

WILO-ISAR MODH1/SCe-EM



en Installation and operating instructions

1	General information	3
2	Safety	3
2.1	Symbols and signal words in the operating instructions	3
2.2	Personnel qualifications	3
2.3	Danger in the event of non-observance of the safety instructions	3
2.4	Safety consciousness on the job	3
2.5	Safety instructions for the operator	3
2.6	Safety instructions for installation and maintenance work	4
2.7	Unauthorised modification and manufacture of spare parts	4
2.8	Improper use	4
3	Transport and temporary storage	4
4	Intended use	5
5	Product information	5
5.1	Type key	5
5.2	Technical data	5
5.3	Scope of delivery	6
5.4	Accessories	6
6	Description of the product and accessories	6
6.1	General description	6
6.2	Components of the pressure-boosting system	7
6.3	Function of the pressure-boosting system	7
6.4	Noise	8
7	Setup/installation	8
7.1	Installation site	8
7.2	Installation	9
7.2.1	Foundation / bearing surface	9
7.2.2	Hydraulic connection and pipes	9
7.2.3	Hygiene	9
7.2.4	Protection against dry running / low water level (accessories)	9
7.2.5	Diaphragm pressure vessel	9
7.2.6	Non-pressurised break tank (accessories)	9
7.2.7	Compensators (accessories)	10
7.2.8	Flexible connection pipes (accessories)	10
7.3	Electrical connection	10
8	Commissioning / shutdown	10
8.1	General preparations and control measures	11
8.2	Protection against low water level	11
8.3	Commissioning the system	11
8.4	Decommissioning the system	11
9	Maintenance	11
10	Faults, causes and remedies	12
11	Spare parts	15
12	Disposal	15
12.1	Oils and lubricants	15
12.2	Protective clothing	15
12.3	Information on the collection of used electrical and electronic products	15
12.4	Batteries / rechargeable batteries	15
Fig 1.	Booster set general arrangement	16
Fig 1b.	Discharge general arrangement	16
Fig 1c.	Suction general arrangement	16
Fig 2.	Hydraulic connection diagram	17
Fig 3.	Electrical terminal Connection	17
Fig 4.	Low water switch setting	17
Table 1.	Spares list	18

1 General Information

About this document

The language of the original operating instructions is English. Versions of these instructions in any other language are translations of the original operating instructions.

These installation and operating instructions are an integral part of the product. They must be kept readily available at the place where the product is installed. Strict adherence to these instructions is a precondition for the intended use and correct operation of the product.

These installation and operating instructions correspond to the relevant version of the product and the underlying safety standards valid at the time of going to print.

EC/UKCA Declaration of conformity:

A copy of the EC and/or UKCA–Declaration of conformity is an integral part of the scope of delivery for this product.

If a technical modification without our agreement is made to the designs named in the declaration, or the declarations made in the installation and operating instructions on product/personnel safety are not observed, this declaration is no longer valid.

2 Safety

These installation and operating instructions contain basic information which must be adhered to during installation, operation and maintenance. For this reason, it is mandatory that these installation and operating instructions are read by the service technician and the responsible qualified personnel/operator before installation and commissioning.

Not only must the general safety instructions listed under this main “Safety” section be adhered to, but also the special safety instructions that are marked by danger symbols and included under the following main sections.

2.1 Symbols and signal words in the operation instructions

Symbols:



General danger symbol



Danger due to electrical voltage



Notice



WEEE directive

Signal words

DANGER!

Acutely dangerous situation.

Non-observance will result in death or extremely serious injuries.

WARNING!

The user could suffer (serious) injuries.

“Warning” implies that (serious) injury to persons is probable if this information is disregarded.

CAUTION!

There is a risk of damage to the pump/unit.

“Caution” implies that damage to the product is likely if this information is disregarded.

NOTICE:

Useful information on handling the product.

It draws attention to possible problems.

Information that appears directly on the product, such as

- direction of rotation/flow symbol,
- identifiers for connections,
- rating plate,
- warning stickers must be strictly complied with and kept in a fully legible condition.

WEEE directive:

Useful information on the disposal of parts

2.2 Personnel qualifications

The installation, operation and maintenance personnel must have the appropriate qualifications for this work. The area of responsibility, responsibility and monitoring of the personnel are to be ensured by the operator. If the personnel do not possess the necessary knowledge, they are to be trained and instructed. This can be carried out, if necessary, by the product manufacturer at the operator’s request.

2.3 Danger in the event of non-observance of the safety instructions

Non-observance of the safety instructions can result in the risk of injury to persons and damage to the environment and the product/unit.

Non-observance of the safety instructions will render any claims for damages null and void.

In particular, non-observance can, for example, result in the following risks:

- danger to persons due to electrical, mechanical and bacteriological factors,
- damage to the environment due to leakage of hazardous materials,
- material damage,
- failure of important product/unit functions,
- failure of required maintenance and repair procedures.

Safety consciousness on the job

2.4 The safety instructions included in these installation and operating instructions, the existing national regulations for accident prevention, together with any operator’s internal working, operating and safety regulations are to be complied with.

Safety instructions for the operator

2.5 This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or who lack experience and knowledge, unless they have been given supervision or instruction concerning the use of the device by a person responsible for their safety. Children should be supervised to ensure that they do not play with the device.

- If hot or cold components on the product/unit lead to hazards, measures must be taken on-site by the customer to prevent them from being touched.

- Guards for moving components (such as the coupling) must not be removed whilst the product is in operation.
- Leakages (e.g. from the shaft seals) of hazardous fluids (which are explosive, toxic or hot) must be discharged so that no danger to persons or to the environment arises. National statutory provisions are to be complied with.
- Highly flammable materials should always be kept a safe distance from the product.
- Danger due to electrical current must be eliminated. Local directives or general directives [e.g. IEC, VDE etc.] and instructions from local energy supply companies must be adhered to.

2.6 Safety instructions for installation and maintenance work

The operator must ensure that all installation and maintenance work is carried out by authorised and qualified personnel who have sufficiently familiarised themselves with the installation and operating instructions by studying them in detail. Work on the product/unit must only be carried out when at a standstill. The procedure described in the installation and operating instructions for shutting down the product/unit must be strictly observed. Immediately after completing the work, all safety and protective devices must be put back in position and/or recommissioned (Section 8).

2.7 Unauthorised modification and manufacture of spare parts

Unauthorised modification and manufacture of spare parts will impair the safety of the product/personnel and void the manufacturer's declarations regarding safety. Modifications to the product are only permissible following consultation with the manufacturer. Original spare parts and accessories authorised by the manufacturer ensure safety. The use of other parts will absolve the manufacturer of liability for any consequences arising therefrom.

2.8 Improper use

The operational reliability of the supplied product is only guaranteed if used as intended and in accordance with section 4 of the installation and operating instructions. The limit values must on no account fall under or exceed those values specified in the catalogue/data sheet.

3 Transport and temporary storage

The pressure-boosting system is supplied on a pallet, on transport boards or in a crate and is shrink wrapped to protect it against moisture and dust.

Transport and storage instructions applied to the packaging must be observed.



CAUTION! Risk of property damage!
Use permitted lifting gear for transport. Ensure the stability of the load since, with this particular pump design, the centre of gravity is shifted to the top (top-heavy!). Connect transport slings or ropes to the transport eyes provided or around the base frame. The pipes are not suitable to withstand loads and should not be used to secure loads in transit.



CAUTION! Risk of damage!
Subjecting the pipes and valves to loads while in transit can result in leakages!

The transport dimensions, weights and necessary passageways and transport areas of the system can be found on the supplied installation plan or other documentation.



CAUTION! Risk of detriment or damage!
The system must be protected by means of suitable measures against moisture, frost and heat and also mechanical damage!

