

Progressing your Research and Development

NCC is a world-leading innovation organisation, solving industry's biggest challenges by driving industrial impact through cutting-edge research and technology.

We bridge the gap—enabling companies of every size to capitalise on cutting-edge research to deliver more. We do this at every stage of their journey and across the entire product lifecycle, from the earliest concept to end-of-life.

The NCC can support your businesses by giving access to an extensive list of capabilities.

These capabilities come in the form of knowledge and advanced equipment – to fast-track your development needs and specialist knowledge acquisition.

Get in touch and we will formulate a proposal tailored to your needs in the form of a development project or equipment usage hire.

Capability categories:

- Fibre Deposition
- Resin Injection
- Moulding
- Curing

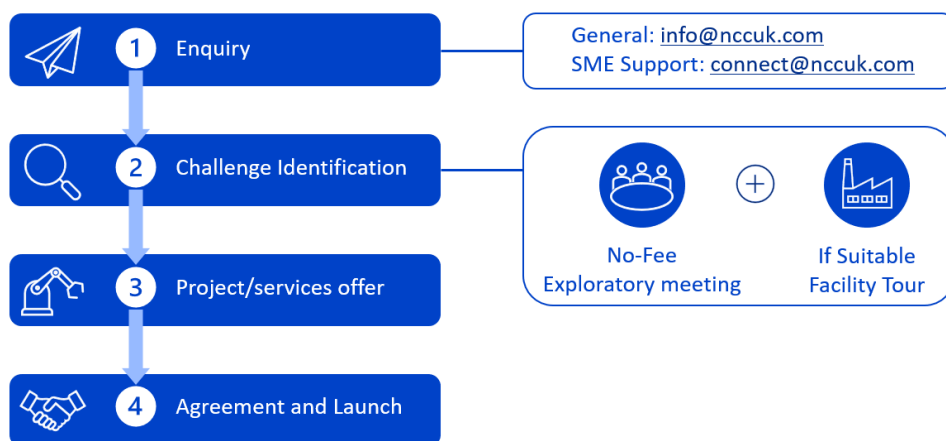
General: info@nccuk.com

SME Support: connect@nccuk.com

www.nccuk.com

How to work with us

Get in touch with us - we will connect you with our specialists.



Challenge identification meeting can be performed on site at the NCC or digitally.
This is offered at no fee to clients.

Contents

Tailored Fibre Placement - Tajima Machine	4
Cygnel-Textimp - Filament Winder	5
Loop Technology – Automated Preform Cell	6
Eurocarbon - Twin-Ring Axial Braider	7
Automated Fibre Placement - Coriolis C1.....	8
AFP/ATL Electroimpact (EI).....	9
Ultra-High-Rate Deposition (UHRD) Pilot Line.....	10
ISOJET HT-RTM	11
CI-JET HT-RTM	12
Krauss Maffei HP-RTM.....	13
Composite Integration - LSRI	14
BIPEL Press 50T.....	15
Aeroform Press 150T	16
Hare Press 100T	17
PEI Press 1100T.....	18
Schuler Press 3600T.....	19
Engel Injection Overmoulding 1700T	20
Zerma Granulator	21
Autoclave 1 - Large	22
Autoclave 2 – Medium.....	23
Autoclave 3 - Small	24
Electrotherm Oven	25



