



1. -----IND- 2020 0288 E-- EN- ----- 20200605 --- --- PROJET

The following bill is submitted for the approval of the Council of Ministers:

Royal Decree adopting the Regulation on pressure equipment and its additional technical instructions

(DRAFT OF 24 MARCH 2020)

Article 12(5) of Law 21/1992 of 16 July 1992 on Industry states that national Industrial Safety Regulations must be approved by the national government, without prejudice to the fact that Autonomous Communities with legislative powers over industry can set additional requirements on the same matters for installations based in their territories.

Not only did Royal Decree 2060/2008 of 12 December 2008 adopting the Regulation on pressure equipment and additional technical instructions replace the former Regulation on pressure appliances [Reglamento de Aparatos a Presión] adopted by Royal Decree 1244/1979 of 4 April 1979, it also helped supplement the legislation on pressure equipment, in particular the provisions of Royal Decree 769/1999 of 7 May 1999 setting out provisions implementing Directive 97/23/EC of the European Parliament and of the Council on pressure equipment and amending Royal Decree 1244/1979 of 4 April 1979, which adopted the Regulation on pressure appliances. Specifically, said royal decree only governed requirements on the design, manufacture and certification of conformity of pressure equipment, whereas the Regulation on pressure equipment [Reglamento de Equipos a Presión] set out the requirements on installation, commissioning, periodic inspection, repair and modification of pressure equipment, with a maximum allowable pressure of over 0.5 bar, which includes simple or portable pressure vessels, appliances, equipment, assemblies and piping. Moreover, additional technical instructions have been adopted for certain equipment and installations, making a major contribution to enabling and promoting safety in industrial installations featuring pressure equipment.

On the other hand, on 1 June 2015, Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances was repealed and replaced with Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC



and amending Regulation (EC) No 1907/2006. Said Regulation (EC) No 1272/2008 is intended as the EU implementation of the Globally Harmonised System of Classification and Labelling of Chemicals, adopted internationally in the United Nations structure, thus introducing new hazard classes and categories that only correspond in part to those set out in Directive 67/548/EEC.

Directive 97/23/EC was adapted to Regulation No 1272/2008, as well as to the New Legislative Framework, by way of Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 on the harmonisation of the laws of the Member States relating to the placing on the market of pressure equipment, which was transposed into national law by way of Royal Decree 709/2015 of 24 July 2015 setting out essential safety requirements on the placing on the market of pressure equipment.

As a result of all of this, it is necessary to amend and update the Regulation on pressure equipment and its additional technical instructions, adopted by Royal Decree 2060/2008 of 12 December 2008.

Moreover, in view of practical experience from applying this regulation, a new additional technical instruction must be adopted to cover the installation, commissioning, periodic inspection, repair and modification of pressure equipment, with a maximum allowable pressure of over 0.5 bar, for liquefied natural gas terminals.

This regulation constitutes an industrial safety regulation and is adopted by virtue of the powers in the area of industrial safety granted to the Public Administration under Article 149(1)(13) of the Spanish Constitution, which grants the State the power over the basic rules and coordination of the general economic planning, without prejudice to the powers of the Autonomous Communities with regard to industry, as repeatedly affirmed in constitutional case law. In this respect, it should be noted that the regulation being adopted is a basic regulation that combines exclusively and distinctly technical provisions, which means that the law is not an appropriate instrument to establish the regulation and its adoption by royal decree is justified.

This draft meets the principles of sound regulation under which public authorities must act in exercising legislative initiative and regulatory powers, such as the principles of necessity, effectiveness, proportionality, legal certainty, transparency and efficiency, provided for in Article 129 of Law 39/2015 of 1 October 2015 on common administrative procedures in public administration.

Thus, it is clear that the principles of necessity and effectiveness are met and that the regulation is in line with the principle of proportionality, as it contains legislation that is essential to the aforementioned objectives and also meets the principle of legal certainty. As for the principle of transparency, the various public participation procedures, i.e. public consultation and information procedures, have been completed. With regard to the principle of efficiency, the main objective of the regulation is to adjust safety regulations on installations featuring pressure equipment to the new classification system for substances and based on experience gained in the application of the same. Moreover, with regard to public spending, it should be noted that it has no impact on budgets.



The Autonomous Communities were consulted in the development of this Royal Decree, in addition to the entities of the sector that are known and considered the most representative, in accordance with the provisions of Article 26(6) of Government Law 50/1997 of 27 November 1997. Additionally, the Coordination Council on Industrial Safety has issued a report on this Royal Decree, in accordance with the provisions of Article 18(3)(a) of Law 21/1992 of 16 July 1992 on Industry and Article 2(d) of Royal Decree 251/1997 of 21 February 1997 adopting the Regulation of the coordination council on industrial safety.

Finally, this Royal Decree has been notified to the European Commission and to the other Member States in accordance with Royal Decree 1337/1999 of 31 July 1999 regulating the provision of information on technical standards and regulations and rules on information society services, in application of Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services.

By virtue whereof, at the proposal of the Minister for Industry, Trade and Tourism, with the agreement of the Council of State and following deliberation of the Council of Ministers at its meeting on [date],

I HEREBY DECREE:

Sole article. *Adoption of the Regulation on pressure equipment and additional technical instructions EP-1 to EP-7.*

1. The Regulation on pressure equipment [Reglamento de equipos a presión], set out below, is hereby adopted.

2. Furthermore, Additional Technical Instructions ITC EP-1 on boilers, ITC EP-2 on electricity generation plants, ITC EP-3 on refineries and petrochemical plants, ITC EP-4 on cryogenic tanks, ITC EP-5 on bottles for self-contained breathing equipment, ITC EP-6 on transportable pressure vessels and ITC EP-7 on liquefied natural gas terminals, which are set out after said Regulation, are hereby adopted.

3. The requirements of this Regulation and its Additional Technical Instructions [ITCs] shall apply without prejudice to the provisions set out in occupational health and safety regulations.

First additional provision. *Existing pressure equipment.*

1. Pressure equipment with a maximum allowable pressure of over 0.5 bar classified according to Royal Decree 709/2015 of 24 July 2015 setting out essential safety requirements on the placing on the market of pressure equipment, or deemed equivalent to this classification pursuant to Article 3(2) of the Regulation on pressure equipment adopted by Royal Decree 2060/2008 of 12 December 2008, as well as pressure equipment with a maximum allowable pressure of over 0.5 bar classified according to Royal Decree 769/1999 of 7 May 1999 setting out provisions implementing Directive 97/23/EC of the European Parliament and of the Council on pressure equipment and amending Royal Decree 1244/1979 of 4 April 1979, which adopted the Regulation on pressure appliances and equipment deemed equivalent to this



classification, in accordance with the First additional provision, as well as by virtue of Article 3(2) of the Regulation on pressure equipment adopted by Royal Decree 2060/2008 of 12 December 2008, whose installation and commissioning were completed prior to entry into force of this Royal Decree, shall continue to be governed by the technical requirements applicable to said equipment at the time of its commissioning, except where the provisions of Chapters III and IV of this Royal Decree apply.

2. The pressure equipment referred to in paragraph 1 whose inspection type or intervals are amended by virtue of the provisions of this Royal Decree shall undergo the next level B or C inspection based on the expiry date of the last B or C inspection conducted, after which the new inspection deadlines shall apply. If a level B or C inspection has not been conducted yet, the new inspection deadlines shall apply as from the date of manufacturer of the equipment.

3. Without prejudice to that indicated in paragraph 2 above, the pressure equipment classified according to Royal Decree 769/1999 of 7 May 1999 and that deemed equivalent to this classification pursuant to the First additional provision, as well as to Article 3(2) of the Regulation on pressure equipment adopted by Royal Decree 2060/2008 of 12 December 2008 shall retain its corresponding classification and its level B or C inspection intervals according to said classification.

At the time of the next level B or C inspection, the fluid shall be reclassified according to the criteria of Article 13 of RD 709/2015, after which the new inspection deadlines under the reclassification shall apply.

If this reclassification involves a change of fluid group as per Article 13 of Royal Decree 709/2015 of 24 July 2015, this shall be reported to the competent body of the Autonomous Community.

4. Installation and commissioning following relocation of the pressure equipment referred to in paragraph 1 shall be performed in accordance with the provisions of Articles 3, 4 and 5 of the Regulation on pressure equipment and any applicable ITC.

In this regard, equipment not covered by Royal Decree 769/1999 of 7 May 1999 shall be deemed equivalent to the categories indicated in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015.

5. Substantial modifications to pressure equipment as per paragraph 1 that has been deemed equivalent to categories I to IV as referred to in Article 9 of and Annex II to Royal Decree 769/1999 of 7 May 1999 pursuant to the First additional provision of Royal Decree 2060/2008 of 12 December 2008 shall require submission of a technical plan to the competent body of the Autonomous Community, including the signature of the competent qualified engineer and justification of the mechanical strength calculations and the safety accessories used, along with the corresponding drawings. This plan shall be accompanied by a certificate of conformity issued by an authorised inspection body.

After the modification, the competent qualified engineer shall issue a technical department certificate.



If the modification is not deemed substantial according to the criteria of Article 8 of this Regulation on pressure equipment or the corresponding Additional Technical Instruction, it shall meet the requirements indicated for repairs in Article 7 of said regulation.

The cases referred to in Article 8(1)(e) of this Regulation on pressure equipment shall not be considered modifications.

In any case, new components incorporated into pressure equipment shall meet the provisions of Royal Decree 709/2015 of 24 July 2015.

Modifications on other equipment as per paragraph 1 shall be in accordance with Article 8 of this Regulation on pressure equipment.

Second additional provision. *Used pressure equipment originating from other Member States of the European Union or equipment deemed equivalent to this.*

1. In order to employ used pressure equipment that is not subject to the provisions of Royal Decree 709/2015 of 24 July 2015 or to the provisions of Royal Decree 108/2016 of 18 March 2016 setting out essential safety requirements on the placing on the market of simple pressure vessels, and that originates from a Member State of the European Union or from Turkey or that was lawfully manufactured in a European Free Trade Association (EFTA) State signatory to the Agreement on the European Economic Area (EEA), the following shall be demonstrated to the competent body of the Autonomous Community where the equipment will be installed:

- a) Design plan signed by the competent qualified engineer.
- b) Pressure equipment production documentation, including the construction certificate and the certificate of conformity with the regulations applicable in the State of origin.
- c) Certificate of completion of a level C periodic inspection.
- d) Certificate of conformity from an authorised inspection body, attesting that the equipment is safe.

2. Used pressure equipment that meets the provisions of Royal Decree 709/2015 of 24 July 2015 setting out essential safety requirements on the placing on the market of pressure equipment, or Royal Decree 108/2016 of 18 March 2016 setting out essential safety requirements on the placing on the market of simple pressure vessels, may be installed and used in accordance with the provisions of the Regulation on pressure equipment adopted by this Royal Decree, following completion of a level C inspection.

3. Used pressure equipment commissioned before entry into force of Royal Decree 709/2015 of 24 July 2015 and simple pressure equipment commissioned before entry into force of Royal Decree 108/2016 of 18 March 2016 that nevertheless meet the provisions of Royal Decree 769/1999 of 7 May 1999 or Royal Decree 1495/1991 of 11 October 1991 setting out provisions implementing Council Directive 87/404/EEC on simple pressure vessels, shall be deemed equivalent to the equipment as per paragraph 2.



Third additional provision. *Used pressure equipment originating from countries not belonging to the European Union or equipment deemed equivalent to this.*

Where appropriate, used pressure equipment originating from countries other than those referred to in the Second additional provision shall bear the 'CE' marking in accordance with the provisions of Royal Decree 709/2015 of 24 July 2015 or, where applicable, with the provisions of Royal Decree 108/2016 of 18 March 2016, and shall meet the requirements of the Regulation on pressure equipment in order to be used.

Notwithstanding the above, pressure equipment as referred to in Article 4(3) of Royal Decree 709/2015 of 24 July 2015 shall have a statement from the importer attesting that it meets the provisions in the aforementioned royal decree and, moreover, that it was designed and manufactured in accordance with good engineering practice in a Member State of the European Union (selection of materials, welding procedures, welder certification, etc.) in order to guarantee safe use.

Fourth additional provision. *Legal regime applicable to aerosol dispensers.*

Aerosol dispensers shall be governed by the provisions of Royal Decree 1381/2009 of 28 August 2009 setting out requirements on the manufacture and placing on the market of aerosol dispensers.

Fifth additional provision. *Insurance cover or other equivalent guarantee taken out in another State.*

If a pressure equipment installation or repair company that is established or operating in Spain is already covered by a professional indemnity insurance policy or by a guarantee that is equivalent or essentially comparable in its purpose and the cover it offers for the insured risk, amount insured or guarantee limit in another Member State where it is already established, the requirement provided in Annex I to the regulation adopted by this Royal Decree shall be deemed met. Where equivalence with the requirements is only partial, the pressure equipment installation or repair company shall expand the insurance policy or equivalent guarantee to meet the required conditions. In the case of insurance policies or other guarantees taken out with insurers and credit institutions licensed in another Member State, certificates issued by such bodies shall be accepted for the purposes of accreditation.

Sixth additional provision. *Powers of the Ministry of Defence.*

The administrative powers related to pressure equipment granted to the National Defence services rest with the authorities of the Ministry of Defence, without prejudice to their right to request support from other public authorities.

Seventh additional provision. *Acceptance of documents from other Member States attesting to compliance with requirements.*

To attest to compliance with the requirements on pressure equipment installation or repair companies, documents that originate from another Member State and show that said requirements are



met shall be accepted, as per Article 17 of Law 17/2009 of 23 November 2009 on free access to service activities and their performance.

Eighth additional provision. *Information and claim obligations.*

Pressure equipment installation and repair companies shall meet the information obligations on providers and the claim obligations set out in Articles 22 and 23, respectively, of Law 17/2009 of 23 November 2009 on free access to service activities and their performance.

First transitional provision. *Inspection bodies authorised prior to the entry into force of this Royal Decree.*

Inspection bodies authorised in accordance with the provisions of the Regulation on pressure equipment adopted by Royal Decree 2060/2008 of 12 December 2008 may continue to perform the activities for which they are authorised for a period of 18 months after the date of entry into force of this Royal Decree.

After the end of this period, said bodies must be accredited and authorised under the new regulations adopted by this Royal Decree and any implementing regulations.

Second transitional provision. *Installations in progress.*

Installations in the execution stage whose installation plan was electronically signed or endorsed before entry into force of this Royal Decree shall have a maximum period of 2 years to commission the installation in accordance with the provisions of the Regulation on pressure equipment adopted by Royal Decree 2060/2008 of 12 December 2008 adopting the Regulation on pressure equipment and its additional technical instructions.

Third transitional provision. *Installation or repair companies authorised prior to entry into force of this Royal Decree.*

Pressure equipment installation or repair companies governed by Royal Decree 2060/2008 of 12 December 2008 adopting the Regulation on pressure equipment and its additional technical instructions that are authorised on the date of entry into force of this Royal Decree may continue to perform the authorised activity without having to submit the statement of compliance as per Annex I to the Regulation on pressure equipment adopted by this Royal Decree.

Fourth transitional provision. *Modification of existing boiler installations.*

1. Existing installations with boilers not bearing the CE marking that have a quality control file can meet the requirements of ITC EP-1 by submitting the corresponding technical plan to the relevant body of the Autonomous Community.

If it is necessary to make changes that affect the safety of the boiler, this must be accompanied by a favourable report from an authorised inspection body.



2. Existing boilers that no longer bear a CE marking can bring their monitoring systems into line with Article 7 of ITC EP-1 by submitting a technical compliance plan, including not only the description and characteristics of the required changes, but also the new operating instructions. If the manufacturer has issued provisions for a different type of monitoring, it will not be necessary to submit a compliance plan.

Fifth transitional provision. *Use of transportable pressure vessels.*

Bottles and canisters that – on entry into force of the Regulation on pressure equipment – meet the requirements of ITC MIE AP 7 of the Regulation on pressure appliances adopted by Royal Decree 1244/1979 of 4 April 1979, and that have not been reassessed as per Royal Decree 1388/2011 of 14 October 2011 (vessels without π marking), may continue to be used if they meet the conditions set out in ITC EP-6.

Sixth transitional provision. *Colour coding on self-contained breathing bottles.*

The colours of bottles for self-contained breathing equipment shall correspond to those indicated in ITC EP-5 after the next refill or, if applicable, before the next periodic inspection.

Seventh transitional provision. *Model of Visual Inspection Centre sticker.*

The Visual Inspection Centres for self-contained breathing bottles as per Additional Technical Instruction ITC EP-5 that were authorised under prior regulations on entry into force of this Royal Decree shall update the model of the sticker according to the provisions of Article 9(4) and submit this to the competent body of the Autonomous Community where they are established within 3 months after entry into force of this Royal Decree.

Eighth transitional provision. *Regularisation of equipment and installations.*

The equipment and installations falling under this Royal Decree whose installation and subsequent operation occurred prior to entry into force of this Royal Decree, but for which, for whatever reason, the competent authority for industry lacks a record of submission of the documentation required for their commissioning, shall be entered in the registers of the relevant Autonomous Communities within no more than 3 years after entry into force of this Royal Decree, in accordance with the provisions of paragraph 1 of the First additional provision. For this, they shall submit proof of its continuous use and the following documentation:

1) Statement of compliance from the owner indicating the year of installation and commissioning, attesting that it has been in safe and continuous use and detailing the conditions of use.

2) Construction certificate issued by the manufacturer, or an EC declaration of conformity for equipment sold or commissioned on or after 29 May 2002, the date of entry into force of Royal Decree 769/1999 of 7 May 1999. If these documents are not available, the following shall be submitted:

a. Production documentation, or failing this, documentation demonstrating its age.



b. Certificate issued by the competent qualified engineer, including drawings and a report with calculations showing that the equipment is suitable.

In any case, equipment sold or commissioned after 29 May 2002 shall bear the CE marking.

3) Level C periodic inspection certificate from an inspection body, indicating that the equipment is safe.

4) Certificate from the installation company attesting that the equipment was installed according to the regulatory requirements and that it is safe:

a. If the installation requires a plan, the certificate shall be signed by the competent qualified technician, accompanied by the technical documentation with a description, calculations and demonstration of the suitability of the installation. This documentation may cover the design aspects of the equipment and the installation together.

b. If the installation does not require a plan, the certificate of the installation company shall be accompanied by a report signed by the installation company, including at least:

- i. Installation sketches
- ii. Schedule of key data

Identification and characteristics of the pressure equipment, safety valves, etc.

Sole repealing provision. *Repeal of regulations.*

Any provisions of equal or lesser rank that are contrary to the provisions of this Royal Decree and, in particular, Royal Decree 2060/2008 of 12 December 2008 adopting the Regulation on pressure equipment and its additional technical instructions, are hereby repealed.

First final provision. *Attribution of powers.*

This Royal Decree is adopted within the framework of Article 149(1)(13) of the Spanish Constitution, which grants the State exclusive powers over the basic rules and coordination of the general economic planning.

Second final provision. *Regulatory powers.*

1. The Minister responsible for industry is hereby authorised, within the scope of their powers, to issue the necessary provisions to ensure proper application and implementation of this Royal Decree.

2. The Minister responsible for industry is hereby authorised to amend and update this Regulation and its Additional Technical Instructions [ITCs] to keep them up-to-date on technological advances and the relevant provisions of international or European law.

3. Moreover, in the interest of safety, and in view of technological advances, the Minister responsible for industry is hereby authorised to adopt general and provisional technical specifications – by



way of orders – on the installation, periodic inspection, repair or modification of pressure equipment not including in or excluded from the scope of the Regulation on pressure equipment and its Additional Technical Instructions [ITCs]. These requirements shall be intended to enable a level of safety that is at least equivalent to that specified for the equipment falling under said scope.

4. Similarly, the Minister responsible for industry is hereby authorised to enact orders to mandate compliance with standards issued by European or international regulatory bodies, provided this falls under the scope of the Regulation on pressure equipment and its Additional Technical Instructions [ITCs].

Third final provision. *Application measures.*

1. The government body responsible for industrial safety at the Ministry responsible for industry shall draw up a technical guide on practical application of the requirements of the Regulation on pressure equipment and its additional technical instructions [ITCs], which may provide general clarifications, and shall keep this guide up-to-date.

2. The same government body of the Ministry responsible for industry may issue a decision to amend references to standards in the ITCs adopted by this Royal Decree.

Fourth final provision. *Entry into force.*

This Royal Decree shall come into force 6 months after its publication in the Official State Gazette.

Drawn up in Madrid, on

TO BE SUBMITTED TO THE COUNCIL OF MINISTERS

Madrid,

MINISTER FOR INDUSTRY, TRADE AND TOURISM

María Reyes Maroto Illera



PRESSURE EQUIPMENT REGULATION

CHAPTER I

General provisions

Article 1. *Aim and scope.*

1. This Regulation is intended to set out the safety criteria and standards for proper use of pressure equipment related to the fields indicated as falling under the scope of this Regulation.

2. This Regulation applies to the installation, periodic inspection, repair and modification of pressure equipment subject to a maximum allowable pressure of over 0.5 bar and, in particular, the following:

a) Pressure equipment falling under the scope of Royal Decree 709/2015 of 24 July 2015 setting out essential safety requirements on the placing on the market of pressure equipment.

b) Simple pressure vessels falling under the scope of Royal Decree 108/2016 of 18 March 2016 setting out essential safety requirements on the placing on the market of simple pressure vessels.

c) Transportable pressure vessels falling under the scope of Royal Decree 1388/2011 of 14 October 2011 setting out provisions implementing Directive 2010/35/EU of the European Parliament and of the Council of 16 June 2010 on transportable pressure equipment and repealing Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC and 1999/36/EC.

d) Piping for connection or conveyance of any fluid or substance, with all associated equipment not included in paragraph 2(a) above.

e) Pressure equipment with a maximum allowable pressure of over 0.5 bar excluded from or not covered by the above paragraphs must meet the requirements of Article 9 of this Regulation, except for paragraphs 6, 7 and 8 of said article.

3. This Regulation does not cover pressure equipment subject to special safety regulations that expressly govern the conditions provided in this Regulation.

In any case, it does not cover piping networks for the supply or distribution of water, except for those intended for industrial use or for liquid or gaseous fuels, as well as networks for firefighting water and headraces for hydroelectric plants.

This also excludes equipment intended for operation of the vehicles defined in the following legal acts:

i) Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles.



ii) Regulation (EU) No 167/2013 of the European Parliament and of the Council of 5 February 2013 on the approval and market surveillance of agricultural and forestry vehicles.

iii) Regulation (EU) No 168/2013 of the European Parliament and of the Council of 15 January 2013 on the approval and market surveillance of two- or three-wheel vehicles and quadricycles.

Article 2. Definitions.

1. For the purposes of this Regulation, in addition to the definitions included in Royal Decree 709/2015 of 24 July 2015, Royal Decree 108/2016 of 18 March 2016 and Royal Decree 1388/2011 of 14 October 2011, the following terms and definitions shall apply:

a) 'Placing on the market': offering for sale, or the display, sale, importing, leasing, provision or transfer of pressure equipment or assemblies in the European Union.

b) 'Pressure equipment installation company': a natural person or legal entity that has demonstrated suitable means to perform installations and takes responsibility for proper installation.

c) 'Pressure equipment repair company': a natural person or legal entity that has demonstrated suitable means to perform repairs and takes responsibility for such.

d) 'Compact pressure equipment': pressure equipment that only requires accessories belonging to the equipment for operation as an independent unit, except for any required connection to an electrical power supply or working fluid supply.

e) 'Mobile compact pressure equipment': compact pressure equipment whose characteristics enable easy transport between different locations. Equipment whose characteristics only enable transport within the same installation are not considered mobile equipment for the purposes of this definition.

f) 'Manufacturer': a natural person or legal entity that takes responsibility for the design and manufacture of a product to make it available on the market in the name of the manufacturer or to commission it.

g) 'Periodic inspection': the examination, verification, testing and trials needed to ensure compliance with the safety and operating conditions required under this Regulation.

h) 'Onsite inspection and testing': all inspections prior to or during commissioning of pressure equipment or an installation.

i) 'Installation': on-site set-up of pressure equipment serving a functional role, including assembly of the different components (piping, pressure and safety accessories, auxiliary equipment, consumer equipment, etc.).

j) 'Modification of pressure equipment': transformation or alteration of the original technical characteristics or the primary function of pressure equipment, as well as those of its safety accessories.



k) 'Modification of installations': transformation of an existing installation by expansion or reduction of pressure equipment or its replacement with other equipment with different characteristics.

l) 'Inspection bodies': natural persons or legal entities with the required working capacity, technical, material and human resources, and impartiality and independence that can verify compliance with the safety requirements and conditions set out in the Safety Regulations for industrial installations and products, and that are authorised to perform the tasks set out in this Regulation, in accordance with Royal Decree 2200/1995 of 28 December 1995 adopting the Regulation on industrial safety and quality infrastructure.

m) 'Maximum allowable pressure PS': the maximum pressure for which the equipment is designed, as specified by the manufacturer. This pressure is equivalent to that which former regulations referred to as 'design pressure'.

n) 'Seal pressure Pp': the pressure at which the safety device that protects that pressure equipment is tared.

o) 'Test pressure PT': the pressure to which the pressure equipment is subjected to test its strength. This is the highest effective pressure exerted at the highest point of the appliance during the pressure test.

p) 'Maximum working pressure Pms': the highest pressure that pressure equipment or an installation can reach under operating conditions.

q) 'Commissioning': when a user puts pressure equipment or an installation into operation for initial use or after a repair, modification or relocation.

r) 'Repair': action of reconstructing the pressurised parts of a device, ensuring the original production and operating conditions and characteristics.

s) 'Temperature': the physical magnitude of the thermal level of the fluids inside pressure equipment, measured in degrees Celsius.

t) 'Maximum/minimum service temperature Tms': the highest and lowest temperatures estimated to be possible inside the equipment under extreme operating conditions.

u) 'Maximum allowable temperature TS': the maximum temperature for which the equipment is designed, as specified by the manufacturer.

v) 'User': a natural person or legal entity that uses pressure equipment or installations under the its own responsibility.

2. Independently of the definitions provided in this article, this Regulation shall use the term 'pressure equipment' to refer to any component designed and manufactured to contain fluids under pressures of over 0.5 bar. This term includes all components included in this Regulation as pressure appliances, simple pressure vessels, pressure equipment, devices, assemblies, piping and transportable pressure equipment. Where this Regulation refers to pressure equipment falling under the scope of Royal



Decree 709/2015 of 24 July 2015 setting out essential safety requirements on the placing on the market of pressure equipment, it will expressly indicate such.

CHAPTER II

Installation and commissioning

Article 3. *General conditions.*

1. Installations shall be designed taking into account all relevant factors to guarantee safety during their service life. The design shall include safety factors suitable to consistently prevent all types of faults.

2. For the purposes of this Regulation, pressure equipment as per Article 1 shall be deemed equivalent to the categories as per Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015.

Notwithstanding the above, equipment as per Article 1(2)(c) shall be deemed equivalent to the categories as per Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015 when used permanently in an installation as if it were stationary equipment.

3. To perform the activities set out in this Regulation, pressure equipment installation companies shall be authorised to perform the activity according to the provisions of Annex I.

4. Before installation, the pressure equipment installation company shall verify the technical documentation and the instructions of the equipment manufacturers.

Article 4. *Installation.*

1. For installations, a competent qualified engineer shall draft a technical plan according to the criteria provided in Annex II to this Regulation.

Notwithstanding the above, for low-risk installations, as per the criteria of Annex II, it shall be permitted to replace this with the documentation indicated in the aforementioned Annex II.

2. The installation of category I to IV pressure equipment, referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or pressure equipment deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, shall be performed by authorised pressure equipment installation companies, according to the category required for each installation type.

Installations that only contain pressure equipment as per Article 4(3) of Royal Decree 709/2015 of 24 July 2015, or pressure equipment deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, may be performed under the responsibility of the user.

In any case, it is necessary to consider certain appropriate criteria for dimensioning, selection of materials, techniques for permanent joints, training of personnel that perform them and tests or trials in order to obtain certain results expected for the intended purpose.

Notwithstanding the above, installations made up exclusively of equipment as per Article 4(3) of Royal Decree 709/2015 of 24 July 2015 or equipment deemed equivalent to said category pursuant to



Article 3(2) of this Regulation, and that require the drafting of a plan according to point 1 of Annex II, or those that do not require the drafting of plans but that are non-permanently connected, in use or on standby, to transportable pressure equipment, shall be performed by pressure equipment installation companies authorised according to the criteria of Annex II.

3. Pressure equipment installations shall feature the protection devices and measures required for safe operation.

Pressure equipment shall be installed under conditions that enable subsequent performance of the maintenance and inspection activities provided for in the manufacturer instructions and the periodic inspections indicated in Article 6 of this Regulation.

Permanent joining that is required in installations shall be performed by accredited professionals using suitable welding procedures.

The procedures and personnel for performance of permanent joining may be certified by any entity accredited by a Spanish National Accreditation Body [ENAC], either as an inspection body or as an independent entity, to certify procedures and professionals that perform permanent joining. In addition, pursuant to point 3.1.2 of Annex I to Directive 2014/68/EU on pressure equipment, the procedures and personnel for permanent joining may be certified by notified bodies, or by third-party organisations recognised by the Member States and notified to the Commission, to conduct assessments of the personnel and said procedures.

Safety valves or bursting discs shall be discharged in a safe location.

4. For the purposes of this Regulation, the set-up of mobile compact pressure equipment that does not require stationary components and is not connected to other stationary pressure equipment, or that only requires an electrical connection to operate, shall not be regarded as installation.

Notwithstanding the above, for the purposes of this Regulation, the set-up of hyperbaric chambers shall always be regarded as installation.

5. Relocation of an installation shall be regarded as a new installation.

Article 5. Commissioning.

1. On completion of execution or assembly work, the commissioning of installations featuring pressure equipment belonging to categories I to IV as referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, shall require prior demonstration of the safety conditions of the installation to the competent body of the relevant Autonomous Community, by submitting the documentation indicated in Annex II to this Regulation. However, the Autonomous Community may replace this communication with a statement of compliance attesting to possession of all the required documentation.



2. Before commissioning, on-site tests must be conducted to verify proper functioning and safe conditions for use, applying the criteria provided in Annex II.

If the pressure equipment has incurred a defect during transport or handling that could affect its strength or if checks uncover an actual or apparent fault, it shall undergo the tests and trials necessary to guarantee its safety before commissioning. The tests and trials conducted shall be certificated by an authorised inspection body or the manufacturer. If repairs are necessary, Article 7 of this Regulation shall apply.

3. For installations that require a plan under the criteria provided in Annex II(1), the competent body of the relevant Autonomous Community may require supervision of the on-site tests by an authorised inspection body in the application of this Regulation on pressure equipment.

4. Annex IV provides the minimum contents of the documents required to certify installations.

5. Expansion or modification of an installation, by addition or replacement of new pressure equipment, as well as relocation of pressure equipment already installed, shall be subject to the same conditions required for installation of new equipment.

In cases of expansions, any required installation plan as per Annex II(1) shall only cover the expanded part.

6. All category I to IV pressure equipment referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, that make up part of an installation, under the criteria laid down in Article 4, shall bear the relevant installation and periodic inspection data plate as per Annex III.

7. Installations made up exclusively of equipment as per Article 4(3) of Royal Decree 709/2015 of 24 July 2015, or deemed equivalent to this category pursuant to Article 3(2) of this Regulation, and that require the drafting of a plan according to point 1 of Annex II, shall be deemed equivalent to installations as defined in paragraph 1 of this article solely for the purposes of the documentation to be submitted, indicated in Annex II, for commissioning as well as for application of paragraphs 2 to 5 of this article.

CHAPTER III

Periodic inspections and repairs and modifications

Article 6. *Periodic inspections.*

1. All category I to IV pressure equipment, referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or pressure equipment deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, shall undergo periodic inspections and testing to guarantee compliance with the technical and safety conditions required for its operation.

For assemblies falling under Royal Decree 709/2015 of 24 July 2015, it shall be permitted to take into account the classification of the various pressure devices making them up.



2. Inspections shall demonstrate certain suitable safety and strength conditions and may include the performance of checks, inspections with non-destructive testing, hydrostatic tests or other alternative tests.

These inspections shall include all components associated with the equipment.

3. The user shall have the required material and human resources, and the equipment or installations shall be prepared for inspection or testing under safe conditions.

4. Periodic inspections shall be conducted by a pressure equipment installation company or by an authorised inspection body.

In any case, authorised inspection bodies may conduct the inspections assigned to pressure equipment installation companies.

5. Annex III to this Regulation indicates the inspection deadlines, the parties that must conduct the inspections and the inspection levels with their scopes and conditions.

Periodic inspections shall be conducted starting from the date of manufacture of the pressure equipment or assemblies or starting from the date of the last periodic inspection.

If the exact date of manufacture is not known, the first periodic test shall be conducted based on the date of the installation certificate, or if installation is not required, that of the year indicated on the equipment markings.

The inspection deadlines shall be regarded as maximums, which must be moved to earlier dates if the authorised inspection body considers that the state of the equipment so requires. In the latter case, this shall be reported to the competent body of the Autonomous Community.

6. These periodic inspections shall be conducted in the presence of the user, with issue of the corresponding inspection certificate featuring the minimum contents indicated in Annex IV to this Regulation, with the original provided to the user and a copy to the entity that conducted the inspection, both of which shall keep these available to the competent body of the Autonomous Community.

The entities that conduct level B or C inspections shall submit the corresponding inspection certificates to the competent body of the Autonomous Community.

7. All pressure equipment that must undergo periodic inspections shall bear the relevant plate to record the periodic inspections, according to the provisions of Annex II or III to this Regulation. This plate shall record the dates of performance of the level B and C periodic inspections indicated in Annex III to this Regulation.

8. If deemed necessary, the competent body of the Autonomous Community may require the user to have an authorised inspection body conduct the checks it considers necessary.



9. Pursuant to Article 12 of this Regulation, in exceptional cases, the competent body of the Autonomous Community may authorise special conditions.

10. If the party conducting the inspection identifies a serious or imminent danger, it shall shut the installation down and report this immediately to the competent body of the Autonomous Community.

Once the defect is remedied, the pressure equipment or installation may be commissioned after the party that conducted the inspection notifies the competent body of the Autonomous Community.

11. Inspections shall be conducted according to the procedures set out in Annex E to the UNE 192011 standard series or other equivalent safety standards, except where these conflict with this Regulation.

Article 7. Repairs.

1. Repairs affecting pressurised parts of category I to IV equipment as referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or equipment deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, shall be performed by pressure equipment repair companies authorised to perform the activity as per the provisions of Annex I to this Regulation, or by the equipment manufacturer.

2. Neither the replacement of joints nor the exchange of accessories for others with equal or better characteristics or functioning shall be regarded as repairs.

3. Once repaired, pressure equipment shall continue to meet the design characteristics specified by the manufacturer, and equipment with the 'CE' marking shall also meet the essential safety requirements according to the standard applicable when it was made available on the market or commissioned.

4. Once repaired, all pressure equipment shall undergo an inspection by an authorised inspection body, which shall conduct the tests, examinations and checks it deems necessary to verify that the repair did not affect the safety conditions, and issue the corresponding certificate.

5. Before recommissioning repaired pressure equipment, a level C periodic inspection shall be conducted pursuant to the provisions of Annex III to this Regulation.

6. The repairs performed shall be certified by the repair company by issuing the corresponding repair certificate featuring the minimum contents indicated in Annex IV to this Regulation, with the original provided to the user and a copy to the entity that performed the repair, both of which shall keep these available to the competent body of the Autonomous Community.



