ADS800

AUTOMATIC DEGREASING MACHINE
ADS 800

ORIGINAL USER MANUAL

English version

Version 1, 1.11.2022

Contents

1 – Introduction

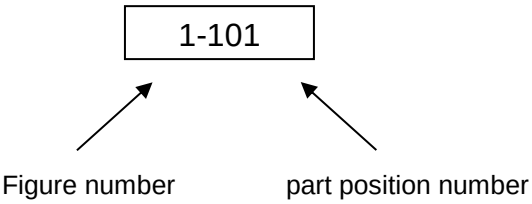
Parts washers machines are an integral part of modern production processes. Using water-based chemical solvents that act on cleaned surface under pressure, greasy debris are released and washed out. To increase the effect of this process, the wash liquid is heated to an optimum temperature.

2 – Description

ADS 800 parts washers machine (hereinafter referred to as the "machine") is used for technical washing of components, parts or machine units (hereinafter referred to as "parts"). Washing is performed from two opposite directions by hot wash liquid sprayed on cleaned items, placed in a rotating wash basket, from the top and bottom.

The oil film from the wash liquid can be collected using additional machine equipment, so-called oil skimmer.

A uniform system of designation is used in illustrations and the subsequent description of the structural layout of individual parts and nodes of the machine:



In the following articles, including the list of supplied spare parts (see Section 8.2), the same designation is used as the descriptions given in the illustrations.

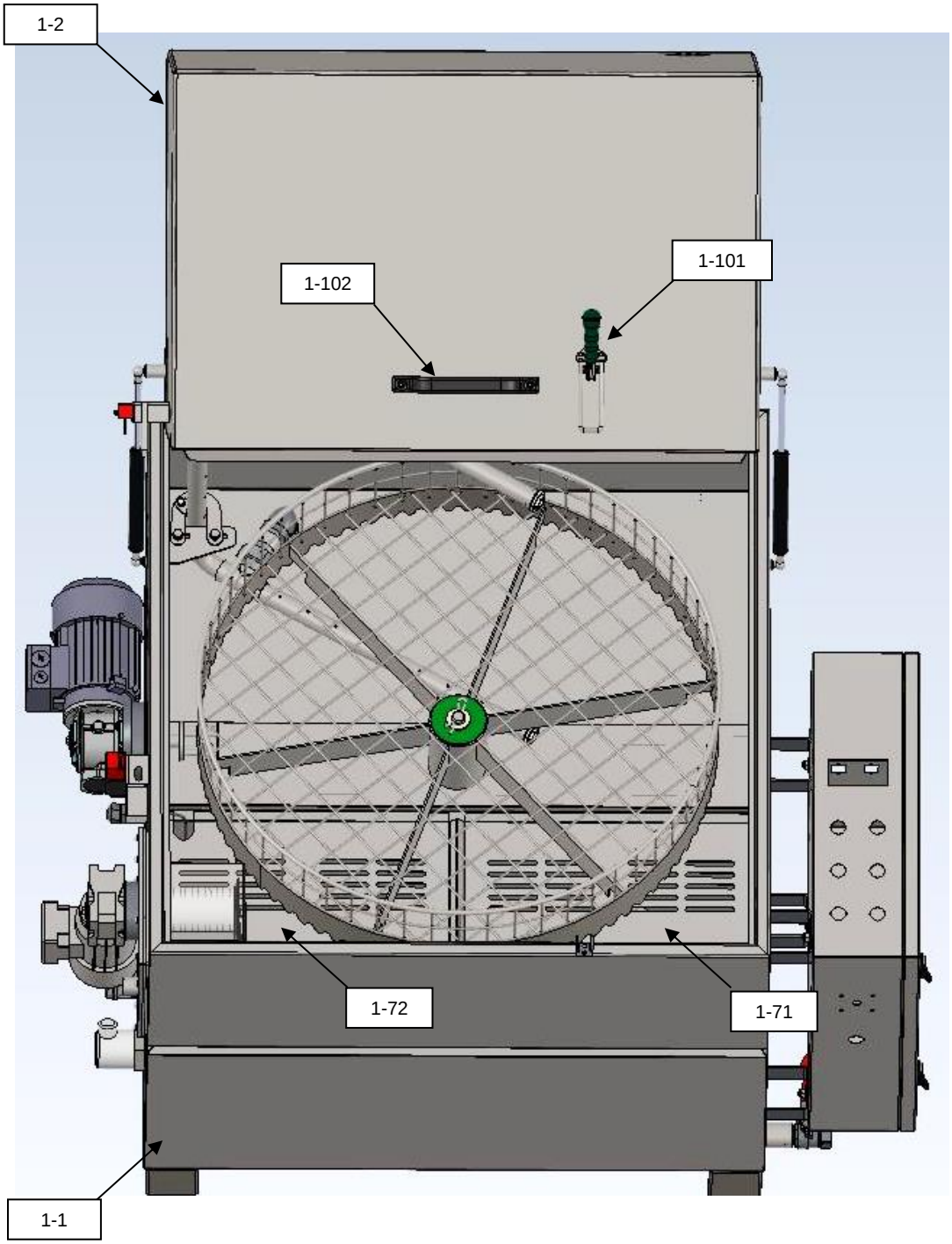


Fig. 1 Front view of the machine

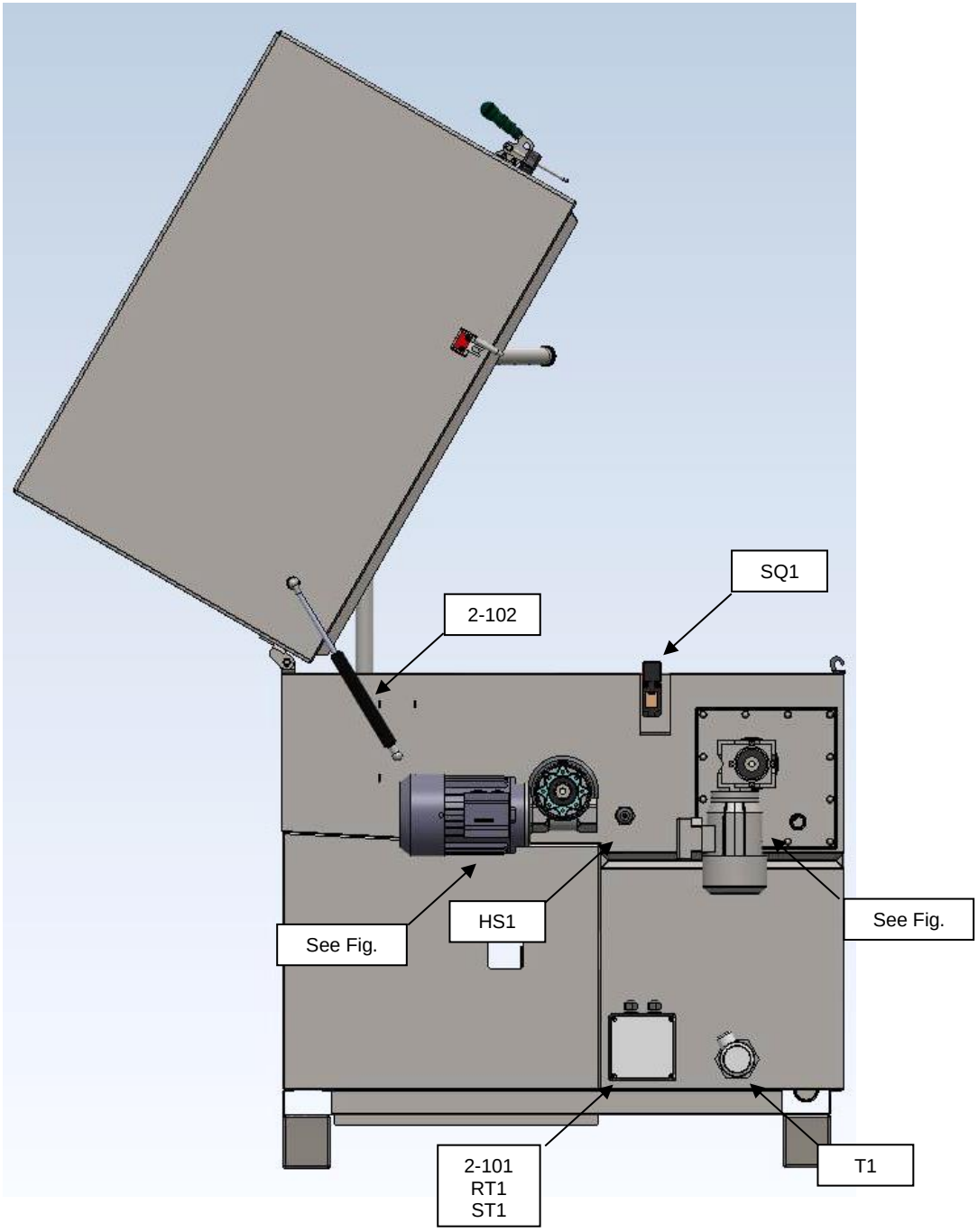


Fig. 2 Left view of the machine

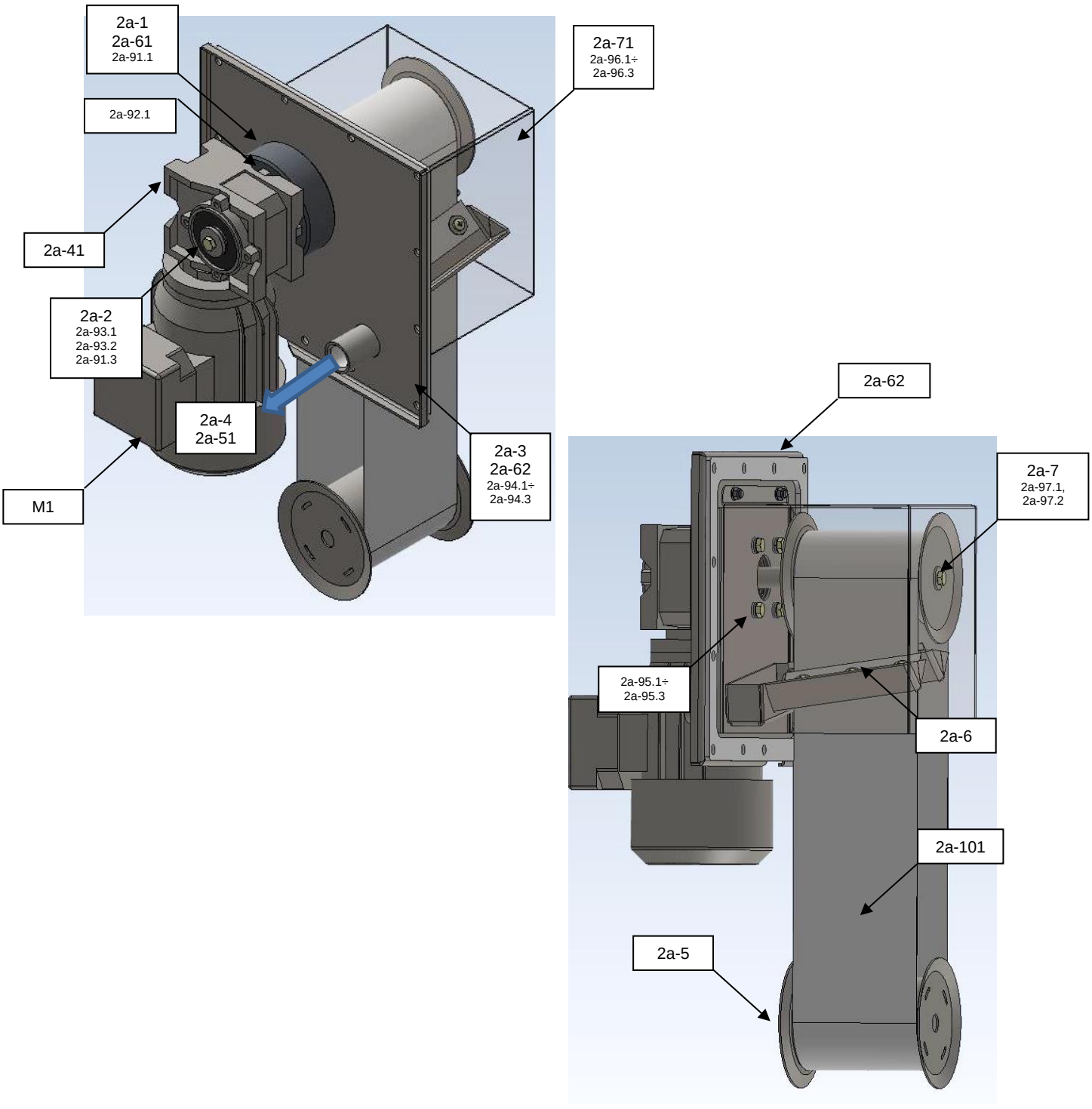


Fig. 2a view of oil skimmer components (pos. 2a-1)

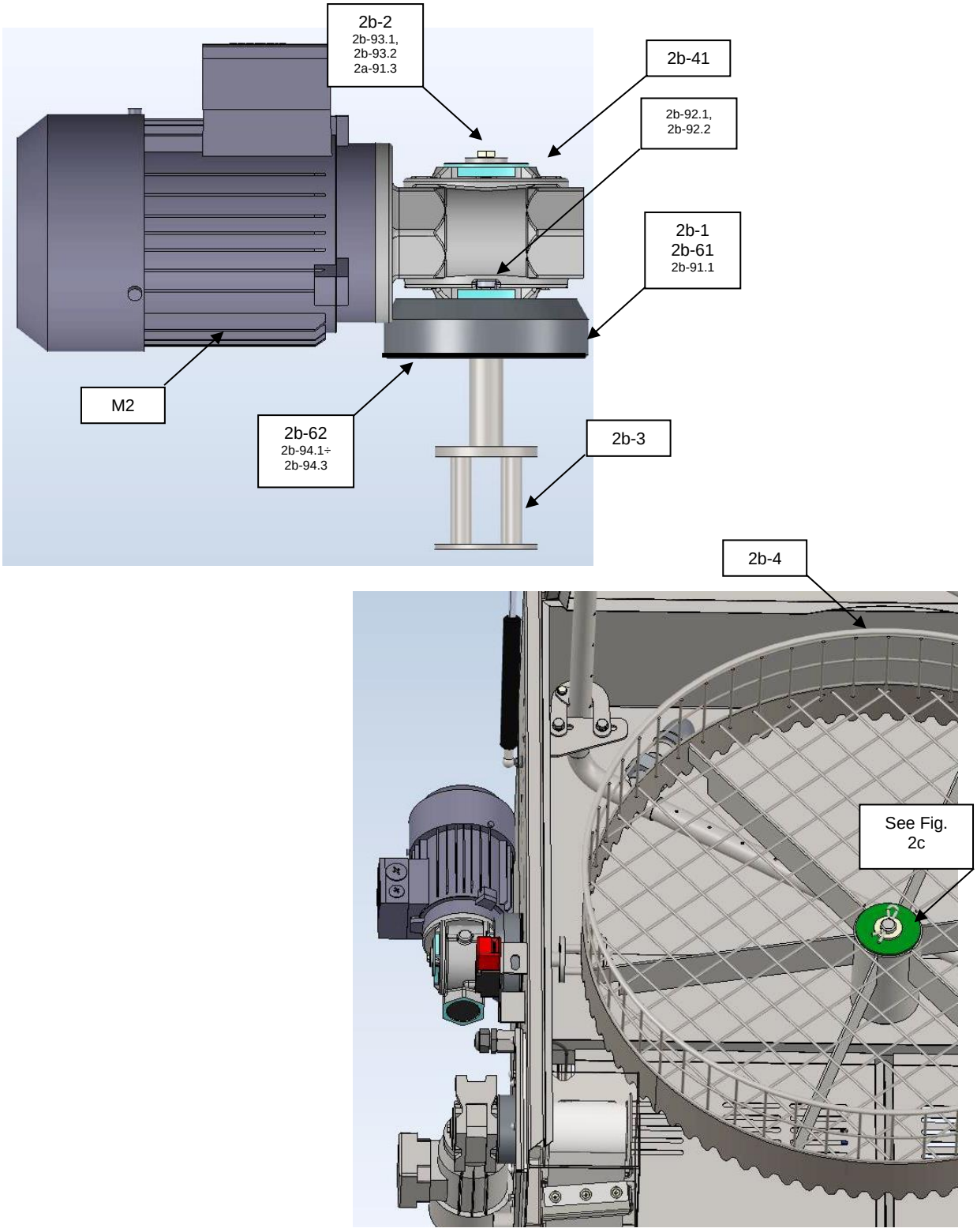
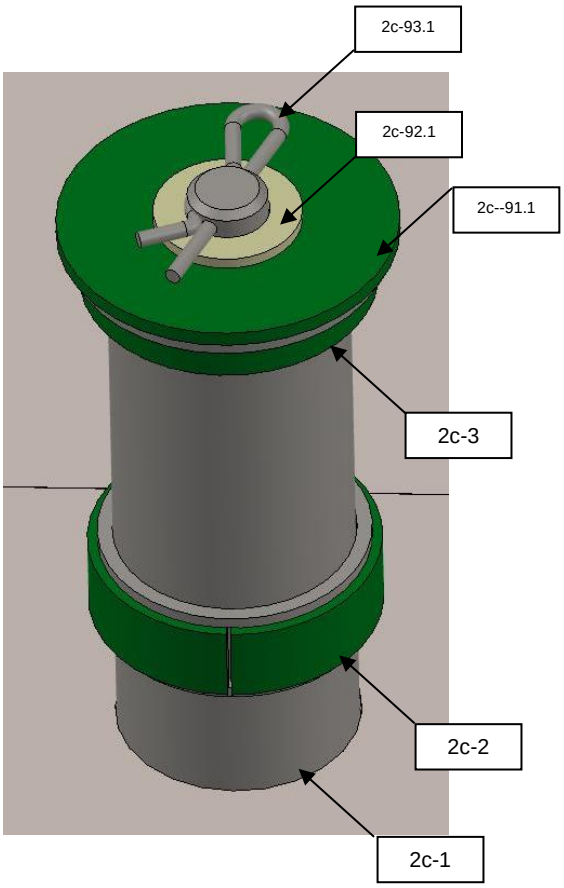


