

## SENJEBOGEN







WITH A REACH OF MAX. 25 M













## A long-term investment

The E-Series is characterized by robust components and intelligent 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.

### **Modular variety**

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

## **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.

## **Occupational safety**

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



# 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 find the perfect solution for any application at ports or steelworks worldwide – so that you can handle scrap, general cargo and bulk materials in a particularly economical and environmentally friendly manner.



Low operating costs thanks to energy-efficient electric drives and energy recovery through the Green Hybrid system



Manageable and service-friendly technology for maximum machine availability



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



High handling capacity of up to 850 t per hour\* reduces the berthing time of ships



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







#### 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



#### **SIMPLE TO MAINTAIN AND SERVICE**

- Manageable technology and no overengineering
- Ideal accessibility to all components for easy maintenance

## 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







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 fueling stops or need to store fuel always ready for use
- Service intervals twice as long and lower service costs: No need for fuel/oil filter and oil changes compared to a diesel engine
- High value retention and significantly longer service life
- No exhaust gases good for the environment, good for people
- Low-noise and vibration-free operation for greater working comfort
- Cleaner engine compartment even after long operating period





## GREEN HYBRID ENERGY RECOVERY TECHNOLOGY



Energy recuperation through safe & smart design: Watch the video to find out how the SENNEBOGEN Green Hybrid system makes port handling even more efficient.

www.sennebogen.com/green-hybrid-865



Boom lowers, gas compresses



Energy storage module consisting of hydraulic cylinder and nitrogen accumulator



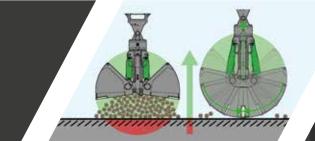
The nearly constant force transmission throughout the cylinder cycle supports the next boom lift

## **selyebogen** Green**Hybrid**

Protects the environment, saves energy, reduces your costs.

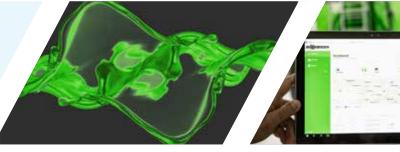
- System advantages: large system volume and constant force transmission over the entire cylinder cycle
- System stability through constant pressure and temperature control
- Functional safety through the use of standard hydraulic components in the protected rear area of the machine
- System is optimally adjusted to the individual machine configuration





### Safety Boom Lift

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



### Biodegradable oil

For extended oil change intervals, with safe environmental compatibility

### **SENtrack**

Maintain fleet management safety by monitoring the condition of your machines





## Powerful LED spotlights

For optimal illumination of the work area

## Load moment limitation

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

## Optimal camera monitoring

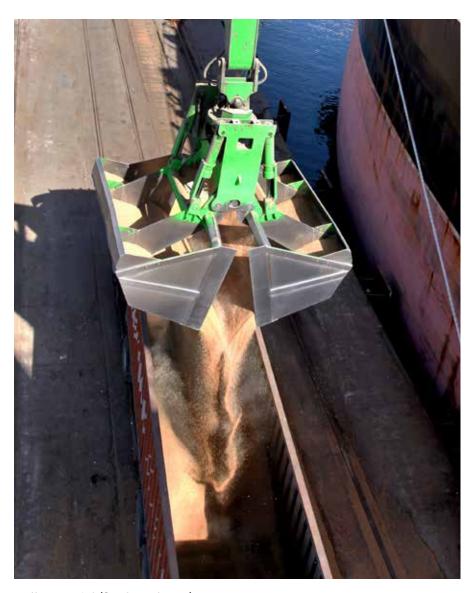
Of all safety-relevant areas\*

<sup>\*</sup> Cameras are installed as standard on the righthand side and to monitor the rear area. Additional cameras, e.g. on the stick, are available on request.



## **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 handling technology can be flexibly operated using the quick change system on the stick and the SENNEBOGEN material handlers' 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

