NEOMETRIX DEFENCE

EDITION 2026 / 01

NEOMETRIX DEFENCE · ENGINEERING PRODUCT CATALOGUE

DEFENCE EQUIPMENT CATALOGUE

Engineering precision for India's air, land and aerospace platforms — delivered for the Indian Air Force, Army, Navy, DRDO, HAL, BARC, ISRO and global customers.

157
PRODUCTS IN THIS CATALOGUE

20+
YEARS OF EXCELLENCE

100+
ENGINEERS · IIT-LED FOUNDERS

DGAQA
· DRDO · ISO 9001:2015 CERTIFIED

NEOMETRIX DEFENCE LIMITED
E-148, Sector-63, Noida, Uttar Pradesh 201301, India

+91 96670 57776
contact@neometrixgroup.com
www.neometrixgroup.com

GROUND SUPPORT EQUIPMENT · AIRCRAFT HYDRAULIC SERVICING

FIG. 01 · HSTH

HSTH

Hydraulic Servicing Trolley (HST 300U)

Mobile dual-system hydraulic servicing for fighter, transport and rotary-wing aircraft.

PLATFORM

Su-30MKI / MiG-29 / Mirage-2000 / HAL Tejas / military transport aircraft

100 LPM	300 bar	140 L	3830 kg
Flow per system	Operating pressure	Fuel tank capacity	Gross vehicle weight

OVERVIEW

The Universal Hydraulic Servicing Trolley (HST 300U) is an advanced ground support system for servicing the hydraulic systems of military aircraft, fighter jets, transport planes and helicopters. This mobile unit delivers continuous, filtered, high-pressure hydraulic oil to two independent aircraft systems simultaneously — 100 LPM at 300 bar per circuit — for safe and efficient maintenance and testing.

It integrates precise pressure and flow control, vacuum-based de-aeration and a fully integrated compressed air system. A twin-chamber SS304L reservoir with 3-micron filtration delivers the fluid purity required for MRO operations, while a Greaves diesel engine and dual battery bank ensure reliable field and airbase deployment.

KEY FEATURES

- Dual-system capability — 100 LPM at 300 bar per independent circuit
- Twin-chamber SS304L reservoir with 3-micron high-pressure filtration
- Hand pump generating up to 350 bar for controlled manual filling
- Vacuum de-aeration at 200 mBar (abs) removes air and moisture
- Integrated compressed air delivery up to 7 bar via buffer chamber
- Greaves TBD3V6 diesel engine with dual 12 V 120 Ah batteries

APPLICATIONS

- Fighter jet hydraulic actuation and testing (Su-30MKI, MiG-29, Tejas)
- Landing gear, brake and flap control testing and maintenance
- Aircraft MRO hydraulic flushing and contamination removal
- Emergency servicing at remote and forward-operating air bases

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Flow Rate	**100 LPM per system**
Operating Pressure	**300 bar**
Filtration Level	**3 microns**
Oil Compatibility	**OM-15, DTD-585, MIL-H-5606**
Hand Pump	**Up to 350 bar**
De-aeration	**Vacuum, 200 mBar absolute**

Physical & Environmental

Dimensions (L × W × H)	**3400 × 1500 × 1690 mm**
Fuel Tank Capacity	**140 L**
Temperature Range	**-5 C to 50 C**
Gross Vehicle Weight	**3830 kg**
Towing Speed	**10 km/h**
Suspension	**Leaf spring, front & rear**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-service-trolley-300U.php

GROUND SUPPORT EQUIPMENT · MISSILE COOLANT SERVICING

FIG. 01 · MCRU

MCRU

MANPADS Coolant Recharging Unit

Indigenous argon-boost station restoring MANPADS coolant reservoir assemblies to 6000 psig in ~5 minutes.

CLIENT

Indian Armed Forces

PLATFORM

MANPADS (shoulder-fired air-defence missiles)

6,000 psig	99.998 %	~5 min	111 kg
Charge pressure (±200)	Argon purity	Recharge cycle	Dry weight

OVERVIEW

The MANPADS Coolant Recharging Unit is an indigenous argon-boost station that restores shoulder-fired air-defence missile Coolant Reservoir Assemblies (CRAs) to operational charge in about five minutes. Infrared seekers depend on cooled detector elements, and the CRA supplies high-purity argon at 6,000 psig to maintain that cooling. The unit draws from standard source bottles, filters and compresses argon through a twin-piston reciprocating pump, and delivers it via a fill-and-bleed Schrader valve.

A single-operator, fully electromechanical design — no software, PLC or network dependency — backed by three independent overpressure layers (pressure switch, relief valve, rupture disk). Qualified for Indian climate (−10 to +49 °C), it consolidates depot maintenance, forward-base top-ups, training-school recharge and mobile deployment into one portable, all-weather system built under the Make-in-India programme and DGAQA-aligned quality systems.

KEY FEATURES

- 6,000 ±200 psig argon at 99.998% purity (MIL-PRF-27415 type 1, grade A)
- Triple-redundant overpressure protection — switch, relief, rupture disk
- ~5-minute recharge with mandatory thermal-equalisation hold
- Two source-bottle adapters (CGA-677, BS3-341) for global depot stock
- No firmware/PLC — rotary switch, lever valves, gauges, hour meter only
- 111 kg dry, 230 V single-phase — two-person carry, standard mains

APPLICATIONS

- Air-defence unit armouries — routine CRA recharge and pre-firing top-up
- Depot-level maintenance bays and ammunition workshops
- Training schools and forward-deployed maintenance teams
- Naval ship-board and coast-guard armouries

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Gas & Charging

Operating Gas	**Argon, MIL-PRF-27415 type 1 grade A, 99.998%**
Charge Pressure	**6,000 ± 200 psig**
Cycle Time	**~5 minutes**
Input Pressure	**1,000–6,000 psig**
Source Adapters	**CGA-677, BS3-341**
Filtration	**2 × Swagelok 2-µm inline + molecular sieve**

Safety, Electrical & Environment

Pressure Switch	**Barksdale, 6,000 ± 120 psig auto-cut**
Relief Valve	**Aqua Environment, opens 6,500 ± 325 psig**
Rupture Disk	**Zook, bursts 7,200 +6/−3% psig**
Supply	**230 ±10% VAC, 50 Hz, 1-ph, 15 A min**
Operating Temp	**−10 to +49 °C (storage −34 to +68 °C)**
Dimensions	**952.5 × 421.5 × 571.5 mm**

MIL-PRF-27415 · DGAQA-ALIGNED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/manpads-coolant-recharging-unit

GROUND SUPPORT EQUIPMENT · NITROGEN GENERATION & REPLENISHMENT

FIG. 01 · UGSS-N2

UGSS-N_2

Nitrogen Generation & Distribution System

On-site nitrogen generation and high-pressure replenishment.

CLIENT
Indian Air Force

PLATFORM
Ground Support

350 bar	99.5 %	640 L	400 L/10 h
Output pressure	Nitrogen purity	HP storage @ 350 bar	Generation rate

OVERVIEW

UGSS-N_2 is a self-contained Nitrogen Generating, Storage & Distribution System engineered for the conditions a flight line actually sees: extremes of temperature, altitude, humidity and wind, with no compromise on gas purity or charging pressure.

The system generates high-purity nitrogen on site from atmospheric air, compresses it to 350 bar and stores it on a 16-cylinder cascade — eliminating the logistics chain of bottled nitrogen and putting a replenishment station wherever the trailer can be towed.

Continuous 0.01 µm dual-stage filtration guarantees a 99.5 % purity stream at a −65 °C dewpoint (measured at 150 bar).

KEY FEATURES

- On-site nitrogen generation from atmospheric air (PSA / membrane)
- 16-cylinder cascade × 40 L on a four-sub-section HP storage trailer
- Output pressure 350 bar, regulated to user-defined regimes
- 0.01 µm dual-stage filtration with clogging indication, field-replaceable
- Continuous purity (99.5 %) and dewpoint (−65 °C @ 150 bar) monitoring
- Mobile transportation carts for bottle delivery, cascade-fed from HP storage
- Independent Ground Power Unit (engine/battery driven)
- All-weather operation: −20 to +55 °C, 100 % RH, 3 500 m AMSL, 100 km/h wind

APPLICATIONS

- Aircraft tyre inflation and oleo-strut servicing
- Inerting of fuel systems and ordnance handling
- Aerospace, electronics and food-processing N_2 supply
- Research, metallurgy and laboratory replenishment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Generation

Source	**Atmospheric air**
Flow Rate	**400 L / 10 hrs (±5 %)**
Purity	**99.5 %**
Dewpoint	**−65 °C @ 150 bar**
Inlet / Outlet Filtration	**0.01 µm (both)**

HP Storage

Working Pressure	**350 bar (≈350 Kg/cm²)**
Storage Volume	**640 L @ 350 bar**
Cylinders	**16 × 40 L · seamless**
Cascade	**4 sub-sections, bank-isolated**
Reject Pressure	**35 bar**

Operating Envelope

Operation	**Outdoor, all-weather**
Temperature	**−20 °C to +55 °C**
Relative Humidity	**Up to 100 %**
Altitude	**3 500 m AMSL**
Wind Velocity	**100 km/h**

DGAQA-CERTIFIED · IAF-ACCEPTED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/nitrogen-generation-charging-and-distribution-vehicle-UGSSN2.php

GROUND SUPPORT EQUIPMENT · AVIATION OXYGEN REPLENISHMENT

FIG. 01 · UGSS-O2

UGSS-O_2

Oxygen Charging & Distribution Vehicle

Aviation oxygen replenishment for the flight line.

CLIENT
Indian Air Force

PLATFORM
SU-30 MKI

350 Kg/cm²	12 × 40 L cyl	300 CFM	4 outlets
Max storage pressure	Banked HP storage	Drive-air delivery	Multi-pressure charging

OVERVIEW

UGSS-O_2 is a process-engineered Oxygen Charging & Distribution Vehicle built for the reality that aviation oxygen is life-support handled at high pressure, where cleanliness, controlled pressurization, and correct charging pressure are non-negotiable.

Inside a protected canopy the system integrates four banks of high-pressure oxygen storage, two air-driven oxygen boosters (duty / standby, or parallel for higher throughput) and a multi-pressure distribution panel delivering defined outlet regimes for aircraft charging.

Continuous oxygen-purity monitoring treats gas quality as a controlled parameter. CO_2 total-flooding fire suppression guards the canopy.

KEY FEATURES

- Self-propelled flight-line servicing station — Tata truck chassis with protected canopy
- Four-bank cascade: 12 seamless cylinders × 40 L at 350 Kg/cm² working pressure
- Dual air-driven oxygen boosters (duty / standby or parallel for throughput)
- Multi-pressure outlets: 1–5.5 / 150–230 / 230–350 / 350 Kg/cm²
- Continuous O_2-purity analyser with low-purity alarm and auto-stop
- CO_2 total-flooding fire suppression (22.5 kg) inside the canopy
- 0.01 µm oxygen gas filtration with clogging indication
- Earthed conductive oxygen hoses, internal boosting capability

APPLICATIONS

- SU-30 MKI aircraft oxygen replenishment
- Flight-line aviation oxygen servicing
- Forward operating base oxygen logistics
- MRO and depot-level aircraft oxygen charging

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Main Vehicle

Configuration	Self-propelled, canopied
Gross Weight	4 895 kg
Front / Rear Axle	1 925 / 3 025 kg
Fuel Tank	60 L
Canopy (L×W×H)	3 100 × 2 000 × 1 230 mm

Oxygen Storage

Working Pressure	350 Kg/cm² (≈5 000 psi)
Cylinder Capacity	40 L, seamless
Cylinder Ø × H	Ø232 × 1 135 mm
No. of Cylinders	12 (4 banks × 3)
Gas Filter	0.01 µm

Compressor Trolley

Type	Engine-driven, towable
Free Air Delivery	300 CFM (8.49 m³/min)
Working Pressure	100 psi / 7 Kg/cm²
Fuel	High-speed diesel · 100 L
Max Towing Speed	30 km/h

DGAQA-CERTIFIED · IAF-ACCEPTED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/oxygen-charging-and-distribution-vehicle-iaf-UGSSO2.php

GROUND SUPPORT EQUIPMENT · NITROGEN SERVICING

FIG. 01 · USGNSC

USGNSC

Universal Self-Generating Nitrogen Service Cart (U-SGNSC)

Diesel-powered, membrane-based towable cart delivering on-demand >99.5% N_2 at 303 bar.

PLATFORM

Model A4029 · Indian Air Force

≥99.5 %	303 bar	10 SCFM	80 HP
Nitrogen purity	Max delivery pressure	Flow rate	Diesel engine

OVERVIEW

The U-SGNSC (Model A4029) is a rugged, towable ground-support cart engineered for military aircraft servicing. Powered by an 80 HP diesel engine and Parker membrane separation, it generates high-purity nitrogen (>99.5%) on demand and delivers it at pressures up to 303 bar (4400 psi) — eliminating reliance on bottled nitrogen for flight-line operations.

Integrated air compressors, dryers, high-pressure storage, PLC controls and service-hose reels make the cart fully self-sufficient. Designed for airbases and forward operating locations, its diesel-powered, trailer-mounted design delivers mobility, reliability and continuous availability for tyre inflation, landing-gear strut servicing and hydraulic accumulator charging.

KEY FEATURES

- Dual Parker SmartFluxx SA1508 membranes producing >99.5% N_2 purity
- 75 CFM / 12 bar feed compressor with -40 °C dew-point dryer
- Two ISO 9809-2 HP cylinders (~850 ft³ N_2 at STP)
- Hydraulic booster intensifier delivering 18 Nm³/hr at 303 bar
- Towable gull-wing canopy, olive-green military finish
- PLC control panel with digital purity meter and auto-shutdown interlocks

APPLICATIONS

- Aircraft tyre inflation and pressure top-up
- Landing-gear strut servicing on the flight line
- Hydraulic accumulator charging for braking and control systems
- Forward-operating-base nitrogen logistics independence

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Nitrogen & Air

Purity	≥ 99.5%
Max Delivery	303 bar (4400 psi)
Flow Rate	10 SCFM
HP Storage	2 × 1.53 ft³ cylinders (~850 ft³ at STP)
Membrane	Parker SmartFluxx SA1508 (dual)
Feed Compressor	75 CFM, 12 bar; dryer dew point −40 °C

Drive & Chassis

Diesel Engine	80 HP, BS VI (Ashok Leyland P15)
Booster	Hydraulic intensifier, 18 Nm³/hr at 303 bar
Service Lines	LP 0–400 psi + HP 400–4000 psi reels
Chassis	Towable trailer, gull-wing enclosure
Dimensions	2100 × 1830 × 1600 mm; ~1500 kg
Operating Range	−20 °C to +55 °C

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/universal-self-generating-nitrogen-service-cart-usgnsc.php

GROUND SUPPORT EQUIPMENT · AIRCRAFT POWER

FIG. 01 · GPU

GPU

Ground Power Unit (45 kVA)

Trailer-mounted 45 kVA 400 Hz AC + 28 V DC ground power for aircraft servicing.

45 kVA	115 V AC	400 Hz	800 A
Rated power (400 Hz)	Output (3-phase)	AC frequency	28 V DC output

OVERVIEW

The 45 kVA Ground Power Unit is a trailer-mounted system engineered to deliver reliable electrical power to aircraft during ground operations. It supplies 400 Hz AC (aviation standard) and 28 V DC simultaneously, supporting maintenance, servicing and operational readiness without engine start-up — ideal for airports, airbases and remote locations.

A rugged Ashok Leyland diesel engine with a Mecc Alte alternator ensures continuous performance from −32 °C to +55 °C and up to 4000 m altitude. An integrated AVR and PLC-based controls hold stable frequency and voltage, while comprehensive interlocks — emergency stop, over-voltage and frequency-deviation protection — make it dependable flight-line infrastructure.

KEY FEATURES

- Simultaneous 400 Hz AC and 28 V DC outputs
- PLC-based control with HMI for real-time monitoring
- Wide envelope — −32 °C to +55 °C, up to 4000 m altitude
- Emergency stop with over-voltage and frequency-deviation protection
- Trailer-mounted for flight-line mobility
- Mecc Alte alternator with Ashok Leyland diesel engine

APPLICATIONS

- Aircraft ground power supply and maintenance operations
- Airport ground handling and defence aviation support
- Avionics testing and pre-flight system checks
- Remote / forward-base flight-line operations

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Power Output

Rated Power	**45 kVA @ cosφ 0.8 (400 Hz)**
Overload	**50 kVA for 5 minutes**
Output Voltage	**115 V AC, 3-phase**
Frequency	**400 Hz**
DC Output	**28 V, 800 A cont. / 1200 A overload**
Regulation	**Integrated AVR + PLC control**

Engine & Environment

Engine	**Ashok Leyland diesel, 2000 RPM**
Alternator	**Mecc Alte**
Operating Temp	**−32 °C to +55 °C**
Humidity / Altitude	**≤95% / ≤4000 m**
Dimensions	**2400 × 1950 × 1320 mm**
Weight	**2300–2400 kg**

ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/ground-power-unit

GROUND SUPPORT EQUIPMENT · AIRCRAFT HYDRAULIC SERVICING

FIG. 01 · HHRT

HHRT

HST 300U Hydraulic Refilling Trolley

Towable nitrogen-driven hydraulic servicing unit delivering clean, de-aerated fluid at 300 bar.

300 bar	100 L/min	140 L	200 mbar
Hydraulic pressure	Flow per circuit	Oil capacity	Vacuum level

OVERVIEW

The HST 300U is a mission-critical ground support unit engineered for rapid servicing of military aircraft hydraulic systems. It combines nitrogen-driven pressurisation, vacuum de-aeration to below 200 mbar absolute and 3 micron filtration in a single mobile platform, delivering ISO 4406 Class 18/16/13 clean hydraulic fluid at pressures up to 300 bar.

Designed for depot maintenance and field operations, this towable trolley streamlines topping, flushing and validation of hydraulic circuits across fighter jets, transport aircraft and helicopters. Its dual-chamber architecture enables simultaneous servicing of two independent systems, reducing aircraft downtime while protecting component integrity through redundant relief valves and over-temperature shutdown.

KEY FEATURES

- Dual-system capability with independent 100 L/min circuits
- Vacuum de-aeration module removing entrained air and moisture
- 3 micron filtration to ISO 4406 Class 18/16/13 cleanliness
- Nitrogen-driven transfer via 2 × 50 L bottles at 220 bar
- IP54 powder-coated frame with pneumatic apron tyres
- Integrated 7 bar compressed-air supply for pneumatic tools

APPLICATIONS

- Aircraft hydraulic servicing on fighter, transport and helicopter platforms
- Pre-commissioning and flushing of ground-based hydraulic test rigs
- Emergency repairs at forward operating bases and austere environments
- Bench-testing and expeditionary maintenance operations

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Physical & Capacity

Dimensions (L × W × H)	**1600 × 1000 × 1200 mm**
Weight (Empty / Full)	**320 kg / 445 kg**
Oil Capacity	**140 L (2 × 70 L chambers)**
Nitrogen Supply	**2 × 50 L @ 220 bar**
Air Supply	**7 bar @ 100 L/min**
Temperature Range	**-20 C to +55 C**

Performance & Safety

Max Hydraulic Pressure	**300 bar continuous; 350 bar relief**
Flow Rate	**100 L/min per circuit**
Vacuum Level	**Down to 200 mbar absolute**
Filtration Rating	**3 micron absolute**
Cleanliness	**ISO 4406 Class 18/16/13**
Standards	**MIL-STD-810G; ISO 11120; ISO 4406**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-refilling-trolley.php

GROUND SUPPORT EQUIPMENT · VEHICLE PLATFORM

FIG. 01 · LSVMUP

LSVMUP

Light Strike Vehicle Modification & Upgrade Program

Sealed, climate-controlled C3 conversion of the open-frame LSV for tactical communication missions.

4 crew	1.6 mm	2 × 100 Ah	2.4 kVA
Seating	LMS body capsule	Battery system	Generator (optional)

OVERVIEW

The LSV Modification & Upgrade Program transforms a standard open-frame Light Strike Vehicle into a sealed, all-weather, mission-ready communication and command platform — without compromising the LSV's signature mobility. A reinforced 1.6 mm LMS body capsule, thermal and acoustic insulation, and matte olive-green polyurethane finish provide environmental protection and reduced visual signature.

The interior seats four (driver, co-driver, two operators) with ventilated leather seating and ergonomic workstations. A central LMS communication rack houses radios, surveillance and data systems; dual 12 V 100 Ah batteries, a 13.5 V/155 A alternator and optional 2.4 kVA generator power the load; dual-zone HVAC keeps crew and electronics comfortable from –10 °C to +50 °C.

KEY FEATURES

- Sealed 1.6 mm LMS capsule with thermal + acoustic insulation
- Central communication rack with ESD mats and shock-absorbing mounts
- Dual-zone HVAC — operating range –10 °C to +50 °C
- Independent power: dual batteries + alternator + optional 2.4 kVA genset
- 9.35″ FHD navigation display with 135° rear camera and digital compass
- Safety package — central locking, dual fire extinguishers, spare wheel

APPLICATIONS

- Tactical communication relay between mobile units and command bases
- Reconnaissance and UAV-supported coordination missions
- Forward command-post deployment for special forces teams
- Border and disaster-management mobile command operations

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Body & Interior

Body Structure	**1.6 mm Low-Carbon Mild Steel (LMS)**
Roof Module	**1870 × 2650 mm, insulated with glass wool**
Doors / Access	**4 side + 1 rear, 1.6 mm LMS**
Windows	**6 mm toughened tinted Lamisafe glass**
Paint	**Olive-Green Desert matte PU, ≈110 µm DFT**
Seating	**Ventilated leather, 50 mm foam, 200 mm slide range**

Power & Systems

Communication Rack	**400 × 400 × 900 mm LMS with 5 shelves**
Power System	**2 × 12 V 100 Ah (24 V 200 Ah parallel)**
Generator (Optional)	**2.4 kVA silent**
HVAC	**Dual-zone, –10 °C to +50 °C operating range**
Navigation	**9.35″ FHD display, 135° rear cam, digital compass**
Weapon Storage	**Lockable box 900 × 300 × 300 mm**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/light-strike-vehicle-modification-and-upgrade-program.php

GROUND SUPPORT EQUIPMENT · COMMAND & CONTROL

FIG. 01 · VMEBCP

VMEBCP

Vehicle-Mounted Expandable Battery Command Post (BCP)

Containerised expandable C3 shelter on a TATA 2.5-ton GS truck — a war room on wheels.

10 m	2.5 kVA	10 Gbps	1000 m
Pneumatic mast	Onboard generator	OLTE backbone	OFC drum length

OVERVIEW

The Vehicle-Mounted Expandable Battery Command Post (BCP) is a next-generation mobile headquarters that gives artillery regiments the ability to command, communicate and coordinate with speed and precision in the field. Built on a rugged 2.5-ton GS truck, it houses a containerised expandable shelter that unfolds on-site into a spacious, climate-controlled workspace for commanders and operators.

Inside, the BCP integrates fibre-optic and radio communications, telescopic masts for antennas and sensors, an independent power system and ergonomic workstations for extended missions. With rapid deployment, layered safety systems and dual-use potential in disaster management and border security, it functions as the nerve centre for fire control, tactical planning and real-time inter-unit communication.

KEY FEATURES

- Containerised aluminium expandable shelter with 500 mm slide-out walls
- 10 m pneumatic mast + 3 m multipurpose mast for antennas and sensors
- OLTE backbone with 1000 m OFC drum (up to 10 Gbps, 20 km reach)
- Self-sufficient power — 2.5 kVA genset + 230 V mains + 24 V battery backup
- 1-ton AC, wall fans and exhaust for crew and electronics climate control
- Ergonomic interior — 6 revolving chairs, 4 foldable tables, weapon mounts

APPLICATIONS

- Forward command post for artillery and tactical units
- Mobile communication relay for special operations
- Border and surveillance grid forward node
- Disaster-management mobile command centre

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Shelter & Platform

Base Vehicle	**TATA 2.5-ton GS Truck (Army standard)**
Shelter Type	**Containerised aluminium, expandable**
Expansion	**500 mm slide-out walls + reinforced floor**
Flatbed	**ISMC cross members, MS supports, ISO twist-locks**
Flooring	**Anti-static, skid protection, earthing grid**
Finish	**Camouflage PU enamel over epoxy primer**

Power & Comms

Generator	**2.5 kVA silent petrol / diesel**
Battery Backup	**8 × 12 V (24 V system)**
Comms Backbone	**OLTE + 1000 m OFC; up to 10 Gbps SFP/SFP+**
Radio Mounts	**STARS V Mk II radios + tactical computers**
Masts	**10 m pneumatic + 3 m multipurpose**
Climate	**1-ton AC, 4 wall fans, 1 exhaust fan**

DGAQA-CERTIFIED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/vehicle-mounted-expandable-battery-command-post.php

TEST BENCH — AEROSPACE & DEFENCE · HIGH-SPEED BEARING ENDURANCE

FIG. 01 · BTB-70K

BTB-70K

70 000 RPM Aerospace Bearing Test Rig

Ultra-high-speed combined-load bearing life test system.

CLIENT

Aerospace · Defence · Automotive R&D

PLATFORM

Bearing Qualification

70 000 rpm	113 kW	25 kN	200 °C
Max test speed	Drive motor rating	Radial load capacity	Max oil temperature

OVERVIEW

The High-Speed Bearing Endurance Test Rig is a specialised life-testing bench designed to push high-speed rolling bearings to their limits under realistic, combined radial and axial loads at shaft speeds up to 70 000 rpm.

Built for aerospace, defence and advanced rotating-machinery programmes, it recreates true operating conditions with independent control of load, lubrication flow, oil temperature and speed — while continuously measuring torque, speed, loads, pressure, temperature and flow.

Instead of relying on catalogue L10 life and safety factors, this rig lets you run bearings safely to failure and capture hard data on how friction, temperature and vibration evolve over time under your actual duty cycles and lubricants.

KEY FEATURES

- Vector-controlled 113 kW AC drive with encoder feedback
- Two-stage single-helical gearbox, 14:1 ratio, AGMA 6011 I-03 design
- Pneumatic radial loading via air bellow (up to ~25 kN) with load cell
- Compact pneumatic axial loading (up to ~2.5 kN) with load cells
- Independent bearing & gearbox lubrication power packs
- Oil temperature 35 °C – 200 °C, proportional flow control
- Non-contact torque sensor (0–50 N·m), 0–80 000 rpm speed capability
- PC-based DAQ with multi-channel analogue + digital inputs, full data logging

APPLICATIONS

- Aero-engine shaft and accessory gearbox bearings
- High-speed gearboxes and turbo-machinery
- Turbochargers and high-performance automotive bearings
- Bearing supplier qualification and type-testing
- Lubricant and coating de-risking trials
- Reliability and certification evidence-gathering

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Drive & Gearbox

Drive Motor	~113 kW, 415 V 3-phase AC
Motor Speed	~2 900 rpm (up to ~5 000)
Gearbox Ratio	14 : 1
Gearbox Output Speed	Up to 70 000 rpm
Design Standard	AGMA 6011 I-03

Load Application

Radial Load	Up to ~25 kN (pneumatic bellow)
Axial Load	Up to ~2.5 kN (pneumatic cylinders)
Radial Control	E/P regulator + load cell
Axial Control	E/P regulator + load cells
Torque Limit	~300 N·m safety coupling

Lubrication & DAQ

Oil Temperature	35 °C – 200 °C, settable
Flow Control	Proportional valve, electrical command
Torque Sensor	Non-contact, 0–50 N·m
Speed Range	0–80 000 rpm (sensor)
DAQ	PC-based, multi-channel, time-stamped

AGMA 6011 I-03 | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/70000-rpm-aerospace-bearing-test-bench.php

TEST BENCH · AMMUNITION & ORDNANCE

FIG. 01 · BSHPTM

BSHPTM

Bomb Shell Hydraulic Pressure Testing Machine (up to 1800 Bar)

Automated hydrostatic proof-test system for artillery shells and ordnance to 1800 bar.

CLIENT

Indian Defence & Ordnance Factories

1800 bar	200+ shells/hr	6 calibers	1 µm
Structural capacity	Top-model throughput	Shell range supported	Deformation resolution

OVERVIEW

The Bomb Shell Hydraulic Pressure Testing Machine is an automated hydrostatic proof-test system engineered for defence-grade validation of artillery shells, mortar rounds and industrial pressure vessels up to 1800 bar structural capacity. It combines robotic shell handling, precision volumetric measurement and real-time deformation sensing to deliver production throughput from 25 to 200+ shells per hour across four modular platforms.

Fully recipe-driven operation under Siemens PLC control enables rapid changeover between 23 shell variants across six calibers. Built to MIL-STD-1522 with defence-grade burst containment, it integrates into existing ammunition lines via SCADA / optional MES, delivering traceable test data and automated pass/fail classification.

KEY FEATURES

- 1800 bar structural capacity with 100-tonne hydraulic press
- 1 µm deformation sensing via LVDT / IR probes (Marposs / Renishaw)
- Automated cycle — load, fill, seal, measure, dewater, stamp, unload
- Recipe-driven changeover across 105, 122, 127–130 naval and 155 mm calibers
- Siemens S7-1200 PLC, 10–15″ HMI, optional SCADA / MES integration
- CE-marked safety — E-stops, interlocks, burst containment, pressure relief

APPLICATIONS

- Artillery-shell proof-pressure testing and compliance validation
- Ammunition casing structural-integrity and leakage assessment
- Aerospace pressure-vessel and actuator qualification
- Defence production-line integration and QA/QC automation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Performance

Operating Range	**250–1400 bar**
Structural Capacity	**1800 bar**
Hold Time	**5–60 s (programmable)**
Deformation Resolution	**1 µm**
Volume Accuracy	**±1% (≤9 mL), ≤1 mL resolution**
Throughput	**25–200+ shells/hr (model-dependent)**

Handling & Control

Calibers Supported	**105–155 mm (6 types, 23 variants)**
Component OD	**100–200 mm; cavity 1–7.5 L**
Max Shell Weight	**Up to 50 kg (empty)**
Control System	**Siemens S7-1200 PLC, 10–15″ HMI**
Robot Integration	**ABB / KUKA / FANUC**
Power Supply	**415 V ±10%, 3Φ, 50 Hz; IP54 panel**

MIL-STD-1522 · CE MARKED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/bomb-shell-hydraulic-pressure-testing-machine-upto-1800-bar

TEST BENCH — AUTOMOTIVE & ENERGY · CNG REGULATOR ENDURANCE

FIG. 01 · CHPRTB

CHPRTB

CNG High-Pressure Regulator Test Bench

PLC-driven endurance and leak testing for CNG pressure regulators.

CLIENT

OEM QA · R&D · Certification Labs

PLATFORM

ISO 15500-9 :2001 (E)

50 000 cycles	300 bar	≤ 15 cm³/hr	±0.25 % FS
Endurance per UUT	Reservoir pressure	Leak threshold	Pressure accuracy

OVERVIEW

The CNG High-Pressure Regulator Test Bench is a mobile, PLC-controlled system designed for rigorous endurance and leak testing of CNG pressure regulators. It features a 6 L, 300 bar stainless-steel reservoir and a high-precision Haskel booster that cycles regulators through up to 50 000 pressurisation/depressurisation loops (10–260 bar, expandable to 310 bar) per ISO 15500-9 :2001 (E), while monitoring leaks down to 15 cm³/hr.

An intuitive touchscreen HMI and scheduling software enable repeatable, data-rich testing with real-time pressure curves, CSV/PDF exports and LIMS integration. Dual-channel interlocks, emergency stops and guarded enclosures ensure operator protection at pressures up to 330 bar.

Quick-release fixtures, lockable-wheel mobility and optional environmental conditioning make the bench ideal for OEM end-of-line QA, R&D validation, certification labs and field service operations.

KEY FEATURES

- 6 L, 300 bar stainless-steel reservoir + Haskel AG-15/75 booster
- Up to 50 000 cycles per UUT (ISO 15500-9 :2001 (E))
- Inlet pressure 10–260 bar (auto) / up to 310 bar (manual)
- Up to 60 cycles/minute under PLC control
- ±0.25 % FS digital indicator, tare, peak-hold, multi-unit
- Bi-color LED pass/fail feedback and touchscreen HMI
- Dual-channel safety interlocks, emergency stops on all sides
- Optional thermal chamber (−20 °C to +50 °C)

APPLICATIONS

- OEM production end-of-line QA
- R&D life-cycle validation
- Type-approval certification (ECE R110, CSA B149.1)
- Field service centres — on-site recalibration
- Predictive-maintenance laboratories

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Cycling

Inlet Pressure	10–260 bar (auto), up to 310 (manual)
Cycling Speed	Up to 60 cycles / min
Total Cycles	Up to 50 000 per UUT
Reservoir	6 L, 300 bar, stainless
Leak Threshold	≤ 15 cm³/hr

Instrumentation

Pressure Accuracy	±0.25 % FS
Booster	Haskel AG-15/75
Data Acquisition	16-bit ADC, 100 Hz
Software	LIMS · OPC UA · CSV · PDF
Display	Touchscreen HMI + LED pass/fail

Environment & Safety

Drive Air	≥ 5 bar, 50 CFM, dew point −40 °C
Temperature	−20 °C to +50 °C (with thermal chamber)
Interlocks	Dual-channel, E-stop on all sides
Compliance	ISO 15500-9 :2001 (E)
Marking	CE · PED-ready

ISO 15500-9 :2001 (E) | CE / PED-READY | ISO 17025 CALIBRATION TRACEABLE | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/cng-high-pressure-regulator-test-bench.php

TEST BENCH · RAIL BRAKE SYSTEMS

FIG. 01 · CCUBTB

CCUBTB

Computerized Control Universal Brake Test Bench

PLC-DAQ universal bench validating 27 pneumatic brake valve types for metro and Indian Railways.

CLIENT

Indian Railways · Metro Rail networks

27 valve types	2400 LPM	10.5 kg/cm²	±0.5 %
Brake-valve coverage	Compressed-air flow	Rated pressure	Pressure-gauge accuracy

OVERVIEW

The CCUBTB is a fully automated test platform purpose-built to validate pneumatic brake components across metro rail and Indian Railways rolling stock. It exercises 27 distinct valve types — air dryer units, anti-skid valves, distributor valves, emergency brake valves, magnet valves, pressure reducers, check and safety valves — through pre-programmed or manual sequences that reproduce real braking-circuit conditions.

A PLC-DAQ control core, graphical HMI, and automated PDF reporting streamline acceptance and overhaul workflows while keeping every test traceable to railway safety standards. SS-304 modular construction, twin-tower air drying and a 2400 LPM compressed-air supply allow rapid cycle times across large-fleet depot operations.

KEY FEATURES

- Automatic + manual dual-mode operation for diagnostics and acceptance
- PLC-DAQ control with graphical HMI and automated PDF reporting
- 27 pneumatic brake-valve types covered (anti-skid, distributor, magnet, etc.)
- 2400 LPM compressed-air supply with twin-tower 2000 LPM dryer
- Pressure / sound / dew-point instrumentation with 4–20 mA transmitters
- SS-304 modular structure with brake-pipe, cylinder, auxiliary and control reservoirs

APPLICATIONS

- Metro rail brake-system depot maintenance and validation
- Indian Railways rolling-stock workshop acceptance testing
- Pneumatic valve diagnostics and compliance verification
- Air-brake overhaul-line functional re-test

SPECIFICATIONS

principal parameters · full equipment list in catalogue

System & Pneumatic

Medium	**Compressed air**
Operating Pressure	**8–10 kg/cm²**
Rated Pressure	**10.5 kg/cm²**
Flow Rate	**2400 LPM (maximum)**
Air Dryer	**Twin-tower, 2000 LPM**
Reservoirs	**Brake pipe, brake cylinder, auxiliary, control**

Instrumentation & Utilities

Pressure Gauges	**±0.5% accuracy, 0.1 kg/cm² least count**
Pressure Transmitters	**4–20 mA signal output**
Sound Level	**30–130 dB range**
Dew Point	**Inline monitoring for air-quality validation**
Power Supply	**230 V, 1 Φ, 50 Hz**
Operating Temperature	**Up to 48 °C ambient**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/computerized-control-universal-brake-test-bench

TEST BENCH · AVIONICS & FUEL

FIG. 01 · FCGPTR

FCGPTR

Fuel Contents Gauging Probe Test Rig — Light Combat Helicopter

Wet functional and electrical-integrity validation of LCH fuel-gauging probes and switches.

PLATFORM

HAL Light Combat Helicopter (LCH)

≤1 mm	±1 %	>100 MΩ	1500 VAC
Level resolution	Linearity (FS)	Insulation resistance	Hipot test

OVERVIEW

The Fuel Contents Gauging (FCG) Probe Test Rig is a specialized electronic bench for qualifying the LCH fuel-gauging system before sensors are cleared for flight. Built around a wet test tank with millimetre-precision level measurement, the rig uses surrogate aviation fluids to replicate real tank conditions and characterise the capacitive time-period output of FCG probes against actual liquid levels.

Beyond functional accuracy, the rig validates electrical integrity through insulation and hipot testing, verifies level-switch actuation and hysteresis, and logs every parameter — probe current, switch response, IR — under automated DAQ control. Traceable PDF certificates close the loop on aerospace quality assurance.

KEY FEATURES

- Wet functional testing with surrogate fuel (Isopar M / K)
- Time-period signal capture vs millimetre-accurate level reference
- Level-switch actuation, hysteresis and response verification
- Insulation resistance and dielectric withstand (hipot) testing
- Automated DAQ logging with PDF certificate generation
- Safety package — earthing, interlocks, spill tray, ventilation, E-stop

APPLICATIONS

- Pre-installation acceptance of LCH FCG probes
- Level-switch qualification and re-calibration
- Post-overhaul probe validation at HAL depots
- R&D characterisation of capacitive fuel-gauging probes

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Probe Test Performance

Tank Assembly	SS 304/316; transparent glass level tube + mm scale
Level Resolution	≤ 1 mm
Output Variable	Time-period signal (µs–ms), probe-dependent
Linearity	≤ ±1% of full scale
Repeatability	≤ ±0.2% of full scale
Stability	Drift ≤ 0.1% FS over 10 minutes

Electrical & Compliance

Input Current	<50 mA (typical; PN-specific)
Level Switch Accuracy	±2 mm; hysteresis 2–10 mm; response <1 s
IR Test	>100 MΩ at 500 VDC
Hipot Test	Up to 1500 VAC / 2000 VDC
Power Supply	230 VAC, 50 Hz; 28 VDC avionics bus
Compatibility	HAL probe families with modular fixtures

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/fuel-contents-gauging-probe-test-rig-light-combat-helicopter.php

TEST BENCH · DRIVELINE & GEARBOX

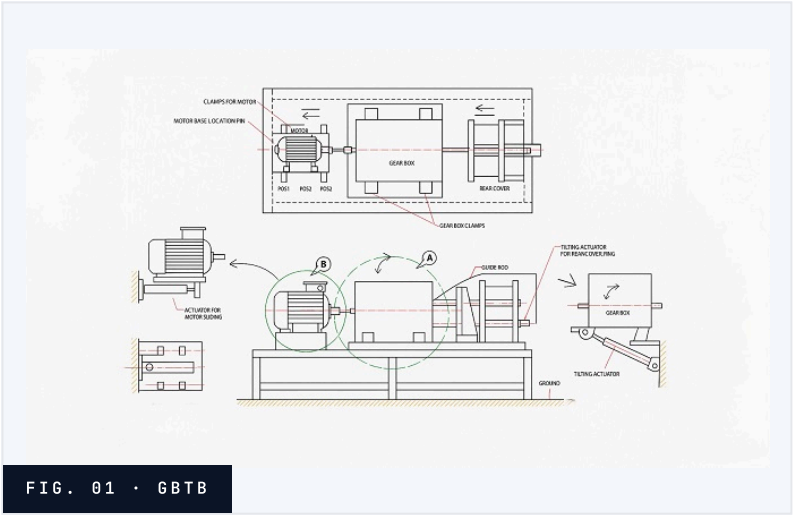

FIG. 01 · GBTB

GBTB

Gear Box Test Bench

Skid-mounted gearbox validation with IIoT, condition monitoring and reporting.

CLIENT

Escorts Agrimachinery PU-Transmission Division

250 bar	**20** HP	**75%** recovery	**–40 to +180** °C
Max system pressure	VFD motor drive	Regenerative efficiency	Climatic range

OVERVIEW

The Neometrix Gear Box Test Bench is a skid-mounted validation platform engineered for comprehensive gearbox testing across production quality checks, research and failure analysis. It combines dual hydraulic power packs, precision torque and RPM sensors and PLC/PC-based automation to deliver repeatable test cycles, detailed data logging and customizable reporting across centre-shift, side-shift, 9+3-speed and DC/TRB variants.

Advanced capabilities include multi-sensor condition monitoring, IIoT connectivity with digital-twin integration, modular environmental simulation (–40°C to +180°C) and regenerative drives that recover up to 75% of braking energy. This reduces operational cost while enabling predictive maintenance and real-world performance validation.

KEY FEATURES

- Five selectable speed profiles with pneumatic clamps and spline adaptors
- 20 HP ABB/Siemens VFD motor with Lorenz torque and Omron RPM sensors
- Dual HPPs to 250 bar with 10 µm suction / 25 µm return filtration
- Automated PLC/HMI sequencing with PDF/Excel report generation
- Industry 4.0 OPC-UA / MQTT IIoT and cloud integration
- Modular plug-and-play climatic chambers and battery simulators

APPLICATIONS

- Production end-of-line torque, ratio and sealing validation
- R&D prototype characterization and accelerated fatigue cycling
- Failure analysis via fault replication and wear assessment
- Aftermarket OEM-standard verification of remanufactured gearboxes

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic & Mechanical

Pressure Rating	**250 bar maximum**
Filtration	**10 µm suction, 25 µm return**
Gearbox Fixture	**Skid-mounted steel frame, epoxy powder coat**
Motor	**20 HP, 1440 RPM, ABB/Siemens VFD-controlled**
Climatic Range	**–40°C to +180°C (modular chamber)**
Energy Recovery	**Up to 75% via regenerative drive**

Control & Instrumentation

VFD	**Siemens ACS 550**
HMI	**10″ Siemens Smart series touchscreen**
Torque Sensor	**Lorenz Mestechnik, high-precision**
RPM Sensors	**Omron proximity with encoder output**
Pressure Gauges	**Wika industrial-grade**
Data Logging	**Operator/serial/gear, RPM/torque, OK-NG verdict**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/gear-box-test-bench.php

TEST BENCH · HYDRAULIC

FIG. 01 · HDTB

HDTB

Hydraulic Damper Test Bench

Jounce/rebound validation of damper assemblies up to 150 bar and 200 LPM.

CLIENT

K9 VAJRA Tank

150 bar	200 LPM	10 micron	200 L
Maximum test pressure	Flow rate capacity	Filtration rating	Oil reservoir volume

OVERVIEW

The Hydraulic Damper Test Bench is a state-of-the-art system engineered to evaluate shock absorption and suspension reliability in damper assemblies for military, aerospace and industrial vehicles. It measures jounce (compression) and rebound (expansion) characteristics under up to 150 bar pressure and 200 LPM flow, replicating extreme operating conditions with accurate real-time pressure-vs-flow analysis.

The platform subjects dampers to controlled hydraulic forces that simulate real-world demands, generating differential pressure within the HSU unit to verify compliance with industry standards. Advanced DAQ-based LabVIEW automation records pressure-vs-flow graphs and generates test reports for comprehensive performance validation.

KEY FEATURES

- Dual 40 HP motors with external gear pumps — 220 LPM combined
- 10-micron high-pressure filtration maintains oil cleanliness
- DAQ-based LabVIEW automation records P-vs-Q graphs and reports
- ABB variable frequency drive for precise real-time RPM control
- Pilot-operated NG25 direction control valve, Rexroth solenoid
- 200 L reservoir with level switch, temperature monitor and breather

APPLICATIONS

- K9 VAJRA Tank damper assembly validation
- Hydraulic Suspension Unit (HSU) performance testing
- Military vehicle shock absorption qualification
- Aerospace and heavy equipment damper certification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic Performance

Maximum Test Pressure	**150 bar**
Flow Rate Capacity	**200 LPM**
Combined Pump Output	**220 LPM**
Individual Pump Delivery	**110 LPM each**
Direction Control Valve	**Pilot-operated NG25**
Cooling System	**Air-cooled oil cooler**

Power & Control Systems

Motor Rating	**40 HP × 2 units**
Pump Type	**External gear pump**
Control Interface	**DAQ with LabVIEW software**
Frequency Drive	**ABB variable frequency drive**
High-Pressure Filter	**10 micron**
Reservoir Capacity	**200 L**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-damper-test-bench-manufacturer.php

TEST BENCH · HYDROSTATIC & BURST

FIG. 01 · HPTB

HPTB

Hydraulic Pressure Test Bench

SCADA-controlled hydrostatic and burst testing of metallic tube assemblies to 500 bar.

CLIENT

Tata Sikorsky Aerospace Limited (TSAL)

4 tubes	500 bar	3965 mm	±5 %
Simultaneous capacity	Maximum test pressure	Maximum tube length	Pressure accuracy

OVERVIEW

The Model A3101 is a fully automated, PLC-controlled test system for high-precision hydrostatic and burst pressure testing of metallic tube assemblies. This aerospace-grade bench supports simultaneous testing of four tubes up to 3,965 mm long at pressures to 500 bar, with dual-pump operation, real-time SCADA monitoring and integrated moisture removal.

A stainless-steel test chamber pairs with Siemens S7-1200 PLC automation and proprietary software for full parameter control, pressure-versus-time tracking and automated burst detection. Precision instrumentation from WIKA, SMC and Vaisala ensures traceable measurements, while a hot-air drying station with dew-point monitoring delivers aerospace-grade cleanliness.

KEY FEATURES

- Simultaneous testing of four metal tubes to 500 bar
- Dual air-driven pumps — Haskel 4B-150 (150:1) and MS-7 (7:1)
- SS304 chamber with acrylic shield and safety interlocks
- Real-time SCADA logging with pressure-time curve and burst detection
- Hot-air blower station with Vaisala dew-point verification
- Automated test configuration and digital report generation

APPLICATIONS

- Hydraulic tube validation and burst testing for aircraft/helicopters
- Rail and metro brake and pneumatic tube assembly testing
- High-pressure hose and cooling-system validation for automotive/EV
- Industrial R&D component pressure-integrity qualification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Performance

Test Pressure Range	**1–414 bar**
Maximum System Pressure	**500 bar**
Test Duration	**3–10 minutes**
Pressure Accuracy	**±5%**
Test Medium	**Water at 65°C ± 5°C**
Simultaneous Tube Capacity	**4**

Physical & Control

Chamber Dimensions	**4500 × 750 × 1200 mm**
Tube Compatibility	**6–32 mm dia, up to 3965 mm**
PLC	**Siemens S7-1200 with HMI touch panel**
Pressure Gauges	**WIKA 0–600 bar**
Pressure Transmitters	**WIKA S-20 (0.25% FS)**
Electronic Regulator	**SMC ITV3050**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-pressure-test-bench.php

TEST BENCH · PROPULSION & FUEL

FIG. 01 · ITRPFC

ITRPFC

Integrated Test Rig for Pumps and Fuel Coolers

Multi-unit aero-engine rig validating LP/HP/Oil pumps and FCOC before engine build.

PLATFORM

HTFE-25 Aero Engine

200 °C	400 L	4 units	Dual power packs
Max operating temp	Tank per power pack	Testable components	OX-27 + ATF

OVERVIEW

The Integrated Test Rig is a state-of-the-art, high-performance system designed to carry out precision testing of critical aircraft engine components including the LP Pump, HP Pump, Oil Pump and Fuel Cooled Oil Cooler (FCOC). This modular system validates aerospace components before engine installation, supporting individual and combined testing under realistic operating conditions with dual power packs and thermal management up to 200 C.

The rig enables comprehensive functional validation for the HTFE-25 aero engine through simultaneous or independent operation of all units. With real-time data acquisition, precise fluid control and integrated safety features, it serves R&D validation, production quality checks and pre-delivery acceptance testing in aerospace environments.

KEY FEATURES

- Tests LP, HP, Oil Pumps and FCOC simultaneously or independently
- Dual insulated power packs (OX-27 and ATF) with 400 L SS-304 tanks
- Thermal capacity up to 200 C with two dedicated heaters
- Free-flow, load, thermal and pressure-drop/leakage testing
- Real-time DAQ with pressure, temperature, flow and speed sensors
- Modular, scalable design with plug-and-play setup

APPLICATIONS

- LP Pump functional testing (free-flow and load tests)
- HP Pump validation under high-speed, high-pressure conditions
- Oil Pump performance evaluation at varying speed and temperature
- FCOC thermal performance and fluid flow integrity assessment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Thermal & Power

Maximum Temperature	**200 C**
Tank Volume (each)	**400 L**
Tank Material	**SS-304 inner, insulated**
Insulation	**100 mm glass wool + cork**
Power Packs	**OX-27 and ATF, dual insulated**
Heaters	**Two dedicated heaters**

Performance & Instrumentation

Test Modes	**Simultaneous or independent multi-unit**
Coupling	**Quill shaft for flexibility**
Protection	**Over-temperature and over-speed**
Data Acquisition	**Real-time DAQ system**
Sensing	**Pressure, temperature, flow, speed**
Safety	**Emergency shutdown, digital interlocks**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/integrated-test-rig-for-pumps-and-fuel-coolers.php

TEST BENCH · AVIONICS

FIG. 01 · PBCTTR

PBCTTR

PC-Based Counter Timer Test Rig

HAL-standard timing, voltage and current validation for APD-99 avionics.

CLIENT

Hindustan Aeronautics Limited (HAL)

16 channels	**0.05–999.99** sec	**27** V DC	**1** KVA UPS
Stopwatch timers	Measurement range	Aircraft supply	4-hour backup

OVERVIEW

The PC-Based Counter Timer Test Rig is a high-precision, fully automated test bench designed to evaluate the performance of aerospace components, particularly the APD-99 Series 5 used in aircraft systems. This intelligent platform integrates advanced data-acquisition hardware, industrial computing and a touchscreen interface powered by LabVIEW software to meet stringent HAL standards for aviation component validation.

Operating in manual, semi-automatic and fully automatic modes, the system performs timing, voltage and current tests with millisecond precision while logging results in real-time and generating detailed Excel reports for complete traceability in mission-critical avionics reliability programmes.

KEY FEATURES

- 16-channel NI 6602 stopwatch timer, 32-bit, 0.05–999.99 s
- 4½-digit panel meters — DC voltage 0–30 V, AC current 0–20 A
- 15″ touchscreen with LabVIEW automation and password access
- 1 KVA online UPS providing 4-hour test backup
- NIST-traceable calibration with in-situ verification
- Rugged rack-mount cabinet with 96-channel digital I/O

APPLICATIONS

- Ground start sequence simulation for aircraft engine testing
- Electrical relay and switch response-time verification
- Emergency circuit and backup system validation
- Micro-switch and flap valve testing for control surfaces

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Electrical & Power

DC Supply	**27 V (aircraft standard)**
AC Supply	**220 V, 50 Hz, single phase**
Online UPS	**1 KVA with 4-hour backup**
Emergency Stop	**Push-button, interlocked drives**
Self-Test	**Power-on self-tests**
Warranty	**12 months from commissioning**

Data Acquisition & Computing

Timer Cards	**NI 6602, 16 channels, 32-bit**
Digital I/O	**96-channel for switches/relays**
Multifunction I/O	**16 AI, 8 DIO, 2 AO, 0V protection**
Computer	**Intel Pentium 4, 512 MB RAM, 40 GB HDD**
Display	**15″ touchscreen, rack-mount cabinet**
Printer	**Laser, 20 ppm, 1200 dpi**

DGAQA-CERTIFIED | ISO 9001:2015 | HAL-COMPLIANT | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/pc-based-counter-timer-test-rig.php

TEST BENCH · PNEUMATIC

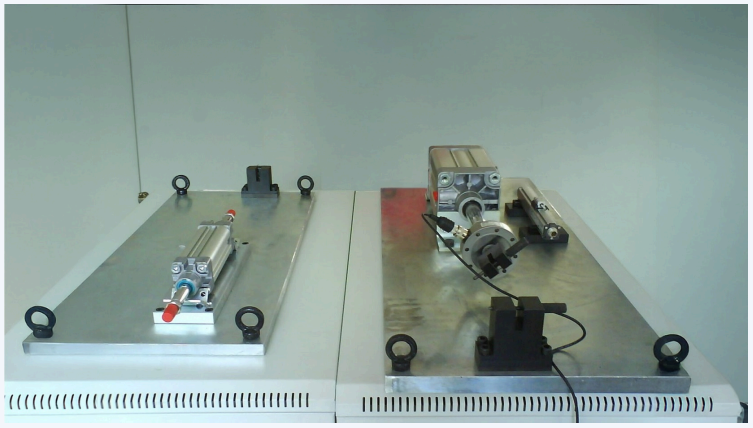

FIG. 01 · PPTRRA

PPTRRA

Portable Pneumatic Test Rig for Rudder Actuator

Field-deployable cabinet for full functional, leak, endurance and acceptance testing of rudder actuators.

CLIENT

Hindustan Aeronautics Limited (HAL)

10 bar	±0.1 bar	1 kHz	10 000 cycles
Supply pressure	Control accuracy	Data sampling rate	Endurance capacity

OVERVIEW

The Portable Pneumatic Test Rig is a mission-critical ground-support system that guarantees the performance and reliability of aircraft rudder actuators — the component responsible for yaw control and directional stability. Developed for HAL, it replicates real flight conditions through controlled pneumatic loads while monitoring stroke, response, force, leakage and endurance under repeated cycles.

A field-deployable cabinet enables rapid testing at hangars, MRO centres and forward bases — eliminating dependency on centralised test stands and cutting turnaround time. Computerized DAQ, calibrated instrumentation and automated test profiles ensure every actuator is compliant with OEM and regulatory acceptance standards before returning to flight.

KEY FEATURES

- Full-stroke and partial-stroke functional verification under varying loads
- Static and dynamic leakage detection with pressure-hold profiles
- Force-vs-displacement and speed-vs-load performance characterisation
- Programmable endurance cycling to simulate thousands of flight cycles
- Calibrated DAQ with ±0.25% FS load and 0.01 mm LVDT displacement
- Portable cabinet design for hangar, MRO and forward-base deployment

APPLICATIONS

- Acceptance testing of new and overhauled rudder actuators
- Routine field-level functional verification at MRO depots
- Endurance / fatigue qualification for type-test campaigns
- Forward-base operational readiness checks

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pneumatic & Mechanical

Supply Pressure	**0–10 bar regulated, clean dry air**
Pressure Control	**±0.1 bar accuracy**
Actuator Stroke	**Up to 300 mm linear or ±30° rotary**
Load Simulation	**50–1 000 N adjustable**
Force Measurement	**Load cell up to 5 kN, ±0.25% FS**
Displacement	**LVDT with 0.01 mm resolution**

Data & Testing

Leakage Measurement	**<0.5% FS pressure decay over 5 min**
Response Time	**<0.5 s full stroke at nominal pressure**
Endurance Capacity	**Up to 10 000 programmable cycles**
Data Sampling	**1 kHz continuous logging**
Power Supply	**230 VAC, 50 Hz**
Reporting	**Automated PDF certificate generation**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/portable-pneumatic-test-rig-for-rudder-actuator.php

TEST BENCH · ROTATING MACHINERY

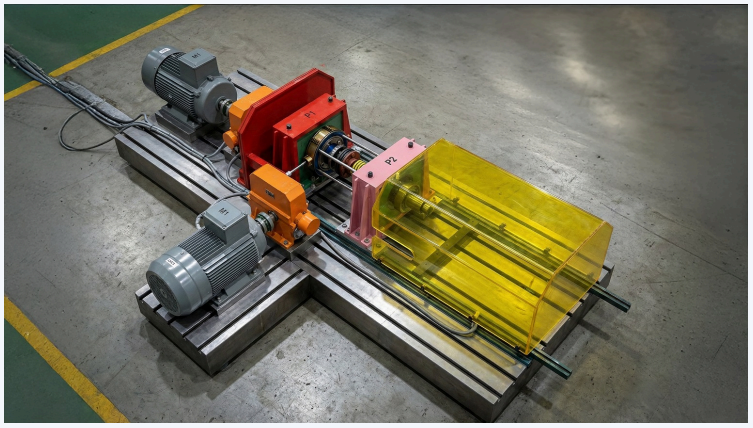

FIG. 01 · RDTF

RDTF

Rotor Dynamics Test Facility

High-speed rotor-bearing evaluation — critical speed, unbalance and damping to 52,000 rpm.

