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Aerospace — Fluid systems — Vocabulary

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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Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
Annex A (informative) Graphical presentation of an arbitrary pressure curve	6
Bibliography	7

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.

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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

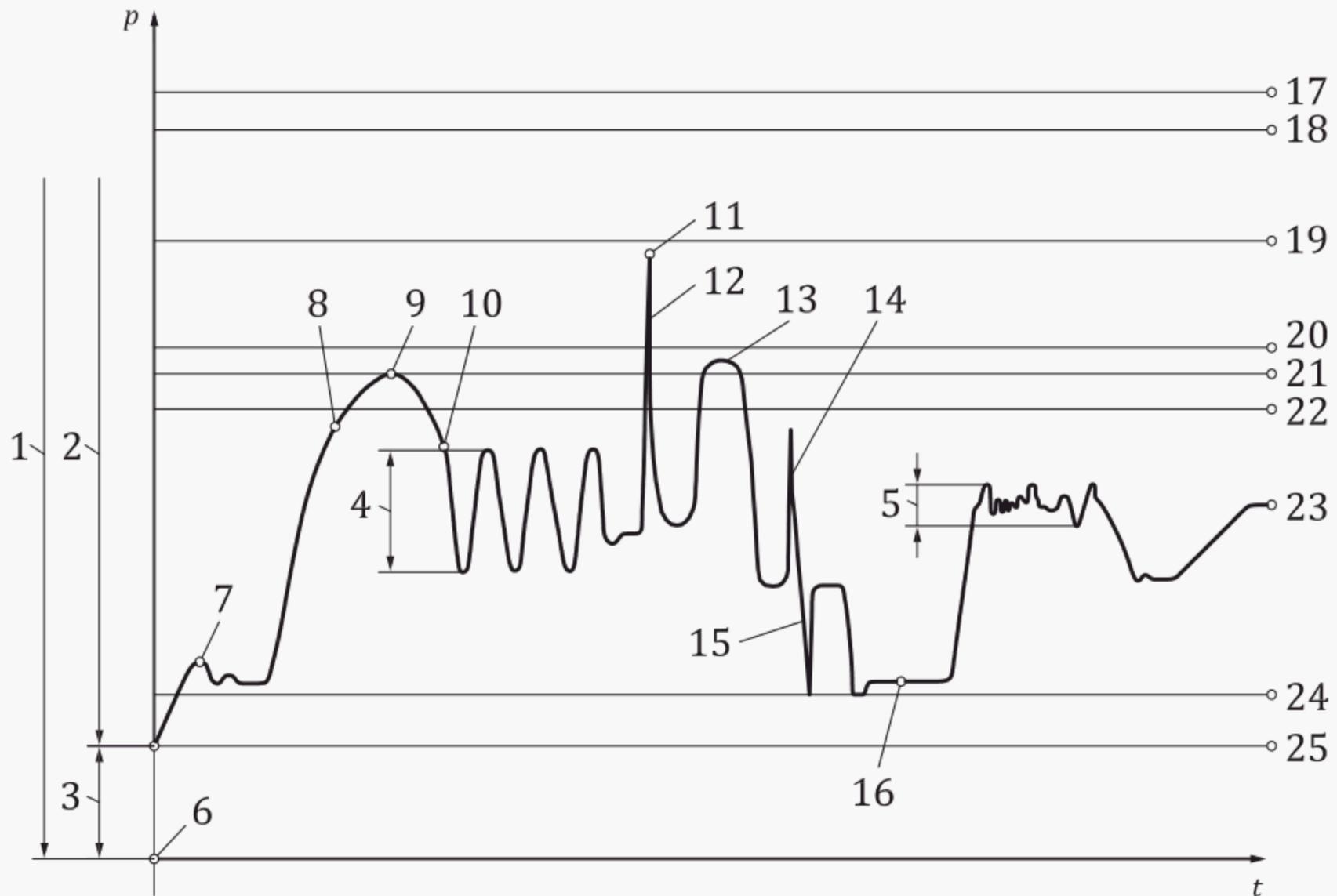
3.55

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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