Principles for the Assessment of Assemblies

(Version 17. June 2014)

Accepted by CABF PED/SPVD 2014-06-17 (previous document N 13/046 rev2)

1 Introduction

According to the Pressure Equipment Directive 97/23/EC (PED) Article 10 (2) assemblies shall be subjected to a Global Conformity Assessment procedure (GCA).

Because the procedure itself is not explained in detail in the PED, this document should give guidance regarding how to assess the conformity of assemblies by notified bodies.

The scope of this document is limited to the direct inspection modules A1, B, B1, C1, F, G and for design examination in the course of module H1.

This document shall also be used as guidance for the assessment of QA systems (product, production or full QA system).

2 Objective

The objective of this document is to establish consistency in application of the global conformity assessment procedure by Notified Bodies (NB) as mentioned in article 10 (2) of the PED.

This can be achieved by giving guidance in the main steps to the conformity assessment of assemblies. Furthermore, guidance and explanations are given to a number of WGP guidelines which might need clarification.

The NB's responsibility with regard to assessing the integration and protection of the assembly is to assess the solutions proposed by the manufacturer, in response to the hazards he has considered, by fundamentally reviewing the process safety aspects.

This document is intended to be a public document and available to all parties involved.

Lists in this document are not exhaustive and the actual requirements for specific content will depend on the nature & complexity of each assembly.

For an explanation of the main abbreviations see section 8.

3 Definitions

3.1 Assembly

Article 1 paragraph 2.1.5 defines an assembly as "several pieces of pressure equipment assembled by a manufacturer to constitute an **integrated and functional whole**".

Upper or lower limits for the extent of an assembly are not given. As a result an assembly can vary from small (e.g. fire extinguisher) to very large (e.g. oil refinery).

As there are no such limits, a global conformity assessment can vary from a relatively simple assessment to a complex process. It is advisable that the manufacturer (in many cases in close communication with the user) defines the limits of the assembly as early as possible.

It is important to clarify:

- the preparation work and scope of supply of the manufacturer
- the scope of activities of the NB
- possible influences on the in-service inspections under national law.

Assemblies shall have appropriate safety accessories to protect the assembly against exceeding the permissible operating limits, if deemed necessary as a result of the manufacturer's hazard analysis.

A large and complex assembly can be divided into smaller assemblies called "sub-assemblies". However for any given assembly there can be only one manufacturer, even if per below, it incorporates some "sub-assemblies".

3.2 Sub-assembly

Such “sub-assemblies” can be manufactured by different manufacturers and assessed separately. Residual hazards and necessary appropriate special measures to reduce the risk at the time of integration shall be recorded in the operating instructions.

Sub-assemblies may not include the protective devices necessary for protecting the final assembly.

Residual hazards and necessary appropriate special measures to reduce the risk at the time of integration shall be recorded in the operating instructions e.g. the need or details of appropriate protective devices to be fitted and the need for global conformity assessment to be carried out when the sub-assembly is integrated into a larger assembly.

Sub-assemblies shall be classified in accordance with the highest category of equipment on the sub-assembly (excluding the protective devices).

Manufacturers Declaration of Conformity where the protective devices are not fitted should state assessment of sub-assembly.

For inspection modules the Notified Bodies certificate shall also make reference to sub-assembly and make reference to the need for a Notified Body to be involved in the integration and safety system assessment of the global (final) assembly.

An overall assessment shall be done when sub-assemblies are joined together to form a bigger assembly. In particular the operating instructions of sub-assemblies shall be considered.

4 Category and Modules

According to Article 10 (2a), each item of equipment in the assembly which has not been previously subject to conformity assessment and CE marking, must be assessed according to it’s category.

According to Article 10 (2b) the conformity assessment module for the assessment of the integration is determined by the highest category of the equipment in the assembly (excluding safety accessories).

According to Article 10 (2c) the category for assessment of the protection is determined by the highest category of the protected equipment.

It is possible to determine a lower category for the assessment of the individual equipment based on the actual design conditions in the assembly, rather than on the category determined by the equipment’s rating (see guideline 3-16).

This category can be used for the evaluation of the category for the integration and protection assessment.

See also the note of guideline 3-16 about CE marked equipment in an art 3.3 (sound engineering practice, SEP) assembly.

5 Documentation provided by the manufacturer

Depending on the conformity assessment procedure the manufacturer must provide the following typical technical documentation for the assessment by the NB.

