

# A Survey of Container Terminal Characteristics and Equipment Types

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## 1. Introduction

In last decades the container traffic increases continuously. All over the world container terminals of different sizes and with different equipment types exist. For a list of the top 20 container terminals of the world see [174]. Most container terminals have different characteristics. Those characteristics are e.g. the dimensions and shape of the terminal area, the equipment types used and the organization of the container yard. In this paper we present a survey of container terminal characteristics for different terminals all over the world. Specifically, we focus on the used equipments for the stacking operations in the yard. The presented survey should answer the following questions:

- Which is the most popular equipment type for stacking operations? Which region uses a equipment type most?
- Which block orientation is used in the layout for which equipment type?
- Which is the container turnover per ha terminal area and turnover per meter quay wall?

Therefore, mainly the information available at internet sites of the operators of container terminals are used. The aim is to give an overview of different terminal characteristics. A complete list of all existing terminals worldwide is not given. The data available on the internet is limited and therefore, some data is missing. Some data is unverified due to inconsistent information on different internet sites about an identical terminal. In such cases we use the more consistent data available. The rest of the paper is structured as follows: The next section describes the data which had been collected for the survey. Section 3 answers the above described questions using the collected data. In section 4 a short summary is given.

## 2. Summary of Collected Data

All data with regard to the number of containers is measured in TEU (twenty foot equivalent unit). Equipment types that are used for stacking actually are Rubber Tired Gantries (RTG), Rail Mounted Gantries (RMG), Automated Rail Mounted Gantries (ARMG), Overhead Bridge Cranes (OHBC), Straddle Carriers (SC), Automated Lifting Vehicles (ALV),

Attribute	Description
Region	Region of the terminal location.
Q-L	The length of the quay wall in meter.
QC	The number of quay cranes used at the terminal.
St-TEU	The storage capacity of the terminal container yard in TEU.
GS-TEU	The number of ground slots of the terminal container yard in TEU.
ha-t	The total area of terminal in ha.
ha-y	The area of the container yard in ha.
Reefer	The number of reefer plugs available in the terminal container yard.
Main Eq. type	The main equipment type used for stacking containers. The following equipments are listed: RTG, SC, ARMG, Reach Stackers, Wheeled, ALV, RMG, OHBC. In case that two equipment types are mainly used for stacking both are mentioned.
TEUs/y	The container turnover per year of terminal in 1000 TEUs. Either achieved container turnover for the last publish year (if available) or maximal designed capacity (marked with *)
Layout	Layout of the storage blocks. Either parallel (par.) or perpendicular (per.) to the quay wall.
Note	Information on the construction state of the terminal. The following states are noted: planned, currently constructing or expansion.

Table 1: Data attributes collected and their abbreviations

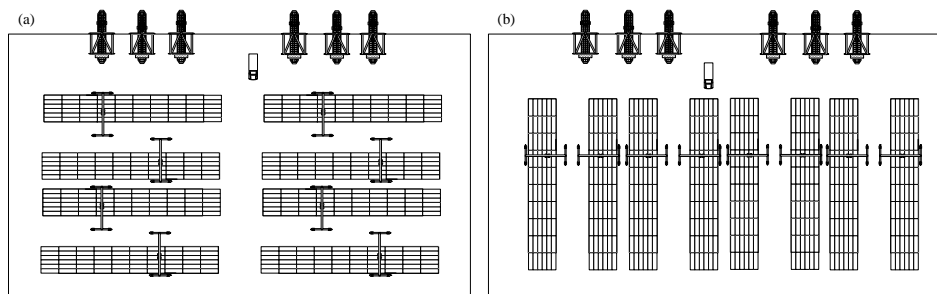


Figure 1: Schematic (a) parallel and (b) perpendicular layout

Reach Stackers and an one tier storage of containers on wheeled chassis (Wheeled). Information about those different equipment types can be found in [171] and [172]. The different attributes collected as well as their abbreviations are defined in table 1.

