

INSTALLATION AND MAINTENANCE INSTRUCTIONS PACKAGED FLASH STEAM RECOVERY UNIT ADCATHERM FRECO

GENERAL

- These instructions must be carefully read before any work involving products supplied by VALSTEAM ADCA ENGINEERING S.A. is undertaken.
- The installation procedure is a critical stage in a life of the equipment and care should be taken to avoid damage to the equipment.

Note:

- Current regional safety regulations should be taken in to account and followed, while doing the installation and maintenance work.
- Handling, installation and maintenance work must be carried out by trained personnel. A supervisor must follow and check all activities.
- For the problems that cannot be solve with the help of this instructions, please contact the supplier or the manufacturer.
- The manufacturer reserves the right to change the design and material of this product without notice.



- If malfunction of any other equipment or system operation failure may result in a dangerous overpressure, over temperature or even vacuum condition, a safety device must be included in the system to prevent such situations.
- Do not touch the equipment without appropriate protection during working operation because it may conduct heat if the used fluid is at high temperature.
- Before starting maintenance be sure that the equipment is not pressurized or hot. Even if upstream and downstream isolating valves have been closed care should be taken since fluid under pressure may be trapped between them.
- The equipments must be used within the working temperature and pressure limits laid down for them, otherwise they may fail (refer to nameplate and/or IS- Information Sheet).
- You are advised to assess the risks taking into account the task, the individual, the load and the working environment.
- Before starting work ensure that you have suitable tools and/or consumables available. Use only genuine ADCA replacement parts.
- Do not remove the nameplate attached to the equipment. Serial number and other useful information is stamped on it.
- During the assembly work, apply protective measures against dirt.
- When connecting flanges, the bolts should be mounted from the counter flange side with the hexagon nuts from the valve side and it must exist a perfect match between the connection flanges.
- Tighten flange connection bolts uniformly in a diagonal sequence.
- Correct installation of the equipment is full responsibility of the contractor.
- For more information regarding the equipments that forms the set, please see the corresponding IMI and data sheet available in our website.

TRANSPORT AND STORAGE



ATTENTION

- Handling and lifting of materials should be made with adequate equipments.
- Do not damage the paint job. It protects against corrosion during transportation and storage.
- Equipments should be protected from impacts and forces during transportation and storage.
- The manufacturer doesn't assume the responsibility of damaged equipments due to inappropriate handling during the transportation and storage.
- When moving the FRECO, you must have special attention to how it is transported.
- Please see your order drawing, depending on the size of the equipment ordered may use stacker or bridge crane. If the structure has eye bolts should use a bridge crane. However, if the structure has opening for forks, should be use the stacker.
- Pay attention for the FRECO weight (see approved drawing).

INSTALLATION



ATTENTION

- Account for over pressure conditions, according with the local laws or standards.
- The ADCATHERM FRECO must not be used with other purpose than the one they were built for.
- For the problems that cannot be solve with the help of this instructions, please contact the supplier or the manufacturer.
- It should be ensure by means of relief valves and instrumentation, the overheating of the heat exchangers. Never leave the steam/hot condensate running inside the heat exchangers without having water running on the other side.

Installation area requirements:

- The installation area should have easy access and provide enough space for maintenance and removing operations.
- The installation area should have the necessary firing system to prevent damage of the equipment due to over temperature/pressure cause by fire.

FRECO Installation:

- Steam, condensate and water pipework to the FRECO should be stress free and supported appropriately. The lines should be maintained to the design pressure of the FRECO and under no circumstance exceed the pressure stamped on the name plate of the heat exchanger.
- The steam line to the FRECO should be suitably trapped (if this is not included in the unit) to ensure that dry steam is used in the unit.
- Before installing remove plastic covers placed on connection ends.
- Take care with jointing material to ensure that none may be permitted to block or enter the unit.
- If necessary assembled the items that are disconnected, according to the drawings supplied with the equipment. These items are removed to ensure a safety transport.

Compressed air supply

- If a pneumatic control valve and other pneumatic equipment is installed, a suitable air supply will be required.
- 3 - 6 bar may be required depending upon the actuator selected or equipment (revert to the specific datasheet/IMI of equipment included). An air filter regulator must be used to ensure the correct pressure is supplied to each valve/equipment.

START UP



- Current regional safety regulations should be take in to account and followed.
- Protective insulation and warning notice may be required.
- Until the start up of an existing or a new plant, the following must be checked:
 - All works are completed.
 - The equipment is correctly installed.
 - All the necessary safety devices have been installed.
- At start up, the presence of small particles in the motive fluid (dirt, scale, weld splatters, joint particles, remains of Teflon tape, etc) may cause anomalies. If this occurs, proceed to an accurate cleaning.

Start up procedure

- Make sure the control panel is switched off;
- Ensure that the FRECO main steam isolation valve, condensate valve and feeding water valve are closed;
- Open de by-pass valve from the water line, and let the water to flow – turn on the recirculation pumps.
- Open all the valves on the cold side and feed the system with water. If the recirculation pumps are already working the isolation valves have to be opened slowly to avoid water hammer on the pipeline and heat exchangers; In case of plate heat exchangers with vent valves, open the valves to allow the exhaust of the air. Repeat this operation to ensure the heat exchanger is completely full of water. During this operation keep the by-pass line open. After the system is full of water and air have been removed, you can close the vent valve of the heat exchangers.
- At this stage you can close the by-pass valve.
- Activate the pump recovery system (if included) to return the condensate back to feed tank.
- Make sure all the isolation valves present in the system before all the steam traps are open (if included);
- Open the main condensate valve to allow the condensate to enter the flash vessel, if necessary use the drain valve. Let the condensate recirculation inside the heat exchangers and check all the connection, to ensure there is no leaking. Confirm the temperatures and pressures on the gauges.
- Open the main steam valve very slowly – the isolation valve must be opened at a rate of no greater than half of revolution of hand wheel every 10 seconds until the valve is fully open;
- Regulate the pressure reducing valve to the required pressure.
- The system will now be up to temperature and controlling the water temperature.

Shut down

- The shutdown should be performed in the reverse way as indicated on the start up. Beware for overheating of the heat exchangers. Never close the water with steam/hot condensate inside the heat exchangers.
- If the system is going to be shut off during a large period of time it's recommended to completely drain all the condensate and water from the system.

Periodical checking:

- 24 hours after the start up, it is recommended to check pipe connections for leaks and retighten the connections if necessary.

MAINTENANCE**ATTENTION**

- For maintenance of individual components of the FRECO please see the relevant product IMI.

PRODUCTS RETURNING**ATTENTION**

- Information regarding any hazards and precautions to be considered because of contaminating fluids and residues or mechanical damage that may represent a health, safety or environmental risk, must be provided in writing by the distributors and costumers when returning products to Valsteam ADCA engineering.
- Health and safety data sheets regarding substances identified as hazardous or potentially hazardous must be provided with the information mention above.

**ATTENTION**

- **LOSS OF WARRANTY:** Total or partial disregard of above instructions involves loss of any right to warranty.