When receiving and unpacking the pressure boosting system and the supplied accessories, first check the packaging for damage. If damage is found which may have been caused by the system having fallen or similar impacts:

- check the pressure-boosting system and accessories for possible damage, and
- notify the delivery company (forwarding agent) or our customer service, even if you do not find any obvious damage to the system or its accessories.

After removing the packaging, store or install the system according to the described installation conditions (see section titled Installation).

4 Intended use

The Wilo pressure-boosting systems of series ISAR MODH1 are designed for water supply systems for pressure boosting and pressure maintenance.

They are used in:

- Drinking water installations, primarily in high-rise apartments, hospitals, administrative and industrial buildings, the structure, function and requirements of which comply with the following standards, guidelines and directives:
- Water Supply (Water Quality) Regulations 2018 Reg 4
- Industrial water supply and cooling systems
- Irrigation and sprinkling installations

Make sure that the fluid to be pumped in the system will not corrode the materials used in the system either chemically or mechanically and that it does not contain any abrasive or long-fibre constituents.

Automatically controlled pressure-boosting systems are supplied from the public drinking water supply network (connected indirectly) via a break tank. These break tanks are closed but are not pressurised, i.e. they are under only atmospheric pressure.

5 Product information

5.1 Type key

Example: Wilo-ISAR MODH1-1CH1-L-202/SCe

Wilo	Brand name
ISAR	Product family: pressure-boosting systems
MOD	Application (commercial)
H	With horizontal pumps
1	Product level (1-entry, 3-standard, 5-premium)
-1	Number of pumps
CH1-L	Pump series
2	Rated flow rate Q [m ³ /h] per pump (2 pole – 50 Hz version)
02	Number of pump stages
/SCe	Control device (Smart Control)

Example: Wilo-ISAR MODH1-3CH1-L-605/SCe

Wilo	Brand name
ISAR	Product family: pressure-boosting systems
MOD	Application (commercial)
H	With horizontal pumps
1	Product level (1-entry, 3-standard, 5-premium)
-3	Number of pumps
CH1-L	Pump series
6	Rated flow rate Q [m ³ /h] per pump (2 pole – 50 Hz version)
05	Number of pump stages
/SCe	Control device (Smart Control)

5.2 Technical Data

Max. volume flow	See catalogue/data sheet
Max. delivery head	See catalogue/data sheet
Speed	2800 – 2900 rpm (constant speed)
Mains voltage	1~ 230 V ±10 % V (L1, N, PE)
Rated current	See catalogue/data sheet
Frequency	50 Hz
Electrical connection	(See installation and operating instructions and circuit diagram of the control device)
Insulation class	F
Protection class	IP54 (pump by itself IPX5)
Power consumption P1	See rating plate of pump/motor
Power consumption P2	See rating plate of pump/motor
Nominal Diameter: Connection Suction/pressure pipe	R1¼/R1¼ (ISAR MODH1-2CH1-L-2.../EC) (ISAR MODH1-2CH1-L-4.../EC) (ISAR MODH1-3CH1-L-2.../EC)

Nominal Diameter: Connection Suction/pressure pipe	G1¼/G1¼ (ISAR MODH1-1CH1-L-2.../EC) (ISAR MODH1-1CH1-L-4.../EC) G1½/G1¼ (ISAR MODH1-1CH1-L-6.../EC) G2/G1½ (ISAR MODH1-1CH1-L-10.../EC) R1¼/R1¼ (ISAR MODH1-2CH1-L-2.../SCe) (ISAR MODH1-2CH1-L-4.../SCe) (ISAR MODH1-3CH1-L-2.../SCe) R1½/R1½ (ISAR MODH1-2CH1-L-6.../SCe) (ISAR MODH1-3CH1-L-4.../SCe)
Nominal Diameter: Connection Suction/pressure pipe	R2/R2 (ISAR MODH1-1CH1-L-10.../SCe) (ISAR MODH1-3CH1-L-6.../SCe) R2½/R2½ (ISAR MODH1-3CH1-L-10.../SCe) (Subject to change without prior notice/see also the installation plan provided)
Permitted ambient temperature	5 °C to 40 °C
Permissible fluids	Pure water without settling sediments
Permissible fluid temperature	3 °C to 60 °C (deviating values on request)
Max. permitted operating pressure	On the pressure side 10 bar (see rating plate)
Max. permissible inlet pressure	Indirect connection (but max. 6 bar)
Additional data: Diaphragm pressure vessel	8L

Note 'R' denotes taper thread (BSPT)
'G' denotes parallel thread (BSPP)

5.3 Scope of delivery

- Pressure-boosting system
 - Installation and operating instructions for the pressure-boosting system
 - Installation and operating instructions for the pumps
 - Installation and operating instructions for the control device
 - Inspection certificate
- For any special versions
- Installation plan if applicable
 - Electrical circuit diagram if applicable
 - Installation and operating instructions for the signal transmitter if applicable
 - Spare parts list if applicable

5.4 Accessories

Accessories must be ordered separately as required. The accessories from the Wilo range include the following:

- GRP Break tank (various sizes)
- Safety valve
- BACnet software
- GSM module (mobile communication)
- Float switch
- Flexible connection pipes
- Compensators
- Threaded flanges

6 Description of the product and accessories

6.1 General description

The Wilo ISAR pressure-boosting system is supplied ready for connection as a compact unit with built-in controls. It consists of 1 to 3 non self-priming multistage horizontal centrifugal pumps which are supplied completely piped to each other and mounted on a common base frame. The connections for the inlet and pressure pipes and the electrical mains and earthing connection have to be established. It is also necessary to install the supplied accessories ordered separately.

The pressure-boosting system with non self-priming pumps can be connected indirectly to the water supply mains via a break tank. Detailed instructions for the pump type used can be found in the attached installation and operating instructions for the pump.

Observe the relevant, applicable regulations and standards when using the system for drinking water supply. **The system must be operated and maintained in accordance with the relevant instructions so that the operational reliability of the water supply is permanently guaranteed and neither the public water supply nor other consumption installations are detrimentally affected.** The respective applicable regulations or standards on the connection and type of connection to public water supply networks are to be observed. They may be supplemented by regulations of the water supply companies or the responsible fire protection authority. In addition, the local conditions must also be observed.

6.2 Components of the pressure-boosting system

The complete system is made up of various main components. The scope of delivery includes separate installation and operating instructions for the relevant operating parts/components (see also the installation plan provided Fig 1).

Mechanical and hydraulic system components

The compact unit is installed on a **base frame (3) with vibration absorbers (14)**. It consists of a group of one, two or three horizontal **centrifugal pump(s) (1) with three-phase current motor (1)**, which are combined by means of an **inlet pipe (4)** and a **pressure pipe (5)** (connection pipes in case of 2 or 3 pumps) to form a complete system. Each pump is fitted with a **(6) shut-off valve** on the intake side, a **(7) shut-off valve** on the pressure side and a **non-return valve (8)** on the pressure side. A kit with isolation valves is fitted on the pressure pipe, which contains a **pressure sensor (12)** and **pressure gauge (11)** (Fig 1b).

All systems include an **8-litre diaphragm pressure vessel (9) with a throughflow fitting (15) that can be shut off** in the scope of delivery which is to be fitted to the **pressure pipe (5)** (Fig 1b). **Low-water cut-out switchgear (10) kit** (Fig 1c) is fitted to the inlet pipe. The **control device (2)** is mounted to **mounting brackets (13)** on the **base frame (3)** and ready wired to the electrical components of the system. The present installation and operating instructions contain only a general description of the complete system.

High-pressure multistage centrifugal pump(s) (1):

Different types of multistage horizontal centrifugal pumps are installed in the pressure-boosting system depending on the application and the performance parameters required. Their number can vary from 1 to 3 pumps. The attached installation and operating instructions provide information on the pumps

Control device (2) (Fig 1):

The SC series control device is used to control and regulate the SCe-Smart pressure boosting system. The size and components of the control device may vary depending on the design and performance parameters of the pumps. The attached installation and operating instructions, and the corresponding wiring diagram provide information on the control device installed in this pressure boosting system.