Article 8. Modifications.

1. General conditions.

a) Any modifications shall guarantee the safety conditions of the equipment or installations, including performance of the necessary tests, examinations and checks.

b) Pressure equipment or installations shall be modified by companies authorised, according to the provisions of Annex I to this Regulation, as repairers or installers, respectively, or by the equipment manufacturer.

The company in question shall certify the modification by issue of the corresponding modification certificate featuring the minimum contents indicated in Annex IV to this Regulation, with the original provided to the user and a copy to the company in question, both of which shall keep these available to the competent body of the Autonomous Community.

c) For commissioning of category I to IV pressure equipment as referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or equipment deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, or for commissioning of installations that contain equipment of categories I or higher that has undergone a substantial modification, according to the criteria of the paragraphs below in this article, or that requires a new conformity assessment, compliance with the safety conditions shall be demonstrated to the competent body of the Autonomous Community, by submitting the modification certificate or, where applicable, the new EU declaration of conformity.

d) In cases of modifications not considered substantial, the user shall keep the modification certificate available to the competent body of the relevant Autonomous Community, which may request it in the exercise of its inspection, verification and supervision powers.

e) Transformations, adjustments or changes shall not be regarded as modifications of pressure equipment of installations if these still feature essentially the same contents (fluid of the same group, compatible with the materials), primary function and safety devices, or others provided by the manufacturer, unless this involves operations on pressurised parts such as drilling or welding that could affect equipment strength.

These activities shall be performed under the responsibility of the user or, where applicable, the service company in question.

2. Modification of pressure equipment.

a) Modifications of category I to IV pressure equipment as referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or equipment deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, as well as its corresponding safety accessories, shall meet the safety conditions corresponding to the new conditions of use, and for equipment bearing a 'CE' marking, the relevant essential safety requirements.



b) A pressure equipment modification shall be deemed substantial if it changes the original performance characteristics (increase in PS value, temperature change that could affect the material or volume change, or use of a fluid of higher risk according to the provisions of Royal Decree 709/2015 of 24 July 2015), the function or the original type (vessel or piping), or if it involves a physical change in any component with design implications affecting the device containment capacity according to the original design data.

Modifications deemed substantial shall require a new conformity assessment, according to the provisions of the aforementioned royal decree, as if the equipment were new.

c) Before commissioning, the level C periodic inspection shall be conducted according to the provisions of Annex III to this Regulation or, in cases of modifications deemed substantial, a new EU declaration of conformity shall be issued. The inspection shall include at least the part modified, and if all of the equipment is not tested, the inspection conducted shall not be considered a periodic inspection.

3. Modification of installations.

a) Installations in which modifications are applied and that feature equipment of the categories indicated in paragraph 2 above shall continue to meet the relevant safety conditions.

b) Installation modifications shall be deemed substantial if they alter the primary function, replace the fluid with another fluid that is higher risk according to Royal Decree 709/2015 of 24 July 2015, increase the pressure, change the temperature in a way that could affect the material or replace safety components with others with different characteristics. These modifications, as well as the expansions, shall be regarded as new installations for the purposes of the provisions of Chapter II of this Regulation.

c) Before commissioning, a level C inspection shall be conducted according to the provisions of Annex III to this Regulation, which shall include at least the modified part.

4. If the operating conditions differ from the design conditions, when using a lower-risk fluid or lower pressures (P_{ms} values less than PS, for at least 25%), it shall be permitted to modify and classify the equipment or installation with the new conditions. In this latter case, the safety valves shall be tared at a seal pressure (P_p) that is greater than the P_{ms} , and this seal pressure shall be used to calculate $P \times V$.

The safety conditions shall be demonstrated to the competent body of the relevant Autonomous Community by submitting the modification certificate. In addition, a change to the seal pressure shall require submission of a certificate issued by an authorised inspection body, attesting that the safety components are suitable for the new seal pressure, especially with regard to fluid outlet flow rates and safety valve discharge capacity, taking into account the fact that the momentary pressure surge, referred to in point 2.11.2 of Annex I to Royal Decree 709/2015 of 24 July 2015, must be kept to no more than 10% of the new seal pressure.

The equipment name plate shall indicate the new periodic test pressure corresponding to the new seal pressure (P_p).



If the new seal pressure (P_p) is less than or equal to 0.5 bar, the modified equipment may be deregistered.

CHAPTER IV

Other provisions

Article 9. *Obligations on users.*

Users of all pressure equipment covered in this Regulation shall:

1. Be familiar with and apply the manufacturer specifications and instructions regarding use, safety measures and maintenance.

2. Not commission the installation or shall prevent operation of the pressure equipment if it does not meet the requirements of this Regulation.

3. Have at least the following documentation available on the pressure equipment while it is installed: Any applicable declaration of conformity, the manufacturer instructions and any installation certificate, along with other documentary evidence (any applicable installation plan, certificate of last periodic inspection, equipment repair or modification certificates, and any other documentation required by the relevant additional technical instruction [ITC] of this Regulation).

Annex IV to this Regulation provides the minimum contents for the documents required to attest to installation, periodic inspection, repair or modification of the pressure equipment or assemblies.

This documentation shall be available to the competent body of the Autonomous Community and to the companies performing maintenance, repair and periodic inspection work.

4. Use pressure equipment within the operating limits specified by the manufacturer and decommission any pressure equipment that no longer meets the necessary safety requirements.

5. Perform maintenance on installations, pressure equipment, safety accessories and control devices according to the operating conditions and manufacturer instructions, including examination at least once a year.

To this end, at least the following shall be checked:

- Condition of surface (free of corrosion) and lagging.
- Condition of floor anchors (free of vibrations)
- Absence of leaks (in flanges, tank connections, etc.)
- Condition of pressure gauges and thermometers and other instrumentation (proper functioning)
- Apparent condition of safety valves (seal, and free of leaks) and other safety devices (pressure switches, thermostats, etc.);
- Condensate drain (activate to verify functioning)



- Condition of name and installation plates

If this point is regulated in an Additional Technical Instruction, its provisions shall apply.

6. Have the relevant periodic inspections conducted, pursuant to the provisions of Article 6 of this Regulation.

7. Keep and maintain a record of category I to IV pressure equipment as per Royal Decree 709/2015 of 24 July 2015, or equipment deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, as well as installations covered by this Regulation, except for extinguishers and equipment that does not require periodic inspections, including the dates of performance of the periodic inspections and the maintenance work referred to in paragraph 5 above, as well as any modifications or repairs.

8. Where applicable, order repairs or modifications pursuant to the provisions of Articles 7 and 8 of this Regulation.

9. Report any accidents that occur, in accordance with the provisions of Article 13 of this Regulation.

10. Pressure equipment in categories lower than category I shall be subject to the above paragraphs, except for paragraphs 6, 7 and 8 (because these only apply to equipment of category I or higher). In addition, paragraph 3 shall only require manufacturer instructions.

11. Report any deregistration of installations or pressure equipment to the competent body.

Article 10. *Additional Technical Instructions [ITCs].*

Although the criteria of this Regulation may apply to all pressure equipment, the Additional Technical Instructions may further specify, supplement or define the special conditions applicable to certain pressure equipment, with regard to its installation, commissioning, periodic inspection, repair or modification.

Pressure equipment expressly excluded from the scope of an ITC and not included in the scope of any other ITCs shall not be required to meet this Regulation, except for the provisions of Article 9 above, aside from paragraphs 6, 7 and 8 of said article.

Article 11. *Authorised inspection bodies (IBs).*

Authorised inspection bodies shall have the status of an inspection body as per Chapter I of Title III of Law 21/1992 of 16 July 1992 on Industry, implemented in Chapter IV of the Regulation on industrial quality and safety infrastructure [Reglamento de la Infraestructura para la Calidad y la Seguridad Industrial], adopted by Royal Decree 2200/1995 of 28 December 1995.

Article 12. *Special conditions.*

In duly justified cases of exception, at the request of the owner, the competent body of the relevant Autonomous Community may approve special conditions that deviate from those provided in this



Regulation or in its ITCs, provided they guarantee an equivalent level of safety. The request shall be accompanied by a favourable report from an inspection body authorised to conduct the inspections indicated in this Regulation, and any further reports and documents deemed appropriate.

In this regard, in order to conduct periodic inspections, it shall be permitted to allow the replacement of test fluid, the reduction of test pressure values, the use of special non-destructive testing techniques or amendment of the conditions set out in Annex III to this Regulation or the corresponding ITC.

Article 13. Accidents.

Without prejudice to other accident-related communications with the labour authorities provided for in labour regulations, if an accident occurs that causes significant injuries to persons or significant damage to the environment or the installation itself, the user shall report this as soon as possible, and in any case within no more than 24 hours, to the competent body for industry of the Autonomous Community, which shall take the actions it deems appropriate to determine the causes of the accident.

A report shall be drafted on the accident, which the installation user shall submit to the competent body for industry of the Autonomous Community within 1 month.

Article 14. Responsibilities.

The parties responsible for meeting the requirements of this Regulation shall be those determined in each case and specified in Article 33 of Law 21/1992 of 16 July 1992 on industry.

Article 15. Infringements and penalties.

Infringements of the provisions of this Regulation and failure to meet the obligations it sets shall be subject to the penalties as per Title V of Law 21/1992 of 16 July 1992 on industry.

Independently of the above, the competent bodies of the Autonomous Communities may order the shut-down of equipment or an installation if the identified infringement could entail a serious and imminent risk to persons, flora, fauna, property or the environment.

ANNEX I

Pressure equipment installation and repair companies

1. Authorisation of pressure equipment installation companies.

1.1 Before starting their activities as pressure equipment installation companies, natural persons or legal entities that want to be established in Spain shall provide the competent body of the Autonomous Community where they will be established with a statement of compliance in which the company owner or his or her legal representative declares that the party meets the requirements of this Regulation and the corresponding ITCs, has the documentation demonstrating such, pledges to keep this documentation during the activity period and accepts responsibility for execution of the installations in accordance with the standards and requirements set out in the relevant Additional Technical Instructions.



1.2 Before the start of an activity, pressure equipment installation companies legally established to perform said activity in any other Member State of the European Union and that want to perform it in the territory of Spain under the principle of freedom to provide services shall provide the competent authority of the Autonomous Community where they want to start the activity with a statement of compliance in which the company owner or his or her legal representative declares that the party meets the requirements of this Regulation and the corresponding Additional Technical Instructions, has the documentation demonstrating such, pledges to keep this documentation during the activity period and accepts responsibility for execution of the installations in accordance with the standards and requirements set out in the relevant Additional Technical Instructions.

To demonstrate compliance with the requirement for qualified personnel, the statement shall indicate that the company has the documentation attesting to the training of the allocated personnel, according to the regulations of the country of establishment and those of the European Union on the recognition of professional qualifications, implemented in Spain by Royal Decree 581/2017 of 9 June 2017 transposing into Spanish law Directive 2013/55/EU of the European Parliament and of the Council of 20 November 2013 amending Directive 2005/36/EC on the recognition of professional qualifications and Regulation (EU) No 1024/2012 on administrative cooperation through the Internal Market Information System (the IMI Regulation). The competent authority may verify this capacity as per the provisions of Article 15 of said Royal Decree.

1.3 Companies shall include the following details in their statements of compliance:

- a) Indication of any company accreditations (quality system, manufacturer authorisations, etc.).
- b) Indication of the punch or clamp mark for the safety valve seal, or other equivalent identifying details.

1.4 The Autonomous Communities shall enable electronic submission of the statement of conformity.

Submission of documentation proving compliance with the requirements may not be required together with the statement of conformity. However, this documentation shall be available for immediate submission to the competent authority if it requires such in the exercise of its powers of inspection, verification and supervision.

1.5 The competent body of the Autonomous Community shall assign an identification number *ex officio* to the company and shall send the necessary information for its entry in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry and in its implementing regulations.

1.6 In accordance with Law 21/1992 of 16 July 1992 on industry, the statement of compliance entitles the pressure equipment installation company, from the time of its submission to the competent



authority, to perform the activity throughout the territory of Spain for an unspecified period of time, without imposing any further requirements or conditions.

1.7 Under the provisions of Article 71 bis(3) of Law 30/1992 of 26 November 1992 on the legal framework for public administration and the common administrative procedure, the competent authority may regulate a procedure for subsequent verification of the statements of the interested party.

In any case, failure to submit a statement, or significant inaccuracies, falsifications or omissions of information or statements that must appear in said statement of compliance shall enable the competent authority to issue a decision – which must include the supporting reasons, and after hearing from the interested party – declaring that it is not permitted to continue performing the activity and, where applicable, that authorisation to perform the activity is temporarily suspended, without prejudice to any responsibilities arising from the actions taken.

1.8 The interested party shall report any fact that entails changes to any of the information included in the original statement, as well as the cessation of activities, to the competent body of the Autonomous Community to which it submitted the statement of compliance, within a period of 1 month.

1.9 Pressure equipment installation companies shall be classified into two categories:

- Category EIP-1: With capacity to perform installations that do not require plans.
- Category EIP-2: With capacity to perform installations for pressure equipment that requires a plan, as well as those indicated for category EIP-1.

Pressure equipment installation companies shall:

a) Have documentation that identifies the installation company, which in the case of a legal entity, shall be legally constituted.

b) Have personnel accreditations to perform permanent joining and the corresponding operating procedures. If only using non-permanent joining systems, the company accreditation shall indicate this limitation.

c) Have the technical means necessary to perform the activity under safe conditions.

d) Have regular personnel, for as long as the company offers its services, that perform the activity under safe conditions, in adequate numbers to handle the installations for which it is contracted.

Both the company managers and regular installation personnel shall be familiar with this Regulation and its additional technical instructions.

e) The regular personnel of category EIP-2 installation companies shall also include at least one competent qualified engineer, who shall be the technical manager, for as long as the company offers its services.



For the purposes of the preceding paragraph, a legal entity shall be deemed to meet the requirement if one of the managing partners of the organisation holds the individual qualification.

The role of competent qualified engineer may be replaced with two or more competent qualified engineers, whose working hours can cover the hours of operation of the company.

f) Have taken out a professional indemnity insurance policy or other equivalent guarantee that covers any damages that may be caused in the performance of the service for at least EUR 300,000 per claim for category EIP-1 and EUR 600,000 per claim for category EIP-2. These minimum amounts shall be updated by order of the Ministry of Industry, Trade and Tourism as necessary to maintain the economic equivalence of the guarantee, following a report from the Government Executive Committee for Economic Affairs.

1.10 The authorised pressure equipment installation company shall not issue, transfer or dispose of installation certificates not produced by the company itself.

1.11 Failure to meet the set requirements, verified by the competent authority and declared in a reasoned decision, shall entail cessation of the activity, unless an error correction file can be opened, without prejudice to any penalties arising from the seriousness of the actions taken.

In this case, the competent authority shall open an information file for the company owner, who shall have 15 calendar days from the date of communication to provide the corresponding evidence or waivers.

1.12 The competent body of the Autonomous Community shall immediately notify the Ministry responsible for industry of the temporary disqualification, amendments and cessation of activity referred to in the preceding paragraphs, for the updating of the information in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry, as set out in its implementing regulations.

2. Authorisation of pressure equipment repair companies.

2.1 Before starting their activities as pressure equipment repair companies, natural persons or legal entities that want to be established shall provide the competent body of the Autonomous Community where they will be established with a statement of compliance in which the company owner or his or her legal representative declares that the party meets the requirements of this Regulation and the corresponding Additional Technical Instructions, has the documentation demonstrating such, pledges to keep this documentation during the activity period and accepts responsibility for execution of the repair work in accordance with the standards and requirements set out in the relevant Additional Technical Instructions.

2.2 Before the start of an activity, pressure equipment repair companies legally established to perform said activity in any other Member State of the European Union that want to perform it in the territory of Spain under the principle of freedom to provide services shall provide the competent authority of the Autonomous Community where they want to start their activity with a statement of compliance in which the company owner or his or her legal representative declares that the party meets the requirements of



this Regulation and the corresponding Additional Technical Instructions, has the documentation demonstrating such, pledges to keep this documentation during the activity period and accepts responsibility for execution of the repair work in accordance with the standards and requirements set out in the relevant Additional Technical Instructions.

To demonstrate compliance with the requirement for qualified personnel, the statement shall indicate that the company has the documentation attesting to the training of the allocated personnel, according to the regulations of the country of establishment and those of the European Union on recognition of professional qualifications, implemented in Spain by Royal Decree 581/2017 of 9 June 2017. The competent authority may verify this capacity as per the provisions of Article 15 of said royal decree.

2.3 Companies shall include the following details in their statements of compliance:

- a) Indication of any company accreditations (quality system, manufacturer authorisations, etc.).
- b) If level B or C inspections will be conducted, indication of the punch or clamp mark for the safety valve seal, or other equivalent identifying details.

2.4 The Autonomous Communities shall enable electronic submission of the statement of conformity.

Submission of documentation proving compliance with the requirements may not be required together with the statement of conformity. However, this documentation shall be available for immediate submission to the competent authority if it requires such in the exercise of its powers of inspection, verification and supervision.

2.5 The competent body of the Autonomous Community shall assign an identification number *ex officio* to the company and shall send the necessary information for its entry in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry and in its implementing regulations.

2.6 In accordance with Law 21/1992 of 16 July 1992 on industry, the statement of compliance entitles the pressure equipment repair company, from the time of its submission to the competent authority, to perform the activity throughout the territory of Spain for an unspecified period of time, without imposing any further requirements or conditions.

2.7 Under the provisions of Article 71 bis(3) of Law 30/1992 of 26 November 1992 on the legal framework for public administration and the common administrative procedure, the competent authority may regulate a procedure for subsequent verification of the statements of the interested party.

In any case, failure to submit a statement, or significant inaccuracies, falsifications or omissions of information or statements that must appear in said statement of compliance shall enable the competent authority to issue a decision – which must include the supporting reasons, and after hearing from the interested party – declaring that it is not permitted to continue performing the activity and, where applicable,



that authorisation to perform the activity is temporarily suspended, without prejudice to any responsibilities arising from the actions taken.

2.8 The interested party shall report any fact that entails changes to any of the information included in the original statement, as well as the cessation of activities, to the competent body of the Autonomous Community to which it submitted the statement of compliance, within a period of 1 month.

2.9 Repair companies shall meet the requirements set out in point 1.9 of this Annex for category EIP-2 and shall be identified by the code 'ERP-2'.

Notwithstanding the above, for pressure equipment up to category I as per Royal Decree 709/2015 of 24 July 2015, or deemed equivalent to this category pursuant to Article 3(2) of this Regulation or the first additional provision of this Royal Decree, repair companies shall meet the requirements set out for installation companies of category EIP-1. These companies shall be identified with the code 'ERP-1'.

2.10 The authorised pressure equipment repair company shall not issue, transfer or dispose of certificates for operations not performed by the company itself.

2.11 Failure to meet the set requirements, verified by the competent authority and declared in a reasoned decision, shall entail cessation of the activity, unless an error correction file can be opened, without prejudice to any penalties arising from the seriousness of the actions taken.

In this case, the competent authority shall open an information file for the company owner, who shall have 15 calendar days from the date of communication to provide the corresponding evidence or waivers.

2.12 The competent body of the Autonomous Community shall immediately notify the Ministry responsible for industry of the temporary disqualification, amendments and cessation of activity referred to in the preceding paragraphs, for the updating of the information in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry, as set out in its implementing regulations.

3. Obligations. Pressure equipment installation and repair companies are obligated to:

3.1 Submit the statement of compliance specified in sections 1 and 2 of this Annex.

3.2 Meet all requirements and standards set out in sections 1 and 2 above and report any changes to the information in the statement of compliance to the competent body of the Autonomous Community to which the statement was submitted.

3.3 Perform installations, repairs or periodic inspections in accordance with this Regulation, and issue the corresponding certificates.

3.4 Keep the relevant book or log, manually or electronically, with records on the actions performed, including at least:

Date of action.



User.

Type of action.

Identification or characteristics of the equipment or installation.

ANNEX II

Requirements on the installation and commissioning of installations

1. Installation plan.

In general, the following installations shall require an installation plan:

a) Installations whose sum of the products of the maximum working pressures of the devices making up the installation, in bar, and the volumes, in litres, of all pressure devices permanently connected to the same installation, is greater than 25,000, excluding connection piping for vessels and the equipment referred to in Article 4(3) of Royal Decree 709/2015 of 24 July 2015.

b) Installations that can produce an increase in pressure when fired, in cases of heat input with a risk of overheating or due to chemical reaction (autoclaves, reactors, etc.) in which the sum of products of the maximum working pressure, in bar, and the volume, in litres, of each pressure device connected in the same installation is greater than 10,000, excluding connection piping for vessels and the equipment referred to in Article 4(3) of Royal Decree 709/2015 of 24 July 2015.

c) Installations that contain hazardous fluids in quantities greater than those indicated below. This shall use the sum of the quantities of all pressure equipment connected to the installation (including transportable pressure equipment) that contains hazardous fluids, including those classified in Article 4(3) of Royal Decree 709/2015 of 24 July 2015, and excluding connection piping for vessels.

Substances and mixtures	Hazard code	Quantity (kg)
Unstable explosives	H200	1
Division 1.1 explosives	H201	
Division 1.2 explosives	H202	
Division 1.3 explosives	H203	
Division 1.4 explosives	H204	
Division 1.5 explosives	H205	
Category 1 flammable gases	H220	10
Category 2 flammable gases	H221	



Category 1 oxidising gases	H270	50
Category 1 flammable liquids	H224	10
Category 2 flammable liquids, kept at a temperature greater than their boiling point	H225	
Category 3 flammable liquids, kept at a temperature greater than their boiling point	H226	
Category 2 flammable liquids, not falling under the above category	H225	50
Category 3 flammable liquids, if the maximum allowable temperature is greater than the flash point and if the liquids do not fall under the above category	H226	500
Category 1 and 2 flammable solids	H228	50
Type A self-reactive substances and mixtures	H240	1
Type B self-reactive substances and mixtures	H241	
Types C to F self-reactive substances and mixtures	H242	50
Category 1 pyrophoric liquids	H250	50
Category 1 pyrophoric solids	H250	50
Substances and mixtures which in contact with water release category 1 flammable gases	H260	50
Substances and mixtures which in contact with water release category 2 and 3 flammable gases	H261	
Category 1 oxidising liquids	H271	50
Category 2 and 3 oxidising liquids	H272	
Category 1 oxidising solids	H271	50
Category 2 and 3 oxidising solids	H272	
Type A organic peroxides	H240	1



Type B organic peroxides	H241	
Types C to F organic peroxides	H242	50
Category 1 substances and mixtures with acute oral toxicity	H300	0.5
Category 1 substances and mixtures with acute dermal toxicity	H310	
Category 1 substances and mixtures with acute inhalation toxicity	H330	
Category 2 substances and mixtures with acute oral toxicity	H300	5
Category 2 substances and mixtures with acute dermal toxicity	H310	
Category 2 and 3 substances and mixtures with acute inhalation toxicity	H331	
Category 1 substances and mixtures with specific target organ toxicity, single exposure	H370	5
Substances and mixtures contained in pressure equipment with a maximum allowable temperature TS greater than the flash point of the fluid.	-	500

Substances shall be classified according to the provisions of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending Regulation (EC) No 1907/2006 (CLP Regulation), and its subsequent amendments.

d) Piping included in Article 4(1)(3) of categories II and III as referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015.

If a plan must be submitted, installation shall be performed by a category EIP-2 company.

Notwithstanding the provisions of the sections above, the Additional Technical Instructions of this Regulation may set different conditions on requirements to submit installation plans or other specific documentation.

2. Plan contents.

If an installation plan is required, it shall include at least the following:

a) Report:

- Class of industrial activity or intended use of the pressure equipment.



- Identification and characteristics of the pressure equipment.
 - Demonstration of compliance with all applicable regulatory requirements.
 - Study on safe use of the installation (charging and discharging elements, openings and closures, safety or process valve discharges, facilities to prevent access under hazardous conditions, surface temperatures, decomposition or ignition of contained substances, special maintenance or inspection criteria, etc.), including special measures for potential risks specifically associated with the installation.
 - Instructions in cases of emergency and procedures in cases of safety device activation or failure.
- b) Budget.
- c) Drawings:
- Schematic diagram of the installation, indicating all pressure equipment and the positions of safety accessories. This must indicate the main operating parameters (pressure, temperature, etc.).
 - Location map of the installation or establishment, indicating fixed reference points (roadways, kilometre location markers, rivers, etc.) and in an approximate scale of 1/10,000 to 1/50,000.
 - Location map of the installation on the site, indicating the general dimensions, location of main equipment and distances to any other hazards.

It is recommended to use standard UNE 157001 as a guide when drafting the plans.

3. Low-risk installations.

Installations not falling under section 1 above shall be considered low-risk, which means they shall not require an installation plan.

4. Commissioning.

Commissioning of installations with category I to IV pressure equipment as referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or pressure equipment deemed equivalent to these categories pursuant to Article 3(2) of this Regulation, shall require submission of at least the following documentation:

a) Technical department certificate issued by the competent qualified engineer, in cases of installations that require an installation plan.

b) Installation certificate signed by both the pressure equipment installation company and its technical manager, indicating that the equipment meets this Regulation, that they have the instructions for all equipment (including that indicated in Article 4(3) of Royal Decree 709/2015 of 24 July 2015), that they have conducted the required tests, including any applicable hydrostatic resistance test on the untested parts, and that it functions properly.



If the hydrostatic resistance test indicated in the preceding paragraph is required, it shall be conducted at a test pressure of at least the higher of the following two values:

- the pressure P_{ms} of the installation multiplied by 1.43, or
- the pressure P_{ms} of the installation multiplied by a factor that takes into account the highest resistance of the materials to the test temperature with respect to the temperature T_{ms} and then multiplied by 1.25.

Notwithstanding the above, it shall not be permitted under any circumstances to exceed the test pressure for each pressure device.

For installations that require an installation plan, the installation certificate shall be issued and signed by the competent qualified engineer of the EIP-2 company. In such cases, the installation certificate may replace the technical department certificate referred to in paragraph a) above if it includes that indicated in sections 1 and 2 of Annex IV.

In low-risk installations, the installation certificate may be drawn up by EIP-1 installation companies.

c) Declarations of conformity for pressure equipment or assemblies pursuant to the provisions of Royal Decree 709/2015 of 24 July 2015 or Royal Decree 108/2016 of 18 March 2016 and any applicable safety or pressure accessories.

Transportable pressure equipment in permanent use at a stationary installation shall only require a declaration from the installer that the pressure equipment bears the marking referred to in Royal Decree 1388/2011 of 14 October 2011 setting out provisions implementing Directive 2010/35/EU of the European Parliament and of the Council of 16 June 2010 on transportable pressure equipment and repealing Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC and 1999/36/EC.

For used appliances, this shall be accompanied by the level C periodic inspection certificate, or failing this, the level B periodic inspection certificate if the provisions of Annex III or the corresponding Additional Technical Instruction state that the equipment is not subject to level C inspections.

If the appliances were made available on the market before entry into force of Royal Decree 769/1999 of 7 May 1999 setting out provisions implementing Directive 97/23/EC of the European Parliament and of the Council on pressure equipment and amending Royal Decree 1244/1979 of 4 April 1979, or entry into force of Royal Decree 1495/1991 of 11 October 1991 setting out provisions implementing Council Directive 87/404/EEC on simple pressure vessels, and if they lack the CE marking, it shall be permitted to submit the production certificates according to the regulations in force at the time of manufacture.

d) Installation plan, or if this is not required, the schematic diagram of the installation, signed by the pressure equipment installation company and indicating the main operating parameters (pressure, temperature, etc.) and a drawing or sketch of the installation.



5. Installations with equipment of categories lower than category I.

Installations solely featuring pressure equipment of categories lower than category I as per Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or equipment deemed equivalent to these pursuant to Article 3(2) of this Regulation, shall meet Article 9 of this Regulation, except for paragraphs 6, 7 and 8 (because these only apply to equipment of category I or higher). In addition, paragraph 3 shall only require manufacturer instructions.

Notwithstanding the above, installations solely featuring pressure equipment of categories lower than category I, to which transportable pressure equipment is non-permanently connected, in use or on standby, shall require submission of an installation certificate signed by an EIP-1 installation company, including a schematic diagram of the installation and the main operating parameters (number and type of transportable vessels, fluid, pressure, other main parameters and safety measures, etc.).

ANNEX III

Periodic inspections

1. Parties and inspection intervals.

In addition to the checks referred to in the manufacturer instructions, at least the following levels of inspections and tests shall be conducted, at the intervals and by the parties indicated in the tables below. The classification of pressure equipment is provided in Article 13 of Royal Decree 709/2015 of 24 July 2015.

Table 1. Vessels for gases and liquids included or deemed equivalent, pursuant to the provisions of Article 4(1) of Royal Decree 709/2015 of 24 July 2015, in tables 1, 2, 3 and 4 of its Annex II.

Inspection level	PARTY AND INTERVAL		
	Equipment category and fluid group		
	I-2 and II-2	I-1, II-1 III-2 and IV-2	III-1 and IV-1
Level A	Installation company, 4 years	Installation company, 3 years	Installation company, 2 years
Level B	IB, 8 years	IB 6 years	IB 4 years
Level C	Not required	IB 12 years	IB 12 years

Notes: – By way of exception, fire extinguishers shall only undergo level C tests once every 5 years, conducted by maintenance companies authorised by the Regulation on fire protection installations



[Reglamento de instalaciones de protección contra incendios], adopted by Royal Decree 513/2017 of 22 May 2017 adopting the Regulation on fire protection installations, and shall have a service life of 20 years starting from the date of manufacture.

– By way of exception, refrigerated vessels not covered by a specific regulation on periodic inspections for pressure equipment shall be inspected by refrigeration installation companies authorised in accordance with the Regulation on refrigeration installation safety [Reglamento de seguridad para instalaciones frigoríficas], adopted by Royal Decree 552/2019 of 27 September 2019 adopting the Regulation on refrigeration installation safety and its additional technical instructions, and shall not require level C inspections, unless the equipment has been damaged, has been out of service for over 2 years, has had its fluid replaced with a different, higher-risk fluid or has undergone repairs.

– For nitrogen or compressed air vessels whose product of the maximum working pressure in bar and the volume in litres is less than 5,000, pressure equipment installation companies may conduct the inspections.

Table 2. Equipment that is fired or subject to heat input that is included in Table 5 of Annex II to Royal Decree 709/2015 of 24 July 2015 for the provision of steam or superheated water.

Inspection level	PARTY AND INTERVAL
	Categories I, II, III and IV
Level A	Installation company, 1 year
Level B	IB, 3 years
Level C	IB, 6 years

Note: This does not include pressure cookers.

Table 3. Piping included or deemed equivalent, pursuant to the provisions of Article 3(1) of Royal Decree 709/2015 of 24 July 2015, in Tables 6, 7, 8 and 9 of its Annex II.

Inspection level	PARTY AND INTERVAL		
	Categories 1-2 and II-2	Category III-2	Categories 1-1, II-1 and III-1
Level B	IB, 12 years	IB, 6 years	IB, 6 years
Level C	Not required	Not required	IB, 12 years



2. Inspection levels.

The scopes of the indicated inspection levels are provided below:

2.1. Level A: In-service inspection.

This shall include at least verification of the documentation on the pressure equipment and a complete visual inspection of all pressurised parts and all safety accessories, control devices and regulatory conditions, and shall not require removal of equipment lagging.

If this inspection finds reasonable grounds to assume deterioration of the installation, an authorised inspection body shall conduct a level B inspection.

Level A inspections shall be conducted by pressure equipment installation companies of the category corresponding to the installation and shall not require shut-down of the equipment or installation to be inspected.

2.2. Level B: Out-of-service inspection.

This shall include at least verification of level A and a visual inspection of all zones subject to high loads and heavy corrosion, verification of thicknesses, verification and testing of safety accessories and any non-destructive testing deemed necessary. This shall take into account the design criteria for the pressure equipment susceptible to creep, fatigue or corrosion, according to the provisions of sections 2.2.3 and 2.2.4 of Annex I to Royal Decree 709/2015 of 24 July 2015.

For equipment or piping with lagging, it shall not be required to remove the lagging completely, but rather only to select the points where major problems could arise (internal or external corrosion, erosion, etc.), for creation of corresponding inspection holes.

Level B inspections shall be conducted by authorised inspection bodies, and shall require shut-down of the pressure equipment or installation to be inspected.

For piping, the inspection may be conducted without shut-down of the installation if the indicated tests can be performed.

2.3. Level C: Out-of-service inspection with pressure test.

This shall include at least a level B inspection in addition to a hydrostatic pressure test, under conditions and pressures equal to those of the first test, or that indicated on the label referred to in section 3.3 of Annex I to Royal Decree No 709/2015 of 24 July 2015, or any special test replacing the one specifically indicated by the manufacturer in its instructions or previously authorised by the competent body of the Autonomous Community where the equipment or installation is located.

3. Inspection records.

Level B and C periodic inspections shall be documented on the installation and periodic inspection data plate referred to in this annex.

4. Installation and periodic inspection data plate.

4.1. All pressure equipment of installations that is subject to periodic inspections shall feature a plate made from durable materials that indicates the identification number assigned by the competent body of the Autonomous Community, the maximum working pressure of the installation, the test pressure of the equipment or assembly, its category and group, as well as the inspection dates, inspection level and stamp of the responsible inspection body.

The plates shall be legible and shall be applied in a visible place on the equipment or assembly.

Unless stipulated otherwise by the competent bodies for industry of the Autonomous Communities, as part of their installation commissioning procedures, the plates shall be provided by the competent body of the Autonomous Community.

If equipment features a plate and is relocated to another Autonomous Community, the latter shall decide whether to allow the equipment to keep the plate or to issue a new plate.

4.2. Category I to IV pressure equipment as referred to in Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, or equipment deemed equivalent pursuant to Article 3(2) of this Regulation, that is permanently installed, shall use one of the following plate models:

Model for installation and periodic inspection data plate



Órgano competente de la comunidad autónoma	Competent body of the Autonomous Community
Nº identificación	Identification No
Fecha de instalación	Installation date
Presión máx. de servicio [bar]	Max. working pressure [bar]
Presión máx. de servicio (bar)	Max. working pressure (bar)
Fecha	Date
Nivel/sello	Level/stamp
Presión de prueba (bar)	Test pressure (bar)
Categoría y Grupo	Category and Group

The large plate shall measure 70 x 75 mm.

The small plate may be used on small pressure equipment and shall measure 70 x 55 mm.

The plates shall be filled in with the following information:

Identification No	The number granted by the competent body of the Autonomous Community.
Installation date	Date of the installation certificate.
Max. working pressure	Maximum working pressure of the installation.
Date	The first date shall be the date of manufacture of the pressure equipment or assembly. The subsequent dates shall be the dates of performance of the relevant level B and C periodic inspections.
Level/stamp:	Indication of inspection level B or C pursuant to Annex III and the punched mark of the inspection body that conducted the periodic inspection.
Test pressure	The hydrostatic test pressure of the pressure equipment or assembly.
Category and group	Category of the appliance, pressure equipment or assembly and fluid group, pursuant to Royal Decree 709/2015 of 24 July 2015.

5. Periodic inspection data plate of extinguishers and other equipment.

In the case of extinguishers and other mobile equipment of categories I to IV as per Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015, following the first level B or C periodic inspection, the party conducting the inspection shall affix a data plate if one is not already present.

