

Gas infrastructure - Compressor stations - Functional requirements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12583:2014 sisaldab Euroopa standardi EN 12583:2014 inglisekeelset teksti.	This Estonian standard EVS-EN 12583:2014 consists of the English text of the European standard EN 12583:2014.
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English Version

Gas Infrastructure - Compressor stations - Functional requirements

Infrastructures gazières - Stations de compression -
Prescriptions fonctionnelles

Gasinfrastruktur - Verdichterstationen - Funktionale
Anforderungen

This European Standard was approved by CEN on 20 December 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

Foreword.....	4
1 Scope	5
2 Normative references	6
3 Terms and definitions	7
4 Safety	13
5 Asset management and quality assurance	14
6 Environmental constraints	14
7 Design, construction and testing	14
7.1 General requirements for design	14
7.1.1 General.....	14
7.1.2 Safety and the environment.....	15
7.2 Location and station lay-out.....	15
7.2.1 Location	15
7.2.2 Station lay-out	16
7.3 Pipework	17
7.3.1 Design considerations	17
7.3.2 Valves.....	18
7.3.3 Gas cleaning.....	18
7.3.4 Gas coolers	18
7.3.5 Pressure reduction stations	18
7.3.6 Recycle line	18
7.3.7 Vent systems.....	18
7.3.8 Station isolation system	19
7.3.9 Corrosion protection	19
7.3.10 Services pipework	19
7.3.11 Standard colour code.....	19
7.4 Compressor unit	19
7.4.1 General.....	19
7.4.2 Driver.....	20
7.4.3 Compressor.....	21
7.4.4 Unit Control System (UCS)	22
7.4.5 Unit auxiliary equipment	25
7.4.6 Foundations	29
7.4.7 Compressor Unit Housing	29
7.5 Station Control and Automation	30
7.5.1 Station Control System (SCS)	30
7.5.2 Station emergency shutdown systems	30
7.5.3 Gas detection system.....	31
7.5.4 Fire protection system	31
7.5.5 Station valve control and supervision.....	31
7.5.6 Over-pressure protection system	31
7.5.7 Over-temperature protection system.....	32
7.6 Electrical installation and power supply	32
7.6.1 General.....	32
7.6.2 Electrical power supply.....	32
7.6.3 Electrical installation	32
7.7 General requirements for construction	32

7.7.1	General	32
7.7.2	Execution of work.....	33
7.7.3	Station pipework construction.....	33
7.8	Testing and acceptance.....	33
7.8.1	General requirements	33
7.8.2	Pre-commissioning	33
7.8.3	Commissioning.....	33
7.8.4	As built records of the station	34
7.8.5	Handover	34
7.8.6	Responsibility for safety.....	34
8	Operation.....	34
8.1	Introduction and basic requirements	34
8.2	Operating organization	35
8.3	Instruction procedures	35
8.3.1	General	35
8.3.2	Instructions for normal situations	35
8.3.3	Instructions for failure or emergency situations	36
8.3.4	Procedures for specific planned situations.....	36
8.4	Management of operating procedures	36
8.5	Training of personnel.....	37
8.6	Safety precautions	37
8.6.1	Prevention of gas explosion and fire	37
8.6.2	Storage of combustible materials.....	37
8.6.3	Venting.....	37
9	Maintenance	38
9.1	Introduction and basic requirements	38
9.2	Maintenance organization	38
9.3	Maintenance procedures	38
9.3.1	General	38
9.3.2	Gas compressor units.....	39
9.3.3	Pipework.....	39
9.4	Management of the maintenance procedures	39
9.5	Training of personnel.....	39
9.6	Maintenance tools and equipment	39
9.7	Safety	40
9.7.1	General	40
9.7.2	Safety precautions	40
9.7.3	Safety devices.....	40
10	Decommissioning and disposal	41
10.1	Decommissioning.....	41
10.2	Disposal.....	41
Annex A	(informative) Boundary of a gas compressor station	42
Annex B	(informative) Parts of a gas compressor unit.....	44
Annex C	(informative) Boundary Gas compressor unit — Driver package	45
Annex D	(informative) Boundary Gas compressor unit — Gas compressor.....	46
Annex E	(informative) Boundary Gas compressor unit — Unit control system.....	47
Annex F	(informative) Boundary Gas compressor unit — Auxiliary equipment.....	48
Annex G	(informative) Significant technical changes between this European Standard and the previous edition	49
Bibliography	51

Foreword

This document (EN 12583:2014) has been prepared by Technical Committee CEN/TC 234 "Gas Infrastructure", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2014, and conflicting national standards shall be withdrawn at the latest by September 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12583:2000.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

Annex G provides details of significant technical changes between this European Standard and the previous edition.

