



ETG POWER GENERATION MANUFACTURING SECTOR



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ETG ARE YOUR POWER GENERATION SUPPLY CHAIN PARTNER

The maintenance, service and ability to maximise the uptime of a power plant, whether it be thermal or nuclear are of critical importance.

Whether it is the production of a new power plant or the replacement of components during a maintenance shutdown; precision, quality and production times are essential for

keeping the lights on – for everyone! A preventative maintenance shutdown on a power plant can cost tens of thousands of pounds per hour, so component longevity and quality of this critical as ensuring the right parts are produced to exacting standards – every time. It is for these reasons that machine tools from ETG are widely used throughout the supply chain for this critical industry sector.





NAKAMURA-TOME

The power generation industry is awash with pneumatic and hydraulic machinery and systems. What better machine could you make the respective fittings, valves, flanges and joints than on a Nakamura-Tome mill/turn centre? When it comes to safety-critical components, regardless of the industry – Nakamura-Tome is the brand that you can trust.

Flanges, fittings valves and joints are key components in the power generation sector due to the extreme pressures and temperatures that fluids can reach during operation. Extreme conditions can accelerate wear and corrosion, so precision high-quality fittings are essential. As a world leader in the field of multi-tasking mill/turning machines, Nakamura-Tome CNC mill/turn centres are applied worldwide in this safety-critical industry.



WINBRO TECHNOLOGIES

Winbro was borne of the aerospace industry in the 1980s. Whilst the power generation sector and aerospace industry appear light years apart, at the centre of both sectors are safety critical turbines and rotating parts that are the driving force of everything else in the industry.

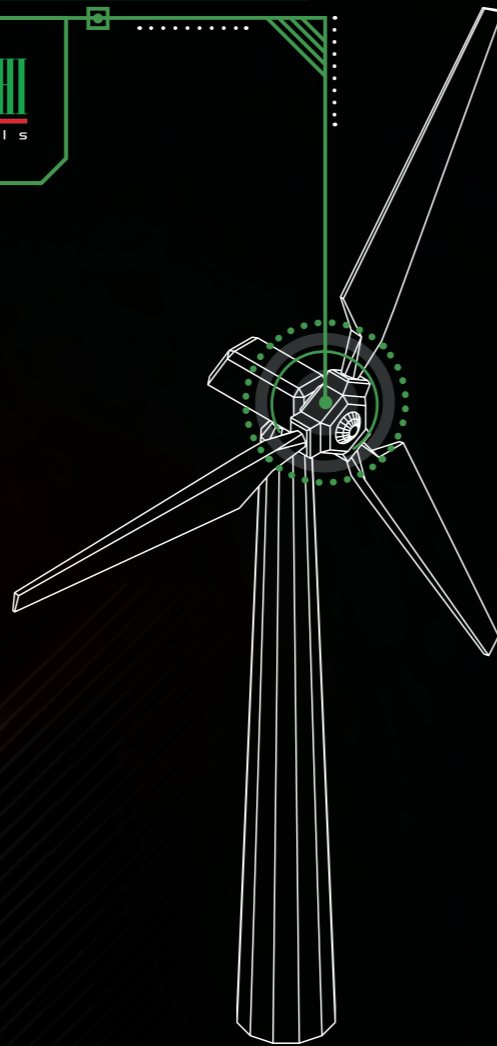
Winbro has evolved its advanced EDM machine systems to drill cooling holes in turbine blades, vanes, combustors and all other high-precision critical components that are often produced from some of the most challenging materials known to industry. Winbro has established itself as the global technology leader in the turbine sector – and this technology is available from ETG.

Winbro has expanded its range of technologies to include laser systems, multi-axis grinding and ECM (electrochemical machining).

This technology has been successfully adopted in the power generation sectors with some of the world's leading companies from both the wind and green energy and nuclear energy segments employing winbro machine tools. The winbro group uses four primary processes within its comprehensive range of machining systems. This includes electrical discharge machining (EDM) technology for high-speed drilling, laser technology for drilling, cutting, ablation, welding and cladding, creep-feed grinding and electrochemical machining (ECM) for finish forming. These four main processes form just a part of winbro's overall portfolio, with many additional integrated technologies, features and capabilities available. This technology is extensively utilised by the world's leading power generation OEMs to generate complex cooling holes and forms in the most challenging of applications and materials.