Tailored Fibre Placement - Tajima Machine

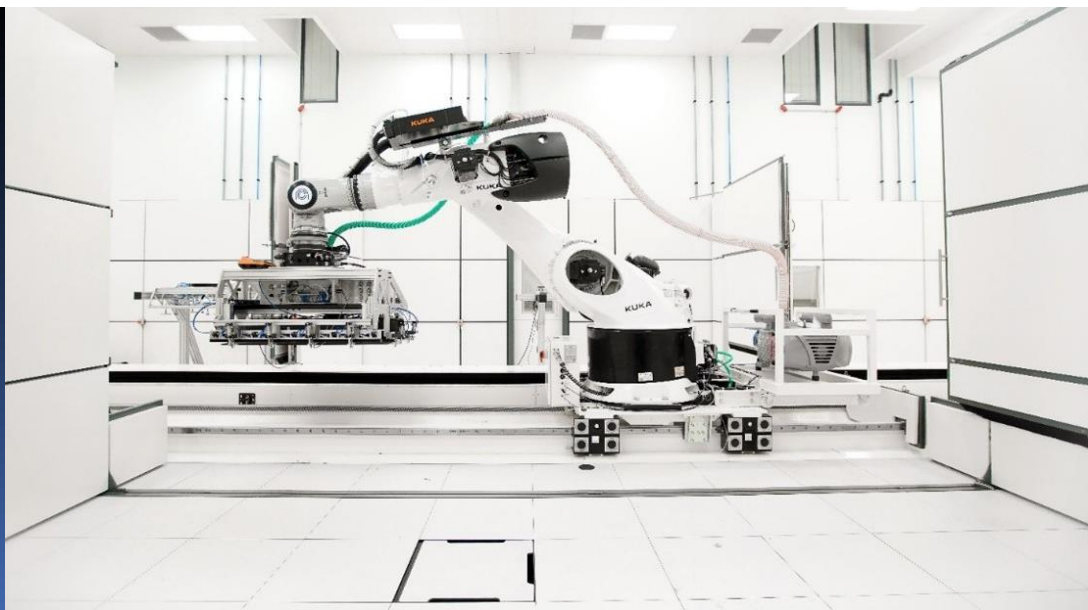
Machine	Tailored Fibre Placement (TFP)
Bed size	550 x 650 mm
Max Part Size	500 x 600 mm
Max Speed	800 stitches per minute
Minimum Steering Radius	2 mm (with carbon fibres)
Fibre Angles	Full 360°
Reinforcement Material	Most windable materials (e.g. Thermoplastic commingled materials, Carbon, Glass, Flax rovings)
Base Material	Carbon, Glass, Polymer films, Flax, Soluble PVA Format: Veil, NCF, Woven fabric
Stitch Material	Polyester, Cotton, Linen, Nylon
Max Yarn Density for Reinforcement Material	50 Tex (= 50 g/km)
Auxiliaries	Bobbin winder
Software	EDOpath (stitch programming software)
Product	2D preform ready for RTM/infusion/consolidation



Cygnet-Textimp - Filament Winder

<i>Machine</i>	<i>Filament Winder</i>
<i>Axis</i>	4 axis (x, y, a, b)
<i>Max Part Size</i>	1 m length, 475 mm outer diameter
<i>Max Internal Pressure Applied to the Mandrel</i>	Up to 6bar
<i>Fibre Angles</i>	8°- 89°
<i>Material</i>	Towpreg, Wet winding with dry tows and a resin bath, Thermoset tape
<i>Max Number of Tows</i>	4
<i>Fibre Material</i>	Glass or Carbon (other types on request)
<i>Creel</i>	Two creels available: - Tow-preg – up to 150N per tow - Dry – up to 10N per tow
<i>Wet-out system</i>	Spreader System and Coating Drum
<i>Auxiliaries</i>	Rotisserie oven IR lamp Extraction Shrink tape dispenser
<i>Software</i>	Cadfil

