

Collaborative Robot Market by Payload (Up to 5 Kg, 5-10 kg, 10-20 kg, more than 20 kg), Component, Robotic Arm, End Effectors, Drives, Controllers, Sensors, Power Supply, Motors, Software), Application, Industry and Region - Global Forecast to 2029

Market Report | 2023-07-18 | 330 pages | MarketsandMarkets

AVAILABLE LICENSES:

- Single User \$4950.00
- Multi User \$6650.00
- Corporate License \$8150.00
- Enterprise Site License \$10000.00

Report description:

The collaborative robot market is projected to grow from USD 1.2 billion in 2023 and is projected to reach USD 6.8 billion by 2029; it is expected to grow at a CAGR of 34.3% from 2023 to 2029.

The high return on investment (ROI) for collaborative robots over traditional industrial robotics systems has paved the way for their growth in recent years. In addition, the benefits derived from adopting cobots for businesses of all sizes are the key factors driving the collaborative robot market. However, a higher preference for low payload capacity traditional industrial robots over cobots in heavy-duty industries is limiting the growth of the collaborative robot market.

"Electronics industry segment of the collaborative robot market to hold second largest market share during the forecast period."

The electronics industry is increasingly adopting low-payload collaborative robots (up to 5 kg), which are cheaper and easily integrated into the production floor due to their smaller size. Speed, accuracy, and precision are the most important factors in the electronics industry compared with other factors, such as high payload capacity. Collaborative robots are built and programmed to manage display screens, connectors, subassemblies, and printed circuit boards (PCBs). Parts such as wafers are small and delicate and need to be managed carefully. The robots need to be very precise in locating, placing, and assembling components because the error tolerances are minimal compared to other macro applications. Although many tasks require tight tolerances, advances in robotic hardware and vision systems enable manufacturers to realize collaborative robots' advantages. Collaborative robots perform soldering, gluing, and dispensing operations in manufacturing. Cobots can be used in simple pick-and-place tasks such as loading wafers into a solar cell panel or to perform precise operations such as screwdriving and finishing using deburring tools. Since collaborative robots can be reprogrammed, they can keep up with the fast-changing consumer demands and short

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

product life cycles.

"5-10 kg payloads segment to witness significant growth for collaborative robot market during the forecast period." The 5-10 kg payload cobots are expected to witness significant growth for the collaborative robot market during the forecast period. The payload category exhibiting the highest growth during the forecast period is the 5-10 kg category. Cobots in the 5-10 kg payload capacity category can handle heavier parts and have a longer reach for machine tending and palletizing tasks. According to the ISO 10218 safety standard, grippers that are rated for handling payloads up to 10 kg or lower are collaborative, which also means that robots with a payload capacity of 5-10 kg do not require specialized grippers for collaborative operations. Collaborative robots that operate on a 5-10 kg payload capacity are used in most factory automation tasks for applications such as material handling, palletizing, and machine tending. The automotive industry particularly engages cobots belonging to 5-10 kg payload category for picking and placing small engine and transmission components during assembly alongside a human worker. These robots can perform all the collaborative operations that the low payload cobots can do, but with support for a higher payload. These robots differ from low-payload cobots in terms of payload capacity, reach, and other operational parameters. Cobots belonging to this category are also equipped with position and torque sensors that can cease robot operation if an obstacle or collision is detected. Many of these robots also support peripherals such as vision systems and end effectors from third-party manufacturers. The collaborative robots in this payload category typically have an operating speed of 1.2 m/s and a reach of 1,000mm. Thus, due to their wide adaptability, versatility in terms of applications, intrinsic safety, repeatability, and reach being almost at par with traditional industrial robotic systems, the cobots with 5-10 kg payload capacity are anticipated to have the fastest growth. "Robotic arm is expected to hold the largest share of collaborative robot market for hardware component during the forecast period."

The component-wise growth rate for the collaborative robot market is estimated to be specifically highest for the robot arm. The robot arm is one of a collaborative robot's most expensive hardware components, which can often be time-consuming and complex. The robotic arm consists of different joints, which enable linear and circular motion in collaborative robots. The arm has to be built as per the ISO/TS 15066 standard and certified for the same. Compared to traditional industrial robots, collaborative robots often have curved arm to make them safe for human contact. This feature is crucial as collaborative robots work closely with human workers. Inside its complex design, the arm also has to house the drives, motors, and sensors while providing maximum dust and water resistance, which can often be challenging. Thus, due to its higher overall cost, compared to other hardware components, the robotic arm is expected to dominate the collaborative robot market in terms of value, during the forecast period.

"North America to witness significant growth for the collaborative robot market during the forecast period." North America is expected to exhibit significant growth in the collaborative robot market during the forecast period. Prominent players in this region operating in the collaborative robot market are emphasizing expanding their production capacities to cater to the market demand. For example, in March 2023, ABB (Switzerland) announced its plans to expand into one of its largest customer markets - the US - with construction starting to expand its existing North American robotics headquarters and manufacturing facility in Auburn Hills, Michigan. The project is expected to be completed in November 2023 and represents an investment of USD 20 million. Collaborative robots are also increasingly being used in industries, such as plastics, metals & machinery, and food & beverages in the region.

