

Annex

SYSTEM OF HYGIENE OF THE DENTAL UNIT DA370/DA380

1. PURPOSE AND USE OF HYGIENE

Hygiene = Disinfection + Decontamination

„HYGIENE“ is a joint title comprising 2 independent modes (DISINFECTION and DECONTAMINATION).

Disinfecton of *the cooling of instruments and cup filling* is made in order to remove and/or reduce biofilms created by microcolonies of bacteria, moulds and protozoa on the internal surface of water pipes of the dental unit.

Decontamination of *the bowl flushing and suction hoses* is made in order to remove pathogens and to clean the waste and suction system, separator and/or amalgam trap installed in the dental unit.

Control electronics (hardware) of the dental unit is designed to enable the modes of disinfection and decontamination. Disinfection and/or decontamination is *targeted* (it needs to be started manually – it does not work continuously) and it is *one-off* (the mode is not saved in the memory). These 2 independent modes serve for the *hygiene* of the unit at the beginning and/or end of the working day and/or after an extended shutdown of the unit.

Control software of the unit ensures automatic addition of:

- **disinfecting solution (ALPRON)** by firm Alpro medical, GmbH into the cup filling and into the cooling water of instruments,
- **decontamination solution*** into the water for bowl flushing and into the suction hoses.

*In the event that the separator **CATTANI** or amalgam trap **METASYS** is built in the dental unit, it is necessary to use the **GREEN & CLEAN M2** agent for the decontamination. The said agent must be used at least 2 x during every working day for the decontamination of the bowl flushing and suction hoses.

Disinfection of the cooling of the instruments and the cup filling is recommended to perform at least always at the end of every working day. Plastic vessel marked with a **blue label** bearing the title **ALPRON** serves as the store container of the solution for the disinfection of the cooling of the instruments and the cup filling. Plastic vessel marked with a **green label** bearing the title **GREEN & CLEAN M2** serves as the store container of the decontamination solution. These store containers are placed in the spittoon block of the dental unit (fig.1).



CAUTION

The modes of disinfection and decontamination are to be activated only if there is sufficient amount of solutions and distilled water in the store containers! Replenishment of the solution into the store containers is possible only if the selector switch of the source of water in position „0“ (Fig. 1), and/or when the main switch of the dental unit is turned off!