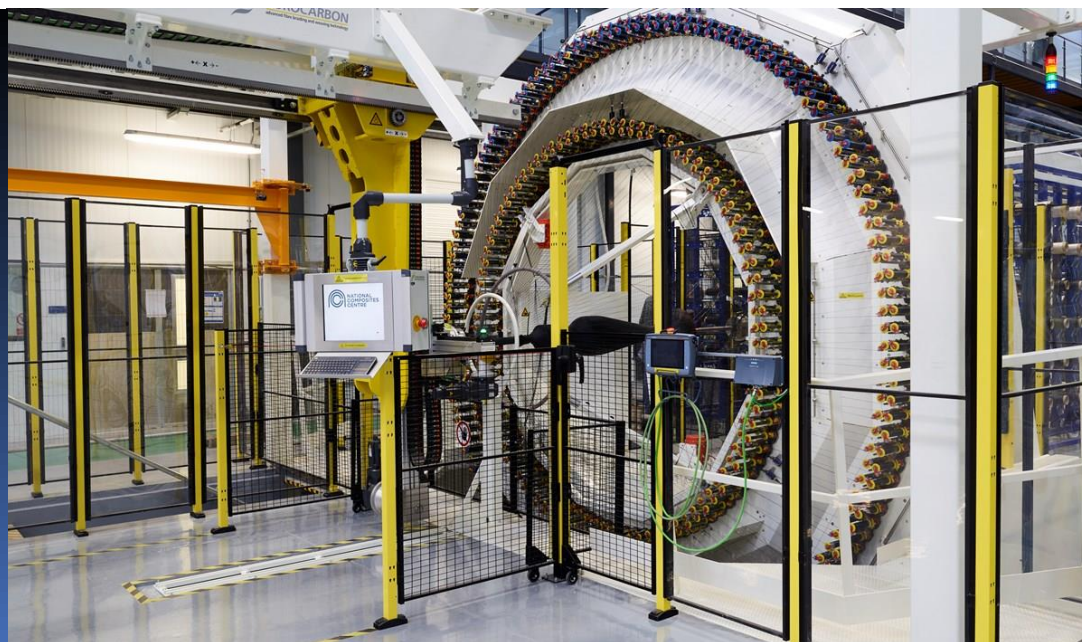
▶ [YouTube Demo – NCC's Filament Winder](#)



Loop Technology – Automated Preform Cell

Machine	Automated Preform Cell (APC)
Robots	Kuka 300kg payload 2.5m reach Kuka 500kg payload 3m reach with force torque sensor
Platform	Both robots mounted on a 16 m Gudel track
Environment	Clean Room
End Effectors	Material handling Ultrasonic trimming knife Contactless Metrology Fibre angle measurement & defect detection
Material Types	Dry Fibre Thermoset Prepreg Thermoplastic Prepreg
Application	Dry Fibre preform manufacture & inspection. End effector test and development

▶ [YouTube Demo – NCC's Automated Preforming Cell](#)



Eurocarbon - Twin-Ring Axial Braider

Machine	Overbraider
Max Part Size	9.8 m long, 0.8 m diameter
Max Traverse Speed	2 m/min
Number of Bobbins	Outer ring: 288 radial, 144 axial Inner ring: 192 radial, 96 axial
Material	Glass, Carbon, Aramid, Basalt, Jute
Traverse System	Gantry
Auxiliaries	Extraction Bobbin winder Tow twister
Monitoring	In-process angle and coverage

[▶ YouTube Demo – NCC's Braider](#)



Automated Fibre Placement - Coriolis C1

Machine	<i>Automated Fibre Placement (AFP) / Tensioned Fibre Placement (Filament Winding)</i>
Number of Tows	8
Tow Width	6.35 mm
Material	Thermoset tape, Dry fibre tape, Thermoplastic tape, CMC
Max Working Area	3.1 m arm reach, 10 m long
Tool Positions	Vertical and Horizontal
Max Tool Weight	Vertical: 3 tonnes Horizontal: 6 tonnes
Auxiliaries	Infrared heater Laser heater Humm3 flashlamp USK ultrasonic knife Renishaw probe
Applications	Complex 3D geometry

▶ [YouTube Demo – NCC's Coriolis AFP](#)



AFP/ATL Electroimpact (EI)

