
**Pneumatic fluid power — Compressed
air filters —**

Part 1:
**Main characteristics to be included
in supplier's literature and product-
marking requirements**

Transmissions pneumatiques — Filtres pour air comprimé —

*Partie 1: Principales caractéristiques à inclure dans la documentation
des fournisseurs et exigences de marquage du produit*

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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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 5, *Control products and components*.

This third edition cancels and replaces the second edition (ISO 5782-1:1997), which has been technically revised.

The main changes compared to the previous edition are as follows:

- [4.2.2](#) has been modified to include common port forms described in [Annex A](#);
- [4.4](#) has been added for optional filter efficiency and reference to air purity in [Annex B](#);
- [Annex A](#) has been added which describes the port forms from ISO 1179:1981;
- [Annex B](#) has been added describing codes for air purity from ISO 8573-1 with typical applications.

A list of all parts in the ISO 5782 series can be found on the ISO website.

Introduction

In pneumatic fluid power systems, power is transmitted and controlled through air under pressure within a circuit. Where mechanical filtration of the air media is desired, filters are components designed to remove solid and liquid contaminants from compressed air.

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Pneumatic fluid power — Compressed air filters —

Part 1:

Main characteristics to be included in supplier's literature and product-marking requirements

1 Scope

This document specifies which characteristics of compressed air filters are to be included in the supplier's literature.

It also specifies product-marking requirements.

This document is applicable to compressed air filters, constructed from light alloys (aluminium, etc.), zinc diecast alloys, brass, steel and plastic, with a rated pressure of up to 1 600 kPa (16 bar) and a maximum temperature of 80 °C, designed to remove solid and liquid contaminants from compressed air by mechanical means.

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 1219-1, *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 1: Graphical symbols for conventional use and data-processing applications*

ISO 2944, *Fluid power systems and components — Nominal pressures*

ISO 5598, *Fluid power systems and components — Vocabulary*

ISO 5782-2:1997, *Pneumatic fluid power — Compressed-air filters — Part 2: Test methods to determine the main characteristics to be included in supplier's literature*

ISO 12500-3, *Filters for compressed air — Test methods — Part 3: Particulates*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5598 apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Technical requirements

4.1 General

Descriptive literature for compressed air filters shall include the requirements in 4.2 and 4.3 and may include the optional requirement in 4.4.

4.2 General characteristics

4.2.1 General dimensions

The dimensions shown on [Figure 1](#) shall be given, in millimetres. For ports, see [4.2.2](#).

4.2.2 Port forms

Port forms should be selected from ISO 16030 or [Annex A](#) for ports with pipe parallel threads or ISO 7-1 for ports with pipe-tapered threads.

The connecting interface for flange-mounted designs may be plain ported and recessed to accept O-rings.

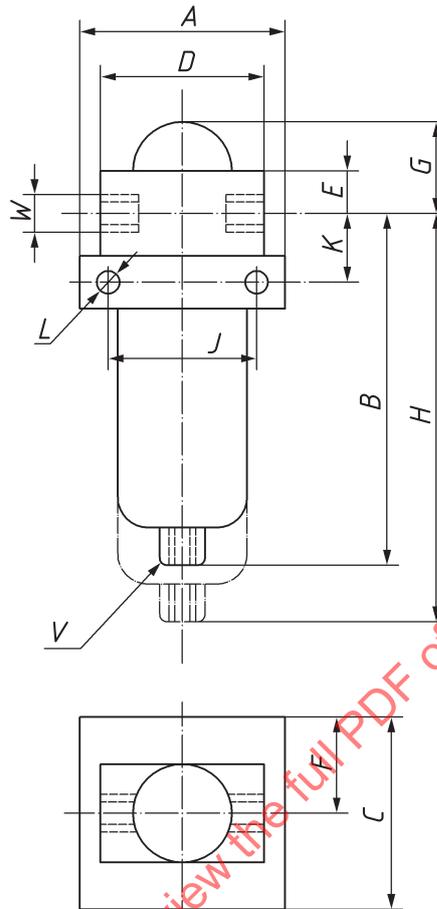
For certain applications and connections, other port forms may be employed.

4.2.3 Rated pressure

Compressed air filters shall be classified according to a pressure selected from the preferred pressures listed in ISO 2944.

The rated pressure shall be verified using the test procedure specified in ISO 5782-2:1997, Clause 6.

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Key

- A nominal overall width
- B nominal installation height below the port centreline
- C nominal overall depth, excluding pressure gauge
- D distance between the faces of the compressed air connection (inlet/outlet)
- E nominal height above the port centreline (excluding optional pressure drop indicator)
- F^a nominal installation depth from the port centreline
- G optional pressure drop indicator
- H nominal clearance from the port centreline to permit dismantling
- J^b distance between mounting holes
- K^b distance between the port centreline and mounting holes
- L^b nominal diameter and length of mounting holes or recommended mounting bolts
- V drain hole description
- W port description
- a Applies also for mounting brackets.
- b Dimensions J, K and L shall be indicated only if the device has provisions for mounting.

