

Professional Main Station MM Series



Content EN

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1. Declaration of Conformity



MM, MP, MA

(EN) Declaration of Conformity

We Nilfisk-ALTO, declare under our sole responsibility that the products MM, MP, MA, to which this declaration relates, are in conformity with these Council directives on the approximation of the laws of the EC member states:

Function: Hygiene and pumping Station

Model/Type: MM311+, MM321+, MM322+, MM32+, MM333+,
MP421+, MP422+, MP432+, MP433+,
MP121DP+, MP122DP+, MP132DP+, MP133DP+,
MA421+, MA422+, MA432+, MA433+.

Serial number: All

Machinery Directive (2006/42/EC:2006-05-17).

Standard used: EN 60335-2-79:2009

EMC Directive (2004/108/EC:2004-12-15).

Standard used: EN 55014-1/A1:2009 and EN 55014-2/A2:2008

Standard used: EN 61000-3-2/A2:2009 and EN 61000-3-3:2008

Technical file responsible:

Flemming Asp
Nilfisk-ALTO Food Division
Blytaekervej 2
9000 Aalborg, Denmark

Signature:

A handwritten signature in blue ink, appearing to read "Flemming Asp".

Flemming Asp
R & D Manager
Aalborg d. 01-02-2013

2.1. General information EN

For safety reasons it is important to read all of the enclosed information (Installation guide, Service manual, Spare parts, Operating instructions) before mounting this equipment.. In addition, the legislation in force at the time of purchase must always be considered in connection with the installation and mounting of this equipment, no matter the contents of this manual. If there are matters of dispute please contact your dealer. This equipment is produced and tested by specially qualified personnel, following approved instructions to ensure our high level of product quality. After the product is finished and tested it is manually inspected with the ultimate test carried out just before the product is released for shipping. To obtain our high level of quality and long life we use stainless steel parts. These parts, in defiance of our manual inspections may still have some sharp edges, which can present a cut hazard. Therefore it is advised always to use protective gloves and show caution when installing the equipment.

2.2. Preparation

If the wall is made of bricks or concrete, the enclosed screws and rawl plugs are usable, otherwise you have to make sure that the carrying capacity of the wall is sufficient.

Note: The pipeline must be rinsed through before the system is connected. See service manual.

Note: Remove cover before the system is mounted on the wall.

Note: The weight of the unit are listed in the Service manual under the section "Specifikationer"

2.3. Placing/application

- Do not use the machine outdoors.
- Main station must be placed in frost free rooms only.
- Free space around the main station: min 1500 mm.

2.4. Water supply

| | MM1 | MM3 |
|------------------|-------------------------------|-------------------------------|
| Water volume | 100 l/min. | 100 l/min. |
| Pressure | 0,2 - 0,8 MPa (2 - 8 bars) | 0,2 - 0,8 MPa (2 - 8 bars) |
| Max. temperature | 70°C | 70°C |

The supply line must be sized so that it can supply the minimum indicated pressure and water volume when connected to this equipment. When dimensioning the water supply, it is recommended to increase the available volume with 15-20 % compared to the minimum requirements listed in the table.

Note: It is recommended to mount a mixing system on the water connection immediately before the outlet which is used.

Recomended water hardness 14 - 18 dH°. The equipment will operate with water hardness exciding this level however, descaling of pump system, injectors and like must be expected depending on use pattern and water quality. Furthermore, wear of the mechanical parts will increase as well. If hot supplied, filter should be mounted.

2.5. Air supply

Air supply for the system is to meet the following specifications:

- Pressure 6 – 10 bar
- Consumption 200 Nl/min.

2.6. Power supply

Connection instruction is mounted on the cables.
The phase order is subordinated.

Earth Leakage Circuit Breaker (ELCB).

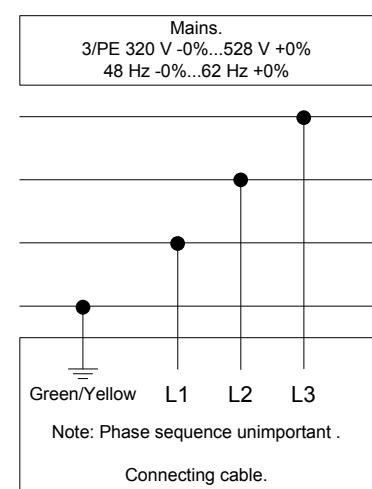
When using an earth leakage circuit breaker (ELCB) also known as a residual current device (RCD) or a residual current circuit breaker (RCCB) in a system that incorporates a variable speed drive connected to 3 phase 400 V.

The trip level of the ELCB has to be 300 mA (30 mA used in house hold will malfunction due to earth leakage)

Service Switch:

The unit must always be connected to the main supply through a separate service switch.

NB! Installation must always be in accordance with local legislation.



| | MM1 | MM3 |
|------------------|-----------------------------|-----------------------------|
| Voltage: | 3/PE 400 Vac ±10% | 3/PE 400 Vac ±10% |
| Frequenz: | 50/60 Hz 48 -0%...62 +0% | 50/60 Hz 48 -0%...62 +0% |
| Motor load | 4 kW | 4 kW |
| Nominal current: | 10.6 A | 10.6 A |
| Fuse: | 16 A | 16 A |
| L1, L2, L3, PE | 2.5 mm ² | 2.5 mm ² |

2.7. Piping

The pipe system should be made of stainless steel pipes. The pipe joints should be made in a way that makes separation possible in case of e.g. repairs, movement or similar.

| Pipe connections | MM1 | MM3 |
|------------------|---------|---------|
| Water | 5/4" RG | 5/4" RG |
| Air | 6 mm | 6 mm |

Note: A 5/4" closing valve should be mounted on the water supply immediately before the main station and dirt filter if any.

2.8. Assembly

Dimensions see fig. 1

It is recommended to mount the main station at an appropriate height (approx. 1 m above the floor) on a brick or concrete wall, according to mounting instructions in fig. 2.

Mount the wall bracket.

For brick or concrete wall please use the screws and rawlplugs enclosed.

Now hang the main station on the wall bracket.

Secure the main station to the wall bracket using the enclosed screws.

Type MM111 - MM122 MM311 - MM333

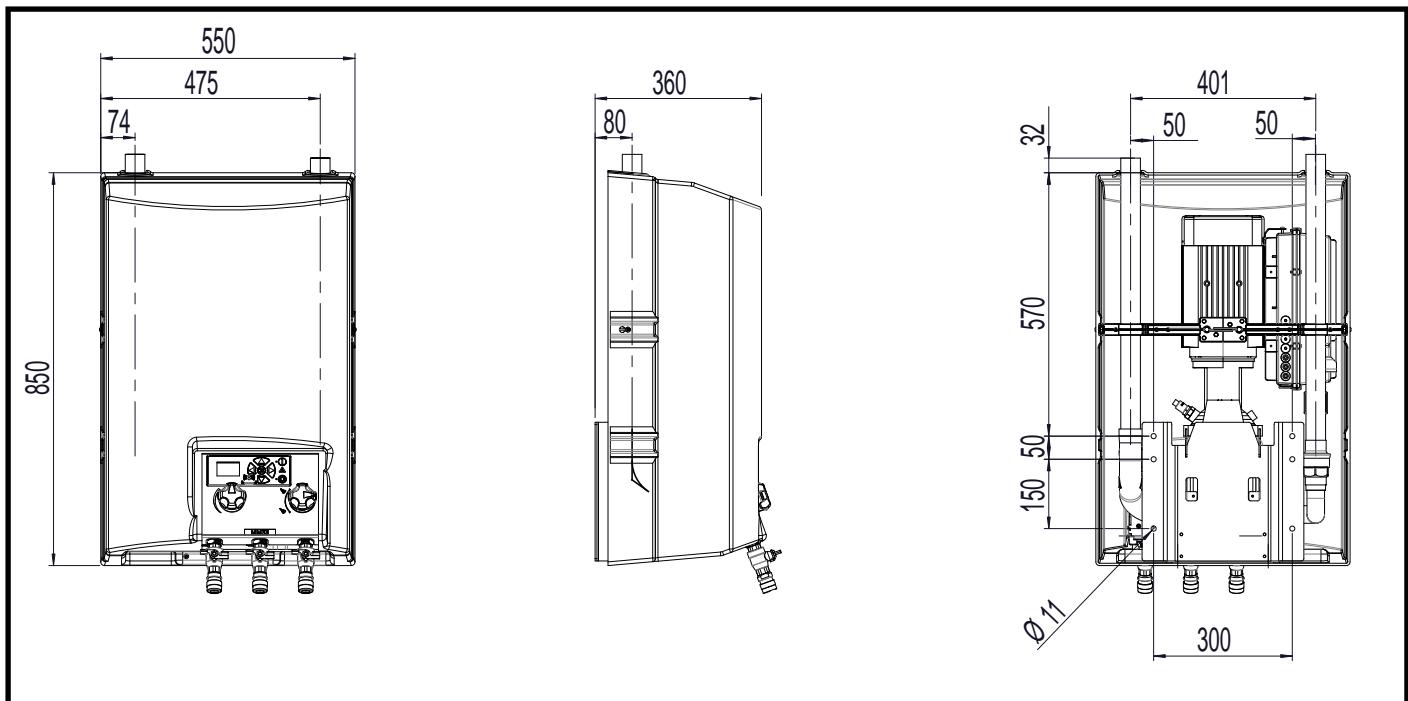


Fig. 1

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Fig. 2

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Fig. 3

110001427

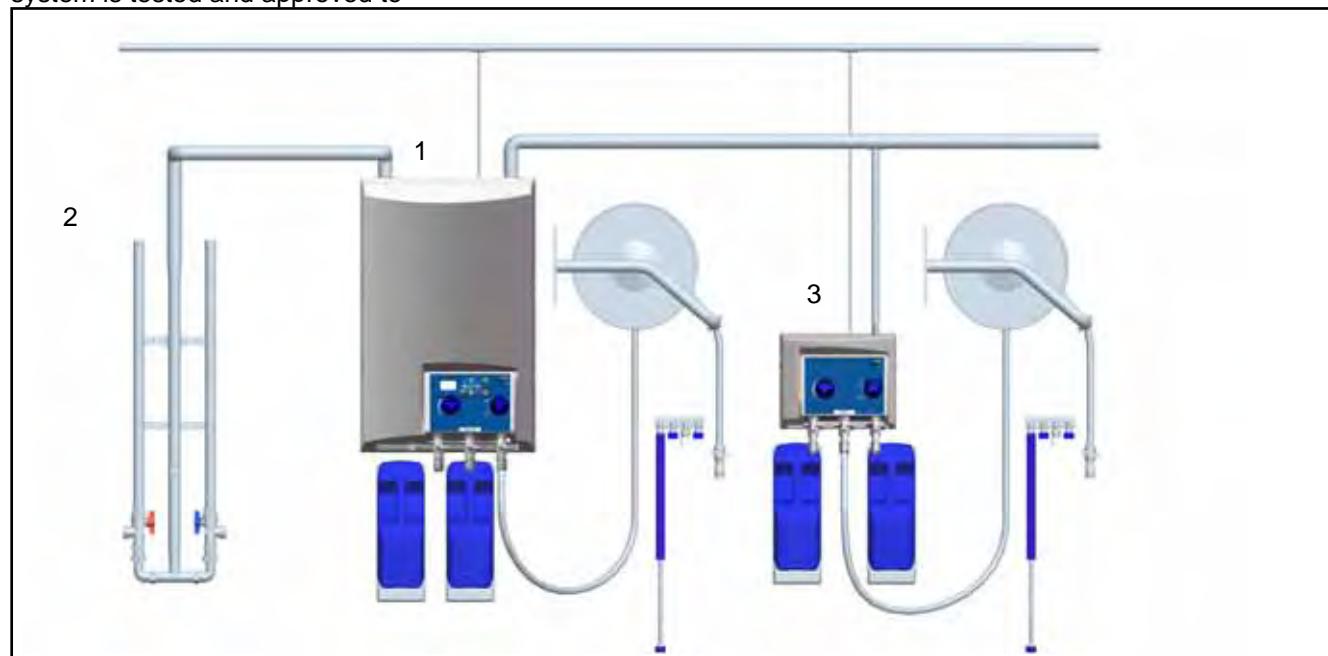
3.1 Description

The main station in the Professional range is a completely functioning hygiene and pumping station that supplies pressurized water to both its integrated hygiene point and to connected satellite hygiene stations(Fig.1). Therefore the main station must be supplied with: water in sufficient quantity, power, compressed air, detergent(s) and disinfectant. The station is then ready for hygiene duties. The system is tested and approved to

operate using the Chemical products. Using other types or brands, might influence the lifetime on seals, hoses etc. Further, the functionality and cleaning result might be affected as well, if the recommendations are not followed.