Machine	Automated Fibre Placement (AFP) / Automated Tape Laying (ATL)
Number of Tows	AFP: 8 ATL: 1
Tow Width	AFP: 12.7 mm ATL: 75 / 200 / 300 mm
Material	AFP: Thermoset tape, Dry fibre tape, Thermoplastic tape ATL: Thermoset tape
Max Working Area	4.5 x 11.8 m
Tool Positions	Vertical and Horizontal
Max Tool Weight	Vertical: 25 tonnes Horizontal: 9.07 tonnes
Auxiliaries	Infrared heater Humm3 flashlamp USK ultrasonic knife Renishaw probe Laser projection
Applications	Wing covers, Fuselage sections, Rocket stages

▶ [YouTube Demo – NCC’s Hybrid AFP/ATL](#)



Ultra-High-Rate Deposition (UHRD) Pilot Line

Machine	Wide fabric & tape placement
Material	Dry fibre (carbon, glass)
Technology	FibreFORM (pick & place) FibreROLL (roll-up and roll-out) Dry Fibre Placement
Cell Working Volume	20 x 5 x 1.8 m
Maximum Material Size	FibreFORM: 4 x 1.24 m FibreROLL 1.3: 20 x 1.24 m FibreROLL 5: 20 x 5 m DFP: 6 tows x 38.1 mm width (228.6 mm overall course width)
Auxiliaries	Humm3 flashlamp (DFP only) USK ultrasonic knife Renishaw probe Laser projection
Applications	Large low complexity structures

▶ [YouTube Demo – NCC's UHRD Cell](#)



ISOJET HT-RTM

Machine	High Temperature - Resin Transfer Moulding
Capacity	10 litre (Premixed)
Flow rate	Up to 3.5litres/min
Max Pressure	30 bar
Max piston & line temp	300C
Heating rate	Up to 5C/min
Interfacing Equipment	PEI 1100T press Schuler 3600T Press Data acquisition: TC, pressure and flow rate
Application	High-Temperature RTM

[YouTube Demo – NCC's HT-RTM](#)





CI-JET HT-RTM

Machine	<i>High Temperature - Resin Transfer Moulding</i>
Capacity	25 litre (3 part possible)
Flow rate	Up to 10litres/min
Max Pressure	40 bar
Max piston & line temp	100C
Interfacing Equipment	PEI 1100T press Schuler 3600T Press Hare 100T Press Data acquisition: TC, pressure and flow rate
Application	High-Temperature RTM



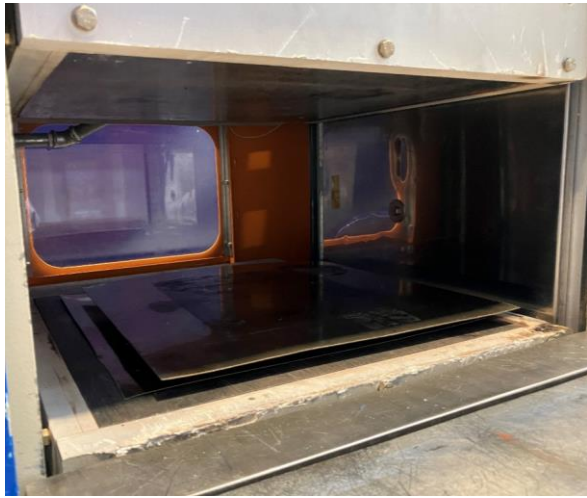
Krauss Maffei HP-RTM

<i>Machine</i>	<i>High Pressure - Resin Transfer Moulding</i>
<i>Flow rate</i>	Up to 5.5kg/min
<i>Max Pressure</i>	220 bar
<i>Max piston & line temp</i>	120C
<i>Interfacing Equipment</i>	PEI 1100T press Schuler 3600T Press Data acquisition: TC, pressure and flow rate
<i>Application</i>	High-Pressure thermoset (Epoxy) or thermoplastic (PU)



