

## TPE 50-710/2-A-F-A-BAQE 3X400 50HZ

Grundfos pump 96096420



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<https://www.lenntech.com/grundfos/TPE00/96096420/TPE-50-710-2-A-F-A-BAQE.html>

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| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | 1    | <p><b>TPE 50-710/2 A-F-A-BAQE</b></p>  <p>Product No.: On request</p> <p>Single-stage, close-coupled, volute pump with in-line suction and discharge ports of identical diameter. The pump is of the top-pull-out design, i.e. the power head (motor, pump head and impeller) can be removed for maintenance or service while the pump housing remains in the pipework.</p> <p>The pump is fitted with an unbalanced rubber bellows seal. The shaft seal is according to EN 12756. Pipework connection is via PN 16 DIN flanges (EN 1092-2 and ISO 7005-2).</p> <p>The pump is fitted with a fan-cooled asynchronous motor.</p> <p>The motor includes a frequency converter and PI controller in the motor terminal box. This enables continuously variable control of the motor speed, which again enables adaptation of the performance to a given requirement.</p> <p><b>Further product details</b></p> <p>The pump is suitable for applications where the pressure, temperature, flow rate or another parameter is to be controlled on basis of signals from a sensor at some point in the system.</p> <p>A control panel enables setting of required setpoint as well as setting of pump to "Min." or "Max." operation or to "Stop". The control panel has indicator lights for "Operation" and "Fault".</p> <p>Communication with the pump is possible by means of the Grundfos GO Remote (accessory). The remote control enables further settings as well as reading out of a number of parameters such as "Actual value", "Speed", "Power input" and total "Power consumption".</p> <p>The product's minimum efficiency index (MEI) is greater or equal to 0.70. This is by the Commission Regulation (EU) considered as an indicative benchmark for best-performing water pump available on the market as from 1 January 2013.</p> <p><b>Pump</b></p> <p>Pump housing and pump head are electrocoated to improve the corrosion resistance. Electrocoating includes:</p> <ol style="list-style-type: none"> <li>1) Alkaline-based cleaning.</li> <li>2) Pretreatment with zinc phosphate coating.</li> <li>3) Cathodic electrocoating (epoxy).</li> <li>4) Curing of paint film at 200-250 °C.</li> </ol>  <ol style="list-style-type: none"> <li>1: Pump housing</li> <li>2: Impeller</li> <li>3: Stub shaft</li> <li>4: Pump head/motor stool</li> <li>5: Wear rings</li> </ol> |

The pump housing is provided with a replaceable brass neck ring to reduce the amount of liquid running from the outlet side of the impeller to the inlet side. The impeller is secured to the shaft with a nut.

The pump is fitted with an unbalanced rubber bellows seal with torque transmission across the spring and around the bellows. Due to the bellows, the seal does not wear the shaft, and the axial movement is not prevented by deposits on the shaft.

Primary seal:

- Rotating seal ring material: carbon graphite, metal-impregnated
- Stationary seat material: silicon carbide (SiC)

This material pairing has a very good corrosion resistance and is especially suitable for water up to 120 °C. However, seal life will be reduced at temperatures above 90 °C. The material pairing is not recommended for liquids containing particles as this will result in heavy wear on the SiC face.

Secondary seal material: EPDM (ethylene-propylene rubber)

EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.

A circulation of liquid through the duct of the air vent screw ensures lubrication and cooling of the shaft seal.

The flanges have tapings for mounting of pressure gauges.

The motor stool forms connection between the pump housing and the motor, and is equipped with a manual air vent screw for venting of the pump housing and the shaft seal chamber. The sealing between motor stool and pump housing is an O-ring.

The central part of the motor stool is provided with guards for protection against the shaft and coupling. The pump shaft is fastened directly on the motor shaft with key and set screws.

## Motor

The motor is a totally enclosed, fan-cooled motor with principal dimensions to IEC and DIN standards. Electrical tolerances comply with IEC 60034.

The motor is flange-mounted with free-hole flange (FF).

Motor-mounting designation in accordance with IEC 60034-7: IM B 5, IM V 1 (Code I) / IM 3001, IM 3011 (Code II).