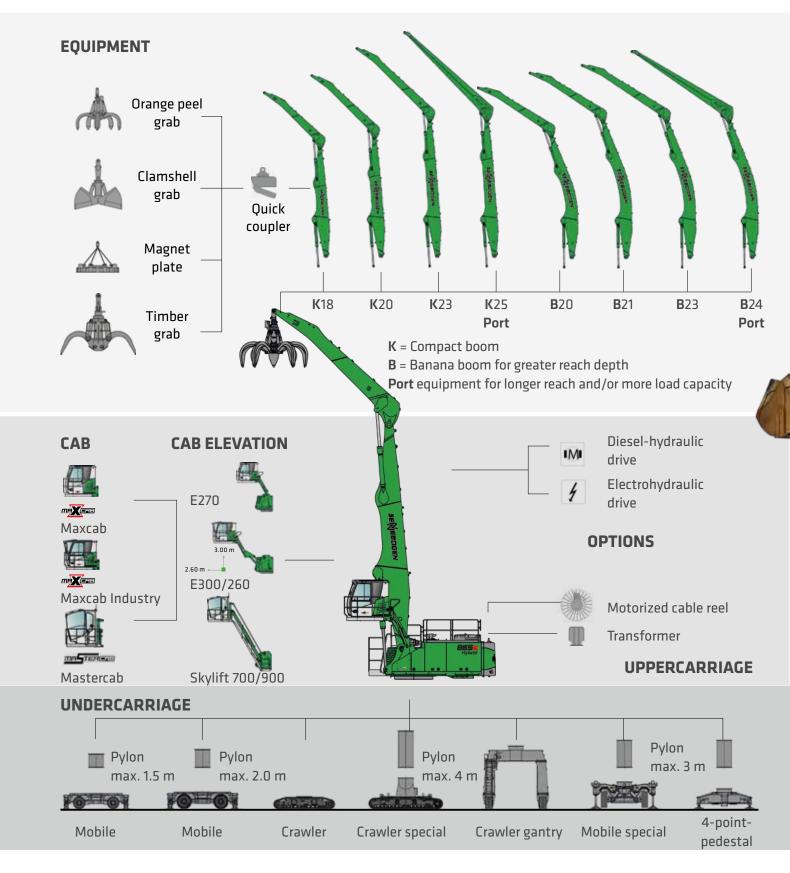


Vacuum lifter





## A MODULAR DESIGN. NUMEROUS APPLICATIONS.





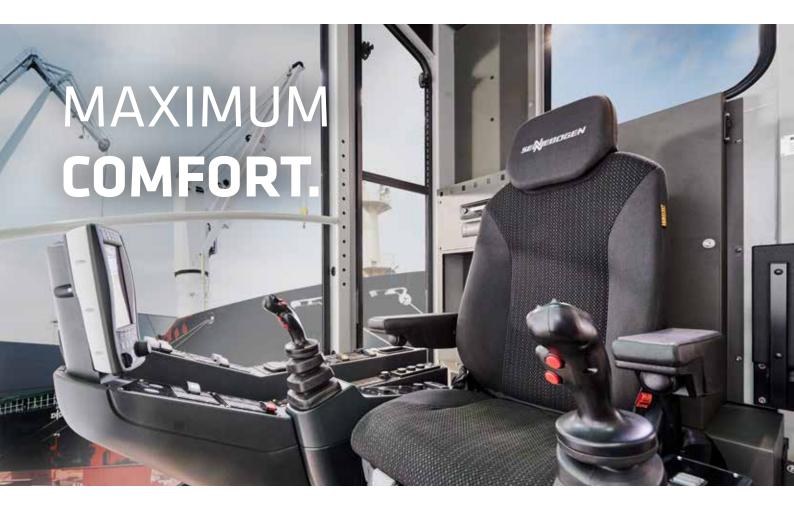


#### **CUSTOM CONFIGURATION**

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



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.

#### 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.

#### 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.

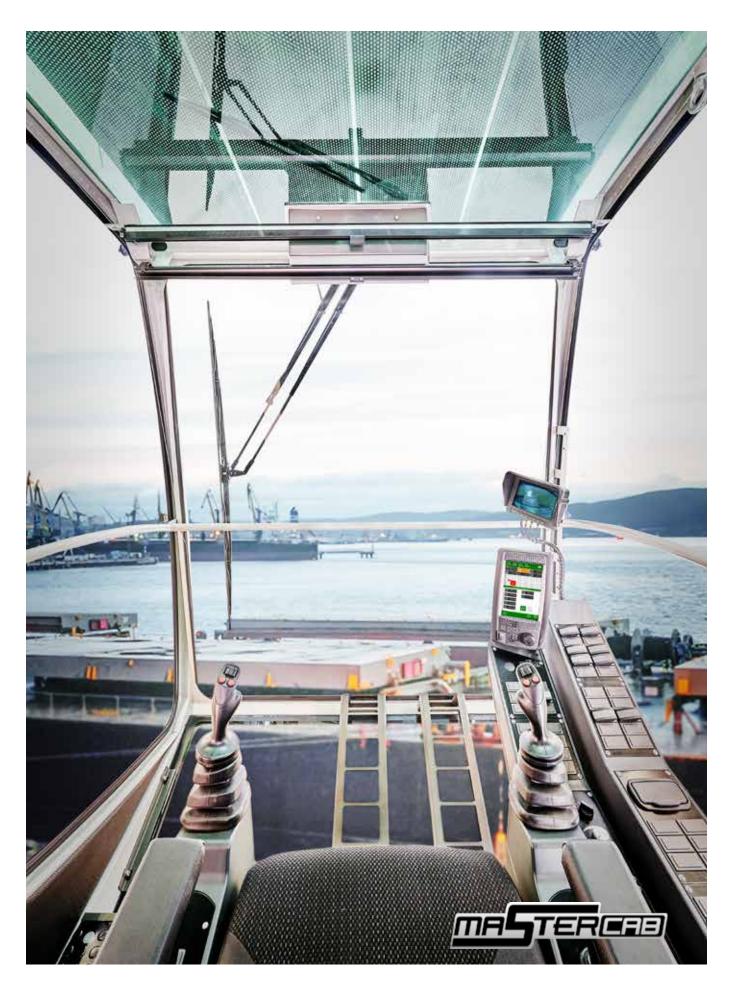
#### For your health

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

"The development of the Green Line machines is based on user feedback in order to create the best operating experience."