CLIENT

AERDC, HAL Bangalore

52,000 rpm	200 kW	90 kg	15–150 °C
Max rotational speed	Max drive power	Max rotor mass	Operating temperature

OVERVIEW

The Rotor Dynamics Test Facility (RDTF) is an advanced system for evaluating the performance and behaviour of rotor-bearing-support systems across varied configurations. It enables detailed analysis of critical speeds, vibration, unbalance, misalignment and damping — characteristics essential for aerospace, defence and industrial rotating-machinery applications.

By replicating real-world operating conditions with precision instrumentation and automated control, the RDTF delivers insight into rotor stability and operational durability through controlled high-speed testing — reducing design risk and validating performance before deployment in critical applications.

KEY FEATURES

- Rotor testing up to 90 kg, flexible geometries and support systems
- Dual AC drives up to 200 kW, speed control with 100 rpm/s acceleration
- Step-up gearboxes reaching 52,000 rpm for high-performance rotors
- Advanced sensors + FFT analysis for vibration, frequency, transients
- PLC-SCADA automation — real-time monitoring, alarms, data logging
- 20 L/min lubrication system and axial loading up to 20 kN

APPLICATIONS

- Critical-speed validation and resonance-point identification
- Unbalance response testing per ISO 1940 G2.5
- Angular and offset misalignment analysis
- Damping-effectiveness evaluation under dynamic conditions

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Mechanical

Maximum Speed	**52,000 rpm**
Shaft Diameter	**15–70 mm**
Rotor Mass	**Up to 90 kg**
Disc Size	**Up to 750 mm diameter**
Axial Load	**Up to 20 kN**
Acceleration	**100 rpm/s**

System

Prime Mover	**200 kW (max), dual AC drives**
Speed-Up	**Step-up gearboxes to 52,000 rpm**
Lubrication	**20 L/min at 15 bar**
Operating Temp	**15 °C to 150 °C**
Instrumentation	**FFT vibration/frequency sensors**
Control	**PLC-SCADA, real-time logging + alarms**

ISO 1940 G2.5 | EN 1063:1999 | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/rotor-dynamics-test-facility

TEST BENCH · AEROSPACE ELECTRICAL

FIG. 01 · SGTR

SGTR

Starter Generator Test Rig

Programmable multi-brand bench for aircraft starter-generators — DC brush to 270 V HVDC.

CLIENT

Indian Air Force & HAL · DRDO & Defence PSUs

15,000 RPM	**2,000** A	**50+** models	**12** recipes
Max drive speed	Peak starter current	S/G compatibility	Standard test suite

OVERVIEW

The Starter Generator Test Rig is a programmable, multi-brand test platform for aircraft starter-generators — from light-helicopter DC brush units to 270 V HVDC systems. Mechanical drive, electrical loading, precision instrumentation and automated control are integrated on a single vibration-isolated frame, enabling repeatable functional and performance validation across 50+ compatible S/G models.

Full electrical loading reaches 2,000 A peak for starter simulation, with continuous operating speeds to 15,000 RPM. The rig executes 12 standardised test recipes autonomously — from no-load regulation and thermal-rise verification to commutation inspection and locked-rotor torque — supported by real-time SCADA HMI, data logging and MIL-STD / ISO-compliant reporting.

KEY FEATURES

- 4-quadrant regenerative drive — recovers braking energy, ~35% lower running cost
- Auto-recipe loading — select S/G part number, limits configure instantly
- Multi-brand adapter kit (Skurka, Safran, AMETEK, Thales, Honeywell), <15 min changeover
- Layered safety — e-stops, overspeed cut-off, overcurrent + vibration auto-stop
- NABL-traceable calibration with certificates embedded in reports
- Optional EtherCAT IoT gateway for live dashboards and audit trails

APPLICATIONS

- Starter-generator functional qualification and acceptance
- Aerospace MRO bench maintenance and overhaul validation
- Defence / HAL production acceptance (DGAQA-compliant reporting)
- Comparative performance characterisation across S/G brands

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Drive & Electrical

Servo Motor	**Siemens 1PH8 or equivalent**
Speed Range	**0–15,000 RPM (expandable to 60,000)**
DC Load Bank	**0–30 VDC, 0–600 A programmable**
AC Load Bank	**115 V, 400 Hz, 3-ph, ≥15 kVA**
Starter Simulation	**28–30 VDC, 2,000 A peak / 400 A cont.**
Field Excitation	**0–30 VDC, 0–10 A precision linear**

Instrumentation & Control

Voltage Measurement	**0–50 VDC (armature, field, terminal)**
Current Measurement	**0–2,200 A Hall-effect / shunt**
Temperature	**RTD / K-type, 18–200 °C**
Resistance	**0–35 Ω at ±0.1%**
DAQ / HMI	**NI / LabVIEW / PLC + SCADA touchscreen**
Data Export	**Live plot, CSV, PDF, Excel**

MIL-STD COMPATIBLE | ISO 9001:2015 | DGAQA-CERTIFIED | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/starter-generator-test-rig

TEST BENCH · AVIONICS & NAVIGATION

FIG. 01 · TUTB

TUTB

TACAN Unit Test Bench

Turnkey automated FAT for Moog Fernau TACAN 2010 navigation modules.

PLATFORM

Moog Fernau TACAN 2010 "I-Level" Navigation Equipment

25 modules	1 Mbps	18 GHz	<30 min
Modules validated	CAN-Bus speed	RF connector rating	Component swap time

OVERVIEW

The TB TACAN Unit Test Bench is a fully integrated, turnkey Factory Acceptance Testing (FAT) solution engineered by Neometrix for comprehensive validation of Moog Fernau's TACAN 2010 navigation equipment. It automates testing of 25 functional modules — both intelligent microcontroller-based units and passive RF components — replacing manual procedures with repeatable workflows that ensure rapid commissioning and full traceability.

Distributed node controllers communicate via high-speed CAN-Bus at 1 Mbps for deterministic real-time control, while quick-connect RF/power looms enable tool-free fixture swaps. An intuitive touchscreen interface supports drag-and-drop test sequencing, live RF data visualization and secure report generation with pass/fail logic and digital FAT documentation.

KEY FEATURES

- Validates all 25 TACAN 2010 modules (12 µC, 13 passive RF)
- CAN 2.0B at 1 Mbps for deterministic distributed control
- Quick-connect RF looms to 18 GHz, ≤0.5 dB insertion loss
- Automated scripts apply 962 ± 80 MHz, −30 to +30 dBm stimuli
- Touchscreen drag-and-drop sequencer — no coding required
- DGAQA, IEC 61010-1 and ANSI CAT II certified

APPLICATIONS

- Factory Acceptance Testing prior to module shipment
- Pre-delivery verification to prevent installation delays
- Operator training and maintenance-personnel certification
- Defence navigation QA — bearing accuracy and signal stability

SPECIFICATIONS

principal parameters · full equipment list in catalogue

System & Architecture

System Model	**TB_TACAN**
Enclosure	**19″ rack, 12U, 600 mm depth, EMI shielded**
Data Interfaces	**CAN 2.0B, USB 2.0, RS-232/485, GbE**
RF Path	**Quick-connect looms to 18 GHz, ≤0.5 dB loss**
RF Stimulus Range	**962 ± 80 MHz at −30 to +30 dBm**
Measurement Accuracy	**Power ±0.5 dB, VSWR ±1%, timing ±5 µs**

Power & Environment

Input Power	**208–240 VAC**
Output Rails	**±5 V, ±12 V, +28 V regulated**
Operating Temp	**0–45 °C**
Storage Temp	**−20 °C to +70 °C**
Humidity Range	**10–90% RH**
Modules Supported	**25 (12 intelligent + 13 passive)**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/Tacan-Test-Bench.php

TEST BENCH · FLUID & LUBRICANT

FIG. 01 · TRHF

TRHF

Test Rig for Hydraulic Fluid

Dual-pump ASTM D6973 / JCMAS P045 bench for hydraulic-fluid wear and oxidation testing.

CLIENT

Bharat Petroleum (BPCL)

207 bar	300 L/min	95 °C	110 kW
Operating pressure	Max main-pump flow	Max test temperature	VFD input power

OVERVIEW

This fully automated dual-pump test bench evaluates the wear resistance and oxidation stability of hydraulic fluids under precisely controlled conditions. A Vickers 35VQ25A rotary vane pump and an A2F10 bent-axis axial-piston pump act as load elements — delivering up to 300 L/min at 207 bar and 70 L/min at 350 bar respectively — with automatic sample collection and high-resolution data logging every 0.1 seconds.

It serves lubricant manufacturers, OEMs, certification houses and research labs needing repeatable, reproducible results for formulation optimisation, supplier qualification, regulatory compliance and tribological studies. Automatic temperature staging, air/water dosing for accelerated aging, and full safety interlocks per EU Machinery Directive 2006/42/EC deliver mission-critical fluid-performance data.

KEY FEATURES

- Dual standards — Vickers 35VQ25A vane + A2F10 bent-axis piston pump
- Automatic temperature staging at 52 / 79 / 95 °C ±3 °C per protocol
- Programmable automatic sample collection up to 300 mL/sample
- Air and water dosing for accelerated oxidation-aging simulation
- NAS 1638 Class 6 cleanliness; ISO VG 32 / 46 / 68 support
- Data logging every 0.1 s with full safety interlocks (CE 2006/42/EC)

APPLICATIONS

- Lubricant manufacturers — batch-release QC and formulation benchmarking
- Automotive / heavy-equipment OEM supplier qualification and R&D
- Aerospace & defence fire-resistant fluid testing and certification
- Third-party test & certification houses — custom protocol development

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure, Flow & Power

Operating Pressure	**207 bar (design)**
Max System Pressure	**250 bar**
Main Pump Flow	**~170–300 L/min**
Bent-Axis Pump	**A2F10, 10.3 cc/rev, 70 L/min at 350 bar**
Power	**415 V ±10% 3-ph, 50 Hz; 110 kW VFD; 24 VDC control**
Cleanliness	**NAS 1638 Class 6 or better**

Test Protocols

ASTM D6973 Speed	**2400 RPM ±20**
ASTM D6973 Pressure	**6.9 / 13.8 / 20.7 MPa ±0.2**
ASTM D6973 Oil Temp	**52 / 79 / 95 °C ±3**
JCMAS P045 Speed	**2600 RPM ±1**
JCMAS P045 Pressure	**35 MPa ±0.1; suction 90 °C ±1**
JCMAS P045 Duration	**500 hours**

ASTM D6973 · JCMAS P045 · CE 2006/42/EC · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/test-rig-for-hydraulic-fluid

TEST BENCH · RAIL BRAKE SYSTEMS

FIG. 01 · IRABTR

IRABTR

Test Rig for IRAB Brake System

Automated pneumatic validation of all 18 IRAB locomotive brake-valve types, RDSO-compliant.

CLIENT

Indian Railways — Electric Locomotives

18 valve types	2000 LPM	10.5 kg/cm²	24 bit
IRAB coverage	Max air flow	Max supply pressure	DAQ resolution

OVERVIEW

The Neometrix IRAB (Independent and Release Brake) Test Rig is a comprehensive automated pneumatic bench for rigorous validation of the 18 valve types used in electric-locomotive IRAB brake systems. By simulating real-world supply pressures, flow rates and temperature variation, it reproduces both routine service cycles and extreme fault scenarios — validating valve performance from initial actuation through full release.

A modular stainless-steel build, Siemens PLC control and integrated PC software with RDSO-compliant recipes and one-click PDF reporting eliminate manual paperwork and cut workshop throughput time. It serves OEM quality control, depot overhaul, regulatory certification, accelerated life testing and technical training across the locomotive lifecycle.

KEY FEATURES

- Tests all 18 IRAB valve types in a stainless-steel enclosure with digital gauges
- Dual 250 kW compressors — 8–10 kg/cm² at ±0.02 kg/cm² stability, up to 2000 LPM
- 24-bit DAQ at 1 kHz logs pressure curves, leakage and hysteresis to SQL
- Siemens S7-1200 PLC with relief valves, E-stop and watchdog interlocks
- Automatic / manual / calibration modes for QC, overhaul, R&D and training
- ISO 8573-1 Class 1 air prep — 5 µm prefilter + refrigerated dryer

APPLICATIONS

- OEM production QC — inline pneumatic-valve validation before installation
- Depot maintenance and overhaul with audit-ready performance reports
- RDSO / UIC / EN regulatory certification and type-approval
- R&D and accelerated life testing of new valve designs

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pneumatic & Performance

Pneumatic Medium	**Filtered, oil-free compressed air**
Supply Pressure	**8–10 kg/cm² nominal; 10.5 kg/cm² max**
Pressure Stability	**±0.02 kg/cm²**
Flow Capability	**70 CFM (2000 LPM)**
Gauge Accuracy	**±0.5% full scale**
Air Preparation	**ISO 8573-1 Class 1; 5 µm + refrigerated dryer**

System & Environment

DAQ	**24-bit, up to 1 kHz/channel**
Control	**Siemens S7-1200 PLC; Windows 10 + SQL Server**
Ambient Temperature	**0–48 °C**
Power	**230 VAC ±10%, 50 Hz, 5 kVA**
Footprint / Weight	**1.5 × 0.8 × 1.8 m / ~650 kg**
Noise Level	**<75 dB(A) at 1 m**

RDSO-COMPLIANT · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/test-rig-for-IRAB-brake-system

TEST BENCH · AEROSPACE FUEL SYSTEMS

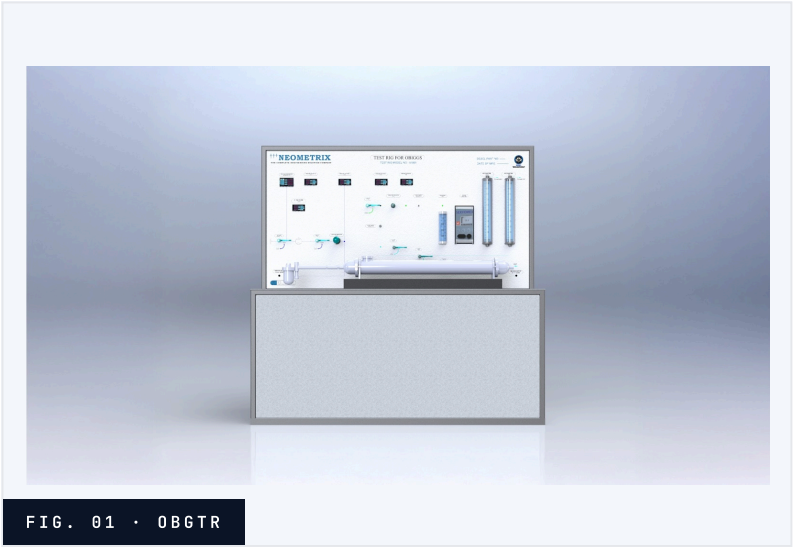

FIG. 01 · OBGTR

OBGTR

Test Rig for OBIGGS (On-Board Inert Gas Generation System)

Ground qualification of aircraft OBIGGS — membrane integrity, inert-gas purity and response.

PLATFORM

Fighter & transport aircraft fuel-tank inerting

8 bar(g)	3500 LPM	±0.02 % O_2	<15 s
Max inlet pressure	Max regulated flow	Purity accuracy	O_2 analyser response

OVERVIEW

This turnkey ground-station platform qualifies On-Board Inert Gas Generating Systems (OBIGGS) for military and transport aircraft by precisely reproducing bleed-air conditions — pressure, temperature, humidity and transient dynamics. It validates membrane integrity, inert-gas purity, response times and leak tightness so systems meet regulatory mandates and prevent catastrophic fuel-tank explosions under combat damage or lightning strike.

Exhaustive test sequences run automatically under PLC/HMI control, capturing high-speed pressure, flow, temperature and gas-composition data and generating certification-ready reports. By displacing ullage oxygen below the combustion threshold (~10–12%), OBIGGS enables safe operation without heavy onboard gas bottles — continuous protection at low life-cycle cost across all flight phases.

KEY FEATURES

- Dual pressure regulation — 0.5–12 bar/3500 LPM and 0.5–7 bar/1600 LPM
- Three mass-flow meters (0–100, 50–500, 94–944 ccm) at ±2% FS
- Servomex MiniMP 5200 paramagnetic O_2 analyser, 0–100%, ±0.02%
- Siemens S7-1200 PLC + 10.1″ HMI; CSV/PDF/XML certification export
- Safety — E-stop, 16 bar over-pressure relief, leak-down alarm
- Portable stainless chassis (1.2 × 0.8 × 1.6 m, ~320 kg), lockable castors

APPLICATIONS

- Fighter aircraft OBIGGS qualification (F-16, Rafale, Eurofighter class)
- Tanker / transport variants (A-330 MRTT, KC-135 class)
- Military helicopters and UAV fuel-tank inerting systems
- Aerospace R&D, certification labs and maintenance depots

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pneumatics & Control

Inlet Supply	8 bar(g) @ 1000 LPM NTP; ISO 8573-1 Class 1.1.1
Isolation Valves	4 × 15 mm bi-stable ball (−0.95 to +30 bar)
Needle Valves	2 × (1–10 bar)
PLC / HMI	Siemens S7-1200 / 10.1″ TFT touchscreen
O_2 Analyser	Servomex MiniMP 5200, 0–100%, <15 s
Flow Meters	3 × mass-flow, ±2% FS

Data & Compliance

Sampling	1–10 Hz; local SSD + USB backup
Export	CSV / PDF / XML, auto certification reports
Electrical	230 VAC ±10%, 50 Hz, 2 kW
EMC	CE — EN 55011, EN 61326
Environmental	+10 to +50 °C (opt. chamber −20 to +60 °C)
Qualification	MIL-STD-810G, SAE AS82137, FAA/EASA fuel-tank rules

MIL-STD-810G · SAE AS82137 · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/test-rig-for-obiggs

TEST BENCH · HYDRAULIC PROOF PRESSURE

FIG. 01 · BHPPTB-1K

BHPPTB-1K

1000 Bar Hydraulic Proof Pressure Test Bench

Static proof-pressure validation of nitrogen bottles to 1000 bar.

1000 bar	100 L	6 LPM	±0.5 %
Max test pressure	SS304 reservoir	Pump flow	Transmitter accuracy

OVERVIEW

The 1000 Bar Hydraulic Proof Pressure Test Bench validates nitrogen bottle integrity under extreme static pressure. A 100-litre SS304 reservoir with Servo 636 oil feeds a Rexroth pump and Haskel air booster to pressurise test chambers up to 1000 bar, confirming structural soundness for aerospace, defence and industrial pressure vessels.

Automatic and manual modes cover diverse test requirements, while an integrated LabVIEW data-acquisition system enables real-time pressure monitoring, automated test execution and report generation. A bulletproof glass chamber, secure locking, pressure venting and emergency shutdown protect the operator throughout the cycle.

KEY FEATURES

- Static proof testing of nitrogen bottles to 1000 bar
- Dual automatic and manual operating modes
- Real-time DAQ with LabVIEW interface and auto reporting
- Bulletproof glass safety chamber with venting and E-stop
- VFD panel for smooth, energy-efficient motor operation
- Solenoid-controlled air-booster automation

APPLICATIONS

- Aerospace component validation under extreme pressure
- Defence nitrogen bottle certification
- Industrial gas storage vessel qualification
- High-pressure equipment structural integrity testing

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Max Test Pressure	**1000 bar**
Tank Capacity	**100 L (SS 304)**
Pump Type	**Gear pump, 4 cc displacement**
Flow Rate	**6 LPM**
Working Fluid	**Servo 636 hydraulic oil**
Pressure Transmitter	**±0.5% accuracy**

Control & Monitoring

Temperature Gauge	**0–90 °C**
Pressure Gauge Dial	**4", 0–1400 kg/cm²**
Motor	**1.5 kW, 3-ph, 440V AC, 1500 RPM, 50 Hz**
Low-Pressure Filter	**20 micron, 10 LPM**
Booster	**Haskel air-driven**
Control	**LabVIEW DAQ, auto + manual**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/1000-bar-hydraulic-proof-pressure-test-bench.php

TEST BENCH · AIRCRAFT FUEL SYSTEMS

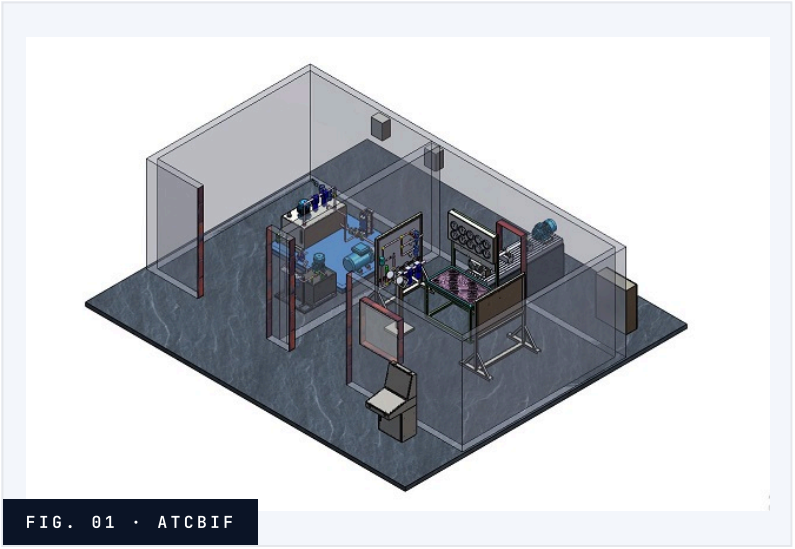

FIG. 01 · ATCBIF

ATCBIF

Advanced Test & Calibration Bench for Integrated Fuel Pump and Controller in Aircraft Engines

Hydraulic, pneumatic and electrical simulation for aircraft fuel-pump/controller calibration.

50 LPM	3 µm	±1 RPM	6200 RPM
Max flow rate	Filtration fineness	Speed accuracy	Max motor speed

OVERVIEW

This precision-engineered facility simulates real-world operating conditions of aircraft fuel systems through integrated hydraulic, pneumatic and electrical subsystems. It enables calibration, verification and preservation of integrated fuel-pump and controller assemblies to aerospace performance standards before installation.

The bench combines high-accuracy fuel delivery at regulated pressures, temperature control via plate heat exchanger, pneumatic simulation of engine bleed-air functions and heated preservation-oil circulation. Multi-stage filtration to 3 µm absolute ensures contamination-free operation, while closed-loop speed control maintains ±1 RPM accuracy across operational ranges.

KEY FEATURES

- Three-stage filtration (16→6→3 µm) with 3.5 bar bypass
- VFD-driven motor with 1:4.32 gearbox up to 6,200 RPM
- Dual gear pumps: 50 LPM at 50 and 10 kgf/cm²
- Plate heat exchanger holding ATF at 15–40°C
- Preservation circuit heated to 70°C ± 2°C
- 27 VDC pulse duty generator (40 Hz) simulating ECU commands

APPLICATIONS

- Pre-installation calibration of fuel-pump and controller units
- Performance verification under simulated operational conditions
- Failure diagnosis and troubleshooting of pump-controller assemblies
- Long-term preservation before installation or shipment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Working Fuel	**Aviation Turbine Fuel (ATF)**
Fuel Tank Capacity	**100 L (SS-300, 3 mm wall)**
High-Pressure Supply	**22 ± 0.2 kgf/cm²**
Low-Pressure Supply	**11 ± 0.2 kgf/cm²**
Drain Back Pressure	**2 ± 0.2 kgf/cm²**
Max Flow Rate	**50 LPM**

Control & Safety

Motor Speed Range	**500–6,200 RPM**
Speed Accuracy	**± 1 RPM (encoder feedback)**
Electrical Supply	**415 VAC ± 10%, 50 Hz, 3-phase**
Oil Preservation Temp	**70°C ± 2°C**
Safety Features	**Flameproof, E-stop, overpressure relief**
Piping	**Seamless SS-300, aerospace-grade fittings**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/advanced-test-&-calibration-bench-for-integrated-fuel-pump-and-controller-in-aircraft-engines.php

TEST BENCH · AEROSPACE

FIG. 01 · ANFTB

ANFTB

Aerospace Nozzle Flow Test Bench

Precision mass-flow and directional validation of aerospace nozzles under thermostatic oil control.

80 L	±0.1 °C	200 kPa	1.5 ton
Fluid reservoir	Temperature accuracy	Operating pressure	Refrigeration capacity

OVERVIEW

The Aerospace Nozzle Flow Test Bench is a high-precision automated system that measures the mass flow rate and directional behaviour of aerospace nozzles and oil jets under tightly controlled temperature and pressure. It replicates real-world operating conditions using Turbonycoil 13 B aviation oil, SS 304 flow lines and an 80-litre reservoir for accurate validation of critical aviation components.

Working fluid is held at 35 °C (±0.1 °C) by a 1.5-ton refrigerated chiller and heater, while pressure stays stable at 200 kPa via an Equilibar low-flow regulator. National Instruments data acquisition logs every test parameter in real time, supporting compliance with AIR 3514 and MIL-L-7808 G standards.

KEY FEATURES

- SS 304 flow lines prevent corrosion and contamination
- Thermostatic oil bath: +5 to +95 °C, ±0.1 °C accuracy
- Equilibar low-pressure, low-flow-rate regulation
- Automated ball valves with spring-return actuators and limit switches
- Real-time logging via National Instruments instrumentation
- High-temperature, pressure-surge and overflow interlocks

APPLICATIONS

- Mass flow rate validation for fuel and engine cooling components
- Directional control verification for hydraulic actuation nozzles
- Quality assurance across aerospace and defence programmes
- Pressure-specific performance simulation for varied scenarios

SPECIFICATIONS

principal parameters · full equipment list in catalogue

System Architecture

Working Fluid	**Turbonycoil 13 B aviation oil**
Flow Line Material	**Stainless steel SS 304**
Reservoir Capacity	**80 L**
Dimensions (H × W × D)	**1800 × 1200 × 2000 mm**
Valve Actuation	**Normally open, single-acting spring return**
Level Switch	**Low-point fluid detection**

Thermal & Pressure Control

Operating Temperature	**35 °C ± 1 °C**
Temperature Range	**+5 to +95 °C**
Cooling Capacity	**1.5 ton refrigerated chiller**
Operating Pressure	**200 kPa ± 10 kPa**
Pressure Regulation	**Equilibar low-pressure, low-flow**
Interlocks	**High-temp, pressure-surge, overflow**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aerospace-nozzle-flow-test-bench.php

TEST BENCH · AEROSPACE FLUID CIRCUITS

FIG. 01 · APLTR

APLTR

Aerospace Pressure and Leak Test Rig

Three-circuit pressure-loss and micro-leak detection rig for aerospace fluid systems.

±0.01 %	90 LPM	70 bar	15 kW
Leak detection accuracy	Max flow capacity	Max output pressure	Primary motor power

OVERVIEW

Neometrix's Pressure Loss and Leak Test Rig is a high-performance system designed to test the integrity and efficiency of fluid circuits under real-world conditions. Purpose-built for aerospace, defence and automotive sectors, it validates component robustness through three specialised circuits handling hydraulic oil, gearbox oil and aviation fuel at pressures up to 70 bar.

The system integrates precision sensors, automated PC-based controls and real-time data logging to detect micro-leaks with exceptional accuracy. Built from high-grade stainless steel with comprehensive safety mechanisms, it ensures compliance with stringent industry standards while enabling efficient, reliable testing of mission-critical components.

KEY FEATURES

- Three independent circuits for hydraulic oil, gearbox oil and aviation fuel
- Maximum flow 90 LPM over a 0-70 bar output pressure range
- Differential pressure transducers detect micro-leaks at ±0.01% accuracy
- PC-based National Instruments automation with graphical data logging
- Auto emergency shutdown on overpressure, high temp or phase failure
- Stainless-steel components for durable high-pressure operation

APPLICATIONS

- Aircraft hydraulic, fuel and cooling system validation
- Heat exchanger compatibility and robustness verification
- Defence platform component maintenance and qualification
- Industrial cooling system efficiency assessment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Power & Flow

Motor Input	**415 V, three-phase**
Hydraulic Circuit	**15 kW motor, 90 LPM, 0-70 bar**
Gearbox Oil Circuit	**5.5 kW motor, 50 LPM, 0-50 bar**
Aviation Fuel Circuit	**3.7 kW motor, 30 LPM, 0-30 bar**
Reservoir	**150 L SS 304 (hydraulic circuit)**
Supply Hose	**6 m, 1/4 in, 150 bar working**

Monitoring & Materials

Pressure Gauges	**0-100 bar analogue, SS 316 Bourdon**
Transducers	**WIKA pressure sensors**
Indicators	**Masibus digital indicators**
Skid Construction	**Mild steel, powder-coated 60-80 micron**
Leak Sensitivity	**±0.01% accuracy**
Control	**PC-based automation, real-time logging**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aerospace-pressure-and-leak-test-rig.php

TEST BENCH · POWER ELECTRONICS

FIG. 01 · AITRLE

AITRLE

Automated Inverter Test Rig on LabVIEW Environment

LabVIEW-driven turnkey bench automating 140+ performance, safety and protection tests.

140+ tests	<1 ms	0–300 VAC	1 MS/s
Automated test library	Transfer-time resolution	AC output range	PXI sample rate

OVERVIEW

The Automated Inverter Test Bench is a LabVIEW-driven turnkey system that automates 140+ performance and safety tests for inverters — DC/AC measurements, efficiency and THD, protection-threshold checks, and transfer-time analysis. A modular state-machine sequencer, PXI high-speed data acquisition and adaptive load control guide operators step-by-step while results stream to an SQL archive.

Role-based access, automated calibration tracking and flexible limit configuration keep results compliant with ISO 17025 and major inverter standards (IEC, UL, IEEE). Live HMI dashboards, PDF/CSV reporting and networked monitoring consolidate manual workflows into a rapid, error-resistant process for QA/QC, R&D, field maintenance and certification.

KEY FEATURES

- LabVIEW state-machine sequencer with auto pass/fail decisions
- PXI / CompactDAQ data acquisition at 1 MS/s for microsecond transients
- Adaptive 4–20 mA load control — no rewiring between no-load and full-load
- Role-based user management with encryption, permissions and audit logs
- ISO 17025 calibration tracking — bench locks tests if calibration expires
- Per-model / per-serial limit editing for rapid test re-deployment

APPLICATIONS

- Production end-of-line inverter QA and acceptance
- R&D characterisation of new inverter and UPS topologies
- Field-maintenance and field-return verification
- Type-test and certification campaigns (IEC / UL / IEEE)

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Electrical

DC Input Voltage	**0–50 V programmable; ±0.01 V via NI PXI-4110**
AC Output	**0–300 VAC, 45–65 Hz; ±0.1% accuracy**
Load Control	**0–100% resistive (PF >0.98), inductive, capacitive**
Current Measurement	**Up to 30 A/channel, isolated Hall-effect**
Efficiency & THD	**IEC 61000-3-2; THD 2–50 kHz**
Protection Tests	**Over/Under V & F, short-circuit, overload trips**

Data & Interfaces

Transfer Time	**<1 ms resolution; UPS-to-mains profile**
Data Logging	**SQL Server backend; up to 1 M samples/s**
Communications	**Ethernet, RS-232, USB; OPC UA compatible**
Software	**LabVIEW 2024 Q3; Windows 10/11; optional web dashboard**
Reporting	**PDF, CSV, XML; auto-email**
Sampling Rate	**Up to 1 MS/s synchronous capture**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/Automated-Inverter-Test-Rig-On-Lab-View-Environment.php

TEST BENCH · CYLINDER & PRESSURE

FIG. 01 · AVETS

AVETS

Automatic Volumetric Expansion Test System

Hydrostatic water-jacket testing that qualifies high-pressure gas cylinders by expansion.

1.5× working	**10 %**	**7+ types**	**Auto DAQ**
Test pressure ratio	Pass/fail expansion limit	Gas cylinders supported	Data acquisition

OVERVIEW

The Automatic Volumetric Expansion Test System is a high-precision hydrostatic testing solution that assesses the structural integrity and safety of high-pressure gas cylinders across automotive, industrial, medical, aerospace and defence sectors. It fills the cylinder with water, pressurises to 1.5× working pressure and measures elastic and permanent expansion to decide usability — cylinders exceeding 10% permanent expansion are scrapped.

Automated data acquisition and a self-lubricating pump deliver consistent, reliable results with minimal maintenance. A fully enclosed, spark-free design protects operators, while the corrosion-resistant stainless-steel frame keeps the footprint compact for industrial test facilities.

KEY FEATURES

- Automated data acquisition minimises measurement error
- Tests CNG, oxygen, hydrogen, nitrogen, CO2, argon and SCBA cylinders
- No heat, flame or spark; fully enclosed operator-safe design
- Self-lubricating pump eliminates external air-line lubrication
- Infinitely variable cycling speed without stop/start effects
- Corrosion-resistant stainless-steel frame, compact footprint

APPLICATIONS

- Gas cylinder testing and certification facilities
- CNG and hydrogen fuel cylinder validation in transportation
- Industrial gas storage and distribution systems
- Aerospace and defence oxygen/nitrogen cylinder compliance

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Testing Parameters

Test Pressure	**1.5× cylinder working pressure**
Pass Criteria	**≤ 10% permanent expansion**
Fail Criteria	**> 10% permanent expansion**
Cylinder Types	**CNG, O2, H2, N2, CO2, Argon, SCBA**
Construction	**Metal and composite cylinders**
Method	**Water-jacket volumetric expansion**

System Design

Frame Material	**Stainless steel**
Pump Type	**Self-lubricating**
Operator Interface	**Automated data acquisition**
Safety Housing	**Fully enclosed**
Flow Control	**Infinitely variable cycling speed**
Maintenance	**No external lubrication needed**

DGAQA-CERTIFIED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/automatic-volumetric-expansion-test-system.php

TEST BENCH · HYDRAULIC PUMP TESTING

FIG. 01 · BMP

BMP

BMP Pump Test Rig

PLC-automated hydraulic pump validation with integrated jib crane handling.

150 L	22 cm³/rev	5.5 kW	12 TR
Reservoir volume	Vane pump displacement	Primary motor	Chiller capacity

OVERVIEW

The BMP Pump Test Rig with Jib Crane is a precision-engineered hydraulic pump testing system for aerospace, defence, railway and industrial applications. It pairs a 5.5 kW main motor and 3.7 kW charging pump with a 150-litre reservoir, 10-micron filtration, adjustable pressure regulation and fully automated PLC control for comprehensive performance evaluation.

Real-time monitoring runs through an HMI touchscreen with SCADA integration, while RTD sensors and a 12 TR chiller hold thermal stability. Automated safety interlocks deliver overpressure and overheat shutdown with alarm tower lights, and an integrated jib crane enables safe handling of heavy components in both local and remote operating modes.

KEY FEATURES

- Dual-motor system — 5.5 kW primary + 3.7 kW charging pump
- 10-micron filtration with clog indicator and adjustable relief valve
- PLC-automated operation with HMI touchscreen and SCADA integration
- RTD temperature sensors with 12 TR chiller thermal regulation
- Integrated jib crane for safe heavy-component handling
- Auto-shutdown on overpressure/overheat with alarm tower lights

APPLICATIONS

- Military aircraft, helicopter and ground-vehicle pump validation
- Railway and construction equipment pump testing
- Prototype evaluation and mass-production quality control
- High-pressure pump testing for refineries and drilling platforms

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Main Reservoir	**150 L**
Collection Tank	**50 L**
Vane Pump Displacement	**22 cm³/rev**
Max Operating Pressure	**17.5 kg/cm²**
Filtration	**10-micron with clog indicator**
Working Media	**Hydraulic oil**

Electrical & Control

Primary Motor	**5.5 kW**
Charging Motor	**3.7 kW**
Heater Capacity	**4.0 kW**
Chiller Capacity	**12 TR**
Control System	**PLC-based with HMI**
Operating Modes	**Local and remote**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/BMP-pump-test-rig.php

TEST BENCH · PNEUMATIC BURN-IN

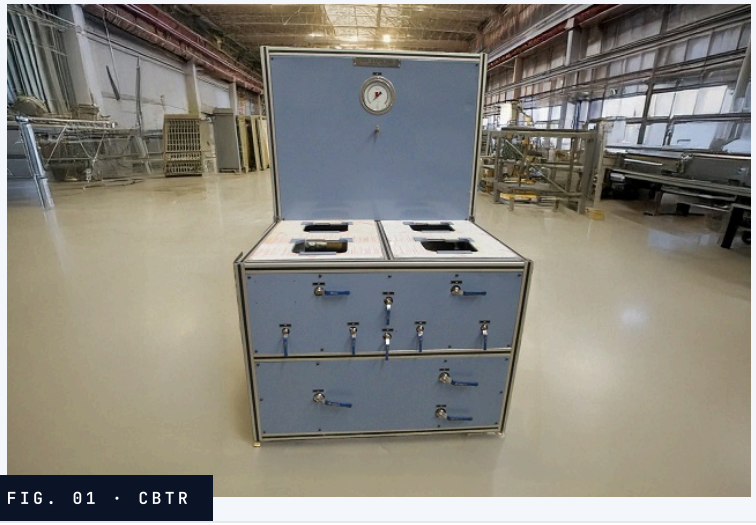

FIG. 01 · CBTR

CBTR

CCB Burn Test Rig

Multi-channel pneumatic burn-in of up to four CCB brake controllers.

4 channels	**0–16** bar	**8** tanks	**±0.25** %
Simultaneous units	Pressure range	SS reservoirs	Gauge accuracy

OVERVIEW

The CCB Burn Test Rig is a fully pneumatic, multi-channel platform that burns in and functionally validates up to four Central Control Block brake controllers under realistic pressure and electrical loads. Precision regulator control, staged air reservoirs, quick-release couplings and an integrated DC supply deliver repeatable stress cycles that surface early-life defects before units enter service.

The turnkey, wheeled system integrates into OEM production lines, Tier-1 supplier QA, maintenance depots, independent labs and R&D environments. By simulating real-world braking cycles it validates controller performance against rail and automotive safety standards across multiple simultaneous test channels.

KEY FEATURES

- Tests up to four CCB brake controllers simultaneously
- Precision 0–16 bar delivery with Class 0.05 dual-scale gauge
- Eight SS reservoirs (2×25 L, 5×13 L) for stable pressure
- BSP quick-release couplings for fast unit changeovers
- Wheeled aluminium frame for easy relocation
- Safety relief valves and ¼" Minimess calibration port

APPLICATIONS

- OEM production-line 100% burn-in and design verification
- Tier-1 supplier batch testing and incoming inspection
- Railway depot in-service health checks and refurbishment
- R&D thermo-pneumatic stress screening

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Control

Filter & Regulator	**1" line, 0–12 bar**
Pressure Gauge	**0–16 kg/cm² / 0–220 PSI, ±0.25%**
Safety Relief Valves	**¼", spring-loaded at 10 bar**
DC Power Supply	**Dual-output 0–120 V, 7 A**
Operation	**Multi-channel, 4 units**
Compliance	**EN 50155, IEC 61373**

Pneumatic Components

Reservoirs	**2×25 L + 5×13 L (tested 16 bar)**
Valves/Cocks	**1½", 1", ½", ¼" at 10 bar**
Hoses	**BSP female swivel, 1½"–¼", 3–4 m**
Couplings	**BSP quick-release 1", 3/8", 1/4"**
Reservoir Rating	**10 bar working, 16 bar tested**
Frame	**Wheeled aluminium**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/ccb-burn-test-rig.php

TEST BENCH · AUTOMOTIVE & ENERGY

FIG. 01 · CRTB

CRTB

CNG Regulator Test Bench

Automated life-cycle and leak validation of CNG regulators to ISO 15500 / FMVSS 303.

50,000 cycles	±0.25 % FS	330 bar	60 cyc/min
Life-cycle protocol	Pressure accuracy	Max boost pressure	Cycle speed

OVERVIEW

The Neometrix CNG Regulator Test Bench is an automated validation system engineered to rigorously evaluate compressed natural gas regulators and associated components throughout their operational lifecycle. It combines precision air-drive technology with a Haskel AG-15/75 pneumatic booster reaching 330 bar, dual independent pressure circuits and PLC-controlled cycling up to 50,000 cycles per ISO 15500-9 and FMVSS 303.

This turnkey solution integrates a high-accuracy digital pressure indicator (±0.25% FS), automated safety interlocks, leak-detection protocols and modular fixture mounting for rapid regulator certification. Built with oxygen-cleaned components assembled in ISO 9001 / AS9100 Class 5 cleanrooms, it delivers traceable test data and seamless integration into OEM production lines, R&D laboratories and regulatory compliance workflows.

KEY FEATURES

- Haskel AG-15/75 booster — 100:1 ratio, up to 330 bar
- Dual independent circuits with auto-shutdown and E-stop
- Digital indicator — tare, peak-hold, max-min, LED pass/fail
- Up to 60 cycles/min under PLC control with data logging
- 5 µm coalescing filter and −40 °C dew-point dryer
- Modular panel-mount design rated to 330 bar

APPLICATIONS

- OEM production and service-centre quality control
- R&D accelerated life-cycle validation of new designs
- FMVSS 303 Category 4 regulatory compliance testing
- CNG fleet operator certification and re-qualification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Air & Fluid System

Drive Air Supply	5 bar min, 50 CFM (5 µm, −40 °C dew point)
Max Boost Pressure	330 bar (4,786 psi)
Booster Model	Haskel AG-15/75 (100 psi in, 15,000 psi out)
Cycle Speed	Up to 60 cycles per minute
Pressure Range	10–330 bar (dual circuits)
Filtration	5 µm coalescing + −40 °C desiccant dryer

Measurement & Control

Indicator Accuracy	±0.25% full-scale
Electrical Supply	220–240 VAC, 50 Hz, single-phase
Cycle Protocol	Up to 50,000 pressurize/depressurize
Data Logging	Automated pressure vs. time capture
Standards	ISO 15500-9:2001, FMVSS 303
Assembly	ISO 9001 / AS9100 Class 5 cleanroom

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/cng-regulator-test-bench.php

TEST BENCH · AVIATION SERVO HYDRAULICS

FIG. 01 · CCUTB

CCUTB

Combined Control Unit Test Bench

Automated servo-hydraulic actuator validation for MI-8 helicopters and fighter aircraft.

80 kg/cm²	10 kW	2000 cc	17 in TFT
Max system pressure	Electric motor	Leakage measurement range	Touch-screen interface

OVERVIEW

The CCU Test Rig is a fully automated platform engineered to validate servo-hydraulic actuator performance for MI-8 helicopters and fighter aircraft. It executes frequency-response analysis, dynamic load simulation and cyclic testing with integrated data acquisition, custom reporting and a 17-inch TFT touch-screen interface for streamlined aerospace validation.

This industrial-grade system supports automatic and manual operation, letting operators customise test sequences with minimal manual intervention. SS 316 stainless tubing, integrated load cells and LVDTs, chilled-water cooling and comprehensive safety monitoring serve aerospace manufacturers, military maintenance teams and defence contractors needing rigorous component validation.

KEY FEATURES

- Accepts and validates KAY-30B and PA-60B servo units
- Up to 80 kg/cm² pressure with fluid temperatures to 80°C
- LabVIEW 8.1 with GPIB, PXI, RS-232 and RS-485 connectivity
- Integrated load cells and LVDTs for force/displacement tracking
- Leakage measurement 0–2000 cc with 30 ±2 kg/cm² N_2 accumulator
- SS 316 tubing with chilled-water cooling for thermal control

APPLICATIONS

- Testing and adjustment of Combined Control Units in MI-8 helicopters
- Acceptance, control and periodic testing of servo-hydraulic units
- Validation of flight-control system components for aerospace
- Dynamic load-condition simulation for hydraulic components

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Working Fluid	Hydraulic Oil AMR-10-GOST.6754-53
Maximum Pressure	80 kg/cm²
Operating Pressure (Functional)	42–73 kg/cm²
Operating Pressure (Check)	60–65 kg/cm²
Fluid Temperature	Up to 80°C
Return Back Pressure	5–7 kg/cm²

Instrumentation & Power

Electric Motor	10 kW, 1460 RPM, 3-phase
Leakage Measurement	0–2000 cc
Accumulator N_2 Pressure	30 ±2 kg/cm²
Contamination Compliance	NAS 1638 (count 12)
Operating Principle	Software-controlled hydro-electro-mechanical
Cooling / Heating	Chilled water / pump relief flow

DGAQA-CERTIFIED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/combined-control-unit-test-bench-manufacturer.php

TEST BENCH · COMPRESSOR & LUBRICANT

FIG. 01 · CTR

CTR

Compressor Test Rig

Closed-loop oil-flooded screw compressor rig for lubricant performance testing.

15 kW	12.5 bar	500 L	4000+ hr
Motor power	Discharge pressure	Oil reservoir	Endurance duration

OVERVIEW

The Compressor Test Rig is a fully integrated platform engineered to evaluate oil-flooded rotary screw compressors under controlled conditions. Driven by a 15 kW motor on a Schneider VFD, it circulates test oils (ISO VG 32–100) through the compressor, separates and cools the fluid, then recirculates it in a closed loop while logging pressure, temperature and flow via a PLC/HMI system.

Safety interlocks prevent operation beyond safe thresholds, shutting down if oil exceeds 130 °C or reservoir pressure exceeds 14 bar. A 500 L reservoir, industrial-grade sensors and an integrated data-acquisition suite ensure consistent monitoring and repeatable cycles for lubricant performance assessment over extended endurance runs.

KEY FEATURES

- Oil-flooded rotary screw compressor (Atlas Copco GA 15 A 13)
- 15 kW motor on Schneider ATV212 VFD; 71 CFM at ≤130 °C
- Five WIKA temperature and four WIKA pressure transmitters
- Siemens S7-1200 PLC with Intel i7 PC and 21″ HMI
- Over-temperature, over-pressure and low-level interlocks
- Oil cooler, air cooler and separator maintain fluid quality

APPLICATIONS

- Oil lubricant performance and oxidation-stability evaluation
- Compressor reliability assessment under sustained load
- Long-duration endurance testing (≥4,000 hours)
- Real-time data logging for forensic post-test analysis

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Core Performance

Compressor Type	**Oil-flooded rotary screw**
Motor Power	**15 kW (20 HP)**
Input Voltage	**415 VAC, 3-phase, 50 Hz, 63 A**
Max Discharge Pressure	**12.5 bar nominal; 14 bar relief**
Max Flow Rate	**71 CFM (~120 m³/h) at 130 °C**
Oil Grades	**ISO VG 32, 46, 68, 100**

Instrumentation & Control

Suction Pressure	**0–2.5 bar absolute**
Discharge Pressure	**0–16 bar gauge (×4)**
Temperature Range	**0–150 °C (×5 sensors)**
Flow Meter	**0–150 LPM turbine, 4–20 mA**
Oil Tank	**500 L, hydro-tested to 15 bar**
Accuracy	**Pressure ±1% FS; Temp ±0.5 °C**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/compressor-test-rig.php

TEST BENCH · RAILWAY BRAKE SYSTEM

FIG. 01 · CBTBPM

CBTBPM

Computerized Based Test Bench For Panel Mounted Brake System For LHB Coaches

PC-automated validation of 18 pneumatic brake valve types for LHB coaches.

18 valve types	2000 LPM	10.5 kg/cm²	Auto + manual
Tested per bench	Air flow capacity	Max pressure rating	Operating modes

OVERVIEW

The Computerized Based Test Bench is an advanced PC-based automated system that evaluates pneumatic brake components for LHB coaches with precision and repeatability. It is designed to test 18 different pneumatic brake valve types — including A9 automatic brake, distributor and relay valves — while integrating computerized control, data acquisition and automatic reporting for compliance with Indian Railways and RDSO standards.

Operating in both automatic and manual modes using compressed air as the test medium, the bench provides real-time pressure monitoring, pre-programmed test sequences and automatic pass/fail evaluation. Integrated PDF report generation delivers seamless documentation for regulatory compliance across railway maintenance workshops and OEM facilities.

KEY FEATURES

- Tests 18 critical valve types — A9 brake, distributor, relay and safety valves
- Graphical user interface for intuitive, automated test execution
- Industrial-grade stainless-steel construction, corrosion resistant
- Automatic pass/fail evaluation reduces operator workload
- Integrated DAQ panel with real-time and historical monitoring
- Dual-mode operation — fully automatic or customised manual testing

APPLICATIONS

- LHB coach brake system validation and certification
- Railway maintenance workshop diagnostic testing
- R&D laboratories for brake component development
- OEM manufacturer compliance and quality assurance

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pneumatic System

Medium	**Compressed air**
Pressure Rating	**10.5 kg/cm²**
Air Supply Range	**8–10 kg/cm²**
Flow Rate	**70 CFM (2,000 LPM)**
Safety Valve Setting	**11.5 kg/cm²**
Valve Types Tested	**18**

Operating & Control

Temperature Range	**Ambient to 48 °C**
Power Supply	**230 V ±10%, 1-phase, 50 Hz**
Automation	**PLC & PC-based**
Control Modes	**Automatic & manual**
Noise Level	**30–80 dB max**
Data System	**Integrated DAQ panel**

DGAQA-CERTIFIED · ISO 9001:2015 · RDSO-COMPLIANT · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/Computerized-based-test-bench-for-panel-mounted-brake-system-for-lhb-coches.php

TEST BENCH · PROPULSION & FUEL

FIG. 01 · CDFIPT

CDFIPT

Computerized Diesel Fuel Injection Pump Test Rig

Microprocessor-controlled calibration of diesel fuel-injection pumps to ±0.5% accuracy.

500 RPM	±0.5 %	10 HP	45 L
Max operating speed	Flow measurement accuracy	Drive motor power	Fuel tank capacity

OVERVIEW

The Computerized Diesel Fuel Injection Pump Test Rig is a high-precision, fully automated testing and calibration system for fuel-injection pumps used in diesel engines across railways, automotive, power generation and defence. It delivers accurate measurement of fuel delivery rates, injection pressure and stroke performance through real-time monitoring and integrated data logging.

The rig combines robust industrial design with advanced automation. A self-lubrication system, dual-stage filtration and microprocessor controls ensure reliable, repeatable, standardised testing that meets international calibration standards while enhancing engine efficiency and component longevity for OEMs, workshops and research laboratories.

KEY FEATURES

- ±0.5% flow accuracy with digital monitoring across test speeds
- 10 HP VFD-controlled drive with 750 mm flywheel
- Dual-stage filtration (3 µm + 10 µm) and 2 kW heater
- Safety interlocks — e-stop, overload, low-oil auto shutdown
- Microprocessor automation with integrated data logging
- ISO 9001, API CF/FS and IS:13656-2002 compliant

APPLICATIONS

- Railway diesel locomotive fuel-pump calibration and maintenance
- Heavy commercial, construction and agricultural equipment testing
- Marine engine and power-generation fuel-system validation
- Research laboratories and OEM development facilities

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Operating Parameters

Working RPM	500
Working Stroke	300
Operating Temperature	43–48°C
Operating Pressure	40 PSI
Drive Motor Power	10 HP
Transfer Pump Motor	0.5 HP

Discharge & Measurement

Max Discharge	401±4 cc/300 strokes (28 mm rack)
Min Discharge	34–45 cc/300 strokes (9 mm rack)
Flow Accuracy	±0.5%
Tank Capacity	45 L stainless steel
Calibration Oil	Diesel or IOCL
Lubrication	Servo Super Multigrade 20W40

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/fuel-injection-pump-test-bench.php

TEST BENCH · HYDRAULIC SNUBBER

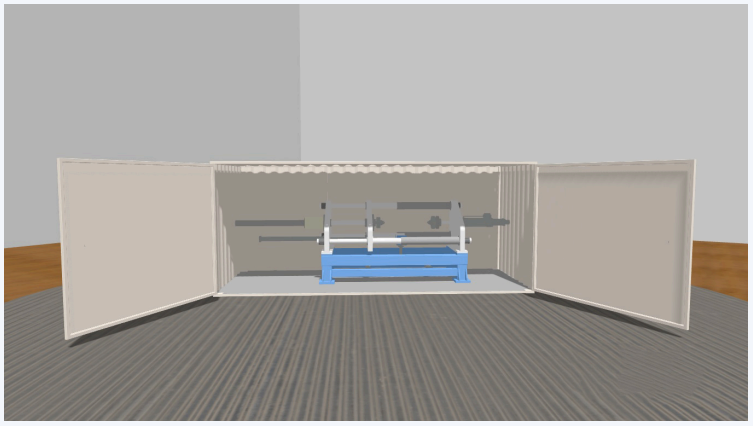

FIG. 01 · CHSTB

CHSTB

Containerised Hydraulic Snubber Test Bench

ISO-container mobile rig for on-site snubber qualification at plant sites.

25 Ton	0.1–15 mm/s	±0.5% FS	20/40 ft
Test load capacity	Velocity range	Force accuracy	Container options

OVERVIEW

The Containerised Hydraulic Snubber Test Bench is a fully self-contained, mobile testing unit built into an ISO shipping container for on-site evaluation of hydraulic snubbers used in nuclear plants, thermal power stations and petrochemical facilities. It eliminates equipment downtime by bringing precision testing directly to plant sites instead of transporting snubbers to remote laboratories.

The system combines a rigid steel test frame, hydraulic power unit and precision instrumentation in a climate-controlled container. Friction-free servo actuators with high-accuracy SSI linear position sensors, LabVIEW-based automatic operation, custom test-profile programming and comprehensive data logging support both mechanical and hydraulic snubbers of any size for regulatory compliance.

KEY FEATURES

- Fully automatic operation powered by LabVIEW software
- Tests both hydraulic and mechanical snubbers of any size
- Friction-free servo actuators with high-accuracy SSI sensors
- Compact, mobile, container-deployable design
- Integrated E-stops and overload protection
- Custom test profiles with comprehensive data logging

APPLICATIONS

- Nuclear power plant snubber verification and maintenance
- Thermal and petrochemical dynamic-load protection testing
- R&D for new snubber design development
- Routine lifecycle testing and qualification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Pressure Range	**0–350 bar (typical)**
Flow Rate	**10–50 L/min**
Reservoir Capacity	**200–500 litres**
Pump Type	**Variable displacement axial piston**
Container	**20 ft / 40 ft ISO, climate-controlled**
Operation	**Fully automatic, LabVIEW-driven**

Test Capabilities

Load Capacity	**Up to 500 kN (optional 1000 kN)**
Stroke Length	**50–1000 mm**
Velocity Control	**0.1–50 mm/s**
Load Accuracy	**±0.5% full scale**
Displacement Resolution	**0.01 mm**
Load Frame Stiffness	**1500 MN/m**

DGAQA-CERTIFIED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/containerized-hydraulic-snubber-test-bench.php

TEST BENCH · HYDRAULIC VALVE

FIG. 01 · CVTRA

CVTRA

Control Valve Test Rig (Automobile)

Electro-hydraulic validation of off-highway hydraulic control valves with automated reporting.

46 LPM	250 bar	3000 kg	±1 LPM
Pump flow capacity	Max pressure rating	Load cell capacity	Flow accuracy

OVERVIEW

The Control Valve Test Rig is an electro-hydraulic system that evaluates hydraulic control valves used in off-highway vehicles, agricultural tractors and construction machinery. It applies controlled pressure and flow to simulate real-world lifting, lowering and clamping, measuring valve response with high precision through integrated data acquisition and automated test sequences.

