

# Intelligence, Precision and Robustness

Spreader functionality for Automatic Yard Cranes

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# Automatic Yard Handling Needs

- **Productivity**
- **Predictability**
- **Precision**
- **”Book keeping”**
- **Quality**
- **Reliability**
- **Availability**
- **Performance**

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# The Importance of Reliability



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# > 1000 spreaders in automated yard cranes

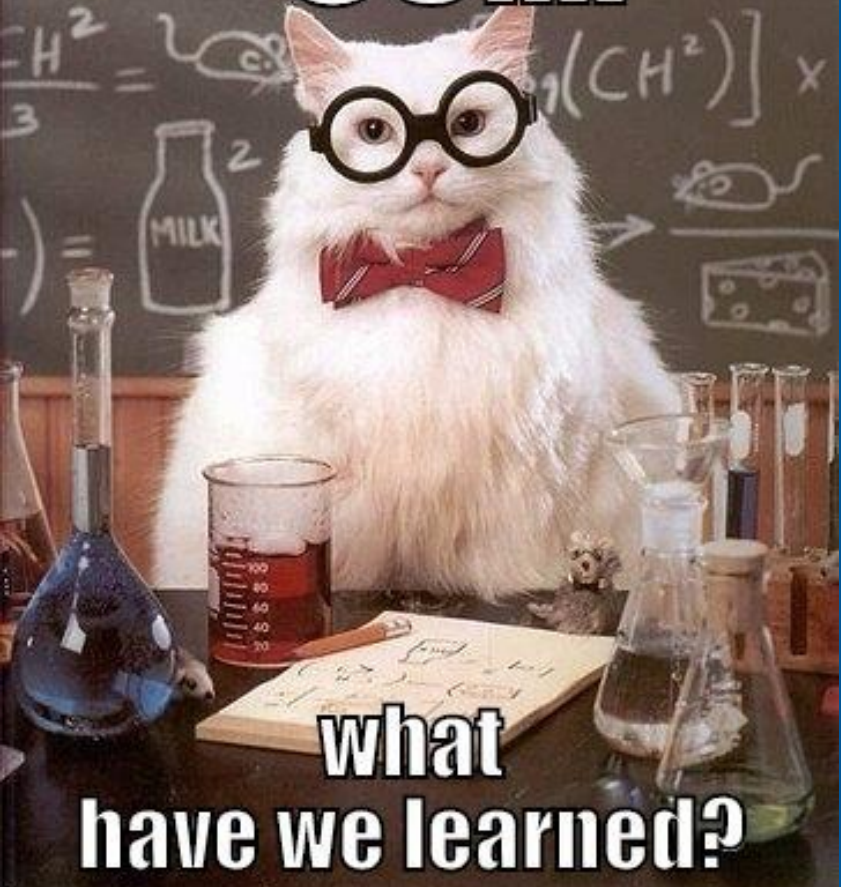
- 6 EH132 & 3 EH8 in Thamesport, UK (1990)
- 55 EH132S in Hamburg, Germany (2002-06)
- 34 YSX45E in Virginia, USA (2006-07)
- 128 YSX45E in Pusan, Korea (2007-08)
- 26 YSX45 in Hamburg, Germany (2008-09)
- 33 YSX45E in Algeciras, Spain (2009)
- 31 YSX40E in Kaohsiung, Taiwan (2007-10)
- 59 YSX45E in Khalifa, Abu Dhabi (2011-17)
- 54 YSX45E in Barcelona, Spain (2011-14)
- 8 YSX45E in Brisbane, Australia (2012)
- 14 YSX45E in Sydney, Australia (2013)
- 64 YSX45E in London, UK (2012-16)
- 30 YSX45E in Los Angeles, USA (2013-15)
- 72 YSX45E in Long Beach, USA (2013-15)
- 52 YSX45 in Rotterdam, Holland (2013-14)
- 22 YSX45E in New Jersey, USA (2012-14)
- 18 YSX45E in Brisbane, Australia (2012-2013)
- 14 YSX45E in Incheon, Korea (2014)
- 26 YSX45E in Liverpool, UK (2013)
- 20 YSX45E in Melbourne, Australia (2015-16)
- 5 YSX40E in Panama (2017)
- 14 YSX45E in Hamburg, Germany (2016-17)
- 9 YSX45E in Vancouver, Canada (2016-17)
- 53 YTS45E in Dubai (2017-18)
- 36 YSX45E in Tangier, Morocco (2017-18)
- 2 YSX45E in Dublin, Ireland (2017)
- 8 YSX45E in Felixstowe, UK (2018)
- 91 YSX45E in Virginia, USA (2017-20)
- 10 YTS45 in Tangshan, China (2019)
- 27 YSX40E and 3 YTS45E in Shenzhen, China (2019)
- 15 Yard spreaders in Qingdao, China (2018)



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**So....**



**what  
have we learned?**

?