ALI GÜLYAZ, Designer Green Line







## **CAB** HIGHLIGHTS





Maxcab

Maxcab Industry \*

IN SERIES	ME) (CAB	ME) (CAB)		
ENTRANCE	Sliding door incl. sliding window	Sliding door incl. sliding window		
WINDSHIELD	Tinted safety glass	Undivided windshield made from bullet proof glass, rigidly glazed		
SKYLIGHT	Bullet proof skylight	Bullet proof skylight		
FLOOR WINDOW	-	-		
	Wipers for skylight	Wipers for skylight		
WIPERS	Wiper and washer system for front windshield	Wiper and washer system for front windshield		
AIR CONDITIONER	Heating/air conditioning system with fresh air and recirculating air filter	Heating/air conditioning system with fre air and recirculating air filter		
FLOODLIGHTS	Floodlights integrated into roof	Floodlights integrated into roof		
FOLDAWAY SEAT	-	-		
RADIO PREPARATION	$\checkmark$	✓		
SENCON CONTROL AND DIAGNOSTIC SYSTEM	✓	$\checkmark$		
OPTIONS				
AIR-CONDITIONED SEAT	✓	✓		
RADIO	✓	✓		
COOLING BOX BEHIND THE OPERATOR'S SEAT	✓	✓		
PROTECTIVE GRILLE ON SKYLIGHT AND WINDSHIELD	✓	✓		
SUN PROTECTION PACKAGE	<b>✓</b>	<b>√</b>		



## ALWAYS THE RIGHT VIEWING ANGLE

Spacious
Mastercab \*



Easy access through wide cab door

Tinted double glazing for side windows

Large roof window with sun protection slats

Bullet proof glass floor window

Wipers for skylight

Parallelogram wipers for harsh weather conditions

Automatic air conditioning with optimised de-icing and demisting function

Floodlights integrated into the uppercarriage and roof

Foldaway seat in cab



















#### 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, the user is informed immediately.

#### 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.

#### 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 deactivated 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 the machine on your own.



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.



#### **MACHINE TYPE**

MODEL (TYPE) 865 Hybrid

#### DIESEL ENGINE



Stage V:

Cummins X12 FR210821

Rated power: 261 kW/1800 rpm

Operating point standard: 261 kW/1800 rpm Operating point ECO: 260 kW/1600 rpm

Stage IIIa:

Cummins QSM11 FR21134

Rated power: 268 kW/2000 rpm

Operating point standard: 268 kW/2000 rpm Operating point ECO: 262 kW/1800 rpm

both: Automatic idle/stop

COOLING water-cooled, charge air cooling, coolant

cooling

12

DISPLACE-

MFNT

NUMBER OF

**CYLINDERS** 

**BATTERIES** 2 x 12 V, 180 Ah, battery disconnect switch

**ELECTRICAL** 

SYSTEM

**OPTIONS** Engine block heater

24 V

Electric fuel pump

Jump start pole

#### TANK CAPACITIES



Trillette Criti	
FUEL	1000 l
ADBLUE	110 l
HYDRAULIC TANK	900
COOLANT	approx. 80 l
ENGINE OIL	approx. 34 l
CENTRAL LUBRICATION SYSTEM	Automatic central lubrication for equipment and slewing ring, display of fault and empty message via SENCON

#### **UPPERCARRIAGE**



**DESIGN** Torsion-resistant box design, precision crafted, steel bushings for boom mounting. Very service-friendly design, engine installed in the longitudinal

direction

COOLING Cooling system with 3 cooling circuits and SYSTEM

demand-driven fan control consisting of: Coolant cooling and hydraulic oil cooling, hydraulically driven, thermostatically

controlled incl. fan reversal

OPTIONS LED lighting package

Swing bearing brake via foot pedal

Fire extinguisher

Maritime climate paint

Low temperature packages

Electrical Hydraulic tank preheating

Magnet generator 20/25 kW

#### **ELECTRIC DRIVE**



OPTIONS Type: 250 kW, standard with 400 V / 50 Hz Transformer Cable reel





Load-sensing/ operated work	LDUV hydraulic system, hydraulically functions		
DELIVERY RATE	2 x 475 l/min		
OPERATING PRESSURE	up to 350 bar		
CONTROL SYSTEM	Proportional, precision hydraulic actuation of the work movements, 2 hydraulic servo joysticks for work functions, additional functions via switches and foot pedals		
SAFETY	Hydraulic circuits safeguarded with safety valves		
	Pipe fracture safety devices		
	Emergency lowering of the equipment in case of engine standstill		
OPTIONS	Overload safeguard with shutdown		
	Tool control for programming pressure/ rate of up to 10 tools		
	Load torque warning with capacity display		
	Bio-oil filling		

