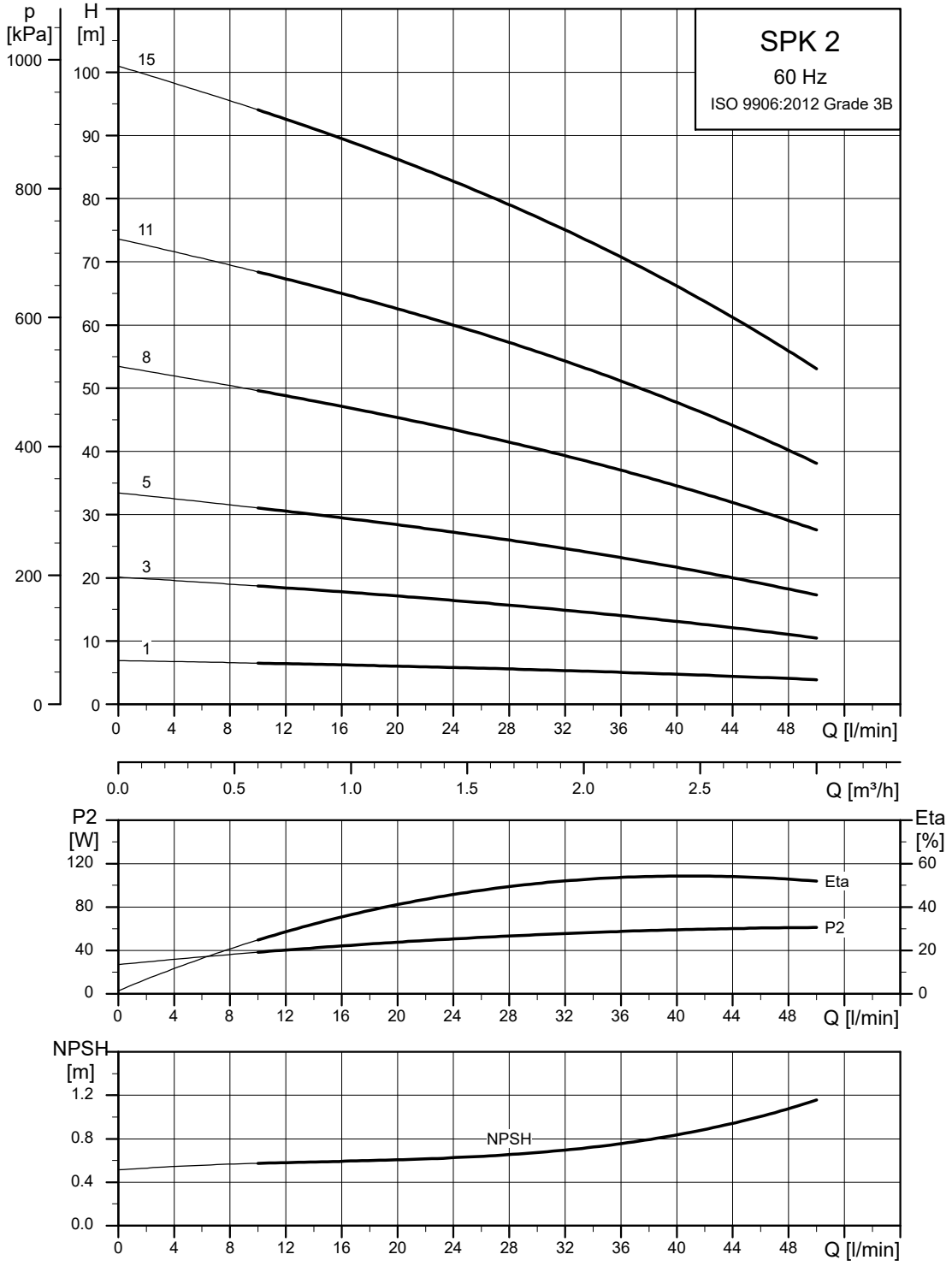
## SPK with extension pipe

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 29) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 1-23/15 | 0.55 | 1272 | 1.005 | 267 | 141 | 102 | 109 | 19 |

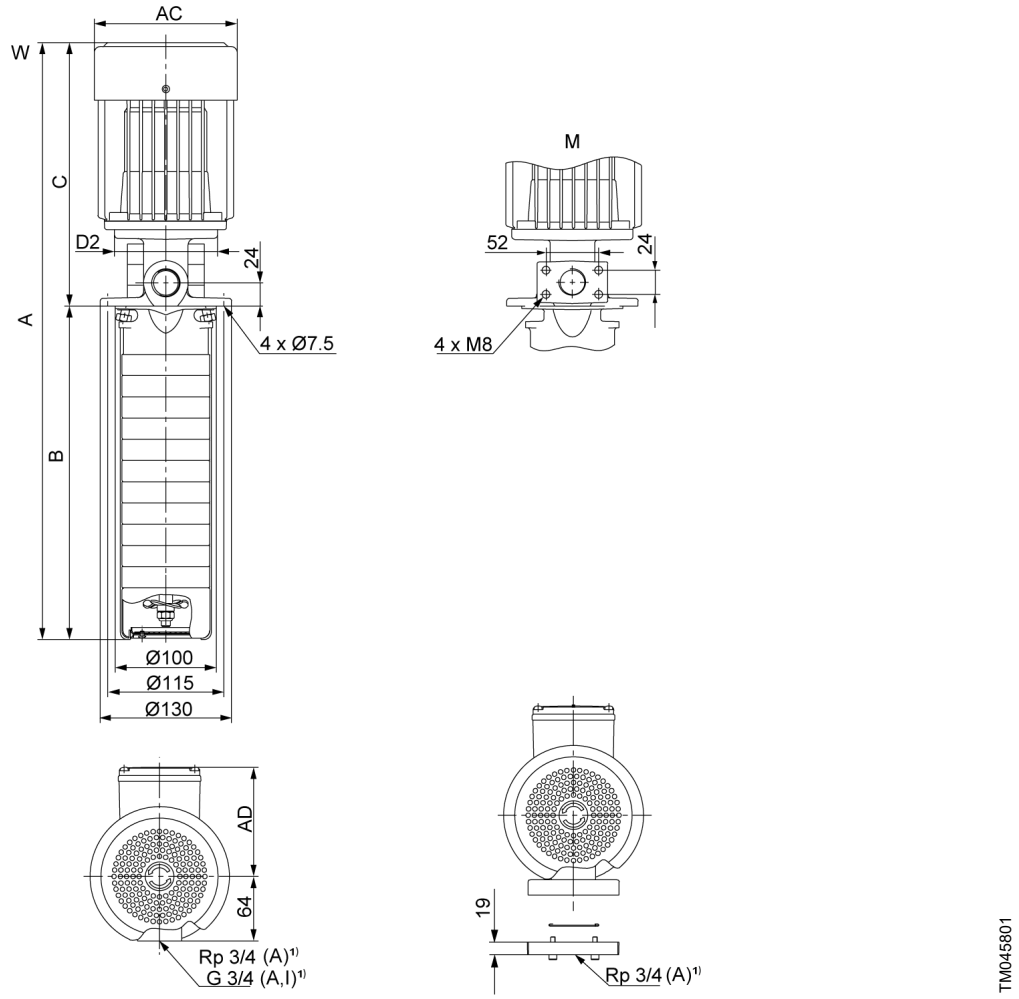
29) The weights apply to the standard range (A-version). For the stainless steel versions (I-version), add 1 kg.

For information about electrical data, see the section on electrical data.

## SPK 2, 60 Hz


SPK 2
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
15
11
8
5
3
1
Q [l/min]
Q [m³/h]
P2 [W]
Eta [%]
Eta
P2
NPSH [m]
NPSH
TM001933

## Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

## Dimensions and weights

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 30) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 2-1/1 | 0.06 | 395 | 140 | 255 | 124 | 90 | 101 | 9.3 |
| SPK 2-3/3 | 0.25 | 437 | 182 | 255 | 141 | 90 | 109 | 8 |
| SPK 2-5/5 | 0.37 | 491 | 224 | 267 | 141 | 102 | 109 | 11.2 |
| SPK 2-8/8 | 0.55 | 554 | 287 | 267 | 141 | 102 | 109 | 11.5 |
| SPK 2-11/11 | 0.75 | 657 | 350 | 307 | 141 | 120 | 109 | 14.9 |
| SPK 2-15/15 | 1.1 | 761 | 434 | 327 | 141 | 120 | 109 | 18 |
| SPK 2-19/15 | 1.1 | 845 | 518 | 327 | 141 | 120 | 109 | 18.5 |
| SPK 2-23/15 | 1.1 | 929 | 602 | 327 | 141 | 120 | 109 | 18.9 |

30) The weights apply to the standard range (A-version). For the stainless steel versions (I-version), add 1 kg.

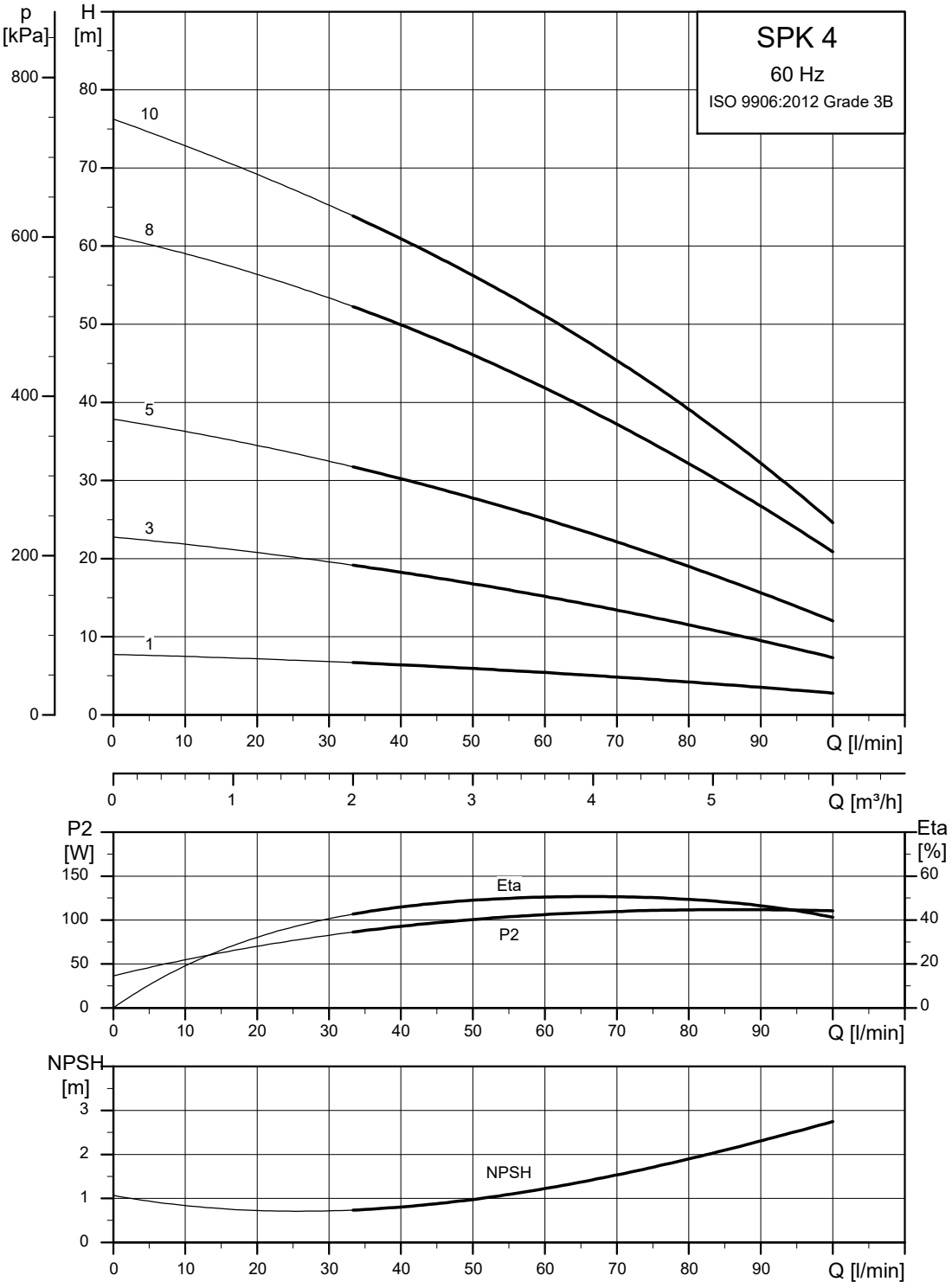
## SPK with extension pipe

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 31) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 2-23/15 | 1.1 | 1332 | 1005 | 327 | 141 | 120 | 109 | 23.6 |

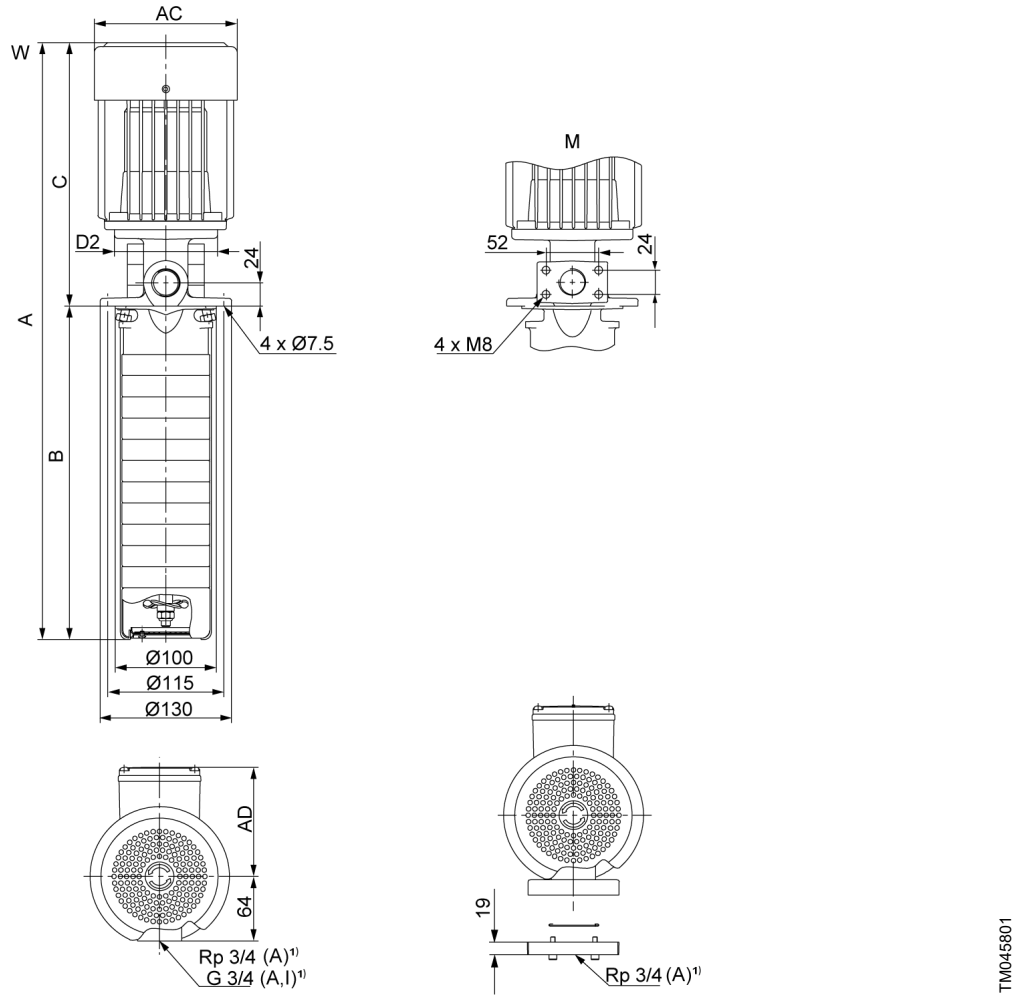
31) The weights apply to the standard range (A-version). For the stainless steel versions (I-version), add 1 kg.

For information about electrical data, see the section on electrical data.

**SPK 4, 60 Hz**


SPK 4
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
10
8
5
3
1
Q [l/min]
Q [m³/h]
P2 [W]
Eta [%]
Eta
P2
NPSH [m]
NPSH
TM001935

## Dimensional sketches




*W: Internal thread connection. M: Square flange.*

1) A: Basic version, cast iron. I: Stainless steel version.

## Dimensions and weights

| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 32) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 4-1/1 | 0.12 | 395 | 140 | 255 | 124 | 90 | 101 | 8.3 |
| SPK 4-3/3 | 0.37 | 449 | 182 | 267 | 141 | 102 | 109 | 10.5 |
| SPK 4-5/5 | 0.55 | 491 | 224 | 267 | 141 | 102 | 109 | 10.2 |
| SPK 4-8/8 | 1.1 | 614 | 287 | 327 | 141 | 120 | 109 | 15.2 |
| SPK 4-11/10 | 1.1 | 677 | 350 | 327 | 141 | 120 | 109 | 15.5 |
| SPK 4-15/10 | 1.1 | 761 | 434 | 327 | 141 | 120 | 109 | 16.1 |
| SPK 4-19/10 | 1.1 | 845 | 518 | 327 | 141 | 120 | 109 | 16.6 |

32) The weights apply to the standard range (A-version). For the stainless steel versions (I-version), add 1.3 kg.

## SPK with extension pipe

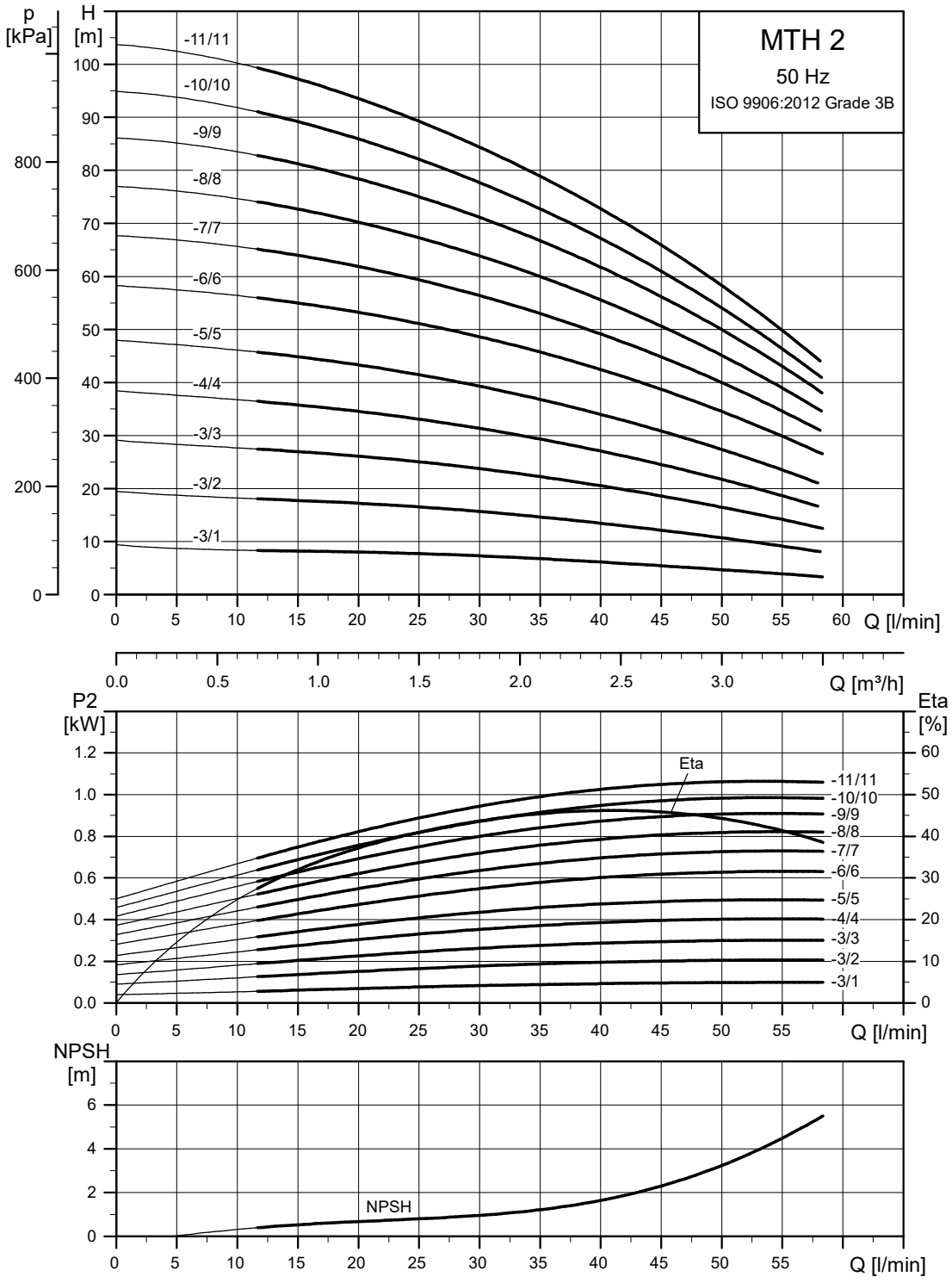
| Pump type | P2 [kW] | Dimensions [mm] | | | | | | Weight 33) [kg] |
|---|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | D2 | AD | |
| SPK 4-19/10 | 1.1 | 1332 | 1005 | 327 | 141 | 120 | 109 | 21.8 |

33) The weights apply to the standard range (A-version). For the stainless steel versions (I-version), add 1.3 kg.

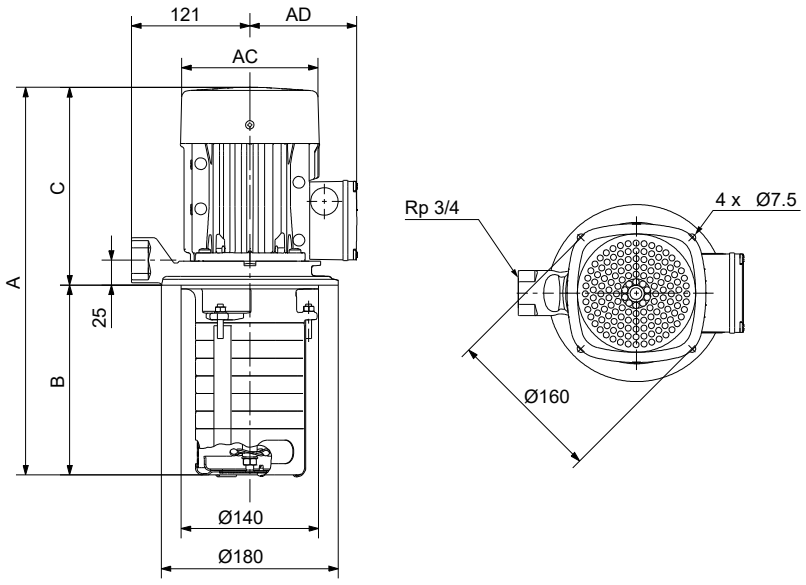
For information about electrical data, see the section on electrical data.

# MTH, 50 Hz

## MTH 2, 50 Hz



## Dimensional sketches




TM067672

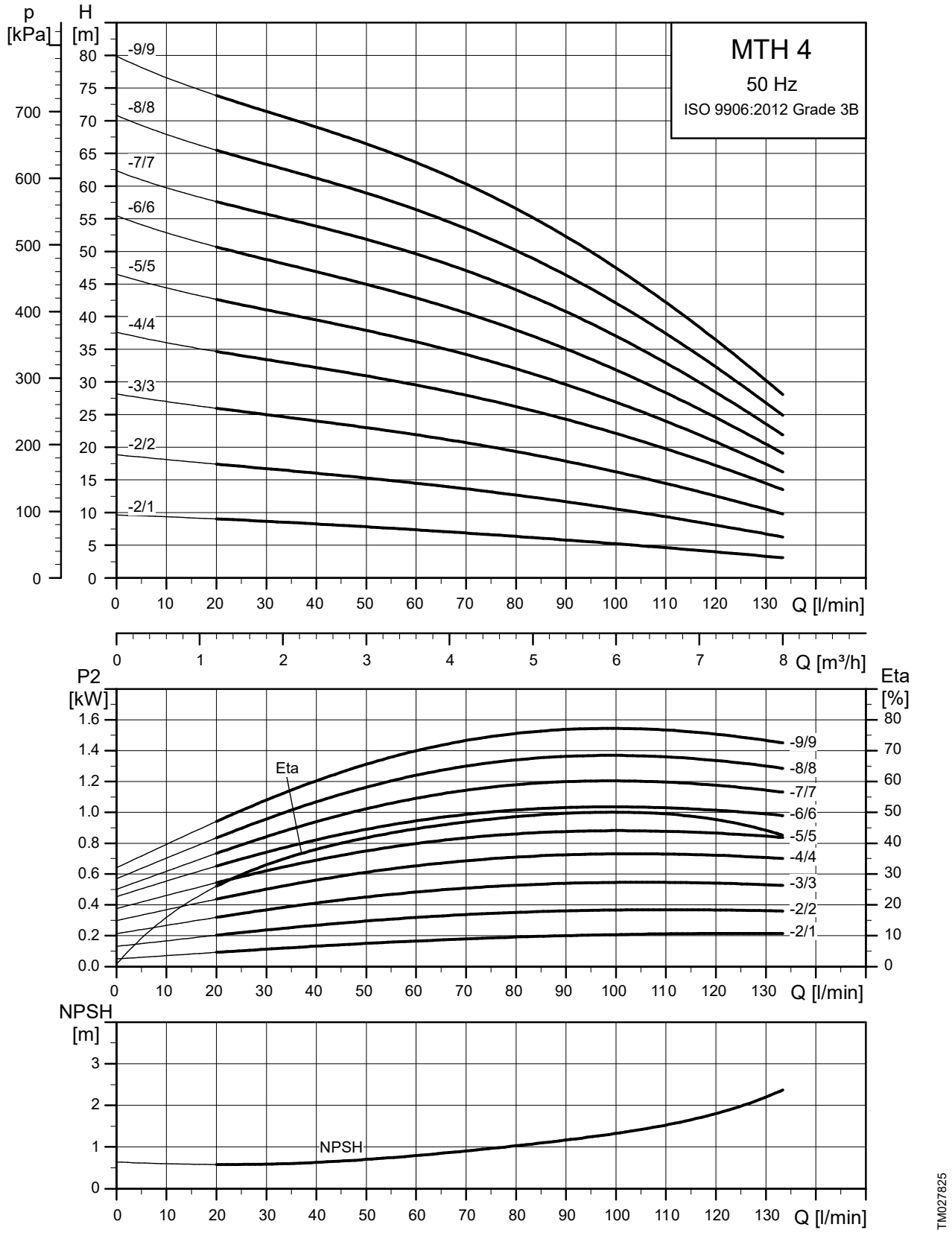
## Dimensions and weights

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 2-3/1 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13/12.4 34) |
| MTH 2-3/2 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13.1/12.5 34) |
| MTH 2-3/3 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13.2/12.6 34) |
| MTH 2-4/1 | 0.55 | 365 | 163 | 202 | 141 | 109 | 13.3/12.7 34) |
| MTH 2-4/2 | 0.55 | 365 | 163 | 202 | 141 | 109 | 13.5/12.9 34) |
| MTH 2-4/3 | 0.55 | 365 | 163 | 202 | 141 | 109 | 13.6/13 34) |
| MTH 2-4/4 | 0.75 | 405 | 163 | 242 | 141 | 109 | 16.5/13.4 34) |
| MTH 2-5/1 | 0.55 | 383 | 181 | 202 | 141 | 109 | 13.7/13.1 34) |
| MTH 2-5/2 | 0.55 | 383 | 181 | 202 | 141 | 109 | 13.9/13.3 34) |
| MTH 2-5/3 | 0.55 | 383 | 181 | 202 | 141 | 109 | 14/13.4 34) |
| MTH 2-5/4 | 0.75 | 423 | 181 | 242 | 141 | 109 | 17/13.9 34) |
| MTH 2-5/5 | 0.75 | 423 | 181 | 242 | 141 | 109 | 17.1/14 34) |
| MTH 2-6/1 | 0.55 | 401 | 199 | 202 | 141 | 109 | 13.9/13.3 34) |
| MTH 2-6/2 | 0.55 | 401 | 199 | 202 | 141 | 109 | 14.2/13.6 34) |
| MTH 2-6/3 | 0.55 | 401 | 199 | 202 | 141 | 109 | 14.3/13.7 34) |
| MTH 2-6/4 | 0.75 | 441 | 199 | 242 | 141 | 109 | 17.3/14.2 34) |
| MTH 2-6/5 | 0.75 | 441 | 199 | 242 | 141 | 109 | 17.5/14.4 34) |
| MTH 2-6/6 | 1.1 | 461 | 199 | 262 | 141 | 109 | 15.5/15.2 34) |
| MTH 2-7/1 | 0.55 | 419 | 217 | 202 | 141 | 109 | 14.2/13.6 34) |
| MTH 2-7/2 | 0.55 | 419 | 217 | 202 | 141 | 109 | 14.4/13.8 34) |
| MTH 2-7/3 | 0.55 | 419 | 217 | 202 | 141 | 109 | 14.7/14.1 34) |
| MTH 2-7/4 | 0.75 | 459 | 217 | 242 | 141 | 109 | 17.7/14.6 34) |
| MTH 2-7/5 | 0.75 | 459 | 217 | 242 | 141 | 109 | 17.8/14.7 34) |
| MTH 2-7/6 | 1.1 | 479 | 217 | 262 | 141 | 109 | 16/15.6 34) |
| MTH 2-7/7 | 1.1 | 479 | 217 | 262 | 141 | 109 | 16.1/15.7 34) |
| MTH 2-8/1 | 0.55 | 437 | 235 | 202 | 141 | 109 | 14.4/13.8 34) |
| MTH 2-8/2 | 0.55 | 437 | 235 | 202 | 141 | 109 | 14.7/14.1 34) |
| MTH 2-8/3 | 0.55 | 437 | 235 | 202 | 141 | 109 | 14.9/14.3 34) |
| MTH 2-8/4 | 0.75 | 477 | 235 | 242 | 141 | 109 | 17.9/14.8 34) |
| MTH 2-8/5 | 0.75 | 477 | 235 | 242 | 141 | 109 | 18.1/15.1 34) |
| MTH 2-8/6 | 1.1 | 497 | 235 | 262 | 141 | 109 | 16.3/15.9 34) |

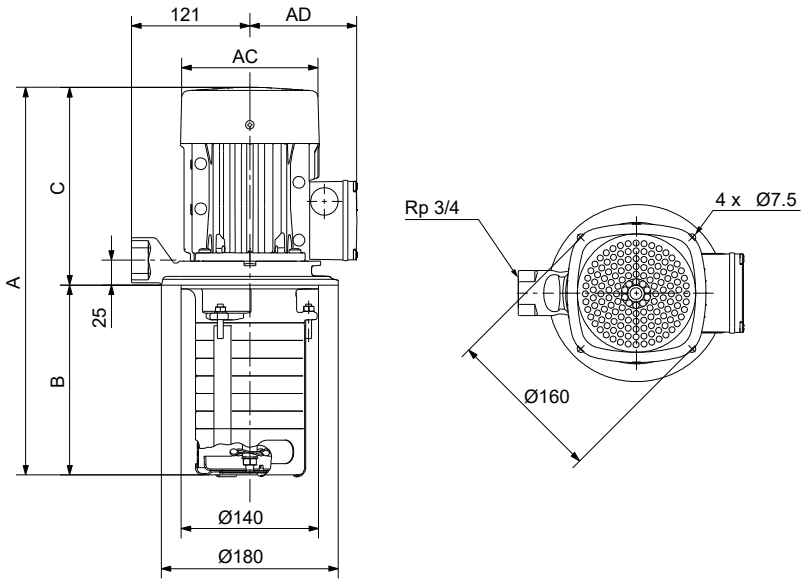
| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 2-8/7 | 1.1 | 497 | 235 | 262 | 141 | 109 | 16.5/16.1 [34)] |
| MTH 2-8/8 | 1.1 | 497 | 235 | 262 | 141 | 109 | 16.6/16.2 [34)] |
| MTH 2-9/1 | 0.55 | 455 | 253 | 202 | 141 | 109 | 14.6/14 [34)] |
| MTH 2-9/2 | 0.55 | 455 | 253 | 202 | 141 | 109 | 14.9/14.3 [34)] |
| MTH 2-9/3 | 0.55 | 455 | 253 | 202 | 141 | 109 | 15.1/14.5 [34)] |
| MTH 2-9/4 | 0.75 | 495 | 253 | 242 | 141 | 109 | 18.1/15 [34)] |
| MTH 2-9/5 | 0.75 | 495 | 253 | 242 | 141 | 109 | 18.4/15.3 [34)] |
| MTH 2-9/6 | 1.1 | 515 | 253 | 262 | 141 | 109 | 16.5/16.2 [34)] |
| MTH 2-9/7 | 1.1 | 515 | 253 | 262 | 141 | 109 | 16.8/16.4 [34)] |
| MTH 2-9/8 | 1.1 | 515 | 253 | 262 | 141 | 109 | 16.9/16.6 [34)] |
| MTH 2-9/9 | 1.1 | 515 | 253 | 262 | 141 | 109 | 17/13.3 [34)] |
| MTH 2-10/1 | 0.55 | 473 | 271 | 202 | 141 | 109 | 14.9/14.3 [34)] |
| MTH 2-10/2 | 0.55 | 473 | 271 | 202 | 141 | 109 | 15.1/14.5 [34)] |
| MTH 2-10/3 | 0.55 | 473 | 271 | 202 | 141 | 109 | 15.3/14.7 [34)] |
| MTH 2-10/4 | 0.75 | 513 | 271 | 242 | 141 | 109 | 18.4/15.3 [34)] |
| MTH 2-10/5 | 0.75 | 513 | 271 | 242 | 141 | 109 | 18.6/15.5 [34)] |
| MTH 2-10/6 | 1.1 | 533 | 271 | 262 | 141 | 109 | 16.8/16.4 [34)] |
| MTH 2-10/7 | 1.1 | 533 | 271 | 262 | 141 | 109 | 17/16.6 [34)] |
| MTH 2-10/8 | 1.1 | 533 | 271 | 262 | 141 | 109 | 17.2/16.9 [34)] |
| MTH 2-10/9 | 1.1 | 533 | 271 | 262 | 141 | 109 | 17.4/13.7 [34)] |
| MTH 2-10/10 | 1.1 | 533 | 271 | 262 | 141 | 109 | 17.5/13.8 [34)] |
| MTH 2-11/1 | 0.55 | 491 | 289 | 202 | 141 | 109 | 15.1/14.5 [34)] |
| MTH 2-11/2 | 0.55 | 491 | 289 | 202 | 141 | 109 | 15.3/14.7 [34)] |
| MTH 2-11/3 | 0.55 | 491 | 289 | 202 | 141 | 109 | 15.6/15 [34)] |
| MTH 2-11/4 | 0.75 | 531 | 289 | 242 | 141 | 109 | 18.6/15.5 [34)] |
| MTH 2-11/5 | 0.75 | 531 | 289 | 242 | 141 | 109 | 18.8/15.7 [34)] |
| MTH 2-11/6 | 1.1 | 551 | 289 | 262 | 141 | 109 | 17/16.6 [34)] |
| MTH 2-11/7 | 1.1 | 551 | 289 | 262 | 141 | 109 | 17.2/16.9 [34)] |
| MTH 2-11/8 | 1.1 | 551 | 289 | 262 | 141 | 109 | 17.5/17.1 [34)] |
| MTH 2-11/9 | 1.1 | 551 | 289 | 262 | 141 | 109 | 17.7/14 [34)] |
| MTH 2-11/10 | 1.1 | 551 | 289 | 262 | 141 | 109 | 17.9/14.2 [34)] |
| MTH 2-11/11 | 1.1 | 551 | 289 | 262 | 141 | 109 | 18/14.3 [34)] |

[34)] Applies to pumps fitted with 200 V motors.

