

PLANT & PROCESS LIST



CNC Milling, EDM & Toolroom



Turning/Mill-Turn



Distribution & Light Assembly



PLANT & PROCESS LIST

CNC TURNING



Doosan Puma 400L

High speed Fanuc 32iT control
770mm swing over bed
590mm swing over saddle
560mm maximum turning diameter
2.028m maximum workpiece length

Maximum weight on spindle:
700kg chucking work/2000kg shaft work
116.5mm max bar diameter
Travel X,Z,C: 362mm x 2155mm x 360°

PL0003



High speed Colchester Harrison 1550 XS

3.00 metre
Fanuc Alpha X Series Control
Max size of CNC workpiece: 590mm dia x 70mm lg / or
370mm dia x 3000mm lg

PL0001



Doosan Puma 2600M C-Axis Turn-Mill

Fanuc OITD control
C-Axis Turn-Mill
76mm bar working diameter
780mm max swing
376mm max turning diameter

760mm max turning length
24 position indexing turret
3,500 rpm spindle speed
Travel X,Z,C: 260mm x 830mm x 360°

PL0008



Doosan Puma 2600Y Y-Axis Turn-Mill

Fanuc OITD control
C-Axis Turn-Mill
76mm bar working diameter
780mm max swing
376mm max turning diameter

760mm max turning length
24 position indexing turret
3,500 rpm spindle speed
Travel X,Z,C: 260mm x 830mm x 360°

PL0052



Daewoo Puma 250 with feeder

76mm bar capacity
570mm swing
High Speed Fanuc OTC control

PL0001



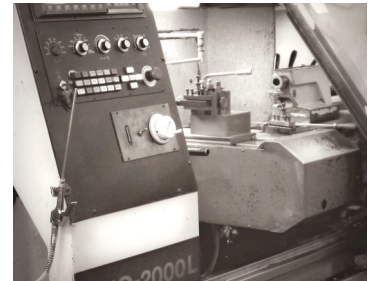
PLANT & PROCESS LIST

CNC TURNING

CNC 2000L Colchester Lathe

Fanuc OT Control
8 station turret
Max size of CNC workpiece: 520mm dia x 130mm lg / or
260mm dia x 250mm lg / or 200mm dia x 1220mm lg

PL0001



Mazak QMS350 Quicksmart Lathe

Standard machining diameter: 254mm
Maximum machining diameter: 420mm
Maximum swing: 720mm
Chuck size main spindle: 12"
Mazatrol programming format

PL0029



Mazak Nexus 550M Slant/Turn Horizontal NC Lathe

Maximum machining diameter: 990mm
Maximum length: 3m
Maximum diameter in bar steady: 410mm
Mazatrol programming format

PL0032



PLANT & PROCESS LIST

CNC MILLING



DMG/Moriseiki DMF2600-Y1100

High speed Simultaneous 5 axis machining centre
Heidenhain 530i high speed digital control
High speed Head; 12,000 rpm spindle speed
Travel X,Y,Z: 2600mm x 1100mm x 1100mm

Rapid Traverse 60 metres/min
Linear Scales
Network Link
64 Tool Magazine
Table 3000mm x 1100mm
Max table load 3000kg

PL0017



Hardinge Bridgeport VMC 1500XP3e

High speed Simultaneous 5 axis machining centre
Heidenhain 530i high speed digital control
High speed Head; 10,000 rpm spindle speed
Travel X,Y,Z: 1500mm x 600mm x 600mm

Rapid Traverse 32 metres/min
Linear Scales
Network Link
32 Tool Magazine
Table 1700mm x 660mm
Max table load 1500kg

PL0001



Bridgeport VMC 2000XP2

High speed 3 axis machining centre
Heidenhain 530i high speed digital control
30-Tool carousel
12,000rpm spindle
Network Link
Linear Scales

Travel X,Y,Z: 2000mm x 800mm x 500mm
Table size: 2000mm x 650mm x 500mm
Spindle speed 40-8,000 rpm
28 m/minute Rapid Feed in X&Y:
20 m/minute Rapid Feed in Z

PL0001



Quaser MV184

Heidenhain 530i MB control
Travel X,Y,Z: 760mm x 610mm x 610mm
Working surface: 900mm x 600mm
Spindle speed: 12,000 rpm (belt driven)
Through-spindle coolant

PL0054



Bridgeport VMC 1000XP3

High speed Simultaneous 4 axis machining centre
Heidenhain 530i high speed digital control
Network Link
Linear Scales
Travel X,Y,Z: 1020mm x 500mm x 600mm

