

[goodwininternational.co.uk](http://goodwininternational.co.uk)

**GOODWIN**  
INTERNATIONAL LTD

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**GOODWIN**  
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FACILITIES & EXPERTISE

Goodwin International have the expertise and facilities to engineer a wide range of products for use in many industry sectors, from design and procurement through to the finished, fully tested and certified item.

With over 30,000m<sup>2</sup> of machine shop and assembly area - allied to the foundry capabilities of the sister company Goodwin Steel Castings, both having considerable experience working with specialist materials from Carbon Steels through to Super Nickel Alloys - Goodwin International have the capacity to serve nuclear, renewables and power generation, offshore, petro-chem, defence, structural markets - in short, any high integrity project precision heavy engineering.



The Quality System operated at Goodwin International is used to monitor processes in production, design and support services and thus ensure quality in everything we do. Specifications and requirements for fabricating, machining, assembling and testing of nuclear hardware call for specialised manufacturing methods, equipment, facilities, and skill sets. Our employee qualifications, facilities, and systems, comply with the rigorous specifications of both nuclear customers and regulatory authorities, and adhere to the most stringent quality assurance requirements in the industry.

In order to maintain our position as a global supplier to high profile customers, we pride ourselves in delivering a promise of absolute confidentiality and security when dealing with sensitive or special projects. The Goodwin International site is under constant security surveillance at all times both electronically and with a human presence.

Goodwin International offer a complete streamlined, cost effective build to print service. Offering raw material purchase, heavy precision machining, NDE, weld fabrication, testing and CMM inspections, for the most complex and critical applications. This enables your company to better utilise your resources and focus on your core business whilst having the peace of mind that we shall manufacture and supply a component to the exact design and specification required and of world class quality.

By working closely and involving our customers throughout the manufacturing process we are in an enviable position to call some of the most prestigious companies in the world such as Rolls Royce, BP, Royal Dutch Shell and GE Power, not only customers but long term partners.

A PRODUCTIVE & EFFICIENT  
FACILITY COMMITTED TO  
SAFETY, SECURITY, &  
CUSTOMER SATISFACTION

Within our secure facility we have a conference room where we can hold meetings regarding Official and Secret work in a business like manner. Biometric scanning measures are in place to access our protected data facility, where we process documents/ drawings and electronic information received from customers that have a maximum security classification.

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# MILLING

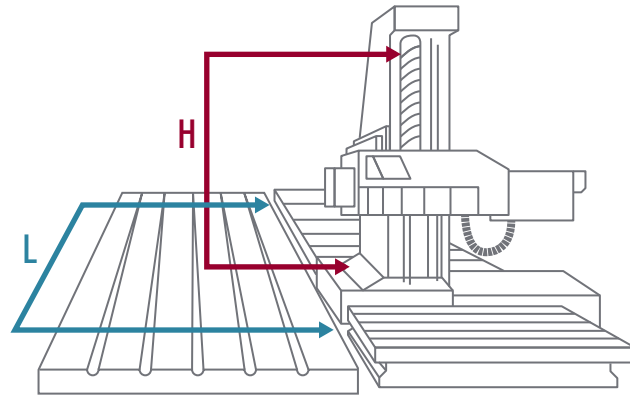
## CAPABILITY

Through sustained investment in our people, facility and markets, our company is a world leader in its technologies on a global basis, and does so whilst providing exemplary customer service.

We specialise in heavy precision engineering incorporating all engineering activities and with our extensive capacity we are able to handle components up to 100,000kg which enables us to provide a one-stop shop whether you require a “build to print” or more in depth service. We have a workshop with modern and highly sophisticated machine tools.

Our passion and drive assists us in continually exceeding our customers/partners expectations and enables to become, and remain, a long term asset.

With our CNC milling capability and our operators extensive experience this enables us to provide a bespoke solution for hugely diverse markets.



