INSTALLATION INSTRUCTIONS
STVM® WASHDOWN STATION REPLACEMENT CARTRIDGE

1) Safety

A. Components

The mixing valve must always be operated with a valve cartridge properly installed in the valve body. Serious bodily harm or injury can occur in the event that the washdown station is used without the cartridge properly installed. Additionally, the cartridge is designed to remain intact and must not be modified or taken apart for any reason. Replacement cartridge assemblies can be purchased from ThermOmegaTech®. ThermOmegaTech® disclaims any and all liabilities arising from its installation and/or use.

Before and after operation of the washdown station, the hose and washdown nozzle should be inspected for any sign of wear or damage. The washdown station should form part of a regular maintenance program, appropriate to the operating conditions and environment.

B. Pressure

Before attempting any maintenance of any component of the Steam/Water Mixing Station consider what is or may have been in the pipeline. Ensure that any pressure is isolated and safely vented to atmospheric pressure before attempting to maintain any component, e.g. mixing valve, hose etc. It is highly recommended that a lock out-tag out procedure be implemented for this process. Discharge contents of hose and station by pulling nozzle trigger and eliminate pressure until water flow stops. Do not assume that the system is depressurized even when a pressure gauge indicates zero.

C. Temperature

For personal protection wear protective clothing, especially heavy-duty insulated gloves, boots, aprons, and safety glasses. To prevent burn hazards it is recommended to insulate all components of the steam supply side of the washdown station as well as the mixing valve.

D. Disposal

Dispose of per your local regulations.

2) Importance of Cleaning

Over time, any steam and water mixing valve may foul or seize due to the buildup of mineral deposits. The time between seizures depends on the level of mineral deposits in your water and the frequency of use. The valve cartridge assembly has been designed to resist mineral buildup through the scouring effect of its unique Vortex design. It has also been designed for easy maintenance and cleaning when the effects of mineral deposits limit the valves ability to operate at peak performance. To service the mixing valve and keep it in peak operating condition, assign this product to your Preventative Maintenance program and perform the cleaning procedure as outlined in section 3.

3) Cleaning Procedure

Cleaning should only be carried out by suitably qualified personnel.

A. Isolate Mixing Valve

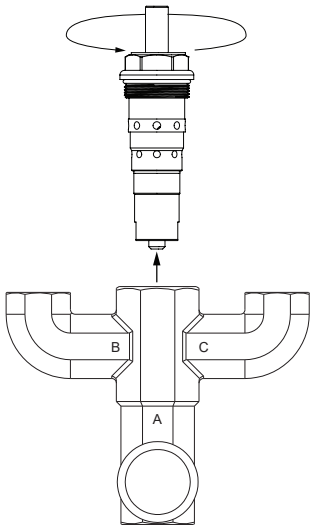
a) While pulling the nozzle trigger, turn off all steam valves leading to the washdown station. Begin with the valve closest to the steam main and ending with the steam ball valve handle on the washdown station interlocked handles.
b) Allow unit to run for a short period of time with water so as to cool the mixing valve (approx. 30 seconds).
c) Pull the water ball valve handle fully closed.
d) Continue holding the trigger to discharge the contents and vent the pressure from within the hose and unit until the water flow stops.
e) Once the mixing valve has been isolated from the steam and water supplies, perform a lock out-tag out procedure to prevent unintentional use of the station during this maintenance procedure.

B. Cartridge Removal

Using a 1 ½" (38 mm) open-ended wrench, unscrew the cartridge from the mixing valve body in a counter-clockwise direction. Reference fig. 1.

Rotate Counter Clockwise to remove

Fig. 1



C. Acid Wash

Clean the cartridge by soaking it in a weak acid solution. Agitating the acid solution will enhance the cleaning effect. A 5% solution is a safe and effective choice. The amount of soak time depends on the amount of mineral buildup. When cleaned frequently, use a 5% oxalic acid solution. Flush the cartridge to purge any remaining acid. Clean at regular intervals. When using acids, follow the manufacturers safety precautions, handling instructions, and MSDS sheets.

Note: Seized cartridges are the result of mineral deposits hard fastened to the internal components of the cartridge. Such mineral build-up cannot be seen and only the cleaning instructions detailed in this section may be used to remove said mineral deposits.

Under no circumstance should the cartridge be modified or taken apart for any reason. ThermOmegaTech® will not accept any consequential liability for the operation of the washdown station if this precaution is not observed. If mineral deposits are observed on the exterior surfaces of the cartridge, use a stiff non-metallic brush to remove any heavy, stubborn or visible mineral buildup, taking care not to damage seals. Metal scrapers should not be used as this may cause permanent damage to the components.