The motor efficiency is classified as IE3 in accordance with IEC 60034-30-1.

The motor requires no external motor protection. The motor control unit incorporates protection against slow- and quick-rising temperatures, e.g. constant overload and stalled conditions.

The terminal box holds terminals for these connections:

- pump start/stop input (potential-free contact)
- remote setpoint setting via analog signal, 0-10 V, 0(4)-20 mA
- 10 V voltage supply for setpoint potentiometer, I<sub>max</sub> = 5 mA
- one analog sensor input, 0-10 V, 0(4)-20 mA
- 24 V voltage supply for sensor, I<sub>max</sub> = 40 mA
- one digital input
- two potential-free fault signal relays with changeover contact, reporting "Fault", "Operation" or "Ready"
- RS-485 GENIbus connection
- interface for Grundfos CIM fieldbus module.

## Technical data

### Controls:

Frequency converter: Built-in

### Liquid:

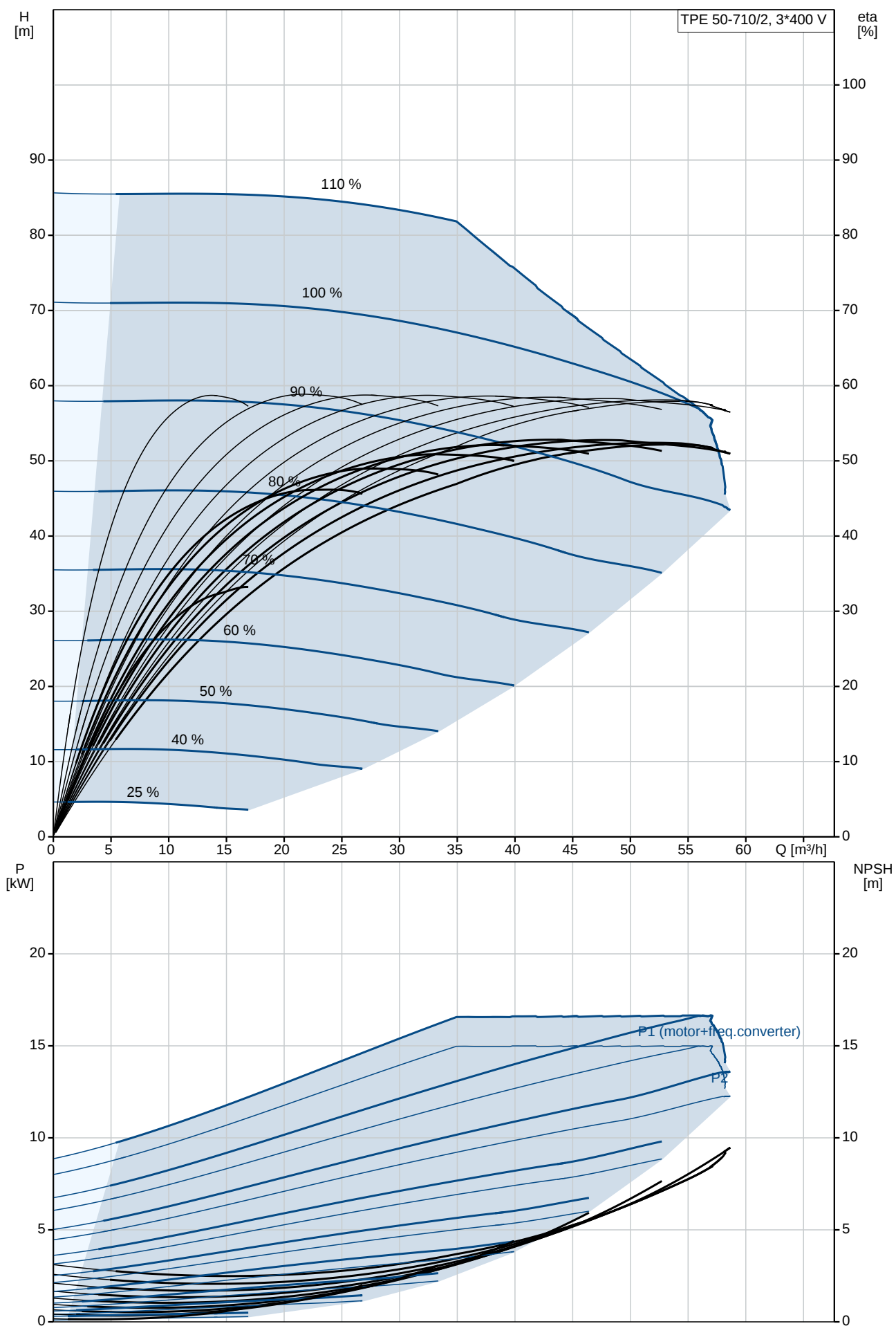
Pumped liquid: Water  
Liquid temperature range: 0 .. 120 °C  
Liquid temperature during operation: 20 °C  
Density: 998.2 kg/m<sup>3</sup>

