

 860 M

SENEBOGEN



268 kW (Tier IIIa)
261 kW (Tier IVf)



97 - 105 t



18 - 23 m



MAXCAB

MASTERCAB

860E

Mobile material handling machine

Tier IVf emission
standards

860E Advanced. The E-Series.



1962: rope-driven S833 with elevated operator cab

What makes up the E-Series

- 60 years of experience in designing and constructing hydraulic material handling machines
- Uncompromisingly high performance in all areas: focus on material handling
- Technology that can be mastered: High-quality components without over-engineering
- Long product service life and high value retention

Your top benefits:

- 1 Green Efficiency**
Save fuel – reduce operating costs
Work quietly – protect operator and environment
- 2 Peak performance**
Durable mechanical systems – stressed parts optimized
High speeds – high load capacities
- 3 Maximum operating comfort**
Comfortable Maxcab operator cab – relaxed work
SENCON – SENNEBOGEN Control System
- 4 Maximum safety**
Safe entry and exit – no-slip steps
State-of-the-art cameras – entire work area in view
- 5 Maintenance and service made easy**
Easy fault diagnosis – central measuring points
Easy maintenance – clear labeling
- 6 Consultation and support**
3 production sites – 2 subsidiaries
120 sales partners – over 300 service stations





860E The E-Series. At a glance.



Four ways to save fuel

- Up to 20% savings: working in Eco Mode with reduced engine speed
- Idle automation reduces speed to 40% of operating speed
- Stop automation switches the engine off when not needed
- Optimized engine settings, reduced specific fuel consumption, state-of-the-art exhaust aftertreatment



Quiet operation

- Consistently quiet operation thanks to decoupled engine mounts (3) and soundproofing in the doors
- Sound pressure level reduced by up to 4.5 dB; sound power level according to 2000/14/EC up to 2 dB lower than required

High-capacity cooling

- Constant, reliable performance thanks to large-dimensioned and robust fans and coolers (4)
- Water and oil coolers with top-notch efficiency thanks to axial-piston pump and motor control and on-demand thermostatic control
- Charge-air cooler with mechanical drive



Maximum safety

- No-slip work surfaces
- Peripheral railing* 1
- 2 cameras to the right and rear
- Step grid with railing next to cab sliding door 2



Smart cooler technology

- Standard features: automatic, fast and strong fan reversal for blowing out coolers and continuous cooling capacity
- Side-by-side coolers, easily accessible and clean cooling technology
- Fuel savings through optimized fan operation

Powerful hydraulic system

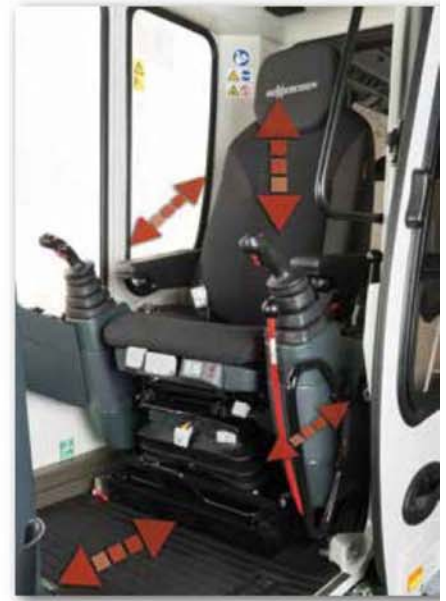
- Strong pumps with power reserves
- Top efficiency thanks to large-dimensioned hydraulic valves and lines
- Extra-long change intervals of 4,000 operating hours through initial fill-up with special oil with extended service life when using SENNEBOGEN HydroClean 5

* Optional

860E The E-Series. Pure comfort.

Maxcab comfort cab

- Air-suspension comfort seat with heater
- Convenient joystick control
- Hinged front window
- Sliding door, platform in front of cab
- Color monitor for right-side and rear-facing camera feeds
- SENNEBOGEN OptiMode:
Various modes to optimize performance



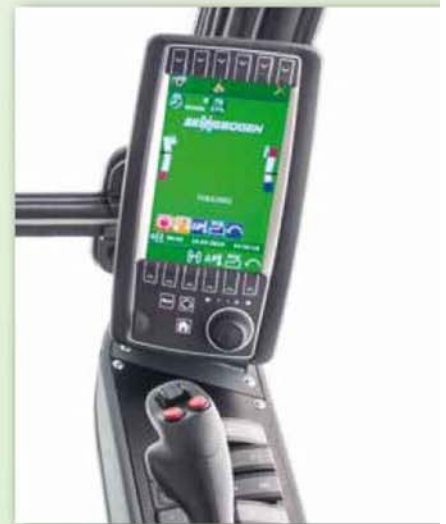
Platform with railing

- Safety when entering and exiting the cab
- Sliding door makes entering and exiting easy and safe



Automatic climate control

- Consistently pleasant cab climate thanks to 10 evenly distributed air vents
- Central controls make operation easy



SENCON

- Clear menu
- Determine operating values without the need for additional instruments
- Fast troubleshooting thanks to detailed messages

860E Maintenance and service made easy



Optimized for maintenance

- Fast and easy troubleshooting thanks to straightforward and clearly labeled electrical distributor
- Easy access to all service points on the machine
- Automatic central lubrication for equipment and slewing gear raceway



HydroClean*

- Optimal protection of hydraulic components thanks to 3 μm micro-filter
- Cleaner hydraulic oil, longer service life



Central reading points

- Easily accessible, central reading points
- Quickly inspect entire hydraulic system





Clear labeling

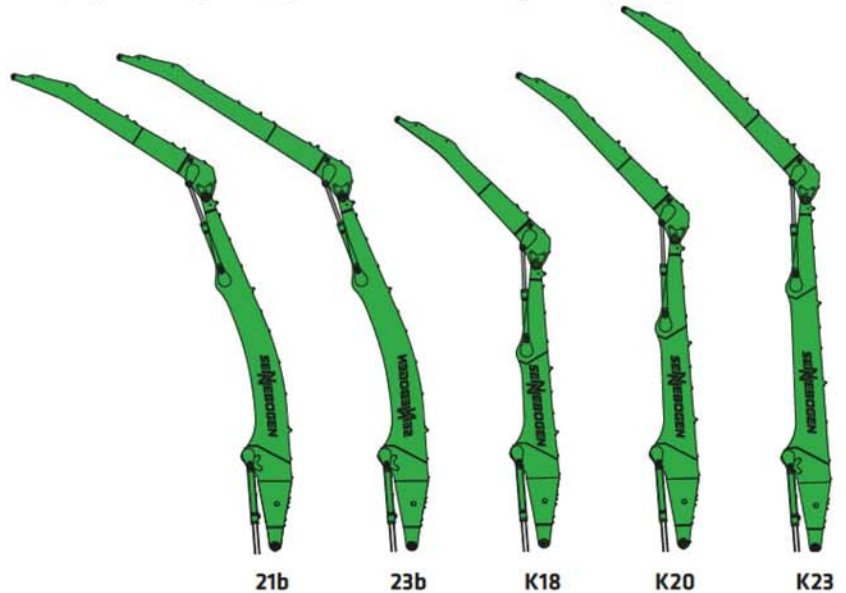
- All parts labeled with a unique part number
- Easy and reliable spare parts ordering

860E Modular design – versatile solutions

Attachments

-  Multi-shell grab
-  Double shell grab
-  Magnetic plate
-  Scrap metal shears
-  Vacuum traverse

Equipment options (others available upon request)



Cabs



Maxcab

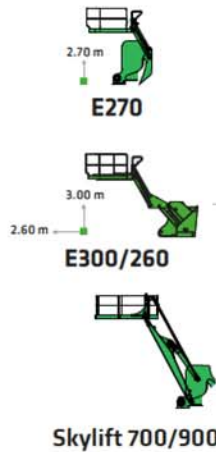


Maxcab Industry



Mastercab

Cab elevation



Uppercarriage



Diesel-hydraulic drive



Electrohydraulic drive

Options

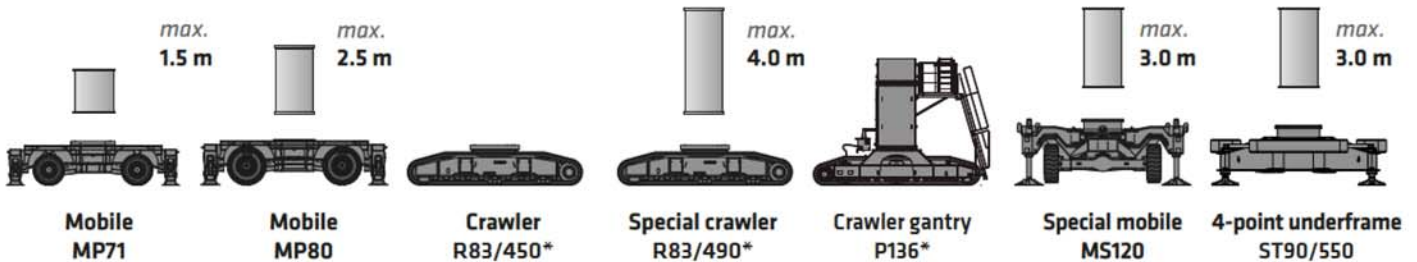


Engine line drum



Transformer

Undercarriage variants



- Decade-long experience
- most advanced
Computer simulation
- the greatest degree of
stability and longest
service life

