

## NKE100-160/160-140 EUPA2F2AE-SBAQE

Grundfos pump 99099498



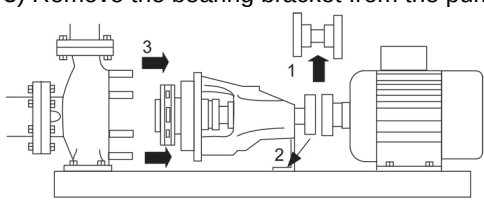
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<https://www.lenntech.com/grundfos/NKEBASIS/99099498/NKE-100-160-160-140-EUP-A2-F-A-E-BAQE.html>

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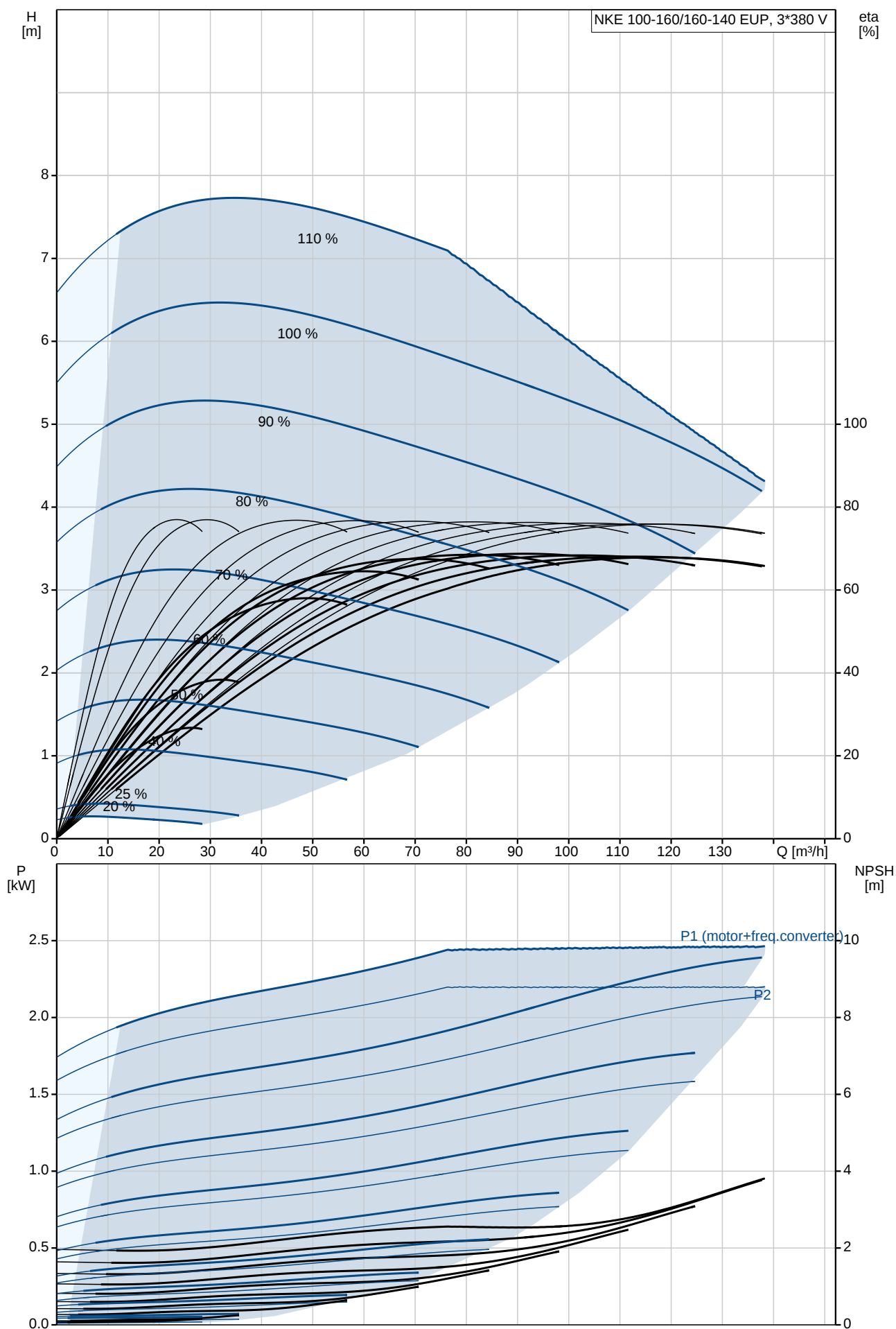
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| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | 1    | <p><b>NKE 100-160/160-140 EUP A2-F-A-E-BAQE</b></p>  <p>Product No.: On request</p> <p>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 coupling, bearing bracket and impeller without disturbing the motor, pump housing or pipework.</p> <p>The unbalanced rubber bellows seal is according to DIN EN 12756.</p> <p>The pump is fitted with a foot-mounted, fan-cooled, permanent-magnet synchronous motor. Pump and motor are mounted on a common base frame.</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>An external sensor can be connected if controlled pump operation is required for flow, differential pressure or temperature control.</p> <p>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:</p> <ul style="list-style-type: none"> <li>• "Power on": Motor is running (rotating green indicator lights) or not running (permanently green indicator lights)</li> <li>• "Warning": Motor is still running (rotating yellow indicator lights) or has stopped (permanently yellow indicator lights)</li> <li>• "Alarm": Motor has stopped (flashing red indicator lights).</li> </ul> <p>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".</p> <p>Pump and motor are mounted on a common steel base frame in accordance with ISO 3661. The back pull-out design together with a spacer coupling makes it possible to make service on the pump without dismantling the pump housing and motor from the base frame. This saves realignment of pump and motor after service.</p> <ol style="list-style-type: none"> <li>1) Remove coupling.</li> <li>2) Remove the bolts in the bearing bracket support foot.</li> <li>3) Remove the bearing bracket from the pump housing.</li> </ol>  <p>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:</p> <ol style="list-style-type: none"> <li>1) Alkaline-based cleaning.</li> <li>2) Zinc phosphating.</li> <li>3) Cathodic electro-deposition.</li> <li>4) Curing to a dry film thickness 18-22 my m.</li> </ol> <p>The colour code for the finished product is NCS 9000/RAL 9005.</p> |

