# NKE80-200/164A1F2AE-SBAQE

## Grundfos pump 99097743



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https://www.lenntech.com/grundfos/NKEBASIS/99097743/NKE-80-200-164-A1-F-A-E-BAQE.html

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| Position | Qty. | Description |
|---|---|---|
| | 1 | **NKE 80-200/164 A1-F-A-E-BAQE** |



Product No.: On request

Non-self-priming, single-stage, centrifugal volute pump designed according to ISO 5199 with dimensions and rated performance according to EN 733. Flanges are PN 16 with dimensions according to EN 1092-2. The pump has an axial suction port, a radial discharge port and horizontal shaft. It is of the back pull-out design enabling removal of the motor, coupling, bearing bracket and impeller without disturbing the pump housing or pipework.

The unbalanced rubber bellows seal is according to DIN EN 12756.

The pump is fitted with a foot-mounted, fan-cooled, permanent-magnet synchronous motor. Pump and motor are mounted on a common base frame.

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.

## Further product details

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.

An external sensor can be connected if controlled pump operation is required for flow, differential pressure or temperature control.

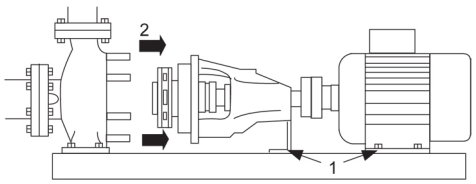
An operating panel on the motor terminal box enables setting of required setpoint as well as setting of pump to "Min." or "Max." operation or to "Stop". The Grundfos Eye indicator on the operating panel provides visual indication of pump status:

- "Power on": Motor is running (rotating green indicator lights) or not running (permanently green indicator lights)
- "Warning": Motor is still running (rotating yellow indicator lights) or has stopped (permanently yellow indicator lights)
- "Alarm": Motor has stopped (flashing red indicator lights).

Communication with the pump is possible by means of 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".

Pump and motor are mounted on a common steel base frame in accordance with ISO 3661. The back pull-out design makes it possible to make service on the pump when the pump housing is still connected to the inlet and discharge pipes.

1) Remove the bolts in the bearing bracket support foot and motor foot.
2) Remove the bearing bracket and the motor from the pump housing.




Cast-iron parts have an epoxy-based coating made in a cathodic electro-deposition (CED) process. CED is a high-quality dip-painting process where an electrical field around the products ensures deposition of paint particles as a thin, well-controlled layer on the surface. An integral part of the process is a pretreatment. The entire process consists of these elements:

1) Alkaline-based cleaning.
2) Zinc phosphating.
3) Cathodic electro-deposition.
4) Curing to a dry film thickness 18-22 my m.

| Position | Qty. | Description |
|---|---|---|

The colour code for the finished product is NCS 9000/RAL 9005.

## Pump

The pump housing has both a priming and a drain hole closed by plugs.

The impeller is a closed impeller with double-curved blades with smooth surfaces. The impeller is statically balanced according to ISO 1940-1 class G6.3 and hydraulically balanced to compensate for axial thrust.

Wear rings used in pump housing and for impeller are made of bronze/brass or cast iron.

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)

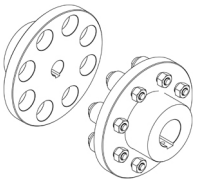
This material pairing has a very good corrosion resistance and is especially suitable for water up to 120 °C. However, seal life will be reduced at temperatures above 90 °C. The material pairing is not recommended for liquids containing particles as this will result in heavy wear on the SiC face.

Secondary seal material: EPDM (ethylene-propylene rubber)

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

The shaft is made of stainless steel and has a diameter of 32 mm where the coupling is mounted.

The pump uses a standard coupling between the pump and motor shaft.



## Motor

The motor is a totally enclosed, fan-cooled motor with principal dimensions to IEC and DIN standards and mounting designation B3 (IM 1001). Electrical tolerances comply with IEC 60034.

The motor efficiency is classified as IE5 in accordance with IEC 60034-30-2.

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:

- one dedicated digital input
- two analog inputs, 0(4)-20 mA, 0-5 V, 0-10 V, 0.5 - 3.5 V
- 5 V voltage supply to potentiometer and sensor
- one configurable digital input or open-collector output
- Grundfos Digital Sensor input and output
- 24 V voltage supply for sensors
- two signal-relay outputs (potential-free contacts)
- GENIbus connection
- interface for Grundfos CIM fieldbus module.

## Technical data

**Liquid:**

| | |
|---|---|
| Pumped liquid: | Water |
| Liquid temperature range: | 0 .. 120 °C |
| Liquid temperature during operation: | 20 °C |
| Density: | 998.2 kg/m³ |

**Technical:**

| | |
|---|---|
| Rated flow: | 73.4 m³/h |
| Rated head: | 7.1 m |
| Actual impeller diameter: | 164 mm |
| Impeller nom: | 200 mm |
| Primary shaft seal: | BAQE |
| Secondary shaft seal: | NONE |
| Curve tolerance: | ISO9906:2012 3B |

| Position | Qty. | Description |
|---|---|---|

**Materials:**

| | |
|---|---|
| Pump housing: | Cast iron<br>EN-GJL-250<br>ASTM A48-40 B |
| Impeller: | Cast iron<br>EN-GJL-200<br>ASTM A48-30 B |
| Rubber: | EPDM |
| Wear ring mat.: | High alloy brass(CuZn34Mn3AI2 |