Engineering Technology Group

Planetary Gearbox, Gear Rings and Bearings

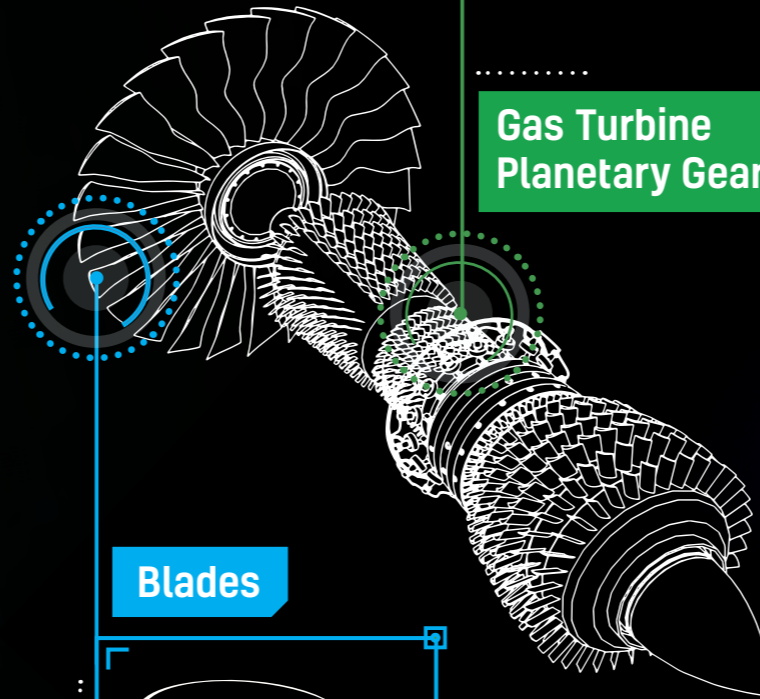


Safety-critical components

Including, fittings, valves, flanges and joints



Gas Turbine Planetary Gearbox

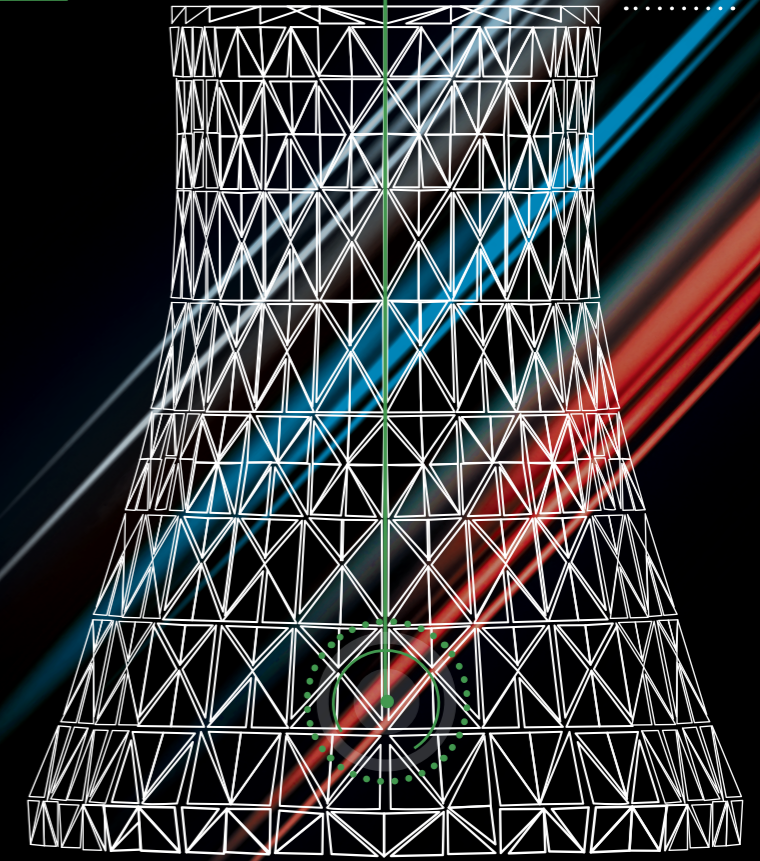


Blades



EDM high speed drilling technology

Nuclear Reactor Pressure Vessels



POWER GENERATION PRODUCTION



PIETRO CARNAGHI

As a key supplier to the energy industry, Pietro Carnaghi has a wide and diversified range of vertical turning centres that can satisfy the needs of the power generation sector – in every field from nuclear to wind through to hydroelectric. A vertical turning centre is a fundamental machine for manufacturing components designed for energy production. In modern manufacturing, particularly large parts, the most desirable technology is the acquisition of machine tools for completing the machining phase in a single set-up. To avoid the transfer of parts from one machine to the next, a multi-axis machine tool is a preferred choice to reduce continual setups. It is here that Pietro Carnaghi exercises its expertise with an approach that increases productivity and precision whilst reducing setups and potential errors.

Pietro Carnaghi has designed its vertical lathe configurations as complete and flexible machines that permit turning, milling, drilling, tapping, boring, and grinding. In nuclear power plants, the machining requirements can be satisfied only with high-quality machines that achieve a high level of performance in the production of parts, these components can often reach substantial dimensions and weights. This is where Pietro Carnaghi excels. In the gas, steam, hydroelectric and turbine sectors, Pietro Carnaghi has been a long-term critical supplier of high precision and performance technologies for machining the main components.

Pietro Carnaghi machines are designed to operate in the machining of a wide range of gas turbine parts, steam turbines, and hydro turbines; both for conventional and nuclear units. Common solutions are also provided for the machining of turbogenerators and generators. These machines are frequently bespoke solutions with special features that enable the machines to perform in extreme environments. Pietro Carnaghi lists an extremely high number of installations in countries with a high rate of development such as India, China and the Middle East.

One machine that has proven a game changer for many power generation OEMs is the AC28 TM 2500. Capable of boring, drilling, milling and turning parts up to 3m high, the 2.5m diameter table and 2.8m swing accommodates extremely large parts. With a 250 by 250mm ram that extends 1.5m, the flexible milling head is capable of reaching all surfaces of challenging parts whilst the 41kW spindle motor delivers exceptional torque levels for heavy duty material removal applications. This power is only exceeded by the 60kW spindle motor that generates 37,000Nm of torque for driving the turning table.

Other variants of the AC Series and the AP100 TMT-Y 8000 have been supplied to a well known German power generation OEM for producing wind turbine bearings, planetary gearboxes, gear rings and the respective housings. This global powerhouse has acquired more than 50 machines. With complete flexibility, the AC Series has been supplied with up to 7m swing, 200kW spindles, vertical, horizontal and universal milling heads with B-axis, hydrostatic linear axes, Industry 4.0 connectivity and much more.

CONTACT ETG - THE POWER GENERATION SECTOR, MACHINE TOOL SPECIALISTS

If you are a cutting tool manufacturer, or a company involved in tool and die manufacturing for the mould-making sector, ETG's principals will have a solution for your component manufacture. Please call 01926 818 418 to find out more or contact us via email.





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