In determining and verifying the market size for several segments and subsegments gathered through secondary research, extensive primary interviews have been conducted with key industry experts in the collaborative robot market space. The break-up of direct participants for the report has been shown below: By Company Type: Tier 1 - 40%, Tier 2 - 40%, and Tier 3 - 20% By Designation: C-level Executives - 40%, Directors -40%, and Others - 20% By Region: Asia Pacific- 40%, North America -30%, Europe - 20%, and RoW - 10%

The report profiles key players in the collaborative robot market with their respective market ranking analysis. Prominent players profiled in this report include Universal Robots A/S (Denmark), FANUC Corporation (Japan), ABB (Switzerland), Techman Robot Inc (Taiwan), KUKA AG (Germany), Doosan Robotics Inc. (South Korea), Denso Corporation (Japan), Yaskawa Electric Corporation (Japan), AUBO (Beijing) Robotics Technology Co., Ltd (China), and Rethink Robotics GmbH (US). Other players include Omron Adept Technologies, Inc. (US), Franka Emika GmbH (Germany), Comau S.p.A. (Italy), F&P Robotics AG (Switzerland), Staubli International AG (Switzerland), Bosch Rexroth AG (Germany), Productive Robotics, LLC (US), Wyzo (Switzerland), Neura Robotics

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

GmbH (Germany), Elephant Robotics (China), Elite Robot (China), Kassow Robots (Denmark), Siasun Robot & Automation Co. Ltd. (China), MIP Robotics (France), Hanwha Corporation (South Korea), Kawasaki Robotics (US), Dobot Robotics (China), Jaka Robotics (China), Huiling-Tech Robotic Co, Ltd (HITBOT) (China) is among a few emerging companies in the collaborative robot market. Research Coverage: This research report categorizes the collaborative robot market based on payload, component, application, industry, and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the collaborative robot market and forecasts the same till 2029. The report also consists of leadership mapping and analysis of all the companies in the collaborative robot market ecosystem.

Key Benefits of Buying the Report The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall collaborative robot market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the market pulse and provides information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

- **Analysis of key drivers** (High return on investment compared to traditional industrial robotic systems, Increased demand in e-commerce and logistics industries, Providing benefits to businesses of all sizes, Increased ease of programming collaborative robots), restraints (Higher preference to low payload capacity traditional industrial robots over cobots in heavy-duty industries), opportunities (Collaborative robots paired with AMRs and AGVs to provide a significant market opportunity, Robots-as-a-Service model to accelerate adoption of collaborative robots, Growing demand for automation in healthcare industry) and challenges (Payload and speed limitations of collaborative robots owing to their inherent design, Adaption to the new collaborative robot standards and rise in cybersecurity challenges in connected robots) influencing the growth of the collaborative robot market.

- **Product Development/Innovation:** Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the collaborative robot market.

- **Market Development:** Comprehensive information about lucrative markets - the report analyses the collaborative robot market across varied regions.

- **Market Diversification:** Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the collaborative robot market market

- **Competitive Assessment:** In-depth assessment of market shares, growth strategies, and service offerings of leading players like Universal Robots A/S (Denmark), FANUC Corporation (Japan), ABB (Switzerland), Techman Robot Inc (Taiwan), KUKA AG (Germany), AUBO (Beijing) Robotics Technology Co., Ltd (China), among others in the collaborative robot market.

Table of Contents:

1	INTRODUCTION	36
1.1	STUDY OBJECTIVES	36
1.2	MARKET DEFINITION	36
1.3	SCOPE OF STUDY	37
1.3.1	MARKETS COVERED	37
FIGURE 1	COLLABORATIVE ROBOT (COBOT) MARKET: MARKET SEGMENTATION	37
1.3.2	REGIONAL SCOPE	37
1.3.3	YEARS CONSIDERED	38
1.3.4	INCLUSIONS AND EXCLUSIONS	38
1.4	CURRENCY CONSIDERED	39
1.5	STAKEHOLDERS	40
1.6	SUMMARY OF CHANGES	40
1.7	RECESSION ANALYSIS	41
FIGURE 2	GDP GROWTH PROJECTION TILL 2023 FOR MAJOR ECONOMIES	41
2	RESEARCH METHODOLOGY	42
2.1	RESEARCH DATA	42

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

FIGURE 3	COLLABORATIVE ROBOT (COBOT) MARKET: RESEARCH DESIGN	42
2.1.1	SECONDARY DATA	43
2.1.1.1	List of key secondary sources	43
2.1.1.2	Key data from secondary sources	44
2.1.2	PRIMARY DATA	44
2.1.2.1	Interviews with experts	44
2.1.2.2	Breakdown of primaries	45
2.1.3	SECONDARY AND PRIMARY RESEARCH	45
2.1.3.1	Key industry insights	46
2.2	MARKET SIZE ESTIMATION	46
FIGURE 4	MARKET SIZE ESTIMATION METHODOLOGY: REVENUE OF MARKET PLAYERS	46
2.2.1	BOTTOM-UP APPROACH	47
2.2.1.1	Approach to capture market size by bottom-up analysis (demand side)	47
FIGURE 5	MARKET SIZE ESTIMATION METHODOLOGY: BOTTOM-UP APPROACH	48
2.2.2	TOP-DOWN APPROACH	48
2.2.2.1	Approach to capture market size using top-down analysis (supply side)	48
FIGURE 6	MARKET SIZE ESTIMATION METHODOLOGY: TOP-DOWN APPROACH	48
2.3	MARKET BREAKDOWN AND DATA TRIANGULATION	49
FIGURE 7	DATA TRIANGULATION	49
2.4	RESEARCH ASSUMPTIONS	50
2.5	RISK ASSESSMENT	50
2.5.1	IMPACT OF RECESSION	51
2.6	RESEARCH LIMITATIONS	51
3	EXECUTIVE SUMMARY	52
3.1	GROWTH RATE ASSUMPTIONS/GROWTH FORECAST	52
FIGURE 8	COBOTS WITH PAYLOAD CAPACITY OF UP TO 5 KG TO DOMINATE COLLABORATIVE ROBOT (COBOT) MARKET IN 2029	54
FIGURE 9	SOFTWARE COMPONENTS TO REGISTER HIGHER CAGR DURING FORECAST PERIOD	55
FIGURE 10	HANDLING SEGMENT TO LEAD COLLABORATIVE ROBOT (COBOT) MARKET IN 2029	56
FIGURE 11	ELECTRONICS INDUSTRY TO WITNESS FASTEST GROWTH DURING FORECAST PERIOD	57
FIGURE 12	ASIA PACIFIC ACCOUNTED FOR LARGEST SHARE OF GLOBAL COLLABORATIVE ROBOT (COBOT) MARKET IN 2022	58
4	PREMIUM INSIGHTS	59
4.1	MAJOR OPPORTUNITIES FOR PLAYERS IN COLLABORATIVE ROBOT (COBOT) MARKET	59
FIGURE 13	INCREASED DEMAND FOR COBOTS IN AUTOMOTIVE AND ELECTRONICS INDUSTRIES TO FUEL MARKET GROWTH	59
4.2	COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD	59
FIGURE 14	MARKET FOR COLLABORATIVE ROBOTS WITH PAYLOAD CAPACITY OF MORE THAN 20 KG TO RECORD HIGHEST CAGR DURING FORECAST PERIOD	59
4.3	COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION	60
FIGURE 15	HANDLING APPLICATIONS TO BE LARGEST MARKET SEGMENT IN 2023	60
4.4	COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY	60
FIGURE 16	AUTOMOTIVE INDUSTRY TO HOLD LARGEST SHARE OF COLLABORATIVE ROBOT (COBOT) MARKET IN 2023	60
4.5	COLLABORATIVE ROBOT (COBOT) MARKET IN ASIA PACIFIC, BY INDUSTRY AND COUNTRY	61
FIGURE 17	AUTOMOTIVE SEGMENT AND CHINA ACCOUNTED FOR LARGEST SHARES OF COLLABORATIVE ROBOT (COBOT) MARKET IN 2022	61
4.6	COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY	61
FIGURE 18	COLLABORATIVE ROBOT (COBOT) MARKET IN INDIA TO GROW AT HIGHEST CAGR DURING FORECAST PERIOD	61
5	MARKET OVERVIEW	62
5.1	INTRODUCTION	62

