



HORSE-TRAINER WATER

INSTRUCTION MANUAL

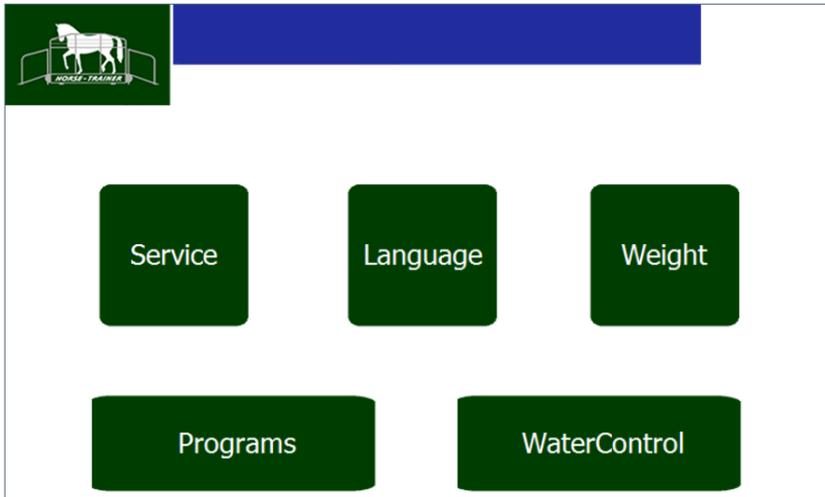


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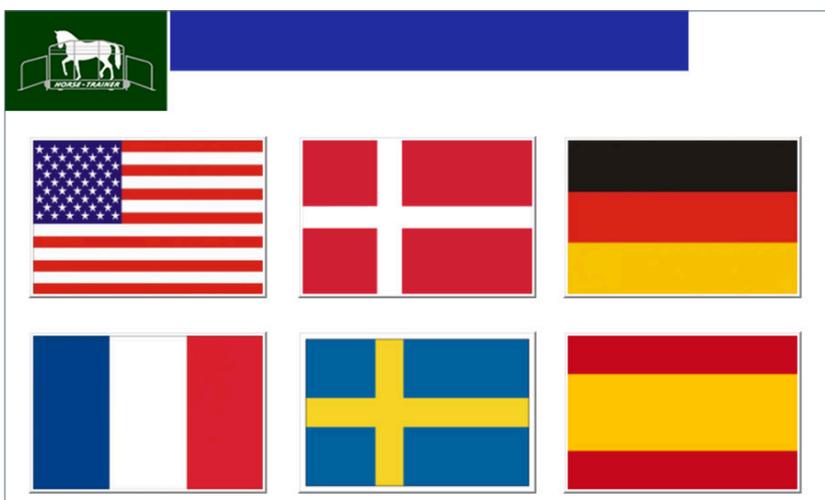
INSTRUCTIONS FOR USE HORSE-TRAINER WATER

When you switch on the Horse-Trainer Water, the first screen you see will be the one pre-sented below. You can use this screen to select language and program, or to enter the service and water control menus.



CHOOSE LANGUAGE

On this screen, you can switch between the available languages. The language changes when you press the respective buttons.





You can use this screen to choose between three pre-defined programs, or you can select “OWN PROGRAMS” to design a program of your own. Select 0–2 and the button you press will turn bright green.

Then press “OK”.



If you select program “0”, you will see the screen below: The number of the program you have selected is displayed at the top of the screen. When you press “START”, you can control the speed of the belt using the speed regulator on the control box. In the top right-hand corner of the screen, you can see the speed and angle of the belt, as well as the remaining program time. If you press the Stop button, the belt will stop. If you press “STOP” for more than four seconds, the active program will be canceled and you can choose a new one. The text “NO PROGRAM” indicates that no program has been selected. The “RAISE” and “LOWER” buttons are for raising and lowering the belt manually. If you press “WATER CONTROL”, a new screen appears where you can control the water to and from the belt.

	Speed	Waterhight	Time
1	-00000.0 mph	-000000 Inch	-00000 min.
2	-00000.0 mph	-000000 Inch	-00000 min.
3	-00000.0 mph	-000000 Inch	-00000 min.
4	-00000.0 mph	-000000 Inch	-00000 min.
5	-00000.0 mph	-000000 Inch	-00000 min.