The change between rinse and foam on the first injector is manual. To change to another injector/product the hose must be moved between the outlets. The main station is fitted with a frequency controlled pump which ensures a constant working pressure independent of usage pattern.

Important: Do not use the water from the system for applications other than cleaning.



Using Hygiene Chemicals:

The Professional main station has been prepared to use the most common applied of foam detergents and disinfectants.

Warning

Do not change the settings made or recommended by the supplier of hygiene chemicals.

A typical installation of the Professional series is shown in fig. 1

- Main station (1)
- Mixing system (2)
- Satellite (3)

Detergents are supplied either from the User Pack System, which can be ordered and delivered as an accessory (Fig.2) or from separate standard cans (Fig.3). Hygiene chemicals can also be supplied directly through piping systems.



Fig. 2

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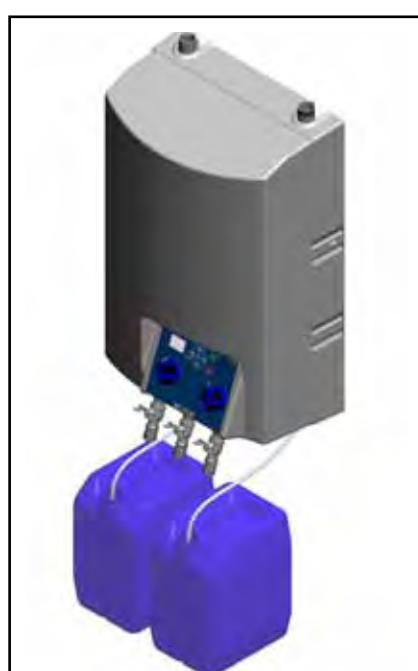


Fig. 3

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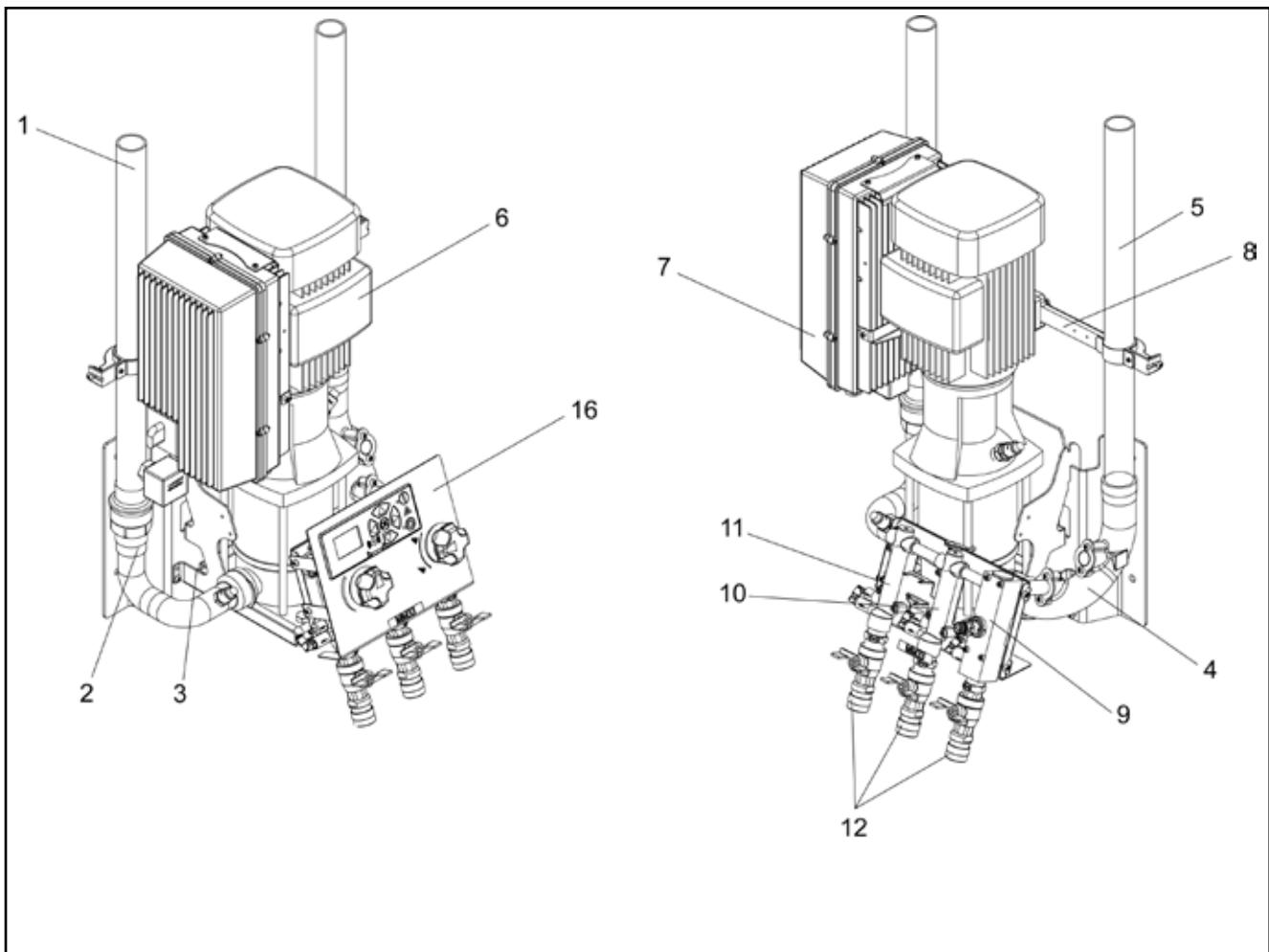


Fig. 4

110001419

3.1.1 Main Stations

MM1-MM31-MM32-MM33(Fig. 4).

1. Water inlet
 2. Manifold input
 3. Trigger sensor, Flow sensor
 4. Manifold outlet
 5. Outlet pipe
 6. Pump
 7. Converter box
 8. Pipe holder, fittings
 9. Injector, chemistry 1
 10. Injector, chemistry 2
 11. Injector, chemistry 3
 12. Quick coupling with check tap
 13. Display
 14. Change-over switch foam/rinse
 15. Air regulator
 16. Operation panel
- **O** Pushbutton. Stop
 - **I** Pushbutton. Start
 - **Δ** Lamp. Alight by error

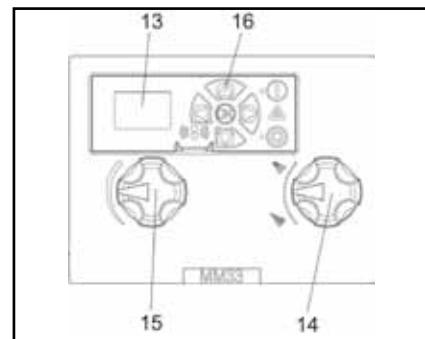


Fig. 5

110001415

3.1.2 Operating diagrams according to ISO14617

Main stations MM

- B. Ball valve.
- F. Filter.
- FST. Flowsensor and -trigger.
- C. Check valve.
- PE. Pressure sensor.
- TE. Temperature sensor.
- CP. Centrifugal pump.
- EJ. Ejector.
- HV. Hydraulic valve.
- HC. Hose connection.
- PR. Pressure regulator.
- COV. Change over valve.
- OF. Orifice.
- A. Air supply.
- D. Outlet.
- E. Inlet, detergent.
- W. Water inlet.
- JPx : Control board connection.

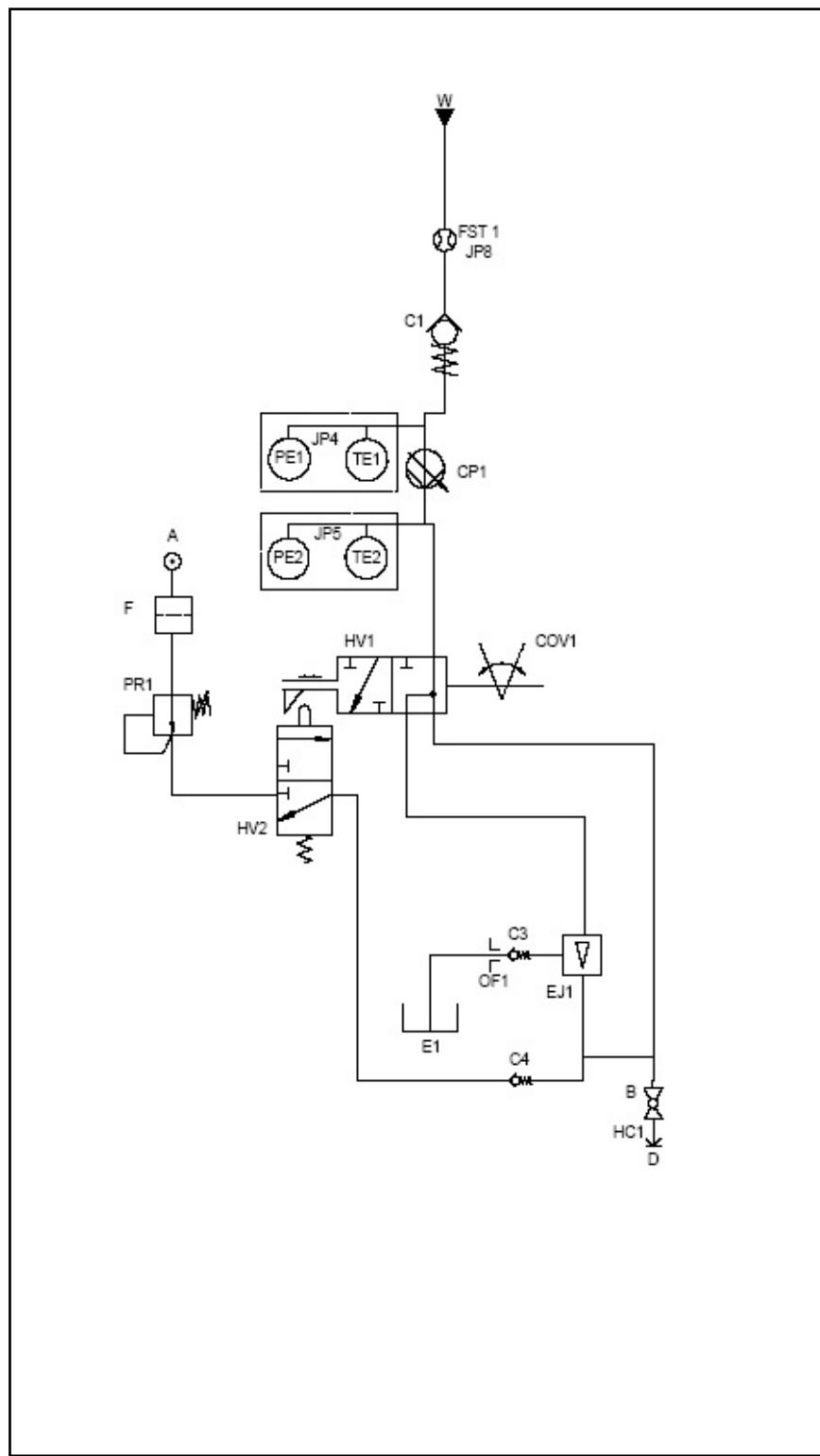


Fig. 6

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3.2. Maintenance

Besides the procedures described in item 4.3 the main station is maintenance-free. However, we recommend cleaning the main station occasionally, in connection with the cleaning of other equipment in the area. The filter must be cleaned at suitable intervals (approx. every 1 - 3 months) depending of the quantity of impurities in the water.

3.2.1 Filter (Fig. 7)

1. Press "0" on the control panel to stop the main station.
2. Interrupt the master switch. (Fig.8)
3. Close the water inlet.
4. Open a tap to release the system pressure.
5. Remove the filter (A) and place it in a descaling solution until the scale is dissolved.
6. Rinse the cleaned filter thoroughly and remount.

