

An aerial photograph of a ship's deck. Several yellow BROMMA spreaders are visible, moving large shipping containers. One spreader is currently lifting a blue container. In the foreground, there are stacks of containers: a white one, a red one with 'HAMBURG' written on it, and a blue one. The ship's hull is blue with white lettering, including 'FEDERATION'.

SHIP-TO-SHORE SPREADERS

BROMMA

A Tradition of Innovation

THE MOST RELIABLE SPREADER PARTNER

Bromma spreaders are designed to thrive in challenging conditions, consistently delivering unwavering productivity, reliability, and durability of your terminal operations.

Lifting The Efficiency Of Terminal Operations

In the realm of terminal operations, the ship-to-shore spreader may seem like a small piece of the puzzle, accounting for just over 2% of a container crane's cost. However, its performance is paramount in the economic success of container handling. Terminals that optimize ship turnaround times gain a competitive edge, leading to increased market share, improved berth utilization, and enhanced pricing control. Spreaders that fail to meet expectations result in terminal costs, including repairs, downtime expenses, and additional capital investment for spare parts. But the most significant cost of underperformance is the strain it puts on a terminal's relationships with customers and its growth prospects.

For over 50 years Bromma has delivered spreaders to more than 500 terminals in over 90 countries at 6 continents. All in all, more than 20,000 crane spreaders and rotators have been put into service. In addition to that, more than 10,000 of these are still in operation today. With a portfolio encompassing spreaders for FLTs, Reach Stackers, and Straddle Carriers, Bromma markets more than 2,000 spreaders each year. Bromma dominates every segment of the crane spreader market, including ship-to-shore, mobile harbor, and yard solutions. When you choose Bromma as your partner, you're aligning with the most experienced and reliable spreader company in the industry.

The New Frontier

Innovation is a Scandinavian tradition, and is embedded in everything Bromma does. Bromma has made a habit of finding the new frontier – with the first telescopic spreader, first twin-lift spreader, first all-electric crane spreader, first true lightweight spreader, first advanced spreader communications and control system, first advanced safety technology, such as Twin-Twenty Detection System (TTDS), and the first twin-40 and twin-45 spreader, called Bromma Tandem™. On the frontier where the future is created, Bromma R&D has made a habit of giving terminals the tools needed to take performance to a higher level.

Value-Driven Product Development

Bromma is well-acquainted with the demanding world of container handling, where terminals face relentless environmental challenges such as scorching heat, humidity, torrential rain, snow, abrasive sand, and corrosive salt-laden winds. In this punishing setting, spreaders endure continuous wear and tear. Despite these harsh conditions, Bromma spreaders are a testament to resilience, consistently delivering productivity, reliability, and durability even in less-than-ideal situations.

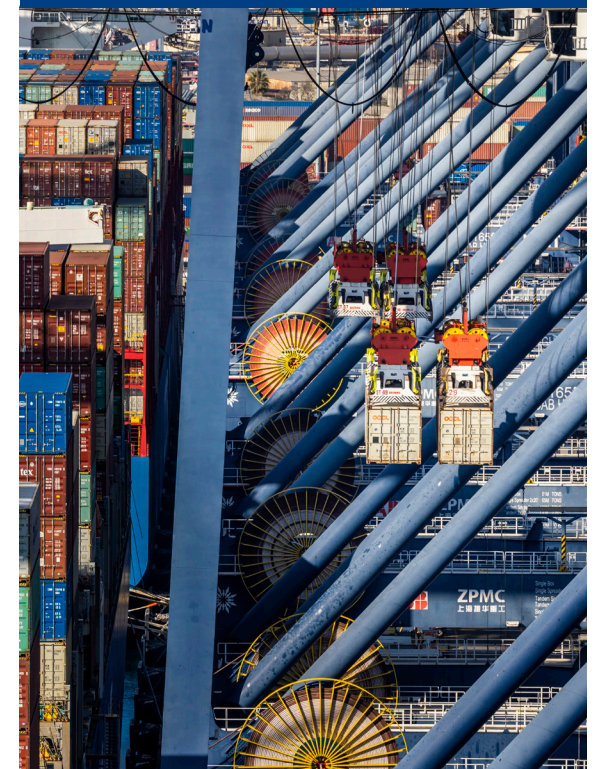
While marketing buzzwords like “design simplicity,” “quality control,” “manufacturing integrity,” and “cutting-edge technology” are often seen as mere slogans, at Bromma, these values form the core of our product development philosophy. They are the key to minimizing spreader downtime and enabling terminals to achieve quicker ship turnarounds and maximize berth capacity utilization.

All our electric product family

All our electric spreaders from Bromma are one important step toward safe and sustainable port operating environments. They reduce consumables, lessen CO2 emissions through lower crane power consumption, protect water through the elimination of oil leaks, enhance worker safety, and lower spreader noise. Just as important, they produce spreader lifecycle cost savings that serve to economically justify green investment. Finally, they enhance a container terminal's competitive position through the superior reliability of spreader equipment.

All our electric spreaders from Bromma are strong and light, actually substantially lighter than the spreaders they replace. This significantly reduces annual crane power consumption costs as well. As a Scandinavian company, Bromma has a history of environmental awareness, and Bromma R&D has for many years made engineering choices, in part, based on environmental concerns. Bromma is committed to environmental leadership in spreaders.

Bromma has delivered spreaders to more than 500 terminals in over 90 countries at 6 continents.





THE E-SERIES™

Less Service, Lower Weight, More Uptime

The operational centre of any great container terminal is a highly productive and reliable ship-to-shore spreader operation.

Bromma's E-Series of all-electric ship-to-shore spreaders are loaded with advantages designed to create lifecycle cost savings while boosting fleet uptime.

➔ **ELIMINATING HYDRAULICS MEANS**
fewer service points, reduced service time and reduced service materials cost.

➔ **ELIMINATING SPREADER HYDRAULICS REDUCES**
spreader power consumption by an estimated 85%.
For every 5 kWh consumed by an STS45, less than 1 kWh is consumed by an STS45E.

WHY TO CHOOSE BROMMA SHIP-TO-SHORE SPREADERS?

➔ **UNMATCHED EXPERIENCE**

Bromma designed the first telescopic single-lift spreader and has sold thousands of them around the world.

➔ **REDUCE DOWNTIME**

predictive technology through Bromma SCS-Modular and Spreader Monitoring System help fixing problems faster and event prevent faults (and downtime) from occurring.

➔ **BROMMA CALCULATES THAT A MORE RELIABLE SPREADER**

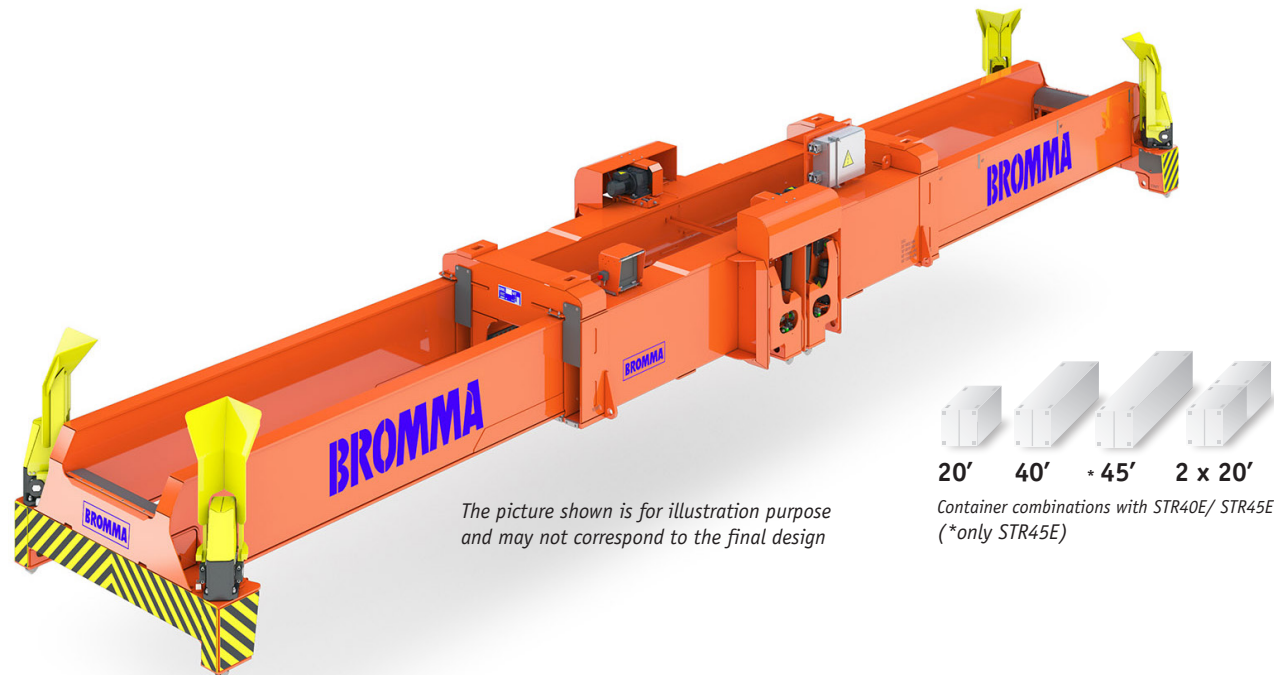
at a busy container terminal that averages just 0.5 more moves per hour can generate an additional \$30,000 USD in terminal profit per year.

➔ **A 1.5 METRIC TONS REDUCTION IN SHIP-TO-SHORE SPREADER**

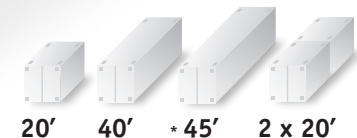
weight can produce more than \$4,200 USD in annual crane energy savings.

➔ **A SPREADER THAT SHOWS UP FOR WORK EVERY DAY**

Bromma ship-to-shore spreaders are also known for exceptional durability - often remaining in active service for 12 or more years at high-throughout terminals.



The picture shown is for illustration purpose and may not correspond to the final design



Container combinations with STR40E/ STR45E (*only STR45E)

STR40E/45E TWIN-LIFT All-Electric

→ PROVEN DESIGN

The Bromma STR40E/45E is based on the proven design of Bromma spreaders in service throughout the world.

→ LOWER ENERGY CONSUMPTION

→ REDUCED SPREADER MAINTENANCE requirements, due to the elimination of hydraulics.

→ SIMPLER - LESS SETTINGS & FEWER SENSORS

→ TWIN-LIFT SHIP-TO-SHORE SPREADERS are the most popular products in the Bromma product line, due to their higher productivity and versatility

The twin-lift spreader enables significant improvement in productivity. Plus, these spreaders can be retracted to the 19'6" position in the event the spreader becomes jammed in the ship's twenty foot cell. Positioning to the 19'6" position can be controlled by the operator if appropriate controls are furnished in the crane cab.

The control and communications capabilities of Bromma all-electric twin-lift are unsurpassed. Bromma SCS-Modular control system, including a distributed I/O-system, dramatically reduces wired terminal points, while giving terminals advanced functionality, such as on-line sensor adjustments, and communications capability, such as transmission of spreader events, logs and alarms.

Finally, Bromma is uncompromising in its selection of components and materials. Materials selected on the basis of its strength, weldability and formability.

