

Additional Installation, Operation and Maintenance Instructions





e-SHE, e-SHS hydrovar X Series Electric pumps with integrated variable speed drive

ESHEX ESHSX



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1 Introduction and Safety

1.1 Introduction

Purpose of this manual

The purpose of this manual is to provide the necessary information for working with the standard pump unit (hereinafter referred to as unit). Read this manual carefully before starting any work.

Supplementary instructions

Additional instructions can be found in the manual, cod. 001088110X. To download the manual, use the QR code:



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
<u>A</u>	Electrical hazard
	Hot surface hazard
	Hot liquid danger
	Danger, pressurized system
	Explosive atmosphere hazard
	lonizing radiation hazard
	Danger, suspended loads
	Magnetic hazard
	Do not expose to direct sunlight
	Do not expose to rain or snow
	Do not use flammable liquids
	Do not use corrosive liquids

Symbol	Description
	Obligation to read the instruction manual
	Obligation to wear safety shoes
	Obligation to wear safety glasses
	Obligation to wear a safety helmet
	Obligation to wear safety gloves

1.3 User safety

Strictly comply with current health and safety regulations.

Qualified personnel

The installation, operation, maintenance and troubleshooting of the unit are reserved for qualified personnel only. Qualified users are people able to recognise the risks and avoid dangers during installation, use, maintenance and troubleshooting of the unit.

Personal protective equipment

During handling, installation, operation, maintenance and troubleshooting, use personal protective equipment as required. Examples of personal protective equipment include, but are not limited to, helmet, gloves and safety shoes.

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.

1.4 Protection of the environment

Packaging material and product disposal

Comply with the current regulations on sorted waste disposal, see Disposal.

Leaking of fluid

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



WARNING: Environmental risk

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

2 Handling and Storage

2.1 Precautions

Before starting any work, make sure to read and understand all the safety instructions in **Introduction and Safety**.



CAUTION: Risks deriving from manual load handling

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



WARNING: Cutting and crushing hazards

Always wear personal protective equipment.

2.2 Unit inspection upon delivery

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.

Unpacking and inspection of the unit

- 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.

2.3 Lifting with a crane



WARNING: Crushing hazard

Use ropes, hooks, shackles, sling bars or eyebolts that comply with current regulations and that are suitable for the specific use.

The figure shows how to harness and lift the unit.



- 1. Fix the sling bar to the crane.
- 2. Attach 2 sling bar ropes to the two motor eyebolts.
- 3. Attach the other 2 ropes to the holes of the discharge-side flange.
- 4. Lift the sling bar and tension the ropes without lifting the unit.
- 5. Lift and move the unit slowly to avoid stability issues.
- 6. Set the unit down slowly.
- 7. Release the ropes.

2.4 Storage



WARNING: Biological risk

To avoid environmental contaminants, take appropriate measures during transport, installation and storage, and only remove the unit from its packaging immediately before installation.

2.4.1 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.
- Protect the unit from collisions.
- Rotate the shaft by hand several times every three months.

2.4.2 Storage of the unpacked unit

- The operations described are necessary in cold temperature environments.
- 1. Empty the unit by removing the drain plug; see the figure below. Otherwise, any residual liquid in the unit could have an adverse effect on its condition and performance.



- 2. Tighten the cap.
 - Tightening torque: 40 Nm (354 lbf·in) ± 25%.
- 3. Follow the same instructions for the storage of the packed unit.

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

3 Product description

3.1 Construction features

Designation

Horizontal centrifugal pump unit with axial suction and radial discharge, with HVX+ built-in electronic variable speed drive.

Denomination of the models

Model	Description
ESHE	Close-coupled construction with an impeller keyed directly to the motor shaft extension
ESHS	Construction with a rigid coupling keyed to the standardised motor shaft extension

Intended use

The product is designed for:

- Water supply and water treatment
- Cooling and supply of hot water in industries and building services
- To be installed in irrigation and sprinkler, heating, washing and cleaning systems
- Water transfer for green houses
- For use with mildly aggressive fluids or in mildly aggressive environments.
- Always observe the operating limits in Specifications.



DANGER: Potentially explosive atmosphere hazard

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

Pumped liquids

- Clean
- Chemically and mechanically non aggressive
- Hot water
- Cold water.



DANGER: Danger of fire and explosion

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

3.2 Part names



- 1. Impeller
- . Mechanical seal 2.
- 3. Impeller key
- 4. Impeller locking nut and washer
- 5. Shaft extension
- Wear ring 6.
- 7. Pump body
- Seal housing
 Drain plug
- 10. Oil seal ring
- 11. O-ring
- 12. Adapter
- 13. Counterwear ring
- 14. Drive
- 15. Drive display
- 16. Fill plug
- 17. Foot
- 18. Motor bracket
- 19. Motor
- 20. Coupling 21. Impeller key
- 22. Motor adapter

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3.3 Data plate of the unit



- 1. Identification code
- 2. Maximum operating pressure
- 3. Maximum liquid operating temperature
- 4. Minimum liquid operating temperature
- 5. Serial number + manufacturing date
- 6. Product code
- 7. Weight
- 8. Rated impeller diameter
- 9. Trimmed impeller diameter
- 10. Flow rate range
- 11. Head range
- 12. Rotation speed
- 13. Pump rated power
- 14. Minimum efficiency index
- 15. Speed at which the efficiency index is evaluated
- 16. Hydraulic pump efficiency with trimmed impeller
- 17. Space for the importer, if provided

Identification code



- 1. Series name
- 2. Close-coupled [E] or stub shaft [S]
- 3. Hydrovar X+ [X]
- 4. Diameter of discharge pipe in mm
- 5. Impeller nominal diameter in mm
- 6. Rated motor power in kWx10
- 7. High [2] or low [4] speed
- 8. Power supply voltage 3~ 200-240 V (50/60 Hz) [03] or 3~ 380-480 V (50/60 Hz) [04]
- 9. Pressed stainless steel pump body [S]
- 10. Impeller in pressed stainless steel [S] or cast stainless steel [N]
- 11. Mechanical seal and elastomers; see the technical catalogue for the available materials

