

Bromma Report

Winter 2012/2013



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Growing Grup TCB

All high-achieving organizations know that success must be earned. High achievement is not an accident. It takes several key ingredients: a sound strategic vision; excellence in products and/or services; and the ability to work effectively with others – customers and partners.

Ambition is one thing. Many organizations are ambitious. Real achievement requires more than ambition.

Grup TCB, in Barcelona, Spain, is one of the high achievers in container handling. Since the first vessel arrived at its first terminal in 1972, Grup TCB, the leading Spanish group engaged in the development of dedicated container terminals, has experienced rapid growth. From one small container termi-

nal, which handled just 5,100 TEUs in its first year of operations in 1972, Grup TCB has grown into a global organization, with a primary focus on southern Europe and Latin America, which today is also looking at other regions.

An Investment Model Based On Partnership

Grup TCB's business strategy begins with a simple idea: partnership. Partnership is an idea that is well-known in the area around where Grup TCB is headquartered, since one of the organizations well-known in the Catalan region of Spain is a group of "human tower builders" called the Castellers. The Castellers practice a special art. They stand on each other's shoulders, one upon another,



TCB Barcelona, which at 35 moves/hour has one of the highest rates of productivity in the Mediterranean region, is the original terminal in the TCB Grup.

higher and higher, reaching for the sky. If all the men in the human pyramid stand strong and stable, they succeed. If just one falters and falls, they all will fall.

The Castellars are a reminder of a simple truth, in tower-building as well as container handling. It is that teamwork and partnership are essential when it comes to achievement.

How does the ideal of partnership influence TCB? A common growth approach for Grup TCB has been to enter new markets through partnerships that include local equity partners.

"We look for local investors with whom we can develop long-term partnerships," notes Alejandro M. López, Commercial Manager, TCB Barcelona. These local equity partners provide capital and local knowledge, while Grup TCB brings operational expertise in terminal management, as well as capital, to ventures.

This business model has proven quite successful. Over the years Grup TCB has initiated and sustained successful long-term partnerships with many equity partners around the world. Today Grup TCB manages 11 container terminals in Spain (Barcelona, Valencia, Muelle Sur, and Gijon), Brasil, Cuba, Colombia, Mexico, Turkey, and the Canary Islands.

As the list indicates, Grup TCB has grown in part by focusing on emerging markets – markets that have enjoyed unusually high rates of growth in recent years.

A Higher Level of Internal Knowledge and Expertise

Grup TCB's demonstrated effectiveness in terminal management is itself a byproduct of some key strategic decisions over Grup TCB's lifetime, most importantly the 2000 merger between TCB and TMA Port and Engineering Consultancy, which produced the present day Grup TCB. The consultancy added core

strength to Grup TCB in the areas of engineering, management and operations consultancy. This emphasis on maintaining a high level of internal knowledge and expertise – rather than merely leaning on outside sources for expertise -- is what led Grup TCB, for example, to design their own Terminal Operating System, known as TOS, and to organize Grup TCB web services.

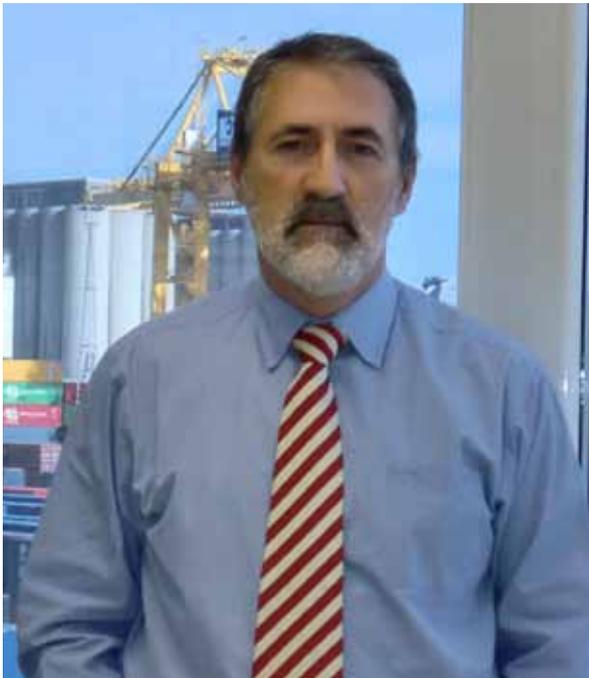
"The knowledge we have developed and maintained within our organization," says Alejandro M. López, Commercial Manager, TCB Barcelona, *"has been a big part of our success."* Building on its historic technical strength, Grup TCB has remained a knowledge leader over the years in areas such as terminal feasibility studies, project design, technical project management, traffic analysis, and simulation scenarios.