### Technical:

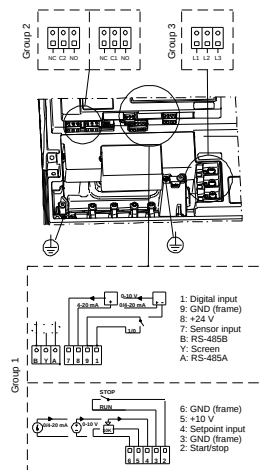
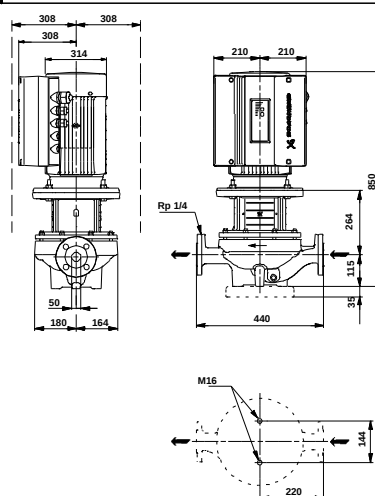
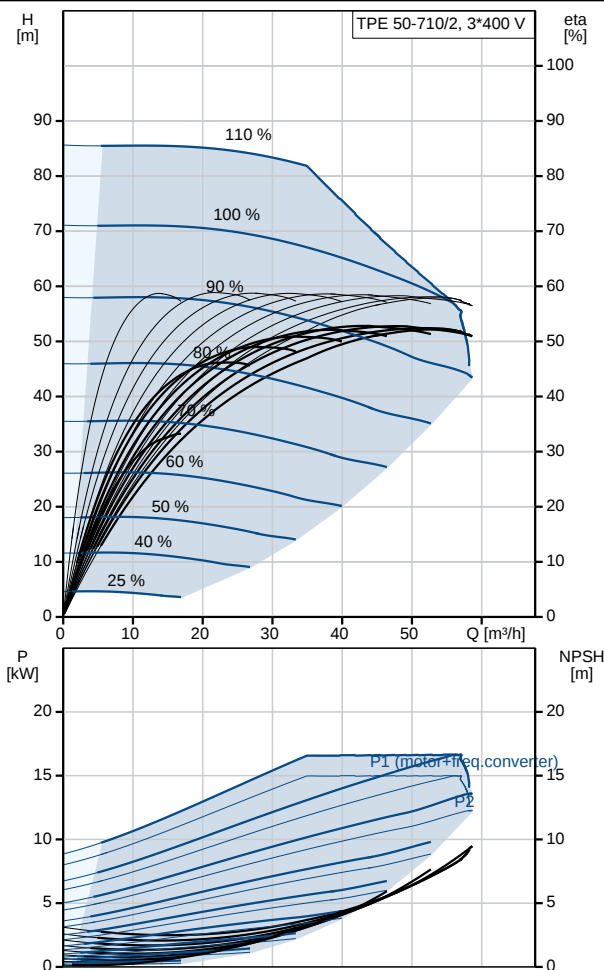
Rated flow: 53.9 m<sup>3</sup>/h  
Rated head: 58.6 m  
Actual impeller diameter: 230 mm

