PEMA

Global Survey of Yard Crane Deliveries 2024

MARKET SURVEY
ISSUED 2025

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Contents

Introduction

This is the eleventh global survey of yard gantry container crane deliveries to be published by the Port Equipment Manufacturers Association (PEMA).

The PEMA yard crane surveys were originally created to provide an annual measure of the market size for Rail Mounted Gantry (RMG) and Rubber Tyred Gantry (RTG) cranes. The surveys were designed to measure the number of cranes delivered, rather than orders placed for new cranes, in a 12-month period.

This eleventh global survey of yard crane production was researched and written by Paul Avery, the editor of WorldCargo News. As well as yard crane production it continues to provide data on the three of the main trends in yard crane technology: automation, electrification of RTGs, and the trend towards hybrid drives.

This report captures cranes from the "delivery" date, which normally refers to when the cranes arrived at the terminal. However, some OEMs report delivery date as the date the crane leaves the factory, while ports sometimes announce they have received new cranes at the point when they enter service. In cases where cranes arrive before infrastructure including crane rails and electrical supply are installed it can be many weeks before the cranes enter service.

It should be noted delivery dates in this report might vary significantly from other market reports based on expected delivery dates at the time cranes were ordered.

Methodology

The survey research was conducted in the first quarter 2024 and the results were collated in April and May 2024. All known manufacturers of yard cranes were contacted and asked to provide details of their crane deliveries for 2024 and/or to confirm that orders for yard cranes previously published were delivered.

Because PEMA is a trade association, somewhat different rules apply with respect to data on individual company activity that can be reported. As in previous reports, this survey publishes the destination port and terminal for yard cranes and their main specifications, but does not list the supplying manufacturer or the name of any component suppliers.

Confidentiality

While this report is released by and the property of PEMA, the data from individual crane OEMs are not held by PEMA and are not available to its membership.

Survey Distribution

The consolidated survey results will be released to PEMA members and to all contributors to the survey immediately upon publication. At a later date, the report will be made available in the public domain.

Disclaimer

This survey is based on information provided directly by the equipment manufacturers and other published sources. PEMA and the author cannot accept responsibility for the accuracy of the data provided. This document does not constitute professional advice, nor is it an exhaustive summary of the information available on the subject matter to which it refers. Every effort is made to ensure the accuracy of the information. However, neither the author, PEMA nor any member company is responsible for any loss, damage, costs or expenses incurred, whether or not in negligence, arising from reliance on or interpretation of the data.

1. Executive Summary

In 2024 PEMA's eleventh yard container crane survey found a total of 777 crane deliveries to container terminals globally. This is a 2.3% increase on the 759 yard cranes delivered in 2023.

While the number of deliveries increased only marginally in 2024, the market is still at a relatively high level. The 777 cranes delivered in 2024 is 20% higher than the average of 645 for the three years 2017 to 2019.

By and large, the market has recovered from the supply chain problems that were encountered over 2021 and 2022 during the COVID-19 pandemic.

In the regional analysis, terminals in China and Other Asia (a category that means all of Asia except mainland China) took delivery of 348 yard cranes in 2024, 45% of the total. This is down from 2023 when these markets took 56% of all deliveries. The biggest drop was recorded in China, where just 55 yard cranes were delivered in 2024 compared to 242 in 2023.

There are two main reasons for the decline. Firstly there are now more crane OEM's that are active in the Chinese market, and a number do not provide data for this survey, so some of the market is not measured. Secondly China saw a significant boom in yard crane automation projects over the last few years that is now winding down.

At the same time yard crane deliveries to terminal in the Other Asia category increased significantly, rising from 183 in 2023 to 293 in 2024.

Ports in Europe and Africa are also taking delivery of more yard cranes as they undergo a period of investment. In Africa, there are major port developments underway in Egypt, while in Europe terminals in the Benelux region are expanding and/or retrofitting Automated Stacking cranes (ASCs).

In the RTG sector terminals in North America and Other Asia continued to take delivery of a large number of cranes in 2024.

PEMA's ninth yard crane report started providing more detail on the technology trends in yard cranes and that analysis continues in this eleventh report in the yard crane series. In RMG cranes the trend towards automation continues. Of the 237 RMG cranes delivered in 2024 some 206 featured some level of automation.

Tracking the number of RTGs that have some level of automation functionality continues to be difficult as not all manufacturers provide this data. In 2023 19 RTG cranes were delivered where manufacturers indicated some level of automation functionality, ranging from remote control to full automation. In 2024 this number increased to 32. However, there is anecdotal evidence that the number 32 is an underrepresentation as terminals are not yet ready to disclose their plans with regard to RTG automation. In 2022 PEMA recorded 89 RTGs as listed with automation functionality.

Manufacturers were also asked to identify where RTGs are electrically powered (E-RTGs), which PEMA has been tracking since 2012. This survey identifies that 153 of the 540 RTGs delivered in 2024 were electrically powered, 28% of the total and an increase on the 25% recorded in 2023. This is the highest percentage since PEMA began tracking this data point.

