

Metal Working Fluid Test Rig

CAPABILITY SHEET · REAL-TIME MWF EVALUATION · DELIVERED - SUPPLIED & COMMISSIONED

THE RIG

WHAT	Turnkey machining-based test rig for soluble, semi-synthetic and synthetic metal-working fluids: a CNC machining centre cuts real workpieces with the fluid under test while fluid health and machining response are logged in one dataset.
STATUS	Delivered - supplied, installed and commissioned at the R&D centre of an Indian public-sector petroleum major; monitoring, machining and 200 bar high-pressure coolant demonstrated at acceptance; operators trained; handed over.
CONCEPT	The cut is the test: friction force, tool/job temperatures, power, speed and torque measured on the machine while inline instruments track the fluid - so chemistry and machining behaviour correlate in the same timebase.

FLUID SYSTEMS

CONDITION	Automatic concentration control within +/-1% and sump level within +/-10%; in-line mixing with emulsion-only make-up (never raw oil or water); >=200 L water tank; level and foam sensing; visual foam check.
DELIVERY	Through-spindle 70 bar / 25 L/min; low-pressure flood; external triplex-pump system 0-200 bar / 0-30 L/min with unloader and relief; nozzle and rigid lance for external high-pressure delivery.
MONITORING	Inline refractometry (concentration), pH, conductivity, nitrate, turbidity, water hardness, temperature, microbial growth, emulsion particle size, oil/water usage; turbine flowmeter 3-30 L/min; 0-210 bar transmitters, 0.25% FS.

PLATFORM & CONTAINMENT

MACHINE	Machining platform: travels 762 x 406 x 508 mm; table 914 x 356 mm; spindle 22.4 kW, 12,000 rpm, 122 Nm - operated with the MWF under test as the load.
FUME HOOD	Walk-in fume hood ~15 x 10 x 15 ft, horizontal sash, 5 mm toughened glass; 8,000 CFM at 120 FPM; flameproof-certified 12 kW remote blower; PP-FRP ducting >=30 sq m; ASHRAE 110, ANSI/AIHA Z9.5, NFPA-45 practice.
BUILD	SS 304 tank, piping and panel; MWF-compatible materials and paints; lockable tagged valves; machinery-directive-aligned safety; designed for 24x7 operation.

DATA & ENGAGEMENT

DATA	PLC/SCADA + HMI + industrial touch PC; 18 parameters logged continuously with trends, statistics and reports; secure mobile access (Android/iOS); push alerts before limits; handheld verification kit incl. dip slides supplied.
SCOPE	Design and approval -> build -> site installation incl. fume-hood civil, electrical and ducting -> commissioning -> operator training -> handover, with 2D/3D drawings, O&M manuals and instrument calibration certificates.
ENGAGEMENT	Send your specification to sales@neometrixgroup.com - parameter-by-parameter compliance and budgetary quotation within two working days. Monitoring-only skids, other machine envelopes and lab layouts engineered to order.

DEFENCE PROGRAMMES DESK

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Reference configuration reflects the rig as supplied and commissioned. Machine envelope, pressure classes and instrument set are re-scoped against the customer's specification at proposal stage. (c) Neometrix Defence Limited.