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <p>Primary shaft seal: BAQE<br/>Curve tolerance: ISO9906:2012 3B</p> <p><b>Materials:</b></p> <p>Pump housing: Cast iron<br/>EN-JL1040<br/>ASTM A48-40 B</p> <p>Impeller: Cast iron<br/>EN-JL1030<br/>ASTM A48-30 B</p> <p><b>Installation:</b></p> <p>Range of ambient temperature: -20 .. 40 °C<br/>Maximum operating pressure: 16 bar<br/>Flange standard: DIN<br/>Pipe connection: DN 50<br/>Pressure rating: PN 16<br/>(@): 440 mm<br/>Flange size for motor: FF300</p> <p><b>Electrical data:</b></p> <p>Motor type: 160MD<br/>IE Efficiency class: IE3<br/>Rated power - P2: 15 kW<br/>Mains frequency: 50 Hz<br/>Rated voltage: 3 x 380-480 V<br/>Rated current: 30.0-26.0 A<br/>Cos phi - power factor: 0.91-0.86<br/>Rated speed: 480-3540 rpm<br/>Efficiency: IE3 91,9%<br/>Motor efficiency at full load: 91.9 %<br/>Number of poles: 2<br/>Enclosure class (IEC 34-5): IP55<br/>Insulation class (IEC 85): F</p> <p><b>Others:</b></p> <p>Minimum efficiency index, MEI ≥: 0.70<br/>ErP status: EuP Standalone/Prod.<br/>Net weight: 199 kg<br/>Gross weight: 228 kg<br/>Shipping volume: 1.12 m³</p> |

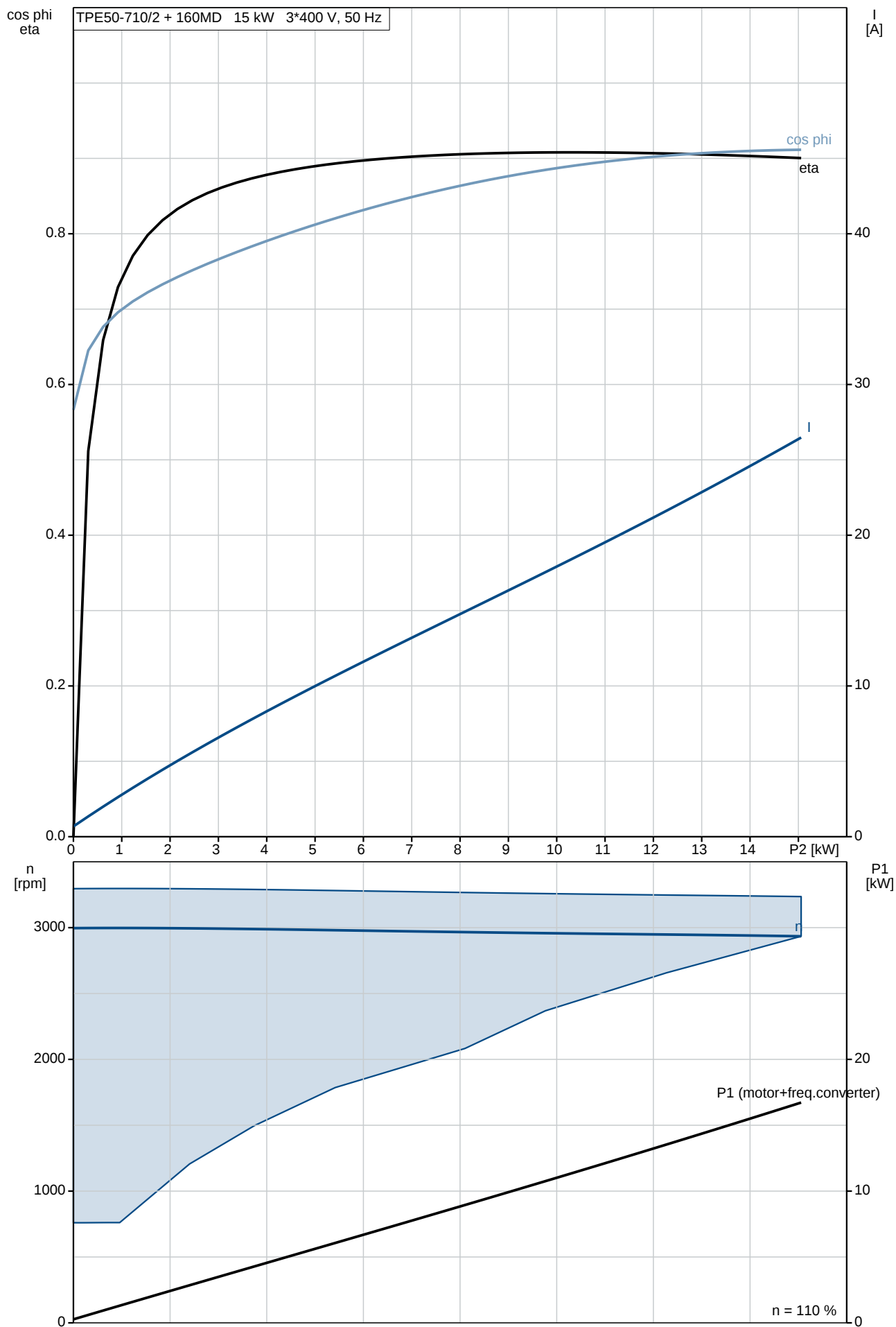
# On request TPE 50-710/2 A-F-A-BAQE 50 Hz