Figure 1 — Dimensions of filters

4.2.4 Range of operating temperatures

4.2.4.1 The temperature range in which the material and the operation of the filter are not impaired shall be stated.

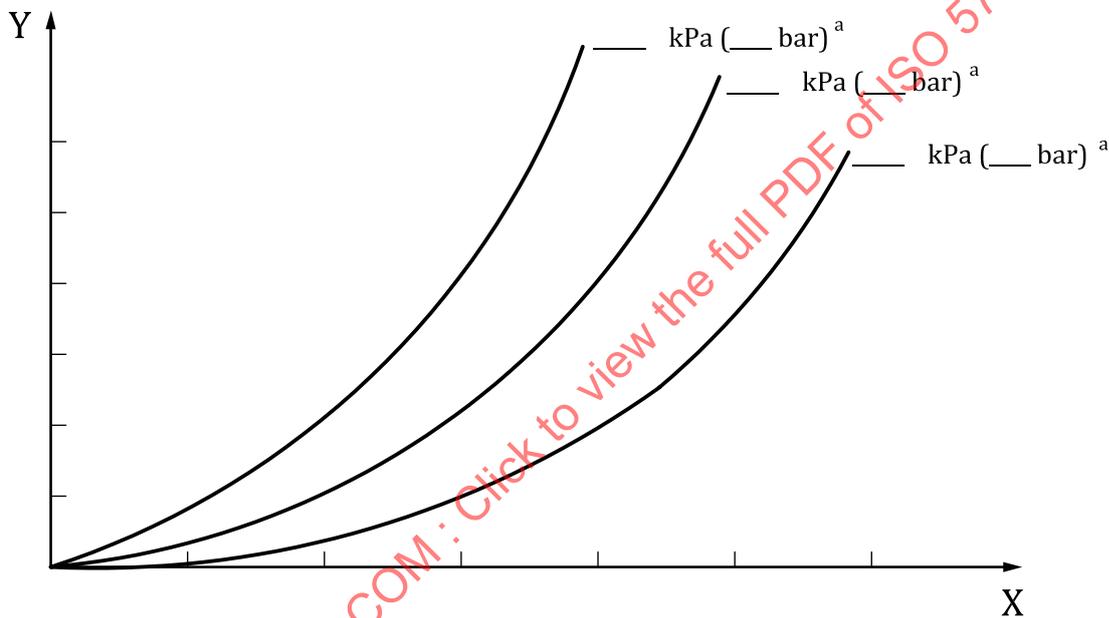
4.2.4.2 Different rating shall be specified when optional designs, with alternate combinations of constant maximum operating pressure and temperature ratings, are produced.

4.3 Particular requirements

The data provided by the supplier shall assist the user in selecting the compressed air filter which is best suited for the particular application.

4.3.1 Pressure drop — Air flow rate

The pressure drop at three inlet pressure levels of 250 kPa, 630 kPa and 1 000 kPa (2,5 bar, 6,3 bar and 10 bar) or rated pressure, if different from 1 000 kPa (10 bar), shall be measured in accordance with ISO 5782-2:1997, Clause 7, for each port size, filter element type (clean and dry) and reservoir size. The pressure drop at additional inlet pressures, such as described in ISO 2944, or elsewhere, may also be recorded. Results shall be presented in either graphical or tabular form. Typical examples are given in Figure 2 and Table 1.



Key
 X air flow rate (dm³/s, ANR)
 Y pressure drop [kPa(bar)]
 a Inlet pressure in kPa (bar)
 Model number: _____

Figure 2 — Filter performance

Table 1 — Air flow rate at a pressure drop which equals 5 % of inlet pressure for filter model number ___

Inlet pressure		Size of port					
		Air flow rate(dm ³ /s, ANR)					
kPa	bar						
250	2,5						
630	6,3						
1 000 ^a	10						

^a Or rated pressure if different from 1 000 kPa (10 bar).

4.3.2 Useful retention capacity of the reservoir

The useful retention capacity of the reservoir shall be measured in accordance with ISO 5782-2:1997, Clause 8, for every reservoir size. Results shall be published with other descriptive specifications for filters.

4.3.3 Draining devices

The type of drain fitted for manual, automatic or any other operation shall be stated.

4.3.4 Materials of construction

The generic materials of construction (e.g. body, spring cage, bottom plug and internal parts, elastomers and bowl) shall be listed.

4.4 Filter performance

The efficiency of a filter to remove solid particulate matter may be described for either fine filtration (0,01 μm to <5,0 μm) or coarse filtration ($\geq 5,0$ μm to ≤ 40 μm). Type testing for this information should be conducted in accordance with ISO 12500-3. The efficiency of a filter to remove water and oil contamination should be measured in accordance with ISO 12500. A coding system is described in [Annex B](#).