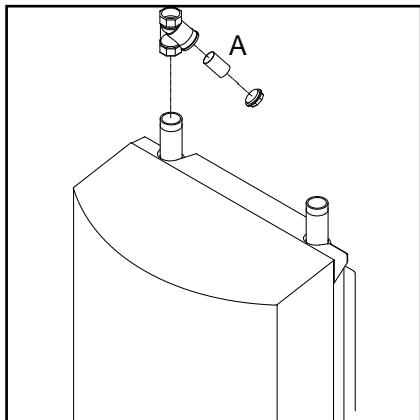


Fig. 7

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3.2.2 Long stops

If long production stops are planned (more than 6 months) and the pump is emptied of water, it is recommended that the pump be secured as follows:

1. Remove the coupling safety guard.
2. Spray a couple of drops of silicone oil onto the axle between the top section and the coupling.

Carefully follow the instructions given in the manual provided by the pump supplier. Never store or install the equipment where the

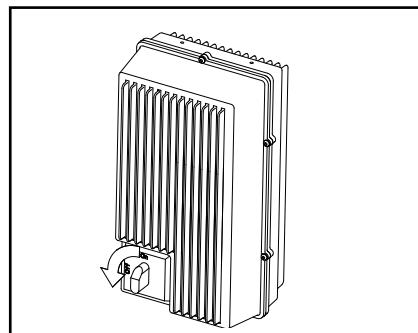


Fig. 8

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ambient temperature gets at or below the freezing point.

3.3. Start

Note: The pump should be bled and filled with water before start.

3.3.1 New system

In order to ensure a problem-free start up of a new system the pipe system must be flushed and bled.

Bleeding the pipe system

1. Turn on the water supply to rinse and bleed the entire system. If satellites are installed open the tap furthest away until no air or dirt comes out. Then rinse and bleed the next tap and continue until the tap closest to you has been rinsed and bled.
2. Mount satellites, if any

Bleeding the pump

3. Loosen the relief plug (A, Fig. 9) 1-2 revolutions until water and air begin to flow out.

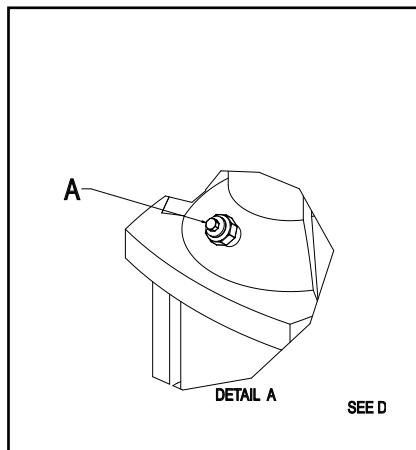


Fig. 9

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Note: Never loosen the relief plug while the pump is running as this may damage the packing.

4. Tighten the relief plug again
5. Start the pump so that all remaining air pockets are forced up to the top of the pump.
6. Stop the pump
7. Loosen the relief plug 1-2 revolutions again and bleed the system until only water flows out.
8. Tighten the relief plug once more

The main station is now ready for operation. Press "I" on the control panel. (see fig. 11)

3.4. Daily operation

3.4.1 Start

Mainstation

1. Check that water- and air supplies for the system are open. (see A, Fig.10,air)

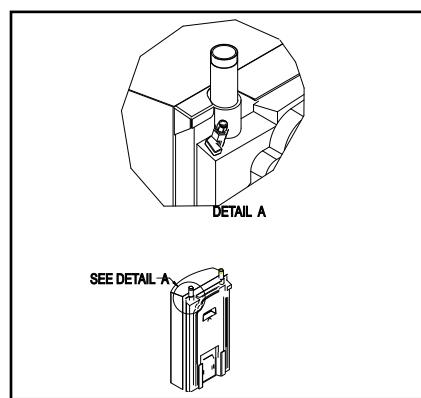


Fig. 10

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2. Press "I" on the control panel to start.

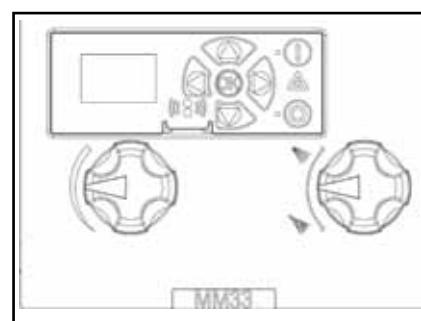


Fig. 11

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3.4.2 Stop Mainstation

1. Press "0" on the control panel to stop.
2. Turn off the water supply.
3. Close the air supply(A, Fig 10)

Note: It is important to shut off the water and air when the machine is left after use because:

- If the air supply is open when the main station and satellites are not in use, air may seep into the water pipe. If this is the case the system may have to be bled again.
- The water separator, which is a part of the air regulator (if mounted), is only to be emptied when the air is shut off.

It may be necessary to bleed the pipes and the main station again after it has been closed for a longer period of time (holidays, and the like)

3.4.3 Rinsing the chemistry supply

IMPORTANT: The chemistry supply must always be rinsed thoroughly after use.

Remains of detergent or disinfectants can clog the chemistry supply so it needs to be rinsed or replaced. The following procedure will clean detergent and/or remains of disinfectants.

1. Remove User Pack, if any
2. Hold the rinsing bottle with clean water tightly against the suction opening (with User Pack) or against the hose (without User Pack). Alternatively, you can place a User Pack with clean water in the holder or – without User Pack – place the hose in a bucket of clean water.
3. Activate the hose handle until clean water comes out of the nozzle (approx. 30 seconds)

Note: This procedure should be followed for both the detergent and disinfectant side if this is installed.

3.5. Service

Service may only be carried out by authorized and qualified personnel.

Warning: The system must only be serviced when there is no voltage or pressure on the system.

1. Turn off the main switch at the control box
2. Open a water outlet to depressurise the system .

3.5.1 Components

3.5.1.1 Pumps/motor

Pumps/motor are maintenance free, see section 2.2

3.5.1.2 Control system

Maintenance free

If defective: Call a service technician

3.5.1.3 Flow trigger

Maintenance-free.

If defective, replace the flow switch.

Installation instructions, see Appendix 110001767.

3.5.1.3.1 Adjustments of flow switch

1. Press "0" on the control panel to stop the system.
2. Remove the cover.
3. Turn the "rinse/foam" handle to foam position.
4. Activate the spray handle on the outlet hose so water runs out.
5. Check that the flow switch is turned the correct way (the wire must follow the follow direction).
6. Turn the brass screw at the bottom of the hole until a green diode lights up.
7. Close the spray handle again and check that the red diode lights up.
8. Mount the cover.

3.5.1.4 Non-return valve/inlet side

Maintenance-free.

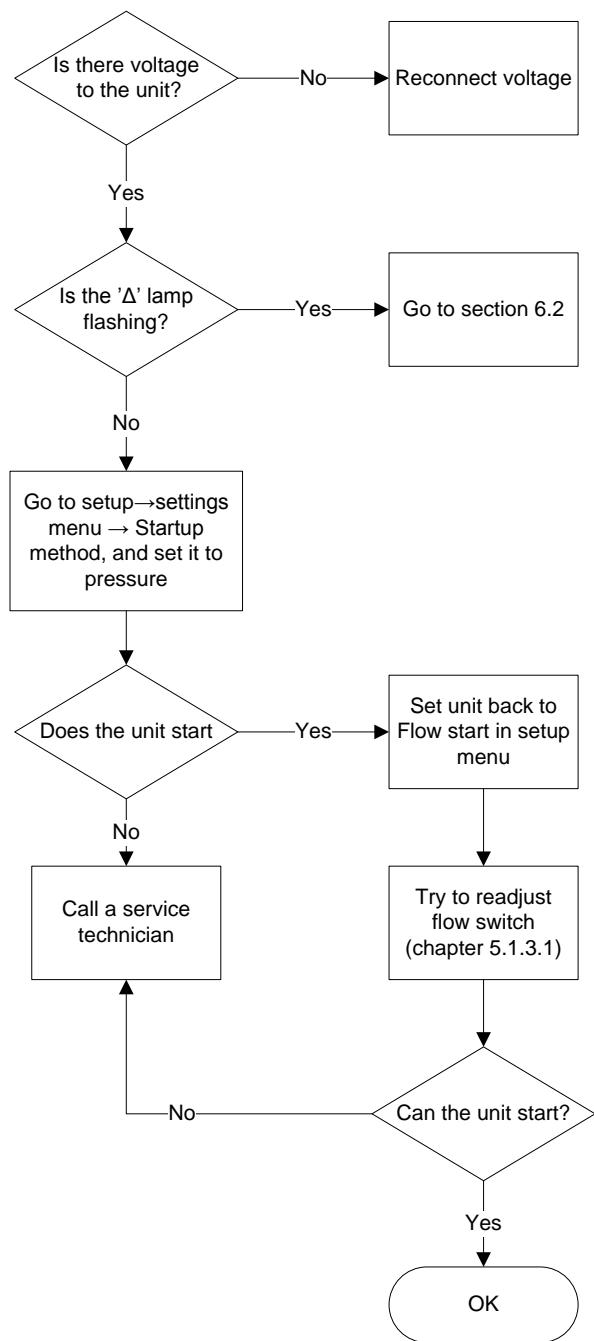
Exchange the non return valve if defect.

3.5.2 Recycling and scrapping

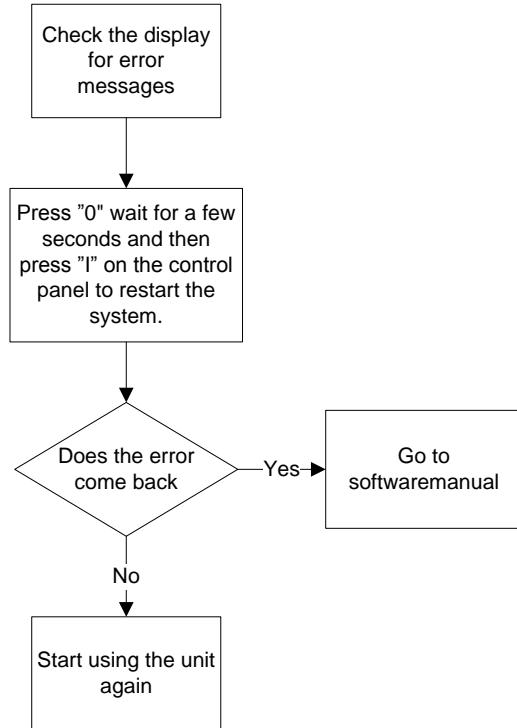
Recycle the wrapping and scrap the machine according to recommendations from the local authorities.

3.6. Troubleshooting

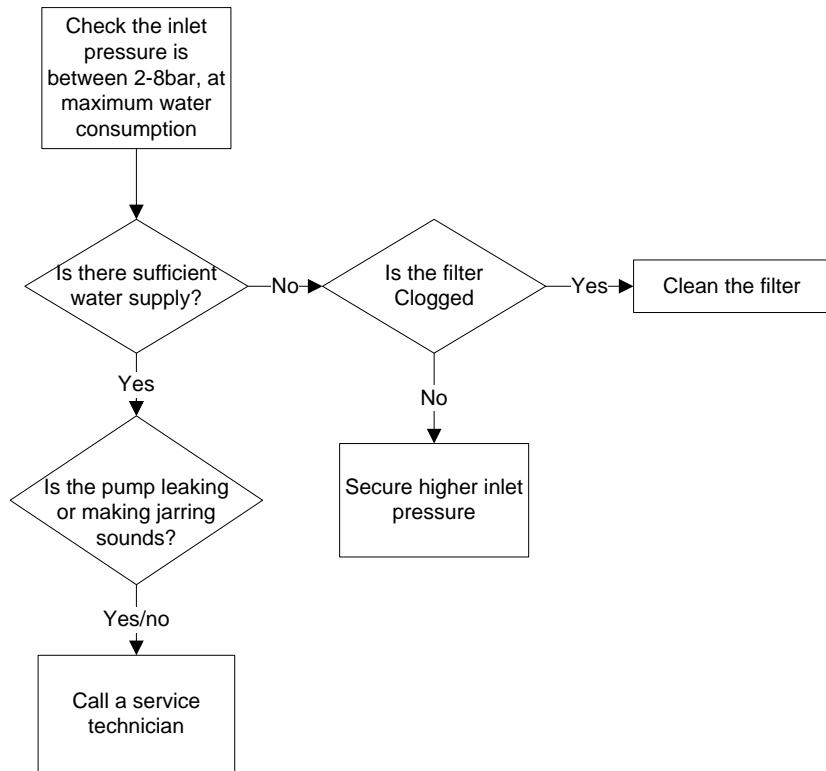
3.6.1 The unit does not start



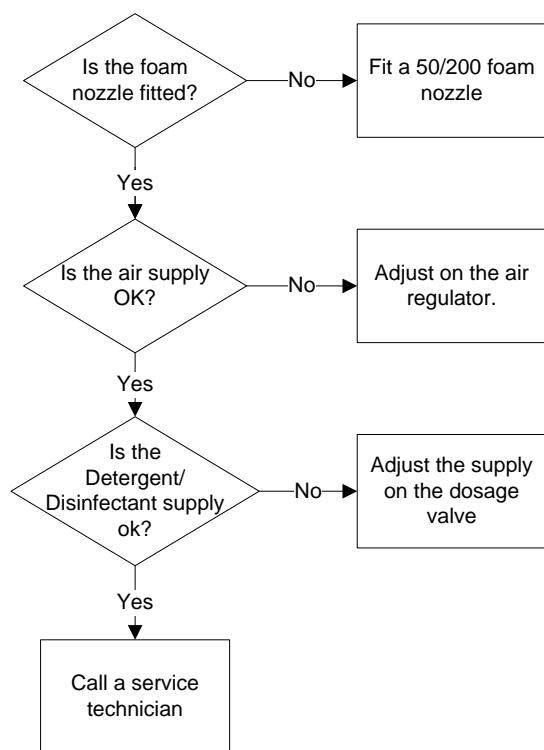
3.6.2 The “Δ” lamp on the control panel is on



