



# PORT MATERIAL HANDLER

WITH A REACH OF UP TO 29 m

🔛 Такана 🚺 табатана / 👬 📽 170 t / 🧀 29 m / 🗰 391 кw

Stage V



A smart approach to port logistics – the giant material handler with an operating weight of up to 170 t is right at home in the ports of this world. Numerous configuration options and customer-specific undercarriage solutions make it the ideal machine for industrial applications and demanding material handling tasks in ports.

## A long-term investment

The E-series is characterised by robust components, and an intelligent and resource-efficient machine design – the machine retains its value over the long-term, even with demanding continuous use.

## **Energy efficiency**

Appreciated around the world, thanks to drives that are resource- and environmentally-friendly and the Green Hybrid energy recovery system – whether with diesel drive or as an electric version.

## **Occupational safety**

Thanks to the precisely controlled movements and the numerous safety features, you can work effortlessly and safely throughout your day.

### **Modular variety**

Unique machine variety – we build the perfect machine to meet the needs of your port.

### Maximum comfort

The spacious cabs are designed with the needs of the operator in mind – comfortable and spacious with sophisticated features.

### Maintenance & Service

Intelligent fleet management and machine status monitoring via the SENtrack portal as well as unique accessibility of machine components.

III KEEL

875

BIR WARD



# **AN INVESTMENT** THAT PAYS OFF.

The durability and reliability of the SENNEBOGEN Green Line is based on decades of experience in the design of high-quality crane and material handling technology. We can find the perfect solution for every port application, ensuring you can handle general cargo and bulk materials in an efficient and resource-saving way.



Consistent performance thanks to robust steel construction, and high-quality drive and control components from renowned manufacturers



Low operating costs thanks to

energy-efficient electric drives

and energy recovery through the

Green Hybrid system

High handling capacity of up to 1,200 t per hour\* reduces the berthing time of ships



Manageable and

service-friendly technology for

maximum machine availability

Sophisticated technology thanks to the consistent further development up to the 5th generation of the E-series – for demanding material handling



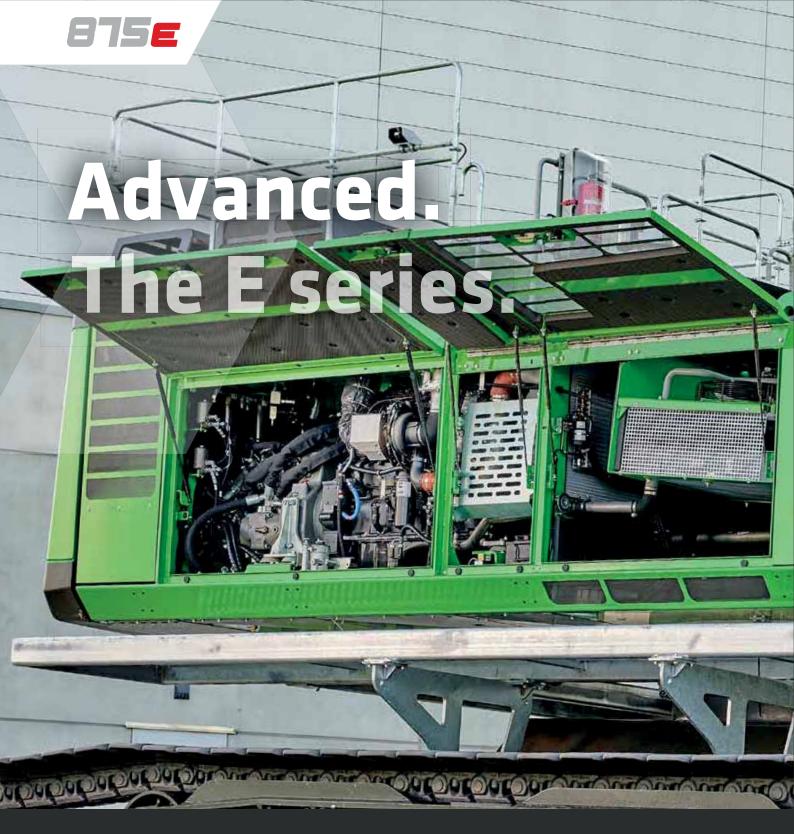
Durable and robust in extreme weather and harsh operating conditions, works equally well in the cold of the Arctic Circle or the heat of Dubai

\* The specified handling capacity is a reference value that can be achieved with the appropriate grab for the machine (see Attachments catalog). Actual handling capacities depend on the individual loading and unloading situation in the port and are the result of various parameters (e.g. lifting height, angle of rotation, ship shape, grab fill level, grab).

# >25,000 operating hours for this 875 E in Turkey



COM



#### LONG SERVICE LIFE, HIGH VALUE RETENTION

- Reliable and powerful thanks to its robust construction and high-quality components.
- Temperature-controlled cooling system, designed and tested for heavy-duty applications and high ambient temperature

#### SOPHISTICATED, STATE-OF-THE-ART TECHNOLOGY

In the 5th generation – decades of experience in designing and constructing material handlers



#### EASY TO MAINTAIN AND SERVICE

Technology that can be mastered and no over-engineering, optimum accessibility to all components

#### ENVIRONMENTALLY-FRIENDLY DRIVE TECHNOLOGY

State-of-the-art engine, drive and emission systems in line with the latest technology standards (stage V)

Large-scale pipes and valves for maximum efficiency





# 50 %

Save operating costs by significantly reducing energy consumption

anten ante





# SENNEBOGEN – WORLD LEADER IN ELECTRIC MATERIAL HANDLERS.

Over the last **35 years**, we have implemented by far the most electrical applications

