

Guidelines related to the Pressure Equipment Directive 2014/68/EU (PED)

In order to ensure a coherent application of the Pressure Equipment Directive 2014/68/EU (PED) (which replaces Directive 97/23/EC as of 19 July 2016), Guidelines are developed and agreed by the Commission's Working Group "Pressure" (WGP).

This working group is composed of representatives of Member States, European federations, the Notified Bodies Forum and CEN and chaired by a representative of the Commission services.

Most of the PED Guidelines developed for Directive 97/23/EC are issued as a PED Guideline under the new Directive 2014/68/EU. Also new Guidelines may be issued to support the implementation of the Directive. This document includes the PED Guidelines which are endorsed by the Working Group "Pressure" (WGP).

Remarks or questions concerning this document should be addressed via the email to the unit in the European Commission dealing with the Pressure Equipment Directive:

GROW-PRESSURE-EQUIPMENT@ec.europa.eu

Status of the guidelines

The PED Guidelines are not a legally binding interpretation of the Directive. The legally binding text remains that of the Directive. However, the PED Guidelines represent a reference for ensuring consistent application of the Directive. They represent, unless indicated differently in the respective guideline text, the unanimous opinion of the Member States.

Naming convention of the PED Guidelines

The PED Guidelines are referenced with the following format X-yy

- X relates to the subject (A, B, C etc...);
- yy is a sequential number.

Remark: To facilitate the transition to the new Guidelines the sequential number is maintained as far as possible (e.g. Guideline A-24 under the new PED 2014/68/EU corresponds to Guideline 1-24 under PED 97/23/EC)

The letter "X" refers to one of the following subjects:

- A. SCOPE AND EXCLUSIONS OF THE DIRECTIVE
- B. CLASSIFICATION AND CATEGORIES
- C. ASSEMBLIES
- D. EVALUATION ASSESSMENT PROCEDURES
- E. INTERPRETATION OF THE ESSENTIAL SAFETY REQUIREMENTS ON DESIGN
- F. INTERPRETATION OF THE ESSENTIAL SAFETY REQUIREMENTS ON MANUFACTURING
- G. INTERPRETATION OF THE ESSENTIAL SAFETY REQUIREMENTS ON MATERIALS
- H. INTERPRETATION OF OTHER ESSENTIAL SAFETY REQUIREMENTS
- I. MISCELLANEOUS
- J. GENERAL-HORIZONTAL QUESTIONS

Document history		
Version	Date	Comment
1.0	31/3/2015	Includes PED 2014-68-EU Guidelines from the WGP meeting of 11/03/2015
2.0	13/6/2016	Includes PED Guidelines adopted via written procedure on 8/1/2016 and 15/1/2016 (links will be added in next version when all guidelines are included)
3.0	3/1/2017	Includes PED Guidelines adopted via written procedure on 20/6/2016. It concerns: WPG B-19, WPG E-04, WPG F-10, WPG F-15, WPG H-05, WPG J-02, WPG J-03
4.0	12/5/2017	Includes PED Guidelines B-25 and F-19 adopted by WGP on 21/3/2017 + minor editorial corrections to A-12, A-39, B-04, B-35, I-07 and I-18
5.0	12/10/2018	Includes PED Guidelines B-21 (update), B-33, C-14, E-10, H-04 and H-20 adopted by WGP on 13/9/2018 + minor editorial changes to A-46, B-41, C-13 and C-15. PED Guideline A-45 is withdrawn and therefore removed from this document.
5.1	29/10/2018	Correction , removed previous version of B-21 (duplicate).
5.2	7/01/2019	Correction, reference to E-10 instead of B-42 in the note
6.0		Includes PED Guidelines A-44, B-28, D-17, H-16 and J-09 + Correction in C-18 reference to "Annex IV"

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A. SCOPE AND EXCLUSIONS

Guideline A-01

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 (a); Article 1 paragraph 2 (s); Annex II, Table 2

Question	Are portable extinguishers within the scope of the Pressure Equipment Directive or are they covered by the exclusion in Article 1 paragraph 2 (s) for equipment covered by the ADR?
Answer	They are covered by the Pressure Equipment Directive.
Reason	<p>Portable extinguishers are specifically mentioned in Article 4 paragraph 1 (a) (i) second indent and Annex II, Table 2 of the Pressure Equipment Directive.</p> <p>All fire extinguishers according UN 1044 are specifically mentioned in special provision 594 of ADR as an exclusion when appropriately packed for transport.</p> <p>Thus, these fire extinguishers are not covered by the exclusion in Article 1 paragraph 2 (s) of the PED.</p>
Note	

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Guideline A-02

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 paragraph 1

Question	Are tanks intended for the transport of non-dangerous goods (as defined by ADR), which are not pressurised during carriage but are pressurised during other foreseeable operations, e.g. filling, emptying or cleaning, within the scope of PED?
Answer	Yes. If the PS of the tank is more than 0,5 bar.
Reason	Such tanks are not excluded by Article 1 paragraph 2 (s).
Note	Refer also to PED Guidelines A-14, A-34 and H-07.

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Guideline A-03

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1; Annex I Section 3.4

Question	Are replacements, repairs or modifications of pressure equipment in use covered by the Pressure Equipment Directive (PED) ?
Answer	<p>1) Entire change: the complete replacement of an item of pressure equipment by a new one is covered by the PED.</p> <p>2) Repairs are not covered by the PED but are covered by national regulations (if any).</p> <p>3) Pressure equipment which has been subject to important modifications that change its original characteristics, purpose and/or type after it has been put into service has to be considered as a new product covered by the directive. <i>This has to be assessed on a case by case basis.</i></p>
Reason	
Note 1	Operating instructions in the sense of the PED (see PED Guideline H-03) cover documentation concerning safe operation including maintenance, but not necessarily detailed information concerning repair or modification of the equipment (e.g. material certificates or qualification of welding procedures). Such information may be provided by a specific contractual agreement between manufacturer and user.
Note 2	The directive applies only to the first making available on the market and putting into service. See "Blue Guide" chapter 2

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Guideline A-04

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 paragraph 3

Question	When is a modification of a piping system not covered by the PED?
Answer	When the content, main purpose and safety systems remain essentially the same, it may be regarded as a non important modification of an existing piping system and is therefore not covered by the PED.
Reason	See PED Guideline A-03
Note	

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Guideline A-05

**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Article 4; Annex II

Question	Which conformity assessment category applies to vessel with a volume less than or equal to 0.1 litre?		
Answer	Vessels referred to in Article 4 (volume less than or equal to 0,1 litre)	Table in Annex II	Category (Volume less than or equal to 0,1 litre)
	1.(a)(i) first indent	1	If PS ≤ 200 bar, then Article 4.3 applies otherwise see point 3 below
	1.(a)(i) second indent	2	If PS ≤ 1000 bar, then Article 4.3 applies otherwise see point 3 below
	1.(a)(ii) first indent	3	If PS ≤ 500 bar, then Article 4.3 applies otherwise see point 3 below
	1.(a)(ii) second indent	4	If PS ≤ 1000 bar, then Article 4.3 applies otherwise see point 3 below
Reason	<ol style="list-style-type: none"> 1. The conformity assessment categories for vessels with a volume less than or equal to 0,1 litre cannot be determined from Tables 1, 2, 3 and 4 because the Tables are not specified for volumes less than 0,1 litre. However, Article 4 paragraph 1 together with Article 4 paragraph 3 can be used to determine which vessels must satisfy the essential safety requirements and those that must be designed and manufactured according to the Sound Engineering Practice (SEP) of a Member State. 2. If a vessel has a volume less than or equal to 0,1 litre, and a value of PS above the limits defined in Article 4 paragraph 1, then the vessels must satisfy the essential safety requirements of Annex I. 3. In the absence of specific information in the Tables of Annex II for the conformity assessment of vessels described in point 2 above, the manufacturer may choose any module, or single combination of modules, set out in section 1 of Annex II. 		
Note			

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Guideline A-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 paragraph 4; Annex I, point 2.10

Question	How will pressure gauges be classified?
Answer	<p>A pressure gauge may possibly be regarded as a protective device within the meaning of Annex I, point 2.10 b.</p> <p>The Directive does take account of these items of equipment but they are not safety accessories within the meaning of Article 2 paragraph 4.</p> <p>They are pressure accessories within the meaning of Article 2, paragraph 5, which may be covered by CE marking for high pressure (see also PED Guideline A-05 on Article 4 on low volume-high pressure equipment).</p>
Reason	
Note	

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Guideline A-08

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 paragraph 5

Question	What is a pressure accessory?
Answer	<p>According to the definition (see Article 2 paragraph 5 pressure accessory means a device with an operational function and having an identifiable pressure-bearing housing - i.e. the device has a function <u>additional</u> to that of containing pressure.</p> <p>The pressure accessory can be attached to other pressure equipment for example by bolting, brazing, soldering or welding. A pressure accessory has a specific operational function (or functions), which could be for example: measurement, change the mechanical characteristics of the fluid flow, taking a sample, removal of sediment or gas. A pressure accessory does not necessarily have moving parts.</p> <p>Typical examples of pressure accessories are: valves, pressure regulators, measurement chambers, pressure gauges, water gauge glasses, filters, expansion joints and manifolds.</p> <p>The following examples are not pressure accessories:</p> <ul style="list-style-type: none">– safety valve (a safety accessory)– cover, collar, gasket, flange, bolt (components of a pressure equipment)– sight glass with its frames (components of a pressure equipment)– Y-shape or similar fittings (piping components)
Reason	
Note	

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Guideline A-09

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (3)

Question	Are piping components, such as a pipe or system of pipes, tubing, fittings, expansion joints, hoses, or other pressure bearing components, considered to be piping when they are placed on the market as individual components?
Answer	<p>Individual piping components, such as a pipe or system of pipes, tubing, fittings, expansion bellows, hoses, or other pressure bearing components are not “piping”.</p> <p>However, a single pipe, or a system of pipes, for specific application, may be classed as “piping”, provided all appropriate manufacturing operations such as bending, forming, flanging and heat treatment, have been completed. Some piping components (e.g. expansion joints) may be considered to be pressure accessories (see PED Guideline A-08).</p> <p>Remark: Please note the definitions related to expansion joints and to expansion bellows.</p> <p><u>Expansion joints</u> are devices containing one or more bellows used to absorb dimensional changes such as those caused by thermal expansion or contraction of a pipeline, duct or vessel.</p> <p><u>Expansion bellows</u> are flexible elements of an expansion joint consisting of one or more convolutions and the end tangents.</p>
Reason	
Note	

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Guideline A-10

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (s); Article 4 paragraph 1(a)(i) second indent

Question	Are the bottles for breathing equipment covered by the Pressure Equipment Directive?
Answer	<p>Bottles/gas cylinders for breathing apparatus are covered by the Pressure Equipment Directive, for example :</p> <ul style="list-style-type: none">– bottles/gas cylinders for compressed air, oxygen or other breathable mixtures, such as portable cylinders for divers, fire fighters and asbestos workers <p>The following bottles for breathing equipment are not in the scope of the Pressure Equipment Directive:</p> <ul style="list-style-type: none">– gas cylinders to be installed in oxygen/air centres of hospitals– cryogenic receptacles <p>According to the circumstances of the transport, the requirements of ADR/RID/IMDG/ICAO may also be applicable.</p> <p>If the manufacturer intends bottles to be used both for breathing equipment and also for transport of dangerous goods, they shall meet the requirements of both directives and bear both the CE-mark and the π-mark (see PED Guideline A-30).</p>
Reason	<p>The specific reference to bottles for breathing apparatus in Article 4 limits the general exclusion in Article 1 paragraph 2 (s).</p> <p>Furthermore the Transportable Pressure Equipment Directive (TPED) 2010/35/EC specifically excludes gas cylinders for breathing appliances in Article 2 paragraph 1.</p>
Note	<p>A breathing apparatus is a personal protective equipment and therefore designed to be worn or held by an individual.</p>

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Guideline A-11

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (j)

Question	How can article 1 paragraph 2 (j) more specifically be understood, especially the wording “for which pressure is not a significant design factor”?
Answer	<ol style="list-style-type: none">1. Article 1 paragraph 2 (j) excludes pressurized equipment comprising casings or machinery from the scope of the PED<ol style="list-style-type: none">a) if this equipment is primarily dimensioned for loads other than pressure, i.e. for which pressure is not the significant design factor andb) if it is primarily designed to move or rotate or fulfil other functions than pressure containment.2. Such equipment may include<ul style="list-style-type: none">– engines including turbines and internal combustion engines;– steam engines, gas/steam turbines, turbo-generators, compressors, pumps, actuating devices and curing moulds for tyres.3. For such equipment, pressure can be considered as not being a significant factor, if other factors alone or together are more significant than pressure. Other factors are, e.g.:<ul style="list-style-type: none">– dynamic loads with vibrations or very high number of cycles;– thermal loads together with a complicated form of structure;– stiffness of the structure because of external mechanical loads or requirements related to high weight;– requirements related to low elongation, low change of diameter or low other deformation because of functional requirements to rigidity.This shall be decided on a case by case basis, taking into account established safe industrial practice.4. An over-dimensioning as such shall not result in exclusion from the PED with regard to Article 1 paragraph 2 (j).
Reason	
Note 1	No factor is included in the requirements of the PED. Any factor given in a guideline would therefore go beyond the PED and should be avoided.
Note 2	If a factor were used to decide whether the requirements of the PED are applicable or not, overdimensioning could result in a case where pressure equipment need not fulfil the requirements of the PED. This is not acceptable.

Note 3	To decide on the exception with a factor of overdimensioning would consequently result in the necessity of a detailed stress analysis, especially if this factor would have been connected to the primary membrane stress. This is far beyond the present established industrial practice.
Note 4	Furthermore, there is a danger that the more important influences explained in paragraphs 1 to 3 of the above answer could be overlooked if the decision whether the pressure is a significant design factor were based on a factor of overdimensioning only.

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Guideline A-12

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (f) and 2 (j)

Question	Are hermetically sealed and semi-hermetic compressors in the scope of the directive?
Answer	<ol style="list-style-type: none">1. Equipment classified as no higher than category I as defined by PED and falling in the scope of one of the directives as listed in article 1 paragraph 2 (f), e.g. for low voltage or machinery, is excluded from the scope of PED. This applies to hermetic and semi-hermetic compressors no higher than category I.2. The exclusion in article 1 paragraph 2 (j) is not applicable to hermetic compressors because pressure is a significant design factor since their external envelope has as its principal function to ensure that the refrigerant is confined.3. For semi-hermetic compressors which include moving parts and for which the external envelope is primarily designed for mechanical loads (speed and vibration), thermal load (to limit the possible deformation due to temperature), stiffness of the structure (external mechanical loads and weight of the equipment), an exclusion based on article 1 paragraph 2 (j) is to be assessed on a case by case basis (see PED Guideline A-11).
Reason	
Note	In application of the definition of "volume" given in article 2 paragraph 10, the volume of the mechanical parts is to be excluded from the volume to be taken into account but not the volume of the oil contained.

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Guideline A-13

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1

Question	Is the pressure equipment directive applicable to vacuum insulation of pressure vessels?
Answer	Yes.
Reason	Vacuum casings which do not have a maximum allowable pressure greater than 0.5 bar are therefore not pressure equipment in their own right. However as structural elements attached to pressurized parts, they are part of pressure equipment and any negative effects of the vacuum casing and insulation on the pressurized parts must be taken into account and avoided.
Note	

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Guideline A-14

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 paragraph 1

Question	If transport tanks for use in any mode of transport have been designed, manufactured and approved for the carriage of dangerous goods under the ADR, RID, IMDG code or the ICAO convention, will it also be necessary for them to comply with the PED when they are placed on the market?
Answer	<p>No. Article 1 paragraph (s) of the PED excludes transport tanks covered by Directive 2008/68/EC and Directive 2010/35/EU (ADR, RID) or the IMDG code or the ICAO convention.</p> <p>If a manufacturer declares that transport tanks designed, manufactured and approved for the carriage of dangerous goods under the ADR, RID, IMDG code or the ICAO convention, are intended to be used for both dangerous and non-dangerous goods then the exclusion in article 1 paragraph (s) may still apply (see PED Guideline A-30).</p> <p>On the other hand, if a transport tank is not designed, manufactured and approved under the ADR, RID, IMDG code or the ICAO convention, then it will be limited to the transport of non-dangerous liquids and solids. These transport tanks will not be excluded from the PED and will be covered if they are in the scope.</p> <p>All transport tanks covered by the agreements and conventions in article 1 paragraph (s) must be designed and built to a maximum allowable working pressure, satisfy the requirements for initial pressure testing and undergo periodical examination throughout their service life.</p> <p>These requirements deal with safe containment and hazards due to pressure, but primarily only for the safety of transport. With regard to the use of a transport tank, for example as a storage tank, or being emptied outside the scope of the transport codes, consideration should be given to applicable national legislation. For example, the question of safety valves in the tank itself or in the emptying station should then be considered. This paragraph does not apply to tanks bearing both CE-mark and π-mark (see PED Guideline A-30).</p>
Reason	
Note	Refer also to PED Guideline A-02

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Guideline A-15

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 paragraph 5

Question	Is the operational function of a pressure accessory, as described in article 2 paragraph 5 covered by the directive?
Answer	<p>Yes, if a pressure related hazard is identified in relation with the operational function of the pressure accessory (see also PED Guideline A-08).</p> <p>Examples for valves :</p> <ul style="list-style-type: none">– Where a valve is intended to be used as <u>the sole mean of isolation</u> of the content of an item of pressure equipment from the atmosphere, or from downstream equipment which is not designed to withstand the upstream pressure, the internal parts of the valve which contribute to the isolation must satisfy the relevant essential safety requirements in Annex 1 ;– Where a valve is intended to be fitted between a pressure vessel and pressure piping and both are designed to contain pressure, no pressure related hazard exist in relation to the operational function of the valve, therefore internal parts of the valve do not have to satisfy the relevant essential safety requirements in Annex 1. <p>The intended use of the valve shall be described in the operating instructions, and where it is to be used as a sole mean of isolation, it shall meet the essential safety requirements of the directive.</p>
Reason	
Note	

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Guideline A-16

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (b)

Question	<p>Article 1 paragraph 2 (b) excludes from the directive “networks for the supply, distribution and discharge of water and associated equipment”.</p> <p>Clarification is required in respect of water, networks and associated equipment in this context?</p>
Answer	<p>‘Water’ means: potable water, waste water and effluent, and sewage.</p> <p>‘Networks and associated equipment’ means: complete systems for the supply distribution and discharge of water. They extend up to the point of use in buildings, industrial sites and plants, and include equipment closely related to these networks such as water meter and line valves. Pressure vessels, such as expansion vessels, however are not considered to be part of such ‘networks and associated equipment’ and are therefore not excluded.</p>
Reason	
Note	For district heating water, refer to PED Guideline A-18

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Guideline A-17

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2(a)

Question	What is the meaning of the expression "standard pressure equipment" in article 1 paragraph 2(a) on pipelines ?
Answer	<p>A standard pressure equipment is not specially designed and manufactured for a specific conveyance pipeline, but is intended for use in a number of applications, including other conveyance pipelines or, for example, industrial piping.</p> <p>Typical examples of standard pressure equipment annexed with pipelines, pressure reduction stations or compression stations may include: measuring devices, valves, pressure regulators, safety valves, filters, heat exchangers, vessels.</p> <p>Such equipment is covered by the directive.</p>
Reason	
Note [x]	

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Guideline A-18

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (a)

Question	Are pipelines for conveyance of district heating water covered by the directive?
Answer	No. According to article 1 paragraph 2 (a) "...a system of piping designed for the conveyance of any fluid ...to or from an installation (onshore or offshore)" is excluded from the directive. This covers pipelines for district heating, whereas standard pressure equipment in e.g. boiler houses and pumping stations are included (refer to PED Guideline A-17).
Reason	
Note	

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Guideline A-19

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (f); Article 1 paragraph 2 (j)

Question	Are fluid power components and systems using liquids or gases of group 2 covered by PED?
Answer	<p>For fluid power components and systems using liquids or gases of group 2 according to Article 13 paragraph 1 (b), the following applies :</p> <ol style="list-style-type: none">1. Excluded from PED<ol style="list-style-type: none">1.1. due to exclusion of Article 1 paragraph 2 (f) (e.g. machinery directive)<ul style="list-style-type: none">- piping and connecting devices for liquids of group 2 when $DN \leq 200$ whatever the pressure is, and when $DN > 200$ and $PS \leq 500$ bar- piping and connecting devices for gases of group 2 when $DN \leq 100$ or $PS \leq 3500$ bar- pressure accessories (e.g. filter housing) no higher than category I- fluid power actuators, pumps and control valves no higher than category I.1.2. due to exclusion of Article 1 paragraph 2 (j) (refer to guideline A-11)<ul style="list-style-type: none">- fluid power actuators (e.g. motors, cylinders, ...)- fluid power pumps- fluid power control valves (distributors).2. Included in the PED<ul style="list-style-type: none">- all accumulators (bladder, piston and diaphragm types)- pressure equipment not excluded by (1) above.
Reason	
Note	

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Guideline A-20

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (4); Annex I Sections 2.10 and 2.11

Question	When is a measuring or control system considered as a safety accessory under the PED?
Answer	<p>A measuring system alone cannot be considered as a safety accessory, as a safety accessory as defined in PED necessarily requires :</p> <ul style="list-style-type: none">- a measuring or detection function and- an activation function for correction, or shutdown, or shutdown and lockout. <p>In order for a control system to be classified as a safety accessory, it shall be designed and placed on the market as an ultimate means of protecting pressure equipment from exceeding allowable limits, and therefore it shall meet the corresponding essential requirements of Annex I, section 2.11.</p>
Reason	
Note	<p>It is foreseeable that some measuring or control devices could be inadvertently used as safety accessories. Where this is possible manufacturers should include an appropriate warning in their instructions for use.</p> <p>See also PED Guidelines A-25 and B-16</p>

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Guideline A-22

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (1)

Question	What guidance can be given regarding the application of the Directive to component parts of pressure equipment such as flanges, dished ends and nozzles ?
Answer	<p>If these component parts are incorporated to an item of pressure equipment, the relevant requirements of the directive will apply.</p> <p>However, these component parts do not meet the definition of pressure equipment in Article 2 (1), therefore they shall not bear the CE mark.</p> <p>It is the responsibility of the pressure equipment manufacturer to ensure that the component parts enable the pressure equipment to meet the essential safety requirements of the directive.</p> <p>See also PED Guideline A-08</p>
Reason	
Note	Another example of a component part is a split tee.

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Guideline A-23

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 (a)(i)

Question	Is the operational function of portable extinguishers covered by PED?
Answer	No, only the aspects of pressure-related hazards are covered. (see also PED Guideline A-01)
Reason	
Note [x]	

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Guideline A-24

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2, point (12)

Question	<p>According to the definition of Article 2 point 12 fluids may contain a suspension of solids.</p> <p>Is a system of solid pieces or liquid drops distributed in a gas still a fluid in the sense of the PED?</p>
Answer	Yes
Reason	
Note	A gas containing pieces of solids or drops of liquid is also to be considered a fluid.

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Guideline A-25

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (4), Article 2 (5)

Question	Are the sensors which are used as part of a safety system to protect pressure equipment covered by the PED?
Answer	<p>A sensor alone does not meet the definition of a pressure accessory, as per Article 2 (5) (see PED Guideline A-08), nor the definition of a safety accessory, as per Article 2 (4). Consequently, no CE marking (due to the PED) is to be put on the individual sensor.</p> <p>The conformity assessment procedure and essential safety requirements of the directive relate to the complete safety system. The requirements to the sensor may be different depending upon the safety concept employed (for example redundancy or fail safe, see Annex I point 2.11.1).</p>
Reason	
Note	The meaning of sensor is defined in the International Vocabulary of Metrology - Basic and General Concepts and Associated Terms, published by JCGM (Joint Committee for Guides in Metrology).

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**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Article 1 paragraph 2 (f)(i)

Question	Which rules apply for pressure equipment which also meets the definition of machinery in the machinery directive or which is intended to be installed in machinery?
Answer	<p>The Pressure Equipment Directive (PED) applies to pressure equipment in the sense of Article 2 of the PED in general, but also the exclusions of Article 1 paragraph 2 have to be considered.</p> <p>Article 1 paragraph 2 (f)(i) states that:</p> <p><i>"equipment classified as no higher than category I under Article 13 of this Directive and covered by one of the following Directives: [among others the machinery directive 2006/42EC] are excluded from the scope of this Directive".</i></p> <p>That means, when a product which is placed on the market is covered by the machinery directive, the exclusion of Article 1 paragraph 2 (f)(i) applies to any item of pressure equipment not higher than category I which is a part of that machine (i.e. the pressure equipment directive does not apply).</p> <p>The exclusion also applies to items of pressure equipment not higher than category I separately placed on the market, if their intended use is to be part of machinery which must be laid down in the operating instructions.</p> <p>In those cases, the essential safety requirements of PED are an appropriate way to obtain the required safety level regarding the pressure hazard.</p> <p>Pressure equipment of higher categories than category I is within the scope of the PED even when it is machinery in the sense of the machinery directive or intended to become part of machinery. See therefore article 3 of the machinery directive 2006/42/EC:</p> <p><i>"Where, for machinery, the hazards referred to in Annex I are wholly or partly covered more specifically by other Community Directives, this Directive shall not apply, or shall cease to apply, to that machinery in respect of such hazards from the date of implementation of those other Directives."</i></p> <p>The PED is such a "Community Directive" in the sense of Article 3 of the machinery directive 2006/42/EC.</p>
Reason	
Note 1	This does not prohibit the inclusion of CE-marked items of pressure equipment in machinery.
Note 2	The new machinery Directive 2006/42/EC no longer excludes boilers and pressure vessels from its scope.