5.2 MARKET DYNAMICS 62

FIGURE 19 COLLABORATIVE ROBOT (COBOT) MARKET: DRIVERS, RESTRAINTS, OPPORTUNITIES, AND CHALLENGES 62

5.2.1 DRIVERS 63

5.2.1.1 Higher return on investment than traditional industrial robotic systems 63

5.2.1.2 Increased demand in e-commerce and logistics sectors 64

FIGURE 20 GLOBAL E-COMMERCE SALES, BY COUNTRY, IN 2022 65

5.2.1.3 Significant benefits in businesses of all sizes 65

5.2.1.4 Easy programming of cobots 66

FIGURE 21 COLLABORATIVE ROBOT (COBOT) MARKET: DRIVERS AND THEIR IMPACT 66

5.2.2 RESTRAINTS 67

5.2.2.1 Higher preference for low-payload-capacity robots in heavy-duty industrial applications 67

FIGURE 22 COLLABORATIVE ROBOT (COBOT) MARKET: RESTRAINTS AND THEIR IMPACT 67

5.2.3 OPPORTUNITIES 68

5.2.3.1 Increasing focus of automation experts on pairing robotic arms with mobile platforms such as AMRs or AGVs 68

5.2.3.2 Growing number of subscriptions for Raas model 69

5.2.3.3 Rising demand for automation in healthcare industry 69

FIGURE 23 COLLABORATIVE ROBOT (COBOT) MARKET: OPPORTUNITIES AND THEIR IMPACT 70

5.2.4 CHALLENGES 70

5.2.4.1 Payload and speed limitations of collaborative robots owing to their inherent design 70

5.2.4.2 Difficulties in adapting to new standards and cybersecurity challenges related to connected robots 71

FIGURE 24 COLLABORATIVE ROBOT (COBOT) MARKET: CHALLENGES AND THEIR IMPACT 71

5.3 TRENDS/DISRUPTIONS IMPACTING CUSTOMER BUSINESS 72

FIGURE 25 REVENUE SHIFT AND NEW REVENUE POCKETS FOR COLLABORATIVE ROBOT PROVIDERS 72

5.4 VALUE CHAIN ANALYSIS 72

FIGURE 26 VALUE CHAIN ANALYSIS: MAJOR VALUE ADDED DURING MANUFACTURING AND RESEARCH AND DEVELOPMENT STAGES 73

5.5 ECOSYSTEM MAPPING 76

FIGURE 27 ECOSYSTEM OF COLLABORATIVE ROBOTS 76

TABLE 1 COLLABORATIVE ROBOT (COBOT) MARKET: ECOSYSTEM 77

5.6 TECHNOLOGY ANALYSIS 78

5.6.1 KEY TECHNOLOGY 78

5.6.1.1 Integration of embedded vision with collaborative robots 78

5.6.1.2 Pairing of collaborative robots with mobile platforms 78

5.6.2 COMPLEMENTARY TECHNOLOGY 79

5.6.2.1 Penetration of IIoT and AI in industrial manufacturing 79

5.6.2.2 Adoption of innovative grippers in robotics manipulation 80

5.6.3 ADJACENT TECHNOLOGY 81

5.6.3.1 Penetration of 5G in industrial manufacturing 81

5.7 CASE STUDY ANALYSIS 82

5.7.1 AUTOMOTIVE MANUFACTURER DOUBLES PRODUCTIVITY WITH COBOTS 82

5.7.2 COBOTS HELP DELIVER UNCOMPROMISED QUALITY AND SAFETY TO GLOBAL LEADER IN CARDIAC SURGERY EQUIPMENT 82

5.7.3 COBOT HELPS DUTCH MANUFACTURER ACHIEVE SMART AUTOMATION 83

5.7.4 AUTOMOTIVE PARTS MANUFACTURER ENHANCES PRODUCTIVITY BY UTILIZING COBOTS 83

5.7.5 COBOTS HELP SHIPBUILDING PARTS MANUFACTURER TO ACHIEVE LOW-COST PRODUCTION THROUGH AUTOMATION 84

5.8 PATENT ANALYSIS 84

TABLE 2 PATENT REGISTRATIONS RELATED TO COLLABORATIVE ROBOT (COBOT) MARKET 84

FIGURE 28 NUMBER OF PATENTS GRANTED PER YEAR FROM 2013 TO 2023 89

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

FIGURE 29 TOP 10 COMPANIES WITH HIGHEST PERCENTAGE OF PATENT APPLICATIONS IN LAST 10 YEARS 89

TABLE 3 TOP 10 PATENT OWNERS IN US IN LAST 10 YEARS 90

5.9 TRADE ANALYSIS 90

5.9.1 IMPORT SCENARIO 91

5.9.1.1 Import scenario for industrial robots 91

TABLE 4 IMPORT DATA, BY COUNTRY, 2018-2022 (USD MILLION) 91

5.9.2 EXPORT SCENARIO 91

5.9.2.1 Export scenario for industrial robots 91

TABLE 5 EXPORT DATA, BY COUNTRY, 2018-2022 (USD MILLION) 92

5.9.3 TARIFF ANALYSIS 92

TABLE 6 MFN TARIFF FOR INDUSTRIAL ROBOTS, N.E.S., BY JAPAN, 2022 92

TABLE 7 MFN TARIFF FOR INDUSTRIAL ROBOTS, N.E.S., BY GERMANY, 2022 93

TABLE 8 MFN TARIFF FOR INDUSTRIAL ROBOTS, N.E.S., BY ITALY, 2022 93

5.10 KEY CONFERENCES AND EVENTS, 2023-2024 93

TABLE 9 COLLABORATIVE ROBOT (COBOT) MARKET: LIST OF CONFERENCES AND EVENTS 93

5.11 REGULATORY LANDSCAPE 94

5.11.1 REGULATORY COMPLIANCE 94

TABLE 10 NORTH AMERICA: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 95

TABLE 11 EUROPE: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 96

