



SLOVENSKI STANDARD
oSIST prEN ISO 5211:2016
01-marec-2016

Industrijski ventili - Pritrditve zasučnih pogonov na ventilih (ISO/DIS 5211:2016)

Industrial valves - Part-turn actuator attachments (ISO/DIS 5211:2016)

Industriearmaturen - Anschlüsse von Schwenkantrieben (ISO/DIS 5211:2016)

Robinetterie industrielle - Raccordement des actionneurs à fraction de tour (ISO/DIS 5211:2016)

Ta slovenski standard je istoveten z: prEN ISO 5211

ICS:

23.060.01 Ventili na splošno Valves in general

oSIST prEN ISO 5211:2016

en,fr,de

DRAFT INTERNATIONAL STANDARD

ISO/DIS 5211

ISO/TC 153

Secretariat: AFNOR

Voting begins on:
2016-01-28Voting terminates on:
2016-04-28

Industrial valves — Part-turn actuator attachments

Robinetterie industrielle — Raccordement des actionneurs à fraction de tour

ICS: 23.060.01

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 5211:2017

<https://standards.iteh.ai/catalog/standards/sist/f27cbbd-218f-4914-b18c-2fd6ba3ea9ad/sist-en-iso-5211-2017>

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel three month enquiry.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.



Reference number
ISO/DIS 5211:2016(E)

© ISO 2016

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 5211:2017

<https://standards.iteh.ai/catalog/standards/sist/f27cbbd-218f-4914-b18c-2fdfba3ea9ad/sist-en-iso-5211-2017>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	2
3 Terms and definitions	2
4 Maximum flange torques	2
5 Flange dimensions	3
6 Designation	5
7 Dimensions and torques	6
7.1 General.....	6
7.2 Drive by key(s).....	6
7.3 Drive by parallel or diagonal square head.....	10
7.4 Drive by flat head.....	11
7.5 Drive by improved flat head.....	13
7.6 Drive by involute spline.....	14
7.7 Drive by bi-square.....	15
8 Position of driven components at interface below part-turn actuator	16
8.1 Drive by key(s).....	16
8.2 Drive by parallel or diagonal square head.....	17
8.3 Drive by flat head.....	18
9 Dowel pins	19
Annex A (informative) Explanation of calculation	20
Bibliography	22

ISO/DIS 5211:2016(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/153, *Valves*.

This second edition cancels and replaces the first edition (ISO 5211:2001), which has been technically revised with the following changes:

- a) introduction of new flange sizes;
- b) introduction of improved flat head;
- c) introduction of involute spline;
- d) introduction of bi-square;
- e) adjustment of [Clause 6](#) on designation;
- f) positions of 180° keys on the driven component.

Introduction

The purpose of this International Standard is to establish certain basic requirements for the attachment of part-turn actuators, in order to define the interface between actuator and valve.

This International Standard has, in general, to be considered in conjunction with the specific requirements which may be agreed between the parties concerned.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 5211:2017

<https://standards.iteh.ai/catalog/standards/sist/f27cbbd-218f-4914-b18c-2fdfa3ea9ad/sist-en-iso-5211-2017>

Industrial valves — Part-turn actuator attachments

1 Scope

This International Standard specifies requirements for the attachment of part-turn actuators, with or without gearboxes, to industrial valves.

The attachment of part-turn actuators to control valves in accordance with the requirements of this International standard is subject to an agreement between the supplier and the purchaser.

