



SLOVENSKI STANDARD
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Pressure gauges - Vocabulary

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Druckmeßgeräte - Begriffe

Manometres - Vocabulaire

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CENEuropean Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 141 "Pressure gauges", of which the secretariat is held by AFNOR.

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of an identical text or by endorsement, at the latest by April 1995, and conflicting national standards shall be withdrawn at the latest by April 1995.

In accordance with the CEN/CENELEC Internal Regulations, following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

0 Introduction

In the preparation of this International Standard, the following two principles have been followed as far as possible:

- to standardize suitable terms without perpetuating unsuitable terms merely because they have been used in the past;
- to discard any term which is used with different meanings and to replace it by a term which has an unequivocal meaning.

1 Scope

This European Standard defines the fundamental and general terms to be used for pressure gauges.

2 Definitions relating to pressure gauges

2.1 indicating pressure gauge: A measuring instrument which displays the value of the applied pressure by means of a pointer relative to a scale.

2.2 indicating pressure gauges with an elastic measuring element: Instrument in which the mechanical measuring sequence directly transmits the elastic deformation of the sensing element to the indicating device, consisting of a pointer and a graduated scale.

2.3 pressure gauge: An indicator of the applied (gauge) pressure with respect to the atmospheric pressure.

2.4 vacuum gauge: An indicator of the applied (gauge) vacuum with respect to the atmospheric pressure.

2.5 combined pressure and vacuum gauge: A combined indicator of the applied (gauge) pressure or vacuum with respect to the atmospheric pressure.

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2.6 absolute pressure gauge: An indicator of absolute pressure, i. e. pressure relative to a complete vacuum.

NOTE: This description therefore does not apply to pressure gauges graduated in absolute pressure units, the indications of which are influenced by variations of atmospheric pressure.

2.7 differential pressure gauge: A pressure gauge used to measure the difference between two applied pressure and/or vacuum values, the metallic pressure-responsive element(s) of which drive(s) one pointer.

2.8 duplex pressure gauge: A pressure gauge used to measure two applied pressure and/or vacuum values, by means of two separate pressure-responsive elements in one case, each of which drives its own pointer.

2.9 control pressure gauge: A pressure gauge fitted with one or more switches which open or close one or more control circuits depending on the pointer position.

2.10 edgewise pressure gauge: A pressure gauge with a rectangular dial for flush mounting in a panel or a control board, where the pivotal axis of the pointer lies in a plane parallel to the plane of the panel or controlboard.

2.11 liquid filled pressure gauge: A pressure gauge, the case of which is filled with a liquid.

2.12 safety pattern gauge: A gauge incorporating safety features and particularly suitable for use with high pressure gases and steam.

3 Definitions relating to pressure gauge components

3.1 pressure-responsive element: An elastic element which undergoes deformations under the effect of pressure variations. It may be a bourdon tube, diaphragm, diaphragm capsule, bellows or other type of element.

3.1.1 Bourdon tube: A type of spiral pressure-responsive element where a tube with a non-circular cross-section is bent into a circular or coiled shape. Under the effect of the internally applied pressure the tube tends to straighten. The deflection induced is proportional to the pressure applied.

3.1.2 diaphragm: A type of pressure-responsive element usually in the form of a concentrically corrugated membrane where the pressure applied causes the diaphragm to deflect in proportion to the pressure.

3.1.3 capsule: A type of pressure-responsive element comprising of two diaphragms suitably shaped and joint pressure-tight around their circumference. The pressure commonly acts on the interior of the capsule and the expansion generated thus is proportional to the pressure.

3.1.4 bellows: A type of pressure-responsive element in the form of a thin walled convoluted tube. The change its lengths is proportioned to the pressure.

3.2 movement: An assembly by means of which the deformations of the pressure-responsive element are transformed and enlarged into an angular variation.

3.3 pressure element assembly: The assembly of all the pieces coming into contact with the fluid whose pressure is measured.

3.4 connection: The part by which the pressure gauge can be coupled to the pressure tapping of the plant, pipework or equipment.

3.4.1 shank: The part of the gauge that includes the screwed connection, the spanner flats, square or hexagon, the spigot, and the inlet orifice.

3.4.2 screwed connection: The threaded portion of the shank.

3.5 pointer: The index, the position of which, in relation to the scale, indicates the value of the measured pressure.

