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**What is the analysis of normative references?
Example of analysis of normative references for the
main European functional gas standard EN1594: 2013
(for maximum operating pressure (MOP) over 16 bar)**

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Normative references



Mentioned under "Normative references"

normative documents (reference standards) contain provisions which, through being referenced to in this text, constitute provisions of this International Standard.

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In adopting international standards as identical interstate standards (IIS) all **reference international standards** are also recommended for adoption as identical to interstate standards.

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If this is not possible at the given stage, adoption of an identical (IIS) is allowed if there are:

- reference international standards in Russian
- official translation into Russian (including on the basis of own translations)
- original versions of the official reference of international standards in English.

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When carrying out measures for the simultaneous adoption of reference international standards it is recommended **to take into account their significance** and adopt primarily those international reference standards closely linked with the international standard adopted and ensuring compliance with its requirements.

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Purpose of analysis of normative references



The purpose of analysis of normative references is to determine the significance of reference standards for the application of international standards.

For example, if the gas transportation system does not have compressor stations, the functional standard

EN 12583 may not be considered as priority

Normative references EN 1594:2013



- 1) EN 1515-3 Flanges and their compounds. Bolted connections. Part 3: Classification of bolt materials for steel flanges, class designation
- 2) EN 1759-1 Flanges and their compounds. Circular flanges for pipes, valves, fittings and valves of this class. Part 1: Steel flanges, NPS ½-24
- 3) EN ISO 6892-1, Metallic materials — Tensile testing — Part 1: Method of test at room temperature (ISO 6892-1)
- 4) EN 10204:2004 Metal products. Types of inspection documents
- 5) EN ISO 3183, Petroleum and natural gas industries — Steel pipe for pipeline transportation systems (ISO 3183)

Normative references EN 1594:2013 (2)

- 6) EN 10288 Steel tubes and fittings for onshore and offshore pipelines. Outer two-layer coatings based on extruded polyethylene
- 7) EN 10289 Steel tubes and fittings for onshore and offshore pipelines. Outer epoxy and epoxy-modified coatings applied in liquid form
- 8) EN 10290 Steel tubes and fittings for onshore and offshore pipelines. Outer poly-urethane and polyurethane-modified coatings applied in liquid form
- 9) EN 10301 Steel tubes and fittings for onshore and offshore pipelines. Internal coating to reduce friction when transporting of non-corrosive gases
- 10) EN 12068 Cathodic protection. Outer organic coatings for the corrosion protection of underground or undersea steel pipes, used in conjunction with cathodic protection. Tapes and shrinkable materials



Normative references EN 1594:2013 (3)

- 11) EN 12186 Gas supply systems. Gas pressure regulating stations for gas transmission and distribution. Functional requirements
- 12) EN 12327 Gas supply systems. Pressure testing, commissioning and decommissioning. Functional requirements
- 13) EN 12560-1 Flanges and their compounds. Gaskets for class designated flanges. Part 1: Non-metallic gaskets with or without embedded details.
- 14) EN 12560-2 Flanges and their compounds. Gaskets for class designated flanges. Part 2: Spiral gaskets for steel flanges
- 15) EN 12560-3 Flanges and their compounds. Gaskets for class designated flanges. Part 3: metallic gaskets coated with polytetrafluoroethylene
- 16) EN 12560-4 Flanges and their compounds. Gaskets for class designated flanges. Part 4: Metal corrugated, flat or grooved gaskets without filler and metal gaskets with filler for steel flanges



Normative references EN 1594:2013 (4)



- 17) EN 12583 Gas Infrastructure. Compressor stations. Functional requirements
- 18) EN 12732 Gas supply systems. Welding steel pipework. Functional requirements
- 19) EN 12954 Cathodic protection of buried or immersed metallic structures. General principles and application for pipelines
- 20) EN 14141 Valves for natural gas transportation in pipelines. Performance requirements and tests
- 21) EN 16348, Gas infrastructure — Safety Management System (SMS) for gas transmission infrastructure and Pipeline Integrity Management System (PIMS) for gas transmission pipelines — Functional requirements

Task 1 on Normative references EN 1594: 2013



1) Determine which of the standards listed in the "Normative references" fall within the scope of your professional interests

2) Prioritise reference standards EN 1594 for your gas company:

- a. High-priority
- b. Preferable
- c. Non-priority



Technology of normative references analysis



Let us take a brief look at the main stages of analyzing normative references for the set of standards at the example of analysis conducted in 2011 for 19 standards for gas infrastructure.

1. Submission of data.

The simplest form of representation is a matrix, or in the simple case a tabular form. For demonstration purposes the original array is presented in EXCEL form.

The selected series of standards "Gas infrastructure", which includes 19 standards, has 177 normative references to standards.

Technology of normative references analysis (2)



2. Data Compression.

The table shows that many reference standards are present in several accepted standards.

This allows to reduce the number of reference standards to 129.

Taking into account cross references, the number of standards that should be analyzed is reduced to 119

Technology of normative references analysis (3)



3. Status verification

The status of standards and draft standards is verified. Cancelled and superseded standards are highlighted. Draft standards are superseded with approved standards

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Technology of normative references analysis (3)



4. Prioritising standards by the number of normative references

Normative references are missing only in the following standards:

- CEN/TS 15173:2006
- EN 1918-1:1998
- EN 1918-2:1998
 - EN 1918-3:1998
- EN 1918-4:1998
- EN 1918-5:1998

Prioritising standards by the number of normative references (cont.)



The following standards have the highest number of of normative references:

- EN 12732:2000 Welding steel pipework 42 references/ EN12732:2013+A1:2014;- 44 references;
- EN 1776:1998 Natural Gas Measuring Stations –23 references;
- EN 1594:2009 and EN 1594:2013 Pipelines For Maximum Operating Pressure Over 16 Bar --21 references.

Conclusions



The key problem in the adoption and introduction of the main functional standard EN 1594:2013 Pipelines For Maximum Operating Pressure Over 16 Bar is going to be adoption of the reference standard EN 12732:2013+A1:2014

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Thank you for your attention!



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