- A complete solution direct from the manufacturer detailed route analyses and individual power supply project planning, tailored specifically to your application
- A variety of solutions for power supplies, voltage types and emergency operating units ex works
- No fuelling stops or need to store fuel always ready for use
- Service intervals twice as long as for diesel engines and lower service costs: no need for fuel / oil filters and oil changes
- / High value retention and significantly longer service life
- 📕 No exhaust gas good for the environment, good for people
- Low-noise and vibration-free operation for greater working comfort
- // Cleaner engine compartment even after long service life





# GREEN HYBRID – THE MOST SOPHIS TICATED ENERGY RECOVERY TECHNOLOGY ON THE MARKET

#### GREEN HYBRID ENERGY RECOVERY TECHNOLOGY



Energy recovery with a safe and intelligent design: Watch the video to find out how the SENNEBOGEN Green Hybrid System makes port material handling even more efficient.

https://www.sennebogen.com/green-hybrid



Save up to



Boom lowers, gas compresses



Protects the environment, saves energy, reduces your costs.



Energy storage module consisting of nitrogen piston accumulators



The nearly constant force transmission throughout the cylinder cycle supports the next boom lift

- System advantages: large system volume and constant force transmission over the entire cylinder cycle
- System stability through constant pressure and temperature control
- Functional safety through the use of standard hydraulic components in the protected rear area of the machine
- System can be optimally adjusted to the individual task, depending on the weight of the material being handled
- Simple inspection and system filling via SENCON control system from the operator's seat

# SAFETY FIRST.

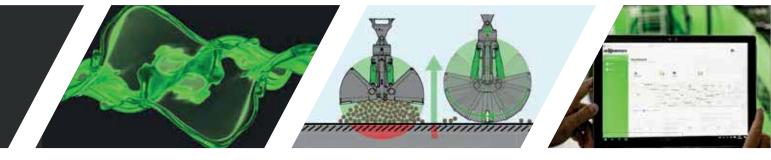
Enjoy a safe work environment thanks to numerous safety features developed especially for port use. Protecting people, port and machine.

#### HOW TO OPERATE THE SAFETY BOOM LIFT



This video will show you how the SENNEBOGEN Safety Boom Lift works.

https://www.sennebogen.com/safety-boom-lift



### Bio Oil -Panolin

875**E** 

for extended oil change intervals, with safe environmental compatibility

### Safety Boom Lift

Grab automatically lifts as it closes, protecting ship hulls, port surfaces, equipment and the grab itself

### SENtrack

Maintain fleet management safety by monitoring the condition of your machines

## Component safety

SENJEBOGEN

60

1048

maximum service life thanks to the robust steel construction - produced in our very own subsidiary

### Safe & ergonomic

optimum cab and machine component accessibility via stairs and ascents

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for optimal illumination of the work area

# Load moment limitation

SERJEBOGEN

Protection of equipment by switching off in the event of an impermissible load

## Optimum camera monitoring

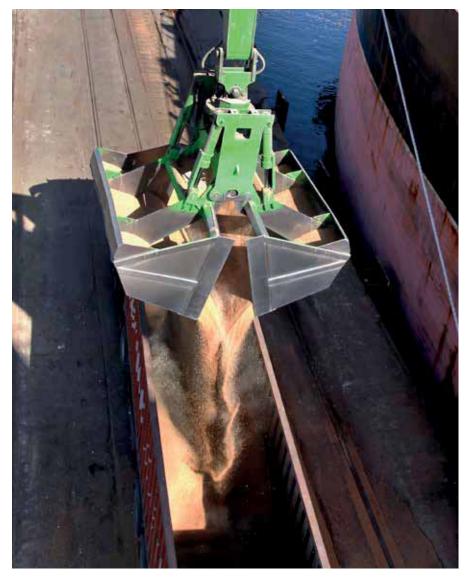
of all safety-relevant areas\*





# **EXPERIENCE VARIETY** FOR EVERY TYPE OF MATERIAL

Today general cargo, tomorrow bulk cargo – working in the port means staying flexible from day to day. The entire range of material handling technology can be flexibly operated using the quick change system on the stick and the SENNEBOGEN port machines' powerful hydraulics.



Bulk material (feed, coal, etc.)



Scrap handling



Timber grab





**Big Bag loading** 



Timber spreader/wooden pallet loading



Pulp spreader



Paper coil grab



Quick change system with lifting beam



#### Vacuum lifter

#### QUICK AND EASY GRAB CHANGE



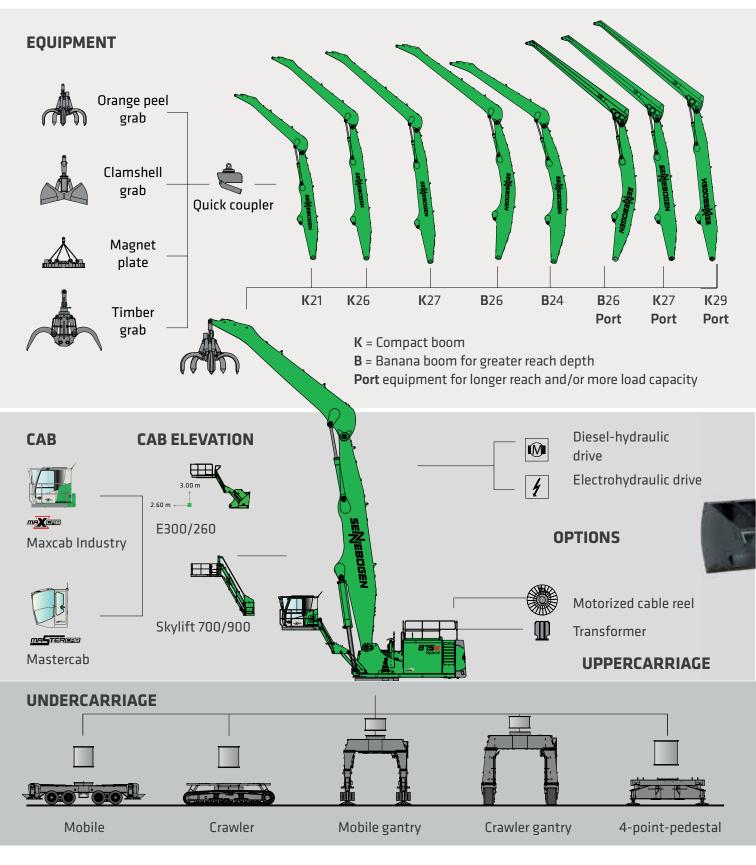
Watch the video to see how quick and easy it is to change the grab with the quick change system on the stick!

