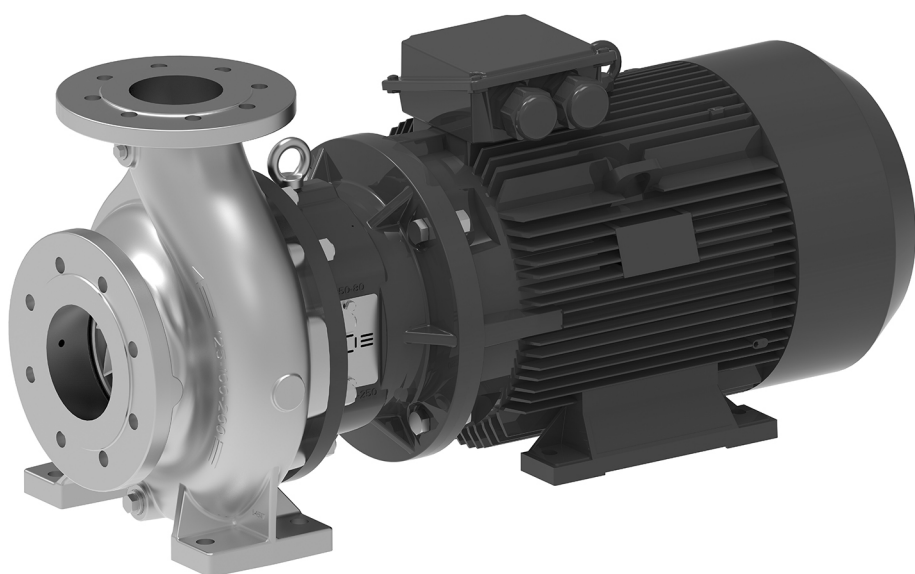


Additional Installation, Operation
and Maintenance Instructions



e-IXPS

Pumps according to chemistry standards

Applicare qui l'adesivo con il codice a barre

Apply the adhesive bar code nameplate here

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1 Introduction and Safety

1.1 Introduction

Purpose of this manual

This manual provides information on how to do the following in the correct manner:

- Installation
- Operation
- Maintenance.



CAUTION:

This manual is an integral part of the unit. Be sure to read and understand the manual before installing the unit and putting it to use. The manual must always be made available to the user, stored in the proximity of the unit, and well kept.

Supplementary instructions




The instructions and warnings of this manual apply to the standard unit as described in the sale documentation. Special version pumps may be supplied with supplementary instruction manuals. For situations not considered in the manual or in the commercial documentation, contact Xylem or the Authorised Distributor.

1.2 Hazard levels and safety symbols








Before using the unit, the user must read, understand and comply with the indications of the danger warnings in order to avoid the following risks:

- Injuries and health hazards
- Damage to the product
- Unit malfunction.

Hazard levels

Hazard level	Indication
 DANGER:	It identifies a dangerous situation which, if not avoided, causes serious injury, or even death.
 WARNING:	It identifies a dangerous situation which, if not avoided, may cause serious injury, or even death.
 CAUTION:	It identifies a dangerous situation which, if not avoided, may cause small or medium level injuries.
NOTE:	It identifies a situation which, if not avoided, may cause damage to property but not to people.

Complementary symbols

Symbol	Description
	Electrical hazard
	Hot surface hazard
	Danger, pressurized system
	Potentially explosive atmosphere hazard
	Do not use flammable liquids
	Do not use corrosive liquids
	Read the instruction manual

1.3 User safety

Strictly comply with current health and safety regulations.

Qualified personnel

This unit must be used only by qualified users. Qualified users are people able to recognise the risks and avoid hazards during installation, use and maintenance of the unit.

Inexperienced users



WARNING:

- For EU countries: this product may be used by children aged 8 years and above and persons with reduced physical, sensory or mental capabilities, or who lack experience and knowledge, provided that they are being supervised and have been instructed on how to use it safely, and understand the hazards involved. Children must not play with the product. Cleaning and maintenance must not be carried out by children without supervision.
- For countries outside the EU: this product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or who lack experience and knowledge, unless they are being supervised and have been instructed on how to use it by a person responsible for their safety. Children should be supervised to ensure that they do not play with the product.

1.4 Protection of the environment

Disposal of packaging and product

Comply with the current regulations on sorted waste disposal.

Leaking of fluid

If the unit contains lubricating fluid, take appropriate measures to prevent the dispersion of leaks into the environment.

Sites exposed to ionizing radiations



WARNING: Ionizing radiation hazard

If the unit has been exposed to ionizing radiations, implement the necessary safety measures for the protection of people. If the unit needs to be dispatched, inform the carrier and the recipient accordingly, so that appropriate safety measures can be put in place.

1.5 Spare parts



WARNING:

Replace all worn or faulty components with original spare parts, to prevent unit malfunction and personal injury, as well as the warranty from becoming null and void.

Identify the spare parts with the product codes directly on the site www.lowara.com/spark.

Contact Xylem or the Authorised Distributor for technical information.

2 Handling and Storage

2.1 Unit inspection upon delivery

2.1.1 Package inspection

1. Check that quantity, descriptions and product codes match the order.
2. Check the packaging for any damage or missing components.
3. In case of immediately detectable damage or missing parts:
 - Accept the goods with reserve, indicating any findings on the transport document, or
 - Reject the goods, indicating the reason on the transport document.
 In both cases, promptly contact Xylem or the Authorised Distributor from whom the product was purchased.

2.1.2 Unpacking and inspection of the unit



CAUTION: Cut and abrasion hazard

Always wear personal protective equipment.

1. Remove the packaging.
2. Ensure sorting of all packaging materials in accordance with the applicable regulations.
3. Release the unit by removing the screws and/or cutting the straps, if fitted.
4. Check the unit for integrity and to make sure that there are no missing components.
5. In case of damage or missing components, promptly contact Xylem or the Authorised Distributor.

2.2 Guidelines for transport

Precautions



WARNING: Crushing hazard

The unit and components are heavy: risk of crushing.



WARNING:

Always wear personal protective equipment.



WARNING:

Check the gross weight marked on the packaging.

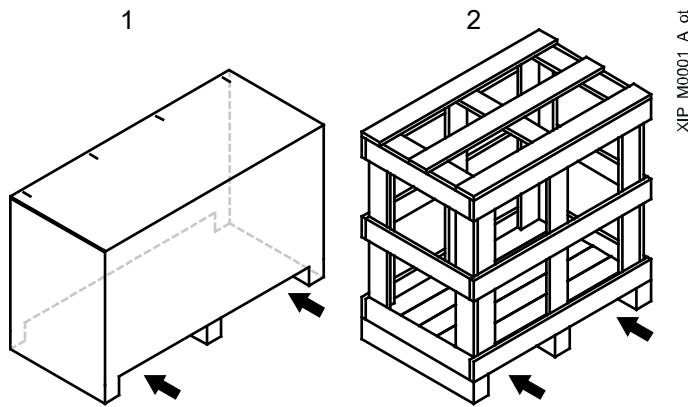


WARNING:

Handle the unit in compliance with the current regulations on "manual load handling", to avoid undesirable ergonomic conditions causing risks of back-spine injury.

2.2.1 Handling of the packed unit using a forklift truck

The Figure shows the types of packaging and the lifting points.



- 1. Cardboard box with wooden base
- 2. Wooden crate

2.2.2 Lifting with a crane



WARNING:

Use ropes, chains and/or slings (hereinafter referred to as "ropes"), hooks and/or clasps (hereinafter referred to as "hooks"), shackles or eyebolts that comply with the applicable directives and are suitable for use.