When a terminal is planned, just constructed or currently expanded as well as an expansion is planned we list this in the note column. Additionally, if the information is available, the planned completion date is noted. The orientation of the the storage blocks in the layout of the container terminal with respect to the quay wall is listed in the column layout. Figure 1 illustrates both types of orientations for the storage blocks. The values for length of the quay wall (Q-L), the number of the quay cranes (QC), the storage capacities (St-TEU, GS-TEU), the area sizes (ha-t, ha-y) as well as the container turnover per year (TEU/y) represent the sum of the values for all terminals subordinated to the given terminal name.

The whole data collected is depicted in table 7 in appendix A. In total the data of 133 container terminals are listed. The data in table 7 is sorted by region first and secondly by the length of the quay wall. The longest sum of quay walls has the Pasir Panjang Terminal (Singapore) with 7900 m. The largest terminal area has the Garden City Terminal, Savannah

with 485.6 ha, where 195.5 ha are used for the container yard. In total 29 container terminals are currently expanded, planned or currently constructed. That is a ratio of 21.8%. The region of container terminal locations are Asia with 53 terminals (40%), Europe with 32 terminals (24%), America with 32 terminals (24%), Middle East with 9 terminals (7%), Australia/Pacific with 5 terminals (4%) and Africa with 2 terminals (2%).

### 3. Analysis of Container Terminal Data

In the following section the questions described in section 1 are answered. Therefore, the information about the used equipments in table 7 are aggregated and analyzed. Moreover, turnover ratios are calculated for different terminals.

#### 3.1. Equipment Type Analysis

Table 2 shows the frequency an equipment is used as main stacking equipment. Moreover, the region where the equipment occurs most frequently is depicted in column main region. From the originally 133 terminals the equipment information is available for 114 terminals.

Yard Equipment	Freq.	in %	Main region	Freq. in region
RTG	72	63.2%	Asia	40
SC	23	20.2%	Europe	15
ARMG	7	6.1%	Europe	6
Wheeled	2	1.8%	America	2
RTG / SC	2	1.8%	Asia	2
Reach Stackers	2	1.8%	Europe	1
RTG / RMG	2	1.8%	Europe	1
ALV	1	0.9%	Australia Pacific	1
RMG	1	0.9%	Asia	1
RTG / ARMG	1	0.9%	Asia	1
OHBC	1	0.9%	Asia	1
$\Sigma$	114			

Table 2: Frequency of used stacking equipment

The RTG equipment is the most popular equipment type used at 63.2% of the terminals. It is followed by the SC equipment which is used at 20.2% of the terminals. Automated equipment is mainly used at terminals in Europe. From 7 ARMG installations 6 are installed in Europe. The Automated Lifting Vehicles (ALV) as well as Overhead Bridge Cranes (OHBC) are just installed once. The Patrick Fisherman Islands terminal in Brisbane uses ALV and the Pasir Panjang terminal in Singapore uses OHBC.

Figure 2 shows for the equipment types RTG, SC and ARMG the ratio of the equipment type occurrence in a region to the total occurrence of the equipment type. Following figure 2, 56% of the terminals that use RTG are located in Asia. Straddle Carriers are mainly used

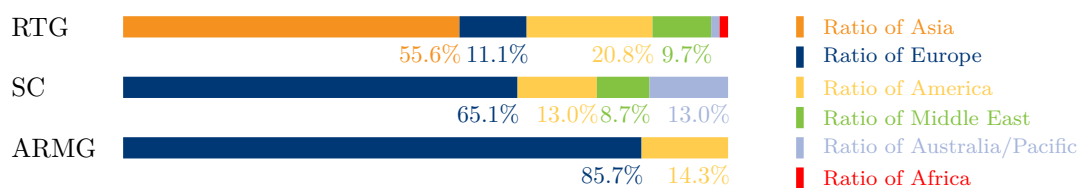


Figure 2: Share of regions at the total occurrence of an equipment type

	Asia	Europe	America	Middle East	Australia/Pacific	Africa	$\Sigma$
RTG	40	8	15	7	1	1	72
SC	0	15	3	2	3	0	23
ARMG	0	6	1	0	0	0	7
Wheeled	0	0	2	0	0	0	2
RTG / SC	2	0	0	0	0	0	2
Reach Stackers	0	1	0	0	0	1	2
RTG / RMG	1	1	0	0	0	0	2
ALV	0	0	0	0	1	0	1
RMG	1	0	0	0	0	0	1
RTG / ARMG	1	0	0	0	0	0	1
OHBC	1	0	0	0	0	0	1
N/A	7	1	11	0	0	0	19
$\Sigma$	53	32	32	9	5	2	133