**MTH 4, 50 Hz**


MTH 4
50 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-9/9
-8/8
-7/7
-6/6
-5/5
-4/4
-3/3
-2/2
-2/1
Q [l/min]
Q [m³/h]
P2 [kW]
Eta [%]
Eta
NPSH [m]
NPSH
TM027825

## Dimensional sketches

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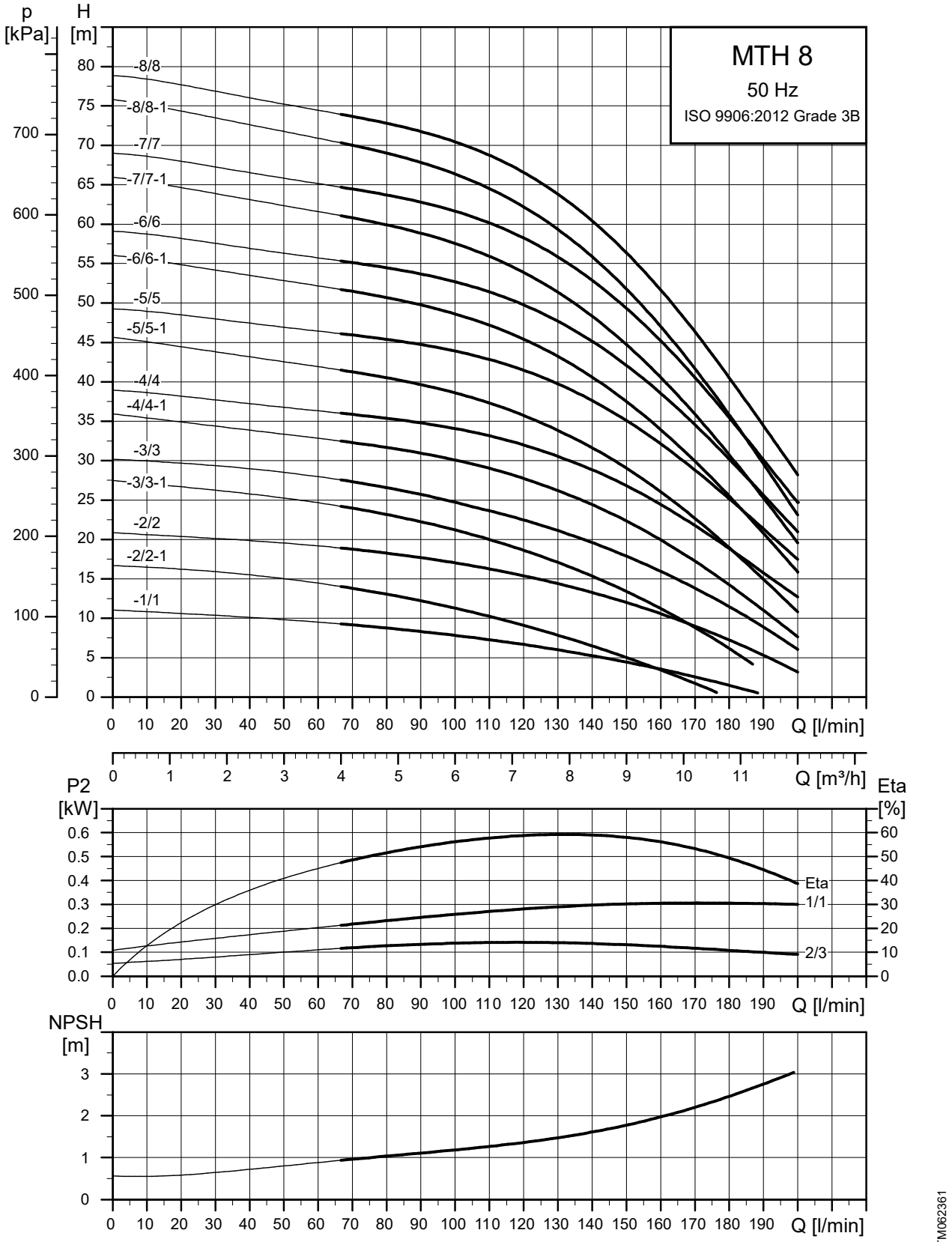
## Dimensions and weights

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 4-2/1 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13.2/12.6 [35] |
| MTH 4-2/2 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13.3/12.7 [35] |
| MTH 4-3/1 | 0.55 | 374 | 172 | 202 | 141 | 109 | 13.3/12.7 [35] |
| MTH 4-3/2 | 0.55 | 374 | 172 | 202 | 141 | 109 | 13.4/12.8 [35] |
| MTH 4-3/3 | 0.75 | 414 | 172 | 242 | 141 | 109 | 16.3/13.3 [35] |
| MTH 4-4/1 | 0.55 | 401 | 199 | 202 | 141 | 109 | 13.6/13 [35] |
| MTH 4-4/2 | 0.55 | 401 | 199 | 202 | 141 | 109 | 13.7/13.1 [35] |
| MTH 4-4/3 | 0.75 | 441 | 199 | 242 | 141 | 109 | 16.7/13.6 [35] |
| MTH 4-4/4 | 1.1 | 461 | 199 | 262 | 141 | 109 | 14.7/14.3 [35] |
| MTH 4-5/1 | 0.55 | 428 | 226 | 202 | 141 | 109 | 13.7/13.1 [35] |
| MTH 4-5/2 | 0.55 | 428 | 226 | 202 | 141 | 109 | 13.9/13.3 [35] |
| MTH 4-5/3 | 0.75 | 468 | 226 | 242 | 141 | 109 | 16.8/13.7 [35] |
| MTH 4-5/4 | 1.1 | 488 | 226 | 262 | 141 | 109 | 14.9/14.6 [35] |
| MTH 4-5/5 | 1.1 | 488 | 226 | 262 | 141 | 109 | 15/11.3 [35] |
| MTH 4-6/1 | 0.55 | 455 | 253 | 202 | 141 | 109 | 13.9/13.3 [35] |
| MTH 4-6/2 | 0.55 | 455 | 253 | 202 | 141 | 109 | 14/13.4 [35] |
| MTH 4-6/3 | 0.75 | 495 | 253 | 242 | 141 | 109 | 17/13.9 [35] |
| MTH 4-6/4 | 1.1 | 515 | 253 | 262 | 141 | 109 | 15.1/14.7 [35] |
| MTH 4-6/5 | 1.1 | 515 | 253 | 262 | 141 | 109 | 15.2/11.5 [35] |
| MTH 4-6/6 | 1.1 | 515 | 253 | 262 | 141 | 109 | 15.3/11.6 [35] |
| MTH 4-7/1 | 0.55 | 482 | 280 | 202 | 141 | 109 | 14.1/13.5 [35] |
| MTH 4-7/2 | 0.55 | 482 | 280 | 202 | 141 | 109 | 14.2/13.6 [35] |
| MTH 4-7/3 | 0.75 | 522 | 280 | 242 | 141 | 109 | 17.1/14 [35] |
| MTH 4-7/4 | 1.1 | 542 | 280 | 262 | 141 | 109 | 15.2/14.9 [35] |
| MTH 4-7/5 | 1.1 | 542 | 280 | 262 | 141 | 109 | 15.4/11.7 [35] |
| MTH 4-7/6 | 1.1 | 542 | 280 | 262 | 141 | 109 | 15.5/11.8 [35] |
| MTH 4-7/7 | 1.5 | 592/632 [35] | 280 | 312/352 [35] | 178 | 110 | 26.8/29.3 [35] |
| MTH 4-8/1 | 0.55 | 509 | 307 | 202 | 141 | 109 | 14.2/13.6 [35] |
| MTH 4-8/2 | 0.55 | 509 | 307 | 202 | 141 | 109 | 14.3/13.7 [35] |
| MTH 4-8/3 | 0.75 | 549 | 307 | 242 | 141 | 109 | 17.3/14.2 [35] |
| MTH 4-8/4 | 1.1 | 569 | 307 | 262 | 141 | 109 | 15.4/15 [35] |

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 4-8/5 | 1.1 | 569 | 307 | 262 | 141 | 109 | 15.5/11.8 [35)] |
| MTH 4-8/6 | 1.1 | 569 | 307 | 262 | 141 | 109 | 15.7/12 [35)] |
| MTH 4-8/7 | 1.5 | 619/659 [35)] | 307 | 312/352 [35)] | 178 | 110 | 27/29.5 [35)] |
| MTH 4-8/8 | 1.5 | 619/659 [35)] | 307 | 312/352 [35)] | 178 | 110 | 27.1/29.6 [35)] |
| MTH 4-9/1 | 0.55 | 536 | 334 | 202 | 141 | 109 | 14.5/13.9 [35)] |
| MTH 4-9/2 | 0.55 | 536 | 334 | 202 | 141 | 109 | 14.7/14.1 [35)] |
| MTH 4-9/3 | 0.75 | 576 | 334 | 242 | 141 | 109 | 17.6/14.5 [35)] |
| MTH 4-9/4 | 1.1 | 596 | 334 | 262 | 141 | 109 | 15.7/15.4 [35)] |
| MTH 4-9/5 | 1.1 | 596 | 334 | 262 | 141 | 109 | 15.9/12.2 [35)] |
| MTH 4-9/6 | 1.1 | 596 | 334 | 262 | 141 | 109 | 16/12.3 [35)] |
| MTH 4-9/7 | 1.5 | 646/686 [35)] | 334 | 312/352 [35)] | 178 | 110 | 27.3/29.8 [35)] |
| MTH 4-9/8 | 1.5 | 646/686 [35)] | 334 | 312/352 [35)] | 178 | 110 | 27.5/29.9 [35)] |
| MTH 4-9/9 | 2.2 | 686 | 334 | 352 | 178 | 110 | 31.7/31.7 [35)] |

[35)] Applies to pumps fitted with 200 V motors.

**MTH 8, 50 Hz**

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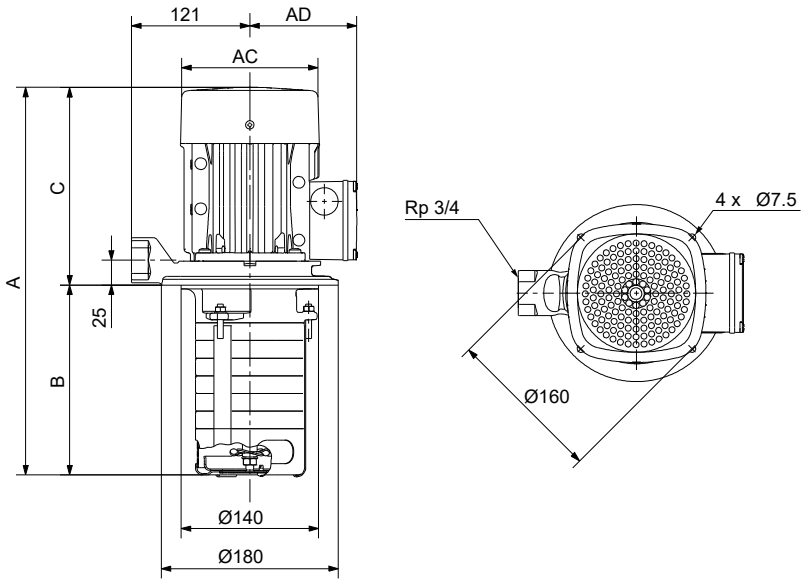
## Dimensional sketches




TM067672

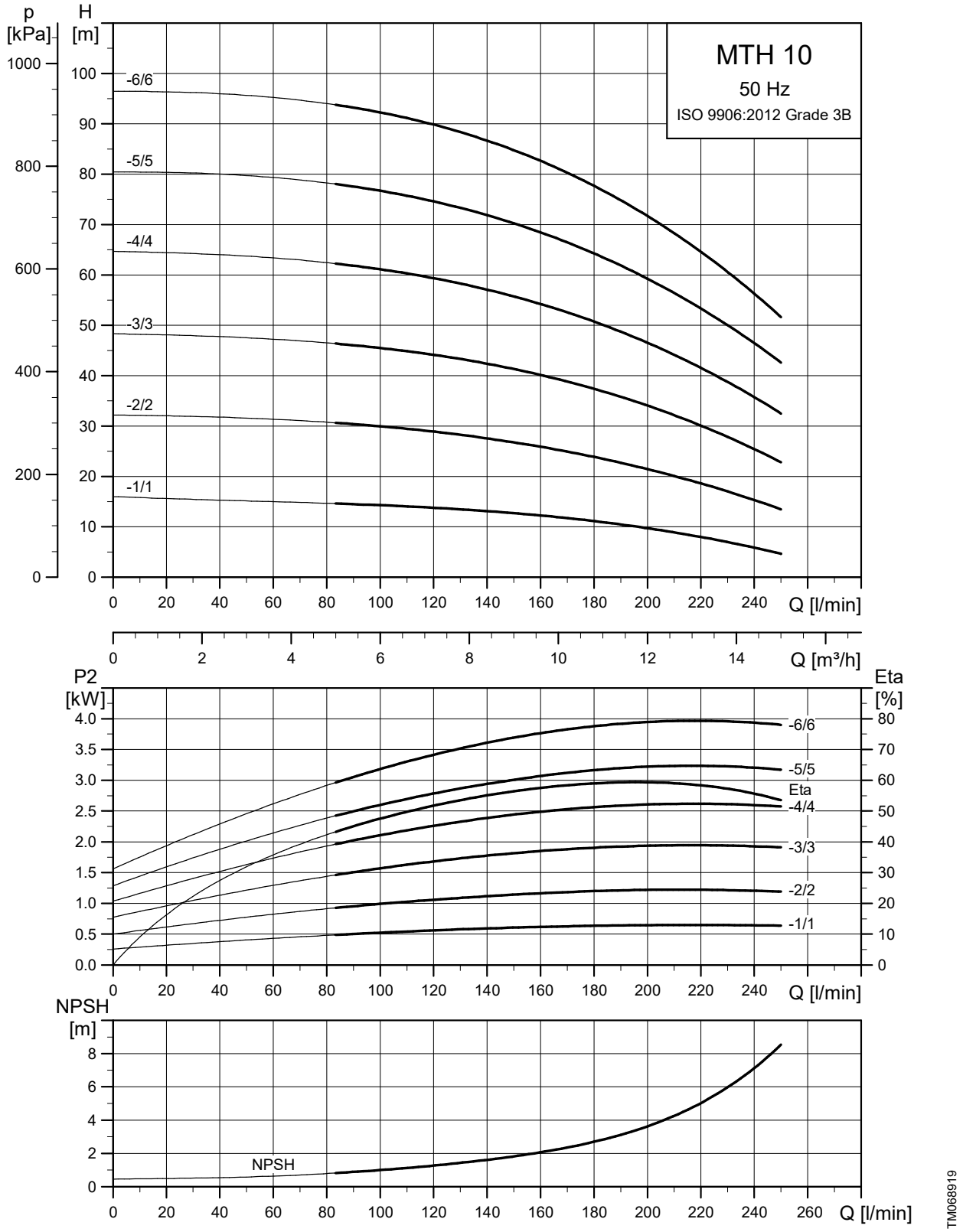
## Dimensions and weights

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 8-1/1 | 0.55 | 347 | 145 | 202 | 141 | 109 | 12.5/11.9 [36] |
| MTH 8-2/1 | 0.55 | 374 | 172 | 202 | 141 | 109 | 12.7/12.1 [36] |
| MTH 8-2/2-1 | 0.55 | 374 | 172 | 202 | 141 | 109 | 12.8/12.2 [36] |
| MTH 8-2/2 | 0.75 | 414 | 172 | 242 | 141 | 109 | 15.7/12.6 [36] |
| MTH 8-3/1 | 0.55 | 401 | 199 | 202 | 141 | 109 | 12.9/12.3 [36] |
| MTH 8-3/2-1 | 0.55 | 401 | 199 | 202 | 141 | 109 | 13/12.4 [36] |
| MTH 8-3/2 | 0.75 | 441 | 199 | 242 | 141 | 109 | 15.9/12.8 [36] |
| MTH 8-3/3-1 | 0.75 | 441 | 199 | 242 | 141 | 109 | 16.1/13 [36] |
| MTH 8-3/3 | 1.1 | 461 | 199 | 262 | 141 | 109 | 14.1/10.4 [36] |
| MTH 8-4/1 | 0.55 | 428 | 226 | 202 | 141 | 109 | 13/12.4 [36] |
| MTH 8-4/2-1 | 0.55 | 428 | 226 | 202 | 141 | 109 | 13.1/12.5 [36] |
| MTH 8-4/2 | 0.75 | 468 | 226 | 242 | 141 | 109 | 16/12.9 [36] |
| MTH 8-4/3-1 | 0.75 | 468 | 226 | 242 | 141 | 109 | 16.2/13.1 [36] |
| MTH 8-4/3 | 1.1 | 488 | 226 | 262 | 141 | 109 | 14.2/10.5 [36] |
| MTH 8-4/4-1 | 1.1 | 488 | 226 | 262 | 141 | 109 | 14.4/10.7 [36] |
| MTH 8-4/4 | 1.5 | 538/578 [36] | 226 | 312/352 [36] | 178 | 110 | 25.6/28.1 [36] |
| MTH 8-5/1 | 0.55 | 455 | 253 | 202 | 141 | 109 | 13.2/12.6 [36] |
| MTH 8-5/2-1 | 0.55 | 455 | 253 | 202 | 141 | 109 | 13.3/12.7 [36] |
| MTH 8-5/2 | 0.75 | 495 | 253 | 242 | 141 | 109 | 16.2/13.1 [36] |
| MTH 8-5/3-1 | 0.75 | 495 | 253 | 242 | 141 | 109 | 16.4/13.3 [36] |
| MTH 8-5/3 | 1.1 | 515 | 253 | 262 | 141 | 109 | 14.4/10.7 [36] |
| MTH 8-5/4-1 | 2.2 | 605 | 253 | 352 | 178 | 110 | 29.9/28.6 [36] |
| MTH 8-5/4 | 1.5 | 565/605 [36] | 253 | 312/352 [36] | 178 | 110 | 25.8/28.3 [36] |
| MTH 8-5/5-1 | 1.5 | 565/605 [36] | 253 | 312/352 [36] | 178 | 110 | 26/28.4 [36] |
| MTH 8-5/5 | 2.2 | 605 | 253 | 352 | 178 | 110 | 30.1/30.1 [36] |
| MTH 8-6/1 | 0.55 | 482 | 280 | 202 | 141 | 109 | 13.3/12.7 [36] |
| MTH 8-6/2-1 | 0.55 | 482 | 280 | 202 | 141 | 109 | 13.5/12.9 [36] |
| MTH 8-6/2 | 0.75 | 522 | 280 | 242 | 141 | 109 | 16.4/13.3 [36] |
| MTH 8-6/3-1 | 0.75 | 522 | 280 | 242 | 141 | 109 | 16.6/13.5 [36] |
| MTH 8-6/3 | 1.1 | 542 | 280 | 262 | 141 | 109 | 14.6/10.9 [36] |
| MTH 8-6/4-1 | 1.1 | 542 | 280 | 262 | 141 | 109 | 14.7/11 [36] |

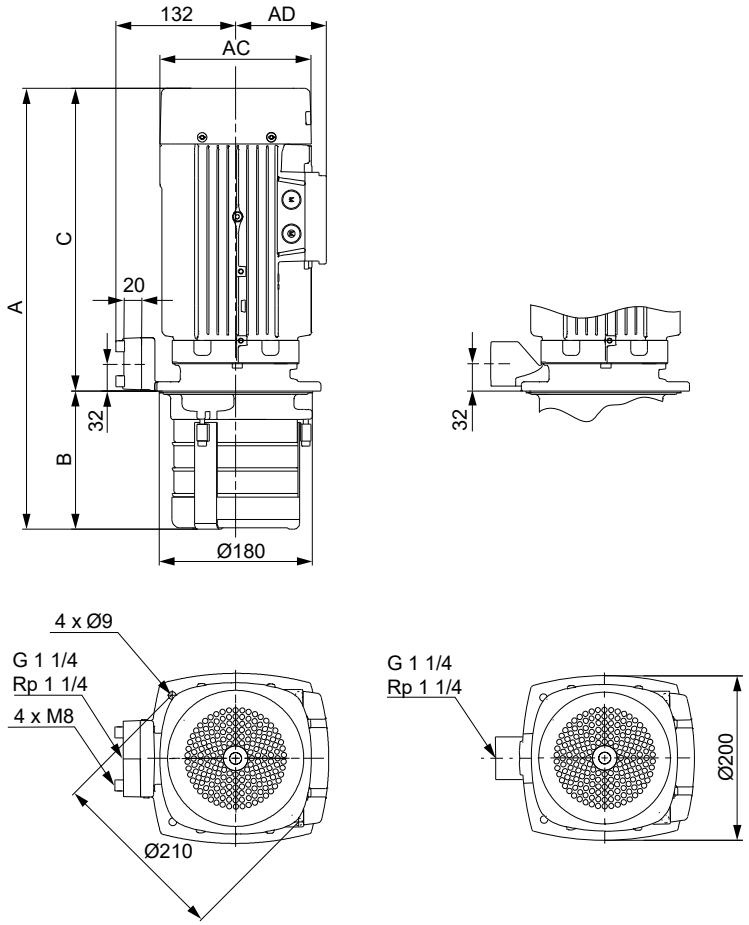
| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 8-6/4 | 1.5 | 592/632 [36)] | 280 | 312/352 [36)] | 178 | 110 | 26/28.4 [36)] |
| MTH 8-6/5-1 | 1.5 | 592/632 [36)] | 280 | 312/352 [36)] | 178 | 110 | 26.2/28.6 [36)] |
| MTH 8-6/5 | 2.2 | 632 | 280 | 352 | 178 | 110 | 30.3/30.3 [36)] |
| MTH 8-6/6-1 | 2.2 | 632 | 280 | 352 | 178 | 110 | 30.5/30.5 [36)] |
| MTH 8-6/6 | 2.2 | 632 | 280 | 352 | 178 | 110 | 30.5/30.5 [36)] |
| MTH 8-7/1 | 0.55 | 509 | 307 | 202 | 141 | 109 | 13.5/12.9 [36)] |
| MTH 8-7/2-1 | 0.55 | 509 | 307 | 202 | 141 | 109 | 13.6/13 [36)] |
| MTH 8-7/2 | 0.75 | 549 | 307 | 242 | 141 | 109 | 16.5/13.4 [36)] |
| MTH 8-7/3-1 | 0.75 | 549 | 307 | 242 | 141 | 109 | 16.7/13.6 [36)] |
| MTH 8-7/3 | 1.1 | 569 | 307 | 262 | 141 | 109 | 14.7/11 [36)] |
| MTH 8-7/4-1 | 1.1 | 569 | 307 | 262 | 141 | 109 | 14.9/11.2 [36)] |
| MTH 8-7/4 | 1.5 | 619/659 [36)] | 307 | 312/352 [36)] | 178 | 110 | 26.1/28.6 [36)] |
| MTH 8-7/5-1 | 1.5 | 619/659 [36)] | 307 | 312/352 [36)] | 178 | 110 | 26.3/28.8 [36)] |
| MTH 8-7/5 | 2.2 | 659 | 307 | 352 | 178 | 110 | 30.4/30.4 [36)] |
| MTH 8-7/6-1 | 2.2 | 659 | 307 | 352 | 178 | 110 | 30.6/30.6 [36)] |
| MTH 8-7/6 | 2.2 | 659 | 307 | 352 | 178 | 110 | 30.7/30.6 [36)] |
| MTH 8-7/7-1 | 2.2 | 659 | 307 | 352 | 178 | 110 | 30.9/30.8 [36)] |
| MTH 8-7/7 | 2.2 | 659 | 307 | 352 | 178 | 110 | 30.9/30.9 [36)] |
| MTH 8-8/1 | 0.55 | 536 | 334 | 202 | 141 | 109 | 13.8/13.2 [36)] |
| MTH 8-8/2-1 | 0.55 | 536 | 334 | 202 | 141 | 109 | 13.9/13.3 [36)] |
| MTH 8-8/2 | 0.75 | 576 | 334 | 242 | 141 | 109 | 16.8/13.7 [36)] |
| MTH 8-8/3-1 | 0.75 | 576 | 334 | 242 | 141 | 109 | 17/13.9 [36)] |
| MTH 8-8/3 | 1.1 | 596 | 334 | 262 | 141 | 109 | 15/11.3 [36)] |
| MTH 8-8/4-1 | 1.1 | 596 | 334 | 262 | 141 | 109 | 15.2/11.5 [36)] |
| MTH 8-8/4 | 1.5 | 646/686 [36)] | 334 | 312/352 [36)] | 178 | 110 | 26.4/28.9 [36)] |
| MTH 8-8/5-1 | 1.5 | 646/686 [36)] | 334 | 312/352 [36)] | 178 | 110 | 26.6/29.1 [36)] |
| MTH 8-8/5 | 2.2 | 686 | 334 | 352 | 178 | 110 | 30.8/30.7 [36)] |
| MTH 8-8/6-1 | 2.2 | 686 | 334 | 352 | 178 | 110 | 31/30.9 [36)] |
| MTH 8-8/6 | 2.2 | 686 | 334 | 352 | 178 | 110 | 31/31 [36)] |
| MTH 8-8/7-1 | 2.2 | 686 | 334 | 352 | 178 | 110 | 31.2/31.2 [36)] |
| MTH 8-8/7 | 2.2 | 686 | 334 | 352 | 178 | 110 | 31.2/31.2 [36)] |
| MTH 8-8/8-1 | 3 | 704 | 334 | 370 | 198 | 120 | 35.1/38 [36)] |
| MTH 8-8/8 | 3 | 704 | 334 | 370 | 198 | 120 | 35.2/38 [36)] |

[36)] Applies to pumps fitted with 200 V motors.

## MTH 10, 50 Hz


MTH 10
50 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-6/6
-5/5
-4/4
-3/3
-2/2
-1/1
Q [l/min]
Q [m³/h]
P2 [kW]
Eta [%]
Eta
NPSH [m]
NPSH
TM066919

### Dimensional sketches




*A-version (left), I-version (right).*

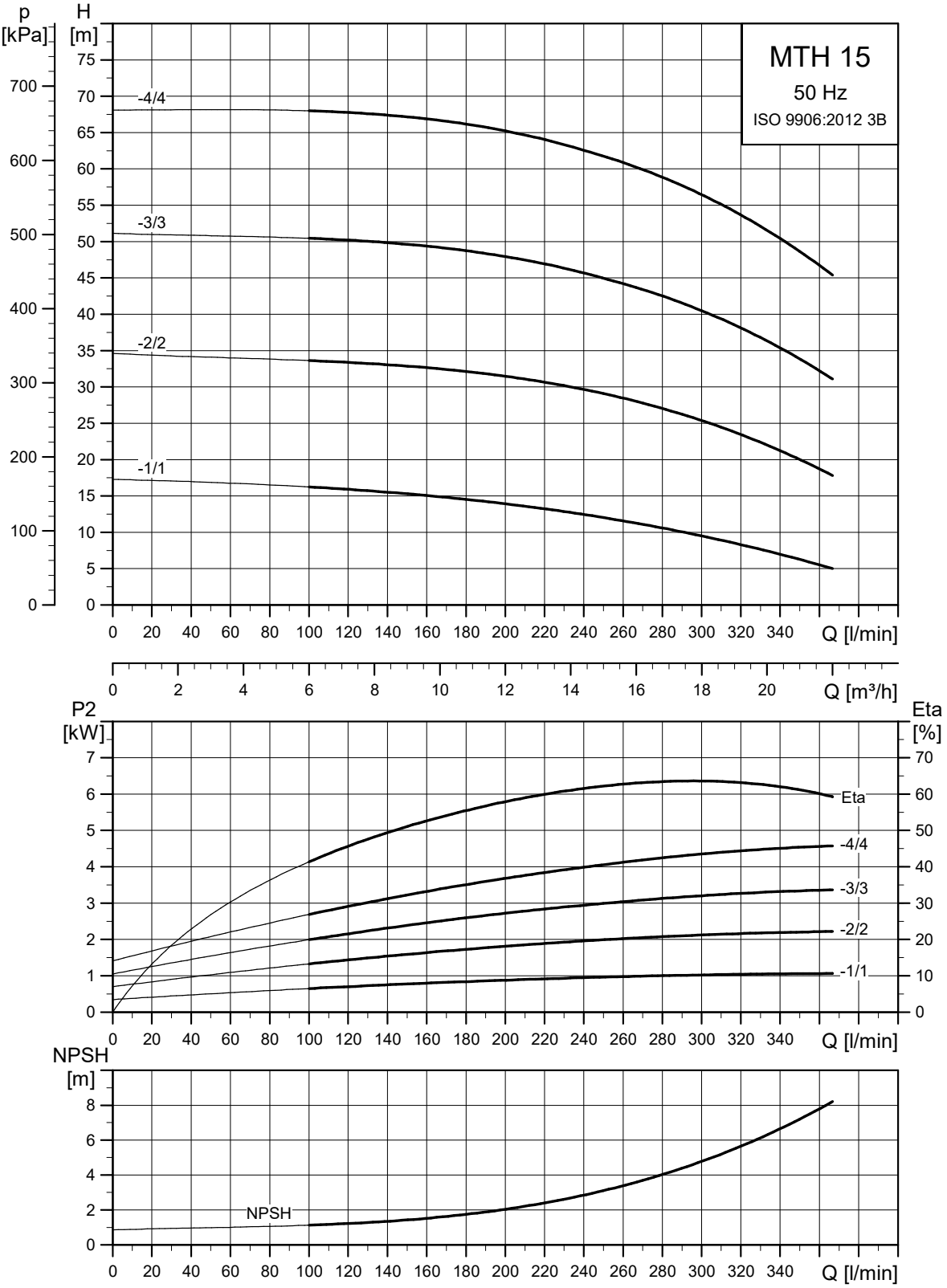
### Dimensions and weights

| Pump type | Motor P2 [kW] | MT | | | | | Net weight [kg] |
|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | |
| | | A | B | C | AC | AD | |
| MTH 10-1/1 | 1.1 | 375 | 105 | 270 | 141 | 109 | 17.3/17 [37)] |
| MTH 10-2/1 | 1.1 | 405 | 135 | 270 | 141 | 109 | 17.8/17.5 [37)] |
| MTH 10-2/2 | 1.1 | 405 | 135 | 270 | 141 | 109 | 18.5/15.6 [37)] |
| MTH 10-3/1 | 1.1 | 435 | 165 | 270 | 141 | 109 | 18.1/17.8 [37)] |
| MTH 10-3/2 | 1.1 | 435 | 165 | 270 | 141 | 109 | 19/16.1 [37)] |
| MTH 10-3/3 | 2.2 | 525 | 165 | 360 | 178 | 110 | 32.9/32.8 [37)] |
| MTH 10-4/1 | 1.1 | 465 | 195 | 270 | 141 | 109 | 17.9/17.6 [37)] |
| MTH 10-4/2 | 1.1 | 465 | 195 | 270 | 141 | 109 | 18.8/15.9 [37)] |
| MTH 10-4/3 | 2.2 | 555 | 195 | 360 | 178 | 110 | 32.9/32.8 [37)] |
| MTH 10-4/4 | 3 | 572 | 195 | 377 | 198 | 120 | 38.1/40.9 [37)] |
| MTH 10-5/1 | 1.1 | 495 | 225 | 270 | 141 | 109 | 18.3/17.9 [37)] |
| MTH 10-5/2 | 1.1 | 495 | 225 | 270 | 141 | 109 | 19.1/16.2 [37)] |
| MTH 10-5/3 | 2.2 | 585 | 225 | 360 | 178 | 110 | 33.2/33.2 [37)] |
| MTH 10-5/4 | 3 | 602 | 225 | 377 | 198 | 120 | 38.6/41.4 [37)] |
| MTH 10-5/5 | 3 | 602 | 225 | 377 | 198 | 120 | 39.2/42.1 [37)] |
| MTH 10-6/1 | 1.1 | 525 | 255 | 270 | 141 | 109 | 18.7/18.3 [37)] |
| MTH 10-6/2 | 1.1 | 525 | 255 | 270 | 141 | 109 | 19.6/16.6 [37)] |
| MTH 10-6/3 | 2.2 | 615 | 255 | 360 | 178 | 110 | 33.7/33.7 [37)] |

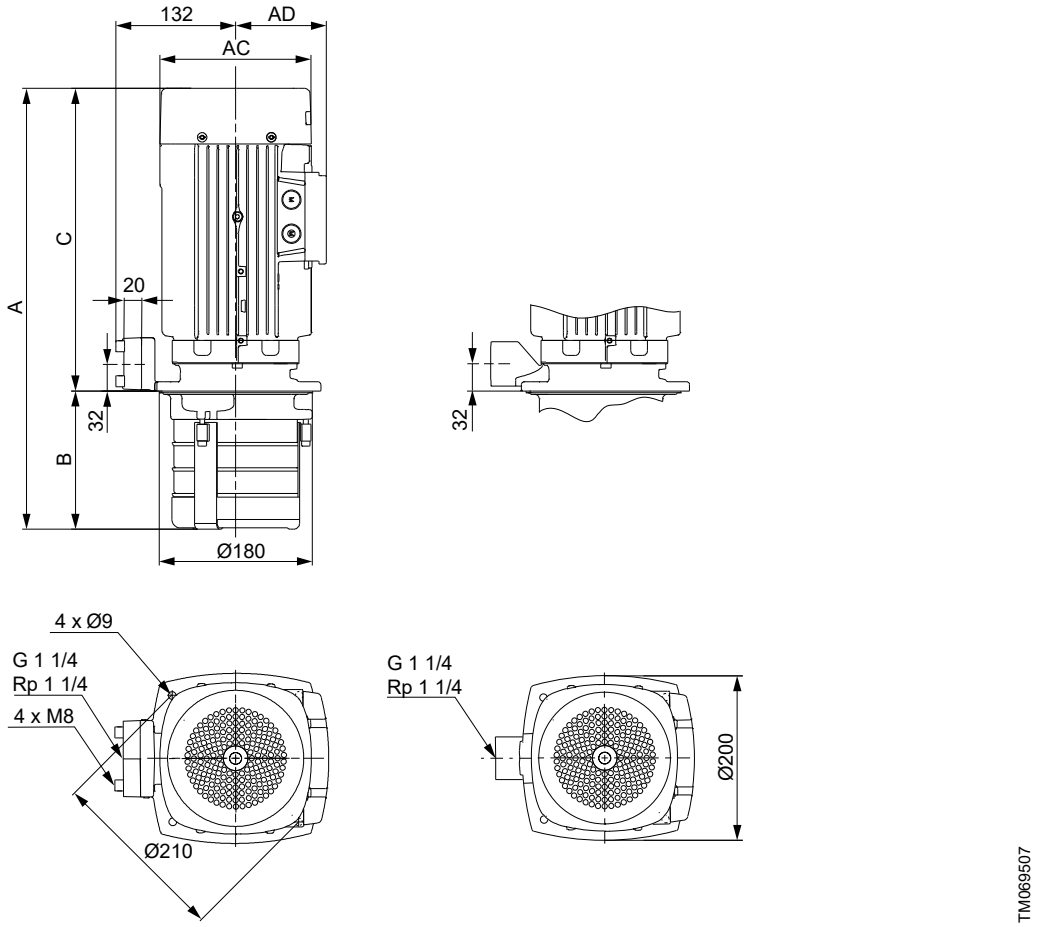
| Pump type | Motor P2 [kW] | MT | | | | | Net weight [kg] |
|---|---|---|---|---|---|---|---|
| | | Dimensions [mm] | | | | | |
| | | A | B | C | AC | AD | |
| MTH 10-6/4 | 3 | 632 | 255 | 377 | 198 | 120 | 39/41.8 [37)] |
| MTH 10-6/5 | 3 | 632 | 255 | 377 | 198 | 120 | 39.9/42.7 [37)] |
| MTH 10-6/6 | 4 | 668 | 255 | 413 | 220 | 134 | 43.1/43.4 [37)] |

37) Applies to pumps fitted with 200 V motors.

