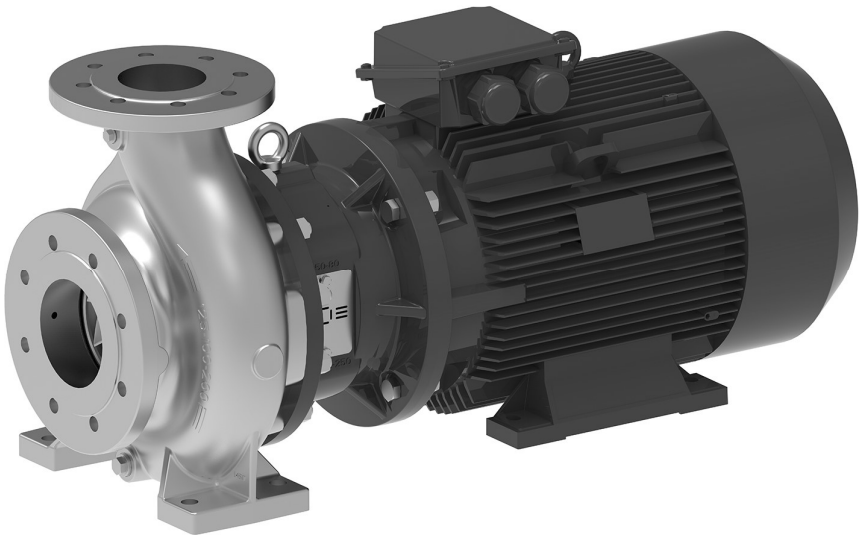
xylem
Let's Solve Water

Additional Installation, Operation
and Maintenance Manual



e-IXPSA

Pumps according to ISO 2858 and ISO 5199
ATEX Ⓔx II 2G Ex h IIC T5...T3 Gb

Applicare qui l'adesivo con il codice a barre

Apply the adhesive bar code nameplate here

LOWARA
a xylem brand

Table of Contents

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

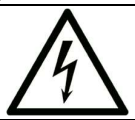
Before using the unit, the user must read, understand and comply with the indications of the danger warnings in order to avoid the following risks:

- 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
	Ionizing radiation hazard
	Specific marking for explosion protection
	Danger, explosive atmosphere
	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. Children shall not play with the appliance. Cleaning and user maintenance shall not be made 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 Explosion protection

The installation, operation and maintenance of the unit in potentially explosive atmospheres are regulated by EU Directive 2014/34/EU (ATEX) and UK Regulation of 2016 regarding Equipment and Protective Systems Intended For Use in Potentially Explosive Atmospheres (S.I. 2016/1107).

DANGER: Potentially explosive atmosphere hazard

Make sure that the unit is classified and identified as explosion-proof in the technical data sheet or order confirmation before installing it in a potentially explosive atmosphere.

DANGER: Potentially explosive atmosphere hazard

Observe the explosion protection warnings in this manual when installing, operating and maintaining the unit in potentially explosive atmospheres.

DANGER: Potentially explosive atmosphere hazard

All the electric material used for the connection must:

- Be suitable for use
- Comply with local explosion protection regulations.

1.4.1 Explosion protection marking

The EX marking on the pump refers to the pump only. For the motor refer to its data plate and to the Declaration of Conformity in the manual included in the supply.
Example of such marking on the pump is: II 2G h IIC Tx Gb
The marking shows the theoretically applicable range of temperature classes. Refer to paragraph 1.4.1 for the different temperatures permitted, depending on the design of the pump.
Also check the EX certification of the purchased motor and match it with the classification of the pump.

1.4.1 Temperature limits

During normal operating conditions, the temperature of the pump body surface is the same as that of the liquid. Expect extremely high temperatures:

- On the pump casing surface
- On the shaft sealing
- On the bearings area

During the quotation stage, handled either by sales, the technical department, appointed representatives or the supplier of the mechanical seal, check the heating of the liquid at the shaft.

NOTE:

If the pump surface temperature exceeds that of the liquid, check that the temperature class of the pump on the ATEX label is respected.

Check and comply with the prescribed temperature classes, for example if the pump is heated with heating jacket.
In the area of the bearing brackets, leave a free space between the surface and the surroundings.

During pump operation, avoid excessive sedimentation of dust by ensuring regular cleaning, to prevent the pump surface from overheating.
Respect the stated operating temperature. The maximum allowed temperature of the pumped liquid at the suction depends on the temperature class.
The table shows the temperature classes and the maximum permissible pump temperatures according to EN ISO 80079-36, the maximum operating temperatures of the pumped liquid, and any special limitations.

Temperature class	Maximum surface temperature, °C (°F)	Temperature of the pumped liquid, °C (°F)	Ambient temperature, °C (°F)	Notes
T5	100 (212)	85 (185)	-20...+40 (-4…+104)	Contact Xylem or its Authorised Distributor Allowed for these models: • ≤ 1800 min^{-1} 40-25-160, 40-25-200, 40-25-250 50-32-160, 50-32-200, 50-32-250 65-50-160, 65-40-200, 65-40-250, 65-40-315 80-65-125, 80-65-160, 80-50-200, 80-50-250, 80-50-315 100-80-125, 100-80-160, 100-65-200, 100-65-250, 100-65-315 125-80-160, 125-80-200, 125-80-250, 125-80-315, 125-80-400, 125-100-160, 125-100-200, 125-100-250, 125-100-315, 125-100-400 150-125-200, 150-125-250, 150-125-315, 150-125-400 200-150-200, 200-150-250, 200-150-315, 200-150-400 250-200-250, 250-200-315 300-250-315 • ≤ 1500 min^{-1} – • ≤ 1000 min^{-1} –
T4	135 (275)	120 (248)	-20...+40 (-4…+104)	
T3	200 (392)	140 (284)	-20...+40 (-4…+122)	

The maximum operating temperature of the pump is shown:
- In the data sheet or the order confirmation, or both
- In the name plate on the pump.

1.4.2 Operation of the pump

Filling

During pump operation, fill with the pumped liquid:
- The suction system
- The pressure pipe
- The pump itself.

Also carefully fill:
- All the sealing chambers
- The auxiliary systems of the shaft seal
- Heating system
- Cooling system

Ensure appropriate monitoring measures, in case the user is unable to guarantee this.

Operation

1. Start up the pump with the suction side fully open and and the discharge side valve fully open: start-up with closed non-return valve is however also possible.
2. Immediately after the start-up, adjust the discharge side valve to the operating point (Section 5.3).
3. Before the pump start-up, activate the barrier, flush and cooling systems.

Note: only when the pump is stopped, is shutdown possible, depending on the nature of the operation.

NOTE:

Do not operate with the valves closed at the suction or discharge pipe, or both.

