

## SP160- 1 Rp6 6"3X380-415/50 SD 13kW

Grundfos pump 20036901



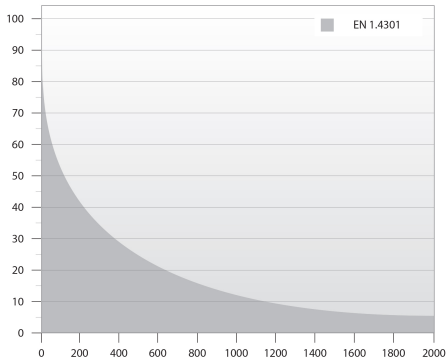
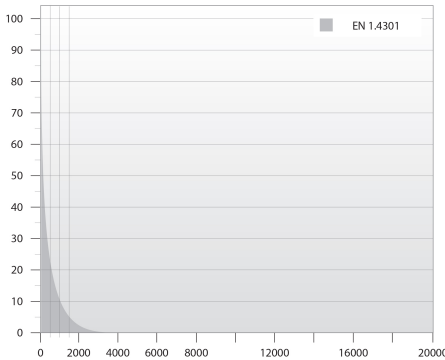
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<https://www.lenntech.com/grundfos/SPFAM/20036901/SP-160-1.html>

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| Position | Qty. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | 1    | <p><b>SP 160-1</b></p>  <p>Product No.: On request</p> <p>Submersible borehole pump, suitable for pumping clean water. Can be installed vertically or horizontally. All steel components are made in stainless steel, EN 1.4301 (AISI 304), that ensures high corrosive resistance. This pump carries drinking water approval.</p> <p>The pump is fitted with a 13 kW MS6000 motor with sand shield, mechanical shaft seal, water-lubricated journal bearings and a volume compensating diaphragm. The motor is a canned type submersible motor offering good mechanical stability and high efficiency. Suitable for temperatures up to 40 °C.</p> <p>The motor is fitted with the Grundfos Tempcon sensor that, by use of powerline communication together with a MP204 control panel, enables temperature monitoring.</p> <p>The motor is for star-delta starting (Y/D).</p> <p><b>Further product details</b></p> <p>The pump is suitable for applications similar to the following:</p> <ul style="list-style-type: none"> <li>- raw-water supply</li> <li>- irrigation</li> <li>- groundwater lowering</li> <li>- pressure boosting</li> <li>- fountain applications.</li> </ul> <p><b>Pump</b></p> <p>All pump surfaces that are in contact with pumped liquids are made in stainless steel which makes them corrosion- and wear-resistant. The corrosion diagram below shows the capabilities of the pump and motor in relation to the temperature in Celsius (y-axis) and the concentration of chloride in ppm (x-axis).</p> <div style="display: flex; justify-content: space-around;">   </div> <p>The elastomer parts in the pump are made of NBR (Nitrile-Butadiene Rubber) which ensures good wear resistance and long service intervals.</p> <p>In case the pump is used for pumping water with high content of hydrocarbons or solvents, Grundfos offers FKM rubber parts (Fluorocarbon) which are oil and temperature-resistant up to 90 °C.</p> <p>The pump is built with octagonal bearings with sand flush channels that minimise wear. As wear of the pump is inevitable, the pump design allows for easy replacement of all internal wear parts (bearings, impeller, wear rings and seal rings) to maintain high performance and a long lifetime.</p> <p>The suction interconnector is fitted with a strainer to prevent large particles from entering the pump. The suction interconnector is designed to comply with NEMA standards for motor mounting/dimensions.</p> <p><b>Motor</b></p> <p>The stator is hermetically encapsulated in stainless steel and the windings are embedded in polymer compound. This results in high mechanical stability, optimum cooling and reduces the risk of short circuits in the windings.</p> |

The shaft seal faces are ceramic/carbon. The material combination provides good dry-running resistance. Together with the shaft seal housing, the sand shield forms a labyrinth seal, which during normal operating conditions prevents penetration of sand particles into the shaft seal.

The motor is fitted with the Grundfos Tempcon temperature sensor device that includes a NTC-resistor which senses the temperature. The resistor is built-in close to the winding. The temperature is converted into a high-frequency signal which is sent via the submersible drop cable and which can be converted into a temperature reading by means of Grundfos MP204.