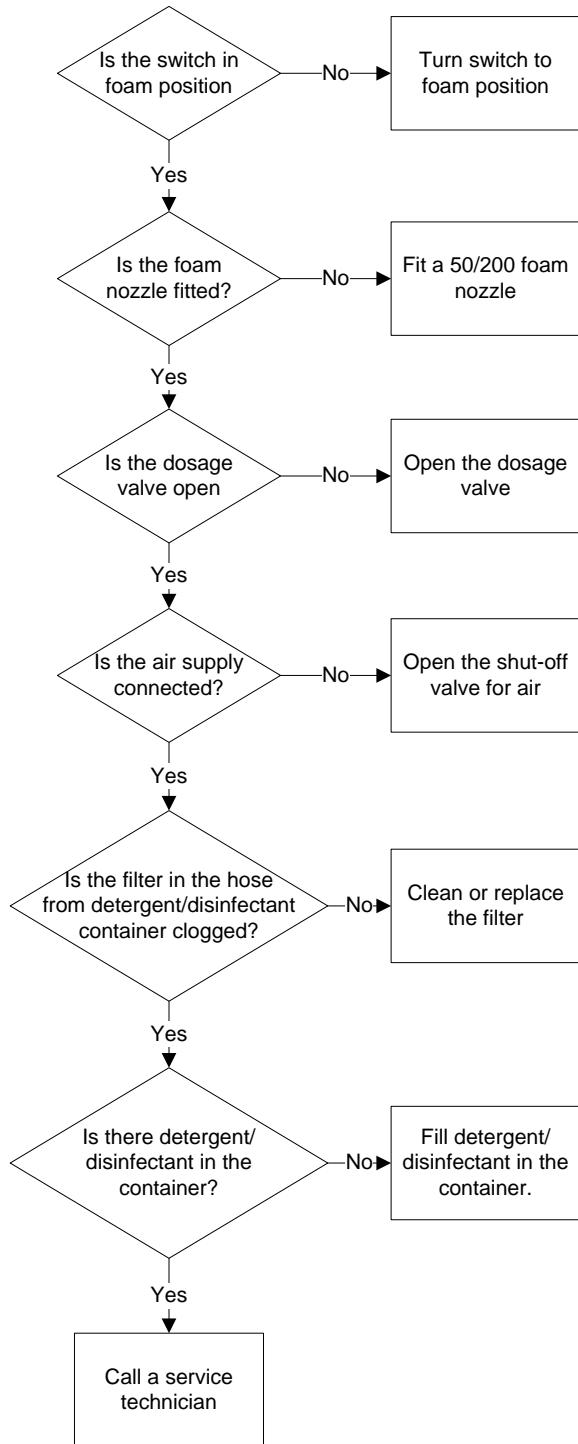
3.6.3 Too low or unstable pressure



3.6.4 Unsatisfactory foam quality



3.6.5 No foam



3.7. Recommended spare parts

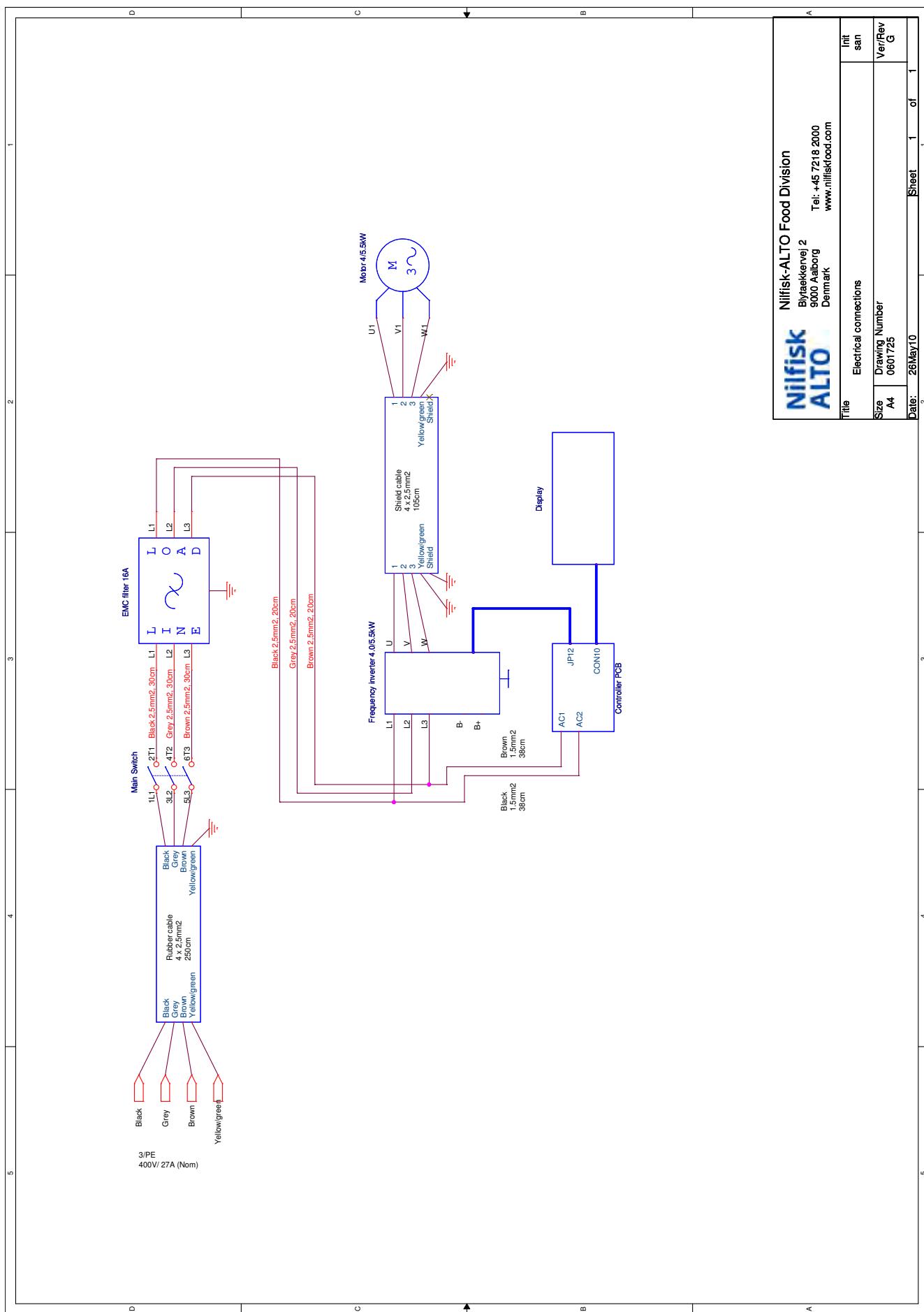
The recommended spare parts are marked with * in the spare part manual.

3.8. Specifications

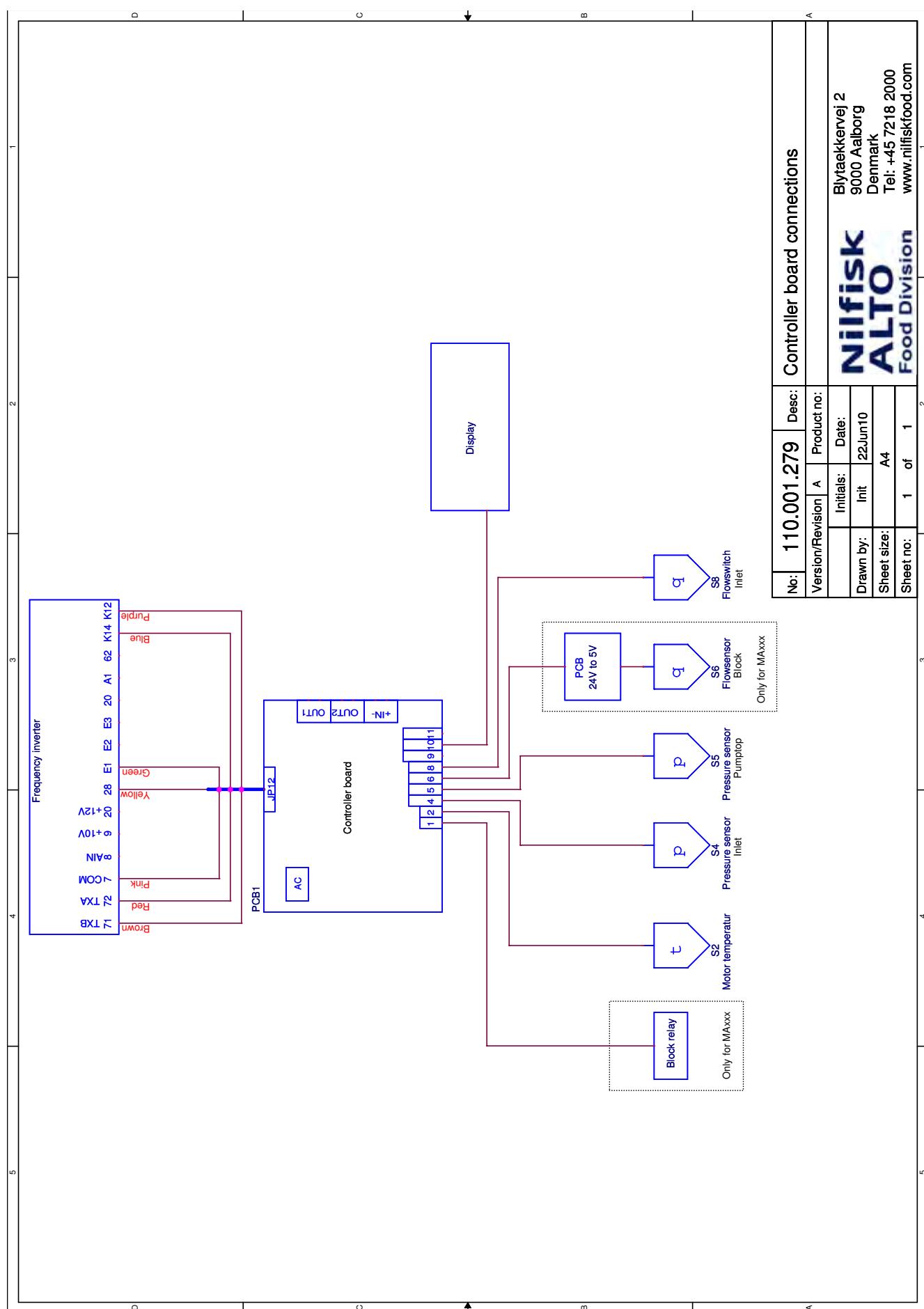
The most important specifications are shown on the serial plates on the main station/satellite and pump, respectively.

