

PRODUCTION CAPABILITIES



Our Production Facilities

Our production facility spans an indoor area of 3,500m² within the Temelli AOSB campus and features infrastructural capacity for machining, CMM measurement, industrial three-dimensional printing infrastructure for prototypes and end-products (HP 5200 MJF), composite production, electronic / mechanic / electro-mechanic integration.

In our facilities we have the following production capabilities:

- Aircraft Production (Fixed Wing / Rotary Wing / Multi Rotor Air Vehicles)
- Payload Production (2 Axis-3 Axis Gimbal Systems)
- Machining (3 Axis-5 Axis)
- Mass Production 3D Printing 3D Printer (HP JET FUSION 5200 Printer)
- Composite Production
- Electromechanical Production and Electronic Integration
- Flight Testing of Fixed Wing / Rotary Wing / Multi-Rotor Air Vehicles,
- After Sales Services (User, maintenance and repair training, logistic support)

1. Machining

Machine	Brand	Model	Cycle	Precision	Width	Length	Height	Diameter
5 Axes Vertical Machining	Spinner	U1530	12.000	0,008 mm	1530mm	530mm	465mm	500mm
4 Axes Vertical Machining	ETASIS	VL1200	12.000	0,01	1200mm	600mm	600mm	Ø270mm
3 Axes Vertical Machining	Frontier	MCV-1166	10.000	0,01	1160mm	600mm	600mm	
C Axes Lathe	MAZAK	SQT 200	4.500	0,009	10"			
3 Axes Router	Arel	ARFM 2Y-M3	8.000	0,1	800mm	600mm	350mm	



3-Axis, CNC Machine



4-Axis, CNC Machine



5-Axis, CNC Machine

Documentation Provided in the Machining Process:

- Raw material certificate
- Raw material chemical analysis report (supplied from accredited institution.)
- Raw material tensile test report (supplied from accredited institution.)
- Dimensional inspection report
- Calibration certificate of the measurement equipment
- Qualification certificate of the quality control team
- Certificate of conformity (CoC)

2. Mass Production 3-D Printing



HP JET FUSION 5200 Printer

HP 3D Printer is a 3D printer that can perform additive manufacturing and high resolution production using PA12 material and heating lamps. The printout is dark gray. The material has high strength and density, which is ideal for functional parts such as automotive parts. The surface is smooth and semi-gloss. It can also be preferred for sensitive products and finished end-user products.





3D Printer Product Samples

HP JET FUSION 5200 Printer Specifications

Category	Measurement	Value	Method
General Properties	<i>Powder Melting point (DSC)</i>	187 °C/369 °F	ASTM D3418
	<i>Particle size</i>	60 µm	ASTM D3451
	<i>Bulk density of powder</i>	0.425 g/cm ³	ASTM D1895
	<i>Density of parts</i>	1.01 g/cm ³	ASTM D792
Mechanical Properties	<i>Tensile Strength, Max Load⁹ - XY</i>	48MPa/6960 psi	ASTM D638
	<i>Tensile Strength, Max Load⁹ - Z</i>	48MPa/6960 psi	ASTM D638
	<i>Tensile Modulus⁹ - XY</i>	1700 MPa/245 ksi	ASTM D638
	<i>Tensile Modulus⁹ - Z</i>	1800 MPa/260 ksi	ASTM D638
	<i>Elongation at Break⁹ - XY</i>	20%	ASTM D638
	<i>Elongation at Break⁹ - Z</i>	15%	ASTM D638
Thermal properties	<i>Heat Deflection Temperature (@ 0.45 MPa) - Z</i>	175 °C/350 °F	ASTM D648
	<i>Heat Deflection Temperature (@ 1.82 MPa) - Z</i>	95 °C/205 °F	ASTM D648

1. *The HP Jet Fusion 3D Printing Solution with HP High Reusability PA 12 has the highest post-production surplus powder reusability with 80% reusability vs any other powder based 3DP technology using PA 12 material. Stable performance with only 20% powder refresh rate.*
2. *Based on internal testing and public data, HP Jet Fusion 3D printing solution average printing cost-per-part is half the average cost of comparable FDM & SLS printer solutions from \$100,000 USD to \$300,000 USD, when averaged together and not taken individually, on market as of April 2016. Cost analysis based on: standard solution configuration price, supplies price, and maintenance costs recommended by manufacturer. Cost criteria: printing 1 build chamber per day/ 5 days per week over 1 year of 30-gram parts at 10% packing density using HP 3D High Reusability PA 12 material, and the powder reusability ratio recommended by manufacturer.*
3. *Per packing densities >20%.*
4. *The following technical information should be considered representative of averages or typical values and should not be used for specification purposes.*
5. *Test results realized under the ASTM D638, specimens type V.*
6. *The HP powder and agents do not meet the criteria for classification as hazardous according to Regulation (EC) 1272/2008 as amended.*
7. *The term “cleaner” does not refer to any indoor air quality requirements and/or consider related air quality regulations or testing that may be applicable.*

3. Mechanical Production Quality Control

Dimensional Inspection

Machine	BRAND	MODEL	SOFTWARE	PRECISION	WIDTH	LENGTH	HEIGHT	DIAMETER
CMM	HEXAGON	GLOBAL CLASSIC 07.10.07	PC DMISH CAD++	0,003	700	1000	660	



CMM

4. Electro-Mechanical Production

Electro-mechanical production capability is available for electronic/avionics/gimbal systems.



Electromechanical Production Line

5. Flight Tests

We have a test area and experienced technical flight and test personnel for the verification of the products by flight tests.

