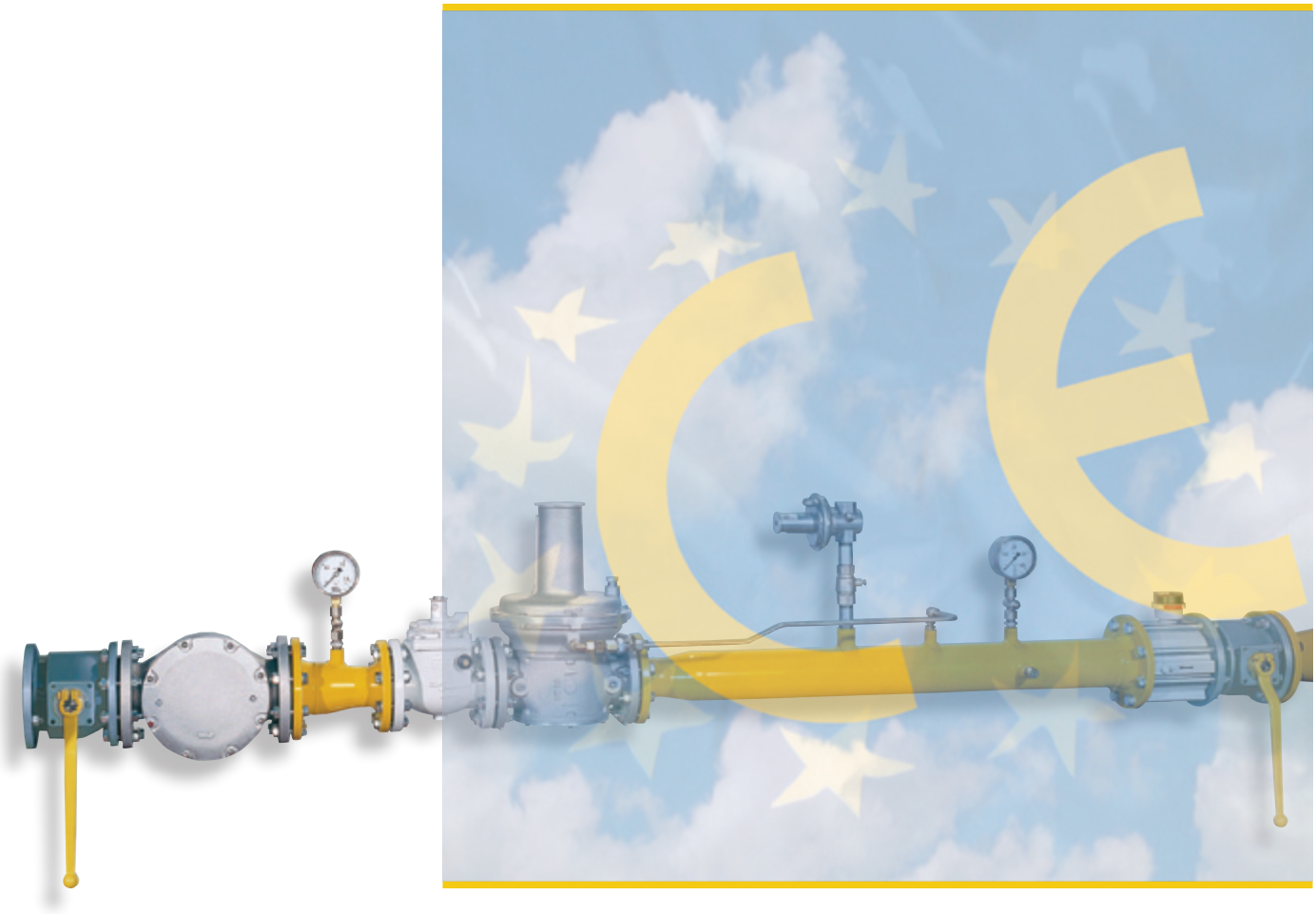


Implementation of Pressure Equipment Directive 97/23/EC

Edition 04.07 GB

Implementation of Pressure Equipment Directive 97/32/EG

The Directive 97/23/EC of the European Parliament and of the Council on Harmonisation of the Legislation of the Member States Regarding Pressure Equipment was passed on 29 May 1997. Implementing and applying the Pressure Equipment Directive necessitate rethinking on the part of manufacturers, experts, public authorities and operators.

For thousands of items of pressure equipment – ranging from the pressure cooker and diving vessels through to non-nuclear technical systems – since 30 May 2002 there have been new, stricter safety standards in force, following full implementation of the new Directive throughout the EU. Pressure Equipment Directive 97/23/EC replaces product-specific national regulations with European safety regulations aimed at avoiding risks on the basis of classification in accordance with the maximum allowable pressure. Compliance with the essential safety requirements of the Directive is checked within the context of a series of risk categories. Products fulfilling the requirements are awarded the CE marking and are therefore eligible for sale throughout the EU, within the European Economic Area and in those member countries which have already converted the Directive into national law. In this way, access to the single European market should become easier for the manufacturers of pressure equipment throughout the EU. At the same time, some 50 new European standards for pressure equipment and equipment accessories are designed to make it easier for manufacturers to meet the essential requirements of the Directive.

