Boiler Efficiency and Safety

Some potential savings from following advice in this book

- **First, enhanced safety saves life and health**
- **Savings of 5 to 10 per cent on fuel costs are often possible at little or no cost**
- **Savings of up to 30 per cent on fuel costs may be possible by using new steam-generating or steam-using equipment**
- **Target boiler efficiency with new package boilers can be up to 85 per cent at maximum continuous rating**
- **Off-line time can drop drastically, giving production continuity and reduced labour costs**
- **Repair costs can drop by thousands of pounds a year**

Only you can achieve savings of this kind at your plant, but the information in this book can help.

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A Guide for Managers, Engineers and Operators responsible for Small Steam Boilers

Edited by

W. S. Robertson

Contributors

H. M. Ashton

G. Datschefski

A. J. R. Isaacs

C. S. Macdonald

W. S. Robertson

K. C. Salooja

E. G. White

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Preface

This book covers practical steps to achieve fuel – and money – savings in one specific area: for package steam boilers of up to about 10 MW output. The authors know its content achieves savings – they have achieved them in their own organisation.

The book is written principally for managers responsible for automatic steam boilers, and for supervisors and operators who run them. It gives managers the background data that they need to ensure their equipment is operated at maximum efficiency. It also gives operators the basic information they need to carry out efficient boiler operation. The book is not primarily intended for professional engineers: they are likely to know it all already, although some may appreciate a reminder of a few basic points.

The content of the book springs from a programme on boiler efficiency and safety introduced in Esso Petroleum Company marketing plants. That programme for plant managers and for operators saved £60 000 in fuel costs in its first year. The Boiler Efficiency and Safety Training programme was later made generally available to industry as an audio-visual presentation on filmstrip/tape and on video.

However, since audiovisual techniques are not always applicable, this book has been written, mainly by those involved in the original programme, to expand on the information in the programme and to make it more widely available.

The book begins with a discussion of vital safety factors. It then briefly covers the types and selection of oil fuels. Although the book as a whole uses oil-fired boilers as examples, only chapter 2 on types and selection is exclusively concerned with oil fuel – much of the remainder applies equally to gas firing and, to a lesser extent, to solid-fuel firing.

The book deals in some detail with the theory and practice of combustion and of water treatment. This is followed by a chapter on boiler operation and a comprehensive chapter on maintenance. The chapter on steam use stresses the important but sometimes overlooked point that savings here can be many times as great as savings in steam generation. Finally, there is a chapter on training courses and information for operators and managers.

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