

INTERNATIONAL STANDARD

ISO 5782-1

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Pneumatic fluid power — Compressed air filters —

Part 1:

Main characteristics to be included in commercial
literature and specific requirements

Transmissions pneumatiques — Filtres pour air comprimé —

*Partie 1: Principales caractéristiques à inclure dans la documentation commerciale et
exigences particulières*



Reference number
ISO 5782-1 : 1990 (E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5782-1 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*.

ISO 5782 will consist of the following parts, under the general title *Pneumatic fluid power — Compressed air filters*:

- *Part 1: Main characteristics to be included in commercial literature and specific requirements*
- *Part 2: Specifications for test installations and type test procedure*

Annex A of this part of ISO 5782 is for information only.

Introduction

In pneumatic fluid power systems, power is transmitted and controlled through air under pressure within a circuit. Filters ensure air cleanliness by retaining contaminants.

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Pneumatic fluid power — Compressed air filters —

Part 1:

Main characteristics to be included in commercial literature and specific requirements

1 Scope

This part of ISO 5782 specifies which characteristics of compressed air filters, required by manufacturers and users of pneumatic fluid power systems, are to be included in the manufacturers' literature.

It also specifies some requirements which the filters must meet.

This part of ISO 5782 applies to compressed air filters in which the major contaminants are removed by mechanical means.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 5782. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 5782 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7-1 : 1982, *Pipe threads where pressure-tight joint are made on the threads — Part 1 : Designation, dimensions and tolerances*.

ISO 228-1 : 1982, *Pipe threads where pressure-tight joints are not made on the threads — Part 1 : Designation, dimensions and tolerances*.

ISO 2944 : 1974, *Fluid power systems and components — Nominal pressures*.

ISO 5598 : 1985, *Fluid power systems and components — Vocabulary*.

ISO 8573-1 : —¹⁾, *Compressed air for general use — Part 1 : Contaminants and quality classes*.

ISO 8778 : 1990, *Pneumatic fluid power — Standard reference atmosphere*.

3 Definitions

For the purposes of this part of ISO 5782, the definitions given in ISO 5598 and ISO 8573-1, together with the following, apply.

compressed air filter : Device designed to retain the main solid and liquid contaminants present in compressed air.

4 Technical requirements

Descriptive literature covering compressed air filters shall include the following characteristics.

4.1 General characteristics

4.1.1 General dimensions

The dimensions shown on figure 1 shall be given, in millimetres. For ports, see 4.1.2.

4.1.2 Port sizes

Port sizes should be selected from ISO 228-1 for ports with pipe parallel threads, or ISO 7-1 for ports with pipe conical threads.

4.1.3 Operating pressures

Filters shall be classified according to their maximum operating pressure, selected from ISO 2944.

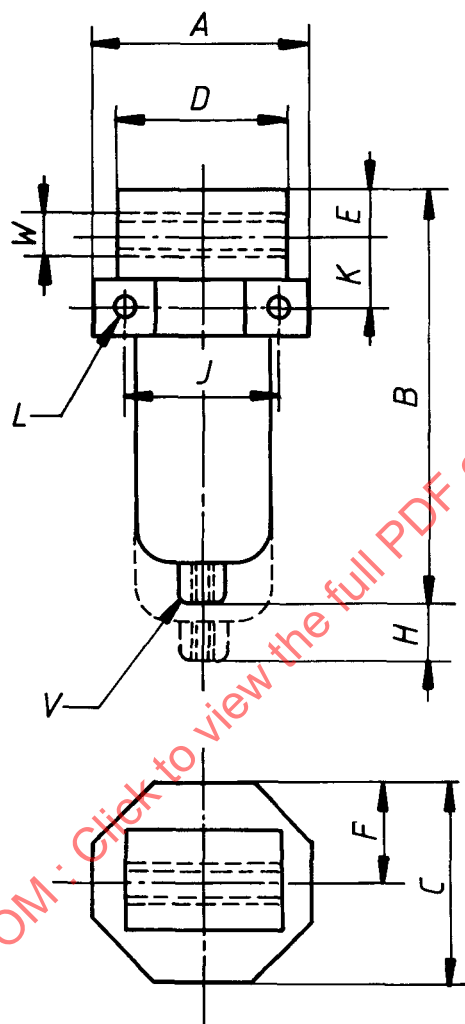
EXAMPLE

1 MPa (10 bar)
1,6 MPa (16 bar)
2,5 MPa (25 bar)

4.1.4 Range of operating temperatures

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

1) To be published.



