



SLOVENSKI STANDARD

SIST EN 15081:2007

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Industrijski ventili - Oprema za priključevanje zasučnega aktuatorja ventila

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

Industriearmaturen - Montagebausätze für Anschlüsse von Schwenkantrieben an Armaturen

Robinetterie industrielle - Kits de montage de raccordement des actionneurs a fraction de tour

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23.060.99 Drugi ventili Other valves

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EUROPEAN STANDARD

EN 15081

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 23.060.99

English Version

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

Robinetterie industrielle - Kits de montage pour
raccordement des actionneurs à fraction de tour

Industriearmaturen - Montagesätze für Anschlüsse von
Schwenkantrieben an Armaturen

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 15081:2007) has been prepared by Technical Committee CEN/TC 69 "Industrial valves", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2008, and conflicting national standards shall be withdrawn at the latest by April 2008.

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EN 15081:2007 (E)**1 Scope**

This European Standard provides requirements for metallic mounting kits for part-turn on-off valves and actuator attachments to enable safe and reliable operation.

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 part-turn valves and actuators having attachment flanges and drive components as described in EN ISO 5211.

It includes recommendations and methods for design and environmental corrosion protection.

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

For the scope of this European Standard, the term "Valve" covers valve or shaft extension top-flange.

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.

EN 736-1:1995, *Valves — Terminology — Part 1: Definition of types of valves*

EN 736-2:1997, *Valves — Terminology — Part 2: Definition of components of valves*

EN 736-3:1999, *Valves — Terminology — Part 3: Definition of terms*

EN ISO 5211:2001, *Industrial valves — Part-turn valve actuator attachments (ISO 5211:2001)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 736-1:1995, EN 736-2:1997 and EN 736-3:1999 and the following apply.

3.1 mounting kit

kit comprising an intermediate support, coupling and bolting

3.2 intermediate support

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

3.3 coupling

driven component that allows torque transmission from an actuator driving component to the valve shaft and which includes a position indicator

3.4 axial coupling clearance

clearance to ensure that there is axial movement between the actuator and the valve stem to avoid thrust being applied between the driving and driven components

3.5**part-turn actuator**

actuator that transmits torque to the valve for a rotation of one revolution or less and which does not have to be capable of withstanding thrust

3.6**valve top flange**

part of the valve which allows the attachment of actuating devices and ancillaries via an intermediate support

3.7**valve shaft**

part of the valve transmitting the drive torque to the obturator

3.8**part-turn actuator attachment**

attachment interface of the actuator which includes:

- flange necessary to attach the part-turn actuator to the intermediate support;
- driving component of the part-turn actuator necessary to attach it to the coupling or to the driven component of the valve, which may be an integral part or a removable component of the actuator

3.9**maximum actuator output torque**

maximum output torque of the actuator available at the maximum motive energy input

3.10**maximum allowable shaft torque (MAST)**

maximum torque that can be applied to all the driven components, without damage and/or plastic deformation being sustained by any part

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4 Design requirements**4.1 General**

Part-turn actuators shall be in accordance with EN ISO 5211.

4.2 Materials

Unless otherwise agreed, mounting kit materials shall be:

- for intermediate supports, of cast iron (CI), carbon steel (CS) or stainless steel (SS);
- for coupling, see performance classes (Table 2);
- for bolting (environmental corrosion categories according to Table 1):
 - categories C2 and C3: stainless steel or a suitably corrosion protected carbon steel;
 - categories C4 and C5-I: 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.

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4.3 Design temperature

The mounting kit shall be designed for operation at an ambient temperature range between $-20\text{ }^{\circ}\text{C}$ and $+60\text{ }^{\circ}\text{C}$.

4.4 Environmental corrosion protection

Mounting kits shall be protected against corrosion by suitable material selection and/or 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 EN 10025) 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 may 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. Coastal areas with low salinity.	Production rooms with high humidity and some air pollution, e.g. food-processing plants, laundries, breweries.
C4 (high)	Industrial areas and coastal areas with moderate salinity.	Chemical plants, swimming pools, coastal shipyards.
C5-I (very high - industrial)	Industrial areas with high humidity and aggressive atmosphere.	Buildings or areas with almost permanent condensation and with high pollution.
C5-M (very high – marine)	Coastal and offshore areas with high salinity.	Buildings or areas with almost permanent condensation and with high pollution.
Immersed in water or buried in soil:		
Im 1 (Immersed in fresh water)	River installations, hydro-electric power plants.	
Im 2 (Immersed in sea or brackish water)	Harbour areas and offshore structures.	
Im 3 (buried in soil)	Buried pipelines	
NOTE This table is taken from EN ISO 12944-2:1998.		