**MTH 15, 50 Hz**


MTH 15
50 Hz
ISO 9906:2012 3B
p [kPa]
H [m]
-4/4
-3/3
-2/2
-1/1
Q [l/min]
Q [m³/h]
P2 [kW]
Eta [%]
Eta
NPSH [m]
NPSH
TM068921

## Dimensional sketches




*A-version (left), I-version (right).*

## Dimensions and weights

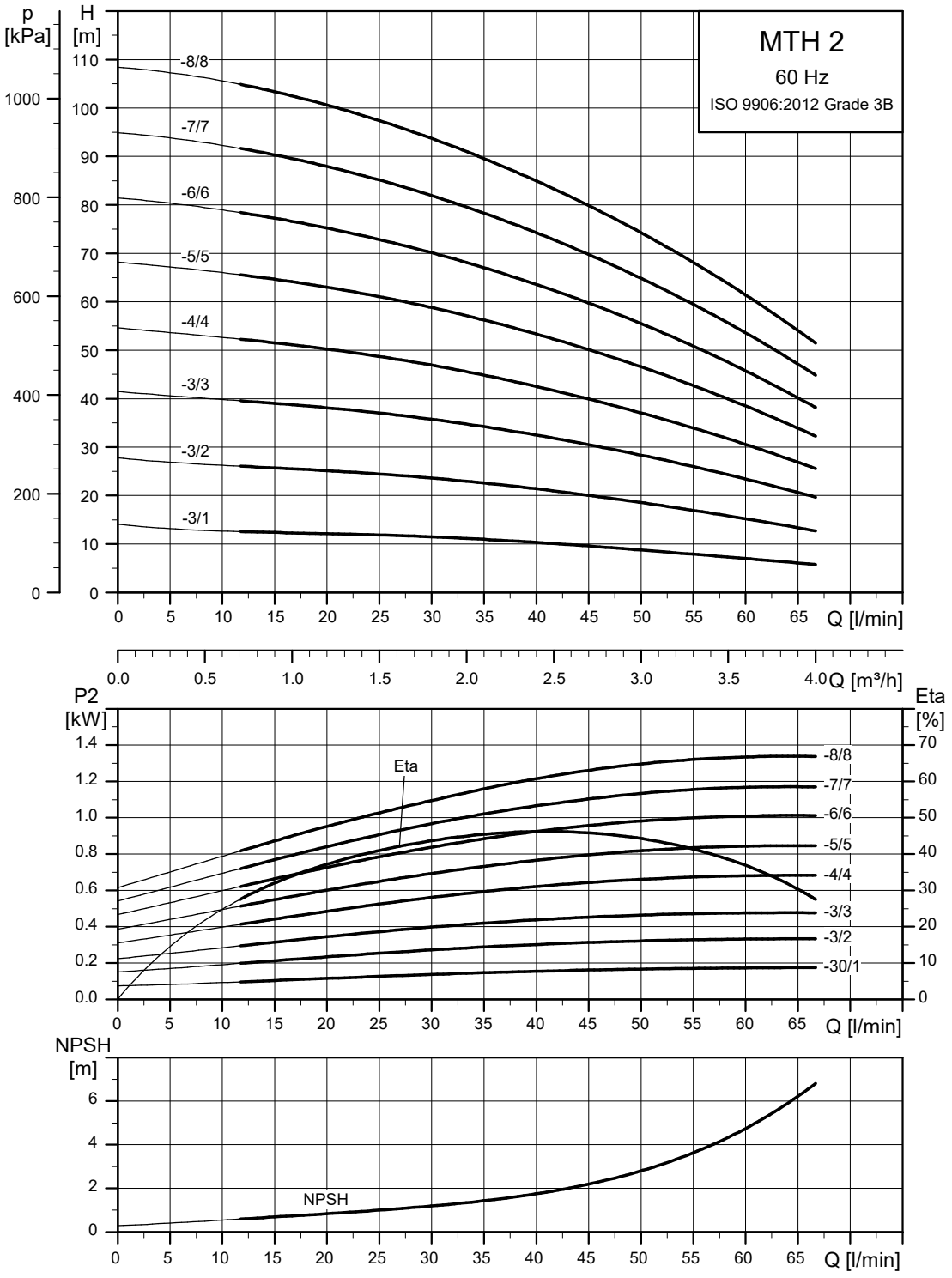
| Pump type | Motor P2 [kW] | MT Dimensions [mm] | | | | | Net weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 15-1/1 | 1.10 | 405 | 135 | 270 | 141 | 109 | 17.3/14.4 38) |
| MTH 15-2/1 | 1.10 | 405 | 135 | 270 | 141 | 109 | 17.8/14.9 38) |
| MTH 15-2/2 | 2.20 | 495 | 135 | 360 | 178 | 110 | 31.7/31.6 38) |
| MTH 15-3/1 | 1.10 | 435 | 165 | 270 | 141 | 109 | 18.1/15.2 38) |
| MTH 15-3/2 | 2.20 | 525 | 165 | 360 | 178 | 110 | 32.2/32.2 38) |
| MTH 15-3/3 | 3 | 542 | 165 | 377 | 198 | 120 | 37.4/40.2 38) |
| MTH 15-4/1 | 1.10 | 465 | 195 | 270 | 141 | 109 | 17.9/15 38) |
| MTH 15-4/2 | 2.20 | 555 | 195 | 360 | 178 | 110 | 32/32 38) |
| MTH 15-4/3 | 3 | 572 | 195 | 377 | 198 | 120 | 37.4/40.2 38) |
| MTH 15-4/4 | 4 | 608 | 195 | 413 | 220 | 134 | 40.6/40.9 38) |
| MTH 15-5/1 | 1.10 | 495 | 225 | 270 | 141 | 109 | 18.3/15.3 38) |
| MTH 15-5/2 | 2.20 | 585 | 225 | 360 | 178 | 110 | 32.3/32.3 38) |
| MTH 15-5/3 | 3 | 602 | 225 | 377 | 198 | 120 | 37.7/40.5 38) |
| MTH 15-5/4 | 4 | 638 | 225 | 413 | 220 | 134 | 41.1/41.4 38) |
| MTH 15-6/1 | 1.10 | 525 | 255 | 270 | 141 | 109 | 18.7/15.8 38) |

| Pump type | MT | | | | | | |
|---|---|---|---|---|---|---|---|
| | Motor P2 [kW] | Dimensions [mm] | | | | | Net weight [kg] |
| | | A | B | C | AC | AD | |
| MTH 15-6/2 | 2.20 | 615 | 255 | 360 | 178 | 110 | 32.8/32.8 [38)] |
| MTH 15-6/3 | 3 | 632 | 255 | 377 | 198 | 120 | 38.1/41 [38)] |
| MTH 15-6/4 | 4 | 668 | 255 | 413 | 220 | 134 | 41.5/41.8 [38)] |

38) Applies to pumps fitted with 200 V motors.

# MTH, 60 Hz

## MTH 2, 60 Hz

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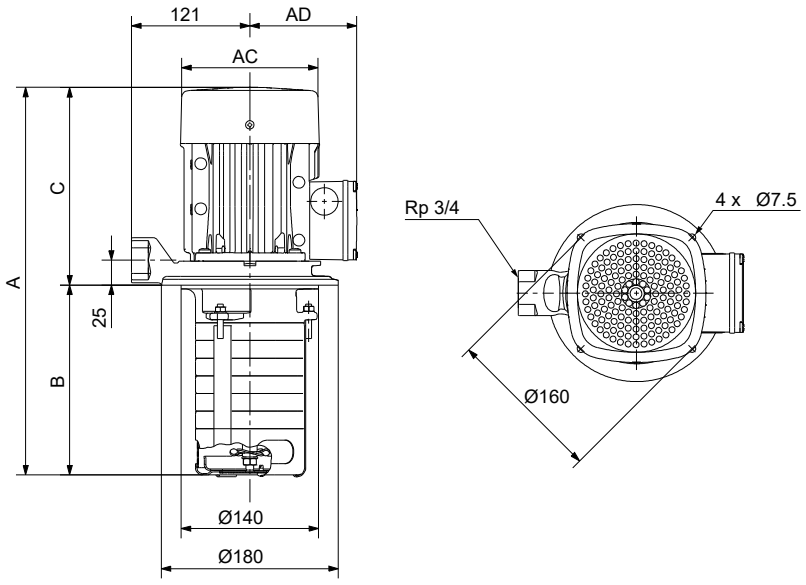
## Dimensional sketches

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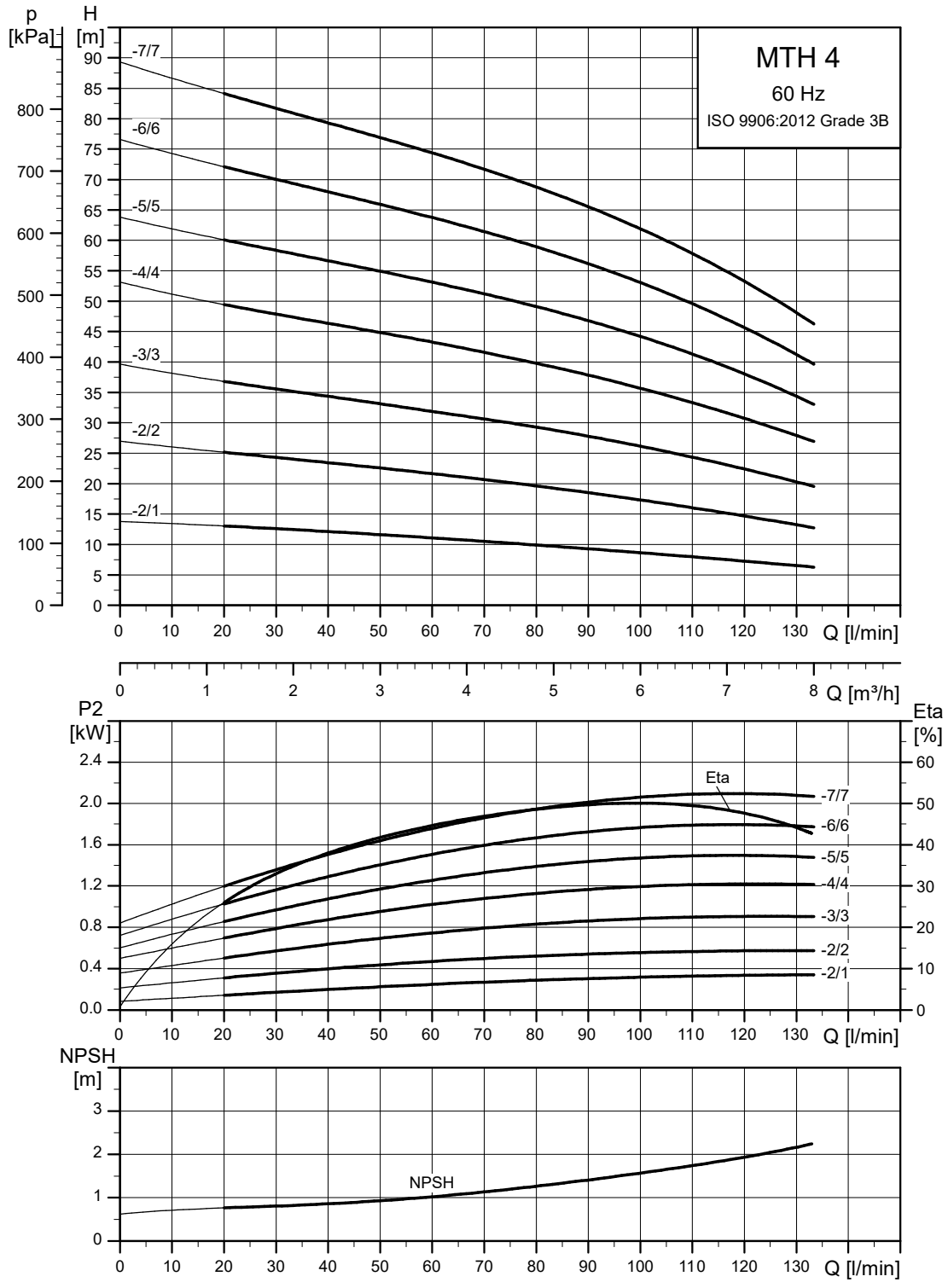
## Dimensions and weights

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 2-3/1 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13/12.4 39) |
| MTH 2-3/2 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13.1/12.5 39) |
| MTH 2-3/3 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13.2/12.6 39) |
| MTH 2-4/1 | 0.55 | 365 | 163 | 202 | 141 | 109 | 13.3/12.7 39) |
| MTH 2-4/2 | 0.55 | 365 | 163 | 202 | 141 | 109 | 13.5/12.9 39) |
| MTH 2-4/3 | 0.55 | 365 | 163 | 202 | 141 | 109 | 13.6/13 39) |
| MTH 2-4/4 | 0.75 | 405 | 163 | 242 | 141 | 109 | 16.5/13.4 39) |
| MTH 2-5/1 | 0.55 | 383 | 181 | 202 | 141 | 109 | 13.7/13.1 39) |
| MTH 2-5/2 | 0.55 | 383 | 181 | 202 | 141 | 109 | 13.9/13.3 39) |
| MTH 2-5/3 | 0.55 | 383 | 181 | 202 | 141 | 109 | 14/13.4 39) |
| MTH 2-5/4 | 0.75 | 423 | 181 | 242 | 141 | 109 | 17/13.9 39) |
| MTH 2-5/5 | 0.75 | 423 | 181 | 242 | 141 | 109 | 17.1/14 39) |
| MTH 2-6/1 | 0.55 | 401 | 199 | 202 | 141 | 109 | 13.9/13.3 39) |
| MTH 2-6/2 | 0.55 | 401 | 199 | 202 | 141 | 109 | 14.2/13.6 39) |
| MTH 2-6/3 | 0.55 | 401 | 199 | 202 | 141 | 109 | 14.3/13.7 39) |
| MTH 2-6/4 | 0.75 | 441 | 199 | 242 | 141 | 109 | 17.3/14.2 39) |
| MTH 2-6/5 | 0.75 | 441 | 199 | 242 | 141 | 109 | 17.5/14.4 39) |
| MTH 2-6/6 | 1.1 | 461 | 199 | 262 | 141 | 109 | 15.5/15.2 39) |
| MTH 2-7/1 | 0.55 | 419 | 217 | 202 | 141 | 109 | 14.2/13.6 39) |
| MTH 2-7/2 | 0.55 | 419 | 217 | 202 | 141 | 109 | 14.4/13.8 39) |
| MTH 2-7/3 | 0.55 | 419 | 217 | 202 | 141 | 109 | 14.7/14.1 39) |
| MTH 2-7/4 | 0.75 | 459 | 217 | 242 | 141 | 109 | 17.7/14.6 39) |
| MTH 2-7/5 | 0.75 | 459 | 217 | 242 | 141 | 109 | 17.8/14.7 39) |
| MTH 2-7/6 | 1.1 | 479 | 217 | 262 | 141 | 109 | 16/15.6 39) |
| MTH 2-7/7 | 1.1 | 479 | 217 | 262 | 141 | 109 | 16.1/15.7 39) |
| MTH 2-8/1 | 0.55 | 437 | 235 | 202 | 141 | 109 | 14.4/13.8 39) |
| MTH 2-8/2 | 0.55 | 437 | 235 | 202 | 141 | 109 | 14.7/14.1 39) |
| MTH 2-8/3 | 0.55 | 437 | 235 | 202 | 141 | 109 | 14.9/14.3 39) |
| MTH 2-8/4 | 0.75 | 477 | 235 | 242 | 141 | 109 | 17.9/14.8 39) |
| MTH 2-8/5 | 0.75 | 477 | 235 | 242 | 141 | 109 | 18.1/15.1 39) |
| MTH 2-8/6 | 1.1 | 497 | 235 | 262 | 141 | 109 | 16.3/15.9 39) |

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 2-8/7 | 1.1 | 497 | 235 | 262 | 141 | 109 | 16.5/16.1 39) |
| MTH 2-8/8 | 1.1 | 497 | 235 | 262 | 141 | 109 | 16.6/16.2 39) |
| MTH 2-9/1 | 0.55 | 455 | 253 | 202 | 141 | 109 | 14.6/14 39) |
| MTH 2-9/2 | 0.55 | 455 | 253 | 202 | 141 | 109 | 14.9/14.3 39) |
| MTH 2-9/3 | 0.55 | 455 | 253 | 202 | 141 | 109 | 15.1/14.5 39) |
| MTH 2-9/4 | 0.75 | 495 | 253 | 242 | 141 | 109 | 18.1/15 39) |
| MTH 2-9/5 | 0.75 | 495 | 253 | 242 | 141 | 109 | 18.4/15.3 39) |
| MTH 2-9/6 | 1.1 | 515 | 253 | 262 | 141 | 109 | 16.5/16.2 39) |
| MTH 2-9/7 | 1.1 | 515 | 253 | 262 | 141 | 109 | 16.8/16.4 39) |
| MTH 2-9/8 | 1.1 | 515 | 253 | 262 | 141 | 109 | 16.9/16.6 39) |
| MTH 2-10/1 | 0.55 | 473 | 271 | 202 | 141 | 109 | 14.9/14.3 39) |
| MTH 2-10/2 | 0.55 | 473 | 271 | 202 | 141 | 109 | 15.1/14.5 39) |
| MTH 2-10/3 | 0.55 | 473 | 271 | 202 | 141 | 109 | 15.3/14.7 39) |
| MTH 2-10/4 | 0.75 | 513 | 271 | 242 | 141 | 109 | 18.4/15.3 39) |
| MTH 2-10/5 | 0.75 | 513 | 271 | 242 | 141 | 109 | 18.6/15.5 39) |
| MTH 2-10/6 | 1.1 | 533 | 271 | 262 | 141 | 109 | 16.8/16.4 39) |
| MTH 2-10/7 | 1.1 | 533 | 271 | 262 | 141 | 109 | 17/16.6 39) |
| MTH 2-10/8 | 1.1 | 533 | 271 | 262 | 141 | 109 | 17.2/16.9 39) |
| MTH 2-11/1 | 0.55 | 491 | 289 | 202 | 141 | 109 | 15.1/14.5 39) |
| MTH 2-11/2 | 0.55 | 491 | 289 | 202 | 141 | 109 | 15.3/14.7 39) |
| MTH 2-11/3 | 0.55 | 491 | 289 | 202 | 141 | 109 | 15.6/15 39) |
| MTH 2-11/4 | 0.75 | 531 | 289 | 242 | 141 | 109 | 18.6/15.5 39) |
| MTH 2-11/5 | 0.75 | 531 | 289 | 242 | 141 | 109 | 18.8/15.7 39) |
| MTH 2-11/6 | 1.1 | 551 | 289 | 262 | 141 | 109 | 17/16.6 39) |
| MTH 2-11/7 | 1.1 | 551 | 289 | 262 | 141 | 109 | 17.2/16.9 39) |
| MTH 2-11/8 | 1.1 | 551 | 289 | 262 | 141 | 109 | 17.5/17.1 39) |

39) Applies to pumps fitted with 200 V motors.

## MTH 4, 60 Hz

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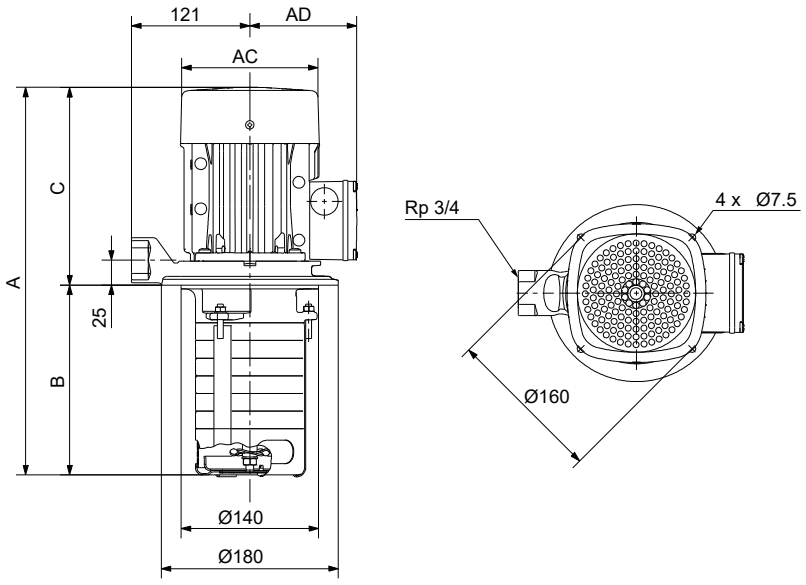
## Dimensional sketches

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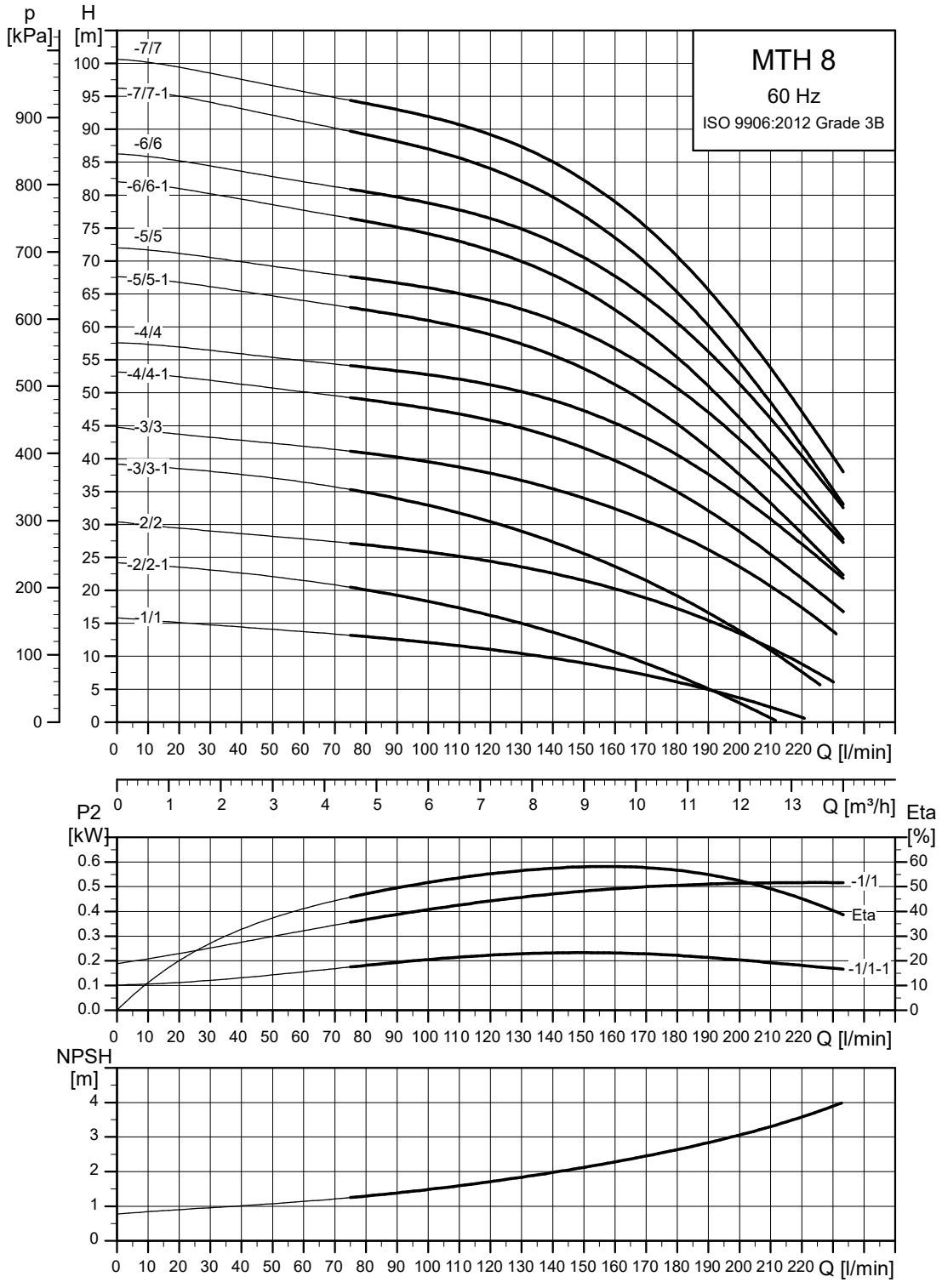
## Dimensions and weights

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 4-2/1 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13.2/12.6 40) |
| MTH 4-2/2 | 0.55 | 347 | 145 | 202 | 141 | 109 | 13.3/12.7 40) |
| MTH 4-3/1 | 0.55 | 374 | 172 | 202 | 141 | 109 | 13.3/12.7 40) |
| MTH 4-3/2 | 0.55 | 374 | 172 | 202 | 141 | 109 | 13.4/12.8 40) |
| MTH 4-3/3 | 0.75 | 414 | 172 | 242 | 141 | 109 | 16.3/13.3 40) |
| MTH 4-4/1 | 0.55 | 401 | 199 | 202 | 141 | 109 | 13.6/13 40) |
| MTH 4-4/2 | 0.55 | 401 | 199 | 202 | 141 | 109 | 13.7/13.1 40) |
| MTH 4-4/3 | 0.75 | 441 | 199 | 242 | 141 | 109 | 16.7/13.6 40) |
| MTH 4-4/4 | 1.1 | 461 | 199 | 262 | 141 | 109 | 14.7/14.3 40) |
| MTH 4-5/1 | 0.55 | 428 | 226 | 202 | 141 | 109 | 13.7/13.1 40) |
| MTH 4-5/2 | 0.55 | 428 | 226 | 202 | 141 | 109 | 13.9/13.3 40) |
| MTH 4-5/3 | 0.75 | 468 | 226 | 242 | 141 | 109 | 16.8/13.7 40) |
| MTH 4-5/4 | 1.1 | 488 | 226 | 262 | 141 | 109 | 14.9/14.6 40) |
| MTH 4-5/5 | 1.5 | 538/578 40) | 226 | 312/352 40) | 178 | 110 | 26.2/28.7 40) |
| MTH 4-6/1 | 0.55 | 455 | 253 | 202 | 141 | 109 | 13.9/13.3 40) |
| MTH 4-6/2 | 0.55 | 455 | 253 | 202 | 141 | 109 | 14/13.4 40) |
| MTH 4-6/3 | 0.75 | 495 | 253 | 242 | 141 | 109 | 17/13.9 40) |
| MTH 4-6/4 | 1.1 | 515 | 253 | 262 | 141 | 109 | 15.1/14.7 40) |
| MTH 4-6/5 | 1.5 | 565/605 40) | 253 | 312/352 40) | 178 | 110 | 26.4/28.9 40) |
| MTH 4-6/6 | 2.2 | 605 | 253 | 352 | 178 | 110 | 30.6/29.3 40) |
| MTH 4-7/1 | 0.55 | 482 | 280 | 202 | 141 | 109 | 14.1/13.5 40) |
| MTH 4-7/2 | 0.55 | 482 | 280 | 202 | 141 | 109 | 14.2/13.6 40) |
| MTH 4-7/3 | 0.75 | 522 | 280 | 242 | 141 | 109 | 17.1/14 40) |
| MTH 4-7/4 | 1.1 | 542 | 280 | 262 | 141 | 109 | 15.2/14.9 40) |
| MTH 4-7/5 | 1.5 | 592/632 40) | 280 | 312/352 40) | 178 | 110 | 26.6/29 40) |
| MTH 4-7/6 | 2.2 | 632 | 280 | 352 | 178 | 110 | 30.8/29.5 40) |
| MTH 4-7/7 | 2.2 | 632 | 280 | 352 | 178 | 110 | 30.9/29.6 40) |
| MTH 4-8/1 | 0.55 | 509 | 307 | 202 | 141 | 109 | 14.2/13.6 40) |
| MTH 4-8/2 | 0.55 | 509 | 307 | 202 | 141 | 109 | 14.3/13.7 40) |
| MTH 4-8/3 | 0.75 | 549 | 307 | 242 | 141 | 109 | 17.3/14.2 40) |
| MTH 4-8/4 | 1.1 | 569 | 307 | 262 | 141 | 109 | 15.4/15 40) |

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 4-8/5 | 1.5 | 619/659 [40)] | 307 | 312/352 [40)] | 178 | 110 | 26.7/29.2 [40)] |
| MTH 4-8/6 | 2.2 | 659 | 307 | 352 | 178 | 110 | 31/29.7 [40)] |
| MTH 4-8/7 | 2.2 | 659 | 307 | 352 | 178 | 110 | 31.1/29.8 [40)] |
| MTH 4-9/1 | 0.55 | 536 | 334 | 202 | 141 | 109 | 14.5/13.9 [40)] |
| MTH 4-9/2 | 0.55 | 536 | 334 | 202 | 141 | 109 | 14.7/14.1 [40)] |
| MTH 4-9/3 | 0.75 | 576 | 334 | 242 | 141 | 109 | 17.6/14.5 [40)] |
| MTH 4-9/4 | 1.1 | 596 | 334 | 262 | 141 | 109 | 15.7/15.4 [40)] |
| MTH 4-9/5 | 1.5 | 646/686 [40)] | 334 | 312/352 [40)] | 178 | 110 | 27/29.5 [40)] |
| MTH 4-9/6 | 2.2 | 686 | 334 | 352 | 178 | 110 | 31.3/30 [40)] |
| MTH 4-9/7 | 2.2 | 686 | 334 | 352 | 178 | 110 | 31.4/30.1 [40)] |

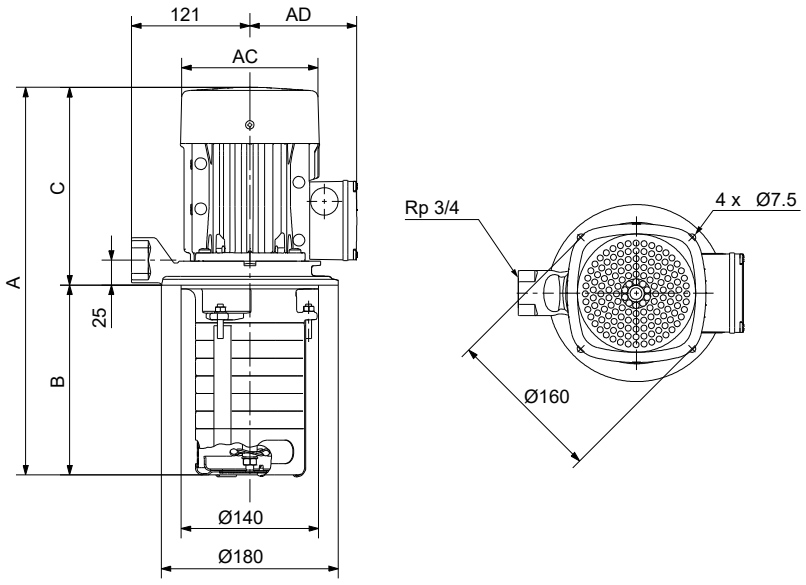
[40)] Applies to pumps fitted with 200 V motors.

## MTH 8, 60 Hz




TM062362

## Dimensional sketches




TM067672

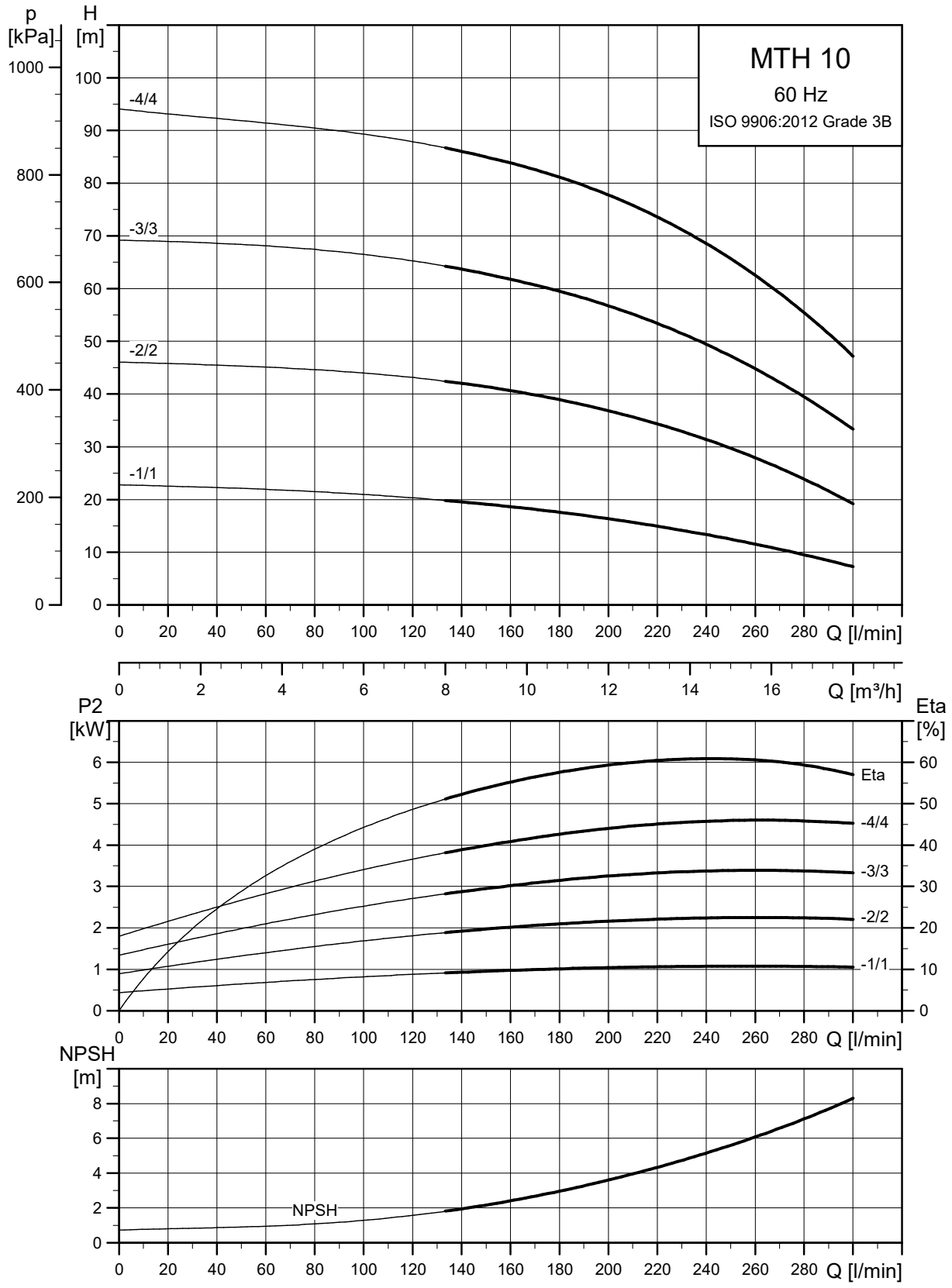
## Dimensions and weights

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 8-1/1 | 0.55 | 347 | 145 | 202 | 141 | 109 | 12.5/11.9 41) |
| MTH 8-2/1 | 0.55 | 374 | 172 | 202 | 141 | 109 | 12.7/12.1 41) |
| MTH 8-2/2-1 | 1.1 | 434 | 172 | 262 | 141 | 109 | 13.5/13.2 41) |
| MTH 8-2/2 | 1.1 | 434 | 172 | 262 | 141 | 109 | 13.6/13.3 41) |
| MTH 8-3/1 | 0.55 | 401 | 199 | 202 | 141 | 109 | 12.9/12.3 41) |
| MTH 8-3/2-1 | 1.1 | 461 | 199 | 262 | 141 | 109 | 13.7/13.4 41) |
| MTH 8-3/2 | 1.1 | 461 | 199 | 262 | 141 | 109 | 13.8/13.5 41) |
| MTH 8-3/3-1 | 1.5 | 511/551 41) | 199 | 312/352 41) | 178 | 110 | 25.2/27.7 41) |
| MTH 8-3/3 | 2.2 | 551 | 199 | 352 | 178 | 110 | 29.3/28 41) |
| MTH 8-4/1 | 0.55 | 428 | 226 | 202 | 141 | 109 | 13/12.4 41) |
| MTH 8-4/2-1 | 1.1 | 488 | 226 | 262 | 141 | 109 | 13.9/13.5 41) |
| MTH 8-4/2 | 1.1 | 488 | 226 | 262 | 141 | 109 | 14/13.6 41) |
| MTH 8-4/3-1 | 1.5 | 538/578 41) | 226 | 312/352 41) | 178 | 110 | 25.4/27.8 41) |
| MTH 8-4/3 | 2.2 | 578 | 226 | 352 | 178 | 110 | 29.5/28.2 41) |
| MTH 8-4/4-1 | 2.2 | 578 | 226 | 352 | 178 | 110 | 29.7/28.4 41) |
| MTH 8-4/4 | 2.2 | 578 | 226 | 352 | 178 | 110 | 29.7/28.4 41) |
| MTH 8-5/1 | 0.55 | 455 | 253 | 202 | 141 | 109 | 13.2/12.6 41) |
| MTH 8-5/2-1 | 1.1 | 515 | 253 | 262 | 141 | 109 | 14.1/13.7 41) |
| MTH 8-5/2 | 1.1 | 515 | 253 | 262 | 141 | 109 | 14.2/13.8 41) |
| MTH 8-5/3-1 | 1.5 | 565/605 41) | 253 | 312/352 41) | 178 | 110 | 25.5/28 41) |
| MTH 8-5/3 | 2.2 | 605 | 253 | 352 | 178 | 110 | 29.7/28.4 41) |
| MTH 8-5/4-1 | 2.2 | 605 | 253 | 352 | 178 | 110 | 29.9/28.6 41) |
| MTH 8-5/4 | 2.2 | 605 | 253 | 352 | 178 | 110 | 29.9/28.6 41) |
| MTH 8-5/5-1 | 3 | 623 | 253 | 370 | 198 | 120 | 33.8/36.7 41) |
| MTH 8-5/5 | 3 | 623 | 253 | 370 | 198 | 120 | 33.8/36.7 41) |
| MTH 8-6/1 | 0.55 | 482 | 280 | 202 | 141 | 109 | 13.3/12.7 41) |
| MTH 8-6/2-1 | 1.1 | 542 | 280 | 262 | 141 | 109 | 14.2/13.9 41) |
| MTH 8-6/2 | 1.1 | 542 | 280 | 262 | 141 | 109 | 14.3/14 41) |
| MTH 8-6/3-1 | 1.5 | 592/632 41) | 280 | 312/352 41) | 178 | 110 | 25.7/28.2 41) |
| MTH 8-6/3 | 2.2 | 632 | 280 | 352 | 178 | 110 | 29.8/28.5 41) |
| MTH 8-6/4-1 | 2.2 | 632 | 280 | 352 | 178 | 110 | 30/28.7 41) |

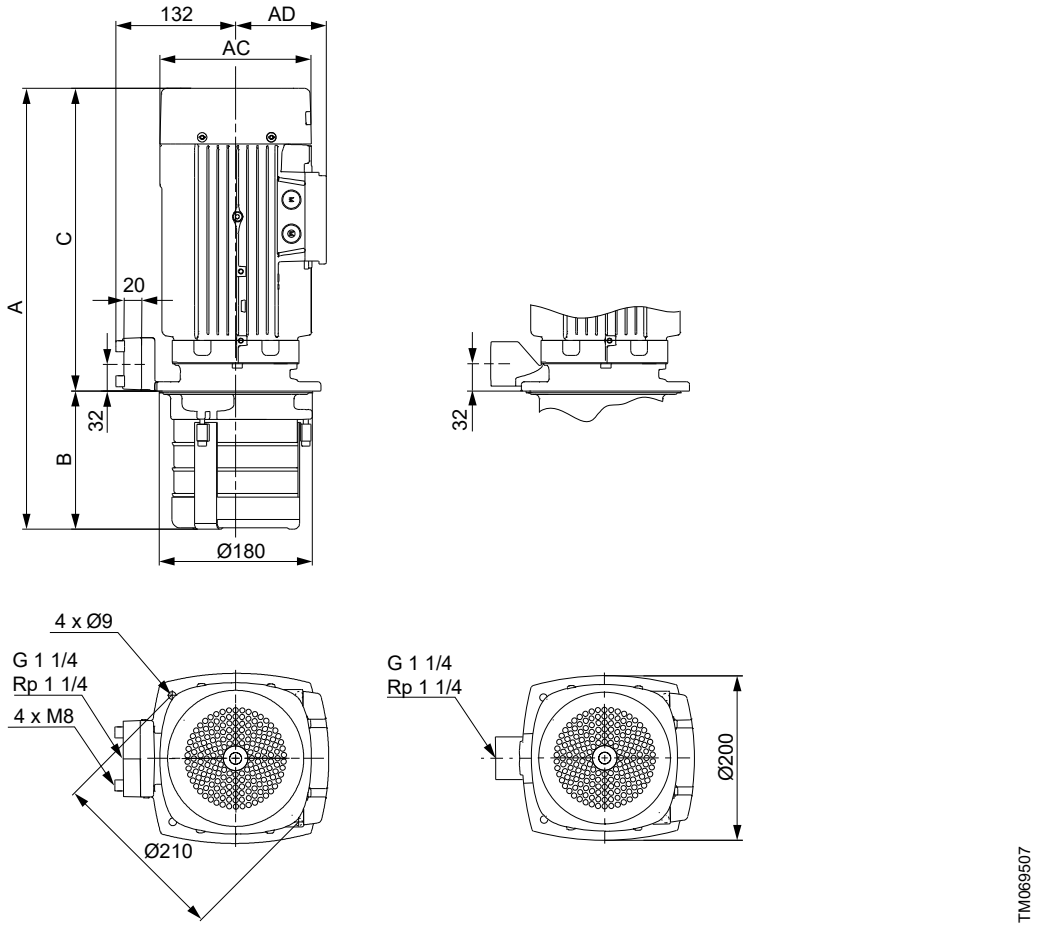
| Pump type | Motor P2 [kW] | Dimensions [mm] | | | | | Weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 8-6/4 | 2.2 | 632 | 280 | 352 | 178 | 110 | 30.1/28.8 41) |
| MTH 8-6/5-1 | 3 | 650 | 280 | 370 | 198 | 120 | 34/36.8 41) |
| MTH 8-6/5 | 3 | 650 | 280 | 370 | 198 | 120 | 34/36.9 41) |
| MTH 8-6/6-1 | 3 | 650 | 280 | 370 | 198 | 120 | 34.2/37.1 41) |
| MTH 8-6/6 | 4 | 687 | 280 | 407 | 220 | 134 | 36.8/37.1 41) |
| MTH 8-7/1 | 0.55 | 509 | 307 | 202 | 141 | 109 | 13.5/12.9 41) |
| MTH 8-7/2-1 | 1.1 | 569 | 307 | 262 | 141 | 109 | 14.4/14 41) |
| MTH 8-7/2 | 1.1 | 569 | 307 | 262 | 141 | 109 | 14.5/14.1 41) |
| MTH 8-7/3-1 | 1.5 | 619/659 41) | 307 | 312/352 41) | 178 | 110 | 25.9/28.3 41) |
| MTH 8-7/3 | 2.2 | 659 | 307 | 352 | 178 | 110 | 30/28.7 41) |
| MTH 8-7/4-1 | 2.2 | 659 | 307 | 352 | 178 | 110 | 30.2/28.9 41) |
| MTH 8-7/4 | 2.2 | 659 | 307 | 352 | 178 | 110 | 30.2/28.9 41) |
| MTH 8-7/5-1 | 3 | 677 | 307 | 370 | 198 | 120 | 34.1/37 41) |
| MTH 8-7/5 | 3 | 677 | 307 | 370 | 198 | 120 | 34.2/37 41) |
| MTH 8-7/6-1 | 3 | 677 | 307 | 370 | 198 | 120 | 34.3/37.2 41) |
| MTH 8-7/6 | 4 | 714 | 307 | 407 | 220 | 134 | 36.9/37.2 41) |
| MTH 8-7/7-1 | 4 | 714 | 307 | 407 | 220 | 134 | 37.1/37.4 41) |
| MTH 8-7/7 | 4 | 714 | 307 | 407 | 220 | 134 | 37.2/37.5 41) |
| MTH 8-8/1 | 0.55 | 536 | 334 | 202 | 141 | 109 | 13.8/13.2 41) |
| MTH 8-8/2-1 | 1.1 | 596 | 334 | 262 | 141 | 109 | 14.7/14.3 41) |
| MTH 8-8/2 | 1.1 | 596 | 334 | 262 | 141 | 109 | 14.8/14.4 41) |
| MTH 8-8/3-1 | 1.5 | 646/686 41) | 334 | 312/352 41) | 178 | 110 | 26.2/28.6 41) |
| MTH 8-8/3 | 2.2 | 686 | 334 | 352 | 178 | 110 | 30.3/29 41) |
| MTH 8-8/4-1 | 2.2 | 686 | 334 | 352 | 178 | 110 | 30.5/29.2 41) |
| MTH 8-8/4 | 2.2 | 686 | 334 | 352 | 178 | 110 | 30.5/29.2 41) |
| MTH 8-8/5-1 | 3 | 704 | 334 | 370 | 198 | 120 | 34.4/37.3 41) |
| MTH 8-8/5 | 3 | 704 | 334 | 370 | 198 | 120 | 34.5/37.3 41) |
| MTH 8-8/6-1 | 3 | 704 | 334 | 370 | 198 | 120 | 34.7/37.5 41) |
| MTH 8-8/6 | 4 | 741 | 334 | 407 | 220 | 134 | 37.3/37.6 41) |
| MTH 8-8/7-1 | 4 | 741 | 334 | 407 | 220 | 134 | 37.5/37.8 41) |
| MTH 8-8/7 | 4 | 741 | 334 | 407 | 220 | 134 | 37.5/37.8 41) |

41) Applies to pumps fitted with 200 V motors.