	Speed	Waterhight	Time
6	-00000.0 mph	-000000 Inch	-00000 min.
7	-00000.0 mph	-000000 Inch	-00000 min.
8	-00000.0 mph	-000000 Inch	-00000 min.
9	-00000.0 mph	-000000 Inch	-00000 min.
10	-00000.0 mph	-000000 Inch	-00000 min.



WATER CONTROL

When you press “WATER CONTROL” on the program display, the screen below will appear. You must enter a set point before you can start the water pump.

Press “SET POINT” and an entry field will appear, where you can enter a value such as 20 followed by “OK”.

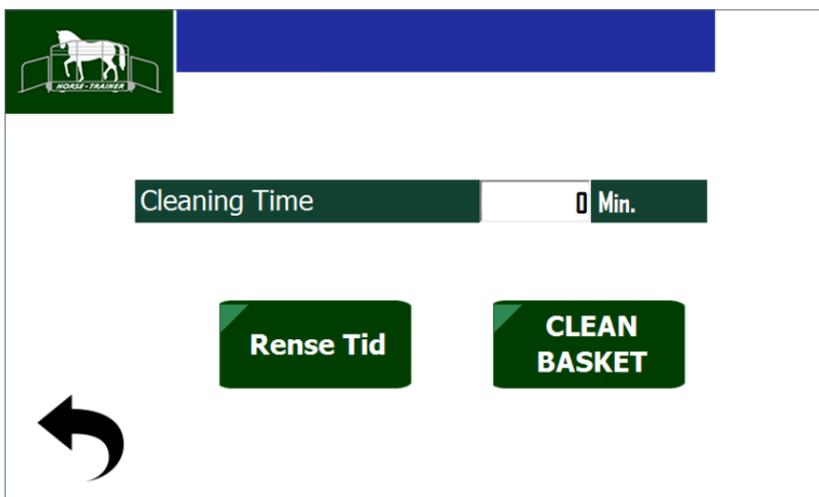
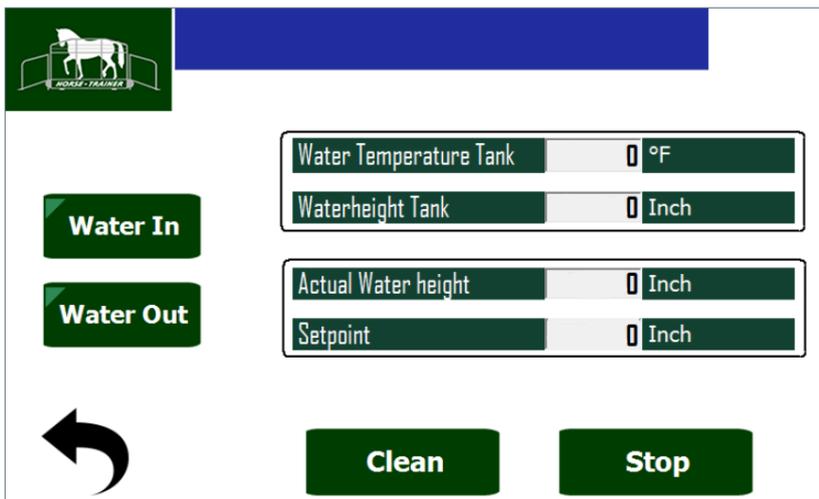
Then press “WATER IN”. Firstly, the motorized valves have to turn into position. When they have done so, the pump will start. While the pump is running, the “CURRENT” value will increase. When the “CURRENT” value reaches “SET POINT”, the pump will stop and the valves will close again.

To pump water out of the Horse-Trainer, press the “WATER OUT” button. The valves will turn into position and the pump will start. The pump will then continue to operate until the water level drops below the bottom sensor. When it does so, the pump will stop and the valves will turn to their “closed” position. “CURRENT” should now read approx. “0”.

The “MANUAL IN” and “MANUAL OUT” options allow you to pump water in and out manually or as long as you keep the buttons activated. Don’t forget, however, that there will always be a delay of approx. 8 sec. before the valves have turned into position and the pump starts. This function is mainly used for maintenance and commissioning.

Use “Current Program” to return to the control screen for the program selected. You can switch back and forth between “Water Control” and “Current Program”.

The water is cleaned automatically when pumped from belt to tank. Occasionally, however, you will need to clean it more thoroughly. To do so, press “CLEAN”. This will allow you to enter a number to determine how long the cleaning process is to run. When you press “START”, the cleaning function will run for the time you entered or until you press “STOP”.



