



 **metal tech** engineering

Ph: 64 7 849 6296

Fax: 64 7 849 2928

## **General Information**

Metal Tech Engineering Ltd is an established engineering machine shop specialising in the manufacture and supply of customer specific components and sub assemblies to a variety of industries.

Customer's components and sub assemblies are manufactured, quality assured, packed and despatched under ISO 9001 quality management system and are either directly or indirectly exported to over 30 countries world wide.

The company was originally set up in 1960 to manufacture close tolerance Diesel Fuel Injection Components for the local and export markets. This new venture originated due to the frustration Mr Paul Kapoor and his original company Kapoor's Diesel Service Ltd had being supplied substandard components from OEM's in England and Europe.

In 1992 Metrology Group of companies was formed as a privately owned family business comprising of  
Metal Tech Engineering Ltd – Manufacturing Facility  
Metrology Calibration Services Ltd – Contract Metrology standards laboratory  
Metrology Techniques Ltd – Importer of measuring equipment to Industry.

## **Company Address**

Metal Tech Engineering Ltd  
30 Northway Street  
PO Box 10 024  
Te Rapa 3241  
Hamilton  
New Zealand

Metal Tech Engineering Ltd and Metrology Calibration Services Ltd were originally certified to AS/NZC ISO 9001 on 18<sup>th</sup> August 1994 and on the 8<sup>th</sup> August 2003 the quality system was recertified to AS/NZS 9001:2000.

Metrology Calibration Services Ltd has since 01 August 1996 been an accredited calibration laboratory under ISO/IEC guide 25: 1990 and ISO 9002: 1987 which was updated to NZS/ISO/IEC 17025: 2005. The Laboratory accreditation number is IANZ #618.

## **Main Contacts**

Area	Contact Name	Phone Business	Fax/Email	Phone 24 Hours
Main Line	N/A	0064 7 849 6296	0064 7 849 2928	Please follow voice prompts
Chief Executive Officer	Paul Kapoor	0064 7 8502699	0064 7 849 2928 sales@metrologygroup.co.nz	N/A
General Manager Metal Tech Engineering Ltd	Gerald Kapoor	0064 7 850 2694	0064 7 849 2928 engineering@metrologygroup.co.nz	0064 7 855 6026 or 0064 27 687 6315
Engineering-Manager Metal Tech Engineering Ltd	Alan Butterworth	0064 7 850 2695	0064 7 849 2928 metaltech@metrologygroup.co.nz	0064 7 850 2695 and leave message or contact 027 6876315
Quality Manager Metal Tech Engineering Ltd and Metrology Calibration Ltd	Lyndon Kapoor	As above	0064 7 850 2697 engineering@metrologygroup.co.nz calibration@metrologygroup.co.nz	0064 21 366 771

### **Site Description**

The site is situated at 30 Northway Street Hamilton New Zealand, and comprises of a single level building with car parking at the front of the building.

The site is situated in an established industrial area adjacent to state highway 1.

The building has dedicated offices, metrology laboratory, quality control area and machine gallery, secure bond and assembly areas.

### **Employees**

Department	Full time Employees	Academic	Non Academic
<u>Manufacturing</u>	<u>23</u>	<u>19</u>	<u>4</u>
<u>Quality Assurance</u>	<u>05</u>	<u>04</u>	<u>01</u>
<u>Distribution &amp; Maintenance</u>	<u>02</u>	<u>01</u>	<u>01</u>
<u>Administration</u>	<u>02</u>	<u>02</u>	<u>0</u>
<u>Total FTE</u>	<u>32</u>		

*Note: Academic Classification is given for staff that has achieved a recognised tertiary qualification.*

## Historical Time Line

- 1952 Paul Kapoor commences business -"Kapoor's Diesel Services Ltd"
- 1960's Te Rapa Engineering Ltd formed. Manufacturing close tolerance Fuel Injection components
- Manufacturing Aerospace components for Fletcher FU24 Top Dressing aircraft
- Manufacture heat treated wheel studs for Chrysler trucks Australia
- Manufacture of close tolerance ammunition tooling and dies for Australian Defence Factories NATO 308 ammunition.
- 1970's Manufacture and supply of 144 undercarriage assemblies to GAF Australia Nomad N-24 aircraft
- Ford Transmission and Front axel plant, Jigs and fixtures
- Ford Alloy Wheel plant Auckland NZ; Supply of fixtures and tooling.
- Electricorp NZ refurbishment of generator governor and wicket gate assemblies
- Repair of gearbox and transmission components on heavy machinery involved in Hydro scheme building
- Manufacture and supply of T316 Stainless Steel cap screws and fittings to National Dairy Association
- Manufacture and refurbishment of press tools and components for high speed canning press lines.
- Manufacture and reconditioning of RNZAF Bell 205 Iroquois Helicopter Rotor clutches
- Manufacture of components for CT4 Air Trainer / Air Tourer Aircraft production line
- Manufacture of components for Cresco 750 Aircraft production line
- 1980's Manufacture of Turbine Assembly tooling for RNZAF to Assemble Rolls Royce Jet Aircraft engines.
- Manufacture of atomiser spindles, distributor wheels and homogeniser pistons for Stork Freisland milk powder plants.
- Refurbishment of BAC Skrikemaster Aircraft wing pickups
- Manufacture of instrument panels, targeting and re fuelling components for RNZAF Douglas A-4 Sky hawk Refit, project Kahu
- Refurbishment of wing pickups on Bandeirante EMP-110 Aircraft
- Purchase of Okuma CNC Lathe
- Purchase of Bridge port CNC Mill



1990	Successfully won contract to supply Rolls Royce Industrial Power ballscrews, Nuts Omron gear box components (now known as Reyrolle Pacific Ltd)
1992	Metrology Group of companies formed * Metal Tech Engineering Ltd * Metrology Calibration services Ltd * Metrology Techniques Ltd
1994	Metrology Group of companies gains accreditation AS/NZS ISO 9001
1996	Metrology Calibration gains accreditation to ISO/IEC Guide 25 1990 and ISO 9002 1987.  Joint venture between New Zealand Government and Aeromacchi, machining of Aircraft control components.
1997	Purchased Mazak CNC Lathe and CNC Maching Centre
2000	56 000th Aircraft component manufactured since engineering start up in 1960  Purchased 2 Highspeed Mazak CNC lathes  Start manufacture for Schenck Rotech GmbH of SAE ARP Horizontal and Vertical test proving rotors for balancing machines  Inspection, certification and refurbishment of Pratt & Whitney turbine blade inspection gauges and fixtures  Beginning of programme of extensive overseas travel to look at new methods, processes and bench marking regime undertaken by Paul and Gerald Kapoor.
2004	Purchased 2nd larger capacity machining centre  Start manufacture and receive supplier registration for DME USA to supply components for China, India and the USA. Plastic Hot Runner nozzles and manifolds
2005	5 Axis simultaneous and a high speed 3 Axis machining centres added to machine gallery  Manufacture and supply 36 types of machined thin wall fuselage and air frame items in batches of six off for Pacific Aerospace Ltd
2006	Commencement of supplying complete landing gear assemblies for Alpha training aircraft.
2007	No 2 plant established, 800 <sup>2</sup> for the expansion of the aircraft component division within Metal Tech Engineering Ltd.
2008	Commence manufacture of aircraft build and strip tooling for Hydro System KG/ Rolls Royce civil aircraft.
2012	Purchase of new facility, bringing both manufacturing sites under one roof to improve efficiency.

## **Quality Policy**

The Metrology Group of Companies is committed to operating under a structured and well maintained Quality Management System, working to the highest possible standard. The system being concomitant with the expectations of the market sectors our customer base covers. In support of this the Metrology Group of Companies holds certification and Accreditation to AS/NZS 9001:2008 BSI Certification FS566657 and NZS/ISO/IEC 17025:2005 IANZ Laboratory Accreditation - Laboratory No. 618.

Through a firm belief in continuous improvement and business development, our aim is to make the Metrology Group of Companies a world class supplier to the high technology engineering sector. Using only best industry practice and upholding the highest professional standards that deliver:-

- Improvements in Quality
- Reduced costs
- Reduced lead times
- Increased productivity
- On time delivery.

Quality Assurance Responsibilities.

### **Senior Managers.**

Communication of the company's policies regarding Quality Assurance, by either group discussion (works committee), or on a one to one basis with individual employees. All employees have access to the company Quality Manual and Process Procedures.

### **Quality Manager.**

Maintenance of the Quality Management System, training with regards to the Quality System and communication where required to Senior Management and work force. Liaison with the regulatory body's specific to the Quality System. Monitoring the quality function with regards to conformance to customer requirements.

### **Quality Engineers / Inspection Personnel.**

Following laid down procedures ensuring conformance to customer requirements as directed by the Quality System. Documentation and control of non conformance.

### **Operators.**

Working to relevant process procedures, maintaining traveling documentation for times quantities and non conforming items as required by the Quality Management System.

### **All employees.**

Seeking best working practices and a professional attitude towards quality and continuous improvement.

To whom it may concern

The Supplier:

Metrology Group of Companies  
Metal Tech Engineering Ltd  
750 Te Rapa Road  
Hamilton 3200

I confirm that I have dealt with The Metrology Group of Companies since 2008, during which time they have provided our business with excellent support and product. They are a strategic partner to our business; they have supplied quality Aircraft build and strip tooling, for over two years. Hydro Systems KG was awarded a long term supply contract in November 2007 with Rolls Royce, Civil Aircraft, To supply all there civil aircraft tooling need for the next 10 years.

The Metrology Group's work has been a major factor in our contract success, delivering aircraft engine tooling on time, with excellent quality and offering a considerable cost saving over European suppliers

I can confidently recommend The Metrology Group of companies as a solid and reliable supplier, and experts in their field.

Best Regards | Mit freundlichen Grüßen



**David Mallard**  
B Eng & DIP PPM  
Supply Chain Manager

**HYDRO Systems KG**  
Ahfeldstraße 10  
D-77781 Biberach

**Telefon: +49 (0) 78 35 787-581**  
**Home Office: + 44 (0) 1244 351345**  
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**Mobile: +44 (0) 7789 727776**

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**URL: <http://www.hydro.aero>**



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To Whom It May Concern:

DME has been procuring a range of machined goods from Metal Tech Engineering for over a year now. The products Metal Tech machines for us are Nozzles, Tips, and a range of retainers, sleeves and bodies for our Gate Mate Line. They are also providing special order 1 off items per print.

Due to the complexity of the plastic injection industry DME has a tight quality control system in place to ensure our suppliers are consistently maintaining tight tolerances as the items we buy are components of an assembly. With that Metal Tech has always met our requirement and has provided quality products order after order. I would recommend them to anyone looking for a reliable supplier that demands high quality products.

Below are a couple statements from my quantity control department on sample submissions.

Product: GMC0164 Gate Mate Lite

Supplier method for measuring concentricity is excellent. Accept product fully.

Product: GMR0052 Retainer w/seal ring

Excellent product measurements are right on. Excellent looking supplier!

Product: GMT0021 G.M.Lite Point Gate Tip

Excellent results Accept product fully.

If you would like to speak directly to our quality inspectors about Metal Tech's products please contact Tim Pylak, QC Manager or Ken Swaka, QC Inspector.

Thanks

Michael McCutcheon  
DME LLC  
29111 Stephenson Highway  
Madison Heights MI 48071  
Procurement Analyst  
Phone 248-544-5057  
Michael\_McCuteheon @DME.net

To whom it may concern.

Pacific Aerospace and Metal Tech Engineering have a successful business relationship going back some 40 years or so and this relationship is as strong as it has ever been.

We currently produce the XSTOL which is an extremely short take off and landing aircraft servicing remote communities and it has to endure very harsh conditions in service. To allow it to operate successfully in these environments the design and quality of parts used in its construction is critical to the aircraft and Pacific Aerospace's success. We made a business decision some years ago not to have an internal machining ability apart from some development and customer AOG work and decided we would sub contract these parts externally.

As of today we sub contract about 80% of the aircraft machined parts and Metal Tech Engineering supply 45% of this work, our confidence in Metal Tech Engineering is such that we have granted them Delegated inspections rights under NZCAA 148 manufacturing approvals to inspect all work they produce and certify on our behalf. This move is also coupled with the Lean Manufacturing principles established at Pacific Aerospace and assists us in reducing the delivery lead time for our components.

We have future growth plans for the aircraft which we have discussed with Metal Tech Engineering management and they are a large part of strategic plan for the next 5 years.

I have no hesitation in recommending them to other manufactures as a reliable supplier of high quality precision parts.

Alf Mc Laughlin  
General Manager Production.

05 March 2011





**Description:** Engine Build / Strip Tooling

**Industry:** Aerospace

**Customer:** Hydro Systems KG—Trent 500, trent 700, Trent 900, Trent 1000, XWB

**Tolerances:** General +/- 0.25, to fine positional 0.005

**Surface Finish:** 1.6 - 0.2 microns

Metal Tech Engineering Ltd for the past two years has manufactured engine build / strip tooling for our first tier customer Hydro System KG

We have been involved in standard aftermarket work through to major tooling packages for specific projects, such as XWB pre production tools, ADAT, AR & O.

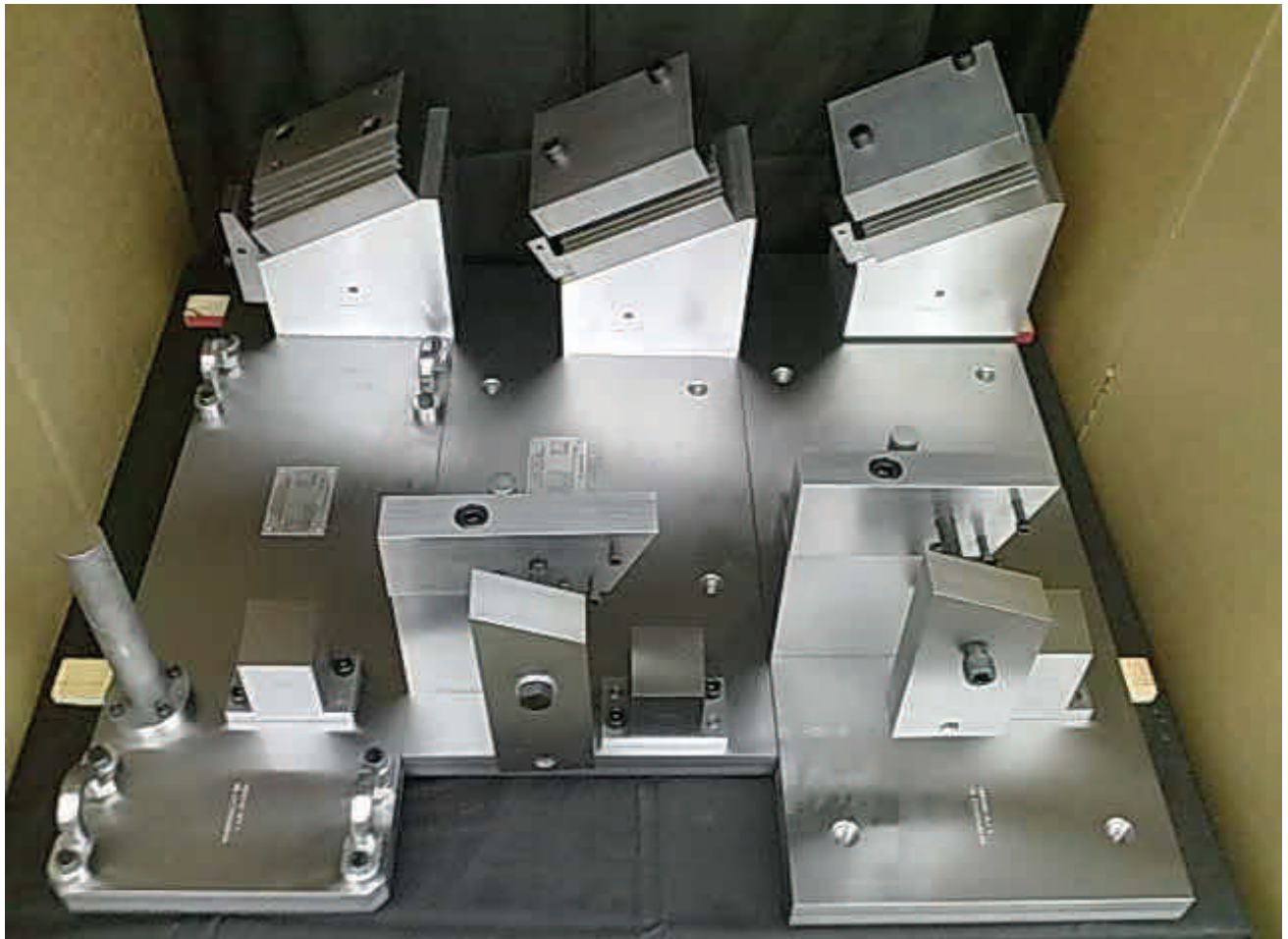
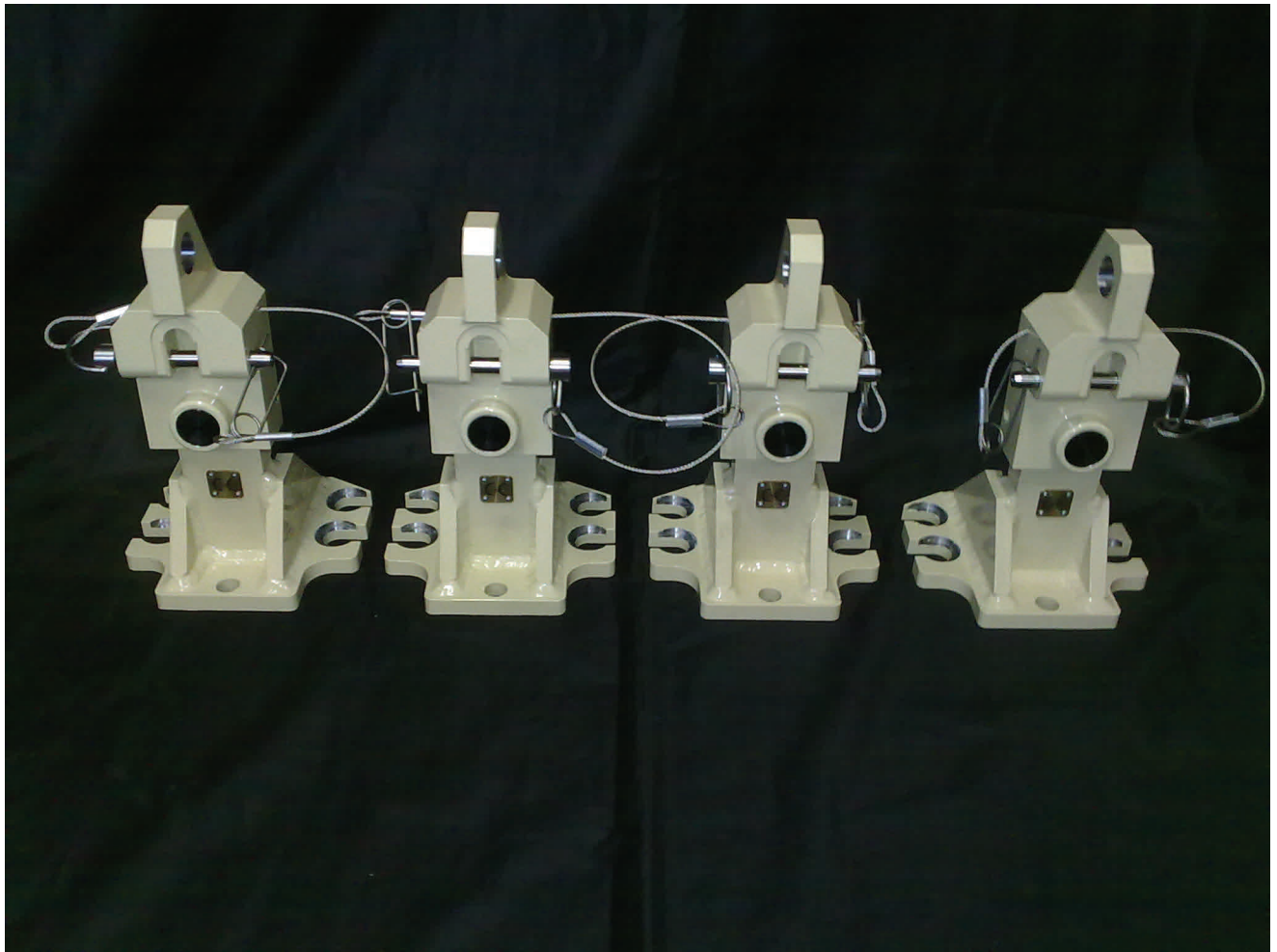
Metal Tech Engineering Ltd.'s facility have also been utilised for fast turnaround AOG projects such as specific tools required when that Qantas A380's Trent 900 engine exploded through the wind: - we produced 48 tools in 2.5 weeks to assist in the repair. In September 2011 rolls Royce had an urgent requirement for a specific package of back up tools. Their standard supply chain stated 16 weeks for delivery, Metal Tech Engineering Ltd won the contract on a five week delivery. We completed the project in 4.5 weeks.