Fig. 2b view of basket drive components



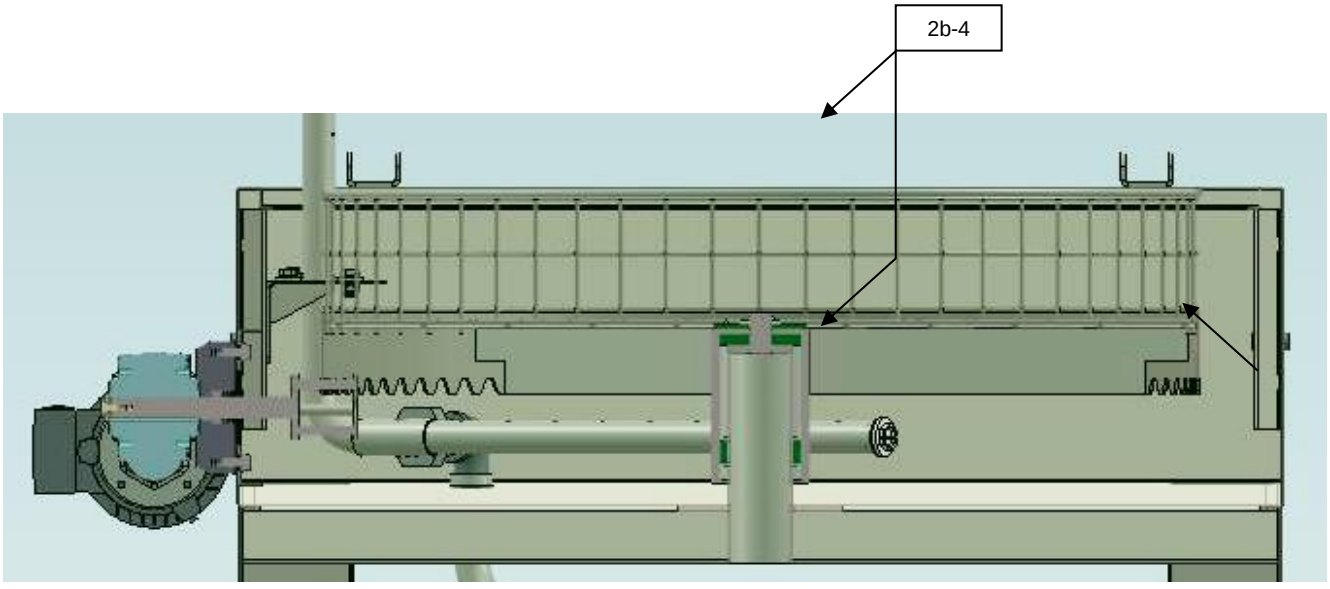


Fig. 2c detailed view of housing

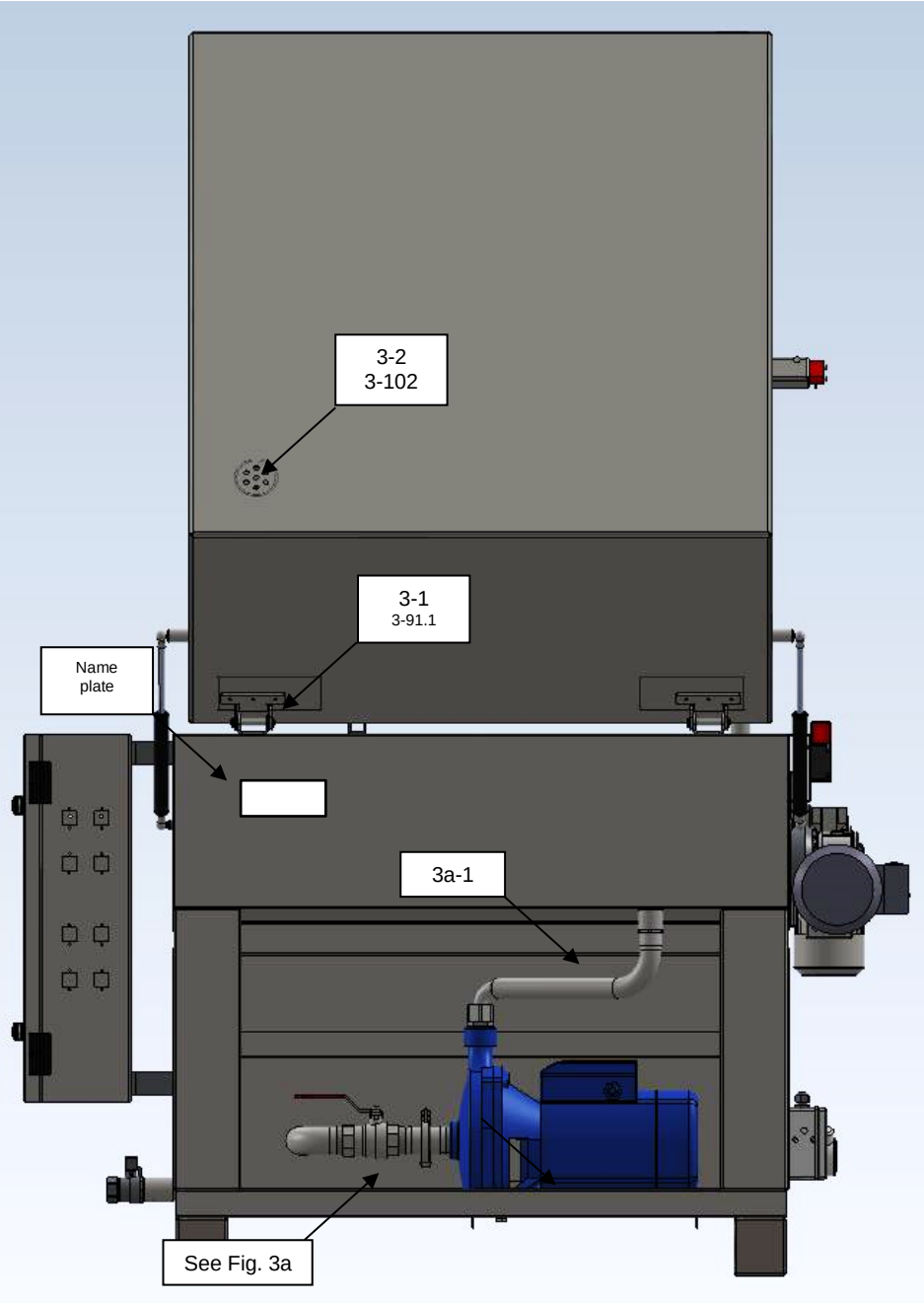
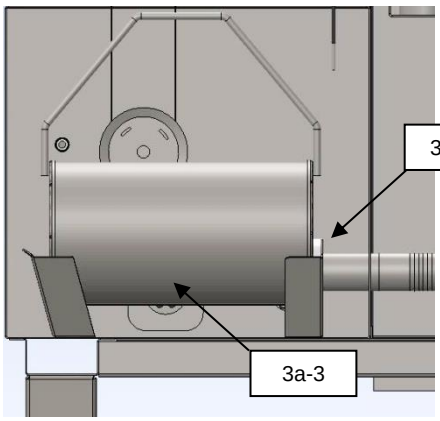


Fig. 3 Rear view of the machine



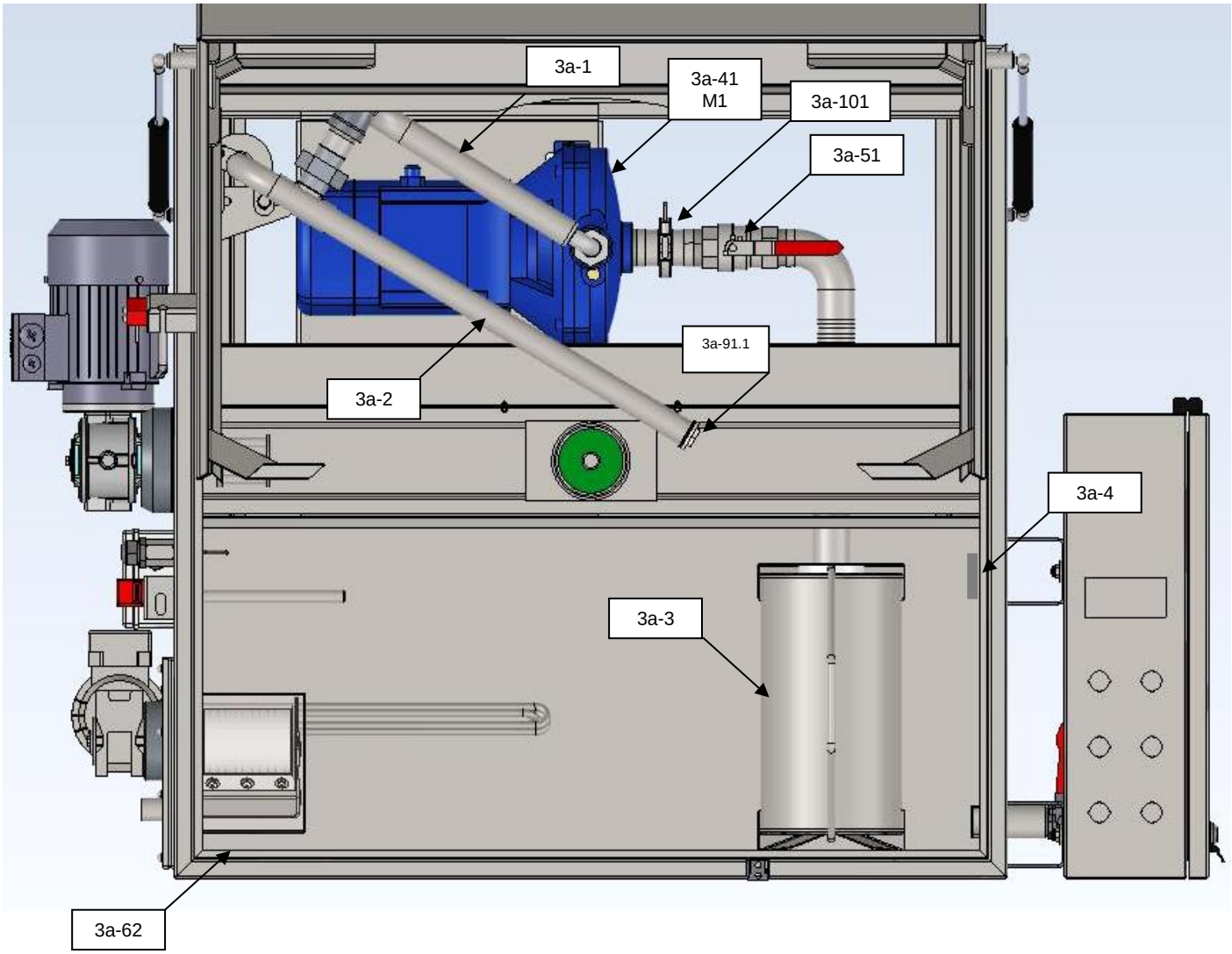


Fig. 3a view of spray nozzle power system

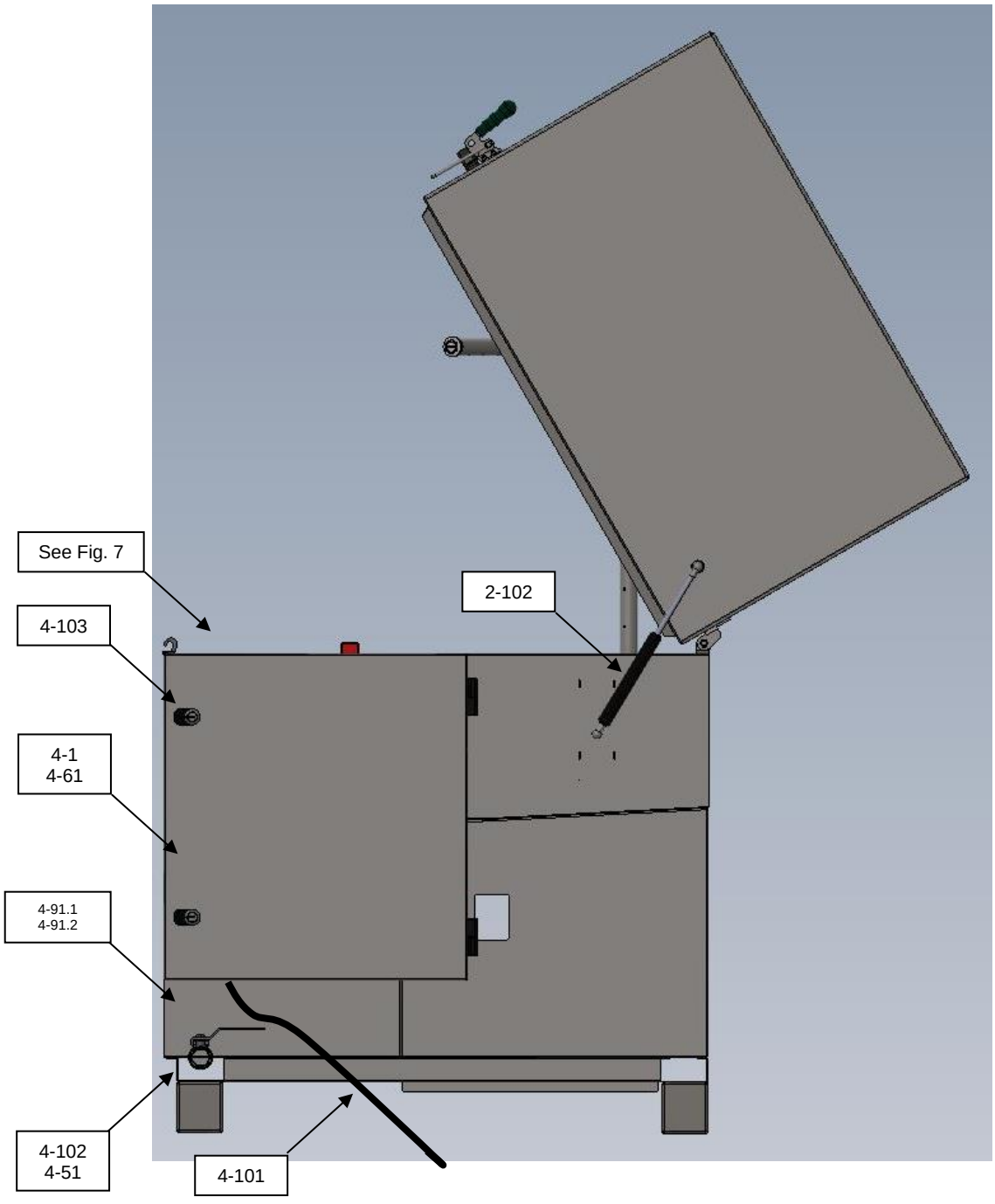


Fig. 4 Right view of the machine

2.1 Standard machine version

2.1.1 Lid and working group

The machine housing is divided into two standard parts; see Figure 1. They consist of a movable lid (pos. 1-2) and a fixed working group (pos. 1-1). Both parts are made of stainless steel (ČSN 17 240).

The working space is located inside the lid and working group.

The working group is divided by removable grids, refer to Figure 1 (pos. 1-71, 1-72). Above the grids there is a working space in which the technological processes of washing of parts take place. Under the grids there is a wash liquid tank with a filter, refer to Section 2.1.2.