The MP204 is an electronic motor protection device that also monitors the supply network quality to protect the submersible motor against supply network disturbances.



#### **Liquid:**

Pumped liquid: Water  
Maximum liquid temperature: 40 °C  
Max liquid t at 0.15 m/sec: 40 °C  
Liquid temperature during operation: 20 °C  
Density: 998.2 kg/m<sup>3</sup>

#### **Technical:**

Rated flow: 160 m<sup>3</sup>/h  
Rated head: 20 m  
Shaft seal for motor: CER/CARNBR  
Approvals on nameplate: CE,GOST2  
Curve tolerance: ISO9906:2012 3B  
Motor version: T40

#### **Materials:**

Pump: Stainless steel  
EN 1.4301  
AISI 304  
Impeller: Stainless steel  
EN 1.4301  
AISI 304  
Motor: Stainless steel  
DIN W.-Nr. 1.4301  
AISI 304

#### **Installation:**

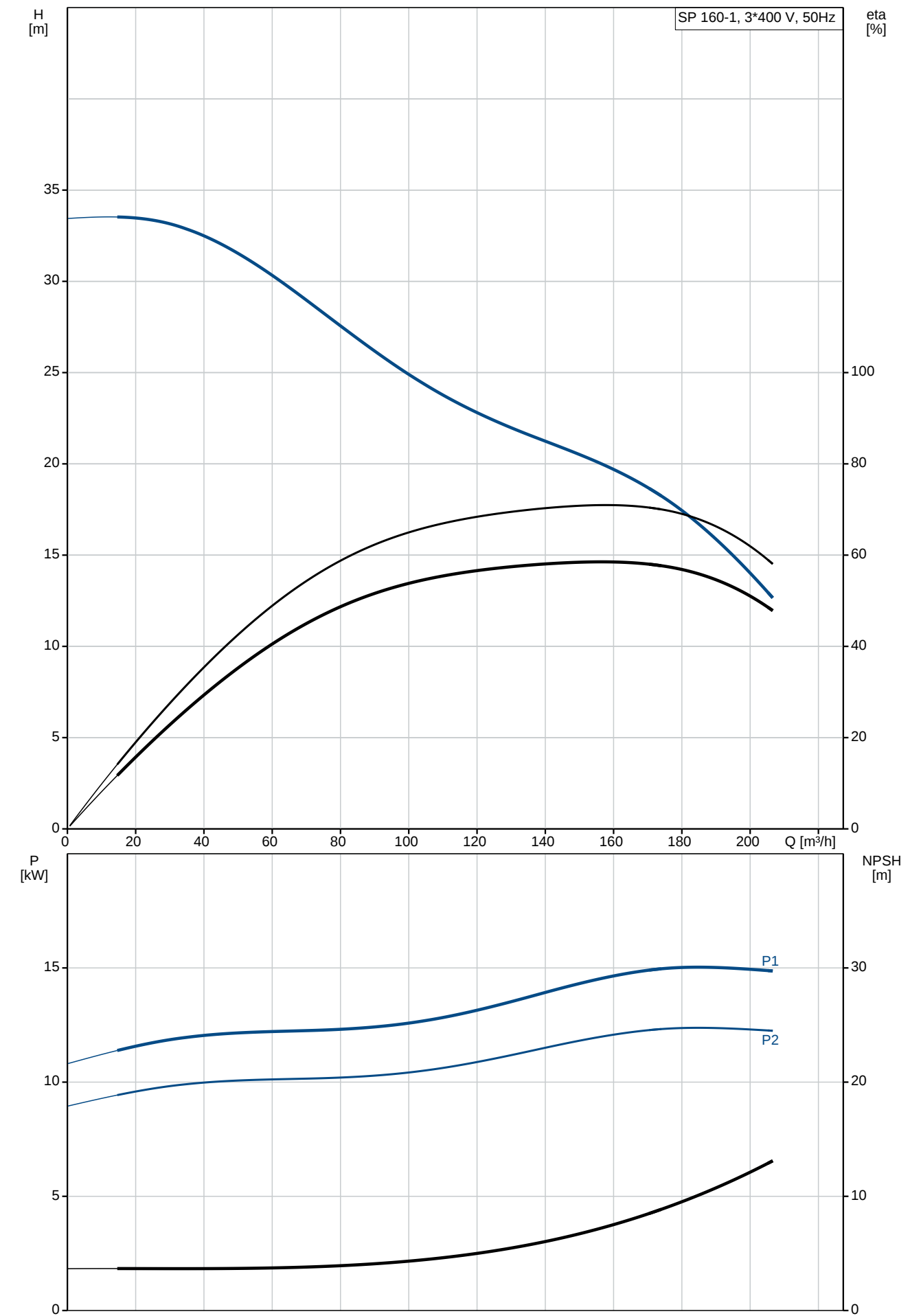
Pump outlet: RP6  
Motor diameter: 6 inch