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Machine Number & Specification	Make & Model	System	Pallets	X (mm)	Y (mm)	Z (mm)	W (mm)	V (mm)	B (mm)	Pallet Size (mm)	Max. Table Load (kg)	No. of Tools
1 Max Length L (mm) 9000 Max Height H (mm) 3150 Max Weight W (kg) 60,000	Toshiba MPC- 4108B	Tosnuc 888	2	9000	4100	900	3150	n/a	n/a	3100 x 8000	60000	60
2 Max Length L (mm) 13500 Max Height H (mm) 4000 Max Weight W (kg) 60,000	Toshiba BF-130B (1)	Tosnuc 999	1	13500	4000	1000	450	2500	0.005°	4000 x 3000	60000	60
3 Max Length L (mm) 9000 Max Height H (mm) 3000 Max Weight W (kg) 50,000	Toshiba BF-130B (2)	Tosnuc 888	1	9000	3000	1000	450	2000	0.001°	3200 x 2500	50000	60
4 Max Length L (mm) 3000 Max Height H (mm) 2300 Max Weight W (kg) 20,000	Toshiba BTF 130 (3)	Tosnuc 888	1	3000	2300	1600	400	n/a	0.001°	2200 x 1800	20000	60
5 Max Length L (mm) 3000 Max Height H (mm) 2300 Max Weight W (kg) 20,000	Toshiba BTD-130H.R22(1)	Tosnuc 888	1	3000	2300	1600	400	n/a	0.001°	2200 x 1800	20000	60
6 Max Length L (mm) 3000 Max Height H (mm) 2300 Max Weight W (kg) 20,000	Toshiba BTD-130H.R22(2)	Tosnuc 888	1	3000	2300	1600	400	n/a	0.001°	2200 x 1800	20000	60
7 Max Length L (mm) 3000 Max Height H (mm) 2300 Max Weight W (kg) 20,000	Toshiba BTD-130H.R22(3)	Tosnuc 888	1	3000	2300	1600	400	n/a	0.001°	2200 x 1800	20000	60
8 Max Length L (mm) 3000 Max Height H (mm) 2300 Max Weight W (kg) 10,000	Toshiba BTF 130 (1)	Tosnuc 888	1	3000	2300	1600	700	n/a	0.001°	2200 x 1800	10000	60
9 Max Length L (mm) 3000 Max Height H (mm) 2300 Max Weight W (kg) 10,000	Toshiba BTF 130 (2)	Tosnuc 888	1	3000	2300	1600	700	n/a	0.001°	2200 x 1800	10000	60
10 Max Length L (mm) 2000 Max Height H (mm) 1500 Max Weight W (kg) 6,000	Toshiba BTD 110 R16 (1)	Tosnuc 888	1	2000	1500	1450	500	n/a	0.001°	1600 x 1400	6000	38
11 Max Length L (mm) 2000 Max Height H (mm) 1500 Max Weight W (kg) 6,000	Toshiba BTD 110 R16 (2)	Tosnuc 888	1	2000	1500	1450	500	n/a	0.001°	1600 x 1400	6000	38

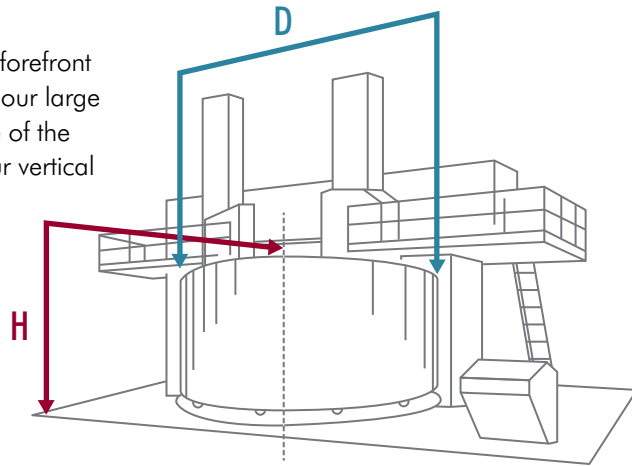
Machine Number & Specification	Make & Model	System	Pallets	X (mm)	Y (mm)	Z (mm)	W (mm)	V (mm)	B (mm)	Pallet Size (mm)	Max. Table Load (kg)	No. of Tools
12 Max Length L (mm) 2500 Max Height H (mm) 1500 Max Weight W (kg) 6,000	Toshiba BTD 110 R16 (3) Extended Bed X,Y	Tosnuc 888	1	2500	1500	1450	500	n/a	0.001°	1600 x 1400	6000	60
13 Max Length L (mm) 2000 Max Height H (mm) 1500 Max Weight W (kg) 6,000	Toshiba BTD 110 R16 (4)	Tosnuc 888	1	2000	1500	1450	400	n/a	0.001°	1600 x 1400	6000	38
14 Max Length L (mm) 850 Max Height H (mm) 760 Max Weight W (kg) 1,300	Toshiba NX76 (1)	Tosnuc 888	2	850	760	780	n/a	n/a	1°	750 x 630	1300	60
15 Max Length L (mm) 850 Max Height H (mm) 760 Max Weight W (kg) 1,300	Toshiba NX76 (2)	Tosnuc 888	2	850	760	780	n/a	n/a	1°	750 x 630	1300	60
16 Max Length L (mm) 900 Max Height H (mm) 800 Max Weight W (kg) 1,200	Enshu 630H (1)	Fanuc 18M	2	900	800	750	n/a	n/a	0.001°	630 x 630	1200	20
17 Max Length L (mm) 900 Max Height H (mm) 800 Max Weight W (kg) 1,200	Enshu 630H (2)	Fanuc 18M	2	900	800	750	n/a	n/a	0.001°	630 x 630	1200	20
18 Max Length L (mm) 650 Max Height H (mm) 450 Max Weight W (kg) 800	Enshu S400	Yasnac	2	650	450	350	n/a	n/a	na	530 x 400	800	60
19 Max Length L (mm) ±198 Max Height H (mm) 400 Max Weight W (kg) 200	Enshu JE 600 (1)	Fanuc 18i	2	±300	600	600	n/a	n/a	1°	400 x 400	400	60
20 Max Length L (mm) ±198 Max Height H (mm) 400 Max Weight W (kg) 200	Enshu JE 600 (2)	Fanuc 18i	2	±300	600	600	n/a	n/a	1°	400 x 400	400	60
21 Max Length L (mm) ±198 Max Height H (mm) 400 Max Weight W (kg) 200	Enshu HMC 40 (1)	Fanuc 11M	4	±198	400	550	n/a	n/a	1°	315 x 315	200	60
22 Max Length L (mm) ±198 Max Height H (mm) 400 Max Weight W (kg) 200	Enshu HMC 40 (2)	Fanuc 15M	4	±198	400	550	n/a	n/a	1°	315 x 315	200	60

