

Oil Sample Drill



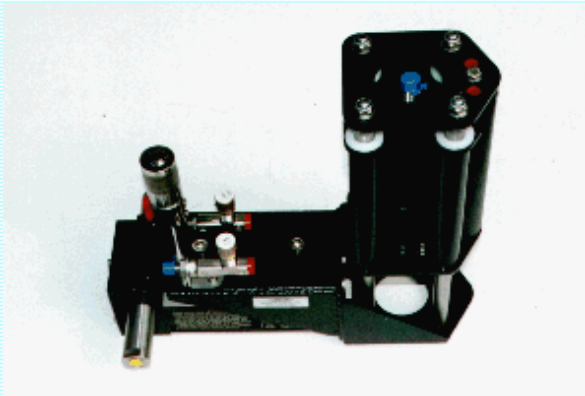
Hydro-Lek has designed a method of drilling and plugging holes in sunken vessels for subsequent multi oil/fluid sampling by divers.



Hydro-Lek

Specialists in remote handling for
the nuclear, subsea and defence
industries

Oil Sample Drill



Hydro-Lek HLK 3200 Magnetic Drill

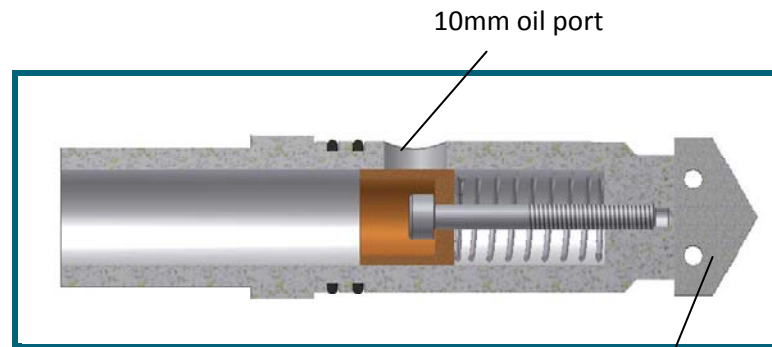
This drill bit is a composite device based on a tip change out bit which is fitted to the end of a purpose-made drill. The drill bit is fitted with a hollow internal oil way with an oil port which is blocked with a spring assisted valve.

The drill is guided with a magnetic chuck drive from the HLK 3200 Magnetic Drill. This will be modified to have manual controls for diver operation. The drill has a clamp force of up to 500kg on a metal surface, less any sideways load and drilling force. The drill bit, once through the hull, quickly moves into the hole such that the tapping section cuts and secures the drill bit in the hole. The seals inhibit leakage. At this point in time there is no differential pressure from the oil tank and the outside water.

A sealed sample container with a ball valve has a castellated tube attached. The diver pushes this into the rear orifice of the drill bit which releases the spring loaded slide piston allowing the oil to enter the drill hollow. At this time the oil pressure is higher than the sample container. This allows oil to migrate into the sample.

Once the castellated pipe is removed the slide piston shuts off the oil flow, the drill stem is now at pressure balance. The sample sequence can be taken at any time with a fresh sampler. The sampler takes the form of a sealed polycarbonate clear tube supported by pressure tight ends.

Prior to installation



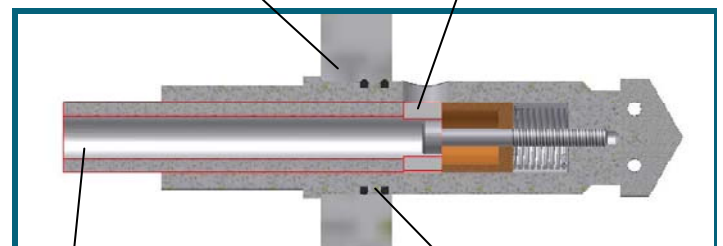
10mm oil port

Replaceable Drill Bit to be fastened with countersunk screws

After installation

Motor torque will allow drill to screw into hull 3 to 4 turns

Spring return piston to be pushed in by diver with slotted tube to allow oil to flow through



To sample collector O rings for sealing inside the hull

View from outside the drill



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