PRECAUTIONS CONCERNING CLEAN WATER

In order to make sure pumps and valves can continue to provide optimal operation, it is important to keep the water as clean as possible. It is therefore essential to ensure horses are completely free from soil/sand before leading them into the Horse-Trainer.

In other words, DO NOT use the Horse-Trainer as a bathtub. The valves may be damaged if they encounter excessive resistance when they attempt to turn.

PRECAUTIONS CONCERNING WATER SERVICE

“PANIC LEVEL” is a figure that expresses how skittish a horse may be on the belt before the belt stops automatically for 15 seconds. It is normally set at 125%.

The “MACHINE No.” field presents the machine’s production number.

The value in the “HOURS ACTIVE” field states how many hours the machine has been in operation.

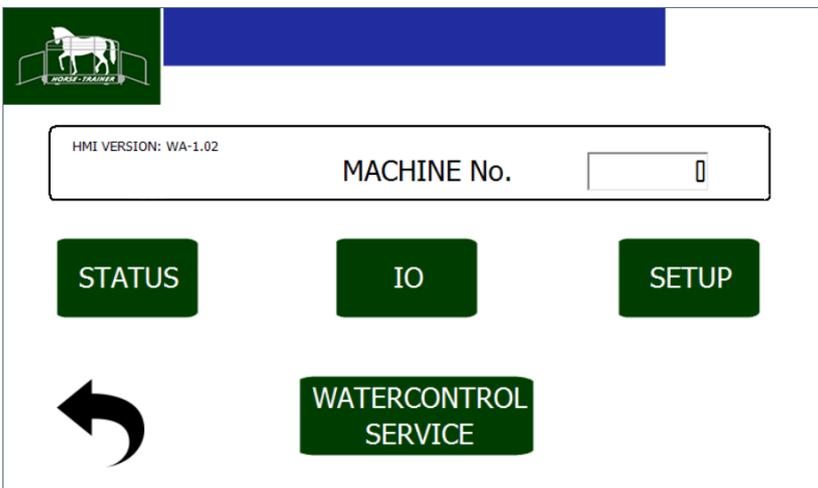
The value in the “HOURS STD. BY” field states how many hours the machine has been switched on.

Press “I/O” to access the “Status output Status input” menu.

Press “SETUP” to access the screen.

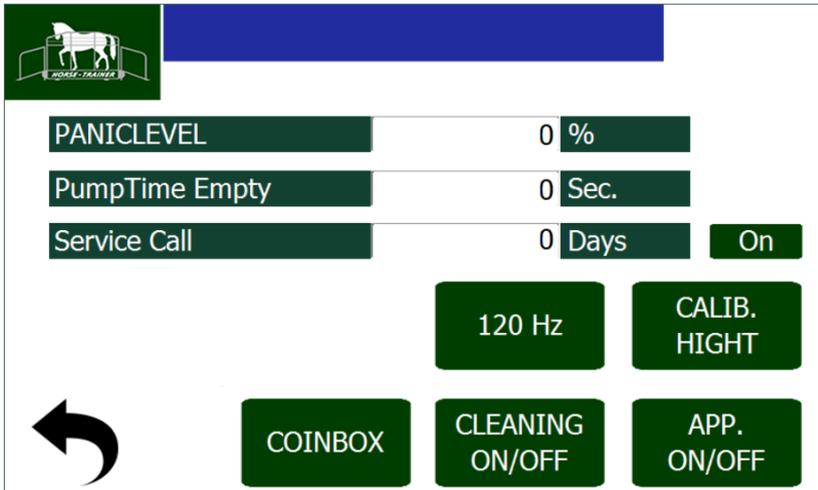
Press “STATUS” to access “STATUS FREQUENCY TRANSFORMER”.

Press “CALIBRATE WATER” to access a screen where you can calibrate the water level.



THE “SETUP” BUTTON IN THE SERVICE MENU

In “SETUP”, you can continue on to access calibrating the level – “CALIBRATE LEVEL”. You can also select ON/OFF or “COIN BOX”. When you press the “COIN BOX” button, the button will go dark to indicate that coin box has been selected. For this to be relevant, the machine must be fitted with a coin box. If you wish to use the built-in cleaning program, “CLEAN I/O” must be highlighted.



