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International Standard 4400

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

Fluid power systems and components — Three-pin electrical plug connector — Characteristics and requirements

Transmissions hydrauliques et pneumatiques — Connecteurs électriques à trois broches — Caractéristiques et exigences

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Descriptors : fluid power, pneumatic fluid power, hydraulic fluid power, electric connectors, connector plugs, connector pins, specifications, dimensions.

Price based on 4 pages

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 4400 was developed by Technical Committee ISO/TC 131, *Fluid power systems and components,* and was circulated to the member bodies in August 1978.

It has been approved by the member bodies of the following countries :

Austria	Germany, F.R.	Norway
Belgium	Hungary	Romania
Brazil	India	Spain
Canada	Italy	Sweden
Chile	Japan	Switzerland
Czechoslovakia	Libyan Arab Jamahiriya	United Kingdom
Finland	Mexico	USSR
France	Netherlands	Yugoslavia

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Poland
USA

Printed in Switzerland

Fluid power systems and components — Three-pin electrical plug connector — Characteristics and requirements

0 Introduction

In fluid power systems, power is transmitted and controlled through a fluid under pressure within an enclosed circuit. Typical components found in such systems are hydraulic and pneumatic controls. These devices are used to regulate the function of a component or system.

Some control components found in fluid power systems are electrically actuated. The electrical plug connector described in this International Standard is used with control and regulation assemblies for use in hydraulic and pneumatic fluid power systems.

1 Scope and field of application

This International Standard specifies the following characteristics and requirements for a general purpose three-pin electrical plug connector with earth contact for use with a single solenoid :

— the electrical characteristics of the connector;

— the dimensions of the pins and earth contact;

— the means for fixing the socket to the plug;

— the sealing procedure between the plug and the socket.

The electrical plug connector specified in this International Standard is intended to be used under working conditions where the connector cannot be damaged by external action (for example shock or excessive loading).

2 References

ISO 5598, *Fluid power systems and components — Vocabulary.*[1)]

IEC Publication 144, *Degrees of protection of enclosures for low-voltage switchgear and controlgear.*

IEC Publication 309 A, First supplement to publication (1969), *Plugs, socket-outlets and couplers for industrial purposes.*

IEC Publication 529, *Classification of degrees of protection procured by enclosures.*

3 Definition

3.1 electrical connector : Two-piece assembly (plug and socket) which, when joined, provides electrical continuity.

For definitions of other terms used in this International Standard see ISO 5598.

1) At present at the stage of draft.

4 Components of connector

Refer to figure 1 for identification of the following :