# VERTICAL TURNING

## C A P A B I L I T Y

Goodwin International have the expertise and facilities (ISO 9001 accredited) to engineer a wide range of products of the up-most quality and we have become synonymous with high standards of precision manufacturing.

We remain at the forefront of industry due to our large capacity and state of the art machinery. Our vertical turning capacity includes CNC multi-axis vertical borers, complete live tooling and drilling.



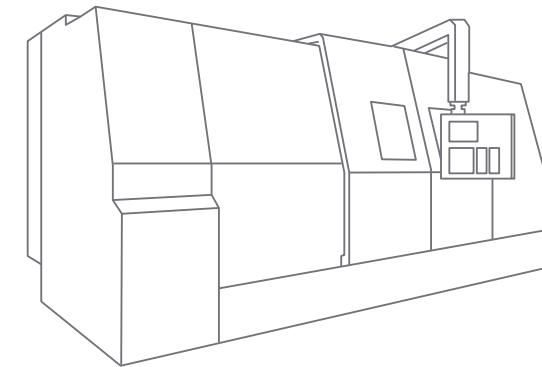
# CNC CENTRE LATHE

## C A P A B I L I T Y

We pride ourselves on our ability to manufacture the most complex components, utilising our state of the art equipment and facilities.

Our milling capability includes multi-axis machines, machining centre programmes, CAD/CAM program proving technology and live tooling. Our extensive plant list includes numerous CNC centre lathes, complementing our heavy precision machining.

This allows us to supply a full package of work from very large critical components to medium and small complex components.



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Machine No. & Capabilities	Make & Model	System	Pallets	Max Turn Length (mm)	Max Turn Diameter (mm)	Ram Length (mm)	Max Table Load (kg)	Stations	Live Spindle	No. Turn Tools
1 Max Diameter D (mm) 5500 Max Height H (mm) 3800 Max Weight W (kg) 60,000	SNK SVT 5000MCY	Fanuc 31i	1	3800	5500	3000	60,000	Various	YES	20
2 Max Diameter D (mm) 4000 Max Height H (mm) 3500 Max Weight W (kg) 40,000	Schiess SCHIESS	Fanuc OiD	1	3500	4000	2070	40,000	N/A	NO	5
3 Max Diameter D (mm) 6000 Max Height H (mm) 2830 Max Weight W (kg) 20,000	Toshiba TSS 30-55	Fanuc 15	1	2830	6000	1240	20,000	N/A	NO	-
4 Max Diameter D (mm) 2600 Max Height H (mm) 1750 Max Weight W (kg) 10,000	Toshiba MP-2620 (U)	Tosnuc PX100	1	1750	2600	800	10,000	N/A	YES	120
5 Max Diameter D (mm) 2600 Max Height H (mm) 1750 Max Weight W (kg) 10,000	Toshiba MP-2620 (U)	Tosnuc PX100	1	1750	2600	800	10,000	N/A	YES	120
6 Max Diameter D (mm) 2600 Max Height H (mm) 1750 Max Weight W (kg) 10,000	Toshiba MP-2620 (U)	Tosnuc PX100	1	1750	2600	800	10,000	N/A	YES	120
7 Max Diameter D (mm) 2000 Max Height H (mm) 1900 Max Weight W (kg) 6,000	Toshiba TXN 16	Fanuc 15	1	1900	2000	900	8,000	5	YES	8
8 Max Diameter D (mm) 2000 Max Height H (mm) 1500 Max Weight W (kg) 5,000	Toshiba TMD 16	Fanuc 18	2	1500	1700 (2000)	900	8,000	3	YES	8
9 Max Diameter D (mm) 1700 Max Height H (mm) 1860 Max Weight W (kg) 5,000	Toshiba TMC16	Fanuc OiD	2	1860	1700	1200	8,000	5	YES	8
10 Max Diameter D (mm) 2500 Max Height H (mm) 1800 Max Weight W (kg) 5,000	Toshiba TMD 23	Fanuc 31iA	2	1800	2500	1300	5,000	3	YES	12
11 Max Diameter D (mm) 1300 Max Height H (mm) 910 Max Weight W (kg) 4,000	Toshiba TMC 13A	Fanuc OiD	2	910	1700	1000	4,000	3	YES	8