**Installation:**

| | |
|---|---|
| Maximum ambient temperature: | 50 °C |
| Maximum operating pressure: | 16 bar |
| Flange standard: | EN 1092-2 |
| Pump inlet: | DN 100 |
| Pump outlet: | DN 80 |
| Pressure rating: | PN 16 |
| Coupling type: | Standard |
| Base frame: | EN / ISO |

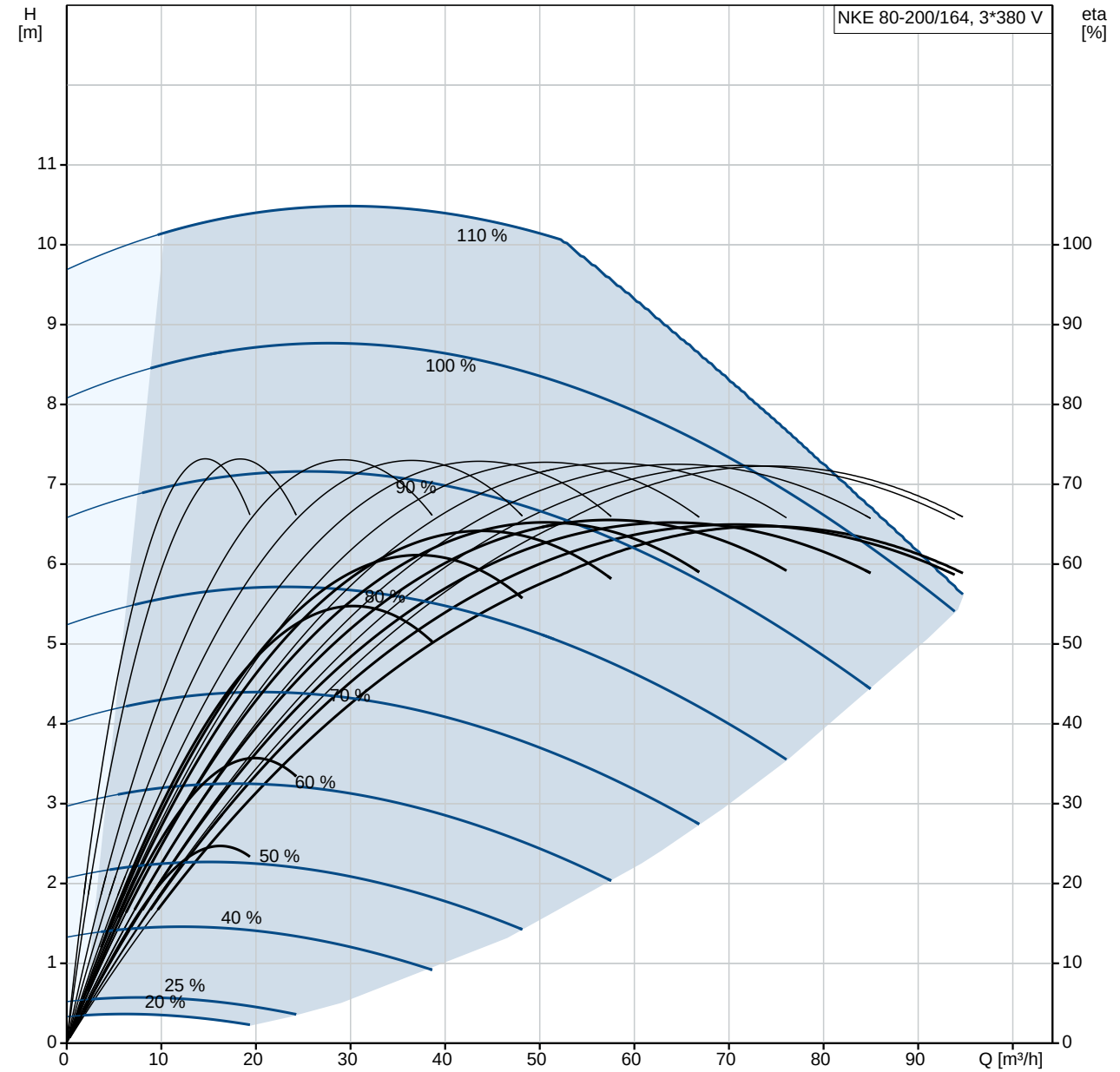
**Electrical data:**

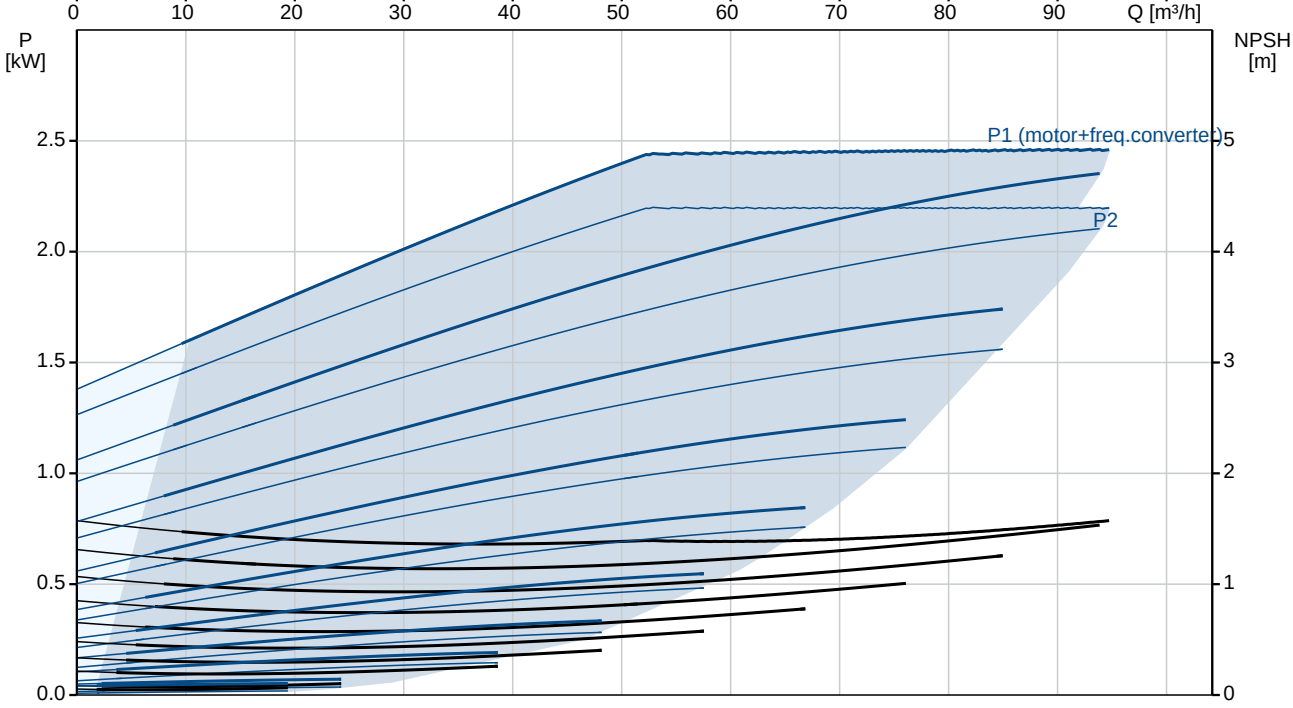
| | |
|---|---|
| Motor type: | 100LB |
| IE Efficiency class: | IE5 |
| Rated power - P2: | 2.2 kW |
| Mains frequency: | 50 Hz |
| Rated voltage: | 3 x 380-500 V |