At the same time the percentage of new RTG cranes that feature a hybrid drive system has increased. Manufacturers were asked to identify whether RTGs were diesel, hybrid or E-RTGs. Not all manufacturers provided this data, but the number of RTGs that were identified as having a hybrid drive is 94. This represents 17% of the total number of RTGs delivered. This is higher than the 12% recorded in 2023, but below the 26% recorded in 2020 when PEMA first started tracking hybrid RTG numbers.

2. Yard Crane Deliveries in 2024

Ten (10) manufacturers were contacted and asked to verify their 2024 deliveries. All of these have supplied cranes over recent years.

The 10 manufacturers contacted were:

- Konecranes
- Kuenz
- Liebherr
- Sumitomo Heavy Industry
- Mitsubishi Logisnext
- Mitsui Engineering and Shipbuilding
- Qingdao Haixi Heavy-duty Machinery Co.,Ltd (HHMC)
- Sany Marine Heavy Industry
- Jiangsu Rainbow Heavy Industries Co., Ltd.
- ZPMC

In addition, the survey contains data on cranes manufactured by Dinson, Doosan Vina and Grualia.

Table 1.1: Global yard crane deliveries 2024 by geographic region

Africa	120	15%
Australasia	4	1%
China	55	7%
Europe	90	12%
Middle East	42	5%
Other Asia	293	38%
North America	118	15%
South America	55	7%
Total	**777**	**100%**

Figure 1.1: Global yard crane deliveries 2024 by geographic region

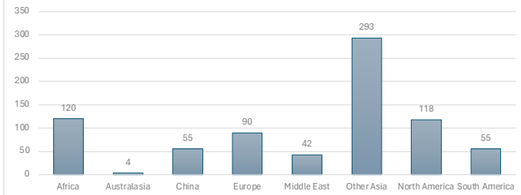


Table 1.2: Global RTG deliveries 2024 by geographic region

Africa	106	20%
Australasia	0	0%
China	24	4%
Europe	45	8%
Middle East	42	8%
North America	115	21%
Other Asia	171	32%
South America	37	7%
Total	**540**	**100%**

Figure 1.2: Global RTG deliveries 2024 by geographic region

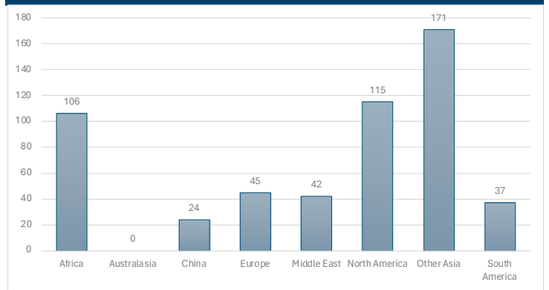


Table 1.3: Global RMG deliveries 2024 by geographic region

Africa	14	6%
Australasia	4	2%
China	31	13%
Europe	45	19%
Middle East	0	0%
North America	3	1%
Other Asia	122	51%
South America	18	8%
Total	**237**	**100%**

Figure 1.3: Global RMG deliveries 2024 by geographic region

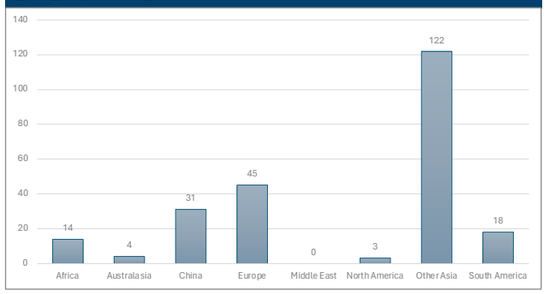


Table 2: Consolidated results of RTG deliveries 2024

Terminal	Country	Quantity	No of Wheels	Capacity	Lift height (boxes or m)	Span (rows or m)	Automation	Drive type
DPW Djazair	Algeria	4	16	40	1-over-5	7+1	Manual	Diesel
Contonou	Benin	4	16	40	1-over-6	7+1	Manual	Diesel
Super Terminais	Brazil	2	16	41	1 over 6	7+1		E-RTG
ITAPOA	Brazil	5		50	21.2	23.5		
Santos brazil	Brazil	8		41	21	26.5	Yes	
Sihanoukville	Cambodia	6	8	40.6	1-over-5	23.47		Diesel
China Harbour Engineering Company Ltd., Kribi	Cameroon	15		41T	18	23.47		
PSA Halifax	Canada	8	16	40	1-over-5	6+1	Manual	E-RTG
GCT Deltaport	Canada	10	16	40	1-over-5	7+1	Manual	Diesel
Wenzhou group	China	7	8	41	1 over 5	6+1		E-RTG
undisclosed	China	5	16	40	1 over 6	6+1		Diesel Engine
Ningbo Zhoushan Port	China	2	8	41	1 over 5	6+1		E-RTG
Hainan Harbor & Shipping International Port Co., Ltd.	China	23		41	21	29.3		
SIPG Zhendong Branch	China	4		40	15.24	23.47		
SIPG Zhendong Branch	China	2		41	15.24	23.47		
Shanghai Pudong Intenational Container Co., Ltd.	China	1		45	18.14	23.47		
Shanghai Pudong Intenational Container Co., Ltd.	China	2		41	18.14	23.47		
Ningbo Port Materials Co., Ltd.	China	2		41	≤26.5	23.47		
Yantian International Container Terminal	China	24		10	21.5	23.47	Yes	
Dongying Jiaofa Port	China	6	8	41	1-over-5	23.47		ERTG
Nansha Seaport	China	4		41	1-over-5	23.47		
CMA Puerto Antioquia	Colombia	2	16	40	1-over-6	6+1	Manual	E-RTG
APMT Abidjan	Cote d'Ivoire	6	16	40	1-over-6	7+1	Manual	Diesel
APM Rijeka Gateway	Croatia	12		41	21	26.3		
Rijeka Gateway	Croatia	15	16	41	1 over 6	7+1	Yes	E-RTG
Yilport - Puerto Bolivar	Ecuador	6	16	41	1-over-6	26.5		E-RTG
Damietta	Egypt	20	16	41	1 over 6	7+1		E-RTG
Abu Qir Container Terminal Company, Alexandria	Egypt	4		41	20.75	23.47		