In addition, the Grup TCB team has built strong internal competencies in various areas of **maintenance best practices** – internal audits, equipment availability, saturation analysis, equipment maintenance, and contracting.



The castellars are the "human tower builders" of the Catalan region

All of these internal strengths are one reason why Grup TCB has the confidence to use as its “tagline” the phrase: **“TCB: Technology and Efficiency in Container Terminal Management.”**



Mr. Alejandro M. López, Commercial Manager, Grup TCB

Looking at Business From The Customer’s Point Of View

Partnership is not only a theme of TCB’s investment model, but also the key element in TCB’s customer relationship model. One can build a container terminal, and assemble a fleet of container handling equipment, but it takes satisfied customers to sustain a successful container terminal. TCB is focused on customer satisfaction, and this has led to strategic steps to optimise the customer’s container transport at effort.

Probably most important among them has been the significant investment that Grup TCB has made in recent years to develop better intermodal rail connections to support beneficial cargo owners and shipping lines. In 2006 Grup TCB formed TCB Railway and TCV Raiwal, the first rail operators of containerized traffic in Spain. Today Grup TCB operates a total of three railway terminals, and through TCB Railway the TCB termi-

nal has achieved the highest ratio of maritime container traffic by train in Spain and is working to optimise the logistics process of intermodal activity in Spain and southern Europe.

Services include, among others:

- National and intermodal transfers
- Receiving and delivery of full or empty containers
- Internal operations, including stacking, moving and storage of customer containers

Grup TCB is presently seeing a dramatic increase in rail traffic volumes, and as a result terminal train capacity is currently being expanded.

What Do Customers Want?

In addition to point-to-point inland container transport via expanded intermodal capabilities, what are customers looking for today from their container terminals? Certainly day-to-day reliability is at the top of list, which is also why Grup TCB has made efficiency in container operations a key strategic priority.



Mr. Gonzalo Serrano, Equipment Manager, Grup TCB

TCB Barcelona has among the highest productivity performance of any Mediterranean terminal – averaging up to **35 moves/hour** as it handles up to 2,600 gate moves a day.

A Preference For Long-Term Partnerships With Best-in-Class Suppliers

Grup TCB has also historically sought to invest in the most advanced and innovative container handling technology on the market today. As a general approach, **Grup TCB also prefers to standardize equipment purchasing on the top supplier in each equipment category.**

For example, **TCB today has more than 30 Bromma crane spreaders in service at their Barcelona terminal alone.**

Grup TCB also uses the same software at all of their terminals.

