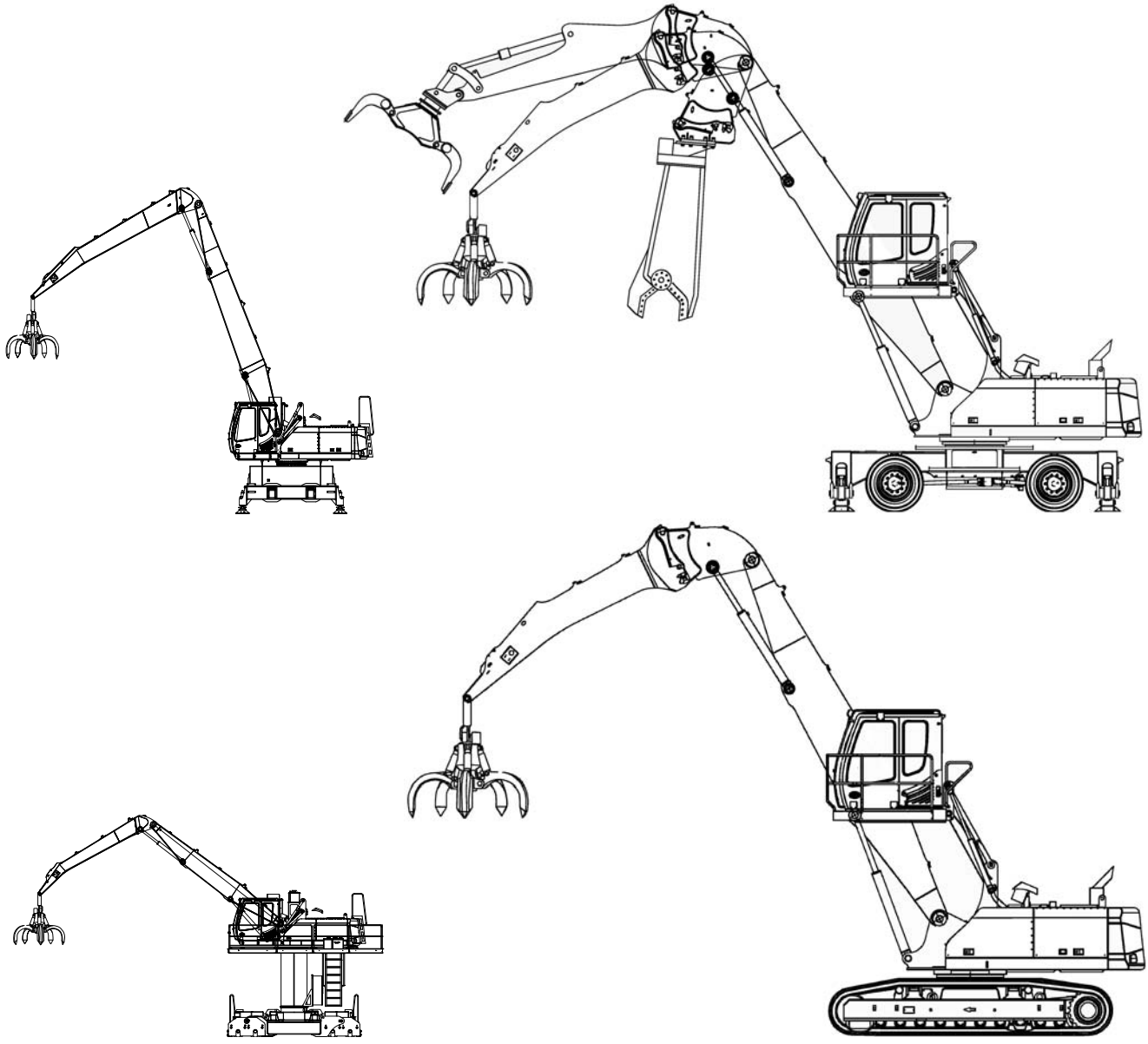
OPERATING INSTRUCTIONS

Type (Model)

825 + 830



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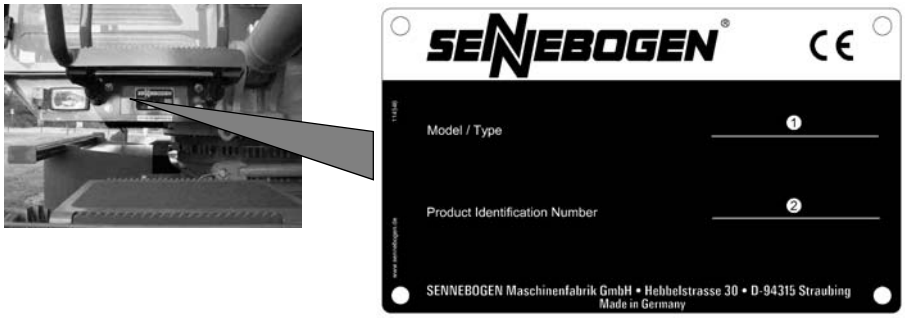
1.6 Machine Labeling

The machine is provided with special warning and notice signs.

- Do not remove the signs.
- Ensure that all signs are undamaged and legible.
- Clean labels with soap and water if necessary, not with fuel or solvents.
- Replace damaged, scratched or illegible signs with new ones.

Note
Signs are available from SENNEBOGEN (see Spare Parts Catalogue).

1.6.1 Identification plate



1Machine type

2Manufacturer's No. (Facility No.)

Technical condition of the machine

The operator has an ongoing responsibility to monitor the overall technical condition (obvious external faults and damage as well as changes to operational behavior) of the machine.
Do *not operate machine* if a fault has been detected!
Observe mandatory time limits for routine checks.

All damages and incidents are subject to the mandatory logging and storage regulations.

Independent conversion and replacement part production

For safety reasons the machine may not be modified or altered in any way.
This applies also to the installation and use of safety devices and valves as well as welding on load carrying parts.

Genuine SENNEBOGEN replacement parts and accessories ensure the safety of personnel. Parts and fittings from other manufacturers are not tested by SENNEBOGEN and are not therefore approved. The use of other components can alter the machine's characteristics and present a safety hazard.

If other components are used, SENNEBOGEN will not be considered liable for any resulting consequences.

Impermissible operating practices

- The operating safety of the machine is only ensured if it is used correctly according to these instructions.
- The specified performance data must be observed.
- The performance data listed in the instructions must not be exceeded.

