Crawler material handling machine

268 kW (Tier IIIa)
261 kW (Tier IVf)
87.5 - 120 t
18 - 23 m
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
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*
- 2 cameras to the right and rear
- Step grid with railing next to cab sliding door

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

* Optional
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 rea-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
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
- E270
- E300/260
- SkyLift 700/900

Uppercarriage
- Diesel-hydraulic drive
- Electrohydraulic drive

Options
- Engine line drum
- Transformer

Undercarriage variants
- Mobile MP71®
- Mobile MP80®
- Crawler R83/450
- Special crawler R83/490
- Crawler gantry P136
- Special mobile® MS120

* Additional information on our mobile undercarriages can be found in the 860 M E-Series brochure
- Decade-long experience
- most advanced Computer simulation
- the greatest degree of stability and longest service life

Reliable operation through robust and FEM-optimized equipment

Ideal overview and safe working height thanks to stable cab elevation

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

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

Safe entry and exit thanks to platform with railing

Robust side cover Made of recyclable sheet steel
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
Recommended grabs

### SGM multi-shell grab (4 shells)

<table>
<thead>
<tr>
<th>Design / size</th>
<th>Grapple capacity</th>
<th>Weight</th>
<th>Maximum load capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Shell shape</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HO</td>
<td>G</td>
</tr>
<tr>
<td>SGM 800-50-4</td>
<td>800</td>
<td>2245</td>
<td>2490</td>
</tr>
<tr>
<td>SGM 1000-50-4</td>
<td>1000</td>
<td>2345</td>
<td>2585</td>
</tr>
<tr>
<td>SGM 1500-50-4</td>
<td>1500</td>
<td>2475</td>
<td>2830</td>
</tr>
<tr>
<td>SGM 2000-50-4</td>
<td>2000</td>
<td>2645</td>
<td>2930</td>
</tr>
</tbody>
</table>

### SGM multi-shell grab (5 shells)

<table>
<thead>
<tr>
<th>Design / size</th>
<th>Grapple capacity</th>
<th>Weight</th>
<th>Maximum load capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Shell shape</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HO</td>
<td>G</td>
</tr>
<tr>
<td>SGM 800.50</td>
<td>800</td>
<td>2420</td>
<td>2610</td>
</tr>
<tr>
<td>SGM 1000.50</td>
<td>1000</td>
<td>2480</td>
<td>2655</td>
</tr>
<tr>
<td>SGM 1500.50</td>
<td>1500</td>
<td>2645</td>
<td>2930</td>
</tr>
<tr>
<td>SGM 2000.50</td>
<td>2000</td>
<td>2800</td>
<td>3160</td>
</tr>
<tr>
<td>SGM 2500.50</td>
<td>2500</td>
<td>3130</td>
<td>3615</td>
</tr>
<tr>
<td>SGM 3000.50</td>
<td>3000</td>
<td>3250</td>
<td>3875</td>
</tr>
<tr>
<td>SGM 3500.50</td>
<td>3500</td>
<td>3420</td>
<td>4140</td>
</tr>
</tbody>
</table>

### Double-shell grab SGZ

<table>
<thead>
<tr>
<th>Design / size</th>
<th>Grapple capacity</th>
<th>Weight</th>
<th>Maximum load capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Shell shape</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HO</td>
<td>G</td>
</tr>
<tr>
<td>SGZ 1500.50</td>
<td>1500</td>
<td>1950</td>
<td>1950</td>
</tr>
<tr>
<td>SGZ 2000.50</td>
<td>2000</td>
<td>2200</td>
<td>2200</td>
</tr>
<tr>
<td>SGZ 2500.50</td>
<td>2500</td>
<td>2300</td>
<td>2300</td>
</tr>
<tr>
<td>SGZ 3000.50</td>
<td>3000</td>
<td>2490</td>
<td>2490</td>
</tr>
<tr>
<td>SGZ 4000.50</td>
<td>4000</td>
<td>2880</td>
<td>2880</td>
</tr>
<tr>
<td>SGZ 2500.60</td>
<td>2500</td>
<td>3350</td>
<td>3350</td>
</tr>
<tr>
<td>SGZ 3000.60</td>
<td>3000</td>
<td>3530</td>
<td>3530</td>
</tr>
<tr>
<td>SGZ 3500.60</td>
<td>3500</td>
<td>3720</td>
<td>3720</td>
</tr>
<tr>
<td>SGZ 4000.60</td>
<td>4000</td>
<td>3920</td>
<td>3920</td>
</tr>
</tbody>
</table>