| Rated current: | 4.30-3.60 A |
| Cos phi - power factor: | 0.90-0.82 |
| Rated speed: | 180-2200 rpm |
| Efficiency: | 89.1% |
| Motor efficiency at full load: | 89.1 % |
| Number of poles: | 4 |
| Enclosure class (IEC 34-5): | IP55 |
| Insulation class (IEC 85): | F |
| Lubricant type: | Grease |

**Others:**

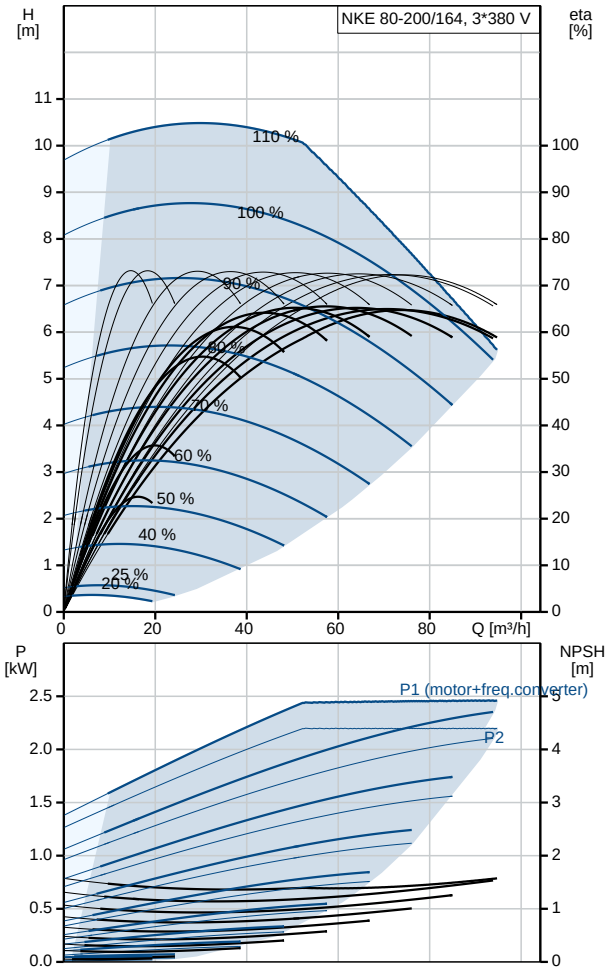
| | |
|---|---|
| Minimum efficiency index, MEI ≥: | 0.70 |
| ErP status: | EuP Standalone/Prod. |
| Net weight: | 190 kg |
| Gross weight: | 205 kg |
| Shipping volume: | 0.515 m³ |