Because heavy machinery depends on hydraulic valve integrity for safe operation, the rig detects leaks, sluggish actuation, spool misalignment and other performance issues early through rigorous, repeatable testing. National Instruments DAQ with a 21.5" touchscreen drives automated reports and pass/fail logic for OEM, manufacturer and R&D use.

KEY FEATURES

- Tests at 46 LPM / 250 bar on VG-46 oil with 500 L + 300 L reservoirs
- 20 HP ABB VFD main pump, 7.5 HP clamp motor, 12 kW air radiator
- Lifting, speed, leakage, dead-band, spool-reversal and load-hold tests
- Pressure transmitters, flow meter, 3000 kg load cell, 450 mm LVDT
- National Instruments PCI DAQ with 21.5" TFT and pass/fail logic
- Emergency stop, interlocks and transparent acrylic safety shields

APPLICATIONS

- Tractor and equipment OEM end-of-line valve verification
- Valve manufacturer batch testing and design validation
- Repair and service centre post-repair certification
- R&D laboratory prototype evaluation and refinement

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Main Reservoir	**500 L**
Clamping Reservoir	**300 L**
Main Pump	**~46 LPM @ 250 bar**
Clamp/Actuator	**5-10 LPM @ 150 bar**
Filtration	**5, 10, 25 micron with clogging indicators**
Oil Type	**VG-46 or equivalent**

Measurement & Control

Pressure Range	**0-250 bar transmitters**
Flow Meter	**6-60 LPM, ±1 LPM**
Load Cell	**0-3000 kg**
LVDT Displacement	**0-450 mm stroke**
Temperature Sensors	**0-150 C RTD, 4-20 mA**
Power Supply	**3-phase 415 V ±5%, 50 Hz**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/control-valve-test-rig.php

TEST BENCH · VALVE FLOW COEFFICIENT

FIG. 01 · CCVTR

CCVTR

CV and Control Valve Test Rig

Skid-mounted Cv test rig with cascaded VFD pumps for control-valve flow validation.

180 m3/hr	±0.5 %	10,000 L	50-300 mm
Max pump flow	Flow accuracy	Tank volume	Line size range

OVERVIEW

A state-of-the-art hydraulic testing system designed to accurately evaluate the performance of industrial control valves by measuring flow coefficient (Cv) through precise pressure-drop and flow-rate recording. This sophisticated platform serves oil & gas, water treatment, chemical processing and power generation sectors, enabling comprehensive performance validation under realistic operating conditions.

The modular, skid-mounted system integrates three variable-frequency-drive controlled pumps, advanced instrumentation, PLC automation and touchscreen controls to deliver repeatable, reliable test cycles. Its design ensures regulatory compliance with ANSI, ISA and API standards while facilitating rapid deployment and integration into existing test environments.

KEY FEATURES

- Three cascaded pumps (180/90/30 m3/hr) with VFD control
- High-precision flow meters at ±0.5% accuracy
- Differential pressure sensors over 0-10 bar range
- 10,000 L anti-corrosive tank with strainers and level indicators
- Modular SS304 piping with ANSI B16.5 flanged connections
- PLC automation, safety interlocks and touchscreen HMI reporting

APPLICATIONS

- Valve manufacturing quality assurance and production calibration
- Oil & gas pipeline and refinery control valve validation
- Water treatment and municipal system valve assessment
- Chemical processing and power generation flow control verification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Test Fluid Tank	**10,000 L**
Pump 1	**180 m3/hr @ 70 m head, 75 HP (55 kW)**
Pump 2	**90 m3/hr @ 70 m head, 50 HP (37 kW)**
Pump 3	**30 m3/hr @ 70 m head, 25 HP (18.5 kW)**
Line Sizes	**50-300 mm, ANSI B16.5 flanged**
Piping	**Modular SS304**

Instrumentation & Control

Pressure Transmitters	**4-20 mA, 0-10 bar**
Flow Meters	**1.6-180 m3/hr, ±0.5% accuracy**
Temperature Sensors	**Up to 100 C**
Proportional Valve	**65 mm line size**
Data Acquisition	**Real-time HMI, automated reporting**
Compliance	**ANSI / ISA / API**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/cv-and-control-valve-test-rig.php

TEST BENCH · HYDRAULIC

FIG. 01 · DHTS

DHTS

Dual Hydraulic Test System

Dual digital/manual rig for flow, cycling, pressure and flushing tests.

5000 PSI	3 L	5 micron	≤75 dB(A)
Oxygen booster pressure	Measuring jar capacity	Filtration rating	Noise level

OVERVIEW

The Dual Hydraulic Test System is a high-precision hydraulic testing rig designed for flow, cycling, pressure and flushing tests across aerospace, defence, automotive and industrial sectors. It integrates manual and digital measurement with real-time data acquisition, a robust hydraulic power pack, three integrated rotameters and advanced safety mechanisms for reliable component validation.

The modular system combines stainless-steel construction with 5-micron high-pressure filtration and dielectric strength testing (500 VDC / 30 sec). Strategic power-pack placement keeps noise to 75 dB(A), while USB and Ethernet connectivity enable remote monitoring and automated data logging for comprehensive analysis.

KEY FEATURES

- Dual measurement: digital and manual testing modes
- Three integrated rotameters for real-time flow visualisation
- 5-micron high-pressure filtration for contaminant-free operation
- Integrated pressure relief valves and temperature sensors
- Dielectric and insulation resistance testing
- Modular design with USB/Ethernet data logging

APPLICATIONS

- Aerospace & defence: landing gear actuators, servo valves
- Automotive: braking systems, power steering, shock absorbers
- Heavy machinery: hydraulic pumps, motors, regulators
- Medical equipment: hydraulic-assisted beds and lifting systems

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Measurement Capabilities

Measuring Jar	0–3 L, 25 ml resolution
Dial Indicator	±0.5 to ±100 mm, 1 micron least count
Stopwatch	0–10 min, 1 ms resolution
Insulation Tester	510 VDC up to 999 MΩ
Dielectric Test	500 VDC for 30 sec
Control System	PLC-based with HMI

System Performance

Filtration	5-micron high-pressure filter
Oxygen Booster	Up to 5000 PSI (345 bar)
Operating Temperature	5 °C to 43 °C
Noise Level	≤ 75 dB(A)
Connectivity	USB / Ethernet
Compliance	ISO 9001/14001/45001, MIL-STD

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/dual-hydraulic-test-system.php

TEST BENCH · HYDRAULIC

FIG. 01 · DPHTR

DPHTR

Dual Power Hydraulic Test Rig

Redundant dual-pump rig for aerospace hydraulic component testing to 350 bar.

350 bar	80 LPM	<2 sec	±0.25 %
Max pressure	Continuous flow	Failover time	Pressure accuracy

OVERVIEW

The Neometrix Dual Power Hydraulic Test Rig is a turnkey solution that validates the performance and integrity of aerospace and defence hydraulic components. Two independent systems — a 60 HP axial-piston main pump and a 15 kW gear-pump standby — deliver up to 350 bar at 80 LPM with sub-2-second failover for uninterrupted proof, burst, impulse and endurance testing.

A 400 L SS-304 reservoir with 30,000 kcal/h chiller and 4 kW PID heater conditions fluid across a 10–48 °C range, while six-stage filtration holds ISO-grade cleanliness. An Omron PLC with touchscreen HMI, dual WIKA transducers and turbine flow meters enable automated sequences, data logging and rapid fault detection for certification compliance.

KEY FEATURES

- Dual redundancy: Parker PV Plus pump + standby gear pump
- 30,000 kcal/h chiller and 4 kW PID heater (10–48 °C)
- Six-stage filtration, 149 µm suction to 3 µm fine
- Dual WIKA digital transducers (±0.25%) + turbine flow meters
- Four-zone E-stop and pilot-operated relief valves
- APLAB 0–35 V / 0–10 A auxiliary DC supply

APPLICATIONS

- Proof and burst pressure testing
- Impulse and endurance cycling under thermal stress
- Static and dynamic leakage measurement
- Proportional valve characterisation and curve generation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Power & Flow

Main Pump	**Parker PV Plus, 63 cc/rev, 80 LPM @ 350 bar**
Main Motor	**60 HP (45 kW), 1470 RPM, 415 VAC, TEFC**
Standby Motor	**15 kW TEFC, auto engagement**
Safe Pressure Limit	**450 bar**
Reservoir	**400 L SS-304 with anti-cavitation baffle**
Footprint	**4.5 × 2.5 × 2.0 m, ~70 kW**

Thermal & Control

Chiller	**30,000 kcal/h, 10–48 °C range**
Heater	**4 kW immersion, PID ±0.1 °C**
Relief Valves	**300 bar main / 200 bar standby**
Pressure Sensors	**WIKA 0–413 bar ±0.25% + Bourdon 0–600 bar**
Flow Meters	**Dual turbine 3.6–36 / 13.3–133 LPM, ±1%**
Controller	**Omron PLC, HMI, USB/Ethernet logging**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/dual-power-hydraulic-test-rig.php

TEST BENCH · RAILWAY & LOCOMOTIVE

FIG. 01 · BETR

BETR

E-70 Brake Equipment Test Rig

Automated hydraulic and pneumatic validation of locomotive E-70 brake equipment.

1,060 kg/cm²	1,000+ samp/s	80 dB(A)	2-yr + 15-yr
Max hydraulic pressure	DAQ rate	Noise @ 1 m	Warranty / spares

OVERVIEW

The E-70 Brake Equipment Test Rig is a fully automated, turnkey solution engineered to evaluate locomotive brake components under precise hydraulic (to 1,060 kg/cm²) and pneumatic (to 10 kg/cm², ≤5 °C dew-point) conditions. It integrates PLC-driven test sequences, high-speed data acquisition, modular manifolds and NIST-traceable gauges to perform functional, leakage, endurance and dynamic-response tests with real-time analytics.

Safety features include power-loss clamp locking, mushroom-head emergency stops and IEC-compliant interlocks, while ergonomic touchscreen HMI control and quick-change fixtures enable rapid setup. The system meets COFMOW / Indian Railways standards and supports R&D, production quality control, depot maintenance and operator training, delivering reliable, repeatable results for global certification requirements.

KEY FEATURES

- Automated leakage, functional, endurance and dynamic tests
- Hydraulic to 1,060 kg/cm²; <5 °C dew-point twin-tower dryers
- 22 analog + 2 digital NIST/NABL-traceable gauges
- Power-loss auto-locking clamps and IEC 60204-1 interlocks
- Ergonomic multi-language HMI with quick-change fixtures
- Auto pass/fail reports with graphical trend plots

APPLICATIONS

- New product development and R&D benchmarking
- Production quality control with automated acceptance
- Depot maintenance and post-repair leak verification
- Training and certification of maintenance engineers

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic & Pneumatic Systems

Hydraulic Pressure	0–1,060 kg/cm², ±0.5% regulation
Hydraulic Flow	Up to 50 L/min, multi-zone control
Pneumatic Pressure	0–10 kg/cm², dew point ≤5 °C
Reservoir Capacity	Pneumatic 240 L & 450 L; Hydraulic 200 L
Motor Drives	VFD-controlled, up to 5 kW
Operating Range	5 °C to 40 °C, indoor industrial

Control & Measurement

DAQ System	≥1,000 samp/s, 24-bit, 16+ channels
Control Interface	Siemens / Allen-Bradley PLC, 15″ HMI
Power Supply	415 V ±10%, 3-phase, stabilized
Noise Level	80 dB(A) @ 1 m (ISO 3746)
Safety Standards	IEC 60204-1, IS 325/1248/375/6875
Compliance	COFMOW / Indian Railways; AAR, UIC, EN

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/e-70-brake-equipment-test-rig.php

TEST BENCH · AEROSPACE ENVIRONMENTAL

FIG. 01 · ECS

ECS

Environmental Control System (ECS) Test Bench – Model A0624

Ground simulation of bleed, ram and conditioned air for aircraft ECS qualification.

600 °F	1500 CFM	3 Bar	±0.01 mm
Max air temperature	Max flow rate	Max operating pressure	Flange tolerance

OVERVIEW

The Environmental Control System Test Bench – Model A0624 is a fully customizable ground testing platform that simulates and validates ECS unit performance across military and civilian aerospace platforms. It handles bleed air up to 600°F (315°C) and 40 psi while exercising turbine, fan, ram air, bleed air and conditioned-air interfaces under controlled, repeatable flight conditions.

Built with SS-304 electro-polished pressure paths, modular quick-release fixtures and a trolley-mounted base, it integrates with NI LabVIEW, SCADA and PLC HMI for automated testing and data acquisition. The modular design spans rotary-wing, fixed-wing fighter, transport and UAV platforms — making it ideal for R&D labs, MRO facilities and aircraft system qualification.

KEY FEATURES

- Simulates bleed air up to 600°F plus ram-air inlet testing
- Modular quick-release fixtures on trolley-mounted base
- SS-304 electro-polished construction for leak-free performance
- Real-time DAQ via NI LabVIEW, SCADA and PLC HMI
- Manifold integrity, pressure dump valve and conditioned-air validation
- ISO 9001/14001/45001 compliant with E-stops and lockout/tagout

APPLICATIONS

- ECS qualification for rotary- and fixed-wing military aircraft
- Civilian aviation ECS validation for Airbus and Boeing platforms
- R&D prototype testing in aerospace laboratories
- MRO facility component-level diagnostics and validation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

System Configuration

System Type	**Modular ECS test bench, multi-point simulation**
Test Interfaces	**Turbine, fan, bleed air, ram air, conditioned air**
Max Air Temperature	**600°F (315°C)**
Max Operating Pressure	**3 Bar (43.5 psi) standard**
Flow Rate Range	**5–1500 CFM (customizable)**
Construction	**SS-304 pressure paths; MS powder-coat structures**

Controls & Infrastructure

Instrumentation	**Pressure, flow, temperature, humidity sensors**
Data Acquisition	**NI DAQ / LabVIEW / SCADA / PLC HMI**
Control Panel	**Analog + digital mimic; optional PLC automation**
Electrical Supply	**230V AC / 415V 3-phase, 50 Hz**
Mounting	**Custom modular fixtures, quick-release brackets**
Safety	**E-stops, relief valves, lockout/tagout, interlocks**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/ECS-test-bench.php

TEST BENCH · PROPULSION & FUEL

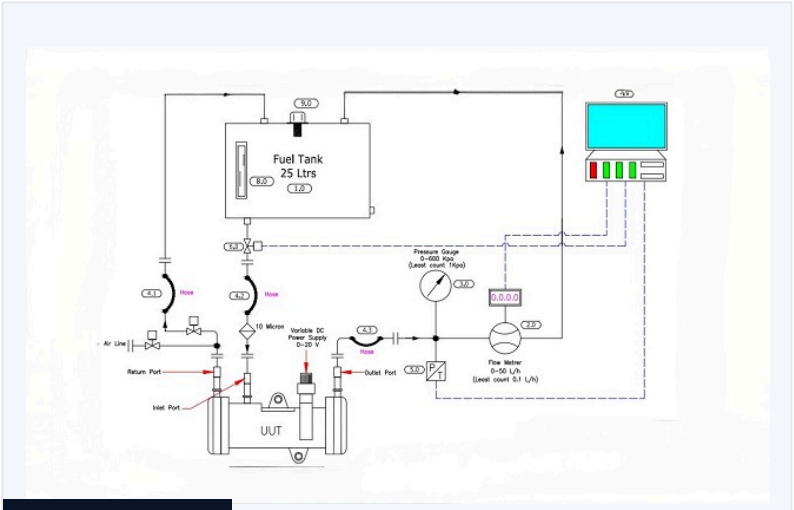

FIG. 01 · FPTR

FPTR

Fuel Pump Test Rig

PLC-driven closed-loop rig for cold-start to high-temperature pump validation.

0–250 L/min	0–350 bar	140 °C span	1 kHz/ch
Flow range	Pressure range	Thermal range	Sampling rate

OVERVIEW

The Neometrix Fuel Pump Test Rig is a fully integrated, PLC-controlled platform designed to execute comprehensive performance and endurance tests on rotary, reciprocating and diaphragm fuel pumps. An industrial PC with LabVIEW automation orchestrates dynamic load simulation, thermal cycling and safety interlocks, enabling unattended validation from −20 °C cold-start to +120 °C endurance.

Its closed-loop flow architecture (0–250 L/min at 350 bar) paired with PID-managed thermal control and 32 channels sampled at 1 kHz delivers repeatable, high-precision pump characterisation. Certification-grade data logging produces traceable records compliant with aerospace, automotive and industrial standards, while modular valve and sensor integration permits rapid changeovers.

KEY FEATURES

- Siemens S7-1500 PLC with preloaded pump-test recipes
- 16-bit DAQ, live waveform display, SQL/NAS export
- SS 316L wetted paths, ±0.2% flow repeatability
- Five-way solenoid manifold; optional ultrasonic/vibration sensors
- Enclosed chamber, CE/UL-listed components
- Extended endurance runs up to 100 hours with auto-filtration

APPLICATIONS

- Automotive R&D and production pump validation
- Aerospace & defence — MIL-STD-810G / DO-160G testing
- Industrial machinery fuel-injection unit validation
- QC and calibration labs — batch testing to ISO 9001

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Control & Processing

Control Platform	**Intel i7 PC, 16 GB RAM, LabVIEW 2021 SP1**
PLC & I/O	**Siemens S7-1500 + ET 200SP**
I/O Channels	**64 DI/DO, 32 AI/AO**
Data Logging	**Up to 1 kHz per channel, SQL**
User Interface	**21″ touchscreen HMI, multilingual**
Compliance	**MIL-STD-810G, DO-160G, AS9102**

Fluid & Thermal

Flow Range	**0–250 L/min, ±0.2% accuracy**
Pressure Range	**0–350 bar (optional 0–400 bar)**
Temperature Control	**−20 to +120 °C, ±0.5 °C**
Materials	**SS 316L tubing, Viton seals**
Valving	**Five 24 VDC solenoids, 3 needle valves**
Footprint	**1.8 × 0.9 × 1.5 m (L×W×H)**

DGAQA-CERTIFIED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/fuel-pump-test-rig.php

TEST BENCH · AUTOMOTIVE SAFETY

FIG. 01 · HITR

HITR

Head Impact Test Rig

Servo-hydraulic headrest impact simulation up to 250 km/hr for occupant-protection validation.

250 km/hr	6.8 kg	1 MHz	1500×1500 mm
Max impact velocity	Head form mass	DAQ sampling rate	Test platform

OVERVIEW

The Head Impact Test Rig is an electro-hydraulic testing system that simulates vehicle seat headrest collisions using a 6.8 kg hemispherical aluminium head form propelled at adjustable velocities up to 250 km/hr. It measures impact force, seat deflection and energy absorption through high-precision instrumentation, enabling manufacturers to validate occupant protection and ensure compliance with automotive safety standards.

The system features servo-hydraulic actuation, real-time data acquisition at up to 1 MHz with 16-bit resolution, and proprietary software that generates editable compliance reports. Its modular design accommodates testing scenarios from urban collisions to highway impacts, making it essential for R&D, quality control and regulatory certification.

KEY FEATURES

- Simulates impacts at velocities up to 250 km/hr
- Precision-guided head form — guide rod parallelism under 8 microns
- Accelerometers, LVDTs, fiber-optic velocity and laser alignment sensors
- 1500 × 1500 mm rigid steel platform with 3000 kg scissor lift
- Touchscreen software with auto pre-test checks and Word reports
- Integrated safety enclosure with e-stop and steel rope restraint

APPLICATIONS

- Steering and dashboard safety evaluation
- Seat cushioning and deflection performance assessment
- Helmet compliance validation
- Front and rear occupant protection testing

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Mechanical

Head Form Mass	**6.8 kg**
Head Shape	**Hemispherical, 165 mm dia**
Impact Velocity	**Adjustable up to 250 km/hr**
Seat Platform	**1500 × 1500 mm**
Guide Rod Parallelism	**< 8 microns**
Scissor Lift Capacity	**3000 kg**

Instrumentation & Control

Data Acquisition	**Up to 1 MHz, 16-bit, dual USB 2.0**
Sensor Array	**Accelerometer, LVDT, fiber-optic, laser**
Hydraulic Reservoir	**80 L, ISO VG68 oil**
Max System Pressure	**250 kg/cm²**
Filtration	**10-micron return, 149-micron suction**
Compliance	**AIS, ECE, Euro NCAP**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/head-impact-test-rig.php

TEST BENCH · MARINE PIPE PRESSURE

FIG. 01 · HPATS

HPATS

High Pressure Air Test System

Dual-mode hydraulic-and-pneumatic pipe pressure test rig for submarine and naval piping.

600 bar	400 bar	0.25 % FS	10 min
Max hydraulic pressure	Max pneumatic pressure	Transmitter accuracy	Final hold duration

OVERVIEW

The Marine Pipe Pressure Test System is a dual-mode testing platform engineered to validate structural integrity and leak-proof performance of pipes and fittings for submarines, naval vessels and marine infrastructure. Engineered for both hydraulic testing up to 600 bar and pneumatic testing up to 400 bar, the system supports automatic PC-based operation and manual modes with programmable sequences and real-time monitoring.

This precision rig ensures reliable performance under static and dynamic pressure conditions, featuring deionised water for hydraulic circuits and clean, dry compressed air for pneumatic validation. Nitrogen purging removes moisture and contaminants, while redundant monitoring and safety interlocks protect operators throughout the test cycle.

KEY FEATURES

- Dual-mode hydraulic (50-600 bar) and pneumatic (20-400 bar) testing
- Haskel USA pneumatic pumps with 8-10 bar drive air
- Three configurable pneumatic programs with custom stages and holds
- Electrically interlocked gate, 410 bar relief and emergency vent valves
- High-accuracy WIKA gauges and S-20 transmitters (0.25% FS)
- Live CCTV chamber monitoring with redundant pressure verification

APPLICATIONS

- Submarine and naval vessel piping assembly qualification
- Offshore energy system component validation
- Deep-sea infrastructure pressure endurance testing
- Marine fitting and connector integrity verification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Flow

Hydraulic Pressure Range	**50-600 bar**
Pneumatic Pressure Range	**20-400 bar**
Hydraulic Flow Rate	**~40 CFM**
Pneumatic Flow Rate	**~80 CFM**
Relief Valve Threshold	**410 bar (hydraulic & pneumatic)**
Cylinder Bank Maximum	**400 bar**

Operating & Safety

Ambient Temperature	**25-45 C**
Nitrogen Purge Pressure	**150 bar**
Operating Modes	**Automatic (PC-based DAS) + manual**
Transmitters	**WIKA S-20, 0.25% FS**
Final Hold	**10 min (standard protocols)**
Safety	**Gate interlock, relief valves, e-stops**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/high-pressure-air-test-system.php

TEST BENCH · HIGH-PRESSURE PNEUMATIC

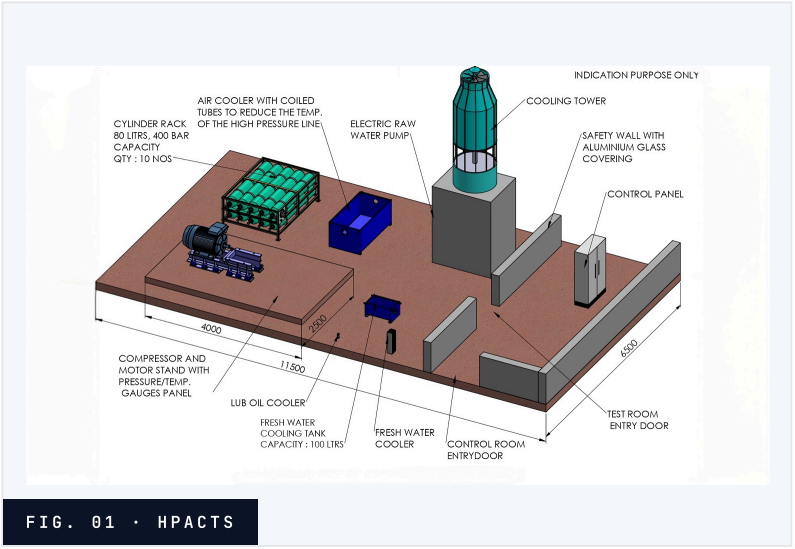

FIG. 01 · HPACTS

HPACTS

High-Pressure Air Compressor Test Stand

400-bar qualification platform for naval, aerospace and industrial multi-stage reciprocating compressors.

400 bar	90 kW	1500 RPM	2 × 258 L
Max test pressure	Motor rating	Motor speed	400-bar storage

OVERVIEW

The High-Pressure Air Compressor Test Stand is a fully engineered qualification platform for multi-stage reciprocating compressors operating up to 400 bar. It simulates real-world operating conditions — full-load pressure build-up, interstage thermal behaviour, lubrication response and cooling performance — so naval, aerospace and industrial maintenance teams can certify compressors with complete confidence.

A 90 kW VFD-controlled drive, two-stage cooling architecture, 400-bar bottle bank and a PLC-HMI automation layer manage every parameter, alarm and safety interlock. SS316 high-pressure piping, automated shutdown logic and a reinforced safety enclosure ensure reliable operation through sustained full-load testing.

KEY FEATURES

- Sustained 400-bar full-load qualification with 415-bar relief protection
- VFD-controlled 90 kW drive with PLC-based automation and HMI
- Two-stage cooling — closed-loop fresh water + raw-water tower
- Stage-wise pressure / temperature instrumentation for interstage diagnostics
- SS316 seamless high-pressure piping for corrosion-resistant durability
- Reinforced safety enclosure with ESD, automated trips and overpressure protection

APPLICATIONS

- Naval / dockyard compressor qualification and overhaul
- Aerospace ground-support compressor validation
- Industrial service-centre acceptance testing
- Type-test and endurance campaigns for compressor OEMs

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Drive & Pressure

Supported Models	**Burckhardt-class S5W217L, S4W209L and equivalents**
Max Test Pressure	**400 bar sustained, 415-bar protection valve**
Motor Rating	**90 kW, 415 V, 3-phase, 50 Hz**
Motor Speed	**1500 RPM (4-pole)**
Motor Type	**TEFC squirrel-cage, IP55, Class-H**
Drive & Control	**VFD with PLC automation and HMI**

Cooling & Storage

Fresh-Water Cooling	**Closed loop ~100 L/min, shell-and-tube cooler**
Raw-Water Cooling	**Spray-header tower, ~150 000 kcal/hr removal**
Lube-Oil Cooling	**Plate-type cooler, 60–90 °C range**
Storage Bottles	**2 × 258 L (expandable), 400-bar rated**
HP Piping	**SS316 seamless, NPT-threaded fittings**
Safety	**Automated trips, ESD, overpressure protection, enclosure**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/high-pressure-air-compressor-test-stand.php

TEST BENCH · HOSE & TUBE

FIG. 01 · HTB

HTB

Hose Test Bench

2500-bar air-driven bench for leak, elongation and burst testing of hydraulic hoses.

2500 bar	36,250 PSI	3 modes	150–200 psi
Max test pressure	Equivalent pressure	Leak / elongation / burst	Prefill quick-fill

OVERVIEW

The Hose Test Bench is a high-pressure industrial system engineered to validate hydraulic-hose performance under extreme operating conditions. An air-driven Haskel pump generates pressures up to 2500 bar (36,250 PSI) while the bench performs leak detection, elongation measurement and burst testing with automated data logging — ensuring components meet stringent safety and durability standards across aerospace, defence, automotive and industrial use.

Ultra-high-pressure capability is combined with comprehensive test modes and precision measurement. Real-time graphical monitoring, a bulletproof safety enclosure and automated reporting remove manual intervention while guaranteeing repeatability and regulatory compliance for critical hydraulic systems.

KEY FEATURES

- Air-actuated Haskel pump — up to 2500 bar (36,250 PSI)
- Leak, elongation and burst testing with real-time graphs
- Fully automated cycles for consistent, repeatable results
- Digital touchscreen — live monitoring, data logging, pressure reports
- Bulletproof chamber, relief valves, auto shut-off, emergency stop
- High-precision laser elongation measurement

APPLICATIONS

- Hydraulic machinery, construction equipment, oil & gas pipelines
- Automotive heavy trucks, cranes, mining and transport systems
- Aerospace hydraulic-system reliability validation
- Defence vehicles, aircraft and naval ship hydraulics

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure System

Maximum Pressure	**2500 bar (36,250 PSI)**
Pump Type	**Air-actuated Haskel high-pressure pump**
Prefill Pump	**Electric, 220 V AC 1Ph 50 Hz**
Prefill Discharge	**150–200 psi**
Prefill Source	**1" OD water tap, gravity feed**
Relief Valve	**Manually adjustable, auto-venting**

Testing & Control

Test Modes	**Leak, elongation, burst**
Control	**Digital touchscreen interface**
Measurement	**Large dial gauges + automated logging**
Elongation	**High-precision laser system**
Test Chamber	**Bulletproof glass enclosure**
Reporting	**Automated pressure reports**

ISO 9001:2015 MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hose-test-bench

TEST BENCH · HYDRAULIC

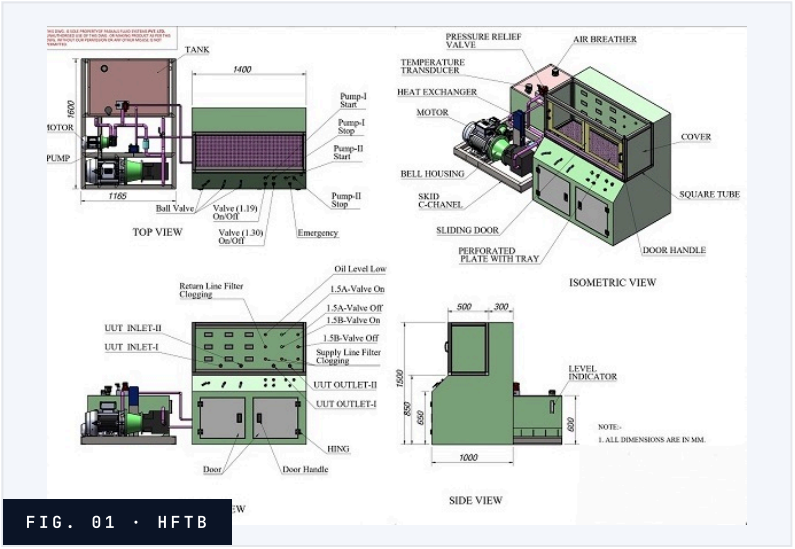

FIG. 01 · HFTB

HFTB

Hydraulic Filter Test Bench

Aerospace ground-support rig for hydraulic filter qualification to NAS Class 4.

35 bar	150 LPM	±0.25 %	NAS 4 class
Max test pressure	Max flow rate	Pressure accuracy	Fluid cleanliness

OVERVIEW

The Neometrix Hydraulic Filter Test Bench is a precision aerospace ground-support system engineered to validate aircraft hydraulic filter performance under real-world operating conditions. It simulates variable pressures up to 35 bar, flow rates from 5 to 150 LPM and temperature extremes, ensuring filters deliver the cleanliness, durability and leak-proof performance required for mission-critical aviation systems.

Modern aircraft depend on hydraulic filters to maintain contamination-free fluid for landing gear, wing flaps, brakes and weapon systems. This bench verifies that every filter meets strict aerospace safety criteria before entering service, eliminating risks of jammed actuators, clogged valves or blocked landing-gear deployment.

KEY FEATURES

- Evaluates filters at up to 35 bar and 150 LPM under flight profiles
- Multi-pass filtration verifies NAS Class 4 cleanliness
- Digital gauges — ±0.25% pressure, ±1% flow, real-time
- Plate heat exchanger holds oil at 25 ± 10 °C at peak
- Auto-shutdown on low oil, overload, clogging, overpressure
- SS304 reservoir and stainless piping eliminate contamination

APPLICATIONS

- Acceptance testing of new filters before release to service
- Routine validation of in-service filters during maintenance
- R&D for prototype filter certification
- Aerospace OEM and MRO compliance with international standards

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Tank Capacity	**>200 L (SS304 stainless steel)**
Flow Capacity	**5–150 LPM at 35 bar max**
Pressure Range	**0.3–35 bar (adjustable relief)**
Operating Temperature	**Oil up to 60 °C**
Temperature Maintained	**25 ± 10 °C**
Piping	**Stainless steel**

Instrumentation & Control

Pressure	**0–50 bar, ±0.25%, 0.01 bar res.**
Flow	**5–150 LPM, ±1%, digital display**
Temperature	**0–135 °C, ±1%, 3 points**
Clogging Detection	**Electrical indicators, all banks**
Cleanliness Target	**NAS Class 4**
Safety	**Auto-shutdown interlocks**

DGAQA-CERTIFIED | ISO 9001:2015 | NAS CLASS 4 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-filter-test-bench.php

TEST BENCH · HYDRAULIC FLUSHING

FIG. 01 · HFR

HFR

Hydraulic Flushing Rig

High-turbulence flushing to NAS 6 cleanliness for hydraulic pipelines.

600 L	140 LPM	350 bar	NAS 6 class
SS-304 reservoir	Max flow rate	Max pressure	Cleanliness

OVERVIEW

The Hydraulic Flushing Rig by Neometrix Defence Limited eliminates contaminants from hydraulic pipelines and systems through high-turbulence flow and continuous multi-stage filtration. Engineered for defence, aerospace and industrial use, it achieves stringent NAS 6 and ISO cleanliness while maintaining optimal fluid temperature and system reliability.

This robust, skid-mounted solution pairs dual pumping systems with integrated cooling and comprehensive monitoring. DRO displays and an electrical panel track pressure, flow, temperature and oil level in real time, ensuring contamination-free circuits before commissioning while reducing downtime and extending equipment life.

KEY FEATURES

- Multi-stage filtration (10/6/3 micron) with clogging indicators
- Dual-pump system: 140 LPM at reduced pressure, 35 LPM at 350 bar
- 600 L SS-304 reservoir with level and temperature monitoring
- Air-cooled system holds oil below 60 °C (21.5 kW capacity)
- DRO displays for pressure, flow, temperature and level
- Safety interlocks, E-stop and automatic shutdown protocols

APPLICATIONS

- Pipeline cleaning post-installation or maintenance
- Industrial and heavy machinery hydraulic system servicing
- Aerospace and defence contamination control
- Power plant turbine and cooling-circuit servicing

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Dimensions & Capacity

Reservoir Volume	**600 L (SS-304)**
Dimensions	**1500 × 1100 × 1400 mm**
Weight	**1100 kg**
Handling	**Skid-mounted, forklift slots, lifting hooks**
Cleanliness Achieved	**NAS 6**
Operating Temperature	**≤ 60 °C**

Performance & Power

Max Working Pressure	**350 bar (kgf/cm²)**
Primary Pump	**71 cc/rev variable displacement**
Flow Capacity	**140 LPM reduced / 35 LPM max**
Booster Pump	**200 LPM at 10 bar (fixed)**
Motor Power	**30 kW main + 5.5 kW booster, 3-ph**
Cooling	**2 HP motor, 21.5 kW capacity**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-flushing-rig.php

TEST BENCH · HYDRAULIC

FIG. 01 · HHTPTS

HHTPTS

Hydraulic Hose/Tube Proof Test Stand

Heavy-duty static proof testing of hose and tube assemblies to 690 bar.

690 bar	5 L/min	50 L	850 kg
Max test pressure	Electric pump flow	SS tank capacity	Unit weight (empty)

OVERVIEW

The Hydraulic Hose/Tube Proof Test Stand is a heavy-duty, floor-mounted rig designed for static pressure testing up to 690 bar (10,000 psi). Combining an electric Rexroth gear pump and an air-driven Haskel pump, multistage filtration and a plate-type heat exchanger, it delivers precise, repeatable testing with an enclosed polycarbonate-windowed hood, interlocked limit switch and emergency-stop for full operator protection.

Engineered for durability in demanding environments, the unit features a 50 L SS-304 tank, digital and analog instrumentation and a corrosion-resistant powder-coated steel cabinet on vibration-dampening feet. The modular design accommodates optional PLC integration and customization, making it ideal for aerospace MRO, heavy-equipment certification, industrial fluid power and R&D / training applications.

KEY FEATURES

- Dual pressurization — electric to 800 bar, air-driven backup
- Triple-stage filtration (10/6/3 µm) with plate heat exchanger
- Digital and analog gauges plus programmable timer
- Polycarbonate hood with auto pressure-venting on open
- 50 L SS tank with sight glass and 5 L oil-collecting tray
- Vibration-dampening feet; EN 61010-1 / ISO 13849 compliant

APPLICATIONS

- Aerospace MRO — rotary, fixed-wing and GSE hose certification
- Mobile / heavy equipment — excavators, cranes, mining vehicles
- Industrial fluid power — hose and fitting assembly QC
- R&D and operator training at technical institutes

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Fluid

Max Test Pressure	**690 bar (10,000 psi)**
Electric Pump Range	**0–800 bar, 5 L/min**
Air-Driven Pump Range	**0–1,500 psi (~103 bar)**
Tank Capacity	**50 L stainless steel (SS 304)**
Filtration	**10, 6, 3 µm inline cartridges**
Heat Exchanger	**1 kW plate-type, 20–40 °C**

Instrumentation & Physical

Pressure Transmitter	**Wika S10, 0–1,000 bar, 4–20 mA**
Analog Gauges	**Bourdon 0–800 bar, pneumatic 0–16 bar**
Timer	**1 s–99 h 59 m digital, front-panel**
Motor & Power	**3 HP, 1,420 RPM, 3-ph 415 VAC; 2 kVA**
Dimensions (W×D×H)	**3,000 × 1,000 × 1,500 mm**
Safety Standards	**EN 61010-1, ISO 13849 compliant**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-hose-proof-test-stand.php

TEST BENCH · HYDRAULIC

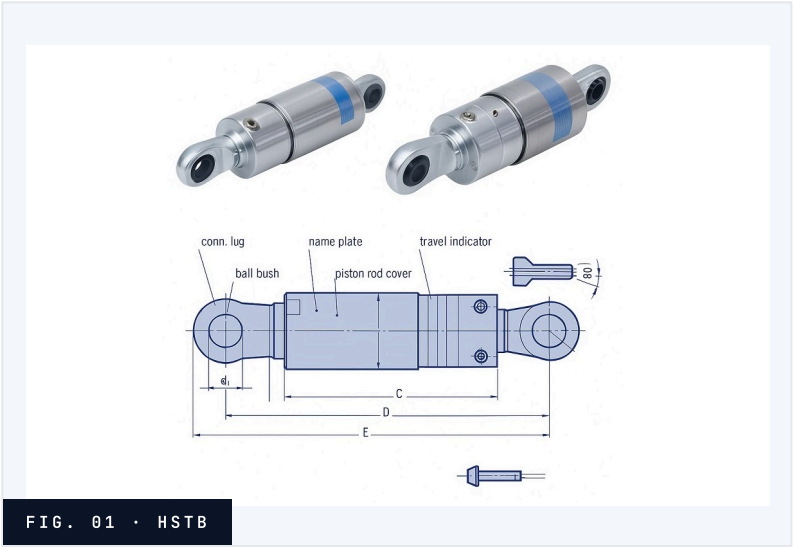

FIG. 01 · HSTB

HSTB

Hydraulic Snubber Test Bench

ASME BPVC Sec XI snubber qualification with servo load and motion simulation.

25 tons	±0.5 %	0.01 mm	1500 MN/m
Max test load	Force accuracy	Displacement resolution	Frame stiffness

OVERVIEW

The Hydraulic Snubber Test Bench by Neometrix Defence Limited is a state-of-the-art solution for performance testing of hydraulic and mechanical snubbers used in critical infrastructure such as nuclear power plants and sodium piping systems. Engineered to comply with ASME BPVC Section XI, it ensures snubbers maintain operational reliability through their service life via precise load testing, velocity and acceleration simulation, and detailed measurement of stroke, drag force and activation levels.

The bench accommodates snubbers from 15 NB to 800 NB, load capacities between 17.5 kN and 240 kN, and stroke lengths from 140 mm to 245 mm. Advanced LabVIEW software paired with NI/PLC hardware enables fully automated testing with user-friendly configuration, delivering reliable, traceable and high-fidelity results across industrial and aerospace applications.

KEY FEATURES

- Fully automatic operation via LabVIEW with interactive UI
- Tests both hydraulic and mechanical snubbers, all sizes
- Highly rigid load frame; positive hydraulic clamp locked without pressure
- Friction-free servo actuators with high-accuracy SSI position sensors
- Free operability, drag force, sensitivity and drift-speed measurement
- Automatic plots and test reports with acceptance criteria

APPLICATIONS

- Nuclear power plant seismic protection and reactor safeguarding
- Sodium piping system stability and reliability verification
- Critical infrastructure support under seismic and operational stress
- Routine maintenance and life-cycle snubber testing

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Performance Capacity

Test Load Capacity	**25 tons**
Velocity Range	**0.1 to 15 mm/sec**
Acceleration Capacity	**250 mm/sec²**
Servo Actuator Capacity	**Up to 50 tons**
Snubber Size Range	**15 NB to 800 NB**
Load Range	**17.5 kN to 240 kN**

System Architecture

Load Frame Stiffness	**1500 MN/m**
Moveable Beam Adjustment	**1200 mm**
Stroke Length	**50 to 300 mm configurable**
Hydraulic Power Pack	**Up to 300 bar**
Control System	**LabVIEW with NI/PLC hardware**
Compliance	**ASME BPVC Section XI**

DGAQA-CERTIFIED | ISO 9001:2015 | ASME BPVC SEC XI | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-snubber-test-bench.php

TEST BENCH · HYDRAULIC SUSPENSION

FIG. 01 · HSUTBM

HSUTBM

Hydraulic Suspension Unit Test Bench

Servo-hydraulic static and dynamic validation of hydro-pneumatic suspension units.

250 bar	16 tons	1,000 litres	15 KW
Max hydraulic pressure	Static/dynamic load	Reservoir volume	AC motor power

OVERVIEW

The Hydraulic Suspension Unit (HSU) Test Bench is a cutting-edge, fully automated system designed to test and verify the strength, durability and performance of hydro-pneumatic suspension units. It applies both dynamic and static forces to simulate real-world conditions, ensuring suspension units maintain structural integrity and shock absorption under extreme loads — essential for defence, heavy-machinery and automotive industries.

The platform combines a servo-controlled actuator with high-pressure hydraulics and real-time data acquisition to measure load, pressure and travel. LVDT sensors and a 20-ton load cell feed LabVIEW software that plots Load vs. Wheel Travel and Pressure vs. Wheel Travel, while automated safety systems enforce pressure, temperature and fault-shutdown limits for consistent, repeatable, operator-safe results.

KEY FEATURES

- Servo-hydraulic actuator: up to 16-ton load at 15–20 mm/s
- Parker PV Plus pump to 250 bar with 1000 L oil reservoir
- Dual-stage 3 / 6 micron filtration with air-cooled system
- LVDT sensors and 20-ton load cell for precise measurement
- LabVIEW DAQ plotting Load and Pressure vs. Wheel Travel
- Automated 110-bar / 50°C limits with fault shutdown

APPLICATIONS

- Military vehicle suspension validation for rough terrain
- Heavy-duty construction machinery suspension testing
- Automotive high-performance suspension validation
- Defence platform suspension durability assessment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Tank Capacity	**1,000 litres**
Maximum Pressure	**250 bar**
Pump Type	**Parker PV Plus axial piston**
Pressure Relief	**300 bar setting**
Accumulator	**300 bar capacity**
Filtration	**3 and 6 micron stages**

Actuator & Loading

Max Static Load	**16 tons**
Max Dynamic Load	**16 tons**
Actuator Stroke (static)	**375 mm**
Actuator Stroke (dynamic)	**0–300 mm**
Actuator Speed	**15–20 mm/s, servo-controlled**
Load Cell Capacity	**20 tons**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-suspension-unit-test-bench-manufacturer.php

TEST BENCH · HYDRAULIC SUB-ASSEMBLY

FIG. 01 · HTRRCS

HTRRCS

Hydraulic Test Rig Of Rear Cover Sub Assembly

Model A1110 dual-power-pack rig for tractor rear-cover structural and hydraulic validation.

210 bar	500 L	2.3-2.6 sec	20 HP
Max pressure	Main tank capacity	Actuator response	ABB VFD motor

OVERVIEW

The Model A1110 is an advanced hydraulic testing platform engineered to validate the structural integrity, performance and reliability of tractor rear cover assemblies. It combines automated and manual testing modes with precision hydraulic control at adjustable pressure and flow and sophisticated instrumentation for real-time measurement of displacement, temperature and pressure.

The system serves automotive manufacturing, aerospace, defence and heavy machinery sectors requiring rigorous quality assurance. An integrated 500-litre main power pack and 300-litre loading pack deliver repeatable, safe test cycles with touchscreen HMI control and comprehensive safety interlocks.

KEY FEATURES

- Dual hydraulic power packs with 10-micron filtration and magnetic cleaning
- LVDT displacement, RTD temperature (0-150 C), Wika pressure transmitters
- Rexroth 4/3 DC valves with 200-bar swing clamps (22.6 / 13.9 kN)
- Touchscreen interface with selectable automatic and manual modes
- Emergency stops, protective interlocks and overload protection
- ABB VFD motor enabling precise pressure and flow control

APPLICATIONS

- Rear-cover assembly testing for tractors, trucks and commercial vehicles
- Aerospace and defence hydraulic component validation
- Heavy industrial equipment sub-assembly integrity verification
- Research and development of new component designs

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Main Reservoir	500 L, ELF 2731 brake oil
Loading Reservoir	300 L, VG 46 hydraulic oil
Operating Pressure	Up to 210 bar
Flow Rate Control	5-24 L/min
Motor	15 kW / 20 HP ABB with VFD
Filtration	10-micron return, 50/149-micron strainers

Instrumentation & Actuation

Displacement	LVDT, real-time linear
Temperature	RTD, 0-150 C
Pressure Transmitters	Up to 300 bar
Actuators	Double-acting hydraulic
Swing Clamps	22.6 kN and 13.9 kN
Lift Arm Response	2.3-2.6 seconds

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-test-rig-of-rear-cover-sub-assembly.php

TEST BENCH · ENDURANCE & FATIGUE

FIG. 01 · ILTR

ILTR

Impulse and Load Test Rig

Combined pressure-impulse and dynamic-shear endurance rig delivering qualification-grade fatigue evidence.

20 bar	1000 lb	~330k cycles	100 bar/s
Max test pressure	Max dynamic-shear load	Endurance program	Pressure rise rate

OVERVIEW

The Impulse and Load Test Rig reproduces real-world failure modes by combining repeatable pressure-impulse waveforms with controlled dynamic-shear loading — independently or together — while continuously logging cycle snapshots and long-run stability trends. Beyond simple pass/fail validation, it delivers qualification-grade evidence of waveform stability, early-drift detection, and the precise onset of degradation under combined pressure and mechanical stress.

Hydraulic and fluid-power components rarely fail from reaching pressure once; they fail after hundreds of thousands of stress cycles amplified by routing forces, vibration and micro-movement. The rig recreates that reality through controlled endurance testing — tracking peak/base pressure, rise time and load-channel peaks to expose progressive leakage, fatigue cracking and seal deterioration before catastrophic failure.

KEY FEATURES

- Dual-domain loading — pressure impulse and dynamic shear, independent or combined
- Closed-loop waveform repeatability with automatic correction
- Traceable evidence — cycle snapshots + long-run peak/base/rise-time trends
- Alternating dual load channels (Joint A/B) reveal asymmetric weakness
- Flexible programs — impulse, pressurized shear, and combined-stress endurance
- 25 mm acrylic safety chambers with emergency stops and structured operation

APPLICATIONS

- Hose-assembly and coupling endurance qualification
- Pipe-fitting, connector and manifold fatigue testing
- Valve-body and filter progressive-leakage / seal-integrity validation
- Aerospace and defence pressure-assembly regulatory qualification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Load

Max Test Pressure	**Up to 20 bar**
Max Impulse Pressure	**Up to 16 bar**
Max Proof Pressure	**Up to 20 bar**
Max External Load	**Up to 1000 lb (dynamic shear)**
Pressure Rise Rate	**Up to 100 bar/sec**
Load Rise Rate	**Up to 2300 lb/sec**

Control & System

Test Types	**Impulse, dynamic-shear, combined endurance**
Data Output	**Cycle snapshots + trend graphs**
Control	**Closed-loop with automatic waveform correction**
Endurance Duty	**Designed for lakhs of cycles**
Chamber	**25 mm acrylic test enclosure**
Utilities	**3-phase + single-phase (per configuration)**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/impulse-and-load-test-rig

TEST BENCH · HYDRAULIC & MECHANICAL SNUBBER

FIG. 01 · SHSTB

SHSTB

In Situ Hydraulic Snubber Test Bench

ASME BPVC Section XI snubber qualification up to 25 tons for nuclear and sodium systems.

25 tons	0.01 mm	1500 MN/m	17.5-240 KN
Max test load	Displacement resolution	Load frame stiffness	Snubber load range

OVERVIEW

Neometrix Defence Limited's In Situ Hydraulic Snubber Test Bench is engineered for performance evaluation of hydraulic and mechanical snubbers in critical infrastructure including nuclear power plants and sodium piping systems. Compliant with ASME BPVC Section XI, it delivers precise load testing up to 25 tons together with velocity and acceleration simulation and comprehensive measurement capability.

The system enables in-service inspections that keep snubbers reliable throughout their service life. Capabilities include stroke measurement, drag force assessment, activation level verification and drift-speed analysis, accommodating snubber sizes from 15 NB to 800 NB with load capacities between 17.5 KN and 240 KN under fully automatic LabVIEW control.

KEY FEATURES

- Fully automatic operation powered by LabVIEW software
- Tests both hydraulic and mechanical snubber types
- Friction-free servo actuators with SSI linear position sensors
- Accommodates all snubber sizes within facility specifications
- Compact, user-friendly design with integrated data acquisition
- Positive hydraulic clamp locking — no pressure required for security

APPLICATIONS

- Nuclear power plant reactor and piping system protection
- Sodium piping system dynamic load mitigation
- Critical infrastructure seismic force reduction
- Routine maintenance and life-cycle performance verification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Load & Force

Test Load Capacity	**25 tons maximum**
Load Frame Stiffness	**1500 MN/m**
Servo Actuator Capacity	**Up to 50 tons**
Hydraulic Power Pack	**Up to 300 bar**
Force Accuracy	**±0.5%**
Snubber Range	**15 NB to 800 NB**

Motion & Control

Velocity Range	**0.1 - 15 mm/sec**
Acceleration	**250 mm/sec²**
Stroke Length	**50 - 300 mm configurable**
Moveable Beam	**Up to 1200 mm**
Software Platform	**LabVIEW with NI/PLC**
Displacement Resolution	**0.01 mm**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/In-Situ-hydraulic-snubber-test-bench.php

TEST BENCH · AEROSPACE

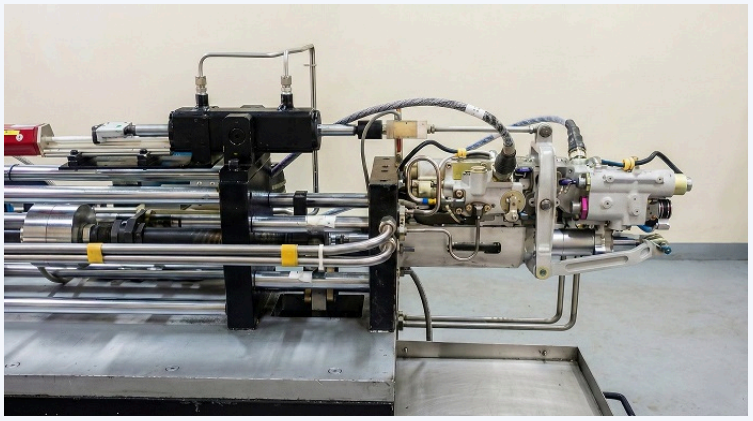

FIG. 01 · MRATR

MRATR

Main Rotor Actuator Test Rig

Hydraulic and electromechanical validation of rotor actuators for combat helicopters.

3000 psi	500 mm	±1 %	500 VA
Hydraulic pressure range	Displacement span	Pressure sensor accuracy	UPS backup

OVERVIEW

The Main Rotor Actuator (MRA) Test Rig is an advanced hydraulic and electromechanical testing system designed for evaluating, calibrating and validating the performance of rotor actuators in combat helicopters and rotorcraft. It delivers proof pressure testing, leakage detection, load-speed analysis and frequency response evaluation to ensure precise flight control functionality.

Built with PC-based automation and real-time data acquisition, the system integrates calibrated instrumentation and aviation-grade materials. It meets stringent military and aerospace compliance standards including ISO 9001, MIL-STD-810G, DGAQA and CEMILAC, making it essential for military aviation, R&D and MRO operations.

KEY FEATURES

- Tests MRA/TRA for LCH, Apache, Mi-17, ALH and Chinook
- Proof pressure, leakage, load-speed, drift-speed, stall-load tests
- PC-based control with automated sequences and graphical analysis
- LVDT displacement sensor 0–500 mm; 0–3000 psi pressure sensor
- Closed-loop and open-loop modes with pilot-input and frequency response
- 500 VA UPS backup, 15-inch TFT display and printer

APPLICATIONS

- Military combat helicopter actuator validation and maintenance
- Commercial helicopter rotor system testing and certification
- Aircraft development and actuator prototype validation
- MRO facility actuator reliability assessment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Electrical System

Input Voltage	230 V ±10%, single-phase, 50 Hz
Regulated Output	0–32 V DC, 10 A
Relay Configuration	27 V, 2 NO / 2 NC contacts
UPS Capacity	500 VA backup
Voltmeter Accuracy	±0.1% (0–50 VDC, 4½ digit)
Milliammeter Range	0–1000 mA DC, ±0.1%

Hydraulic & Instrumentation

Pressure Range	0–3000 psi (adjustable)
Displacement Sensor	0–500 mm, LVDT-based
Pressure Sensor Accuracy	±1% full scale
Fluid Type	Aviation-grade hydraulic oil (MIL-PRF-83282)
Display	15-inch TFT monitor
Test Modes	Closed-loop and open-loop

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/main-rotor-actuator-test-rig.php

TEST BENCH · ELECTRO-HYDRAULIC ACTUATOR

FIG. 01 · MLR

MLR

Manual Loading Rig

Electro-hydraulic bench for multi-channel aircraft actuator validation.

45 LPM	250 mm	30,000 kgf	25–40 °C
Pump delivery	Displacement range	Load cell rating	Fluid temperature

OVERVIEW

The Manual Loading Rig is a precision electro-hydraulic test bench for validating multi-channel aircraft actuators under controlled load. A 60-litre SS-304 reservoir, 25 HP axial-piston pump delivering 45 L/min at 250 kgf/cm² and triple-stage filtration to NAS Class 4 cleanliness combine with load cells, LVDT sensors and a PC-based LabVIEW interface for real-time monitoring and automated reporting.

Built-in interlocks protect against low oil level, filter clogging, over-temperature and phase failure, while an Alfa Laval water-cooled heat exchanger holds fluid between 25–40 °C. The rig suits aerospace, defence and R&D applications requiring repeatable actuator validation across force, displacement, speed and sealing parameters.

KEY FEATURES

- 25 HP pump, 45 L/min at up to 280 kgf/cm²
- Triple-stage filtration with automatic clog detection
- Honeywell 30,000 kgf load cell and Ceresco 250 mm LVDTs
- Alfa Laval water-cooled heat exchanger, NAS Class 4
- NI DAQ LabVIEW interface with login access and HTML logging
- Auto shutdowns for overload, low oil, clog and phase fault

APPLICATIONS

- Performance testing of multi-channel aircraft actuators
- Verification of force output, displacement and stroke
- Speed control and leak testing of actuator output links
- Defence, aerospace and R&D actuator validation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Working Fluid	**AMG-10 or AMG-10B**
Tank Volume	**60 L (SS-304)**
Cleanliness Level	**NAS Class 4 or better**
Pressure Range	**10–250 kgf/cm²; max 280**
Pump Capacity	**≥45 LPM @ 250 kgf/cm²**
Cooling	**Chilled water, 30 LPM @ 20 °C**

Measurement & Control

Load Cell	**Up to 30,000 kgf**
Displacement Range	**250 mm (0.01% accuracy)**
Speed Measurement	**Up to 380 mm/sec**
Power Supply	**3-ph, 415V AC, 50 Hz**
Cylinder Types	**Constant load and position load**
Control	**PC-based NI DAQ, LabVIEW**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/manual-loading-rig.php

TEST BENCH · HYDRAULIC

FIG. 01 · MHFR

MHFR

Mobile Hydraulic Flushing Rig

Skid-mounted turbulent-flow flushing to NAS 1638 Class 6 cleanliness.