Diaphragm pressure vessel kit (Fig 1b):

- Diaphragm pressure vessel (9) with flow-through fixture (15) that can be shut off

Pressure transmitter kit on the pressure side

- Pressure gauge
- Pressure sensor
- Electrical connection, pressure sensor
- Draining/venting
- Stop valve

6.3 Function of the pressure-boosting system

Wilo pressure-boosting systems in the ISAR MODH1 series are standard-equipped with non self-priming multistage horizontal centrifugal pumps, with built-in frequency converter to the control panel. These are supplied with water via the inlet pipe.

The pump(s) increase(s) the pressure and pumps the water to the consumer via the pressure pipe. To do this, they are switched on and off and controlled according to the pressure. The pressure sensor continuously measures the actual value of the pressure, which is converted into a current signal and transmitted to the control device.

Depending on the requirement and the type of control, the control device switches the pumps on or switches them off. The speed of one or more of the pumps is changed until the control parameter settings are achieved (a more precise description of the control mode and the control process is given in the installation and operating instructions for the control device). The total delivery volume of the system is distributed over several pumps. This has the big advantage that the system output is adapted very precisely to the actual demand and the pumps are operated in the most favourable performance range in each case. This design delivers a high level of efficiency and an economical energy consumption for the system.

The first pump that starts up is called the baseload pump. The remaining pumps needed to reach the system operating point are called peak-load pump(s). To ensure that all the pumps are used equally, the control unit cycles the pumps continuously, i.e. the order of switching on and the allocation of the base load/peak load or standby pump functions change regularly. The diaphragm pressure vessel (total content approx. 8 litres) performs a certain buffering function on the pressure sensor and prevents oscillation of the control system when switching the system on and off. It also guarantees low water extraction (e.g. for very small leaks) from the storage volume at hand without switching on the base-load pump. This reduces the switching frequency of the pumps and stabilises the operating status of the pressure boosting system.



CAUTION! Risk of damage!

To protect the mechanical seal or slide bearing, do not allow the pumps to run dry. If the pumps run dry they may develop leaks.

For connection to a break tank, a level-dependent pressure switch is provided and installed on the inlet pipe as a dry-running protection device.



WARNING! Health hazard!

Only materials that have no adverse effects on the quality of the water may be used for drinking water systems!

6.4 Noise

Pressure-boosting systems are supplied with different pump types and a variable number of pumps, as listed under point 5.1. No specific overall noise level can therefore be listed here for all variants of pressure-boosting systems. In the following overview, pumps of the standard series are taken into account at a mains frequency of 50 Hz.

Max. sound-pressure level (*) L _{pa} in [dB(A)]		Rated power (kW)						
		0.37	0.55	0.75	1.1	1.5	1.85	2.5
	1 pump	55	57	58	58	58	62	63
	2 pumps	58	60	61	61	61	65	66
	3 pumps	59.5	61.5	62.5	62.5	62.5	66.5	67.5

For motor powers not listed here and/or other pump series, see the single pump noise value from the installation and operating instructions for the pumps or from the catalogue information on the pumps. With the following procedure, it is possible to approximate the overall noise level of the complete system using the noise value for a single pump of the type supplied.

Calculation		
Single pump	dB(A)
2 pumps, total	+3	dB(A) (tolerance +0.5)
3 pumps, total	+4.5	dB(A) (tolerance +1)
Overall noise level	dB(A)
Example (pressure boosting with 3 pumps)		
Single pump	58	dB(A)
3 pumps, total	+4.5	dB(A) (tolerance +1)
Overall noise level	62.5...63.5	dB(A)

WARNING! Health hazard!

In the event of sound-pressure levels of above 80 dB(A), the operating personnel and persons who are in the vicinity during operation must wear suitable hearing protection!

7 Setup/installation

7.1 Installation site

- The pressure-boosting system is installed in the technical control room or in a dry, well ventilated and frost-proof, separate room that can be locked.
- Adequately dimensioned floor drainage (drain connection or similar) must be provided in the installation room.
- No harmful gases may enter the room or be present there.
- Ensure adequate space for maintenance work. The main dimensions can be found in the supplied installation plan. The system should be freely accessible from at least two sides.

- The installation surface must be horizontal and level. A slight adjustment in height of the vibration absorber in the base frame may be necessary to achieve stabilisation. If necessary, undo the counter nut and unscrew or turn in the respective vibration absorber slightly. Then re-tighten the counter nut.

- The system is designed for a maximum ambient temperature of +5 °C to 50 °C at a relative humidity of 50%.

- Installation and operation in the vicinity of living rooms and bedrooms is not recommended.
- To avoid the transmission of structure-borne noise and to ensure a stress-free connection to upstream and downstream pipes, compensators with extension limiters or flexible connection pipes must be used!

7.2 Installation

7.2.1 Foundation/bearing surface

The pressure-boosting system is designed for installation on a level concrete floor. The base frame is mounted on height-adjustable vibration absorbers as means of insulation against structure-borne noise.



NOTICE!

For transport reasons, the vibration absorbers may not be installed upon delivery. Before installing the pressure-boosting system, check that all the vibration absorbers are fitted and locked using threaded nuts.

Note:

If the customer also wants to fix the installation to the floor, suitable measures must be taken to avoid structure-borne noise transmission.

7.2.2 Hydraulic connection and pipes

For connections to the public drinking water supply network, the requirements of the responsible local water supply company must be met.

The installation must not be connected until all the welding and soldering work, necessary flushing and, if required, disinfecting of the pipe system and the pressure-boosting system has been done (see Point 7.2.3).

The customer's pipes must be installed without tension. Compensators with extension limiters or flexible connection pipes are recommended for this purpose in order to avoid stress at the pipe adaptors and minimise the transmission of system vibrations to the building installation. In order to prevent the transmission of structure-borne noise to the building, do not secure the pipe clamps to the pressure-boosting system pipework.

The flow resistance of the inlet and suction line must be kept as low as possible (i.e. short pipes, few elbows and sufficiently large shut-off valves), otherwise the protection against low water level may suffer severe pressure losses in the event of high volume flows. (Observe the NPSH of the pump and avoid pressure losses and cavitation.)

7.2.3 Hygiene

The supplied pressure-boosting system meets the standards of current technology and has been checked at the factory to make sure it functions correctly. Please remember that when used in drinking water applications, the complete drinking water installation has to be handed over to the operator in a perfect state of hygiene.

Also observe the local authority corresponding specifications in this also includes microbiological requirements, flushing if necessary and also disinfecting in some circumstances.



WARNING! Contaminated drinking water is a health hazard!

Flushing the pipes and system reduces the risk of impairing the quality of the drinking water! The water must be completely replaced after a long system standstill!

For the simple flushing of the system, the installation of a T-connector on the end pressure side of the pressure-boosting system is recommended (if there is a diaphragm pressure vessel on the pressure side, immediately downstream of it) upstream of the next shut-off device. Its branch, provided with a shut-off device, drains into the waste water system during the flushing process and has to be dimensioned according to the maximum volume flow of a single pump. If it is not possible to achieve free drainage, such as when connecting a hose, the requirements of Regulation 4 must be observed.

7.2.4 Protection against dry running/low water level (accessories)

Low water pressure switches are fitted to the inlet pipe of all pressure-boosting systems and **MUST** be set during commissioning once connected to the break tank to ensure that the unit stops before any air enters the system.

• For alternative protection via a float switch fit the float switch in the tank so that if the water level drops to approximately 100 mm above the draw-off connection, the "low water" switching signal is transmitted (see 8.2).