https://www.sennebogen.com/quick-coupler





# A MODULAR DESIGN. NUMEROUS APPLICATIONS.



16 **SENEBOGEN** 

Subject to technical changes. Additional options available upon request.



# WHAT DOES YOUR MACHINE LOOK LIKE?

Configure your individual machine using our modular system. The great variety of solutions that we can implement in this way is unique.



#### **CUSTOM CONFIGURATION**

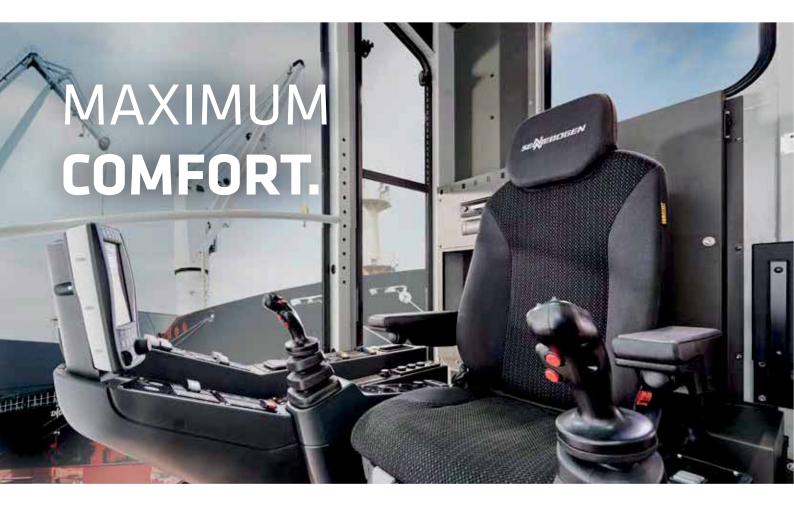
More than 16,000 unique material handling solutions can be delivered through SENNEBOGEN's modular machine design - watch the video now!

SERVEBUGEN

https://www.sennebogen.com/versatility







#### Everything in view

The spacious cab with panoramic view gives you a practical overview of your work area. The window in the floor makes it possible to carry out precise loading operations even in close proximity. The safety cameras provide support and allow you to monitor the critical areas conveniently via the monitoring system in the cab.

#### Easy control

The intelligent SENCON control system gives you quick and easy feedback on the machine's condition. Thanks to the intuitive user interface, it has never been easier to monitor energy consumption and utilization, control the desired working modes and contribute towards reducing operating costs.

#### For your health

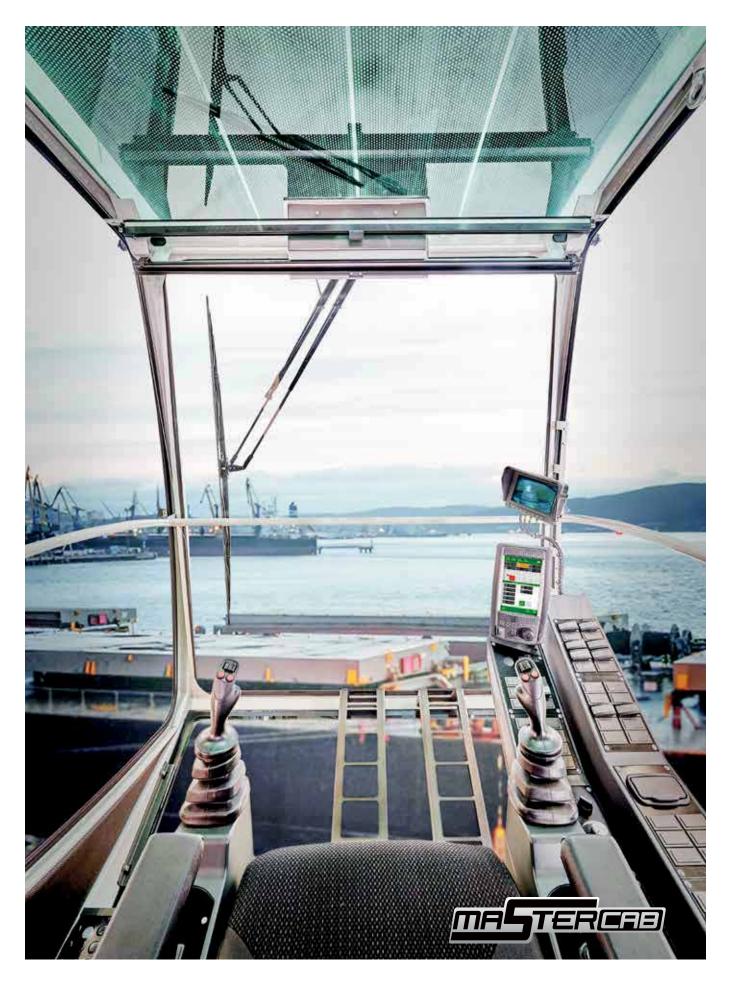
Operators spend many hours in their working position. The back-friendly comfort seat, adjustable armrests, joysticks that sit comfortably in the hand, and the optimally arranged controls make daily work as easy as possible.