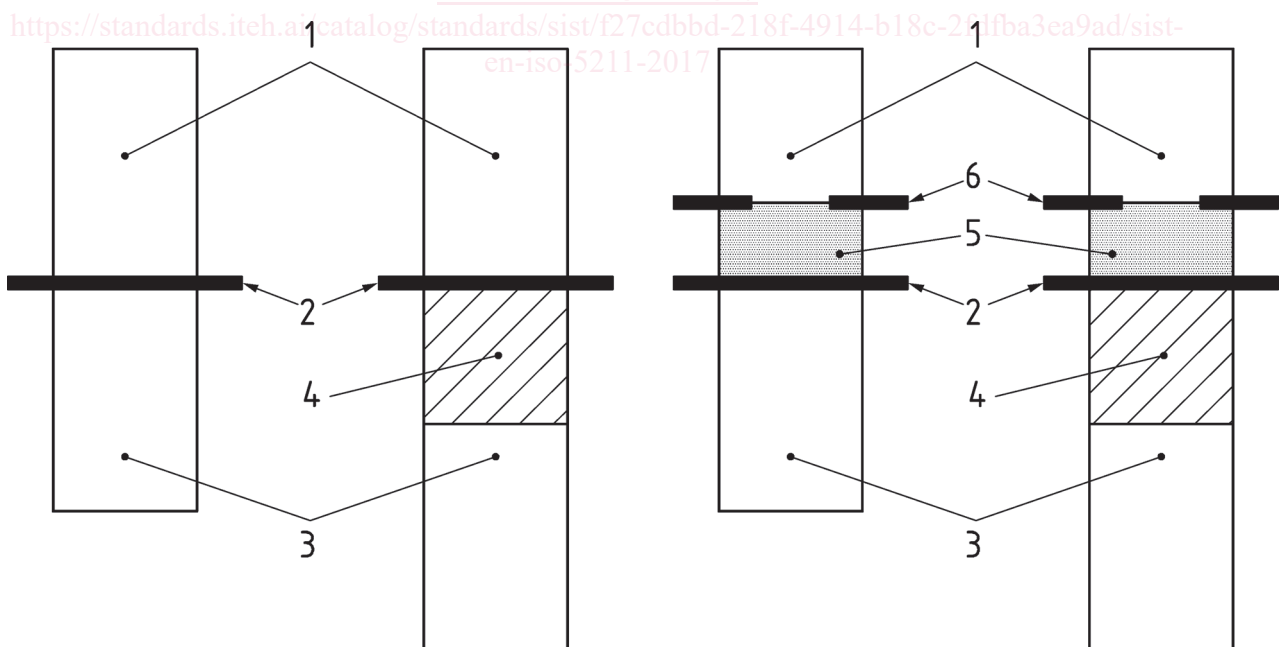
This International standard specifies:

- flange dimensions necessary for the attachment of part-turn actuators to industrial valves [see Figures 1 a) and 1 c)] or to intermediate supports [see Figures 1 b) and 1 d)];
- driving component dimensions of part-turn actuators necessary to attach them to the driven components;
- reference values for torques for interfaces and for couplings having the dimensions specified in this International standard.

The attachment of the intermediate support to the valve is out of the scope of this International standard.

NOTE 1 In this standard the term “valve” may also be understood to include “valve with an intermediate support” [see Figure 1 b)].

NOTE 2 When the part-turn actuator is a combination of a multi-turn actuator and a gearbox, the multi-turn actuator attachment to the gearbox is in accordance with ISO 5210 [see Figures 1 c) and 1 d)].



a) Direct interface

b) Intermediate support interface

c) Direct interface (when combination of a multi-turn actuator and a gearbox)

d) Intermediate support interface (when combination of a multi-turn actuator and a gearbox)

ISO/DIS 5211:2016(E)

Key

- 1 part-turn actuator
- 2 interface ISO 5211
- 3 valve
- 4 intermediate support
- 5 gearbox
- 6 interface ISO 5210
- 7 multi-turn actuator

Figure 1 — Interface between part-turn actuator and valve

2 Normative references

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

ISO 273, *Fasteners — Clearance holes for bolts and screws*.

3 Terms and definitions

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

3.1 actuator

any device designed for attachment to a general purpose industrial valve in order to provide for the operation of the valve

Note 1 to entry: The device is designed to operate using motive energy which may be electrical, pneumatic, hydraulic, manual, etc., or a combination of these. Movement is limited by travel, torque and/or thrust.

3.2 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

3.3 gearbox

any mechanism designed to reduce the torque required to operate a valve

3.4 torque

turning moment transmitted through the mounting flanges and connection components.

Note 1 to entry: It is expressed in newton metres.

4 Maximum flange torques

The flange torque shall comply with the values listed in Table 1 which represent the maximum torques which can be transmitted through the mounting flange.

Table 1 — Maximum flange torque values

Flange type	Maximum flange torque Nm
F03	32
F04	63
F05	125
F07	250
F10	500
F12	1 000
F14	2 000
F16	4 000
F25	8 000
F30	16 000
F35	32 000
F40	63 000
F48	125 000
F60	250 000
F80	500 000
F100	1 000 000

The values specified in Table 1 have been defined on the basis of bolts in tension only at a stress of 290 MPa and a coefficient of friction of 0,2 between the mounting interface. All variations in these defined parameters lead to variations of the transmittable torque values. See [Annex A](#) for more details on the calculation method.

The selection of flange types for a particular application should take into account the additional torques that may be generated because of inertia or other factors.