600 L	140 LPM	3 µm	2,100 kg
Reservoir capacity	Max flow rate	Finest filtration	Filled weight

OVERVIEW

The Mobile Hydraulic Flushing Rig is a sophisticated, skid-mounted system designed to flush and decontaminate hydraulic pipelines, actuators and power units using controlled turbulent flow and multi-stage filtration. This transportable solution achieves NAS 1638 Class 6 cleanliness, protecting mission-critical hydraulic systems across aerospace, defence, manufacturing and mobile-equipment sectors.

A variable-displacement piston pump generates turbulent flow (Re > 3000) while progressive filtration stages down to 3 µm capture contaminants, and an air-cooled heat exchanger maintains optimal fluid viscosity. Engineered for on-site servicing with real-time monitoring and safety interlocks, the rig delivers repeatable, certifiable flushing results with full process documentation.

KEY FEATURES

- 30 kW variable-displacement pump — 35–140 LPM to 350 bar
- Multi-stage filtration — 10→6→3 µm, 3 µm line, 10 µm return
- 21.5 kW air-cooled heat exchanger keeps outlet below 60 °C
- 600 L SS reservoir with level switches and booster pump
- Digital flow, pressure and temperature instrumentation
- E-stop, low-level, over-temp and filter-clog protection

APPLICATIONS

- Aerospace and defence flight-control and servo-valve lines
- Industrial presses, injection-moulding machines, rolling mills
- Rail and metro brake, suspension and traction actuators
- On-site servicing of excavators, cranes and backhoes

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic & Filtration

Reservoir Capacity	**600 L (SS-304, baffled)**
Booster Pump	**200 LPM @ 10 bar, 5.5 kW**
Main Pump	**Variable displacement, 35–140 LPM, 30 kW**
Filtration Stages	**10→6→3 µm; 3 µm pressure; 10 µm return**
Heat Exchanger	**21.5 kW air-cooled, outlet <60 °C**
Max Pressure	**Up to 350 bar**

Instrumentation & Control

Flow Meter	**0–140 LPM digital (4–20 mA, opt RS-485/USB)**
Temperature	**RTD / thermocouple with 4–20 mA transmitter**
Pressure	**0–400 bar transmitters (booster/supply/return)**
Electrical	**3-phase 415 V AC, 50 Hz, IP55 panel**
Cleanliness Target	**NAS 1638 Class 6**
Filled Weight	**2,100 kg, forklift-compatible skid**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/mobile-hydraulic-flushing-rig.php

TEST BENCH · HYDRAULIC & FUEL CIRCUIT

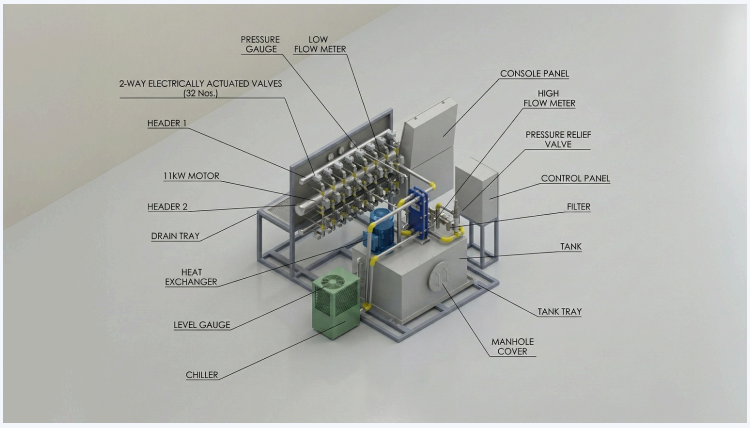

FIG. 01 · MPFDTB

MPFDTB

Multi-Port Flow Divider Test Bench

16-port flow distribution validation under controlled fuel-circuit conditions.

16 ports	~250 L/min	800 L	Auto + manual
DUT capacity	Nominal flow	Reservoir class	Operating modes

OVERVIEW

The Multi-Port Flow Divider Test Bench is a purpose-built diesel / fuel-circuit validation system engineered to precisely characterize and qualify 16-port flow dividers under controlled, repeatable conditions. By combining a stable recirculating fuel loop with temperature conditioning, multi-stage filtration, adjustable back-pressure loading and dual-range flow measurement, it eliminates port-to-port distribution uncertainty.

Automated port-by-port switching, HMI / SCADA-based operation and structured data logging with pass/fail capability make it ideal for R&D, production inspection and high-reliability applications where small distribution errors cause performance drift or premature wear.

KEY FEATURES

- 16-outlet-port sequential distribution mapping — the core diagnostic capability
- Selected port routed to Test Header; all others recirculate via Return Header
- Automatic and manual operation modes under HMI / SCADA control
- Dual-range flow measurement for low-flow and rated-flow accuracy
- Stainless-steel reservoir with chiller / heat-exchanger temperature conditioning
- Real-time monitoring + structured data logging with pass/fail logic

APPLICATIONS

- R&D characterisation of new flow-divider designs
- Production end-of-line inspection and qualification
- Field-failure root-cause investigation and rework verification
- Lifecycle / endurance testing for high-reliability programmes

SPECIFICATIONS

principal parameters · full equipment list in catalogue

System

System Type	**Multi-port flow divider test bench (diesel / fuel)**
DUT Capacity	**16 outlet ports**
Operating Modes	**Auto sequencing + manual**
Footprint (L × W × H)	**~2600 × 1200 × 1800 mm**
Working Fluid	**Diesel / fuel media**
Reservoir	**800 L class, stainless steel**

Hydraulic & Control

Pump	**Positive-displacement gear type**
Nominal Flow	**~250 L/min class**
Motor	**Flameproof, fuel-handling rated**
Temperature Control	**Chiller / heat-exchanger loop**
Filtration	**Multi-stage with clogging indication**
Sensing	**Pressure + temperature transmitters, level switch**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/multi-port-flow-divider-test-bench.php

TEST BENCH · ALTITUDE / VACUUM

FIG. 01 · PTRV

PTRV

Pneumatic Test Rig (Vacuum)

Dual-chamber altitude simulation to 60,000 ft for aerospace valve testing.

72 mBar	20 kg/min	60,000 ft	0.55 m³
Min absolute pressure	Max flow capacity	Max altitude simulation	Chamber volume

OVERVIEW

The Vacuum Test Rig is a precision-engineered platform that replicates atmospheric pressures corresponding to altitudes up to 60,000 feet for evaluating aerospace valves and components. Built with dual SS304 chambers (~0.55 m³ each), it enables leakage detection, pressure-response verification and real-time flow analysis under altitude-simulated conditions.

The system delivers adjustable flow control from 0.3–20 kg/min and achieves 72 mBar absolute pressure using a 30 HP VFD-controlled vacuum pump. High-precision instrumentation from WIKA, Bronkhorst and Siemens, combined with pressure relief, interlocks and optional SCADA automation, makes it essential for aerospace OEMs, MROs and test laboratories.

KEY FEATURES

- Simulates sea level to 60,000 ft altitude envelope
- Dual independent chambers for differential pressure testing
- Flow capacity 0.3–20 kg/min for low-leak and high-throughput modes
- Pressure relief, interlocks and emergency shutdown
- Optional SCADA with HMI/PLC control, logging and audit trails
- Complies with ANSI B16.5, ANSI/FCI Class IV, ISO 9001/14001/45001

APPLICATIONS

- Cabin pressure regulators, ECS and safety relief valve testing
- Micro-leak detection under altitude-induced differentials
- Endurance and cyclic testing for OEM qualification
- Flow and pressure characterization for compliance validation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Chambers & Vacuum System

Altitude Range	**0–60,000 ft (0–18.2 km)**
Chamber Volume	**0.55 ± 0.1 m³ each (dual)**
Vacuum Tank	**1 ± 0.2 m³**
Absolute Pressure	**72 mBar**
Vacuum Pump	**30 HP, 3-phase squirrel cage**
Pump Control	**VFD for altitude profiling**

Instrumentation & Support

Pressure Transmitters	**0–4 Bar abs, 0–16 Bar gauge**
Differential Sensors	**Up to 500 mBar**
Flow Metering	**Digital mass flow, real-time**
Flow Valves	**Electro-pneumatic modulating**
Compressed Air	**12 kg/cm² clean dry**
Cooling Water	**45 LPM continuous**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/pneumatic-test-rig.php

TEST BENCH · DRIVELINE & TRANSMISSION

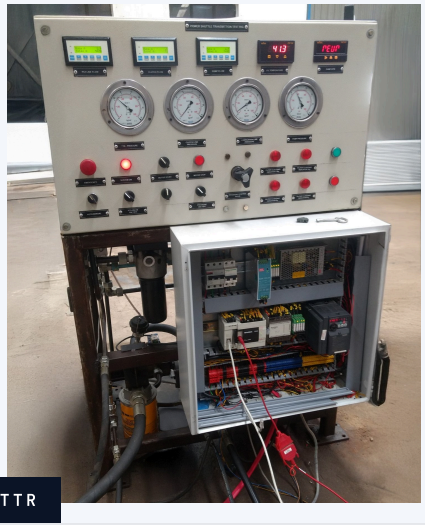

FIG. 01 · PSTTR

PSTTR

Power Shuttle Transmission Test Rig (ARJUN NOVO)

Automated end-of-line PST validation with triple-channel monitoring.

±0.5% FS	1 kHz	30 L/min	100 bar
Pressure accuracy	A/D sampling rate	Max pump flow	Max system pressure

OVERVIEW

The ARJUN NOVO is a fully automated, end-of-line validation system that accurately simulates real-world hydraulic conditions — forward, neutral and reverse — to verify Power Shuttle Transmission unit performance, response speed and leakage. High-precision VFD control, triple-channel monitoring and built-in fault injection capture dynamic modulation data and compare results against reference profiles to ensure OEM tolerance compliance.

Designed for production lines, service centres, R&D labs and training environments, the system combines a Windows-based HMI with SQL-backed software for real-time graphing, barcode traceability and multi-format reporting. Its robust safety architecture meets ISO 13849-1 Cat 3 while supporting seamless SCADA integration via an OPC UA interface.

KEY FEATURES

- 3.7 kW VFD adjusts pump speed in 0.1 Hz increments
- Triple-channel monitoring with ±0.5% transducers
- Automated fault injection for low-pressure, overtemp, shift-fail
- Barcode traceability with SQL-backed database archiving
- OPC UA SCADA integration for fleet-level analytics
- ISO 13849-1 Cat 3 safety with dual E-stops and interlocks

APPLICATIONS

- OEM production lines for standardized PST tolerance validation
- After-sales service centres diagnosing repaired PSTs
- R&D endurance and accelerated-aging protocols
- Technical training on pressure-flow behaviour and faults

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Gear Pump Displacement	**22.5 cc/rev**
Maximum Flow	**30 L/min**
Maximum Pressure	**100 bar**
Motor Supply	**3-phase, 415 VAC, 50 Hz**
Footprint	**2 m L × 1.5 m W × 2.5 m H**
Total Mass	**500 kg**

Instrumentation & Software

Pressure Transducers	**±0.5% full-scale**
Flow Meters	**±1% accuracy**
Data Sampling	**1 kHz dynamic profiling**
PLC Scan Time	**16 ms**
Software	**Windows 10/11, SQL Server 2019, .NET 5**
Interface	**OPC UA for SCADA connectivity**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/power-shuttle-transmission-test-rig.php

TEST BENCH · PRESSURE CYCLING

FIG. 01 · PCTS

PCTS

Pressure Cycle Test System

Dual-output cyclic pressure endurance testing for fuel and hydraulic components.

2000 psi	500 psi	100000 cycles	15-35 °C
High pressure output	Low pressure output	Maximum cycles	Operating temperature

OVERVIEW

The Pressure Cycle Test System simulates cyclic pressure variations in fuel and hydraulic systems, ensuring critical components like valves, pumps and fuel lines endure varying pressure conditions without failure. Engineered for aerospace, defence, automotive, rail, marine, oil & gas and industrial sectors, it delivers reliable, repeatable testing with dual pressure outputs and real-time monitoring.

The rig combines precision engineering with advanced safety features, maintaining contamination-free fluid throughout all test cycles. Its modular, wheel-mounted design enables easy relocation between facilities while meeting ISO 9001, AS9100, MIL-STD, ASTM and SAE standards for international compliance.

KEY FEATURES

- Dual pressure outputs — 0-2000 psi and 0-500 psi simultaneously
- Adjustable cycle rate 1-10 per minute; up to 100,000 total cycles
- Real-time data acquisition with graphing and compliance reporting
- Six-micron absolute and 10-micron return-line filtration
- Temperature held 15-35 C via heat exchanger and chilled water
- Automatic emergency shutdown on overpressure, overheat or low fuel

APPLICATIONS

- Aircraft fuel system components — valves, pumps, regulators, injectors
- Fighter jets, helicopters, UAVs and military hydraulic actuators
- Cars, heavy trucks, railway locomotives and braking systems
- Pipeline valves, pumps and offshore drilling equipment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Tank Capacity	**200 L, SS-304 stainless**
Pump Type	**Explosion-proof gear, 2000 PSI, 300 GPH**
Motor	**7.5 kW**
Accumulator	**Bladder type for stabilization**
Temperature	**Heat exchanger regulation**
Couplings	**Quick disconnect with non-return**

Filtration & Control

Filters	**Suction strainer + non-bypass pressure line**
Pressure Indicator	**0-3000 PSI, ±0.25%**
Temperature Monitoring	**RTD based**
Valves	**Solenoid-operated DC**
Cycle Tracking	**Omron digital counters**
Construction	**Explosion-proof, modular wheel-mounted**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/pressure-cycle-test-system.php

TEST BENCH · ENVIRONMENTAL SIMULATION

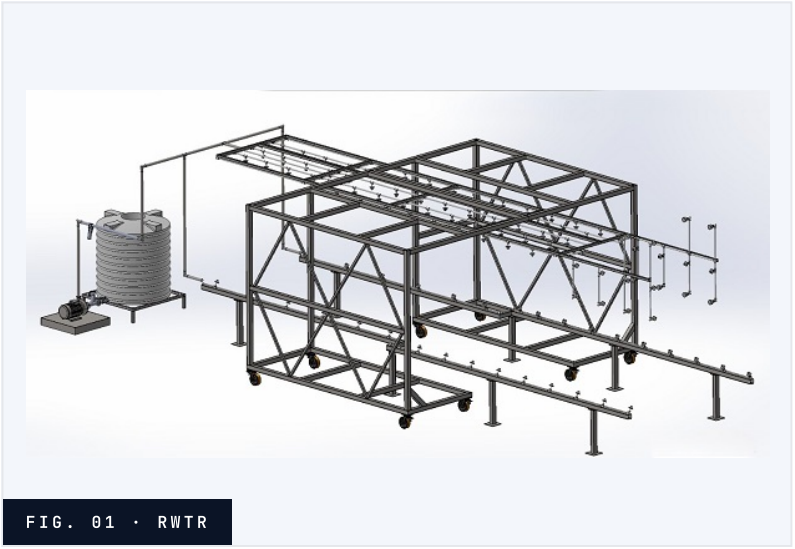

FIG. 01 · RWTR

RWTR

Rain Water Test Rig

Mobile rainfall simulation rig with 114 SS 304 nozzles for aircraft water-ingress testing.

250 LPM	114 nozzles	10 kg/cm2	±60 °
Max flow rate	Total nozzle count	Max working pressure	Side-wing pivot

OVERVIEW

The Rain Water Test Rig is a fully mobile, standards-compliant system designed to simulate controlled rainfall over aircraft surfaces for prototype qualification and production acceptance testing. Equipped with dual 2,000 L tanks, a 4 kW Grundfos pump delivering up to 250 L/min and 114 precision SS 304 nozzles, this rig ensures uniform coverage at adjustable spray angles. All components undergo 100% inspection and factory acceptance testing.

The system features a robust SS 304 frame on lockable caster wheels for easy positioning, side-wing assemblies that pivot ±60 degrees to accommodate diverse fuselage shapes, and Schedule-80 uPVC piping with solvent-welded joints. Comprehensive quality assurance documentation and after-sales support back every unit.

KEY FEATURES

- 82 top and 32 side-pivoting SS 304 nozzles for uniform coverage
- Grundfos CM 15-3 pump (4 kW, 250 LPM) up to 10 kg/cm2
- 60-mesh stainless-steel strainer protects pump and nozzles
- Schedule-80 uPVC piping with solvent-welded leak-proof unions
- Six 7,500 N lockable caster wheels for precise positioning
- 100% component inspection with factory acceptance certification

APPLICATIONS

- Aerospace certification of fuselage seals, canopies and coatings
- Environmental qualification of avionics bays and cargo doors
- Maintenance validation of post-repair sealing and drainage
- Production acceptance testing across serial aircraft units

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Dimensions & Pump

Overall Size	**12,600 × 2,000 × 3,500 mm**
Tank Capacity	**2 × 2,000 L PVC**
Pump Model	**Grundfos CM 15-3**
Motor	**4 kW, 3-phase, 50 Hz**
Max Flow	**250 LPM**
Per-Nozzle Flow	**1-2 LPM at 2 bar**

Pressure & Materials

Working Pressure	**Up to 10 kg/cm2**
Test Pressure	**1-2 bar typical**
Nozzles	**SS 304, dia 2 mm**
Filter	**60 mesh, 250 LPM capacity**
Frame & Piping	**SS 304 tubing; Schedule-80 uPVC**
Mobility	**6 lockable caster wheels**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/rain-water-test-rig.php

TEST BENCH · HYDRAULIC

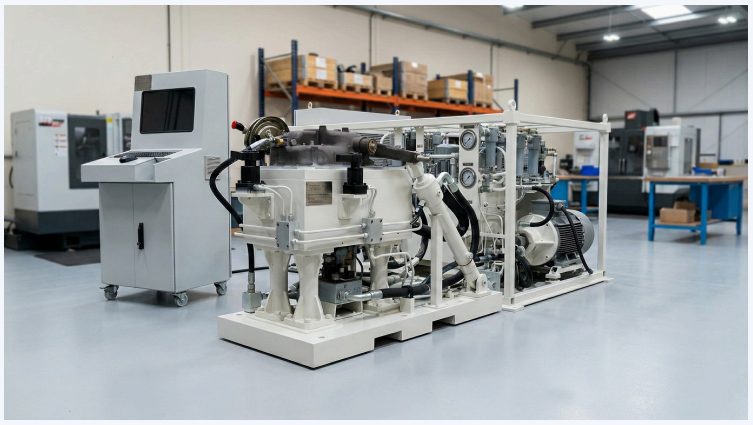

FIG. 01 · RCHTRE

RCHTRE

Rear Cover Hydraulic Test Rig (EHFTB)

PLC-DAQ electro-hydraulic functional bench for production-grade rear-cover assembly validation.

250 bar	46 LPM	20 kW	500 L
Max working pressure	Main pump flow	Drive motor (VFD)	Reservoir capacity

OVERVIEW

The Rear Cover Hydraulic Test Rig is a PLC- and DAQ-driven electro-hydraulic functional bench for production validation of rear-cover assemblies used in hydraulic pumps, motors and hydrostatic drive modules. The rear cover is not merely an end plate — it carries precision oil galleries and integrated valve functions that directly influence pressure regulation, response behaviour, lift/lower timing and stability of the complete hydraulic unit.

The rig recreates controlled operating conditions with regulated high-pressure supply and accurate flow/pressure measurement, then runs model-based automated test recipes — lift movement at defined flow rates, pressure checks, free play, response-valve open/close drop behaviour, hunting/stability and timing. Interlocked operator guidance, real-time display and automatic OK/NOT-OK decisions with stored digital reports close the production-quality loop.

KEY FEATURES

- Model-based automated test recipes with OK / NOT-OK decisions
- VFD-driven 20 kW main drive with internal gear pump
- Duplex filtration 10 µm + 5 µm with electrical clogging indication
- Hydraulic swing clamps with overload protection
- Inbuilt LVDT, pressure and load sensing up to 3 000 kg
- PLC-based sequencing with DAQ/SCADA supervision and digital reports

APPLICATIONS

- Production validation of rear-cover assemblies for hydraulic pumps and motors
- Final acceptance of hydrostatic drive module covers
- Process audit and rework-line re-test
- Engineering characterisation for design changes and revisions

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic Supply

Working Pressure (UUT)	**250 bar max**
Main Pump	**Internal gear pump**
Rated Flow	**46 LPM**
Drive Motor	**20 kW, VFD-driven**
Reservoir	**500 L (MS)**
Loading Pump	**40 LPM, 210 bar**

Measurement & Control

Flow Measurement	**5–50 LPM (test-certified)**
Pressure Transmitters	**0–160 bar + 0–250 bar**
Pressure Gauge	**0–280 bar calibrated**
Filtration	**Duplex 10 µm + 5 µm**
Thermal	**4 kW heater + cooling loop with air radiator**
Automation	**PLC sequencing + DAQ/SCADA supervision**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/rear-cover-hydraulic-test-rig-electro-hydraulic-functional-test-bench.php

TEST BENCH · AERO-ENGINE CONTROLS

FIG. 01 · TRRC

TRRC

Test Rig for Running-In & Calibration of Reheat & Nozzle Control Units

Turnkey facility validating turbine fuel-control units sea-level to altitude at ±0.25%.

±0.25 %	30,000 RPM	1,800 PSI	130 kW
Pressure accuracy (FS)	Drive speed (via gearbox)	HP circuit pressure	Combined thermal capacity

OVERVIEW

This turnkey, floor-mounted facility combines precision hydraulic, pneumatic, thermal and mechanical subsystems to validate turbine fuel-control units under realistic service conditions from sea level through high-altitude operation. It runs 30+ functional, leakage, sensitivity and hysteresis procedures at ±0.25% accuracy, enabling rapid certification and durability assessment.

Modern aircraft depend on accurate calibration of critical fuel and control systems. The rig replicates real operational environments — pressure, temperature and airflow variation — ensuring reheat and nozzle control units meet stringent aerospace reliability standards before deployment, for aerospace OEMs, MRO facilities and research laboratories.

KEY FEATURES

- 30+ automated procedures — leakage, response time, hysteresis
- 150 HP AC motor with encoder (0–6,000 RPM) geared to 30,000 RPM
- Modular skid with quick-swap quill interface for fast reconfiguration
- Multi-level interlocks; explosion-proof enclosures per NEMA 7 / IS 60079
- Optional PC DAQ with real-time analytics and custom reporting
- Integrated environment sim — chilled-water HX, dry air, vacuum headers

APPLICATIONS

- Reheat / nozzle control-unit calibration and pilot-valve sensitivity
- Leakage and hysteresis testing across the full operating envelope
- Altitude simulation and thermal cycling under extreme P/T
- Durability and endurance testing for component fatigue assessment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Fuel & Lubrication

Fuel Tank	**1,500 L stainless steel**
Booster Pump	**4,000 IGPH @ 120 PSI**
HP Gear Pump	**500 IGPH @ 1,800 PSI**
Lubrication	**DERD 2487 oil, 6.5 GPM @ 60 PSI**
Heat Exchangers	**Plate type, 30 kW + 100 kW**
Pneumatic	**Dry-air header @ −40 °C dew point**

Drive, Measurement & Control

Drive Motor	**150 HP TEFC AC, VFD + encoder**
Speed Range	**0–30,000 RPM via gearbox**
Pressure Gauges	**40+ Monel bourdon, ±0.25% FS**
Flow Measurement	**Screw meters ±0.25%; rotameters 1.6%**
Temperature	**K-type thermocouples, ±0.5%**
Safety	**Interlocks; NEMA 7 / IS 60079 enclosures**

NEMA 7 / IS 60079 | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/test-rig-for-running-in-and-calibration-of-reheat-and-nozzle-control-units

TEST BENCH · HYDRAULIC

FIG. 01 · UHTR

UHTR

Universal Hydraulic Test Rig

Laboratory-grade rig for pumps, motors, valves and cylinders to 350 bar.

1200 L	350 bar	600 LPM	±2 °C
Reservoir capacity	Maximum system pressure	Peak flow (dual pumps)	Temperature stability

OVERVIEW

The Universal Hydraulic Test Rig is a fully automated, laboratory-grade platform engineered for end-to-end evaluation of hydraulic pumps, motors, valves, cylinders and check valves under real-world conditions. Built on a 1,200 L SS-304 reservoir with integrated filtration and cooling, it delivers precise control across three independent test stations sharing common power but separate safety controls.

The rig combines dual 250 kW high-pressure pumps, a 5.5 kW cooling pump and a Siemens S7-1500 PLC with HMI automation to replicate extreme loads and temperatures. Designed to ISO 12100, DIN and BS standards with global-brand components, it enables R&D validation, production QA, maintenance diagnostics and training with full traceability.

KEY FEATURES

- Multi-component testing: pumps, valves NG6–NG32, cylinders to 4.6 m
- High-pressure capability: 350 bar @ 600 LPM via dual pumps
- Precision filtration (β ≥ 200) and SS-304 heat exchangers
- Siemens PLC suite with recipe-based testing and data logging
- Emergency stops, interlocks and sensors; ISO 12100 certified
- Modular: three independent stations with separate E-stops

APPLICATIONS

- R&D and qualification with certification-ready reports
- Production quality control: batch and tolerance verification
- Maintenance and overhaul: diagnostics and recertification
- Education and training: fluid-power experiments

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic System

Reservoir	SS-304, 1200 L, 1500 × 900 × 1000 mm
High-Pressure Pumps	2 × 320 LPM @ 350 bar, 250 kW
Recirculation Pump	250 LPM @ 10 bar, 5.5 kW
Safety Relief Valves	Cooling @ 10 bar; main @ 400 bar
Filtration	Duplex return & simplex pressure, β ≥ 200
Piping	SS-304 tubing, DIN-rated flanges

Control & Instrumentation

PLC / HMI	Siemens S7-1500, Comfort Panel touchscreen
Control Voltage	24 V DC; 0–10 V / 4–20 mA proportional
Data Acquisition	16-channel 24-bit, up to 10 Hz, CSV/XML
Electrical Panels	IP54 enclosures, central MCCB
Pressure Range	Up to 315 bar functional; 400 bar relief
Standards	ISO 12100, DIN, BS

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/universal-hydraulic-test-rig.php

TEST BENCH · VALVE HYDROSTATIC

FIG. 01 · VTR

VTR

Valve Test Rig

Automated hydrostatic and leak testing of valves up to 12 inches.

135 bar	65 tons	12 inch	400 mm
Max test pressure	Clamping force	Max valve size	Bed stroke

OVERVIEW

The Neometrix Valve Test Rig is a heavy-duty, fully automated hydraulic testing system for pressure testing butterfly and check valves up to 12 inches. A 65-ton vertical clamping press and dual-motor hydraulic power pack deliver test pressures up to 135 bar, with digital controls and integrated leak detection for precise hydrostatic validation.

This industrial platform serves manufacturers, utilities and maintenance facilities requiring rigorous valve validation. Automated clamping, programmable pressure regulation, camera-based leak inspection and multi-layer safety interlocks ensure reliable shell-integrity and seat-leakage testing across production batches and field maintenance.

KEY FEATURES

- Tests butterfly and check valves 2"–12" (DN50–DN300)
- 65-ton 4-pillar vertical press, 400 mm stroke
- Dual-motor pack: 7.5 HP clamping + 2 HP loading
- Industrial camera monitors seat and body leakage
- Multi-layer interlocks block movement under pressure
- 20-micron inline and 10-micron return filtration

APPLICATIONS

- Valve manufacturers — production batch and QA testing
- Oil & gas pipeline valve certification
- Water-supply utility maintenance validation
- Thermal and hydro power plant hydrostatic certification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Performance

Max Test Pressure	**135 bar (1958 PSI)**
Clamping Force	**65 metric tons**
Valve Size Range	**2"–12" (DN50–DN300)**
Bed Stroke	**400 mm in ~45 sec**
Operation Type	**Semi-automatic / automatic**
Standards	**API 598, ISO 5208**

Power & Control

Motor Power	**7.5 HP clamping + 2 HP loading**
Motor Type	**3-ph induction, 4-pole, 50 Hz, 415V**
Pressure Control	**Two-stage relief (25 / 135 bar)**
Filtration	**20 micron inline, 10 micron return**
Temperature Gauge	**0–160 °C (WIKA)**
Sensing	**Mechanical gauges and transmitters**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/valve-test-rig.php

TEST BENCH · GENERAL

FIG. 01 · GPSTR

GPSTR

Gauge Pressure Switch Test Rig

In aerospace engineering, the gauge pressure switch is a deceptively small component with an outsized responsibility.

230 V	±0.05 %	0 – 0.7 MPa
Power Supply	Accuracy / Uncertainty	Pressure Range

OVERVIEW

In aerospace engineering, the gauge pressure switch is a deceptively small component with an outsized responsibility. It is tasked with monitoring and safeguarding critical systems such as hydraulic actuation circuits, fuel delivery lines, engine lubrication systems, and cabin pressurization controls. When pressures rise too high or fall too low, the switch must respond instantly by triggering alarms, isolating systems, or enabling emergency protocols. Its reliability is therefore non-negotiable — even the slightest malfunction or calibration drift can lead to catastrophic consequences, from hydraulic failure to compromised flight safety. To eliminate such risks, every aerospace pressure switch must undergo precise validation, and this is where the Gauge Pressure Switch Test Rig plays its indispensable role. Engineered for accuracy and repeatability, the rig creates controlled pressurization and depressurization cycles to replicate real operating conditions. It records the actuation point (when the switch trips) and the reset point (when it releases), verifying the switch's hysteresis and ensuring it operates strictly within defined tolerances.

KEY FEATURES

- Dual-Threshold Verification
- Precision Sensing & Instrumentation
- Programmable Pressure Profiles
- PC/PLC Control & Data Logging
- Robust Safety Mechanisms
- Modular & Flexible Design

APPLICATIONS

- Production Calibration & Validation
- Quality Assurance & Certification
- Maintenance, Repair & Overhaul (MRO)
- R&D and Prototyping
- Endurance & Fatigue Testing

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Pressure Range	0 – 0.7 MPa (standard). Optional booster modules can extend to multi-MPa ranges
Accuracy / Uncertainty	±0.05 % of full scale (or better, depending on transducer grade)
Ramp Control	Programmable rise/fall rates (e.g. 0.1 – 2 kPa/s)
Sampling / Data Acquisition	High-resolution DAQ (e.g. 24-bit), sampling ≥100 Hz or higher to capture transients
Power Supply	230 V AC, 50 Hz (customizable for other standards)
Connectivity	USB, Ethernet; optional PLC/SCADA integration
Safety Features	Over-pressure relief, burst discs, interlocks, emergency-stop, warnings/alarms
Construction	Stainless steel frame, panel-mounted instrumentation, compact footprint
Dimensions & Weight	Approx. 1.5 m × 0.8 m × 1.8 m; weight ~200 kg (varies with configuration)
Environmental Range	Operating: 0-50 °C, RH < 90 % non-condensing
Output / Reports	Pressure vs. time curves, actuation/reset values, full calibration certificate
Sensor Modules	Swappable transducer modules, manifold, fittings; possible differential inputs

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/gauge-pressure-switch-test-rig.php

TEST BENCH · GENERAL

FIG. 01 · ALSOTB

ALSOTB

Advanced Life Support Oxygen Test Bench for Pilot Safety Systems

14	**25** µm	**10** years	**125**
1	Filtration	Design Life	0

OVERVIEW

The Advanced Life Support Oxygen Test Bench is a precision-engineered testing platform developed to validate the reliability and safety of aircraft oxygen delivery components. It replicates in-flight pneumatic conditions—handling pressures up to 200 bar and flow rates up to 600 L/min—to comprehensively test filler valves, non-return valves, pressure-reducing regulators, and oxygen cylinder assemblies. Constructed entirely from SS-316L oxygen-compatible materials and integrated within a rugged, military-grade enclosure, the system combines dual-stage regulation, fine-flow measurement, high- accuracy instrumentation, and re-dundant safety mechanisms. Its controlled and repeatable testing environment enables detailed analysis of leakage, pres-sure stability, and functional response under realistic operating conditions. In doing so, the bench ensures that every life sup-port component installed on an aircraft delivers consistent, contamination-free, and fail-safe oxygen supply, reinforcing the highest standards of pilot safety and airworthiness.

KEY FEATURES

- Base chassis fabricated from Mild Steel (IS-2062) for strength and vibration resistance.
- Powder-coated to RAL 5005 Signal Blue, 60–80 µm coating thickness, corrosion-resistant finish.
- Fittings and connectors are degreased and oxygen-cleaned to ASTM G93 and CGA G-4.1 standards.
- Incorporates dedicated sub-panels for filtration, regulation, flow measurement, and safety interlocks.
- High-Pressure (HP) Regulation Section
- Accepts oxygen inlet up to 200 bar from a high-pressure cylinder.

APPLICATIONS

- Aircraft Production Lines: for acceptance testing of oxygen subsystem LRUs before aircraft installation.
- Maintenance, Repair & Overhaul (MRO) Facilities: for routine inspection and post-service validation.
- Aerospace Training Institutions: for maintenance personnel instruction and demonstration.
- R&D Laboratories: for design validation of new-generation oxygen valves, regulators, and system prototypes.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Flow (LPM)	Supply Pressure (bar) Expected Output (bar) Remarks
0	125 ≤ 6 (no-flow setpoint) Stable regulator baseline
1	125 5 ± 0.8 Fine regulation test
150	125 5 ± 0.8 Flow endurance
1	14 ≥ 3.45 Low supply response
100	14 ≥ 3.45 Minimum delivery assurance

—	— — Relief Test – 8 +1/–0.8 · Relief valve activation check
Working Medium	Gaseous Oxygen (99.5% purity)
Input Pressure Range	0 – 200 bar
Flow Range	0 – 600 LPM
HP Regulator	Inlet 200 bar → Outlet 125 bar
LP Regulator	Inlet 10 bar → Outlet 0.05 bar

Pressure Gauges	0–200 bar ×2, 0–20 bar, 0–15 PSI (SS316 Bourdon tube)
Safety Valves	126 ± 0.5 bar (HP), 10 bar (LP)
Filtration	25 µm SS filter, oxygen service compatible
Material	SS316L for wetted parts, MS IS-2062 structure
Enclosure	FRP military box, weatherproof
Temperature Range	–30 °C to +70 °C

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/advanced-life-support-oxygen-test-bench-for-pilot-safety-systems.php

TEST BENCH

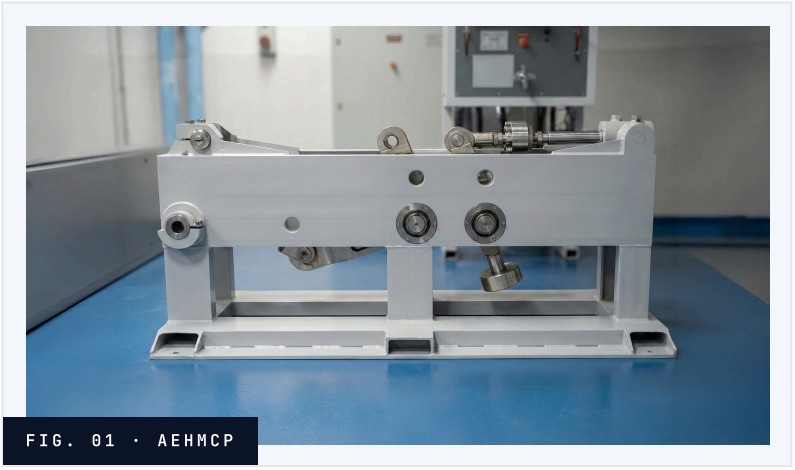

FIG. 01 · AEHMCP

AEHMCP

Aircraft Electro-Hydraulic Multi-Channel Power Drive Loading Rig

10 /50-250	**415** V	**0–30** V	**±125** mm
Working Pressure	Power Supply	DC Output to UUT	Cylinder Strokes

OVERVIEW

In aviation, the difference between a flawless actuator response and a millisecond hesitation can define the line between mission success and catastrophic failure. Flight-control actuators are responsible for moving the aircraft's most vital surfaces—ailerons, elevators, rudders, flaps—and they must perform with absolute reliability under extreme aerodynamic loads, turbulence, rapid directional reversals and fatigue stress across thousands of flight cycles. A single undetected defect can compromise controllability, risking lives and entire aircraft platforms. The Aircraft Electro-Hydraulic Multi-Channel Power Drive Loading Rig is engineered to

eliminate that risk. This advanced, computer-controlled simulation platform recreates real- world flight loads—up to 24,000 kgf—and measures actuator displacement, response speed, dynamic behaviour, leakage integrity, redundancy balance and stall characteristics with uncompromising precision. By replicating real aerodynamic forces on the ground, the

system guarantees that every actuator installed on an aircraft is proven airworthy, fault- free and mission-ready before it ever leaves the hangar.

With a high-pressure hydraulic power system, lever-amplified load mechanics, intelligent multi-channel data acquisition and fully automated reporting, the rig delivers a repeatable, traceable, engineering-grade validation ecosystem. It is a critical asset for aerospace OEM qualification, military depots, civil aviation MRO centres, R&D laboratories and accident/failure forensic analysis, ensuring that flight safety is never left to chance—but verified beyond doubt.

KEY FEATURES

- Displacement / stroke measurement over the full travel of the actuator.
- Speed measurement of the output link during extension / retraction cycles up to approx. 380 mm/s.
- Dynamic response evaluation including rate control, overshoot, hysteresis, and system stiffness.
- Leakage and air-tightness verification under static or dynamic load conditions.
- Thermal behaviour monitoring under extended operation cycles.
- Functional performance comparison between redundant channels in multi-path actuators.

APPLICATIONS

- Qualification testing of new aircraft flight-control actuators
- Periodic proof testing and health assessment for MRO & fleet life extension
- Engineering analysis of actuator dynamics, response curves, damping & hysteresis
- R&D simulation for actuation system behaviour under varied load conditions
- Troubleshooting of defective or unstable control drives

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Max Force Output	**~24,000 kgf**
Displacement Range	**up to 250 mm travel**
Speed of Movement	**up to ~380 mm/s**
Working Pressure	**10/50–250 kgf/cm² (280 kgf/cm² max)**
Pump Flow Rate	**≥ 45 LPM @ ~250 kgf/cm²**
Hydraulic Tank	**~60 L stainless steel**
Hydraulic Oil	**AMG-10 / AMG-10B or equivalent**
Oil Cleanliness	**NAS Class 4**
Load Cell	**30,000 kgf**
Power Supply	**415 V AC, 3-Phase, 50 Hz**
DC Output to UUT	**0–30 V DC, 5 A**
Cooling Water	**30–60 LPM, 6 bar @ 20°C**
Cylinder Strokes	**±125 mm and ~105 mm**
Operating Temperature	**25–40°C maintained**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aircraft-electro-hydraulic-multi-channel-power-drive-loading-rig.php

TEST BENCH · PROPULSION & FUEL

FIG. 01 · FAPNPR

FAPNPR

Fuel (ATF) Pump and Nozzle Pressure Ratio Test Stand

In modern aerospace, the fuel system is the lifeline of an aircraft.

10 000 RPM

Maximum Speed

OVERVIEW

In modern aerospace, the fuel system is the lifeline of an aircraft. Every moment of flight depends on fuel pumps and injection nozzles working flawlessly, as even the slightest malfunction can cause power loss, flameout, or mission failure. The Fuel (ATF) Pump and Nozzle Pressure Ratio Test Stand ensures this reliability by combining high-capacity pump testing and precision nozzle calibration into one platform. By simulating real flight conditions of heat, pressure, and suction with laboratory accuracy, it certifies components for flawless performance. With its 10,000 RPM / 160 kW drive, mmHg-level measurement precision, and fully computerized automation, it is an indispensable tool for air forces, OEMs, and MROs to safeguard flight safety, mission readiness, and operational efficiency.

KEY FEATURES

- Qualification and acceptance of new production pumps.
- Preventive maintenance to detect early-stage degradation.
- Failure analysis and troubleshooting of returned components.
- Endurance and life-cycle testing for reliability programs.
- Calibration of fuel nozzles for optimal atomization and spray consistency.
- Measurement of pressure ratios under variable operating environments.

APPLICATIONS

- Qualification and acceptance of new production pumps.
- Preventive maintenance to detect early-stage degradation.
- Failure analysis and troubleshooting of returned components.
- Endurance and life-cycle testing for reliability programs.
- Calibration of fuel nozzles for optimal atomization and spray consistency.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Fuel Type	**Aviation Turbine Fuel (ATF)**
Fuel Tank Capacity	**Integrated tank with heating up to 120 °C**
Pressure Simulation	**Dry Nitrogen pressurization & Vacuum pump for suction simulation**
Drive System	**Variable-speed gearbox drive**
Maximum Speed	**10,000 RPM**
Drive Power	**Up to 160 kW**
Flow Measurement	**Multiple electronic flowmeters with dedicated flow measurement circuits**
Pressure Control	**Electronic pressure regulators with mmHg accuracy**
Nozzle Testing	**Pressure ratio measurement with Fuel + Nitrogen + Vacuum circuits**
Control Modes	**Automatic, Semi-automatic, and Manual**
Data Management	**Computerized logging, trend analysis, and report generation**
Safety Features	**Protective interlocks, emergency shutdown, automatic pressure bleed**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/fuel-pump-and-nozzle-pressure-ratio-test-stand.php

TEST BENCH · HYDRAULIC

FIG. 01 · HPPTR

HPPTR

Hydraulic Proof Pressure Test Rig

1 s	10 µm	3- phase	1–50 bar/s
Dwell Time	Filtration Level	Drive Motors	Pressure Ramp Rate

OVERVIEW

The Hydraulic Proof Pressure Test Rig is a precision-engineered system designed to verify the strength and leak-tightness of hydraulic components under extreme conditions. Operating up to 700 bar, it subjects valves, hoses, manifolds, and actuators to controlled overpressure levels that simulate real-world hydraulic stress. Equipped with a multi-pump power unit, dual oil tanks, and a PLC-based Advantech industrial control system, the rig automates the entire test cycle—from filling and pressurization to dwell and depressurization—while recording every parameter in real time. Its stainless-steel test chamber, multi-stage filtration, and redundant safety interlocks ensure operator protection and contamination-free operation. Built for demanding aerospace, defence, and industrial applications, it delivers repeatable, traceable, and certified proof testing with the reliability and precision expected of Neometrix systems.

KEY FEATURES

- ISO 19879 — Hydraulic fittings and connectors
- ISO 1402 — Rubber and thermoplastic hoses
- SAE J343 / J517 — Hydraulic hose assemblies
- EN 12266-1 — Valve pressure tests
- ASTM E1003 — Hydrostatic leak test method
- MIL-STD-810 — Environmental and structural qualification for defence hardware

APPLICATIONS

- Hydraulic hoses and assemblies
- Fittings, couplings, adaptors, and connectors
- Manifolds, blocks, and valve housings
- Hydraulic cylinders and actuator casings
- Filters, end caps, and pressure-retaining bodies

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Maximum Test Pressure	**Up to 700 bar (10,000 psi)**
Working Fluid	**Hydraulic oil (ISO VG 32 or as specified)**
Pressure Ramp Rate	**1–50 bar/s adjustable**
Dwell Time	**1 s to 60 min programmable**
Pressure Accuracy	**±0.25% of full scale**
Pressure Stability	**±0.05% of set pressure**
Filtration Level	**10 µm (pressure line), 3 µm (return line)**
Tank Capacity	**80–150 litres (dual tank configuration)**
Drive Motors	**3-phase induction motors (0.5 HP to 5 HP)**
Control System	**PLC + Advantech Industrial PC + HMI**
Safety Interlocks	**Door lock, overpressure relief, emergency stop**
Construction Material	**Stainless steel (wet parts), powder-coated mild steel (frame)**
Standards Compliance	**ISO, SAE, EN, ASTM, MIL-STD**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-proof-pressure-test-rig.php

TEST BENCH · AEROSPACE

FIG. 01 · AHPMTB

AHPMTB

Aerospace Hydraulic Pump / Motor Test Bench

270 bar	130 LPM	6000 RPM
Test Pump Rated Pressure	Test Pump Rated Flow	Rated Speed

OVERVIEW

The Aerospace Hydraulic Pump / Hydraulic Motor Test Bench is a fully automated, precision-engineered validation system that plays a decisive role in ensuring the safety, reliability, and mission readiness of aircraft. Designed for testing variable delivery axial piston pumps with integrated pressure compensators, it replicates the harshest real-world aerospace conditions with capabilities of up to 270 bar pressure, 130 LPM flow, and 6000 RPM speed. The bench executes an extensive range of tests — including proof pressure validation, endurance cycling, compensator calibration, stability assessment, and open/close actuation — to expose hidden weaknesses and verify component robustness across the entire duty spectrum. Beyond its technical features, its criticality lies in its function as the final quality checkpoint for aerospace hydraulics, where any underperformance can be

detected and eliminated before installation in combat or transport aircraft. By preventing in- service hydraulic failures that could compromise flight control systems, landing gear

operations, or weapons deployment, this test bench safeguards pilots, protects high-value aircraft assets, and guarantees the operational integrity of modern air forces.

KEY FEATURES

- Fully Automated Test Bench – delivers precision, repeatability, and minimal operator intervention.
- High-Pressure, High-Flow Capability – replicates combat aircraft conditions at 270 bar and 130 LPM.
- High-Speed Operation – simulates engine-driven pump speeds up to 6000 RPM.
- Advanced Instrumentation – continuously monitors pressure, flow, RPM, temperature, and case drain leakage.
- Qualification and acceptance testing of aerospace hydraulic pumps and motors.
- Production-level quality assurance for OEMs and defense contractors.

APPLICATIONS

- Qualification and acceptance testing of aerospace hydraulic pumps and motors.
- Production-level quality assurance for OEMs and defense contractors.
- Research & Development of advanced hydraulic actuators and systems.
- Life-cycle endurance and fatigue testing of pumps.
- Maintenance validation of in-service components prior to reinstallation.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Test Pump Rated Pressure	**270 bar**
Test Pump Rated Flow	**130 LPM at 270 bar**
Rated Speed	**6000 RPM**
Pump Type Supported	**Variable delivery axial piston pump**
Compensator Support	**Built-in pressure compensator**
Control Parameters	**Flow, Pressure, RPM, Temperature**
Testing Mode	**Automated (Static & Dynamic)**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aerospace-hydraulic-pump-hydraulic-motor-test-bench.php

TEST BENCH

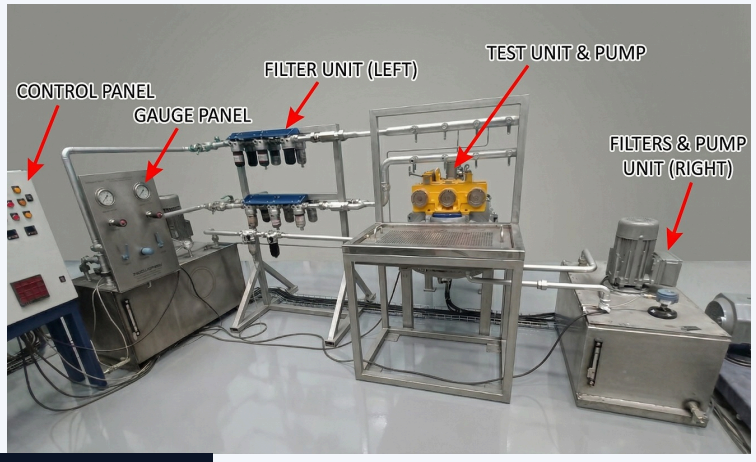

FIG. 01 · AAFR

AAFR

Aircraft Aggregate Flushing Rig

38 °C	25 kgf/cm²	300 L	15–40 °C
Flash Point	Pressure Lines	ATF Tank Capacity	Working Temp. Range

OVERVIEW

The Aircraft Aggregate Flushing Rig by Neometrix Defence Limited is a high-precision maintenance and qualification system engineered to safeguard the reliability of aviation components. Designed to purge hidden contaminants from pumps, valves, actuators, and other aircraft aggregates, it drives temperature-controlled ATF through each unit under realistic flow, pressure, and dynamic operating conditions. With multi-stage filtration, a dedicated drive motor for rotating assemblies, and closed-loop fluid recovery, the rig ensures every internal passage is thoroughly cleaned and restored to aerospace-grade safety

standards. Built for production lines and MRO centres, it plays a critical role in preventing in- service failures, extending component life, and ensuring absolute cleanliness before an

aggregate is certified as flight-ready—making it an essential backbone of modern aviation reliability.

KEY FEATURES

- Production Acceptance: Ensures newly manufactured aggregates meet cleanliness & performance criteria.
- Maintenance, Repair, Overhaul (MRO): Removes accumulated debris after disassembly-reassembly cycles.
- Life Extension / Refurbishment: Restores internal cleanliness for long-term operational reliability.
- Multi-stage Hydraulic Flushing Circuit
- ATF Storage, Transfer & Filtration System
- Pneumatic Supply Circuit

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Working Fluid	ATF
ATF Tank Capacity	300 L
Working Temp. Range	15–40°C
Flash Point	38°C
Pressure Lines	25 kgf/cm² & 10 kgf/cm²
Suction Filtration	F2, F3 strainers
Inline Filtration	F4, F5, F6 multi-stage filters
Return Line Filtration	F7, F8
Main Pumps	P1, P2
Return Pump	P3
Drive Motor	M4, variable speed
Tank Levels	High/Low indicators
Pressure Monitoring	PG1, PG2
Pneumatic System	F9 filter, PRV1 regulator, BV18/BV19 valves
Control Panel	Switches, indicators, temperature controller, speed knob
Testing Standards	FAT, SAT, QAP compliance

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aircraft-aggregate-flushing-rig.php

TEST BENCH · PNEUMATIC

FIG. 01 · GPPTR

GPPTR

General Purpose Pneumatic Test Rig

OVERVIEW

The General Purpose Pneumatic Test Rig is a cutting-edge testing platform built to ensure the reliability and safety of critical pneumatic systems. Designed for aerospace and defense applications, it combines high-pressure capability (up to 200 kgf/cm2) with advanced electronic flow meters, precision pressure sensors, and intelligent software to deliver unmatched accuracy in leakage detection, flow analysis, and performance validation. With its fully automated test sequences, real-time data monitoring, and seamless report generation, the rig transforms complex testing into a fast, efficient, and error-free process. Whether for R&D, manufacturing quality control, or MRO operations, this rig offers engineers the confidence to push pneumatic components to their limits while maintaining the highest standards of safety and performance.

KEY FEATURES

- High-accuracy electronic flow meters for real-time flow measurement.
- Digital pressure transducers and sensors to capture minute pressure variations and leakages.
- Fully automated test sequencing software with programmable routines for different components.
- Leakage (Air Tightness) Tests
- Detects micro-leakages in pneumatic circuits, valves, and actuators.
- Capable of performing both static leak tests (at fixed pressures) and dynamic leak tests (under flow).

APPLICATIONS

- Testing of aircraft pneumatic valves, pressure regulators, and actuators.
- Validation of emergency pneumatic circuits (landing gear, canopy release, oxygen supply).
- Inspection of flow and leakage parameters in weapon system pneumatic controls.
- End-of-line functional testing of pneumatic components.
- Batch-level validation for OEMs supplying aerospace/defense components.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

1	**Working Fluid Clean dry air with dew point -55 °C**
2	**Purity of Working Fluid Better than 2 microns**
3	**Pressure Range (High Line) Up to 200 kgf/cm²**
4	**Pressure Range (Low Line) Up to 8 kgf/cm²**
5	**Flow Measurement High-accuracy electronic flow meters (±0.5% FS)**
6	**Pressure Measurement Digital pressure sensors, range up to 250 kgf/cm²**
7	**Data Acquisition Computer-based with automated test sequencing**
8	**Software Interface GUI-based, customizable test programs, data storage**
9	**Report Output Automated report generation (Excel/PDF)**
10	**Safety Features Overpressure protection, emergency shut-off, redundant sensors**
11	**Power Supply Standard 230V AC / 50 Hz (customizable)**
12	**Compliance ISO 8573, ISO 6358, MIL-STD aerospace requirements**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/general-purpose-pneumatic-test-rig.php

TEST BENCH

FIG. 01 · IAF

IAF

Universal Hydraulic Charging Rig

3 µm	5 m	25 kg/cm²	49 cc
Filter Rating	Hose	Max. Pressure	Flow per Stroke

OVERVIEW

The Universal Hydraulic Charging Rig is a rugged, portable system designed for precise,contamination-free replenishment of hydraulic circuits in both military and civil aerospace applications. Its 25 L stainless-steel reservoir and high-leverage manual piston pump deliver up to 25 bar at 49 cc per stroke, while an integrated 3 µm filtration system ensures oil cleanliness to ISO 4406 standards. Equipped with quick-change adaptors compatible with Su- and MiG-series fittings, a visual pressure gauge, over-pressure relief valve, and a m reinforced hose on an ergonomic trolley, the rig enables safe, efficient top-ups during frontline servicing, depot maintenance, or emergency recovery. Routine maintenance protocols—including scheduled filter replacements, fluid changes, and pressure tests—keep the unit mission-ready, making the A-1760 an essential tool for ensuring hydraulic system reliability and minimizing aircraft downtime.

KEY FEATURES

- Ultra-Fine Filtration: Duplex β 200 filters (3 µm rating) capture contaminants before pump intake.
- Connection: Attach correct adaptor; hand-tighten coupling onto aircraft port. Route hose to avoid kinks.
- Monitoring: Observe gauge; do not exceed 25 bar. If pressure stalls, allow system stabilization.
- Post-Use Check: Wipe spilt oil; inspect fittings for leaks; store in a covered, climate- controlled area.
- Daily: Wipe down external surfaces; check for leaks or damage on hoses and couplings.
- Monthly: Drain and clean reservoir; inspect interior for varnish or sludge; refill with fresh OM-15 oil.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Fluid Type	Mineral hydraulic oil OM-15 (MIL-PRF-5606)
Max. Pressure	25 kg/cm² (≈25 bar)
Flow per Stroke	49 cc
Reservoir Capacity	25 L
Filter Rating	3 µm (Duplex/simplex β ≥ 200)
Hose	5 m length, 30 mm OD; 1,000 bar burst
Gauge	0–120 kg/cm², Ø 100 mm, glycerine-filled
Materials	SS-304 tank & fittings, plated steel pump
Operating Temp.	−10 °C to +50 °C
Mobility	4 × polyurethane swivel castors, 2 with brakes
Overall Weight	~30 kg (packed)

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/universal-hydraulic-charging-rig-IAF-nasik.php

TEST BENCH · HYDRAULIC

FIG. 01 · AHCVTB

AHCVTB

Automated Hydraulic Control Valve Test Bench

3- phase,	**350** kW
Main electrical supply	System type

OVERVIEW

The Automated Hydraulic Control Valve Test Bench (350 kW) is a high-power, production-ready platform for end-of-line (EOL) and R&D validation of hydraulic control valves under realistic operating conditions. It combines high-flow, high-pressure hydraulic capability with automated test sequencing, multi-channel instrumentation, and data logging to deliver repeatable, auditable results across valve batches and programs. The system supports a wide range of characterization and qualification tests including Flow vs ΔP (pressure drop) mapping, hysteresis (flow vs command), response time and dynamic behavior, impulse/cycling, pull-in/drop-out electrical behavior, flow sharing/anti-saturation for sectional valve banks, and pressure compensation (flow vs pressure) validation. Compatible with mobile sectional valves and industrial electrohydraulic/proportional control valves (including cartridge and two-stage configurations), the bench can be configured—with suitable fixtures and routing—for virtually any hydraulic control valve architecture: directional, pressure-control, and flow-control valves, covering cartridge, subplate, and manifold-mounted designs, including common variants such as relief, reducing, sequence, counterbalance/load-holding, and priority flow control valves—turning valve performance into clear evidence that improves controllability, efficiency, reliability, and quality consistency at scale.