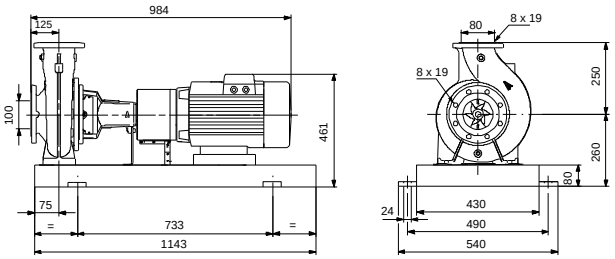
# On request NKE 80-200/164 A1-F-A-E-BAQE 50 Hz

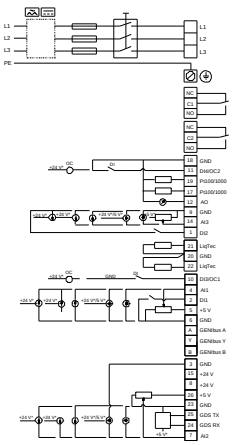


| Description | Value |
|---|---|
| **General information:** | |
| Product name: | NKE 80-200/164 A1-F-A-E-BAQE |
| Product No: | On request |
| EAN number: | On request |
| **Technical:** | |
| Rated flow: | 73.4 m³/h |
| Rated head: | 7.1 m |
| Actual impeller diameter: | 164 mm |
| Impeller nom: | 200 mm |
| Primary shaft seal: | BAQE |
| Secondary shaft seal: | NONE |
| Shaft diameter: | 32 mm |
| Curve tolerance: | ISO9906:2012 3B |
| Pump version: | A1 |
| **Materials:** | |
| Pump housing: | Cast iron |
| | EN-GJL-250 |
| | ASTM A48-40 B |
| Impeller: | Cast iron |
| | EN-GJL-200 |
| | ASTM A48-30 B |
| Material code: | A |
| Rubber: | EPDM |
| Code for rubber: | E |
| Wear ring mat.: | High alloy brass(CuZn34Mn3Al2 |
| **Installation:** | |
| Maximum ambient temperature: | 50 °C |
| Maximum operating pressure: | 16 bar |
| Flange standard: | EN 1092-2 |
| Pump inlet: | DN 100 |
| Pump outlet: | DN 80 |
| Pressure rating: | PN 16 |
| Coupling type: | Standard |
| Wear ring(s): | neckring(s) |
| Base frame: | EN / ISO |
| Connect code: | F |
| **Liquid:** | |
| Pumped liquid: | Water |
| Liquid temperature range: | 0 .. 120 °C |
| Liquid temperature during operation: | 20 °C |
| Density: | 998.2 kg/m³ |
| **Electrical data:** | |
| Motor type: | 100LB |
| IE Efficiency class: | IE5 |
| Rated power - P2: | 2.2 kW |
| Mains frequency: | 50 Hz |
| Rated voltage: | 3 x 380-500 V |
| Rated current: | 4.30-3.60 A |
| Cos phi - power factor: | 0.90-0.82 |
| Rated speed: | 180-2200 rpm |
| Efficiency: | 89.1% |
| Motor efficiency at full load: | 89.1 % |
| Number of poles: | 4 |
| Enclosure class (IEC 34-5): | IP55 |
| Insulation class (IEC 85): | F |
| Motor protec: | YES |
| Motor No: | 99305880 |
| Lubricant type: | Grease |
| **Controls:** | |
| Control panel: | HMI300 - Advanced |
| Function Module: | FM300 - Advanced |
| **Others:** | |