SLEWING DRIVE C					
Compact planetary gear with bent-axis hydraulic engine, integrated brake valves					
1 x 274 l/min					
Spring-loaded multi-disk brake					
Externally toothed, with pinion lubrication					
0-5.5 rpm, variable					
195 kNm					

	-			
CAB <sup>2</sup>				
CAB TYPE	Maxcab, 2.7 m elevation			
CAB FEATURES	Sliding door incl. sliding window, vibration damped, tinted safety glass, opening windshield, skylight, windshield wipers, radio, air-suspension comfort seat, joystick steering (mobile version), SENCON			
OPTIONS	Maxcab Industry with slanted windscreen			
	Cab adjustment can be raised 3 m and moved forward 2.6 m			
	Spacious Mastercab			
	Skylift cab elevation (elevation 9 m)			
	Skylift cab elevation (elevation 7 m)			
	Windscreen/roof window made of bulletproof glass (Mastercab)			
	Polycarbonate safety glass			
	Protective roof guard, FOPS if applicable			
	Protective front guard			
	Active carbon filter for outside air			
	Auxiliary heating system			
	Air-conditioned seat			
	Radio			
	Cooling box			





#### UNDERCARRIAGE

WWW.

MOBILE MP71 mobile undercarriage with integrated

4-point outrigger, steering axle as hydraulically lockable pendulum axle, pendulum axle cylinder with pipe-fracture safety valves, all-wheel drive via an adjustable hydraulic motor with directly attached, automatically actuated brake valve and planetary axles with integrated steering cylinders, service brake with

2-circuit system

hydraulic

TIRE TYPE 8 x 14.00-24

TRAVEL SPEED 0-14 km/h variable

OPTIONS Tires: 8x 16.00-25

Pylon elevation max. 1.5 m

Special mobile undercarriage MP80, optionally with pylon elevation max. 2 m

#### **CRAWLER GANTRY**



Crawler gantry undercarriage PR90/585

TRAVEL SPEED 0-3 km/h

OPTIONS 900 mm rounded flat track shoes

900 mm canted flat track shoes



#### CRAWLER

BRAKES



Crawler undercarriage R83/450 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

TRAVEL SPEED 0-3 km/h

OPTION Special undercarriage R90/550 with up to

4 m pylon







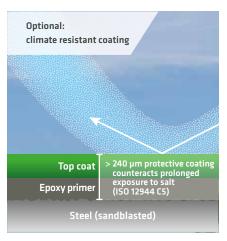


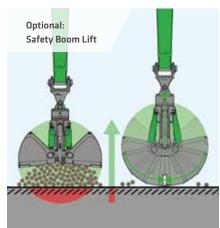
EQUIPMEN1	Г
REACH	up to 25 m
CYLINDERS	Hydraulic cylinders (incl. hybrid cylinder) with high-quality sealing and guide elements, end position damping, sealed bearing points, all cylinders coated, nickel-plated and chromium-plated in a way that is suitable for maritime climates
OPTIONS	Safety Boom Lift for equipment
	Adjustable lift limitation / stick limitation
	LED lighting
	Stick mounted camera
	Special port equipment with increased load capacities

DATA
90-110 t
Operating weight varies by model and equipment.











## **LOAD RATINGS K18 (MOBILE)**

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



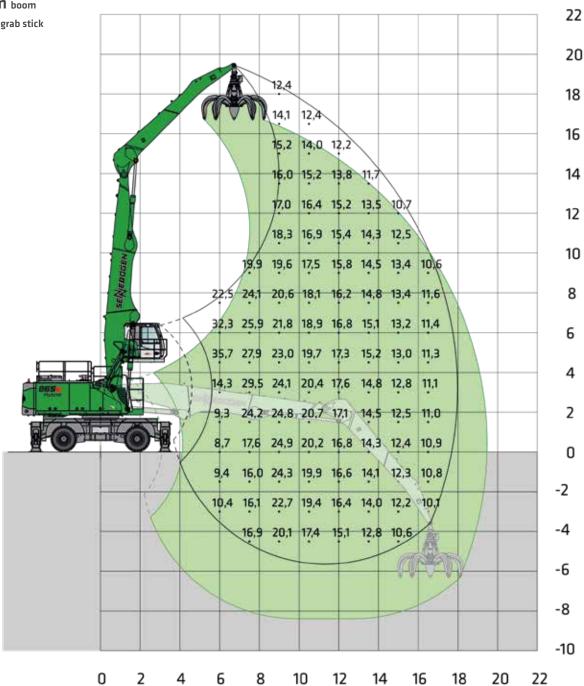
**MP71** 



MAXCAB 2.7 m elevation



10.8 m boom 7.8 m grab stick



20210719113631

#### Notes:

Machine

shown in mirror image

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, load hook, 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 according to ISO10567 and apply at the required operating temperature in the Green Hybrid system. According to EU standard EN 474/5, hydraulic material handlers used for hoisting must be equipped with a pipe rupture safety device on lifting and stick cylinders and an overload warning device. Load ratings apply to a machine with 4-point outrigger and for 360° slewing.