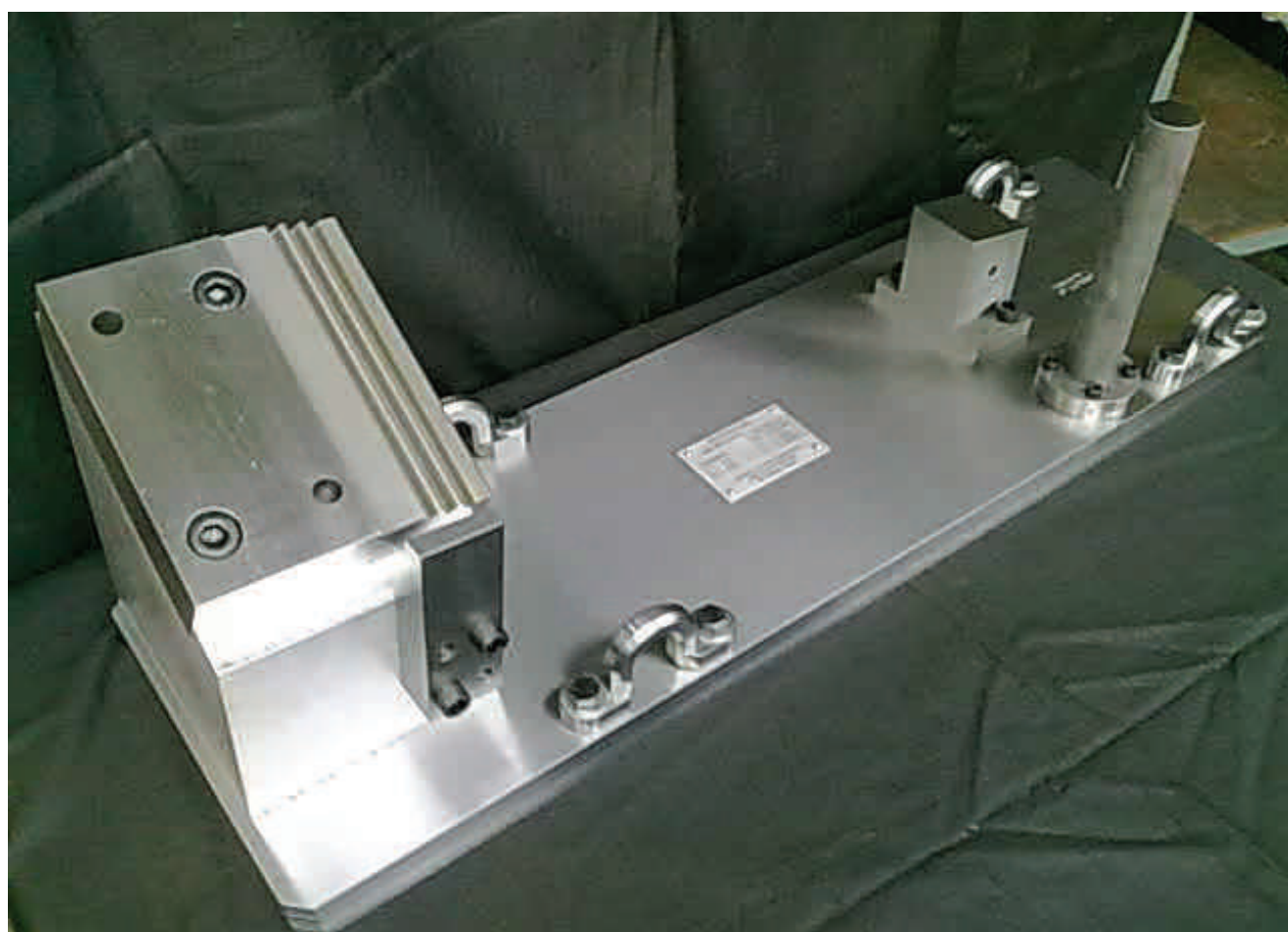
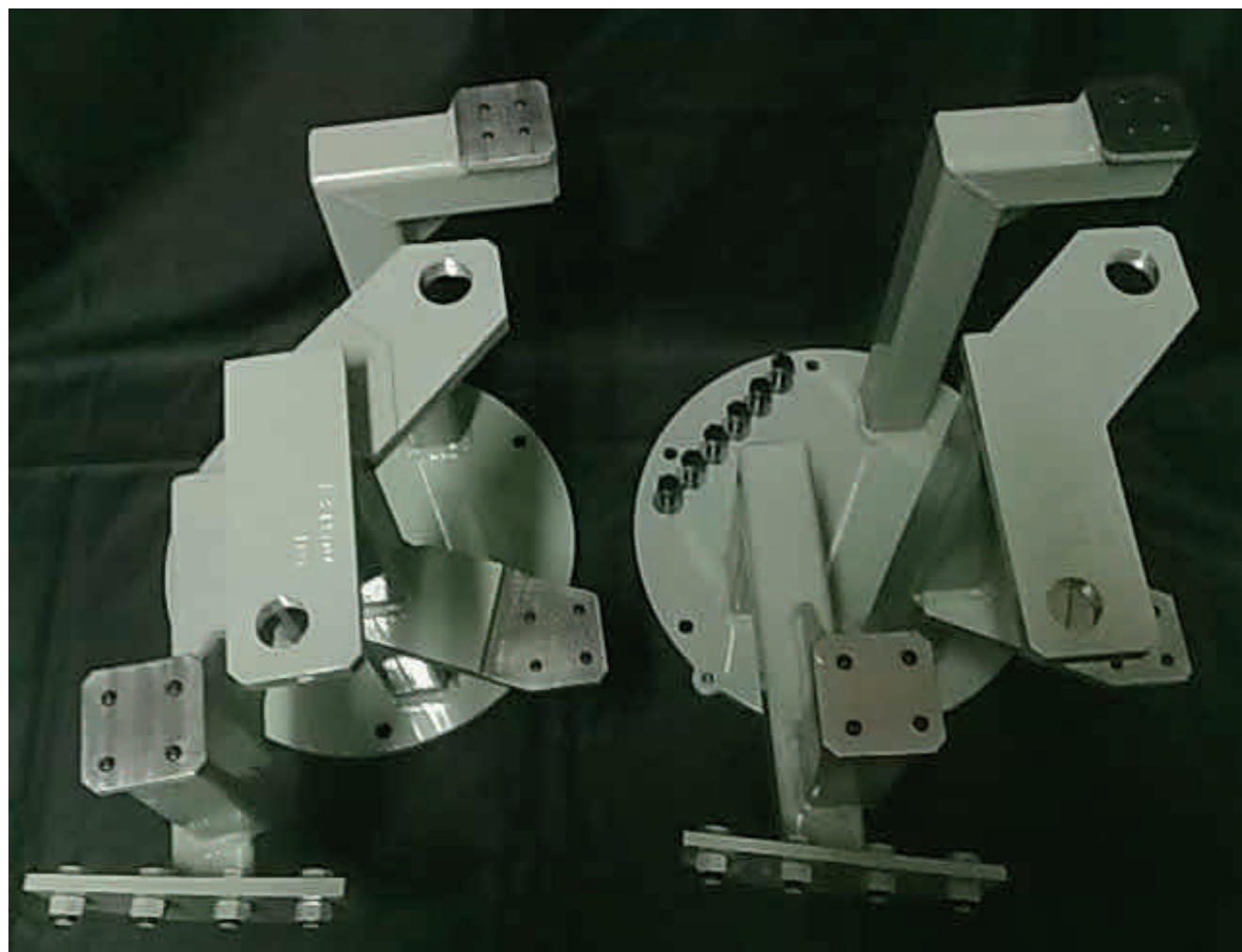
The tools completed to date range from simple drifts to complex turbine blade milling, grinding and inspection fixtures.



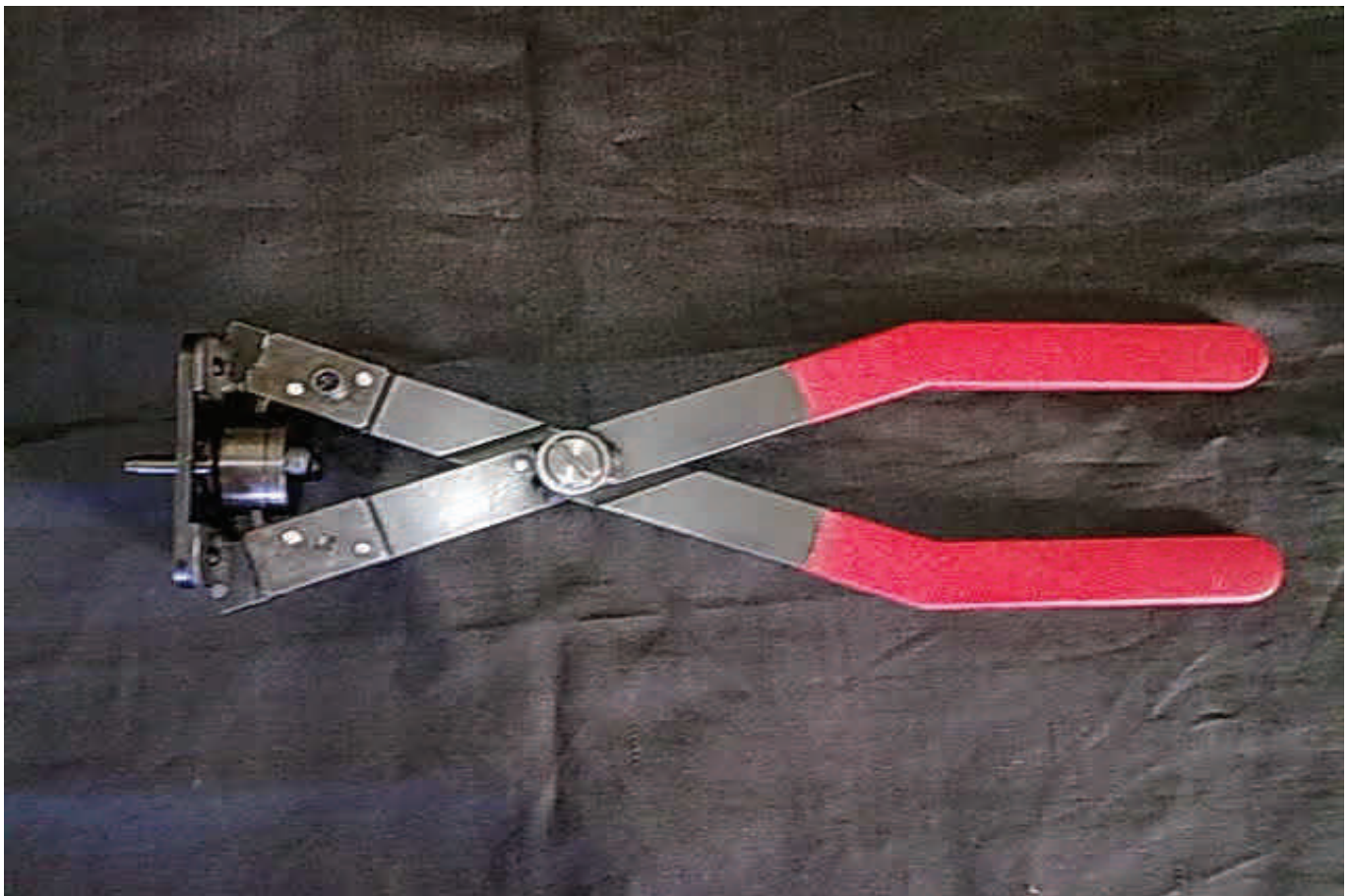
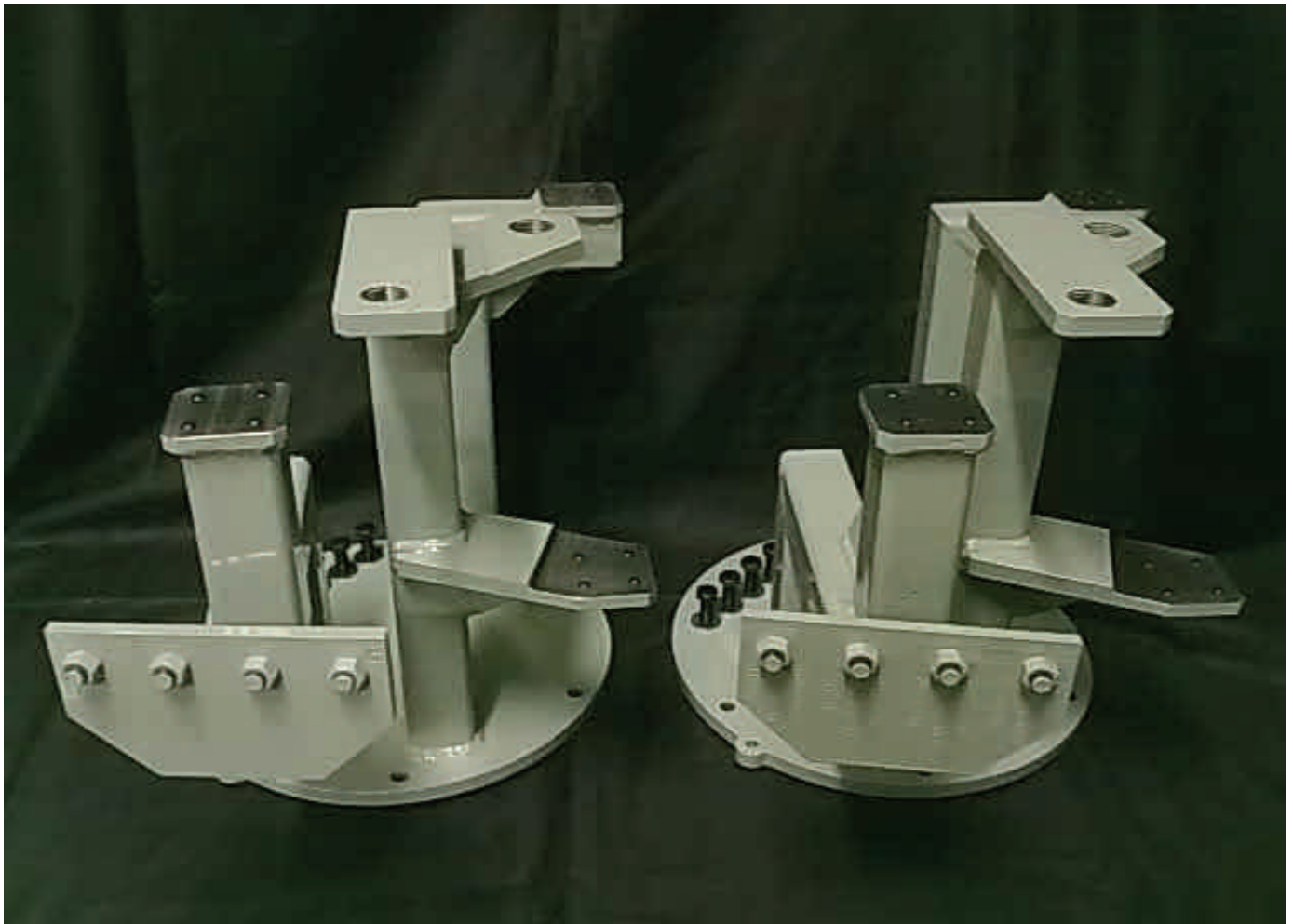




