

SCALEBREAKER DESCALING PUMPS - SAFETY & OPERATING GUIDE

Kamco

Scalebreaker tank mounted descaling pumps C40 & C90 models

BASIC SAFETY

PLEASE CAREFULLY READ AND FOLLOW THESE INSTRUCTIONS TO AVOID OPERATING OR SERVICING PROBLEMS.

If there is anything you do not understand, DO NOT use this equipment. Make sure that you are aware of all safety requirements and that this equipment is suitable for the task you wish to undertake.

Wear the correct personal protective equipment for the task ahead, such as waterproof gloves and safety glasses or an eye shield. Wear suitable clothing. Safety shoes should be worn.

This equipment weighs in excess of 20kg; take care when lifting it. Do not move the unit by its power supply cable or hoses.

Always switch OFF the power flushing pump and isolate it from the power supply before cleaning, making adjustments or when left unattended.

Carefully inspect the equipment before use, if there is any doubt about its condition, DO NOT USE IT.

ELECTRICAL SAFETY

230V models are fitted with a 13A plug and should be powered from a standard 230V 13A power supply.

110V models must be powered from a suitably rated 110v transformer to avoid damage to the motor.

Note that the maximum overall length of cable you can use with this machine is 30 metres and any extension used must be at least 2.5mm 3 core.

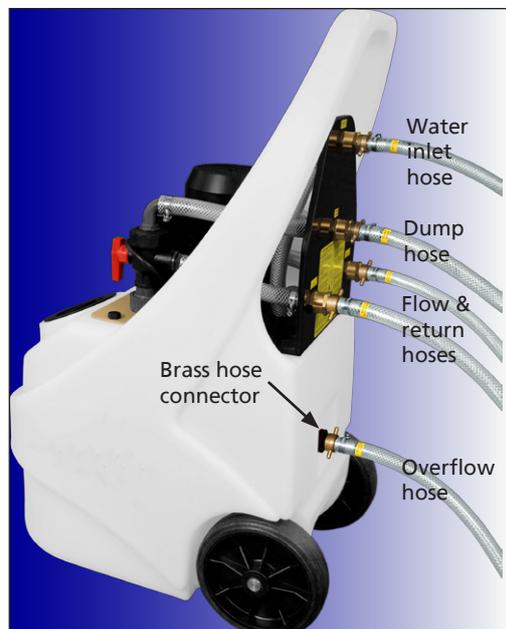
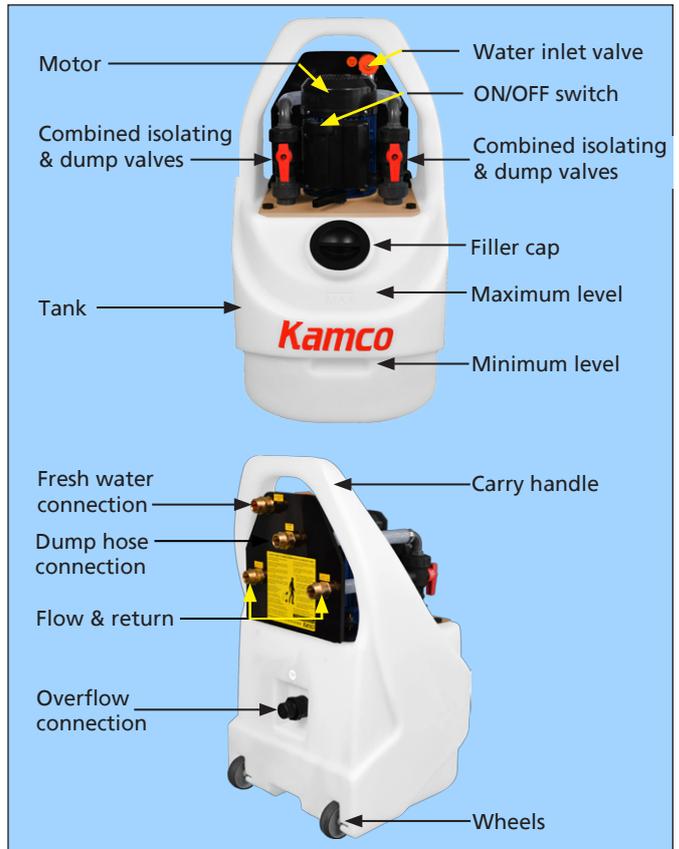
Fully unwind and loosely coil all power supply cables and extension leads. Position them away from the equipment where they will be protected from water, sharp objects and where they will not pose a trip hazard.