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# Functions and Options

Autolubrication



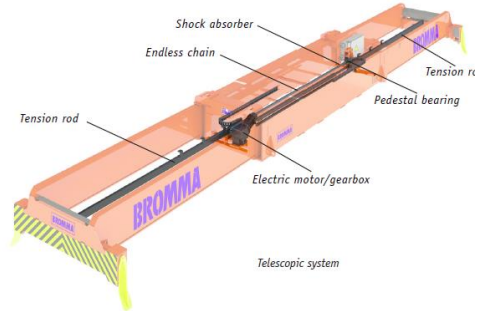
"Landed hold"



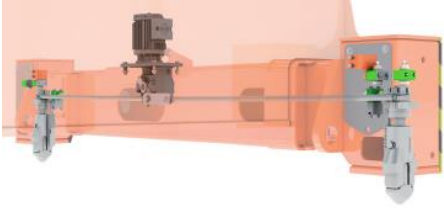
Alt. Load sensors



Redundant telescoping positioning



Stronger Twistlock actuators



# Bromma Hawkeye



- **Hawkeye Streaming**
- **Hawkeye OCR**

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# Bromma Hawkeye



- Hawkeye Streaming
- Hawkeye OCR

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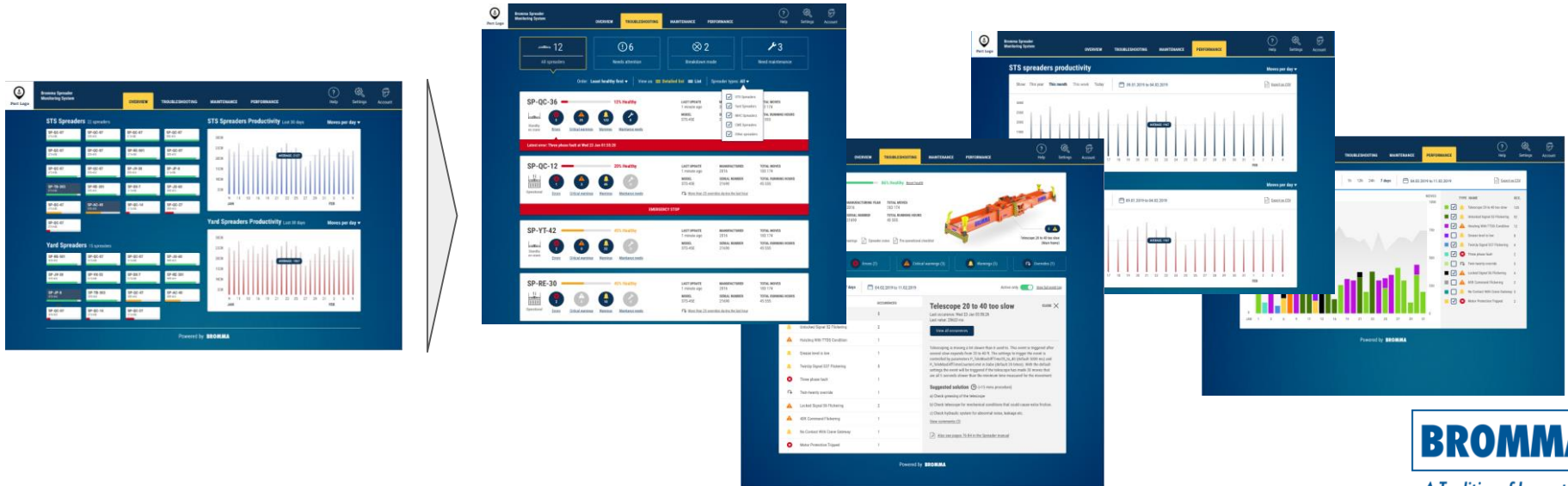
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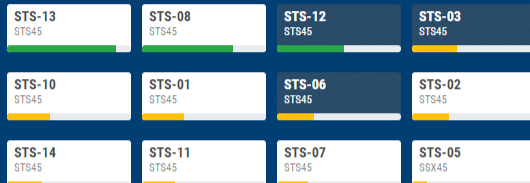
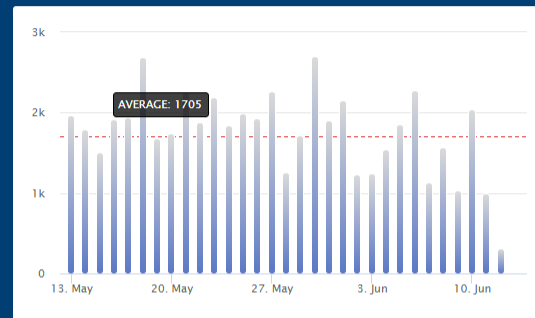
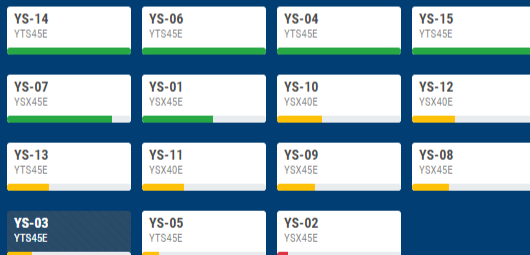
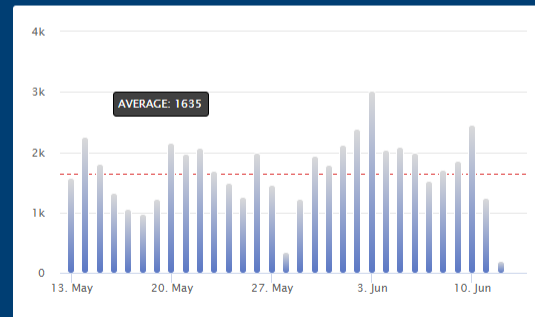