**MTH 10, 60 Hz**


MTH 10
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-4/4
-3/3
-2/2
-1/1
Q [l/min]
Q [m³/h]
P2 [kW]
Eta [%]
Eta
NPSH [m]
NPSH
TM068920

## Dimensional sketches



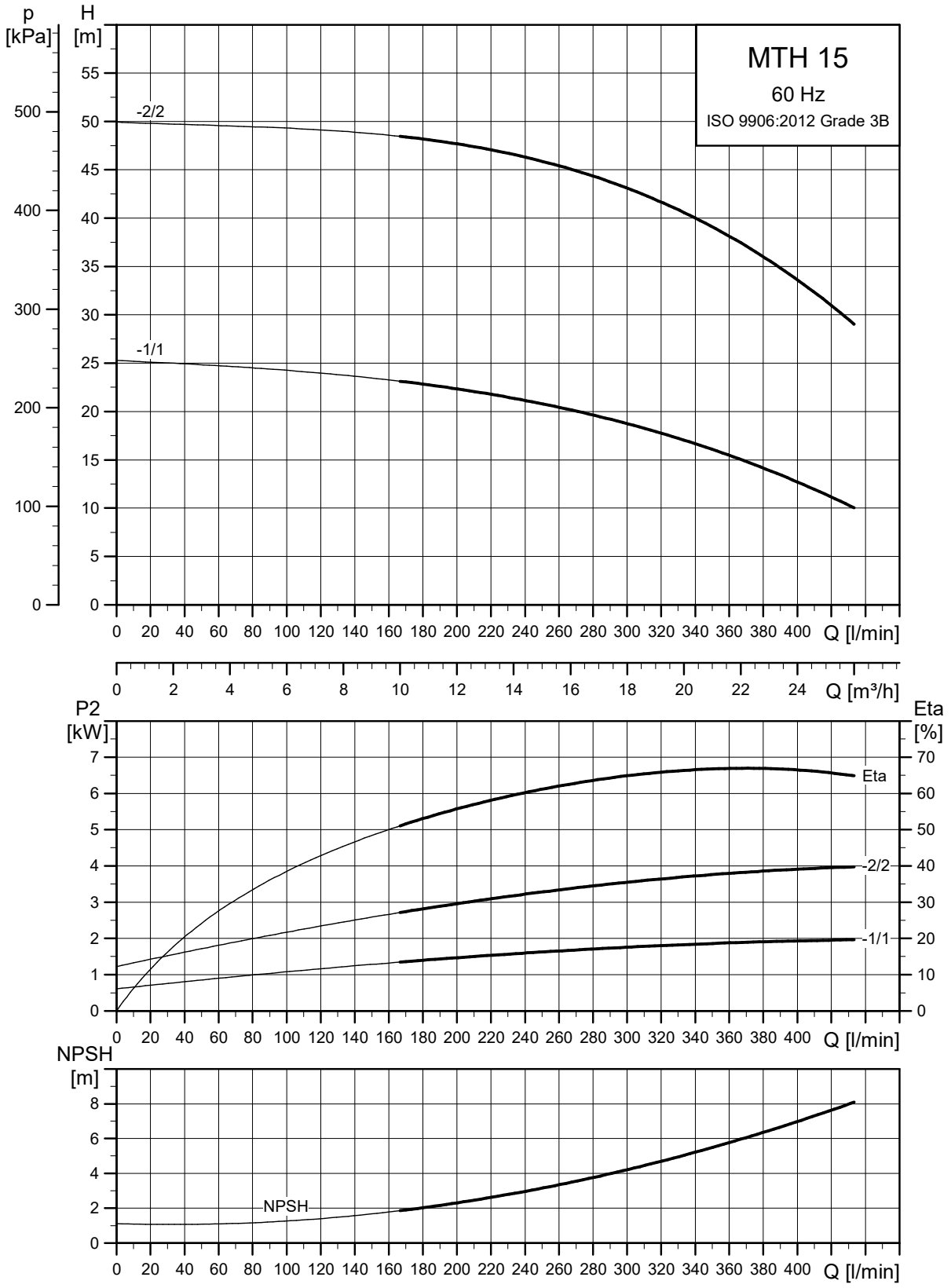

*A-version (left), I-version (right).*

## Dimensions and weights

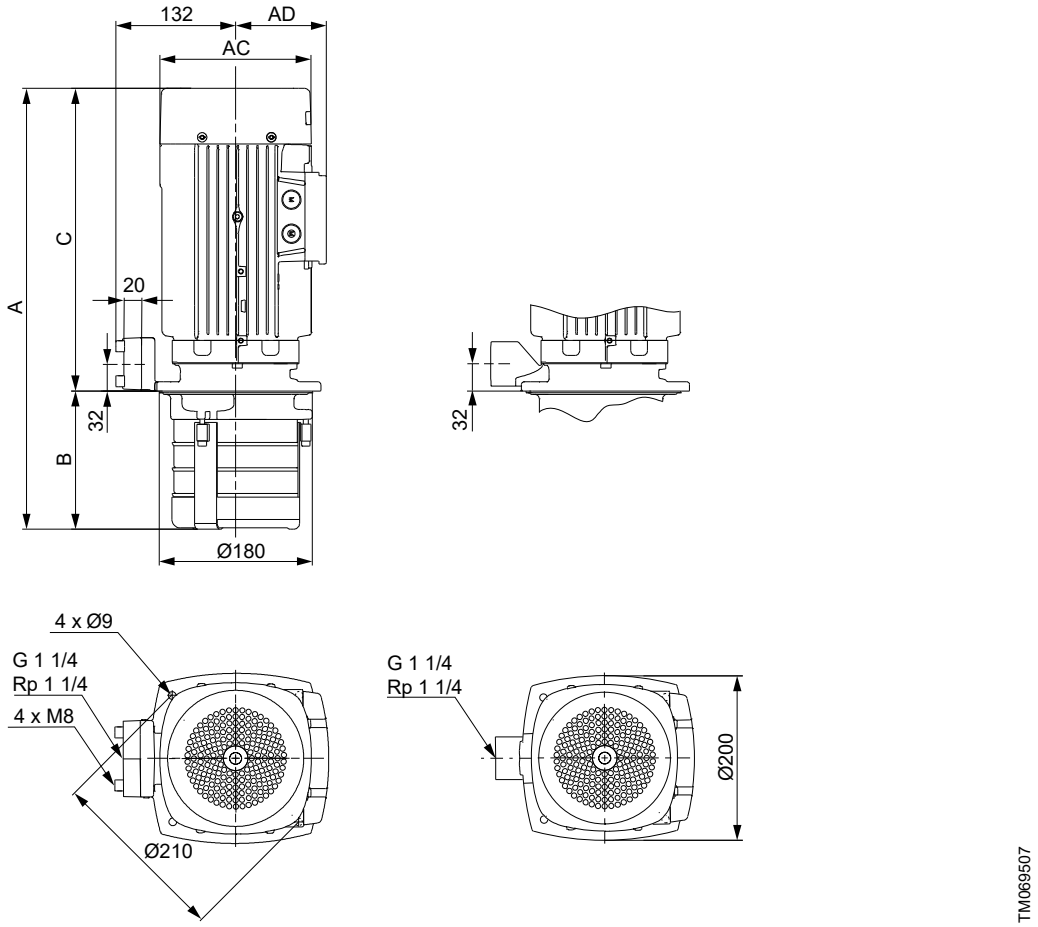
| Pump type | Motor P2 [kW] | MT Dimensions [mm] | | | | | Net weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 10-1/1 | 1.1 | 375 | 105 | 270 | 141 | 109 | 17.3/17 42) |
| MTH 10-2/1 | 1.1 | 405 | 135 | 270 | 141 | 109 | 17.8/17.5 42) |
| MTH 10-2/2 | 2.2 | 495 | 135 | 360 | 178 | 110 | 31.7/30.4 42) |
| MTH 10-3/1 | 1.1 | 435 | 165 | 270 | 141 | 109 | 18.1/17.8 42) |
| MTH 10-3/2 | 2.2 | 525 | 165 | 360 | 178 | 110 | 32.2/30.9 42) |
| MTH 10-3/3 | 3 | 542 | 165 | 377 | 198 | 120 | 37.4/40.2 42) |
| MTH 10-4/1 | 1.1 | 465 | 195 | 270 | 141 | 109 | 17.9/17.6 42) |
| MTH 10-4/2 | 2.2 | 555 | 195 | 360 | 178 | 110 | 32/30.7 42) |
| MTH 10-4/3 | 3 | 572 | 195 | 377 | 198 | 120 | 37.4/40.2 42) |
| MTH 10-4/4 | 4 | 608 | 195 | 413 | 220 | 134 | 40.6/40.9 42) |
| MTH 10-5/1 | 1.1 | 495 | 225 | 270 | 141 | 109 | 18.3/17.9 42) |
| MTH 10-5/2 | 2.2 | 585 | 225 | 360 | 178 | 110 | 32.3/31.1 42) |
| MTH 10-5/3 | 3 | 602 | 225 | 377 | 198 | 120 | 37.7/40.5 42) |
| MTH 10-5/4 | 4 | 638 | 225 | 413 | 220 | 134 | 41.1/41.4 42) |
| MTH 10-6/1 | 1.1 | 525 | 255 | 270 | 141 | 109 | 18.7/18.3 42) |
| MTH 10-6/2 | 2.2 | 615 | 255 | 360 | 178 | 110 | 32.8/31.5 42) |
| MTH 10-6/3 | 3 | 632 | 255 | 377 | 198 | 120 | 38.1/41 42) |
| MTH 10-6/4 | 4 | 668 | 255 | 413 | 220 | 134 | 41.5/41.8 42) |

42) Applies to pumps fitted with 200 V motors.

**MTH 15, 60 Hz**


MTH 15
60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-2/2
-1/1
Q [l/min]
Q [m³/h]
P2 [kW]
Eta [%]
Eta
NPSH [m]
NPSH
TM068922

## Dimensional sketches




*A-version (left), I-version (right).*

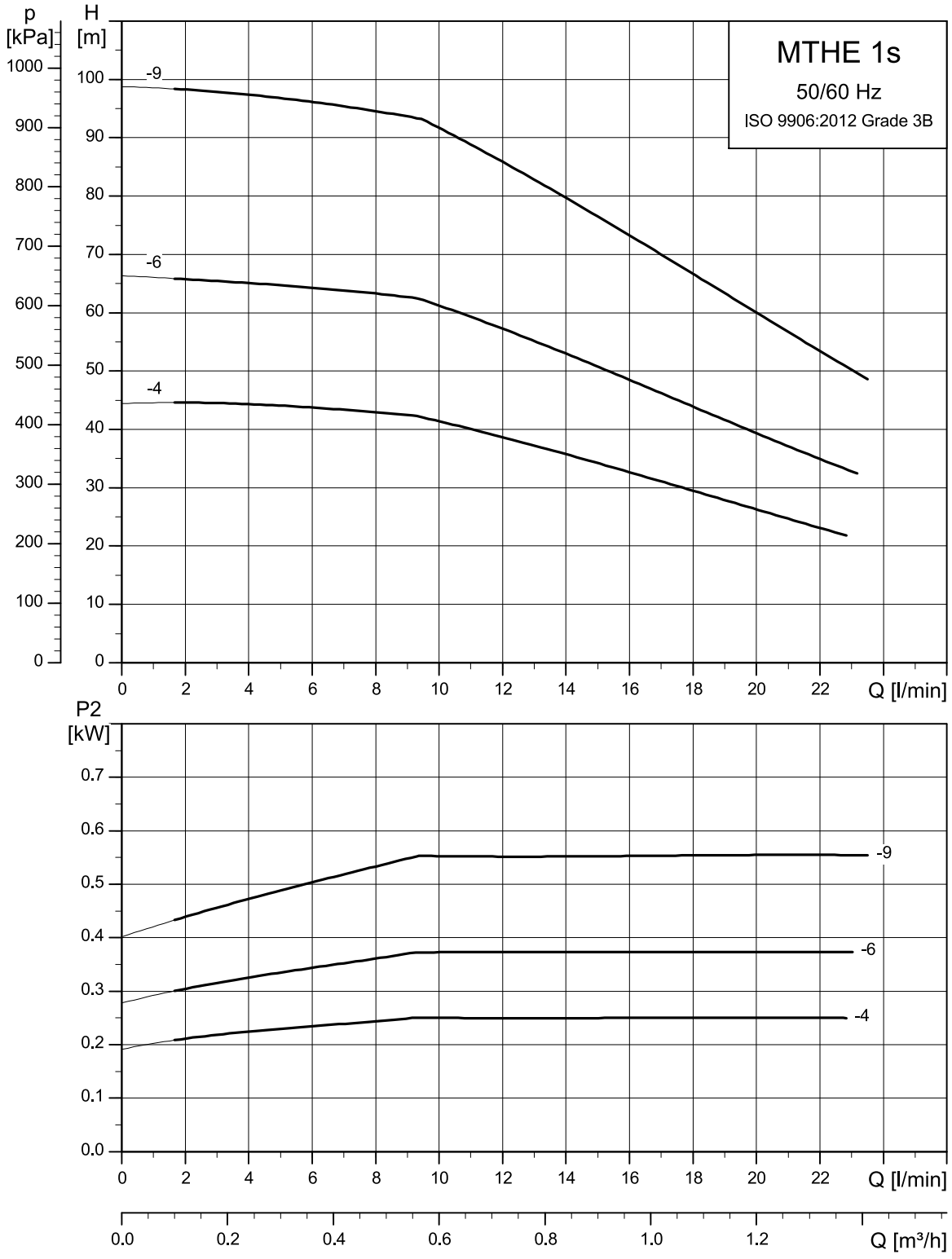
## Dimensions and weights

| Pump type | Motor P2 [kW] | MT Dimensions [mm] | | | | | Net weight [kg] |
|---|---|---|---|---|---|---|---|
| | | A | B | C | AC | AD | |
| MTH 15-1/1 | 2.2 | 465 | 105 | 360 | 178 | 110 | 30.4/29.2 43) |
| MTH 15-2/1 | 2.2 | 495 | 135 | 360 | 178 | 110 | 31/29.7 43) |
| MTH 15-2/2 | 4 | 548 | 135 | 413 | 220 | 134 | 38.7/39 43) |
| MTH 15-3/1 | 2.2 | 525 | 165 | 360 | 178 | 110 | 31.3/30 43) |
| MTH 15-3/2 | 4 | 578 | 165 | 413 | 220 | 134 | 39.2/39.5 43) |
| MTH 15-4/1 | 2.2 | 555 | 195 | 360 | 178 | 110 | 31.1/29.8 43) |
| MTH 15-4/2 | 4 | 608 | 195 | 413 | 220 | 134 | 39/39.3 43) |
| MTH 15-5/1 | 2.2 | 585 | 225 | 360 | 178 | 110 | 31.5/30.2 43) |
| MTH 15-5/2 | 4 | 638 | 225 | 413 | 220 | 134 | 39.4/39.7 43) |
| MTH 15-6/1 | 2.2 | 615 | 255 | 360 | 178 | 110 | 31.9/30.6 43) |
| MTH 15-6/2 | 4 | 668 | 255 | 413 | 220 | 134 | 39.8/40.1 43) |

43) Applies to pumps fitted with 200 V motors.

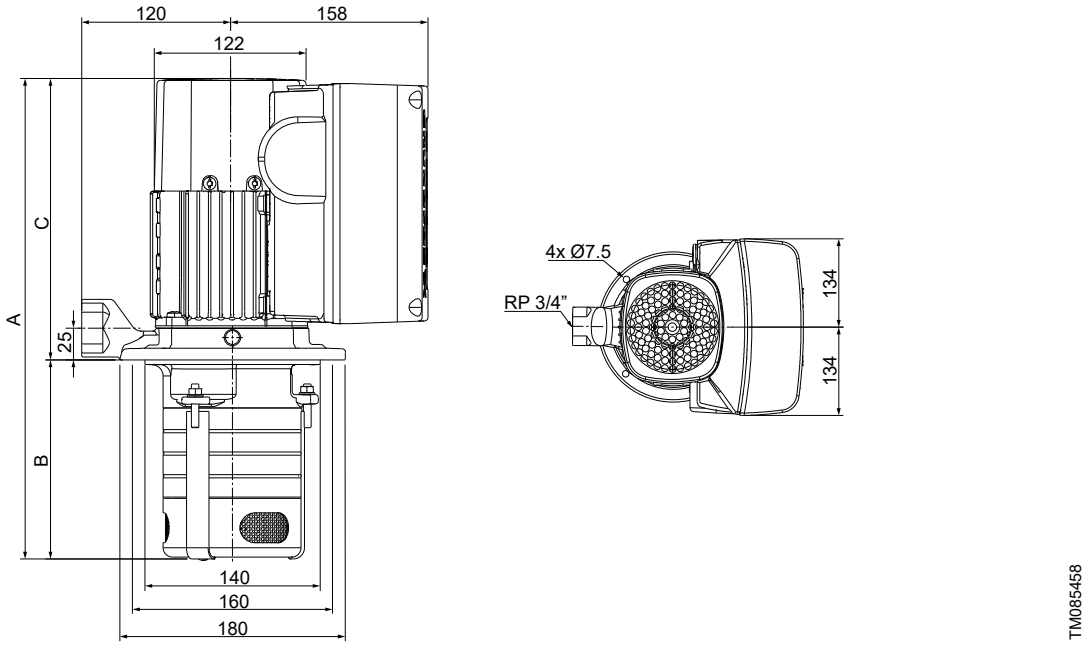
## MTHE, 50/60 Hz

### MTHE 1s




TM082263

## Dimensional sketches




## Dimensions and weights

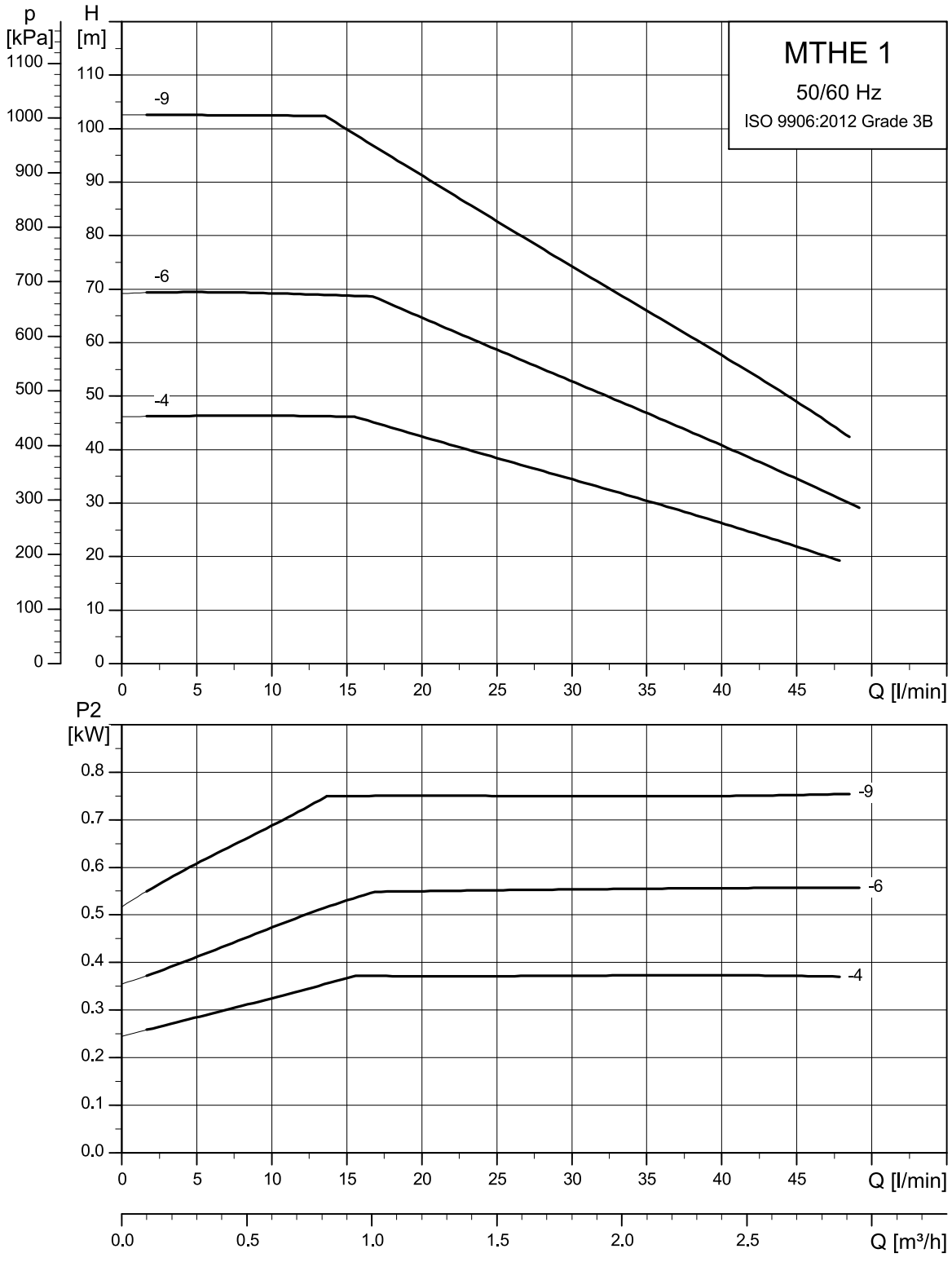
| Pump type | Motor P2 [kW] | Dimensions [mm] | | | Weight [kg] |
|---|---|---|---|---|---|
| | | A | B | C | |
| MTHE 1s-4/4 | 0.25 | 428 | 163 | 265 | 17.4 |
| MTHE 1s-6/6 | 0.37 | 464 | 199 | 265 | 17.5 |
| MTHE 1s-9/9 | 0.55 | 518 | 253 | 265 | 18.6 |

## Electrical data

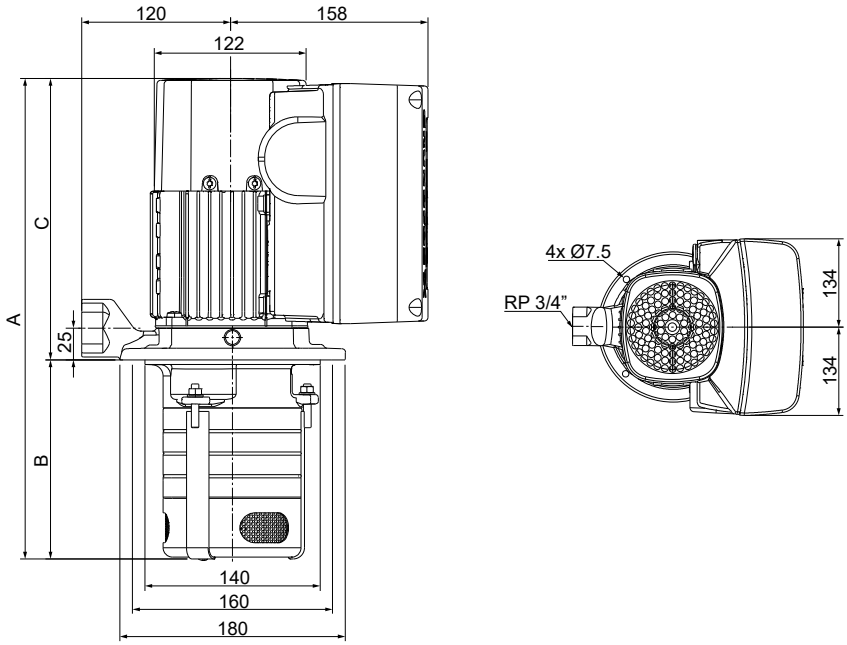
| Voltage | P2 [kW] | Frame size | Phase | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | Motor efficiency | |
|---|---|---|---|---|---|---|---|
| | | | | | | η [%] | Class |
| 3x380-500 V | 0.25 | 71 | 3 | 0.9 - 0.75 | 0.58 - 0.50 | 81.2 | IE5 |
| 3x380-500 V | 0.37 | 71 | 3 | 1.05 - 1.0 | 0.68 - 0.54 | 84.5 | IE5 |
| 3x380-500 V | 0.55 | 71 | 3 | 1.35 - 1.3 | 0.77 - 0.61 | 85.9 | IE5 |

The maximum immersion depth (B-dimension) is 289 mm.

## MTHE 1


p [kPa]
H [m]
MTHE 1
50/60 Hz
ISO 9906:2012 Grade 3B
-9
-6
-4
Q [l/min]
P2 [kW]
Q [l/min]
Q [m³/h]
TM082264

## Dimensional sketches




TM085458

## Dimensions and weights

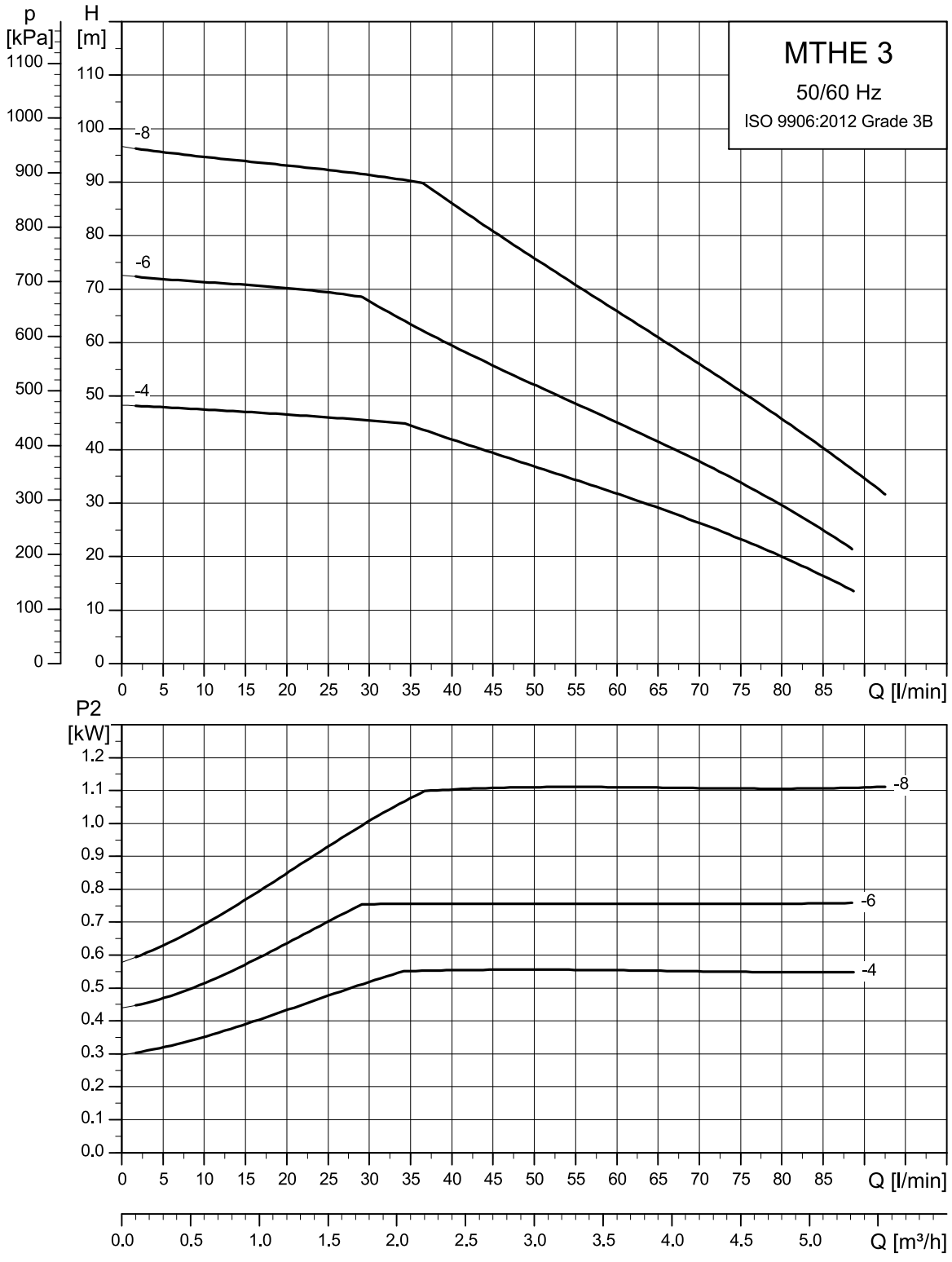
| Pump type | P2 [kW] | Dimensions [mm] | | | Weight [kg] |
|---|---|---|---|---|---|
| | | A | B | C | |
| MTHE 1-4/4 | 0.37 | 428 | 163 | 265 | 17.0 |
| MTHE 1-6/6 | 0.55 | 464 | 199 | 265 | 17.9 |
| MTHE 1-9/9 | 0.75 | 518 | 253 | 265 | 18.2 |

## Electrical data

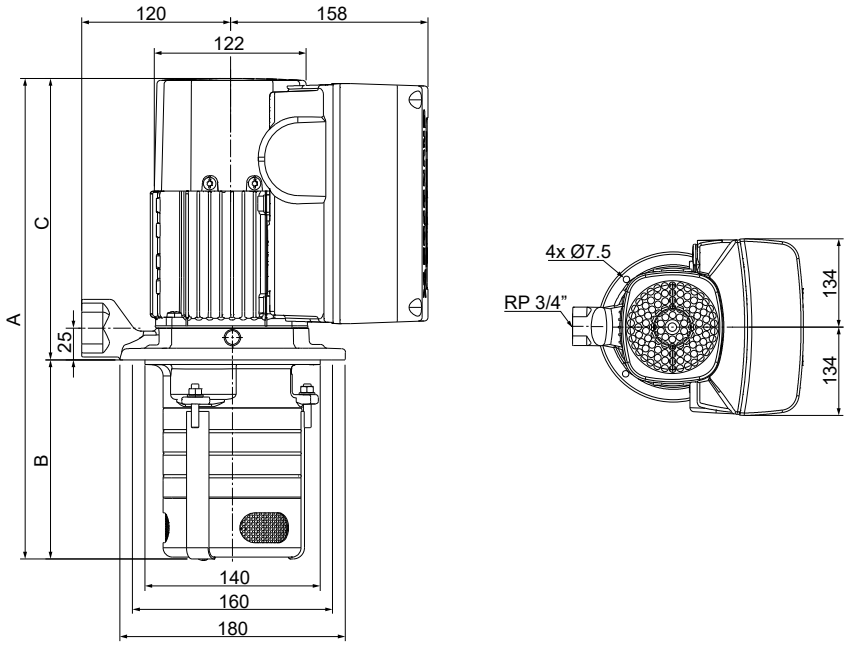
| Voltage | P2 [kW] | Frame size | Phase | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | Motor efficiency | |
|---|---|---|---|---|---|---|---|
| | | | | | | η [%] | Class |
| 3x380-500 V | 0.37 | 71 | 3 | 1.05 - 1.0 | 0.68 - 0.54 | 84.5 | IE5 |
| 3x380-500 V | 0.55 | 71 | 3 | 1.35 - 1.3 | 0.77 - 0.61 | 85.9 | IE5 |
| 3x380-500 V | 0.75 | 80 | 3 | 1.7 - 1.6 | 0.83 - 0.67 | 85.9 | IE5 |

The maximum immersion depth (B-dimension) is 289 mm.