3.4 Data plate of the motor assembly with drive



- 1. Identification code
- Rated values at output 2.
- Product code 3
- 4. Brands
- 5. Serial number
- Unit full load efficiency 6.
- Rated values at input 7.
- IP protection degree 8.
- 9. NEMA enclosure type
- 10. Weight
- 11. Room temperature range
- 12. Bearing model 13. Service factor
- 14. Max. capacity of protective fuses

Identification code



- 1. Series name
- 2. Axis height 90, 112, 132, 160 or 180 mm
- Flange type B3, B5, B14, HM, CEA or CA 3.
- 4. Key type SV, HA, HB or normalised []
- Special shaft extension type S1, S2, S3 or S4 or normalised [] 5
- Power supply voltage 3x208-240 V [03] or 3x380-480 V [04] 6.
- Rated motor power in kWx10 or HPx10
 Drive size B, C or D
- 9. hydrovar X [S] or hydrovar X+ [H] drive
- 10. Speed range at rated power 3000 to 4000 rpm [2] or 1500 to 2000 rpm [4]
- 11. Standard drive [] or without filters [W]
- 12. Motor with foot [F] or without foot []
- 13. Standard motor [] or oversized motor [R]

3.5 Approval marks

Any electric safety approval marks found only apply to the pump unit.

4 Installation

4.1 Precautions

Before starting any work, make sure to read and understand all the safety instructions in **Introduction and Safety**.



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.



WARNING: Physical and thermal hazards

Always wear personal protective equipment.



If the unit is intended for water supply to people and/or animals:

WARNING: Biological risk

- It is prohibited to pump drinking water after use with other fluids.
- To avoid environmental contaminants, take appropriate measures during transport, installation and storage, and only remove the unit from its packaging immediately before installation.
- After installation, run the unit for a few minutes with several users open in order to wash the inside of the system.

4.2 Mechanical installation

4.2.1 Installation area

- 1. When selecting the place of installation and connecting the unit to the hydraulic and electric power supplies, strictly comply with current regulations.
- 2. Install the unit on a concrete or metal foundation base sufficiently strong to ensure permanent and rigid support, see **Installation on concrete foundation**.
- 3. Follow the provisions in **Operating environment**.
- 4. Place the unit in a raised position in relation to the floor.
- 5. Make sure that any leaks will not cause flooding to the installation area or submerge the unit.
- 6. When installing outdoors, protect the unit from direct sunlight and weather with a suitable cover.



Clearance around the pump



- 1. Observe the distances shown in the figure to ensure adequate ventilation of the unit and to allow for the possible removal of the motor.
- 2. If a lifting device is used, provide sufficient space above the unit.

Environments prone to condensation

If the ambient temperature is higher than the liquid temperature, or if the unit is installed outdoors, condensation may form inside the motor during idle periods. To prevent the formation of condensation, ensure that the drain hole in the motor flange is open and pointing downwards.



Condensate freezing can be prevented by keeping the unit powered at all times and activating the heating function with the motor at standstill (parameter P07.2.01, see the 001088110X manual).

4.2.2 Installation positions

The figure shows the permitted and non-permitted installation 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
- 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. Remove the plugs covering the suction and discharge ports.
- 2. For some models with foot on the motor, place 2 spacers (accessory, see technical catalogue) between the foot and the foundation.
- 3. Place the unit on the foundation.
- 4. Align the suction and discharge ports to their piping.
- 5. Secure the unit with bolts:
 - Appropriate
 - Suitable for the support material and the application conditions.

4.2.4 Reducing vibrations

The unit and the flow of liquids in the system may cause vibrations, which can be exacerbated by incorrect installation of the unit and the piping system. See **Hydraulic connection**.

4.3 Hydraulic connection

4.3.1 General guidelines

- 1. Check that:
 - The piping system
 - Joints
 - Valves
 - Expansion vessels
 - are resistant to the maximum operating temperature and pressure of the liquid.
- 2. Flush the piping system before connecting them to the unit, to remove any welding residue, deposits and impurities.
- 3. Do not install the unit at the lowest point of the system, to avoid the accumulation of sediments.

- 4. If several units are used with the same liquid source, provide a suction pipe for each unit.
- 5. Support the piping system independently, so as not to burden the unit.
- 6. Install appropriate gaskets between the unit and the piping system.
- 7. Tighten the bolts between flanges and counterflanges in a cross sequence.
- 8. Install an automatic relief valve at the highest point of the system to eliminate air bubbles.
- 9. On the suction side, install a device to prevent the absence of liquid (float or probes), or a minimum pressure device (pressure switch).
- 10.To reduce the transmission of vibrations between the unit and the system and vice versa, install:
 - Anti-vibration joints on the piping system, ensuring that the one on the suction side is at least 5 times the diameter of the unit flange or, alternatively, flexible pipes.
 - Dampers between the unit and the surface on which it is installed.

4.3.2 Guidelines for the suction side

4.3.2.1 Piping system

To reduce friction loss, the piping must be:

- As short and as straight as possible
- Without bottlenecks
- At least six times as long as the diameter of the suction port for the section connected to the unit
- Without bends; if these cannot be avoided, ensure a radius as wide as possible
- Without traps and 'goosenecks'
- With valves, with reduced specific friction loss.

The piping system must have a larger diameter than the suction port. If necessary, install an eccentric reducer with horizontal top surface.



4.3.2.2 Positive suction head installation

The pump is positioned lower than the minimum level of the liquid to be sucked. The figure shows an example of positive suction head installation.



- 1. Tank
- 2. Pressure gauge
- 3. On-off valve
- 4. Unit
- Piping system
 Pressure gauge on-off valve

Install:

- 1. An on-off valve, to isolate the unit during maintenance.
- 2. A vacuum pressure gauge to measure the pressure, including the negative pressure, at the pump suction, equipped with on-off valve and, if required, a pressure sensor.

4.3.2.3 Suction lift installation

The pump unit is positioned higher than the level of the liquid to be sucked. The figure shows an example of suction lift installation.