WARNING:

It is forbidden to use the shaft end and/or the motor eyebolts to move the unit.

NOTE:

Make sure that the harnessing does not hit and/or damage the unit.



WARNING:

Lift and handle the unit slowly to avoid stability issues.

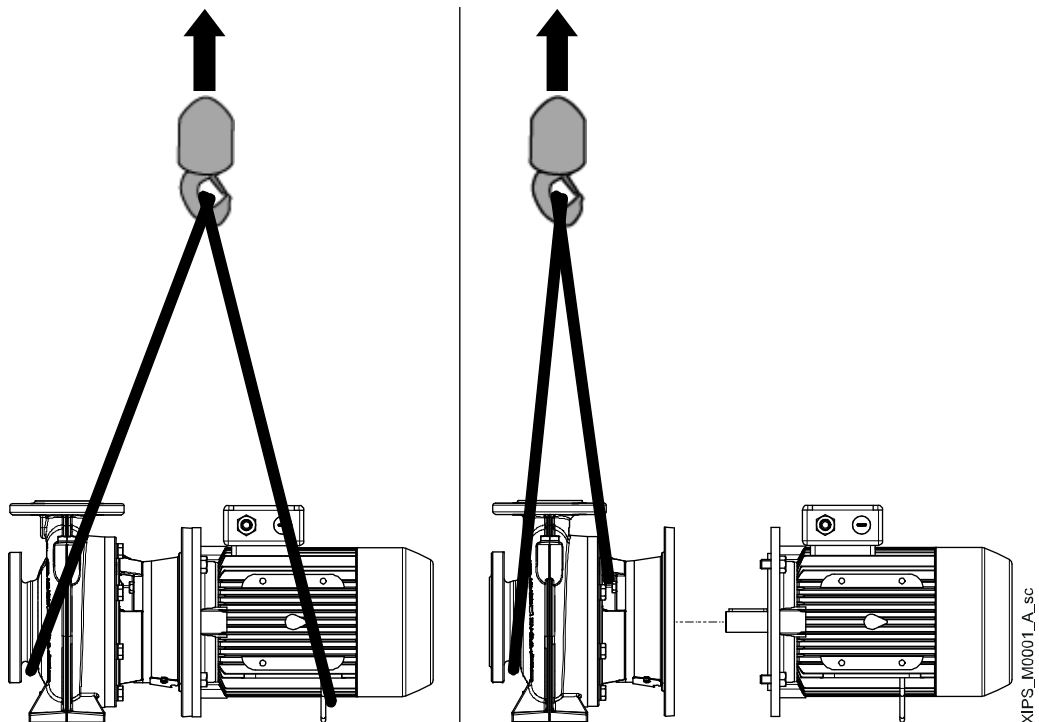


WARNING:

During handling, make sure to avoid injury to people and animals, and/or damage to property.

Preparing the unit for lifting

The figure shows how to harness the unit with or without motor.



1. Use the ropes to make a tie harness.
2. Fix the ropes to the crane.
3. Lift the crane and tension the ropes without lifting the unit.

Lifting and positioning

1. Lift and move the unit slowly
2. Set the unit down slowly.
3. Release the harness.

2.3 Storage

Precautions



WARNING:

In the case of liquids that are excessively hot or cold, pay attention to the risk of injury.



WARNING:

Make sure that the drained liquid cannot cause damage or injuries.



WARNING:

It is prohibited to dispose of lubricant liquids and other hazardous substances in the environment.

2.3.1 Storage of the packed unit

The unit must be stored:

- In a covered and dry place
- Away from heat sources
- Protected from dirt
- Protected from vibrations
- At an ambient temperature between -5°C and +40°C (23°F and 140°F), and relative humidity between 5% and 95%.

NOTE:

Do not place heavy loads on top of the unit.

NOTE:

Protect the unit from collisions.

2.3.2 Long-term storage of the unit

1. Correctly empty the unit.
2. Close the suction and discharge ports with caps or flanges.
3. Follow the same instructions for the storage of the packed unit.

Note

This operation is essential in environments with cold temperatures. Otherwise, any residual liquid in the unit could have an adverse effect on its condition and performance.

For more information on long-term storage contact the Xylem sales company or Authorised Distributor.

2.3.3 Return

1. Correctly empty the unit.
2. Wash and clean the unit, especially if used to process harmful, explosive, hot or potentially hazardous liquids.
3. Neutralize the unit further and blow with inert gas without water to dry it, in case of liquids the residues of which can cause corrosion damage due to moisture, or can ignite on contact with oxygen.
4. Please attach a completed release statement to the unit. Indicate the safety and decontamination measures implemented.

3 Description of the Product

3.1 Features

The product is a single-stage volute body horizontal centrifugal end-suction pump with rigid coupling for coupling with standard electric motors.

Intended use

- Water supply
- Water transfer and circulation
- Process cooling and heating
- Cooling and heating in industrial buildings
- Industrial liquid transfer
- Boiler supply
- Remote heating and cogeneration
- Filtration and ultra-filtration systems
- Filtration in treatment systems
- Washers
- Galvanic processes and painting systems
- Cleaning of tanks and cisterns
- Mixing of liquids
- Water movement in water parks.

Observe the operating limits in Technical Information on page 27.



DANGER: Potentially explosive atmosphere hazard

It is prohibited to start the unit in environments with potentially explosive atmospheres or with combustible dusts.

Pumped liquids

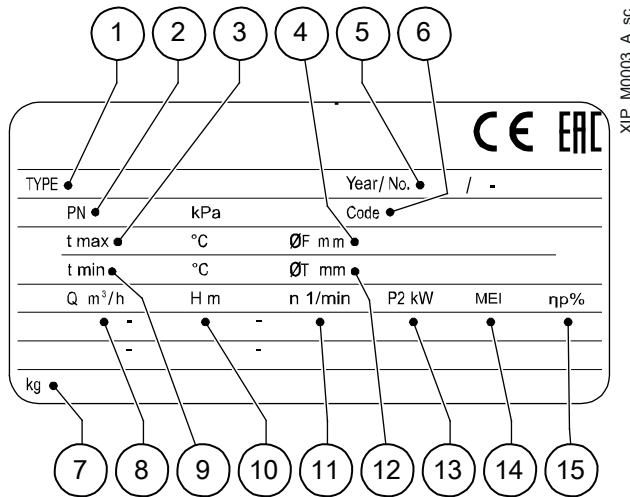
- Water
- Sea water
- Salt water
- Demineralized water
- Hot water
- Acids
- Brine
- Petrochemical products
- Chlorides
- Heat transfer fluids
- Oils
- Solvents
- Detergents
- Condensation.



DANGER:

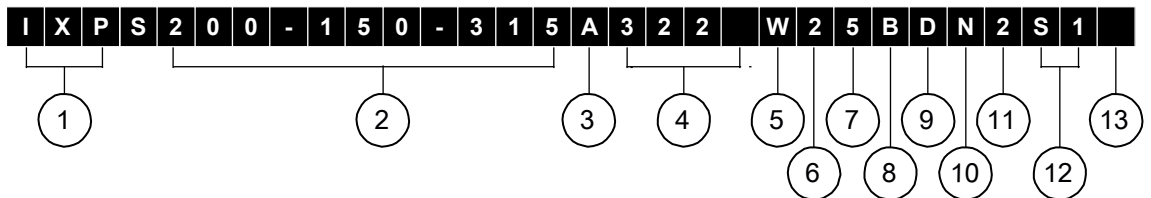
It is prohibited to use this unit to pump flammable and/or explosive liquids.