TECHINAL DATA STR40E/45E

LIFTING CAPACITY

51 metric tons, ±10% ecc. load
2 x 32.5 metric tons, evenly loaded

LIFTING LUGS

4x10 metric tons in the main frame and end beams

WEIGHT

STR40E: About 9.8 metric tons (without extra equipment)
STR45E: About 11.3 metric tons (without extra equipment)

TELESCOPIC MOTION

STR40E: 20'-40' in approx. 28 sec.
STR45E: 20 - 45' in approx. 30 sec.

FLIPPER ARM SPEED

180° in approx. 5 sec.

TWISTLOCK ROTATION

90° in approx. 1 sec.

TWINLIFT UNIT UP/DOWN

Approx. 6 sec.

POWER SUPPLY

400/230 VAC 50 Hz or otherwise as agreed

MAX POWER CONSUMPTION

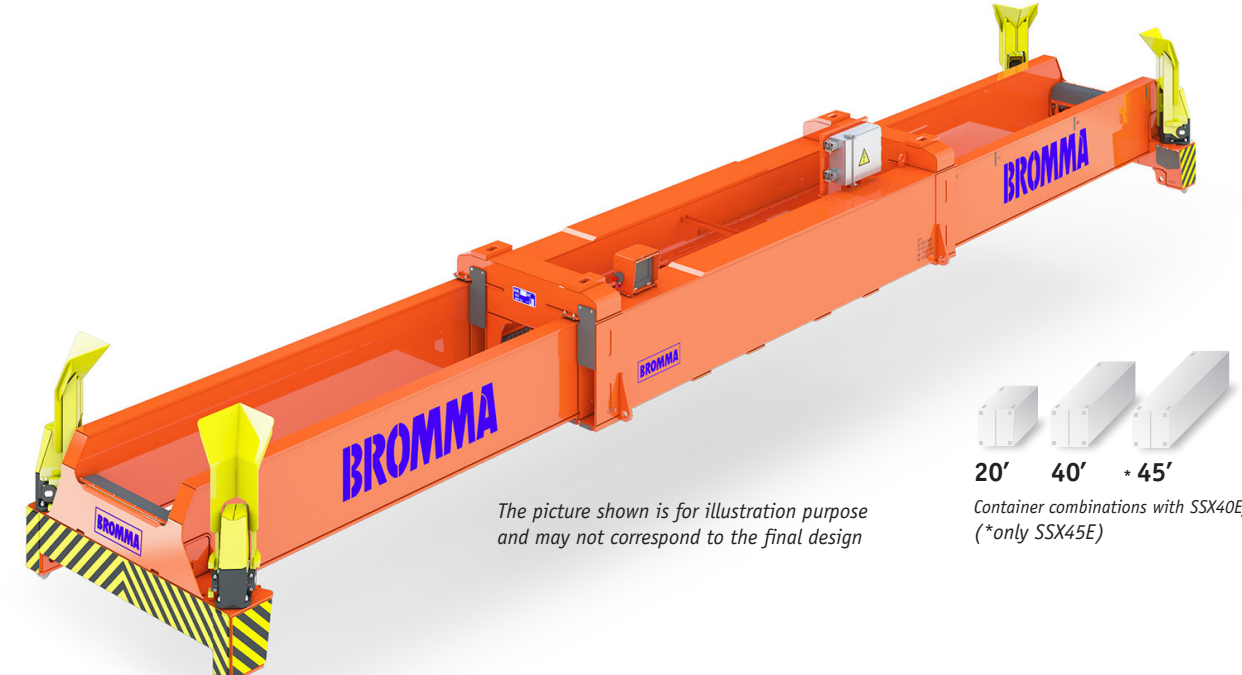
7.5 kW

CONTROL SYSTEM

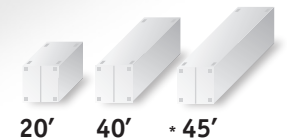
SCS - Modular

CONTROL VOLTAGE

24VDC



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Container combinations with SSX40E/ SSX45E (*only SSX45E)

SSX40E/45E SINGLE-LIFT All-Electric

→ PROVEN DESIGN

the Bromma SSX40E and SSX45E structure is based on the reliable hydraulic versions of this spreader

→ REDUCED ROUTINE MAINTENANCE

due to all-electric design

→ REDUCED ENERGY CONSUMPTION

due to elimination of the hydraulic power-pack

TECHINAL DATA SSX40E/45E

LIFTING CAPACITY

41 metric tons, ±10% ecc. load
41 metric tons, evenly loaded

LIFTING LUGS

4 x 10 metric tons in main frame and end beams

WEIGHT

SSX40E: About 8.6 metric tons (without extra equipment)
SSX45E: About 9.6 metric tons (without extra equipment)

TELESCOPIC MOTION

SSX40E: 20' - 40' in approx. 28 sec.
SSX45E: 20' - 45' in approx. 30 sec.

FLIPPER ARM SPEED

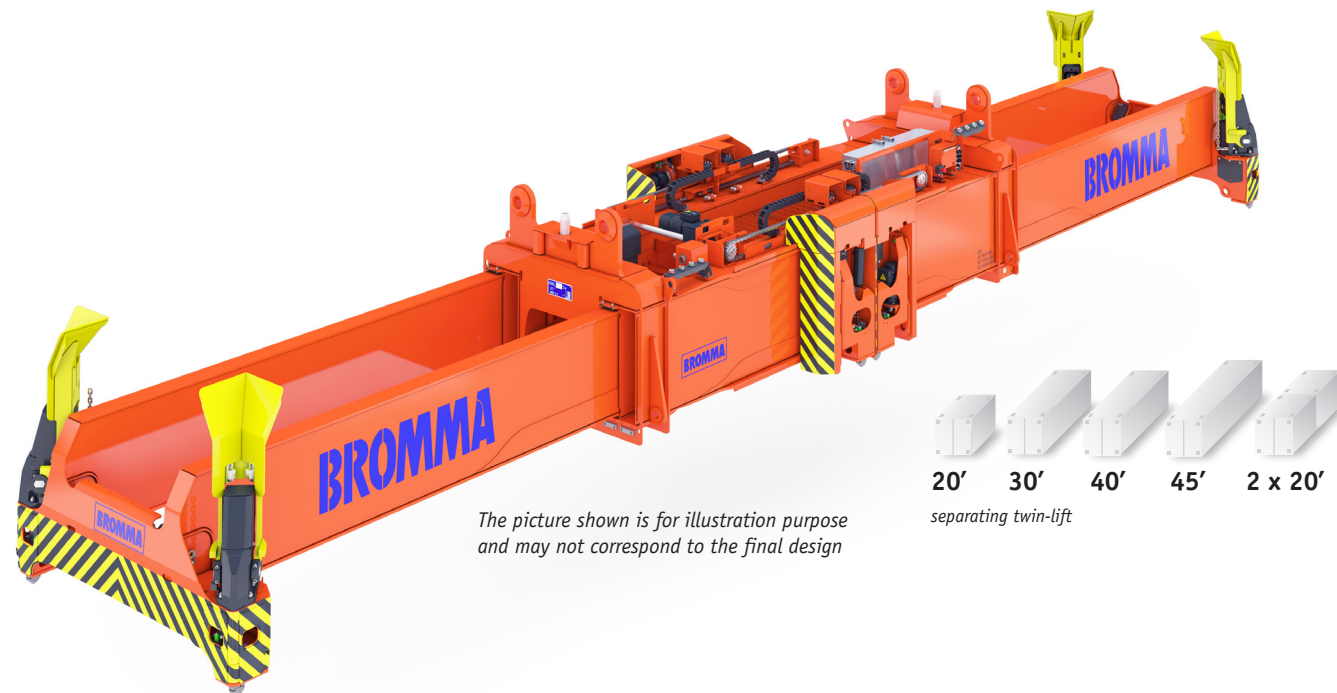
180° in 3 to 5 sec.

TWISTLOCK ROTATION

90° in approx. 1 sec.

Bromma single-lift SSX40/45E spreaders offer strength, reliability, and durability, plus the advantage of lower lifecycle costs. On these allelectric spreaders, many service points have been taken away. There's no hydraulic power-pack and no hoses. There are no fluids, or oil filter, to replace.

This elimination of hydraulics means reduced maintenance time and reduced service materials cost (for oil, hoses, and filters). It will also eliminate many of the "nuisance" downtime events that occur due to spreader hydraulics (bad hose connections, etc.). Making hydraulics history reduces both scheduled and unscheduled spreader downtime.



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20' 30' 40' 45' 2 x 20'
separating twin-lift

STS45E G2 PLUS TWIN-LIFT SEPARATING All-Electric

➔ UP TO 90% REDUCED ENERGY CONSUMPTION

➔ SIGNIFICANTLY REDUCED CO2 EMISSIONS FOOTPRINT COMPARED TO A HYDRAULIC SPREADER

➔ ELIMINATED RISK OF HYDRAULIC OIL LEAKS

The new STS45E G2 PLUS all-electric twin-lift separating spreader is designed to support terminals in achieving their environmental goals without sacrificing productivity or efficiency. The Bromma all-electric STS spreader is the fastest all-electric spreader in the market with its accurate positioning when telescoping and its increased telescoping and twin separating speed. It is also quieter without a continuously running hydraulic powerpack. So if a terminal requires noise abatement, the new all-electric Bromma STS spreader is a big step in the right direction. By choosing to use an all-electric spreader for the ship-to-shore operations, terminals can also benefit from reduced electricity consumption of up to 90%, thus saving on operational costs and avoiding any risks related to hydraulic leakage.

Made of high-quality, high-strength steel, the STS45E G2 PLUS spreader provides high lifting capacity with a low nominal tare weight thanks to the box design of the telescoping beams and the main frame. All components can be easily assembled, adjusted, removed and are accessible for inspection and maintenance. The STS45E G2 PLUS is equipped with Bromma's best in class Spreader Control Unit (SCU), the spreader control system that is optimized for reliable and superior spreader performance.

TECHINAL DATA STS45E G2 PLUS

LIFTING CAPACITY

51 metric tons evenly loaded
51 metric tons ±10% eccentric loading
Twin-lift of 2X 20' containers
2 x 32.5 metric tons evenly loaded

LIFTING LUGS

4 x 12.5 metric tons in the main frame and end beams

WEIGHT

12.6 metric tons (without extra equipment)

SEPARATING CAPACITY

0-1600 mm with full load

FLIPPER ARM SPEED

180° in approx. 5 sec.

TELESCOPIC MOTION

20' to 40' approximately 18 sec.
20' to 45' approximately 21 sec.

FLIPPER ARM SPEED

180° in approximately 5 sec.

TWIN-LIFT UNIT UP/DOWN

Approximately 6 sec.