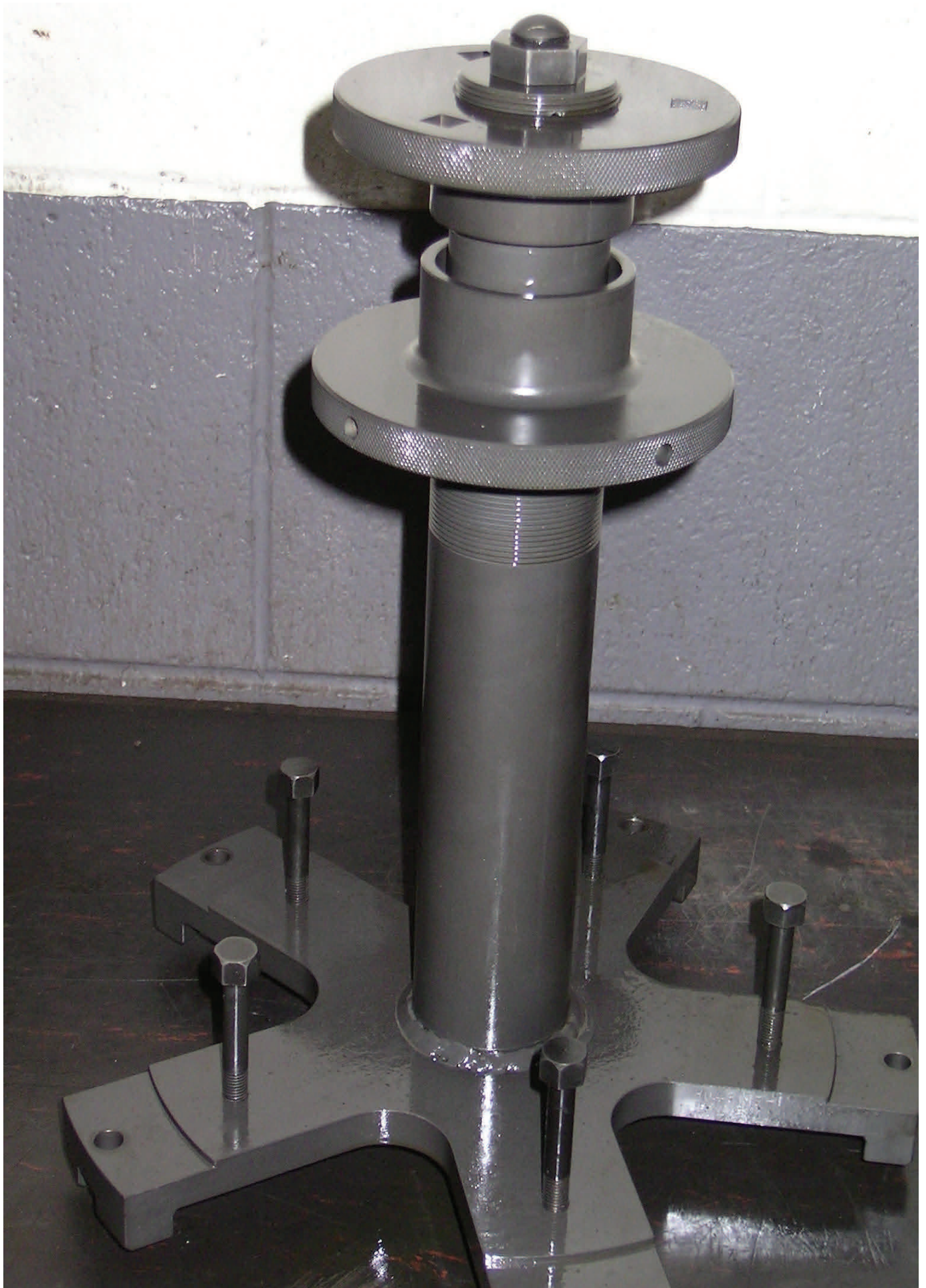




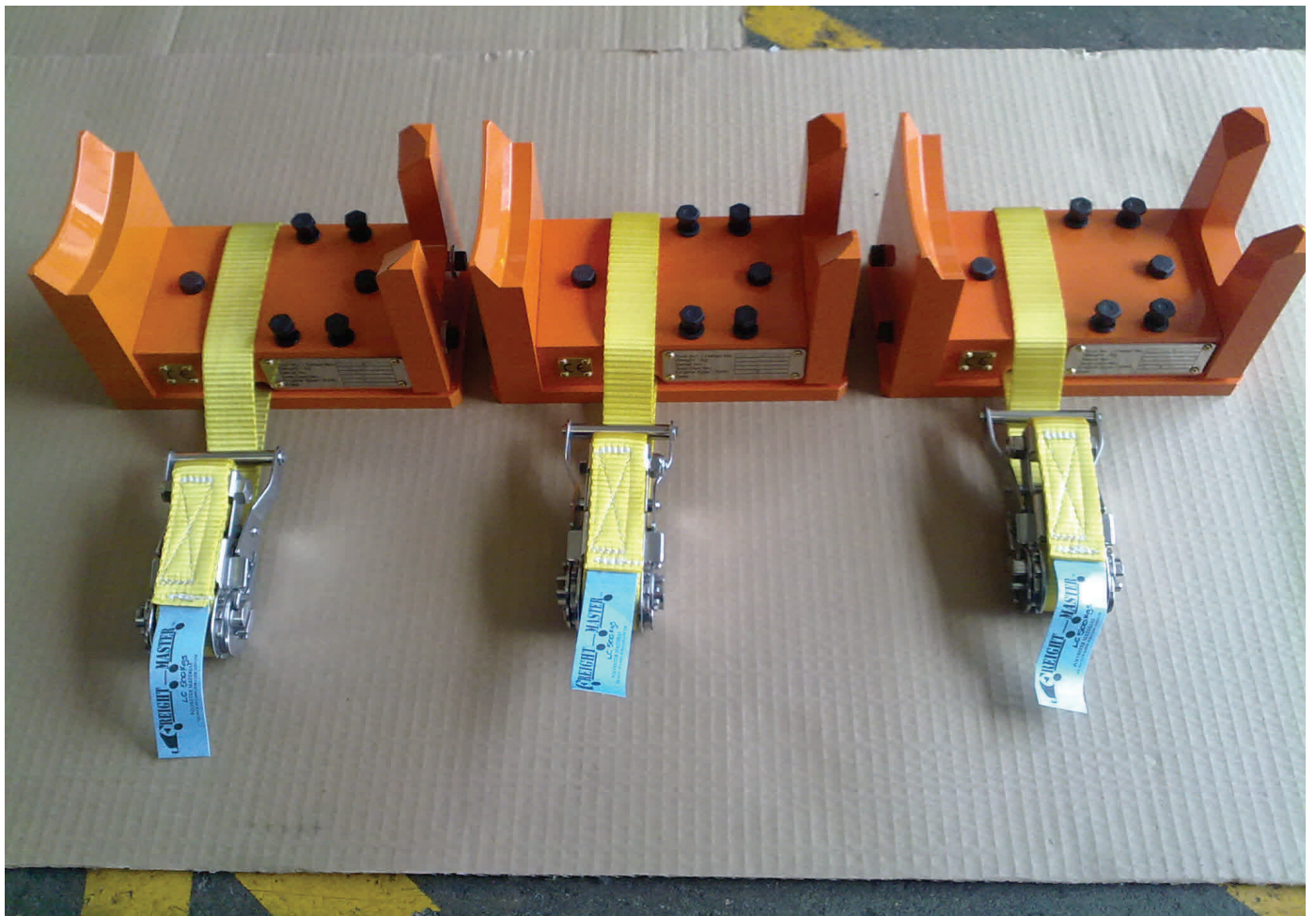








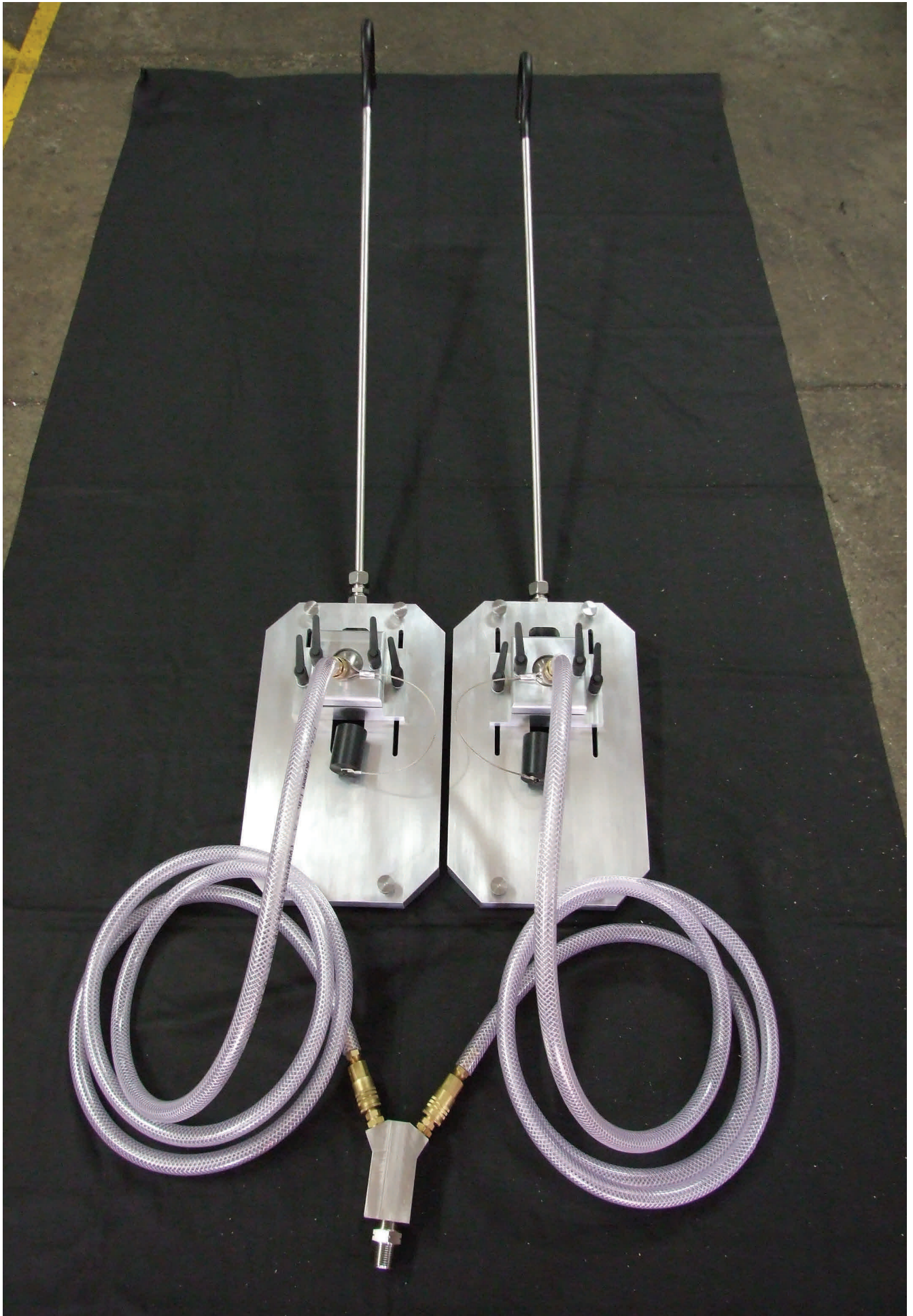






















HYDRO 79058 HU42186-1 WIRE LOCKING TOOL



Description: Product Qualification Gauges

Industry: White Wear / aerospace /Electrical Test

Materials: Mild Steel, High Tensile, Tool Steels

Tolerances: General +/- 0.25, fine 0.005mm

Surface Measurement: 1.6 – 0.1 microns

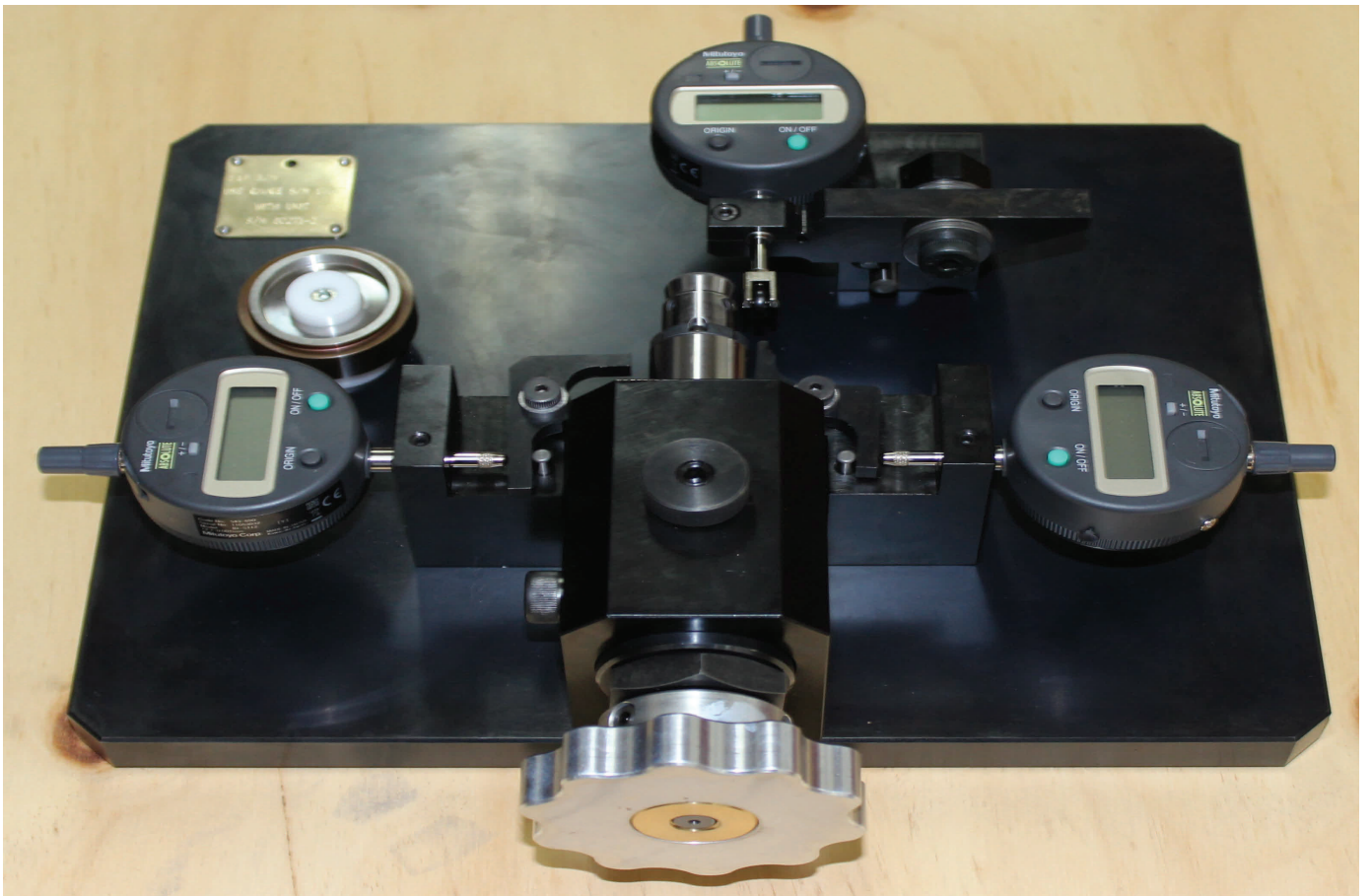
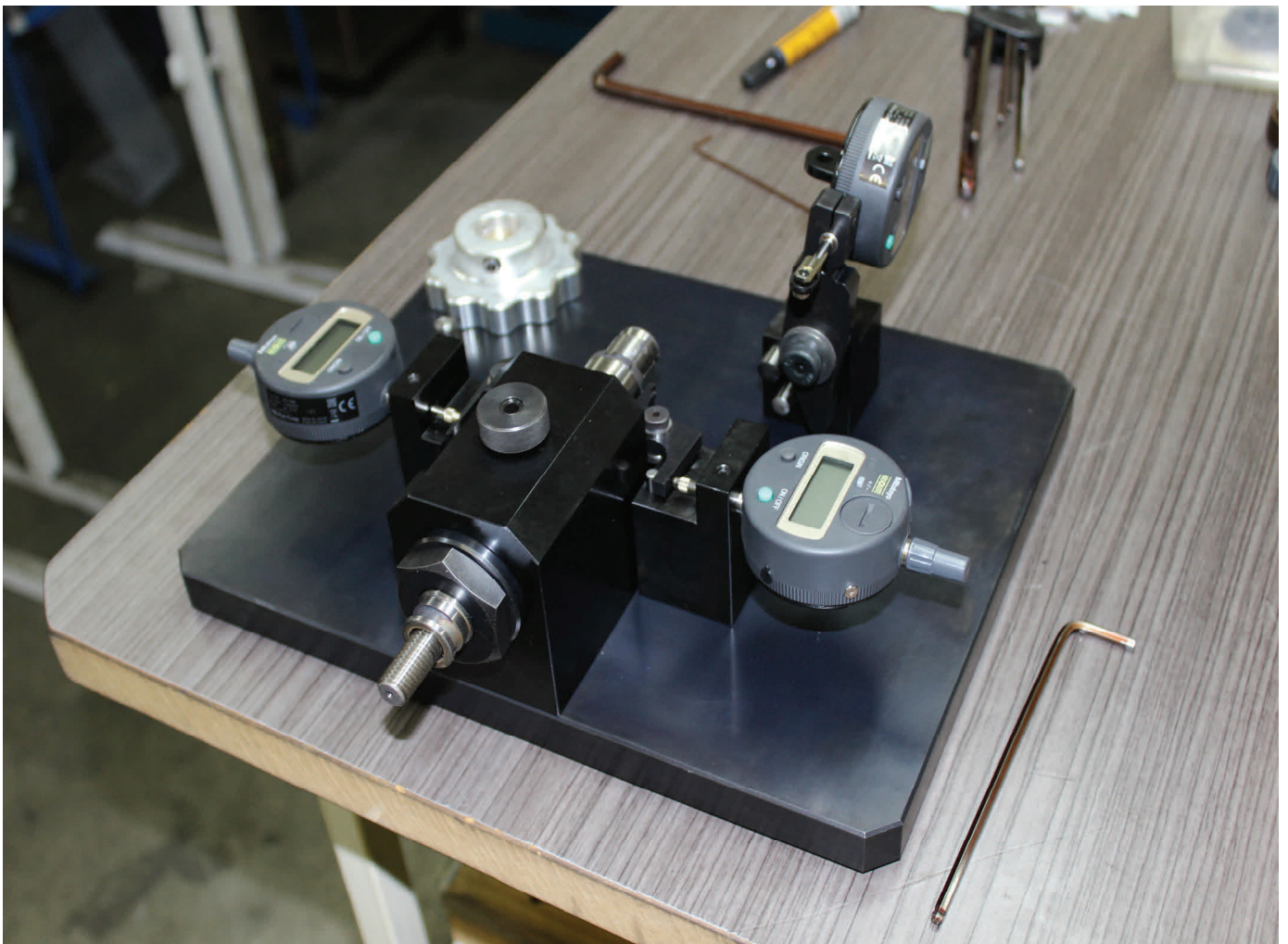
Metal Tech Engineering Ltd design and manufacture new and in partnership with our ISO 17025 certified metrology laboratory, Metrology Calibration Services Ltd, refurbish existing product qualification gauges

