



Design assessment of your pressure equipment

Three main phases can be distinguished in the life cycle of an item of pressure equipment: design, manufacture and operation phase. In order to avoid problems in the latter two phases, it is crucial that particular attention is paid to the design phase. Our engineers assess the design of your pressure equipment and installations in order to check whether they comply with the relevant rules, in order to issue a certificate to you.

Your tailor-made solution

By 'design' we refer not only to dimensioning and determination of the minimum required thicknesses but, in general, the determination of all the parameters and procedures that guarantee optimal manufacture and operation of the equipment or installation in question. This relates, in particular, to:

- the risk analysis
- the selection of material
- general dimensioning and determination of wall thickness
- determination of the main manufacturing parameters (forming, welding, heat treatment, etc.)
- the program for destructive and non-destructive tests
- determining the strength and tightness tests
- protection against breaching permitted thresholds

Our engineers assess the design of pressure equipment and installations, whether such evaluation has been commissioned voluntarily or is required by the law, in order to check whether the same comply with the technical and administrative requirements set out in the regulations, international standards and your specifications.

To do this, they consider a variety of parameters and requirements :

- purpose of the equipment or installation
- regulatory context
- applicable standards and codes, and their edition
- requirements supplementing the standards and codes
- basic parameters for dimensioning:
 - main dimensions
 - design pressure
 - minimum and maximum design temperatures
 - operating pressure
 - operating temperature
 - test pressure
 - own weight
 - weight of the fluid
 - transient phases
 - number of cycles
 - external load at the connections
 - wind
 - earthquakes
 - dynamic loads
 - etc.
- properties of the fluid

- supports
- potential degradation mechanisms
- requirements for protection (for example, against overpressure)
- requirements regarding accessibility for in-service inspections
- etc.

This review is carried out by engineers specifically trained for this purpose and equipped with the required tools (computing programs, etc.). The outcome of the review shall either be a design review report, or a formal certification of the design as required by a particular regulation (type approval, etc.).

Your result

This service offers you:

- a neutral evaluation of the design of your equipment or plant by an independent organisation, to increase your confidence that you have a safe equipment or plant
- early detection of possible problems during the construction and/or operative phases, with the possibility of initiating the required corrective actions well in time
- obtaining the certification required by applicable legislation
- etc.

Please note

Legislations

Vinçotte is authorised under various regulations to evaluate the design of pressure equipment and plants:

- Directive 2014/68/EU - [European directive for Pressure Equipment - PED](#);
- Belgian Royal Decree of [11 July 2016 related to the PED directive](#)
- Directive 2010/35/EC - European directive for transportable pressure equipment;
- Directive 2009/105/EC - European directive for simple pressure vessels
- Belgian Royal Decree of 11th March 1966 relating to facilities for the transportation of hazardous products through pipelines;
- Belgian Ministerial Decree of 11th June 1993 on nuclear pressure equipment and installations;
- French decree of 12th December 2005 relating to nuclear pressure equipment;
- etc.

Norms and Standards

Vinçotte's engineers rely on recognised international standards to review the design of pressure equipment and installations:

- American standards: ASME VIII div.1 & 2, ASME III, ASME B31.3, ASME B31.8, TEMA
- European standards: EN 13445, EN 13480, etc.
- German standards: ADMerkblätter, KTA
- French standards: CODAP, CODETI (Industrial Piping Construction Code), RCC-M
- Dutch standards: RToD, NEN
- etc.

In which situation?

Vinçotte's 'design review' services are intended for:

- manufacturers of pressure equipment and installations
- future operators of pressure equipment and installations
- engineering consultancies responsible for designing pressure equipment and installations
- etc.