The lid is suspended on two hinges, see Fig. 3 (position 3-1) allowing its complete closure. Both of the hinges are secured with locking rings against being pulled out of the eyelets (pos. 3-92.1).

The operator controls the opening and closing of the lid manually. The lid is secured against spontaneous opening by means of a lock, so-called front closure lever; see in Fig. 1 (pos. 101). A handle is screwed to the lid to facilitate its handling (pos. 1-102). Damping gas struts are installed between the lid and the working group to alleviate the weight of the lid, see in Fig. 2, 4 (pos. 2-102). The strut hinges are anchored to the pins welded to the wall of the working group and of the lid.

Sealing between the working group and the lid is achieved using a flexible lid seal put over the peripheral edge of the working group; see in Fig. 5 (pos. 3a-62).

2.1.2 Oil skimmer

When parts containing residual oil are washed, a floating oil film forms on the wash liquid surface. It is removed mechanically using additional machine equipment, so called oil skimmer, see in Fig. 2a. The unit consists of an oil skimming belt (position 2a-101) suspended vertically on a drive roller (pos. 2a-7) driven by an electrical motor. A balance roller is suspended on the lower end of the belt (pos. 2a-5). Droplets of oil are carried by the belt in between teflon blades (pos. 2a-6). When wiped off the belt, the droplets flow through a trough into a pipe with screw fitting (pos. 2a-4), into which an oil discharge valve is screwed (pos. 2a-51).

Torque from the transmission (pos. 2a-41, M1) is transmitted on the drive roller using a shaft (pos. 2a-2) mounted in a bearing housing (pos. 2a-1). The drive shaft is inserted in the bushing in the transmission and secured against shifting by a screw with a washer (pos. 2a-93.1 and 2a-93.2). On the other side, it is secured by a locking ring (pos. 2a-91.1) inserted in the groove in the shaft. The shaft passes through a shaft sealing ring (pos. 4e-61) preventing liquid penetration into the inner parts of the bushing. The end of the shaft is provided with the drive roller (pos. 2a-7).
The left side wall of the working group contains a cut-out to which the oil skimmer unit (pos. 2a-3) is fixed by means of screws and nuts (pos. 2a-94.1÷2a-94.3). It is sealed by a rubber seal (pos. 2a-62) to prevent leaking of wash liquid from the work space of the working group. The flange with the transmission (pos. 2a-1) is mounted on the inside using four screws with washers (pos. 2a-95.1 ÷ 2a-95.3).
The internal section of the oil skimmer unit is covered (pos. 2a-71).

2.1.3 Basket and its drive

Washing of parts proper takes place after they are inserted in the washing basket, see in Fig. 2b, 2c (pos. 2b-5). The basket is formed by a wire structure with a reinforced bottom. The centre of the basket is formed by a tube slid on the so-called bearing pivot, see in Figure 2c (pos. 2c-1). The upper part of the pivot passes through a plastic and metal washer (pos. 2c-91.1 and 92-1): A cotter pin (pos. 2c-93.1) is inserted in a hole in the pivot and secured, holding the basket on the housing.
The bearing pivot is inserted in the tube connected to the support by welding, see in Fig. 2c (pos. 2c-1). A lid with the central tube pin is welded from the top. Attached to the tube are axial

and radial bearings (pos. 2c-2 a 2c-3), both of which are inserted in the tube centre of the basket.
The transmission of torque from the transmission, see in Fig. 2b (pos. 2b-41, M2), on the pinion gear is ensured by a shaft (pos. 2b-2) mounted in the bearing bushing (pos. 2b-1). The drive shaft is inserted in the bushing in the transmission and secured against displacement by a screw with a washer (pos. 2b-93.1 and 2b-93.2). On the other side, it is secured by a locking ring (pos. 2b-91.1) inserted in the groove in the shaft. The shaft passes through a shaft sealing ring (pos. 2b-61) preventing liquid penetration into the inner parts of the bushing. A pinion gear is set on the end of the shaft (pos. 2b-3).
The body of the bearing bushing is attached to the left side wall of the working group by screws with washers (pos. 2b-94.1÷ 2b-94.3). It is provided with a rubber seal preventing leaks of liquid from the working space of the working group (pos. 2b-62). A transmission with an electric motor (pos. 2b-92.1 and 2b-92.2) is attached to the bushing from the outer side.

2.1.4 Washing system

The wash liquid flows in two circuits, see in Fig. 3, 3a:

- **Suction circuit** consists of a removable filter (pos. 3a-3), which prevents dirt from entering the pump, a closing valve (pos. 3a-511), a quick coupling (pos. 3a-101) and a pump (pos. 3a-M1). The pump is attached to a bracket in the rear section of the working group.

  The suction duct is sealed by a rubber collar at the inlet of the filter (pos. 3a-61). The filter itself can be easily dismounted after sliding out of its holders.

- **Discharge circuit** consists of an outlet from the pump, a discharge duct and spraying nozzles.

  After passing through the pump (pos. 3a-41), it enters the washing space in the force of a discharge hose (pos. 3-). Here, the liquid is divided into two flows. One part of the liquid flows into the lower spraying nozzle (pos. 3a-1) and the other part of the liquid passes through the central ... into the upper spraying nozzle (pos. 3a2). To facilitate cleaning, both ends of the duct are provided with a removable plug (3a-91.1).

- **Accessories of the washing system**

  A drain valve (pos. 4-51) is used for draining of washing liquid out of the machine, see in Fig. 4. A safety plug (pos. 4-102) is screwed into the drain valve to prevent accidental leaks of wash liquid due to insufficient closing of the valve.

  A level gauge is mounted to the left side wall of the working group (pos. 3a-4) to check the level of liquid.

2.1.5 Electrical system

It consists of an electrical switchboard cabinet, control and power elements, electrical motors, heater, electric sensors, protective devices, and cable distribution systems. The use of electronic modules allowed high comfort of machine operators with minimum requirements for operation.

- The electrical switchboard, see in Fig. 1 and 4 (pos. 4-1), consists of a stainless steel cabinet with an openable door secured by two locks (pos. 4-103) protecting the machine operator from accidental contact with live electrical circuits. A seal (pos. 4-61) is inserted between the door and the cabinet to protect the internal parts of the cabinet against water ingress. There is a main switch on its front side.

- There are electrical control and indication parts, lucidly arranged with function legends installed in its upper side; see in Fig. 8.

- The wash liquid heating and the washing are fully automated. Technological processes of the machine are controlled depending on the setting of the control unit actuators. Operating personnel is informed on an ongoing process by means of indicator lights and data displayed on the control unit display, described in Section 5.1.

- Wash liquid heating is ensured by an electric submersible heater, see in Fig. 4 (position T1).

- Next to the heating element, an electrical box is attached to the wall of the working group, see Fig. 2 (pos. 2-101), and in it a pipe with a liquid temperature sensor (pos. RT1) passes through the wall of the working group, which maintains the temperature of the wash liquid at the set value. Together with the sensor, a thermal fuse probe (pos. ST1) is located in the sump. It is part of the safety circuits of the machine. If the regulation fails, the liquid temperature starts to rise dangerously. When 95 °C is exceeded, the thermal fuse is breached, interrupting the power supply to the heating element, and further heating of the liquid is stopped. When the temperature drops, the thermal fuse remains open and must be manually reset once the fault is corrected.
- The minimum level sensor, see in Fig. 2 (pos. HS1), is part of the safety circuits of the machine. When the liquid level drops below the safe limit, the so-called level relay interrupts the washing process or prevents its starting.
- A safety switch of the lid, see in Fig. 2 (pos. SQ1) is installed between the lid and the working group in order to enhance safety of operating personnel during the technological processes of washing. When it switches off, the safety circuit terminates the cycle in process, and when the lid is open, the switch blocks accidental starting of the machine.
- Cable distribution systems are placed in cable troughs and electrical boxes to minimise the risk of their mechanical damage. The mains supply includes a power cable terminated with a five-pole mains plug, see in Fig. 4 (pos. 4-101), suitable for use in industrial plants. The mains parameters must comply with the requirements of Section 3.
- With regard to the working environment of the machine, an additional earthing and bonding protection against electric shock is provided. There is a screw for connection to an earth cable on the machine housing near the electric switchboard, see in Fig. 4 (pos. 4-91.1 and 4-91.2).

3 – Technical data

Basic parameters of the standard version (see Fig. 6a):

Outer dimensions:	width	1,390 mm
	length	955 mm
	height	1,405 mm
Height with open lid:		1,920 mm
Total weight including fillings and useful load of the basket:		570 kg
Transport weight with transport packaging:		230 kg

Operational parameters:

Solution filling of the bath:	non-flammable alkaline aqueous solution of detergents according to ČSN EN 12921-2 + A1
Bath temperature:	adjustable from 40 to 70 °C
Timer setting time:	adjustable from 1 seconds to 99 hours 59 s
Operating volume of the bath:	min. 90 litres, max. 140 litres
Electrical connection:	3f+N+PE, TN-S, 400 V/230 V 50Hz
Power input:	max. 8.6 KW
Protection against electric shock:	According the ČSN 33 0600, the machine meets requirements for protection class I equipment
Machine protection:	IP 54
Function control:	by controls on the metal switchboard cabinet with the door in IP55 design
Noise level:	max. 73±3 dB

Wash basket parameters:

Wash basket type:	stationary
Basket dimensions:	
Diameter:	800 mm
Depth:	125 mm
Inside diameter:	600 mm
Basket capacity:	max. 250 kg

Environmental parameters:

Ambient temperature:	+ 5 °C to + 40 °C
Storage temperature without bath:	- 5°C to + 40°C
Short-term temperature overrun is allowed for up to 24 hours:	- 25°C to + 65°C

Site relative humidity: max. 70%. (at +50°C)

Site altitude: up to 1,000 metres above sea level

Operating environment of the machine:

In industrial operations with controlled temperature, protected from atmospheric effects, see the environmental parameters.

The machine cannot be transported, stored or operated in the environment:

- with heavy dust pollution;
- with occasional or permanent acid and alkaline fumes and corrosive gases exposure, in particular the effect of chlorine;
- with dangerous electromagnetic, electrostatic and ionizing impacts;
- with strong vibrations, shocks and impacts;

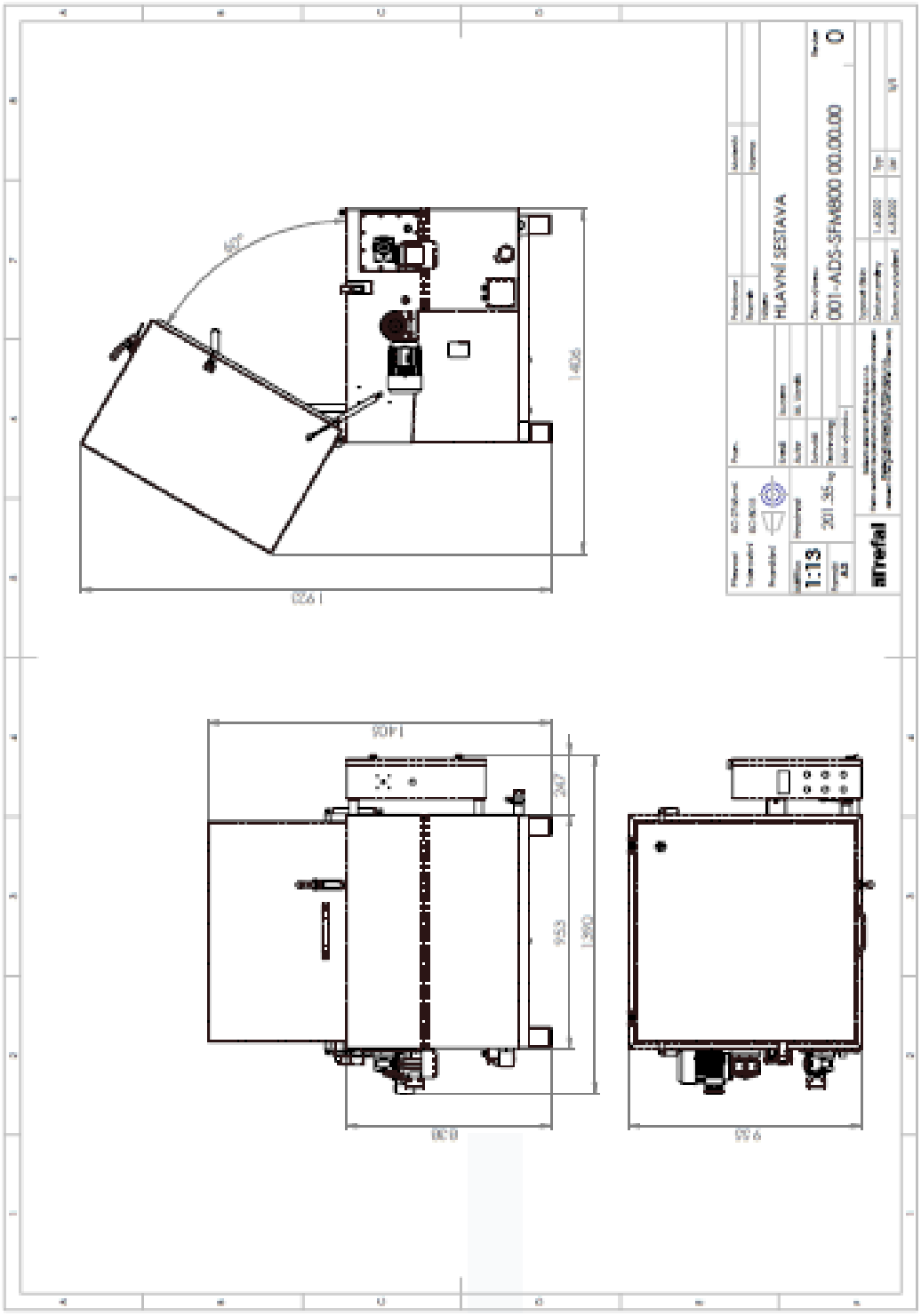


Fig. 5 Basic dimensions of 001-ADS-SFM800

4 – Putting into operation

4.1 - Installation

4.1.1 Handling the machine before installation

If the customer does not require a transport packaging, the machine is delivered packed in a PE foil protected from dust and attached to a transport pallet. The solid design allows using any transport chain if the requirements in Section 3 are met. The manufacturer allows using a forklift for loading/unloading and handling of the machine during its transport to the place of installation, but the centre of gravity of the machine and the method of loading marked on the transport package must be respected.

It is forbidden to access the machine with handling equipment from other than the prescribed side.

CAUTION - There is a risk of crushing injury of a cooperating person by the overturned machine!

4.1.2 Requirements for the place of installation

Before putting the machine into operation for the first time, place it properly horizontally in a temperature-controlled and air-conditioned room corresponding to the character of humid operation and excluding harmful environmental effects mentioned in Section 3. Install the mains supply. **When preparing the installation, carefully study the technical data listed in Section 3**.

Caution: The machine shall always be operated with the earthing cable connected to the main earthing terminal, see in Fig. 4 (pos. 4-91.1 and 4-91.2).

4.2 Putting into operation

Before the machine is put into operation for the first time, a service technician of the supplier carries out the following steps:

- perform an overall check for completeness and intactness of the machine parts described in Section 2 including manufacturer's identification label, see Fig. 3;
- verifies the correct installation of the machine; see in Section 4.1.2;
- provide the machine with all required safety labels, see in Section 4.3.2;
- fill the machine with the wash liquid in required quantity and concentration, see in Section 5.7;
- connect the machine to the mains and put its electric circuits into operating condition;
- set the working temperature on the temperature control unit, see in Section 6.3.1;
- set the cycle parameters on the control unit, see in Section 6.3.2;
- perform the first working cycle of washing with a verification of the function of the pump, the basket drive and the oil skimmer;
- hand over the machine to the customer, including the operating documents;

Then the service technician shall train machine operators for safe use and maintenance in accordance with this manual.

4.3 Definitions of used symbols

The following articles 4.3.1 a 4.3.2 specify warning and informative symbols, which are used in the text of this Manual and on the machine. The knowledge of their meaning is important with regard to safety at work and prevention of damage to the machine.

Before reading the other articles of the User Manual remember the meaning of the following symbols!

4.3.1 Symbols warning of significant dangers stated in the User Manual; see Table:

	**WARNING** (a black drawing on yellow background) It warns of a general danger. Not observing the given procedure could result in a personal injury or damage of property.
	**WARNING** (a black drawing on yellow background) It notifies of a risk of electric shock.
	**WARNING** (a black drawing on white background and red signal) It cautions of a risk of staining with an irritating substance;
	**WARNING** (a black drawing on yellow background) It draws attention to a risk of burning.
	**WARNING** (a black drawing on yellow background) It cautions of a risk of crushing.
	**PROHIBITION** (a black drawing on white background and red signal) The use of water for firefighting is prohibited.

