AGREEMENT

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Titel:	**Guideline on the Risk Assessment of Putting into Operation**
Signatories:	FDBR Vd-TÜV VGB
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Agreement Steam Boilers 001

2010-10

between

FDBR	Fachverband Dampfkessel-, Behälter- und Rohrleitungsbau e. V., Düsseldorf
VdTÜV	Verband der TÜV e. V., Berlin
VGB	VGB PowerTech e. V., Essen

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Guideline on the Risk Assessment of Putting into Operation

Preamble

This agreement is intended to supplement the pertinent rules and regulations. It is a collection of experience made, recommendations and, where required, a concretization of the rules and regulations, which, to the best of our knowledge, reflects the state-of-the-art at its date of publication. This agreement aims at ensuring the operational safety of steam boiler plants and their components.

No liability will be taken for the correctness of the contents of this agreement. Patents and other protective rights shall be clarified under the responsibility of the user

Content

1 Scope

This guideline applies to the putting into operation of power plants and their process equipment. It contains instructions for the establishment of a systematic and comprehensible risk assessment resulting from the various tasks and obligations for manufacturers and plant owners.

2 Introduction

When designing a complex power plant the customer and future employer or plant owner shall define, for the purpose of a risk or safety-relevant assessment, the individual plants and/or plant components and their interfaces.

As regards the procurement/provision of plants, the customer may address to a competent main contractor or within the contract awarding of several lots, to various enterprises. As contractor, the main contractor is responsible for the putting into operation of the complex plant. Where several lots are awarded by contract for individual plants and/or plant components, the respective enterprises are responsible accordingly.

The establishment of the risk or safety-relevant assessment by the employer/plant owner may be based on conformity assessments, operating instructions or supplementary information provided by the manufacturer.

In practice, the terms “putting into operation“, “putting into service“, „trial runs“ are often interpreted in various ways. Therefore, clear distinction shall be made whether activities within the placing on the market are concerned for which the manufacturer is responsible or activities within the German Ordinance on Industrial Safety and Health (BetrSichV) for which the employer/plant owner is responsible.

With the placing on the market the passing of risk from the manufacturer to the customer becomes effective with the hand-over of the plant. The passing of risk cannot become effective until all requirements of the German Product Safety Law (GPSG) § 4 have been fulfilled. For the aforementioned reasons, the passing of risk of a plant or plant component shall be clearly laid down in the contract.

3 Definition

For a better understanding of the various activities, tasks and obligations on the various areas of responsibility of manufacturer and employer/plant owner, the terms derived from the German Product Safety Law (GPSG) and the German Ordinance on Industrial Safety and Health (BetrSichV) will be explained and defined hereafter.

3.1 Putting into operation (IBS)

For a clear definition of terms with respect to the term “putting into service” as per the Ordinance on Industrial Safety and Health (BetrSichV), the term „putting into operation“ is used for the activities during the transfer of the plant by the plant manufacturer from the end of assembly to the placing on the market, such as the:

– putting into operation of the electrical and instrumentation and control equipment,
– functional testing of individual units,
– cold IBS (putting into operation of plant components without active firing system)
– hot IBS (putting into operation of plant without active firing system)
– trial runs by manufacturer.

The trial runs effected by the manufacturer are intended to render evidence to the customer that the contractually agreed performance and delivery requirements have been satisfied and that the plant does not present any risk for employees and third persons (GPSG § 4).

The abovementioned activities prior to the placing on the market given as example fall under the responsibility of the manufacturer (erector, assembly firm or their sub-contractors) and do not cover the utilisation of a plant acc. to BetrSichV §2 (3) or operation of plants subject to supervision acc. to BetrSichV § 2 (4). They shall be performed for the purpose of a conformity assessment (along with the evidence of fulfilment of contractual obligations rendered to the customer) required for the placing on the market.

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3.2 Placing on the market

According to GPSG § 2 (8) the placing on the market covers each transfer of a product to another agency/legal body independently of the fact whether the product is new, used, retrofitted or essentially changed. Products are technical operational equipment and consumer products.

Example for the manufacture of a compressor plant:

The compressor manufacturer buys a compressed-air receiver and the safety devices in addition. Both the compressed-air receiver and the safety devices were sold by the respective sub-contractor to the manufacturer and thus placed on the market. The compressor manufacturer shall then integrate these units into the scope of supply of the compressor plant on the construction site. With the transfer of the ready-to-operate compressor plant and its related documentation to the customer the placing on the market is effected.