## MTHE 3


MTHE 3
50/60 Hz
ISO 9906:2012 Grade 3B
p [kPa]
H [m]
-8
-6
-4
Q [l/min]
P2 [kW]
Q [l/min]
Q [m³/h]
TM082265

## Dimensional sketches




TM085458

## Dimensions and weights

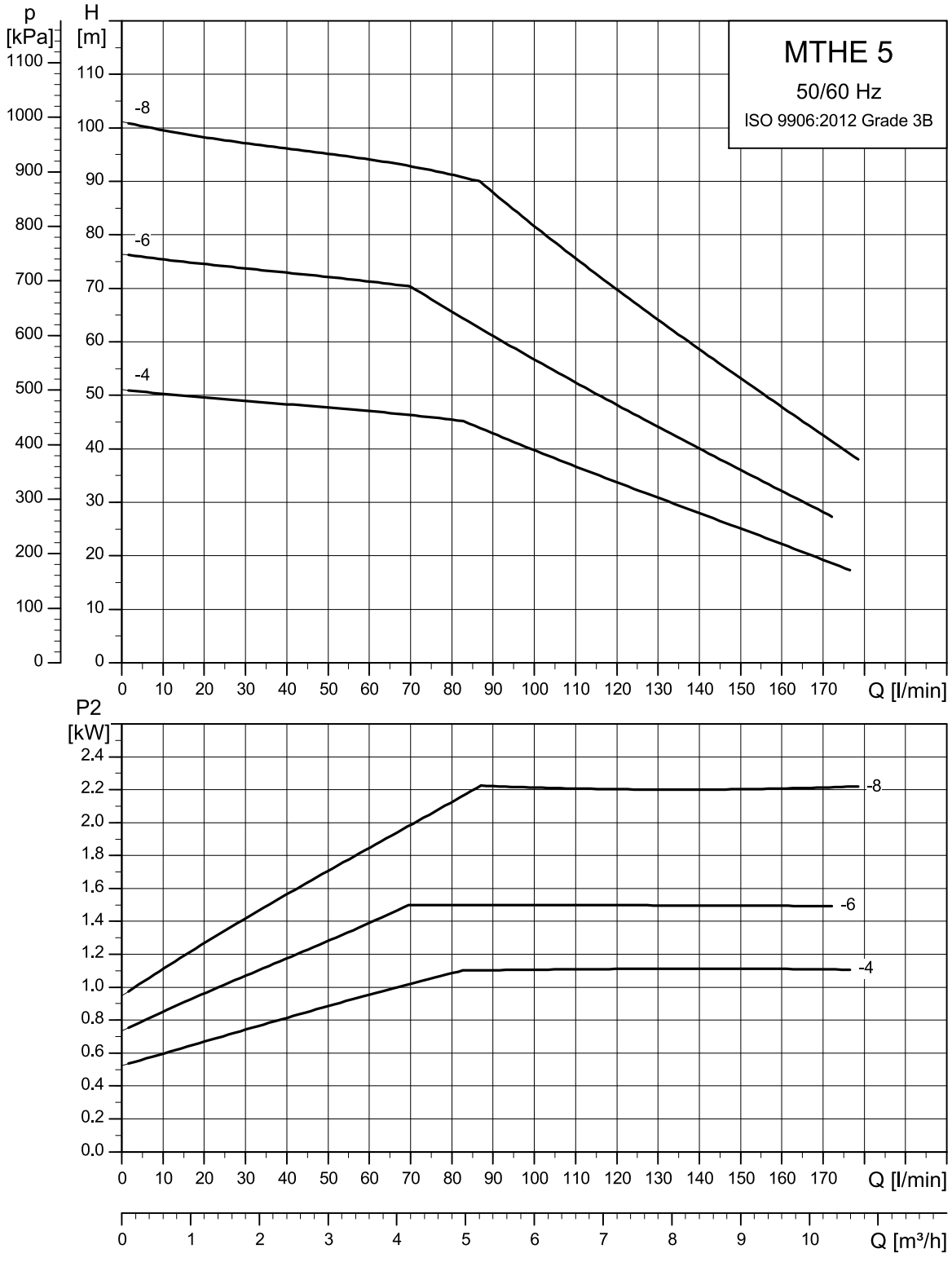
| Pump type | Motor P2 [kW] | Dimensions [mm] | | | Weight [kg] |
|---|---|---|---|---|---|
| | | A | B | C | |
| MTHE 3-4/4 | 0.55 | 428 | 163 | 265 | 17.5 |
| MTHE 3-6/6 | 0.75 | 464 | 199 | 265 | 17.7 |
| MTHE 3-8/8 | 1.1 | 500 | 235 | 265 | 19.4 |

## Electrical data

| Voltage | P2 [kW] | Frame size | Phase | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | Motor efficiency | |
|---|---|---|---|---|---|---|---|
| | | | | | | η [%] | Class |
| 3x380-500 V | 0.55 | 71 | 3 | 1.35 - 1.3 | 0.77 - 0.61 | 85.9 | IE5 |
| 3x380-500 V | 0.75 | 80 | 3 | 1.7 - 1.6 | 0.83 - 0.67 | 85.9 | IE5 |
| 3x380-500 V | 1.1 | 80 | 3 | 2.2 - 1.9 | 0.89 - 0.79 | 89.1 | IE5 |
| 3x200-240 V | 1.1 | 80 | 3 | 4.1 - 3.5 | 0.92 - 0.91 | 89.3 | IE5 |

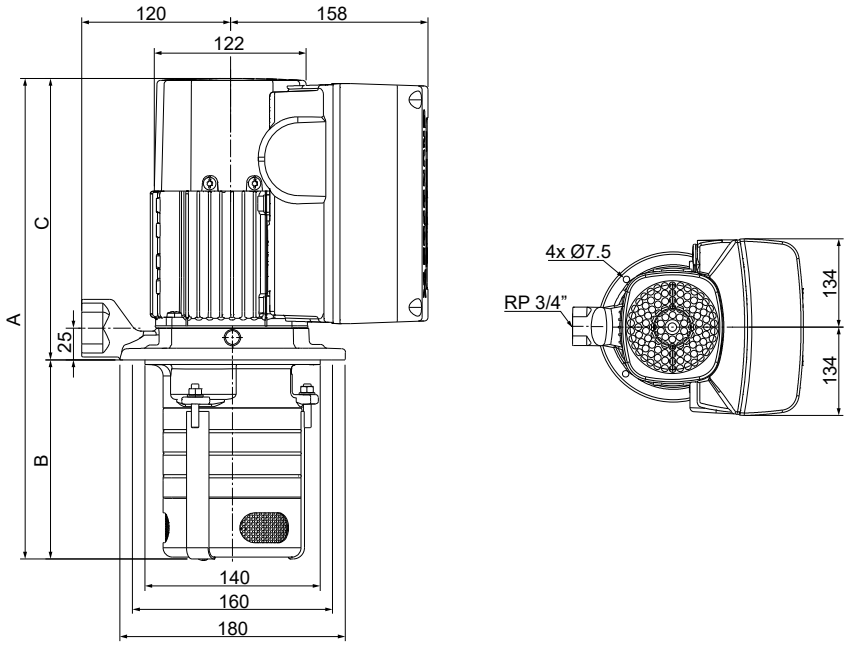
The maximum immersion depth (B-dimension) is 289 mm.

## MTHE 5




TM082266

## Dimensional sketches




TM085458

## Dimensions and weights

| Pump type | Motor P2 [kW] | Dimensions [mm] | | | Weight [kg] |
|---|---|---|---|---|---|
| | | A | B | C | |
| MTHE 5-4/4 | 1.1 | 464 | 199 | 265 | 19.1 |
| MTHE 5-6/6 | 1.5 | 525 | 253 | 272 | 20.6 |
| MTHE 5-8/8 | 2.2 | 579 | 307 | 272 | 22.2 |

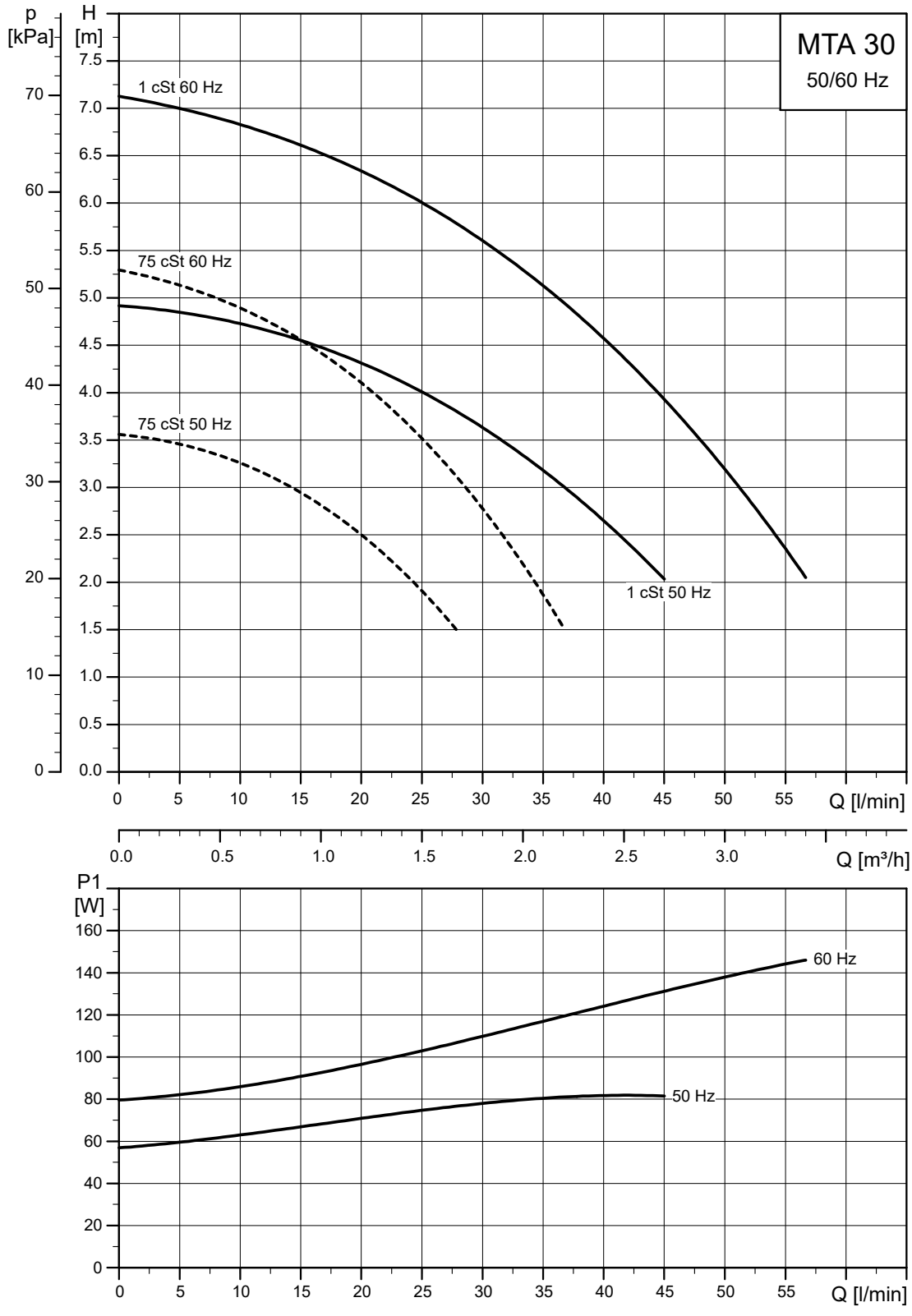
## Electrical data

| Voltage | P2 [kW] | Frame size | Phase | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | Motor efficiency | |
|---|---|---|---|---|---|---|---|
| | | | | | | η [%] | Class |
| 3x380-500 V | 1.1 | 80 | 3 | 2.2 - 1.9 | 0.89 - 0.79 | 89.1 | IE5 |
| 3x380-500 V | 1.5 | 90 | 3 | 2.9 - 2.4 | 0.92 - 0.85 | 88.9 | IE5 |
| 3x380-500 V | 2.2 | 90 | 3 | 4.15 - 3.4 | 0.93 - 0.87 | 90.1 | IE5 |
| 3x200-240 V | 1.1 | 80 | 3 | 4.1 - 3.5 | 0.92 - 0.91 | 89.3 | IE5 |
| 3x200-240 V | 1.5 | 90 | 3 | 5.4 - 4.6 | 0.92 - 0.92 | 88.9 | IE5 |

The maximum immersion depth (B-dimension) is 334 mm.

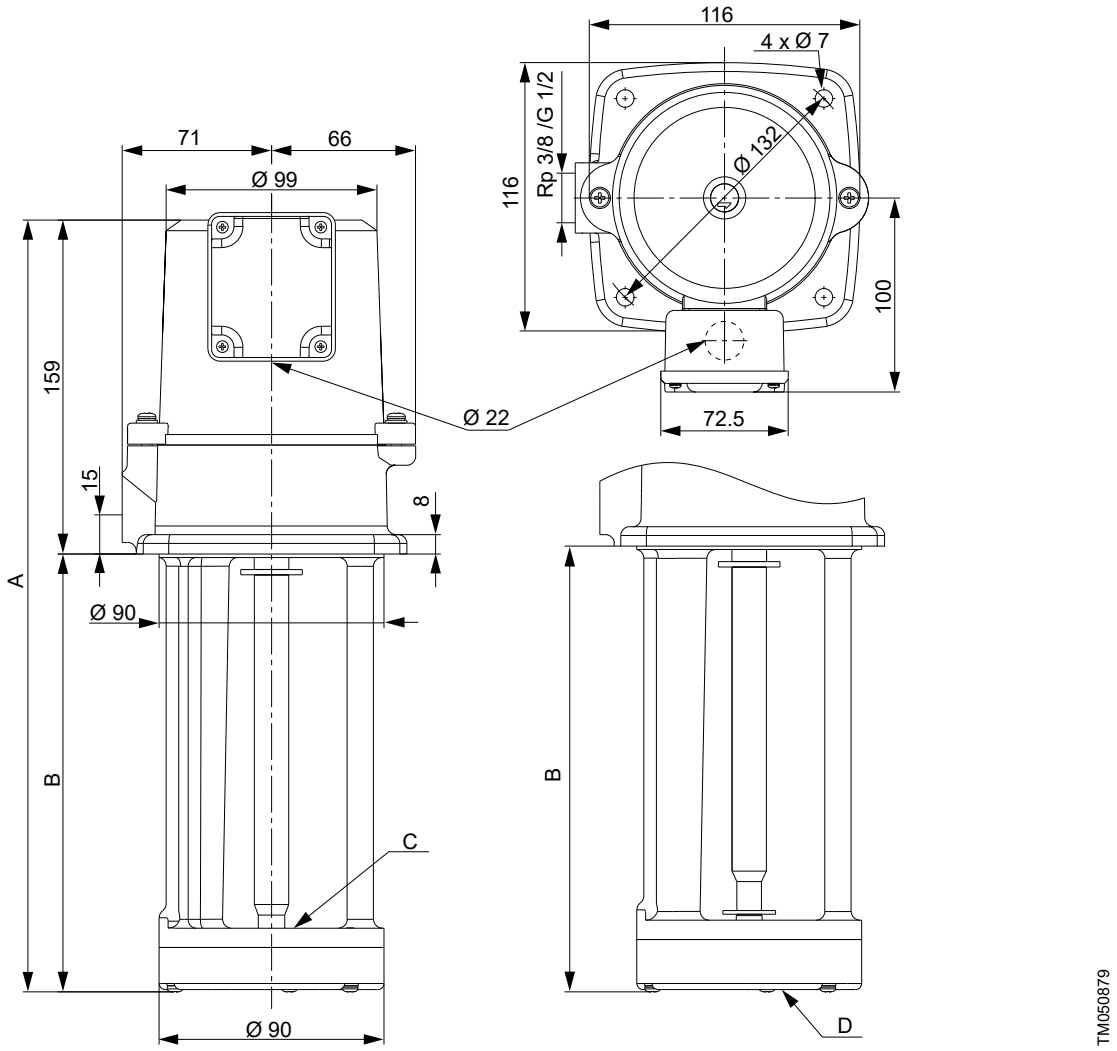
## MTA, 50/60 Hz

### MTA 30




TM050857

### Dimensional sketches




*Left: Top inlet (C). Right: Bottom inlet (D).*

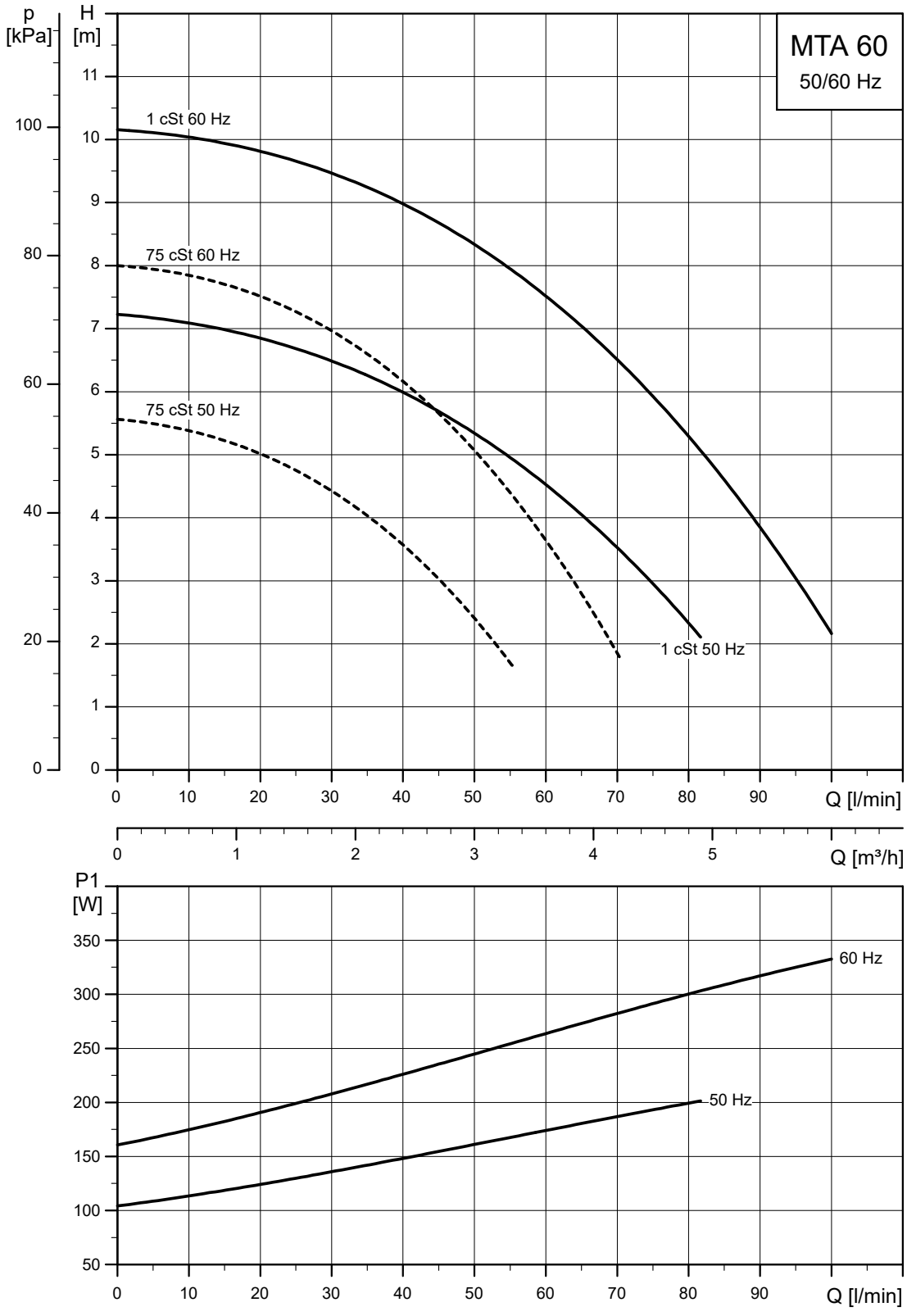
### Dimensions and weights

| Pump type | Inlet | A [mm] | B [mm] | Net weight [kg] | Gross weight [kg] | Shipping volume [$m^3$] |
|---|---|---|---|---|---|---|
| MTA 30-150 | Top | 309 | 150 | 6.7 | 7.6 | 0.012 |
| MTA 30-150 | Bottom | 312 | 153 | 6.7 | 7.7 | 0.012 |

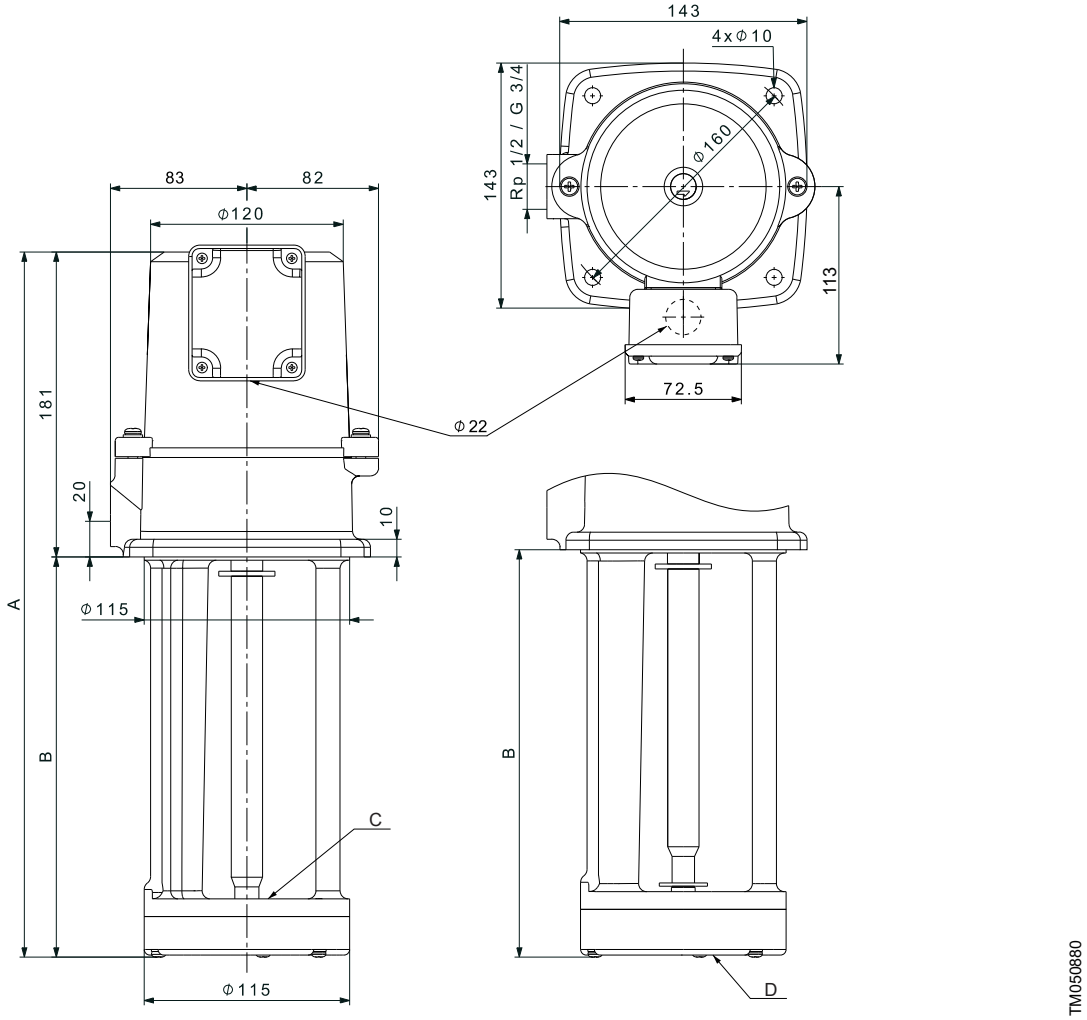
### Electrical data

| Voltage | Frequency [Hz] | P1 [W] | $I_{1/1}$ [A] | $I_{max}$ [A] | $I_{start}$ [A] | Cos φ |
|---|---|---|---|---|---|---|
| 3 x 200 Δ V | 50 | 82 | 0.41 | 0.47 | 3.28 | 0.58 |
| 3 x 200-220 Δ V | 60 | 145 | 0.5 | 0.58 - 0.58 | 3.65 - 3.80 | 0.84 - 0.76 |
| 3 x 220-240 Δ / 380-415Y V | 50 | 86 | 0.33/0.19 | 0.38/0.22 | 3.14/1.81 | 0.68 - 0.63 |
| 3 x 220-240 Δ / 380-440Y V | 60 | 142 | 0.41/0.24 - 0.22 | 0.47/0.28 - 0.25 | 3.36/1.97 - 1.80 | 0.91 - 0.83 |

**MTA 60**


MTA 60
50/60 Hz
p [kPa]
H [m]
1 cSt 60 Hz
75 cSt 60 Hz
75 cSt 50 Hz
1 cSt 50 Hz
Q [l/min]
Q [m³/h]
P1 [W]
60 Hz
50 Hz
Q [l/min]
TM050858

## Dimensional sketches




*Left: Top inlet (C). Right: Bottom inlet (D).*

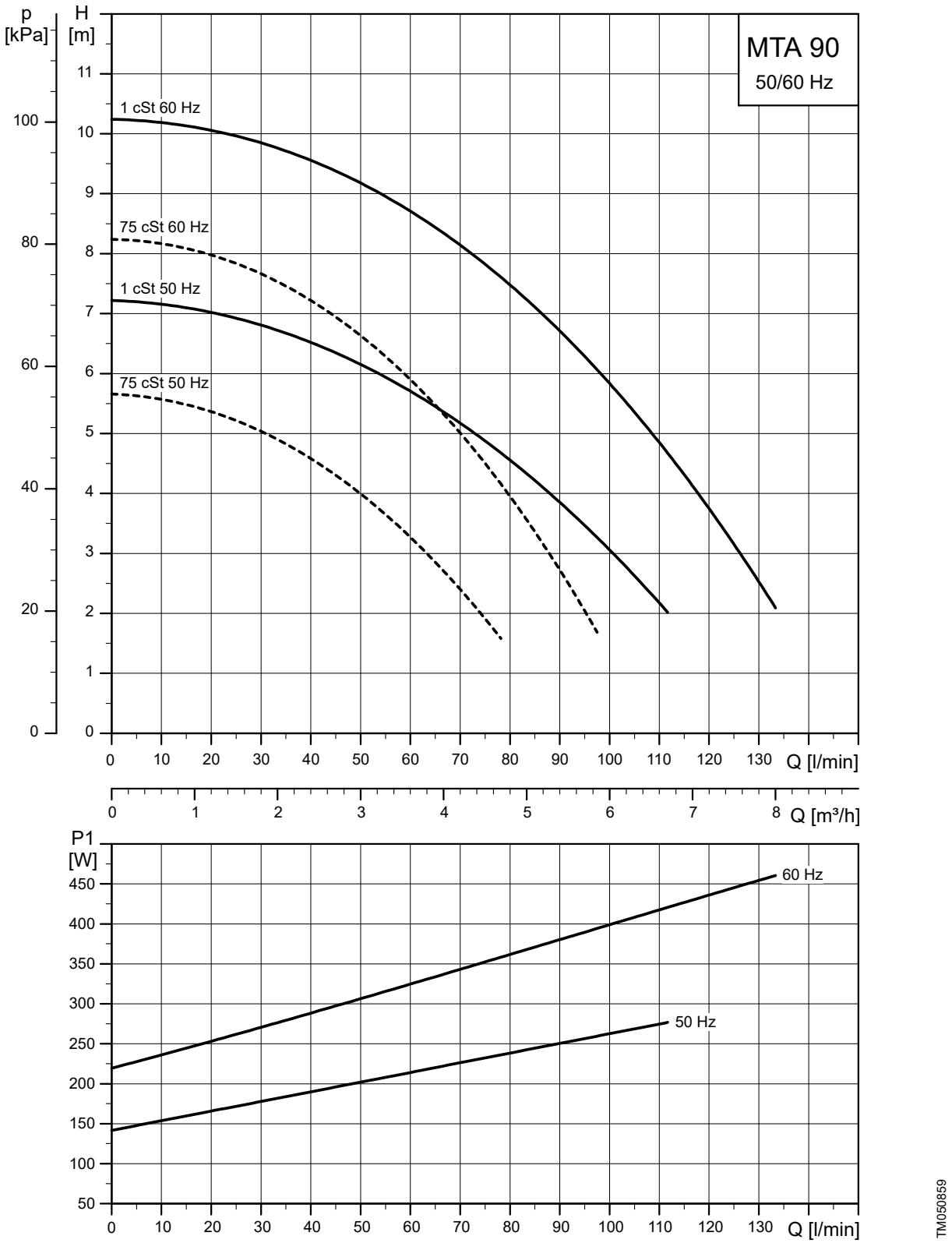
## Dimensions and weights

| Pump type | Inlet | A [mm] | B [mm] | Net weight [kg] | Gross weight [kg] | Shipping volume [$m^3$] |
|---|---|---|---|---|---|---|
| MTA 60-130 | Top | 306 | 125 | 10.6 | 11.6 | 0.170 |
| MTA 60-180 | | 356 | 175 | 11.1 | 12.2 | 0.020 |
| MTA 60-250 | | 426 | 245 | 11.8 | 12.2 | 0.023 |
| MTA 60-350 | | 526 | 345 | 12.9 | 14.7 | 0.027 |
| MTA 60-130 | Bottom | 311.5 | 130.5 | 10.9 | 11.8 | 0.017 |
| MTA 60-180 | | 361.5 | 180.5 | 11.4 | 12.4 | 0.020 |
| MTA 60-250 | | 431.5 | 250.5 | 12.2 | 13.5 | 0.023 |
| MTA 60-350 | | 531.5 | 350.5 | 13.2 | 14.9 | 0.027 |

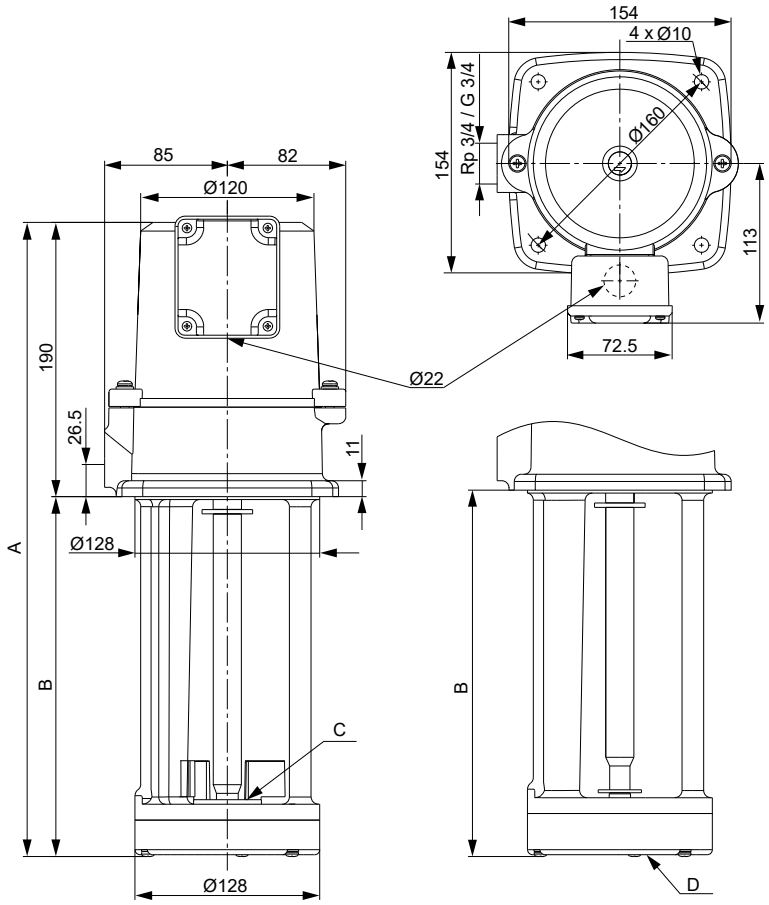
## Electrical data

| Voltage | Frequency [Hz] | P1 [W] | $I_{1/1}$ [A] | $I_{max}$ [A] | $I_{start}$ [A] | Cos φ |
|---|---|---|---|---|---|---|
| 3 x 200 Δ V | 50 | 202 | 0.78 | 0.90 | 5.38 | 0.75 |
| 3 x 200-220 Δ V | 60 | 333 | 1.18 - 1.09 | 1.36 - 1.27 | 6.25 - 6.43 | 0.81 - 0.80 |
| 3 x 220-240 Δ / 380-415Y V | 50 | 200 | 0.69/0.42 | 0.79/0.48 | 5.87/3.57 | 0.76 - 0.70 |
| 3 x 220-240 Δ / 380-440Y V | 60 | 330 | 0.99/0.63 - 0.57 | 1.14/0.72 - 0.66 | 6.44/4.10 - 3.71 | 0.87 - 0.80 |

**MTA 90**


MTA 90
50/60 Hz
p [kPa]
H [m]
1 cSt 60 Hz
75 cSt 60 Hz
1 cSt 50 Hz
75 cSt 50 Hz
Q [l/min]
Q [m³/h]
P1 [W]
60 Hz
50 Hz
Q [l/min]
TM050859

## Dimensional sketches




*Left: Top inlet (C). Right: Bottom inlet (D).*

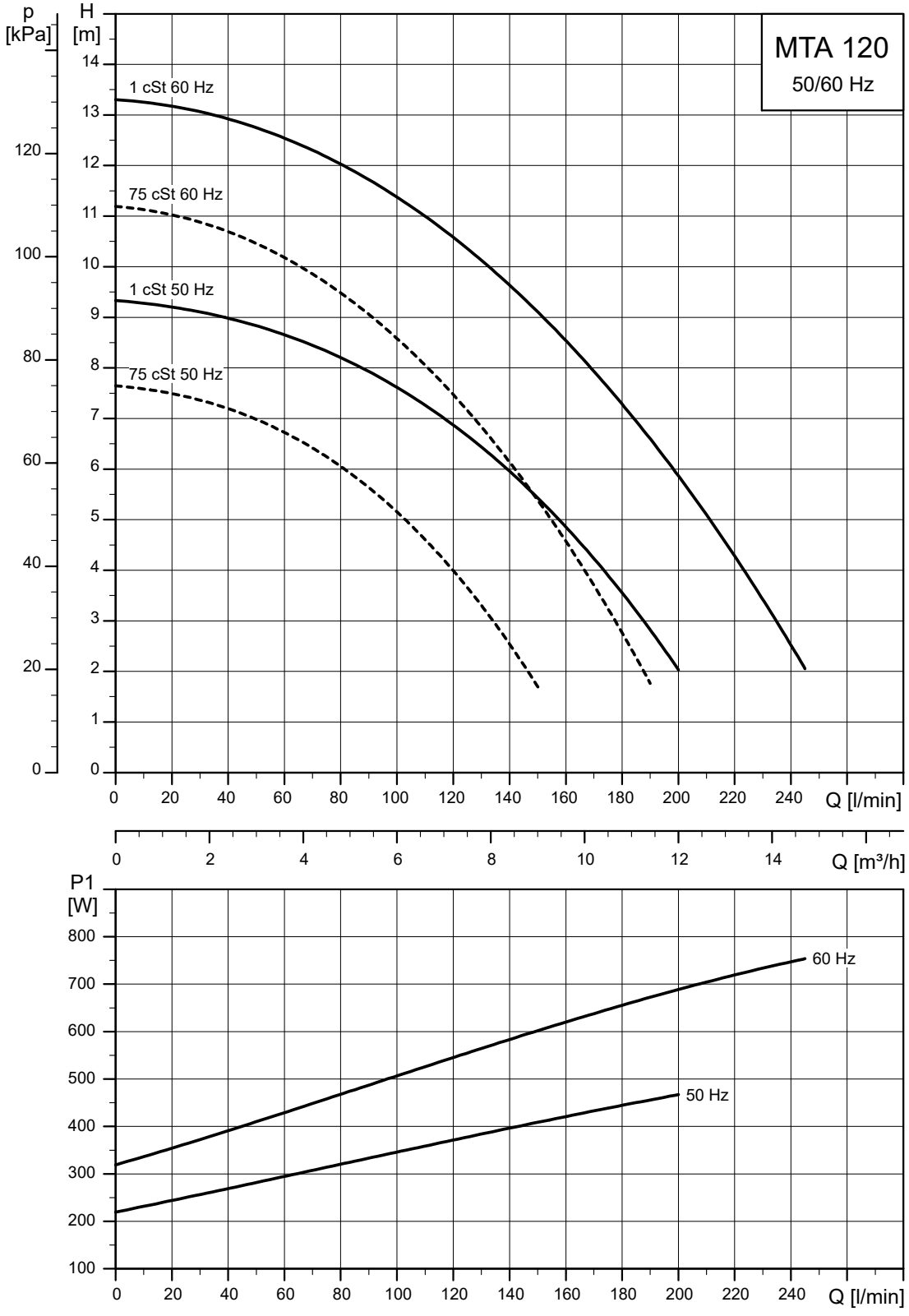
## Dimensions and weights

| Pump type | Inlet | A [mm] | B [mm] | Net weight [kg] | Gross weight [kg] | Shipping volume [$m^3$] |
|---|---|---|---|---|---|---|
| MTA 90-130 | Top | 318 | 128 | 12.5 | 14.2 | 0.017 |
| MTA 90-180 | | 368 | 178 | 13.3 | 15.1 | 0.020 |
| MTA 90-250 | | 438 | 248 | 14.2 | 16.2 | 0.023 |
| MTA 90-350 | | 538 | 348 | 15.6 | 17.9 | 0.027 |
| MTA 90-130 | Bottom | 322.5 | 132.5 | 12.9 | 14.3 | 0.017 |
| MTA 90-180 | | 372.5 | 182.5 | 13.6 | 15.2 | 0.020 |
| MTA 90-250 | | 442.5 | 252.5 | 14.5 | 16.3 | 0.023 |
| MTA 90-350 | | 542.5 | 352.5 | 15.9 | 18.0 | 0.027 |

