



BSI Standards Publication

## **Aerospace — Fluid systems — Vocabulary**

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Part 1: General terms and definitions related to pressure

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## **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*



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## Foreword

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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**

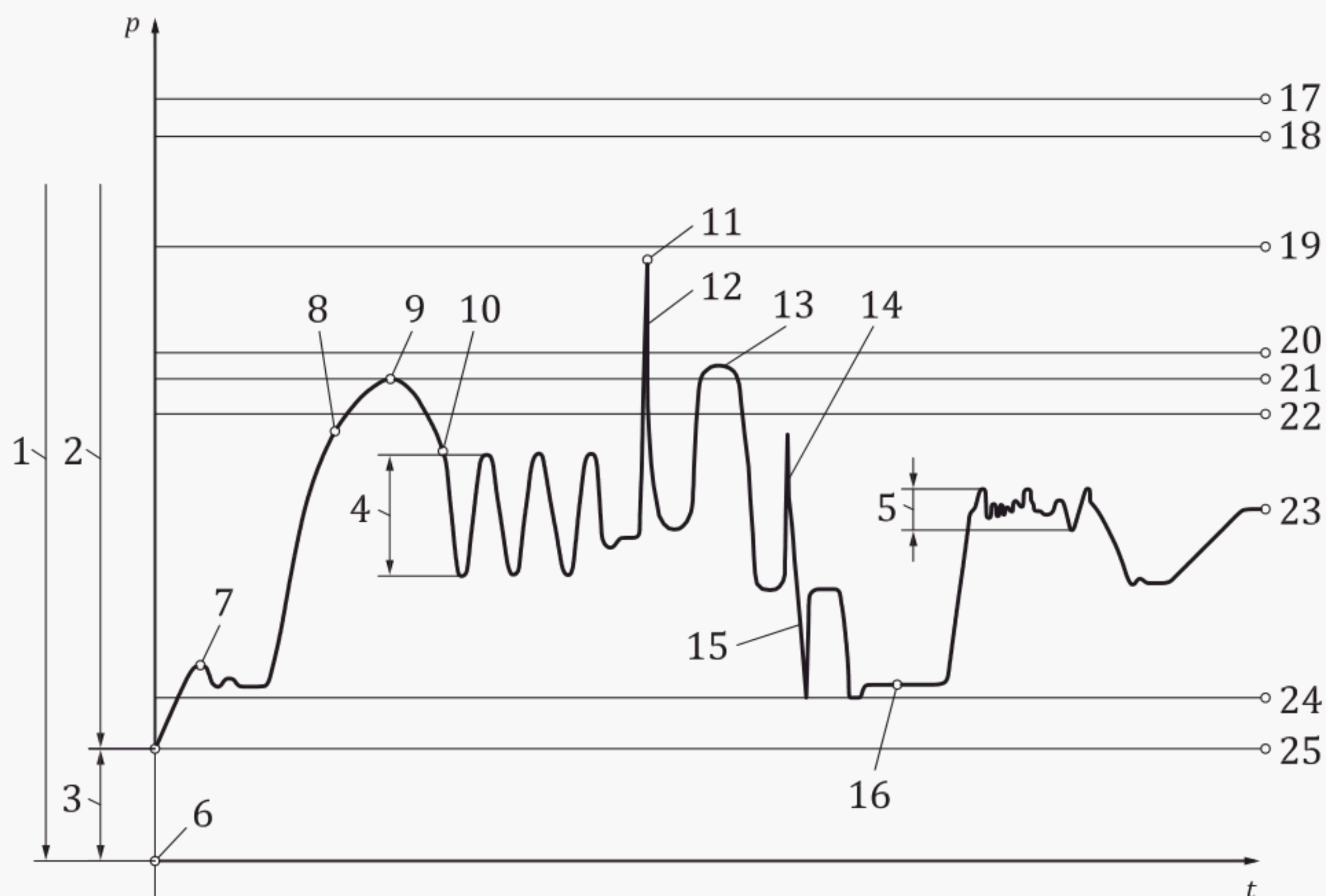
**total pressure**

sum of the static and dynamic pressures at a specific location



## Annex A (informative)

### Graphical presentation of an arbitrary pressure curve



#### Key

- |    |                                            |    |                                                 |
|----|--------------------------------------------|----|-------------------------------------------------|
| 1  | absolute pressure                          | 14 | pressure impulse                                |
| 2  | gauge pressure                             | 15 | pressure impulse                                |
| 3  | suction pressure                           | 16 | idling pressure                                 |
| 4  | pressure pulsation                         | 17 | burst pressure, actual                          |
| 5  | pressure fluctuation                       | 18 | burst pressure, minimum                         |
| 6  | absolute vacuum                            | 19 | proof pressure                                  |
| 7  | breakout pressure                          | 20 | maximum pressure                                |
| 8  | response pressure (e.g. cracking pressure) | 21 | permissible pressure                            |
| 9  | setting pressure (e.g. of relief valve)    | 22 | rated pressure (nominal pressure)               |
| 10 | response pressure (e.g. reset pressure)    |    | (system pressure)                               |
| 11 | peak pressure                              | 23 | actual pressure $\triangleq$ operating pressure |
| 12 | pressure transient                         | 24 | minimum operating pressure                      |
| 13 | pressure surge                             | 25 | atmospheric pressure                            |

Figure A.1

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