There is a complete suite of functional standards prepared by CEN/TC 234 "Gas infrastructure" to cover all parts of the gas infrastructure from the input of gas into the on-shore transmission network up to the inlet connection of gas appliances, including transmission, distribution, storage, compression, pressure regulation and metering, installation, injection of non-conventional gases, gas quality issues and others. In preparing this standard a basic understanding of gas infrastructure by the user has been assumed.

The gas infrastructure is complex and the importance on safety of its construction and use has led to the development of very detailed codes of practice and operating manuals in the member countries. These detailed statements embrace recognised standards of gas engineering and the specific requirements imposed by the legal structures of the member countries.

Directive 2009/73/EC concerning common rules for the internal market in natural gas and the related Regulation (EC) No 715/2009 on conditions for access to the natural gas transmission networks also aim at technical safety (security) including technical reliability of the European gas system. These aspects are also in the scope of CEN/TC 234 standardisation. In this respect CEN/TC 234 evaluated the indicated EU legislation and amended this technical standard accordingly, where required and appropriate.

In this edition of EN 12583 environmental aspects relevant to the design, construction and testing, operation and maintenance, decommissioning and disposal of compressor stations in the scope of this standard are covered in accordance with CEN Guide 4 and CEN/TR 16388.

This European Standard supersedes all other European Standards for gas compressor stations in the gas infrastructure above 16 bar and with a total shaft power over 1 MW.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard describes the specific functional requirements for the design, construction, operation, maintenance and disposal activities for safe and secure gas compressor stations.

This European Standard applies to new gas compressor stations with a Maximum Operating Pressure (MOP) over 16 bar and with a total shaft power over 1 MW. For existing compressor stations, this European Standard applies to new compressor units. Where changes/modifications to existing installations take place, due account may be taken of the requirements of this European Standard.

This European Standard does not apply to gas compressor stations operating prior to the publication of this European Standard.

The purpose of this European Standard is intended to:

- ensure the health and safety of the public and all site personnel,
- to cover environmental issues and
- to avoid incidental damage to nearby property.

This European Standard specifies common basic principles for the gas infrastructure. Users of this European Standard should be aware that more detailed national standards and/or codes of practice may exist in the CEN member countries.

This European Standard is intended to be applied in association with these national standards and/or codes of practice setting out the above-mentioned basic principles.

In the event of conflicts in terms of more restrictive requirements in national legislation/regulation with the requirements of this European Standard, the national legislation/regulation takes precedence as illustrated in CEN/TR 13737 (all parts). CEN/TR 13737 (all parts) gives:

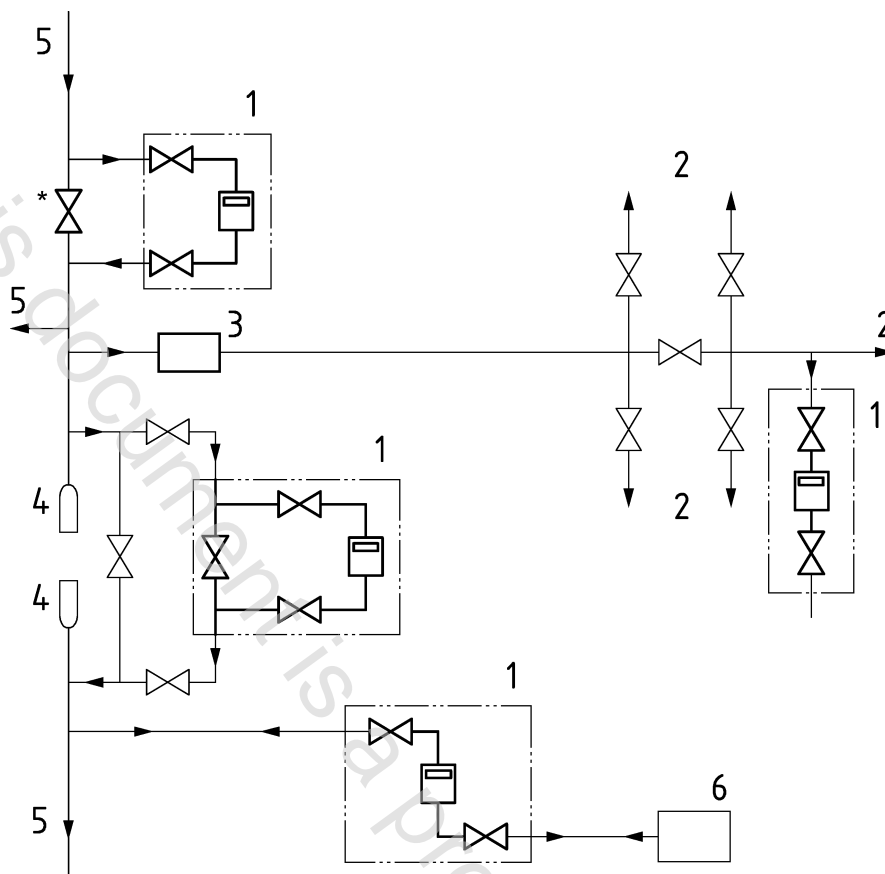
- clarification of all legislations/regulations applicable in a member state;
- if appropriate, more restrictive national requirements;
- a national contact point for the latest information.

