

# HYBRID MANUFACTURING XL – (HYMAX)

## Technical data

- LMD (Laser Metal Deposition)
- WLAM (Wire Laser Additive Manufacturing)
- Laser beam up to 8kW
- Local surface treatment
- WAAM (Wire Arc Additive Manufacturing)
- 6-axis systems
- Manufacture of parts up to 2 tons

## Purpose

Hymax for Hybrid Manufacturing XL is a large and flexible equipment which is unique in Europe. This equipment allows to perform manufacturing and repair with many different materials and local surface treatments. Thanks to its size, high productivity and flexibility, Hymax can be adapted for many applications and requests.



It is composed of a 6-axis robot and three different deposition heads: LMD (laser metal deposition), WLAM (wire laser additive manufacturing) and WAAM (wire arc additive manufacturing). Thus, the feed material can be either a wire or powder and the material is molten either by a laser or electrical arc. This equipment is meant to build large and very large parts, there are 3 external manipulators:

- 1-axis rotating table (1.5m diameter) for parts up to 2 tons
- 2-axis manipulator for parts up to 700 kg
- a lathe for parts up to 700 kg



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### Parts

With Hymax equipment, we can repair or build parts with many different materials :

- Ferrous alloys (S308, S316L, 21CrMoV5-11, Weldclad3, 17-4PH, duplex steel,...)
- Aluminium alloys (AlSi7Mg, AlSi10Mg, Scalmalloy ®,...)
- Cu alloys
- Inconel718
- ...

Equipment	Feature	Value
<b>Laser + powder (ILT Fraunhofer)</b>	Type	3-jet
	Power	8 kW
	Max powder diameter	150 µm
<b>Laser + Wire (Precitec)</b>	Shielding gas type	Argon, nitrogen or dedicated atmospheres
	Type	Coaxial
	Power	5kW
<b>Plasma torch (Lorch)</b>	Wire spot diameter	1 – 1.2 mm
	Shielding gas type	Argon, nitrogen or dedicated atmospheres
	Type	MIG
<b>Plasma torch (Lorch)</b>	Wire diameter	1-1.2 mm
	Shielding gas type	Argon, nitrogen or dedicated atmospheres

Other combinations are possible under request.