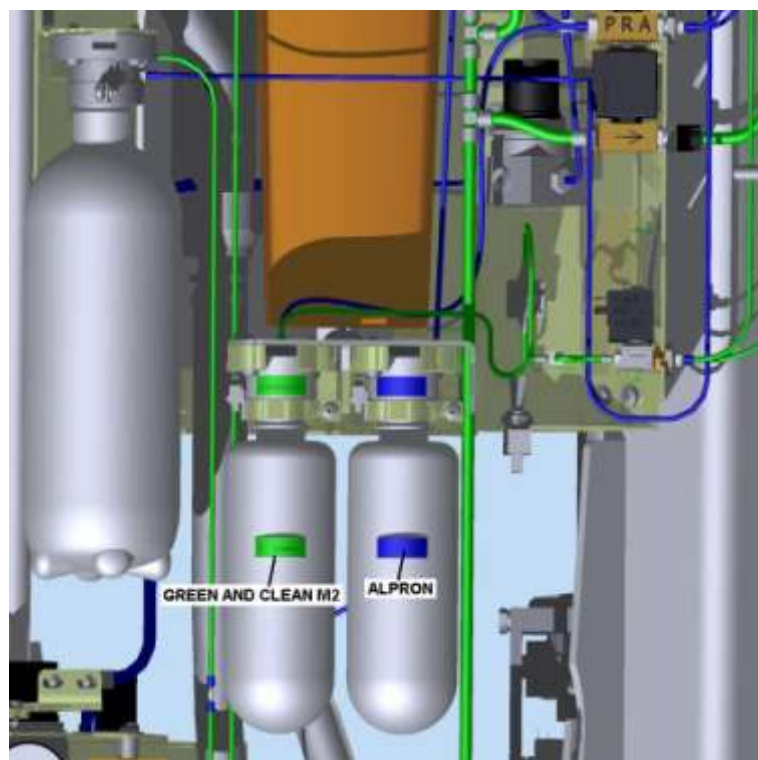


Fig. 1 store containers solutions ALPRON and GREEN & CLEAN M2

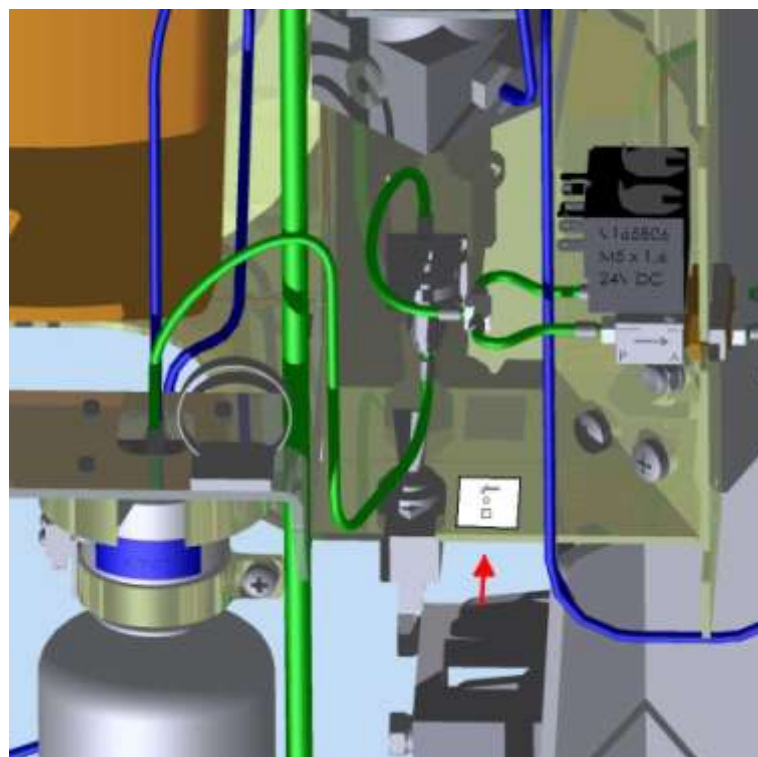


Fig. 2 Selector switch of the source of water in position „0“ (in the spittoon block)

2. CONTROL OF HYGIENE FROM THE KEYBOARD OF THE ASSISTANT TABLE

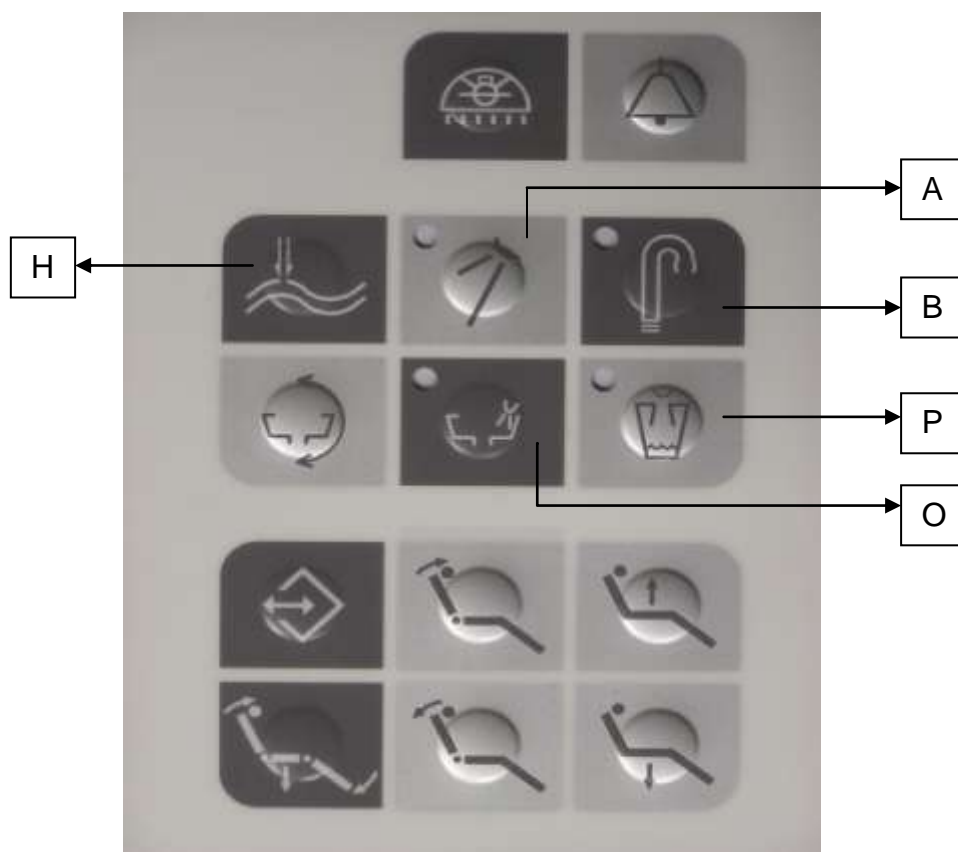


Fig. 3 Keyboard of the assistant table

Legend:

- H** – button of starting the hygiene,
- A** – button of the disinfection of the cooling of instruments,
- B** – button of the decontamination of suction hoses,
- O** – button of the decontamination of the bowl flushing,
- P** – button of the disinfection of the cup filling.