PL0001



PLANT & PROCESS LIST

CNC MILLING



Bridgeport VMC 1000XP2

High speed Simultaneous 3-4 axis machining centre
Heidenhain 530i digital control
Network Link
Travel X,Y,Z: 1000mm x 610mm x 610mm
Table size 1150mm x 580mm

PL0001

43 metres/minute Rapid Feed in X&Y
43 metres/minute Rapid Feed in Z
30 Tool changer capacity
Spindle speed 40-8000 rpm



Bridgeport VMC 1000XP

High speed Simultaneous 3-4 axis machining centre
Heidenhain 426 digital control
Network Link
Travel X,Y,Z: 1020mm x 610mm x 600mm
Table size 1150mm x 580mm

PL0001

43 metres/minute Rapid Feed in X&Y
30 metres/minute Rapid Feed in Z
22 Tool capacity
Spindle speed 100-12,000 rpm
Linear Scales X Y & Z



Deckel Maho DMU 60T

4 Axis Vertical Machining centre
Qty 2
Network Link
Linear Scales
Heidenhain 530i control
18,000 RPM High Speed Head

PL0001

Travel X,Y,Z: 630mm x 560mm x 560mm
Table size 1,000mm x 610mm
Permissible table load: 400kg
20 Tool change system



Correa CF22/20 - quantity 2

X,Y,Z Travel - 2000mm x 800mm x 800mm
TNC426 Digital Control
4th (head) Axis

PL0001 & PL0049



Mazak VCS530C—Matrix Nexus 2

X,Y,Z Travel - 1740mm x 530mm x 510mm
Table size: 1,300mm x 550mm
Maximum load on table: 1,200kg (equally distributed)
Feed rate: 42,000 mm/min X,Y,Z axis
Spindle speed: 12,000rpm

PL0041



PLANT & PROCESS LIST

CNC MILLING



Correa CF17D

Heidenhain 530i control
X,Y,Z Travel - 2000mm x 800mm x 800mm
TNC426 Digital Control
Programmable 4th (head) Axis
With extraction and sealed CAD/CAM for machining of
Carbon fibre composites

PL0001



KiHeung U1000

Heidenhain 530i control
X,Y,Z Travel - 3100mm x 1000mm x 1050mm
4th axis interface
Through tool coolant

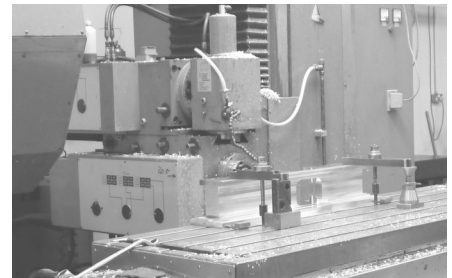
PL0013



FIL FA 160

Bed-type Universal
Heidenhain TNC415 Control
X,Y,Z Travel - 1600mm x 700mm x 850mm
Table size 1950mm x 650mm
Maximum load 2 tonnes
18 speed spindle 50-2000 rpm

PL0001



Mazak i500 Variaxis—qty 2 (one with Smooth X Control)

Spindle Speed:	12,000 rpm
Max Work Piece diameter:	500mm
Machine Travel:	X=350mm Y=550mm Z=510mm
Table Loading Capacity:	300kg
Coolant Pressure:	15 bar

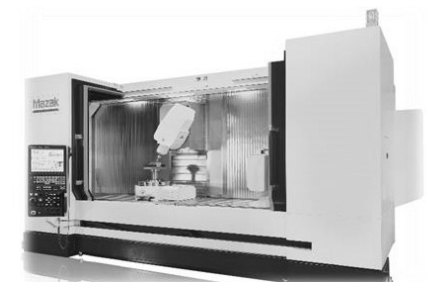
PL0036 & PL0040



Mazak VTC800/305SLR - Matrix 2

Spindle Speed:	18,000 rpm
Spindle Torque:	168Nm
Machine Travel:	X=3000mm Y=800mm Z=720mm
Table Loading Capacity:	2,500kg
Coolant Pressure:	15 bar

PL0038



PLANT & PROCESS LIST

CNC MILLING



Deckel Maho DMF 180 I 7

High speed Simultaneous 5 axis machining centre
Celos with Heidenhain TNC640 control
X,Y,Z Travel - 1800mm x 700mm x 700mm
Linear Scales
Table size - 2100mm x 700mm
40 metres/min Rapid Feed
Spindle speed - 20-8,000 rpm
30 Tool capacity