Table 2: Consolidated results of RTG deliveries 2023

Terminal	Country	Quantity	No of Wheels	Capacity	Lift height (boxes or m)	Span (rows or m)	Automation	Drive type
APM SCCT Port Said	Egypt	30		40.6	18.1	26	Yes	
BTM Terminal Ouest de Provence	France	2	16	40	1 over 3	8+1 or 28.00 m	Remote	E-RTG
Modern Terminals Limited	Hong Kong, China	14		41	21	23.47		
Apical group	Indonesia	3	8	41	1 over 6	6+1		E-RTG
PT PIP	Indonesia	2	8	41	1 over 5	6+1		Diesel Engine
Daito Corporation	Japan	4	8	40	1-over-5	23.47		NZE
Dream Island, Osaka	Japan	2	8	40	1-over-5	23.47		Hybrid
Mitsui Soko Co., Ltd.	Japan	2	8	40.6	1-over-4	23.47		Hybrid
Kamigumi, Tokyo	Japan	2	8	40.8	1 over 5	6+1		Hybrid
Tomakomai ICT	Japan	1	8	40.8	1 over 4	6+1		Hybrid
Kamigumi, Kobe	Japan	2	8	40.8	1 over 5	6+1	Yes	Hybrid
Kenya Ports Authority, Lamu	Kenya	4		41	18	24		
CMA CGM Tripoli	Lebanon	5	16					
Klaipeda Container Terminal	Lithuania	1	16	40	1-over-3	9+1	Manual	Hybrid
Klaipeda Container Terminal	Lithuania	1	16	40	1-over-6	6+1	Manual	Hybrid
Northport - Port Klang	Malaysia	11	8	40	1-over-6	23.5		E-RTG
Ensenada International Terminal	Mexico	2		40	24	23.47		
Contecon Manzanillo	Mexico	5		41	20.65	23.47		
SSA Mexico	Mexico	7	16	40	1-over-6	6+1	Manual	Diesel
SSA Mexico	Mexico	4	16	40	1-over-6	6+1	Manual	Diesel
Somaport Terminal, Casablanca	Morocco	5	16	41	1 over 6	7+1		Hybrid
APM Salalah	Oman	20		40	21.2	23.7		
Colon Container Terminal	Panama	12		41	19	23.47		
Cebu Port	Phillipines	2						Hybrid
PSA Sines	Portugal	6	16	40	1-over-5	6+1	Yes	E-RTG
Saudi Global Ports Company(SGP) PSA Damman	Saudi Arabia	3		41	21	23.7	Yes	
King Abulaziz Port, Dammam	Saudi Arabia	9	8	41	1-over-5	6+1		
King Abulaziz Port, Dammam	Saudi Arabia	6	8	41	1-over-5	6+1		Hybrid
PSA Corporation Ltd, Tuas	Singapore	8		41	18.1	23.7	Yes	