- Trailer
  The machine is not suitable for towing a trailer. Due to the greater axle load, trailer operation is only permitted with stronger axles (optional).

- Protective roof (FOPS)
  If there is a danger of heavy items falling, the machine may only be used if the driver's space is covered by a protective roof (FOPS). The protective roof is optionally available from SENNEBOGEN.

Specific dangers

The machine operator must check whether the operation gives rise to specific dangers, e.g. on account of toxic gases, ground quality etc., and adopt appropriate measures to avoid or limit those dangers.

Using other Coolant

If you should ever use a coolant other than that specified, the following must be **considered** or **expressly**observed.

SENNEBOGEN will accept no responsibility and will provide no warranty or make any guarantees for the use of any coolants other than those previously indicated.

Change coolant

WARNING
Scalding hazard!
Be careful when draining hot coolant!
Allow the motor to cool first. Catch the coolant in a suitable container when draining and dispose of according to the respective regulations.

- The cooling system is to be emptied completely before filling again.
- Rinse the cooling system several times with clear water to rid it of any residue.
- Fill the cooling system and check the level after a short waiting period.
- Start the motor and check the coolant levels

CAUTION
Adjusting to the correct coolant level must sometimes be checked more than once**.**

Check the following states when inspecting the coolant levels regularly, e.g.

- lubricant incursion,
- obvious opacity caused by corrosion residue or other particulate matter,

in which case, the coolant must be replaced as indicated above.

Coolant change intervals

Information on changing the coolant and the changing intervals is provided in the operating instructions of the motor manufacturer.

Gallery/Operator catwalk

DANGER
Risk of falling!
Installation of the gallery/platform (1) is mandatory, since it is part of the safety concept.

CAUTION
Risk of falling!
Gallery - access forbidden when the cab is raised!
A maximum of 200 kg (440 lbs) is permitted per segment of grid iron on the gallery. Overloading will lead to damaging the construction, the results of which can lead to personal injury.
Check the gallery for damage every 3 months (especially cracks) and repair if necessary.

Qualifications of personnel

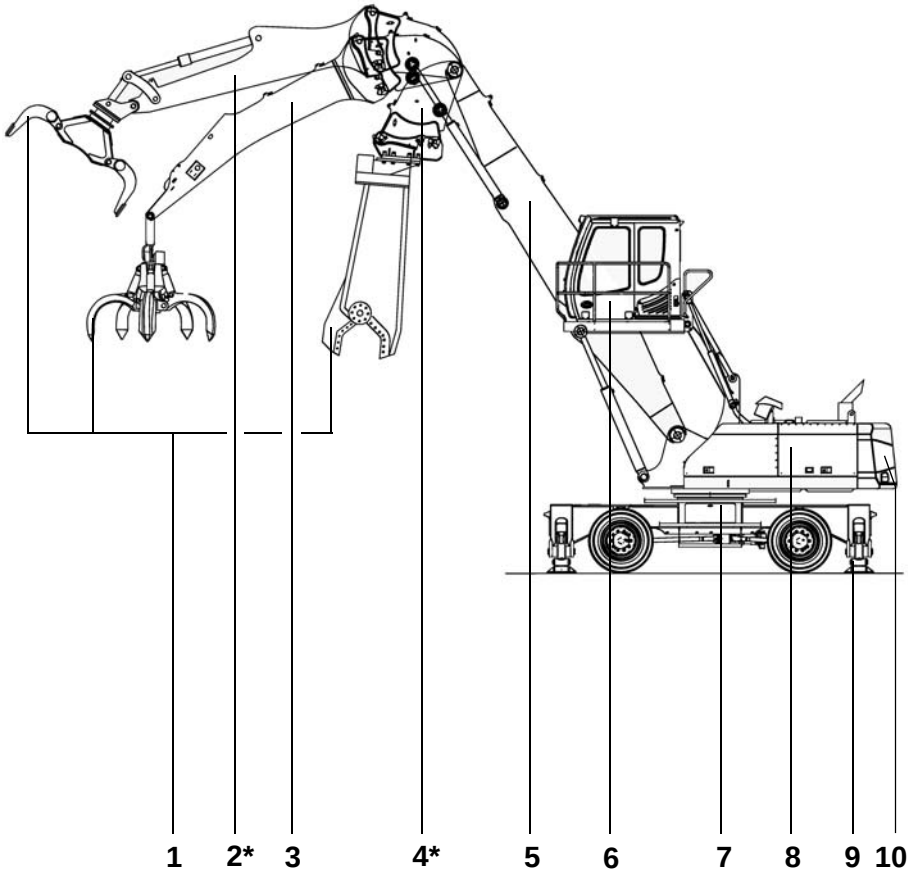
DANGER

- Work on electrical equipment of the machine may only be carried out by an electrical specialist.
- Work on running gear, braking and steering systems may only be carried out by specially trained technicians!
- Work on hydraulic systems may only be carried out by personnel with special knowledge and experience on hydraulics!
- No welding is to be performed on the device without previous discussion with the manufacturer.