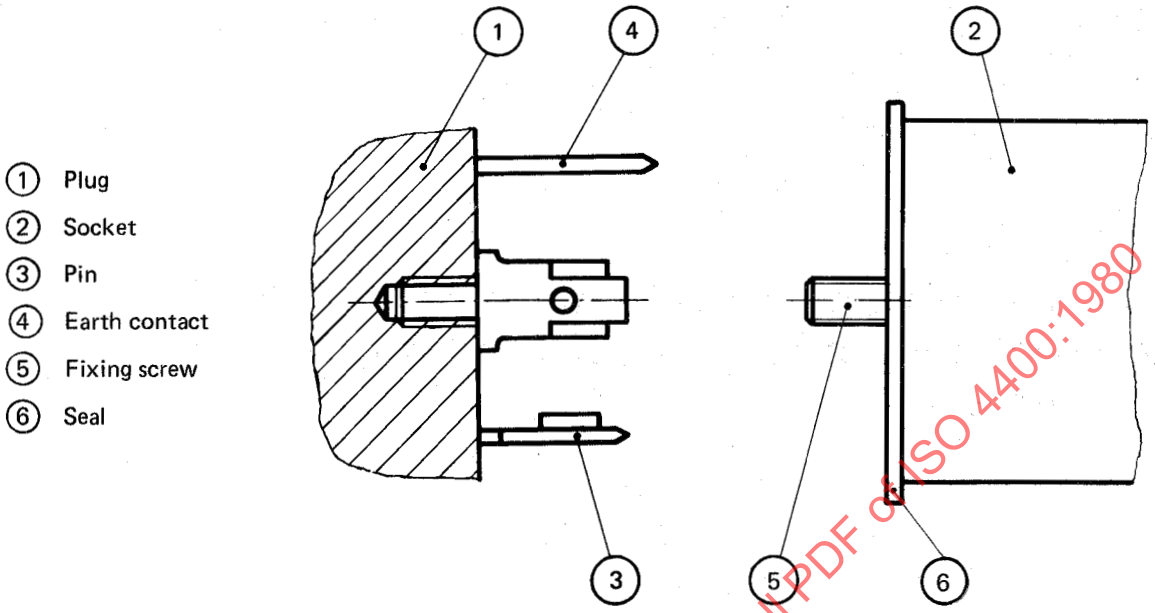


Figure 1 — Components of connector

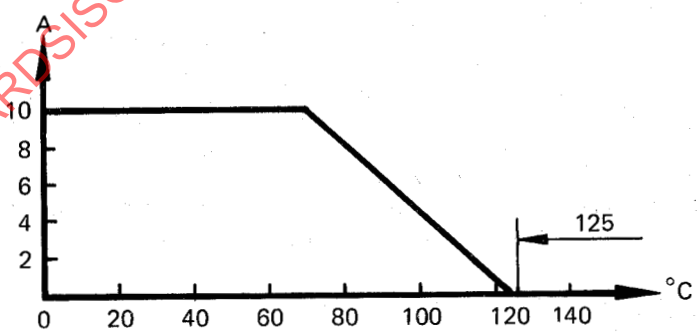
5 Connector characteristics

Design the connector to meet the following requirements :

a) Voltage : 250 V.

b) Current : 10 A.

c) Temperature of use : − 20 to + 115 °C; at elevated temperatures, the variation of intensity with temperature is given by the following diagram :



d) Degree of protection after fixing the socket onto the plug : IP 65, in accordance with IEC Publication 144.

e) Insulation and dielectric strength : the connector meets the requirements stated in clause 19 of IEC Publication 309 A.

NOTE — If it is necessary to specify the mechanical degree of protection, refer to IEC Publication 529.

6 Position of pins and earth contact

6.1 Fix the pins and earth contact on the plug.

6.2 Fix the earth contact pin in such a way that earth connection is ensured before current enters the pins.

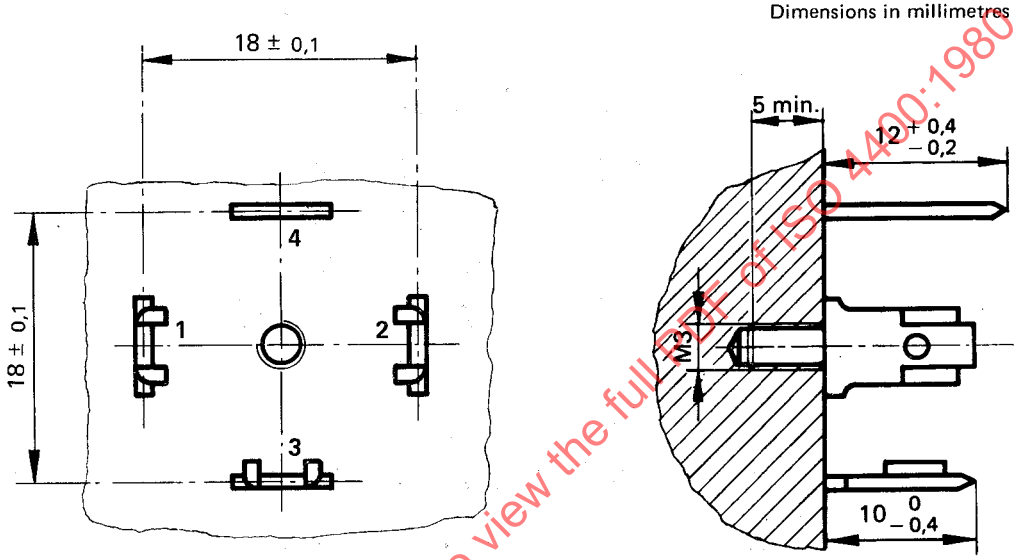
6.3 Use the position, dimension and marking information shown in figure 2.