In accordance with the above Directive, the stated threshold value for pressure and/or volume, pressure equipment must

– be safe,
– meet essential safety requirements covering design, manufacture and testing,
– satisfy appropriate conformity assessment procedures and bear the CE marking, and
– be accompanied by instructions for use.

In accordance with the many technical aspects applicable, for the purposes of assessing the conformity of the relevant item of equipment with the requirements of the EC Pressure Equipment Directive, there is a system of procedures assessing a variety of requirements provided on a modular basis.

Structure of the Directive

Scope of validity (Article 1)
The Directive applies to design, manufacture and conformity assessment of pressure equipment and assemblies of pressure equipment with a maximum allowable pressure exceeding 0.5 bar above atmospheric pressure (i.e. 1.5 bar absolute pressure).

Definition of terms used (Article 1)
The expression “pressure equipment” covers vessels, piping, safety accessories and pressure accessories. Pressure equipment, if applicable, also covers all elements attached to pressurised components, such as flanges, couplings, supports, lifting lugs etc. Vessels are defined as closed components designed and constructed to accommodate pressurised fluids. ”Piping” means line components designed to duct fluids and interconnected for installation in a pressure system. Safety accessories are devices designed to protect the pressure equipment if the permitted limits are exceeded. Pressure accessories are devices with an operating function featuring a housing to which pressure is applied. ”Assemblies” means several pieces of pressure equipment assembled by a manufacturer to constitute an integrated and functional whole.

Exceptions (Article 1.3)
A number of items of pressure equipment are not covered by the scope of validity of this Directive even though they are designed for a maximum allowable pressure above the limit value, for instance:
– equipment for which there are already regulations at EU level;
– equipment subject to low pressure risks (Category I of the Pressure Equipment Directive) and which is covered by the Directives relating to machinery, lifts, low-voltage, medical products, gas appliances and equipment for use in explosion-hazard areas (NB: The requirements in terms of safety function in respect of the use of gas are adequately covered by compliance with the essential requirements of the GAD Gas Appliances Directive (90/396/EEC).),
– equipment on which there are no significant pressure risks, such as equipment for distribution of water, radiators and pipes for hot-water heating systems and containers for beverages containing carbon dioxide,
– equipment on which there are, admittedly, significant pressure risks but on which neither the aspect of free trade nor the safety aspect necessitate inclusion, e.g. high-voltage switchgear.

Equipment prototypes to be exhibited at trade fairs do not need to meet the requirements of this Directive if appropriate safety measures are taken.

Product classification (Article 3)

In order to establish how the Directive is to be applied to specific items of pressure equipment, a manufacturer must assign the item of equipment to one of four conformity assessment procedures, i.e. he must classify the item of equipment in one of the Categories I to IV. Category I is the lowest risk category and Category IV is the highest risk category. Devices below Category I are covered by the regulations for "sound engineering practice"; the conformity assessment procedure does not apply to them.

In order to determine in what Category a specific item of pressure equipment must be classified, the manufacturer must note the following criteria:

– Type of equipment – vessels / steam generators / pipes
– State of aggregation of the scheduled fluid – gaseous or liquid
– Fluid group of the scheduled fluid – Group 1 or Group 2

Group 1 covers the fluids which are classified as follows pursuant to the EC Directive Relating to Classification of Hazardous Substances:

– explosive
– highly flammable
– readily flammable
– flammable (if the maximum allowable temperature lies above the flash point)
– very toxic
– toxic
– fire-intensifying

Group 2 covers all other fluids, including water and steam.

Depending on the above-listed criteria, one of the nine diagrams in Annex II of the Directive determines the applicable category of conformity assessment (sound engineering practice, I, II, III or IV).

	Vessels				Steam-generatorr	Pipes			
State of aggregation	Gas		Liquid			Gas		Liquid	
Fluid group	Haz.	other	Haz.	other		Haz.	other	Haz.	other
See diagram (Annax II of the directive)	1	2	3	4	5	6	7	8	9

In these diagrams (1-9), the maximum allowable pressure (PS) (bar) is plotted against the volume in litres, V(L) in the case of vessels and against the nominal diameter (DN) in the case of pipes. These diagrams contain up to five subdivisions for the various categories (sound engineering practice, I, II, III or IV). Delimiting curves on the individual diagrams indicate the maximum values for the maximum allowable pressure and the volume or nominal diameter in each category. The manufacturer must plot the maximum pressure and the volume or the nominal diameter for his item of equipment on the appropriate diagram in order to determine what category his item of equipment belongs to. In general, the category for the item of equipment will be lower, the lower the pressure and volume are.

Pressure accessories

Application of diagrams 1 to 4 in Annex II to vessels or application of diagram 6 to 9 to pipes depends on whether the volume (V) or the nominal diameter (DN) is considered to be the appropriate criterion for classification. If both the volume and the nominal diameter are considered to be appropriate, the pressure accessory must be classified in the resultant higher category.