For the minimum flow values, refer to Section 5.3. Longer operating sessions with these flows and the indicated liquids don't cause additional increase of the pump surface temperature. The permitted temperature limits can be exceeded on pumps with mechanical seals, due to dry run. Dry run can occur in case of:

- Insufficiently filled seal chamber
- Excessively high gas fractions in the medium
- Operation outside the permitted working range.

WARNING: Operating temperatures below the minimum values

Make sure that the unit is classified and identified as explosion-proof in the technical data sheet or order confirmation before installing it in a potentially explosive atmosphere.

1.4.3 Electric switches and control devices, instrumentation and accessories

Electric switches and control devices, instrumentation and accessories, like for example flush tanks and so on, must meet with the applicable safety requirements and regulations for explosion protection.

1.4.4 Intended use

Speed, pressure, temperature

The speed, pressure and temperature of the pump and the shaft sealing should not exceed the limit values given in the data sheet and/or order confirmation.
As they can occur with too fast shut down, keep them under control for example by installing a non-return valve on the pressure side, fly wheel or air tanks.
They can cause temperature shock and damage or impair the operation of single components.

Permitted Nozzle loads and Torques

The suction and discharge piping must be designed in such way that as little force as possible is required for pump operation. If this is not possible, the values shown in Section 4.3.3 must not be exceeded under any circumstances. This applies both when the pump is in operation and when idle, and therefore for all the possible pressures and temperatures of the unit.

NPSH

The pumped liquid must have a minimum pressure NPSH at the impeller inlet, to ensure cavitation free operation and prevent pump break off.
When the NPSH-value of the system (NPSHA) lies above the NPSH-value of the pump (NPSHR) under all operating conditions, this requirement is fulfilled.

NOTE:

Do not operate with the valves closed at the suction and/or discharge pipe.

The curves of every pump type show the NPSH-value of the pump (NPSHR).

1.5 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.

1.6 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:

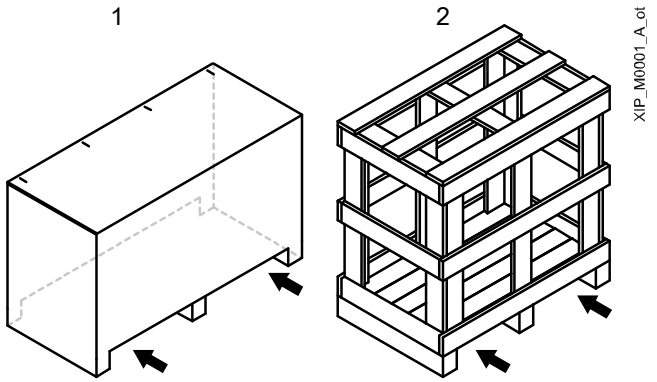
Check the gross weight marked on the packaging.

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:

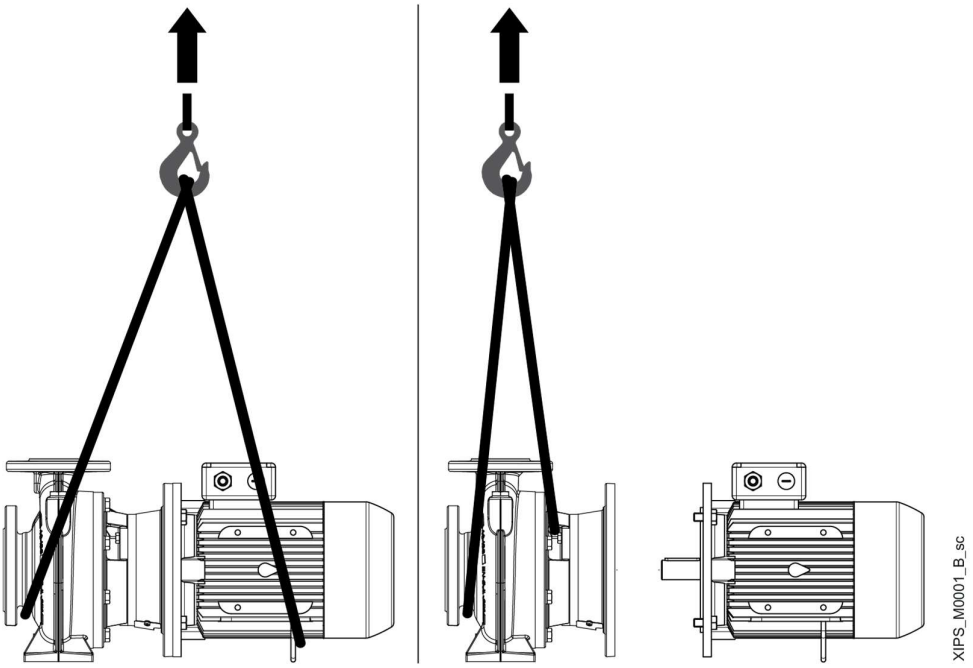
Lift and handle the unit slowly to avoid stability issues.

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: risk of injury

Pay attention to liquids that are excessively hot or cold.

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 centrifugal end-suction pump with rigid coupling used 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 36.

DANGER: Potentially explosive atmosphere hazard
It is prohibited to operate non EX approved units in environments with potentially explosive atmospheres or with combustible dusts.

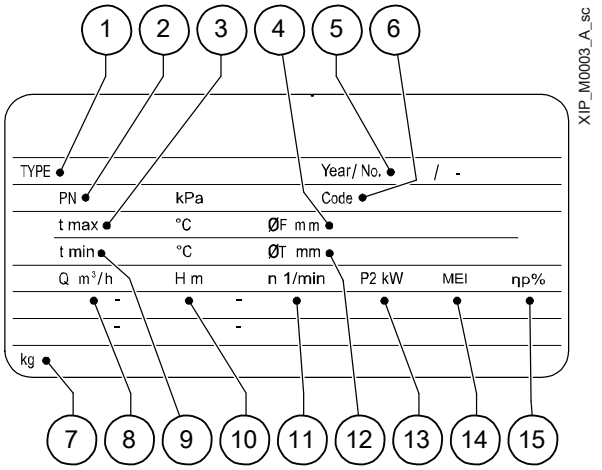
Pumped liquids

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

DANGER:
Only EX approved units can be used to pump flammable liquids.

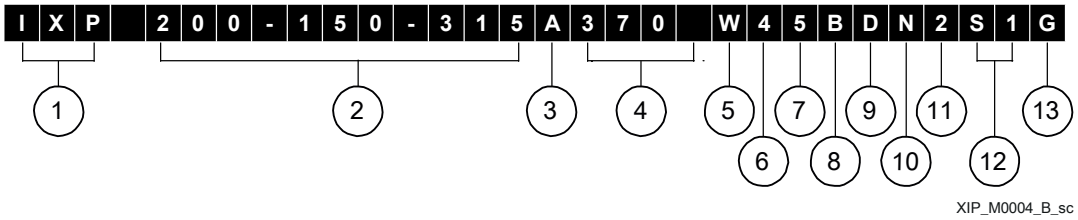
DANGER: Potentially explosive atmosphere hazard
Only liquids with conductivity >1000 pS/m must be pumped (CLC/TR 60079-32-1:2018).