5.1 At the stage of design assessment:

5.1.1 General description of the assembly including the terminal points (sometimes referred to as battery limits), a description of the process, intended use and foreseen misuse, other applied directives)

5.1.2 List of all individual items of pressure equipment in the assembly with all relevant information (PS, TS, volume/DN, content, fluid, category, etc.),
example see appendix 1

5.1.3 Information on which items are to be purchased from suppliers with CE marking and which, if any, are manufactured by the manufacturer of the assembly (e.g. the assembly piping). For purchased equipment, provisions to ensure all items will be

i) correctly specified and

ii) checked to ensure compliance

5.1.4 Hazard analysis of the assembly (considering cases such as fire, loss of coolant system, power failure, etc.), noting that in accordance with WGP guideline 8/4 the purpose is to identify the possible failure modes and the associated applicable ESRs

5.1.5 GCA strategy: a description including; whether the assembly is to be divided into smaller units for assessment, whether any assessment will be required on the user's site etc.

5.1.6 Diagrams and descriptions

- Process flow diagrams,
- Piping & Instrumentation diagrams (PID)

5.1.7 Protection philosophy (sometimes referred to as Safety Narratives) including;

- Information relating to protection e.g.
  - safety valve set pressure, capacity, maximum flow of fluid
- Information relating control and safety loops e.g.
  - Circuit and logic diagrams
  - Device list, e.g. temperature, pressure limiters
  - SIL classification and SIL report
- In case of PLC control systems which incorporate safety functions, the following documents are required in addition:
  - Assignment of safety levels for the protection functions
  - User program (logic diagram)
  - Device and system manual
  - Alarm table and limit value list with substitute value creation
  - Loop and device list for binary transmitter and transmitter

5.1.8 List of standards by which the integration and protection is designed and constructed. Examples of possible standards:

- ANSI/API Standard 521 (or ISO 23251)
- API Standard 520
- EN ISO 4126-1/3/4/5
- EN 764-7
- ISO/IEC 61508, 61511-1/2/3
- EN 12952-10
- EN 12953-8
- EN 378

5.1.9 In cases where harmonised standards are not used, an ESR checklist is required describing how the applicable ESRs are addressed.

5.1.10 Additional documents as necessary to enable assessment e.g.

- Piping stress analysis reports,
- Pump curves,
- Safety valve reaction loads.

5.2 At the stage of manufacturing or final assessment:

5.2.1 Declarations of conformity (DoCs) of all pressure equipment making up the assembly (and which have been subjected to a conformity assessment procedure by the supplier, resulting in CE marking).

5.2.2 The corresponding documentation for equipment classified as SEP (ref WGP 9/19)

5.2.3 Operating instructions for each item of pressure equipment (specifically the safety related information such as; pressure, temperature, fluids, protection as well as any residual hazards)

5.2.4 Declarations of conformity of all other equipment that is essential for the safety of the assembly, and which is covered by another directive.

5.2.5 For relay controls: Written proof of performed functional tests of the hardware and/or software of the safety functions (manufacturer validation, FAT)

5.2.6 As built documentation (e.g. drawings, P&ID's, equipment list)

5.2.7 DOC of the assembly (draft)

5.2.8 Operating Instructions of the assembly (draft)

5.2.9 Documents which have been subject to design examination or type approval (if applicable)

6 Global conformity assessment performed by the NB

All ESRs are to be taken into account in the hazard analysis of an assembly, when applicable.

According to Article 10 section 2 a), b) and c) the global conformity assessment comprises three stages.

6.1 Assessment of each equipment [art 10 (2a)]

There is no need (it is even prohibited) to re-assess equipment that has already been CE-marked. It is however permissible to check for signs of damage during transport or installation and if necessary require such to be rectified. It is also required to verify by review of documents (declaration of conformity) that the equipment is in compliance with applicable legal requirements and has been correctly brought on the market according to the related hazards.

The proper documentation (at least: operating instructions, Declaration of conformity) must be available. The NB should check the DOCs and identify the equipment that has not been assessed yet. Equipment that has not previously been subject to conformity assessment shall be assessed according to a module corresponding to it's category.

Art 15 (3) and Annex I, 3.3 states, that repetitive physical CE-marking for equipment which is intended for the same assembly, may be avoided by using appropriate documentation instead. This is most likely to apply to the assembly piping which is often manufactured by the assembly manufacturer.

6.2 Assessment of integration of components of assembly [art 10 (2b)]

Although the article refers specifically to ESRs 2.3, 2.8 and 2.9 of annex 1, the manufacturer must take into account all applicable ESRs (see guideline 3-12).