	**INSTRUCTION** (a white drawing on blue background) Gives notice of operator's duty to switch off electricity before carrying out certain action.
	**INSTRUCTION** (a white drawing on blue background) Gives notice of operator's duty to wear protective gloves.
	**INSTRUCTION** (a white drawing on blue background) Gives notice of operator's duty to wear protective goggles.
	**INSTRUCTION** (a white drawing on blue background) Draws attention to operator's duty to look up appropriate information in the instruction manual before performing an activity on the machine.

Table 4.3.1 Definitions of used symbols

4.3.2 Symbols warning of significant dangers installed on the machine:

- On the front of the lid, there are labels with the warning, command „Wear goggles", "Wear gloves" and "Burn hazard"; see Fig. 7.1.

- On the left side there is a label warning of a risk of entanglement of clothes in rotating parts, see in 7.1;

- On the rear side there is a label warning of the dangerous area around the pump, see in 7.2;

- The electrical boxes and the electrical switchboard with low voltage circuits are provided with warning labels : "Danger of electric shock". An earthing label is placed near the earthing screws of the electric switchboard and the earthing terminal, see in Fig. 7.2.

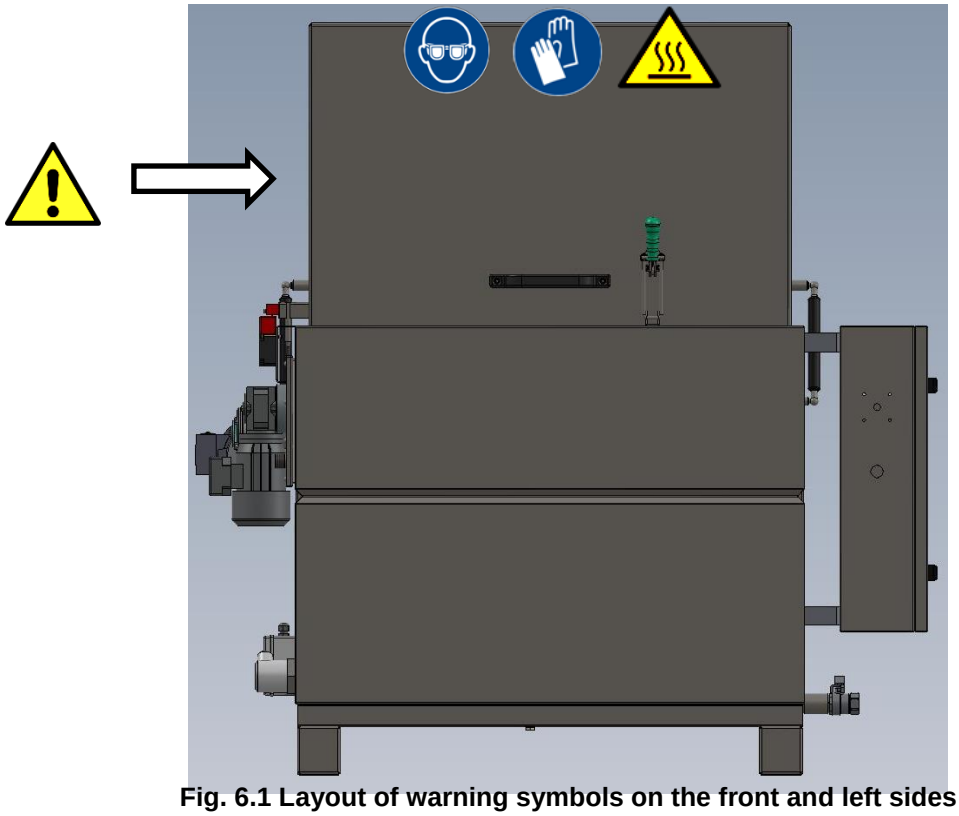


Fig. 6.1 Layout of warning symbols on the front and left sides

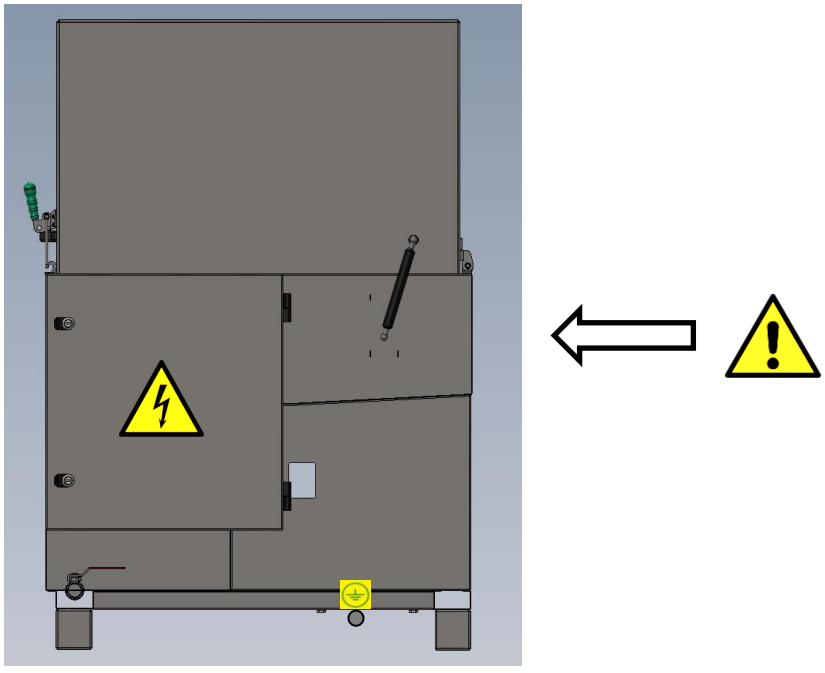


Fig. 6.2 Layout of warning symbols on the rear and right sides

5 – Operation

The following instructions are intended for user's workers who operate the machine. Following the instructions ensures safe, reliable and economical operation. For better illustration, Fig. 7 shows the front and control panels of the electric switchboard and Fig. 7a shows the layout of connectors for connection of electric units and sensors to the machine. Unless otherwise stated, the following text includes descriptions of functions given in these illustrations.

In order to operate the machine safely, study carefully the following articles. Follow their instructions and warnings!

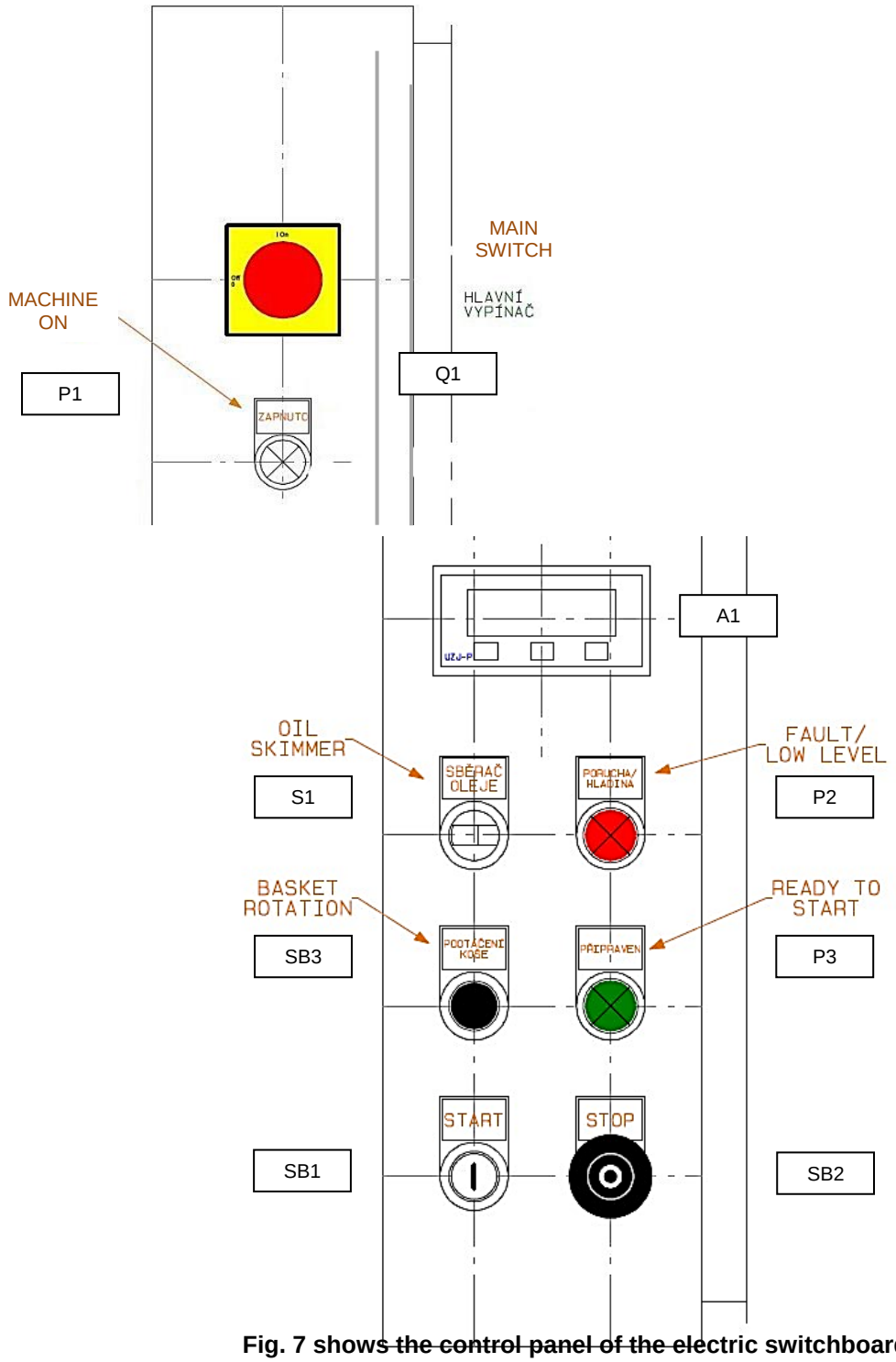


Fig. 7 shows the control panel of the electric switchboard

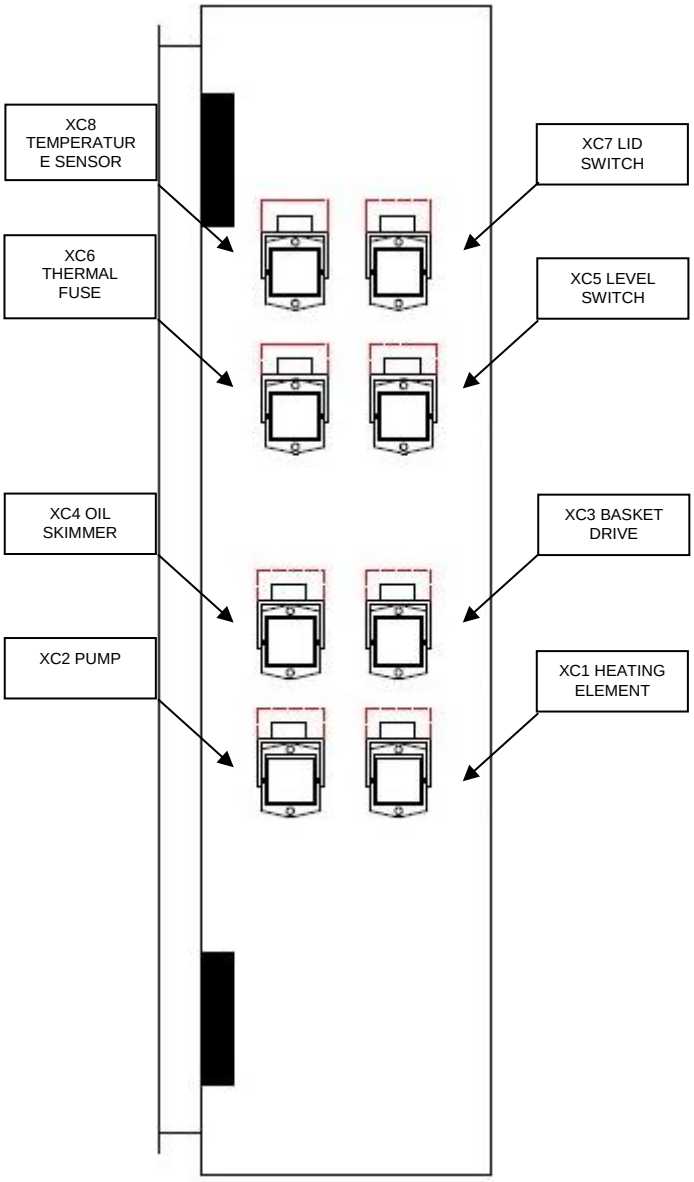


Fig. 7a shows the connectors for connection of electric units and sensors of the machine

5.1 Description of the parts washers machine control

5.1.1 Description of control and indicator parts on the electric switchboard housing

Switch Q1 “MAIN SWITCH OF THE MACHINE”;

When the switch is in position **I**, the electric circuits of the machine, including the emergency circuits, are on.

Signal lamp P1 “ON”;

This signal lamp lights up when the control circuits are supplied power.

5.1.2 Description of control and signal parts on the control panel of the electrical switchboard

Control unit A1;

Operating personnel familiar with programming of washing cycle functions uses the buttons on the control panel to set:

- operating temperature of the washing liquid,
- washing cycle time.

Switch S1 “OIL SKIMMER”;

- the skimmer is off in the neutral position **“0”**
- the skimmer is permanently on in the position **“I”**.

Signal lamp P2 “FAILURE/LEVEL”;

- it lights up if the level of wash liquid is low
- it flashes if there is a failure in the liquid temperature control or if too high temperature has been set on the KT1 digital thermostat, causing the thermal fuse to trip;

Button SB3 “BASKET ROTATION”;

If the lid is open, he basket can be slowly rotated by pushing and holding this button;

Signal lamp P3 “READY”;

The signal lamp turns on when the conditions for starting the washing cycle are met.

Button SB1 “START”;

After the button is pressed, the electrical circuits of the working cycle start are enabled. When the cycle is completed, the P4 signal lamp inside the button lights up.

Button SB2 “STOP”;

After the button is pressed, the working cycle is immediately interrupted and the machine returns to the idle status.

5.2 Handling the lid, inserting parts for cleaning

Open the lid after unlocking the closure lever. Grasp the handle, see in Fig. 1 (pos. 1-102) with one hand and push it down, use your other hand to unlock the closure lever (pos. 1-101) and release it from the hook. Then tilt the lid backward.

5.2.1 Inserting (removing) parts for cleaning

Insert the items to be cleaned into the washing basket only when the lid is fully open. While inserting, fill the basket bottom evenly.

This is facilitated by the **"ROTATING"** function, which is started by putting the machine on and by pushing the **SB3** button, see in Fig. 7.

When the cleaned items are inserted into the basket, the lid must be fully opened! Take special caution due to the small handling space.

CAUTION - there is a risk of an injury by hitting the head against the edge of the lid!

When using the SB3 button, make sure that the basket is not rotating during loading and removing of parts.

CAUTION - Risk of an injury due to entanglement of limbs or working clothes!

When taking out items from the washing basket, be very careful because of risk of injury when the lid is open, hot steam flows and residues of the wash liquid flow out from the sprays. When taking out washed items from the basket, observe safety instructions for handling of residues of the wash liquid that could stick on them.

Be very careful while opening the lid after technological processes are completed.

CAUTION - Risk of skin burns from hot liquid and inhalation of hot steam!

While inserting (taking out) cleaned items, use prescribed protective equipment. Familiarize yourself with safety rules for handling the wash liquid.

CAUTION - Danger of eye or skin injury with mild up to serious consequences!

Caution: ***After filling the basket, close the lid again and secure it with the closure lever against opening. When you start the machine, the lid must be properly closed, otherwise no function can be started!***

5.3 Heating the wash liquid

After the electric circuits of the machine are switched on using the main **Q1** switch, the **P1 "ON"** signal lamp lights up and the control unit **A1** display turns on, see in Fig. 7. The heating element starts heating up the wash liquid, and the control unit **A1** display starts displaying data on current temperature of wash liquid. When the required maximum temperature of the wash liquid has been reached, the control unit disconnects power supply to the heater and the displayed temperature starts dropping until the minimum operating temperature is reached. The heating element is activated again and the temperature starts rising. This process is repeated until the machine is turned off.

5.3.1 Time heating

If you select the wash liquid to be heated only at a certain time, this time must be set on the UZJ control unit, see in Section 6.3.2, "Setting the time of activation and deactivation of time heating". After turning on this function in the UZJ (**dAY on**) menu, the power supply to the heating element will be turned on and then turned off. The washing liquid will be heated only during this time and on working days Mon - Fri.

Caution: ***If the P2 "FAILURE/LEVEL" signal lamp lights up, check the level of wash liquid (see in Section 5.8).***

If the level is correct, there is a fault in the machine electric circuits. Switch off the main switch and call a service employee!