3.2 Data plate



1. Pump 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

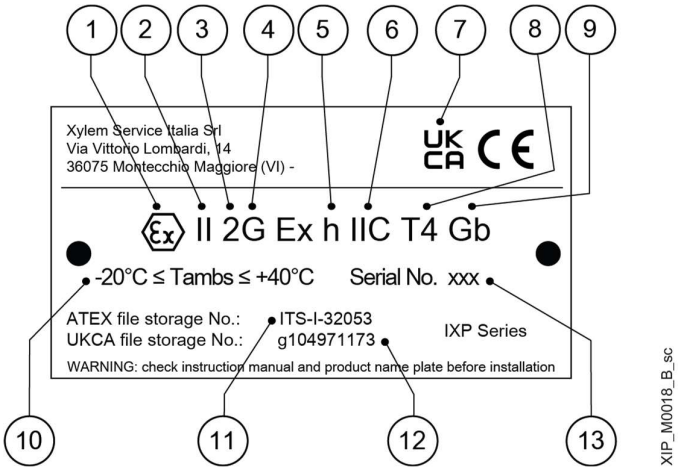
3.3 Identification code



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. WEG [W], ABB [A], or other motor manufacturer [X]
6. 2-pole [2], 4-pole [4] or 6-pole [6] motor
7. Frequency 50 Hz [5] or 60 Hz [6]
8. Standard operating pressure, 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 for 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

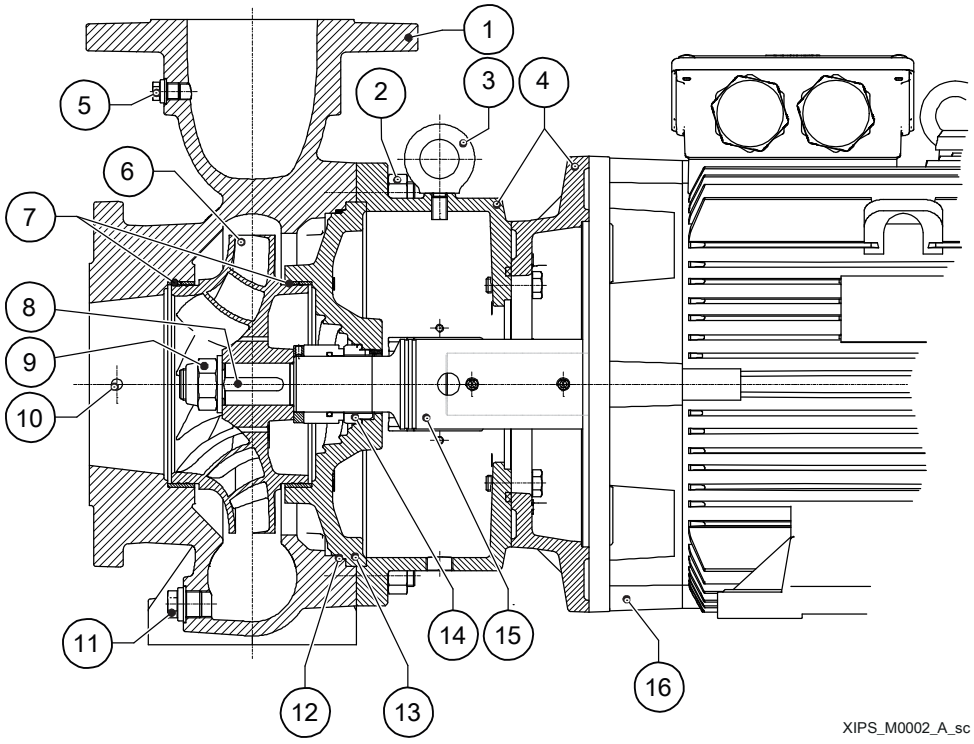
3.4 ATEX label

The illustration shows the pump label.
The motor must have its own label.



1. Specific Marking for Explosion Protection
2. Group
3. Category
4. Atmosphere (G= combustible gases, vapours or mists)
5. Explosion protection for non-electrical equipment
6. Gas explosion group (standard: IIC)
7. Goods labelling for the British market
8. Maximum surface temperature (standard T4, optional T3 or T5)
9. System protection level EPL (standard: Gb)
10. Operating ambient temperature (standard: +40°C)
11. Control number of the ATEX conformity assessment institute
12. Control number of the UKCA conformity assessment institute
13. Pump serial number

3.5 Part names



1. Discharge body Volute casing
2. Bolt
3. Lifting lug
4. Motor adapter
5. Plug
6. Impeller
7. Wear ring
8. Impeller key
9. Impeller nut
10. Plug
11. Plug
12. O-ring
13. Casing 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 5 have been fully read and understood.

WARNING: Risk of explosion

Comply with the local explosion protection regulations.

WARNING: Risk of explosion

The improper installation of the unit in potentially explosive atmospheres can cause explosion.

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 36.
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.
5. Make sure that the unit is protected from sudden temperature changes

Permitted positions

WARNING: Risk of explosion

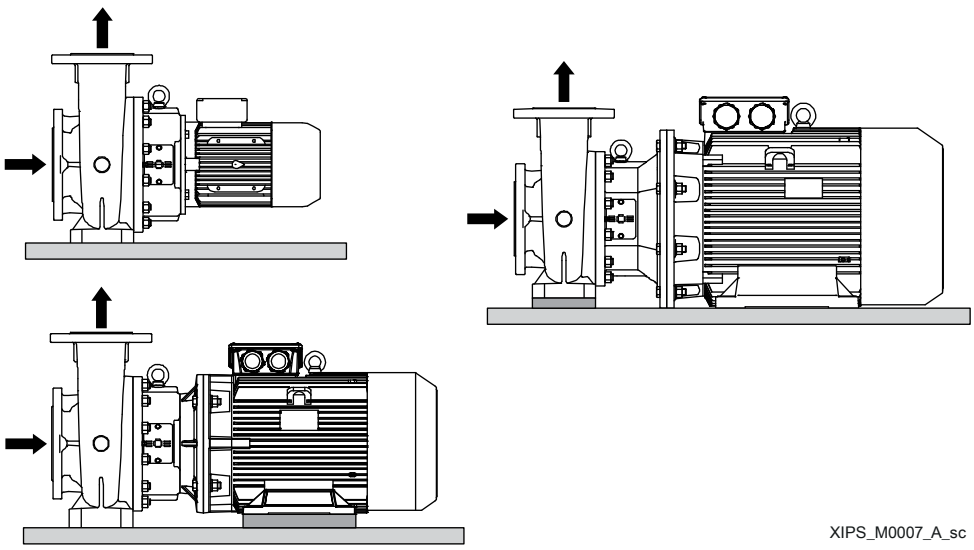
Only install the unit in the horizontal position, to allow self-venting.

