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Causa	Soluzione
L'aspirazione sovrabbondante è eccessiva o la perdita di carico nei tubi di aspirazione è eccessiva.	Verificare le condizioni di esercizio della pompa. Se necessario, procedere come segue: <ul style="list-style-type: none"> <li>• Diminuire il dislivello</li> <li>• Aumentare il diametro del tubo di aspirazione</li> </ul>

### 7.9 L'elettropompa si ferma e poi ruota nel senso sbagliato



Causa	Soluzione
Presenza di una perdita in uno o entrambi i seguenti componenti: <ul style="list-style-type: none"> <li>• Il tubo di aspirazione</li> <li>• La valvola di fondo o la valvola di ritegno.</li> </ul>	Riparare o sostituire i componenti guasti.
È presente dell'aria nel tubo di aspirazione.	Spurgare l'aria

### 7.10 La pompa si avvia troppo frequentemente.



Causa	Soluzione
Presenza di una perdita in uno o entrambi i seguenti componenti: <ul style="list-style-type: none"> <li>• Il tubo di aspirazione</li> <li>• La valvola di fondo o la valvola di ritegno</li> </ul>	Riparare o sostituire i componenti guasti.
Autoclave con la membrana rotta o privo di precarica d'aria.	Vedere le apposite istruzioni nel ma-

Causa	Soluzione
	nuale dell'autoclave.

### 7.11 La pompa vibra e genera troppo rumore



Causa	Soluzione
Pompa in cavitazione	Ridurre la portata richiesta chiudendo parzialmente la valvola di intercettazione a valle della pompa. Se il problema persiste verificare le condizioni di esercizio della pompa (dislivelli, perdite di carico, temperatura del liquido, ecc...)
I cuscinetti del motore sono usurati.	Rivolgersi al rappresentante di vendita e assistenza di zona.
Presenza di corpi estranei all'interno della pompa.	Rivolgersi al rappresentante di vendita e assistenza di zona.
Il girante striscia contro l'anello di usura	Rivolgersi al rappresentante di vendita e assistenza di zona.
Giunto non allineato correttamente	Controllare l'allineamento del giunto.
Gli elementi flessibili del giunto sono usurati.	Controllare e sostituire le parti rilevanti in caso siano presenti segni di usura.

Per ogni situazione non contemplata, fare riferimento al rappresentante di vendita e assistenza di zona.

## 1 Introduction and Safety



### 1.1 Introduction

#### Purpose of this manual

The purpose of this manual is to provide necessary information for:

- Installation
- Operation
- Maintenance



#### CAUTION:

Read this manual carefully before installing and using the product. Improper use of the product can cause personal injury and damage to property, and may void the warranty.

#### NOTICE:

Save this manual for future reference, and keep it readily available at the location of the unit.

#### 1.1.1 Inexperienced users



#### WARNING:

This product is intended to be operated by qualified personnel only.

Be aware of the following precautions:

- This product is not to be used by anyone with physical or mental disabilities, or anyone without the relevant experience and knowledge, unless they have received instructions on using the equipment and on the associated risks or are supervised by a responsible person.
- Children must be supervised to ensure that they do not play on or around the product.




### 1.2 Safety terminology and symbols

#### About safety messages

It is extremely important that you read, understand, and follow the safety messages and regulations carefully before handling the product. They are published to help prevent these hazards:



- Personal accidents and health problems
- Damage to the product and its surroundings
- Product malfunction

#### Hazard levels

Hazard level	Indication
 <b>DANGER:</b>	A hazardous situation which, if not avoided, will result in death or serious injury
 <b>WARNING:</b>	A hazardous situation which, if not avoided, could result in death or serious injury
 <b>CAUTION:</b>	A hazardous situation which, if not avoided, could result in minor or moderate injury
<b>NOTICE:</b>	Notices are used when there is a risk of equipment damage or decreased performance, but not personal injury.


### Special symbols

Some hazard categories have specific symbols, as shown in the following table.



Electrical hazard	Magnetic fields hazard
 <b>Electrical Hazard:</b>	 <b>CAUTION:</b>

### Hot surface hazard

Hot surface hazards are indicated by a specific symbol that replaces the typical hazard level symbols:

 <b>CAUTION:</b>
--

### Description of user and installer symbols

	Specific information for personnel in charge of installing the product in the system (plumbing and/or electrical aspects) or in charge of maintenance.
	Specific information for users of the product.

### Instructions

The instructions and warnings that are provided in this manual concern the standard version, as described in the sales document. Special version pumps may be supplied with supplementary instruction leaflets. Refer to sales contract for any modifications or special version characteristics. For instructions, situations, or events that is not considered in this manual or the sales document, contact the nearest Service Center.

### 1.3 Disposal of packaging and product

Observe the local regulations and codes in force regarding sorted waste disposal.

### 1.4 Warranty

For information about warranty, see the sales contract.

### 1.5 Spare parts



#### WARNING:

Only use original spare parts to replace any worn or faulty components. The use of unsuitable spare parts may cause malfunctions, damage, and injuries as well as void the guarantee.



#### CAUTION:

Always specify the exact product type and part number when requesting technical information or spare parts from the Sales and Service Department.

For more information about the product's spare parts, visit sales network's website.

### 1.6 DECLARATIONS OF CONFORMITY

#### 1.6.1 EC Declaration of Conformity (Original)



Xylem Service Italia S.r.l., with headquarters in Via Vittorio Lombardi 14 - 36075 Montecchio Maggiore VI - Italy, hereby declares that the product:

#### Electric pump unit (see label on first page)

fulfills the relevant provisions of the following European directives:

- Machinery 2006/42/EC (ANNEX II - natural or legal person authorised to compile the technical file: Xylem Service Italia S.r.l.)
- Eco-design 2009/125/EC, Regulation (EC) No 640/2009 & Regulation (EU) No 4/2014 (Motor 3 ~, 50 Hz, PN ≥ 0,75 kW) if IE2 or IE3 marked, Regulation (EU) No 547/2012 (Water pump) if MEI marked

and the following technical standards

- EN ISO 12100:2010, EN 809:1998+A1:2009, EN 60204-1:2006+A1:2009
- EN 60034-30:2009, EN 60034-30-1:2014

Montecchio Maggiore, 11.03.2016

Amedeo Valente

(Director of Engineering and R&D)

rev.01

#### 1.6.2 EU Declaration of Conformity (No EMCD01)

1. Apparatus model/Product: see label on first page
2. Name and address of the manufacturer: Xylem Service Italia S.r.l. Via Vittorio Lombardi 14

36075 Montecchio Maggiore VI  
Italy

3. This declaration of conformity is issued under the sole responsibility of the manufacturer.
4. Object of the declaration:  
electric pump
5. The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:  
Directive 2014/30/EU of 26 February 2014 (electromagnetic compatibility)
6. References to the relevant harmonised standards used or references to the other technical specifications, in relation to which conformity is declared:
7. Notified body: -
8. Additional information: -

Signed for and on behalf of:  
Xylem Service Italia S.r.l.

Montecchio Maggiore, 11.03.2016  
Amedeo Valente  
(Director of Engineering and R&D)  
rev.01



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### 1.6.3 EC Declaration of Conformity (Original)



Xylem Service Italia S.r.l., with headquarters in Via Vittorio Lombardi 14 - 36075 Montecchio Maggiore VI - Italy, hereby declares that the product:

#### Pump (see label on first page)

fulfills the relevant provisions of the following European directives:

- Machinery 2006/42/EC (ANNEX II - natural or legal person authorised to compile the technical file: Xylem Service Italia S.r.l.)
  - Eco-design 2009/125/EC, Regulation (EC) No 547/2012 (Water pump) if MEI marked
- and the following technical standards
- EN ISO 12100:2010, EN 809:1998+A1:2009, EN 60204-1:2006+A1:2009
  - EN 60034-30:2009, EN 60034-30-1:2014

Montecchio Maggiore, 11.03.2016  
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rev.01



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## 2 Transportation and Storage



### 2.1 Inspect the delivery

1. Check the outside of the package for evident signs of damage.
2. Notify our distributor within eight days of the delivery date, if the product bears visible signs of damage.

#### Unpack the unit

1. Follow applicable step:
  - If the unit is packed in a carton, then remove the staples and open the carton.
  - If the unit is packed in a wooden crate, then open the cover while paying attention to the nails and straps.
2. Remove the securing screws or the straps from the wooden base.

#### 2.1.1 Inspect the unit

1. Remove packing materials from the product.  
Dispose of all packing materials in accordance with local regulations.
2. Inspect the product to determine if any parts have been damaged or are missing.
3. If applicable, unfasten the product by removing any screws, bolts, or straps.  
For your personal safety, be careful when you handle nails and straps.
4. Contact the local sales representative if there is any issue.

### 2.2 Transportation guidelines

#### Precautions



#### WARNING:

- Observe accident prevention regulations in force.
- Crush hazard. The unit and the components can be heavy. Use proper lifting methods and wear steel-toed shoes at all times.

Check the gross weight that is indicated on the package in order to select proper lifting equipment.

#### Position and fastening

The pump or pump unit can be transported only horizontally. Make sure that the pump or pump unit is securely fastened during transportation and cannot roll or fall over.



#### WARNING:

- Do not use eyebolts screwed on the motor for handling the whole electric pump unit.
- Do not use the shaft end of the pump or of the motor to handle the pump, the motor or the unit.

- Eyebolts screwed onto the motor may be exclusively used to handle the individual motor or, in case of a not balanced distribution of weights, to partially lift the unit vertically starting from a horizontal displacement.

Pump unit must always be fixed and transported as shown in [Figure 5](#) on page 380, and the pump without motor must be fixed and transported as shown in [Figure 6](#) on page 380, [Figure 7](#) on page 380, and [Figure 8](#) on page 380.

#### Unit without motor



#### WARNING:

According to Machinery directive 2006/42/EC, a pump and motor that are purchased separately and then coupled together result in a new machine. The person making the coupling is responsible for all safety aspects of the combined unit and for CE-marking.

## 2.3 Storage guidelines

### Storage location

The product must be stored in a covered and dry location free from heat, dirt, and vibrations.

#### NOTICE:

Protect the product against humidity, heat sources, and mechanical damage.

#### NOTICE:

Do not place heavy weights on the packed product.

### 2.3.1 Long-term storage

If the unit is stored for more than 6 months, these requirements apply:

- Store in a covered and dry location.
- Store the unit free from heat, dirt, and vibrations.
- Rotate the shaft by hand several times at least every three months.

Refer to the drive unit and coupling manufacturers for their long-term storage procedures.

For questions about possible long-term storage treatment services, please contact your local sales and service representative.

### Ambient temperature

The product must be stored at an ambient temperature from -5°C to +40°C (23°F to 104°F).

## 3 Product Description



### 3.1 Pump design

The pump is a horizontal pump with volute casing close-coupled to standard electric motors.

The pump can be used for handling:

- Cold or warm water
- Clean liquids
- Liquids which are not chemically and mechanically aggressive to the pump materials.

The product can be supplied as a pump unit (pump and electric motor) or only as a pump.

#### NOTICE:

If you have purchased a pump without motor, make sure that the motor is suitable for coupling to the pump.

#### Intended use

The pump is suitable for:

- Water supply and water treatment
- Cooling and hot water supply in industries and building services
- Irrigation and sprinkler systems
- Heating systems
- Fire-fighting applications

Additional uses for optional material:

- District heating
- General industry

#### Improper use



#### WARNING:

Improper use of the pump may create dangerous conditions and cause personal injury and damage to property.

An improper use of the product leads to the loss of the warranty.

Examples of improper use:

- Liquids not compatible with the pump construction materials
- Hazardous liquids (such as toxic, explosive, flammable, or corrosive liquids)
- Potable liquids other than water (for example, wine or milk)

Examples of improper installation:

- Hazardous locations (such as explosive, or corrosive atmospheres).
- Location where the air temperature is very high or there is poor ventilation.
- Outdoor installations where there is no protection against rain or freezing temperatures.



#### DANGER:

Do not use this pump to handle flammable and/or explosive liquids.

#### NOTICE:

- Do not use this pump to handle liquids containing abrasive, solid, or fibrous substances.
- Do not use the pump for flow rates beyond the specified flow rates on the data plate.

### Special applications

Contact the local sales and service representative in the following cases:

- If the density and/or viscosity value of the pumped liquid exceeds the value of water, such as water with glycol; as it may require a more powerful motor.
- If the pumped liquid is chemically treated (for example softened, deionized, demineralized etc.).
- Any situation that is different from the ones that is described and relate to the nature of the liquid.

### 3.2 Pump denomination

See [Figure 2](#) on page 363 for an explanation of the denomination code for the pump and one example.

### 3.3 Nameplate

The nameplate is located on the bearing bracket. The name plate lists key product specifications. For more information, see [Figure 1](#) on page 357.

The nameplate provides information regarding the impeller and casing material, the mechanical seal and their materials. For more information, see [Figure 3](#) on page 375.

**IMQ or TUV or IRAM or other marks (for electrical pump only)**

Unless otherwise specified, for products with a mark of electrical-related safety approval, the approval refers exclusively to the electrical pump.

**3.4 Pump description**

- Connection dimensions according EN 733 (models 32-125...-200; 40-125...-250; 50-125...-250; 65-125...-315; 80-160...-315; 100-200...-400; 125-250...-400; 150-315...-400).
- Volute casing pump with back pull out bearing bracket.

**3.5 Material**

The metallic parts of the pump that come in contact with liquid are made of the following:

Material code	Material casing / impeller	Standard/ Optional
CC	Cast iron/Cast iron	Standard
CB	Cast iron/ Bronze	Standard
CS	Cast iron/ Stainless steel	Standard
CN	Cast iron/ Stainless steel	Standard
DC	Ductil iron / Cast iron	Standard
DB	Ductil iron / Bronze	Standard
DN	Ductil iron / Stainless steel	Standard
NN	Stainless steel / Stainless steel	Standard
RR	Duplex/Duplex	Optional

**3.6 Mechanical seal**

Unbalanced single mechanical seal acc. EN 12756, version K.

**3.7 Application limits**

**Maximum working pressure**

[Figure 4](#) on page 379 shows the maximum working pressure depending on the pump model and the temperature of the pumped liquid.

$$P_{1max} + P_{max} \leq PN$$

$P_{1max}$  Maximum inlet pressure

$P_{max}$  Maximum pressure generated by the pump

$PN$  Maximum operating pressure

**Liquid temperature intervals**

[Figure 4](#) on page 379 shows the working temperature ranges.

For special requirements, contact the sales and service representative.

**Maximum number of starts per hour**

kW	0.25	4.00	11	18.5	30	45	90
	-	-	-	-	-	-	-
	3.00	7.50	15	22	37	75	160
Starts per hour	60	40	30	24	16	8	4

**Noise level**

For the sound pressure levels of pump equipped with standard supplied motor, see [Table 9](#) on page 380.

For sound pressure levels of pump without motor, see [Table 10](#) on page 384.

**4 Installation**



**Precautions**



**WARNING:**

- Observe accident prevention regulations in force.
- Use suitable equipment and protection.
- Always refer to the local and/or national regulations, legislation, and codes in force regarding the selection of the installation site, plumbing, and power connections.



**Electrical Hazard:**

- Make sure that all connections are performed by qualified installation technicians and in compliance with the regulations in force.
- Before starting work on the unit, make sure that the unit and the control panel are isolated from the power supply and cannot be energized. This applies to the control circuit as well.

**Grounding (earthing)**



**Electrical Hazard:**

- Always connect the external protection conductor to ground (earth) terminal before making other electrical connections.
- You must ground (earth) all electrical equipment. This applies to the pump equipment, the driver, and any monitoring equipment. Test the ground (earth) lead to verify that it is connected correctly.
- If the motor cable is jerked loose by mistake, the ground (earth) conductor should be the last conductor to come loose from its terminal. Make sure that the ground (earth) conductor is longer than the phase conductors.

This applies to both ends of the motor cable.

- Add additional protection against lethal shock. Install a high-sensitivity differential switch (30 mA) [residual current device RCD].

## 4.1 Facility requirements

### 4.1.1 Pump location



#### **DANGER:**

Do not use this unit in environments that may contain flammable/explosive or chemically aggressive gases or powders.

#### **Guidelines**

Observe the following guidelines regarding the location of the product:

- Make sure that no obstructions hinder the normal flow of the cooling air that is delivered by the motor fan.
- Make sure that the installation area is protected from any fluid leaks, or flooding.
- If possible, place the pump slightly higher than the floor level.
- The ambient temperature must be between 0°C (+32°F) and +40°C (+104°F).
- The relative humidity of the ambient air must be less than 50% at +40°C (+104°F).
- Contact the Sales and Service Department if:
  - The relative air humidity conditions exceed the guidelines.
  - The room temperature exceeds +40°C (+104°F).
  - The unit is located more than 1000 m (3000 ft) above the sea level. The motor performance may need to be de-rated or replaced with a more powerful motor.

For information about which value to de-rate the motor with, see [Table 11](#) on page 392.

#### **Pump positions and clearance**

Provide adequate light and clearance around the pump. Make sure that it is easily accessible for installation and maintenance operations.

#### **Installation above liquid source (suction lift)**

The theoretical maximum suction height of any pump is 10.33m. In practice, the following affect the suction capacity of the pump:

- Temperature of the liquid
- Elevation above the sea level (in an open system)
- System pressure (in a closed system)
- Resistance of the pipes
- Own intrinsic flow resistance of the pump
- Height differences

The following equation is used to calculate the maximum height above the liquid level which the pump can be installed:

$$(p_b * 10.2 - Z) \geq \text{NPSH} + H_f + H_v + 0.5$$

$p_b$  Barometric pressure in bar (in closed system is system pressure)

**NPSH** Value in meter of the pump intrinsic flow resistance

$H_f$	Total losses in meters caused by passage of liquid in the suction pipe of the pump
$H_v$	Steam pressure in meters that correspond to the temperature of the liquid T °C
0.5	Recommended safety margin (m)
Z	Maximum height at which the pump can be installed (m)

$(p_b * 10.2 - Z)$  must always be a positive number.

For more information, see [Figure 12](#) on page 392.

#### **NOTICE:**

Do not exceed the pumps suction capacity as this could cause cavitation and damage the pump.

### 4.1.2 Piping requirements

#### **Precautions**



#### **WARNING:**

- Use pipes suited to the maximum working pressure of the pump. Failure to do so can cause the system to rupture, with the risk of injury.
- Make sure that all connections are performed by qualified installation technicians and in compliance with the regulations in force.

#### **NOTICE:**

Observe all regulations issued by authorities having jurisdiction and by companies managing the public water supplies if the pump is connected to a public water system. If required, install appropriate back-flow-prevention device on the suction side.

#### **Piping checklist**

Check that the following requirements are met:

- All piping is independently supported, piping must not place a burden on the unit.
- Flexible pipes or unions are used, in order to avoid transmission of pump vibrations to the pipes and vice versa.
- Use wide bends, avoid using elbows which cause excessive flow resistance.
- The suction piping is perfectly sealed and air-tight.
- If the pump is used in an open circuit, then the diameter of the suction pipe is suited to the installation conditions. The suction pipe must not be smaller than the diameter of the suction port.
- If the suction piping must be larger than the suction side of the pump, then an eccentric pipe reducer is installed.
- If the pump is placed above liquid level, a foot valve is installed at the end of the suction piping.
- The foot valve is fully immersed into the liquid so that air cannot enter through the suction vortex, when the liquid is at the minimum level and the pump is installed above the liquid source.
- Appropriately sized on-off valves are installed on the suction piping and on the delivery piping (downstream to the check valve) for regulation of the pump capacity, for pump inspection, and for maintenance.
- Appropriately sized on-off valve is installed on the delivery piping (downstream to the check

valve) for regulation of the pump capacity, for pump inspection, and for maintenance.

- In order to prevent back flow into the pump when pump is turned off a check valve is installed on the delivery piping.



**WARNING:**

Do not use the on-off valve on the discharge side in the closed position in order to throttle the pump for more than a few seconds. If the pump must operate with the discharge side closed for more than a few seconds, a bypass circuit must be installed to prevent overheating of the liquid inside the pump.

For illustrations that show the piping requirements, see *Figure 13* on page 392 and *Figure 14* on page 392.

**4.2 Electrical requirements**

- The local regulations in force overrule these specified requirements.
- In the case of fire fighting systems (hydrants and/or sprinklers), check the local regulations in force.

**Electrical connection checklist**

Check that the following requirements are met:

- The electrical leads are protected from high temperature, vibrations, and collisions.
- The power supply line is provided with:
  - A short-circuit protection device
  - A mains isolator switch with a contact gap of at least 3 mm

**The electrical control panel checklist**

**NOTICE:**

The control panel must match the ratings of the electric pump. Improper combinations could fail to guarantee the protection of the motor.

Check that the following requirements are met:

- The control panel must protect the motor against overload and short-circuit.
- Install the correct overload protection (thermal relay or motor protector).

Pump Type	Protection
Single phase standard electric pump ≤ 2.2 kW	<ul style="list-style-type: none"> <li>– Built-in automatic reset thermal-ampereometric protection (motor protector)</li> <li>– Short circuit protection (must be supplied by the installer)<sup>3</sup></li> </ul>
Three phase electric pump <sup>4</sup>	<ul style="list-style-type: none"> <li>– Thermal protection (must be supplied by the installer)</li> <li>– Short circuit protection (must be supplied by the installer)</li> </ul>

<sup>3</sup> fuses aM (motor starting), or magneto-thermal switch with curve C and Icn ≥ 4,5 kA or other equivalent device.

<sup>4</sup> Overload thermal relay with trip class 10A + fuses aM (motor starting) or motor protection magneto-thermal switch with starting class 10A.

Pump Type	Protection
	plied by the installer)

- The control panel must be equipped with a dry-running protection system to which a pressure switch, float switch, probes, or other suitable device is connected.
- The following devices are recommended for use on the suction side of the pump:
  - When the liquid is pumped from a water system, use a pressure switch.
  - When the liquid is pumped from a storage tank or reservoir, use a float switch or probes.
- When thermal relays are used, relays that are sensitive to phase failure are recommended.

**The motor checklist**



**WARNING:**

- Read the operating instructions in order to ensure whether a protection device is provided if another motor other than the standard is used.
- If the motor is equipped with automatic thermal protectors, be aware of the risk of unexpected starts in connection to overload. Do not use such motors for fire-fighting applications.

**NOTICE:**

- Only use dynamically balanced motors with a half-sized key in the shaft extension (IEC 60034-14) and with normal vibration rate (N).
- The mains voltage and frequency must agree with the specifications on the data plate.

In general, motors can operate under the following mains voltage tolerances:

Frequency Hz	Phase ~	UN [V] ± %
50	1	220 – 240 ± 6
	3	230/400 ± 10
		400/690 ± 10
60	1	220 – 230 ± 6
	3	220/380 ± 5
		380/660 ± 10

Use cable according to rules with 3 leads (2+earth/ground) for single phase versions and with 4 leads (3+earth/ground) for three phase version.

**4.3 Install the pump**



**4.3.1 Mechanical installation**

Check the following before installation:



- Use a concrete of compressive strength class C12/15 which meets the requirements of exposure class XC1 to EN 206-1.
- The mounting surface must have set and must be completely horizontal and even.
- Observe the weights indicated.

### Install the pump set

For examples of horizontal installations, see [Figure 15](#) on page 395

Check that the foundation has been prepared in accordance with the dimensions given in the outline drawing/general arrangement drawing.

For information about the pump base and anchor holes, see [Figure 16](#) on page 395.

1. Position the pump set on the foundation and level it with the help of a spirit level that is placed on the discharge port.  
The permissible deviation is 0.2 mm/m.
2. Remove the plugs covering the ports.
3. Align the pump and piping flanges on both sides of the pump. Check the alignment of the bolts.
4. Fasten the piping with bolts to the pump. Do not force the piping into place.

5. Use shims for height compensation, if necessary.

Always fit shims, if any, immediately to the left and right of the foundation bolts between the baseplate/foundation. For a bolt-to-bolt distance (L) > 800 mm, fit extra shims halfway between the bolt holes.

6. Make sure that all shims lie perfectly flush.
7. Insert the foundation bolts into the holes provided.
8. Use concrete to set the foundation bolts into the foundation.
9. Wait until the concrete has set firmly, and then level the baseplate.
10. Tighten the foundation bolts evenly and firmly.

#### Note:

- For baseplates, it is recommended to grout the baseplate with low-shrinkage concrete.
- If the transmission of vibrations can be disturbing, provide vibration-damping supports between the pump and the foundation.

### Mount the pump to a base frame

Be sure to check that the following are adhered to:

- Solid base frame which does not twist or vibrate during operation (resonance).
- Mounting surfaces of the pump feet and the motor on the base frame must be flat (machining is recommended).
- Safe fastening of pump and motor must be guaranteed.
- Adequate space between pump and motor shaft must be left depending on the used coupling.
- Between pump and base frame must be an adequate shimming, so that in case of replacement the same height between bottom and centerline can be adjusted (recommended vertical adjustment 4-6 mm).

### 4.3.2 Piping checklist

Check that the following are adhered to:

- The suction lift line has been laid with a rising slope, at positive suction head line with a downward slope towards the pump.
- The nominal diameters of the pipelines are at least equal to the nominal diameters of the pump ports.
- The pipelines have been anchored in close proximity to the pump and connected without transmitting any stresses or strains.



#### CAUTION:

Welding beads, scale and other impurities in the piping damage the pump.

- Free the piping from any impurities.
- If necessary, install a filter.

### 4.3.3 Coupling alignment

After mounting to the foundation and the connection of the piping, the coupling must be adjusted again, even if the unit was delivered completely mounted on the frame.

#### Remove the coupling guard

'Wire mesh' type

For information see [Figure 17](#) on page 398.

1. Unscrew the fixing devices (2).
2. Open the lift guard (1).
  - Do not loosen screws, washers and nuts.

'Shell' type

For information see [Figure 18](#) on page 400.

1. Unscrew the fixing devices — side (5).
2. Unscrew the fixing devices — up (3).
3. Remove the coupling guard — upper half (1).
4. Unscrew the fixing devices — low (4).
5. Remove the coupling guard — lower half (2).
6. Open and lift the supporting/adjusting ring (6).

#### Alignment

For information see [Figure 19](#) on page 403.

