
Merilniki tlaka - Naprava za nadzor tlaka in/ali napihovanje gum za motorna vozila - Meroslovje, zahteve in preskušanje

Pressure gauges - Apparatus for inspection of pressure and/or inflation of tyres for motor vehicles - Metrology, requirements and testing

Druckmeßgeräte - Anlagen zum Prüfen des Druckes und/oder zum Füllen von Reifen an Kraftfahrzeugen - Meßtechnik, Anforderungen und Prüfung

Manometres - Appareils de contrôle de la pression et/ou de gonflage des pneumatiques des véhicules automobiles - Métrologie, exigences et essais

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Ta slovenski standard je istoveten z: EN 12645:1998

ICS:

17.100	Merjenje sile, teže in tlaka	Measurement of force, weight and pressure
43.180	Diagnostična, vdrževalna in preskusna oprema	Diagnostic, maintenance and test equipment
83.160.10	Pnevmatike za cestna vozila	Road vehicle tyres

SIST EN 12645:2001

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12645

September 1998

ICS 17.100; 43.180; 83.160.10

Descriptors: road vehicles, pneumatic tyres, pressure measurements, manometers, measuring instruments, indicating instruments, metrological inspection, specifications, errors, tests, marking

English version

Pressure gauges - Apparatus for inspection of pressure and/or inflation of tyres for motor vehicles - Metrology, requirements and testing

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This European Standard was approved by CEN on 24 August 1998.

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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 Central Secretariat has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 141 "Pressure gauges - Thermometers - Means of measuring and/or recording temperature in the cold chain", the secretariat of which 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 March 1999, and conflicting national standards shall be withdrawn at the latest by March 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European standard defines requirements of pressure gauges for inflation of tyre and their testing in accordance with 86/217/EEC Directive.

It establishes in the context of motor vehicles tyres, the minimum characteristics of the chain of measurement of mechanical apparatus intended to increase, inspect or adjust the pressure of tyres inflated by air or nitrogen.

This apparatus classified in four different categories are hereinafter referred to by generic term, "pressure gauges".

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This chain of measurement consists of all the elements between the tyre valve and the display device (connector, hose, control device, measurement components, etc.).

They indicate the pressure difference (P_e) between the air or the nitrogen in the tyre and the atmosphere.

The field of application established above can be extended to other applications where no specific standard exists.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 837-1	Pressure gauges - Part 1 : Bourdon tube pressure gauges - Dimensions, metrology, requirements and testing
EN 837-3	Pressure gauges - Part 3 : Diaphragm and capsule pressure gauges - Dimensions, metrology, requirements and testing
EN 60068-2-32	Basic environmental testing procedures - Part 2 : Tests - Test Ed : Free fall.
EN 60529	Degrees of protection provided by enclosures (IP code).
IEC 68-2-11	Basic environmental testing procedures - Test methods - Test Ka : Salt mist.
IEC 68-2-30	Basic environmental testing procedures - Test methods - Test Db and guidance : Damp heat cyclic test (12 + 12 hours cycle).

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3 Definitions

For the purposes of this standard, the following definitions apply :

3.1 type A - Fixed apparatus : Apparatus which have fixed measuring components and read-out devices. They are generally connected to a source of air or of compressed nitrogen and are equipped with a control device placed either in proximity to the display device or the connector. They permit the bringing up to pressure, inspection and adjustment of tyre pressure.

EXAMPLE : Wall fixing inflation apparatus

3.2 type B - Portable apparatus : Apparatus which group together the control device, the measuring component, the read-out device and a reservoir under limited pressure. They permit the inspection and the adjustment of tyre pressure.

EXAMPLE : Inflation terminal

3.3 type C - Hand apparatus : Apparatus linked to a source of air or compressed nitrogen which group together the control device, the measuring component and the display device in proximity to the connector. They permit the bringing up to pressure, the inspection and the adjustment of tyre pressure.

EXAMPLE : Inflation gun (standards.iteh.ai)

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3.4 type D - Hand inspection apparatus : Apparatus intended exclusively for the inspection of tyre pressure.

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EXAMPLE : Pressure inspector

4 Metrological requirements

4.1 Maximum permissible errors

The maximum permissible errors positive or negative given in the table 1 are defined as absolute values according to the measured pressure.

Table 1 : Maximum permissible errors

Pressure in bar	
Measured pressure (p_m)	Maximum permissible error
$p_m \leq 4$	0,08
$4 < p_m \leq 10$	0,16
$p_m > 10$	0,25

The maximum permissible errors shall not be exceeded in the range from 15 °C to 25 °C. This range is hereinafter termed the temperature reference range.

4.2 Hysteresis error

Hysteresis error in pressure gauges shall not exceed the absolute value of the maximum permissible error, at any temperature within the temperature reference range. This temperature shall remain constant throughout the test.

For a given pressure, the value measured for increasing pressure shall not exceed the value measured for decreasing pressure.

4.3 Variation due to temperature

The maximum permissible variation in pressure gauge readings at temperatures lying outside the reference range, but between - 10 °C and + 40 °C, is given in the table 2 :

Table 2 : Maximum permissible variation due to temperature

Pressure in bar	
Measured pressure (p_m)	Maximum permissible variation
$p_m \leq 4$	0,1 % of 4 bar per degree Celsius
$4 < p_m \leq 10$	0,05 % of 10 bar per degree Celsius
$p_m > 10$	0,05 % of the upper scale limit per degree Celsius

4.4 Return of the instrument's pointer to a predetermined mark

At atmospheric pressure, the pressure gauge pointer shall stop opposite to the zero mark or opposite to a predetermined mark clearly differentiated from the scale intervals, within the limits of the maximum permissible error. A pressure gauge may have a stop at a distance corresponding to at least twice the value of the maximum permissible error below zero or below the predetermined mark.

5 Technical requirements

5.1 Construction

Pressure gauges shall be robustly and carefully constructed to ensure that they retain their metrological characteristics.

5.2 Indicating device

5.2.1 Scale angle

The scale normally covers 270° of arc.

5.2.2 Scale intervals

They are graduated in bar and the value of each scale intervals is fixed at 0,1 bar. The scale intervals shall be equal over the entire scale.

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5.2.3 Scale spacing

The scale spacings, which are not less than 1,25 mm, shall be either virtually equal or only show slight variations. Variation of scale spacing is permitted if the difference between two consecutive scale spacings does not exceed 20 % of the largest value and if the difference between the smallest and largest scale spacings does not exceed 50 % of the largest value.

Every fifth mark shall be distinguished from the others by its greater length ; every fifth or tenth mark shall be numbered. The thickness of the marks shall be virtually constant and shall not exceed one fifth (1/5) of the scale spacing.

5.2.4 Pointer

In the measurement range, the indicating device shall make it possible to read off, directly and accurately, the value of the pressure measured. To this end, the thickness of the part of the pointer which covers the scale marks shall not be greater than the thickness of the scale marks themselves. The pointer shall be capable of covering approximately half the length of the shortest scale marks. The maximum distance between the pointer and the plane of the scale marks shall not be greater than the length of the scale division and shall in no case exceed 2 mm or 0,02 L + 1 mm in the case of circular-dial indicating devices (L being the distance between the axis of rotation of the pointer and its extremity).