## **LOAD RATINGS B20 (MOBILE)**

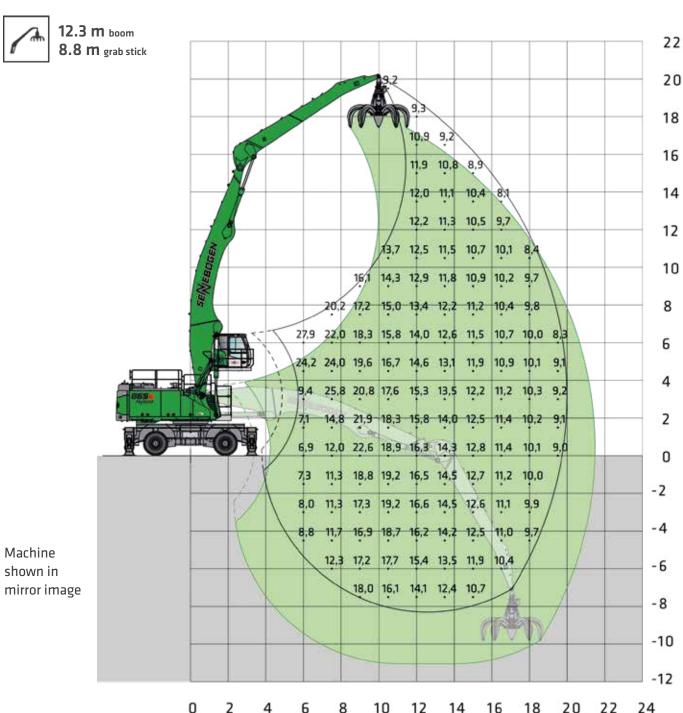
The load ratings are given as information only. Please contact our regional sales partners or portdivision@sennebogen.de for a detailed project study.



**MP71** 



MAXCAB
2.7 m elevation



#### Notes:

20210719113838

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, load hook, 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 according to ISO10567 and apply at the required operating temperature in the Green Hybrid system. According to EU standard EN 474/5, hydraulic material handlers used for hoisting must be equipped with a pipe rupture safety device on lifting and stick cylinders and an overload warning device. Load ratings apply to a machine with 4-point outrigger and for 360° slewing.



## **LOAD RATINGS B21 (MOBILE)**

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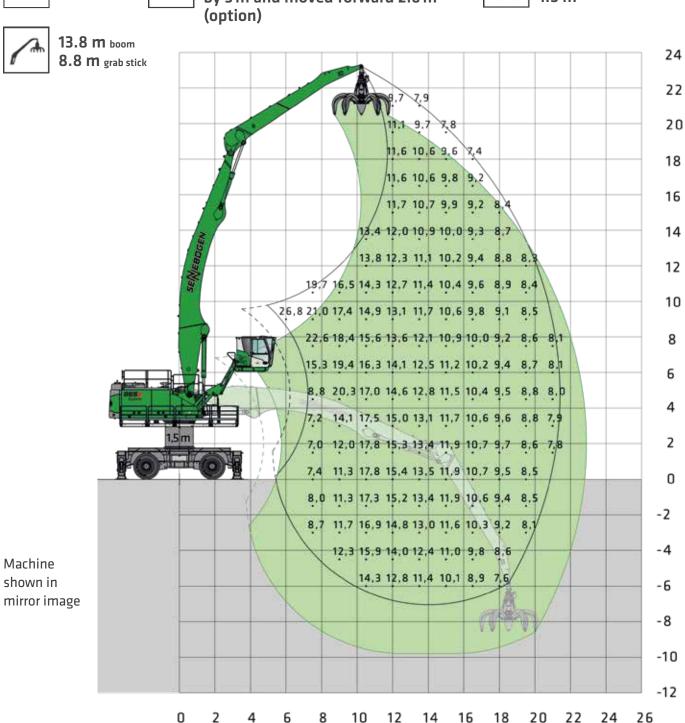
**MP71** 