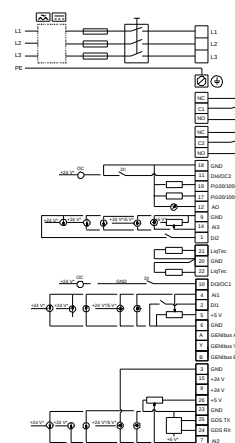
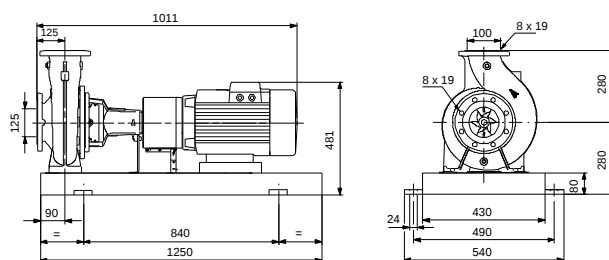
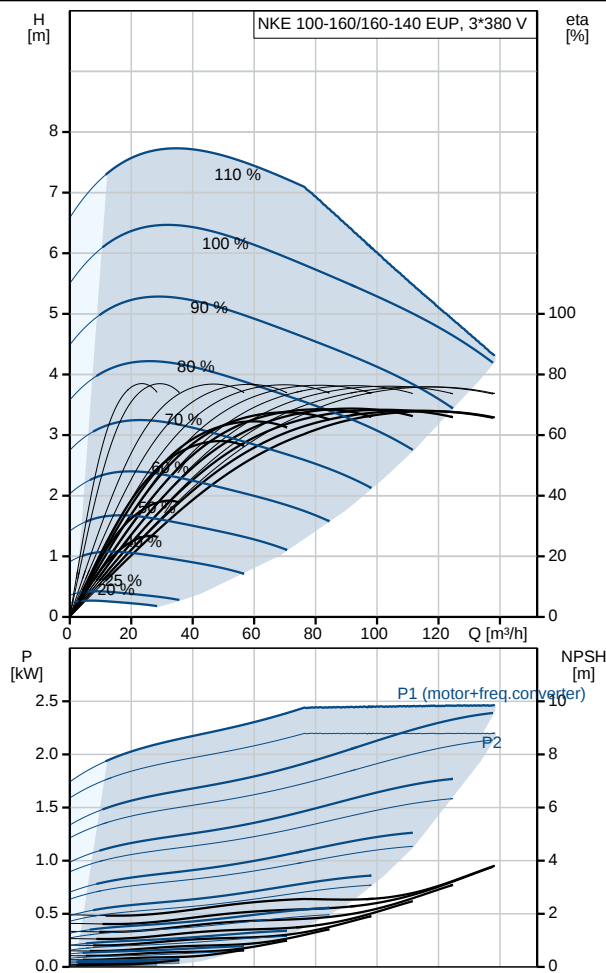
| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <p><b>Pump</b></p> <p>The pump housing has both a priming and a drain hole closed by plugs.</p> <p>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.</p> <p>Wear rings used in pump housing and for impeller are made of bronze/brass or cast iron.</p> <p>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.</p> <p>Primary seal:</p> <ul style="list-style-type: none"> <li>Rotating seal ring material: carbon graphite, metal-impregnated</li> <li>Stationary seat material: silicon carbide (SiC)</li> </ul> <p>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.</p> <p>Secondary seal material: EPDM (ethylene-propylene rubber)</p> <p>EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.</p> <p>The shaft is made of stainless steel and has a diameter of 24 mm where the coupling is mounted.</p> <p>The pump uses a spacer coupling between the pump and motor shaft.</p>  <p><b>Motor</b></p> <p>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.</p> <p>The motor efficiency is classified as IE5 in accordance with IEC 60034-30-2.</p> <p>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.</p> <p>The terminal box holds terminals for these connections:</p> <ul style="list-style-type: none"> <li>one dedicated digital input</li> <li>two analog inputs, 0(4)-20 mA, 0-5 V, 0-10 V, 0.5 - 3.5 V</li> <li>5 V voltage supply to potentiometer and sensor</li> <li>one configurable digital input or open-collector output</li> <li>Grundfos Digital Sensor input and output</li> <li>24 V voltage supply for sensors</li> <li>two signal-relay outputs (potential-free contacts)</li> <li>GENIbus connection</li> <li>interface for Grundfos CIM fieldbus module.</li> </ul> <p><b>Technical data</b></p> <p><b>Liquid:</b></p> <p>Pumped liquid: Water</p> <p>Liquid temperature range: 0 .. 120 °C</p> <p>Liquid temperature during operation: 20 °C</p> <p>Density: 998.2 kg/m<sup>3</sup></p> <p><b>Technical:</b></p> <p>Rated flow: 114 m<sup>3</sup>/h</p> <p>Rated head: 4.9 m</p> <p>Actual impeller diameter: 160-140 EUP mm</p> <p>Impeller nom: 160 mm</p> <p>Primary shaft seal: BAQE</p> <p>Secondary shaft seal: NONE</p> <p>Curve tolerance: ISO9906:2012 3B</p> |

| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <p><b>Materials:</b></p> <p>Pump housing: Cast iron<br/>EN-GJL-250<br/>ASTM A48-40 B</p> <p>Impeller: Cast iron<br/>EN-GJL-200<br/>ASTM A48-30 B</p> <p>Rubber: EPDM</p> <p>Wear ring mat.: High alloy brass(CuZn34Mn3Al2</p> <p><b>Installation:</b></p> <p>Maximum ambient temperature: 50 °C</p> <p>Maximum operating pressure: 16 bar</p> <p>Flange standard: EN 1092-2</p> <p>Pump inlet: DN 125</p> <p>Pump outlet: DN 100</p> <p>Pressure rating: PN 16</p> <p>Coupling type: Spacer</p> <p>Base frame: EN / ISO</p> <p><b>Electrical data:</b></p> <p>Motor type: 100LB</p> <p>IE Efficiency class: IE5</p> <p>Rated power - P2: 2.2 kW</p> <p>Mains frequency: 50 Hz</p> <p>Rated voltage: 3 x 380-500 V</p> <p>Rated current: 4.30-3.60 A</p> <p>Cos phi - power factor: 0.90-0.82</p> <p>Rated speed: 180-2200 rpm</p> <p>Efficiency: 89.1%</p> <p>Motor efficiency at full load: 89.1 %</p> <p>Number of poles: 4</p> <p>Enclosure class (IEC 34-5): IP55</p> <p>Insulation class (IEC 85): F</p> <p>Lubricant type: Grease</p> <p><b>Others:</b></p> <p>Minimum efficiency index, MEI ≥: 0.68</p> <p>ErP status: EuP Standalone/Prod.</p> <p>Net weight: 184 kg</p> <p>Gross weight: 199 kg</p> <p>Shipping volume: 0.554 m³</p> |