2 Overview

2.1 Complete machine

2.1.1 Mobile



1 Attachments (Example: grabber, scrap shears)

2* Ulm

3 Grabbing stick

4* Vario Tool

5 Compact stick

6 Driver's cab/cabin with gallery/platform, raising

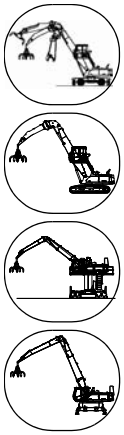
7 Undercarriage

8 Superstructure

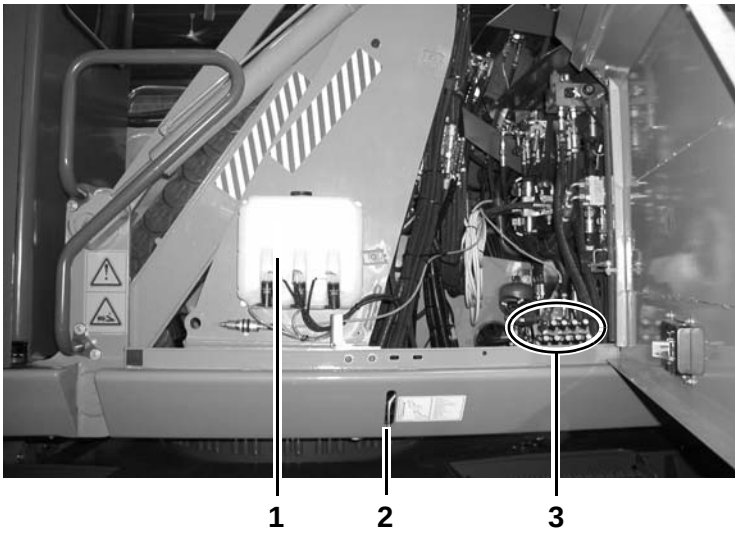
9 Stabilizer

10 Counterweight

*: Optional model / special function



Service doors Driver's side

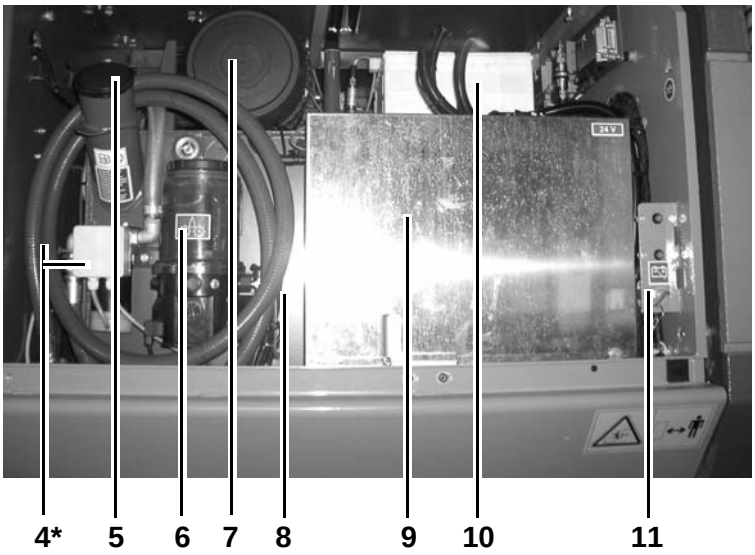


Driver's side front:

1 Windshield washer reservoir

2 Emergency lowering - cab

3 Measurement ports - hydraulic system



Driver's side rear:

4* Fueling hose/pump

5 Fuel filler neck

6 Central lubrication system

7 Air filter

8 Fuel tank

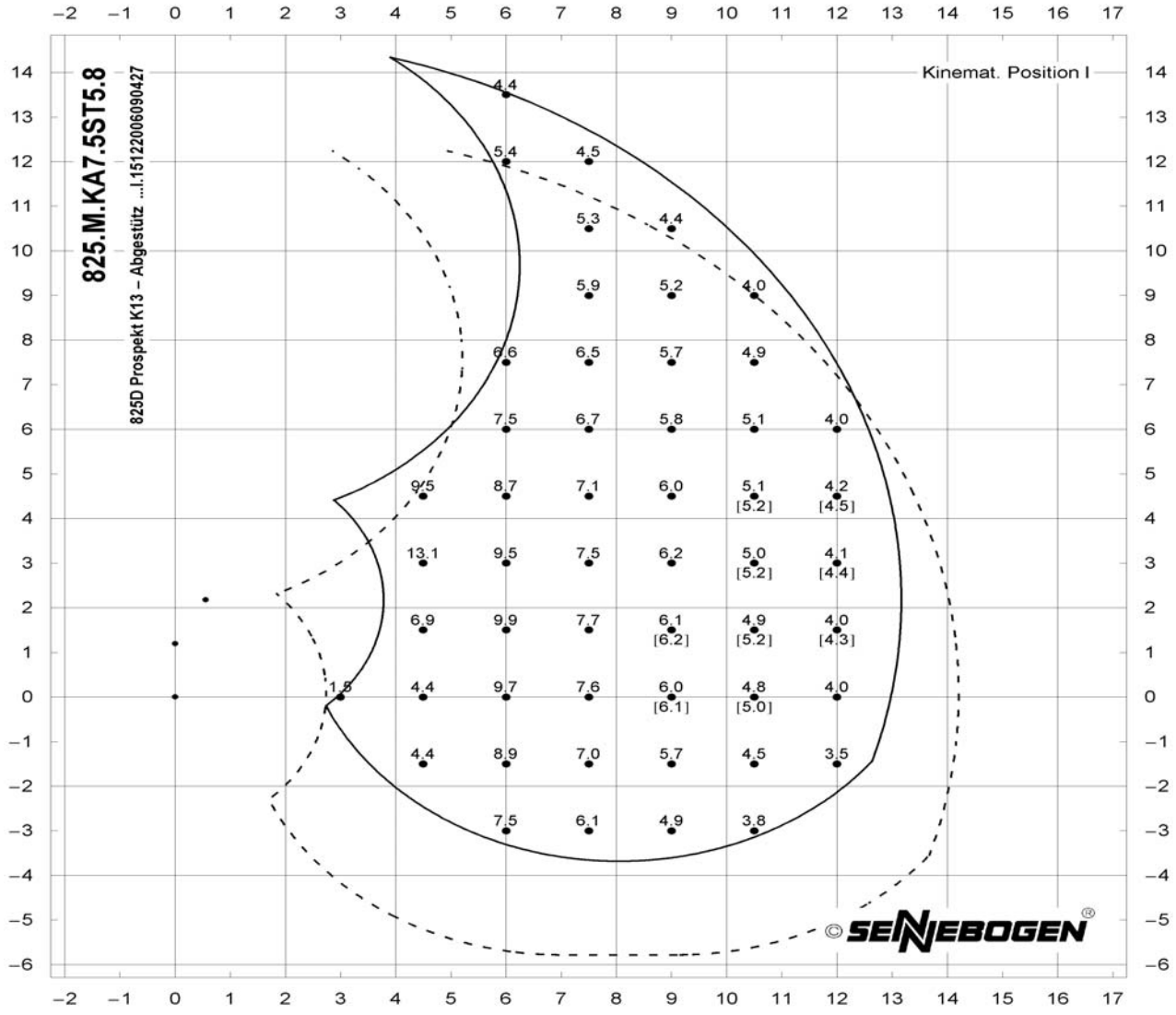
9 Electrical control cabinet

10 Batteries

11 Battery isolator switch

*: Optional model / special function

stabilized:7,5 m compact boom and 5,8 m stick



Tabellenwerte in Tonnen [t] nach ISO 10567 (Stand: Mai 1993) – 75% statische Kipplast bzw. 87% hydraulische Hubkraft. Gültig für ebenen, festen Untergrund 360° schwenkbar. Klammerwerte gelten nur in Längsrichtung zum Unterwagen!