Safety accessories

These parts are basically classified in Category IV. Safety accessories manufactured for specific devices can be classified in the same category as the devices which they serve to protect (Savety shut-off valves, Safety relief valves, Pressure switches).

Assemblies

Special regulations apply to assemblies (Article 10.2) on the basis of the classification of the individual items of equipment of which the assembly is comprised.

Technical requirements (Article 3)

The Directive prescribes that all pressure equipment and assemblies within the scope of validity must be safe when marketed and when commissioned. The essential requirements and the assessment procedures do not apply to equipment covered by 'sound engineering practice'. Pressure equipment of Categories I, II, III and IV must comply with the essential requirements set out in Annex I of the Directive. Assemblies which contain at least one pressure component classified in Categories I to IV must also comply with the essential safety requirements. Extensive requirements applicable to design, manufacture, testing, inspection, identification and labelling and extensive requirements relating to the materials apply to these. The manufacturer is obliged to conduct a hazard analysis in order to determine what risks relate to his equipment. He must design, construct and test his equipment in such a manner that safety of the equipment is guaranteed when used, inasmuch as the equipment is used under conditions which can reasonably be foreseen. In addition, the manufacturer must interpret and apply the essential requirements so as to allow for the state of the art and practical aspects on the date of design.

Conformity assessment (Article 10)

Before pressure equipment of Categories I to IV is marketed, the pressure equipment must be subjected to the corresponding conformity assessment procedures (modules). Depending on the category of the device, the manufacturer chooses one of the 'modules' listed in the tables below. The manufacturer can select a procedure on the basis of a specific test of the product or on the basis of a quality system. In addition, it is also possible to apply modules which are intended for a higher risk category to lower categories.

The provisions of Article 10.2 apply to conformity assessment of assemblies. This means that an item of pressure equipment which is a part of an assembly is assessed in accordance with the diagrams in Annex II and that an assessment is conducted when each item of pressure equipment is installed. 'Notified bodies' (Article 12) appointed by member states must participate in the modules for products of Categories II, III and IV. This participation takes the form of acceptance testing and monitoring of the manufacturer's quality system or direct examination of the product.

Modules for relevant categories

	Conformity assessment procedure in the absence of a quality management system		Conformity assessment procedure in the presence of a quality management system		
Cat. I	A Internal production control				
Cat. II	A1 Internal manufacturing checks with monitoring of the finel assessment		E1 Product QS	D1 Production QS	
Cat. III	B+C1 EC type-examination and conformity to type	B1+F Product verification	B1+D Product QS	B+E Product QS	H Full QS
Cat. IV	G EC unit verification	B+F Product verification	B+D Production QS	H1 Full QS with design-examination and monitoring	

The modules applied by Elster Kromschröder are highlighted with a „yellow" background.

Module description

Category I

Module A
Internal production control

Elster Kromschröder
- Elaborates technical documentation relating to design, production and mode of operation of the pressure equipment.
- Takes all required measures to ensure that the production process guarantees compliance of the pressure equipment with the technical documentation and with the requirements applicable to it.
- Ensures and declares that the pressure equipment in question meets the requirements Manufacturer or authorised representative.
- Attaches the CE mark to each item of pressure equipment.
- Issues a Declaration of Conformity.
- Retention for inspection by monitoring authorities of a copy of the declaration of conformity and the technical documentation for a period of 10 years after production of the last item of pressure equipment.

Notified body
Not scheduled.

Category II

Module D1
Production quality assurance

Elster Kromschröder
- Applies to a notified body for an assessment of the quality system.
- Maintains an approved quality system for production, final acceptance and other tests and is subject to monitoring by the notified body.
- Ensures and declares that the pressure equipment meets the requirements of the Directive applicable to it.
- Undertakes to meet the obligations resulting from the quality system in its approved form and to ensure that the system always functions correctly and efficiently.
- Assists the notified body in its task of monitoring the quality system.
- Elaborates the technical documents in relation to design, manufacture and mode of operation of the pressure equipment for an assessment of compliance of the pressure equipment with the requirements of the Pressure Equipment Directive.
- Retains the documents listed below available for the public authorities for ten years subsequent to manufacture of the last item of pressure equipment:
  – the technical documents,
  – documents relating to the quality system,
  – the assessment of the updates to the quality system from the notified body,
  – the assessments (auditing) of the quality system from the notified body,
  – reports of the inspection visits by the notified body.
- Attaches the CE mark to each item of pressure equipment.
- Attaches the identification number of the notified body after the CE mark.
- Issues a Declaration of Conformity.
- Informs the notified body of his intention to update the quality system.

Notified body
- Assesses the manufacturer's quality system.
- Checks planned modifications to the quality system.
- Conducts audits regularly.
- May make unannounced visits to inspect that the quality system is functioning correctly.
- Notifies the member states of pertinent information relating to withdrawn approval of the quality system.
- Notifies the other notified bodies of pertinent information relating to withdrawn or refused approval of the quality system.