PL0066



Mikron HPM 1350U

5 axis/5 simultaneous
Heidenhain iTNC530 control
X,Y,Z Travel - 1350mm x 1150mm x 700/895mm
Rotary table 1100mm in diameter
Max workpiece weight 1600kg

PL0064



PLANT & PROCESS LIST

CNC MILL/TURN



Mazak Integrex i400

1519mm between centres
(max machining length)
12" chuck
240° B axis movement
Simultaneous 5 axis machining
36 tool carousel with chip ID

PL0014

Main spindle max 3300 RPM
Milling spindle max 12000 RPM
Ø658 max swing capacity
Ø102mm max bar work capacity

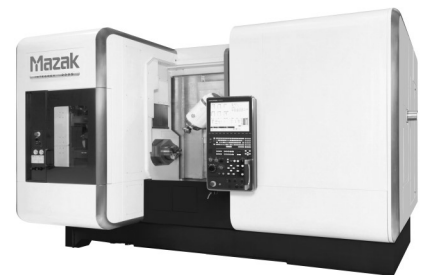


Mazak Integrex i200 - qty 2

1011mm between centres
(max machining length)
10" chuck (quick release jaws)
240° B axis movement
Simultaneous 5 axis machining
36 tool carousel with chip ID

PL0016

Main spindle max 5000 RPM
Milling spindle max 12000 RPM
Ø658 max swing capacity
Ø65mm max bar work capacity



Mazak Integrex i400st SmoothControl

3.00 metre
Fanuc Alpha X Series Control
Max size of CNC workpiece: 590mm dia x
70mm lg / or 370mm dia x 3000mm lg

PL0035

Main spindle max 5000 RPM
Milling spindle max 12000 RPM
Ø658 max swing capacity
Ø65mm max bar work capacity



Mazak Integrex i100 BARTAC-S - Smooth X

Maximum swing: 530mm
Maximum machining diameter 500mm
Maximum machining length: 854mm
Maximum support weight: 800kg

PL0048



Mazak Integrex i200s qty 2

1000mm Bed (Universal)
1011mm maximum machining length
658mm maximum machining diameter
Movement X, Y, Z: 615mm x 260mm x 1077mm

PL0051 & PL0063



PLANT & PROCESS LIST

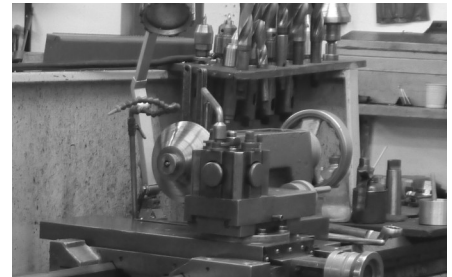
TOOLROOM



Millennium 3000 Lathe

Max size of workpiece: 300mm dia x 1800mm lg

PL0001



Protturn-410 Lathe

Quick set-up, low volume production
Semi-CNC lathe
Max size of workpiece: 250mm diameter by 1m lg

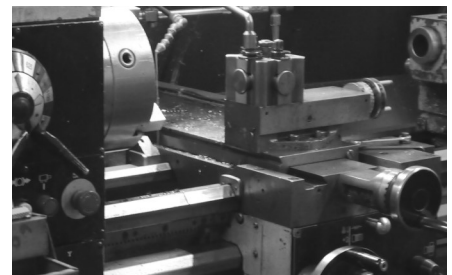
PL0001



Harrison M390 Lathe

Max size of workpiece: 520mm dia x 130mm lg /
or 260mm dia x 250mm lg / or 200mm dia x 1220mm lg

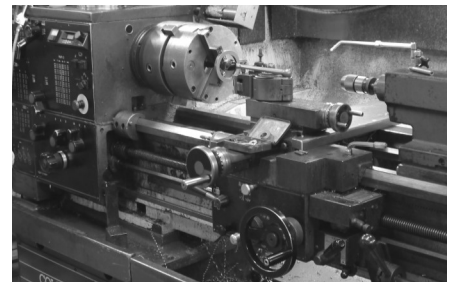
PL0001



Colchester Triumph 2500 Lathe

Max size of workpiece: 400mm dia x 150mm lg /
or 200mm dia x 1220mm lg

PL0001



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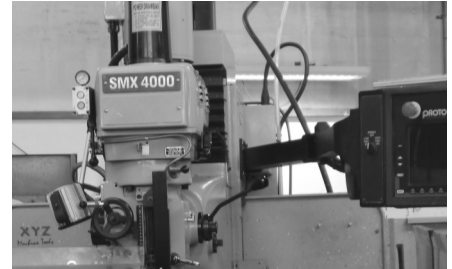
TOOLROOM