3.2 Data plates



1. Pump or pump unit type
2. Maximum operating pressure
3. Maximum liquid operating temperature
4. Full impeller diameter (non-trimmed impellers only)
5. Manufacturing date + serial number
6. Product code
7. Weight
8. Flow rate range
9. Minimum liquid operating temperature
10. Head range
11. Rotation speed
12. Reduced impeller diameter (trimmed impellers only)
13. Pump unit absorbed power
14. Minimum efficiency index
15. Hydraulic efficiency at the best efficiency point

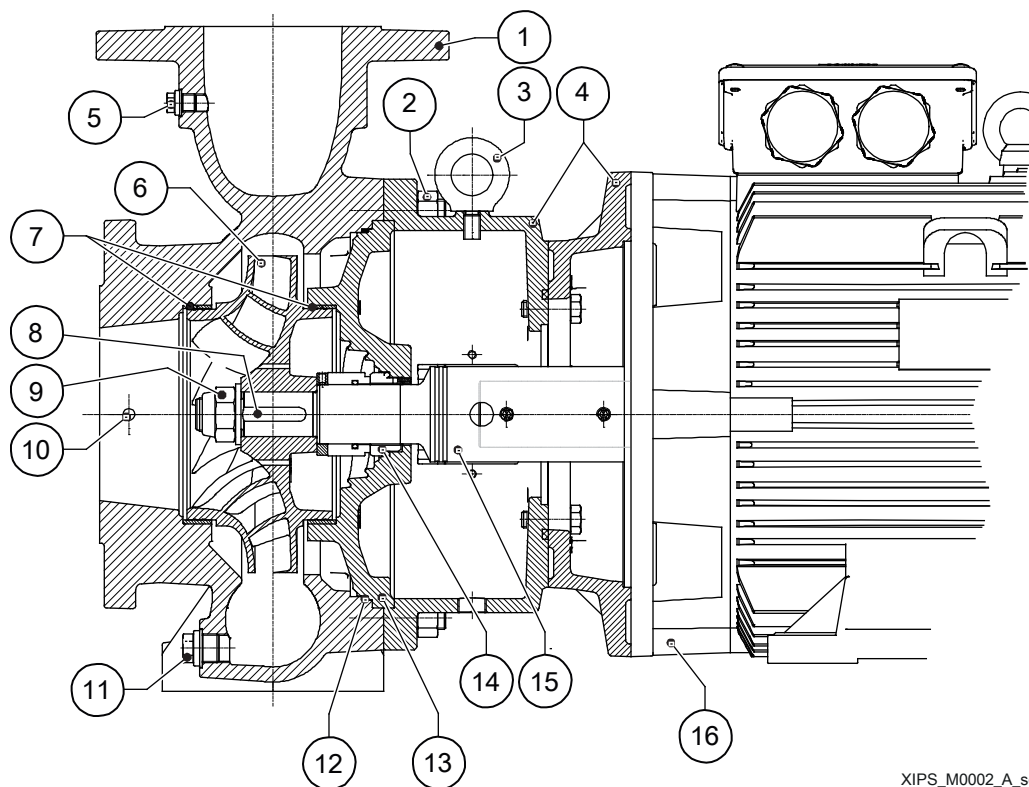
3.3 Identification code



XIPS_M0004_A_sc

1. Series name
2. Size from 40-25-160 to 300-250-315
3. Impeller with full [A], reduced [B, C or D], standard [] or special [X] diameter
4. Motor power in kWx10
5. Lowara motor [P, L], WEG [W], ABB [A], or other manufacturer's [X]
6. 2-pole [2], 4-pole [4] or 6-pole [6] motor
7. Frequency 50 Hz [5] or 60 Hz [6]
8. Operating pressure standard, discharge side, PN 16 bar [B], PN 25 bar [C], class 150 [R] or class 300 [S]
9. Cast ductile iron [D], stainless steel [N] or duplex [R] pump body
10. Impeller made of stainless steel [N] or duplex [R]
11. Mechanical seal made of SiC/Carbon/EPDM [4], SiC/Carbon/EPDM hot water [6], SiC/Carbon/FKM [2], SiC/SiC/EPDM [Z], SiC/SiC/FKM [W] or other material [X]
12. Type of mechanical seal
13. Other options

3.4 Part names



XIPS_M0002_A_sc

1. Discharge body
2. Bolt
3. Lifting ring
4. Motor adapter
5. Plug
6. Impeller
7. Wear ring
8. Impeller key
9. Nut
10. Plug
11. Cap
12. O-ring
13. Cover
14. Mechanical seal
15. Stub shaft
16. Motor

4 Installation

4.1 General precautions

Before starting, make sure that the safety instructions shown in **Introduction and Safety** on page 4 have been fully read and understood.



WARNING:

All the hydraulic and electrical connections must be completed by a technician possessing the technical-professional requirements outlined in the current regulations.



WARNING:

Always wear personal protective equipment.



WARNING:

Always use suitable working tools.

4.2 Mechanical installation

4.2.1 Precautions



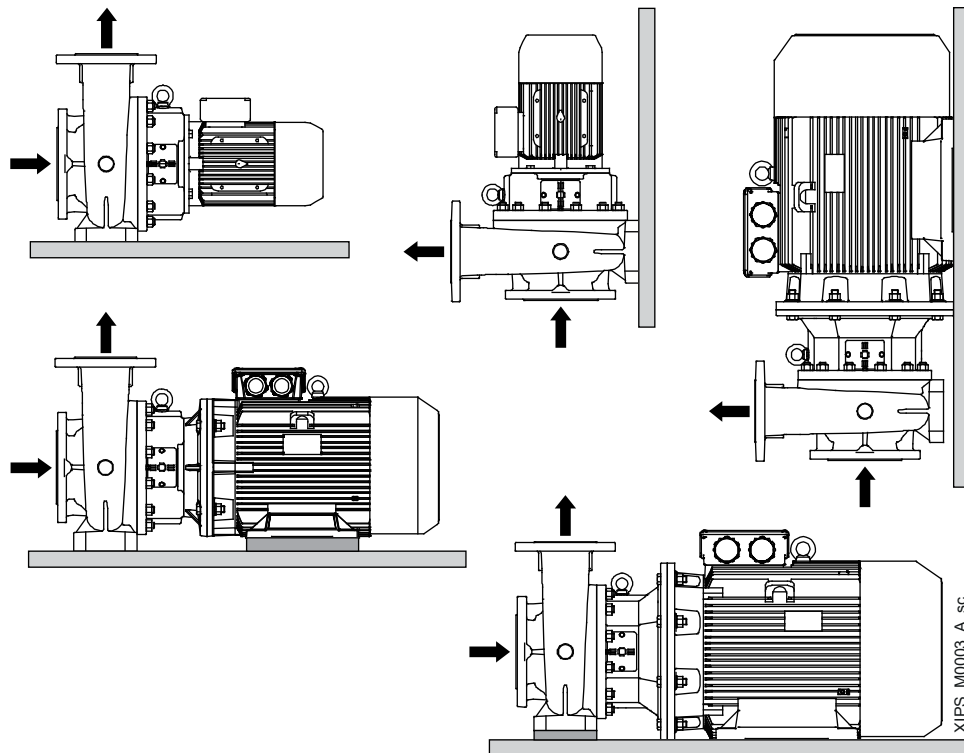
WARNING: Risk of injury due to improper floor installation

Install the unit on a concrete or metal foundation base sufficiently strong to ensure permanent and rigid support, suitable for the size and weight of the unit and as flat and even as possible.