Category IV

Modules B+D
EC type-examination + production quality assurance

Module B, Elster Kromschröder
- Produces technical documentation on design, manufacture and function of the pressure equipment.
- Submits application for EC type-examination to a single Notified Body.
- Provides the Notified Body with one representative sample (or a number of samples), as model types for the intended production.
- Informs the Notified Body of all modifications to the approved type.
- Retains the technical documentation and a copy of the EC type-examination certificate for a period of 10 years from production of the last item of pressure equipment.

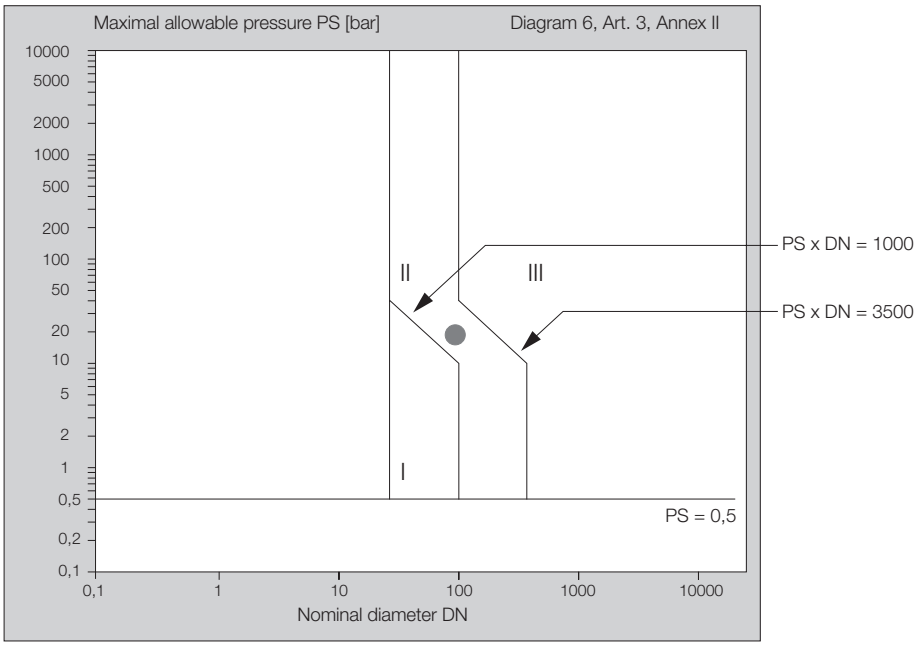
Module B, the Notified Body
- Checks and confirms that the representative production sample is in correspondence with the requirements of the Pressure Equipment Directive.
- Checks technical documents.
- Where required, produces individual certificates in respect of materials.
- Issues approval for the working procedure or checks whether the working procedure is already approved.
- Checks that the testing personnel are properly qualified.
- Carries out the corresponding examinations where no harmonised standards are applied.
- Checks whether the relevant standards are being applied properly.
- Issues the EC type-examination certificate.
- Forwards to the member states any appropriate information in respect of revoked EC type-examination certificates.
- Forwards to the other Notified Bodies the appropriate information in respect of revoked or refused EC type-examination certificates.

Module D, Elster Elster Kromschröder
- Submits an application for assessment of the quality assurance system to a Notified Body.
- Maintains an approved quality assurance system for manufacture, final acceptance and other testing, and is subject to monitoring by the Notified Body.
- Ensures and declares that the pressure equipment is in compliance with the type of construction specified in the EC type-examination certificate or in the EC design-examination certificate, and that it fulfils the applicable requirements for these.
- Informs the Notified Body about the production programme, to allow pressure testing to be carried out by the Notified Body on a random sampling basis.
- Commits itself to fulfilling the obligations arising out of the quality assurance system in its approved form and taking steps to ensure that it functions properly and efficiently at all times.
- Supports the Notified Body in the process of monitoring the quality assurance system.
- Retains for inspection by the relevant authorities, for a period of ten years from production of the last item of pressure equipment, the following documents:
  – documentation on the quality assurance system,
  – the assessment of updates to the quality assurance system provided by the Notified Body,
  – the assessments (auditing) of the quality assurance system provided by the Notified Body,
  – reports on control visits carried out by the Notified Body.
- Applies the CE marking to each item of pressure equipment.
- Applies the reference number of the Notified Body behind the CE marking.
- Produces a declaration of conformity.
- Informs the Notified Body of its intention to proceed to an update of the quality assurance system.

Module D, the Notified Body
- Assesses the manufacturer's quality assurance system.
- Checks planned modifications to the quality assurance system.
- Carries out regular audits.
- May undertake unannounced visits.
- In the course of unannounced visits, carries out pressure testing on:
  – vessels for gases, Fluid Group 1+2 (Category III and IV),
  – vessels for liquids, Fluid Group 1 (Category III and IV).
- Forwards to the member states any appropriate information in respect of revoked approval of the quality assurance system.
- Forwards to the other Notified Bodies the appropriate information in respect of revoked or refused approval of the quality assurance system.