#### Pleasant indoor climate

Whether in warmer areas or in ports with sub-zero temperatures, you can enter a work space with a comfortable temperature every day and concentrate on the essentials of work thanks to automatic heating and air conditioning. "We welcome regular feedback from operators to ensure the work space is configured perfectly."

ROBERT AUMÜLLER, Head of the Port Business Unit







# CAB HIGHLIGHTS



Maxcab premium cab in the industrial edition





The large capacity cab for the best all-round view of the port

IN SERIES		<u>ma<b>h</b></u> TER(CEB)	
ENTRANCE	Sliding door incl. sliding window	Easy access through wide cab door	
WINDSHIELD	Undivided windshield made from bullet proof glass, rigidly glazed	Tinted double glazing for side windows	
SKYLIGHT	Skylight made from bullet proof glass	Large skylight with sun protection slats and windshield wiper with washing system	
FLOOR WINDOW	-	Bullet proof glass floor window	
WIPERS	Wipers for skylight	Parallelogram wipers for harsh weather conditions	
WIPERS	Wiper and washer system for front windshield	_	
AIR CONDITIONER	Automatic heating/air conditioning with fresh air and recirculating air filter	Automatic air conditioning with optimised de-icing and demisting function	
FLOODLIGHTS	Floodlights integrated into roof	Floodlights integrated into the uppercarriage and roof	
FOLDAWAY SEAT	-	Foldaway seat in cab	
RADIO	✓	✓	
SENCON CONTROL AND DIAGNOSTIC SYSTEM	✓	✓ 1	
OPTIONS			
AIR-CONDITIONED SEAT	✓	✓	
RADIO	✓	✓	
COOLING BOX BEHIND THE OPERATOR'S SEAT	✓	$\checkmark$	
PROTECTIVE GRILLE ON SKYLIGHT AND WINDSHIELD	_	✓	
SUN PROTECTION PACKAGE	$\checkmark$	$\checkmark$	

SENJEBOGEN 20



# ALWAYS THE RIGHT VIEWING ANGLE

The name 'Skylift' can be taken literally! Depending on the version and undercarriage being used, the flexible cab adjustment allows you to look into a ship's hull from around 13.5 metres. Thanks to a sophisticated system of steps, ascents and railings, access to the cab and maintenance points on the uppercarriage is safe and comfortable.

875



# PROFESSIONAL FLEET MANAGEMENT

#### 📕 1. Reduce service costs

The dashboard is used to monitor the machine and its main operating parameters (temperatures, consumption). If key figures deviate significantly from the target value, preventive maintenance can be arranged.

#### 2. Reduce consumption

You will receive daily updated insights into your fleet processes: Easily identify and optimize times when machines are idle or change set parameters when machines are underloaded to reduce consumption.

"What if you could receive real-time data from all your machines with just one click and so increase your productivity? SENNEBOGEN's SENtrack telematic system makes this possible."

#### 📕 3. Improve productivity

With just a few clicks, you can identify and optimize machine capacity, analyse routes if required and thus make your port processes more profitable.

**SEN**track

#### 📕 4. Safeguard your investment

Practical alarm messages inform you about critical machine conditions. In the event of irregular movements, the machine can also easily be deac-tivated remotely.





# **MAINTENANCE AND SERVICE.**

## KEEP IT SIMPLE. WITH MANAGEABLE TECHNOLOGY.



Reliable and practical technology makes life easier. Where electronics add no value, we rely on hydraulics and electrical systems.



We make you happy, not reliant. With cost-effective components and fewer process steps, you can take care of your own machine.



The most important components, such as the accumulator module or the electrical distributor, are all easily accessible from a central point for straightforward checking and troubleshooting.





The SENCON control system supports you with diagnostics and makes troubleshooting easier. So your machine is back in action more quickly. All maintenance and service points are clearly arranged and easily accessible. The clear labeling of components makes finding your way around easy.

# 875**e** /

## **TECHNICAL DATA, EQUIPMENT**

#### MACHINE TYPE

MODEL (TYPE) 875 Hybrid

DIESEL ENGINE 🐡		
ТҮРЕ	Stage V: Cummins X15 FR11813 <sup>1</sup> Rated Power: 391 kW/1800 rpm Operating point standard: 391 kW/1800 rpm Operating point ECO: 374 kW/1650 rpm Stage Illa: Caterpillar C15 Acert Rated power: 433 kW/2100 rpm Operating point standard: 433 kW/1800 rpm Operating point ECO: 423 kW/1650 rpm	
	both: Automatic idle stop	
COOLING	water-cooled, charge air cooling, coolant cooling	
DISPLACE- MENT	approx. 14   (V) / approx. 15   (IIIa)	
NUMBER OF CYLINDERS	6	
BATTERIES	2 x 210 Ah, battery disconnect switch	
ELECTRICAL SYSTEM	24 V Alternator: 105 A (V) / 95 A (IIIa) Starter: 9 kW (V) / 8 kW (IIIa)	
OPTIONS	electrically heated fuel pre-filter water separator 24 V (IIIa)	
	Engine block heater	
	Engine oil preheating	
	Additional cyclone pre-separator for use in dusty environments	
	Electric fuel pump	