3.3 Inspection prior to the first putting into service

Prior to its first putting into service, a plant subject to supervision shall be inspected for proper condition as regards the assembly, erection, installation conditions and safe functioning. As a rule, this inspection will be performed by the accredited inspection body (ZÜS) or, in the cases laid down in the Ordinance on Industrial Safety and Health (BetrSichV) § 14 (3) by a competent person. Distinction has to be made between the two possibilities of practically performing this inspection:

– in parallel to the putting into operation by the manufacturer the tests and inspections required prior to the putting into service as per BetrSichV § 14 shall be performed by order of the future plant owner because they are in the area of responsibility of the latter (cf. BetrSichV § 2 (4)). As duplicate inspections are to be avoided, the customer shall, at the earliest possible date and within his obligations, bring about an agreement on the scope and extent of tests and inspections between the contractor and notified body, where involved, on the one hand as well as accredited inspection body (ZÜS) or competent person on the other hand.
– Upon the placing on the market the plant shall be put out of operation. Then the plant/plant components shall be inspected by the accredited inspection body (ZÜS) or competent person and be put into service again by the plant owner in accordance with the progress of tests and inspections.

3.4 First putting into service

The first putting into service of a plant subject to supervision shall not be effected until the inspection has been confirmed to be successful by the accredited inspection body (ZÜS) or competent person (BetrSichV § 14). Trial runs caused by the plant owner upon putting into service, e.g. the re-adjustment of control devices, are considered to be part of plant operation. In this case, the Ordinance on Industrial Safety and Health (BetrSichV) shall fully apply.

3.5 Plants

Plants comprise several interactive functional units the safe operation of which is essentially governed by such interactions.

3.6 Operational equipment

For the purpose of the Ordinance on Industrial Safety and Health (BetrSichV), operational equipment relates to tools, devices, machines and plants which are provided by the employer as complete and ready-to-use equipment for utilisation at work.

4 Responsibilities

The paragraphs hereafter will explain in detail the responsibilities shown in Figure 1 as regards the erection of a plant subject to supervision.

4.1 Manufacturer (Contractor)

The manufacturer shall be responsible for his product (e.g. the plant or plant components) and their putting into operation until finalisation of the placing on the market. This also applies if the assembly of the plant or plant components is effected in-situ on the premises of the customer or future employer/plant owner. During the putting into operation the plant/partial plant shall not be considered to be operational equipment for the manufacturer’s employees, except for e.g. auxiliary equipment required for putting the plant into operation, thus being operational equipment.

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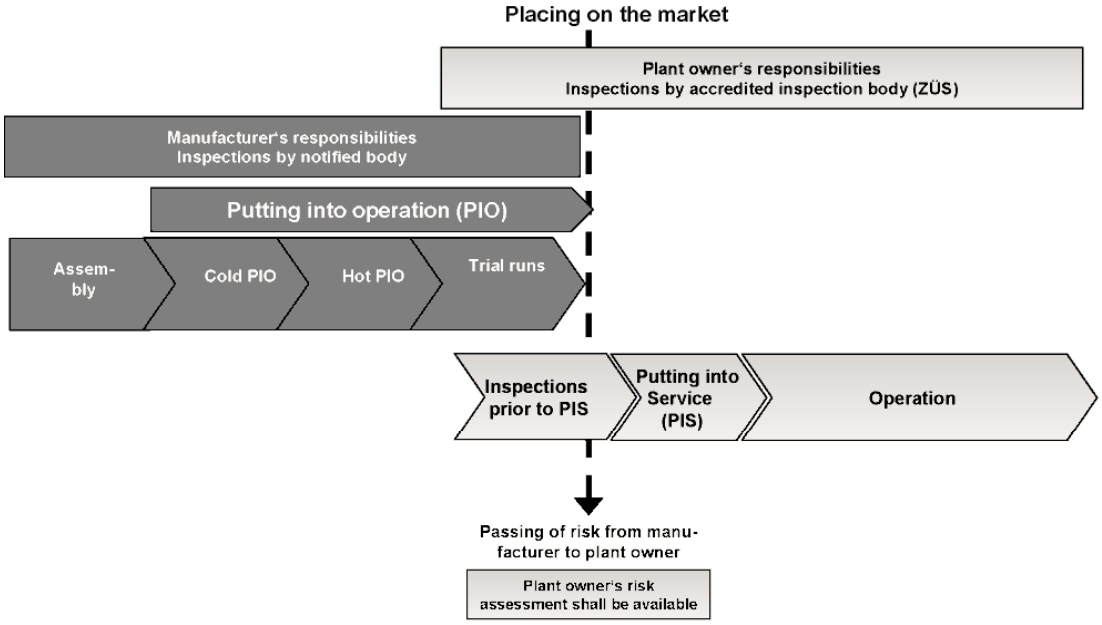

Figure 1. Responsibilities during the erection and operation of a plant subject to supervision Anlage

The risk assessment to be established by the manufacturer for his activities prior to placing on the market, during fabrication, assembly and putting into operation is derived from the Labour Protection Act (ArbSchG) § 5 .