Classification and marking of Elster Kromschröder fittings

Conformity assessment for a valve or fitting
Example:
Manual valve AKT 100F160
= Pressure accessory
Medium characteristic in accordance with Article 9 of the Directive: Group 1 – Hazardous
Medium state: Gaseous
= Diagram 6, Annex II
Design data: Max. allowable pressure (PS) = 16 bar
Nominal diameter DN = 100
Product PS x DN = 1600



Manual valve AKT
Pressure accessory
Fluid group 1
Diagram 6, Annex II
All nominal diameters up to **DN 25** are covered by Article 3, Para. 3 under “sound engineering practice” and may not be provided with a CE mark.
The nominal diameters **DN 32 to DN 50** are covered by Category I. Since an approval pursuant to the
Gas Appliances Directive 90/396/EEC has been issued, these valves and fittings are not covered by the scope of application of the PED pursuant to Article 1, Para. 3.6.
Nominal diameters **DN 65 to DN 250/200** are covered by Category II and are marked with “CE 0045”.

Thermal equipment trips TAS
Pressure accessory
! The safety function of the fitting is based on automatic closing in the event of a fire. It must thus not be considered as a valve or fitting with safety function which foresees closing for direct pressure limitation as defined by the PED **!**
Fluid group 1
Diagram 6, Annex II
Nominal diameters **DN 32 to DN 100** are covered by Category I. Since an approval has been issued pursuant to the Gas Appliances Directive 90/396/EEC, these fittings are not covered by the scope of application of the PED in accordance with Article 1, Para. 3.6.
Nominal diameters **DN 125 to DN 200** are covered by Category II and are marked with “CE 0045”.

Manual valves with thermal equipment trip AKT..TAS
See above
Nominal diameters **DN 32 to DN 100** are covered by Category I. Since an approval has been issued pursuant to the Gas Appliances Directive 90/396/EEC, these valves and fittings are not covered by the scope of application of the PED in accordance with Article 1, Para. 3.6.
Nominal diameters **DN 125 to DN 150** are covered by Category II and are marked with “CE 0045”.

Pressure gauges KFM and RFM
Pressure accessory
! Pursuant to Guideline 1/6, pressure gauges do not constitute safety accessories.
They are pressure accessories as defined by Article 1, Para. 2.1.4 which may be subject to a CE marking requirement for high-pressure components (cf. Guideline 1/5 further to Article 3 relating to high-pressure equipment with a low volume).
Guideline 1/5 refers to diagram 1, Annex II, vessels with a volume = 0.1 l.
Article 3.3 is applicable at a pressure = 200 bar **!**
All pressure gauges up to this indicated pressure are covered by “sound engineering practice” and may not bear a CE marking.

Positive pressure protection for pressure gauges UDS
Pressure accessory
! Pursuant to Annex II, Point 2, safety accessories manufactured for specific devices may be classified in the same category as the device to be protected **!**
Article 3.3 is applicable to pressure gauges with $p_{e\ max}$ of = 200 bar (“sound engineering practice”).
Thus, positive pressure protection devices are also classified in this category and may not bear a CE marking.

Manual cock for pressure gauge DH, pressure gauge cock MH
Pressure accessory
! The maximum pressure is 4 bar (DH) or 100 bar (MH); the inside volume is max. 0.1 l.
In accordance with diagram 1, Annex II, valves and fittings up to a pressure of = 200 bar are classified “sound engineering practice” pursuant to Article 3.3 **!**

Pressure Switch DG
All Elster Kromschröder pressure switches are rated for a max. response pressure of 0,5 bar. That means PS is within 0,5 bar. The PED exclude pressure devices with an operating pressure not higher then 0.5 bar (Item 4 in the preface). Because pressure switches according to the dedication article 1, § 2.1.3 of the PED are devices with safety function, the covered device has to be included in the consideration.
But in this case it is not possible that the operating pressure exceed 0,5 bar, that means That the pressure device is not part of the PED.

Non-return valve GRS
These devices are for a max. operating pressure of 0.1 bar, therefore
the GRS is not part of the PED.

TÜV NORD

CERTIFICATE

Quality system

according to directive 97/23/EC

Certificate No.: 07 202 5835 Z 0157/6/2

Name and address of bearer:	Elster Kromschröder GmbH Strotheweg D-49504 Lotte-Büren

We hereby certify that the manufacturer has established a quality system for the manufacturing of pressure equipment according to directive 97/23/EC. The manufacturer is entitled to mark the pressure equipment produced within the range of the quality system with the following mark:

CE 0045

Tested according to 97/23/EC:	production quality assurance (module D)
Test report No.:	5835 P 0157/6/1
Range of products:	Safety shut-off valve JSAV / CE-0085BN0196 " / CE-0085AS202 Safety relief valve VSBV / CE-0085AP0151
Place of manufacture:	D-49504 Lotte-Büren
valid until:	2009-03-01

Osnabrück, 2006-07-06

TÜV CERT- Zertifizierungsstelle
für Druckgeräte
der TÜV NORD Systems
GmbH & Co. KG