3. CONTROL OF HYGIENE FROM THE TOUCHSCREEN OF THE ASSISTANT TABLE

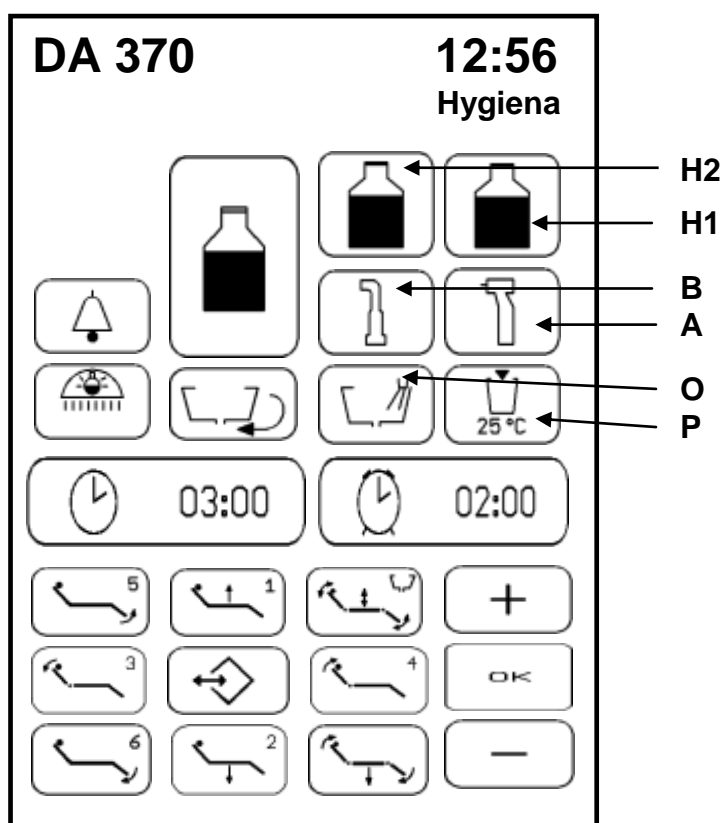


Fig. 4 Touch screen of the assistant table

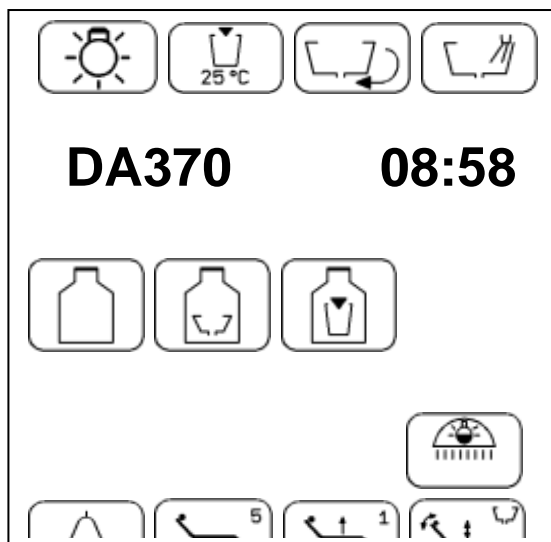
Legend:

- H1** – button of starting the disinfection + indication of the lack of the solution for disinfection,
- H2** – button of starting the decontamination + indication of the lack of the solution for decontamination,
- A** – button of the disinfection of the cooling of instruments,
- B** – button of the decontamination of suction hoses,
- O** – button of the decontamination of the bowl flushing,
- P** – button of the disinfection of the cup filling.

4. INDICATION PANEL OF THE SPITTOON BLOCK

The occurrence of the “empty bottle” icon on the both doctor's and assistant's control panels (if equipped with display) and sound signal indicate that amount of water or disinfecting solution in the reservoir is insufficient and it needs to be refilled.

The warning symbols are only displayed when amount of fluid is low.



There are 3 different types of warning symbols:



- distilled water bottle is empty



- bottle for cleaning solution is empty



- bottle for disinfecting solution is empty

The occurrence of the “empty bottle” icon on the assistant's control panel (if equipped with display) means that amount of indicated fluid in the reservoir is low.