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.

Installation



1. Drill the tie rod holes in the number, with the diameters 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.

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

DANGER: Explosion due to static charge

Ensure that the base plate is earthed correctly.

Reducing vibrations

The motor and the flow of liquid in the piping can generate vibrations, which may be amplified from the possible incorrect installation of the unit and the piping. See **Hydraulic connection** on page 21.

4.3 Hydraulic connection

4.3.1 Precautions

WARNING:

The piping system must be sized to ensure safety at the maximum operating pressure and temperature.

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.

f

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.

CAUTION: Residues from welding work or other impurities in the pipes lead to pump damage

The type and the duration of the cleaning activity during the flush and pickling operations must be in accordance with the used casing and sealing materials.
Use a filter with 0.5 mm mesh and 0.25 mm wire diameter made of corrosion-resistant material.
Insert a filter with a section three times that of the pipeline.

4.3.2 Guidelines for the hydraulic system

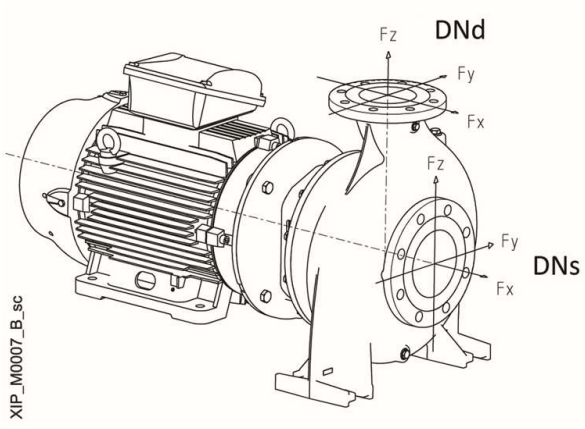
1. Support the piping system independently to prevent them from weighing on the unit.
2. Remove any welding residues, deposits and impurities from the piping system in order to avoid damage to the unit: the method and duration of the cleaning operation must be adapted to the materials of the unit and the gaskets.
3. Install a filter if necessary.
4. 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 Forces and torques applied to the ports

The figure and the table show the maximum forces and torques that the piping system should be allowed to apply on the ports of the unit, depending on the material, with temperatures up to 180°C (356°F).



Material code NN

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

Material code DN, RN, RR

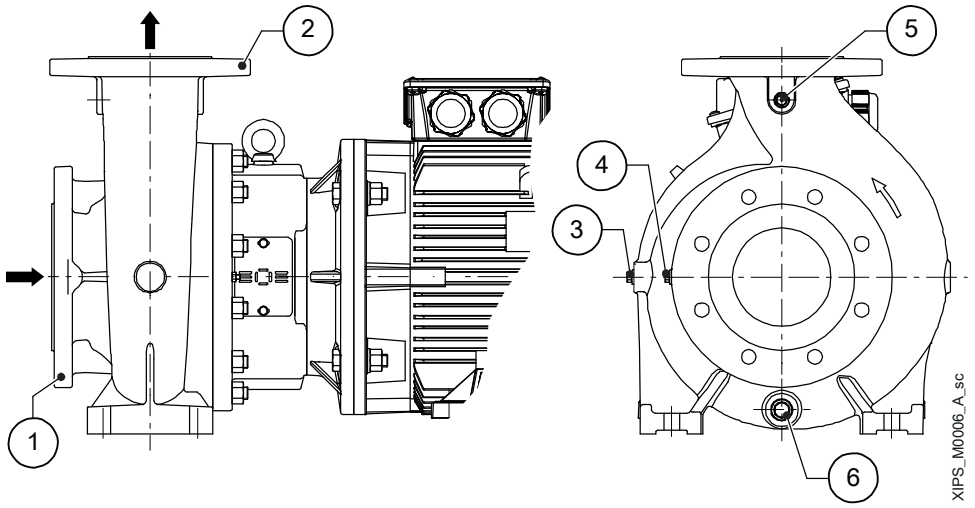
Model	Suction port									Discharge port								
	DN, mm	Forces, N				Torques, Nm				DN, mm	Forces, N				Torques, Nm			
		Fx	Fy	Fz	ΣF	Mx	My	Mz	ΣM		Fx	Fy	Fz	ΣF	Mx	My	Mz	ΣM
40-25-..	40	875	770	700	1360	910	630	735	1329	25	525	490	595	933	630	420	490	902
50-32-..	50	1155	1050	945	1825	980	700	805	1449	32	630	595	735	1136	770	525	595	1106
65-50-..	65	1470	1295	1190	2292	1050	770	840	1550	50	1050	945	1155	1825	980	700	805	1449
65-40-..	65	1470	1295	1190	2292	1050	770	840	1550	40	770	700	875	1360	910	630	735	1329
80-65-..	80	1750	1575	1435	2757	1120	805	910	1652	65	1295	1190	1470	2292	1050	770	840	1550
80-50-..	80	1750	1575	1435	2757	1120	805	910	1652	50	1050	945	1155	1825	980	700	805	1449
100-80-..	100	2345	2100	1890	3672	1225	875	1015	1816	80	1575	1435	1750	2757	1120	805	910	1652
100-65-..	100	2345	2100	1890	3672	1225	875	1015	1816	65	1295	1190	1470	2292	1050	770	840	1550

125-80-..	125	2765	2485	2240	4340	1470	1050	1330	2243	80	1575	1435	1750	2757	1120	805	910	1652
125-100-..	125	2765	2485	2240	4340	1470	1050	1330	2243	100	2100	1890	2345	3672	1225	875	1015	1816
150-125-..	150	3500	3150	2835	5496	1750	1225	1435	2573	125	2485	2240	2765	4340	1470	1050	1330	2243
200-150-..	200	4690	4200	3780	7343	2275	1610	1855	3348	150	3150	2835	3500	5496	1750	1225	1435	2573
250-200-..	250	5845	5215	4725	9148	3115	2205	2555	4593	200	4200	3780	4690	7343	2275	1610	1855	3348
300-250-..	300	7000	6265	5635	10955	4235	3010	3465	6245	250	5215	4725	5845	9148	3115	2205	2555	4593

4.3.4 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 Mechanical seals and auxiliary systems

1. Find the type of seal by reading the third and second last letters of the identification code.
2. Follow the instructions and the API PLAN standards in the table based on the type.

Designation	Type of seal	API PLAN std	Instructions
S0	Single mechanical seal – unbalanced – without shaft sleeve	1, 11	Maintenance free mechanical seal

4.5 Electrical connection

4.5.1 Precautions

Electrical measures

DANGER: Potentially explosive atmosphere hazard

For the electrical connections, make sure to comply with the requirements of the IEC 60079-14 standard.