1. Loosen screws of the support and pump foot.
2. Place the ruler (1) axially on both coupling halves.
3. Leave the ruler (1) in this position and turn the coupling by hand.
  - The coupling is aligned correctly if the distances 'a' and 'b' to the respective shafts are the same at all points around the circumference.
  - The radial and axial deviation between the two coupling halves must not exceed the values set by the manufacturer, during standstill as well as at operating temperature and under inlet pressure.
4. Check the distance between the two coupling halves around the circumference with a gauge (2).
  - The coupling is aligned correctly if the distance between the two coupling halves is the same at all points around the circumference.
  - The radial and axial deviation between the two coupling halves must not exceed the values set by the manufacturer, during

standstill as well as at operating temperature and under inlet pressure.

5. Re-tighten screws of the support and pump foot without transmitting any stresses and strains.

Dial gauges can be used in the place of ruler and thickness gauge.

Contact the local sales and service representative for any requests or information.

NOTE: Check alignment of coupling again in operation warm condition and on system pressure if available and correct, if necessary. Be sure that the unit can be easily turned by hand.

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#### NOTICE:

Improper alignment of the unit can lead to damages at coupling and unit.

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#### Install the coupling guard



#### CAUTION:

Never operate the pump without the coupling guard correctly installed.

---

'Wire mesh' type

For information see [Figure 17](#) on page 398.

1. Open and place the guard (1) in a way that it envelops the bearing cover and the supporting/adjusting ring (6).
2. Press the supporting/adjusting ring (6) axially to the motor.
3. Screw the fixing devices (2).

'Shell' type

For information see [Figure 18](#) on page 400.

1. Place the coupling guard — lower half (2) using the fixing devices — low (4).
2. Open and insert the supporting/adjusting ring (6) with slot downward and press it axially to the motor.
3. Place the coupling guard — upper half (1) using the fixing devices — up (3).
4. Screw the fixing devices — side (5).

#### 4.3.4 Electrical installation

1. Remove the screws of the terminal box cover.
2. Connect and fasten the power cables according to the applicable wiring diagram.

For wiring diagrams, see [Figure 20](#) on page 404. The diagrams are also available on the back of the terminal box cover.

- a) Connect the ground (earth) lead.

Make sure that the ground (earth) lead is longer than the phase leads.

- b) Connect the phase leads.
3. Mount the terminal box cover.

---

#### NOTICE:

Tighten the cable glands carefully to ensure protection against cable slipping and humidity entering the terminal box.

---

4. If the motor is not equipped with automatic reset thermal protection, then adjust the overload protection according to the list below.

- If the motor is used with full load, then set the value to the nominal current value of electric pump (data plate)
- If the motor is used with partial load, then set the value to the operating current (for example measured with a current pincer).
- If the pump has a star-delta starting system, then adjust the thermal relay to 58% of the nominal current or operating current (only for three-phase motors).

## 5 Commissioning, Startup, Operation, and Shutdown




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#### Precautions



#### WARNING:

- Make sure that the drained liquid does not cause damage or injuries.
  - The motor protectors can cause the motor to restart unexpectedly. This could result in serious injury.
  - Never operate the pump without the coupling guard correctly installed.
- 



#### CAUTION:

- The outer surfaces of the pump and motor can exceed 40°C (104°F) during operation. Do not touch with any part of the body without protective gear.
  - Do not put any combustible material near the pump.
- 

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#### NOTICE:

- Never operate the pump below the minimum rated flow, when dry, or without prime.
  - Never operate the pump with the delivery ON-OFF valve closed for longer than a few seconds.
  - Never operate the pump with the suction ON-OFF valve closed.
  - Do not expose an idle pump to freezing conditions. Drain all liquid that is inside the pump. Failure to do so can cause liquid to freeze and damage the pump.
  - The sum of the pressure on the suction side (mains, gravity tank) and the maximum pressure that is delivered by the pump must not exceed the maximum working pressure that is allowed (nominal pressure PN) for the pump.
  - Do not use the pump if cavitation occurs. Cavitation can damage the internal components.
- 

#### 5.1 Fill the pump

For information about additional pump connections, see [Figure 21](#) on page 405.

#### Installations with liquid level above the pump (suction head)

For an illustration that shows where pump plugs are, see [Figure 22](#) on page 407.

1. Close the on-off valve located downstream from the pump.
2. Remove the fill (3) or gauge plug (1) and open the on/off valve upstream until the water flows out of the hole.

- a) Close the fill (3) or gauge plug (1).

**Installations with liquid level below the pump (suction lift)**

For an illustration that shows where pump plugs are, see [Figure 23](#) on page 408.

1. All pipe system empty:
  - a) Open the on-off valve located upstream from the pump.
  - b) Remove the fill plug (3) and the gauge plug (1). Use a funnel to fill the pump through the fill hole until the water flows out of this hole.
  - c) Tighten the fill plug (3) and the gauge plug (1).
2. Filled discharge pipe system:
  - a) Open the on-off valve located upstream from the pump and open the on-off valve downstream.
  - b) Remove the gauge plug (1) until water flows out of this hole.
  - c) Tighten the gauge plug (1).

**5.2 Check the rotation direction (three-phase motor)**

Follow this procedure before start-up.

1. Locate the arrows on the adaptor or the motor fan cover to determine the correct rotation direction.
2. Start the motor.
3. Quickly check the direction of rotation through the coupling guard or through the motor fan cover.
4. Stop the motor.
5. If the rotation direction is incorrect, then do as follows:
  - a) Disconnect the power supply.
  - b) In the terminal board of the motor or in the electric control panel, exchange the position of two of the three wires of the supply cable.  
  
For the wiring diagrams, see [Figure 20](#) on page 404.
  - c) Check the direction of rotation again.

**5.3 Start the pump**

The responsibility for checking the correct flow and the temperature of the pumped liquid rests with the installer or owner.

Before starting the pump, make sure that:

- The pump is correctly connected to the power supply.
- The pump is correctly filled according to instructions in *Fill the pump* (chapter 5).
- The on-off valve located downstream from the pump is closed.

1. Start the motor.
2. Gradually open the on-off valve on the discharge side of the pump.

At the expected operating conditions, the pump must run smoothly and quietly. If not, refer to [Troubleshooting](#) on page 24.

**6 Maintenance**



**Precautions**



**Electrical Hazard:**

Disconnect and lock out electrical power before installing or servicing the unit.



**WARNING:**

- Maintenance and service must be performed by skilled and qualified personnel only.
- Observe accident prevention regulations in force.
- Use suitable equipment and protection.
- Make sure that the drained liquid does not cause damage or injuries.

**6.1 Service**

If the user wishes to schedule regular maintenance deadlines, they are dependent on the type of pumped liquid and on the operating conditions of the pump.

Contact the local sales and service representative for any requests or information regarding routine maintenance or service.

Extraordinary maintenance may be necessary to clean the liquid end and/or replace worn parts.

**Pumps with greased for life bearings**

Pumps with greased for life bearings do not require any scheduled routine maintenance.

**Pumps with re-greaseable bearings**

- Regrease at 4000 operating hours, but at least once per year. Clean lubrication nipples (SN) first.
- Use NLGI Grade 2 grease or equivalent.

Contact the local sales and service representative for any requests or information.

**Motor bearings**

After approximately five years, the grease in the motor bearings is so aged that a replacement of the bearings is recommended. The bearings must be replaced after 25000 operating hours or according to the motor supplier maintenance instructions, whichever is shorter.

**Motor with regreaseable bearings**

Follow motor supplier maintenance instructions.

**Coupling**

Check the clearance in the coupling elements regularly, at least once a year. We recommend checking every 1000 operating hours or every three months, whichever comes first.

**6.2 Inspection checklist**

Check the coupling	Check the flexible elements of the coupling. Replace the relevant parts if there is any sign of wear and check the alignment.
Check the mechanical seal	Check for leakage of the mechanical seal. <b>Re-</b>

	place the mechanical seal if leakage is found.
Checking the bearing seals	Check correct seating of axial seal rings mounted on the shaft. Only gentle contact of the sealing lip shall be established.
Check for quiet running	Check frequently for quiet running of the pump with vibration measurements tools.

### 6.3 Disassemble and replace the pump parts

For more information about spare parts and assembly and disassembly of the pump, contact the local sales and service representative.

## 7 Troubleshooting



### 7.1 Troubleshooting for users



The main switch is on, but the electric pump does not start.

Cause	Remedy
The thermal protector incorporated in the pump (if any) has tripped.	Wait until the pump has cooled down. The thermal protector will automatically reset.
The protective device against dry running has tripped.	Check the liquid level in the tank, or the mains pressure.

The electric pump starts, but the thermal protection trips a varying time after.

Cause	Remedy
There are foreign objects (solids or fibrous substances) inside the pump which have jammed the impeller.	Contact the Sales and Service Department.
The pump is overloaded because it is pumping liquid that is too dense and viscous.	Check the actual power requirements based on the characteristics of the pumped liquid and then contact the Sales and Service Department.

The pump runs but delivers too little or no liquid.

Cause	Remedy
The pump is clogged.	Contact the Sales and Service Department.

The troubleshooting instructions in the tables below are for installers only.

### 7.2 The main switch is on, but the electric pump does not start



Cause	Remedy
There is no power supply.	<ul style="list-style-type: none"> <li>Restore the power supply.</li> <li>Make sure all electrical connections to the power supply are intact.</li> </ul>
The thermal protector incorporated in the pump (if any) has tripped.	Wait until the pump has cooled down. The thermal protector will automatically reset.
The thermal relay or motor protector in the electric control panel has tripped.	Reset the thermal protection.
The protective device against dry running has tripped.	Check the: <ul style="list-style-type: none"> <li>liquid level in the tank, or the mains pressure.</li> <li>protective device and its connecting cables.</li> </ul>
The fuses for the pump or auxiliary circuits are blown.	Replace the fuses.

### 7.3 The electric pump starts, but the thermal protector trips or the fuses blow immediately after



Cause	Remedy
The power supply cable is damaged.	Check the cable and replace as necessary.
The thermal protection or fuses are not suited for the motor current.	Check the components and replace as necessary.
The electric motor is short circuit.	Check the components and replace as necessary.
The motor overloads.	Check the operating conditions of the pump and reset the protection.

### 7.4 The electric pump starts, but the thermal protector trips or the fuses blow a short time after



Cause	Remedy
The electrical panel is situated in an excessively heated area or is exposed to direct sunlight.	Protect the electrical panel from heat source and direct sunlight.
The power supply voltage is not within the working limits of the motor.	Check the operating conditions of the motor.
A power phase is missing.	Check the <ul style="list-style-type: none"> <li>power supply</li> <li>electrical connection</li> </ul>

### 7.5 The electric pump starts, but the thermal protector trips a varying time after

Cause	Remedy
There are foreign objects (solids or fibrous substances) inside the pump which have jammed the impeller.	Contact the local sales and service representative.
The pumps delivery rate is higher than the limits specified on the data plate.	Partially close the on-off valve down stream until the delivery rate is equal or less than the limits specified on the data plate.
The pump is overloaded because it is pumping liquid that is too dense and viscous.	Check the actual power requirements based on the characteristics of the pumped liquid and replace the motor accordingly.
The motor bearings are worn.	Contact the local sales and service representative.

### 7.6 The electric pump starts, but the system's general protection is activated

Cause	Remedy
A short circuit in the electrical system.	Check the electrical system.

### 7.7 The electric pump starts, but the system's residual current device (RCD) is activated

Cause	Remedy
There is an ground (earth) leakage.	Check the insulation of the electrical system components.

### 7.8 The pump runs but delivers too little or no liquid

Cause	Remedy
There is air inside the pump or the piping.	<ul style="list-style-type: none"> <li>Bleed the air</li> </ul>
The pump is not correctly primed.	Stop the pump and repeat the prime procedure. If the problem continues: <ul style="list-style-type: none"> <li>Check that the mechanical seal is not leaking.</li> <li>Check the suction pipe for perfect tightness.</li> <li>Replace any valves that are leaking.</li> </ul>
The throttling on the delivery side is too extensive.	Open the valve.

Cause	Remedy
Valves are locked in closed or partially closed position.	Disassemble and clean the valves.
The pump is clogged.	Contact the local sales and service representative.
The piping is clogged.	Check and clean the pipes.
The rotation direction of the impeller is wrong (three-phase version)	Change the position of two of the phases on the terminal board of the motor or in the electric control panel.
The suction lift is too high or the flow resistance in the suction pipes is too great.	Check the operating conditions of the pump. If necessary, do the following: <ul style="list-style-type: none"> <li>Decrease the suction lift</li> <li>Increase the diameter of the suction pipe.</li> </ul>

### 7.9 The electric pump stops, and then rotates in the wrong direction

Cause	Remedy
There is a leakage in one or both of the following components: <ul style="list-style-type: none"> <li>The suction pipe</li> <li>The foot valve or the check valve</li> </ul>	Repair or replace the faulty component.
There is air in the suction pipe.	Bleed the air.

### 7.10 The pump starts up too frequently

Cause	Remedy
There is a leakage in one or both of the following components: <ul style="list-style-type: none"> <li>The suction pipe</li> <li>The foot valve or the check valve</li> </ul>	Repair or replace the faulty component.
There is a ruptured membrane or no air pre-charge in the pressure tank.	See the relevant instructions in the pressure tank manual.

### 7.11 The pump vibrates and generates too much noise

Cause	Remedy
Pump cavitation	Reduce the required flow rate by partially closing the on-off valve downstream from the pump. If the problem persists check the operating conditions of the pump (for example height difference,

Cause	Remedy
	flow resistance, liquid temperature).
The motor bearings are worn.	Contact the local sales and service representative.
There are foreign objects inside the pump.	Contact the local sales and service representative.
Impeller rubs on the wear ring	Contact the local sales and service representative.

Cause	Remedy
Coupling mis-aligned	Check the coupling alignment.
Flexible elements of the coupling worn	Check and replace the relevant parts if there is any sign of wear.

For any other situation, refer to the local sales and service representative.

## 1 Introduction et sécurité



### 1.1 Introduction

#### Objet de ce manuel

L'objet de ce manuel est d'apporter les informations nécessaires pour :

- Installation
- Utilisation
- Entretien



#### ATTENTION :

Lire attentivement ce manuel avant d'installer et d'utiliser ce produit. Une mauvaise utilisation du produit peut entraîner des blessures et des dégâts matériels et pourrait annuler la garantie.

#### REMARQUE :

Conserver ce manuel pour une consultation ultérieure et veiller à ce qu'il puisse facilement être consulté sur le site à tout moment.

#### 1.1.1 Utilisateurs sans expérience



#### AVERTISSEMENT :

Ce produit est destiné à être utilisé par du personnel qualifié exclusivement.

Respecter les précautions ci-dessous :

- Ce produit ne doit pas être utilisé par toute personne présentant un handicap physique ou mental ou ne disposant pas de l'expérience et des connaissances nécessaires, sans avoir reçu des instructions concernant l'utilisation de l'équipement et les risques associés ou sans la supervision d'une personne responsable.
- Les enfants doivent faire l'objet d'une surveillance permettant de s'assurer qu'ils ne peuvent pas jouer sur ou autour du produit.

### 1.2 Terminologie et symboles de sécurité

#### A propos des messages de sécurité

Il est extrêmement important de lire, comprendre et respecter soigneusement les consignes de sécurité et la réglementation avant d'utiliser ce produit. Ces consignes sont publiées pour contribuer à la prévention des risques suivants :

- accidents corporels et mise en danger de la santé ;
- dégâts au produit et à son environnement ;
- dysfonctionnement du produit.

#### Niveaux de risque

Niveau de risque	Description
<b>DANGER :</b>	Une situation dangereuse qui, si elle n'est pas évitée, entraînera la mort ou des blessures graves
<b>AVERTISSEMENT :</b>	Une situation dangereuse qui, si elle n'est pas évitée, peut entraîner la mort ou des blessures graves
<b>ATTENTION :</b>	Une situation dangereuse qui, si elle n'est pas évitée, peut entraîner des blessures mineures ou légères
<b>REMARQUE :</b>	S'utilisent quand il existe un risque de dommages matériels ou de réduction des performances, mais pas de blessure

#### Symboles spéciaux

Certaines catégories de dangers sont signalées par des symboles spécifiques, comme indiqué dans le tableau suivant.

Risque électrique	Risque de champ magnétique
<b>RISQUE DE CHOC ÉLECTRIQUE :</b>	<b>ATTENTION :</b>

#### Risque de surface chaude

Les risques de surface chaude sont signalés par un symbole spécifique qui remplace les symboles courants de niveau de risque :



#### ATTENTION :

العلاج	الأسباب
تحقق من ظروف تشغيل المضخة. قم بما يلي عند الضرورة: • تقليل رفع الشفط • زيادة قطر أنبوب الشفط	رفع الشفط مرتفع للغاية أو مقاومة الضخ في أنابيب الشفط كبيرة للغاية.

## 7.9 توقف المضخة الكهربائية عن العمل، ثم دورانها في الاتجاه الخاطئ

العلاج	الأسباب
• أنبوب الشفط • الصمام القضي أو صمام عدم الإرجاع	يوجد تسرب في أحد المكونات التاليين أو كليهما: إصلاح أو استبدال المكون المعيب.
وجود هواء في أنبوب الشفط.	تصفية الهواء.

## 7.10 بدء تشغيل المضخة بشكل متكرر للغاية

العلاج	الأسباب
• أنبوب الشفط • الصمام القضي أو صمام عدم الإرجاع	يوجد تسرب في أحد المكونات التاليين أو كليهما: إصلاح أو استبدال المكون المعيب.
يوجد غشاء متمزق أو عدم وجود شحن مسبق انظر التعليمات ذات الصلة في دليل خزان الضغط.	يوجد غشاء متمزق أو عدم وجود شحن مسبق انظر التعليمات ذات الصلة في دليل خزان الضغط.

## 7.11 المضخة تهتز وتصدر ضوضاء شديدة.

العلاج	الأسباب
قلل معدل الضخ المطلوب عن طريق الغلق الجزئي لصمام الفتح/الغلق القادم من المضخة. إذا استمرت المشكلة، تحقق من ظروف تشغيل المضخة (على سبيل المثال، اختلاف الارتفاع، مقاومة الضخ، درجة حرارة السائل).	تكون تجاويف بالمضخة. قلل معدل الضخ المطلوب عن طريق الغلق الجزئي لصمام الفتح/الغلق القادم من المضخة. إذا استمرت المشكلة، تحقق من ظروف تشغيل المضخة (على سبيل المثال، اختلاف الارتفاع، مقاومة الضخ، درجة حرارة السائل).
اتصل بممثل المبيعات والخدمة المحلي.	محامل الموتور بالية.
توجد أجسام غريبة داخل المضخة.	اتصل بممثل المبيعات والخدمة المحلي.
تحثك الدفاعة بحلقة التوجيه.	اتصل بممثل المبيعات والخدمة المحلي.
لم تتم محاذاة القارئة بشكل صحيح	قم بالتحقق من محاذاة القارئة.
العناصر المرنة في القارئة بالية	قم بالتحقق واستبدل القطع ذات الصلة إذا كانت هناك أي علامات بلي.

لأي موقف آخر، ارجع إلى ممثل المبيعات والخدمة المحلي.

العلاج	الأسباب
اتصل بممثل المبيعات والخدمة المحلي.	تتعرض المضخة لحمل زائد نظرًا لتحقق من متطلبات الطاقة الفعلية بناءً لأنها تضخ سائل كثيف ولزج على خصائص السائل المضخوخ واستبدال الموتور حسب ذلك.
اتصل بممثل المبيعات والخدمة المحلي.	محامل الموتور بالية.

## 7.6 يبدأ تشغيل المضخة الكهربائية، ولكن يتم تشييط الوقائية العامة للنظام

العلاج	الأسباب
افحص النظام الكهربائي.	حدوث دائرة قصر في النظام الكهربائي.

## 7.7 يبدأ تشغيل المضخة الكهربائية، لكن يتم تشييط الأداة التي تعمل بالتيار المتبقي (RCD)

العلاج	الأسباب
تحقق من عزل مكونات النظام الكهربائي.	هناك تسرب أرضي.

## 7.8 تعمل المضخة ولكنها تقوم بتوصيل القليل من السائل أو لا شيء على الإطلاق

العلاج	الأسباب
• تصفية الهواء	يوجد هواء داخل المضخة أو الأنابيب.
قم بإيقاف تشغيل المضخة وتكرار إجراءات التحضير. إذا استمرت المشكلة:	لم يتم تحضير المضخة بشكل صحيح.
• تحقق من عدم وجود تسريب في مانع التسرب الميكانيكي. • افحص أنبوب الشفط للتحقق من إحكام الربط. • استبدل أي صمامات يوجد بها تسريب.	قم بإيقاف تشغيل المضخة وتكرار إجراءات التحضير. إذا استمرت المشكلة: • تحقق من عدم وجود تسريب في مانع التسرب الميكانيكي. • افحص أنبوب الشفط للتحقق من إحكام الربط. • استبدل أي صمامات يوجد بها تسريب.
افتح الصمام.	الخطق على جانب التوصيل مكثف للغاية.
قم بتفكيك الصمامات وتنظيفها.	الصمامات تبدو في وضع مغلق أو مغلق جزئيًا.
اتصل بممثل المبيعات والخدمة المحلي.	انسداد المضخة.
قم بفحص الأنابيب وتنظيفها.	انسداد الأنابيب.
قم بتغيير الموضع لطورين من الأطوار على اللوحة الطرفية للموتور أو في لوحة التحكم الكهربائية.	اتجاه دوران الدفاعة غير صحيح (نوع ثلاثي الطور)

Appendice tecnica • Technical appendix • Annexe technique • Technischer Anhang • Apéndice técnico • Anexo técnico • Technische bijlage • Teknisk bilag • Teknisk vedlegg • Tekniska appendix • Tekninen liite • Tæknilegur viðauki • Tehniline lisa • Tehniskais pielikums • Techninių duomenų priedas • Dodatek Dane techniczne • Technický dodatek • Technická príloha • Műszaki adatok függeléke • Anexă tehnică • Техническо приложение • Tehnična priloga •

**Tehnički dodatak • Tehnički dodatak • Τεχνικό παράρτημα • Teknik ek •  
Техническое приложение • Технічний додаток • الملحق الفني**

1.



1	3	4	5	7	8	2a	6			
<b>LOWARA</b> <span style="float: right; text-align: right;"> </span>										
TYPE		REGULATION (EU) No 547/2012		Year/No. 1		Code				
PN	kPa	t max	°C	øF mm	øT mm					
t min	°C									
Q m <sup>3</sup> /h	H m	n 1/min	P2 kW	øF MEI±	øT np %					
kg					REGULATION (EU) No 547/2012					
15	9	10	11	12	13	14				

1	3	4	5	7	8	2b	6			
<b>LOWARA</b> <span style="float: right; text-align: right;"> </span>										
TYPE		REGULATION (EU) No 547/2012		Year/No. 1		Code				
PN	kPa	t max	°C	øF mm	øT mm					
t min	°C									
Q m <sup>3</sup> /h	H m	n 1/min	P2 kW	øF MEI±	øT np %					
kg					REGULATION (EU) No 547/2012					
15	9	10	11	12	13	14				

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1	3	7	4	5	8	2a	6	15		
<b>LOWARA</b> <span style="float: right; text-align: right;"> </span>										
TYPE		REGULATION (EU) No 547/2012		Year/No		Code				
PN	kPa	t max	°C	t min	°C	kg				
øF mm										
Q m <sup>3</sup> /h	H m	n 1/min	Pmax kW	øF MEI±	øT np %					
-	-	-	-	-	-					
9	10	11	12	13	14					

1	3	7	4	5	8	2b	6	15		
<b>LOWARA</b> <span style="float: right; text-align: right;"> </span>										
TYPE		REGULATION (EU) No 547/2012		Year/No		Code				
PN	kPa	t max	°C	t min	°C	kg				
øF mm										
Q m <sup>3</sup> /h	H m	n 1/min	Pmax kW	øF MEI±	øT np %					
-	-	-	-	-	-					
9	10	11	12	13	14					

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**Italiano**

1. Tipo di pompa
2. a. = Numero di serie + data di fabbricazione; b. = Anno di produzione + numero di ordine + numero di posizione dell'ordine

**English**

1. Pump type
2. a. = Serial number + date of manufacture; b. = Year of production + order number + order position number

**Français**

1. Type de pompe
2. a. = Numéro de série + date de fabrication; b. = Année de production + numéro de commande + numéro de position dans la commande



- |   |  |  |
|---|--|--|
| 3. Pressione massima d'esercizio  | 3. Maximum operating pressure  | 3. Pression maximale de fonctionnement   |
| 4. Temperatura massima operativa del liquido  | 4. Maximum operating liquid temperature  | 4. Température maximale de liquide en fonctionnement   |
| 5. Temperatura minima operativa del liquido   | 5. Minimum operating liquid temperature  | 5. Température minimale de liquide en fonctionnement   |
| 6. Codice pompa   | 6. Pump code   | 6. Code de la pompe  |
| 7. Diametro intero della girante (solo per giranti non tornite)   | 7. Full impeller diameter (only for full impellers)  | 7. Diamètre de roue complète (seulement pour les roues complètes)  |
| 8. Diametro ridotto della girante (solo per giranti tornite)  | 8. Reduced impeller diameter (only for trimmed impellers)                                  | 8. Diamètre de roue réduit (seulement pour les roues rectifiées)   |
| 9. Campo della portata  | 9. Flow range  | 9. Gamme de débit  |
| 10. Campo della prevalenza  | 10. Head range   | 10. Plage de hauteur manométrique  |
| 11. Velocità  | 11. Speed  | 11. Vitesse  |
| 12. Potenza pompa nominale o massima (unità della pompa elettrica); potenza pompa massima assorbita (pompa) | 12. Nominal or maximum pump power (electric pump unit); maximum pump power absorbed (pump) | 12. Puissance nominale ou maximale de la pompe (unité de pompe électrique); puissance de pompe maximale absorbée (pompe) |
| 13. Indice di efficienza minimo   | 13. Minimum efficiency index   | 13. Indice de rendement minimal  |
| 14. Efficienza idraulica nel punto di efficienza migliore (solo per giranti tornite)                        | 14. Hydraulic efficiency in best efficiency point (only for trimmed impellers)             | 14. Rendement hydraulique au point de meilleur rendement (seulement pour les roues rectifiées)                           |
| 15. Peso  | 15. Weight   | 15. Poids  |