7.2.5 Diaphragm pressure vessel

For transportation and hygienic reasons, the diaphragm pressure vessel (8 litre) – which is part of the scope of delivery – is delivered unmounted as an accessories kit. The diaphragm pressure vessel must be mounted on the throughflow fitting before commissioning.



NOTICE!

Make sure the throughflow fitting is not twisted. The fitting is installed correctly when the drain valve and the flow direction arrows printed on it are parallel to the collecting pipe.

7.2.6 Non-pressurised break tank (accessories)

To connect the pressure-boosting system indirectly to the public drinking water mains, it must be installed together with a non-pressurised break tank. The rules for the pressure-boosting system apply to the installation of the break tank as well. The entire base of the tank must be in contact with a solid bearing surface. The maximum volume of the tank concerned must be considered when dimensioning the bearing capacity of the bearing surface. When installing, make sure there is sufficient space for inspection work (at least 600 mm above the tank and 1,000 mm on the connection sides). The tank must not slant when full, because an uneven load may cause damage. Connections to the tank must be made in accordance with local water regulations.



Caution! Risk of property damage!

The tanks are statically designed for their nominal capacity. Subsequent changes can affect the static forces and cause impermissible deformations or damage to the tank!



NOTICE!

Before filling the tank, clean it and flush it!

7.2.7 Compensators (accessories)

For stress free installation of the pressure-boosting system, connect the pipes using compensators. The compensators must be equipped with a structure-borne noise insulating extension limiter to absorb the reaction forces that occur. The compensators must be installed stress free in the pipes. No alignment errors or pipe displacement must be compensated for with compensators. When installing, the screws must be tightened uniformly, working across diagonals. The ends of the screws must not project beyond the flange. If welding work is done nearby, the compensators must be covered for protection (sparks, radiated heat). Do not paint rubber component of compensators and protect against oil. The compensators must be accessible for inspection within the system at any time and must therefore not be covered by the pipe insulation.



NOTICE!

Compensators are subject to wear. It is necessary to regularly check for cracks or blisters, exposed fabric or other defects.

7.2.8 Flexible connection pipes (accessories)

In the case of pipes with threaded connections, flexible connection pipes can be used for stress-free installation of the pressure-boosting system and in the event of slight pipe displacement. The flexible connection pipes in the Wilo range consist of a high quality stainless steel corrugated hose with stainless steel braiding. A flat-sealing stainless steel screwed connection with a female thread is provided at one end for installation on the pressure-boosting system. A male pipe thread is provided at the other end to connect to further pipework. Depending on the size, certain maximum admissible deformation limits must be met (see below). Flexible connection pipes are not suitable for absorbing axial vibrations and compensating the corresponding movements. A suitable tool must be used to prevent kinking or twisting during the installation. In the event of angular displacement of the pipes, it is necessary to fixate the system to the floor, taking into account suitable measures to reduce the structure-borne noise. The flexible connection pipes in the system must be accessible for inspection at any time and must not be covered by the pipe insulation.



NOTICE!

Flexible connection pipes are subject to wear in operation. Regular checks for leakages or other defects are necessary.

Nominal Diameter, connection	Thread screwed connection	Tapered male thread	Max. bend radius RB in mm	Max. bend angle BW in °
DN32	Rp 1¼"	R 1¼"	250	60
DN40	Rp 1½"	R 1½"	260	60
DN50	Rp 2"	R 2"	300	50
DN65	Rp 2½"	R 2½"	370	40

7.3 Electrical connection



DANGER! Risk of fatal injury!

The electrical connection must be established in compliance with the local regulations by an electrical installation engineer approved by the local energy supply company.

Pressure-boosting systems in the ISAR MODH1 series are equipped with control devices in the SC series. To make the electrical connection, the corresponding installation and operating instructions and attached electrical wiring diagrams must be observed. Points to be considered are listed in the following:

- The current type, voltage and frequency of the power supply must match the details on the rating plate of the control device.
- The electrical connection cable must be adequately dimensioned for the total power of the pressure-boosting system (see rating plate).
- External fuse protection of the connection cable for the pressure-boosting system must be provided in accordance with the applicable local regulations in compliance with the installation and operating instructions



NOTICE! –

Isolator terminal cables size Min 1.5mm²
Max 35.0mm²

•As a protective measure, the pressure-boosting system must be earthed according to regulations (i.e. according to the local regulations and circumstances) and the connections intended for this purpose identified



DANGER! Risk of fatal injury!

As an additional protective measure against dangerous contact voltages:

- The pressure boosting system is fitted with a frequency converter SCe, a universal-current-sensitive residual-current-operated protection switch with a trigger current of 300 mA must be installed.
- The protection class of the system and of the individual components can be taken from the rating plates and/or data sheets.
- Further measures/settings, etc. are described in the installation and operating instructions and also the circuit diagram of the control device.

8 Commissioning/shutdown

We recommend that the initial commissioning of the system is performed by the Wilo customer service department. Contact service.uk@wilo.com.

8.1 General preparations and control measures

- Check that all on-site wiring has been performed correctly, in particular the earthing, prior to the initial start-up.
- Check that the pipes connections are stress-free.
- Fill the system and subject it to a visual inspection for leakages.
- Open the shut-off valves at the pumps and in the suction and pressure pipes.
- Open the pump venting screws and fill the pumps slowly with water to allow the air to escape completely. Close the venting screws once the pumps have been fully vented!



Caution! Risk of property damage!

Do not allow the pump to run dry. Dry running damages the mechanical seal and leads to motor overloading.

- In suction mode (i.e. negative level difference between break tank and pumps), the pump and the suction line must be filled via the opening in the venting screw (use a funnel).
- If a diaphragm pressure vessel (optional or accessory) is installed, check that it is set to the correct supply pressure.



DANGER! Risk of fatal injury!

Excessive supply pressure (nitrogen) in the diaphragm pressure vessel can lead to damage or destruction of the vessel and thereby also to personal injury.

The safety measures for the handling of pressurised vessels and technical gases must be observed.

- Check for proper installation of the correct dry-running protection (section 7.2.4.).
- In the break tank, position the float switch and electrodes for the protection against low water level so that the pressure-boosting system is switched off at minimum water level (section 7.2.4.).
- Rotation control for pumps with a standard motor without integrated frequency converter:
Activate briefly to check whether the direction of rotation of the pump matches the arrow on the pump housing. Swap two phases if the direction of rotation is incorrect.



DANGER! Risk of fatal injuries!

Switch off the system's main switch before swapping the phases!

8.2 Protection against low water level for operation with break tank

With Wilo break tanks, the level-dependent low water monitoring is performed with a pressure switch. This is electrically connected to the control device before commissioning. Observe operating instructions and accompanying documents for the control device when making this connection and apply the necessary settings. In some cases of low volume a float switch will be used. This will be factory set but must be checked on install and adjusted if needed.

8.3 Commissioning the system

After all the preparations and checks according to section 8.1 have been made, switch on the main switch and set the control system to automatic mode. The pressure sensor measures the pressure at hand and transmits a corresponding current signal to the control device. If the pressure is less than the set start-up pressure, depending on the parameter settings and the type of control, it first switches on the base-load pump and, as required, the peak-load pump (s) until the consumer pipes are filled with water and the set pressure has built up.



WARNING! Health hazard!

If the installation has not been flushed up to now, flush it through well at this point at the latest.

(See section 7.2.3)

8.4 Decommissioning the system

If the pressure-boosting system has to be taken out of service for maintenance, repairs or other measures, proceed as follows:

- Switch off the voltage supply and secure against unauthorised reactivation.
- Close the shut-off valve upstream and downstream of the system.
- Shut off the diaphragm pressure vessel at the throughflow fitting and drain it.
- Drain the system completely if necessary.