Switch the equipment and power supply OFF before plugging into the supply.

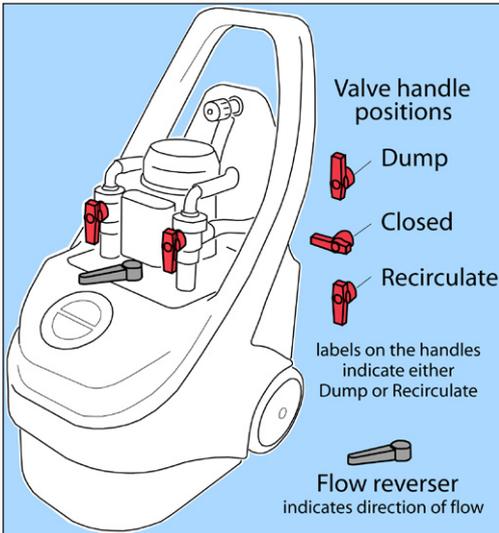
For additional safety, always use an RCD or power the equipment from a mains circuit with a built in RCD.



PUMP DETAILS & HOSE CONNECTIONS

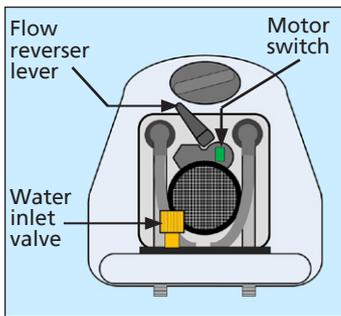


VALVE SETTINGS



FLOW REVERSER

The built-in flow reverser makes it possible to attack scale from both directions. During descaling periodically



move the flow reverser handle from one stop to the other. This reduces descaling time considerably, and is more effective in flushing out any solid matter. By attacking scale from both sides it is possible to clean

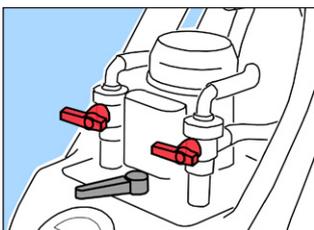
piping which is almost totally obstructed.

The flow reverser lever has two positions, LEFT, and RIGHT. If the lever is to the left, water will flow into the equipment being descaled through the left hand side hose, and water will return to the tank along the right hand hose. Pushing the lever to the right reverses the direction of flow and return.

The exact direction of flow is not important until you wish to 'dump' the solution and flush with fresh water.

SETTING UP THE UNIT

Locate the Scalebreaker pump close to a suitable drain point and a mains water supply.



adaptors & PTFE tape if necessary.

Run the drain hose and overflow hose to a suitable drain.

Connect the mains water fill hose to a suitable fresh water supply and open the supply valve. Fill the tank with water and descaling solution to a level between the Min and Max marks.

IMPORTANT: When working with acidic descaling chemicals always wear suitable protective clothing and goggles, and check and observe instructions supplied with descaling chemicals.

The liquid level should be sufficient to ensure that the pump rotor housing is submerged during use.

Connect the power cable to a suitable earthed power supply (220 or 110 volt [50 cps], according to model). Switch on the pump, and check to ensure that the liquid level does not fall below the level of the rotor housing (see above), as some of the contents of the tank enter the equipment being descaled, particularly when the overall capacity of the system being descaled is greater than the tank capacity of the pump. If necessary, add more descaling solution, or water. Check all connections for leaks.

During use, the tank cap should rest on top of the screwed stem, but should not be screwed on by more than a quarter turn, to allow for the passage and elimination of carbon dioxide gas evolved when hardwater deposits are being dissolved during descaling. This gas evolution can cause a build up of foam in the tank. Check that the foam level does not exceed the maximum filling level. If necessary, carefully add FOAMBREAKER antifoam to the solution.

If the descaling is being carried out to remove rust and corrosion debris, then no evolution of gas will be seen.

DESCALING PROCEDURE

Turn both isolating valves through 90° to the 'circulation' position and immediately switch on the motor.

Descaling solution will immediately circulate through the equipment, with the evolution of gas if limescale is being dissolved. Allow circulation to continue as long as gas is seen in the return pipe to the Scalebreaker pump, reversing the flow regularly.

Scale removal can be considered complete when bubbles no longer form in the return pipe, and the solution is still acidic.

For optimum results, Kamco SCALEBREAKER descaling chemicals should be used. These have a built-in colour change to allow acid strength to be monitored visually.