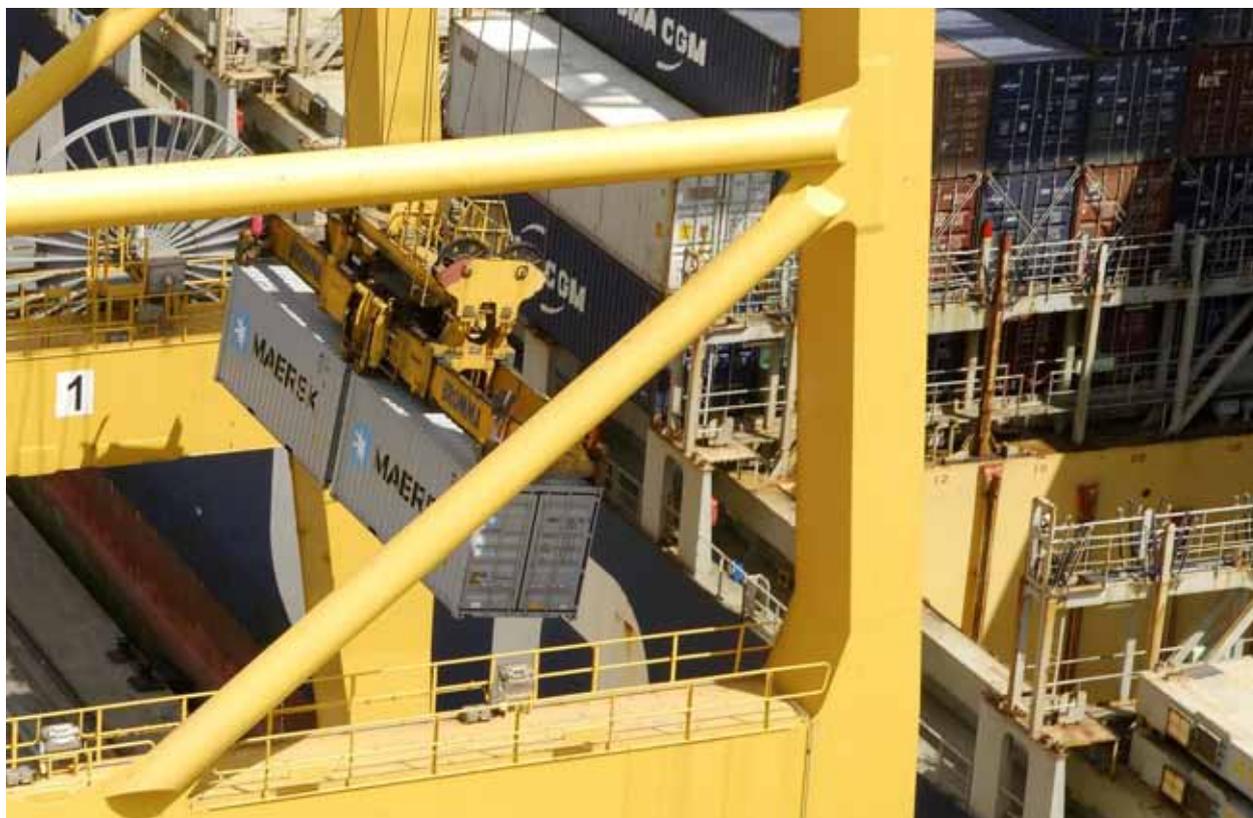
Just as Grup TCB has a growth model that is built around partnership, so Grup TCB seeks

equipment suppliers with whom it can develop sustained, reliable partnerships. For many years, Bromma has been one of those partners, in large part due to what Grup TCB has learned it can expect from Bromma. **Today Bromma has more than 60 crane spreaders in service or on order at Grup TCB container terminals around the world.**

“Bromma is a well-known brand within our terminals,” notes Mr. Gonzalo Serrano, Grup TCB Equipment Manager. “The spreader is the element within our operations that has the highest frequency of impacts and it is the hardiness and quality of Bromma spreaders that enables them to achieve the availability and reliability required by our clients.”

Such durability and quality is expected by Grup TCB, but strong day-to-day partnership is also expected, and in this regard Bromma also plays its proper role:

“Bromma has multiple solutions they can offer to fulfill our needs anywhere we are implementing new equipment,” says Mr. Serrano.



Grup TCB's Brasil operation is just one of a growing number of TCB terminals in Latin America.

"We also appreciate the commitment of Bromma team members to finding new solutions to our needs or ideas. With Bromma we have direct contact between our engineers and their engineers. This creates the communication necessary to meet our objectives."

Finally, Grup TCB understands that partnership after an order is placed is as important as partnership before the order is placed. As Mr. Serrano notes:

"With regards to support," says Mr. Serrano, "Grup TCB receives proper service from Bromma, with both technical support and spare parts response within a reasonable time. This is true both in our European terminals as well as in our Latin America ones, which is another reason why Grup TCB has recently acquired Bromma spreaders for our current cranes in TCB (Barcelona) as well as for new ship-to-shore cranes under construction for our European and Latin American terminals."

The Best Is Yet To Come

While the years since 1972 have been a time of dynamic achievement and growth for TCB Grup, the TCB leadership team believes the best is yet to come, and is continuing to invest to realize that hope. Grup TCB continues to explore potential terminal partnerships in other regions, and Grup TCB continues to invest for growth in its current terminals. In Barcelona, for example, TCB is currently undergoing a 40% increase in its yard surface,

an expansion that will enable TCB Barcelona to boost annual TEUs from 1.4 million to 2.4 million. "Our strong balance in export and import operations, and our diversity in goods," notes Alejandro M. López, "is supporting our strong growth in Barcelona. Alfalfa to the Persian Gulf, import/export of spare parts stock for the automotive industry, chemicals, frozen meat, electronic components, white goods – we have a good balance between import and export." In 2013 TCB Barcelona will expand its crane footprint to include to 4 super post-panamax cranes, 5 post-panamax cranes, and 4 panamax cranes.