9 Maintenance

To guarantee maximum operational reliability at the lowest possible operating costs, we recommend regular inspection and maintenance of the pressure-boosting system. It is advisable to enter into a maintenance contract with the Wilo customer service department. The following checks must be carried out on a regular basis:

- Inspection of the operational readiness of the pressure-boosting system.
- Inspection of the mechanical seals on the pumps. The mechanical seals need water for lubrication and this can leak out of the gasket slightly. If this is noticeable, replace the mechanical seal.
- Check the diaphragm pressure vessel (optional or accessory) (a 3-monthly cycle is recommended) for correct supply pressure setting and impermeability.



Caution! Risk of property damage!

If the supply pressure is incorrect, the function of the diaphragm pressure vessel is not guaranteed, which increases the diaphragm wear and can cause system faults.

10 Faults, causes and remedies

Faults, particularly those affecting the pumps or the control system, must be remedied by Wilo's customer service or a specialist company



NOTICE!

The general safety instructions must be observed during any maintenance or repair work! The installation and operating instructions of the pumps and the control device must be observed!

Fault	Cause	Remedy
Display on the control device incorrect		Make use of the information from the installation and operating instructions for the control device
Pump(s) do(es) not start	No mains voltage	Check the fuses, cables and connections
	Main switch "OFF"	Activate the main switch
	Water level in break tank too low, i.e. Low-water level reached	Check the break tank's inlet valve / supply line
	Low water level indicated	Check the inlet pressure and the level in the break tank
	Low water switch defective	Check and, if necessary, replace the low water switch
	Shut-off device closed at pressure sensor	Check installation and setting and correct as required
	Start-up pressure set too high	Check and open the shut-off valve if necessary
	Fuse defective	Check the setting and correct it if necessary
	Motor protection has triggered	Check fuses and replace if necessary
	Contactor defective	Check the default values against the pump or motor data, measure the current values and correct the setting if necessary. Check the motor for defects and replace if necessary
	Turn-to-turn fault in the motor	Check it and replace it if necessary
	Pump(s) do not switch off	Turn-to-turn fault in the motor
Major fluctuations of the inlet pressure		Check the inlet pressure and take measures to stabilise the inlet pressure if necessary (e.g. pressure reducers)
Inlet pipe clogged or shut off		Check the inlet pipe and remove the clogging or open the shut-off valve if necessary
Nominal diameter of the inlet pipe too small		Check the inlet pipe and increase the cross section of the inlet pipe if necessary
Inlet pipe installed incorrectly		Check the inlet pipe and change the pipe routing if necessary
Air in the inlet		Check and shut off the piping and vent the pumps if necessary
Impellers clogged		Check the pump and replace it or have it repaired if necessary
Non-return valve leaking		Check and replace the seal or non-return valve if necessary
Non-return valve clogged		Check and remove the clogging or replace the non-return valve if necessary
Gate valve in the system closed or not sufficiently open		Check and open the shut-off valve completely if necessary
Flow rate too high		Check the pump data and default values and correct if necessary
Shut-off device closed at pressure sensor		Check and open the shut-off valve if necessary
Switch-off pressure set too high	Check the setting and correct it if necessary	
Incorrect direction of rotation of the motors	Check direction of rotation and correct by changing over phases if necessary	

Fault	Cause	Remedy
Switching frequency too high or fluttering	Major fluctuations of the inlet pressure	Check the inlet pressure and take measures to stabilise the inlet pressure if necessary (e.g. pressure reducers)
	Inlet pipe clogged or shut off	Check the inlet pipe and remove the clogging or open the shut-off valve if necessary
	Nominal diameter of the inlet pipe too small	Check the inlet pipe and increase the cross-section of the inlet pipe if necessary
	Inlet pipe installed incorrectly	Check the inlet pipe and change the pipe routing if necessary
	Shut-off device closed at pressure sensor	Check and open the shut-off valve if necessary
	No diaphragm pressure vessel present (optional or accessory)	Retrofit a diaphragm pressure vessel
	Supply pressure at existing diaphragm pressure vessel incorrect	Check the supply pressure and correct it if necessary
	Valve on existing diaphragm pressure vessel closed	Check the valve and open it if necessary
	Existing diaphragm pressure vessel defective	Check the diaphragm pressure vessel and replace if necessary
	Switching difference set too low	Check the setting and correct it if necessary
Pump(s) not stable and/or make(s) unusual noises	Inlet pipe clogged or shut off	Check the inlet pipe and remove the clogging or open the shut-off valve if necessary
	Nominal diameter of the inlet pipe too small	Check the inlet pipe and increase the cross-section of the inlet pipe if necessary
	Inlet pipe installed incorrectly	Check the inlet pipe and change the pipe routing if necessary
	Air in the inlet	Check and shut off the piping and vent the pumps if necessary
	Air in the pump	Vent the pump, check the suction line for leakages and seal it if necessary
	Impellers clogged	Check the pump and replace it or have it repaired if necessary
	Flow rate too high	Check the pump data and default values and correct if necessary
	Incorrect direction of rotation of the motors	Check direction of rotation and correct by changing over phases if necessary
	Mains voltage: a phase is missing	Check the fuses, cables and connections
	Pump not adequately secured to base frame	Check the fixation and re-tighten the fastening screws if necessary
Motor or pump become too warm	Bearing damage	Check the pump/motor and replace it or have it repaired if necessary
	Air in the inlet	Check and shut off the piping and vent the pumps if necessary
	Gate valve in the system closed or not sufficiently open	Check and open the shut-off valve completely if necessary
	Impellers clogged	Check the pump and replace it or have it repaired if necessary
	Non-return valve clogged	Check and remove the clogging or replace the non-return valve if necessary
	Shut-off device closed at pressure sensor	Check and open the shut-off valve if necessary
	Deactivation point set too high	Check the setting and correct it if necessary
	Bearing damage	Check the pump/motor and replace it or have it repaired if necessary
	Turn-to-turn fault in the motor	Check, if necessary replace motor or have it repaired
	Mains voltage: a phase is missing	Check the fuses, cables and connections

Fault	Cause	Remedy
Current consumption too high	Non-return valve leaking	Check and replace the seal or non-return valve if necessary
	Flow rate too high	Check the pump data and default values and correct if necessary
	Turn-to-turn fault in the motor	Check, if necessary replace motor or have it repaired
	Mains voltage: a phase is missing	Check the fuses, cables and connections
Motor protection switch triggers	Non-return valve defective	Check and replace the non-return valve if necessary
	Flow rate too high	Check the pump data and default values and correct if necessary
	Contactors defective	Check it and replace it if necessary
	Turn-to-turn fault in the motor	Check, if necessary replace motor or have it repaired
	Mains voltage: a phase is missing	Check the fuses, cables and connections
Pump(s) produce(s) no or too little power	Major fluctuations of the inlet pressure	Check the inlet pressure and take measures to stabilise the inlet pressure if necessary (e.g. pressure reducers)
	Inlet pipe clogged or shut off	Check the inlet pipe and remove the clogging or open the shut-off valve if necessary
	Nominal diameter of the inlet pipe too small	Check the inlet pipe and increase the cross-section of the inlet pipe if necessary
	Inlet pipe installed incorrectly	Check the inlet pipe and change the pipe routing if necessary
	Air in the inlet	Check and shut off the piping and vent the pumps if necessary
	Impellers clogged	Check the pump and replace it or have it repaired if necessary
	Non-return valve leaking	Check and replace the seal or non-return valve if necessary
Pump(s) produce(s) no or too little power	Non-return valve clogged	Check and remove the clogging or replace the non-return valve if necessary
	Gate valve in the system closed or not sufficiently open	Check and open the shut-off valve completely if necessary
	Low-water level switch has been triggered	Check the inlet pressure and the level in the break tank
	Incorrect direction of rotation of the motors	Check direction of rotation and correct by changing over phases if necessary
	Turn-to-turn fault in the motor	Check, if necessary replace motor or have it repaired
Dry-running protection switches off although water is present	Major fluctuations of the inlet pressure	Check the inlet pressure and take measures to stabilise the inlet pressure if necessary (e.g. pressure reducers)
	Nominal diameter of the inlet pipe too small	Check the inlet pipe and increase the cross-section of the inlet pipe if necessary
	Inlet pipe installed incorrectly	Check the inlet pipe and change the pipe routing if necessary
	Electrodes connected incorrectly or supply pressure switch set incorrectly	Check the pump data and default values and correct if necessary
	Low water switch defective	Check and, if necessary, replace the low water switch
Dry-running protection does not switch off, although water low	Electrodes connected incorrectly or pressure for low water cut-out switch set incorrectly	Check installation and setting and correct as required
	Low water switch defective	Check and, if necessary, replace the low water switch

You can find information on pump or control device faults not dealt with here in the attached documentation for the components concerned. **If the operating fault cannot be resolved, contact a Wilo customer service department.**

11 Spare parts

Spare parts or repairs may be ordered through Wilo customer service: spareparts.uk@wilo.com
To avoid queries and order errors, please supply all data on the rating plate with every order.