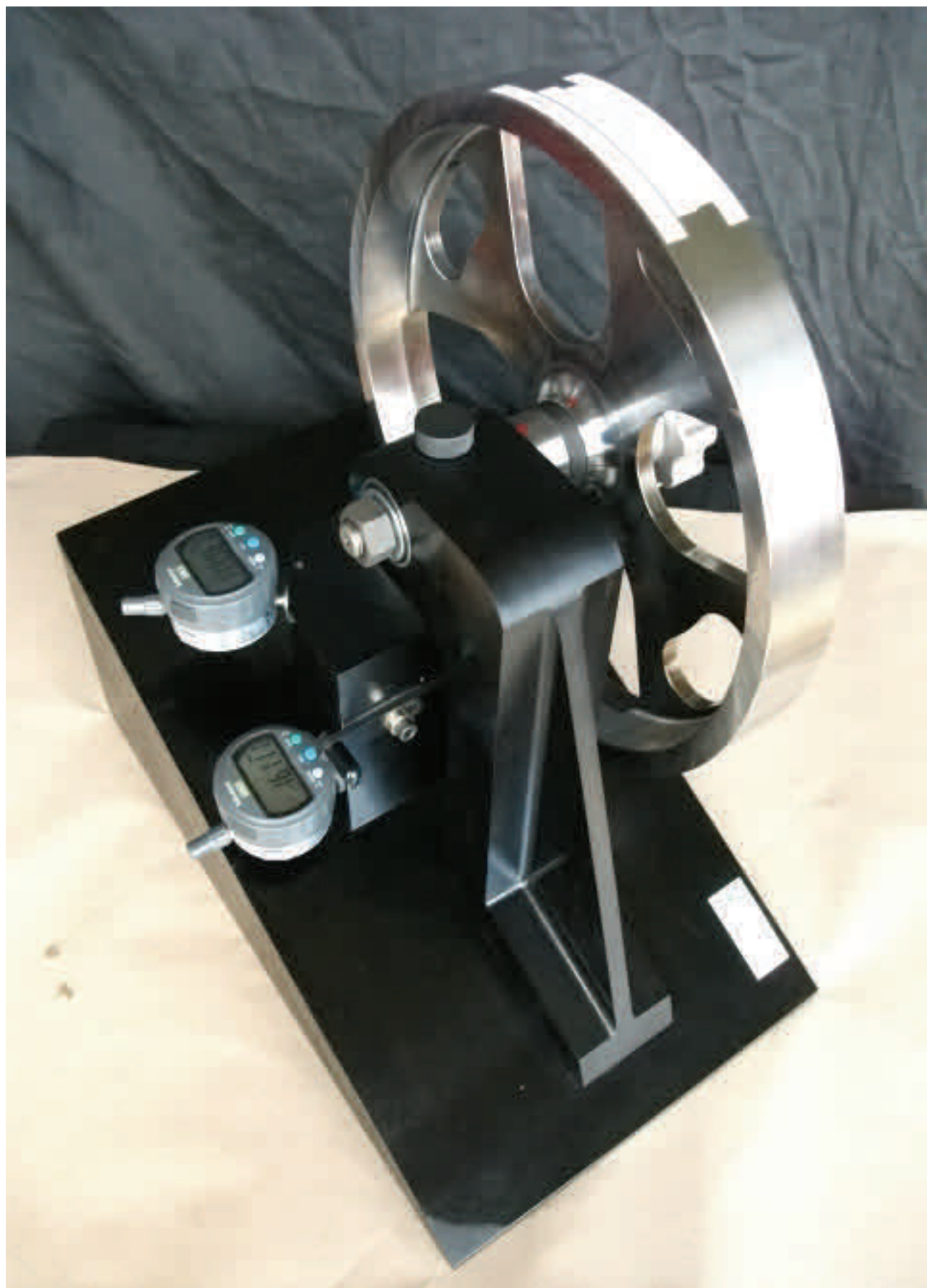
Metal Tech Engineering Ltd design and manufacture and or manufacture to customer design.

In partnership with our ISO 17025 Metrology Laboratory, Metrology Calibration Services Ltd we also refurbish and re calibrate failed product qualification gauges which offers a cost effective and timely solution to our customer needs.

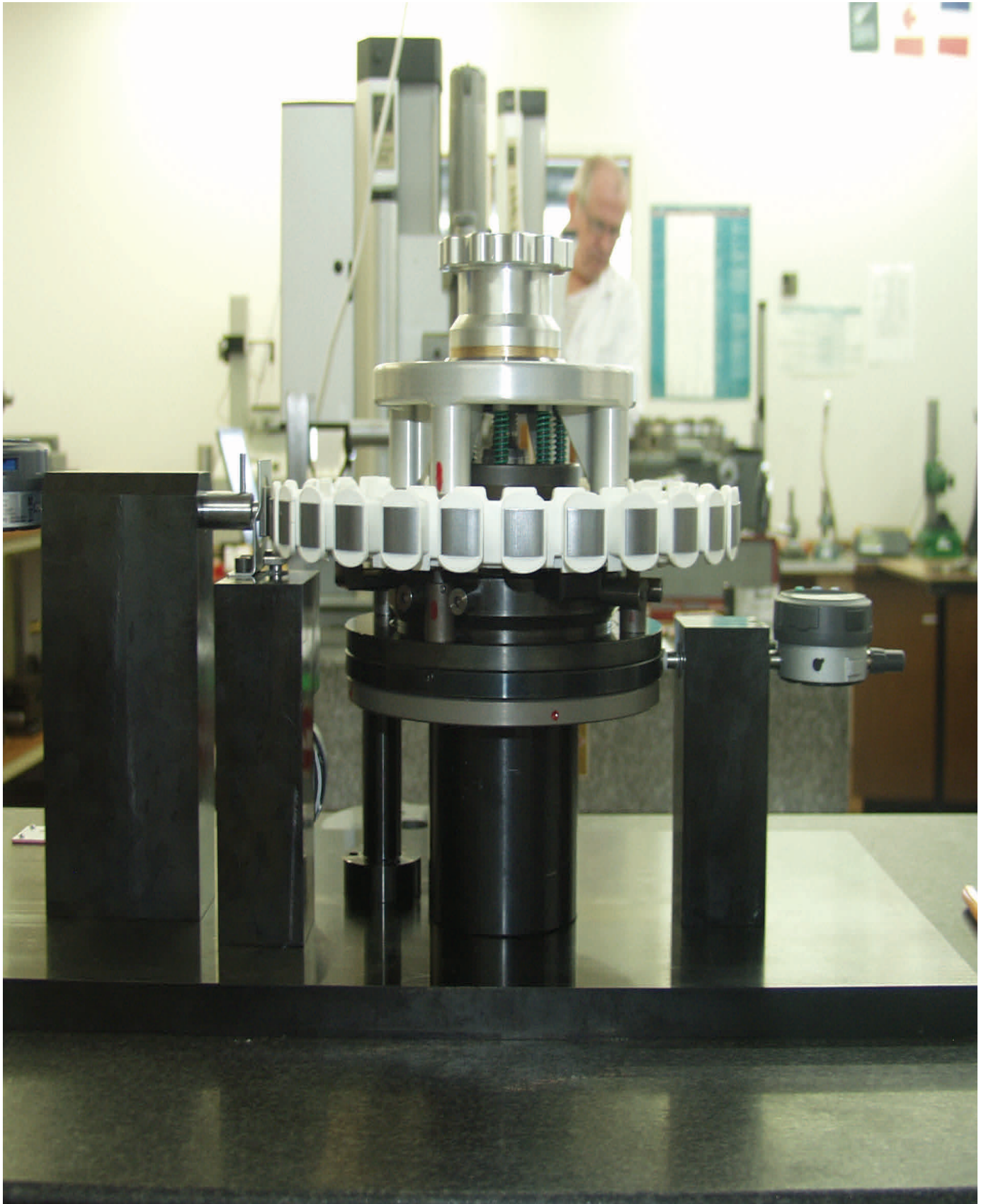
All product qualification gauges can be supplied with a traceable certificate of calibration.