Reliable operation
through robust and FEM-
optimized equipment

Better illumination
of the work area through power-
ful LED headlights*

Ideal overview
and safe working
height thanks to
stable cab elevation

High load capacities
even when fully extended,
thanks to massive cylinders

Robust side cover
Made of recyclable
sheet steel

Safe entry and exit
thanks to railings, grip handles
and no-slip steps

Safe entry and exit
thanks to platform with railing

High stability
due to the broad
outrigger area

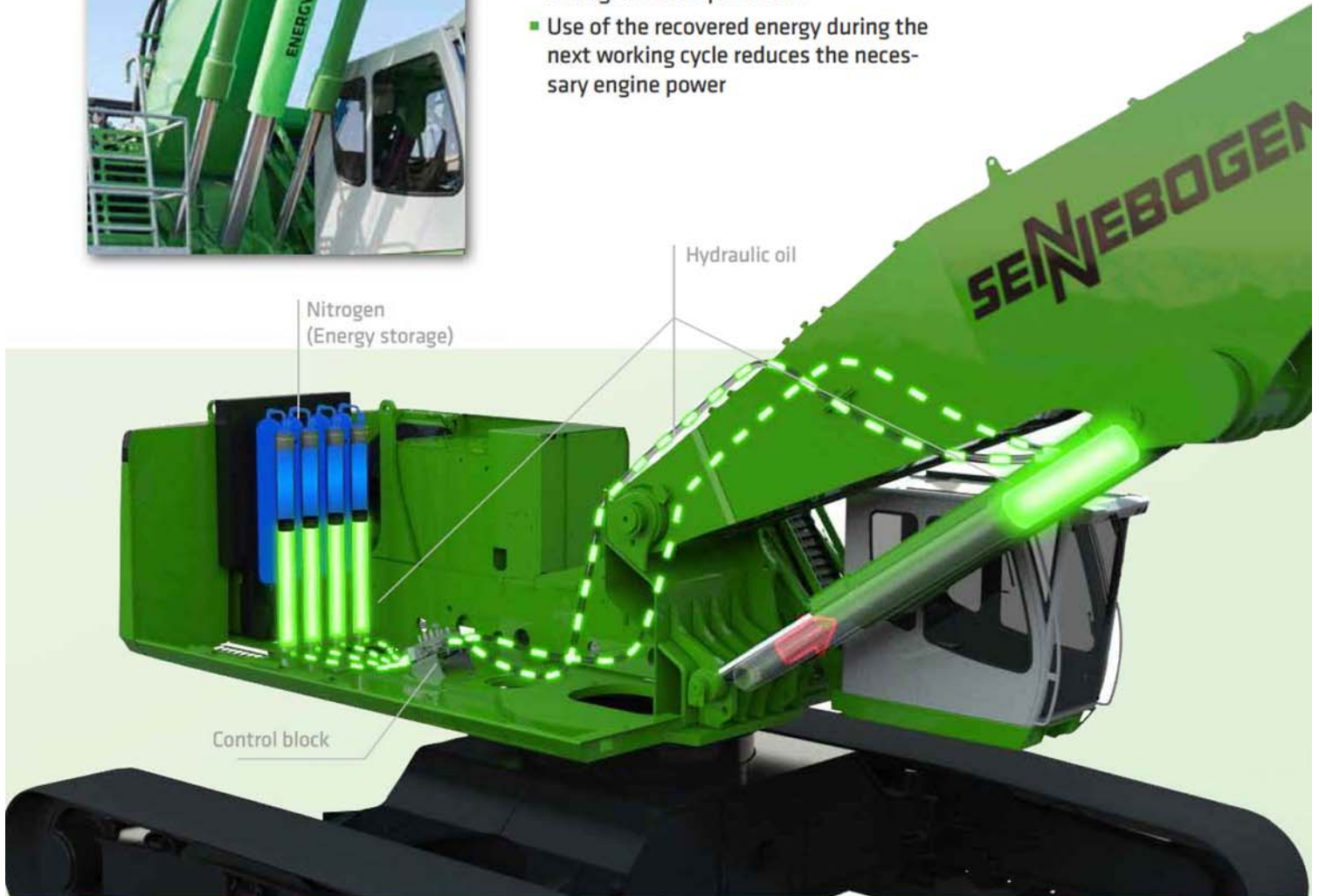


860E SENNEBOGEN Green Hybrid Energy Recovery System



Save 30 % energy with the Green Hybrid system

- A combination of hydraulic cylinders at the outrigger and nitrogen piston accumulators with gas recovers energy during the work procedure
- Use of the recovered energy during the next working cycle reduces the necessary engine power



Safety

- Use of standard hydraulic components
- Energy storage in the enclosed rear section

Reduce operating costs

- High quality components for a long service life and reliability
- Proven concept: successfully in use since 2013
- High efficiency of the system - already very effective in small lifting movements

860E Recommended grabs

SGM multi-shell grab (4 shells)



Design / size	Grapple capacity	Weight ¹		Maximum load capacity
		Shell shape		
		HO	G	
SGM	l	kg	kg	t
800.50-4	800	2245	2490	10.0
1000.50-4	1000	2345	2585	
1500.50-4	1500	2475	2830	
2000.50-4	2000	2660	3075	

SGM multi-shell grab (5 shells)



Design / size	Grapple capacity	Weight ¹		Maximum load capacity
		Shell shape ²		
		HO	G	
SGM	l	kg	kg	t
800.50	800	2420	2610	10.0
1000.50	1000	2480	2655	
1500.50	1500	2645	2930	
2000.50	2000	2800	3160	
2500.50	2500	3130	3615	
3000.50	3000	3250	3875	
3500.50	3500	3420	4140	

Double-shell grab SGZ



Design / size	Grapple capacity	Weight ¹	Maximum load capacity
SGZ	l	kg	t
1500.50	1500	1950	12.0
2000.50	2000	2200	
2500.50	2500	2300	
3000.50	3000	2490	
4000.50	4000	2880	
2500.60	2500	3350	12.0
3000.60	3000	3530	
3500.60	3500	3720	
4000.60	4000	3920	

Magnetic plates



Type series / model	Power	Deadweight	Breakaway force	Load-bearing capacity in kg
WOKO	kW	kg	kN	Slab (safety factor 2)
S-RSL 17	17.0	2500	460	23000
S-RLB 15	11.7	2400	380	19000
S-RLB 17	17.8	3300	640	32000
S-RLB 19	22.0	5090	790	39500
Recommended magnetic generator: 20-25 kW				

¹) Available upon request ¹) Weight information without grapple suspension, stick bolts, hose system

²) Half-open shells: shell sheet steel width 400 mm, 500 mm wide for 1250 l capacity and higher

860E Technical data, equipment

MACHINE TYPE

Model (type) **860**

ENGINE

Power	261 kW/355 hp at 1,800 rpm (Tier IIIa) 268 kW/364 hp at 1,500 rpm (Tier IV)
Model	Cummins QSL 12- Tier IV Cummins QSM 11 - Tier IIIa Direct injection, turbocharged, charge-air cooler, reduced emissions, EcoMode, automatic idle, auto-stop, fuel preheating
Cooling	Water-cooled, cooler fan reversal
Diesel filter	With water separator and heating system
Air filter	Dry filter with integrated pre-separator, automatic dust discharge, main element and safety element, contamination indicator
Fuel tank	1000 l
DEF tank	110 l
Electrical system	24 V
Batteries	2 x 180 Ah , battery disconnect switch
Options	<ul style="list-style-type: none"> ■ Engine block heater ■ Diesel refueling pump ■ Jump-start terminals