Lift capacities stated in metric tons based on ISO 10567 (May 1993) – 75% static tipping load e.g. 87% hydraulic lift capacity. Valid for firm and level supporting ground within 360°. Lift capacities in parentheses only valid longitudinal to undercarriage!

Remarques : Toutes les valeurs sont indiquées en tonnes (t) et comprennent 75% de la charge de basculement statique ou 87% de la force de levage hydraulique conformément à ISO 10567. Elles sont applicables avec stabilisateur et sur un sol plan et résistant, pivotement sur 360°. Les valeurs entre parenthèses [. . .] sont valables longitudinalement par rapport au châssis.

Observaciones: Todos los valores están especificados en toneladas (t) y constituyen el 75 % de la carga estática de volqueo, o el 87 % de la fuerza de elevación hidráulica conforme a ISO 10567. Rigen con apoyos y con posibilidad de giro en 360° sobre suelo firme y plano. Los valores entre corchetes [...] rigenen el sentido longitudinal para el conjunto inferior

4 Technical data

Note
The following values are guidelines. The level specified on the corresponding components is authoritative (upper mark on dipstick)

4.1 General information

Electrical system 24 V

Note
Ensure that the available output power of the alternator is not exceeded when installing additional current consumers (e.g. lights).

Ambient temperature range

Operation / Operation under load	approx. - 20 °C (- 4 °F)... approx. + 40 °C (+ 104 °F)

Note

When running a machine in environmental temperatures outside the specified temperature range, special temperature packages are available (optional!).

Please contact SENNEBOGEN customer service if you have any other questions.

Hydraulics Operating pressure, max. 350 bar

Slewing drive

Slewing speed	0 - 8 rpm, continuously variable

Limitations during wind

Wind speed		
25 m/s	90 km/h	10 Beaufort

Note
Machine operation is generally possible - without any attachments - at wind speeds of up to 25 m/second.
The decision concerning when operation is to be shut down is to be made by the machine operator and depends on the attachment being used.
Different attachments react differently to wind and may affect the stability of the machine. These are to be determined by the operator and the machine is to be shut down accordingly.

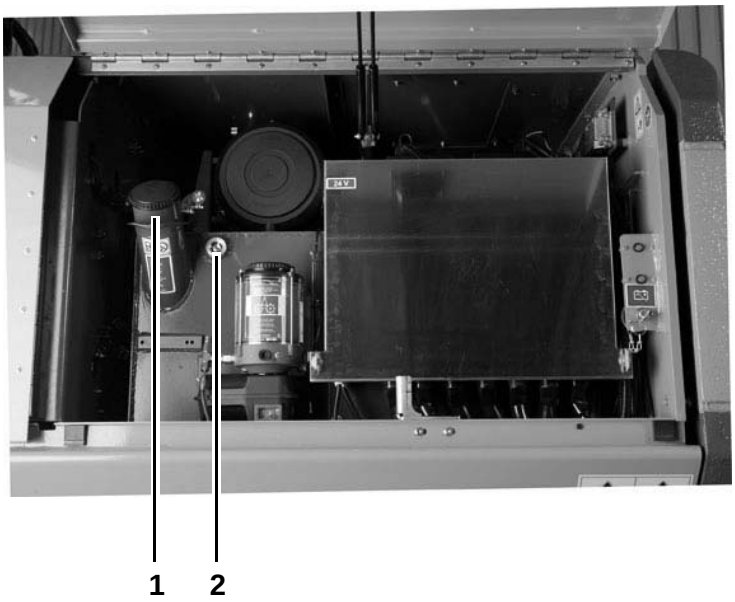
4.6 Wind speed

Wind strength		**Wind speed**		**Effect**
Beau-fort scale	Designation	m/s	km/h	Inland
0	Calm	0-0,2	1	Calm, smoke rises straight up
1	Light draft	0.3-1.5	1-5	Direction of wind is displayed by direction of smoke, but not by a weather vane
2	Light breeze	1.6-3.3	6-11	Wind is felt on face, leaves rustle, weather vane moves
3	Weak breeze	3.4-5.4	12-19	Leaves and thin twigs move, wind stretches a flag
4	Moderate breeze	5.5-7.9	20-28	Lifts dust and loose paper, moves twigs and thin branches
5	Fresh breeze	8.0-10.7	29-38	Small deciduous trees start to sway, breaker foam forms on lake surface
6	Strong wind	10.8-13.8	39-49	Strong branches are moving, whistling in power lines, umbrellas difficult to use
7	Stiff wind	13.9-17.1	50-61	Whole trees are moving
8	Stormy wind	17.2-20.7	62-74	Branches are broken off trees, walking outdoors is made very difficult
9	Storm	20.8-24.4	75-88	Slight damage to houses (chimney hoods and tiles are blown off)
10	Heavy storm	24.5-28.4	89-102	Uproots trees, considerable damage to houses
11	Hurricane type storm	28.5-32.6	103-117	Extensive storm damages (rarely in inland)
12	Hurricane	32.7-36.9	118-133	Severe devastation

5.5.2 Check fuel level

Note
The fuel fill level can be determined with two different ways:

- with the indicator on the right next to the filler neck (rough indication)
- with the SENNEBOGEN diagnostics system in the initial mask, see Section6.3.16



1 Filler strainer

2 Control displays

Note
Fill the tank with the specified grade of fuel. Clean fuel is essential for trouble-free operation of the diesel engine.

Notes on quality and fuel selection
Observe the notes in the operating instructions of the engine manufacturer.

6	Close the cap on the expansion tank.
7	Close the service access door at the left, rear.

5.11 Switch on machine - Electric motor

5.11.1 Safety instructions

Observe the safety notes before starting machine.

DANGER

- Danger of injury!
  Keep cab door and service access doors closed.
- Before starting the engine, ensure that there is no one within the danger area.
- Do not start engine if a warning sign is present on the operating elements.
- Adjust driver's seat, steering column and mirror to the correct position.
- Fit restraint belt correctly.
- Close the cab doors.