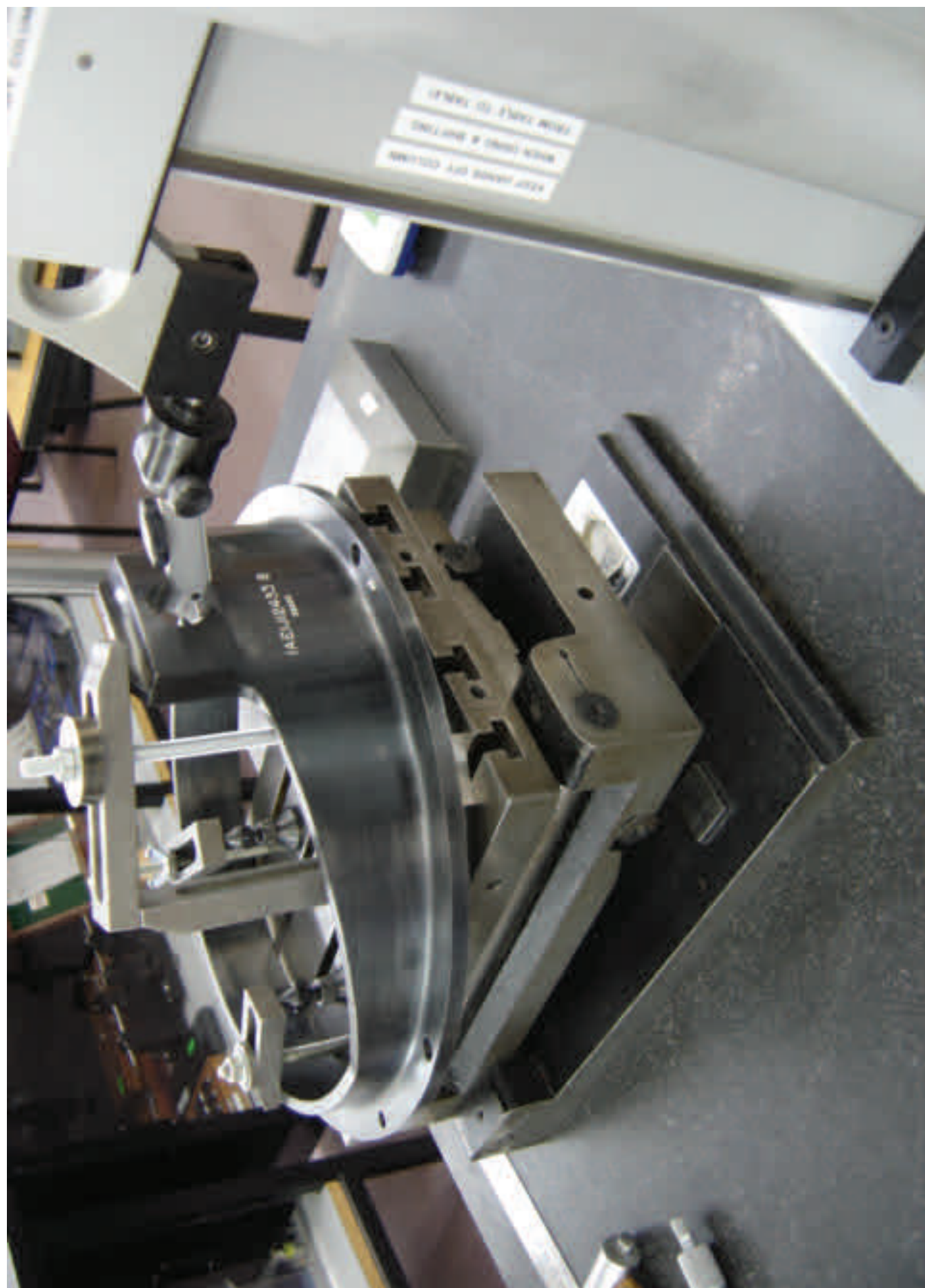






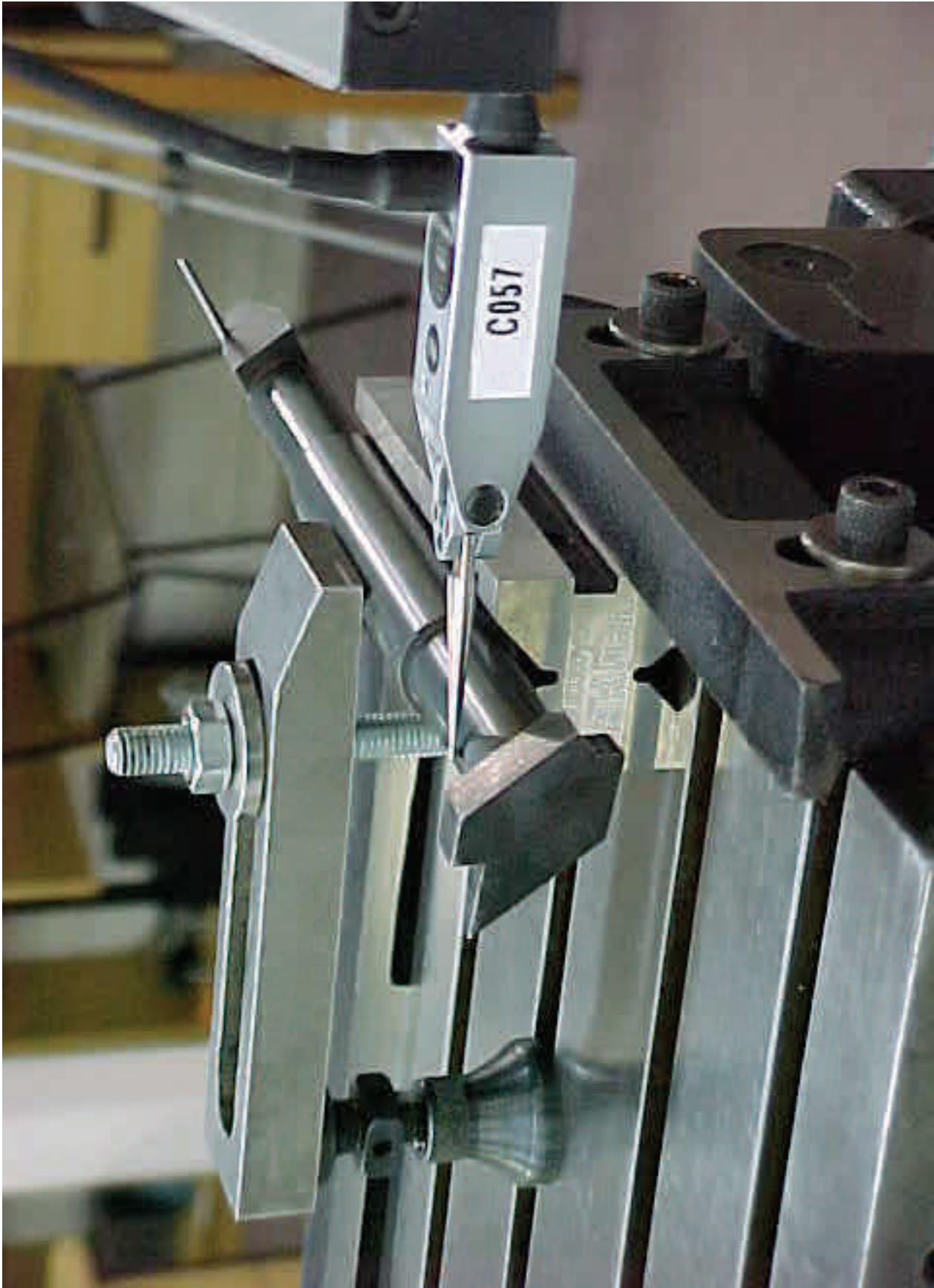






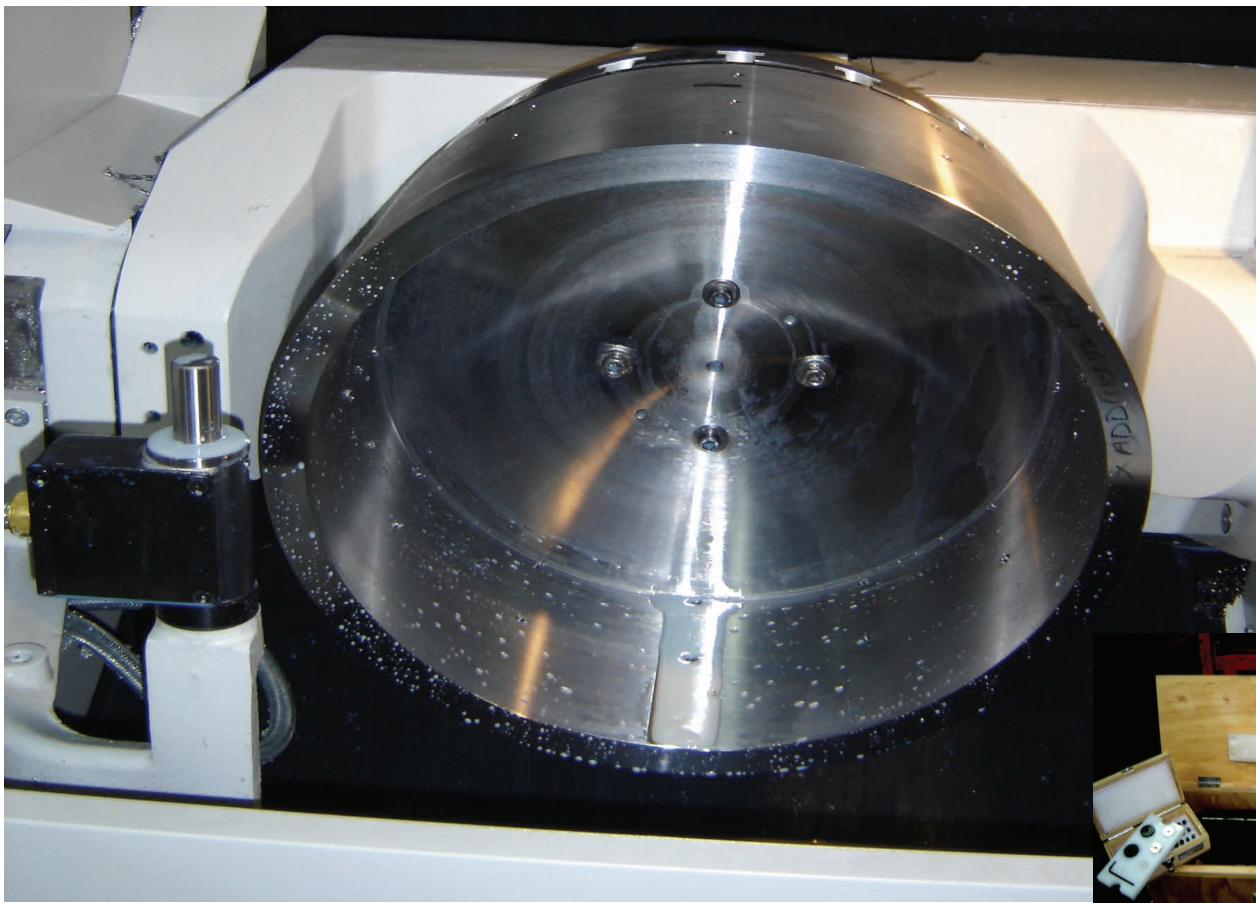












**Description:** SAE Arp Vertical and Horizontal Proving Test Rotors

**Industry:** Aerospace Engine Build

**Materials:** AISI 4140

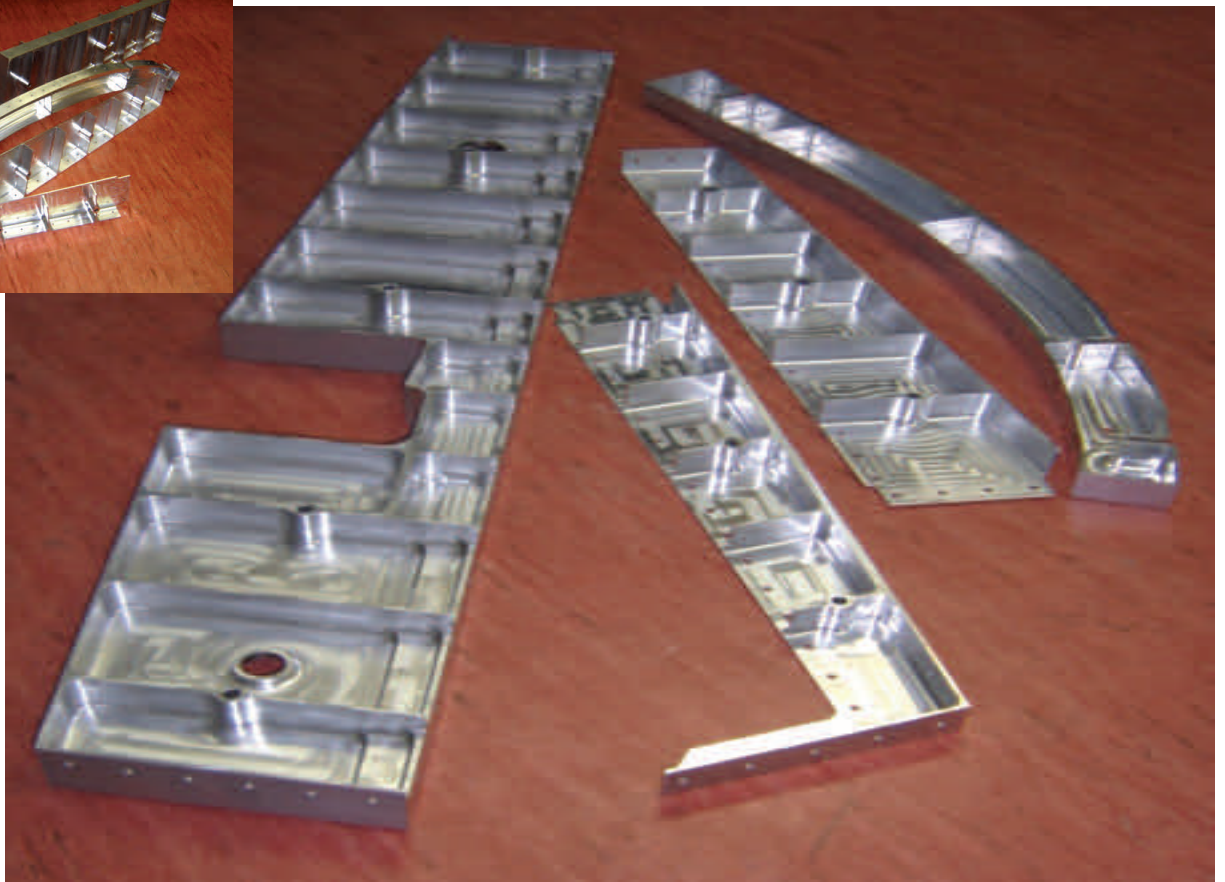
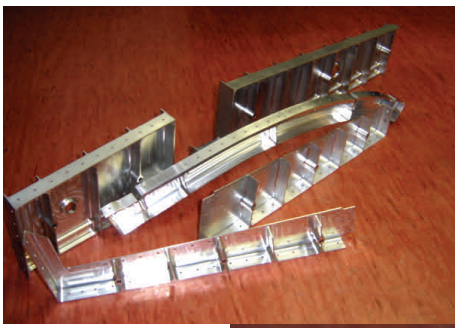
**Tolerances:** General +/- 0.05mm    Close 0.005 mm

**Surface Finish:** 0.8 / 0.1 microns

**Profiles:**

Metal Tech Engineering Ltd manufacture Balance Machine Proving Test Rotors for Schenck Rotec GmbH. All rotors and accessories are supplied with full traceability to NIST carried out by an independent IANZ certified Metrology Laboratory (Metcal). Close Tolerance fixture accessories are now also being manufactured for Schenck Trebel Corp of the USA.

This work was gained after a referral by Air New Zealand and Pratt and Whitney's joint venture engine overhaul facility in Christchurch, New Zealand, who used the first rotor for their testing rig and found it superior to alternative rotors.



**Description:** Fusealage Structural Airframe

**Industry:** Aerospace

**Materials:** Aluminium Various Grades/Tempers

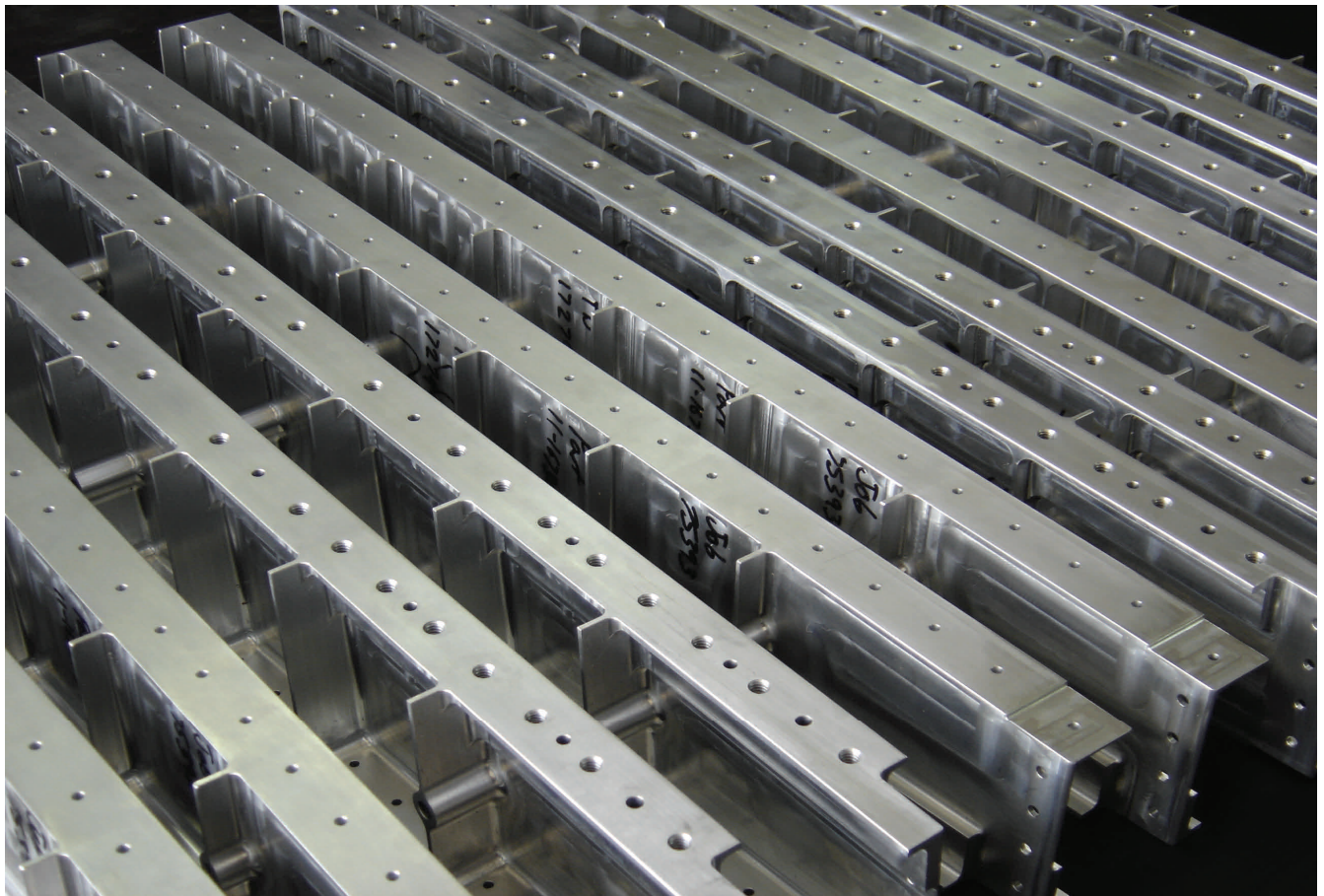
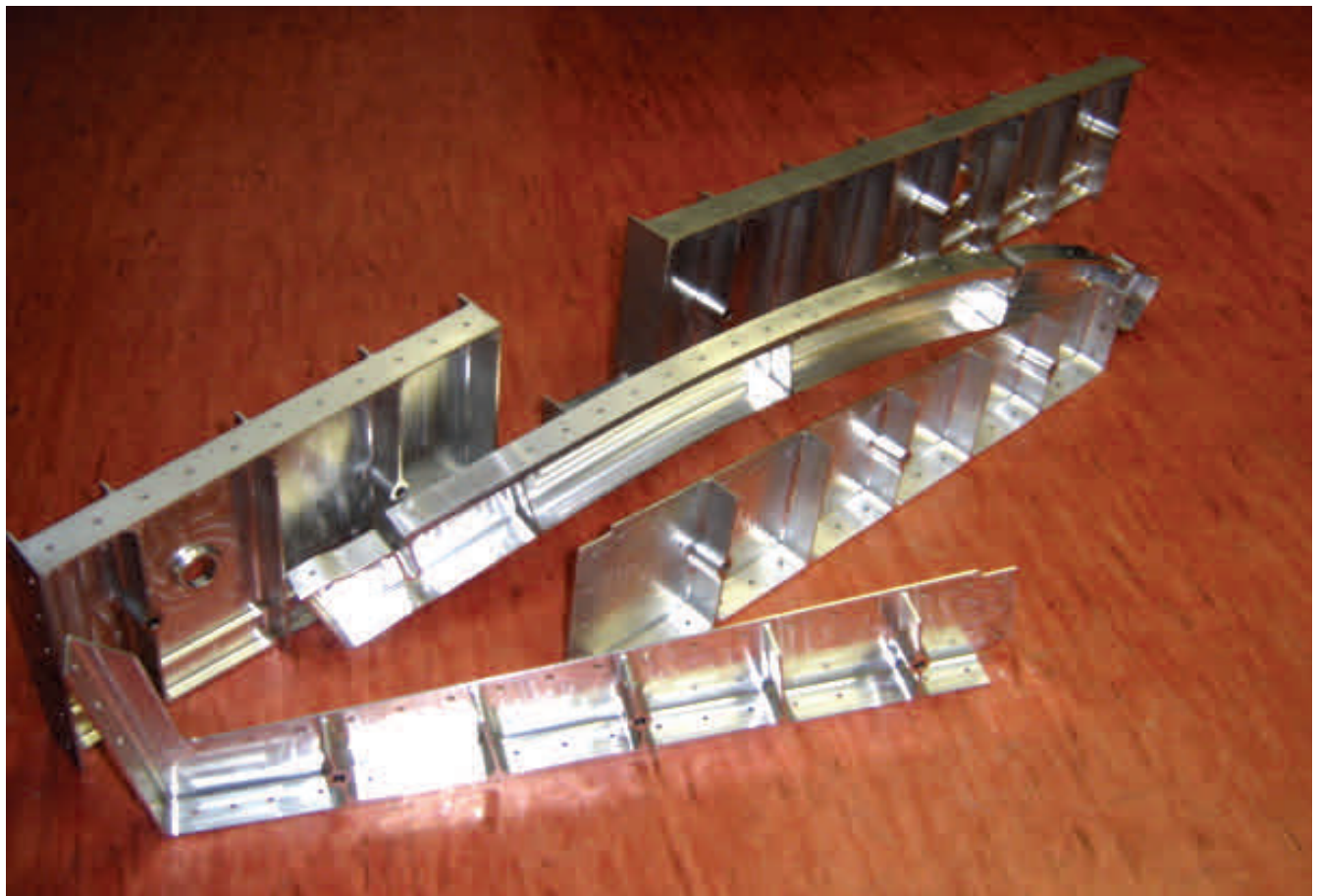
**Tolerances:** General +/- .25mm Close .025mm

**Surface Finish:** 0.4 Ra to 1.6 Ra

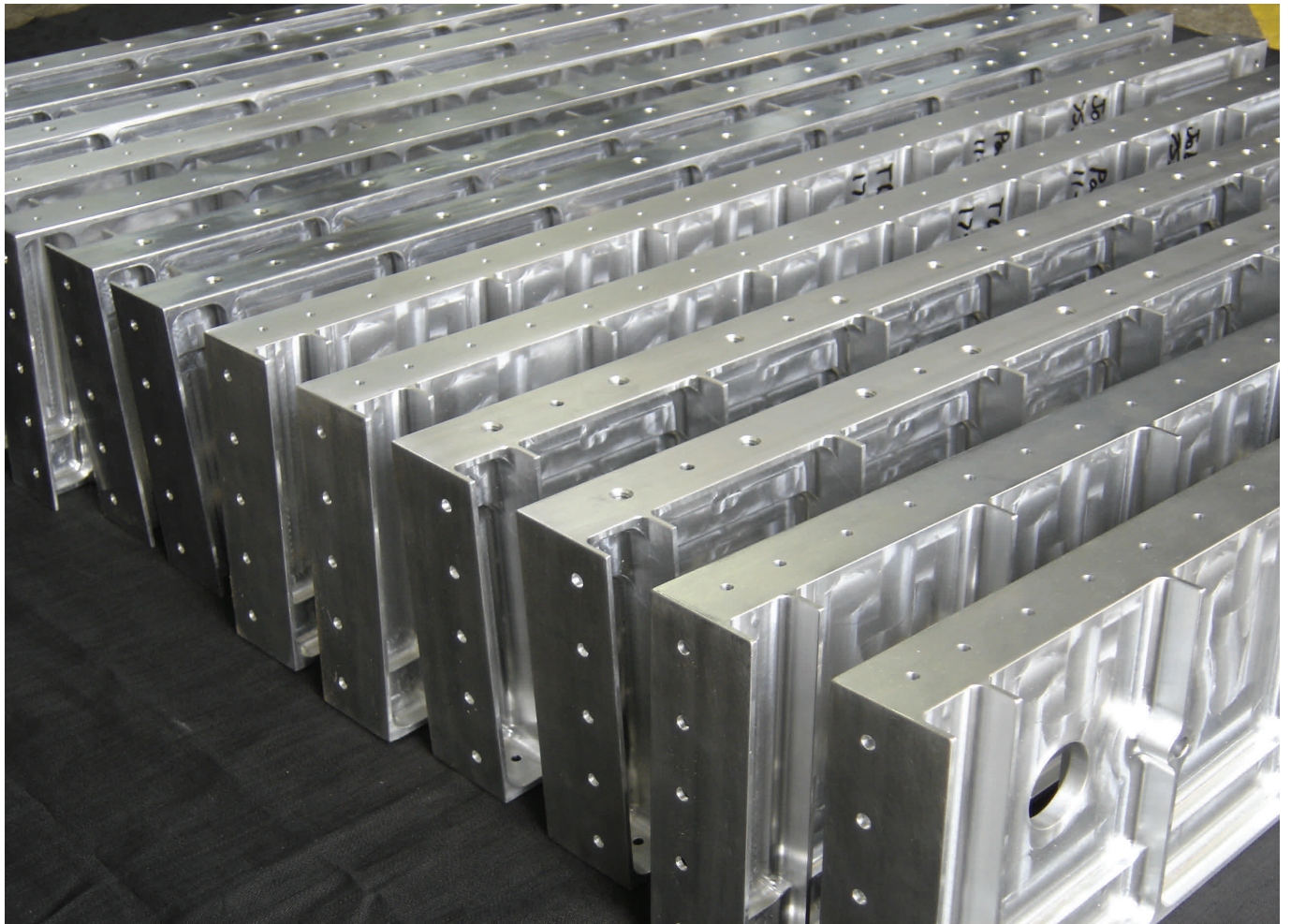
**Profile:**

Metal Tech Engineering Ltd is proficient in machining thin wall fuselage and airframe components from solid billet Aluminium stock. We currently machine 36 various components with 1.5mm web and wall thickness, short run batches of six off of each item. By utilizing high speed machining principles Metal Tech Engineering Ltd performs accurate and efficient machining on a just in time delivery basis to our customers.