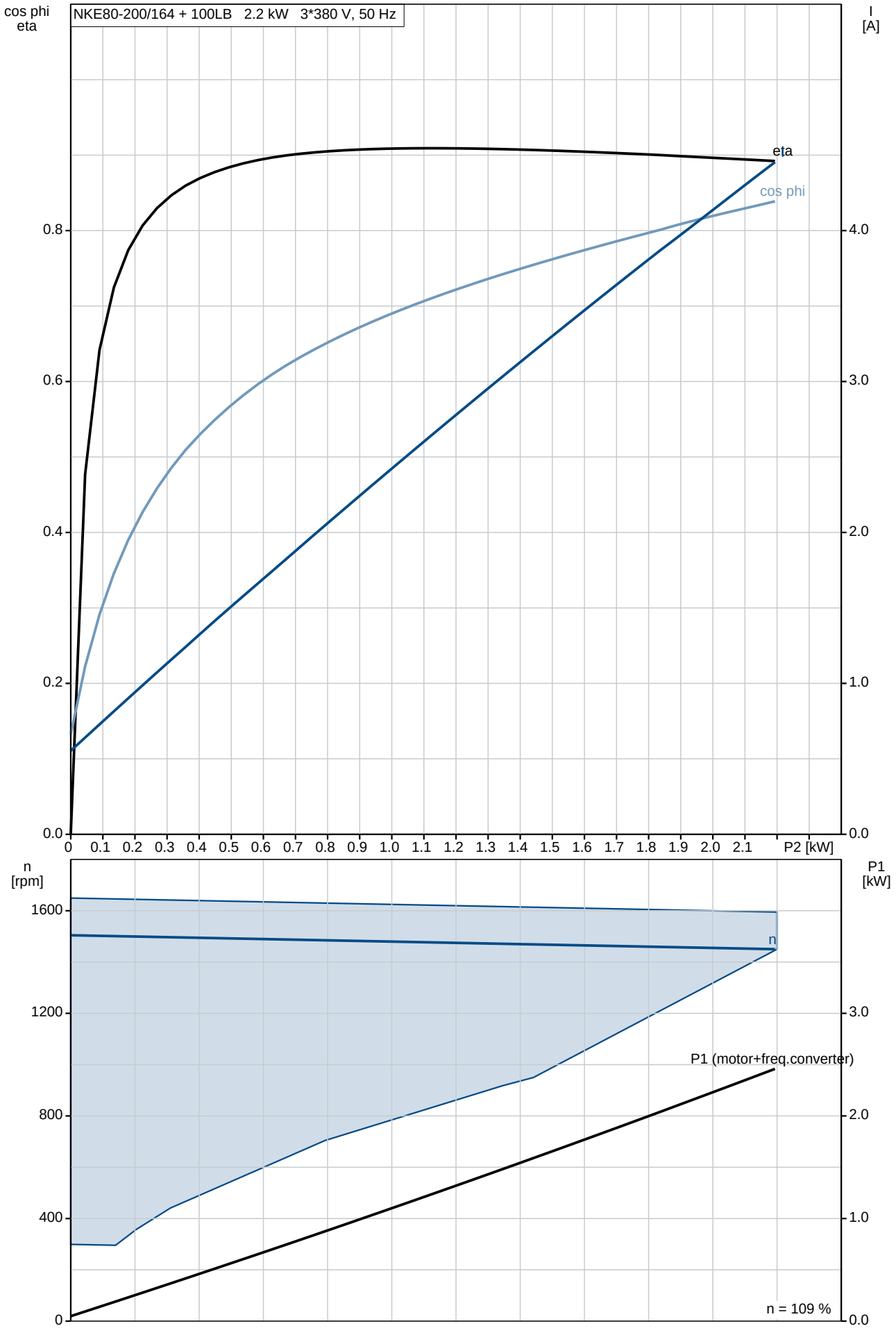


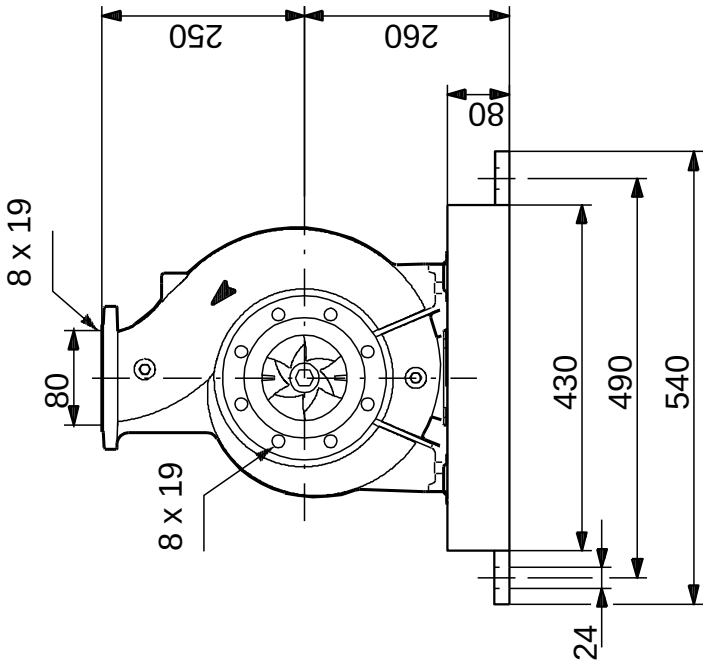



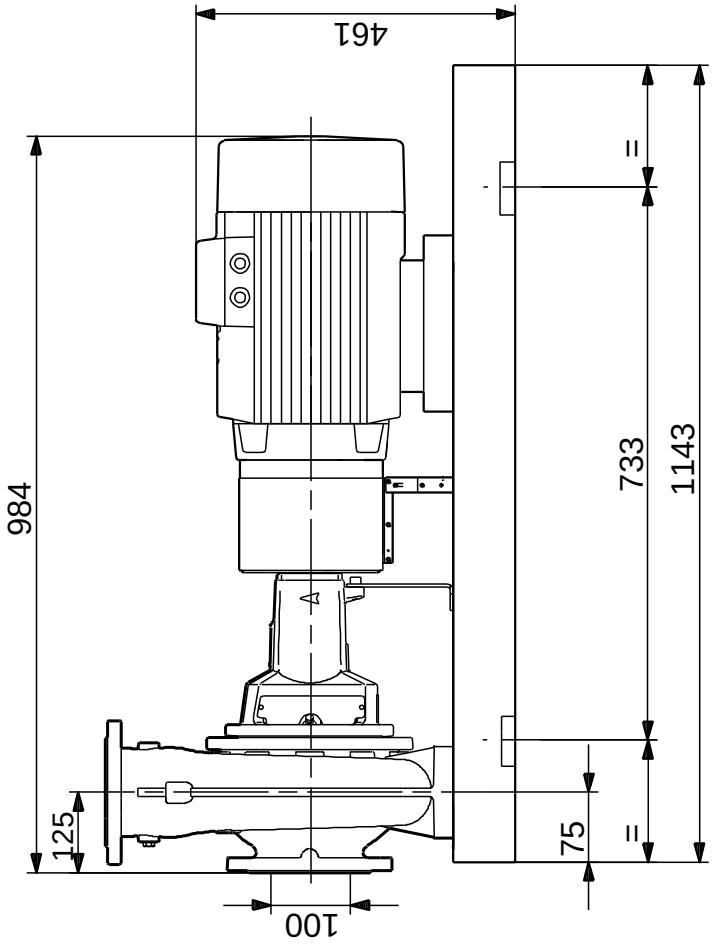
| Description | Value |
|---|---|
| Minimum efficiency index, MEI ≥: | 0.70 |
| ErP status: | EuP Standalone/Prod. |
| Net weight: | 190 kg |
| Gross weight: | 205 kg |
| Shipping volume: | 0.515 m³ |
| Config. file no: | 99100729 |