#### **Electrical data:**

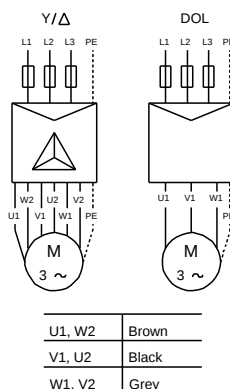
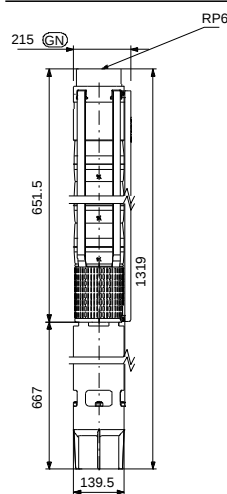
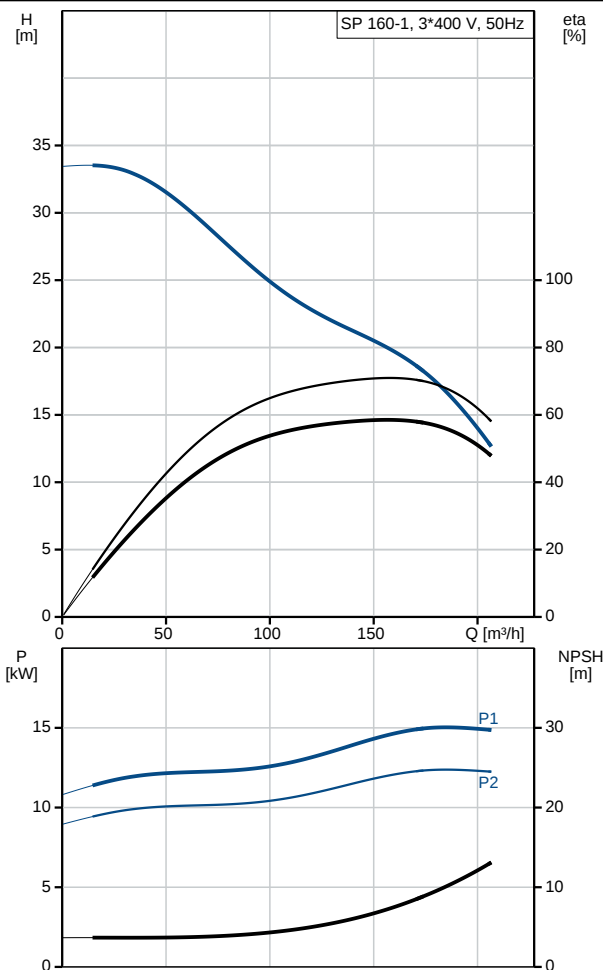
Motor type: MS6000  
Rated power - P2: 13 kW  
Power (P2) required by pump: 13 kW  
Mains frequency: 50 Hz  
Rated voltage: 3 x 380-400-415 V  
Rated current: 30.0-29.0-29.0 A  
Starting current: 490-540-560 %  
Cos phi - power factor: 0.85-0.82-0.79  
Rated speed: 2850-2870-2880 rpm  
Start. method: star/delta  
Enclosure class (IEC 34-5): IP68  
Insulation class (IEC 85): F  
Built-in temp. transmitter: yes

| Position | Qty. | Description                                                                                                                                                           |
|----------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |      | <b>Others:</b><br>Minimum efficiency index, MEI ≥: --<br>ErP status: EuP Standalone/Prod.<br>Net weight: 84.6 kg<br>Gross weight: 109 kg<br>Shipping volume: 0.179 m³ |