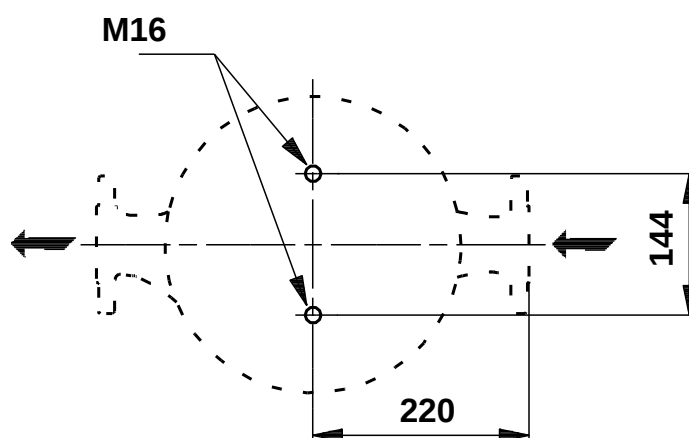
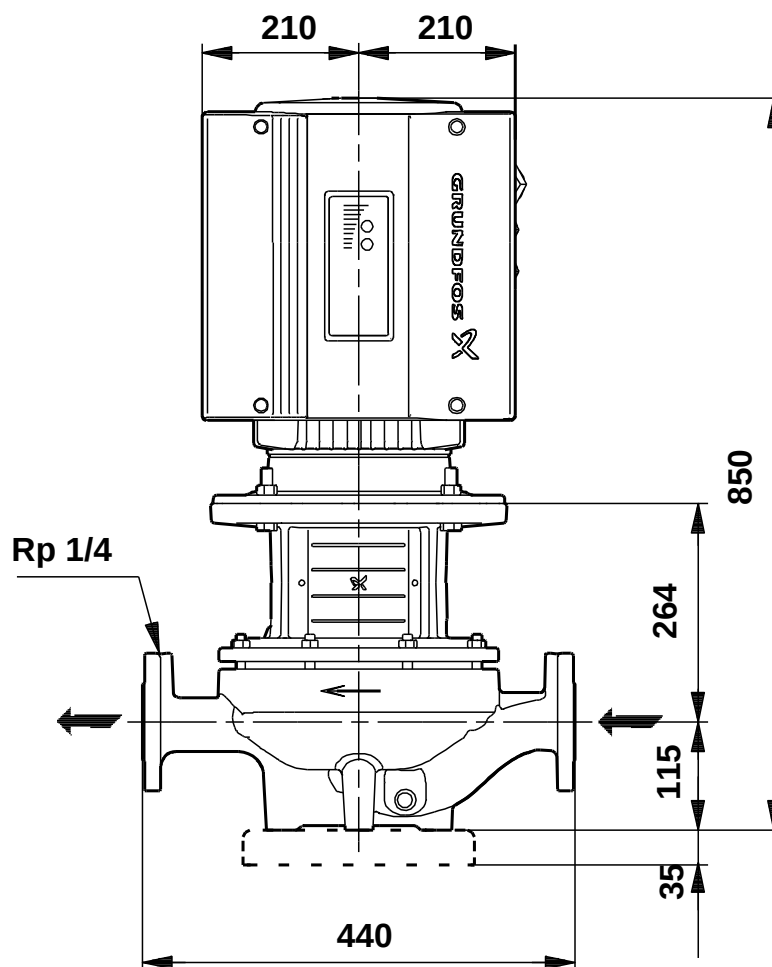
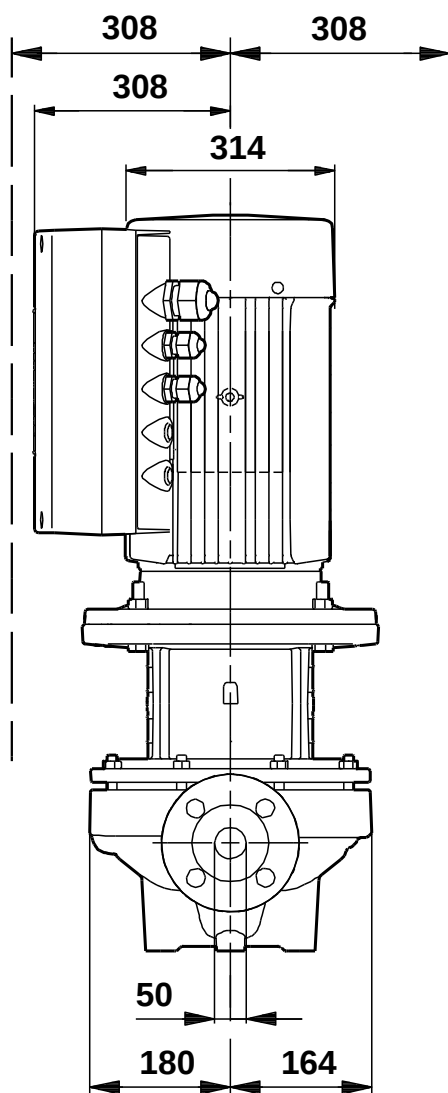
| Description                          | Value                                   |
|--------------------------------------|-----------------------------------------|
| <b>General information:</b>          |                                         |
| Product name:                        | TPE 50-710/2 A-F-A-BAQE                 |
| Product No:                          | On request                              |
| EAN number:                          | On request                              |
| <b>Technical:</b>                    |                                         |
| Rated flow:                          | 53.9 m³/h                               |
| Rated head:                          | 58.6 m                                  |
| Head max:                            | 710 dm                                  |
| Actual impeller diameter:            | 230 mm                                  |
| Primary shaft seal:                  | BAQE                                    |
| Curve tolerance:                     | ISO9906:2012 3B                         |
| Pump version:                        | A                                       |
| Model:                               | A                                       |
| <b>Materials:</b>                    |                                         |
| Pump housing:                        | Cast iron<br>EN-JL1040<br>ASTM A48-40 B |
| Impeller:                            | Cast iron<br>EN-JL1030<br>ASTM A48-30 B |
| Material code:                       | A                                       |
| <b>Installation:</b>                 |                                         |
| Range of ambient temperature:        | -20 .. 40 °C                            |
| Maximum operating pressure:          | 16 bar                                  |
| Flange standard:                     | DIN                                     |
| Pipe connection:                     | DN 50                                   |
| Pressure rating:                     | PN 16                                   |
| (@)                                  | 440 mm                                  |
| Flange size for motor:               | FF300                                   |
| Connect code:                        | F                                       |
| <b>Liquid:</b>                       |                                         |