Success is always enjoyable, and at Grup TCB that success has come from teamwork and partnership. In football, for which Barcelona is also known, in tower-building, and in container handling, every player matters and every player must be reliable and productive, if an organization is going to win.

Bromma is delighted to be a key supplier and a strong partner with TCB Grup - a terminal organization with a habit of winning, growing and partering for success

For more information on Bromma crane spreaders in southern Europe and the Mediterranean, please contact Mr Stellan Strömberg at stellan.stromberg@bromma.com

An Interview on the Future of Bromma Product Design with Michael Thysell



As Vice-President of Bromma's crane spreaders business line, Mr. Michael Thysell is responsible for the product scope and technical evolution of Bromma's ship-to-shore crane spreader, yard crane spreader, and mobile harbor crane spreader product families. Prior to joining Bromma Mr. Thysell was a product portfolio manager at Sandvik AB, a global leader in the machine tooling industry. A graduate of the Swedish Royal Institute of Technology (Master of Science in Materials Science), Mr. Thysell was interviewed at his office at Bromma headquarters in Stockholm.

BR: *Michael, what is your vision for Bromma product development moving forward?*

MT: Simplicity. Simplicity is the cornerstone. Our ambition is sophisticated spreaders that are simple and easy to use. On a practical level, it means finding ways to make spreaders easier to manufacture, easier to maintain, and easier to operate. It means, among other things, user interfaces that use pictures and symbols rather than text, and spreader designs with fewer unique components. On a conceptual level our ambition is to design spreaders that are sophisticated in their functional capabilities but simple in their operational architecture.

BR: *Are we looking at incremental changes, or big changes?*

MT: We will of course continue to make incremental steps. We will keep reducing weight, improving twistlocks, reducing energy consumption, and extending basic spread-

er functionality. But what I am most excited about today are the technology leaps we may be able to achieve. Bromma R&D resources are focused today on a few key strategic "buckets" -- quality, modularization and productivity. Each of these "buckets" in turn contains various initiatives, such as Green Zone™ fleet productivity software, green spreaders, multi-lift spreaders, or spreader optimization for automated terminals, for example.

BR: *What about this trend toward automation? What are some of the changes that this trend is bringing to the spreader?*

MT: Obviously an automated terminal is no place to experiment on a spreader. You have to have the highest level of reliability, and if you ever do have a problem, you need rapid trouble-shooting. This is one reason why we expect our Green Zone™ fleet optimisation software will be widely adopted in the high-performance terminals. What

we can do today on a spreader fleet is significantly greater today than what we have been able to do in the past. Green Zone™ technology is *prognostic*, not just *diagnostic* – it identifies *incremental decline in performance at the component and function level*. So you can really see problems before they arrive. You can stop problems-in-the-making. This is big for any terminal, but of course especially for automated terminals.

“Our ambition is sophisticated spreaders that work simply.”

BR: *Green Zone™ is focused on fleet up-time and maintenance, but what about the operational characteristics of spreaders? How will they be affected by the trend toward automation?*

MT: Automation increases the need for operation enhancement tools -- enhanced safety warning systems, guidance solutions, position indication systems, and surveillance. When you have the crane driver in the crane he can *sense* when the spreader or the crane is starting to underperform. He can *smell* it. When you don't have a crane driver on the crane, you have to rely on monitoring systems. So you are going to see greater utilization of guidance systems, and increased integration of spreader-based container identification and load sensing data with the port TOS technology.

BR: *Michael, you also mentioned the trend toward larger vessels. What adaptations will this development mean for spreader design?*

MT: Bigger vessels will likely be a catalyst for more widespread adoption of multi-lift spreader solutions. These new mega-vessels will be more point-to-point in their routing, with fewer ports of call, which will make it easier for terminal operators in cooperation with shipping lines to improve vessel loading. So it will be easier to use a Bromma

Tandem™ spreader with twin-40' and twin-45' capabilities on these mega-vessels, because you will have less container mix and greater concentration of container sizes in particular areas. Twin-lifting 40' and 45' containers will boost terminal loading and unloading productivity. We have had Bromma Tandem™ spreaders for several years, but sometimes it takes a commercial catalyst to produce widespread adoption.