**Deutsch**

- Pumpentyp
- a. = Seriennummer + Herstellungsdatum; b. = Produktionsjahr + Bestellnummer + Bestellpositionsnummer
- Maximaler Betriebsdruck
- Maximale Medientemperatur für den Betrieb
- Mindest-Betriebstemperatur der Flüssigkeit
- Pumpen-Code
- Durchmesser des kompletten Laufrads (nur für komplette Laufräder)
- Durchmesser des reduzierten Laufrads (nur für gekürzte Laufräder)
- Durchflussbereich
- Förderhöhenbereich
- Drehzahl
- Nenn- oder maximale Pumpleistung (elektrische Pumpeneinheit); Maximale Pumpenleistungsaufnahme (Pumpe)
- Minimaler Effizienzindex
- Hydraulische Effizienz am besten Effizienzpunkt (nur für gekürzte Laufräder)
- Gewicht

**Nederlands**

- Type pomp
- a. = seriennummer + productiedatum; b. = productiejaar

**Español**

- Tipo de bomba
- a. = número de serie + fecha de fabricación; b. = año de producción + número de pedido + número de posición en el pedido
- Presión máxima de funcionamiento
- Temperatura del líquido de funcionamiento máxima
- Temperatura del líquido de funcionamiento mínima
- Código de la bomba
- Diámetro del impulsor completo (solo para impulsores completos)
- Diámetro del impulsor reducido (solo para impulsores activados)
- Rango del caudal
- Rango de carga hidráulica
- Velocidad
- Potencia de la bomba nominal o máxima (unidad de bomba eléctrica); potencia máxima de la bomba absorbida (bomba)
- Índice de eficiencia mínimo
- Eficiencia hidráulica en el mejor punto de eficiencia (solo para impulsores activados)
- Peso

**Dansk**

- Pumpetype
- a. = Seriennummer + fremstillingsdato; b. = Produktionsår

**Português**

- Tipo de bomba
- a. = Número de série + data de fabrico; b. = Ano de produção + número de encomenda + número de posição da encomenda
- Pressão máxima de funcionamento
- Temperatura máxima do líquido de funcionamento
- Temperatura mínima do líquido de funcionamento
- Código da bomba
- Diâmetro integral do impulsor (apenas para rotores integrais)
- Diâmetro reduzido do impulsor (apenas para rotores aparados)
- Intervalo de fluxo
- Intervalo da cabeça
- Velocidade
- Potência nominal ou máxima da bomba (unidade de bombeamento eléctrica); potência máxima da bomba absorvida (bomba)
- Índice de eficiência mínima
- Eficiência hidráulica no ponto de melhor eficiência (apenas para rotores aparados)
- Peso

**Norsk**

- Pumpetype
- a. = Seriennummer + produktionsdato, b. = Produksjons-

- + bestelnummer + bestelpositionnummer
- 3. Maximale bedrijfsdruk
- 4. Maximale bedrijfstemperatuur van de vloeistof
- 5. Minimale werkt temperatuur van de vloeistof
- 6. Pompecode
- 7. Diameter volledige waaier (alleen voor volledige waaiers)
- 8. Gereduceerde diameter van de waaier (alleen voor ingekorte waaiers)
- 9. Stroombereik
- 10. Bovenbereik
- 11. Toerental
- 12. Nominale of maximale pompvermogen (elektrische pomp); maximale pompvermogen geabsorbeerd (pomp)
- 13. Index voor minimale efficiëntie
- 14. Hydraulische efficiëntie in beste efficiëntiepunt (alleen voor ingekorte waaiers)
- 15. Gewicht

- + bestillingsnummer + bestillingens positionsnummer
- 3. Maksimalt driftstryk
- 4. Maksimumstemperatur på driftsvæske
- 5. Minimum driftsvæsketemperatur
- 6. Pumpekode
- 7. Full pumpehjul diameter (kun fulde pumpehjul)
- 8. Full pumpehjul diameter (kun beskårne pumpehjul)
- 9. Flowinterval
- 10. Interval for løftehøjde
- 11. Hastighed
- 12. Nominel eller maksimal pumpeeffekt (elektrisk pumpeenhed); maksimal absorberet pumpeeffekt (pumpe)
- 13. Indeks for minimumseffektivitet
- 14. Hydraulisk effektivitet i bedste driftspunkt (kun for beskårne pumpehjul)
- 15. Vægt

- sår + ordrenummer + ordrepositionsnummer
- 3. Maksimalt brukstrykk
- 4. Maksimal væsketemperatur ved bruk
- 5. Minimal væsketemperatur ved bruk
- 6. Pumpekode
- 7. Full løpehjul diameter (kun ved fulle løpehjul)
- 8. Reduser løpehjul diameter (kun ved justert løpehjul)
- 9. Strømningsområde
- 10. Trykkhøydeområde
- 11. Hastighet
- 12. Nominell eller maksimal pumpekraft (elektrisk pumpeenhed). Maksimal absorberet pumpekraft
- 13. Minimal virkningsindeks
- 14. Hydraulisk virkning på beste virkningspunkt (kun ved tilpassede løpehjul)
- 15. Vekt

#### Svenska

- 1. Pumptyp
- 2. a. = serienummer + tillverkningsdatum; b. = produktionsår + ordernummer + positionsnummer i order
- 3. Maximalt driftstryck
- 4. Maximalt vätsketemperatur under drift
- 5. Minimal vätsketemperatur under drift
- 6. Pumpkod
- 7. Hel pumphjulsdiameter (endast för hela pumphjul)
- 8. Reducerad pumphjulsdiameter (endast för trimmade pumphjul)
- 9. Flödesområde
- 10. Tryckhöjdområde
- 11. Varvtal
- 12. Nominell eller maximal pumpeffekt (elektrisk pumpeenhed); maximal pumpeffekt absorberad (pump)
- 13. Minimalt effektivitetsindex
- 14. Hydraulisk effektivitet i den bästa effektivitetspunkten (endast för trimmade pumphjul)
- 15. Vikt

#### Eesti

- 1. Pumba tüüp
- 2. a. = seerianumber + tootmisukupäev; b. = Tootmisaasta + tellimuse number + järjekorra asukoha number.
- 3. Maksimaalne töörrõhk

#### Suomi

- 1. Pumputyyppi
- 2. a. = sarjanumero + valmistuspäivä; b. = valmistusvuosi + tilausnumero + tilauksen sijaintinumero
- 3. Suurin sallittu käyttöpain
- 4. Nesteen suurin sallittu käyttölämpötila
- 5. Nesteen alin sallittu käyttölämpötila
- 6. Pumpun koodi
- 7. Täyden juoksupyörän halkaisija (vain täydet juoksupyörät)
- 8. Pienennetty juoksupyörän halkaisija (vain trimmatut juoksupyörät)
- 9. Virtausalue
- 10. Nostoalue
- 11. Kierrosluku
- 12. Pumpun nimellis- tai maksimiteho (sähköpumppuyksikkö), suurin pumpun ottoteho (pumppu)
- 13. Vähimmäistehokkuusindeksi
- 14. Hydraulinen tehokkuus parhaassa tehokkuuspisteessä (vain trimmatut juoksupyörät)
- 15. Paino

#### Latviešu

- 1. Sūkņa tips
- 2. a. = Sērijas numurs + ražošanas datums; b. = ražošanas gads + pasūtījuma numurs + pasūtījuma pozīcijas numurs

#### Íslenska

- 1. Gerð dælu
- 2. a. = Raðnúmer + framleiðsludagsetning; b. = Framleiðsluár + pöntunarnúmer + stöðunúmer
- 3. Hámarks vinnubrýstingur
- 4. Hámarkshiti vinnsluvökva
- 5. Lágmarks vökvahitastig vinnu
- 6. Dælukóði
- 7. Fullt ummál dæluhjól (aðeins fyrir fullar dælu)
- 8. Minnkað ummál dæluhjól (aðeins fyrir dæluhjólstillingar)
- 9. Flæðisvið
- 10. Haussvið
- 11. Hraði
- 12. Nafn- eða hámarks dæluorka (egund rafmagnsdælu); hámarks dæluorka frásogast (dæla)
- 13. Lágmarks nýtingarvísir
- 14. Vökvanýting við besta nýtingarpunkt (aðeins fyrir dæluhjólstillingar)
- 15. Þyngd

#### Lietuvių k.

- 1. Siurblio tipas
- 2. a. = serijos numeris ir pagaminimo data; b. = pagaminimo metai, užsakymo numeris ir užsakymo padėties numeris
- 3. Maksimalus darbinis slėgis

- |   |   |   |
|---|---|---|
| 4. Maksimaalne vedeliku töötemperatuur  | 3. Maksimālais darba spiediēns  | 4. Maksimāli darbinē skycēio temperatūra  |
| 5. Minimaalne vedeliku tōotemperatuur   | 4. Maksimālā darba šķidrums temperatūra   | 5. Minimāli darbinē skycēio temperatūra   |
| 6. Pumbakood  | 5. Minimālā darba šķidrums temperatūra  | 6. Siurblio kodus   |
| 7. Tāielik tiiviku lābimōōt (ainult tāistiivikute puhul)  | 6. Sūkņa kods   | 7. Visos sparnuotēs skersmūo (tik naudojant visā sparnuotē)   |
| 8. Vāhendatud tiiviku lābimōōt (ainult kārbitud tiivikute puhul)  | 7. Pilns darbrata diametrs (tikai lielākā izmēra darbratiem)  | 8. Sumažintos sparnuotēs skersmūo (tik naudojant pritaikomā sparnuotē)  |
| 9. Vooluulatus  | 8. Samazināts darbrata diametrs (tikai mazākā izmēra darbratiem)  | 9. Srauto kiekis  |
| 10. Surukōrguse vahemik   | 9. Plūsmas diapazons  | 10. Patvankos ribos   |
| 11. Kiirus  | 10. Augstumspiediena diapazons  | 11. Greitis   |
| 12. Pumba nimi- vōi maksimālne vōimsus (elektriline pumbbaseade); maksimāalne pumba energiatarve (pump) | 11. Ātrums  | 12. Normāli arba didžiausia variklio galia (elektrinis siurblio blokas); maks. absorbuojama siurblio galia (siurblys) |
| 13. Minimaalne efektiivsuse indeks  | 12. Nominālā vai maksimālā sūkņa jauda (elektriskā sūkņa iekārta); maksimālā absorbētā sūkņa jauda (sūknis) | 13. Maziausias efektyvumo koeficientas  |
| 14. Hidrauliline efektiivsus pārimas efektiivsuse punktis (ainult kārbitud tiivikute puhul)             | 13. Minimālās efektiivitātes indekss  | 14. Hidraulinis efektyvumas efektyviausiamē taške (tik naudojant pritaikomas sparnuotes)                              |
| 15. Kaal  | 14. Hidrauliskā efektiivitāte augstākajā efektiivitātes punktā (tikai mazākā izmēra darbratiem)             | 15. Svoris  |
|   | 15. Svārs   |   |

**polski**

- Typ pompy
- a. = numer seryjny + data produkcji; b. = rok produkcji + numer zamōwienia + numer pozycji w zamōwieniu
- Maksymalne ciēnienie robocze
- Maksymalna temperatura cieczy podczas pracy
- Minimalna robocza temperatura cieczy
- Kod pompy
- Średnica pełnego wirnika (tylko wirniki pełne)
- Średnica wirnika zredukowanego (tylko wirniki zredukowane)
- Zakres natężenia przepływu
- Zakres wysokości podnoszenia
- Prędkość obrotowa
- Znamionowa lub maksymalna moc pompy (zespōł pompy elektrycznej); maksymalna przyjęta moc pompy (pompa)
- Indeks wydajności minimalnej
- Wydajność hydrauliczna w punkcie najwyższej wydajności (tylko wirniki zredukowane)
- Ciężar

**magyar**

- Szivattyú típusa
- a. = Sorozatszám + gyártás kelte; b. = Gyártás éve + rendelés száma + rendelés pozíciószáma

**Čeština**

- Typ čerpadla
- a. = sériové číslo + datum výroby; b. = rok výroby + objednací číslo + číslo umístění objednávky
- Maximální provozní tlak
- Maximální teplota provozní kapaliny
- Minimální teplota provozní kapaliny
- Kód čerpadla
- Průměr plného oběžného kola (pouze pro plná oběžná kola)
- Průměr zmenšeného oběžného kola (pouze pro oříznutá oběžná kola)
- Průtoková rychlost
- Rozsah dopravní výšky
- Otáčky
- Nominální nebo maximální výkon čerpadla (jednotky elektrického čerpadla); maximální příkon čerpadla (čerpadlo)
- Index minimální účinnosti
- Hydraulická účinnost v bodě s nejlepší účinností (pouze pro oříznutá oběžná kola)
- Hmotnost

**Română**

- Tip pompă
- a. = Număr de serie + data fabricației; b. = Anul producției + număr comandă + număr poziție pe comandă

**Slovenčina**

- Typ čerpadla
- a. = sériové číslo + dátum výroby; b. = rok výroby + číslo objednávky + číslo na objednávke
- Maximálny prevádzkový tlak
- Maximálna prevádzková teplota kvapaliny
- Minimálna prevádzková teplota kvapaliny
- Kód čerpadla
- Úplný rozmer obežného kolesa (len pre úplné obežné kolesá)
- Zmenšený priemer obežného kolesa (len pre ozubené obežné kolesá)
- Rozsah prietoku
- Rozsah vodnej nádrže
- Rýchlosť
- Menovitý alebo maximálny výkon čerpadla (elektrické čerpanie zariadenie), maximálny príkon čerpadla (čerpadlo)
- Index minimálnej efektivity
- Hydraulická efektivity v najlepšom bode efektivity (len pre ozubené obežné kolesá)
- Hmotnosť

**Български**

- Тип помпа
- a. = Сериен номер+дата на производство; b. = Година на производство+номер на

3. Maximális üzemi nyomás
4. Maximális üzemi folyadék-hőmérséklet
5. Minimális üzemi folyadék-hőmérséklet
6. Szivattyú kódja
7. Teljes járókerék átmérője (csak teljes járókerekek esetében)
8. Csökkentett járókerék átmérő (csak levágot járókerekek esetében)
9. Kapacitástartomány
10. Nyomómagasság-tartomány
11. Fordulatszám
12. Névleges vagy maximális szivattyúteljesítmény (elektromos szivattyúegység); maximális elnyelt szivattyúteljesítmény (szivattyú)
13. Minimális hatékonysági index
14. Hidraulikus hatékonyság a legjobb hatékonysági ponton (csak a levágot járókerekek esetében)
15. Tömeg

3. Presiune de funcționare maximă
4. Temperatură maximă lichid în stare de funcționare
5. Temperatură minimă lichid în stare de funcționare
6. Cod pompă
7. Diametru rotor cu pale de dimensiuni complete (doar pentru rotoarele cu pale de dimensiuni complete)
8. Diametru rotor cu pale de dimensiuni reduse (doar pentru rotoarele cu pale cu diametru exterior redus)
9. Interval debit
10. Interval presiune hidrostatică
11. Viteză
12. Putere nominală sau maximă a pompei (unitate de pompă electrică); putere maximă absorbită a pompei (pompa)
13. Indice de eficiență minimă
14. Eficiență hidraulică în punctul de eficiență optimă (doar pentru rotoarele cu pale cu diametru exterior redus)
15. Greutate

- порьчка+номер на позиция на порьчка
3. Максимално работно налягане
4. Максимална работна температура на течността
5. Минимална работна температура на течността
6. Код на помпата
7. Диаметър на целия ротор (само за цели ротори)
8. Диаметър на намаляния ротор (само за изрязани ротори)
9. Диапазон на дебита
10. Диапазон на напора
11. Скорост
12. Номинална или максимална мощност на помпата (електрическа помпа); максимална използвана мощност на помпата (помпа)
13. Индекс на минимална ефективност
14. Хидравлична ефективност в точката на най-добра ефективност (само за изрязани ротори)
15. Тегло

#### Slovenščina

1. Vrsta črpalke
2. a. = serijska številka + datum proizvodnje; b. = leto proizvodnje + številka naročila + številka položaja naročila
3. Največji delovni tlak
4. Najvišja temperatura delovne tekočine
5. Najmanjša temperatura delovne tekočine
6. Koda črpalke
7. Polni premer rotorja (samo za polne rotorje)
8. Zmanjšan premer rotorja (samo za prirezane rotorje)
9. Razpon pretoka
10. Velikost glave
11. Hitrost
12. Nominalna ali največja moč črpalke (električna črpalna enota); največja sprejeta moč črpalke (črpalka)
13. Indeks najmanjše učinkovitosti
14. Učinkovitost hidravlične črpalke na točki največje učinkovitosti (samo za obrezane rotorje)
15. Teža

#### Hrvatski

1. Vrsta pumpe
2. a. = Serijski broj + datum proizvodnje; b. = Godina proizvodnje + broj narudžbe + broj slijeda narudžbe
3. Najveći radni tlak
4. Maksimalna radna temperatura tekućine
5. Minimalna radna temperatura tekućine
6. Šifra pumpe
7. Promjer cijelog rotora (samo za cijele rotore)
8. Promjer skraćenog rotora (samo za skraćene rotore)
9. Raspon protoka
10. Raspon visine dobave
11. Brzina
12. Nominalna ili maksimalna snaga pumpe (jedinica električne pumpe); maksimalna apsorbirana snaga pumpe (pumpa)
13. Minimalni indeks učinkovitosti
14. Hidraulička učinkovitost u tački najveće učinkovitosti (samo za skraćene rotore)
15. Težina

#### Srpski

1. Tip pumpe
2. a. = Serijski broj + datum proizvodnje; b. = Godina proizvodnje + broj porudžbine + broj redosleda porudžbine
3. Maksimalni radni pritisak
4. Maksimalna radna temperatura tečnosti
5. Minimalna radna temperatura tečnosti
6. Kod pumpe
7. Prečnik celog rotora (samo za cele rotore)
8. Prečnik skraćenog rotora (samo za skraćene rotore)
9. Opseg protoka
10. Opseg pritiska
11. Brzina
12. Nominalna ili maksimalna snaga pumpe (jedinica električne pumpe); maksimalna apsorbovana snaga pumpe (pumpa)
13. Minimalni indeks efikasnosti
14. Hidraulična efikasnost u tački najveće efikasnosti (samo za skraćene rotore)
15. Težina

#### Ελληνικά

1. Τύπος αντλίας
2. α. = Σειριακός αριθμός + ημερομηνία κατασκευαστής, β. = Έτος παραγωγής + αρ.

#### Türkçe

1. Pompa tipi
2. a. = Seri numarası + üretim tarihi; b. = Üretim yılı + sipariş numarası + sipariş konum numarası

#### Русский

1. Тип насоса
2. a. = Серийный номер + дата изготовления; b. = Год изготовления + номер

- παραγγελίας + αρ. θέσης παραγγελίας
3. Μέγιστη λειτουργική πίεση
  4. Μέγιστη θερμοκρασία υγρού για λειτουργία
  5. Ελάχιστη θερμοκρασία υγρού για λειτουργία
  6. Κωδικός αντλίας
  7. Πλήρης διάμετρος αντλίας (μόνο για πλήρεις φτερωτές)
  8. Μειωμένη διάμετρος αντλίας (μόνο για αντισταθμισμένες φτερωτές)
  9. Πεδίο ροής
  10. Εύρος κεφαλής
  11. Ταχύτητα
  12. Ονομαστική ή μέγιστη ισχύς αντλίας (μονάδα ηλεκτρικής αντλίας), μέγιστη απορροφούμενη ισχύς αντλίας (αντλία)
  13. Δείκτης ελάχιστης απόδοσης
  14. Υδραυλική απόδοση στο καλύτερο δυνατό σημείο απόδοσης (μόνο για αντισταθμισμένες φτερωτές)
  15. Βάρος
3. Maksimum çalışma basıncı
  4. Maksimum çalışma sıvı sıcaklığı
  5. Minimum çalışma sıvı sıcaklığı
  6. Pompa kodu
  7. Tam çark çapı (sadece tam çarklar için)
  8. Azaltılmış çark çapı (sadece kesilmiş çarklar için)
  9. Akış aralığı
  10. Kafa aralığı
  11. Hız
  12. Nominal veya maksimum pompa gücü (elektrikli pompa ünitesi); emilen maksimum pompa gücü (pompa)
  13. Minimum verimlilik indeksi
  14. En verimli noktada hidrolik verimliliği (sadece kesilmiş çarklar için)
  15. Ağırılık
3. заказа + номер позиции заказа
  3. Максимальное рабочее давление
  4. Максимальная рабочая температура жидкости
  5. Минимальная рабочая температура жидкости
  6. Код насоса
  7. Диаметр полноразмерного рабочего колеса (только для полноразмерных полных рабочих колес)
  8. Диаметр уменьшенного рабочего колеса (только для уменьшенных рабочих колес)
  9. Диапазон расхода
  10. Диапазон напора
  11. Частота вращения
  12. Номинальная или максимальная мощность насоса (электрический насос); максимальная поглощаемая мощность насоса (насос)
  13. Минимальный КПД
  14. Гидравлический КПД в точке оптимального КПД (только для уменьшенных рабочих колес)
  15. Вес

## Αγγλίσκκα

1. Тип насоса
2. a. = Серийний номер + дата виготовлення; b. = Ρίк виготовлення + номер замовлення + номер позиції замовлення
3. Максимальний робочий тиск
4. Максимальна температура рідини
5. Мінімальна робоча температура рідини
6. Код насоса
7. Діаметр повнорозмірного робочого колеса (тільки для повнорозмірних робочих коліс)
8. Діаметр зменшеного робочого колеса (тільки для регульованих робочих коліс)
9. Діапазон витрат
10. Діапазон напора
11. Швидкість
12. Номинальна або максимальна потужність насосу (електрична насосна установка); максимальна споживана потужність насосу (насос)
13. Мінімальний ККД
14. Гідравлічний ККД в точці оптимального ККД (тільки

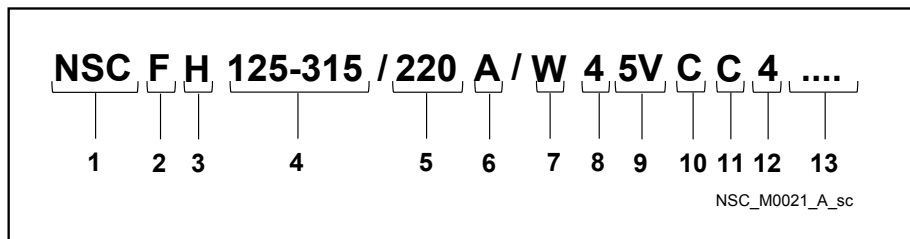
## العربية

1. نوع المضخة
2. أ. = الرقم التسلسلي + تاريخ التصنيع؛ ب. = عام الإنتاج + رقم الطلب + رقم موضع الطلب
3. الحد الأقصى لضغط التشغيل
4. الحد الأقصى لدرجة حرارة سائل التشغيل
5. الحد الأدنى لدرجة حرارة سائل التشغيل
6. رمز المضخة
7. القطر الكامل للدفاعة (للدفاعات الكاملة فقط)
8. القطر المصغر للدفاعة (للدفاعات المصغرة فقط)
9. نطاق الضخ
10. نطاق الرأس
11. السرعة
12. طاقة المضخة الاسمية أو القصوى (وحدة مضخة كهربائية)؛ طاقة المضخة القصوى الممتصة (المضخة)
13. مؤشر الحد الأدنى للكفاءة
14. الكفاءة الهيدروليكية عند نقطة أفضل كفاءة (للدفاعات المصغرة فقط)
15. الوزن

для зменшених робочих  
коліс)

15. Bara

2.



