



YARD CRANE SPREADERS

BROMMA

A Tradition of Innovation

YARD OPERATIONS AS EFFICIENT AS YOUR SHIP-TO-SHORE OPERATION

Bromma all-electric and hydraulic spreader solutions are well-known for their high performance/low maintenance characteristics.

Lifting The Efficiency Of Yard Operations

Productivity gains in ship-to-shore operations can be lost if yard operations are less than fully efficient. As the industry leader in crane spreaders, Bromma understands the need to maximize performance in both segments of container handling. The Bromma yard family of all-electric and hydraulic spreader solutions are wellknown for their high performance/low maintenance characteristics. Bromma yard spreaders perform reliably, day after day, year after year, in some of the most demanding terminals in the world. It's this Bromma quality difference that has made Bromma the industry's first name in yard crane spreaders.

Maximizing Terminal Profitability

Bromma understands the relationship between spreader downtime and terminal profitability. For a terminal that can achieve a boost in productivity from a slightly more reliable spreader, the financial impact can be dramatic. Higher-performance Bromma yard spreaders let terminals turn ships faster. Bromma twin-lift spreaders, including the YTS45 separating twin-lift and the YTR40 regular twin-lift, are ideal tools for terminals handling high quantities of 20' containers. The YTS45 separating twin-lift spreader, in particular, offers enormous operating flexibility. This spreader features simplified yard spreader end beams, as well as an optional Bromma Twin-Twenty Detection System (TTDS). Failsafe logic and interlocks also ensure safety. The extremely reliable Bromma all-electric yard crane spreaders are ideal for terminals with a high proportion of 40' and 45' containers.

Eliminating Service Points

Bromma yard spreaders are faster and less expensive to service, since the YSX40E, YSX45E, YTR40E, YTR45E and YTS45E all-electric units have no oil, and no oil filter to change, so that service points are eliminated, service intervals lengthened, and service duration shortened. The reduced service requirements of Bromma all-electric yard spreaders makes them ideal for automated container handling environments. Further, by lengthening service intervals and eliminating service points, Bromma yard spreaders have an estimated 15% lower lifecycle service costs.

Easier, Faster Diagnostics with SCS-Modular control system

Bromma yard spreaders offer a spreader control and communications system that is unmatched in this industry for versatility and performance. Bromma SCS-Modular is a control system, which offers a range of different features stretching from basic spreader control to a full-fledged system including diagnostics, connectivity and an on-board information display. By delivering specific fault information [monitoring and recording each individual sensor and switch, instead of monitoring a fault group], the Spreader Information Display provides technicians with very specific intelligence. Bromma prognostics also identify potential spreader faults – anomalies in spreader performance – before the spreader breaks down, thereby preventing downtime events.



YARD CRANE

*The world of container handling is a tough one.
Only the toughest equipment survives.*

» GOOD DESIGN EMERGES FROM STRONG DESIGN VALUES

At Bromma these values include easy accessibility, ease of maintenance, and interchangeable, standardized spare parts.

» LESS RELIABLE SPREADERS REQUIRE MORE SERVICE

maintenance time and expense, and lead to more capital being tied up in spreader fleet spares.



Bromma Services: Solutions For Real-World Container Handling

Bromma yard crane spreaders are backed by the spreader industry's strongest service organization. At Bromma our mission is not only to provide the yard equipment terminals need, but the service and support you need. Bromma Services solutions include everything from quick availability to spare parts to a full spectrum of preventive and corrective maintenance services. Bromma information services include knowledge products derived from our advanced, pioneering SCS-Modular technology.

The Bromma mission begins with listening to our customers. Exceptional service and support is something our customers expect, and it is something we are committed to deliver.

Yard Spreaders Engineered To Be Feature-Rich

Bromma yard spreaders are feature-rich. The yard family includes a side shift capability on both hydraulic and all-electric models. YSX40E and YSX45E single-lift spreaders are available with electric flippers. The twistlock head shape improves the ability to handle non aligned 20' containers. The all-electric twistlock drive design is both simple and reliable, with an electric motor that drives the twistlock movement via a gearbox and rods connected to each twistlock pin. The twin boxes on the YTR40/45 and the YTS45 have increased float for better handling of non-aligned 20' containers. Electrical cabinets are mounted with specially designed shock absorbers, identical to Bromma ship to shore spreaders.

Yard spreaders can be delivered with automatic electric flipper arms specially designed for yard crane operation. The flippers can be mounted as side flippers and combined with fixed guide arms. The electric flipper gearbox is equipped with a safety function which makes the flipper retract at a force of 3000 Nm or more. Yard spreaders provided with hydraulic powerpack can also be equipped with automatic flipper arms specially designed for yard crane operation. The flippers can be mounted as side flippers and combined with fixed guide arms. The flipper motor is equipped with chock relief valves which makes the flipper arm retract if the oil pressure exceeds 140 bar.

Engineering excellence means careful attention to the little things in spreader design. The continuous improvement engineering philosophy of Bromma has led to yard spreaders that are engineered for higher performance.

Built To Run Longer, Run Tougher

The world of container handling is a tough one. Only the toughest equipment survives. As with all Bromma products, yard crane spreaders are built to last. Bromma durability is due in part to the use of high quality steel, which is renowned for its unique combination of strength, weldability, and formability. Bromma durability is also a result of Bromma design. Designing a better spreader doesn't necessarily mean designing a more complicated spreader. Good design emerges from strong design values. At Bromma these values include easy accessibility, ease of maintenance, and interchangeable, standardized spare parts for a reduced spare parts inventory. Finally, Bromma durability results from state-of-the-art spreader factory in Asia, where all major components are jig-built for a high degree of accuracy. At Bromma quality stability is one goal among many in our commitment to world-class manufacturing.