4.2.2 Installation area

1. Follow the provisions in **Operating environment** on page 27.
2. Place the unit in a raised position in relation to the floor.
3. Check that the air clearance between the wall and the motor fan grid is:
 - ≥ 100 mm (4 in), to ensure suitable ventilation
 - ≥ 300 mm (12 in), to allow inspection and removal of the motor.
4. Make sure that any leaks will not cause flooding to the installation area or submerge the unit.

Permitted positions



4.2.3 Installation on concrete foundation

Foundation requirements

- The concrete must have a compression resistance of C12/15 and meet the requirements of exposure class XC1 according to EN 206-1
- Sizes must be appropriate for the sizes of the unit support plate
- The foundation weight must be ≥ 1.5 times the unit weight (≥ 5 times the weight of the unit if a quieter operation is required)
- The surface should be as flat and level as possible.

Fastening

1. Drill the tie rod holes in accordance with the quantity, diameter and centre distances shown in the technical catalogue.
2. Insert the tie rods into the holes and secure them with chemical anchors.
3. Remove the caps of the suction and discharge ports.
4. Place the unit on the foundation by inserting the tie rods into the holes in the plate.
5. Level the unit with a spirit level on the shaft and discharge port: the maximum permitted tolerance is 0.2 mm/m (0.0024 in/ft).
6. Align the suction and discharge ports to their piping.
7. If necessary, insert levelling shims between the plate and the foundation.
8. Tighten the nuts on the tie rods evenly and fully.

Tightening torques:

Nut	Torque, Nm (lbf-in)
M12	60 (44)
M16	120 (89)
M20	200 (148)
M24	350 (258)
M27	530 (391)

Reducing vibrations

The motor and the flow of liquids in the pipes may cause vibrations, which can be exacerbated by incorrect installation of the unit and pipes. See **Hydraulic connection** on page 16.

4.3 Hydraulic connection

4.3.1 Precautions



WARNING:

Piping must be sized to ensure safety at the maximum operating pressure.



WARNING: Danger of hot and/or toxic liquid escaping from non-sealed piping system connections

Support the piping system independently to prevent them from weighing on the unit. Secure the piping system to the unit ports making sure to comply with the permitted forces and torques. Install appropriate gaskets between the unit and the piping system.



WARNING: Hot surface hazard

If the temperature exceeds 60°C (140°F), isolate the unit before touching it.

NOTE:

When carrying out welding activities never use the unit for grounding: risk of pitting damage to the bearings.

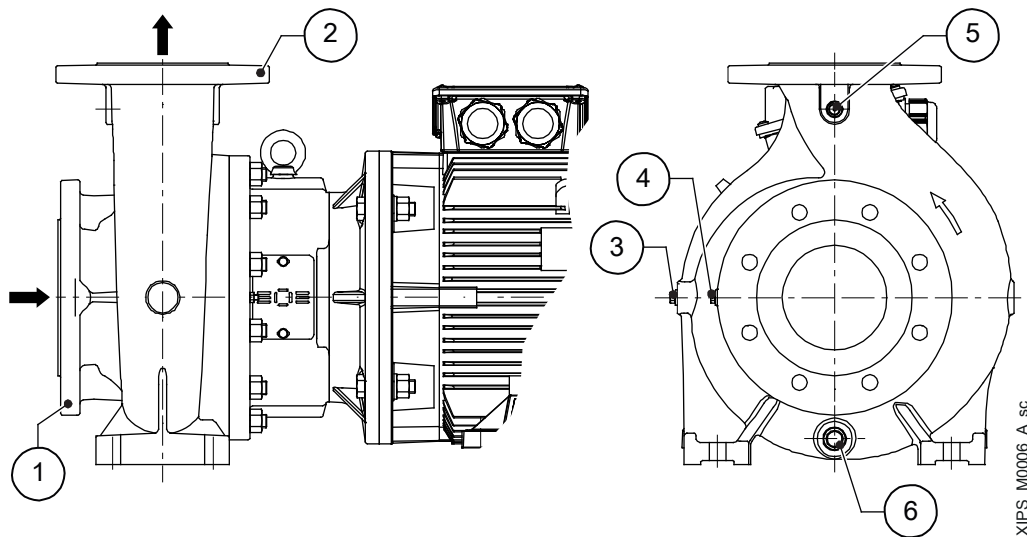
4.3.2 Guidelines for the hydraulic system

1. Support the piping system independently to prevent them from weighing on the unit.
2. Remove any welding residues, deposits and impurities in the pipes that could damage the unit; install a filter if necessary.
3. To reduce the transmission of vibrations between the unit and the system and vice versa, install:
 - anti-vibration joints on the suction and discharge sides of the unit
 - dampers between the unit and the surface on which it is installed.
4. In order to reduce flow resistance, the pipe on the suction side must be:
 - As short and as straight as possible
 - For the section connected to the unit, straight and without bottlenecks, covering a length equal to at least six times the diameter of the suction port
 - Wider than the suction port; if necessary, install an eccentric reducer that is horizontal on top
 - Without bends; if this cannot be avoided, bends of a radius as wide as possible
 - Without traps and 'goosenecks'
 - With valves with a low specific flow resistance.
5. Install a check valve on the discharge side to prevent the liquid from flowing back into the pump unit when this is at standstill.
6. Install a pressure gauge (or a vacuum pressure gauge, in case of suction lift installation) on the suction side, and a pressure gauge on the discharge side, for checking the actual operating pressure of the pump unit.
7. To exclude the unit from the system for the purpose of maintenance, install:
 - An on-off valve on the suction side
 - An on-off valve on the discharge side, downstream the check valve and pressure gauge, also useful for regulating the flow rate.
8. In case of suction lift installation, the suction pipe must have an increasing slope towards the unit exceeding 2%; to avoid air pockets.

4.3.3 Auxiliary Connections

NOTE:

Unused or incorrectly used connections may cause malfunction and damage to the unit.



1. Suction port
2. Discharge port
3. G 1/4" recirculation outlet (optional)
4. G 1/4" suction pressure port
5. G 1/4" discharge pressure port
6. G 1/2" drain

4.4 Electrical connection

4.4.1 Precautions

Electrical measures



DANGER: Electrical hazard

Before starting work, check that the electric power supply is disconnected and locked out, to avoid unintentional restart of the unit, the control panel and the auxiliary control circuit.

NOTE:

Only use dynamically balanced motors with half-sized key at the shaft end (IEC 60034-14), and with normal vibration rate (N).

NOTE:

Only use single-phase or three-phase motors with sizes and powers in compliance with European standards.

NOTE:

The mains voltage and frequency must match the specifications on the data plates.

Ground



DANGER: Electrical hazard

Always connect the external protection conductor (ground) to the ground terminal before attempting to make any other electrical connections.



DANGER: Electrical hazard

Connect all the electrical accessories of the unit to the ground.



DANGER: Electrical hazard

Check that the external protection conductor (ground) is longer than the phase conductors. In case of accidental disconnection of the unit from the phase conductors, the protection conductor must be the last one to detach itself from the terminal.



DANGER: Electrical hazard

Install suitable systems for protection against indirect contact, in order to prevent lethal electric shocks.