The plate models below shall be used:

a) Model for periodic inspection data plate for extinguishers

Nº de fabricación		<input type="text"/>	
Presión máxima admisible(bar)		<input type="text"/>	
Fecha	Empresa	Fecha	Empresa
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Presión de prueba (bar)		<input type="text"/>	

Nº de fabricación	Serial No
Presión máxima admisible(bar)	Maximum allowable pressure (bar)
Fecha	Date
Emoresa	Company



Empresa	Company
Presión de prueba(bar)	Test pressure (bar)

The data plate may be adhesive and shall measure 70 x 35 mm.

The plates shall be filled in with the following information:

Serial No	The serial number of the extinguisher.
Maximum allowable pressure	The maximum allowable design pressure of the extinguisher.
Date	The first date shall be the date of manufacture of the extinguisher. The subsequent dates shall be the dates of performance of the relevant level C periodic inspections.
Company	Registration No, in the Register of industrial establishments, of the company authorised to conduct inspections.
Test pressure	Pressure of the periodic hydrostatic test.

b) Model for periodic inspection data plate for other equipment

The diagram shows a rectangular form with the following fields and labels:

- Nº de identificación (Identification No)
- Presión máxima (bar) (Maximum pressure (bar))
- Fecha (Date) - Nivel/Sello (Level/Stamp)
- Fecha (Date) - Nivel/Sello (Level/Stamp)
- Presión de prueba (bar) (Test pressure (bar))
- Categoría y Grupo (Category and Group)

Nº de fabricación	Identification No
Presión máxima (bar)	Maximum pressure (bar)
Fecha	Date
Nivel/Sello	Level/stamp
Presión de prueba (bar)	Test pressure (bar)
Categoría y Grupo	Category and Group

The data plate may be adhesive and must measure 70 x 35 mm.

The plates shall be filled in with the following information:

Maximum pressure	The maximum allowable pressure of the pressure equipment.
Date	The first date shall be the date of manufacture of the pressure equipment or assembly. The subsequent dates shall be the



		dates of performance of the relevant level B and C periodic inspections.	
Level/stamp		Indication of inspection level B or C and the punched mark of the party that conducted the periodic inspection.	
Test pressure		The hydrostatic test pressure of the pressure equipment or assembly.	
Category and group		Category of the appliance, pressure equipment or assembly and fluid group, pursuant to Royal Decree 709/2015 of 24 July 2015.	

ANNEX IV

Documents for installation, periodic inspections, repair and modification

The documents used to attest to the installation, repair, modification and periodic inspections of pressure equipment shall include at least the following information:

1. Technical department certificate.

Identification of the competent qualified engineer, National ID No [DNI] or Foreigner ID No [NIE] (or failing these, the passport number) and any official association to which the engineer belongs and the membership No.

Installation location (owner, address and number in the Integrated Industrial Register)

Technical characteristics of the installation:

Identification of all pressure equipment, designation, PS, V, PT and classification.

Maximum working pressure of the installation (Pms) and fluid content. Safety accessories and seal pressure (Pp).

Where applicable, other specific characteristics depending on the equipment type (TS, etc.)

Indication that the installation was built according to the plan (plan identification).

Indication that the installation meets the regulatory requirements and manufacturer indications and has passed the on-site tests.

Indication of proper functioning.

Identification of the accompanying documentation.

Date and signature.

2. Installation certificate.

– Identification of pressure equipment installation company (name, address and identification No).



- Installation location (owner and address).

- Technical characteristics of the installation:

Description of all pressure equipment, identification, PS, V, PT and classification.

Maximum working pressure of the installation (Pms) and fluid content.

Safety accessories and seal pressure (Pp).

Where applicable, other specific characteristics depending on the equipment type (TS, etc.).

- Indication that the installation meets the regulatory requirements and manufacturer indications and has passed the on-site tests, including any applicable hydrostatic test.

- Indication of possession of all manufacturer instructions.

- Indication of proper functioning.

- Identification of the accompanying documentation.

- Date and signature.

- Identification of the technical manager of the installation company who signed the certificate and the company stamp.

3. Periodic inspection certificate.

- Identification of the installation company or IB that conducted the inspection (name, address and identification No).

- Installation location (owner and address).

- Technical characteristics of the pressure equipment:

Identification, designation, PS, V, PT and classification.

Maximum working pressure (Pms) and fluid content.

Safety accessories and seal pressure (Pp).

Where applicable, other specific characteristics depending on the equipment type (TS, etc.).

- Inspection level.

- Description of the checks performed.

- Results of the checks.

- Indication of compliance with any applicable safety conditions.

- Indication that the pressure equipment can continue to operate and that the next periodic inspection must be conducted before



- Date and signature.

- Identification of the technical manager of the pressure equipment installation company who signed the certificate or the inspector from the authorised inspection body (IB) and company seal.

4. Repair certificate.

- Identification of pressure equipment repair company (name, address and identification No).

- Installation location (owner and address).

- Technical characteristics of the pressure equipment:

Identification, designation, PS, V, PT and classification.

Maximum working pressure (Pms) and fluid content.

Safety accessories and seal pressure (Pp).

Where applicable, other specific characteristics depending on the equipment type (TS, etc.).

- Description of the repair.

- Indication that the pressure equipment still meets the design characteristics.

- Date, name, signature of manager and stamp of the repair company.

- Identification of the authorised inspection body (IB) that provided the service.

- Description of the examinations, checks and tests performed.

- Indication that the pressure equipment is safe.

- Date and signature.

- Identification of the technical manager of the repair company who signed the certificate and the company stamp.

5. Pressure equipment modification certificate (re-assessment not required).

- Identification of pressure equipment repair company (name, address and identification No).

- Installation location (owner and address).

- Technical characteristics of the pressure equipment:

Identification, designation, PS, V, PT and classification.

Maximum working pressure (Pms) and fluid content.

Safety accessories and seal pressure (Pp).

Where applicable, other specific characteristics depending on the equipment type (TS, etc.).

- Description of the modification.



- Date, name, signature of manager and stamp of the repair company.
- Identification of the authorised inspection body (IB) that provided the service.
- Description of the examinations, checks and tests performed.
- Indication that the pressure equipment is safe.
- Date and signature.
- Identification of the technical manager of the repair company who signed the certificate and the company stamp.

6. Installation modification certificate.

- Identification of pressure equipment installation company (name, address and identification No).
- Installation location (owner and address).
- Technical characteristics of the installation:

Identification and characteristics of the pressure equipment.

Safety accessories and seal pressure (Pp).

Where applicable, other specific characteristics depending on the installation type.

- Description of the modification.
- Date, name, signature of manager and stamp of the installation company.
- Identification of the authorised inspection body (IB) that provided the service, where applicable.
- Description of the examinations, checks and tests performed.
- Indication that the installation is safe.
- Date and signature.
- Identification of the technical manager of the installation company who signed the certificate and the company stamp.



ADDITIONAL TECHNICAL INSTRUCTION

ITC EP-1

BOILERS

CHAPTER I

Scope and definitions

Article 1. Scope.

1. This Additional Technical Instruction (ITC) applies to the installation, repair and periodic inspection of boilers and their associated elements (economisers, superheaters, etc.), included in the Regulation on pressure equipment.

2. The following boilers and their associated parts are not subject to the provisions of this ITC:

a) Those integrated into electricity generation plants falling under ITC EP-2.

b) Those integrated into refineries and petrochemical plants falling under ITC EP-3.

c) Steam or superheated water boilers classified in Article 4(3) and in category I as per Article 13 of and Annex II to Royal Decree 709/2015 of 24 July 2015 on pressure equipment.

d) Hot water boilers classified in Article 4(3) of Royal Decree 709/2015 of 24 July 2015 on pressure equipment.

e) Those for thermal fluid of $P_{ms} \times V_i < 200$ if $T_{ms} > 120$ °C or of $P_{ms} \times V_i < 2,000$ if $T_{ms} \leq 120$ °C, where:

- P_{ms} : maximum working pressure in the installation expressed in bar.

- V_T : Total volume of the boiler in litres.

- V_i : total volume V_T plus the expansion tank and collection tank volumes in litres, if their P_{ms} values are over 0.5 bar;

- and T_{ms} : maximum working temperature.

Article 2. Definitions.

Without prejudice to the terminology provided in Article 2 of the Regulation on pressure equipment, the following definitions shall apply for the purposes of this ITC:

1. 'Boiler': any pressure appliance where the heat originating from an energy source is transformed into usable heat, in the form of calories, using liquid or steam as the transport medium.

2. 'Steam boiler': a boiler that uses steam as a heat transfer fluid or transport medium.

3. 'Superheated water boiler': any boiler whose transport medium is water at a maximum allowable temperature of over 110 °C.



4. 'Hot water boiler': any boiler whose transport medium is water at a maximum allowable temperature of 110 °C or less.

5. 'Thermal fluid boiler': any boiler whose heat transfer medium is a liquid other than water.

6. 'Automatic boiler': a boiler that performs its normal operating cycle without requiring any manual operation, except in cases of initial commissioning, or activation of a safety device that blocks heat distribution.

7. 'Manual boiler': a boiler requiring manual operation to perform some of the functions of its normal operating cycle.

8. 'Mobile boiler': a boiler that operates during relocation.

The following definitions shall also apply:

9. 'Variable location boiler': a boiler mounted on a frame to facilitate its relocation.

10. 'External risk': a risk affecting dwellings, public spaces, streets, squares and other public roadways or workshops and workrooms external to the user.

11. 'Boiler room': enclosed space for exclusive use, independent of other facilities, where the boiler is installed.

12. 'Boiler enclosure': space protected by fencing, which may be inside a room or open to the outside.

13. 'Black liquor recovery boiler': steam boiler that uses concentrated black liquor produced in the sulphate pulp production process as fuel.

CHAPTER II

Installation and commissioning

Article 3. *Boiler classification*

For the purposes of the applicable conditions, installations shall be classified as follows according to boiler type:

1. First class:

a) Fire-tube boilers with $P_{ms} \times V_T < 15,000$.

b) Water-tube boilers with $P_{ms} \times V_T < 50,000$.

c) Thermal fluid boilers, with a thermal transfer liquid vapour pressure, at maximum working temperature, of 0.5 bar or less, and with $V_i < 5,000$.

d) Thermal fluid boilers not falling under the preceding section, with $P_{ms} \times V_i < 10,000$.



Where:

- Pms: Maximum working pressure in the installation expressed in bar. For hot water, superheated water and thermal fluid boilers, the maximum working pressure is made up of:

- The pressure from the geometric head of the liquid.
- The thermal transfer vapour pressure at the maximum working temperature.
- The dynamic pressure due to the circulator pump.

- VT: total boiler volume in litres, plus the volume of the superheater, if present.

- Vi: VT plus the expansion tank and collection tank volumes, if their Pms values are over 0.5 bar.

2. Second class: Boilers with values greater than or equal to those indicated in the preceding section.

Article 4. Installation.

1. First-class boilers.

Installations shall be performed by category EIP-2 installation companies.

The installation is regarded as low-risk, which means it shall not require submission of an installation plan, but rather of the documents indicated in section 4 of Annex II to the Regulation on pressure equipment, as well as a technical report from the installation company, which shall include:

– Location map of the installation or establishment, indicating fixed reference points (roadways, kilometre location markers, rivers, etc.) and in an approximate scale of 1/10,000 to 1/50,000.

– Location map of the boiler room in the establishment.

– Drawing of the boiler room, indicating the general dimensions, positions of the various parts of the installation, distances from hazards, characteristics and thicknesses of any protective walls.

– Description and characteristics of the consumer equipment.

– Monitoring system indicated by the manufacturer in the operating instructions. In cases of indirect monitoring, the report shall indicate the verification periods for the various safety and control features, and any generally recognised standards applied.

2. Second-class boilers.

Second-class boilers shall be installed by category EIP-2 installation companies.

Installation shall require submission of an installation plan including at least that specified in section 2 of Annex II to the Regulation on pressure equipment, as well as the following:

– The consumer equipment, as well as the distribution piping, which shall be shown in the report.



– For the regulatory requirements, this shall indicate the monitoring system specified by the manufacturer in the operating instructions. In cases of indirect monitoring, this shall indicate the verification periods for the various safety and control features, and any generally recognised standards applied.

– The drawings indicated in Article 4(1) above.

3. Other requirements.

For steam boilers, if the maximum working pressure (Pms) is more than 10% less than the maximum allowable pressure (PS), it shall be necessary to submit a certificate issued by the manufacturer or by an authorised inspection body, indicating that the pressure equipment is suitable, particularly with regard to steam outlet speeds and safety valve discharge capacity.

Article 5. Commissioning.

Installation commissioning shall require submission of the documentation specified for each case in Article 5 of the Regulation on pressure equipment.

Article 6. Safety requirements for the installation.

1. General requirements.

The safety, performance and environmental measures indicated in the relevant special provisions shall be applied.

The flue shall be designed according to the criteria indicated in the UNE 123001 standards for modular types and the UNE 123003 standards for free-standing types. Nevertheless, flues designed using other methods shall be acceptable if the installation plan demonstrates their suitability. Flue insulation shall only be required for accessible parts.

For boiler locations, the classification according to Article 3 shall be taken into account, using the class of the largest boiler, regardless of its number.

2. Boiler site conditions.

Boilers shall be located in a room or enclosure that meets the following requirements:

a) It shall be adequately dimensioned for safe performance of all maintenance, inspection and monitoring activities, with at least 1 m of clearance from the walls or fencing. In zones lacking safety features, it is permitted to reduce this clearance to 0.2 m if this does not impede handling or maintenance.

b) It shall be ventilated at all times, with continuous air intake, both for air exchange and for combustion, and shall meet the requirements specific to the fuel used. In this regard, the boilers shall meet any applicable special regulations setting out ventilation requirements. In the absence of such regulations, the following shall apply:

If the boiler room or enclosure is adjacent to the outside (courtyards, vacant lots, etc.), it shall feature some air inlet openings on the bottom, no more than 20 cm from the floor, and some air outlet



openings on the top, opposite the intake openings. The minimum total cross-section of the openings, in both cases, shall be calculated using the equation $S = Q_t/0.58$; where S is the net required ventilation cross-section, expressed in cm^2 , and Q_t is the total installed heating capacity of the combustion equipment or the heat source, expressed in kW.

For both air inlet and outlet openings, S values of less than 0.5 m^2 shall not be permitted for rooms with second-class boilers, and 0.1 m^2 for rooms with first-class boilers.

Isolated rooms with no options for air intake from natural circulation shall feature ducted air inlets, with a minimum flow rate of $2.5 \text{ Nm}^3/\text{hour}$ per kW of total installed heating capacity of the combustion equipment. In cases of boilers that do not use combustion as an energy source, room ventilation may be reduced by half.

c) All boiler rooms or enclosures shall be completely clean and free of flammable fumes, dust and gases.

d) In boiler rooms or enclosures, all work not related to the appliances contained in the room or enclosure is prohibited, and all accesses shall feature a sign expressly prohibiting entry by persons other than boiler service personnel. It shall only be permitted to install parts related to these facilities; it shall not be permitted to store any products, except for the fuel booster tank and products needed for boiler operation.

e) It shall include the operating manual for the installed boilers and for the procedures in the event of safety device activation.

A sign with emergency instructions shall be displayed in a clearly visible place in the boiler room or enclosure.

3. First-class boiler site conditions.

First-class boilers may be located in an enclosure, but the space required for maintenance and inspection services shall be properly demarcated, preferably with metal fencing of 1.20 m in height, to prevent access by persons other than boiler service personnel.

For steam or superheated water boilers with $P_{ms} \times V_T \geq 10,000$, the minimum required clearance between the boiler and the external hazard shall be 5 m . Alternatively, it may feature a protective wall with the strength indicated in paragraph 4(b.2) of this article. The indicated minimum clearance shall be measured from the outer surface of the pressurised parts of the boiler that are closest to the hazard, to said hazard.

4. Second-class boiler site conditions.

a) These boilers shall be located in a room with two easily accessible exits, located in different walls. In any case, the maximum evacuation distances specified in the relevant regulations shall be observed.



If distances to internal and external hazards are greater than 10 m and 14 m, respectively, a protective wall shall not be required. In such cases, second-class boilers that meet the internal and external hazard distance requirements may be installed in an enclosure, preferably demarcated by a metal fence of 1.20 m in height, to prevent access by persons other than boiler service personnel.

b) Protective walls of rooms shall meet the following conditions:

b.1 Their heights shall be at least 1 metre above the highest pressurised part of the boiler.

b.2 They shall be made from reinforced concrete with at least 60 kilograms of steel and 300 kilograms of cement per cubic metre. The minimum thickness shall be:

- 20 cm for walls separating the boiler room from the external hazard.
- 15 cm for walls separating the boiler room from the internal hazard.

In any case, it shall be permitted to use walls with an equivalent bending moment.

b.3 They shall be properly attached to the base or footing.

c) Boiler room openings shall meet the following conditions:

c.1 The doors shall be made of metal, with maximum dimensions of 1.60 m wide by 2.50 m high. They may include lattice grilles for ventilation.

c.2 The minimum dimensions of at least one of the accesses shall allow passage of the boiler equipment and accessories (such as burners, pumps, etc.), with dimensions of at least 0.80 m wide by 2 m high.

c.3 Boiler room doors shall open outwards from the room and shall be fitted with an easy-opening device on the inside.

c.4 All openings of dimensions greater than 1.60 m wide by 2.50 m high shall be closed with removable or non-removable panels, one of which may be fitted with a service access door. The panels shall be of the same strength as the wall in which they are installed, which shall be duly demonstrated.

c.5 Openings in the protective walls intended for windows shall be located at least 1 metre above the highest pressurised point of the boiler.

c.6 All doors or ventilation openings located in front of a burner containing the burner shaft shall feature effective protection with a section modulus of 250 cm³, in order to withstand potential impacts from it in the event of an accident.

d) The ceiling of the room shall meet the following conditions:

d.1 The ceiling height shall never be less than 3 m above floor level and shall be at least 1 metre higher than the highest pressurised point of the boiler, and at least 1.80 m above any boiler platforms.



d.2 The ceiling of the enclosure shall be of lightweight design (fibre cement, plastic, etc.), with a minimum surface area of 25% of the total area of the room, and shall not be below living spaces or public spaces; it shall only be permitted to approve superstructures if they support appliances external to the boilers that are considered part of the installation, such as feedwater purifiers, deaerators, etc., with the understanding that these appliance shall not be installed above the area occupied by the boiler.

5. Additional conditions for thermal fluid boilers.

Thermal fluid boilers shall meet the installation requirements of standard UNE 9310 or any other equivalent standard. Moreover, it shall be permitted to use any other standard that offers an equivalent level of safety, in which case the submission shall include a favourable report from an authorised inspection body.

Second-class thermal fluid boilers with thermal transfer liquid vapour pressure, at maximum working temperature, of 0.5 bar or less, may be installed in separate premises or outdoors, without having to meet the requirements of paragraph 4 above.

Article 7. *Monitoring systems for boilers.*

Boilers falling under the scope of this ITC shall feature the monitoring system indicated by the manufacturer in the operating instructions.

The boiler operator shall perform the appropriate checks on the controls, safety features and feedwater quality to ensure that the boiler is in good condition.

The monitoring system shall meet the following requirements:

1. Direct monitoring.

The boiler operator shall be certain to be present in the boiler room or in a room with safety signal forwarding, to enable immediate action in the event of a fault. This room shall feature an emergency button that immediately stops the heat supply system safely and activates any energy dissipation systems in the design.

If the manufacturer has not provided instructions for boiler monitoring, direct monitoring shall be applied.

2. Indirect monitoring.

The boiler manufacturer shall indicate the check intervals for the safety and control systems for the safe functioning of the installation. The boiler monitoring system shall be related to the control devices it features.

For boilers that can operate automatically according to manufacturer operating instructions, without any operating personnel present in the boiler room, the operator shall conduct functional checks to ensure that its control and safety systems are operational.



The control and safety systems referred to in standards UNE EN 12953 and 12952 or any other equivalent standard used by the manufacturer are considered suitable.

Control or safety faults shall require application of the emergency instructions, and a switch to direct monitoring until the fault is remedied.

Article 8. Feedwater and boiler water.

All steam and superheated water boilers shall feature efficient water treatment that ensures water quality, and a suitable system of checks, blowdowns and drainage.

The systems specified in UNE EN 12953-10 and 12952-12 shall be considered suitable. Moreover, it shall be permitted to use any other standard that offers an equivalent level of safety, in which case the submission shall include a favourable report from an authorised inspection body.

The user shall be responsible for keeping the boiler water at least within the specifications of the standards referred to in the preceding paragraph.

To this end, users shall conduct or arrange the relevant analyses and, where necessary, install the purification system indicated by the manufacturer, a company specialising in water treatment or the installation designer.

CHAPTER III

Periodic inspections and repairs and modifications

Article 9. Periodic inspections.

All boilers falling under this ITC shall be inspected periodically according to the provisions of Annex I, by the parties and at the maximum intervals indicated below:

Inspection level	PARTY AND INTERVAL
	Categories I, II, III and IV
Level A	Category EIP-2 installation company, 1 year
Level B	Boiler manufacturer authorised as a category EIP-2 installation company, 3 years
Level C	IB 6 years



In addition to the periodic inspections, the user shall take into account the information and instructions provided by the manufacturer of the equipment or assembly, and shall perform the checks indicated there.

Article 10. Repairs.

Repairs on pressurised parts of equipment or assemblies falling under this Additional Technical Instruction shall be performed by authorised repair companies, according to Article 7 of the Regulation on pressure equipment.

The following shall not be considered boiler repairs:

- Replacement of up to 15% of the tube bundle in fire-tube boilers (including welded and bored tubes) that do not contain more than five tubes.
- Replacement of boiler tube adapters, provided the original design conditions are still met and it did not undergo an initial thermal treatment.

Article 11. Modifications.

1. Modifications shall meet the provisions of Article 8 of the Regulation on pressure equipment. In any case, modifications shall be performed by authorised category 2 installation or repair companies, or by the equipment manufacturer.

In addition, level C inspections required as per Article 8 of the Regulation shall be conducted in accordance with the annex to this ITC.

2. For changes of fuel, the regulations specific to the new fuel shall be met.

In any case, conversions due to changes of fuel shall require submission of a plan from a competent qualified engineer, and the corresponding modification certificate, demonstrating the suitability of the new burner and firebox and that the temperature limit of the material permitted by the design code will not be exceeded at the tube plate of the first-pass gas tubes in fire-tube boilers, or at the back screen of the furnace in water-tube boilers. In addition, in fire-tube boilers, the method of joining the tube to the tube plate shall meet the design code provisions for the new operating conditions.

Bear in mind that it shall not be permitted to exceed the heating capacity or any other design characteristics. Before commissioning, a level C inspection shall be conducted.

Notwithstanding the above, a plan shall not be required if the original documentation of the equipment manufacturer shows that the boiler is suitable for the new fuel. In this case, a level B inspection shall be conducted.

3. A modification to the monitoring system or the control and safety systems shall be regarded as a substantial modification in cases of incorporation of systems not provided by the manufacturer, which shall require a new conformity assessment by a notified body.



4. Replacement of a boiler shall be regarded as a substantial modification of the installation for the purposes of Article 8(3)(b) of the Regulation.

CHAPTER IV

Other provisions

Article 12. *Obligations on users.*

In addition to the obligations indicated in Article 9 of the Regulation on pressure equipment, installations falling under this ITC shall meet the following requirements:

1. Boiler operation.

The user shall designate a qualified person to operate the boiler during use, who shall meet the provisions of Article 13 on boiler operators at all times.

2. Boiler maintenance.

The user shall perform adequate maintenance on all systems of the installation, with special attention to limiting or control devices to maintain its reliability, including verification of its functioning during checks. Similarly, special attention shall be given to the obligations set out in Article 8 of this ITC on feedwater treatment.

3. Boiler monitoring.

In the event of any fault in the control or safety features, the boiler monitoring system shall be suitable, and shall switch to direct monitoring until restoration of the initial conditions and verification of proper functioning of the faulty features.

4. Documentation.

The following documentation shall be available:

a) Installation book.

The boiler operator shall keep a book indicating the characteristics of the installation and the operations, checks or inspections performed on it.

The book may be replaced with the corresponding logs that include equivalent information.

Annex III to this ITC provides the minimum information to be included in the corresponding book or log. The book or log shall record the operations performed to verify the safety devices.

Similarly, it shall also include the feedwater control checks, any operating faults, the inspections or checks conducted, as well as any repairs or modification performed.

b) Documentation on the installation.



The boiler operator shall have at least the following documentation available:

- Boiler instruction manual.
- Combustion equipment instruction manual.
- Water treatment instruction manual.
- List of operation and safety features and devices.
- Operator safety manual, written by the user, including at least:
 - Safety rules for operating personnel.
 - Safety instructions for emergency situations.
 - Safety instructions in the event of faults in control or safety features. Changes to the boiler monitoring system.
 - Instructions in the event of an accident.
 - Instructions during inspection, maintenance and repair periods. Required safety equipment.
 - Safety clothing for personnel.
 - Instructions for personnel other than for the boiler itself.
 - First aid instructions.
 - System for revising the Safety Manual.
- Data obtained from the commissioning protocol.
- Rules on air pollution levels.
- Address of the technical department for support for the boiler and burner.
- Address of the nearest fire brigade.

Article 13. Boiler operators.

1. Operator training.

Operation of the boiler shall be entrusted to personnel with technical training.

Boiler operators shall be instructed in boiler operation by the manufacturer or installer, or by the user if it has a competent qualified engineer.

2. Responsibilities.

The boiler operator shall be responsible for monitoring, supervision and verification of proper functioning of the boiler, and shall be aware of the dangers that could arise from improper handling, maintenance or operation.



The boiler start-up process shall be handled by the boiler operator, who shall not leave until verification of proper functioning of the boiler as well as all safety devices, limiters and controllers.

The operator shall be able to take immediate action, either manually or remotely, in the event of activation of the safety valve or any other safety device of the installation, until restoration of normal operation conditions, using the written procedures referred to in Article 6(2)(e).

3. Industrial boiler operator.

1. Second-class boilers, as referred to in Article 3(2) of this Additional Technical Instruction, that are steam or superheated water boilers shall be operated by an industrial boiler operator.

2. In order to perform the relevant activities, an industrial boiler operator shall meet one of the following criteria, and shall be able to demonstrate this to the competent authority if it requires so in the exercise of its powers of inspection, verification and supervision:

a) Possession of a university degree whose curriculum covered the minimum contents indicated in Annex II to this Additional Technical Instruction.

b) Possession of a vocational training qualification or certificate of professional standards included in the National Catalogue of Professional Qualifications, whose scope covers the minimum contents provided in Annex II to this Additional Technical Instruction.

c) Passing of an examination before the Autonomous Community on the minimum contents indicated in Annex II to this Additional Technical Instruction.

d) Recognition of professional competence acquired through work experience, in accordance with the provisions of Royal Decree 1224/2009 of 17 July 2009 on the recognition of professional competencies acquired through work experience, in the matters indicated in Annex II to this Additional Technical Instruction.

e) Possession of a certification granted by an entity accredited to certify persons in accordance with Royal Decree 2200/1995 of 28 December 1995 adopting the Regulation on industrial quality and safety infrastructure.

All entities that are accredited to certify persons and that want to grant these certifications shall include, in their certification scheme, an assessment system with at least the contents indicated in Annex II to this Additional Technical Instruction.

f) Possession of an industrial operator licence for boilers that meet the conditions set out in the former Regulation on pressure appliances, adopted by Royal Decree 1244/1979 of 4 April 1979, as well as those that meet the conditions set out in ITC EP-1 adopted by Royal Decree 2060/2008 of 12 December 2008, and issued prior to entry into force of the Regulation adopted by this Royal Decree.



Pursuant to Law 17/2009 of 23 November 2009 on free access to service activities and their performance, an industrial boiler operator authorised by an Autonomous Community may perform this activity throughout the territory of Spain, without imposition of any further requirements or conditions.

CHAPTER V

Black liquor recovery boilers

Article 14. *Black liquor recovery boilers.*

1. General conditions.

a) Black liquor recovery boilers shall meet the conditions set out in the Regulation on pressure equipment and this ITC, including the specific conditions provided in this article.

b) The main fuel for these recovery units shall be black liquor produced in the sulphate pulp production process, pre-concentrated in evaporation units.

They shall use liquid (fuel-oil) and/or gaseous (natural gas, liquefied petroleum gas, etc.) fuels as auxiliary fuels.

c) These combustion units shall feature special equipment, such as:

– Dissolver: tank fitted with a stirring function, in which the molten salt is dissolved.

– Pouring spout or pouring channel: an internally cooled, tile-shaped device that serves to pour the molten salt from the dissolver furnace.

2. Technical requirements.

a) For the purposes of Article 6 of this ITC, the recovery units shall be regarded as directly monitored automatic steam boilers, which require the continuous presence of an operator in the boiler zone or connected control room, tasked with ensuring periodic cleaning and proper functioning of the air openings, auxiliary burner openings and pouring channel openings.

b) With regard to the special conditions on boiler rooms in Article 6(4) of this ITC, protective walls are not necessary in this installation type.

c) Boilers shall feature two independent water supply systems with separate energy sources. Each of the safety systems shall be able to supply feedwater to the reboiler at 1.1 times its maximum allowable pressure, taking into account the geodetic head and the dynamic pressure losses in the supply piping (including regulators and other parts that cause pressure losses). The pump flow rate at this point shall correspond to the operating point of the highest vaporisation plus the blowdown and temperature control flow rate, as well as other possible pump consumption.

The design of feedwater systems shall take into account the performance loss over the service life of the pump.



3. Operating conditions.

a) Safety training for personnel. Personnel shall receive proper training periodically. For such, drills shall also be scheduled at regular intervals to ensure that the personnel are familiar with the procedures provided in the safety manual.

b) Scheduled emergency drills.

4. Maintenance.

Independently of the operations and checks to be performed according to the manufacturer instructions, the following shall be carried out:

a) Daily checks:

- Direct level indicators.
- Analysis of the various basic parameters of the boiler that affect its proper functioning and safety.
- Analysis of feedwater and boiler water.

b) Weekly check:

- Remote level indicators.
- Alarm signal lines.
- Minimum level, except in boilers with indirect monitoring systems.
- Pressure sensor, except in boilers with indirect monitoring systems.
- Comparison of measurement elements for dry matter content in the black liquor supply.

c) Monthly checks:

– Verification of proper functioning of control valves. Verification of regulation devices for basic parameters of the boiler, while in operation.

- Comparison of measurement elements in the plant.

d) Semi-annual checks:

- Verification of regulation devices for basic parameters of the boiler.

5. Periodic inspections.

Periodic inspections shall be conducted according to Article 6 of the Regulation on pressure equipment and the specifications of Annex I(2). These inspections shall be conducted by an inspection body or by the boiler manufacturer if the latter is authorised as a category IEP-2 installation company.

Level A inspections may also be conducted by the user if the latter is authorised as a category IEP-2 installation company.



6. In the absence of specific standards, the Standing Committee on the Safety and Use of Black Liquor Boilers, under the Spanish Association of Pulp and Paper Manufacturers, may submit special technical conditions, for application to this boiler type, for the approval of the Ministry responsible for industry.

CHAPTER VI

Standards

Article 15. *UNE standards for implementation of the ITC.*

Annex IV to this ITC lists all standards cited in its text, identified by their titles and codes, including year of publication.

The specific editions of the UNE standards appearing in the annex shall continue to be valid for proper application of the ITC even after adoption and publication of subsequent editions of the standards, unless the government body responsible for industrial safety publishes the decision to update these standards in the Government Gazette.

This decision shall provide the new references and the date from which the new editions will apply, and thus also the date on which the old editions will no longer apply.

ANNEX I

Periodic inspections and tests on boilers

1. PERIODIC INSPECTIONS AND TESTS

The conditions provided in standard UNE 192011-1 shall be met.

1.1 Level A.

A boiler inspection shall be conducted as per section 2.1 of Annex III to the Regulation on pressure equipment.

The inspection shall also include the following checks:

a) Availability of up-to-date documentation on boiler maintenance and operation, as well as on water quality in steam and superheated water boilers.

b) Cleaning and visual inspection of the smoke circuit and the pressurised parts. To perform these activities, the boiler shall be switched off and the pressurised parts shall be accessible, so removal of the lagging is not required.

It shall not be necessary to perform cleaning and inspection of the smoke circuit for boilers that burn gaseous fuels that do not produce soot deposits as per standard UNE EN 437, which shall be demonstrated by submitting documents to the inspecting party.



In any case, if a level B or C inspection finds significant soot deposits during inspection of the corresponding flue, this flue shall be inspected annually until the next level B or C inspection, respectively.

c) Functioning of the operation and safety features of the boiler, including their triggering.

d) Continued compliance with boiler site conditions and safety instructions (including fire protection).

e) Gas circuit is free of leaks.

f) Visual inspection of the pipes and equipment that use the boiler fluid.

The activities performed shall be documented in writing.

1.2 Level B.

In addition to the provisions on the level A inspection, a complete inspection shall be conducted on the documentation and condition of the boiler, in accordance with sections 4 and 6 of standard UNE 192011-1.

The inspection shall include the following checks:

a) Verification of boiler documents and periodic inspection and installation data plate (installation certificate, plan, declaration of conformity or production certificate, operating instructions, boiler makes, etc.).

b) Inspection of the boiler elements:

– Visual inspection before and after cleaning.

– Additional trials.

– Deformations.

– Weld seams.

– Thickness measurements.

– Safety valves and accessories.

– Pressure gauges and thermometers.

– Furnace and flues.

– Refractory.

– Electrical circuit.

– Stay bars and ties (in fire-tube boilers).

– Reinforcing brackets (in fire-tube boilers).

– Tubes, tube plates and headers (in fire-tube boilers).



- Smoke boxes (in fire-tube boilers).
- Reboilers (in water-tube boilers).
- Structure and attachments of tubes to drums and headers (in water-tube boilers).
- Economisers, superheaters and reboilers.
- Tube or coil bundles (in water-tube boilers).

c) Operational test:

- Safety and relief valve sealing and control.
- Verification of automatic controls.
- Automatic safety controls.

1.3 Level C.

In addition to the provisions for the level B inspection, a hydrostatic test shall be conducted on existing boilers as per section 5 of standard UNE 192011-1.

For boilers with a 'CE' marking, the test pressure shall be that indicated in section 2.3 of Annex III to the Regulation on pressure equipment.

The inspection shall include the following checks:

- a) Documentation check.
- b) Inspection of the boiler parts.

Fire-tube boilers shall undergo the following non-destructive testing using liquid penetrants or magnetic particles:

- 100% of the weld joint between the furnace and the backplate or tube plate of furnace chamber.
- 100% of furnace tube welds.
- 50% of the joint of the backplate with the first-pass tubes if the fuel is gaseous, and 10% for other fuels.
- 100% of the joint of the stay bars with the furnace chamber and with the back tube plate if the fuel is gaseous, and 50% for other fuels.

In water-tube boilers, except for thermal fluid boilers:

- 100% of the accessible weld joints between the tube bundles and headers, reboilers or superheaters. In inaccessible zones, those that the inspection body deems suitable following a visual inspection.

c) Hydrostatic test.



d) Operational test.

2. PERIODIC INSPECTIONS AND TESTS ON BLACK LIQUOR RECOVERY BOILERS.

Inspections shall be conducted according to section I(1) above.

2.1 Level A.

The frequency of these inspections shall be once every 9 months.

A boiler inspection shall be conducted as per section 2.1 of Annex III to the Regulation on pressure equipment, including the checks indicated in section I(1), except for that specified in subsection b, which shall be replaced with a visual inspection of the smoke circuit and pressurised parts, without having to switch the boiler off.

The activities performed shall be documented in writing.