5. ACTIVATION AND INDICATION OF HYGIENE

Hygiene can be activated by means of the keys of the keyboard (Fig. 3) or the touchscreen (Fig. 4) of the assistant table.

5.1 Description of the functions of the keyboard

For simplification the description is concerned only with the hygiene part, the buttons are unambiguous (Fig.3).

5.1.1 Decontamination of the bowl flushing



- **Activation:** program the bowl flushing time to **min. 10 seconds**.

Press the button **H**:  , then the button **O**: .

Thus the flushing of the spittoon bowl with water with added decontamination solution will take place for pre-programmed time. After that the process will stop itself. Decontamination is one-off, it means that the mode is not saved in the memory.

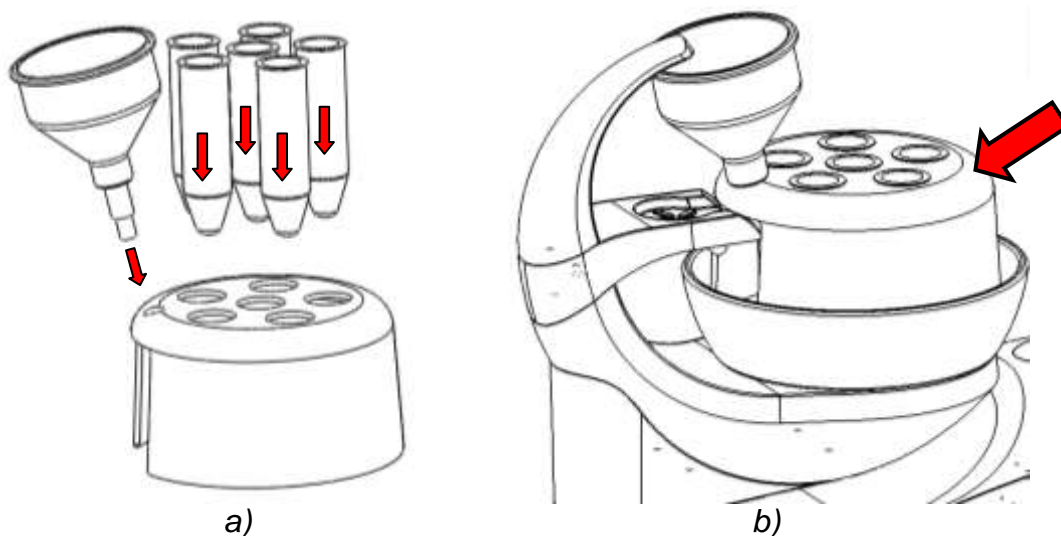
- **Indication:** decontamination is indicated by the **blue led diode** on the button **O**.

5.1.2 Decontamination of suction hoses

- **Activation:** press the button **H**:  , then the button **B**:  .
Both aspirators situated in the holders will be flushed with water with added decontamination solution for **60 seconds**. Decontamination is one-off, it means that the mode is not saved in the memory.
- **Cancellation:** decontamination can be cancelled by double pressing of the button **H**, taking of any suction hose out of the holder and/or by turning the unit off.
- **Indication:** decontamination is indicated by the **blue led diode** on the button **B**.

5.1.3 Disinfection of the cup filling

Place the funnel (supplied) in the Ø16 mm tank outlet (as shown on pic.6a). Then place the tank inside the spittoon bowl so that the cup-fill spout is housed directly inside the funnel. (as shown on pic. 6b).



Obr. 6 Container for disinfection the instruments and cup filling

- **Activation:**

Press the button **H**:  , then the button **P**: .

Thus the cup filling is started with water with added disinfecting solution for pre-programmed time 5second. Disinfecting cycle is a one-time cycle.

- **Indication:** Disinfection is indicated by the **blue led diode** on the button **P**.

It is recommended to perform disinfection at the end of each working day. Subsequent rinsing of the cup filling with clean water (by pressing the button **P**) should be made for **min. 20 seconds**. The said rinsing is recommended to be made only at the beginning of the next working day.

5.1.4 Disinfection of the cooling of instruments

Insert the beds for the instruments (Fig. 6a) into 6 openings of Ø36 mm in the special container. Fit the special container, prepared as described above, over the spittoon bowl (Fig. 6b). Take the instruments on which you want to apply disinfection. Place them into the beds in the special container on the spittoon bowl (Fig. 7).



Fig. 7 Container for the disinfection of Instruments

- **Activation:**

Press the button **H**:  , then the button **A**: .