Note 3	See also PED Guideline A-11 for exclusion of Article 1 paragraph (j).
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Guideline A-27

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (n)

Question	What is meant by the term mobile offshore unit?
Answer	<p>A mobile offshore unit is an offshore unit that is not intended to be placed permanently or long term on the field, but is designed to be moved from location to location whether or not it has a means of propulsion or of lowering legs to the seafloor (e.g. a unit used solely for exploration).</p> <p>For example, floating units intended for production, such as FPSO's (Floating Production, Storage and Offloading installations usually based on tanker designs) and FPP's (Floating Production Platforms based on semi-submersible vessels), are not considered to be mobile.</p>
Reason	
Note	<p>Items of pressure equipment specifically intended for mobile offshore units are excluded from the PED. However, items of pressure equipment intended to be installed on both FPSO's/FPP's and mobile offshore units are not excluded from the PED.</p>

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Guideline A-28

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (a)

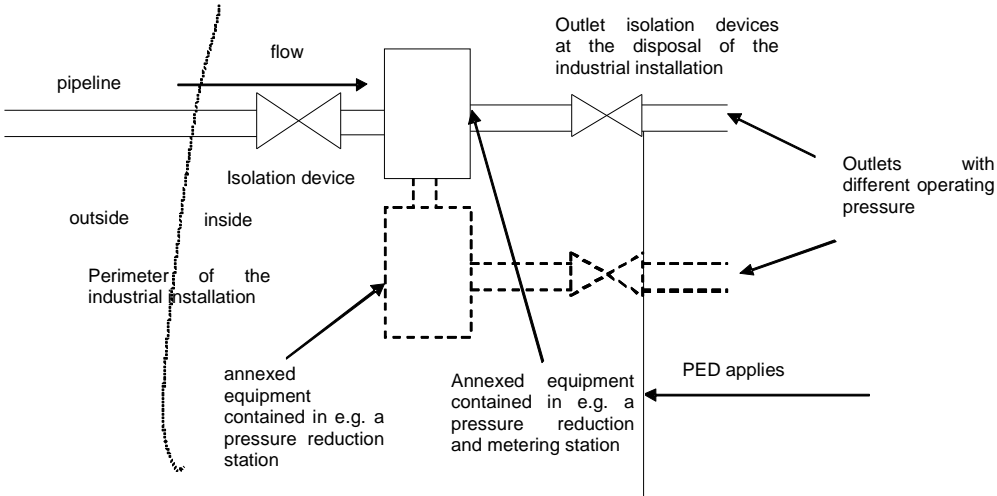
Question	Are conveyance pipeline stations such as compressor, reduction, metering stations covered by PED?
Answer	<p>These stations contain pressurised systems which may include compressors, heat exchangers, valves, filters, piping, etc. When they are specifically designed for pipelines, they are considered as annexed equipment, and as such are excluded from PED, according to Article 1 paragraph 2 (a).</p> <p>However, this exclusion does not apply to standard pressure equipment which may be found in these stations, see PED Guideline A-17.</p>
Reason	
Note [x]	

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Guideline A-29

**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Article 1 paragraph 2 (a)

Question	Where does the exclusion under Article 1 paragraph 2 (a) end when a pipeline crosses the perimeter of an industrial installation?
Answer	<p>The exclusion of Article 1 paragraph 2 (a) ends at the outlet isolation device of the annexed equipment contained in stations supplying the fluid to the industrial installation.</p>  <p>See also PED Guidelines A-28 and A-17.</p>
Reason	
Note	The installation beyond the outlet isolation devices detailed in the above diagram, is covered by the PED; this includes any pressure equipment, any piping between individual operating units or plants, or storage facilities.

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Guideline A-30

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (s)

Question	Is it permissible to affix both the CE marking for the PED and the π mark for the TPED on an item of pressure equipment?
Answer	<p>Yes</p> <p>This double marking proves that the item of pressure equipment complies with both directives, and can be used in both contexts without further assessment.</p> <p>A similar item bearing only the π mark could also be used for pressure purposes outside the scope of ADR/RID but consideration would need to be given to possible national regulations, or to PED if included in a PED assembly.</p> <p>Hence, if a manufacturer intends a product to be used in both contexts and designs and manufactures it accordingly so that it complies with both applicable Directives, it shall bear both markings, to the extent foreseen by each Directive (e.g. no CE marking for SEP equipment (Article 4 paragraph 3), and no π-marking for certain accessories).</p> <p>If the manufacturer of the product only foresees it to be used in the scope of one of the Directives, only one Directive applies and one marking (as far as applicable) shall be affixed (see also PED Guideline A-33).</p> <p>See also PED Guidelines A-14 and A-33.</p>
Reason	<p>While in principle, Article 1 paragraph 2 (s) of the PED excludes equipment covered by ADR/RID, it is not always possible for the manufacturer to know whether or not a particular item of equipment he manufactures will during its use come into the scope of these International Transport Agreements. This is in particular true for accessories, which may well be used for both purposes with no technical alterations. In such a case, it would only be possible after the user has taken the product into service, to know, which of the two Directives does not apply to the product. Until then, both Directives shall be considered to be applicable. Such double marking would not violate the provisions of Article 19 of the PED, as, up to the moment the product was placed on the market, it was not excluded from the scope of the PED. When at a later point in time the product is de facto used in the context of a transportation of dangerous goods, the fact that it bears the CE marking is insignificant.</p>
Note	

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Guideline A-31

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (a); Article 1 paragraph 2 (j)

Question	Are NGV (Natural Gas Vehicles) filling stations covered by the PED?
Answer	NGV filling stations are covered by PED. They are not excluded by Article 1 paragraph 2 (a) as annexed equipment designed specifically for pipelines. However, compressors are considered machinery as specified under Article 1 paragraph 2 (j) and thus may be excluded from PED (see PED Guideline A-11).
Reason	
Note	

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Guideline A-33

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (s)

Question	Can receptacles (in the meaning of Article 2 of Transportable Pressure Equipment Directive) that are « pi » marked be used as static pressure equipment without being CE marked?
Answer	Yes, provided the « pi » marked receptacle has been placed on the market and used as transportable pressure equipment, it can then be used permanently as static pressure equipment without being CE marked.
Reason	
Note 1	For static use the receptacle may be subject to national regulation dealing with conditions of use, installation and periodic inspection. (see also Article 3 of TPED 2010/35/EU- On-site requirements)
Note 2	The term “static pressure equipment” has to be understood as “pressure equipment under the scope of Pressure Equipment Directive”, even though these receptacles fall under Article 1 paragraph 2 (s) of PED.
Note 3	See PED Guideline A-30 for receptacles with double CE-mark and π-mark.

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Guideline A-34

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (s); Article 4 paragraph 1 (a) and Annex II

Question	Is a slurry tanker that is emptied by compressed air within the scope of the Pressure Equipment Directive?
Answer	Yes, if the PS of the compressed air is greater than 0,5 bar. The PS of compressed air and internal volume of the tank determine the category according to the table 2 of Annex II.
Reason	Slurry tankers are not excluded from the scope of the PED due to Article 1 paragraph 2 (s). They are not tanks intended for carriage of dangerous goods.
Note	“Slurry tanker” is used in farms to fertilize the fields with liquid manure. It is a tank on wheels usually pulled by a tractor in the fields and from one field to another. Compressed air facilitates the emptying of the tank. See also PED Guideline A-02.

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Guideline A-35

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2(s) and Article 4 paragraph 1(a)(i)

Question	Are propellant gas cartridges *) for fire extinguishers in the scope of the Pressure Equipment Directive?
Answer	These cartridges when transported separately are covered by ADR and consequently excluded from PED due to Article 1 paragraph 2(s). If such cartridge is used in a fire extinguisher (a PED assembly) it is in the scope of the PED directive . For further specific information see PED Guideline C-20.
Reason	
Note	See PED Guidelines A-01 and B-14
	*) The term used in the context of the ADR is different depending on size: propellant gas cartridges can either be (non-refillable or refillable) cylinders or (non-refillable) gas cartridges.

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Guideline A-36

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2(s); Article 4 paragraph 1(a), Annex II Table 2

Question	Are gas cylinders, which are placed on the market to be used for fixed fire extinguishing installations, covered by the Pressure Equipment Directive (PED) or by the Transportable Pressure Equipment Directive (TPED)?
Answer	If they are transported in a pressurized condition (e.g. to or from the filling station) they are covered by the ADR convention. Such gas cylinders are therefore excluded from the PED by virtue of Article 1 paragraph 2(s). Such cylinders are covered by the TPED.
Reason	
Note 1	They do not fall under the case of Article 4 paragraph 1(a)(i) second indent, which only refers to portable extinguishers.
Note 2	If they are not transported in pressurised condition but filled/refilled at the installation site they are covered by the PED.

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Guideline A-37

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2(i)

Question	Are items of pressure equipment such as manifolds, valves and piping used as well-control equipment and placed between a subsea well template and the processing platform for the oil and gas extraction and processing industry covered by the Pressure Equipment Directive (PED) ?
Answer	No
Reason	The exclusion of Article 1 paragraph 2(i) applies to all the well-control equipment listed therein, plus all equipment UPSTREAM in relation to that well-control equipment.
Note 1	In some cases, processing equipment is interposed on the seabed (e.g. separators) between the equipment listed in Article 1 paragraph 2(i) and the pipeline(s). In such cases, the processing equipment is covered by the PED.
Note 2	The PED in general, and Article 1 paragraph 2(i) in particular, does not distinguish between subsea and surface equipment.
Note 3	Specific solutions to essential safety requirements shall take account of the subsea use of this equipment, as a result of the hazard analysis.

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Guideline A-38

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (3); Article 1 paragraph 2 (b), Annex II Table 7 and Table 9

Question	Is piping in fire extinguishing systems in the scope of the Pressure Equipment Directive (PED)?
Answer	Yes
Reason	<p>1) Even though extinguishing gas (such as CO₂ or inert gas) piping will be only momentarily pressurised during activation of the extinguishing system and such piping is open at the discharge end, it will be exposed to a pressure PS above 0,5 bar.</p> <p>2) The piping of a sprinkler system is not considered to be covered by exclusion of Article 1 paragraph 2 (b), as it is not a network for the supply, distribution and discharge of water.</p>
Note 1	The location where the pressure PS is specified shall be such to be representative of the maximum pressure to which the piping will be exposed.
Note 2	Table 7 of Annex II is to be used for classification if content is CO ₂ , or inert gas. For sprinkler systems, table 7 is to be used for "dry piping installation", and table 9 for water.
Note 3	<p>The PED is limited only to pressure-related hazards. Function and performance of fire extinguishing systems are not covered by the PED.</p> <p>See also PED Guidelines A-09 and I-08.</p>

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Guideline A-39

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (f)

Question	<p>Article 1 paragraph 2(f) states that all "equipment classified as no higher than category I under Article 13 of this Directive and covered by one of the following Directives: [...]" are excluded from the scope of this Directive:".</p> <p>Does this exclusion also cover assemblies?</p>
Answer	Yes
Reason	<p>While the categories are defined in Article 13 for items of pressure equipment, the same categories are applied to and used in the context of Assemblies in Article 14. The Directive clearly defines a category for each assembly in Article 14 paragraph 2.6 (b) and requires that the applicable conformity assessment modules are used as per Article 14 paragraph 2.</p> <p>Consequently there is no problem to determine, which assemblies are excluded from the pressure equipment directive by Article 1 paragraph (f).</p>
Note [x]	

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Guideline A-40

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (5)

Question	What does "pressure-bearing housing" mean in the definition of pressure accessory in Article 2 (5) ?
Answer	<p>The term pressure-bearing housing refers to an envelope in which fluid under pressure ($PS > 0,5$) is contained or transported ($V > 0$).</p> <p>Therefore, a product whose only pressure-bearing surface is a flange or screwed fitting is not a pressure accessory but is a component of an item of pressure equipment under the Pressure Equipment Directive (PED) when used on such equipment.</p> <p>Typical examples of components which are not pressure accessories: Level Switch, Flush Mounted Pressure Transmitter and Thermowell.</p>
Reason	
Note	<p>This does not apply to such devices when employed in a safety function.</p> <p>See also PED Guidelines A-08, A-22, A-25 and G-19.</p>

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Guideline A-41

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2(e), Article 1 paragraph 2(s)

Question	Is a liquefied petroleum gas (LPG) or compressed natural gas (CNG) vessel (tank) permanently installed in an engine powered fork lift truck in the scope of the PED?
Answer	Yes, such an LPG or CNG vessel is in the scope of the PED and must be assessed according to its maximum allowable pressure and volume.
Reason	An engine powered fork lift truck is not a motor vehicle in the sense of Directive 2007/46/EC, so the exclusion of the Article 1 paragraph 2(e) does not apply.
Note 1	Transportable gas cylinders which can also be used for fork lift trucks are in the scope of ADR and as such are excluded from the PED, due to Article 1 paragraph 2(s).
Note 2	The same applies to similar machinery not covered by Directive 2007/46/EC.

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Guideline A-42

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (3), Annex I Section 2.2.1

Question	Is the discharge piping from a pressure safety accessory, which will be exposed to a pressure PS above 0,5 bar, in the scope of the Pressure Equipment Directive (PED) when exhausting to ambient atmosphere ?
Answer	Yes
Reason	Even though discharge piping will be only momentarily pressurised, and such piping is open at the discharge end, it fulfils the definition of piping in Article 2 (3).
Note 1	A silencer installed in the discharge piping is excluded according to Article 1 paragraph 2(p)
Note 2	The location where the pressure PS is specified shall be such to be representative of the maximum pressure to which the piping will be exposed.

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Guideline A-43

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (4); Annex I Section 2.10a and 2.11

Question	Are safety accessories as defined by the PED limited to equipment which prevents hazards due to overpressure?
Answer	<p>No.</p> <p>Safety accessories are devices designed to protect pressure equipment against exceeding the allowable limits (pressure, temperature, water level, ...). The suitability of the device or combination of devices is determined on the basis of the particular characteristics of the equipment or assembly.</p> <p>For example:</p> <ul style="list-style-type: none">a) A combination of a level gauge and a pressure relief systemb) A combination of a low level water gauge and the burner shutdown device installed on a steam boiler, including all elements of the safety logicc) A safety-related system detecting the rate of a chemical reaction to avoid a run away reaction and initiating corrective action. <p>See also PED Guidelines A-20</p>
Reason	
Note [x]	

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Guideline A-44

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 (a)

Question	Is breathing apparatus, such as SCBA (self-contained breathing apparatus, generally composed of a bottle, a regulator, a flexible hose and mouth or face piece) in the scope of the PED?
Answer	Yes, breathing apparatus shall be considered as an assembly in the sense of the PED, the items of which have to be conformity assessed according to their individual design pressure and other characteristics, and the assembly shall be subjected to a global conformity assessment.
Reason	Breathing apparatus is personal protective equipment and, as such, covered by the PPE Regulation (EU) No 2016/425. This does however not exclude it from the scope of the PED dealing with the associated pressure risk. See also PED Guidelines A-10, B-16.
Note	The same reasoning applies for diving breathing apparatus.

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Guideline A-46

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (e)

Question	Are items of pressure equipment installed on vehicles covered by the PED?
Answer	<p>Article 1 paragraph 2 (e) excludes from the scope of the directive "equipment intended for the functioning of vehicles defined by the following legal acts:</p> <ul style="list-style-type: none">– 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 (Framework Directive) (OJ L 263, 9.10.2007, p. 1).– 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 (OJ L 60, 2.3.2013, p. 1).– 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 (OJ L 60, 2.3.2013, p. 52). <p>For example, the following items directly contributing to the functioning of the vehicles are within this exclusion: tanks such as the auxiliary tanks for braking energy systems (which may be covered by the directive 2014/29/EU on simple pressure vessels that does not contain an exclusion for equipment installed in vehicles), LPG, CNG or hydrogen tanks, those hydraulic systems contributing to the functioning of the vehicle such as shock absorbers.</p> <p>An item of pressure equipment not contributing directly to the functioning of the vehicles is covered by the PED (e.g. air conditioning system, fire extinguisher, fixed LPG tanks in camping-cars for heating or cooking purposes only). For hydraulic systems see also PED Guideline C-13.</p>
Reason	
Note	Article 1 paragraph 2 (o) excludes pressure equipment consisting of a flexible casing. Tyres and airbags (air cushions) are within this exclusion.

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Guideline A-47

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (2); Article 13 paragraph 2, Article 19 paragraph 1

Question	Is it correct to have a spare bundle of a shell & tube heat exchanger CE marked separately from the CE-marking of the heat exchanger ?
Answer	No.
Reason	A shell & tube heat exchanger is one vessel with two chambers (PED Guideline B-19); it is not permissible to have one chamber of a vessel separately CE-marked. A bundle is a component of a heat exchanger, it is not an item of pressure equipment. See also PED Guidelines A-03, A-22, D-09 and G-19
Note [x]	

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Guideline A-48

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (f), Article 2 (4) and 2 (8), Annex I Section 2.2.1

Question	Are flame arresters and flash back arresters covered by the Pressure Equipment Directive (PED)?
Answer	<p>Yes, when the maximum allowable pressure PS they can be exposed to is above 0,5 bar, flame arresters and flash back arresters are covered by the PED and, in general, should be considered as pressure accessories.</p> <p>Such flame arresters are generally also covered by ATEX directive. In that case, they are excluded from PED if they do not exceed Category I (Article 1 paragraph 2 (f)).</p> <p>Specific solutions to essential safety requirements shall take account of the potential explosion, as a result of the hazard analysis; the essential safety requirements from ATEX directive need also to be taken into account.</p>
Reason	
Note 1	<p>In accordance with Article 2 (8), PS would be the maximum pressure for which the flame arrester housing is designed. PS is not necessarily the explosion pressure; in any case the explosion pressure shall be taken into account and may be considered as a load case following the hazard analysis (see Annex I section 2.2.1).</p>
Note 2	<p>In general, the flame arresters will be classified using Annex II Table 6.</p>
Note 3	<p>For the definition of flame arresters, see EN ISO 16852:2010.</p>

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Guideline A-49

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (l)

Question	Are fluid power accumulators intended for the operation of high-voltage electrical equipment covered by exclusion of Article 1 paragraph 2 (l)?
Answer	No, these accumulators are covered by the Pressure Equipment Directive.
Reason	The exclusion of Article 1 paragraph 2 (l) covers only the enclosures of the high-voltage electrical equipment and not the items of pressure equipment supplied with these high voltage electrical products. See also PED Guideline A-19.
Note [x]	

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Guideline A-50

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (j)

Question	Is the flare tip at the end of piping in the scope of the Pressure Equipment Directive (PED)?
Answer	The flare tip is covered by the PED, when the internal pressure exceeds 0,5 bar, in which case it is a pressure accessory.
Reason	
Note 1	A flare (or flare system) can be considered as two parts: the lower part, which essentially comprises discharge piping and the upper part, at the extremity of the piping (usually joined by a flanged connection), which is the flare tip, where the flame is ignited. In some designs a device is installed as part of the flare tip to regulate flow.
Note 2	The discharge piping is covered by the PED (see PED Guideline A-42).

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Guideline A-51

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (l)

Question	What is meant by high-voltage in the context of Article 1 paragraph 2 (l)?
Answer	High voltage means that the highest voltage in normal conditions, either between the two connectors or between one connector and the ground, exceeds the following values: <ul style="list-style-type: none">- for alternating current : 1000 V;- for direct current : 1500 V.
Reason	The Low Voltage Directive 2014/35/EU states in Article 1 that " This Directive shall apply to electrical equipment designed for use with a voltage rating of between 50 and 1 000 V for alternating current and between 75 and 1500 V for direct current".
Note [x]	

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Guideline A-52

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (f); Article 4 paragraph 1 (b), Annex II
Table 5

Question	Article 4 paragraph 1 (b) states that all pressure cookers shall satisfy essential requirements set out in Annex I ; Article 1 paragraph 2 (f) excludes from the scope of the Directive equipment classified as no higher than category I and covered by Directive 2014/35/EU (LVD). How to apply these two Articles to electrical pressure cookers?
Answer	All electrical pressure cookers with a maximum allowable pressure above 0,5 bar are also in the scope of the PED, irrespective of their product pressure-volume.
Reason	The pressure hazard of pressure cookers could be high if the design is not adequate. It is the reason why their design must be subject to a conformity assessment of at least one of the category III modules. This applies to electrical pressure cookers as well as externally fired pressure cookers. The 9 th recital of the Directive explains that the exclusion laid down in Article 1 paragraph 2 (f) is intended for equipment where the hazard due to pressure remains small.
Note [x]	

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Guideline A-53

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (j)

Question	Are dryer rolls for the paper industry covered by the PED ?
Answer	Yes
Reason	Even if thermal, dynamic and other non-pressure loads are important for the design of dryer rolls, for most pressure is a significant design factor when dimensioning the equipment.
Note 1	However some dryer rolls with a specific design such as the incorporation of many small holes may be excluded from the PED on the basis of Article 1 paragraph 2 (j) because pressure is not a significant design factor.
Note 2	Some dryer rolls are regularly ground to meet the process requirements. This loss of thickness can eventually oblige the user to reduce pressure loads according to a curve called "derating curve" provided by the manufacturer. See also PED Guideline A-11.

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Guideline A-54

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2(s)

Question	How to understand the exclusion in PED Article 1 paragraph 2 (s) related to equipment covered by the regulations on transport of dangerous goods?
Answer	This exclusion shall be read in the context of the scope of PED which applies to the design, manufacture and conformity assessment of pressure equipment. The exclusion only applies when the listed regulations on transport of dangerous goods includes construction and conformity assessment requirements for the equipment concerned.
Reason	
Note	In the context of the listed regulations on transport of dangerous goods, the term construction traditionally refers to design and manufacture.

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Guideline A-55

**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Article 1 paragraph 2 (f) and (j), Article 2 (3)

Question	Is turbine piping covered by the Pressure Equipment Directive (PED)?
Answer	<p>Turbine piping defined as “connecting lines between different casings of the turbine train and connecting line between two positions at a single turbine casing and internal piping” is evaluated as follows:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p align="center">Turbine piping <i>connecting lines between different casings of the turbine train and connecting line between two positions at a single turbine casing and internal piping</i></p> </div> <pre> graph TD A[The analysis of the loadings of piping] --> B{Pressure is a significant design factor} B -- No --> C[Exclusion art.1 § 2 (j)] B -- Yes --> D[Classification Annex II] D --> E{Piping category greater than I} E -- No --> F[Exclusion art. 1 §2 (f)] E -- Yes --> G[Category II or III: Piping covered by the PED] </pre>
Reason	
Note 1	The manufacturer has the ultimate responsibility to perform a hazard analysis and to determine the Directives applicable to the equipment.
Note 2	Inlet and outlet piping is not part of the turbine, so it shall be evaluated separately against PED.