UPPERCARRIAGE

Design	Torsion-resistant box design, precision crafted, steel bushings for boom bearings. Extremely service-friendly design, longitudinal engine
Central lubrication	Automatic central lubrication for equipment and slewing gear raceway
Electrical system	Central electrical distributor, battery disconnect switch
Cooling system	3-circuit cooling system with high cooling output, thermostatically regulated fan drive for oil cooler and water cooler, fan reversal for cleaning
Options	<ul style="list-style-type: none"> ■ Slewing gear brake via foot pedal ■ 360° uppercarriage railing for additional safety ■ LED lighting package ■ Fire extinguisher ■ Maritime climate varnish as corrosion protection ■ Electric heater for hydraulic tank ■ Low temperature package ■ Hydraulically driven magnetic generator 20 kW/25 kW

HYDRAULIC SYSTEM

Load sensing/LUDV hydraulic system, hydraulic pilot-controlled work functions, load limit sensing control	
Pump type	Swashplate-type variable-displacement piston pump, load pressure-independent flow distribution for simultaneous, independent control of work functions
Pump control	Zero-stroke control, on-demand flow control – the pumps only pump as much oil as will actually be used, pressure purging, load limit sensing control
Delivery rate	2x 475 l/min and 1x 274 l/min for rotary drive in the closed circuit
Operating pressure	max. 340 bar
Filtration	High-performance filtration with long change interval
Hydraulic tank	900 l
Control system	Proportional, precision hydraulic actuation of work movements, 2 hydraulic servo joysticks for the work functions, additional functions via switches and foot pedals
Safety	Hydraulic circuits with safety valves, secured emergency lowering of the equipment at engine standstill, pipe fracture safety valves for lift cylinder and stick cylinder
Options	<ul style="list-style-type: none"> ■ Bio-oil – environmentally friendly ■ ToolControl for programming the pressure/rate for up to 10 tools ■ Additional hydraulic circuit for shear attachment ■ Load moment warning with capacity utilization indicator ■ Overload safeguard with shutdown ■ 60 µm pressure filter for attachments ■ 3 µm hydraulic micro-filter – SENNEBOGEN HydroClean

SLEWING DRIVE

Gearbox	Compact planetary gear with slant-axis hydraulic motor, integrated brake valves
Parking brake	Spring-loaded multi-disk brake
Slewing ring	External gear slewing ring with 360° protection and pinion gear lubrication
Slewing speed	0-5.5 rpm, variable

860E Technical data, equipment

CAB <small>MAX CAB</small>	
Cab type	Hydraulically elevating cab E270
Cab equipment	Sliding door, excellent ergonomics, automatic climate control, heated, air-suspension comfort seat, fresh/circulating air filter, joystick control, 12 V/24 V connections, SENCON
Options	<ul style="list-style-type: none"> ■ Active seat climatization ■ Cab E300/260 can be elevated 300 cm and moved forward 260 mm hydraulically ■ Cab adjustment Skylift 700 ■ Cab adjustment Skylift 900 ■ Auxiliary heating system with timer ■ Cabs with active carbon filter ■ Sliding window in operator door ■ Armored-glass windshield ■ Armored-glass sunroof ■ Safety side window and rear window ■ Floor window for a better view ■ Rolling shade for roof window and windshield ■ Protective roof grating ■ FOPS protective roof grating ■ Protective front grating ■ Radio with speakers ■ Enlarged industrial cab with undivided armored glass windshield ■ Mastercab large area port cab with second seat

ATTACHMENTS	
Design	Decades of experience, state-of-the-art computer simulation, highest level of stability, longest service life, large-dimensioned and low-maintenance bearing points, sealed special bearing bushes, precision-crafted, quick-release couplings on the connections - open/close/rotate grapple
Cylinders	Hydraulic cylinders with high-quality sealing and guide elements, end position damping, sealed bearing points
Options	<ul style="list-style-type: none"> ■ Ball valves in the hydraulic lines for quick and easy grapple switching ■ Maritime climate varnishing ■ Maritime climate coating of all cylinders, nickel-plated and chrome-plated ■ Float position of the equipment ■ Adjustable hoisting limiter/stick limiter ■ LED Lighting ■ Camera on a stick

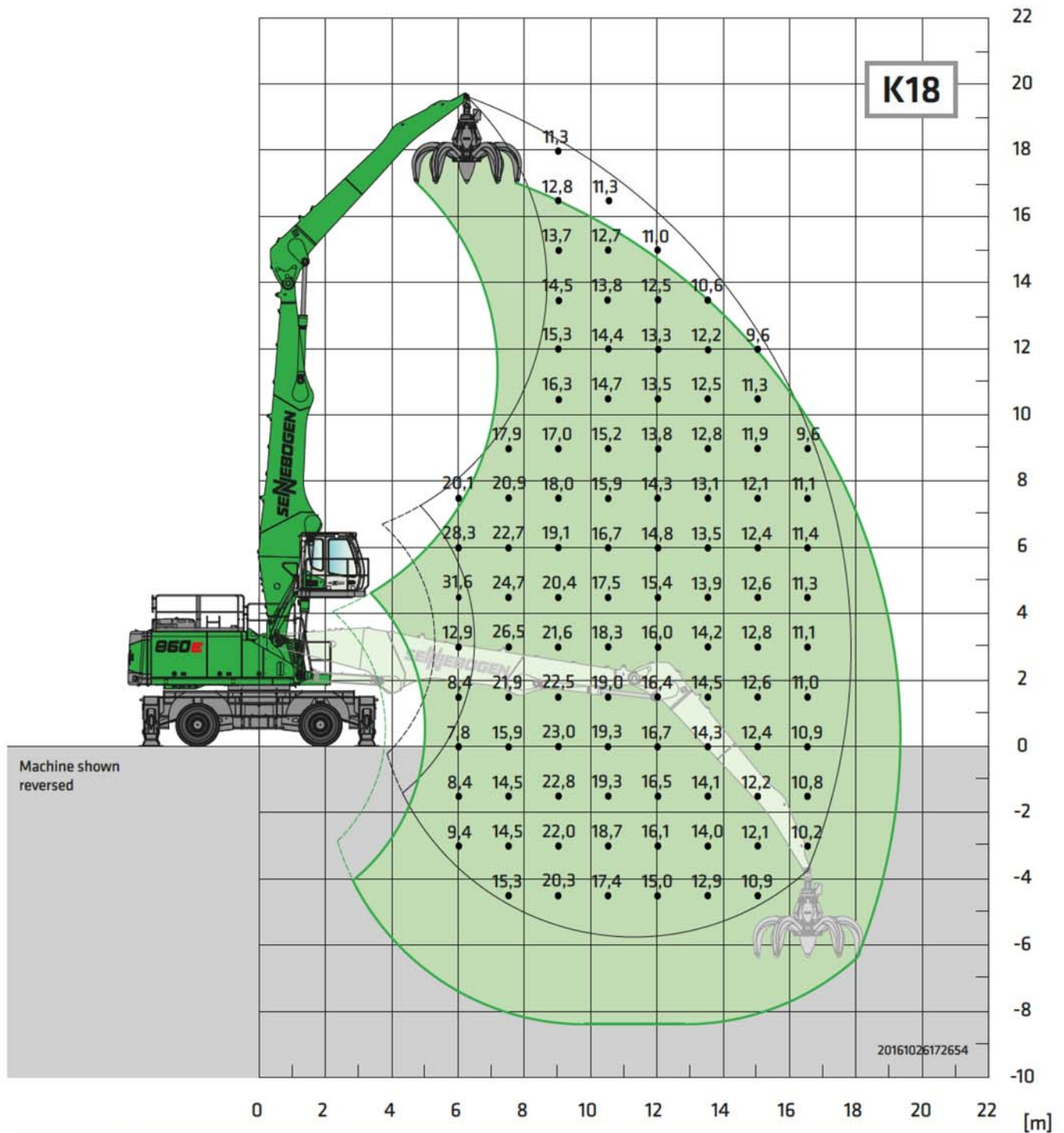
UNDERCARRIAGE	
Design	MP71 E mobile undercarriage with integrated 4-point outrigger system, hydraulic locking pendulum steering axle and pendulum axle cylinder with pipe fracture safety valves
Drive	All-wheel drive powered by a variable-displacement hydraulic motor with direct-mounted, automatic brake valve and 2-gear power shift transmission Planetary axles with integrated steering cylinder and dual-circuit service brake
Parking brake	Spring-loaded multi-disk brake
Tires	Solid-rubber tires 14.00-24, 8
Speed	0-5.4 kph Tier I, 0-10 kph Tier II
Options	<ul style="list-style-type: none"> ■ Solid-rubber tires 16.00-25, 8 ■ Individual outrigger control for stability on uneven ground ■ Traction drive protection ■ Shunting coupler ■ MP80: Solid rubber tires 23,5 - 25, 4-fach ■ MS120: Solid rubber tires 23,5 - 25, 4-fach

ELECTRIC DRIVE <small>eGREEN</small>	
Option	<ul style="list-style-type: none"> ■ Power: 250 kW, 400 V, 50 Hz Total connected load: 270 kVA, 500 A machine side fuse (alternatively 630 A with magnet system) for 400 V - star-delta connection motor start ■ Advantages: Lowest operating costs, quiet and virtually vibration-free work, long service life of hydraulic components

OPERATING WEIGHT	
Mass	approx. 93,500 kg 860 M basic machine with K18 equipment and 3000 l multi-shell grab
Notice	Operating weight varies by design.