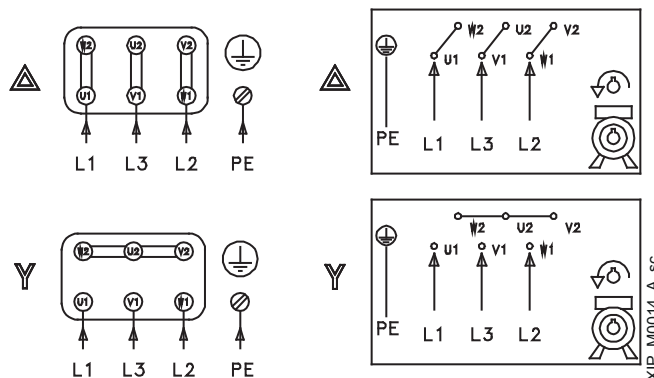
4.4.2 Guidelines for electrical connection

1. Check that the electrical leads are protected against:
 - High temperature
 - Vibrations
 - Collisions
 - Liquids.
2. Check that the power supply line is provided with:
 - A short circuit protection device of appropriate size
 - A mains disconnection device with contact opening distance ensuring complete disconnection for overvoltage III category conditions.

4.4.3 Guidelines for the control panel

1. Install appropriate devices for protecting the motor from overloads and short circuits:
 - Thermal protection: trip class 10 A overload thermal relay + aM fuses (motor start-up), or start class 10 A motor protection thermal magnetic switch
 - Protection from short circuit: aM fuses (motor start-up), or thermal magnetic switch with C curve and $I_{cn} \geq 4.5 \text{ kA}$, or other similar device.
2. If required, install phase failure sensitive thermal relays.

4.4.4 Motor connection



1. Open the terminal box cover.
2. Insert the power cable in the cable gland.
3. Unsheathe the conductors.
4. Make sure that the protection conductor (ground) is longer than the phase conductors.
5. Refer to the wiring diagrams in the figure or inside the cover, insert the cores of the conductors into the respective holes and tighten the nuts or screws.
6. Tighten the cable gland.
7. Close the cover and tighten the screws.

4.4.5 Overload protection

1. Install an appropriate motor protector in the control panel, with D curve in accordance with the current shown in the data plate.
2. Calibrate the motor protector depending on the use of the motor:
 - With full load, comply with the nominal current value on the data plate.
 - With partial load, comply with the value of the operating current measured with a current pincer.

4.4.6 Operation with frequency converter

The motors can be connected to a frequency converter for speed control.

- The converter exposes the insulation of the motor to a greater load, determined by the length of the connecting cable: observe the requirements of the Manufacturer of the frequency converter
- For applications requiring silent operation, install an outlet filter between the motor and the converter; a sinusoidal filter can reduce the noise even further
- The bearings of the motors, from size 315 S/M and up, are exposed to the risk of harmful currents: use electrically insulated bearings
- The conditions of installation must guarantee protection against voltage peaks between the terminals and/or dV/dt in the table:

Motor size	Voltage peak, V	dV/dt , V/ μ s
up to 90R (500 V)	< 650	< 2200
from 90R to 180R	< 1400	< 4600
over 180R	< 1600	< 5200

Otherwise, use a motor with reinforced insulation¹ and a sinusoidal filter.

¹ Available on request

5 Use and Operation

5.1 Precautions



WARNING: Injuries hazard

Check that the protection devices of the coupling are installed, when applicable: risk of physical injury.



WARNING: Electrical hazard

Check that the unit is properly connected to the mains power supply.



WARNING: Hot surface hazard

Be aware of the extreme heat generated by the unit.



WARNING: Danger of hot and/or toxic liquid spillage

Observe the operating limits for pressure, temperature, speed and pumped liquids.



WARNING: Danger of hot and/or toxic liquid spillage due to defective shaft seal

Maintain the mechanical seal regularly.



WARNING: Danger of hot and/or toxic liquid spillage due to the on-off valve being closed

It is prohibited to operate the unit with the on-off valves on the suction and discharge sides closed.



WARNING:

It is prohibited to place flammable materials near the unit.

NOTE:

Check that the shaft can turn smoothly.

NOTE:

It is prohibited to operate the unit when dry, not primed and below the rated flow rate.

NOTE:

The unit must be filled and vented properly before it can be started.

NOTE:

The maximum pressure delivered by the unit at the discharge side, determined by the pressure available on the suction side, must not exceed the maximum pressure (PN).

5.2 Checking the rotation direction



WARNING: Temperature increase due to contact between rotating and fixed components
Checking the direction of rotation by running the unit dry is strictly forbidden.

Preparing the unit

1. Check that all the operations described in the previous paragraphs have been completed correctly.
2. Fill and purge the pump unit and the suction pipe.
3. Shut off the discharge on-off valve almost completely.
4. Fully open the suction on-off valve.

Checking the rotation direction

1. Locate the arrow on the adapter, the coupling or the cover, to determine the correct direction of rotation of the motor.
2. Start the unit.
3. Check the rotation direction through the motor cover.
4. Stop the unit.
5. In case of incorrect rotation direction:
 - Disconnect the power supply
 - Invert two of the three wires of the power supply cord.
6. Check the direction of rotation again.

5.3 Start-up

1. Check that all the operations described in the previous paragraphs have been completed correctly.
2. Shut off the discharge on-off valve almost completely.
3. Fully open the suction on-off valve.
4. Start the unit.
5. As soon as the motor reaches full speed, gradually open the discharge on-off valve and adjust it until the duty point is reached.
6. With the unit in operation, check that:
 - No liquid is leaking from the unit or piping system
 - The nominal pressure is higher than the maximum pressure delivered by the unit
 - The current absorbed is within the rated limits.

5.4 Stopping

1. Close the discharge on-off valve: If the discharge line is equipped with a check or non-return valve, the on-off valve can stay open.
2. Stop the unit.
3. Check that the motor stops and that it does not turn in the opposite direction.
4. Gradually re-open the valve and check that the motor remains still.

6 Maintenance

6.1 Precautions

Before starting, make sure that the safety instructions shown in **Introduction and Safety** on page 4 have been fully read and understood.



WARNING:

Maintenance must be done by a technician possessing the technical-professional requirements outlined in the current regulations.



WARNING:

Always wear personal protective equipment.



WARNING:

Always use suitable working tools.



DANGER: Electrical hazard

Before starting work, check that the electric power supply is disconnected and locked out, to avoid unintentional restart of the unit, the control panel and the auxiliary control circuit.



DANGER: Electrical hazard

If the unit is connected to the frequency converter, disconnect the mains power supply and wait at least 10 minutes for the residual current to dissipate.



WARNING: Risk of crushing of hands and feet

During maintenance and troubleshooting, secure the unit or parts of the unit to prevent tipping and falling.



WARNING:

In the case of liquids that are excessively hot or cold, pay attention to the risk of injury.



WARNING:

Make sure that the drained liquid cannot cause damage or injuries.



WARNING:

It is prohibited to dispose of lubricating fluids and other hazardous substances in the environment.

6.2 Periodic maintenance

General information

Type of maintenance	Purpose	Interval
Check	Check: <ul style="list-style-type: none"> • That there are no unwanted noise or vibrations • The mechanical seal • That there are no liquid leaks from the gaskets • Tightness of the screws and bolts • The motor adapter • Clogging of the filter in the suction pipe; clean if necessary 	Daily
Control	Check the temperature of the unit bearings	Every week
	Check the auxiliary connections	
	Check the operation of the device in standby	
Check	If the unit is subjected to chemical or abrasive wear, check its condition	Every 6 months
	Check the terminal board for any signs of overheating and arc flashes	Every year
Cleaning	Clean the cooling fan	
Topping up or replacement	Top up or replace motor bearing grease (only for regreasable bearings)	Refer to the data plate and instructions of the motor for information on the type of grease and how often it needs to be topped up or replaced
Replacement	Replace the motor bearings	Every 25000 hours of operation or every 5 years, when the first of the two limits is reached

6.3 Long periods of inactivity

1. Close the on-off valve on the suction side.
2. Completely empty the unit.
3. Protect the unit against freezing.
4. Before restarting the unit, check that the shaft is rotating freely, without mechanical impediments.