Willmeyer
Certification Body EC-Reg.No. 0045

notified body TÜV NORD 0045 TÜV NORD Systems

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Member of CEOC

TÜV NORD

CERTIFICATE

Quality system
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Certificate No.: 07 202 5835 Z 0157/6/2

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CE 0045

Tested according to 97/23/EC:	production quality assurance (module D1)
Test report No.:	5835 P 0157/6/1
Range of products:	Manual valve AKT (16 bar), AKT...TAS, Thermally tripping shut off valve TAS, Gas filter GFK, Governor for gas VGBF, Motorized valve for gas VK, Stainless steel bellow EKO, Piping and assemblies
Place of manufacture:	D-49504 Lotte-Büren
valid until:	2009-03-01

Osnabrück, 2006-07-06

TÜV CERT- Zertifizierungsstelle
für Druckgeräte
der TÜV NORD Systems
GmbH & Co. KG

Willmeyer

Certification Body EC-Reg.No. 0045

Notified body TÜV NORD 0045 TÜV NORD Systems

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e-mail dwillmeyer@tuev-nord.de

Member of CEOC

Non-return valve with flashback protection GRSF
Pressure accessory

Nominal diameter	Diagram 6; Annax II; $p_{e\ max}$ 5 bar - gas
DN 15–25	-
DN 40–50	Category I

Stainless steel bellows units EKO
Pressure accessory

Nominal diameter	Diagram 6; Annax II; $p_{e\ max}$ 4 bar - gas
Up to DN 25	-
DN 32–DN 100	Categorie I
DN 125–DN 200	Categorie II

Nominal diameter	Diagram 7; Annax II; $p_{e\ max}$ 10 bar - air
Up to DN 100	-
DN 125–DN 200	Categorie I

Stainless steel flexible tubes ES
Pressure accessory

Nominal diameter	Diagram 6; Annax II; $p_{e\ max}$ 4 bar - gas
Up to DN 25	-
DN 32–DN 100	Categorie I

Nominal diameter	Diagram 7; Annax II; $p_{e\ max}$ 16 bar - air
Up to DN 50	-
DN 65–DN 100	

Flow meter DM; DE; DU
Pressure accessory
Applied conformity assessment procedure: Category IV; Modules B + D

Nominal diameter	Diagram 6; Annax II; $p_{e\ max}$ 4 bar - gas
Up to DN 25	-
DN 40–DN 100	Categorie I
DN 150	Categorie II

Nominal diameter	Diagram 7; Annax II; $p_{e\ max}$ 16 bar - air
Up to DN 100	-
DN 150	Categorie I

Nominal diameter	Diagram 6; Annax II; $p_{e\ max}$ 16 bar - gas
DN 25	-
DN 40 and DN 50	Categorie I
DN 80–DN 150	Categorie II

Adjusting cocks GEHV
Pressure accessory

Nominal diameter	Diagram 6; Annax II; $p_{e\ max}$ 1 bar - gas
Up to DN 25	-
DN 40 and DN 50	Categorie I

Nominal diameter	Diagram 7; Annax II; $p_{e\ max}$ 4 bar - air
Up to DN 100	-

Adjusting cocks GEH
Pressure accessory

Nominal diameter	Diagram 6; Annax II; $p_{e\ max}$ 1 bar - gas
DN 25	-
DN 32–DN 50	Categorie I

Adjusting cocks LEH
Pressure accessory

Nominal diameter	Diagram 7; Annax II; $p_{e\ max}$ 4 bar - air
Up to DN 100	-

Governor for gas VGBF
Pressure accessory

Nominal diameter	Diagram 6; Annax II; $p_{e\ max}$ 4 bar - gas
DN 40–100	Categorie I / GAD
DN 150–250	Categorie II

Safety shut-off valve JSAV
Valve performing safety function All nominal diameters Category IV

Safety relief valve VSBV
Valve performing safety function Category IV

Solenoid valve VG
Pressure accessory

Nominal diameter	Diagram 6; Annax II; gas
DN 6–25	-
DN 32–00	Categorie I / GAD

Motorised valve VK
Pressure accessory

Nominal diameter	Diagram 6; Annax II; gas
DN 40–100	Categorie I / GAD
DN 125–250	Categorie II

Gas filter GFK
Pressure accessory

Nominal diameter	Diagram 6; Annax II; $p_{e\ max}$ Up to 6 bar - gas
DN 32–100	Categorie I / GAD
DN 125–250	Categorie II

Assemblies

Article 1 Scope and definitions
Para. 2.1.5:
"Assemblies" means several pieces of pressure equipment assembled by a manufacturer to constitute an integrated and functional whole.

Article 10 Conformity assessment
Para. 2:
Assemblies referred to in Article 3 (2) shall be subjected to a global conformity assessment procedure comprising:

a) Assessment of each item of pressure equipment making up the assembly and referred to in Article 3 (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 each item of equipment.

b) The assessment of the integration of the various components of the assembly as referred to in sections 2.3, 2.8 and 2.9 of Annex I which shall be determined by the highest category applicable to the equipment concerned other than that applicable to any safety accessories.

c) The assessment of the protection of an assembly against exceeding the permissible operating limits as referred to in sections 2.10 and 3.2.3 of Annex I shall be conducted in the light of the highest category applicable to the items of equipment to be protected.

