Portable quenchant test system

Leading edge technology to ensure and optimize performance of your quenching system
Main uses:
- Incoming inspection of quenchant
- Monitoring of quenchants’ performance
- Trouble-shooting
- Comparison between quenchants

Tests can be made:
- On-site in quench tanks
- In the laboratory to ISO and ASTM standards
- With all quenchants: oils, polymers, salts, gas

Markets:
- Quenchant suppliers
- Commercial heat treaters
- Component suppliers with own heat treatment facilities
- Furnace manufacturers
- Research institutes, laboratories, technical schools

Customer values:
- Cost saving, quality assurance, easy-to-use
- Access to IVF’s extensive knowledge of quenching

On site testing

Carrying case

Wireless data transmission facilitates on-site testing.

The data acquisition unit with accessories, the test probe with handle, a CD with the computer software and the manual are all contained in a carrying case.

Optional items

Items for calibration
Reference test probe, 400 mm.

Agitation device for polymers
Unit designed to provide reproducible conditions for polymer testing.

Non-standard test probes
Test probe in non-standard dimensions and materials.

SQintegra
Software for further evaluation of quenchant data
- Calculation of heat transfer coefficients (HTC)
- Prediction of hardness and microstructure distribution in cylindrical specimens

See separate leaflet.
Advanced software for:
- Handling and evaluating measurement data
- Monitoring of quenchants and quenching systems
- Decision support, e.g. in selecting quenchants
- Report generation

Some characteristics
Standard database format
  → User-friendly
High-performance smoothing algorithm
  → Efficient noise reduction
Built-in and user-defined characteristics
  (CRmax, CRt, Tvp, Tcp, HP, etc) calculated automatically
  → Quantitative evaluation of quenchants
Control limits can be set for all characteristics
  → Evaluation enhanced
Database filtering of selected characteristics
  → Optimized selection of quenchants
Flexible report presentation
  → Adaptation to the application

Evaluation

F1 = 91.5 + 1.34 Tvp + 10.88 CR(550°C) - 3.85 Tcp

Quenchant DB
Query:
CRmax {60, 80}
HP(IVF) {800, 1000}
UserForm {75, 100}

List of conforming quenchants

Defining limits in data filtering
Technical data:

Data acquisition device

Hand unit:
- Dimensions: 167 x 105 x 34 mm
- Weight: 700 g
- Power supply: 4 batteries, R03/AAA
- Display: AMOLED color display
- Memory capacity: 20 measurements; maximum 60000 readings per measurements
- Recording time: Programmable, from 20 seconds to 10 minutes
- Sampling frequency: Programmable, from 1 to 100 sec⁻¹
- Digital serial interface: USB
- Radio frequency: Bluetooth
- Wireless range: approximately 10 m indoors (depending on local conditions)

Standard Package includes:
- Hand unit, Furnace, Standard test probe (400 mm), probe handle, ivf SmartQuench PC software, Hardware key, Reference test probe (400 mm), Carrying case, Reference oil (2 litres), Oil beaker for laboratory testing, Bluetooth adapter, USB cable.

Agitation device for polymers (optional)
- Dimensions: 125 x 60 mm wide, 205 mm height
- Volume of fluid: 1.5 litres
- Max. temp. of fluid: 50 °C (120 °F)
- Weight: 7.6 kg, including motor controller
- Power supply: 220/240 V, max. 5 A, 50/60 Hz
- Design in accordance with the ASTM D 6482-06 standard

Test probe
- Probe size: probe body 12.5 mm dia. x 60 mm
- Overall length of test probe: 400 mm
- Probe material: Inconel 600
- Thermocouple in centre of probe body
- Weight: 240 g
- Probe design in accordance with the ISO 9950, ASTM D 6200-01 and ASTM D 6482-06 standards
- Test certificate showing conformance with master test probe

Furnace
- Insulated with ceramic fibres for rapid heating – appr. 15 min
- Pre-set furnace temperature, normally 870 °C (1600 °F), but can be changed easily by the user
- Display showing actual furnace temperature
- Size: 200 x 280 x 250 mm. Weight: 5.4 kg
- Power requirement: 220 or 110 V, 6.3 A

Reference fluid
- Carefully selected reference oil with certificate for test probe calibration

Computer requirements for the software
- Pentium II processor
- 64 MB RAM
- 20 MB minimum free hard disk space
- Microsoft Windows 9x/NT/ME/2000/XP/Vista
- USB port for data transmission
- USB port for the hardware key

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