2.2 Level B.

1. The inspections shall be conducted once every 18 months, with the criteria provided below:

a) General inspection.

A visual inspection shall be conducted on the parts accessible from inside the boiler, and pressurised parts shall be checked for deformations. For this, any scaling or deposits that complicate this inspection shall be removed.

b) Reboilers.

Top and bottom reboilers (if present) shall be opened and inspected, including checks on:

- Pitting on the inside.
- Sludge, including its chemical analysis and removal.
- The internal condition of the outlets of the bored tubes to the reboilers.
- Mounting and condition of internal accessories.

After inspection, any affected joints shall be replaced.

c) Flooring.

The condition of the refractory flooring shall be inspected and any defective areas shall be repaired or replaced.

d) Supply headers.

Supply headers shall be inspected with a scope analogous to that indicated for reboilers, wherever possible, using practical logs suitable for this purpose. A mirror, endoscope or any other tool enabling internal inspection of the entirety of the header shall be used.



e) Safety valves.

All elements of these valves shall be verified to be in perfect condition, and to be free of mould, scaling or foreign bodies that prevent their flawless operation. It shall be verified that the discharge piping drain is free of obstructions, to prevent accumulation of condensate on the valve and an increase in its back pressure.

f) Inspection of blower inlet zones.

Each and every bend in the tubes in the blower passage shall be examined to check for any cracks in the closing flaps and breakage in the welds joining the tube to the belts, due to dripping condensate from potential defects in the automatic blower valve. Where prompted by visual inspection, liquid penetrants or other verification systems shall be used.

Each blower shall be checked for flawless alignment all along its track.

g) Ultrasound thickness inspection.

Tube thicknesses shall be measured at the following points and in the following percentages:

- At floor level, 50% if using carbon steel tubes, and 15% if using bimetallic tubes.
- At the level of the primary air inlet shaft, 100% of all carbon steel tubes.

If using bimetallic tubes, 100% of the tubes that make up the air inlet itself and 25% of the straight tubes.

- At the level of the black liquor burners, 100% of those that make up the inlet itself.
- At the level of the secondary air inlets, 100% of those that make up the air inlet.
- At two more levels, located between the primary and secondary air, the percentage shall be selected for each boiler based on experience and observed corrosion rates.
- At two levels above the secondary air inlet, the percentage shall be selected for each boiler based on experience and observed corrosion rates.
- In the accessible bends of all tubes located up to 2 m above the secondary and/or tertiary air levels, 100%.
- In the bends of the accessible tubes of the tube bundle and at least one point on their straight parts, 100%.
- In the accessible bends of the firewall panels, 100%.
- In the lower bends of the reboilers, 25%.
- In the transition zone between the bimetallic and carbon steel tubes, taking the thicknesses of 100% of the accessible tubes, as closely as possible to the weld between the two tubes.



– In addition, the user shall measure thicknesses in the parts that may be subject to higher corrosion rates, based on either manufacturer indications or personal experience.

When determining the thickness of a tube with a higher than normal corrosion rate, it shall be required to continue taking measurements along this tube and adjoining ones until the affected zone is defined.

Each user shall keep a log of the thicknesses measured, as well as the maximum corrosion rates and the trends for these.

Within no more than 18 months, all tubing sections whose thickness, based on the projected corrosion rate according to the trend in that zone, would compromise boiler safety within 2 years by reaching the minimum thickness calculated using the applicable code by the end of that period, shall be replaced.

h) Other checks for bimetallic tubes.

In addition, units that use bimetallic tubes shall be checked, using liquid penetrants or another valid system, for fissures and cracks in the rust-protection coating on the tubes and membranes. This shall be verified by spot-checking, in the percentages indicated below:

– In the 1m-wide peripheral zone of the flooring, 10% of the surface area.

– On the bottom part of the four walls up to and including the primary air openings, 5% of the surface area.

– In the pouring spout opening, primary and secondary air inlets and other bends in tube openings, sight glasses, burners, access hatches, etc., 100% of the accessible surface area that makes up the inlet itself.

– The rest of the accessible surface area of all bimetallic tubes shall undergo careful visual inspection, and places where indications of defects are observed shall also be checked using liquid penetrants.

If one of the zones inspected exhibits linear indications of over 1.6 mm, two more adjoining zones shall also be analysed, in succession. 'Linear indication' refers to an indication of a defect with a length of over three times its width.

If the thickness of the carbon steel material of the tube is reduced or affected by the identified defect, the relevant tube section shall be replaced.

i) Valves.

The following valves shall be checked, including inspection of the condition of the closing elements:

- Steam shut-off valves.
- Boiler supply circuit valves.



- Valves of the rapid discharge system of the boiler.

In addition, all valves in which defects have been identified shall be checked, along with all valves directly affecting boiler safety.

j) Gas lines.

The direct-contact evaporator and smoke lines shall be cleaned and inspected for their state of repair and for leaks.

k) Welds.

Welds in pressurised parts carried out during repairs shall apply the techniques recommended by the boiler manufacturer and, failing this, by the generally recognised standards. The user logbook shall indicate the repairs as well as the techniques used. The transition welds between bimetallic and carbon steel tubes shall also be checked.

l) Instrumentation and other safety devices.

General inspection of the instrumentation, especially that used to control the water level, pressure and temperature of the generator. The lines connecting the appliances and the generator shall be checked to ensure they are free of any substances that could give rise to blockages.

m) Dissolver.

Inspection of the molten salt dissolver, with special attention to the stirring system, expansion dampers and internal scaling, as well as blockages in the recirculation pipes and molten stream breakers.

n) Flap inspection and verification.

A visual inspection shall be conducted on the flaps in the furnace zone, using liquid penetrants or another system if indications of cracking are observed. Any cracks whose expansion could intercept the tube shall be stopped by applying a 3 or 4mm bore hole in the end closest to the tube.

o) Pouring spouts.

The pouring spout shall be replaced once every 18 months. The removed spout shall be examined using ultrasound and hydrostatic testing, and may be recoverable if in satisfactory condition.

2.3 Level C.

Level C periodic inspections shall be conducted jointly with level B inspections, every 18 months.



ANNEX II

Industrial boiler operators.

1. Industrial boiler operators shall have the knowledge of the following:

1.1 Basic concepts.

- a) Pressure, including measurement and units
- b) Atmospheric pressure
- c) Temperature, measurement and units
- d) Phase changes, vaporisation and condensation
- e) Heat transfer: radiation, convection and conduction
- f) Saturated, superheated and expanded steam
- g) Specific steam volumes
- h) Specific heat
- i) Relationship between steam temperature and pressure

1.2 General information on boilers.

- a) Terminology
- b) Required conditions
- c) Integrated parts
- d) Safety requirements
- e) Main parts of a boiler
- f) Heating surface: radiation and convection surface
- g) Heat transfer in boilers
- h) Boiler types by set-up
- i) Boiler types by circulation
- j) Boiler classification by main characteristics

1.3 Combustion.

- a) Natural and forced draught
- b) Pressure and vacuum furnaces
- c) Combustion process. Theoretical air and smoke volumes



d) Flues

1.4 General construction provisions for fire-tube boilers.

- a) Furnaces. Smooth and corrugated
- b) Furnace chambers
- c) Tubes. Straps and pins
- d) Tube attachment to tube plates
- e) Stays. Stay bars, ties, brackets
- f) Smoke boxes
- g) Access panels: person, head, hand and gas expansion

1.5 General construction provisions for water-tube boilers.

- a) Furnace
- b) Vaporiser bundle
- c) Headers
- d) Drums and domes
- e) Tube attachments to drums and headers
- f) Access panels and gas expansion
- g) Economisers
- h) Air heaters
- i) Superheaters
- j) Reboilers
- k) Vertical boilers. Field tubes. Screen tubes for flames
- l) Flash boilers. Coils

1.6 Accessories and additional parts for boilers.

- a) Inline valves. Seat and gate
- b) Check valves. Seat, flap and disc
- c) Safety valves
- d) Dump valves
- e) Continuous bleed valves



- f) Level indicators. Taps and column
- g) Float and electrode level controls
- h) Thermostatic level limiters
- i) Feedwater pumps
- j) Water injectors
- k) Feedwater gentries and turbines
- l) Pressure gauges and thermometers
- m) Pressure switches and thermostats
- n) Burner types
- o) Combustion equipment parts

1.7 Water treatment for boilers.

- a) Characteristics of water for boilers
- b) Water softeners and demineralisers
- c) Deaeration with heat or additives
- d) pH regulation
- e) Condensate recovery
- f) Blowdown schedule

1.8 Boiler operation and maintenance.

- a) Initial commissioning: inspections
- b) Commissioning
- c) Decommissioning
- d) Causes of pressure increases and decreases
- e) Causes of sudden level drops
- f) Communication or lack thereof between boilers
- g) Boiler maintenance
- h) Preservation during prolonged downtime

1.9 Regulation on pressure equipment and ITC EP-1.

- a) Part relevant to boilers, economisers, superheaters and reboilers



b) Performance of hydrostatic tests

c) Parts on day-to-day operation

ANNEX III

Installation book

The installation book or equivalent log shall include at least the following information:

1. Boiler characteristics:

- Identification (make, type or model, serial No, year, etc.).
- Technical data (permissible operating limits of the boilers, fuel and combustion equipment data, etc.).

2. Installation characteristics:

- Description of the installation.
- Identification of the installation components (fuel supply, water treatment system, combustion product removal, piping, etc.).
- Identification of consumer equipment (make, type or model, serial No, year, etc.).
- Permissible operating limits of the installation.
- Boiler site characteristics (room or enclosure, etc.).
- Installer details.

3. Safety features of the installation:

- Identification of all safety features.

4. Installation documentation:

- Description of available documentation and its location.

5. Obligations on the boiler owner and boiler operator:

- Text of Article 9 of the Regulation on pressure equipment.
- Text of Article 12 of ITC EP-1.
- Text of Article 13(2) of ITC EP-1.

6. Function and safety checks:

- Daily checks.
- Weekly checks.
- Monthly checks.



– Other checks.

7. Inspections:

– Level A: dates and responsible party.

– Level B: dates and responsible party.

– Level C: dates and responsible party.

8. Repairs or modifications:

– Identification and scope of repairs on the boiler and the installation.

– Identification and scope of modifications to the boiler and the installation.

ANNEX IV

UNE standards

UNE 9-001: 1987, Calderas. Términos y definiciones
[Boilers - Terms and definitions].

UNE 192011-1: 2020, Procedimiento para la inspección reglamentaria. Equipos a presión Parte 1: Calderas
[Regulatory inspection procedure - Pressure equipment - Part 1: Boilers].

UNE 9310: 1992, Instalaciones transmisoras de calor mediante líquido diferente al agua
[Heat transfer installations working with organic heat transfer fluids].

UNE 123001:2012, Cálculo y diseño e instalación de chimeneas modulares
[Calculation, design and installation of system chimneys].

UNE 123003:2011, Cálculo y diseño e instalación de chimeneas autoportantes
[Calculation, design and installation of free-standing chimneys].

UNE EN 12952-12:2004, Water-tube boilers and auxiliary installations - Part 12: Requirements for boiler feedwater and boiler water quality.

UNE EN 12953-10:2004, Shell boilers - Part 10: Requirements for feedwater and boiler water quality.

UNE-EN 437:2003+A1:2009, Tests gases - Test pressures - Appliance categories.



ADDITIONAL TECHNICAL INSTRUCTION

ITC EP2

ELECTRICITY GENERATION PLANTS

CHAPTER I

Scope and definitions

Article 1. Scope.

1. This Additional Technical Instruction [ITC] applies to the installation, repair and periodic inspection of all pressure equipment located in the premises of an electricity generation plant with a capacity of over 50 MW and falling under the Regulation on pressure equipment.

This includes thermal, hydraulic, combined-cycle and nuclear power plants and municipal solid waste incineration plants.

In addition, this ITC applies to the installation, repair and periodic inspection of all pressure equipment located in the premises of a thermosolar electricity generation plant, regardless of its capacity, falling under the Regulation on pressure equipment.

2. The following pressure equipment is not subject to the provisions of this ITC:

a) Fire extinguishers, which must meet the general requirements of the Regulation on pressure equipment.

b) Pressure equipment, piping or assemblies classified in Article 4(3) of Royal Decree 709/2015 of 24 July 2015 or those deemed equivalent to this classification pursuant to Article 3(2) of the Regulation on pressure equipment.

c) Transportable pressure equipment falling under the scope of Royal Decree 1388/2011 of 14 October 2011 setting out provisions implementing Directive 2010/35/EU of the European Parliament and of the Council of 16 June 2010 on transportable pressure equipment and repealing Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC and 1999/36/EC.

d) Equipment integrated into refineries and petrochemical plants falling under ITC EP-3.

e) Cryogenic tanks falling under ITC EP-4.

f) Equipment specifically designed for nuclear use, whose failure could cause radioactive emissions.

3. Equipment installed and commissioned according to the aforementioned standards shall be subject to the provisions of this ITC with regard to periodic inspections and repairs.



Article 2. Definitions.

Without prejudice to the terminology provided in Article 2 of the Regulation on pressure equipment, the following definitions shall apply for the purposes of this ITC:

1. 'Electricity generation plant': set of process and auxiliary installations intended for the production of electrical power.

2. 'Conventional equipment': equipment that uses fluids not considered radioactive according to Royal Decree 1836/1999 of 3 December 1999 adopting the Regulation on nuclear and radioactive installations.

3. 'Operating hours': hours during which the plant is connected to the electricity grid.

4. 'Hot, warm and cold start': for thermal power plants, start-up that meets the criteria of the manufacturer of the main turbine for the temperature of the first stage, during the recommissioning process for a unit. In other cases, that specified by the manufacturer.

5. 'Equivalent operating hours':

a) In the case of thermal power plants, the sum of the operating hours plus (i) the number of cold starts multiplied by 100, (ii) the number of warm starts multiplied by 40 and (iii) the number of hot starts multiplied by 20, i.e.:

$$H_{ef} = H_f + (A_f \times 100) + (A_t \times 40) + (A_c \times 20)$$

Where:

H_{ef}: Equivalent operating hours

H_f: Operating hours

A_f: Cold starts.

A_t: Warm starts

A_c: Hot starts.

b) For combined-cycle power plants, or other plants, according to the technology, this shall be defined by the manufacturer, for a gas or steam turbine, a generator or a recovery boiler.



CHAPTER II

Installation and commissioning

Article 3. Categories.

For the purposes of this ITC, the parts included in an electricity generation plant or other plants falling under Article 1 of this ITC are classified as:

1. Normal equipment: equipment whose design temperature is over 0 °C and whose maximum working pressure is over 0.5 bar. As a general guideline, this includes:

- a) Boilers (main and auxiliary).
- b) Heat exchangers (superheaters, reboilers and economisers).
- c) Accumulators, reboilers, separators and other vessels in general.
- d) Piping and safety and pressure accessories.

2. Special equipment: equipment with any of the following characteristics:

Equipment filled with resins or filtering materials or with a fragile or hygroscopic inner lining, such as neoprene, ebonite, enamel, etc.

Article 4. Safety requirements.

1. Boiler enclosure.

Power plant boilers falling under this ITC need not be located in rooms with surrounding protective walls.

2. Safety distances.

The minimum distances to be maintained between the property boundary of the plant site and the equipment shall be at least:

– From the projection of the plant building floor where the boilers are located to the closest point of the property boundary: 15 m.

– From the projection of the pressurised parts of the main boiler and its auxiliary equipment in the plant, or any other equipment outdoors, to the closest point of the property boundary: 35 m.

3. Maximum working pressure.

If the maximum working pressure (Pms) is more than 10% less than the maximum allowable pressure (PS), it shall be necessary to submit a certificate issued by the manufacturer or by an authorised inspection body, indicating that the pressure equipment is suitable, particularly with regard to steam outlet speeds and safety valve discharge capacity.



Article 5. Installation.

1. Installation plan.

To meet the provisions of Article 4 of the Regulation on pressure equipment, the installation of the equipment referred to in this ITC shall require submission of an installation plan.

2. The installation plan shall include at least the following items:

a) Report:

- Characteristics of the equipment making up the installation.
- Intended use of the equipment, indicating the consumer appliances.
- Demonstration of compliance with all applicable regulatory requirements.
- Identification of the piping and consumer equipment.
- Reasoning around overpressure protection, size, location and discharge capacity of safety valves.

b) Budget.

c) Drawings:

- Location map of the boiler and equipment falling under the ITC.
- Installation drawing of the boiler, indicating general dimensions, hazard distances, characteristics, etc.
- Schematic diagram of the installation, indicating the locations of the safety accessories.

d) Identification of the installer.

Article 6. Commissioning.

1. Equipment and installations as referred to in this ITC shall be commissioned in accordance with the provisions of Article 5 of the Regulation on pressure equipment and the criteria set out in its Annex IV, with submission of the following documentation:

a) Declarations of conformity for the pressure equipment and any safety accessories.

b) Installation execution certificate issued by the EIP-2 installation company and signed by the competent qualified engineer of the company.

c) Certification of completion of the checks and tests necessary to ensure that the installation and its equipment meet the provisions of the Regulation on pressure equipment, the conditions of this ITC and the technical plan submitted, and that it is functioning properly, issued by an inspection body authorised to operate under the regulatory framework for pressure equipment.



2. The installation and periodic inspection data plates indicated in Annex III to the Regulation on pressure equipment may be replaced by identification in the equipment log of the user, referred to in Article 9 of the Regulation on pressure equipment.

CHAPTER III

Inspections and repairs

Article 7. Periodic inspections.

The intervals and competent parties for periodic inspections shall be those indicated in Annex III to the Regulation on pressure equipment, under the conditions provided below:

1. Level A: These may be conducted by the user if in accordance with the requirements indicated in Annex I to the Regulation on pressure equipment for category EIP-2 installation companies.

2. Levels B and C: Annual periods may be considered in terms of equivalent operating hours, according to the definition in Article 2(5) of this ITC, at 8,760 hours/year, provided that the equivalent operating hours are met in a period not exceeding 6 years for Level B or 12 years for Level C.

3. Inspections shall be conducted in accordance with the annex to this ITC.

4. Ordinary inspection of safety valves shall be performed during ordinary maintenance downtime for the installations or during periodic inspections for pressure equipment, at intervals of no more than once every 6 years. These tests shall be certified by an authorised inspection body.

5. The hydrostatic test pressure at which the Level C periodic inspections must be conducted shall be that indicated in Article 10 of this ITC, for each case.

6. The equipment that Article 3 of this ITC designates as special shall be regarded as falling under Article 12 of the Regulation on pressure equipment for the purposes of conducting these periodic inspections.

Article 8. Repairs.

1. Repair companies.

All equipment falling under this ITC shall be repaired by category ERP-2 companies, as per Annex I of the Regulation on pressure equipment.

2. Scope of repairs.

Repairs shall be considered 'major' in the following cases:

2.1 Boilers:

a) Replacement of the casing if pressurised, or of tubes with a surface area of over 2% of the total heating surface area, including the water walls, superheater and economiser.



b) Repairs affecting reboilers or headers, in any shape or form, regardless of the number of welds or whether the repair required normalising heat treatment.

The following repairs are not considered 'major':

a) Operations involving the cutting of tubes, or the removal of header plugs to inspect the internal condition of the boiler, which shall constitute inspections. One hundred per cent of the welds made for this reason shall be inspected by means of non-destructive testing.

b) Repairs affecting the reboiler, assuming its minimum working conditions and that it cannot be insulated, solely for the purposes of the hydrostatic test, although the adequacy of the work performed shall be guaranteed by means of an x-ray inspection or any other equivalent non-destructive test, recognised for this purpose, in 100% of the welds.

2.2 Heat exchangers:

a) Operations in the casing, in either of the two chambers, if the weld length in question, expressed as a percentage of the total length of the chamber, exceeds 10%.

b) If the equipment was heat-treated during repair, regardless of the scope of the repair.

c) Replacement of 10% of tubes.

Repairs on condensers, due to their operating conditions and the fact that they cannot be insulated, are not regarded as 'major repairs', solely for the purposes of the hydrostatic test.

2.3 Other equipment:

a) For category IV equipment, repairs on tube adapters with diameters less than or equal to DN 80 shall not be considered major. Similarly, in categories II and III, repairs on any of the tube adapters or rewelding shall not be considered major repairs.

In addition, if the length of the weld in question, expressed as a percentage of the length of the device, measured between tangents to the bases (for longitudinal welds) or with respect to the perimeter (for circumferential welds), is greater than or equal to the values of the table below, except for sealing welds:

Category IV		Category III		Category II	
Joint type		Joint type		Joint type	
Longitudinal weld	Circumferential weld	Longitudinal weld	Circumferential weld	Longitudinal weld	Circumferential weld
5%	10%	15%	30%	20%	40%



b) If the appliance was heat-treated during repair, regardless of the length of the repair or modification.

c) In cases of exchangers, if at least 15% of the tubes are replaced.

For category I equipment, no repairs shall be considered 'major'.

2.4 Piping systems:

In this case, any repair that meets all of the conditions below is considered major:

a) The welding procedure requires heat-treatment or the thicknesses of the two tubes to be joined are both greater than 12 mm.

b) The number of joint welds made between tubes is greater than that indicated in the table below, for the category provided in Article 13(1) of Royal Decree 709/2015 of 24 July 2015.

CATEGORY	No OF WELDS
III	Any
II	6
I	12

3. Technical file.

The repair company shall prepare a technical file for repairs considered 'major', including:

a) Name and registration number with the competent body of the Autonomous Community of its registered office.

b) Identification and characteristics of the equipment.

c) Reasons for the repair.

d) Complete description of the repair, including detailed drawings of the repair.

e) Documents attesting to the suitability of the basic and filler materials of the components used in the repairs, approved by the repair company, engineering firm or authorised inspection body.

f) Procedure for repair, welding, heat-treatments and verifications, qualification of welding procedures and welders, all of which approved by the repair company, engineering firm or authorised inspection body.

g) Location map of the zones inspected with non-destructive testing, required tests and their scope.

The user shall properly preserve X-rays for at least 5 years starting from the equipment repair date.



The repair company for pressure equipment is responsible for providing proper warranties for the intended use.

Article 9. Inspection of repaired appliances.

1. All equipment falling under this ITC that undergoes a repair, including a major repair, as defined in Article 8, shall undergo the following inspections and tests:

a) An inspection by an inspection body authorised to check that the equipment was repaired in accordance with the documentation in the technical file.

b) An examination of the repaired equipment and where applicable, a pressure test with the value and conditions indicated, in each case, in Article 10 of this ITC.

2. If the repair is not major in scope, it shall not be necessary to conduct the hydrostatic test, but rather the tests and trials specified for level B, unless, based on their results, the authorised inspection body supervising them deems a pressure test necessary, which shall be conducted under the same conditions as a major repair.

If the results of these inspections and tests are satisfactory and the repair is not defined as major, the equipment may be recommissioned.

3. If the scope of the repair is defined as a major repair, the tests specified for Level C shall be performed.

Article 10. Pressure values for tests after commissioning.

The provisions of the Design Code or the Manufacturer Instruction Book shall apply, but in their absence, at least the following requirements shall apply:

1. Pressure equipment, other than boilers: The hydrostatic test pressure value shall be equal to 1.1 times the maximum allowable pressure, i.e.:

$$PT = 1.1 \times PS$$

2. For boilers, including forced circulation and single-pass boilers, boilers with variable boiling point and pressurised parts designed for different pressure levels along the course of the steam/water flow, the hydrostatic test shall have a value equal to 1.1 times the maximum working pressure, where applicable, i.e.:

$$PT = 1.1 \times Pms$$

CHAPTER IV



Other provisions

Article 11. *Operating conditions.*

The installation shall feature the relevant operating procedures and shall be structured to cover 24 hours a day in shifts.

The training plan of the operating personnel, before starting employment and periodically thereafter, shall include provision of specific written instructions from the technical manager of the installation on:

- a) Operating procedures and organisation.
- b) Main characteristics of the installation.
- c) The Regulation on pressure equipment and this ITC.
- d) Functioning and proper use of the safety systems and features and personal protective equipment.
- e) Consequences of improper operation or use of the safety systems or features and personal protective equipment.
- f) Actions to be taken in the event of installation malfunctions.

Article 12. *Maintenance.*

1. Party responsible for maintenance.

The installation shall have a competent qualified engineer responsible for the general maintenance of the installation.

2. Inspection manual.

The user shall have an inspection manual, containing at least a description of the organisation, the number and qualifications of the allocated persons making up the in-house inspection service, the detailed inspection procedures and the inspection schedule.

The inspection schedule shall guarantee compliance with regulatory deadlines.

In addition to the periodic inspections indicated in the Regulation on pressure equipment and in this ITC, it shall also be necessary to conduct any and all checks, inspections or tests deemed necessary to ensure the integrity of the equipment and installations. This shall take into account the indications of the equipment manufacturer and the inspection criteria of standards that are generally recognised or internationally accepted in the sector.

The user shall take advantage of scheduled technical shut-downs (general unit shut-downs for maintenance, catalyst changes, market conditions, etc.) or shut-downs due to faults, to conduct inspections, checks or tests.



The inspection service of the user shall keep the plant management up-to-date on the condition of the equipment or systems, and shall recommend decommissioning those determined not to meet the required level of safety. Specifically, the inspection service shall depend neither on production nor on maintenance.

3. Maintenance schedule.

A preventive maintenance schedule shall be in place that ensures the availability and reliability of all components of the installations included in this ITC. This schedule shall be based on manufacturer standards, criteria from standards that are generally recognised or internationally accepted in the sector and on personal experience.

Article 13. Other checks.

In addition to the checks and inspections expressly indicated in this ITC, at least the following checks shall be carried out:

a) Corrosion check.

Adequate technical information shall be available on every pressure device to identify the corrosion margins of the vessels and piping of each system.

The checks shall ensure verification of all system parts, taking into account the various physico-chemical conditions of the fluids or the geometric factors.

The piping inspection schedule may be based on predictive analyses that verify the remaining life of the systems, and checks must be performed in due course prior to corrosion margin depletion. Preferably, the analyses shall be based on computer programs that monitor for changes in thickness. In addition, personal experience with similar systems may be used.

It is also necessary to bear in mind the possibility of corrosion on insulated or electrically live parts.

b) Erosion check.

It is necessary to bear in mind that erosion may occur in systems due to fluid characteristics and flow rates.

c) Special checks based on the specific characteristics of certain equipment or installations.

Special studies shall be available to identify specific risks to the integrity of pressure equipment.

In this regard, it is necessary to bear in mind the possible changes to materials based on the operating conditions (structural changes in materials, high-temperature creep analysis, fatigue, etc.).



ANNEX

Inspections and tests

1. General considerations.

This Annex defines the conditions for performing inspections and tests on pressure equipment falling under this ITC.

Special reference is made to boilers as the main component for operation and maintenance of the plants falling under this ITC, and the criteria set out below may be extended, where applicable, to the rest of the equipment.

By way of supplement to the instructions and standards set by the manufacturer of the various components, the meaning of 'inspection' shall include all activities indicated in this section, and their performance shall pay particular attention to the instructions referred to in the sections below.

2. Inspections.

2.1. Visual inspections.

These shall include inspection of the boiler and pressure equipment, on both the smoke side and the fluid side, checking the deposits accumulated on their surfaces to identify any service and/or operating faults.

After this inspection, any scaling or deposits that could prevent a subsequent thorough examination of the pressurised parts shall be removed.

Once cleaning is complete, a new visual inspection shall be conducted on all components (economisers, superheaters, etc., and separator plates, welds, rivets, attachments, etc.) both of the boiler and of other pressurised components. Parts that may exhibit significant faults in the opinion of the inspector, such as deformations, cracking, corrosion, wear, etc., shall be checked with suitable means.

2.2. Additional testing.

If the visual inspection and operating history of the boiler and pressure equipment give reasonable cause to suspect that a part, component or feature of these may have significant faults, the additional testing agreed on between the party responsible for inspection and the user or with the designated technician shall be conducted, and documented in writing.

If the visual inspection and additional testing lead to the conclusion that a pressurised part exhibits shortcomings, it shall be repaired or replaced.

2.3. Deformations.

If deformations are detected that exceed the maximum permissible values provided in the design, these shall be repaired or replaced or, where applicable, their maximum working pressure shall be reduced, especially in:



a) furnaces and their joints with tube plates.

b) drums and headers.

2.4. Stay bars and ties.

Stay bars and ties that exhibit breakage or a reduction in diameter greater than or equal to 2 mm shall be replaced.

2.5. Reinforcing brackets.

If total or partial breakage is observed in a weld bead that joins the reinforcing brackets of the boiler, then before its repair, the inspector shall check whether this breakage has resulted in any cracking or deformation in the reinforced sheets or in the tubes, and if so, these shall be repaired.

2.6. Weld beads.

Any seams whose weld beads feature faults shall be reworked. Repair welds shall meet the recognised procedures and the specialised welder shall be qualified.

2.7. Tubes, tube plates and headers.

Replacement options shall be considered for plugged tubes, and clogged tubes shall be cleaned. Joints shall be checked between tubes and tube plates, especially on the firebox end. For water-tube boilers, tube attachments to the drums and headers shall be checked, especially at joints with stiff points.

If boiler tubes come into contact with gases, some worn tube samples shall be cut from the worst cases and shall undergo an in-shop or alternative pressure test, whose result shall be considered representative of the entirety of the zone inspected. Thus, if the result is not satisfactory, the appropriate repairs shall be made.

2.8. Thickness measurement.

All points of possible corrosion or abnormal wear identified in the visual inspection shall be checked. If the visual inspection did not find any thickness defects, checks shall be conducted at randomly selected points and at points with a history of wear.

If the material thickness is less than the calculated thickness, the user and the inspector from the authorised inspection body may agree to replace this material, repair it using an appropriate method, such as rewelding, or reduce the maximum working pressure.

If the inspections conducted show that the actual thickness is less than the original thickness minus the excess thickness provided for corrosion, or if they indicate the presence of discontinuities in excess of those permitted in the design, the following actions shall be taken:

a) Perform a calculation demonstrating that this actual thickness will be able to withstand the maximum working pressure for the entirety of the period until the next inspection date.



b) Conduct a pressure test on the component in question, under the supervision of an authorised inspection body.

c) If the result is not satisfactory, the component shall be repaired.

2.9. Localised sheet rolling defects in the thickness check.

In particular, checks shall be conducted for possible defects in the rolled sheet, applying generally recognised standards or suitable procedures.

If ultrasound thickness measurement detects an abnormal reduction in thicknesses at any point or area on a sheet, which was not found in the visual inspection, the inspector shall check whether the reduced thickness detected is isolated or whether it is due to a sheet rolling defect (rolled sheets). If the ultrasound tests and visual inspection leave doubts as to whether the defect detected is due to reduced thickness or to the rolled sheet, the inspector shall drill a small bore hole and measure the thickness directly.

If it is verified that the defect lies in the rolling, the inspector shall determine the outline and area of the sheet and if it falls within the limits of a circle with a diameter of 75 mm, this defect shall be disregarded. If however the sheet area exceeds the aforementioned limit, but no abnormal deformation is observed, the inspector shall determine the outline, area and location and record these in writing on the reverse of or in an annex to the periodic inspection and testing certificate, so subsequent examinations can check for possible deformations in the specified area and repair any that are detected.

If the inspections after the one that identified the rolling defect do not detect any deformations in the affected area, the next periodic inspection shall check the area within the outline of the sheet, and if it has increased by more than 20%, the affected part shall be repaired, even if no deformation is found.

Lamination defects located in sheets of internally pressurised components shall not be taken into account, except in areas with reinforcing parts joined by welding.

2.10. Piping.

a) Zones subject to torques (turbine and boiler couplings) and branching:

Use of magnetic particles and ultrasound in welds, with sampling by means of metallographic replicas in piping subject to creep at high temperatures.

b) Other piping:

In piping subject to creep at high temperatures (hot reheated and primary steam), 10% of the circumferential welds shall be inspected using magnetic particles and ultrasounds, and 20% of any longitudinal welds present. Checks with magnetic particles shall be conducted on 20% of welds in accessories (brackets, instrumentation, drains, etc.).



In piping not subject to creep at high temperatures (cold reheated steam, feedwater, etc.), 10% of the welds shall be inspected by means of magnetic particles or ultrasound, and 10% of welds in accessories shall be checked using magnetic particles.

2.11. Safety valves and accessories.

Before cleaning the accessories, the inspector shall examine the water level and pressure regulators and limiters, the valve, traps, level indicators, studs, tube adapters, connection tubes, etc. If float chambers are present, the inspector shall check that their interior and connecting tubes are clean.

The safety valves shall be removed to check that their various parts are free of defects and that their interior is free of rust, scaling and foreign substances. The valves shall be adjusted, tested and sealed.

Inspection and cleaning of safety valve parts, float chambers and accessories may be performed by the manufacturer or the authorised ERP-2 repair company, before the visit by the inspector responsible for periodic inspection and testing. All safety valves shall be removed and properly adjusted before testing and sealing. In this case, the manufacturer or repair company shall issue a certificate attesting to completion of the indicated work.

The inspector from the authorised inspection body shall certify verification of the functioning of the indicated parts, as well as regulation and sealing of the safety valves. In cases of boiler safety valves, these inspections shall also be performed in combination with the pressure test or failing this, testing by means of alternative hydraulic equipment.

2.12. Pressure gauges and thermometers.

All thermometers, pressure gauges and pressure sensors shall be checked with a standard part.

2.13. Smoke boxes and lines.

Smoke boxes and lines whose sheets are not pressurised shall be checked for sheets with thicknesses of less than 2 mm.

2.14. Refractory.

The inspector shall check the condition of the refractory of the firebox, flooring, furnace chamber, ash collector, etc., and replace any defective parts.

3. Pressure tests.

3.1. Pressure test procedure.

This shall be defined according to manufacturer standards and instructions, including a detailed description, as well as:

- a) Test conditions.
- b) Equipment needed to perform the test.



- c) Measurement and control equipment, duly verified and with adequate sensitivity.
- d) Filling and drainage system and hold time of the test.
- e) Indication of points requiring special attention.

3.2. Safety requirements during pressure tests.

Before conducting tests, the inspector shall verify that the testing equipment is correct, that the connections are suitable for the maximum pressures to be reached, that proper safety measures have been taken to prevent exceeding the test pressure, and also that the temperature cannot drop below that indicated by the manufacturer and the internal parts of the appliance cannot be damaged at any time.

3.3. Hydrostatic test.

Before filling with water, the inspector shall check that the structures and foundations supporting the appliance or system are capable of withstanding the load to which they will be subject, and shall install blind flanges or screw plugs, where applicable, in steam outlet valves or safety valves.

During the test, the inspector shall ensure that the personnel maintain a safe distance from bases, caps and threaded parts and that only persons involved in the test are present.

The pressure gauges shall be installed outside the vertical projection and shall preferably be positioned sideways or higher up. During filling with water, the inspector shall ensure proper venting of the circuit, to prevent air pockets.

Due to the energy stored in the hydrostatic test, the inspector shall take special precautions if the test pressure is greater than 80 bar or if the product of the test pressure (PT) in bar and the volume (V) in litres is greater than 10,000, in which case the inspector shall prepare a detailed plan for the sequence for these, the duration and the minimum safe distance.

In any case, the pressure drop shall be applied gradually until reaching the test value, with a hold time of at least 15 minutes once stability is reached. Close visual inspection for leaks shall not be required in this initial stage. The inspector shall then reduce the maximum working pressure (Pms) and conduct a careful examination. The temperature of the metal shall be no less than the preset limit in each case based on the material strength or brittle fracture.

The temperature of the test fluid shall not reach values that pose a risk of accidents for the persons conducting the inspection and tests.

