

# Assessing the port equipment market\*

A recently published market report on container handling equipment (CHE) is optimistic on the topic of future industry growth. The general market driver for CHE is container throughput, which is projected to increase by an average annual growth rate of 6.1% until 2020, resulting in the equipment market increasing from US\$5.7B in 2013 to US\$7.8B in 2020. Nonetheless, the market has its own dynamics and major manufacturers have prepared for changes in the industry.

The key lesson learned from the 2008 financial crisis is that container terminal operators will promptly and drastically reduce investment in equipment, if needed. Container throughput

\*This article was written by Daniel Schaefer who is a market analyst, recently publishing a market report on future container throughput, upcoming terminal projects and the equipment market. For further information, please refer to [www.ctf2020.info](http://www.ctf2020.info)

declined by 8% from 2008 to 2009, resulting in the overall equipment market decreasing by 25% the same year and not starting to recover until 2011.

The mayor threat for equipment manufacturers is, therefore, decreasing container throughput, which will affect investment spending of container terminal operators for the same year and result in cautious investment behaviour for the next 1-2 years. As

a result of terminal operators' investment behaviour, the market for container terminal equipment has ranged between US\$4.7B and US\$6.8B per year between 2005 and 2013 (Fig. 1). The overall market growth for equipment in that period was 5.0% per year in terms of US\$, compared to 6.9% average annual growth for container throughput in terms of TEU.

## Chinese factor

Another lesson learned from the past is that the overall market for equipment will only grow significantly if demand from China returns to its previous high levels. For example, STS crane sales to China decreased from nearly 100 units annually pre-crisis (2005-08) to 33 units per year since then. Chinese ports simply stopped ordering in 2009, as if acting collaboratively. Although increasing demand from Chinese ports will have a positive effect on the general market development, non-domestic manufacturers will most probably not profit from this. China is a captive market. For

pricing and/or other reasons the share of non-domestic manufacturers has been close to zero for STS cranes and has been only 16% for RTGs since 2005.

Container throughput growth did not meet expectations in 2012 and 2013, as it increased by only 3-4% each year, resulting in relatively low capacity utilisation for container terminals. It was perhaps the availability of cheap money - ie low interest rates - that stimulated major terminal operators to maintain capital expenditure at a decent level. Capex for both years accounted for 21% of revenues, which is only slightly below the average figure since 2005 (revenue weighted average for APMT, PSA, DP World, Cosco Pacific, HHLA and Eurokai).

Therefore, the year 2013 can be regarded as a typical year concerning equipment sales. In fact, the overall market size of US\$5.7B matches nicely with the average annual revenue achieved since 2005 (Fig. 2). It is only by chance that for some types of equipment past and current revenues are

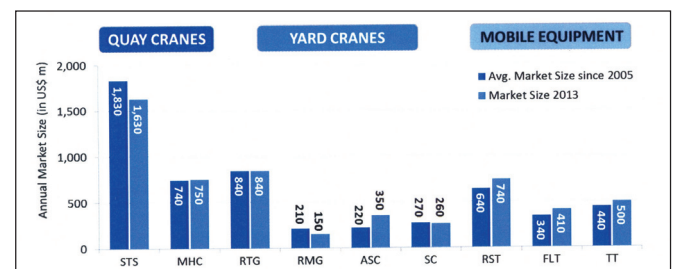


Fig 2: Market size, based on 2005-2015 unit sales, inc. revenues for original equipment, exc. revenues on service, spare parts, refurbishment, etc. (ibid)

nearly equal. Sales for quay and yard equipment vary strongly on an annual basis, because the business is project-based, determined by new container terminals being commissioned in a specific year.

## Different drivers

The nature of business for mobile equipment is different, if not the opposite. Most units sold replace the same type of equipment at the end of operational or depreciable life time. Therefore, unit sales usually increase continually on a year-to-year basis, due to a growing fleet of operational units.

Increasing container throughput is the precondition for a healthy equipment market and is the main market driver. As for now, the equipment market forecast is based on 6.1% annual throughput growth until 2020, resulting in global container throughput at ports increasing from 650M TEU in 2013 to 985M TEU in 2020.