Note 3	See also PED Guidelines A-11, A-26 and H-04.
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Guideline A-56

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 2.2.1

Question	Is equipment with a maximum allowable pressure $PS \leq 0,5$ bar in the scope of the PED if it is also designed to take account of an explosion pressure in an abnormal condition?
Answer	No
Reason	<p>The classification under the PED is based on PS in normal or foreseeable operating conditions.</p> <p>When the manufacturer classes an explosion as an incident, rather than as operation as intended, the explosion pressure shall not determine the classification according to the PED.</p> <p>When an explosion is considered included as part of the intended operation of the equipment, if the resultant pressure PS is greater than 0,5 bar then the equipment is covered by the PED.</p> <p>See also PED Guideline H-07.</p> <p>Examples of such equipment could be e.g. grain silos.</p>
Note [x]	

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Guideline A-57

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (7)

Question	Are vessels designed to operate under vacuum conditions in the scope of the PED?
Answer	No. However if there are other foreseeable conditions such as cleaning, transport, maintenance etc. where the vessel is subject to a pressure greater than 0,5 bar, the PED does apply. See also PED Guideline A-02, A-13 and H-07
Reason	According to Article 1 the PED directive applies to the design, manufacture and conformity assessment of pressure equipment and assemblies with a maximum allowable pressure PS greater than 0,5 bar. Further, Article 2 (7) defines pressure relative to atmospheric pressure, i.e. gauge pressure. As a consequence, vacuum is designated by a negative value.
Note [x]	

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B. CLASSIFICATION AND CATEGORIES

Guideline B-01

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 (d); Annex II point 3

Question	<p>There is a contradiction between the requirements in article 4 paragraph 1 (d) and those in Annex II point 3.</p> <p>Can pressure accessories be classified as “article 4.3” as indicated in the tables in annex II or must all of them satisfy the essential requirements as indicated in article 4 paragraph 1 (d) ?</p>
Answer	<p>In accordance with annex II point 3, pressure accessories have to be classified using the appropriate table(s) of annex II on the basis of their PS, their V and/or DN, and the group of fluids for which they are intended. Pressure accessories with low PS, volume and/or DN will therefore fall under the requirements of article 4.3. Such pressure accessories do not have to satisfy the essential requirements but only sound engineering practice.</p>
Reason	<p>Requirements in annex II are more precise and should prevail.</p>
Note [x]	

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Guideline B-02

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (11); Article 4 paragraph 1(c)

Question	The Directive uses the notion of DN (defined in Article 2 (11) for the classification of piping or piping accessories (cf. Article 3 paragraph 1(c)). How to apply the Directive for classifying the tubular products or accessories for which the notion of DN does not exist (copper tubes, plastic valves, pressure regulators, hollow sections...)?
Answer	<p>In the absence of DN in the standards, it shall be assumed that DN corresponds to the internal diameter in millimetres for circular products or the diameter in millimetres of the equivalent flow section for non-circular products.</p> <p>In case of pressure accessories this assumption is made regardless of the diameter of the connection (which is usually expressed by DN).</p> <p>For non-circular piping a comparative diameter must be determined from the existing cross-section. This comparative diameter must be used as the basis for classification.</p>
Reason	
Note [x]	

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Guideline B-03

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1; Annex II

Question	How should vessels and piping for superheated water be classified?
Answer	<p>Vessels for super-heated water are covered by article 4, paragraph 1(a)(i), second indent and Annex II table 2 applies.</p> <p>Piping for super-heated water is covered by article 4, paragraph 1(c)(i), second indent and Annex II table 7 applies.</p> <p>These statements are applicable to unheated vessels or pipes with temperatures > 110° C.</p> <p>Fired or otherwise heated vessels or piping with the risk of overheating that are intended for generation of steam or super-heated water at maximum allowable temperatures > 110° C are covered by article 4, paragraph 1(b) and Annex II table 5 applies.</p> <p>See also PED Guidelines B-13 and B-22.</p>
Reason	
Note [x]	

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Guideline B-04

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2(2) and Article 2 (3)

Question	Which type of pressure equipment is a heat exchanger ?
Answer	<p>Heat exchangers are considered to be vessels.</p> <p>As an exception, heat exchangers which consist of straight or bent pipes which may be connected by common circular header(s) made also from pipe are classified according to Article 2 (3) last sentence as piping if, and only if, the three following conditions are met:</p> <ul style="list-style-type: none">- air is the secondary fluid,- they are used in refrigeration systems, in air conditioning systems or in heat pumps,- the piping aspects are predominant. <p>For such heat exchangers with headers, the piping aspects are pre-dominant if $Cat_p \geq Cat_v$ where:</p> <p>Cat_p = Abstract category that would be applicable according to the PED if the heat exchanger were classified as piping using DN of the biggest header.</p> <p>Cat_v = Abstract category that would be applicable according to the PED if the biggest header, without the connecting piping, were classified as a vessel (i.e. for determining Cat_v, not the total volume V of the heat exchanger is taken into account, but only the volume V_H of the biggest header).</p> <p>When the result is $Cat_v > Cat_p$, the appropriate vessel classification shall be determined by using the volume of the entire heat exchanger (headers plus connecting tubes).</p> <p>The abstract category approach for determining the predominant aspect is limited to this specific application dealt with in Article 2 (3). The use of this concept outside this context is not supported by the directive and thus is not permissible.</p>
Reason	
Note	<p>Piping heat exchangers which do not meet the requirements of the exception are not to be classified according to the last sentence of Article 2 (3) as piping; they are to be classified as vessels. For example:</p> <ul style="list-style-type: none">- Heat exchangers which are not used in refrigeration systems, in air conditioning systems or in heat pumps, and for which the main purpose is to heat or cool the contained fluid by using the surrounding air;- Half-pipe coil or a similar « jacket » construction that heat or cool a vessel;

	- Pipe coil that is inside a vessel to heat or cool its content.
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Guideline B-05

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2(9), Article 4 paragraph 1 (b), Annex II table 5

Question	<p>Some warm water generators having a volume greater than 2 L are intended to generate water at a temperature less than 110 °C, but are fitted with a safety temperature limiter which is set to a temperature of 120 °C.</p> <p>What value of maximum allowable temperature, TS, shall be declared by the manufacturer?</p>
Answer	<p>If the equipment is designed to operate at a temperature up to, but not exceeding 110 °C, then 110 °C shall be the value of TS, as defined in Article 2(9), specified by the manufacturer. In this case, the temperature limiter shall be set to ensure that the water temperature will not exceed 110 °C.</p> <p>In the example given in the question, TS is 120 °C.</p> <p>See also PED Guideline B-12.</p>
Reason	
Note [x]	

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Guideline B-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1(a), Article 4 paragraph 2(a), Article 4 paragraph 2(b)

Question	How should fired or otherwise heated equipment be classified if a fluid other than water is being heated?
Answer	<p>This equipment shall be considered as vessel in accordance with article 4 paragraph 1(a) of the directive. It may also be considered as assembly in accordance with article 4 paragraph 2(b).</p> <p>The definition of assemblies in article 4 paragraph 2(a) concerns only the assemblies intended for generating steam or superheated water and does not concern equipment where a fluid other than water is heated.</p> <p>As a consequence, the classification shall not be made using Annex table 5.</p> <p>Examples of such equipment are oil heating furnaces, heat exchangers (refer also to PED Guideline B-04), and induction heaters.</p>
Reason	
Note [x]	<p>The essential requirements of annex I section 5 are applicable to such pressure equipment, if it presents a risk of overheating, unless the equipment is covered by Article 4.3.</p>

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Guideline B-08

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 13

Question	How should a vessel which is intended to contain water below 100 °C be classified when there is a marginal gas cover?
Answer	This type of vessel is classified according to Table 4, provided the gas is being continuously removed. Examples of such vessels are domestic warm water vessels, where entering air is accumulated on the top, and is normally being removed by operation.
Reason	
Note [x]	

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Guideline B-09

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 (a), Article 13 paragraph 2

Question	Which pressure and volume values must be used to determine the category of vessels used as gas-loaded accumulators, or other vessels with a flexible or non fixed membrane, given that these are made up of two chambers with different fluids?
Answer	The maximum allowable pressure (PS) of the vessel and the total volume of the vessel shall be used according to Article 13 paragraph 2.
Reason	
Note [x]	

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Guideline B-10

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 (a), Article 13 paragraph 2

Question	If a vessel contains a fluid which meets the conditions of the introductory paragraph to Article 4, paragraph 1(a)(i) (e.g. air) and a liquid which meets the conditions of the introductory paragraph to Article 4, paragraph 1(a)(ii) (e.g. water) - how shall the vessel be classified?
Answer	Article 13, paragraph 2 states that the classification shall be on the basis of the fluid which requires the higher category. The total volume (V) of the vessel, as defined in Article 2 (10), shall be used to determine the conformity assessment category, not the actual volume occupied by the individual fluids at any particular time. See also PED Guidelines B-08 and B-09.
Reason	
Note [x]	

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Guideline B-11

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 3; Annex II, Annex III

Question	When is it possible for a manufacturer to apply a module from a higher category and what are the consequences?
Answer	<p>Article 14 paragraph 3 states that manufacturers can choose to apply one of the procedures which apply to a higher category if available. The words ‘if available’ make it clear that if an item of pressure equipment was classified as category IV, then a module from a higher category is not available. Even for those tables in Annex II where categories III and/or IV are not listed, such procedures can be chosen.</p> <p>The procedures available are the modules or module combinations described under Article 14 paragraph 2.</p> <p>If a module (or a module combination) from a higher category is chosen, all the requirements of that module must be met, including the marking of the identification number of the Notified body.</p> <p>However, the use of a module (or a module combination) from a higher category does not change the actual classification of the equipment. The requirements of Annex I are those resulting from the actual classification unless the module itself gives specific requirements.</p> <p>See also PED Guideline B-18.</p>
Reason	
Note	When particular modules are explicitly referenced in the text of the directive, they cannot be substituted, as for example in Table 4 of Annex II.

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Guideline B-12

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (9)

Question	<p>For warm water boilers which are controlled by a temperature thermostat and protected by a safety temperature limiter, does the maximum allowable temperature (TS) mean:</p> <p>a) the maximum intended operating temperature under normal conditions as controlled by the thermostat; or;</p> <p>b) the temperature setting of the ultimate over-temperature safety device i.e. the limiter?</p>
Answer	<p>(b) is correct.</p> <p>Note: manufacturers must ensure that the equipment is sufficiently robust to deal with any residual heat after activation of the limiter.</p> <p>See also PED Guideline B-05</p>
Reason	
Note [x]	

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Guideline B-13

**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Article 4 paragraph 1 (a) (b) (c); Annex II

Question	How can manufacturers use Article 4 paragraph 1 to determine the appropriate conformity assessment Tables in Annex II?
Answer	<pre> graph TD Start[Vessel and/or piping containing any fluid] --> Q1{Is it fired?} Q1 -- No --> Q2{Otherwise heated?} Q1 -- Yes --> Q3{Intended for the generation of steam or super-heated water at temperatures greater than 110°C?} Q2 -- No --> Q3 Q2 -- Yes --> Q4{Risk of overheating?} Q4 -- Yes --> Q3 Q4 -- No --> Q3 Q3 -- No --> Q5{Vessel Piping} Q3 -- Yes --> Table5[Table 5] Q5 -- No --> Q6{Q (see below)} Q5 -- Yes --> Q6 Q6 -- No --> Tables12[Tables 1 & 2] Q6 -- Yes --> Tables34[Tables 3 & 4] Q6 -- No --> Q7{Q (see below)} Q6 -- Yes --> Q7 Q7 -- No --> Tables67[Tables 6 & 7] Q7 -- Yes --> Tables89[Tables 8 & 9] </pre> <p>Q. Does the vessel or piping contain liquid whose vapour pressure at the maximum allowable temperature is not more than 0,5 bar above normal atmospheric pressure?</p>
Reason	
Note [x]	

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Guideline B-14

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1(a)(i); Annex II Table 2

Question	Article 4 paragraph 1(a)(i) second indent, states that all portable extinguishers must comply with the essential safety requirements (ESRs) and be assessed according to Annex II, Table 2. In addition, Table 2 states that portable extinguishers must exceptionally be classified at least in category III. To what parts of a portable extinguisher do these requirements apply?
Answer	Article 4 paragraph 1(a)(i) and Annex II, Table 2 are applied to vessels and therefore the requirements are relevant to the cylinder (bottle) of the portable extinguisher. The other parts of the portable extinguisher which are pressure equipment are classified according to Article 4 and assessed according to the appropriate Tables.
Reason	
Note	<p>A portable extinguisher is an assembly referred to in Article 2 (6) and Article 4 paragraph 2(b). It shall be subjected to a global conformity assessment procedure of Article 14, paragraph 6 and it shall bear the CE marking as an assembly.</p> <p>The global conformity assessment procedure of Article 14 paragraphs 6 (b) and (c) is determined by the highest category applicable to the equipment concerned other than that applicable to any safety accessories. Because the cylinder (bottle) of a portable extinguisher is classified at least in category III the global conformity assessment procedure to be applied must be chosen among those laid down at least for category III.</p>

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Guideline B-15

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 (b), Annex II Table 5

Question	Does the classification of the pressure cookers in category III for the assessment of the design mean that also the essential safety requirements are linked to category III?
Answer	<p>No</p> <p>In accordance with Article 4 paragraph 1 (b), all the pressure cookers shall satisfy the essential safety requirements of the directive and shall bear the CE marking.</p> <p>The determination of the category of the pressure cookers regarding essential safety requirements following Article 13 paragraph 1 is made in accordance with table 5 of Annex II, i.e. :</p> <ul style="list-style-type: none">– Category I for the pressure cookers for which the product PS.V is not greater than 50 bar.L– Category II for the pressure cookers for which the pressure is not greater than 32 bar and the product PS.V is over 50 bar.L and not greater than 200 bar.L <p>The only differences in essential safety requirements with regard to category are stated in Annex I sections 3.1.2, 3.1.3, 3.2.2, 4.2c and 4.3 (see also PED Guideline B-11).</p> <p>The design assessment shall be made in accordance with a module of Category III or IV, i.e. modules B EU-type examination –production type/ design type, G, H or H1.</p>
Reason	
Note	When module B EU-type examination –production type / design type is used and no notified body is involved at the production phase, there shall be no marking of the identification number of the notified body.

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Guideline B-16

**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Article 2 (4); Annex I Section 2.11

Question	Are pressure regulators safety accessories in the sense of PED?
Answer	<p>In general pressure regulators are pressure accessories.</p> <p>Only in the case where they fulfil the definition of safety accessory and consequently have a specified safety function, they are to be considered safety accessories and they shall meet requirements of Annex I, section 2.11.</p> <p>When a pressure regulator is installed in an assembly where the design pressure of the system downstream of the device is lower than the pressure which can occur upstream of the device, and the system downstream is not protected by a safety accessory, the manufacturer of the assembly must ensure that this pressure regulator fulfils the requirements of a safety accessory.</p>
Reason	
Note	<p>It is foreseeable that some pressure regulators without specific safety function could be inadvertently used as safety accessories. The manufacturer of the pressure regulator must include an appropriate warning in their instructions for use.</p>

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Guideline B-17

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 13; Annex II point 3

Question	How are pressure accessories classified?
Answer	<p>The guiding factor should be based on the characteristic of the pressure accessory.</p> <p>In some cases both volume and DN are considered appropriate. In such cases, the pressure accessory must be classified in the highest category.</p> <p>In the case of valves, DN is normally the more appropriate.</p>
Reason	<p>It should be noted that some linguistic versions are unclear on this point.</p> <p>See also PED Guideline B-01.</p>
Note [x]	

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Guideline B-18

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 3 paragraph 4, Article 14 paragraph 3

Question	Article 14 paragraph 3 states that a manufacturer may choose to apply one of the conformity assessment procedures which apply to a higher (conformity assessment) category, if available. Does this mean that a manufacturer of pressure equipment covered by Article 4 paragraph 3, referred to as Sound Engineering Practice (SEP), can choose to apply Module A for example and hence apply a CE Marking?
Answer	No. Article 4 paragraph 3 explicitly prohibits CE marking of SEP pressure equipment. Article 13 paragraph deals with the classification of pressure equipment referred to in Article 4 paragraph 1 (not paragraph 3) and Article 14 sets out how the conformity assessment procedures should be determined for such equipment. Therefore Article 14 paragraph 3 does not apply to SEP pressure equipment and it does not provide any derogation to the provision in Article 4 paragraph 3 that prohibits CE marking of SEP pressure equipment.
Reason	
Note [x]	

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Guideline B-19

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (2), Article 4 paragraph 1 (a), Article 13 paragraph 1 and 2 , Annex I section 2.2.3b first indent, Annex I section 3.3(a)

Question	Do two housings, designed to contain fluids under pressure and which have a common boundary (e.g. separating wall), constitute two vessels, or two chambers of the same vessel and what requirements apply to such an item of pressure equipment ?
Answer	<p>They constitute two chambers of the same vessel.</p> <p>Technical requirements and conformity assessment procedure to be applied are determined as follows:</p> <ul style="list-style-type: none">- each chamber will be classified according to Article 4, paragraph 1 (a) and Article 13, paragraph 1. This establishes the technical requirements for each chamber.- the conformity assessment procedure to be applied to the whole vessel is based on the highest category of the chambers. <p>The technical requirements to be applied to the common boundary are those of the highest category of the two chambers.</p> <p>Hazard analysis of individual chambers must take account of the effect of any perceived hazard on the vessel as a whole.</p> <p>The marking shall include the limits of the two chambers even if the limits of one chamber do not exceed the limits of Article 4 paragraph 1 (a).</p>
Reason	<p>If a vessel is composed of a number of chambers each individual chamber must be first classified. The classification and the technical requirements of each individual chamber are based to Article 4 paragraph 1 (a) and Article 13 paragraph 1. The conformity assessment procedure to be applied to the whole vessel is determined by the highest category.</p> <p>Examples:</p> <ul style="list-style-type: none">- A refrigerant heat exchanger that has water in tube or shell side,- A valve body or a pipe with heating or cooling jacket that has a small volume.
Note 1	Sound engineering practice can be applied as technical requirement for a chamber that does not exceed relevant limit of Article 4, paragraph 1 (a).
Note 2	Refer to PED Guideline A-13 for those cases where maximum allowable pressure of a chamber does not exceed 0,5 bar.

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Guideline B-21

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I sections 2.2.1 and 2.3, Annex II Table 1 Annex II Table 6

Question	How does one define an unstable gas as referred to in Tables 1 & 6 of Annex II of PED?
Answer	<p>An unstable gas in this context is a gas that is able to decompose either slowly or explosively. In case of the former, the decomposition reaction usually occurs homogeneously over the entire volume whereas in case of the latter, the decomposition reaction – after having been triggered locally by an ignition source – propagates as a self-sustaining reaction front very fast through the entire volume filled with the decomposable gas.</p> <p>Gases which slowly decompose cause – over time – inevitably a slow increase in pressure if kept inside a gastight enclosure. Examples for such gases are</p> <ul style="list-style-type: none">- diborane (CAS No. 19287-45-7, UN No. 1911) and- germane (CAS No. 7782-65-2, UN No. 2192). <p>Gases which decompose explosively cause – after ignition – a sudden pressure increase if kept inside a gastight enclosure.</p> <p>Generally, these gases are classified as chemically unstable gases according to CLP Regulation (EC) No 1272/2008 as amended. Typical examples of such gases are:</p> <ul style="list-style-type: none">- acetylene (CAS No. 74-86-2, UN No. 1001 and UN No. 3374),- methylacetylene (CAS No. 74-99-7, UN No. 1060),- vinyl fluoride (CAS No. 75-02-5, UN No. 1860) and- ethylene oxide (CAS No. 75-21-8, UN No. 1040). <p>For further examples, see Table 35.1 in Section 35 of the UN Manual of Tests and Criteria.</p> <p>Only a few gases which are able to decompose explosively are not classified as chemically unstable according to the abovementioned CLP Regulation. The reason is that CLP classifies only flammable gases as chemically unstable whereas gases which are not flammable are not taken into account for classification as chemically unstable. Examples for such gases are</p> <ul style="list-style-type: none">- ozone (CAS No. 10028-15-6) and- dinitrogen monoxide (CAS No. 10024-97-2, UN No. 1070, synonyms: nitrous oxide, laughing gas).
Note	For unstable fluids in the sense of Annex I, section 2.2.1 see PED Guideline E-10

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Guideline B-22

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 (b); Annex I Section 5

Question	What does overheating mean in Article 4 paragraph 1(b)?
Answer	<p>Overheating in the sense of Article 4 paragraph 1(b) means exceeding the design temperature, for instance in the case of a failure of a safety system, or through operator error.</p> <p>Overheating is a hazard which cannot be eliminated through a safety system, but the risk can be minimized.</p> <p>However if the design temperature is chosen to take into consideration the highest temperature in all foreseeable conditions, the hazard of overheating does not exist.</p>
Reason	
Note	Design temperature will have to take account of the highest temperature of the material, and not only of the fluid content.

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Guideline B-23

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 and 3; Annex II

Question	How should a solar panel be classified?
Answer	<p>This pressure equipment shall be considered as a heat exchanger containing super-heated or hot water (with or without additives)</p> <p>Only when a solar panel in its entirety is designed to withstand the highest possible temperatures (stagnation conditions are within the normal operation range), a risk of overheating does not occur (see PED Guideline B-22). As a consequence the classification shall be made using table 2, Annex II (see PED Guideline B-13).</p> <p>See also PED Guideline B-04.</p>
Reason	
Note	A typical solar panel would be classified as Article 4, paragraph 3 equipment, due to the maximum allowable pressure and volume.

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Guideline B-25

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex II

Question	Is it possible to classify pressure equipment in a Category higher than the category resulting from the application of tables in Annex II ?
Answer	<p>No</p> <p>The classification of a pressure equipment is based on the following factors :</p> <ul style="list-style-type: none">- Type of equipment (vessel, piping, or pressure accessory),- Type of fluid : gas or liquid,- Group of fluid : group 1 or 2. <p>These factors determine the table of Annex II to be used. In the appropriate table, the maximum allowable pressure and the volume for vessels or the maximum allowable pressure and the nominal size DN for piping determines the Category of the equipment.</p> <p>Additionally the relevant notes below the tables shall also be considered in the classification.</p> <p>For example a valve sized as DN 25 can only be Sound Engineering Practice (Article 4 paragraph 3) according to Table 6 of Annex II and must never be CE-marked (see also PED Guideline B-17).</p>
Reason	
Note 1	The directive exceptionally requires use of a higher Category (e.g. for portable extinguishers), but even then there is no choice of category for the manufacturer.
Note 2	The classification of safety accessories is not covered by the tables of Annex II (see section 2 of Annex II)
Note 3	The PED gives flexibility for a manufacturer to apply a conformity assessment procedure from a higher category, if available (see PED Guideline B-11). For Sound Engineering Practice equipment see PED Guideline B-18.

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Guideline B-26

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2

Question	How to classify a vessel which contains a "non-suspended"-solid group 1 blanketed by a group 2 gas ?
Answer	It will be classified according to Annex II Table 2.
Reason	Article 2 (12) defines fluids as "gases, liquids and vapours in pure phase as well as mixtures thereof, fluids may contain a suspension of solids" (See PED Guideline A-24). Article 13 in connection with Article 4 only mentions gases, liquids and vapours for classification purposes.
Note [x]	The characteristics of the solid should be considered as part of the hazard analysis and do not influence the classification of the vessel.

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Guideline B-27

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 13 paragraph 1(a), 1(b) and 2

Question	How to classify pressure equipment containing one or more fluids when a chemical or physical reaction takes place therein ?
Answer	The classification shall be determined by the fluid which gives the highest category taking into account the starting, intermediate and final fluids, which could arise from all reasonably foreseeable conditions. See also PED Guidelines B-21.
Reason	
Note [x]	

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Guideline B-28

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (3), Article 4 paragraph 1 (c) and Annex II

Question	How shall a "piping" (as defined in Article 2 (3)), comprising pipes with different DN's, be classified?
Answer	For such a piping the maximum DN used for that item of pressure equipment shall be the basis for the classification. The manufacturer shall show the extent of piping for that item in the technical documentation.
Reason	
Note	<p>The term a "piping" as used above means an item of pressure equipment, and not an "assembly" as defined in Article 2 (6).</p> <p>A completed assembly may consist of several items of piping which may have different categories under the PED. The requirements for the global conformity assessment of assemblies are contained in Article 14.</p>

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Guideline B-29

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 2.10

Question	<p>A pressure vessel (PS > 0,5 bar) has a vacuum relief valve mounted to protect against collapsing (external pressure) when drained.</p> <p>Is this valve a safety accessory?</p>
Answer	<p>Yes, if a vacuum relief valve is designed to be fitted to pressure equipment (PS > 0,5 bar) where collapse due to vacuum is possible under reasonably foreseeable conditions. The valve is a safety accessory as defined by Article 2 (4) and must be assessed as such.</p> <p>See also PED Guideline A-43.</p>
Reason	
Note	<p>Only those valves with a direct safety function shall be classified as a safety accessory.</p>

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Guideline B-30

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (12), Article 13 paragraph 1(a) , 1 (b)

Question	How should a fluid containing a suspension of a solid be classified?
Answer	<p>This classification shall take account of the group of the fluid and of the group of the solid and of the group of the mixture if available.</p> <p>When the group of the mixture can be determined based on its classification in the CLP Regulation, this group is used for the classification.</p> <p>If not, the classification is based on the higher group of the fluid and the solid.</p> <p>See also PED Guidelines A-24, B-24, B-26, B-27.</p>
Reason	
Note	<p>When a solid is suspended in a fluid the risk of the release of solid particles by a pressure accident is substantially higher than in case of a solid block blanketed by a fluid (case of PED Guideline B-26). This supports the different conclusions of this guideline and PED Guideline B-26.</p> <p>When the solid particles are big enough that the release of solid particles cannot be expected in case of a pressure accident, then PED Guideline B-26 applies.</p>

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Guideline B-32

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (4), Annex I Section 2.3

Question	<p>A quick opening closure on a pressure vessel is “fitted with a device to prevent it being opened whenever the pressure or temperature of the fluid presents a hazard” in accordance with Annex I Section 2.3.</p> <p>Is such a preventive device to be considered as a safety accessory according to the Pressure Equipment Directive (PED)?</p>
Answer	No, according to the definition in Article 2 (4), a safety accessory is designed to protect pressure equipment against exceeding the allowable limits.
Reason	
Note 1	However, there are important safety implications for these devices which are covered by the essential safety requirement Annex I Section 2.3 of the PED. The manufacturer shall address this as part of the hazard analysis.
Note 2	This control equipment could be of a simple self-acting type or of a more complicated type, e.g. with a pressure transmitter and an actuator.