A Greater Return On Investment

In the end, what sets Bromma apart from competitors is a major difference in lifetime value. A spreader fleet made up of marginally less reliable spreaders is a more expensive spreader fleet. Less reliable spreaders require more service maintenance time and expense. They lead to more capital being tied up in spreader fleet spares – capital that could be re-allocated to terminal growth-producing initiatives. Less reliable spreaders lead to slower ship turns, and less efficient berth allocation, thus compromising the competitive position of your terminal, and putting a ceiling on terminal revenue.

What determines true spreader value? Spreader value is not calculated simply by looking at initial spreader price. Spreader value is best calculated by looking at the performance and operating costs of a spreader over a lifetime – lifetime energy costs, lifetime service and maintenance costs, and most importantly, spreader reliability and productivity. The Bromma yard family of crane spreaders delivers a higher return on investment.

The Leading Global Partner In Spreaders

Selecting a spreader is also a matter of selecting a company. Bromma spreaders are backed by the strongest company in spreaders. Bromma means strength: financial strength, staying power, and safety. Bromma means knowledge: spreaders are our only business, and on a global basis we have the industry's most experienced spreader organization. Bromma means consistency: we have always stood behind our products across their lifecycle, and we never walk away from a problem. Bromma means resources: a global team with production capacity of over 2,000 spreaders a year, and our continuing investment in R&D is the industry's highest. Finally, Bromma means global: we are the spreader business partner best-equipped to meet the needs of other global organizations.

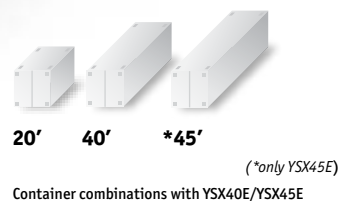
The Bromma yard product family offers the industry's most reliable all-electric and high-performance hydraulic solutions, backed by the industry's premier company in spreaders.

All-electric product family

All-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 green spreader equipment.

All-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. 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.

YSX40E/YSX45E ALL ELECTRIC YARD CRANE SPREADER



» **90 % REDUCTION**
of power consumption
(compared to a hydraulic spreader).
» **HIGH RELIABILITY**
with all-electric.

» **RECESSED END BEAMS**
» **SILENT AND ENVIRONMENTAL FRIENDLY**
» **DURABLE AND STRONG**
despite low weight.

» **EASY TO MAINTAIN**
and long service intervals.
» **DESIGNED IN**
accordance with EN13001.

Bromma telescopic spreaders, YSX40E and YSX45E for yard cranes, are spreaders calculated for two million cycles. The spreaders are 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 spreaders consists of a rectangular frame construction enabling easy location on containers. The spreaders can adjust their length to lift 20', 40' and *45 foot containers using ISO floating twistlocks.

The all-electric spreader reduces power consumption to approximately 1/10 of a comparable hydraulic spreader. The electrical motors only consume electricity when an operation is performed. The electrical equipment and the cable chain system are well protected in the main frame.

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 YSX40E and YSX45E spreaders provides high lifting capacity with a low nominal tare weight thanks to the box design of the telescoping arms and the main frame. The spreaders are designed in accordance with EN13001. All components can be easily assembled, adjusted, removed and are accessible for inspection and maintenance.

YSX40E and YSX45E are silent and price worthy alternative for most applications, particularly in environmentally sensitive terminals.

Technical Data YSX40E/YSX45E

» LIFTING CAPACITY

(According to EN13001)
One container 41 metric tons,
± 10% eccentric load

» TELESCOPIC MOTION

YSX40E: 20' to 40' in approx. 25 sec.
YSX45E: 20' to 45' in approx. 30 sec.

» MAX POWER CONSUMPTION

0–3.0 kW

» ELECTRICAL CABINET

Stainless steel IP66

» LIFTING LUGS

4 x 10 metric tons in end beams

» GUIDE ARMS

Fixed
(Flippers are available as option)

» CONTROL SYSTEM

Relay controlled
(SCS-Modular available as an option)

» SURFACE CONDITIONING

Sand-blasted SA 2.5
50–90um 2-component zinc epoxy
100um 2-component MIO
pigmented
70um polyurethane

» HOISTING SPEED

Max 1 m/s

» TWISTLOCK ROTATION

90° in approx. 1 sec.

» CONTROL VOLTAGE

24 V DC

» WEIGHT

YSX40E: About 5.7 metric tons
(without extra equipment)
YSX45E: About 6.4 metric tons
(without extra equipment)

» POWER SUPPLY

400/230 V AC 50 Hz or otherwise
as agreed

» INSTALLED POWER

Telescopic system 3.0 kW
Twistlock system 2 x 0.37 kW
Total on spreader 3,75 kW

YTR40E/YTR45E ALL ELECTRIC TWINLIFT YARD CRANE SPREADER



» **ENVIRONMENTAL FRIENDLY**
due to its all electric design.
» **HIGH RELIABILITY**
with all-electric.

» **FAST TROUBLE SHOOTING**
» **ADVANCED SCS-MODULAR**
communications system reduces
downtime considerably.

» **DESIGNED IN**
accordance with EN13001.
» **SILENT AND ENVIRONMENTAL FRIENDLY**

The telescopic spreaders are of rectangular frame construction enabling easy location on containers. The spreaders are 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.

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. All movements of the YTR40E and YTR45E are electrically driven. This means that the spreader is silent and consumes energy only when moving.