### Magnetic plates

<table>
<thead>
<tr>
<th>Type series / model</th>
<th>Power</th>
<th>Deadweight</th>
<th>Breakaway force</th>
<th>Load-bearing capacity in kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOKO</td>
<td>kW</td>
<td>kg</td>
<td>kN</td>
<td>Slab (safety factor 2)</td>
</tr>
<tr>
<td>S-RLB 15</td>
<td>11.7</td>
<td>2400</td>
<td>380</td>
<td>19000</td>
</tr>
<tr>
<td>S-RLB 17</td>
<td>17.8</td>
<td>3300</td>
<td>640</td>
<td>32000</td>
</tr>
<tr>
<td>S-RLB 19</td>
<td>22.0</td>
<td>5050</td>
<td>790</td>
<td>39500</td>
</tr>
</tbody>
</table>

*Detailed information on grapples, as well as log grapples, quick-release systems, and other attachments can be found in the "Attachments" brochure

Dimensions in [mm] 11
## 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
- **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**:  
  - Engine block heater  
  - Electric fuel 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**:  
  - 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**:  
  - 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 - SENEBOGEN 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
### CAB

<table>
<thead>
<tr>
<th><strong>Cab type</strong></th>
<th>Hydraulically elevating cab E270</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cab equipment</strong></td>
<td>Sliding door, excellent ergonomics, automatic climate control, heated, air-suspension comfort seat, fresh/circulating air filter, joystick control, 12 V/24 V connections, SENCON</td>
</tr>
</tbody>
</table>

**Options**
- Active seat climatisation
- 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 and CD player with speakers
- Enlarged industrial cab with undivided armored glass windshield
- Mastercab large area port cab with second seat

### UNDERCARRIAGE

<table>
<thead>
<tr>
<th><strong>Design</strong></th>
<th>Wide-gauge crawler undercarriage in a stable, torsion-resistant box design.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drive</strong></td>
<td>Hydraulic traction drive for each crawler integrated in the chassis and connected by a compact planetary gear to an axial piston motor.</td>
</tr>
<tr>
<td><strong>Parking brake</strong></td>
<td>Spring-loaded, hydraulically ventilated disk brakes. Hydraulic brake valves protect the traction motors when going downhill.</td>
</tr>
<tr>
<td><strong>Traveling gear</strong></td>
<td>R83-450 telescopic crawler undercarriage with 2.8–4.5 m mechanical track adjustment and maintenance-free B8b (CG3 crawler track, 7,000 mm long), with canted 800 mm triple grouser track shoes.</td>
</tr>
</tbody>
</table>

**Speed**
- 0 - 1.6 km/h Level I: 0 - 3 km/h Level II

**Options**
- 900 mm flat base plates, rounded
- 900 mm 3-grouser crawler shoes, splayed
- R90-550 special undercarriage with integrated 2 m pylon
- P136-585 crawler gantry with 5 m clearance
- ST90 4-point underframe

### ELECTRIC DRIVE

<table>
<thead>
<tr>
<th><strong>Option</strong></th>
<th>Power: 250 kW, 400 V, 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total connected load: 270 kVA, 500 A machine side fuse (alternatively 630 A with magnet system) for 400 V – star-delta connection motor start</td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td>Lowest operating costs, quiet and virtually vibration-free work, long service life of hydraulic components</td>
</tr>
</tbody>
</table>