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Guideline B-33

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (4), Annex II

Question	When a safety accessory consists of a safety chain which itself includes "items of pressure equipment" (for example a valve or a cylinder), in which category shall these "items of pressure equipment" be classified?
Answer	<p>The single items of pressure equipment shall be classified according to their inherent characteristics (PS, V, DN, ...). However, their integration in the safety chain is conducted using a category IV conformity assessment module or a module for the category of the equipment for which the chain is specifically designed.</p> <p>When items of pressure equipment are integrated in a safety chain, they are considered as parts of the safety chain and therefore fall under the analysis of the hazards and risks of the safety chain, which include the pressure containment aspect of this item. When the analysis of the safety chain shows that the failure of an individual item of pressure equipment within the chain would have no detrimental effect on the safety function to be ensured (i.e. fail-safe), the requirements of a category lower than category IV for the said "item of pressure equipment" can satisfy the requirement resulting from the analysis of the hazards and risks of the safety chain.</p>
Reason	
Note 1	This does not preclude the use of standard CE-marked items of pressure equipment as parts of a safety chain.
Note 2	

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Guideline B-34

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (2), Article 2 (10), Article 13 paragraph 2

Question	How to determine the category of a hermetically sealed refrigeration compressor ?
Answer	<p>Hermetically sealed refrigeration compressors are pressure vessels.</p> <p>Usually, a compressor is composed of two chambers : the low pressure side PS1, the volume of which is V1, and the high pressure side PS2, the volume of which is V2. The equalizing pressure during standstill is PS3 (always higher than PS1).</p> <p>The category is the higher of the low pressure side (based on PS3 and V1) and of the high pressure side (based on PS2 and V2).</p> <p>See PED Guideline A-12.</p>
Reason	
Note 1	<p>The highest pressure cannot occur simultaneously on both sides; during standstill there is no direct communication between the 2 chambers, due to the presence of the valves; if a valve fails, the movement of the piston cannot create pressure.</p>
Note 2	<p>When a compressor has more than 2 chambers (i.e. several chambers constitute the low pressure side and several chambers constitute the high pressure side) the above volumes V1 and V2 are the sums of the low pressure and the high pressure chambers respectively.</p>

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Guideline B-35

**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Article 2 (3)

Question	Some piping is provided with a double envelope . How do these double envelopes have to be considered?
Answer	These double envelopes are to be considered as part of piping if the function of these double envelopes cannot be disassociated from the internal piping intended for the transport of the fluids.
Reason	The technical rules for the design and the manufacture of these double envelopes are usually the same as those for piping.
Note 1	The double envelopes of piping covered by this guideline are of two types: - those intended to insulate products transported by the internal piping by circulation of a fluid (vapour, coolant, glycol water, etc); - or those intended to ensure the containment of the product transported in the event of loss of tightness of the internal piping (double envelope for the transport of very toxic fluids for example).
Note 2	This guideline does not address heat exchangers (see PED Guideline B-04), or reactor loops.

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Guideline B-36

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2(k)

Question	Are hot blast stoves, which heat incoming cold air to a blast furnace by a regenerative process, covered by the exclusion in Article 1 paragraph 2 (k)?
Answer	Yes, they are excluded.
Reason	While recuperators and hot blast stoves operate in different ways, the first heating incoming cold air by heat exchange with another hot gas and the second by the firing of an alternative heat source, they can be considered similar for the purposes of exclusion under this article. Those hot blast stoves should be included under Article 1 paragraph 2 (k).
Note [x]	

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Guideline B-37

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (3) and Article 2(5)

Question	How to consider, for the application of PED, a condensate trap installed on piping?
Answer	<p>A condensate trap is intended to play an operational role which is the collection of condensates. Therefore it is generally considered as a pressure accessory, placed on the market with CE marking where appropriate.</p> <p>However, a condensate trap specifically designed and manufactured as a part of a given item of piping may be assessed as part of the whole piping and, in that case, is not subject to individual CE marking.</p>
Reason	
Note [x]	

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Guideline B-38

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (p)

Question	What kind of silencers is covered by the exclusion of Article 1 paragraph 2 (p)?
Answer	<p>This exclusion concerns only exhaust and inlet silencers that are subjected to a back-pressure lower or equal to 0,5 bar.</p> <p>Generally these devices are directly in contact with atmosphere.</p> <p>Silencers subjected to a back-pressure higher than 0,5 bar (for example outlet silencer of a booster) are submitted to the directive as pressure accessories.</p>
Reason	
Note [x]	

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Guideline B-40

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (4), (5) and (6)

Question	How to apply the Pressure Equipment Directive (PED) to a pressure accessory equipped with a safety accessory?
Answer	<p>The pressure accessory does not become a safety accessory by putting both accessories together. The combination does not expand the different functions of the individual items.</p> <p>Both accessories shall be subjected to appropriate conformity assessment and marking.</p>
Reason	
Note 1	A pressure accessory equipped with a safety accessory is not an assembly because it does not constitute a functional whole as per Article 2 (6). See also PED Guideline C-08.
Note 2	The global conformity assessment is conducted on the assembly, the functional whole, as placed on the market.

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Guideline B-41

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 13

Question	Where to find additional information on classification of fluids based on PED Article 13 as of 1 June 2015?			
Answer	As of 1 June 2015 classification of fluids is based on article 13 of PED 2014/68/EU. Article 13 paragraph 1 (a) lists the physical and health hazard classes and categories for substances and mixtures included in Group 1. The classification is based on the CLP Regulation (EC) No 1272/2008. The table below provides an overview of the hazard classes and categories and the corresponding hazard statements according the CLP Regulation including references to the criteria and label elements in the CLP Regulation.			
CLP hazard classes and categories (as listed in article 13 of PED)	Criteria according to Annex I to CLP	Hazard statement according to CLP	Label elements according to Annex I to CLP	
(i) unstable explosives or explosives of Divisions 1.1, 1.2, 1.3, 1.4 and 1.5;	Section 2.1.2	H200, H201, H202, H203, H204, H205	Table 2.1.2	
(ii) flammable gases, category 1 and 2 (note: this is also including chemically unstable gases);	Section 2.2.2	H220, H221, H230, H231	Table 2.2.3	
(iii) oxidising gases, category 1;	Section 2.4.2	H270	Table 2.4.2	
(iv) flammable liquids, category 1 and 2;	Section 2.6.2	H224, H225	Table 2.6.2	
(v) flammable liquids, category 3 where the maximum allowable temperature is above the flashpoint;	Section 2.6.2	H226	Table 2.6.2	
(vi) flammable solids, category 1 and 2;	Section 2.7.2	H228	Table 2.7.2	
(vii) self-reactive substances and mixtures, type A to F;	Section 2.8.2	H240, H241, H242	Table 2.8.1	
(viii) pyrophoric liquids, category 1;	Section 2.9.2	H250	Table 2.9.2	
(ix) pyrophoric solids, category 1;	Section 2.10.2	H250	Table 2.10.2	

(x) substances and mixtures which in contact with water emit flammable gases, category 1,2 and 3;	Section 2.12.2	H260, H261	Table 2.12.2
(xi) oxidising liquids, category 1, 2 and 3;	Section 2.13.2	H271, H272	Table 2.13.2
(xii) oxidising solids, category 1, 2 and 3;	Section 2.14.2	H271, H272	Table 2.14.2
(xiii) organic peroxides types A to F;	Section 2.15.2	H240, H241, H242	Table 2.15.1
(xiv) acute oral toxicity, category 1 and 2;	Table 3.1.1	H300	Table 3.1.3
(xv) acute dermal toxicity, category 1 and 2;	Table 3.1.1	H310	Table 3.1.3
(xvi) acute inhalation toxicity, category 1, 2 and 3;	Table 3.1.1	H330, H331	Table 3.1.3
(xvii) specific target organ toxicity – single exposure, category 1.	Table 3.8.1	H370	Table 3.8.4
Note 1	<p>Article 13 paragraph 1 (a) also states that "Group 1 comprises also substances and mixtures contained in pressure equipment with a maximum allowable temperature which exceeds the flash point of the fluid". The purpose of this provision is to ensure that the flammability hazard is properly addressed for those substances and mixtures which are not classified as flammable under the CLP Regulation (based on the temperature criteria of the CLP Regulation) but which are presenting this hazard due to the maximum allowable temperature (TS).</p> <p>For example, Heat transfer oils are not classified as flammable liquids according to the CLP Regulation because their flashpoint is above 60 °C (see CLP Regulation Annex I, Table 2.6.1 in Section 2.6 Flammable Liquids, 2.6.2 Classification criteria). However, if the maximum allowable temperature (TS) is above the flashpoint, the hazard of heat transfer oil corresponds to a Group 1 fluid.</p>		
Note 2	<p>"Chemically unstable gases, Category A and B" are included in CLP Hazard classes and categories according to Regulation N°1272/2008 amended by Regulation N° 487/2013, the corresponding hazard statements are H230 and H231</p>		
Note 3	<p>Please note that the CLP Regulation is subject to adaptations to technical progress and therefore the information in the table above should be checked with the version of the CLP Regulation in force at the time the equipment is placed on the market.</p>		
Note 4	<p>For questions related to the CLP Regulation please consult your national CLP-helpdesks. Further information on the CLP Regulation can be found</p>		

	on the European Chemicals Agency (ECHA) website: https://echa.europa.eu/ . On the ECHA website there is also a list with the contact details of all national CLP-helpdesks.
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C. ASSEMBLIES

Guideline C-03

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 2

Question	The effect of the derogation in Article 4 paragraph 2 from the introductory paragraph in the same article is not clear. In the circumstances, how should Article 4 paragraph 2 be applied ?
Answer	The assemblies set out in the 2 nd subparagraph (the derogation) in Article 4 paragraph 2 must comply with the essential requirements referred to in 2.10, 2.11, 3.4, 5(a) and 5(d) of Annex I of the Directive, even if all the items of pressure equipment comprising the assembly fall under Article 4 paragraph 3 (SEP).
Reason	This was the intention of the Member States which proposed the text and the intention of the Council when approving the text.
Note [x]	

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Guideline C-04

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 2(a); Annex I Section 5

Question	What shall be the minimum extent of the assembly "boiler" which shall be subjected to a global conformity assessment procedure in accordance with article 4 paragraph 2(a)?
Answer	<p>The assembly shall comprise, as a minimum, the boiler including all the pressure parts from the feedwater inlet (including the inlet valve) up to and including the steam and/or hot water outlet (including the outlet valve or, if there is no valve, the first circumferential weld or flange downstream of the outlet header).</p> <p>This includes all economisers, superheaters and inter-connecting tubing which may be exposed to a risk of overheating and are not capable of isolation from the main system by interposing shut-off-valves. Additionally included are the associated safety accessories and the tubing connected to the boiler involved in services such as draining, venting desuperheating, etc., up to and including the first isolating valve in the tubing line downstream of the boiler.</p>
Reason	
Note 1	This definition is based on standard EN 12952-1:2015 and is in conformity with annex 1 section 5 of the directive.
Note 2	This is a MINIMUM definition of the assembly.
Note 3	The ISOLATABLE superheaters, reheaters, economisers and related interconnecting tubing are not part of this minimum assembly. They can bear a CE marking separately or be integrated in the assembly if the manufacturer wishes so;
Note 4	The means of providing the boiler with feedwater and the means of preparing and feeding the fuel to the boiler are not part of this minimum assembly. They can bear a CE marking separately or be integrated in the assembly if the manufacturer wishes so.

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Guideline C-05

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 2, Article 19 paragraph 1, Annex II table 4

Question	Shall the assemblies defined in the derogation in Article 4 paragraph 2 subparagraph 2 (boilers intended for generating warm water at temperatures not higher than 110°C) carry the CE-marking?
Answer	Yes, in accordance with Article 19 paragraph 1, but the identification mark of the notified body is left out if the manufacturer has selected the use of module B EU-Type examination – design type.
Reason	The applied conformity assessment procedure is defined in table 4 of the Annex II, where the modules B EU-type examination – design type and H are given as alternatives (see note below table). In the case of module B EU-type examination – design type there is no notified body involved at the production control phase, and according to article 19 paragraph 4 no identification number of the notified body shall follow the CE marking
Note	Assemblies as defined in the derogation in Article 4 paragraph 2 subparagraph 2 (boilers intended for generating warm water at temperatures not higher than 110°C) to be CE-marked shall comprise, as a minimum, the boiler with its protection devices.

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Guideline C-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 6, Annex I Section 3.2.2 and 7.4

Question	Must a hydrostatic pressure test be carried out on an assembly and should the value laid down in Annex I section 7.4 then be followed?
Answer	<p>Using the global conformity assessment of Article 14 paragraph 6, each item of pressure equipment and the integration of the items of pressure equipment (Annex I, section 2.8) should be assessed.</p> <p>Annex I, first preliminary observation determines that the requirements of Annex I also apply to assemblies, if corresponding hazard exists.</p> <p>Each item of pressure equipment making up the assembly and referred to in Article 4.1 shall meet Annex I, section 3.2.2, and the pressure containment aspects for the connections/joinings should be assessed by appropriate methods, for example pressure test, NDT.</p>
Reason	
Note [x]	

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Guideline C-07

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 6 (a)

Question	Which conditions shall be used in the assessment of an item of pressure equipment referred to in Article 4 (1) without a separate CE-marking in an assembly being subject to the global conformity assessment procedure?
Answer	The conditions to be used to determine the category of this item shall be : - the volume or nominal size DN, as appropriate, of the item ; - at least the conditions PS, TS or group of fluid, for which the assembly is designed, which can be lower than the intrinsic conditions of the item. For safety accessories, point 2 of Annex II applies.
Reason	According to article 14 paragraph 6 (a) the global conformity assessment procedure shall comprise assessment of each item of pressure equipment making up the assembly and referred to in Article 4 (1) which has not been previously subjected to a conformity assessment procedure and to a separate CE marking. The assessment procedure shall be determined by the category of the item, which may be based on the conditions of the assembly.
Note [x]	

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Guideline C-11

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 48; Article 4 paragraph 2 , Article 14 paragraph 6 (a)

Question	If an item of pressure equipment complies with national pre-PED Regulations and is placed on the market on, or before, 29 May 2002, is it possible for it to be subsequently included in an assembly which is placed on the market after 29 May 2002?
Answer	<p>Only if it is shown that such pre-PED item of pressure equipment also complies with the requirements of the directive.</p> <p>If an assembly, as referred to in Article 4 paragraph 2, is placed on the market after 29 May 2002 then it must comply with the Directive. This requirement can only be met if the individual items of pressure equipment which form the assembly also comply with the Directive. This is achieved by using the global conformity assessment procedure as per Article 14 paragraph 6 (a), where required (see also PED Guideline C-07).</p>
Reason	
Note [x]	

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Guideline C-12

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 6; Annex I

Question	Do only the essential requirements given in Article 14 paragraph 6 apply to assessment of the integration of assemblies?
Answer	No, according to Annex I, first preliminary observation, the requirements of Annex I also apply to assemblies, where the corresponding hazard exists. Examples of other ESRs which may be relevant to assemblies : 3.1.2 Permanent joining, 3.2.2 Proof test (see PED Guideline C-06), 3.4 Operating instructions, 6 (a) and (d) Thermal expansion and vibration of piping, ...
Reason	
Note [x]	

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Guideline C-13

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2(6), Article 4 paragraph 2(b), Article 14 paragraph 6

Question	When several items of pressure equipment are assembled by a manufacturer to constitute a functional whole, and when one or several of those items are excluded from the PED by Article 1 paragraph 2, is the resulting whole considered as an assembly covered by the PED ?
Answer	<p>The definition of assemblies in Article 2(6) does not prohibit non PED pressure equipment (pressurised equipment excluded by Article 1 paragraph 2 to be included in an assembly covered by the PED.</p> <p>In the case of a PED assembly, the global conformity assessment required by Article 14 paragraph 6 does not include the assessment of non-PED items of pressure equipment.</p> <p>The assessment of</p> <ul style="list-style-type: none">- the integration of the assembly- the protection of the assembly against exceeding the permissible operating limits <p>shall be conducted in the light by the highest category of PED items of pressure equipment included, but it shall also take account of the characteristics of the non-PED equipment.</p> <p>See also PED guideline C-12.</p>
Reason	
Note 1	A hydraulic system of an item of machinery can meet the definition of Article 2(6), but as it is not intended to be put into service as such, it is not covered by Article 4 paragraph 2(b) (see PED Guideline C-10). On the other hand, a refrigeration system is considered to be a PED assembly even if some of the pieces under pressure are excluded from PED.
Note 2	In the sense of PED, an assembly is a pressurised system; a machine-tool, an earthmoving machinery, an agricultural tractor, a mobile crane is not, as a whole, a PED assembly.

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Guideline C-14

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (6), Article 4 paragraph 2, Annex II table 4

Question	<p>Article 4, paragraph 2 (last sentence) states that the manually fed assemblies must comply with certain essential requirements. Furthermore Article 2 (6) states that the assemblies shall be assembled by the manufacturer.</p> <p>Assuming that the manufacturer wants to use Module B EU-Type examination – design type in accordance with annex II, table 4, is it then sufficient that the manufacturer of the boiler gets an EU-Type examination – design type certificate or shall it be the installer (plumber), who assembles the protective devices to the boiler on site that must obtain the EU-Type examination – design type certificate?</p>
Answer	<p>As stated in PED Guideline C-05, Article 4 paragraph 2 (last sentence) assemblies comprise, as a minimum, the boiler with its protective devices.</p> <p>However, it is sufficient that the manufacturer of the boiler obtains an EU-Type examination – design type certificate, provided that he clearly specifies in his installation instructions the suitable protective device that shall be used in the assembly and how it shall be installed.</p> <p>The installation instructions shall be part of the EU-Type examination – design type examination.</p> <p>See also PED guidelines C-03 and C-05.</p>
Reason	
Note	<p>The module B EU-Type examination – design type assessment shall comprise essential safety requirements from Article 4 paragraph 2 last sentence as well as the operating instructions.</p>

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Guideline C-15

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 6, Annex I section 3.1.2

Question	How are the categories of permanent joints in an assembly to be determined ?
Answer	<p>The category of permanent joints between the items of pressure equipment of an assembly shall be determined individually, taking into account the effect of the joining on the integrity of each of the items to be joined.</p> <p>For example, the connection of a pipe to a vessel through a nozzle (already connected to the vessel) will, in general, be made according to the category of the pipe, provided that it does not affect the integrity of the vessel.</p>
Reason	
Note 1	<p>For assemblies, the directive defines a global conformity assessment procedure and determines the category to be followed for essential safety requirements related to design (as stated in Article 14 paragraph 6 (b), and for the assessment of the protection (as stated in Article 14 paragraph 6 (c)). For the other essential safety requirements applicable to the assembly (see PED Guideline C-12), in the absence of specific information in the directive for the category, it should be based on the categories of the items concerned.</p>
Note 2	<p>This is consistent with PED Guideline B-15, which makes a distinction between the category used for the assessment of the design, and the determination of the category regarding essential safety requirements.</p> <p>See also PED Guideline C-16 for the category of the global conformity assessment procedure.</p>

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Guideline C-16

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 6 (b)

Question	In Article 14 paragraph 6 (b) what does the “highest category applicable to the equipment concerned” mean?
Answer	<p>The category of each item of equipment making up the assembly is based on the conditions which can occur in the assembly, taking into account:</p> <ul style="list-style-type: none">- the volume or nominal size DN, as appropriate, of the item ;- at least the conditions PS, TS, type or group of fluid, for which the assembly is designed, which can be lower than the intrinsic conditions of the item. <p>The highest category determined from these conditions will then determine the assessment of the integration of the items in the assembly.</p> <p>See also PED Guidelines C-07 and C-15.</p>
Reason	
Note	<p>When determining the conformity assessment module(s) for an assembly, it is possible to assign to an item of pressure equipment a lower category than that to which it was originally assessed. As a consequence, an assembly which is covered by Article 4 paragraph 3 can include a CE-marked item of pressure equipment.</p>

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Guideline C-18

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 6, Article 19 paragraph 2, Annex I section 3.3

Question	When items of pressure equipment making up an assembly have not been previously subjected to an assessment and are therefore assessed at the same time as the assembly in accordance with the point a) of article 14 paragraph 6, shall they carry the information required in Annex I section 3.3?
Answer	No. In that case Annex I section 3.3 requires that an appropriate document (operating instructions for the assembly) includes the information specified in this section. It is reminded that the operating instructions shall clearly identify all items of pressure equipment making up the assembly.
Reason	As the product put on the market is an assembly, the requirements only apply to this assembly. This is confirmed by Article 19 paragraph 2.
Note 1	In conformity with Annex IV of PED, the declaration of conformity of the assembly must also contain the description of the items of pressure equipment constituting the assembly (See also PED Guideline J-08).
Note 2	This does not preclude the assembly manufacturer from marking appropriate characteristics on items of equipment which can be necessary for safe installation, operation or use and, where applicable, maintenance and periodic inspection.

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Guideline C-19

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 6

Question	If, during functional testing of an assembly at the user's premises by the manufacturer before placing it on the market, modification of an item of pressure equipment is necessary, shall this modification be carried out in accordance with PED 2014/68/EU?
Answer	YES It is necessary to assess any modification within the global conformity assessment of the assembly even if the declaration of conformity for the item was already issued. This implies checking the technical documentation of this item by the manufacturer and the notified body to verify whether the original design is impacted.
Reason	
Note	See PED Guidelines A-03 and A-04 for modification of pressure equipment in use.

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Guideline C-20

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1 paragraph 2 (s), Article 2 (6), Article 14 paragraph 6

Question	How to consider a transportable (TPED) pressure receptacle incorporated in an assembly being placed on the market under PED?
Answer	<p>Two different cases have to be considered:</p> <ol style="list-style-type: none">1) The TPED pressure receptacle will remain transportable pressure equipment which will be used as gas storage system and further on will be transported under transport regulations and filled in filling stations. It is not required to re-assess such TPED pressure receptacle against PED.2) The TPED pressure receptacle will permanently become part of a PED assembly (which means it will only be filled on-site). The change of status from transportable (TPED) to static (PED) pressure equipment requires the formerly TPED pressure receptacle to be categorized and re-assessed against PED. <p>However for either case the correct incorporation has to be assessed against PED, see PED Guideline C-13.</p>
Reason	
Note	See also PED Guideline A-33

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D. EVALUATION ASSESSMENT PROCEDURES

Guideline D-01

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex III, module G

Question	Is design approval by a notified body required under module G?
Answer	Module G does not explicitly require formal design approval by a notified body but it does require the manufacturer to submit to a notified body, technical documentation to enable the design, manufacture and operation of the pressure equipment to be understood. It also requires the notified body to examine the design and construction of the pressure equipment to ensure its conformity with the requirements of the Directive which apply to it. It is expected that the notified body will report the outcome of the examination of the design to the manufacturer and this will effectively constitute design approval.
Reason	As stated above, module G does not contain any explicit requirement for approval of the design by the notified body. However, it is understood that design approval is common practice for the types of pressure equipment to which module G would be applied. Module G does require that a notified body must examine the design of the pressure equipment and it is considered reasonable to expect the notified body to inform the manufacturer of the results of the examination.
Note [x]	

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Guideline D-02

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex III

Question	Can a manufacturer's existing QA certification which is in accordance with the standards EN ISO 9000 be taken into account by the notified bodies when approving QA systems for modules D, D1, E, E1, H or H1 of the PED?
Answer	A notified body when approving QA systems according to the modules D, D1, E, E1, H or H1 should take into account that the manufacturer already has ISO 9000 certification particularly if it has been certified by an accredited certifying organisation. However, the notified body has overall responsibility for ensuring that the QA systems satisfy the pressure equipment directive in particular on aspects in pressure equipment technology.
Reason	QA systems under the modules D, D1, E, E1, H or H1 must cover the technical aspects in relation to the pressure equipment.
Note [x]	

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Guideline D-03

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex III

Question	How to apply conformity assessment modules when some parts of an item of pressure equipment or some operations are sub-contracted ?
Answer	<p>There is only one manufacturer taking responsibility for each item of pressure equipment, who chooses one module (or combination of modules).</p> <p>The conformity assessment is related to an item of pressure equipment and not to the parts considered alone.</p> <p>It is the responsibility of the pressure equipment manufacturer to obtain from his sub-contractor the information and documentation required for the application of the module chosen. Depending on the module, the notified body could be required to visit the sub-contractor site, and it is the responsibility of the pressure equipment manufacturer to ensure access. If relevant work has been performed by different notified bodies at the sub-contractor site, it should be taken into account.</p> <p>See also "the Blue Guide on the implementation of EU product rules", chapter 3.1</p>
Reason	
Note [x]	

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Guideline D-04

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex III

Question	If a manufacturer chooses to apply module B for the design phase, in combination with another module for the production phase, does the manufacturer have to choose the same notified body for the design and production modules?
Answer	No. As requested by modules B (EU-Type examination - production type or design type) (Annex III, points 6 and 7 of the corresponding modules), the examination certificate shall annex a list of the relevant parts of the technical documentation and any other relevant information, which allow the requirements of the production modules to be applied. The number to be affixed to the pressure equipment is the number of the body involved at the production control phase (Article 19 paragraph 4).
Reason	
Note [x]	

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Guideline D-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 6, Annex III

Question	Can an assembly be composed of pressure equipment dealt with using different conformity assessment modules?
Answer	Yes, by application of Article 14 paragraph 6 (a). For example, the valves can have a module different from that applied to the vessel or the piping on which they are placed.
Reason	
Note [x]	

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Guideline D-07

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I, sections 1.2, 3.2.1 and 3.4, Annex III

Question	Shall the manufacturer of pressure equipment submit operating instructions as part of the conformity assessment by a Notified Body, and shall the Notified Body verify the content?
Answer	<p>Yes.</p> <p>PED requires the manufacturer to prepare operating instructions (see Annex I section 3.4) and supply them together with the equipment.</p> <p>Appropriate operating instructions are an essential safety requirement (ESR) and shall therefore be part of the conformity assessment procedure.</p> <p>When the Notified Body's duty includes performing or monitoring final assessment, it shall verify the existence of operating instructions and check their compliance with the Directive.</p> <p>When the Notified Body's duty includes design examination, it shall verify that the intended use and residual hazards are described, and are intended to be included in operating instructions.</p> <p>For modules based on quality systems, the existence of proper procedures to establish the various elements of the operating instructions shall be verified as part of the assessment of the quality system.</p> <p>See also PED Guideline H-03</p>
Reason	
Note [x]	

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Guideline D-09

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annexes I and III

Question	Is a manufacturer of components required to include a design examination, proof test and final inspection by a Notified Body if the components are intended for later use in PED equipment ?
Answer	No. Components are not items of pressure equipment, and therefore are not subject to individual conformity assessment procedures. For requirements on components to be used in pressure equipment, see PED Guidelines A-22 and G-19.
Reason	
Note 1	The final inspection including the proof test applies to the complete item of pressure equipment and not to the component itself.
Note 2	If the component is not designed according to a harmonised standard, design information may also be requested by the equipment manufacturer.
Note 3	There is no legal basis in PED for a Notified Body to issue a certificate of conformity for components.