Made of high quality steel, the standard YTR40E and YTR45E 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 Control System, reducing and preventing downtime through improvements in the area of electrical connections. It will also shorten downtime through faster spreader fault diagnostics.

Technical Data YTR40E/YTR45E

» LIFTING CAPACITY

(According to EN13001)

One container 51 metric tons,
±10% eccentric load
Twinlift of two 20' containers
2x32.5 metric tons evenly loaded

» LIFTING LUGS

4x10 metric tons in the
main frame and the end beams.

» WEIGHT

YTR40E: About 9.1 metric tons
(without extra equipment)
YTR45E: About 10.6 metric tons
(without extra equipment)

» TELESCOPIC MOTION

YTR40E: 20' to 40' in 28 sec.
YTR45E: 20' to 45' in 30 sec.

» GUIDE ARMS

Fixed (available as an option)

» TWISTLOCK ROTATION

90° in approx. 1 sec.

» TWINLIFT UNIT UP/DOWN

Approx. 6 sec.

» POWER SUPPLY

400/230 V AC 50 Hz or otherwise
as agree

» MAX POWER CONSUMPTION

0-3,5 kW

» CONTROL SYSTEM

SCS-Modular

» CONTROL VOLTAGE

24 V DC

» INSTALLED POWER

Telescopic system 3kW
Twistlock system 2x0.37kW +
4x0.12kW
Twin hoist 2x0.25kW

» ELECTRICAL CABINET

Stainless steel IP66

» SURFACE CONDITIONING

Sand-blasted SA 2.5
50-90um 2-component zinc epoxy
100um 2-component MIO
pigmented
70um polyurethane

YTS45E ALL ELECTRIC SEPARATING TWINLIFT YARD CRANE SPREADER



- » **TWO 20' CONTAINERS**
can be moved apart from 0 to 1.6 metres (0'-5') under full load.
- » **RECESSED END BEAMS**

- » **ENVIRONMENTAL FRIENDLY**
due to its all-electric design.
- » **ADVANCED SCS-MODULAR**
communications system reduces downtime considerably.

- » **FAST TROUBLE SHOOTING**
» **DESIGNED IN**
accordance with EN13001.

With the Bromma all electric adjustable twinlift Spreader YTS45E a larger percentage of above-deck containers can be transported in twinlift mode. The twinlift spreader can move two 20 foot containers from a spacing of 0 to 1.6 metres (0 to 5 foot) under full load while suspended under the twistlocks.

Two containers can be moved synchronised towards one another and apart from one another. The movements can be done at anytime in the crane cycle and are mechanically controlled to be symmetrical. There is no stopping time to change the container spacing.

The telescopic spreader YTS45E is of 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.

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.

All movements of the YTS45E are electrically driven. This means that the spreader is silent and consumes energy only when moving.

Made of high quality steel, the standard YTS45E 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 Control System, reducing and preventing downtime through improvements in the area of electrical connections. It will also shorten downtime through faster spreader fault diagnostics.

Technical Data YTS45E

» LIFTING CAPACITY

(According to EN13001)

One container 51 metric tons,
±10% eccentric load
Twinlift of two 20' containers
2 x 32.5 metric tons evenly loaded

» LIFTING LUGS

4 x 10 metric tons in the main frame
and end beams

» WEIGHT

About 10.9 metric tons
(without extra equipment)

» SEPARATING CAPACITY

0-1600 mm with full load

» TELESCOPIC MOTION

20' to 45' in approx. 30 sec.

» GUIDE ARMS

Fixed
(Flippers are available as option)

» TWISTLOCK ROTATION

90° in approx. 1 sec.

» TWINLIFT UNIT UP/DOWN

Approx. 6 sec.

» TWIN EXPAND/RETRACT

Approx. 18 sec.

» POWER SUPPLY

400/230 V AC 50 Hz or otherwise as
agreed

» MAX POWER CONSUMPTION

0-7.5 kW

» CONTROL SYSTEM

SCS-Modular

» CONTROL VOLTAGE

24 VDC

» INSTALLED POWER

Telescopic system 2x2.2kW
Twin separating 1.5kW
Twistlock system 2x0.37kW +
4x0.12kW
Twin hoist 4x0.12kW

» ELECTRICAL CABINET

Stainless steel IP66

» SURFACE CONDITIONING

Sand-blasted SA 2.5
50-90um 2-component zinc epoxy
100um 2-component MIO
pigmented
70um Polyurethane

YSX40/YSX45

YARD CRANE SPREADER



(*only YSX45)
Container combinations with YSX40/YSX45

» **HIGH LIFTING CAPACITY**
» **RECESSED END BEAMS**

» **BOLTED SIDE GUIDES**
» **ROBUST AND WELL PROVEN DESIGN**
» **LONG ECONOMIC LIFE**

» **DESIGNED IN**
accordance with EN13001

The Bromma YSX40 and YSX45 are yard crane spreaders with mechanical structure calculated for 2 million cycles. The spreaders can adjust their length to lift 20', 40' and *45 foot containers using ISO floating twistlocks.

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

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. Control valves for twistlock and guide arms are mounted on the end beams, in order to simplify maintenance and to minimize the number of hydraulic hoses in the cable chain system.

The electrical components and the cable chain system are well protected inside the main frame. The hydraulic power pack is entirely enclosed within the main frame to ensure maximum protection. The complete hydraulic unit is shock mounted in one sturdy frame with protective covers.

Made of high quality steel, the standard YSX40 and YSX45 yard spreader provides high lifting capacity with a low nominal tare weight thanks to the box design of the telescoping arms 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.