Table 2: Consolidated results of RTG deliveries 2023

Terminal	Country	Quantity	No of Wheels	Capacity	Lift height (boxes or m)	Span (rows or m)	Automation	Drive type
Transnet Port Terminals, Capetown	South Africa	11	16	41	1 over 5	6+1		Hybrid
CSP Bilbao	Spain	6	8	40	1-over-5	6+1	Manual	Hybrid
Sea Ports Corp	Sudan	8	8	41	1 over 5	23.45		
CMA Kaohsiung	Taiwan	2	16	40	1-over-5	5+1	Manual	Hybrid
AGL Lome	Togo	3	16	40	1-over-5	7+1	Manual	Diesel
PATT, Port of Spain	Trinidad & Tobago	2	16	41	1 over 4	5+1		Hybrid
Mardas	Turkey	4	16	41	1 over 6	10+1		E-RTG
PSA	Turkey	9	16	41	1 over 6	7+1		E-RTG
TCEEGE Konteyner Terminal, Izmir	Turkey	2		41	21	23.47		
CMA Khalifa	UAE	14	16	40	1-over-6	7+1	Manual	E-RTG
West Basin Container Terminal	USA	2		40T	18.1	23.47		
Holt	USA	4	16	50	1-over-5	7+1	Yes	E-RTG
PHA, Barbours Cut	USA	14	16	40	1-over-5	6+1	Manual	Hybrid
PHA, Bayport	USA	12	16	40	1-over-5	6+1	Manual	Hybrid
GCT	USA	10	16	40	1-over-5	7+1	Manual	Diesel
Husky, Tacoma	USA	8	16	40	1-over-6	6+1	Manual	Hybrid
PHA Barbours Cut Terminal	USA	5	16	40	1-over-5	6+1	Manual	Hybrid
SCPA Greer	USA	2	16	50	1-over-5	6+1	Manual	Hybrid
Undisclosed	USA	8	16	40	1-over-6	6+1	Manual	Hybrid
Ports America	USA	5	16	40	1-over-6	7+1	Yes	E-RTG
Norfolk Southern Buffalo	USA	2	8	40.6	1 over 1	12.90 m		Diesel Hybrid
Union Pacific LATC Intermodal Terminal	USA	1	8	40.6	1 over 1	13.00 m		Diesel Hybrid
WBCT	USA	6	8	40	1-over-5	23.47		NZE
Chu Lai Port	Vietnam	3	8	40	1-over-5	6+1		ERTG
L&D Auto, Da Nang	Vietnam	4	8	40	1-over-5	23.47		E-RTG
Phuoc An Port	Vietnam	9	8	40.6	1-over-5	23.47		E-RTG
Nam Dinh Vu Port - Hai Phong	Vietnam	9	8	40	1 over 5	23.47		E-RTG
Total		**540**						

Table 2a: Consolidated results of RMG deliveries 2024

Terminal	Country	Quantity	RMG/ASC	Lift Capacity (t)	Lift Height (boxes or m)	Span (m)
Qube	Australia	4	ASC	41	12.4	36
Güterterminal Werndorf	Austria	2	RMG	45	1-over-5	39.2
DP World - Antwerp Gateway NV	Belgium	1	RMG	41	15.2	29
Antwerpen Zomerweg Terminal BV	Belgium	1	S-ARMG	41	1-over-4	42.35
TGN Puerto Angamos	Chile	3	RMG	33	1-over-6	47
Zhoushan Yongzhou, Ningbo	China	12	RMG	41	18.25	34
Shanghai Zhenhua Port Machinery , Yangshan	China	6	ASC	41	20.75	31
CCCC Electrical and Mechanical, Huanghua	China	9	ASC	41	18.1	8 rows + 430mm
Guangzhou Nansha United CT	China	1	ASC	41	18.1	31
Guangzhou Nansha United CT	China	1	ASC	41	18.1	31
Beibu Gulf Port	China	2	ASC	41	1 over 5	16
APM Rijeka	Croatia	2	RMG	41	9.5	19.5
Rijeka Gateway Terminal, Rijeka	Croatia	1	S-ARMG	50	9.5	19.5
METRANS, Pilsen.	Czech Republic	1	S-ARMG	37	1-over-3	35.8
BTM Valenton	France	2	S-ARMG	40	1-over-3	31
Intramar SA, Marseille	France	1	RMG	41	1-over-3	30.15
Contargo, Höchst	Germany	1	RMG	41	1-over-5	37.33
EUROGATE Bremerhaven	Germany	4	S-ARMG	41	1-over-3	35.3
Eurogate Wilhelmshaven GmbH	Germany	1	RMG	41	1-over-3	33.2
Duisburg Gateway Terminal	Germany	2	RMG	43	1-over-3	57
Duisburg Gateway Terminal	Germany	1	RMG	43	1-over-3	57.35
Interporto Padova	Italy	1	S-ARMG	45	1-over-4	37.1
PSA Voltri	Italy	1	S-ARMG	41	1-over-2	27
PSA Genoa	Italy	2	S-ARMG	45	8.5	29.7
APM Terminals MedPort II	Morocco	14	ASC	41	1-over-5	33.7
COSCO SHIPPING Ports Chancay PERU	Peru	15	ASC	41	18.5	31
PSA TUAS	Singapore	30	ASC	40	21.8	34.89
Port of Valencia	Spain	1	S-ARMG	40	11.4	29.3

Table 2a: Consolidated results of RMG deliveries 2024

Terminal	Country	Quantity	RMG/ASC	Lift Capacity (t)	Lift Height (boxes or m)	Span (m)
Colombo West	Sri Lanka	18	ASC	41	21	36.54
East Containter terminal	Sri Lanka	40	ASC	40	18	31.7
Evergreen Kaohsiung Terminal	Taiwan	18	ASC	40.7	21	40.8
Evergreen Kaohsiung Terminal	Taiwan	12	ASC	40.6	21.148	40.8
Evergreen Kaohsiung Terminal	Taiwan	4	ASC	40.6	21.148	35
DPW London Gateway	U.K.	2	RMG	41	16	32.71
DPW London Gateway	United Kingdom	18	ASC	40	1-over-5	31.1
Norfolk International Terminals (NIT)	USA	3	RMG	40.6	1-over-3	23.5
Vostochny Burevestnik	Russia	4	RMG	50T	21.3	32
Vostochny Burevestnik	Russia	2	RMG	50T	12	16.4
Chernyakhovsk	Russia	1	RMG	45	12.5	32
PSA Singapore	Singapore	22	ASC	40T	21.8	34.89
Long Beach Container Terminal,S.A	USA	1	ASC	65T	12	50.9
Total		**237**				

Notes:

1. ASC = Automated stacking crane
   RMG = rail mounted gantry crane
   RTG = rubber tyred gantry crane
   E-RTG = electrified rubber tyred gantry crane
2. Some manufacturers express crane height and span in terms of number of containers rather than as an absolute measurement.