Table 3: Stacking equipment by regions

	RTG	ARMG
parallel	49 (90.7%)	1 (14.3%)
perpendicular	2 (3.7%)	6 (85.7%)
both	3 (5.6%)	0 (0.0%)
	54	7

Table 4: Orientation of storage blocks by equipment type

in Europe as well as the above mentioned ARMG. Table 3 shows the absolute frequencies of stacking equipment by regions. From 53 terminals in Asia 40 use RTG for stacking of containers, which is a ratio of 75.5%.

Table 4 shows the occurrences of block orientations (parallel, perpendicular to the quay wall) for RTG or ARMG equipment. For other equipment type no data or just one occurrence exists. For RTG equipment the parallel layout is with 90.7% the most frequent one. Just 2 terminals out of 53 terminals have a perpendicular orientation of their storage blocks.

### 3.2. Turnover Ratios

In some cases the container turnover details are available only for a whole port or a combination of container terminals and not for the terminals listed in table 7. Therefore, we analyze ratios for the port of Singapore and the port of Hong Kong using information that cannot be listed in table 7. The turnover data in Mio TEU per year is only available for a combination of terminals in Singapore and Hong Kong: Following [174] Singapore port leads the list of the top 20 container ports of the world. The four terminals of Singapore listed in table 7 have a total turnover of about 27.1 Mio TEU in 2007 ([1]). The Hong Kong port is ranked on third place of the top 20 container ports. In total the five terminals have a turnover of 17.32 Mio TEU ([2]). Singapore terminals in table 7 have a total quay length of 16000 m using 190 quay cranes and a total terminal area of 600 ha. The five Hong Kong terminals listed in table 7 have a total quay length of 8552 m using 93 quay cranes and a total terminal area of 252.1 ha. Comparing the turnover per meter quay wall Hong Kong achieves 2025.26 TEU/m and Singapore 1693.75 TEU/m. Moreover, the container turnover per ha terminal area is 68702.90 TEU/ha for Hong Kong and 45166.67 TEU/ha for Singapore. As [173] states Hong Kong has a high intensity in their container traffic.

In table 5 the values of container turnover per meter quay wall as well as the container

Terminal Name	Q-L	ha-t	TEU/y	TEU/m	TEU/ha
Hong Kong Terminals	8552	252.1	17320	2025.3	68702.9
HHLA - Container Terminal Altenwerder CTA	1400	80	2400	1714.3	30000.0
Singapore Terminals	16000	600	27100	1693.8	45166.7
Yantian International Container Terminals Limited (YICT)	6092	407.2	10016	1644.1	24597.2
Pusan East Container Terminal (PECT)	1500	101.2	2450	1633.3	24209.5
Westports Malaysia (KMT)	3200	113.3	4966	1551.9	43830.5
ECT Delta Terminal	3600	256	5000	1388.9	19531.3
Eurogate Container Terminal Hamburg CTH	2050	140	2700	1317.1	19285.7
Port of Felixstowe (PFL)	2908	152.2	3500	1203.6	22996.1
Container Terminal Bremerhaven	4720	290	5500	1165.3	18965.5
Dalian Container Terminal	1856	74	2100	1131.5	28378.4
Gioia Tauro - Medcenter Container Terminal	3395	160	3468	1021.5	21675.0
HHLA - Container Terminal Burchardkai CTB	2850	160	2800	982.5	17500.0
Dongbu Pusan Container Terminal	826.5	30.8	800	967.9	25974.0
Manzanillo International Terminal	1640	52	1580	963.4	30384.6
HHLA - Container Terminal Tollerort CTT	995	40	950	954.8	23750.0
Port of Balboa Container Terminal	1196		1000	836.1	
Jakarta International Container Terminal (JICT)	2150	100	1700	790.7	17000.0
ECT City Terminal	1400	59.3	1100	785.7	18549.7
La Spezia Container Terminal	1402	32.5	1052	750.4	32369.2
Suez Canal Container Terminal	1200	60	700	583.3	11666.7
Cagliari Container Terminal	1520	40	256	168.4	6400.0