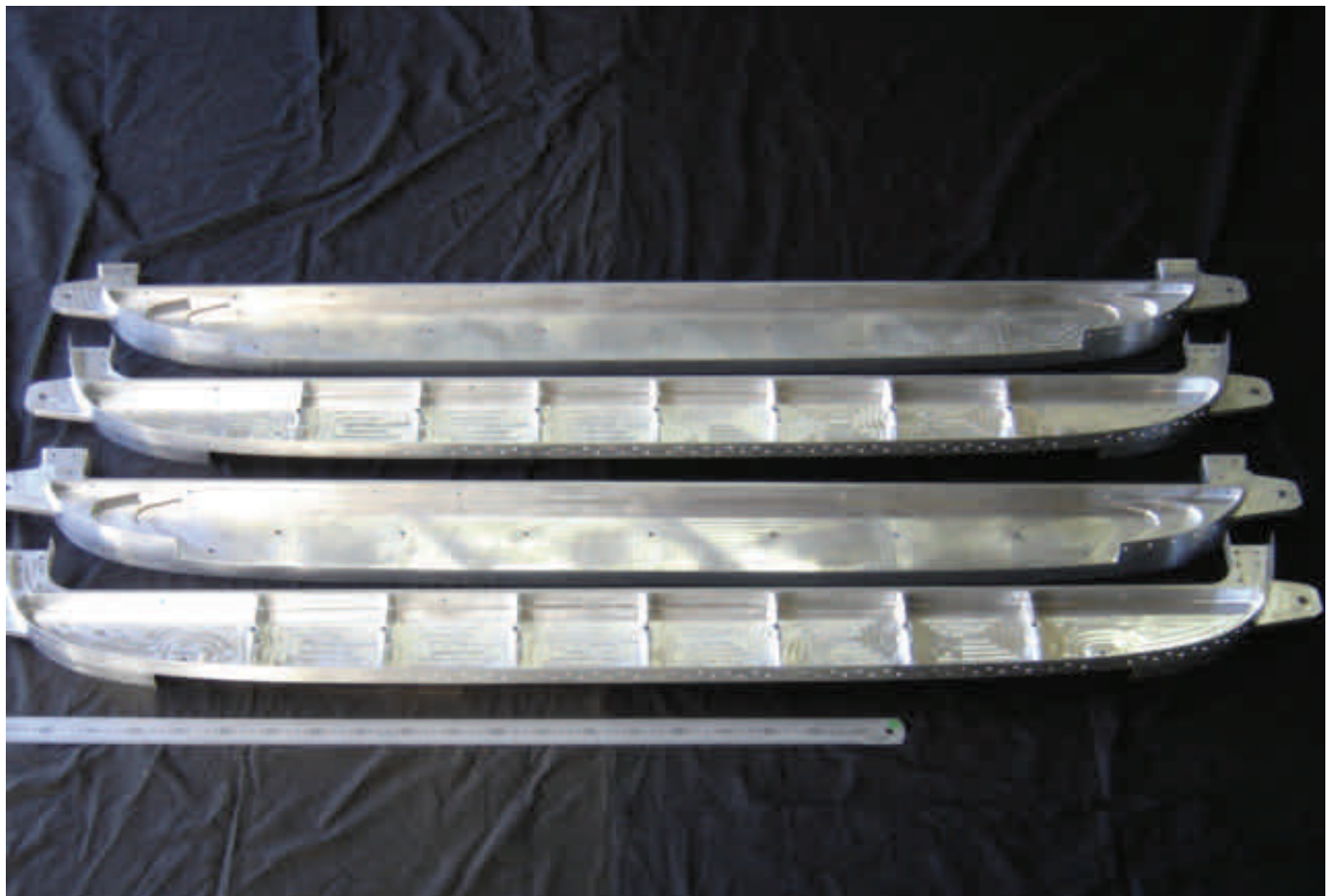
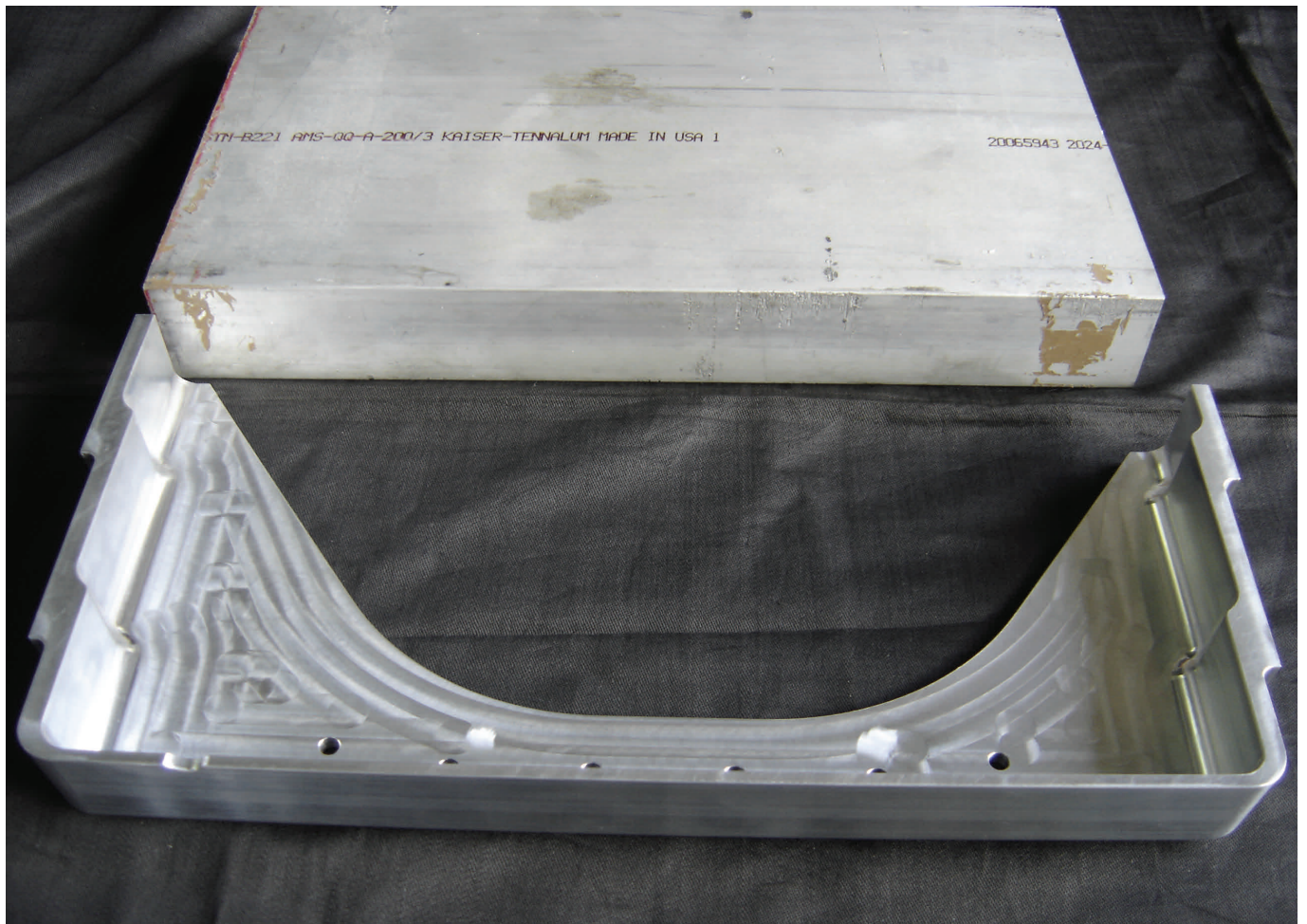




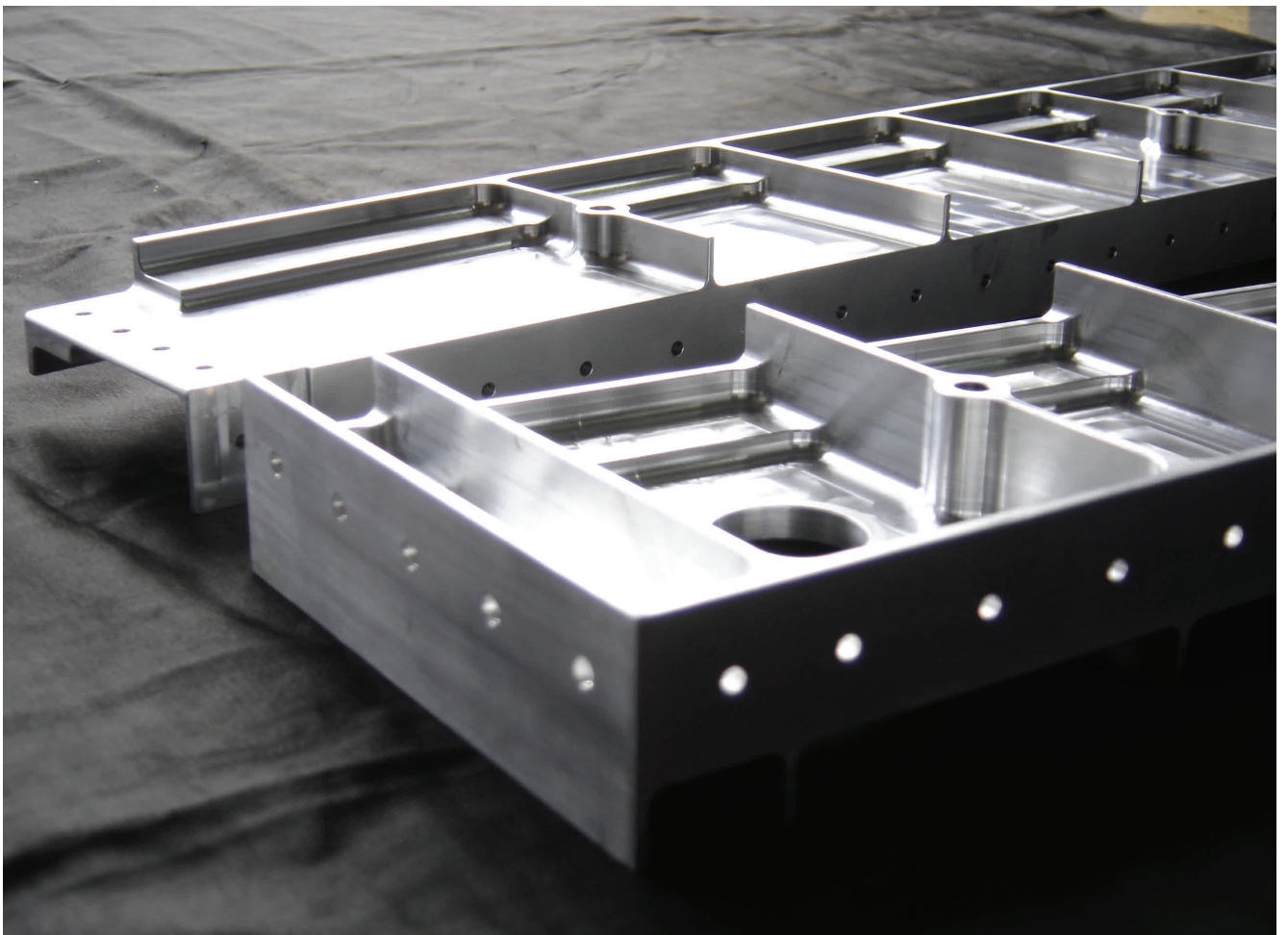
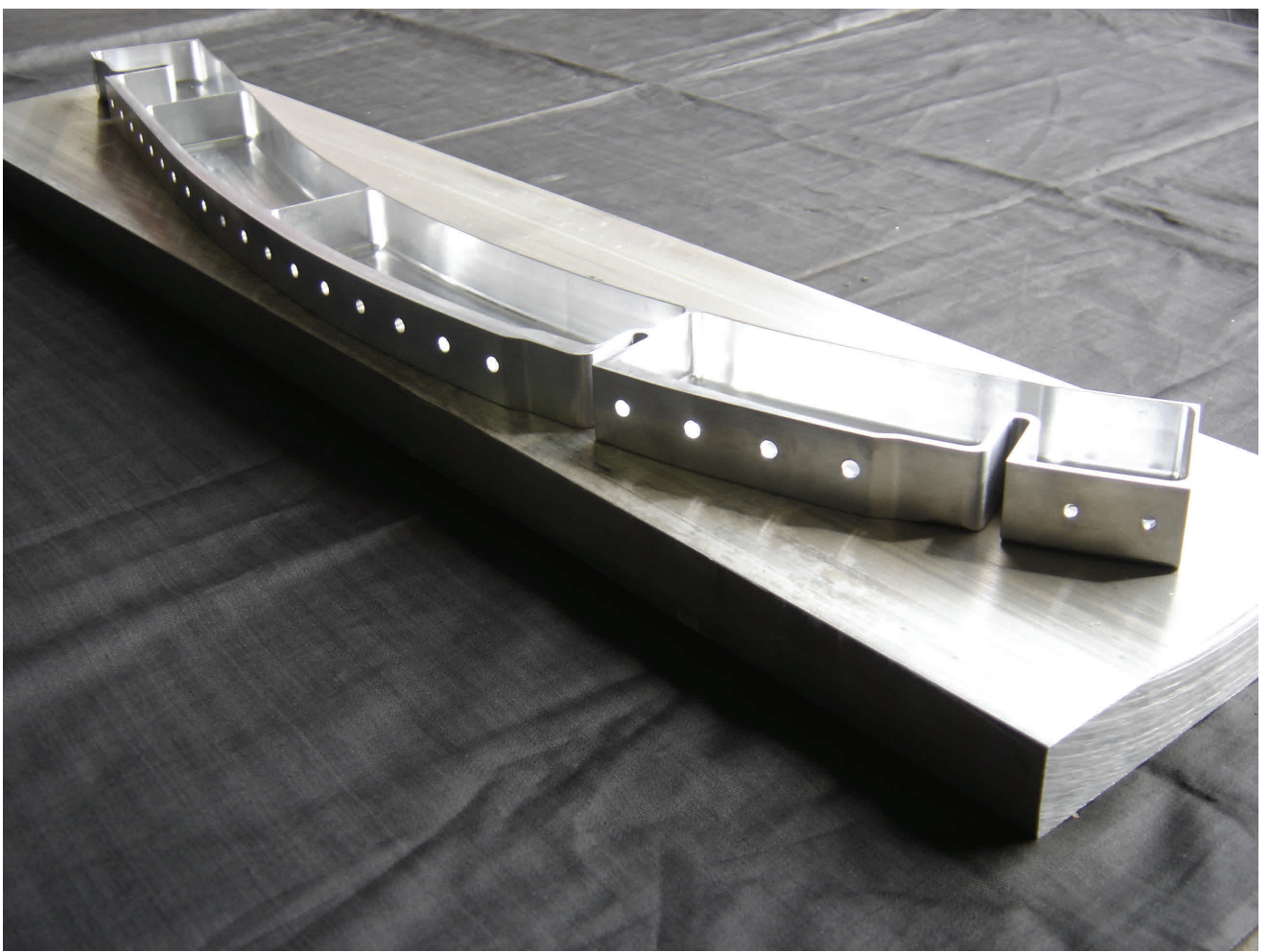














**Description:** Aircraft Components

**Industry:** Aerospace

**Materials:** Aluminium 7075, T6, 6065T6

**Tolerances:** Bearing fits and fuel seal compliant

**Surface Finish:** .8 Ra

**Profile:**

Metal Tech Engineering Ltd Have been manufacturing aircraft components for 36 years, supplying the New Zealand and Australian aircraft industries with fully machined floor structures—airframe parts—complete landing gear assemblies wheel hubs-door hardware-canopy fittings-axle assemblies-fuel system components.