### ATTACHMENTS

<table>
<thead>
<tr>
<th><strong>Design</strong></th>
<th>Decades of experience, state-of-the-art computer simulation, highest level of stability, longest service life, large-dimensioned and low-maintenance bearing points, sealed bearing bushes, precision-crafted, quick-release couplings on the connections - open/close/rotate grapple</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cylinders</strong></td>
<td>Hydraulic cylinders with high-quality sealing and guide elements, end position damping, sealed bearing points</td>
</tr>
</tbody>
</table>

**Options**
- 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

### OPERATING WEIGHT

<table>
<thead>
<tr>
<th><strong>Mass</strong></th>
<th>approx. 87,500 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>860 R basic machine with K18 equipment and 3000 l multi-shell grab</td>
<td></td>
</tr>
</tbody>
</table>

**Notice** Operating weight varies by design.
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.
Load ratings

Machine shown reversed

Undercarriage | R83-450 | Compact boom | 11.8 m | Cab | Maxcab E270, hydraulically elevating
| Dipper stick | 8.8 m |

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.

Technical features and dimensions subject to change.
860E Load ratings

Machine shown reversed

<table>
<thead>
<tr>
<th>Undercarriage</th>
<th>R83-450</th>
<th>Compact boom</th>
<th>13.8 m</th>
<th>Cab</th>
<th>Maxcab E300/260, hydraulic elevation and tilt feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipper stick</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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</tbody>
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Technical features and dimensions subject to change.
### Load ratings

#### Undercarriage
- **R90-550**
- **Pylon**
- **1.5 m**

#### Compact boom
- **Dipper stick**
- **10.2 m**
- **13.5 m**

#### Cab
- **Maxcab Skylift 700, hydraulically elevating**

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.

Technical features and dimensions subject to change.
**860E Load ratings**

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.

### Undercarriage
- P136-585
- Dipper stick: 13.8 m
- 10.2 m

### Compact boom
- 13.8 m
- 10.2 m

### Cab
- 13.8 m
- 10.2 m

### Mastercab Skylift 900, hydraulic elevation

Machine shown reversed

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Technical features and dimensions subject to change.
860 R with R83-450 undercarriage and Maxcab E270 cab with hydraulic elevation feature

860 R with R83-450 undercarriage and Maxcab E300/260 cab with hydraulic elevation and tilt feature

Technical features and dimensions subject to change.
860 R with R90-550 undercarriage, hydraulic elevation cab Maxcab with Skylift 700 and pylon 1.5 m

860 R with Pt136-585 portal undercarriage, hydraulic elevation cab Mastercab with Skylift 900

Technical features and dimensions subject to change.
860 R with R83-450 undercarriage

<table>
<thead>
<tr>
<th></th>
<th>Compact boom</th>
<th>Dipper stick</th>
<th>Transport length (L)</th>
<th>Transport height (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>K18</td>
<td>10.8 m</td>
<td>7.8 m</td>
<td>15.80 m</td>
<td>3.70 m</td>
</tr>
<tr>
<td>K20</td>
<td>11.8 m</td>
<td>8.8 m</td>
<td>16.80 m</td>
<td>3.90 m</td>
</tr>
<tr>
<td>B21</td>
<td>13.8 m</td>
<td>8.8 m</td>
<td>18.45 m</td>
<td>3.85 m*</td>
</tr>
<tr>
<td>K23</td>
<td>13.5 m</td>
<td>10.2 m</td>
<td>18.40 m</td>
<td>3.75 m*</td>
</tr>
<tr>
<td>B23</td>
<td>13.8 m</td>
<td>10.2 m</td>
<td>18.60 m</td>
<td>3.80 m*</td>
</tr>
</tbody>
</table>

* Stick removed

Technical features and dimensions subject to change.
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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