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CZECH REPUBLIC

TECHNICAL DATA OF FLOATING TANK

TYPE FLT 2XX

1. SPECIFICATION OF PRODUCT

The specification of product´s type issues from placing of product with massage jets, intercom and used kind of record player.

TYPE FLT 2 1 2 3 4

1 Number of water massage jets

0 – device is not fitted with water jets
4 – 4 jets
6 – 6 jets

2 Number of air jets

0 – device is not fitted with air jets
8 - 8 jets

3 Kind of used radio :

Without specification – record player AUDIO
C – CD record player
CD – record player AUDIO + CD changer

4 Intercom :

without specification – it is not installed intercom
I – it is installed intercom

Examples : FLT 208 I, FLT 268CDI , FLT 200 C

2. TECHNICAL DESCRIPTION

Floating tank is hydropathic device which is working on the principle of weightless swimming, it simulates the surroundings of Dead Sea´s water.

2.1. BASIC STRUCTURE OF DEVICE

The device consists of these basic parts :

- Special bath - tank
- Operating unit
- Filling of floating tank
- Electrical switchboard
- Control panel

All used elements which come into contact with solution are produced from plastic, polypropylene and stainless steels and are suitable for use for the given purpose after the recommendation of producers and suppliers.

2.1.1. Special bath – tank

The tank is produced as a plastic shell in the shape of an egg and is isolated by polyurethane double-component foam. It is built from upper part whose inner and outer part is tight connected and from lower part where is the outer and inner part disassembled. In the interspace of lower part are mounted the distributions of solution to the individual jets, to air buttons and loudspeaker.

The wall of a tank is formed by (from outer part to inner one) :

1. Upper coloured layer
   - pastel colour
   - metallize colour
   - pastel colour
2. Laminated cloth + laminated resin U 541 TV 02
3. Air gap

4. Polyurethane foam
5. Laminated cloth + laminated resin U 541 TV 02
6. Sanitary gel SAT tone 233 A (blue)

At the places, where are the hangings, holders etc. taken hold, are laminated the steel reinforcements to which the relevant parts are taken hold by screws with metric screw threads. The upper part of a tank has a lid which moves on steel hangings, and the easier opening facilitates the gas props which hold the lid in an open position not to spontaneously close itself. The lid has not any closing mechanism and the lid remains in closed position only by own weight. The lid has from inner side the holder for easier manipulation.

In back part of upper section is a gap with diameter 110mm which has a grate for ventilation of a tank´s space. Through this grate is blasted the pre-heated air into a space (the operation temperature is regulated by regulator). The sensor of temperature and breakdown sensor on which is set the maximum temperature, are placed at the entrance into a tank. In the forepart is the system of gaps for ventilation of a tank. The change of air is ensured 4x per 1 hour, air is sucked through the dust filter.

The lower inner part of tank is fixed by plastic components :

- suction basket
- jet Ø 20 mm
- jet Ø 10 mm
- jets with suction of air and regulators of quantity of sucked air (by types FLT 24x and FLT 26X)
- air jets (by type FLT 2X8)
- air control buttons
- underwater light

In the interspace of lower part´s jacketing are distributions of plastic hoses from air buttons to pneumatic-electrical converters. In the back part of shell is the loudspeaker for music broadcast.

Air control buttons are fixed in 2 sections :

- Left side : light
  pump of solution
  music

- Right side : blower (air jets)
  jets with sucking of air
  button for calling of staff

All buttons are marked with symbols.

The upper and lower part of tank are fixed in locks and fast connected with screws. The tank is fixed on rubber pad which balances the ruggedness of floor. Tank is interconnected by hoses from plastic with working unit, flexible hose for ventilation with mechanical part of electrical switchboard and electrical cables with switchboard and transition case.

2.1.2. WORKING UNIT

The working unit of device consists of :

- pump of solution
- flowing electrical heater
- filtering system
- electrically controlled valve (by type FLT 24X and FLT 26X)
- blower (by type FLT2X8)
- plastic distributions and closing elements

All parts of unit are placed on the supporting panel. On the unit are fixed single parts and mutually are interconnected distributions from plastic. The distribution of solution between unit and tank is by flexible plastic hoses. The electrical inputs are connected in electrical switchboard.