POWER SUPPLY

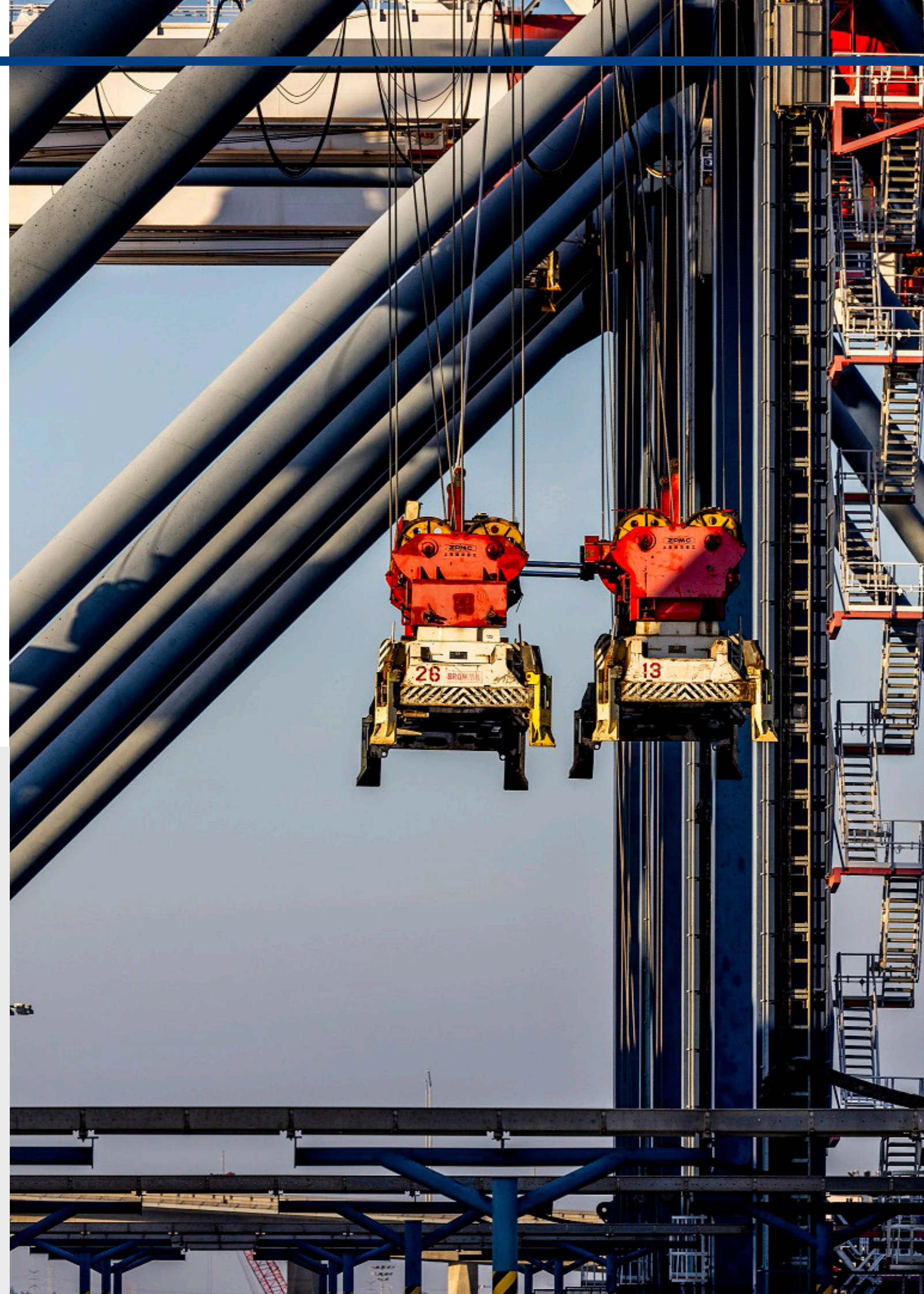
400/230 V AC 50 Hz or otherwise as agreed

CONTROL SYSTEM

SCS - Modular

CONTROL VOLTAGE

24VDC





BROMMA HYDRAULIC SPREADERS

A Higher Level Of Reliability

Bromma is the world leader in ship-to-shore crane spreaders, with more than 60% of the global market. Bromma has a dominant position for a simple reason: Bromma spreaders show up for work every day and perform at a high level of productivity. When reliability is crucial, as it especially is in ship-to-shore operations, Bromma is the obvious choice. Bromma's family of hydraulic ship-to-shore spreaders includes single-lift spreaders, twin-lift spreaders, and the innovative, high-productivity Bromma Tandem™ product family, capable of twin-40' and twin-45' container handling.

Reduce Downtime cost effectively

One of the most important technical developments in ship-to-shore spreaders in recent years has been Bromma SCS technology. In service on thousands of spreaders around the globe, Bromma SCS monitors spreader performance, reduces downtime events (through simplified wiring and fewer connections) and shortens downtime duration (through faster fault diagnosis) when faults occur. SCS-Modular is a control system offering a range of different features stretching from basic spreader control to a full-fledged system, including diagnostics, connectivity and an on-board information display. All options are designed to improve spreader operational efficiency and to reduce total cost of ownership of the spreader.

A Higher Level Of Productivity

Bromma ship-to-shore spreaders are known for their exceptional productivity. Bromma's top-selling STS45 separating twin-lift spreader in particular has exceptional performance characteristics. Higher productivity boosts the terminal bottom line. Bromma calculates that a more reliable spreader at a busy container terminal that averages just 0.5 more moves per hour can generate an additional \$30,000 USD in terminal profit per year.

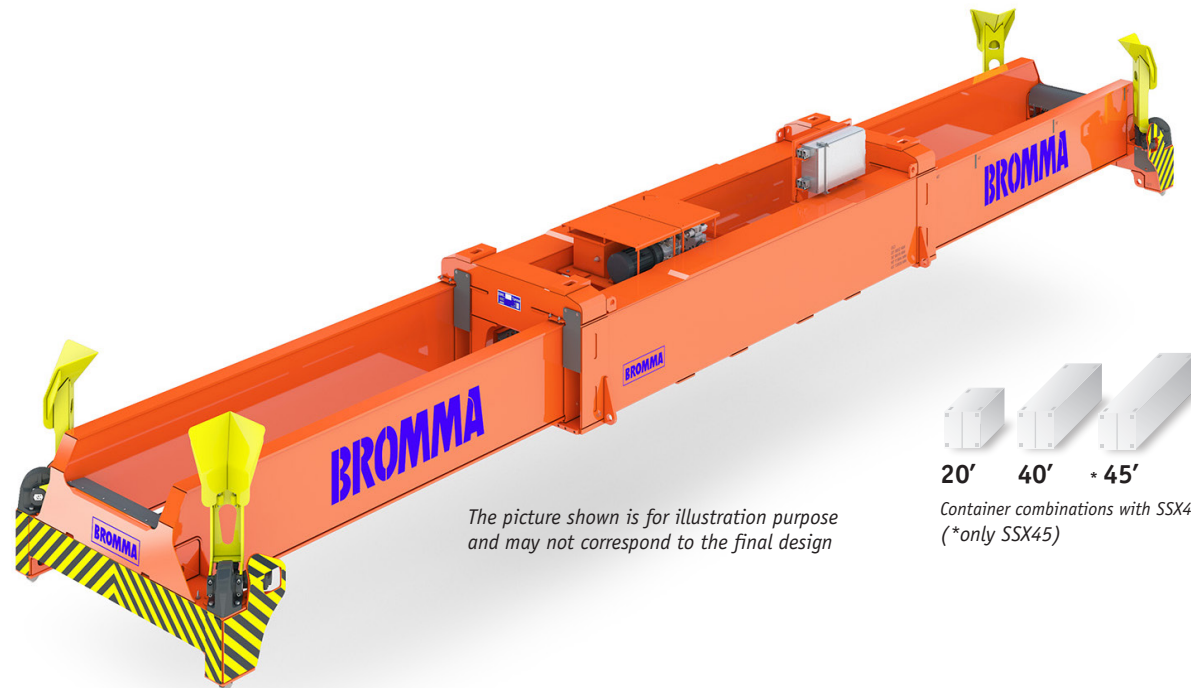
Bromma's vast global experience is also a major factor in the dependability of Bromma equipment. Bromma knows what terminals need, what can go wrong, and how to deliver equipment that performs in the "real world" scenarios that terminals face every day.

Weight & Energy

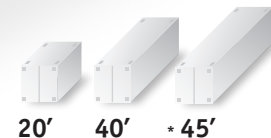
Spreader weight directly impacts crane energy consumption, an area of growing concern for terminals facing fuel cost increases. Bromma R&D models indicate that a 1.5 metric tons reduction in ship-to-shore spreader weight can produce more than \$4,200 USD in annual crane energy savings. Bromma R&D pays serious attention to spreader weight throughout its entire product line.

A Spreader That Shows Up For Work Every Day

Bromma ship-to-shore spreaders are also known for exceptional durability – often remaining in active service for 12 or more years at high-throughput terminals. Bromma hydraulic ship-to-shore spreaders show up for work every day, produce more while they're on the job, and keep performing for a long time.



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Container combinations with SSX40/SSX45 (*only SSX45)

SSX40/45 SINGLE-LIFT

Hydraulic spreaders

➔ EXPERIENCE MEANS LOW DOWNTIME

at some terminals Bromma spreader availability exceeds 99%.

➔ DESIGNED FOR HIGHER THROUGHPUT

environments and for service on high-speed cranes.

➔ HIGH RELIABILITY

allows for a lower spreader spare ratio in the terminal fleet.

Bromma single-lift SSX40/45 spreaders are known throughout the world for exceptional strength, reliability, and long life. Bromma achieves superior structural strength through strategic engineering tools, such as finite element modeling, which analyzes stress points on the spreader and projects the likely effect of accumulated stress over time.

Floating ISO twistlocks allow for 6mm of float in all lateral directions, providing efficient locating in the container corner castings. The contact surfaces between the main frame and the telescoping beams consist of grease-lubricated low-friction plates. These spreaders have the ability to retract to the 19'6" position in the event the spreader becomes jammed in the ship's twenty foot cell. Positioning to the 19'6" position can be controlled by the operator if appropriate controls are furnished in the crane cab. Bromma advanced performance technology, such as SCS-Modular, Twin-Twenty Detection System (TTDS) (an excellent safety feature), and the Height Indication System (HIS) are available as options.

TECHINAL DATA SSX40/45

LIFTING CAPACITY

41 metric tons, $\pm 10\%$ ecc. load
41 metric tons, evenly loaded

LIFTING LUGS

4 x 10 metric tons in main frame and end beams

WEIGHT

SSX40: About 8.7 metric tons (without extra equipment)
SSX45: About 9.6 metric tons (without extra equipment)

TELESCOPIC MOTION

SSX40: 20'-40' in approx. 28 sec.
SSX45: 20'-45' in approx. 30 sec.

FLIPPER ARM SPEED

180° in 3 to 5 sec.

TWISTLOCK ROTATION

90° in approx. 1 sec.

