
INTERNATIONAL STANDARD 2944

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION · МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ · ORGANISATION INTERNATIONALE DE NORMALISATION

Fluid power systems and components — Nominal pressures

Transmissions hydrauliques et pneumatiques — Gamme de pressions nominales

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Descriptors : fluid power, hydraulic fluid power, specifications, components, mechanical properties, pressure.

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

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.

International Standard ISO 2944 was drawn up by Technical Committee ISO/TC 131, *Fluid power systems and components*, and circulated to the Member Bodies in November 1972.

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It has been approved by the Member Bodies of the following countries :

Australia	Hungary	Romania
Austria	India	South Africa, Rep. of
Belgium	Italy	Sweden
Brazil	Japan	Switzerland
Bulgaria	Mexico	Thailand
Czechoslovakia	Netherlands	Turkey
Finland	New Zealand	United Kingdom
France	Poland	U.S.A.
Germany	Portugal	U.S.S.R.

No Member Body expressed disapproval of the document.

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For easy application and optimum performance of fluid power systems, it is desirable to have all components in an individual fluid power system, or subsystem thereof, rated to the same preselected nominal pressures. Preselected pressures are desired so that all International Standards relating to fluid power systems can have a common reference. It is desirable that these nominal pressures cover the widest possible range with the smallest reasonable number of steps. This would minimize the number of recommended nominal (system) pressures, improve component interchangeability, and standardize production.

Nominal pressures appearing in this document were selected from the series of preferred numbers in accordance with ISO 3, *Preferred numbers – Series of preferred numbers*, ISO 17, *Guide to the use of preferred numbers and of series of preferred numbers* and ISO 497, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers*. These nominal pressures will provide the basis for all pressures used in subsequent documents developed by ISO/TC 131 and its subcommittees.

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More specifically, the nominal pressures appearing in this document were selected from the R 5 and R 10 series of preferred numbers as follows :

- preferred values to 160 bar inclusive : R 5
- preferred values above 200 bar : R 10
- non-preferred values below 200 bar : R 10

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Fluid power systems and components – Nominal pressures

0 INTRODUCTION

In fluid power systems, power is transmitted and controlled by a fluid (liquid or gas) under pressure within an enclosed circuit. Systems and components are generally designed and marketed for a specific fluid pressure.

1 SCOPE AND FIELD OF APPLICATION

This International Standard establishes a series of nominal pressures from which to choose values used in other International Standards related to fluid power.

It provides a standardized series from which to choose values applied to individual fluid power systems and/or components.

The nominal pressures in this International Standard are for positive gauge pressures used with fluid power systems and/or components. Fluid power includes the engineering sciences of hydraulics, pneumatics and fluidics.

NOTE – See 3.1 and 4.3 for explanations of nominal pressure.

2 REFERENCES

ISO, *Fluid power – Vocabulary*.*

ISO 1000, *SI units and recommendations for the use of their multiples and of certain other units*.

3 DEFINITIONS

3.1 nominal pressure: A pressure value assigned to a component or a system for the purpose of convenient designation.

NOTE – This definition is intended solely to complete this document. A more comprehensive definition for general purposes may be established subsequently.

3.2 For definitions of other terms used, see ISO

4 UNITS

4.1 The pressure unit used is the bar.

$$1 \text{ bar} = 100 \text{ kPa}^{**} \approx 14.5 \text{ lbf/in}^2$$

4.2 Express nominal pressures as "pressure of bar".

4.3 Assume the nominal pressure to be "gauge" pressure (i.e. the pressure above atmospheric) when no modifier is given.

5 NOMINAL PRESSURES

Select from values in the table.

TABLE – Nominal pressures – Gauge pressures in bar

0,01 (0,012 5)	0,10 (0,125)	1,0 (1,25)	10 (12,5)	100 (125)	1 000
0,016 (0,02)	0,16 (0,2)	1,6 (2,0)	16 (20)	160 (200)	
0,025 (0,031 5)	0,25 (0,315)	2,5 (3,15)	25 (31,5)	250 (315)	
0,04 (0,05)	0,4 (0,5)	4,0 (5,0)	40 (50)	400 (500)	
0,063 (0,08)	0,63 (0,8)	6,3 (8,0)	63 (80)	630 (800)	

NOTE – Non-preferred values are in parentheses.

6 IDENTIFICATION STATEMENT (Reference to this International Standard)

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

"Nominal pressures determined in accordance with ISO 2944, *Fluid power systems and components – Nominal pressures*."

* In preparation.

** 1 Pa = 1 N/mm².

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