If the hydrostatic test uncovers fluid leaks, the inspector shall reduce the pressure and have the necessary repairs performed to remove them before restarting the test.

3.4. Pneumatic test.

If the hydrostatic pressure test cannot be performed, it shall be permitted to conduct a pneumatic test.



Because this test poses a higher risk, a visual inspection shall first be conducted on the equipment, taking the following into account:

- a) A detailed plan of the test stages shall always be drawn up, indicating the pressure hold times for each stage as well as the minimum safe distances.
- b) During testing, the area off-limits to unauthorised personnel shall be properly indicated.
- c) All of the above checks shall be conducted by competent qualified technical personnel of the tester.

4. Inspections and testing levels.

The inspection levels for the various pressure equipment shall be in accordance with the provisions of Annex III to the Regulation on pressure equipment, taking the following specifications into account:

4.1. Level A.

A visual inspection shall be conducted on the equipment, with the understanding that this shall not require removal of the insulation or any coating from the pressure equipment, barring evidence that it conceals a fault.

For boilers, the inspection shall also include the following checks:

- a) Availability of up-to-date documentation on maintenance and operation, as well as water quality.
- b) Functioning of operation and safety features that prompted the inspection (e.g. electrical safety valve).
- c) Continued compliance with boiler site conditions and safety instructions.
- d) Gas circuit check for leaks.
- e) Visual inspection of the components that use the fluid from the boiler.

4.2. Level B.

In addition to that indicated for the level A inspection, a full inspection shall be performed on the documentation and condition of the boiler and pressurised parts, in accordance with the following:

- a) Verification of boiler documents and periodic inspection and installation data plate (installation certificate, plan, declaration of conformity or production certificate, operating instructions, boiler makes, etc.).
- b) Inspection of boiler components by means of a representative sample of the parts subject to a greater likelihood of faults, based on their history and on the experience of the user and the authorised inspection body; the scope of this shall be determined by the two parties, and shall cover at least 20% of



the installation. If significant defects are detected, the scope of action shall be expanded until verification that the defects no longer occur. The following shall be considered:

- Visual inspection before and after cleaning.
 - Additional testing.
 - Ultrasound (US) measurement of thicknesses in areas subject to material loss from corrosion and/or erosion.
 - Identification of cracks in areas subject to stiffness and/or fatigue, using liquid penetrants (LP) and/or magnetic particles (MP).
 - Identification of degradation of parts subject to high temperatures by magnetite layer measurement and/or metallographic replica (MR).
 - X-rays in areas that require such.
 - Deformations.
 - Stay bars and ties.
 - Reinforcing brackets.
 - Weld beads and rivets.
 - Tubes, tube plates and headers.
 - Thickness measurement and checks for sheet rolling defects.
 - Piping.
 - Safety valves and accessories.
 - Pressure gauges and thermometers.
 - Smoke boxes and lines.
 - Refractory.
- c) Operational test:
- Safety valve control and sealing.
 - Verification of automatic controls.
 - Automatic safety controls.

4.3. Level C.

In addition to the specifications, level B inspections shall also require performance of the hydrostatic test as per section 3.3 of this annex. The inspection shall include the following checks:

- a) Documentation check.



b) Inspection of the components of the boiler and pressurised parts.

c) Fire-tube boilers shall undergo the following non-destructive testing using liquid penetrants or magnetic particles:

- 100% of the weld joint of the furnace with backplate or tube plate of furnace chamber.
- 100% of the furnace tube welds.
- 50% of the joint between the backplate and the first-pass tubes if the fuel is gaseous, and 10% for other fuels.
- 100% of the joint of the stays with the furnace chamber and with the back tube plate if the fuel is gaseous and 50% for other fuels.

d) hydrostatic test.

e) operational test.



ADDITIONAL TECHNICAL INSTRUCTION

ITC EP-3

OIL REFINERIES AND PETROCHEMICAL PLANTS

CHAPTER I

Scope and definitions

Article 1. Scope.

1. This Additional Technical Instruction [ITC] applies to the installation, periodic inspection, and repair of all pressure equipment falling under the Regulation on pressure equipment that is installed in oil refineries and petrochemical plants.

2. This ITC does not cover:

a) Gas bottles for breathing apparatuses falling under ITC EP-5.

b) Transportable pressure equipment falling under Royal Decree 1388/2011 of 14 October 2011 setting out provisions implementing Directive 2010/35/EU of the European Parliament and of the Council of 16 June 2010 on transportable pressure equipment and repealing Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC and 1999/36/EC.

c) Extinguishers, which must meet the general requirements of the Regulation on pressure equipment.

d) Oil and gas pipelines and urban distribution grids.

e) Pipes for transport to another external installation, from the last isolating device located within the boundaries of the company, including this device, which must meet the requirements of the Regulation on pressure equipment.

f) Housings or casings for dynamic parts.

g) Pressure equipment as per Article 4(3) of Royal Decree 709/2015 of 24 July 2015, or equipment deemed equivalent to these categories pursuant to Article 3(2) of the Regulation on pressure equipment.

Article 2. Definitions.

For the purpose of this ITC, the following terms and definitions shall apply:

1. 'Oil refinery': a set of process and auxiliary installations intended for the refining, racking and storage of crude oil and its derived products.

2. 'Petrochemical plant': a set of process and auxiliary installations that use petroleum cuts, natural gas or products prepared from these as raw materials.



3. 'System': a set of equipment normally connected in process sequence and that can be tested in combination.

4. 'Special equipment': equipment with any of the following features:

a) Catalyst filling, or fragile or hygroscopic inner coating, such as heat-resistant, vitrified, ebonite, enamelled, etc.

b) Subject to an operating temperature of less than or equal to 0 °C in systems using non-corrosive fluids.

c) Integrated into temporary installations, such as pilot plants, research and testing laboratories, etc.

d) Subject to a vacuum (pressures less than atmospheric pressure under normal operating conditions), and that may experience pressure under exceptional conditions or that is subject to pressure or leak tests at values of over 0.5 bar.

5. 'In-house inspector': competent qualified technical personnel designated by the user or contractor, with experience inspecting pressure equipment in refineries or petrochemical plants.

6. 'Leak test': verification of the impermeability of pressure equipment or a system, as well as any connections or removable parts, under conditions of use.

7. 'Other external installation': installation under different ownership, and therefore not part of the refinery or petrochemical plant.

CHAPTER II

Installation and commissioning

Article 3. *Vessel classification.*

For the purposes of this ITC, pressure vessels shall be classified according to their hazard level, based on the following criteria:

1. Hazard potential.

Vessels shall be classified according to the product of the maximum allowable pressure (PS in bar) and the volume (V in m³):

- Potential 1: Greater than or equal to 1,000.
- Potential 2: Greater than or equal to 300 and less than 1,000.
- Potential 3: Greater than or equal to 25 and less than 300.
- Potential 4: Greater than or equal to 10 and less than 25.
- Potential 5: Less than 10.



2. Fluid characteristics.

The following classes apply based on the characteristics of the fluids used in the equipment:

– Group 1.1:

– Fluids that are flammable at a maximum working temperature T_{ms} that is greater than or equal to 200 °C, in the form of vapours, liquids, gases and mixture of these.

– Category 1 fluids with acute dermal toxicity and category 1 and 2 fluids with acute inhalation toxicity, as per Part 3 of Annex I to Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures.

– Hydrogen in concentrations of over 75% by volume.

– Group 1.2: Other hazardous fluids falling under Group 1 of Article 13 of Royal Decree 709/2015 of 24 July 2015 that do not fall under the above group.

– Group 2.1: Gases and vapours falling under Group 2 of Article 13 of Royal Decree 709/2015 of 24 July 2015 (steam, inert gases, air, etc.)

– Group 2.2: Other fluids falling under Group 2 of Article 13 of Royal Decree 709/2015 of 24 July 2015 that do not fall under the above group.

3. Equipment classes.

Vessels falling under this ITC are classified as follows based on the combination of hazard potential and fluid characteristics:

Hazard potential	Fluid characteristics			
	1.1	1.2	2.1	2.2
1	Class 1	Class 1	Class 1	Class 2
2	Class 1	Class 2	Class 2	Class 3
3	Class 2	Class 3	Class 3	Class 4
4	Class 3	Class 4	Class 4	Class 5
5	Class 4	Class 5	Class 5	Class 5



Article 4. Installation.

1. Installation plan.

For the purposes of Article 4(1) of the Regulation on pressure equipment, installations that include pressure vessels of Classes 1 or 2 as per Article 3(3) of this ITC shall require installation plans.

The plan shall include the following information:

a) Description of the process that the installation carries out.

b) Details on the installation company and indication of its authorisation.

c) Technical characteristics of the vessels:

– Total volume of the pressurised parts and where applicable, volumes of the inner chambers or volume of water at an average level.

– Maximum allowable pressure (PS), maximum allowable temperature (TS), maximum working pressure (Pms), maximum working temperature (Tms), seal pressure (Pp), factory test pressure and subsequent periodic test pressures.

– Fluid content.

– Casing material.

– Safety features and their characteristics.

– Auxiliary components and their characteristics.

– Any other relevant technical characteristics.

d) Details on the manufacturer of each pressure device.

e) List of names of all pressure devices included in the installation.

f) Budget.

g) Drawings:

– General drawing of each device or assembly into which it is integrated.

– Location of the vessels, including adjacent zones, with indication of risks.

– The entirety of the installation.

– Schematic diagram of the installation.

2. Installations that do not require an installation plan.

Installations that do not require submission of an installation plan according to the preceding paragraph shall be handled according to section 3 of Annex II to the Regulation on pressure equipment.



3. Installation companies.

All the equipment included in this ITC shall be installed by category EIP-2 companies, as per Annex I of the Regulation on pressure equipment.

Article 5. Commissioning.

1. Commissioning of pressure equipment or installations as referred to in this ITC shall be in accordance with the provisions of Article 5 of the Regulation on pressure equipment.

2. Installation companies shall be responsible for execution of installations. If engineering firms or the user provided the design, they shall be responsible for it and shall indicate this in the installation certificate referred to in Annex IV to the Regulation on pressure equipment.

3. The installation and periodic inspection data plates indicated in Annex III to the Regulation on pressure equipment may be replaced by identification in the equipment log of the user, referred to in Article 9 of the Regulation on pressure equipment.

CHAPTER III

Periodic inspections and repairs and modifications

Article 6. Periodic inspections.

1. Periodic inspections shall be conducted according to the criteria provided in the annex to this ITC.

2. The required inspections and tests for the vessels shall be performed according to the classification provided in Article 3(3) of this ITC, by the following parties and at the following maximum intervals:

Vessel classification (Article 3(3))	Inspection level (Annex)		
	A	B	C
PARTY AND INTERVALS FOR PERIODIC INSPECTIONS ON VESSELS			
Class 1	In-house inspector, 4 years	IB, 6 years	IB, 12 years
Class 2	In-house inspector, 4 years	IB, 8 years	IB, 18 years
Class 3	In-house inspector, 6 years	In-house inspector(*), 10 years	Not required
Class 4	In-house inspector, 6 years	In-house inspector, 12 years	Not required
Class 5	In-house inspector, 8 years	Not required	Not required



(* In cases of special equipment, level B inspections in class 3 shall be conducted by an authorised inspection body [OCA].

3. Piping with a diameter of over DN 50 and whose PS*DN is > 1,000 shall be inspected, for at least level B, by the indicated parties and at the indicated maximum intervals, with no need to conduct a level C inspection.

Inspection level (Annex)	Fluid group (Article 3(2))		
	1.1	1.2	2.1 and 2.2
PARTY AND INTERVALS FOR PERIODIC INSPECTIONS ON PIPING			
Level B	In-house inspector, 6 years	In-house inspector, 10 years	In-house inspector, 12 years

4. In exceptional cases, level B and C inspections on storage spheres or tanks for liquefied petroleum gas, as well as non-corrosive liquefied gases, may be conducted jointly, in which case a maximum interval of 10 years shall apply.

5. In addition to the periodic inspections, it shall also be necessary to conduct any and all checks, inspections or tests deemed necessary to ensure the integrity of the equipment and installations.

If a periodic inspection, or an additional inspection conducted by the user, finds corrosion or damage, this shall be monitored over time in user inspections during installation downtime, to decide whether the corrosion or the condition of the appliance warrants repairs.

6. If experience gained in the performance of periodic inspections indicates that certain devices do not experience problems from usage or ageing, or if special non-destructive testing techniques show that they offer an equivalent level of safety, it shall be permitted – by virtue of Article 12 of the Regulation on pressure equipment – to authorise a change in inspection levels or deadlines, with a corresponding favourable report from an authorised inspection body.

Article 7. Repairs.

1. Repair companies.

All equipment falling under this ITC shall be repaired by category ERP-2 companies, as per Annex I of the Regulation on pressure equipment.

2. Scope of repairs.

Repairs affecting a significant part of the equipment shall be considered ‘major repairs’, according to the criteria provided in the section below.



In cases of repairs affecting pressurised parts that are not ‘major’ in scope, the user shall conduct the necessary checks, including the relevant hydrostatic test or the non-destructive testing deemed suitable for the equipment.

3. Major repairs.

3.1. Repairs on the casings of vessels, columns, reactors and exchangers shall be considered ‘major’ in all of the following cases:

a) If the length of the weld in question, expressed as a percentage of the length of the device, measured between tangents to the bases for longitudinal welds and with respect to the perimeter for circumferential welds, is greater than or equal to the values of the table provided in this section. This does not apply to sealing welds or any other welds that do not have an adverse impact on the mechanical or metallurgical characteristics of the pressure-bearing components of the appliance.

b) Regardless of scope, on appliances under vacuums, except for those containing fluids that are non-combustible, or that do not give rise to explosive mixtures.

c) For class 1 and 2 vessels, repairs on tube adapters with diameters less than or equal to DN 80 shall not be considered major. Similarly, for class 3 and 4 vessels, repairs on any of the tube adapters or rewelding shall not be considered major repairs.

Classes 1 and 2		Class 3		Class 4	
Joint type		Joint type		Joint type	
Longitudinal weld	Circumferential weld	Longitudinal weld	Circumferential weld	Longitudinal weld	Circumferential weld
5%	10%	15%	30%	20%	40%

3.2. In addition to that indicated in the preceding section, the following cases shall also be considered major repairs:

a) Air coolers. Replacement of 10% of the tubes or repairs in heads that require welds.

b) Furnaces. Replacement of a length of tube longer than 10% of the total length of the tube circuit.

c) Fired steam production equipment and boilers. Replacement of a length of tube longer than 10% of the total length of the tube circuit.

d) Piping. In this case, any repair that meets all of the following conditions is considered major:

– The welding procedure includes heat-treatment or the thicknesses of the two tubes to be joined are both greater than 12 millimetres.



– The number of joining welds between tubes is greater than that indicated in the table below:

Categories / RD 709/2015	Number of welds
III	Any
II	6
I	12

e) Unclassified cases.

In cases of class 5 equipment, no repair shall be considered a 'major repair'.

3.3. Technical repair file.

The repair company shall prepare a technical repair file for repairs considered 'major', according to the provisions of the preceding section, including:

- a) Registration number with the competent body of the Autonomous Community of its registered office.
- b) Identification of the pressure equipment, characteristics and classification, and indication of its initial commissioning according to this ITC.
- c) Reasons for the repair.
- d) Complete description of the repair, including detailed drawings of the repair.
- e) Documents attesting to the suitability of the basic and filler materials of the components used in the repairs, approved by the repair company, engineering firm or inspection body.
- f) Procedure for repair, welding, heat-treatments and verifications, qualification of welding procedures and welders, all of which approved by the repair company, engineering firm or inspection body.
- g) Location map of the zones inspected with non-destructive testing, required tests, their scope and results. The user shall properly preserve X-rays for at least 5 years starting from the equipment repair date.
- h) Certificate for tests and trials conducted during the repairs, signed by the competent qualified engineer of the repair company.
- i) Pressure test certificate signed by an inspection body.



3.4. Any device that undergoes a 'major repair' shall also undergo the following inspections and tests:

a) An inspection by a repair company to check that the equipment was repaired in accordance with the documentation contained in the repair file.

b) Examination of the appliance repaired and a pressure test with the same value and conditions as the first test, by an inspection body.

The pressure test shall include at least the part repaired. If all of the equipment is not tested, the inspection conducted shall not be considered a periodic inspection.

The pressure test may be replaced with other tests or trials that offer an equivalent level of safety, where justified on technical grounds and, in any case, in accordance with Article 12 of the Regulation.

If the results of these inspections and tests are acceptable, the repaired equipment may be commissioned.

Article 8. Modifications

1. Modifications shall meet the provisions of Article 8 of the Regulation on pressure equipment. In any case, modifications shall be performed by authorised category 2 installation or repair companies, or by the equipment manufacturer.

2. Level C inspections required as per Article 8 of the Regulation shall be conducted in accordance with the annex to this ITC.

CHAPTER IV

Other provisions

Article 9. Obligations on users.

In addition to the obligations indicated in Article 9 of the Regulation on pressure equipment, the user shall meet the requirements below.

1. Maintenance.

The user shall perform maintenance that ensures the availability and reliability of all components of the installations falling under this ITC.

This maintenance shall be based on manufacturer instructions and on personal experience, and shall be conducted at the intervals deemed necessary.

2. Inspection manual.

The user shall have an inspection manual, containing at least a description of the organisation, the number and qualifications of the allocated persons, the detailed inspection procedures and the inspection schedule.



The inspection schedule shall guarantee compliance with regulatory deadlines.

In addition to the periodic inspections indicated in the Regulation on pressure equipment and in this ITC, it shall also be necessary to conduct any and all checks, inspections or tests deemed necessary to ensure the integrity of the equipment and installations. This shall take into account the indications of the equipment manufacturer and the inspection criteria of standards that are generally recognised or internationally accepted in the sector.

The user shall take advantage of scheduled technical shut-downs (general unit shut-downs for maintenance, catalyst changes, market conditions, etc.) or shut-downs due to faults, to conduct inspections, checks or tests.

The inspection service of the user shall keep the refinery or petrochemical plant management up-to-date on the condition of the equipment or systems, and shall recommend decommissioning those determined not to meet the required level of safety. Specifically, the inspection service shall depend neither on production nor on maintenance.

3. Other checks.

In addition to the checks and inspections expressly indicated in this ITC, at least the following checks shall be carried out:

a) Corrosion check.

Adequate technical information shall be available on every pressure device to identify the corrosion margins of the vessels and piping of each system.

The checks shall ensure verification of all system parts, taking into account the various physico-chemical conditions of the fluids or the geometric factors.

The piping inspection schedule may be based on predictive analyses that verify the remaining life of the systems, and checks must be performed in due course prior to corrosion margin depletion. Preferably, the analyses shall be based on computer programs that monitor for changes in thickness. In addition, personal experience with similar systems may be used.

It is also necessary to bear in mind the possibility of corrosion on insulated or electrically live parts.

b) Erosion check.

It is necessary to bear in mind that erosion may occur in systems due to fluid characteristics and flow rates.

c) Special checks based on the specific characteristics of certain equipment or installations. Special studies shall be available to identify specific risks to the integrity of pressure equipment.

In this regard, it is necessary to bear in mind the possible changes to materials based on the operating conditions (structural changes in materials, high-temperature creep analysis, etc.).



ANNEX

Periodic inspections

Application of this ITC shall take into account the provisions of Annex III to the Regulation on pressure equipment, with the following criteria:

1. Inspection level A (external inspection).

In addition to that set out in Annex III to the Regulation on pressure equipment, a thickness check shall be conducted with ultrasound testing and/or any non-destructive testing deemed necessary.

In cases of equipment whose metal temperature does not permit this testing, it shall be conducted within no more than 2 years from the set deadline, provided that an assessment of the remaining life of the equipment guarantees its integrity.

2. Inspection level B (out-of-service internal inspection).

This shall include at least a full internal visual inspection and thickness check on all pressurised parts. If this inspection uncovers reasonable grounds for further study, the non-destructive testing deemed necessary shall be performed.

If an internal inspection cannot be conducted because it is physically impossible or for justified technical reasons, it shall be replaced with the necessary non-destructive testing that guarantees an equivalent level of safety, or with a pressure test.

In cases of piping, it shall not be necessary to conduct the internal inspection or keep the equipment out of service, except where necessary for the required testing.

3. Inspection level C (pressure test).

Equipment under vacuum shall not require performance of the hydrostatic test.

4. The inspections shall be performed taking the following considerations into account:

4.1 Test fluid.

The hydrostatic pressure test shall normally use water at room temperature. The water temperature shall not fall below 10 °C during the test. If it does, it shall be necessary to assess any potential risk associated with this.

If the equipment design specifies the type, quality and temperature of the test fluid, the pressure tests shall meet these specifications, and all relevant precautions shall be taken.

At least the following shall be considered justified technical grounds for changing or replacing the test fluid:

a) Reasonable doubts regarding the structural strength of the foundations.

b) Harmful impact of the fluid on internal parts or walls of the appliance, catalysts or filling parts.



c) Problems with the test, drainage or venting circuit drying out.

d) Material difficulty in performing the hydrostatic test.

If water cannot be used as a test fluid for justified technical grounds, it shall be permitted to use other fluids.

4.2 Test pressure.

a) The test pressure (PT) value shall be that indicated by the equipment manufacturer, or failing this, the value from the factory hydrostatic test, which shall not exceed 90% of the elastic limit of the material at the test temperature for the primary membrane forces.

By way of exception, any reduction in test pressure values shall be approved by the competent body of the Autonomous Community, after submission of the technical grounds and a favourable report from an inspection body.

b) Equipment under vacuum shall require special attention for possible leaks, which means a level B inspection shall include a leak test before commissioning. Equipment under vacuum that contains fluids that are non-combustible or that do not give rise to explosive mixtures shall be exempt from these tests.

c) Equipment with a working temperature of less than or equal to 0 °C in systems with non-corrosive fluids.

The following requirements shall apply to equipment operating under conditions of use which, based on experience, do not give rise to internal corrosion problems:

– The equipment shall undergo the first hydrostatic pressure test, and shall be exempt from the subsequent periodic level B and C tests, unless they must be decommissioned for repair for other reasons. In such cases, the repaired area shall undergo a visual inspection and pressure test.

– In any case, in-house inspectors shall conduct periodic level A inspections to determine the condition of the areas where external corrosion could arise and areas subject to the strongest forces.

d) The pressure test procedure shall be that indicated by the equipment manufacturer or failing this, it shall include a detailed description of the procedure, as well as:

– Test conditions.

– Equipment needed to perform the test.

– Measurement and control equipment, duly verified and with adequate sensitivity. Efforts shall be made to ensure that the readout is in the middle third of the appliance range.

– Filling and drainage systems and test pressure hold time.

– Indication of points requiring special attention.



5. Safety requirements during the tests.

The performance of tests and trials shall be subject to certain strict safety conditions to prevent accidents due to the work being performed.

Before conducting pressure tests, the inspector shall verify that the testing equipment is correct, that the connections are suitable for the maximum pressures to be reached, that proper safety measures have been taken to prevent exceeding the test pressure, and also that the temperature cannot drop below that indicated in the design or damage the internal parts of the appliance at any time.

5.1 Hydrostatic test.

Before filling with water, the inspector shall check that the structures and foundations supporting the equipment or system are capable of withstanding the load to which they will be subject.

During the test, the inspector shall ensure that the personnel maintain a safe distance from bases, caps and threaded parts and that only persons involved in the test are present.

The pressure gauges shall be installed outside the vertical projection and shall preferably be positioned sideways or higher up. During filling with water, the inspector shall ensure proper venting of the circuit, to prevent air or steam pockets.

Due to the energy stored in the hydrostatic test, the inspector shall take special precautions if the test pressure is greater than 80 bar or if the product of the test pressure (PT) in bar and the volume (V) in cubic metres is greater than 10,000, in which case the inspector shall prepare a detailed plan for the sequence, the duration and the minimum safe distance.

If it is not possible to observe the minimum safe distance indicated in the plan, it must be replaced with another additional safety standard, to be approved by the competent body of the Autonomous Community.

5.2 Pneumatic test.

Because this test involves a higher risk than the hydrostatic test, the appliance must be inspected first.

A detailed plan of the test stages shall always be drawn up, indicating the pressure hold times for each stage as well as the minimum safe distances.

During testing, the area off-limits to unauthorised personnel shall be properly indicated.

6. Inspections by the user.

a) The user shall have suitable in-house or contracted personnel, resources and organisation to conduct the inspections and checks required over the service life of the equipment or systems, so the degree of compliance with this ITC is known at all times.



b) Independently of the periodic inspections and tests, the inspectors of the user shall examine and check equipment opened for cleaning or repair during general or partial plant downtime. The results of these checks shall be entered in the user log referred to in Article 9(7) of the Regulation on pressure equipment.

c) The inspection service of the user shall keep the equipment or system history. The user shall verify compliance with the design conditions and conditions for fault duration, repairs and modifications.

7. Inspection of safety valves.

Safety valves shall be removed for adjustment, testing and sealing, at intervals not exceeding the shortest of the level B inspection intervals for the equipment they protect.

Regulation shall be performed on a test bench, taking into account the manufacturer recommendations.

In cases of fired boilers, the inspection interval shall be at least once every 2 years.

The steam production system valves, and all other valves whose operating characteristics permit such, may be checked in their installed location.

An inspection body shall supervise the taring and sealing checks.

8. Inspection certificate.

All checks and tests under this section that are conducted by an inspection body shall be indicated on the corresponding certificate.

The inspections conducted by the in-house inspector shall be entered in the user log referred to in Article 9(7) of the Regulation on pressure equipment.



ADDITIONAL TECHNICAL INSTRUCTION

ITC EP-4

CRYOGENIC TANKS

CHAPTER I

Scope and definitions

Article 1. Scope.

1. This Additional Technical Instruction [ITC] applies to the installation and periodic testing conditions for cryogenic equipment with volumes of over 1,000 litres in geometric capacity, intended for storage and use of cryogenic gases, such as argon, nitrogen, carbon dioxide, helium, nitrous oxide (N₂O), krypton, neon, oxygen, xenon, ethane, ethylene, hydrogen and air.

In addition to tanks, the meaning of 'cryogenic equipment' shall also cover their auxiliary parts, such as piping, valves, control devices, evaporation/gasification units inside or outside the tank, refrigeration equipment and pressurisation equipment.

2. The following are not subject to the provisions of this ITC:

a) Transportable pressure equipment falling under Royal Decree 1388/2011 of 14 October 2011 setting out provisions implementing Directive 2010/35/EU of the European Parliament and of the Council of 16 June 2010 on transportable pressure equipment and repealing Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC and 1999/36/EC.

b) Refinery and petrochemical plant equipment falling under ITC EP-3.

c) Liquefied natural gas terminal equipment falling under ITC EP-7.

Article 2. Definitions.

Without prejudice to the definitions provided in Article 2 of the Regulation on pressure equipment, the following definitions shall apply for the purposes of this ITC in particular:

1. 'Cryogenic tank': assembly comprising the vessel, insulation, casings, brackets, piping, valves, pressure gauges, thermometers, levels, etc., for storage of cryogenic liquids.

2. 'Cryogenic liquids': liquids whose boiling point at atmospheric pressure is below -40 °C, and for CO₂, below -20 °C.

3. 'Insulation': material placed around the inner vessel to reduce the flow of heat from the outside to the inside. This insulation may or may not be in vacuum chambers.

4. 'Casing': outer covering around the insulation to protect and contain it.

5. 'Refrigeration equipment': mechanical system that provides the refrigeration needed to offset heat gains through the insulation.



6. 'Inert gas': any gas or gas mixture that does not react with other products at normal temperature and pressure (15 °C and 1.013 bar absolute).

7. 'Oxidising gas': any gas or gas mixture with a reduction potential greater than that of air.

8. 'Owner': the natural person or legal entity that holds the title to the installation.

9. 'User of the stored product': the natural person or legal entity using the stored product.

CHAPTER II

Installation and commissioning

Article 3. *Classification of the cryogenic tanks.*

For the purposes of this ITC, the cryogenic tanks shall be classified according to the criteria below:

1. Size.

Cryogenic tanks shall be classified as follows based on the total geometric capacity, expressed in litres, of each tank (made up of one or more vessels):

- a) Tanks of between 1,001 and 5,000 litres.
- b) Tanks of between 5,001 and 20,000 litres.
- c) Tanks of between 20,001 and 60,000 litres.
- d) Tanks of between 60,001 and 200,000 litres.
- e) Tanks of between 200,001 and 400,000 litres.
- f) Tanks of more than 400,000 litres.

2. Gas contents.

Gas contents are divided into three categories based on hazard level and characteristics:

- Group 1.1: Flammable gases: Ethane, ethylene and hydrogen.
- Group 1.2: Oxidising gases: Oxygen and nitrous oxide.
- Group 2: Inert gases: Argon, nitrogen, air, carbon dioxide, helium, krypton, neon and xenon.

Article 4. *Installation.*

The installations subject to this ITC shall require submission of a technical plan to the competent body of the Autonomous Community, including at least that indicated in section 2 of Annex II to the Regulation on pressure equipment.

Article 5. *Commissioning.*

Installation commissioning shall be in accordance with the provisions of Article 5 of the Regulation on pressure equipment.



A leak test and check on the safety system with safety valve seals shall be conducted in advance. In cases of vacuum insulated tanks, the leak test may be replaced with a vacuum measurement. If the result is less than 0.60 mbar, the test shall be considered passed. The installation company or the authorised inspection body may conduct this test.

Article 6. Safety requirements for the installation.

1. Location.

Storage vessels shall preferably be located outdoors above ground level or in adequately ventilated buildings of non-combustible design.

The tops of vessels intended to hold flammable gases must be of lightweight design with a maximum resistance of 50 mbar.

The location of the vessels shall permit easy access for supply vehicles and authorised personnel.

The flooring and paving in the area around installations containing vessels for oxygen and/or nitrous oxide shall be free of asphalt and other bituminous products.

2. Safety distances.

The distances indicated in this section are the minimum distances between the outside of the vessel and its auxiliary equipment and the various places indicated below.

If a single enclosure contains multiple vessels, the recommended distance between them, wherever possible, should be half of the sum of their radii, and shall be at least greater than 0.5 m.

Annex I provides the distances to be maintained from various hazards. For hazards not indicated in the table, the equivalent hazard shall apply. The distances provided in Annex I shall be measured along the potential path of the gas in the event of a leak, going around any protective walls, both horizontally and vertically, with right angles estimated as equivalent to 2.5 m if the segments making up their sides are at least 1.3 m in length.

To ensure ventilation, it is permitted to install more than three sides with these walls. In special cases requiring enclosure on more than three sides with protective walls, the plan shall demonstrate that other solutions are not possible and that the ventilation system applied is suitable.

Vessels for non-flammable gases (Groups 1.2 and 2), with steel outer casing, are considered to be protected by this casing, in which case it is necessary to protect the parts not inside the outer casing (piping, control equipment, valves, etc.).

If the vessels are located in enclosed areas, ventilation must be guaranteed by means of suitable procedures, such as grilles, fans, etc., except in rooms whose dimensions enable installation of the vessel with at least 15 m of clearance from walls and 5 m of vertical clearance.



3. Fencing.

On sides not protected with walls, cryogenic tank(s) shall be surrounded by lightweight metal fencing at least 2 m in height, to prevent unauthorised persons accessing or tampering with the installations.

A sign must be posted in a visible location indicating the gas contents, the specific hazards and the recommended safety measures.

The applicable fencing obligations do not cover installations of production or packaging plants and may be met without fencing that is limited to the boundary of the plant.

4. Equipment set-up.

Vaporisers/gasifiers outside the cryogenic tank(s) shall be anchored and their connecting pipes shall be calculated and designed to prevent the effects of expansions and contractions due to changes in temperature.

5. Earthing.

Vessels, equipment and the discharge station for flammable gases shall have an earth connection with a resistance of less than 20 Ω .

6. Fire protection.

The relevant criteria shall be applied as set out in Royal Decree 2267/2004 of 3 December 2004 adopting the Regulation on fire safety in industrial establishments.

7. Spill protection.

Vessels of any capacity for flammable gases and vessels with capacities of over 1,000,000 litres for other gases shall be fitted with collection basins for spilled product.

These basins may be made from natural barriers, dikes, retaining walls or earth excavations that can withstand the mechanical, thermal and chemical effects of the product contained.

The capacity of the basins shall be determined according to the following criteria:

a) If the basin only protects a single vessel, its minimum useful volume shall be that of the liquid, with the vessel completely full in cases of flammable liquids and 50% full in other cases.

b) If the basin protects more than one vessel and measures have been taken to prevent low temperatures or exposure to fire, due to spills from any vessel inside the basin, affecting the other vessels, the volume of the basin shall be that of the full contents of the tank at maximum capacity in the case of flammable liquids, and 50% of that volume for other liquids.



c) In cases of basins containing more than one vessel, where the measures from the preceding paragraph have not been taken, the basin volume shall be the sum of the complete liquid contents in the tanks when full for flammable liquids and 50% for other cases.

In addition to providing the volume required in the preceding sections, the dimensions of the basins and the wall heights shall meet the ratios indicated in Annex II.

8. Other safety measures.

Equipment intended to contain or circulate oxygen or nitrous oxide shall be free of oil, grease or other easily oxidisable materials.

Discharges from safety valves or rupture discs shall be managed in a way that does not cause personal injury or damage to flora, fauna or the environment.

CHAPTER III

Periodic inspections

Article 7. Periodic inspections.

1. Level A inspections.

These shall be conducted at the intervals and under the conditions specified in Annex III to the Regulation on pressure equipment.

2. Level B inspections.

The following checks shall be conducted at the intervals and by the party indicated for these inspections in Annex III to the Regulation on pressure equipment, with no need to decommission the cryogenic tank:

- Measure the vacuum of the cryogenic tank (measurements below 0.60 mbar shall be acceptable).
- Leak test (may be replaced with a vacuum measurement).
- Verification and sealing of tank valves.
- Check for compliance with regulatory conditions.
- Earthing connection check.

3. Level C inspection.

This shall be conducted according to Annex III to the Regulation on pressure equipment if the pressure test will be pneumatic at a pressure of 1.1 PS.

In exceptional cases, level B and C inspections on storage spheres or tanks for non-corrosive liquefied gases may be conducted jointly, at maximum intervals of 10 years.



CHAPTER IV

Other provisions

Article 8. *Obligations on users.*

For cryogenic tanks falling under this ITC, the obligations on users set out in Article 9 of the Regulation on pressure equipment shall apply to their owners.

Notwithstanding the above, owners may delegate the duties for monitoring and proper use of cryogenic tanks to the product user, by means of written instructions accepted by both parties.