HYDRAULICS

System pressure 100 bar

POWER SUPPLY

400/230 V AC 50 Hz or otherwise as agreed

MAX POWER CONSUMPTION

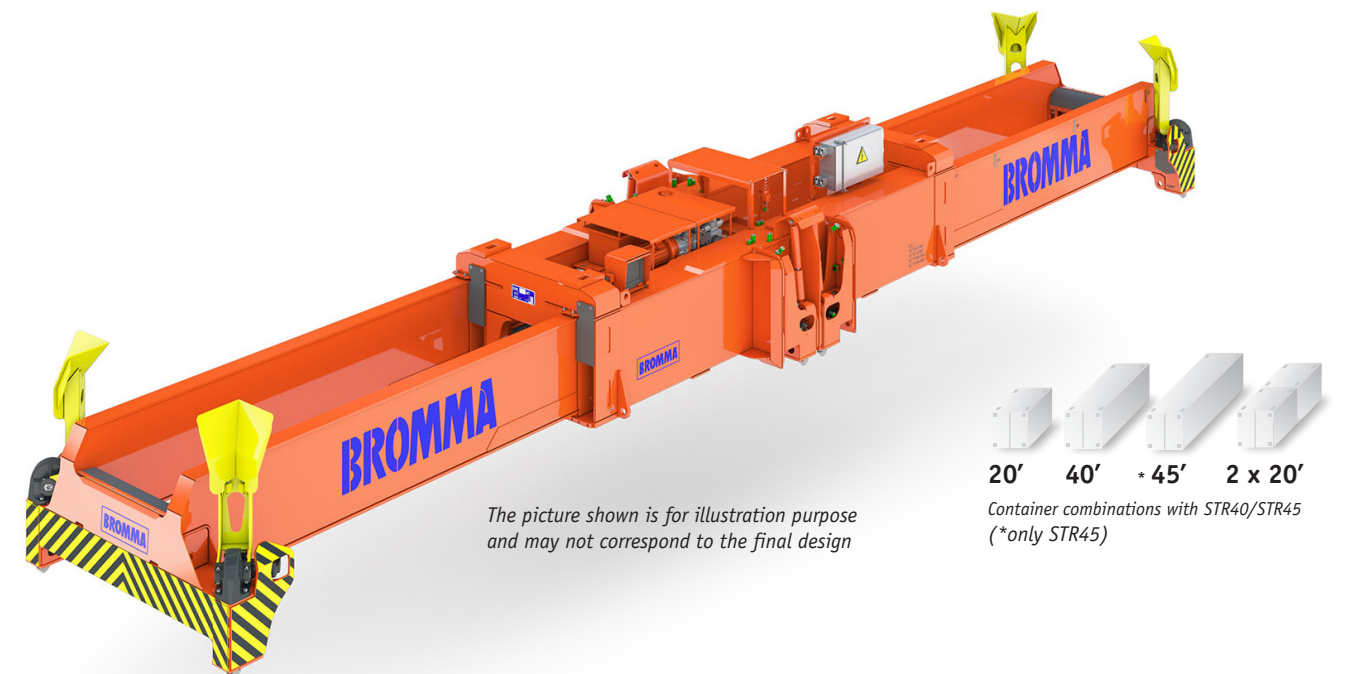
7.5 kW

CONTROL SYSTEM

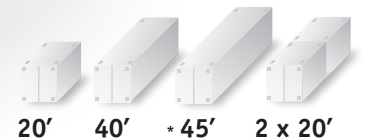
Relay controlled (SCS - Modular available as an option)

CONTROL VOLTAGE

24VDC



The picture shown is for illustration purpose and may not correspond to the final design



Container combinations with STR40/STR45 (*only STR45)

STR40/45 TWIN-LIFT

Hydraulic spreaders

➔ LIFT WITHOUT CHANGING THE SPREADER

One or two 20', one 40' or one 45' container.

➔ ADVANCED COMMUNICATIONS SYSTEM

reduces downtime considerably.

➔ FAST TROUBLE SHOOTING

TECHINAL DATA STR40/45

LIFTING CAPACITY

51 metric tons, $\pm 10\%$ ecc. load
51 metric tons, evenly loaded
2 x 32.5 metric tons, evenly loaded

LIFTING LUGS

4 x 10 metric tons in main frame and end beams

WEIGHT

STR40: About 9.9 metric tons (without extra equipment)
STR45: About 11 metric tons (without extra equipment)

TELESCOPIC MOTION

STR40: 20'-40' in approx. 28 sec.
STR45: 20'-45' in approx. 30 sec.

FLIPPER ARM SPEED

180° in 3 to 5 sec.

TWISTLOCK ROTATION

90° in approx. 1.5 sec.

HYDRAULICS

System pressure 100 bar

TWINLIFT UNIT UP/DOWN

Approx. 8 sec.

POWER SUPPLY

400/230 V AC 50 Hz or otherwise as agreed

MAX POWER CONSUMPTION

7.5 kW

CONTROL SYSTEM

SCS - Modular

CONTROL VOLTAGE

24VDC

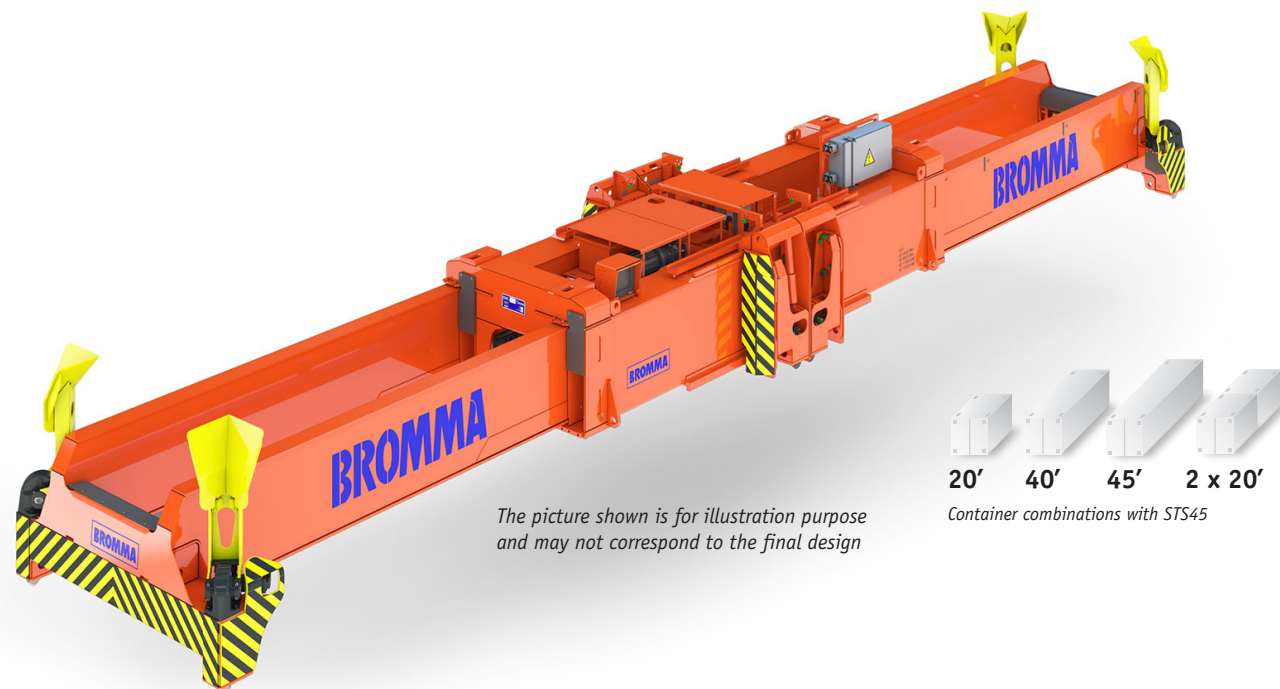
The STR40 and STR45 twin-lift can lift one or two 20 foot containers, a single 40 foot container or a 45 foot container – all without changing the spreader.

The telescopic spreader is of a rectangular frame construction enabling easy location on containers. The spreader is as standard equipped with 4 x 10 metric tons lifting lugs in the corners of the end beams for heavy lifts and for handling damaged containers.

The spreader can retract to the 19 foot-6 inch position in case it becomes jammed in the ship's 20 foot cell. The design with recessed end beams makes handling of lashing frames and hatch covers possible. All motions of the spreader are controlled from the driver's cab and there are provisions made for signals in the cab indicating the position of the twistlocks and landing pin status.

Made of high quality steel, the standard STR40 and STR45 spreader provides high lifting capacity with a low nominal tare weight thanks to the box design of the telescoping beams and the main frame. The spreader is designed in accordance with EN13001. All components can be easily assembled, adjusted, removed and are accessible for inspection and maintenance.

The spreader comes with the SCS-Modular, reducing and preventing downtime through improvements in the area of electrical connections. It will also shorten downtime through faster spreader fault diagnostics.



STS45 TWIN-LIFT

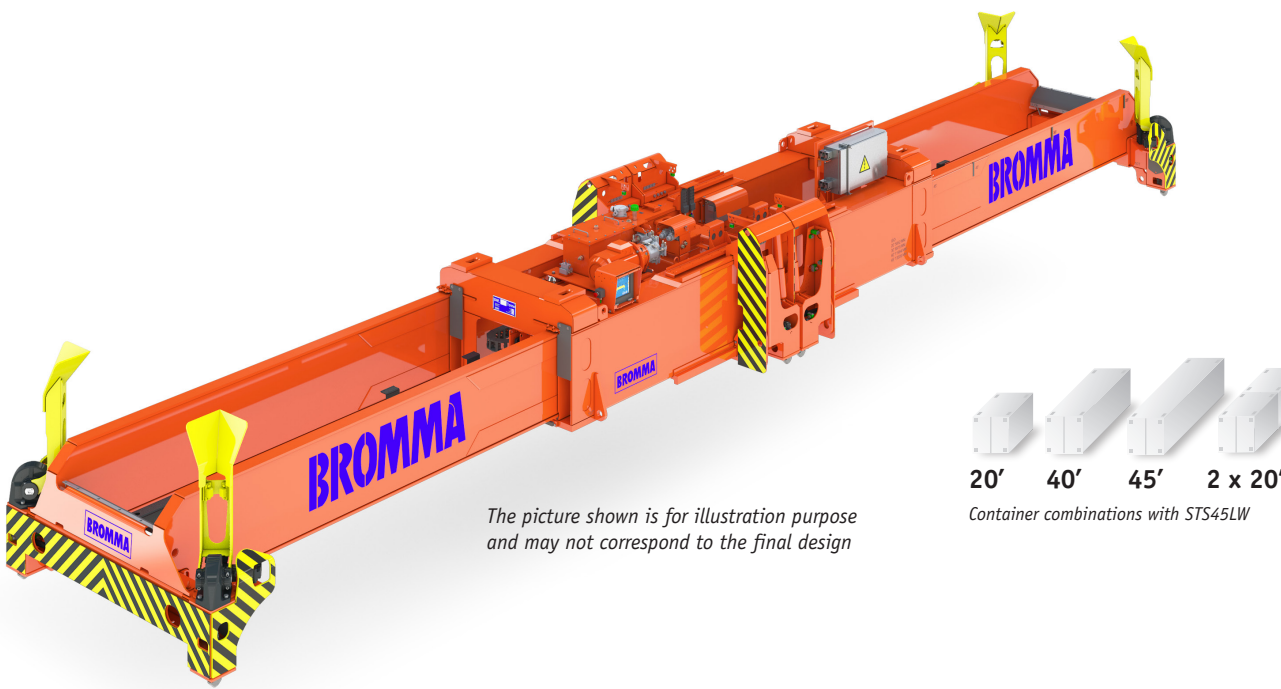
Hydraulic spreaders

➔ TWIN-LIFT SHIP-TO-SHORE HYDRAULIC

spreaders are the most popular products in the Bromma product line, due to their higher productivity and versatility.

➔ THE SEPARATING STS45 IS EXCELLENT

It can move two 20' containers apart from 0 to 1.6 meters (0'-5') under full load.



STS45LW TWIN-LIFT

Hydraulic spreaders

➔ TWIN-LIFT SHIP-TO-SHORE HYDRAULIC

spreaders are the most popular products in the Bromma product line, due to their higher productivity and versatility.