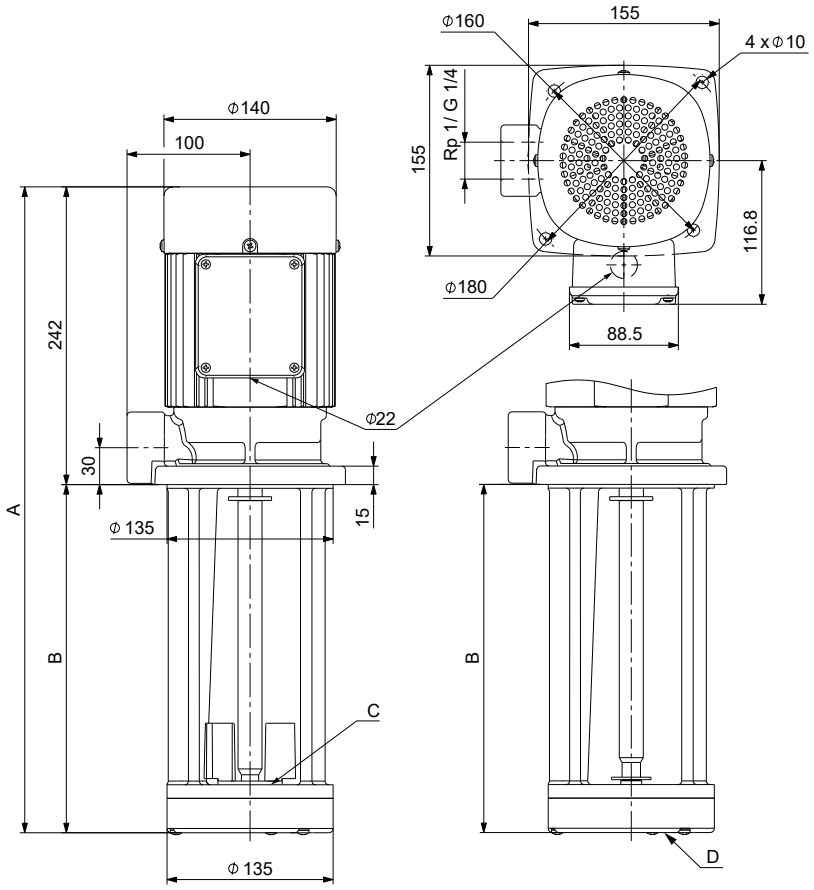
## Electrical data

| Voltage | Frequency [Hz] | P1 [W] | $I_{1/1}$ [A] | $I_{max}$ [A] | $I_{start}$ [A] | Cos φ |
|---|---|---|---|---|---|---|
| 3 x 200 Δ V | 50 | 276 | 1.12 | 1.29 | 8.29 | 0.71 |
| 3 x 200-220 Δ V | 60 | 460 | 1.63 - 1.51 | 1.87 - 1.74 | 9.29 - 9.51 | 0.81 - 0.80 |
| 3 x 220-240 Δ / 380-415Y V | 50 | 270 | 0.97/0.55 | 1.12/0.63 | 7.86/4.46 | 0.73 - 0.67 |
| 3 x 220-240 Δ / 380-440Y V | 60 | 440 | 1.3/0.8 - 0.72 | 1.5/0.92 - 0.83 | 8.45/5.20 - 4.68 | 0.89 - 0.81 |

**MTA 120**


MTA 120
50/60 Hz
p [kPa]
H [m]
1 cSt 60 Hz
75 cSt 60 Hz
1 cSt 50 Hz
75 cSt 50 Hz
Q [l/min]
Q [m³/h]
P1 [W]
60 Hz
50 Hz
Q [l/min]
TM050860

## Dimensional sketches




TM050882

*Left: Top inlet (C). Right: Bottom inlet (D).*

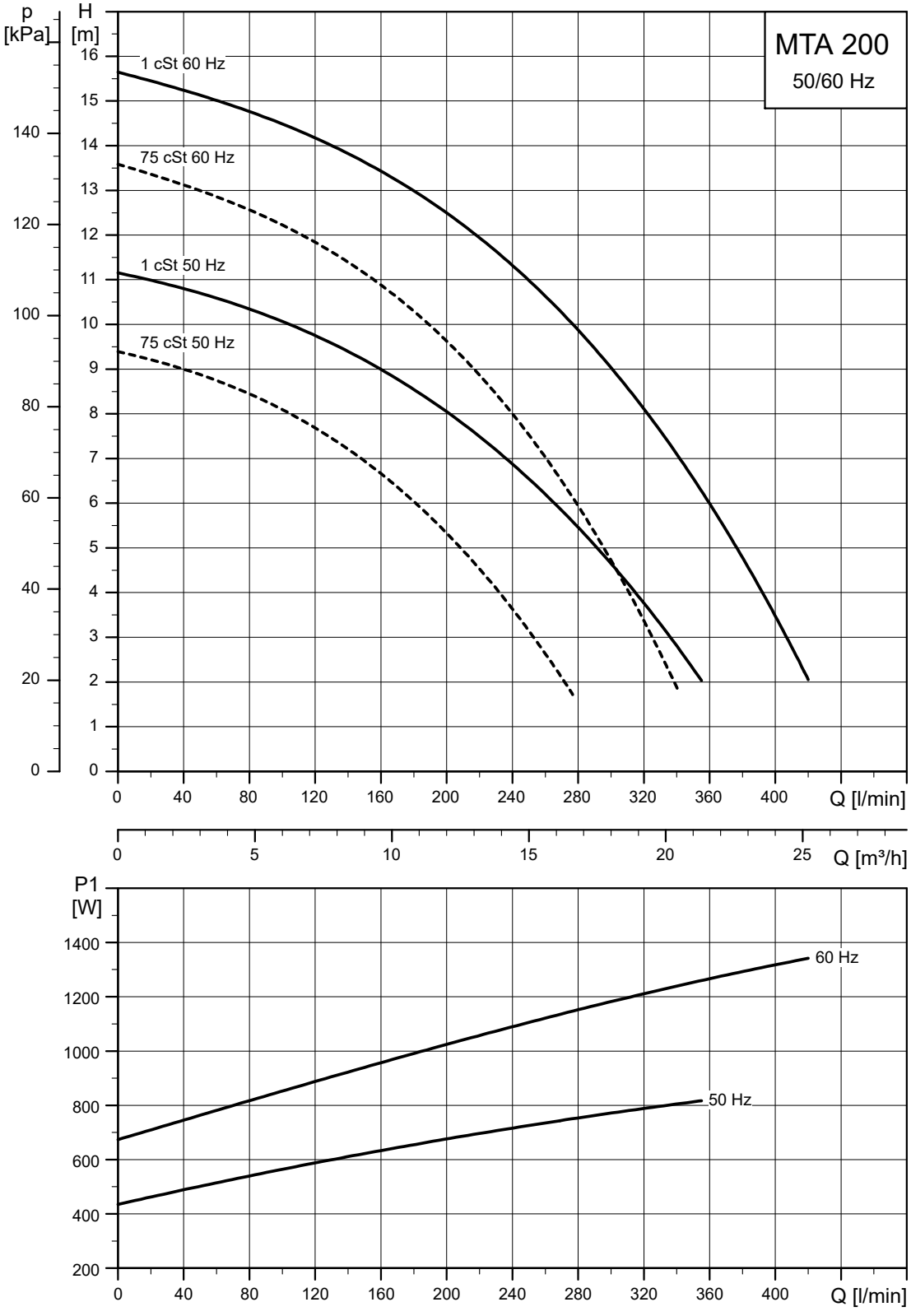
## Dimensions and weights

| Pump type | Inlet | A [mm] | B [mm] | Net weight [kg] | Gross weight [kg] | Shipping volume [$m^3$] |
|---|---|---|---|---|---|---|
| MTA 120-180 | Top | 422 | 180 | 14.6 | 16.3 | 0.026 |
| MTA 120-250 | | 492 | 250 | 16.4 | 17.8 | 0.032 |
| MTA 120-280 | | 522 | 280 | 16.7 | 18.2 | 0.032 |
| MTA 120-350 | | 592 | 350 | 18.8 | 20.3 | 0.036 |
| MTA 120-180 | Bottom | 425 | 183 | 15.5 | 16.9 | 0.026 |
| MTA 120-250 | | 495 | 253 | 16.6 | 18 | 0.032 |
| MTA 120-280 | | 525 | 283 | 17.3 | 18.8 | 0.032 |
| MTA 120-350 | | 595 | 353 | 19 | 20.5 | 0.036 |

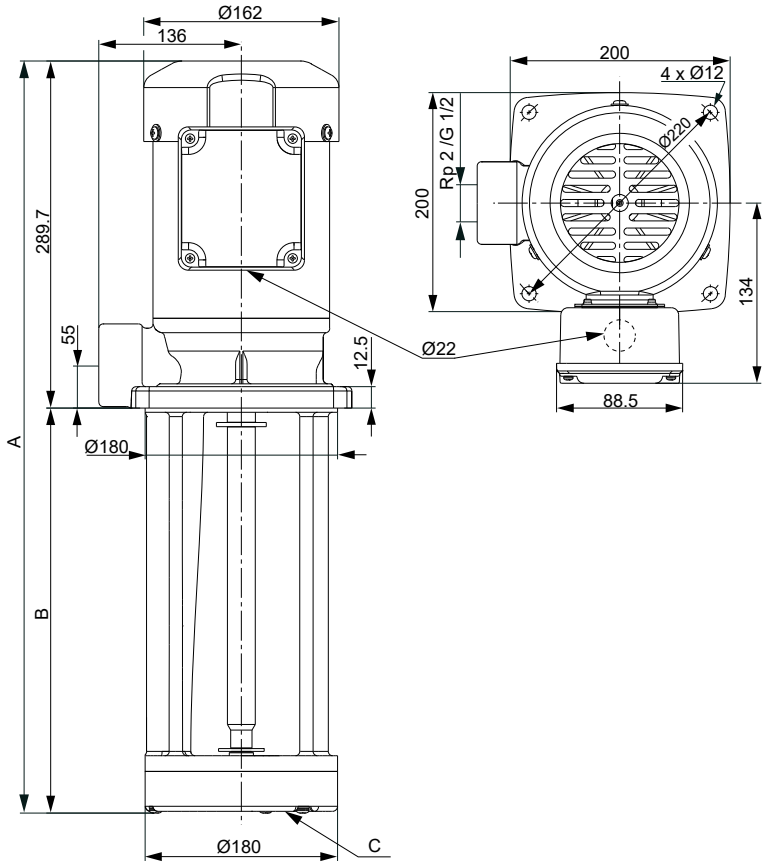
## Electrical data

| Voltage | Frequency [Hz] | P1 [W] | $I_{1/1}$ [A] | $I_{max}$ [A] | $I_{start}$ [A] | Cos φ |
|---|---|---|---|---|---|---|
| 3 x 200 Δ V | 50 | 468 | 1.79 | 2.06 | 12.2 | 0.75 |
| 3 x 200-220 Δ V | 60 | 755 | 2.47 - 2.37 | 2.84 - 2.73 | 13.8 - 14.2 | 0.88 - 0.84 |
| 3 x 220-240 Δ / 380-415Y V | 50 | 440 | 1.47/0.87 | 1.69/1.00 | 10.0/5.92 | 0.79 - 0.72 |
| 3 x 220-240 Δ / 380-440Y V | 60 | 730 | 2.1/1.26 - 1.13 | 2.42/1.45 - 1.30 | 11.34/6.80 - 6.10 | 0.91 - 0.84 |

**MTA 200**


p [kPa]
H [m]
MTA 200
50/60 Hz
1 cSt 60 Hz
75 cSt 60 Hz
1 cSt 50 Hz
75 cSt 50 Hz
Q [l/min]
Q [m³/h]
P1 [W]
60 Hz
50 Hz
Q [l/min]
TM050861

## Dimensional sketches




TM050883

*C: Bottom inlet.*

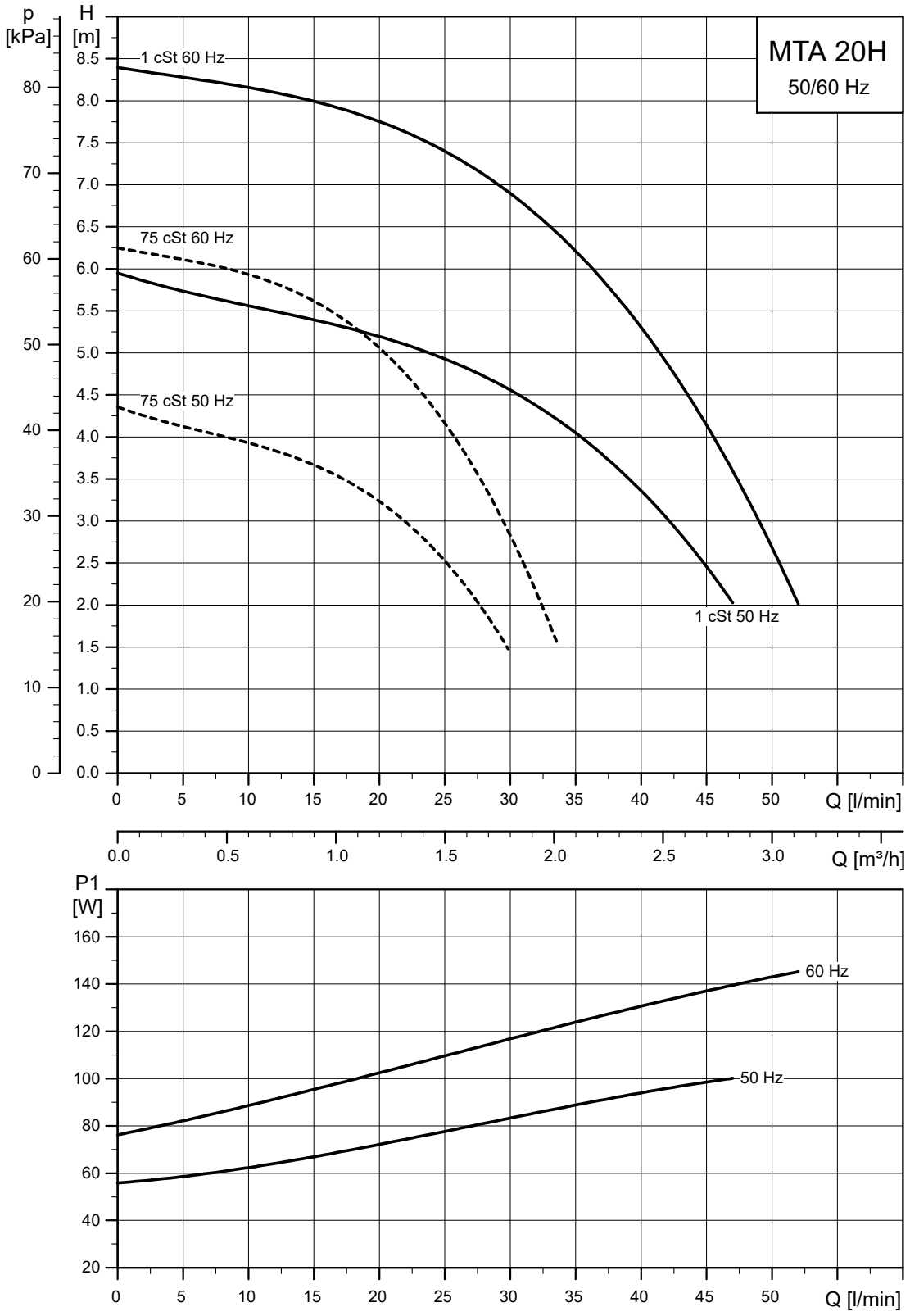
## Dimensions and weights

| Pump type | Inlet | A [mm] | B [mm] | Net weight [kg] | Gross weight [kg] | Shipping volume [$m^3$] |
|---|---|---|---|---|---|---|
| MTA 200-210 | Bottom | 494.7 | 210 | 23.8 | 26.4 | 0.06 |
| MTA 200-250 | | 534.7 | 250 | 24.3 | 26.9 | 0.06 |
| MTA 200-280 | | 564.7 | 280 | 24.8 | 27.4 | 0.06 |
| MTA 200-350 | | 634.7 | 350 | 25.8 | 28.6 | 0.067 |

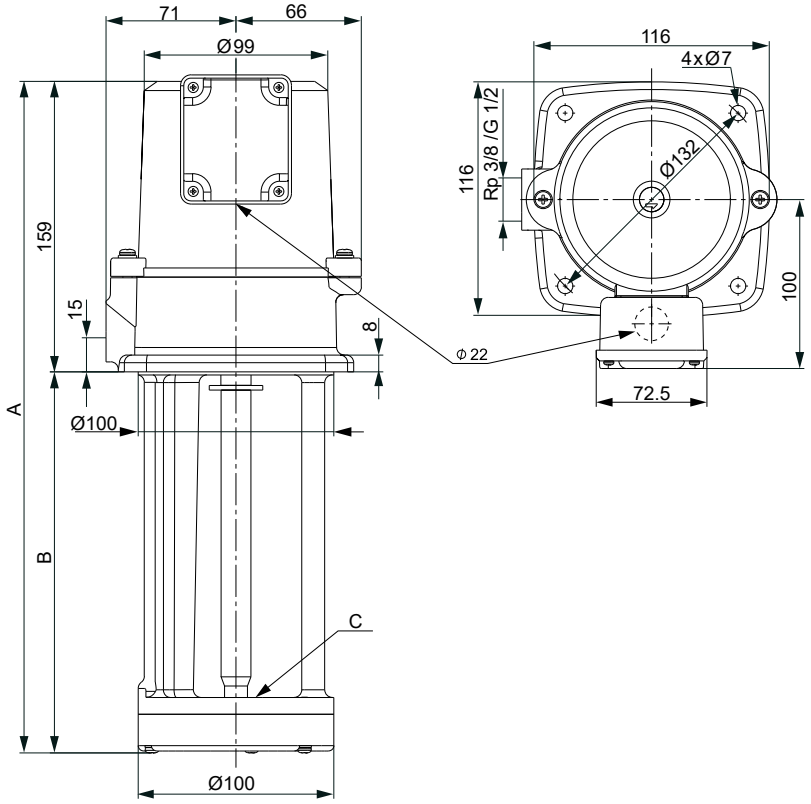
## Electrical data

| Voltage | Frequency [Hz] | P1 [W] | $I_{1/1}$ [A] | $I_{max}$ [A] | $I_{start}$ [A] | Cos φ |
|---|---|---|---|---|---|---|
| 3 x 200 Δ V | 50 | 815 | 2.85 | 3.28 | 23.9 | 0.83 |
| 3 x 200-220 Δ V | 60 | 1340 | 4.28 - 4.28 | 4.92 - 4.92 | 27.8 - 27.8 | 0.90 - 0.82 |
| 3 x 220-240 Δ / 380-415Y V | 50 | 790 | 2.78/1.64 | 3.2/1.89 | 23.9/14.1 | 0.75 - 0.68 |
| 3 x 220-240 Δ / 380-440Y V | 60 | 1270 | 3.48/2.11 - 1.96 | 4.0/2.43 - 2.25 | 27.5/16.7 - 15.5 | 0.96 - 0.88 |

**MTA 20H**


p [kPa]
H [m]
MTA 20H
50/60 Hz
1 cSt 60 Hz
75 cSt 60 Hz
75 cSt 50 Hz
1 cSt 50 Hz
Q [l/min]
Q [m³/h]
P1 [W]
60 Hz
50 Hz
Q [l/min]
TM050862

## Dimensional sketches




*C: Top inlet.*

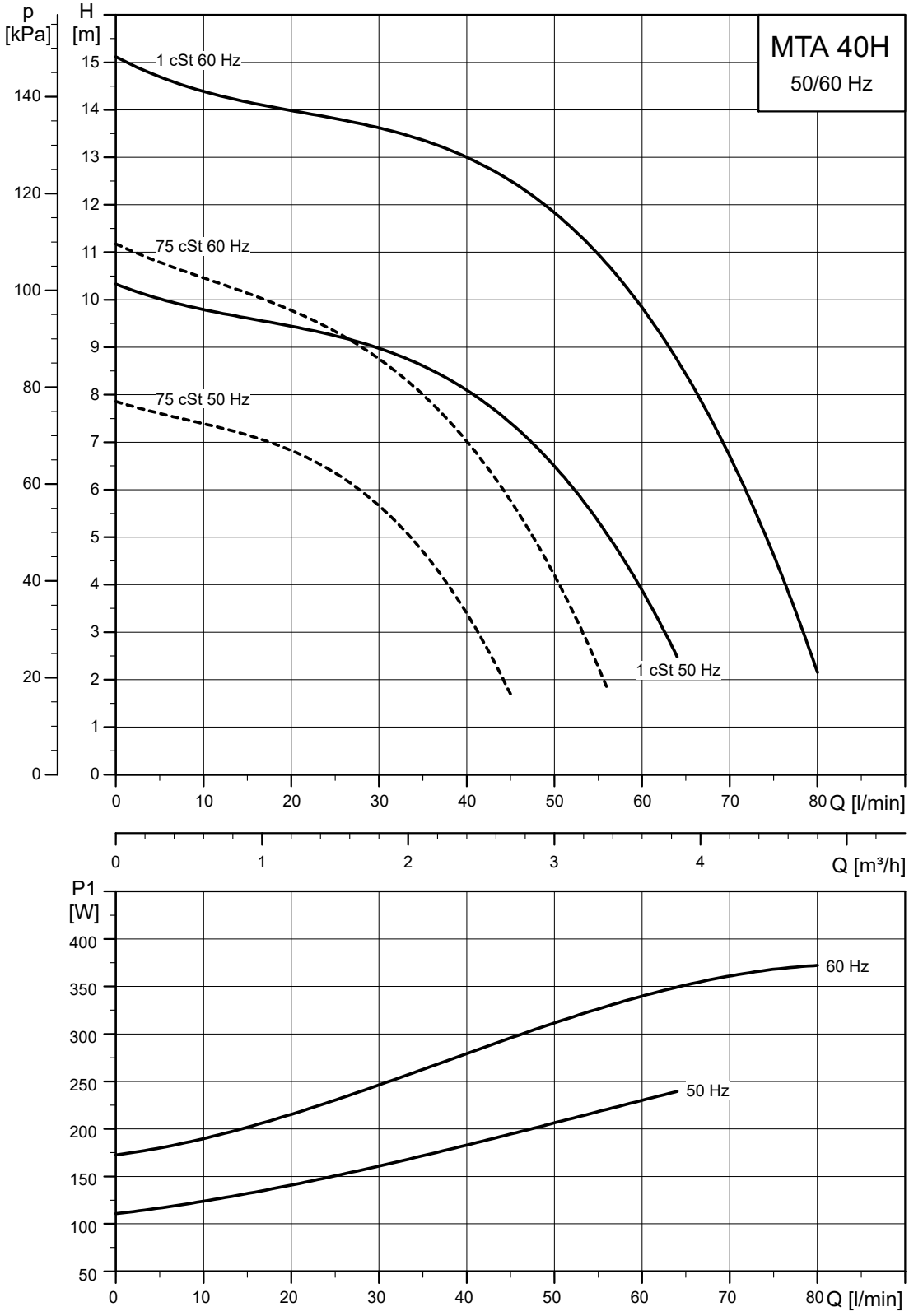
## Dimensions and weights

| Pump type | Inlet | A [mm] | B [mm] | Net weight [kg] | Gross weight [kg] | Shipping volume [$m^3$] |
|---|---|---|---|---|---|---|
| MTA 20H-150 | Top | 309 | 150 | 6.8 | 7.7 | 0.012 |

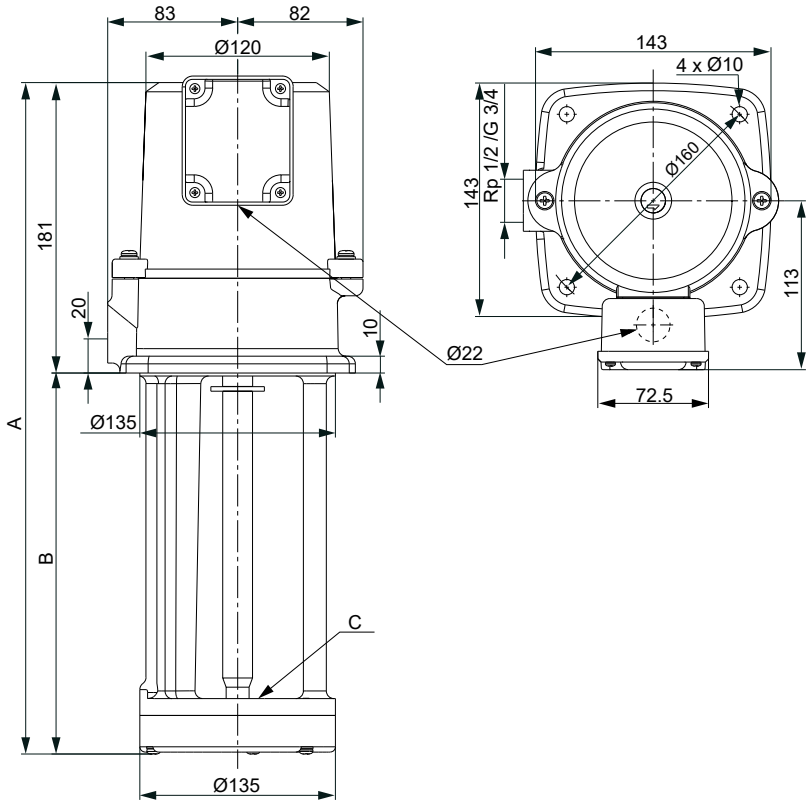
## Electrical data

| Voltage | Frequency [Hz] | P1 [W] | $I_{1/1}$ [A] | $I_{max}$ [A] | $I_{start}$ [A] | Cos φ |
|---|---|---|---|---|---|---|
| 3 x 200 Δ V | 50 | 100 | 0.39 | 0.45 | 3.32 | 0.74 |
| 3 x 200-220 Δ V | 60 | 145 | 0.46 - 0.46 | 0.53 - 0.53 | 3.68 - 3.82 | 0.91 - 0.83 |
| 3 x 220-240 Δ / 380-415Y V | 50 | 95 | 0.37/0.19 | 0.43/0.22 | 3.52/1.81 | 0.67 - 0.62 |
| 3 x 220-240 Δ / 380-440Y V | 60 | 140 | 0.41/0.25 - 0.22 | 0.47/0.29 -0.25 | 3.24/1.98 - 1.74 | 0.9 - 0.82 |

**MTA 40H**


MTA 40H
50/60 Hz
p [kPa]
H [m]
1 cSt 60 Hz
75 cSt 60 Hz
75 cSt 50 Hz
1 cSt 50 Hz
Q [l/min]
Q [m³/h]
P1 [W]
60 Hz
50 Hz
Q [l/min]
TM050863

## Dimensional sketches




*C: Top inlet.*

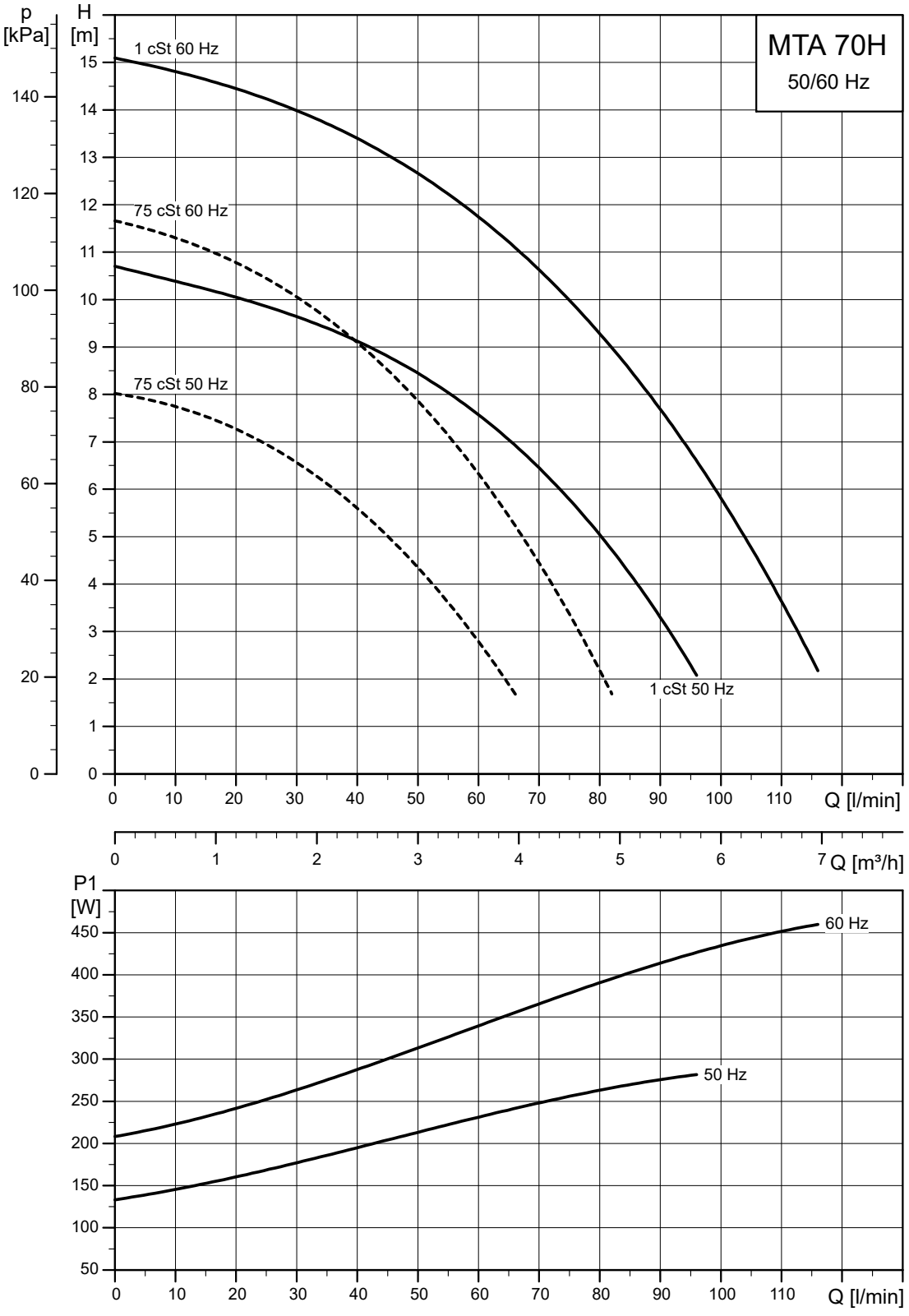
## Dimensions and weights

| Pump type | Inlet | A [mm] | B [mm] | Net weight [kg] | Gross weight [kg] | Shipping volume [$m^3$] |
|---|---|---|---|---|---|---|
| MTA 40H-180 | Top | 361 | 180 | 11.3 | 12.6 | 0.02 |

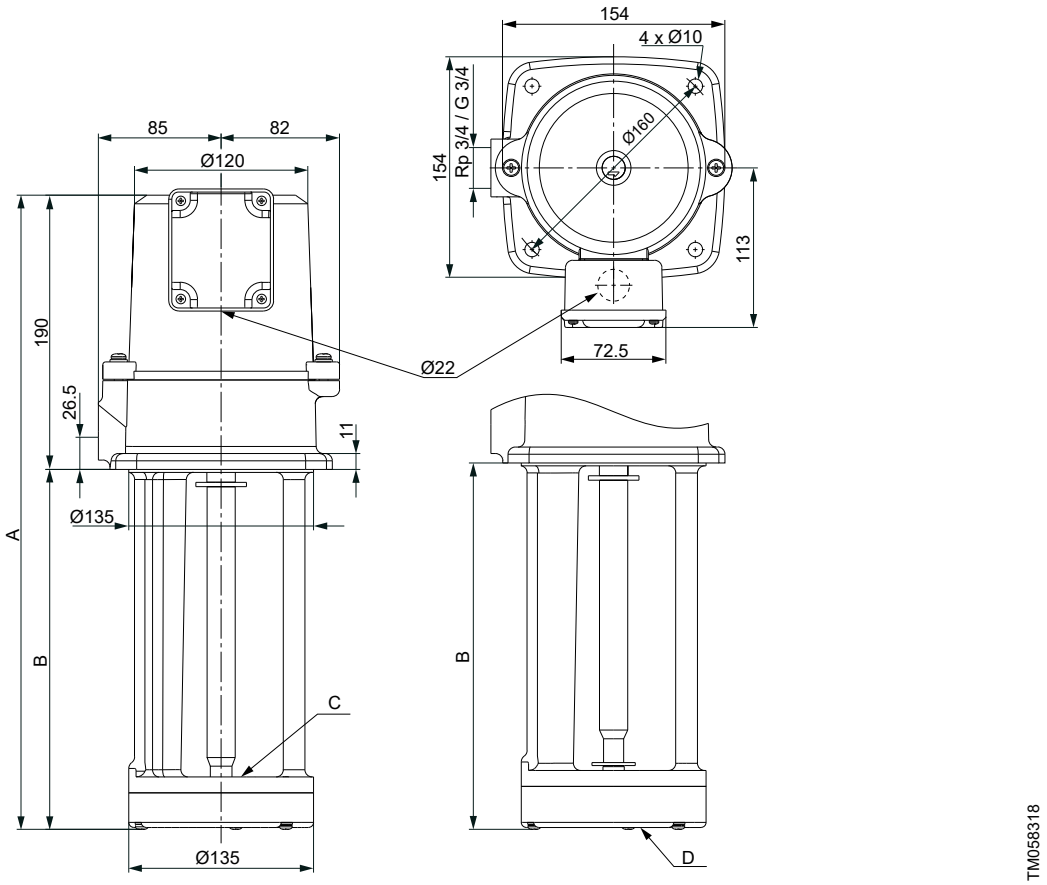
## Electrical data

| Voltage | Frequency [Hz] | P1 [W] | $I_{1/1}$ [A] | $I_{max}$ [A] | $I_{start}$ [A] | Cos φ |
|---|---|---|---|---|---|---|
| 3 x 200 Δ V | 50 | 240 | 0.86 | 0.99 | 5.42 | 0.81 |
| 3 x 200-220 Δ V | 60 | 375 | 1.28 - 1.2 | 1.47 - 1.38 | 6.27 - 6.36 | 0.85 - 0.82 |
| 3 x 220-240 Δ / 380-415Y V | 50 | 230 | 0.79/0.48 | 0.91/0.55 | 5.85/3.55 | 0.76 - 0.7 0 |
| 3 x 220-240 Δ / 380-440Y V | 60 | 365 | 1.14/0.69 - 0.63 | 1.31/0.79 - 0.72 | 6.50/3.93 - 3.59 | 0.84 - 0.77 |

**MTA 70H**


MTA 70H
50/60 Hz
p [kPa]
H [m]
1 cSt 60 Hz
75 cSt 60 Hz
75 cSt 50 Hz
1 cSt 50 Hz
Q [l/min]
Q [m³/h]
P1 [W]
60 Hz
50 Hz
Q [l/min]
TM050864

## Dimensional sketches




*Left: Top inlet (C). Right: Bottom inlet (D).*

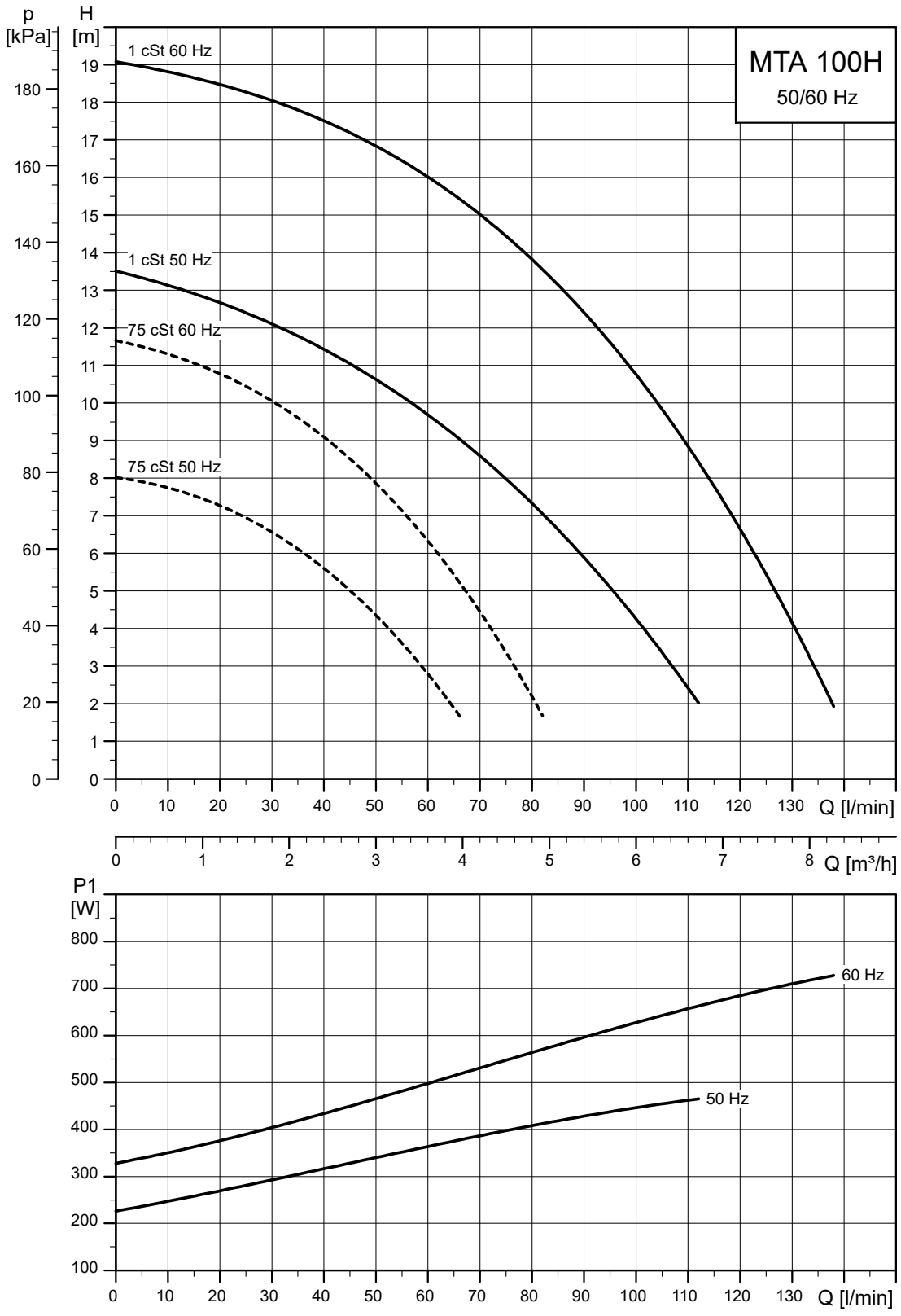
### Dimensions and weights

| Pump type | Inlet | A [mm] | B [mm] | Net weight [kg] | Gross weight [kg] | Shipping volume [$m^3$] |
|---|---|---|---|---|---|---|
| MTA 70H-250 | Top | 440 | 250 | 14.3 | 16.0 | 0.023 |
| MTA 70H-250 | Bottom | 440 | 250 | 14.8 | 16.5 | 0.023 |