Table 5: Ratio achieved container throughput to meter quay length

turnover per ha terminal area are calculated for each individual terminal listed in table 7 for which the information are available. The data is sorted by TEU/m and by TEU/ha. The highest ratio of TEU to meter quay length has the Hong Kong terminals with the above stated 2025.26 TEU/m. The automated container terminal HHLA - Container Terminal Altenwerder (CTA) achieves the second best ratio with 1714.3 TEU/m. Nevertheless, the Singapore Terminals have a higher ratio of TEU/ha with 45166.7 TEU/ha compared to 30000.0 TEU/ha of the CTA.

Table 6 shows similar data, using the designed container capacity per year values listed in table 7. In this list the highest ration of designed container capacity to meter quay wall is achieved by the Port of Tanjung Pelepas with 2083.3 TEU/m.

Terminal Name	Q-L	ha-t	TEU/y	TEU/m	TEU/ha
Port of Tanjung Pelepas	2880	120	6000	2083.3	50000.0
Deurganck Terminal	2750		5700	2072.7	
PSA Hazira International Terminal	650	33.2	1230	1892.3	37048.2
PSA ABG Kandla Container Terminal	545	40	1000	1834.9	25000.0
SP-PSA International Port (SP-PSA)	1200	54	2200	1833.3	40740.7
Gateway Terminals India	712	50	1300	1825.8	26000.0
Chennai International Terminals	832	35	1500	1802.9	42857.1
Noordzee terminal	1125	79	2000	1777.8	25316.5
Eastern Sea Laem Chabang Terminal	1250	45.5	2220	1776.0	48791.2
Tianjin Port Pacific International Container Terminal	2300	218	4000	1739.1	18348.6
APM Terminals Virginia	1220	118	2100	1721.3	17796.6
Pusan Newport North Container Terminal	3200	116	5500	1718.8	47413.8
Guangzhou Container Terminal (GCT). Xinsha	640	39	1100	1718.8	28205.1
APM Terminals Rotterdam	1600	100	2700	1687.5	27000.0
Tianjin Port Alliance International Container Terminal	1100	63	1850	1681.8	29365.1
Incheon Container Terminal	900	40	1500	1666.7	37500.0
Mersin International Port	1500	110	2500	1666.7	22727.3
APM Terminals Tangier	800	40	1300	1625.0	32500.0
ECT Euromax Terminal	1500	84	2300	1533.3	27381.0
Sines Container Terminal	940	36.4	1400	1489.4	38461.5
Freeport Container Port	1036		1500	1447.9	
Europa terminal	1180	72	1700	1440.7	23611.1
Dalian Port Container Terminal	2097	125	3000	1430.6	24000.0
MSC Home Terminal	2900		4100	1413.8	
Voltri Terminal Europa (VTE)	1420	116	2000	1408.5	17241.4
Antwerp Gateway	2500	125	3500	1400.0	28000.0
East Swanson Dock (Melbourne)	885	40	1200	1355.9	30000.0
Constanta South Container Terminal (CSCT) SRL	1045	31	1300	1244.0	41935.5
Port Botany (Sydney)	1050	44.2	1300	1238.1	29411.8
Guangzhou Container Terminal (GCT). Xingang	810	37	1000	1234.6	27027.0
Fuzhou International Container Terminal (FICT)	1650	168	2000	1212.1	11904.8
Hibiki Container Terminal	1225	43	1100	898.0	25581.4
Axis Fergusson. Port of Auckland	580	34.5	500	862.1	14492.8
Patrick Fisherman Islands Brisbane	930	40	800	860.2	20000.0
Albert II terminal Zeebrugge	1300	50	1100	846.2	22000.0
Container handling zeebrugge	1000	37	825	825.0	22297.3
Terminal Catalunya (TERCAT)	1080	40	850	787.0	21250.0
Churchill terminal	2260	80	800	354.0	10000.0