THE “I/O” BUTTON IN THE SERVICE MENU

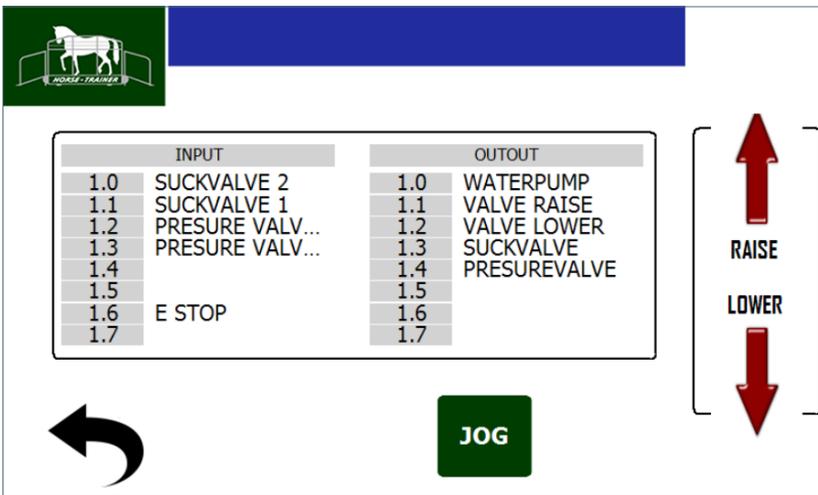
“I/O” in the service menu opens a screen used to monitor the status of certain inputs and outputs.

You can use the “RAISE” and “LOWER” buttons to raise and lower the belt, or you can keep the belt running for as long as you keep pushing the “JOG” button.

The status of the “STOP BUTTON” is normally “ON”, unless you press “STOP”.

It will then switch to “OFF”. The “EMERGENCY STOP” status is normally “OFF” unless you press “EMERGENCY STOP”.

It will then switch to “ON”. The status of “COIN BOX” is “ON” if you have selected the coin box option in “SETUP”.



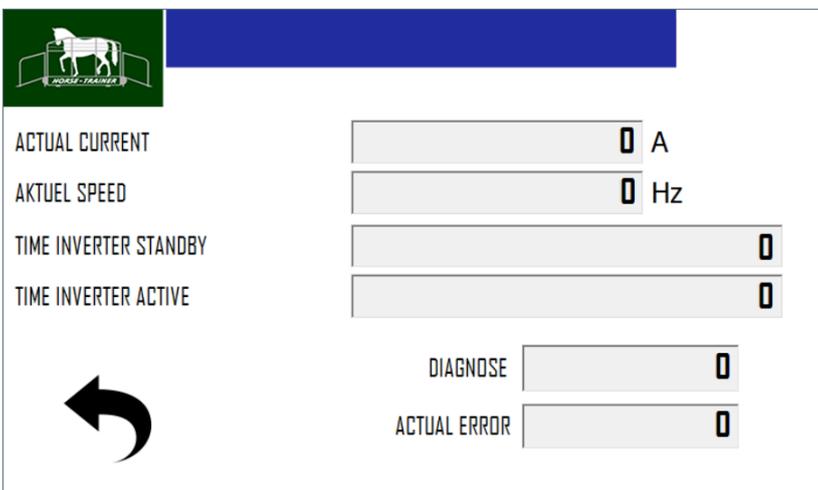
THE “STATUS” BUTTON IN THE SERVICE MENU

The “CURRENT POWER” field shows the current motor power.

The “CURRENT SPEED” field shows the current frequency (speed) of the motor.

You can use the “DIAGNOSIS” and “ERROR” fields in connection with troubleshooting procedures.

The flashing heart icon indicates that the communication bus is functioning correctly.



PROCEDURE FOR USE OF THE HORSE-TRAINER

1. Lead the horse onto the belt and secure it to the main railing.
2. Adjust the rear barrier so it matches the length of the horse.
3. Adjust the stumble protection device (the photoelectric cell) so that the upper edge is positioned opposite a number. The correct number is the nearest number (rounded down) to the horse's height at the withers.
4. Go to the control panel and check that the speed control is at 0 (zero).
5. Press "SELECT PROGRAM" and choose the relevant programme. Press "OK".
6. Press "START". The belt will start to run when you turn up the speed control.
7. Gradually increase the speed until you reach a suitable pace for the horse.
8. If the horse is clearly uncomfortable, press "STOP" and the belt will slowly come to a stop.
9. ONLY press the red/yellow emergency stop button if a dangerous situation has arisen.