#### TANK CAPACITY

FUEL	2100 l
ADBLUE	105 l
HYDRAULIC TANK	1400 l
COOLANT	approx. 115 l
ENGINE OIL	approx. 45 l (V) / approx. 68 l (IIIa)
CENTRAL LUBRICATION SYSTEM	Automatic central lubrication for equip- ment and slewing ring, display of fault and empty message via SENCON
	Lubrication pump with 16 kg reservoir (for min. 400 operating hours)

#### UPPERCARRIAGE DESIGN Torsion-resistant box design, precision crafted, steel bushings for boom mountings. Service-friendly design, engine installed in the longitudinal direction Cooling system with 3 cooling circuits and COOLING SYSTEM demand-driven fan control consisting of: Coolant cooling and hydraulic oil cooling, hydraulically driven, thermostatically controlled incl. fan reversal; charge air cooling driven directly by engine OPTIONS LED lighting package Swing bearing brake via foot pedal Fire extinguisher Maritime climate paint Low temperature packages Electrical hydraulic tank preheating Magnet generator 25/33 kW

ELECTRIC DRIVE		
OPTIONS	<b>Type:</b> 390 kW, standard with frequency converter	
	<b>Power:</b> Total connected load 720 kVA, machine side fuse 800 A (also with gener- ator) at 400 V - motor start via frequency converter	
	IP protection class: IP 55 standard, (IP 65 optional)	



<sup>1</sup> incl. exhaust gas aftertreatment (diesel particulate filter, SCR catalytic converter, AdBlue tank)

# **TECHNICAL DATA, EQUIPMENT**

HYDRAULIC	SYSTEM	CAB <sup>2</sup>	
Load Sensing/LU trolled work func	IDV hydraulic system, hydraulically con- tions	CAB TYPE	Maxcab Industry, can be elevated by 3 m and moved forward by 2.6 m
DELIVERY RATE	2x 475 l / min and 1x 274 l/min for slewing drive in the closed circuit	CAB FEATURES	Maxcab Industry with sliding door incl. slid- ing window and undivided, flat windshield
OPERATING PRESSURE	up to 350 bar		made from bullet proof glass, rigidly glazed, roof extended forward, bullet proof skylight,
CONTROL SYSTEM	Proportional, precision hydraulic actuation of work movements, 2 hydraulic servo joysticks for the work functions, additional functions via switches and foot pedals		wipers and wash system for windshield, lower windshield wiper with washer nozzle, wiper for skylight, vibration damped, radio with antenna and loud speaker, 2 flood- lights integrated into the front of the roof,
SAFETY	Hydraulic circuits safeguarded with safety valves		SENCON control and diagnostic system
		OPTIONS	Spacious Mastercab
	Emergency lowering of the equipment in the case of engine standstill		Skylift cab elevation (elevation 9 m)
	Pipe fracture safety valves for lift and stick		Skylift cab elevation (elevation 7 m)
	cylinders		Windshield / skylight made of bullet proof glass (Mastercab)
OPTIONS	Bio-oil filling	glass (Mastercab) Polycarbonate safety glass	
	Tool Control for programming pressure/ rate of up to 10 tools		Protective roof guard, FOPS if applicable
	Load torque warning with capacity display		Protective front guard
	Overload safeguard with shutdown	-	Carbon filter for circulation/outside air
	High-performance filtration with long-		Auxiliary heating system
	term change interval, SENNEBOGEN		Air-conditioned seat
	HydroClean micro-filter system with water separator		Radio
	Scharator		Cooling box

SLEWING DRIVE $\heartsuit$		
GEARBOX	Compact planetary gear with bent-axis hydraulic engine, integrated brake valves	
PARKING BRAKE	Spring-loaded multi-disk brake	
SLEWING RING	Strong, 3-row slewing ring, sealed. Externally geared slewing ring with 360° protection and pinion lubrication	
SLEWING SPEED	0-5min <sup>-1</sup> , stepless	
SWING TORQUE	430 kNm	



 $^2$  Vibration level: Max. Hand/Arm (acc. ISO 5349-2001) < 2.5 m/s  $^2$  and max. Body (acc. ISO/TR 25398: 2006) < 0.5 m/s  $^2$ 

# **TECHNICAL DATA, EQUIPMENT**

UNDERCAR	RIAGE HH
MOBILE	Mobile undercarriage MS210 with inte- grated 4-point outriggers, all-wheel drive powered by a direct-mounted variable-dis- placement hydraulic engine, automatically operated brake valve and 2 stage power- shift transmission. Planetary axles with integrated steering cylinder, all-wheel drive
WIDTH	4450 mm
TIRE TYPE	Solid rubber 14.00-24 (16x); optional: 16.00-25
BRAKES	hydraulic
OUTRIGGER SIZE	Ø 1,300 mm
TRAVEL SPEED	0 – 6 km/h (mobile)

CRAWLER C	ANTRY 🗖
UNDERCAR- RIAGEWIDTH	7,210 mm
TRACK GAUGE	5,850 mm
PLATE WIDTH	900 mm
UNDERCAR- RIAGE LENGTH	8,450 mm
RAIL GANTRY	Customized, tailored to your application, with hydraulic travel drive, 40 m/min travel speed
OPTION	Pylon extension





#### CRAWLER

875**E** 

Crawler undercarriage with hydraulic travel drive on each chassis side integrated in the chassis frame by an axial piston engine via compact planetary gears, spring-loaded parking brake, hydraulically ventilated multi-disk brake