➔ THE STS45LW

It can move two 20' containers apart from 0 to 1.6 meters (0'-5') under full load..

Bromma twin-lift hydraulic spreaders are feature rich. Bromma advanced performance technology, such as SCS-Modular, is standard on these spreaders. Bromma's optional MPS memory positioning system, available on the STS45, makes the crane operator's task easier, and increases productivity. Options such as the Bromma Twin-Twenty Detection System adds safety and the HIS Height Indication System is ideal for use on high-speed cranes.

On the STS45 separating twin movement can be done at any time in the crane cycle, which means there is no stopping time to change the container spacing. This results in higher flexibility in container ship loading and unloading. Bromma's engineering team ensures high structural integrity through strategic engineering, such as finite element modeling, which analyzes stress points on the spreader and projects the likely effect of accumulated stress over time. Bromma design studies, including buckling, vibration, and stress-related stiffening analyses, enable Bromma Research and Development to evaluate the long-time impact of design changes, and develop optimum design solutions.

Bromma uses premium steel for spreader frame structures selected on the basis of its strength, weldability, and form ability. ISO twistlocks allow for 6mm of float in all lateral directions, providing efficient locating in the container corner castings. These spreaders can retract to the 19'6" position in the event the spreader becomes jammed in the ship's twenty foot cell. Positioning to the 19'6" position can be controlled by the operator if appropriate controls are furnished in the crane cab. Bromma's STS45 spreader is the industry standard for ship-to-shore container handling, and a constant presence in the most demanding terminals in the world. Bromma understands what ship-to-shore container handling requires, and the twin-lift hydraulic STS spreaders from Bromma deliver it.

TECHINAL DATA STS45

LIFTING CAPACITY

51 metric tons, ±10% ecc. load
51 metric tons, evenly loaded
2 x 32.5 metric tons , evenly loaded

LIFTING LUGS

4 x 10 metric tons in main frame and end beams

WEIGHT

About 12.7 metric tons (without extra equipment)

SEPARATING CAPACITY

0-1600mm with full load

TELESCOPIC MOTION

20'-45' in approx. 30 sec.

FLIPPER ARM SPEED

180° in 3 to 5 sec.

TWISTLOCK ROTATION

90° in approx. 1 sec.

HYDRAULICS

System pressure 100/160 bar

POWER SUPPLY

400/230 V AC 50 Hz or otherwise as agreed

MAX POWER CONSUMPTION

7.5 kW

TWINLIFT UNIT UP/DOWN

Approx. 8 sec.

TWIN EXPAND/RETRACT

Approx. 20 sec.

CONTROL SYSTEM

SCS - Modular

CONTROL VOLTAGE

24VDC

TECHINAL DATA STS45LW

LIFTING CAPACITY

41 metric tons, ±10% ecc. load
41 metric tons, evenly loaded
2 x 25 metric tons , evenly loaded

LIFTING LUGS

4 x 10 metric tons in main frame and end beams

WEIGHT

About 10.7 metric tons (without extra equipment)

SEPARATING CAPACITY

0-1600mm with full load

TELESCOPIC MOTION

20'-45' in approx. 30 sec.

FLIPPER ARM SPEED

180° in 3 to 5 sec.

TWISTLOCK ROTATION

90° in approx. 1.5 sec.

HYDRAULICS

System pressure 100/160 bar

POWER SUPPLY

400/230 V AC 50 Hz or otherwise as agreed

MAX POWER CONSUMPTION

7.5 kW

TWINLIFT UNIT UP/DOWN

Approx. 8 sec.

TWIN EXPAND/RETRACT

Approx. 20 sec.

CONTROL SYSTEM

SCS - Modular

CONTROL VOLTAGE

24VDC

The Bromma STS45LW is a light-weight twin lift hydraulic spreader, ideal for use on cranes rated to lift less weight. It is a feature rich spreader with Bromma advanced performance technology, such as SCSModular. Bromma's optional MPS memory positioning system and Twin-Twenty Detection System are available for the STS45LW, and makes the crane operator's task easier, plus increases productivity and safety.

On the STS45LW separating twin movement can be done at any time in the crane cycle, which means there is no stopping time to change the container spacing. This results in higher flexibility in container ship loading and unloading. Bromma's engineering team ensures high structural integrity through strategic engineering, such as finite element modeling, which analyzes stress points on the spreader and projects the likely effect of accumulated stress over time. Bromma design studies, including buckling, vibration, and stress-related stiffening analyses, enable Bromma Research and Development to evaluate the long-time impact of design changes, and develop optimum design solutions.

Bromma uses premium steel for spreader frame structures selected on the basis of its strength, weldability, and form ability. ISO twistlocks allow for 6mm of float in all lateral directions, providing efficient locating in the container corner castings. These spreaders can retract to the 19'6" position in the event the spreader becomes jammed in the ship's twenty foot cell. Positioning to the 19'6" position can be controlled by the operator if appropriate controls are furnished in the crane cab.

BROMMA TANDEM™

A Higher Level Of Productivity

Bromma Tandem™ spreaders are feature-rich. Long side flippers mounted on an inclined base, and rounded end beams, avoid jamming in cell guides. The four wagons can be moved individually to allow skewing and gravity point adjustment, should this be needed.

➔ BROMMA TANDEM™ WILL INCREASE PRODUCTIVITY

when loading and unloading ships stacked with 40' containers. It is also ideal for terminals with a high volume of empty containers, and cranes with limited lift capacity.

➔ FOR TERMINALS MOVING A SIGNIFICANT NUMBER

of 40' or 45' containers, Tandem™ can significantly boost the productivity of each lift cycle.

Tandem™ Productivity

Bromma Tandem™ spreaders are feature-rich. Long side flippers mounted on an inclined base, and rounded end beams, avoid jamming in cell guides. The four wagons can be moved individually to allow skewing and gravity point adjustment, should this be needed. A memory system allows a pre-set positioning distance between the spreaders. Chain suspension allows Tandem™ to handle containers of different height. Eight powerful flippers with large scoops in optimal configuration allow Tandem™ to handle different combinations efficiently.

The Bromma Tandem™ Headblock with adjustable pulley wheel distance keeps the gravity point of the two containers between the pulley wheels center in Tandem™ mode. When operating with a standard spreader, the pulley wheels will retract to normal headblock width. Pulley wheels move from standard narrow width position to a wide width position. Bromma can also provide a fully automatic electrical plug/socket interface and can assist in modification work for the existing crane electrical interface and communication system to enable the handling of Tandem™ spreaders.

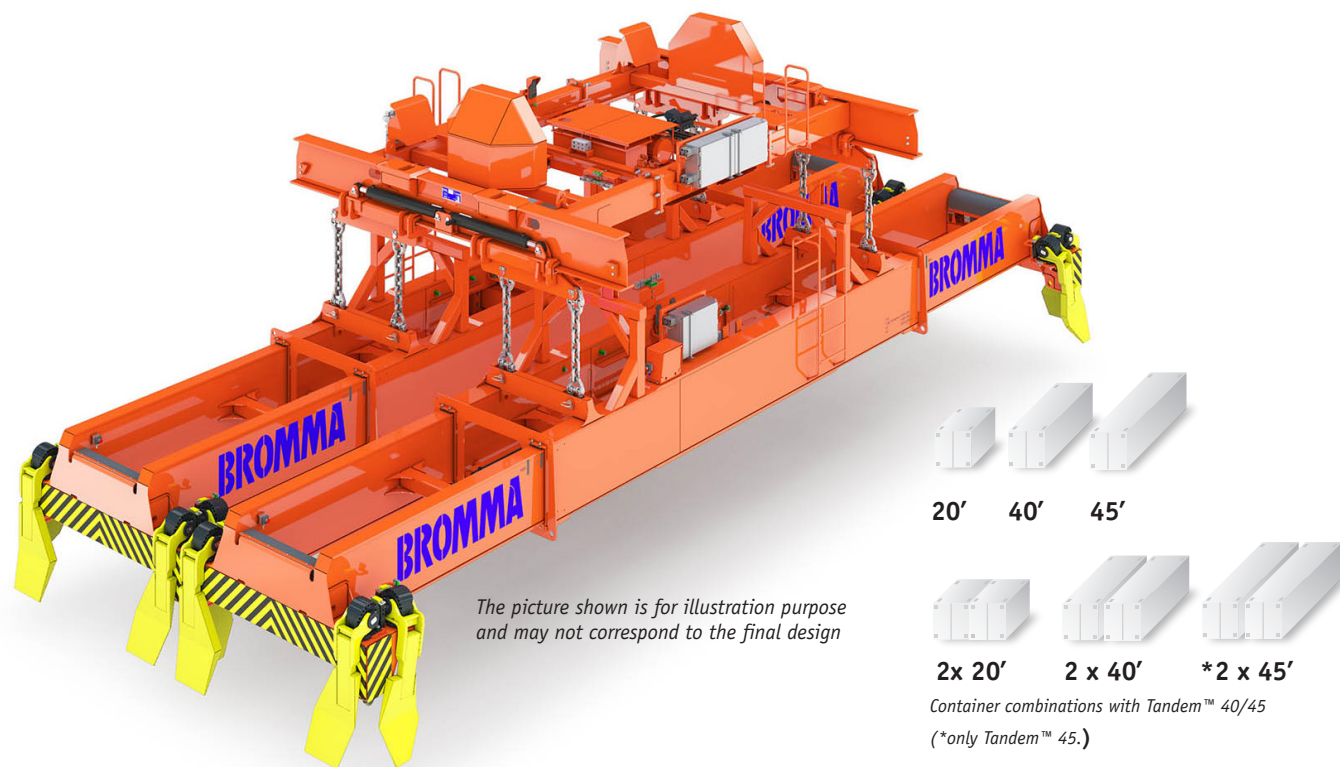
The Bromma Tandem™ spreader is a new productivity tool for an industry that's hungry for productivity. At container terminals around the world, there are more and more 40' containers, and fewer 20' containers. The type of spreader used to handle these containers, and the brand of spreader selected, can have a major impact on operating efficiency. Bromma Tandem™ is one tool in the effort to boost productivity, as it offers the opportunity to greatly expand the productivity of each lift cycle.

Chances are that whatever your terminal's container mix is today, it will be somewhat different tomorrow, and that whatever your terminal's container volume is today, it will be somewhat greater tomorrow. Bromma Tandem™ is a spreader advance in both areas – providing both a productivity boost and an extremely versatile lifting tool. Bromma Tandem™ will increase productivity when loading and unloading those sections of container ships stacked with 40' containers. It is also ideal for terminals with a high volume of empty containers and cranes with limited lifting capacity. Bromma Tandem™ has the ability to simultaneously lift four 20' containers (Tandem™ Quattro), or two 40' containers, or two 45' containers, or many other combinations, including hatch covers. It can easily handle container height differences of up to 700mm, and has productivity of up to 60, 40' or 45' containers per hour.

A Proven Design

Moreover, except for lifting capacity, there is no need for a special crane design. With Bromma's pioneering spreader control system technology SCS-Modular, terminals can swap spreaders between different cranes, and install new spreader models, such as Tandem™, without any concern about the interface with other spreader models.