Annex I Essential safety requirements
2.3 Provisions to ensure safe handling and operation.
The method of operation specified for pressure equipment must be such as to preclude any reasonably foreseeable risk in operation of the equipment. Particular attention must be paid, where appropriate, to:

- closures and openings,
- dangerous discharge of pressure relief blow-off,
- devices to prevent physical access whilst pressure or a vacuum exists,
- surface temperature taking into consideration the intended use,
- decomposition of unstable fluids.

In particular, pressure equipment fitted with an access door must be equipped with an automatic or manual device enabling the user easily to ascertain that the opening will not present any hazard. Furthermore, where the opening can be operated quickly, the pressure equipment must be fitted with a device to prevent it being opened whenever the pressure or temperature of the fluid presents a hazard.

2.8. Assemblies
Assemblies must be so designed that:

- the components to be assembled together are suitable and reliable for their duty,
- all the components are properly integrated and assembled in an appropriate manner.

2.9. Provisions for filling and discharge
Where appropriate, the pressure equipment must be so designed and provided with accessories, or provision made for their fitting, as to ensure safe filling and discharge in particular with respect to hazards such as:

a) on filling:
  - Overfilling or overpressurization having regard in particular to the filling ratio and to vapour pressure at the reference temperature.
  - Instability of the pressure equipment;

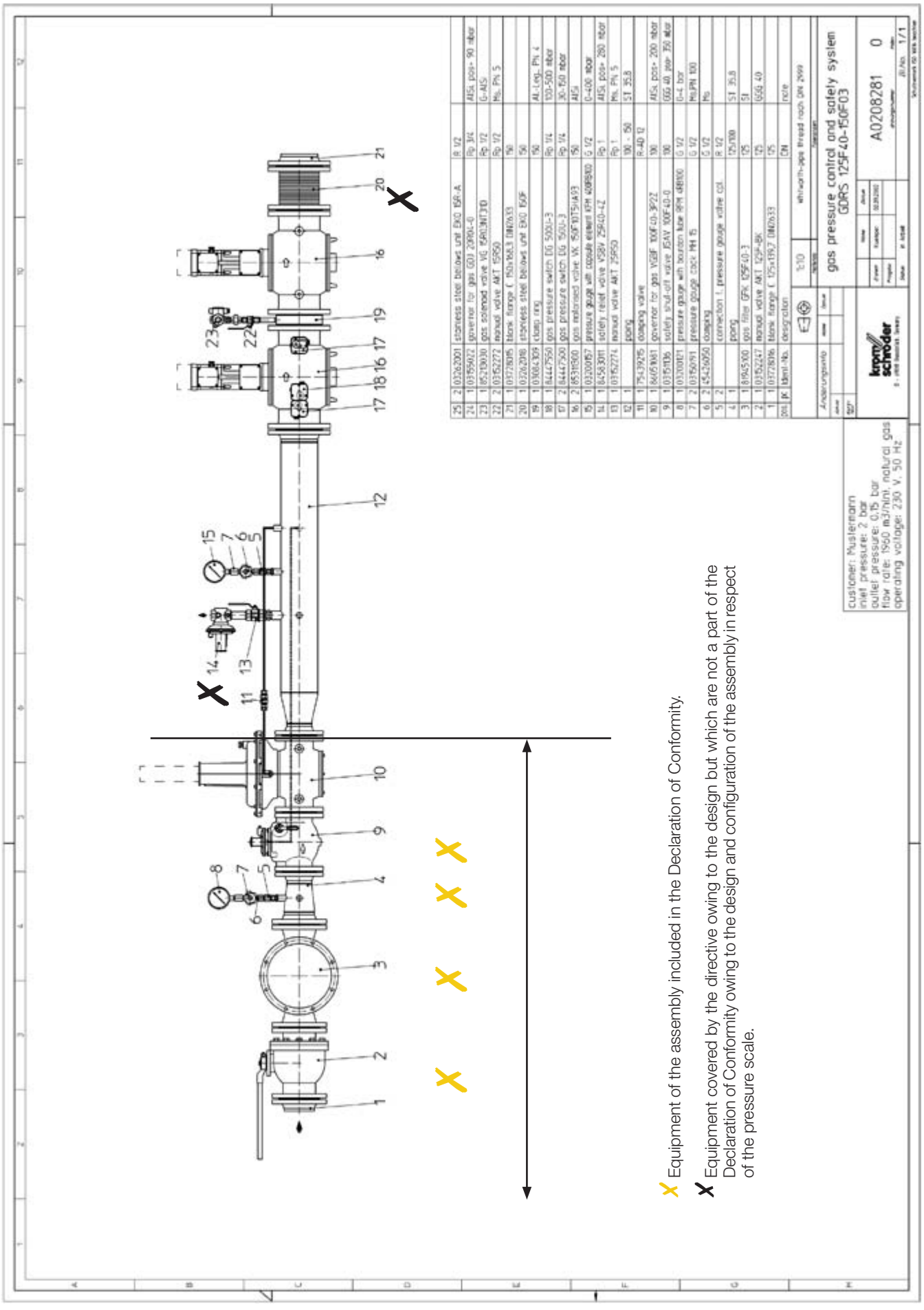
b) on discharge: the uncontrolled release of the pressurized fluid.

c) on filling or discharge: unsafe connection and disconnection.