When descaling is being carried out to remove rust and corrosion debris, then it is necessary to establish the correct length of time for descaling by experimentation, or by monitoring the flow. As debris is cleared, the solution can be seen to move faster through the transparent flow and return hoses by observation of entrained air bubbles in the liquid.

WHEN DESCALING IS COMPLETE

When descaling is complete, the spent descaling solution may be pumped to waste along the dump hose.

The procedure is as follows:

If the flow reverser lever is to the left, twist the right-hand dump valve through 180° to show the word 'dump', ensuring that the left-hand valve remains in the 'circulation' position.

(If the flow reverser lever is to the right, twist the left-hand dump valve through 180° to show the word 'dump', ensuring that the right-hand valve remains in the 'circulation' position.)

When 'dumping', the water level in the pump tank will fall by the same volume as is being dumped. Open the mains water supply valve and adjust to allow fresh water to enter the tank at the same rate as water is exiting the dump hose. Make sure that the tank water level remains at least 10 cm (4") above the minimum mark.

Continue dumping until fresh water is leaving the end of the dump hose.

Turn the valve which is in 'dump' mode through 180° to restore full circulation through the pump and the system. Close the water supply inlet valve once the level in the reservoir has stabilised between minimum and maximum markers.

Allow fresh water to circulate through the descaled equipment for ten minutes.

CHEMICAL DISPOSAL

Descaling chemicals must have a low pH (i.e. be acidic) in order to work. Dependant on the chemical being used and local water regulations, it may be necessary to neutralise the descaling chemical before discharge to waste.

The procedure is as follows:

Set the Scalebreaker pump to normal recirculation. With the pump running, add Neutralising Crystals to the tank. If the water foams excessively, add a few drops of Foambreaker antifoam chemical. Continue adding Neutralising Crystals until there is no more foam evolution.

Set the pump into 'dump' mode, and check a sample of the water exiting from the dump hose. Continue the process until the pH of the water is 7 (neutral) OR the same pH reading as the property's main water supply, and then discharge all the solution to waste.

