MSS Valve User Guide

Standard Practice

Developed and Approved by the
Manufacturers Standardization Society of the
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MSS

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.

Unless otherwise specifically noted in this MSS SP, any standard referred to herein is identified by the date of issue that was applicable to the referenced standard(s) at the date of issue of this MSS SP. (See Annex A).

In this Standard Practice all notes, annexes, tables, and figures are construed to be essential to the understanding of the message of the standard, and are considered part of the text unless noted as "supplemental". All appendices appearing in this document are construed as "supplemental". "Supplemental" information does not include mandatory requirements.

U.S. customary units in this SP are the standard; the metric units are for reference only.

This document has been substantially revised from the previous 1987 edition. It is suggested that if the user is interested in knowing what changes have been made, that direct page by page comparison should be made of this document.

Non-toleranced Dimensions in this Standard Practice are nominal, and, useless otherwise specified, shall be considered "for reference only".

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FOREWORD

When a complex product is used for a variety of applications and in various operating environments, it is reasonable to expect that the performance of such a product will reflect upon it suitability for the specific service as well as its proper installation and maintenance. Recognizing that operating problems involving industrial valves frequently involve the use of valves not properly selected for the intended service, or adversely affected by improper handling, installation, operation, or maintenance, the manufacturers Standardization Society has prepared this Valve User Guide.

The Society or its members, jointly or severally, make no guarantee and assume no liability or responsibility regarding the contents of this document. It has not been possible to include every consideration related to the satisfactory use of valves, and, especially in abnormal or unusual circumstances, the possible need for other considerations and precautions should be recognized.

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VALVE USER GUIDE

1. SCOPE

This Guide presents information which should be helpful to users desiring to avoid the most obvious causes of problems with valves. The material is divided into four sections, "Selection", "Shipping and Storage", "Installation", and "Operation and Maintenance"

2. REFERENCES

The standards and specifications listed in Annex A of this MSS SP are included as useful source documents to help the user understand the various valve types and their operational limitations. This is particularly important when selecting equipment for a specific pressure/temperature/fluid application.

3. SELECTION

3.1 General

3.1.1 It is beyond the scope of this standard practice to make recommendations for specific applications because misapplication of a valve type could result in operating problems which adversely affect system safety and efficiency. However, observance of the considerations, recommendations and cautions offered herein will provide increased assurance of satisfactory valve performance.

3.1.2 The valve industry offers a wide variety of valve types and materials for use in industrial piping applications. There are usually several possible choices for a given requirement, any one valve may offer significant advantages and/or limitations compared to another valve. It is good practice to consult the manufacturer regarding specific requirements. The purchasing function includes the responsibility for securing the required valves at the lowest cost, but must also ensure that the valves purchased are in fact satisfactory for the intended service. The lowest total user (life cycle) cost criteria should be used only in choosing between alternatives that are known to satisfy the service requirement.

3.2 Pressure-Temperature Rating

3.2.1 The pressure-temperature rating of the valve must be properly selected for the service requirement. If the service involves a temperature above 100 °F (38°C), the valve pressure rating at the service temperature must be verified as meeting the requirements of the application.

3.2.2 If system testing will subject the valve to a pressure in excess of its working pressure rating, then the intended testing pressure and a statement explaining whether the test pressure is through the opened valve or a differential across the closed valve, should be included in the purchase specification.

3.3 Bending Strength

3.3.1 Piping systems are subject to mechanical constraints at fixed support points such as rigid nozzles, anchors, etc. Cold springing at assembly, system temperature changes, together with gravity, possible inertia loads, landslides, non-uniform subsidence in buried lines, etc. all potentially affect the bending moment at various points in the piping.

3.3.2 Valves are also subjected to the bending moment occurring in the adjacent pipe which is in addition to the normal pressure loadings. Bending loads can cause deformation in valve bodies that can be detrimental to valve functional performance. It is therefore a recommended design practice to avoid locating valves at points of large bending loads.

3.3.3 In many cases, normal valve design practice results in a body strength greater than the strength of the adjoining pipe thereby providing inherent protection against valve damage. In other cases, piping conditions or systems