Standard Recommendation
S.R. CEN/TR 16395:2012

Gas Infrastructure - CEN/TC 234 Pressure Definitions - Guideline Document

S.R. CEN/TR 16395:2012

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Foreword

This document (CEN/TR 16395:2012) has been prepared by Technical Committee CEN/TC 234 “Gas Infrastructure”, the secretariat of which is held by DIN.

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Operating pressure levels of gas infrastructure differ from one country to another in the European Union. This is due to many different factors, such as the history of gas systems, technologies and materials used and technical constraints.

When beginning to draft the functional standards on gas infrastructure, CEN/TC 234 recognised various pressure levels and ranges in the European member countries, which are to some extent laid down in national laws.

To form a consensus for the standardisation work, all pressure levels used in Europe have been brought together and classified in ranges. This subdivision in pressure levels should permit the manufacturers of components to focus on a limited number of designs in order to reduce the costs.

Introduction

Background

The standards issued by CEN/TC 234 "Gas Infrastructure" contain a large number of definitions used for the design, testing and operation of the different parts of the gas infrastructure.

This document clarifies the CEN/TC 234 concept behind the definitions and advises how to use the definitions correctly and consistently. In order to further that goal, an inventory of existing definitions is compiled and the primary definitions are identified.

This document also gives guidance for the selection of components falling into the scope of the European Pressure Equipment Directive (PED) [15] and used in the gas infrastructure.

Apart from the issue of the consistency of the pressure definition in the standards, there is also the issue of the pressure rating of equipment and systems. Other classifications (e.g. PN or class) do not necessarily completely coincide with the classification as defined in the CEN/TC 234 standards.

Concept of pressure conditions

On one hand, three different sets of pressure conditions are to be considered:

— conditions during testing and commissioning (P_1);

— conditions during exceptional operating circumstances (P_2);

— conditions during normal operation (P_3).

where:

$P_1 > P_2 > P_3$

The maximum pressure levels related to these conditions are the topic of the primary definitions.

On the other hand, two other pressure conditions are used for specifying the system:

— pressure on which design calculations are based (p_A);

— pressure rating of the system (p_B).

where

$p_A > p_B$.

The relationship between p_A and P_2 or P_3 is not uniform in the different CEN/TC 234 standards. This situation is confusing and undesirable. The recommended practice is stated in chapter 4.4 and 4.5 below and should be considered when revising standards or developing new standards.

Piping versus pressure regulating installations

Only two out of the three aforementioned conditions apply when specifying piping:

— conditions during testing and commissioning;

— operating conditions.

Normally for piping no distinction is made between normal operating conditions and exceptional operating conditions, as piping is a passive component. However, in gas infrastructure piping and pressure regulating installations both are present. This necessitates identification of the “normal operating conditions” and “exceptional operating conditions” of the pressure regulating installations and the “operating conditions” of the piping.