Table 6: Ratio designed container capacity to meter quay length

#### 4. Summary

In this paper a survey on characteristics of 133 terminals is described. The focus of the survey lies on the used equipment for the stacking of containers in the container yard. For 114 terminals the data of the equipment types is available and the study shows that for 63.2% of the terminals RTG are used for stacking. The second most common equipment is the SC system with 20.2%. 55.6% of the terminals using RTG are located in Asia. Modern automated RMG equipment is mostly used in Europe (85.7%). Moreover, the survey shows that the Hong Kong Container Terminals processed 2025.26 TEU per meter quay wall in 2007.

#### A. Appendix

Terminal Name	Region	Sources	Q-L	QC	St-TEU	GS-TEU	ha-t	ha-y	Reefer	Main eq. type	TEUs/y	Layout	Note
Apapa Container Terminal	Africa	[3]	1005	5	19540	4885	40.0	55.0		Reach Stackers	*1300	both	cur. constr.
APM Terminals Tangier	Africa	[4];[5]	800	8			485.6		852	RTG		par.	
Garden City Terminal, Savannah	America	[6]	2955	25			196.0		2000	RTG		par.	
APM Terminals Pier 400 Los Angeles	America	[8];[9]	2192	14			99.6		800	RTG		par.	
International Transportation Service	America	[10];[11]	1830	10			101.0		342	RTG		par.	
Barbours Cut Container Terminal, Houston	America	[12]	1829	11	45000		141.6		686	RTG			
Port Elizabeth	America	[13];[14]	1799	15			103.6		500	RTG			
Pacific Container Terminal, Long Beach	America	[15];[16];[153]	1640	16	37000		52.0		1000	RTG	1580	par.	
Manzanillo International Terminal	America	[17]	1637	11	34219		29.0		538	SC			
Norfolk International Terminals (NIT)	America	[18]	1525	12			155.8		1850				
APM Terminals Miami	America	[19]	1524	14			63.9		858	Wheeled			
TTI / Hanjin Shipping Co. Long Beach, Pier T	America	[20];[21]	1357.3	11			63.0		1227				constr.
APM Terminals Oakland Berth20-24	America	[22]	1353	10			118.0				*2100	per.	cur. constr.
Terminales Internacionales de Ecuador (TIDE)	America	[23]	1250	10	154000	10188	91.0		776	ARMG			
APM Terminals Virginia	America	[24];[25]	1220	13			64.0	16.0		RTG	1000	per.	expansion
Kingston Container Terminals	America	[26]	1209	13			98.0		438	RTG			
Port of Balboa Container Terminal	America	[27];[154]	1196	14	20892		68.8		629	RTG			
APM Terminals Charleston	America	[28]	1160	10			59.4		1000	RTG			
Wando Welch Terminal (WWT), Charleston	America	[30];[31]	1098	12	25000		26.0			RTG			expansion
Terminal A Long Beach	America	[32];[33]	1097.3	6			23.5		310	SC			
Oakland International Container Terminal	America	[34];[10]	1036	10			58.0		500	RTG		par.	
SSA Mexico - Manzanillo, Colima	America	[35]	931	4			25.0		500	RTG		par.	
Freeport Container Port	America	[36]	918	9			74.0		600	Wheeled			
