



RST INSTRUMENTS LTD.

Borehole Pressure Cell Installation Instructions

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Borehole Pressure Cell Installation Instructions

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1 INTRODUCTION

Borehole Pressure Cells (BPC) are used to monitor relative stress changes in rock. These instruments are installed in boreholes at predetermined depths. The borehole should be clean and checked for size (min. 57 mm diameters). Target depths and current stress levels should be known prior to installation.

Relative Stress changes in the surrounding rock are witnessed by the Pressure Cell and transmitted via the pressurized hydraulic fluid to the Pressure Gauge/transducer for monitoring/recording.

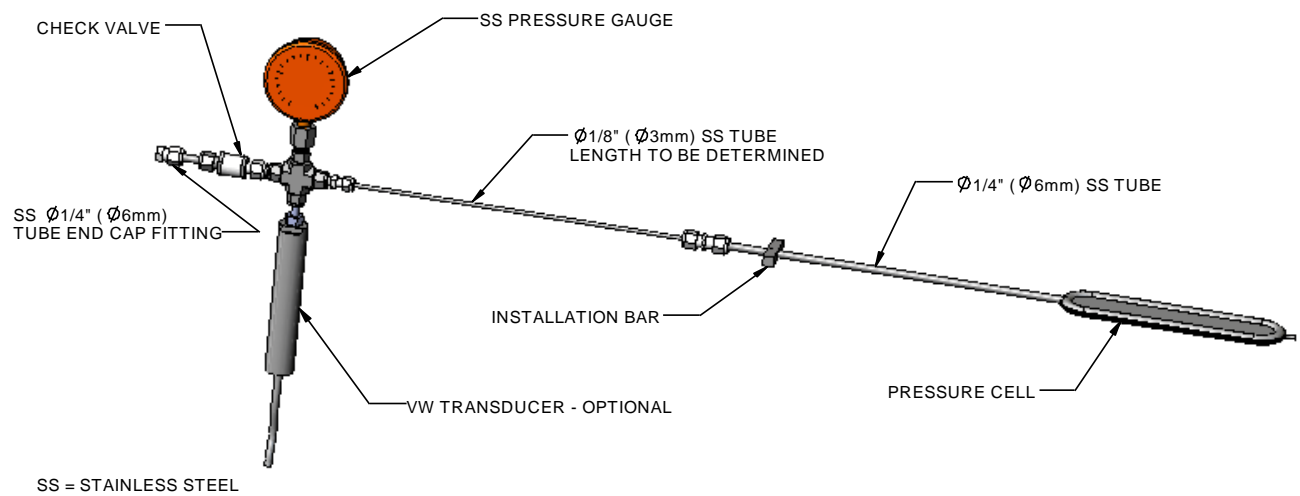


Figure 1: Borehole Pressure Cell System Overview

2 INSTALLATION

2.1 SINGLE PRESSURE CELL INSTALLATION

The RST Borehole Pressure Cell is installed using an Installation Tool that pushes on the Installation Bar to get the Pressure Cell to its target Depth (see section 3 for more details). Be careful while uncoiling the tubing as the Pressure Cell is inserted into the borehole. Once at its depth, turn/twist the Installation Tool to rotate the Pressure Cell until it is perpendicular to the direction of the stresses to be monitored. To deploy the pressure Cell, connect the cell to a hand pump, or an alternative pressurizing system, and inflate the cell until the pressure in the cell approximates the local pressure in the rock.

2.2 MULTIPLE PRESSURE CELLS INSTALLATION

If monitoring of more than one direction of stress is required, two or three Pressure Cells can be installed in a single borehole. Installation technique is the same as a single cell installation, however the cells are part of a single unit, and installation begins with inserting, orientating, and deploying the deepest cell first. The next cell is then inserted into the borehole paying careful attention to the inflation line of the previously installed cell, which passes through the encapsulated pressure cell via a stainless steel tube port. Once its target depth is reached, it can be orientated and inflated. If applicable, the third cell installation is the same as the second cell, however there are two inflation lines passing through instead of one.