MAXCAB INDUSTRY can be elevated by 3 m and moved forward 2.6 m



**Pylon extension** 



20210719114206

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10

12

14

16

18





## **LOAD RATINGS B24 PORT (MOBILE SPECIAL)**

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



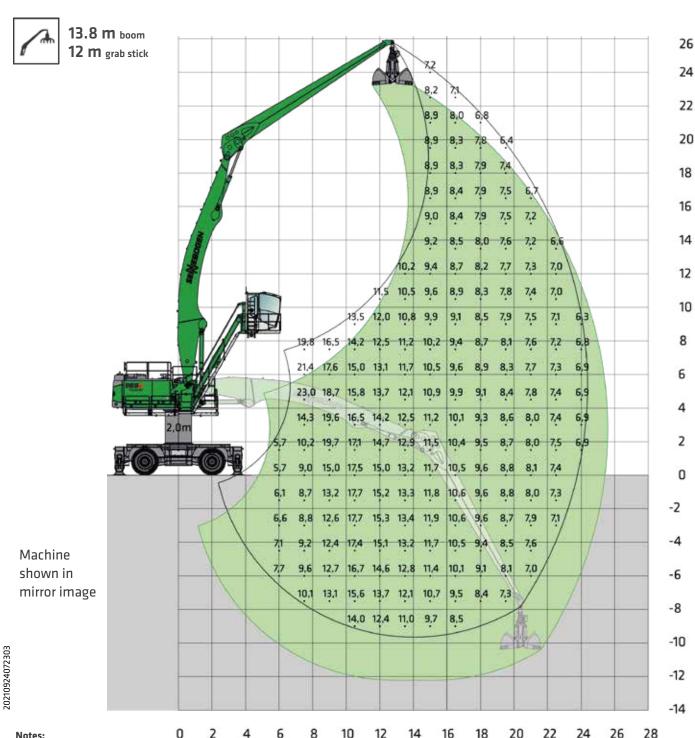
**MP80** 



SKYLIFT 900 WITH MASTERCAB, hydraulically elevating (option)



Pylon extension



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, load hook, 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 according to ISO10567 and apply at the required operating temperature in the Green Hybrid system. According to EU standard EN 474/5, hydraulic material handlers used for hoisting must be equipped with a pipe rupture safety device on lifting and stick cylinders and an overload warning device. Load ratings apply to a machine with 4-point outrigger and for 360° slewing.



## **LOAD RATINGS K20 (CRAWLER)**

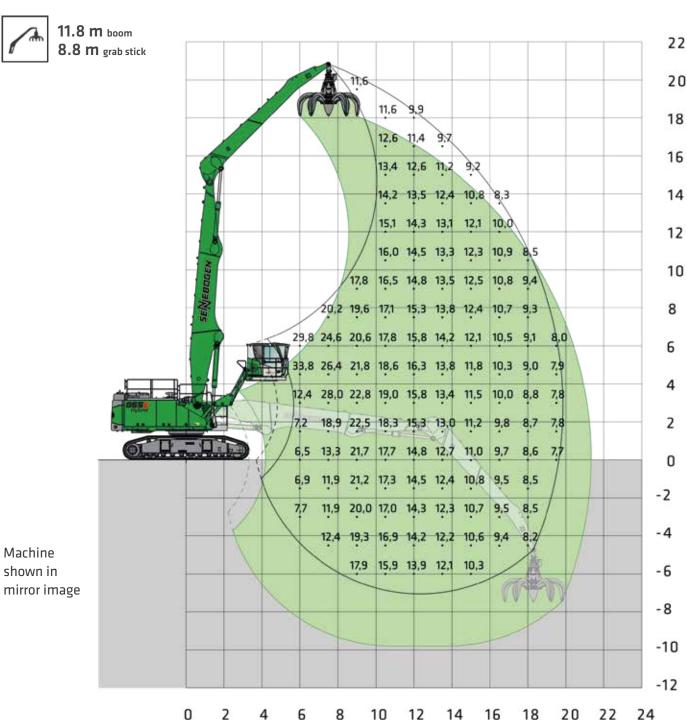
The load ratings are given as information only. Please contact our regional sales partners or portdivision@sennebogen.de for a detailed project study.



R83/450



**MAXCAB INDUSTRY** can be elevated by 3 m and moved forward 2.6 m (option)



20210719130308

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, load hook, 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 according to ISO10567 and apply at the required operating temperature in the Green Hybrid system. According to EU standard EN 474/5, hydraulic material handlers used for hoisting must be equipped with a pipe rupture safety device on lifting and stick cylinders and an overload warning device. The specified load ratings apply to maximum track width and 360° slewing.

4



14

18



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## LOAD RATINGS K25 PORT (CRAWLER GRANTRY)

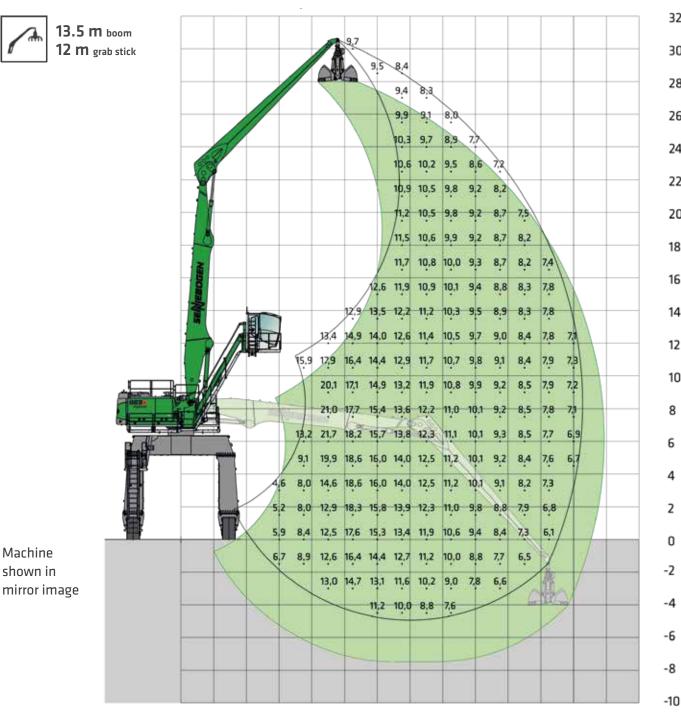
The load ratings are given as information only. Please contact our regional sales partners or portdivision@sennebogen.de for a detailed project study.