# On request NKE 80-200/164 A1-F-A-E-BAQE 50 Hz



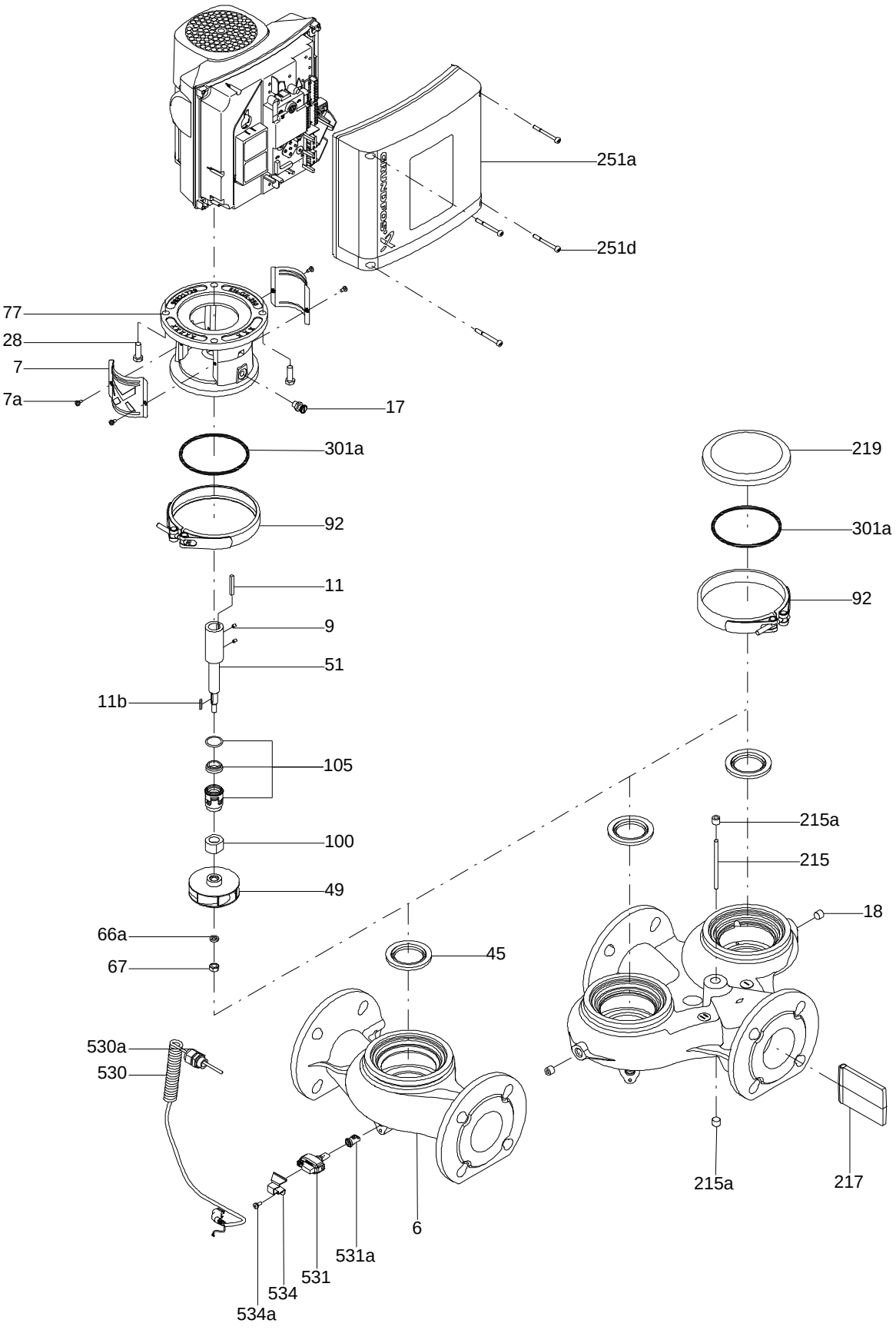
# On request NKE 80-200/164 A1-F-A-E-BAQE 50 Hz