While Bromma Tandem™ is innovative, it is also important to note that it is based on a simple technical approach that features spreader design and technology with proven reliability. The fixed-length Tandem™ was first put into field tests in 2003. It is also not a complicated design solution. The type of Tandem™ spreader selected depends on the crane lift capacity. Except for sufficient lifting capacity, there is no need for a special crane design. The inherent versatility of the Bromma Tandem™ family makes it an ideal choice for terminals looking to the horizon and operating with a long-term perspective when making spreader fleet planning decisions.



TANDEM™ 40/45

➔ THE TANDEM™ 40/45 SPREADER

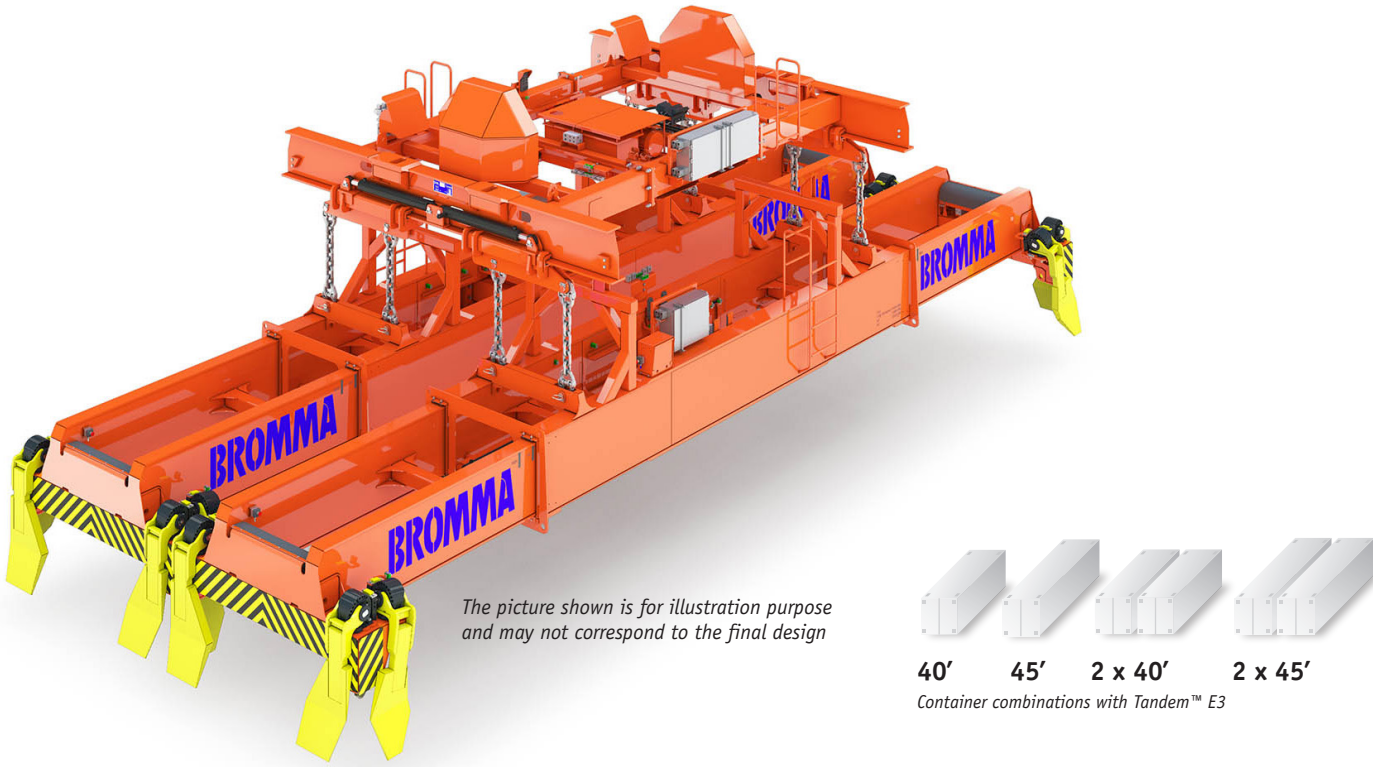
is able to twin-lift two 20', 40' or 45' containers without the need, as in the Tandem™ fixed-length version, for changeout.

➔ THIS IS A PROVEN SPREADER DESIGN

field-tested in high throughput European and Asian terminals.

➔ THE TANDEM™ HEADBLOCK

is necessary for the efficient handling of the Tandem™ spreader line.



TANDEM™ E3

TECHINAL DATA Tandem™ E3

LIFTING CAPACITY 2 x 41 metric tons	MAX POWER CONSUMPTION 15 kW
WEIGHT About 21 metric tons (without extra equipment)	SKEWING ±20 degrees
TELESCOPIC MOTION 40'-45' in approx. 18-20 sec	SKEWING SPEED 1 degree in 2 sec.
FLIPPER ARM SPEED 180° in 3 to 5 sec.	TANDEM SEPARATING SPEED 1000 mm in 10 sec.
TWISTLOCK ROTATION 90° in approx. 1 sec.	CONTROL SYSTEM SCS - Modular
HYDRAULICS System pressure 140 bar	CONTROL VOLTAGE 24VDC
	CONTAINER HEIGHT DIFFERENCE (Loading/ Unloading) 2'/660 mm

The Bromma Tandem™ E3 spreader offers great capacity and flexibility. Low spreader weight is combined with the ability to lift different combinations of 40 or 45 foot containers side by side as shown below. The spreader can also lift single 40 and 45 foot containers.

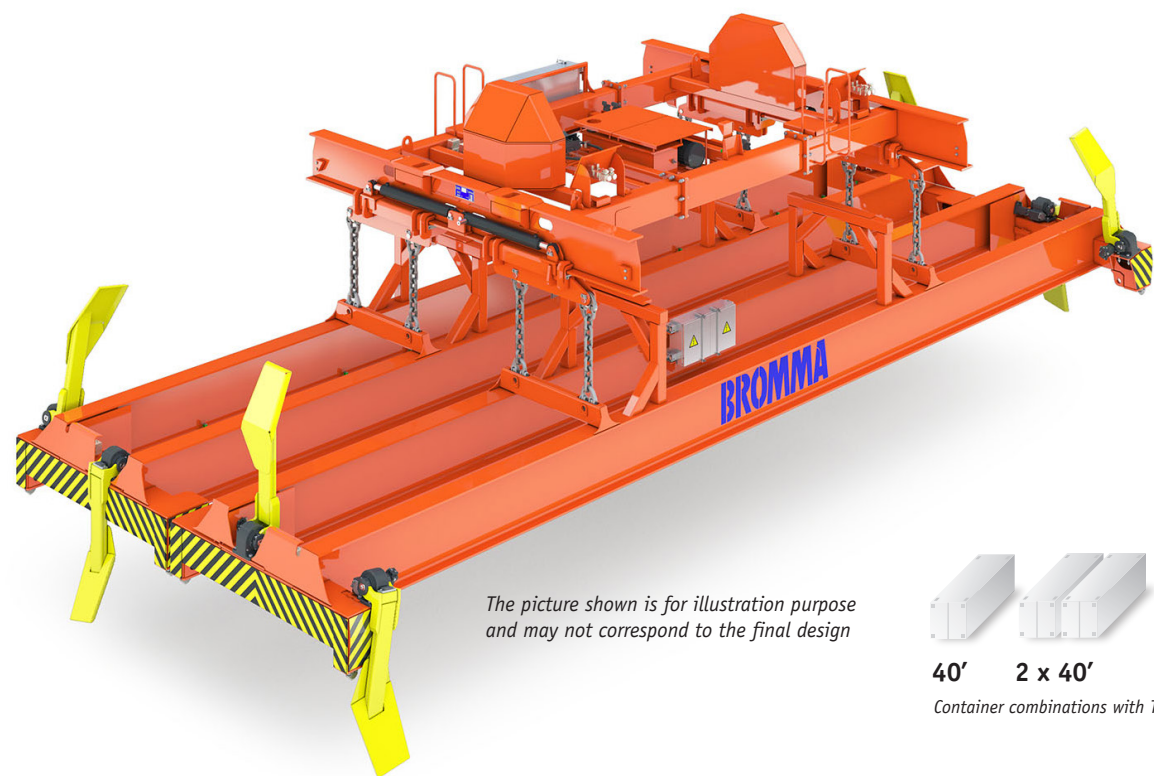
The Tandem™ E3 spreader also offers another advantage: the capability to do side shift on individual spreaders, which is useful when the chassis or containers on the ground are not fully lined up in the longitudinal direction. The limitation on the E3 is that it cannot lift 20 foot containers. Due to this limitation, the Tandem™ E3 is especially well-suited for container terminals that have a high percentage of 40 and 45 foot containers, and a low percentage of 20 foot containers.

TECHINAL DATA Tandem™ 40/45

LIFTING CAPACITY 2 x 41 metric tons	MAX POWER CONSUMPTION 15 kW
WEIGHT TANDEM™ 40: About 20.5 metric tons (without extra equipment) TANDEM™ 45: About 22.1 metric tons (without extra equipment)	SKEWING ±20 degrees
TELESCOPIC MOTION TANDEM™ 40 : 20'-40' in approx. 28 sec TANDEM™ 45: 20'-45' in approx. 30 sec.	SKEWING SPEED 1 degree in 2 sec.
POWER SUPPLY 400/230 VAC 50 Hz or otherwise as agreed	TANDEM SEPARATING SPEED 1000 mm in 10 sec.
FLIPPER ARM SPEED 180° in 3 to 5 sec.	CONTROL SYSTEM SCS - Modular
TWISTLOCK ROTATION 90° in approx. 1 sec.	CONTROL VOLTAGE 24VDC
HYDRAULICS System pressure 140 bar	CONTAINER HEIGHT DIFFERENCE (Loading/ Unloading) 2'/660 mm

The Tandem™ 40/45 spreader is based on proven Bromma spreader design, as it uses the SSX40/45 spreader as its standard base. A terminal planning to utilize the full 70 metric tons capacity under the spreader will need crane capacity of approximately 100 metric tons in the ropes.

As such, the Tandem™ 40/45 can be used without restriction on many last-generation container cranes already in service today. Customers who handle very few 45' containers may wish to consider the 40' version of the Tandem™ 40/45. This will save approximately 2 metric tons in spreader weight.



The picture shown is for illustration purpose and may not correspond to the final design



40' 2 x 40'

Container combinations with TANDEM™ Fix 40

TANDEM™ FIX 40

The Tandem™ Fix 40 is an ideal choice for customers interested in gaining the added productivity of twin-40 container handling, but who are somewhat restricted in their choices due to cranes with limited lifting capacity.

The Tandem™ Fix 40 is, from a design standpoint, the simplest Tandem™ model available today. It uses Bromma spreader design and technology that has been proven to be reliable over many years and many millions of lift cycles. Customers should keep in mind that the operating limitation of the Tandem™ Fix 40 is that it is for 40' containers only. This is why the Tandem™ Fix 40 is best-suited for terminals where ships tend to be stacked with a high percentage of 40' containers, or when the crane has a limited lift capacity.

TECHINAL DATA Tandem™ FIX 40

LIFTING CAPACITY

2 x 35 metric tons

WEIGHT

About 16 metric tons (without extra equipment)

FLIPPER ARM SPEED

180° in 3 to 5 sec.

TWISTLOCK ROTATION

90° in approx. 1 sec.