6.4 Spare parts ordering

Identify the spare parts with the product codes directly on the site www.lowara.com/spark. Contact Xylem or the Authorised Distributor for further technical information.

7 Troubleshooting

7.1 Precautions

Before starting the work, make sure that the safety instructions shown in **Introduction and Safety** on page 4, in **Use and Operation** on page 20 and in **Maintenance** on page 22 have been fully read and understood.



WARNING:

Maintenance must be done by a technician possessing the technical-professional requirements outlined in the current regulations.



WARNING:

If a fault cannot be corrected or is not mentioned, contact Xylem or the Authorised Distributor.

7.2 The unit does not start

Cause	Solution
Electric power supply cut off	Restore the electric power supply
The thermal overload protection of the motor has been triggered	Reset the thermal overload protection on the control panel or the unit
The device for protection against the absence of liquid has tripped	<ul style="list-style-type: none"> • Check the liquid level in the tank and/or • Adjust the device If the problem continues, replace the device
Faulty capacitor (single-phase version)	Contact Xylem or the Authorised Distributor
Control panel faulty	Check and repair or replace the control panel
Unit faulty	Contact Xylem or the Authorised Distributor

7.3 The differential protection device (RCD) has tripped

Cause	Solution
Motor leaking	Check and repair or replace the motor
Differential of unsuitable type or faulty	Check the type of differential and/or replace it

7.4 The unit produces excessive noise and/or vibrations

Cause	Solution
Cavitation	Increase the NPSH ² available in the system
Unsuitable anchoring to the ground	Check the anchoring to the ground
Plant resonance	Check the installation
Anti-vibration joint on the piping system not suitable or absent	Check and/or install the anti-vibration joint
Foreign bodies in the unit	Remove the foreign bodies
Motor bearings worn or faulty	Replace the motor bearings
Unit mechanically seized	Contact Xylem or the Authorised Distributor

² Net Positive Suction Head

7.5 The thermal overload protection triggers or the fuses trip

The motor thermal overload protection triggers or the fuses trip when the unit starts.

Cause	Solution
It is calibrated at a value too low in relation to the rated current of the motor	Recalibrate
Missing power supply phase	Check the power supply and restore the phase
Loose and/or faulty connections of the thermal overload protection	Tighten or replace the clamps and terminals
Loose and/or incorrect and/or faulty (star-delta) connections in the terminal board of the motor	Tighten or replace the clamps and terminals
Motor (coil) faulty	Check and repair or replace the motor
Pump unit mechanically seized	Check and repair the pump unit
Check valve faulty	Replace the check valve
Foot check valve faulty	Replace the foot valve

7.6 The thermal overload protection triggers

The motor thermal overload protection triggers occasionally, or after the unit has been running for a few minutes.

Cause	Solution
It is calibrated at a value too low in relation to the rated current of the motor	Recalibrate
Input voltage outside the rated limits	Make sure the voltage values are correct
Unbalanced input voltage	Make sure the voltage of the three phases is balanced
Wrong duty point, flow rate above the permitted limits	Bring the flow rate back within the permitted limits
Liquid too thick	Check the liquid
Room temperature too high	Decrease the temperature
Unit faulty	Contact Xylem or the Authorised Distributor

7.7 The motor becomes excessively hot

Cause	Solution
Room temperature too high	Decrease the temperature
Motor cooling fan damaged	Replace the cooling fan
Too many starts	See paragraph 7.10
Frequency converter wrongly calibrated (if present)	See the frequency converter manual

7.8 Little or no hydraulic performance

Cause	Solution
Three-phase motor turning in the wrong direction	Check the direction of rotation and change if necessary
Incorrect priming (there are air bubbles in the suction pipe or in the unit)	Repeat the priming procedure
Cavitation	Increase the NPSH ³ available in the system
Check valve blocked or partially clogged	Replace the check valve
Discharge pipe throttled	Remove the throttling
Piping and/or unit clogged	Remove the clogging

³ Net Positive Suction Head

7.9 When switched off, the unit turns in the opposite direction

Cause	Solution
Check valve faulty	Replace the check valve
Foot check valve faulty	Replace the foot valve

7.10 The unit starts and stops too frequently

The unit with automatic start and stop device starts and stops too frequently.

Cause	Solution
Incorrect priming (there are air bubbles in the suction pipe or in the unit)	Repeat the priming procedure
Check valve locked in closed or partially closed position	Replace the check valve
Foot valve locked in closed or partially closed position	Replace the foot valve
Starter set incorrectly, or faulty	Adjust or replace the starter
Expansion vessel <ul style="list-style-type: none"> • no pre-charge, or • undersized, or • not installed 	<ul style="list-style-type: none"> • Pre-charge the expansion vessel, or • replace the expansion vessel with another suitable one, or • install an expansion vessel
Oversized unit	Contact Xylem or the Authorised Distributor

7.11 The unit does not stop

The unit with automatic start and stop device never stops.

Cause	Solution
The required flow rate is greater than the one expected	Reduce the required flow rate
Discharge pipe leaking	Eliminate the leaks
Three-phase motor turning in the wrong direction	Check the direction of rotation and change if necessary
Pipes, on-off valves or filter clogged with impurities	Remove the impurities
Starter set incorrectly, or faulty	Adjust or replace the starter
The unit runs but there is little or no flow rate	See paragraph 7.8

7.12 The unit is leaking at the mechanical seal

Cause	Solution
Damaged seal due to: <ul style="list-style-type: none"> • wear • thermal shock • chemical incompatibility • other 	Replace the seal and check it to identify the cause of the damage. Contact Xylem or the Authorised Distributor

7.13 The frequency converter is in error mode or turned off

The frequency converter (if present) is in error mode or turned off

Cause	Solution
See the frequency converter manual	See the frequency converter manual

8 Technical Information

8.1 Operating environment

Non-aggressive and non-explosive atmosphere.

Temperature

From -10 to 40°C (14-104°F), unless otherwise indicated on the data plate of the electric motor.

Relative air humidity

< 50% at 40°C (104°F).

NOTE:

If the humidity exceeds the stated limits, contact Xylem or the Authorised Distributor.

Elevation

< 1000 m (3280 ft) above sea level.

NOTE: Danger of motor overheating

If the unit is exposed to temperatures or installed at an altitude greater than those stated, reduce the power output of the motor according to the coefficients reported in the table. Otherwise, replace the motor with a more powerful one.

Altitude m (ft)	Power reduction coefficient
1000-1500 (3300-4900)	0.97
1500-2000 (4900-6600)	0.95

8.2 Temperature of pumped liquid

The table shows the permitted liquid temperatures according to the material of the standard non balanced seal with elastomeric bellow.