Technical Data YSX40/YSX45

» **LIFTING CAPACITY**

(According to EN13001)
One container 41 metric tons,
±10% eccentric load

» **LIFTING LUGS**

4 x 10 metric tons in end beams

» **WEIGHT**

YSX40: About 7.6 metric tons
(without extra equipment)
YSX45: About 9.4 metric tons
(without extra equipment)

» **TELESCOPIC MOTION**

YSX40: 20' – 40' in approx. 28 sec.
YSX45: 20' – 45' in approx. 30 sec.

» **GUIDE ARMS**

Fixed
(Flippers are available as option)

» **TWISTLOCK ROTATION**

90° in approx. 1 sec.

» **HYDRAULICS**

System pressure 100 bar
Piston pump pressure compensated

» **POWER SUPPLY**

400/230 VAC 50 Hz or otherwise
as agreed

» **MAX POWER CONSUMPTION**

7.5 kW

» **CONTROL SYSTEM**

Relay controlled
(SCS-Modular available as an option)

» **CONTROL VOLTAGE**

24 VDC

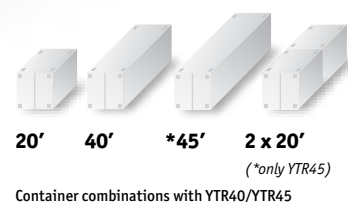
» **ELECTRICAL CABINET**

Stainless steel IP66

» **SURFACE CONDITIONING**

Sand-blasted SA 2.5
50-90um 2-component zinc epoxy
100um 2-component MIO
pigmented
70um polyurethane

YTR40/YTR45 TWINLIFT YARD CRANE SPREADER



» **TWINLIFT CAPABILITY**
» **HIGH LIFTING CAPACITY**
» **RECESSED END BEAMS**

» **ROBUST AND WELL PROVEN DESIGN**
» **LONG ECONOMIC LIFE**

» **DESIGNED IN**
accordance with EN13001.

The Bromma YTR40 and YTR45 are heavy-duty yard crane spreaders with mechanical structure calculated for 2 million cycles. They are designed for twinlift capability and can handle two 20 foot containers at the same time or one 40 or one 45 foot container. The design is well proven.

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

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. Control valves for twistlock and guide arms are mounted on the end beams, in order to simplify maintenance and to minimize the number of hydraulic hoses in the cable chain system.

The electrical components and the cable chain system are well protected inside the main frame. The hydraulic power pack is entirely enclosed within the main frame to ensure maximum protection. The complete hydraulic unit is shock mounted in one sturdy frame with protective covers.

Made of high quality steel, the standard YTR40 and YTR45 spreader provides high lifting capacity with a low nominal tare weight thanks to the box design of the telescoping arms 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.

Technical Data YTR40/YTR45

» LIFTING CAPACITY

(According to EN13001)

One container 51 metric tons,
±10% eccentric load
Twinlift of two 20' containers
2 x 32.5 metric tons evenly loaded

» LIFTING LUGS

4 x 10 metric tons in the main frame
and end beams

» WEIGHT

YTR40: About 9.1 metric tons
(without extra equipment)
YTR45: About 10.6 metric tons
(without extra equipment)

» TELESCOPIC MOTION

YTR40: 20' to 40' in approx. 28 sec.
YTR45: 20' to 45' in approx. 30 sec.

» GUIDE ARMS

Fixed
(Flippers are available as option)

» TWISTLOCK ROTATION

90° in approx. 1.5 sec.

» TWINLIFT UNIT UP/DOWN

Approx. 8 sec.

» HYDRAULICS

System pressure 100 bar
Piston pump pressure compensated

» 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

24 VDC

» ELECTRICAL CABINET

Stainless steel IP66

» SURFACE CONDITIONING

Sand-blasted SA 2.5
50-90um 2-component zinc epoxy
100um 2-component MIO
pigmented
70um polyurethane

YTS45

SEPARATING TWINLIFT YARD CRANE SPREADER



» **RETRACTABLE TWINLIFT**
» **HIGH LIFTING CAPACITY**
» **RECESSED END BEAMS**

» **ROBUST AND WELL PROVEN DESIGN**
» **LONG ECONOMIC LIFE**
» **BOLTED SIDE GUIDES**

» **DESIGNED IN**
accordance with EN13001.

The Bromma YTS45 is a heavy-duty yard crane spreader equipped with retractable twinlift unit for handling two 20 foot containers at the same time, or one 40 or 45 foot container. The twinlift spreader can move two 20 foot containers from a spacing of 0 to 1.6 metres (0 to 5 foot) under full load while suspended under the twistlocks. Low noise level and robust design are some other advantages.

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

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. Control valves for twistlock and

guide arms are mounted at the end beams to simplify maintenance and to minimize the number of hydraulic hoses in the cable chain system.

The electrical components and the cable chain system are well protected inside the main frame. The hydraulic power pack is entirely enclosed within the main frame to ensure maximum protection. The complete hydraulic unit is shock mounted in one sturdy frame with protective covers.

Made of high quality steel, the standard YTS45 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.

Technical Data YTS45

» **LIFTING CAPACITY**

(According to EN13001)

One container 51 metric tons,
±10% eccentric load
Twinlift of two 20' containers
2 x 32.5 metric tons evenly loaded

» **LIFTING LUGS**

4 x 10 metric tons in the main frame
and end beams

» **WEIGHT**

About 11.2 metric tons
(without extra equipment)

» **SEPARATING CAPACITY**

0–1600 mm up to 2 x 25 metric tons

» **TELESCOPIC MOTION**

20' to 45' in approx. 30 sec.

