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Pneumatic fluid power — Polyurethane and polyamide tubings for use primarily in pneumatic installations — Dimensions and specification

Transmissions pneumatiques — Tubes en polyuréthane et en polyamide destinés à être utilisés principalement dans des installations pneumatiques — Dimensions et spécifications

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 4, *Connectors and similar products and components*.

This first edition cancels and replaces the first edition of ISO/TS 11619:2014, which has been technically revised.

The main changes are as follows:

— extension of the scope to polyamide tubings;

— addition of new sizes for polyurethane tubings.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document has been prepared to provide minimum acceptable requirements for the satisfactory performance of thermoplastic polyurethane and polyamide tubing used mainly in pneumatic applications.

The tubing conveys compressed air which controls and powers pneumatic systems.

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Pneumatic fluid power — Polyurethane and polyamide tubings for use primarily in pneumatic installations — Dimensions and specification

WARNING — Users of this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any national regulatory conditions.

1 Scope

This document specifies the requirements for flexible thermoplastic polyurethane and polyamide tubing conveying compressed air, in sizes from 3 mm to 16 mm (1/8 inch to 1/2 inch) outside diameter.

Polyurethane tubings are dedicated for use in the temperature range from –20 °C to 60 °C, while polyamide tubings are dedicated for use in the temperature range from –20 °C to 80 °C. Working pressure depends on the tube size, the service temperature (see Table 13 and Table 14) and tubing material (see Table 15 and Table 16).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1307, *Rubber and plastics hoses — Hose sizes, minimum and maximum inside diameters, and tolerances on cut-to-length hoses*

ISO 1402, *Rubber and plastics hoses and hose assemblies — Hydrostatic testing*

ISO 8330, *Rubber and plastics hoses and hose assemblies — Vocabulary*

ISO 10619-1:2017, *Rubber and plastics hoses and tubing — Measurement of flexibility and stiffness — Part 1: Bending tests at ambient temperature*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 8330 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Materials and construction

The polyurethane tubing shall be manufactured from polyester or polyether based. For applications where there is moisture or water present above 40 °C, polyurethane materials with good hydrolysis resistance are required. The user shall specify this to the supplier of the tubing.

The polyamide tubing shall be manufactured from polyamide such as but not limited to PA12, PA6, etc.

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