Ben E. Nutter Marine Container Terminal, Oakland	America	[37]	885	4			41.3		374				
New York Container Terminal	America	[38]	884	6			32.1		240				
Buenos Aires Container Terminal	America	[40];[41]	838	7	29500		65.0		600	RTG		per.	
Buenos Aires Container Terminal (BACTSSA)	America	[42]	836	4			31.0		336	RTG		par.	
Port of Seattle Terminal 5	America	[43]	836	4			335.0		360	RTG		par.	
Long Beach Container Terminal, Pier F	America	[44]	622	5			407.2		5976	OHBC	10016	par.	expansion(2010)
APL Terminal, Oakland	America	[45];[46]	619	6	14200		178.0		1398	RTG		both	
Deltaport, Port of Vancouver	America	[47]	7900	87			92.0			RTG			
DP World Caucedo	Asia	[48];[49]	6092	74	211950	53640	116.0	49.0		RMG	*5500	par.	cur. constr.(2009)
Vaantem, Port of Vancouver	Asia	[50];[51]	3400	37			100.0			RTG		par.	
Pasir panjang terminal (Singapore)	Asia	[52];[53];[54];[2]	3292	37	132522		113.3		1236	RTG	4966	both	expansion
Qingdao Qianwan Container	Asia	[1];[47]	3200	26			65.0		408	RTG	*6000	par.	expansion
Hongkong Terminals CT 4.6 & 7	Asia	[57];[58];[155]	3200	42			80.0		2100	RTG		par.	
Pusan Newport North Container Terminal	Asia	[59];[60]	3000	27			82.6		3480	RTG	*4000	par.	expansion
Keppel terminal (Singapore)	Asia	[61];[62]	2880	32			218.0			RTG		par.	
Westports Malaysia (KMT)	Asia	[2];[63]	2600	32			85.0			RTG		par.	
River Trade Terminal	Asia	[64]	2432	30			82.4			RTG		par.	
Brani Terminal (Singapore)	Asia	[65]	2300	23			125.0			RTG	*3000	par.	expansion
Port of Tanjung Pelepas	Asia	[66];[67]	2300	29	60000		84.7		1564	RTG		par.	
Hongkong Terminal CT 1, 2, 5 & 9 (South)	Asia	[68];[69];[70]	2281	20			74.0			RTG	2100	par.	planned(2011)
Tianjin Port Pacific International Container Terminal (TPPCT)	Asia	[71];[72]	2281	18			76.5		1118	RTG		par.	expansion
Shanghai Container Terminals	Asia	[73];[74]	2281	18			168.0		744	RTG	*2000	par.	
Dalian Port Container Terminal	Asia	[157];[158]	2097	18			101.2		348	RTG / SC	2450	par.	planned(2011)
Hutchison Laemchabang Terminal (HLT) A2,A3,C1,C2	Asia	[75];[76]	1950	20	76000		74.0		1236	RTG		par.	
Dalian Container Terminal	Asia	[77]	1856	16	63800		74.0		990	RTG		par.	
Hutchison Laemchabang Terminal (HLT) D1-D3	Asia	[78];[79]	1700	14	40160		65.0			RTG		par.	
Yokohama, Honmoku PIBR (A5-A8;D4-D5) (YPPDC)	Asia		1650	15			24.4			RTG / ARMG		par.	
Fuzhou International Container Terminal (FICT)	Asia		1620	11			68.5			RTG		par.	
Yokohama, Honmoku PIBR (C5- D3)	Asia		1500	15			85.0			RTG		par.	
Pusan East Container Terminal (PECT)	Asia		1500	8						RTG		par.	
Korea International Terminals (KIT)	Asia		1500	8						RTG		par.	
Karachi New Port Container Terminals (KNP)	Asia		1447	14						RTG		par.	
Hutchison Busan Container Terminal (HBCT)	Asia		1447	14						RTG		par.	

