MELD Technology

Solid-State Additive Manufacturing

www.meldmanufacturing.com

What is MELD?

MELD is a revolutionary, patented solid-state manufacturing process for metals. While other processes melt metal, introducing weakness and other issues, MELD puts the material in a unique, malleable state without melting. Since MELD is also an open-atmosphere process, no special vacuums or chambers are needed for operation, making it a safer, more efficient, and fully-scalable technology.

Bigger

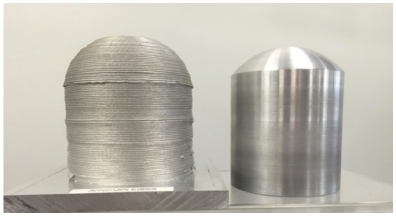
MELD's open-atmosphere operation and scalable equipment allow it to make much larger parts than similar technologies. Without the constraints of powder beds or chambers, MELD machines can grow as needed to produce large-scale components.

Materials of Your Choice

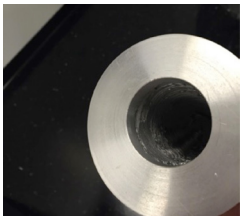
Unlike many other processes, MELD offers freedom of choice for materials. The MELD technology allows the use of everything from sub-micron powders to solid bars of metal in a wide range of metals and metal matrix composites.

Better

Since MELD is a no-melt technology, the many issues introduced by melt-based processes are avoided. Furthermore, MELDed parts are already fully-dense, require no secondary processing, and exhibit superior mechanical and performance properties.



Al6061 dome as fabricated by MELD and after finish machining



Internal view of hollow part

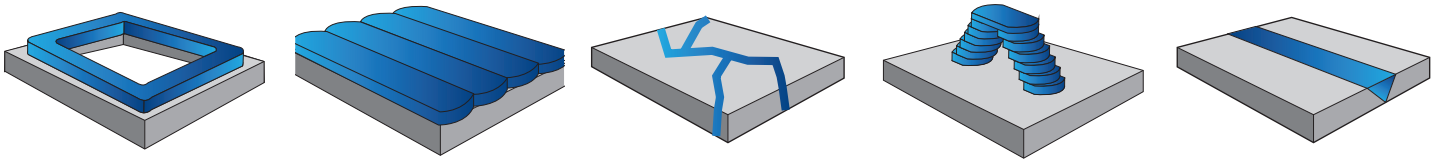
4.5" tall, 4" diameter part with 1" wall thickness
Fabrication time: 2 hours

Faster

The size of MELD machines means they're able to deposit a range of metals at a rate unmatched by other metal additive processes.

Technology	Build Rates (cm^3/h)			
	Al	IN6XX/7XX	Ti-6V-4AL	Steel
MELD	1020	81.8	553	61.35
Laser Powder Bed Sintering	2.52	0.18	1.26	5
Laser Metal Deposition	4.06	5.54	4.83	
Electron Beam	80		15.63	14.3

One Technology. One Machine. One Step.



Add | Coat | Repair | Alter | Join

Don't melt. MELD.

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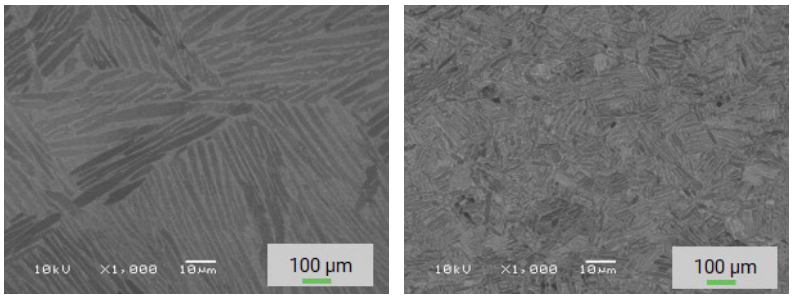
Limitless Material Compatibility

Ti

Fully-Dense
Low-Stress
Higher-Strength



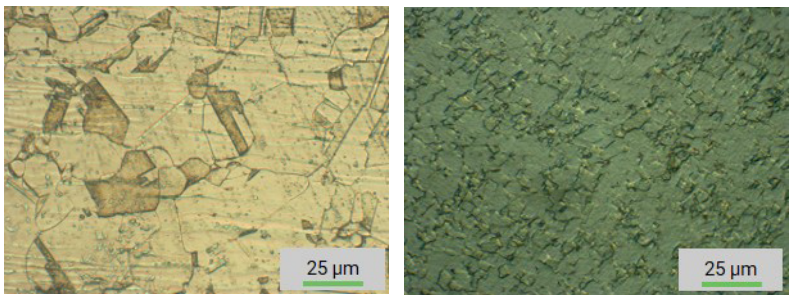
Ti64 before and after

Deposition Rate

5.5
pounds per hour

Steel

Improved Hardness
Refined Microstructure



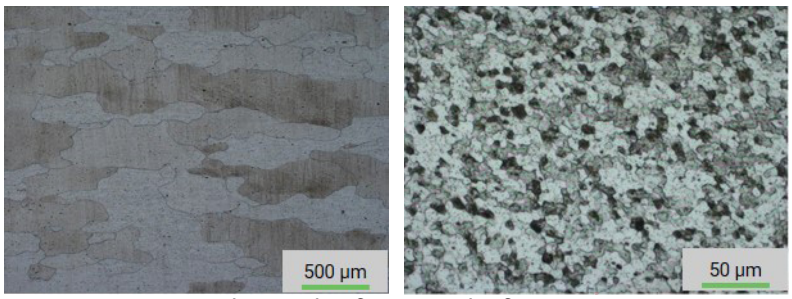
316L before and after

Deposition Rate

1.7
pounds per hour

Al

No Porosity
Uniform Microstructure



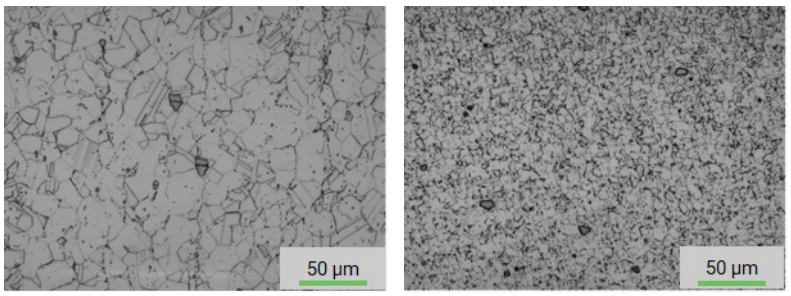
Al2139 before and after

Deposition Rate

20
pounds per hour

Ni

Good Fatigue Performance
Equiaxed Grains



IN625 before and after

Deposition Rate

1.5
pounds per hour

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