DANGER: Potentially explosive atmosphere hazard

Only use motors that are EX certified for applications in zone 1 and zone 2.

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 (EN 60034-14), and with normal vibration rate (N).

NOTE:

Only use three-phase motors with sizes and powers in compliance with your local laws/regulations/standards.

NOTE:

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

Ground

DANGER: Electrical or explosion hazard due to static charge

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

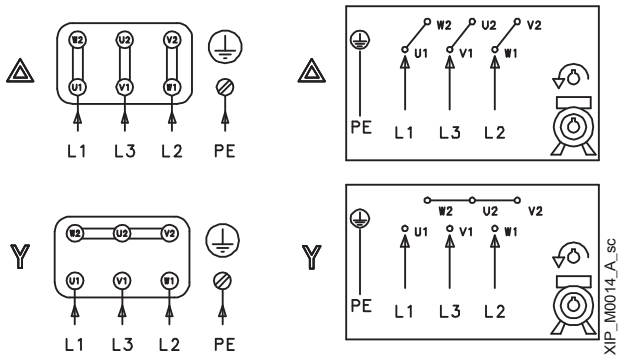
DANGER: Electrical hazard

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

4.5.2 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

4.5.3 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.

NOTE:

The above table is provided by way of non-exhaustive example. Always refer to the motor manual.

4.5.4 Overload protection

DANGER: Potentially explosive atmosphere hazard

Always use a motor protector approved for EX motor protection.

1. Install an appropriate motor protector in the control panel, with D curve in accordance with the current shown on 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.

4.5.5 Operation with frequency converter (VSD)

WARNING:

If a variable speed application is required, refer to the instructions and catalogues of the motor and frequency converter manufacturers.

DANGER: Potentially explosive atmosphere hazard

Check if the frequency converter is suitable to operate in potentially explosive atmospheres.

DANGER: Potentially explosive atmosphere hazard

Check if the electric motor is suitable to operate in potentially explosive atmospheres when connected to a frequency converter.

- 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/µs
up to 90R (500 V)	< 650	< 2200
from 90R to 180R	< 1400	< 4600
over 180R	< 1600	< 5200

Otherwise, use a motor with reinforced insulation (available on request) and a sinusoidal filter.

NOTE:

The above table is provided by way of non-exhaustive example. Always refer to the motor manual.

5 Use and operation

5.1 Precautions

Before starting, make sure that the safety instructions shown in **Introduction and Safety** on page 5 and in **Installation** on page 19 have been fully read and understood.

WARNING:

Start-up and first operation must be done by a technician possessing the technical-professional requirements outlined in the current regulations.

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.

DANGER: Explosion due to overheating

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

DANGER: Explosion

The unit must be filled and vented properly before it can be started.
It is prohibited to operate the unit when dry, not primed and below the rated flow rate.

DANGER: Hot and/or toxic liquid spillage

It is prohibited to operate the unit with the on-off valves on the suction and discharge sides closed. If the unit needs to operate for more than a few seconds with the discharge valve closed, or below the minimum flow rate, install a bypass circuit.

WARNING:

Always wear personal protective equipment.

WARNING:

Always use suitable working tools.

WARNING: Injury 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:

It is prohibited to place flammable materials near the unit.

NOTE:

Check that the shaft can turn smoothly.

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

Preparing the unit

WARNING: Temperature increase due to contact between rotating and fixed components

Checking the direction of rotation by running the unit dry is strictly forbidden.

1. Check that all the operations described in the previous paragraphs have been completed correctly.
2. Fill and vent the 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

WARNING: Loose pump parts and pump damage due to incorrect pump and motor rotation

Pay attention to the arrow indicating the rotation direction of the pump. Check the rotation direction. In case of wrong rotation direction, switch 2 phases of the electrical connection.

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

DANGER: Explosion hazard due to excessive temperature

Do not keep the on-off valve on the discharge side in the closed position in order to throttle the pump for more than 5 seconds. If the unit has to operate longer with closed discharge valve or for a longer period below the minimum flow, a bypass circuit must be installed that is either permanently active or controlled by a minimum flow valve, to prevent overheating of the fluid in the pump.

Checks before starting the unit

Perform checks after the following events:
- The first installation
- Extraordinary maintenance
- A period of inactivity.

Check:
- The mechanical installation
- The electrical installation
- The motor rotation direction
- That the unit has been filled with the required fluid and vented
- That all the required auxiliary connections and mechanical seals are in place
- The presence and level of the lubricating oil.

Start up

1. Shut off the discharge on-off valve almost completely.
2. Fully open the suction on-off valve.
3. Start the unit.
4. Gradually open the discharge on-off valve and adjust it until the duty point is reached, as soon as the motor reaches full speed
5. 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.

Note: an automatic restart may only take place if it is made sure that the pump remains filled with liquid when it is at a standstill.

Operation limits:

Flow min. / max.:
If no other data are given in the performance curves or data sheet, the following is valid:
Q_{min} = 0,1 x Q_{BEP} for short term operation
Q_{min} = 0,3 x Q_{BEP} for continuous operation
Q_{max} = 1,2 x Q_{BEP} for continuous operation[1]
Q_{BEP} = Flow in best efficiency point

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.

1 On the condition that NPSH Application > (NPSH Pump + 0,5 m)

6 Maintenance

6.1 Precautions

Before starting, make sure that the safety instructions shown in **Introduction and Safety** on page 5 have been fully read and understood.

CAUTION:

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

DANGER: Explosion hazard due to inadequate maintenance

Make sure that the unit is always regularly maintained.

DANGER: Explosion due to hot or toxic liquid escaping from the mechanical seal

Pumping abrasive liquids can increase the wear of the seal. Therefore, reduced service intervals will be required.

DANGER: Sparks can occur during servicing work

Always perform maintenance work on explosion-proof pumps away from potentially explosive atmospheres.

WARNING:

Always wear personal protective equipment.

CAUTION:

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

DANGER: Excessive temperatures due to friction

Regularly check the coupling protection and other covers of rotating parts for deformation and enough clearance from the rotating parts themselves.

CAUTION: Excessive unit vibrations due to mechanical or installation failure

Check the vibrations of the pump and the motor at regular intervals or install a vibration monitoring system.

DANGER: Risk of burns with hot and toxic fluid due to incorrectly serviced shaft seal

Regularly service the shaft seal.

General information

Type of maintenance	Purpose	Interval
Check	Check: • That there are no unwanted noise or vibrations • The mechanical seal • That there are no liquid leaks from the gaskets • The tightness of screws and bolts • The motor adapter • The filter in the suction pipe for clogging; clean as necessary	Daily
Check	Check the temperature of the motor bearings	
	Check the operation of the device in standby	Every 2 weeks
Check	If the unit is prone to chemical or abrasive wear, check its condition	Every 6 months
	Check the terminal board for signs of overheating and arc flashes	Once a year
Cleaning	Clean the cooling fan	
Topping up or replacement	Top up or replace the grease of the motor bearings (only for bearings requiring lubrication)	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

Replacement of the mechanical seal

If liquid leaks out at the mechanical seal, then the seal is damaged and must be replaced.