3.5.1 adjustable pointer: A pointer with an adjustable device for zero correction.

3.5.2 maximum pointer: A secondary pointer driven by the pointer which stays at the maximum value reached by the latter.

3.5.3 pointer stop: A screw, stud, or other projection, fitted to limit the travel of the pointer.

NOTE: It is not the function of a pointer stop to act as an overload stop.

3.6 adjustable mark: A moving index operated from the outside and not driven by the indicating pointer, used to place a reference mark on the dial.

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3.7 case: The casing which contains the pressure-responsive element, parts of the pressure element assembly and the movement. It may also include a safety device. The front face of the case may be circular, square or rectangular.

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3.8 blow-out device: A safety device incorporated in the case or back plate to permit the rapid and safe dissipation of internal pressure in the event of a leakage or burst in the pressure responsive element.

3.8.1 blow-out back: A safety device incorporating the greater part of the back of the case.

3.8.2 baffle wall: A barrier between the pressure responsive element and the dial, so disposed that, in the event of a leakage or burst in the pressure responsive element, the blast would be dissipated away from the front.

3.8.3 removable back plate: A plate at the back of the case, that is removable for the purpose of giving access to the interior.

3.9 flange: The circular, square or rectangular part, removable or fixed, projecting from the case, on which the latter is mounted.

3.10 window: The transparent front intended for protection of the pointer, dial and control devices, if any.

3.11 bezel ring: The part which retains the window on the case.

3.12 clamp: The part used for mounting clamp fixing pressure gauges on panel boards.

3.13 spacer: The distance piece, ring, or collar separating the window from the dial.

3.14 dial: That part of an indicating device, fixed or moving, which carries the scale or scales.

3.15 scale (of an indicating device): An ordered set of scale marks, together with any associated numbering, forming a part of an indicating device.

3.15.1 scale length: For a given scale, the length of the line between the first and the last scale marks and passing through the centres of all the shortest scale marks.

NOTE: The line may be real or imaginary, curved or straight.

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3.15.2 scale range: For a given scale, the set of scale values between the extreme scale marks.

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NOTE: The scale range is expressed in the units marked on the scale, regardless of the units of the applied pressure and is normally stated in terms of its lower and upper limits, for example 0 bar to 100 bar.

3.15.3 scale division: The part of a scale between any two successive scale marks.

3.15.4 scale spacing: The distance between any two successive scale marks measured along the same line as the scale length.

NOTE: Scale spacing is expressed in units of length, regardless of the units of the applied pressure or the units marked on the scale.

3.15.5 scale numbering: The set of numbers, associated with scale marks, which correspond to the set of values of the applied pressure defined by the scale marks.

3.16 adjustment: Operation of bringing a pressure gauge into a state of performance suitable for its use.

3.17 user adjustment: The operation intended to bring a pressure gauge into a state of performance and freedom from bias suitable for its use, employing only the means at the disposal of the user.

4 Definitions relating to the characteristics

4.1 nominal size: A conventional alpha-numerical designation relating to the size of the pressure gauge.

4.2 nominal range: For each scale range, the set of indicated values of the applied pressure for which a pressure gauge gives values within that scale range.

NOTE - The nominal range is expressed in units of the applied pressure regardless of the units marked on the scale, and is normally stated in terms of its lower and upper limits, for example -200 mbar to +400 mbar.

4.3 span: The modulus of the difference between the two limits of a nominal range of a pressure gauge.

EXAMPLE

Nominal range -200 mbar to +400 mbar: span 600 mbar.

4.4 specified measuring range: The set of values of an applied pressure for which the error of a pressure gauge is intended to lie within specified limits.

4.5 accuracy class: A class of pressure gauge which meets certain metrological requirements that are intended to keep errors within specified limits.

NOTE - An accuracy class is usually denoted by a number adopted by convention and called the class index.

4.6 limits of permissible error: The extreme values of an error permitted by specifications, regulations etc. for a given pressure gauge.

4.7 error (of indication) of a pressure gauge: The indication of a pressure gauge minus the true value of the applied pressure.

4.8 repeatability of a pressure gauge: The ability of a pressure gauge to give, under defined conditions of use, closely similar responses for repeated applications of the same stimulus.

NOTE: The defined conditions of use are usually as follows:

- repetition over a short period of time,
- use at the same location under constant ambient conditions,
- reduction to a minimum of the variations due to the observer.