On request SP 160-1 50 Hz

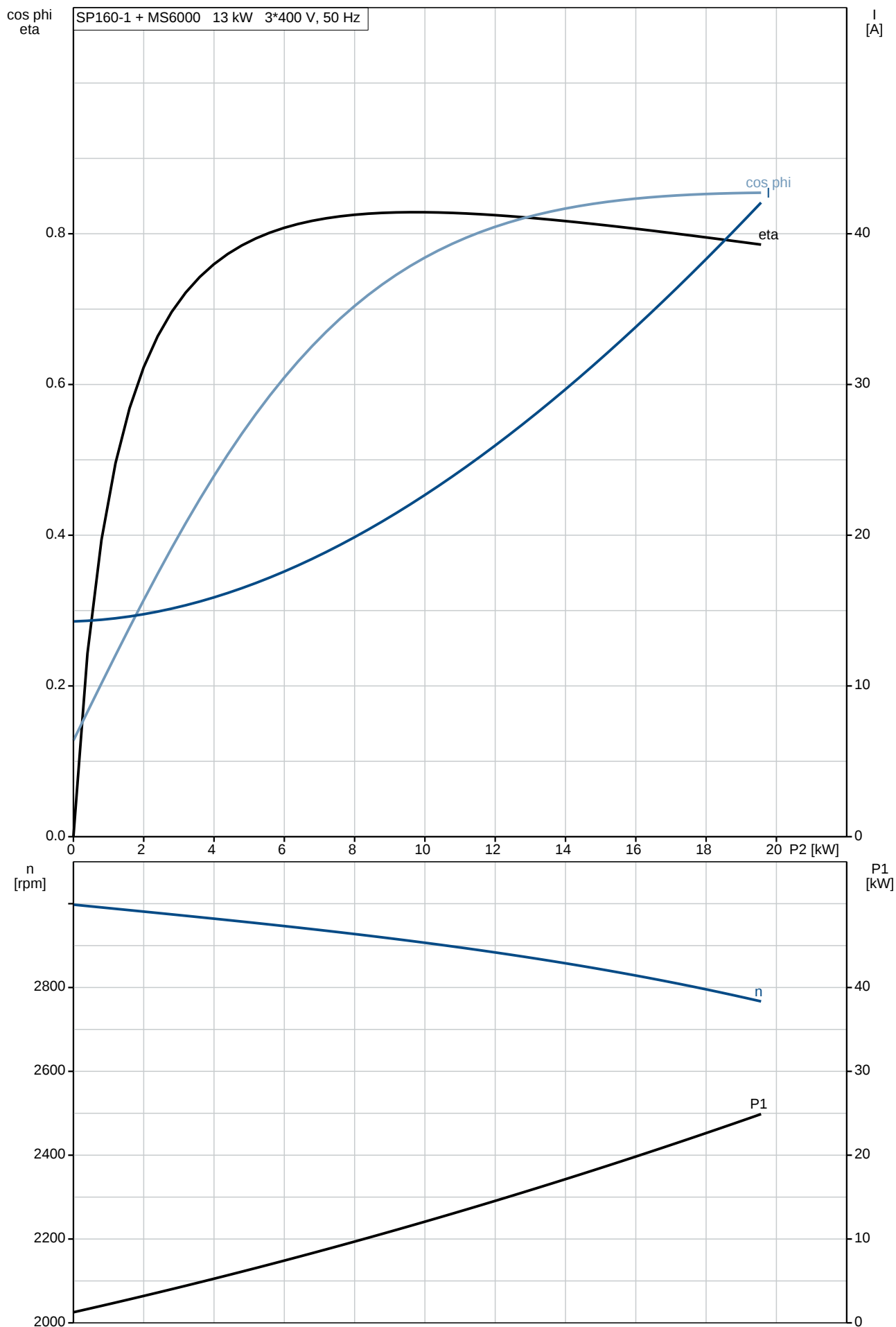


| Description                          | Value                |
|--------------------------------------|----------------------|
| <b>General information:</b>          |                      |
| Product name:                        | SP 160-1             |
| Product No:                          | On request           |
| EAN number:                          | On request           |
| <b>Technical:</b>                    |                      |
| Rated flow:                          | 160 m³/h             |
| Rated head:                          | 20 m                 |
| Stages:                              | 1                    |
| Impeller reduc.:                     | NONE                 |
| Shaft seal for motor:                | CER/CARNBR           |
| Approvals on nameplate:              | CE,GOST2             |
| Curve tolerance:                     | ISO9906:2012 3B      |
| Model:                               | B                    |
| Valve:                               | YES                  |
| Motor version:                       | T40                  |
| <b>Materials:</b>                    |                      |
| Pump:                                | Stainless steel      |
|                                      | EN 1.4301            |
|                                      | AISI 304             |
| Impeller:                            | Stainless steel      |
|                                      | EN 1.4301            |
|                                      | AISI 304             |
| Motor:                               | Stainless steel      |
|                                      | DIN W.-Nr. 1.4301    |
|                                      | AISI 304             |
| <b>Installation:</b>                 |                      |
| Pump outlet:                         | RP6                  |
