



TYLER
Research Corporation
Biomedical Engineering



Product: Industrial TACT Tool UHP-BD24-SS

Material: Stainless steel with Viton seals, polysulfone insulators, stainless steel screws, stainless steel pressure gauge, stainless steel ball valves.

The UHP-BD24-SS is manufactured from medical grade stainless steel, a durable corrosion, stain and rust resistant alloy. The UHP-BD24-SS is ideal for use in extreme industrial environments and can accommodate pressures to 3000 psi, or to 5000 psi with a simple change-out of pressure gauge and ball valves. The UHP-BD24-SS device may be sterilized using an autoclave.

IMPORTANT:

Sterilizing UHP-BD24-SS TACT Tools:

1. Remove the pressure gauge prior to autoclaving.
2. Place the device in an autoclave bag or wrap in surgical towels and tape the package closed with an indicating tape.
3. Refer to the manual of the autoclave in use for proper loading techniques and correct positioning of the items to be sterilized. Sterilize at 121°C for 15 minutes.

Alternative Methods for Sterilization:

Clean the TACT Tool with mild detergents and warm water followed by one or more of the following procedures:

1. Exposure to ethylene oxide gas (available in many hospitals)
2. Exposure to ionizing radiation (Cobalt 60 gamma or X-rays)
3. Treatment with agents containing 2% glutaraldehyde (e.g. Cidex)
4. Soaking overnight in sodium hypochlorite solution (5%)
5. Prolonged exposure to sodium metabisulfite solution (15 g/liter)

In the event treatments 3, 4 or 5 are used, it is important to soak and rinse the device in sterile deionized water thoroughly before placing it back in service.

UHP-BD24-SS

Industrial TACT Tool Assembly/Disassembly Instructions:

The UHP-SS series TACT Tools are precision devices consisting of one stainless steel centre bore manifold, two 1/2" stainless steel ball valves, one stainless steel 0-3000 psi pressure gauge, twenty-four stainless steel biostud holders with Viton seals and O-rings, polysulfone insulators and stainless steel ejection/retention screws.

Assembly or disassembly of the TACT Tool for cleaning requires a 1" ratchet socket drive and a #1 Phillips screwdriver (tooling is included with the device).

1. **MANIFOLD:** If the UHP-BD24-SS TACT Tool is in service, turn the ball valves at each end of the device 90° to isolate the manifold from sidestream flow. Use the 1" ratchet socket drive and turn the biostud holders counterclockwise to remove them from their ports. If the biostuds are being returned to the laboratory for analysis, follow the instructions to secure the holder(s) in the TACTical transport cassette and install a replacement holder in the manifold for each one removed, being careful to note the port number, date and time of replacement. With all of the desired biostud holders replaced, re-establish sidestream flow by turning the ball valves 90° to fully open.

2. **BIOSTUD HOLDER:** Remove the screw and O-ring from the top of the biostud holder using a #1 Phillips screwdriver. Hold the stainless steel hex assembly so that the biostud will not fall when it is released (roughly horizontal or with the biostud face pointing slightly upward). Insert the screwdriver into the holder and gently push the insulator subassembly almost completely out of the hex holder, being careful not to touch or contaminate the biostud face. Grasp the insulator with sterile gloves or forceps and slide it completely out of the hex holder. Again using the #1 Phillips screwdriver, loosen the stainless steel screw from the end of the insulator opposite the biostud. When the threads are disengaged, push the screw into the insulator. This will push the biostud partially out of the insulator, exposing the stem so that it may be grasped with sterile forceps to remove the biostud completely from the insulator. Transfer the biostud to a suitable tube for analysis. NOTE: Most oil-field biofilms are anaerobes and must be protected from exposure to air (oxygen).



3. TACT Tools can stay in field service indefinitely as sterile biostuds and holders are exchanged for exposed ones in time course or chronic studies. When TACT Tools are removed from service, they should be cleaned immediately. Remove and disassemble all biostud holders, both ball valves and the pressure gauge, and thoroughly clean all components with detergent and warm water. Solvents may be used to remove oil residues as required*. Rinse with deionized water and allow to dry before reassembly. Lubricate all O-rings with silicone O-ring lube to promote sealing and prolong O-ring life.
4. Wrap the male threads of the pressure gauge, ball valves, and nipples with Teflon tape, and install into the appropriate ports of the manifold. For ease of use, valve handles should be oriented in the same plane as the pressure gauge.
5. Gently push a biostud into the non-tapered end of the polysulfone insulator, and secure it with the stainless steel retaining screw. Repeat for all 24 biostud holders. Install the tapered end of the populated insulator subassembly into the hex holder and push until it is fully seated and the face of the biostud is flush with the holder. Replace the O-ring and screw on the other end of the hex holder to provide a secondary seal and protect the interior of the subassembly from contaminants.
6. Place and turn the biostud holders clockwise into the threaded ports in the main body of the device. Using the 1" ratchet socket drive, tighten the holders to make metal-to-metal contact and achieve an effective seal.

**While stainless steel is impervious to most solvents, acids and bases, the polysulfone insulator can be damaged by exposure to the following: acetone, acetonitrile, benzene, chloroform, dimethylformamide (DMF), dimethylsulfoxide (DMSO), ethyl acetate, methyl ethyl ketone, methylene chloride, perchloroethylene, phenol, pyridine, sulfuric acid, toluene, trichloroethylene, and xylene.*