

# Straight Line Engineering

Precision Engineers, Die & Toolmakers, specializing in the manufacture of high quality, close tolerance forge tooling.



Straight Line Engineering were originally formed in 1979 by 4 Rolls Royce trained toolmakers to manufacture close tolerance forging dies directly for the aerospace market. The company has since evolved into the production of all aspects of forging ancillary equipment and specialise in the manufacture of 'precision' clipping tools for turbine blade forgings.

Modern manufacturing strategies such as CAD/CAM and 'high speed' machining lend themselves to the production of close tolerance and highly repeatable tooling, which is ideally suited to 'high volume' forging component production. Our customers enjoy the benefit of this repeatability in consistent forgings, along with the ability to make small controlled changes.

Straight Line Engineering have also been manufacturing 'Hot creep form tooling' from exotic alloys such as Cronite, Nimonic and RA330 for many years. HCF tooling is used in the manufacture of 'fan' and 'front stator' blades along with many Titanium 'sheet' pressings. Dies up to 2 tonnes in weight can be machined on our Kondia CNC machine tool.

SLE are 'first tier' supplier to Rolls Royce where we design and manufacture a variety of precision tools through collaboration with the customer at different levels. We also supply their 'special to product' tooling on a consignment stock basis, ensuring tool availability for their production requirements.

Straight Line Engineering operates a quality system accredited to BS EN ISO 9001:2000. We are externally audited by ISOQAR.

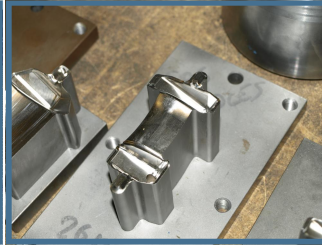


## *Aerospace*

Lancashire has a growing and dynamic aerospace industry, which is globally regarded as a 'centre of excellence' for manufacturing in this field. The North West Aerospace Alliance, of which Straight Line Engineering are founder members, are a pioneering organisation formed for company collaboration and who have 'paved the way' for many others across the UK and Europe.

Straight Line Engineering utilise investment in new technologies and machine tools, coupled with skilled personnel and extensive training to be able to maintain the standards which are expected by aerospace customers.





### *Plant & Capabilities*

- \* Full time 3D CAD/CAM department using SolidEDGE, Powershape and Mastercam X2 to generate Solid and surface models. We have the ability to read a large variety of customer models from 2D data such as DXF to Parasolid transmit files (X\_T).
- \* AO plotting capability for the production of tool drawings and 'scale' graticules for inspection purposes. These layouts are used when checking the complex shapes of turbine blades.
- \* CNC Machining is done at Straight Line Engineering on Mikron, Kondia and Bridgeport machining centres. With the large capacity of the Kondia (2m x 1m), or the high spindle speed of the Mikron (42,000 rpm) we have machine tools capable of cutting a large range of sizes as well as many different materials.
- \* EDM. If the HSM process is not viable, either by design or cost, then Straight Line have an EDM department backed up with a 'Rapid electrode production' system using a modified Fanuc RoboCUT that has had its standard coolant system replaced with a die-electric fluid system and media-less filtration system that not only cuts down the manufacturing time for the production of the electrode, but infuses the graphite electrode with die-electric enabling faster EDM times.
- \* CNC Turning: The latest CNC lathes provide high accuracy and repeatability coupled with the ability to machine materials in their hardened state. 'Hard' turning brings major advantages to both surface finish and tolerance.
- \* Wire Erosion: As specialists in the manufacture of 'precision' clipping tools, the ability to manufacture consistently accurate profiles up to 250mm high is a major advantage. Technology in this field has advanced considerably in recent years and Straight Line Engineering has taken full advantage of this.
- \* Tool-Room: As would be expected, a fully stocked tool-room is available that allows Straight Line to complete a range of engineering disciplines. Available are...
  - \* Surface and Cylindrical grinding
  - \* Jig Boring
  - \* Bench fitting area
  - \* Standard milling and turning
  - \* Universal milling machines (Work piece up to 2 tonnes in weight)

### *Contact Details*

For further details of our capacity or for us to provide a free 'no-obligation' quotation for your requirements, please contact us at...

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