### Italiano

1. NSC = Tipo pompa
2. Indicazione giunto; F = montato su telaio, C = telaio montato con giunto distanziale
3. Tipo di azionamento; niente = motore elettrico asincrono standard, H = dotati di Hydrovar, X = altro
4. 125-315 = Dimensione della pompa
5. 220 = Potenza nominale (kWx10)
6. Girante; vuoto = diametro intero, A = diametro tornito, B = diametro tornito, X = altro
7. Tipo di motore, P = PLM, S = SM, W = WEG, X = Altro
8. Numero di poli; 2 = a 2 poli, 4 = a 4 poli, 6 = a 6 poli
9. Tensione e frequenza elettrica;

50 Hz	
5H	1x220-240 V
5R	3x220-240/380-415 V
5V	3x380-415/660-690 V
5P	3x200-208/346-360 V
5S	3x255-265/440-460 V
5T	3x290-300/500-525 V
5W	3x440-460/- V

60 Hz	
6F	1x220-230 V
6E	1x200-210 V
6P	3x220-230/380-400 V
6R	3x255-277/440-480 V
6V	3x440-480/- V

### English

1. NSC = Pump type
2. Coupling indication; F = frame-mounted, C = frame-mounted with spacer coupling
3. Driver type; void= standard asynchronous motor, H = equipped with Hydrovar, X =other drivers
4. 125-315 = Pump size
5. 220 = Rated motor power (kWx10)
6. Impeller; void = full diameter, A = trimmed diameter, B = trimmed diameter, X = other
7. Motor type, P = PLM, S = SM, W = WEG, X = Other
8. Number of poles; 2 = 2-pole, 4 = 4-pole, 6 = 6-pole
9. Electrical voltage and frequency;

50 Hz	
5H	1x220-240 V
5R	3x220-240/380-415 V
5V	3x380-415/660-690 V
5P	3x200-208/346-360 V
5S	3x255-265/440-460 V
5T	3x290-300/500-525 V
5W	3x440-460/- V

60 Hz	
6F	1x220-230 V
6E	1x200-210 V
6P	3x220-230/380-400 V
6R	3x255-277/440-480 V
6V	3x440-480/- V
6U	3x380-400/660-690 V

### Français

1. NSC = type de pompe
2. Indication d'accouplement ; F = monté sur le châssis, C = monté sur le châssis avec entretoise d'accouplement
3. Type de variateur ; vide = moteur à synchrone standard, H = équipé Hydrovar, X = autres variateurs
4. 125-315 = Dimension de pompe
5. 220 = Puissance nominale du moteur (kWx10)
6. Roue ; vide = diamètre complet, A = diamètre rectifié, B = diamètre rectifié, X = autre
7. Type de moteur, P = PLM, S = SM, W = WEG, X = Autre
8. Nombre de pôles ; 2 = 2 pôles, 4 = 4 pôles, 6 = 6 pôles
9. Tension et fréquence électrique ;

50 Hz	
5H	1x220-240 V
5R	3x220-240/380-415 V
5V	3x380-415/660-690 V
5P	3x200-208/346-360 V
5S	3x255-265/440-460 V
5T	3x290-300/500-525 V
5W	3x440-460/- V

60 Hz	
6F	1x220-230 V
6E	1x200-210 V
6P	3x220-230/380-400 V
6R	3x255-277/440-480 V
6V	3x440-480/- V

60 Hz	
6U	3x380-400/660-690 V
6N	3x200-208/346-360 V
6T	3x330-346/575-600 V

10. Materiale corpo pompa
11. Materiale girante
12. Tenuta meccanica + configurazione materiale O-ring
13. Cifre libere per le opzioni

### Deutsch

1. NSC = Pumpentyp
2. Kupplungsangabe; F = Rahmenmontiert, C = Rahmenmontiert mit Kupplung mit Abstandshalter
3. Antriebstop; leer = standardmäßiger Asynchronmotor, H = ausgestattet mit Hydrovar, X = sonstige Antriebe
4. 125–315 = Pumpengröße
5. 220 = Motornennleistung (kW x 10)
6. Laufrad; leer = kompletter Durchmesser, A = gekürzter Durchmesser, B = gekürzter Durchmesser, X = Sonstige
7. Motortyp, P = PLM, S = SM, W = WEG, X = Sonstige
8. Anzahl der Pole; 2 = 2-poliger, 4 = 4-poliger, 6 = 6-poliger
9. Elektrische Spannung und Frequenz;

50 Hz	
5H	1x220-240 V
5R	3x220-240/380-415 V
5V	3x380-415/660-690 V
5P	3x200-208/346-360 V
5S	3x255-265/440-460 V
5T	3x290-300/500-525 V
5W	3x440-460/- V

60 Hz	
6F	1x220-230 V
6E	1x200-210 V
6P	3x220-230/380-400 V
6R	3x255-277/440-480 V
6V	3x440-480/- V
6U	3x380-400/660-690 V
6N	3x200-208/346-360 V
6T	3x330-346/575-600 V

10. Gehäusewerkstoff
11. Laufradwerkstoff

60 Hz	
6N	3x200-208/346-360 V
6T	3x330-346/575-600 V

10. Casing material
11. Impeller material
12. Mechanical seal + O-ring material configuration
13. Free digits for options

### Español

1. NSC = tipo de bomba
2. Indicación de acoplamiento; F = montado en bastidor, C = montado en bastidor con acoplamiento con espaciador
3. Tipo de motor; nulo = motor asíncrono estándar, H = equipado con Hydrovar, X = otros motores
4. 125–315 = tamaño de la bomba
5. 220 = Potencial nominal de motor (kWx10)
6. Impulsor; vacío = diámetro completo, A = diámetro activado, B = diámetro activado, X = otros
7. Tipo de motor, P = PLM, S = SM, W = WEG, X = otros
8. Número de polos; 2 = 2 polos, 4 = 4 polos, 6 = 6 polos
9. Frecuencia y tensión eléctrica;

50 Hz	
5H	1x220-240 V
5R	3x220-240/380-415 V
5V	3x380-415/660-690 V
5P	3x200-208/346-360 V
5S	3x255-265/440-460 V
5T	3x290-300/500-525 V
5W	3x440-460/- V

60 Hz	
6F	1x220-230 V
6E	1x200-210 V
6P	3x220-230/380-400 V
6R	3x255-277/440-480 V
6V	3x440-480/- V
6U	3x380-400/660-690 V
6N	3x200-208/346-360 V
6T	3x330-346/575-600 V

10. Material de la carcasa
11. Material del impulsor

60 Hz	
6U	3x380-400/660-690 V
6N	3x200-208/346-360 V
6T	3x330-346/575-600 V

10. Matériau du corps
11. Matériau de la roue
12. Configuration de joint mécanique et matériau de joint torique
13. Chiffres libres pour options

### Português

1. NSC = tipo de bomba
2. Indicação do acoplamento; F = montado na estrutura, C = montado na estrutura com acoplamento espaçador
3. Tipo de accionamento; nulo = motor assíncrono padrão, H = equipado com Hydrovar, X = outros accionadores
4. 125–315 = Dimensão da bomba
5. 220 = Alimentação nominal do motor (kW x 10)
6. Impulsor; nulo = diâmetro integral, A = diâmetro aparado, B = diâmetro aparado, X = outro
7. Tipo de motor, P = PLM, S = SM, W = WEG, X = Outro
8. Número do pólos; 2 = de 2 pólos, 4 = de 4 pólos, 6 = de 6 pólos
9. Frequência e voltagem elétrica;

50 Hz	
5H	1x220-240 V
5R	3x220-240/380-415 V
5V	3x380-415/660-690 V
5P	3x200-208/346-360 V
5S	3x255-265/440-460 V
5T	3x290-300/500-525 V
5W	3x440-460/- V

60 Hz	
6F	1x220-230 V
6E	1x200-210 V
6P	3x220-230/380-400 V
6R	3x255-277/440-480 V
6V	3x440-480/- V
6U	3x380-400/660-690 V
6N	3x200-208/346-360 V
6T	3x330-346/575-600 V

10. Material da caixa
11. Material do impulsor

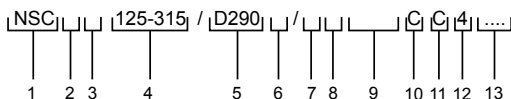
50 Hz	
5S	3x255-265/440-460 V
5T	3x290-300/500-525 V
5W	3x440-460/- V

60 Hz	
6F	1x220-230 V
6E	1x200-210 V
6P	3x220-230/380-400 V
6R	3x255-277/440-480 V
6V	3x440-480/- V
6U	3x380-400/660-690 V
6N	3x200-208/346-360 V
6T	3x330-346/575-600 V

Hz 60	
1x220-230 V	6F
1x200-210 V	6E
3x220-230/380-400 V	6P
3x255-277/440-480 V	6R
3x440-480/- V	6V
3x380-400/660-690 V	6U
3x200-208/346-360 V	6N
3x330-346/575-600 V	6T

10. مواد العلية  
 11. مواد وحدة الدفع  
 12. مانع التسرب الميكانيكي + تكوين المواد بحلقة دائرية  
 13. أرقام حرة للخيارات

10. Матеріал корпусу  
 11. Матеріал робочого колеса  
 12. Конфігурація матеріалів збірки механічне ущільнення + ущільнювальне кільце  
 13. Вільні позиції для опцій



NSC\_M0029\_A\_sc

### Italiano

1. NSC = Tipo pompa
2. Indicazione giunto; vuoto = asse nudo
3. Vuoto
4. 125-315 = Dimensione della pompa
5. D310 = Diametro della girante
6. Vuoto
7. Vuoto
8. Vuoto
9. Vuoto
10. Materiale corpo pompa
11. Materiale girante
12. Tenuta meccanica + configurazione materiale O-ring
13. Cifre libere per le opzioni

### English

1. NSC = Pump type
2. Coupling indication; void = bare shaft
3. Void
4. 125-315 = Pump size
5. D310 = Impeller diameter
6. Void
7. Void
8. Void
9. Void
10. Casing material
11. Impeller material
12. Mechanical seal + O-ring material configuration
13. Free digits for options

### Français

1. NSC = type de pompe
2. Indication d'accouplement ; vide = arbre nu
3. Vide
4. 125-315 = Dimension de pompe
5. D310 = Diamètre de la roue
6. Vide
7. Vide
8. Vide
9. Vide
10. Matériau du corps
11. Matériau de la roue
12. Configuration de joint mécanique et matériau de joint torique
13. Chiffres libres pour options

### Deutsch

1. NSC = Pumpentyp
2. Kupplungsangabe; Leer = nur mit Welle
3. Leer
4. 125-315 = Pumpengröße
5. D310 = Laufraddurchmesser
6. Leer
7. Leer
8. Leer

### Español

1. NSC = tipo de bomba
2. Indicación de acoplamiento; nulo = eje libre
3. Nulo
4. 125-315 = tamaño de la bomba
5. D310 = diámetro del impulsor
6. Nulo

### Português

1. NSC = tipo de bomba
2. Indicação do acoplamento; inválido = eixo simples
3. Inválido
4. 125-315 = Dimensão da bomba
5. D310 = Diâmetro do impulsor
6. Inválido



5. D310 = Διάμετρος φτερωτής
6. Κενό
7. Κενό
8. Κενό
9. Κενό
10. Υλικό κελύφους
11. Υλικό φτερωτής
12. Διαμόρφωση μηχανικής στεγανοποίησης + υλικού δακτυλίου κυκλικής διατομής
13. Ελεύθερα ψηφία για επιλογές

5. D310 = Çarkın çarı
6. Geçersiz
7. Geçersiz
8. Geçersiz
9. Geçersiz
10. Gövde malzemesi
11. Çark malzemesi
12. Mekanik mühür + O-halka malzeme yapılandırması
13. Seçenekler için serbest rakamlar

4. 125–315 = типоразмер насоса
5. D310 = диаметр рабочего колеса
6. Пустота
7. Пустота
8. Пустота
9. Пустота
10. Материал кожуха
11. Материал рабочего колеса
12. Конфигурация материалов механического уплотнения + уплотнительного кольца
13. Свободные позиции для опций

**Английська**

1. NSC = тип насоса
2. Позначення на муфті; Void = вільний кінець вала
3. Void
4. 125–315 = типорозмір двигуна
5. D310 = діаметр робочого колеса
6. Void
7. Void
8. Void
9. Void
10. Матеріал корпусу
11. Матеріал робочого колеса
12. Конфігурація матеріалів збірки механічне ущільнення + ущільнювальне кільце
13. Вільні позиції для опцій

**العربية**

1. NSC = نوع المضخة
2. مؤشر الإقران؛ لا شيء = بدون قاعدة أو محرك
3. لا شيء
4. مقاس المضخة = 125–315
5. قطر الدفاعة = D310
6. لا شيء
7. لا شيء
8. لا شيء
9. لا شيء
10. مواد الغلابة
11. مواد الدفاعة
12. مانع التسرب الميكانيكي + تكوين المواد بحلقة دائرية
13. أرقام حرة للخيارات

3.

**NSC F H 125-315 / 220 A / W 4 5V C C 4 ....****10 11 12**

NSC\_M0030\_A\_sc

	<b>F</b>	<b>G</b>
10	C	11
	D	12
	N	24
	R	25
11	C	10
	B	30
	S	23
	N	24
	R	25

	F	G
12	2	51
	4	50
	W	53
	Z	52
	L	54
	U	55

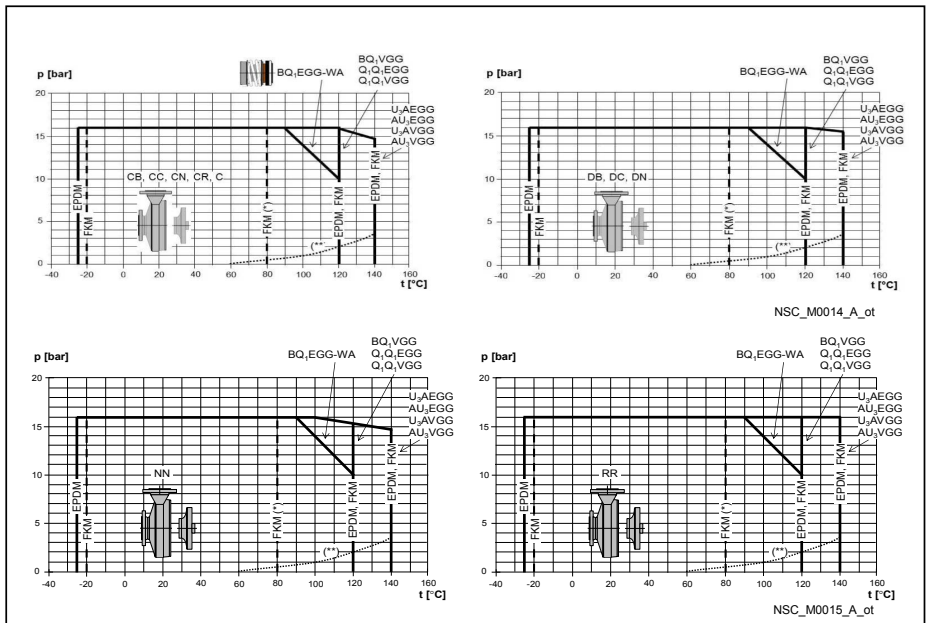
- F Codice • Code • Code • Code • Código • Código • Code • Kode • Kode • Kod • Koodi • Kódi • Kood • Kods • Kodas • Kod • Kód • Kód • Kód • Cod • Код • Koda • Kod • Kod • Код • Код • Код • الرمز
- G Materiali • Material • Matériau • Material • Material • Material • Material • Materiale • Materiale • Material • Materiali • Efni • Materjal • Materiāls • Medžiaga • Material • Material • Material • Anyag • Material • Материал • Material • Materjal • Materjal • Υλικό • Malzeme • Материал • Materjal • المادة
- 10 Ghisa EN-GJL-200 / A48 Classe 30 • Cast iron EN-GJL-200 / A48 Class 30 • Fonte EN-GJL-200 / A48 Classe 30 • Grauguss EN-GJL-200 / A48 Klasse 30 • Hierro fundido EN-GJL-200 / A48 class 30 • Ferro fundido EN-GJL-200/A48 Klasse 30 • Gietījzer EN-GJL-200 / A48 Klasse 30 • Støbejern EN-GJL-200 / A48 klasse 30 • Støpejern EN-GJL-200 / A48 klasse 30 • Gjutjärn EN-GJL-200 / A48 klass 30 • Valurauta EN-GJL-200 / A48 Class 30 • Steypujárn EN-GJL-200 / A48 Flokkur 30 • Malm EN-GJL-200 / A48 class 30 • Čuguns EN-GJL-200/A48 Klasse 30 • Ketus EN-GJL-200 / A48, 30 klasés • Želiwo EN-GJL-200 / A48 klasa 30 • Litina EN-GJL-200 / A48 třída 30 • Liatina EN-GJL-200/A48 trieda 30 • Öntöttvas, EN-GJL-200/A48, 30. osztály • Fontá EN-GJL-200/A48, Clasa 30 • Чугун EN-GJL-200 / A48 клас 30 • Lito železo EN-GJL-200/A48 razred 30 • Lijevano željezo EN-GJL-200 / A48 razred 30 • Liveno gvozdje EN-GJL-200 / A48 klasa 30 • Χυτοσίδηρος EN-GJL-200 / A48 Τάξη 30 • Gövde demiri EN-GJL-200 / A48 Class 30 • Литой чугун EN-GJL-200 / A48 класс 30 • Литий чавун EN-GJL-200 / A48 клас 30 • حديد زهر EN-GJL200- / A48 الفئة 30
- 11 Ghisa EN-GJL-250 / A48 Classe 35 • Cast iron EN-GJL-250 / A48 Class 35 • Fonte EN-GJL-250 / A48 Classe 35 • Grauguss EN-GJL-250 / A48 Klasse 35 • Hierro fundido EN-GJL-250 / A48 class 35 • Ferro fundido EN-GJL-250/A48 Klasse 35 • Gietījzer EN-GJL-250 / A48 Klasse 35 • Støbejern EN-GJL-250 / A48 klasse 35 • Støpejern EN-GJL-250 / A48 klasse 35 • Gjutjärn EN-GJL-250 / A48 klass 35 • Valurauta EN-GJL-250 / A48 Class 35 • Steypujárn EN-GJL-250 / A48 Flokkur 35 • Malm EN-GJL-250 / A48 class 35 • Čuguns EN-GJL-250/A48 Klasse 35 • Ketus EN-GJL-250 / A48, 35 klasés • Želiwo EN-GJL-250 / A48 klasa 35 • Litina EN-GJL-250 / A48 třída 35 • Liatina EN-GJL-250/A48 trieda 35 • Öntöttvas, EN-GJL-250/A48, 35. osztály • Fontá EN-GJL-250/A48, Clasa 35 • Чугун EN-GJL-250 / A48 клас 35 • Lito železo EN-GJL-250/A48 razred 35 • Lijevano željezo EN-GJL-250 / A48 razred 35 • Liveno gvozdje EN-GJL-250 / A48 klasa 35 • Χυτοσίδηρος EN-GJL-250 / A48 Τάξη 35 • Gövde demiri EN-GJL-250 / A48 Sınıf 35 • Литой чугун EN-GJL-250 / A48 класс 35 • Литий чавун EN-GJL-250 / A48 клас 35 • حديد زهر EN-GJL-250 / A48 الفئة 35
- 12 Ghisa sferoidale EN-GJS-400-15 / A395, Grado 60-40-15 • Ductil iron EN-GJS-400-15 / A395, Grade 60-40-15 • Fonte ductile EN-GJS-400-15 / A395, Nuance 60-40-15 • Kugelgraphit EN-GJS-400-15 / A395, Güte 60-40-15 • Hierro dúctil EN-GJS-400-15 / A395, Grado 60-40-15 • Ferro dúctil EN-GJS-400-15/ A395, Grau 60-40-15 • Vormbaar ijzer EN-GJS-400-15 / A395, Klasse 60-40-15 • Duktilt jern EN-GJS-400-15 / A395, klasse 60-40-15 • Nodularjern EN-GJS-400-15 / A395, klassifisering 60-40-15 • Segjärn EN-GJS-400-15 / A395, grad 60-40-15 • Pallografiittivalurauta EN-GJS-400-15 / A395, Grade 60-40-15 • Sveigjanlegt járn EN-GJS-400-15 / A395, Gráða 60-40-15 • Körtugev malm EN-GJS-400-15 / A395, aste 60-40-15 • Kajamais čuguns EN-GJS-400-15/A395, klasse 60-40-15 • Taşusis ketus EN-GJS-400-15 / A395, rūšis 60-40-15 • Želiwo sferoidalne EN-GJS-400-15 / A395, 60-40-15 stopni • Tvárná litina EN-GJS-400-15 / A395, třída 60-40-15 • Kované železo EN-GJS-400-15/A395, trieda 60-40-15 • Lágyvas, EN-GJS-400-15/A395, 60-40-15 kategória • Fontá cu grafit nodular EN-GJS-400-15/A395, Gradul 60-40-15 • Сферографитен чугун EN-GJS-400-15 / A395, клас 60-40-15 • Kovno železo EN-GJS-400-15/A395, razred 60-40-15 • Nodularno željezo EN-GJS-400-15 / A395, Stupanj 60-40-15 • Nodularno gvozdje EN-GJS-400-15 / A395, Stepen 60-40-15 • Ολκίμος σιδηρος EN-GJS-400-15 / A395, βαθμός 60-40-15 • Dövülebilir demir EN-GJS-400-15 / A395, Derece 60-40-15 • Ковкий чугун EN-GJS-400-15 / A395, сорт 60-40-15 • Ковкий чавун EN-GJS-400-15 / A395, сорт 60-40-15 • حديد مكنثيل EN-GJS-400-15 / A395, الدرجة 15-40-60
- 23 Acciaio inossidabile 1.4404 / 316L — A276 • Stainless steel 1.4404 / 316L — A276 • Acier inoxydable 1.4404 / 316L — A276 • Rostfreier Stahl 1.4404 / 316L — A276 • Acero inoxidable 1.4404 / 316L — A276 • Aço inoxidável 1.4404 / 316L — A276 • Roestvrijstaal 1.4404 / 316L — A276 • Rustrfritt stål 1.4404 / 316L — A276 • Rustfritt stål 1.4404 / 316L — A276 • Roestfritt stål 1.4404 / 316L — A276 • Roostevaba teras 1.4404 / 316L — A276 • Nerūsošais tērauds 1.4404 / 316L — A276 • Nerūdijantysis plienas 1.4404 / 316L — A276 • Stal nierdzewa 1.4404 / 316L — A276 • Nerezová ocel 1.4404 / 316L — A276 • Nehrđzavejūca ocel 1.4404/316L — A276 • Rozsđamentes acél 1.4404/316L — A276 • Oteł inoxidabil 1.4404/316L — A276 • Неръждаема стомана 1.4404 / 316L — A276 • Nerjavno jeklo 1.4404/316L — A276 • Nehrđajući čelik 1.4404 / 316L —



- bid / siliciumkarbid / EPDM • Q1Q1EGG: Silikonkarbid / silikonkarbid / EPDM • Q1Q1EGG: Silikonkarbid / silikonkarbid/EPDM • Q1Q1EGG: piikarbid/piikarbid/EPDM • Q1Q1EGG: Kiskilkarbiður / kiskilkarbiður / EPDM • Q1Q1EGG: ränikarbid / ränikarbid / EPDM • Q1Q1EGG: silícija karbids / silícija karbids / EPDM • Q1Q1EGG: silicio karbidas / silicio karbidas / etilenpropileninis kaučiukas • Q1Q1EGG: węglík krzemu / węglík krzemu/EPDM • Q1Q1EGG: Karbid křemíku / karbid křemíku / EPDM • Q1Q1EGG: Karbid kremíka / karbid kremíka/EPDM • Q1Q1EGG: Szilícium-karbid / szilícium-karbid / EPDM • Q1Q1EGG: Carbură de siliciu / carbură de siliciu/EPDM • Q1Q1EGG: Силициев карбид / силициев карбид / EPDM • Q1Q1EGG: silicijev karbid/silicijev karbid/EPDM • Q1Q1EGG: Silikon karbid / silikon karbid / EPDM • Q1Q1EGG: Silikon karbid / silikon karbid / EPDM • Q1Q1EGG: Silikon karbid / silikon karbid / EPDM • Q1Q1EGG: Карбидιο τσιπτιου / καρβίδιο τσιπτιου / EPDM • Q1Q1EGG: Silikon karbit / silikon karbit / EPDM • Q1Q1EGG: Карбид кремния / карбид кремния / EPDM • Q1Q1EGG: Карбід кремнію / карбід кремнію / EPDM • Q1Q1EGG: كربيد السليكون / كربيد السليكون / EPDM
- 53 Q1Q1VGG: Carbuo di silicio/Carbuo di silicio/FKM • Q1Q1VGG: Silicon carbide / silicon carbide/ FKM • Q1Q1VGG : Carbuo de silicium / carbuo de silicium / FKM • Q1Q1VGG: Siliciumcarbide / Siliciumcarbide / FKM • Q1Q1VGG: Carbuo de silicio / carbuo de silicio / FKM • Q1Q1VGG: Carboneto de silicio/carboneto de silicio/FKM • Q1Q1VGG: Siliciumcarbide / Siliciumcarbide / FKM • Q1Q1VGG: Siliciumkarbid / siliciumkarbid/ FKM • Q1Q1VGG: Silikonkarbid / silikonkarbid / FKM • Q1Q1VGG: Silikonkarbid/silikonkarbid/FKM • Q1Q1VGG: piikarbid/piikarbid/FKM • Q1Q1VGG: Kiskilkarbiður / kiskilkarbiður / FKM • Q1Q1VGG: ränikarbid / ränikarbid / FKM • Q1Q1VGG: silícija karbids / silícija karbids / FKM • Q1Q1VGG: silicio karbidas / silicio karbidas / fluorintas elastomeras • Q1Q1VGG: węglík krzemu/węglík krzemu/FKM • Q1Q1VGG: Karbid křemíku / karbid křemíku / FKM • Q1Q1VGG: Karbid kremíka/karbid kremíka/FKM • Q1Q1VGG: Szilícium-karbid / szilícium-karbid / FKM • Q1Q1VGG: Carbură de siliciu/carbură de siliciu/FKM • Q1Q1VGG: Силициев карбид / силициев карбид / FKM • Q1Q1VGG: oglijik/silicijev karbid/FKM • Q1Q1VGG: Silikon karbid / silikon karbid / FKM • Q1Q1VGG: Silikon karbid / silikon karbid / FKM • Q1Q1VGG: Карбидιο τσιπτιου / καρβίδιο τσιπτιου / FKM • Q1Q1VGG: Silikon karbit / silikon karbit / FKM • Q1Q1VGG: Карбид кремния / карбид кремния / FKM • Q1Q1VGG: Карбід кремнію / карбід кремнію / FKM • Q1Q1VGG: كربيد السليكون / كربيد السليكون / FKM
- 54 U3AEGG: Carbuo di tungsteno/Carbone impregnato in metallo/EPDM; AU3EGG: Carbonio impregnato in metallo/Carbuo di tungsteno/EPDM • U3AEGG: Tungsten carbide/metal impregnated carbon/EPDM; AU3EGG: Metal impregnated carbon/ tungsten carbide/EPDM • U3AEGG : Carbuo de tungstène/carbonate à imprégnation métallique/EPDM; AU3EGG : Carbone à imprégnation métallique/ carbuo dee tungstène/ EPDM • U3AEGG: Wolframkarbid / metallimprägnierter Kohlenstoff / EPDM; AU3EGG: Metallimprägnierter Kohlenstoff / Wolframkarbid / EPDM • U3AEGG: carbuo de volframio/carbono impregnado de metal/ EPDM; AU3EGG: carbono impregnado de metal/ carbuo de volframio/EPDM • U3AEGG: Carboneto de tungstênio/carbono impregnado de metal/EPDM; AU3EGG: Carbono impregnado de metal/carboneto de tungstênio/EPDM • U3AEGG: Tungsten carbide/metaal geïmpregneerde koolstof/EPDM; AU3EGG: Metaal geïmpregneerde carbon/ tungsten carbide/EPDM • U3AEGG: Wolfram-karbid/metalimpregnert kulstof/ EPDM; AU3EGG: Metalimpregnert kulstof/ wolfram-karbid/EPDM • U3AEGG: Wolframkarbid / metallimpregnert karbon/EPDM; AU3EGG: Metallimpregnert karbon / wolframkarbid / EPDM • U3AEGG: Wolframkarbid/metalimpregnert kol/EPDM; AU3EGG: Metallimpregnert kol/volframkarbid/EPDM • U3AEGG: volframkarbid/metalikyl/lasteinen hiili/EPDM; AU3EGG: metallikyl/lasteinen hiili/volframkarbid/EPDM • U3AEGG: Pungsteinabiður/málmmettað kolefni/EPDM; AU3EGG: Málmmettað kolefni/pungsteinabiður/ EPDM • U3AEGG: volframkarbid / súsinniku sisaldav metall / EPDM; AU3EGG: súsinniku sisaldav metall / volframkarbid / EPDM • U3AEGG: volframa karbids / metála impregnēts ogleklis / EPDM; AU3EGG: metála impregnēts ogleklis / volframa karbids / EPDM • U3AEGG: volframo karbidas / metalu impregnuota anglis / etilenpropileninis kaučiukas; AU3EGG: metalu impregnuota anglis / volframo karbidas / etilenpropileninis kaučiukas • U3AEGG: węglík wolframu/węgliek wzmocniany metalem/EPDM; AU3EGG: węgliek wzmocniany metalem/węglík wolframu/EPDM • U3AEGG: Karbid wolframu / kov vyztužený uhlíkem / EPDM; AU3EGG: Kov vyztužený uhlíkem / karbid wolframu / EPDM • U3AEGG: Karbid volfrámu/uhlík impregnovaný kovom/ EPDM; AU3EGG: Uhlík impregnovaný kovom/karbid volfrámu/EPDM • U3AEGG: Volfrámkarbid/fémimpregnált szén/EPDM; AU3EGG: Fémimpregnált szén volfrámkarbid/EPDM • U3AEGG: Carbură de tungsten/ carbon impregnat cu metal/EPDM; AU3EGG: Carbon impregnat cu metal/carbură de tungsten/EPDM • U3AVGG: Волфрамов карбид / импрегниран с метал въглерод / FKM; AU3VGG: Импрегниран с метал въглерод / волфрамов карбид / FKM • U3AEGG: volframov karbid/kovinsko impregninari oglijik/EPDM; AU3EGG: kovinsko impregninari oglijik/volframov karbid/EPDM • U3AEGG: Volfram karbid/metalni impregninari uglijik/EPDM; AU3EGG: Metalni impregninari uglijik/ volfram karbid/EPDM • U3AEGG: Volfram karbid/metalni impregninari uglijenik/EPDM; AU3EGG: Metalni impregninari uglijenik/ volfram karbid/EPDM • U3AEGG: Карбидιο βολφραμίου/μεταλλικός εμποτισμένος άνθρακας/EPDM, AU3EGG: Μεταλλικός εμποτισμένος άνθρακας/ Καρβίδιο βολφραμίου/EPDM • U3AEGG: Tungsten karbit/metal emdirilmis karbon/ EPDM; AU3EGG: Metal emdirilmis karbon/ tungsten karbit/EPDM • U3AEGG: Карбид вольфрама/ углерод, пропитанный металлом/EPDM; AU3EGG: Углерод, пропитанный металлом/карбидом вольфрама/EPDM • U3AEGG: Карбід вольфраму / вуглєць, просочений металом / EPDM; AU3EGG: Вуглець, просочений металом/ карбід вольфраму/EPDM • U3AEGG: كربيد المتجستين / كربون مشبع بالمعدن / EPDM; AU3EGG: كربون مشبع بالمعدن/كربيد المتجستين / EPDM
- 55 U3AVGG: Carbuo di tungsteno/Carbonio impregnato in metallo/FKM; AU3VGG: Carbonio impregnato in metallo/Carbuo di tungsteno/FKM • U3AVGG: Tungsten carbide/metal impregnated carbon/EPDM; AU3VGG: Metal impregnated carbon/ tungsten carbide/FKM • U3AVGG : Carbuo de tungstène/carbonate à imprégnation métallique/FKM; AU3VGG : Carbone à imprégnation métallique/ carbuo de tungstène/FKM • U3AVGG: Wolframkarbid / metallimprägnierter Kohlenstoff / FKM; AU3VGG: Metallimprägnierter Kohlen-