6.2.1 Design assessment of integration of components

The following items have to be assessed during the design appraisal of integration.

6.2.1.1 General info, equipment and line list, hazards analysis, process description from a safety point of view, for understanding the use of the assembly, user manuals etc. For examples of equipment lists see appendix 1 and 2

6.2.1.2 Examination of P&ID

6.2.1.3 Suitability and integration of all equipment for the intended use (PS, TS, fluid, vacuum, cold or hot flashing, forces on nozzles, vibration, fatigue, etc.)

6.2.1.4 Possibility of different fluids getting mixed and possible reactions (ESR 2.2.3)

6.2.1.5 Lines connected to a pump, pressure, vibrations, fatigue (ESR 6 d)

6.2.1.6 Flexibility of piping (ESR 6 a) cat II and higher
(the flexibility of the piping itself has been considered during the conformity assessment of the piping. The forces on connecting equipment (nozzle loads) shall be considered during the assessment of the assembly)

6.2.1.7 Nozzle loads on equipment eg. vessels, heat exchangers, pumps, compressors, etc. (ESR 2.2.1 +6 d)

6.2.1.8 Static head of liquid.

6.2.1.9 Conception of proof test (test pressure, medium, etc.), see 6.2.3

6.2.1.10 Extent of non-destructive testing

6.2.1.11 Allowable limits at input and output connections of the assembly (TS, PS, mass flow etc.)

6.2.2 Inspection of integration of components

Items to be inspected at the integration stage include (this list is not exhaustive):

6.2.2.1 Welds / WQ / WPQR/ NDT (WGP 3/15)

6.2.2.2 Provisions to ensure safe handling and operation (ESR 2.3)

6.2.2.3 Means of examination (ESR 2.4)

6.2.2.4 Means of draining and venting (ESR 2.5 + 6 b)

6.2.2.5 Provisions for filling and discharge (ESR 2.9)

6.2.2.6 Connections and supports (ESR 6 a)

6.2.2.7 Verification according to the design examined P&ID (e.g. correct position/sequencing of equipment, valves etc.)

6.2.2.8 Verification according to the design examined isometrics

6.2.2.9 Review of integrated equipment CE marking, DoCs, instructions

6.2.3 Proof test

6.2.3.1 Pressure test

6.2.3.1.1 Each item of pressure equipment shall be subject to a proof test according to Annex I, 3.2.2. The integration of items of pressure equipment should be assessed using GCA. The requirements of Annex I, particularly section 3.2.2, also apply to assemblies.

6.2.3.1.2 A hydrostatic pressure test shall generally be carried out in preference to a gas pressure test or other tests. The hydrostatic pressure test may only be replaced by other appropriate tests, if it is detrimental to the equipment or not feasible.

6.2.3.1.3 The disadvantages or non-feasibility of the hydrostatic pressure test must be substantiated by the manufacturer to the notified body at an early stage in the design assessment period.

6.2.3.1.4 The goal of the pressure test as a proof test is:

- to verify tightness
- to detect defects (e.g. due to faulty welding filler material, improper material selection)
- to detect areas with insufficient strength, e.g. defects in base material of moldings or semi-finished products (incorrect forming or heat treatment)
- to establish a beneficial residual stress field

6.2.3.1.5 If the pressure test is carried out with a compressible fluid (gas pressure test), the higher potential risk shall be taken into account.

6.2.3.2 Replacement of proof test by other tests

6.2.3.2.1 Other tests are an exception to the rule and have to ensure the goal of the proof test (see 6.2.3.1.4).

6.2.3.2.2 The measures for performing other tests must be shown by the manufacturer in a test concept and defined in a test plan. To confirm the measures planned, the test plan should be approved by the notified body.

6.2.3.2.3 Other tests usually include an increase in the amount and/or type of inspection (e.g. additional NDT) and higher quality requirements in the area of specification and production.