SMX 4000 Vertical Mill

Variable speed head
58" x 14" table
40" x 24" x 23" travel
Maximum table load 850kg
Suitable for machining parts in small quantities

PL0001



SMX 3000 Vertical Mill

Variable speed head
54" x 12" table
32" x 17" travel
Maximum table load 550kg
Suitable for machining parts in small quantities

PL0001



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EDM



AgieCharmilles Robofil 440 Clean Cut

For zero re-cast layer and contamination-free cutting of titanium

Max Work-piece
1200mm x 700mm x 400mm
Travel X,Y,Z - 550mm x 350mm x 400mm
Max Thickness: 400mm submersible
to 400mm

Max Work-piece 3300 lbs
Anti-collision standard on 5 Axes
Max Taper 30 deg in 400mm
(resolution 0.0005mm)

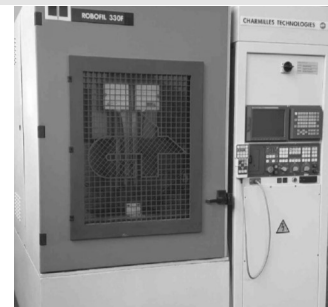
PL0001



AgieCharmilles Robofil 330F

Axis CNC submerged Wire EDM.
Travel X,Y,Z - 400mm x 300mm x 400mm high
(resolution 0.005mm)

PL0001



AgieCharmilles Form 30

Qty 2

CNC EDM Die Sinker
Qty 2
Table Travels, X,Y,Z: 600mm / 400mm / 400mm
Work table size: 800mm x 600mm
Max workpiece dimensions: 1000mm x 700mm x 400mm
Max table weight: 1000kg
Resolution 0.001mm

PL0005 & PL0018



AgieCharmilles CUT E-600

Travel X,Y,Z - 600mm x 400mm x 350mm
Workpiece dimensions - 1030mm W x 800mm D x 345mm H
Maximum workpiece weight - 1000kg

PL0055



Charmilles HD10 Qty 2

EDM Small hole drilling is the production process for the forming of holes in hardened and exotic materials such as Inconel and Carbide. EDM drills bore holes with a long brass or copper tube electrode that rotates in a chuck with a constant flow of deionised water flowing through the electrode as a flushing agent and dielectric. Drilling can be between 0.5mm and 4mm in diameter and up to a maximum depth of 400mm.

EDM Hole driller
Capacity 0.5mm to 3.0mm diameter
Fitted with 300mm dia manual tilting rotary table

PL0001



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GRINDING



Jones & Shipman Suprema Easy 1000

Universal Cylindrical CNC Grinding Machine
Capacity 320mm Ø x 1000mm

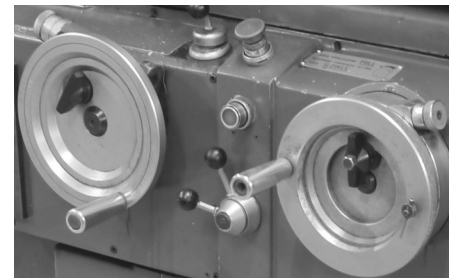
PL0020



Jones & Shipman 1074

Cylindrical Grinding
Capacity up to 100mm Ø x 500mm

PL0001



Chevalier FSG-1628AD

Precision Surface Grinding
Plate capacity up to 700mm x 500mm

PL0001



UltraMat 1000 Easy M

CNC Cylindrical Grinder

PL0042



ProductionHone E10005

Honing diameters from 1.14mm to 80mm
Through honing and blind end bores
Stroke length up to 320mm
Fully adjustable spindle speed
Batches of 50-100,000

PL0034



PLANT & PROCESS LIST

GRINDING



Andmar Surface Grinder

Precision Surface Grinding
Plate capacity up to 450mm x 150mm

PL0001



PLANT & PROCESS LIST

SAWING



Cosen Bandsaw
C-650 MNC

Max diameter: 460mm
Any length

PL0006



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INSPECTION - ADVANCED METROLOGY



Global DEA CMM Using Hexagon PC DMIS™ software

FutureAM uses Hexagon PC DMIS™ on a modern 3 Metre, DEA GLOBAL® 12-30-10 CNC Co-ordinate Measuring Machine by direct reference to CAD data. The system is equipped with a Renishaw SP25M Scanning head enabling full surface scanning as well as point Data. FutureAM produces inspection data to an overall accuracy of 0.007mm within the large envelope of 3000 x 1200 x 1100mm. FutureAM also uses Hexagon Blade. Blade is a recognised industry standard for inspection of Aerodynamic form on wind-swept surfaces by sectional scanning, giving a combination of chord-wise and span-wise sectional data which readily displays form, bow and twist deviation.