| Motor diameter:                      | 6 inch               |
| <b>Liquid:</b>                       |                      |
| Pumped liquid:                       | Water                |
| Maximum liquid temperature:          | 40 °C                |
| Max liquid t at 0.15 m/sec:          | 40 °C                |
| Liquid temperature during operation: | 20 °C                |
| Density:                             | 998.2 kg/m³          |
| <b>Electrical data:</b>              |                      |
| Motor type:                          | MS6000               |
| Applic. motor:                       | GRUNDFOS             |
| Rated power - P2:                    | 13 kW                |
| Power (P2) required by pump:         | 13 kW                |
| Mains frequency:                     | 50 Hz                |
| Rated voltage:                       | 3 x 380-400-415 V    |
| Rated current:                       | 30.0-29.0-29.0 A     |
| Starting current:                    | 490-540-560 %        |
| Cos phi - power factor:              | 0.85-0.82-0.79       |
| Rated speed:                         | 2850-2870-2880 rpm   |
| Start. method:                       | star/delta           |
| Enclosure class (IEC 34-5):          | IP68                 |
| Insulation class (IEC 85):           | F                    |
| Motor protec:                        | NONE                 |
| Thermal protec:                      | external             |
| Built-in temp. transmitter:          | yes                  |
| Motor No:                            | 78695515             |
| <b>Others:</b>                       |                      |
| Minimum efficiency index, MEI ≥:     | ---                  |
| ErP status:                          | EuP Standalone/Prod. |
| Net weight:                          | 84.6 kg              |
| Gross weight:                        | 109 kg               |
| Shipping volume:                     | 0.179 m³             |