6.2.3.2.4 Tie-in welds, golden welds and similar connections:

- The pressure containment aspects of such connections, which cannot be subject to a pressure test, shall be assessed by appropriate methods such as extensive NDT and supplementary leak test (see WGP 3/6)
- If such connections are non-permanent (e.g. flanged, threaded) connections, a leak tightness test may be acceptable. If special requirements for tightness exist (e.g. dangerous fluid), the leak test shall be carried out with an appropriate high pressure and application of adequate sensitive leak detection methods

6.3 Assessment of protection [art 10 (2c)]

If, as a result of the assessment of the integration and/or the hazard analysis, an assembly is to be equipped with protective devices (see EN 764-7), the assessment of the safe-guarding must include at least the following:

6.3.1 Design of protection

Items to be assessed in the design stage of safe guarding:

6.3.1.1 Hazard analysis: All reasonably foreseeable conditions shall be considered (e.g. Normal operation, start-up, normal and emergency shutdown, transient modes, commissioning, standby, draining, purging, venting etc.). In particular one by one consideration of the possible malfunctions (related to pressure or temperature). One single malfunction should not lead to exceeding the design limits of any equipment. Examples are:

- Malfunction of cooling system
- Rupture of one pipe in a heat exchanger
- Closing or opening of one or more valves
- Thermal expansion of liquid
- Power failure / utilities / cooling
- Exothermal reaction
- Fire
- Foreseeable misuse

6.3.1.2 The selection of the appropriate type of safety accessory or combinations of devices taking into account the above scenarios and the principles of LOPA where appropriate.

6.3.1.3 Safety accessories: type , category, capacity, activation value (i.e. pressure, temperature, level), interlocking

- Blow-off capacity calculation/liquid/gas/2-phase mixtures
- lines up- and downstream of safety accessories
    - capacity/size
    - pressure drop
    - back pressure (i.e. from resistance in the line, from general flare system)

- reaction forces at safety accessories during blow off
- supports of the line

6.3.1.4 Control and safety loops including e.g.

- input signals for Emergency Shut Down (ESD) valve
- combination of safety devices such as Regulating Devices (RD) with Pressure Safety Valve (PSV)
  (pressure build-up between RD and PSV)
- electrical and functional safety of control
- relay control includes e.g.
  - electrical safety (general structure of control, sizing)
- acoustic alarm systems
- SRMCR, CSPRS, design, SIL class of components and complete safety loop, evidence of ability to achieve the required SIL class for the complete safety loop.

6.3.1.5 PLC control systems with a safety function including e.g.

- reliable detection and reporting of errors by the PLC (e.g. short circuit or ground fault)
- signal tracking in response to transmitter
- measuring range of the analogue signal transmitter
- response of the PLC when leaving the measuring range of a transmitter.

6.3.1.6 Content of operating instructions e.g.

- intended use and residual hazards
- allowable limits at the assembly terminal points (battery limits)
- safety information relating to mounting, putting into service, operation and maintenance
- information affixed to the assembly
- particular features of the design related to creep, fatigue and/or corrosion
- safety information relating to devices to prevent physical access whilst pressure or vacuum exists
- safety information relating to means for draining/filling/venting

6.3.2 Inspection of protection

Items to be considered in the inspection stage include:

6.3.2.1 activation values, set pressure, temperature, etc. corresponding with the design specification values

- test certificate of opening pressure of safety valve
- simulation test
- actual in-situ test
- certificates of other devices (such as rupture disks)

6.3.2.2 type of safety devices (i.e. material of RD, bellow in PSVs):
corresponds to the design intent

6.3.2.3 lines up- and downstream of safety accessories: Compliance with design examined

- Size, routing
- Supports of the line
- Safe-blow off location.

6.3.2.4 verification of compliance with examined design (P&ID)

6.3.2.5 records of functional safety management

6.3.2.6 location of other equipment

6.3.2.7 verification of locked open/locked closed valves, testing of interlock systems (or comparable system)
reference for level of safety EN 764 part 7 paragraph 8.5

6.3.2.8 data plate and CE-marking for the assembly.

6.3.2.9 safety relay control e.g.

- electrical safety (general structure of control, sizing, laying, fixing and labelling of electrical equipment),
- validation of the protection functions (design, thresholds, safety margins).

6.4 Test Reports

The assessment of the design and manufacture of assemblies must be suitably documented to demonstrate that all appropriate activities have been completed with satisfactory results.

The NB shall check the (draft of the) DOC from the assembly manufacturer. It should be clear that it concerns an assembly (preferably stated as “assembly”, including a list of equipment, reference to art 10.2). The assembly defined in the DOC must correspond with the limits agreed with the NB.

NB shall issue appropriate test reports (design examination report, final assessment and proof test report) according to the requirements of the applicable conformity assessment module (example of design examination report see appendix 2).

6.5 Certificate of conformity

When the conformity assessment has been completed the NB shall issue an appropriate document to the manufacturer according to the requirements of the applicable conformity assessment module.