There may be a variance between suppliers, but the following conversion may be useful.

Lift height (m)	Equivalent in one over x containers
12.3	1 over 3 (3+1)
15.3	1 over 4 (4+1)
18.1	1 over 5 (5+1)
21.0	1 over 6 (6+1)
Gantry span (m)	Equivalent in rows + truck lane
20.8 5+1	5+1
23.6 6+1	6+1
26.5 7+1	7+1

3. Global Delivery Trends 2024

Table 3.2: Global yard crane delivery trend by region 2005-2024

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Quantity	711	1039	794	877	856	529	455	690	728	790	678	704	630	636	670	830	774	586	759	777

Table 3.2: Global yard crane delivery trend by region 2005-2024

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Africa	12	19	27	66	77	91	22	32	67	52	25	74	21	38	104	67	84	44	53	120
Australasia	0	6	3	0	0	1	4	0	12	20	10	22	4	4	3	4	4	9	17	4
China	270	347	275	257	215	87	82	135	68	89	142	170	117	150	111	205	296	192	242	55
Europe	64	174	130	189	135	140	62	85	186	179	145	126	72	91	95	88	52	50	106	90
Middle East	67	76	53	68	91	49	44	51	53	42	73	34	72	45	63	97	71	35	29	42
North America	91	96	93	38	16	43	7	35	68	44	48	67	36	75	108	130	75	83	91	118
Other Asia	184	227	124	194	274	71	153	212	158	263	197	149	253	214	165	217	177	154	183	293
South America	23	94	89	65	48	47	81	140	116	101	38	62	55	19	21	22	15	19	38	55
Total	**711**	**1039**	**794**	**877**	**856**	**529**	**455**	**690**	**728**	**790**	**678**	**704**	**630**	**636**	**670**	**830**	**774**	**586**	**759**	**777**

Figure 3.1: Global yard crane delivery trend 2005-2024

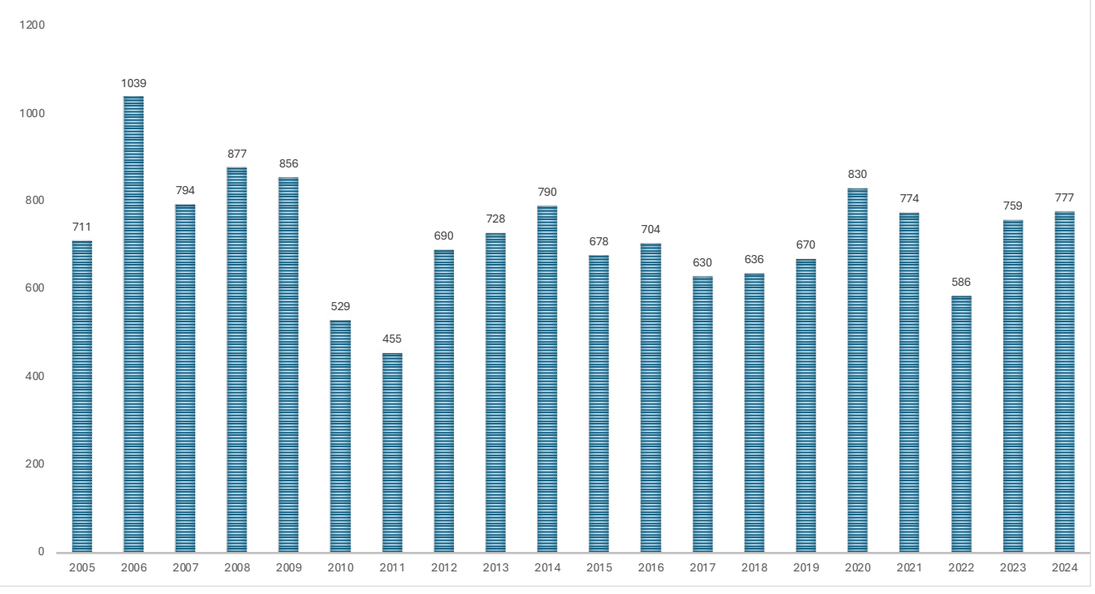
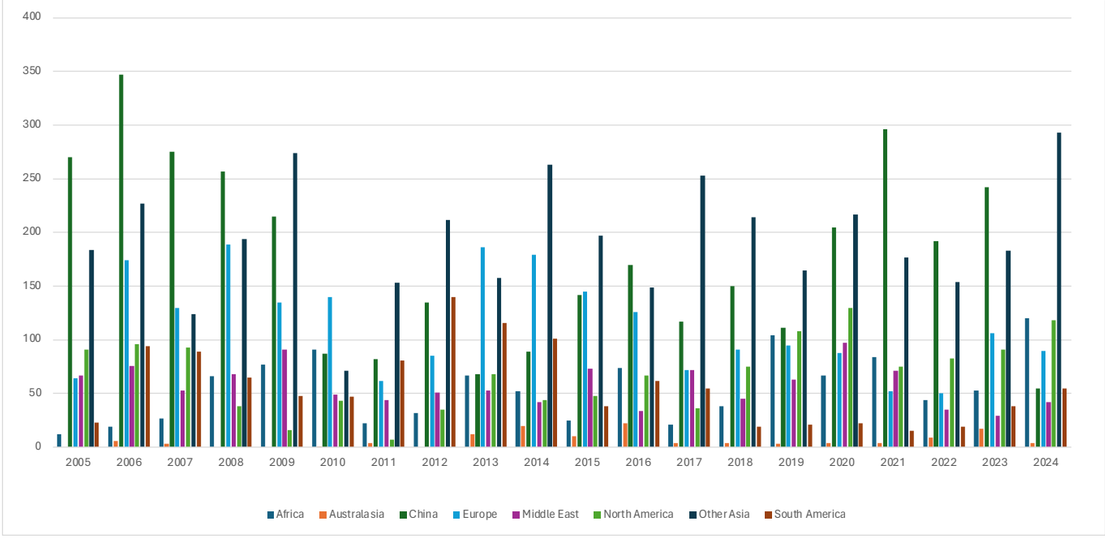