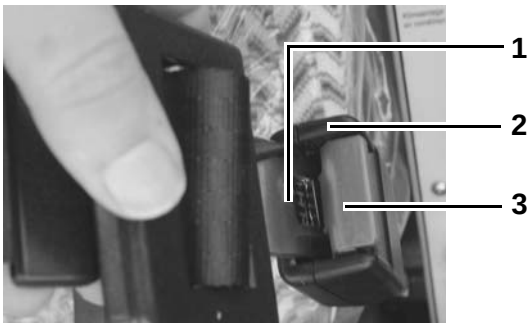
5.11.2 Restraint belt

Option

The machine is equipped with a lap belt. The belt complies with standards SAE J 386 (USA) and FMVSS 209 (EU).

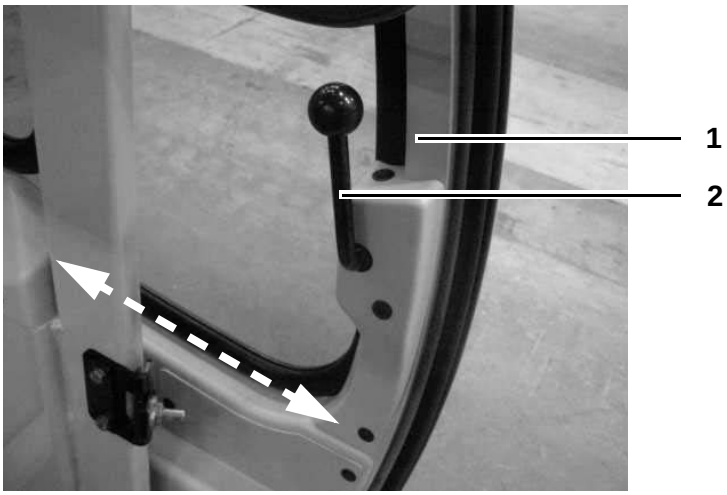
WARNING

- Check belt for signs of wear before starting to operate the machine. Immediately exchange a damaged belt.
- Clean dirty belt using water.
- Do not twist belt when fastening.
- Pass belt as low as possible around the hips, not around the stomach.



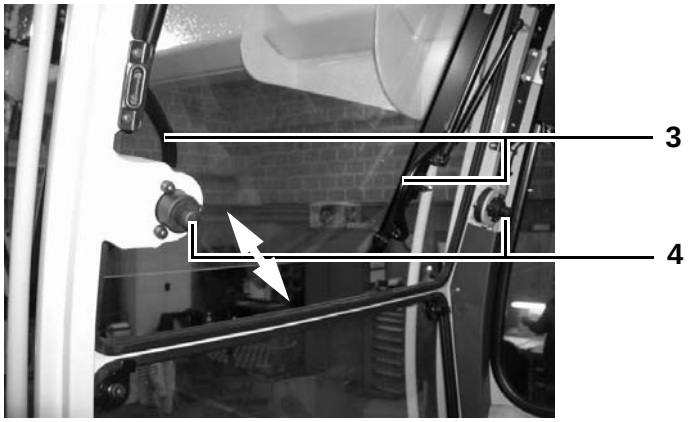
1	Push metal catch (1) into belt buckle (2). An audible click indicates that the belt has engaged.
2	To release belt, press red button (3) on belt buckle (2).

Sliding door



The sliding door (1) can be latched in the open position on the side panel of the cab. You can release the latch by pulling on the release lever (2) on the inside of the door.

Front windshield



Opening front windshield: Tip forwards. The top window wiper pivots ahead with the window. Press on both buttons (4) and tip the window ahead. The two shock absorbers hold it in position. Pull the two handles (3) on the window frame inward to close it. Ensure that the front window latches in place again.

6.3.4 Safety lever

The safety lever (1) serves as a safety device.

Safety lever released (pushed forward)

When safety lever is released (see illustration)

- all hydraulic functions are available.
- all work maneuvers can be carried out.

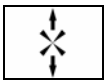
Note
The slewing gear holding brake remains open after releasing the safety lever (pushed ahead), if the "right" switch has previously been actuated in the right control panel.

Activate the slewing gear holding brake by pressing the "left" switch in the right-hand control panel (see Section6.5.9).

Safety lever actuated (pulled back)

Note
All hydraulic functions are deactivated with the safety lever actuated.

Reverse fan status indicator lamp



Switch setting	Indicator lamp
1 (right, single fan reversal)	flashes
0 (middle, no fan reversal)	not illuminated
2 (left, fan reversal every 60 min.)	always illuminated

Note

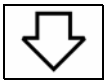
The fan reversal indicator lamp (3) provides information on the status of the fan drive controller and on faults in the fan system. A fault is indicated with a flashing code. Contact SENNEBOGEN service in this case.

In reversal operation, the indicator lamp flashes once per second.

Travel forwards

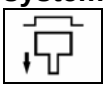
Lamp illuminated with selected travel direction - Forward.

Travel reverse



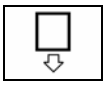
Lamp illuminated with selected travel direction - Reverse.

Magnet system



Illuminated with magnet system switched on.

Switch steering direction



Illuminated with activated floating axle control if the superstructure is in 0°- or 180°-position (+/- 5°) to the undercarriage.

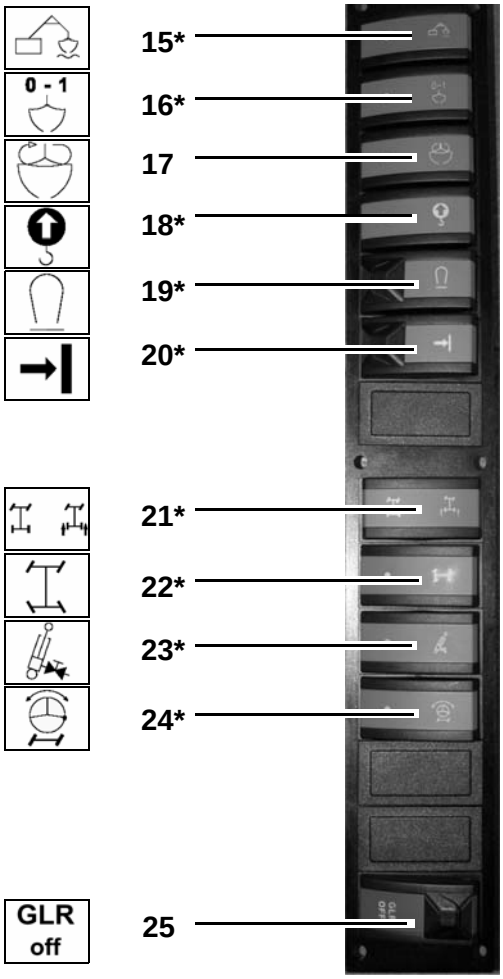
180° displacement

Illuminated with active steering direction reversal if the boom is in the area above the rear axle (90°-270° - position (+/- 7.5°)).

