

UK Pressure Equipment

Pressure Equipment (Safety) Regulations

Global Conformity Assessment

A Guide to Site Installed Assemblies

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Foreword

This document has been developed by the Pressure Equipment Consultation Forum (PECF), Safety Assessment Federation (SAFed) and Engineering Equipment and Materials Users Association (EEMUA) in consultation with LRQA and other stakeholders within the pressure equipment industry to help designers, purchasers, installation contractors, users and other parties achieve their legal requirements to ensure pressure equipment can be correctly certified prior to use in the United Kingdom.

This document has been prepared using technical advice provided by the Health and Safety Executive (HSE).

Within this document are references to UK Legislation, GB Regulations and variations of the two. The document was written in August 2023 and at that time recognition of CE marking was to be phased out by 31 December 2024. The relationships of UK Legislation, GB Legislation and CE marking will likely change as technical and administrative divergence commences. The reader is encouraged to confirm the in-force legislation.

Whilst this document primarily relates to pressure systems containing a relevant fluid as defined under the PSSR, where a relevant fluid is not present, other applicable legislation such as PUWER, COMAH and, DSEAR must be consulted. However, the PSSR is regarded as good practice in most applications.

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1. Introduction

This document has been written following a series of meetings and workshops by a wide range of industry stakeholders. The current revision has taken account of the separation activities of the UK from the EU. The European Union Pressure Equipment Directive (EU PED) is legislated for in the UK as the Pressure Equipment (Safety) Regulations 2016 (PE(S)R). These Regulations are ostensibly the same as the EU PED at the time of writing and indeed EU compliant equipment, CE marked, is acceptable in the UK. This situation will continue until the UK Government ends the coexistence period. The use of UKCA marking is a purely UK marking that is not recognised in the EU or elsewhere. In this document we refer to PE(S)R but until technical divergence between UK and EU, much of the guidance would be valid for PED manufacturing however you are advised to seek advice from an EU recognised Conformity Body.

PEDG1 is about assemblies on site and that will be purely under the UK PE(S)R and therefore UKCA marked but may contain CE marked items of pressure equipment and assemblies. This will be a different situation than those practitioners who are assembling for installation in Europe or selling assemblies which are mobile or skid mounted.

The PE(S)R requires that individual items of pressure equipment undergo conformity assessment where appropriate. This also applies to assemblies of pressure equipment which also need to undergo global conformity assessment (GCA) and UKCA marking. Experience within the UK indicates that generally this process works well when assemblies are placed on the market as complete, factory supplied products. However, when assemblies are created on site at the place of installation the legal process of global conformity assessment is often found to be non-compliant. There are a number of reasons why this can happen:

- Large installations can involve work done by several parties and it becomes unclear who has overall responsibility to ensure global conformity assessment happens.
- Sub-contractors appointed by a main contractor may not be aware they have a role to play in the global conformity assessment process.
- Industrial Installations under the responsibility of the end user do not have to undergo global conformity assessment but end users are not always clear on what “under the responsibility of” entails.
- New assemblies can be incorporated into existing assemblies or incorporate an existing pressure vessel built before the implementation of the PE(S)R which leads to uncertainty on the extent of global conformity assessment required.

Assemblies which do not have a global conformity assessment when they are handed over to the end user, may require additional verification to confirm their suitability for service under national legislation such as Pressure Systems Safety Regulations (PSSR).

Note: *Some of these issues are addressed by other guides in this series and that since the UK's exit from the EU, UK Government have commenced the provision of guides specific to the PE(S)R.*

2. Pressure Equipment Assembly Projects and Global Conformity Assessment

Projects involving the assembly and integration of pressure equipment and systems will vary in size, scope and complexity. Some projects can be successfully delivered by a single manufacturer. Where multiple items of equipment and systems are to be integrated it may be necessary to engage with more than one manufacturer or subcontracting organisation who can provide the necessary range of skills and competencies. The regulations require any assembly of equipment to be assessed under a “global conformity assessment” before final certification.