ANNEX I

Minimum distances (m) between the cryogenic tank (with one or more vessels) and various hazards

Hazard type	Tank size and gas characteristics																	
	a			b			c			d			e			f		
	1.1	1.2	2	1.1	1.2	2	1.1	1.2	2	1.1	1.2	2	1.1	1.2	2	1.1	1.2	1.2
Worksites(*) (buildings, changing rooms)	5	3	3	10	5	5	15	8	8	20	10	10	20	10	10	30	10	10
Basements, sewers, service tunnels	5	5	5	10	5	5	10	8	8	10	10	10	20	10	10	20	10	10
Motors, switches (not explosion-proof)	10	--	--	15	--	--	20	--	--	25	--	--	30	--	--	35	--	--
Tanks, flammable materials; overhead	5	5	3	10	10	3	10	15	5	10	15	5	10	20	5	20	30	5
Tanks, flammable materials; underground	5	5	3	5	5	3	5	8	5	5	10	5	5	10	5	10	20	5
Public roadways, motorways, railways	15	3	3	20	5	3	25	5	3	30	5	3	35	10	5	40	20	5
Installations posing fire hazards (wood, plastic, etc.)	8	5	3	10	5	3	15	8	3	25	10	3	30	15	3	30	20	3
Controlled flames (welding torches, burners, etc.)	10	5	3	15	5	3	20	10	5	25	10	5	30	15	10	35	15	10
Properties adjacent to the user	15	1	1	20	2	2	25	2	2	30	2	2	35	5	5	40	10	10
Projection of HV overhead electrical lines	10	5	3	15	5	3	15	10	5	15	10	5	15	10	5	15	10	5
Residential buildings	15	5	5	20	10	10	25	10	10	30	15	15	35	15	15	40	15	15

Notes:

(*) This excludes product handling and use areas (workshops, production zone, etc.).

a:	Tanks of between 1,001 and 5,000 litres	1.1 = Flammable gases 1.2 = Oxidising gases 2 = Inert gases
b:	Tanks of between 5,001 and 20,000 litres	
c:	Tanks of between 20,001 and 60,000 litres	
d:	Tanks of between 60,001 and 200,000 litres	
e:	Tanks of between 200,001 and 400,000 litres	

f: Tanks of over 400,000 litres

ANNEX II

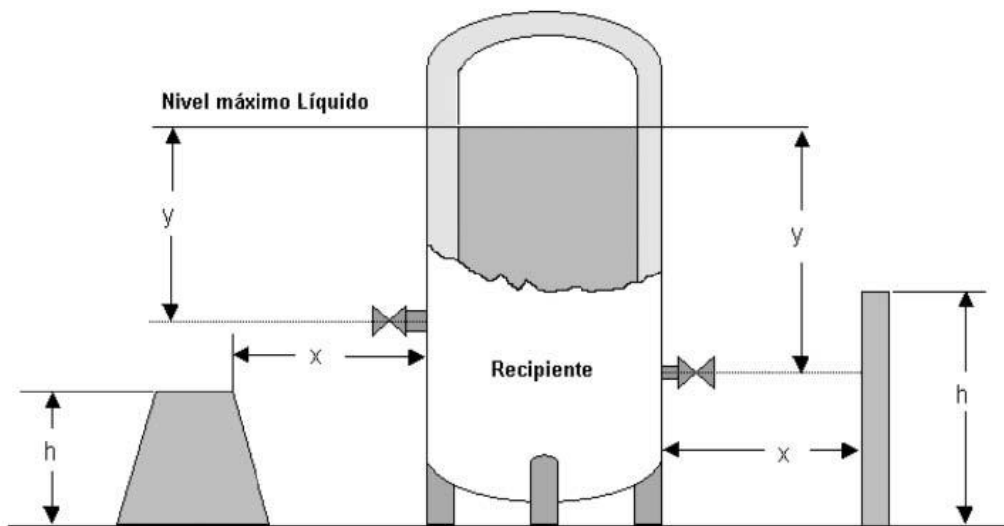
Basins

In addition to providing the volume required, the dimensions of the basins and the wall heights shall meet the ratios indicated in the following figure and equations:

$$X \geq y + Pms/1000 \gamma$$

Where:

- 'x', 'y' and 'h' are the dimensions provided in the figure in m.
- Pms is the maximum working pressure in the gas phase in bar.
- "γ" is the specific gravity of the liquid in kg/m³ at its boiling point at atmospheric pressure.



Nivel máximo Líquido	Maximum liquid level
Recipiente	Vessel

x = Distance from the outer wall of the tank to the outer wall of the basin, in metres.

y = Maximum distance between the maximum liquid level and a potential liquid spill point (valve, flanges, auxiliary equipment, etc.), in metres.

h = Height of the basin in metres.

Note: If 'h' is greater than the height of the highest potential spill point (valve, flange, device), 'x' may have any value.



ADDITIONAL TECHNICAL INSTRUCTION

ITC EP-5

BOTTLES FOR SELF-CONTAINED BREATHING EQUIPMENT

CHAPTER I

General provisions

Article 1. *Scope.*

This Additional Technical Instruction [ITC] applies to the safety conditions for refilling installations and the requirements and checks necessary for use of the bottles for self-contained breathing in underwater activities and surface work.

Article 2. *Definitions.*

In addition to the definitions provided in Article 2 of the Regulation on pressure equipment, the following definitions shall apply for the purposes of this ITC in particular:

1. 'Bottle for self-contained breathing equipment': personal protective equipment that is designed for a person to wear or hold and that serves to store and transport a breathable fluid, used in underwater activities and in surface work.

2. 'Bottle inspection centre': establishment with suitable facilities to conduct periodic and/or visual inspections on bottles and that has completed the document submission procedure set out in Articles 4 and 5 of this Additional Technical Instruction.

3. 'Stationary compressor': compression machine installed in a permanent location and used to fill bottles with a breathable fluid.

4. 'Portable compressor': easily transportable compression machine which – along with its air treatment, control and safety devices – provides a single refill of compressed air for bottles, for exclusive use by the owner.

5. 'Bottle refilling centre': establishment with suitable means to perform the activity of refilling bottles and that has completed the document submission procedure set out in Article 3 of this Additional Technical Instruction.

6. 'Visual inspection of bottles': set of checks to verify the state of repair of the bottle and its valve, with assessment of internal corrosion and the outward appearance of the vessel.

7. 'Breathable gas mixture': mixture other than atmospheric air that can be breathed in and that meets the corresponding health requirements.

8. 'Refilling zone': enclosed area where bottles are refilled, featuring a filling station and connecting hoses for bottles.



9. 'Filling station': collector that receives the compressed fluid, including associated connection devices for filling bottles, as well as control and safety features.

10. 'Bottle valve': device that allows or blocks the flow of fluid into or out of the bottle.

CHAPTER II

Registration of bottle refilling centres and bottle inspection centres

Article 3. *Bottle refilling centre.*

1. Before the start of activities, bottle refilling centres shall submit the following documentation to the competent body of the Autonomous Community where the installation is based:

a) Installation plan signed by the competent qualified engineer, describing the location of and all parts making up the installation and attesting to compliance with the specific safety conditions provided in Chapter IV of this Additional Technical Instruction. Installation plans shall not be required for bottle refilling installations in which the sum of the products of the maximum working pressure in bar and the volume in litres for all stationary pressure devices that can be simultaneously connected to the installation is $\leq 25,000$. This shall require submission of a technical report signed by the installation company, describing the installations and compliance with Chapter IV and, where applicable, a special plan attesting to compliance with the special protection conditions provided in Article 12(a) of this Additional Technical Instruction. If using equipment whose operation only requires an electrical connection, pursuant to Article 4(4) of the Regulation on pressure equipment, if not considered an installation, the report may be signed by the owner.

b) Technical department certificate signed by the competent qualified engineer of the installation company.

For installations that do not require a plan, the installation certificate shall be signed by the pressure equipment installation company that performed the installation.

For centres whose reports can be signed by the owner according to subparagraph a) because they are not considered installations, it shall not be necessary to submit the certificate from the installation company.

c) Operating procedure manual for refilling bottles, indicating any applicable operations for filling bottles with pressures different from the tare pressures of the filling station.

d) Inspection certificate of the refilling centre issued by an inspection body.

e) A statement of compliance in which the owner of the centre or his or her legal representative declares that the party meets the requirements set out in this ITC EP-5, has the documentation demonstrating such, pledges to keep this documentation during the activity period and accepts responsibility for execution of the work in accordance with the standards and requirements as per this ITC EP-5.



2. With regard to the statement of compliance required as per subparagraph e) of the preceding paragraph, the Autonomous Communities shall enable electronic submission of the statement of compliance and shall not require submission of documentation attesting to compliance with the requirements along with said statement of compliance. However, this documentation shall be available for immediate submission to the competent authority if it requires such in the exercise of its powers of inspection, verification and supervision.

3. The competent body of the Autonomous Community shall assign an identification number *ex officio* to the bottle refilling centre and shall send the necessary information for its entry in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry and in its implementing regulations.

4. Pursuant to Law 21/1992 of 16 July 1992 on industry, the statement of compliance shall authorise the bottle refilling centre to perform the activity for an unspecified period of time starting from its submission to the competent authority.

5. Under the provisions of Article 69(3) of Law 39/2015 of 1 October 2015 on common administrative procedures in public administration, the competent authority may regulate a procedure for subsequent verification of the statements of the interested party.

In any case, failure to submit a statement, or significant inaccuracies, falsifications or omissions of information or statements that must appear in said statement of compliance shall enable the competent authority to issue a decision – which must include the supporting reasons, and after hearing from the interested party – declaring that it is not permitted to continue performing the activity and, where applicable, that authorisation to perform the activity is temporarily suspended, without prejudice to any responsibilities arising from the actions taken.

6. The interested party shall report any fact that entails changes to any of the information included in the original statement, as well as the cessation of activities, to the competent body of the Autonomous Community to which it submitted the statement of compliance, within a period of 1 month.

7. Bottle refilling centres shall meet the following requirements:

a) They shall have taken out a professional indemnity insurance policy or other equivalent guarantee that covers any damages that may be caused in the performance of the service, with a minimum cover of EUR 500,000 per accident. This minimum amount shall be updated by order of the Minister responsible for industry, wherever necessary to maintain the economic equivalence of the guarantee, following a report from the Government Executive Committee for Economic Affairs.

b) They shall have personnel tasked with operation of the centre that are duly instructed in operation of the installation and in the requirements and checks to be performed to fill the bottles.

c) They shall have the EU declarations of conformity available, for submission on request from the competent authority, for each pressure device in the installation.



d) They shall have callipers and gauges to check threading.

8. The authorised bottle refilling centre shall not issue, transfer or dispose of certificates for operations not performed by the centre itself.

9. Failure to meet the set requirements, verified by the competent authority and declared in a reasoned decision, shall entail cessation of the activity, unless an error correction file can be opened, without prejudice to any penalties arising from the seriousness of the actions taken.

In this case, the competent authority shall open an information file for the installation owner, who shall have 15 calendar days from the date of communication to provide the corresponding evidence or waivers.

10. The competent body of the Autonomous Community shall immediately notify the Ministry responsible for industry of the temporary disqualification, amendments and cessation of activity referred to in the preceding paragraphs, for the updating of the information in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry, as set out in its implementing regulations.

11. Production centres for compressed air and for breathable gas mixtures, in specialised activities and sectors for gas production, distribution and use, are considered authorised to perform bottle refilling. In this case, the start of the activity shall be reported to the competent body of the Autonomous Community, with submission of the operating procedure manual for refilling bottles.

Article 4. Periodic inspection centres for bottles.

1. Before the start of activities, periodic inspection centres for bottles shall submit the following documentation to the competent body of the Autonomous Community where the installation is based:

a) Installation plan of the inspection centre with location map and detailed drawing. The pressure test zone shall meet the site conditions set out in Article 12 of this Additional Technical Instruction.

b) Technical department certificate signed by the competent qualified engineer of the company.

c) Copy of the punch imprint with the reject code indicated in Annex II to this Additional Technical Instruction.

d) Identification of the punch for the marking that identifies the company, to be used to apply the marking on the bottles it inspects. A copy of this marking shall be enclosed.

e) Model of the periodic inspection sticker that the inspection centre will apply to composite bottles after they pass the periodic inspection, indicating at least the details referred to in Article 7(3) of this Additional Technical Instruction.

f) Model of the visual inspection sticker that the centre will apply to bottles after they pass the inspection, indicating at least the details referred to in Article 9(4) of this Additional Technical Instruction.



g) A statement of compliance in which the owner of the centre or his or her legal representative declares that the party meets the requirements set out in this ITC EP-5, has the documentation demonstrating such, pledges to keep this documentation during the activity period and accepts responsibility for execution of the work in accordance with the standards and requirements as per this ITC EP-5.

2. With regard to the statement of compliance required as per subparagraph h) of the preceding paragraph, the Autonomous Communities shall enable electronic submission of the statement of compliance and shall not require submission of documentation attesting to compliance with the requirements along with said statement of compliance. However, this documentation shall be available for immediate submission to the competent authority if it requires such in the exercise of its powers of inspection, verification and supervision.

3. The competent body of the Autonomous Community shall assign an identification number *ex officio* to the periodic inspection centre for bottles and shall send the necessary information for its entry in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry and in its implementing regulations.

4. Pursuant to Law 21/1992 of 16 July 1992 on industry, the statement of compliance shall authorise the periodic inspection centre for bottles to perform the activity for an unspecified period of time starting from its submission to the competent authority.

5. Under the provisions of Article 69(3) of Law 39/2015 of 1 October 2015 on common administrative procedures in public administration, the competent authority may regulate a procedure for subsequent verification of the statements of the interested party.

In any case, failure to submit a statement, or significant inaccuracies, falsifications or omissions of information or statements that must appear in said statement of compliance shall enable the competent authority to issue a decision – which must include the supporting reasons, and after hearing from the interested party – declaring that it is not permitted to continue performing the activity and, where applicable, that authorisation to perform the activity is temporarily suspended, without prejudice to any responsibilities arising from the actions taken.

6. The interested party shall report any fact that entails changes to any of the information included in the original statement, as well as the cessation of activities, to the competent body of the Autonomous Community to which it submitted the statement of compliance, within a period of 1 month.

7. Periodic inspection centres for bottles shall meet the following requirements:

a) They shall have all tools, machinery and components required to perform the tests, checks and inspections, with indication of the daily inspection capacity of the centre. They shall feature at least the following elements:

- Suitable system for internal cleaning of bottles.



- Set of processes for performance of the hydrostatic volumetric expansion test.
- Device for internal drying of the bottles.
- Callipers and gauges to check threading.
- Lighting equipment for internal visual inspection of the bottles.
- Bottle thickness measurement equipment.
- Scale to check bottle weight.
- Tools and parts for bottle attachment and handling.
- Air compressor and parts to check the valve for leaks.

b) For as long as a company offers its services, it shall have regular personnel that perform the activity under safe conditions, with at least one competent qualified engineer, who shall be responsible for the bottle checks conducted at the centre.

For the purposes of the preceding paragraph, a legal entity shall be deemed to meet the requirement if one of the managing partners of the organisation holds the individual qualification.

The role of competent qualified engineer may be replaced with two or more competent qualified engineers, whose working hours can cover the hours of operation of the company.

c) They shall have personnel tasked with inspections that are duly instructed and trained to conduct the bottle tests and checks.

d) They shall have taken out a professional indemnity insurance policy or other equivalent guarantee that covers any damages that may be caused in the performance of the service, with a minimum cover of EUR 500,000 per accident. This minimum amount shall be updated by order of the Minister responsible for industry, wherever necessary to maintain the economic equivalence of the guarantee, following a report from the Government Executive Committee for Economic Affairs.

e) They shall have a manual or electronic logbook of the inspections, indicating at least the log data referred to in corresponding standards UNE-EN 1968, UNE-EN 1802 and UNE-EN ISO 11623, depending on whether the bottles are made from steel, aluminium or composite materials, respectively.

8. The authorised periodic inspection centre for bottles shall not issue, transfer or dispose of certificates for operations not performed by the centre itself.

9. Failure to meet the set requirements, verified by the competent authority and declared in a reasoned decision, shall entail cessation of the activity, unless an error correction file can be opened, without prejudice to any penalties arising from the seriousness of the actions taken.



In this case, the competent authority shall open an information file for the installation owner, who shall have 15 calendar days from the date of communication to provide the corresponding evidence or waivers.

10. The competent body of the Autonomous Community shall immediately notify the Ministry responsible for industry of the temporary disqualification, amendments and cessation of activity referred to in the preceding paragraphs, for the updating of the information in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry, as set out in its implementing regulations.

11. Periodic inspection centres for bottles shall also be authorised to perform visual inspections on bottles.

12. Production centres for compressed air and for breathable gas mixtures, in specialised activities and sectors for gas production, distribution and use, are considered authorised to perform visual and periodic inspections on bottles. In such cases, they shall report the start of the activity to the competent body of the Autonomous Community, with submission of the documentation required as per paragraph 1(c, d, e, f and g) and a statement of compliance in which the owners of the centre or his or her legal representative declares that the party meets the requirements set out in paragraph 7(b and d), has the documentation demonstrating such and pledges to keep this documentation during the activity period.

13. The Autonomous Community shall notify the competent body for industrial safety at the Ministry responsible for industry of the punch imprint markings that identify the periodic inspection centres that have completed the document submission procedure governed by this article.

14. By virtue of a decision of the government body responsible for industrial safety, the Ministry of Industry, Tourism and Trade shall publish the punch markings to be used by the periodic inspection centres to identify themselves on bottles after inspection, in the Official State Gazette, for information purposes.

Article 5. *Visual inspection centres for bottles.*

1. Before the start of activities, visual inspection centres for bottles shall submit the following documentation to the competent body of the Autonomous Community where the installation is based:

a) Technical report describing the installations and compliance with Chapter IV of this Additional Technical Instruction, signed by the installation company, and location map and detailed drawing of the installation. The pressure test zone shall meet the same site conditions set out in Article 12 for bottle refilling. Where applicable, a special plan shall be submitted attesting to compliance with the special protection conditions provided in Article 12(a) of this Additional Technical Instruction.

b) Installation certificate signed by the installation company that performed the installation. If a special plan is required to demonstrate compliance with the special protection conditions set out in Article 12(a), the technical department certificate shall be submitted for that plan, signed by the competent qualified technician.



c) Model of the sticker that the visual inspection centre will apply to bottles after inspection, indicating at least the details referred to in Article 9(4) of this Additional Technical Instruction.

d) A statement of compliance in which the owner of the centre or his or her legal representative declares that the party meets the requirements set out in this ITC EP-5, has the documentation demonstrating such, pledges to keep this documentation during the activity period and accepts responsibility for execution of the work in accordance with the standards and requirements as per this ITC EP-5.

2. With regard to the statement of compliance required as per subparagraph e) of the preceding paragraph, the Autonomous Communities shall enable electronic submission of the statement of compliance and shall not require submission of documentation attesting to compliance with the requirements along with said statement of compliance. However, this documentation shall be available for immediate submission to the competent authority if it requires such in the exercise of its powers of inspection, verification and supervision.

3. The competent body of the Autonomous Community shall assign an identification number *ex officio* to the visual inspection centre for bottles and shall send the necessary information for its entry in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry and in its implementing regulations.

4. Pursuant to Law 21/1992 of 16 July 1992 on industry, the statement of compliance shall authorise the visual inspection centre for bottles to perform the activity for an unspecified period of time starting from its submission to the competent authority.

5. Under the provisions of Article 69(3) of Law 39/2015 of 1 October 2015 on common administrative procedures in public administration, the competent authority may regulate a procedure for subsequent verification of the statements of the interested party.

In any case, failure to submit a statement, or significant inaccuracies, falsifications or omissions of information or statements that must appear in said statement of compliance shall enable the competent authority to issue a decision – which must include the supporting reasons, and after hearing from the interested party – declaring that it is not permitted to continue performing the activity and, where applicable, that authorisation to perform the activity is temporarily suspended, without prejudice to any responsibilities arising from the actions taken.

6. The interested party shall report any fact that entails changes to any of the information included in the original statement, as well as the cessation of activities, to the competent body of the Autonomous Community to which it submitted the statement of compliance, within a period of 1 month.

7. Visual inspection centres for bottles shall meet the following requirements:

a) They shall have at least the work resources indicated in Article 4(7) of this Additional Technical Instruction, except for the hydrostatic test equipment and the availability of a competent qualified engineer.



b) They shall have personnel tasked with visual inspection that are duly instructed and trained to conduct the bottle tests and checks.

c) They shall have taken out a professional indemnity insurance policy or other equivalent guarantee that covers any damages that may be caused in the performance of the service, with a minimum cover of EUR 500,000 per accident. This minimum amount shall be updated by order of the Minister responsible for industry, wherever necessary to maintain the economic equivalence of the guarantee, following a report from the Government Executive Committee for Economic Affairs.

d) They shall have a manual or electronic logbook of the visual inspections, indicating at least the log data referred to in corresponding standards UNE-EN 1968, UNE-EN 1802 and UNE-EN ISO 11623, depending on whether the bottles are made from steel, aluminium or composite materials, respectively.

8. The authorised visual inspection centre for bottles shall not issue, transfer or dispose of certificates for operations not performed by the centre itself.

9. Failure to meet the set requirements, verified by the competent authority and declared in a reasoned decision, shall entail cessation of the activity, unless an error correction file can be opened, without prejudice to any penalties arising from the seriousness of the actions taken.

In this case, the competent authority shall open an information file for the installation owner, who shall have 15 calendar days from the date of communication to provide the corresponding evidence or waivers.

10. The competent body of the Autonomous Community shall immediately notify the Ministry responsible for industry of the temporary disqualification, amendments and cessation of activity referred to in the preceding paragraphs, for the updating of the information in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry, as set out in its implementing regulations.

Article 6. *Refilling of bottles from other countries.*

Refilling centres that have submitted the documentation set out in Article 3 of this Additional Technical Instruction may refill bottles not legally made available on the national market that originate from other countries if they meet the following requirements:

1. The refilling company shall request the design documentation or documentation from past inspections if it has reasonable doubts that the bottle has any type of registration or if it comes from countries without type approvals or certificates of conformity and most especially in cases of doubts regarding bottle safety. In this regard, the bottle owner shall demonstrate the following certifications for the bottle: EU declaration of conformity, certificate of conformity with standards, type approval or type registration in its country of origin.



2. In order to refill these bottles with having them undergo the periodic or visual inspection tests set out in this ITC, the following conditions shall be met:

- a) The last test date shall be identified flawlessly and shall meet the deadlines set out in Article 7(1) of this ITC.
- b) The owner or party responsible for the bottle, the inspection authority that conducted the last test and the product to be contained and the maximum filling pressure shall be adequately identified.
- c) The bottle shall be in a good state of repair for use, in the opinion of the refilling company.

CHAPTER III

Inspections and tests

Article 7. Periodic inspection of bottles.

1. Once every 5 years, the bottles and their valves shall undergo the periodic inspection tests and checks indicated below.

The criteria from standard UNE EN 1968 shall be used for seamless steel bottles, those from standard UNE EN 1802 for aluminium alloy bottles and those from standard UNE EN ISO 11623 for bottles manufactured with composite materials.

In addition to the criteria provided in the standards as per the preceding point, bottle valve inspections shall also apply those of standard UNE EN ISO 22434 'Transportable gas cylinders - Inspection and maintenance of cylinder valves'.

Unless the bottle manufacturer sets more stringent rejection criteria for a specific model, the tests and checks to be conducted shall include:

- a) Identification of the bottle and verification of applied markings, taking into account the provisions of Annex I to this ITC. If bottles with $\frac{3}{4}$ Gas threading do not bear the identification as per Annex I(4) to this ITC, it shall be applied.
- b) External visual inspection.
- c) Internal visual inspection.
- d) inspection of the bottleneck and inner threading.
- e) hydrostatic volumetric expansion test (the permanent volumetric expansion shall meet the values provided by the manufacturer. if the latter are not available, it shall not exceed 5%).
- f) inspection of the valve, verifying that the coupling threading matches the bottle threading, using a system of gauges or other equivalent precision systems.

2. In cases of doubts regarding any of the results from the tests or checks conducted and/or regarding the seriousness of any of the defects identified, it shall be permitted to use other, additional



testing and verification methods, provided in the standards, that are suitable for the type of defect in question.

3. If the periodic inspection is passed, the bottle inspection centre shall indicate this by stamping the bottle with the markings specified in marking standard UNE EN ISO 13769.

In cases of bottles made from composite materials, the periodic inspection shall be indicated by a permanent sticker on the bottle, with the following sections:

- a) the inscription 'PERIODIC INSPECTION'.
- b) name and address of the centre that conducted the inspection.
- c) test date.
- d) indication of the expiry date for the test.

4. After completion of the periodic inspection tests and checks, the inspection centre shall issue the relevant certification, with identification of the bottle and indication that it passed all of the tests and checks conducted. The certificate shall indicate the period of validity and the punch code of the entity, and that the markings specified in standard UNE EN ISO 13769 have been inscribed in the bottle. In cases of bottles made from composite materials, the aforementioned information shall be applied on the sticker referred to in the preceding point. One copy of this document shall be provided to the bottle owner and another copy shall be kept in the centre, for at least 5 years starting from the performance date.

5. All inspections completed shall be entered in the periodic inspection logbook.

Article 8. *Rejection and withdrawal of defective bottles.*

If the bottle does not meet the necessary requirements for safe use, it shall be rejected.

In cases of rejections, the inspection centre shall punch the rejection code 'R', with the dimensions and characteristics as per Annex II to this ITC, next to the bottle identification number. In cases of non-metal bottles, a permanent and legible label shall be applied with the marking, but with dimensions twice as large as those as per Annex II.

In both cases, the centre shall render the bottle inoperable, but only after first checking that the bottle is completely empty.

Article 9. *Visual inspection.*

1. Starting from the year after completion of the first pressure test for which the manufacturer applied a stamp, the bottle shall undergo annual visual inspections, including the checks indicated below.

The criteria from standard UNE EN 1968 shall be used for seamless steel bottles, those from standard UNE EN 1802 for aluminium alloy bottles and those from standard UNE EN ISO 11623 for bottles manufactured with composite materials.



The checks to be performed shall include:

a) identification of the bottle and verification of applied markings, taking into account the provisions of Annex I. If bottles with $\frac{3}{4}$ Gas threading do not bear the identification as per Annex I(4) to this ITC, it shall be applied.

b) External visual inspection.

c) Internal visual inspection.

d) Inspection of the bottleneck and inner threading.

e) Inspection of the valve, verifying that the coupling threading matches the bottle threading, using a system of gauges or other equivalent precision systems.

2. In cases of doubts regarding any of the results from the tests or checks conducted and/or regarding the seriousness of any of the defects identified, it shall be permitted to use other, additional testing and verification methods, such as: Examination by means of ultrasound or other non-destructive testing that is suitable for the type of defect in question.

3. For bottles made from composite materials, with regard to the checks and the acceptance and rejection criteria, the manufacturer may set more stringent rejection criteria for a specific model.

4. The entity conducting these inspections shall indicate such on the bottle with a sticker, with at least the following details:

- The inscription 'VISUAL INSPECTION'.
- Name and address of the centre that conducted the inspection.
- Results of the same.
- Indication of the expiry date.

5. All inspections completed shall be entered in the visual inspection logbook.

Article 10. *Checks prior to refilling bottles.*

Before filling, the refilling centre shall perform the following checks:

a) Identification of the bottle and verification of markings, taking into account the provisions of Annex I to this ITC. If bottles with $\frac{3}{4}$ Gas threading do not bear the identification as per Annex I(4) to this ITC, it shall be applied.

b) Check that the period of validity for the periodic and visual inspections has not lapsed.

c) Check the outer condition of the bottle and valve.

d) Check that the coupling threading matches the bottle threading, using a system of gauges or other equivalent precision systems.



If a bottle does not meet the requirements set out in this ITC, the refilling company shall not refill the bottle.

Article 11. *Periodic inspection of refilling centres and inspection centres.*

1. Once every 5 years, starting from the installation commissioning date, bottle refilling centres and bottle inspection centres shall undergo a periodic inspection to verify compliance with the regulatory conditions of this ITC and that the site conditions have not changed.

A hydrostatic test shall be conducted on the pressure circuit at 1.3 times the maximum working pressure of the installation, which shall include filters, decanters, air accumulators and filling station. In cases of installations with equipment whose joint pressure testing would pose special technical problems, it is deemed permissible to conduct tests on each one of its parts and/or special alternative tests conducted according to the provisions of point 2.3 of Annex III to the Regulation.

The safety valves shall be removed and their condition checked. Next, these valves shall be tested with the installation in operation and their activation shall be checked by sealing them at the maximum working pressure for the installation.

All pressure gauges shall be tested, any pressure reduction systems shall be checked for proper functioning, and the tests and checks shall be conducted to ensure proper functioning of the pressure switch of the installation.

An inspection body shall conduct the periodic inspection. Its results shall be drawn up in a certificate indicating any potential shortcomings detected, which shall be kept available for the competent body of the Autonomous Community.

2. In addition to the inspections indicated in the preceding paragraph, the owner of the refilling or inspection centre shall check the control and safety features of the installation (safety valves, pressure gauges, pressure switches, bleed valves, etc.) for proper functioning annually, or shall have an authorised installation company perform this check. The results of the checks and verifications shall be documented in writing in a report, which shall be kept available for the competent authority for a period of 10 years.

CHAPTER IV

Installations at bottle refilling centres

Article 12. *Site of the refilling zone.*

The site of the refilling zone shall meet the following conditions:

a) The refilling zone shall feature suitable protection that can withstand an impact from accidental detachment or explosion of a bottle or any of its components.



If the installation does not require an installation plan, as per Article 3(2)(a) of this Additional Technical Instruction, the site protection, according to the preceding paragraph, shall be justified in a special plan signed by the competent qualified engineer.

b) Openings connecting to other rooms or to the outside (doors and windows) shall offer suitable protection to prevent personal injury and damage to property and other objects in the event of an accident, due to physical impact or fluid expansion.

c) The suction intake for compressed air shall be located in a place that enables guaranteed quality.

d) During the refilling process, access shall be prohibited for persons not involved in the refilling process. Signage indicating this prohibition shall be posted on the entrance doors.

Article 13. Installations for breathable gas mixtures.

1. The bottles, accessories and all components and parts used in the refilling process for mixtures with oxygen levels of over 21% shall be subject to a rigorous handling and cleaning system that guarantees the absence of grease, oil and all other substances that could cause explosions.

2. The bottles and components making up the installation used to handle, compress and store the gas mixture shall be manufactured to contain and treat this product and shall be used exclusively for the intended mixture type.

3. Each individual component of the equipment used to prepare the breathable mixtures shall demonstrably meet the regulations in force when it was made available on the market. These installations shall feature corresponding mixture homogenisation and analysis systems, to guarantee their quality and safety.

4. The installation shall have an independent filling station, duly distinguished and separated from the air filling station.

5. The refilling company shall be responsible for guaranteeing gas quality. For this, in cases of breathable gas mixtures other than air, a certificate detailing the characteristics of the mixture with which the bottle was filled shall be issued with each refill. This certificate shall be issued after analysis of the contents of the bottle in the presence of the user. The centre shall keep a copy of the certificate, signed by the user.

Article 14. Installation components.

1. Valves, coupling systems and connectors.

The coupling system between valve and bottle, as well as the coupling for its connection to usage appliances and to the filling station, shall guarantee a proper seal and shall prevent improper connections when using different breathable gas mixtures.



2. Condensate drainage.

The vessels making up a production and/or storage system for high-pressure breathable mixtures and air shall feature a drain device to collect and remove condensate as per the applicable legislation, unless the plan demonstrates an absence of condensate.

3. Treatment and filtration of breathable mixtures and air.

Each installation shall feature a treatment and filtration system for breathable gases that guarantees their quality in a manner that ensures suitable conditions for breathing, as per the applicable legislation.

The refilling company shall be responsible for ensuring suitable breathing conditions for atmospheric air and mixtures other than air.

4. Operation pressure switch.

All refilling installations shall feature the corresponding mechanical or electrical device enabling regulation of the operating conditions of the compressor(s), based on the maximum allowable pressure of the part with the lowest value for this in the installation. In any case, the pressure switch shall be tared at a pressure lower than the tare pressure of the filling station safety valve.

5. Safety valves.

a) Overpressure protection in filling installations shall be provided using sealable spring-loaded safety valves with full seat lifting. Each safety valve shall be able to discharge the total airflow that can be produced, stored or circulated, without causing an increase in pressure at the valve inlet that exceeds 10% of the tare pressure, when discharging the maximum flow rate for which it is provided.

b) The safety valves shall be tared and sealed in a way that prevents sustained values in excess of the maximum allowable pressure of the part of the installation with the lowest value for this.

c) At least one sealable safety valve shall be installed in each of the following parts of the installation:

- After the last compression step of each compressor.
- In the circuit of the high-pressure air storage vessels.
- In the filling station, for each individual filling pressure.

d) Isolating valves shall not be installed between a safety valve and the vessel or part of the installation it protects. After each pressure reduction valve, a safety valve shall be installed to protect the low-pressure section.



6. Pressure gauges.

a) A pressure gauge shall be installed in at least the following points:

- After the last compression step of each compressor.
- In the circuit of the reserve bottles or tanks.
- In the filling station or collector, for each individual filling pressure.
- Before and after any pressure reduction valves.

b) In addition, each filling centre shall feature a pressure gauge duly calibrated to verify all of the pressure gauges in the installation at least once a year.

Article 15. *Bottle storage.*

Bottles out of service for long periods of time shall be stored in a way that maintains a positive residual pressure in the bottles.

CHAPTER V

Use of portable compressors

Article 16. *Use of portable compressors to refill bottles.*

1. The use of portable compressors located outside of a refilling centre shall take the following considerations into account:

a) It shall only be permitted to use this compressor type for personal use, never to refill bottles of third parties.

b) The portable compressor, along with its accessories (oil separators and filters) and connection, safety and regulation parts, shall meet the specifications as per Articles 13, 14 and 15 of this ITC, with the restriction that it cannot feature air storage vessels. The compressor shall feature at least one sealable safety valve and one outlet pressure gauge after the last compression step.

c) Due to its status as mobile compact equipment, by virtue of its lack of permanent installation, use of this pressure equipment does not require the document submission procedure indicated in Article 3 of this Additional Technical Instruction.

d) Portable compressors shall be refilled in a separate place, with no members of the public present and at a minimum distance of 50 metres from all public roadways, residential spaces and establishments, buildings of any kind and areas used for any activity or function involving the presence of persons and/or animals. If refilling is performed in an enclosed space, it shall meet the site conditions as per Article 12 of this ITC.

By way of exception, in sports facilities with swimming pools that cannot meet the requirements of the preceding paragraph due to lack of space, the use of portable compressors to refill bottles intended



for finswimming shall be permitted, for finswimming, under the responsibility of the Spanish Underwater Activity Association [Federación Española de Actividades Subacuáticas] or associations of the Autonomous Communities, within the scope of their powers, in the safest area of the facility in question, taking into account the potential structural protection it offers and its distance from any spaces accessible to persons.

e) Compressors that are permanently installed in mobile containers, along with their necessary auxiliary components, shall be considered portable compressors.

For the purposes of subparagraph d) above, these shall be considered the same as compressors installed in enclosed spaces. In this regard, a plan shall be required, demonstrating compliance with the site conditions set out in Article 12(a), which shall be available to the competent bodies of the Autonomous Communities where the bottles are refilled. This plan shall demonstrate the quality of the air with which the bottles are filled and that it cannot be contaminated by external sources.

f) In cases of companies specialised in underwater work and structures, or in cases of compressors installed in mobile containers, their use shall require advance notification of the competent body of the Autonomous Community, indicating the installation site and attesting that suitable safety measures have been taken to guarantee prevention of injuries to persons or animals and damage to property.

2. The requirements set out in the preceding point shall apply to the Armed Forces, Law Enforcement Authorities and Civil Protection Services. Other similar institutions or bodies shall request the relevant exemption from the competent body of the Autonomous Community.

3. However, in order to guarantee their safety, all portable compressors shall have instructions on their use and maintenance, and shall undergo the periodic inspections indicated in Article 11 of this ITC, once every 5 years starting from the date of the declaration of conformity for the equipment or assembly issued by the manufacturer or its legal representative.

4. The manufacturer shall be obligated to provide these instructions and the compressor owner or user shall always be responsible for keeping them and strictly adhering to them, in addition to the standards for use set out here.

CHAPTER VI

Standards

Article 17. *UNE standards for implementation of the ITC.*

Annex III to this ITC provides the references to the UNE standards prescribed, in whole or in part, for compliance with the requirements falling under the scope.