4.5 Mounting kit

4.5.1 Stiffness

The dimensions of the mounting kit given in this European Standard ensure that the maximum flange torque - given in Table 1 of EN ISO 5211 - can be transmitted safely.

For non-vertically mounted actuators, the user may need to design an extra support.

When specified by the purchaser, the mounting kit shall also be designed for external loads (e.g. stepping load, earthquake, wind loading, additional plant induced dynamic loads). In this case, for instance, the thickness as given in Table 3 may be increased.

4.5.2 Intermediate support style

The intermediate support provides two equal or different attachment interfaces (actuator and valve), as per EN ISO 5211.

The most common type is a "rectangular" bracket, as defined in 5.1.

The "rectangular" type is predominantly manufactured from a rectangular or square tube in compliance with EN 10219-2 or EN 10210-2. The "rectangular" type can also be cast, fabricated or machined.

Other commonly used types are the following:

- "adapter flange": generally manufactured as one piece from casting, forging, plate or bar. It shall be provided with a suitable venting device;
- "spool type": generally manufactured from two flanges that correspond to the mating faces of valve and actuator, connected together by a piece of tube. The assembly is welded together to form a spool piece. The "spool" type can also be in one piece: cast, forged or machined. The spool shall be provided with a suitable venting device and/or with a suitable opening to visualise the coupling position.

Other types of intermediate support may be used provided they meet the requirements of this European Standard.

4.6 Coupling

The design of the coupling shall ensure the maximum transmissible torque (as specified in EN ISO 5211), can be delivered to the valve shaft.

The coupling performance class shall be specified by the purchaser in accordance with Table 2.

The design of both coupling ends (driven/driving) shall avoid any contact between moving and fixed parts.

Table 2 — Coupling performance classes

Performance designation	Examples of material types	Minimum yield strength type N/mm ²	Coupling tolerances driven end / driving end	
			Class 1	Class 2
Group A	Austenitic stainless steels, nickel based alloys, carbon steel	200	g9 / H10	g6 / H7
Group B	Duplex steels, martensitic stainless steels	450	g9 / H10	g6 / H7

4.7 Designation

Mounting kits shall be designated as follows:

- a) mounting kit style: adaptor flange (AF), bracket (BR), spool (SP) or other (OT) followed by the intermediate support material as per 4.2 (CI, CS or SS);
- b) flange designations according to EN ISO 5211 (actuator flange type/valve flange type);
- c) coupling drive identification (first for the actuator and second for the valve):

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- coupling driven (actuator side) diagonal square “D” designation, as per EN ISO 5211, followed by dimension s_a as per Table 4;
 - coupling driving (valve side) designation either to Clause 6 of EN ISO 5211:2001 (additional capital letters with actual dimensions d_7 or s) or to specified / agreed dimensions, followed by actual dimensions l_8 and l_7 in mm (see Figure A.1);
- d) environmental corrosion category as per Table 1;
- e) performance group/class as per Table 2.

EXAMPLE EN 15081 - BR/CI - F07/F05 - D 14/H 11-11-24 - C3 - B1.

NOTE The designation is not a marking requirement.

4.8 Position indicator

The coupling design shall have a provision for a clear and permanently marked indicator to show whether the valve is open or closed: special attention, during the assembly, should be taken when installing square drive couplings.

4.9 Buried service

When buried service is required, design details and corrosion protection shall be agreed between the purchaser and manufacturer/supplier.

4.10 Safety requirement (mechanical/thermal protection)

The adapter flange or the spool shall have a provision for venting any leakage that may occur through the stem seal of the valve or from the actuator hydraulic/pneumatic supply. This may be obtained either by including a suitable vent or a pressure relief safety valve.

4.11 Orientation

The mounting kit shall be designed to be installed in any mounting position.

4.12 Additional anti-rotation means

When needed to resist torsion, vibration and shock loads, suitable means (e.g. dowel pins) may be used.

4.13 Valve/actuator package maintenance

The maintenance requirements of any valve/actuator package shall always be considered when designing and/or ordering the mounting kit. Special consideration shall be given to the following.