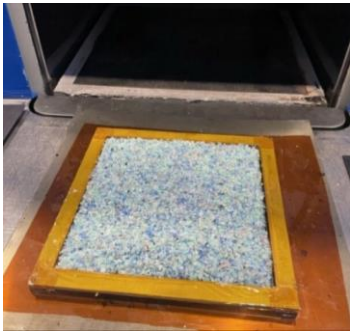
Composite Integration - LSRI

Machine	Large Scale Resin Infusion
Capacity	2 x 200 litre tanks
Flow rate	Single component – 4 L/min Two Component – 20 L/min
Max Pressure	Single component – 10 bar Two Component – 20 bar
Max tank & line temp	150°C
Interfacing Equipment	Any compatible infusion or RTM mould. In-mould pressure sensors can drive the process. Data acquisition: Flow rate, TC, resin pressure
Application	Supporting resin infusion (epoxy) and RTM processes of large-scale components



BIPEL Press 50T

Machine	Smooth Platen - Heated Press
Max Tool area	400x400mm
Stroke	220mm
Max Pressing Force	50 Tonnes
Max Platen Temp	400C
Auxiliaries	Active platen cooling 10C/min
Application	Fast flat panel material characterisation work





Aeroform Press 150T

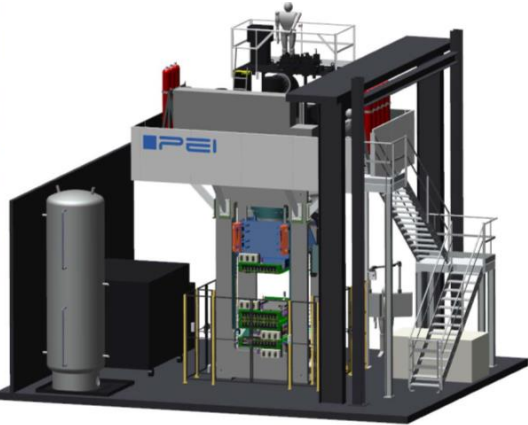
<i>Machine</i>	<i>Heated Press</i>
<i>Max Tool area</i>	1500x1200mm
<i>Stroke</i>	750mm (6 pistons)
<i>Max Pressing Force</i>	150 Tonnes
<i>Max Platen Temp</i>	400C
<i>Additional info</i>	Active platen cooling Compression moulding



Hare Press 100T

Machine	Heated Press & Thermoplastic Stamping
Max Tool area	600x600mm
Stroke	500mm (Single piston)
Max Pressing Force	100 Tonnes
Max Closing speed	300mm/s
Max Platen Temp	400C
Additional info	Thermostamping Compression moulding Medium Wave IR heater Shuttle transfer system





PEI Press 1100T

Machine	Heated Press & Thermoplastic Stamping
Max Tool area	1800x1300mm
Stroke	2200mm (Single piston)
Max Pressing Force	1100 Tonnes
Max Closing speed	800mm/s
Max Tool Weight	20T
Max Platen Temp	Primary platen oil: 200C Secondary platen electric: 400C
Additional info	Active cooling platen Fume Extraction RTM Capable Compression Moulding

[▶ YouTube Demo – NCC’s RTM using PEI Press](#)



Schuler Press 3600T

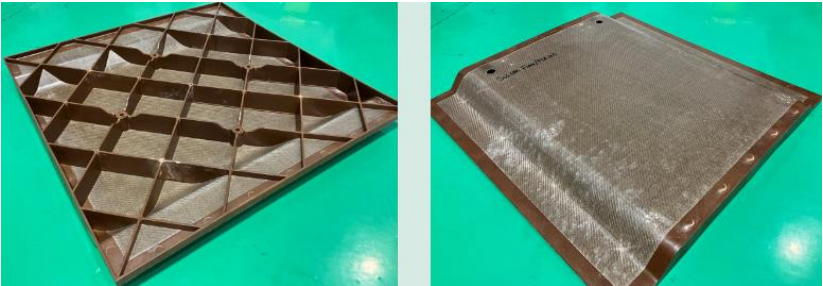
Machine	Press
Max Tool area	3600x2400mm
Stroke	2400mm
Max Pressing Force	3600 Tonnes
Max Closing speed	1000mm/s
Max Tool Weight	100T
Additional info	Oil Heating for tool up to 150C Fume Extraction RTM Capable Compression moulding