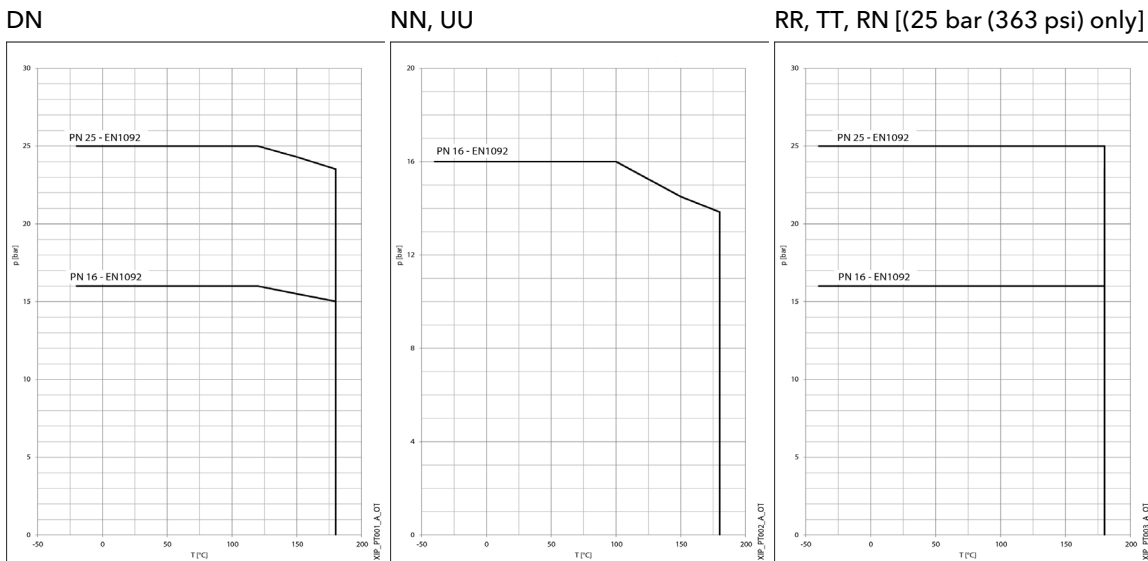
Seal material	Minimum and maximum temperature, °C (°F)
BQ7EGG	-25-120 (-13-248)
BQ7VGG	-20-90 (-4-194)
Q7Q7EGG	-25-120 (-13-248)
Q7Q7VGG	-20-90 (-4-194)

Note: For the temperatures of the optional seals see the data plate.

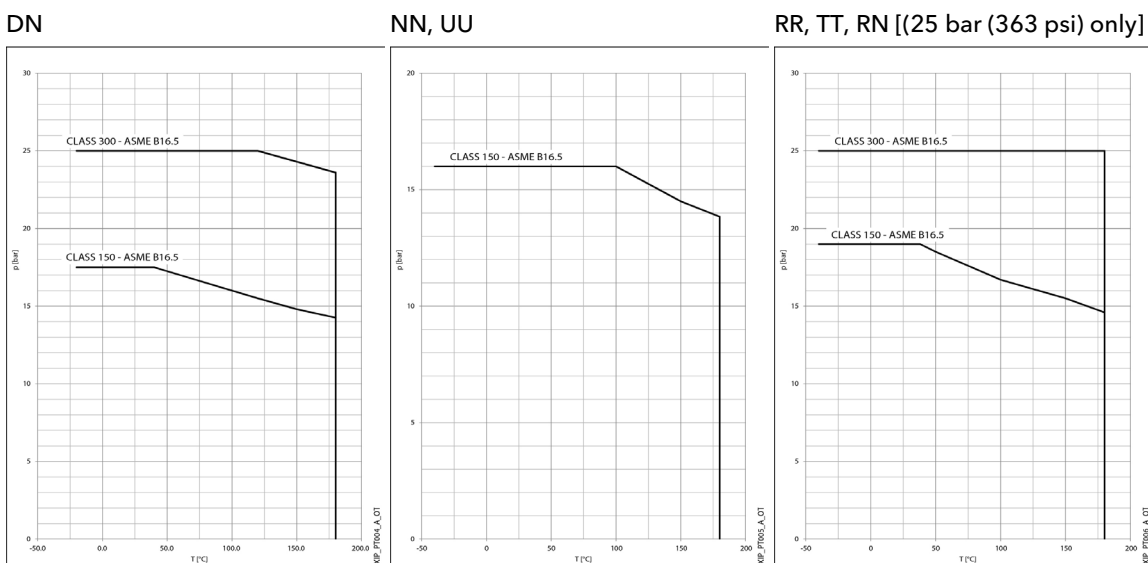
8.3 Maximum operating pressure

The chart shows the pumped liquid pressure and temperature limits permitted for the materials of the unit, depending on the type of flange.

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ASME B16.5



8.4 Maximum number of starts per hour

Power, kW	Starts / h
0.75 - 3	60
4 - 7.5	40
11 - 22	25
30 - 37	16
45 - 75	8
90	4

NOTE:

If a motor other than the one supplied with the pump unit is used, check the maximum number of starts shown in the motor manual.

8.5 Electrical specifications

See the motor data plate.

Permitted tolerances for the supply voltage

Frequency Hz	Phase ~	No. of conductors + earth	UN, V ± %
50	1	2 + 1	220÷240 ± 6
	3	3 + 1	230/400 ± 10, 400/690 ± 10
60	1	2 + 1	220÷230 ± 6
	3	3 + 1	220/380 ± 5, 380/660 ± 10

8.6 Sound pressure

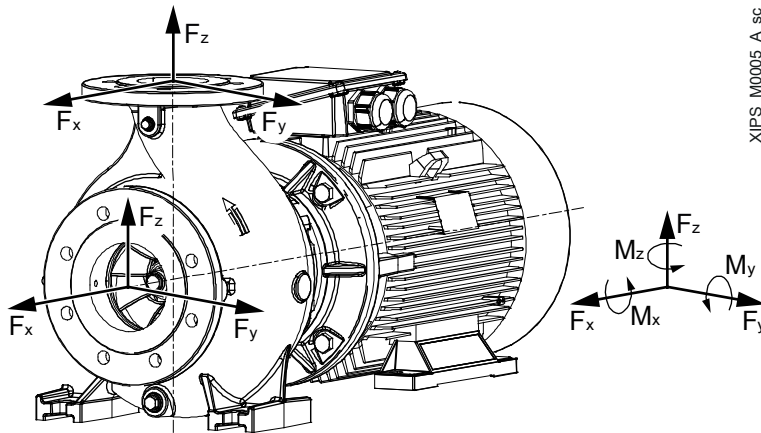
Measured in free field at a distance of one metre from the unit, operating without load.

L_{pA}, dB ± 3

Power, kW	Pump @ min ⁻¹			Pump with standard motor, @ min ⁻¹		
	2950	1450	950	2950	1450	950
0.75, 1.1, 1.5, 2.2, 3, 4, 5.5, 7.5, 11, 15	< 70	< 70	< 70	< 70	< 70	< 70
18.5	< 70	< 70	< 70	70.1	< 70	< 70
22	< 70	< 70	< 70	70.6	< 70	< 70
30	< 70	< 70	< 70	71.8	< 70	< 70
37	70.5	< 70	< 70	73.8	73.4	70.1
45	71.5	70.5	70.0	74.8	71.6	71.2
55	72.4	71.4	-	76.9	72.7	-
75	73.8	72.9	-	78.7	74.1	-
90	74.8	73.8	-	79.7	74.8	-

8.7 Forces and torques applicable to the ports

The figure and the table show the maximum allowable forces and torques exerted by the piping system on the ports of the unit, with temperature up to 140°C (284°F).