UNDERCAR- RIAGEWIDTH	6,800 m
TRACK GAUGE	5,800 mm
PLATE WIDTH	1,000 mm
UNDERCAR- RIAGE LENGTH	8,500 mm

MOBILE GA	NTRY
WHEEL GAUGE	5,850 mm
TIRE TYPE	355/65-15 pneumatic tires; optional: 355/65-15 solid rubber
BRAKES	hydraulic
OUTRIGGER SIZE	Ø 1,600 mm
TRAVEL SPEED	2 – 4 km/h

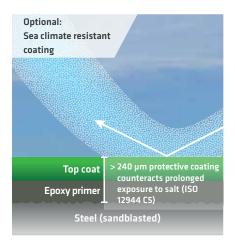
875**E** 

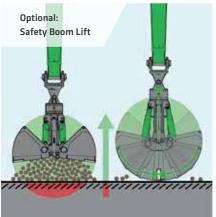
# **TECHNICAL DATA, EQUIPMENT**

EQUIPMENT	
REACH	up to 29 m
CYLINDERS	Hydraulic cylinders with high-quality sealing and guide elements, end position damping, sealed bearing points; all cyl- inders coated, nickel-plated and chromi- um-plated in a way that is suitable for maritime climates
OPTIONS	Safety Boom Lift for equipment
	Lift limitation / stick limitation adjustable to the stop settings
	LED lighting
	Stick mounted camera
	Special port equipment with increased load capacities

OPERATIN	G DATA	Ĩ
REACH	up to 29 m	
OPERATING WEIGHT	140 – 170 t, depending on model and equipment	
NOTE	Operating weight varies by model and equipment.	











## LOAD RATINGS K21 HEAVY LIFT

The load ratings are given as information only. Please contact our regional sales partners

or portdivision@sennebogen.de for a detailed project study.

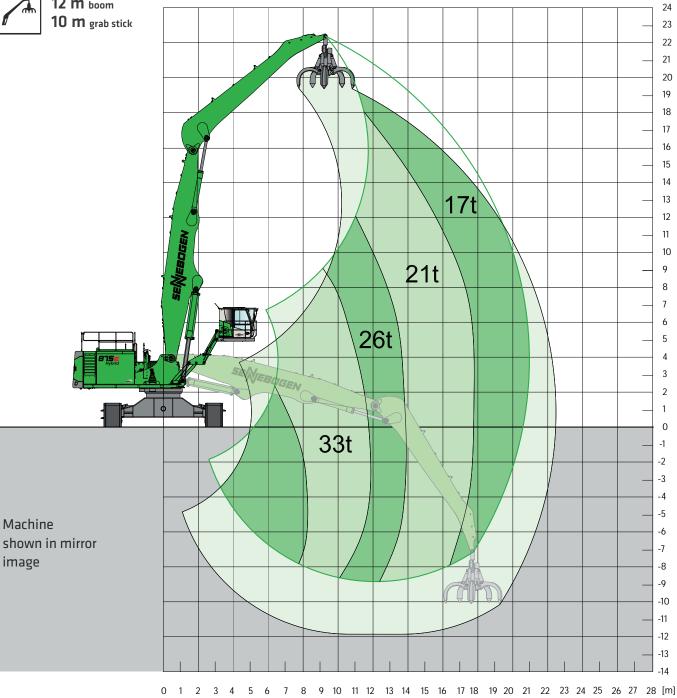




#### MAXCAB INDUSTRY can be elevated by 3 m and moved forward 2.60 m



12 m boom



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Notes:

All load ratings are given in tons (t) brought to bear at the end of the stick, without tools on firm level ground. Working tools such as grab, magnet, loadhook etc. are included in the specified load ratings. The stated values are 75 % of the static tipping load and 87 % of the hydraulic lifting force in accordance with ISO 10567 and apply after the required operating temperature has been reached in the Green Hybrid system. According to EU standard EN 474/5, material handling equipment used for hoisting must be equipped with a pipe rupture safety device on the lifting cylinder and an overload warning device. The specified load ratings apply to maximum track width and 360° slewing.

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# LOAD RATINGS K29 PORT

The load ratings are given as information only. Please contact our regional sales partners or portdivision@sennebogen.de for a detailed project study.

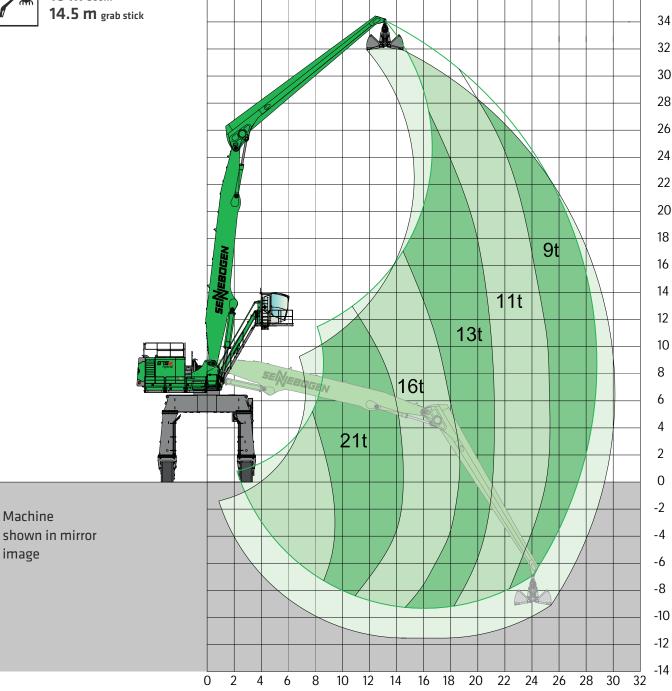




**SKYLIFT 900 WITH MASTERCAB,** hydraulically elevating (option)



16 m boom



#### Notes:

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All load ratings are given in tons (t) brought to bear at the end of the stick, without tools on firm level ground. Working tools such as grab, magnet, loadhook etc. are included in the specified load ratings. The stated values are 75 % of the static tipping load and 87 % of the hydraulic lifting force in accordance with ISO 10567 and apply after the required operating temperature has been reached in the Green Hybrid system. According to EU standard EN 474/5, material handling equipment used for hoisting must be equipped with a pipe rupture safety device on the lifting cylinder and an overload warning device. The specified load ratings apply to maximum track width and 360° slewing.