KEY FEATURES

- CMA (Thor twin spool sectional valve system)
- CLS180 sectional valve system / valve banks
- SiCV (Screw-in Cartridge Valves)
- Two-stage proportional electrohydraulic directional control valves (pilot + mainstage)
- Electrohydraulic directional control valves for Size 3 and Size 5 formats
- single valves (cartridge / subplate / proportional valves), and

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

System type	**350 kW automated valve test stand for mobile and industrial valve testing**
Max power consumption (reference)	**~430 kW**
Main electrical supply	**3-phase, 440 VAC (reference)**
DAQ supply	**Single phase, 220 VAC (reference)**
Operating fluid	**Hydraulic mineral oil VG-32**
Operating temperature window	**~20°C to 75°C (reference)**
Reservoir capacity	**~1200 L**
Cooling	**Plate type oil cooler (reference)**
Motors	**Multiple main and secondary motors**
Pumps	**Multiple variable and fixed displacement pumps**
Filtration (reference)	**Pressure, return, and drain filtration as per manual**
Test capability envelope (reference)	**Up to ~400 LPM and ~420 bar (application dependent)**
Valve families supported	**CMA, CLS180, SiCV, two-stage proportional valves (pilot + main), size-3 and size-5 electrohydraulic valves**

TEST BENCH · HYDRAULIC

FIG. 01 · EHSSGB

EHSSGB

Electrical & Hydraulic System for the Side Gear Box (LH & RH) Test Rig

0–150 °C

Oil temperature (PT100)

OVERVIEW

The Electrical & Hydraulic System for the Side Gear Box (LH & RH) Test Rig is a fully engineered test facility developed to qualify side gear boxes for tracked and heavy armoured vehicles, where drivetrain reliability directly dictates mission readiness and survival. In these platforms, a failed side gear box is effectively a "mobility kill" – the vehicle cannot steer, manoeuvre or withdraw – so every gearbox has to be proven before it ever reaches the field. This rig combines dedicated lubrication and actuation power packs, a high-power asynchronous servo drive and a PLC–HMI control system to reproduce real operating conditions: hot, pressurised oil circulation, controlled brake loading and precise hydraulic clutch and gear-shift actuation. Inline torque measurement, together with comprehensive RPM, pressure, temperature, vibration and noise monitoring, turns each test into a structured, data-driven evaluation, ensuring that only robust, battle-worthy gear boxes progress to vehicle integration.

KEY FEATURES

- The lubricant is heated to high, realistic temperatures, not just lukewarm shop conditions.
- Oil is pumped through the gearbox under pressure, so lubrication paths and clearances are properly challenged.
- A controlled brake load is applied to make the gear train work, not freewheel.
- High-capacity lubrication and actuation hydraulic power packs
- A high-power asynchronous servo drive to apply controlled mechanical energy
- Dedicated hydraulic circuits for oil circulation and actuation functions

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Application	**Gearbox type Side Gear Box – LH & RH variants**
Function	**Scope Functional, performance & endurance testing**
Main Drive	**Motor type Asynchronous servo motor**
Rated power	**~78–80 kW**
Max speed	**Up to approx. 2500 RPM**
Control method	**Closed-loop speed/torque control via servo drive**

Lubrication System	**Tank capacity 400 L**
Working fluid	**High-grade gear oil (e.g. IOC 030-GX-100 type)**
Delivery pressure	**Around 18 kgf/cm²**
Heater rating	**~20 kW immersion heater**
Max oil temperature capability	**Up to approx. 150°C**
Typical return oil temperature	**~100 ± 10°C during test**

Filtration	**Multi-stage (coarse + fine filters)**
Actuation System	**Reservoir capacity 40 L**
Actuation pressure	**Up to approx. 40 kgf/cm²**
Functions driven	**Clutch, gear shift, gear-lock, brake actuation**
Pump capacity	**~30–40 LPM @ up to ~40 bar**
Torque Measurement	**Torque sensor range Approx. 0–300 Nm**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/electrical-and-hydraulic-system-for-the-side-gear-box-lh-and-rh-test-rig.php

TEST BENCH · GENERAL

FIG. 01 · OCTB

OCTB

Oxygen Component Test Benches

250 bar	0–200 slpm	≤1×10
Max Pressure	Flow Range	Leak Sensitivity

OVERVIEW

The Oxygen Component Test Benches are a complete suite of precision-engineered systems designed for the qualification, acceptance, and R&D testing of oxygen-critical components across aerospace, defence, medical, and industrial sectors. Built in compliance with stringent international standards (ASTM, NFPA, ISO, CGA), these benches provide safe, traceable, and repeatable testing of regulators, valves, flow meters, masks, instruments, and safety devices under high-pressure oxygen service. Each bench incorporates oxygen-clean materials, helium leak detection, slow-fill and filtration safety systems, and fully automated PLC–SCADA controls, ensuring absolute operator safety and data integrity. Together, they form a turnkey ecosystem that transforms oxygen testing from a high-risk operation into a controlled, reliable, and certifiable process, guaranteeing safety and performance for mission-critical oxygen systems.

KEY FEATURES

- All wetted parts are oxygen-cleaned and double-bagged.
- Cleaning validated via particulate/NVR checks and UV hydrocarbon inspection.
- Pressure regulators fitted with integrated relief valves.
- Slow-fill orifice restrictors prevent adiabatic compression ignition.
- High-efficiency particle filters mitigate particle-impact ignition.
- Gas detectors, E-stops, and SCADA alarms protect operators.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Max Pressure	**250 bar (300 bar optional) GOX service**
Flow Range	**0–200 slpm Sonic nozzle extension optional**
Leak Sensitivity	**≤1×10^{-6} mbar-L/s Helium MS leak test**
Cleanliness Standard	**ASTM G93 / CGA G-4.1 UV & NVR verified**
Control System	**PLC-SCADA Recipe programmable**
Data Export	**PDF, CSV, API Calibration traceable**
Materials	**SS316L, Monel, PTFE/PEEK Oxygen-compatible only**
Standards	**NFPA 53, ASTM G128, ISO 4126, ISO 15002 Full compliance**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/oxygen-component-test-benches.php

TEST BENCH · HYDRAULIC

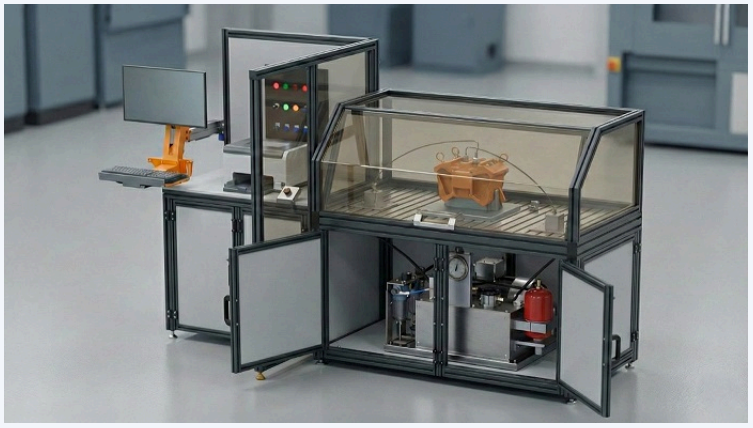

FIG. 01 · FBTBAH

FBTBAH

Friction Brake Test Bench — Automated Hydraulic Caliper Test System

90 kN

Force measurement

OVERVIEW

The Friction Brake Test Bench is a compact, safety-focused, and fully instrumented system built to qualify rail brake calipers under controlled workshop conditions. Brake calipers are safety-critical actuators: they must generate the required clamping force instantly, hold pressure without leakage or creep, and release cleanly to prevent brake drag—because even small faults can lead to inconsistent braking, overheating, accelerated wear, wheel flats, and reduced stopping margin. This bench combines an integrated hydraulic power module with precision pressure and force measurement to validate the parameters that matter most—leak-tightness, pressure-hold stability, apply/release

behavior, and true clamping force output—for both hydraulically applied and spring- applied / hydraulically released calipers. With recipe-based automation, real-time

monitoring, and automatic test reporting, it standardizes overhaul and acceptance testing, reduces operator dependence, and delivers traceable results that support quality audits, reliability programs, and confident return-to-service decisions.

KEY FEATURES

- Pressure integrity and leak-tightness (static hold tests)
- Pressure ramp to setpoint (single-point or multi-step)
- Stabilization window (to allow temperature/elastic effects to settle)
- Timed pressure hold with measurable criteria (pressure decay rate, allowable drop, or pass/fail band)
- Repeatable hold sequences at multiple pressure levels to expose non-linear leakage behavior
- Verified pressure at the unit under test (UUT)

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Brake types	**Hydraulically applied and spring-applied / hydraulically released calipers**
Max test pressure	**Up to 160 bar class**
Controlled flow	**Up to 4 LPM class (for controlled apply/hold/release)**
Force measurement	**90 kN class load measurement chain**
Hydraulics	**Integrated HPU with filtration, safety relief, controlled depressurization**
Automation	**Recipe-based PC control with data logging and report generation**
Expandability	**Fixture-driven model coverage; additional sensors and routines as required**
Footprint	**Approx. 2518 × 1267 × 1500 mm class**
Electrical supply	**Configurable to local supply (typical industrial 3-phase configurations)**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/friction-brake-test-bench-automated-hydraulic-caliper-test-system.php

AIRFIELD SAFETY SYSTEM · AIRCRAFT EMERGENCY ARRESTMENT

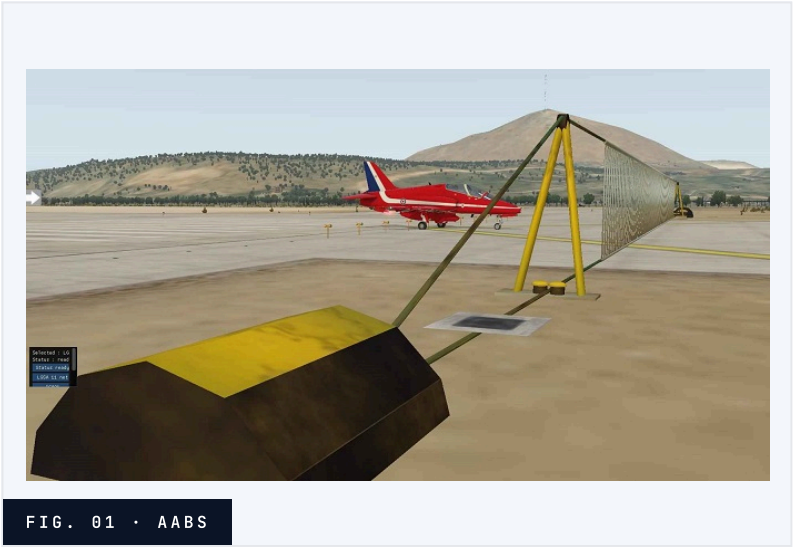

FIG. 01 · AABS

AABS

Aircraft Arrester Barrier System

Net- and pendant-type runway arrestment for military aircraft.

CLIENT

Air Force · Naval Air Stations

PLATFORM

6–20 t and 20–40 t aircraft

40 t	≤ 10 min	< 0.5 s	–20/+60 °C
Max aircraft class	Re-arm time	E-stop response	Operating range

OVERVIEW

The Aircraft Arrester Barrier System (AABS) is a mission-critical safety installation designed to rapidly decelerate and halt high-speed military aircraft in emergency overshoot or aborted take-off scenarios. Deployed at runway ends, it protects aircrew and ground infrastructure by absorbing the aircraft's kinetic energy.

Two principal arrestment methods are offered: a Multi-Element Net Assembly (MENA) that envelops the aircraft fuselage to distribute deceleration force, and a Pendant-type wire rope that engages the aircraft's tail-hook. Each variant is engineered for two weight classes — 6–20 tonne and 20–40 tonne.

Multi-mode control (local MCP, remote ATC, manual override) is backed by redundant 440 VAC and 48 V DC supplies with manual crank fallback. Full system re-arm in under ten minutes.

KEY FEATURES

- Dual arrestment modes — Multi-Element Net (MENA) and Pendant-type
- Aircraft weight classes: 6–20 tonne and 20–40 tonne
- Multi-mode control: local (MCP), remote (ATC), manual override
- Re-arm in ≤ 10 minutes, E-stop response < 0.5 s
- Redundant 440 VAC 3-phase + 48 V DC logic + manual crank fallback
- Nitrogen-filled shock absorbers + leaf-spring and rubber damping
- Heat-treated steel purchase tape, precision-machined drum
- MIL-STD-3000 series and ICAO Annex 14 compliant

APPLICATIONS

- Frontline combat air bases — fighter / combat-jet arrestment
- Training airfields — trainer and light-attack aircraft recovery
- Runway maintenance / resurfacing — portable end-cap deployment
- Carrier-deck simulation — shore-based arresting trials

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Arrestment

Arresting Method	**Net (MENA) or Pendant**
Aircraft Class	**6–20 t / 20–40 t**
Shock Absorber	**Nitrogen-filled, tuned damping**
Purchase Tape	**Heat-treated steel, precision drum**
Re-arm Time	**≤ 10 minutes**

Power & Control

Main Supply	**440 VAC, 50 Hz, 3-phase**
Logic Supply	**48 V DC, redundant**
Backup	**Manual crank fallback**
Control Modes	**Local · Remote (ATC) · Manual**
Panels	**ATC (A1889) · Multi-Purpose · Mimic**

Environment & Compliance

Operating Temperature	**–20 °C to +60 °C**
Heater	**Thermostat-controlled**
E-stop Response	**< 0.5 s from activation**
Standards	**MIL-STD-3000 series**
Reference	**ICAO Annex 14**

MIL-STD-3000 SERIES · ICAO ANNEX 14 · DGAQA-CERTIFIED · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aircraft-arrester-barrier-system.php

INTEGRATED SYSTEM · SODIUM-TEST THERMAL CONDITIONING

FIG. 01 · AHCS

AHCS

Argon Heating & Cooling System

Dual-loop hot and cool argon conditioning for IFTM sodium-test thermal control.

PLATFORM

IFTM (Inclined Fuel Transfer Machine)

~200 °C	≤45 °C	12.5 kW	2x blowers
Hot argon setpoint	Seal protection cooling	Heater vessel power	Cooling redundancy

OVERVIEW

The Argon Heating & Cooling System is an integrated, closed-loop facility for sodium test environments where precise thermal control prevents mechanism seizure while protecting temperature-sensitive seals. It simultaneously delivers hot inert argon (~200 °C) to prevent solid sodium deposition on motion interfaces and conditioned cool argon (≤45 °C) with targeted cold injection to block hot gas migration into seal zones.

Engineered with redundant cooling circuits, dual-loop architecture and comprehensive instrumentation, the system maintains stable thermal performance while actively preventing unsafe states through alarms, permissives and interlocks. A sodium vapour trap captures entrained aerosols in return lines. Purpose-built for high-value IFTM testing and nuclear facility applications, it delivers fewer shutdowns, reduced seal damage and repeatable stability.

KEY FEATURES

- Hot argon loop holds ~200 °C at IFTM interfaces, preventing sodium deposition
- Cool argon loop protects seals at ≤45 °C with cold-injection blocking
- Dual-loop architecture enables simultaneous heating and cooling
- Instrumented alarms, permissives and interlocks prevent unsafe states
- Redundant cooling circuits with continuous temp/pressure/flow monitoring
- Sodium vapour trap captures entrained aerosols in return lines

APPLICATIONS

- Sodium test facilities for IFTM and fuel handling mechanism testing
- Seal protection in liquid-metal cooled reactor test loops
- Thermal conditioning of sodium-exposed mechanical assemblies
- Testing high-temperature motion systems under low-pressure argon

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Thermal Performance

Hot Argon Setpoint	**~200 °C (heater outlet)**
Cooling Target	**≤45 °C typical (≤65 °C seal limit)**
Operating Pressure	**Controlled low gauge pressure**
Hot Buffer Tank	**~3 m³**
Cool Buffer Tank	**~2 m³**
Heater Vessel Power	**~12.5 kW (multi-bank)**

Cooling & Circulation

Hot Argon-to-Air Cooler	**~8 kW duty**
Cool Argon-to-Air Cooler	**~1 kW duty**
Cooling-Air Blower	**~2650 m³/hr @ ~300 Pa**
Cool Recirculation Blowers	**~65 m³/hr @ ~5500 Pa (2× redundant)**
Architecture	**Closed-loop dual circuit**
Return Protection	**Sodium vapour trap**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/argon-heating-and-cooling-system.php

INTEGRATED SYSTEM · AEROSPACE GEARBOX TEST

FIG. 01 · DCAS

DCAS

Drive and Control Automation System

250 kW closed-loop ALH Main Gear Box test rig with hydraulic load simulation.

PLATFORM

Advanced Light Helicopter (ALH) Main Gear Box

250 kW	**100** kA	**600** A	**Real-time** logging
Motor power output	MCCB breaking capacity	Main breaker rating	Remote monitoring

OVERVIEW

The Drive and Control Automation System is a precision test rig engineered for evaluating Advanced Light Helicopter (ALH) Main Gear Boxes under realistic operational conditions. The platform integrates a 250 kW AC motor, hydraulic load simulation and real-time data acquisition to replicate flight stresses including thrust, torque and hydraulic pump loads while monitoring temperature, vibration, speed and electrical efficiency.

This closed-loop testing solution enables aerospace facilities and helicopter manufacturers to validate gearbox durability through automated, repeatable test cycles. Real-time data acquisition, remote operation and precision load application make it essential for R&D centres and certification laboratories requiring reliable performance validation.

KEY FEATURES

- 250 kW 3-phase TEFC AC induction motor with VFD speed regulation
- Electro-hydraulic proportional valves apply thrust, torque and pump loads
- IEPE vibration sensors, high-resolution encoders and torque transducers
- 4-pole 600A MCCB (100 kA) with thermal overload and emergency stop
- AC alternator with resistive load bank evaluates electrical performance
- Remote monitoring with historical data logging and compliance verification

APPLICATIONS

- Helicopter gearbox testing and aerospace certification
- Military and commercial aviation transmission validation
- OEM helicopter manufacturer R&D facilities
- Aerospace test laboratories and research institutions

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Drive & Load System

Motor	**250 kW, 3-phase TEFC squirrel cage**
Variable Frequency Drive	**Siemens / ABB / Parker compatible**
Blower Motor	**Single- or three-phase cooling**
Load Simulation	**Hydraulic actuators with motorized power packs**
Alternator	**AC with resistive load bank**
Test Cycle	**Automated, repeatable**

Electrical & Data

Main Breaker	**4-pole 600A MCCB, 100 kA**
Motor Protection	**MPCB with thermal overload**
Voltage Stabilization	**AC line reactors**
Temperature	**Monitoring with overheat alerts**
Vibration	**IEPE piezoelectric sensors**
I/O Modules	**24 V DC digital + analog V/I**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/drive-and-control-automation-system.php

INTEGRATED SYSTEM · HIGH-PURITY NITROGEN PURGING

FIG. 01 · GPS

GPS

Gas Purging System

DRDO-qualified ultra-high-purity nitrogen purging for defence laser systems.

CLIENT

LASTEC, DRDO

≥99.999 %	±1 bar	≤0.5 % BFSL	4 × 80 L
Nitrogen purity	Outlet stability	Transmitter accuracy	Cylinder capacity

OVERVIEW

Neometrix's Gas Purging System delivers ultra-high-purity nitrogen for defence-grade laser applications at LASTEC, DRDO. Combining four 200-bar cylinders with dual-stage mechanical pressure reduction and cascaded filtration (2 µm primary, 0.1 µm secondary), the system holds outlet stability within ±1 bar while achieving ≥99.999% nitrogen purity. A PLC-driven panel with touchscreen HMI enables recipe-based purge profiles, real-time monitoring, data logging and remote diagnostics across multi-shift operations.

The modular skid integrates ANSI Class 2500 ball valves, dual relief valves (8 bar and 15 bar) and 4-20 mA pressure transmitters (±0.5% BFSL) to ensure safe overpressure protection and complete traceability. Dedicated vent lines allow safe depressurization for cylinder swaps without dismantling downstream connections, meeting international pressure-equipment directives.

KEY FEATURES

- Four 80 L, 200 bar cylinders with auto-changeover for uninterrupted cycles
- Cascaded filtration (2 µm + 0.1 µm) for ≥99.999% purity at point of use
- PLC/HMI recipe manager logs purge data to USB or network
- Relief valves (8 & 15 bar) auto-vent overpressure with alarm generation
- ANSI Class 2500 ball valves, Leakage Class IV bubble-tight isolation
- Turnkey DRDO-qualified, modular skid-mounted construction

APPLICATIONS

- Laser beam purging — displaces air and moisture from beam tubes
- Optics protection — inert blanket over lenses and mirrors
- Leak testing — automated pressure-decay verification post-service
- Multi-shift operations — extended run-time without manual intervention

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Control

Operating Pressure	**200 bar manifold; ±1 bar outlet**
Relief Valve Stages	**8 bar and 15 bar**
Pressure Transmitters	**0-200 bar, 4-20 mA, ≤0.5% BFSL**
Auto-Changeover	**Minimizes downtime during swaps**
Vent Line	**Safe depressurization without disassembly**
Compliance	**International pressure-equipment directives**

Purity & Filtration

Nitrogen Purity	**≥99.999% dry, oil-free**
Primary Filter	**2 µm bulk particulate**
Secondary Filter	**0.1 µm optics-grade**
Filter Media	**Stainless steel 316 wetted parts**
Cylinder Capacity	**Four × 80 L, 200 bar**
Ball Valves	**½" OD, ANSI Class 2500, Class IV**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/gas-purging-system.php

NEOMETRIX DEFENCE PRODUCT · SERVO-HYDRAULIC POWER

FIG. 01 · HPPLB-230

HPPLB-230

Hydraulic Power Pack 230-LPM/210-BAR

24×7 synchronized hydraulic power for six 500 kN servo actuators.

CLIENT

Bharat Earth Movers Limited (BEML); Ministry of Defence (India)

230 LPM	210 BAR	6 actuators	24/7 duty
Maximum flow	Operating pressure	Simultaneous support	Design duty cycle

OVERVIEW

The Hydraulic Power Pack 230LPM/210BAR by Neometrix delivers synchronized power to multiple servo-hydraulic actuators under extreme loads, achieving up to 230 LPM flow at 210 BAR for continuous 24×7 operation. Purpose-engineered for structural testing, aerospace validation and defence applications, it combines intelligent controls, advanced filtration and efficient cooling for mission-critical infrastructure.

The unit supports six simultaneous 500 kN actuators with fail-safe operation, maintaining ISO 4406 cleanliness through dual-stage filtration while an oil-to-water heat exchanger ensures thermal stability. Built to DGAQA certification and ISO 9001:2015, it is a benchmark in precision hydraulic engineering trusted by leading institutions.

KEY FEATURES

- Adjustable 200–230 LPM at 210 BAR with 230 BAR safety cutoff
- Dual-stage filtration (3–5 µm HP / 5–10 µm return), ISO 4406
- Oil-to-water heat exchanger with copper tubes, 35°C inlet
- Auto-shutdown on low oil, high temp and filter clogging
- Sub-70 dB design with vibration isolation and acoustic padding
- Optional PLC/SCADA integration with remote diagnostics

APPLICATIONS

- Missile container load testing and suspension rig evaluation
- Wing box fatigue testing and landing-gear actuation
- Bogie structural analysis and coupling buffer endurance
- Crash simulation benches and chassis fatigue validation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Flow & Pressure

Flow Rate	**200–230 LPM (adjustable)**
Operating Pressure	**210 BAR**
Safety Cutoff	**230 BAR**
Supported Load	**6 × 500 kN servo actuators**
HP Filter	**3–5 µm absolute, Beta ≥1000**
Return Filter	**5–10 µm absolute, Beta ≥1000**

Cooling & Control

Heat Exchanger	**Oil-to-water, copper tubes**
Filter Clog Indicators	**Electronic and visual, both lines**
Pressure Monitoring	**Digital/analog gauges with transducers**
Flow Monitoring	**Meter with digital display**
Oil Level	**Sight glass and digital indicator**
Panels	**Remote and main control with e-stop**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-power-pack-230-lpm-210-bar.php

NEOMETRIX DEFENCE PRODUCT · MOBILE COMMAND PLATFORM

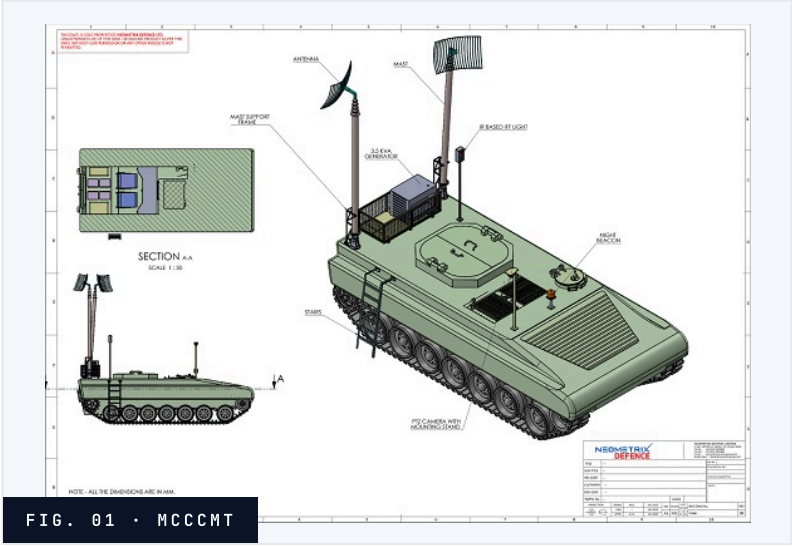

FIG. 01 · MCCCMT

MCCCMT

Modification of Command-and-Control Carrier Motor Track (CCC-MT)

Armored carrier transformed into an NBC-protected mobile battlefield headquarters.

PLATFORM

M1165 HMMWV (Expanded-Capacity Vehicle)

6 subsystems	**NBC** rated	**Modular** cabin	**Scalable** backbone
Integrated upgrades	Environmental control	Crew reconfiguration	Electronics upgrade path

OVERVIEW

The CCC-MT transforms armored tracked carriers into fully equipped mobile battlefield headquarters, enabling commanders to operate close to frontline forces while maintaining secure communications and real-time decision-making. The platform integrates six major subsystems — reinforced superstructure, armor fitments, NBC-protected environmental control, command-centre module, power management and modular crew cabin — delivering a protected, climate-controlled operational workspace.

This integrated approach combines mechanical modifications with advanced electronics and ergonomic design, ensuring sustained operations in hostile environments with resilience against kinetic, electronic and environmental threats. The result is a versatile mobile command hub capable of hosting electronic warfare suites, communications relays and battle-management systems without compromising tracked mobility.

KEY FEATURES

- Reinforced superstructure for antenna masts, armor and weapon stations
- NBC-integrated HVAC for conditioned air in contaminated zones
- Dedicated command module with ruggedized encrypted consoles
- Intelligent power routing with mission-critical load prioritization
- Modular crew cabin for operations, planning, liaison or rest
- Scalable electronics backbone for future sensor upgrades

APPLICATIONS

- Mobile battlefield headquarters for senior command
- Frontline command and control under hostile conditions
- Electronic warfare and ISR hosting hub
- NBC-protected operations for crew survivability

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Structural & Environmental

Ballistic Protection	**Enhanced resistance and structural rigidity**
NBC Filtration	**Redundant, low-maintenance cartridges**
Noise/Vibration	**Dampening for reduced operator fatigue**
Panels	**Optimized roof/side for antenna integration**
Base Platform	**M1165 HMMWV (Expanded-Capacity Vehicle)**
Subsystems	**Six integrated major upgrades**

Electronics & Power

Power Generation	**High-output alternators with battery backup**
Distribution	**Centralized with intelligent load prioritization**
Communications	**Multi-radio encrypted infrastructure**
Equipment Racks	**Modular with secured stowage**
Crew Cabin	**Modular reconfiguration by mission profile**
Upgrade Path	**Scalable electronics backbone**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/modification-of-command-and-control-carrier-motor-track-cccmt.php

INTEGRATED SYSTEM · SPIN TEST FACILITY

FIG. 01 · HCSTF-1K

HCSTF-1K

1000 HP Cyclic Spin Test Facility

Vertical-axis spin testbed to 24,000 RPM for rotor burst and fatigue.

20,000 RPM	24,000 RPM	650 L	165 LPM
Operational speed	Proof speed	SS-lined reservoir	Pump flow rate

OVERVIEW

The 1000 HP Cyclic Spin Test Facility is a high-performance vertical-axis testbed for validating centrifugal strength, burst speed and fatigue life of high-speed rotors across aerospace, automotive, energy and defence. It operates up to 20,000 RPM with proof testing to 24,000 RPM, using a 1000 HP AC motor with VFD control and a precision flexible-shaft coupling that isolates misalignment and resonance during cyclic testing.

A dedicated 650-litre SS-lined hydraulic reservoir with Dowty pump and multi-stage filtration ensures reliable bearing lubrication under extreme loads. Real-time pressure transducers, tachometers, strain gauges and PLC-based monitoring enable automated testing and data export for FEA validation, with magnetic interlocks and ballistic polycarbonate windows meeting CE, OSHA and ANSI standards.

KEY FEATURES

- 746 kW input with VFD ramp to 24,000 RPM proof
- Precision collet coupling isolates misalignment
- Multi-stage filtration meets NAS 1638 cleanliness
- Real-time RPM, vibration and pressure logging
- Polycarbonate windows and PLC magnetic interlocks
- Skid-mounted modular design for easy install

APPLICATIONS

- Aerospace: turbine wheels, compressor discs, fan blades
- Automotive: turbocharger rotors, cam phasers
- Energy: generator rotors, wind hubs, flywheels
- Defence: UAV rotors, missile turbopumps

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Mechanical & Drive

Rated Power	**1000 HP**
Maximum Speed	**20,000 RPM op; 24,000 RPM proof**
Pump Motor	**3.75 kW, 1440 RPM, 3-ph**
Coupling	**Precision collet, flexible shaft**
Oil Grade	**Servo System 32**
Standards	**CE Machinery, OSHA 1910.212, ANSI B11.5**

Hydraulic & Lubrication

Reservoir	**650 L MS tank, SS 304 lining**
Pump	**Dowty 115 cc/rev, 165 LPM at 3 bar**
Filters	**25 µm & 10 µm with clog indicators**
Relief Valve	**Inline @ 3 bar**
Return Ports	**¾" BSPF (wall); 2" BSPF (bearings)**
Level Sensing	**2× LG2-10 gauges; 4–20 mA transmitter**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/supply-of-suction-lubrication-system-for-1000hp-cyclic-spin-test-facility.php

NEOMETRIX DEFENCE PRODUCT · AEROSPACE HYDRAULIC TEST

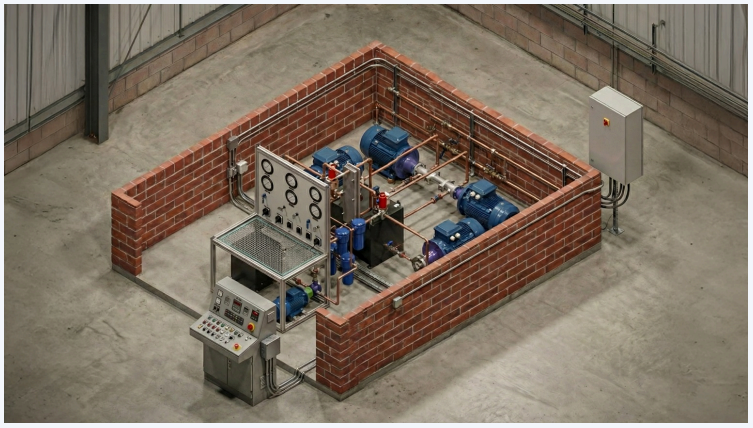

FIG. 01 · ASVHTE

ASVHTE

Aircraft Servo Valve Hydraulic Test Equipment

Engine-equivalent ATF conditions for flight-critical servo valve validation.

250 kg/cm²	6 µm	120 °C	3600 × 4200 mm
Max test pressure	Fine filtration rating	Max operating temperature	System footprint

OVERVIEW

The Aircraft Servo Valve Hydraulic Test Equipment by Neometrix Defence Limited is a precision simulation platform that recreates harsh aircraft engine conditions directly in the test facility. It delivers 120°C Aviation Turbine Fluid (ATF) at pressures up to 250 kg/cm², enabling comprehensive validation of servo valve performance, leakage, flow characteristics and dynamic response under flight-equivalent loads and thermal stresses.

Built as the final gatekeeper ensuring the aircraft's fuel and actuation subsystems remain dependable, the system integrates multi-stage filtration, intelligent thermal management, advanced drain-pressure regulation and an intuitive operator interface. Every servo valve tested emerges flight-ready, certified for reliable performance in critical aero-engine fuel-control and hydraulic actuation roles.

KEY FEATURES

- Multi-stage filtration to 6 µm (β>1000) with clog indicators
- High-pressure supply at 120, 150 and 250 kg/cm²
- Explosion-proof ABB motors and Beinlich pumps
- Separate preservation circuit prevents cross-contamination
- Plate heat exchanger controls ATF from 20°C to 120°C
- Drain circuit emulates engine manifold back-pressure

APPLICATIONS

- Aircraft engine overhaul and MRO maintenance validation
- Flight-critical hydraulic servo valve testing and certification
- Quality assurance labs ensuring pre-service reliability
- R&D and engineering validation for servo valve design

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic Performance

Test Pressure Range	**120, 150, 250 kg/cm²**
Operating Temperature	**20°C to 120°C**
Hydraulic Fluid	**Aviation Turbine Fluid (ATF)**
Flow Control	**Motorized, needle and 3-way valves**
Footprint	**Approx. 3600 × 4200 mm**
Wetted Materials	**Aircraft-grade stainless steel and aluminium**

Filtration & Control

Suction Filtration	**100–150 µm**
Medium Filtration	**10–16 µm**
Fine HP Filtration	**5–6 µm (β > 1000)**
Motors	**Explosion-proof ABB units**
Pumps	**Beinlich high-pressure models**
Control Interface	**15″ touchscreen HMI with DAQ**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aircraft-servo-valve-hydraulic-test-equipment.php

INTEGRATED SYSTEM · DEMILITARIZATION

FIG. 01 · CWDF

CWDF

Chemical Weapon Destruction Facility

Fully unmanned remote-controlled facility for safe chemical warhead neutralization.

3,600 units	**Zero** operators	**24/7** monitoring	**100** %
Warheads neutralized	Human exposure	Remote surveillance	Fail-safe shutdown

OVERVIEW

Neometrix's Chemical Weapon Destruction Facility is a fully unmanned, remote-controlled system engineered to safely dismantle and neutralize thousands of highly dangerous chemical warheads without human exposure. The facility uses automated conveyor belts, precision clamping systems and multi-headed drilling machines to securely hold each warhead, drill into it with pinpoint accuracy and prepare it for safe disposal, all monitored continuously via camera from a secure remote control room.

This breakthrough technology eliminates catastrophic risks inherent in manual handling. Equipped with multiple fail-safe protocols, sealed containment structures and precision alignment systems, the facility represents a critical advancement in large-scale chemical weapon disposal and global disarmament compliance.

KEY FEATURES

- Fully unmanned operation eliminates human exposure to toxic agents
- Automated conveyor and precision clamping position warheads
- Remote control room with continuous high-resolution camera feeds
- Multiple fail-safe protocols and sealed containment structure
- Precision alignment guides for accurate drilling trajectories
- Scalable throughput for large-scale demilitarization operations

APPLICATIONS

- International chemical weapons treaty compliance and stockpile elimination
- Large-scale demilitarization of aging munitions from conflict zones
- Safe neutralization of corroded or unstable warhead casings
- Global disarmament program support and hazardous ordnance disposal

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Operational Capacity

Total Warheads Neutralized	**3,600 units**
Operation Mode	**Fully unmanned, remote-controlled**
Monitoring System	**High-resolution 24/7 camera surveillance**
Cycle Time	**Continuous operation**
Conveyor System	**Automated loading and transport**
Drilling System	**Multiheaded robotic drills with alignment guides**

Safety & Handling

Clamping Precision	**Fraction-millimetre immobilization**
Containment	**Sealed structure with fail-safe protocols**
Human Exposure	**None**
Shutdown	**100% fail-safe on anomaly detection**
Control	**Secure remote control room**
Alignment	**Precision guides for drilling trajectory**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/chemical-weapon-destruction-facility.php

NEOMETRIX DEFENCE PRODUCT · LEAK TESTING

FIG. 01 · CCLT

CCLT

CNG Circuit Leak Tester

PLC-controlled nitrogen leak tester for vehicle CNG fuel circuits.

250 bar	3 stages	200 bar	4 × 40 L
Boosted N2 output	Pressurisation levels	Reference cylinder charge	Nitrogen bank

OVERVIEW

The CNG Circuit Leak Tester is a fully automated, PLC-controlled system that pressurises vehicle CNG fuel circuits with dry nitrogen and detects leaks through differential pressure comparison against a pre-charged reference cylinder. Its modular three-stage architecture — a multi-cylinder nitrogen bank, air-driven gas booster and high-pressure dispenser with precision regulators — enables rapid, sensitive, repeatable leak diagnostics.

The robust industrial solution integrates Haskel boosters, Swagelok fittings, Wika instrumentation and automated safety interlocks for dependable CNG system validation. It performs three-stage pressurisation with programmable hold times and user-settable differential pressure thresholds, ensuring compliance across automotive manufacturing, cylinder production and service environments.

KEY FEATURES

- Three modules: 4×40 L N2 bank (150 bar), PLC panel, dispenser
- Haskel air-driven booster: up to 250 bar from 4–7 bar air
- Three-stage pressurisation: 50/100/200 bar with timed holds
- Pre-test venting and emergency depressurisation solenoids
- EKC 200 bar reference cylinder with differential transmitter
- Wika Bourdon gauges and electronic transmitters for feedback

APPLICATIONS

- Automobile assembly lines: inline CNG vehicle certification
- CNG cylinder manufacturers: batch factory certification
- Service and conversion workshops: periodic safety checks
- Industrial gas systems: high-pressure pipeline validation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Air & Gas Supply

Dry Air Supply	**4–7 bar @ 40–60 CFM, 5 µm filtration**
Nitrogen Inlet	**40–150 bar, 7 µm, –40 °C dew-point**
Boosted N2 Output	**Up to 250 bar (max. 300 bar)**
Electrical Supply	**220–240 VAC, single phase, 50 Hz**
Nitrogen Bank	**4 × 40 L with automatic changeover**
Booster	**Haskel air-driven**

Performance & Operation

Stage 1	**0–50 bar, 10 s hold**
Stage 2	**50–100 bar, 30 s hold**
Stage 3	**100–200 bar, 60 s hold**
Leak Sensitivity	**User-settable differential pressure (mbar)**
HP Reservoir	**500 cc buffer for stage transitions**
Ambient Range	**0–40 °C, well-ventilated area**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/cng-circuit-leak-tester.php

NEOMETRIX DEFENCE PRODUCT · LEAK TESTING SYSTEM

FIG. 01 · CV

CV

CNG Vigilant

Automated leak testing for complete CNG vehicle circuits to 350 bar.

350 bar	**1×10^{-10}** atm cc/s	**10** m	**5** types
Max pressure	Leak sensitivity	Remote-control range	Programmable circuits

OVERVIEW

CNG Vigilant is Neometrix Group's automated leak testing system engineered for complete CNG vehicle circuits and critical components such as regulators, cylinder valves, nozzles and pressure lines. It operates at pressures up to 350 bar using pressure decay with differential sensing or helium mass spectrometry, with smart temperature compensation and nitrogen recycling for cost-effective, high-speed testing.

The system serves automotive OEMs, CNG kit manufacturers, R&D labs and service centres with dual detection modes, built-in safety redundancy and full digital traceability. Stepwise pressurisation logic detects loose fittings early, while automatic nitrogen reclamation and auto-cylinder switching ensure zero downtime in high-volume production.

KEY FEATURES

- Detects leaks to 1×10^{-10} atm cc/sec (Ver. 0.34)
- TTLIV temperature compensation up to 5 circuit volumes
- Remote operation up to 10 m with one-touch start
- Nitrogen reclaim across up to 4 cylinders
- Time-stamped reports with vehicle traceability, CSV export
- Supports 5 programmable circuit types

APPLICATIONS

- Automotive OEM end-of-line CNG vehicle leak testing
- Component-maker regulator, nozzle and valve validation
- R&D leak-rate benchmarking and pressure-hold tests
- Service-station post-maintenance leak verification

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Detection & Pressure

Detection Method	**Pressure decay + DP / helium mass spec**
Maximum Pressure	**350 bar**
Test Medium	**Nitrogen or N_2-helium mixture**
Cylinder Capacity	**Up to 4 × 40 L**
Internal Reservoir	**40 litres**
Versions	**Ver. 0.30 and Ver. 0.34**

Power & Utilities

Power Supply	**230V AC, 50 Hz**
Required Air	**3–6 bar, 40 SCFM, −40 °C DPT**
Nitrogen Quality	**99.99%, −40 °C DPT**
Remote Range	**10 metres**
Circuit Types	**5 programmable**
Reporting	**Time-stamped, CSV export**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/cng-vigilant.php

INTEGRATED SYSTEM · GAS CHARGING & FILLING

FIG. 01 · CNFS

CNFS

CO2 & N2 Filling System

Haskel-driven automated CO_2 (3400 PSI) and N_2 (4500 PSI) cylinder charging with HMI control.

3400 PSI	4500 PSI	8–10 kg/cm²	5 µm
Max CO_2 pressure	Max N_2 pressure	Air supply range	Filtration rating

OVERVIEW

The CO2 & N2 Filling System is a robust, versatile pneumatic machine designed to fill carbon-dioxide and nitrogen cylinders with precision and reliability. Operating up to 3400 PSI for CO_2 and 4500 PSI for N_2, it integrates Haskel air-driven pumps with proportional pressure regulators and an HMI interface for controlled, efficient gas charging.

It addresses critical needs in aviation maintenance, industrial gas management and leak testing — eliminating manual filling inconsistencies and enhancing operational safety through automated pressure control and real-time monitoring, with 5-micron filtration safeguarding gas purity.

KEY FEATURES

- Haskel air-driven pumps — 3400 PSI CO_2 / 4500 PSI N_2, low maintenance
- Proportional pressure regulators for precise, repeatable fill cycles
- HMI touchscreen with auto mode and easy parameter adjustment
- 5-micron pneumatic filtration maintains gas purity
- Emergency-stop and safety interlocks protect operator and equipment
- Self-lubricating seals reduce maintenance and extend service life

APPLICATIONS

- High-capacity, pressure-controlled CO_2 filling stations
- Temperature- and pressure-managed gas charging for aviation systems
- Leak testing of industrial equipment and pressure vessels
- Nitrogen cylinder charging for manufacturing and defence

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Performance

CO_2 Max Outlet	**3400 PSI**
N_2 Max Outlet	**4500 PSI**
Air Supply	**8–10 kg/cm²**
Static Test Capacity	**3400 PSI maximum**
Pumps	**Haskel air-driven**
Filtration	**5-micron pneumatic lines**

Control & Safety

Regulation	**Proportional pressure regulators**
Monitoring	**Pressure transmitter + Bourdon gauge**
Interface	**HMI front panel, auto mode**
Controls	**Start/stop + emergency stop**
Interlocks	**Safety interlocks on charge cycle**
Seals	**Self-lubricating, extended service life**

ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/co2-n2-filling-system

NEOMETRIX DEFENCE PRODUCT · AMMUNITION MANUFACTURING

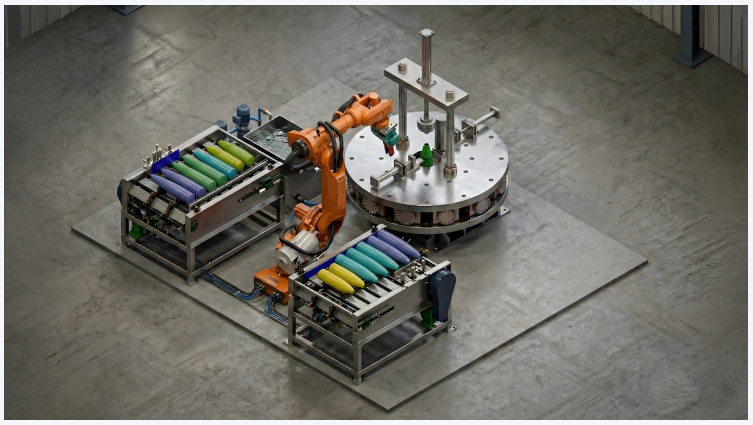

FIG. 01 · CBPAS

CBPAS

Copper Band Press for Ammunition Shell

1000-ton 12-cylinder press for copper driving-band swaging on artillery shells.

1000 tons	12 cylinders	20 units/hr	300 bar
Max pressing force	Synchronous actuators	Min throughput	Max hydraulic pressure

OVERVIEW

The Copper Band Press is a precision hydraulic machine engineered to shrink-fit or swage a copper driving band into the outer groove of artillery or tank shells. This 1000-ton capacity system applies uniform radial force through 12 synchronized cylinders, ensuring the band correctly engages with barrel rifling for stable projectile flight. It accommodates shell diameters from 120–155 mm at pressures up to 300 bar with programmable indexing.

Advanced automation via a Siemens S7-300 PLC and 12-inch colour HMI enables recipe management, digital force adjustment (250–1000 tons) and full production traceability. Designed for defence manufacturers and military ammunition facilities, the system delivers a minimum output of 20 band-pressed hollow bodies per hour while maintaining strict manufacturing tolerances and comprehensive safety standards.

KEY FEATURES

- 12 radially arranged cylinders (30° spacing) for uniform force
- Programmable indexing 15°–90° with 0–15 s dwell time
- Digital force adjustment 250–1000 tons via HMI
- Central ejector station (5–20 T up, 5 T down)
- 1500+ litre tank with heat exchanger and metered lubrication
- E-stop, light curtains, limit switches and relief valves

APPLICATIONS

- Medium to large-caliber artillery shell manufacturing
- Tank shell copper band assembly
- Military ammunition production facilities
- Defence ordnance manufacturing and MRO operations

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Mechanical Performance

Pressing Force Range	**250–1,000 metric tons**
Shell Diameter Range	**120–155 mm**
Copper Band Thickness	**2–10 mm**
Hydraulic Cylinders	**12 units**
Piston Diameter (min)	**200 mm**
Stroke Length	**30–35 mm**

Electrical & Control

PLC Controller	**Siemens S7-300**
HMI Display	**12-inch colour touchscreen**
Operating Voltage	**415 V ±10%, 50 Hz, 3-phase**
Motor Standard	**IE-3 efficiency class**
Control Panel Rating	**IP54**
Hydraulic Pressure	**270 kg/cm² (300 kg/cm² max)**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/copper-band-press-for-ammuniton-shell.php

STORAGE & HANDLING · CRYOGENIC STORAGE

FIG. 01 · CLMOVS

CLMOVS

Cryogenic Liquid Medical Oxygen Vertical Storage Tank

Vacuum-insulated vertical LOX tank with low boil-off for medical and industrial supply.

0.45 %/day	10000–20000 L	−196 °C	17 bar
Boil-off rate	Storage capacity	Operating temperature	Max working pressure

OVERVIEW

The CRYO-V-Oxygen is a vertical cryogenic storage tank engineered for dependable liquid oxygen delivery across medical, semiconductor, industrial and aerospace sectors. Its double-walled vacuum-insulated design — a stainless-steel inner vessel, perlite-filled annulus and carbon-steel outer shell — maintains temperatures to −196 °C while limiting boil-off to under 0.45% daily.

Built to EN 13458-2 and ASME VIII-1 standards, the tank incorporates dual relief valves, burst discs and a pressure-building coil for stable vaporisation without external equipment. Integrated sampling ports, vacuum monitoring and advanced safety interlocks provide seamless integration into complex gas-supply systems while ensuring regulatory compliance.

KEY FEATURES

- Vacuum-insulated double wall with perlite annulus, ≤0.45%/day boil-off
- Star-finned pressure-building coil for stable vapour delivery
- Dual spring-loaded relief valves and burst discs for redundancy
- Integrated sampling port and thermocouple vacuum gauge
- CCOE/PESO inspected and factory-acceptance tested
- Optional glass-bubble insulation reduces boil-off up to 35%

APPLICATIONS

- Medical and hospital central bulk oxygen supply
- Semiconductor high-purity LOX for plasma etching and CVD
- Industrial oxy-fuel cutting, welding and heat treatment
- Aerospace and research on-site LOX for propulsion tests

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Capacity & Materials

Nominal Capacity	**10,000 L or 20,000 L (±5%)**
Inner Vessel	**Austenitic SS-304 (X5 CrNi 18-10)**
Outer Shell	**Carbon steel S355J2, epoxy-coated**
Design Codes	**EN 13458-2; ASME VIII-1; PED 2014/68/EU**
Insulation	**Perlite-filled annulus under vacuum**
Annular Vacuum	**≤ 100 µm Hg (warm)**

Performance & Safety

Working Pressure (Inner)	**Up to 17 bar gauge**
Design Temperature (Inner)	**−196 °C to +40 °C**
Boil-off Rate (NER)	**≤ 0.45%/day**
Relief Devices	**Dual relief valves, dual burst discs**
Pressure Building	**Star-finned coil, no external vaporiser**
Monitoring	**Sampling port, thermocouple vacuum gauge**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/cryogenic-liquid-medical-oxygen-vertical-storage-tank.php

INTEGRATED SYSTEM · SNUBBER & SHOCK ARRESTOR

FIG. 01 · DSSATF

DSSATF

Dynamic Snubber Shock Arrestor Test Facility

Servo-hydraulic instrumented validation of plant snubbers under operability, drag and lock tests.

200 kN	350 bar	250 mm	11 kW
Max test load	Hydraulic working pressure	Actuator stroke	Main motor

OVERVIEW

Snubbers are the hidden safety restraints that protect critical piping during transients — earthquakes, water hammer, pump trips, valve slams, compressor surge. A degraded snubber can look perfectly fine externally while internally developing high drag, lost-motion slack, delayed lock sensitivity or out-of-range drift, leaving the plant exposed when it matters most.

This facility provides an automated, fully instrumented test bed for the complete qualification suite — Free Operability, Drag Force, Lost Motion, Lock Sensitivity and Drift Speed in both compression and tension. Servo-hydraulic actuation with high-accuracy load and displacement measurement drives controlled motion profiles, computes acceptance results, and generates traceable purchaser-format reports.

KEY FEATURES

- Full snubber qualification suite — operability, drag, lost motion, lock, drift
- Hydraulic and mechanical snubber coverage (velocity- and acceleration-based locking)
- Servo-hydraulic actuator with absolute digital linear encoder (<0.01% FS)
- Dual load cells (250 kN + 10 kN) for compression and tension testing
- Software-controlled motion profiles with automatic acceptance computation
- Traceable purchaser-format reports with graphs and pass/fail logic

APPLICATIONS

- In-service requalification of plant snubbers
- Acceptance testing of new snubber procurements
- Forensic / failure-investigation testing of returned units
- Type-test programs for snubber designs and revisions

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Loading & Actuator

Max Test Load	**200 kN (static + dynamic)**
Actuator Stroke	**250 mm**
Cylinder Bore / Rod	**130 mm / 90 mm**
Test Speed Range	**0 – 12.57 mm/s**
Servo Valve	**NG-6, up to 350 bar, 30 LPM**
Load Cells	**250 kN universal + 10 kN universal**

Hydraulic & Instrumentation

Working Pressure	**350 bar max; 300 bar servo inlet**
Main Pump	**Axial piston, 300 bar, 20 LPM, ISO VG 32**
Main Motor	**11 kW, 4-pole, 1440 RPM, 415 VAC**
Reservoir	**400 L SS-304 with bottom slope**
Cooling	**10 kW air-cooled heat exchanger**
Displacement	**Digital encoder 250 mm + LVDT 40 mm, <0.01% FS**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/dynamic-snubber-shock-arrestor-test-facility.php

INTEGRATED SYSTEM · SNUBBER QUALIFICATION

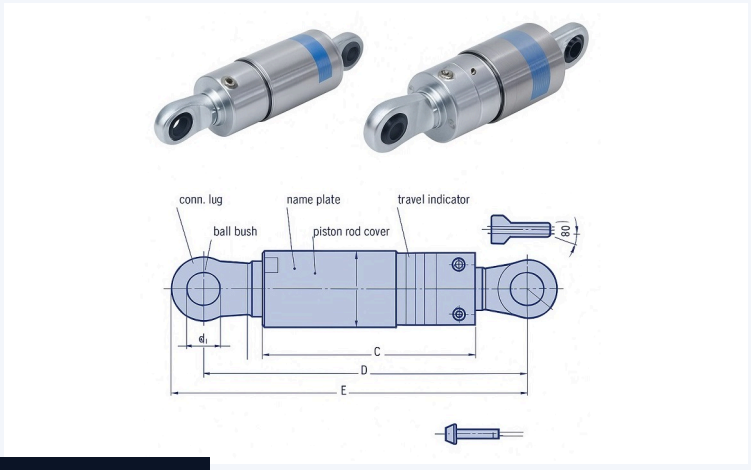

FIG. 01 · DSTF

DSTF

Dynamic Snubber Test Facility

ASME Section XI dynamic load testing of hydraulic and mechanical snubbers to 25 tons.

1500 MN/m	25 tons	±0.5 %	0.01 mm
Load frame stiffness	Max test load	Force accuracy	Displacement resolution

OVERVIEW

The Dynamic Snubber Test Facility by Neometrix Defence Limited is a state-of-the-art platform engineered for performance evaluation of hydraulic and mechanical snubbers used in nuclear power plants, sodium piping systems and critical infrastructure. Designed to comply with ASME BPVC Section XI, it delivers precise load testing to 25 tons, velocity and acceleration simulation, and detailed stroke, drag-force and activation measurements.

This robust solution safeguards systems against seismic forces and dynamic loads through adjustable velocity ranges, high-precision servo actuation and comprehensive data acquisition. LabVIEW software paired with NI/PLC hardware enables seamless operation, automated test sequencing and real-time analysis.

KEY FEATURES

- Fully automatic operation via LabVIEW with NI/PLC control
- Compatible with hydraulic and mechanical snubbers of all sizes
- Highly rigid 1500 MN/m load frame with friction-free actuation
- Positive hydraulic beam lock — secured without hydraulic pressure
- Automated test sequencing and report generation
- High-precision SSI linear position sensors for displacement

APPLICATIONS

- Nuclear power plant reactor and piping system protection
- Seismic load qualification for sodium piping systems
- Routine maintenance and in-service inspections per ASME
- R&D for new snubber designs

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Load & Actuation

Test Load Capacity	**25 tons**
Load Frame Stiffness	**1500 MN/m**
Servo Actuator Capacity	**Up to 50 tons**
Hydraulic Power Pack	**Up to 300 bar**
Force Accuracy	**±0.5%**
Displacement Resolution	**0.01 mm**

Motion Control

Velocity Range	**0.1 to 15 mm/sec**
Acceleration Capacity	**250 mm/sec²**
Stroke Length Adjustment	**50 to 300 mm**
Moveable Beam Adjustment	**1200 mm**
Control Software	**LabVIEW with NI/PLC**
Position Sensing	**SSI linear position sensors**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/dynamic-snubber-test-facility.php

INTEGRATED SYSTEM · TEST CELL INSTRUMENTATION

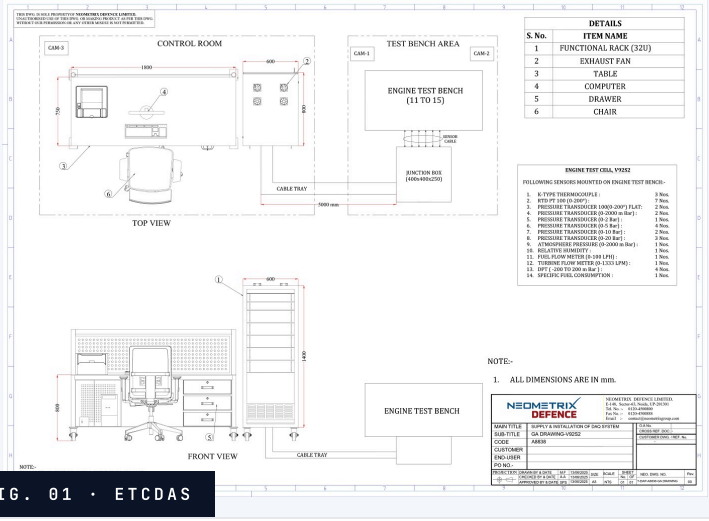

FIG. 01 · ETCDAS

ETCDAS

Engine Test Cell Data Acquisition System

Time-synchronized multi-cell DAS unifying thermals, mechanics, vibration and video into a single audit-grade stream.

