

Triaxial Cells

Impact Test Equipment Ltd
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User Guide
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Triaxial Cells



Triaxial Cell Sample Accessories



Cell Construction

Impact's triaxial cells are designed to withstand corrosion, manufactured from aluminium alloy and Perspex. The cell bases are pre-drilled with 4 take-off positions. All cells are fitted with 4 no-volume change valves.

All of our triaxial cells are designed to withstand a working pressure of 1700kPa. The internal height of the cell is sufficient to allow the fitting of submersible load transducer assemblies without any modification.

Triaxial cells are available in 3 sizes as below.

Part Number

SL525
 SL530
 SL535

Cell Size

50mm diameter
 100mm diameter
 150mm diameter

Standard accessories are available to test samples ranging from 35mm to 150mm diameter. Non-standard sample accessories are available on request.

Please note

The only pressure medium that can be used with Impact's triaxial cells is water. Do not use gas or any liquid other than water.

Triaxial Cell Sample Preparation

1. Unscrew the tie rod nuts until they come clear of the drilled hole in the cell base.
2. Lift off the cell wall, complete with the head and base ring, from the base and place on a clean surface.
3. Remove, clean and inspect the base adaptor and pore pressure port 'O' ring seals and thoroughly clean the groove and recesses.
4. If the sealing rings are undamaged, lightly coat them with grease and refit to the base. Worn or damaged rings must be replaced.
5. Secure the required base adaptor to the base with the three socket head cap screws, taking care to tighten each screw evenly until the adaptor is contacting the base.
6. If the test requires top drainage, remove the blanking screw from the pressure pad and connect the drainage tube assembly. (Later models have two top drains.)
7. Connect the other end of the drainage tube assembly to the tapped hole in the base, having first removed the blanking screw.
8. Build up the sample on the base adaptor using the solid disc for undrained tests or porous disc for drained tests.
9. Place the porous disc on top of the sample (drained test only) and fit the pressure pad.
10. If necessary, clean the cell wall (refer to Maintenance Section).
11. Remove the base ring 'O' ring seal, clean the groove and underside of the base ring.
12. Clean and inspect the sealing ring and, if undamaged, lightly coat with grease and replace in the groove.
13. With the piston fully up, lower the cell wall assembly carefully over the sample, locating the base ring on the spigot of the base.
14. Lower the piston carefully to locate into the central dimple of the pressure pad.
15. Mount the cell onto the load frame platen making the required connections to constant pressure systems etc. Fill the cell with water using the bleed screw in the head to permit all air to be evacuated.
16. Raise the platen and cell until ball end of load ring engages with the central dimple in the piston. Set up the strain gauge/transducer on the datum bar.
17. Conduct triaxial test as required.

Strain Gauge Datum

Not to Scale

Piston

Bleed Screw

Tie Rod Nut

Head

Tie Rod

Piston O Ring Seal

Cell Wall O Ring Seals

Cell Wall

Base Adaptor

Blanking Screws

Base O Ring Seal

Base Ring

Cell Pressure

Back Pressure

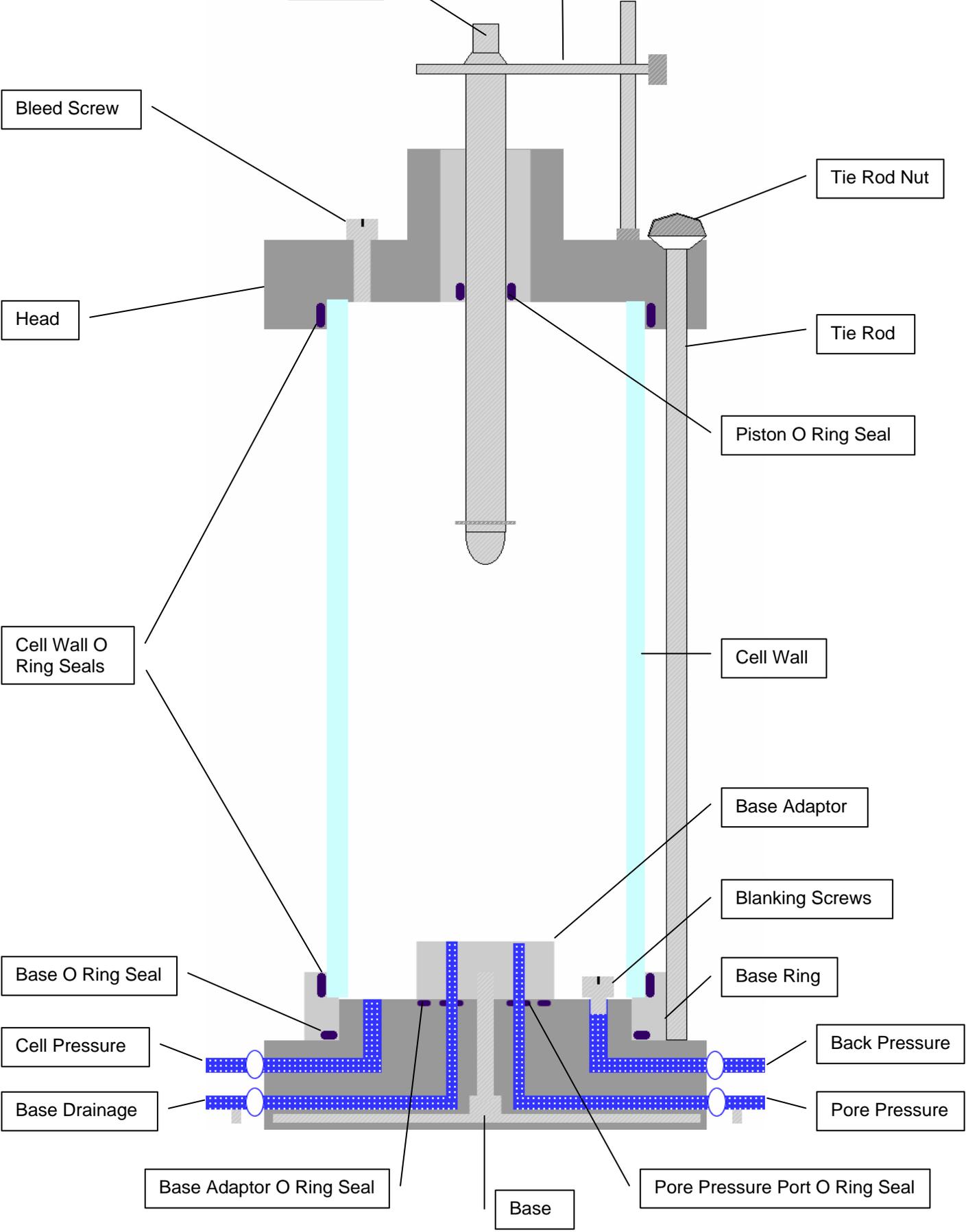
Base Drainage

Pore Pressure

Base Adaptor O Ring Seal

Base

Pore Pressure Port O Ring Seal



Maintenance

1. Clean and dry all parts after use. The cell wall should only be cleaned with soap and water or a solution of mild detergent followed by adequate rinsing.
2. If the cell is to be left unused for long periods ensure that the drainage tube assembly is removed and blanking screws are replaced.

Note: there is a possibility that the plasticising agent in the drainage tube will attack the acrylic cell wall if the two are allowed to come into contact for even a short period of time. Therefore this tubing must not be allowed to come into contact with the cell wall, or be stored inside it.

3. Allow the piston to drop to its lowest position to prevent exposed grease collecting dirt.