



MARITIME, OIL & GAS

# ADDITIVE MANUFACTURING

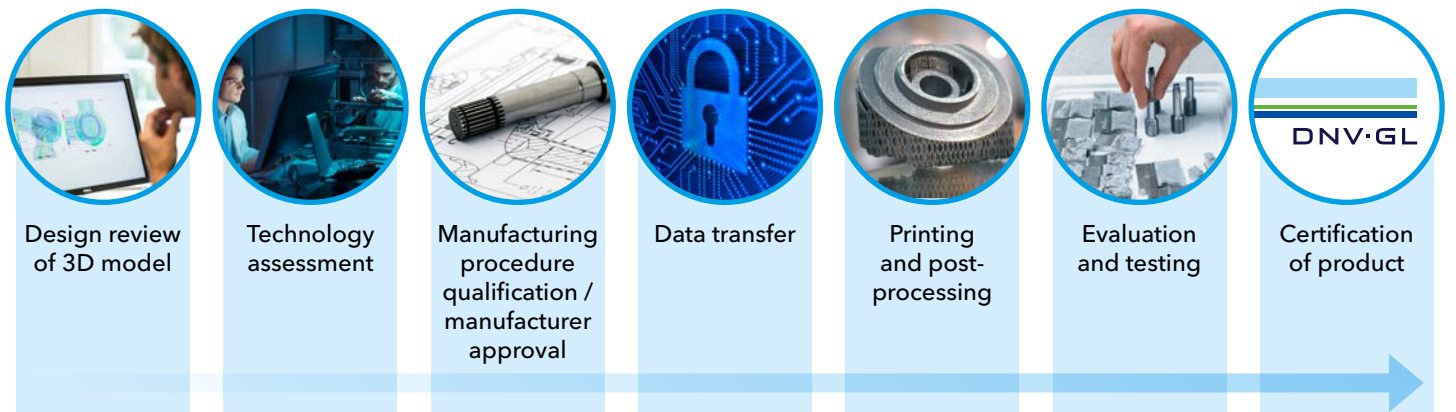
DNV GL meets industry demand for certification service of additive manufactured products

**Appealing new technology**

The potential of additive manufacturing (AM) (also known as 3D printing) as a disruptive technology is pervading the shipping and other industries. Not only does AM result in new designs for more efficient machinery components, it also allows spare parts to be produced locally around the world.

This shortens the time required for repairs and contributes to more efficient ship operations. However, as an emerging technology, the development of appropriate standard specifications is still currently in the starting phase. Thus, the procurement process, the definition of performance specifications and the relevant qualification of AM products are far away from being routine.

Certification process flow



**Qualification of AM manufacturers and products**

In order to build up their business, purchasers and manufacturers of AM products need reliable specifications and verification of AM products. Establishing confidence and routine can be supported by dedicated institutions which act as independent evaluators and certifiers. DNV GL provides support when AM manufacturers aim to qualify their premises and technology for broad acceptance. Furthermore, DNV GL certifies AM products according to agreed performance specifications.

**Modern classification services from DNV GL**

DNV GL is one of the world’s largest classification and certification societies, with a long history as a trusted independent partner to the maritime and oil and gas industries and with a broad range of expertise. In recent years, DNV GL has performed feasibility studies as well as led and accompanied AM projects with stakeholders in the maritime and offshore industries, thus keeping pace with the state of the art in AM. For qualification of AM manufacturers, several rules and a guideline are provided:

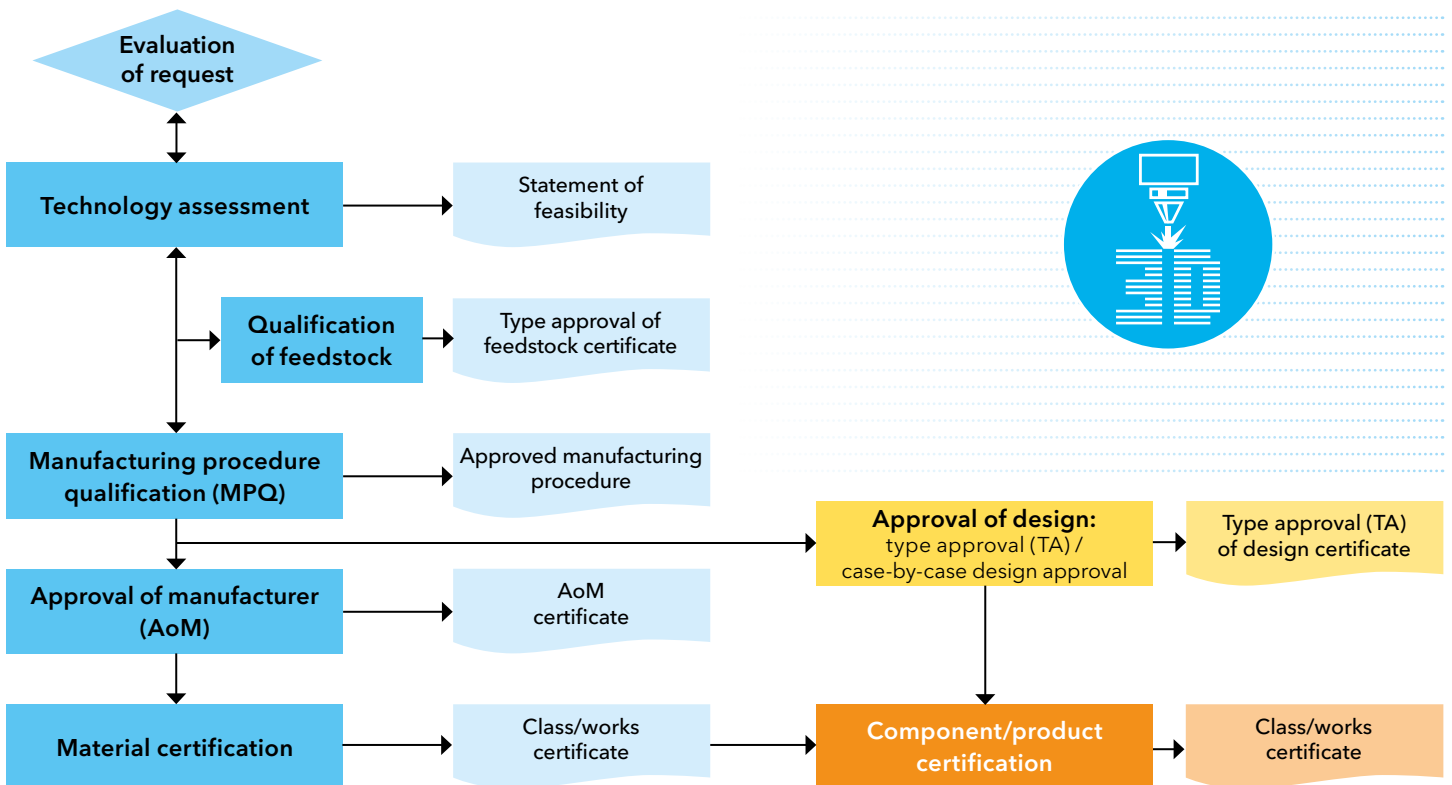
- CG-0197: Additive manufacturing – qualification and certification process for materials and components
- CP-0267: Additive manufacturing – approval of manufacturers
- CP-0291: Additive manufacturing feedstock

Certification of AM products manufactured from, for instance, austenitic steels, Ni-based alloys and aluminium alloys can be realized according to the DNV GL rules.

**Benefits of working with DNV GL for AM products**

- Have an experienced partner on your side with insights from several feasibility studies and AM project in the maritime industry
- Demonstrate the feasibility of your AM technology and products to the maritime and offshore industry
- Ensure verified reliability and reproducibility of AM products and their properties
- Have a systematic framework for approval and certification of AM materials, products and components
- Work with defined specifications and get important data for designers of AM products

Certification pathway for AM (3D printing)



**CONTACTS**

For further information about our services, or if you are interested in a joint development project on AM, please visit [dnvgl.com/am](http://dnvgl.com/am) or contact:

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