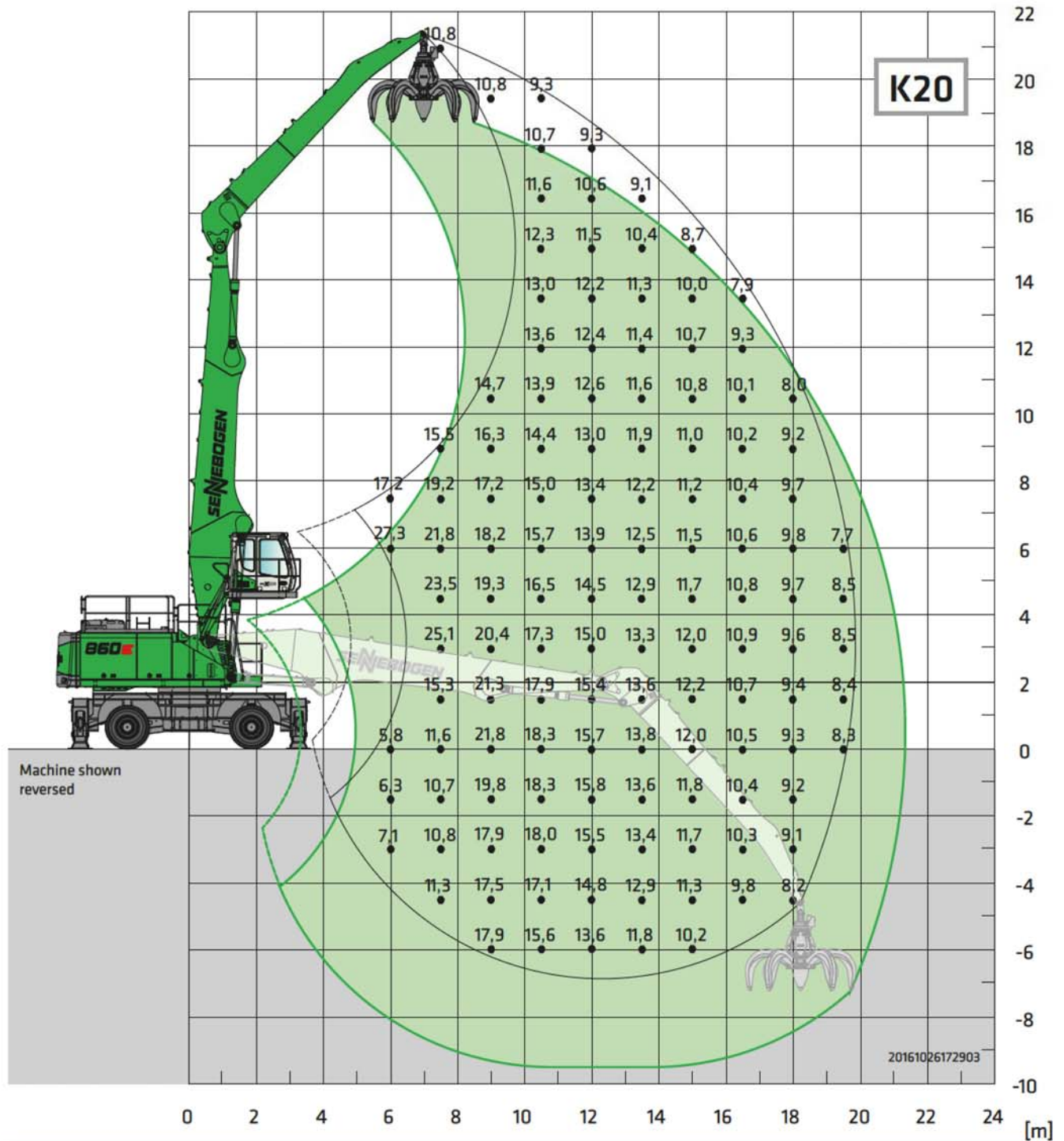
860E Load ratings



Undercarriage	MP71	Compact boom Dipper stick	10.8 m 7.8 m	Cab	Maxcab E270, hydraulic elevation feature
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All values are in tons (t) and are 75% of the static tipping load or 87% of the hydraulic lifting force in accordance with ISO 10567, and apply at the required operating temperature in the Green Hybrid system. They apply 360° on solid, level ground. Safe working loads include attachments such as multi-shell grapples, magnets, etc. According to harmonized EU standard EN 474-5, hydraulic excavators used for lifting must be equipped with pipe fracture safety devices on the hoist cylinders and an overload warning device.