For modules B, B1, F and G this document shall be a certificate (see annex III), for modules A1 and C1 this document can be any suitable report about the result of the visit and authorising the affixing of the CE marking and NB’s identification number (see CABF-R-013).

Documents issued by the responsible notified body shall leave no doubt about object and extent of conformity assessment and applied procedures. In particular the DoC should clearly indicate that the object of the GCA was an assembly.

7 Specific topics

7.1 Specific topics

7.2 Assembly on site under responsibility of the user (Recital 5)

If a user has bought several pieces of PED-compliant pressure equipment and has them assembled (under his responsibility) and put into service on his site for his own use, the PED does not apply to these 'installations' but these systems must be compliant with national legislation (see guideline 3/1).

As guideline 3/2 states there are two cases to be considered for the joining on site of components or equipment:

1) Joining of component parts: joining of component parts to comprise an item of pressure equipment is subject to the requirements of the Directive. The manufacturer –even if he is the user- has the responsibility that the resulting item of pressure equipment is in compliance with the Directive.

2) Joining of items of pressure equipment.

   The joining is not covered by the PED if it is carried out under the responsibility of the user to constitute an installation (1), but remains covered by national rules.

   If the joining is carried out under the responsibility of a manufacturer to constitute an assembly covered by the definition given in Article 1.2.1.5, this assembly must fulfil the requirements of the Directive.

7.3 Free choice of conformity assessment

Article 3 (2.1) does not include the text "if the manufacturer intents to place it on the market and put it into service as assembly" as it is included in Article 3 (2.2). One could draw the erroneous conclusion, that the manufacturer has the free choice to perform a conformity assessment for such an assembly or not. That is incorrect. If an assembly meets the definition of Article 1 (2.1.5) it must meet the requirements of PED. There is no difference regarding the obligation to perform the conformity assessment of an assembly according to Article 3 (2.1) and an assembly according to Article 3 (2.2).

This does not exclude the possibility of delivering several connected pieces of pressure equipment which will be subject to a GCA in a later stage. (see guideline 3-10)

The choice of the manufacturer is not IF an assembly is being assessed, but WHEN.

8 Abbreviations

PED	Pressure Equipment Directive 97/23/EC
GCA	Global Conformity Assessment
NB	Notified Body
SEP	Sound Engineering Practice
ESR	Essential Safety Requirements
P&ID	Piping & Instrumentation Diagram
SIL	Safety Integrity Level
PLC	Programmable Logic Controller
SRMCP	Safety Related Measurement Control and Regulation
CSPRS	Controlled Safety Pressure Relief Systems
FAT	Factory Acceptance Test
LOPA	Layer of Protection Analysis

Principles for the Assessment of Assemblies

(Version 17. June 2014)

Accepted by CABF PED/SPVD 2014-06-17 (previous document N 13/046 rev2)

Appendix 1 : Example for equipment list

Ref. to PED	Pressure Equipment	Manufacturer	Serial–No.	Volume or Diameter (DN)	max. Design Pressure (PS)	max. Design Temp. (TS)	Fluid	State of aggre gation	Fluid-Group	Category	Applied Module	CE-Marking
Pressure vessel	Air receiver	XYZ- GmbH	123456	1000 L	10 bar	50	air	gas	2	IV	G	CE 0098
Piping	piping, Cu 35 x 1,5	ZZZ-GmbH	111222-1	32 mm	20 bar	50	air	gas	2	art. 3, (3)	-	-
	piping, St 50 x 1	ZZZ-GmbH	111222-2	48 mm	20 bar	50	air	gas	2	I	A	CE
Safety Accessories	safety valve	ABC AG	45678	40 mm	11 bar	50	air	gas	2	IV	B+D	CE 0098
Pressure Accessories	valve, inlet	AXYZ-GmbH	45677	50 mm	16 bar	50	air	gas	2	I		
	valve, outlet	AXYZ- GmbH	45676	32 mm	16 bar	50	air	gas	2	art. 3, (3)		-
	pressure regulator	AXYZ- GmbH	77777	32 mm	12 bar	60	air	gas	2			
	filter	ABAB GmbH	77778	8 L	20 bar	80	air	gas	2			
	separator	ABAB GmbH	77779	10 L	16 bar	50	air	gas	2	I	A	CE
	Pressure gauge	DEFG AG	123987		16 bar	100	Air	gas	2	art. 3, (3)		-
Sub- Assembly	Compressed Air Unit	ZZZ-GmbH	111222		10 bar	50°C	air	gas	2	IV	G	CE 0098
supplemental information	main drawing no. applicable design code	1234567 rev.0 AD-2000										

