

MATERIALS SELECTION

IN

MECHANICAL DESIGN

SECOND EDITION

MICHAEL F. ASHBY

Department of Engineering, Cambridge University, England

BUTTERWORTH
HEINEMANN

OXFORD AUCKLAND BOSTON JOHANNESBURG MELBOURNE NEW DELHI

Butterworth-Heinemann
Linacre House, Jordan Hill, Oxford OX2 8DP
225 Wildwood Avenue, Woburn, MA 01801-2041
A division of Reed Educational and Professional Publishing Ltd

 A member of the Reed Elsevier plc group

First published by Pergamon Press Ltd 1992
Reprinted with corrections 1993
Reprinted 1995, 1996, 1997
Second edition 1999
Reprinted 2000 (twice)

© Michael F. Ashby 1999

All rights reserved. No part of this publication may be reproduced in any material form (including photocopying or storing in any medium by electronic means and whether or not transiently or incidentally to some other use of this publication) without the written permission of the copyright holder except in accordance with the provisions of the Copyright Designs and Patents Act 1988 or under the terms of a licence issued by the Copyright Licensing Agency Ltd, 90 Tottenham Court Road, London, England W1P 0LP. Applications for the copyright holder's written permission to reproduce any part of this publication should be addressed to the publishers

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloguing in Publication Data

A catalogue record for this book is available from the Library of Congress

ISBN 0 7506 4357 9

Typeset by Laser Words, Madras, India
Printed in Great Britain



FOR EVERY TITLE THAT WE PUBLISH BUTTERWORTH-HEINEMANN
WILL PAY FOR BPCU TO PLANT AND CARE FOR A TREE