The specific editions of the UNE standards appearing in the annex shall continue to be valid for proper application of the ITC even after adoption and publication of subsequent editions of the standards,



unless the government body responsible for industrial safety publishes the decision to update these standards in the Government Gazette.

This decision shall provide the new references and the date from which the new editions will apply, and thus also the date on which the old editions will no longer apply.

ANNEX I

Bottle identification and markings

1. Each bottle shall bear punched inscriptions and markings, in visible and permanent characters, according to the regulations in force when it was made available on the market, in one of the three following forms:

a) 'Type registration' inscription code. A certificate of conformity as per the Regulation on pressure appliances (Royal Decree 1244/1979 of 4 April 1979) shall be available.

b) An inscription corresponding to Directive 84/525/EEC on seamless, steel cylinders and, where applicable, Directive 84/526/EEC on seamless aluminium cylinders, comprising:

1.º The letter 'ε'.

2.º The number '1', identifying Directive 84/525/EEC, or the number '2', identifying Directive 84/526/EEC, mentioned in the preceding point.

3.º The capital letter(s) identifying the State that issued the EEC approval of the model.

4.º The last two digits of the year of approval.

5.º The serial number of the EEC authorisation.

c) 'CE' marking followed by the number identifying the notified body that provided service in the production control stage if applying Royal Decree 709/2015 of 24 July 2015 setting out provisions implementing Directive 97/23/EC of the European Parliament and of the Council on pressure equipment.

2. In addition to the CE marking or code, each bottle shall bear the following inscriptions, punched into the head in cases of metal bottles, or appearing on a sticker in cases of composite materials:

a) Name of gas.

b) Manufacturer mark.

c) Serial number.

d) Test pressure.

e) Maximum allowable pressure.

f) Volume (of water in litres).

g) Factory test date.

h) Periodic test dates.

i) Mass of the bottle in kg.

3. Independently of identification of the gas as per paragraph 2 above, the bottles falling under this ITC shall meet standard UNE EN 1089-3.

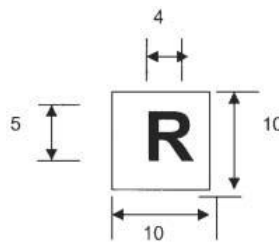
Unless there is no risk of confusion, vessels that meet the indicated standard shall be identified with the letter 'N', marked twice at diametrically opposed points on the head of the vessel, in a colour different from that of the vessel.

Vessels shall only be repainted at refilling centres.

4. Bottles with $\frac{3}{4}$ Gas threading shall bear a red plastic label of the collar type, with the notice: 'Danger due to compatibility with $\frac{3}{4}$ Gas M25 threading'.

ANNEX II

Rejection code



ANNEX III

UNE standards

UNE EN 1968:2003, Transportable gas cylinders - Periodic inspection and testing of seamless steel gas cylinders.

UNE EN 1802:2002, Transportable gas cylinders - Periodic inspection and testing of seamless aluminium alloy gas cylinders.

UNE EN 1089-3:2011, Transportable gas cylinders - Gas cylinder identification (excluding LPG) - Part 3. Colour coding.

UNE EN ISO 11623:2016, Gas cylinders - Composite construction - Periodic inspection and testing.

UNE EN ISO 13769:2019, Gas cylinders - Stamp marking.

UNE EN ISO 22434:2011, Transportable gas cylinders - Inspection and maintenance of cylinder valves.



ADDITIONAL TECHNICAL INSTRUCTION

ITC EP-6

TRANSPORTABLE PRESSURE VESSELS

CHAPTER I

General provisions

Article 1. *Scope.*

1. This Additional Technical Instruction [ITC] applies to conditions for use and to refilling centres for transportable pressure vessels falling under Article 2(1)(a) of Royal Decree 1388/2011 of 14 October 2011 setting out provisions implementing Directive 2010/35/EU of the European Parliament and of the Council of 16 June 2010 on transportable pressure equipment and repealing Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC and 1999/36/EC, such as bottles, pressure drums or canisters, sealed cryogenic vessels, tubes or bottle bundles including their valves and other accessories used for transport.

2. The following are not subject to the provisions of this ITC:

- a) LPG cartridges.
- b) Extinguishers, which are governed by Royal Decree 513/2017 of 22 May 2017.
- c) Bottles for self-contained breathing equipment falling under ITC EP-5.

Article 2. *Definitions.*

In addition to the definitions provided in Article 2 of the Regulation on pressure equipment, the following definitions shall apply for the purposes of this ITC in particular:

1. 'Transportable pressure vessel': all pressure vessels as well as any valves and other accessories falling under Chapter 6(2) of the RID and ADR.
2. 'Bottle': transportable pressure vessel with a capacity not exceeding 150 litres.
3. 'Pressure drum or canister': welded transportable pressure vessel with a capacity greater than 150 and less than 1,000 litres.
4. 'Cryogenic canister or vessel': heat-insulated transportable pressure vessel for the transport of refrigerated liquefied gases, with a capacity not exceeding 1,000 litres.
5. 'Cylinder or tube': seamless transportable pressure vessel with a capacity greater than 150 and less than 3,000 litres.
6. 'Bottle bundles': set of bottles joined together by a manifold that can be transported as a single unit, with a capacity not exceeding 3,000 litres, or for toxic gases, 1,000 litres.



7. 'Gas refilling centre': establishment with suitable means to perform the activity of filling gas vessels and that has completed the document submission procedure set out in Article 7 of this Additional Technical Instruction.

8. 'Refilling zone': space where transportable pressure vessels are refilled, featuring a filling station and connecting hoses.

CHAPTER II

Conditions for use of the vessels

Article 3. *Outlet coupling types.*

1. Transportable pressure vessels falling under this ITC shall feature the outlet couplings indicated in Annex I.

2. For gases for medical use, the couplings indicated in standard UNE EN ISO 407 may also be used.

3. All components used in the production of the valve couplings shall be compatible with the gases contained in the bottles.

Article 4. *Colour coding.*

1. For the purpose of identifying the gas or gas mixture contained and the associated hazards, transportable pressure vessels falling under this Additional Technical Instruction shall meet the provisions of standard UNE EN 1089-3.

Unless there is no risk of confusion, vessels that meet the indicated standard shall be identified with the letter 'N', marked twice at diametrically opposed points on the head of the vessel, in a colour different from that of the vessel.

2. By way of exception from the preceding paragraph:

a) Bottles intended to hold butane or propane or mixtures of these shall be regulated according to the provisions of Royal Decree 1085/1992 of 11 September 1992 adopting the Regulation on liquefied petroleum gas distribution.

b) A cryogenic canister shall be light in colour (white, silver, etc.) and shall identify the gas it contains, with its name painted on the body of the canister in letters at least 5 centimetres in height, on two opposite sides, if space permits.

Article 5. *Conditions for use of the vessels.*

1. Vessel handling, storage and use.

Vessels shall be handled, stored and used properly in accordance with the requirements of ITC MIE APQ-5 of Royal Decree 656/2017 of 23 June 2017 adopting the Regulation on chemical product



storage and Additional Technical Instructions MIE APQ 0 to 10 and the instructions of the gas supply company.

2. Change of product contained in the vessel.

Before changing the product contained in the vessel, it shall be necessary to check that it is suitable to hold the new product, especially the filling and test pressures and degree of filling, according to the standards on the transport of hazardous goods and standard UNE EN ISO 11621.

3. Vessels for gas for food or medicinal use.

Vessels for gas intended for food or medicinal use shall also meet the relevant provisions set by the competent authority for health.

4. Use of vessels from other countries.

Containers from other countries shall meet the provisions of Royal Decree 1388/2011 of 14 October 2011 and this ITC.

Notwithstanding that specified in the preceding paragraph, temporary use shall be permitted for gas vessels not refilled in Spain that lack the 'π' or 'ε' marking and all other approval codes, in accordance with the above regulations on pressure appliances or vessels, if compliance with Royal Decree 1388/2011 of 14 October 2011 is demonstrated, the vessels are up-to-date on their periodic tests and the degree of filling and the filling pressure meet the relevant requirements in the standards on the transport of hazardous goods. These vessels shall only be used for consumption of the existing gas and shall not be refilled in Spain, their import into and subsequent export from the national territory shall be verified by an inspection body and these certifications shall be subsequently submitted to the competent body of the Autonomous Community into which they will be temporarily imported.

Article 6. *Periodic inspections of the vessels.*

Periodic inspections of transportable pressure vessels subject to the provisions of this ITC shall be conducted pursuant to the provisions of the Second additional provision of Royal Decree 1388/2011 of 14 October 2011.

CHAPTER III

Gas refilling centres

Article 7. *Gas refilling centres.*

1. Before the start of activities, establishments that plan to refill transportable pressure vessels falling under this Additional Technical Instruction shall submit the following documentation to the competent body of the Autonomous Community where the installation is based:

a) Installation plan signed by the qualified engineer, describing the site and all parts making up the installation.



b) Installation certificate signed by the competent qualified engineer of the installation company. This certificate shall be considered to be the technical department certificate.

c) Operating procedure manual for refilling vessels.

d) Inspection certificate issued by an authorised inspection body.

e) A statement of compliance in which the owner of the centre or his or her legal representative declares that the party meets the requirements set out in this ITC EP-6, has the documentation demonstrating such, pledges to keep these documents during the activity period and accepts responsibility for execution of the work in accordance with the standards and requirements as per this ITC EP-6.

2. With regard to the statement of compliance required as per subparagraph e) of the preceding paragraph, the Autonomous Communities shall enable electronic submission of the statement of compliance and shall not require submission of documentation attesting to compliance with the requirements along with said statement of compliance. However, this documentation shall be available for immediate submission to the competent authority if it requires such in the exercise of its powers of inspection, verification and supervision.

3. The competent body of the Autonomous Community shall assign an identification number *ex officio* to the gas refilling centre and shall send the necessary information for its entry in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry and in its implementing regulations.

4. Pursuant to Law 21/1992 of 16 July 1992 on industry, the statement of compliance shall authorise the gas refilling centre to perform the activity for an unspecified period of time starting from its submission to the competent authority.

5. Under the provisions of Article 69(3) of Law 39/2015 of 1 October 2015 on common administrative procedures in public administration, the competent authority may regulate a procedure for subsequent verification of the statements of the interested party.

In any case, failure to submit a statement, or significant inaccuracies, falsifications or omissions of information or statements that must appear in said statement of compliance shall enable the competent authority to issue a decision – which must include the supporting reasons, and after hearing from the interested party – declaring that it is not permitted to continue performing the activity and, where applicable, that authorisation to perform the activity is temporarily suspended, without prejudice to any responsibilities arising from the actions taken.

6. The interested party shall report any fact that entails changes to any of the information included in the original statement, as well as the cessation of activities, to the competent body of the Autonomous Community to which it submitted the statement of compliance, within a period of 1 month.



7. Gas refilling centres shall meet the following requirements:

a) They shall have taken out a professional indemnity insurance policy or other equivalent guarantee that covers any damages that may be caused in the performance of the service, with a minimum cover of EUR 500,000 per accident. This minimum amount shall be updated by order of the Minister responsible for industry, wherever necessary to maintain the economic equivalence of the guarantee, following a report from the Government Executive Committee for Economic Affairs.

b) They shall have the EU declarations of conformity available, for submission on request from the competent authority, for each pressure device in the installation, as well as the conformity assessment or reassessment certificates if using transportable pressure equipment in their installations.

8. The authorised gas refilling centre shall not issue, transfer or dispose of certificates for operations not performed by the centre itself.

9. Failure to meet the set requirements, verified by the competent authority and declared in a reasoned decision, shall entail cessation of the activity, unless an error correction file can be opened, without prejudice to any penalties arising from the seriousness of the actions taken.

In this case, the competent authority shall open an information file for the installation owner, who shall have 15 calendar days from the date of communication to provide the corresponding evidence or waivers.

10. The competent body of the Autonomous Community shall immediately notify the Ministry responsible for industry of the temporary disqualification, amendments and cessation of activity referred to in the preceding paragraphs, for the updating of the information in the Integrated Industrial Register regulated in Title IV of Law 21/1992 of 16 July 1992 on industry, as set out in its implementing regulations.

Article 8. *Refilling centre site conditions.*

1. The site of the filling zone shall meet the following conditions:

a) The refilling zone shall feature suitable protection that can withstand an impact from accidental detachment or explosion of a bottle or any of its components.

b) Openings connecting to other rooms or to the outside (doors and windows) shall offer suitable protection to prevent personal injuries and damage to property and other objects in the event of an accident, due to physical impact or fluid expansion.

2. If the site is not entirely enclosed, the installation plan indicated in Article 7(2)(a) of this ITC shall demonstrate compliance with the safety conditions.

Article 9. *Conditions prior to refilling.*

1. Before refilling a vessel, it shall be necessary to verify compliance with the applicable requirements and in particular the provisions of this ITC, as well as with suitable conditions for use.



The refilling centre shall meet the checks indicated in the following standards:

- UNE EN ISO 24431:2017 Gas cylinders - Seamless, welded and composite cylinders for compressed and liquefied gases (excluding acetylene) - Inspection at time of filling, or
- UNE EN 13365 Transportable gas cylinders - Cylinder bundles for permanent and liquefied gases (excluding acetylene) - Inspection at time of filling, or
- UNE EN ISO 11372 Gas cylinders - Acetylene cylinders - Filling conditions and filling inspection, or
- UNE EN ISO 13088 Gas cylinders - Acetylene cylinder bundles - Filling conditions and filling inspection, or
- UNE EN 1439 LPG equipment and accessories - Procedure for checking transportable refillable LPG cylinders before, during and after filling.

2. In cases of bottles for the use of food-grade CO₂, in addition to the provisions of paragraph 1, the following requirements shall apply:

- a) The bottles shall not be refilled with residual liquefied gas without prior venting.
- b) Bottles fitted with a residual pressure valve (RPV) with non-return device:
 - Check for proper functioning of the RPV (check for existence of residual gas).
 - If this is correct, proceed to refill with food-grade CO₂.
- c) Bottles without a residual pressure valve (RPV):

It is necessary to ensure that the insides of the vessels are free of contamination. For this, the appropriate checks shall be conducted, such as:

- Residual pressure check.
- Venting.
- Tipping of the bottle with valve open.

If any of the above procedures uncovers moisture or any sign of contamination, the following actions shall be taken:

- Remove the valve from the bottle.
- Conduct internal visual inspection.
- Clean bottle internally using blasting material or chemical cleaning.

Article 10. *Refilling of vessels from other countries.*

1. Refilling centres that have submitted the documentation indicated in Article 7 of this Additional Technical Instruction may refill vessels originating from other countries if they have passed the relevant



periodic inspection according to the procedure set out in this Additional Technical Instruction and bear the 'π' or 'ε' marking, or any of the registration codes, pursuant to the above provisions on pressure appliances or vessels.

If the vessels will not be used in the country, they may be of types other than those referred to in the preceding section.

2. The refilling company shall request the design documentation or documentation from past inspections if it suspects that the bottle does not have any type of registration or if it comes from countries without type approvals or certificates of conformity and most especially in cases of doubts regarding bottle safety. In this regard, the bottle owner shall attest that it bears the markings corresponding to one of the certifications indicated in the preceding paragraph.

3. In order to refill vessels, the following conditions shall be met:

a) The last test date is identified flawlessly and meets the deadlines set out in Article 6.

b) The owner or party responsible for the bottle, the national inspection authority that conducted the last test and the product to be contained, degree of filling and the maximum filling pressure shall be adequately identified.

c) The bottle is in a good state of repair for use, in the opinion of the refilling company.

Article 11. *Periodic inspection of refilling centres.*

1. Once every 5 years, starting from the installation commissioning date, refilling centres shall undergo a periodic inspection to verify compliance with the regulatory conditions of this ITC and that the site conditions have not changed.

A pressure circuit test shall be performed at 1.3 times the maximum working pressure (Pms) of the installation. In cases of installations with equipment whose joint pressure testing would pose special technical problems, it is deemed permissible to conduct tests on each one of its parts and/or special alternative tests conducted according to the provisions of point 2.3 of Annex III to the Regulation.

The safety valves of the installation shall be removed and then examined visually to determine their condition. Next, these valves shall be tested and their activation shall be checked by sealing them at the maximum working pressure for the installation.

All control and safety features of the installation shall be checked for proper functioning (safety valves, pressure gauges, pressure switches, pressure regulators, etc.).

An inspection body shall conduct the periodic inspection. Its results shall be drawn up in a certificate indicating any potential shortcomings detected, which shall be kept available for the competent body of the Autonomous Community.



2. In addition to the inspections referred to the preceding paragraph, the installation owner shall check the control and safety features of the installation (safety valves, pressure gauges, pressure switches, pressure regulators, etc.) for proper functioning annually, or shall have an authorised installation company perform this check. The results of the checks and verifications shall be documented in writing in a report, which shall be kept available for the competent authority for a period of 10 years.

CHAPTER IV

Standards

Article 12. *UNE standards for implementation of the ITC.*

Annex II to this ITC provides the references to the UNE standards prescribed, in whole or in part, for compliance with the requirements falling under the scope.

The specific editions of the UNE standards appearing in the annex shall continue to be valid for proper application of the ITC even after adoption and publication of subsequent editions of the standards, unless the government body responsible for industrial safety publishes the decision to update these standards in the Government Gazette.

This decision shall provide the new references and the date from which the new editions will apply, and thus also the date on which the old editions will no longer apply.

ANNEX I

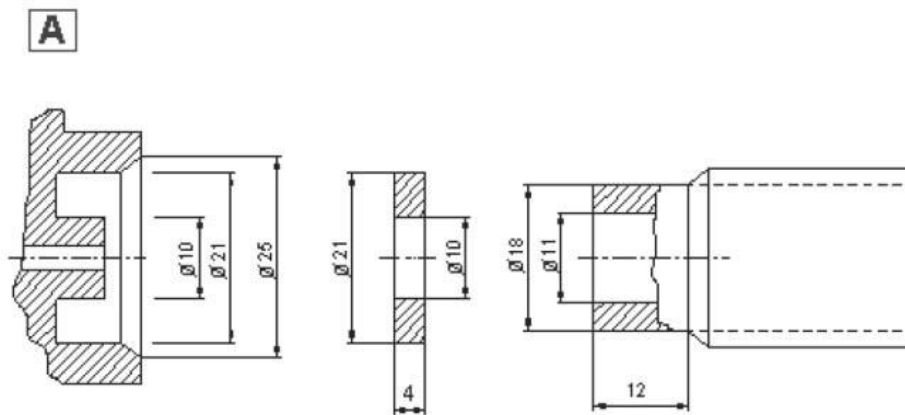
Gas outlet couplings

Type A	Step (Acetylene type)	
Type B	Compressed air	M 30 x 1.75 right threaded
Type C	Inert	M 21.7 x 1.814 right threaded W 21.7 - 14 threads/inch, right threaded
Type E	Flammable	M 21.7 x 1.814 (left threaded) W 21.7 - 14 threads/inch, left threaded
Type F	Oxygen	W 22.91 - 14 threads/inch, right threaded (R5/8")
Type G	Oxidising	M 26 x 1.5, right threaded
Type H	Acetylene	W 22.91 - 14 threads/inch, left threaded (R5/8") W 26.44 - 14 threads/inch, right threaded (R3/4").

Type J	Corrosive and toxic	W 22.91 - 14 threads/inch, left threaded.
Type K	Highly corrosive	W 26.1 - 14 threads/inch, left threaded
Type M	Calibration mixtures	W 19 x 1.5, left threaded
Type S	Sulphurous	W 22.91 - 14 threads/inch, right threaded (R5/8").
Type T	Chlorine canisters	W 31.75 x 7 threads/inch, right threaded
Type U	Nitrous oxide	W 16.66 x 19 threads/inch, right threaded (R3/8")
Type X	Canisters of chlorofluoro(bromo)carbons	X1 W 31.75 x 7 threads/inch, right threaded X2 W 33.25 x 11 threads/inch, right threaded
Type Z	Common butane bottles	M 16 x 1.5 metric, right threaded W 13.916 - 18 threads/inch, right threaded

1. Type A coupling: Step coupling.

Reserved exclusively for acetylene.



STEP COUPLING

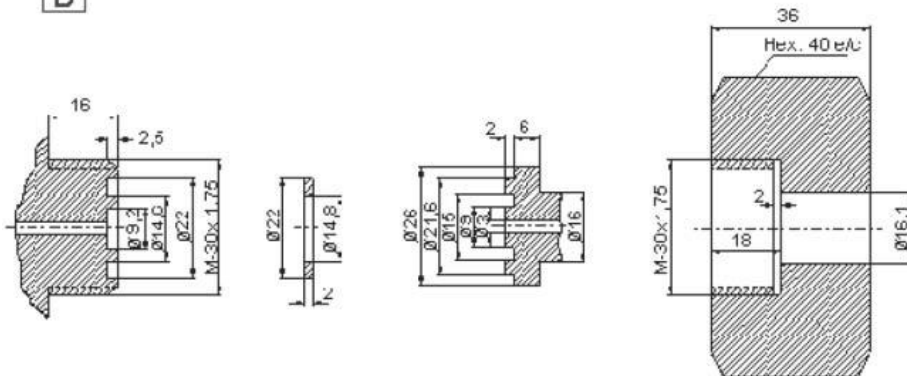
ACETYLENE TYPE

Gases: Acetylene: C₂H₂

2. Type B coupling: Compressed air.

Reserved for compressed air, excluding all mixtures, except for synthetic air.

B



Hex.	Hex.
------	------

COUPLING M 30 x 1.75 METRIC (RIGHT THREADED)

AIR TYPE

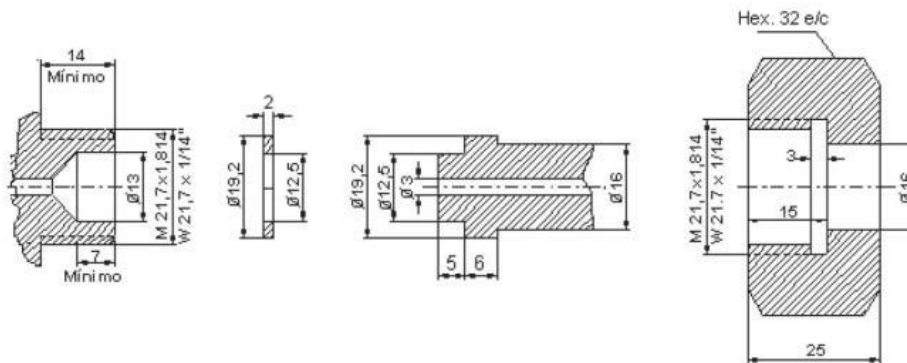
Gases: Natural air

Synthetic airs

3. Type C coupling: Inert

Reserved for non-flammable gases and gas mixtures, particularly for gases considered inert, including the gas phase of cryogenic substances, except for calibration mixtures.

C



Hex.	Hex.
Mínimo	Minimum

COUPLING M 21.7 x 1.874 METRIC (RIGHT THREADED)

W 21.7 x 14 threads/inch (RIGHT THREADED)

INERT TYPE

Inert gas type:

- Ammonia, NH ₃	- Dichlorofluoromethane, CHFCl ₂
- Argon, A	- Nitrogen, N ₂
- Dichlorodifluoromethane, CF ₂ Cl ₂	- Neon, Ne
- Chlorodifluoromethane, CHF ₂ Cl.	- Octafluoropropane, C ₃ F ₈
- Carbon dioxide, CO ₂	- Carbon tetrafluoride, CF ₄

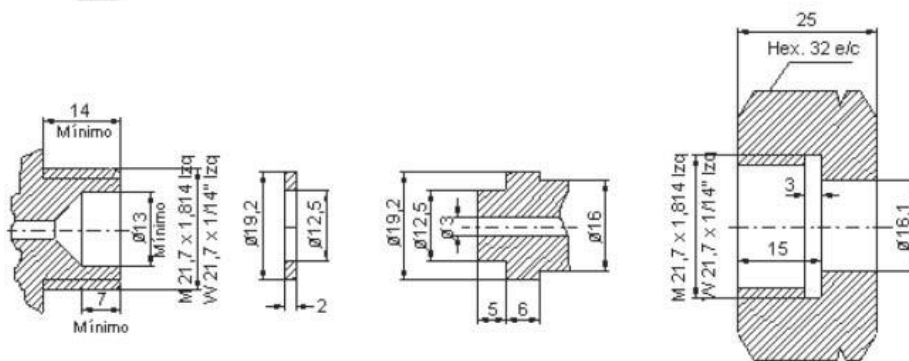
- Helium, He	- Tetrafluorodichloroethane, CF ₂ ClCF ₂ Cl
- Sulphur hexafluoride, F ₆ S	- Bromotrifluoromethane, CF ₃ Br (2)
- Krypton, K	- Chlorotrifluoromethane, CF ₃ Cl
- Trichlorofluoromethane, CFCl ₃	- Xenon, Xe

(2) Other chlorinated and fluorinated methane and ethane derivatives

4. Type E coupling: Flammable.

Reserved for all gases and gas mixtures that contain flammable gases and mixtures, except for calibration mixtures.

E



Hex.	Hex.
Mínimo	Minimum

COUPLING M 21.7 x 1.814 METRIC (LEFT THREADED)

W 21.7 x 14 threads/inch (LEFT THREADED)

FLAMMABLE TYPE

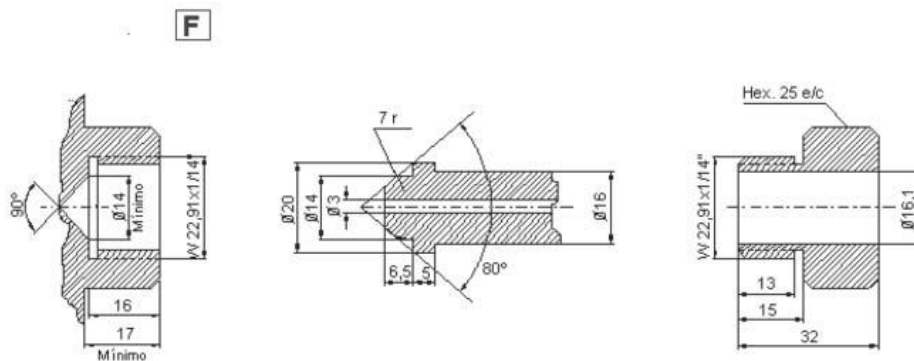
Flammable gases

Arsine, AsH ₃	Natural gas
Vinyl bromide, C ₂ H ₃ Br	Heptane, C ₇ H ₁₆
Bromomethane, CH ₃ Br	Hydrogen, H ₂
1,3-Butadiene, C ₄ H ₆	Isobutane, iC ₄ H ₁₀
Butane, C ₄ H ₁₀	(2-Methylpropane)
1-Butene, C ₄ H ₈	Isobutylene, C ₄ H ₈
2-Butene, C ₄ H ₈	(2-methylbutene)
Butyne, C ₄ H ₆	Methane, CH ₄
Cyanogen, C ₂ N ₂	Methoxyethane, C ₂ H ₅ OCH ₃
Hydrogen cyanide, CNH	Thioformaldehyde, CH ₂ S
1-Chloro-1,1-difluoroethane, CH ₃ -CClF ₂	Ethylamine, C ₂ H ₅ NH ₂
Chlorofluoroethylene, CClF=CF ₂	Methylamine, CH ₃ NH ₂
Chloromethane, CH ₃ Cl	Neopentane, C ₅ H ₁₂
Chloroethane, C ₂ H ₅ Cl	Carbon monoxide, CO
Vinyl chloride, C ₂ H ₃ Cl	Ethylene oxide, C ₂ H ₄ O
Dichloropropane, C ₃ H ₆	Ethylene oxide, C ₂ H ₄ O

Deuterium, D2	Methylene oxide, C2H4O
Diborane, B2H6	Pentane, C5H12
Dimethylamine, (CH3)2NH	Propane, C3H8
Dimethylpropane, C5H12	Propadiene (Allene), C3H4
Dimethyl ether, (CH3)2O	Propene, C3H6
1,1-Difluoroethane, CH3-CHF2	Propyne, C3H4 (Methylacetylene)
1,1 Difluoroethylene 9, CH2=CF2	Hydrogen selenide, SeH1
Ethane, C2H6	Silane, SiH4
Ethylene, C2H4	Carbonyl sulphide, SCO
Methyl fluoride, CH3F	Hydrogen sulphide, SH2
Vinyl fluoride, FC2H3	Trimethylamine, (CH3)3N
Phosphine, PH3	Tetrafluoroethylene, CF2-CF2
Germane, GeH4	Methyl vinyl ether, CH3OCH=CH2
City gas	

5. Type F coupling: Oxygen.

Reserved exclusively for oxygen gas. cannot be used for any classes of mixtures.



Hex.	Hex.
Mínimo	Minimum

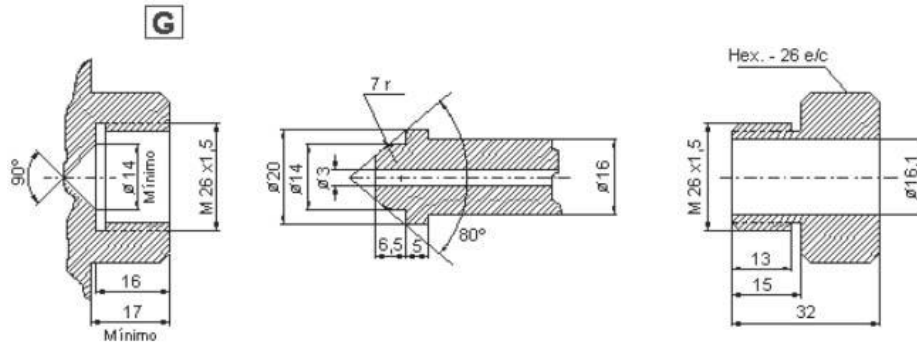
COUPLING W 22.91 - 14 threads/inch (RIGHT THREADED)

OXYGEN TYPE

Gases: Oxygen, O2

6. Type G coupling: Oxidising.

Reserved for all gases and mixtures containing oxidising gases (that contain over 23% oxygen or another oxidising gas in any ratio), except nitrous oxide and calibration mixtures



Hex.	Hex.
Mínimo	Minimum

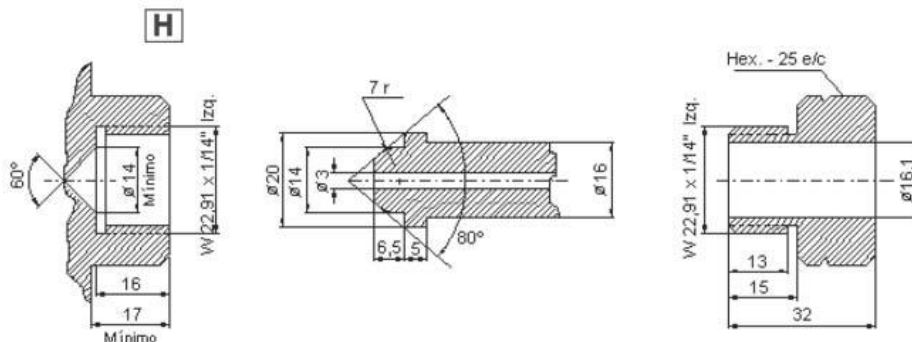
COUPLING M 26 x 1.5 METRIC (RIGHT THREADED)

OXIDISING TYPE

COUPLING M 26 x 1.5 METRIC (RIGHT THREADED).

7. Type H couplings: Acetylene.

Reserved for dissolved acetylene and stabilised methylacetylene mixtures.



Hex.	Hex.
Mínimo	Minimum
lzq.	Lft.

COUPLING W 22.91 - 14 threads/inch (LEFT THREADED)

ACETYLENE TYPE

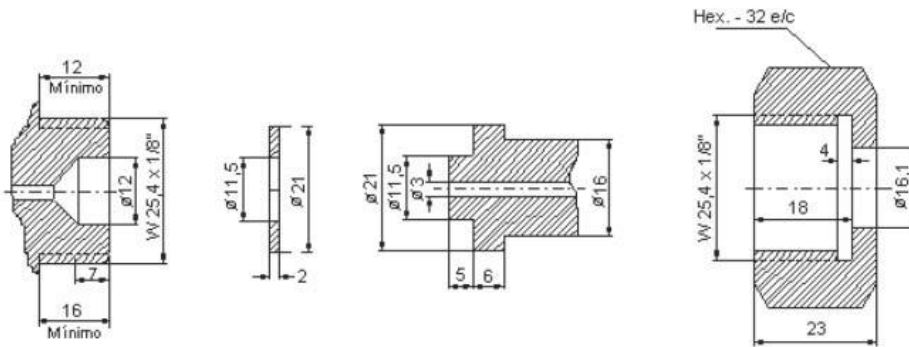
Gases: Acetylene, C₂H₂

Note: Alternative coupling W 26.44 - 14 threads/inch (R3/4")

8. Type J coupling: Corrosive and toxic.

Reserved for corrosive and toxic gases and mixtures containing corrosive and toxic gases in any ratios, except for calibration mixtures.

J



Hex.	Hex.
Mínimo	Minimum

COUPLING W 25.4 - 8 threads/inch (RIGHT THREADED)

CORROSIVE AND TOXIC TYPE

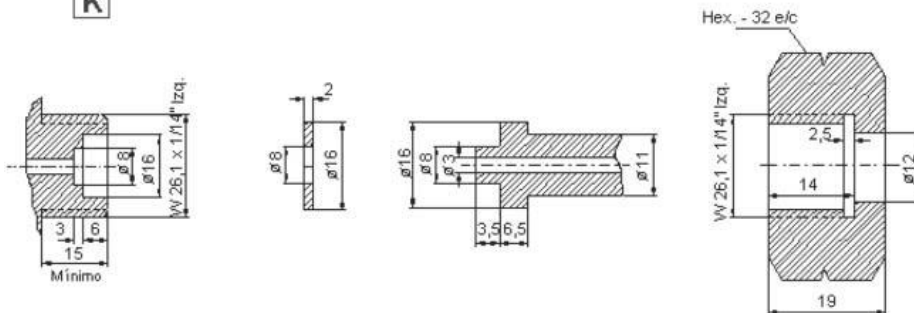
Coupling W 25.4 - 8 threads/inch, right threaded.

Hydrobromic acid, BrH	Hydrogen fluoride, FH
Bromomethane, CH3Br	Tungsten hexafluoride, F6W
Hydrogen chloride, ClH	Hydrogen iodide, IH
Boron trichloride, Cl3B	Nitric oxide, NO
Phosgene, COCl2	Phosphorus pentafluoride, F5P
Chlorine, Cl2 (in bottles)	Dinitrogen trioxide, N2O3
Dichlorosilane, SiH2Cl2	Silicon tetrachloride, Cl4Si
Nitrogen dioxide, NO2	Tetrafluorosilane, F4Si
Carbonyl fluoride, F2CO	Chlorine trifluoride, ClF3

9. Type K coupling: Highly corrosive.

Reserved for fluorine and for chlorine trifluoride.

K



Hex.	Hex.
Mínimo	Minimum
lza.	Lft.