**Description:** Main Landing Gear Assemblies

**Industry:** Aerospace

**Surface Finish Grinding:** 0.2 Ra

**Profile:**

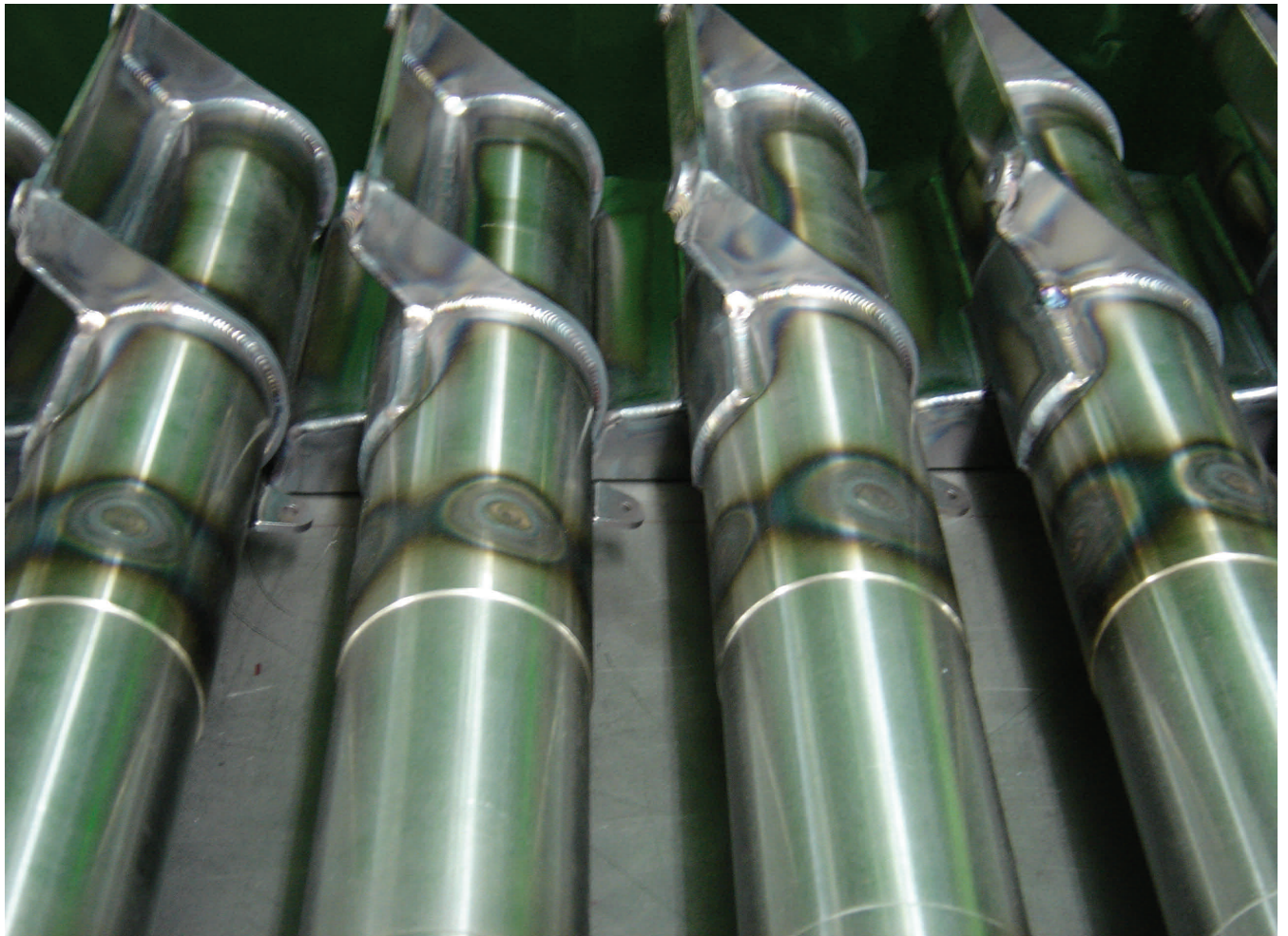
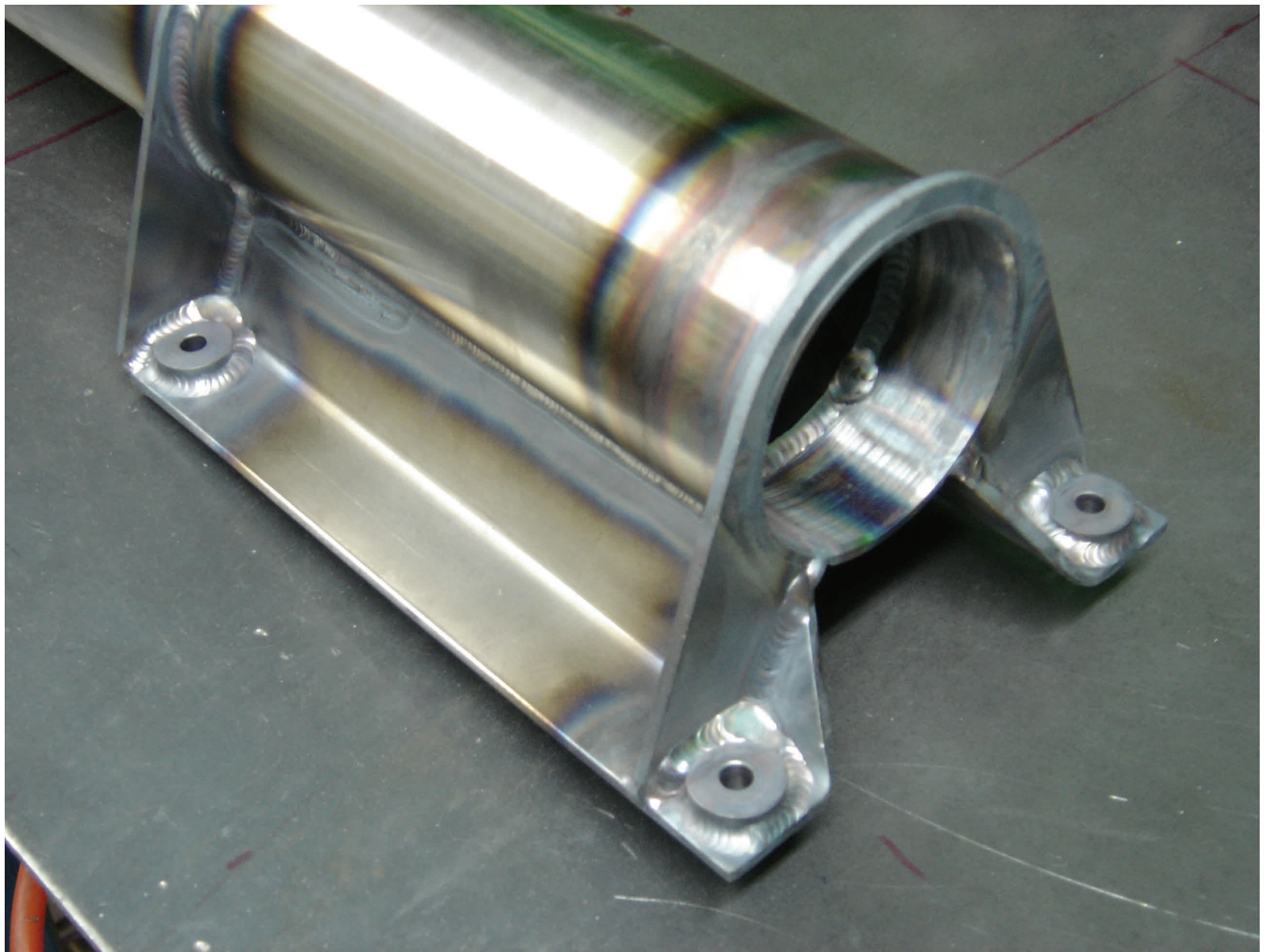
Metal Tech Engineering Ltd are contracted to provide complete under-carriage assemblies. They are supplied in an assembled and pressure tested condition, masked ready for painting by customer.

The Oleo leg is pre-ground, hard chrome plated and finish ground prior to finish welding to the axle leg. Components are supplied with a full compliance report on all critical features. Assemblies are supplied for new aircraft and as separate items for maintenance on used aircraft.







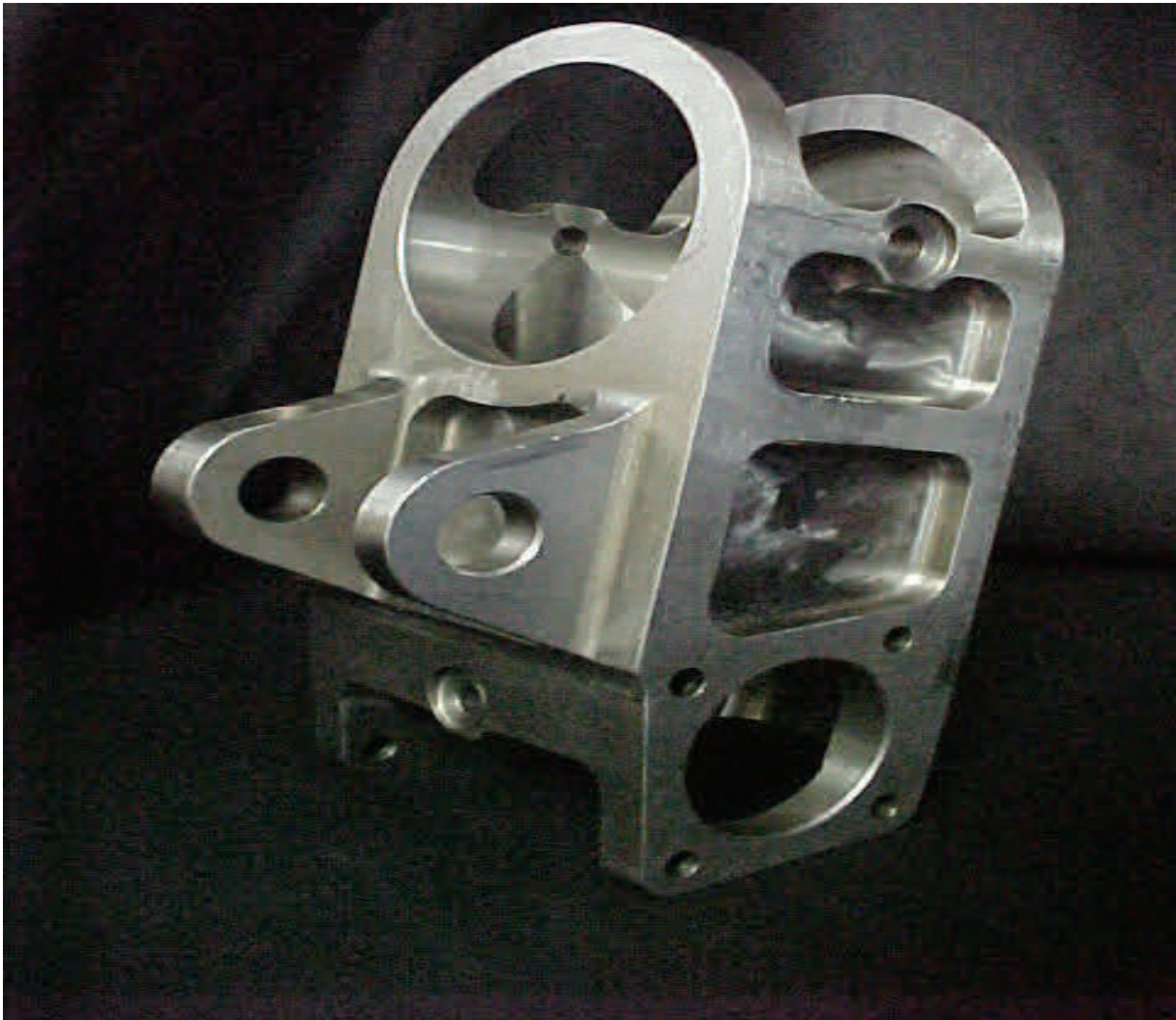
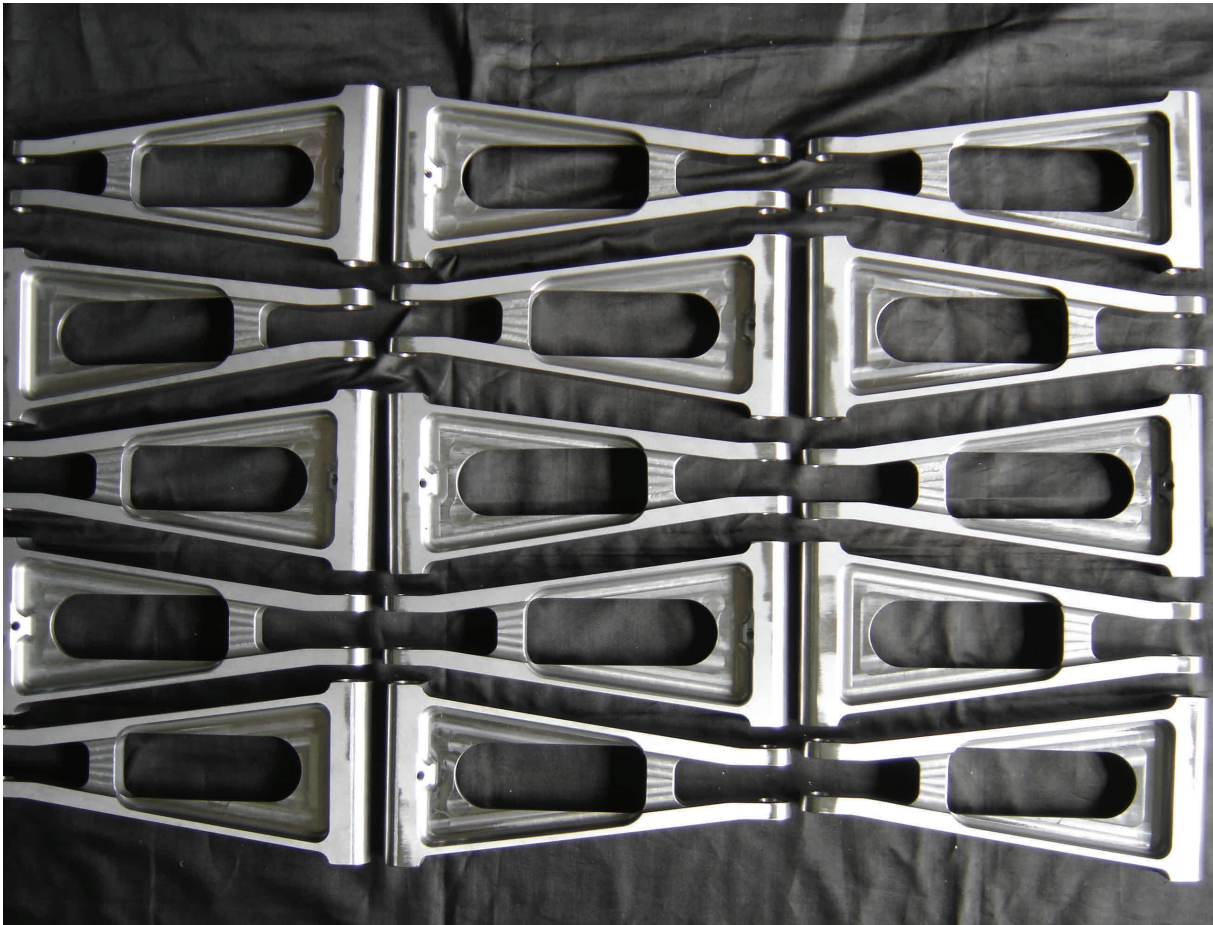














**Description:** Steering arm, Flap horn tubes, Weak link assembly, Torque Arms

**Industry:** Aerospace

**Materials:** AISI 4130, 17/5 pH Stainless Steel, Titanium

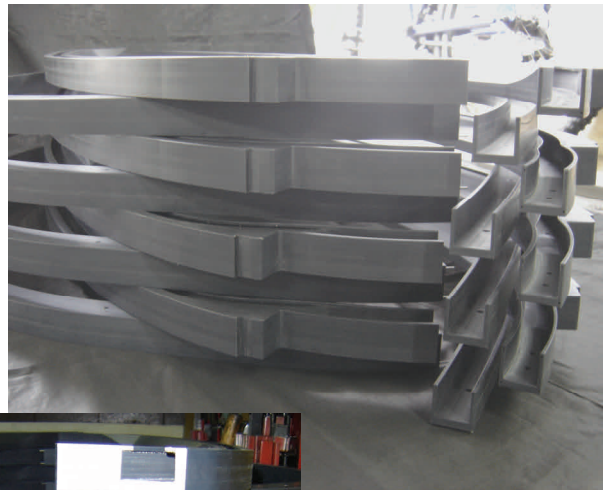
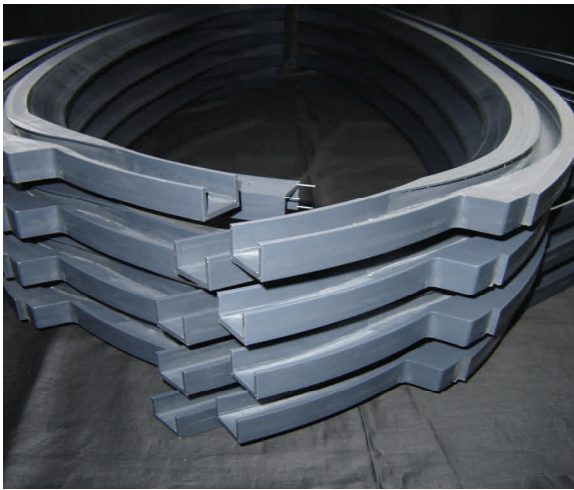
**Tolerances:** General +0.05mm Close 0.01mm

**Surface Finish:** 0.4 Ra to 3.2 Ra

**Profile:**

Metal Tech Engineering Ltd manufacture a variety of components from a large range of materials and alloys for the aerospace industry. Long thin walled tubular items, utilise our gun drilling, CNC turning and cylindrical grinding capabilities, while steering arms, engine covers and torque links utilize our CNC milling and CNC turning capabilities. Machining of prehardened materials and alloys is successfully carried out on a regular basis achieving close fit tolerances and surface finishes using special tooling.