Machine No. & Capabilities	Make & Model	System	Chuck Dia. (mm)	Chuck Grip	Number of Turrets	Turret 1	Turret 2	No. Turn Tools	No. Tools Drill	Motor Power (Kw)
1 Max Turn D (mm) 275 Max Turn Length L (mm) 650 Max Weight W (kg) -	Daewoo Puma 240L	Fanuc OiD	260	260	1	12	-	12	N/A	11/15
2 Max Turn D (mm) 275 Max Turn Length L (mm) 650 Max Weight W (kg) -	Daewoo Puma 240L	Fanuc OiD	260	260	1	12	-	12	N/A	11/15
3 Max Turn D (mm) 600 Max Turn Length L (mm) 1500 Max Weight W (kg) -	Daewoo Puma 15	Fanuc OT	530	600	1	12	-	12	N/A	30
4 Max Turn D (mm) 275 Max Turn Length L (mm) 1100 Max Weight W (kg) -	Toshiba TMC35	Fanuc OT	250	250	1	10	-	10	N/A	15
5 Max Turn D (mm) 900 Max Turn Length L (mm) 1500 Max Weight W (kg) -	Daewoo Puma 600M	Fanuc 32 Ai	600	600	1	12	-	12	12	30
6 Max Turn D (mm) 740 Max Turn Length L (mm) 1200 Max Weight W (kg) -	Okuma LU45-M	OSP-U100L	800	700	2	12	10	12	0	30
7 Max Turn D (mm) 658 Max Turn Length L (mm) 1519 Max Weight W (kg) -	Mazak Integrex i-300	Matrix 2	250	250	1	72	-	72	72	T=30 S=22
8 Max Turn D (mm) 450 Max Turn Length L (mm) 1600 Max Weight W (kg) -	Dainichi B70	Fanuc 6T	450	450	1	12	-	12	N/A	30



# WELDING & FABRICATION

## CAPABILITY

We have extensive experience in fabrication and welding which has enabled us to provide a complete service supplying the highest quality finished products, ranging from basic carbon/stainless steel welded fabrications and hard facing overlays, to the high integrity welds and pressure retaining welds for the oil and gas, petrochemical and nuclear sectors.

We have a vast range of welding capabilities from hard-facing / corrosion resistant overlaying and cladding to fabrications of both small and large components in a wide range of materials.

We possess the resources to carry out manual welding using the GMAW, FCAW, GTAW and SMAW (MMA) processes and also have CNC controlled Robotic welding cells capable of welding using the GMAW, FCAW, GTAW and Hot Wire GTAW processes.

State of the art Kardex vertical automated welding electrodes storage management allowing optimised storage density, flexibility and efficiency. Eradicating any possibility of incorrect welding electrodes being used.



### Robotic Welding

Make & Model	System	Axis	Load Capacity	Repeatability	Reach	Other Accessories	A1	A2	A3	A4	A5
Reiss SRV6(1)	Robot Star 5	6	60 Kg (131 lbs)	± 0.05mm (0.02 in)	1735mm	Camera System, ARC Monitoring, Rotary Table	330°	165°	270°	360°	246°
Reiss SRV6(1)	Robot Star 5	6	60 Kg (131 lbs)	± 0.05mm (0.02 in)	1735mm	ARC Monitoring, Rotary Table	330°	165°	270°	360°	246°

### Manual Welding

Method	Equipment	Welders	Operator Qualifications
GTAW	450 Amps High Frequency start up	10	ASME XI, ISO
SMAW	450 Amps	12	ASME XI, ISO
GMAW	450 Amps	12	ASME XI, ISO
SCAW	450 Amps	12	ASME XI, ISO

# HEAT TREATMENT

## CAPABILITY

The application of heat treatment is most common after welding of overlays or fabrications. Post Weld Heat Treatment (PWHT) is undertaken to relieve the stresses caused by welding in certain materials and can be mandatory according to specific application standards.