# On request NKE 100-160/160-140 EUP A2-F-A-E-BAQE 50 Hz

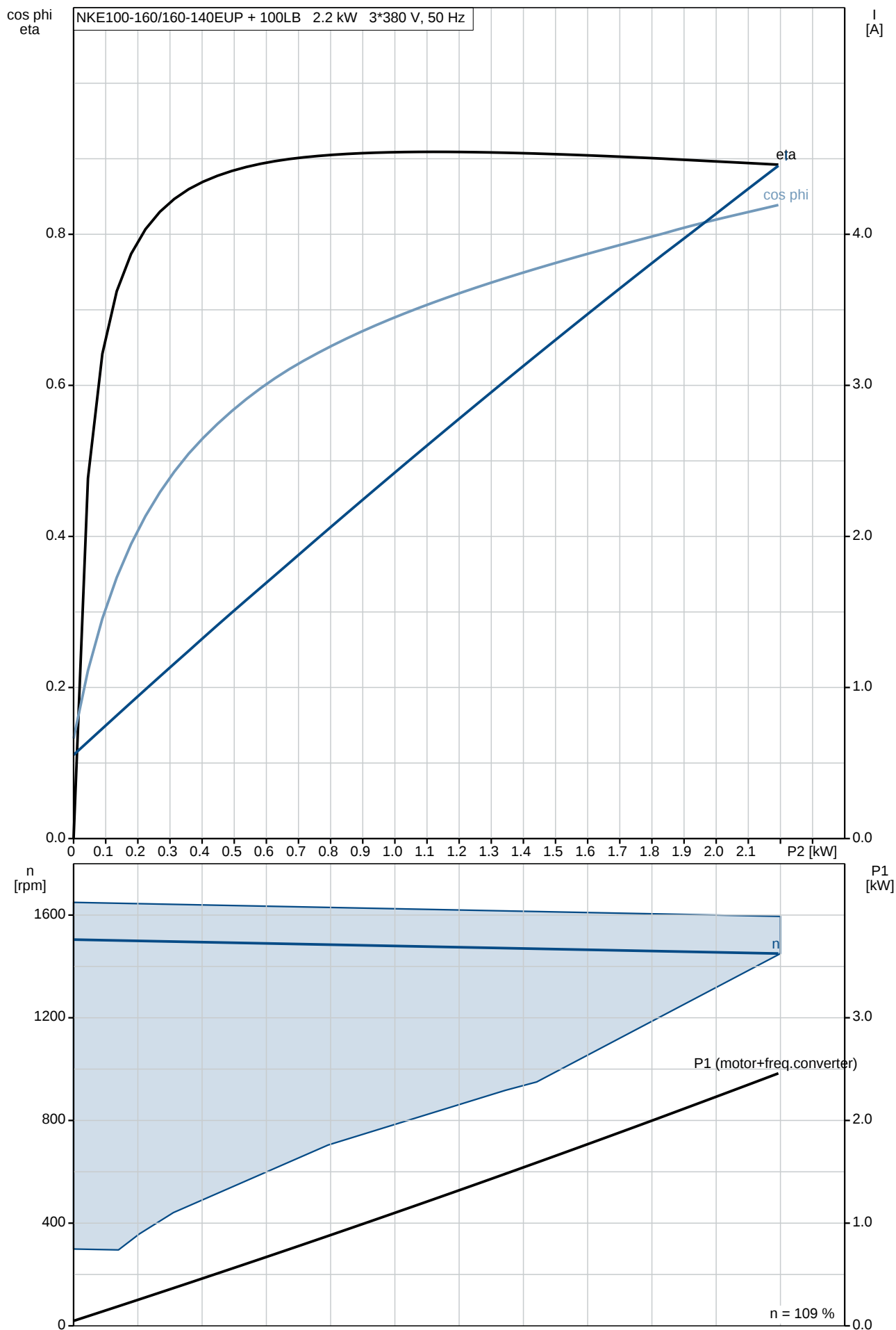


| Description                          | Value                            |
|--------------------------------------|----------------------------------|
| <b>General information:</b>          |                                  |
| Product name:                        | NKE 100-160/160-140 EUP          |
| Product No:                          | A2-F-A-E-BAQE                    |
| EAN number:                          | On request                       |
| <b>Technical:</b>                    |                                  |
| Rated flow:                          | 114 m³/h                         |
| Rated head:                          | 4.9 m                            |
| Actual impeller diameter:            | 160-140 EUP mm                   |
| Impeller nom:                        | 160 mm                           |
| Primary shaft seal:                  | BAQE                             |
| Secondary shaft seal:                | NONE                             |
| Shaft diameter:                      | 24 mm                            |
| Curve tolerance:                     | ISO9906:2012 3B                  |
| Pump version:                        | A2                               |
| <b>Materials:</b>                    |                                  |
| 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<br>brass(CuZn34Mn3Al2 |
| <b>Installation:</b>                 |                                  |
| Maximum ambient temperature:         | 50 °C                            |
| Maximum operating pressure:          | 16 bar                           |
| Flange standard:                     | EN 1092-2                        |
| Pump inlet:                          | DN 125                           |
| Pump outlet:                         | DN 100                           |
| Pressure rating:                     | PN 16                            |
| Coupling type:                       | Spacer                           |
| Wear ring(s):                        | neckring(s)                      |
| Base frame:                          | EN / ISO                         |
| 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:                          | 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                           |
| <b>Controls:</b>                     |                                  |
| Control panel:                       | HMI300 - Advanced                |
| Function Module:                     | FM300 - Advanced                 |
| <b>Others:</b>                       |                                  |