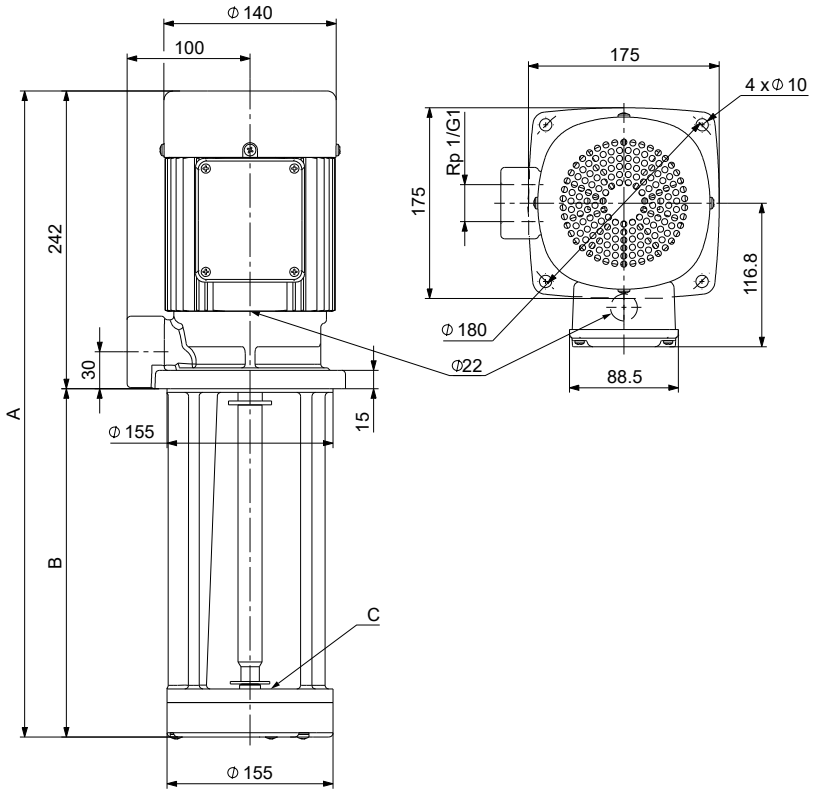
### Electrical data

| Voltage | Frequency [Hz] | P1 [W] | $I_{1/1}$ [A] | $I_{max}$ [A] | $I_{start}$ [A] | Cos φ |
|---|---|---|---|---|---|---|
| 3 x 200 Δ V | 50 | 283 | 1.18 | 1.36 | 8.26 | 0.69 |
| 3 x 200-220 Δ V | 60 | 460 | 1.63 - 1.54 | 1.87 - 1.77 | 9.29 - 9.55 | 0.81 - 0.78 |
| 3 x 220-240 Δ / 380-415Y V | 50 | 281 | 1.02/0.59 | 1.17/0.68 | 7.65/4.43 | 0.72 - 0.66 |
| 3 x 220-240 Δ / 380-440Y V | 60 | 458 | 1.45/0.86 - 0.74 | 1.67/0.99 - 0.85 | 8.56/5.07 - 4.37 | 0.83 - 0.76 |

## MTA 100H


p [kPa]
H [m]
MTA 100H
50/60 Hz
1 cSt 60 Hz
1 cSt 50 Hz
75 cSt 60 Hz
75 cSt 50 Hz
Q [l/min]
Q [m³/h]
P1 [W]
60 Hz
50 Hz
Q [l/min]
TM050865

## Dimensional sketches




TM062756

*C: Top inlet.*

## Dimensions and weights

| Pump type | Inlet | A [mm] | B [mm] | Net weight [kg] | Gross weight [kg] | Shipping volume [$m^3$] |
|---|---|---|---|---|---|---|
| MTA 100H-180 | Top | 422 | 180 | 15.2 | 16.8 | 0.032 |
| MTA 100H-280 | | 522 | 280 | 17.5 | 19.1 | 0.032 |

## Electrical data

| Voltage | Frequency [Hz] | P1 [W] | $I_{1/1}$ [A] | $I_{max}$ [A] | $I_{start}$ [A] | Cos φ |
|---|---|---|---|---|---|---|
| 3 x 200 Δ V | 50 | 465 | 1.81 | 2.08 | 12.1 | 0.74 |
| 3 x 200-220 Δ V | 60 | 725 | 2.4 - 2.28 | 2.76 - 2.62 | 13.9 - 14.1 | 0.87 - 0.83 |
| 3 x 220-240 Δ / 380-415Y V | 50 | 445 | 1.47/0.87 | 1.69/1.00 | 10.0/5.92 | 0.79 - 0.73 |
| 3 x 220-240 Δ / 380-440Y V | 60 | 715 | 1.98/1.21 - 1.05 | 2.28/1.39 - 1.21 | 11.5/7.02 - 6.09 | 0.95 - 0.87 |

# 13. Motor data

## Standard motors, MTR and SPK

*Grundfos MG motor*

*Innomotics motor*

### Standard motors, MTR and SPK, 50 Hz

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [%] | Motor efficiency class | Starting current $I_{start}$[%] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|---|
| Innomotics | 0.12 | 63 | 220-240Δ/380-415Y | 0.64-0.66/0.37-0.38 | 0.78 | 60.8 | IE3 | 450 | 2830 |
| | 0.18 | 63 | 220-240Δ/380-415Y | 0.94-0.96/0.55-0.56 | 0.78 | 60.4 | IE2 | 450 | 2850 |
| Grundfos MG | 0.25 | 71 | 220-255Δ/380-440Y | 1.12/0.65 | 0.83-0.71 | 77.5 | IE3 | 570-620 | 2840-2880 |
| | 0.37 | 71A | 220-240Δ/380-415Y | 1.74/1.00 | 0.80-0.70 | 73.8 | IE3 | 490-530 | 2850-2880 |
| | 0.55 | 71B | 220-240Δ/380-415Y | 2.50/1.44 | 0.80-0.70 | 77.8 | IE3 | 580-620 | 2830-2850 |
| | 0.75 | 80A | 220-240Δ/380-415Y | 3.30/1.90 | 0.81-0.71 | 80.7 | IE3 | 580-620 | 2840-2870 |
| | 1.1 | 80C | 220-240Δ/380-415Y | 4.35/2.50 | 0.83-0.76 | 82.7 | IE3 | 450-500 | 2840-2870 |
| | 1.5 | 90SD | 220-240Δ/380-415Y | 5.70/3.30 | 0.84-0.78 | 84.2 | IE3 | 750-820 | 2890-2910 |
| | 2.2 | 90LE | 380-415Δ | 4.65 | 0.86-0.80 | 85.9 | IE3 | 840-920 | 2890-2910 |
| | 3.0 | 100LC | 380-415Δ | 6.30 | 0.87-0.82 | 87.1 | IE3 | 840-920 | 2900-2920 |
| | 4.0 | 112MC | 380-415Δ | 7.90 | 0.87 | 88.1 | IE3 | 1000 | 2920-2940 |
| | 5.5 | 132SC | 380-415Δ | 11.00 | 0.87-0.82 | 89.2 | IE3 | 1080-1180 | 2920-2940 |
| | 7.5 | 132SB | 380-415Δ/660-690Y | 14.4-14/8.3-8.1 | 0.88-0.82 | 90.1 | IE3 | 780-910 | 2910-2920 |
| | 11 | 160MB | 380-415Δ/660-690Y | 20.8-19.8/12-11.8 | 0.88-0.84 | 91.2 | IE3 | 660-780 | 2940-2950 |
| | 15 | 160MD | 380-415Δ/660-690Y | 28-26/16.2-15.6 | 0.89-0.87 | 91.9 | IE3 | 660-780 | 2930-2950 |
| | 18.5 | 160LB | 380-415Δ/660-690Y | 34.5-32.5/20-18.8 | 0.89-0.85 | 92.4 | IE3 | 830-980 | 2940-2950 |
| | 22 | 180MB | 380-415Δ/660-690Y | 39.5/22.8 | 0.90 | 92.7 | IE3 | 830 | 2950 |
| Innomotics | 30 | 200L | 380-420Δ/660-725Y | 53-51/31-29.5 | 0.87 | 93.3 | IE3 | 700 | 2955 |
| | 37 | 200L | 380-420Δ/660-725Y | 65-63/37.5-36 | 0.88 | 93.7 | IE3 | 710 | 2955 |
| | 45 | 225M | 380-420Δ/660-725Y | 78-74/45-43 | 0.89 | 94 .0 | IE3 | 690 | 2960 |

## Standard motors, MTR and SPK, 50 Hz, 3 x 200 V

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [%] | Motor efficiency class | Starting current $I_{start}$[%] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|---|
| Innomotics | 0.12 | 63 | 200-230Δ/346-400Y | 0.74-0.69/0.43-0.40 | 0.78 | 60.8 | IE3 | 450 | 2830 |
| | 0.18 | 63 | 190-210Δ/330-365Y | 1.10/0.64 | 0.78 | 60.4 | IE2 | 450 | 2850 |
| Grundfos MG | 0.25 | 71A | 200-220Δ/346-380Y | 1.32/0.76 | 0.82-0.77 | 77.6 | IE3 | 530-590 | 2810-2850 |
| | 0.37 | 71A | 200-220Δ/346-380Y | 1.90/1.1 | 0.80-0.70 | 78.5 | IE3 | 490-530 | 2850-2880 |
| | 0.55 | 71B | 200-220Δ/346-380Y | 2.75/1.58 | 0.80-0.70 | 80.0 | IE3 | 480-520 | 2830-2850 |
| | 0.75 | 80A | 200-220Δ/346-380Y | 3.35-3.65/1.94-2.1 | 0.79-0.67 | 80.7 | IE3 | 660-670 | 2820-2860 |
| | 1.1 | 80C | 200-220Δ/346-380Y | 4.65/2.7 | 0.83-0.75 | 82.7 | IE3 | 720-800 | 2830-2860 |
| | 1.5 | 90LC | 200-220Δ/346-380Y | 6.00-5.85/3.45-3.40 | 0.86-0.80 | 84.2 | IE3 | 880-990 | 2910-2930 |
| | 2.2 | 90LC | 200-220Δ/346-380Y | 8.95-9.10/5.15-5.25 | 0.84-0.76 | 85.9 | IE3 | 880-950 | 2910-2930 |
| | 3 | 100LC | 200-220Δ/346-380Y | 11.6/6.65 | 0.85-0.77 | 87.1 | IE3 | 1130-1270 | 2920-2940 |
| | 4 | 112MC | 200-220Δ/346-380Y | 14.6-14/8.5-8.1 | 0.88-0.84 | 88.1 | IE3 | 1040-1220 | 2930-2940 |
| | 5.5 | 132SC | 200-220Δ/346-380Y | 20.4-19.8/11.8-11.4 | 0.88-0.82 | 89.2 | IE3 | 1020-1170 | 2910-2930 |
| | 7.5 | 132SB | 200-220Δ/346-380Y | 29-32/16.8-18.2 | 0.82-0.69 | 90.1 | IE3 | 910-930 | 2930-2940 |
| Hebei | 11 | 160M | 200ΔΔ/400Δ | 40.10/19.9 | 0.86 | 91.2 | IE3 | 735 | 2950 |
| | 15 | 160M | 200ΔΔ/400Δ | 53.5/26.8 | 0.87 | 91.9 | IE3 | 703 | 2950 |
| | 18.5 | 160L | 200ΔΔ/400Δ | 67.7/33.9 | 0.87 | 92.4 | IE3 | 709 | 2950 |
| | 22 | 180M | 200ΔΔ/400Δ | 74.6/37.5 | 0.90 | 92.7 | IE3 | 884 | 2960 |
| | 30 | 200L | 200ΔΔ/400Δ | 104/51.9 | 0.89 | 93.3 | IE3 | 809 | 2960 |
| | 37 | 200L | 200ΔΔ/400Δ | 127/63.9 | 0.89 | 93.7 | IE3 | 854 | 2960 |
| | 45 | 225M | 200ΔΔ/400Δ | 153/76.8 | 0.90 | 94 | IE3 | 764 | 2960 |

## Standard motors, MTR, 50 Hz

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [%] | Motor efficiency class | Starting current $I_{start}$[%] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|---|
| Innomotics | 3 | 100L | 380-420D/660-725Y | 5.70/3.3 | 0.86 | 89.1-89.1 | IE4 | 900-900 | 2920 |
| | 4 | 112M | 380-420D/660-725Y | 7.20/4.2 | 0.89 | 90.0-90.0 | IE4 | 880-880 | 2950 |
| | 5.5 | 132S | 380-420D/660-725Y | 10.4/6 | 0.84 | 90.9-90.9 | IE4 | 860-860 | 2960 |
| | 7.5 | 132S | 380-420D/660-725Y | 13.0/7.5 | 0.91 | 91.7-91.7 | IE4 | 860-860 | 2955 |
| | 11 | 160M | 380-420D/660-725Y | 19.1/11 | 0.90 | 92.6-92.6 | IE4 | 860-860 | 2955 |
| | 15 | 160M | 380-420D/660-725Y | 26.0/14.9 | 0.90 | 93.3-93.3 | IE4 | 900-900 | 2955 |
| | 18.5 | 160L | 380-420D/660-725Y | 31.5/18.2 | 0.91 | 93.7-93.7 | IE4 | 890-890 | 2955 |
| | 22 | 180M | 380-420D/660-725Y | 38.0/22.0 | 0.89 | 94.0-94.0 | IE4 | 890-890 | 2950 |
| | 30 | 200L | 380-420D/660-725Y | 54.0/31.5 | 0.85 | 94.5-94.5 | IE4 | 790-790 | 2955 |
| | 37 | 200L | 380-420D/660-725Y | 64.0/37.0 | 0.88 | 94.8-94.8 | IE4 | 780-780 | 2955 |
| | 45 | 225M | 380-420D/660-725Y | 80.0/46.5 | 0.85 | 94.5-94.5 | IE4 | 880-880 | 2970 |

## Standard motors, MTR and SPK, 60 Hz

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [%] | Motor efficiency class | Starting current $I_{start}$[%] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|---|
| Innomotics | 0.12 | 63 | 220-277Δ/380-480Y | 0.59-0.61/0.34-0.35 | 0.83 | 62 | IE3 | 450 | 3395 |
| | 0.18 | 63 | 220-277Δ/380-480Y | 0.86-0.88/0.50-0.51 | 0.83 | 64 | IE2 | 450 | 3420 |
| Grundfos MG | 0.25 | 71A | 220-255Δ/380-440Y | 1.10-1.02/0.63-0.59 | 0.86-0.77 | 77.7 | IE3 | 570-620 | 3400-3450 |
| | 0.37 | 71A | 220-255Δ/380-440Y | 1.50-1.44/0.87-0.83 | 0.85-0.76 | 73.4 | IE3 | 550-650 | 3410-3470 |
| | 0.55 | 71B | 220-255Δ/380-440Y | 2.15-2.05/1.25-1.20 | 0.85-0.76 | 76.8 | IE3 | 500-600 | 3390-3460 |
| | 0.75 | 80A | 220-255Δ/380-440Y | 2.95-2.75/1.70-1.60 | 0.86-0.77 | 77.0 | IE3 | 600-740 | 3410-3470 |
| | 1.1 | 80C | 230-255Δ/400-440Y | 4.10-4.00/2.38-2.30 | 0.86-0.80 | 84.0-84.0 | IE3 | 440-500 | 3430-3470 |
| | 1.5 | 90SD | 230-277Δ/400-480Y | 5.30-5.00/3.05-2.90 | 0.85-0.75 | 85.5 | IE3 | 780-980 | 3480-3530 |
| | 2.2 | 90LE | 400-480Δ | 4.30-4.00 | 0.88-0.80 | 86.5 | IE3 | 730-1050 | 3480-3530 |
| | 3 | 100LC | 400-480Δ | 6.00-5.40 | 0.90-0.84 | 88.5-88.5 | IE3 | 910-1100 | 3490-3530 |
| | 4 | 112MC | 380-480Δ | 7.80-6.80 | 0.91-0.82 | 88.5 | IE3 | 1000-1470 | 3510-3540 |
| | 5.5 | 132SC | 380-480Δ | 10.6-9.30 | 0.90-0.80 | 89.5 | IE3 | 1020-1480 | 3510-3550 |
| | 7.5 | 132SB | 400-480Δ/690Y | 13.8-12/8.1 | 0.88-0.82 | 90.2-90.2 | IE3 | 750-1050 | 3500-3530 |
| | 11 | 160MB | 400-480Δ/690Y | 20.1-17.2/11.6 | 0.88-0.83 | 91.0-91.0 | IE3 | 640-890 | 3530-3550 |
| | 15 | 160MD | 400-480Δ/690Y | 26.9-22.4/15.6 | 0.89-0.86 | 91.0-91.0 | IE3 | 640-890 | 3530-3550 |
| | 18.5 | 160LB | 400-480Δ/690Y | 33.2-28/16.6 | 0.88-0.84 | 91.7-91.7 | IE3 | 760-1100 | 3530-3560 |
| | 22 | 180MB | 380-480Δ/660-690Y | 40-32.5/23-22.2 | 0.91 | 91.7 | IE3 | 650 | 3520-3560 |
| Innomotics | 30 [44)] | 200L | 440-480Δ | 47-29 | 0.87 | 92.4 | IE3 | 850 | 3560 |
| | 37 [44)] | 200L | 440-480Δ | 57-35 | 0.88 | 93 | IE3 | 760 | 3560 |
| | 45 [44)] | 225M | 440-480Δ | 69-43 | 0.88 | 93.6 | IE3 | 760 | 3570 |

[44)] Innomotics motors operating at 440-480Δ voltage may be loaded with a service factor of 1.15.

## Standard motors, MTR and SPK, 60 Hz, 3 x 200 V

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [%] | Motor efficiency class | Starting current $I_{start}$[%] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|---|
| Innomotics | 0.12 | 63 | 200-230Δ/346-400Y | 0.73-0.68/0.42-0.40 | 0.76 | 62 | IE3 | 450 | 3445 |
| | 0.18 | 63 | 200-230Δ/346-400Y | 0.98-0.97/0.57-0.56 | 0.83 | 64 | IE2 | 450 | 3420 |
| Grundfos MG | 0.25 | 71A | 200-230Δ/346-400Y | 1.30/0.75 | 0.80-0.86 | 77.9-79.5 | IE3 | 530-590 | 3380-3450 |
| | 0.37 | 71A | 200-230Δ/346-400Y | 1.65-1.50/0.96-0.87 | 0.76-0.85 | 79.0-80 | IE3 | 490-530 | 3410-3470 |
| | 0.55 | 71B | 200-230Δ/346-400Y | 2.36-2.14/1.36-1.24 | 0.76-0.85 | 81.5-83 | IE3 | 480-520 | 3390-3460 |
| | 0.75 | 80A | 200-220Δ/346-380Y | 3.2-2.95/1.82-1.7 | 0.77-0.84 | 77 | IE3 | 660-670 | 3380-3450 |
| | 1.1 | 80C | 200-220Δ/346-380Y | 4.5-4.15/2.6-2.38 | 0.81-0.86 | 84 | IE3 | 720-800 | 3380-3450 |
| | 1.5 | 90LC | 200-220Δ/346-380Y | 5.80-5.40/3.35-3.10 | 0.86-0.89 | 85.5 | IE3 | 880-990 | 3490-3510 |
| | 2.2 | 90LC | 200-220Δ/346-380Y | 8.60-8.00/5.00-4.60 | 0.85-0.89 | 86.5 | IE3 | 880-950 | 3490-3510 |
| | 3 | 100LC | 200-220Δ/346-380Y | 11.4-10.4/6.55-6 | 0.86-0.88 | 88.5 | IE3 | 1130-1270 | 3500-3520 |
| | 4 | 112MC | 200-220Δ/346-380Y | 14.6-13/8.45-7.50 | 0.87-0.9 | 88.5 | IE3 | 1040-1220 | 3510-3540 |
| | 5.5 | 132SC | 200-220Δ/346-380Y | 20.2-18/11.6-10.4 | 0.87-0.9 | 89.5 | IE3 | 1020-1170 | 3490-3520 |
| | 7.5 | 132SB | 200-220Δ/346-380Y | 26.5-25/15.4-14.4 | 0.82-0.89 | 90.2 | IE3 | 910-930 | 3520-3540 |
| Hebei | 11 | 160M | 200-220ΔΔ/400-440Δ | 39.2-35.9/19.5-17.8 | 0.87-0.88 | 91 | IE3 | 735 | 3540-3550 |
| | 15 | 160M | 200-220ΔΔ/400-440Δ | 53.1-48.3/26.6-24.2 | 0.88-0.89 | 91 | IE3 | 703 | 3540-3550 |
| | 18.5 | 160L | 200-220ΔΔ/400-440Δ | 65.3-60.2/32.8-30.2 | 0.81-0.89 | 91.7 | IE3 | 709 | 3540-3550 |
| | 22 | 180M | 200-220ΔΔ/400-440Δ | 75.2-68.7/38.0-34.5 | 0.89-0.91 | 91.7 | IE3 | 884 | 3540-3550 |
| | 30 | 200L | 200-220ΔΔ/400-440Δ | 102-93.9/51.1-47 | 0.89-0.91 | 92.4 | IE3 | 809 | 3550-3560 |
| | 37 | 200L | 200-220ΔΔ/400-440Δ | 126-115/62.8-57.6 | 0.90-0.91 | 93 | IE3 | 854 | 3550-3560 |
| | 45 | 225M | 200-220ΔΔ/400-440Δ | 154-139/76.7-69.6 | 0.90 | 93.6 | IE3 | 764 | 3560 |

## Standard motors, MTR, 60 Hz

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [%] | Motor efficiency class | Starting current $I_{start}$[%] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|---|
| Innomotics | 3 | 100L | 440-480D | 4.95 | 0.85 | 89.5-89.5 | IE4 | 1080-1080 | 3530 |
| | 4 | 112M | 440-480D | 5.90 | 0.88 | 89.5-89.5 | IE4 | 1100-1100 | 3560 |
| | 5.5 | 132S | 440-480D | 9.20 | 0.83 | 90.2-90.2 | IE4 | 990-990 | 3565 |
| | 7.5 | 132S | 440-480D | 11.4 | 0.90 | 91.7-91.7 | IE4 | 1000-1000 | 3560 |
| | 11 | 160M | 440-480D | 16.8 | 0.89 | 92.4-92.4 | IE4 | 980-980 | 3560 |
| | 15 | 160M | 440-480D | 23.0 | 0.89 | 92.4-92.4 | IE4 | 1000-1000 | 3560 |
| | 18.5 | 160L | 440-480D | 27.5 | 0.90 | 93.0-93.0 | IE4 | 1010-1010 | 3560 |
| | 22 | 180M | 440-480D | 33.5 | 0.88 | 93.0-93.0 | IE4 | 980-980 | 3560 |
| | 30 | 200L | 440-480D | 48.0 | 0.84 | 93.6-93.6 | IE4 | 870-870 | 3565 |
| | 37 | 200L | 440-480D | 57.0 | 0.87 | 94.1-94.1 | IE4 | 900-900 | 3560 |
| | 45 | 225M | 440-480D | 70.0 | 0.85 | 94.5-94.5 | IE4 | 980-980 | 3575 |

## Motors, MTH, 50 Hz

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [45)] [%] | $I_{start}$ [A] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|
| MG | 0.55 | 71 | 220-240Δ/380-415Y | 2.50/1.44 | 0.8-0.70/0.76-0.85 | 80.0-80.0/81.5-83 | 14.5-8.4/15.5-8.9 | 2830-2880 |
| MG | 0.75 | 80 | 220-240Δ/380-415Y | 3.30/1.90 | 0.81-0.71/0.77-0.86 | 81.7-81.2/82.9-83.5 | 19.1-11/20.5-11.8 | 2840-2870 |
| MG | 1.1 | 80 | 220-240Δ/380-415Y | 4.35/2.50 | 0.83-0.76/0.80-0.86 | 82.8-83.4/84.0-85.7 | 19.6-11.5/21.8-12.8 | 2840-2870 |
| MG | 1.5 | 90 | 220-240Δ/380-415Y | 5.45/3.15 | 0.86-0.80/0.79-0.90 | 84.2-84.2/85.5-85.5 | 46.1-26.6/52.7-30.4 | 2910-2930 |
| MG | 2.2 | 90 | 220-240Δ/380-415Y | 7.70/4.45 | 0.86-0.80/0.80-0.90 | 85.9-85.9/86.5-86.5 | 67.2-38.6/73.6-42.3 | 2890-2910 |
| MG | 3 | 100 | 220-240Δ/380-415Y | 11.0/6.30 | 0.87-0.82/0.79-0.90 | 86.6-86.8/88.5 | 92.4-52.9/101.2-58 | 2900-2920 |
| MG | 4 | 112 | 220-240Δ/380-415Y | 13.6/7.90 | 0.87-0.87/0.82-0.91 | 88.3-88.6/88.5 | 136-79/151-87.7 | 2920-2940 |

45) Motor efficiency class: IE3

## Motors, MTH, 60 Hz

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [46)] [%] | $I_{start}$ [A] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|
| MG | 0.55 | 71 | 220-255Δ/380-440Y | 2.15-2.05/1.25 -1.20 | 0.8-0.70/0.76-0.85 | 80.0-80.0/81.5-83 | 10.8-6.3/12.3-7.2 | 3390-3460 |
| MG | 0.75 | 80 | 220-255Δ/380-440Y | 2.95-2.75/1.70 -1.60 | 0.81-0.71/0.77-0.86 | 81.7-81.2/82.9-83.5 | 17.7-10.2/20.4-11.8 | 3410-3470 |
| MG | 1.1 | 80 | 230-255Δ/400-440Y | 4.10-4.00/2.38 -2.30 | 0.83-0.76/0.80-0.86 | 82.8-83.4/84.0-85.7 | 18-10.5/20-11.5 | 3430-3470 |
| MG | 1.5 | 90 | 220-277Δ/380-480Y | 5.35-4.70/3.10 -2.70 | 0.86-0.80/0.79-0.90 | 84.2-84.2/85.5-85.5 | 42.3-24.5/51.7-29.7 | 3500-3540 |
| MG | 2.2 | 90 | 220-277Δ/380-480Y | 7.70-6.95/4.45 -4.00 | 0.86-0.80/0.80-0.90 | 85.9-85.9/86.5-86.5 | 57.8-33.4/73-42 | 3470-3530 |
| MG | 3 | 100 | 230-277Δ/400-480Y | 10.5-9.35/6.00 -5.40 | 0.87-0.82/0.79-0.90 | 86.6-86.8/88.5-88.5 | 95.6-54.6/102.9-59.4 | 3490-3530 |
| MG | 4 | 112 | 220-277Δ/380-480Y | 13.6-11.8/7.80 -6.80 | 0.87-0.87/0.82-0.91 | 88.3-88.6/88.5-88.5 | 136-78/173.5-100 | 3510-3540 |

46) Motor efficiency class: IE3

## Motors, MTH, 50 Hz, 3 x 200 V

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [47)] [%] | $I_{start}$ [A] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|
| MG | 0.55 | 71 | 200-220Δ/346-380Y | 2.75-2.75/1.58-1.58 | 0.80-0.70/0.76-0.85 | 80.0-80.0/81.5-83 | 13.2-7.6/14.3-8.2 | 2830-2880 |
| MG | 0.75 | 80 | 200-220Δ/346-380Y | 3.55-3.65/2.06-2.1 | 0.81-0.71/0.77-0.86 | 81.7-81.2/82.9-83.5 | 23.4-13.6/24.5-14.1 | 2840-2860 |
| MG | 1.1 | 80 | 200-220Δ/346-380Y | 4.65/2.7 | 0.83-0.76/0.77-0.88 | 82.8-83.4/84.0-84.0 | 20.9-12.2/37.2-21.6 | 2840-2870 |
| MG | 1.5 | 90 | 200-220Δ/346-380Y | 6.00-5.85/3.45-3.40 | 0.86-0.80/0.86-0.89 | 84.2-84.2/85.5-85.5 | 52.8-30.4/59.4-34.2 | 2910-2930 |

| Motor make | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | $\eta$ [47)] [%] | $I_{start}$ [A] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|
| MG | 2.2 | 90 | 200-220Δ/346-380Y | 8.95-9.10/5.15-5.25 | 0.84-0.76/0.85-0.89 | 85.9-85.9/86.5-86.5 | 78.8-45.3/85-48.9 | 2910-2930 |
| MG | 3 | 100 | 200-220Δ/346-380Y | 12-13.4/6.9-7.7 | 0.8-0.7/0.82-0.88 | 87.8-87.6/88.5 | 170.4-98/169.2-97.3 | 2940-2950 |
| MG | 4 | 112 | 200-220Δ/346-380Y | 14.6-14/8.5-8.1 | 0.88-0.84/0.87-0.9 | 88.3-88.6/88.5 | 151.8-88.4/178.1-103.7 | 2930-2940 |

47) Motor efficiency class: IE3

## Motors, MTH, 50/60 Hz, 3 x 200 V

Note that the motors can operate at both 50 and 60 Hz, and therefore two data sets are provided for each frame size.

| Motor make | Frequency [Hz] | P2 [kW] | Frame size | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | $\eta$ [48)] [%] | $I_{start}$ [A] | Speed [min$^{-1}$] |
|---|---|---|---|---|---|---|---|---|---|
| MG | 50 | 0.37 | 71 | 200-220Δ/346-380Y | 1.88-2.2/1.08-1.26 | 0.73-0.59/0.76-0.85 | 78-74.9/81.5-83 | 15.8-9.1/15-8.6 | 2900-2920 |
| | 60 | 0.55 | | 200-230Δ/346-400Y | 2.36-2.14/1.36-1.24 | 0.73-0.59/0.76-0.85 | 78-74.9/81.5-83 | 11.8-6.8/12.8-7.4 | 3390-3460 |
| MG | 50 | 0.55 | 80 | 200-220Δ/346-380Y | 2.7-2.95/1.56-1.7 | 0.67-0.51/0.77-0.86 | 82.7-80.9/77.0-77.0 | 21.1-12.2/18.4-10.6 | 2880-2900 |
| | 60 | 0.75 | | 200-220Δ/346-380Y | 3.2-2.95/1.82-1.7 | 0.67-0.51/0.77-0.86 | 82.7-80.9/77.0-77.0 | 20.2-11.5/23.6-13.6 | 3410-3470 |
| MG | 50 | 0.75 | 80 | 200-220Δ/346-380Y | 3.5-3.7/2-2.14 | 0.74-0.64/0.77-0.88 | 84.2-83.1/84.0-84.0 | 33.6-19.2/35.4-20.2 | 2890-2910 |
| | 60 | 1.1 | | 200-220Δ/346-380Y | 4.5-4.35/2.6-2.5 | 0.74-0.64/0.77-0.88 | 84.2-83.1/84.0-84.0 | 30.2-17.4/38.7-22.3 | 3380-3450 |
| MG [49)] | 50 | 0.75 | 80 | 200Δ/346Y | 5.1/2.95 | 0.56-0.73/0.81 | 81-82.9/83.5 | 33.2-19.2/0-0 | 2910-2910 |
| | 60 | 1.1 | | 200-220Δ/346-380Y | 5.05-5/2.9-2.9 | 0.56-0.73/0.81 | 81-82.9/83.5 | 25.8-14.8/30-17.4 | 3520-3540 |
| MG | 50 | 1.1 | 90 | 200-220Δ/346-380Y | 4.85-5.00/2.80-2.90 | 0.77-0.68/0.86-0.89 | 82.7-82.7/85.5-85.5 | 48.5-28/50.9-29.4 | 2940-2950 |
| | 60 | 1.5 | | 200-220Δ/346-380Y | 5.80-5.40/3.35-3.10 | 0.77-0.68/0.86-0.89 | 82.7-82.7/85.5-85.5 | 46.4-26.8/50.8-29.1 | 3510-3540 |
| MG | 50 | 1.5 | 90 | 200-220Δ/346-380Y | 7.00-7.80/4.00-4.50 | 0.72-0.60/0.85-0.89 | 84.2-84.2/86.5-86.5 | 73.5-42/73.5-42 | 2940-2950 |
| | 60 | 2.2 | | 200-220Δ/346-380Y | 8.60-8.00/5.00-4.60 | 0.72-0.60/0.85-0.89 | 84.2-84.2/86.5-86.5 | 66.2-38.5/72.8-41.9 | 3420-3450 |
| MG | 50 | 2.2 | 100 | 200-220Δ/346-380Y | 10-13/5.75-7.5 | 0.73-0.53/0.82-0.88 | 87-85.9/88.5-88.5 | 170-97.8/145-83.4 | 2960-2960 |
| | 60 | 3 | | 200-220Δ/346-380Y | 11.8-11/6.85-6.1 | 0.73-0.53/0.82-0.88 | 87-85.9/88.5-88.5 | 148.7-86.3/183.7-101.9 | 3490-3510 |
| MG | 50 | 3 | 112 | 200-220Δ/346-380Y | 11.6-11.4/6.65-6.6 | 0.84-0.81/0.87-0.9 | 88.6-88.2/88.5-88.5 | 154.3-88.4/172.8-99.1 | 2950-2960 |
| | 60 | 4 | | 200-220Δ/346-380Y | 14.6-13/8.45-7.45 | 0.84-0.81/0.87-0.9 | 88.6-88.2/88.5-88.5 | 129.9-75.2/154.7-88.7 | 3490-3510 |

48) Motor efficiency class: IE3

49) Special compact version.

# E-motors, MTRE and MTHE

*Grundfos MGE motor*

## E-motors, 50/60 Hz

| Motor make | P2 [kW] | Frame size | Phase | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [%] | Motor efficiency class |
|---|---|---|---|---|---|---|---|---|
| Grundfos MGE | 0.37 [50)] | 71 | 1 | 200-240 | 2.4 - 2.1 | 0.96 | 84 | IE5 |
| | 0.55 [50)] | 71 | 1 | 200-240 | 3.45 - 2.9 | 0.98 | 85.3 | IE5 |
| | 0.75 [50)] | 80 | 1 | 200-240 | 4.7 - 3.9 | 0.99 | 85.2 | IE5 |
| | 1.1 [50)] | 80 | 1 | 200-240 | 6.7 - 5.6 | 0.99 | 86.9 | IE5 |
| | 1.5 [50)] | 90 | 1 | 200-240 | 9.1 - 7.6 | 0.99 | 87.4 | IE5 |
| | 0.37 | 71 | 3 | 380-500 | 1.05 - 1.0 | 0.68 - 0.54 | 84.5 | IE5 |
| | 0.55 | 71 | 3 | 380-500 | 1.35 - 1.3 | 0.77 - 0.61 | 85.9 | IE5 |
| | 0.75 | 80 | 3 | 380-500 | 1.7 - 1.6 | 0.83 - 0.67 | 85.9 | IE5 |
| | 1.1 | 80 | 3 | 380-500 | 2.2 - 1.9 | 0.89 - 0.79 | 89.1 | IE5 |
| | 1.5 | 90 | 3 | 380-500 | 2.9 - 2.4 | 0.92 - 0.85 | 88.9 | IE5 |
| | 2.2 | 90 | 3 | 380-500 | 4.15 - 3.4 | 0.93 - 0.87 | 90.1 | IE5 |
| | 3 | 100 | 3 | 380-500 | 5.8 - 4.8 | 0.91 - 0.86 | 90.7 | IE5 |
| | 4 | 112 | 3 | 380-500 | 7.6 - 6.2 | 0.92 - 0.87 | 92.2 | IE5 |
| | 5.5 | 132 | 3 | 380-500 | 10.3 - 8.2 | 0.92 - 0.88 | 92.7 | IE5 |
| | 7.5 | 132 | 3 | 380-500 | 14.1 - 11.2 | 0.93 - 0.89 | 92.5 | IE5 |
| | 11 | 160 | 3 | 380-500 | 20.3 - 16.0 | 0.93 - 0.90 | 93.1 | IE5 |
| | 15 | 160 | 3 | 380-500 | 26.7 - 22.0 | 0.94 - 0.92 | 92.8 | IE5 |
| | 18.5 | 160 | 3 | 380-500 | 33.0 - 27.8 | 0.94 - 0.92 | 92.8 | IE5 |
| | 22 | 180 | 3 | 380-500 | 39.2 - 31.5 | 0.94 - 0.93 | 92.9 | IE5 |
| | 26 | 180 | 3 | 400-480 | 43.8 - 37.6 | 0.94 - 0.94 | 92.9 | IE5 |

[50)] Pumps are normally fitted with three-phase MGE motors. Dimension tables in the section on performance curves and technical data show pumps with three-phase MGE motors.