TABLE 12 ASIA PACIFIC: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 96

TABLE 13 ROW: LIST OF REGULATORY BODIES, GOVERNMENT AGENCIES, AND OTHER ORGANIZATIONS 97

5.11.2 STANDARDS AND REGULATIONS RELATED TO COLLABORATIVE ROBOTS 97

TABLE 14 NORTH AMERICA: SAFETY STANDARDS FOR COLLABORATIVE ROBOTS 97

TABLE 15 EUROPE: SAFETY STANDARDS FOR COLLABORATIVE ROBOTS 98

TABLE 16 ASIA PACIFIC: SAFETY STANDARDS FOR COLLABORATIVE ROBOTS 98

TABLE 17 ROW: SAFETY STANDARDS FOR COLLABORATIVE ROBOTS 98

5.12 PORTER'S FIVE FORCES ANALYSIS 99

TABLE 18 COLLABORATIVE ROBOT (COBOT) MARKET: PORTER'S FIVE FORCES ANALYSIS 99

FIGURE 30 COLLABORATIVE ROBOT (COBOT) MARKET: PORTER'S FIVE FORCES ANALYSIS 100

5.12.1 THREAT OF NEW ENTRANTS 100

5.12.2 THREAT OF SUBSTITUTES 100

5.12.3 BARGAINING POWER OF SUPPLIERS 101

5.12.4 BARGAINING POWER OF BUYERS 101

5.12.5 INTENSITY OF COMPETITIVE RIVALRY 101

5.13 KEY STAKEHOLDERS AND BUYING CRITERIA 101

5.13.1 KEY STAKEHOLDERS IN BUYING PROCESS 101

FIGURE 31 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE INDUSTRIES 101

TABLE 19 INFLUENCE OF STAKEHOLDERS ON BUYING PROCESS FOR TOP THREE INDUSTRIES (%) 102

5.13.2 BUYING CRITERIA 102

FIGURE 32 KEY BUYING CRITERIA FOR TOP THREE INDUSTRIES 102

TABLE 20 KEY BUYING CRITERIA FOR TOP THREE INDUSTRIES 102

5.14 PRICING ANALYSIS 103

TABLE 21 SELLING PRICE OF COLLABORATIVE ROBOTS 103

5.14.1 AVERAGE SELLING PRICE TREND 104

FIGURE 33 COLLABORATIVE ROBOT (COBOT) MARKET: AVERAGE SELLING PRICE OF COBOTS 104

TABLE 22 AVERAGE SELLING PRICE OF VARIOUS COLLABORATIVE ROBOTS BASED ON PAYLOAD CAPACITY 104

5.14.2 AVERAGE SELLING PRICE OF COLLABORATIVE ROBOTS OFFERED BY KEY PLAYERS, BY PAYLOAD 105

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

FIGURE 34	AVERAGE SELLING PRICE OF COLLABORATIVE ROBOTS OFFERED BY KEY PLAYERS, BY PAYLOAD	105
TABLE 23	AVERAGE SELLING PRICE OF COLLABORATIVE ROBOTS OFFERED BY KEY PLAYERS WITH VARIOUS PAYLOAD CAPACITIES (USD)	105
6	COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD	106
6.1	INTRODUCTION	107
FIGURE 35	COLLABORATIVE ROBOT (COBOT) MARKET: BY PAYLOAD	107
FIGURE 36	UP TO 5 KG SEGMENT TO HOLD LARGEST SHARE OF COLLABORATIVE ROBOT (COBOT) MARKET IN 2029	107
TABLE 24	COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	108
TABLE 25	COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	108
TABLE 26	COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (UNITS)	108
TABLE 27	COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (UNITS)	108
6.2	UP TO 5 KG	109
6.2.1	INHERENT SAFETY OF COBOTS WITH PAYLOAD CAPACITY BELOW 5 KG TO DRIVE MARKET	109
TABLE 28	COMPANIES OFFERING COBOTS WITH PAYLOAD CAPACITY UP TO 5 KG	110
TABLE 29	UP TO 5 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (USD MILLION)	110
TABLE 30	UP TO 5 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (USD MILLION)	111
TABLE 31	UP TO 5 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (UNITS)	111
TABLE 32	UP TO 5 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (UNITS)	111
TABLE 33	UP TO 5 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (USD MILLION)	112
TABLE 34	UP TO 5 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (USD MILLION)	112
6.3	5-10 KG	113
6.3.1	UTILIZATION OF COBOTS WITH PAYLOAD CAPACITY OF 5-10 KG IN FACTORY AUTOMATION TASKS TO SUPPORT MARKET GROWTH	113
TABLE 35	COMPANIES OFFERING COBOTS WITH 5-10 KG PAYLOAD CAPACITY	114
TABLE 36	5-10 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (USD MILLION)	115
TABLE 37	5-10 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (USD MILLION)	115
TABLE 38	5-10 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (UNITS)	115
TABLE 39	5-10 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (UNITS)	116
TABLE 40	5-10 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (USD MILLION)	116
TABLE 41	5-10 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (USD MILLION)	117
6.4	10-20 KG	118