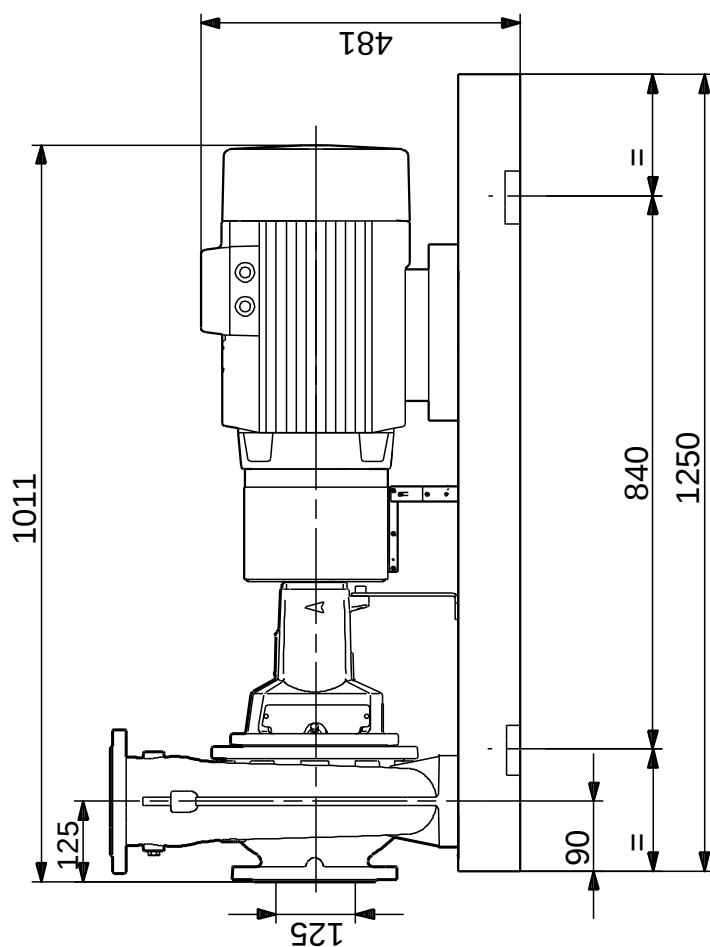
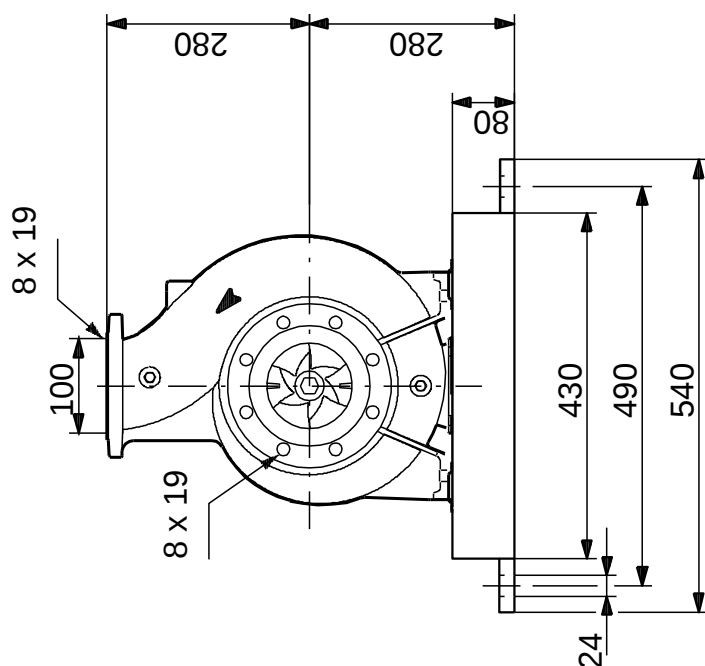


| Description                      | Value                |
|----------------------------------|----------------------|
| Minimum efficiency index, MEI ≥: | 0.68                 |
| ErP status:                      | EuP Standalone/Prod. |
| Net weight:                      | 184 kg               |
| Gross weight:                    | 199 kg               |
| Shipping volume:                 | 0.554 m <sup>3</sup> |
| Config. file no:                 | 99100729             |