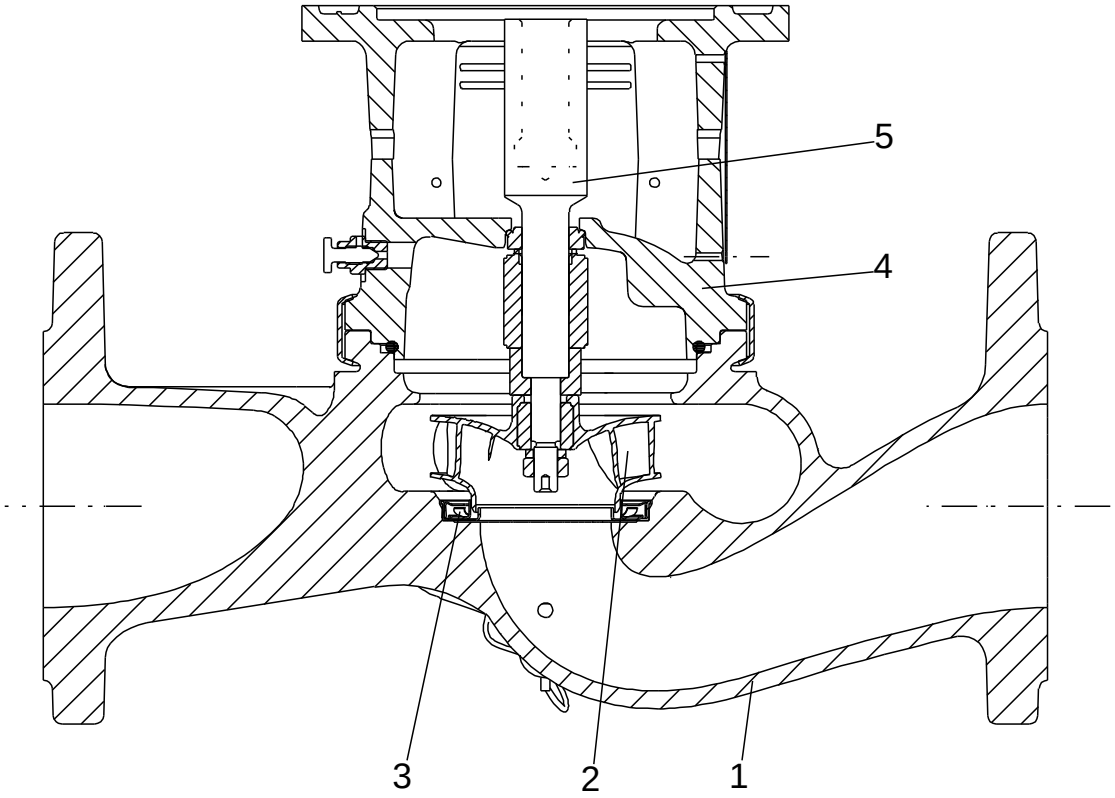




Note! All units are in [mm] unless others are stated.
Disclaimer: This simplified dimensional drawing does not show all details.