5 Flange dimensions

Flanges for part-turn actuator attachments shall comply with the dimensions shown in Figure 2 and given in Table 2. The method of attachment shall be by means of studs, screws or through bolting. When through bolting is used, the diameter of the clearance holes shall permit the use of bolts of a size given by the corresponding dimension d_4 in Table 2. Holes for the studs, screws or bolts shall be equi-spaced and positioned off-centre (see Figure 3 and Table 3) and shall conform to the requirements of ISO 273.

The flange on the valve shall have a recess corresponding to the diameter d_2 . A spigot on the part-turn actuator is optional.

The minimum values for dimension h_2 apply to flanges having material of proof stress $R_{p0,2} \geq 200$ MPa. The minimum values for dimension h_3 shall be at least $1 \times d_4$.

Dimension d_1 has been calculated to provide sufficient seating for nuts and bolt heads. Such seating is defined as a radius from the bolt hole centre with the dimension $(d_1 - d_3)/2$, and is a minimum. The flange shape and the design of the mounting surface of the valve and part-turn actuator outside these areas of seating is left to the choice of the manufacturer.

The dimensions and bolting material are based on bolts in tension at a maximum stress of 290 MPa. On agreement, between the manufacturer/supplier and purchaser, bolting material with different tensile strength can be used, with no dimensional changes but with potential variation of the transmittable torque.

ISO/DIS 5211:2016(E)

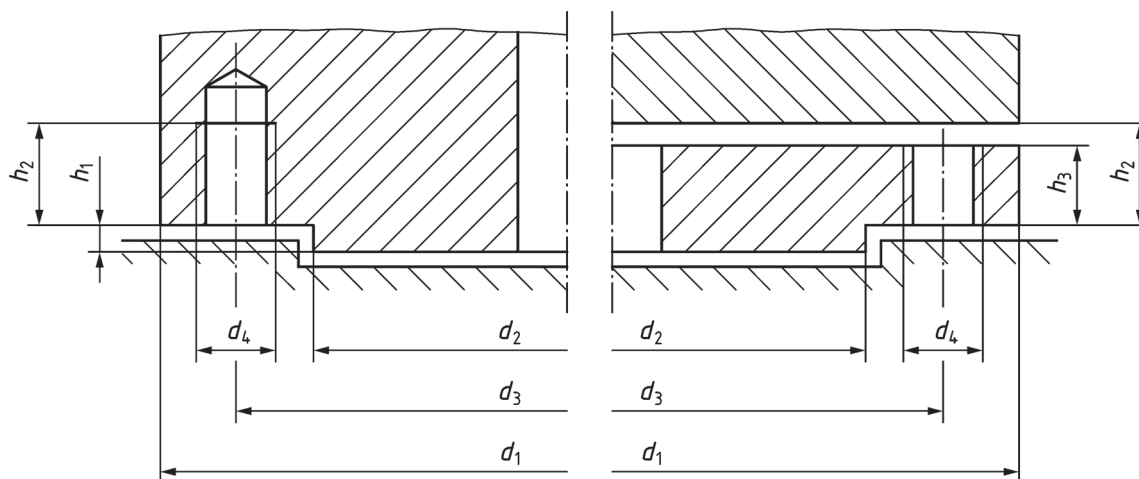


Figure 2 — Flange dimensions

Table 2 — Flange dimensions

Dimensions in millimetres

Flange type	Dimensions						Number of screws, studs or bolts
	d_1	d_2 f8	d_3	d_4	h_1 max.	h_2 min.	
F03	Ø46	Ø25	Ø36	M5	3	8	4
F04	Ø54	Ø30	Ø42	M5	3	8	4
F05	Ø65	Ø35	Ø50	M6	3	9	4
F07	Ø90	Ø55	Ø70	M8	3	12	4
F10	Ø125	Ø70	Ø102	M10	3	15	4
F12	Ø150	Ø85	Ø125	M12	3	18	4
F14	Ø175	Ø100	Ø140	M16	4	24	4
F16	Ø210	Ø130	Ø165	M20	5	30	4
F25	Ø300	Ø200	Ø254	M16	5	24	8
F30	Ø350	Ø230	Ø298	M20	5	30	8
F35	Ø415	Ø260	Ø356	M30	5	45	8
F40	Ø475	Ø300	Ø406	M36	8	54	8
F48	Ø560	Ø370	Ø483	M36	8	54	12
F60	Ø686	Ø470	Ø603	M36	8	54	20
F80	Ø900	Ø670	Ø813	M42	10	63	20
F100	Ø1200	Ø870	Ø1042	M42	10	63	32