Faults of electric circuits of the machine may only be repaired by personnel with the corresponding electrotechnical qualification and acquainted with the design of the machine.

CAUTION - Danger of fatal electrical injury!

5.4 Washing cycle

Check that the **P3 "READY"** signal lamp, see in Fig. 7, is on, signalizing that the machine is prepared for the technological processes of part washing.

Press the **SB1 "START"** button and start the washing cycle. For the time set on the control unit, the machine is rotating and the wash liquid is sprayed on items loaded in the basket from all spraying nozzles, as it is described in Section 2.1.4. The time remaining till the end of the cycle is displayed on the control unit display during the cycle.

5.5 Washing interruption

If you want to terminate the washing cycle sooner for any reason, push the **SB2 "STOP"** button.

Restarting is performed using the **SB1 "START"** button, as described in the previous paragraph. The pre-set cycle period runs again since the re-start.

5.6 Oil removal from the wash liquid

This function applies to the machine fitted with an oil skimmer, see in Section 2.1.2.
When the wash liquid is heavily contaminated by the floating oil, start the oil skimmer by turning the **S1 "OIL SKIMMER"** switch to **"I"**, see in Fig. 7. In this position, the oil skimmer function is completely independent on other functions of the machine. **Therefore, regularly check for the correct positioning of the collecting vessel under the outlet of the drain channel draining the collected oil!**

5.7 Draining the machine

Unscrew the safety plug (pos. 4-101) out of the drain valve, see in Fig. 4 (pos. 4-51) and open the drain valve to drain the machine. When the liquid has been drained, open the machine lid and remove both grids (pos. 1-71 and 1-72), see in Fig. 1. Use a pressure water hose to rinse the bottom of the working group.

Remove the filter, see in Fig. 3a (pos. 3a-3) out of the suction duct and wash it on the outside by water jet and flush its inside through the inlet opening if necessary. If the filter is damaged, **replace it with a new one!** Once the bottom of the working group has been cleaned, reinstall the filter and the grids.

It is prohibited to operate the machine with a clogged or damaged filter or without a filter.

CAUTION - there is a risk of clogging the pump with deposits, deterioration of the washing capacity and damage to the pump!

5.7.1 Cleaning the oil skimmer, see in Fig. 2a (pos. 2a-41).

Cleaning of the oil skimmer should be performed with wash liquid replacement. Drain the machine and remove the cover (pos. 2a-71).

Disassemble the skimming belt from the oil skimmer drive (pos. 2a-101). Remove the balance roller off its lower section (pos. 2a-5). Lift it above the drive roller (pos. 2a-7) and slide it out of the teflon blades (pos. 2a-6). Use undiluted wash liquid and a water jet to clean the disassembled belt, teflon blades and the drain channel. After cleaning, reinstall the dismounted parts, switch on the machine and check that the belt is running smoothly. Finally, reinstall the cover.

Take special caution when cleaning the working space of the machine immediately after stopping the technological processes.

CAUTION - Risk of scalding by hot liquid or inhalation of hot vapours!

5.8 Filling the machine with fresh wash liquid

Check that the drain valve, see in Fig. 4 (pos. 4-51), is closed and that the safety plug is screwed in (pos. 4-101).

Open the machine lid and remove the grids from the floor, see in Fig. 1 (pos. 1-71 and 1-72). According to the procedure provided on the package of the concentrated alkali solution of

detergents, pour the measured amount of the concentrated wash liquid onto the uncovered floor of the working space and fill up with water. Check the correct level using the dipstick, see in Fig. 3a (pos. 3a-4). After filling, reinstall the grids and close the lid.

Switch on the electric circuits and perform two cycles without filling the basket in order to mix the water with the concentrated solution.

Use prescribed protective equipment for cleaning and wash liquid replacement. Familiarize yourself with safety rules for handling the wash liquid.

CAUTION - Danger of eye or skin injury with mild up to serious consequences!

6 – Adjustment and maintenance

Regular maintenance of the machine is necessary to keep it in a safe, reliable and working condition. The maintenance is carried out by a person familiar with the arrangement of the individual parts of the machine, their basic functions and method of removing harmful substances after the washing process.

Before starting any maintenance, switch off the machine with the main switch unless otherwise stated in the text below.

During machine maintenance everyone is prohibited, except to supplier's service technician or a person authorized by it, to remove covers protecting the operator of the machine from the risk of injury, open the door of the electrical switchboard, interfere in electrical circuits or internal installation of the machine, change the programming of functions or otherwise modify the machine design!

CAUTION - Danger of fatal electrical injury!

CAUTION - Risk of machine damage and increased risk of injury!

Use prescribed protective equipment when handling parts contaminated with the wash liquid. Familiarize yourself with safety rules for the wash liquid handling.

CAUTION - Danger of eye or skin injury with mild up to serious consequences!

Before starting maintenance, wait until the wash liquid temperature drops to a safe value.

CAUTION - Risk of scalding by hot wash liquid or inhalation of hot vapours!

6.1 Maintenance performed by the machine operator.

The machine operator only performs regular cleaning each time the wash liquid is changed according to the procedure specified in Section 5.7.

6.2 Adjustment and maintenance performed by personnel familiar with the layout of the mechanical parts of the machine

6.2.1 Adjustment.

The machine does not require adjustment of mechanical parts.

6.2.2 Maintenance.

Continuous:

- Check the basket movement during everyday operation of the machine. If the noise from the machine gradually rises or if excessive speed variations or vibrations are observed, disassemble the basket from the housing, see in Fig. 2c (2c-1 and 2b-4). Then, check the wear of the plastic in the bearings (pos. 2c-2 and 2c-3). If excessive wear or damage is found, it is necessary to replace the bearings!

Periodic:

- Inspect mechanical connections, valves, screwed fittings, hoses and the lid seals at least once every 12 months. If leaks of the wash liquid are observed, carry out resealing;

- Remove the oil skimmer cover and check the wear of the grooves on the drive roller at least once every 12 months. When the grooves have been worn away, replace the roller;

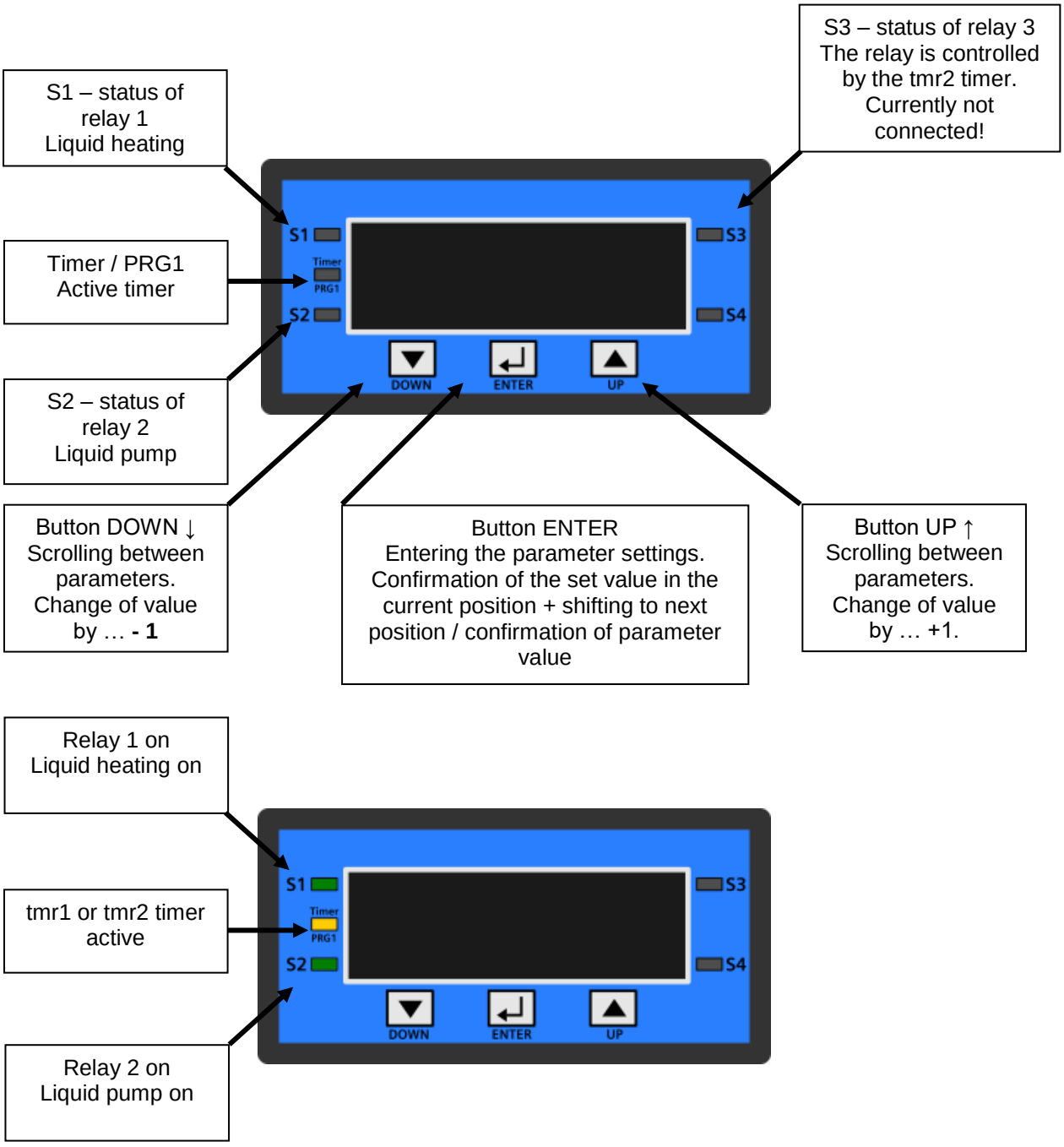
- Replace the gas struts every 2 years regardless of their condition or operation;

- Every 4 years or 4,000 hours of operation, disassemble the pump, the oil skimmer and drive assemblies and hand the units over for a general overhaul;

6.3 Adjustments performed by personnel familiar with the functional and program layout of the machine

6.3.1 Description of the UZJ3-P control unit, see in Fig. 6.3.1-1

The UZJ P3 control unit installed on the machine controls the individual working cycle functions according to set parameters. Table 6.3.1-2 shows the parameters set by the manufacturer.



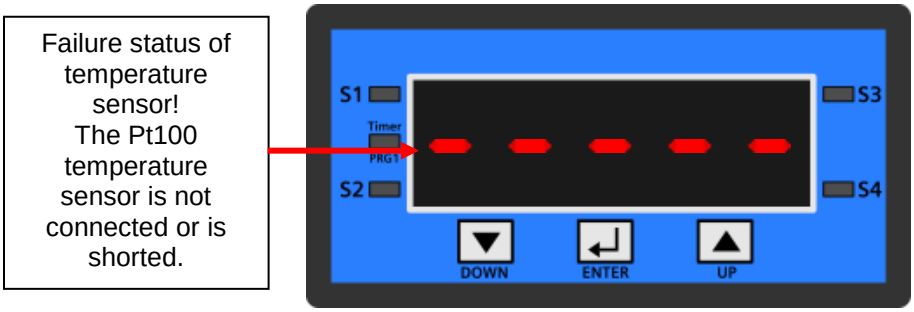


Fig. 6.3.1-1 Function of buttons and signal lamps on the control unit

LIST OF PARAMETERS OF UZJ3-P(RTCC) CONTROL UNIT		
NAME	DEFAULT SETTING	DESCRIPTION
PASoF	**PASoF**	Password is off = full access to all parameters
PASon		Password is on = restricted access to all parameters except for the **dAY on** or **dAY oF** parameters. It is necessary to enter a password.
S1oF	**60 (°C)**	Relay 1 off limit = the maximum desired temperature of wash liquid (when this value is reached, the heating element is switched off), see in the heating function diagram.
S1on	**55 (°C)**	Relay 1 on limit = the temperature value at which the wash liquid heating is switched on again (S1on < S1oF), see in the heating function diagram.
tmr1	**04.00 (min.s)**	WASHING function timer. The time for which relay 2 is on = pump on.
tmr2	**00.00 (min.s)**	Prepared for next function. The time for which relay 3 is on (the relay is switched on after the tmr1 timer has elapsed.
ti on	**06 00 (h min)**	Time of switching on the TIME HEATING (PREHEATING) function if the **dAY** parameter is set to **on**. Heating is then controlled by the **S1oF** and **S1on** parameters.
ti oF	**16 00 (h min)**	Time of switching off the TIME HEATING (PREHEATING) function if the **dAY** parameter is set to **on**.
SEt d	**Current day in week**	Current day in week (**mo, tu, we, th, Fr, SAt, Sun**). Correct setting is important for the TIME HEATING (PREHEATING) function.
SEt t	**Current time**	Current time (e.g.: **14 22** (h min)). Correct setting is important for the TIME HEATING (PREHEATING) function.
dAY oF	**dAY oF**	The TIME HEATING (PREHEATING) function is off. Heating is controlled by the **S1oF** and **S1on** parameters regardless of a day in the week and time.
dAY on		The TIME HEATING (PREHEATING) function is on. Heating is controlled by the **S1oF** and **S1on** parameters with respect to a day

		in the week and time. **In order for this function to go on at the set time, the machine must remain on!** **This function is active only at work days, Monday (mo) to Friday (Fr)!** **This function does not go on on Saturday (SAt) and Sunday (Sun) = heating is not activated!** **If it is necessary to work on these days, the value of the dAY parameter must be changed to oF on the given day!** **If this function is to be activated on Monday (mo) again, the value of the dAY parameter must be changed to on after the end of weekend work!**

Fig. 6.3.1-2 Table of default parameters set by the manufacturer

6.3.2 Procedure for changing the parameters set by the manufacturer

- Enabling the access to the parameters

In order to enable a change in the status of any parameter, it is necessary to enable access by changing "**PASon → PASoF"**, see in Fig. 6.3.2-1

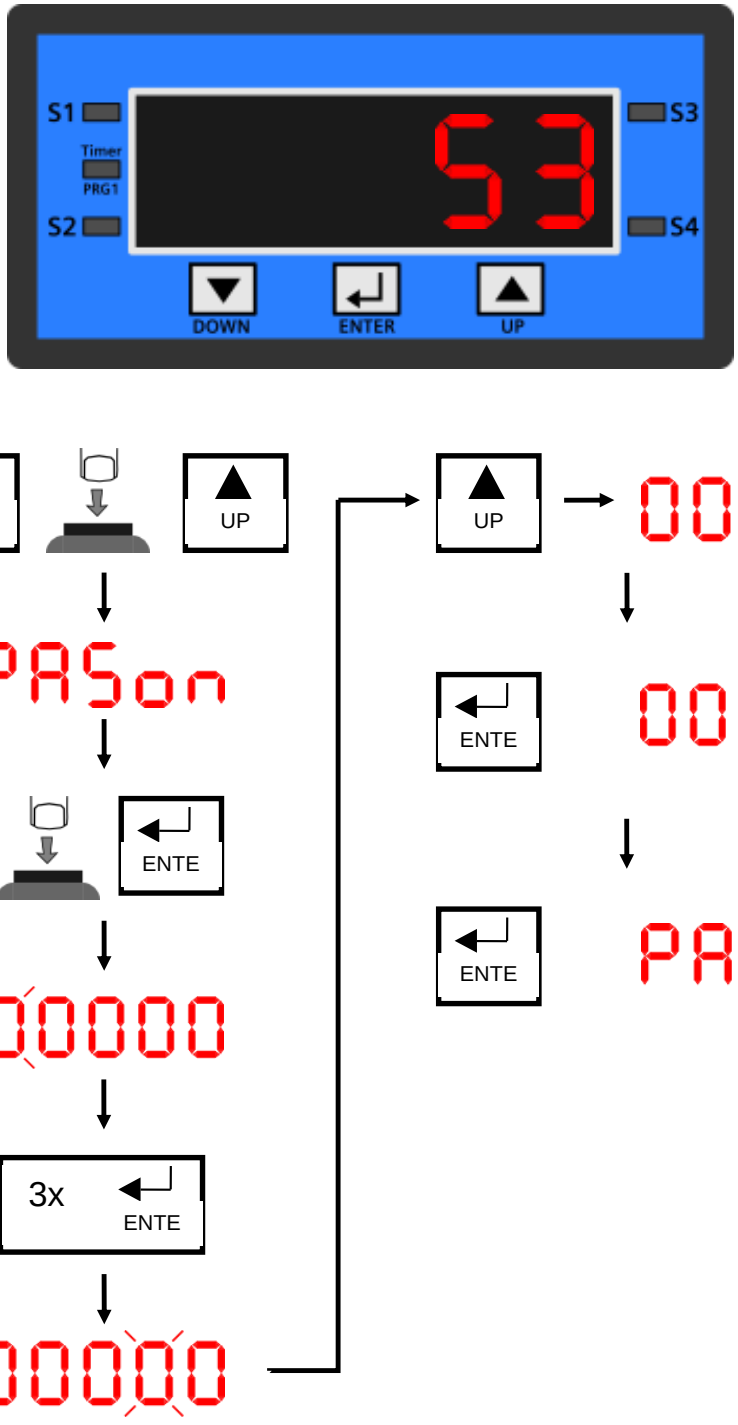


Figure 6.3.2-1 Illustration of the procedure of enabling access to parameters (temperature)

- Disabling the access to the parameters

If it is not necessary to leave the access to parameters enabled, use the following procedure to disable the access to the parameters. Changing the status of parameter PASof → PASoN = disabling the access, see in Fig. 6.3.2-2.