PL0009



Ferranti Merlin 1100 CMM

With Revo 5 Axis scanning head using Renishaw MODUS™ software

FutureAM uses Renishaw MODUS™ inspection software via a Renishaw REVO™ 5 Axis scanning head on a 2.5 Metre CNC Co-ordinate Measuring Machine to inspect by direct reference to original CAD data. The scanning system software employs a seat of CatiaV5 for direct reference to original model, eliminating the need for data translation. MODUS™ can also accept model data in other formats. The system is maintained and calibrated by Renishaw

PL0001 & PL0004



Ferranti Merlin 750

Manual machine with Renishaw MH20 head, suitable for measurement for CAD data using Inspect 3D software.

1100mm x 1300mm table.

PL0001



Faro Arm - qty 2 Delcam PowerINSPECT software

FutureAM uses Delcam PowerINSPECT software in conjunction with a Faro Quantum Arm which is equipped with both Touch probing and seven-axis Laser Scanning head. This provides an 1800mm working volume and offers accuracy comparable to fixed CMMs. Delcam Power Inspect software is fully programmable for repetitive measurement, and performs first-article inspection efficiently. PowerINSPECT can read all mainstream CAD formats and uses the design intent from the CAD file to help make inspection programming faster and easier. The laser scanning capability allows FutureAM to reverse engineer any existing product where CAD Data is unavailable.

PL0007



450 PreciHite Magna Height Gauge

With Air Bearing

Digital height gauge for 1D measurement
Measuring range: 450mm, expanding to 765mm

PL0001



PLANT & PROCESS LIST

INSPECTION - ADVANCED METROLOGY

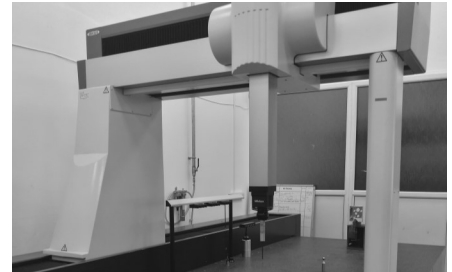


Mitutoyo Crysta Apex-C Using Aberlink VI software

The latest addition to our CNC CMM portfolio, with a Renishaw PH10MQ head.

Parameters: 3000mm x 1500mm x 1200mm working capacity

PL0050



Jenoptik Hommel-Etamic Opticline C305 measuring system

Using Turbo Optic 3 Software

PL0046



Shadowgraph x 2: Baty Shadow Master Starrett VF360

Profile Projectors with x 10 / x 20 magnifications
Projecting shadows of impressions taken

Reprorubber impression kit

PL0001



Tesa Visio Optical Camera measurement system

Non contact measuring of items up to 200mm x 100mm.
HD Camera 768x494 (about 380,000 pixels).
Part Alignment in YZ axis.
Focusing length of 100mm in the Z axis.
Preset and manual magnification between 20x and 130x normal.

Laser pointer for positioning accuracy.
Both statistical and visual reports can be produced.
Can be connected to a network or a host computer.
Fully programmable.
Edge detector facility gives greater accuracy.

PL0001



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NDT



SPECIAL PROCESSES - NDT

Approved by NADCAP for NDT up to 2m in length for the following:



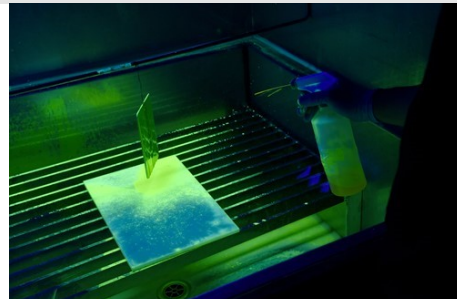
Fluorescent penetrant inspection



Magnetic particle inspection



Acid etch inspection



PLANT & PROCESS LIST

SPECIALIST



Fabrication

Equipment and skillset to produce fabrications and assemblies of diverse complexity and scale.



3D Printing - Stratasys Objet30 Prime

Suitable to quickly and easily create consumer-ready prototypes, one-off testing equipment and to fulfil large production orders.

Maximum build size (XYZ) - 294mm x 192mm x 148.6mm
Resolution - X-axis: 600 dpi; Y-axis: 600 dpi; Z-axis: 1600 dpi
Minimum layer thickness: 28 microns for Tango materials; 16 microns for all other materials
Build modes - Draft (36 micron); High Speed (28 micron); High Quality (16 micron)
PL0039