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Guideline D-10

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2(18), Article 14, Annex I preliminary observation 3, Annex III

Question	There are many organisations that design pressure equipment that is subsequently fabricated by another organisation. Is it permissible for the company responsible for the design to obtain an EU-Type examination – design type certificate and the fabricator obtain an appropriate certificate for the manufacturing phase, e.g. Modules F (Conformity to type based on pressure equipment verification)?
Answer	<p>No</p> <p>Even if different organisations can be involved, the directive clearly indicates that there can be only one manufacturer who is responsible for design, manufacture and conformity assessment of the pressure equipment.</p> <p>The manufacturer may subcontract tasks in relation to design and/or manufacture but must retain overall control and have the necessary competence to take the responsibility for the product.</p> <p>See also PED Guideline D-03.</p> <p>See also the 'Blue Guide' on the Implementation of EU product rules</p>
Reason	
Note [x]	

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Guideline D-11

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (s), Article 4 Paragraph 1 (d) and Article 19

Question	Should the holder and the bursting disc which combine to produce a bursting disc safety device for use above 0,5 bar carry separate CE marking?
Answer	<p>No, only the complete safety device can be conformity assessed, and only one CE marking shall be affixed. The CE marking shall be on the holder which is less likely to be replaced.</p> <p>The declaration of conformity and instructions for use shall describe in an appropriate manner the components of the bursting disc safety device, and instructions for use shall identify which safety discs can be used on a specific holder.</p>
Reason	<p>Bursting disc safety devices are usually supplied as a set containing one holder and several spare discs. While both are components of a safety device and therefore should not be CE marked until assembled, for practical purposes the holder carries CE marking.</p> <p>See also PED Guideline A-22.</p>
Note [x]	

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Guideline D-12

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex III Module D, Module D1, Module E, Module E1, Module H and Module H1

Question	What information shall be included in the quality system approval notification document issued by the notified body concerning the scope of products?
Answer	<p>The document for all quality system modules shall contain sufficient information to clearly define the scope of products covered by the approval and where applicable, any limitations or restrictions.</p> <p>The following list of examples is not exhaustive:</p> <ul style="list-style-type: none">– Product description (e.g. pressure vessels, shell boilers, shut-off valves, safety valves, piping, assembly)– Product design code(s) applied (e.g. EN 13445, EN 12952, EN 12953, EN ISO 4126, EN 13480)– Materials (e.g. ferritic steels, austenitic steels, non-ferrous, metals, plastics)– Limitations/Restrictions, if applicable (e.g. dimensions, weight, performance) <p>In the case of modules D and E the initial quality system approval document shall include a listing of the relevant EU-type examination certificates as relevant.</p> <p>In the case of module H1, it is not required that the results of the EU design examination(s) are listed in the initial quality system approval document.</p> <p>For module H1, in addition to the requirements of module H, the notified body must examine the application and, where the design meets the provisions of the Directive which apply to it, issue an EU design examination certificate to the applicant.</p> <p>The certificate must contain the conclusions of the examination, the conditions for its validity, the necessary data for identification of the approved design and, if relevant, a description of the functioning of the pressure equipment or accessories. So the initial stage of H1 is an approval of the management system.</p> <p>In all cases the system must require the assessment of whether new or modified products will necessitate changes to the quality system, and that these are submitted to the notified body. The Notified Body shall inform the manufacturer if a reassessment of the quality system is required or if the new or modified products are within the scope of the existing system. In cases where no changes are required, a new quality system approval document does not need to be issued.</p>

	Any re-issue of the document shall update the list of type approval certificates.
Reason	
Note [x]	

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Guideline D-13

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I sections 3.2.1 and 3.2.2, Annex III Module F section 4.1 and Module G section 4.

Question	Is it permissible for the Notified Body to delegate the witnessing of the final inspection and proof test under module F or the proof test under module G to the manufacturer?
Answer	No In modules F and G, means and resources for carrying out the final inspection and/or proof test can be provided by the manufacturer to the Notified Body inspector, but the Notified Body shall be present during the final inspection and proof test.
Reason	
Note [x]	

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Guideline D-15

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 19 paragraph 4, Annex III Modules D/D1, E/E1, H/H1

Question	<p>A manufacturer has equipment in stock manufactured under a QA module (D/D1, E/E1 or H/H1). After expiry of the QA system certification the manufacturer switches from Notified Body "X" to Notified Body "Y" for the new certification.</p> <p>Can the manufacturer deliver equipment with Notified Body number "X" to his customers after the expiry date of the certificate?</p>
Answer	<p>Yes,</p> <p>Provided that the final assessment has been performed under the QA system certified (and surveyed) by Notified Body "X" before the expiry date of the system certificate.</p> <p>The manufacturer must keep records of which notified body approval his equipment was manufactured under. One solution is to include a date on the declaration of conformity.</p>
Reason	
Note [x]	

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Guideline D-17

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 19 paragraph 4, Annex 3 Section 4

Question	In the case that serially produced pressure equipment is assessed in accordance with module B (production type) + C2: shall the manufacturer affix the notified body's identification number to all pressure equipment even though the notified body has tested only a sample of the production?
Answer	Yes, all pressure equipment assessed in accordance with module B (production type) + C2 shall be marked with notified body's identification number indicating the involvement of the Notified body in the production control phase.
Reason	
Note [x]	

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E. INTERPRETATION OF THE ESSENTIAL SAFETY REQUIREMENTS ON DESIGN

Guideline E-01

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 2.2.2; Annex I Section 2.2.4

Question	<p>How should the condition related to the experimental design method without calculation in Annex I, Section 2.2.2 be interpreted stipulating that:</p> <p>Experimental design may be carried out without any calculation in accordance with Section 2.2.4 if the product of the maximum permissible pressure PS and the volume V is less than 6000 bar.L or the product PS.DN is less than 3000 bar ?</p>
Answer	<p>It shall be understood that :</p> <ul style="list-style-type: none">- the condition $PS.V < 6000 \text{ bar.L}$ is applicable to equipment for which the classification criterion in annex II is the volume (vessels, boilers and when applicable, accessories, etc.);- the condition $PS.DN < 3000 \text{ bar}$ is applicable to equipment for which the classification criterion in annex II is the nominal size (piping and when applicable, accessories, etc.).
Reason	
Note	Module B EU-Type Examination – design type is not applicable to equipment validated by experimental design.

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Guideline E-02

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 2.11.2 and 2.12, Annex I Section 7.3

Question	In respect of pressure limiting devices, does the PED require that the permitted short duration pressure surge of 1,1 PS be maintained when the equipment is exposed to external fire conditions ?
Answer	The 1,1 PS restriction does not apply to fire.
Reason	The requirement in Annex I section 2.12 for external fire refers to damage limitation, and does not serve the purpose of pressure limiting device in normal operation.
Note [x]	

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Guideline E-03

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I point 3 of preliminary observations, Annex I Sections 1.1, 2.1, 2.3 and 2.8

Question	Is leakage of pressure equipment covered by PED?
Answer	<p>Yes, whenever internal or external leakage (i.e. leakage to atmosphere/environment) is a hazard due to pressure, it is covered by the essential safety requirements of PED.</p> <p>All hazards arising from pressure shall be assessed for the intended use and the intended contained fluid(s), not only the requirement for sufficient strength but also internal/external leakage and all functional requirements related to pressure hazards (see also PED Guideline A-15).</p> <p>For pressure equipment where the detailed specific use is not known by the equipment manufacturer, the above consideration shall be addressed by the assembly manufacturer as per Annex I section 2.8.</p>
Reason	
Note	This guideline does not only apply to valves.

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Guideline E-04

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 14 paragraph 6(c) and Annex I, sections 1.3, 2.8, 2.9, 2.10, 2.11, 2.12 and 3.2.3

Question	Shall fire extinguishers be equipped with protective devices against over-pressure ?
Answer	<p>The prevention of danger due to overpressurization of fire extinguishers shall be achieved for all foreseeable circumstances either by eliminating the hazard by the design, or by providing a protective device.</p> <p>The risk of external fire shall be adequately considered according to the type of fire extinguisher.</p> <p>Due to the fact that portable extinguishers are very wide-spread and are also consumer products, their possible misuse must be carefully assessed. Written instructions alone cannot be regarded as sufficient.</p> <p>Examples</p> <p>In general the risk of over-filling is significant for cartridge type fire extinguishers with a water based content, which are manually (re-)filled. EN3-8 contains a dedicated overfill pressure test to verify the design for this risk.</p> <p>External fire will cause high risks for CO2 fire extinguishers (cylinders) due to the physical behaviour of CO2 at elevated temperatures. EN3-9 therefore prescribes a bursting disc safety device for this type of extinguisher.</p>
Reason	
Note [x]	

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Guideline E-05

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 2.1 and Section 2.2.4

Question	Is it possible that the sample to be tested for the experimental design method be produced without its thicknesses reduced by the corrosion allowance?
Answer	Yes, but the corrosion allowance as well as other characteristics are to be used as corrective factors to determine the minimum value for the test pressure, as stated in Annex I Section 2.2.4 a) second paragraph.
Reason	
Note [x]	

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Guideline E-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (4), Annex I Section 2.10, Annex I Section 2.11

Question	Does the essential safety requirement Annex I Section 2.10, which deals with protective devices, give the choice of the use of a safety accessory or of the use of a monitoring device
Answer	No. When, under reasonably foreseeable conditions, the allowable limits could be exceeded, a protective device in the form of a safety accessory must be provided, with the addition, where appropriate, of a monitoring device.
Reason	
Note	Annex I Section 2.11 sets out the essential safety requirements for the safety accessories that do not apply to monitoring devices. In particular, safety accessories shall comply with the essential safety requirements by appropriate design principles. This is in order to obtain suitable and reliable protection that does not rely on instructions for regular supervision during use.

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Guideline E-07

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 2.2.2

Question	Are the limits in Annex I Section 2.2.2 applicable to components of pressure equipment (like manhole covers, special flanges, etc)?
Answer	No. The limits specified in Annex I section 2.2.2 second indent concern the item of pressure equipment, not its components. The results of the experimental method applied to components are taken into account in the design of the item of pressure equipment. See also PED Guideline D-09.
Reason	
Note [x]	

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Guideline E-08

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 2.11.1

Question	In the 3rd indent of the essential safety requirement Annex I Section 2.11.1, there is the sentence “These principles include, in particular, fail-safe modes, redundancy, diversity and self-diagnosis.”, therefore do all safety accessories require to be for example “self-diagnosis”?
Answer	No. The sentence lists a number of separate possible design principles that could be used to obtain suitable and reliable protection; it is not an exhaustive list. “Self-diagnosis” is for example part of the list of separate possible design principles, not an additional requirement. The design principle to be used for any particular application should be based on the analysis required by Annex I preliminary observation 3 and could indicate that other methods are just as suitable or that more than one design principle should be used.
Reason	
Note [x]	

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Guideline E-09

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 2.11.2

Question	Is there a value defined for the acceptable limit of the short duration referred to in Annex I Section 2.11.2?
Answer	No. The duration corresponds to the time needed to reduce the pressure below PS. It depends on the dynamics of transient pressure surges that can be highly variable from one equipment to another. The pressure limiting device shall have appropriate characteristics (flow capacity, set pressure in relation to PS, etc) to relieve the pressure safely.
Reason	
Note [x]	

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Guideline E-10

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I, section 2.2.1, last indent

Question	<p>The last indent of section 2.2.1 of Annex I states that the decomposition of unstable fluids shall be taken into account for the loadings to be considered for the design of pressure equipment.</p> <p>Is this aiming at the explosive decomposition of unstable fluids?</p>
Answer	<p>No, this is aiming at the slow decomposition of unstable fluids occurring without ignition source and resulting in a slow increase in pressure.</p> <p>Examples for gases which slowly decompose are Diborane (CAS No. 19287-45-7, UN No. 1911) and Germane (CAS No. 7782-65-2, UN No. 2192). Such gases also have specific requirements with regard to the test pressure according to the dangerous goods regulations.</p>
Reason	<p>The slow decomposition of unstable fluids results – over time - inevitably in an increase in pressure. It therefore has to be considered when designing pressure equipment for such fluids.</p> <p>On the other hand, an explosive decomposition of an unstable fluid will occur only when an effective ignition source is present inside the pressure equipment*. This generally would not be the case under normal operating conditions. Please refer also to Guideline A-56.</p> <p>* Note: A heat source outside the pressure equipment may eventually initiate the decomposition of an unstable fluid inside the pressure equipment. However, this can happen only if the inside of the pressure equipment is heated to such a temperature that the decomposition temperature of the unstable fluid is exceeded and therefore actually is also an "inside" ignition source.</p>
Note	<p>For unstable gases in the sense of Annex II, Tables 1 & 6 see PED Guideline B-21.</p>

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**F. INTERPRETATION OF THE ESSENTIAL SAFETY REQUIREMENTS ON
MANUFACTURING**

Guideline F-01

**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Annex 1 Section 3.1.2

Question	According to section 3.1.2 (permanent joining) of Annex I, the third party must perform examinations and tests in order to carry out the approvals of operating procedures and personnel. Must the representative of the third party witness the whole permanent joining and testing process?
Answer	No, in accordance with and under the responsibility of the notified body or of a third party organisation recognised by a Member State, some practical tasks concerning the approval of joining operating procedures and personnel may be accomplished by a competent person of a manufacturer according to a quality system.
Reason	
Note 1	The Notified Body or Recognised Third Party Organisation must attend part of the different steps in the process for each procedure and for each person.
Note 2	See also section 5.2.5 of the “Blue Guide”

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Guideline F-02

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.2.1

Question	Which documents have to be available for the final inspection specified in Annex I Section 3.2.1?
Answer	<p>In addition to the documents required in the conformity assessment module, the following documents should be available as applicable:</p> <ul style="list-style-type: none">– evidence of qualification of NDT personnel relevant to the equipment category;– evidence of qualification of permanent joining personnel relevant to the equipment category;– data dealing with heat treatment (e.g. diagram of temperatures);– inspection documents for base materials and consumables;– procedures for assuring material traceability;– NDT test reports, including radiographic films;– test reports of destructive tests (e.g. test coupons);– reports on defects or deviations arising during manufacture;– data related to the preparation of component parts (e.g. forming chamfering);– evidence of qualification of permanent joining procedures; <p>These documents shall be available for final inspection whether that inspection is carried out by the manufacturer, the user inspectorate or the notified body.</p>
Reason	
Note [x]	

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Guideline F-03

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Sections 3.1.1 and 3.1.2

Question	<p>How to interpret section 3.1.1 of Annex I as far as the forming procedures are concerned?</p> <p>Does it impose for the manufacturer a qualification procedure for forming operations which will be validated by the Notified Body?</p>
Answer	<p>The Directive does not require for qualification of forming procedures in section 3.1.1 of Annex I, although it includes such a qualification for permanent joints in section 3.1.2 of Annex I.</p> <p>But there is an essential requirement about the preparation of the component parts (cf Annex I, point 3.1.1) and the manufacturer shall demonstrate in the technical documentation of the equipment that this requirement has been satisfied.</p> <p>Depending on the modules, the Notified Body may examine this technical documentation.</p>
Reason	
Note [x]	

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Guideline F-04

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.1.2

Question	Must a Notified Body take into account a procedure of permanent joints qualified by another Notified Body or a recognised third-party organisation?
Answer	<p>Yes, a Notified Body is not allowed to reject an approval of procedure of permanent joints made on the basis of a precise reference and applying competence in accordance with the PED.</p> <p>Nevertheless, it is its responsibility to verify that the joining process and the reference to the manufactured product are adequate.</p>
Reason	
Note [x]	

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Guideline F-05

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (13), Annex I Sections 3.1.2 and 3.1.3

Question	Do the requirements related to permanent joints given in Annex I Sections 3.1.2 and 3.1.3 apply also to permanent joints other than welded joints?
Answer	<p>The definition in Article 2 (13) also covers other permanent joints such as e.g. those produced by brazing, braze welding, expansion, gluing, frettage and riveting.</p> <p>For that reason, the requirements of Annex I Section 3.1.2 and 3.1.3 apply also for these types of joints.</p>
Reason	
Note	Removable expansion devices (e.g. expansion plug for sealing exchanger tubes) do not require destructive methods to be disconnected and therefore are not permanent joints.

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Guideline F-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (13), Annex I section 3.1.2

Question	In the absence of harmonized standards, what approach is to be followed for the approval of personnel carrying out permanent joining?
Answer	<p>In the absence of harmonized standards, the manufacturer shall refer to an existing document (draft standard candidate for harmonization, professional document, guide, recognised third party/notified body document, company document, etc.) or shall establish a specific document.</p> <p>Such a document shall define at least:</p> <ul style="list-style-type: none">– equipment to be used by the personnel;– degree of automatization of the process and the operations to be carried out by the personnel;– conditions to apply when making the test piece to be used for the test approval and results to be achieved;– range of validity and conditions for the duration of the validity. <p>See also PED Guideline F-01.</p> <p>For welding, see PED Guideline F-12.</p>
Reason	
Note [x]	

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Guideline F-07

**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Annex I Section 3.1.3

Question	Does the concept of non-destructive testing as mentioned in Annex I Section 3.1.3 also cover visual examination?
Answer	No. Consequently, section 3.1.3 in Annex I is not applicable to personnel undertaking "visual testing" as dealt with in EN ISO 9712:2012.
Reason	
Note [x]	

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Guideline F-08

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.1.2

Question	What are "the appropriate harmonized standards" in Annex I, section 3.1.2, last paragraph, which set out the examinations and tests for the approval of permanent joining procedures and personnel ?
Answer	<p>The appropriate harmonized standards are</p> <ul style="list-style-type: none">– the specific harmonized supporting standards, subject to verification of their suitability for the equipment being built. <p>or</p> <ul style="list-style-type: none">– the relevant harmonized product standards. <p>In both cases the relevant requirements of PED Annex I Section 3.1.2 are to be covered by the standard and these provisions are to be referenced in the individual standards' Annex ZA.</p>
Reason	
Note [x]	

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Guideline F-09

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Sections 3.1.1, 3.1.2, 3.1.3 and 7.2

Question	Does the Pressure Equipment Directive require accreditation for the manufacturer's testing laboratory that carries out non-destructive tests (NDT) or destructive tests (DT) of pressure equipment or of parts intended as pressure bearing parts of pressure equipment?
Answer	No. According to Annex I Section 3.1.3 the PED requires qualification for NDT personnel that carry out NDT of permanent joints. No accreditation is required for the manufacturer's NDT or DT laboratory or for the testing laboratory that the manufacturer may subcontract for NDT or DT.
Reason	
Note [x]	

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Guideline F-10

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.1.2

Question	If a manufacturer has a procedure for permanent joining approved by a notified body or other recognized third-party organization at one site (location), may that manufacturer use the same procedure at other sites for similar applications?
Answer	Yes, provided the other sites are under the same technical and quality management.
Reason	
Note	Standard EN ISO 15614-1 concerning specification and qualification of welding procedures states that an approval of a preliminary welding procedure specification (pWPS) obtained by a manufacturer is valid for welding in workshops or sites under the same technical and quality control of that manufacturer.

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Guideline F-11

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (13), Annex I Section 3.1.2

Question	In the absence of harmonized standards, what approach is to be followed for the approval of permanent joining procedures?
Answer	<p>In the absence of harmonized standards, the manufacturer shall refer to an existing document (draft standard candidate for harmonization, professional document, guide, recognised third party/notified body document, company document) or shall establish a specific document.</p> <p>Such a document shall define at least:</p> <ul style="list-style-type: none">– essential variables for the procedure that may affect the properties of the permanent joining;– inspection and testing to be carried out for the qualification of the procedure;– acceptance criteria;– range of validity.
Reason	
Note	<p>The directive states that “the properties of permanent joints must meet the minimum properties specified for the materials to be joined unless other relevant property values are specifically taken into account in the design calculations”.</p> <p>See also PED Guideline F-01.</p> <p>For welding, see PED Guideline F-12.</p>

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Guideline F-12

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.1.2

Question	In the context of approval of welding procedures and personnel, what is meant by “the third party must perform examinations and tests as set out in the appropriate harmonized standards or equivalent examinations and tests”?
Answer	Where the directive refers to equivalent examinations and tests it is required that suitable and sufficient tests are conducted to determine the same range of technological properties as those in the harmonized welding standards. Where similar tests have already been conducted that establish a particular property but the precise testing conditions vary from those in the above standard, there is no requirement to repeat the test. However, those technological properties which are not the subject of these similar tests shall be added to the testing schedule. If for example the impact property in the weld has already been tested but not the heat affected zone (HAZ), this latter remains to be tested.
Reason	
Note 1	The tests which are intended to determine the same range of technological properties are the non destructive and destructive tests required by the relevant harmonized welding standards.
Note 2	The additional tests shall be performed under the responsibility of a competent third party (see also PED Guideline F-01).
Note 3	The current version of ASME Boiler & Pressure Vessel code Section IX is an example of where properties are not sufficiently dealt with for some applications in order to comply by itself with the PED (for example: impact property in the HAZ; hardness test etc.). Furthermore, it does not require that the tests and examinations shall be performed under the responsibility of a third party (see also PED Guidelines F-01 and F-04).

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Guideline F-13

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 27, Annex I Section 3.1.3

Question	For pressure equipment in categories III and IV, can Non-Destructive Testing personnel holding qualifications other than those satisfying criteria of the harmonised standards (e.g. EN ISO 9712:2012 Non-destructive testing — Qualification and certification of NDT personnel) be approved by Recognised Third Party Organisations (RTPO) notified by a member state?
Answer	<p>Yes.</p> <p>NDT personnel certified under standards, other than the harmonised standards, may be approved by a RTPO provided it is satisfied that certification criteria equivalent to the harmonised standards have been met, and that the scope of certification is relevant to the testing of permanent joints in pressure equipment.</p> <p>A RTPO may sub-contract part of its work but shall keep the full responsibility and issue the approval. The approval of the personnel shall be done by a RTPO on an individual basis.</p>
Reason	
Note	Approval of an individual solely on the basis of a certificate issued by another body where no contractual arrangement exists with the RTPO does not fulfil the requirement of the Pressure Equipment Directive.

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Guideline F-14

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Sections 3.1.1 and 3.1.2

Question	Does any welding operation on a pressure bearing component have to require a qualification of the welding procedures and of the welders/welding operators?
Answer	<p>Yes, when the weldment can create a pressure hazard on the pressure bearing component.</p> <p>Examples of welding operation for which qualification is required according to Annex I section 3.1.2 include:</p> <ol style="list-style-type: none">1) Welding of a lifting lug on a pressure bearing chamber;2) Welding of an attachment to a valve body;3) Welding of reinforcing pads for nozzles;4) Repair by welding on a chamber before placing on the market;5) Major welding on a casting during production. <p>Examples of welding operations for which qualification is required according to Annex I section 3.1.2, unless the hazard analysis demonstrates that there is no pressure hazard, include:</p> <ol style="list-style-type: none">1) Minor welding on a casting during production;2) Buttering of a tubesheet;3) Overlay welding on a pressure chamber (anticorrosive, wear coating...).
Reason	
Note [x]	

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Guideline F-15

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.1.2

Question	Where approval of operating procedures for permanent joining is required by the PED and the approval is granted on the basis of a document other than a harmonized standard, should this approval explicitly mention the PED?
Answer	Yes. The approval certificate should also indicate the tests performed in addition to those in the document used for approval. If certificates do not include a reference to the PED, the application of the last para-graph of Annex I Section 3.1.2 shall be checked through the detailed examination of the WPQR (Welding Procedure Qualification Record).
Reason	
Note [x]	

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Guideline F-16

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.1.2 and 3.2.2

Question	Do the essential safety requirements apply to temporary components used by the equipment manufacturer either during the manufacturing or for the proof test of a pressure equipment?
Answer	<p>No, unless the joining of this temporary component, for example by welding, is likely to affect the safety of the equipment during its future operation.</p> <p>However, the manufacturer is responsible for the application of these components, which must have an adequate level of safety and meet the national labour regulation. Examples of temporary components: temporary closure for proof testing, lifting lugs welded on an additional thickness to be removed later.</p>
Reason	
Note [x]	

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Guideline F-17

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.2.2

Question	Is the manufacturer allowed to replace non permanent joining components (bolts, studs, nuts, washers, gaskets) at the end of the proof test without carrying out a new proof test?
Answer	Yes
Reason	
Note [x]	The manufacturer should ensure that the replacement components are equivalent to those specified in the technical documentation.