stoff / Wolframkarbid / FKM • U3AVGG: carburo de volframio/carbono impregnado de metal/FKM; AU3VGG: carbono impregnado de metal/ carburo de volframio/FKM • U3AVGG: Carboneto de tungsténio/ carbono impregnado de metal/FKM; AU3VGG: Carbono impregnado de metal/carboneto de tungsténio/FKM • U3AVGG: Tungsten carbide/metaal geïmpregneerde koolstof/FKM; AU3VGG: Metaal geïmpregneerde carbon/ tungsten carbide/FKM • U3AVGG: Wolfram-karbid/metallimpregneret kulstof/FKM; AU3VGG: Metallimpregneret kulstof/ wolfram-karbid/FKM • U3AVGG: Wolframkarbid / metallimpregneret karbon/FKM; AU3VGG: Metallimpregneret karbon / wolframkarbid / FKM • U3AVGG: Volframkarbid/metallimpregnerat kol/FKM; AU3VGG: Metallimpregnerat kol/volframkarbid/FKM • U3AVGG: volframkarbidi/metallikyl-lästeinen hiili/FKM; AU3VGG: metallikyl-lästeinen hiili/volframkarbidi/FKM • U3AVGG: tungsteinabíður/ málmmettað kolefni/FKM; AU3VGG: Málmmettað kolefni/pungsteinabíður/FKM • U3AVGG: volframkarbiid / súsinikku sisaldav metall / FKM; AU3VGG: súsinikku sisaldav metall / volframkarbiid / FKM • U3AVGG: volframa karbids / metála impregnëts ogleklis / FKM; AU3VGG: metála impregnëts ogleklis / volframa karbids / FKM • U3AVGG: volframo karbidas / metalu impregnuota anglis / fluorintas elastomeras; AU3VGG: metalu impregnuota anglis / volframo karbidas / fluorintas elastomeras • U3AVGG: węglik wolframu/węgiel wzmacniany metalem/węgiel wolframu/FKM • U3AVGG: Karbid wolframu / kov vyztužený uhlíkem / FKM; AU3VGG: Kov vyztužený uhlíkem / karbid wolframu / FKM • U3AVGG: Karbid volfrámu/uhlík impregnovaný kovom/FKM; AU3VGG: Uhlík impregnovaný kovom/karbid volfrámu/FKM • U3AVGG: Volfrámkarbid/fémimpregnált szén/FKM; AU3VGG: Fémimpregnált szén volfrámkarbid/FKM • U3AVGG: Carbură de tungsten/carbon impregnat cu metal/FKM; AU3VGG: Carbon impregnat cu metal/carbură de tungsten/FKM • U3AVGG: Волфрамов карбид / импрегниран с метал въглерод / FKM; AU3VGG: Импрегниран с метал въглерод / волфрамов карбид / FKM • U3AVGG: volframov karbid/kovinsko impregnanir ogljik/FKM; AU3VGG: kovinsko impregnanir ogljik/volframov karbid/FKM • U3AVGG: Volfram karbid/metalni impregnaniri ugljik/FKM; AU3VGG: Metalni impregnaniri ugljik/ volfram karbid/FKM • U3AVGG: Volfram karbid/metalni impregnaniri ugljenik/FKM; AU3VGG: Metalni impregnaniri ugljenik/ volfram karbid/FKM • U3AVGG: Καρβίδιο βολφραμίου/μεταλλικός εμποτισμένος άνθρακας/FKM, AU3EGG: Μεταλλικός εμποτισμένος άνθρακας/ Καρβίδιο βολφραμίου/FKM • U3AVGG: Tungsten karbit/ metal emdirilmiş karbon/EPDM; AU3VGG: Metal emdirilmiş karbon/ tungsten karbit/FKM • U3AVGG: Карбид вольфрама/углерод, пропитанный металлом/FKM; AU3VGG: Углерод, пропитанный металлом/карбидом вольфрама/FKM • U3AVGG: Карбід вольфраму / вуглець, просочений металом/ FKM; AU3VGG: Вуглець, просочений металом/ карбід вольфраму/FKM • U3AVGG: كربيد التنجستين / كربون مشبع بالمعدن /FKM; AU3VGG: كربون مشبع بالمعدن/كربيد التنجستين /FKM

4.

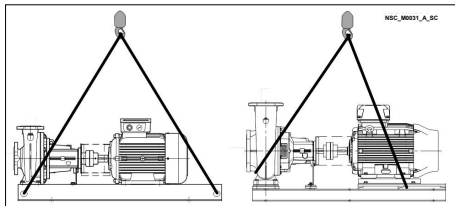


(\*) acqua calda – hot water – eau chaude – Heißes Wasser – agua caliente – água quente – heat water – varmt vand – varmt vann – varmt vatten – kuuma vesi – heitt vatin – (\*) kuum vesi – Karsts üdens – karštas vanduo – gorąca woda – Horká voda – horúca voda – forró víz – apă caldă

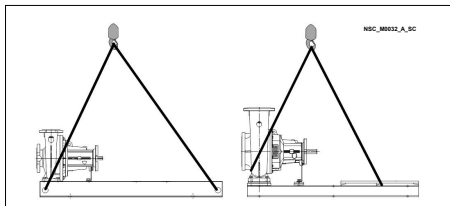
– • Гореща вода - • vroča voda – • vrela voda – • vrela voda – • ζεστό νερό– • sıcak su – • горячая вода – • горяча вода – • ماء ساخن –

(\*\*) pressione minima richiesta alla tenuta meccanica (acqua calda); • **minimum pressure required at mechanical seal (hot water)**; • pression minimale exigée sur le joint mécanique (eau chaude) ; • an der Gleitringdichtung (Heißwasser) minimal erforderlicher Druck; • presión mínima necesaria en el sello mecánico (agua caliente); • pressão mínima necessária no vedante mecânico (água quente); • minimale druk vereist bij mechanische sluiting (heet water); • minimum tryk krævet ved mekanisk tætning (varmt vand); • minimumt trykk som kreves ved mekanisk tetning (varmt vann); • minsta nödvändiga tryck vid mekanisk tätning (varmt vatten); • mekaanisessa tiivisteessä tarvittava vähimmäispaine (kuuma vesi); • lágmarks þrýstingur þarf við þakkdós (heitt vatn); • minimaalne mehaanilise tihendi juures nõutav rõhk (kuum vesi); • Minimālais nepieciešamais spiediens, kas nepieciešams mehāniskās aizdares gadījumā (karsts ūdens) • minimalus slėgis, kurio reikia ties mechaniniu sandarikliu (karštas vanduo); • minimalne ciśnienie wymagane na uszczelnieniu mechanicznym (gorąca woda); • minimální tlak požadovaný pro mechanickou ucpávku (horká voda); • minimálny tlak potrebný pri mechanickej tesnení (horúca voda); • a mechanikai tömítésnél szükséges minimális nyomás (forró víz); • presiune minimă necesară la garnitura de etanșare mecanică (apă caldă); • Минимално налягане необходимо за механичното уплътнение (гореща вода); • najmanjši tlak, potreben pri mehanskem tesnilu (vroča voda); • minimalni tlak potreban na mehaničkim zatvaračima (vrela voda); • minimalni pūrisak potreban na mehaničkim zatvaračima (vrela voda); • ελάχιστη πίεση που απαιτείται στη μηχανική στεγανοποίηση (ζεστό νερό) . • mekanik keçede gereken minimum basınç (sıcak su); • требуется минимальное давление на механическое уплотнение (горячая вода); • потрібен мінімальний тиск на механічне ущільнення (гаряча вода); • يلزم الحد الأدنى من الضغط عند القفل الميكانيكي (ماء ساخن);

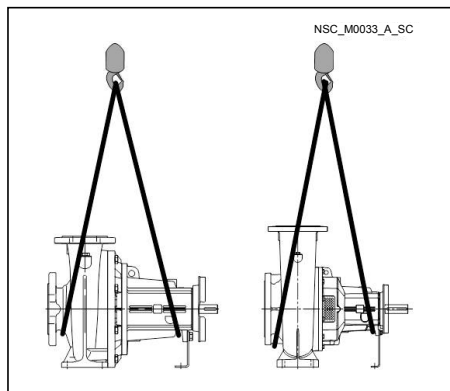
5.



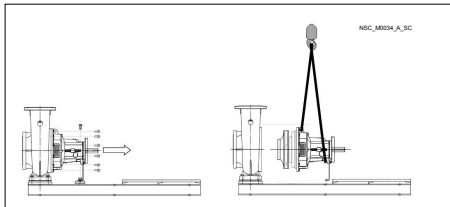
6.



7.



8.



9.

~2900 min-1						
	LpA dB ± 2	LwA dB ± 2			LpA dB ± 2	LwA dB ± 2
32-125/11	< 70	-		65-160/150	71	-
32-125/15	< 70	-		65-160/185	71,5	-

~2900 min-1					
32-125/22	< 70	-	65-200/110	70	-
32-125/30	< 70	-	65-200/150	71	-
32-160/22	< 70	-	65-200/185	71,5	-
32-160/30	< 70	-	65-200/220	72	-
32-160/40	< 70	-	65-200/300	74	-
32-160/55	< 70	-	65-250/300	74	-
32-200/40	< 70	-	65-250/370	74,5	-
32-200/55	< 70	-	65-250/450	77	-
32-200/75	< 70	-	65-250/550	78	-
32-250/110A	70	-	65-315/550	78	-
32-250/110	70	-	65-315/750	80	-
32-250/150	71	-	65-315/900	80,5	90
40-125/15	< 70	-	80-160/110	70	-
40-125/22	< 70	-	80-160/150	71	-
40-125/30	< 70	-	80-160/185	71,5	-
40-125/40	< 70	-	80-160/220	72	-
40-160/40	< 70	-	80-200/220	72	-
40-160/55	< 70	-	80-200/300	74	-
40-160/75	< 70	-	80-200/370	74,5	-
40-200/55	< 70	-	80-200/450	77	-
40-200/75	< 70	-	80-250/370	74,5	-
40-200/110A	70	-	80-250/450	77	-
40-200/110	70	-	80-250/550	78	-
40-250/110	70	-	80-250/750	80	-
40-250/150	71	-	80-316/900	80,5	90
40-250/185	71,5	-	80-316/1100	81	91
40-250/220	72	-	80-316/1320	82	92
50-125/30	< 70	-	80-316/1600	83	94
50-125/40	< 70	-	100-160/150	71	-
50-125/55	< 70	-	100-160/185	71,5	-
50-125/75	< 70	-	100-160/220	72	-
50-160/75	< 70	-	100-160/300	74	-
50-160/110A	70	-	100-200/300	74	-
50-160/110	70	-	100-200/370	74,5	-
50-200/110	70	-	100-200/450	77	-
50-200/150	71	-	100-200/550	78	-
50-200/185	71,5	-	100-250/450	77	-
50-250/185	71,5	-	100-250/550	78	-
50-250/220	72	-	100-250/750	80	-
50-250/300	74	-	100-250/900	80,5	90
50-315/370	74,5	-	100-316/1100	81	91
50-315/450	77	-	100-316/1320	82	92

~2900 min-1						
50-315/550	78	-		100-316/1600	83	94
50-315/750	80	-		125-200/450	77	-
65-125/40	< 70	-		125-200/550	78	-
65-125/55	< 70	-		125-200/750	80	-
65-125/75	< 70	-		125-200/900	80,5	90
65-125/110A	70	-		125-315/1100	81	91
65-125/110	70	-		125-315/1320	82	92
65-160/110A	70	-		125-315/1600	83	94
65-160/110	70	-		125-315/2000	84	95

~1450 min-1						
	LpA dB ± 2	LwA dB ± 2			LpA dB ± 2	LwA dB ± 2
32-125/02B	< 70	-		100-200/75	< 70	-
32-125/02A	< 70	-		100-250/55	< 70	-
32-125/02	< 70	-		100-250/75	< 70	-
32-125/03	< 70	-		100-250/110	< 70	-
32-160/02	< 70	-		100-315/110	< 70	-
32-160/03	< 70	-		100-315/150	< 70	-
32-160/05A	< 70	-		100-315/185	< 70	-
32-160/05	< 70	-		100-315/220	70	-
32-200/05	< 70	-		100-315/300	72	-
32-200/07	< 70	-		100-400/300	72	-
32-200/11	< 70	-		100-400/370	73	-
32-250/11	< 70	-		100-400/450	73,5	-
32-250/15	< 70	-		125-200/55	< 70	-
32-250/22	< 70	-		125-200/75	< 70	-
40-125/02A	< 70	-		125-200/110	< 70	-
40-125/02	< 70	-		125-250/75	< 70	-
40-125/03	< 70	-		125-250/110	< 70	-
40-125/05	< 70	-		125-250/150	< 70	-
40-160/05	< 70	-		125-315/185	< 70	-
40-160/07	< 70	-		125-315/220	70	-
40-160/11	< 70	-		125-315/300	72	-
40-200/07	< 70	-		125-315/370	73	-
40-200/11	< 70	-		125-400/370	73	-
40-200/15A	< 70	-		125-400/450	73,5	-
40-200/15	< 70	-		125-400/550	74,5	-
40-250/15	< 70	-		125-400/750	77	-
40-250/22A	< 70	-		150-200/110A	< 70	-
40-250/22	< 70	-		150-200/110	< 70	-
40-250/30	< 70	-		150-200/150A	< 70	-
50-125/03	< 70	-		150-200/150	< 70	-



~1450 min-1					
50-125/05	< 70	-	150-250/150	< 70	-
50-125/07	< 70	-	150-250/185	< 70	-
50-125/11	< 70	-	150-250/220	70	-
50-160/11A	< 70	-	150-250/300	72	-
50-160/11	< 70	-	150-315/300	72	-
50-160/15	< 70	-	150-315/370	73	-
50-200/15	< 70	-	150-315/450	73,5	-
50-200/22A	< 70	-	150-400/450	73,5	-
50-200/22	< 70	-	150-400/550	74,5	-
50-250/22	< 70	-	150-400/750	77	-
50-250/30	< 70	-	150-400/900	78	-
50-250/40	< 70	-	150-400/1100	79	-
50-315/40	< 70	-	150-500/900	78	-
50-315/55	< 70	-	150-500/1100	79	-
50-315/75	< 70	-	150-500/1320	80	-
50-315/110	< 70	-	150-500/1600	81	91
65-125/05	< 70	-	150-500/2000	82	92
65-125/07	< 70	-	200-250/185	< 70	-
65-125/11	< 70	-	200-250/220	70	-
65-125/15	< 70	-	200-250/300A	72	-
65-160/11	< 70	-	200-250/300	72	-
65-160/15	< 70	-	200-315/300	72	-
65-160/22A	< 70	-	200-315/370	73	-
65-160/22	< 70	-	200-315/450	73,5	-
65-200/15	< 70	-	200-315/550	74,5	-
65-200/22A	< 70	-	200-315/750	77	-
65-200/22	< 70	-	200-400/750A	77	-
65-200/30	< 70	-	200-400/750	77	-
65-200/40	< 70	-	200-400/900	78	-
65-250/40	< 70	-	200-400/1100	79	-
65-250/55A	< 70	-	200-400/1320	80	-
65-250/55	< 70	-	200-500/1320	80	-
65-250/75	< 70	-	200-500/1600	81	91
65-315/55	< 70	-	200-500/2000	82	92
65-315/75	< 70	-	200-500/2500	83	94
65-315/110	< 70	-	200-500/3150	84	95
65-315/150	< 70	-	250-315/370	73	-
80-160/15	< 70	-	250-315/450	73,5	-
80-160/22A	< 70	-	250-315/550	74,5	-
80-160/22	< 70	-	250-315/750	77	-
80-160/30	< 70	-	250-400/750	77	-
80-200/30	< 70	-	250-400/900	78	-

~1450 min-1						
80-200/40	< 70	-		250-400/1100	79	-
80-200/55A	< 70	-		250-400/1320	80	-
80-200/55	< 70	-		250-400/1600	81	91
80-250/55A	< 70	-		250-400/2000	82	92
80-250/55	< 70	-		250-500/1600	81	91
80-250/75	< 70	-		250-500/2000	82	92
80-250/110	< 70	-		250-500/2500	83	94
80-315/110A	< 70	-		250-500/3150	84	95
80-315/110	< 70	-		250-500/3550	84,5	96
80-315/150	< 70	-		300-350/750A	77	-
80-315/185	< 70	-		300-350/750	77	-
80-315/220	70	-		300-350/900	78	-
80-400/185	< 70	-		300-350/1100	79	-
80-400/220	70	-		300-400/1100	79	-
80-400/300	72	-		300-400/1320	80	-
80-400/370	73	-		300-400/1600	81	91
100-160/22A	< 70	-		300-400/2000	82	92
100-160/22	< 70	-		300-400/2500	83	94
100-160/30	< 70	-		300-450/1600	81	91
100-160/40	< 70	-		300-450/2000	82	92
100-200/40	< 70	-		300-450/2500	83	94
100-200/55	< 70	-		300-450/3150	84	95

## 10.

~2900 min-1						
	LpA dB ± 2	LwA dB ± 2			LpA dB ± 2	LwA dB ± 2
32-125/D113	< 70	-		65-160/D175 65-160/D176 B	< 70	-
32-125/D123	< 70	-		65-160/180 65-160/180 B	< 70	-
32-125/D133	< 70	-		65-200/ D165 65-200/ D162 B	< 70	-
32-125/D145	< 70	-		65-200/D177 65-200/D177 B	< 70	-
32-160/D137	< 70	-		65-200/D189 65-200/D189 B	< 70	-
32-160/D150	< 70	-		65-200/D199 65-200/D199 B	70	-
32-160/D160,5	< 70	-		65-200/D220 65-200/D218 B	72	-
32-160/D171	< 70	-		65-250/D215 65-250/D213 B	72	-

~2900 min-1						
32-200/D171	< 70	-		65-250/D229 65-250/D226 B	73	-
32-200/D186	< 70	-		65-250/D243 65-250/D240 B	74	-
32-200/D205	< 70	-		65-250/D258 65-250/D255 B	75	-
32-250/D226,5	< 70	-		65-315/D272 65-315/D272 B	75	-
32-250/D239	< 70	-		65-315/D298 65-315/D298 B	77	-
32-250/D259	< 70	-		65-315/D315 65-315/D315 B	78	-
40-125/D105	< 70	-		80-160/D144 80-160/D144 B	< 70	-
40-125/D118	< 70	-		80-160/D158 80-160/D158 B	< 70	-
40-125/D130	< 70	-		80-160/D168 80-160/D168 B	< 70	-
40-125/D135	< 70	-		80-160/D177 80-160/D177 B	70	-
40-160/D139	< 70	-		80-200/D177 80-200/D177 B	70	-
40-160/D154	< 70	-		80-200/D195 80-200/D192 B	72	-
40-160/D165	< 70	-		80-200/D208 80-200/D204 B	73	-
40-200/D165	< 70	-		80-200/D219 80-200/D216 B	74	-
40-200/D179	< 70	-		80-250/D214 80-250/D211 B	73	-
40-200/D189	< 70	-		80-250/D227 80-250/D224 B	74	-
40-200/D199	< 70	-		80-250/D241 80-250/D237 B	75	-
40-250/D210	< 70	-		80-250/D259 80-250/D256 B	77	-
40-250/D228	< 70	-		80-316/D280 80-316/D280 B	78	-
40-250/D243	< 70	-		80-316/D298 80-316/D298 B	79	-
40-250/D257,5	70	-		80-316/D310 80-316/D310 B	80	-
50-125/D118	< 70	-		80-316/D321 80-316/D321 B	81	91
50-125/D130	< 70	-		100-160/D144 100-160/D144 B	< 70	-
50-125/D144	< 70	-		100-160/D156	< 70	-

<b>~2900 min-1</b>						
				100-160/D156 B		
50-125/D148	< 70	-		100-160/D167 100-160/D167 B	70	-
50-160/D159	< 70	-		100-160/D187 100-160/D187 B	72	-
50-160/D170	< 70	-		100-200/D188 100-200/D188 B	72	-
50-160/D176	< 70	-		100-200/D202 100-200/D202 B	73	-
50-200/D179	< 70	-		100-200/D213 100-200/D213 B	74	-
50-200/D197	< 70	-		100-200/D227 100-200/D227 B	75	-
50-200/D209	< 70	-		100-250/D213 100-250/D231 B	74	-
50-250/D220	< 70	-		100-250/D227 100-250/D227 B	75	-
50-250/D232	70	-		100-250/D249 100-250/D249 B	77	-
50-250/D256	72	-		100-250/D259 100-250/D259 B	78	-
50-315/D264 50-315/D264 B	73	-		100-316/D270 100-316/D270 B	79	-
50-315/D278 50-315/D278 B	74	-		100-316/D286 100-316/D286 B	80	-
50-315/D298 50-315/D298 B	75	-		100-316/D302 100-316/D302 B	81	91
50-315/D322 50-315/D322 B	77	-		125-200/D179 125-200/D179 B	74	-
65-125/D113 65-125/D112 B	< 70	-		125-200/D195 125-200/D195 B	75	-
65-125/D127 65-125/D125,5 B	< 70	-		125-200/D215 125-200/D215 B	77	-
65-125/D137 65-125/D136 B	< 70	-		125-200/D225 125-200/D225 B	78	-
65-125/D146 65-125/D143 B	< 70	-		125-315/D250 125-315/D250 B	79	-
65-125/D148 65-125/D146 B	< 70	-		125-315/D265 125-315/D265 B	80	-
65-160/D151 65-160/D152 B	< 70	-		125-315/D280 125-315/D280 B	81	91
65-160/D159 65-160/D160 B	< 70	-		125-315/D290 125-315/D290 B	82	92

<b>~1450 min-1</b>						
	LpA	LwA			LpA	LwA

~1450 min-1						
	dB ± 2	Db ± 2			dB ± 2	dB ± 2
32-125/D113	< 70	-		100-200/D227 100-200/D227 B	< 70	-
32-125/D123	< 70	-		100-250/D213 100-250/D213 B	< 70	-
32-125/D133	< 70	-		100-250/D237 100-250/D237 B	< 70	-
32-125/D145	< 70	-		100-250/D259 100-250/D259 B	< 70	-
32-160/D137	< 70	-		100-315/D260 100-315/D260 B	< 70	-
32-160/D150	< 70	-		100-315/D284 100-315/D284 B	< 70	-
32-160/D160,5	< 70	-		100-315/D298 100-315/D298 B	< 70	-
32-160/D171	< 70	-		100-315/D312 100-315/D312 B	< 70	-
32-200/D171	< 70	-		100-315/D334 100-315/D334 B	71	-
32-200/D186	< 70	-		100-400/D375 100-400/D375 B	71	-
32-200/D205	< 70	-		100-400/D397 100-400/D397 B	72	-
32-250/D116,5	< 70	-		100-400/D420 100-400/D420 B	73	-
32-250/D239	< 70	-		125-200/D179 125-200/D179 B	< 70	-
32-250/D259	< 70	-		125-200/ D204 125-200/ D204 B	< 70	-
40-125/D105	< 70	-		125-200/D225 125-200/D225 B	< 70	-
40-125/D118	< 70	-		125-250/D210 125-250/D210 B	< 70	-
40-125/D130	< 70	-		125-250/D235 125-250/D235 B	< 70	-
40-125/D135	< 70	-		125-250/D259 125-250/D259 B	< 70	-
40-160/D139	< 70	-		125-315/D277 125-315/D277 B	< 70	-
40-160/D154	< 70	-		125-315/D290 125-315/D290 B	< 70	-
40-160/D165	< 70	-		125-315/D315 125-315/D315 B	71	-
40-200/D165	< 70	-		125-315/D334 125-315/D334 B	72	-
40-200/D179	< 70	-		125-400/D353	72	-