Conformity assessment of assemblies
Valves and fittings which have already been subjected to a conformity assessment are used when configuring gas control lines.
These valves and fittings are listed, together with classification and assessment, in a file.
The starting point for classification of the individual valves and fittings is an application with maximum possible operating pressure and fluid group 1.
A Declaration of Conformity for the individual application must then be elaborated for an assembly.

This Declaration of Conformity (Annex VII) must contain the following information:
- Name and address of the manufacturer or of his authorised representative resident in the Community.
- Description of the item of pressure equipment or the assembly.
- Applied conformity assessment procedures.
- In the case of assemblies, the description of the items of pressure equipment of which the assembly is comprised and the conformity assessment procedures used.
- If applicable, name and address of the notified body which performed the inspection and, if applicable, reference to the EC Type-Examination Certificate, the EC Design-Examination Certificate or the EC Certificate of Conformity.
- If applicable, name and address of the notified body which monitors the manufacturer's quality system.
- If applicable, a reference to the reference numbers of the Harmonised Standards applied.
- If applicable, other Standards or technical specifications applied.
- If applicable, reference to the other Community Directives applied.
- Information on the signatory who is authorised to sign the Declaration on behalf of the manufacturer or his authorised representative resident in the Community in legally binding manner.

Examples of conformity assessment for an assembly



Examples of conformity assessment for an assembly
Because of the inlet pressure, the “yellow” marked part of the gas-pressure control and safety line is covered by the Directive. This “gas-pressure control line” is exposed to an inlet pressure of 2 bar.
The fittings have been selected in correspondence with a higher pressure rating (4 bar). This is reflected in the type code: GDRS 125F40-150F03.
At 0.15 bar (0.35 bar safeguarded), the outlet pressure range after the control is below the threshold value and does not, therefore, fall under the area of application of the Directive.
The manual valve, filter and safety shut-off valve have already been submitted to an assessment of conformity.
At Elster Kromschröder, the production of moulded pipe parts takes place in accordance with EN 13480 “Metallic industrial piping”. Assessment of conformity takes place in accordance with Diagram 6, Annex 2.

Assessment of the assembly of the various individual parts is carried out with reference to the highest category of the relevant pressure equipment, with equipment parts with a safety function not being taken into account.
Assessment of the assembly is based on the actual classification of the equipment for the relevant application.

This means that the safety relief valve (Item 14) and the compensator (Item 20) are not included in the process of assessing conformity, even though they are designed for a higher pressure and bear a CE marking.
The relevant items of pressure equipment are presented for assessment of conformity as individual fittings with the corresponding modules applied.

The CE marking for the assembly is applied in the form of a type label.
This contains the following details:
– manufacturer,
– date of manufacture,
– material and order number to allow the assembly to be uniquely identified.
Application limits:
– temperature range (TS), pressure range (PS) and the CE marking.
If the assembly is rated in Category > I, the reference number of the Notified Body engaged by the manufacturer is appended to the CE marking.

D-49018 Osnabrück
Germany

Gasdruckregel- und Sicherheitsstrecke

A0202281-0 562584 **0.0236**

TS: -10/+60 °C
PS: 4 bar

CE **0045**

CE

Konformitätserklärung
Declaration of Conformity

Produktbezeichnung Product description	Gasdruckregel- und Sicherheitsstrecke Gas pressure control and safety train	
Typ, Ausführung Type, Model	GDRS 125F40-150F03	Baugruppe Assembly
Ident- Nr. Ident- No	A0208281-0	
Einzelgeräte Component s	bestehend aus / consisting Kugelhahn DN 125; Modul D1 Gasfilter DN 125; Modul D1 Sicherheitsabsperrventil; Modul B+D Rohrleitung DN 125/100; Modul D1	
EU-Richtlinien EC-Directives	97/23/EG und 90/396/EWG	
Normen Standards	EN 746-2 / AD 2000	
Konformitätsbewertungs-verfahren Conformity Assessment Procedure	97/23/EG Anhang III, Modul D1 TÜV NORD SYSTEMS GmbH Notified Body 0045 Erstzertifizierung ISO 9001: 22.04.1991	

Wir erklären als Hersteller:

Die entsprechend gekennzeichneten Produkte erfüllen die Anforderungen der aufgeführten Richtlinien und Normen. Die Herstellung unterliegt dem genannten Konformitätsbewertungsverfahren.

We declare as manufacturer :

Products labelled accordingly meet the requirements of the listed directives and standards. The production underlies the stated Conformity assessment procedure.

Osnabrück, den 04.12.06

Eckart Schulz
Projektverantwortlicher
Project engineer

Elster Kromschröder GmbH

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