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**Pneumatic fluid power systems —  
Directional control valves —  
Specification of pin assignment for  
electrical round connectors of diameters  
8 mm and 12 mm**

*Transmissions pneumatiques — Distributeurs de commande  
directionnels — Spécification de l'affectation des broches des  
connecteurs électriques ronds de diamètres 8 mm et 12 mm*



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## Foreword

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ISO 20401 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 5, *Control products and components*.

## Introduction

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

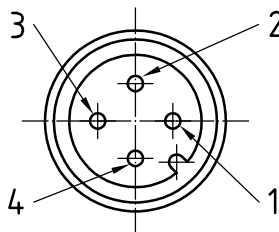
Some control components found in pneumatic fluid power systems are electrically actuated. For small control components with electrical control mechanisms, plug connectors of round type with diameters of 8 mm and 12 mm are used. For a unified actuation of the control component in relationship to the electrical power, a standardized pin assignment is required.

# Pneumatic fluid power systems — Directional control valves — Specification of pin assignment for electrical round connectors of diameters 8 mm and 12 mm

## 1 Scope

This International Standard specifies the pin assignment for pneumatic directional control valves when used together with electrical connectors according to IEC 60947-5-2. This definition is valid for connectors as shown in Figures D.2 and D.4 of IEC 60947-5-2:2004, which are shown in a simplified version below:

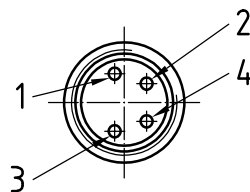
— Figure D.2: 12-mm diameter, five-pin connector (pin 5, not shown, is unassigned), male face view



### Key

1	pin 1	2	pin 2
3	pin 3	4	pin 4

— Figure D.4: 8-mm diameter, four-pin connector, male face view



### Key

1	pin 1	2	pin 2
3	pin 3	4	pin 4

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1219-1, *Fluid power systems and components — Graphic symbols and circuit diagrams — Part 1: Graphic symbols for conventional use and data-processing applications*

ISO 5598, *Fluid power systems and components — Vocabulary*

ISO 11727, *Pneumatic fluid power — Identification of ports and control mechanisms of control valves and other components*

IEC 60947-5-2:2004, *Low-voltage switchgear and controlgear — Part 5-2: Control circuit devices and switching elements — Proximity switches*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5598 apply.

## 4 Symbols and abbreviated terms

Graphic symbols used in Figures 1, 2 and 3 are in accordance with ISO 1219-1.

## 5 Electrical contacts (pin allocation)

### 5.1 Identification

For identification of ports and control mechanisms of pneumatic directional control valves, ISO 11727 shall be used.

### 5.2 Pin allocation for valves with a single solenoid

The pin allocation for valves with a single solenoid is shown in Figure 1.

- Pin 1: not used
- Pin 2: not used
- Pin 3: 0 V for solenoid
- Pin 4:  $U_B$  for solenoid

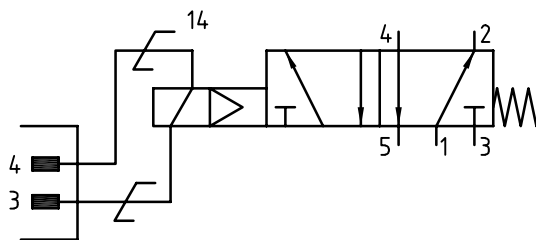


Figure 1 — Pin allocation for valves with a single solenoid

### 5.3 Pin allocation for valves with double solenoids and one connector

The pin allocation for valves with double solenoids and one connector is shown in Figure 2.

- Pin 1: not used
- Pin 2:  $U_B$  for solenoid 12
- Pin 3: 0 V for solenoids
- Pin 4:  $U_B$  for solenoid 14

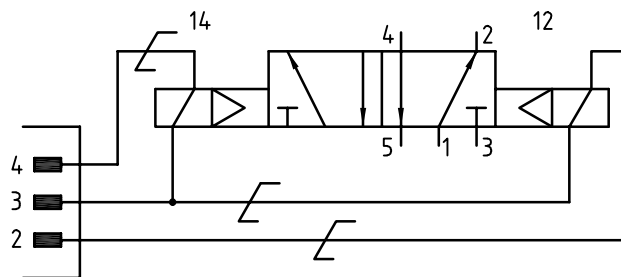


Figure 2 — Pin allocation for valves with double solenoids and one connector

### 5.4 Pin allocation for valves with double solenoids and two connectors

The pin allocation for valves with double solenoids and two connectors is shown in Figure 3.

For both connectors:

- Pin 1: not used
- Pin 2: not used
- Pin 3: 0 V for solenoid
- Pin 4:  $U_B$  for solenoid

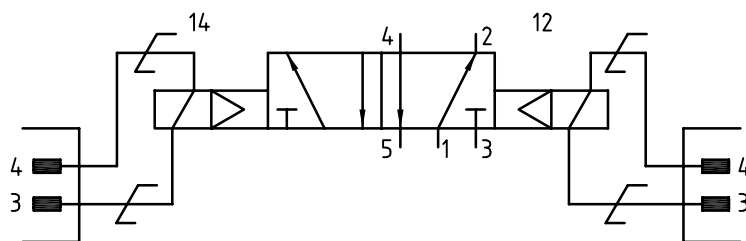


Figure 3 — Pin allocation for valves with double solenoids and two connectors

## Bibliography

- [1] ISO 5599-1:2001, *Pneumatic fluid power — Five-port directional control valves — Part 1: Mounting interface surfaces without electrical connector*
- [2] ISO 15407-1:2000, *Pneumatic fluid power — Five-port directional control valves, sizes 18 mm and 26 mm — Part 1: Mounting interface surfaces without electrical connector*





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