» **GUIDE ARMS**

Fixed
(Not designed for using flippers)

» **TWISTLOCK ROTATION**

90° in approx. 1.5 sec.

» **TWINLIFT UNIT UP/DOWN**

Approx. 8 sec.

» **TWIN EXPAND/RETRACT**

Approx. 30 sec.

» **HYDRAULICS**

System pressure approx. 120 bar
Piston pump pressure compensated

» **POWER SUPPLY**

400/230 V AC 50 Hz or otherwise as
agreed

» **MAX POWER CONSUMPTION**

7.5 kW

» **CONTROL SYSTEM**

SCS-Modular

» **CONTROL VOLTAGE**

24 VDC

» **ELECTRICAL CABINET**

Stainless steel IP66

» **SURFACE CONDITIONING**

Sand-blasted SA 2.5
50–90um 2-component zinc epoxy
100um 2-component MIO
pigmented
70um Polyurethane

YSX45E PLUS

ALL-ELECTRIC YARD CRANE SPREADER



Other combinations are also available

» 90% REDUCTION OF POWER CONSUMPTION COMPARED TO HYDRAULIC SPREADER

Bromma YSX45E PLUS telescopic yard spreader is an all-electric spreader with a steel structure calculated for two million cycles and increased SWL to 51 MT.

The YSX45E PLUS is perfectly suitable for use in ASC applications. With their fewer service points, lower weight and absence of hydraulics, this spreader features high availability, easy maintenance and extended durability. YSX45E PLUS delivers high productivity performance, long service life and maximum safety. Yet it is surprisingly lightweight, in many cases several metric tons lighter than comparable spreaders in the market.

The YSX45E PLUS is a silent alternative for most applications, particularly in environmentally sensitive terminals.

» HIGH LIFTING CAPACITY » FURTHER STRENGTHENED MECHANICAL STRUCTURE

With the Plus-range telescopic drive and twistlock system, the YSX45E PLUS has a stronger telescopic drive and improved handling of damaged containers.

The all-electric spreader reduces power consumption to approximately 1/10 of a hydraulic spreader, as the electrical motors only consume electricity when in operation. Components are easily accessible for inspection and maintenance. The spreader motions are controlled from the crane.

As standard, the YSX45E PLUS is relay controlled but can also be equipped with the SCS-Modular as a control system option.

» LONG SERVICE INTERVALS » FULFILLS THE DESIGN CRITERIA OF EN13001: HC2, HD1, U7, Q3

Technical Data YSX45E PLUS

» LIFTING CAPACITY

(According to EN 13001, HC2, HD1, U7, Q3)
-51 metric tons evenly loaded
-51 metric tons $\pm 10\%$ eccentric load
Twinlift of two 20' containers
2 x 32.5 metric tons evenly loaded

» LIFTING LUGS

4 x 12.5 metric tons in end beams

» TARE WEIGHT

7 metric tons
(without extra equipment)

» TELESCOPIC MOTION

20' to 45' in approx. 30 sec.

» TWISTLOCK ROTATION

90° in approx. 1 sec.

» TWINLIFT UNIT UP/DOWN

Approx. 8 sec.

» POWER SUPPLY

400/230 V AC 50 Hz or otherwise as agreed

» MAX POWER CONSUMPTION

0 - 3.7 kW

» CONTROL SYSTEM

Relay controlled
(SCS-Modular available as an option)

» CONTROL VOLTAGE

24 VDC

» ELECTRICAL CABINET

Stainless steel IP66

» INSTALLED POWER

Telescopic system 3.7 kW
Twistlock system 2 X 0.4 kW
Total on spreader 4.5 kW

Bromma Spreader Monitoring System

Get an instant single view of the health condition of every spreader in your fleet. Bromma SMS is a cloud based service designed to help terminal operators to detect and prevent spreader failures, prioritize and plan maintenance operations and resolve potential problems before they become real.



Get an instant single view of the health condition of every spreader in your fleet

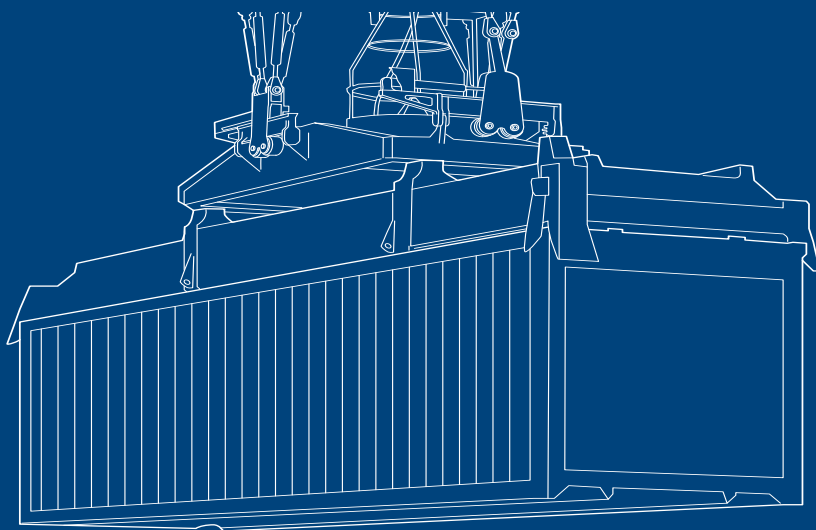
The system aggregates key statistics from the spreaders to present an easy to read overview and identify any current issues. A health bar indicates the real-time status of particular spreader in your fleet.