| Technical Data | | MM1 | MM3 |
|------------------------------------|-----------------|-----------------------------|-----------------------------|
| Water | Unit. | 3 (4 kW) | 3 (4 kW) |
| Max. Outlet pressure. | MPa (bar) | 2,5 (25) | 2,5 (25) |
| Consumption during rinsing. | L/min | | |
| Consumption during foaming. | L/min | | |
| Min. supply pressure. | MPa (bar) | 0,2 (2) | 0,2 (2) |
| Max. supply pressure. | MPa (bar) | | |
| Min. water supply. | L/min | 100 | 100 |
| Flow @ 40 [bar] | L/min | | |
| Max. water temp. | °C | 70 | 70 |
| Pipe dimension inlet Ø | inch | 1.1/4" | 1.1/4" |
| Pipe dimension outlet Ø | inch | 1.1/4" | 1.1/4" |
| Compressed air | | | |
| Min/Max air pressure. | MPa (bar) | 0,5-1,0 (5-10) | 0,5-1,0 (5-10) |
| Compressed air consumption. | NL/min | 200 | 200 |
| Pipe dimension inlet Ø | mm | 6 | 6 |
| Electricity | | | |
| Supply voltage (V Hz)* | V | 3/PE 400 Vac ±10% | 3/PE 400 Vac ±10% |
| Frequency | Hz | 50/60 Hz 48 -0%...62 +0% | 50/60 Hz 48 -0%...62 +0% |
| Below @ 400 V mains input voltage: | | | |
| Motor load (kW) | kW | 4 | 4 |
| | | Installation to EN 60204-1 | |
| Nominal current | A | 10.6 | 10.6 |
| Fuse | A | 16 | 16 |
| L1, L2, L3, PE | mm ² | 2.5 | 2.5 |
| General | | | |
| No. Of chemical injectors | | 1 - 3 | 1 - 3 |
| Chemical resistance | | | |
| Sound level ISO 11202 | dB | Below 70 | Below 70 |
| Dimensions H x W x D | mm | 785 x 550 x 375 | 785 x 550 x 375 |
| Weight | kg | 85 | 85 |