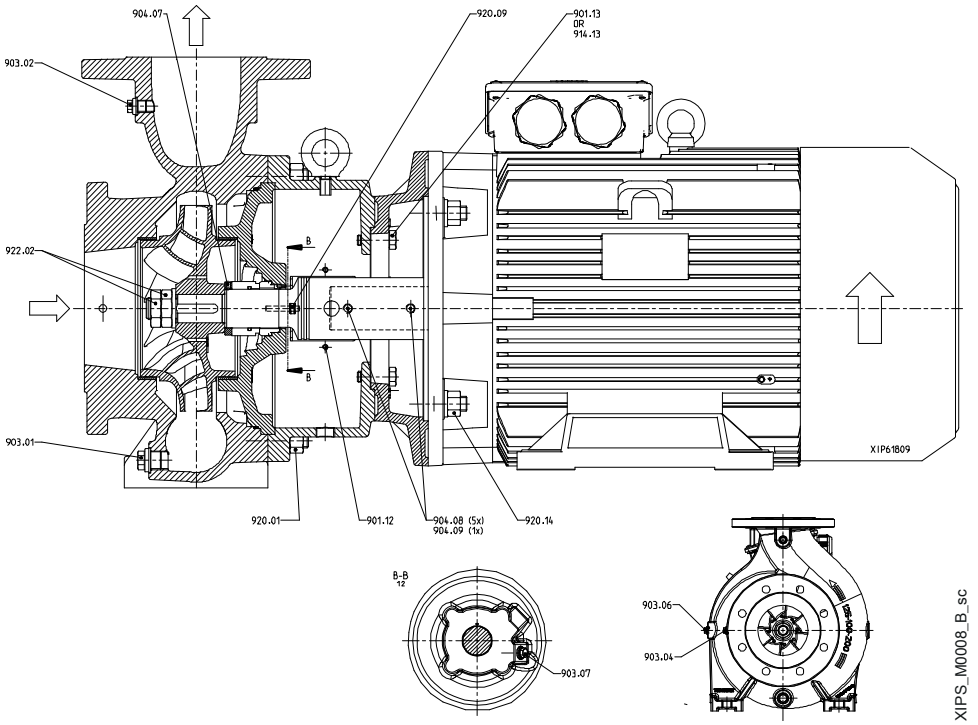
6.3 Long periods of inactivity

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.

6.5 Tightening torques



Block pump with bolted casing cover

Position number	Bolt size	Tightening torque Nm (lbf·in)	Tool
901.12	M6	4 (35)	Standard wrench
901.13	M12	45 (400)	
903.01	G1/2	60 (530)	
903.02, 04, 06, 07	G1/4	15 (130)	
904.08, 09	M8	15 (130)	Hex-wrench
	M10	30 (270)	
914.13	M12	45 (400)	Standard wrench
920.01	M12x1,5	50 (440)	Torque wrench
	M16x1,5	80 (710)	
	M20x1,5	120 (1060)	
	M24x2,0	170 (1500)	
922.02	M16X1.5	80 (710)	Torque wrench
	M20X1.5	100 (900)	
	M24X2	130 (1150)	
	M30X2	180 (1600)	
	M36X2	220 (1950)	

7 Troubleshooting

7.1 Precautions

Before starting the work, make sure that the safety instructions shown in **Introduction and Safety** on page 5, in **Use and operation** on page 27 and in **Maintenance** on page 30 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	• Check the liquid level in the tank and/or • Adjust the device If the problem continues, replace the device
Control panel faulty	Check and repair or replace the control panel
Unit faulty	Contact Xylem or its 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 its 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
The calibration value is 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
Unit mechanically seized	Check and repair the electric pump
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
The calibration value is 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 its 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 • no pre-charge, or • undersized, or • not installed	• Pre-charge the expansion vessel, or • replace the expansion vessel with another suitable one, or • install an expansion vessel
Oversized unit	Contact Xylem or its 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: • 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

Ambient temperature

From -20 to 50°C (-4-122°F), unless otherwise indicated on the data plates of the pump and the electric motor.

Relative air humidity

< 50% at 40°C (104°F), unless otherwise indicated in the instructions of the pump and the electric motor.

NOTE:

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

Elevation

< 1000 m (3280 ft) above sea level.

CAUTION: Danger of motor overheating

If the unit is exposed to temperatures or installed at an altitude greater than those stated, refer to the motor manufacturer's instructions and catalogues to reduce the power output of the motor, or replace the motor with a more powerful model.

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)	
	Temperature class T5	Temperature class T4 or T3
BQ7EGG	-25…+85 (-13…+185)	-25…+120 (-13…+248)
BQ7VGG	-20…+85 (-4…+185)	-20…+90 (-4…+194)
Q7Q7EGG	-25…+85 (-13…+185)	-25…+120 (-13…+248)
Q7Q7VGG	-20…+85 (-4…+185)	-20…+90 (-4…+194)

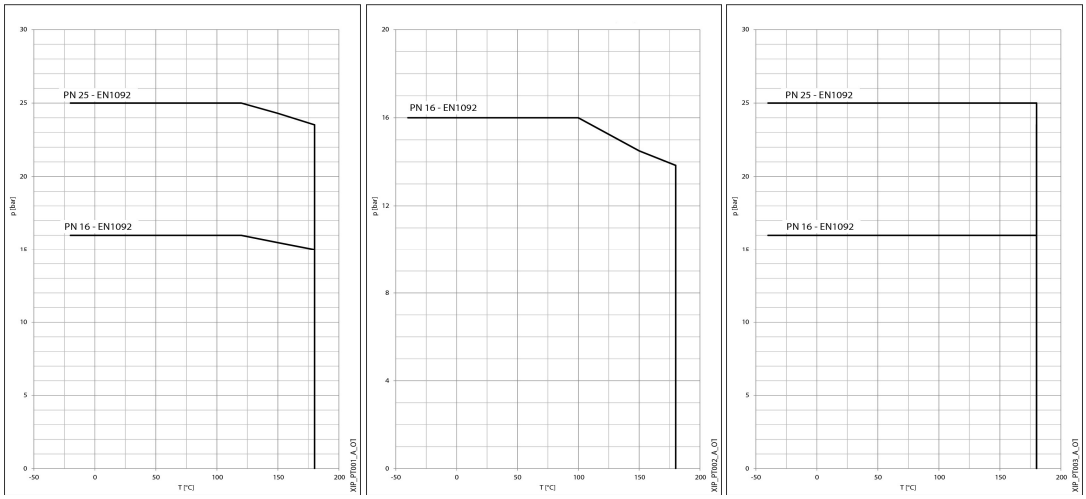
Note: For the temperatures of the optional seals see the data plate.