PR90/585



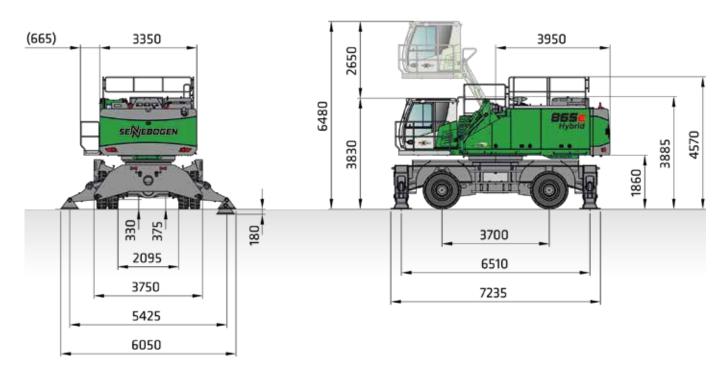
SKYLIFT 900 WITH MASTERCAB, hydraulically elevating (option)



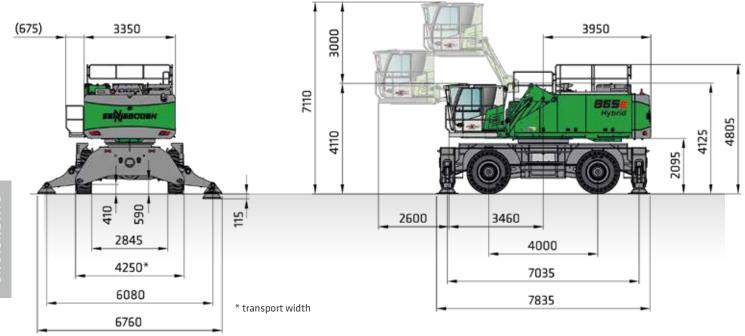
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### **MOBILE DIMENSIONS**



865 E HYBRID WITH MOBILE UNDERCARRIAGE MP71 AND HYDRAULICALLY ELEVATING CAB E270 MAXCAB (SERIES), SOLID RUBBER TIRES 14.00-24 (8X)

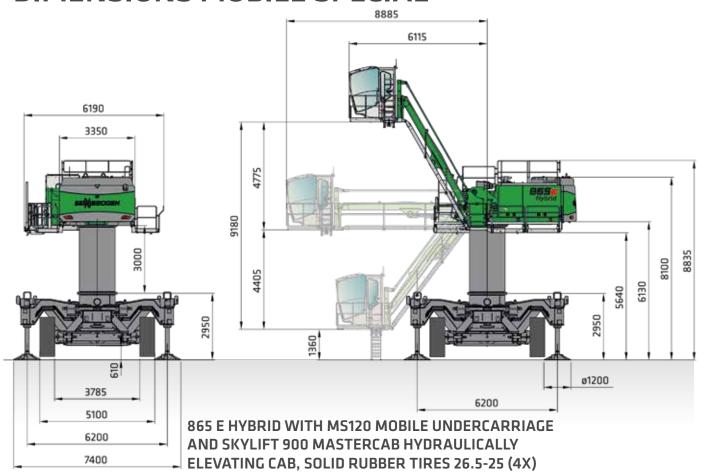


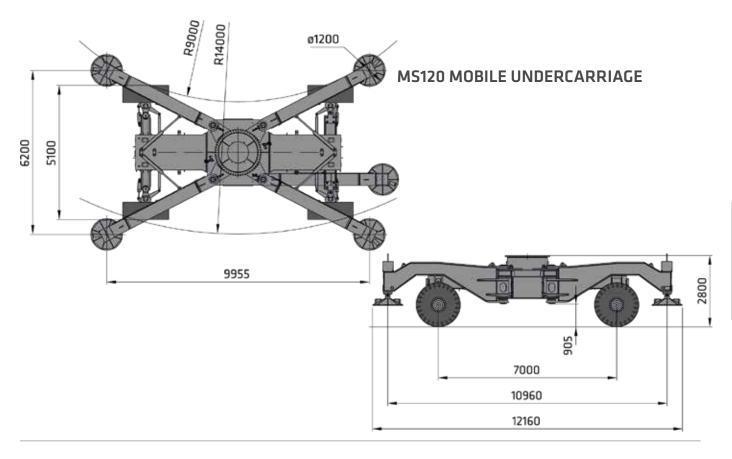
865 E HYBRID WITH MP80 MOBILE UNDERCARRIAGE AND E300/260 MAXCAB INDUSTRY THAT CAN BE ELEVATED AND MOVED FORWARD HYDRAULICALLY, SOLID RUBBER TIRES 26.5-25 (4X)