View packaged information on issues and recommended solutions

SMS helps you understand the errors and warnings from the spreader's diagnostics system. To make sure the issues are resolved, each warning includes a list of recommended actions.

Spend less time on planning maintenance

SMS keeps track of the maintenance needs of each spreader in your fleet. By monitoring spreader usage in real time, it helps you to schedule to exactly when it is needed.



KEY FEATURES

» **DUE TO BROMMA'S LONG EXPERIENCE IN CONTAINER HANDLING,** Bromma engineers have developed a number of smart and reliable solutions for the yard. Some of these solutions come from the tough environment of 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.

SCS-Modular

The SCS-Modular control system delivers advanced monitoring and diagnostic information. It also simplifies the spreader as it eliminates or minimizes junction boxes, terminal strips, relays and DIN rails. The CANopen field bus decreases cabling still more.

Telescoping system

The chain driven telescopic system, with shock absorbing blocks of spring washers and tension rods, comes directly from Bromma's ship to shore spreaders.

Box beam design / High strength steel

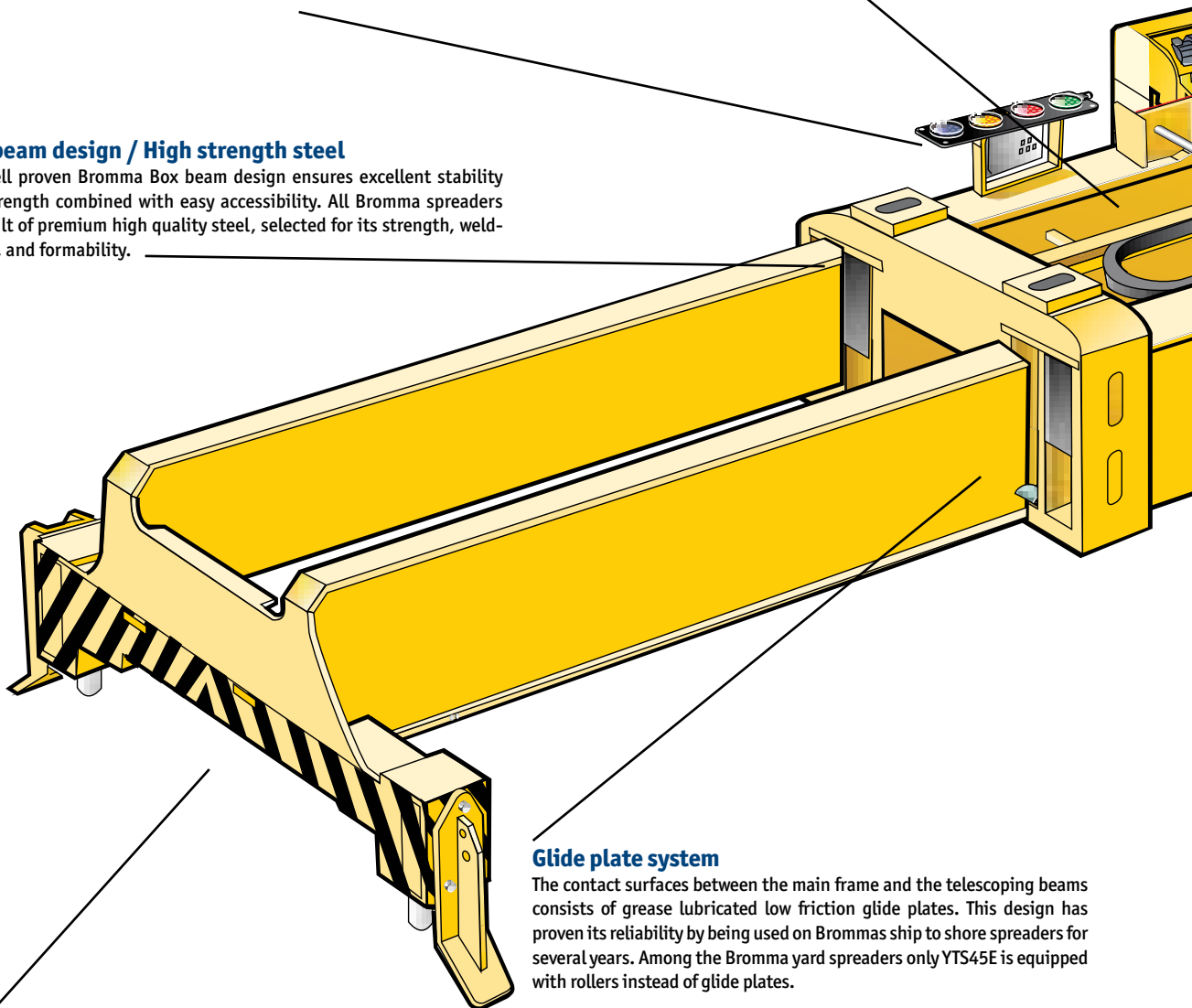
The well proven Bromma Box beam design ensures excellent stability and strength combined with easy accessibility. All Bromma spreaders are built of premium high quality steel, selected for its strength, weldability, and formability.

Glide plate system

The contact surfaces between the main frame and the telescoping beams consist of grease lubricated low friction glide plates. This design has proven its reliability by being used on Bromma's ship to shore spreaders for several years. Among the Bromma yard spreaders only YTS45E is equipped with rollers instead of glide plates.