Section 5 describes the establishment of a risk assessment for the putting into operation.

The Agreement on Steam Boilers V-DK-002:2010-10: Instructions for trial runs by the manufacturer within the putting into operation as well as trial runs by the plant owner during the operation of steam boiler plants" contains instructions for trial runs of a steam boiler plant to be effected by the manufacturer.

4.2 Employer (contractor as well as customer)

Where, like during the putting into operation, e.g. employees of several employers work at one workplace , the employers shall be obliged, in accordance with the Labour Protection Act (ArbSchG), § 8 (1), to cooperate as regards the observance of the safety and health prescriptions. The employers shall inform each other and their employees on the safety and health risks which may arise in connection with the work to be done, and shall harmonize their measures to prevent such risks.

Analogous to the Labour Protection Act (ArbSchG), § 8 (2), the contractor should purposefully satisfy himself that the customer's employees being active in the contractor's work area during the putting into operation have also been adequately instructed on the safety and health risks that may arise during their activities. Should this not have been done, accordingly coordinated action (harmonized between the respective employers) shall be taken to instruct all persons employed during the putting into operation on the possible risks and protective measures taken.

The contractor shall establish corresponding test and inspection programs or instructions required for the work to be done during the putting into operation. The contractor shall nominate an experienced person responsible for the performance of the putting into operation.

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4.3 Plant owner (customer)

The customer (employer/plant owner) shall be responsible for the inspection prior to the putting into service and the putting into service itself. With the putting into service the employer places complete and ready-to-use operational equipment at the disposal of his employees for use during work, and shall have established to that very date a risk assessment for this plant based on §3 of the Ordinance on Industrial Safety and Health (BetrSichV).

5 Establishment of the risk assessment for the putting into operation

The contractor's risk assessment for the putting into operation shall be performed to satisfy §5 of the Labour Protection Act (ArbSchG) in due consideration of the special aspects of risk specific to the putting into operation (cf. section 4.1). These result from the fact that the product to be put into operation is not yet ready-to-use. At this stage, the product to be put into operation is still no operational equipment or plant subject to supervision for the purpose of the Ordinance on Industrial Safety and Health (BetrSichV).

The putting into operation shall be based on provisional operating instructions which clearly indicate the mode of operation as specified and the remaining risks. The product operating instructions shall be completed during the course of putting into operation.

For the putting into operation, the required conformity assessment certificates, declarations of conformity or provisional certificates/declarations based on the applied EC Directives shall be submitted to ensure that the products satisfy the directives, technical rules as well as the state-of-the-art.

Further legal prescriptions, such as for the fluids used [Hazardous Substances Ordinance (GefStoffV) or Hazardous Biological Substances Ordinance (BiostoffV)] shall be observed.

The establishment of the risk assessment shall be based on the various stages of putting into operation as shown schematically in Figure 2. A selection of possible risk and exemplary measures are shown. For the respective case of application, project and firm-specific adaptations may be made.

6 Documents to be provided by the contractor

To meet the legal requirements (in Germany, especially the Ordinance on Industrial Safety and Health) the extent of documentation, especially operating instructions for equipment (components), systems/partial plants and the complete plant shall be available to the plant owner prior to the putting into operation at least as provisional documents so that the required risk assessment can be drawn up. Instructions for the establishment of operating instructions are e.g. given in the FDBR-Instruction Sheet 15, VGB-R 171 Annex D.

Agreement shall be made between the customer and the contractor as to what extent the contractor's risk assessment is to be handed over to the customer at the various stages of putting into operation.