HYDRAULICS

System pressure 140 bar

POWER SUPPLY

400/230 VAC 50 Hz or otherwise as agreed

MAX POWER CONSUMPTION

15 kW

SKEWING

±20 degrees

SKEWING SPEED

1 degree in 2 sec.

TANDEM SEPARATING SPEED

1000 mm in 10 sec.

CONTROL SYSTEM

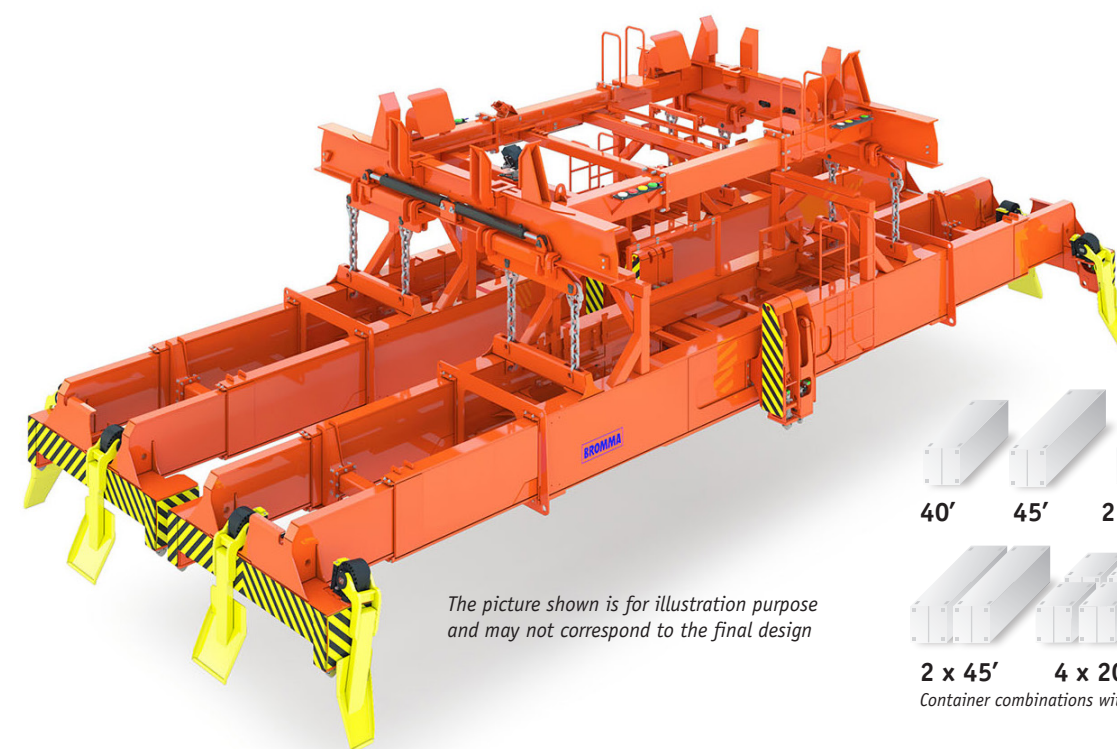
SCS - Modular

CONTROL VOLTAGE

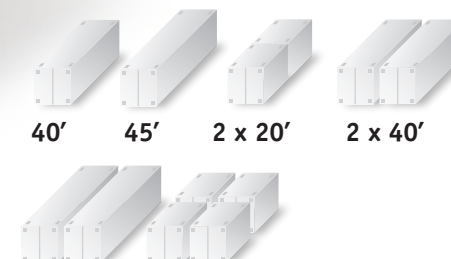
24VDC

CONTAINER HEIGHT DIFFERENCE

(Loading/ Unloading)
2'/660 mm



The picture shown is for illustration purpose and may not correspond to the final design



2 x 45' 4 x 20'

Container combinations with Tandem™ Quattro

TANDEM™ QUATTRO

TECHINAL DATA Tandem™ Quattro

LIFTING CAPACITY

2 x 51 metric tons

4 x 32.5 metric tons

WEIGHT

About 24 metric tons (without extra equipment)

TELESCOPIC MOTION

40'-45' in approx. 18-20 sec

FLIPPER ARM SPEED

180° in 3 to 5 sec.

TWISTLOCK ROTATION

90° in approx. 1 sec.

HYDRAULICS

System pressure 140 bar

MAX POWER CONSUMPTION

15 kW

SKEWING

±20 degrees

SKEWING SPEED

1 degree in 2 sec.

TANDEM SEPARATING SPEED

1000 mm in 10 sec.

CONTROL SYSTEM

SCS - Modular

CONTROL VOLTAGE

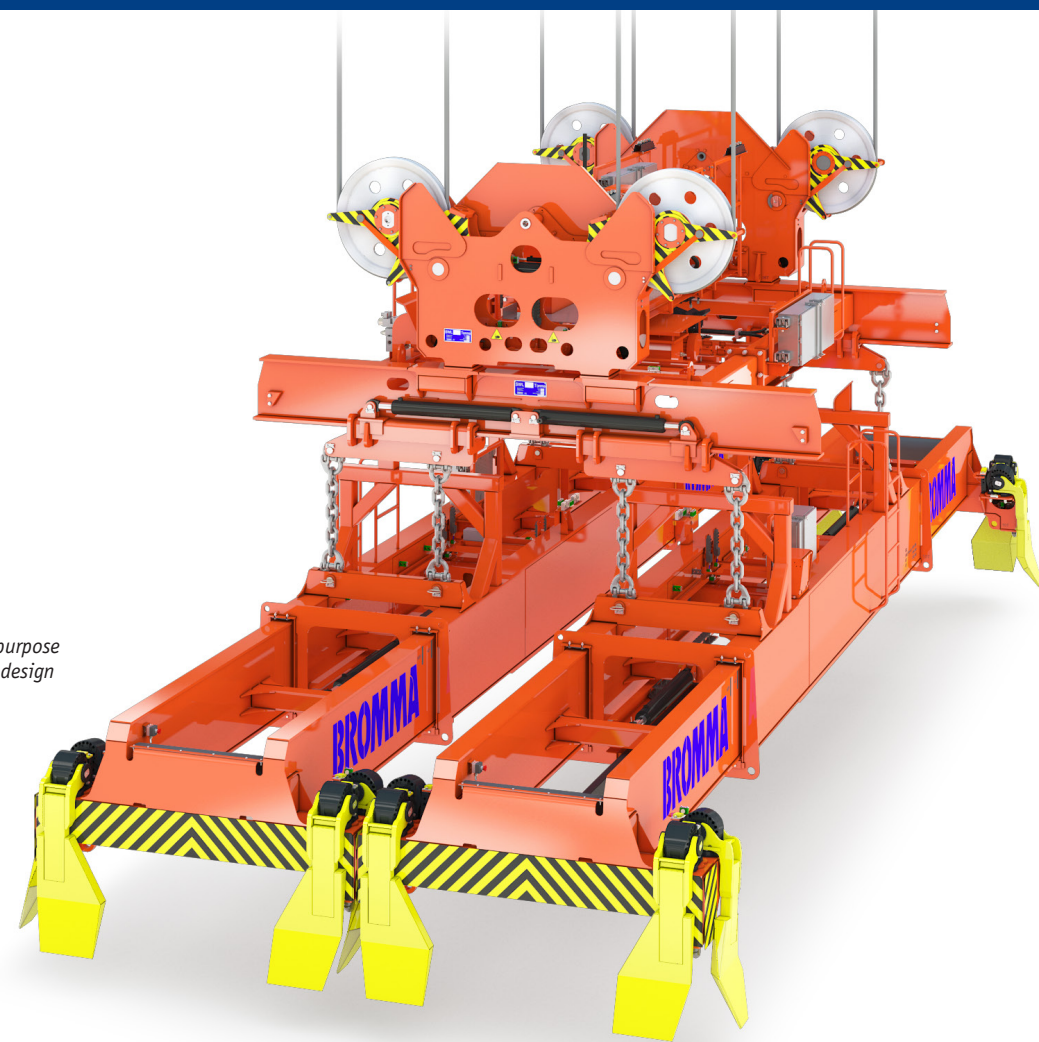
24VDC

CONTAINER HEIGHT DIFFERENCE

(Loading/ Unloading)
2'/660 mm

The Tandem™ Quattro is a high-productivity, lower weight Tandem™ solution. The limitation on Tandem™ Quattro is that it is not designed to lift a single 20' container. The Tandem™ Quattro is especially well-suited for container terminals that have a high percentage of 40' and 45' containers, and a low percentage of 20' containers that are located in such a way that they need to be loaded/unloaded in single lift mode. The Tandem™ Quattro offers the ability to handle four 20 foot containers at a time – two 20 foot containers under each spreader.

The picture shown is for illustration purpose
and may not correspond to the final design



TANDEM™ HEADBLOCK

TECHINAL DATA Tandem™ Headblock

LIFTING CAPACITY UNDER HEADBLOCK

165 metric tons (for Tandem 45)

HEADBLOCK TARE WEIGHT

About 6.8 metric tons
(for Tandem 45)
(without extra equipment))

HYDRAULICS

System pressure 140 bar

CONNECTION TO SPREADER

Twistlock

TWISTLOCK ROTATION

90° in approx. 1.5 sec.

MAX POWER CONSUMPTION

3 kW at 50-60 Hz

CONTROL VOLTAGE

24VDC

PULLEY WHEEL DISTANCE

Approx. 5 min. (manual)
Approx. 1 min. (fully automatic)





Supporting you at every step

Bromma can support every need over the lifetime of the spreader, from evaluation to refurbishment, upgrading and replacement. Through quality, expertise, presence and dedication, we eliminate costly downtime and secure smooth, highly productive operations.

BROMMA SERVICES

Fleet Evaluation

A Fleet Evaluation performed by Bromma's expert field service engineers gives you a clear picture of the condition of your spreader fleet and a list of recommended actions, enabling you to identify issues before they become problems and saving significant hassle and expense down the line. You will always know what needs to be done, and you can plan for maintenance, replacement or refurbishment at the right time. The evaluation includes a thorough review of the steel structure and mechanical, hydraulic and electrical systems.

Refurbishment

Refurbishment can add several years to the lifetime of a spreader and may be a sound economic decision in some cases. However, it is important to bear in mind that the viability of refurbishment is affected by many different factors. And while components and systems can be returned to factory specifications, it is not possible to undo wear and fatigue of the steel structure, which is the main limitation in most refurbishment scenarios. Where refurbishment is indicated, the work should always be carried out by an expert partner. Bromma has unmatched spreader knowledge and experience. We have the capabilities to bring your spreader back up to the highest possible level of performance.