BR: *Why are you enthusiastic about the Bromma multi-lift spreader solution in particular?*

MT: Bromma Tandem™ is simpler than competing solutions. We think this will mean greater reliability over its lifetime. We think the simplicity of Tandem™ in comparison to other multi-lift solutions is a key advantage. The auto-plug lets you transition very quickly from Tandem™ mode into a flexible STS45 configuration. But the Tandem™ advantage is also a matter of “addition by subtraction” because we suspect that some of the very complicated headblock solutions we see being offered to customers today will prove quite challenging to maintain. Our design will prevent those problems – *subtraction*. Bromma Tandem™ is also quite easy to operate and easy to keep operational over its lifetime, and this should result in a higher return on the customer's investment. This being said, so much of the eventual success of multi-lift spreader solutions as a whole will depend on port landside logistics. Much will also depend on efficient vessel loading schemes.

BR: *Over the past decade Bromma yard spreader sales have gone from 100% hydraulic to more than 80% all-electric. The movement to “greener” equipment remains strong. What will be the next step?*

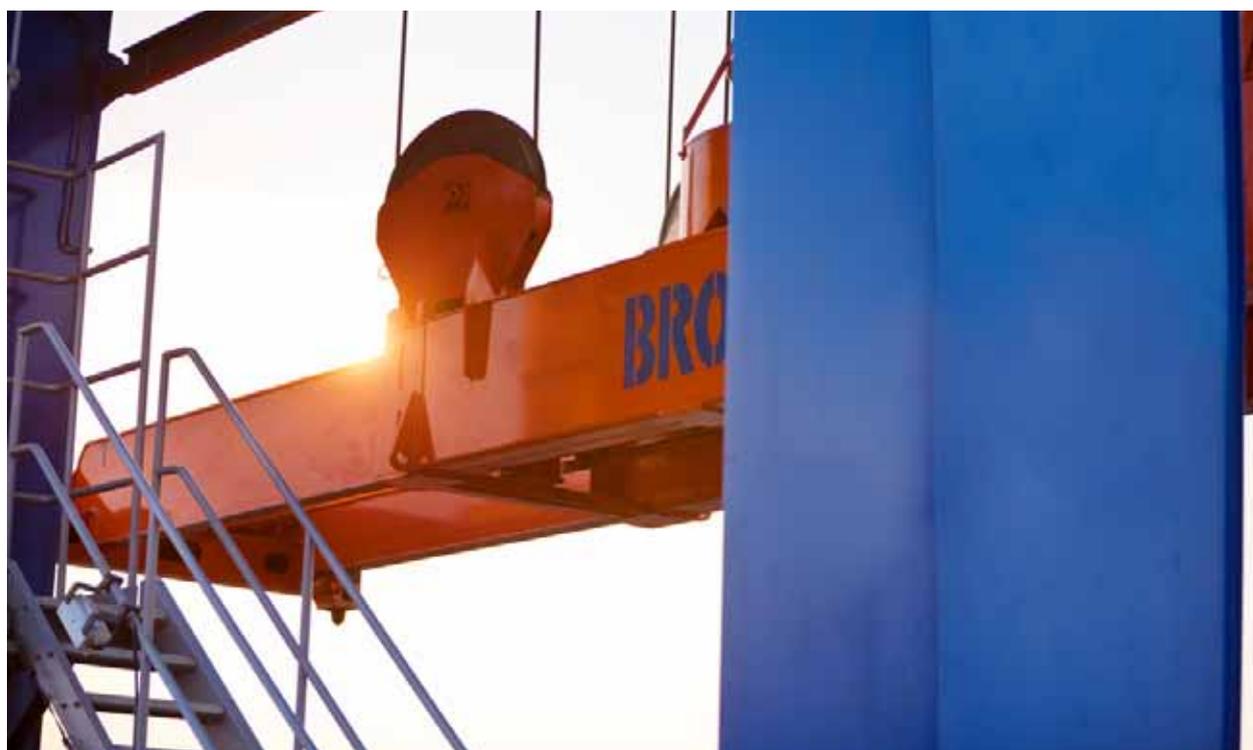
MT: We will see more all-electrics in the ship-to-shore spreader space. We were first to market with a ship-to-shore separating twin-lift all-electric and we are now prepa-

