RampMaster Chambers

Thermal Test chambers for Oil Well Probes

- Wide range of operating temperatures
- Low thermal gradients
- Controlled temperature ramp rates
- Compressor, cryogenic and air cooling options
- Custom configurations and interface jigs
- SIMPLE*touch* programmer option
- Comprehensive protection features
- Non-Magnetic chamber option

Sharetree LIMITED

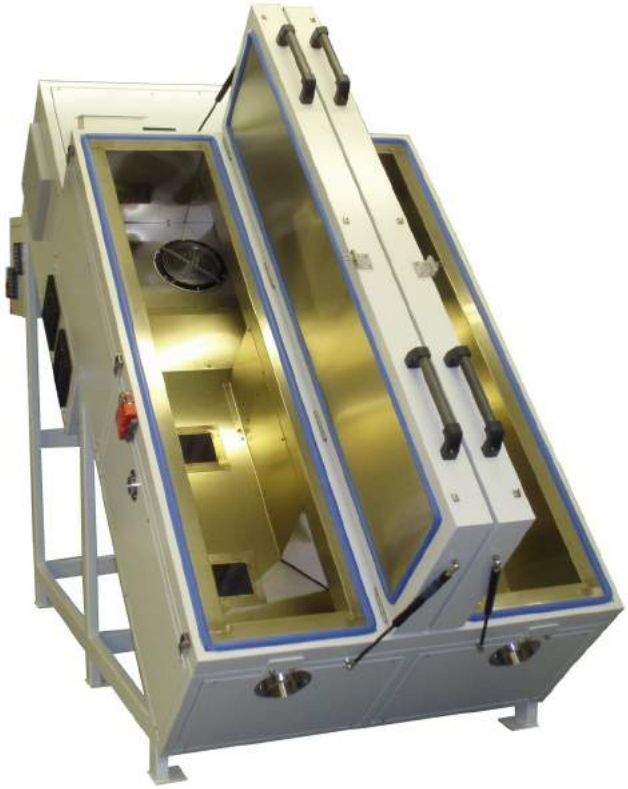
Sharetree solutions

Sharetree Limited specialise in providing thermal test solutions to industry; we offer standard and customised test chambers in a wide range of sizes and configurations to suit many different applications.

We work closely with major Oil-well Probe manufacturers to develop solutions specific to their needs. Probes need to be highly reliable since replacing a probe due to failures may interrupt drilling at a cost of thousands of pounds per hour.

Oil-well probes operate in extreme, high stress environments and this can include moving them from very low Arctic temperatures to very high down-hole temperatures. The test specifications vary according to probe size and type, temperature range, and capacity required and a number of typical examples are shown in this brochure. Our engineers would be pleased to discuss the most appropriate solution for you, without obligation. CALL SHARETREE TODAY!

Test chamber for high pressure hydraulic assemblies, with special safety features. Maximum temperature 250ºC, with air, and compressor cooling.



Temperature Cycling chambers for large diameter Oil-well probes. Combined air and LN2 cooling.

Probe test requirements

Oil-well probes are typically long and thin and therefore standard (typically cubic) test chambers are wasteful of floor space. RampMaster chambers are configured to fit the appropriate product range.

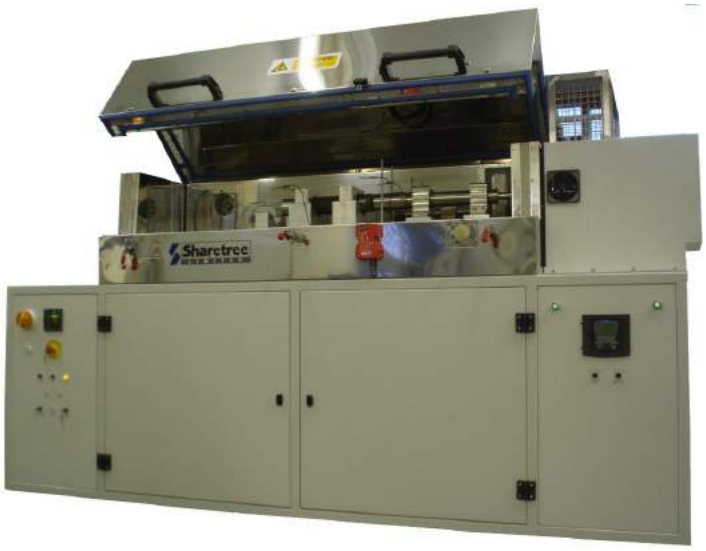
High circulating airflow is used to minimise thermal gradients within the chambers. This ensures that multiple probes (where required) and different parts of each probe are subjected to the same conditions, in order to give consistent and repeatable results.

Temperature control

Microprocessor based temperature controllers are used with high accuracy temperature probes to achieve optimum control of temperature and ramp rates.

The Sharetree **SIMPLE*touch*** touch-screen programmer is also available as an option (see separate brochure for a full description). **SIMPLE*touch*** allows the user to set up complex thermal programs and has many other features such as customer events, data recording and graphing.

Special temperature test chamber, designed for top loading, and fitted with motor drive facility.



Heating methods

Electrical heaters are used to supplement the power dissipation of the probes in order to improve control response and allow faster heating rates. Solid-state switching is employed to minimise transients and switching noise.

Cooling methods

A variety of methods are used for chamber cooling, the choice depending on the temperature range, total power required and cooling ramp rates.

Air cooling can be used where the operating temperature is well above ambient, and provides a low cost solution in some applications.

Air cooling is also used for cooling at high temperatures, either to reduce LN2 consumption or to avoid exposing refrigeration coils to excessive temperatures.

Cryogenic cooling using liquid nitrogen (LN2) is a powerful cooling method and especially useful where rapid cooling is required. A vacuum insulated Dewar has to be used to store the LN2, and running costs can be high.

Compressor cooling using refrigerants offers lower running costs, though at the expense of higher complexity. The cooling coil is by-passed at high temperatures to protect the refrigerant and oil from degradation.

Sharetree has experience in all these methods and will be pleased to offer unbiased advice for your specific application.

Chamber construction

Chambers are typically constructed using a welded mild steel external frame, clad with formed steel panels. The inner chamber is of seam-welded stainless steel, insulated from the outer frame by suitably rated thermal insulation and heat-breaks to ensure efficient operation.

Non-magnetic aluminium construction is available as an option, and chambers can be supported at an angle to align the probes with the Earth's magnetic field, if required.

Product support

Sharetree are able to offer complete solutions including product fixturing. Probes typically need to be rigidly supported and internal jigs therefore need to be mechanically supported directly from an external frame, via suitable heat-breaks.

Electrical+mechanical connections

Most probes need to be electrically powered and/or monitored and cable ports are provided for this purpose. Special interfaces for pneumatic and hydraulic connections and motor drive shafts can also be provided.

Other options

Sharetree is pleased to discuss non-standard requirements, and may already have a solution available. For example, retractable mechanisms are available for inserting low power radiation sources near to the probes, to simulate the natural radiation levels in rock strata.

Safety considerations

Devices under test may be operating at high and low temperatures, and at high speeds or pressures. Safety protection for the operator, the products under test, and the test system itself is designed into our systems from the outset.

Temperature Cycling chambers for Down-hole probes. Compressor cooled using shared plant. Mounted vertically to minimise floor space.

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Sharetree products are designed, manufactured and supported in the UK