~1450 min-1					
				125-400/D353 B	
40-200/D189	< 70	-		125-400/D374 125-400/D374 B	73 -
40-200/D199	< 70	-		125-400/D394 125-400/D394 B	74 -
40-250/D210	< 70	-		125-400/D422 125-400/D422 B	76 -
40-250/D228	< 70	-		150-200/D200 150-200/D200 B	< 70 -
40-250/D243	< 70	-		150-200/D217 150-200/D217 B	< 70 -
40-250/D257,5	< 70	-		150-200/D227 150-200/D227 B	< 70 -
50-125/D118	< 70	-		150-200/D237 150-200/D237 B	< 70 -
50-125/D130	< 70	-		150-250/D238 150-200/D237 B	< 70 -
50-125/D144	< 70	-		150-250/D253 150-250/D253 B	< 70 -
50-125/D148	< 70	-		150-250/D265 150-250/D265 B	< 70 -
50-160/D159	< 70	-		150-250/D282 150-250/D282 B	71 -
50-160/D170	< 70	-		150-315/D291 150-315/D291 B	71 -
50-160/D176	< 70	-		150-315/D310 150-315/D310 B	72 -
50-200/D179	< 70	-		150-315/D330 150-315/D330 B	73 -
50-200/D197	< 70	-		150-400/D327 150-400/D327 B	73 -
50-200/D209	< 70	-		150-400/D346 150-400/D346 B	74 -
50-250/D220	< 70	-		150-400/D377 150-400/D377 B	76 -
50-250/D232	< 70	-		150-400/D398 150-400/D398 B	77 -
50-250/D256	< 70	-		150-400/D423 150-400/D423 B	78 -
50-315/D265 50-315/D265 B	< 70	-		150-500/D420 150-500/D420 B	77 -
50-315/D278 50-315/D278 B	< 70	-		150-500/D443 150-500/D443 B	78 -
50-315/D304 50-315/D304 B	< 70	-		150-500/D467 150-500/D467 B	79 -
50-315/D322 50-315/D322 B	< 70	-		150-500/D495 150-500/D495 B	80 -

~1450 min-1						
65-125/ D113 65-125/ D112 B	< 70	-		150-500/D516 150-500/D516 B	81	91
65-125/D127 65-125/D125,5 B	< 70	-		200-250/228 200-250/228 B	< 70	-
65-125/D137 65-125/D136 B	< 70	-		200-250/245 200-250/245 B	< 70	-
65-125/D148 65-125/D146 B	< 70	-		200-250/260 200-250/260 B	71	-
65-160/ D151 65-160/ D152 B	< 70	-		200-250/271 200-250/271 B	71	-
65-160/ D159 65-160/ D160 B	< 70	-		200-315/268 200-315/268 B	71	-
65-160/ D175 65-160/ D176 B	< 70	-		200-315/287 200-315/287 B	72	-
65-160/ D180 65-160/ D180 B	< 70	-		200-315/306 200-315/306 B	73	-
65-200/D165 65-200/D162 B	< 70	-		200-315/328 200-315/328 B	74	-
65-200/D177 65-200/D177 B	< 70	-		200-315/333 200-315/333 B	76	-
65-200/D189 65-200/D189 B	< 70	-		200-400/328 200-400/328 B	76	-
65-200/D199 65-200/D199 B	< 70	-		200-400/342 200-400/342 B	76	-
65-200/D220 65-200/D218 B	< 70	-		200-400/362 200-400/362 B	77	-
65-250/D215 65-250/D213 B	< 70	-		200-400/383 200-400/383 B	78	-
65-250/D229 65-250/D226 B	< 70	-		200-400/409 200-400/409 B	79	-
65-250/D243 65-250/D240 B	< 70	-		200-400/409 200-400/409 B	79	-
65-250/D258 65-250/D255 B	< 70	-		200-500/450 200-500/450 B	80	-
65-315/D260 65-315/D260 B	< 70	-		200-500/480 200-500/480 B	81	91
65-315/D285 65-315/D285 B	< 70	-		200-500/508 200-500/508 B	82	92
65-315/D315 65-315/D315 B	< 70	-		200-500/523 200-500/523 B	83,5	95
65-315/D334 65-315/D334 B	< 70	-		250-315/D255 250-315/D255 B	72	-
80-160/D144	< 70	-		250-315/D273	73	-

~1450 min-1					
80-160/D144 B			250-315/D273 B		
80-160/D158 80-160/D158 B	< 70	-	250-315/D290 250-315/D290 B	74	-
80-160/D168 80-160/D168 B	< 70	-	250-315/D316 250-315/D316 B	76	-
80-160/D177 80-160/D177 B	< 70	-	250-400/D325 250-400/D325 B	76	-
80-200/D181 80-200/D177 B	< 70	-	250-400/D344 250-400/D344 B	77	-
80-200/D195 80-200/D192 B	< 70	-	250-400/D365 250-400/D365 B	78	-
80-200/D208 80-200/D204 B	< 70	-	250-400/D386 250-400/D386 B	79	-
80-200/D219 80-200/D216 B	< 70	-	250-400/D407 250-400/D407 B	80	-
80-250/ D214 80-250/ D211 B	< 70	-	250-400/D425 250-400/D425 B	81	91
80-250/ D227 80-250/ D224 B	< 70	-	250-500/D420 250-500/D420 B	80	-
80-250/ D241 80-250/ D238 B	< 70	-	250-500/D448 250-500/D448 B	81	91
80-250/ D259 80-250/ D256 B	< 70	-	250-500/D477 250-500/D477 B	82	92
80-315/D262 80-315/D262 B	< 70	-	250-500/D508 250-500/D508 B	83,5	95
80-315/D280 80-315/D280 B	< 70	-	250-500/D523 250-500/D523 B	84	96
80-315/D304 80-315/D304 B	< 70	-	300-350/D285 300-350/D285 B	76	-
80-315/D321 80-315/D321 B	< 70	-	300-350/D315 300-350/D315 B	76	-
80-315/D334 80-315/D334 B	< 70	-	300-350/D332 300-350/D322 B	77	-
80-400/D338 80-400/D338 B	< 70	-	300-350/D354 300-350/D354 B	78	-
80-400/D356 80-400/D356 B	< 70	-	300-400/D346 300-400/D346 B	78	-
80-400/D388 80-400/D388 B	71	-	300-400/D367 300-400/D367 B	79	-
80-400/D418 80-400/D418 B	72	-	300-400/D390 300-400/D390 B	80	-
100-160/D144 100-160/D144 B	< 70	-	300-400/D416 300-400/D416 B	81	91



~1450 min-1						
100-160/D156 100-160/D156 B	< 70	-		300-400/D425 300-400/D425 B	82	92
100-160/D176 100-160/D176 B	< 70	-		300-450/D404 300-450/D404 B	80	-
100-160/D190 100-160/D190 B	< 70	-		300-450/D430 300-450/D430 B	81	91
100-200/D197 100-200/D197 B	< 70	-		300-450/D456 300-450/D456 B	82	92
100-200/D213 100-200/D213 B	< 70	-		300-450/D470 300-450/D470 B	83,5	95

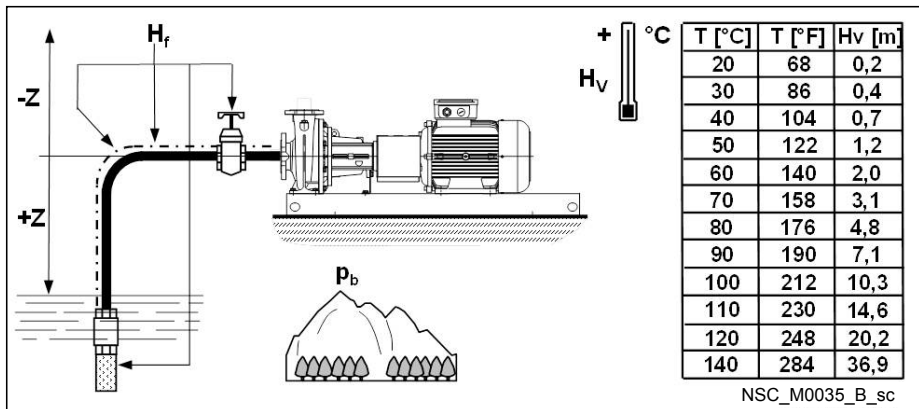
LpA Livelli di pressione del sonora misurati in un campo libero a un metro di distanza dall'elettropompa • **Sound pressure level measured in a free field at one meter's distance from the electric pump** • Niveau de pression acoustique mesurée en champ libre à une distance d'un mètre de la pompe électrique - • Der Schalldruck wurde unter Freifeldbedingungen in einem Abstand von 1 Meter von der elektrischen Pumpe gemessen. • Nivel de presión acústica medido en un campo libre a 1 m de distancia de la bomba eléctrica. • Nivel de pressão sonora medida num campo livre a um metro de distância da bomba eléctrica. • Juiste drukniveau in een vrij veld op één meter afstand tot de elektrische pomp - • Lydtryksniveau målt i et frit felt ved en meters afstand fra den elektriske pumpe - • Lydtryksnivå målt i ett öppet område på ett avstånd på 1 m från den elektriska pumpen - • Äänenpainetaso, joka on mitattu vapaassa kentässä yhden metrin etäisyydellä sähköpumpusta. • Hljóðþrýstingur mældur á opnu svæði í eins metra fjarlægð frá rafmagnsdæluinni - • Heliröðu tase möðdetuna tühjal väljal ühe meetri kauguselt elektripumbast. • Skaņas spiediena līmenis, mērot bez ierobežojumiem viena metra attālumā no elektriskā sūkņa • Garso įtampos lygis matuojamas nepriklausomoje zonoje vieno metro atstumu nuo elektrinio siurblio. • Poziom ciśnienia akustycznego mierzony w warunkach pola swobodnego w odległości jednego metra od pompy elektrycznej. • Hladina akustického tlaku mērená na voľnom priestranstve vo vzdialenosti jedného metra od elektrického čerpadla - • A hangnyomásszint mérésére szabad területen kerül sor, az elektromos szivattyútól mért egy méteres távolságban - • Nivelul de presiune sonoră măsurat în câmp liber la un metru distanță de pompa electrică - • Нивото на налягане на звука, измерено в свободно поле на един метър разстояние от електрическата помпа. • Raven zvočnega tlaka, izmerjena v prostem polju na razdalji enega metra od električne črpalke. • Razina zvučnog tlaka izmjerena u slobodnom prostoru na udaljenosti od jednog metra od električne pumpe - • Nivo zvučnog pritiska izmeren u slobodnom prostoru na udaljenosti od jednog metra od električne pumpe. • Το επίπεδο της πίεσης του ήχου μετρημένο σε ελεύθερο πεδίο σε απόσταση ενός μέτρου από την ηλεκτρική αντλία. • Elektrik pompasından bir metre mesafede serbest bir alanda ölçülen ses basınç seviyesi. • Уровень давления звука измерен в свободном поле на расстоянии одного метра от электрического насоса • Рівень тиску звуку визначено у вільному полі на відстані один метр від електричного насоса - • مستوى الضغط المناسب المقاس في مجال خالي على مسافة متر من المضخة الكهربائية

LwA Livello di Potenza sonora (se LpA > 80 dB) • **Sound power level (if LpA > 80 dB)** • Niveau sonore (si LpA > 80 dB) - • Schalleistungspegel (wenn LpA > 80 dB) - • Nivel de potencia acústica (si LpA > 80 dB) - • Nivel de potencia acústica (se LpA > 80 dB) - • Juiste krachtniveau (als LpA > 80 dB) - • Lydstykseniveau (hvis LpA > 80 dB) - • Lydtryknivå (hvis LpA > 80 dB) - • Ljudtrycksnivå (om LpA > 80 dB) - • Äänenpainetaso (jos LpA > 80 dB) - • Hljóðþrýstistig (ef LpA > 80 dB) - • Heli võimsustase (if LpA > 80 dB) - • Skaņas intensitātes līmenis (ja LpA > 80 dB) • Garso galios lygis (jei LpA > 80 dB) - • Poziom natężenia dźwięku (przy LpA > 80 dB) - • Hladina akustického výkonu (pokud je LpA > 80 dB) - • Hladina sily zvuku (ak je LpA > 80 dB) - • Hangteljesítmény-szint (ha LpA > 80 dB) - • Nivel putere acustică (dacă LpA > 80 dB) - • Ниво на сила на звука (ако LpA > 80 dB) - • Raven zvočne moči (če je LpA > 80 dB) - • Razina zvučne snage (ako je LpA > 80 dB) - • Nivo zvučne snage (ako je LpA > 80 dB) - • Επίπεδο ισχύος ήχου (αν LpA > 80 dB) - • Ses gücü seviyesi (LpA > 80 dB ise) - • Уровень звуковой мощности (при LpA > 80 dB) • Рівень звукової потужності (при LpA > 80 dB) - • أكبر من 80 LpA مستوى قوة الصوت (إذا كان مستوى (ديسيبل)

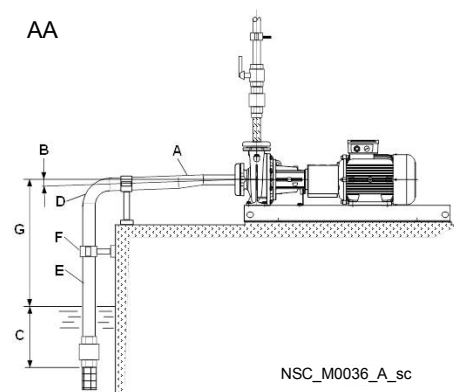
11.

H		0°C	10°C	20°C	30°C	40°C	45°C	50°C	55°C	60°C
m	ft	32°F	50°F	68°F	86°F	104°F	113°F	122°F	131°F	140°F
0	0	1,00	1,00	1,00	1,00	1,00	0,95	0,90	0,85	0,80
500	1640	1,00	1,00	1,00	1,00	1,00	0,95	0,90	0,85	0,80
1000	3280	1,00	1,00	1,00	1,00	1,00	0,95	0,90	0,85	0,80
1500	4921	0,97	0,97	0,97	0,97	0,97	0,92	0,87	0,82	0,78
2000	6561	0,95	0,95	0,95	0,95	0,95	0,90	0,85	0,80	0,76

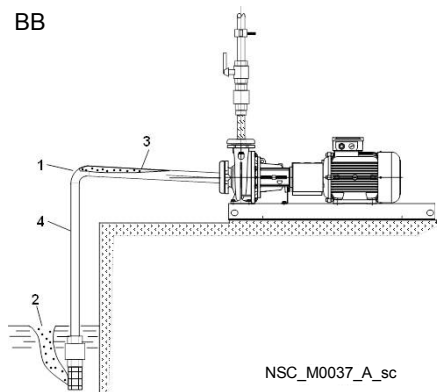
12.



13.



14.



AA Installazione corretta • **Correct installation** • Installation correcte • Korrekte Montage • Instalación correcta • Instalação correcta • Juiste installatie • Korrekt installation • Riktig installasjon • Riktig installation • Oikea asennus • Rétt uppsetning • Õige paigaldus • Pareiza uzstādīšana • Tinkamas montavimas • Poprawna instalacja • Správná montáž • Správná inštalácia • Helyes beszerelés • Instalare corectă • Правильна инсталляция • Právlna nameštitev • Ispravna instalacija • Právlna instalacija • Σωστή εγκατάσταση • Doğru kurulum • Правильная установка • Правильне встановлення • التركيب الصحيح

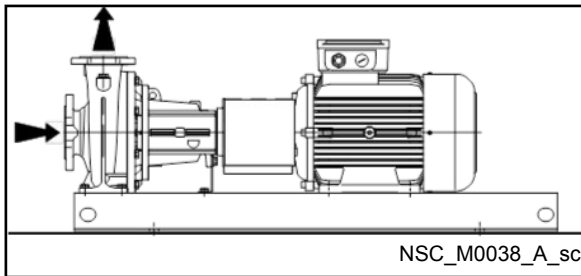
- A Riduzione eccentrica • **Eccentric reduction** • Réduction excentrique • Exzentrische Reduzierung • Redución excéntrica • Redução excêntrica • Eccentrische reductie • Excentrisk reduktion • Eksentrisk reduksjon • Excentrisk minskning • Epäkeskinen kokoonpuristuma • Minnkun rafmagns • Ekstsentriline vähendamine • Ekscentriskā pāreja • Ekscentriskumo mažinimas • Redukcja mimośrodkowa • Excentrickā redukcē • Excentrickā redukcia • Excentrikus szűkítés • Reducție excentrică • Эксцентриково редуциране • Ekscentrična redukciija • Ekscentrično smanjenje • Εκκεντρική μείωση • Eksantriği azaltma • Эксцентриковый переходный патрубок • Эксцентриковый переходний патрубок • تقليل اللامركزية
- B Pendenza positiva • **Positive gradient** • Pente positive • Positive Neigung • Gradiente positiva • Gradiente positivo • Positieve helling • Positiv gradient • Positiv gradient • Positiv gradient • Positiv lutning • Positiivinen kaltevuus • Jäk-væður halli • Positiivne gradient • Pozitívus gradients • Teigiamas nuolydis • Nachylenie dodatnie • Vzrůstající gradient • Kladný sklon • Pozitív lejtés • Gradient pozitiv • Положительна скала • Pozitiven naklon • Pozitivni gradient • Pozitivni gradijent • Θετική κλίση • Pozitif eğim • Положительный градиент • Позитивний градієнт • ميل ايجابي
- C Buona immersione • **Good immersion** • Bonne immersion • Gutes Eintauchen • Buena inmersión • Boa imersão • Goed ondergedompeld • Korrekkt nedsænkning • Bra nedsenking • Bra nedsænkning • Hyvää upotus • Góð dyfing • Hea sukeldamine • Pietiekama iegrime • Tinkamas panardinimas • Dobre zanurzenie • Správne ponorenie • Dobré ponorenie • Megfelelő merülés • Scufundare corectă • Добро потапяне • Dobra potopitev • Dobro potapanje • Dobro potapanje • Καλή εμφύσηση • İyi batırma • Надлежащая глубина погружения • Належна глибина занурення • غمر كافٍ
- D Curva larga • **Large bend** • Coude grand rayon • Großer Bogen • Gran flexión • Dobra grande • Grote bocht • Stor bøjning • Lang bøy • Stor bøj • Suuri mutka • Stór sveigja • Suur paine • Plats lükums • Didelis lenkimo kampas • Duży skręt • Velký ohyb • Velký ohyb • Tompa hajtás • Cot larg • Голяма сгъвка • Veliko kolenop • Veliki zavoј • Veliki zavoј • Καμπύλη μεγάλης ακτίνας • Geniş bükme • Значительный изгиб • Значний вигин • انثناء كبير
- E Diametro tubo d'aspirazione > diametro bocca della pompa • **Suction pipe diameter > pump port diameter** • Diamètre de canalisation d'aspiration > diamètre de port de pompe • Durchmesser des Saugrohrs > Durchmesser des Pumpenstutzens • Diámetro del tubo de aspiración > diámetro de la boca de la bomba • Diámetro do tubo de sucção > diámetro da porta da bomba • Diameter aanzuigleiding > diameter pompdoorgang • Indsugningsslangens diameter > pumpestudens diameter • Sugerordiameter > pumpeportdiameter • Sugrõrsdiameter > diametern på pumpporten • Imuputken halkaisija > pumpun portin halkaisija • Þvermál sogripu > þvermál dæluinntaks • Imipumba läbimõõt > pumba pordi läbimõõt • Iesūkšanas caurules diametrs > sūkņa porta diametrs • Siurbimo vamzdžio skersmuo > siurblio siurbimo angos skersmenį • Srednica rury ssącej > Srednica portu pompy • Průměr sacího potrubí > průměr hrdla čerpadla • Priemer sacieho potrubia > Priemer otvoru čerpadla • Szívócsőátmérő > szivattyúsonk átmérője • Diametru conductă de aspirație > diametru orificiului pompei • Диаметр на смукателната тръба > диаметър на порта на помпата • Priemer sesalne cevi > premer vrat črpalke • Promjer usisne cijevi > promjera priključka pumpe • Prečnik usisne cevi > prečnika priključka pumpe • Диаметрос σωλήνα αναρρόφησης > Диаметρος θύρας αντλίας • Emme borusunun çarpi > Pompanın giriş çarpi • Диаметр всасывающей трубы > диаметра патрубка насоса • Диаметр труби всмоктання > диаметра впускного отвору насоса • قطر أنبوب الشفط أكبر من قطر منفذ المضخة
- F Morsetto tubo • **Pipe clamp** • Bride de canalisation • Rohrschelle • Abrazadera del tubo • Grampo do tubo • Leidingklem • Rørklemmer • Rørklemme • Rörklämma • Putken kiinnitin • Rörklemma • Toruklammer • Cau-rules skava • Vamzdžio spaustuvas • Zacisk rurowy • Trubková objímka • Svorika potrubia • Csőbillencs • Colier conductă • Скоба на помпата • Objemka cevi • Objimka cijevi • Stezaljka za cev • Σφιγκτήρας σωλήνα • Pompa kelepçesi • Трубный хомут • Трубний хомут • مشبك الأنابيب
- G L'aspirazione soprattutto dipende dalla pompa e dall'installazione. In condizioni normali il dislivello non è superiore a 5-6 m. • **Suction lift depends on the pump and installation. In normal conditions it should not exceed 5 to 6 m.** • Le levage d'aspiration dépend de la pompe et de l'installation. Dans des conditions normales, elle ne devrait pas dépasser 5 à 6 m. • Saughöhe ist abhängig von der Pumpe und der Montage. Unter normalen Bedingungen sollte sie 5-6 m nicht überschreiten. • Desnivel de elevación relacionado con la bomba y con la instalación. En condiciones óptimas el desnivel no debe ser superior a 5 a 6 m. • A elevação da sucção depende da bomba e da instalação. Em condições normais não deve exceder os 5/6 m. • Zuighoogte hangt af van de pomp en de installatie. Onder normale omstandigheden dient deze niet hoger te zijn dan 5 tot 6 meter. • Sugeløft afhænger af pumpen og installationen. Ved optimale betingelser bør det ikke overskride 5 til 6 m. • Sugerløftet er afhængig af pumpen og monteringen. Ved normale forhold skal det ikke overstige 5 til 6 m. • Sughøjden beror på pumpen och installationen. Vid normala förhållanden bör den inte överstiga 5-6 m. • Imukorkeus riippuu pumpusta ja asennuksesta. Normaaliolosuhteissa tasoero se ei saa olla yli 5–6 m. • Soglifta er háð dælu og uppsetningu. Við eðlilega aðstæður ætti hún ekki að fara yfir 5 til 6 m. • Imikõrgus oleneb pumbast ja paigaldusest. Tavatingimustes ei tohi see ületada 5 kuni 6 meetrit. • Sūkņēšanas augstums ir atkarīgs no sūkņa un uzstādīšanas. Parastos apstākļos tam nevajadzētu pārsniegt 5–6 m. • Siurbimo aukštyn aukštis priklauso nuo siurblio ir montavimo. Įprastomis veikimo sąlygomis jis neturėtų viršyti 5–6 metrų. • Wysokość zasysania zależy od pompy i instalacji W normalnych warunkach nie powinna ona przekraczać 5 - 6 m. • Sací výška je závislá na čerpadle a instalaci. Za normálních podmínek by neměla překročit 5 až 6 m. • Sacia výška závisí od daného čerpadla a jeho montáže. V běžných podmínkách by neměla přesahovat 5 až 6 metrov. • A szívómagasság a szivattyútól és a telepítéstől függ. Normál feltételek esetén ez nem haladhatja meg az 5–6 m-t. • Înălțimea de aspirație depinde de pompă și de instalare. În condiții normale nu trebuie să depășească 5 până la 6 m. • Височината за

засмукване зависи от помпата и инсталацията. При нормални условия тя не трябва да превишава 5 до 6 м. • Sesalno dviganje je odvisno od črpalke in namestitve. V normalnih pogojih naj ne presega od 5 do 6 m. • Usisna visina ovisi o pumpi i instalaciji. U normalnim uvjetima ne smije prelaziti 5 do 6 m. • Usisna visina zavisi od pumpe in instalacije. U normalnim uslovima ne sme prelaziti 5 do 6 m. • Η ανύψωση της αναρρόφησης εξαρτάται από την αντλία και την εγκατάσταση. Σε κανονικές συνθήκες δεν θα πρέπει να υπερβαίνει τα 5 έως 6 μ. • Emiř kaldırma pompa ve kurulum bağıdır. Normal şartlarda, 5-6 m'yi geçmemesi gerekir. • Высота всасывания зависит от насоса и его монтажа. В номинальных условиях не должна превышать 5—6 м. • Висота всмоктування залежить від насоса і його монтажу. У номінальних умовах не повинна перевищувати 5-6 м. • رفع الشفط يعتمد على المضخة والتركيب. في الظروف العادية، يجب ألا يتجاوز ذلك إلى 5 إلى 6 أمتار.