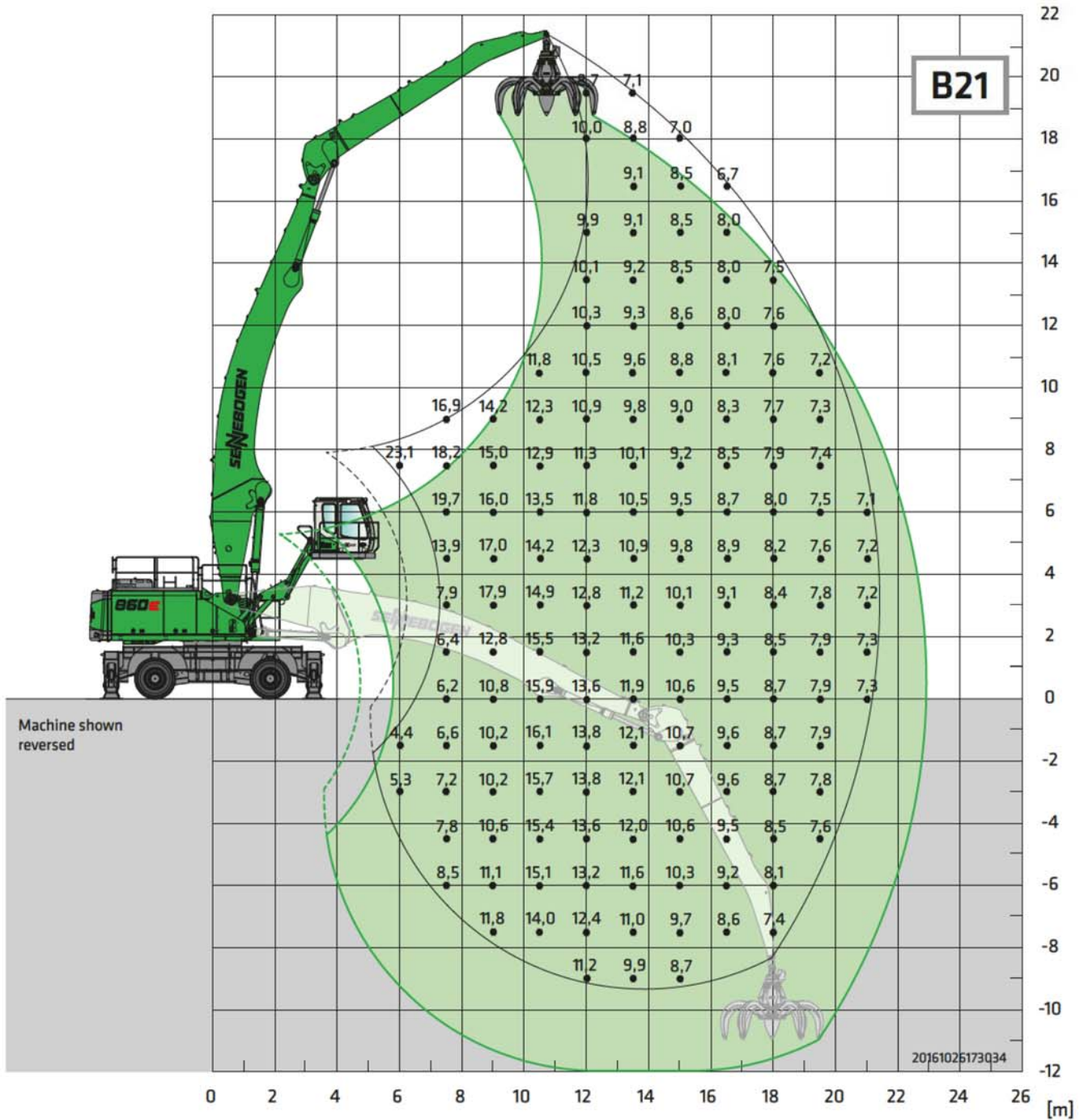
860E Load ratings



Undercarriage	MP71	Compact boom Dipper stick	11.8 m 8.8 m	Cab	Maxcab E270, hydraulically elevating
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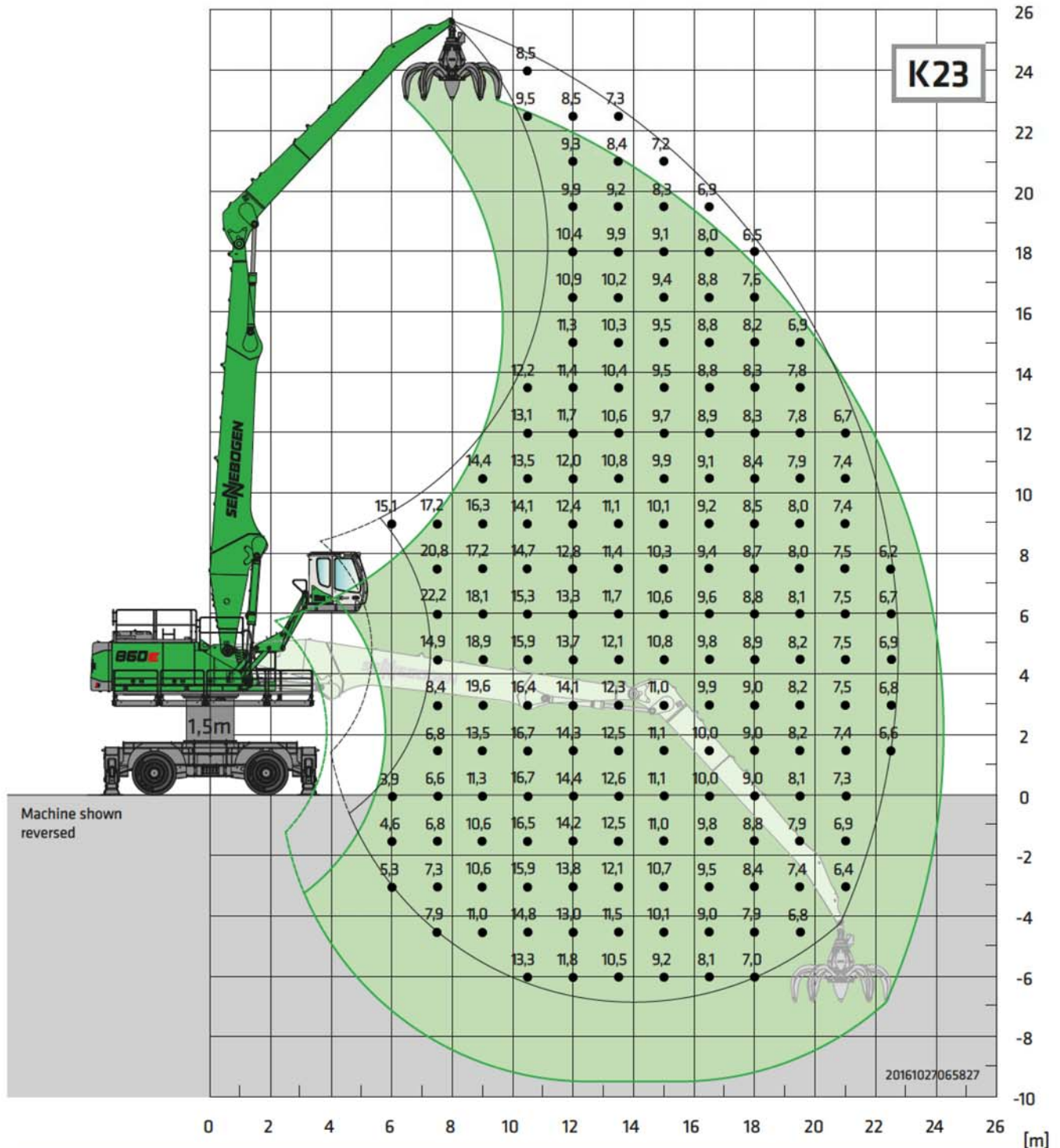
860E Load ratings



Undercarriage **MP71** Compact boom **13.8 m** Cab **Maxcab E300/260,**
 Dipper stick Dipper stick **8.8 m** **hydraulic elevation and tilt feature**

All values are in tons (t) and are 75% of the static tipping load or 87% of the hydraulic lifting force in accordance with ISO 10567, and apply at the required operating temperature in the Green Hybrid system. They apply 360° on solid, level ground. Safe working loads include attachments such as multi-shell grapples, magnets, etc. According to harmonized EU standard EN 474-5, hydraulic excavators used for lifting must be equipped with pipe fracture safety devices on the hoist cylinders and an overload warning device.