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Guideline F-19

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.1.2

Question	<p>The Essential Safety Requirements define in Annex I chapter 3.1.2 that the properties of welded joints shall meet the minimum properties specified for the materials to be joined unless other relevant property values are specifically taken into account by the design process.</p> <p>Do these requirements apply also for impact property values?</p>
Answer	<p>Yes, in general also the impact property values shall meet the specified minimum properties of the materials joined.</p> <p>Annex I, 4.1(a) refers to 7.5 regarding specific requirements of materials. To reach sufficient ductility for steel the impact value shall be at least 27 J at lowest operating temperature.</p> <p>Different values are acceptable if justified by the design solution.</p>
Reason	
Note [x]	

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G. INTERPRETATION OF THE ESSENTIAL SAFETY REQUIREMENTS ON MATERIALS

Guideline G-01

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.2 b)

Question	What is to be understood by harmonised standard as referred to in Annex I, section 4.2 b)?
Answer	<p>A harmonized standard in this context can be a harmonized product standard for an item of pressure equipment or an assembly which may be CE marked.</p> <p>It could also be a harmonized supporting standard, that contains technical data clearly indicating the field of application.</p> <p>In the case of a harmonised supporting standard for materials, presumption of conformity to the ESRs is limited to technical data of materials in the standard and does not presume adequacy of the material to a specific item of equipment. Consequently the technical data stated in the material standard shall be assessed against the design requirements of this specific item of equipment to verify that the ESRs of the PED are satisfied.</p>
Reason	
Note	Subsequent manufacturing processes affecting properties of the base material shall be taken into account when assessing the conformity of the pressure equipment to the material requirements of the directive.

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Guideline G-02

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.3, third paragraph

Question	What is a ‘competent body’ for the certification of the quality (assurance) systems of material manufacturers?
Answer	<p>A ‘competent body’ for certification of the quality systems of material manufacturers can be any third party body established as a legal entity within the Community which has recognized competence in the assessment of quality (assurance) systems for the manufacture of materials and in the technology of the materials concerned. Competence can be demonstrated, for example, by accreditation.</p> <p>See also PED Guideline G-07.</p>
Reason	
Note 1	A body not established as a legal entity within the Community, even if it has a recognition agreement through the International Accreditation Forum, does not comply with the requirements of Annex I section 4.3.
Note 2	A notified body may perform this task only if it has a recognized competence in the field of quality assurance, materials and related process technology. For this certification, the possible use of the notification number for PED is irrelevant.
Note 3	The certificate of quality system shall make reference to the legal entity established in the Community and its address.

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Guideline G-04

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.1.5

Question	What are the 'suitable means' for traceability referred to in Annex I Section 3.1.5 ?
Answer	<p>The objective of traceability is to avoid any doubt about the material specification used for a type of equipment. The suitable means shall be determined according to the type of equipment and its manufacturing conditions: for instance, complexity of the product, unitary or serial products, risk of mixing of material grades, etc.</p> <p>These means range from physical marking of individual items by stamping or colour coding to procedural methods. It is not always necessary for the identification of material to be linked to a specific delivery.</p> <p>The traceability system should be proportionate to the risk of mixing material grades during the manufacturing process. When there is no such a risk, the system may be limited to administrative means.</p>
Reason	
Note 1	The traceability system of the manufacturer shall allow him to provide to a market surveillance authority, upon request, the technical documentation related to a specific item of pressure equipment and the material certificate.
Note 2	When a national authority applies the safeguard clause for a particular product due to the material, the decision will relate to all products made from the same material grade specification, if the traceability system does not allow the identification to relate to (a) specific delivery(ies). The same will apply if a manufacturer withdraws non-compliant or defective products from the market.

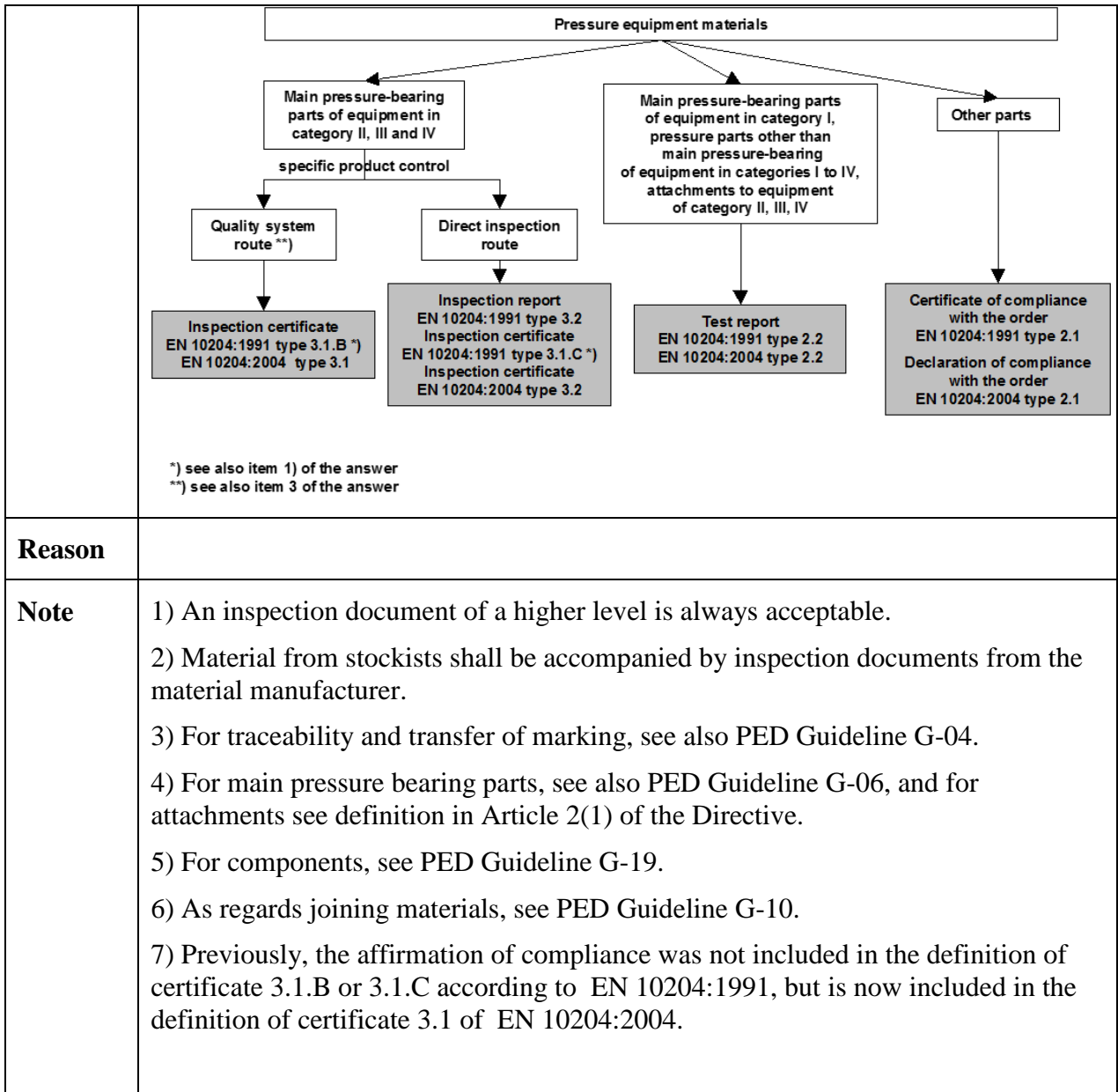
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Guideline G-05

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.3

Question	<p>Annex I Section 4.3 of the PED requires that the equipment manufacturer must take appropriate measures to ensure that the material used conforms with the required specification. In particular, documentation prepared by the material manufacturer affirming compliance with a specification must be obtained for all materials.</p> <p>How may these requirements be applied in terms of required inspection documents?</p>
Answer	<ol style="list-style-type: none">1. According to the 1st paragraph of Annex I, section 4.3, the material manufacturer shall certify, that the delivery complies with the requirement of the specification and the order he has received. This affirmation of compliance shall be stated on or appended to the certificate, whichever type is issued.2. According to the 2nd paragraph of Annex I, section 4.3 a certificate of specific product control is required for the main pressure-bearing parts of pressure equipment in categories II, III and IV. Account shall be taken of the requirements in 4.1 and 4.2 (a) of Annex I.3. According to the 3rd paragraph of Annex I, section 4.3 a distinction is made for the material manufacturer's fabrication system: where he has an appropriate quality (assurance) system certified by a competent body established within the Community, and having undergone a specific assessment for materials, an inspection document from the manufacturer is appropriate (see also PED Guidelines G-07 and G-16).4. The general requirements for all other cases are given in the first 2 paragraphs of Annex I, section 4.3.5. A scheme of the relevant inspection documents when following EN 10204:1991 or EN 10204:2004 is given in the following diagram:



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Guideline G-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.3

Question	The 2nd paragraph of section 4.3 of Annex I gives requirements for the main pressure-bearing parts. How are they defined?
Answer	<p>The main pressure-bearing parts are the parts, which constitute the envelope under pressure, and the parts which are essential for the integrity of the equipment.</p> <p>Examples of main pressure-bearing parts are shells, ends, main body flanges, tube sheet of exchangers, tube bundles.</p> <p>The materials for these main pressure-bearing parts of equipment of categories II to IV shall have a certificate of specific product control (see PED Guideline G-05).</p> <p>See also PED Guideline G-08 for bolting parts (fasteners).</p>
Reason	
Note [x]	

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Guideline G-07

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.3

Question	To what apply the terms “having undergone a specific assessment for materials” of third paragraph of Section 4.3 of Annex I ?
Answer	It is the quality (assurance) system of the material manufacturer which shall have undergone a specific assessment for materials (and not the competent body).
Reason	
Note 1	See also PED Guideline G-02.

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Guideline G-08

**Pressure Equipment Directive PED 2014/68/EU
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Guideline related to: Annex I Section 4

Question	What are the certificates required for bolting parts?
Answer	<p>The bolting parts (screw, nut, stud, etc) are joining components.</p> <p>When these components contribute to the pressure resistance, their materials shall fulfil the relevant requirements of Annex I, section 4.</p> <p>Regarding section 4.3 of Annex I, a bolt is not considered to be a main pressure bearing part unless its failure would result in a sudden discharge of pressure energy.</p> <p>When bolts are used as</p> <ul style="list-style-type: none">- main pressure bearing parts a certificate of specific product control is required (unless the item of pressure equipment itself is in Category I)- pressure bearing parts a test report is sufficient,- non pressure bearing part a certificate of compliance is sufficient <p>(refer to PED Guideline G-05).</p>
Reason	
Note [x]	

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Guideline G-09

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4

Question	Can a material manufactured according to a standard or another publicly available specification for which a European Approval of Materials (EAM) is available, but for which the inspection document only refers to the standard or the specification on which the EAM has been based, be used for pressure equipment manufactured under the PED ?
Answer	Yes, if the EAM does not have any additional technical specification compared to the standard or the specification. The inspection document must satisfy the requirements of section 4.3 of Annex I (see also PED Guideline G-05)
Reason	
Note [x]	

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Guideline G-10

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Sections 3.1.2; 3.1.5; 4.1; 4.2(a) and 4.3 1st paragraph

Question	<p>What are the requirements for the documentation and traceability of welding consumables:</p> <ul style="list-style-type: none">- Inspection document- Suitable procedures for traceability?
Answer	<p>Manufacturers of welding consumables shall provide inspection documents affirming compliance with the specification.</p> <p>Based on section 4 of Annex I and PED Guideline G-05 manufacturers of welding consumables shall provide test report "2.2" as an inspection document in accordance with the standard EN 10204.</p> <p>The traceability requirement of Annex I section 3.1.5 applies also for welding consumables. It can be maintained by procedural methods that cover receipt, identification, storage, transfer to production, temporary storage and use in production, availability of correct inspection documents at the final inspection (see also PED Guideline G-04).</p>
Reason	
Note	<p>Welding consumables are defined by trade name, designation and relevant EN classification standard. Inspection documents of welding consumables should give test results, for technical characteristics according to designation and classification standard, such as:</p> <ul style="list-style-type: none">- Chemical composition of welding filler metal or all-weld metal as appropriate- Tensile properties of all-weld metal: tensile and yield strength, elongation- Impact properties of all-weld metal at temperature according to designation. <p>Test results are based on non-specific inspection and testing. They can be given for example as typical values based on quality control tests.</p>

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Guideline G-11

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I

Question	Do the essential safety requirements of annex I apply to pressure equipment manufactured from plastic, GRP and other non metallic materials?
Answer	Yes.
Reason	
Note [x]	

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Guideline G-12

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4

Question	Shall welding consumables and other joining materials comply with harmonised standards, European approvals of materials or particular material appraisal?
Answer	No
Reason	The PED does not require that these materials fulfil the requirement of Annex I. Section 4.2b).
Note	The joining components referred to in PED Guideline G-08 (bolting parts) are not permanent joining materials.

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Guideline G-13

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I, Sections 4.1a and 7.5

Question	What is meant by "<i>Where appropriate</i>", in the context of Annex I Section 4.1a when it refers to the quantitative values of Annex I Section 7.5?
Answer	<i>"Where appropriate"</i> refers to steel, since this is the only material cited in Annex I Section 7.5. For impact properties see also PED Guideline G-17.
Reason	
Note [x]	

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Guideline G-14

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 7.1.2

Question	What does the exclusion of fine-grained steel in the first indent of Section 7.1.2 of Annex I of the directive mean?
Answer	Those fine grained steels are micro-alloyed steels for pressure purposes as, for example, those given in EN 10028-3 or in EN 10222-4. For these steels, the quantitative value of permissible membrane stress stated in Annex I Section 7.1.2 does not apply. However an equivalent overall level of safety must be achieved (refer to PED Guideline H-06).
Reason	
Note [x]	

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Guideline G-15

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I, section 4.2.b)

Question	<p>Annex I, section 4.2.b), first indent authorises the use of materials which comply with harmonized standards.</p> <p>Is this route still valid for a material for which the specification includes complementary requirements or improved properties to those of a grade in a harmonized EN material standard?</p>
Answer	<p>Yes.</p> <p>Provided all the value limits stated for the particular grade in the harmonized EN material standard are met.</p> <p>Moreover the material manufacturer shall affirm compliance with both the harmonized standard and the additional specification, as requested by Annex I, section 4.3.</p> <p>See also PED Guideline G-01.</p>
Reason	
Note [x]	

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Guideline G-16

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.3

Question	The PED considers the case of a material manufacturer who "has an appropriate quality-assurance system, certified by a competent body established within the Union and having undergone a specific assessment for materials". How should this requirement be understood in practice?
Answer	<p>In practice, this requirement is satisfied when the material manufacturer has a quality assurance system of at least EN ISO 9001 type, certified by a competent body (according to the definition given in PED Guideline G-02) established as a legal entity within the European Community, and when the field of validity of the certification specifies production of material indicating the relevant material types.</p> <p>The specific assessment of the quality system shall properly cover all the relevant processes and material properties referred to in the material specifications, and attested in the material certificates.</p> <p>A single reference to section 4.3 of Annex I of PED is not sufficient to validate the quality assurance system of the material manufacturer. The reference document for quality assurance system which has been used shall be identified. Reference to the PED in the quality assurance system certification is not a mandatory requirement.</p>
Reason	
Note	See also PED Guidelines G-05, G-07 and I-05.

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Guideline G-17

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.1a, Annex I Section 7.5, Annex I Preliminary observation 3

Question	What approach can be used to decide if a steel grade selected for a pressurized part requires specific impact properties?
Answer	<p>1. The philosophy of the approach outlined below takes account of the hazard analysis performed by the manufacturer in relation to the toughness necessary for the identified failure modes (e.g. brittle fracture) in the finished pressure equipment.</p> <p>2. The exception concerns “ductile materials which are not subject to a ductile/brittle transition at the foreseeable conditions the equipment will be exposed to”.</p> <p>Examples of such materials are: austenitic stainless steels.</p> <p>Some design codes provide specific rules for the avoidance of brittle fracture that takes account of the anticipated or actual operating conditions prevailing, e.g. material, thickness, temperature, etc. Where the application of these rules indicate that the material will not behave in a brittle manner and all aspects of the chosen design code have been followed, sufficient confidence is gained in the behaviour of the material not to require specified impact properties. When these design codes are applied also other items need to be taken into account (see item 3 below).</p> <p>3. The justification for omission of the impact properties shall be based on the most adverse possible combination of all elements of the steel grade specification, such as:</p> <ul style="list-style-type: none">- the full permissible range of the chemical analysis,- the extreme mechanical properties, <p>as documented and permissible in the specification and not on the values of the actual deliveries.</p> <p>The consequence of the worst combination of chemistry must be considered because the specified range of chemical analysis for some materials could result in brittle behaviour. Where appropriate, such materials could be accepted if the chemical composition and mechanical properties are restricted in the purchase order and in the particular material appraisal to such levels that, from experience, do not give rise to brittle fracture.</p> <p>EXAMPLES include Manganese-Carbon ratio, Carbon, Sulphur, Phosphorus content, Aluminium to Nitrogen ratio.</p> <p>Other restrictions may include:</p> <ul style="list-style-type: none">- avoiding inter-metallic phases,- avoiding large grain sizes,

	<p>- placing limits on mechanical properties.</p> <p>Manufacturers and Notified Bodies must demonstrate that they have taken such factors into account in documenting the necessary PMAs.</p> <p>4. Furthermore subsequent manufacturing processes affecting the impact properties of the material shall be taken into account, when making the above assessment.</p> <p>Following all the rules in the design code should generally ensure that this requirement is met; however additional requirements may also be necessary to ensure that all relevant ESRs have been met.</p> <p>EXAMPLES: forming, heat treatment, welding.</p> <p>5. However, verification testing of specified impact property may not be required in cases where there is no doubt about the fulfilment of the essential safety requirement on sufficient toughness to avoid brittle fracture.</p> <p>EXAMPLES: Most Austenitic Stainless Steels.</p>
Reason	<p>Impact property values are the most common way to fulfil the essential safety requirement of toughness specified in Annex I Section 4.1a.</p> <p>Although impact testing of materials is the commonly accepted route to demonstrate materials have specified minimum toughness, it is not the only route.</p> <p>EXAMPLES: Restrictions on operating temperatures, Fracture mechanics.</p>
Note 1	Every harmonized European steel standard has specified impact properties.
Note 2	<p>A “history of safe use” alone cannot replace the need for the specification of impact properties. This notion is inextricably linked to a particular code, set of safety factors and safety philosophy and can therefore not necessarily be transferred to a different safety philosophy/concept.</p> <p>Following the requirements of an established design Code alone does not provide a “presumption of conformity” and a simple claim by the manufacturer that they “have followed the specified Code” is not in itself justification. Established Codes may be used as the basis for meeting the essential safety requirements however it is necessary to compare the selected Code requirements to the essential safety requirements and identify and address any deviations. This requires those using the Code to have a good understanding of the principles involved, rather than mechanistic following of rules.</p>
Note 3	The term "hazard analysis" refers to Annex I, preliminary observation 3. See also PED Guideline H-04

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Guideline G-18

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.1 and Annex I Section 7.5

Question	Do the essential safety requirements on materials specified in Annex I section 4.1 and section 7.5 apply to the base material or to the pressure equipment?
Answer	They apply to the pressure equipment in its entirety, i.e. also to the heat affected zones of a weldment, but not to the non pressure-bearing parts.
Reason	
Note	Subsequent manufacturing processes affecting properties of the base material shall be taken into account when specifying the properties of the base material, as per Annex I, sections 3.1.1, 3.1.2 and 3.1.4 of PED.

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Guideline G-19

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2(1), Annex I, sections 3.1, 4.3 and 7.2

Question	Which requirements apply to components, such as dished ends, bolts, flanges, welded fittings etc, which are placed on the market as such?
Answer	<p>To be incorporated into an item of pressure equipment, components which are manufactured from materials such as plates, coils and bars shall meet all the relevant essential safety requirements related to the manufacturing process used ; for instance in the manufacturing of welded dished ends, sections 3.1 and 7.2 of Annex I are relevant in addition to section 4.</p> <p>In order to prove the conformity to the PED of the pressure equipment containing the component the equipment manufacturer will need relevant documents from the component supplier :</p> <ul style="list-style-type: none">- Material certificates (of the plates, coils, bars ...), <p>and as relevant :</p> <ul style="list-style-type: none">- Welding procedure approvals,- Welder/welding operator approvals,- Non Destructive Testing operator qualifications,- Non Destructive Testing reports,- Destructive Testing reports,- Forming and heat treatment information, <p>etc.</p> <p>This information may be in the form of a component certificate.</p> <p>The requirement in Annex I section 4.3 is not however intended for a component manufacturer, who is not a material manufacturer in the context of PED, even if he modifies the mechanical properties of the material.</p> <p>Forgings (including forged flanges), castings and seamless tubes are generally considered to be materials. Fittings made from these “materials” without subsequent welding or other process which could alter the material characteristics are also considered to be materials. As regard welded tubes, see PED Guideline G-25.</p>
Reason	
Note	<p>Current practice may require components to be delivered with certificates based on standard EN 10204 Metallic products. Types of inspection documents or corresponding requirement when they are placed on the market as such. The PED does not preclude supplying such certificates with components.</p> <p>See also PED Guidelines A-09, A-22, D-03, G-05, G-06, G-08, G-18 and G-</p>

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Guideline G-21

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 15; Annex I Section 4.2b

Question	May a notified body perform a particular material appraisal (PMA) at the request of a material manufacturer?
Answer	No If the material manufacturer wants to have his material approved by a notified body the proper way to proceed is to request European approval for material in accordance with Article 15, if the material is not covered by a European harmonised standard under the PED and cited in Official Journal of the European Union (OJEU).
Reason	
Note 1	See PED Guideline I-13 for further information regarding PMA.
Note 2	For further guidance about the process and the content of a PMA refer to the Guiding principles in document PE-03-28 approved by the Working Group Pressure (downloadable from the PED website).

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Guideline G-22

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Sections 4.1 and 7.5

Question	What is meant by the following two terms: "<i>Other values</i>" and "<i>other criteria</i>" in the context of Annex I Section 7.5?
Answer	<p><i>Other criteria</i> in Annex I Section 7.5 refers to further criteria depending e.g. on the type/dimension/product form and resistance level of steel or mode of operation, which shall be taken into account to prove its toughness and ductility.</p> <p><i>Other values</i> in Annex I Section 7.5 refers to those other criteria which can result in more demanding values for elongation or bending rupture energy or specified values for additional properties.</p> <p>See also PED Guideline H-06 for the application of Annex I Section 7.</p>
Reason	
Note [x]	

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Guideline G-23

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4

Question	With which requirements of Annex I section 4 does the material used for a gasket have to comply?
Answer	The main function of a gasket is to ensure tightness. Its material needs to fulfil only the relevant requirements of Annex I Section 4.1, 4.2 (a) and the first paragraph of 4.3.
Reason	
Note [x]	

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Guideline G-24

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Sections 2.2.3 and 4.3

Question	<p>Annex I Section 4.3 of the Pressure Equipment Directive (PED) requires that the material manufacturer must prepare documentation affirming compliance with the specification required by the equipment manufacturer.</p> <p>Does this requirement mean that material properties used in the design of the pressure equipment must be based on those affirmed (guaranteed) by the material manufacturer?</p>
Answer	Yes, the material properties used in design of the equipment, e.g. yield strength and impact properties, must be based on those of the specification which are affirmed by the material manufacturer.
Reason	
Note 1	This does not mean that the values of the specification need to be written on the certificate. It is sufficient for the material manufacturer's certificate to make reference to the specification where the appropriate values are included. See also PED Guideline G-17 for the need of verification testing of specified impact properties.
Note 2	See also PED Guideline G-18 for the relationship between the essential safety requirements and the properties of the base material.

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Guideline G-25

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Sections 3.1.2, 3.1.3 and 4.3

Question	How shall welded tubes be considered for the application of the Pressure Equipment Directive (PED)?
Answer	<p>Continuously machine-welded tubes, i.e. tubes made from coils as starting materials in an automatic process, which are usually heat treated after welding shall be in the terms of certification procedures considered as materials provided the essential safety requirements (ESRs) of Annex I section 4 "Materials" as well as applicable ESRs of Annex I section 3 "Manufacturing" (in particular 3.1.2 and 3.1.3) are fulfilled.</p> <p>Further the manufacturer of such tubes shall affirm compliance of the welded tube to the specification.</p> <p>In general, the inspection document shall take the form of a certificate of specific product control, where shall be found the references to the competent third party approval of welding procedures and personnel and to the recognised third party approval of non destructive personnel (for categories III and IV).</p> <p>When the use of the welded tube is limited to pressure equipment of category I, a statement in the test report confirming that personnel and welding procedures are qualified according to suitable internal operating procedures is sufficient.</p> <p>In application of PED Guideline G-16, where the welded tube manufacturer has a certified quality system, this system shall properly cover not only the relevant material properties referred to in the tube specifications, but also the manufacturing process of the welded tubes (in particular welding and NDT).</p>
Reason	
Note	This implies that e.g. tubes made from plates are to be considered components, see PED Guideline G-19.