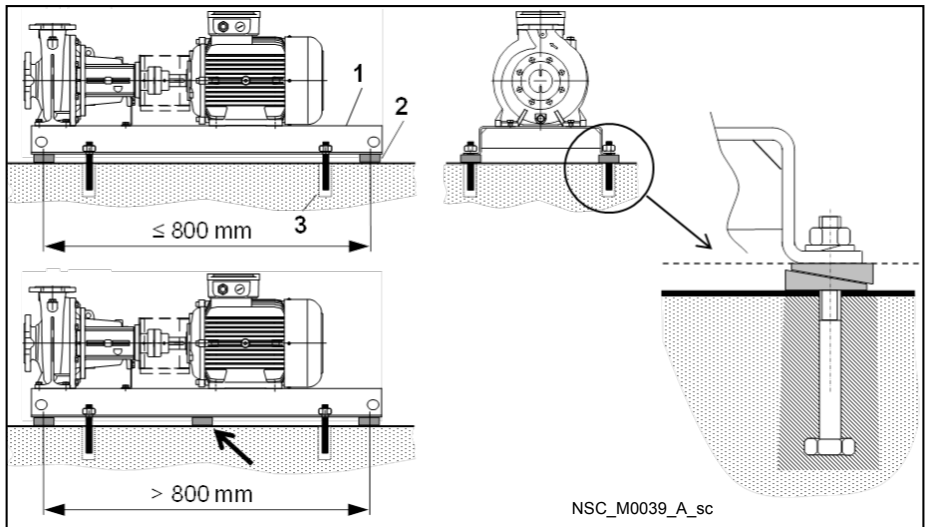
- BB Installazione non corretta • **Incorrect installation** • Installation incorrecte • Falsche Montage • Instalación incorrecta • Instalação incorrecta • Onjuiste installatie • Ukorrekt installation • Feil installasjon • Felaktig installation • Virheellinen asennus • Rõng uppsetning • Vale paigaldus • Nepareiza uzstādīšana • Netinkamas montavimas • Niepoprawna instalacja • Nesprávná montáž • Nesprávná inštalácia • Helytelen beszerelés • Instalar incorrectă • Неправилна инсталация • Nepravilna namestitve • Neispravna instalacija • Nepravilna instalacija • Λάθος εγκατάσταση • Yanlış kurulum • Неправильная установка • Неправильное восстановление • التركيب غير الصحيح
- 1 Curva stretta; elevata resistenza di flusso • **Sharp bend; high flow resistance** • Coude brusque • forte résistance au débit • Enger Bogen; hoher Durchflusswiderstand • Codo pronunciado; alta resistencia de flujo • Curva afiada; elevada resistência de fluxo • Scherpe bocht; weerstand debiet met hoge snelheid • Skarp bøjning; høj gennemstrømningsmodstand • Skarp bøy, høy strømningsmotstand • Skarp bøj, høgt flødesmotstånd • Terävä mutka, korkea virtausvastus • Hvöss sveiga; mikil rennslismótstaða • Järsk paine; suure voolu takistus • Ass likums; augsta plūsmas pretestība • Mažas lenkimo kampas; didelis hidraulinis pasipriešinimas • Ostry skřeť; duža opornosť przepyflu • Ostrý ohyb; vysoký odpor proudění • Ostrý ohyb, vysoký prietokový odpor • Eles törés; jelentős áramlási ellenállás • Cot abrupt; rezistență ridicată la flux • Остра сгъвка; висока устойчивост към потока • Ostro koleno; visoka upornost pretoka • Oštar zavoј; visoka otpornost protoku • Oštar zavoј; visoka otpornost protoku • Καμπύλη μικρής ακτίνας, αντίσταση υψηλής ροής • Keskin бүкме, үйүскө акис резистанси • Резкий изгиб; высокое сопротивление потоку • Різкий вигин; високий опір потоку • انثناء حاد، مقاومة عالية التدفق
- 2 Immersione insufficiente; aspirazione aria • **Insufficient immersion; sucking air** • Immersion insuffisante; aspiration d'air • Unzureichendes Eintauchen; Luftansaugung • Immersión insuficiente; se aspira aire • Imerção insuficiente; sucção de ar • Onvoldoende ondergedompeld; zuigt lucht aan • Utilstrækkelig nedsækning; suger luft • Utilstrækkelig nedsækning, suger luft • Riittämätön upotus, imee ilmaa • Ekki nõg dýfing; dregur loft að sér • Puudulik sukeldamine; õhu imemine • Nepietiekama iegrimē; tiek iesūknēts gaiss • Nepakankamas panardinimas; oro siurbimas • Niewystarczające zanurzenie; powietrze zasysania • Nedostatečně ponořeni; nasávání vzduchu • Nedostatočné ponorenie, nasáva sa vzduch • Nem elégséges merülési; levegőbeszívás • Scufundare insuficientă; aspiratie aer • Недостаточное потапяне; засмукване на въздух • Nezadostna potopitev; sesanje zraka • Nedovoljno potapanje; usisavanje vazduha • Nedovoljno potapanje; usisavanje vazduha • Ανεπαρκής βύθιση, αναρρόφηση αέρα • Yetersiz batırma, hava emiři • Недостаточная глубина погружения, всасывание воздуха • Недостатна дълбочина занурения; всмоктування повітря • غمس غير كاف، شفط الهواء
- 3 Pendenza negativa; sacche d'aria • **Negative gradient; air pockets** • Pente négative; poches d'air • Negative Neigung; Lufteinschlüsse • Gradiente negativa; bolsas de aire • Declive negativo; bolsas de ar • Negative helling; luchtzakken • Negativ gradient; luftlommer • Negativ gradien, luftlommer • Negativ lutning med luftfickor • Negatiivinen kaltevuus, ilmataskuja • Neikvæður halli; loftgöt • Negatiivne gradient; õhugaugud • Negatiivs gradients; gaisa kabatas • Neigiamas gradientas; oro kišenės • Gradient ujemny; korki powietrzne • Klesající gradient; vzduchové kapsy • Záporný gradient, vzduchové bubliny • Negatív gradiens; légzsákok • Gradient negativ; punji de aer • Отрицателен наклон; въздушни джобове • Negativen naklon; zračni žepki • Negativni gradient; zračni džepovi • Negativni gradient; vazdušni džepovi • Αρνητική κλίση, έγκλεισμα αέρα • Negatif eğim; hava cepleri • Отрицательный градиент; воздушные пробки • Негативний градієнт; повітряні пробки • ميل سلبي؛ جيوب هوائية
- 4 Diametro del tubo < diametro bocca della pompa; elevata resistenza di flusso • **Pipe diameter < pump port diameter; high flow resistance** • Diamètre de canalisation < diamètre de port de pompe; forte résistance au débit • Rohrdurchmesser < Pumpenstutzendurchmesser; hoher Durchflusswiderstand • Diametro del tubo < diametro boca de la bomba; resistencia de alto flujo • Diametro do tubo < diametro da porta da bomba; elevada resistência de fluxo • diameter leiding < diameter pompdoorgang; weerstand debiet met hoge snelheid • Rørdiameter < pumpestudsens diameter; høj gennemstrømningsmodstand • Rørdiameter < pumpeportdiameter, høy strømningsmotstand • Rørdiameter < diameteren på pumpporten; høgt flødesmotstånd • Putken halkaisija < pumpun portin halkaisija, korkea virtausvastus • Ummál rörs < ummál dælugáttar; mikil rennslismótstaða • Toru diameeter < pumba pordi diameeter; suure voolu takistus • Caurules diametrs < sūkņa porta diametrs; augsta plūsmas pretestība • Vamzdžio skersmuo < siurblio siurbimo angos skersmenį; didelis hidraulinis pasipriešinimas • Šrednica rury < šrednica portu pumpy; duža opornosť przepyflu • Průměr potrubí < průměr hrdla čerpadla; vysoký odpor proudění • Priemer potrubia < priemer otvoru čerpadla, vysoký prietokový odpor • Csőátmérő < szivattyúcsanak átmérője; nagy áramlási ellenállás • Diametru conductă < diametru orificiu pompă; rezistență ridicată la flux • Диаметр на тръбата < диаметър на порта на помпата; висока устойчивост на потока • Premer cevi < premer vrat črpalke; visoka upornost pretoka • Promjer cijevi < promjera priključka pumpe; visoka otpornost protoku • Prečni cevi < prečni

ka priključka pumpe; visoka otpornost protoku • Διάμετρος σωλήνα < διάμετρος θύρας αντλίας, αντίσταση υψηλής ροής • Boru çarı < pompa giriş çarı ; yüksek akış rezistansı • Диаметр трубы < диаметра патрубка насоса; высокое сопротивление потоку • Диаметр труби < диаметра патрубка насоса; високий опір потоку • قطر الأنبوب أقل من قطر منفذ المضخة؛ مقاومة عالية التدفق

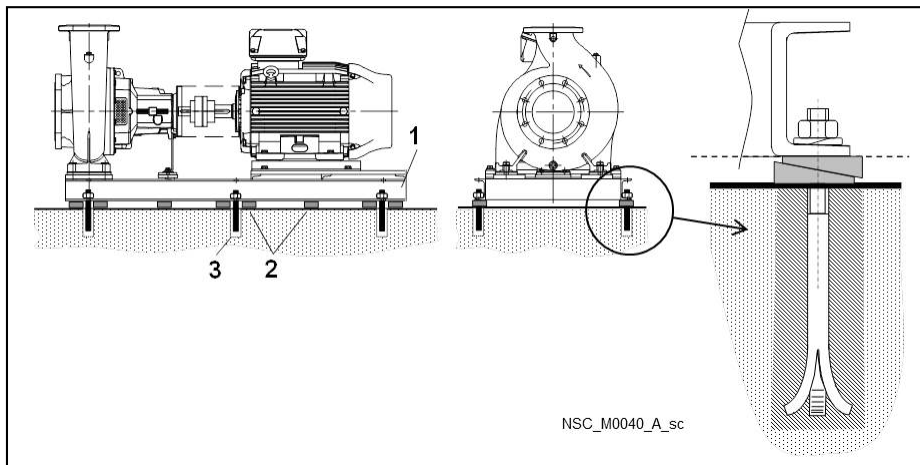
15.



16.



32	40	50	65	80
-125	-125	-125	-125	-160
-160	-160	-160	-160	-200
-200	-200	-200	-200	-250
-250	-250	-250	-250	



50	65	80	100	125	150	200	250	300
-315	-315	-315	-160	-200	-200	-250	-315	-350
		-316	-200	-250	-250	-315	-400	-400
		-400	-250	-315	-315	-400	-500	-450
			-315	-400	-400	-500		
			-316		-500			
			-400					

#### Italiano

1. Piastra di base (set pompa)
2. Spessori
3. Bulloni della fondazione

#### English

1. Baseplate (pump set)
2. Shims
3. Foundation bolts

#### Français

1. Embase (ensemble de pompe)
2. Cales
3. Vis de fondation

#### Deutsch

1. Grundplatte (Pumpensatz)
2. Ausgleichsscheiben
3. Fundamentschrauben

#### Español

1. Plancha de base (conjunto de bomba)
2. Separadores
3. Pernos de cimentación

#### Português

1. Placa de base (conjunto da bomba)
2. Calços
3. Parafusos de fundação

#### Nederlands

1. Vloerplaat (pompstelling)
2. Pasringen
3. Funderingsbouten

#### Dansk

1. Bundplade (pumpesæt)
2. Mellemlægsplader
3. Fundamentbolte

#### Norsk

1. Sokkelplate (pumpesett)
2. Skims
3. Fundamentbolter

#### Svenska

1. Bottenplatta (pumpen)
2. Mellanlägg
3. Fundamentbultar

#### Suomi

1. Jalusta (pumppusarja)
2. Välilevyt
3. Perustuspultit

#### Íslenska

1. Grunnplata (dæluasett)
2. Milliþlötur
3. Grunnþlötubolter

#### Eesti

1. Alusplaat (pumbakomplekt)
2. Kiilud
3. Aluspidid

#### Latviešu

1. Balstplātne (sūkņa iekārta)
2. Starplikas
3. Pamata skrūves

#### Lietuvių k.

1. Pagrindo pokštė (siurblio komplektas)
2. Pleištai
3. Pagrindo varžtai

**polski**

1. Płyta podstawy (zespół pompy)
2. Podkładki
3. Śruby fundamentowe

**magyar**

1. Alaplemez (szivattyúkészlet)
2. Alátétek
3. Horgonycsavarok

**Slovenščina**

1. Osnovna plošča (sklop črpalke)
2. Izravnalne ploščice
3. Temeljni vijaki

**Ελληνικά**

1. Βάση στήριξης (σετ αντλίας)
2. Αποστάτες
3. Μπουλόνια θεμελιώσεων

**Английська**

1. Опорна плита (насосний агрегат)
2. Регулювальні прокладки
3. Фундаментні болти

**Čeština**

1. Základní deska (sada čerpadla)
2. Podložky
3. Základové šrouby

**Română**

1. Placă de bază (set pompa-re)
2. Garnituri de reglare
3. Buloane de fundație

**Hrvatski**

1. Postolje baze (pumpa)
2. Podmetači
3. Temeljni vijci

**Türkçe**

1. Taban plakası (pompa seti)
2. Şimler
3. Temel civatalar

**Slovenčina**

1. Základná doska (zostava čerpadla)
2. Vložky
3. Kotevné skrutky

**Български**

1. Табелка с технически данни (помпа)
2. Клинове
3. Фундаментни болтове

**Srpski**

1. Postolje baze (sklop pumpe)
2. Podložke
3. Temeljni zavrtnji

**Русский**

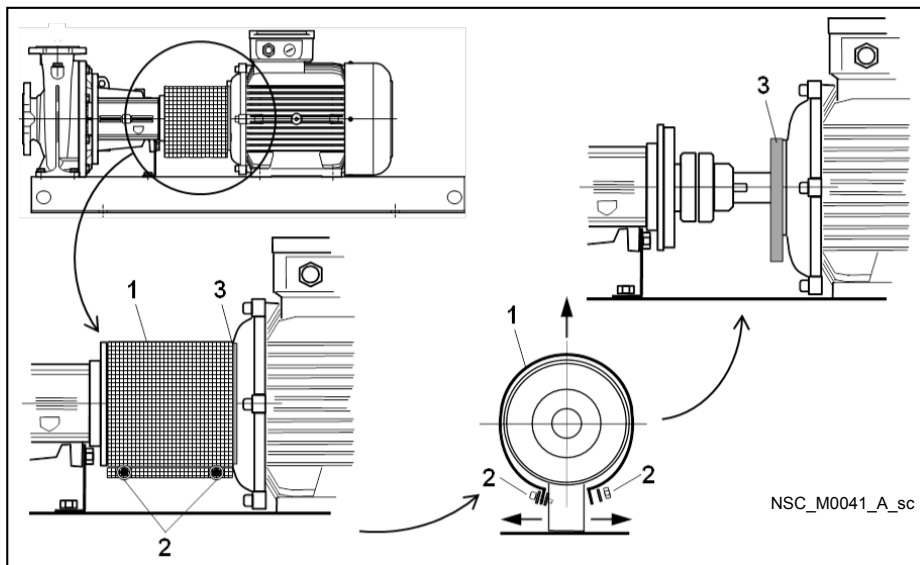
1. Опорная плита (насосный агрегат)
2. Регулировочные шайбы
3. Фундаментные болты

**العربية**

1. لوح القاعدة (مجموعة المضخة)
2. رقائق الضبط
3. مسامير الأساس

**Appendice tecnica • Technical appendix • Annexe technique • Technischer Anhang • Apéndice técnico • Anexo técnico • Technische bijlage • Teknisk bilag • Teknisk vedlegg • Tekniska appendix • Tekninen liite • Tæknilegur viðauki • Tehniline lisa • Tehniskais pielikums • Techninių duomenų priedas • Dodatek Dane techniczne • Technický dodatek • Technická príloha • Műszaki adatok függeléke • Anexă tehnică • Техническое приложение • Tehnična priloga • Tehnički dodatak • Tehnički dodatak • Τεχνικό παράρτημα • Teknik ek • Техническое приложение • Технічний додаток • الملحق الفني**

17.



32	40	50	65	80
-125	-125	-125	-125	-160
-160	-160	-160	-160	-200
-200	-200	-200	-200	-250
-250	-250	-250	-250	

**Italiano**

1. Protezione giunto
2. Dispositivi di fissaggio (viti, rondelle, dadi)
3. Anello di supporto/regolazione

**English**

1. Coupling guard
2. Fixing devices (screws, washers, nuts)
3. Supporting/adjusting ring

**Français**

1. Protecteur d'accouplement
2. Dispositifs de fixation (vis, rondelles, écrous)
3. Bague de support/réglage

**Deutsch**

1. Kupplungsschutz
2. Befestigungselemente (Schrauben, Unterlegscheiben, Muttern)
3. Stütz-/Einstellring

**Español**

1. Protector del acoplamiento
2. Dispositivos de fijación (tornillos, arandelas, tuercas)
3. Anillo de soporte/ajuste

**Português**

1. Protecção de acoplamento
2. Dispositivos de fixação (parafusos, anilhas e porcas)
3. Anel de ajuste/suporte

**Nederlands**

1. Koppelingsbescherming
2. Bevestigingsmaterialen (schroeven, borgringen, moeren)
3. Steun-/stelring

**Dansk**

1. Koblingsafspærring
2. Fastgørelsesenheder (skruer, skiver, møtrikker)
3. Understøttelses-/justeringsring

**Norsk**

1. Koplings skjerm
2. Festeordninger (skruer, pakninger, muttere)
3. Støtte-/justeringsring

**Svenska**

1. Kopplingskydd
2. Fixeringsenheter (skruvar, brickor, muttrar)
3. Stöd-/justeringsring

**Suomi**

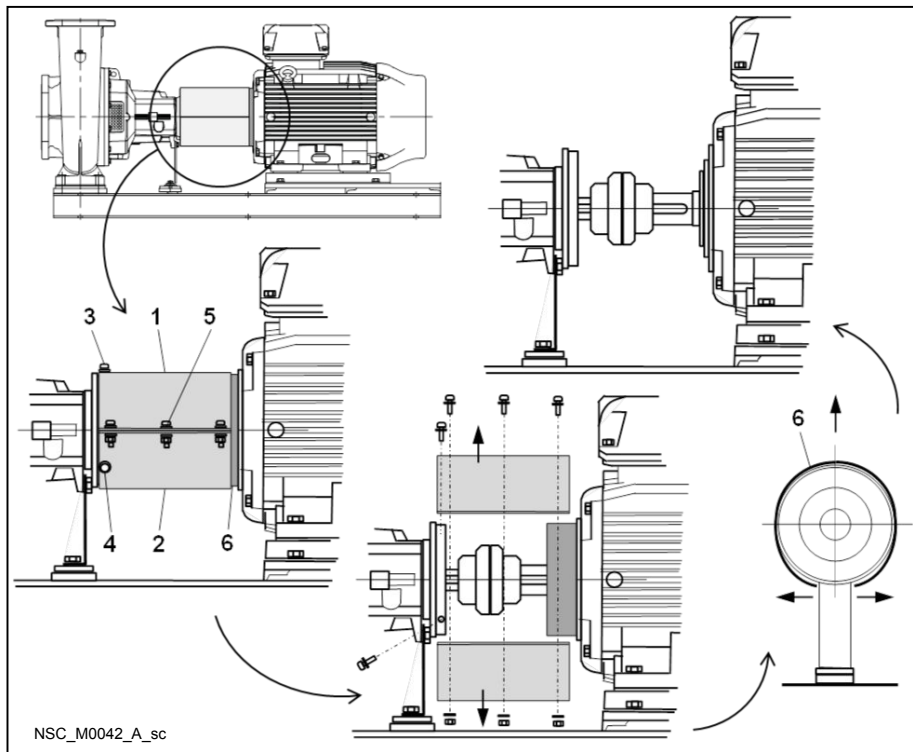
1. Kytkinsuojus
2. Kiinnityslaitteet (ruuvit, aluslevyt, mutterit)
3. Tuki/säätörengas

**Íslenska**

1. Tengjahlíf
2. Lagfæra tæki (skrúfur, skifur, rær)
3. Stuðnings/stillihringur



18.



50	65	80	100	125	150	200	250	300
-315	-315	-315	-160	-200	-200	-250	-315	-350
		-316	-200	-250	-250	-315	-400	-400
		-400	-250	-315	-315	-400	-500	-450
			-315	-400	-400	-500		
			-316		-500			
			-400					

**Italiano**

1. Protezione del giunto, metà superiore
2. Protezione del giunto, metà inferiore
3. Dispositivi di fissaggio (viti, rondelle), parte superiore
4. Dispositivi di fissaggio (viti, rondelle), parte inferiore
5. Dispositivi di fissaggio (viti, rondelle), parte laterale
6. Anello di supporto/regolazione

**English**

1. Coupling guard, upper half
2. Coupling guard, lower half
3. Fixing devices (screws, washers), up
4. Fixing devices (screws, washers), down
5. Fixing devices (screws, washers), side
6. Supporting/adjusting ring

**Français**

1. Protection d'accouplement, moitié supérieure
2. Protection d'accouplement, moitié inférieure
3. Dispositifs de fixation (vis, rondelles), haut
4. Dispositifs de fixation (vis, rondelles), bas
5. Dispositifs de fixation (vis, rondelles), côté
6. Bague de support/réglage

**Deutsch**

1. Kupplungsschutz, obere Hälfte
2. Kupplungsschutz, untere Hälfte
3. Befestigungselemente (Schrauben, Unterlegscheiben), oben
4. Befestigungselemente (Schrauben, Unterlegscheiben), unten
5. Befestigungselemente (Schrauben, Unterlegscheiben), Seite
6. Stütz-/Einstellung

**Nederlands**

1. Koppelingbeveiliging, bovenste helft
2. Koppelingbeveiliging, onderste helft
3. Bevestigingsmaterialen (schroeven, borgringen), boven
4. Bevestigingsmaterialen (schroeven, borgringen), onder
5. Bevestigingsmaterialen (schroeven, borgringen), zijkant
6. Steun-/stelring

**Svenska**

1. Kopplingskydd, övre hälft
2. Kopplingskydd, nedre hälft
3. Fixeringsenheter (skruvar, brickor), upp
4. Fixeringsenheter (skruvar, brickor), ner
5. Fixeringsenheter (skruvar, brickor), sidan
6. Stöd-/justeringsring

**Eesti**

1. Sidurikaitse, ülemine pool
2. Sidurikaitse, alumine pool
3. Kinnitustahendid (kruvid, seibid), ülalosa
4. Kinnitustahendid (kruvid, seibid), allosa
5. Kinnitustahendid (kruvid, seibid), külg
6. Tugi-/reguleerimisrõngas

**polski**

1. Ostrona sprzęgła, górna połówka
2. Ostrona sprzęgła, dolna połówka
3. Elementy mocujące (śruby, podkładki, nakrętki), góra
4. Elementy mocujące (śruby, podkładki, nakrętki), dół

**Español**

1. Mitad superior del protector del acoplamiento
2. Mitad inferior del protector del acoplamiento
3. Dispositivos de fijación (tornillos, arandelas), arriba
4. Dispositivos de fijación (tornillos, arandelas), abajo
5. Dispositivos de fijación (tornillos, arandelas), lateral
6. Anillo de soporte/ajuste

**Dansk**

1. Koblingskærm, øverste halvdel
2. Koblingskærm, nederste halvdel
3. Fastgørelsesenheder (skruer, skiver), op
4. Fastgørelsesenheder (skruer, skiver), ned
5. Fastgørelsesenheder (skruer, skiver), side
6. Understøttelses-/justeringsring

**Suomi**

1. Kytkinsuojus, yläpuoli
2. Kytkinsuojus, alapuoli
3. Kiinnityslaitteet (ruuvit, aluslevyt), yläosa
4. Kiinnityslaitteet (ruuvit, aluslevyt), alaosa
5. Kiinnityslaitteet (ruuvit, aluslevyt), sivu
6. Tuki/säätörengas

**Latviešu**

1. Savienojuma aizsargs, augšējā puse
2. Savienojuma aizsargs, apakšējā puse
3. Fiksācijas ierīces (skrūves, paplāksnes), augšā
4. Fiksācijas ierīces (skrūves, paplāksnes), apakšā
5. Fiksācijas ierīces (skrūves, paplāksnes), sānos
6. Balsta/regulēšanas gredzens

**Čeština**

1. Kryt spojky, horní polovina
2. Kryt spojky, dolní polovina
3. Upevňovací příravnky (šrouby, podložky), horní část
4. Upevňovací příravnky (šrouby, podložky), spodní část

**Português**

1. Protecção do acoplamento, metade superior
2. Protecção do acoplamento, metade inferior
3. Dispositivos de fixação (parafusos e anilhas), parte superior
4. Dispositivos de fixação (parafusos e anilhas), parte inferior
5. Dispositivos de fixação (parafusos e anilhas), parte lateral
6. Anel de ajuste/suporte

**Norsk**

1. Kopplingsbeskyttelse, øver halvdel
2. Kopplingsbeskyttelse, nedre halvdel
3. Festeanordninger (skurer, pakninger), øvre
4. Festeanordninger (skurer, pakninger), nedre
5. Festeanordninger (skurer, pakninger), side
6. Støtte-/justeringsring

**Íslenska**

1. Tengjahlíf, efri hluti
2. Tengjahlíf, neðri hluti
3. Lagfæra tæki (skrúfur, skífur), upp
4. Lagfæra tæki (skrúfur, skífur), niður
5. Lagfæra tæki (skrúfur, skífur), hlið
6. Stuðnings/stillihringur

**Lietuvių k.**

1. Movos apsaugos viršutinė pusė
2. Movos apsaugos apatinė pusė
3. Tvirtinimo įtaisai (varžtai, po-veržlės), viršuje
4. Tvirtinimo įtaisai (varžtai, po-veržlės), apačioje
5. Tvirtinimo įtaisai (varžtai, po-veržlės), šone
6. Atraminis / reguliavimo žiedas

**Slovenčina**

1. Horná polovica krytu spoja
2. Dolná polovica krytu spoja
3. Upevňovacie zariadenia (skrutky, podložky), horné
4. Upevňovacie zariadenia (skrutky, podložky), dolné

5. Elementy mocujące (śruby, podkładki, nakrętki), bok
6. Pierścien podpierający/regulacyjny

**magyar**

1. Csatlakozóeszköz, felső fél
2. Csatlakozóeszköz, alsó fél
3. Rögzítőeszközök (csavarok, alátétek), fent
4. Rögzítőeszközök (csavarok, alátétek), lent
5. Rögzítőeszközök (csavarok, alátétek), oldalt
6. Alátámasztó / beállító gyűrű

**Slovenščina**

1. Zgornja polovica varovala spojke
2. Spodnja polovica varovala spojke
3. Pritrdilne naprave (vijaki, podložke) zgoraj
4. Pritrdilne naprave (vijaki, podložke) spodaj
5. Pritrdilne naprave (vijaki, podložke) na strani
6. Podporni/namestitveni obroček

**Ελληνικά**

1. Άνω ήμισυ οδηγού συνδέσμων
2. Κάτω ήμισυ οδηγού συνδέσμων
3. Συσκευές στερέωσης (βίδες, ροδέλες), άνω
4. Συσκευές στερέωσης (βίδες, ροδέλες), κάτω
5. Συσκευές στερέωσης (βίδες, ροδέλες), πλάινά
6. Δακτύλιος υποστήριξης/ρύθμισης

**Английська**

1. Кожух муфты, верхняя половина
2. Кожух муфты, нижняя половина
3. Пристрій для кріплення (гвинти, шайби), верх
4. Пристрій для кріплення (гвинти, шайби), низ
5. Пристрій для кріплення (гвинти, шайби), бік
6. Опорне/регульовальне кільце