Key

- A* = installation length
- B* = maximum installation height
- C* = installation depth
- D* = distance between the faces of the compressed air connection (inlet/outlet)
- E* = maximum height above the port centreline
- F* = maximum installation depth from the port centreline
- H* = depth for dismantling and removal of reservoir
- J*¹⁾ = distance between mounting holes
- K*¹⁾ = distance between the port centreline and mounting holes
- L*¹⁾ = minimum diameter and length of mounting holes or recommended mounting bolts
- V* = drain hole description
- W* = port description

Figure 1 — Dimensions of filters

1) Dimensions *J*, *K* and *L* shall be indicated only if the device has provisions for mounting.

4.1.4.2 If required, a derating coefficient to be applied to the operating pressure as a function of the operating temperature shall be included.

4.1.5 Proof pressure

The complete unit shall be so constructed that it will withstand, without damage or permanent deformation of any component, a proof pressure of 1,5 times the rated maximum operating pressure at the rated maximum operating temperature. This does not imply that the unit is safe for use at a pressure greater than the operating pressure (see 4.1.3).

4.2 Particular requirements

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

4.2.1 Pressure-drop — Air flow rate

4.2.1.1 Graphical form

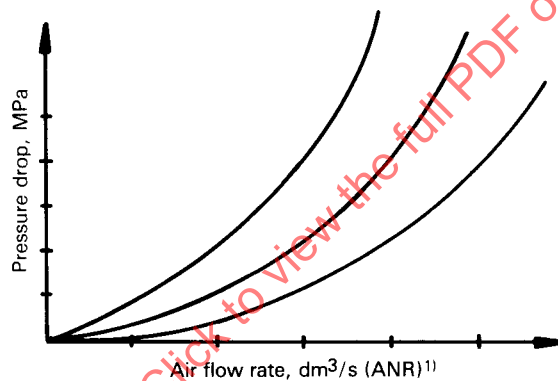
The pressure drop at a given upstream pressure as a function of air flow rate shall be represented for each port size, filter element (clean and dry) and reservoir volume.

These data shall be given for at least three inlet pressures selected from the preferred pressures specified in ISO 2944.

The graph shall be presented as shown in figure 2.

4.2.1.2 Tabular form

The air flow rate for each inlet pressure shall be presented using the form of table 1. Values indicated shall be at a pressure drop of 5 % of inlet pressure.



1) See ISO 8778.

Figure 2 — Pressure drop versus air flow rate

Table 1 — Air flow rate at inlet pressure for ... filter element

Inlet pressure MPa (bar)	Port sizes					
	Air flow rate, dm³/s (ANR)					
0,25 (2,5)						
0,4 (4)						
0,63 (6,3)						
1 (10)						
1,6 (16)						
2,5 (25)						
NOTE — At least three inlet pressures shall be chosen.						

4.2.2 Efficiency of filtration

The filtration efficiency should be given, and the method used to measure this efficiency shall be stated.

4.2.3 Useful retention capacity of the reservoir

4.2.3.1 The useful retention capacity of a reservoir corresponds to the maximum amount of liquid and solid contaminants which can be retained in the reservoir without affecting the filtration efficiency.

4.2.3.2 The retention capacity of the reservoir shall be given as a function of the size of the filter port and the type of drain device selected.

NOTE — An example of retention capacities is given in annex A.

4.2.4 Draining devices

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

5 Operation and maintenance

All information required for application, operation and maintenance, including the value of pressure drop likely to cause deterioration of the filter element and products that can be used for cleaning the air filter, for example filter element, reservoir, etc., shall be provided.

6 Marking

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

- a) when space permits, the supplier's name and filter identification data;

- b) maximum operating pressure;
- c) range of operating temperature;
- d) direction of air flow;
- e) warning about cleaning products, if applicable.

6.2 Other data may also be marked on the compressed air filter, for example date code.

7 Test methods

See 4.1.5, 4.2.1, 4.2.2, 4.2.3 and 4.2.4 for definitions of the test requirements of compressed air filters.

NOTE — The values of these characteristics should be obtained according to ISO 5782-2, the test standard for compressed air filters.

8 Identification statement (Reference to this part of ISO 5782)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this part of ISO 5782:

"Characteristics and requirements for compressed air filters are in accordance with ISO 5782-1, *Pneumatic fluid power — Compressed air filters — Part 1: Main characteristics to be included in commercial literature and specific requirements.*"

Annex A

(informative)

Example of retention capacities

Table A.1 — Example of retention capacities

Port size		1/8	1/4	3/8	1/2	3/4	1	1 1/2	2
Example of retention capacity	cm ³	10	25	50	70	100	200	300	300

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