D. Seal Inspection

Additionally, visually inspect the condition of the cap seal and external Vortex seal on the cartridge. Visually inspect the valve body seal. Renew the seals if there is any evidence of wear or damage. Replacement seals can be purchased from ThermOmegaTech®. Reference fig. 2 for the location of the cartridge seals, and fig. 3 for the location of the valve body seal. The cap seal can be easily removed by rolling or slipping it off of the cartridge. The external Vortex seal is more difficult to remove, and may be detached by using an O-ring seal pick. Secure new seals by rolling or slipping them in place. Remove the valve body seal via use of a pointed tool such as an O-ring seal pick. Take care not to scratch the machined surface of the seal groove. Replacement of the valve body seal is easily accomplished with your fingers. No tools are required. All seals should be coated with a lubricant such as Krytox® or other EPDM compatible type. Refer to the manufacturers safety precautions, handling instructions, and MSDS sheets for those lubricants.

Fig. 2

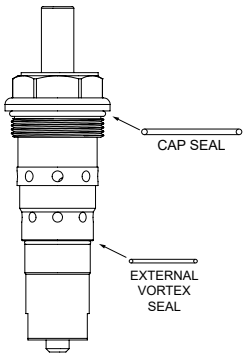
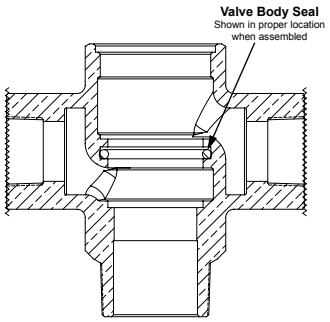


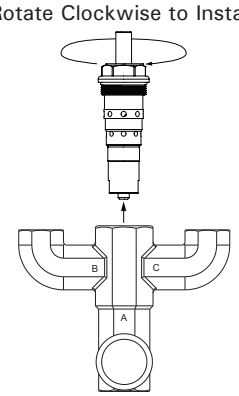
Fig. 3



E. Cartridge Installation

Using 1 ½" (38 mm) open-ended wrench, screw the cartridge into the mixing valve body in a clockwise direction.
Reference fig. 4.

Fig. 4



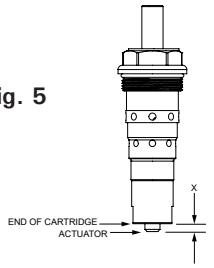
NOTE: Torque to 50 lb-ft (67.8 Nm)

F. Cartridge test & inspection procedure

First follow Shut Down procedure as specified in section 3.3 of the Washdown Station IMI. Then perform the instructions as follows:

a) Remove the cartridge assembly from the valve body as specified in section 3)B.
b) At room temperature, measure the distance from the end of the actuator to the end of the cartridge using a dial caliper or a depth gage. This is shown as dimension "X" in figure 5. Note this dimension.
c) Using caution and wearing appropriate PPE, immerse the cartridge in a bath of boiling water making sure the actuator at the outlet end of the cartridge is fully immersed for a period of at least one minute.
d) Remove the cartridge from the bath and, within one minute, re-measure distance X. Compare this dimension to the dimension taken before placing the cartridge in the bath. The actuator should have moved about ¼" (6.45 mm) for 150°F (65.6°C) cartridges and about .220" (5.59 mm) for 185°F (85°C) cartridges. If it moves less than specified, or no movement is noted, it is likely that mineral deposits have seized the internal spool in place. Follow Cleaning Procedure, section 3.
e) If assembly operates normally, inspect valve body seal and replace if necessary. Reference section 3)D. Reinstall cartridge assembly as specified in section 3)E.

Fig. 5



4) Cartridge Replacement Kit

Cartridge replacement should only be carried out by suitably qualified persons.
The cartridge replacement kit includes the cartridge assembly and a separate valve body seal. Prior to placing the replacement cartridge in the mixing body, perform the following functions:

a) Follow instructions for isolating the mixing valve as specified in section 3)A.
b) Follow instructions for removal of the cartridge from the mixing valve body as specified in section 3)B.
c) Ensure that the cap seal and external Vortex seal are present on the new cartridge.
d) Remove the valve body seal via use of a pointed tool such as an O-ring seal pick. Take care not to scratch the machined surface of the seal groove. Install the new valve body seal.
e) Follow instructions for installing the cartridge into the mixing valve body as specified in section 3)E.
f) Follow operation instructions as described in section 3 of the Washdown Station IMI.
g) If the valve does not operate properly, decommission the unit and call ThermOmegaTech® for technical assistance.

Proper Use: Use ThermOmegaTech® products only as specified to ensure performance, safety, and regulatory compliance.
No Modifications: Do not modify ThermOmegaTech® products, as changes may void warranties and violate regulations (e.g., RoHS, REACH).
Proper Disposal: Dispose of end-of-life products per local hazardous substance regulations; contact ThermOmegaTech® or recycling facilities for guidance.

WARNING: This product can expose you to chemicals, for example lead, nickel, acrylonitrile, which are known to the State of CA to cause cancer, birth defects, or reproductive harm. For more information, go to www.P65Warnings.ca.gov

Warranty information disclosed at www.thermomegatech.com/terms-conditions/

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