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.

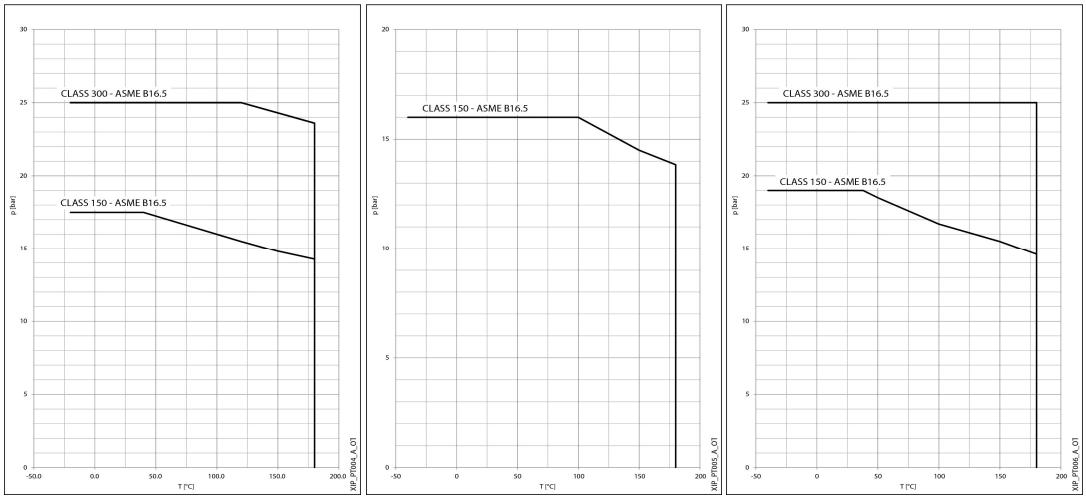
EN 1092

DN | NN, UU | RR, TT, RN [(25 bar (363 psi) only]



ASME B16.5

DN | NN, UU | RR, TT, RN [(25 bar (363 psi) only]



8.4 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

8.5 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:

The above table is provided by way of non exhaustive example. Always refer to the motor manual.

8.6 Sound pressure

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

LpA, 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 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)
40-25-250	40 (1 1/2)	25 (1)	32 (1.26)	43 (1.69)
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)

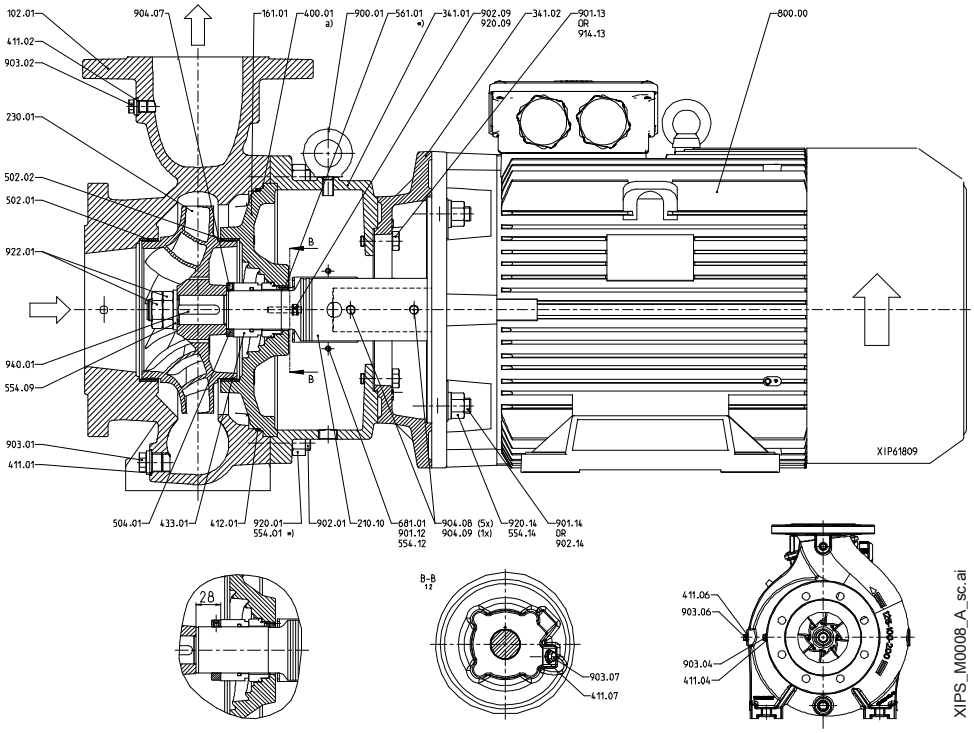
8.8 Section drawings and list of components

8.8.1 Drawings

To find the drawing corresponding to your model, identify the type of mechanical seal: see paragraph **Identification code** on page 16.

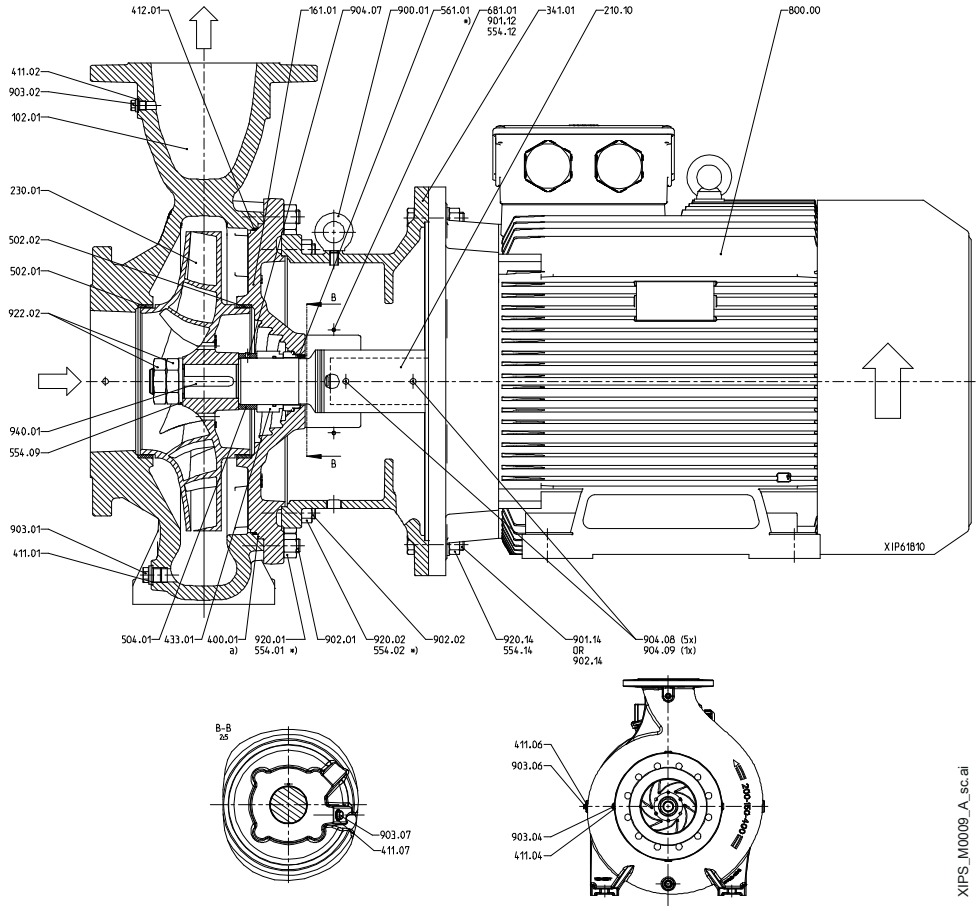
S0 with clamped casing cover

Unbalanced single mechanical seal, clamped casing cover and 2 piece motor adapter