COUPLING W 26.1 - 14 threads/inch (LEFT THREADED)

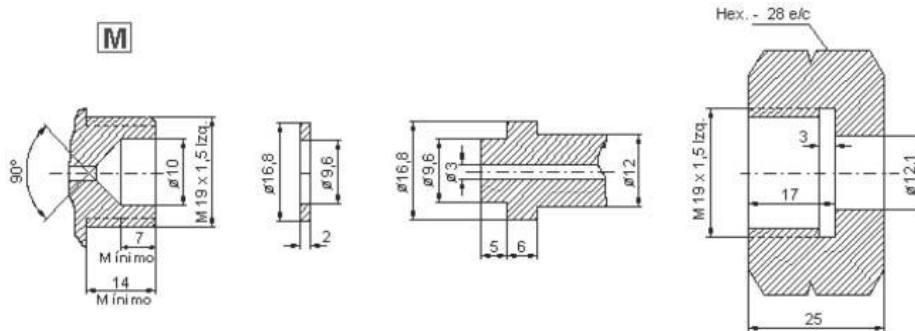
HIGHLY CORROSIVE TYPE

Gases: Fluorine

Chlorine trifluoride

10. Type M coupling: Calibration mixtures.

Reserved for precision or calibration mixtures



Hex.	Hex.
Mínimo	Minimum
lzq.	Lft.

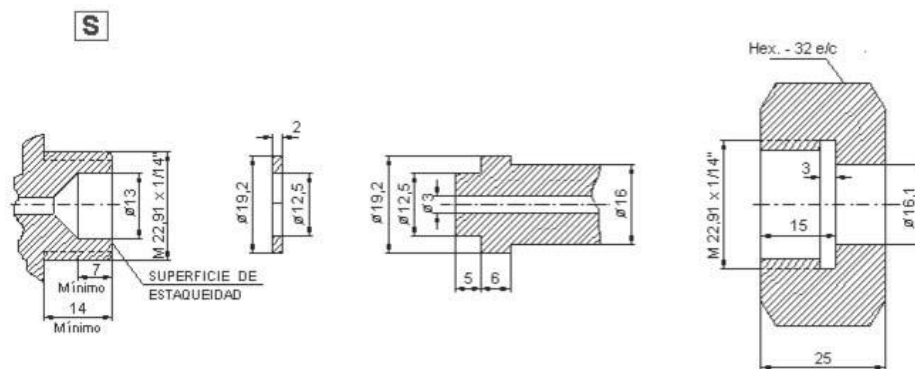
COUPLING M 19 x 1.5 METRIC (LEFT THREADED)

CALIBRATION MIXTURE TYPE

Gases: All mixtures, except for those with oxygen level of over 21%

11. Type S coupling: Sulphurous.

Reserved for sulphur dioxide.



Hex.	Hex.
Mínimo	Minimum
SUPERFICIE DE ESTAQUEIDAD	SEAL AREA

COUPLING W 22.91 - 14 threads/inch (RIGHT THREADED)

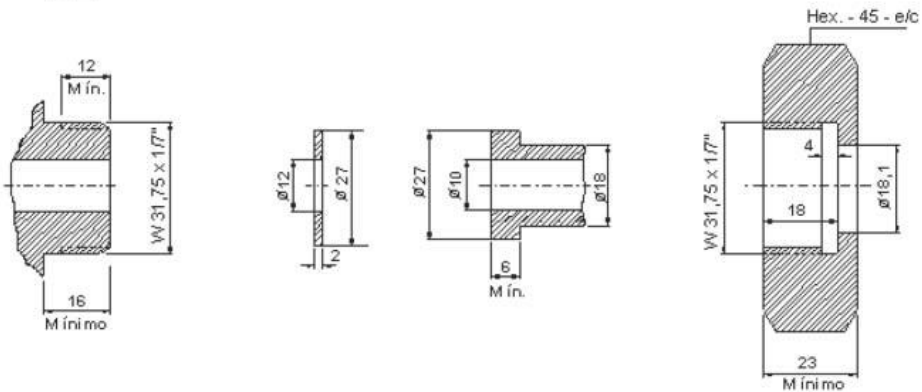
SULPHUROUS TYPE

Gases: Sulphur dioxide

12. Type T coupling: Chlorine canisters.

Reserved for chlorine canisters.

T



Hex.	Hex.
Mínimo	Minimum
Mín.	Min.

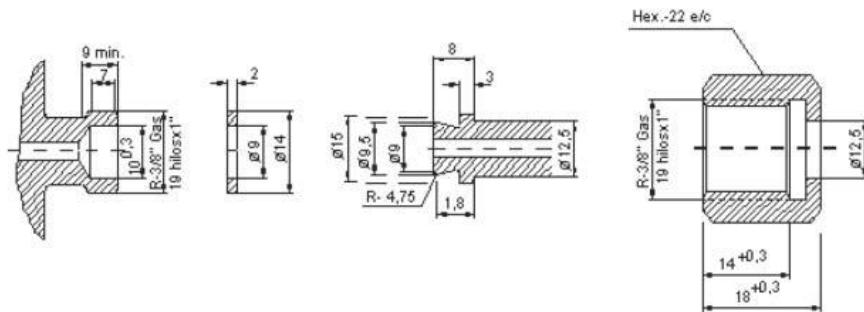
COUPLING W 31.75 - 7 threads/inch (RIGHT THREADED)

CHLORINE TYPE (CANISTERS)

13. Type U coupling: Nitrous oxide.

Reserved for nitrous oxide gas.

U



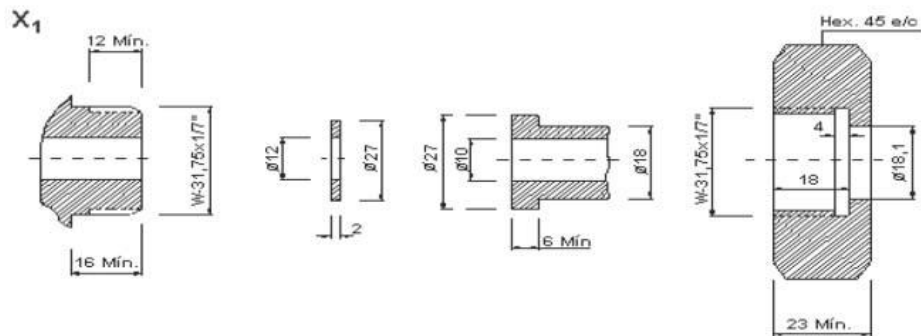
Hex.	Hex.
9 min.	9 min.
Gas	Gas
hilosx	threads x

COUPLING W 16.66 - 19 threads/inch (RIGHT THREADED) 3/8

NITROUS OXIDE TYPE

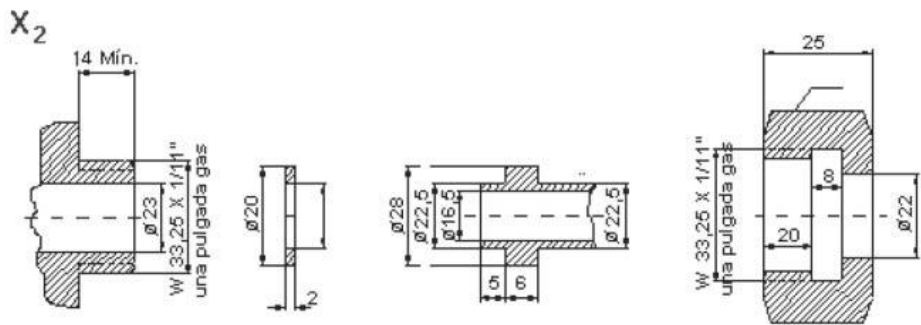
14. Type X1 and X2 couplings.

Reserved for inert chlorofluoro (bromo) carbon gases in canisters.



Hex.	Hex.
Mín.	Min.

COUPLING W 31.75 - 7 threads/inch (RIGHT THREADED)



una pulgada gas	1 inch, gas
Mín.	Min.

COUPLING W 33.25 - 11 threads/inch (RIGHT THREADED)

Couplings X1 and X2 shall be used on canisters that contain inert chlorofluoro(bromo)carbon compounds.

In cases of bottles of propane, butane or their mixtures, it shall be permitted to use the type of threading and coupling deemed appropriate by the company in question, as long as confusion with those standardised for other uses is not possible.

15. Z coupling: Common commercial butane bottles.

Reserved for common butane bottles

Z1 coupling: M 16 x 1.5 metric, right threaded

Z2 coupling: W 13.916 x 18 threads/inch, right threaded

Z3 coupling: R 3/8" Gas, right threaded

16. For cryogenic canisters featuring more than one outlet for their different uses (gas, liquid, venting), the gas outlet coupling shall continue to be that specified for the types indicated above and the inlet/outlet couplings for the liquid phase and venting shall be as follows:

Oxygen	M 24 x 1.5	Male	Right threaded
Nitrogen	W 19.05 - 1/16"	Male	Right threaded
Carbon dioxide	W 19.05 - 1/16"	Female	Right threaded
Nitrous oxide	W 16.66 - 1/19" (R3/8")	Female	Right threaded
Argon	M 26 x 2	Male	Right threaded



The connector (fitting) shall be permanently attached to the outlet valve by tinning, silver soldering, epoxy resins or similar methods, in a way that prevents its replacement by personnel not involved in filling.

ANNEX II

UNE standards

- UNE EN ISO 407:2005 Small medical gas cylinders. Pin-index yoke-type valve connections.
- UNE EN 1089-3:2011 Transportable gas cylinders - Gas cylinder identification (excluding LPG) - Part 3. Colour coding.
- UNE EN 1439:2017 LPG equipment and accessories - Procedure for checking transportable refillable LPG cylinders before, during and after filling.
- UNE EN ISO 11621:2006 ERRATUM: 2011 Gas cylinders - Procedures for change of gas service.
- UNE EN ISO 11372:2012 Gas cylinders - Acetylene cylinders - Filling conditions and filling inspection.
- UNE EN 1919:2001 Transportable gas cylinders - Cylinders for liquefied gases (excluding acetylene and LPG) - Inspection at time of filling.
- UNE-EN 1920:2001 Transportable gas cylinders - Cylinders for liquefied gases (excluding acetylene) - Inspection at time of filling.
- UNE EN ISO 13088:2013 Gas cylinders - Acetylene cylinder bundles - Filling conditions and filling inspection.
- UNE EN 13365:2002 Transportable gas cylinders - Cylinder bundles for permanent and liquefied gases (excluding acetylene) - Inspection at time of filling.



ADDITIONAL TECHNICAL INSTRUCTION

ITC EP-7

LNG TERMINALS.

CHAPTER I

Scope and definitions

Article 1. *Scope.*

1. This Additional Technical Instruction [ITC] applies to the installation, modification, periodic inspection and repair of all pressure equipment falling under the Regulation on pressure equipment installed in liquefied natural gas (LNG) terminals [Reglamento de equipos a presión instalados en terminales de gas natural licuado (GNL)].

2. This ITC does not cover:

a. LNG satellite plants falling under Royal Decree 919/2006 of 28 July 2006 adopting the Technical regulation on gaseous fuel distribution and use.

b. Any piping located inside the storage tanks: filling pipes, pump well pipes, instrumentation piping, etc., including the first external isolating device.

c. Transportable pressure equipment falling under Royal Decree 1388/2011 of 14 October 2011 setting out provisions implementing Directive 2010/35/EU of the European Parliament and of the Council of 16 June 2010 on transportable pressure equipment.

d. Extinguishers, which must meet the general requirements of the Regulation on pressure equipment.

e. The transport pipes to other external installations, from the last isolating device within the boundaries of the LNG terminal, not including said device.

f. Housings or casings for dynamic parts.

g. Pressure equipment as per Article 4(3) of Royal Decree 709/2015 of 24 July 2015, or deemed equivalent to these categories pursuant to Article 3(2) of the Regulation on pressure equipment.

Article 2. *Definitions.*

In addition to the definitions included in Chapter 1 of the Regulation on pressure equipment, the following terms and definitions shall apply for the purposes of this ITC:

1. 'LNG terminal': set of process and auxiliary installations intended to receive liquefied natural gas by maritime transport and to supply, store and regasify it.

2. 'System': a set of equipment normally connected in process sequence and that can be tested in combination.



3. 'In-house inspector': competent qualified technical personnel designated by the user, with experience inspecting pressure equipment.

4. 'Leak test': verification of the impermeability of pressure equipment or a system, as well as any connections or removable parts, under the test conditions (fluid and pressure) determined for each case.

5. 'Cold non-corrosive fluids'. For the purposes of this ITC, this shall mean fluids at temperatures of less than or equal to 0 °C that do not pose any risk of corrosion to the equipment that uses them. These fluids include cold natural gas (working temperature ≤ 0 °C), LNG itself and liquid nitrogen.

6. 'Other external installation': installation under different ownership and therefore not part of the LNG terminal.

CHAPTER II

Installation and commissioning

Article 3. *Equipment classification.*

For the purposes of this ITC, pressure equipment shall be classified according to its hazard level, based on the following criteria:

1. Hazard potential.

Equipment shall be classified according to the product of the maximum allowable pressure PS (in bar) and the volume V (in m³):

– Potential 1: $(PS \times V) \geq 300$

– Potential 2: $25 \leq (PS \times V) < 300$

– Potential 3: $(PS \times V) < 25$

2. Fluid characteristics.

According to the characteristics of the fluids used, equipment is classified according to Article 13 of Royal Decree 709/2015 of 24 June 2015.

3. Equipment classes.



Vessels falling under this ITC are classified as follows based on the combination of hazard potential and fluid characteristics:

Hazard potential	Fluid group	
	1	2
1	Class 1	Class 2
2	Class 2	Class 3
3	Class 3	Class 3

Article 4. Installation.

1. Installation plan.

For the purposes of Article 4(1) of the Regulation on pressure equipment, installations that include pressure equipment for LNG service and for Classes 1 or 2 as per Article 3(3) of this ITC shall require installation plans.

The plan shall include the following information:

- a) Description of the process that the installation carries out.
- b) Details on the installation company and indication of its authorisation.
- c) Technical characteristics of the equipment:
 - Total volume of the pressurised parts and where applicable, volumes of the inner chambers or volume of water at an average level.
 - Characteristics of the piping.
 - Maximum allowable pressure (PS), maximum allowable temperature (TS), maximum working pressure (Pms), maximum working temperature (Tms), seal pressure (Pp), factory test pressure and subsequent periodic test pressures.
 - Fluid content.
 - Casing material.
 - Safety features and their characteristics. For LNG service, the safety features shall guarantee that in the event of unforeseen evaporation of LNG, the pressure shall be relieved properly, preventing damage to and breakage of the potentially affected vessel or pipe section.



- Auxiliary components and their characteristics.
- Any other relevant technical characteristics.
- d) Details on the manufacturer of each pressure device.
- e) List of names of all pressure devices included in the installation.
- f) Calculations.
- g) Budget.
- h) Drawings:
 - General drawing of each device or assembly into which it is integrated.
 - Location of the equipment, including adjacent zones, with indication of risks.
 - The entirety of the installation.
 - Schematic diagram of the installation.

2. Installations that do not require an installation plan.

Installations that do not require submission of an installation plan according to the preceding paragraph shall be handled according to section 3 of Annex II to the Regulation on pressure equipment.

3. Installation companies.

All the equipment included in this ITC shall be installed by category EIP-2 companies, as per Annex I of the Regulation on pressure equipment.

Article 5. Commissioning.

1. Commissioning of pressure equipment or installations as referred to in this ITC shall be in accordance with the provisions of Article 5 of the Regulation on pressure equipment.

2. Installation companies shall be responsible for execution of installations. If engineering firms or the user provided the design, they shall be responsible for it and shall indicate this in the installation certificate referred to in Annex IV to the Regulation on pressure equipment.

3. The installation and periodic inspection data plates indicated in Annex II to the Regulation on pressure equipment may be replaced by identification in the equipment log of the user, referred to in Article 9 of the Regulation on pressure equipment.



CHAPTER III

Inspections, repairs and modifications

Article 6. Periodic inspections

1. General conditions.

Periodic inspections shall be conducted according to the criteria provided in the annex to this ITC.

In addition to the periodic inspections detailed below, it shall also be necessary to conduct any and all checks, inspections or tests deemed necessary to ensure the integrity of the equipment and installations.

Any faults detected in the periodic inspections, or in the additional inspections conducted by the user, shall be assessed according to the criteria provided in the annex to this ITC.

2. Uses other than for cold non-corrosive fluids.

The required inspections and tests for equipment for uses other than for cold non-corrosive fluids shall be performed according to the classification provided in Article 3(3) of this ITC, by the parties and at the intervals provided in the table below:

Table 2. PARTY AND INTERVALS FOR PERIODIC INSPECTIONS (*)			
Equipment classification (Article 3(3))	Inspection level (Annex)		
	A	B	C
Class 1	In-house inspector, 4 years	IB, 6 years	IB 12 years
Class 2	In-house inspector, 6 years	IB 12 years	IB 18 years
Class 3	In-house inspector, 6 years	IB 12 years	Not required

(*) Inspections to be performed by the in-house inspector may also be conducted by an IB.

Specifically, piping with a diameter of over DN 50 and whose $PS \cdot DN$ is $> 1,000$ shall be inspected, for at least level B, by the indicated parties and at the maximum intervals indicated below, with no need to conduct a level C inspection.



Table 3. PARTY AND INTERVALS FOR PERIODIC INSPECTIONS ON PIPING (*)

Inspection level B (Annex)	Fluid group	
	1	2
	In-house inspector, 6 years	In-house inspector, 12 years
(*) Inspections by the in-house inspector may also be conducted by an IB.		

3. Use for cold non-corrosive fluids.

Once every 4 years, equipment and piping for use with cold non-corrosive fluids shall undergo a level A inspection as per the annex to this ITC. Level B or C inspections shall only be conducted following failure of a level A inspection, barring that specified in the annex to this ITC.

This paragraph applies to equipment that works with cold non-corrosive fluid, in whole or in part.

For these fluids, all periodic inspections shall be conducted by inspection bodies.

Article 7. Fault procedure.

1. General conditions.

Any faults detected shall be assessed in accordance with a recognised standard suitable for the function applicable to the installation in question.

Assessment of the faults detected shall be followed by a decision on the action to be taken, which may be one of the following:

- Monitoring for changes in the fault.
- Immediate or scheduled repair.
- Replacement of the affected device or section of pipe.

All repairs and replacements shall be performed by category ERP-2 companies as per Annex I to the Regulation on pressure equipment.

2. Monitoring for changes in the fault.

If the fault detected does not affect the safety conditions, it shall be monitored for any changes.

If it could grow worse over time or if an unfavourable change is detected, inspection of the device shall be scheduled according to its projected deterioration, as shall any necessary repairs.

In any case, the party in question shall take advantage of scheduled plant downtimes, during which the equipment can be safely decommissioned, to remedy detected faults that affect or could later affect the integrity of the component.



3. Repairs.

If the detected anomaly affects the safety conditions of the equipment, it shall be repaired immediately. The safety conditions shall be defined in the design code or specifications of the equipment in question. In the absence of criteria in the corresponding code or specifications, the criteria provided in a generally recognised code suitable for the use and operating conditions shall be applied.

In any case, the provisions of Article 8 of this ITC shall apply.

4. Replacement of the equipment or the affected part.

If repair of the detected fault does not ensure that the equipment will function under the safety conditions specified in its design, the entire device or the affected part shall be replaced.

Article 8. Repairs.

1. Repair companies.

All equipment falling under this ITC shall be repaired by category ERP-2 companies, as per Annex I of the Regulation on pressure equipment.

2. Scope of repairs.

Repairs affecting a significant part of the equipment shall be considered 'major repairs', according to the criteria provided in the section below.

In cases of repairs affecting pressurised parts that are not 'major' in scope, the user shall conduct the necessary checks, including the relevant pressure test or the non-destructive testing deemed suitable for the equipment.

3. Major repairs.

3.1 Repairs on casings for vessels and exchangers for use with fluids other than cold non-corrosive fluids shall be considered 'major' in all of the following cases:

a) If the length of the weld in question, expressed as a percentage of the length of the device, measured between tangents to the bases for longitudinal welds and with respect to the perimeter for circumferential welds, is greater than or equal to the values of the table provided in this section. This does not apply to sealing welds or any other welds that do not have an adverse impact on the mechanical or metallurgical characteristics of the pressure-bearing components of the appliance.

b) Regardless of scope, on appliances under vacuums, except for those containing fluids that are non-combustible, or that do not give rise to explosive mixtures.

c) For class 1 vessels, repairs on tube adapters with diameters less than or equal to DN 80 shall not be considered major. Similarly, for class 2 and 3 vessels, repairs on any of the tube adapters or rewelding shall not be considered major repairs.



Class 1		Class 2		Class 3	
Joint type		Joint type		Joint type	
Longitudinal weld	Circumferential weld	Longitudinal weld	Circumferential weld	Longitudinal weld	Circumferential weld
5%	10%	15%	30%	20%	40%

3.2. In cases of piping, any repair that meets all of the following conditions is considered ‘major’:

– The welding procedure includes heat-treatment or the thicknesses of the two tubes to be joined are both greater than 12 millimetres.

– The number of joining welds between tubes is greater than that indicated in the table below:

Categories / RD 709/2015	Number of welds
III	Any
II	6
I	12

3.3. Technical repair file.

The repair company shall prepare a technical repair file for repairs considered ‘major’, according to the provisions of the preceding section, including:

a) Registration number with the competent body of the Autonomous Community of its registered office.

b) Identification of the pressure equipment or piping, characteristics and classification, and indication of its commissioning according to this ITC.

c) Reasons for the repair.

d) Complete description of the repair, including detailed drawings of the repair.

e) Documents attesting to the suitability of the basic and filler materials of the components used in the repairs, approved by the repair company, engineering firm or inspection body.

f) Procedure for repair, welding, heat-treatments and verifications, qualification of welding procedures and welders, all of which approved by the repair company, engineering firm or inspection body.



g) Location map of the zones inspected with non-destructive testing, required tests, their scope and results. The user shall properly preserve the logs from non-destructive tests, including any X-rays, for at least 5 years starting from the repair date of the equipment or piping.

h) Certificate for tests and trials conducted during the repairs, signed by the competent qualified engineer of the repair company.

i) Pressure test certificate signed by an inspection body.

3.4. Any device or pipe that undergoes a 'major repair' shall also undergo the following inspections and tests:

a) An inspection by an inspection body to check that the equipment or piping was repaired in accordance with the documentation contained in the repair file.

b) Examination of the appliance or piping repaired and a pressure test with the same value and conditions as the first test, by an inspection body.

The pressure test shall include at least the part repaired. If all of the equipment is not tested, the inspection conducted shall not be considered a periodic inspection.

The pressure test may be replaced with other tests or trials that offer an equivalent level of safety, where justified on technical grounds and, in any case, in accordance with Article 12 of the Regulation.

If the results of these inspections and tests are acceptable, the repaired equipment may be commissioned.

Article 9. Modifications

1. Modifications shall be performed in accordance with Article 8 of the Regulation on pressure equipment. In any case, modifications shall be performed by authorised category 2 installation or repair companies, or by the equipment manufacturer.

2. Level C inspections required as per Article 8 of the Regulation shall be conducted in accordance with the annex to this ITC.

CHAPTER IV

Other provisions

Article 10. Obligations on users.

In addition to the obligations indicated in Article 9 of the Regulation on pressure equipment, the user shall meet the requirements below:



1. Maintenance.

The user shall perform maintenance that ensures the availability and reliability of all components of the installations falling under this ITC. For this, the installation shall have a competent qualified engineer responsible for general maintenance of the installation.

A preventive maintenance schedule shall be in place that ensures the availability and reliability of all components of the installations included in this ITC. This schedule shall be based on manufacturer standards, criteria from standards that are generally recognised or internationally accepted in the sector and on personal experience.

2. Inspection manual.

The user shall have an inspection manual, containing at least a description of the organisation, the number and qualifications of the allocated persons, the detailed inspection procedures and the inspection schedule.

The manual shall detail the method of guaranteeing that inspection service personnel can perform their duties independently. The inspection personnel shall inform the plant management of the condition of the equipment or systems.

The inspection schedule shall guarantee compliance with regulatory deadlines.

In addition to the periodic inspections indicated in the Regulation on pressure equipment and in this ITC, it shall also be necessary to conduct any and all checks, inspections or tests deemed necessary to ensure the integrity of the equipment and installations. This shall take into account the indications of the equipment manufacturer and the inspection criteria of standards that are generally recognised or internationally accepted in the sector.

The user shall take advantage of technical shut-downs, or downtime due to faults, to conduct checks, tests or inspections.

The inspection service of the user, whether in-house or contracted to an inspection body, shall keep the management of the LNG terminal up-to-date on the condition of the equipment or systems and shall recommend decommissioning of those determined not to meet the required level of safety.

Specifically, the inspection service shall depend neither on production nor on maintenance.

3. Other checks.

In addition to the inspections expressly indicated in this ITC, at least the checks below shall be performed.



a) Corrosion check.

Adequate technical information shall be available on every device potentially susceptible to corrosion phenomena, to identify the acceptable margins of the vessels and piping of each system. At least the following equipment shall undergo corrosion checks:

- Steel equipment and piping located outdoors without insulation that prevents moisture ingress. Example: Piping and equipment that operate with nitrogen, natural gas in its gas phase, or seawater.

- Submerged combustion and flood vaporisers.

- Seawater filters.

b) Erosion check.

It is necessary to bear in mind that erosion may occur in systems due to fluid characteristics and flow rates, such as in systems that can use seawater; filters and vaporisers.

c) Special checks.

The LNG vaporisation and unloading process creates stress from expansions and contractions due to temperature changes, which can sometimes be abnormal and cause:

- excessive displacement in lines and supports.

- improper condensation in specific locations.

- insulation damage.

In view of these situations, it is recommended to put specific checks in place to verify that the affected equipment and piping has not been subject to any abnormal stress and has been functioning according to the set operating conditions. Some examples of verification methods would be: Visual examination of condensation, thermography in specific areas, checks on operating parameter logs for certain devices, visual inspection of the condition of brackets and supports for equipment and piping, checks on dimensions to verify their proper positioning, examination with liquid penetrants, etc.

ANNEX

Periodic inspections

Application of this ITC shall take into account the provisions of Annex III to the Regulation on pressure equipment, with the following criteria:

1. Inspection level A.

This is conducted with the equipment or piping in operation and with any insulation in place.

It shall include at least a documentation check and a full visual inspection of all accessible parts and all safety devices and valves, control devices, brackets and regulatory conditions.



The visual inspection shall pay particular attention to any damage or displacement that may have occurred during operation, due to thermal cycles or other process conditions. In addition, the checks specified in Article 10(3) of the ITC shall be conducted.

If this inspection finds reasonable grounds to assume deterioration of the installation, an authorised inspection body shall conduct a level B inspection.

1.1 Critical equipment operating with LNG.

In general, equipment in which abnormal displacement or condensation is detected shall undergo insulation checks by thermography and, if any problems are found, thickness measurements.

In addition to that indicated in paragraph 1 for all equipment, periodic inspections on the most critical equipment operating with LNG shall include at least the following:

1.1.1 Purge collector tank, loading/unloading arms.

- Visual examination of all tank insulation, checking for improper surface condensation.
- Position of tank supports and attachments to the foundation.
- Condition of tank support structure.
- Tank safety features, check on documentation related to their verification and testing.
- Thermography if condensation or insulation damage detected.

1.1.2 Reliquifier

- All inspections indicated in 1.1.1, as well as:
 - Verification of equipment operation logs. A check shall be conducted that the equipment has been operating within its design parameters. The operator shall keep these logs available for verification by the inspection body, at least until the next periodic inspection.

- Any discrepancy in equipment functioning shall result in performance of the relevant additional checks intended to examine the impact of operation under unforeseen conditions on equipment integrity: Performance, additional thermography, thickness checks, etc.

1.1.3 Tanks containing secondary pumps.

- External examination of the tank for possible damage to its housing or in the accessible parts of its insulation due to LNG leaks.
 - Visual examination of all accessible insulation, checking for improper surface condensation.
 - Tank safety features, check on documentation related to their verification and testing.
 - Thermography if abnormal condensation or insulation damage detected.



An inspection body shall conduct a level B inspection during pump maintenance or repair activities, when the inside of the tank is accessible. In any case, a level B inspection shall be conducted when maintenance on the pump is required as per Manufacturer Maintenance Manual B, or once every 30,000 operating hours for the pump in question if the maintenance manual specifies longer intervals.

This inspection shall include visual examination of the inside of the tank and thickness checks using ultrasound at points selected by the inspection body.

1.1.4 Flood vaporisers:

Two types of inspections shall be conducted:

a. With the vaporiser in operation:

- Check that no ice is present.
- Check for uniform waterfall on panels.
- In all accessible places, check that no tubes are bent.

b. With the vaporiser out of operation:

- Pay special attention to checking for bent tubes, because this would indicate a vaporiser malfunction and require a level B inspection to assess the detected fault and arrive at the correct decision.

- Visual examination of the outer surfaces subject to corrosion and erosion with special attention to connections between bottom LNG inlet collectors and tubes. Any loss of thickness of the base material shall result in a level B inspection.

- Examination of the accessible vaporiser surfaces, checking for pitting and the condition of the metal finish on the tubes and other coatings. This check shall include performance of additional non-destructive testing intended to assess the integrity of the areas subject to corrosion and/or erosion, such as ultrasound testing to measure thicknesses, induced currents to determine the thicknesses of protective coatings, measurement of coatings, etc.

1.2 Other equipment that operates with cold non-corrosive fluids.

1.2.1 Submerged combustion vaporisers.

This device vaporises LNG by combustion of natural gas. The outsides of the tubes where the heat exchange occurs are in a corrosive atmosphere and are accessible for inspection.

In this case, in addition to checks on valves, safety devices and documentation, the level A inspection shall include a visual examination of the accessible outer surfaces and in cases of suspected deterioration, a check on the outer thicknesses of the heat exchange tubes by non-destructive testing.

In addition, the equipment shall undergo a level B inspection once every 8 years. This inspection shall be conducted with the equipment shut down.



1.2.2 Other equipment.

In cases of vessels that are fully thermally insulated, the level A inspection shall be conducted with the same scope as per 1.1.1 'Purge tank'. In cases of tanks that operate with cold non-corrosive fluids and are not heat-insulated, the level A inspection shall include not only that specified in the preceding paragraph, but also a visual examination of the entire uninsulated surface and a thickness measurement with non-destructive testing.

2 Inspection level B.

This inspection level may be applied to meet the intervals specified in Article 6 of this ITC or due to failure of a level A inspection.

If equipment operating with cold non-corrosive fluids fails a level B inspection, a level C inspection shall be performed.

2.1 Periodic inspections by virtue of Article 6

This inspection level is intended to be performed with equipment out of operation and with any insulation removed from the parts to be inspected.

This shall include at least a full visual inspection on the outside and the inside, if accessible and a thickness check on the pressurised parts. In cases of piping, it shall not be necessary to conduct the internal inspection or keep the equipment out of service, except where necessary for the required trials.

If an internal inspection cannot be conducted because it is physically impossible or for justified technical reasons, it shall be replaced with the necessary non-destructive testing that guarantees an equivalent level of safety, or with a pressure test.

2.2 Following failure of a level A inspection

In this case, the affected area of the equipment or piping shall be decommissioned and any insulation shall be removed.

All necessary tests and inspections shall be conducted to identify and dimension the faults resulting in failure of the level A inspection.

Non-destructive methods and measurement instruments shall be used that are suitable for the material and type of fault under examination.

3 Inspection level C.

This shall be conducted with the equipment or piping out of operation and with any insulation removed.

It will consist of a pressure test. This shall be conducted taking into account the considerations below.



By way of exception, any reduction in the test pressure values provided in section 3.2 or their replacement with non-destructive testing shall be approved by the competent body of the Autonomous Community, after submission of the technical grounds and a favourable report from an inspection body pursuant to Article 12 of the Regulation.

3.1 Test fluid.

Due to the adverse impact of water on internal parts of piping and equipment belonging to LNG terminals, as well as the difficulty in drying these internally, the fluid used for the pressure test shall normally be nitrogen or air in piping or equipment in which the presence of air is not harmful or hazardous, and in exceptional cases natural gas, with all relevant precautions taken at all times.

Only in cases where the equipment in question is somewhere other than its final location and where it is feasible to dry it out completely, shall it be permitted to use water as a test fluid at room temperature. In such cases, the water temperature shall not fall below 10 °C during the test. If it does, it shall be necessary to assess any potential risk associated with this.

3.2 Test pressure.

a) Hydrostatic test:

The test pressure (PT) value shall be that indicated by the equipment manufacturer, or failing this, the value from the factory hydrostatic test, which shall not exceed 90% of the elastic limit of the material at the test temperature for the primary membrane forces.

b) Pneumatic test

The test pressure (PT) value shall be 1.1 PS. The necessary measures shall be taken to ensure that the set PT is not exceeded, such as installation of temporary relief valves. In such cases, the tare pressure must be less than 1.1 PT.

3.3 Test procedure.

The pressure test procedure shall be that indicated by the equipment manufacturer or failing this, it shall include a detailed description of the procedure, as well as:

- Test conditions.
- Equipment needed to conduct the test.
- Measurement and control equipment, duly verified and with adequate sensitivity.
- Filling and drainage methods and test pressure hold time.
- Indication of points requiring special attention.



3.4 Safety requirements during the tests.

The performance of tests shall be subject to certain strict safety conditions to prevent accidents due to the work to be performed.

Before conducting pressure tests, the inspector shall verify that the testing equipment is correct, that the connections are suitable for the maximum pressures to be reached, and that proper safety measures have been taken to prevent exceeding the test pressure and damaging the internal parts of the appliance.

a) Pneumatic test.

Because this test involves a higher risk than the hydrostatic test, the equipment must be comprehensively inspected first.

A detailed plan of the test stages shall be prepared, indicating the pressure hold times for each stage as well as the minimum safe distances.

During testing, the area off-limits to unauthorised personnel shall be properly indicated.

b) Hydrostatic test.

Before filling with water, the inspector shall check that the structures and foundations supporting the equipment or system are capable of withstanding the load to which they will be subject.

During the test, the inspector shall ensure that the personnel maintain a safe distance from bases, caps and threaded parts and that only persons involved in the test are present.

The pressure gauges shall be installed outside the vertical projection and shall preferably be positioned sideways or higher up. During filling with water, the inspector shall ensure proper venting of the circuit, to prevent air or steam pockets.

Due to the energy stored in the hydrostatic test, the inspector shall take special precautions if the test pressure is greater than 80 bar or if the product of the test pressure (PT) in bar and the volume (V) in cubic metres is greater than 10,000, in which case the inspector shall prepare a detailed plan for the sequence, the duration and the minimum safe distance.

If it is not possible to observe the minimum safe distance indicated in the plan, it must be replaced with another additional safety standard, to be approved by the competent body of the Autonomous Community.

4 Inspections by the user.

a) The user shall have suitable in-house or contracted personnel, resources and organisation to conduct the inspections and checks required over the service life of the equipment or systems, so the degree of compliance with this ITC is known at all times.



b) Independently of the periodic inspections and tests, the inspectors of the user shall examine and check the equipment opened for cleaning or repair during any general or partial plant downtime. The results of these checks shall be entered in the user log referred to in Article 9(7) of the Regulation on pressure equipment.

c) The inspection service of the user shall keep the equipment or system history. The user shall verify compliance with the design conditions and conditions for fault duration, repairs and modifications.

5 Inspection of safety valves.

Safety valves shall be inspected at intervals not exceeding the lower of the level B inspection intervals for the equipment they protect and at least once every 6 years.

The inspection shall consist in checking the tare value and adjusting if necessary. Regulation shall be performed at the installation site or on a test bench, taking into account the manufacturer recommendations.

An inspection body shall supervise the taring and sealing checks.

6 Inspection certificate.

All checks and tests under this section that are conducted by an inspection body shall be indicated on the corresponding certificate.

The inspections conducted by the in-house inspector shall be entered in the user log referred to in Article 9(7) of the Regulation on pressure equipment.