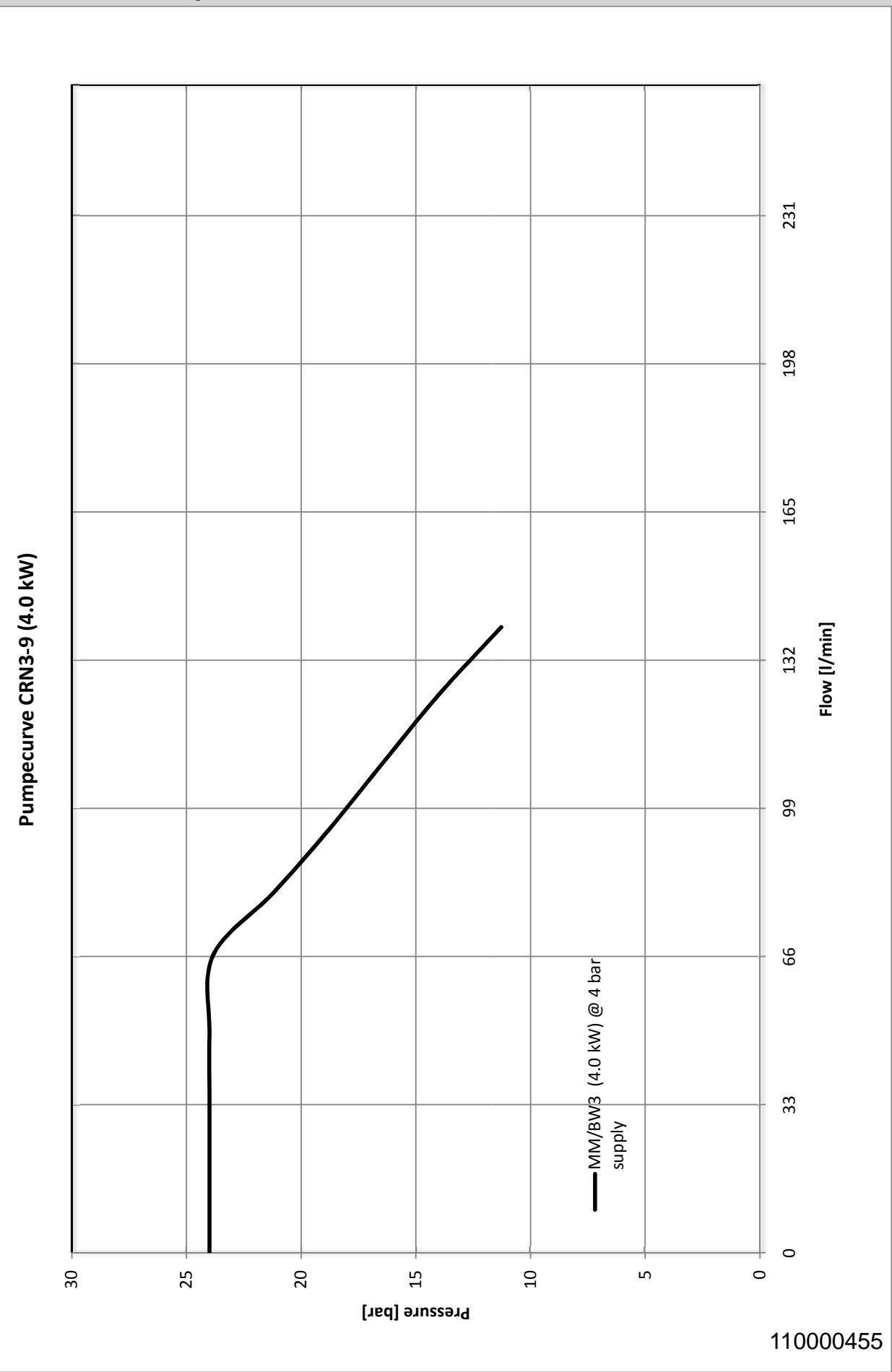
3.9. Electric diagram



3.10. Connections for controller and sensor

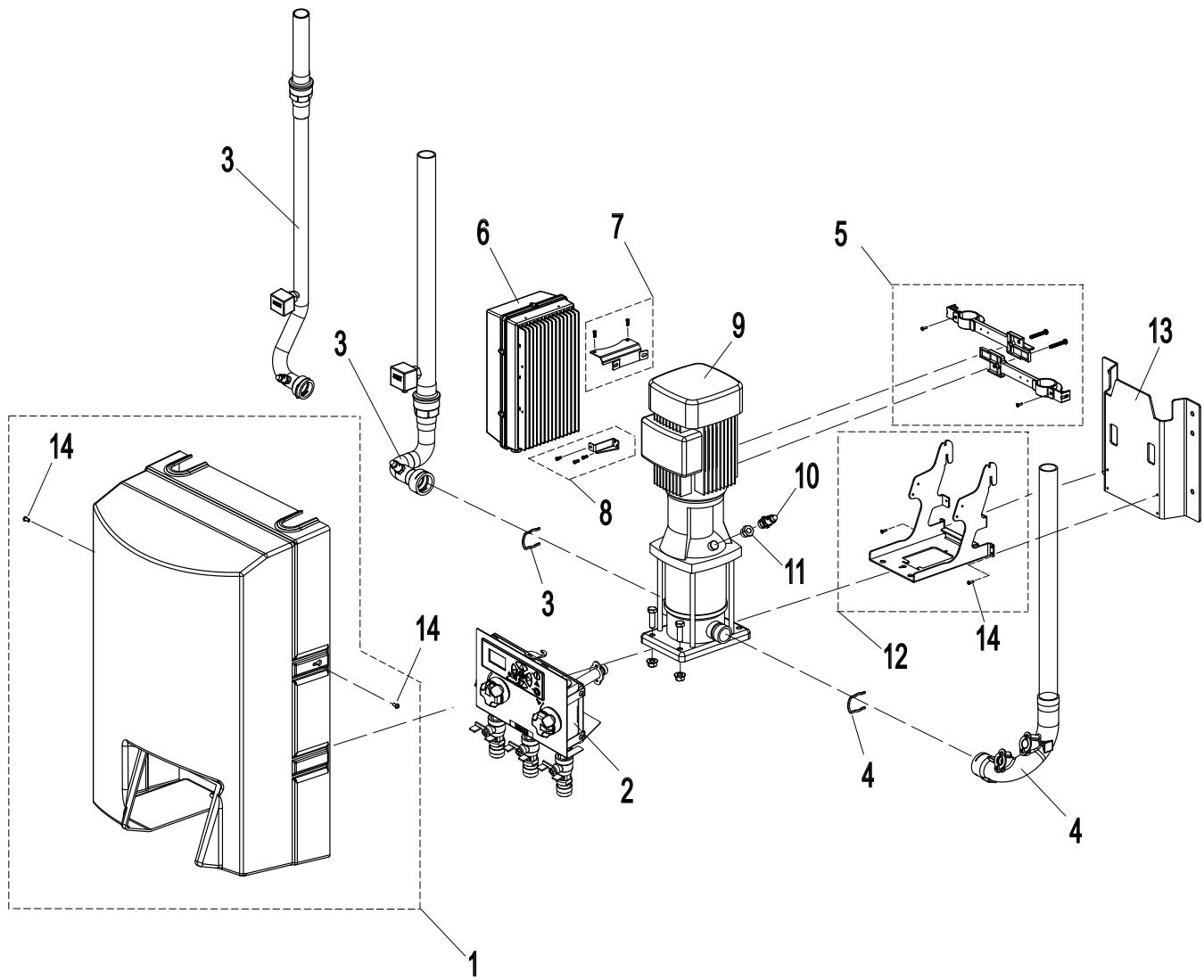


3.11. Pumpecurve

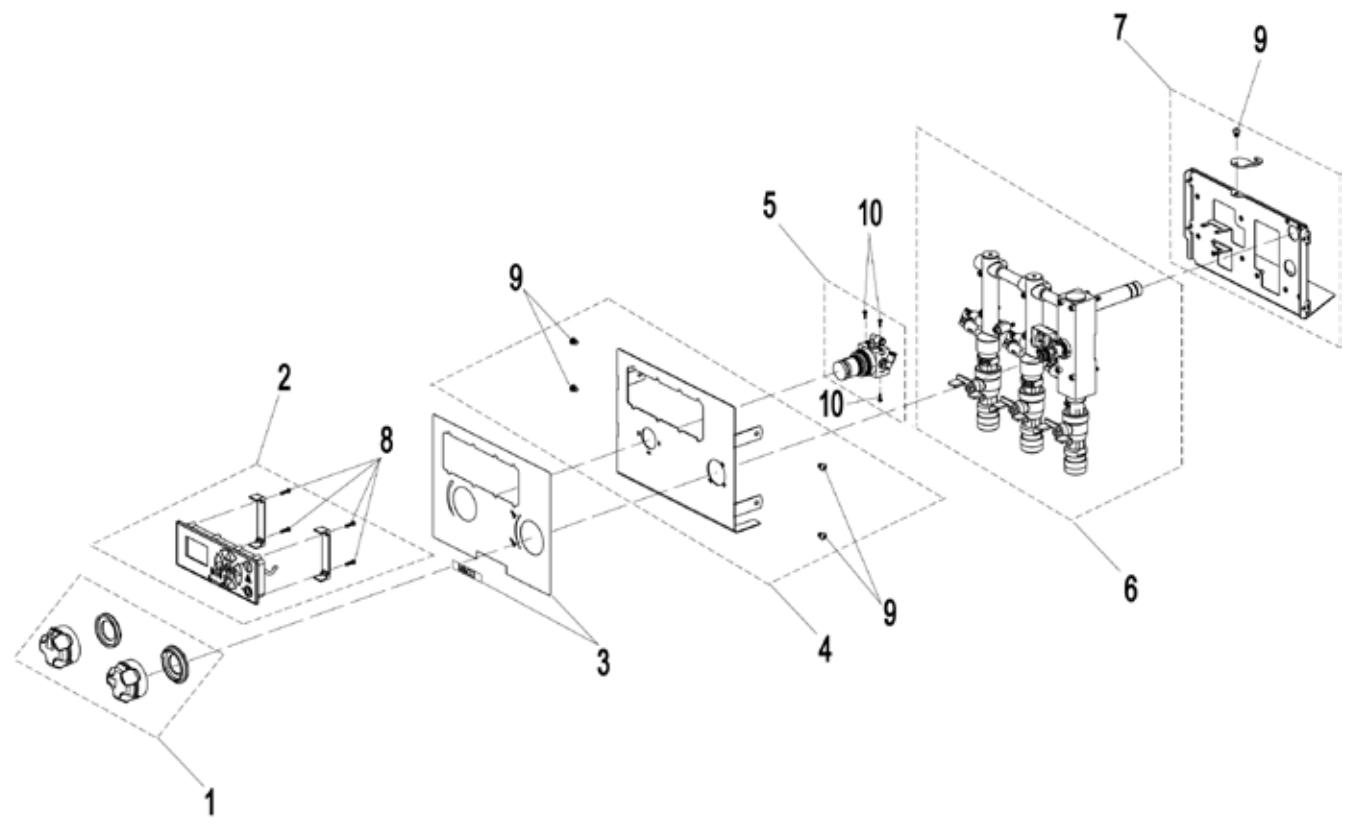


Spareparts

MM Serien



| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|------------------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1 | 110001413 | Front Cover Frontcover Couvercle frontal Cubierta frontal Front cover | 1 | 1 | 1 | 1 | 1 | | | | | |
| | 2 | | Page 4 Seite 4 Page 4 Página 4 Side 4 | | | | | | | | | | |
| | 3 | | Page 5 Seite 5 Page 5 Página 5 Side 5 | | | | | | | | | | |
| | 4 | | Page 6 Seite 6 Page 6 Página 6 Side 6 | | | | | | | | | | |
| | 5 | | Page 12 Seite 12 Page 12 Página 12 Side 12 | | | | | | | | | | |
| | 6 | | Page 10 / 11 Seite 10 / 11 Page 10 / 11 Página 10 / 11 Side 10 / 11 | | | | | | | | | | |
| | 7 | 110001246 | Mounting Beschlag Montage Montaje Beslag | 1 | 1 | 1 | 1 | 1 | | | | | |
| | 8 | 110001247 | Mounting 60mm Beschlag 60mm Montage 60mm Montaje 60mm Beslag 60mm | 1 | 1 | 1 | 1 | 1 | | | | | |
| | 9 | 110001219 | Pump Pumpe Pompe Bomba Pumpe | 1 | 1 | 1 | 1 | 1 | | | | | |
| * | 10 | 110001144 | Pressure Sensor Druck-sensor Sonde de depression Sensor de la presión Tryksensor | 1 | 1 | 1 | 1 | 1 | | | | | |
| | 11 | 110001271 | Nipple Nippelrohr Mamelon Entrerosca Nippelmuffe | 1 | 1 | 1 | 1 | 1 | | | | | |
| | 12 | 110001142 | Pump Rack complete Pumpenhalter komplett Disque complet Soporte de bomba completa Pumpebeslag complet | 1 | 1 | 1 | 1 | 1 | | | | | |
| | 13 | 110001141 | Wall rack Wandhalter Fication murale Bastidor de montaje en pared Vægbeslag | 1 | 1 | 1 | 1 | 1 | | | | | |
| ▲ | 14 | 110001242 (0602045) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | | | | | | |

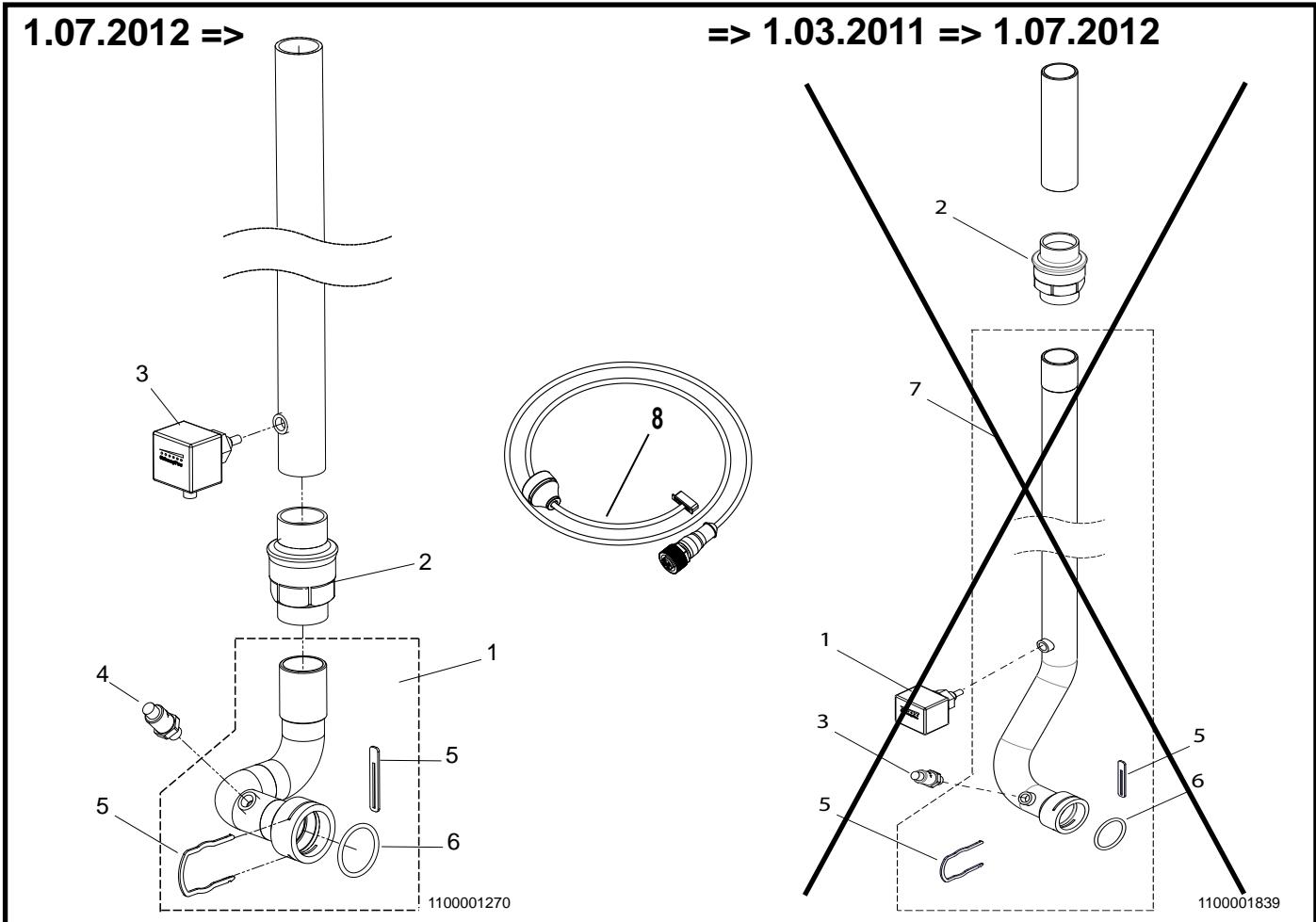


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| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|--------------------------|--|-------|-------|-------|-------|-------|
| * | 1 | 110001322 | Handle Kit Bedienungshebel Set Kit de Poignée Kit de Asa Betjeningsgreb Kit | 1 | 1 | 1 | 1 | 1 |
| * | 2 | 110001245 | Display complete + Display komplett + Afficheur complet + Pantalla completa + Display komplet + | 1 | 1 | 1 | 1 | 1 |
| | 3 | 110001241 | Label Kit + Etikette Set + Kit de Etiquette + Kit de Etiqueta + Label Kit + | 1 | 1 | 1 | 1 | 1 |
| | 4 | 110001237 | Front Plate + Frontplatte + Plaque frontale + Placa delantera + Front Plade + | 1 | 1 | 1 | 1 | 1 |
| * | 5 | 110001201 | Regulation Unit, Air Luftregulierungseinheit Unité de contrôle de l'air Unidad de regulación del aire Luftstyringenhed | 1 | 1 | 1 | 1 | 1 |
| | 6 | | Page 7 / 8 / 9 Seite 7 / 8 / 9 Page 7 / 8 / 9 Página 7 / 8 / 9 Side 7 / 8 / 9 | | | | | |
| | 7 | 110001212 | Rear Frame + Hinterer Rahmen + Cadre arrière + Marco trasero + Bagramme + | 1 | 1 | 1 | 1 | 1 |
| ▲ | 8 | 110001242 (110000574) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| ▲ | 9 | 110001242 (0602100) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| ▲ | 10 | 110001242 (156114) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |

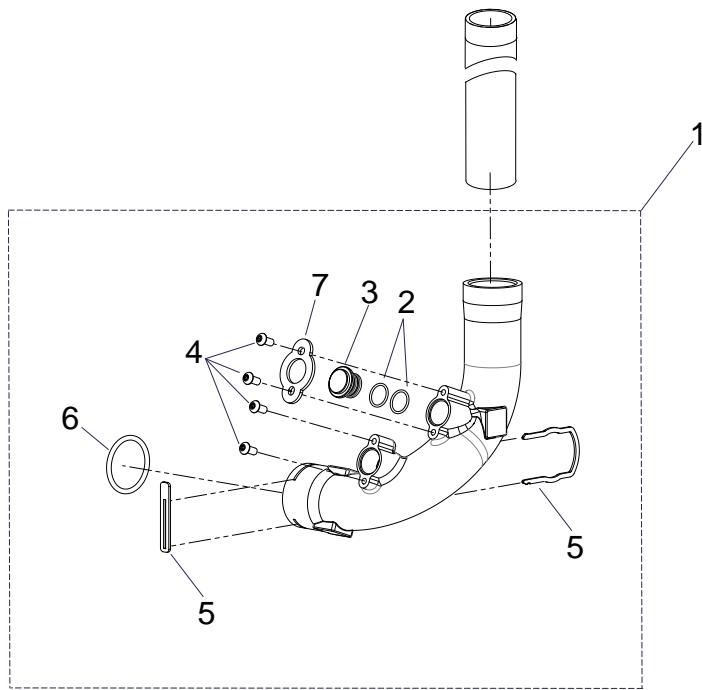
1.07.2012 =>

=> 1.03.2011 => 1.07.2012



| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|-----------------------|--|-------|-------|-------|-------|-------|
| | 1 | 110001240 | Inlet manifold complete+ Einlass Rohrverteiler Komplett+ Collecteur d'entrée complet+ Colector de entrada completo+ Tilgangsmanifold kpl + | 1 | 1 | 1 | 1 | 1 |
| * | 2 | 110001249 | Non Return Valve Rückschlagventil Valve non de retour Válvula no de vuelta Kontraventil | 1 | 1 | 1 | 1 | 1 |
| * | 3 | 110000963 | Flow-switch Strömungswächter Limiteur de débit Interruptor de flujo Flowswitch | 1 | 1 | 1 | 1 | 1 |
| * | 4 | 110000889 | Sensor Sensor Sondet Sensor Sensor | 1 | 1 | 1 | 1 | 1 |
| | 5 | 110001250 | Pin kit Splint-kitt Kit de broches Kit de pasadores Split kit | 1 | 1 | 1 | 1 | 1 |
| ▲ | 6 | 110001243 (603700) | O-ring kit O-Ring Set Kit de joints toriques Kit de anillos tóricos O-ring kit | | | | | |
| | 7 | Discontinued | Inlet manifold complete+ Einlass Rohrverteiler Komplett+ Collecteur d'entrée complet+ Colector de entrada completo+ Tilgangsmanifold kpl + | 1 | 1 | 1 | 1 | 1 |
| * | 8 | 110000971 | Sensor cable Sensorkabel Sondet de câble Sensor de cable Sensorkabel | 3 | 3 | 3 | 3 | 3 |