# LOAD RATINGS B26 MOBILE GANTRY

The load ratings are given as information only. Please contact our regional sales partners or portdivision@sennebogen.de for a detailed project study.

 $\Box$ 

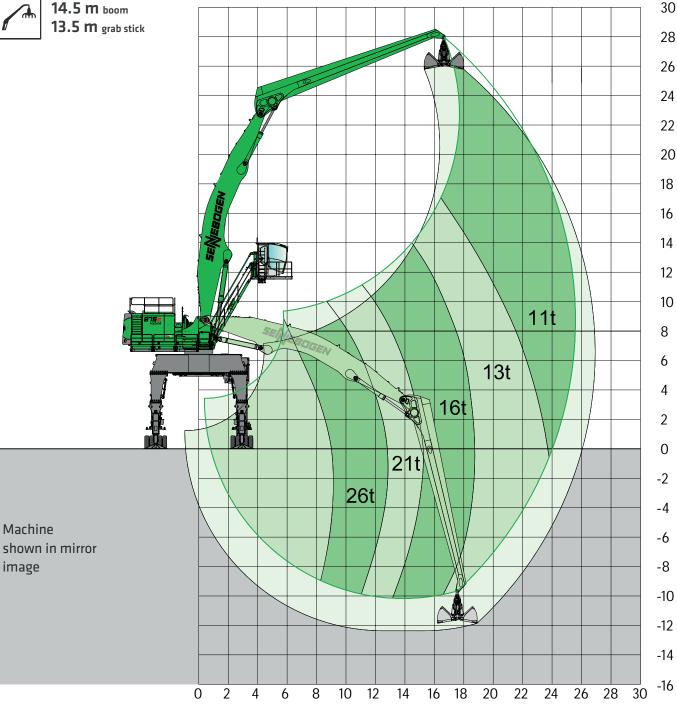




**SKYLIFT 900 WITH MASTERCAB,** hydraulically elevating (option)



14.5 m boom



#### Notes:

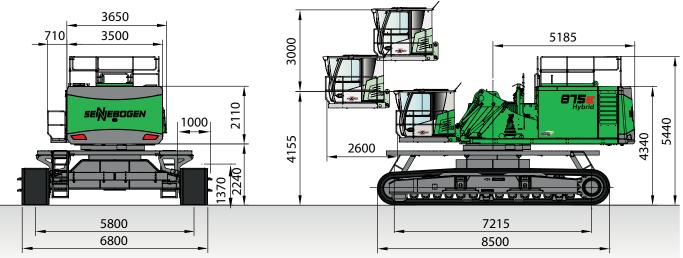
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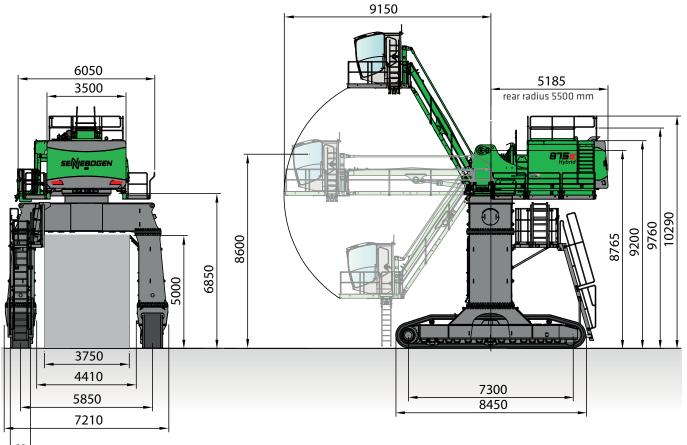




## **CRAWLER DIMENSION**



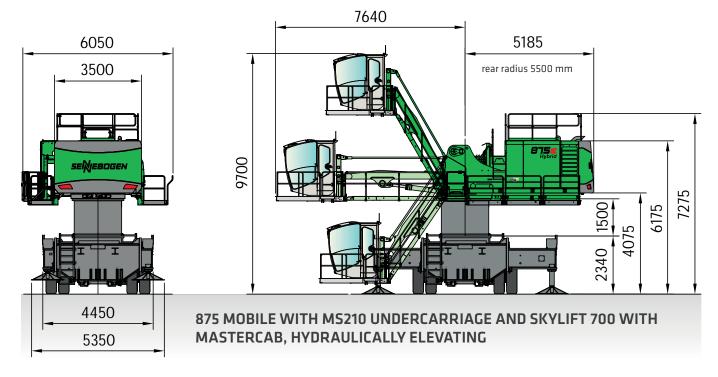
875 CRAWLER WITH R147/580 UNDERCARRIAGE AND E300/260 MAXCAB INDUSTRY (SERIES) WHICH CAN BE ELEVATED AND MOVED FORWARD HYDRAULICALLY