ring to introduce our 2nd generation STS45E. A green all-electric Bromma spreader has a smaller carbon footprint than what you have on a hydraulic spreader. You eliminate 150 litres of hydraulic fluids that will not leak and which you do not have to change. Yet the green commitment at Bromma goes way beyond green design. We aim to be green in production as well, which is one reason why we use European steel in our spreaders. We ship it all the way from Europe to Malaysia. The Chinese steel of our competitors produces roughly 7 times the greenhouse gases than our European steel – including the environmental impact associated with our shipping this steel to Asia. This is significantly related to our use of Scandinavian iron ore in our spreaders. We also use lead-free paint and are focused on increasing recycling – being “cradle to grave” in our thinking about production as well as our thinking about design. So all-electric spreaders are part of the Bromma green story, but they are not the whole story.

BR: *The “whole story” actually seems quite inter-related.*

MT: Yes, it is. The vision is to help our customers be more successful. That is *the red thread* – why we are focused on delivering sophisticated design with higher functionality and spreaders with fewer unique components that are simpler to maintain and easier to use and consistently green design and all the rest. The red thread is *simple, easy, optimized -- cradle-to-grave out-performance*. We have big plans for Bromma spreaders. We think we have already demonstrated that it is possible to have crane spreaders that are both environmentally friendly and that pay off for the customer in cost savings and reliability advances. Yet we think the best still lies ahead. The years to come will be most interesting.

BR: *Thank you, Michael.*



A Gallery Of Faces, A Gallery Of Stories

Bromma has always been committed to supporting terminals with the industry's finest technology. Yet at the same time, Bromma knows that business is -- and always will be -- about people. **People are the human part of container handling.** It is people who listen, people who keep promises and people who fix problems. Products come and products go, but business ... will always be about people.

For the past couple years Bromma has been recognizing the importance of people to our success through the FACES OF BROMMA advertising campaign. Bromma has just completed and is now releasing the 13th and final ad in this campaign (shown below). Over the past two years the FACES campaign has featured a gallery of faces. Bromma staff members based in Europe, Asia, Americas and Scandinavia have told their stories -- expressing "the Bromma way" of listening to customers, earning customer trust, solving problems, and advancing customer productivity. **Every face** in the FACES campaign -- young faces and old faces -- has a story to tell.

To view the entire FACES OF BROMMA campaign, you can visit the FACES OF BROMMA campaign gallery at www.bromma.com/media/campaigns

Bromma is made up of 530 faces working together to achieve one goal -- helping your organization succeed.



Green Zone™ Goes Live

Since the birth of container handling crane spreader fleet maintenance has centered on a simple idea: you read the maintenance manual and you do what it says.

The simple answer to the simple question --“*What is “good maintenance?”*” -- has been “*Follow the service intervals carefully.*”

Bromma, however, is in the process of redefining what “good maintenance” looks like. Bromma’s new effort to *optimise your spreader fleet’s performance* through a more intelligent approach to maintenance is called Bromma Green Zone.™

If the old maintenance paradigm was to *follow the manual*, the new maintenance paradigm in Bromma Green Zone™ is to *observe spreader functions and focus maintenance* on the *optimization* of spreader functions. The old way was to read and follow a static book. The new way is to observe, through Green Zone™, the operation all characteristics of the spreader, and to adjust your service plans accordingly.

If the old maintenance paradigm was to **focus on the service cycles of the equipment**, the new Green Zone™ maintenance paradigm is to focus on **the performance of equipment – how well its functions are performing.**

And increasingly, this big new idea -- the new maintenance paradigm -- is catching on at leading terminals around the world.

In recent months Bromma Green Zone™ technology has been **ordered for installation on 85+ new spreaders** headed to container terminals in Europe and the Americas, including:

- APM Terminals **Maasvlakte II in Rotterdam, Netherlands** – Green Zone™ specified on 31 new spreaders
- **Malta** -- Green Zone™ specified on 6 new spreaders
- **Long Beach Container Terminal** in Long Beach, California; USA -- Green Zone™ specified on 50 new spreaders.