This European Standard does not apply to:

- off-shore gas compressor stations;
- gas compressor stations for compressed natural gas filling-stations;
- customer installations downstream of the point of custody transfer;
- design and construction of driver packages (see Annex C).

For supplies to utility services such as small central heating boilers reference should be made to EN 1775.

Figure 1 shows a schematic representation of compressor stations in a gas infrastructure.



Key

- | | | | |
|---|---|---|-------------------|
| 1 | compressor station | 4 | pig traps |
| 2 | distribution system | 5 | transmission line |
| 3 | metering and/or pressure limiting or regulation station | 6 | storage facility |

NOTE Parts indicated in frames by thick lines are within the scope of this European Standard (* part of pipeline but operated by SCS).

Figure 1 — Schematic representation of compressor stations in the gas infrastructure

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1012-3, *Compressors and vacuum pumps — Safety requirements — Part 3: Process compressors*

EN 1594, *Gas infrastructure — Pipelines for maximum operating pressure over 16 bar — Functional requirements*

EN 12186, *Gas supply systems — Gas pressure regulating stations for transmission and distribution — Functional requirements*

EN 12732, *Gas infrastructure — Welding steel pipework — Functional requirements*

EN 14505, *Cathodic protection of complex structures*

EN 60079-10-1, *Explosive atmospheres — Part 10-1: Classification of areas — Explosive gas atmospheres (IEC 60079-10-1)*

EN 60079-20-1, *Explosive atmospheres — Part 20-1: Material characteristics for gas and vapour classification — Test methods and data (IEC 60079-20-1)*

EN 61000-6-2, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments (IEC 61000-6-2)*

EN 61000-6-4, *Electromagnetic compatibility (EMC) — Part 6-4: Generic standards — Emission standard for industrial environments (IEC 61000-6-4)*

EN 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems (IEC 61508 (all parts))*

EN 61511 (all parts), *Functional safety — Safety instrumented systems for the process industry sector (IEC 61511 (all parts))*

EN ISO 10437, *Petroleum, petrochemical and natural gas industries — Steam turbines — Special-purpose applications (ISO 10437)*

EN ISO 10439, *Petroleum, chemical and gas service industries — Centrifugal compressors (ISO 10439)*

EN ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1)*

ISO 3977-1, *Gas turbines — Procurement — Part 1: General introduction and definitions*

ISO 3977-2, *Gas turbines — Procurement — Part 2: Standard reference conditions and ratings*

ISO 13707, *Petroleum and natural gas industries — Reciprocating compressors*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

alarm

signal provided to an operator which indicates the approach or the presence of an unwanted event

3.2

availability

ability to be in a state to perform as and when required under given, assuming that the required external resources are provided

Note 1 to entry: This ability depends on the combined aspects of the reliability, the maintainability and recoverability of the item and the maintenance supportability.

Note 2 to entry: Required external resources, other than maintenance resources, do not affect the availability of the item although the item may not be available from the user's viewpoint.

[SOURCE: EN 13306:2010, 4.1, modified – definition altered and original Note 3 not quoted here]