| Pumped liquid:                       | Water                                   |
| Liquid temperature range:            | 0 .. 120 °C                             |
| Liquid temperature during operation: | 20 °C                                   |
| Density:                             | 998.2 kg/m³                             |
| <b>Electrical data:</b>              |                                         |
| Motor type:                          | 160MD                                   |
| IE Efficiency class:                 | IE3                                     |
| Rated power - P2:                    | 15 kW                                   |
| Mains frequency:                     | 50 Hz                                   |
| Rated voltage:                       | 3 x 380-480 V                           |
| Rated current:                       | 30.0-26.0 A                             |
| Cos phi - power factor:              | 0.91-0.86                               |
| Rated speed:                         | 480-3540 rpm                            |
| Efficiency:                          | IE3 91,9%                               |
| Motor efficiency at full load:       | 91.9 %                                  |
| Number of poles:                     | 2                                       |
| Enclosure class (IEC 34-5):          | IP55                                    |
| Insulation class (IEC 85):           | F                                       |
| Motor protec:                        | YES                                     |
| Motor No:                            | 85901225                                |
| <b>Controls:</b>                     |                                         |
| Control panel:                       | Standard                                |
| Function Module:                     | PUMP I/O                                |
| Frequency converter:                 | Built-in                                |
| <b>Others:</b>                       |                                         |
| Minimum efficiency index, MEI ≥:     | 0.70                                    |
| ErP status:                          | EuP Standalone/Prod.                    |
| Net weight:                          | 199 kg                                  |
| Gross weight:                        | 228 kg                                  |
| Shipping volume:                     | 1.12 m³                                 |
| Config. file no:                     | 95139404                                |



