

Valve mating details for actuator operation —

Part 2: Specification for couplings

UDC 621.643.4:681.587

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This British Standard, having been prepared under the direction of the Mechanical Engineering Standards Committee, was published under the authority of the Board of BSI and comes into effect on 30 April 1982

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The following BSI references relate to the work on this standard:
Committee reference MEE/191/6
Draft for comment 80/78905 DC

Amendments issued since publication

Amd. No.	Date of issue	Comments
5346	December 1986	Indicated by a sideline in the margin

ISBN 0 580 12717 6

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Foreword

This Part of the British Standard has been prepared under the direction of the Mechanical Engineering Standards Committee and incorporates the international agreements of Technical Committee ISO/TC 153/SC 2, Operation by actuators. It is anticipated that this standard will be technically equivalent to ISO 5210 “*Multi-turn valve actuator attachment*” — *Part 3 “Couplings”* and ISO 5211 “*Part-turn valve actuator attachment*” — *Part 3 “Couplings”* which are in course of preparation by the International Organization for Standardization (ISO).

This standard establishes the envelope dimensions for the mating of valves and actuators through the use of couplings and the dimensions specified allow for practices currently in use. Ultimately it is intended that the standard will specify fixed dimensions but to achieve this aim further information will be required, and to maintain progressive advancement readers are encouraged to submit comments.

This standard refers to types 1 and 2 for multi-turn group A and types 1 and 4 for group B since it was considered that the types 2 and 3 to be specified in the ISO standard were not appropriate to the UK requirements for group B. This British Standard also specifies dimensions of flatted stems which are not included in the international standard.

Subscripts to dimensions have been adopted to maintain compatibility with BS 5840-1 and the proposed ISO standards.

This standard does not include lubricated flatted or square drives. Such methods of drive may be included in a future amendment.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Section 1. General

1 Scope

This standard specifies types and dimensions of couplings for part-turn and multi-turn operation of valves.

Dimensions of couplings specified in this Part are related to the flange types specified in Part 1 but the forces to be transmitted by the couplings will be dependent upon the applications.

2 References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Definitions and symbols

For the purposes of this Part of this British Standard the definitions given in Part 1 of BS 5840, together with the following, apply.

coupling

a device that transmits torque and, when applicable, thrust between the driving and the driven member of which:

- a) the driven member of the device is associated with the valve; and
- b) the driving member of the device is associated with the actuator.

Section 2. Part-turn operation

4 Type of coupling

The driven member of the coupling for part-turn operation shall be either:

- a) a cylindrical stem with one or two longitudinal keyways of square or rectangular parallel form and normal fit as specified in BS 4235-1; or
- b) a square or flatted stem as illustrated in Figure 2.

Where the driven member of the coupling for part-turn operation is a cylindrical stem with one or two longitudinal keyways, the position of the keyways on the driven member of the coupling shall be in accordance with Figure 1. When the valve is closed the keys shall be located as illustrated in Figure 1.

Where the driven member of the coupling for part-turn operation is a square or flatted stem, the position of the flats on the driven member of the coupling shall be in accordance with Figure 2. When the valve is closed, the flats shall be located as illustrated in Figure 2.

5 Coupling dimensions

5.1 The dimensions of the driven member of the coupling shall be in accordance with Table 1 for keyed stem valves. The stem diameter shall have a tolerance to correspond with a bore tolerance of H9¹⁾ of the driving member.

5.2 The dimensions of the driven member of the coupling for square or flatted stem valves shall be in accordance with Table 2.

Section 3. Multi-turn operation

6 Type of coupling

6.1 General. The driven member of the coupling for multi-turn operation shall be dependent upon the method of operation of the valves specified in group A or group B as given in **6.2** and **6.3**.

The coupling shall be specified by the type number allied to the method of operation of the valve.

6.2 Group A. Group A, a category in which the coupling has to transmit torque and thrust, shall include the following types:

- type 1, comprising a rising, non-rotating threaded stem;
- type 2, comprising a non-rising, rotating cylindrical stem with a longitudinal keyway complying with the requirements of BS 4235-1.

6.3 Group B. Group B, a category in which the coupling has to transmit torque only, shall include the following types:

- type 1, comprising a cylindrical non-rising rotating nut of fixed external diameter with a longitudinal keyway and permitting passage of a rising stem;
- type 4, comprising a cylindrical non-rising rotating stem with a longitudinal keyway.

7 Coupling dimensions

7.1 For group A, the dimensions of the driven member of the couplings shall be in accordance with Table 3 where the designations are as shown in Figure 3. The reduced diameter of the stem shall have a tolerance to correspond with a bore tolerance of H9¹⁾ of the driving member.

7.2 For group B, the dimensions of the driven member of the couplings shall be in accordance with Table 4 where the designations are as shown in Figure 4. The outside diameter of the driven member and the stem diameter shall have a tolerance to correspond with a bore tolerance of H9²⁾ of the driving member.

¹⁾ H9 is a hole tolerance and is defined in BS 4500.

²⁾ H9 is a hole tolerance and is defined in BS 4500.