- Unit 1.
- 2 On-off valve 3. Vacuum pressure gauge
- 4. Fill and relief valve
- 5. Piping system
- 6.
- Vacuum pressure gauge on-off valve 7. Vortex protection device
- 8 Bottom valve
- 9. Filter
- 10. Tank

Install:

- 1. Piping system with increasing slope towards the unit exceeding 2% to avoid air pockets.
- 2. An on-off valve, to isolate the unit during maintenance.
- 3. A vacuum pressure gauge to measure the pressure, including the negative pressure, at the pump unit suction, equipped with on-off valve and, if required, a pressure sensor.
- 4. A fill and relief valve.
- 5. A vortex protection device, to prevent air from entering during the suction phase.
- 6. Foot valve and large-mesh filter.

4.3.3 Guidelines for the discharge side

Install:

- A check valve to prevent the liquid from flowing back into the unit when this is at a standstill
- A pressure gauge fitted with an on-off valve, after the non-return valve, to check the actual operating pressure of the unit
- A pressure sensor, in case of constant pressure operation, after the non-return valve, equipped with on-off valve
- An expansion vessel after the non-return valve, equipped with an on-off valve
- An on-off valve downstream of the components listed in the previous points, to regulate the flow rate and isolate the unit during maintenance.

4.4 Electrical connection

4.4.1 Requirements

- 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.

Isolated type networks (IT)

The installation of hydrovar X and hydrovar X+ units in distribution networks where the neutral is isolated from earth, must be evaluated according to the declared leakage current and the number of units to be connected. Contact Xylem or the Authorised Distributor for further information.

4.4.2 Ground



DANGER: Electrical hazard

- Always connect the external protection conductor (ground) to the ground terminal before attempting to make any other electrical connections.
- Connect all the electrical accessories of the unit to ground.
- 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.
- Install suitable systems for protection against indirect contact, in order to prevent lethal electric shocks.

4.4.3 Guidelines for the control panel

- 1. Check that the control panel matches the ratings on the unit's data plate.
- 2. Fit a system for protection against dry running to which to connect a pressure switch, or a float, probes or other suitable devices.
- 3. Electrically connect to the control panel any low-pressure or liquid-failure protection devices (pressure switch, float or probes) already installed in the system.

4.4.3.1 Fuses and/or automatic switches

• An electronically activated drive function ensures motor overload protection. The overload protection function calculates the increment level in order to activate the timing of the trigger function (motor stop).

The higher the input current, the faster the response. The function provides Class 20 protection for the motor.

- The drive must be equipped with overcurrent and short-circuit protection to prevent the overheating of the power supply cables. Line fuses or automatic switches must be installed to ensure this protection. Fuses and automatic switches must be provided by the installer as part of the installation.
- Use the recommended fuses and/or automatic switches on the power supply side as protection in the event of drive component failure (first failure). The use of the recommended fuses and automatic switches ensures that possible damage to the drive is limited to the inside of the same. For other types of protection, ensure that the passing energy is equal to or less than that of the recommended models.
- Compliance with UL requirements is only ensured by using approved fuses of category JDDZ.2/8 type T and with the characteristics indicated below and in the table.

• The fuses shown in the table are suitable for use on a circuit capable of releasing 5000 Arms (symmetrical), maximum 480 V. With the indicated fuses, the short-circuit current rating (SCCR) for the drive is 5000 Arms.

HVX,	Xylem motor model	Three-phase power supply voltage, Vac	Non-UL fuses, type gG, A	UL fuses, type T, manufacturer and model				MCB S203
HVX+ model				Bussmann	Edison	Littelfuse	Ferraz- Shawmut	model ABB Switches
В	EXM/3B	200 - 240	16	JJN-15	TJN (15)	JLLN 15	A3T15	C16
С	EXM/3C		30	JJN-30	TJN (30)	JLLN 30	A3T30	C32
D	EXM/3D		63	JJN-60	TJN (60)	JLLN 60	A3T60	C63
В	EXM/4B	380 - 480	16	JJS-15	TJS (15)	JLLS 15	A6T15	C16
С	EXM/4C		30	JJS-30	TJS (30)	JLLS 30	A6T30	C32
D	EXM/4D		63	JJS-60	TJS (60)	JLLS 60	A6T60	C63

The figure shows the recommended fuses and switches.

NOTE:

Refer to the current shown on the data plate for the selection of the protective device and comply with local and national regulations for its sizing.

4.4.3.2 High sensitivity differential switch (RCD)

If a switch is installed to protect people against earth leakage, check that:

- It is suitably sized for the system configuration and environment of use
- It has a starting delay to prevent faults caused by transient earth currents
- It can detect alternate or direct current; it is marked with the symbols shown in the figure below.



NOTE:

When using an automatic earth leakage switch or an earth fault switch, make sure to consider the total earth leakage current of all the electric devices of the system.

4.4.4 Guidelines for the drive

4.4.4.1 Cable input characteristics

Type of cable gland	Cable diameter, mm (in)	Tightening torque on the support plate, Nm	Cable gland torque, Nm (lbf·in)	Number of inputs according to drive size		
		(lbf·in)		В	С	D
M12	3-6.5 (0.1-0.26)	2.7 (24)	1.5 (13)	3	3	5
M16	5-10 (0.2-0.4)	5 (44)	3 (27)	3	3	3
M25	11-17 (0.4-0.7)	7.5 (66)	7 (62)	1	1	-
M40	19-28 (0.7-1.1)	14 (124)	12 (106)	-	-	1

See Data plate of the motor assembly to ascertain the size of the drive.

NOTE:

- During installation, check that the cable glands on the support plate are tightened correctly, according to the values in the table.
- When replacing cable glands and/or installing adapters, use suitable approved components to maintain degrees of protection IP55 and NEMA 4.

4.4.4.2 Characteristics of power terminals and conductors

See Data plate of the motor assembly with drive to ascertain the size of the drive.