- Access to the fixings that connect the valve and actuator to the mounting kit: the mounting kit should have sufficient clearance to allow the installation and removal of fasteners using standard commercial tooling.
- Access to external valve gland adjustment mechanisms: some part-turn valves require periodic adjustment to prevent fugitive emissions.
- Access to valve lubrication facility: some plug valves require periodic lubrication in order to maintain a consistent torque requirement and prevent seizure.
- Actuator and accessories arrangement in relation to valve/pipeline flanges: the kit should be of sufficient height to allow suitable access for assembly, valve adjustment, and valve/pipeline insulation/lagging.

5 Dimensions

5.1 Bracket

The bracket consists of two mounting faces which can be either identical or different. In the latter case, the largest flange type dictates the height (H), width (W) and thickness (T), as per Figure 1 and Table 3.

When specified, the valve side of the bracket shall be profiled to clear the packing gland.

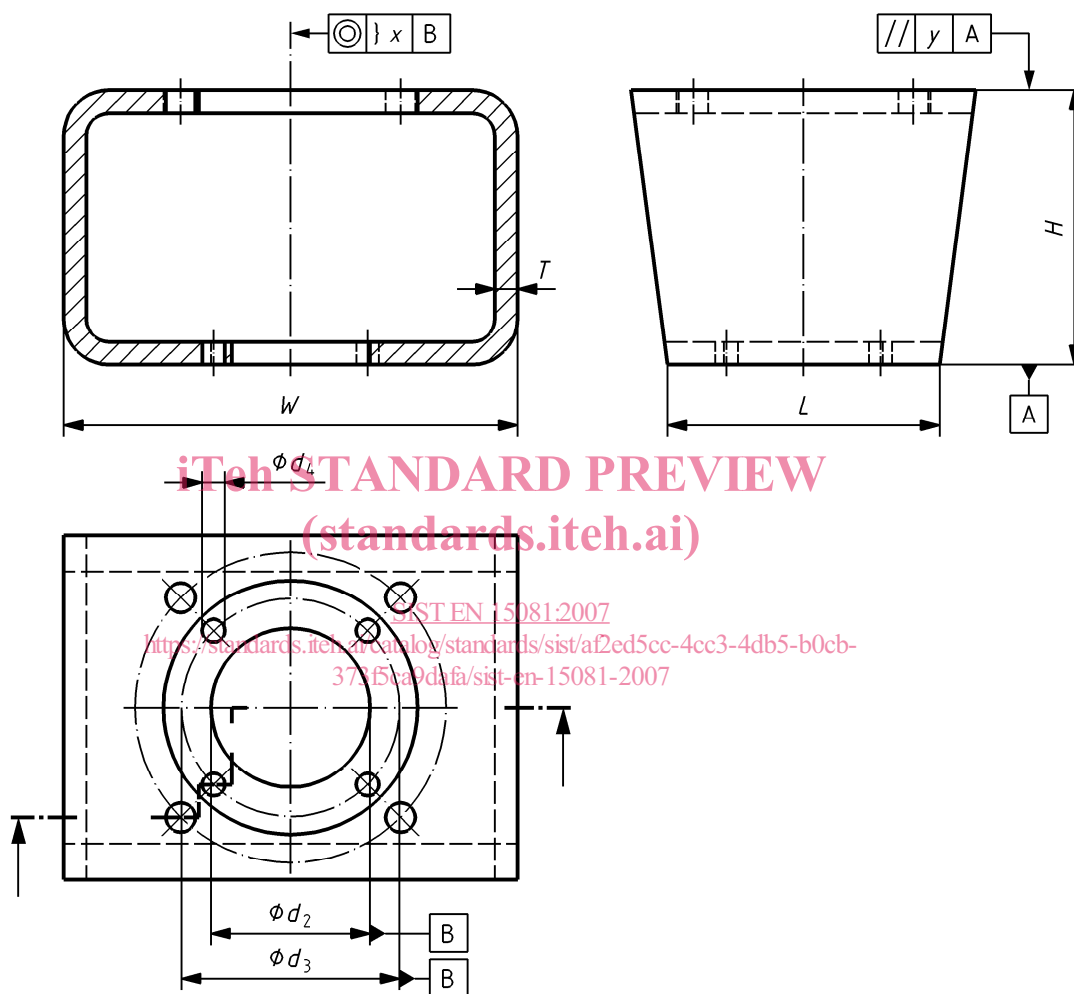


Figure 1 — Bracket dimensions