5. Upevňovací prípravky (šrouby, podložky), bočná časť
6. Podpěrný/seřizovací kruh

**Română**

1. Apărătoare pentru cuplaj, partea superioară
2. Apărătoare pentru cuplaj, partea inferioară
3. Dispozitive de fixare (șuruburi, șaibe, piulițe), partea superioară
4. Dispozitive de fixare (șuruburi, șaibe, piulițe), partea inferioară
5. Dispozitive de fixare (șuruburi, șaibe, piulițe), lateral
6. Inel de susținere/reglare

**Hrvatski**

1. Zaštitna spojke, gornja polovica
2. Zaštitna spojke, donja polovica
3. Naprave za pričvršćivanje (vijci, podložke, matice), gore
4. Naprave za pričvršćivanje (vijci, podložke, matice), dolje
5. Naprave za pričvršćivanje (vijci, podložke, matice), bočno
6. Potporni prsten/prsten za podešavanje

**Türkçe**

1. Kaplin koruması, üst yarım
2. Kaplin koruması, alt yarım
3. Sabitleme aygıtları (vidalar, pullar), yukarı
4. Sabitleme aygıtları (vidalar, pullar), aşağı
5. Sabitleme aygıtları (vidalar, pullar), yan
6. Destek/ayar halkası

**العربية**

1. واقي القارنة، النصف العلوي
2. واقي القارنة، النصف السفلي
3. وسائل التثبيت (المسامير والوردات)، العلوية
4. وسائل التثبيت (المسامير والوردات)، السفلية
5. وسائل التثبيت (المسامير والوردات)، الجانبية
6. حلقة الدعم/الضبط

5. Upevňovacie zariadenia (skrutky, podložky), bočné
6. Podporný/nastavovací krúžok

**Български**

1. Щит на съединителя, горна половина
2. Щит на съединителя, долна половина
3. Фиксирани устройства (винтове, гайки) горе
4. Фиксирани устройства (винтове, гайки) долу
5. Фиксирани устройства (винтове, гайки) отстранени
6. Опорен/коригиращ пръстен

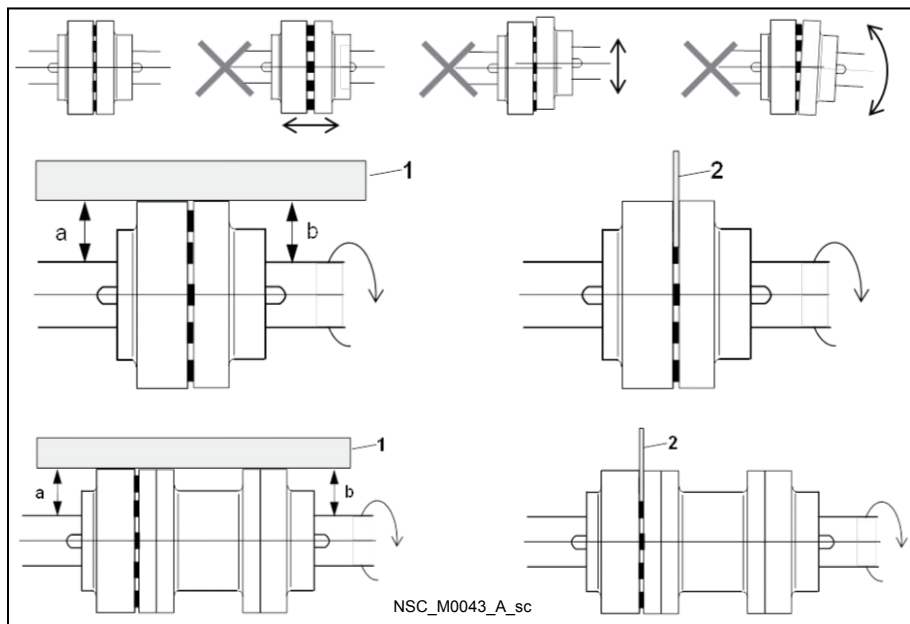
**Srpski**

1. Zaštitna spojnica, gornja polovina
2. Zaštitna spojnica, donja polovina
3. Elementi za fiksiranje (zavrtnji, podložke), gore
4. Elementi za fiksiranje (zavrtnji, podložke), dole
5. Elementi za fiksiranje (zavrtnji, podložke), bočno
6. Potporni prsten/prsten za podešavanje

**Русский**

1. Кожух муфты, верхняя половина
2. Кожух муфты, нижняя половина
3. Крепежные детали (винты, шайбы), верхние
4. Крепежные детали (винты, шайбы), нижние
5. Крепежные детали (винты, шайбы), боковые
6. Опорное/установочное кольцо

19.

**Italiano**

1. Righello
2. Misuratore di spessore

**Deutsch**

1. Lineal
2. Fühlerlehre

**Nederlands**

1. Linaal
2. Diktemeter

**Svenska**

1. Linjal
2. Tjockleksmätare

**Eesti**

1. Joonlaud
2. Jämeduse määramise mõõteriist

**polski**

1. Liniał
2. Grubościomierz

**magyar**

1. Vonalzó
2. Vastagságmérő

**English**

1. Ruler
2. Thickness gauge

**Español**

1. Regla
2. Calibrador de espesor

**Dansk**

1. Lineal
2. Tykkelsesmåler

**Suomi**

1. Viivain
2. Rakotulkki

**Latviešu**

1. Lineāls
2. Biezummērs

**Čeština**

1. Měřítko
2. Číselníkový úchylkoměr

**Română**

1. Riglă
2. Șubler micrometric

**Français**

1. Règle
2. Jauge d'épaisseur

**Português**

1. Régua
2. Calibrador de espessura

**Norsk**

1. Linjal
2. Følelære

**Íslenska**

1. Reglustika
2. Þykktarmælir

**Lietuvių k.**

1. Liniuotė
2. Storio matuoklis

**Slovenčina**

1. Pravítko
2. Hrúbkomer

**Български**

1. Линия
2. Дебеломер

**Slovenščina**

1. Ravnilo
2. Merilnik debeline

**Hrvatski**

1. Ravnalo
2. Mjerač debljine

**Srpski**

1. Lenjir
2. Merač debljine

**Ελληνικά**

1. Κανόνας
2. Δείκτης πάχους

**Türkçe**

1. Cetvel
2. Sentil

**Русский**

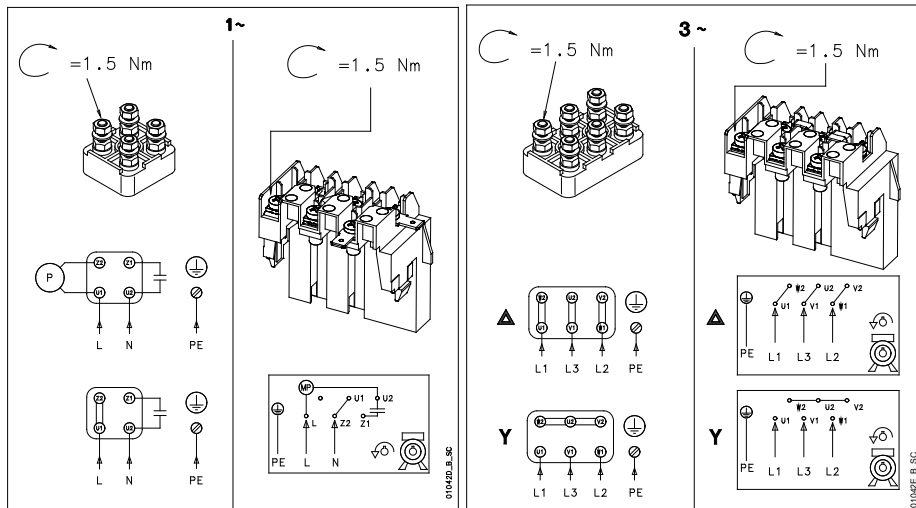
1. Линейка
2. Щуп

**Английска**

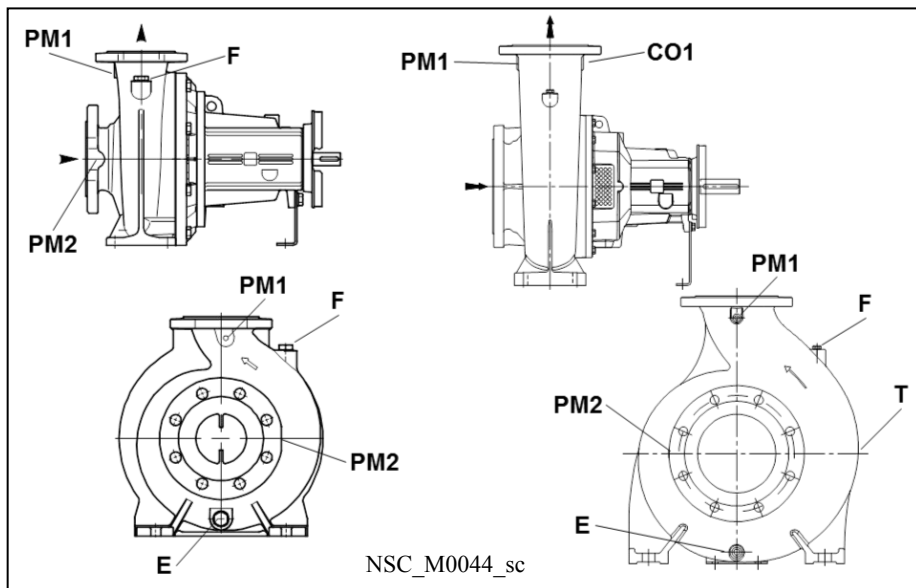
1. Лінійка
2. Вимірювач товщини

- العربية  
 1. المسطرة  
 2. مقياس السمك

20.



21.

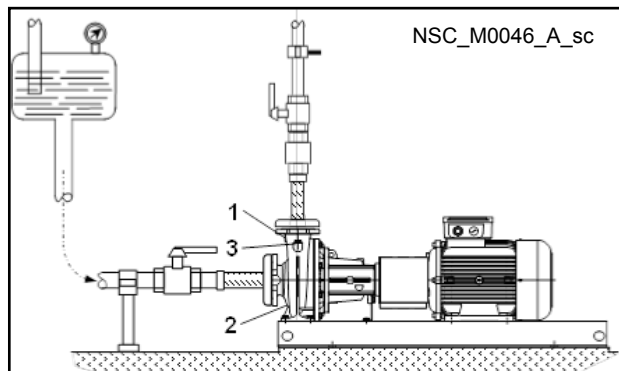


	32-125..-160..-200..-250 40-125..-160..- 200..-250 50-125..-160..- 200..-250 65-125..-160..- 200..-250 80-160..- 200..-250	50-315 65-315 80-315..-316..-400 100-160..-200..-250..-315..-400 125-200..-250..-315..-400 150-200..-250..-315..-400	150-500 200-250..-315..-400..-500 250-315..-400..-500 300-350..-400..-450
	A	A, B	
E	G 3/8"	G 3/8"	G 1/2"
PM1	G 1/4" *)	G 1/4"	G 1/2"
CO1	--	G 1/4" *)	G 1/2" *)
PM2	G 1/4" *)	G 1/4" *)	G 1/2" *)
F	G 3/8"	G 3/8"	--
T	--	--	G 1/2" *)

- A Materiale corpo pompa C, D • Casing material C, D • Matériau de corps C, D • Gehäusewerkstoff C, D • Material de la carcasa C, D • Material da caixa C, D • Behuizing materiaal C, D • Kabinettets materiale C, D • Husmateriale C, D • Pumfhusmaterial C, D • Pesän materiaali C, D • Hüsefni C, D • Kesta materjal C, D • Apvalka materiāls C, D • Korpuso medžiaga C, D • Materiał obudowy C, D • Materiál skříně C, D • Materiál skrine C, D • Ház anyaga C, D • Material carcasă C, D • Материал на корпус C, D • Material ohišja C, D • Materijal kućišta C, D • Materijal kućišta C, D • Υλικό για κέλυφος C, D • Gövde malzemesi C, D • Материал корпуса C, D • Материал корпусу C, D • مواد العلبه C, D
- B Materiale corpo pompa N, R • Casing material N, R • Matériau de corps N, R • Gehäusewerkstoff N, R • Material de la carcasa N, R • Material da caixa N, R • Behuizing materiaal N, R • Kabinettets materiale N, R • Husmateriale N, R • Pumfhusmaterial N, R • Pesän materiaali N, R • Hüsefni N, R • Kesta materjal N, R • Apvalka materiāls N, R • Korpuso medžiaga N, R • Materiał obudowy N, R • Materiál skříně N, R • Materiál skrine N, R • Ház anyaga N, R • Material carcasă N, R • Материал на корпус N, R • Material ohišja N, R • Materijal kućišta N, R • Materijal kućišta N, R • Υλικό για κέλυφος N, R • Gövde malzemesi N, R • Материал корпуса N, R • Материал корпусу N, R • مواد العلبه N, R

- E Drenaggio • **Drain** • Vidange • Ablauf • Drenaje • Drenagem • Afwatering • Afløb • Drenering • Dränering • Tyhjennys • Nidurfall • Áravool • Drenáza • Išleidimas • Spust • Vypust • Odtok • Úritő • Golire • Изпразване • Odtok • Ispust • Odvod • Ουρίδα αποστράγγισης • Tahliye • Сливное отверстие • Спуск • الصرف
- PM1 Punto di presa di pressione, mandata • **Pressure tapping point, discharge** • Point de prise de pression, refoulement • Druckmessstelle, Auslass • Punto de la toma de vapor a presión, descarga • Descarga do ponto de toma de pressão • Drukaflaatpunt, ontlading • Punkttilslutning under tryk, aflledning • Trykk ved uttappingspunktet • Tryckanslutningspunkt, utlopp • Paineen haaroituspiste, poisto • Prýstiúttak, útlosun • Surveröhu ava • Spiediena samazināšanas punkts, izplūde • Slégio atšakos vieta, išleidimas • Króćciec do pomiaru ciśnienia, tłoczenie • Misto pro měření tlaku, na výlačné straně • Bod merania tlaku na výstupe • Nyomóldali nyomásleágazó pont • Punct de derivație pentru presiune, evacuaare • Точка на заустване на налягането на изхода • Otdočna tlačna priključna točka • Priključak za regulaciju tlaka, pražnjenje • Priključak za regulaciju pritiska, odvod • Εκκένωση σημείου κτηπήματος με πίεση • Basınç itme noktası, boşaltım • Патрубок отбора давления на стороне нагнетания • Патрубок відбору тиску на боці нагнітання • تفریح نقطة التوصیل بالضغط
- CO1 Uscita ricircolo • **Circulation outlet** • Sortie de circulation • Zirkulationsausgang • Salida de circulación • Saida de circulação • Circulatie-uitlaat • Cirkulationsudløb • Sirkulasjonsuttak • Cirkulationsutlopp • Kierron poisto • Hringrásarútfall • Ringvoolu väljalaskeava • Cirkulācijas izeja • Cirkuliacijos anga • Wylot obiegu • Cirkulační výstup • Cirkulačný vývod • Keringetési kimeneti nyílás • Orificiu de circulație • Изход за циркуляция • Obtočna odprtina • Izlaz za cirkulaciju • Izlaz za cirkulaciju • Εξόδος κυκλοφορίας • Devir çıkışı • Выход линии циркуляции • Вихід лінії циркуляції • مخرج التوزيع
- PM2 Punto di presa di pressione, aspirazione • **Pressure tapping point, suction** • Point de prise de pression, aspiration • Druckmessstelle, Ansaugung • Punto de la toma de vapor a presión, aspiración • Sucção do ponto de toma de pressão • Drukaflaatpunt, aanzuiging • Punkttilslutning under tryk, sugning • Trykk ved sugetappingspunktet • Tryckanslutningspunkt, sug • Paineen haaroituspiste, imu • Prýstiúttak, sogun • Imiröhu ava • Spiediena samazināšanas punkts, iesūksana • Slégio atšakos vieta, įsiurbimas • Króćciec do pomiaru ciśnienia, zasykanie • Misto pro měření tlaku, na straně sání • Bod merania tlaku satia • Szívóoldali nyomásleágazó pont • Punct de derivație pentru presiune, aspirație • Точка на заустване на налягането от страната на засмукване • Sesalna tlačna priključna točka • Priključak za regulaciju tlaka, usisavanje • Priključak za regulaciju pritiska, usis • Αναρρόφηση σημείου κτηπήματος με πίεση • Basınç itme noktası, boşaltım • Патрубок отбора давления на стороне всасывания • Патрубок відбору тиску на боці всмоктування • شطف نقطة التوصیل بالضغط
- F Punto di riempimento • **Filling point** • Point de remplissage • Füllpunkt • Punto de llenado • Ponto de enchimento • Vulpunt • Fyldningspunkt • Fyllpunkt • Páfylningspunkt • Täyttöpiste • Fyllingarstaður • Täitumispunkt • Uzpildes punkts • Pildymo anga • Punkt napelniania • Misto pro plnění • Úroveň plnenia • Felöltési pont • Punct de umplere • Точка на пълнене • Тоčka polnjenja • Priključak za punjenje • Priključak za punjenje • Σημείο πλήρωσης • Dolma noktası • Точка заливки • Отвір для заповнювання • نقطة التعبئة
- T Sensore di temperatura • **Temperature sensor** • Capteur de température • Temperatursensor • Sensor de temperatura • Sensor de temperatura • Temperatuursensor • Temperatursensor • Temperatursensor • Temperaturgivare • Lämpötila-anturi • Hitaskynjari • Temperaturuuriandur • Temperatūros sensors • Temperatūros jutiklis • Czujnik temperatury • Snímač teploty • Teplotný snímač • Hőmérséklet-érzékelő • Sensor de temperatură • Температурен датчик • Senzor temperature • Temperaturni senzor • Temperaturni senzor • Αισθητήρας θερμοκρασίας • Sıcaklık sensörü • Датчик температуры • Датчик температуры • مستشعر درجة الحرارة
- \*) Opzionale su richiesta • **Optional on request** • En option sur demande • Optional auf Anfrage • Opcional a petición • Opcional mediante sollicitação • Optioneel op verzoek • Valgfri på anmodning • Valgfritt på anmodning • Tillval på begäran • Valinnainen pyynnöstä • Valfrjals á beiðni • Valikuline nõudmisel • Pieejams pēc pieprasījuma • Pasirenkama, jei reikia • Opcjonalnie na zyczenie • Volitelné na vyžádání • Možné na vyžiadanie • Kérésre rendelhető • Opțional, la cerere • Опция при поискване • Izbitno na zahtevo • Dodatno na zahtjev • Dodatno na zahtev • Προαιρετικό κατ' απαίτηση • • Дополнительно по запросу • Додатково за запитом • اختياري حسب الطلب

## 22.

**Italiano**

1. Tappo presa manometro PM1
2. Tappo di scarico E
3. Tappo di riempimento F

**English**

1. Gauge plug PM1
2. Drain plug E
3. Fill plug F

**Français**

1. Bouchon de jauge PM1
2. Bouchon de vidange E
3. Bouchon de remplissage F

**Deutsch**

1. Manometeranschlussstopfen PM1
2. Ablassschraube E
3. Füllstopfen F

**Español**

1. Tapón del calibrador PM1
2. Tapón de drenaje E
3. Tapón de llenado F

**Português**

1. Tampão do indicador PM1
2. Tampão de drenagem E
3. Tampão de enchimento F

**Nederlands**

1. Peilmeterplug PM1
2. Afvoerplug E
3. Vulplug

**Dansk**

1. Målerprop PM1
2. Drænpop E
3. Fyldningsprop F

**Norsk**

1. Målplugg PM1
2. Dreneringsplugg E
3. Fyllplugg F

**Svenska**

1. Mätplugg PM1
2. Avtappningsplugg E
3. Påfyllningsplugg F

**Suomi**

1. Tulkkitulppa PM1
2. Tyhjennystulppa E
3. Täyttötulppa F

**Íslenska**

1. Mælístappi PM1
2. Botntappi E
3. Áfyllingartappi F

**Eesti**

1. Ventilatsioonikork PM1
2. Äravoolukork E
3. Täitekork F

**Latviešu**

1. Manometra aizgrieznis PM1
2. Drenāžas aizgrieznis E
3. Uzplīdes aizgrieznis F

**Lietuvių k.**

1. Matuoklio angos kamštis PM1
2. Išleidimo angos kamštis E
3. Pildymo angos kamštis F

**polski**

1. Wtyczka miernika PM1
2. Wtyczka spustu E
3. Wtyczka napelniania F

**Čeština**

1. Místo pro měřidlo PM1
2. Vypouštěcí zátka E
3. Plnicí zátka F

**Slovenčina**

1. Zástrčka manometra PM1
2. Vypúšťacia zátka E
3. Zátka plniaceho otvoru F

**magyar**

1. Mérőnyílás, PM1
2. Leeresztőnyílás, E
3. Feltöltőnyílás, F

**Română**

1. Calibru tampon PM1
2. Buşon de golire E
3. Buşon de umplere F

**Български**

1. Измервателна пробка PM1
2. Пробка за източване E
3. Пробка за пълнене F

**Slovenščina**

1. Čep za merjenje PM1
2. Čep za izpust E
3. Čep za polnjenje F

**Hrvatski**

1. Priključak za mjerenje PM1
2. Priključak za pražnjenje E
3. Priključak za ispunu F

**Srpski**

1. Priključak za merenje PM1
2. Priključak za odvod E
3. Priključak za ispunu F



### Ελληνικά

1. Μετρητής PM1
2. Βάνα αποστράγγισης E
3. Τάπα πλήρωσης F

### Türkçe

1. Ölçek kapağı PM1
2. Boşaltma kapağı E
3. Doldurma kapağı F

### Русский

1. Контрольная заглушка PM1
2. Дренажная заглушка E
3. Заливная пробка F

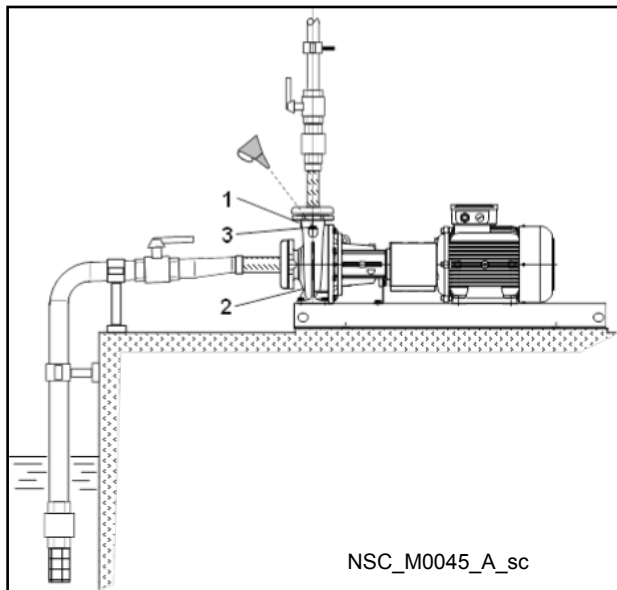
### Английска

1. Контролна заглушка PM1
2. Зливна заглушка E
3. Заливна пробка F

### العربية

1. سداة المقياس PM1
2. سداة التصريف E
3. سداة التعبئة F

23.



### Italiano

1. Tappo presa manometro PM1
2. Tappo di scarico E
3. Tappo di riempimento F

### English

1. Gauge plug PM1
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3. Fill plug F

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2. Bouchon de vidange E
3. Bouchon de remplissage F

### Deutsch

1. Manometeranschlussstopfen PM1
2. Ablassschraube E
3. Füllstopfen F

### Español

1. Tapón del calibrador PM1
2. Tapón de drenaje E
3. Tapón de llenado F

### Português

1. Tampão do indicador PM1
2. Tampão de drenagem E
3. Tampão de enchimento F

### Nederlands

1. Peilmeterplug PM1
2. Afvoerplug E
3. Vulplug

### Dansk

1. Målerprop PM1
2. Drænprop E
3. Fyldningsprop F

### Norsk

1. Målplugg PM1
2. Dreneringsplugg
3. Fyllplugg F

### Svenska

1. Mätplugg PM1
2. Avtappningsplugg E
3. Påfyllningsplugg F

### Suomi

1. Tulkkitulppa PM1
2. Tyhjennystulppa E
3. Täyttötulppa F

### Íslenska

1. Mælistappi PM1
2. Botntappi E
3. Áfyllingartappi F

**Eesti**

1. Ventilatsioonikork PM1
2. Äravoolukork E
3. Täitekork F

**polski**

1. Wtyczka miernika PM1
2. Wtyczka spustu E
3. Wtyczka napelniania F

**magyar**

1. Mérőnyílás, PM1
2. Leeresztőnyílás, E
3. Feltöltőnyílás, F

**Slovenščina**

1. Čep za merjenje PM1
2. Čep za izpust E
3. Čep za polnjenje F

**Ελληνικά**

1. Μετρητής PM1
2. Βάνα αποστράγγισης E
3. Τάπα πλήρωσης F

**Английська**

1. Контрольна заглушка PM1
2. Зливна заглушка E
3. Заливная пробка F

**Latviešu**

1. Manometra aizgrieznis PM1
2. Drenāžas aizgrieznis E
3. Uzpildes aizgrieznis F

**Čeština**

1. Místo pro měřidlo PM1
2. Vypouštěcí zátka E
3. Plnicí zátka F

**Română**

1. Calibru tampon PM1
2. Buşon de golire E
3. Buşon de umplere F

**Hrvatski**

1. Priključak za mjerenje PM1
2. Priključak za pražnjenje E
3. Priključak za ispunu F

**Türkçe**

1. Ölçek kapağı PM1
2. Boşaltma kapağı E
3. Doldurma kapağı F

**Lietuvių k.**

1. Matuoklio angos kamštis PM1
2. Išleidimo angos kamštis E
3. Pildymo angos kamštis F

**Slovenčina**

1. Zástrčka manometra PM1
2. Vypúšťacia zátka E
3. Zátka plniaceho otvoru F

**Български**

1. Измервателна пробка PM1
2. Пробка за източване E
3. Пробка за пълнене F

**Srpski**

1. Priključak za merenje PM1
2. Priključak za odvod E
3. Priključak za ispunu F

**Русский**

1. Контрольная заглушка PM1
2. Дренажная заглушка E
3. Заливная пробка F

**العربية**

1. سدادة المقاييس PM1
2. سدادة التصريف E
3. سدادة التعبئة F





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