FINALLY

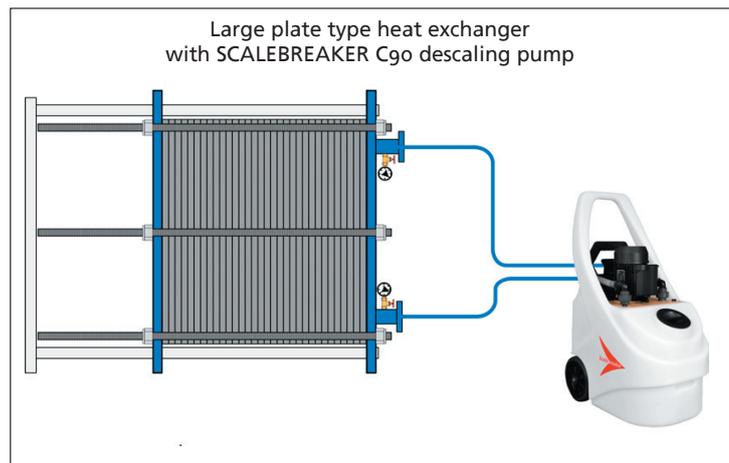
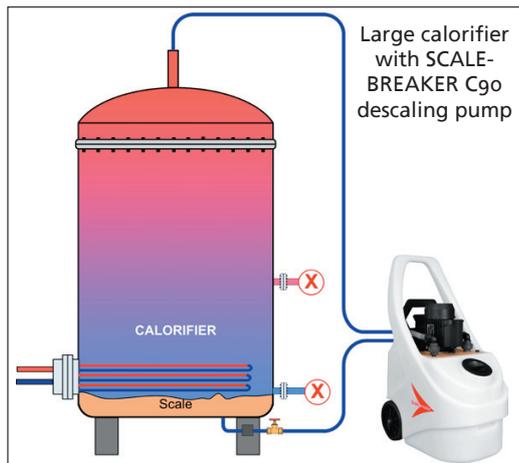
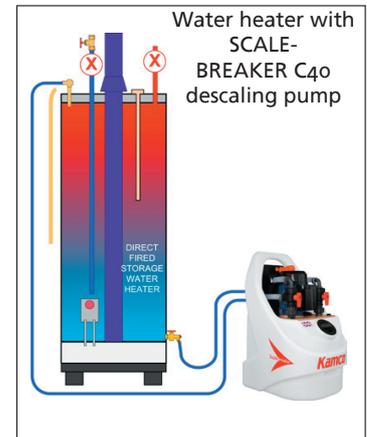
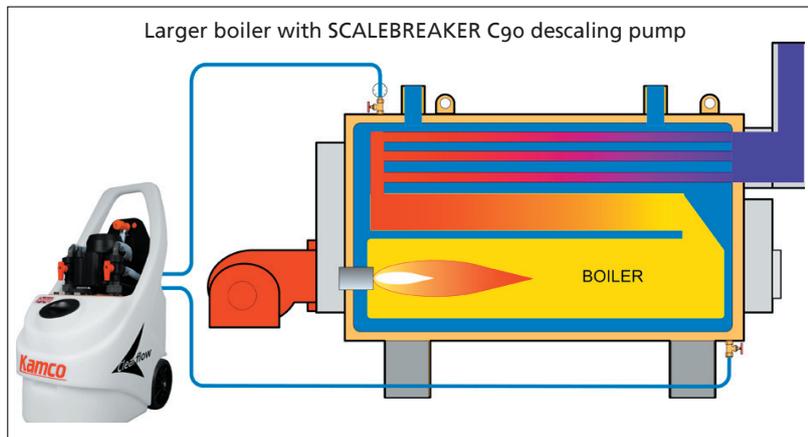
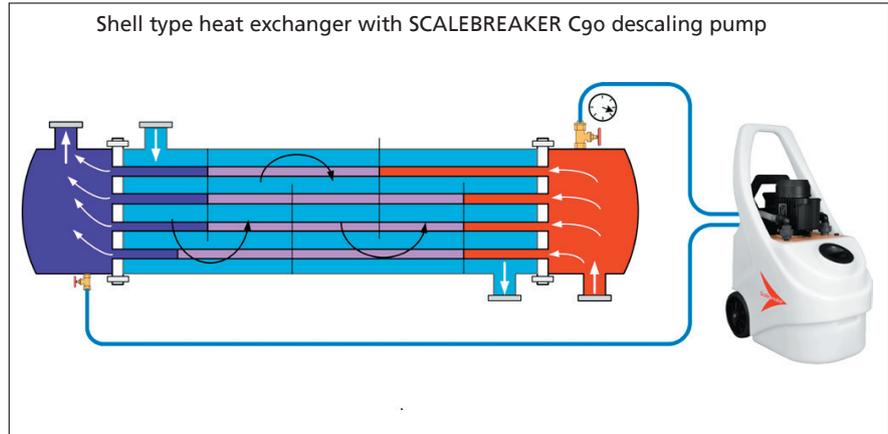
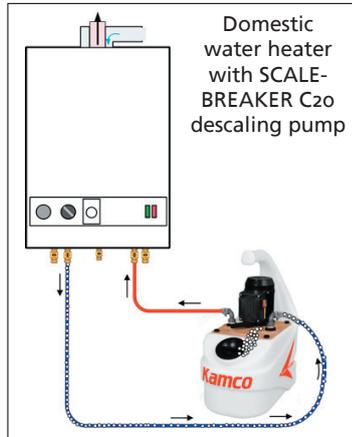
Switch the pump OFF and unplug it from the power supply. Disconnect all hoses from the pump and the system.

Empty the pump tank of any remaining water.

OBSERVE THESE PRECAUTIONS

Please observe these precautions during descaling:

1. Temperature of the descaling / flushing solution must not exceed 60°C. Higher temperatures may warp the rotor cover.
Monitor temperature closely when descaling plant / equipment which may already have a high temperature, such as the domestic water coil in storage water heaters, or large plastic injection moulding tools.
2. Do not dissolve solid or crystalline descaling chemicals directly in tank, as this may choke the pump inlet and cause abrasion damage. Dissolve such chemicals in a bucket first.
3. Always keep pump upright, particularly in transit, to avoid any liquid penetrating lower electric motor bearing, or lower electric motor bearing may wear prematurely.
4. Caps should be kept securely on all chemical containers whilst not in use.
5. As a matter of prudence, and to avoid splashes, operators should avoid standing directly over the open neck of either chemical containers or the filling neck of the descaling pump whilst pouring or adding chemicals.
6. If the pump is not to be used for a period of time, wash out the pump after use by circulating clean water through it, to prevent any residues of descaling process from drying and "gumming up" the rotor.



These schematic diagrams are for general guidance only, and are not drawn to scale. For advice on the most appropriate model for your applications, please telephone 01727 875020. Guidance notes on descaling most types of equipment are available in the descaling section of our web site at www.kamco.co.uk