≤1 µs	200 kS/s	256 ch/cell	24 bit
Hardware sync accuracy	Vibration sample rate	Universal analog density	Acquisition resolution

OVERVIEW

The Engine Test Cell DAS is a scalable, multi-cell platform that consolidates sensors, signal conditioning, high-speed acquisition and synchronized video into a single time-aligned data stream. Live dashboards serve operators while clean, analysis-ready archives flow to engineering and quality teams.

Built for both new labs and brownfield upgrades, it integrates with existing sensors and PLC/SCADA, enforces good measurement practice through guided workflows, and maintains full traceability through calibration records, user roles and audit logs. Mixed-rate channels run on a common hardware clock so events line up precisely across every test cell, run after run.

KEY FEATURES

- Hardware-synchronized acquisition across multiple cells (≤1 µs)
- Live trend / XY / FFT / waterfall visualization with event tagging
- Time-synchronized video with frame/time overlays and bookmarking
- Limit checking and alarms with latching and acknowledgement
- E-signed runs and audit trail for traceable quality records
- PDF/CSV/JSON/SQL reporting with OPC UA & REST APIs

APPLICATIONS

- Aero-engine and gas-turbine production / acceptance testing
- R&D characterization across multiple test cells
- Endurance, vibration and thermal cycling campaigns
- Brownfield upgrades integrating with existing PLC/SCADA

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Acquisition

Universal Analog	**64–256 ch/cell; 24-bit; up to 5 kS/s/ch**
Thermocouples	**48–192 ch/cell; T/K/J; auto CJC**
RTD	**16–64 ch/cell; Pt100/Pt1000; 4-wire**
Pressure	**16–64 ch; 24-bit; up to 5 kS/s; shunt/zero**
Vibration	**8–32 IEPE ch; 24-bit; up to 200 kS/s/ch**
Speed / Torque	**8–24 counter/tacho; up to 20 MHz**

System & Software

Timing & Sync	**≤1 µs across chassis; GPS/PTP optional**
Networking	**Dual Ethernet (control/data); VLAN per cell**
Software	**Real-time viz, sequencing, e-sign, REST/OPC UA**
Storage	**Scalable local + central repository; RAID; backups**
Enclosures	**19″ racks / wall cabinets; IP-rated options**
Power	**230 VAC, 50 Hz; protective earthing, surge protection**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/engine-test-cell-data-acquisition-system.php

INTEGRATED SYSTEM · LOCOMOTIVE FUEL

FIG. 01 · FCMS

FCMS

Fuel Consumption Measurement System

Skid-mounted load-cell rig for precise locomotive fuel efficiency testing.

150 L	1.5 kW	85±5 °F	10 µm
Fuel tank capacity	Motor power	Maintained fuel temp	Absolute filter rating

OVERVIEW

The Fuel Consumption Measurement System (FCMS) is an advanced, skid-mounted platform engineered for precise locomotive fuel-efficiency testing. This self-contained unit continuously monitors fuel mass via load cells mounted beneath a 150-litre stainless-steel tank, delivering real-time consumption data while maintaining optimal fuel temperature through integrated chilling and heat-exchange systems.

Equipped with a flameproof motor-driven pump, 10-micron filtration and PLC-controlled automation, the system ensures clean fuel delivery and accurate measurement under controlled laboratory conditions. The control panel features an HMI display and integrated safety interlocks that prevent operation until all required valves are properly positioned, protecting equipment and personnel.

KEY FEATURES

- Real-time fuel mass via 4 load cells, Mettler Toledo IND 570
- Automated filling with electric ball valves and limit switches
- 12 TR chiller maintains fuel at 85 ± 5 °F
- Electronic clogging indicator, 10-micron absolute filter
- HMI shows live tank mass, valve positions, pump status
- Interlocks prevent motor startup unless valves are open

APPLICATIONS

- Railway and locomotive fuel-efficiency validation
- Engine performance testing under varied conditions
- Fuel optimisation and operational cost-reduction analysis
- Real-time consumption monitoring during extended tests

SPECIFICATIONS

principal parameters · full equipment list in catalogue

System Core

Fuel Tank	**150 L (SS-304 stainless steel)**
Electric Motor	**1.5 kW, 1440 RPM, 3-phase, flameproof**
Load Cells	**4 units with junction box and indicator**
Fuel Filter	**10 micron absolute, clogging indicator**
Indicator	**Mettler Toledo IND 570**
Power Supply	**220 V AC in, 24 V DC out**

Climate & Control

Temperature Sensors	**RTD, 0–100 °C**
Heat Exchanger	**Shell & tube, 0.01 bar ΔP**
Chiller	**12 TR, 3-phase air-cooled**
Control Panel	**700×650×350 mm, PLC + HMI**
Communication	**RS485, Ethernet (GE DACS)**
Safety	**Valve-position interlocks, E-stop**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/fuel-consumption-measurement-system.php

INTEGRATED SYSTEM · LAB GAS DISTRIBUTION

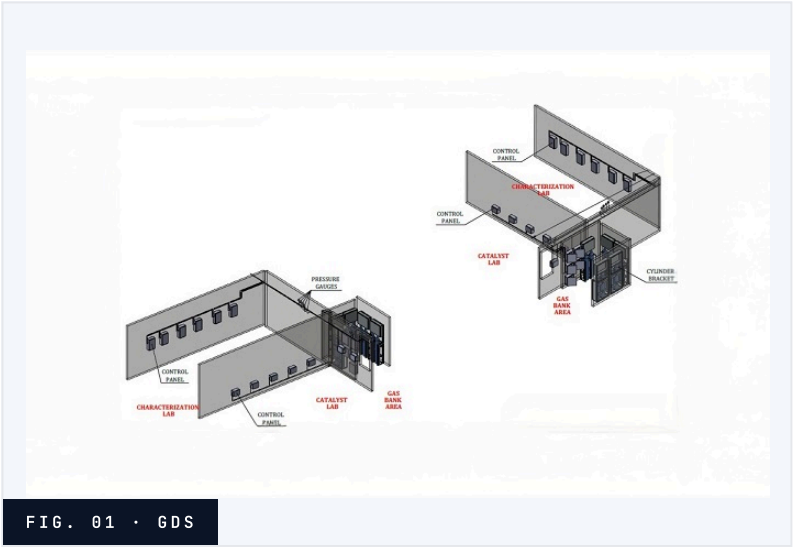

FIG. 01 · GDS

GDS

Gas Distribution System

Auto-changeover, sub-ppb purified gas delivery for analytical laboratories.

<5 ppb	**230** bar	**16** channels	**5** banks
Moisture removal	Max inlet pressure	Detection panel	Auto-changeover

OVERVIEW

The Gas Distribution System is a fully engineered assembly that integrates automatic dual-cylinder changeover manifolds, multi-stage purification modules and point-of-use regulation to deliver ultra-pure gases — Zero Air, Nitrogen, Hydrogen, Helium and Methane — from high-pressure cylinders to laboratory instruments. Electropolished stainless-steel tubing and an ATEX/CE-certified detection panel ensure contamination-free supply.

Designed for seamless operation without manual intervention, the system automatically switches between primary and standby cylinder banks while maintaining sub-ppb purity. Its modular architecture fits standard laboratory panel layouts, offering ergonomic access to regulators, gauges, relief valves and isolation components, and is suitable for expansion and customization.

KEY FEATURES

- Auto-changeover manifold switches to standby on pressure drop
- Sequential purification: moisture <5, THC <15, O_2 <1 ppb
- Point-of-use SS 316L regulators delivering 0–100 psi
- Electropolished SS 316/316L tubing, helium leak-tested
- ATEX/CE detection panel with 4–20 mA and Modbus RS-485
- Scalable modular assembly for standard lab enclosures

APPLICATIONS

- Analytical instrumentation: GC, GC-MS and FID detectors
- Catalyst R&D kinetic studies in microreactors
- Process simulation with precise $H_2/N_2/CH_4$ ratios
- Safety-critical inerting and blanketing with detection

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Capacity & Performance

Inlet Pressure	**Up to 230 bar (3,335 psi)**
Outlet Pressure	**0–14 bar; regulators 0–100 psi**
Purification	**Moisture <5 ppb; THC <15 ppb; O_2 <1 ppb**
Manifold Material	**SS 316L electropolished**
Tubing & Fittings	**SS 316/316L, ¼″ & ⅛″, He leak-tested**
Gases	**Zero Air, N_2, H_2, He, CH_4**

Detection & Safety

Detection Panel	**16 channels; 4–20 mA; RS-485 Modbus**
Sensor Enclosure	**SS 316; IP66; ATEX/IECEx certified**
Flexible Hoses	**SS core, braided; 1 m; 200 bar rating**
Panel Enclosures	**Powder-coated MS; 600 × 400 mm frames**
Changeover	**5-bank auto-changeover manifold**
Outputs	**4–20 mA, relay contacts, Modbus**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/gas-distribution-system.php

INTEGRATED SYSTEM · FIRE-SUPPRESSION AGENT RECOVERY

FIG. 01 · HRRF

HRRF

Halon Reclamation & Refilling Facility

Turnkey closed-loop Halon recovery and recharge to better than 98% purity.

200 tons/yr	>98 %	-70 °C	280 days/yr
Throughput	Recovery efficiency	Min refrigeration	Design capacity

OVERVIEW

Neometrix's turnkey Halon Reclamation & Refilling Facility (HRRF) automates closed-loop recovery, purification and recharge of Halon-1211 and Halon-1301 fire-suppression agents to better than 98% efficiency and ISO 7201/ASTM D7673 purity. Three-stage filtration, cascaded sub-ambient refrigeration (down to -70 C) and vacuum-boosted pumping recover spent agents while an integrated laboratory suite certifies each batch to virgin-stock standards.

Skid-mounted modular architecture with PLC/HMI control and IoT-enabled remote monitoring enables scalable throughput across defence hangars, research labs, industrial plants and mobile field units. Automated data logging generates compliance certificates on demand, backed by turnkey installation, annual maintenance contracts and operator training.

KEY FEATURES

- Three-stage filtration plus sub-ambient refrigeration recovers >98% mass
- Dual air-driven Haskel vacuum-boosted pumps for 200 tons/year
- Onboard GC, mass spectrograph, Karl Fischer titrator, BP analyzer
- PLC/HMI with IoT auto-generates ISO 7201/MIL-STD certificates
- Modular skid design with low-GWP refrigerants for capacity expansion
- Trailer-mounted variant deploys plug-and-play within 48 hours

APPLICATIONS

- Defence & aerospace on-site reclamation in hangars and naval vessels
- Research and certification labs requiring ultra-pure Halon
- Industrial process safety for data centres and petrochemical plants
- Emergency response and forward-base rapid replenishment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Core Systems

Throughput	**200 tons/year at 1.5 kg/min**
Recovery Efficiency	**>98% mass-balance**
Purity Standard	**ISO 7201 & ASTM D7673**
Reclamation Modules	**Three-stage filters + cascaded refrigeration**
Pumping	**Dual Haskel air-driven, vacuum-assist**
Lab Suite	**GC, mass spectrograph, KF titrator, BP analyzer**

Facility Utilities

Air Compressor	**25 HP oil-free, 80 gal tank**
Power	**62.5 kVA silent diesel generator**
Vacuum Pumps	**7.5 CFM**
Min Refrigeration	**-70 C**
Control	**PLC with HMI, automated alarms**
Piping	**Helium leak-tested**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com
ONLINE neometrixgroup.com/products/halon-reclaimation-and-refiling-facility.php

INTEGRATED SYSTEM · WEAPON DISPOSAL

FIG. 01 · HDASRW

HDASRW

Heavy Duty Automatic Single Row Weapon Disposal System

Dual-stage shred-and-melt destruction of firearms and military small arms.

75 kW	1700 °C	100 kg	150 kW
Furnace power rating	Max melting temperature	Batch capacity	Total electrical load

OVERVIEW

The Heavy Duty Automatic Single Row Weapon Disposal System provides secure and irreversible destruction of firearms and military-grade weapons through dual-stage processing. Shredding reduces weapons to unrecognisable fragments, followed by induction melting at up to 1700 °C, ensuring complete destruction with no possibility of reuse or reassembly.

The fully automated machine integrates high-strength cutting blades, automated feeding and a PLC-based control system for efficient, high-security disposal. Designed for defence organisations and law enforcement, it meets stringent military standards while delivering energy-efficient operation with real-time monitoring.

KEY FEATURES

- Dual-stage: H13 blades (HRC 55) shred, then induction furnace melts
- Handles INSAS rifles, LMG/MMG 7.62 mm, AK-47s, handguns
- Induction furnace: 100 kg/batch, closed-loop DM water cooling
- PLC touchscreen with Ethernet/Wi-Fi and real-time data logging
- Reinforced steel frame with emergency shutoff and camera mount
- Electromagnetic shielding prevents interference during melting

APPLICATIONS

- Military ordnance decommissioning of surplus firearms
- Law enforcement disposal of confiscated or illegal weapons
- Defence industry metal recycling for military reuse
- Global disarmament and demilitarisation programme support

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Shredding Unit

Machine Type	**Heavy-duty, high-torque weapon shredder**
Blade Material	**H13 high-grade alloy steel (HRC 55)**
Output	**Small, unrecognisable metal fragments**
Material Compatibility	**Hardened steel, aluminium, polymers**
Feeding	**Automated single-row feed**
Control	**PLC-based touchscreen**

Induction Melting Furnace

Furnace Type	**Induction melting, hydraulic tilting**
Melting Capacity	**100 kg per batch**
Power Rating	**75 kW**
Max Operating Temperature	**1700 °C**
Cooling System	**Closed-loop demineralised water**
Cooling Tower	**20 TR capacity**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/heavy-duty-automatic-single-row-weapon-disposal-system.php

NEOMETRIX DEFENCE PRODUCT · GAS CHARGING SYSTEM

FIG. 01 · HCS

HCS

Helium Charging Station

Decants, hydro-tests and refills helicopter emergency flotation bottles.

400 bar	690 bar	150 L	−40 °C
Max helium refill	Hydrostatic test	Water reservoir	Dew point achieved

OVERVIEW

The Neometrix Helium Charging System is a skid-mounted unit that safely decants, hydrostatically tests and refills helicopter emergency flight bottles. Pneumatic-driven Haskel boosters transfer residual helium at 125 bar, pressurise bottles with water to 690 bar for integrity verification, and charge them with high-purity helium to 400 bar.

Modular stainless-steel construction, multi-stage filtration, precision instrumentation and automatic safety cut-outs ensure reliable depot-level maintenance with minimal operator intervention. A 20 HP compressor with refrigerated and desiccant dryers achieves a −40 °C dew point, while a central control panel with audible and visual alarms prevents sequencing errors across 9 L and 18 L bottles.

KEY FEATURES

- Air-driven Haskel boosters — variable cycling, no flame/spark
- Multi-stage filtration (0.001–5 µm)
- Handles 9 L and 18 L helicopter flotation bottles
- Central panel with audible/visual alarms
- Modular SS tubing with Swagelok fittings
- 20 HP compressor with refrigerated + desiccant dryers

APPLICATIONS

- Military/aerospace depot maintenance of flotation bottles
- Industrial gas cylinder certification and refill
- Research and calibration lab pressure testing
- Emergency-services fire-suppression cylinder refill

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Decanting & Refilling

Air Drive Pressure	**7 bar**
Max Helium Pressure	**400 bar**
Air Consumption	**40–50 CFM**
Filtration	**0.001 µm / 5 µm**
Residual Transfer	**125 bar**
Bottle Sizes	**9 L and 18 L**

Hydrostatic & System

Max Water Pressure	**690 bar**
Water Tank Capacity	**150 L**
Air Drive Pressure	**7 bar**
Power Supply	**440 V, 50 Hz**
Control Voltage	**24 V DC (alarms)**
Compressor	**20 HP, −40 °C dew point**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/helium-charging-station.php

MACHINE · LEAK TESTING

FIG. 01 · HPLTM

HPLTM

High Pressure Leak Testing Machine

Automated pneumatic leak detection for 1.2–20 L components to 250 bar.

250 bar	±0.25 % FS	20 L	44:1 ratio
Max test pressure	Measurement accuracy	Max component volume	Dome regulator amp

OVERVIEW

The High Pressure Leak Testing Machine is a fully automated pneumatic platform engineered for precision leak detection in industrial components ranging from 1.2 to 20 litres. Operating at pressures up to 250 bar with an air-driven booster and dome-loaded regulation, it delivers precise leak detection through PLC automation and a 10-inch HMI touchscreen.

The system supports multiple test modes — static leak, pressure hold, stepwise pressure and real-time profiling — making it suitable for quality control and endurance validation. Built with premium components (WIKA, Haskel, Festo, Ham-Let), it ensures high repeatability and operator safety across automotive, aerospace, railways and defence sectors.

KEY FEATURES

- Fully automated pneumatic testing with PLC and 10″ HMI
- Air-driven booster with dome regulator (44:1, 5000 psi max)
- Multi-mode — static decay, hold, stepwise ramp, profiling
- ±0.25% FS accuracy with SS316L wetted components
- E-stop, interlocked enclosures, auto-venting, tower light
- Flexible 1.2–20 L capacity at 20–250 bar adjustable range

APPLICATIONS

- Automotive brake/clutch actuators, EGR valves, air suspensions
- Aerospace and defence pneumatic control valves and canisters
- Railway door actuators, brake distributor valves, air tanks
- Medical and gas oxygen/nitrogen valves and pressure reducers

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Volume

Test Pressure Range	**20–250 bar (adjustable)**
Component Volume	**1.2–20 litres**
Test Medium	**Clean dry compressed air or nitrogen**
Air Receiver Tanks	**6 L @ 350 bar (HP), 6 L @ 16 bar (LP)**
Booster Ratio	**44:1 amplification, 5000 psi max**
Safety Relief Valve	**275–344 bar, spring-loaded fail-safe**

Instrumentation & Control

Pressure Transmitters	**0–400 bar, 4–20 mA, 0.25% FS**
Analog Gauges	**0–16 bar & 0–400 kg/cm² (WIKA SS316L)**
Solenoid Valves	**Festo 3/2 & 2/2, 220–230 VAC**
Actuated Ball Valves	**1/4″ OD, Ham-Let, pneumatic**
Control	**Schneider PLC + 10″ HMI, I/O diagnostics**
Safety	**Emergency venting and interlocked enclosure**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/high-pressure-leak-testing-machine.php

INTEGRATED SYSTEM · PUMP LOADING RIG

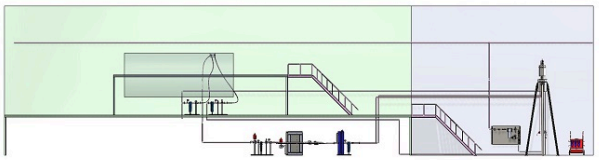

FIG. 01 · HLS

HLS

Hydraulic Loading System

Modular skid rig for engine-driven hydraulic pump qualification to 295 bar.

295 bar	20–210 LPM	175 L	8 modules
Working pressure ceiling	Flow capacity	Reservoir volume	Skid configuration

OVERVIEW

The Hydraulic Loading System (HLS) is a fully modular, skid-mounted test rig that replicates the demanding operating conditions of engine-driven hydraulic pumps across aerospace, defence and industrial sectors. It delivers controlled back-pressures up to 295 bar and flow rates from 20–210 LPM while holding tight oil-temperature tolerances. Eight plug-and-play modules — reservoir, air regulation, flow control, loading valve cycling and heat exchange — enable repeatable pump qualification.

The HLS integrates PLC/HMI control, automated safety interlocks, energy-recovery features and remote diagnostics for turnkey pump testing in laboratory and field environments. Built from corrosion-resistant steels, aerospace-grade seals and precision piping, it ensures reliable performance validation and compliance with standards like MIL-H-5606.

KEY FEATURES

- Modular skid design for rapid relocation
- ±0.5% pressure and ±1% flow accuracy with HMI
- Customisable profiles: static, ramp, step, sine
- Automated interlocks on over-pressure/temp/low-oil
- Quick-swap orifice sets minimise downtime
- Remote monitoring via Modbus/ProfiNet for IIoT

APPLICATIONS

- Aerospace pump qualification (FAR/JAR standards)
- Defence vehicle hydraulic drive validation
- Industrial efficiency benchmarking and cavitation analysis
- OEM production QA and end-of-line functional testing

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic Performance

Max Design Pressure	**340 kg/cm² (≈4,834 psi)**
Working Pressure Range	**270–295 kg/cm²**
Flow Capacity	**20–210 LPM (≈5.3–55 gpm)**
Hydraulic Fluid	**MIL-H-5606 / FH-51**
Reservoir	**175 L, pressurised to 10 kg/cm²**
Temperature Limits	**Inlet ≤80 °C; outlet ≤100 °C**

System Infrastructure

Air Supply	**6–10 kg/cm² (≈85–142 psi)**
Power Requirement	**3-ph 415 VAC, 50 Hz, 10 kW**
Control Interface	**7" HMI with PLC, Ethernet, USB**
Frame Material	**Carbon-steel, epoxy powder coat**
Modules	**8 plug-and-play**
Instrument Accuracy	**±0.5% pressure, ±1% flow**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-loading-system.php

INTEGRATED SYSTEM · HYDRAULIC POWER

FIG. 01 · HPPAS

HPPAS

Hydraulic Power Pack and Actuator System

Skid-mounted 300 kW electro-hydraulic power pack with modular hot-swap design.

300 kW	250 bar	<2 hr	<75 dBA
Continuous power	Max pressure	Mean time to repair	Noise level

OVERVIEW

The Hydraulic Power Pack and Actuator System is a fully modular, skid-mounted electro-hydraulic solution delivering up to 300 kW of continuous power at pressures up to 250 bar. It combines a variable-displacement axial piston pump with auxiliary fixed-displacement stages, a 2,000 L stainless-steel reservoir and advanced thermal management for precise control across industrial, aerospace and mobile applications.

Built for reliability and serviceability, it features a 300 kW shell-and-tube heat exchanger, multi-stage filtration to ISO 16/14/11 cleanliness, and an Allen-Bradley or Siemens PLC platform with OPC UA and Profinet. Hot-swap modular components and predictive-maintenance analytics enable mean-time-to-repair under 2 hours, while optional SIL 3 and ATEX Zone 1 certifications support hazardous-site deployment.

KEY FEATURES

- 0–220 L/min variable + dual 100 L/min fixed pumps at 300 kW
- 2000 L SS-304 reservoir; 10/3 µm + coalescer to ISO 16/14/11
- 300 kW heat exchanger, 95-ton VFD cooling tower, <50 ppm water
- Allen-Bradley ControlLogix or Siemens S7, OPC UA/Profinet
- Optional SIL 3, ATEX motors, <75 dBA enclosure
- Quick-change filters and connectors reduce MTTR to <2 hours

APPLICATIONS

- Railway fuel-tank filling with ±0.1% mass accuracy
- Industrial actuation and test benches up to 1 MN
- Mobile offshore and defence — winches, turret stabilisation
- Aerospace ground-support for flight-control actuator stands

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Power & Hydraulics

Max Power	**300 kW**
Max Pressure	**250 bar**
Flow Rates	**0–220 L/min variable; two 100 L/min fixed**
Reservoir	**2,000 L (1,000–5,000 L optional)**
Mass Accuracy	**±0.1% setpoint; ±0.02% dynamic**
Operating Temp	**−20 to +60 °C (cold-start −40 °C)**

Filtration & Thermal

Filtration	**10 µm primary, 3 µm secondary, coalescer**
Heat Exchanger	**300 kW @ 700 L/min (to 500 kW)**
Cooling Circuit	**95-ton tower, 3.7 kW VFD fan**
Water Content	**<50 ppm dehydration/degasification**
Control	**Allen-Bradley or Siemens S7, 1-yr historian**
Safety Ratings	**SIL 3 optional, ATEX Zone 1, CE, UL**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-powerpack-and-actuator-system-manufacturer.php

NEOMETRIX DEFENCE PRODUCT · GAS COMPRESSION SYSTEM

FIG. 01 · HGBS

HGBS

Hydrogen Gas Boosting Station

Low-power glycol-driven hydrogen booster compressing 30 bar inlet to 150 bar output.

150 bar	66.67 SLPM	500-750 W	100 mm
Max outlet pressure	Compression rate	Power consumption	Primary cylinder stroke

OVERVIEW

The Hydrogen Gas Boosting Station is a high-pressure compression system engineered for safe, efficient hydrogen handling in industrial and research applications. Operating with a 30 bar inlet and delivering 150 bar output, it employs a hydraulic glycol drive while consuming minimal power (500-750 W), making it ideal for hydrogen refuelling infrastructure and energy projects.

This system features hydrogen-compatible brass components and NBR seals to prevent embrittlement, coupled with a dedicated cooling circuit for thermal stability. Advanced safety mechanisms including relief valves and fail-safe controls ensure reliable operation across gas distribution, R&D and renewable energy sectors supporting fuel cell development.

KEY FEATURES

- Brass surfaces and NBR seals prevent hydrogen embrittlement
- Glycol drive with open barrier maintains hydrogen gas purity
- Dedicated cooling circuit manages compression heat
- Automatic relief valve prevents overpressure beyond 150 bar
- Redundant fail-safe controls trigger emergency shutdown
- Adaptable configurations for varying pressures and flow rates

APPLICATIONS

- Hydrogen refuelling stations and fuel cell infrastructure
- Gas distribution networks and industrial hydrogen supply
- R&D for hydrogen storage and fuel cells
- Renewable energy storage from excess wind or solar power

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Operational Parameters

Gas Type	**Hydrogen (H2)**
Inlet Pressure	**30 bar**
Outlet Pressure	**150 bar**
Compression Rate	**4 m3/hour (66.67 SLPM)**
Power Consumption	**500-750 W**
Drive System	**Hydraulic, glycol medium**

Physical & Safety

Cylinder Stroke	**100 mm**
Oxygen Compression Stroke	**50 mm**
Hydraulic Stroke Material	**Corrosion-resistant steel**
Relief Valve	**Limits overpressure beyond 150 bar**
Seals	**NBR, hydrogen-compatible**
Safety Design	**Fail-safe redundant controls**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydrogen-gas-boosting-station.php

INTEGRATED SYSTEM · HYDROGEN ENERGY

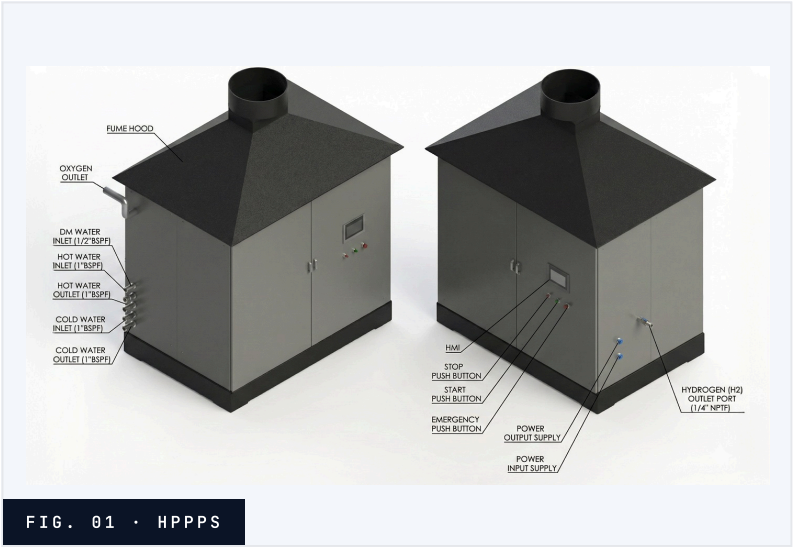

FIG. 01 · HPPPS

HPPPS

Hydrogen Power-to-Power (P2P) System

PEM electrolysis + solid-state H_2 storage + fuel cell — full P2P cycle in one lab cabinet.

1.0 Nm³/h	5 kg	5 kW	5 kWh
H_2 generation	Storage capacity	Fuel cell power	Battery buffer

OVERVIEW

The Hydrogen P2P System is a compact, turnkey lab platform that demonstrates the full electricity-to-hydrogen-to-electricity cycle in a single engineered cabinet. A PEM electrolyser generates up to 1 Nm³/h of hydrogen, solid-state metal-hydride canisters store up to 5 kg H_2 with active thermal management, and a 5 kW PEM fuel cell with inverter and battery buffer delivers stable 230 VAC back to the load.

Built for universities and R&D labs, it brings industrial capability into a lab footprint — PLC automation, touchscreen HMI, SCADA-ready Modbus TCP / OPC UA, and continuous data logging. Layered safety (H_2 detection, interlocked shutdown, forced-extraction ventilation) makes it a credible testbed for hydrogen microgrids, renewable buffering and next-generation energy research.

KEY FEATURES

- On-demand PEM electrolyser with automated sequencing
- Metal-hydride solid-state storage with active thermal management
- 5 kW PEM fuel cell + inverter for stable 230 VAC output
- Li-ion buffer for smooth transients, start-up and ride-through
- Industrial PLC + touchscreen HMI; Modbus TCP / OPC UA
- Layered safety — H_2 detection, ESD interlocks, ventilation permissive

APPLICATIONS

- University hydrogen-teaching labs and demonstration platforms
- Renewable storage research (power-to-gas / gas-to-power)
- Fuel-cell + inverter integration evaluation
- Metal-hydride characterisation under controlled thermal profiles

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Generation & Storage

System Type	**Turnkey H_2 P2P lab cabinet / skid**
H_2 Generation	**PEM electrolyser, air-cooled, up to 1.0 Nm³/h**
Conditioning	**Separation + drying + filtration**
Storage Type	**Metal-hydride solid-state canisters**
Storage Capacity	**Up to 5 kg H_2 (configuration dependent)**
Thermal Management	**Active heating/cooling for absorption/desorption**

Power & Controls

Fuel Cell	**PEM, air-cooled, 5 kW class**
AC Output	**230 VAC via inverter, ~5 kW**
Battery Buffer	**~5 kWh Li-ion for transients**
Electrical Input	**230 VAC, 50/60 Hz**
Controls	**PLC + touchscreen HMI; automated modes**
Communications	**Ethernet; Modbus TCP / OPC UA SCADA-ready**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydrogen-power-to-power-p2p-system.php

NEOMETRIX DEFENCE PRODUCT · LEAK TESTING

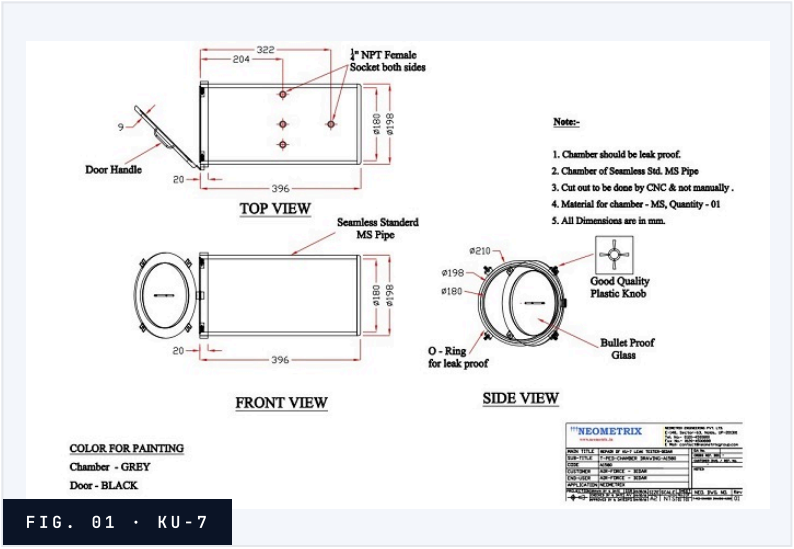

FIG. 01 · KU-7

KU-7

KU-7 Oxygen Tester

Mobile dual-range nitrogen leak tester for aircraft oxygen systems.

4000 psi	**50** psi	**12.2** kg	**<2** sq ft
Qualification test pressure	Fine-leak test pressure	Unit weight	Trolley footprint

OVERVIEW

The KU-7 Oxygen Tester is a mobile, high-precision leak-detection system engineered for aircraft oxygen supply systems, defence subsystems and aerospace hardware validation. Using inert nitrogen as the test medium, it covers dual pressure ranges — up to 4,000 psi for qualification endurance checks and down to 50 psi for fine-leak characterisation.

Mounted on a compact, wheeled frame under 2 sq ft, the unit integrates a chrome-plated chamber with quick-release clamps, dual precision regulators, integrated gauges and a rotameter for real-time flow monitoring. Dual-layer overpressure protection makes it ideal for on-site maintenance in hangars and flight lines without disassembly of large assemblies.

KEY FEATURES

- Dual-range pressure control (4,000 psi qualification / 50 psi acceptance)
- Chrome-plated chamber with O-ring seals and quick-release clamps
- Integrated rotameter (0–6 SCFH, ±2%) for trace-gas methods
- Dual relief valves and burst discs for overpressure protection
- Portable trolley with lockable swivel casters
- Festo filter, regulator and ball-valve control elements

APPLICATIONS

- Aircraft oxygen regulator and manifold verification (A/C-checks)
- Defence breathing-air pack and escape-system bottle QA/QC
- Spaceflight hardware validation (portable life-support, EVA packs)
- Laboratory R&D of valve designs and materials compatibility

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Flow Performance

Drive Air Pressure	**4–8 bar (60–120 psi)**
Drive Air Flow	**10–80 scfm**
Inlet N2 Pressure	**20–150 bar (300–2175 psi)**
Max Outlet N2 Pressure	**300 bar (4350 psi)**
Rotameter	**0–6 SCFH, ±2% accuracy**
Max Cycle Rate	**60 cycles/min**

Physical & Control

Frame Dimensions	**750 × 450 × 540 mm**
Weight	**12.2 kg (27 lb)**
Gas Connection	**3/8" SAE or 1/4" H/P (interchangeable)**
Material	**Stainless-steel booster; mild-steel frame**
Control Elements	**Festo filter, regulator, ball valves**
Test Medium	**Inert nitrogen**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/KU-7-leak-tester.php

NEOMETRIX DEFENCE PRODUCT · CRYOGENIC EQUIPMENT

FIG. 01 · LODLCO-800

LODLCO-800

Liquid Oxygen Dispenser 800 Ltr (CRYO-800L-V-Oxygen)

Towable 800 L vacuum-insulated LOX dispenser with self-pressurizing delivery.

800 L	−183 °C	0.45% per day	1.5× design
Storage capacity	Operational temperature	Max evaporation rate	Hydrostatic test factor

OVERVIEW

The Neometrix CRYO-800L-V-Oxygen is an 800-litre vacuum-insulated vertical liquid oxygen dispenser mounted on a towable trolley. Constructed from SS-304 stainless steel with advanced double-wall insulation, it maintains cryogenic temperatures with minimal boil-off (<0.45% per day) and features a self-pressurizing coil for gravity-fed dispensing without external compressors.

The system delivers precision oxygen control through extended-spindle Bestobell valves and full-port ball cocks, complemented by dual safety relief valves and bursting-disc protection. Compliant with ASME VIII Div 1 and EN 13458-2 standards, the dispenser serves healthcare, industrial, aerospace and research applications requiring reliable cryogenic oxygen delivery.

KEY FEATURES

- Self-pressurizing aluminium coil for gravity-fed dispensing
- Dual safety relief valves plus bursting disc
- Economizer auto-regulates pressure to minimize boil-off
- Heavy-duty lockable casters and ergonomic handles
- ASME VIII Div 1 and EN 13458-2 compliant
- Vacuum-perlite insulation reduces heat ingress

APPLICATIONS

- Healthcare: portable LOX for hospitals and emergency units
- Industrial: cylinder filling for oxy-fuel cutting and welding
- Research: cryogenic delivery for analytical instruments
- Aerospace & defence: ground-support aircraft oxygen refilling

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Vessel & Pressure

Net Capacity	800 L (±3%)
Max Working Pressure	17 kg/cm² g (≈1.67 MPa)
Design Pressure	18.633 kg/cm² g (≈1.83 MPa)
Material	Austenitic Stainless Steel SS-304
Pressure Relief	2 relief valves + 1 bursting disc
Hydrostatic Test	1.5× design pressure

Insulation & Valves

Insulation Type	Vacuum + Perlite / multi-layer (≤100 µm)
Design Temp (inner)	−196°C to +40°C
Design Temp (outer)	−20°C to +55°C
Boil-off Rate	≤0.45% per day
Primary Valve	Extended-spindle Bestobell cryogenic
Ball Cocks	Full-port (20 NB / 15 NB)

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/liquid-oxygen-dispenser-800-ltr-along-with-towable-trolley.php

MACHINE · AERO-ENGINE ENDURANCE

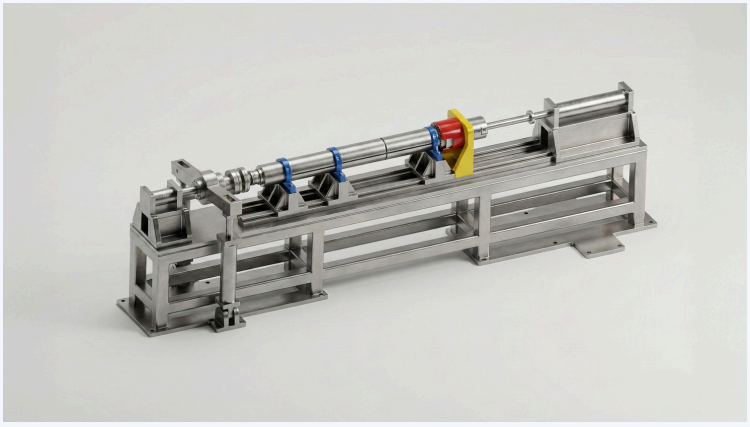

FIG. 01 · LSTFTM

LSTFTM

LP Shaft Torsion Fatigue Testing Machine

Full-scale instrumented torsion-fatigue rig for aero-engine LP shafts at elevated temperature.

10 Hz	350 °C	200 bar	1.6–2.0 m
Minor cycle frequency	Max shaft temperature	Hydraulic pressure	Shaft length range

OVERVIEW

The LP Shaft Torsion Fatigue Testing Machine is a specialized endurance rig built to prove the reliability of aero-engine low-pressure shafts long before flight. A full-scale LP shaft is mounted between precision bearings on a rigid frame; the rig applies programmable torsional and axial loads while heating the shaft to elevated temperatures to mimic real engine conditions.

Loads run in programmable cycles — high-frequency minor cycles superimposed on major torque profiles — to deliberately push the shaft through extreme, repeated stress and reveal weaknesses in design, material or manufacturing. A sensor network captures torque, axial force, deflection, temperature and vibration; a PLC-SCADA layer logs data, enforces safe limits and auto-shuts the rig on any out-of-range parameter.

KEY FEATURES

- Programmable torsional loading with superimposed high-frequency minor cycle
- Multi-level axial tensile loading via dual end-actuators
- Zoned band-heater array — 100–350 °C gradient with independent zone control
- Insulated full-length canopy with access doors for mounting / inspection
- Digital servo-proportional valve with ±10 V command for closed-loop control
- PLC-SCADA supervision with logging, safe-limit enforcement and auto-shutdown

APPLICATIONS

- Endurance qualification of aero-engine LP shafts
- Material and process validation for shaft forging / heat-treatment
- Root-cause investigation of in-service shaft failures
- Lifecycle research for next-generation engine programmes

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Loads & Thermal

Shaft Length	≈ 1.6–2.0 m (adjustable support positions)
Major Torque	Programmable into multi-kNm range
Axial Load	Multiple tensile levels, up to tens of kN
Minor Cycle	High-frequency (~10 Hz)
Temperature Gradient	≈ 100–350 °C, zoned control
Heaters	Multiple band heaters (several kW) per zone

Hydraulic & Actuation

HPP Tank	~250 L SS construction with baffles
Motor Rating	~7.5 kW, dual-vane pump set
Pump (HP)	~200 bar high-pressure section
Servo Valve	Digital servo-proportional, ±10 V command
Torsion Cylinder	Double-acting via torsion arm
Filtration & Cooling	Multi-stage pressure/return + oil-to-water HX

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/lp-shaft-torsion-fatigue-testing-machine.php

NEOMETRIX DEFENCE PRODUCT · NITROGEN GENERATION & BOOSTING

FIG. 01 · MNGPIA

MNGPIA

Manual Nitrogen Generation Plant with Integrated Air Compressor

Diesel-driven PSA nitrogen plant with hydraulic booster for 200-bar cylinder filling.

8.8 CFM	99.9 %	200 bar	0.5-5 Nm³/hr
Air compressor output	Max nitrogen purity	Max outlet pressure	N2 generation flow

OVERVIEW

This self-contained, diesel-driven system generates high-purity nitrogen by compressing ambient air, removing moisture and contaminants through pre-filtration and regenerative drying, then using a twin-tower PSA module to produce nitrogen at up to 99.9% purity. Generated nitrogen is briefly stored in a surge tank before being boosted by a hydraulically driven piston assembly to 200 bar for direct cylinder filling — ideal for off-grid operation in remote or industrial settings.

The skid-mounted unit integrates a Graeves Cotton diesel engine, two-stage air compressor, heatless dryer, activated carbon and molecular sieve filters, hydraulic power pack and Siemens PLC for automated sequencing. Its robust, portable design provides a cost-effective alternative to bottled nitrogen for uses from laboratory and inert atmospheres to metallurgy and food packaging.

KEY FEATURES

- Graeves Cotton G-1510 diesel engine (9 HP) drives 8.8 CFM compressor
- PSA twin-tower module — up to 99.9% purity at 0.5-5 Nm³/hr
- Hydraulic booster with Ø70 mm bronze piston to 200 bar outlet
- Air drying with 1 µm ceramic filter; dew point ≤ -60 C
- Siemens PLC (12 DI / 8 DO) manages dryer regen and PSA switching
- Portable skid with forklift pockets for field deployment

APPLICATIONS

- Gas cylinder filling up to 200 bar without bottled nitrogen
- Heat treatment and metallurgical inert furnace atmospheres
- Food packaging nitrogen flushing to extend shelf life
- Laboratory gas chromatography and mass spectrometry purge gas

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Compression & Generation

Air Compressor Output	**8.8 CFM @ 12 kg/cm² (7 bar)**
Air Receiver	**160 L, ASME & Euro compliant**
Surge Tank	**60 L (600 × 1250 mm)**
Air Dryer	**Heatless regenerative, 2 × 8 L ZMS**
PSA Module	**2 × (150 × 1000 mm, 16 L) CMS**
N2 Purity / Flow	**Up to 99.9% / 0.5-5 Nm³/hr**

Hydraulic Boost & Controls

Booster Piston	**Ø70 mm bronze, Italian-honed barrel**
Booster Outlet	**200 bar single-stage hydraulic**
Hydraulic Pump	**Dowty 40 L/min, 132 bar; 3 HP**
Hydraulic Reservoir	**250 L MS, EPE 10 µm filter**
Pressure Gauges	**6 × SS 304, 4" dial, 0-10 kg/cm²**
Solenoid Valves	**9 × 12 V DC control valves**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/manual-nitrogen-generation-plant-with-integrated-air-compressor-and-hydraulic-booster.php

INTEGRATED SYSTEM · SNUBBER QUALIFICATION

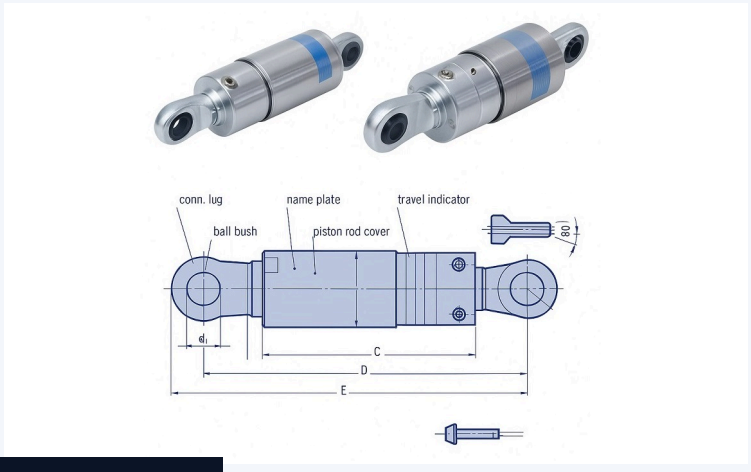

FIG. 01 · MHSTF

MHSTF

Mechanical and Hydraulic Snubber Test Facility

ASME Section XI snubber qualification rig with 25-ton load and servo dynamic simulation.

25 tons	±0.5 %	0.01 mm	1500 MN/m
Max test load	Force accuracy	Displacement resolution	Load frame stiffness

OVERVIEW

Neometrix Defence Limited's Mechanical and Hydraulic Snubber Test Facility is a state-of-the-art solution engineered for performance testing of hydraulic and mechanical snubbers used in critical infrastructure such as nuclear power plants and sodium piping systems. Designed to comply with ASME BPVC Section XI standards, it ensures snubbers maintain operational reliability with precise load testing up to 25 tons, velocity and acceleration simulation, and detailed stroke, drag-force and activation measurements.

The system evaluates snubber response across free working stroke, drag force, blocking speed, drift speed, spring rate and lost motion. Its fully automatic operation powered by LabVIEW software enables repeatable, high-fidelity testing for seismic, industrial and aerospace applications, delivering reliable and traceable validation results.

KEY FEATURES

- Tests both hydraulic and mechanical snubbers across full size range
- 1500 MN/m load frame with positive hydraulic beam locking
- Friction-free servo actuator with high-accuracy SSI position sensor
- Interactive interface with customizable test profiles
- Comprehensive data collection and automated report generation
- Emergency stop and overload protection built in

APPLICATIONS

- Nuclear power plant protection during seismic events
- Sodium piping system stabilization
- In-service inspections mandated by ASME standards
- Routine quality assurance and life-cycle testing

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Load & Dynamic Performance

Maximum Test Load	**25 tons**
Load Range	**1.5 to 240 kN (by snubber type)**
Servo Actuator Capacity	**Up to 50 tons**
Velocity Range	**0.1 to 15 mm/sec**
Acceleration Capacity	**250 mm/sec2**
Stroke Length	**50 to 300 mm**

Controls & Precision

Software Platform	**LabVIEW with NI/PLC hardware**
Hydraulic Pressure	**Up to 300 bar**
Electric Supply	**415 V AC, 3-phase, 50 Hz**
Backup Power	**Minimum 30 minutes**
Force Accuracy	**±0.5%**
Environmental Testing	**-40 C to 150 C (optional chamber)**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/mechanical-and-hydraulic-snubber-test-facility.php

NEOMETRIX DEFENCE PRODUCT · AERIAL ORDNANCE

FIG. 01 · MLBC

MLBC

MK-84 2000 lb Bomb Casing

Forged-steel general-purpose bomb body for free-fall and precision-guided munitions.

1100–1250 MPa	945 lb	2480 mm	11 ft
Tensile strength	High-explosive fill	Overall length	Concrete penetration

OVERVIEW

The MK-84 is the largest in the U.S. 1,000-series general-purpose aerial bomb family, featuring a hardened forged-steel shell engineered to house approximately 945 lb of high-explosive fill. Its streamlined, low-drag profile ensures stable ballistic performance across unguided free-fall and precision-guided variants including Paveway laser-guided and JDAM GPS/INS.

The casing combines high-strength alloy construction with modular attachment points — six 7 mm slots and four M12 tapped holes — for integration with fins, guidance kits and handling fixtures. Rigorous metallurgical control and a full NDT suite (ultrasonic, magnetic particle, radiography) with traceable NABL-certified documentation guarantee operational reliability.

KEY FEATURES

- Forged, heat-treated 40Ni6Cr4Mo3 steel; 352–375 HV hardness
- Low-drag streamlined design for stable ballistic performance
- Modular: free-fall, laser-guided, GPS/INS and sea-mine variants
- Full traceability via NABL-accredited test certificates
- Complete NDT: ultrasonic, magnetic particle, radiographic
- Dimensional verification by CMM against assembly drawings

APPLICATIONS

- Unguided general-purpose bombs for area suppression
- Laser-guided munitions (Paveway series) for precision strikes
- GPS/INS-guided munitions (JDAM) for all-weather capability
- Bunker-penetrating and Quickstrike naval mine configurations

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Physical Dimensions & Weight

Overall Length	**2480 mm**
Maximum Diameter	**457.10 mm**
Nominal Weight	**2000 lb (907.2 kg); actual 1972–2028 lb**
Explosive Filling	**945 lb Tritonal or PBXN-109**
Slots & Tapped Holes	**6 × 7 mm slots; 4 × M12 on Ø 290 PCD**
Concrete Penetration	**Up to 11 ft reinforced concrete**

Material & Mechanical Properties

Material	**Steel alloy 40Ni6Cr4Mo3**
Yield Strength	**≥ 880 MPa**
Ultimate Tensile Strength	**1100–1250 MPa**
Elongation at Break	**≥ 11%**
Vickers Hardness	**352–375 HV**
Manufacturing	**Forged, flow-formed, heat-treated, CNC**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/mk-84-2000-lb-bomb-casing.php

INTEGRATED SYSTEM · PROPULSION TEST

FIG. 01 · MTFAE

MTFAE

Mobile Test Facility for Aircraft Engines

Trailer-mounted, self-contained propulsion test facility for turbo-engines up to 450 kgf.

450 kgf	4,522 m	50+ channels	≤8 hr
Thrust capacity	Altitude ceiling	Sensor suite	Deployment time

OVERVIEW

The Mobile Test Facility (MTF) is a fully self-contained, trailer-mounted propulsion test system engineered for on-site evaluation of turbo-propulsion units up to 450 kgf thrust across India's varied environments. Four DOT/ADR road-legal trailers — Utility Support, Control Cabin, Engine Test Section and High-Pressure Compressor — integrate onboard power, climate-controlled workspaces, rapid-change engine mounts, a 50+ channel sensor suite and high-pressure air supply.

It delivers turnkey performance mapping, endurance trials and environmental qualification from −20 °C to +50 °C and sea level to 4,522 m AMSL. PLC/SCADA control, 4 TB RAID-5 storage, remote telemetry and automated reporting enable rapid in-field engine testing and R&D without dependence on fixed test-cell infrastructure.

KEY FEATURES

- Four DOT/ADR road-legal trailers; deploy in under 8 hours
- 40 kVA diesel genset + VFD rotary compressor (0–12 bar) onboard
- Climate-controlled cabin (−10 to +50 °C) with six SCADA displays
- Universal engine mount, ±0.5% FS load cell, <85 dBA at 15 m
- 50+ sensor channels — thermocouples, pressure, tri-axial vibration, oil analysis
- RAID-5 NAS (4 TB), automated reporting, 4G/5G/satellite telemetry

APPLICATIONS

- Engine performance mapping and health diagnostics
- Field endurance trials and transient-response analysis
- Environmental qualification (altitude, temperature, humidity)
- Optional emissions analysis and high-altitude simulation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Performance & Environment

Thrust Capacity	**Up to 450 kgf**
Altitude Range	**10 m to 4,522 m AMSL**
Ambient Temperature	**−20 °C to +50 °C**
Humidity	**20%–80% RH**
Acoustic Attenuation	**< 85 dBA at 15 m**
Setup Time	**≤ 8 hours to engine-on**

Power, DAQ & Data

Power Generation	**40 kVA diesel genset, 415 VAC 3-ph**
Compressed Air	**0–12 bar, 15 kW VFD rotary compressor**
DAQ I/O	**14 AI (4–20 mA), 4 AO, 10 DI, 10 DO**
Data Storage	**4 TB RAID-5 NAS**
Connectivity	**4G/5G modem + VPN; optional satellite**
Trailer Weight	**≈ 24,000 kg**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/mobile-test-facility-for-aircraft-engines

NEOMETRIX DEFENCE PRODUCT · AUTOMATIC TEST EQUIPMENT

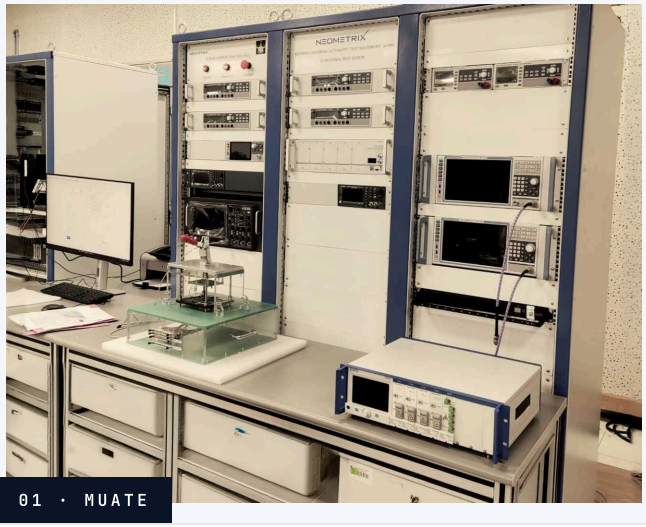

FIG. 01 · MUATE

MUATE

Modern Universal Automatic Test Equipment

LabVIEW-based ATE for PCB, IC and electronic-component validation.

1 MHz–6 GHz VNA	350 MHz	100 ps	5 modules
Network analyzer range	Counter max frequency	Timing resolution	Core subsystems

OVERVIEW

The Modern Universal Automatic Test Equipment (MUATE) is an advanced, computer-controlled testing system for automated diagnostics, fault detection and performance validation of electronic components, PCBs and integrated circuits. This LabVIEW-based platform integrates JTAG, in-circuit testing, boundary scan, RF analysis and functional simulation for aerospace, defence, telecom, automotive and industrial sectors.

The system combines five specialised subsystems — JTAG interface, bed-of-nails ICT, boundary-scan testing, data acquisition and functional control — into a modular, scalable architecture. Its vendor-neutral software foundation eliminates lock-in while enabling customisation as test requirements evolve.