## E-motors, 50/60 Hz, 3 x 200-240 V

| Motor make | P2 [kW] | Frame size | Phase | Standard voltage [V] | $I_{1/1}$ [A] | Cos $\varphi_{1/1}$ | η [%] | Motor efficiency class |
|---|---|---|---|---|---|---|---|---|
| Grundfos MGE | 1.1 | 80 | 3 | 200-240 | 4.1 - 3.5 | 0.92 - 0.91 | 89.3 | IE5 |
| | 1.5 | 90 | 3 | 200-240 | 5.4- 4.6 | 0.92 - 0.92 | 88.9 | IE5 |
| | 2.2 | 90 | 3 | 200-240 | 7.8 - 6.5 | 0.94 - 0.94 | 88.8 | IE5 |
| | 3.0 | 100 | 3 | 200-240 | 10.5 - 8.8 | 0.94 - 0.94 | 90.3 | IE5 |
| | 4.0 | 112 | 3 | 200-240 | 14.1 - 11.8 | 0.94 - 0.94 | 90.8 | IE5 |
| | 5.5 | 132 | 3 | 200-240 | 19.6 - 16.3 | 0.94 - 0.94 | 90.2 | IE5 |
| | 7.5 | 160 | 3 | 200-240 | 25.6 - 21.4 | 0.95 - 0.94 | 90.8 | IE5 |
| | 11 | 160 | 3 | 200-240 | 37.4 - 31.4 | 0.95 - 0.94 | 92 | IE5 |

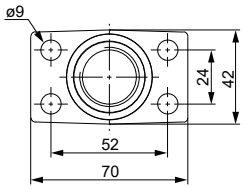
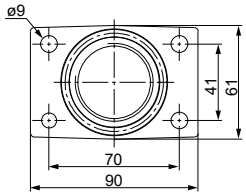
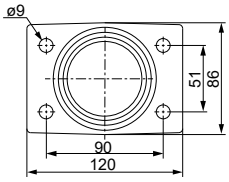
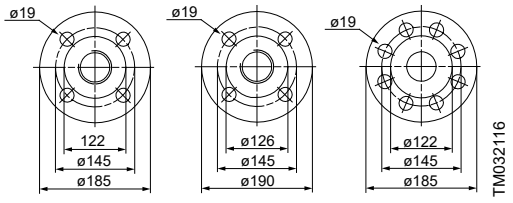
# 14. Accessories

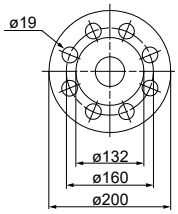
## Pipe connection

Various sets of counterflanges and couplings are available for pipe connection.

## Counterflanges for MTR, MTRE, SPK

A counterflange set consists of one counterflange, one gasket, bolts and nuts. Counterflange sets are available in cast iron (EN-GJL-200) and some are also available in stainless steel (EN/DIN 1.4301/AISI 304).

| Counterflange | Pump type | Description | Rated pressure | Pipe connection | Material | Product number |
|---|---|---|---|---|---|---|
|  TM046336 | SPK 1<br>SPK 2<br>SPK 4 | Threaded | 25 bar | Rp 3/4 | Cast iron | 91535542 |
| | | | | G 3/4 | | 45390139 |
| | | | | NPT 3/4 | | 45390138 |
|  TM046337 | MTR, MTRE 1s<br>MTR, MTRE 1<br>MTR, MTRE 3<br>MTR, MTRE 5<br>MTR, MTRE 8 | Threaded | 16 bar | Rp 1 1/4 | Cast iron | 405178 |
| | | | | G 1 1/4 | | 98508757 |
| | | | | NPT 1 1/4 | | 99264144 |
|  TM062823 | MTR, MTRE 10<br>MTR, MTRE 15<br>MTR, MTRE 20 | Threaded | 16 bar, EN 1092-2 | Rp 2 | Cast iron | 98767494 |
| | | | | G 2 | | 98796348 |
| | | | | NPT 2 | | 98796349 |
|  TM032116<br>Rp 2 1/2 / 16 bar Rp 3 / 16 bar 25/40 bar | MTR, MTRE 32 | Threaded | 16 bar, EN 1092-2 | Rp 2 1/2 | Cast iron | 349902 |
| | | | | | Stainless steel | 349910 |
| | | Threaded | 16 bar, special flange | Rp 3 | Cast iron | 349901 |
| | | | | | Stainless steel | 349911 |
| | | For welding | 16 bar, EN 1092-2 | 65 mm, nominal | Cast iron | 349904 |
| | | | | | Stainless steel | 349906 |
| | | For welding | 40 bar, DIN 2635 | 65 mm, nominal | Cast iron | 349905 |
| | | | | | Stainless steel | 349908 |
| | | For welding | 16 bar, special flange | 80 mm, nominal | Cast iron | 349903 |
| | | | | | Stainless steel | 349907 |
| | | For welding | 25 bar, special flange | 80 mm, nominal | Stainless steel | 349909 |

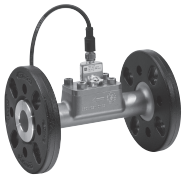
| Counterflange | Pump type | Description | Rated pressure | Pipe connection | Material | Product number |
|---|---|---|---|---|---|---|
|  TM032117 | MTR, MTRE 45 MTR, MTRE 64 | Threaded | 16 bar | Rp 3 | Cast iron | 350540 |
| | | | | | Stainless steel | 350543 |
| | | For welding | 16 bar | 80 mm, nominal | Cast iron | 350541 |
| | | | | | Stainless steel | 350544 |
| | | For welding | 40 bar | 80 mm, nominal | Cast iron | 350542 |
| | | | | | Stainless steel | 350545 |

## Sensors

| Sensor | Type | Supplier | Measuring range | Product number |
|---|---|---|---|---|
| Flowmeter | SITRANS FM MAGFLO MAG 5100 W | Innomotics | 1-5 $m^3$ (DN 25) | ID8285 |
| | SITRANS FM MAGFLO MAG 5100 W | | 3-10 $m^3$ (DN 40) | ID8286 |
| | SITRANS FM MAGFLO MAG 5100 W | | 6-30 $m^3$ (DN 65) | ID8287 |
| | SITRANS FM MAGFLO MAG 5100 W | | 20-75 $m^3$ (DN 100) | ID8288 |
| Temperature sensor | TTA (0) 25 | Carlo Gavazzi | 0 to 25 °C | 96432591 |
| | TTA (-25) 25 | | -25 to +25 °C | 96430194 |
| | TTA (50) 100 | | 50 to 100 °C | 96432592 |
| | TTA (0) 150 | | 0 to 150 °C | 96430195 |
| Accessory for temperature sensor (all with 1/2 RG connection) | Protecting tube ∅9 x 50 mm | | | 96430201 |
| | Protecting tube ∅9 x 100 mm | | | 96430202 |
| | Cutting ring bush | | | 96430203 |
| Temperature sensor, ambient temperature | WR 52 | tmg DK: Plesner | -50 to +50 °C | ID8295 |
| Differential-temperature sensor | ETSD | Honsberg | 0 to 20 °C | 96409362 |
| | | | 0 to 50 °C | 96409363 |

Note that all sensors have 4-20 mA signal output.

## Grundfos Vortex Flow sensor, VFI

| Grundfos Vortex Flow sensor, VFI [51] | Type | Flow range [$m^3/h$] | Pipe connection | O-ring | | Connection type | | Product number |
|---|---|---|---|---|---|---|---|---|
| | | | | EPDM | FKM | Cast-iron flange | Stainless-steel flange | |
|  | VFI 1.3-25 DN32 020 E | 1.3 - 25 | DN 32 | • | | • | | 97686141 |
| | VFI 1.3-25 DN32 020 F | | | | • | • | | 97686142 |
| | VFI 1.3-25 DN32 020 E | | | • | | | • | 97688297 |
| | VFI 1.3-25 DN32 020 F | | | | • | | • | 97688298 |
| | VFI 2-40 DN40 020 E | 2 - 40 | DN 40 | • | | • | | 97686143 |
| | VFI 2-40 DN40 020 F | | | | • | • | | 97686144 |
| | VFI 2-40 DN40 020 E | | | • | | | • | 97688299 |
| | VFI 2-40 DN40 020 F | | | | • | | • | 97688300 |
| | VFI 3.2-64 DN50 020 E | 2 - 64 | DN 50 | • | | • | | 97686145 |
| | VFI 3.2-64 DN50 020 F | | | | • | • | | 97686146 |
| • Sensor tube with sensor, sensor tube of 1.4408 and sensor of 1.4404<br>• 4-20 mA output signal<br>• 2 flanges<br>• 5 m cable with M12 connection in one end<br>• quick guide. | VFI 3.2-64 DN50 020 E | | | • | | | • | 97688301 |
| | VFI 3.2-64 DN50 020 F | | | | • | | • | 97688302 |
| | VFI 5.2-104 DN65 020 E | 5.2 - 104 | DN 65 | • | | • | | 97686147 |
| | VFI 5.2-104 DN65 020 F | | | | • | • | | 97686148 |
| | VFI 5.2-104 DN65 020 E | | | • | | | • | 97688303 |
| | VFI 5.2-104 DN65 020 F | | | | • | | • | 97688304 |
| | VFI 8-160 DN80 020 E | 8 - 160 | DN 80 | • | | • | | 97686149 |
| | VFI 8-160 DN80 020 F | | | | • | • | | 97686150 |
| | VFI 8-160 DN80 020 E | | | • | | | • | 97688305 |
| | VFI 8-160 DN80 020 F | | | | • | | • | 97688306 |
| | VFI 12-240 DN100 020 E | 12 - 240 | DN 100 | • | | • | | 97686151 |
| | VFI 12-240 DN100 020 F | | | | • | • | | 97686152 |
| | VFI 12-240 DN100 020 E | | | • | | | • | 97688308 |
| | VFI 12-240 DN100 020 F | | | | • | | • | 97688309 |

[51] For more information about the VFI sensor, see the Grundfos Direct Sensors™ data booklet, publication number 97790189 in Grundfos Product Center at www.grundfos.com.

## Grundfos pressure sensor kits

| Content | Liquid temperature | Pressure [bar] | Product number |
|---|---|---|---|
| Grundfos pressure transmitter, type ISP44, with 2.5 m cable. Connection: G 1/2 A (DIN 16288 - B6kt)<br>Quick guide | -40 to +100 °C [52] | 0-4 | 92618271 |
| | | 0-6 | 92652122 |
| | | 0-10 | 92652150 |
| | | 0-16 | 92652152 |
| | | 0-25 | 92618276 |

[52] Liquid temperature ranges from -40 to +130 °C at ambient temperatures up to 25 °C.

## DPI differential-pressure sensor kit

| Content | Pressure [bar] | Product number |
|---|---|---|
| 1 sensor incl. 0.9 m screened cable (7/16" connections)<br>1 original DPI bracket for wall mounting<br>1 Grundfos bracket for mounting on motor<br>2 M4 screws for mounting of sensor on bracket<br>1 M6 screw (self-cutting) for mounting on MGE 90/100<br>1 M8 screw (self-cutting) for mounting on MGE 112/132<br>3 capillary tubes (short/long)<br>2 fittings (1/4" - 7/16")<br>5 cable clips (black)<br>Installation and operating instructions (00480675)<br>Service kit instructions. | 0 - 0.6 | 96611522 |
| | 0 - 1.0 | 96611523 |
| | 0 - 1.6 | 96611524 |
| | 0 - 2.5 | 96611525 |
| | 0 - 4.0 | 96611526 |
| | 0 - 6.0 | 96611527 |
| | 0-10 | 96611550 |

### Danfoss pressure sensor kits

| Content | Liquid temperature | Pressure [bar] | Product number |
|---|---|---|---|
| • Danfoss pressure sensor, type MBS 3000, with 2 m screened cable Connection: G 1/2 A (DIN 16288 - B6kt)<br>• 5 cable clips (black)<br>• Instructions PT (400212) | -40 to +85 °C | 0-4 | 96428014 |
| | | 0-6 | 96428015 |
| | | 0-10 | 96428016 |
| | | 0-16 | 96428017 |
| | | 0-25 | 96428018 |

## EMC filter

The EMC filter is required when 11 to 22 kW E-pumps are installed in residential areas.

| Product | Product number |
|---|---|
| EMC filter (11 kW) | 96478309 |
| EMC filter (15 kW) | |
| EMC filter (18.5 kW) | |
| EMC filter (22 kW) | |

## Remote controls

### Grundfos GO

Use Grundfos GO for the following types of wireless communication with the pump:

- infrared
- radio
- Bluetooth.

### MGE 0.25 to 2.2 kW

These motors will connect to the pump through wireless infrared or radio communication.

**Related information**

*Grundfos GO Link*

### MI 301

MI 301 is a module with built-in infrared and radio communication. It is required for Grundfos GO communication. MI 301 can be used together with Android or iOS-based smart devices with a Bluetooth connection. MI 301 has a rechargeable Li-ion battery that must be charged separately.

TM053890

*MI 301*

Supplied with the product:

- Grundfos MI 301
- sleeve
- battery charger
- quick guide.

### Product numbers

| Grundfos GO variant | Product number |
|---|---|
| Grundfos MI 301 | 98046408 |

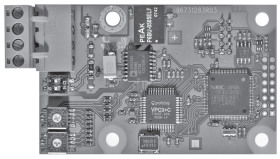
### MGE 3 to 26 kW

These motors will connect to the pump via Bluetooth (BLE).

**Related information**

*Bluetooth*

# CIM (communication interface modules)



GRA6121

*Grundfos CIM (communication interface module)*

The CIM modules enable communication of operating data, such as measured values and setpoints, between the pumps and a building management system. The CIM modules are add-on communication modules that are fitted in the terminal box of the pumps.

Note that CIM modules must be fitted by authorised persons.

We offer the following CIM modules:

**CIM 100**

For communication via LONWorks.

**CIM 150**

For communication via PROFIBUS DP.

**CIM 200**

For communication via Modbus RTU.

**CIM 300**

For communication via BACnet MS/TP.

**CIM 500**

Ethernet module for communication via PROFINET, Modbus TCP, BACnet IP, EtherNet/IP GRM IP, Grundfos iSOLUTIONS Cloud.

**Available CIM modules**

| Description | Fieldbus protocol | Product number |
|---|---|---|
| CIM 100 | LONWorks | 96824797 |
| CIM 150 | PROFIBUS DP | 96824793 |
| CIM 200 | Modbus RTU | 96824796 |
| CIM 300 | BACnet MS/TP | 96893770 |
| CIM 500 | Ethernet | 98301408 |
| Antenna (puc) | 3G/4G | 99518079 |

For further information about data communication via CIM modules and fieldbus protocols, see the CIM documentation available in Grundfos Product Center at www.grundfos.com.

# 15. Variants

## List of variants, on request

Below please find the range of options available for customizing the MTR, MTRE, SPK, MTH and MTA pumps to meet special requirements.

Contact Grundfos for further information or for requests other than the ones mentioned below.

### Pumps

| Variant | Applies to | Section |
|---|---|---|
| Immersion depth | MTR, MTRE | See the section on immersion depths, MTR, MTRE. |
| | SPK | See the section on immersion depths, SPK. |
| Horizontally mounted pump | MTR, MTRE<br>SPK | See the section on horizontal mounting. |
| 120 °C solution | MTR, MTRE<br>SPK | See the section on 120 °C solution. |
| Inlet pipe | MTR, MTRE<br>SPK<br>MTH | See the section on inlet pipe. |

### Shaft seals

| Variant | Applies to | Description |
|---|---|---|
| Shaft seal with FFKM, FXM or EDPM O-ring material | MTR, MTRE<br>SPK<br>MTH | We recommend shaft seals with FFKM, FXM or EPDM O-ring material for applications where the pumped liquid may damage the standard O-ring material. |

### Motors

| Variant | Applies to | Description |
|---|---|---|
| ATEX motor | MTR | For operation in hazardous atmospheres, explosion-proof or dust-ignition-proof motors may be required. |
| Motor with anti-condensation heating unit | MTR<br>SPK | For operation in humid environments motors with built-in anti-condensation heating unit may be required. |
| Motor with thermal protection | MTR<br>SPK | Grundfos offers motors with built-in bimetallic thermal switches or temperature-controlled PTC sensors (thermistors) incorporated in the motor windings. |
| Oversize motor | MTR, MTRE<br>SPK | Ambient temperatures above 40 °C or installation at altitudes of more than 1000 metres above sea level require the use of an oversize motor (derating). |
| Multiplug | MTR<br>SPK<br>MTH | Pumps with motors from 0.25 kW to 7.5 kW can be fitted with a 10-pin multiplug connection, type Han® 10 ES.<br>The purpose of a multiplug connection is to make the electrical installation and the service of the pump easier. The multiplug functions as a plug-and-pump device. |
| 4-pole motor | MTR | Grundfos offers 4-pole standard motors. |

| Variant | Applies to | Description |
|---|---|---|
| Advanced display | MTRE | The pumps can be fitted with HMI 301 operating panel as an option.<br>The operating panel does not include a radio module. |
| Standard display | MTRE | The pumps can be fitted with HMI 201 operating panel as an option.<br>The operating panel does not include a radio module. |
| Simple display | MTRE | The pumps can be fitted with HMI 100 or HMI 101 panel as an option.<br>HMI 100 includes a radio module.<br>HMI 101 does not include a radio module.<br>Grundfos GO is required to configure and set the pump. |

### Certificates

| Certificate | Description |
|---|---|
| Certificate of compliance with the order | According to EN 10204, 2.1. Grundfos document certifying that the pump supplied is in compliance with the order specifications. |
| Test certificate.<br>Non-specific inspection and testing | According to EN 10204, 2.2. Certificate with inspection and test results of a non-specific pump. |
| Inspection certificate 3.1 | Grundfos document certifying that the pump supplied is in compliance with the order specifications. Inspection and test results are mentioned in the certificate. |
| Inspection certificate | Grundfos document certifying that the pump supplied is in compliance with the order specifications. Inspection and test results are mentioned in the certificate. Certificate from the surveyor is included.<br>Contact Grundfos if you require a certificate.<br>We offer the following inspection certificates:<br>• Lloyds Register of Shipping (LRS)<br>• Det Norske Veritas (DNV)<br>• Germanischer Lloyd (GL)<br>• Bureau Veritas (BV)<br>• American Bureau of Shipping (ABS)<br>• Registro Italiano Navale Agenture (RINA)<br>• China Classification Society (CCS)<br>• Russian maritime register of Shipping (RS)<br>• Biro Klassifikasio Indonesia (BKI)<br>• United States Coast Guard (USCG)<br>• Nippon Kaiji Koykai (NKK). |
| Standard test report | Certifies that the main components of the specific pump are manufactured by Grundfos, and that the pump has been QH-tested, inspected and conforms to the full requirements of the appropriate catalogues, drawings and specifications. |
| Material specification report | Certifies the material used for the main components of the specific pump. |
| Duty-point verification report | Certifies a test point specified by the customer. Issued according to ISO 9906 concerning "Duty point verification". |
| ATEX-approved pump (MTR) | Confirms that the specific pump is ATEX-approved according to the EU directive 94/9/EC, the "ATEX directive". |

Note that other certificates are available on request.

**Related information**

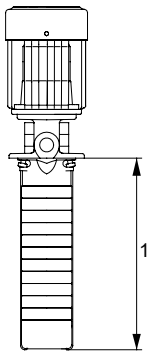
*Immersion depths, MTR, MTRE*
*Immersion depths, SPK*
*Horizontal mounting*
*120 °C solution*
*Inlet pipe*

# Immersion depths, MTR, MTRE

To meet specific depths of tanks and containers, the immersion depth of the pump can be varied using empty chambers. The number of impellers depends on the requested head, and can be found on the technical data pages for each product type.

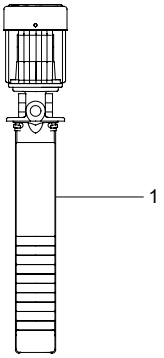
| Number of chambers | Immersion depth [mm] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MTR1s | MTR1 | MTR3 | MTR5 | MTR 8 | MTR10 | MTR15 | MTR20 | MTR32 | MTR45 | MTR64 |
| 1 | - | - | - | - | 196 | - | - | - | - | - | - |
| 2 | 160 | 160 | 160 | 169 | 223 | 148 | 178 | 178 | 223 | 244 | 249 |
| 3 | 178 | 178 | 178 | 196 | 250 | 178 | 223 | 223 | 293 | 324 | 332 |
| 4 | 196 | 196 | 196 | 223 | 277 | 208 | 268 | 268 | 363 | 404 | 414 |
| 5 | 214 | 214 | 214 | 250 | 304 | 238 | 313 | 313 | 433 | 484 | 497 |
| 6 | 232 | 232 | 232 | 277 | 331 | 268 | 358 | 358 | 503 | 564 | 579 |
| 7 | 250 | 250 | 250 | 304 | 358 | 298 | 403 | 403 | 573 | 644 | 662 |
| 8 | 268 | 268 | 268 | 331 | 385 | 328 | 448 | 448 | 643 | 724 | 744 |
| 9 | 286 | 286 | 286 | 358 | 412 | 358 | 493 | 493 | 713 | 804 | 827 |
| 10 | 304 | 304 | 304 | 385 | 439 | 388 | 538 | 538 | 783 | 884 | 909 |
| 11 | 322 | 322 | 322 | 412 | 466 | - | 583 | 583 | 853 | 964 | 992 |
| 12 | 340 | 340 | 340 | 439 | 493 | 448 | 628 | 628 | 923 | 1044 | 1074 |
| 13 | 358 | 358 | 358 | 466 | 520 | - | 673 | 673 | 993 | 1124 | 1157 |
| 14 | 376 | 376 | 376 | 493 | 547 | 508 | 718 | 718 | 1063 | 1204 | 1239 |
| 15 | 394 | 394 | 394 | 520 | 574 | - | 763 | 763 | 1133 | 1284 | 1322 |
| 16 | 412 | 412 | 412 | 547 | 601 | 568 | 808 | 808 | 1203 | 1364 | 1404 |
| 17 | 430 | 430 | 430 | 574 | 628 | - | 853 | 853 | 1273 | 1444 | 1487 |
| 18 | 448 | 448 | 448 | 601 | 655 | 628 | 898 | 898 | 1343 | - | - |
| 19 | 466 | 466 | 466 | 628 | 682 | - | 943 | 943 | - | - | - |
| 20 | 484 | 484 | 484 | 655 | 709 | 688 | 988 | 988 | - | - | - |
| 21 | 502 | 502 | 502 | 682 | 736 | - | 1033 | 1033 | - | - | - |
| 22 | 520 | 520 | 520 | 709 | 763 | 748 | - | - | - | - | - |
| 23 | 538 | 538 | 538 | 736 | 790 | 778 | - | - | - | - | - |
| 24 | 556 | 556 | 556 | 763 | 817 | 808 | - | - | - | - | - |
| 25 | 574 | 574 | 574 | 790 | 844 | 838 | - | - | - | - | - |
| 26 | 592 | 592 | 592 | 817 | 871 | 868 | - | - | - | - | - |
| 27 | 610 | 610 | 610 | 844 | 898 | 898 | - | - | - | - | - |
| 28 | 628 | 628 | 628 | 871 | 925 | 928 | - | - | - | - | - |
| 29 | 646 | 646 | 646 | 898 | 952 | 958 | - | - | - | - | - |
| 30 | 664 | 664 | 664 | 925 | 979 | 988 | - | - | - | - | - |
| 31 | 682 | 682 | 682 | 952 | 1006 | 1018 | - | - | - | - | - |
| 32 | 700 | 700 | 700 | 979 | - | - | - | - | - | - | - |
| 33 | 718 | 718 | 718 | 1006 | - | - | - | - | - | - | - |
| 34 | 736 | 736 | 736 | - | - | - | - | - | - | - | - |
| 35 | 754 | 754 | 754 | - | - | - | - | - | - | - | - |
| 36 | 772 | 772 | 772 | - | - | - | - | - | - | - | - |
| 37 | 790 | 790 | 790 | - | - | - | - | - | - | - | - |
| 38 | 808 | 808 | 808 | - | - | - | - | - | - | - | - |
| 39 | 826 | 826 | 826 | - | - | - | - | - | - | - | - |
| 40 | 844 | 844 | 844 | - | - | - | - | - | - | - | - |
| 41 | 862 | 862 | 862 | - | - | - | - | - | - | - | - |

| Number of chambers | Immersion depth [mm] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MTR1s | MTR1 | MTR3 | MTR5 | MTR 8 | MTR10 | MTR15 | MTR20 | MTR32 | MTR45 | MTR64 |
| 42 | 880 | 880 | 880 | - | - | - | - | - | - | - | - |
| 43 | 898 | 898 | 898 | - | - | - | - | - | - | - | - |
| 44 | 916 | 916 | 916 | - | - | - | - | - | - | - | - |
| 45 | 934 | 934 | 934 | - | - | - | - | - | - | - | - |
| 46 | 952 | 952 | 952 | - | - | - | - | - | - | - | - |
| 47 | 970 | 970 | 970 | - | - | - | - | - | - | - | - |
| 48 | 988 | 988 | 988 | - | - | - | - | - | - | - | - |
| 49 | 1006 | 1006 | 1006 | - | - | - | - | - | - | - | - |



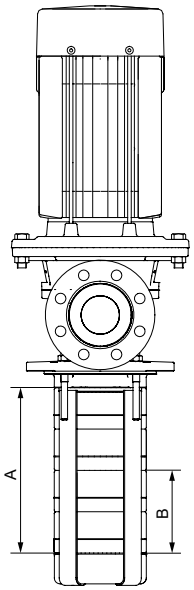

TM014460

*Immersion depth (1)*




TM014214

*Extension pipe (1)*



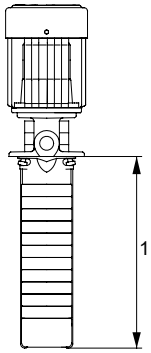

TM014991

*Number of chambers (A) and impellers (B)*

## Immersion depths, SPK

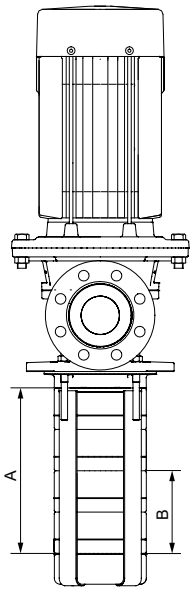
To meet specific depths of tanks and containers, the immersion depth of the pump can be varied using empty chambers. The number of impellers depends on the requested head and can be found on the technical data pages for each product type.

| Number of chambers | Immersion depth [mm] | | |
|---|---|---|---|
| | SPK 1 | SPK 2 | SPK 4 |
| 1 | 140 | 140 | 140 |
| 2 | - | - | - |
| 3 | 182 | 182 | 182 |
| 4 | - | - | - |
| 5 | 224 | 224 | 224 |
| 6 | - | - | - |
| 7 | 266 | 266 | 266 |
| 8 | 287 | 287 | 287 |
| 9 | - | - | - |
| 10 | - | - | - |
| 11 | 350 | 350 | 350 |
| 12 | - | - | - |
| 13 | 392 | 392 | 392 |
| 14 | - | - | - |
| 15 | 434 | 434 | 434 |
| 16 | 455 | 455 | 455 |
| 17 | 476 | 476 | 476 |
| 18 | - | - | - |
| 19 | 518 | 518 | 518 |
| 20 | - | - | - |
| 21 | 560 | 560 | 560 |
| 22 | - | - | - |
| 23 | 602 | 602 | 602 |
| 24 | - | - | - |
| 25 | 644 | 644 | 644 |
| 26 | - | - | - |
| 27 | - | - | - |
| 28 | - | - | - |
| 29 | - | - | - |
| 30 | - | - | - |
| 31 | 770 | 770 | 770 |
| 32 | - | - | - |
| 33 | - | - | - |
| 34 | - | - | - |
| 35 | - | - | - |
| 36 | - | - | - |
| 37 | 896 | 896 | 896 |
| 19 + extension pipe | - | - | 1005 |
| 23 + extension pipe | 1005 | 1005 | - |



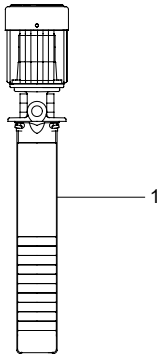

TM014460

*Immersion depth (1)*




TM014991

*Number of chambers (A) and impellers (B)*



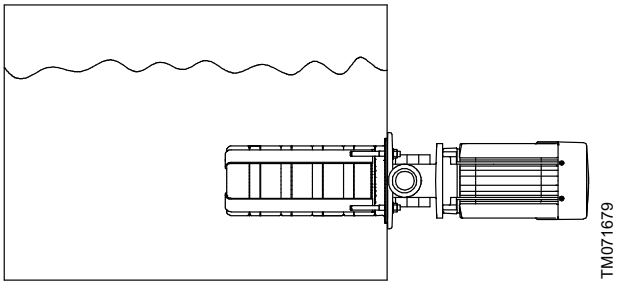

TM014214

*Extension pipe (1)*

## Horizontal mounting

For safety or height reasons, certain applications, for instance on ships, require the pump to be mounted in horizontal position.

Pump version H for horizontal mounting is available for MTR, MTRE 1s, 1, 2, 3, 4, 5, 8, 10, 15 and 20.

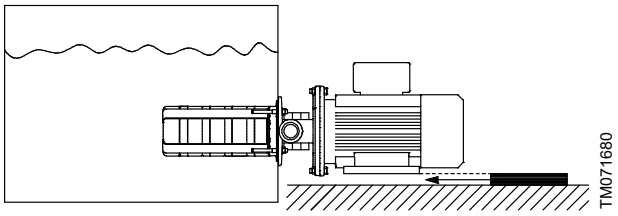



*Horizontally installed MTR version H pump*

On horizontally installed MTR, MTRE pumps, the drain hole in the pump head is fitted with a plug, and four closed nuts with O-rings are fitted to the straps. See fig. Version H pump head with closed nuts (1) and drain plug (2) in the section on 120 °C solution.

MTR, MTRE pumps for horizontal mounting are only available with stainless steel pump heads.

On horizontally installed MTR, MTRE pumps with motors from 5.5 kW and up, the motors have feet and must be supported.



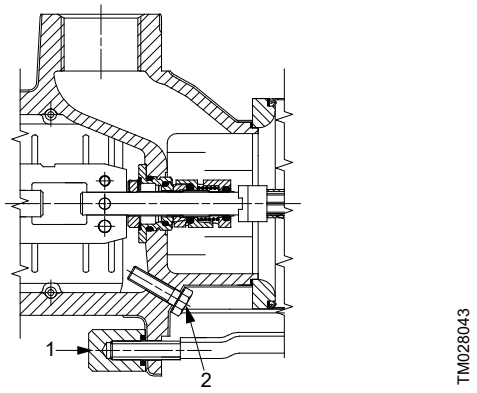

*Horizontally installed MTR version H pump with foot support*

## 120 °C solution

For applications with liquid temperature above 90 °C and up to 120 °C, Grundfos offers a solution for MTR, MTRE and SPK.

MTR, MTRE pumps for applications with liquid temperature above 90 °C and up to 120 °C are only available with stainless steel pump head.

Note that if the MTR, MTRE or SPK pump is to be used for applications with a liquid temperature above 90 °C and up to 120 °C, the drain hole in the pump head must be fitted with a plug, and four closed nuts with O-rings must be fitted to the straps.

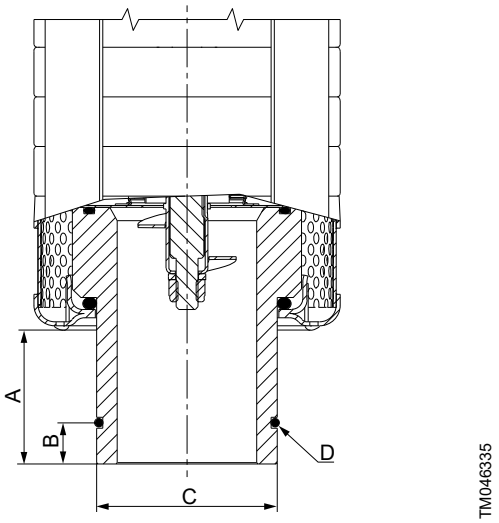



*Version H pump head with closed nuts (1) and drain plug (2)*

## Inlet pipe

For compact coolant applications the filter is mounted inside the tank, and the pump sucks directly through this filter.

| Pump | A [mm] | B [mm] | C [mm] | D [mm] |
|---|---|---|---|---|
| MTR, MTRE 1s, 1, 3, 5 | 48.5 | 15 | ∅64.8 | ∅60 x 3 |
| MTR, MTRE 10, 15, 20 | 48 | 15 | ∅88.8 | ∅84 x 3 |
| MTR, MTRE 32 | 48 | 15 | ∅104.8 | ∅100 x 3 |
| MTR, MTRE 45 | 48 | 15 | ∅124.8 | ∅119.5 x 3 |
| MTR, MTRE 64 | 48 | 15 | ∅133.7 | ∅128 x 3 |
| SPK 1, 2, 4 | 48 | 15 | ∅56 | ∅51.2 x 3 |
| MTH 2, 4 | 48 | 15 | ∅64.8 | ∅60 x 3 |




*Inlet pipe*

# 16. Multi-packaging for MT pumps

Benefits of multi-packaging:

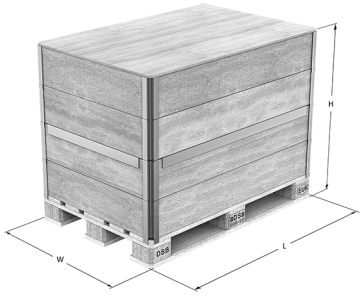
- It makes unpacking easy.
- There is no packaging to dispose of after unpacking.
- It is returnable, which supports the Green Agenda.

Description of the multi-packaging:

- It contains a standard EURO pallet and standard pallet frames.
- Depending on the size, up to 21 pumps can be transported per pallet.
- The plate and the holder for plate are the only returnable parts of the packaging.

TM085454

*Pallet packed with MT pumps*




TM085455

*Packaging of MT pumps*

# 17. Grundfos Product Center

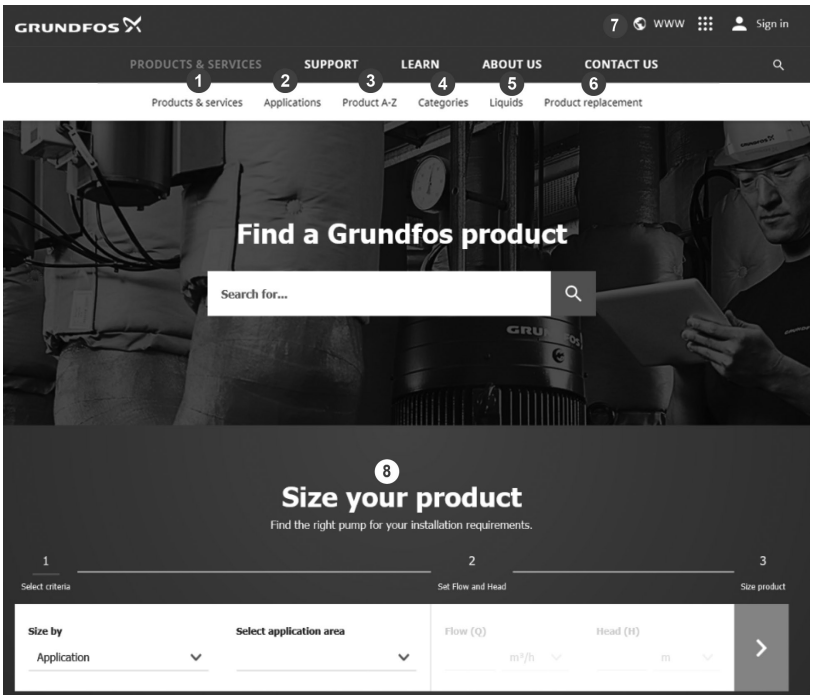
Online search and sizing tool to help you make the right choice.
From the international view, you can select your specific country to view the product range available to you.
International view: *https://product-selection.grundfos.com*

**All the information you need in one place**

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

**Downloads**

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc., in PDF format.

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| 6 | **Product replacement** enables you to find a suitable replacement. |
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