# On request TPE 50-710/2 A-F-A-BAQE 50 Hz



**On request TPE 50-710/2 A-F-A-BAQE 50 Hz**



Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

# Exploded view



Sectional drawing (TM058200 for TPE2,TPE3)



TM058200

# Exploded view ( TM057026 for MGE model H/I )



**Parts list TPE 50-710/2, Product No. On request**  
**Valid from 20.6.2010 (1024)**

| Pos | Description        | Annotation | Données de classification | Référence | Quantité | Unité |
|-----|--------------------|------------|---------------------------|-----------|----------|-------|
| +   | Motor              |            |                           |           | 1        | pcs   |
| -   | Nut                |            |                           |           | 1        | pcs   |
| 66  | Washer             |            |                           |           | 1        |       |
| 66a | Spring lock washer |            |                           |           | 1        |       |
| 67  | Nut                |            | Thread: M14               |           | 1        |       |
| -   | Motor stool cpl.   |            |                           |           | 1        | pcs   |
| 1a  | Motor stool        |            |                           |           | 1        |       |
| 7   | Coupling guard     |            |                           |           | 2        |       |
| 77a | Pan head screw     |            |                           |           | 4        |       |
| -   | Pump housing cpl.  |            |                           |           | 1        | pcs   |
| 6   | Pump housing       |            |                           |           | 1        |       |
| 36  | Nut                |            | Thread: M10               |           | 10       |       |
| -   | Kit, Base plate    |            |                           |           | 1        | pcs   |
| 28g | Hex head screw     |            |                           |           | 2        |       |
| 56  | Base plate         |            |                           |           | 1        |       |
| -   | Shaft seal cpl.    |            |                           |           | 1        | pcs   |
| 72a | O-ring             |            | Diameter: 253,6           |           | 1        |       |
|     |                    |            | Material type: EPDM       |           |          |       |
|     |                    |            | Thickness: 3,53           |           |          |       |
| 105 | Shaft seal         |            | Material type: BAQE       |           | 1        |       |
| -   | Stub shaft         |            |                           |           | 1        | pcs   |
| 9   | Socket set screw   |            | Length (mm): 6            |           | 2        |       |
|     |                    |            | Thread: M8                |           |          |       |
| 11  | Parallel key       |            | Dimension: 6X6X35         |           | 1        |       |
| 51  | Pump shaft         |            |                           |           | 1        |       |
| -   | Base plate cpl.    |            |                           |           | 1        | pcs   |
| 28g | Hex head cap screw |            | Length (mm): 30 MM        |           | 2        |       |
|     |                    |            | Thread: M16               |           |          |       |
| 56  | Base plate         |            |                           |           | 1        |       |
| 19  | Plug               |            |                           |           | 2        | pcs   |
| 49  | Impeller           |            |                           |           | 1        | pcs   |

*Disclaimer: The information about the Grundfos pump in this document may be outdated.*

*Data may be subject to alterations without further notice.*

*Please contact us to verify the data above is still accurate/up-to-date.*

*All information is copyright Grundfos.*



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