Global conformity assessment basically comprises of three elements:

1. Confirming that each item of pressure equipment has been conformity assessed in accordance with the Pressure Equipment (Safety) Regulations, PE(S)R, and if not, carrying out the assessment.
2. Assessing that the integration of the various sub-assemblies or items of pressure equipment in the assembly is properly addressed. This refers to the essential safety requirements set out in the PE(S)R and could include, for example, design conditions match throughout, Piping & Instrumentation Diagrams reflect integration, process descriptions cover integrated assemblies, operating procedures, mechanical interactions (loads and thrusts, etc.), inspection and testing of the integration process is covered.
3. Assessment that the protection of the overall assembly has been adequately considered against its permissible operating limits. This could include, for example, that hazard analysis has been carried out and the hazards identified have been addressed with appropriate control systems and safety accessories.

The route to successful delivery of a global conformity assessment therefore requires consideration of the optimum contract strategy, nomination of the entity or person who will fulfil the role of manufacturer for global conformity assessment (called the nominated manufacturer in this guidance), understanding of the role and scope of each organisation, their responsibilities and how they will interact with the other parties involved in the delivery of the final integrated assembly and completion of the project.

The following examples of projects help to explain the above.

2.1 Single manufacturer

In its simplest form, a project would involve a single manufacturer making individual items of pressure equipment and then assembling them into the functional whole. The final action would be to place manufactured goods onto the market where it can be procured and put into use by others.

However, before placing the assembly on the market, the manufacturer must declare that it meets the requirements of the PE(S)R and any other applicable Regulations. The single manufacturer is responsible to complete several activities associated with conformity assessment of individual items and the global conformity assessment of the assembly.

The manufacturer’s duties for conformity assessment are described in Appendix 1.

Further information on assemblies and global conformity assessment is given in Appendix 2.

2.2 Multiple manufacturers

The project becomes more complex when it involves several manufacturers making individual items of equipment and/or acquiring items of equipment from others that are then all assembled together.

The acquired equipment could be a pressure relief valve, some isolating valves and a complete section of piping. The nominated manufacturer specifies the duty requirements of the pieces of pressure equipment to meet the design requirements. As before, they are responsible for demonstrating that the final assembly meets its conformity assessment. This means that the individual items of pressure equipment, in this case a safety accessory, some pressure accessories and an item of piping, must meet the relevant individual conformity assessment module requirements and the overall assembly must meet the global conformity assessment module requirements.

Pressure equipment is potentially being supplied from several different sources, including other manufacturers, importers and distributors. Whatever the source, the conformity assessment for the final assembly has to be made by the nominated manufacturer.

In this example there are new interfaces to inform and gain documentation from to ensure the conformity process can be completed.

2.3 Multiple sub-assemblies

A project becomes more complex when sub-assemblies from different manufacturers are brought together in one final assembly. This could be a process plant for example.

Whilst each manufacturer is responsible for conformity assessment and global conformity assessment of their own individual sub-assemblies, the nominated manufacturer must be responsible for the overall conformity assessment of the whole assembly - the overall global conformity assessment. The responsibility extends beyond the demonstration that the individual pieces of pressure equipment and assemblies meet conformity requirements; a demonstration that the whole integration of assemblies is safe is needed.

For example, some considerations may be: how operational aspects, instructions, controls and safety systems are integrated across the interacting assemblies to ensure safety of the assembly as a whole; are sufficient safety accessories provided to protect the assembly from exceeding its design conditions under all operational instances.

This is a more onerous responsibility than in the previous examples and requires the nominated manufacturer responsible for the overall global conformity assessment to inform, at an early stage, the other assembly manufacturers of the type and extent of documentation (and knowledge transfer) required of them. It requires a greater degree of forward planning, specifications, agreements, contracts and communications to ensure the nominated manufacturer can complete the overall global conformity assessment in a timely manner.

Figure 1 outlines the process of conformity assessment and global conformity assessment for a new pressure equipment project that involves a number of different manufacturers supplying sub-assemblies. The following sections describe some of the steps in more detail.