Drive size	Connection type	Type and cross-section of installable conductors	Stripping length, mm (in)
B and C	Spring	 Rigid: 1.5-10 mm² Flexible: 1.5-6 mm² Cable terminals without plastic sheath: 1.5-6 mm² Cable terminals with plastic sheath: 1.5-4 mm² UL/CSA compliant: AWG 16-8 	15 (0.6)
D	With screw	 Rigid: 2.5-35 mm² Flexible: 2.5-25 mm² Cable terminals without plastic sheath: 2.5-25 mm² Cable terminals with plastic sheath: 2.5-25 mm² UL/CSA compliant: AWG 14-2 	

4.4.4.3 Drive connection

NOTE:

The cable cross section must be sized according to the rated current of the unit. Observe local and national regulations for cable sizing.



- 1. Screws of the cover
- 2. Cover
- 3. Power supply cord
- 4. Phase conductors
- 5. Protection conductor (earth)
- 6. Terminals
- 7. Drive
- 8. Cable Gland

- 1. Remove the cover and observe the wiring diagrams inside.
- 2. Ascertain the size of the drive; see Data plate of the motor assembly with drive.
- 3. Insert the power cable in the power supply cable gland:

Drive size	Type of cable gland
В	M20
С	M25
D	M40

- 4. Tightly connect the conductors, making sure that the protection one is longer than the phase ones. In models size:
 - B and C, open the springs with a slotted screwdriver with a maximum width of 2.5 mm (0.98 in)
 - D, tighten the terminal screws with a Pozidriv screwdriver and tightening torque of 4 Nm (35 lbf-in).

Note: For size D models, it is advisable to use cable terminals with a plastic sheath.

- 5. Tighten the cable gland.
 - Tightening torque:
 - M20 \rightarrow 6 Nm (53 lbf·in)
 - M25 \rightarrow 7 Nm (71 lbf·in)
 - M40 \rightarrow 12 Nm (106 lbf·in).

 Fit the cover and tighten the screws. Tightening torque: 3 Nm (27 lbf·in) ± 15%.

5 Use and operation

5.1 Precautions

Before using the unit, make sure that the safety instructions in **Introduction and Safety** have been read and understood and that the instructions in chapter **Installation** have been followed correctly.



WARNING: Physical and thermal hazards

Always wear personal protective equipment.



WARNING: Thermal risk

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

5.2 Filling and priming



5.2.1 Positive suction head installation

- 1. Close both on-off valves.
- 2. Loosen the filler cap.
- 3. Slowly open the valve on the suction side until the liquid regularly comes out from the hole; if necessary, loosen the cap further.
- 4. Tighten the cap.
 - Tightening torque: 40 Nm (350 lbf in) ± 25%.
- 5. Slowly and fully open the on-off valve.

5.2.2 Suction lift installation

- 1. Open the on-off valve at the suction.
- 2. Shut the on-off valve located on the discharge line.
- 3. Remove the filler cap.
- 4. Open the filling valve.
- 5. Fill the unit from the hole and the suction line from the filling valve.
- 6. Wait until the liquid flows out of the unit and add more liquid if necessary.

- 7. Close the filler cap.
- Tightening torque: 40 Nm (350 lbf in) ± 25%.
- 8. Close the filling valve.
- 9. Slowly fully open the on-off valve on the discharge side.

5.3 Startup



DANGER: Potentially explosive atmosphere hazard

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



DANGER: Danger of fire and explosion

It is forbidden to:

- Pump flammable and/or explosive liquids
- Place flammable materials near the unit



WARNING: Hot surface hazard

Be aware of the extreme heat generated by the unit.

NOTE:

It is forbidden to operate the unit:

- Without liquid
- Not primed
- With on-off valves closed
- In the case of cavitation
- At a flow rate below the minimum expected: install a bypass circuit.

Preparing the unit

- 1. Check the connection between the START/STOP and GND inputs on the terminal board.
- 2. Check that the protection devices of the coupling are installed, when applicable.



- 3. Check the expansion vessel pre-charge pressure; see Expansion vessel pre-charge check.
- 4. Check that all the operations indicated in **Filling and priming** have been completed correctly.
- 5. Shut off the discharge on-off valve almost completely.
- 6. Fully open the suction on-off valve.

Startup

- Start the unit by pressing the ON/OFF button on the drive display. Note: if parameter 1.0.45 Autostart is configured to "Yes", it will not be necessary to press ON/OFF again at the next start.
- 2. Gradually open the discharge on-off valve until half open.
- 3. Wait a few minutes and then fully open the discharge on-off valve.
- 4. With the unit in operation, the working setpoint can be changed by switching to the second screen.

Final operations

1. With the unit in operation, check that:

- No liquid is leaking from the unit or pipes
- The maximum pressure of the unit at the discharge, determined by the available suction pressure, does not exceed the maximum operating pressure (PN)
- The pressure indicated in the drive display is the same as that of the discharge pressure gauge
- There is no unwanted noise or vibrations
- With zero flow rate the unit stops automatically
- No vortexes are created at the end of the suction pipe, near the foot valve (suction lift installation) or inside the tank (positive suction head installation)
- The devices to prevent the absence of liquid (float or probes), or the minimum pressure devices work correctly.
- 2. If the unit does not deliver the required pressure, repeat the operations in **Filling and priming**.
- 3. Run the unit for a few minutes with several users open in order to wash the inside of the system.

Settling of the mechanical seal

The pumped liquid lubricates the seal faces of the mechanical seal; under normal conditions, a small amount of liquid may leak out. When the unit is run for the first time, or immediately after the seal is replaced, more liquid may temporarily leak out. To help the seal settle and to reduce leaking:

- 1. Close and open the on-off valve on the discharge side two or three times with the unit running.
- 2. Stop and start the unit two or three times.

5.4 Stopping

Stop the unit:

- By pressing ON/OFF on the drive display, or
- Opening the intended enabling contact, if used.

6 Control

6.1 Precautions



DANGER: Electrical hazard

If the drive display is damaged, contact Xylem or the Authorised Distributor.