# BROMMA Spreader Monitoring System - SMS

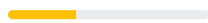
## SPREADER MONITORING SYSTEM

- Real time monitoring of **spreader “health”**
- **Issues** and **recommended solutions**
- Structured overview of **planned maintenance** for spreader fleet
- Statistics on **performance, productivity** and issues



**STS spreaders (12)****STS Spreaders Productivity****YARD spreaders (15)****YARD Spreaders Productivity**



STS-01 ▾

 34% Healthy

Operational

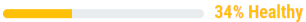
LAST UPDATE  
16 minutes agoMODEL  
STS45MANUFACTURED  
2016SERIAL NUMBER  
22572TOTAL MOVES  
97295TOTAL RUNNING HOURS  
9120 [Spreader Manual](#) [Spreader Notes](#)

All alerts (0)

 Errors (0) Critical warnings (0) Warnings (0) Overrides (0)Active only  [View full event log](#)**There are no active alerts right now**

You could try to show inactive events using the switch above.

STS-01



Operational

LAST UPDATE  
18 minutes ago

MANUFACTURED  
2016

TOTAL MOVES  
97295

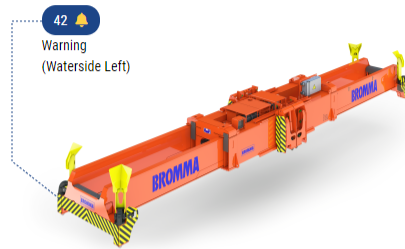
MODEL  
STS45

SERIAL NUMBER  
22572

TOTAL RUNNING HOURS  
9120

[Spreader Manual](#)

[Spreader Notes](#)



All alerts (26)

Errors (1)

Critical warnings (1)

Warnings (22)

Overrides (2)

Last: 3m 30d **7d** 24h 06.06.2019 to 13.06.2019

Active only  [View full event log](#)

TYPE	NAME	OCC.
	Telescope Command Without Permit	54
	Unlock Sensor Waterside Left Lost when Landing	42
	Hoisting With TTDS Condition	25
	Unlock Sensor Landside Right Lost	13
	Unlock Sensor Landside Right Lost when Landing	12
	Unlock Sensor Waterside Left Lost	10
	Twin Down Command Without 40FT Position	8
	Lock Attempt With TTDS Condition	7

**Unlock Sensor Waterside Left Lost when Landing** CLOSE X

Last occurrence: 2019-06-13 11:23:03 (GMT +2)  
Last value: 2

[View all occurrences](#)

The Waterside Left twistlock, lost unlock sensor indication without any twistlock command when spreader was landing.

**Recommended Solution**

- a) Make sure that correct floating distance is set on the twist lock assembly, adjust if necessary
- b) Make sure that the sensor has the correct sensing range adjusted in order to sense the target, adjust sensor if needed

# BROMMA Plus - Expect a little bit more

## YSX45E Plus



- Specification “+”
- “Options” included as standard
- Prepared for automation options

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