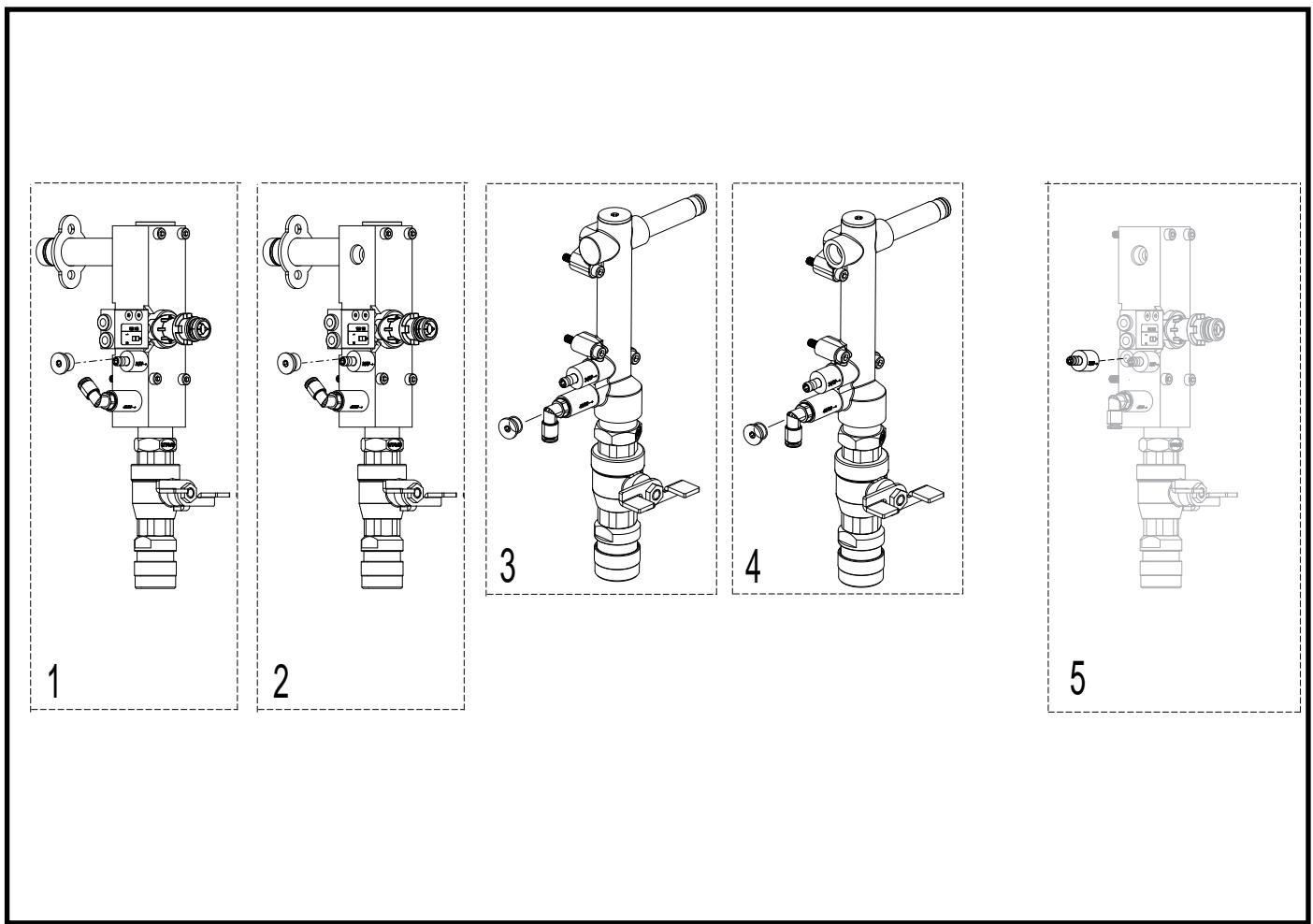
| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|---------|---|-------|-------|-------|-------|-------|
| | | | | | | | | |



1100001407

| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|------------------------|---|-------|-------|-------|-------|-------|
| | 1 | 110001239 | Outlet manifold complete Abgangsweigrohr Komplett Collecteur sortie complet Válvula de distribución de salida completa Afgangsmifold komplet | 1 | 1 | 1 | 1 | 1 |
| ▲ | 2 | 110001243 (0635909) | O-ring kit O-Ring Set Kit de joints toriques Kit de anillos tóricos O-ring kit | | | | | |
| | 3 | 110001411 | Plug kit Pfropfen Set Kit de Bouchen Kit de Tapón Prop Kit | | | | | |
| ▲ | 4 | 110001242 (0602094) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| | 5 | 110001250 | Pin kit Splint-kitt Kit de broches Kit de pasadores Split kit | | | | | |
| ▲ | 6 | 110001243 (603700) | O-ring kit O-Ring Set Kit de joints toriques Kit de anillos tóricos O-ring kit | | | | | |
| | 7 | 0605967 | Rack Halter Bâti Bastidor Beslag | 1 | 1 | 1 | 1 | 1 |
| | | | | | | | | |
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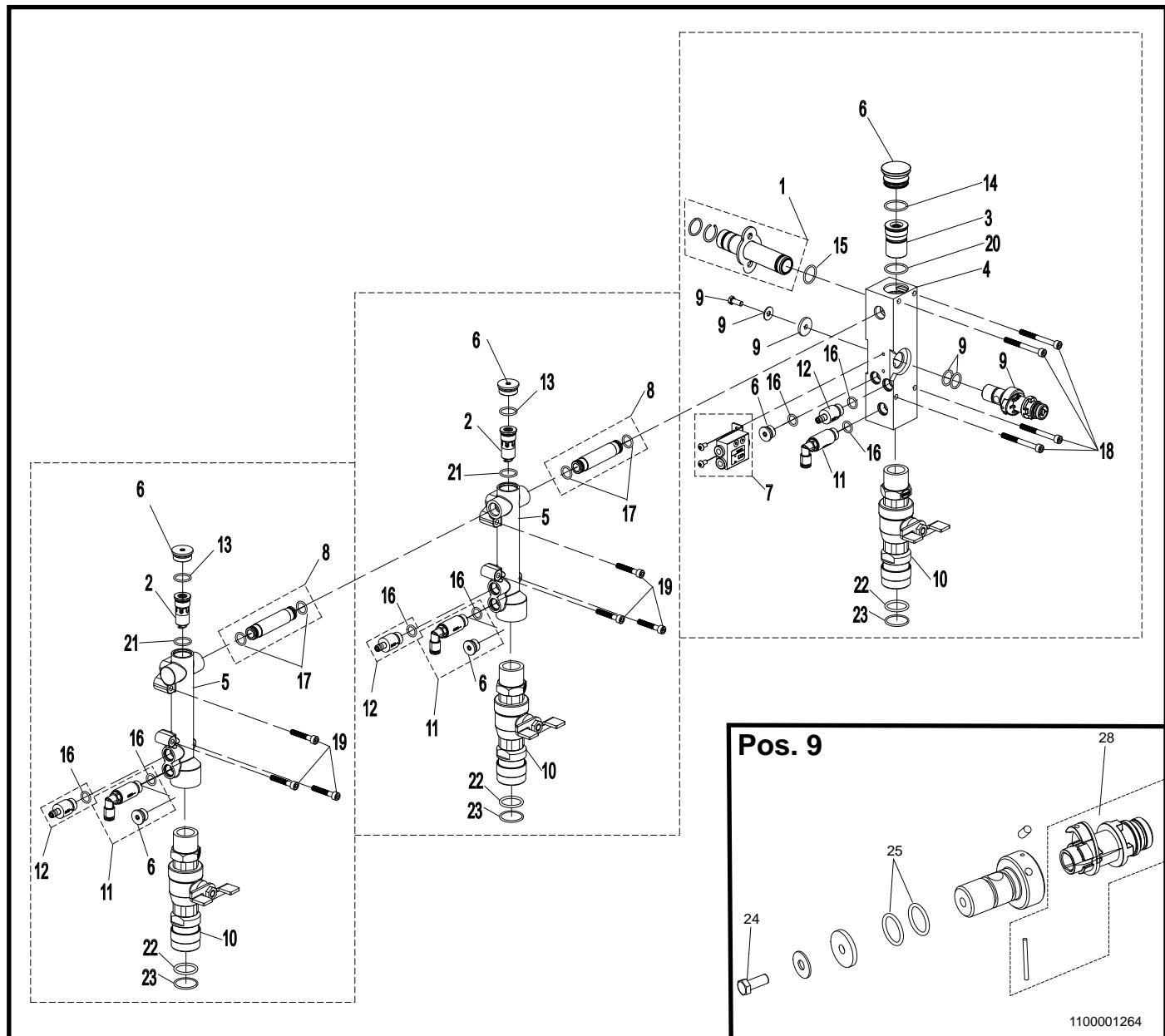
| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|---------|---|-------|-------|-------|-------|-------|
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1100001266

| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|-----------|---|-------|-------|-------|-------|-------|
| 1 | 110001420 | 110001420 | Block complete Block Komplett Bloc, complet Bloque, completo Blok Komplet | 1 | | | | |
| 2 | 110001421 | 110001421 | Block complete Block Komplett Bloc, complet Bloque, completo Blok Komplet | | 1 | 1 | 1 | 1 |
| 3 | 110001226 | 110001226 | Block complete Block Komplett Bloc, complet Bloque, completo Blok Komplet | | 1 | 1 | 1 | 1 |
| 4 | 110001227 | 110001227 | Block complete Block Komplett Bloc, complet Bloque, completo Blok Komplet | | | | 1 | 1 |
| 5 | 110002289 | 110002289 | Suction kit for mix Saugkitt f. mix Kit aspirante pour mélange Kit de succión Sugekit for mix | | | | | |

| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|---------|---|-------|-------|-------|-------|-------|
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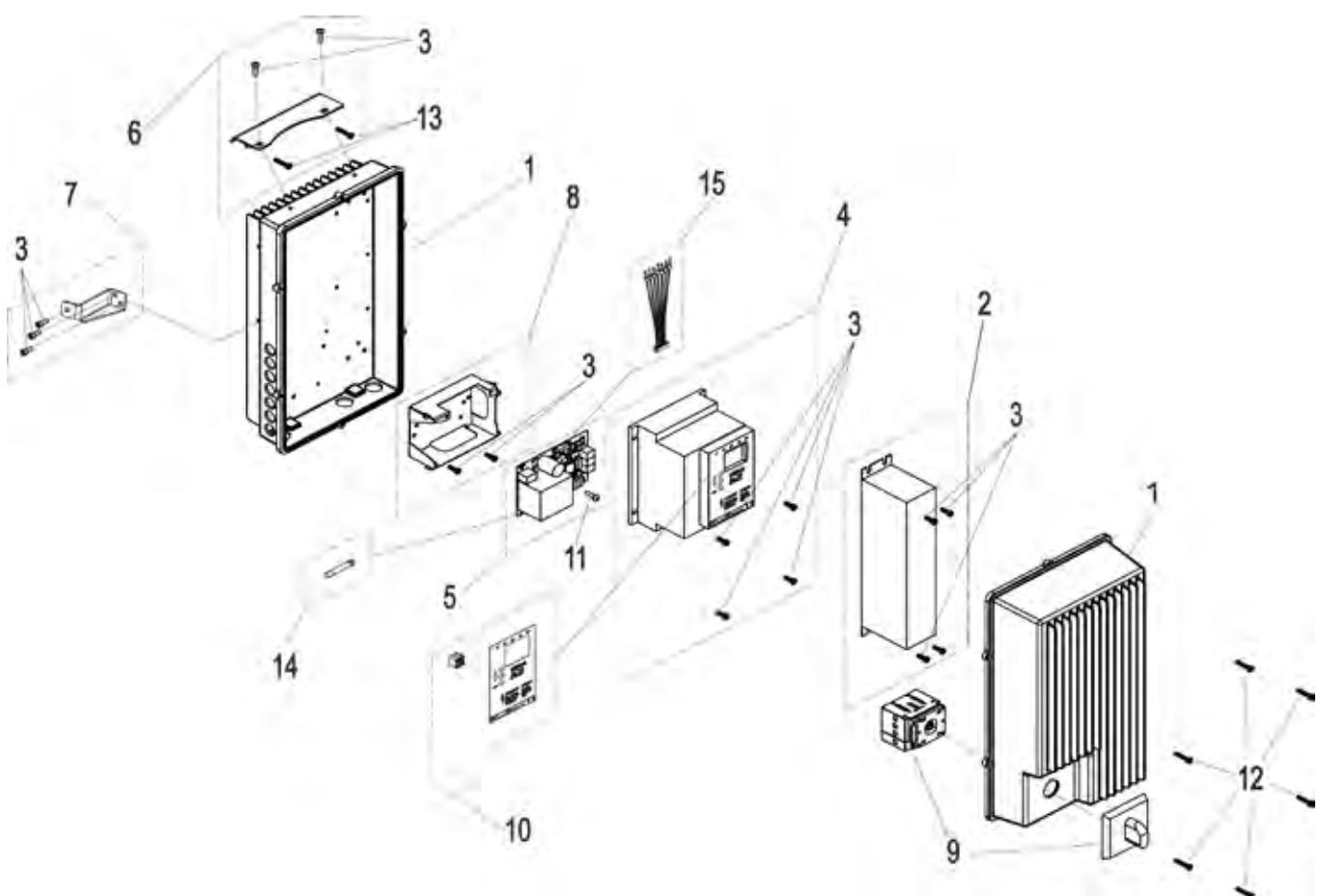
1100001269