6.4.1	DEPLOYMENT OF COBOTS WITH PAYLOAD CAPACITY OF 10-20 KG IN WIDE RANGE OF APPLICATIONS TO DRIVE MARKET	118
TABLE 42	COMPANIES OFFERING COBOTS WITH PAYLOAD CAPACITY OF 10-20 KG	119
TABLE 43	10-20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (USD MILLION)	119
TABLE 44	10-20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (USD MILLION)	120
TABLE 45	10-20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (UNITS)	120
TABLE 46	10-20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (UNITS)	120
TABLE 47	10-20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (USD MILLION)	121
TABLE 48	10-20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (USD MILLION)	121
6.5	MORE THAN 20 KG	122
6.5.1	NEED FOR COBOTS WITH MORE THAN 20 KG PAYLOAD CAPACITY IN PHYSICALLY DEMANDING TASKS TO PROPEL MARKET	122
TABLE 49	COMPANIES OFFERING COBOTS WITH PAYLOAD CAPACITY OF MORE THAN 20 KG	123
TABLE 50	MORE THAN 20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (USD MILLION)	123
TABLE 51	MORE THAN 20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (USD MILLION)	123
TABLE 52	MORE THAN 20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (UNITS)	124
TABLE 53	MORE THAN 20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (UNITS)	124
TABLE 54	MORE THAN 20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (USD MILLION)	125

TABLE 55	MORE THAN 20 KG: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (USD MILLION)	125
7	COLLABORATIVE ROBOT (COBOT) MARKET, BY COMPONENT	126
7.1	INTRODUCTION	127
FIGURE 37	COLLABORATIVE ROBOT (COBOT) MARKET: BY COMPONENT	127
FIGURE 38	HARDWARE SEGMENT TO HOLD LARGEST SHARE OF COLLABORATIVE ROBOT (COBOT) MARKET DURING FORECAST PERIOD	127
TABLE 56	COLLABORATIVE ROBOT (COBOT) MARKET, BY COMPONENT, 2019-2022 (USD MILLION)	128
TABLE 57	COLLABORATIVE ROBOT (COBOT) MARKET, BY COMPONENT, 2023-2029 (USD MILLION)	128
7.2	HARDWARE	129
TABLE 58	COLLABORATIVE ROBOT (COBOT) MARKET, BY HARDWARE, 2019-2022 (USD MILLION)	129
TABLE 59	COLLABORATIVE ROBOT (COBOT) MARKET, BY HARDWARE, 2023-2029 (USD MILLION)	130
7.2.1	ROBOTIC ARMS	131
7.2.2	END EFFECTORS OR END OF ARM TOOLS (EOATS)	131
7.2.2.1	Welding guns	131
7.2.2.1.1	Ease of welding tasks due to hand guidance feature in collaborative robots	131
TABLE 60	ROBOTIC WELDING GUN MANUFACTURERS	132
7.2.2.2	Grippers	132
7.2.2.2.1	Pneumatic grippers	133
7.2.2.2.1.1	Requirement for external air supply to keep pneumatic grippers operational	133
7.2.2.2.2	Electric grippers	133
7.2.2.2.2.1	Ease of programming and operating to drive demand for electric grippers	133
TABLE 61	ELECTRIC GRIPPER MANUFACTURERS	134
7.2.2.2.3	Dexterous robotic hands	134
7.2.2.2.3.1	4-finger robotic hands suitable for collaborative applications	135
7.2.2.2.3.2	5-finger robotic hands used in combination with industrial and collaborative robotic arms	135
7.2.2.2.4	Vacuum grippers	135
7.2.2.2.4.1	Implementation of vacuum grippers to easily handle uneven and large area workpieces	135
7.2.2.2.5	Magnetic grippers	136
7.2.2.2.5.1	Use of magnetic grippers to handle smallest workpieces	136
TABLE 62	MAGNETIC GRIPPER MANUFACTURERS	136
7.2.2.3	Robotic screwdrivers	137
7.2.2.3.1	Ability of robotic screwdrivers to apply consistent torque during screwdriving	137
7.2.2.4	Sanding and deburring tools	137
7.2.2.4.1	Adoption of sanding and deburring tools to remove imperfections in objects	137
7.2.2.5	Others	138
7.2.3	DRIVES	138
7.2.3.1	Reliance on drives to convert electrical energy into mechanical energy	138
7.2.4	CONTROLLERS	138
7.2.4.1	Importance of controllers in enabling safe and effective human-robot collaboration	138
7.2.5	SENSORS	139
7.2.5.1	Employment of sensors help convert information into meaningful data	139
7.2.6	POWER SUPPLIES	139
7.2.6.1	Selecting suitable power supplies for cobots is crucial	139
7.2.7	MOTORS	139
7.2.7.1	Deployment of motors to power cobots using rotational or linear force	139
7.2.8	OTHERS	140
7.3	SOFTWARE	140