The first time you train with the horse, it is important to stay close to the belt – not only so that you can press STOP quickly if necessary, but also to gain an impression of which speed is suitable for the horse.

EMERGENCY STOP

Activating the emergency stop will stop the belt in approx. 1 second. Therefore, ONLY press the emergency stop button if the horse or any nearby persons are in danger.

Likewise: If the stumble protection device is set too high, the horse will occasionally dip below the beam of light, thus triggering the emergency stop. This is not normally dangerous to the horse, but the belt will not restart automatically afterwards.

PROG 0:	START:	Horizontal 30 min – the belt can be raised and lowered manually. Stops after 30 min.
PROG 1:	START:	Horizontal 10 min – raise to 4 degrees – uphill 10 min – lower – horizontal 10 min. Stops after 30 min.
PROG 2:	START:	Horizontal 6 min – raise to 4 degrees – uphill 6 min – lower – horizontal 6 min – raise to 4 degrees – uphill 6 min – lower – horizontal 6 min. Stops after 30 min.

SETUP AND CONNECTION

When using orklits to move Horse-Trainer Water units, make sure that the orks and lifting chains do not damage the parts fitted to the machine. Place the Horse-Trainer Water on a flat, horizontal floor to avoid twisting the structure.

Check using a spirit level. It is especially important that the floor is level cross-wise. Do not install the Horse-Trainer Water in places where it may be subjected conditions such as rain, hail or direct sunlight.

DIMENSIONS

Weight: 2000 kg.

Minimum space required for transport: L, W, H: 4000, 1650, 2200 mm.

Space required for installation: L, W, H: 6400, 1650, 3000 mm. It is also important to take into account the access conditions for the horse, including the height.

Maximum dimensions of the our machine feet: 2080 x 1345 mm.

The power supply required is: 3 x 400V + N + PE, 16A. The frequency transformer and power motor are used internally with 16A uses.

Once the electric power supply has been established, check that the hydraulic pump is turning in the right direction. The correct direction is anticlockwise when you look at the fan in the electric motor. If it is running clockwise, swap two phases in the control box on two terminals 20, 21, 22.

DESCRIPTION OF CONTROL BOX

- F1 is an automatic fuse, 3 x 16A, C for the entire control box and the belt motor.
- F2 is a 4A, C for 230V for 24VDC power supply (coin operated if appropriate).
- F3 is motor protection for the water pump and must be set at 5.5A. - F4 is motor protection for the hydraulic motor and must be set at 1A.
- K1 is the main contactor for the belt motor.
- K2 is the relay for the bypass valve for the lowering function.
- K3 is the relay for activating the frequency transformer. If the bus communication fails, the belt will stop automatically.
- K4 is the relay for controlling the suction valve.
- K5 is the relay for controlling the pressure valve.
- K6 is the electronic relay for controlling the water pump.
- K7 is the electronic relay for controlling the hydraulic pump.
- K8 is the emergency stop relay, which uses switch sets 13, 14 to take the power from - K1, cutting off the current to the frequency converter. The belt will then stop in approx. 1 second. This will happen if you press an emergency stop switch, or if the photoelectric cell does not register a horse – if the horse stumbles, for example.

STUMBLE PROTECTION/PHOTOELECTRIC CELL

- SF1 is a photoelectric sensor with a delay-controlled ON / OFF unction. The delay is set so that the belt cannot be started until 10 seconds ater the horse has been led onto the belt.

EXPLANATION OF SEQUENCE OF MOTOR VALVES AND TROUBLESHOOTING

Switch on the power to the machine.

BEFORE YOU DO ANYTHING AT ALL.

Check that the valves are set to “AUTO” (projection on the side of the valve).

Measure the following voltages on the stated terminals:

13 to 14: +24VDC, plus on 13, minus on 14 (suction valve).

15 to 16: +24VDC, plus on 15, minus on 16 (pressure valve).

7 to 0V: +24VDC (PLC input 15).

9 to 0V: +24VDC (PLC input 17).

The two double relays - K4, and - K5, (PLC outputs 5 and 6) both inactive. Both valves set to “closed”.

If this is not the case, there is something wrong!

Mode of operation for suction valve:

Terminals 13, 14 are connected to the suction valve motor (see connections in the terminal list). When PLC output 5 is activated, double relay - K4 actuates and inverts the polarisation on terminals 13–14. This makes the valve turn. The valve reports back when the movement is completed on terminals 7, 8: input 15 and 16.