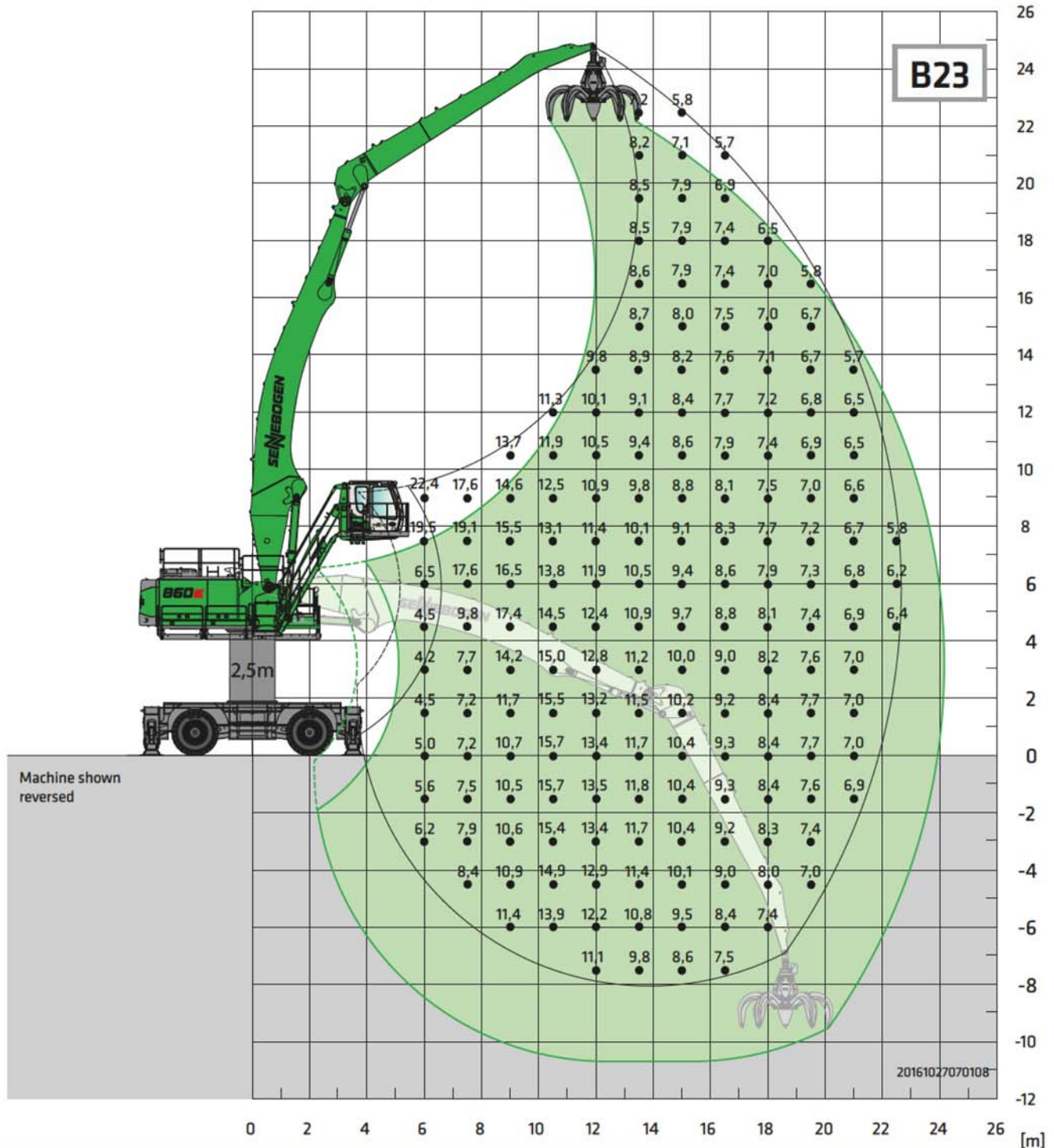
860E Load ratings



Undercarriage Pylon	MP71 1.5 m	Compact boom Dipper stick	13.5 m 10.2 m	Cab	MaXcab E300/260, hydraulically elevating
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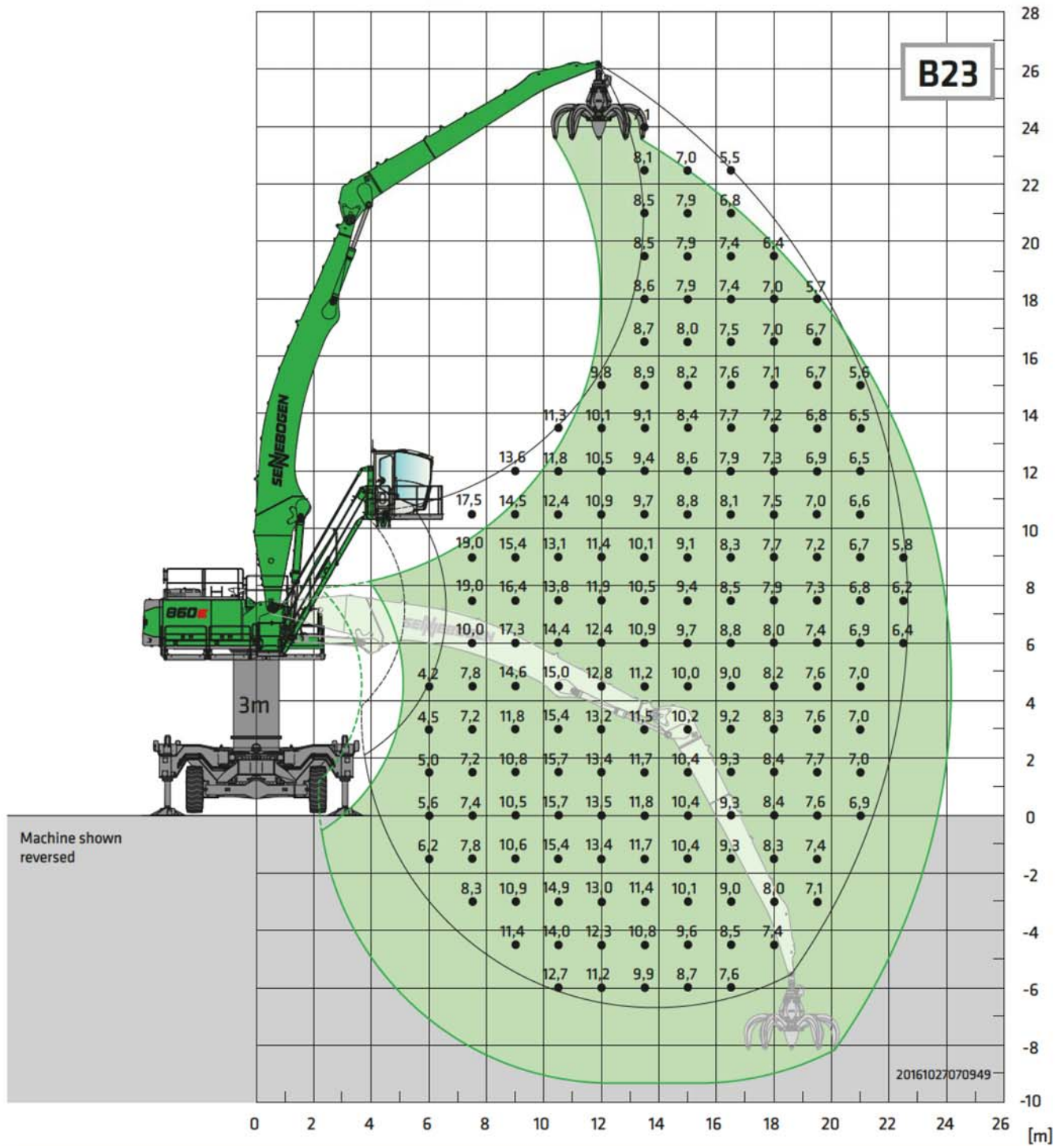
B60E Load ratings



Undercarriage Pylon	MP80 2.5 m	Compact boom Dipper stick	13.8 m 10.2 m	Cab	Maxcab Skylift 700, hydraulically elevating
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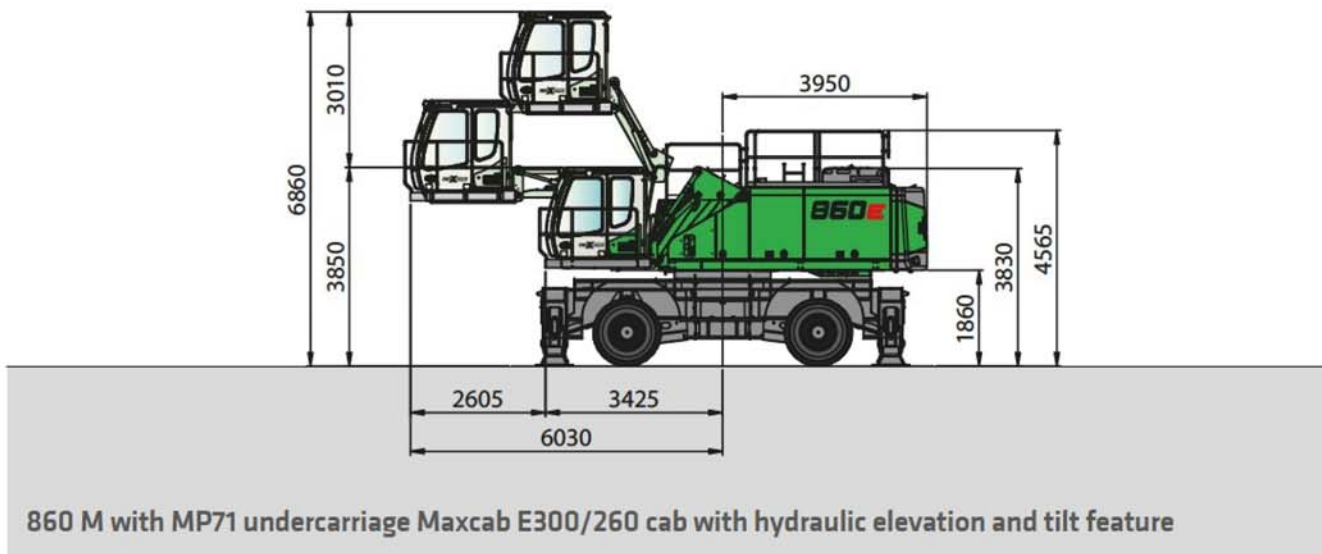
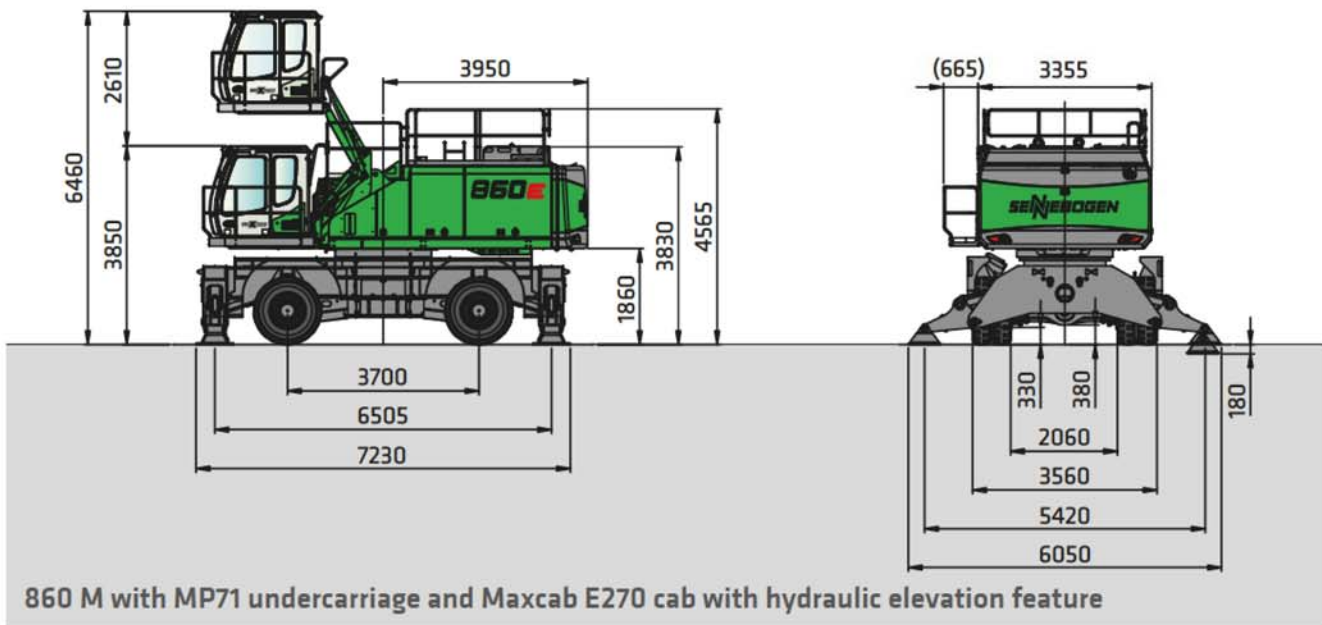
B60E Load ratings