Figure 3.2: Global yard crane delivery trend 2005-2024 by region



3. Global Delivery Trends 2024

Table 3.3: Global RTG delivery trend 2007-2024																		
Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Quantity	670	714	671	422	337	610	530	507	490	503	416	393	526	517	448	384	468	540

Table 3.4: Global RTG delivery trend 2007-2024 by region																		
Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Africa	27	66	75	91	22	28	63	50	25	70	21	31	74	67	84	44	39	106
Australasia	3	0	0	1	4	0	0	0	10	0	4	4	3	0	0	5	7	0
China	242	225	151	59	65	126	65	71	133	111	55	108	83	52	103	111	84	24
Europe	89	128	104	82	35	37	75	80	94	67	48	57	72	68	21	32	68	45
Middle East	35	48	71	37	12	48	38	32	40	9	37	13	31	46	38	35	29	42
North America	63	30	11	38	7	28	20	10	23	48	26	26	82	71	65	74	90	115
Other Asia	122	152	211	67	111	203	153	173	127	146	174	135	160	191	122	64	116	171
South America	89	65	48	47	81	140	116	91	38	52	51	19	21	22	15	19	35	37
Total	**670**	**714**	**671**	**422**	**337**	**610**	**530**	**507**	**490**	**503**	**416**	**393**	**526**	**517**	**448**	**384**	**468**	**540**

Figure 3.3: Global RTG delivery trend 2007-2024

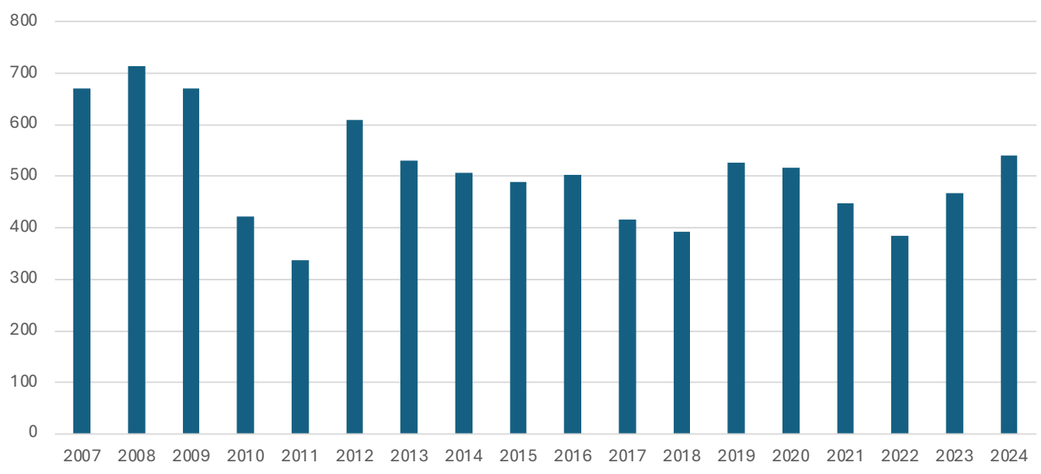
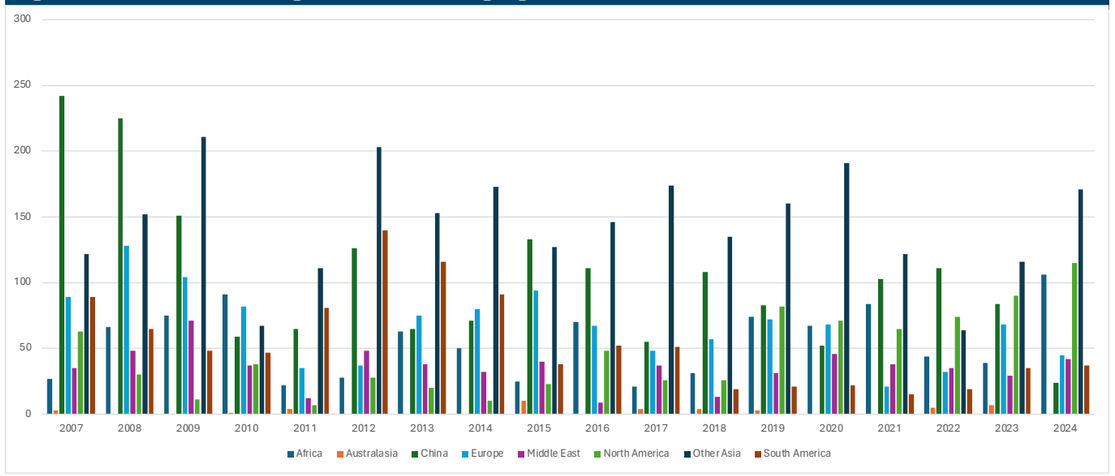


