

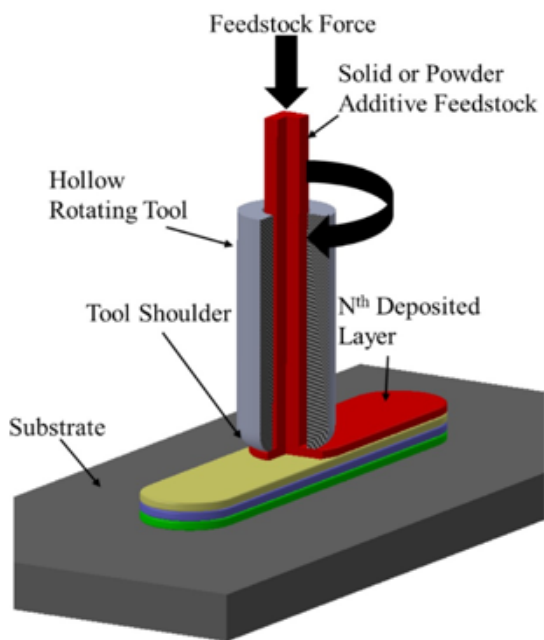


How Does MELD Compare to FSAM?

MELD is a novel process for metal deposition. It has many similarities to non-additive friction-based processes, like friction stir welding and friction stir additive manufacturing. In fact, because of its similarities to friction stir processes, the MELD process was originally named Additive Friction Stir (AFS). In recent years, however, the traditional non-additive processes have been explored for use in additive applications. This development created confusion between the additive and non-additive processes and demonstrated the need to rename AFS. Since this patented process is unique, it was necessary to introduce a new category of metal deposition. MELD, meaning "to combine," was chosen.

To further clarify the difference between additive and non-additive processes, see the schematics below. MELD builds a part, coating, feature, or repair one added layer at a time with material introduced through a hollow tool. The material, or feedstock, shown below is a solid, but MELD equipment also accepts powder(s). FSAM, on the other hand, creates a larger block of material by joining pre-existing layers of materials using a solid tool.

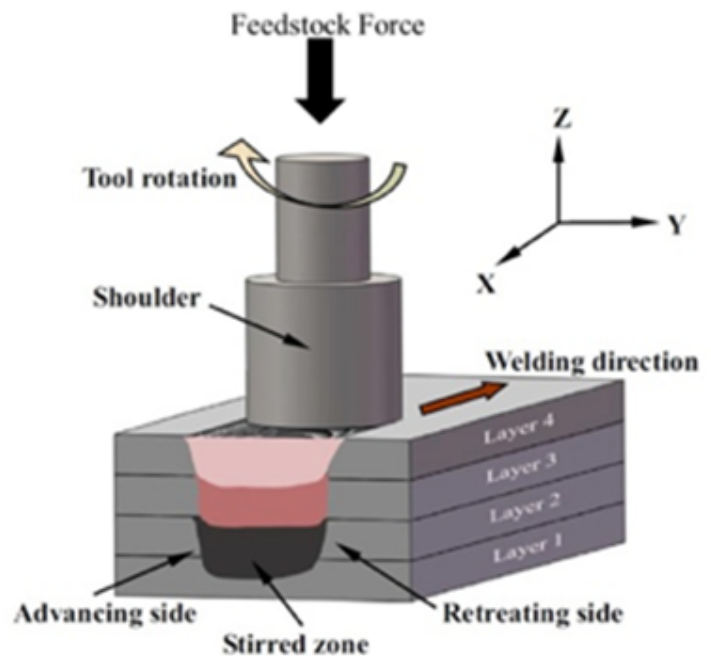
MELD



Schematic of MELD, showing a hollow tool **building up** four successive layers on a substrate. Where the hollow tool passes, the layers have been created. **This process adds new material.**

Unique value proposition: MELD yields a metallurgical bond between the deposited material and substrate, as well as between subsequent deposited layers.

Friction Stir Additive Manufacturing (FSAM)



Schematic of FSAM, showing a solid tool **passing through** two layers at a time of stacked plate. Where the tool passes, the layers have been bonded together. **This process does not add new material.**

Credit: <http://www.insidemetaladditivemanufacturing.com/blog/friction-stir-additive-manufacturing-of-aluminium-plates>