

# Contents

<b>Chapter One – Requirements for profitability</b>	<b>1</b>
Well-chosen work	1
A good technical solution	4
Good potential	7
<b>Chapter Two – Achieving profitability</b>	<b>9</b>
Cost and capital rationalisation	9
Flexibility	13
Advantages of flexible automation	18
Flexible component production	25
Flexible automatic assembly	33
Design for flexible automation	42
<b>Chapter Three – Application examples</b>	<b>53</b>
Diecasting	53
Manufacture of brake parts	56
Turning of gear blanks	59
Dressing thermoset parts	59
Drilling of printed circuit boards	63
Manufacture of heat sinks for thyristors	64
Assembly of contactors	69
Assembly of auxiliary contact blocks	72
Assembly of crankcase bearing caps	74
FMS with industrial robots	76

<b>Chapter Four – Preliminary study for increased profitability</b>	<b>83</b>
Cooperation for profitability	83
The initial rough assessment	88
The preliminary study	90
<b>Chapter Five – Carrying out the project</b>	<b>95</b>
Collecting data	95
Choosing an industrial robot	99
System design	102
Procurement	113
Delivery	116
<b>Chapter Six – Assessment of profitability</b>	<b>119</b>
Capacity requirement	121
Manning requirements	129
Pay-back time	131
Investment cost	136
<b>Chapter Seven – Design rules</b>	<b>143</b>
Collection of rules	144
Checklists	168