

www.turbopowerservices.com

turbo power services
fuel system solutions



OEL group of companies

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Turbo Power Services (TPS) was established in 1985 specialising in the supply, overhaul and upgrade of gas turbine auxiliary and fuel system components for the oil, gas, petrochemical and power generation industries

A Service Company to the Gas Turbine Industry

TPS is part of the OEL group of companies offering extensive Gas Turbine experience, servicing a customer base of over 80 customers worldwide. TPS service OEM's, service companies, gas turbine operators and end users for:

- ▶ Light industrial
- ▶ Heavy industrial
- ▶ Aero-derivative gas turbines

Components are overhauled, tested and calibrated in house at TPS's state-of-the-art service centre, using custom built test rigs that assimilate engine or test requirement conditions.

TPS offer rapid repair and performance testing in accordance with OEM specifications. As an authorised sales and repair centre for Roper Pumps USA, TPS can supply new pumps and flow dividers for the Roper power generation range.

TPS specialise in the supply, overhaul and test of the following type of accessories:

- ▶ Fuel nozzles
- ▶ Fuel control valves
- ▶ Hydraulic actuators
- ▶ Fuel pumps
- ▶ Hydraulic pumps
- ▶ Flow dividers
- ▶ Fuel shear valves
- ▶ Compressor bleed valves
- ▶ Purge valves
- ▶ Hydraulic motors
- ▶ VTR valves
- ▶ Atomising air and boost compressors
- ▶ Solenoid valves

Fuel Nozzles

TPS specialise in the supply, refurbishment and flow testing of fuel nozzles from single fuel nozzles to complete combustor cover assemblies.

TPS has specialist in house test rigs for air and liquid testing of fuel nozzles and assemblies. Calibration is fully traceable to UKAS sources.

Internal processes include the strip and build of assemblies with the replacement of consumables and worn components. On establishing non-conformance of fuel nozzles TPS has full in house overhaul capability for several turbine types.

As part of the OEL group TPS supply and continue to develop it's own range of gas turbine components compatible with OEM parts, including:

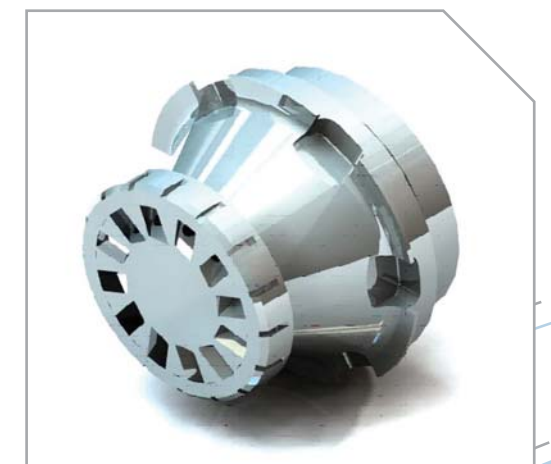
- ▶ DLN Primary gas caps
- ▶ Gas fuel nozzle assemblies
- ▶ Liquid fuel nozzle assemblies
- ▶ Cross-fire tubes

Manufacture of test rigs

Utilising our knowledge and experience of designing and manufacturing in house test rigs, TPS can design, build, commission and offer training on the following test stands.

- ▶ Liquid fuel nozzle calibration
- ▶ Gas nozzles air flow calibration

These bespoke designs can be manual or semi automatically controlled test rigs, including fully automated test report generation.



Capabilities

Housed in our state-of-the-art service and test centre, TPS have a fully fitted machine shop, supporting overhaul and test functions, using specialist test equipment which includes

Cleaning Process/equipment

- ▶ High pressure jet wash
- ▶ High pressure mini wash
- ▶ Solvent degreasing tanks
- ▶ Chemical soak tanks
- ▶ Shotblast cleaning
- ▶ Aquablast cleaning
- ▶ Ultrasonic cleaning and back flushing

Inspection equipment

- ▶ Faro portable cmm inspection
- ▶ Kemet optical flats
- ▶ Sigma lateral clearance comparator
- ▶ Precision bore gauges
- ▶ Standard workshop metrology/equipment

All products are functionally tested on our test rigs and benches to simulate on engine performance and reliability.

TPS have the following specialist test rigs:

- ▶ Liquid flow test rigs
- ▶ Air flow test rigs
- ▶ Pressure testing facilities

At Turbo Power Services we understand the critical importance of the different types of control valves that safely run a gas turbine and the importance of testing valves as complete assemblies.

Gas Control Valves

Refurbishing and testing the valves as a complete assembly ensures that the valve functions correctly and complies with the operational specification when refitted to the turbine. Minimising down time and maximising reliability.

TPS technicians are trained by valve OEM's to ensure they have the correct product knowledge and skills. This is backed up by our extensive product knowledge on control valves since 1985.



