



# Fronius Additive Manufacturing

3D printing together with welding technology involves arc-based manufacturing by building up layers which enables the production of complex structures and geometries, thereby increasing flexibility in component geometry. They are individual layers, each one building upon the last. The process is attractive financially and resource-efficient, especially for prototyping, repairing, and rebuilding damaged components, as well as for small-batch production. Alongside flexibility, one of the advantages of wire-based additive manufacturing is the high deposition rate. For aluminium materials, it is possible to achieve a rate of up to 1.2 kilograms per hour in industrial production environments.

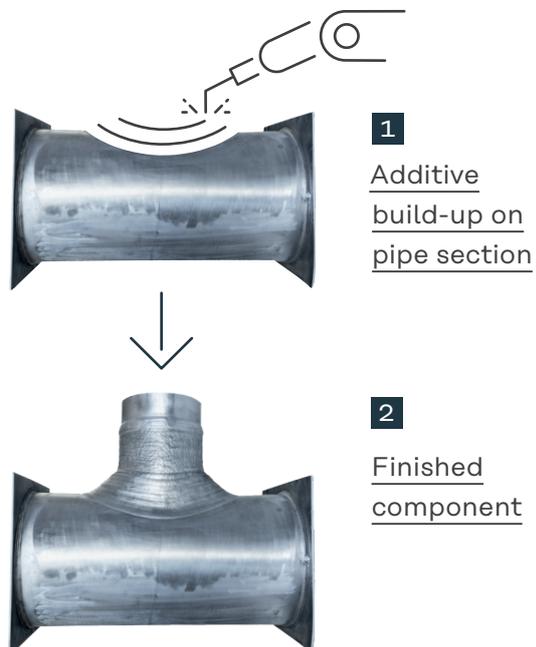
The entire process chain has been considered for this component, from the design to the final testing and the CE label. The draft European standard prEN 13445-14 was used as the basis for the model qualification. The report on the entire process offers a vivid insight into the performance of metal-based additive manufacturing using arcs.

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## Model qualification Additively manufactured pressure vessels

Pressure vessel technical data	
Welding process	CMT Additive Pro
Welding machine	iWave AC/DC 500i
Material	1,2 mm AlMg 4.5 Mn
Additive material weight	4.12 kg
Welding time	3 h 26 min
Deposition rates	1.2 kg/h



CMT Additive Pro

# Fronius Additive



## Individual components

Layer by layer

Wire and arc-based manufacturing by building up layers allows for individual geometries of moderate to high complexity to be produced. This makes the manufacture or modification of components more flexible, economical, and resource-efficient.

Additive manufacturing of metal components is associated with a set of rather specific challenges, including:

- Achieving the target geometry
- Adequate material properties
- Heat dissipation and distortion
- Process stability and feedback

## All consolidated in a single welding characteristic

The new additive features help to overcome the challenges posed by additive manufacturing:

- Deposition rate stabilizer
- Power correction
- CTWD measurement
- Pulsed HotStart

The new additive features are available on the iWave AC/DC with Multiprocess Pro, the CMT welding package, and the new AM interface.