Thus the filling of the cooling distributions of the instruments with disinfecting solution will start automatically. **Filling** with the solution takes **30 seconds** (a message is displayed - Fig. 10a). Then all the valves are closed and the **solution acts** for the **set time** (a message is displayed – (Fig. 10b). After the time has elapsed, all the valves of water of the instruments are opened again and **rinsing** will take place for **20 seconds** (a message is displayed - Fig. 10c).

- **Indication:** disinfection is indicated by means of a blue LED diode on the button **A**.

5.1.5 Disinfection of the syringe

It serves to perform the hygiene of the syringe fitted on the control panel of the dentist and the syringe fitted on the assistant table (if there is any).



CAUTION

It is possible to start the disinfection of the syringe only when at least one instrument, on which the disinfection is to be performed too, is taken out of the holder on the control panel. For the reason stated, it is necessary to carry out the disinfection of the syringe simultaneously with the disinfection of other instruments (Clause 5.1.4).

- **Activation:**

Make sure that at least one instrument is taken out of the holder on the control panel, besides the syringe, and that it is placed in the special container (Fig. 7) in order to perform disinfection. Take the syringe out of the holder of instruments and direct it toward the spittoon bowl and/or into the free opening in the special container, into the drainage funnel (Fig. 7) or into other external vessel.

Press the button **H**:



, then the button **A**:



Thereafter press the left lever on the syringe (water), keep the syringe still directed into the spittoon bowl. **Keep** the left lever pressed for **ca 20 sec**. **Then release** the lever and **replace** the syringe **in the holder** on the control panel and/or on the assistant table. Thus filling the water distribution of the syringe with disinfecting solution. Disinfection of other instruments continues in automatic mode described in Cl. 5.1.4.

- **Indication:** disinfection is indicated by means of a **blue LED diode** on the button **A**.

It is recommended to perform the disinfection of syringes at the end of each working day. Subsequent rinsing of the syringes with clean water should be made for the period of **at least 20 seconds** (direct the syringe into the spittoon bowl, press the left lever). The said rinsing is recommended to be made at the beginning of the next working day.

5.2 Description of the functions of the touch screen on the assistant table

Control elements on the touch screen (Fig. 4) of the assistant table are similar to those on the keyboard. Six representations of the keys of hygiene is divided into two groups – trios one under another. Symbols of bottles serve to indicate the level and in the same time to start the process of hygiene. Press the symbol of the respective bottle and then the symbol of the part of the distributions in which the hygiene is to take place. **All the conditions and processes are identical with that for the control from the keyboard (Clause 5.1).**

5.2.1 Decontamination of the bowl flushing

Program the bowl flushing time to **min. 10 seconds**.

Press the button **H2**:



, then the button **O**:



Then the rinsing cycle starts. Rinsing of the spittoon bowl with cleaning solution will take about **10 seconds**. This is a one-time cycle and it ends automatically.

5.2.2 Decontamination of the suction hoses

Press the button **H2**:



, then the button **B**:



Both aspirators will be rinsed with water containing the cleaning solution. Rinsing will take about **60 seconds**. This is a one-time cycle.

5.2.3 Disinfection of the cup filling

Place the funnel (supplied) in the Ø16 mm tank outlet (as shown on pic.6a). Then place the tank inside the spittoon bowl so that the cup-fill spout is housed directly inside the funnel. (as shown on pic. 6b).

Press the button **H1**: , then the button **P**: 

Then starts the cleaning cycle of the cup-fill spout. The spout will be flushed with water mixed with disinfectant. Flushing cycle will take about **5 seconds**. This is a one-time cycle. Spout should be cleaned every day at the end of the shift. Then (preferably, next day morning) it is needed to rinse the spout with pure water for **min. 20 seconds**. To activate rinsing press “**P**” button.

5.2.4 Disinfection of the cooling of the Instruments

Press the button **H1**: , then the button **A**: 

5.3 Description of the functions and representations of the touchscreen on the control panel of the dentist

5.3.1 Setting of the treatment time of the solution for the disinfection of the cooling of the instruments

Setting of the treatment time of the solution is made on the touchscreen of the control panel of the dentist (Fig. 8, 9).