KEY FEATURES

- Fully automated, repeatable computer-controlled test sequences
- Multi-technology: RF, digital, analog, optical, power
- LabVIEW interface, customisable, no vendor lock-in
- Real-time monitoring for early fault detection
- Modular design scales with emerging hardware
- Non-intrusive JTAG debug and firmware programming

APPLICATIONS

- Avionics validation — radar, flight control, navigation
- EV battery management and automotive ECU testing
- RF transceiver and fibre-optic system validation
- Life-critical medical device diagnostics

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Test Instruments

Multimeter	**34461A, 6½-digit precision**
Frequency Counter	**53220A, 350 MHz, 100 ps**
Network Analyzer	**R&S ZNLE6, 1 MHz–6 GHz**
Oscilloscope	**InfiniVision MSOX3104G**
Signal Generator	**SMCV100B vector signal gen**
Waveform Generator	**33600A programmable**

System Architecture

RF Switch Matrix	**OSP320, multi-channel**
Power Meter	**R&S NRX RF power meter**
Hardware Platform	**NI-PXI with LabVIEW sync**
Data Acquisition	**Voltage, current, temp, EM**
Subsystems	**JTAG, ICT, boundary scan, DAQ, functional**
Software	**LabVIEW, vendor-neutral**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/modern-universal-automatic-test-equipment.php

NEOMETRIX DEFENCE PRODUCT · RESCUE & EXTRICATION

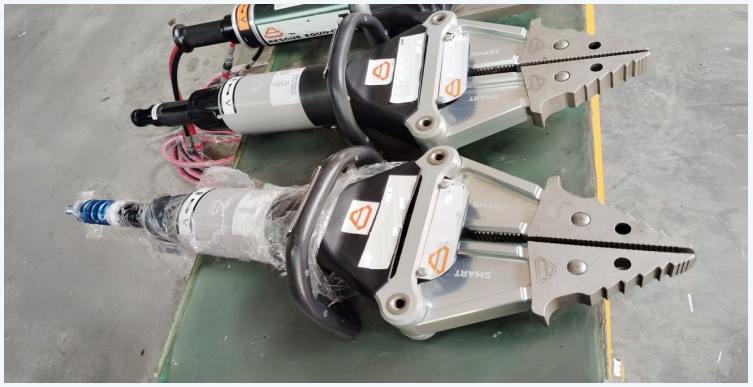

FIG. 01 · NSHS-600

NSHS-600

Neometrix SHS-600 Hydraulic Spreader

Portable 840 kN rescue spreader with dual pulling capability.

840 kN	740 mm	720 bar	17 kg
Spreading force	Max spread distance	Working pressure	Tool weight

OVERVIEW

The Neometrix SHS-600 is a portable, high-performance rescue and industrial tool delivering up to 840 kN of spreading force across a 740 mm opening, with dual functionality for pulling operations. Engineered with aircraft-grade aluminium and hardened steel components, this 17 kg unit balances extreme mechanical force with field portability for emergency responders and industrial technicians.

Originally developed for vehicle extrication and structural collapse rescue, the spreader has evolved into a multifunctional solution across fire services, civil defence, industrial maintenance and heavy engineering sectors. Its modular design, 360° rotating control handle and dual hydraulic coupling system ensure compatibility with various power packs in unpredictable environments.

KEY FEATURES

- Up to 840 kN spreading force with 740 mm max spread
- Dual mono- and twin-line couplings for power-pack flexibility
- 360° rotatable handle with automatic return mechanism
- Aircraft-grade aluminium body with hardened steel tips
- Converts to pulling — 71 kN over 600 mm stroke
- Pressure-relief valves and protective dust caps

APPLICATIONS

- Vehicle extrication and emergency rescue operations
- Building collapse and disaster relief operations
- Heavy machinery maintenance and industrial disassembly
- Armoured vehicle breach and ordnance disposal access

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Hydraulic Performance

Spreading Force	**840 kN**
Pulling Force	**71 kN**
Working Pressure	**720 bar**
Test Pressure	**750 bar**
Max Spread Distance	**740 mm**
Pulling Stroke Length	**600 mm**

Construction & Safety

Tool Weight	**17 kg**
Material	**Aircraft-grade aluminium alloy**
Coupling Type	**Mono & dual-line**
Tips	**Hardened steel**
Safety Features	**Pressure-relief valves, dust caps**
Manufacturer	**Neometrix Defence Limited**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-spreader-machine.php

NEOMETRIX DEFENCE PRODUCT · GROUND SUPPORT EQUIPMENT

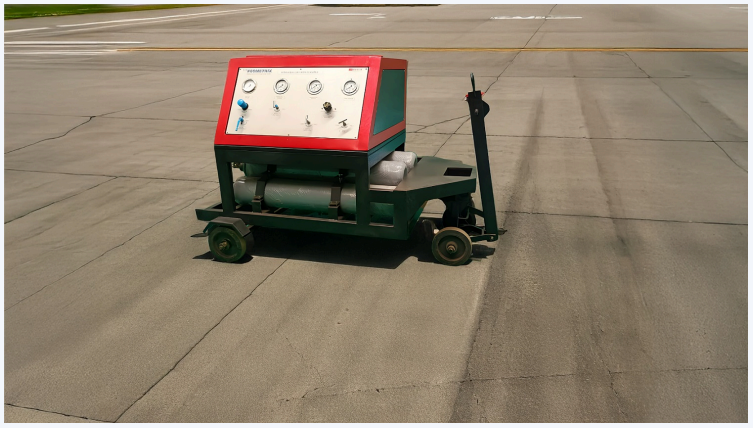

FIG. 01 · NCB

NCB

Nitrogen Cart with Booster

Air-driven mobile nitrogen booster to 415 kg/cm² with no electricity.

415 kg/cm²	60 SCFM	17–150 kg/cm²	~275 kg
Max output (~5900 psi)	Drive air requirement	Inlet pressure range	Chassis weight (dry)

OVERVIEW

The Nitrogen Cart with Booster is a pneumatic-powered, mobile high-pressure nitrogen charging system for aerospace, defence and industrial use. Operating without electricity, an air-driven reciprocating piston booster raises nitrogen from standard cylinders (17–150 kg/cm²) to 415 kg/cm² (~5900 psi), making it intrinsically safe for explosive zones and remote field environments.

Housed on a durable four-wheel trolley with a manual control interface, the system integrates dual pressure regulators, a 6000 psi relief valve and precision needle valves for stable, reliable delivery. It supports aircraft strut charging, pressure testing, missile canister purging and inert atmosphere creation across military, aerospace and industrial sectors.

KEY FEATURES

- Air-driven design; safe for hazardous/explosive zones
- Boosts 17–150 kg/cm² inlet to 415 kg/cm² output
- Dual regulators for drive-air and nitrogen output
- 6000 psi relief valve with vent pathway
- Self-cooled by ambient air; no extra infrastructure
- Powder-coated steel 4-wheel chassis with towing arm

APPLICATIONS

- Aircraft strut filling, damper charging, tyre top-off
- Missile canister purging and AFV bottle charging
- Pipeline and cylinder pressure testing
- Inert atmospheres for switchgear and transformers

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Drive & Operating

Drive Source	**Pneumatic (compressed air)**
Drive Pressure	**7–8 bar (100–115 psi)**
Drive Air Flow	**~60 SCFM**
Air Quality	**Filtered to 40 micron, dry, oil-free**
Booster Type	**Air-driven reciprocating piston**
Cooling	**Self-cooled via ambient air**

Performance & Physical

Inlet Nitrogen	**17–150 kg/cm² (250–2135 psi)**
Output Pressure	**Up to 415 kg/cm² (~5900 psi)**
Relief Valve Setting	**6000 psi**
Dimensions	**2125 × 1215 × 1530 mm**
Weight	**~250–300 kg (dry)**
Control	**Manual front-panel interface**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/Nitrogen-cart-with-Booster.php

INTEGRATED SYSTEM · GAS BOOSTING

FIG. 01 · NGBS

NGBS

Nitrogen Gas Boosting System

Portable air-driven booster elevating nitrogen from 20–150 bar to 300 bar.

300 bar	75:1 ratio	27 lb	60 cyc/min
Max outlet pressure	Drive amplification	System weight	Continuous duty rate

OVERVIEW

The Nitrogen Gas Boosting System converts low-pressure nitrogen (20–150 bar) into ultra-high pressures up to 300 bar using a single-stage, single-acting Haskel AG-75 pneumatic booster powered by 4–8 bar plant air. This compact, all-pneumatic design eliminates ignition risks while delivering oil-free, hydrocarbon-free output essential for demanding industrial and laboratory applications.

Mounted on a lockable-wheel mild-steel frame weighing just 27 lb, the system operates continuously at up to 60 cycles per minute with integrated Festo controls and PLC-based automation. Complete air–gas section separation ensures no contaminants enter the nitrogen stream, making it ideal for semiconductor, food, pharmaceutical and aerospace environments requiring pristine gas purity.

KEY FEATURES

- 75:1 drive ratio elevates nitrogen to 300 bar outlet
- Continuous 60 cycles/min with built-in cooling
- Hydrocarbon-free via sealed air–gas section separation
- Portable 27 lb unit on lockable-wheel frame
- Automated Festo regulator with PLC start/stop and alarms
- NIST-traceable gauge calibration and factory leak-tested

APPLICATIONS

- Pipeline and vessel purging before welding or service
- Non-destructive leak testing with <1 bar/hr decay
- Hydraulic accumulator and gas-spring pre-charging
- Specialty-gas cylinder refill and recovery operations

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Drive & Output

Drive Air Pressure	**4–8 bar (60–120 psi)**
Drive Air Flow	**10–80 scfm**
Max Outlet N_2 Pressure	**300 bar (4,350 psi)**
Inlet N_2 Pressure Range	**20–150 bar**
Drive Amplification	**75:1**
Displacement per Cycle	**1.2 in³ (19.6 mL)**

Physical & Operational

Weight	**27 lb (12.2 kg)**
Frame (L×W×H)	**750 × 450 × 540 mm**
Max Cycle Rate	**60 cycles/min**
Gas Connection	**3/8″ SAE or 1/4″ H/P**
Material	**Stainless-steel booster; mild-steel frame**
Controls	**Festo pneumatic with PLC automation**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/nitrogen-gas-boosting-station.php

INTEGRATED SYSTEM · HIGH-ALTITUDE LIFE SUPPORT

FIG. 01 · OEF

OEF

Oxygen Enrichment Facility

PSA-based high-altitude (5000 m) oxygen enrichment for hypoxia mitigation in extreme environments.

93 ±2 %	**4 bar**	**12–14 hr/day**	**2 sec**
O_2 purity (80 LPM)	Distribution pressure	Diesel backup runtime	Sensor update cycle

OVERVIEW

The Neometrix Oxygen Enrichment Facility is a fully integrated, modular system engineered to raise indoor oxygen levels from ambient 21% to 27–30% in extreme high-altitude environments up to 5,000 metres. Using advanced Pressure Swing Adsorption (PSA) technology with dual lithium-zeolite columns, it mitigates hypoxia and acute mountain sickness while maintaining continuous PLC-based environmental control monitoring O_2 and CO_2 in real time.

Available in 80, 130 and 230 LPM configurations, the facility activates concentrators when oxygen drops below 27% and triggers exhaust when CO_2 exceeds 3,000 ppm. Skid-mounted with weatherproof enclosures, diesel-generator backup and optional solar-hybrid power, it deploys rapidly to remote sites with safety redundancy, nasal cannula outlets and 24/7 data logging for traceability.

KEY FEATURES

- Dual-column PSA delivering 80–230 LPM at 93% ±2% purity
- Automated PLC control with real-time O_2/CO_2 monitoring and failsafe
- Modular skid-mounted design with seismic anchoring and IP enclosures
- Multi-sensor redundancy with overpressure relief and E-stop
- Cloud-enabled SCADA with remote diagnostics and trending
- Rapid plug-and-play commissioning with operator training

APPLICATIONS

- High-altitude research outposts and military forward bases
- Medical acclimatization tents and field hospitals
- Aerospace cabin-altitude simulation and physiological testing
- Emergency response shelters and disaster-relief deployment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Oxygen Generation

O_2 Purity	**93% ±2% (80 LPM) / 40% ±2% (130/230)**
Maximum Flow Rate	**80 / 130 / 230 L/min**
Power Consumption	**~15 kW / <9 kW / <18 kW**
Weight	**600 / 150 / 300 kg**
Technology	**Dual lithium-zeolite column PSA**
Configurations	**80, 130, 230 LPM**

System Infrastructure

Distribution Pressure	**4 bar copper mains, check valves**
O_2 Setpoints	**Activate <27%, stop at 35%**
CO_2 Setpoint	**Exhaust at >3,000 ppm**
Data Logging	**24/7 with USB/cloud export, multi-language HMI**
Backup Power	**20–30 kVA diesel, 12–14 hr/day**
Sensor Update	**2 second real-time cycle**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/oxygen-enrichment-facility.php

NEOMETRIX DEFENCE PRODUCT · PRESSURE TESTING

FIG. 01 · PLC

PLC

PLC Controlled Autoclave Pressure Tester

Cyclic high-pressure batch validation in a 13 L SS304 chamber to 150 bar.

12 units	150 bar	±0.25 % FS	<800 kg
Batch capacity	Max operating pressure	Pressure accuracy	System weight

OVERVIEW

The Autoclave Pressure Tester by Neometrix is a portable, PLC-based cyclic pressure testing system engineered for endurance and leak-proof validation of small-to-medium components. Operating up to 150 bar in a 13-litre SS304 chamber, it accommodates batch testing of 12 units simultaneously with programmable pressure profiles, automated filling/draining and real-time data logging.

The system delivers sophisticated pressure profiling with customizable ramp times (5–15 minutes), adjustable hold durations (1 second to 24 hours) and multiple programmable cycles. Integrated safety interlocks, dual filtration, WIKA-certified instrumentation (±0.25%) and a Schneider touchscreen HMI ensure operator safety, consistency and full auditability across aerospace, automotive, medical and defence applications.

KEY FEATURES

- Tests 12 units simultaneously in one cycle
- Programmable pressure ramps, holds and multi-cycle sequences
- Six-point mechanical and electrical lockout interlocks
- 10 Hz logging with real-time graphing and CSV export
- Mobile design — 4 locking casters; ASME/ISO 11120/PD5500
- Externally accessible filters and valves for serviceability

APPLICATIONS

- Aerospace and defence solenoid valve / sensor casing life cycling
- Automotive fuel injector and brake component fatigue testing
- Medical device catheter and implant enclosure certification
- Energy and oil/gas hydrogen-compatible fitting validation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Chamber & Pressure

Chamber Volume	**~13 litres**
Internal Dimensions	**Ø 177 mm × 510 mm height**
Design Pressure	**200 bar**
Operating Pressure	**Up to 150 bar**
Build Material	**SS304 (internal / external)**
Batch Capacity	**12 units per cycle**

Automation & Instrumentation

User Interface	**10″ Schneider HMI touchscreen**
PLC Logic	**Schneider PLC (expandable I/Os)**
Pressure Transmitter	**0–280 bar (±0.25% FS)**
Data Sampling	**10 Hz**
Temperature Range	**0–100 °C**
Electrical Supply	**230 V AC, single-phase, 25 A**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/PLC-controlled-autoclave-pressure-tester.php

NEOMETRIX DEFENCE PRODUCT · NAVAL TRAINING

FIG. 01 · PHT

PHT

Practice Head Torpedo

Recoverable non-explosive torpedo nose mirroring live-warhead ballistics.

140 L	270 kg	1204.20 mm	12 kgf/cm²
Ballast capacity	Assembled mass	Overall length	External test pressure

OVERVIEW

The Practice Head is a modular, non-explosive torpedo nose assembly engineered to mirror the size, shape and weight distribution of a live warhead while remaining fully recoverable for training. Constructed from anodized AlMg5 alloy with internal reinforcement ribs, it houses a 140-litre ballast compartment and dry instrument bay equipped with depth/roll recorders, signal flares and homing-head electronics. At run-end, a pressure-activated air-release system expels ballast water for positive buoyancy and surface recovery.

This training module undergoes rigorous material testing, FEA-backed design validation, NDT-verified welding and extensive qualification trials to ensure compliance with MIL-STD and NATO STANAG standards. Used by submarine and surface-ship crews for exercise drills, anti-submarine warfare training and sea trials, it combines naval-grade reliability with cost-effective reusability.

KEY FEATURES

- 140 L ballast air-release expels water for positive buoyancy
- Depth sensors and roll recorders maintain preset depth
- Standardised front/rear collars accept plug-and-play sensors
- Tapered AlMg5 shell with four internal reinforcement ribs
- Qualified by vibration, shock, bump, pressure and salt-water tests
- Non-explosive — safe exercise firings with full recovery

APPLICATIONS

- Surface and subsurface exercise drills for submarine crews
- Anti-submarine warfare detection and evasion training
- Harbor and sea trials across salinity and temperature profiles
- Run-data collection for forensic post-exercise evaluation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Structure & Materials

Shell Material	**AlMg5 alloy, 6–8 mm thickness**
Overall Length	**1,204.20 mm (incl. collars)**
Outer Diameter	**532.4 mm tapering to 503.05 mm**
Empty / Assembled Mass	**58.5 kg / 270 kg**
Ballast Capacity	**140 litres**
Centre of Gravity	**~64 mm from rear end**

Performance & Testing

External Test Pressure	**12 kgf/cm²**
Ballast Compartment	**2 kgf/cm²**
Instrument Compartment	**1 kgf/cm²**
Scratch Tolerance	**≤1/32″ deep, ≤3/4″ long**
Nick/Gouge Tolerance	**≤1/32″ deep, ≤1/8″ wide**
Vibration Test	**10–60 Hz sine-sweep**

DGAQA-CERTIFIED · ISO 9001:2015 · MIL-STD / NATO STANAG · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/practice-head-torpedo.php

NEOMETRIX DEFENCE PRODUCT · GAS GENERATION

FIG. 01 · PSA

PSA

PSA Nitrogen Generation Plant

On-site Pressure Swing Adsorption nitrogen at 95–99.99% purity.

10 Nm³/hr	**99.99** %	**8–10** years	**≤75** dB(A)
Flow rate capacity	Max nitrogen purity	CMS bed lifespan	Noise level

OVERVIEW

The Neometrix PSA Nitrogen Generation Plant is an advanced on-site production system using Pressure Swing Adsorption technology to separate nitrogen from atmospheric air via Carbon Molecular Sieve adsorption. It delivers continuous, high-purity nitrogen at 95–99.99% while eliminating reliance on cylinders or liquid storage, significantly reducing operational expense.

The system features automated PLC controls, safety mechanisms and energy-efficient components ideal for food packaging, pharmaceuticals, electronics, metal processing, oil & gas and aerospace. Its modular design enables easy installation, scalability and minimal maintenance, making it a superior alternative to conventional nitrogen supply methods.

KEY FEATURES

- Nitrogen at 95–99.99% purity via selective CMS adsorption
- Twin adsorption towers with automatic switching for 24/7 supply
- PLC touchscreen HMI monitoring purity, pressure and diagnostics
- No moving parts in adsorption system; 8–10 year CMS lifespan
- Modular design for easy installation and scalability
- Overpressure protection, emergency stop and purity monitoring

APPLICATIONS

- Modified atmosphere packaging to extend product shelf life
- Sterile, inert environments for pharma manufacturing and labs
- Ultra-pure nitrogen for electronics soldering and cleanrooms
- Fuel-tank blanketing and controlled component testing

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Operating Parameters

Nitrogen Purity Range	**95–99.99%**
Operating Pressure	**7 bar (gauge)**
Max Working Pressure	**9 bar (gauge)**
Operating Temperature	**5°C to 43°C**
Outlet Dew Point	**Up to −40°C**
Air Inlet Temperature	**Up to 40°C**

System Capabilities

Flow Rate Capacity	**10 Nm³/hr (customizable)**
Air Consumption Ratio	**4–5× nitrogen output**
Power Supply	**100–240V AC, 50/60 Hz, single phase**
Noise Level	**≤75 dB(A)**
Control System	**PLC with HMI touchscreen**
Safety Features	**Overpressure, e-stop, purity monitoring**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/PSA-nitrogen-generation-plant.php

NEOMETRIX DEFENCE PRODUCT · MEDICAL OXYGEN

FIG. 01 · PSA

PSA

PSA Oxygen Generation Plant-200 LPM

Onsite twin-tower PSA plant delivering 93±3% medical oxygen at 200 LPM.

200 LPM	93±3 %	75 dB	25–30 CFM
Oxygen capacity	Oxygen purity	Max noise level	Air flow required

OVERVIEW

The 200 LPM PSA Oxygen Generation Plant is a fully automated, energy-efficient system producing 93±3 percent pure medical oxygen onsite using Pressure Swing Adsorption technology. It eliminates dependency on oxygen cylinders while delivering continuous, cost-effective supply through twin-tower PSA architecture, multi-stage filtration and PLC-based automation with real-time monitoring.

The system integrates a screw-type air compressor, zeolite molecular sieves and intelligent controls to serve hospitals, ICUs, clinics and emergency facilities. Meeting ISO 8573 Class 4 and global medical standards, it requires minimal maintenance and quick installation, with 30-minute UPS backup for emergency situations.

KEY FEATURES

- Twin-tower PSA auto-switches adsorption and regeneration cycles
- PLC with HMI touchscreen monitors purity, flow and pressure
- Compact modular design for small and mid-sized facilities
- Multi-stage filtration ensures clean, dry compressed air
- Screw-type compressor under 75 dB on 415 V 3-phase power
- Built-in overpressure protection and purity sensors

APPLICATIONS

- Hospitals, clinics and emergency medical centres
- ICU ventilator support and oxygen therapy units
- Disaster relief and field hospital operations
- Ambulance oxygen supply centres

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Production & Quality

Oxygen Capacity	**200 LPM**
Oxygen Purity	**93±3%**
Output Pressure	**4–5 bar**
Dew Point	**−40 °C to −60 °C**
Cleanliness	**ISO 8573 Class 4**
Adsorbent	**Zeolite molecular sieves**

System Components

Technology	**Pressure Swing Adsorption**
Air Flow Requirement	**25–30 CFM**
Power Supply	**415 V, 50 Hz, 3-phase**
Noise Level	**Below 75 dB**
Backup Power	**30-minute UPS**
Automation	**PLC-based with HMI touchscreen**

DGAQA-CERTIFIED | ISO 9001:2015 | ISO 8573 CLASS 4 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/PSA-oxygen-generation-plant-200LPM.php

NEOMETRIX DEFENCE PRODUCT · MEDICAL OXYGEN

FIG. 01 · PSA

PSA

PSA Oxygen Generation Plant-500 LPM

Twin-tower PSA plant for continuous 93±3% medical-grade oxygen onsite.

500 LPM	93±3% purity	10–15 years	5+ years
Oxygen capacity	Medical-grade output	System lifespan	Sieve durability

OVERVIEW

The 500 LPM PSA Oxygen Generation Plant is a fully automated medical-grade oxygen system using Pressure Swing Adsorption technology to produce high-purity oxygen (93±3%) onsite, eliminating dependency on traditional cylinders. Twin-tower molecular sieves, intelligent PLC controls and multi-stage filtration ensure continuous, reliable supply for hospitals, ICUs and industrial applications while meeting international standards.

The plant operates through alternating adsorption and regeneration cycles that continuously separate oxygen from compressed air. Its robust design includes emergency backup power, real-time HMI touchscreen monitoring and comprehensive safety mechanisms, making it ideal for critical healthcare environments and disaster relief operations requiring uninterrupted oxygen.

KEY FEATURES

- Twin-tower PSA with automatic cycle switching
- PLC automation with HMI touchscreen monitoring and alerts
- Meets ISO 8573 Class 4 and Indian Medical Standards
- Multi-stage filtration with refrigerated dryer and carbon filter
- 30-minute UPS backup with E-stop and purity sensor
- Compact, modular design with minimal footprint

APPLICATIONS

- Hospital ICUs and emergency medical facilities
- Oxygen therapy and ventilator support systems
- Industrial and research laboratory operations
- Field hospitals and disaster relief centres

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Production & Output

Oxygen Capacity	**500 litres per minute**
Purity Level	**93±3% medical-grade**
Output Pressure	**4–5 bar**
Dew Point	**−40°C to −60°C**
Noise Level	**Below 75 dB**
Backup	**30-minute UPS**

System Components

Adsorbent	**High-quality zeolite molecular sieves**
Air Flow Requirement	**Approx. 60 CFM**
Power Supply	**415V, 50Hz, 3-phase**
Configuration	**Twin-tower, automatic switching**
Filtration	**Refrigerated dryer + activated carbon**
Control	**PLC with HMI touchscreen**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/PSA-oxygen-generation-plant-500LPM.php

INTEGRATED SYSTEM · REFRIGERANT RECOVERY & RECHARGING

FIG. 01 · RS

RS

Refrigeration System

High-pressure refrigerant recovery and recharging with >99% recovery efficiency.

>99 %	300 L	>16 bar	5-6 bar
Recovery efficiency	Working capacity	Supply pressure	Air drive pressure

OVERVIEW

The High Pressure Refrigerant Recovery & Recharging System efficiently recovers, decants and recharges refrigerants like R-32 and other HFCs while minimizing wastage. The system maximizes recovery efficiency, eliminating vapour losses that traditionally plague conventional transfer methods and reducing costs for OEMs and industrial users.

Advanced automation and control features streamline operations with optional remote monitoring. Engineered for durability in demanding environments, the plug & play design enables rapid deployment across HVAC, food processing, chemical and specialized cooling applications.

KEY FEATURES

- Refrigerant recovery rate exceeding 99%, minimizing losses
- Operates at 5-6 bar air drive with 40-50 SCFM consumption
- Recovers/stores above 12 bar; supplies above 16 bar
- Optional delivery pump and remote monitoring station
- Fully automated operations with smart refrigerant handling
- 300-litre working capacity for large-scale operations

APPLICATIONS

- HVAC and refrigeration manufacturing
- Food processing, preservation and distribution
- Chemical and process industries
- Specialized cooling — medical, construction, metal treatment

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Performance & Capacity

Recovery Efficiency	**>99%**
Air Drive Pressure	**5-6 bar**
Recovery Pressure	**>12 bar**
Supply Pressure	**>16 bar**
Working Capacity	**300 L**
Air Consumption	**40-50 SCFM**

Control & Safety

Operation	**Fully automated**
Monitoring	**Real-time monitoring systems**
Overpressure	**Prevention mechanisms**
Remote Station	**Optional remote control**
Delivery Pump	**Optional integration**
Safety	**Features for secure operations**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/refrigeration-system.php

NEOMETRIX DEFENCE PRODUCT · AERO ENGINE PRESERVATION

FIG. 01 · SAEP

SAEP

Set For Aero Engine Preservation

Portable trolley power pack for OM-11 corrosion-inhibiting preservation of aero engines.

24 L	800 L/hour	0.35 kW	28 V DC
Reservoir capacity	Max delivery flow	Motor power	Electrical supply

OVERVIEW

The Set for Aero Engine Preservation is a portable, trolley-mounted power pack that delivers OM-11 corrosion-inhibiting oil from its 24 L cylindrical reservoir through multi-stage filtration into engine fuel and lubrication circuits. Operating at adjustable pressures from 0.8 to 10 kg/cm², it protects sensitive turbine components from moisture-induced corrosion and seal degradation during storage or transport.

Compact enough for single-operator deployment in hangars or field settings, the self-contained unit combines a 0.35 kW DC-driven gear pump with intuitive front-panel controls including a pressure gauge and needle valve. Its design prioritises reliability and ease of use, making engine preservation fast and safe without requiring specialised technician training.

KEY FEATURES

- Three-stage filtration (40 / 149 / 10 µm) with electrical clog indicator
- Portable trolley frame on four steerable castors for single-person handling
- Adjustable pressure via needle valve and 4" dial gauge (0-10 kg/cm²)
- 800 L/hour delivery rate for efficient preservation cycles
- Multi-layer protective film on internal passages and seals
- Self-contained 24 L reservoir with manual level scale

APPLICATIONS

- Long-term aero engine storage and corrosion prevention
- Aircraft engine transport protection
- Military jet engine preservation systems
- Civil fleet maintenance and readiness programmes

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Performance & Pump

Delivery Rate	800 L/hour
Operating Pressure	0.8-10 kg/cm²
Tank Capacity	24 L
Oil Temperature	50-70 C
Motor Type	0.35 kW DC, 28 V
Pump Displacement	11 cc/rev, max 200 bar

Electrical & Filtration

Motor Speed	1500 RPM
Electrical Supply	28 V DC, 20 A
Filter Stages	40 µm / 149 µm / 10 µm
Hose Rating	½" ID × 25 ft, 110 bar
Pressure Gauge	0-10 kg/cm², 4" dial
Working Medium	OM-11 inhibiting oil

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aero-engine-preservation-manufacturer.php

MACHINE · NON-LETHAL MUNITIONS PRODUCTION

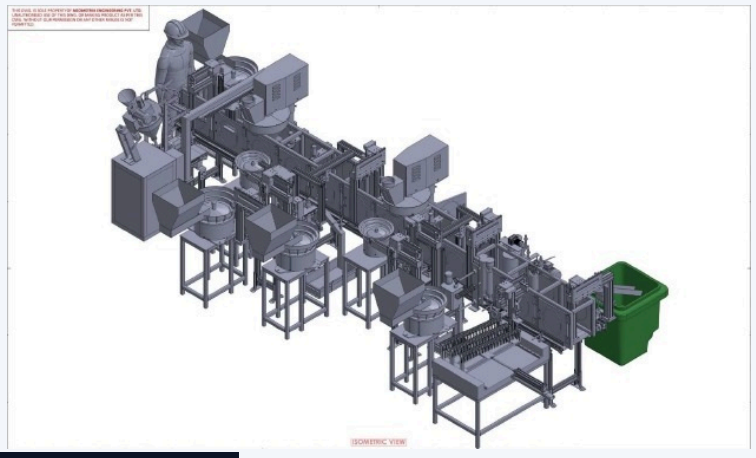

FIG. 01 · SCDMFA

SCDMFA

Stun Composition & Dye Marker Filling & Assembling Machine

Flame-proof 17-station line producing up to 500 non-lethal grenades per hour.

500 units/hr	±0.05 g	±0.1 Nm	17 stations
Production throughput	Dosing accuracy	Torque accuracy	Workflow stages

OVERVIEW

A fully automated, 17-station production line engineered for high-volume non-lethal grenade manufacturing. Delivering up to 500 grenades per hour in continuous operation with precision dosing of ±0.05 g and torque control at ±0.1 Nm, the machine integrates dust-free cleaning, gravimetric filling, multi-layer sealing, robotic assembly and vision-guided labelling within a compact 7.5 × 4 × 3 m footprint.

Designed for defence OEMs and ordnance factories, this flame-proof system handles both stun composition and dye marker loads. Built to ATEX Directive 2014/34/EU, CE Machinery Directive 2006/42/EC and MIL-STD protocols, it ensures operator safety through dual-channel emergency stops, interlocked access doors and integrated explosion vents while delivering full digital batch traceability.

KEY FEATURES

- Dual-hopper gravimetric filling with load-cell feedback
- Flame-proof workflow driven by Mitsubishi iQ-F PLC, 1 ms I/O
- Vision-guided robotic assembly and 4-axis contour labeler
- IR cure tunnel pre-cures lacquer in under 20 seconds
- OPC-UA, Ethernet/IP, CC-Link IE connectivity; VPN-ready
- Auto-reject system flags faulted units with root-cause logs

APPLICATIONS

- Non-lethal weapon production for riot control and tactical ops
- Military training simulations needing signal and marker devices
- Ordnance factory automation and homeland security manufacturing
- Field-deployable production units for paramilitary depots

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Performance & Capacity

Production Rate	500 grenades/hour
Fill Tolerance (stun)	±2 g
Fill Tolerance (dye)	±0.5 g
Torque Accuracy	±0.1 Nm
Positional Repeatability	±0.02 mm
MTBF	>15,000 hours

Machine & Connectivity

Footprint	7.5 m × 4.0 m × 3.0 m
Power	230 V ±10%, 50 Hz
Control Voltage	24 V DC
Compressed Air	6 bar, 300-500 L/min
Noise	<=70 dB
Contact Surfaces	SS 304/316

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/stun-composition-&-dye-marker-filling-&-assembling-machine.php

MACHINE · AMMUNITION PRODUCTION

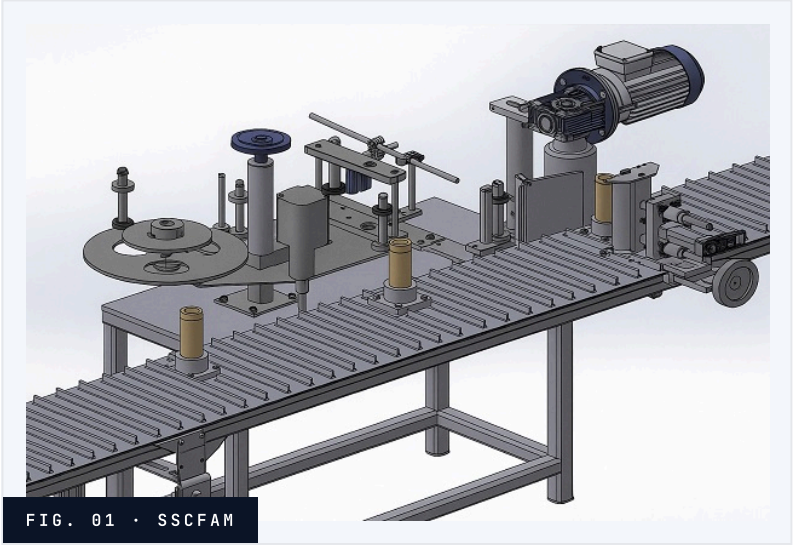

FIG. 01 · SSCFAM

SSCFAM

Stun Shell Composition Filling & Assembling Machine

Flameproof eight-station automation for high-speed stun shell production.

500 shells/hr	41 ± 2 g	2.5 ± 0.1 Nm	ATEX Zone 1
Throughput	Filling weight	Cap-tightening torque	Compliance

OVERVIEW

The Stun Shell Composition Filling & Assembling Machine is a fully automated, flameproof production system designed for high-speed, high-precision filling and assembly of stun shell cartridges. Operating pneumatically across eight synchronised stations, it performs shell feeding, internal cleaning, gravimetric powder dispensing, dual-igniter cap assembly with epoxy bonding, servo-controlled tightening, final cleaning, QR-code labelling and automated unloading — all without manual intervention in the hazardous zone.

The system integrates a Mitsubishi PLC with 7-inch HMI for real-time monitoring, batch traceability, digital weight and torque logging, and automated rejection handling. It meets ATEX Zone 1, CE, NFPA and MIL-STD defence-grade compliance standards for maximum operator safety.

KEY FEATURES

- 8 interlinked pneumatic stations; zero human exposure to hazards
- Fills 41 ± 2 g composition per shell at up to 500 shells/hour
- Dual-axis robots insert igniters and apply Araldite adhesive
- Servo-torque tightening at 2.5 Nm ± 0.1 Nm with anomaly detection
- Air-knife/brush cleaning plus wrap-around QR/batch-ID labelling
- Automated diversion of out-of-spec units to reject bins

APPLICATIONS

- Riot control ammunition production
- Non-lethal tactical diversion shells and simulation devices
- Defence and paramilitary ordnance manufacturing
- Training-grade non-lethal ammunition supply

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Operational Parameters

Filling Weight	**41 ± 2 g stun composition**
Cycle Time	**≤ 7.2 s/shell (~500 shells/hour)**
Footprint (L × W × H)	**5.85 × 5.3 × 2.5 m**
Noise Level	**≤ 72 dB(A)**
Stations	**8 synchronised automation stations**
Control	**Mitsubishi PLC with 7-inch HMI**

Utilities & Environment

Power	**100–240 VAC, 50/60 Hz**
Control Supply	**24 VDC (400 mA)**
Air Supply	**6 bar, 200–400 L/min (oil-free)**
Operating Temperature	**25 ± 10 °C**
Relative Humidity	**40 ± 15%**
Compliance	**ATEX Zone 1, CE, NFPA, MIL-STD**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/stun-shell-composition-filling-&-assembling-machine.php

NEOMETRIX DEFENCE PRODUCT · PRESSURE & THERMAL TEST

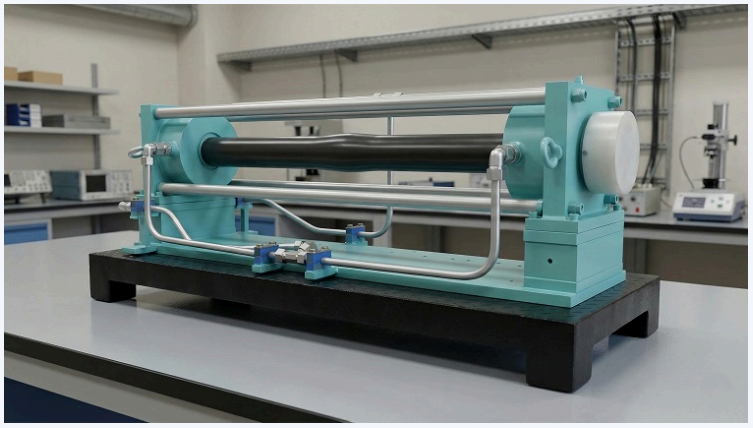

FIG. 01 · TPTS

TPTS

Tube Pressurization Test Setup

Combined high-pressure and high-temperature qualification of metallic tubes.

250 kgf/cm²	350 °C	±10 °C	≥10 Hz
Max operating pressure	Max temperature	Thermal accuracy	Data logging rate

OVERVIEW

The Neometrix Tube Pressurization Test Setup is a turnkey, laboratory-grade system engineered to validate metallic tubes under combined high-pressure (up to 250 kgf/cm²) and high-temperature (up to 350°C) conditions. Air-driven intensifier pump technology and precision instrumentation enable hydrostatic proof, burst, cyclic fatigue and helium-leak testing on specimens up to 1,200 mm long.

This modular platform integrates PID-controlled thermal management with automated safety interlocks and 4–20 mA data acquisition for seamless LabVIEW or DataTEST™ integration. Purpose-built for aerospace, power generation, oil & gas and nuclear sectors, it delivers turnkey commissioning and comprehensive calibration support.

KEY FEATURES

- Pressure ramping up to 10 bar/min with ±0.5% gauge accuracy
- PID heater blocks holding ±10°C across ambient to 350°C
- Interlocked safety cage, E-stop and auto-shutdown
- Quick-disconnect fittings for rapid reconfiguration
- High-speed logging (≥10 Hz) with recipe-based automation
- Hydrostatic, burst, fatigue and leak-detection modes

APPLICATIONS

- Aerospace & defence: hydraulic and fuel-line tube qualification
- Power generation: creep and burst testing of steam tubing
- Oil & gas: high-pressure subsea and process-line validation
- Nuclear & R&D: material qualification to RCC-M / ASME BPVC

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Thermal

Maximum Pressure	**250 kgf/cm² (≈245 bar)**
Temperature Range	**Ambient to 350°C**
Temperature Accuracy	**±10°C**
Heater Power	**3 kW (typical)**
Relief Valve Setpoint	**300 bar**
Pressure Gauge Ranges	**0–16 bar / 0–600 bar**

Specimen & System

Test Tube OD	**90.12 mm (f8 tolerance)**
Wall Thickness	**3 mm**
Test Tube Length	**1,200 mm**
Oil Reservoir	**10 L SS-304**
Hydraulic Pump	**Haskel MS-110**
Electrical Supply	**415 VAC, 50 Hz, 3-phase**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/pressurization-of-test-tubes.php

NEOMETRIX DEFENCE PRODUCT · PRESSURE & THERMAL TESTING

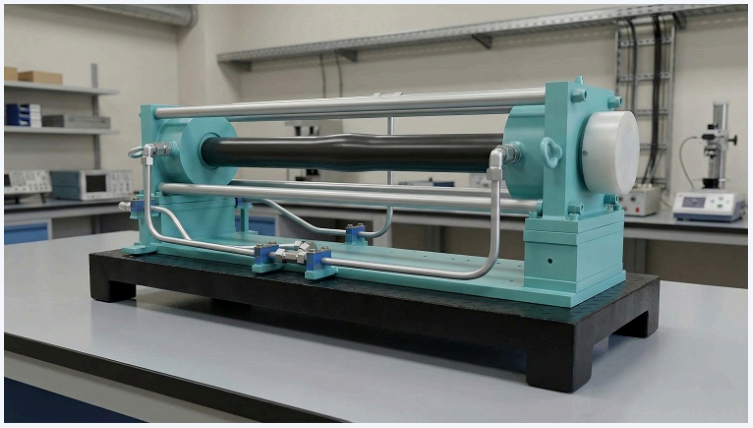

FIG. 01 · TPTS

TPTS

Tube Pressurization Test Setup

Combined high-pressure / high-temperature tube qualification to 250 kgf/cm² and 350 °C.

250 kgf/cm²	350 °C	1,200 mm	±10 °C
Max operating pressure	Max thermal range	Specimen length	Temperature stability

OVERVIEW

The Neometrix Tube Pressurization Test Setup is a comprehensive platform for evaluating the strength, integrity and endurance of tubes under combined high-pressure (to 250 kgf/cm²) and high-temperature (to 350 °C) conditions. Built around an air-driven Haskel intensifier pump and precision WIKA instrumentation, it enables hydrostatic proof, burst, cyclic fatigue and helium-leak testing on metallic specimens up to 1,200 mm long.

Modular 4–20 mA I/O loops and recipe-based automation integrate seamlessly with LabVIEW or DataTEST platforms, while PID-controlled heater blocks maintain thermal stability within ±10 °C. A fully interlocked safety cage with emergency stop and over-pressure relief valve protects operators, making it ideal for aerospace, power generation, oil & gas and nuclear applications where failure margins are zero.

KEY FEATURES

- Smooth pressure ramps to 245 bar with ±0.5% gauge accuracy
- PID heating to 350 °C ±10 °C with K-type thermocouples
- Interlocked safety cage, E-stop and 300 bar relief valve
- High-speed data logging (≥10 Hz) with recipe storage
- Three SS-304 cooling coils for rapid, safe cooldown
- Modular quick-disconnect design for future upgrades

APPLICATIONS

- Aerospace and defence flight-cycle tube qualification
- Power generation and oil & gas creep and burst testing
- Nuclear and research material R&D per RCC-M / ASME BPVC
- Manufacturing QA production sampling and endurance checks

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Pressure & Thermal

Maximum Pressure	**250 kgf/cm² (≈245 bar)**
Temperature Range	**Ambient to 350 °C**
Temperature Accuracy	**±10 °C**
Heater Power	**3 kW (typical)**
Relief Valve Setpoint	**300 bar**
Pressure Gauge Ranges	**0–16 bar / 0–600 bar**

Specimen & Services

Tube Outer Diameter	**90.12 mm (f8 tolerance)**
Tube Wall Thickness	**3 mm**
Tube Length	**1,200 mm**
Oil Reservoir	**10 L stainless steel**
Electrical Supply	**415 VAC, 50 Hz, 3-phase**
Compressed Air	**6 bar, oil-free**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/tube-pressurization-test-setup.php

INTEGRATED SYSTEM · SNUBBER QUALIFICATION

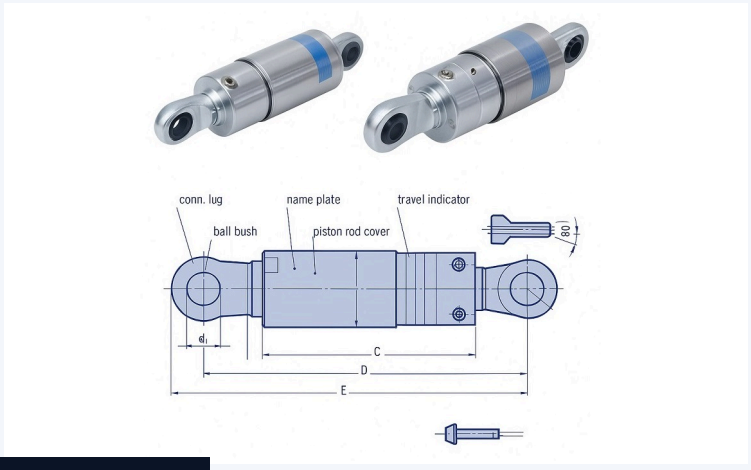

FIG. 01 · USTF

USTF

Universal Snubber Test Facility

ASME Section XI snubber testing for 15 NB–800 NB sizes, 17.5–240 kN loads.

25 tons	1500 MN/m	±0.5 %	0.01 mm
Maximum test load	Load frame stiffness	Force accuracy	Displacement resolution

OVERVIEW

Neometrix Defence Limited's Universal Snubber Test Facility is a state-of-the-art solution for performance testing of hydraulic and mechanical snubbers used in critical infrastructure such as nuclear power plants and sodium piping systems. Engineered to comply with ASME BPVC Section XI, it delivers precise load testing to 25 tons while measuring stroke, drag force, velocity, acceleration and activation levels with exceptional accuracy.

The facility addresses the essential need for in-service inspection and lifecycle validation of snubbers protecting vital systems against seismic forces and dynamic loads. Supporting snubber sizes from 15 NB to 800 NB with load capacities between 17.5 kN and 240 kN, it accommodates diverse applications through configurable test profiles and comprehensive measurement.

KEY FEATURES

- Fully automatic operation via LabVIEW with NI/PLC hardware
- Tests hydraulic and mechanical snubbers across full range
- Highly rigid 1500 MN/m load frame with friction-free actuators
- Positive hydraulic beam lock requires no external pressure
- Custom test profiles with selective test execution
- Automatic plots, interpretation and test reports

APPLICATIONS

- Nuclear power plant reactor and piping seismic protection
- Sodium piping system stability and reliability verification
- Routine QA and in-service inspection compliance
- R&D for advanced snubber designs

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Load & Performance

Maximum Test Load	**25 tons**
Load Frame Stiffness	**1500 MN/m**
Servo Actuator Capacity	**Up to 50 tons**
Hydraulic Power Pack	**Up to 300 bar**
Snubber Size Range	**15 NB to 800 NB**
Load Capacity Range	**17.5 kN to 240 kN**

Dynamic & Control

Velocity Capacity	**0.1–15 mm/sec**
Acceleration Capacity	**250 mm/sec²**
Stroke Length Range	**50–300 mm**
Force Accuracy	**±0.5%**
Displacement Resolution	**0.01 mm**
Control Hardware	**NI/PLC, 30+ min backup power**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/universal-snubber-test-facility.php

INTEGRATED SYSTEM · RAIL ROLLING STOCK

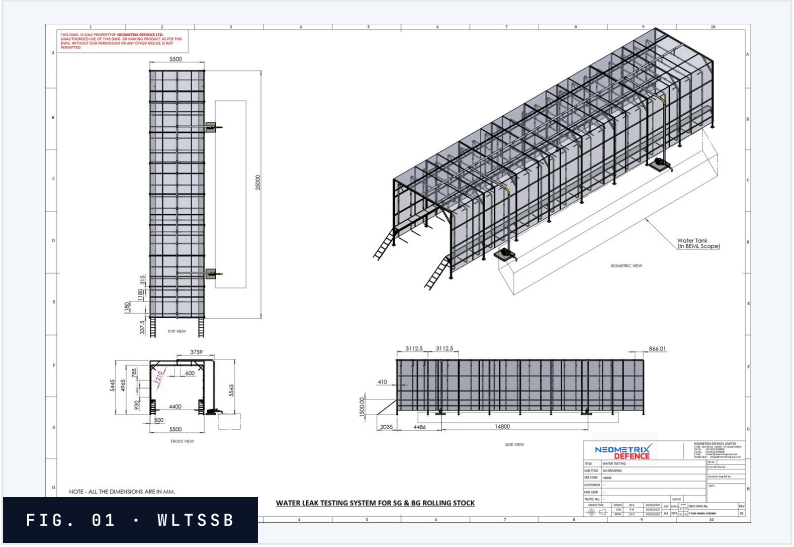

FIG. 01 · WLTSSB

WLTSSB

Water Leak Testing System for Standard- and Broad-Gauge Rolling Stock

25-m SS chamber with 252-nozzle storm-simulation array for full-scale coach watertightness validation.

252 nozzles	3 bar	15.3 m/s	1865 L/min
Spray array	Operating pressure	Spray velocity	Total water flow

OVERVIEW

The Water Leak Testing System is a full-scale facility that simulates extreme rainfall conditions to validate the waterproof integrity of railway coaches and rolling stock. A 25 m × 5 m × 6 m stainless-steel chamber houses 252 precision-calibrated nozzles across 21 downtake rows, delivering water at 15.3 m/s velocity and 3 bar pressure to replicate tropical-storm intensity.

A dual-pump recirculation system, two-stage filtration and a smart control panel ensure consistent flow, energy efficiency and minimal water wastage through closed-loop recycling. Designed for both standard- and broad-gauge vehicles, the rig delivers uniform 360° coverage that exposes micro-leakages in seams, joints and window assemblies — a cornerstone of coach quality assurance.

KEY FEATURES

- Fully enclosed SS304 rain-simulation chamber for standard + broad gauge
- 252-nozzle matrix in 21 downtake rows for uniform 360° coverage
- Dual 20 HP pumps for redundancy and continuous operation
- Closed-loop filtration and recycling (>80% water conservation)
- Smart control panel with analog-digital indicators and safety interlocks
- Quick-access maintenance layout with removable panels and hose couplings

APPLICATIONS

- Rail coach shell, metro car and EMU/DMU body watertightness validation
- Roof seam, door/window assembly, HVAC duct and underframe seal testing
- Coach manufacturing plant and maintenance depot QA
- Aerospace and defence vehicle rain-simulation testing

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Chamber & Spray

Chamber	**25 m (L) × 5 m (W) × 6 m (H)**
Construction	**SS304 structure; polycarbonate enclosure**
Spray Network	**21 downtake rows × 12 nozzles = 252 total**
Nozzle Type	**¼ HH 316 SS, 3.2 mm orifice, 60° angle**
Spray Velocity	**15.3 m/s**
Total Flow	**~1865 L/min**

Pump, Power & Safety

Pumps	**2 × 20 HP / 15 kW**
Operating Pressure	**3 bar (300 kPa)**
Filtration	**40-mesh + 100-mesh SS Y-strainers**
Power Supply	**415 V ±10%, 3 Φ AC, 50 Hz**
Control Panel	**IP55 / IP65 powder-coated steel**
Safety	**Pressure gauge, flow meter, E-stop, grounding**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/water-leak-testing-system-for-standard-and-broad-gauge-rolling-stock.php

AIRFIELD SAFETY SYSTEM · RUNWAY ARRESTING

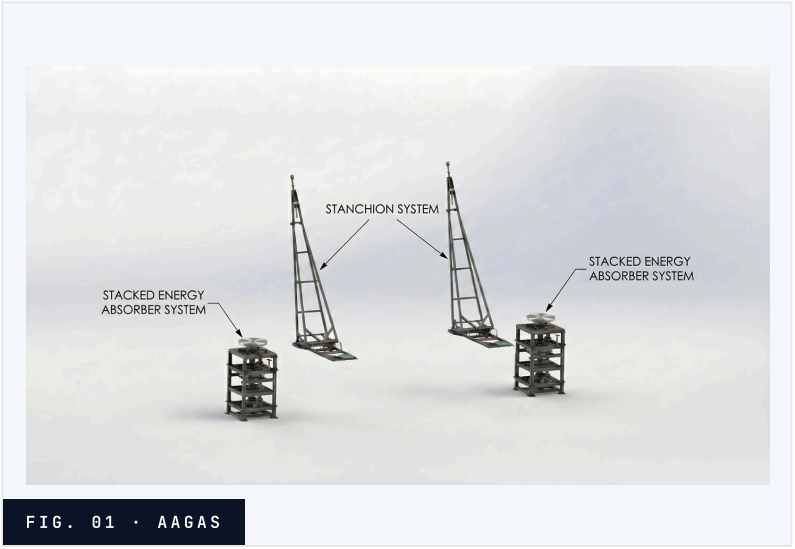

FIG. 01 · AAGAS

AAGAS

Aircraft Arresting Gear (AAG) System

High-energy net-based emergency runway arresting for fighter aircraft.

~3 g	270 m	~3 sec	15 min
Peak deceleration	Max run-out	Net deployment	Full system reset

OVERVIEW

The Aircraft Arresting Gear (AAG) is a permanent, high-energy net-based emergency runway safety system designed to safely decelerate fighter and tactical aircraft during rejected take-offs, landing overruns or brake failures. Installed at runway ends, it employs a high-strength Nylon-66 barrier that captures the aircraft and transfers impact energy through purchase tapes into a dual water-twister absorber, stopping aircraft within ~270 m while limiting deceleration to about 3 g.

This engineered safeguard converts an uncontrolled emergency into a predictable, instrumented event with quantifiable loads and fast reset. Operating across aircraft masses of 6,000–40,000 kg, the AAG deploys in ~3 seconds and returns to service within 10–15 minutes, protecting pilot safety, aircraft integrity and runway availability when all other safety systems have been exhausted.

KEY FEATURES

- High-strength Nylon-66 barrier catches runaway aircraft
- Dual-stage water-twister absorber dissipates kinetic energy as heat
- Repeatable, traceable arrests with load cells and rpm sensors
- Modular subsystems enable maintenance without full downtime
- ~3-second deployment with 10–15 minute full reset

APPLICATIONS

- Emergency arrestment on brake, hydraulic or landing-gear failure
- Rejected take-off at high gross weight with limited runway
- Landing overruns on wet or low-friction runways
- Short over-run operations with obstacles beyond the fence

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Performance & Capacity

Aircraft Mass Range	~6,000–40,000 kg
Maximum Deceleration	≈3 g (controlled)
Maximum Run-out	Up to 270 m
Net Deployment Time	≈3 seconds
Energy Absorber	Dual water-twister (20T + 40T)
Stage Switching	<5 seconds response

System Components

Net Width (MENA)	≈58 m span
Net Height Deployed	≈4.7–4.9 m
Vertical Elements	40 high-tenacity Nylon-66
Stanchion Height	≈7.5 m steel lattice frame
Tape Retrieval	10–15 minutes
Control Hut	12 m × 8 m × 3.5 m

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aircraft-arresting-gear-system.php

STORAGE & HANDLING

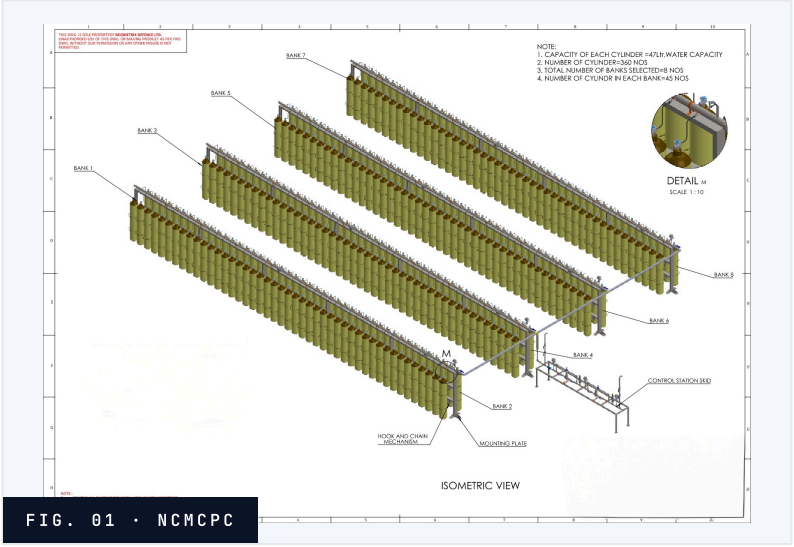

FIG. 01 · NCMCPC

NCMCPC

Nitrogen Cylinder Manifold Cum Pressure Control System

3 kg/cm²	47 L	15 kg/cm²	360
Outlet Pressure (Stage II)	Individual Cylinder Capacity	Outlet Pressure (Stage I)	Number of Cylinders

OVERVIEW

The Nitrogen Cylinder Manifold Cum Pressure Control System by Neometrix Defence Limited is a state-of-the-art solution engineered to ensure corrosion-free preservation of critical plant and process equipment during long-term shutdowns. Designed for precision, safety, and endurance, it brings together multi-bank cylinder manifolding, dual-stage self-actuated pressure regulation, and high-integrity carbon-steel construction into one compact, rugged system. By supplying pure, dry nitrogen at controlled pressures, it protects internal surfaces of heaters, condensers, and reactors from oxidation and moisture damage. The system's architecture—featuring 360 interconnected cylinders, Y-type strainers, relief-protected regulation stages, and SS instrumentation—offers seamless control with zero external power dependence. Fully compliant with PED and BHEL standards, and built under ISO 9001/14001/45001 certified processes, it exemplifies Neometrix's commitment to quality and reliability. From power plants and refineries to aerospace depots and cryogenic facilities, this manifold skid ensures mission-ready preservation performance backed by industrial-grade engineering and decades of manufacturing excellence.