High beam

Illuminated when headlight lit.

Rear part



15*Floating boom setting

16*Grabber function Off/On

17 Grabber control Off/On

18*Overload Off/On

19*unlock - Magnet system Off/ On

20*unlock- Auxiliary limiting main boom Off/On

21*Normal steering control - 0° position rear axle

22*All-wheel steering switch

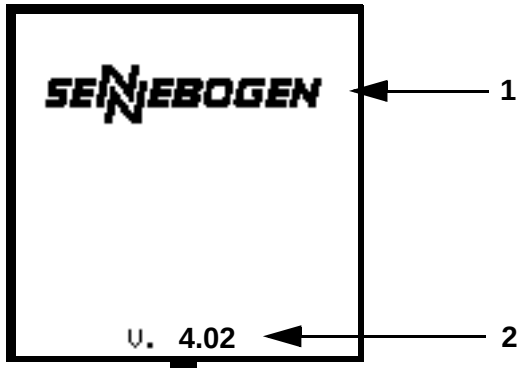
23*Boom suspension system

24*Steering direction reversal

25 Load limit sensing control (GLR)

*: Optional model / special function

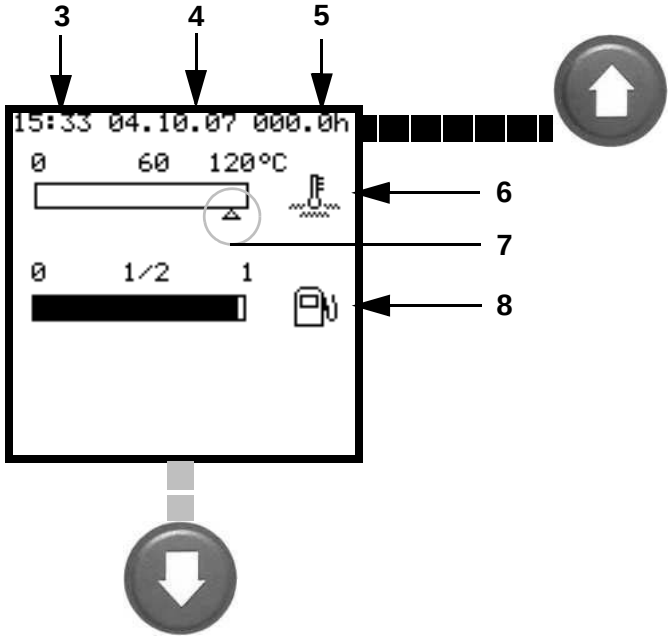
Start-up mask



Automatic change after 4 seconds

to screen 7

Screen 1



Coolant temperature

Fill level - Diesel fuel

1 SENNEBOGEN logo

2 Software version (E.g.)

3 Time

4 Date

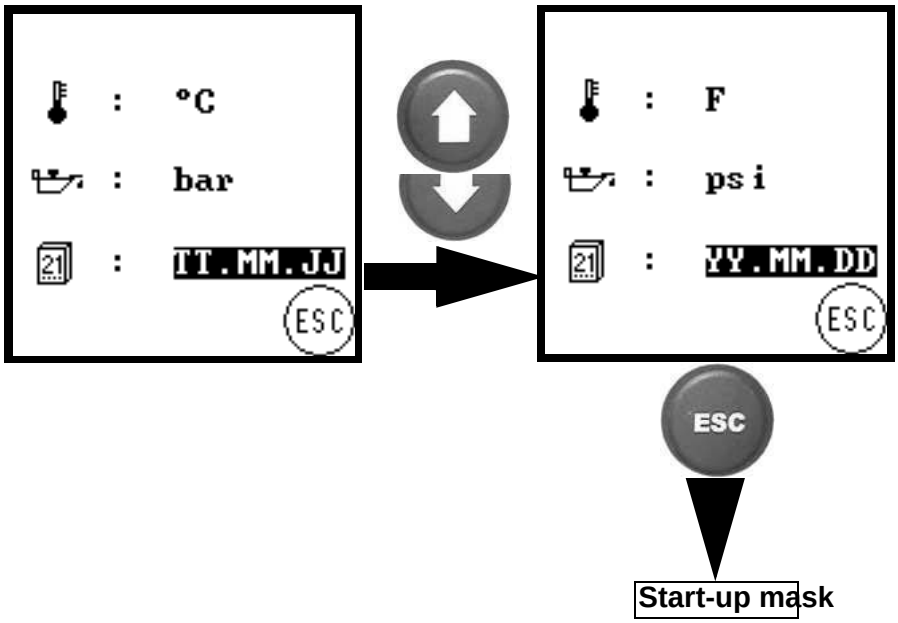
5 Daily hours of operation

6 Coolant temperature

7 Warning threshold *Coolant temperature too high*

8 Fill level - Diesel fuel

Date



6.4.4 Auxiliary heating / Water heater

The machine is equipped with an engine-independent water heater for engine-heating and cab-pre-heating.

The electric water heater is set up in the factory and is controlled along with the automatic air conditioning (see Section6.3.13).

Note
The battery power can be used by operating the water heater.

1 Control element for water heater

Note
More information can be found in Chapter 10.

Cab extend/retract (optional)

1	Press safety lever (see Section6.3.4) forwards.
2	Switch the machine on as described in Section5.7.
3	Press rocker switch (3*). The cab is extended (Cab out).
4	Press rocker switch (4*). The cab is retracted (Cab in).

6.5.6 Driving machine - Crawler

DANGER
Risk of accident through incorrect use!
If the boom is positioned above the rear axle, the driving actions of the machine are reversed. Proceed with extreme caution whenever you wish to work or maneuver over the rear axle.