5 Operation and maintenance

Information required for application, operation, examination and maintenance shall be provided and include:

- a) the value of pressure drop at which the filter element should be replaced in order to prevent malfunction;
- b) the products that can be used for cleaning the air filter parts (e.g. element, reservoir, etc.);
- c) the minimum temperature that can be used, with a suitable warning of the effects of condensate freezing, if applicable;
- d) the minimum pressure at which the drain mechanism starts to operate.

6 Marking

The compressed air filters shall be marked with the following information:

- a) the manufacturer's or supplier's name or trademark;
- b) the manufacturer's or supplier's model or type number;
- c) rated pressure;
- d) maximum temperature;
- e) warning about cleaning products, if applicable;
- f) direction of flow;
- g) maximum fluid levels (if practical);
- h) code to indicate time of manufacture;
- i) nominal micron rating of the filter element;

j) pneumatic symbol according to ISO 1219-1.

7 Identification statement (reference to this document)

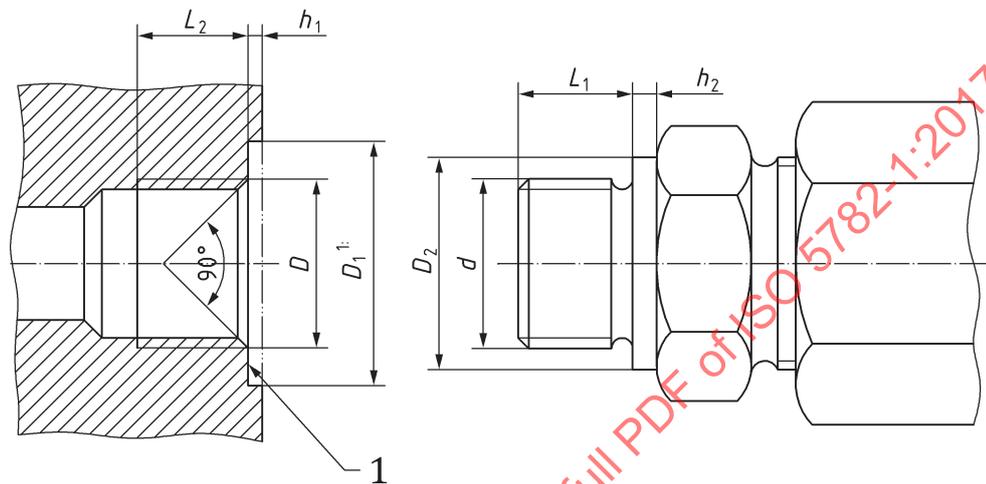
Use the following statement in test reports, catalogues and sales literature when electing to comply with this document:

“Characteristics and requirements for compressed air filters are in accordance with ISO 5782-1:2017, Pneumatic fluid power — Compressed air filters — Part 1: Main characteristics to be included in supplier’s literature and product-marking requirements.”

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Annex A (informative)

Port forms from ISO 1179:1981



Key

- 1 joint surface flat and square to the axis of the thread

Figure A.1 — Port forms

Table A.1 — Port forms

Designation of thread according to ISO 228-1		Thread length L_1 male max. L_2 female min.	Dimensions of recess ^a		Dimensions of collar	
D	d		D_1 min.	h_1 max.	D_2 h_{14}	h_2 min.
G 1/16	G 1/16 A	7,4	13	1	12	1
G 1/8	G 1/8 A	7,4	15	1	14	1
G 1/4	G 1/4 A	11,0	19	1,5	18	1,5
G 3/8	G 3/8 A	11,4	23	2	22	2
G 1/2	G 1/2 A	15,0	27	2,5	26	2,5
G 3/4	G 3/4 A	16,3	33	2,5	32	2,5
G 1	G 1 A	19,1	40	2,5	39	2,5
G 1 1/4	G 1 1/4 A	21,4	50	2,5	49	2,5
G 1 1/2	G 1 1/2 A	21,4	56	2,5	55	2,5
G 2	G 2 A	25,7	59	3	68	3

^a 1 bar = 0,1 Mpa = 10⁵ Pa; 1 Mpa = 1 N/mm².

The lengths L_2 of the female threads given in [Table A.1](#) are also suitable for assembly with male threads in accordance with ISO 7-1.

NOTE ISO 1179:1981 was published for use with both hydraulic and pneumatic pipe thread applications. It was withdrawn following a revision process and replaced by a four-part series. ISO 1179-1 contains specifications for pipe thread forms but the depths were revised for use with hydraulic requirements only. The pneumatic industry continues to produce products in accordance with the specifications in the withdrawn 1981 document, which are now provided in [Annex A](#).

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