Figure 3.4: Global RTG delivery trend 2007-2024 by region



3. Global Delivery Trends 2024

Table 3.5: Global RMG delivery trend 2007-2024

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Quantity	124	163	185	107	118	80	198	283	188	201	214	243	144	313	326	202	291	237

Table 3.6: Global RMG delivery trend 2007-2024 by region

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Africa	0	0	2	0	0	4	4	2	0	4	0	7	30	0	0	0	14	14
Australasia	0	0	0	0	0	0	12	20	0	22	0	0	0	4	4	4	10	4
China	33	32	64	28	17	9	3	18	9	59	62	42	28	153	193	81	158	31
Europe	41	61	31	58	27	48	111	99	51	59	24	34	23	20	31	18	38	45
Middle East	18	20	20	12	32	3	15	10	33	25	35	32	32	51	33	0	0	0
North America	30	8	5	5	0	7	48	34	25	19	10	49	26	59	10	9	1	3
Other Asia	2	42	63	4	42	9	5	90	70	3	79	79	5	26	55	90	67	122
South America	0	0	0	0	0	0	0	10	0	10	4	0	0	0	0	0	3	18
Total	**124**	**163**	**185**	**107**	**118**	**80**	**198**	**283**	**188**	**201**	**214**	**243**	**144**	**313**	**326**	**202**	**291**	**237**

Figure 3.5: Global RMG delivery trend 2007-2024

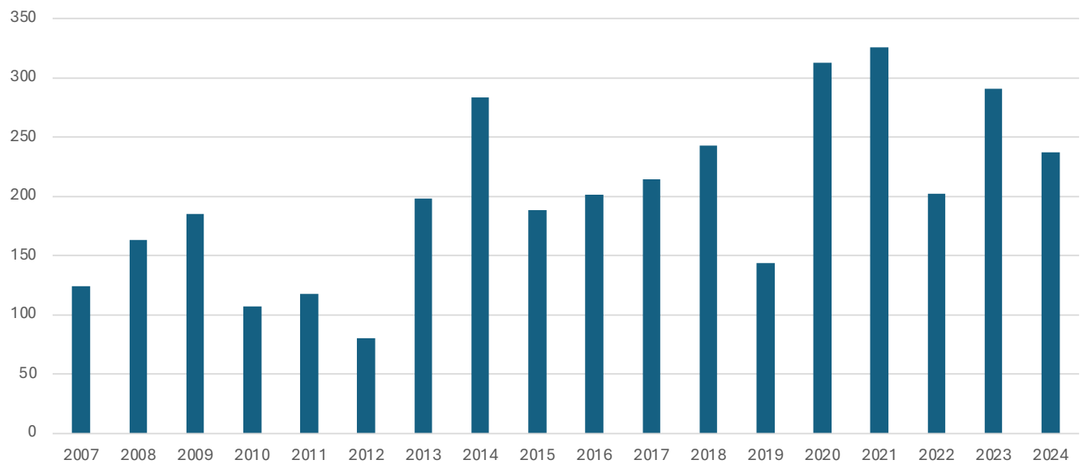
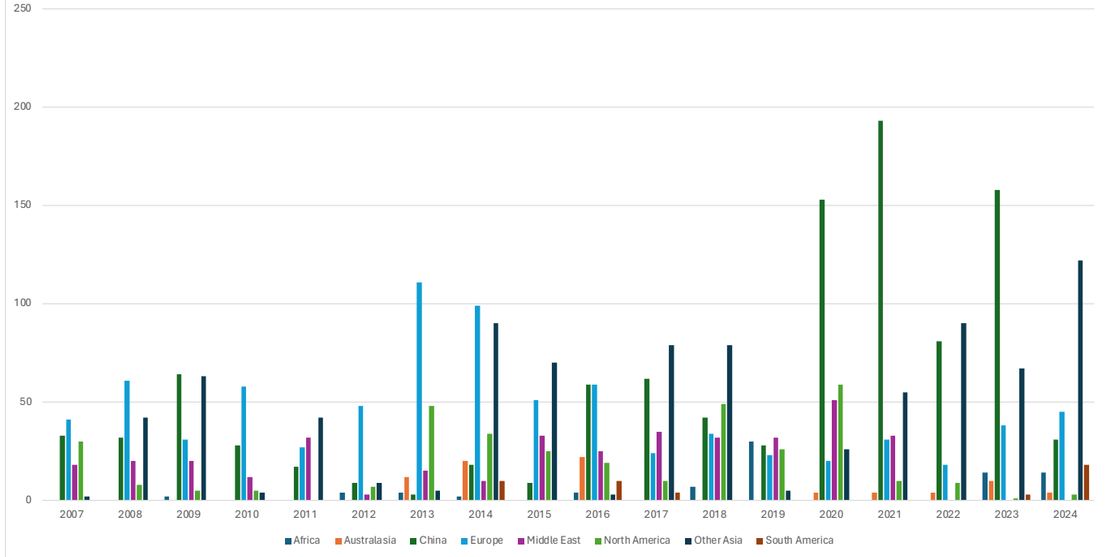