Model	Suction port									Discharge port								
	DN, mm	Forces, N				Torques, Nm				DN, mm	Forces, N				Torques, Nm			
		Fx	Fy	Fz	ΣF	Mx	My	Mz	ΣM		Fx	Fy	Fz	ΣF	Mx	My	Mz	ΣM
40-25..	40	438	385	350	680	455	315	368	664	25	263	245	298	466	315	210	245	451
50-32..	50	578	525	473	912	490	350	403	724	32	315	298	368	568	385	263	298	553
65-50..	65	735	648	595	1146	525	385	420	775	50	525	473	578	912	490	350	403	724
65-40..	65	735	648	595	1146	525	385	420	775	40	385	350	438	680	455	315	368	664
80-65..	80	875	788	718	1379	560	403	455	826	65	648	595	735	1146	525	385	420	775
80-50..	80	875	788	718	1379	560	403	455	826	50	525	473	578	912	490	350	403	724
100-80..	100	1173	1050	945	1836	613	438	508	908	80	788	718	875	1379	560	403	455	826
100-65..	100	1173	1050	945	1836	613	438	508	908	65	648	595	735	1146	525	385	420	775
125-80..	125	1383	1243	1120	2170	735	525	665	1122	80	788	718	875	1379	560	403	455	826
125-100..	125	1383	1243	1120	2170	735	525	665	1122	100	1050	945	1173	1836	613	438	508	908
150-125..	150	1750	1575	1418	2748	875	613	718	1287	125	1243	1120	1383	2170	735	525	665	1122
200-150..	200	2345	2100	1890	3672	1138	805	928	1674	150	1575	1418	1750	2748	875	613	718	1287
250-200..	250	3340	2980	2700	5227	1780	1260	1460	2624	200	2100	1890	2345	3672	1138	805	928	1674
300-250..	300	4000	3580	3220	6260	2420	1720	1980	3569	250	2980	2700	3340	5227	1780	1260	1460	2624

8.8 Construction and maintenance data

Model	Diameter of ports, mm (in)		Shaft diameter, mm (in)	Mechanical seal, mm (in)
	Suction	Discharge		
40-25-160, 40-25-200	40 (1 1/2)	25 (1)	24 (0.94)	33 (1.30)
50-32-160, 50-32-200	50 (2)	32 (1 1/4)	24 (0.94)	33 (1.30)
50-32-250	50 (2)	32 (1 1/4)	32 (1.26)	43 (1.69)
65-50-160	65 (2 1/2)	50 (2)	24 (0.94)	33 (1.30)
65-40-200	65 (2 1/2)	40 (1 1/2)	24 (0.94)	33 (1.30)
65-40-250	65 (2 1/2)	40 (1 1/2)	32 (1.26)	43 (1.69)
65-40-315	65 (2 1/2)	40 (1 1/2)	32 (1.26)	43 (1.69)
80-65-125, 80-65-160	80 (3)	65 (2 1/2)	24 (0.94)	33 (1.30)
80-50-200	80 (3)	50 (2)	24 (0.94)	33 (1.30)
80-50-250, 80-50-315	80 (3)	50 (2)	32 (1.26)	43 (1.69)
100-80-125	100 (4)	80 (3)	24 (0.94)	33 (1.30)
100-80-160	100 (4)	80 (3)	32 (1.26)	43 (1.69)
100-65-200, 100-65-250	100 (4)	65 (2 1/2)	32 (1.26)	43 (1.69)
100-65-315	100 (4)	65 (2 1/2)	42 (1.65)	53 (2.09)
125-80-160, 125-80-200, 125-80-250	125 (5)	80 (3)	32 (1.26)	43 (1.69)
125-80-315, 125-80-400	125 (5)	80 (3)	42 (1.65)	53 (2.09)
125-100-160, 125-100-200	125 (5)	100 (4)	32 (1.26)	43 (1.69)
125-100-250, 125-100-315, 125-100-400	125 (5)	100 (4)	42 (1.65)	53 (2.09)
150-125-200, 150-125-250, 150-125-315, 150-125-400	150 (6)	125 (5)	42 (1.65)	53 (2.09)
200-150-200, 200-150-250	200 (8)	150 (6)	42 (1.65)	53 (2.09)
200-150-315, 200-150-400	200 (8)	150 (6)	48 (1.89)	65 (2.56)
250-200-250, 250-200-315	250 (10)	200 (8)	48 (1.89)	65 (2.56)
300-250-315	300 (12)	250 (10)	48 (1.89)	65 (2.56)

9 Disposal

9.1 Precautions



WARNING:

The unit must be disposed of through approved companies specialised in the identification of different types of materials (steel, copper, plastic, etc.).



WARNING:

It is prohibited to dispose of lubricating fluids and other hazardous substances in the environment.

9.2 WEEE 2012/19/EU (50 Hz)

(IE) (MT) (GB) - INFORMATION TO USERS pursuant to art. 14 of the Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE).



The crossed bin symbol on the appliance or on its packaging indicates that the product at the end of its useful life must be collected separately and not disposed of together with other mixed urban waste. Appropriate separate collection for the subsequent start-up of the disused equipment for recycling, treatment and environmentally compatible disposal helps to avoid possible negative effects on the environment and on health and favors the re-use and / or recycling of the materials it is composed of the equipment.

WEEE other than WEEE from private households⁴: The separate collection of this equipment at the end of its life is organized and managed by the producer. The user who wants to get rid of this equipment can then contact the producer and follow the system that it has adopted to allow the separate collection of equipment at the end of life, or select a supply chain independently authorized to manage.

Producer of EEE as per Directive 2012/19/EU:

(IE)

Xylem Water Solutions Ireland Ltd - 50 Broomhill Close - Airton Road - D24 Tallaght - Dublin 24

(MT)

-

(GB)

Xylem Water Solutions UK Ltd - Millwey Rise Industrial Estate - Axminster - Devon EX13 5HU

⁴Classification according to product type, use and current local laws

10Declarations

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 the label on the Safety and Other Information manual)

fulfils the relevant provisions of the following European Directives:

- Machinery 2006/42/EC and subsequent amendments (ANNEX II - natural or legal person authorised to compile the technical file: Xylem Service Austria GmbH, Ernst Vogel-Strasse 2, 2000 Stockerau, Austria)
- Eco-design 2009/125/EC, and subsequent amendments, Regulation (EC) No 640/2009 and (EU) No 4/2014 (Motor 3 ~, 50 Hz, $P_N \geq 0.75$ kW) if 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 ISO 14120:2015, EN 60204-1:2006+A1:2009
- EN 60034-30:2009, EN 60034-2-1:2007

Montecchio Maggiore, 17/12/2020

Amedeo Valente
(Director of Engineering and R&D)



rev.00

EU Declaration of Conformity (n. 59)

1. (EMCD) Apparatus/Product model:
see the label on the Safety and Other Information manual
(RoHS) Unique identification of the EEE:
IXP.
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 unit (see product data plate).
5. The object of the declaration described above is in conformity with the relevant Union harmonization legislation:
 - 2014/30/EU Directive of 26 February 2014 (electromagnetic compatibility) and subsequent amendments
 - 2011/65/EU Directive of 8 June 2011 (restriction of the use of certain hazardous substances in electrical and electronic equipment) and subsequent amendments.
6. References to the relevant harmonized standards used or references to the other technical specifications, in relation to which conformity is declared:
 - EN 61000-6-1:2007, EN 61000-6-2:2005, EN 61000-6-3:2007+A1:2011, EN 61000-6-4:2007+A1:2011
 - EN 50581:2012.
7. Notified body: -.
8. Additional information:
(RoHS) - Annex III - Applications exempted from the restrictions: lead as a binding element in steel, aluminium, copper alloys [6a), 6b), 6c)].
Optimize: if present, refer to documentation supplied with the monitoring device.

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

Montecchio Maggiore, 17/12/2020

Amedeo Valente

(Director of Engineering and R&D)



rev.00

Lowara is a trademark of Xylem Inc. or one of its subsidiaries.

11 Warranty

11.1 Information

For information on the warranty refer to the commercial documentation.

Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) A leading global water technology company.

We're a global team unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to www.xyleminc.com



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www.xyleminc.com/brands/lowara

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