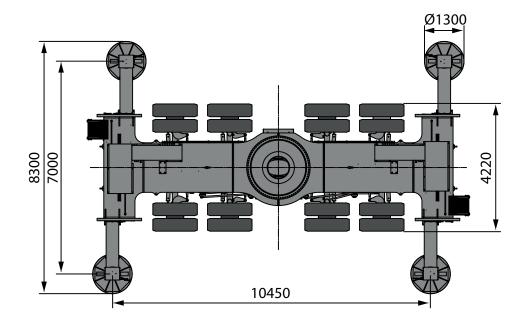


900 875 CRAWLER GANTRY WITH UNDERCARRIAGE P156/580 AND SKYLIFT 900 WITH MASTERCAB, HYDRAULICALLY ELEVATING



## **MOBILE DIMENSIONS**

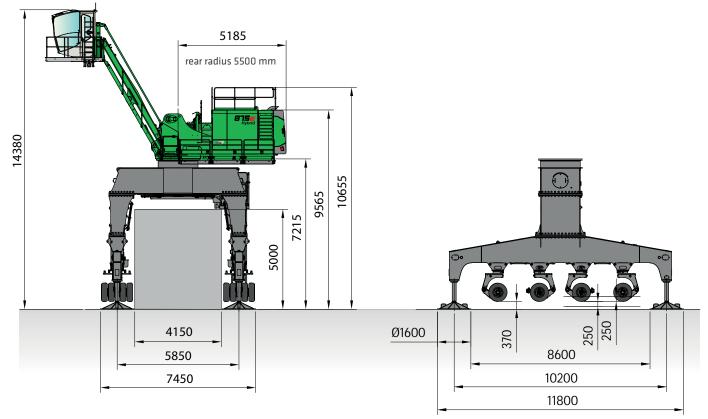




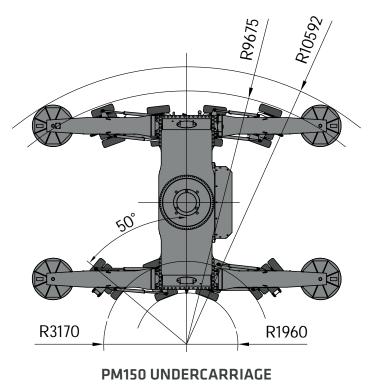
#### MS210 MOBILE UNDERCARRIAGE



## **MOBILE GANTRY DIMENSIONS**



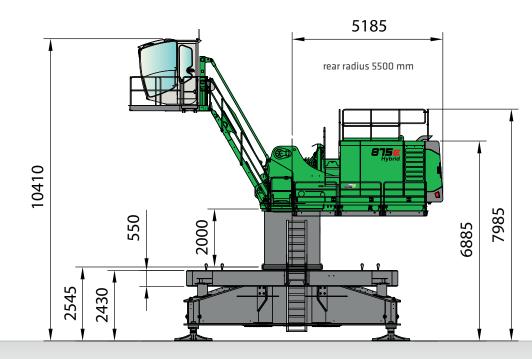
875 MOBILE GANTRY WITH PM150 UNDERCARRIAGE AND HYDRAULICALLY ELEVATING SKYLIFT 900 CAB ELEVATION AND MASTERCAB



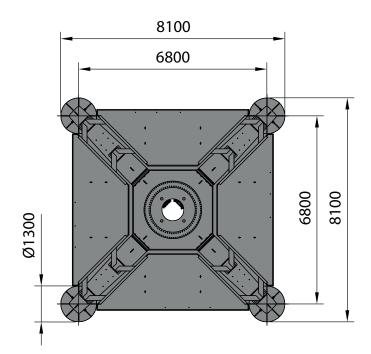




## **4-POINT-PEDESTAL DIMENSIONS**



875 STATIONARY ON 4-POINT-PEDESTAL ST98 WITH 2 m PYLON, HYDRAULICALLY ELEVATING SKYLIFT 700 CAB ELEVATION AND MASTERCAB



ST98 4-POINT-PEDESTAL













#### SENNEBOGEN ACADEMY

Anxious to expand knowledge as success is based on knowledge. In the SENNEBOGEN Academy we place great importance on ensuring knowledge flows powerfully.

www.sennebogen-academy.com



#### SERVICE AND MAINTENANCE

Comprehensive customer service. And supply of spare parts. Service is a TOP priority for us.



#### SENtrack

Manage your fleet efficiently with SENtrack: Use information that would otherwise stay hidden and increase your efficiency.

www.sennebogen.com/sentrack



#### **RENTAL & USED**

Discover the unique range of rental machines available from SENNEBOGEN Rental & Used. Rental machines can be found here: www.sennebogen-rental-used.com

#### JOIN OUR OPERATORS' CLUB

The spotlight is on you and your machine! We focus on exclusive information, sharing experiences with other SENNEBOGEN operators as well as fun and enthusiasm.

Find out about all the benefits here

www.sennebogen.com/operators-club





# **MOVE BIG THINGS –** WITH US!



over **69** years of experience

production plants

in Germany

100 %

family company

over **180** 

sales and service partners around the world over **1600** experienced specialists worldwide

**26** different

Material handlers



Telehandler 4.0-5.5 t Balancer **130-300 t**  Material handler 17-420 t Duty cycle crane 13.5-300 t Crawler crane 50-300 t Telecrane Port crane 16-130 t 300 t

SENJEBOGEN 39

# 875E | Hybrid

This catalog describes machine models, the scope of equipment of individual models, and configuration options (standard equipment and optional equipment) of the machines delivered by SENNEBOGEN Maschinenfabrik GmbH. Machine illustrations may contain optional and supplementary equipment. Actual equipment may vary depending on the country to which the machines are delivered, especially in regard to standard and optional equipment. All product designations used may be trademarks of SENNEBOGEN Maschinenfabrik GmbH or other supplying companies, and any use by third parties for their own purposes may violate the rights of the owners.

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