S0 with bolted casing cover

Unbalanced single mechanical seal, bolted casing cover and 1 piece motor adapter.



8.8.2 List of components

Code	Description
102.01	Volute casing
161.01	Casing cover
210.10	Stub Shaft
230.01	Impeller
341.01	Motor adapter
341.02	Motor size adapter
400.01	Gasket
411.01	Gasket
411.02	Gasket
411.03	Gasket
411.04	Gasket
411.05	Gasket
411.06	Gasket
411.07	Gasket
412.01	O-Ring
433.01	Mechanical seal unbalanced
502.01	Wear ring
502.02	Wear ring
504.01	Spacer ring
554.01	Washer
554.02	Washer
554.09	Washer
554.13	Washer
561.01	Pin
681.01	Safety guard
800.00	Motor
900.01	Lifting lug
901.12	Hexagon head screw
901.13	Hexagon head screw
901.14	Hexagon head screw
902.01	Stud
902.02	Stud
902.09	Stud
902.14	Stud
903.01	Plug
903.02	Plug
903.03	Plug
903.04	Plug
903.05	Plug
903.06	Plug
903.07	Plug
904.07	Set screw
904.08	Set screw
904.09	Set screw

914.13	Socket head cap screw
920.01	Hexagon nut
920.02	Hexagon nut
920.09	Hexagon nut
920.14	Hexagon nut
922.01	Impeller nut
940.01	Key

9 Disposal

9.1 Precautions

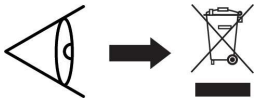
WARNING:

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.

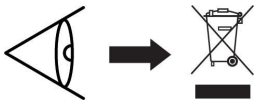
9.2 WEEE (EU/EEA)



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 households[4]: The separate collection of this equipment at the end of its life is organized and managed by the producer[5]. 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.

9.3 WEEE (UK)



INFORMATION TO USERS pursuant to art. 44 of the The Waste Electrical and Electronic Equipment Regulations 2013 (S. I. 2013 No. 3113). 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 households[6]: The separate collection of this equipment at the end of its life is organized and managed by the producer[3]. 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.

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

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

6 Producer of EEE as per WEEE Regulations 2013

10 Declarations

Refer to the specific marking declaration found on the product.

10.1 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 the label on first page)

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 (UE) 2019/1781 and subsequent amendments [electric motor, 3 ~, 50 or 60 or 50/60 Hz, if IE2 (PN ≥ 0.12 and < 0.75 kW) or IE3 (PN ≥ 0.75 and ≤ 1000 kW) marked], Regulation (EU) No. 547/2012 and subsequent amendments (water pump, if MEI marked).

and the technical standards
- EN ISO 12100:2010, EN 809:1998+A1:2009, EN ISO 14120:2015, EN 60204-1:2018.
- EN 60034-30:2009, EN 60034-2-1:2007, EN 60034-30-1:2014, EN 60034-2-1:2014.

Montecchio Maggiore, 17.02.2022

Marco Ferretti
Chairman of the Board of Directors

rev.00

10.2 EU Declaration of Conformity (n. 67)

1. ATEX - Product model/product: IXP..A.. (see the label on first page)
   EMC – Apparatus model/Product: see the label on the first page
   RoHS - Unique identification of the EEE: IXP..A..
2. Name and address of the manufacturer:
   Xylem Service Italia S.r.l.
   Via Vittorio Lombardi 14
   36075 Montecchio Maggiore VI
   Italyf
3. This declaration of conformity is issued under the sole responsibility of the manufacturer.
4. Object of the declaration:

ATEX	Pump: Ⓔx II2G Ex h IIC T5...T3 Gb -20°C≤ Tamb ≤+40…50°C see the pump Atex data plate Electric motor: …T6…T3… see the motor data plate(s)
EMC, RoHS	Electric pump unit (see the product data plate).

5. The object of the declaration described above is in conformity with the relevant Union harmonization legislation:
   - 2014/34/EU Directive of 26 February 2014 and subsequent amendments (equipment intended for use in potentially explosive atmospheres).
   - 2014/30/EU Directive of 26 February 2014 and subsequent amendments (electromagnetic compatibility).
   - 2011/65/EU Directive of 8 June 2011 and subsequent amendments, including the (EU) 2015/863 Directive (restriction of the use of certain hazardous substances in electrical and electronic equipment).
6. . References to the relevant harmonized standards used or references to the other technical specifications, in relation to which conformity is declared:

- Pump: EN 1127-1:2019, EN 15198: 2007, EN ISO 80079-36:2016, EN ISO 80079-37:2016.
  Motor: refer to electric motor manufacturer's declaration of conformity included in the supply
- Refer to the declaration of conformity of the electric motor manufacturer included in the supply.
- EN IEC 63000:2018.

7. Notified body:
   ATEX: Pump: technical documentation (file name IXP ATEX rev. 0 of 18.01. 2022) deposited at Intertek Italia S.p.A. (NB 2575). Motor: refer to the electric motor manufacturer's declaration of conformity included in the supply.
8. Additional information:
   ATEX: The following specific conditions of use apply.
   - The equipment must be suitably grounded (earthed) prior to operation.
   - It is the user's responsibility to ensure the equipment does not run dry. Any control system used to achieve this must comply with the relevant requirements of EN 80079-37.
   - The equipment may only be operated when it is filled with the liquid to be pumped.
   - The liquid to be pumped must have conductivity >1000 pS/m (CLC/TR 60079–32–1:2018).
   - Maximum temperature of the pumped liquid: refer to paragraphs 1.4.1 and 8.2 of this manual.

   RoHS: Annex III – Applications exempted from the restrictions: lead as a binding element in steel, aluminium, copper alloys [6(a), 6(b), 6(c)].

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

Montecchio Maggiore, 17.02.2022

Marco Ferretti
Chairman of the Board of Directors

rev.00

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.xylem.com

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Let’s Solve Water

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