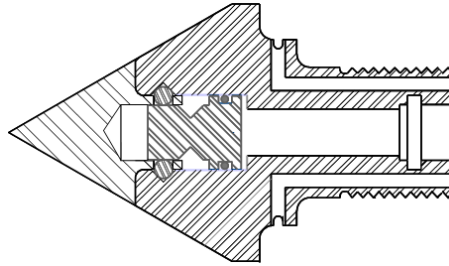


# Grouting of the Sounding Hole

## Grouting capabilities

Lankelma Inc offers several options for grouting the penetrometer hole. Typical methods consist of a conventional neat cement grout or a mixture of bentonite and cement. These are the commonly accepted grouts for use at environmental sites.



## Advantages

A CPT penetration can be grouted by commonly accepted grout mixtures, allowing CPT to follow state-specific EPA requirements.

Grout volume and costs for CPT holes are substantially less than that of conventional drilling, turning project costs to profit.

CPT's small diameter hole greatly decreases potential cross contamination between aquifers.

Both grouting and decontamination can be performed during rod retrieval, providing added efficiency to the CPT method.

## Grout methods

**Pressure grout** : This method grouts penetrations using the CPT push rods. This grouting technique employs a second push with a flexible grout tube strung through the push rods to a sacrificial tip. This method is required when a probe has insufficient room for both the grouting tube and the instrumentation cable.

**Grout-upon-retraction** : Commonly accepted cement based grout is pumped continuously through the probe tip throughout instrument retrieval. Grouting-upon-retraction is often required for environmental site investigations to prevent cross contamination. Restricted by limited space in some modules, grout-upon-retraction is not always possible.

**Tremie grout** : Tremie grouting involves the lowering of assembled PVC pipe sections to the bottom of the existing hole. The pipes are then filled with grout and pulled out section by section, all the while re-supplying with grout. This method is by far the fastest if regulations permit.

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