APPENDIX 2

Accepted by CABF PED/SPVD 2014-06-17 (previous N 13/046 Rev1 Appendix 2)

Example Test Report „Design Examination of an Assembly"

(Version 17. June 2014)

Prüfung des Entwurfs / *design examination*
gemäß DGRL 97/23/EG / *acc. to PED 97/23/EC*

Bericht - Nr. / *report no.:*	**Rev. 0**

Auftragsnr. / *order no.:*		
	Modul: ☐ **B1** ☐ **B** ☐ **G** ☐ **H1** *module:*	
	Kategorie: ☐ **I** ☐ **II** ☐ **III** ☐ **IV** *category:*	
Hersteller / *manufacturer:*	**Benennung /** *description:*	
Umfang bzw. enthaltene Druckgeräte / *scope of assembly and included pressure equipment*		
Vorgelegte Unterlagen: *submitted documents:*		

Die folgenden Drücke und Temperaturen dürfen an den Eingängen der Baugruppe nicht überschritten werden. Diese Werte müssen in der Betriebsanleitung angeführt sein. / *Pressure and temperature must not exceed the following values at the inlet of the assembly. These values must be specified in the operation manual.*

Nummer / *number*	**Beschreibung /** *description*	**PS (bar) /** *PS (bar)*	**TS (°C) /** *TS (°C)*

Die folgenden Gegendrücke und Temperaturen dürfen an den Ausgängen der Baugruppe nicht überschritten werden. Diese Werte müssen in der Betriebsanleitung angeführt sein. / *The back pressure and temperature must not exceed the following values at the outlet of the assembly. These values must be specified in the operation manual.*

Nummer / *number*	**Beschreibung /** *description*	**Gegendruck (bar) /** *back pressure (bar)*	**Temperatur (°C) /** *temperature (°C)*

Die folgenden Ausrüstungsteile mit Sicherheitsfunktion werden für den sicheren Betrieb der Baugruppe benötigt (z.B. Sicherheitsventil). / *The following safety accessories are essential for safe operation of the assembly (e.g. safety relief valve).*

Nummer / *number*	**Fluid /** *fluid*	**Ansprechdruck (bar) /** *set pressure (bar)*	**Abblaseleistung /** *relief capacity*

Die folgenden MSR Einrichtungen werden für den sicheren Betrieb der Baugruppe benötigt (mit einer nachgewiesenen Ausfallwahrscheinlichkeit PFD ≤ 0,1 oder PFH ≤ 10^{-5}). /
The following CSPRS/SRMCR devices are essential for safe operation (with a proven probability of failure on demand PFD ≤ 0,1 or PFH ≤ 10^{-5}).

Nummer / *number*	**Ansprechpunkt /** *set point*	**Ausgelöste Aktion /** *action*	**SIL-Einstufung /** *SIL-classification*

APPENDIX 2

Accepted by CABF PED/SPVD 2014-06-17 (previous N 13/046 Rev1 Appendix 2)

Example Test Report „Design Examination of an Assembly"

(Version 17. June 2014)

Prüfung des Entwurfs / *design examination*
gemäß DGRL 97/23/EG / *acc. to PED 97/23/EC*

Bericht - Nr. / *report no.:*	**Rev. 0**

Sonstige Einrichtungen für den sicheren Betrieb der Baugruppe (z.B. Handarmatur offen verriegelt). /
Additonal devices for safe operation of the assembly (e.g. valve locked open)

Nummer / *number*	**Anforderung /** *requirement*	**Anmerkung /** *comment*

ERGEBNIS / *result*:

☐ **zufriedenstellend /** *acceptable*

Bedingungen und Einschränkungen / *conditions and restrictions*

☐ **nicht zufriedenstellend /** *not acceptable*

Begründung / *justification*

☐ **EG – Entwurfsprüfbescheinigung ausstellen (B1, H1) /** *issue EC design examination certificate (B1, H1)*

Dokumentenrevisionsverzeichnis / *table of revised documents*

Dokument / *document*	Zugehörige Revision des Prüfberichts / *related revision of test report*				
	0	1	2	3	4

Ort / *place*: Datum / *date:* Geprüft, Name und Unterschrift/ *checked, name and signature*

Datum / *date*: Freigegeben, Name und Unterschrift/ *approved, name and signature*
Notified Body xxxx