KEEP YOUR TERMINAL IN THE GREEN ZONE™



GREEN ZONE
Stay up, stay productive



FLEET DOCTOR™



WORK ORDER™



ROADMAP™

In addition, Bromma Green Zone™ is now **in service** on spreaders at:

- Hutchison Port Holdings **Port of Felixstowe** in the United Kingdom
- APM Terminals **Suez Canal Container Terminal in Egypt,**
- the Dominican Republic

Work Order™ Is Going To Work

The most recent addition to the Bromma Green Zone™ product family is called Bromma Work Order™. Bromma Work Order™ creates living service plans that **adapt in real time** to specific changes in a spreader's operational characteristics. It delivers pre-warning alarms that tell terminal maintenance managers when it is time to replace certain components, and it creates maintenance reminders based on both spreader cycles and service events. Work Order™ **adapts to the unexpected and unplanned service warning** by altering daily action schedules to address unanticipated issues.

Bromma Work Order™ also provides terminal maintenance managers with maximum flexibility, as it is possible to **adjust Work Order™ maintenance triggers** based on personal running hour or cycle preferences. Managers can establish different service intervals, or different actions for each service interval.

Finally, Bromma Work Order™ is seamlessly integrated with the other current modules in the Green Zone™ product family – Bromma Roadmap™ and Fleet Doctor.™

For more information on how to optimise your spreader fleet's performance, visit the Green Zone™ portal at www.bromma.com.

The Question Is *How*, Not *If*

Since May 2011 the International Association of Ports and Harbours has helped the container handling industry to put focused attention on the issue of container weight verification. The IAPH and the International Shipping Organization have called for near 100% container weight verification as a standard industry "best practice." IAPH has recognized the value of container weight verification for both safety and operational reasons. Accurate container weights can help guide critical plans regarding stowage, and verifiable load data also serves to ensure worker safety. Lifting containers within an acceptable weight range also prevents accelerated stress on the spreader, thus extending equipment life.

The issue that organizations such as IAPH and the World Shipping Council have raised is not merely an academic one -- studies of container weight indicate that there is often significant variation between listed container weight and actual container weight. The problem is a familiar one: not everyone tells the truth about their weight, as the conse-

quences of inaccurate weight can include equipment damage in ports, injury to workers and collapsed container stacks, among others.

The Question Is "How," Not "If"

As a general consensus has grown that universal container weight verification is a worthy standard, the key question has quickly begun to shift from "*Should we have a universal requirement?*" to "*How does our terminal best implement such a commitment?*"

Along these lines three general approaches might be possible.

The Container Crane Option

The first is to utilize container cranes to meet the weighing requirement. The advantage of weight verification by cranes is that weighing occurs during the normal course of handling operations. The disadvantage





of a crane-based approach is that weighing accuracy is only approximately 90-95%, and cranes cannot distinguish between the weights of two containers when lifting in twin-mode. Since many terminals load and unload container ships using twin-lift (twin-20') spreaders, the actual weight of each of these individual containers will remain in doubt if there is a reliance on container cranes to yield this data. Also, with the emergence of the mega-ship era, more and more terminals will be looking for productivity solutions that enable more containers to be handled in each lift cycle, and so twin-handling of 40's as well as 20's is likely to expand in the future, thus adding to the number of containers with an uncertain weight.

The Weighbridge Option

A second option for terminals would be to meet the container weight requirement through the use of weigh bridges. Unfortunately, there are multiple weaknesses in this approach. Containers can be weighed from the weigh bridge, but driving every container onto a weigh bridge will obviously add another operational step, and slow producti-

ty. It also requires, especially at larger and busier transshipment terminals, that considerable land and transit lanes be set aside for weighing activities.

In addition, there are two weight variables on the weigh bridge – the variable weight of up to 300 litres of truck fuel and the weight of the driver. Further, as with a container crane, a weigh bridge cannot distinguish between the weights of two containers, and so the weight of each individual container will always be inexact. The only way to gain a precise weight is to weigh one container at a time, and to adjust for fuel weight and driver weight variables.

