



Welding Technology for Engineers

Editors
Baldev Raj
V Shankar
A K Bhaduri



Alpha
Science

Contents

<i>Foreword</i>	v
<i>Preface</i>	vii
<i>Acknowledgements</i>	ix
	1
1. Basic Concepts and Physical Metallurgy of Welding <i>A.K. Bhaduri and V. Shankar</i>	22
2. Welding Metallurgy of Steels <i>Shaju K. Albert</i>	37
3. Weldability of Austenitic Stainless Steels <i>V. Shankar</i>	48
4. Welding of Ferritic, Martensitic and Duplex Stainless Steels <i>S. Sundaresan</i>	67
5. Weldability of Aluminium and Titanium Alloys <i>S. Sundaresan</i>	79
6. Weldability of Nickel and Copper Base Alloys <i>B.G. Muralidharan</i>	97
7. Dissimilar Metal Welding and Cladding <i>A.K. Bhaduri</i>	116
8. Arc Welding Processes <i>S. Manoharan</i>	157
9. Resistance and Solid State Welding Processes <i>K.G.K. Murthy</i>	172
10. Residual Stresses in Weldments <i>S. Suresh</i>	183
11. Corrosion of Steel and Stainless Steel Weldments <i>Hasan Shaikh</i>	224
12. Non-Destructive Testing of Welded Components <i>C.V. Subramanian</i>	248
13. Quality Assurance and Welding Qualifications <i>B.S.C. Rao</i>	253
14. Leak and Pressure Testing of Welds and Field NDT Experience <i>M. Palaniappan</i>	

xii Contents

15. Quality Control in Production Welding of Different Metals and their Alloys <i>M. Gopalakrishna and B.S.C. Rao</i>	278
16. Weld Joint Design <i>T.K. Mitra</i>	289
17. Challenges in Meeting Reliability Requirements in Welding <i>Baldev Raj and T. Jayakumar</i>	304
18. Selection of Welding Consumables <i>R.D. Pennathur</i>	342
19. Mechanical Testing of Weldments <i>S.K. Ray</i>	355
20. Advanced Non-destructive Testing Techniques for Inspection of Weldments <i>T. Jayakumar, G.K. Sharma and Baldev Raj</i>	368
Index	403