| ! | Pos. / Ref. | Nr. No. | Description Beschreibung Couvercle, unité principale Descripción Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|-----------|---|-------|-------|-------|-------|-------|
| | 1 | 110001336 | Inlet Pipe Einlassrohr Conduit entrée Tuberia de alimentación Tilgangsrør | 1 | 1 | 1 | 1 | 1 |
| * | 2 | 110001206 | Non Return Valve, water Rückschlagventil, wasser Clapet de retenue, eau Válvula de retención, agua Vandkontraventil | | 1 | 1 | 2 | 2 |
| * | 3 | 110001205 | Non Return Valve, water Rückschlagventil, wasser Clapet de retenue, eau Válvula de retención, agua Vandkontraventil | 1 | 1 | 1 | 1 | 1 |
| | 4 | | Page 7 Seite 7 Page 7 Página 7 Side 7 | | | | | |
| | 5 | | Page 7 Seite 7 Page 7 Página 7 Side 7 | | | | | |
| | 6 | 110001411 | Plug kit Pfropfen Set Kit de Bouchon Kit de Tapon Prop Kit | | | | | |
| * | 7 | 110001202 | Air Controlling Valve Luftsteuerungsventil Soupape de contrôle d'air Válvula de regulación de aire Luftstyringsventil | 1 | 1 | 1 | 1 | 1 |

| ! | Pos. / Ref. | Nr. No. | Description Beschreibung Couvercle, unité principale Descripción Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|--------------------------|---|-------|-------|-------|-------|-------|
| | 8 | 110001317 | Connecting Pipe Zwischen-/Verbindungsrohr Conduit de connexion Tubería de conexión Mellemer | | | 1 | 1 | 2 |
| * | 9 | 110001204 | Shaft complete Welle Komplett Arbre complet Eje completo Aksel Komplet | 1 | 1 | 1 | 1 | 1 |
| | 10 | 110001208 | Outlet coupling complete Ablaufkupplung komplett Raccord de sortie complet Acoplamiento de salida completo Afgangskopling Komplet | | 1 | 2 | 2 | 3 |
| * | 11 | 110001414 | Non Return Valve, air Rückschlagventil, luft Clapet de retenue, air Válvula de retención de aire Luftkontraventil | 1 | 1 | 2 | 2 | 3 |
| * | 12 | 110001102 | Non Return Valve, chemistry Chemie Rückschlagventil, Clapet anti-retour chimique Válvula de no retorno química Kemikontraventil | 1 | 2 | 2 | 3 | 3 |
| ▲ | 13 | 110001243 (110000695) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |
| ▲ | 14 | 110001243 (0600016) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |

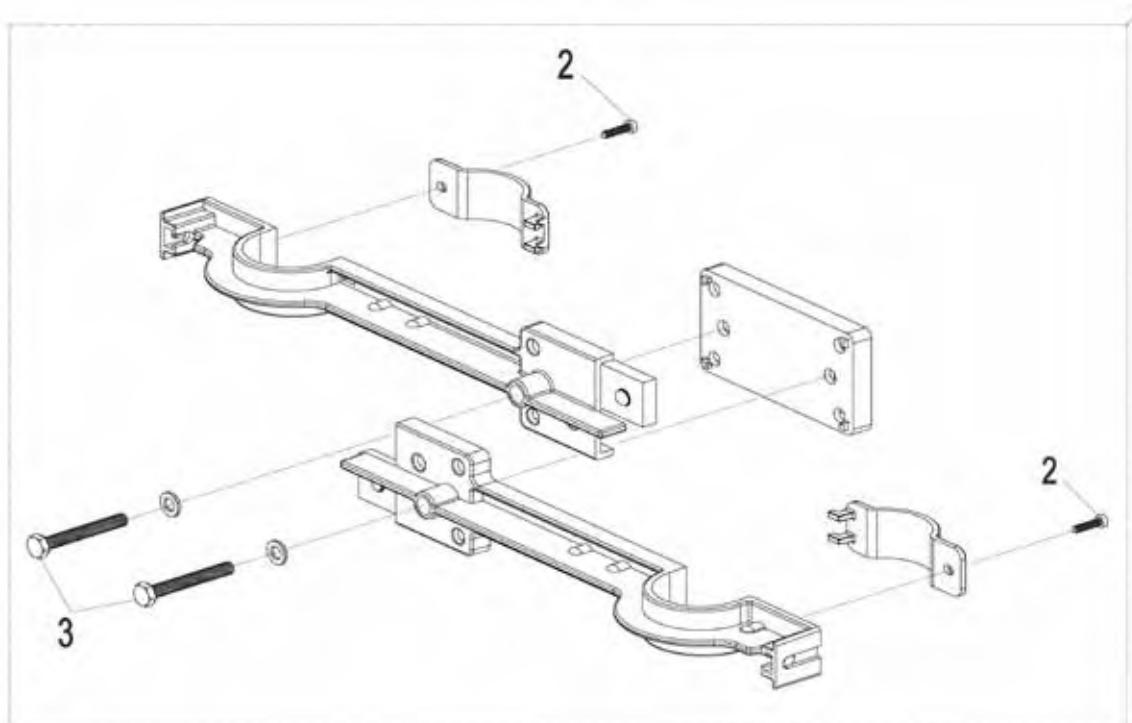
| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|--------------------------|--|-------|-------|-------|-------|-------|
| ▲ | 15 | 110001243 (0635909) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |
| ▲ | 16 | 110001243 (110000696) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |
| ▲ | 17 | 110001243 (0635927) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |
| ▲ | 18 | 110001242 (0602028) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| ▲ | 19 | 110001242 (320100) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| ▲ | 20 | 110001243 (0635910) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |
| ▲ | 21 | 110001243 (0635912) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |
| ▲ | 22 | 110001243 (641101) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |
| ▲ | 23 | 110001243 (641102) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |
| ▲ | 24 | 110001242 (156311) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| ▲ | 25 | 110001243 (352800) | O-ring kit O-ring Set Kit de Joint torique Kit de Aro tórico O-rings Kit | | | | | |
| ▲ | 26 | 110001242 (110000525) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| ▲ | 27 | 110001242 (0602021) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| | 28 | 110000332 | Stub shaft incl. pin Wellenansatz inkl. Splint Incl de demi-arbre. goupille Incl del eje corto. perno Akselforlænger med split | | | | | |

| - | Pos. / Réf. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|------------|---|-------|-------|-------|-------|-------|
| | | | | | | | | |



| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|--------------------------|---|-------|-------|-------|-------|-------|
| | | | | | | | | |
| | 1 | 110001131 | Converter Box Stromrichterbox Boîtier de convertisseur Cuadro transformador El-kasse | 1 | 1 | 1 | 1 | 1 |
| | 2 | 110001135 | Noise Filter Geräuschfilter Filtre de bruit Filtro de ruido Störfilter | 1 | 1 | 1 | 1 | 1 |
| ▲ | 3 | 110001242 (0602104) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| | 4 | 110001129 | 4 kW Converter 4 kW Stromrichter Convertisseur 4 kW Transformador de 4 kW 4 kw omformer | 1 | 1 | 1 | 1 | 1 |
| * | 5 | 110001124 | Printed Circuit Board Printerplatine Carte circuit imprimé Placa de circuito impreso Controllerboard | 1 | 1 | 1 | 1 | 1 |
| | 6 | 110001246 | Mounting Beschlag Montage Montaje Beslag | 1 | 1 | 1 | 1 | 1 |
| | 7 | 110001247 | Mounting 60mm Beschlag 60mm Montage 60mm Montaje 60mm Beslag 60mm | 1 | 1 | 1 | 1 | 1 |
| | 8 | 110001244 | Fitting complete controller print Beschlag komplett Steuerungsprint Montage contrôleur complet Conector completo impresor Beslag kpl. Controllerprint | 1 | 1 | 1 | 1 | 1 |
| | 9 | 110001881 | Switch Schalter Interrupteur Comutador Aftryder | 1 | 1 | 1 | 1 | 1 |
| * | 10 | 110001248 | EPM Module + Converterlabel EPM Modul + Stromrichter etikette EPM Module + Convertisseur étiquette EPM módulo + Transformador etiqueta EPM Modul + Frekvensomformerlabel | 1 | 1 | 1 | 1 | 1 |
| ▲ | 11 | 110001242 (0602104) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| ▲ | 12 | 110001242 (0602125) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| ▲ | 13 | 110001242 (110001369) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| | 14 | 110001127 | Fuse Sicherung Plomb Fusible Sikring | 1 | 1 | 1 | 1 | 1 |
| * | 15 | 110001128 | Cable between controller and inverter Kabel zwischen Print und Frequenzumrichter Câble le contrôleur et l'onduleur Cable el controlador y el inversor Kabel mellem print og frekvensomformer | 1 | 1 | 1 | 1 | 1 |

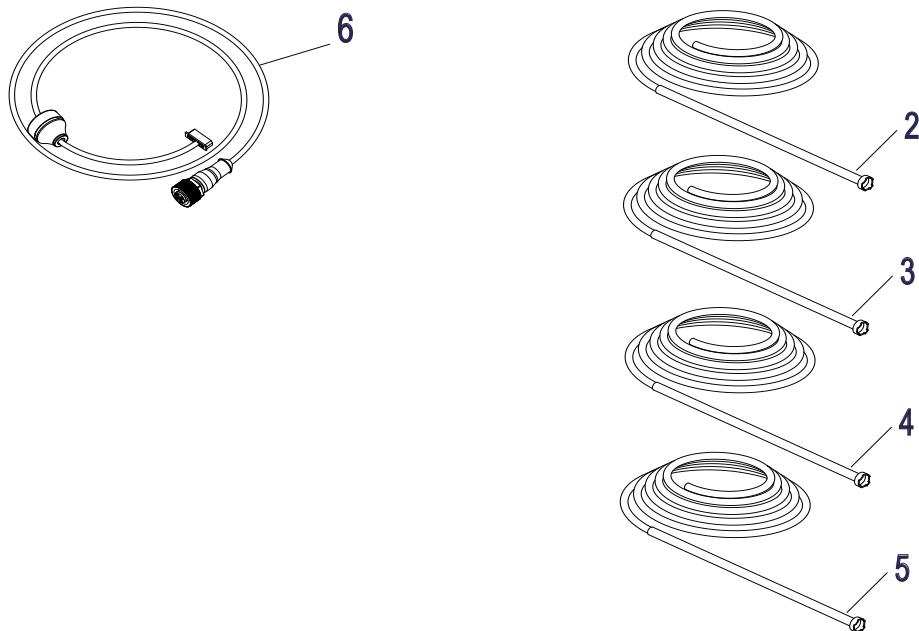
| - | Pos. / Réf. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
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| | | | | | | | | |



1100001410

| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|--------------------------|---|-------|-------|-------|-------|-------|
| | 1 | 0607983 | Pipe Rack complete Rohrhalter Komplett Bâti mural complet Bastidor de tubería completo Rørholder system komplet | 1 | 1 | 1 | 1 | 1 |
| ▲ | 2 | 110001242 (110000574) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |
| ▲ | 3 | 110001242 (156407) | Screw kit Schraube Set Kit de Vis Kit de Tornillo Skrue Kit | | | | | |

| ! | Pos. / Ref. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|---------|---|-------|-------|-------|-------|-------|
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1100001405

| | Pos. / Réf. | Nr. No. | Description Bezeichnung Désignation Denominación Betegnelse | MM311 | MM321 | MM322 | MM332 | MM333 |
|---|-------------|------------|---|-------|-------|-------|-------|-------|
| | 2 | 110001214 | Chemical hose (Blue) Chemieschlauch (Blau) Tuyau chimique (Bleu) Manguera química (Azul) Kemislange (Blå) | 1 | 1 | 1 | 1 | 1 |
| | 3 | 110001197 | Chemical hose (Yellow) Chemieschlauch (Gelb) Tuyau chimique (Jaune) Manguera química (Amarillo) Kemislange (Gul) | | 1 | 1 | 1 | 1 |
| | 4 | 110001198 | Chemical hose (Red) Chemieschlauch (Rot) Tuyau chimique (Rouge) Manguera química (Rojo) Kemislange (Rød) | | | | 1 | 1 |
| | 5 | 110001199 | Chemical hose (Green) Chemieschlauch (Grün) Tuyau chimique (Vert) Manguera química (Verde) Kemislange (Grøn) | | | | | |
| * | 6 | 110000971 | Sensorcable Senorskabel Sondet de câble Sensor de cable Senorskabel | 3 | 3 | 3 | 3 | 3 |

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