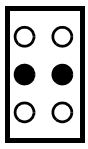
Driving with suspended load

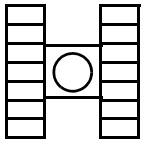
Please note the following points when driving with a suspended load:

- Danger of tipping!
  Keep loads as close as possible to the ground when moving.
- Always position stick lengthwise to undercarriage.
- Only carry 50% of the permitted safe working load.
- Only drive on even ground with sufficient load-bearing capacity.
- Lock the floating axle.
- Reduce pendulum movements of load by sensitive driving.
- Negotiate corners with as wide a radius as possible.

Stop machine

Setting driving pedal/manual lever: *Travel gear movement:*

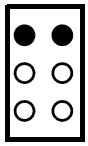


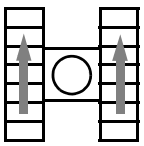


release driving pedal/hand lever:
The driving pedals/hand levers automatically return to the middle setting (neutral).

Forwards – travel in a straight line

Setting driving pedal/manual lever: *Travel gear movement:*





Push both driving pedals/hand levers forwards.

Reverse – travel in a straight line

Note
In order to rotate the superstructure, the ignition must be switched on, the safety lever must be released (pressed ahead) and the slewing gear holding brake switch "right" must be pressed.

If only one of these criteria is not met, rotation is impossible.

Slewing speed

The slewing speed is dependent on the:

- speed of the driving engine
- Distance the left control lever is moved.

DANGER
No persons, buildings or machines may be within the slewing range of the upper structure (danger area).

Rotation stop (braking)

1	Place the left control lever in the neutral position (0-position). The upper structure is hydraulically braked. The slewing maneuver gradually stops. Note: Moving the control lever in the opposite direction intensifies the braking action. **OR optional:** Actuate the slewing gear holding brake pedal (2). The upper structure is braked hydro-dynamically.

Slewing gear holding

the slewing gear holding brake is not an operational brake for braking the superstructure. The slewing gear holding brake serves exclusively as a parking and holding brake when the superstructure is at rest.

The superstructure must have stopped rotating completely before the slewing gear holding brake is applied.

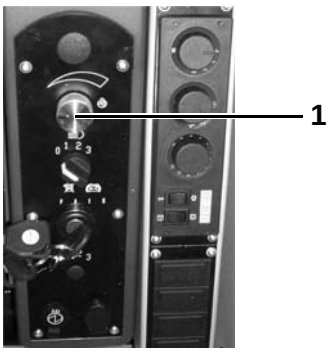
WARNING
If the slewing gear holding brake is used to stop the upper structure, serious damage will be caused to the brake and/or the slewing gear. This damage can be of the following nature:

- Diminished braking effect due to clutch plate damage
- Irreparable damage to the brake or other components
- Irreparable damage to the slewing gear

This damage is excluded from the terms of warranty issued by SENNEBOGEN Maschinenfabrik GmbH

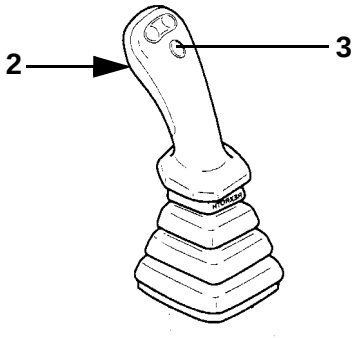
The operator of the machine alone is liable for such damage as well as any consequential damage - for instance, that resulting from reduced braking action!

Operation



1	Start engine acc. to Section5.7.3.
2	Set the speed (rpm) selector (1) on the right rear control panel to maximum.
3	Set the magnet according to the load material.

WARNING
Ensure that the permitted load limits are not exceeded.



4	Switching on the magnetic equipment: – Actuate the switch on the upper right control panel. – Press the front pushbutton (2) on the right control lever.
5	Dropping the load: – Press pushbutton (2) or *(3). * Customer-specific switch allocation!
6	Switching off the magnetic equipment. – Actuate the switch on the control panel:

CAUTION
If the magnet system is not switched off after use, the entire system (generator and magnet plate) can overheat.

Note

6.7 Refueling machine

The machine can be refueled in two ways:

- Manually
- using a refueling pump

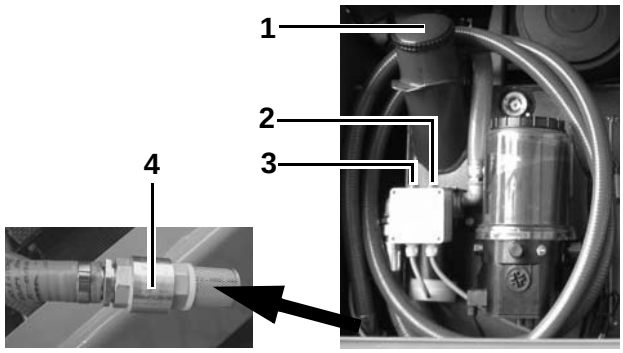
DANGER

- Fuel is damaging to health and easily inflammable.
  Smoking and working near an open flame is strictly forbidden.
- Position the machine on a firm, even surface.
- Only refuel when engine is shut down!
- Fuel must not ingress ground or waterways.
  Always ensure that fuel does not overflow when refueling.
- Before filling, the fluid level in the tank must be determined - the amount of fuel that the tank can taken on.
- When refuelling from a tank-truck or trailer, the following applies:
  Filling speed of max. 200 l/min. (52 U.S.GPM) , since otherwise the fuel will overflow.
- The filling procedure must be monitored at all times - no matter how the filling is done.

Note
Observe the notes in the operating instructions of the engine manufacturer.

