

Manufacturing System with Liquid Metal Jetting (LMJ), Laser Directed Energy Deposition (LDED) and CNC Machining. LMJ and LDED are two additive processes desired within a hybrid manufacturing system as both processes use low-cost welding wire to print near-net shape parts. With LMJ we unlock high resolution capability while with LDED we unlock high deposition rate

capability. In addition, multi-material capability is enabled by having two additive processing heads within a single system. The subtractive process within a hybrid manufacturing system provides post-machining capabilities to achieve desired surface finish and tolerances for parts printed using the two additive processes.



Multi-Tech Platform

Manufacturing System with Liquid Metal Jetting, Laser Directed Energy Deposition and CNC Machining.



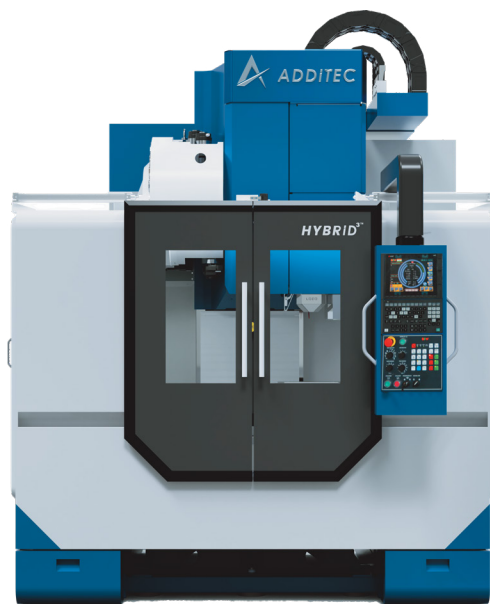
Cost Savings

Low wire feedstock and equipment costs lower the overall COGS for produced parts.



Material Utilization

100% raw material is used by melting wire and ejecting droplets to form parts.



Complexity

90° overhangs and complex gyroid designs have been successfully fabricated.



Class Leading Processing Heads

Advanced processing heads for LDED and LMJ, backed by over a decade of development expertise.



Post-Machining

Subtractive process provides post-machining capabilities to achieve desired surface finish and tolerances for parts printed

Technical Data

Layer Thickness	0.24 mm (min.)
Maximum Deposition Rate	0.11 kg/hr
Wire Feed Stock	1.6 mm Ø
Maximum Laser Power	-
Laser Type	-
Laser Wavelength	-
Dimensional Accuracy	
XY	+/- 0.6 mm
Z	+/- 0.5 mm
Closed Loop Process Control	Yes
Density	99.5 %
Build Volume (mm)	300 x 300 x 120
Materials	Aluminum Alloys
Shielding	Localized (Argon)
Cooling	Active water cooling
Slicing software	ADDiTEC Builder for Hybrid

Liquid Metal Jetting

Layer Thickness	0.24 mm (min.)
Maximum Deposition Rate	0.11 kg/hr
Wire Feed Stock	1.6 mm Ø
Maximum Laser Power	-
Laser Type	-
Laser Wavelength	-
Dimensional Accuracy	
XY	+/- 0.6 mm
Z	+/- 0.5 mm
Closed Loop Process Control	Yes
Density	99.5 %
Build Volume (mm)	300 x 300 x 120
Materials	Aluminum Alloys
Shielding	Localized (Argon)
Cooling	Active water cooling
Slicing software	ADDiTEC Builder for Hybrid

Laser DED

Layer Thickness	0.8 - 1.2 mm
Maximum Deposition Rate	4 kg/hr
Wire Feed Stock	0.8 - 1.2 mm Ø
Maximum Laser Power	6kW
Laser Type	Fiber laser
Laser Wavelength	108m nm
Dimensional Accuracy	
XY	+/- 0.25 mm
Z	+/- 0.25 mm
Closed Loop Process Control	Yes
Density	99.7 %
Build Volume (mm)	300 x 300 x 300
Materials	Fe, Ni, Al, Cu
Shielding	Localized (Ar or N)
Cooling	Active water cooling
Slicing software	ADDiTEC Builder for Hybrid

CNC Machining

Build volume (mm)	300 x 300 x 300
Motion axes	Up to 5
Max. Spindle Speed	12000 rpm
Max. Cutting Speed	1 - 20000 mm/min
Power Requirements	415 V 67 AMP
	50 / 60 Hz
	3pH +N +G
Machine Footprint (m)	2.4 x 2.2 x 2.6 (WxDxH)

Accuracy as per ISO-230-2

Positioning Accuracy	0.01 mm
Repeatability Accuracy	0.008 mm

*These specifications are subject to change without notice.