INTERNATIONAL STANDARD

**ISO 8625-1**

Second edition
2018-03

# Aerospace — Fluid systems — Vocabulary —

## Part 1: General terms and definitions related to pressure



*Aéronautique et espace — Systèmes de fluides — Vocabulaire — Partie 1: Termes généraux et définitions relatifs à la pression*



Reference number
ISO 8625-1:2018(E)



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Published in Switzerland

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# Foreword

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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).

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This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 10, *Aerospace fluid systems and components*.



This second edition cancels and replaces the first edition (ISO 8625-1:1993) which has been technically revised and includes the following changes:

— Clause 2 “Normative References” has been added;

— Terms and definitions” has been moved from Clause 2 to Clause 3;

— example for a definition at the beginning of Clause 3 has been deleted;

— definitions in Clause 3 have been renumbered accordingly;

— definitions of the following terms have been revised:

  — absolute pressure, ambient pressure, atmospheric pressure, burst pressure, control pressure, dynamic pressure, flushing pressure, idling pressure, maximum pressure, minimum operating pressure, nominal/system/rated pressure, operating pressure, peak pressure, pressure curve, pressure drop, pressure impulse, pressure rise, pressure surge, pressure transient, pressure head, proof pressure, static pressure, suction pressure; and

— the “Alphabetical Index” has been deleted.

A list of all parts in the ISO 8625 series can be found on the ISO website.

 

# Aerospace — Fluid systems — Vocabulary —

# Part 1:
# General terms and definitions related to pressure

## 1 Scope

This document defines general terms relating to pressure in fluid systems used in aerospace construction.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions 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



NOTE A graphical representation of an arbitrary pressure curve is shown in Annex A.

**3.1**
**absolute pressure**
pressure using absolute vacuum as a reference, equal to gauge pressure plus atmospheric pressure

**3.2**
**actual pressure**
pressure at a specific location, temperature and time within a system or component

**3.3**
**ambient pressure**
pressure on an object caused by its surrounding medium

**3.4**
**atmospheric pressure**
absolute pressure of the atmosphere at a specific location and time

**3.5**
**back pressure**
pressure acting against the specified direction of operation

**3.6**
**breakout pressure**
minimum pressure required to overcome static friction in a component under defined conditions

**3.7**
**burst pressure, actual**
pressure at which a component bursts or shows excessive leakage due to structural failure

**3.8**
**burst pressure, minimum**
**ultimate pressure, minimum**
pressure up to which no burst or rupture of components is allowed

**3.9**
**certification pressure**
authorized pressure for official acceptance tests by authorities

**3.10**
**charge pressure**
inflation pressure
pressure to which a component is charged or inflated

**3.11**
**control pressure**
**pilot pressure**
pressure required to control or move a component, respectively to move the component to a predefined position

**3.12**
**cut-out pressure**
pressure at which a cut-out sequence of a component or system begins

**3.13**
**differential pressure**
difference in value between two pressures occurring simultaneously at different points



**3.14**
**dynamic pressure**
kinetic energy per unit volume of a fluid particle, the dynamic pressure is the total pressure minus the static pressure



**3.15**
**flushing pressure**
pressure required to flush a system under defined conditions

EXAMPLE At defined flow.

**3.16**
**gauge pressure**
measured absolute pressure minus atmospheric pressure

**3.17**
**idling pressure**
pressure required to maintain a system or component, or flow and/or load, at idle speed

Note 1 to entry: Also the resulting pressure when a system or component (e.g. a pump) is operated at idle speed.

**3.18**
**internal pressure**
pressure exerted inside a system or component

**3.19**
**maximum pressure**
highest transient pressure which can occur in any operational condition of a system or component

**3.20**
**minimum operating pressure**
lowest pressure at which a component or system will operate with a specified performance

**3.21**
**no-load pressure**
pressure required to maintain a system at the operating speed in the no-load condition

**3.22**
**nominal pressure**
**system pressure**
**rated pressure**
theoretical average pressure at which a system or component operates

Note 1 to entry: This is usually used to classify a system or component and to derive limit pressures, such as proof and burst pressure.

**3.23**
**operating pressure**
pressure at which a system or component is operated under normal operating conditions

**3.24**
**outlet pressure**
**output pressure**
pressure at the outlet port of a component

**3.25**
**peak pressure**
maximum pressure value measured during operation of a system or component within a given timeframe



**3.26**
**permissible pressure**
pressure up to which a system is permitted to operate for safety reasons



Note 1 to entry: Only important for maintenance reasons.

**3.27**
**precharge pressure**
pressure in portions of a component or system which results from an intended application of (external) pressure of the same or another medium, or which results from an external load

**3.28**
**pressure**
force per unit area

**3.29**
**pressure curve**
pressure variation, expressed graphically in relation to another value

EXAMPLE Time or flow.

**3.30**
**pressure drop**
difference in pressure between two points in a fluid path

**3.31**
**pressure fluctuation**
variation of pressure with time, occurring arbitrarily

**3.32**
**pressure gain**
ratio of output pressure to input pressure

**3.33**
**pressure gradient**
rate of change of pressure with distance in a steady-state flow

**3.34**
**pressure impulse**
rapid variation of pressure of extremely short duration

**3.35**
**pressure loss**
reduction in pressure caused by resistance to flow or by any extraction of energy which is not converted into useful work

**3.36**
**pressure pulsation**
periodical variation of pressure

**3.37**
**pressure ratio**
numerical ratio of the value of two pressures

**3.38**
**pressure rise**
change in pressure from a lower value to a higher value (due to energy addition or due to leakage from a higher pressure source)



**3.39**
**pressure surge**
dynamic variation of pressure caused by the rapid stop or change of direction of movement of a fluid

EXAMPLE Caused by the closure of a valve.



**3.40**
**pressure transient**
pressure peak above or below the nominal pressure for a short duration

**3.41**
**pressure head**
equivalent height of a fluid column of a liquid required to produce a given pressure

**3.42**
**pressure under load**
**load pressure**
pressure resulting from an external static or dynamic load

**3.43**
**pressure value**
numerical value of pressure

**3.44**
**pressure wave**
cyclic variation of pressure with relative low amplitude and long period

**3.45**
**proof pressure**
maximum pressure to which a component or system can be subjected without sustaining any permanent deformation that would prevent it from performing its intended function

**3.46**
**reference pressure**
pressure level set as a reference value

**3.47**
**response pressure**
pressure at which a function is initiated

**3.48**
**return pressure**
pressure in the return line caused by resistance to flow and/or by pre-charged reservoirs

**3.49**
**setting pressure**
pressure at which a component is adjusted to provide a defined operation

**3.50**
**standard atmospheric pressure**
mean atmospheric pressure at sea level (corresponding to the definition of the standard atmosphere 1 013,25 mbar)

**3.51**
**static pressure**
pressure at a specific point in a fluid which has no element due to velocity of the fluid

Note 1 to entry: The static pressure is the total pressure minus the dynamic pressure

**3.52**
**suction pressure**
**negative pressure**
pressure value below the atmospheric pressure



**3.53**
**supply pressure**
**inlet pressure**
pressure at the inlet port of a component



**3.54**
**switching pressure**
pressure at which a system or a component is activated, deactivated or reversed

**3.55**
**total pressure**
sum of the static and dynamic pressures at a specific location