7.3.1	STRONG FOCUS OF COBOT MANUFACTURERS ON DEVELOPING INTUITIVE PROGRAMMING SOFTWARE	140
8	COLLABORATIVE (COBOT) ROBOT MARKET, BY APPLICATION	142
8.1	INTRODUCTION	143
FIGURE 39	COLLABORATIVE ROBOT (COBOT) MARKET: BY APPLICATION	143
TABLE 63	COLLABORATIVE ROBOT (COBOT) MARKET RANKING ANALYSIS, BY APPLICATION	144
FIGURE 40	HANDLING APPLICATIONS TO HOLD LARGEST SHARE OF COLLABORATIVE ROBOT (COBOT) MARKET DURING FORECAST PERIOD	144
TABLE 64	COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (USD MILLION)	145
TABLE 65	COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (USD MILLION)	145
TABLE 66	COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2019-2022 (UNITS)	145
TABLE 67	COLLABORATIVE ROBOT (COBOT) MARKET, BY APPLICATION, 2023-2029 (UNITS)	146
8.2	HANDLING	147
TABLE 68	COMPANIES OFFERING COLLABORATIVE ROBOTS FOR HANDLING APPLICATIONS	147
TABLE 69	HANDLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	147
TABLE 70	HANDLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	148
TABLE 71	HANDLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (UNITS)	148
TABLE 72	HANDLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (UNITS)	148
8.2.1	PICK-AND-PLACE	149
8.2.1.1	Pick-and-place tasks easiest to program for first-time users	149
8.2.2	MATERIAL HANDLING	149
8.2.2.1	Technological advancements to increase capabilities of material-handling collaborative robots (cobots)	149
8.2.3	PACKAGING & PALLETIZING	150
8.2.3.1	Packing and palletizing often require medium payload cobots	150
8.2.4	MACHINE TENDING	151
8.2.4.1	Cobots used alongside CNC, injection, and blow molding machines	151
TABLE 73	HANDLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY TYPE, 2019-2022 (USD MILLION)	151
TABLE 74	HANDLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY TYPE, 2023-2029 (USD MILLION)	152
8.3	ASSEMBLING & DISASSEMBLING	153
TABLE 75	COMPANIES OFFERING COLLABORATIVE ROBOTS FOR ASSEMBLING & DISASSEMBLING APPLICATIONS	153
TABLE 76	ASSEMBLING & DISASSEMBLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	153
TABLE 77	ASSEMBLING & DISASSEMBLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	153
TABLE 78	ASSEMBLING & DISASSEMBLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (UNITS)	154
TABLE 79	ASSEMBLING & DISASSEMBLING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (UNITS)	154
8.3.1	NUT FASTENING	155
8.3.1.1	Cobots suitable for nut fastening on medium and large workpieces	155
8.3.2	SCREWDRIVING	155
8.3.2.1	Cobots can handle torque forces required for screwdriving applications	155
8.4	WELDING & SOLDERING	155
8.4.1	COLLABORATIVE ROBOTS USED FOR WELDING SUITABLE FOR LOW VOLUME, HIGH MIX OPERATIONS	155
TABLE 80	COMPANIES OFFERING COLLABORATIVE ROBOTS FOR WELDING & SOLDERING APPLICATIONS	156
TABLE 81	WELDING & SOLDERING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	156
TABLE 82	WELDING & SOLDERING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	156
TABLE 83	WELDING & SOLDERING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (UNITS)	157
TABLE 84	WELDING AND SOLDERING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (UNITS)	157
8.5	DISPENSING	158
TABLE 85	COMPANIES OFFERING COLLABORATIVE ROBOTS FOR DISPENSING APPLICATIONS	158
TABLE 86	DISPENSING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	159

TABLE 87	DISPENSING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	159
TABLE 88	DISPENSING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (UNITS)	159
TABLE 89	DISPENSING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (UNITS)	160
8.5.1	GLUING	161
8.5.1.1	Robotic gluing ensures quality and consistency of application	161
8.5.2	PAINTING	161
8.5.2.1	Cobot painting suitable for low-volume production	161
8.6	PROCESSING	162
TABLE 90	COMPANIES OFFERING COLLABORATIVE ROBOTS FOR PROCESSING APPLICATIONS	162
TABLE 91	PROCESSING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	162
TABLE 92	PROCESSING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	163
TABLE 93	PROCESSING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (UNITS)	163
TABLE 94	PROCESSING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (UNITS)	163
8.6.1	GRINDING	164
8.6.1.1	Force/torque sensors used along with end effectors for grinding tasks	164
8.6.2	MILLING	164
8.6.2.1	Milling tasks consist of deburring, chamfering, and scraping operations	164
8.6.3	CUTTING	165
8.6.3.1	Cobots used for cutting applications on very small scale	165
TABLE 95	COLLABORATIVE ROBOT (COBOT) MARKET, BY PROCESSING, 2019-2022 (USD MILLION)	165
TABLE 96	COLLABORATIVE ROBOT (COBOT) MARKET, BY PROCESSING, 2023-2029 (USD MILLION)	165
8.7	OTHERS	166
TABLE 97	COMPANIES OFFERING COLLABORATIVE ROBOTS FOR OTHER APPLICATIONS	166
TABLE 98	OTHERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	167
TABLE 99	OTHERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	167
TABLE 100	OTHERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (UNITS)	167
TABLE 101	OTHERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (UNITS)	168
8.7.1	INSPECTION AND QUALITY TESTING	168
8.7.2	DIE-CASTING AND MOLDING	169
9	COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY	170
9.1	INTRODUCTION	171
FIGURE 41	COLLABORATIVE ROBOT (COBOT) MARKET: BY INDUSTRY	171
FIGURE 42	COLLABORATIVE ROBOT (COBOT) MARKET FOR ELECTRONICS INDUSTRY TO RECORD HIGHEST CAGR DURING FORECAST PERIOD	171
TABLE 102	COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (USD MILLION)	172
TABLE 103	COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (USD MILLION)	172
TABLE 104	COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (UNITS)	173
TABLE 105	COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (UNITS)	173
9.2	AUTOMOTIVE	174
9.2.1	COLLABORATIVE ROBOTS UTILIZED TO PERFORM LIGHT AND REPETITIVE TASKS	174
TABLE 106	AUTOMOTIVE: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	176
TABLE 107	AUTOMOTIVE: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	176
TABLE 108	AUTOMOTIVE: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	176
TABLE 109	AUTOMOTIVE: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	177
9.3	ELECTRONICS	178
9.3.1	COLLABORATIVE ROBOTS CAN MANAGE SMALL AND FRAGILE COMPONENTS	178
TABLE 110	ELECTRONICS: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	179