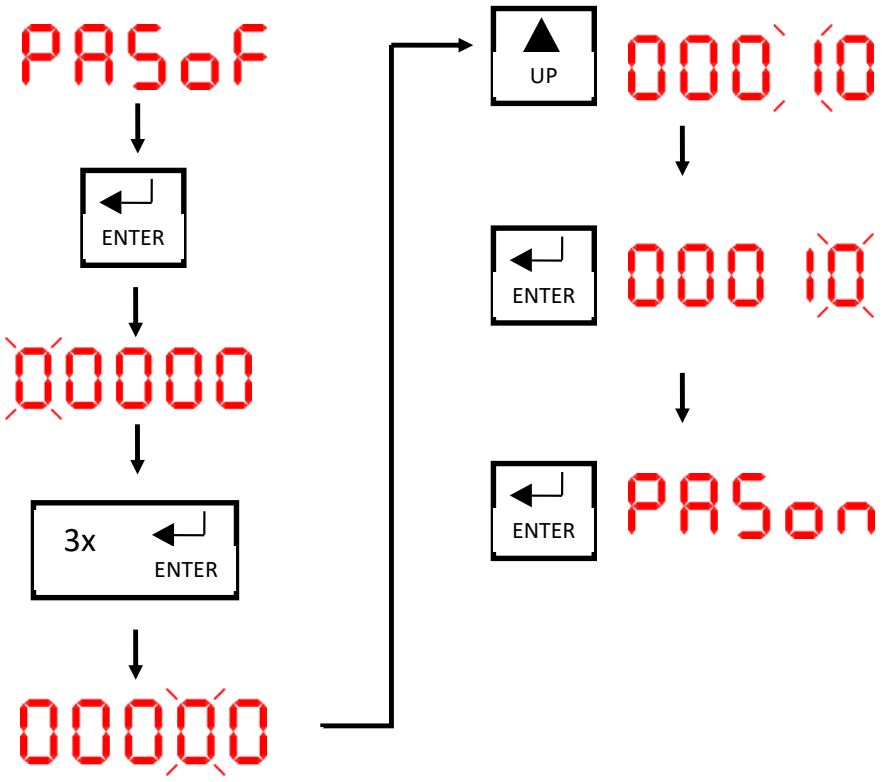
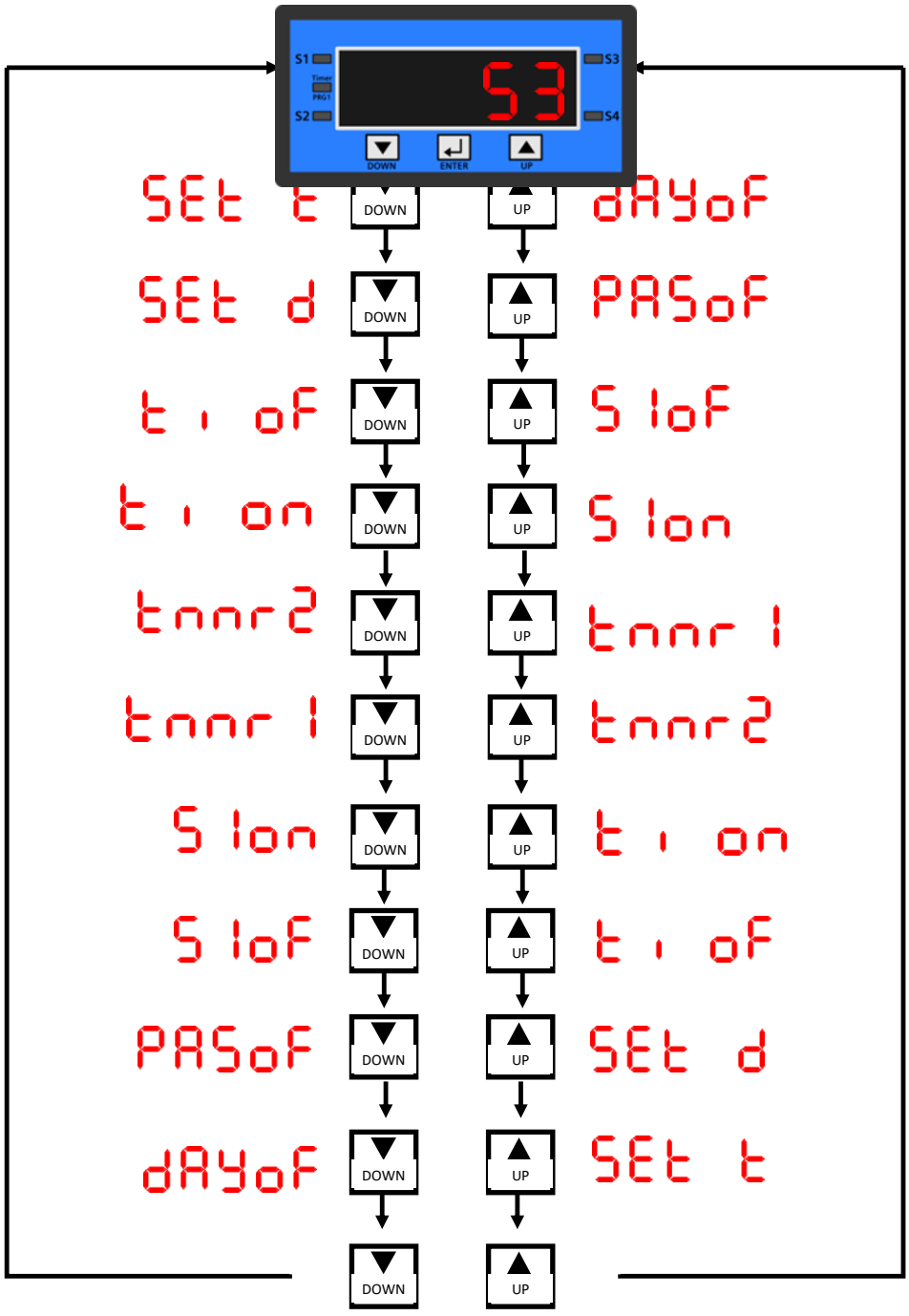


Figure 6.3.2-2 Illustration of the procedure for disabling the access to parameters

MOVEMENT IN THE UNLOCKED MENU OF PARAMETERS

If the access to parameters (PASoF status) is enabled, the procedure for movement in the menu is displayed on the control unit display. The following sections describe the individual procedures based on this illustration:



- Temperature heating setting

Changing the **S1oF** and **S1on** parameters. The maximum range of the parameters is 30°C..70°C! The procedure for changing the parameters is shown in Fig. 6.3.2-3.

CAUTION: ***It is necessary to observe the condition S1on < S1oF, see in Figure 6.3.2-4!***

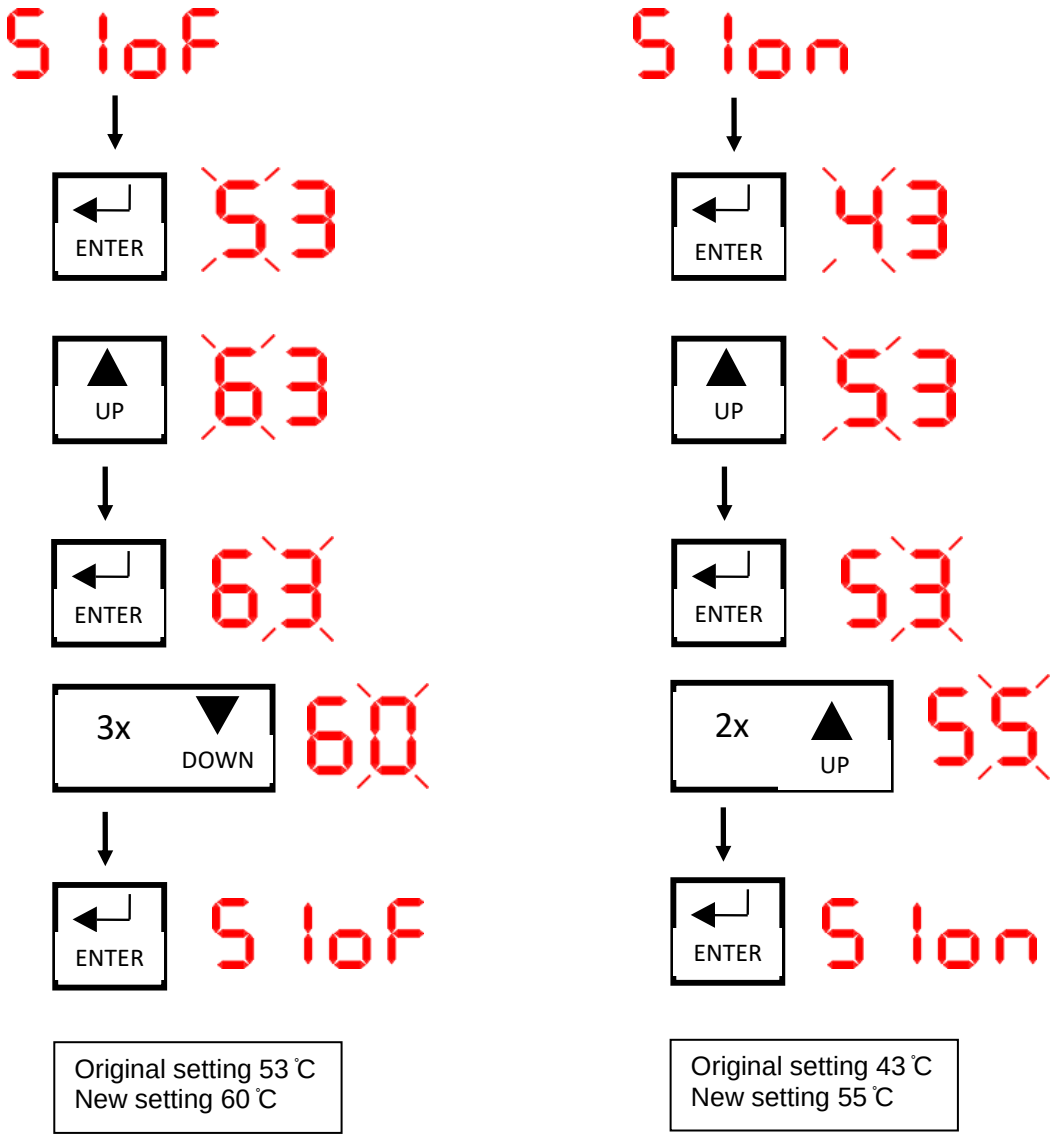


Figure 6.3.2-3 Illustration of the procedure for setting of parameters (temperature)

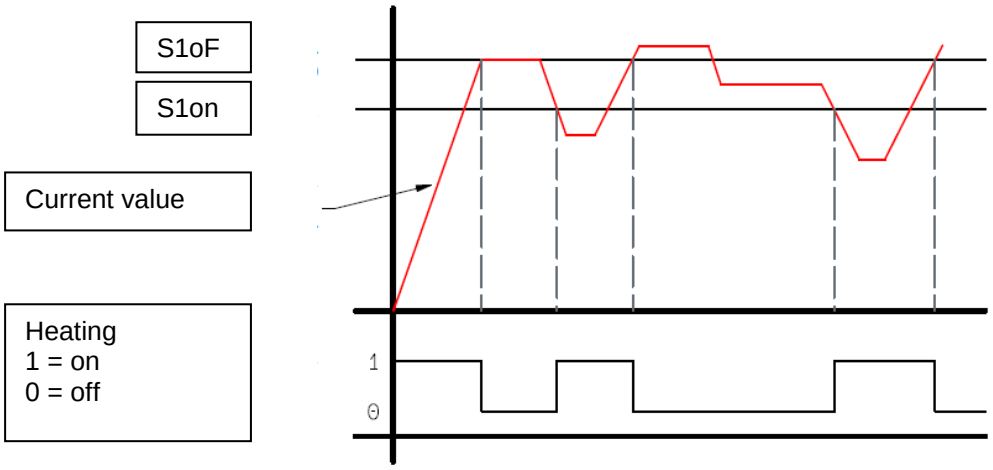


Figure 6.3.2-4 Illustration of heating element switching

- Setting of washing time

Change in the **tmr1** parameter. The maximum range of the parameter is 99 min. 59 s! The procedure for changing the parameters is shown in Fig. 6.3.2-5.

(an example of changing the cycle time from the originally set 4 min. to 6 min. 30 s).

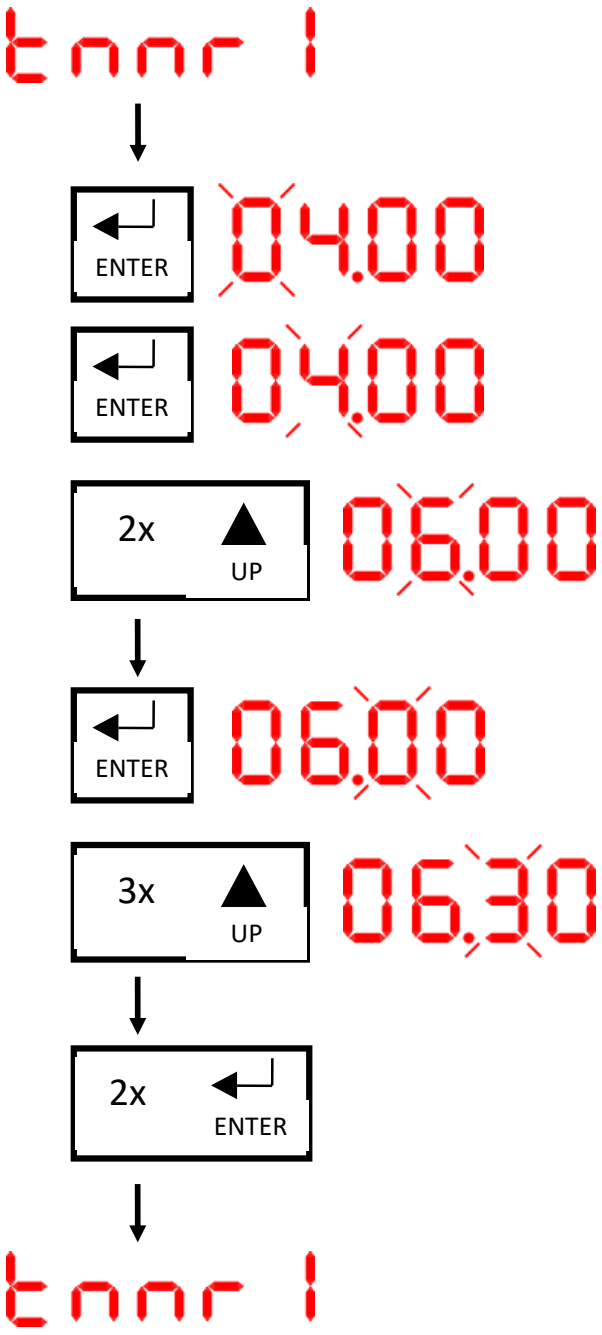


Figure 6.3.2-5 Illustration of the procedure for changing the washing time parameters

- Change in the **tmr2** parameter. The maximum range of the parameter is 99 min. 59 s! The **tmr2** parameter is set in the same way as tmr1.

CAUTION: ***This timer is not used for this machine configuration and, therefore, it must be set to 00 min. 00 s! If it were set in another way than specified, it would just extend the washing cycle time. However, no function of the machine is active during this time!***

- SETTING THE TIME OF ACTIVATION AND DEACTIVATION OF THE TIME HEATING (PREHEATING)

A diagram for switching the heating element on and off according to set time is shown in Fig. 6.3.2-6. The following sections describe the procedure for setting of time heating.