Figure 3.6: Global RMG delivery trend 2007-2024 by region



4. Technology Trends in RTGs and RMGs

This chapter presents data on the number of electrically powered RTGs (E-RTGs), hybrid RTGs, and RTGs with automation functionality. It should be noted that, at this stage, there is no standard definition of an "ARTG" and the level of automation functionality is not consistent across all cranes.

RMG automation, data is presented on the growing number of ASCs, with a further breakdown showing RMG cranes that manufacturers describe as "remote controlled" or having semi-automation functionality. These are listed as "S-ARMGs".

Table 4.1 Global E-RTG deliveries 2012-2024 by geographic region

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Africa	0	0	0	4	10	0	0	5	12		17	3	20
Australasia	0	0	0	0	0	0	0	0			0		
China	41	10	2	8	4	4	6	0			0	8	15
Europe									45	3	29	39	34
Middle East	2	0	4	1	0	0	2	1	16	8	10	4	14
North America	0	0	0	12	14	0	3	16	12	4	6	27	17
Other Asia	18	22	34	48	42	34	22	12	30	29	12	36	43
South America	30	0	24	9	30	6	2	0	2	11			10
Total	**91**	**32**	**64**	**82**	**100**	**44**	**35**	**34**	**117**	**55**	**74**	**117**	**153**
Total RTG Deliveries	610	530	507	490	503	416	393	526	517	448	384	468	540
% E-RTG	15%	6%	13%	17%	20%	11%	9%	6%	23%	12%	19%	25%	28%

Table 4.2: Global hybrid RTG deliveries 2020-2024 by region

	2020	2021	2022	2023	2024
Africa				4	16
Australasia				2	
China					
Europe			1	18	8
Middle East	12	14			6
North America	19	14	28	21	49
Other Asia	103	18	4	13	13
South America					2
Total Hybrids	**134**	**46**	**33**	**58**	**94**
Total RTG Deliveries	517	448	384	468	540
% Hybrids	26%	10%	9%	12%	17%

Table 4.3: Global RTGs 2020-2024 with automation functionality by region

	2020	%	2021	%	2022	%	2023	%	2024	%
Africa									5	5%
Australasia										
China	12	23%	16	16%	42	38%	4	5%		
Europe	18	26%			24	75%	4	6%	6	13%
Middle East							2	7%	1	2%
North America					15	20%	1	1%	13	11%
Other Asia					8	13%	8	7%	5	3%
South America									2	5%
Global	**40**	**8%**	**16**	**4%**	**89**	**23%**	**19**	**4%**	**32**	**6%**

Table 4.4: Global ASC production 2013-2024

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Africa							24				14	14
Australasia	12	20	6	22			0	4	4	4	10	4
China					28	30	0	147	156	71	146	19
Europe	84	63	30	30	15	14	6	6	18	6	20	18
Middle East	12	8	0	10	35	24	16	51	33		0	0
North America	10	30	17	2	2	38	22	56	8	5	1	0
Other Asia			10		72	18	0	19	55	88	59	122
South America												15
ASC Total	**118**	**121**	**63**	**64**	**152**	**124**	**68**	**283**	**274**	**174**	**250**	**192**
RMG total	198	283	188	201	214	243	144	313	326	202	291	237
% with automation	60%	43%	34%	32%	71%	51%	47%	90%	84%	86%	86%	81%

4. Technology Trends in RTGs and RMGs

Table 4.5: Breakdown of RMG automation

	2020		2021		2022	
	ASC	**S-ARMG**	**ASC**	**S-ARMG**	**ASC**	**S-ARMG**
Africa						
Australasia	4		4		4	
China	147		154	2	67	4
Europe	6		14	4	1	5
Middle East	51		33		5	
North America	56			8	88	
Other Asia	19		55			
South America						
Totals	**283**		**260**	**14**	**165**	**9**

Table 4.5: Breakdown of RMG automation

	2023		2024	
	ASC	**S-ARMG**	**ASC**	**S-ARMG**
Africa	14		14	
Australasia	10		4	
China	146		19	
Europe	18	2	18	14
Middle East	0		0	
North America	1		0	
Other Asia	59		122	
South America			15	
Totals	**248**	**2**	**192**	**14**

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