

Equipment for Standard Tests for the Determination of Cooling Characteristics of Quenchants by Cooling Curve Analysis (ASTM D6200-01)



Features of ASTM standard quenchant test system

- *Heating Furnace:* Vertical electrical resistance tube-type furnace capable of maintaining a constant temperature over a heated length of 120 mm along with digital display of temperature; temperature controller to heat the probe at 850-900°C, facility to position the quench probe in the center of the heating chamber; probe's temperature maintained within ± 2.5°C over the specimen length; power input: 220V
- Data acquisition system: Single channel USB based data acquisition system for recording cooling curve programmable with time stamp; software for data acquisition, clipping and cubic spline interpolation for generating time-temperature data at the rate of up to 100 points per second.
- *Quenchant agitation system:* Tensi agitation system as per standard ASTM 6482-06 for aqueous solutions of polymer quenchants, with a facility to control and measure impeller speed.
- Calibration: Against a reference oil in a sealed container with certificate.
- Cooling curve data evaluation software: Rigorously tested software with capability (i) to analyze the cooling curve critical cooling curve parameters (as per ASTM D6200 01) (ii) to calculate heat flux or heat transfer coefficient transients (ii) for building user's own data base of quenchant characteristics
- OS: Compatible with Windows XP, Vista, & 7.

Applications of ASTM standard quenchant test system

- Measurement of quenching capacity of different quenching mediums (oils, polymer solutions etc) as per ASTM D6200-01 for ease of comparison of data worldwide
- Selection of proper quenchant based on comparison of different quenchants
- Check the 'health' of quenchants with continued use
- Check the effect of agitation on cooling rates
- Check the effect of contamination in quenchants (water in oil; polymer in oil etc.)
- Inspection of quenchants in as-received condition





QuenchProbe Outputs : Cooling Curves, Cooling Rate Curves, ASTM Test Parameters



Services we offer

- Periodical tests on quench oils as per ASTM D 6200 Standards
- Record of tests maintained on behalf of customers
- Collection of oil samples from the customer at regular intervals for testing
- With a single temperature measurement at site (i) Compute cooling rate variation at the surface and core (ii) Compute microstructure variation at the surface and core (iii) Compute hardness variation at the surface and core (iv) Compute effect of agitation by *in-situ* testing of the oil using our own researched product, viz., Reference QuenchProbe
- Suggest the most suitable quenchant for a specific steel

For further details and enquiries contact: TherMet Solutions Pvt. Ltd.,#22, 1st Floor, 3rd Cross, Nagappa Layout, Bilekahalli, Bangalore 560076; INDIA. mob:+91 97406 55022; email: tsp@thermetsolutions.com; <u>www.thermetsolutions.com</u>