WARNING: Hot surface hazard

Only touch the drive display buttons. Pay attention to the high temperature released by the unit.

6.2 Drive display



Position number	Name	Function
1	Display	
2	ON/OFF button	 Start and stop the unit Reset the errors by pressing for 5 seconds.
3	UP and DOWN arrow keys	 Move vertically between menu options Perform a manual switch-over on a multi-pump system by pressing the DOWN arrow (extended pressure) Rotate the display 180° by simultaneously pressing ENTER and the UP arrow (extended pressure).
4	RIGHT and LEFT arrow keys	 Move horizontally to navigate home screens and menus Lock and unlock the display by simultaneously pressing the RIGHT and LEFT arrows (extended pressure).

Position number	Name	Function
5	SEND button	 Advancing through the menu levels Confirm the selection of a parameter Confirm the value of a parameter.
6	Unit LED on	Indicate that the unit is powered.
7	Unit status LED	Indicate: Motor not powered (off) Alarm active and motor stopped (yellow) Unit error and motor stopped (red) Motor started (green) Alarm active and motor started (yellow alternating green).
8	Connection status LED	 Indicate: BMS communication disabled (off) BMS communication active (green) Wireless communication with mobile device established (fixed blue) Wireless communication with mobile device being established (flashing blue) Wireless communication and BMS communication active (blue alternating green).
9	Multifunction button	 Access the parameter menu or additional functions according to the screen on the display. Enable wireless connection (extended pressure).

6.2.1 Graphic display



Position number	Name	Description
1	Header bar	 It shows static information and messages relating to the operating conditions, such as: Alarms Errors Multi-pump operation.
2	Main screen	It shows the main information and allows the operating parameters to be changed. There are up to 5 screens, which can be navigated by pressing the RIGHT and LEFT arrow keys. The symbol 🏼 next to an entry indicates an editable parameter.
3	Lower bar	 Show: On the left, the essential operating information, such as the actual adjustment value and the speed percentage at which the unit is operating On the right, the buttons available for interaction in the main screen.

6.2.2 Parameters menu

(1)	3.0 - Actua	Measured Values	
\leq	3.0.01	Actual Pressure	9.10 bar
(2)-/	3.0.02	Actual Flow	320.0 l/m
\bigcirc	3.0.03	Actual Fluid Temp.	55.0 °C
	3.0.10	Effective Req. Val.	9.10 bar
	3.0.20	Required Val.	8.90 bar
	3.0.30	Pump Status	Run
(3)			
\smile \triangleleft	🕈 9.10 bar i (🕽 65% Move 😍 🛛 Edit (🔘 🛛 Home 😳

Position number	Name	Description
1	Header bar	It shows the parameter path at menu and submenu level.
2	Parameter list	 Show: The index, The name, The preview of the value of the parameters for the current menu level. To advance a level or change the value, press SEND or the RIGHT arrow key.
3	Lower bar	 Show: On the left, the essential operating information, such as the actual adjustment value and the speed percentage at which the unit is operating On the right, the buttons available for interaction in the main screen.

The menu is split into 3 levels:

- Main
- Submenu
- Parameters.
- To display or change a parameter:
- 1. Press the function button in the main screen.
- 2. Enter the password using the arrow keys.
- 3. Press SEND.
 - Note: after 10 minutes of inactivity, the password must be re-entered.
- 4. Press the RIGHT arrow key or SEND to advance between levels, or the LEFT arrow key to return.

6.2.3 Operating mode change

The unit parameters are set at the factory and the unit is ready for use.

To change parameters and advanced features, access the configuration menu.

- 1. Press the multi-function button.
- 2. Enter the password using the arrow keys.
- 3. Press SEND.
- 4. Navigate through the menus to locate the parameter or function to be changed: see Manual no. 001088110X for the association between parameter codes and their functions.

6.2.4 Error reset



In the event of an error, the unit automatically makes several attempts to reset itself, where permitted: if the attempts are unsuccessful, the unit stops and the display shows the error code.

To eliminate the error:

- 1. Open the first main screen by pressing SEND.
- 2. Read the description of the error in the screen.
- 3. Identify the cause and follow the instructions in Troubleshooting.
- 4. Reset the error by pressing and holding down ON/OFF for 3 seconds: the unit returns to the status before the error.

6.3 Xylem X App

Introduction

Available for mobile devices with wireless technology operating system. Use the App to:

- Check the status of the unit
- Configure parameters
- Interact with the unit and obtain data during installation and maintenance
- Generate a work report
- Contact the assistance service.

Download the App and connect the mobile device with the unit

1. Download the Xylem X App to the mobile device from App Store¹ or Google Play² by scanning the QR code:



¹ Compatible with iOS[®] operating systems with version 11.0 and above

² Compatible with Android operating systems with version 8.0 and above

2. Complete the registration.

9:41		.al 🕈 🖿
- Register		
reate yo	our accou	int
Insert your ema	ail	
Insert your pas	sword	Show
Country code	Phone number	r
Insert here you	r company (optic	nal)
A		

- 3. On the drive display, press the wireless communication button.
- 4. Add the unit to the user profile.

9:41		al 🗢 🔳
← xylem		
Choose ho	w to connect to	the pump
	Connect with bluetooth	
	Connect with QR Code	
	Add offline pump	

5. When the connection has been established, the connection light turns blue steady: it is now possible to control the unit using the mobile device.



7 Programming

See the 001088110X manual.

8 Maintenance

8.1 Precautions



WARNING: Physical and thermal hazards

- Always wear personal protective equipment.
- Always use suitable working tools.
- In the case of liquids that are excessively hot or cold, pay attention to the risk of injury.

Before starting work:

- Make sure to read and understand all the safety instructions in Introduction and Safety.
- Allow the pump unit and all system components to cool down before touching them.
- Ensure that the unit is isolated from the system and that the pressure is zero before disassembling the pump unit, removing the fill and drain plugs or disconnecting the piping system.

Motor magnetic field



The disassembly or installation of the rotor in the motor casing generates a strong magnetic field:

DANGER: Magnetic hazard

The magnetic field may be dangerous for anyone wearing pacemakers, or any other medical devices sensitive to magnetic fields.