Terminal Name	Region	Sources	Q-L	QC	St-TEU	GS-TEU	ha-t	ha-y	Reefer	Main eq. type	TEUs/y	Layout	Note
Shanghai East Container Terminal (SECT)	Asia	[80];[81]	1436	12			155.0		1566	RTG		par.	
Yokohama, Daikoku Pier (CL-C4)	Asia	[158];[159]	1300	9			163.0		1546	RTG		par.	
Shanghai Mingdong Container Terminals	Asia	[82]	1290	14			45.5			RTG	*2220	par.	expansion
Eastern Sea Laem Chabang Terminal	Asia	[84];[85]	1250	12			43.0			RTG	*1100	par.	cur. constr.(2009)
Hibiki Container Terminal	Asia	[86];[87]	1225	9			54.0		324	RTG	*1850	par.	
SP-PSA International Port (SP-PSA)	Asia	[64]	1200	11			63.0			RTG		par.	
Tianjin Port Alliance International Container Terminal (TACT)	Asia	[53];[54];[2]	1088	9			30.0		696	RTG		par.	
Hongkong Terminal CT 8 East	Asia	[160]	1083	10			87.3		690	RTG		par.	
Xiamen International Container Terminals (XICT)	Asia	[52];[53];[54];[2]	1000	9			19.0			RTG		par.	
Hongkong Terminals CT 9 (North)	Asia	[88]	1000	2			75.0			RTG / SC		par.	
Myanmar International Terminals Thilawa	Asia	[89]	995	9			33.0		896	RTG		par.	
APM Terminals Kaohsiung	Asia	[90]	963	7			26.0		212	RTG		par.	
Karachi International Container Terminal (KICT)	Asia	[91]	900	11			75.7		992	RTG		par.	
Ningbo Beilun International Container Terminals	Asia	[92];[93]	900	11	30000		50.0		720	RTG	*1500	par.	cur. constr.
Shanghai Pudong International Container Terminals	Asia	[94];[95]	900	9			40.0			RTG / RMG		par.	
Incheon Container Terminal	Asia	[96];[97]	900	9	20268				152	RTG		par.	
TaiChung Container Terminal	Asia	[98]	860	7			35.0			RTG		par.	
United Logistics International, Port of Keelung	Asia	[99]	832	10			30.8		566	RTG	*1500	par.	cur. constr.(2009)
Chennai International Terminals	Asia	[100]	826.5	7	20000		37.0			RTG	800	par.	
Dongbu Pusan Container Terminal	Asia	[101]	810	6			26.4		740	RTG	*1000	par.	
Guangzhou Container Terminal (GCT), Xingang	Asia	[102]	800	6		4826	28.5		750	RTG		par.	expansion
Kobe Terminal	Asia	[54];[2]	740	8	45000		50.0		504	RTG		par.	
Hongkong Terminal CT 8 West	Asia	[103];[161]	712	8					1164	RTG		par.	cur. constr.(2010)
Goaeway Terminals India	Asia	[104]	700	5			33.2			RTG	*1230	par.	
Yokohama, Minami Honmoku Pier	Asia	[105]	650	2			39.0			RTG	*1100	par.	
PSA HAZIRA INTERNATIONAL TERMINAL	Asia	[106]	640	6			40.0			RTG	*1000	par.	
Guangzhou Container Terminal (GCT), Ximsha	Asia	[107]	545	2			46.0			RTG		par.	
PSA ABC Kandla Container Terminal	Australia Pacific	[163]	2150	18	36193		5574		328	RTG		par.	
Jakarta International Container Terminal (JICT)	Australia Pacific	[164]	1050	7			5500		650	SC	*1300	par.	expansion
Port Botany (Sydney)	Australia Pacific	[165]	930	6			5766		1000	SC	*800	par.	expansion
Patrick Fisherman Islands Brisbane	Australia Pacific	[108]	885	5			40.0		839	SC	*1200	par.	expansion
East Swanson Dock (Melbourne)	Australia Pacific	[109];[110];[111];[112]	850	5			34.5		3854	SC	*500	par.	
Axis Ferguson Port of Auckland	Europe	[113]	4720	35			290.0		3250	ARMG	5000	per.	
Container Terminal Bremerhaven	Europe	[114];[166]	3600	36			256.0		2350	SC	3468	par.	
ECT Delta Terminal	Europe	[167];[115]	3395	22	67000		160.0		1505	RTG	3500	par.	
Giota Tauro - Medcenter Container Terminal	Europe	[116];[117]	2908	27	108000		152.2		1730	SC	*4100	par.	
Port of Felixstowe (PFL)	Europe	[118];[119];[120]	2900	23			160.0		1500	ARMG	2800	par.	expansion
MSC Home Terminal	Europe	[122]	2850	20			125.0		2130	SC	*5700	par.	expansion
HHLA - Container Terminal Burchardkai CTB	Europe	[123]	2750	24			80.0		150	SC	*3500	par.	expansion
Deurganck Terminal	Europe	[124]	2500	20					2898	RTG	*800	par.	
Antwerp Gateway	Europe	[125]	2260	5					664	SC	2700	par.	
churchill terminal	Europe	[126]	2062	18		12636	140.0		664	Reach Stackers		par.	
Algeciras Terminal	Europe	[127]	2050	18			49.0		804	RTG		par.	
Eurogate Container Terminal Hamburg CTH	Europe	[128];[168]	1880	6			113.0		2250	SC	*2700	par.	
Nord France Terminal International (NFTI)	Europe	[129]	1780	16			100.0		936	RTG	256	par.	
Maritima Valenciana, Marvalsa	Europe	[130];[131]	1600	11			40.0			ARMG	*2300	par.	
APM Terminals Rotterdam	Europe	[132]	1520	7	24000		84.0			RTG / RMG	*2000	par.	
Cagliari Container Terminal	Europe	[133]	1500	12			116.0		384	RTG	1052	par.	
ECT Euromax Terminal	Europe	[134];[136]	1420	10			32.5		2100	ARMG	2400	par.	
Voltri Terminal Europa (VTE)	Europe	[135];[136]	1402	9	24000		59.3		992	SC	1100	par.	
La Spezia Container Terminal	Europe	[137]	1400	15						SC		par.	
HHLA - Container Terminal Altenwerder CTA	Europe	[138]	1400	9			50.0			SC		par.	
ECT City Terminal	Europe	[139]	1350	10						SC		par.	
Southampton Container Terminals	Europe	[140]	1300	8						SC		par.	cur. constr.
Albert II terminal Zeebrugge	Europe	[141]	1185	8			72.0		790	SC	*1700	par.	
Tilbury Container Services (TCS)	Europe	[142]	1180	6			79.0		850	SC	*2000	par.	
europa terminal	Europe	[143]	1125	10			40.0		470	RTG	*850	par.	
noordzee terminal	Europe	[144]	1080	8						RTG		par.	
Terminal Catalunya (TERCAT)	Europe	[145]	1080	8						RTG		par.	