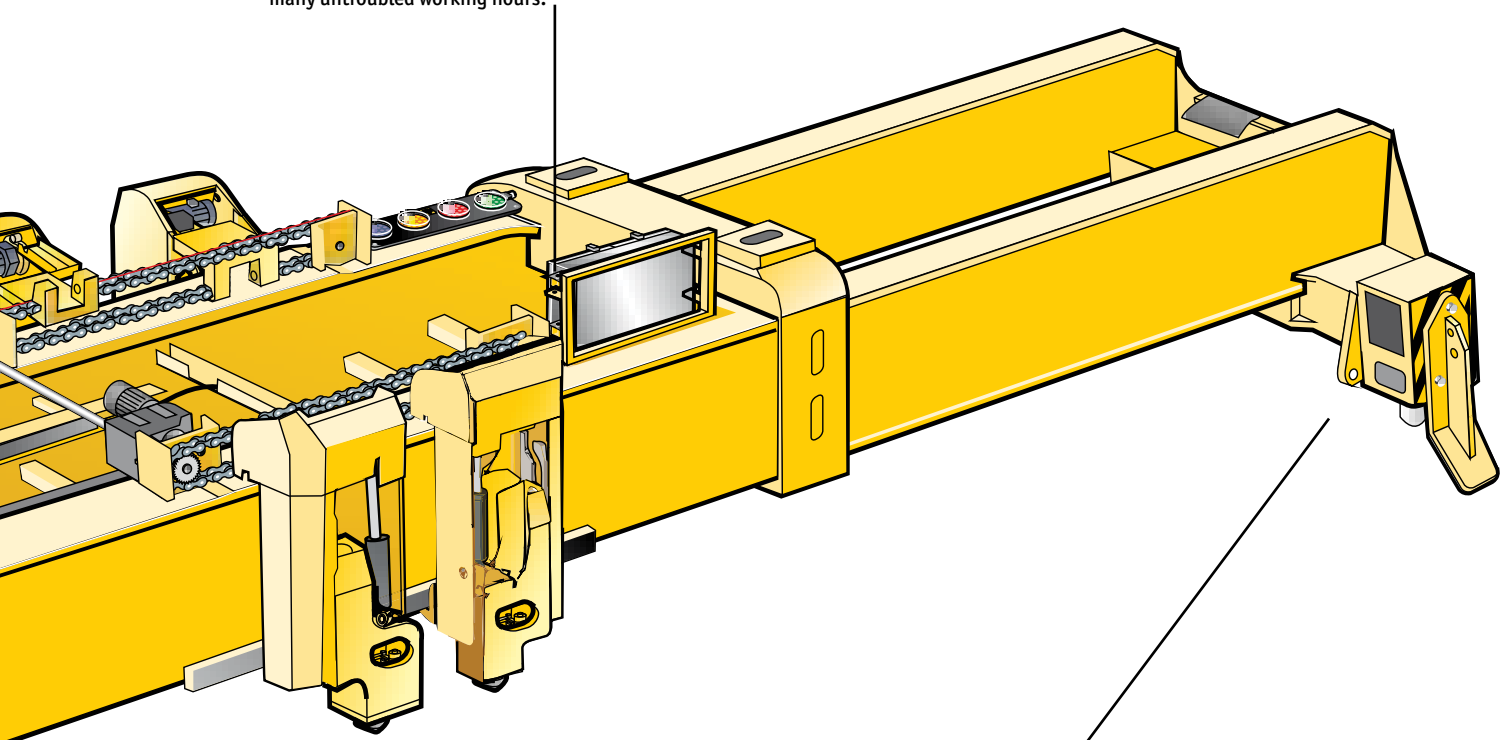
All-electric drive for twistlocks

This service – and power-saving design is both simple and reliable. An electric motor drives the twistlock movement via a gearbox and rods connected to each twistlock pin. Only on electric spreaders.



Electrical Cabinet

A common downtime reason is connection failures caused by repetitive impact between the spreader and the containers. The electrical cabinets are mounted with specially designed shock absorbers, identical to the ship to shore spreaders. This together with the enclosure IP66 ensures many untroubled working hours.



Floating ISO Twistlocks

A well proven construction which allows for 6 mm of float in all lateral directions, providing efficient locating into container corner castings. The revised twistlock head shape improves the ability to handle non aligned 20' containers.

Please note that the picture shows an YTS45E, certain items will look different for other models.

SERVICES

Breakdowns will happen, whether we like or not. That's the very nature of any piece of mechanical equipment. Not even a Bromma spreader escapes being affected by the elements.

And although tools such as SCS-Modular and Spreader Monitoring System improve predictability, things do happen out of the plan. Then it is important to have a close partner to work with.

Our services are all about ensuring your operational reliability. Our service portfolio contains every service you need to keep your equipment operational at all times – services delivered timely and in a friendly spirit, on a global basis.

Besides spare parts, maintenance and repairs, we offer to help customers keep their equipment intact and in pace with time through our upgrade and refurbishment services.

We offer a complete range of spreader-related services, including spare parts handling, refurbishment (giving new life to used spreaders), and upgrading your existing equipment to current standards. We also provide service and maintenance agreements and many practical and theoretical courses.



