

ISO/FDIS 5640:2023(E)

~~2023-08-22~~

ISO/TC 153

Secretariat: AFNOR

Date: 2023-09-28

## Industrial valves — Mounting kits for part-turn valve actuator attachment

*Robinetterie industrielle — Kits de montage de raccordement des actionneurs à fraction de tour*

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CH-1214 Vernier, Geneva  
Phone: + 41 22 749 01 11  
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## Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 153, *Valves*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).



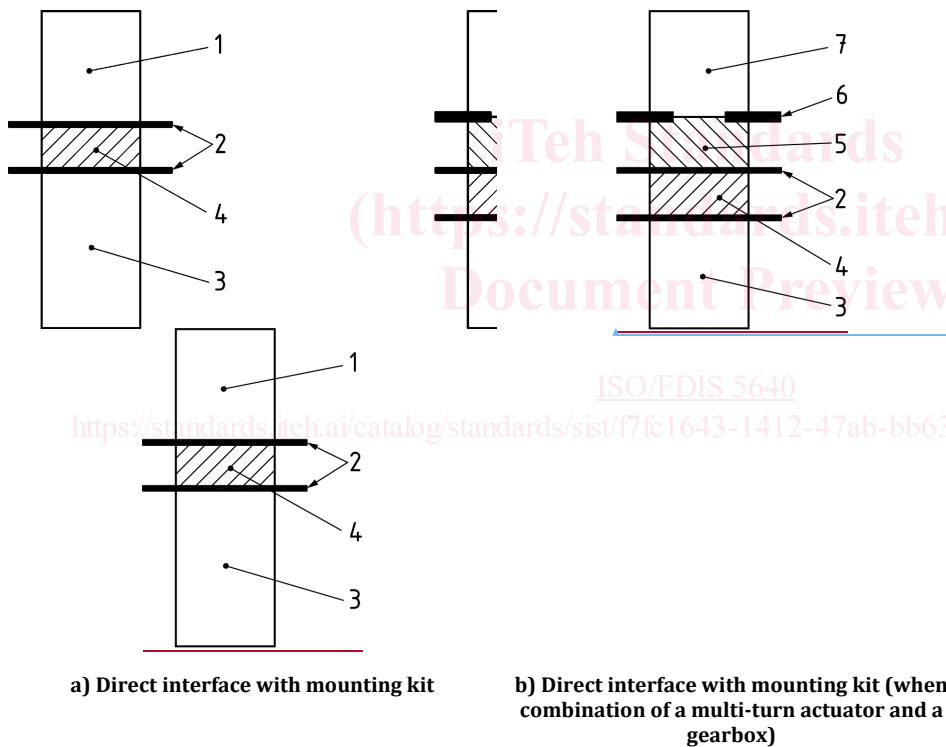
# Industrial valves — Mounting kits for part-turn valve actuator attachment

## 1 Scope

This document provides requirements for metallic mounting kits for part-turn valves and actuator attachments.

It includes all components transmitting torques from actuators to valves with a maximum flange torque up to 16 000 Nm (up to F30 flange type).

It applies to mounting kits for part-turn valves and actuators with integral attachment flanges and drive components as described in ISO 5211 (see [Figure 1](#)), when direct mounting of the actuator on valve is not practical. [Figure 1](#) illustrates the two different types of mounting kits in the scope of this document.



Key	
1	part-turn actuator
2	interface (see ISO 5211)
3	valve
4	mounting kit
5	gearbox
6	interface (see ISO 5210)
7	multi-turn actuator

Figure 1 — Mounting kit between part-turn actuator and valve

Inserted Cells

## **ISO/FDIS 5640:2023(E)**

Stacking of mounting kits/intermediate supports is not within the scope of this document.

This document specifies methods for design and environmental corrosion protection.

When a reference is made to this document, all the requirements apply, unless otherwise agreed between the purchaser and the manufacturer/supplier, prior to order.

In this document, the term "valve" covers valve or shaft extension top-flange, and the term "actuator" covers part-turn actuator or combination of multi-turn actuator and gearbox.

Control valves are excluded from this document.

## **2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 5211, *Industrial valves — Part-turn actuator attachments*

## **3 Terms and definitions**

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

### **3.1 mounting kit**

group of components comprising an *intermediate support* (3.2(3.2)), bolting and optional *coupling* (3.3(3.3)).

### **3.2 intermediate support**

mechanical component (bracket, spool, adapter flange) that allows the attachment between a part-turn valve and actuator or gearbox

Note 1 to entry: For electric actuators refer to ISO 22153.

Note 2 to entry: For gearboxes refer to ISO 22109.

### **3.3 coupling**

driven component that allows torque transmission from an actuator or gearbox driving component to the *valve shaft* (3.7).