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

TABLE 111	ELECTRONICS: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	179
TABLE 112	ELECTRONICS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	179
TABLE 113	ELECTRONICS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	180
9.4	METALS & MACHINING	181
9.4.1	COLLABORATIVE ROBOTS USED ALONGSIDE CNC AND OTHER HEAVY MACHINERY TO AUTOMATE VARIOUS TASKS	181
TABLE 114	METALS & MACHINING: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	182
TABLE 115	METALS & MACHINING: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	182
TABLE 116	METALS & MACHINING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	183
TABLE 117	METALS & MACHINING: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	183
9.5	PLASTICS & POLYMERS	184
9.5.1	COLLABORATIVE ROBOTS IDEAL FOR PLASTICS AND POLYMER INDUSTRY DUE TO LOW PAYLOAD CAPACITY	184
TABLE 118	PLASTICS & POLYMERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	185
TABLE 119	PLASTICS & POLYMERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	186
TABLE 120	PLASTICS & POLYMERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	186
TABLE 121	PLASTICS & POLYMERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	186
9.6	FOOD & BEVERAGES	187
9.6.1	COLLABORATIVE ROBOTS DEPLOYED IN FOOD INDUSTRY IN PRIMARY AND SECONDARY HANDLING APPLICATIONS	187
TABLE 122	FOOD & BEVERAGES: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	188
TABLE 123	FOOD & BEVERAGES: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	189
TABLE 124	FOOD & BEVERAGES: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	189
TABLE 125	FOOD & BEVERAGES: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	189
9.7	FURNITURE & EQUIPMENT	190
9.7.1	COLLABORATIVE ROBOTS PERFORM VARIOUS PICK-AND-PLACE AND MACHINE-TENDING TASKS	190
TABLE 126	FURNITURE & EQUIPMENT: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	191
TABLE 127	FURNITURE & EQUIPMENT: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	191
TABLE 128	FURNITURE & EQUIPMENT: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	192
TABLE 129	FURNITURE & EQUIPMENT: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	192
9.8	HEALTHCARE	193
9.8.1	COLLABORATIVE ROBOTS UTILIZED IN NON-SURGICAL APPLICATIONS	193
TABLE 130	HEALTHCARE: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	194
TABLE 131	HEALTHCARE: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	194
TABLE 132	HEALTHCARE: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	195
TABLE 133	HEALTHCARE: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	195
9.9	LOGISTICS	195
9.9.1	COLLABORATIVE ROBOTS USED FOR PICK AND PLACE APPLICATIONS	195
TABLE 134	LOGISTICS: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	196
TABLE 135	LOGISTICS: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	196
TABLE 136	LOGISTICS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	197
TABLE 137	LOGISTICS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	197
9.10	OTHERS	197
TABLE 138	OTHERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	198
TABLE 139	OTHERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	199
TABLE 140	OTHERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2019-2022 (USD MILLION)	199
TABLE 141	OTHERS: COLLABORATIVE ROBOT (COBOT) MARKET, BY PAYLOAD, 2023-2029 (USD MILLION)	199
10	COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION	201
10.1	INTRODUCTION	202
FIGURE 43	COLLABORATIVE ROBOT (COBOT) MARKET: BY REGION	202

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

TABLE 142	COLLABORATIVE ROBOT (COBOT) MARKET RANKING ANALYSIS, BY REGION	202
FIGURE 44	ASIA PACIFIC TO HOLD LARGEST SHARE OF COLLABORATIVE ROBOT (COBOT) MARKET DURING FORECAST PERIOD	203
TABLE 143	COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	203
TABLE 144	COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	203
TABLE 145	COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (UNITS)	204
TABLE 146	COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (UNITS)	204
10.2	NORTH AMERICA	204
10.2.1	IMPACT OF RECESSION ON COLLABORATIVE ROBOT (COBOT) MARKET IN NORTH AMERICA	205
FIGURE 45	NORTH AMERICA: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY	205
FIGURE 46	NORTH AMERICA: COLLABORATIVE ROBOT (COBOT) MARKET SNAPSHOT	206
TABLE 147	NORTH AMERICA: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2019-2022 (USD MILLION)	206
TABLE 148	NORTH AMERICA: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2023-2029 (USD MILLION)	207
TABLE 149	NORTH AMERICA: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2019-2022 (UNITS)	207
TABLE 150	NORTH AMERICA: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2023-2029 (UNITS)	207
TABLE 151	NORTH AMERICA: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (USD MILLION)	208
TABLE 152	NORTH AMERICA: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (USD MILLION)	208
10.2.2	US	209
10.2.2.1	Increased demand for cobots across various industries to drive market	209
10.2.3	CANADA	210
10.2.3.1	Increased foreign investments in automotive sector to support market growth	210
10.2.4	MEXICO	212
10.2.4.1	Government measures to augment manufacturing activities to fuel market growth	212
10.3	EUROPE	213
10.3.1	IMPACT OF RECESSION ON COLLABORATIVE ROBOT (COBOT) MARKET IN EUROPE	213
FIGURE 47	EUROPE: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY	214
FIGURE 48	EUROPE: COLLABORATIVE ROBOT (COBOT) MARKET SNAPSHOT	214
TABLE 153	EUROPE: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2019-2022 (USD MILLION)	215
TABLE 154	EUROPE: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2023-2029 (USD MILLION)	215
TABLE 155	EUROPE: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2019-2022 (UNITS)	215
TABLE 156	EUROPE: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2023-2029 (UNITS)	216
TABLE 157	EUROPE: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (USD MILLION)	216
TABLE 158	EUROPE: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (USD MILLION)	217
10.3.2	GERMANY	217
10.3.2.1	Prominent presence of automotive and electronics industries to propel market	217
10.3.3	ITALY	218
10.3.3.1	Changing consumer needs in automotive sector to drive adoption of collaborative robots	218
10.3.4	SPAIN	219
10.3.4.1	Adoption of automation in manufacturing industries to drive demand for collaborative robots	219
10.3.5	FRANCE	220
10.3.5.1	Government funding to boost automation and deployment of collaborative robots	220
10.3.6	UK	221
10.3.6.1	Investments in R&D to revive automotive industry to offer high market growth potential	221
10.3.7	REST OF EUROPE	221
10.4	ASIA PACIFIC	222
10.4.1	IMPACT OF RECESSION ON COLLABORATIVE ROBOT (COBOT) MARKET IN ASIA PACIFIC	222
FIGURE 49	ASIA PACIFIC: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY	223
FIGURE 50	ASIA PACIFIC: COLLABORATIVE ROBOT (COBOT) MARKET SNAPSHOT	223