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Guideline G-26

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (14); Article 15

Question	What type of material may follow the European Approval for Materials (EAM) route?
Answer	<p>An EAM may be issued for a special or novel material grade not included in a European material standard harmonized under the Pressure Equipment Directive (PED). Such a material grade shall have a specification associated with particular chemistry and/or conferring specific mechanical properties or characteristics such as corrosion resistance. These mechanical properties or characteristics shall be supplementary to those in similar harmonised standards. See also PED Guideline G-15.</p> <p>An EAM is a route to facilitate the use of safe materials in absence of harmonized standards and to encourage material technology development and innovation.</p> <p>An EAM shall not be issued for:</p> <ol style="list-style-type: none">1. a grade of material listed in a current or former national material standard that has a specification covered by a harmonised European material standard.2. a grade of material which was previously included in a European national material standard but which was not included in the harmonised European material standard which has replaced the European national material standard. <p>In those cases a PMA is to be drawn up, see PED Guidelines G-21 and I-13.</p>
Reason	
Note 1	A “grade of material” may be designated by use of a material number in accordance with EN 10027-2 in the case of metallic materials.
Note 2	The Pressure Equipment Directive (PED) states that European Approval for Materials (EAMs) shall be withdrawn by the notified body if the type of material is covered by a harmonized standard.

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Guideline G-27

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.3

Question	When an equipment manufacturer receives a certificate type 3.1 according to EN 10204:2004 by the material manufacturer, in pursuance of the third paragraph of section 4.3 of Annex I, what evidence of compliance with these requirements shall be recorded in the technical documentation?
Answer	<p>The equipment manufacturer shall be able to confirm that the material manufacturer's quality system certificate meets the requirements of the third paragraph of section 4.3 of Annex I (field of validity of the certification, range of validity of certification, establishment of the competent body as a legal entity within the European Union, accreditation).</p> <p>The equipment manufacturer should keep track of such information which may be requested by the market surveillance authority. To fulfil this requirement the equipment manufacturer should keep in its technical documentation the appropriate quality system certificate of the material manufacturer or other equally objective evidence.</p> <p>See also PED Guideline G-02 and PED Guideline G-16.</p>
Reason	
Note [x]	

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Guideline G-28

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 7.5

Question	How to apply Annex I, section 7.5 on the bending rupture energy measured on an ISO V test piece for base materials whose, due to its thickness, the collection of a test piece of section 10 mm x 10 mm is not possible?
Answer	<p>The value of 27 Joules required on Annex 1, section 7.5, means the use of test piece of section 10 mm x 10 mm and an impact test KV according EN ISO 148-1:2010, Metallic materials – Charpy pendulum impact test – Part 1: Test method.</p> <p>When a standard size test piece of 10mm x 10 mm cannot be obtained, it is recommended to use a sub-sized specimen with a cross section of 7,5mm (7,5mm x 10mm) or 5mm (5mm x 10mm) and to adjust the value of impact test (see EN 13445-2 and EN 13480-2).</p> <p>When a sub-sized specimen (5mm x 10mm) cannot be obtained due to the dimensions of the material, the verification of the specified 27 Joules is not relevant but the properties of the material are still to be guaranteed by the material manufacturer.</p> <p>See also PED Guidelines G-17 and G-13.</p>
Reason	
Note [x]	

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Guideline G-29

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I section 3.2.1 and section 4.3

Question	<p>Based on data contained in a certificate issued by a material manufacturer (EN 10204:2004 3.1-certificate) material has been supplied in accordance with a material specification.</p> <p>May a pressure equipment manufacturer perform additional mechanical or non-destructive testing or have them performed to affirm that the material meets all the requirements specified by the equipment manufacturer?</p>
Answer	<p>No, unless in exceptional circumstances, as outlined below:</p> <p>The extent of additional testing shall be specified by the equipment manufacturer and it should be at least equivalent to the tests specified in the harmonized standard, if available, for a similar type of material and representative of the entire batch of the material used for the equipment.</p> <p>The testing shall be supplementary to the original certificate. It shall not have the purpose to "improve" properties already included in the certificate. It does not justify an increase in the allowable design stress over the values of the base material specification.</p> <p>The equipment manufacturer takes full responsibility for all additional tests being carried out.</p> <p>The certificate issued by the material manufacturer who has a certified quality-assurance system is presumed to certify conformity with the requirements but only to the extent that is specified in the inspection certificate. No new material certificate shall be issued for the additional tests carried out by the equipment manufacturer. However the results shall form part of the records in the technical documentation.</p> <p>This does not apply to EN 10204:2004 3.2-certification where the specified additional tests shall be carried out by the material manufacturer.</p>
Reason	<p>In certain circumstances the equipment manufacturer may require properties of the material that are not normally affirmed by the material manufacturer. If material with these required additional properties is not available, the equipment manufacturer must take appropriate measures to ensure that his equipment complies by undertaking additional tests.</p>
Note 1	<p>The pressure equipment manufacturer shall compile a hazard analysis for the pressure equipment, on the basis of which the essential safety requirements for the equipment are determined, including the required materials properties. The results of the analysis have to be taken into account in design and manufacture of the equipment, as well as in determining possible additional material testing.</p>

Note 2	A particular material appraisal (PMA) shall be drawn up for a pressure equipment material if the material is not in accordance with a harmonized standard or the European approval of materials (EAM). In that case, the additional material testing shall be made in accordance with the PMA document PE-03-28, appendix 2. The document is available on the EU Commission's PED website.
Note 3	The testing laboratory and its personnel performing additional material tests shall be suitably qualified for the tests in question, and the equipment used for the tests shall be calibrated. Accreditation is the most common way to demonstrate the testing laboratory's qualification. See also PED Guidelines G-24, G-30, H-04 and I-13.

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Guideline G-30

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.3

Question	<p>A manufacturer produces material only to a chemical analysis without mechanical testing and without affirmation of compliance to a material specification and/or grade.</p> <p>An entity intends to purchase the material and affirm compliance to a material specification by performing the mechanical tests as required by that material specification. There will be no further processing, other than cutting to size. Is this procedure acceptable and may this material be used in pressure equipment under the PED?</p>
Answer	No, even if the mechanical tests are recorded in an EN 10204 inspection certificate which describes the testing entity as the manufacturer of the material.
Reason	Section 4.3 Annex I of the PED requires the material manufacturer to affirm the compliance with a specification. Any entity who is not involved in the material manufacturing process cannot be considered as a material manufacturer.
Note [x]	

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H. INTERPRETATION OF OTHER ESSENTIAL SAFETY REQUIREMENTS

Guideline H-02

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.2.2 and 7.4

Question	Final assessment (Annex I Section 3.2.2) of pressure equipment must include a test for pressure containment at a pressure at least equal, where appropriate, to the value laid down in section 7.4. This section only refers to pressure vessels. Does this mean that Annex I Section 7.4 does not apply to piping, and pressure and safety accessories?
Answer	<p>In accordance with Annex I Section 3.2.2 in the course of the final assessment pressure equipment must be subjected to a test for the pressure containment aspect. As a rule, this test for the pressure containment aspect is supposed to be carried out in the form of a hydrostatic pressure test. Where this is not possible or disadvantageous other procedures are permissible.</p> <p>The pressure value chosen for carrying out a hydrostatic pressure test must be such as to assure testing the pressure containment aspect of the pressure equipment with due consideration of the determined safety factors without causing a damage to the pressure equipment. Annex I Section 7.4 provides additional formulas which may be applied only in due consideration of the above described general criteria (Annex I Section 3.2.2). The formulas in Annex I Section 7.4 should be considered for all items of pressure equipment, not only pressure vessels.</p>
Reason	
Note [x]	

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Guideline H-03

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I section 3.3 and 3.4

Question	What safety information must be given to the user in relation to Annex I points 3.3 and 3.4?
Answer	<p>When pressure equipment is placed on the market, the manufacturer is required by the PED to ensure that it is accompanied by instructions for the user containing certain safety information; such information is mandatory. Additional information may be requested by the user or recommended by the manufacturer, and agreed as part of the order or contract; this information is not a PED requirement and therefore is optional. Both types of information are elaborated below.</p> <p>The following are required by the PED:</p> <ul style="list-style-type: none">– Details accompanying the CE mark, per clause 3.3a, 3.3b and 3.3c– Operating instructions for mounting, putting into service, use and maintenance, per clause 3.4a, which include as far as relevant to the equipment:<ul style="list-style-type: none">• safe operating limits and design basis (includes anticipated operating and assumed design conditions, intended life, design code used, joint coefficients and corrosion allowances)• features of the design relevant to the life of the equipment per clause 2.2.3b last indent• residual hazards not prevented by design or protective measures, that might arise from foreseeable misuse, per clause 1.3, 3.3c, and 3.4c• technical documents, drawings and diagrams necessary for a full understanding of these instructions, as per clause 3.4b• information about replaceable parts, for example per clause 2.7
Reason	
Note 1	Where an assembly of pressure equipment includes a number of different PS, it is acceptable not to provide these different PS on the assembly marking but they must be provided by other suitable means for example on an assembly layout diagram accompanying the operating instructions.
Note 2	Without prejudice of clause 3.4a, other information, not required by the PED, may be included by contractual agreement, such as: hazard analysis, material test certificates, detailed design calculations, “as built” drawings, heat treatment records, welding records, NDT results, results of dimensional check, full records of proof test, details and results of special checks, details of any corrective repair or modifications, full documentation of any concessions

	made.
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Guideline H-04

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I, 2nd and 3rd preliminary observations, Annex III

Question	<p>The third preliminary observation of Annex I of the PED requires that the manufacturer shall “... <i>analyse the hazards and risks in order to identify those which apply to his equipment on account of pressure</i>”.</p> <p>In addition, the modules of Annex III require that “<i>The technical documentation.....shall include an adequate analysis and assessment of the risk(s)</i>.”.</p> <p>How shall this be carried out and documented?</p>
Answer	<p>As a first stage the manufacturer shall determine and record the characteristics, extent, surrounding and circumstances of the intended use of the pressure equipment or the assembly.</p> <p>Next, it is necessary to identify hazards and/or hazardous situations that could occur during the life cycle of the pressure equipment or the assembly in reasonably foreseeable conditions.</p> <p>The manufacturer shall analyse each hazard and/or hazardous situation and evaluate the significance of the risk for each identified applicable hazard and/or hazardous situation and follow the mitigation measures as listed in Annex I section 1.2.</p> <p>The goal of the risk assessment is the appropriate application of the relevant essential safety requirements (Annex I) of the PED and the implementation of associated measures.</p> <p>The manufacturer shall record the risk assessment that has been carried out.</p> <p>The methods of the risk assessment, a list of the essential safety requirements applied to the equipment and the corresponding protective measures shall be included in the technical documentation.</p> <p>See also Blue Guide 2016: Section 4.3 “Technical documentation” and ISO/IEC-Guide 51.</p>
Note [1]	<p>The risk assessment may be carried out by the manufacturer himself, by his authorised representative or by another person acting on their behalf.</p> <p>If the risk assessment is carried out on behalf of the manufacturer or by another person, the manufacturer remains responsible for the risk assessment and the implementation of the necessary protective measures during the design and manufacture of product.</p>
Note [2]	<p>The hazard and risk analysis process may be facilitated by using harmonised standards but they do not relieve the manufacturer of his obligation to carry out the analysis.</p> <p>See also Blue Guide 2016: Section 4.1.2.2 ”Role of harmonised standards”.</p>

Note [3]	The risk assessment can include, but does not require, a quantitative approach with probabilistic analysis and/or assumptions of possible extents of damage. It is up to the manufacturer to decide about the most appropriate method taking into account the pressure equipment technology used and current practice.
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Guideline H-05

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.4

Question	Does the strength of the foundations (concrete plates, tightened gravel, piling etc), where the pressure equipment is erected, belong to the details to be considered under PED?
Answer	The strength of the foundations does not belong to the details to be checked by notified bodies in Module B EU-Type examination – Design type , G etc. But the manufacturer, obliged by section 3.4 of Annex I of PED, must give relevant information (support forces etc) so that the body responsible for installation of the pressure equipment can design the grounding (see Annex I, section 2.2.1).
Reason	
Note [x]	This information should also be made available to the user with 'as built' drawings, see PED Guideline H-03.

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Guideline H-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 7

Question	The first paragraph Annex I section 7 explicitly provides for exceptions to the general rules specified subsequently. How should the achievement of “an equivalent overall level of safety” in such a case be demonstrated?
Answer	<p>The specific quantitative requirements given in section 7 of Annex I are related to particular failure modes. If different values are used, the corresponding failure modes and their combination shall be identified and the measures taken to maintain an equivalent level of safety shall be provided in the technical documentation, with appropriate justifications.</p> <p>The achievement of “an equivalent overall level of safety” may be assumed if the measures taken provide adequate safety margins against all relevant failure modes in a consistent manner. Safety margins are adequate, and deviation from a particular value is justified:</p> <ul style="list-style-type: none">a) by a reduced risk in the respective failure mode, orb) by additional means to ensure no increase of the risk. <p>When using a harmonised standard for pressure equipment which has been published in the Official Journal of the European Union, no further justification is needed for the quantitative values which have been used as regards Annex I section 7 (refer also to PED Guideline G-01).</p> <p>The requirement to demonstrate an equivalent overall level of safety applies to the product itself, and to the measures taken to meet the essential safety requirements. The use of a "recognised" code is not, in itself, sufficient to demonstrate an equivalent overall level of safety (see also PED Guideline I-05).</p>
Reason	
Note [x]	

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Guideline H-07

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 (7), Article 2 (8); Annex I section 1.1, Annex I section 1.3, Annex I section 2.2.1

Question	What conditions should be considered to determine the maximum allowable pressure PS of an equipment?
Answer	All the reasonably foreseeable conditions shall be taken into account, which occur during operation (starting, operation, stop) and standby (storage, transport, maintenance, emptying, blanketing or inerting).
Reason	
Note 1	The operating instructions shall identify the reasonably foreseeable hazards arising from misuse which were not possible to eliminate during the design (see Annex I section 1.3).
Note 2	The maximum allowable pressure is used to determine the test pressure, not vice versa.
Note 3	"Pressure relative to atmospheric pressure", as defined in Article 2 (7) is the pressure inside the envelope. It shall not be interpreted as "differential pressure between atmospheric pressure and absolute pressure prevailing inside the equipment" for the purposes of classification. Example: Blanketing (inerting) at more than 0,5 bar of an equipment which operates at less than 0,5 bar will have the consequence of including the equipment in the scope of the directive, if not otherwise excluded.

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Guideline H-09

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.3 (a)

Question	Must an individual serial number always be provided, even if the items of pressure equipment are manufactured in batches or series?
Answer	No For items of pressure equipment manufactured in batches or series (such as portable extinguishers or valves) the identification may be limited to the batch or series number. It is not always necessary to provide an individual serial number on each item of pressure equipment.
Reason	
Notes	<ol style="list-style-type: none">1. When a national authority applies the safeguard clause the decision will relate to all products belonging to the same batch or series. Similarly if a manufacturer withdraws non-compliant or defective products from the market this will relate to all products belonging to the same batch or series.2. Sufficient identification shall be possible according to the nature of the equipment.

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Guideline H-10

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 1 (b); Annex I Section 3.3

Question	Does the directive require a specific format for marking the year of manufacture of pressure cookers?
Answer	No. The year of manufacture could be for example given as a 4-digit (year of manufacture : yyyy) or limited to 2 digits, associated with the serial number (xxxx/yy).
Reason	
Note [x]	

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Guideline H-12

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.3

Question	Which are the essential maximum/minimum allowable limits to be marked according to Annex I section 3.3 (a) of Pressure Equipment Directive (PED)?
Answer	<p>All pressure equipment shall be marked with the maximum allowable pressure PS, unless this might be misleading for safe use (see for instance PED Guideline H-18 for bottles for breathing apparatus).</p> <p>Depending on the type of pressure equipment, its operating conditions and the results of hazard analysis there may be other essential maximum/minimum allowable limits or combinations thereof, such as</p> <ul style="list-style-type: none">- maximum or minimum allowable temperature;- maximum or minimum fluid level
Reason	
Note	Further information may be required (see PED Annex I sections 3.3. (b) and (c).

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Guideline H-13

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.3, Annex VI

Question	Which provisions are to be followed for the CE marking of small pressure accessories and safety accessories, the dimensions of which do not allow fulfilment of the requirements of: - annex I, section 3.3 (a) about the minimum information required, - annex VI about the minimum size of the CE marking of 5 mm?
Answer	Where these requirements are a physical impossibility, the marking may be given on a label attached to the accessory. For example if a safety accessory has an external diameter of 8 mm and an internal diameter of 3,7 mm, the whole marking is given on a label.
Reason	
Note [x]	

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Guideline H-14

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I section 3.2.2

Question	Is it possible to undertake statistical proof testing of series-produced safety valves?
Answer	Yes, when the body of the safety valve classified according to Annex II section 3 does not exceed category I and provided it is supported by the hazard analysis.
Reason	The proof test is intended to verify the pressure containment aspect of the item of pressure equipment. The proof test does not address the safety function which is covered by Annex I section 2.11.1.
Note 1	The safety function of such safety valves needs to be assessed according to category IV (except for safety valves manufactured for specific equipment of category lower than IV).
Note 2	The same reasoning is not applicable to the other items of pressure equipment which are classified by the PED in a higher category than the category derived from their intrinsic characteristics.

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Guideline H-15

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I sections 1.1, 1.2, 1.3, 2.9, 2.10, 2.11, 3.4, 5

Question	How should the ESRs (essential safety requirements) of Annex I be interpreted in regard of boilers for generating steam or superheated water intended for operation without continuous supervision?	
Answer	All the ESRs from Annex I apply if the corresponding hazards exist. The following observations, which are not necessarily exhaustive, explain how some of the ESRs can be understood in the context of operation without continuous supervision.	
	ESR	Explanation
	1.1	The boiler shall be able to operate automatically, and include a control mode "operation without continuous supervision".
	1.3, 5a	The heating system shall be able to operate only if all the boiler safety systems are operational.
	2.10	Protection against exceeding allowable limits on pressure, temperature and water level shall be ensured by safety accessories (see also guideline 1/43).
	2.10	When specific aspects of water quality are subject to rapid variation giving rise to dangerous situations within the period of unattended operation, protection against exceeding such limit shall be ensured by safety accessories.
	2.10	Adequate monitoring devices, which enable adequate action to be taken automatically to keep the boiler within the allowable limits, shall be provided.
	2.10	Warning devices, such as indicators or alarms, which enable the origin of anomalies to be displayed, shall be provided.
	2.10	In the case of failure of the power supply to electrical boilers a safe shutdown or continuous operation of the control circuit of the boiler shall be ensured .
	2.11	Safety accessories shall be designed to cause a safe shutdown of all or part of the boiler, in case of failure of their power supply.
	2.11.1	If for certain operations, the boiler shall be able to operate with some safety accessories neutralised, this shall simultaneously disable the control mode "operation without continuous supervision".
	3.4, 1.2	The instructions for use shall explicitly state that the boiler is designed and equipped to be operated without continuous supervision. It shall inform of residual hazards and special measures to be taken during operation to eliminate them. It shall state: <ul style="list-style-type: none"> - how to test the safety accessories (logic diagram for instance) and what are the recommended intervals for such inspections; - the requirements for boiler feedwater;

		- the instructions to restart the boiler, for every stop origin.
	5a	After a boiler shutdown caused by anomaly, the boiler shall not be able to restart automatically.
	5d	After shutdown, residual heat shall be safely removed without human intervention.
	5e	After a heating system has been locked in the stop position due to failure in its supply, a manual reset shall be necessary to unlock it.
	<p>The following examples are frequently used requirements to check the function of the safety system periodically as stated in PED Guideline I-20. The requirements are related to ESRs section 5 and section 2.11.1 of Annex I:</p> <p>24 hours operation without continuous supervision is permitted if functional tests of the limiting devices are carried out periodically at adequate intervals.</p> <p>A functional test carried out by the boiler attendant includes the shut down of the burner-valves, or, when the boiler is fed by solid fuels, the stopping of the conveyor system. This functional test also includes checking of the quality of water. Member states may have specific requirements to allow duration greater than 24 hours, e.g. provision of a device for automatic monitoring of water quality.</p>	
Reason		
Note [x]		

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Guideline H-16

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I sections 3.2.2 and 7.4

Question	If the hydrostatic pressure test required by Annex I section 3.2.2 is replaced by a pneumatic pressure test because filling with water is harmful or impractical, what value has to be used for the pressure test?
Answer	<p>Where the hydrostatic pressure test is harmful or impractical, the manufacturer may carry out a pneumatic test with the implementation of additional measures such as non-destructive tests or other methods of equivalent validity.</p> <p>The value of the pneumatic test pressure and the additional measures shall be those defined at least by the relevant harmonised standard. In case a harmonised standard is not applied, the manufacturer must justify that the value of the pneumatic test pressure and the additional measures are appropriate to achieve an equivalent overall level of safety.</p> <p>The use of a "recognised" code is not, in itself, sufficient to demonstrate an equivalent overall level of safety (see also Guideline H-06).</p>
Reason	
Note 1	Attention is drawn to the fact that pneumatic testing can be highly dangerous. Reference should be made to the appropriate national authorities for regulation or guidance on the procedures to be followed.
Note 2	See for example table 9.3.3.1 in EN 13480-5:2017 and chapter 10.2.3.4.2 in EN 13445-5:2014 regarding the additional NDT.

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Guideline H-17

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 19 paragraph 1, Annex I section 3.3

Question	Is it possible to provide the marking and labelling required by Annex I section 3.3 on a sticker?
Answer	Yes, provided the sticker is non-removable, indelible, legible and firmly attached to the pressure equipment, for the intended lifetime and foreseeable conditions of use.
Reason	
Note	When using stickers, account has to be taken of limited durability in practice. For most types of pressure equipment, industrial practice is to use rigid data plates. See also PED Guideline H-13.

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Guideline H-18

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 3.3

Question	What shall be the information about pressure and temperature to be marked on bottles for breathing apparatus according to PED?
Answer	<p>Bottles for breathing apparatus shall be marked with the working pressure (PW) as de-fined in RID/ADR, chapter 1.2.</p> <p>Minimum and maximum allowable temperatures TS shall also be marked.</p> <p>Instead of the test pressure PT referred to in PED (3rd indent of 3.3.b in Annex I) the test pressure (PH) as defined in RID/ADR, chapter 1.2 shall be marked.</p>
Reason	
Notes	<ol style="list-style-type: none">1. Further information may be required (see PED Annex I sections 3.3.b and c).2. The manufacturer shall explain the marking of pressure and temperature parameters in the instructions for filling and periodic inspection.3. According to RID/ADR , PW is the settled pressure, expressed in bar, of a com-pressed gas at a reference temperature of +15 °C in a full pressure receptacle, and PH is the required pressure, also expressed in bar, applied during a pressure test for initial or periodic inspection. PW and PH being the abbreviations for working pressure and test pressure as per RID/ADR, 6.2.2.7.3.4. The answer is given on the basis that the standards referenced in ADR are normally used for the design of bottles for breathing apparatus and that appropriate impact properties are specified to demonstrate an overall level of safety equivalent to that of the PED.

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Guideline H-19

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 19 paragraph 1, Annex I section 3.3 and 3.4

Question	What is the marking information to be put on the constituent parts of pressure equipment intended for domestic use?
Answer	<p>Only the complete pressure equipment can be conformity assessed, and only one CE marking shall be affixed, preferably on the constituent part that is not supposed to be replaced.</p> <p>The constituent parts of such pressure equipment, which can be sold separately, as spare parts for instance, should have a marking allowing them to be identified unambiguously. They shall not carry a CE marking additional to the marking of the complete equipment.</p> <p>The declaration of conformity and instructions for use shall describe in an appropriate manner the components making up this equipment. The operating instructions for use shall give the list of spare parts (where appropriate); how to identify them, in particular their marking information.</p> <p>See also PED Guidelines A-22, A-47, D-11</p>
Reason	
Note	An example would be a pressure cooker constituting a body and lid.

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Guideline H-20

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I, 2nd and 3rd preliminary observations, section 1.2, Annex III

Question	How do the newly introduced requirements to "analyse the hazards and risks" and make an "assessment of the risk(s)" under the PED 2014/68/EU relate to the requirement for a hazard analysis under the PED 97/23/EC?
Answer	<p>The newly introduced requirements do not constitute a completely new concept. These requirements clarify the relevant provisions of the PED adapted to the New Legislative Framework. They better describe the concept that has been and still is underlying the design, manufacturing and conformity assessment process of the PED.</p> <p>A manufacturer who implemented a hazard analysis according to 97/23/EC and on this basis identified solutions to address the essential safety requirements (see PED Guideline H-04) was in fact carrying out a risk assessment as it is required in 2014/68/EU.</p> <p>Nevertheless, the PED 2014/68/EU explicitly requires that the technical documentation includes a record of the analysis and assessment of the risk(s).</p>
Reason	
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Accepted by Working Group Pressure (WGP) on:	13/09/2018

I. MISCELLANEOUS

Guideline I-01

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 3

Question	What is to be understood by "sound engineering practice"?
Answer	Sound engineering practice” means, without prejudice to Article 5, paragraph 1, that such pressure equipment is designed taking into account all relevant factors influencing its safety. Furthermore, such equipment is manufactured, verified and delivered with instructions for use in order to ensure its safety during its intended life, when used in foreseeable or reasonably foreseeable conditions. The manufacturer is responsible for the application of sound engineering practice.
Reason	
Note	

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Guideline I-02

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 15 paragraph 1

Question	What does “material recognised as being safe to use before 29 November 1999” in Article 15, first paragraph mean ?
Answer	Recognised as being safe to use means a material <ul style="list-style-type: none">– with well-known characteristics, and– with a well-established history of safe use in the pressure equipment field. To be approved under Article 15, such a material must fulfil the relevant essential safety requirements of Annex I.
Reason	
Note	

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Guideline I-03

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 15 paragraph 1

Question	Is the approval of a material manufacturer part of the European Approval for Materials procedure for “a material recognised as being safe to use before 29 November 1999” ?
Answer	No, the purpose of such a European Approval for Material is to certify the conformity of types of materials with the corresponding requirements of the Directive, not to approve a material manufacturer.
Reason	
Note	

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Guideline I-04

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 15 paragraph 1

Question	May a European Approval for Materials for a “material recognised as being safe to use before 29 November 1999”, be restricted to one or more material manufacturers?
Answer	No, see PED guideline I-03.
Reason	
Note	If a material which is covered by an European Approval of Material is patented, or has a patent pending, this information shall be included in the European Approval for Materials.