KEY FEATURES

- Cylinder Manifold Assembly
- Accommodates 360 cylinders (47 L each) arranged in eight banks of 45.
- Manifolds constructed from seamless carbon-steel A106 Gr B (SCH 160) pipes with ANSI #1500 flanged ends.
- Two-Stage Pressure Regulation and Control
- Stage II Regulator: Further refines the outlet to ~3 kg/cm2 g for stable downstream supply.
- Each stage is protected by independent safety relief valves (set at 18 kg/cm2 g and 3 kg/cm2 g respectively).

APPLICATIONS

- Power Generation Sector
- Petrochemical and Refinery Operations
- Aerospace and Defence Applications
- Cryogenic and Research Facilities
- General Industrial Preservation

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Number of Cylinders	360 (8 banks × 45 each)
Individual Cylinder Capacity	47 L (water capacity)
Design Pressure	160 kg/cm² g
Working Pressure	150 kg/cm² g
Outlet Pressure (Stage I)	15 kg/cm² g
Outlet Pressure (Stage II)	3 kg/cm² g
Manifold Material	Seamless CS Pipe (A106 Gr B, SCH 160)
Valve Ratings	ANSI 1500# / 150#
Strainer Type	Y-type Flanged, ANSI #1500
Pressure Gauge Ranges	0–210 / 0–28 / 0–10 kg/cm² g
Frame Material	IS 2062 Structural Steel
Surface Coating	Epoxy Zinc Primer + Polyurethane Top Coat
Design Standards	IS 3224, IS 7285 Part II, ANSI B16.5, PY-53040 SOW
Quality Plan	NX/QAP per PED & BHEL QA requirements

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/nitrogen-cylinder-manifold-cum-pressure-control-system.php

INTEGRATED SYSTEM

FIG. 01 · OGBS

OGBS

Oxygen Gas Boosting System

350 bar	**210** bar	**< 75** dB(A)	**20–120** bar
Max. Outlet Pressure	Safety Relief Setting	Noise Level	Gas Inlet Pressure

OVERVIEW

The Oxygen Gas Boosting System is a compact, skid-mounted pneumatic booster that elevates oxygen pressures up to 350 bar (≈5,000 psi) using only plant air, eliminating electrical ignition risks and ensuring intrinsic safety. Its multi-stage, intercooled piston design and oxygen-clean components (certified to ASTM G-93) maintain gas purity (> 99.5

% O2) and low dew points (< −40 °C). An integrated PLC/HMI interface provides recipe- based control, remote SCADA connectivity, and automated purge/relief sequencing, while redundant safety valves mitigate over-pressure hazards. Modular skid construction—with forklift pockets, lifting eyes, and quick-connect ISO 8434 fittings—allows rapid deployment and customization, including gas blending, remote monitoring, and climate-controlled enclosures. Ideal for medical, industrial, diving, aerospace, and research applications, it pairs high performance with turnkey support, extensive warranties, and global service networks.

KEY FEATURES

- Cylinder Filling & Gas Transfer: Rapid, safe topping-off of industrial, medical, and emergency O2 cylinders.
- Medical & Life-Support: ICU backup, hyperbaric therapy charging, mobile field-hospital carts.
- Aviation & Defense: Aircraft emergency O2, pilot rebreather top-off, EVA ground support.
- SCUBA & Rebreather Industry: Dive-shop fill stations, military dive teams.
- Industrial Manufacturing: Laser cutting, welding, glass-melting, reactor purges, semiconductor oxidation.
- Environmental & Research: Waste-water aeration, hypersonic wind-tunnel injection, combustion tests.

APPLICATIONS

- Cylinder Filling & Gas Transfer: Rapid, safe topping-off of industrial, medical, and emergency O2 cylinders.
- Medical & Life-Support: ICU backup, hyperbaric therapy charging, mobile field-hospital carts.
- Aviation & Defense: Aircraft emergency O2, pilot rebreather top-off, EVA ground support.
- SCUBA & Rebreather Industry: Dive-shop fill stations, military dive teams.
- Industrial Manufacturing: Laser cutting, welding, glass-melting, reactor purges, semiconductor oxidation.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Drive Medium	**Plant air (3–7 bar) / Optional electric motor**
Gas Inlet Pressure	**20–120 bar**
Max. Outlet Pressure	**350 bar (≈5,000 psi)**
Flow Rate	**Up to 20 Nm³/h @ 200 bar; 5 Nm³/h @ 350 bar**
Dew Point	**< -40 °C (post-filter)**
Purity	**> 99.5 % O_2**
Drive-Air Consumption	**100–200 Nm³/h**
Noise Level	**< 75 dB(A) at 1 m**
Weight & Footprint	**~250 kg; 1.5 m × 0.8 m skid**
Safety Relief Setting	**210 bar**
Certifications	**CE, ISO 13485, ASTM G-93, ATEX Zone 2**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/oxygen-gas-boosting-station.php

NEOMETRIX DEFENCE PRODUCT

FIG. 01 · RTTE

RTTE

Rudder & Tailplane Test Equipment

0–210 /	10–60 L/min
Supply Pressure Range	Max Flow Rate

OVERVIEW

The Rudder & Tailplane Test Equipment is a high-precision hydraulic rig engineered to ensure the safety and performance of two of the most critical flight control systems. Responsible for governing yaw and pitch stability, the rudder and tailplane demand absolute reliability — and this rig recreates their real flight conditions on the ground. It enables proof pressure and leakage checks, functional stroke and response measurements, and long-duration endurance cycling, all under controlled and repeatable test profiles. Featuring dual-circuit hydraulic control, fluid contamination monitoring, and robust safety mechanisms such as dump valves and relief interlocks, the system provides aerospace manufacturers, MRO facilities, and research labs with a dependable platform for qualification, certification, and post-maintenance validation. By combining rigorous testing capability with operator-friendly design and upgrade-ready architecture, it helps guarantee that every actuator and subsystem leaving the workshop is ready to deliver flawless performance in the air.

KEY FEATURES

- Independent Test Benches
- Separate rigs for rudder and tailplane actuators, allowing simultaneous or stand-alone operation.
- Modular design ensures easy integration into existing labs or hangar facilities.
- Dual-Circuit Hydraulic Architecture
- Servo Pressure Regulator for precise, dynamic control of actuator response.
- Test Pressure Regulator for static proof and leakage testing.

APPLICATIONS

- OEM Production & Qualification
- Testing of newly manufactured rudder and tailplane actuators.
- Compliance with qualification standards before integration into aircraft.
- Research & Development
- Performance characterization of new actuator technologies.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Supply Pressure Range	**0–210 / 315 / 350 bar Configurable based on actuator type**
Max Flow Rate	**10–60 L/min Sized to actuator speed and stroke**
Pressure Control	**Servo + Test Regulators Independent, dual-branch control**
Return Systems	**System-1 & System-2 Flexible routing through filters or bypass**
Fluid Sampling	**Pressure & return ports Contamination checks (ISO 4406/NAS 1638)**
Instrumentation	**Pressure, flow, displacement, temperature Expandable to DAQ integration**
Safety	**Dump valve, relief valves, interlocks Meets aerospace safety standards**
Controls	**Manual panel / PLC upgrade Automation and data logging options**
Compliance	**FAA, EASA, MIL, DGCA standards Certification support**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/rudder-and-tailplane-test-equipment.php

INTEGRATED SYSTEM

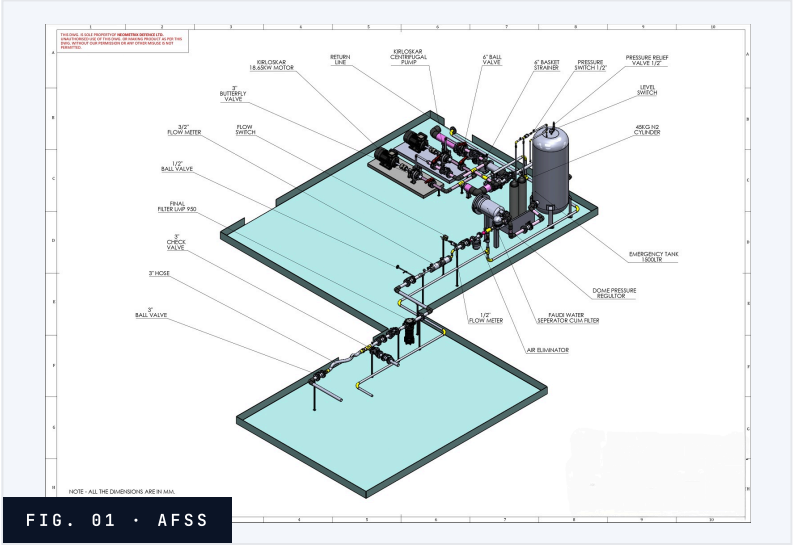

FIG. 01 · AFSS

AFSS

Aerospace Fuel Supply System

12 bar	45 kg	500 LPM	100 µm
Design Pressure	Pressurisation	Flow Rate (max)	Filtration Level

OVERVIEW

The Aerospace Fuel Supply System by Neometrix Defence Limited is a precision- engineered fuel conditioning and delivery platform developed for aero-engine and

propulsion test cells. It supplies aviation turbine fuel to engines under test at precisely controlled pressure, flow, and cleanliness, enabling accurate measurement of fuel consumption, combustion efficiency, and control-system performance. Built entirely from stainless steel and equipped with redundant pumps, dome-type pressure regulators, FAUDI filtration, KRAL metering, and PLC-based automation, the system ensures a stable, contamination-free, and safely regulated fuel feed during endurance, performance, and functional testing of aircraft engines and auxiliary power units. It represents Neometrix's commitment to engineering precision, reliability, and safety in every test environment.

KEY FEATURES

- Fuel Pumping Module – Generates and maintains flow and pressure from the main fuel source.
- Emergency Supply Module – Provides nitrogen-pressurised backup during pump or power failure.
- Pressure Regulating Module – Maintains stable downstream pressure for accurate testing.
- Fuel Metering Module – Measures flow and consumption with high precision.
- Final Filtration Module – Ensures absolute fuel purity at the engine interface.
- Interconnection Network – Stainless-steel piping and flexible hoses for seamless module integration.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Materials	SS316 / SS304 (ASTM A351 / A276)
Sealing	PTFE / Viton, ATF-compatible
Connections	ASME B16.5 Class 150 flanges
Welding	TIG, full-penetration, dye-checked
Electrical Rating	Ex-d flame-proof, IP65
Mounting	Modular skids with drip tray, drains, and earthing
Surface Finish	Pickled + passivated for hydrocarbon service
Working Fluid	Aviation Turbine Fuel (ATF) / Jet A-1 / Kerosene
Flow Rate (max)	500 LPM
Working Pressure	0 – 10 bar
Design Pressure	12 bar
Operating Temperature	Up to 45 °C
Pump Type	Centrifugal, SS316 construction
Motor Rating	18.65 kW, 415 V, 3 phase, 50 Hz, IE2 FLP
Filtration Level	100 µm (pre-filter) + 1 µm (final filter)
Filter Make	FAUDI / Equivalent Coalescer Separator
Flow Meter Type	Positive Displacement (KRAL / Equivalent)
Flow Accuracy	± 0.2 % of reading

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/aerospace-fuel-supply-system.php

NEOMETRIX DEFENCE PRODUCT

FIG. 01 · DVTR

DVTR

DOPPLER VOR TEST RACK

0 °C	20 minutes	15	8- bit
Operating Conditions	UPS Backup	Display	Oscilloscope

OVERVIEW

The DOPPLER VOR TEST RACK is an integrated, rack-mount test bench designed for comprehensive validation of Doppler VHF Omnidirectional Range (DVOR) navigation beacon modules. Housed in an IP65-rated, MIL-grade enclosure and powered by an internal UPS, it supports both intelligent and slave LRUs—running self-diagnostics, automated RF and DC test sequences, and real-time fault isolation. A 15″ capacitive touch HMI paired with an Intel i5 industrial PC drives pre-configured scripts, while high-precision instruments (true-RMS DMM, 200 MS/s oscilloscope, AC power analyzer, and programmable DC supply) ensure traceable measurements across 960–1250 MHz at up to +8 dBm. Results are logged centrally and output as instant PDF/print reports, streamlining maintenance workflows and guaranteeing compliance with international navigation standards.

KEY FEATURES

- 15″ IP65-rated multi-touch LCD with anti-glare glass for clear read-outs under shop lighting.
- Backlit full-size keyboard and optical mouse for detailed setup and scripting.
- Industrial PC (Intel Core i5, 8 GB RAM, 256 GB SSD) running Windows 10 IoT Enterprise.
- True-RMS DMM for voltage, current, resistance, and frequency.
- PC-attached oscilloscope (200 MS/s) with advanced triggers, FFT analysis, and waveform saving.
- AC power analyzer for mains quality, power factor, and harmonic distortion checks.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Frequency Range	960 MHz – 1250 MHz
RF Output Power	Up to +8 dBm max
DC Power Supply	0–30 V DC, 700 W programmable, adjustable slew rate, over-voltage/current protection
UPS Backup	20 minutes battery-backed operation
Enclosure Rating	IP65, weatherproof industrial cabinet with MIL-grade cabling & connectors
Industrial PC	Intel Core i5, 8 GB RAM, 256 GB SSD, Windows 10 IoT Enterprise
Display	15″ capacitive multi-touch, anti-glare, IP65 front, 10-finger capacitive touch
Digital Multimeter	Panel-mounted True-RMS (voltage, current, resistance, frequency)
Oscilloscope	8-bit A/D, 2 channels, 200 MS/s, advanced trigger modes, USB 2.0
AC Power Analyzer	±0.1 % accuracy, measures mains quality, power factor, harmonics
Circuit Breaker	16 A manual/automatic protection
Operating Conditions	0 °C to 50 °C, up to 95 % non-condensing humidity
Dimensions (HxWxD)	2000 mm × 600 mm × 800 mm (standard 19″ rack)
Weight	Approx. 250 kg (fully loaded)

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/Doppler-Vor-Test-Rack.php

NEOMETRIX DEFENCE PRODUCT

FIG. 01 · HP

HP

Hydraulic Package

20 bar	**35** bar	**25** L/min	**340** mm
Proof pressure – reservoir LP chamber	Burst – reservoir LP chamber (design)	Rated flow through relief valves	Overall height

OVERVIEW

The Hydraulic Package is essentially the "hydraulic brain and heart" of the helicopter, quietly making sure everything you take for granted actually works when it matters. Every precise blade pitch change, every smooth landing-gear extension, every confident brake application and mission winch movement depends on this module feeding the system with clean, stable, cavitation-free hydraulic power. Instead of being just a tank, it uses a smart reverse-intensifier design to keep about 2.5 bar(g) at the pump inlet even during brutal manoeuvres and negative-G pulls, so the pump never gulps air and the pilot never feels spongy or delayed control response. By packing the reservoir, intensifier, relief valves, filters, check valves and level/pressure/temperature monitoring into one compact aerospace-grade block, it cuts plumbing, leak points and maintenance headaches – and quietly, reliably underwrites the safety, responsiveness and mission readiness of the entire aircraft.

KEY FEATURES

- 2.75 L module – typically used on primary flight-control systems (main and tail rotor actuators).
- 4.25 L module – typically used on utility systems (landing gear, wheel brakes, hoists, winches, etc.).
- Self-pressurised bootstrap reservoir
- Differential-area piston intensifier for reservoir pressurisation
- High-pressure and low-pressure relief valves
- Pressure and return filters with automatic shut-off and clog indication

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Base dimensions	250 × 250 mm 250 × 250 mm
Overall height	340 mm 470 mm
Dry weight	≈ 9 kg ≈ 10 kg
Maximum fluid volume	2.75 L 4.25 L
Rated useful volume	2.50 L 4.00 L
Minimum / emergency volume	1.25 L 1.25 L
Working temperature range	−20 °C to +120 °C −20 °C to +120 °C
Nominal system pressure	206 bar 206 bar
Useful operating pressure range	180–220 bar 180–220 bar
Nominal suction chamber pressure	2.5 bar(g) 2.5 bar(g)
Proof pressure – system lines	310 bar 310 bar
Proof pressure – return lines	155 bar 155 bar
Proof pressure – reservoir LP chamber	20 bar 20 bar
Burst – system lines (design)	525 bar 525 bar
Burst – return lines (design)	265 bar 265 bar
Burst – reservoir LP chamber (design)	35 bar 35 bar
Rated flow through relief valves	25 L/min 25 L/min
Working fluid	MIL-H-5606G aircraft hydraulic fluid MIL-H-5606G aircraft hydraulic fluid

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydraulic-package.php

NEOMETRIX DEFENCE PRODUCT

FIG. 01 · IS

IS

Integration Simulator

5 V,
Power Rails

OVERVIEW

The Integration Simulator is a fully engineered, multi-zone test and training platform designed for the integration, validation, and evaluation of mission-critical defence and aerospace systems. Built with military-grade materials, precision-engineered mechanical assemblies, and advanced control and data-recording systems, it replicates real-world operational conditions in a safe, controlled environment. Its modular architecture, climate-controlled enclosure, and comprehensive power, networking, and surveillance infrastructure make it ideal for system integration testing, operator training, and prototype evaluation — delivering unmatched reliability, safety, and performance.

KEY FEATURES

- CNC-machined components with corrosion-resistant surface treatments for long-term service.
- Modular frame and panel construction allowing reconfiguration and upgrades.
- Fire-rated access doors and marine-grade flooring for safety and durability.
- Thermal- and sound-insulated wall and ceiling panels for controlled conditions.
- Storage & Utilities – Shelving, secure storage, and maintenance toolkits for operational readiness.
- High-capacity HVAC system with precise temperature and humidity control for optimal equipment performance.

APPLICATIONS

- Systems integration testing for defence and aerospace hardware
- Verification of release and deployment mechanisms
- Operator and crew training under realistic simulated conditions
- Data logging, telemetry validation, and post-mission analysis
- Controlled environmental testing of mechanical assemblies and actuators

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Overall Height	**~2.9 m**
Panel Construction	**Insulated sandwich panels with coated steel skins**
Frame Materials	**High-strength alloy steel, aerospace-grade aluminium, titanium components**
Zones	**Simulation, Control, Data Recording, Storage**
HVAC	**Precision cooling & dehumidification with HEPA filtration**
Power Rails	**5V, 12V, 24V, 28V DC regulated outputs**
Networking	**High-speed structured cabling with RJ45 connectivity**
Surveillance	**Multi-camera HD CCTV with long-term DVR storage**
Lighting	**LED luminaires for uniform zone illumination**
Safety	**Fire-rated doors, extinguishers, biometric access**
Control Consoles	**Stainless steel enclosures, Xeon-class processors, HD displays**

DGAQA-CERTIFIED · ISO 9001:2015 · MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/integration-simulator.php

NEOMETRIX DEFENCE PRODUCT

FIG. 01 · MAHLBA

MAHLBA

Mobile Aviation 400Hz Load Bank (Air-Cooled & Water-Cooled Versions)

2- year	**115 /200**	**5 – 60 kVA**	**5 10 20 30 kVA**
Accessories	Operating Voltage	Rated Capacity	Load Step Resolution

OVERVIEW

The Neometrix Mobile Aviation 400 Hz Load Bank is a specialized test system designed for the validation and maintenance of 115/200 V, 400 Hz Ground Power Units (GPUs) and aircraft starter-generators in both civil and military aviation. Available in two distinct versions—air-cooled and water-cooled—the system provides operators with flexibility to suit different testing environments. The air-cooled variant is compact, lightweight, and manually towable, making it ideal for low-to-medium capacity applications in workshops and hangars. In contrast, the water-cooled variant is a heavy-duty, tractor-towable system engineered for continuous operation at higher capacities (up to 180 kVA), suitable for demanding use at military bases, OEM test facilities, and large airports. Both versions employ modular resistive load steps, advanced PLC/HMI-based digital controls, and robust thermal and electrical safety protections to ensure precision, reliability, and operator safety. Built with NiCr/FeCrAl stainless steel resistors optimized for stable high-frequency operation, and offered with a 2- year spares and service kit, the Neometrix Load Bank delivers long lifecycle performance, low maintenance costs, and proven dependability under harsh conditions worldwide.

KEY FEATURES

- PLC/HMI touchscreen for operator-friendly interface.
- Multifunction LED meters displaying voltage, current, power factor, frequency, and kW output.
- Programmable timers for test duration, runtime logging, and reporting.
- Optional data logging & remote monitoring interface (Ethernet/USB).
- Triple thermal protection with automatic trips.
- Fan-failure and (for water-cooled) pump-failure detection alarms.

APPLICATIONS

- Air-Cooled models: Easily transported inside workshops or hangars, rapidly deployable with minimal setup.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Rated Capacity	5 – 60 kVA (modular) Up to 180 kVA (continuous duty)
Operating Voltage	115/200 V, 400 Hz AC 115/200 V, 400 Hz AC
Load Step Resolution	5, 10, 20, 30 kVA 5, 10, 20, 30... up to full capacity
Cooling	Forced-air fans Closed-loop water cooling with pump & radiator
Mobility	Trolley-based, manually towable Trailer-based, tractor/vehicle towable
Weight	~200–400 kg (depending on rating) ~2300 kg (150 kVA model)
Control System	PLC/HMI touchscreen + multifunction meters PLC/HMI touchscreen + multifunction meters
Safety Features	Overload, thermal, over-voltage/frequency Overload, thermal, over-voltage/frequency, water-cooling alarms
Deployment	MRO workshops, hangars, smaller airports Military bases, OEM facilities, major airports
Accessories	2-year spares & service kit 2-year spares & service kit

INTEGRATED SYSTEM

FIG. 01 · PSA

PSA

Oxygen Boosting System for Oxygen Generation Plant-PSA

140 bar	0.8 s	316 L	230 VAC,
Max Discharge Pressure	Cycle Time & Throughput	Materials – Wetted Parts	Electrical Supply

OVERVIEW

The Oxygen Boosting System is a fully self-contained, skid-mounted solution that transforms low-pressure oxygen (3–6 bar) from PSA/VPSA units into high-pressure output (up to 140 bar) for rapid cylinder filling. Powered entirely by clean, compressed air, it employs dual Haskel booster stages and an interstage finned-tube cooler to deliver smooth, pulsation-free flow rates up to 700 NLPM at maximum pressure. A built-in 2,000 L air receiver and 47 L oxygen buffer ensure consistent performance, while electropolished 316 L stainless-steel wetted parts and oxygen-service seals guarantee purity and safety. The integrated Siemens

S7-1200 PLC with 7″ HMI provides intuitive operation, real-time monitoring, and remote- access capability via OPC UA or 4G modem. Designed for hospitals, industrial plants,

defense facilities, and research labs, this system combines rugged reliability, ease of maintenance, and zero electrical ignition risk to meet the most demanding oxygen-boosting applications.

KEY FEATURES

- Hospital Bulk Fill: Capable of refilling 200 K-size cylinders in an 8-hour shift at 140 bar.
- Industrial Gas & Combustion:
- Defense & Aerospace:
- Research & Analytical Laboratories:
- Pulsation Control: Buffer receiver and optional dampener smooth pressure pulses to • PLC Functionality:
- Startup Sequence: Purge fill manifold → pre-fill to 30 bar → booster engage.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Max Discharge Pressure	**140 bar (factory-set; adjustable 120–140 bar); transducers overshoot < 1 bar**
Discharge Flow	**1,600 NLPM @ 20 bar; 900 NLPM @ 100 bar; 700 NLPM @ 140 bar**
Receiver Volumes	**Air: 2,000 L @ 8.5 bar; Oxygen: 47 L @ 140 bar; PED 2014/68/EU certified**
Cycle Time & Throughput	**0.8 s forward, 0.8 s return; ~1.5 min to fill 50 L cylinder @ 140 bar**
Materials – Wetted Parts	**316 L SS electropolished (Ra ≤ 0.4 µm); seals PTFE/NBR per ISO 10497**
Operating Temp. Range	**System: 0–50 °C; Ambient: −20–60 °C; interlock at T > 80 °C**
Control & HMI	**Siemens S7-1200 PLC; 7″ TP700 HMI; OPC UA, Modbus TCP, Ethernet/IP; optional 4G modem**
Instrumentation Accuracy	**Pressure ±0.25% FS; Temperature PT100 ±0.1 °C; Flow ±1%**
Electrical Supply	**230 VAC, 50 Hz, 16 A; UPS backup for control logic**
Footprint & Mass	**3.0 × 1.5 × 2.2 m; 1,200 kg dry skid; M12 anchor points**
Noise Level	**< 75 dBA @ 1 m (wrap); < 65 dBA in full acoustic enclosure**
Certifications & Standards	**CE/PED 2014/68/EU; NFPA 99; ISO 7396-1; MIL-STD-810G; CGA G-4.1**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/Oxygen-Boosting-System-for-Oxygen-Generation-Plant-PSA.php

STORAGE & HANDLING

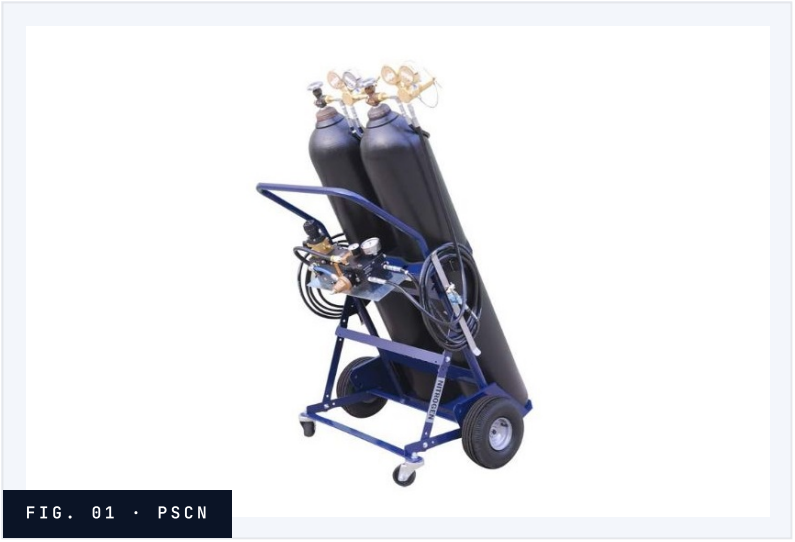

FIG. 01 · PSCN

PSCN

Portable Single Cylinder Nitrogen

6 bar	75	40 µm	60 SCFM
Drive Pressure	Boost Ratio	Drive Air Filtration	Drive Flow Demand

OVERVIEW

The Portable Single Cylinder Nitrogen Trolley with Booster is a mobile, powder-coated steel unit that uses a two-stage Haskel pneumatic booster to raise nitrogen from a standard cylinder pressure of 200–250 bar up to 415 bar (6,000 PSI), delivering precise, pulsation-free output at a 75:1 boost ratio. Mounted on swivel casters with a textured handle and fitted with a 15 m stainless-steel braid hose and ISO 7241 quick-disconnects, it offers rugged mobility and rapid change-over. An ergonomic front-panel houses a 40 µm filtered drive inlet, drive and outlet regulators, and three SS-316 gauges, while dual redundant relief valves, mechanical gauge stops, and a key-lock isolation ensure safety. Designed for industrial leak testing, aerospace accumulator charging, field commissioning, and laboratory research, this turnkey system combines intuitive controls, minimal maintenance, and customizable options for reliable high-pressure nitrogen boosting in demanding environments.

SYSTEM ARCHITECTURE

The system comprises two tightly integrated subsystems: 1. Pneumatic Drive Module:

KEY FEATURES

- Pneumatic Drive Module:
- Regulator & Filter Assembly: Ensures consistent, particle-free drive air to the Haskel booster, reducing wear.
- Nitrogen Boost Module:
- Haskel Booster Cylinder: Single-stage, balanced-piston design offers smooth, pulsation-free output.
- Dual Redundant Relief: Primary relief at 405 bar; secondary burst disc at 430 bar for catastrophic backup.
- Over-Pressure Gauge Stops: Mechanical pin stops protect gauge internals from shock loading.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Boost Ratio	75 : 1
Drive Pressure	6 bar (min.), up to 16 bar operating range
Drive Air Filtration	40 µm stainless steel sintered filter
Drive Flow Demand	60 SCFM
Max Outlet Pressure	415 bar (6,000 PSI)
Outlet Pressure Accuracy	±1 % FS after stabilization
Inlet Pressure Gauge	0–280 bar (±2 bar)
Outlet Pressure Gauge	0–4,000 bar (±20 bar)
High-Pressure Regulator	0–415 bar, micrometer adjustment
Hose Specification	15 m × 6 mm OD, 400 bar WP, stainless steel braid
Trolley Dimensions	690 × 645 × 1,150 mm (L × W × H)
Weight	≈ 75 kg (with hose and gauges)
Materials	Powder-coated mild steel frame; SS-316 valves, fittings, and gauges
Operating Temperature Range	−20 °C to +60 °C

STORAGE & HANDLING

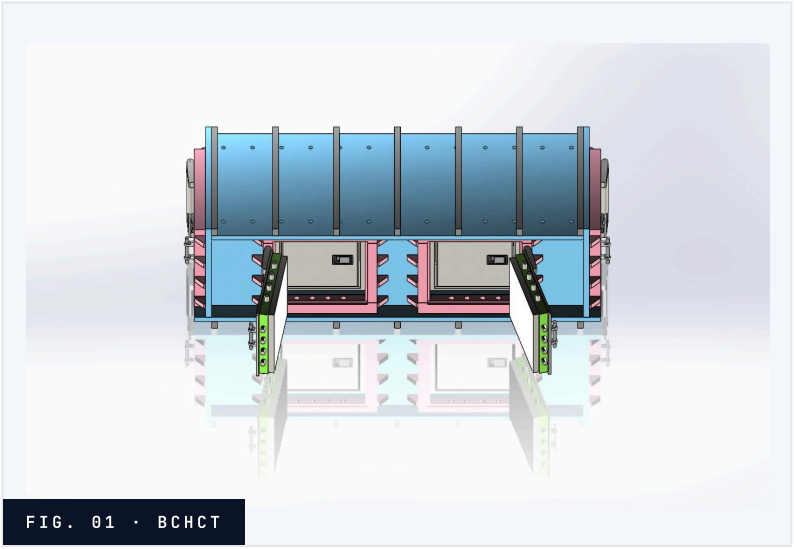

FIG. 01 · BCHCT

BCHCT

Burst Chamber for Hydrogen Cylinder Testing

5000 bar

Maximum Test Pressure

OVERVIEW

The Burst Chamber for Hydrogen Cylinder Testing is the ultimate "crash test arena" for the hydrogen industry — a place where cylinders are pushed far beyond their limits to prove they are truly safe. Capable of reaching pressures up to 5000 bar, this rugged dual-wall chamber can accommodate cylinders up to 3.0 meters long and 900 mm in diameter, making it ideal for today's advanced composite hydrogen tanks. Inside its explosion-resistant walls, cylinders are filled, pressurized, and driven to burst under tightly controlled conditions, while a PLC-driven control system captures every detail of their performance. With high-precision sensors, automated safety interlocks, and emergency shutdowns, the chamber ensures absolute operator safety even as it witnesses catastrophic failure. By revealing exactly how and when cylinders fail, it provides manufacturers, researchers, and regulators with the confidence that hydrogen storage systems for mobility, aerospace, defense, and energy infrastructure are built to withstand the toughest realities of the hydrogen future.

KEY FEATURES

- Cylinder Placement – The test cylinder is placed securely inside the stainless steel inner chamber.
- Proof that the cylinder meets safety regulations.
- Insights into design improvements.
- Certification data for international markets.
- Dual-Wall Containment System
- Heavy-Duty Door Assembly

APPLICATIONS

- Hydrogen Mobility
- Testing on-board storage cylinders for cars, buses, trucks, and trains.
- Qualification of Type III & IV composite cylinders used in fuel cell vehicles.
- Aerospace
- Destructive testing of lightweight composite tanks used in aircraft, spacecraft,and UAVs.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Maximum Test Pressure	**5000 bar (≈72,500 psi)**
Cylinder Length Capacity	**Up to 3000 mm (3.0 m)**
Cylinder Diameter Capacity	**Up to 900 mm**
Chamber Internal Dimensions	**Approx. 3000 × 900 × 800 mm (L×W×H)**
Chamber Construction	**Stainless Steel inner + Mild Steel outer containment**
Pump System	**Haskel air-driven liquid pump (up to 75,000 psi intermittent)**
Control System	**PLC + HMI with automated burst sequencing & real-time DAQ**
Safety Systems	**Explosion-resistant design, redundant relief valves, emergency shutdown, interlocked door**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/burst-chamber-for-hydrogen-cylinder-testing.php

MACHINE

FIG. 01 · CCLTM

CCLTM

CNG Circuit Leak Testing Machine

7 Micron	**5** Micron	**60** SCFM	**345** bar–suitable
Drive Air Purity (2.0)	Drive Air Purity (6.0)	Drive Flow Rate	Booster Max Pressure

OVERVIEW

The CNG Circuit Leak Testing Machine by Neometrix Defence Limited is a state-of-the-art pneumatic system designed for high-pressure testing, leak detection, and cylinder filling in CNG-powered Volvo buses. Utilizing an air-driven Haskel booster, it achieves pressures up to 345 bar without electricity, ensuring safe operation in flammable environments. Compact, robust, and gas-compatible (Nitrogen, Oxygen, Helium, Hydrogen), the machine is ideal for both stationary and mobile setups. It offers multiple output pressure levels (10–200 kg/cm2), dual booster redundancy, and high-purity filtration to ensure precision and reliability. With applications ranging from automotive maintenance to R&D, its intuitive design, low maintenance requirements, and safety-centric features make it an essential tool for modern gas system validation.

KEY FEATURES

- Pressure endurance testing of flexible hoses and static gas assemblies under cyclic load conditions.
- Controlled high-pressure filling of gas cylinders for vehicle tanks or laboratory use.
- Integration into OEM testing cells, third-party validation labs, or mobile service vans.
- Pressure Boosting up to 345 bar: Suitable for high-pressure endurance testing and certification protocols.
- Dual Booster Configuration: Primary and standby oxygen boosters ensure uninterrupted operations.
- Non-Electric Pneumatic Operation: Completely air-driven mechanism eliminates ignition risks in volatile areas.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Drive Pressure (Air)	**Minimum 4 kg/cm² input ensures efficient booster operation**
Drive Air Purity (2.0)	**7 Micron filtering for general use**
Drive Air Purity (6.0)	**5 Micron filtering required for high-purity gases like O_2**
Drive Flow Rate	**60 SCFM (adjustable based on booster load profile)**
Dew Point Temperature	**−40 °C to prevent condensation and freezing**
Inlet Nitrogen Pressure	**17–150 kg/cm² standard range**
Inlet Nitrogen Purity	**5 Micron for clean operation and extended equipment life**
Output Pressure Range	**10, 50, 100, 200 kg/cm²—adjustable based on testing needs**
Booster Max Pressure	**345 bar—suitable for high-pressure applications**
Medium Compatibility	**Compatible with Air, N_2, He, O_2, H_2 (materials chosen accordingly)**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/cng-circuit-leak-testing-machine-for-volvo-buses.php

INTEGRATED SYSTEM

FIG. 01 · HGSHVS

HGSHVS

Hydro-Gas Suspension (HSU) Validation System

3 µm	350 Bar	415 V	0 – 300 LPM
Filtration Rating	Max Operating Pressure	Power Requirement	Flow Rate Capacity

OVERVIEW

The Neometrix Hydro-Gas Suspension Test Rig stands at the critical intersection of heavy armor and high-precision engineering—the decisive checkpoint for combat mobility. Designed to tame the massive kinetic energy of 60-ton behemoths like the T-90, T-72, and Arjun MBT, this system acts as a \"virtual battlefield\" replicating the brutal punishment of cross-country terrain before a single track hits the mud. By driving nitrogen-charged struts through violent jounce and rebound cycles under 400 Bar of hydraulic pressure, it rigorously validates the complex interplay between gas springs and oil dampers. This is more than just maintenance equipment; it is an assurance of survivability, ensuring that a tank's \"iron legs\" provide the rock-solid stability required for accurate fire-on-the-move and crew safety in the heat of operation.

KEY FEATURES

- Internal baffling to enforce laminar flow and promote de-aeration.
- Magnetic suction separators to trap ferrous contaminants.
- Desiccant breathers to prevent atmospheric moisture ingress.
- Pumping Group:
- Secondary Circuit: External gear pumps utilized for cooling loops and pilot pressure generation.
- Filtration Architecture (NAS 1638 Class 6 Compliance):

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Application	**Testing of Hydro-Gas Suspension Units (T-72, T-90, Arjun, BMP-II)**
Max Operating Pressure	**350 Bar (System Design Pressure: 400 Bar)**
Max Proof Pressure	**Up to 1000 Bar (Static hold capability)**
Flow Rate Capacity	**0 – 300 LPM (Liters Per Minute)**
Hydraulic Fluid Compatibility	**Mineral Oils (OM-15, OH-50), MIL-H-5606**
Filtration Rating	**3µm Absolute (Pressure) / 10µm (Return)**
Cleanliness Standard	**NAS 1638 Class 6 / ISO 4406 16/14/11**
Control System	**NI LabVIEW™ on Industrial PC with PLC Safety Interlocks**
Primary Actuators	**Solenoid Directional Control Valves (NG10 / NG25 sizes)**
Power Requirement	**415V AC ±10%, 3-Phase, 50Hz**
Ambient Operating Temperature	**-10°C to +50°C**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydro-gas-suspension-hsu-validation-system.php

NEOMETRIX DEFENCE PRODUCT

FIG. 01 · CCB

CCB

Chemical Cleaning Bay

5 mm	**1.1** kW	**5.5** kW;	**100** CFM
Scrubber Tower	Make-up Pump	Circulation Pump	Regenerative Air Dryer

OVERVIEW

The Chemical Cleaning Bay is a turnkey facility designed for precision surface preparation of industrial piping and components across marine, petrochemical, power generation, and other process industries. It combines enclosed shot blasting with high-efficiency dust extraction, heated chemical wash cycles with automated dosing and closed-loop filtration, and rapid regenerative drying to remove scale, rust, oils, and biological fouling. Engineered with robust MS construction, sealed access doors, and advanced safety interlocks, the bay handles alloys from mild steel to titanium and ensures repeatable cleanliness levels per ISO standards. Its integrated workflow—from abrasive blasting through chemical circulation, neutralization, rinsing, and final inspection—maximizes equipment life, reduces unplanned downtime, and upholds environmental and safety regulations.

SYSTEM ARCHITECTURE

8. Loading: Components placed on trolleys or racks and positioned within the bay. 9. Abrasive Blasting: High-velocity shot media removes heavy scale and coatings under dust-controlled conditions. 10. Chemical Bath: Hot alkaline or acidic solutions circulate around parts to dissol...

KEY FEATURES

- Loading: Components placed on trolleys or racks and positioned within the bay.
- Abrasive Blasting: High-velocity shot media removes heavy scale and coatings under dust-controlled conditions.
- Inspection: Cleanliness verified per ISO/SAE particle standards before parts are released for service.
- Pre-Inspection: Verify material compatibility (MS, SS, Cu-Ni, Ti, Al alloys).
- Blast Cycle: Select media type and pressure; initiate dust extraction.
- Wash Cycle: Heat wash tank to setpoint; circulate chemical solution for specified dwell time.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Hot Water Generator	**600,000 kcal/hr, ON/OFF type**
Make-up Pump	**1.1 kW electrical load**
Circulation Pump	**5.5 kW; 25 m³/hr @ 40 mLC**
Scrubber Tower	**5 mm PP-FRP construction**
Air Compressor	**Elgi 25 HP; FAD 81.36 cfm**
Regenerative Air Dryer	**100 CFM**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/chemical-cleaning-bay.php

INTEGRATED SYSTEM

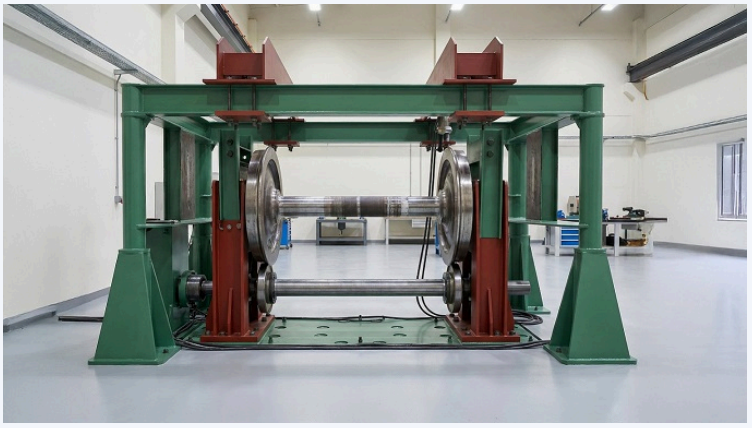

FIG. 01 · IMWS

IMWS

Instrumented Measuring Wheel System

16 Simultaneous	**0.1** m	**1000** RPM	**±0.5** %
Telemetry Channels	Telemetry Gap	Wheel Speed (Lab / Field)	Calibration Accuracy

OVERVIEW

The Instrumented Measuring Wheel System (IMW) is a breakthrough in railway diagnostics — a wheel that can quite literally feel the track beneath it. Developed collaboratively by IIT Kanpur, RDSO Lucknow, and Neometrix Defence Limited, this cutting-edge system transforms an ordinary rail wheel into a live sensor platform capable of measuring the hidden forces that govern safety, comfort, and performance on the rails. Equipped with precision strain gauges, wireless inductive telemetry, and a sophisticated data acquisition suite, the IMW records vertical and lateral wheel–rail forces, vibrations, and speed in real time as the train moves from one location to another. Every rotation of the wheel generates valuable insights — revealing track irregularities, alignment faults, stiffness variations, and bogie dynamics that would otherwise remain invisible. Supported by a custom-built hydraulic calibration rig for laboratory validation, the IMW bridges the gap between simulation and reality, giving engineers the power to see what the train feels and build a smarter, safer, and more resilient railway network for the future.

KEY FEATURES

- Vertical forces (Q) — due to static and dynamic axle loading
- Lateral forces (Y) — due to curving, hunting, and alignment errors
- Torsional and creep components, if enabled by configuration
- FEM-based gauge positioning to isolate stress directions
- 350 Ω temperature-compensated strain gauges with hermetic sealing
- Vibration-resistant mounting and dynamic balancing (safe to 160 km/h)

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Vertical Force (Q)	**0 – 200 kN Simulated and measured**
Lateral Force (Y)	**0 – 100 kN For curve negotiation studies**
Sampling Rate	**Up to 5 kHz High-frequency transients captured**
Telemetry Channels	**16 Simultaneous strain / aux inputs**
Telemetry Gap	**0.1 m Inductive coupling distance**
Wheel Speed (Lab / Field)	**1000 RPM / 160 km h^{-1} Balanced instrumentation wheelset**
Calibration Accuracy	**±0.5% FS Verified on hydraulic rig**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/measuring-wheel-project.php

NEOMETRIX DEFENCE PRODUCT

FIG. 01 · NOBT

NOBT

Neometrix Optical Balloon Theodolite

5 /8″-11	**5×**	**0.1°**	**2 × miniature**
Tripod Interface	Magnification	Angular Resolution	Illumination

OVERVIEW

The Neometrix Optical Balloon Theodolite is a rugged, high-precision instrument designed to track pilot and ceiling balloons for meteorological, defense, and research applications. Its bent-axis telescope with pentagonal prism maintains alignment through the full 180° elevation range, while a dual-magnification system (5×/21×) allows both rapid acquisition and fine targeting. Smooth, backlash-free tangent-screw drives, illuminated micrometer drums with 0.1° resolution, and a detachable NiMH power pack ensure reliable operation in low-light or remote field conditions. Standardized tribrach mounting and comprehensive leveling aids enable quick setup, and its robust construction withstands temperatures from –10 °C to +50 °C. From wind profiling and cloud-base estimation to radar calibration and atmospheric research, this theodolite delivers consistent, accurate angular measurements for demanding field tasks.

KEY FEATURES

- Tangent-screw drives: Bronze-on-bronze screws ensure backlash-free, ultra-smooth pan and tilt adjustments.
- Scale illumination: Two low-voltage lamps backlight etched circles; LED vial light aids low-light leveling.
- Rapid coarse sighting: Optical gun-site finder with crosshair lets you align within ±5° before fine targeting.
- Modular power pack: Detachable NiMH battery provides up to 8 hours of illumination—ideal for remote field use.
- Standardized interface: 5/8″–11UNC tribrach mount fits international tripods for quick, repeatable setups.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Drive Type	**Bronze-on-bronze tangent screws, zero backlash**
Magnification	**5× (8° FOV) / 21× (2° FOV)**
Objective Diameter	**12.5 mm (finder) / 40 mm (main telescope)**
Angular Resolution	**0.1° (micrometer drum)**
Leveling Vials	**Plate, circular (10′ sensitivity), tubular (5′)**
Illumination	**2 × miniature 2 V/3 V lamps + LED vial backlight**
Weight	**6.7 kg**
Tripod Interface	**5/8″–11 UNC tribrach mount**
Operating Temperature Range	**–10 °C to +50 °C**
Storage Humidity	**< 60% non-condensing**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/neometrix-optical-balloon-theodolite.php

NEOMETRIX DEFENCE PRODUCT

FIG. 01 · MCTM

MCTM

Missile Canister Transportation Module

4 detachable

Wheel assemblies

OVERVIEW

The Missile Canister Transportation Module is not just a trolley – it sits right at the frontline of ground safety and combat readiness. Every time a live missile canister is moved, a lot is at stake: lives, assets and the unit's ability to launch on time. This module turns that high-risk movement into a controlled, engineered operation. Its reinforced low-profile steel frame, dedicated support beds and guide pins hold up to four heavy canisters in a fixed, locked

position, preventing even small shifts that could cause damage or unsafe conditions. Heavy- duty steerable wheel assemblies and a detachable towbar let crews tow it with a vehicle or

maneuver it with precision in cramped hangars and loading bays, instead of wrestling with improvised platforms and manpower-heavy push-pull methods. With generous load ratings, a low centre of gravity and corrosion-protected construction, it is built for daily punishment in real bases and depots. By replacing ad-hoc handling with a purpose-designed system, this equipment directly reduces risk, cuts turnaround time and becomes a key contributor to the unit's overall readiness and reliability.

KEY FEATURES

- Movement of loaded or empty missile canisters between
- storage magazines,
- preparation / integration bays, and
- aircraft or launcher loading areas.
- Rapid repositioning of canisters during turnaround operations and readiness drills.
- Canister capacity: up to 4 missile canisters on a single frame.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Product type	**Missile Canister Transportation Module (Trolley)**
Canister capacity	**Up to 4 canisters per module**
Dynamic load capacity (with wheels)	**~1400 kg (total)**
Static load capacity (frame only)	**~2000 kg (properly supported)**
Frame construction	**Welded MS rectangular and square sections**
Approx. overall frame size	**~4.0 m (L) × 2.5 m (W) × 0.9 m (H)***
Wheel assemblies	**4 detachable adjustable jack assemblies**
Wheel type	**Solid / rubber-bonded wheels, 360° steerable**
Tow arrangement	**Detachable towbar with double-pin locking**
Lifting provision	**Integrated lifting points / hooks**
Surface finish	**Industrial primer + PU paint / powder coat**

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/missile-canister-transportation-module.php

NEOMETRIX DEFENCE PRODUCT

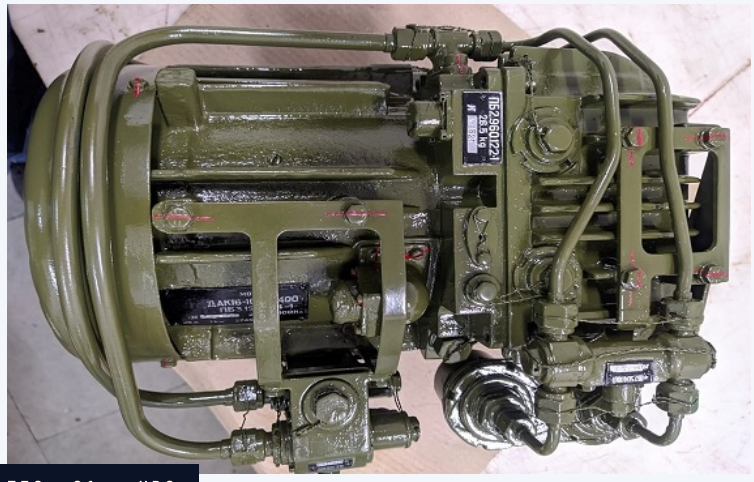

FIG. 01 · HDO

HDO

Hydraulic Drive for OSA

1 hr	**220 V,**	**340 × 290 × 220 mm**
Cycle Endurance	Input Power	Dimensions (L×W×H)

OVERVIEW

The Hydraulic Drive for OSA systems is a compact, brushless electro-hydraulic actuator that converts 220 V/400 Hz electrical commands into precise, closed-loop hydraulic motion for the elevation and azimuth axes of radar and sensor turrets. Featuring a zero-maintenance gear pump rated at 150 kgf/cm2 and 600 LPM, an integrated proportional valve block with safety interlocks, and dual pressure transducers for ±0.5 bar regulation, it delivers sub-degree pointing accuracy, rapid full-stroke response (<0.5 s), and stable hold even under recoil, vibration, and temperatures from −40 °C to +50 °C. Its modular design, sealed housing, and standardized 0–10 V/400 Hz interface enable seamless integration into legacy and modern defense, surveillance, industrial test, and research platforms, while comprehensive factory and site acceptance testing, plus field-serviceable components, ensure long-term reliability and minimal downtime.

KEY FEATURES

- Dual-Axis Capability: Two drives (μ and η) ensure independent control of elevation and azimuth.
- Compact, Rugged Design: Enclosed motor-pump assembly with robust valve box and protective housing.
- Precision Flow Control: Throttle valve regulates hydraulic flow for smooth, jitter-free movements.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Dimensions (L×W×H)	340 × 290 × 220 mm
Weight (per drive)	≈ 35 kg
Input Power	220 V, 400 Hz AC
Operating Pressure	Up to 150 kgf/cm²
Fluid Type	ISO VG 46–68 mineral-oil hydraulic fluid
Operating Temp. Range	−40 °C to +50 °C
Cycle Endurance	1 hr continuous closed-loop; 20 full-stroke cycles
Connector Ports	A & B hydraulic ports, electrical control plug
Protection & Coating	Anti-corrosive primer and topcoat; varnished windings

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/hydrualic-drive-of-osa.php

INTEGRATED SYSTEM

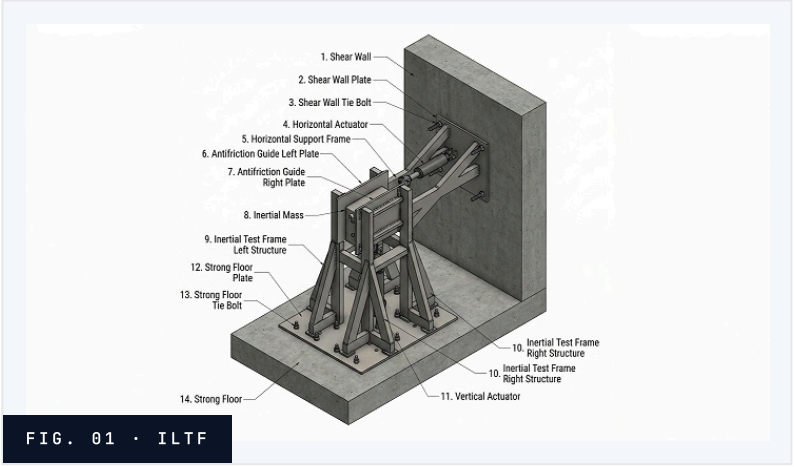

FIG. 01 · ILTF

ILTF

Inertial Loading Test Facility

4 m	**500** kg	**≤ 2** g	**2 ×** three-stage
Footprint & Weight	Inertial Mass Blocks	Guide Performance	Servo Valves

OVERVIEW

The Inertial Loading Test Facility is a fully integrated hydraulic test rig engineered to replicate the true inertial forces experienced by actuators, manifolds and power packs in service. Mounted on a rib-reinforced steel frame bolted to both floor and wall, it carries up to 2 000 kg of modular mass blocks over ±150 mm horizontal and ±100 mm vertical strokes—delivering accelerations up to 2 g with sub-micron positional repeatability. Two high-response, three-stage servo valves and precision pressure transducers feed into a 1 kHz PLC control loop, while a 16-channel, 24-bit DAQ records position, pressure and acceleration at up to 5 kS/s. Pre-wired and pre-tested for rapid on-site commissioning, it offers turnkey dynamic validation for aerospace, automotive, heavy-machinery and energy applications, revealing fatigue, resonance and control issues before your systems ever leave the lab.

KEY FEATURES

— Global Compliance: Engineered and tested to ASME, ISO, CE, and ANSI standards with certified components.

SPECIFICATIONS

principal parameters · full equipment list in catalogue

Specifications

Reaction Force Capacity	±160 kN dynamic in horizontal & vertical axes
Structural Natural Frequency	≥ 100 Hz
Inertial Mass Blocks	500 kg increments up to 2,000 kg; CG on actuator axis
Travel Stroke	Horizontal ±150 mm; Vertical ±100 mm
Guide Performance	≤ 2 g acceleration; ≤ 2 m/s speed; 2 µm/1,000 mm accuracy; −20 °C to +80 °C; 80 kN dynamic rating
Hydraulic Supply	0–350 bar; up to 200 L/min flow
Actuator Ports & Hoses	SAE 100R11 (1¼″ horizontal, 1″ vertical); SAE 100R8 (⅜″ pilot/drain)
Servo Valves	2 × three-stage flow control; 60 L/min @ 210 bar
Pressure Transmitters	4 × ranges (0–400 bar, 0–700 bar); ±0.1% FS
Control & DAQ	PLC 1 kHz loop; EtherCAT; 12″ HMI; 16-ch, 24-bit DAQ @ 5 kS/s
Material & Weld Standards	IS-2062 mild steel; ASME Sec IX radiographed welds
Power & Utilities	400 VAC ±10%, 50 Hz, 3-phase + N + PE, 10 kVA; 6 bar dry air
Footprint & Weight	4 m × 2 m × 2.5 m; approx. 3,500 kg
Environment	−20 °C to +60 °C operating; 5%–95% RH non-condensing

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/inertia-test-facility.php

NEOMETRIX DEFENCE PRODUCT

FIG. 01 · ADC

ADC

Air Droppable Container

OVERVIEW

The Air Droppable Container (ADC) is an advanced aerial logistics solution designed for rapid, precise, and reliable supply delivery to naval ships, offshore platforms, and remote locations. Engineered for aerial deployment from aircraft, it ensures seamless resupply without requiring docking or direct access. With a 150 kg payload capacity, a parachute-assisted descent system, and a rugged, waterproof, and impact-resistant design, the ADC enables safe and efficient delivery of critical engineering components, medical supplies, survival gear, and tactical equipment. Its high durability, precision drop capability, and easy recovery system make it an essential asset for maritime defense, disaster relief, special operations, and offshore industries, ensuring uninterrupted mission readiness in even the most challenging environments.

WHY NEOMETRIX DEFENCE

For over two decades Neometrix Defence Limited has designed, manufactured and qualified mission-critical aerospace, defence and research equipment for the most demanding customers in India and abroad. The founders are graduates of IIT Kanpur and IIT Delhi; the engineering team is 100+ strong, headquartered in Noida.

Every system is qualified to **DGAQA** and **DRDO** acceptance standards, manufactured at an ISO 9001:2015 facility, and supported through the asset lifecycle by an in-house service organisation.

20+
YEARS OF EXCELLENCE

100+
ENGINEERS · IIT-LED FOUNDERS

DGAQA
DRDO · ISO 9001 CERTIFIED

TRUSTED BY Indian Air Force · Indian Army · Indian Navy · DRDO · HAL · BARC · NPCIL · ISRO · Indian Railways · Global OEMs

DGAQA-CERTIFIED | ISO 9001:2015 | MADE IN INDIA

Neometrix Defence Limited · E-148, Sector-63, Noida UP 201301, India · +91 96670 57776 · contact@neometrixgroup.com

ONLINE neometrixgroup.com/products/air-droppable-container.php