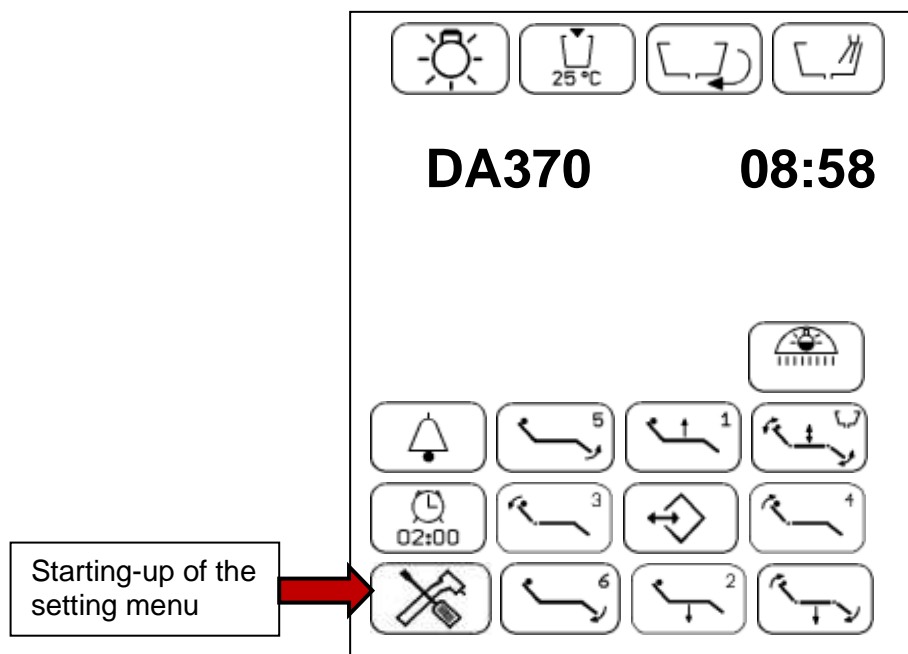


Fig. 8 Main page (touchscreen of the control panel of the dentist)

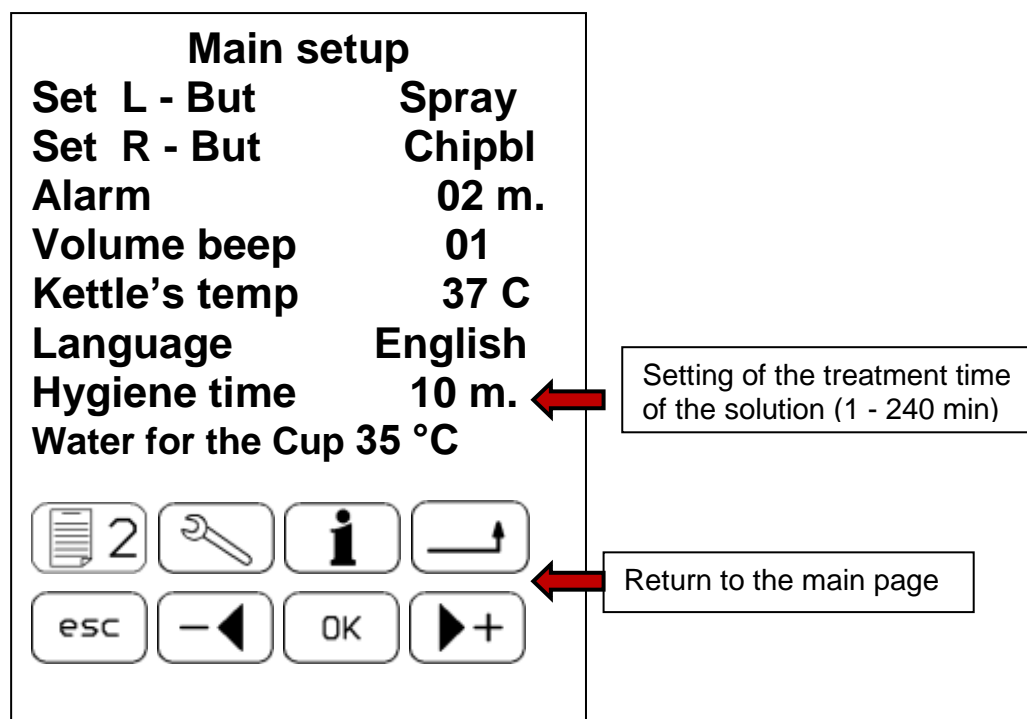
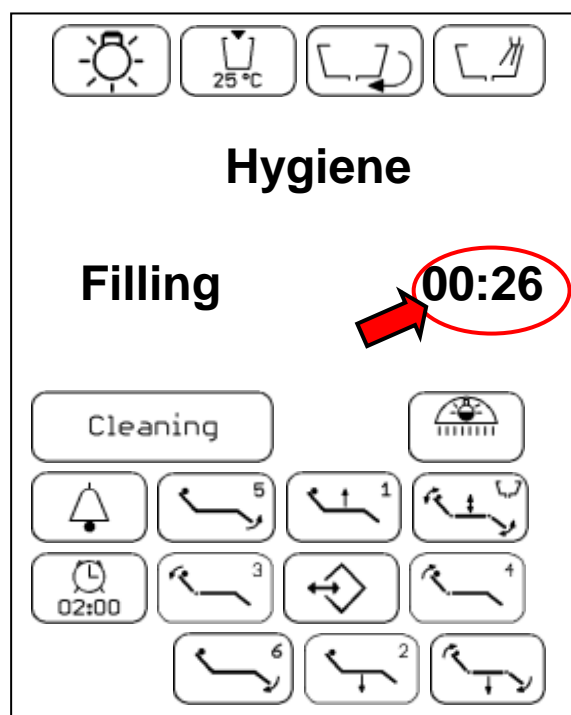