12 Disposal

12.1 Oils and lubricants

Operating fluid must be collected in suitable tanks and disposed of in accordance with the locally applicable guidelines.

12.2 Protective clothing

Used protective clothing must be disposed of in accordance with the locally applicable guidelines.

12.3 Information on the collection of used electrical and electronic products

Proper disposal and appropriate recycling of this product prevents damage to the environment and putting your personal health at risk.



All parts must be disposed of in accordance to the Waste Electrical and Electronic Equipment Directive (WEEE). Please call 0333 3001433 to arrange collection and disposal. All costs are covered by Wilo UK

NOTICE

Disposal in domestic waste is forbidden!

In the European Union and UK, this symbol can appear on the product, the packaging or the accompanying documentation. It means that the electrical and electronic products in question must not be disposed of along with domestic waste.

To ensure proper handling, recycling and disposal of the used products in question, please note the following points:

- Only hand over these products at designated, certified collecting points.
- Observe the locally applicable regulations! Please consult your local municipality, the nearest waste disposal site, or the dealer who sold the product to you for information on proper disposal. Further recycling information can be found at www.wilo-recycling.com.

12.4 Batteries/rechargeable batteries

Batteries and rechargeable batteries must not be disposed of with domestic waste and they must be removed before product disposal. End consumers are legally obliged to return all used batteries and rechargeable batteries. For this purpose, you can return used batteries and rechargeable batteries free of charge at municipal collection points or specialist dealers.



NOTICE

Disposal in domestic waste is forbidden! Batteries and rechargeable batteries affected are marked with this symbol. The identifier for the heavy metal they contain is displayed below the graphic:

- **Hg** (mercury)
- **Pb** (lead)
- **Cd** (cadmium)

Subject to technical modifications without prior notice.

Fig. 1:

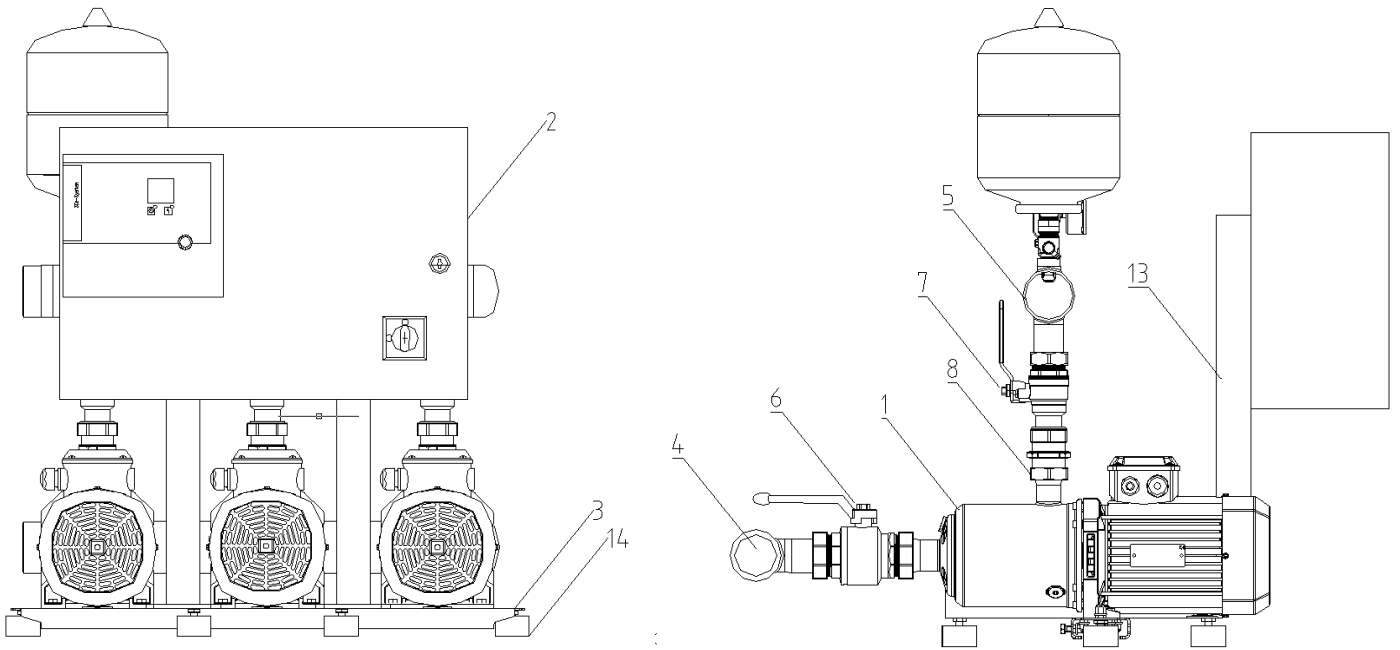


Fig. 1b:

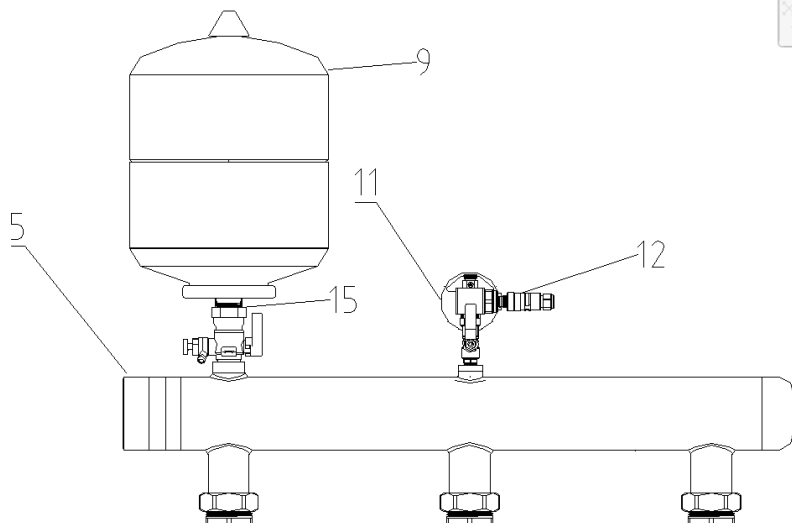


Fig. 1c:

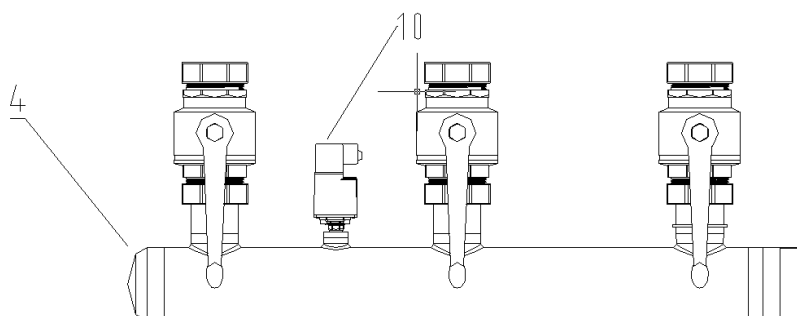
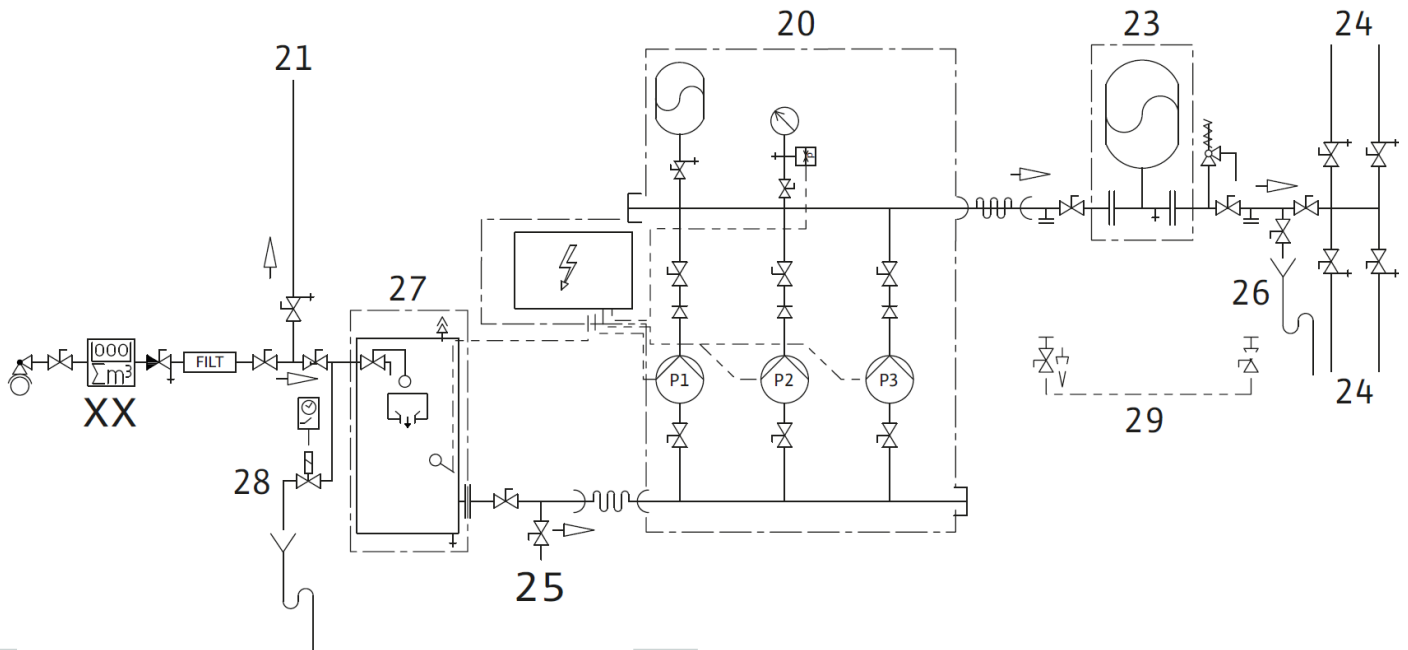


Fig. 2:



20	Pressure-boosting system	26	Drainage connection for system flushing (nominal diameter = pump connection)
21	Consumer connections upstream of the pressure-boosting system	27	Unpressurised break tank on the inlet side
22	N/A	28	Flushing apparatus for inlet connection of the break tank
23	Diaphragm pressure vessel on the discharge side	29	Bypass for inspection/maintenance (not permanently installed)
24	Consumer connections downstream of the pressure-boosting system	XX	Building connection to the water supply mains
25	Infeed connection for system flushing (nominal diameter = pump connection)		

Fig. 3:

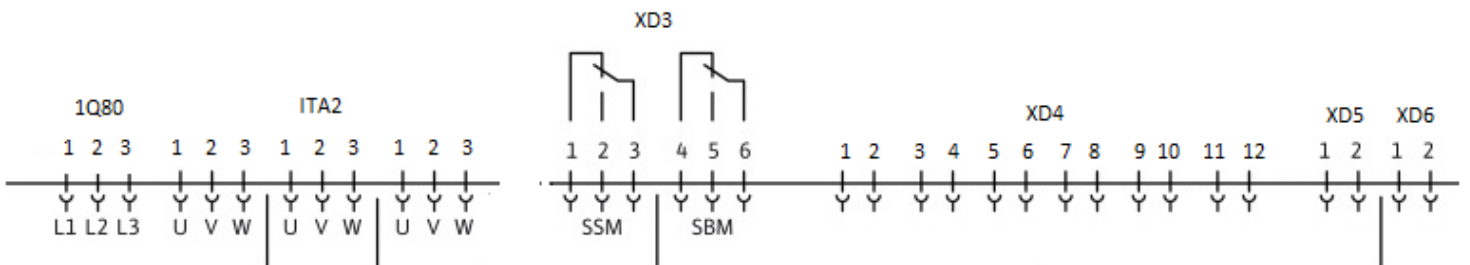
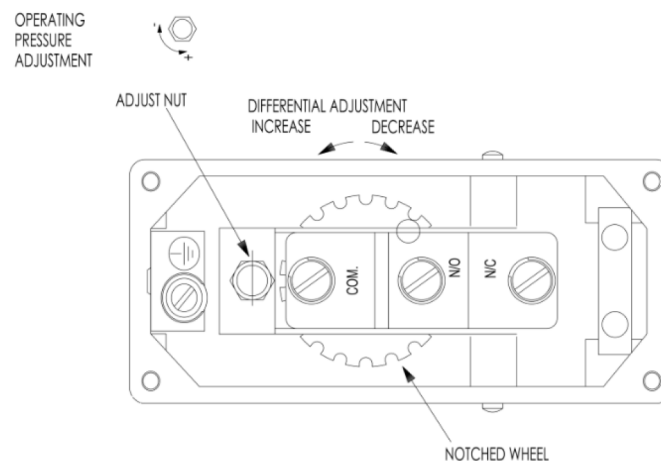


Fig. 4:



Description	Wilo Art No.	ISAR MODH1-2CH1-L-202/SCe	ISAR MODH1-2CH1-L-203/SCe	ISAR MODH1-2CH1-L-204/SCe	ISAR MODH1-2CH1-L-205/SCe	ISAR MODH1-2CH1-L-206/SCe	ISAR MODH1-2CH1-L-207/SCe	ISAR MODH1-2CH1-L-402/SCe	ISAR MODH1-2CH1-L-403/SCe	ISAR MODH1-2CH1-L-404/SCe	ISAR MODH1-2CH1-L-405/SCe	ISAR MODH1-2CH1-L-406/SCe	ISAR MODH1-2CH1-L-407/SCe	ISAR MODH1-2CH1-L-602/SCe	ISAR MODH1-2CH1-L-603/SCe	ISAR MODH1-2CH1-L-604/SCe	ISAR MODH1-3CH1-L-605/SCe	ISAR MODH1-3CH1-L-606/SCe	ISAR MODH1-3CH1-L-407/SCe	ISAR MODH1-3CH1-L-602/SCe	ISAR MODH1-3CH1-L-603/SCe	ISAR MODH1-3CH1-L-604/SCe	ISAR MODH1-3CH1-L-605/SCe	ISAR MODH1-3CH1-L-1002/SCe	ISAR MODH1-3CH1-L-1003/SCe	ISAR MODH1-3CH1-L-1004/SCe	ISAR MODH1-3CH1-L-1005/SCe	
Pumps																												
MEDANA CH1-L-202-1/E/E/10N/EP	4231501	•																										
MEDANA CH1-L-203-1/E/E/10N/EP	4231503		•																									
MEDANA CH1-L-204-1/E/E/10N/EP	4231505			•																								
MEDANA CH1-L-205-1/E/E/10N/EP	4231507				•																							
MEDANA CH1-L-206-1/E/E/10N/EP	4231509					•																						
MEDANA CH1-L-207-1/E/E/10N/EP	4231511						•																					
MEDANA CH1-L-402-1/E/E/10N/EP	4231513							•																				
MEDANA CH1-L-403-1/E/E/10N/EP	4231515								•																			
MEDANA CH1-L-404-1/E/E/10N/EP	4231517									•																		
MEDANA CH1-L-405-1/E/E/10N/EP	4231519										•																	
MEDANA CH1-L-406-1/E/E/10N/EP	4231521											•																
MEDANA CH1-L-407-1/E/E/10N/EP	4231523												•															
MEDANA CH1-L-602-1/E/E/10N/EP	4231525													•														
MEDANA CH1-L-603-1/E/E/10N/EP	4231527														•													
MEDANA CH1-L-604-1/E/E/10N/EP	4231529															•												
MEDANA CH1-L-605-1/E/E/10N/EP	4231531																•											
MEDANA CH1-L-1002-1/E/E/10N/EP	4231533																	•										
MEDANA CH1-L-1003-1/E/E/10N/EP	4231535																		•									
MEDANA CH1-L-1004-1/E/E/10N/EP	4231536																			•								
MEDANA CH1-L-1005-1/E/E/10N/EP	4231537																				•							
Non Return Valves																												
DUAL NIPPLE NON-RETURN DN32 G11/4"MS40LG	2513934																											
HOUSING NV DN40 DOUBLE NIPPLE G11/2	2542672																											
NON-RETURN-DEVICE DN32 (MTR)TYP RV-IN	2012229																											
NON-RETURN-DEVICE DN40 (MTR)TYP RV-IN	2012230																											
Electrical Controls																												
2 x 2.4A Control Panel	2551431																											
3 x 2.4A Control Panel	2551432																											
2 x 4.0A Control Panel	2551433																											
3 x 4.0A Control Panel	2551434																											
2 x 6.8A Control Panel	2552568																											
3 x 6.8A Control Panel	2552569																											
PRESSURE GAUGE	2818177																											
PRESSURE TRANSDUCER	2085909																											



DECLARATION OF CONFORMITY

We, the manufacturer, declare under our sole responsibility that these booster set types of the series,

Isar MODH1-1CH1-L-**/SCe-EM**
Isar MODH1-2CH1-L-**/SCe-EM**
Isar MODH1-3CH1-L-**/SCe-EM**
Isar MODH1-2CH1-L-**/SCe-EM-T260**

(The serial number is marked on the product site plate)

in their delivered state comply with the following relevant directives and with the relevant national legislation:


- _ **Supply of Machinery (Safety) Regulations (SI 2008 No. 1597) amended**
- _ **Pressure Equipment (Safety) Regulations (SI 2016 No. 1105)**
- _ **Electromagnetic Compatibility (EMC) Regulations (SI 2016 No. 1091) amended**
- _ **Restriction of the Use of Certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment Regulations (SI 2012 No. 3032) amended**

comply also with the following relevant standards:

BS EN 809:1998+A1:2009; BS EN 60204-1:2018; BS EN IEC 61000-6-1:2019; BS EN 61000-6-3:2007+A1:2011; BS EN IEC 63000:2018;

Person authorized to compile the technical file is:

Dortmund,


Digital unterschrieben
von Holger Herchenhein
Datum: 2021.06.02
07:42:10 +02'00'

H. HERCHENHEIN
Senior Vice President - Group Quality & Qualification

WILO SE
Group Quality
Wilopark 1
D-44263 Dortmund

wilo

Wilopark 1
D-44263 Dortmund



**DECLARATION OF CONFORMITY
KONFORMITÄTSERKLÄRUNG
DECLARATION DE CONFORMITE**

We, the manufacturer, declare under our sole responsibility that these booster set types of the series,
Als Hersteller erklären wir unter unserer alleinigen Verantwortung, daß die Druckerhöhungsanlagen der Baureihen,
Nous, fabricant, déclarons sous notre seule responsabilité que les types de surpresseurs des séries,

Isar MODH1-1CH1-L-**/SCe-EM**
Isar MODH1-2CH1-L-**/SCe-EM**
Isar MODH1-3CH1-L-**/SCe-EM**
Isar MODH1-2CH1-L-**/SCe-EM-T260**

(The serial number is marked on the product site plate.
Die Seriennummer ist auf dem Typenschild des Produktes angegeben.
Le numéro de série est inscrit sur la plaque signalétique du produit)

in their delivered state comply with the following relevant directives and with the relevant national legislation:
in der gelieferten Ausführung folgenden einschlägigen Bestimmungen entsprechen 'und entsprechender nationaler Gesetzgebung:
dans leur état de livraison sont conformes aux dispositions des directives suivantes et aux législations nationales les transposant :

- _ MACHINERY 2006/42/EC / MASCHINENRICHTLINIE 2006/42/EG / MACHINES 2006/42/CE**
(and according to the annex 1, §1.5.1, comply with the safety objectives of the Low Voltage Directive 2014/35/EU / und gemäss Anhang 1, §1.5.1, werden die Schutzziele der Niederspannungsrichtlinie 2014/35/EU eingehalten / et, suivant l'annexe 1, §1.5.1, respectent les objectifs de sécurité de la Directive Basse Tension 2014/35/UE)
- _ PRESSURE EQUIPMENT 2014/68/EU / DRUCKGERÄTERICHTLINIE 2014/68/EU / EQUIPEMENT SOUS PRESSION 2014/68/UE**
- _ ELECTROMAGNETIC COMPATIBILITY 2014/30/EU / ELEKTROMAGNETISCHE VERTRÄGLICHKEIT - RICHTLINIE 2014/30/EU / COMPATIBILITE ELECTROMAGNETIQUE 2014/30/UE**
- _ RESTRICTION OF THE USE OF CERTAIN HAZARDOUS SUBSTANCES 2011/65/EU + 2015/863 / BESCHRÄNKUNG DER VERWENDUNG BESTIMMTER GEFÄHRLICHER STOFFE-RICHTLINIE 2011/65/EU + 2015/863 / LIMITATION DE L'UTILISATION DE CERTAINES SUBSTANCES DANGEREUSES 2011/65/UE + 2015/863**

comply also with the following relevant harmonised European standards:
sowie auch den Bestimmungen zu folgenden harmonisierten europäischen Normen:
sont également conformes aux dispositions des normes européennes harmonisées suivantes :

EN 809:1998+A1:2009; EN 60204-1:2018; EN 13831:2007*; EN IEC 61000-6-1:2019; EN 61000-6-3:2007+A1:2011; EN IEC 63000:2018;

*	only valid on the closed expansion vessel integrated with the product. gültig nur auf dem mit dem Produkt integrierten geschlossenen Ausdehnungsgefäß. valable uniquement pour le vase d'expansion fermé intégré au produit.
---	---

Person authorized to compile the technical file is:
Bevollmächtigter für die Zusammenstellung der technischen Unterlagen ist:
Personne autorisée à constituer le dossier technique est :

WILO SE
Group Quality
Wilopark 1
D-44263 Dortmund

Dortmund,

Digital unterschrieben
von Holger Herchenhein
Datum: 2021.06.02
07:42:47 +02'00'



H. HERCHENHEIN
Senior Vice President - Group Quality & Qualification

Wilopark 1
D-44263 Dortmund

wilo

WILO UK
Centrum 100, Second Avenue,
Burton Upon Trent
Staffordshire
DE14 2WJ
T +44 1283 523 000
F +44 1283 523 099
sales.uk@wilo.com
www.wilo.com/gb/en

Pioneering for You