

CONTENTS

FOREWORD	7
INTRODUCTION.....	9
1. THE WELDED AND THE SOLDERED ASSEMBLY.....	11
1.1. Definition of welded assembly	12
1.2. Definition of welding	12
1.3. Main parts of the welded assembly.....	12
1.4. Pressure welding processes	14
1.5. Fusion welding processes.....	14
1.6. Brazing and soldering processes.....	15
2. THE MAIN PRESSURE WELDING PROCEDURES.....	17
2.1. Resistance welding procedures	19
2.2. Resistance spot welding.....	19
2.3. Resistance seam welding.....	22
2.4. Projection welding.....	24
2.5. Resistance stud welding.....	27
2.6. Resistance butt welding procedures.....	28
2.7. Arc stud welding.....	30
2.8. Ultrasonic welding.....	33
2.9. Friction welding.....	37
2.10. Friction stir welding.....	38
2.11. Explosion welding.....	40
2.12. Magnetic pulse welding.....	42
3. WELDING WITH CONSUMABLE INSERT	44
3.1. Arc welding types.....	45
3.2. Manual arc welding	46
3.3. Self-shielded, tubular cored arc welding	47
3.4. Submerged arc welding.....	48
3.5. Gas-shielded metal arc welding.....	50
3.6. Gas-shielded arc welding with non-consumable tungsten electrode...	51
3.7. Plasma arc welding.....	53
3.8. Gas welding.....	54

3.9. Electron beam welding.....	56
3.10. Laser welding.....	58
3.11. Aluminothermic welding	62
4. MAIN CHARACTRISTICS OF WELDING CONSUMABLES.....	64
4.1. Coated stick electrodes.....	64
4.1.1. Basic properties of stick electrodes	65
4.1.2. Types and main properties of coated stick electrodes	67
4.2. Shielding gases in welding processes.....	68
4.3. Gases of the flame welding.....	70
5. THE BASICS OF SOLDERING.....	72
5.1. Soldering.....	73
5.2. Brazing.....	76
6. THE BRAZE WELDING	79
6.1. Flame brazing	79
6.2. Arc weld brazing.....	80
7. BONDING	82
8. BASIC KNOWLEDGE IN A THERMAL CUTTING.....	87
8.1. Flame cutting	87
8.2. Plasma-beam cutting.....	90
8.3. Laser-beam curting.....	91
9. REMARCABLE MOMENTS IN THE HISTORY OF WELDING	94
Some important events in development of welding.....	94
Academician Cornel Miklósi, „The father of railway welding”	96
10. WELDING EXTEDED IN ART.....	101
Welding, as a modality of artistic expressivity.....	101
The art of Matteo Baroni	103
APPENDIX: The denomination of the welding and related procedures mentioned in this book, in Hungarian, Romanian, English and German	108
LITTERATURE	113
BASICS OF WELDING (Summary).....	115
Contents.....	117
GRUNDLAGEN DES SCHWEIßENS (Zusammenfassung)	119
Inhalt.....	121
BAZELE SUDĂRII (Rezumat)	123
Cuprins.....	125