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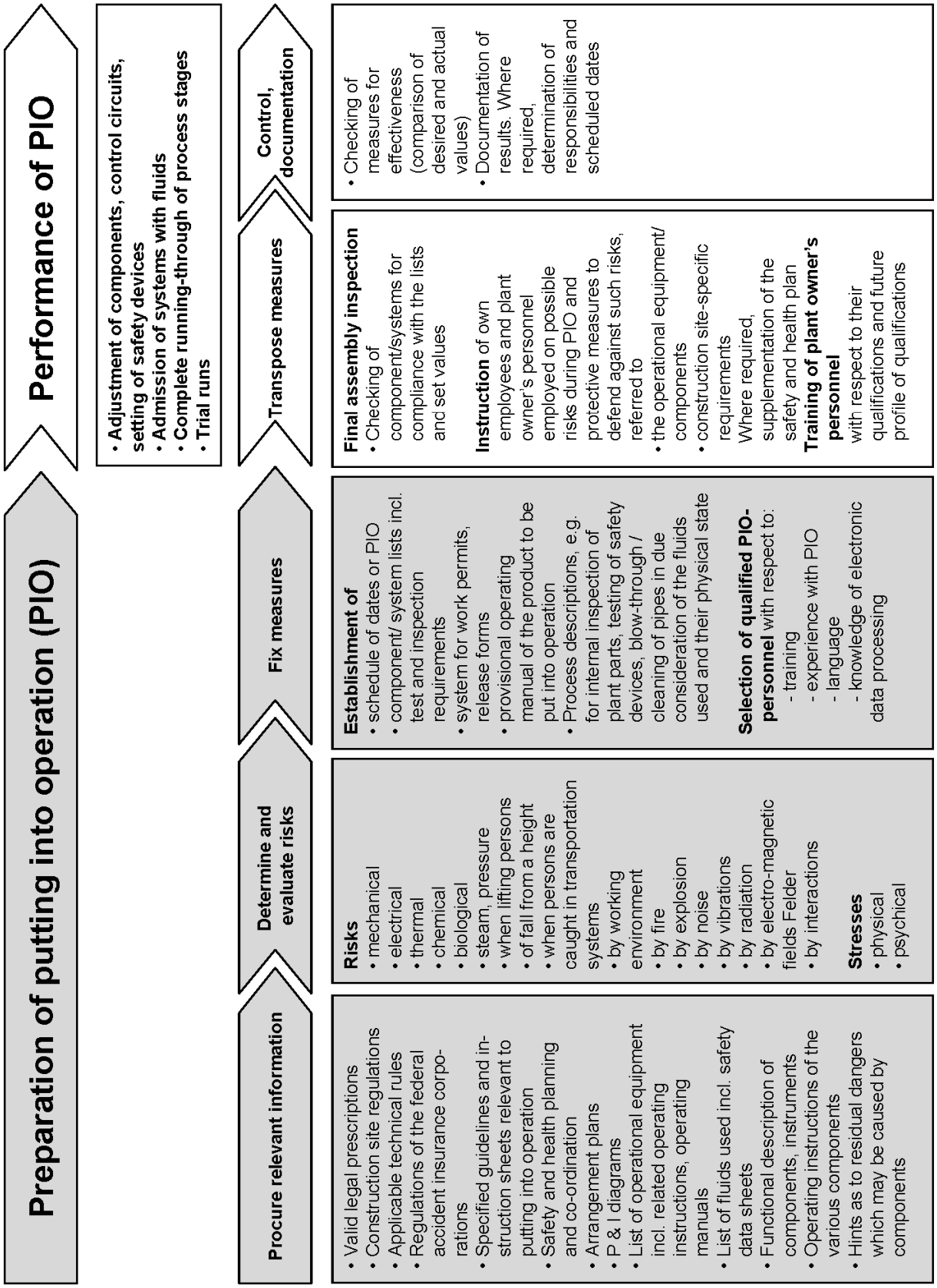

Figure 2. Sequence of risk assessment procedures during the preparation and performance of the putting into operation

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7 Further remarks on the putting into operation

For further guidelines as to the putting into operation see e.g.:

Steam Boiler Agreement V-DK-002:2010-10 “Instructions for trial runs by the manufacturer within the putting into operation as well as trial runs by the plant owner during the operation of steam boiler plants”

VGB R 511 VGB Guideline on the Erection and Putting into Operation of Fossil-Fired Power Plants

VGB R 511a VGB Guideline on the Erection and Putting into Operation of Fossil-Fired Power Plants – Construction Site Regulations

Düsseldorf, 22nd of October 2010

Fachverband Dampfkessel- , Behälter- und Rohrleitungsbau e. V.

Signed: Dr. Maaß

Berlin, den 03rd November 2010

Verband der TÜV e. V.

Signed: Dr. Brüggemann

Essen, den 21st Oktober 2010

VGB PowerTech e. V.

Signed: Dr. Theis

8 Referenced German standards and guidelines *

ArbSchG	Gesetz über die Durchführung von Maßnahmen des Arbeitsschutzes zur Verbesserung der Sicherheit und des Gesundheitsschutzes der Beschäftigten bei der Arbeit (Arbeitsschutzgesetz)
BetrSichV	Verordnung über Sicherheit und Gesundheitsschutz bei der Bereitstellung von Arbeitsmitteln und deren Benutzung bei der Arbeit, über Sicherheit beim Betrieb überwachungsbedürftiger Anlagen und über die Organisation des betrieblichen Arbeitsschutzes (Betriebssicherheitsverordnung)
BiostoffV	Verordnung über Sicherheit und Gesundheitsschutz bei Tätigkeiten mit biologischen Arbeitsstoffen
FDBR-Merkblatt 15	Hinweise zur Erstellung einer Betriebsanleitung
GefStoffV	Verordnung zum Schutz vor Gefahrstoffen (Gefahrstoff-Verordnung)
GPSG	Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz)
VGB-R 171	Richtlinie zur Lieferung der technischen Dokumentation für fossil befeuerte und regenerative Kraftwerke

* Available in German language only

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