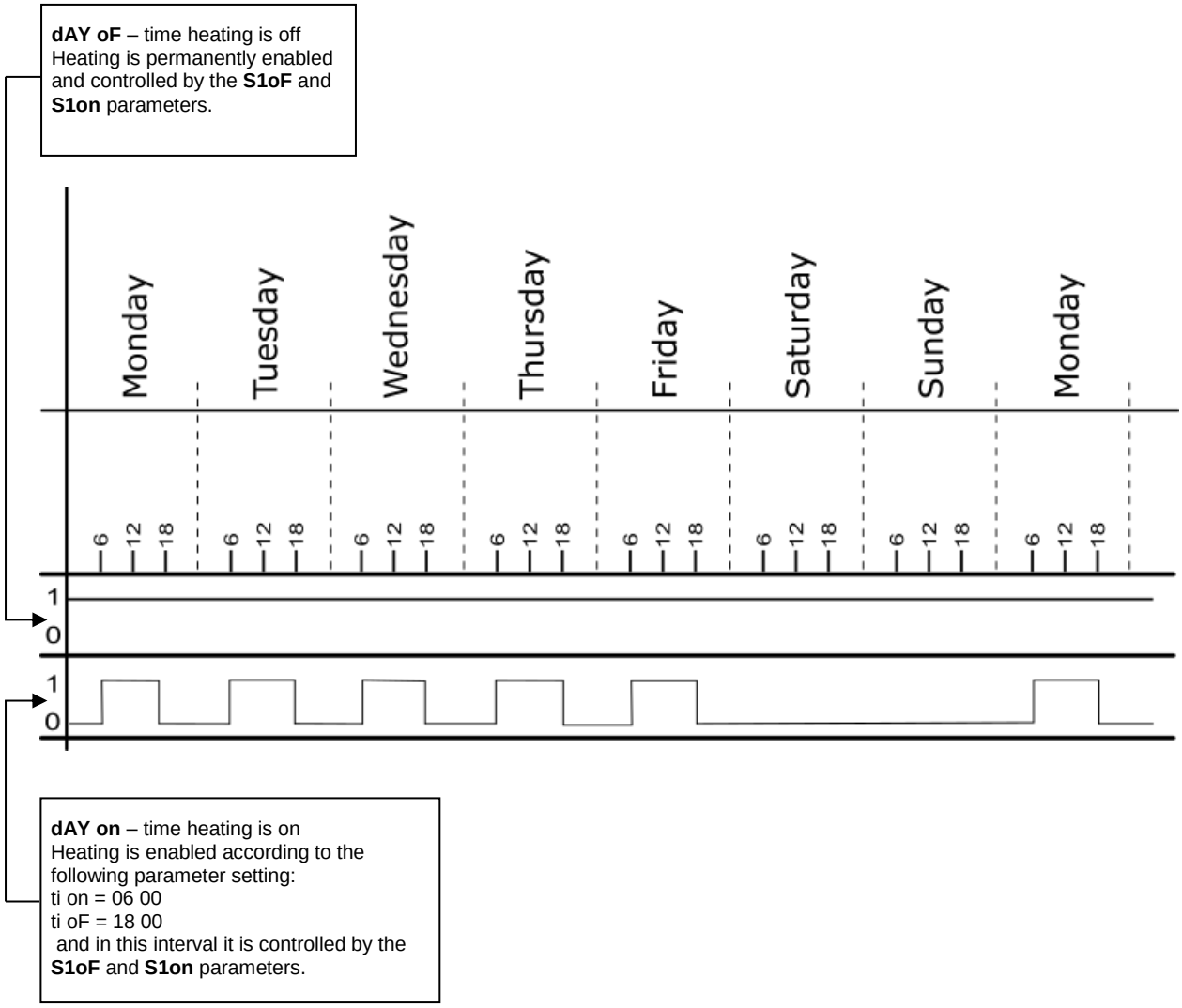


Figure 6.3.2-*6* Diagram of switching the heating element on and off with the activated and deactivated time heating

- SETTING THE TIME OF ACTIVATION AND DEACTIVATION OF THE TIME HEATING (PREHEATING)

Changing the "**ti on"** parameter (time of heating activation) and **"ti oF"** (time of heating deactivation), see in Fig. 6.3.2-7
The maximum range of the parameter is 23 hours 59 min.

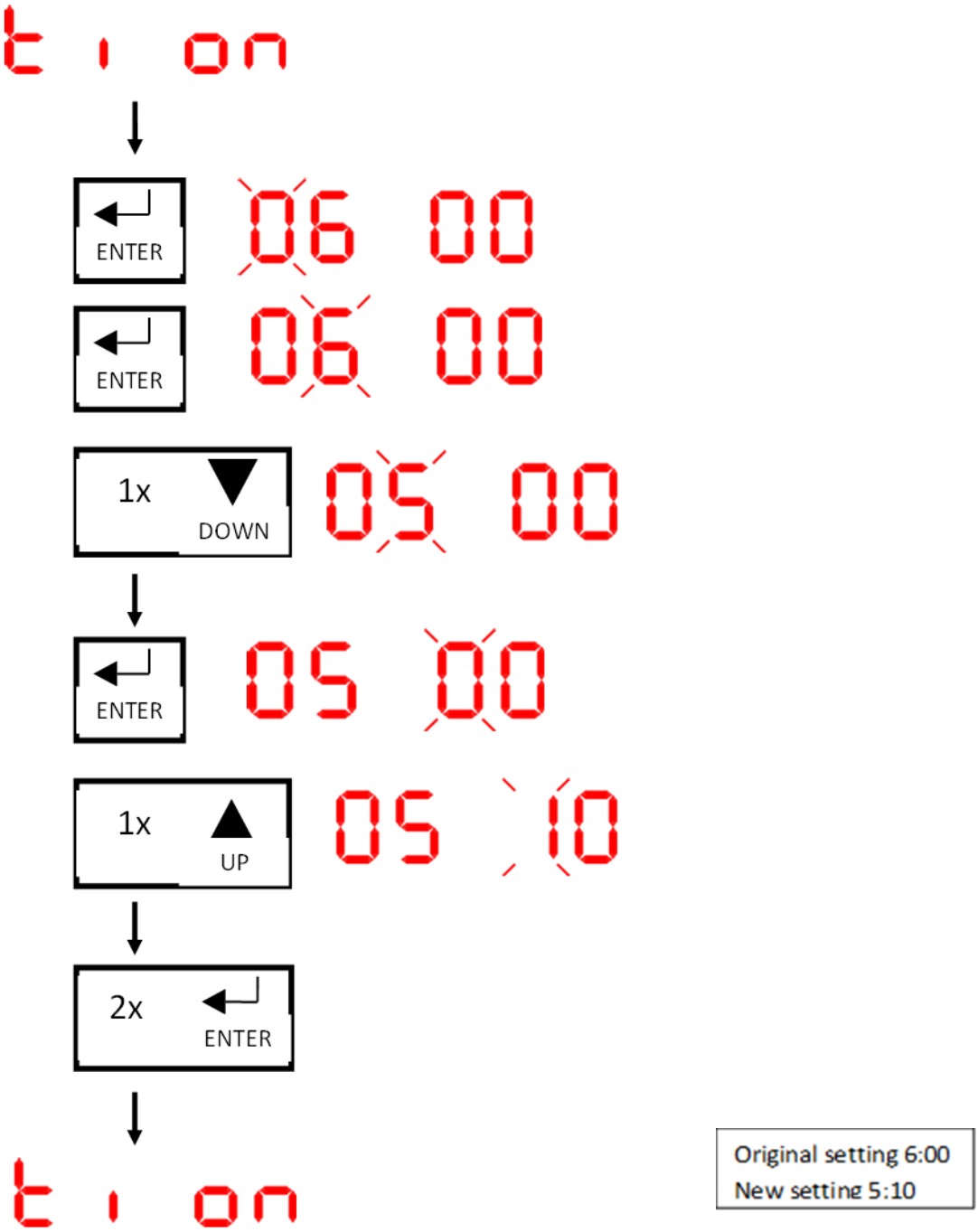


Figure 6.3.2-7 Illustration of the procedure for changing the parameters of switching the heating time on and off

- **SETTING THE CURRENT DAY IN THE WEEK**

Change of the **SEt d** parameter. This parameter influences the correct function of time heating, see in Fig. 6.3.2-8.

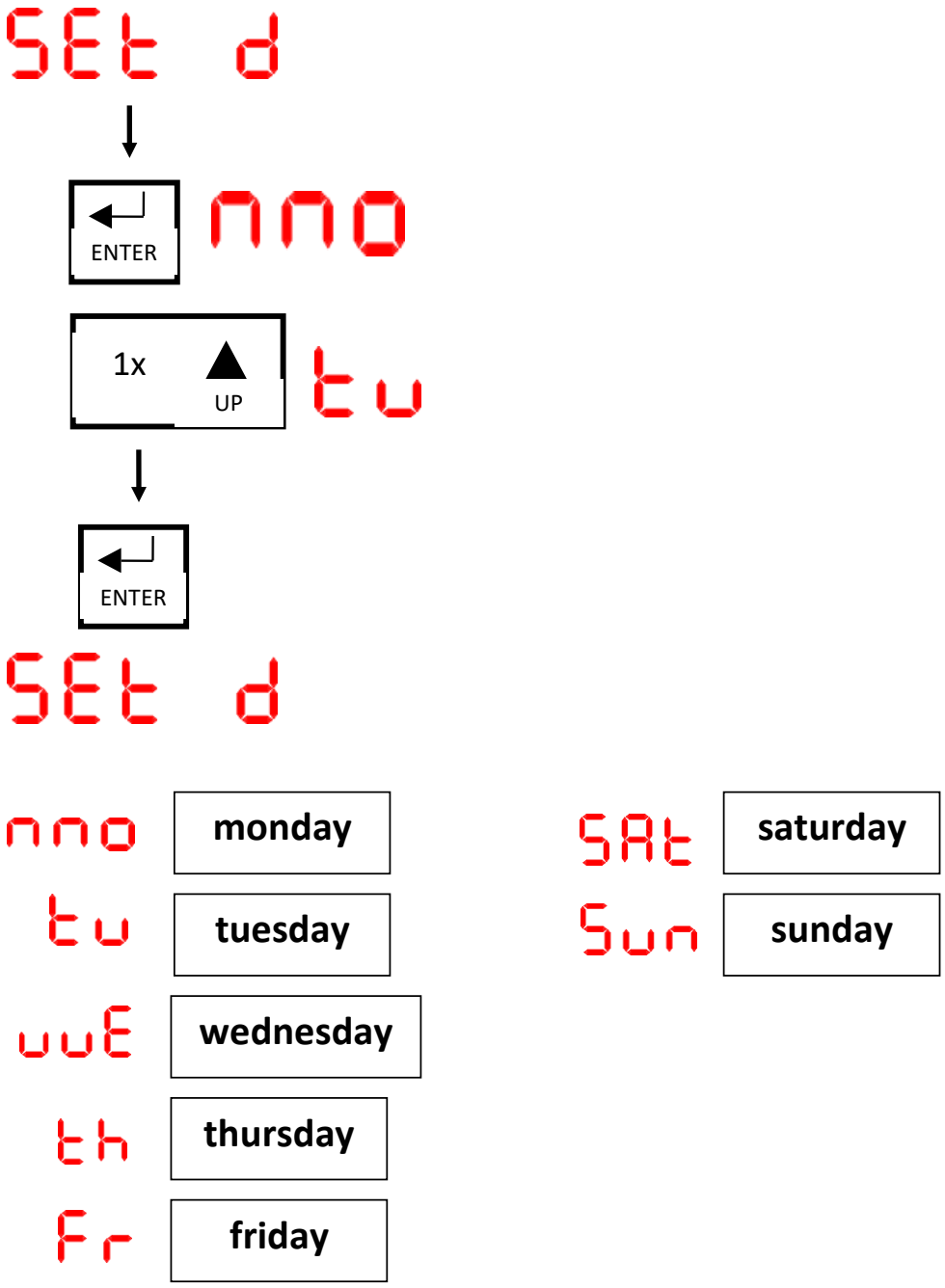


Figure 6.3.2-8 Illustration of the procedure for entering a day in the week for activation and deactivation of time heating

- CURRENT TIME SETTING

Changing the **SEt t** parameter. This parameter influences the correct function of time heating, see in Fig. 6.3.2-9.

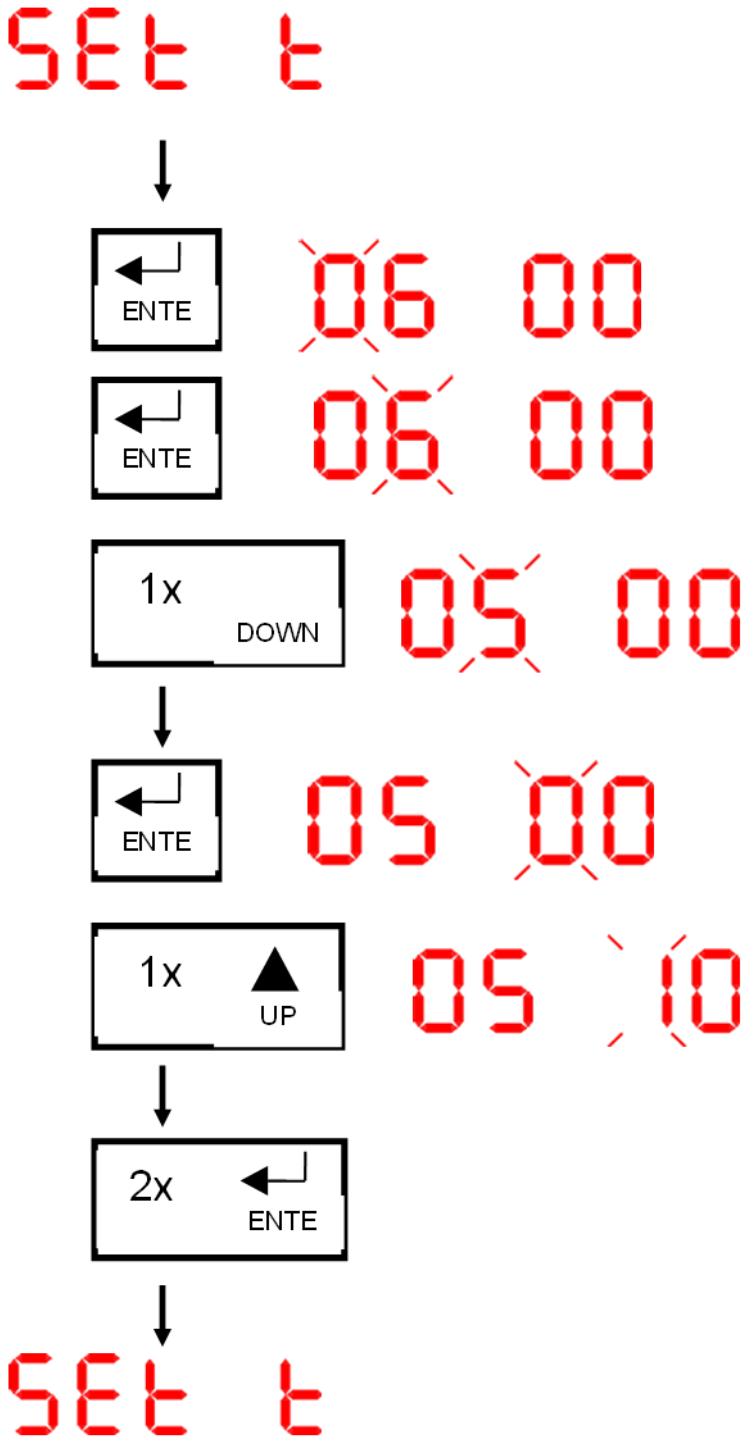


Figure 6.3.2-9 Illustration of the procedure for entering the date and time

6.4 Maintenance performed by personnel familiar with the functional layout of the machine and qualified for work on equipment under voltage

The following shall be performed at least once every 12 months:

- check the condition of the electrical indication and power components in the electrical switchboard. If a fault is found, disassemble the electric switchboard and send it to a service organization;

- check the condition of the external cabling of electric sensors and electric motors, including connectors, cable protectors, electric distribution boxes and the mains cable. Possible faulty parts shall be replaced;

- check the connection of the earthing cable to the earthing terminal.

6.5 Maintenance performed by personnel qualified for verification of electrical safety of the machine

- The machine is designed for the environment according to ČSN 33 2000-5-51 ed. 3, AA5, AB5, AC1, AD4, AE5, AF3, AG1, AH1.
- The protection of operators of the machine against electrical shock is performed according to ČSN EN 60 204-1 ed. 3, Art. 6.2.2, 6.2.3, 6.3.2.3, 6.3.3.
- Installation in the point of connection to the mains must meet the requirement of ČSN 33 2000-4-41 ed. 3 Art. 411.4. Once every 3 years, regularly inspect the installation, including the grounding wire, according to ČSN 33 2000-6 Art. 62.1.2 unless otherwise specified by the user.