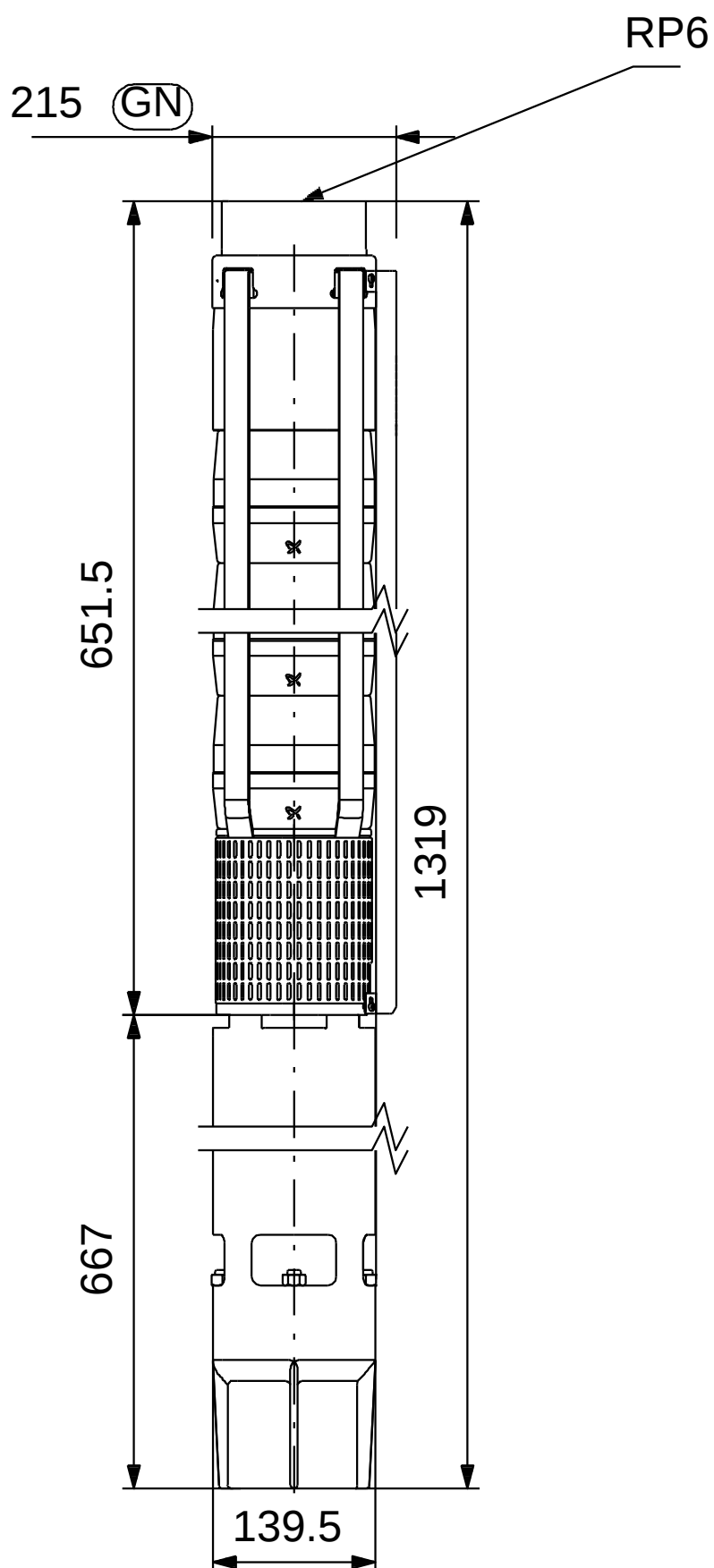


# On request SP 160-1 50 Hz

SP160-1 + MS6000 13 kW 3\*400 V, 50 Hz



On request SP 160-1 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 SP 160-1, Product No. On request**  
**Valid from 1.11.2011 (1144)**