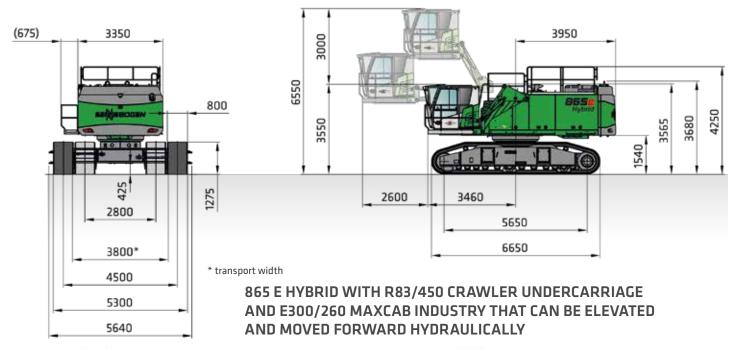
## **DIMENSIONS MOBILE SPECIAL**

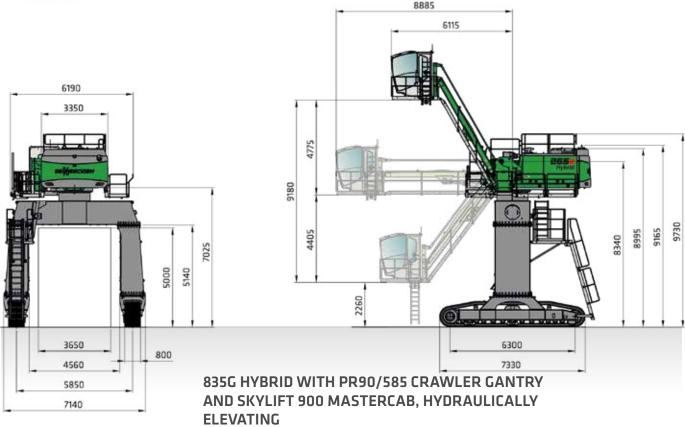






## **CRAWLER DIMENSION**

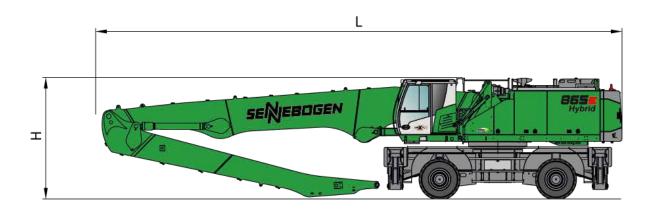








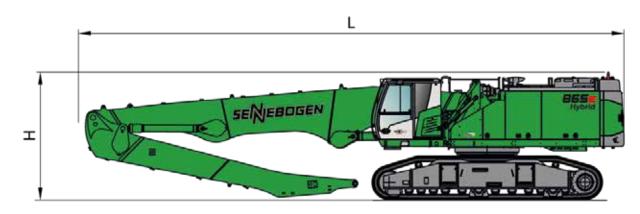
## TRANSPORT DIMENSIONS MOBILE / CRAWLER



UNDER- CARRIAGE		СОМРАСТ ВООМ	GRAB STICK	TRANSPORT LENGTH (L)	TRANSPORT HEIGHT (H)
MP71	K18	10.8 m	7.8 m	15.7 m	3.9 m
MP71	K20	11.8 m	8.8 m	16.8 m	4.0 m
MP80	K25 Port	13.5 m	12 m Port	18.2 m	4,09 m *
MP80	B24 Port	13.8 m Banana	12 m Port	18.2 m	4,09 m *

Other transport dimensions on request

#### TRANSPORT DIMENSIONS 865 E HYBRID WITH R83/450 CRAWLER UNDERCARRIAGE



	сомраст воом	GRAB STICK	TRANSPORT LENGTH (L)	TRANSPORT HEIGHT (H)
K18	10.8 m	7.8 m	15.8 m	3.7 m
K20	11.8 m	8.8 m	16.8 m	3.7 m
B21	13.8 m Banana	8.8 m	18.5 m	3.7 m *

Other transport dimensions on request



<sup>\* =</sup> stick removed

<sup>\* =</sup> stick removed



#### **SENNEBOGEN ACADEMY**

Increase your knowledge because success is based on knowledge. In the SENNEBOGEN ACADEMY we place great importance on ensuring it flows powerfully.





#### **SERVICE AND MAINTENANCE**

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

www.sennebogen.com/customer-service



#### **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. Find your rental machine 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.

All the benefits here www.sennebogen.com/operators-club



## MOVE BIG THINGS WITH US



over **70** 

years of experience

100%

family company

over 1800

experienced specialists worldwide

4

production plants in Germany

over 180

sales and service partners worldwide

**27** 

different material handlers



Telehandler 4-5.5 t

Balancer 130-300 t Material handler

13.5-300 t

50-300 t

Telescopic crane
16-130 t

Port crane



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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