## Exploded view

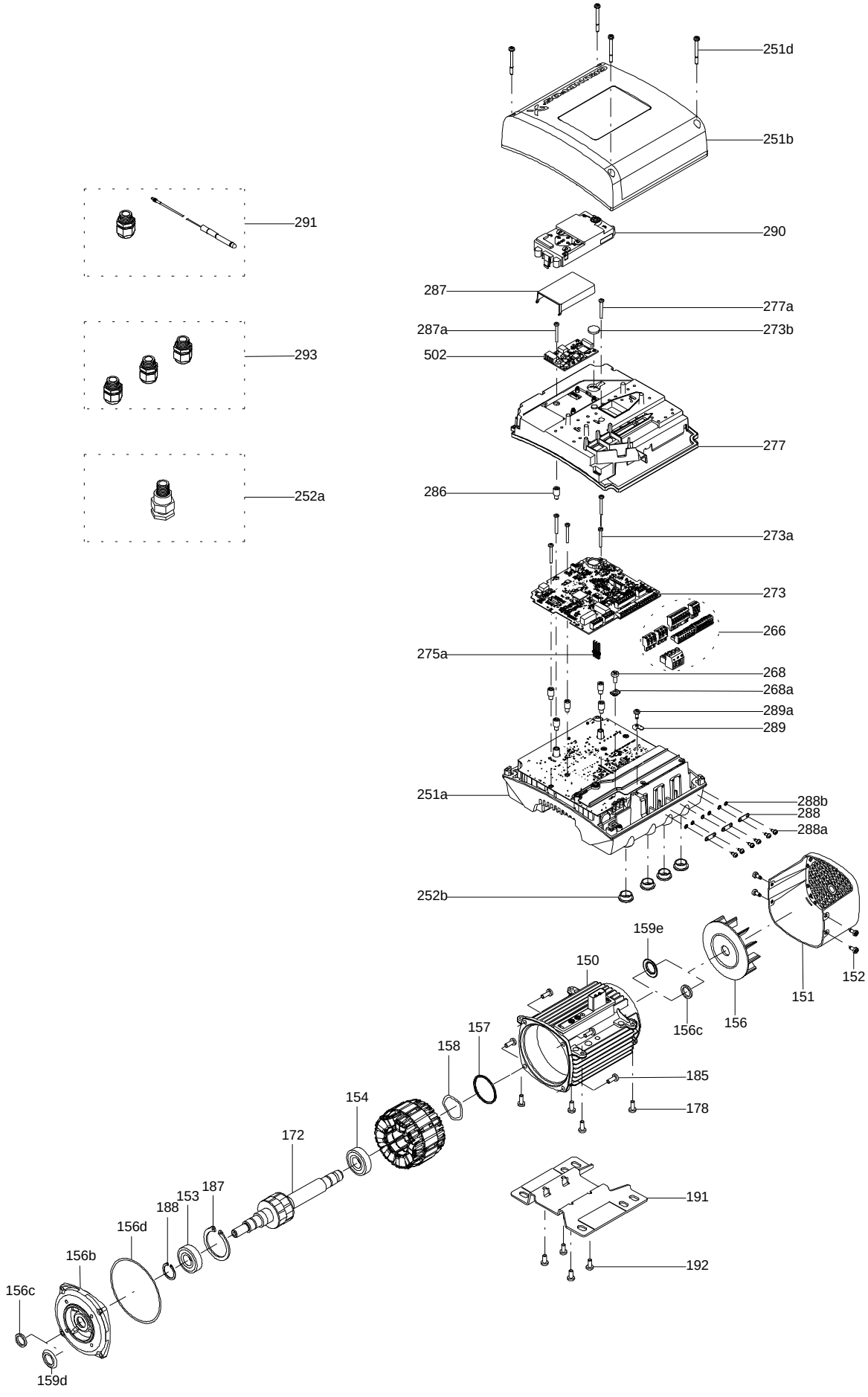


**Sectional drawing (TM058200 for TPE2,TPE3)**




TM058200

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



# Parts list NKE 80-200/164, Product No. On request
# Valid from 1.3.2010 (1009)

| | Pos | Description | Annotation | Données de classification | Référence | Quantité | Unité |
|---|---|---|---|---|---|---|---|
| + | | Motor | | | | 1 | pcs |
| - | | Coupling cpl. | | | | 1 | pcs |
| - | | Bolt | | | | 6 | |
| - | | Bolt | | | | 1 | |
| | 89d | Bolt | | | | | |
| | 89e | Nut | | | | | |
| | 89f | Washer | | Internal diameter: 14,5 | | | |
| | | | | Outer diameter: 25 | | | |
| | 89g | Spring lock washer | | | | | |
| | 89q | Washer | | Internal diameter: 16,5 | | | |
| | | | | Outer diameter: 25,0 | | | |
| | 89 | Rubber blocks for coupling | | | | 1 | |
| | 89.o | Connector | | | | 1 | |
| | 89.p | Coupling female | | | | 1 | |
| | 89a | Socket set screw | | | | 2 | |
| | 89b | Socket set screw | | | | 2 | |
| - | | Nut | | | | 1 | pcs |
| | 66 | Washer | | Designation: DIN 125 A2 | | 1 | |
| | | | | Internal diameter: 19 | | | |
| | | | | Outer diameter: 34 | | | |
| | | | | Thickness: 3 | | | |
| | 66a | Spring lock washer | | | | 1 | |
| | 67 | Nut | | Thread: M18 | | 1 | |
| - | | Cover cpl. | | | | 1 | pcs |
| | 77 | Cover | | | | 1 | |
| - | | Pump housing cpl. | | | | 1 | pcs |
| | 6 | Pump housing | | | | 1 | |
| | 36 | Nut | | Thread: M10 | | 8 | |
| - | 7 | Coupling guard cpl. | | | | 1 | pcs |
| - | 7 | Coupling guard cpl. | | | | 1 | |
| | 7 | Guard | | | | 1 | |
| | 7c | Spacer f/coupling guard | | | | 1 | |
| | 7e | Hex socket head cap screw | | | | 3 | |
| | 94 | Lock nut | | Thread: M6 | | 2 | |
| | 7b | Retainer for coupling guard | | | | 1 | |
| | 7k | Hex socket head cap screw | | Length (mm): 10 | | 4 | |
| | | | | Thread: M6 | | | |
| - | 7.d | Foot for coupling guard | | | | 1 | pcs |
| | 7d | Foot for coupling guard | | | | 1 | |
| | 49 | Impeller | | | | 1 | pcs |
| | 72.a | O-ring | | Diameter: 221,84 | | 1 | pcs |
| | | | | Material type: EPDM | | | |
| | | | | Thickness: 3,53 | | | |
| - | 86 | Bearing bracket | | | | 1 | pcs |
| | 28a | Hex head screw | | Length (mm): 25 | | 1 | |
| | | | | Thread: M12 | | | |
| | 53.b | Spacer ring | | | | 1 | |
| | 54 | Ball bearing | | | | 2 | |
| | 54a | O-ring | | Diameter: 89,5 | | 2 | |
| | | | | Material type: EPDM | | | |
| | | | | Thickness: 3 | | | |
| | 77a | Pan head screw | | | | 4 | |
| | 86 | Bearing bracket | | | | 1 | |
| | 153a | Retaining ring | | | | 2 | |
| | 156a | Bearing cover | | | | 2 | |
| | 159a | V-ring | | | | 2 | |
| - | 90 | Base plate | | | | 1 | pcs |
| | | Washer | | | | 4 | |
| | | Washer | | | | 4 | |

| Pos | Description | Annotation | Données de classification | Référence | Quantité | Unité |
|---|---|---|---|---|---|---|
| | Base plate | | | | 1 | |
| | Support rail | | | | 2 | |
| | Support block | | | | 2 | |
| | Hex head bolt | | | | 4 | |
| 7h | Hex head screw | | Length (mm): 16 | | 2 | |
| | | | Thread: M8 | | | |
| 28 | Hex head screw | | Length (mm): 40 | | 4 | |
| | | | Thread: M12 | | | |
| 28a | Hex head screw | | Length (mm): 25 | | 2 | |
| | | | Thread: M12 | | | |
| 66 | Washer | | | | 2 | |
| 66 | Washer | | | | 2 | |
| 105 | Shaft seal | | Material type: BAQE | | 1 | pcs |
| 105b | Spacer | | | | 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.*

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