### **3.4 coupling clearance**

clearance to ensure that there is axial movement between the actuator or gearbox and the *valve shaft* (3.7) to avoid thrust being applied between the driving and driven components

Note 1 to entry: See [Annex A](#).



**3.5****part-turn actuator**

actuator which transmits torque to the valve for a rotation of one revolution or less and does not have to withstand axial thrust

Note 1 to entry: A part-turn actuator may be a combination of a multi-turn actuator and part-turn gearbox.

**3.6****valve top mounting face**

feature of the valve body or an additional component which is part of the valve and which allows the attachment of actuating devices or *intermediate support* (3.2(3.2)).

Note 1 to entry: For details on the valve top mounting face refer to ISO 5211.

**3.7****valve shaft****valve stem**

part of the valve transmitting the driving torque to the obturator

**3.8****part-turn actuator attachment**

attachment interface of the actuator or gearbox which includes:

- parts that attach the *part-turn actuator* (3.5) or gearbox to the *intermediate support* (3.2(3.2));
- driving component of the part-turn actuator or gearbox necessary to attach it to the *coupling* (3.3(3.3)) or to the driven component of the valve, which may be an integral part or a removable component of the actuator or gearbox

**4 Design requirements****4.1 General**

Part-turn actuator attachments shall be in accordance with ISO 5211.

**4.2 Materials**

Mounting kit materials shall be:

- for intermediate supports, of cast iron (CI), ductile iron (DI), carbon steel (CS), stainless steel (SS), or when agreed, other material (OT);
- for bolting (environmental corrosion categories according to Table 1):
  - categories C2 and C3: stainless steel or a corrosion-protected carbon steel;
  - categories C4, C5 and CX: stainless steel;
- other categories: material to be specified by the purchaser.

Special care shall be taken for material selection in the event of environmental critical conditions and to avoid material combinations that could promote galvanic corrosion.

**4.3 Design temperature**

The mounting kit shall be designed for operation at a temperature range as a minimum between -20 °C and 60 °C. Any other temperature ranges shall be agreed between purchaser and the mounting kit manufacturer.

#### 4.4 Environmental corrosion protection

Mounting kits shall be protected against corrosion by material selection and surface treatment.

The manufacturer's technical documentation shall specify the choice of the materials and/or the type of the surface treatment.

Surface treatment system for carbon or low-alloy steels (e.g. according to ISO 630-1) shall be chosen according to the classification categories given in [Table 1](#).

Test assessment and test procedures are the responsibility of the manufacturer.

NOTE [Table 1](#) can be used to define the corrosion category and help the mounting kit manufacturers to define the surface treatment for corrosion protection.

**Table 1 — Environmental corrosion categories**

Corrosion category	Typical environments	
	Exterior	Interior
C2 (low)	Atmospheres with low level of pollution, mostly rural areas	Unheated buildings where condensation may occur, e.g. depots, sport halls
C3 (medium)	Urban and industrial atmospheres, moderate sulphur dioxide pollution and coastal areas with low salinity	Production rooms with high humidity and some air pollution, e.g. food-processing plants, laundries, breweries, dairies
C4 (high)	Industrial areas and coastal areas with moderate salinity	Chemical plants, swimming pools, coastal ship and boatyards
C5 (very high)	Industrial areas with high humidity and aggressive atmosphere and coastal areas with high salinity	Buildings or areas with almost permanent condensation and with high pollution
CX (extreme)	Offshore areas with high salinity, industrial areas with extreme humidity and aggressive atmosphere, and subtropical and tropical atmospheres	Industrial areas with extreme humidity and aggressive atmosphere
<b>Categories for water and soil:</b>		
<b>Category</b>	<b>Example of environments and structures</b>	
Im 1 (immersed in fresh water)	River installations, hydro-electric power plants	
Im 2 (immersed in sea or brackish water)	Immersed structures without cathodic protection (e.g. harbour areas with structures like sluice gates, locks or jetties)	
Im 3 (soil)	Buried tanks, steel piles, steel pipes	
Im 4 (immersed in sea or brackish water)	Immersed structures with cathodic protection (e.g. offshore structures)	
NOTE This table is based on ISO 12944-2:2017, Tables 1 and 2. The mounting kits corrosion protection can also be achieved by systems/methods which deviate from those specified in ISO 12944-5 and ISO 12944-9.		

#### 4.5 Mounting kit

##### 4.5.1 Stiffness

The dimensions of the mounting kit given in this document ensure for a vertical valve shaft that the maximum flange torque, given in ISO 5211, can be transmitted.

For non-vertical valve shafts, the mounting kit manufacturer shall define any limitations.