We have standard Electric and Gas ovens at our disposal along with more specialised equipment including Resistance heating systems and Induction heating equipment that is PLC controlled within 1°C accuracy. Such systems are capable of heating thick walled sections to 750°C for extended periods with very high degrees of temperature stability and control.

Data recorders are used to record the temperature rise, dwell times and cooling times providing either a hard copy or electronic versions as requested.

### Heat Treatment Cabins

Furnace No. & Capabilities	Type
<b>1</b> Max Length <b>L</b> (mm) 1800 Max Height <b>H</b> (mm) 1500 Max Width <b>W</b> (mm) 1300 Max Weight (kg) 650	Gas Furnace
<b>2</b> Max Length <b>L</b> (mm) 1000 Max Height <b>H</b> (mm) 700 Max Width <b>W</b> (mm) 1000 Max Weight (kg) 650	Electric Furnace
<b>3</b> Max Length <b>L</b> (mm) 1200 Max Height <b>H</b> (mm) 1200 Max Width <b>W</b> (mm) 1300 Max Weight (kg) 650	Electric Furnace
<b>4</b> Max Length <b>L</b> (mm) 1200 Max Height <b>H</b> (mm) 1200 Max Width <b>W</b> (mm) 1300 Max Weight (kg) 650	Electric Furnace
<b>5</b> Max Length <b>L</b> (mm) 3250 Max Height <b>H</b> (mm) 3250 Max Width <b>W</b> (mm) 1300 Max Weight (kg) 20,000	Gas Furnace
Max Lifting Capacity (kg) 60,000	

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# NON-DESTRUCTIVE TESTING

Inspection and NDE has always been central to our business and we invest significantly to ensure we have the capacity, qualified staff and state of the art equipment, to ensure delivery of our products is at a world class quality level.

NDT function operates under the control of the company Level 3 technician and employs over 20 multi skilled NDT technicians who hold a minimum level 2 certification, in varying test methods, and in accordance with one or more of the internationally recognised certification. NDT methods applied by Goodwin are performed in accordance with all the internationally recognised NDT specifications and the procedures and process are easily adaptable to address client specific, or unique, standards and/or requirements.

## Non-Destructive Testing

Testing	Method	NDE Operators	Certification	Procedure
1 Magnetic Particle	Yoke	7	ASNT / PCN Level 2	ASME / Project Specific
2 Dye Penetrant	Water Soluable Colour Contrast	14	ASNT / PCN Level 2	ASME / Project Specific
3 Radiography	9 MeV Linatron / 8.5 meV Linear Accelerator	5	ASNT / PCN Level 2	ASME / Project Specific
4 Ultrasonic	Master Scan 350 / Sonic 100i	7	ASNT / PCN Level 2	ASME / Project Specific
5 Positive Material Identification	NITON XL2 portable X-ray Fluorescence Analyser / Optical Emission Spectrometry	13	N/A	Project Specific

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# INSPECTION & MEASURING

Investment in the latest laser measurement and scanning technology coupled with one of the largest available CMM capabilities in the UK and conventional measurement techniques allows Goodwin to provide the capability to ensure that components are manufactured to the highest possible standards demanded by our customers.



## Device Dimensional Equipment

	Make	System	Accuracy	Calibrated to	Measuring Area
1	DEA Hexagon Alpha image 25.50.15	PCDIMS CAD++ V2014	6+6L/1000	6+6L/1000	5m x 3m x 2m (x,y,z)
2	Mitotoya	M-Comos V3.3R3 (Geo-Win)	2.9+3L/1000	2.9+3L/1000	700mm x 700mm x 600mm
3	Hexagon Global Advantage 12-22-10	PCDIMS CAD++ V2014	2.1+3L/1000	2.1+3L/1000	1.2m x 2.2m x 1m
4	Faro Gage Arm x2	Delcam	5+8L/1000	5+8L/1000	700mm Radial
5	Faro Platinum Arm with Scanner	CAM 2 Measure 10 + Geomagic	5+8L/1000	5+8L/1000	1000mm Radial
6	Faro Laser Tracker	CAM 2 Measure 10	16+0.8L1000	16+0.8L/1000	40m x 360°