The Spreader Twistlock Option

The third option is to ascertain container weight from the spreader twistlocks. For container terminals, a spreader-based weighing approach has several key advantages.

First, weighing from the spreader twistlocks yields much more accurate information, as container weight precision is greater than 99%.

Second, unlike weigh bridges or crane-based container weighing, spreaders weigh each container separately when operating in twin-lift mode. When a Bromma spreader lifts two 20' containers or two 40' containers at a time, the spreader can provide highly accurate data on the weight of **each separate container**, and without any of the variables (fuel, driver) associated with the weigh bridge approach.

In addition, with a spreader-based approach you weigh containers from the spreader twistlocks without adding any extra operational steps or requiring any extra space or transit lanes. Terminals simply log container weights in the normal course of lifting operations – with a warning system alerting the terminal to overloaded and eccentric containers. Container weight verification during the normal course of terminal operations is a way to accomplish the weighing mission without impairing terminal productivity, and especially at busy transshipment terminals.

Bromma technology also offers a special technical advantage in its mounting of spreader-based container weight verification technology. On some spreaders, such as those supplied by Bromma, the load cell is mounted **externally**, locked with easy access to the spreader twistlocks. This means **load sensors may be exchanged independently of the twistlocks**.

The result of this design advantage is that **new load sensors are not needed when twistlocks are periodically replaced**.

Early Adopters of Container Weight Verification from the Spreader Twistlocks

Data is important, but collecting weight data as part of the regular lifting cycle, with no disruption to terminal work flow, will enable ports to stow containers appropriately, prevent worker injuries, and extend

equipment lifecycles. This is why container weight verification from the spreader twistlocks is on the rise, and why more than 55 Bromma crane spreaders have already been ordered with container weight verification technology in the spreader twistlocks, including more recently at:

- The new automated terminal at the London Gateway (U.K.)
- The new automated terminal at Trapac in Los Angeles, California (USA.)

For more information on container weight verification from the spreader twistlocks, contact your local Bromma representative.

Major Contracts From Leading Terminals Worldwide

While the global business economy has slowed in recent months, the Bromma order book is continuing to be very strong as container terminals invest to expand growing operations, or upgrade current spreader fleets. In June 2012 Bromma had its 2nd best month in Bromma's entire history with 150+ crane spreaders ordered during those 4 summer weeks. This high level of commercial activity has subsequently continued, with many record orders, among them:

- Bromma's **largest single order for ship-to-shore all-electric spreaders**, an order for 18 STS45E all-electric spreaders to **Long Beach Container Terminal**, part of a larger order from Long Beach Container Terminal for a total of **50** all-electric spreaders. Bromma already has well over 2,000 all-electric spreaders in service at container terminals around the world.
- **Bromma's largest single order for multi-lift Tandem™ spreaders**, an order for 9 Tandem™ units to the new APM Terminals facility at **Maasvlakte II in Rotterdam**, Netherlands, part of a larger order for 31 high-capacity Bromma STS ship-to-shore spreaders to Maasvlakte II.
- Bromma's new automated terminal order for 22 Greenline™ yard spreaders from **Global Terminals in New York, New York is part of a record 400 crane spreaders recently ordered from Bromma by automated terminals**. Other major automated terminal orders recently won by Bromma include:

34 YSX45E all-electric spreaders for **Khalifa, Abu Dhabi**

40 YSX45E all-electric spreaders for **Barcelona, Spain**

10 YSX45E all-electric spreaders for **TraPac in Los Angeles**

20 YSX45E all-electric spreaders for the **London Gateway** in the United Kingdom

- A record order of **56 crane spreaders to Colombo International Container in Sri Lanka**, including 44 all-electric spreaders, plus 12 STS45 ship-to-shore spreaders
- Finally, Bromma's recent win of 15 STS45 ship-to-shore crane spreaders for HHLA in Hamburg, Germany is part of Bromma's **record number of 170 crane spreaders** already in service at HHLA

Bromma's record run of recent commercial orders – for **automated terminals, all-electric spreaders, multi-lift spreaders**, and for **greenfield and terminal expansion projects** in Europe, Asia, and the Americas – continues to demonstrate Bromma's strong commercial position as the first name in spreaders.

To learn more about Bromma spreaders for automated terminals, visit www.bromma.com to see the Bromma FIRST IN AUTOMATION video.