Mode of operation for pressure valve:

Terminals 15, 16 are connected to the pressure valve motor (see the connections in the terminal list). When PLC output 6 is activated, double relay - K5 actuates and inverts the polarisation on terminals 15–16. This makes the valve turn. The valve reports back when the movement is completed on terminals 9, 10: input 17 and 18.

Sequence:

On the display screen in the control box:

Go to “WATER CONTROL”.

Press “SET POINT” and enter 10 cm, for example.

Press “WATER IN”.

PLC output 6 is activated. The relay for the pressure valve actuates: Terminals 15 and 16 switch polarity: The pressure valve turns. +24VDC on terminal 9 (PLC input 17) disappears.

When the pressure valve has turned into position, +24VDC is applied to terminal 10 (PLC input 18).

When PLC input 18 is set, this signals that the pumps can start. The two contactors - K7 and - K8 actuate.

1. The “CURRENT cm” value counts up, and when it matches “SET POINT” the pumps stop.- K7 and - K8 drop.

PLC output 6 resets (reverses potential on terminals 15 and 16): The pressure valve turns back.

+24VDC on terminal 10 (PLC input 18) disappears, and when the valve has turned back +24VDC is applied to terminal 9 (PLC input 17).

The “WATER IN” sequence is complete. Both PLC outputs 5 and 6 are inactive.

Press “WATER OUT”.

PLC output 5 is activated. The suction valve relay actuates: Terminals 13 and 14 switch polarity. The suction valve turns.+24VDC on terminal 7 (PLC input 15) disappears.

When the suction valve has turned into position, +24VDC is applied to terminal 8 (PLC input 16).

When PLC input 16 is set, this is the signal that the pumps can start. The two contactors - K7 and - K8 actuate.

The “CURRENT cm” value counts down, and when the water level in the Horse-Trainer drops below the bottom sensor (terminal 30, PLC input 20, see the terminal list for details) the pumps stop.

PLC output 6 is activated (and switches polarity on terminals 15 and 16): The pressure valve turns.

+24VDC on terminal 9 (PLC input 17) disappears, and when the valve has turned into position, +24VDC will be applied to terminal 10 (PLC input 18).

The “WATER OUT” sequence is complete. Both PLC outputs 5 and 6 are active.

Press “WATER IN”.

PLC output 5 is deactivated. The suction valve relay drops: Terminals 13 and 14 switch polarity. The suction valve turns back.+24VDC on terminal 8 (PLC input 16) disappears.

When the suction valve has turned into position, +24VDC will be applied to terminal 7 (PLC input 15).

When PLC input 15 is set, this signals that the pumps can start (the two contactors - K7 and - K8 actuate).

Start again from 1.

If the valves do not turn, one troubleshooting method is to set the valve to manual (the small projection on the side of the valve). Manually turn the valve halfway away and return it to auto. The valve should then turn back to its starting position.

DESCRIPTION FOR BELT	Once a week	Once a month	Every six months
Check that the belt is correctly tensioned	x		
Check that there are no tears or holes in the belt		x	

DESCRIPTION FOR BEARINGS	Once a week	Once a month	Every six months
Lubricate all bearings	x		

DESCRIPTION FOR BELT MOTOR	Once a week	Once a month	Every six months
Check the gears for oil leaks		x	

DESCRIPTION FOR HYDRAULIC SYSTEM	Once a week	Once a month	Every six months
Check the hydraulic components for leaks			x

DESCRIPTION FOR STUMBLE PROTECTION (PHOTOELECTRIC CELL)	Once a week	Once a month	Every six months
Wipe the photoelectric cell and reflector clean of dust	x		
Check the cable to the photoelectric cell for breaks/damage		x	

DESCRIPTION FOR PUMPS, PIPEWORK AND VALVES	Once a week	Once a month	Every six months
Clean the pumps and filters	x		
Check the valves	x		
Check the pipework for leaks		x	
Lubricate the quick release mechanism on the rear barrier with suitable grease		x	

MISC.

All bearings apart from those mentioned in the lubrication instructions are sealed and lifetime lubricated and therefore require no maintenance.

Make sure to clean the dust from the two filters on the control box at least once every two months.

Once a year, check the control box and cables for breaks and loose connections.

WARRANTY

We provide a 2-year factory warranty on all components. The warranty does not apply to general wear and tear or to damage caused by incorrect use/care.

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