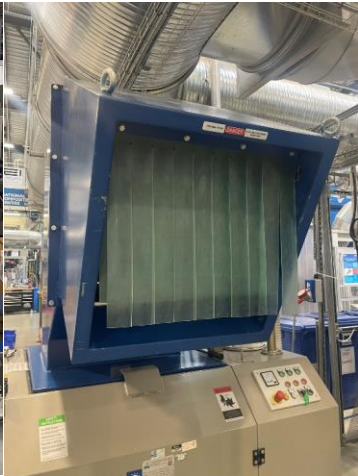


Engel Injection Overmoulding 1700T

Machine	Injection moulder & Organosheet Overmoulder
Max Tool area	1800x1400mm
Stroke	2400 mm
Max Pressing Force	1700 Tonnes
Max Tool Temperature	180C
Max Barrel Temperature	450C
Auxiliaries	Infrared heating oven Organosheet transfer robot Re-grinder Moulding compound dryer Moisture analyser

[YouTube Demo – NCC’s Overmoulder](#)





Zerma Granulator

Machine	Granulator (Auxiliary of overmoulder)
Material Feed Hatch	550 x 450 mm
Conveyor belt	500 x 2700 mm
Material Size	300 x 200 mm (depends on material type)
Material Feed Rate	Depends on material type
Granule Size	6-8 mm
Material Type	Thermoset and Thermoplastic
Process Type	Batch
Output	Waste purge compound for overmoulding



Autoclave 1 - Large

<i>Machine</i>	<i>Autoclave</i>
<i>Max Panel Size</i>	10 x 2.9 m
<i>Max Height</i>	2.3 m
<i>Max Temp</i>	405°C
<i>Max Pressure</i>	13 bar
<i>Max Tool Weight</i>	15 Tonnes (using the existing trolleys)
<i>Atmosphere</i>	Nitrogen
<i>Auxiliaries</i>	30x N-type thermocouples 4x vacuum ports



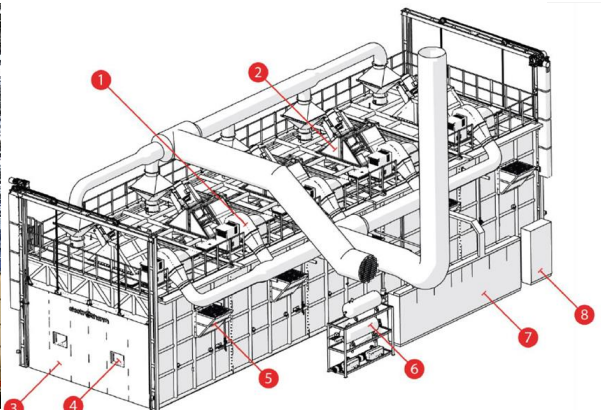
Autoclave 2 – Medium

Machine	Autoclave
Max Panel Size	3 x 2 m
Max Height	1.1 m
Max Temp	205°C
Max Pressure	6.9 bar
Max Tool Weight	2 Tonnes (spread evenly)
Atmosphere	Compressed air
Auxiliaries	12x K-type thermocouples 3x vacuum ports



Autoclave 3 - Small

Machine	Autoclave
Max Panel Size	1.9 x 1.3 m
Max Height	1.2 m
Max Temp	230°C
Max Pressure	6.9 bar
Max Tool Weight	1.3 Tonnes (spread evenly)
Atmosphere	Compressed air
Auxiliaries	24x K-type thermocouples 16x vacuum ports



Electrotherm Oven

Machine	Oven
Max Panel Size	20 x 5 m
Max Height	3 m
Max Temp	250°C (±5°C)
Atmosphere	Air
Auxiliaries	100 K-type thermocouples 32 vacuum ports

Commented [DD1]: Update all NCC logos



GET IN TOUCH

General: info@nccuk.com

SME Support: connect@nccuk.com

www.nccuk.com