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Guideline I-05

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 12

Question	In which conditions is it possible to use a document other than a harmonised standard (national standard, professional code or private technical document) for the design and manufacture of pressure equipment for the application of PED ?
Answer	<p>1) The use of the harmonised standard is not mandatory.</p> <p>2) However, the directive did not include provisions to give presumption of conformity to documents other than harmonised standards.</p> <p>A manufacturer using another document shall describe in his technical documentation the solutions adopted to meet the essential requirements of the directive.</p> <p>The notified body (or the user inspectorate) shall validate, if required by the module chosen, these solutions.</p> <p>3) The technical requirements of the Directive are given in Annex I. When using a national standard, a professional code or a private technical document for fulfilling Annex I, only the technical content of this document is relevant. Further provisions of this document (e.g. about bodies or certification procedures) are not relevant for the application of PED.</p>
Reason	
Note	See also PED Guideline I-06.

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Guideline I-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 12

Question	Is it possible to use partially one or more harmonised standards, codes or specifications to design and manufacture a pressure equipment conform to the Pressure Equipment Directive ?
Answer	<p>The different parts (design, manufacture, inspection, ...) of a harmonised standard, a code or a specification for pressure equipment form a consistent set of documents which should be followed.</p> <p>Nevertheless, the partial use of a harmonised standard, a code or a specification is not forbidden.</p> <p>In these conditions, the essential requirements covered by the part(s) of harmonised standards, codes or specifications used shall be identified.</p> <p>The essential requirements not covered by the part(s) of harmonised standards, codes or specifications shall be subject to an analysis to judge the validity of the adopted solutions.</p> <p>Then, if several different parts of harmonised standards, codes or specifications are used, it shall be verified that there are no incompatibility or inconsistency between these parts, particularly for the application data (permissible stress, safety coefficient, extent of the inspection, ...).</p>
Reason	
Note	See also PED Guideline I-05.

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Guideline I-07

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 2 paragraph (4); Article 4 paragraphs 1 (d) and 3

Question	Under what circumstances shall safety accessories placed on the market not bear the CE marking according to the PED ?
Answer	<p>Safety accessories exclusively manufactured and put on the market for specific pressure equipment or assemblies covered by Article 4 paragraph 3 of the PED shall not bear the CE marking under the PED (but see Note 2).</p> <p>Furthermore, safety accessories exclusively intended for equipment not covered by the PED are also not covered by the PED.</p> <p>Also safety accessories covered by the PED and assessed by a user inspectorate shall not bear the CE marking.</p>
Reason	
Note 1	The specific use shall be clearly mentioned by the manufacturer of the safety accessory in the instructions.
Note 2	This does not forbid the use of a CE-marked safety accessory on an Article 4 paragraph 3 equipment.

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Guideline I-08

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 19 paragraph 2, Article 4 paragraph 1 (c), Annex I Section 3.3 (c)

Question	Conformity with the PED is required for some piping per Article 4 paragraph 1 (c), which are part of an industrial installation. May all such piping for a given installation be covered by a single CE marking ?
Answer	Yes, providing the CE marking is prominently displayed and the accompanying documentation supplied by the manufacturer to the user clearly defines the boundary of the installation.
Reason	
Note	

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Guideline I-09

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 3

Question	If an item of pressure equipment is covered by Article 4 paragraph 3, and there exists an EN product standard for this type of pressure equipment, does this mean that the EN standard explains the meaning of the sound engineering practice?
Answer	Not necessarily. The manufacturer is always responsible for the application of all relevant procedures and techniques, whether they are given in the standard or not, in order to fulfil the requirement of Article 4 paragraph 3. Standards and other professional codes are useful frame of reference in this context. See also PED guideline I-01.
Reason	
Note	

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Guideline I-10

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I, section 4.2 b, 3rd indent, Annex III module B EU-Type examination – production type 4.1 1st indent and module B EU-Type examination – design type, 4.1 1st indent

Question	When performing an EU-type examination – production type or an EU-Type examination – design type using particular appraisals for materials, are such appraisals applicable to all items of pressure equipment covered by the examination ?
Answer	Yes
Reason	
Note [x]	

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Guideline I-11

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I, 4.2.b third indent

Question	When performing a particular material appraisal for materials recognized as being safe to use before 29.11.1999, shall the existing data for these materials be taken into account when assessing the suitability of this material?
Answer	Yes, and if this data as referred to in PED Guideline I-02 is sufficient for the proof of conformity, in principle no additional testing should be performed. The manufacturer (and the Notified Body) shall take into account the material properties of the actual deliveries when claiming the history of safe use for a particular material, if its specification has significantly wider limits.
Reason	1. Even though the PED does not specify the content of a particular material appraisal, the concept of safe history applies similarly as for EAMs. 2. It would be incorrect to assume that every batch supplied to the wider specification has equally good properties. For example, in many steel specifications, sulphur may be permitted up to 0,030%, but modern steelmaking techniques produce lower sulphur levels consistently less than 0,010%. The good impact toughness associated with the low sulphur content will not be obtained if another batch of steel is supplied at or near 0,030% sulphur.
Note	Where such commonly used materials are not covered by harmonised standards or EAM, particular material appraisal is the only other route that remains.

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Guideline I-12

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph.3, Annex I Section 4

Question	Do the requirements of Annex I Section 4 regarding materials also apply to pressure equipment described in Article 4.3 (Sound engineering practice)?
Answer	No Any pressure equipment covered in Article 4 paragraph 3 does not have to meet the Essential Safety Requirements of Annex I and consequently does not fall under the regime of the material requirements contained therein. See also PED Guideline I-01.
Reason	
Note [x]	

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Guideline I-13

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex I Section 4.2b 3rd indent, and Annex I Section 4.2c

Question	What are the formal requirements of a particular material appraisal (PMA)?
Answer	<p>The PMA shall describe the material properties in a manner that is concise, complete and correct for the foreseen application (see also PED Guideline G-18). It shall comprise qualitative and quantitative data providing evidence that the relevant Essential Safety Requirements (ESR) of PED Annex I are met.</p> <p>The responsibility for drawing up the PMA lays with the pressure equipment manufacturer.</p> <p>The PMA shall be part of the technical documentation.</p> <p>The PED requires a specific assessment of a PMA by a notified body for pressure equipment in category III and IV.</p>
Reason	
Note 1	For further guidance about the process and the content of a PMA refer to the Guiding principles in document PE-03-28 approved by the Working Group Pressure (current version downloadable from the PED website).
Note 2	When European harmonised material standards are available for materials similar to a material grade covered by the PMA, the material characteristics (e.g. rupture energy, elongation after fracture, corrosion resistance,...) included in this European harmonised material standard are to be considered in the PMA. See also PED Guideline G-01

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Guideline I-14

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 16 paragraph 1, Annex I Section 4.2 c)

Question	May the specific assessment (referred in the Annex I section 4.2 c) be carried out by a user inspectorate as part of the conformity assessment of pressure equipment based on modules A2, C2, F or G ?
Answer	YES for module G. Indeed, article 16 indicates that, by way of derogation from the provisions relating to the tasks carried out by the notified bodies, the conformity of pressure equipment can be assessed by a user inspectorate. And so the specific assessment referred in annex I Section 4.2 c) can be carried out by a user inspectorate if, in accordance with article 16, it has been appointed for module G.
Reason	
Note 1	For module A2, the specific assessment is carried out by the manufacturer. For module C2 and F, the specific assessment was carried out previously as part of the B modules.

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Guideline I-15

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 16

Question	<p>A user places an order for Pressure Equipment on a manufacturer in Member State 'A', where the Member State has chosen not to implement Article 16; but the Pressure Equipment is intended to be put into service as part of an industrial installation in Member State 'B', where Article 16 is implemented. May Member State 'A' refuse to allow the user's inspectorate, which has been authorized according to Article 16 in another Member State, to operate on its territory, thus preventing the User Inspectorate from undertaking conformity assessment of the Pressure Equipment?</p>
Answer	<p>No, provided the transfer takes place directly from the manufacturer to the user, and it takes place in Member State 'B' the User Inspectorate may legally undertake the conformity assessment activities in Member State 'A'.</p>
Reason	<p>Article 16, Paragraph 1 says: “.... Member States may authorise <i>on their territory the placing on the market, and the putting into service</i> by users, of pressure equipment or assemblies of which has been assessed by a User Inspectorate designated in accordance with paragraph 7”</p> <p>It is clear that the <i>putting into service</i> will take place in Member State 'B' and therefore can be authorised in conformity with the Directive.</p>
Note	

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Guideline I-16

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 5 paragraph 1 and 2; Article 6, Article 7, Article 8, Article 17; Annex III module A, A2, C2, D, D1, E, E1, F, G, H, H1, Annex IV

Question	Must a CE-marked item of pressure equipment, or an assembly, be supplied with an EU declaration of conformity, when it is placed on the market ?
Answer	<p>The manufacturer of CE-marked pressure equipment or assembly should be aware that the EU declaration of conformity must be made available for national authorities immediately upon request. Otherwise the presumption of conformity as provided for in Article 5, paragraph 1, is in doubt. For this purpose the manufacturer or his authorised representative established within the Community must draw up a written EU declaration of conformity and keep a copy of it for a period of ten years after the last pressure equipment has been manufactured.</p> <p>However, Article 5, paragraph 1 requires that Member States provide free movement for pressure equipment and assemblies which comply with the PED and bear a CE mark; but there is no provision in the PED that an EU declaration of conformity must be mandatorily supplied with the pressure equipment or assembly in order to comply with the PED.</p> <p>In addition, the manufacturer should be aware that the EU declaration of conformity is a helpful document to the distributor or user because it is a summary of design, manufacture and conformity assessment.</p> <p>The manufacturer should also be aware that some Member States require that the EU declaration of conformity is available at the user premises at the time of putting into service and for subsequent in-service inspections of the pressure equipment.</p> <p>The manufacturer should also be aware that the EU declaration of conformity is an essential document for the manufacturer of an assembly into which a CE-marked item of pressure equipment is to be integrated.</p> <p>It is therefore highly recommended to provide the EU declaration of conformity for all products which are intended to be put into service as such, with the product.</p>
Note	The EU declaration of conformity does not need to be a separate document; it may be included in the instructions for use.

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Guideline I-17

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4, paragraph 3

Question	How shall a manufacturer established outside the European Economic Area (EEA) fulfil the requirement of the sound engineering practice (SEP) of a Member State ?
Answer	<p>A manufacturer outside of EEA may choose the SEP of one of the Member States.</p> <p>SEP from countries outside EEA does not automatically fulfil the requirement of Article 4, paragraph 3.</p> <p>However, as a general rule, it can be assumed that the SEP of a Member State is met if :</p> <ul style="list-style-type: none">- the product has been legally marketed in one Member State of EEA for many years, or- the product fulfils technical specifications recognised by one Member State of EEA. <p>Refer also to PED Guidelines I-01 and I-09.</p>
Reason	Article 4 paragraph 3 of PED stipulates mutual recognition of SEP of Member States in order to avoid barriers of trade. The level of safety is assumed to be sufficient in all Member States. So the equipment must in fact be safe.
Note	

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Guideline I-18

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 5 paragraph 1 and 2

Question	Article 5 of PED provides for the making available on the market or putting into service of pressure equipment or assemblies which comply with the directive. Under what circumstances can the application of national regulations (e.g. by public authorities or private authorised bodies) on periodic testing constitute a barrier to trade?
Answer	<p>Differentiation between in-service inspection periods for similar CE-marked items of pressure equipment for the same purpose should be based on technical reasoning and the conditions of use of the equipment.</p> <p>Specification of formal requirements for:</p> <ul style="list-style-type: none">– the involvement of a specific notified body or bodies,– the compliance with a specific (e.g. national) design code to the exclusion of other technically justifiable/equivalent solutions <p>would constitute a barrier to trade.</p>
Reason	
Note	

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Guideline I-19

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 4 paragraph 3; Article 5 paragraph 1

Question	What information should be supplied with an item of pressure equipment, or an assembly, which falls under article 4, paragraph 3 (sound engineering practice, SEP) when it is placed on the market, to indicate that it complies with the provisions of article 4, paragraph 3 ?
Answer	<p>There are no specific provisions in the directive on how the manufacturer must indicate that such equipment complies with the PED.</p> <p>Nevertheless, the manufacturer must supply adequate instructions for use, and provide markings to permit identification of the manufacturer or its authorized representative established within the Community.</p> <p>However, manufacturers should be aware that it is likely to be helpful if they include with the product a reference to the PED indicating that the requirement of sound engineering practice of a Member State (see PED Guideline I-01) has been met. This can for example be achieved by a statement included with the instructions of use, by a separate document attached to the equipment, or by an addition to the marking.</p>
Reason	
Note	The manufacturer must not draw up, an EU declaration of conformity, nor affix the CE marking for such equipment in the context of PED.

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Guideline I-20

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 3 paragraph 2, Article 5 paragraph 1 and 2, Annex I
Sections 2.3, 2.10b and 2.11.1

Question	Are national requirements additional to the Pressure Equipment Directive (PED) for the design, conformity assessment and installation of safety systems of CE-marked boilers for generating steam or superheated water intended for operation without continuous supervision permissible?
Answer	<p>No.</p> <p>When</p> <ul style="list-style-type: none">- the boiler is intended for operation without continuous supervision- the specific hazards due to this situation are taken into account in the hazard analysis and design of the assembly and its safety systems- this assembly meets all relevant provisions of the PED (including a description of the intended operation mode and of the associated safety systems in the instructions for use) <p>any additional design requirements would constitute a restriction on or impediment to the making available on the market of this product placing of this product on the market.</p> <p>National requirements may oblige the user to check the function of the safety system periodically. The requirements shall be based on technical criteria of the design of the safety system in order to guarantee that for similar safety systems the same operational requirements apply.</p> <p>See also PED Guidelines C-04, H-03 and I-18.</p>
Reason	
Note	PED Guideline H-15 identifies significant ESRs applicable to boilers intended for operation without continuous supervision.

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Guideline I-21

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 5 paragraph 3, Article 6 paragraph 7, Article 8 paragraph 4, Article 9 paragraph 2, Annex I Sections 3.1, 3.3 and 3.4

Question	Article 5 paragraph 3 of the Pressure Equipment Directive allows Member States to require the information for pressure equipment described in Annex 1 Sections 3.3 and 3.4 to be provided in the official language(s) of the country in which the equipment or assembly reaches the final user. If so required, does this impose the task of translating on the manufacturer?
Answer	<p>The PED allows Member States to require translation and consequently to take restrictive measures if this requirement is not fulfilled. Manufacturers, distributors and importers should be aware of this requirement.</p> <p>If the national legislation requires the translation, it has to be fulfilled. When the equipment is not made available placed on the market in the Member State of the final user, the person introducing the equipment in the linguistic area (e.g. the importer, the distributor, the manufacturer of an assembly including such equipment) must ensure the requirement is fulfilled.</p> <p>For pressure equipment specifically manufactured for a defined end user which is subject to contract between the supplier and user, they can also contractually agree who shall do the translation(s) taking into account the national law.</p>
Reason	
Note	

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Guideline I-22

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 17 paragraph 2, Annex IV

Question	In which language must the EU declaration of conformity be written?
Answer	PED Article 17 paragraph 2 requires the EU declaration of conformity " <i>shall be translated into the language or languages required by the Member State in whose market the pressure equipment or assembly is placed or made available on the market.</i> "
Reason	
Note [x]	

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Guideline I-23

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 5 paragraph 1 and 2, Article 17

Question	What aspects must not be assessed during inspections under national legislation before putting into service products falling in the scope of the Pressure Equipment Directive (PED)?
Answer	Pressure equipment and assemblies bearing the CE marking and the EU declaration of conformity are presumed to conform with the requirements of the PED. Therefore, during inspections <u>under national legislation</u> of such products, performed before putting into service, it is not permissible that : <ul style="list-style-type: none">– the fulfilment of essential requirements of the PED, e.g. integrity of welds or the sustainability of the design, is assessed again.– product-related documentation (other than operating instructions and the EU declaration of conformity) is required to be provided by the user or manufacturer.
Reason	
Note 1	The said inspections may e.g. verify whether the pressure equipment or assemblies have suffered from transport damage, whether their integration in the surrounding environment and/or their joining to the rest of the installation has been performed correctly according to national legislation or whether the operators have sufficient expertise.
Note 2	Any re-assessment of essential safety requirements already covered by the conformity assessment of the PED would be illicit double testing and constitute an impediment of the putting into service of equipment complying with the PED.
Note 3	This guideline does not address market surveillance activities, under the responsibility of public authorities, by application of Article 3.
Note 4	See also PED Guidelines A-03 and H-03.

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Guideline I-24

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 1, Article 3 paragraph 2, Article 4, Article 5 paragraph 1 and 2; Article 17

Question	What additional requirements for the design, manufacture and assessment of pressure equipment and assemblies covered by the Pressure Equipment Directive (PED) containing explosive/inflammable fluids are allowed in national regulations in addition to the requirements of the PED?
Answer	<p>(1) All technical (design, manufacturing, conformity assessment) requirements addressing hazards related to pressure are covered by the PED. Any additional national requirements related to pressure would constitute an impediment of the free movement of products falling into the scope of the PED and are not permissible. The following are examples of non-permissible additional requirements:</p> <ul style="list-style-type: none">• Specific requirements for protection against the release of the fluid• Specific requirements for materials due to the nature of the fluid• Specific requirements to avoid explosions/fires triggered by pressure (e.g. local heating due to pressure energy converted into thermal energy) <p>These aspects shall have been taken into account by the manufacturer as part of the hazard analysis.</p> <p>(2) The PED does not consider the prevention of and protection against explosions/inflammations, which are not triggered by pressure (e.g. electrostatic ignition of an explosive fluid, etc.). These hazards may be addressed by national legislation, unless it is covered by other European legislation (e.g. ATEX Directive).</p>
Reason	
Note 1	This question is of particular relevance for national legislation on LPG, natural gas and hydrogen installations.
Note 2	The PED provisions on risk analysis and categories for conformity assessment take into account the explosive/inflammable nature of the fluid.
Note 3	However, national requirements can address installation conditions of the pressure equipment or assembly, e.g. in order to protect operators, environment or the pressure equipment / assembly itself.

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J. GENERAL-HORIZONTAL QUESTIONS

Guideline J-01

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Recital (4), horizontal guideline

Question	Must the pressure equipment directive be applied to used pressure equipment imported from outside the European Economic Area?
Answer	Yes. Recital (4) states the PED applies to new pressure equipment and new or second-hand equipment imported from a third country.
Reason	See also Blue Guide Chapter 2.4. related to products imported from countries from outside the EU and Chapter 4.5.1.6 related to CE marking
Note [x]	

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Guideline J-02

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Horizontal guideline

Question	Must the pressure equipment directive be applied to second-hand pressure equipment imported from another country of the European Economic Area (EEA), if it was not manufactured under the regime to PED ?
Answer	No, but national legislation of the receiving country will apply.
Reason	See the 'Blue Guide' on the implementation of EU product rules, Point 2.1 Product coverage (footnote 37 to be noted) and point 9.2.3. EEA EFTA States: Mutual recognition agreements and Agreements on Conformity Assessment and Acceptance
Note [x]	

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Guideline J-03

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Article 48 paragraph 1

Question	Article 48 paragraph 1 states that the transition period extends up to and includes 29 May 2002. If a manufacturer intends to place pressure equipment or assemblies on the market according to pre-PED national Regulations during the transition period, what conditions must be met?
Answer	<p>1. A necessary condition is that all manufacturing and conformity assessment operations required by the pre-PED national Regulations have been completed on or before 29 May 2002.</p> <p>2. In addition, given that one of the purposes of including a transition period in the Directive is to provide time for manufacturers to reduce stocks, items of pre-PED pressure equipment must be physically transferred to the customer or distribution chain on or before 29 May 2002. unless the transfer of ownership has occurred before this date.</p>
Reason	
Note 1	Provided the conditions in 1 and 2 have been met, there are no restrictions on the subsequent sale of pre-PED pressure equipment (through a distribution chain for example) or when such equipment is eventually put into service within the respective Member state.
Note 2	If a manufacturer retains some stocks of pre-PED pressure equipment or assemblies after 29 May 2002, then they can only be subsequently placed on the market if they are shown to be in compliance with the PED (This is not necessary if the items are intended for export to a country outside the Community).
Note 3	For subsequent use of such an item of pressure equipment in an assembly, refer to PED Guideline C-11.

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Guideline J-06

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex IV

Question	What is the information to be given in the EU Declaration of Conformity in order to comply with Annex IV point 6?
Answer	<p>The harmonised standard or specification referred to is the governing document(s) embracing all aspects of materials, design, manufacturing and testing of the item of pressure equipment or assembly.</p> <p>If the governing document is an internal specification or a published technical code, this information shall also be given.</p> <p>However, as regards conditions related to the use of such documents, see also PED Guidelines I-05 and I-06 particularly.</p>
Reason	<p>"The Blue Guide on the implementation of EU product rules" (edition. 2014) explains in Chapter 4.4 that the EU declaration of conformity contains <i>"the referenced standards or other technical specifications (such as national technical standards and specifications) in a precise, complete and clearly defined way; this implies that the version and/or date of the relevant standard is specified."</i></p> <p>It is not requested to give the complete list of the standards used in combination with the governing document.</p>
Note [x]	

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Guideline J-08

Pressure Equipment Directive PED 2014/68/EU Commission's Working Group "Pressure"

Guideline related to: Annex IV

Question	What is the information to be given in the EU Declaration of Conformity of assemblies in order to comply with the third indent of section 4 of Annex IV?
Answer	The declaration of conformity of assemblies must contain a description of all items of pressure equipment constituting the assembly together with, for each PED item, the conformity assessment procedure followed.
Reason	
Note	<p>This description includes the identification of the items of pressure equipment falling under category I to IV.</p> <p>The other items taken into account in the assessment of the integration of the PED assembly (including Article 4 paragraph 3 equipment or pressure equipment excluded from the PED) shall also be described as part of this assembly. This latter description may be by reference to appropriate information in the instructions for use (e.g. component lists, drawings). See also PED Guideline C-13.</p> <p>See also the chapter on the EU declaration of conformity of "The Blue Guide on the implementation of EU product rules".</p>

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Guideline J-09

**Pressure Equipment Directive PED 2014/68/EU
Commission's Working Group "Pressure"**

Guideline related to: Article 2, Annex I section 4.3

Question	How can terms in the PED such as main pressure-bearing parts be understood in practice?																
Answer	<p>Example terms are defined in the following table:</p> <table border="1" data-bbox="363 618 1489 965"> <tr> <td data-bbox="363 618 528 931" rowspan="3">Components contributing to the pressure resistance (CCPR)</td> <td data-bbox="534 618 676 864">Pressurised parts (PP)</td> <td data-bbox="683 618 963 775">Main pressure-bearing parts (MPBP)</td> <td data-bbox="970 618 1489 775">Pressure-bearing housing Parts which are essential to safety of the pressure equipment whose failure could lead to a sudden discharge of pressure energy from the equipment</td> </tr> <tr> <td colspan="3" data-bbox="683 779 1489 864">Parts of the equipment submitted to stress due to pressure contained in the equipment, but whose failure will not lead to a sudden discharge of pressure energy from the equipment</td> </tr> <tr> <td colspan="3" data-bbox="683 869 1489 931">Parts directly attached to pressurised parts (PP) and contributing to the pressure resistance of the equipment e.g. which reinforced against equipment external loadings.</td> </tr> <tr> <td colspan="4" data-bbox="363 936 1489 965">Parts directly attached to CCPR which are not themselves CCPR including «Other parts»(*).</td> </tr> </table> <p>(*): For Category I equipment, that includes "Other parts" as defined in PED Guideline G-05, which are elements attached to CCPR (including those attached to PP and MPBP). EXAMPLE: Essential Safety Requirements applying to CCPR, also apply to PP and MPBP.</p> <p>NOTE 1: Delivering an equipment may include other elements out of regulatory scope previously defined.</p>			Components contributing to the pressure resistance (CCPR)	Pressurised parts (PP)	Main pressure-bearing parts (MPBP)	Pressure-bearing housing Parts which are essential to safety of the pressure equipment whose failure could lead to a sudden discharge of pressure energy from the equipment	Parts of the equipment submitted to stress due to pressure contained in the equipment, but whose failure will not lead to a sudden discharge of pressure energy from the equipment			Parts directly attached to pressurised parts (PP) and contributing to the pressure resistance of the equipment e.g. which reinforced against equipment external loadings.			Parts directly attached to CCPR which are not themselves CCPR including «Other parts»(*).			
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Note	See also PED Guidelines G-05, G-06, G-08.																

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