

GUIDE TO THE ISOLATION OF PRESSURE RELIEVING DEVICES

PUBLICATION No. 184 : 1996

THE ENGINEERING EQUIPMENT AND MATERIALS USERS ASSOCIATION

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THE ENGINEERING EQUIPMENT AND MATERIALS USERS ASSOCIATION

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The Association aims to reduce members' costs by providing the opportunity for them to share resources and expertise in order to keep abreast of technological developments and improve the effectiveness and efficiency of their engineering activities. EEMUA supports the British Standards Institution, works with other institutions, associations, government departments, regulatory authorities and the Confederation of British Industry, and is also actively involved with other standards-making bodies, both national and international, such as the American Petroleum Institute.

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FOREWORD

In order to permit their removal and replacement without plant shutdown, pressure relieving devices may need to be isolated from the equipment they protect. The installation of isolating valves around protective devices is, however, potentially hazardous as it introduces the risk of a system being left unprotected against over-pressure due to the relief path to atmosphere or to the relief system being inadvertently closed off. Existing standards offer little or no detailed guidance in this area.

The EEMUA Pressure Relieving Safety Systems Technical Committee has developed this guide from the experience and practices of its member companies in the petroleum, chemical and power industries. The document expands on the guidance given in API RP 520 Part II.

Units

This document employs SI units, but additionally uses Imperial units where appropriate to common usage. *Note:* 'bar' signifies bar gauge.

1. INTRODUCTION AND SCOPE

This document sets out guidance for the installation and operation of isolating valves which allow the removal of relief devices from operating plant. It draws on the experience and different practices of EEMUA members to identify the key points which should be considered in the design and management of such isolation systems.

The term 'isolation valve/ device' may be interpreted to include spectacle blinds/ slip plates where these are used instead of valves for the isolation of relief devices.

The term 'relief/ relieving device' normally refers to a safety/ relief valve, bursting disc or other mechanical relieving device.

None of the comments or recommendations made in this guide removes from the designer and/or user the responsibility of ensuring that the relief device installation is safe and that it complies with the applicable national and industry standards and regulatory requirements.

Note on terminology. The terms 'relief valve', 'safety valve' and 'safety relief valve' are widely used in industry and have specific meanings in US standards; however, only 'safety valve' is defined in British and ISO standards; (see API RP 520 Pt I and BS 6759 listed in Sec. 2, References and Bibliography). No distinction is made between these terms in this guide.

2. REFERENCES AND BIBLIOGRAPHY

This EEMUA guide makes reference to certain of the publications listed below. These are marked with an asterisk (*). Unless otherwise stated the latest editions of these publications including all addenda and revisions are the ones referred to. Also listed for guidance are other, but not necessarily all, main, internationally recognised standards relating to safety valve applications.

2.1 UK Publications

2.1.1 British Standards

- | | |
|----------|---|
| BS 806 | Specification for Design and Construction of Ferrous Piping Installations for and in connection with Land Boilers. |
| *BS 1113 | Specification for Design and Manufacture of Water-tube Steam Generating Plant (including Superheaters, Reheaters and Steel Tube Economizers). |
| *BS 2790 | Specification for Design and Manufacture of Shell Boilers of Welded Construction. |
| BS 2915 | Specification for Bursting Discs and Bursting Disc Devices. |
| BS 4434 | Specification for Safety and Environmental Aspects in the Design, Construction and Installation of Refrigerating Appliances and Systems. |
| *BS 5500 | Specification for Unfired Fusion Welded Pressure Vessels. |
| *BS 6759 | Safety Valves. |

2.1.2 Health and Safety Executive/ Commission

- | | |
|---|--|
| *HS(G)28 | Safety Advice for Bulk Chlorine Installations. |
| *The Safe Isolation of Plant and Equipment [HSC, Oil Industry Advisory Committee] | |

2.1.3 Institution of Chemical Engineers

Relief Systems Handbook

2.2 European Standards

- | | |
|----------------------|---|
| EN 1268 [†] | Safety Devices for the Protection against Excessive Pressure |
| -1 | Part 1 Safety Valves |
| -2 | Part 2 Bursting Disc Safety Devices |
| -3 | Part 3 Safety Valves and Bursting Discs in Combination |
| -4 | Part 4 Pilot Operated Safety Valves |
| -5 | Part 5 Controlled Safety Pressure Relief Systems (CSPRS) |
| -6 | Part 6 Bursting Disc Safety Devices — Application, Selection and Installation |

[†] In draft form (prEN) at the time of preparation of this *Guide*.

2.3 US Publications

2.3.1 American Petroleum Institute

API RP 520 Sizing, Selection and Installation of Pressure-Relieving Devices in Refineries
(ANSI[†]/API Std 520):

*Pt I — Sizing and Selection

*Pt II — Installation.

API RP 521 Guide for Pressure-Relieving and Depressuring Systems.

API Std 526 Flanged Steel Pressure Relief Valves.

† American National Standards Institute.

2.3.2 American Society of Mechanical Engineers

ASME Boiler and Pressure Vessel Code:

Sec. I — Power Boilers

Sec. VII — Recommended Rules for Care of Power Boilers

*Sec. VIII — Pressure Vessels, Div. 1.

ASME[†] Code for Pressure Piping (B31):

B31.1 — Power Piping.

B31.3 — Process Piping.[‡]

† Formerly ANSI.

‡ Formerly *Chemical Plant and Petroleum Refinery Piping*.

2.4 International Standards

ISO 4126 Safety Valves — General Requirements

ISO 6718 Bursting Discs and Bursting Disc Devices