Caution: ***This section contains standards used in the Czech Republic. To verify the electrical safety of the machine and the electrical installation of the connection point in other countries, use updated editions of standards IEC 60 204-1 and HD 60 364-6.***

- Hand over the parts washers machine with its wiring diagram and applicable user manual for verification of its electrical equipment and installation;
- Hand over the machine with its technical documentation according to Annex 10.1 and applicable user manual for overhaul of its electrical equipment and installation.

Regular inspection of electrical equipment of the machine				
Electrical installation of the machine	Check of the condition and check of compliance with documentation	Once every 3 years	engineering inspector	See Annex 10.1 and User manual
Electrical switchboard; see Fig. 4 (pos. 4-1)	Verify the protective circuit for continuity according to Section 18.2.2 Test 1			Electrical measurements according to ČSN EN 60 204-1 ed. 3
	Verify the fault loop impedance according to Section 18.2.2 Test 2			
	Perform the test of the lowest insulation resistance according to ČSN EN 60204-1 ed. 3, Article 18.3			
	Perform the voltage test according to Section 18.4.			
	Perform functional tests according to Section 18.6. Measure the maximum input power of the machine when the wash liquid heating is running; see Section 5.3. The input power must not exceed the value specified in Section 3.			

Table 6.6-2 Overview of requirements for the implementation of regular electrical inspections of the machine.

It is forbidden to operate the machine without verifying the electrical safety on a regular basis. If any failure is detected, the repair or replacement of damaged parts on electrical equipment or electrical installation of the machine can only be carried out by the supplier's service worker or authorized persons with electrical qualification for work under voltage.

CAUTION - Danger of fatal electrical injury!

7 - Safety guidelines for the machine operation

During machine maintenance everyone is prohibited, except to supplier's service technician or a person authorized by it, to remove covers protecting the operator of the machine from the risk of injury, open the door of the electrical switchboard, interfere in electrical circuits or internal installation of the machine, change the programming of functions or otherwise modify the machine design!

CAUTION - Danger of fatal electrical injury!

In case of fire in the electrical installation, disconnect the machine from the power supply and use a fire extinguisher designed for electrical equipment. When extinguishing a fire, use protective equipment against toxic combustion products!

CAUTION - Danger of electrical injury!

CAUTION - Risk of an injury due to toxicity of products of combustion!

Fill the machine with the prescribed wash liquid only. Use prescribed protective equipment when handling the parts. Familiarize yourself with safety regulations for handling the used liquid.

CAUTION - Danger of eye or skin injury with mild up to serious consequences!

Be very careful while opening the lid or the tank immediately after the technological processes are completed.

CAUTION - Risk of scalding by hot liquid or inhalation of hot vapours!

Since the machine includes moving parts of the "lid" and of the "basket", which can cause injury at incorrect handling, the machine may be operated only by personnel familiar with its operation.

7.1 Residual risks of the machine

As follows from the previous articles, the machine has been designed in compliance with the Czech Government Regulation No. 176/2008 Coll. so that it fulfilled its function and could be operated, adjusted and maintained without the user's workers being exposed to risk provided that technological processes are performed under presumed conditions, see Section 3. Considering any justly foreseeable incorrect use, articles 4, 5, 6 and 9 give warning symbols with descriptions of risks associated with them.

In addition to the foreseeable incorrect use, risks unforeseeable by the manufacturer may occur during machine operation, which require additional precautions taken by the user.

- Continuous inspection of safety at work when handling the machine during its installation and dismounting at the workplace. Possibility of injury with serious consequences due to crushing when the machine falls or tilts over as a result of inappropriate handling.

- Check of the correct installation of the power supply connection, corresponding to the operating environment of the machine. The danger of injury with serious or lethal consequences in case of electrical shock when connecting or disconnecting electric power to/from an incorrectly installed connection of power distribution line.

- Regular inspection of adherence to machine maintenance procedures and time intervals, including prohibition of operation when the safety covers are removed, the electrical switchboard doors are unlocked or electrical boxes are uncovered. The possibility of an injury with serious or fatal consequences from uncovered parts of low voltage electrical distribution lines or from damaged insulation of electrical installation.

- Regular inspection of adherence to safety regulations for handling the washing liquid. Possible harm to health due to incorrect handling of one or more persons.

- Regular adherence to safety regulations when disposing operating fluids and their sorting out. Possibility of the occurrence of environmental damage due to free discharge of operating fluids, in particular oil wastes.

- Regular inspection of adherence to safety regulations for handling the machine lid. Possibility of a head injury due to an impact or a limb injury during handling the items in the wash basket.

- Regular inspection of adherence to safety regulations during operation and washing. Possibility of injury by burning from hot surface or hot steams when opening the lid.

- Regular inspection of adherence to safety regulations during operation in acoustically uninsulated workplaces. Possible loss of attention, fatigue or hearing damage during long-term continuous noise exposure.

8 – Technical service

8.1 Troubleshooting

Failure	Cause	Troubleshooting	Classification
When you turn on the Q1 main switch, the P1 “NETWORK” signal lamp does not light up.	Broken power supply to the machine	Check the power supply from the connector to the protective switch output	E
	Broken power supply of the signal lamp	Check the voltage of the TU1 power supply and the F4 circuit breaker	
	Faulty signal lamp	Replace the signal lamp	
When you turn on the main Q1 switch, the P2 **“FAILURE/LEVEL”** signal lamp lights up.	Wash liquid level is below the lower limit.	Refill the wash liquid according to Section 5.11	O
	If the level shown by the dipstick is correct	Check the function and setting of the HRH5 level relay	E
	The thermal fuse has tripped	Reset the ST1 thermal fuse, check the temperature set on the control unit and the function of the RT1 temperature sensor	E
When you switch on the main Q1 switch, the working temperature in the bath cannot be reached in any mode.	Incorrect temperature setting on the control unit	Check the temperature setting on the UJT control unit	E
	The heater is not supplied	Check the power supply to the heater	E
	Fault of liquid temperature control	Check the function of the RT1 temperature sensor	E
When the SB2 “START” button is pushed, the washing cycle does not start.	Faulty SB1 button	Check the button contacts	E
	The lid does not seat properly	Check the safety SQ1 switch and repair the lid seating	E+S
	Control unit fault	Check UZJ	E
When the SB1 "START” is pushed, the pump starts but the basket is not rotating	Fault in the drive electric motor power supply	Check the power supply circuits of the M2 electric motor	E
	Faulty electric motor	Check the current consumption of the M2 motor	E
	A mechanical failure of drive gears	Check the transmission and the drive gearing	E+S
When the SB1 "START” button is pushed, the spraying nozzles are working insufficiently	The valve at the pump inlet (pos. 3a-51) is not completely open	Check the position of the valve	E+S
	Clogged filter	Check the condition of the filter (pos. 3a-3)	O
	Clogged pump	Replace the pump	E+S

When you press the SB2 “STOP” button during the washing cycle, the cycle does not stop	Faulty SB2 button	Check that the contacts make contact	E
	Control unit fault	Check UZJ	E
	Failure of the contactor	Check the function of contactors	E
When the SB3 "BASKET ROTATION” button is pushed, the basket is not rotating	Fault of the lid safety switch	Check the SQ1 safety switch	E
	Fault in the power supply of the basket drive electric motor	Check the power supply circuits of the M2 electric motor	E
	A mechanical failure of drive gears	Check the transmission and the drive gearing	E+S
	Faulty SB3 button	Check the button contacts	E
When the S1 “OIL SKIMMER” switch is switched, the skimmer motor does not start	Fault in the power supply of the basket drive electric motor	Check the power supply circuits of the M3 electric motor	E
	Mechanical or electrical failure of the drive	Check the current consumption of the M3 electric motor	E+S
	Faulty S1 switch	Check the switch contacts	E

Machine maintenance worker qualification:

O – machine operator without specialised qualification

S – machine maintenance worker with specialised qualification familiar with its design

E – machine maintenance worker with specialised electrical qualification for work on equipment under voltage, familiarized with programming of functions

8.2 Spare parts

The following list contains an overview of supplied spare parts. All spare parts can be ordered from the sales organization or the machine manufacturer – TREFAL, spol. s r.o. Pekařská 162, 686 04 Kunovice, Czech Republic. When a machine failure occurs, both the sale organization and the manufacturer will advise you professionally regarding delivery of spare parts not included in the following list.

Position	Part name	Stock No.	Number of pieces
1-2	Lid assembly ADS 800	915660.10	1 set
T1	Heater ADS 800	915660.17	1
RT1, ST1	Thermal sensor and capillary thermal fuse ADS 800	915660.21 915660.22	1+1
SQ1	Lid limit switch ADS 800	915660.24	1
HS1	Level sensor ADS 800	915660.23	1
2a-1	Oil skimmer ADS 800	915660.19	1
2b-2	Shaft and pinion gear assembly ADS 800	915660.49	1
2b-4	Basket ADS 800	915660.12	1
2b-41	Basket drive ADS 800	915660.13	1
3a-3	Filtering basket ADS 800	915660.18	1
3a-41	Pump ADS 800	915660.14	1
4-1	Switchboard assembly ADS 800	915660.16	1

Table 8.2-1 List of spare part sets for replacement at the user's

Position	Part name	Stock No.	Number of pieces
1-71	Right grid	915660.35	1
1-72	Left grid	915660.34	1
1-101	Front closure lever	402010.00	1
1-102	Machine handle	402012.00	1
2-102	Gas strut 250 N	402003.29	2
2a-3	Oil skimmer shaft	915660.31	1
2a-6	Balance roller	915660.25	1
2a-7	Teflon blades	915660.27	set
2a-8	Drive roller assembly		1
2a-41	Transmission FRT28/B3 IEC56 trans. ratio 1:100	402001.08	1
M1	Motor SEMKg 56-4A2 0.06 KW 1x230 V	402001.09	1
2a-93.3	Shaft key 5x5x20	210128.29	1
2a-101	Skimming belt	402002.22	1
2b-3	Shaft with drive wheel	915660.49	1
2b-4	Basket	915660.12	1
2b-41	Transmission MRT-30, FT-RL 0.25 KW 1LF	402000.85	1
2b-62	Seal under drive shaft housing	110147.98	1
2c-2, 2c-3	Radial bearing, axial bearing	915660.39 915660.40	set

2c-93.1, 2c-92.1	Single spring cotter pin 4x64 mm Flat washer D20/ner.	210510.11 210111.80	set
3-1	Lid pin	915660.47	2
3-102	Filtering wool	110149.00	1 dose
3a-1	Braided hose FLEXI	110126.60	1
3a-51	Ball valve water 5/4	210132.16	1
3a-61	Seal	110147.98	
3a-62	Lid seal	110147.41	Cut as needed
3a-101	Seal Clamp 1“ DNO40 SILIKON	110116.07 110116.02	set
4-51	Ball valve water 1“ no. 1	210132.05	1
4-102	Safety plug	110148.32	1
4-103	Lock with handle	402010.03, 402010.10	4

Table 8.2-2 List of spare parts for service

9 – Temporary and permanent shutdown

9.1 Temporary shutdown

The machine does not have any special requirements for preservation during 6 months from the shutdown when storage conditions stated in Section 3 are met. Prior to the shutdown, drain the machine and clean it according to Section 5.7.

Shutting down of the machine for more than 6 months may have an effect on the insulation resistance of the heating body as a result of moisture condensation. Dry the machine according to the instruction IN-1/ 97 Trefal.

9.2 Permanent shutdown

At the end of the machine service life, it is necessary to proceed in accordance with Act No. 541/2021 Coll. on waste management in the sense of Section 4, Section 13. If the machine service life expires outside the Czech Republic, proceed according to the national regulation at the place of disposal.

9.2.1 Dismounting the machine from the place of installation

Before any dismounting, always disconnect the machine from the power mains.

- Drain the wash liquid and the skimmed oil; see in Section 5.9. Thoroughly clean the working space of the machine of residues of the wash liquid and oil.
- Transport from the installation site shall be conducted in the same way as in the case of its installation; see in Section 4.1.1.

9.2.2 Machine disposal in the Czech Republic (machine disposal in other countries shall be conducted in accordance with locally applicable national regulations)

According to Annex No. 1 to Decree 8/2021 Coll., the starting document to determine a method of disposal of parts and substances of the machine is "Catalogue of Waste". The following list contains the recommended waste code classification:

- If residues of the washing liquid are present in the machine, drain them according to the instructions given in the Parts washers machine user manual, Section 5.7.
- The wash liquid including sludge is classified as waste with code number 11 01 14;
- Disassembled electrical installation is classified as waste with code number 20 01 36 and 07 02 17;
- Plastic and rubber parts are classified as waste with code number 20 01 39 and 07 02 99 01;
- Metal parts are classified as waste with code number 20 01 40 05;

Use prescribed protective equipment when handling parts contaminated with the wash liquid. Familiarize yourself with safety rules for the wash liquid handling.

CAUTION - Danger of eye or skin injury with mild up to serious consequences!

10 – List of Annexes

Annex 10.1 **Description of electrical functions of ADS 800 and a set of wiring diagrams.**

Annex 10.2 **EC Declaration of Conformity.**

Annex 10.3 **Quality and Completeness Certificate of the parts Washers Machine.**

Annex 10.4 **Machine operation records.**

10.1 Description of electrical functions …….. and a set of wiring diagrams (separate annex).

Annex 10.2 EC Declaration of Conformity

EC/EU DECLARATION OF CONFORMITY

In accordance with Directive of the European Parliament and of the Council 2006/42/EC (Government Regulation No. 176/2008 Coll.)

Manufacturer:	**TREFAL, spol. s r.o.** Pekařská 162, 686 04 Kunovice, Czech Republic
Product name:	**ADS 800 Parts Washers Machine**
Type designation:	**……**

Description of the equipment:

The parts washers machine is intended for industrial cleaning of parts by means of water-borne chemical solvents. The surface of the cleaned object is exposed to pressure spraying by a wash liquid. Consequently, greasy dirt becomes released and washed away. To increase the effect of this process, the wash liquid is heated to an optimum temperature.

We declare that the above-mentioned Parts washers machine complies with Government Regulation No. 176/2008 Coll. The conformity assessment with the Government Decree stated above was carried out according to its Annex No. 8 "Conformity Assessment by Internal Machinery Production Management". In conformity assessment, the methods in the following documents issued by Strojírenský zkušební ústav, s.p. (Engineering Testing Institute, state enterprise), Hudcova 424/56b, 621 00 Brno, Czech Republic, were used.

Directive 2006/42/EC (Czech Government Regulation No. 176/2008 Coll.) binding Report 31-9566M of 2015-04-27

Directive 2014/30/EU (Czech Government Regulation No. 117/2016 Coll.) binding Report 31-9938/2/E of 2016-12-21

List of harmonized standards, as amended at the date of signature, used in conformity assessment:

ČSN EN ISO 14123-1:2017, ČSN EN ISO 14118:2018, ČSN EN ISO 12100:2011, ČSN EN 12921-1+A1, ČSN EN 12921-2+A1, ČSN EN ISO 13849-1:2016, ČSN EN ISO 13849-2:2012, ČSN EN ISO 14119, ČSN EN ISO 14120:2015, ČSN EN 60204-1 ed. 3, ČSN EN 60519-2 ed. 3, ČSN EN 61000-1-2:2016, ČSN EN 6100-6-2 ed. 3.

List of other technical standards and regulations:

ČSN 33 2000-4-41 ed. 3.

Person authorised to compile the technical file:

Marcela Viktorová, TREFAL spol. s r.o., Pekařská 162, 686 04 Kunovice

Person empowered to draw up the original EC Declaration of Conformity:

Dimitrij Chižňak, TREFAL spol. s r.o., Pekařská 162, 686 04 Kunovice

In Kunovice, date: .....

…… .....

Person empowered to draw up the original EC Declaration of Conformity

Identification of a person authorized to sign on behalf of the manufacturer or authorized representative

Annex 10.3 Quality and Completeness Certificate of the parts washers machine

Quality and Completeness Certificate

Name	**ADS 800 Parts Washers Machine**
Type designation of the product:	**……..**
Serial number:	**……..**
Manufacturer:	TREFAL, spol. s r.o. Pekařská 162, Kunovice 686 04, Czech Republic
Date of production:	**…….**

The EC Declaration of Conformity was issued by TREFAL, spol. s r.o. to the above mentioned type of the parts washers machine in accordance with the test certificates issued by Strojírenský zkušební ústav (Engineering Testing Institute), Hudcova 58b, 621 00 Brno, Czech Republic in 2014.

The product was manufactured according to the valid production documentation of approved type. The product was tested in accordance with the provisions of Act No. 102/2001 Coll.: "General safety of products". According to Sections 1 and 3 (1) and (5) (point a, d, and f), it is declared as "**safe**". Product safety is conditioned by proper storage, installation and use according to the approved documentation; see the EC Declaration of Conformity.

…….....	**……**
Technical Inspection Department	**manufacturer**

Annex 10.4 Machine operation records

Date	Completed works on the machine	Name and signature