The pump of solution :

The centrifugal pump, engine is separated from pump by strong wall, what ensures the perfect closeness. The squiggly moment is transmitted by connector which is made by permanent magnets. All parts of pump coming into contact with liquid, are from polypropylene, the parts exerted by friction are from special ceramic and teflon.

Flowing electrical heater :

The heater is produced from plastic pipe, on which is directly fixed the terminal board and stainless heating body. The heater has inbuilt breakdown heat insurance and is connected to distributions of solution with help of plastic screw joint.

Filtering system :

The filtering system is formed of three-piece prefabricated system ERB 222 S. The filtering fillings are placed in polypropylene cans which are screwed into holder which is fixed to the steel beam of filtering system.

The filtering fillings are in a system in this order :

- WPX 100 BB 20P
- Filling with active coal BB XRC 20P
- BB WP5 BB 20P

The effectiveness of filtering system in % of elements´ elimination of given diameter in microns :

5 µm	100,00 %
4,6 µm	99,99 %
4,1 µm	99,9 %
3 µm	99,0 %
1,8 µm	98,00 %

The change of filtering fillings is made by compressive difference on the filtering system 0,2 MPa.

Electrically controlled valve :

The three-way valve with electrical drive of slide valve which regulates the flow of solution into two branches which are set by different types of jets. This valve is controlled by button from a tank in time of functioning of a programme „floatation“. After initiation of functioning of jets it is started the pump and valve converts into required position. After disconnection it returns automatically back into initial state. The valve is fixed by type FLT 24X a FLT 26X.

Blower :

It forms the body from light alloys with engine and turbine. It serves for blasting of air into jets which are placed in a bottom of tank. The blower is connected with a tank by flexible hose from plastic and is controlled in time of functioning of programme „floatation“ by starting button from inside of a tank.

Plastic distributions of solution :

The distributions are formed from parts from soften plastic – pipes, flexible hoses and adapting pipes. The distributions are connected by special adhesive and form the compact unit. The functional parts are connected with help of screw joint which makes possible the easy change.

2.1.3. Filling of floating tank

The filling of floating tank is 550 l of $MgSO_4$ solution which is made by dissolving of $MgSO_4$ in drinking water according to ČSN 757111.

Density of solution : 1,26 - 1,3 kg/dm^3

Temperature : 36^oC (+/- 0,5^oC)

Characteristic of $MgSO_4$:	$MgSO_4$	98,4 %
	K_2SO_4	0,7 %
	$CaSO_4$	0,4 %
	others, mainly H_2O	0,5 %

2.1.4. Electrical switchboard

The electrical switchboard is a steel construction, the electrical system makes possible automatic and also hand control. The hand control is detailed for service of device, otherwise it is started the automatic control.

In the lower part of switchboard it is fitted the fan for ventilation of floating tank with heating of blasted air. It is casting from light alloys which is fitted with fan, two heating bodies and thermostats. The fan is connected with tank by flexible hose.

The regulators of temperature control the temperature of air and the temperature of solution. The part of these regulators are the indicators placed on the entrance of a tank.

On the door of switchboard are placed the controlling elements, the control buttons of separate aggregates´ state and the control buttons of break-downs. In the lower part are led out the cables to separate consumers.

2.1.5. Control panel

The control panel is a box of steel construction which is fitted with controlling elements to the control of own floatation´s programme, with the control buttons of state, with record player of CD or MC and with the box of intercom and through its help the staff can communicate with the client in a tank. The control desk is fitted with acoustic signal for calling of staff.

3. CONTROL OF FLOATING

3.1. REST REGIME

The rest regime – it means the time when the device is kept in ready regime and when the device is not visited by clients. In this time IT IS NOT POSSIBLE TO DISCONNECT THE DEVICE FROM ELECTRICAL POWER !!!

The rest regime runs by adjusted automatic regime (on the main switchboard is the switch OPERATION set to the position AUTOMAT). Permanently it is in activity the cycle which ensures the periodical shuffle and maintenance of working temperature of a bath. The time values of this cycle makes the service firm by the installation of device.

The rest regime can interrupt by the squeeze of button „START OF PROGRAMME“ and then is again automatically set after run of programme and filtration.