**Description:** Door Rails

**Industry:** Aerospace

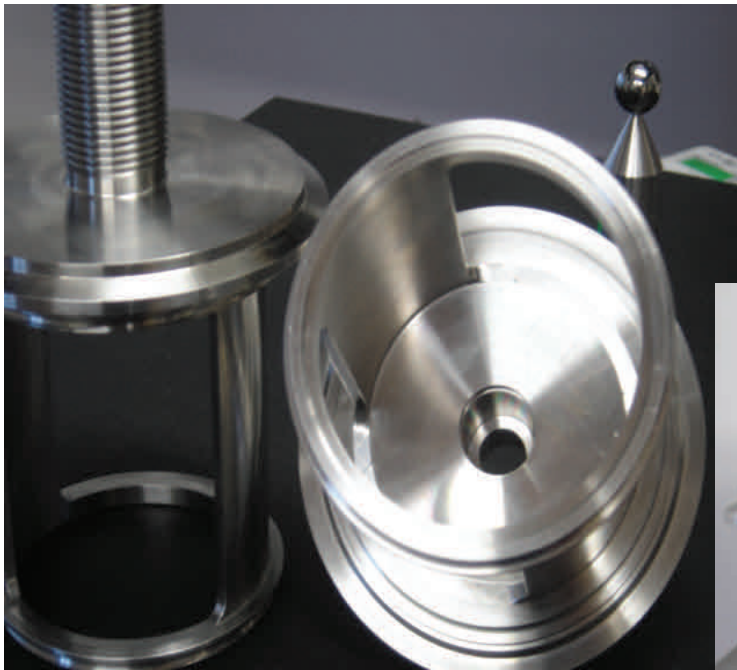
**Materials:** Nylatrol Plastic

**Tolerances:** General +/- 0.3mm

**Surface Finish:** 1.6 Ra to 6.3 Ra

**Profiles:**

Development and short run batch of sliding door rails as fitted to a PAC-XL multi purpose sky diving aircraft.



**Description:** Valve Body Assembly

**Industry:** Food / Hygiene

**Materials:** T316 Stainless Steel

**Tolerances:** General +/-0.05mm Fine 0.01mm

**Surface Finish:** 0.8 Ra

**Profile:**

Metal Tech Engineering Ltd manufactured a small batch of this thin walled valve component as a development for a local subsidiary of a multi-national company. Due to a quick turnaround and high quality Metal Tech Engineering Ltd now have repeat orders for their components.





**Description:** Valve Body

**Industry:** Food and Hygiene

**Material:** 316 Stainless Steel

**Tolerances:** General +/- 0.1mm    Fine 0.05 mm

**Surface Finish:** 0.8 Ra

**Profile:**

Metal Tech Engineering Ltd took on a small batch of valve bodies as sub contract for a local valve manufacturer, the customer having a experiencing shortage of capacity in their own machine shop. Due to a quick turn around and high quality, Metal Tech Ltd now manufacture three sizes of valve body for the company with 100% quality and on time delivery performance.



**Description:** Steam and Water Mix Valve Components

**Industry:** Food Processing

**Material:** T316 Stainless Steel-Plasma sprayed with cobalt and Tungsten Alloys

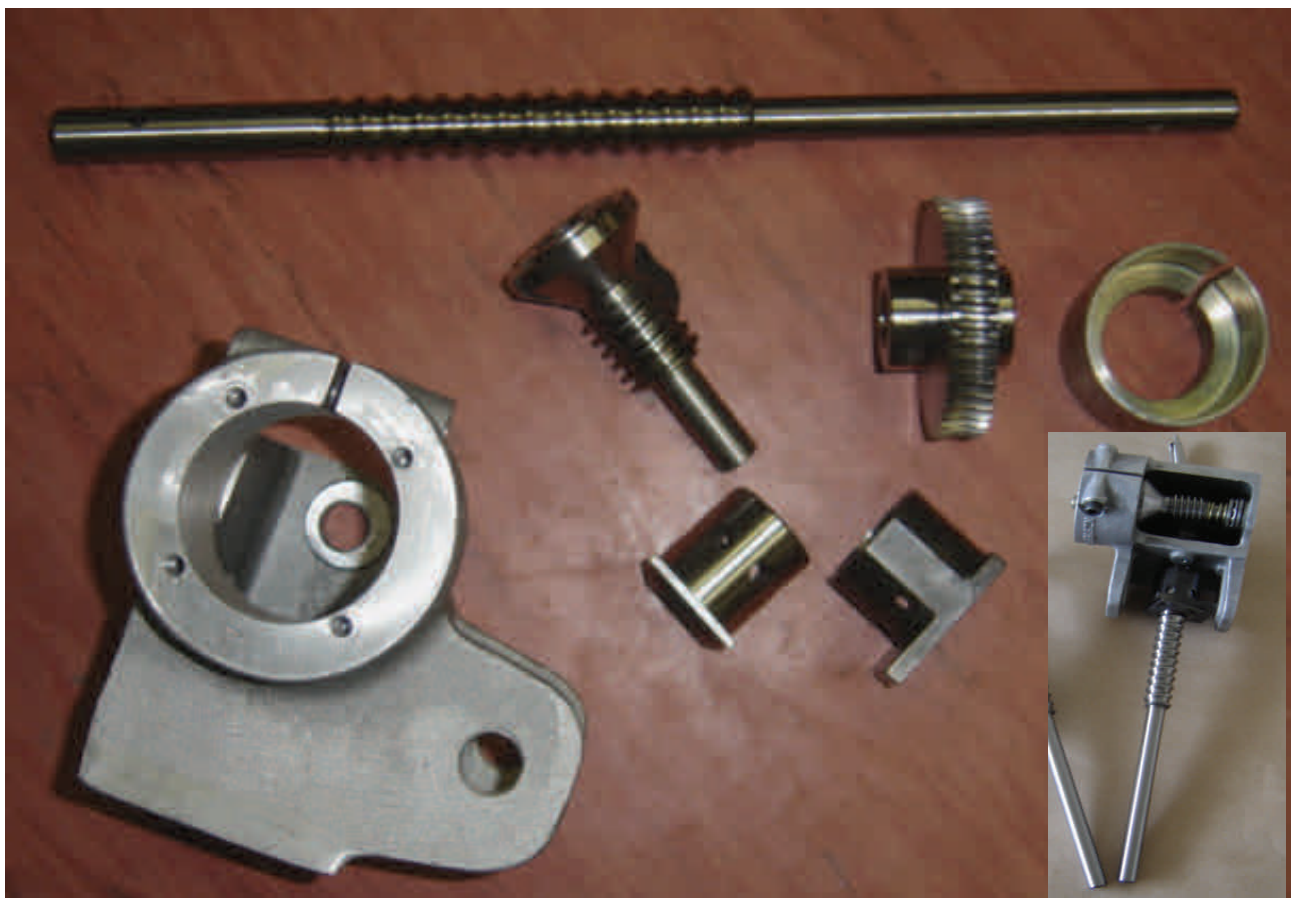
**Tolerances:** General +/- 0.1mm    Fine 0.015 mm

**Surface Finish:** Sealing faces lapped to a maximum flatness of 4 Helium light bands

**Profile:**

These items are manufactured for a unique valve which through a computer processor adjusts water temperature within +/- 1 deg/c and within a 5 second time frame. Metal Tech Engineering Ltd manufacture five variations in batches of up to 50 units, which are exported to USA, Europe and Australia.





**Description:** Manufacture and Assembly of Ball Screw  
Ball Screw, Inner/Outer Sleeve, Worm Wheel, Worm Screw to Gear  
Box Housing

**Industry:** Power Protection

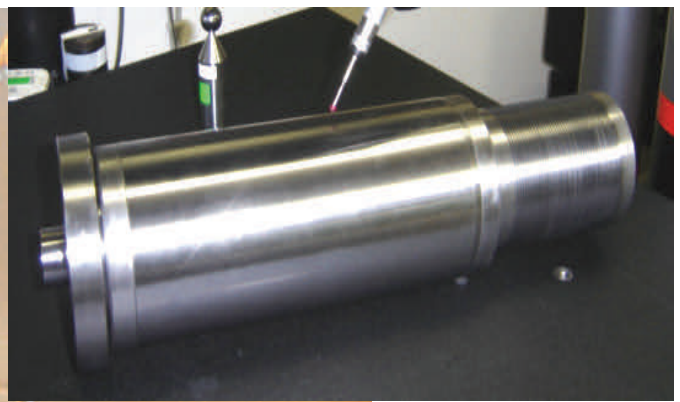
**Materials:** Cast Aluminum, E110 casehardening steel, AISI 4140,  
AISI 1045.

**Tolerances:** General +/- 0.05mm    Fine 0.01 mm

**Surface Finish:** 0.4 Ra to 1.6 Ra

**Profile:**

Metal Tech Engineering Ltd manufactured a test batch of 10 assemblies 14 years ago for Rolls Royce Industrial Power. The assembly was at the time being manufactured in England. Due to poor deliveries and quality from England, our components were put into a test situation. With seven times the test load they ran a 10 year cycle which resulted in the English components failing and Metal Tech Engineering components successfully completing the test with virtually zero wear. We have to date manufactured 16,000 assemblies.



**Description:** High Speed Rotomould Granulator Spindles

**Industry:** Plastic

**Materials:** AISI 4340

**Tolerances:** General +/- 0.05mm    Fine 0.005 mm Concentricity  
0.002mm

**Surface Finish:** 0.1 Ra to 0.8 Ra

**Profiles:**

Metal Tech Engineering Ltd initially started refurbishing these spindle assemblies for the original machine manufacturer. The resulting spindles out-performed the original assemblies, Metal Tech Engineering Ltd now manufacture the complete spindle assemblies and by maintaining tight tolerance have extended the service life of each spindle 400%.





**Description:**

Hot Runner Nozzle Components

**Industry:** Plastic

**Materials:** THG 2000, H13, Beryllium Copper, Stavax-420 Stainless Steel

**Tolerances:** General +/- 0.02mm Close 0.003 mm

**Surface Finish:** 0.1 Ra to 0.8

**Profile:**

Metal Tech Engineering Ltd manufactures components for the plastic moulding industry. With seven years experience in design and complete manufacturer of hot runner nozzle assemblies. Quality control of raw material purchases through to machining, Processes and final grinding ensure interchangeability of components which are exported to global markets.



**Description:** Hot Runner-Manifolds

**Industry:** Plastics

**Materials:** P20, H13, 420 Stainless Steel

**Tolerances:** General +/- 0.25mm    Fine 0.1 mm

**Surface Finish:** 0.4 Ra to 1.6 Ra

**Profiles:**

Metal Tech Engineering Ltd manufactures hot runner manifolds for the plastic moulding industry with seven years experience in design and manufacture, manifolds ranging from single drop to 96 drop including multi-layer manifolds are produced. Size range from 200mm to 2m in length. Manifolds exported to global markets.





**Description:** Bearing Housing "Actuator Housing"

**Industry:** R & D

**Materials:** T4340 in heat treated condition 40-42 Hrc

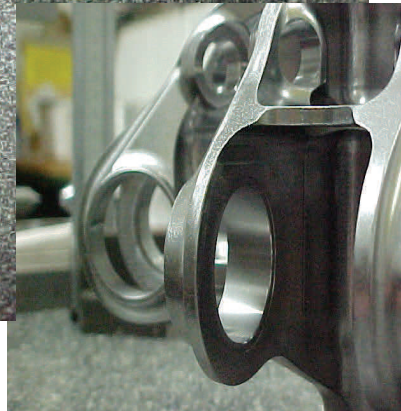
**Tolerances:** General 0.1mm close 0.005mm Geometric 0.005mm

**Surface Finish:** 0.4 Ra to 1.6 Ra

**Profile:**

This item was initially intended to be machined from an investment casting, however after months of development the casting supplier failed to achieve a dimensionally acceptable item. The time constraints on this project and the customers budget did not allow for re-development of the castings. Metal Tech Engineering Ltd were originally only contracted to use our NC turning and 5 axis capability to machine the tight tolerance features, however after discussion with the customer Metal Tech Engineering Ltd used a Cnc co-ordinate measuring machine and the facilities of our Nist / IANZ accredited laboratory to analyse the geometry of the casting to look for a method and perhaps a slight re-design to create a salvage scheme for the castings. Unfortunately the deviations to drawing were excessive and salvage was not possible. Metal Tech offered to machine from Billet a one off and deliver a finished item in less than 4 weeks. As this was an R&D project and subject to possible changes this may have been the customers best first choice method. The finished Item was modelled / programmed / fixtured and machined from through a hardened billet at 42 -44HRC. The finished item was completed three days ahead of schedule and delivered to the customer with a full independent dimensional inspection report.









**Description:** Engine Components

**Industry:** Power Generation

**Materials:** Case Hardening Steel E110, AISI 4140, AISI 440 Stainless Steel, Aluminium 6061 T6.

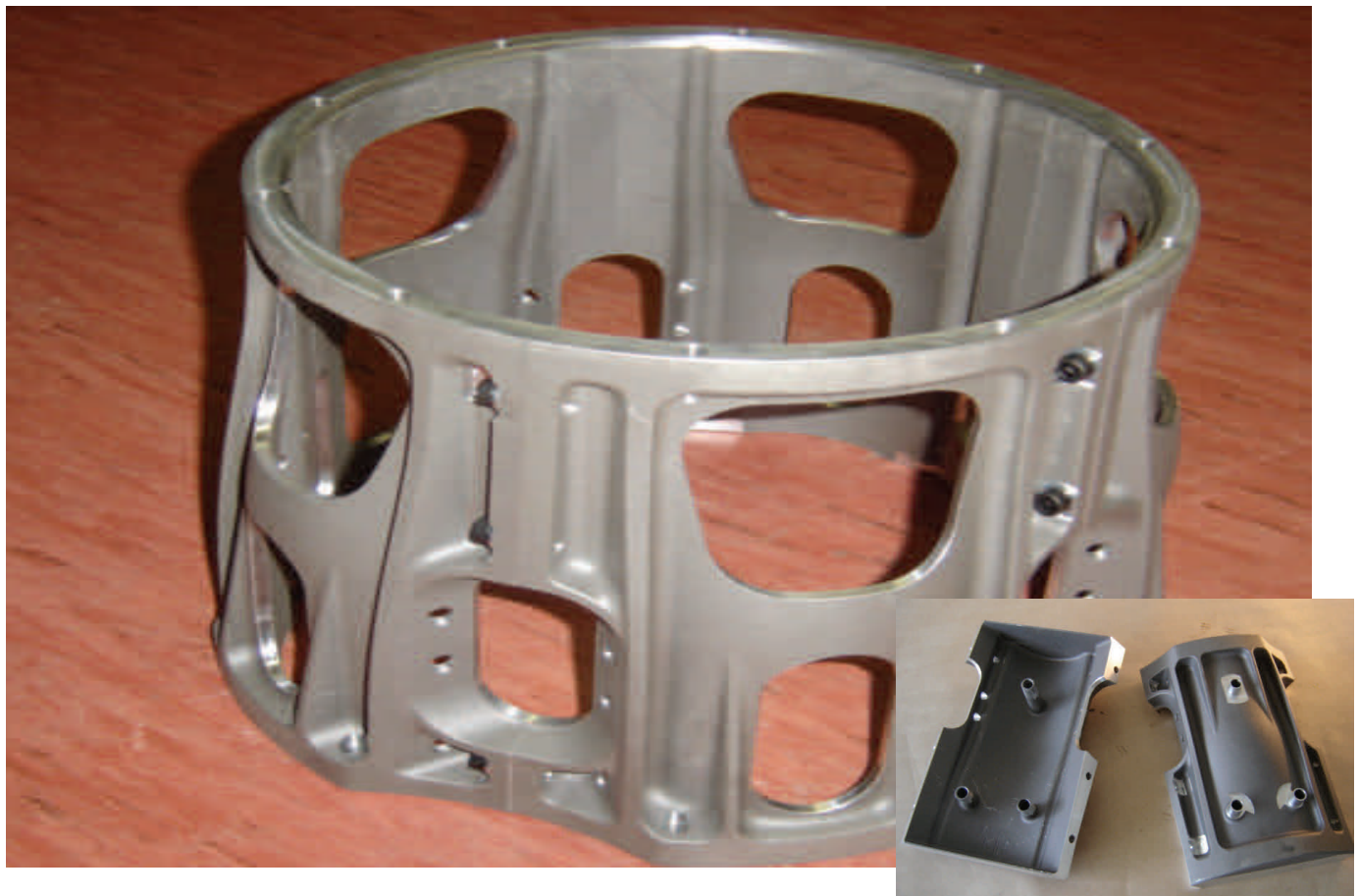
**Tolerances:** General +/- 0.25mm    Decimal +/- 0.02    Fits 0.01 mm

**Surface Finish:** general 0.4 Ra to 0.8 Ra ground finish 0.1 Ra

**Profile:**

Metal Tech Engineering Ltd currently manufacture 14 different items for a unique power generator. Batch sizes range from 30 to 100 per month.

All materials are supplied with certificates of traceability. Conformance and inspection reports are supplied for all batches. Components are manufactured to unusual close geometric and dimensional tolerances.



**Description:** Cradles

**Industry:** Marine / Automotive

**Materials:** Cast Aluminum .6065 T6

**Tolerances:** General +/- 0.1mm    Fine 0.013 mm

**Surface Finish:** 0.4 Ra to 1.6 Ra

**Profile:**

Metal Tech Engineering were contracted to supply cradles comprising castings machined as segments, then assembled and machined to finished dimensions. Effective in-house tooling design and programming on a five axis machining centre resulted in distortion free machined assemblies to close tolerances. Cost effective machining of five assemblies (25 segments) was achieved.





**Description:** Hydraulic Cylinder Block

**Industry:** Marine / Automotive Research and Development

**Material:** Aluminium tooling Plate

**Tolerances:** General +/- 0.5mm    Fine 0.01 mm

**Surface Finish:** 0.4 Ra to 1.6 Ra

**Profile:**

Part of a Development Assembly manufactured with a short lead time to achieve test bench status. The entire job was machined in three set ups on a Five Axis Machine Centre. A total of five units have been manufactured to date.