| Pos   | Description                    | Annotation | Données de classification | Référence | Quantité | Unité |
|-------|--------------------------------|------------|---------------------------|-----------|----------|-------|
| -     | Pump w/o motor                 |            |                           |           | 1        | pcs   |
| 1     | Valve casing                   |            |                           |           | 1        |       |
| 1d    | O-ring                         |            | Diameter: 164             |           | 1        |       |
|       |                                |            | Thickness: 3              |           |          |       |
| - 2   | Valve                          |            |                           |           | 1        |       |
|       | Shaft                          |            |                           |           | 1        |       |
| 2     | Valve flap                     |            |                           |           | 1        |       |
| 3     | Valve seat                     |            |                           |           | 1        |       |
| 3a    | Retainer for valve seat        |            |                           |           | 1        |       |
| 3b    | Retainer for valve seat        |            |                           |           | 1        |       |
| - 4   | Chamber cpl.                   |            |                           |           | 1        |       |
|       | Chamber                        |            |                           |           | 1        |       |
| 5     | Stop                           |            |                           |           | 1        |       |
| 6     | Bearing ring, upper            |            |                           |           | 1        |       |
| 7     | Seal ring                      |            |                           |           | 1        |       |
| 14    | Suction interconnector         |            |                           |           | 1        |       |
| 15    | Strainer                       |            |                           |           | 1        |       |
| - 16  | Shaft cpl.                     |            | Length (mm): 320.5        |           | 1        |       |
| -     | Coupling cpl.                  |            |                           |           | 1        |       |
|       | Washer                         |            |                           |           |          |       |
|       | Coupling                       |            |                           |           |          |       |
| 32    | O-ring                         |            |                           |           |          |       |
| - 17  | Strap                          |            |                           |           | 4        |       |
|       | Threaded bush                  |            |                           |           | 1        |       |
|       | Lug                            |            |                           |           | 1        |       |
| - 18  | Cable guard cpl.               |            |                           |           | 2        |       |
|       | Holder for cable guard         |            |                           |           | 2        |       |
|       | Rail for cable guard           |            |                           |           | 1        |       |
| 77    | Cover plate                    |            |                           |           | 1        |       |
| 19    | Nut                            |            |                           |           | 4        |       |
| 22    | Socket head cap screw          |            |                           |           | 4        |       |
| 23    | Rubber guard                   |            |                           |           | 2        |       |
| 28    | Lock                           |            |                           |           | 1        |       |
| 39    | Helical compression spring     |            |                           |           | 1        |       |
| - 49d | Impeller cpl.                  |            |                           |           | 1        |       |
| 48    | Split cone nut                 |            |                           |           | 1        |       |
| - 49  | Impeller cpl. reduced diameter |            |                           |           | 1        |       |
| 72    | Wear ring                      |            |                           |           |          |       |
| 49.b  | Split cone                     |            |                           |           | 1        |       |
| - 70  | Valve guide                    |            |                           |           | 1        |       |
|       | Valve guide                    |            |                           |           | 1        |       |
|       | Valve guide                    |            |                           |           | 1        |       |
|       | Valve guide                    |            |                           |           | 1        |       |
|       | Valve guide                    |            |                           |           | 1        |       |
|       | Cone                           |            |                           |           | 1        |       |
| 71    | Washer                         |            |                           |           | 4        |       |
| 77a   | Cross recess Pan head screw    |            |                           |           | 8        |       |
| 78    | Nameplate                      |            |                           |           | 2        |       |
| 78a   | Rivet                          |            |                           |           | 2        |       |
| -     | Motor                          |            |                           |           | 1        | pcs   |
|       | Stator cpl.                    |            |                           |           | 1        |       |
| 1a    | Plug                           |            |                           |           | 1        |       |
| 2     | Shaft w/rotor                  |            |                           |           | 1        |       |
| 2a    | Stop ring                      |            |                           |           | 1        |       |
| 3     | Thrust ring support cpl.       |            |                           |           | 1        |       |
| 4     | Radial bearing                 |            |                           |           | 1        |       |
| 5     | Bearing retainer cpl.          |            |                           |           | 1        |       |
| 6     | Thrust bearing                 |            |                           |           | 1        |       |
| 7     | Clamping flange                |            |                           |           | 1        |       |

| Pos  | Description                 | Annotation | Données de classification | Référence | Quantité | Unité |
|------|-----------------------------|------------|---------------------------|-----------|----------|-------|
| 7.a  | Clamping flange             |            |                           |           | 1        |       |
| 12   | Diaphragm                   |            |                           |           | 1        |       |
| 13   | Bottom cover                |            |                           |           | 1        |       |
| 22   | Socket head cap screw       |            |                           |           | 4        |       |
| 22a  | Slot pan head screw         |            |                           |           | 1        |       |
| 25a  | Screw                       |            |                           |           | 1        |       |
| 27   | Sand shield                 |            |                           |           | 1        |       |
| 32   | Shaft seal cpl.             |            |                           |           | 1        |       |
| 34   | Shaft seal, rotating part   |            |                           |           | 1        |       |
| 41   | Hex socket head cap screw   |            |                           |           | 4        |       |
| 42   | Stop for bearing            |            |                           |           | 2        |       |
| - 45 | Shaft adjusting             |            |                           |           | 1        |       |
| 10   | Thrust cover                |            |                           |           | 1        |       |
| 10a  | Washer                      |            |                           |           | 1        |       |
| 11   | Adjusting screw             |            |                           |           | 1        |       |
| 41   | Socket button head screw    |            |                           |           | 1        |       |
| 46   | Hex socket head cap screw   |            |                           |           | 1        |       |
| 48   | Cross recess Pan head screw |            |                           |           | 4        |       |
| 49   | Lock ring                   |            |                           |           | 1        |       |
| 51   | Compression spring          |            |                           |           | 1        |       |
| 220  | Motor cable                 |            | Length (M): 5M            |           | 2        | 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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