NOTE:

The magnetic field may attract metal debris on the rotor surface, causing damage to the same.

8.2 Maintenance with unit started

Table 1: Maintenance with unit started

intenance Description	Interval
eck: Liquid leaks Unwanted noise and vibrations	Every 4000 hours of operation or every year, when the first of the two
וו e נ	ntenance Description ck: .iquid leaks Jnwanted noise and vibrations

8.3 Voltage-free maintenance work



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.
- After disconnecting the system from the power supply, wait 2 min for the discharge of the residual current.

Part subject to maintenance	Maintenance to be carried out	Interval
System	 Check: The tightness of screws and bolts The expansion vessel pre-charge, see the Expansion vessel pre-charge check section 	Every 4000 hours of operation or every year, when the first of the two limits is reached
Motor and drive	 Check: The integrity of the power cable The tightening of cable glands For size D drives only, the tightening of the conductor terminals with a torque of 4 Nm (35 lbf-in) That there are no signs of overheating and electric arcs on the terminal boxes and traces of humidity in the drive. The status of the cooling fan Clean: The fan cover The drive dissipator The stator casing 	
Pump	Replace: • The mechanical seal • The O-ring	Every 20000 hours of operation or every 2 years, when the first of the two limits is reached
Motor	Only for life-lubricated bearings: replace the bearings	Every 20000 hours of operation or every 5 years, when the first of the two limits is reached
	Only for bearings requiring lubrication: top up or replace grease	Refer to the motor data plate and instructions for information on the type of grease and how often it needs to be topped up or replaced

Table 2: Maintenance with unit stopped

8.3.1 Expansion vessel pre-charge check



- 1. Bring the system pressure to zero, so as not to distort the reading of the pre-charge device.
- 2. Unscrew the cap.
- 3. Attach the pre-charge device to the valve and charge the vessel to the correct pressure. In a pressure boosting system, the value of the pre-charge pressure is generally equal to the starting pressure of the unit minus 10%.
- 4. Remove the device and screw the cap.

8.4 Tightening torques



Position	Size	Torque, Nm (lbf∙in)	Notes
number			
1	M12	45 (400) ± 15%	
	M16	110 (970) ± 15%	
	M20	200 (1770) ± 15%	
2	G3/8 or G1/4	40 (350) ± 25%	
3	M10	40 (350) ± 15%	
	M12	50 (440) ± 15%	For size 80-160 and 80-200 units only
	M12	70 (620) ± 15%	
4	M8	15 (133) ± 15%	
	M10	32 (280) ± 15%	
	M12	45 (400) ± 15%	
5	M10	40 (350) ± 15%	
	M12	50 (440) ± 15%	For size 80-160 and 80-200 units only
	M12	70 (620) ± 15%	
6	G3/8	40 (350) ± 25%	
7	M8	13 (115) ± 15%	
8	M4	2 (18) ± 25%	
9	M12	50 (440) ± 15%	
	M16	110 (970) ± 15%	

8.5 Identification of spare parts

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

8.6 Long periods of inactivity

If an extended period of inactivity is expected:

- 1. Stop the unit.
- 2. Disconnect the power supply.
- 3. Shut the suction and discharge on-off valves.
- 4. Follow the instructions in **Storage**.

After an extended period of inactivity, before restarting the unit check:

- 1. The status of the connections of electrical conductors at the unit and the control panel
- 2. The tightening of screws.

9 Troubleshooting

9.1 Precautions



WARNING: Physical and thermal hazards

- Always wear personal protective equipment.
- Always use suitable working tools.
- In the case of liquids that are excessively hot or cold, pay attention to the risk of injury.

Before starting work:

- Make sure to read and understand all the safety instructions in Introduction and Safety.
- Allow the pump and all system components to cool down before touching them.
- Ensure that the unit is isolated from the system and that the pressure is zero before disassembling the pump, removing the fill and drain plugs or disconnecting the piping system.

Voltage-free work



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.
- After disconnecting the system from the power supply, wait 2 min for the discharge of the residual current.

Motor magnetic field



The disassembly or installation of the rotor in the motor casing generates a strong magnetic field:

DANGER: Magnetic hazard

The magnetic field may be dangerous for anyone wearing pacemakers, or any other medical devices sensitive to magnetic fields.

NOTE:

The magnetic field may attract metal debris on the rotor surface, causing damage to the same.

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.

9.2 The unit does not switch on

Cause	Solution
Electric power supply absent	Restore the electric power supply
Power supply cord is damaged	Replace the cable
Unit faulty	Contact Xylem or the Authorised Distributor, or send the unit to an authorised workshop

9.3 Little or no hydraulic performance

Cause	Solution	
Unit not primed	 Bleed the unit Increase the liquid level in the suction tank Remove any turbulences of the liquid in the suction area Check the suction conditions 	
On-off valve on discharge line closed	Open the valve	
Non-return valve installed in the wrong direction	Reinstall the valve correctly	
Check valve locked in the partially closed position	Repair or replace the valve	
Suction filter clogged, if present	Clean the filter	
Clogged piping system	Remove the clogging	
Liquid leaks from the piping system	Identify the leaks and repair the piping system	
System with excessive friction losses	Replace the piping and/or fittings with some of a larger diameter or with a lower specific friction losses	
Foreign bodies in the unit	Remove foreign bodies or contact Xylem or the Authorised Distributor, or send the unit to an authorised workshop	
Wrong unit settings	Check the settings	
Unit in cavitation	Increase the available NPSH (net positive suction head)	
Undersized unit	Contact Xylem or the Authorised Distributor, or send the unit to an	
Damaged or worn internal unit components	authorised workshop	
Unit faulty	7	

9.4 The residual current protection device (RCD) has tripped

Cause	Solution	
Unsuitable earth leakage protection	Replace the earth leakage circuit breaker with a suitable one	
Earth leakage protection faulty	Replace the earth leakage protection device	
Unit faulty	Contact Xylem or the Authorised Distributor, or send the unit to an authorised workshop	