Fig. 9 Setting of the treatment time of the solution



a) filling with the solution (30 s)

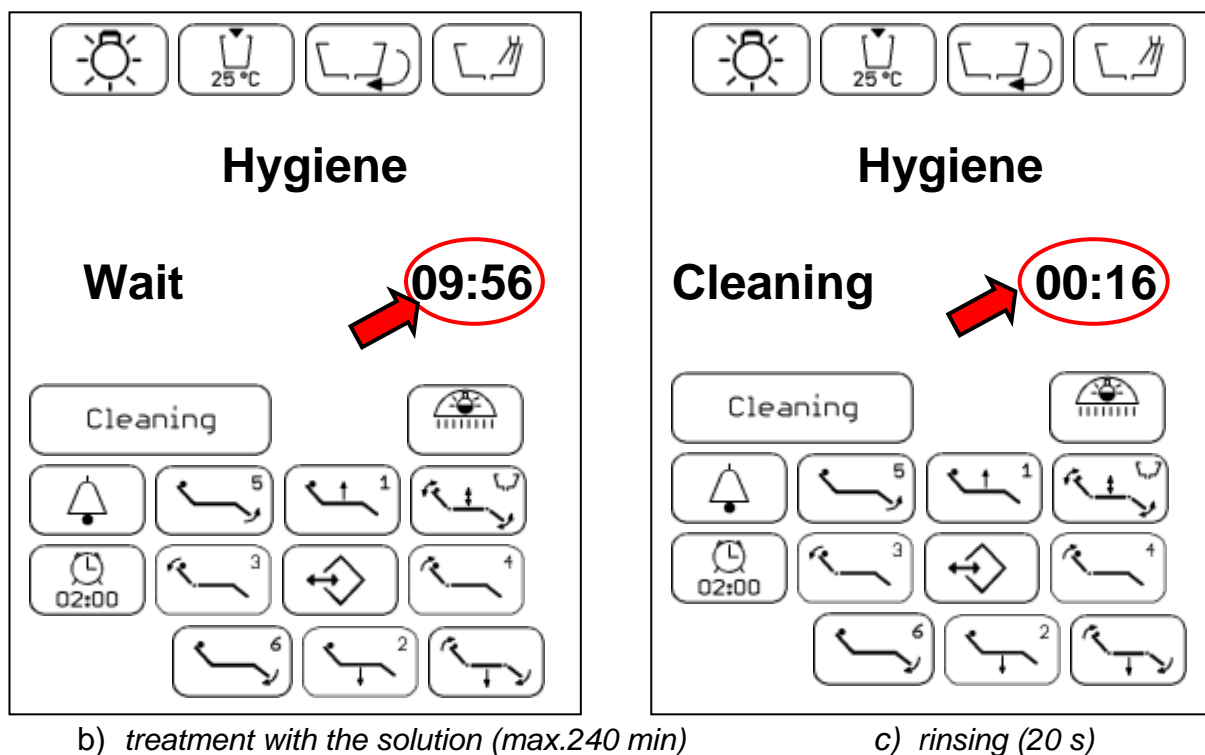
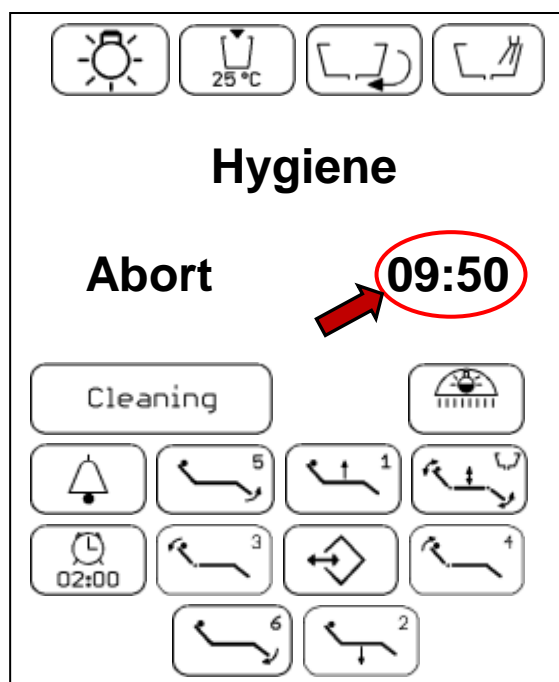