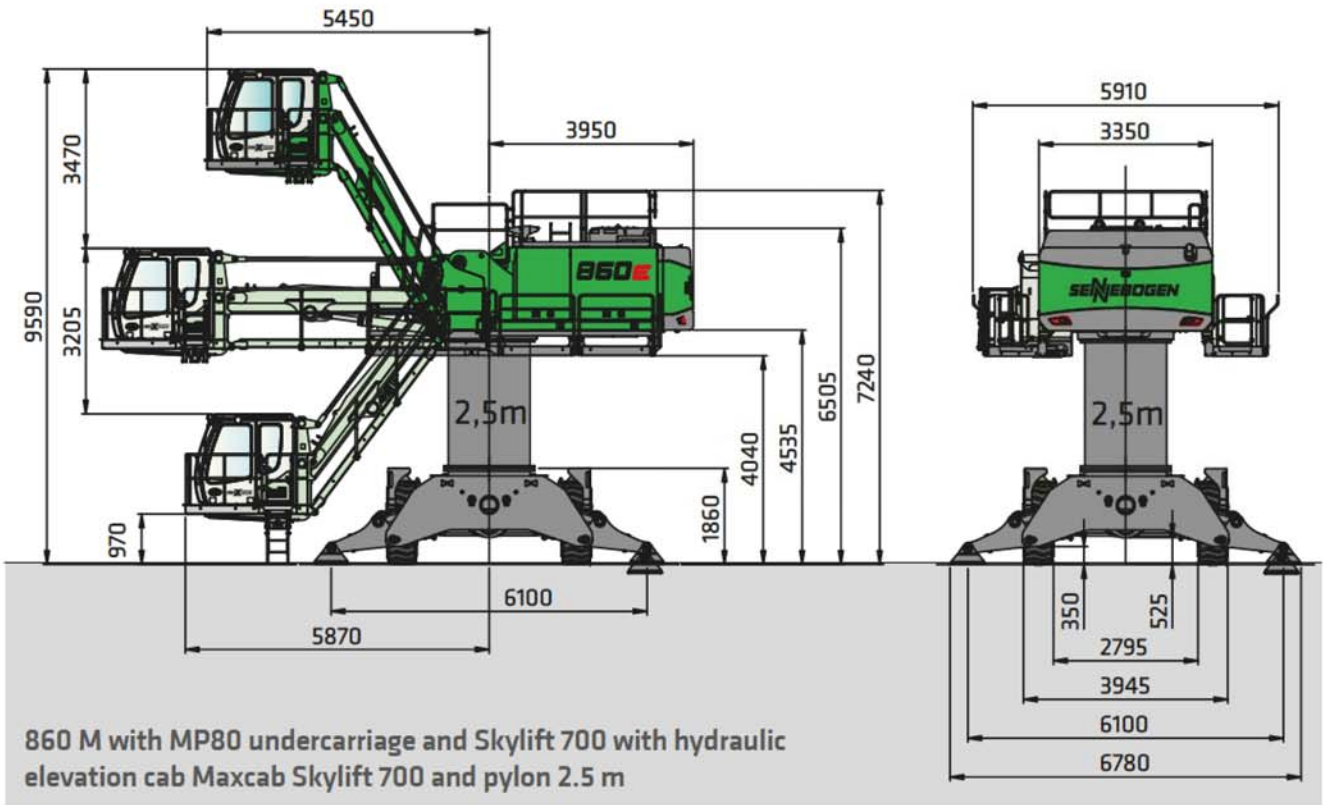
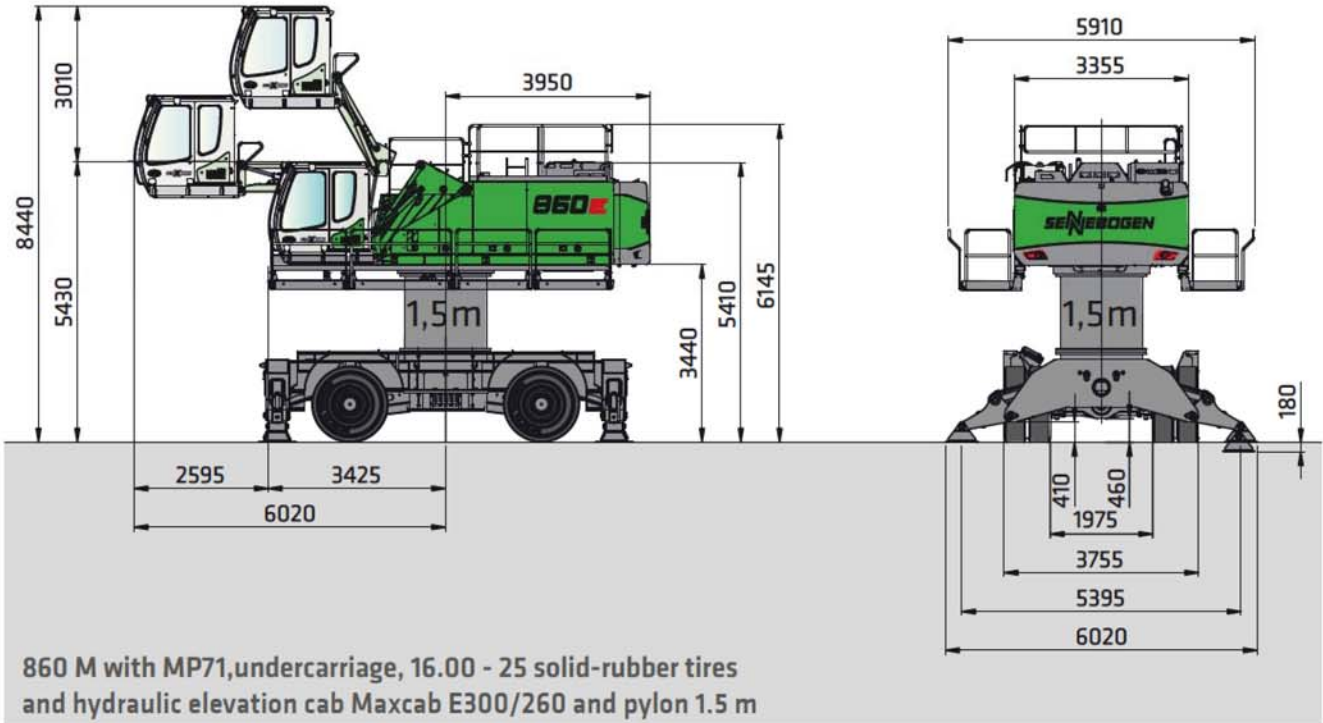
Undercarriage Pylon	MS120 3.0 m	Compact boom Dipper stick	13.8 m 10.2 m	Cab	Mastercab Skylift 900, hydraulic elevation
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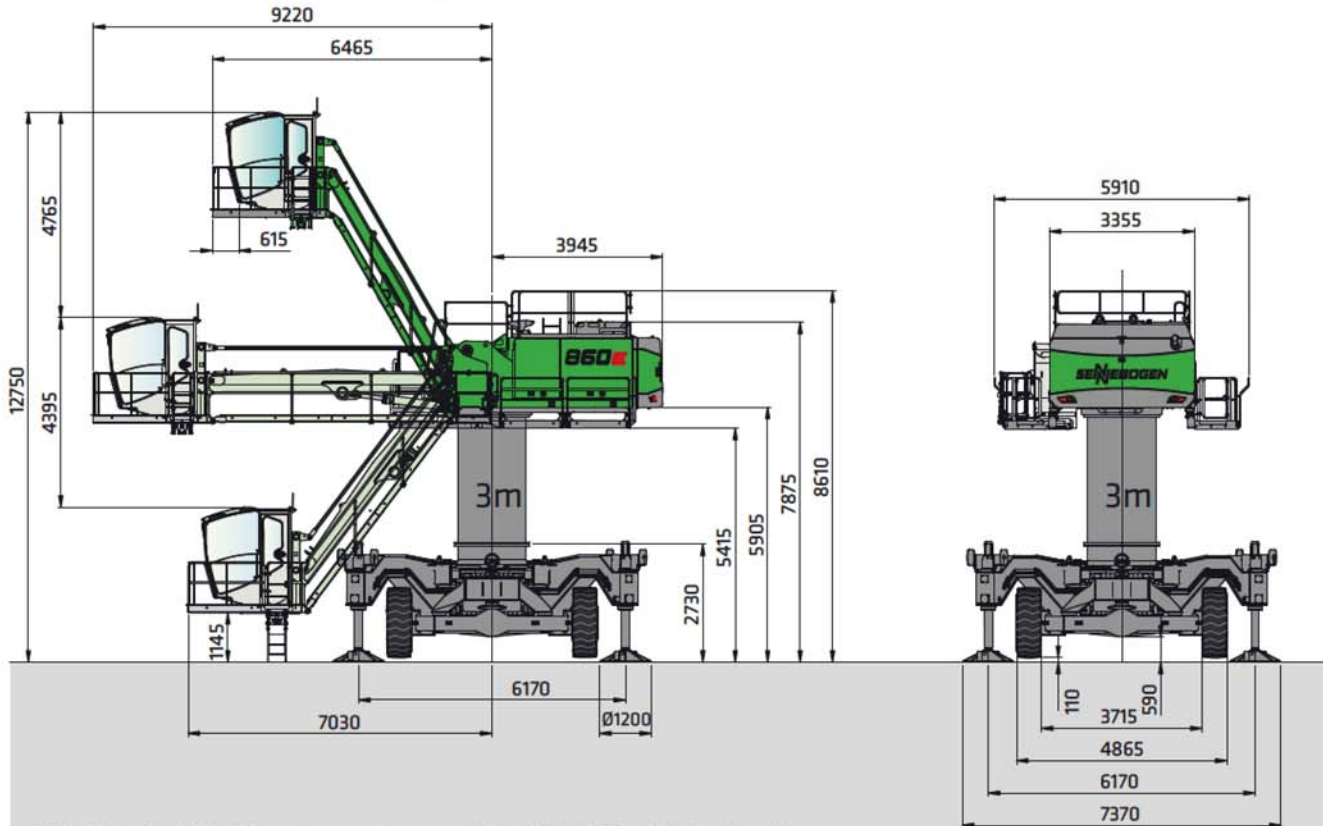
860E Dimensions