9.5 The unit does not stop when the setpoint is reached

Cause	Solution
Check valve at the discharge blocked or partially blocked	Replace the check valve
Expansion vessel not installed, faulty, undersized or incorrectly pre- charged	 Install, or Replace, or Pre-charge the expansion vessel
Wrong unit settings	Check the settings

9.6 The unit produces excessive noise and/or vibrations

Cause	Solution	
Plant resonance	Check the installation of the unit	
Foreign bodies in the unit	Remove foreign bodies or contact Xylem or the Authorised Distributor, or send the unit to an authorised workshop	
Water hammer	 Close the discharge on-off valve before shutting down the unit, or Install an expansion vessel in the system, or Power the unit through a soft starter 	
Unit in cavitation	Increase the available NPSH (net positive suction head)	
Unit not primed	 Bleed the unit Increase the liquid level in the suction tank Remove any turbulences of the liquid in the suction area Check the suction conditions 	
Unit wrongly anchored to the foundations	Check the unit anchoring	
Anti-vibration joints on the piping system not suitable and/or absent	Install or check the anti-vibration joints	
Motor bearings worn or faulty	Replace the motor bearings or contact Xylem or the Authorised Distributor, or send the unit to an authorised workshop	
The unit does not turn freely due to a mechanical fault	Contact Xylem or the Authorised Distributor, or send the unit to an	
Unit faulty	authorised workshop	

9.7 The unit is leaking at the mechanical seal

Cause	Solution
Initial settlement or running-in of the seal	Carry out the procedure to help the seal settle, see paragraph Startup .
Seal damaged or worn	Replace the seal or contact Xylem or the Authorised Distributor, or send the unit to an authorised workshop

9.8 Unit alarm or error

Cause	Solution
Miscellaneous	See chapter Troubleshooting in the 001088110X manual.

10 Specifications

10.1 Operating environment

Non-aggressive and non-explosive atmosphere.

Temperature

From 0 to 40°C (32÷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. If the unit is installed at an altitude exceeding 2000 m (6600 ft), contact Xylem or the Authorised Distributor.

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

10.2 Materials in contact with the liquid

Pump body	Impeller	Identification code	
1.4404 stainless steel	1.4404 stainless steel	SS	
	1.4408 stainless steel	SN	

10.3 Mechanical seal

Unbalanced single acc. EN 12756, version K.

10.4 Pressure/temperature operating limits

The chart shows the pumped liquid pressure and temperature limits permitted for the mechanical seal, based on the material of the hydraulic components. For more information, see the technical catalogue.



Note: 1.4404 stainless steel pump body and 1.4404 or 1.4408 stainless steel impeller.

(*) = hot water

(**) = minimum pressure required at mechanical seal

10.5 Maximum number of starts and stops

≤ 4/h.

Note: if more starts and stops are required, use the dedicated external input.

10.6 Electrical specifications

See the data plate of the motor assembly with drive.

Permitted tolerances for the supply voltage

- 200 240 V ±10% 50/60 Hz
- 380 480 V ±10% 50/60 Hz.

Leakage Current

 \leq 3.5 mA (AC).

Protection class

IP 55.

10.7 Radio frequency characteristics

Features	Description
Technology	Wireless Low Energy 5.2
Band	2.4 GHz ISM
RF	≤ 4.5 mW (6.5 dBm)

10.8 Characteristics of inputs and outputs

Features	Description
Communication ports	2, RS-485
Digital inputs	5:
	 Floating/NPN contact, open manifold/drain open, to GND
	 Internal polarisation +24 VDC, current limited to 6 mA max.
	 Protection from -0.5 VDC to +30 VDC, ±15 mA max.
Analogue inputs	4:
	 Configurable or 0-20 mA current, or 0-10 V voltage
	 24V signal for sensor power supply with current limitation 60 mA
Analogue output	Configurable as either 0-20 mA current signal or 0-10 V voltage signal
Relay	2, with NC and NO changeover contact:
	• Relay 1 up to 240 VAC 0.25 A or 30 VDC 2 A
	• Relay 2 up to 30 VAC 0.25 A or 30 VDC 2 A



WARNING: Electrical hazard

If relay 1 is connected to a voltage higher than 30 VAC, disconnect and do not use the terminals of relay 2.

10.9 Sound pressure

Measured in free field at a distance of 1 metre from the unit, operating without load.

Construction size	LpA, dB ± 2	Construction size	LpA, dB ± 2	
25-200/30	<70	50-160/75	71	
25-200/40	<70	50-160/110	71	
25-250/55	<70	50-200/150	<70	
25-250/75	78	50-200/185	<70	
25-250/110	71	50-250/220	71	
32-200/30	<70	65-160/40	<70	
32-200/40	<70	65-160/55	<70	
32-250/55	<70	65-160/75	71	
32-250/75	78	65-160/110	71	
32-250/110	71	65-200/150	71	
40-125/30	<70	65-200/185	71.5	
40-160/40	<70	65-200/220	72	
40-160/55	<70	80-160/40	<70	
40-200/75	71	80-160/55	<70	
40-250/110	71	80-160/110	71	
40-250/150	<70	80-160/150	71	
40-250/185	71	80-160/185	72	
50-125/30	<70	80-200/75	<70	
50-125/40	<70	80-200/220	72	
50-125/55	<70	-	-	

11 Disposal

11.1 Precautions



WARNING: Environmental risk

- The unit must be disposed of through approved companies specialised in the identification of different types of materials: steel, copper, plastic, lithium, ferrite etc...
- It is prohibited to dispose of lubricating fluids and other hazardous substances in the environment.

11.2 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 favours the reuse and / or recycling of the materials of which the equipment is composed.

WEEE from users other than private households³: the separate collection of this equipment at the end of its life is organized and managed by the producer⁴.

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 an organization independently authorized to manage waste.

11.3 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 favours the re-use and / or recycling of the materials of which the equipment is composed.

WEEE from users other than private households⁵: the separate collection of this equipment at the end of its life is organized and managed by the producer⁶.