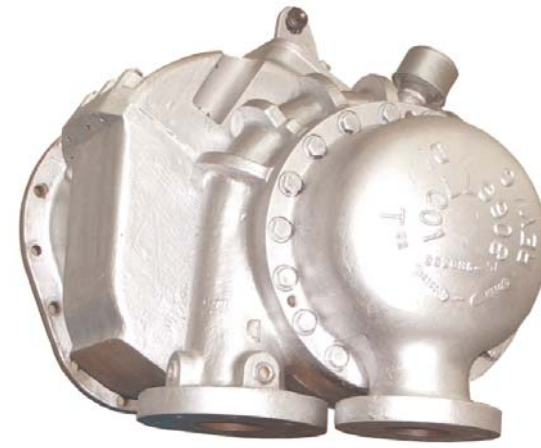
TPS can offer as received functional checks to confirm on engine operation.

Additional functional testing includes:

- ▶ Seat / Stem leakage
- ▶ Functional operation & valve stroke checks
- ▶ Trip function
- ▶ Valve lift / reseal checks
- ▶ Friction checks
- ▶ Electrical operation
- ▶ Hysteresis / drift of controlled position

Types of valves serviced

- ▶ Electrically operated
- ▶ Pneumatically operated
- ▶ Electro-hydraulically operated
- ▶ Fuel control valves (Gas / Oil)
- ▶ Bleed Valves (Air)
- ▶ Solenoid trip valves
- ▶ False start drain valves
- ▶ Temperature regulating (Air / oil)
- ▶ Purge valve (Air/ oil)
- ▶ Check valves



Atomising Air Compressors

TPS offer the overhaul repair and testing of Atomising Air and Boost Compressors for GE Turbines, offering significant cost savings to the end user against purchasing a new unit, from the following manufacturers:

- ▶ Atlas Copco SCF 6 models
- ▶ Turbonetics SCF6
- ▶ Gardner Denver Cycloblower Booster Compressors

TPS repair scopes include:

- ▶ Source and replacement of all parts
- ▶ Re-metaling of bearings
- ▶ Balancing of high speed rotor and drive gear
- ▶ Shaft diameter recovery
- ▶ Refacing of drive gear thrust faces

All our products are tested to replicate on turbine functionality and include:

- ▶ Oil feed leak checking on glands and seal faces
- ▶ Spin testing to check for correct clearances and operation



Fuel Pumps & Hydraulic Motors

TPS specialise in the supply and repair of fuel pumps, hydraulic oil pumps and hydraulic motors.

TPS can offer refurbishment of the following types of Gas Turbine

Fuel pumps:

- ▶ Gear pumps
- ▶ Twin and Triple screw
- ▶ Axial piston pumps
- ▶ Radial piston pumps

Manufacturer's types of pumps overhauled:

- ▶ Roper
- ▶ Shimadzu/Hitachi
- ▶ IMO
- ▶ Oilgear
- ▶ Dynapower
- ▶ Warren
- ▶ Delevan
- ▶ Haartman
- ▶ Woodward
- ▶ GEC
- ▶ Alstom Scam-Imo
- ▶ Vickers

All our refurbished pumps are performance tested to guarantee original pump performance and returned with a 12 month warranty.

As an authorised sales and repair centre for Roper Pumps, TPS can offer supply and repair of their Pump product line consisting of.

Fuel pumps - positive displacement spur gear for distillate and residual fuels.

High pressure pumps - positive displacement triple screw for lubrication oil, fuel oil, hydraulic oil and transformer oil.

Lubrication oil pumps - positive displacement gear pumps for lubrication systems for engines, turbines, compressors, generator sets and gear reducers.



Flow Dividers

Turbo Power Services are an authorised sales and repair centre for Roper Pumps USA.

We offer full support for Roper Pumps and flow divider for Europe, Middle East and North Africa.

With over fifteen years experience overhauling flow dividers TPS can also offer repair services for the following manufacturers.

- ▶ Roper
- ▶ Scherzinger
- ▶ Shimadzu / Hitachi

As an Authorised sales and repair centre for Roper Pumps USA, TPS offer full support for Roper Pumps and Flow Dividers for Europe, Middle East and North Africa. Supported by the necessary test equipment, parts and test specifications TPS ensure that pumps and flow dividers conform to original OEM specifications. TPS offer a complete repair program for all flow dividers including upgrades to Duraflow corrosion resistant designs.

Depending upon the condition of your pump or flow divider, we can offer three levels of services.

REPAIR: Your pump or flow divider to original specification

UPGRADE: Your pump or flow divider. Existing cast iron flow dividers may be upgraded to corrosion resistant, Duraflow technology

REPLACE: Your pump or flow divider, often the ideal opportunity to replace your Flow divider with a new Duraflow design.

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Quality Management System

TPS is committed to providing a high standard of service to their customers. TPS has a policy of continual improvement throughout our business and in line with this policy TPS maintain our quality management system to the requirements of BS EN ISO 9001:2000