# On request NKE 100-160/160-140 EUP A2-F-A-E-BAQE 50 Hz



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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 100-160/160-140 EUP, 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   |
| 89.b  | Socket set screw              |            | Length (mm): 8<br>Thread: M6                               |           | 1        |       |
| 89.d  | Hex socket head cap screw     |            | Length (mm): 16<br>Thread: M6                              |           | 6        |       |
| 89.p  | Coupling female               |            |                                                            |           | 1        |       |
| 89o   | Coupling part spacer side     |            |                                                            |           | 6        |       |
| 89o   | Coupling part spacer side     |            |                                                            |           | 1        |       |
| 89r   | Spacer sleeve                 |            |                                                            |           | 1        |       |
| 89s   | Spacer ring                   |            |                                                            |           | 1        |       |
| -     | Nut                           |            |                                                            |           | 1        | pcs   |
| 66    | Washer                        |            |                                                            |           | 1        |       |
| 66a   | Spring lock washer            |            |                                                            |           | 1        |       |
| 67    | Nut                           |            | Thread: M14                                                |           | 1        |       |
| -     | Pump housing cpl.             |            |                                                            |           | 1        | pcs   |
| 6     | Pump housing                  |            |                                                            |           | 1        |       |
| 36    | Nut                           |            | Thread: M10                                                |           | 6        |       |
| - 7   | Coupling guard cpl.           |            |                                                            |           | 1        | pcs   |
| - 7   | Coupling guard cpl.           |            |                                                            |           | 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<br>Thread: M6                              |           | 4        |       |
| - 7.d | Foot for coupling guard       |            |                                                            |           | 1        | pcs   |
| 7d    | Foot for coupling guard       |            |                                                            |           | 1        |       |
| 7h    | Hex socket head cap screw     |            |                                                            |           | 2        |       |
| 7l    | Support f/coupling guard foot |            |                                                            |           | 1        |       |
| 66    | Washer                        |            |                                                            |           | 2        |       |
| 49    | Impeller                      |            |                                                            |           | 1        | pcs   |
| 72a   | O-ring                        |            | Diameter: 177,39<br>Material type: EPDM<br>Thickness: 3,53 |           | 1        | pcs   |
| - 77  | Cover                         |            |                                                            |           | 1        | pcs   |
| 77    | Cover                         |            |                                                            |           | 1        |       |
| - 86  | Bearing bracket               |            |                                                            |           | 1        | pcs   |
| 28a   | Hex head screw                |            | Length (mm): 25<br>Thread: M12                             |           | 1        |       |
| 53.b  | Spacer ring                   |            |                                                            |           | 1        |       |
| 54    | Ball bearing                  |            |                                                            |           | 2        |       |
| 54a   | O-ring                        |            | Diameter: 71,5<br>Material type: EPDM<br>Thickness: 3      |           | 2        |       |
| 77a   | Pan head screw                |            |                                                            |           | 4        |       |
| 86    | Bearing bracket               |            |                                                            |           | 1        |       |
| 156a  | Bearing cover                 |            |                                                            |           | 2        |       |
| 159a  | V-ring                        |            |                                                            |           | 2        |       |
| 187   | Retaining ring                |            |                                                            |           | 2        |       |
| - 90  | Base plate                    |            |                                                            |           | 1        | pcs   |
|       | Washer                        |            |                                                            |           | 16       |       |
|       | Washer                        |            |                                                            |           | 4        |       |
|       | Base plate                    |            |                                                            |           | 1        |       |
|       | Support rail                  |            |                                                            |           | 2        |       |
|       | Support block                 |            |                                                            |           | 2        |       |
|       | Support block                 |            |                                                            |           | 2        |       |
| 7h    | Hex head screw                |            | Length (mm): 16<br>Thread: M8                              |           | 2        |       |

| Pos | Description        | Annotation | Données de classification | Référence | Quantité | Unité |
|-----|--------------------|------------|---------------------------|-----------|----------|-------|
| 28a | Hex head screw     |            | Length (mm): 25           |           | 2        |       |
|     |                    |            | Thread: M12               |           |          |       |
| 29  | Hex head cap screw |            | Length (mm): 40           |           | 4        |       |
|     |                    |            | Thread: M16               |           |          |       |
| 36  | Nut                |            | Thread: M10               |           | 8        |       |
| 66  | Washer             |            |                           |           | 2        |       |
| 66  | Washer             |            |                           |           | 2        |       |
| 211 | Hex head screw     |            | Length (mm): 50           |           | 4        |       |
|     |                    |            | Thread: M10               |           |          |       |
| 105 | Shaft seal         |            | Material type: BAQE       |           | 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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