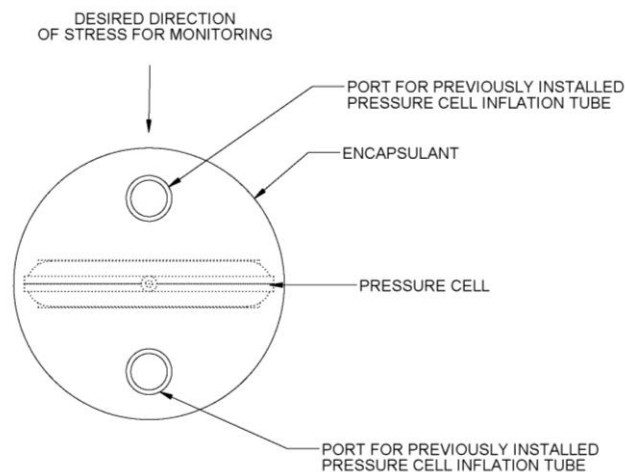


Figure 2: Orientation of Pressure Cell

3 BPC INSTALLATION TOOL



Figure 3: BPC Installation Tool Overview

1. Insert the BPC Insertion Tube (male end first) at an angle into the BPC Alignment Adapter (see figure 4).
2. Swing the BPC Insertion Tube down until it is parallel with the BPC Alignment Adapter; the BPC Insertion Tube male end adapter should be engaged with the BPC Alignment female adapter (see figure 4).
3. Align and push the Installation Tool until the BPC Alignment Adapter is engaged with the Installation Bar on the Pressure Cell.
4. Push the Pressure Cell into the borehole.
5. Connect the next section of BPC Insertion Tube (male end first), if needed, to the female end of the previous section of BPC Insertion Tube. Installation Technique is the same as in step 1.
6. Push the Pressure Cell into the borehole until its desired depth is reached.
7. Turn/twist the BPC Installation Tool to rotate the Pressure Cell to desired direction.
8. Pull the BPC Installation Tool to remove it from the Borehole
9. Repeat step 1 -8 until all the Pressure Cells are installed.

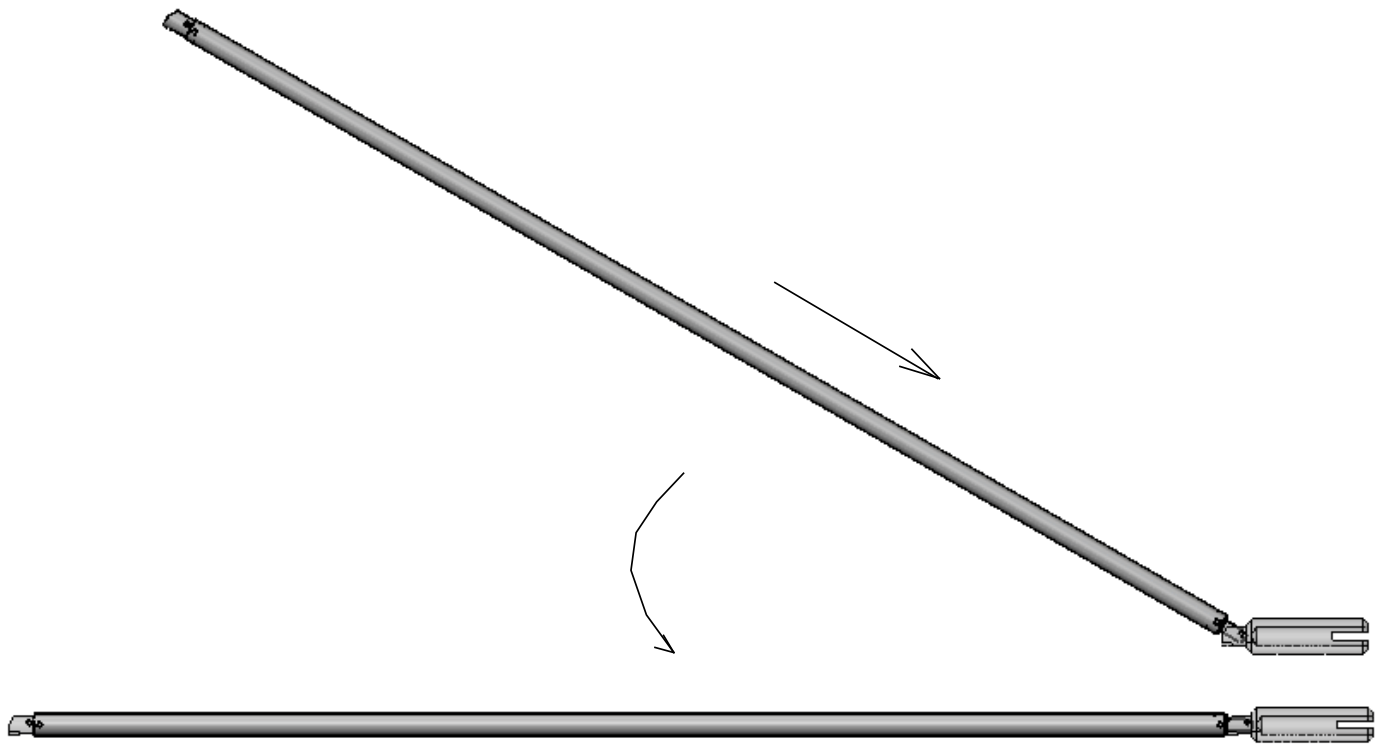


Figure 4: Connecting the BPC Installation Tool