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 an organization independently authorized to manage waste.

³ Classification according to product type, use and current local laws

⁴ Producer of EEE as per Directive 2012/19/EU

⁵ Classification according to product type, use and current local laws

⁶ Producer of EEE as per WEEE Regulations 2013

12 Declarations

Refer to the specific declaration relating to the marking on the product.

12.1 Electric pump (CE)

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:

ESHEX...or ESHSX... electric pump with integrated variable speed drive (EXM-type electric motor), with or without pressure transmitter and relative cable (see label on the last page of "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 Italia S.r.l.)
- Eco-design 2009/125/EC and subsequent amendments, Regulation (EU) no. 547/2012 and subsequent amendments (water pump) if MEI marked.

and technical standards

- EN 809:1998+A1:2009, EN 60204-1:2018, EN 61800-5-1:2007+ A1:2017+A11:2021
- EN 16480:2021.

Additional information: the EXM series motor includes an integrated variable speed drive, and the energy performance of the two components cannot be tested independently of each other (Regulation (EU) 2019/1781, Article 2(2)(b), (3)(a)). The marking shown (IE...-IES...) is that required by the technical standard IEC 61800-9-2.

Montecchio Maggiore, 10.10.2024

Peter Björnsson Managing Director

rev.00

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EU Declaration of Conformity (No 84)

- 1. RED Radio equipment: ESHEX, ESHSX (see product data plate) RoHS - Unique identification of the EEE: ESH.. X...
- 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.
- Object of the declaration: ESHEX...or ESHSX... electric pump with integrated variable speed drive (EXM-type electric motor), with or without pressure transmitter and relative cable.
- 5. The object of the declaration described above is in conformity with the relevant Union harmonization legislation:
 - Directive 2014/53/EU of 16 April 2014 and subsequent amendments (radio equipment).

- Directive 2011/65/EU of 8 June 2011 and subsequent amendments, including directive (EU) 2015/863 (restriction of the use of certain hazardous substances in electrical and electronic equipment).
- 6. References to the relevant harmonised standards used or references to the other technical specifications, in relation to which conformity is declared:
 - EN 61800-3:2004+A1:2012 (Category C2), EN IEC 61800-3:2018 (Category C2), EN 61000-6-2:2005, EN IEC 61000-6-2:2019, EN 61000-6-4:2007+A1:2011, EN IEC 61000-6-4:2019, EN 61000-3-2:2014, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021, ETSI EN 300 328 V2.2.2 (2019-07), EN 62311:2008, EN IEC 62311:2020
 - EN IEC 63000:2018.
- 7. Notified body: - -
- 8. RED Any accessories/components/software: - -
- 9. Additional information:

RoHS - Annex III - Applications exempted from the restrictions: lead as a binding element in steel, aluminium and copper alloys [6(a), 6(b), 6(c)], in solders and in electrical/ electronic components [7(a), 7(c)-I].

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

Montecchio Maggiore, 10.10.2024

Peter Björnsson Managing Director

rev.00

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12.2 Electric pump (UKCA)

UK CA

UK 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:

ESHEX...or ESHSX... electric pump with integrated variable speed drive (EXM-type electric motor), with or without pressure transmitter and relative cable (see label on the last page of "Safety and Other Information" manual)

fulfils the relevant provisions of the following UK legal acts

- S.I. 2008/1597 Supply of Machinery (Safety) Regulations 2008 and subsequent amendments (Schedule 2 Part 2 Annex II natural or legal person authorised to compile the technical file: Xylem Service Italia S.r.l.)
- S.I. 2019/539 The Ecodesign for Energy-Related Products and Energy Information (Amendment) (EU Exit) Regulations 2019 (water pump) if MEI marked,

and technical standards

- EN 809:1998+A1:2009, EN 60204-1:2018, EN61800-5-1:2007+ A1:2017+A11:2021.
- EN 16480:2021.

Additional information: the EXM series motor includes an integrated variable speed drive, and the energy performances of the two cannot be tested independently of each other (S.I.

2021/745, Regulation 34, Schedule 16, paragraphs 10(1)(b), 10(2)(a)). The marking shown (IE...-IES...) is that required by the technical standard IEC 61800-9-2.

Montecchio Maggiore, 10.10.2024

Peter Björnsson Managing Director

rev.00

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UK Declaration of Conformity (No 84)

- 1. RE-D Radio equipment: ESHEX, ESHSX (see product data plate) RoHS - Unique identification of the EEE: ESH..X
- 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: ESHEX or ESHSX ... electric pump with integrated variable speed drive (EXM-type electric motor), with or without pressure transmitter and relative cable.
- 5. The object of the declaration described above is in conformity with the relevant UK legislative acts:
 - S.I. 2017/1206 The Radio Equipment Regulations 2017 and subsequent amendments
 - S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 and subsequent amendments
- 6. References to the relevant designated standards used or references to the other technical specifications, in relation to which conformity is declared:
 - EN 61800-3:2004+A1:2012 (Category C2), EN IEC 61800-3:2018 (Category C2), EN 61000-6-2:2005, EN IEC 61000-6-2:2019, EN 61000-6-4:2007+A1:2011, EN IEC 61000-6-4:2019, EN 61000-3-2:2014, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021, ETSI EN 300 328 V2.2.2 (2019-07), EN 62311:2008, EN IEC 62311:2020
- EN IEC 63000:2018.
- 7. Approved body: - -
- 8. RE-D Any accessories/components/software: - -
- 9. Additional information:

RoHS - S.I. 2020/1647 - The Hazardous Substances and Packaging (Legislative Functions and Amendment) (EU Exit) Regulations 2020 - regulation 3(1), Schedule A2, Table 1 - Exempted applications from the restrictions: lead as a binding element in steel, aluminium and copper alloys [12, 15, 18], in solders and in electrical/electronic components [19, 21].

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

Montecchio Maggiore, 10.10.2024

Peter Björnsson Managing Director

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13 Warranty

For information on the warranty refer to the commercial documentation.

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