TABLE 159	ASIA PACIFIC: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2019-2022 (USD MILLION)	224
TABLE 160	ASIA PACIFIC: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2023-2029 (USD MILLION)	224
TABLE 161	ASIA PACIFIC: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2019-2022 (UNITS)	225
TABLE 162	ASIA PACIFIC: COLLABORATIVE ROBOT (COBOT) MARKET, BY COUNTRY, 2023-2029 (UNITS)	225
TABLE 163	ASIA PACIFIC: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (USD MILLION)	226
TABLE 164	ASIA PACIFIC: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (USD MILLION)	226
10.4.2	CHINA	227
10.4.2.1	Increasing investments in automation to contribute to market growth	227
10.4.3	SOUTH KOREA	228
10.4.3.1	Deployment of significant number of cobots in automotive and electronics industries to drive market	228
10.4.4	JAPAN	229
10.4.4.1	Use of electric and hybrid vehicles to fuel market for cobots	229
10.4.5	TAIWAN	230
10.4.5.1	Growth of electrical & electronics industry to drive market	230
10.4.6	THAILAND	230
10.4.6.1	Thailand 4.0 initiative to drive market for cobots during forecast period	230
10.4.7	INDIA	231
10.4.7.1	Huge potential for deployment of cobots in manufacturing sector to support market growth	231
10.4.8	REST OF ASIA PACIFIC	232
10.5	ROW	233
10.5.1	IMPACT OF RECESSION ON COLLABORATIVE ROBOT (COBOT) MARKET IN ROW	233
FIGURE 51	ROW: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION	233
FIGURE 52	ROW: COLLABORATIVE ROBOT (COBOT) MARKET SNAPSHOT	234
TABLE 165	ROW: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (USD MILLION)	234
TABLE 166	ROW: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (USD MILLION)	235
TABLE 167	ROW: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2019-2022 (UNITS)	235
TABLE 168	ROW: COLLABORATIVE ROBOT (COBOT) MARKET, BY REGION, 2023-2029 (UNITS)	235
TABLE 169	ROW: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2019-2022 (USD MILLION)	235
TABLE 170	ROW: COLLABORATIVE ROBOT (COBOT) MARKET, BY INDUSTRY, 2023-2029 (USD MILLION)	236
10.5.2	MIDDLE EAST & AFRICA	237
10.5.2.1	Automation across industries to drive market	237
10.5.3	SOUTH AMERICA	238
10.5.3.1	South America to witness high growth in adoption of collaborative robots during forecast period	238
11	HUMAN-ROBOT COLLABORATIVE OPERATIONAL ENVIRONMENT (QUALITATIVE)	239
11.1	INTRODUCTION	239
11.2	SAFETY-RATED MONITORED STOP	239
11.3	HAND GUIDING	240
11.4	SPEED REDUCTION AND SEPARATION MONITORING	240
11.5	POWER AND FORCE LIMITING	241
12	INTEGRATION OF COBOTS AND IOT (QUALITATIVE)	243
12.1	INTRODUCTION	243
12.2	CONNECTIVITY TECHNOLOGY	244
12.2.1	ETHERNET	244
12.2.2	WI-FI	244
12.2.3	BLUETOOTH	245
12.2.4	CELLULAR	245
12.2.4.1	4G connectivity	245

12.2.4.2 5G connectivity 245

12.3 INTEROPERABILITY SOFTWARE 246

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Collaborative Robot Market by Payload (Up to 5 Kg, 5-10 kg, 10-20 kg, more than 20 kg), Component, Robotic Arm, End Effectors, Drives, Controllers, Sensors, Power Supply, Motors, Software), Application, Industry and Region - Global Forecast to 2029

Market Report | 2023-07-18 | 330 pages | MarketsandMarkets

To place an Order with Scotts International:

- ☐ - Print this form
- ☐ - Complete the relevant blank fields and sign
- ☐ - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User	\$4950.00
	Multi User	\$6650.00
	Corporate License	\$8150.00
	Enterprise Site License	\$10000.00
		VAT
		Total

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*	<input type="text"/>	Phone*	<input type="text"/>
First Name*	<input type="text"/>	Last Name*	<input type="text"/>
Job title*	<input type="text"/>		
Company Name*	<input type="text"/>	EU Vat / Tax ID / NIP number*	<input type="text"/>
Address*	<input type="text"/>	City*	<input type="text"/>

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Zip Code*	<input type="text"/>	Country*	<input type="text"/>
		Date	2025-05-20
		Signature	<div></div>