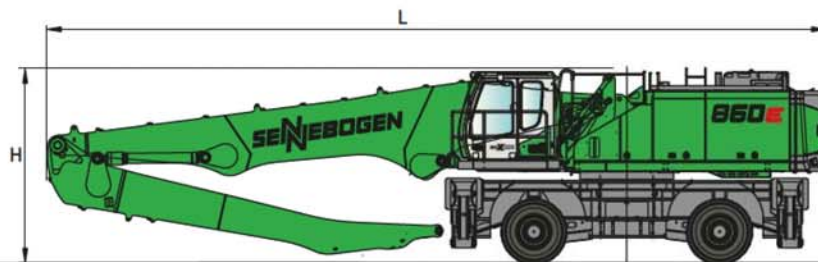
860E Dimensions



860E Transport dimensions



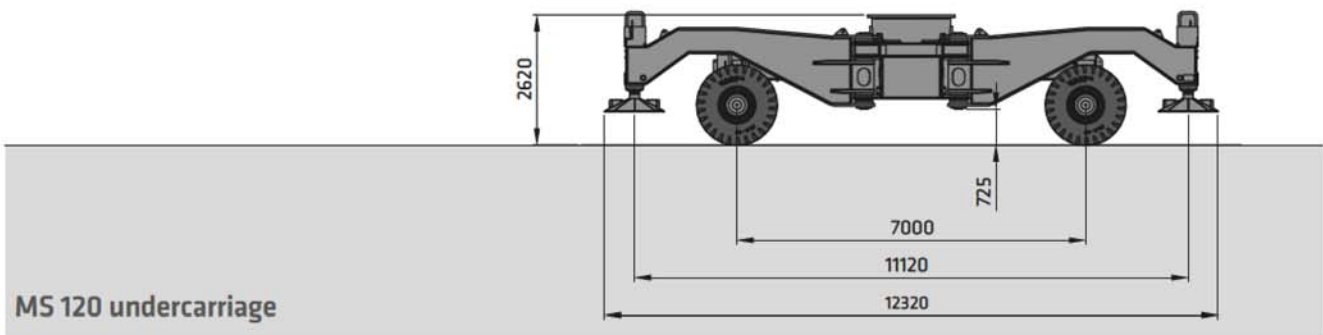
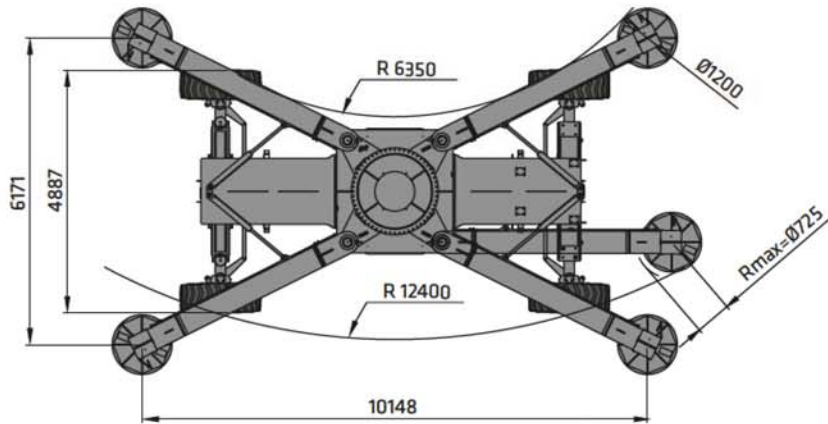
860 M with MS120 undercarriage and Skylift 900 with hydraulic elevation cab Mastercab and pylon 3.0 m



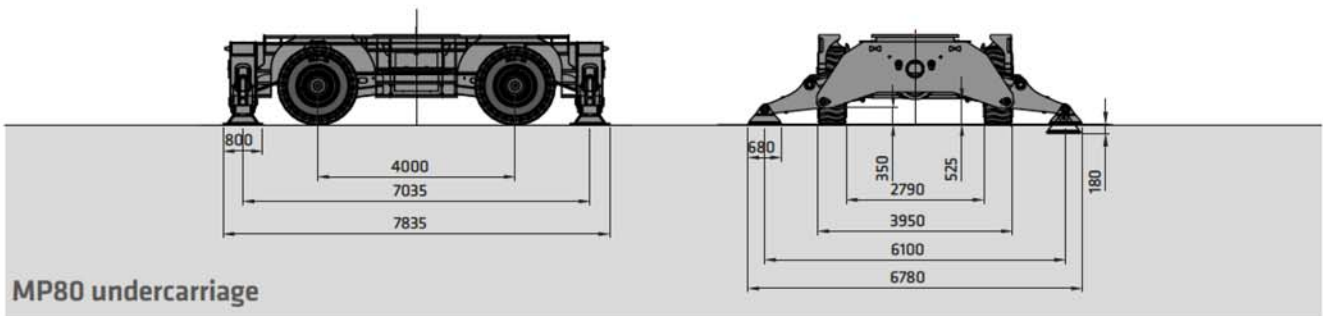
860 M with MP71 undercarriage

	Compact boom	Dipper stick	Transport length (L)	Transport height (H)
K18	10.8 m	7.8 m	15.75 m	4.10 m
K20	11.8 m	8.8 m	16.60 m	4.10 m
B21	13.5 m	8.8 m	18.30 m	3.90 m*
K23	13.5 m	10.2 m	18.30 m	3.95 m*
B23	13.8 m	10.2 m	18.60 m	4.10 m*

860E Dimensions



MS 120 undercarriage



MP80 undercarriage

860E



This catalog describes machine models, scopes of equipment of individual models, and configuration options (standard equipment and optional equipment) of the machines supplied by SENNEBOGEN Maschinenfabrik. Machine illustrations can contain optional equipment and supplemental equipment. Actual equipment may vary depending on the country to which the machines are delivered, especially in regard to standard and optional equipment.

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