

Contents

Foreword	3
Editorial	5
Contents	9
Executive Summary World Robotics 2018 Industrial Robots	13
1 Introduction: Sources and methods	24
1.1 Compliance.....	24
1.2 Coverage, access to data for previous years and contact.....	24
1.3 Data sources, revisions, reliability and validity	26
1.4 Forecasts.....	28
1.5 Definition of “sales”, “shipments” and “supply”	28
1.6 Definition of “operational stock” and “accumulated sales”	28
1.7 Definitions and classifications.....	29
1.7.1 Industrial robots definition (ISO 8373:2012) and delimitation	29
1.7.2 Definitions of robot types	30
1.7.3 Classification of industries	39
1.7.4 Classification of applications	41
1.7.5 Definition of service robots	42
1.7.6 Classification of service robots by application areas	43
2 Worldwide distribution of industrial robots	48
2.1 Unit sales	49
2.2 Worldwide operational stock of industrial robots	56
2.3 Estimated worldwide market value of robots in 2012 – 2017	61
2.4 Analysis of the effects of the business cycle on investments in industrial robots.....	63
2.5 Analysis of the development of robot density in selected countries	65
2.5.1 Definition of robot density and sources of data	65
2.5.2 Measurements of robot density based on the total number of persons employed in the manufacturing industry.....	67
2.5.3 Measurements of robot density based on the total number of persons employed in the automotive industry and in all other branches.....	71
2.6 Analysis of the supply and the stock of multipurpose industrial robots in 2012 – 2017 by major application areas.....	75
2.7 Analysis of the supply and the stock of multipurpose industrial robots 2012 – 2017 by major industrial branches.....	83
2.8 Comparison between the automotive industry and all other industrial branches.....	94
2.9 Supplies of multipurpose industrial robots in 2016 and 2017 by types of robots and by countries	106

3	The Structure of the distribution of industrial robots in individual countries	118
3.1	Introduction.....	118
3.2	The Americas	119
3.2.1	Brazil.....	128
3.2.2	North America.....	135
3.2.3	Rest of South America.....	163
3.3	Asia/Australia.....	168
3.3.1	People´s Republic of China	177
3.3.2	India.....	193
3.3.3	Indonesia	203
3.3.4	Japan.....	209
3.3.5	Republic of Korea	226
3.3.6	Malaysia	240
3.3.7	Singapore	247
3.3.8	Taiwan, Province of China.....	254
3.3.9	Thailand.....	265
3.3.10	Vietnam	273
3.3.11	Hong Kong and other South East Asia.....	280
3.3.12	Australia and New Zealand	284
3.4	Europe	289
3.4.1	Czech Republic and Slovakia.....	298
3.4.2	Hungary	316
3.4.3	Poland	325
3.4.4	Romania	335
3.4.5	Russian Federation	344
3.4.6	Balkan Countries	353
3.4.7	Other Eastern Europe.....	358
3.4.8	Austria	363
3.4.9	Belgium and the Netherlands	372
3.4.10	France	385
3.4.11	Germany.....	395
3.4.12	Italy	413
3.4.13	Portugal	426
3.4.14	Spain	436
3.4.15	Switzerland	446
3.4.16	United Kingdom.....	453
3.4.17	Denmark	463
3.4.18	Finland.....	473
3.4.19	Norway	482
3.4.20	Sweden.....	491
3.4.21	Turkey.....	501
3.4.22	All other European Countries	511
3.5	Africa	515

3.5.1	South Africa	515
3.5.2	Rest of Africa	522
3.6	Other Countries	524
4	Forecast of Worldwide Investment in Industrial Robots 2018-2021	526
4.1	Incentives to use robots remain excellent	526
4.2	Technical robotic trends and customer trends.....	528
4.3	Conclusion and forecast 2018-2021	535
5	The Profitability of Industrial Robots	542
5.1	Introduction	542
5.1.1	Benefits of robot automation.....	542
5.1.2	Conclusions	543
5.2	Case Study 1 - Fully automatic with a higher output	545
5.3	Case Study 2 - Universal Robots solves production challenges in creating revolutions' assembly line	550
5.4	Case Study 3 - Quantum leap towards Industry 4.0 in mold manufacture	553
5.5	Case Study 4 - Škoda Auto, MATADOR Group and KUKA: ending the separation of humans and robots in factories.....	557
5.6	Case Study 5 - ARC Mate robot used in production of lifting equipment	560
6	Special Feature	566
6.1	Winner of euRobotics techTransfer Award - Smart Robots.....	566
6.2	Winner of the IERA Award – OnRobot gecko Gripper.....	575
7	Annex.....	582