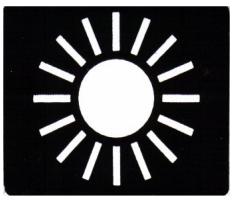
3.2. START OF PROGRAMME

The start of programme – it means the initiation of device by client for use.
For initiation of floatation´s programme must the bath have right temperature and any breakdown of device must not be indicated. The fulfilment of all prescribed conditions indicates the pilot light „READINESS“ (on the main switchboard and on the control panel). The own programme will activate by press of a button „START OF PROGRAMME“ on the control panel. Through this will put into operation the pump of solution, the solution is warmed and mixed to be prepared for entrance of a client into a tank (the functioning is signalized by pilot light on the main switchboard and on the control panel) and then will switch on the pilot light „PROGRAMME“. This preparation lasts 5 min. (it is set by service company).
If it just runs the heat and mixing in a rest regime, the rest regime is interrupted and runs the programme of floatation. During this time it is possible, if necessary, to convert the time of floatation (the time of a client´s stay in a bath) on the timer on the control panel.

After run of this preparation will switch on the light inside the tank and on the timer will start to count off the adjusted time. The heated air is blasted into floating during the whole time of functioning of a programme.
All functions can be controlled from inside of floating during the time of functioning of a programme.

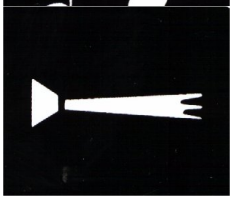
Right section of buttons

LIGHT



MUSIC

PUMP OF SOLUTION

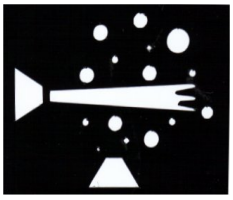


Left section of buttons

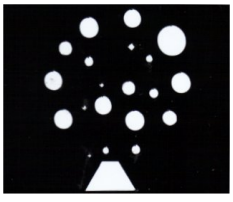
If the client needs to call the staff, he presses inside the tank the button „Calling of staff“. It will be heard the signal on the control panel and will light the control button „Calling of staff“.

CALLING OF STAFF
(after pressing of button it will be heard the sound signal on the control panel)

JETS
with sucking of air
by types FLT 24X a FLT 26X



BLOWER
(air jets)
by type FLT 2X8



3.3. NORMAL ENDING OF PROGRAMME

It comes to the normal ending of programme after expiration of adjusted time on the control panel´s timer.
After ending of programme it starts to blink the light inside the tank which indicates the client for ending. It is necessary that client would get out and then the staff can press the button „End of programme“ on the control panel. Through this is the programme regularly ended and the device filters and warms the solution for 25 min. (the service firm installes the time of 25 min. filtration). During the time of filtration it is not repeatedly possible to start the programme of floatation and the button „Start of programme“ is blocked.
In case that the staff of device will not press the button „End of programme“ till 5 min. after ending of programme, it will start to blink the control button „Break-down“ which turns off after pressing of button „End of programme“.

3.4. PREMATURE ENDING OF PROGRAMME

To the premature ending of programme it will come in these cases :

- If the temperature of bath increases over the adjusted maximal value.
- If the temperature of air increases over the adjusted maximal value.
- If it comes to some break-down indicated on the main switchboard (see below).
- If it comes to the fall-out loss of electrical energy.

After ending of programme the client will get out from a tank. Further it is necessary to go about according to the directions for use – article No. 5 „Signalling and elimination of break-downs“.

4. TECHNICAL PARAMETERS

Tank dimensions	2510 mm	length
	1630 mm	width
	1220 mm	height
Operating unit	1100 mm	width
	600 mm	depth
	820 mm	height
Control panel	310 mm	width
	280 mm	depth
	90 mm	height
Electrical switchboard	600 mm	width

310 mm	depth
1000 mm	height

Filling	550 l of solution $MgSO_4$ about density 1,26 – 1,3 kg / dm^3
Operating temperature of solution	35,5 °C +/- 0,2 °C
Operating temperature of air	30,5 °C +/- 0,1 °C
Max. temperature of solution	37 °C
Breakdown temperature of solution	42 °C
Max. temperature of air	37 °C
Breakdown temperature of air	42 °C
Time of floatation	0 - 90 min.
Max. input	3100 W
Electrical connection	230 V, 50 Hz, 20 A

5. TECHNICAL DATA - CONTENTS :