Spare parts



Refurbishments



Service &
maintenance



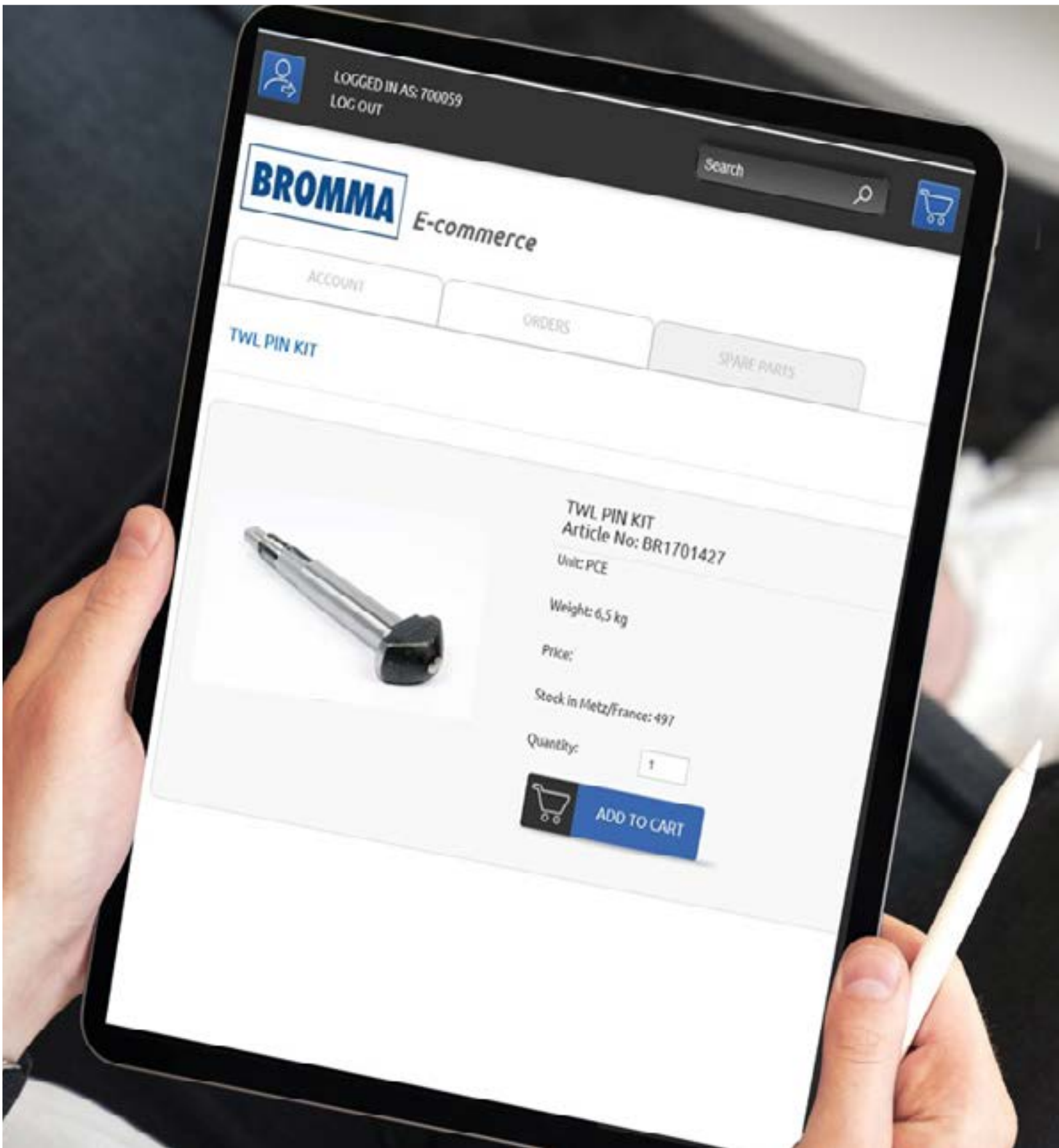
Training



Upgrades

BROMMA E-COMMERCE SYSTEM

Enables you to order spare parts. The user-friendly interface together with a powerful search function will ensure quick and accurate ordering of Bromma original parts.



YARD CRANE SPREADERS

E-SERIES ELECTRIC SPREADERS



YSX40E

6

| • | • | | |

About 5.7 metric tons



YSX45E

6

| • | • | • | |

About 6.4 metric tons



YTR40E

7

| • | • | | • |

About 9.1 metric tons



YTR45E

7

| • | • | • | • |

About 10.6 metric tons



YTS45E

8

| • | • | • | • |

About 10.9 metric tons



YSX40

9

| • | • | | |

About 7.6 metric tons



YSX45

9

| • | • | • | |

About 9.4 metric tons



YTR40

10

| • | • | | • |

About 9.1 metric tons



YTR45

10

| • | • | • | • |

About 10.6 metric tons



YTS45

11

| • | • | • | • |

About 11.2 metric tons



YSX45E PLUS

12

| • | • | • | |

About 7.0 metric tons

PLUS SPREADERS

POWER (kW)	SWL (in metric tons)			SPEED (sec.)		Operating Details
	Even.	Eccen.	Twin	Twistlocks 90°	Telescope	

0–3.0	41	41		~1	~25	
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0–3.0	41	41		~1	~30	
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0–3.5	51	51	2x32.5	~1	~28	Twinlift unit up/down approx. 6 seconds
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0–3.5	51	51	2x32.5	~1	~30	Twinlift unit up/down approx. 6 seconds
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0–7.5	51	51	2x32.5	~1	~30	Twinlift unit up/down approx. 6 seconds Twin separating speed approx. 18 seconds
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7.5	41	41		~1	~28	
-----	----	----	--	----	-----	--

7.5	41	41		~1	~30	
-----	----	----	--	----	-----	--

7.5	51	51	2x32.5	~1.5	~28	Twinlift unit up/down approx. 8 seconds
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7.5	51	51	2x32.5	~1.5	~30	Twinlift unit up/down approx. 8 seconds
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7.5	51	51	2x32.5	~1.5	~30	Twinlift unit up/down approx. 8 seconds
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0 – 3.7	51	51	4X12.5	~1	~30	
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