Terminal Name	Region	Sources	Q-L	QC	St-TEU	GS-TEU	ha-t	ha-y	Reefer	Main eq. type	TEUs/y	Layout	Note
Constanta South Container Terminal (CSCT) SRL	Europe	[137];[138]	1045	8			31.0		624	RTG	*1300	par.	
container handling zeebrugge	Europe	[132];[139]	1000	8			37.0			SC	*825		
HHLA - Container Terminal Tollerort CTT	Europe	[118];[120]	995	7			40.0		320	SC	950		expansion
Sines Container Terminal	Europe	[140]	940	10			36.4			RTG	*1400	par.	expansion
APM Terminals Zeebrugge	Europe	[141]	900	7			48.0		784	SC			
London Thamesport	Europe	[142];[143]	655	7			85.0		300	ARMG		par.	
Mersin International Port	Middle East	[144]	1500	7			110.0			RTG	*2500	par.	
Saudi Arabia - Jeddah	Middle East	[145]	1500	19	200000			141.0	554	RTG			
International Ports Services, Dammam, Saudi Arabia (IPS)	Middle East	[146];[147]	1440	12				72.0	784	RTG			
Port of Salalah	Middle East	[148]	1236	11	46500		55.0		987	RTG		par.	expansion
Suez Canal Container Terminal	Middle East	[149];[170]	1200	12	47240		60.0		976	RTG	700	par.	
Fujairah Port	Middle East	[150]	1200	4		4100		14.3	150	SC			
APM TERMINALS BAHRAIN	Middle East	[151]	1055	6			20.0			RTG			
JEBEL ALI TERMINALS, Dubai	Middle East	[152]		56				100.6	4928	RTG		par.	
Port Rashid, Dubai	Middle East	[152]		6			61.5		148	SC			

Table 7: Information about container terminals sorted by region and quay length

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