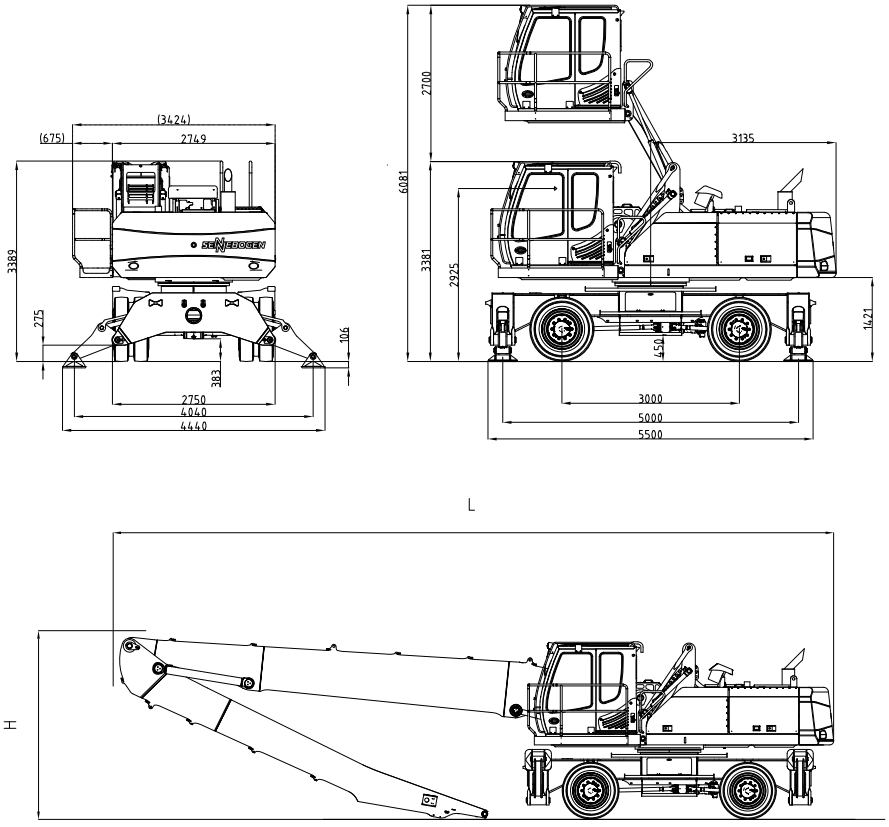
Manually

1	Lower suspended loads and stick to the ground.
2	Shut down engine.



Type MP 30 D (Optional)

7.2.2 Mobile



Measurement information [mm]

	Load boom	Grab arm	Transport length (L)	Transport height (H)
K15	8.5 m	7.0 m	12.45 m	3.40 m
K17	9.8 m	7.5 m	13.75 m	3.60 m
B16	9.4 m	7.0 m	13.40 m	3.55 m
K14 ULM	8.5 m	6.0 m	12.45 m	3.45 m

8 Troubleshooting

WARNING

- Read Chapter 1 SICHERHEIT.
- The personnel for maintenance, inspection and troubleshooting must have the appropriate qualifications for this work.
- For work not described in detail, please notify SENNEBOGEN Customer Service Desk.

8.1 Driving engine

Engine does not start

Cause	Remedy
Battery power too low	– Check fluid level of batteries. – Recharge or replace battery. – Start machine using auxiliary battery.
Fuel tank empty	– Refuel machine.

Engine performance

Cause	Remedy
Suction resistance too high	– Exchange filter element in water separator.

Machine does not move

Cause	Remedy
Parking brake actuated	– Release parking brake.
Transmission defective	– Have fault remedied.

Oil or fuel leaks from engine

Cause	Remedy
Hose connections loose	– Tighten hose connections.
Hoses or seals damaged	– Exchange hoses or seals.

Note
Also observe the notes in the operating instructions of the engine manufacturer.

9 Setup work

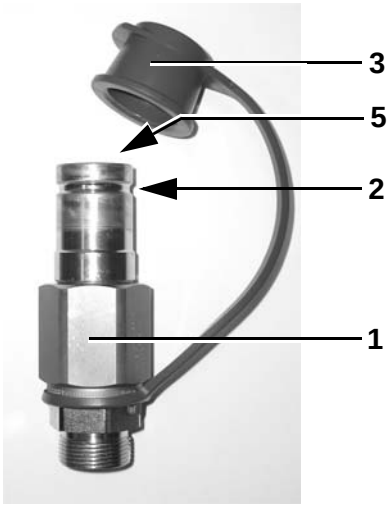
9.1 Safety instructions

DANGER

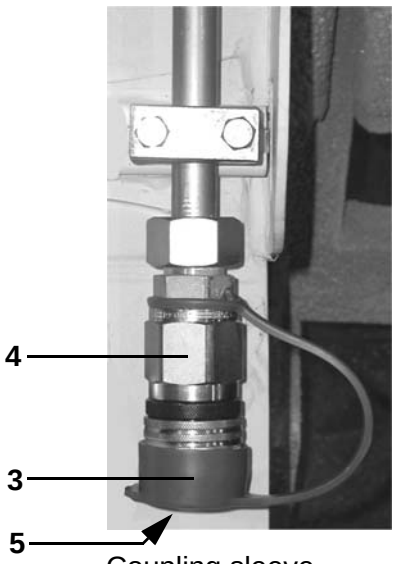
- The work performed may only be completed by trained professionals.
- Wear personal protection equipment (e.g. safety helmet, ear protection, protective gloves, safety boots) where working conditions require. At working heights of 2.00 m or more, SENNEBOGEN recommends the use of safety equipment to prevent falling.
- The following applies for all set-up work:
  Only carry out the work if the work area is level and solid enough.
- Ensure that there is no one in the danger zone.
  - While setting up – before completing all tightening – no persons are allowed in the hazardous area in which loads could fall or under hanging loads.
  - During the set-up procedure keep a sufficient safety-margin from areas of unavoidable cutting or pinching/crushing danger.
- Observe the relevant accident prevention directives for working with load suspension equipment.
- When dismantling components or equipment, always use load suspension equipment with a sufficient load bearing capacity.
- Suspend components only with the designated lifting brackets.
- Do not step on equipment that is not designed for it (e.g. parts of the boom or the counterweights), hanging on a crane.
- Carry out all set-up steps in turn. Never carry out more than one set-up task at a time.

Note

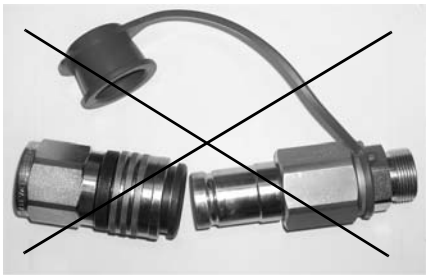
The setup works to be carried out depend on the operating tools that have been selected. Observe the notes in the operating instructions of the tool manufacturer.



Coupling insert



Coupling sleeve



incorrec

correct

5	Lay the end surfaces (5) of the coupling insert (1) and the coupling sleeve (4) flat against one another.
6	Insert the coupling insert (1) into the coupling sleeve (4) until you hear the coupling insert (1) engage.