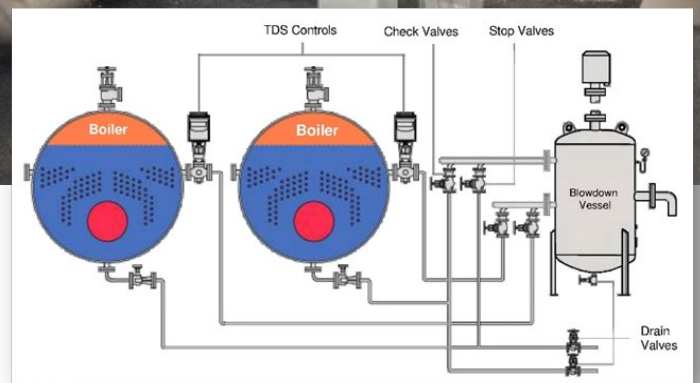


# Blowdown Systems

## Guidance for Industrial Steam Boilers

Ref: BG03



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## 1 INTRODUCTION

**Blowdown Systems, Guidance for Industrial Steam Boilers (Ref: BG03)** is a guidance document intended to provide advice to designers, specifiers, manufacturers, installers and those responsible for the management and operation of steam plant as well as Competent Persons (CP). It is applicable to both new and existing installations of steam boilers and addresses the following issues:

- The safe discharge of blowdown from boilers;
- The safe use and operation of blowdown vessels;
- The safe use and operation of blowdown pits;
- Proper maintenance and inspection of blowdown vessels and pits including requirements for regular inspection by a Competent Person in accordance with the Written Scheme of Examination (WSE).

Advice was previously provided by Health and Safety Executive Guidance Note **PM60 Steam boiler blowdown systems 2nd edition 1998** which has been withdrawn.

### The following words convey specific meaning:

**Should:** Compliance with this clause is not essential where supported by risk assessment and/or design calculation.

**Shall:** Compliance with this clause is required in order to claim compliance with this document.

**Must:** Compliance with this clause is a legal requirement within the United Kingdom.

Unless otherwise stated, all pressures refer to gauge pressure.

## 1.1 About this guide

This comprehensive guide deals with all aspects of steam boiler blowdown for industrial steam boilers and why it is necessary to carry out the function of “**blowing down**” the boiler. We trust that by studying the contents and following this advice your boiler plant will operate safely and more efficiently, and provide you with a trouble-free system. If in any doubt contact the supplier, the system designer or your boiler water treatment specialist for advice.

It is aimed at the Owner, Operator, Engineer and Manager of the boiler plant to help them understand all aspects that affect the boilers and why blowing down is necessary, both from a practical operational performance view and for the legal requirements.

It covers who is responsible for the safe and efficient operation of steam boiler plant, and who is responsible for managing the safe operation of this type of equipment. Ultimately the responsibility lies with the most senior person on site; however, they can delegate the responsibility for daily operations, but only to a suitably trained and competent person on site.

With other HSE guidance being withdrawn, and having taken all factors into consideration, The Combustion Engineering Association (CEA) agreed to write this guide with the help of its members.

Within this Guide there are a significant number of legal requirements, regulations and standards highlighted; these regulations and standards are periodically reviewed and they can and do change, but they are as accurate as possible at the time of publication.

CEA cannot accept any liability for the information provided herein; however, be assured that we have consulted widely with our member companies during the compilation of this guide.

## 1.2 Acknowledgments

A special note of thanks must go to CEA Chairman, Adrian Rhodes, for bringing his extensive technical knowledge to bear in writing the bulk of this document, BG03. Thanks also go to other members of CEA for their time and contributions from the below companies:

- Industrial Boilerhouse Safety
- Energy and Environmental Solutions
- Cochran Ltd
- Stopher and Associates
- Spirax Sarco
- ISIS Fluid Controls
- SAACKE Combustion Services
- BOSCH Commercial and Industrial Heating
- Flowserve Gestra
- M&M Training
- Coal Hill Associates

## 2 SCOPE

This guidance applies to blowdown arrangements for steam boilers with a maximum evaporative capacity not exceeding 30 tonnes of steam per hour and working pressures not exceeding 32 bar gauge including water tube boilers with a single main blowdown line.

The following **are specifically excluded** from the scope of this document:

- Water tube boilers with multiple blowdown circuits
- Blowdown tanks of non-circular cross-section
- Design and construction information for blowdown pits. Experience has shown that the state of repair and rate of deterioration are difficult to monitor, and serious undetected leaks have been known to undermine foundations. It is recommended that no new blowdown pits be constructed and a blowdown vessel shall be the preferred option.