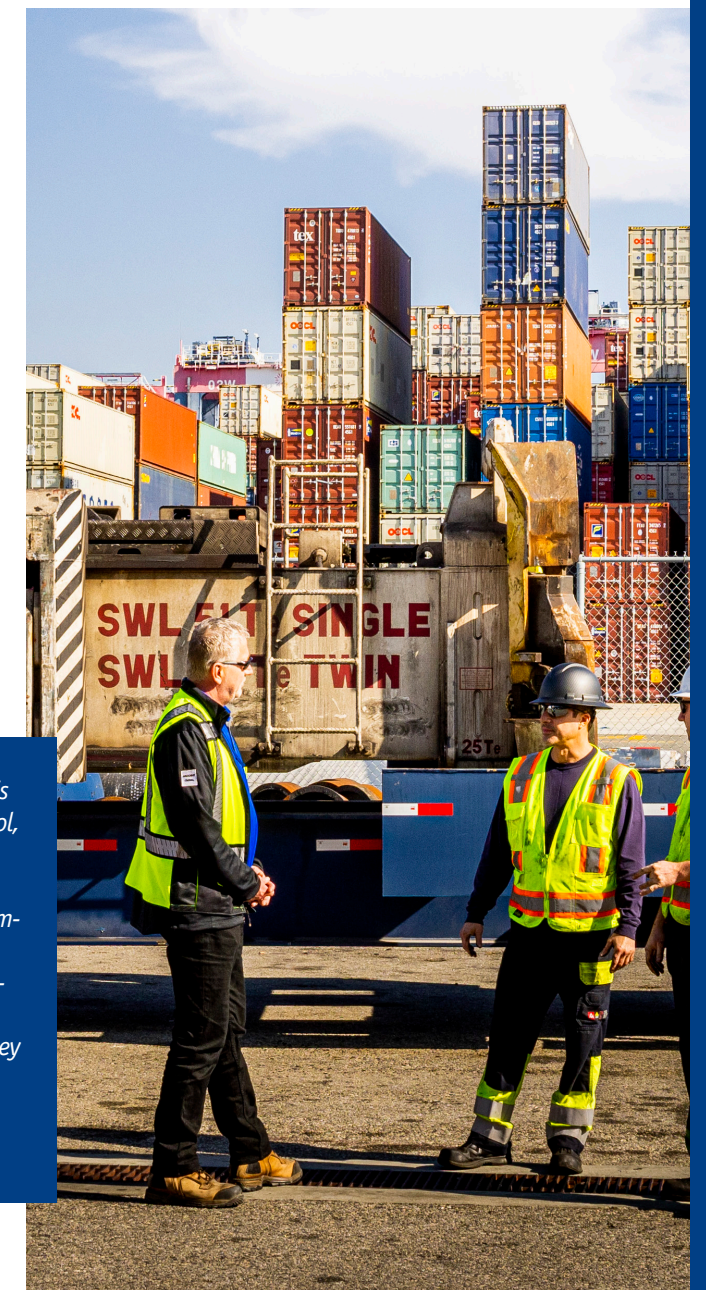
Upgrades

Bromma is committed to continuous innovation, and we want all our customers to benefit. That's why we offer performance upgrades for older spreaders, adding new functionality that can lift performance and productivity. The benefits are clear – even small increases in handling efficiency and uptime can result in significant financial gains.

BROMMA SPREADER MONITORING SYSTEM

Bromma Genuine Spare Parts

Bromma genuine spare parts keep your spreader at the same uncompromising level of performance. They are made to withstand constant punishment in the harshest conditions, from corrosive environments to extremes of temperature and humidity. On top of that, Bromma offers a rapid delivery service for our premium-quality genuine parts to anywhere in the world, as we keep large stocks of Bromma genuine spare parts in key locations worldwide, ensuring your operations will continue without interruption. We make it easy to get your Bromma genuine spare parts through our BrommaParts webshop, which is quick and simple to navigate with the catalogue is always at your fingertips.

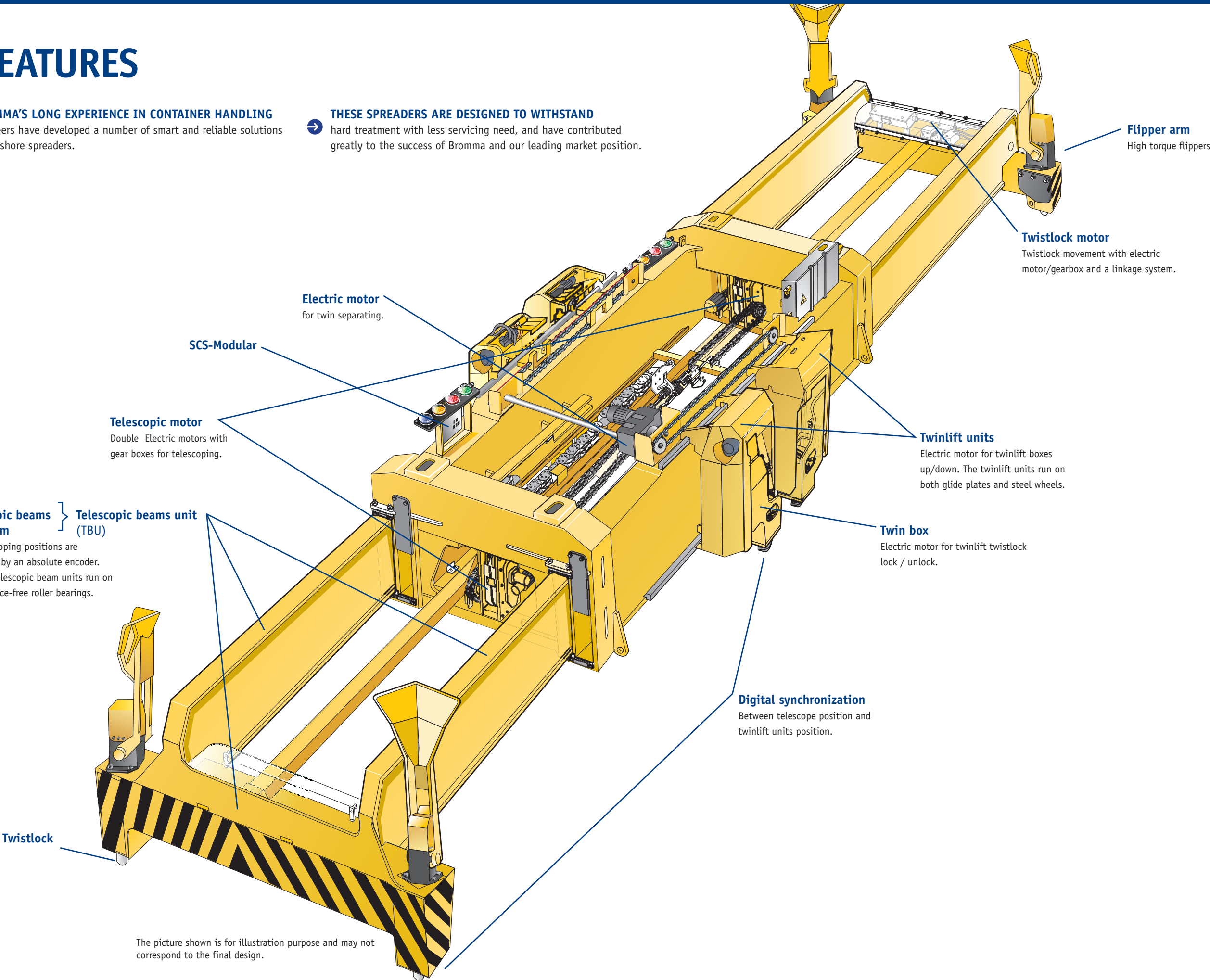


Bromma Spreader Monitoring System is a cloud-based real-time monitoring tool, which provides an instant view of the health of every spreader in fleet. With over 800 recommended solutions, Bromma SMS enables fact-based decision making around the use of your spreaders. It detects, understands, prevents, and resolves potential issues before they become real problems, allowing you to prioritize maintenance needs and improve productivity at your terminal.

KEY FEATURES


















➔ **DUE TO BROMMA'S LONG EXPERIENCE IN CONTAINER HANDLING**
Bromma engineers have developed a number of smart and reliable solutions for the ship to shore spreaders.

➔ **THESE SPREADERS ARE DESIGNED TO WITHSTAND**
hard treatment with less servicing need, and have contributed greatly to the success of Bromma and our leading market position.



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SHIP-TO-SHORE SPREADERS

		PAGE	CONTAINER HANDLING CAPABILITY								APPROXIMATE WEIGHT	MAX POWER (kW)	SWL (in metric tons)			SPEED (sec.)		OPERATING DETAILS
			20'	40'	45'	2x20'	2x40'	2x45'	4x20'				Even.	Eccen.	Twin	Twistlocks 90°	Telescopic	
E-SERIES		STS45E G2 PLUS	5	●	●	●	●				12.6 metric tons	11	51	51	2x32.5	~1	~21	Twinlift unit up/down approx. 6 sec. Twin separating speed approx. 18 sec
		STR40E	4	●	●		●				9.8 metric tons	7.5	51	51	2x32.5	~1	~28	Twinlift unit up/down approx. 6 sec.
		STR45E	4	●	●	●	●				11.3 metric tons	7.5	51	51	2x32.5	~1	~28	Twinlift unit up/down approx. 6 sec.
		SSX40E	4	●	●						8.6 metric tons	7.5	41	41	-	~1	~28	
		SSX45E	4	●	●	●					9.6 metric tons	7.5	41	41	-	~1	~30	
HYDRAULIC		SSX40	7	●	●						8.7 metric tons	7.5	41	41	-	~1	~28	
		SSX45	7	●	●	●					9.6 metric tons	7.5	41	41	-	~1	~30	
		STR40	7	●	●		●				9.9 metric tons	7.5	51	51	2x32.5	~1.5	~28	Twinlift unit up/down approx. 8 sec.
		STR45	7	●	●	●	●				11 metric tons	7.5	51	51	2x32.5	~1.5	~30	Twinlift unit up/down approx. 8 sec.
		STS45	8	●	●	●	●				12.7 metric tons	7.5	51	51	2x32.5	~1.5	~30	Twinlift unit up/down approx. 8 sec. Twin separating speed approx. 20 sec.
		STS45LW	8	●	●	●	●				10.7 metric tons	7.5	41	41	2x25	~1.5	~30	Twinlift unit up/down approx. 8 sec. Twin separating speed approx. 20 sec.
TANDEM		TANDEM 40	10	●	●		●	●			20.5 metric tons	15	2x41	2x41	-	~1	~28	Container Height Difference (Loading/unloading): 660 mm (standard); Skewing: ±20°; Separating speed: 1000 mm in 10 sec.
		TANDEM 45	10	●	●	●	●	●			22.1 metric tons	15	2x41	2x41	-	~1	~30	Container Height Difference (Loading/unloading): 660 mm (standard); Skewing: ±20°; Separating speed: 1000 mm in 10 sec.
		TANDEM E3	11		●	●		●	●		21 metric tons	15	2x41	2x41	-	~1	-	Container Height Difference (Loading/unloading): 660 mm (standard); Skewing: ±20°; Separating speed: 1000 mm in 10 sec.
		TANDEM FIX40	11		●			●			16 metric tons	15	2x35	2x35	-	~1	-	Container Height Difference (Loading/unloading): 660 mm (standard); Skewing: ±20°; Separating speed: 1000 mm in 10 sec.
		TANDEM QUATTRO	11		●	●	●	●	●	●	24 metric tons	15	2x35	2x35	4x32.5	~1	-	Container Height Difference (Loading/unloading): 660 mm (standard); Skewing: ±20°; Separating speed: 1000 mm in 10 sec.
		HEADBLOCK	12								6.8 metric tons	-	165 metric tons		-	~1.5	-	Pulley wheel distance adjustment: About 5 min. (manual), About 1 min. (fully automatic)



BROMMA

A Tradition of Innovation

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(Revision November 2023)