MSS SP-102-1989
Reaffirmed 2001
Originally approved July 1989

Multi-Turn Valve Actuator Attachment

Flange and Driving Component Dimensions and Performance Characteristics

COMPLIMENTARY COPY

Standard Practice
Developed and Approved by the
Manufacturers Standardization Society of the
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An MSS Standard Practice is intended as a basis for common practice by the manufacturer, the user, and the general public. The existence of an MSS Standard Practice does not in itself preclude the manufacture, sale, or use of products not conforming to the Standard Practice. Mandatory conformance is established only by reference in a code, specification, sales contract, or public law, as applicable.

Dimensions and performance characteristics are shown in both U.S. customary and SI units. American product dimensions are shown in inches with the metric equivalent in parenthesis. The conversion factors are:

Conversion	Factor
Inches to Millimetres	25.4
Pound Feet to Newton Metres	1.356
Pounds to Kilonewtons	.0044
Psi to Newton/mm^2	.006895

Other standards documents referred to herein are identified by their most recent date of issue that was applicable to this standard at the date of issue of this standard. See Section 2.

FOREWORD

This MSS Standard Practice is based, in part, on ISO International Standard 5210, Multi-turn Valve Actuator Attachment. It also reflects the common practice of the valve and valve actuator industries in North America today. Therefore, the ratings, sizes, and/or number of flange types in the MSS Standard Practice for the North American market may differ from those of ISO. The MSS flange types use the ISO designation, with the addition of an "A", to distinguish them as American product.

When assembling an actuator to a valve, a user is concerned with performance and mechanical interface. In regards to performance, he needs in part:

- Adequate output torque for valve breakaway and seating loads, and for dynamic loads at rated flow.
- A specified speed so closing and opening can be accomplished in a prescribed time.
- Sufficient power rating of the actuator so the valve may be cycled as required.
- Input power requirements.

For mechanical interface, he is concerned in part with:

- The dimensional mating of the actuator's mounting surface to the "valve" mounting flange.
- The dimensional compatibility of the actuator's driving components to the valve stem.
- Size and location of electrical and/or pressure connections.
- Sufficient space and capability to install and service the actuator.

This Standard Practice will only concern itself with flange and driving component dimensions and performance characteristics.

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MULTI-TURN VALVE ACTUATOR ATTACHMENT

FLANGE AND DRIVING COMPONENT DIMENSIONS AND PERFORMANCE CHARACTERISTICS

1. SCOPE

This standard practice is intended to provide a basis for the standardization of multi-turn actuator mounting dimensions and performance characteristics necessary for their attachment to general purpose industrial valves. It covers only those actuators supplied by manufacturers as separate components.

2. REFERENCES

ANSI B4.1-1979, American National Standard for Preferred Limits and Fits for Cylindrical Parts.

ANSI B17.1-1973, American National Standard for Keys and Keyseats.

ISO 5210-1977, Multi-turn Valve Actuator Attachment.

3. DEFINITIONS

Actuator: Any device designed for attachment to general purpose industrial valves in order to provide for the operation of the valve. Motive energy to the actuator can be electrical, pneumatic, manual, etc., or a combination of these. The movement is limited by travel, torque, thrust, or a combination of these.

Multi-Turn Actuator: An actuator which transmits a torque to the valve for at least one revolution.

Torque: A turning moment transmitted through the mounting flanges and driving components, expressed in Pounds Foot or Newton Metres.

Thrust: An axial force transmitted through the mounting flanges and driving components, expressed in Pounds or Kilonewtons.

4. FLANGE SIZE DESIGNATION

Flange sizes are designated by the letters "FA". The next two digits in the classification represent the bolt circle diameter, expressed in millimetres, appropriately rounded and divided by ten. As an example, a flange designated "FA30" represents:

A) One intended for the American market.

B) One with a bolt circle diameter (BCD) (D_3) of approximately 300mm (exactly 298.5mm or 11.75 in.).

5. ACTUATOR/VALVE INTERFACE REQUIREMENTS

When mating an actuator with a valve flange, the primary features of concern are the bolt pattern, type of bolt, the pilot, the performance (both thrust and torque), and driving component dimensions. Care must be taken in defining the driving components as there are numerous configurations.

6. FLANGE SIZE AND PERFORMANCE

6.1 Typical actuator flanges (tapped or through bolting) are shown in Figure 1.

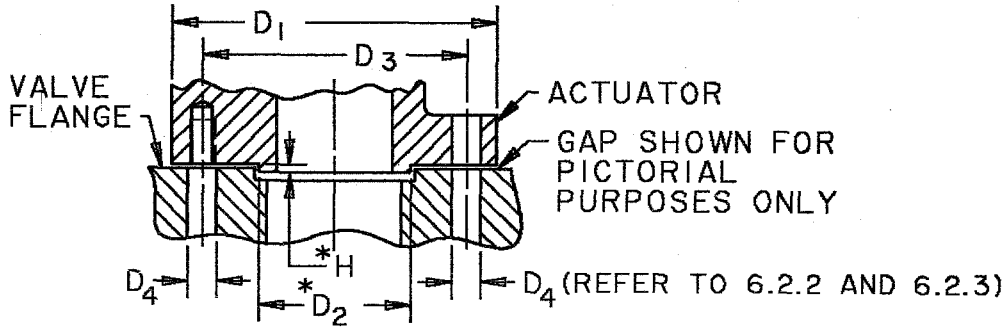

FIGURE 1 — ACTUATOR FLANGE

*Refer to 6.2.4.