



Institut luxembourgeois de la normalisation
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ILNAS-EN 16955:2017

Hardware for furniture - Tapered pressure tubes for self-supporting gas springs for the height adjustment of seating - Test methods and

Möbelbauteile - Konische Druckrohre für
selbsttragende Gasfedern zur
Höhenverstellung von Sitzmöbeln -
Prüfverfahren und Anforderungen für die

Quincaillerie d'ameublement - Tubes
coniques sous pression pour vérins à gaz
autoportants pour l'ajustement de la
hauteur de siège - Méthodes et exigences

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National Foreword

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English Version

**Hardware for furniture - Tapered pressure tubes for self-supporting gas springs for the height adjustment of seating
- Test methods and requirements for strength and durability**

Quincaillerie d'ameublement - Tubes coniques sous pression pour vérins à gaz autoportants pour l'ajustement de la hauteur de siège - Méthodes et exigences d'essai pour la résistance et la durabilité

Möbelbauteile - Konische Druckrohre für selbsttragende Gasfedern zur Höhenverstellung von Sitzmöbeln - Prüfmethoden und Anforderungen für die Festigkeit und Dauerhaltbarkeit

This European Standard was approved by CEN on 15 February 2017.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 16955:2017) has been prepared by Technical Committee CEN/TC 207 “Furniture”, the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by October 2017, and conflicting national standards shall be withdrawn at the latest by October 2017.

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1 Scope

This European Standard specifies test methods and requirements for the strength and durability of tapered pressure tubes for self-supporting gas springs for the height adjustment of seating.

Annex A (normative) contains product information.

Annex B (informative) contains a guide for choosing the correct strength class.

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 ISO 4288, *Geometrical product specifications (GPS) - Surface texture: Profile method - Rules and procedures for the assessment of surface texture (ISO 4288)*

EN ISO 7500-1:2016, *Metallic materials - Verification of static uniaxial testing machines - Part 1: Tension/compression testing machines - Verification and calibration of the force-measuring system (ISO 7500-1)*

EN ISO 9934-2, *Non-destructive testing - Magnetic particle testing - Part 2: Detection media (ISO 9934-2)*

ISO 1099, *Metallic materials — Fatigue testing — Axial force-controlled method*

3 Terms and definitions

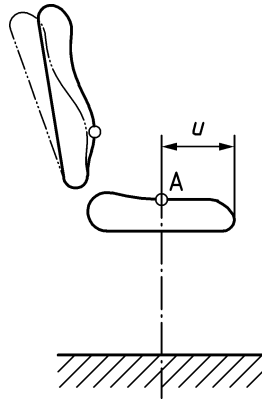
Not applicable.

4 Strength classes for pressure tubes

The determination of the strength classes is based on characteristics given in Table 1. The dimension u of the seating is given in Figure 1.

Table 1 — Strength classes for pressure tubes

Strength class ^a	Alternate bending moment	Largest distance between load bearing structure of the seat and centre of the column
	M Nm	u mm
2	±190	≤ 340
3	±210	≤ 370
4	±240	≤ 400
^a Due to increased requirements, strength class 1 is not part of this European Standard.		

**Key**

A mid of centre column

 u largest distance between load bearing structure of the seat and centre of the column

Figure 1 — Largest distance u between load bearing structure of the seat and centre of the column

5 Test apparatus

5.1 Material testing machine

A material testing machine capable of performing tests in accordance with ISO 1099 shall be used. The testing machine force measuring system shall be verified statically in accordance with EN ISO 7500-1:2016, Class 1.

5.2 Testing equipment for magnetic powder flaw test

A testing equipment for magnetic powder flaw test for the particle inspection for the detection of surface imperfections shall be used.

6 Test

6.1 General

For each combination of dimensions, production procedure, surface finish, materials or condition of the material or any other characteristic which affects the strength and durability, a separate test shall be conducted.

6.2 Strength and durability

6.2.1 Sampling

The test samples shall consist of 32 pressure tubes taken on a random basis from the series production. Any kind of marking on the pressure tube shall be done before strength and durability test.

6.2.2 Test procedure

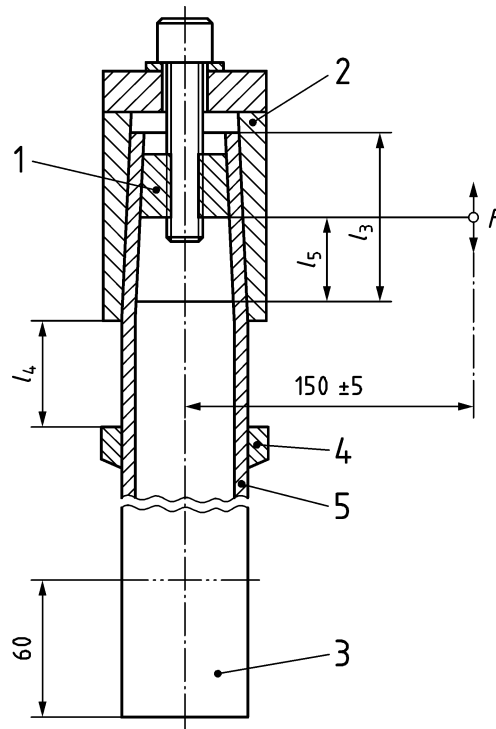
6.2.2.1 Test setup

The test setup is shown in Figure 2.

The end of the pressure tube shall be firmly fixed to the element which applies the load. If the element which applies the load is secured against coming loose by a counter-cone on the internal side of the pressure tube the free bending length l_5 shall be at least 50 % of the overlap l_3 (see Figure 2).

The free length l_4 between the upper and lower clamps shall be at least 50 mm. If there are series-produced shapings, embossings etc. in the area of the bearing length of the pressure tube, these areas shall be included in the tests so that they are in the compression-tension zone. Exceptions to this are pressure tubes with shapings, embossings etc. which are up to 60 mm away from the lower end of the pressure tube.

Dimensions in millimetres



Key

- 1 counter-cone
- 2 element which applies the load
- 3 shapings and embossings permitted in this area without testing
- 4 lower clamp
- 5 pressure tube
- l_3 length of connection between the holding cone and the pressure tube cone
- l_4 free length between upper and lower clamp
- l_5 free bending length
- F test load

Tolerances: $\pm 0,5$ mm of the nominal dimensions, unless otherwise stated

Figure 2 — Test setup for strength and durability