## Triple-E effects

The market volume for STS cranes is expected to follow the general throughput development, with the result that more than 2000 units should be delivered between 2014 and 2020. The most interesting fact is that STS crane stock - delivered and on order as of the July 2013 *WorldCargo News* survey - up to the end of 2014 accounts for only 300 units able to serve the Triple-E type vessels, supposing that 68m outreach is the minimum required to serve these vessels (23-wide deck stow).

300 units accounts for only 5% of the operating STS fleet. On the other hand, Triple E-Type vessels will consist of 11% of the FCC fleet order book by year end 2015 (in terms of slot capacity (Source: *Alphaliner, April 2014*). Obviously, we will see orders for STS cranes of 68m outreach dominating the order book in the next few years; likely consisting of 40-50% of the total unit deliveries up to 2020.

## Shifting sands

While STS cranes are practically irreplaceable for conventional container terminals, RTGs are not. A shift in the type of yard equipment employed is under way, driven by the trend towards terminal automation. Apparently, the automated stacking crane (ASC) is the basic unit for terminal automation and the order situation has already turned in its favour.

By year end 2013 around 850 ASCs were in operation and a minimum of 360 ASCs are planned for new container terminals scheduled for completion before the end of 2015.

Supposing the automated type of yard equipment will continue to be absorbed by the industry with the same pace as in the past, 1500 ASCs will be delivered between 2014 and 2020. The

number equates to nearly 25% of all yard cranes expected to be delivered in that period.

The penetration of ASCs also has a considerable impact on the type of horizontal equipment employed. Based on the current order book three equipollent [of equal significance] yard systems will likely emerge: whereas for low income countries, the ASC/terminal tractor system is preferred, terminals located in high and medium income countries turn towards an ASC/AGV system or to an ASC/manual shuttle carrier system (Fig. 3).

This has brought some movement to the otherwise stagnant market segment of straddle carriers (incl. shuttle carriers). Since 2009 average annual sales consisted of about 160 replacement units plus 65 units for terminal expansions. On top of that, about 50 shuttle carriers were sold in 2012 and again in 2013, increasing from about 10 units in 2005.

Because shuttle carriers combine quite well with ASCs, annual sales of 100 units are plausible for the years to come. Straddle carriers have lately been ordered from regions where the machine has rarely been seen before.

Because of this and the emerging shuttle carrier segment, the combined unit sales are expected to comprise about 360 average annual unit sales until 2020. Nonetheless, the shuttle carrier/straddle carrier is not a fast-selling item and the precondition of increasing sales is active marketing from the manufacturers.

Of course, RTG cranes are today the predominant type of yard equipment, consisting of an operational fleet of nearly 10,000 units, and having achieved the highest growth rates of all types of equipment. But considering the trend towards terminal automation in the future, growth of the RTG fleet will be at stake in the medium term. RTG sales are expected to account for over 3500 units for the next seven years, which is relative low compared to 3800 units sales achieved for the past seven years.

## RTG automation

However, the ASC resembles the RTG, as its sole purpose is the yard duty/container stacking and the design is mainly limited to standard sizes (1 over 5/6 high, 25-32m span). However the machine is labelled or under whichever kind of sales statistics it is consolidated, yard automation will unleash its full potential only if we see a fully automated RTG ready for use.

Major manufacturers have already introduced this kind of machine and it is expected that it will be preferred to the rail-mounted design for new terminals, and all the more concerning the refurbishment of existing RTG units. □

Fig 1: Market development, 2005-2013. (Source: Daniel Schaefer)

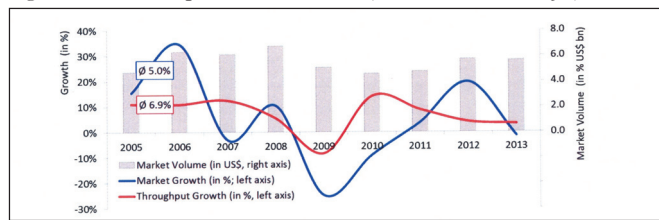


Fig 3: > 50 automated container terminals are operational or planned. (ibid)