Fig. 10 Displays of the touchscreen during the hygiene of the cooling of the Instruments.

5.3.2 Interruption of the disinfection of the cooling of the instruments

If during the hygiene of the instruments the unit is turned off or the instruments taken or replaced, a message is displayed on the touchscreen of the dentist (Fig. 11). In this case hygiene regime end rinses press **Cleaning**.



Obr. 11 Display of the time elapsed at the interruption of the disinfection of the cooling of the instruments

Instruments the taking of which was changed are displayed on the touchscreen of the dentist (Fig. 12).

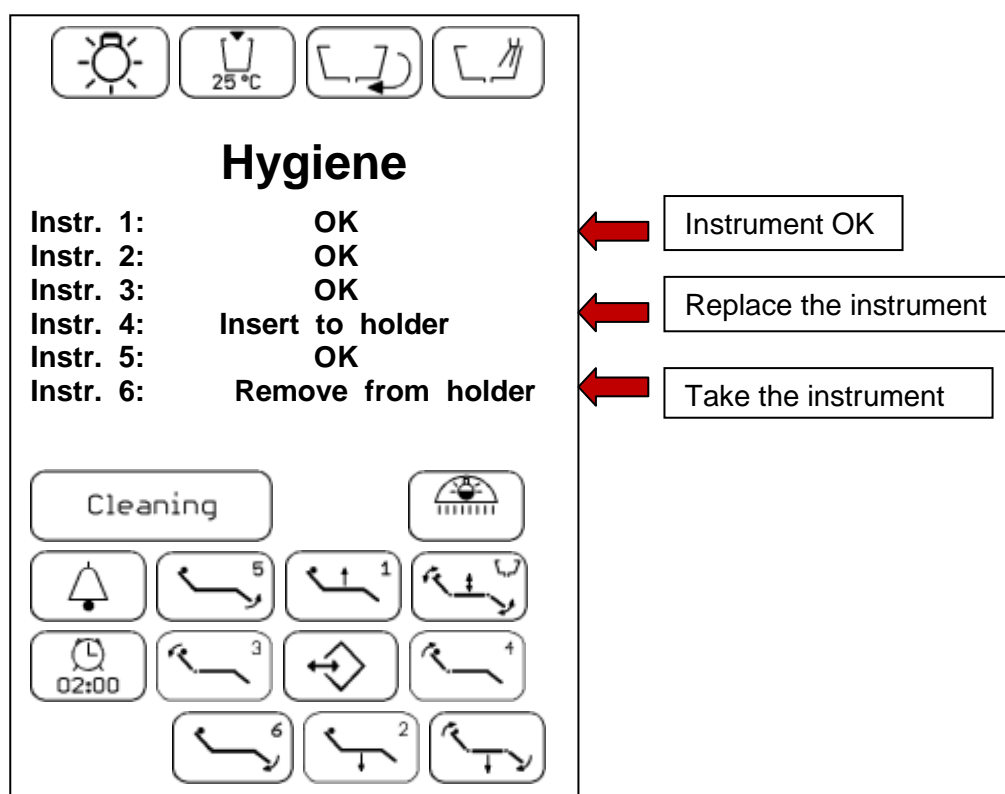


Fig. 12 Display of the taken instruments at the interruption of the disinfection



CAUTION

The control panel will not enable any other activity until the rinsing has taken place with the same taken instruments with which the process was started!

6 RECOMMENDATION OF THE MANUFACTURER OF THE DENTAL UNITS

In general the targeted hygiene of the dental unit is the most efficient **at the end of the working day**. Subsequent rinsing of the internal distributions of the unit **at the beginning of the next working day** with clean and/or distilled water will ensure washing off of the disrupted biofilms (after treatment with disinfecting and decontamination solution) from the internal distributions of the dental unit.