6.4 Pins 1 and 2 are the main pins.

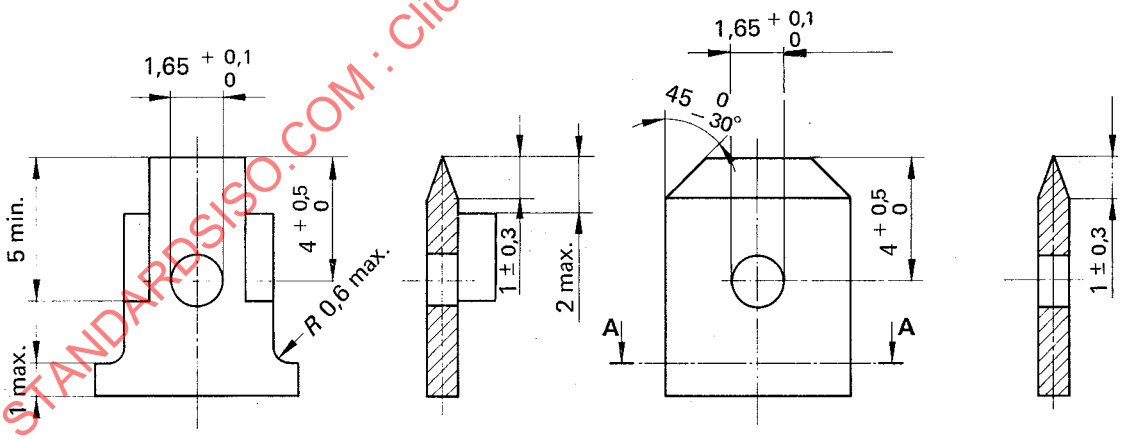
6.5 Pin 3 is an additional pin for auxiliary purposes, such as indicator lamps, stroke limiter, etc.

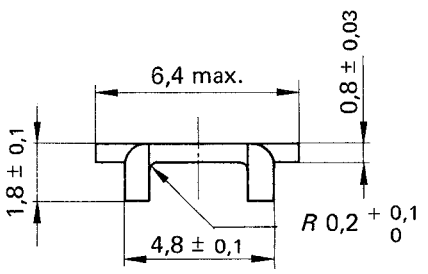
6.6 Pin 4 (2 mm longer than pins 1, 2 and 3) is the earth contact.

Dimensions in millimetres

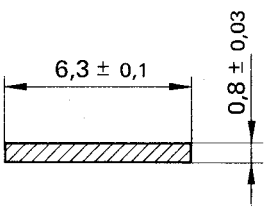


a) Position and marking of pins and earth contact





b) Pin dimensions



Section A-A

c) Earth contact dimensions

Figure 2 — Connector details

7 Fixing the socket onto the plug

Use an M 3 screw to ensure the fixing of the socket onto the plug in conformance with figure 2a).

8 Socket/Plug tightness

8.1 Provide a flat seal on the plug to ensure tightness in the socket/plug assembly.

8.2 Adapt the socket on the seal to suit the overall dimension requirements indicated in figure 3.

Dimensions in millimetres

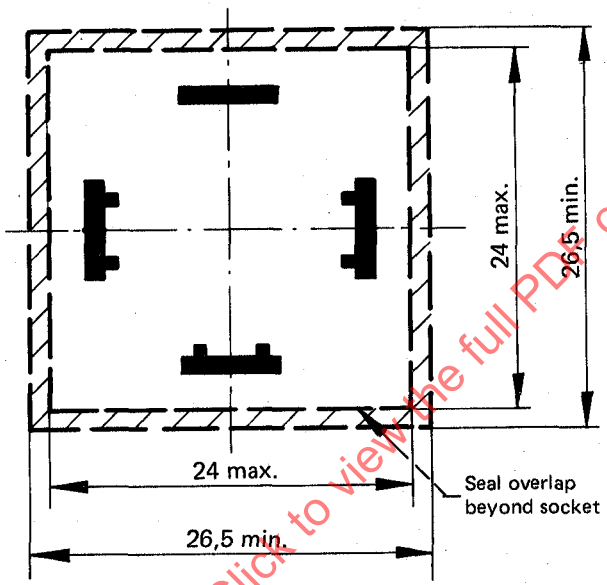


Figure 3 — Overall dimensions

9 Mechanical protection

Provide a cover plate to protect the electrical plug connector described in this International Standard when the socket connector has been removed. The cover plate may be made of plastic or similar material.

10 Identification statement (Reference to this International Standard)

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

" Electrical plug connector conforms to ISO 4400, Fluid power systems and components — Three-pin electrical plug connector — Characteristics and requirements. "