



Order No. 9900.00.22GB01

## Operating Instructions

### ***Disc Harrows Königsadler K 42, 54***





# Operating Instruction

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## Disc Harrow “Königsadler K”

Before operating this seedbed combination for the first time, please read carefully through this operating manual and the safety precautions (“For your own safety”) and ensure that they are observed at all times.

Ensure that the operators are properly qualified, trained in its use and everyday maintenance, and familiar with the potential hazards and accident-prevention regulations involved. Make sure that other operators are supplied with a complete copy of the safety precautions.

Ensure that all applicable accident-prevention regulations are observed, along with other generally recognized safety procedures and any legislation that may apply with respect to health and safety in the workplace.

Observe the warning labels at all times!

Instructions in this manual accompanied by this symbol and a warning label indicate DANGER. (For further details, see the section entitled “Key to pictograms”).



### Loss of warranty

This seedbed combination is designed and built exclusively for standard agricultural use.

Use for any other purpose will be regarded as unauthorized operation and no liability whatsoever will be accepted for any damage or injury that may occur as a result.

The term “unauthorized operation” also covers the full observance of all operating, maintenance and servicing specifications: including, for example, the kW/PS limits and the exclusive use of original spare parts.

The use of non-original accessories, spares and/or consumables that do not carry specific approval from RABE Agrarsysteme GmbH+Co.KG shall void all warranty liabilities.

We accept no liability for damage, loss or injury resulting from the carrying out of unauthorized repairs and/or modifications to the device.

Claims resulting from missing or damaged items detected at the moment of delivery (transit damage, missing parts) should be made immediately and in writing.

Warranty claims, warranty conditions and our liability exclusions are based on our general terms of delivery.

### Brief Description of Implement

The "Königsadler K 42, 54" is an X-shaped trailed tandem disc harrow with a working depth of 4.5 m or 6.0 m. It is lifted hydraulically and folds in to a transportation width of 2.90 m.

The "Königsadler K" is hitched using a lower link oscillating axle; the transport wheel (4 tyres) is positioned behind the sets of discs. A packer roller can be mounted at the "rear" or, alternatively, a turbo tiller or 2-row polygon roller via a three-point linkage; or, where equipment with a trailer coupling is used, a separate following roller may be mounted.

Depending on the type of discs being used, the cutting angle of the discs can be adjusted by 0-20° in the perforated jib.

The disc shafts are ball-bearing mounted. Each disc is allocated to a scraper.

Side plates can be mounted on the outside of the front discs which prevent soil being cast out to the sides.

### Technical specifications

(subject to change)

Königsadler K	42/660	54/660
Working width in cm (approx.)	450	600
Tactor max. kW (PS) (approx.)	147/200	177/240
No.disc	42	54
Diameter disc in mm (approx.)	660	
Disc spacing mm	230	
Höchsttiefgang in cm (approx.)	25	
Weight in kg (approx.)	3370	4400
...Bar Crumbler Roller (440/540)	600/682	660/762
...Rotary Tiller	795	900
...Polygon Roller	1345	1640
Noise level	< "70 dB(A)"	

### Equipment

Cat. III oscillating axle or also for "K 700", hydraulic lifting and folding (requires 2 twin-action control units); 4-wheel transport wheel (10.0/75-15), 4 sets of discs each with 4 bearings with alternating plain and serrated discs.

**Additional Equipment:** Side plates – for front sets of discs, trailer coupling (for following roller), packer rollers: approx. 440 or 540 mm in Ø. Cat. II rear 3-point hitch, 2-row turbo tiller, 2-row polygon roller, lighting equipment and warning panels.

Key to illustrations: (13/1) refers to Fig. 13, item 1.

## Safety Precautions



When coupling and uncoupling do not allow anyone to stand between the tractor and the implement; also keep the external hydraulic console clear when in use! Risk of injury!

Before coupling and uncoupling, set the hydraulic lift unit to "position control"!

Before operation, ensure that the tractor and implement are both in safe operating condition.

Never allow anyone to climb onto or ride on the implement, and keep clear of danger zones!

There is a risk of injury through crushing or amputation near the "three-point linkage" and the hydraulic lifter.



Warning! After-running discs / roller segments are dangerous when the implement is lifted at high speed. Do not approach before the discs/roller barrels have come to a standstill.

Before operating the implement or when towing, please ensure that no-one is located near the implement!

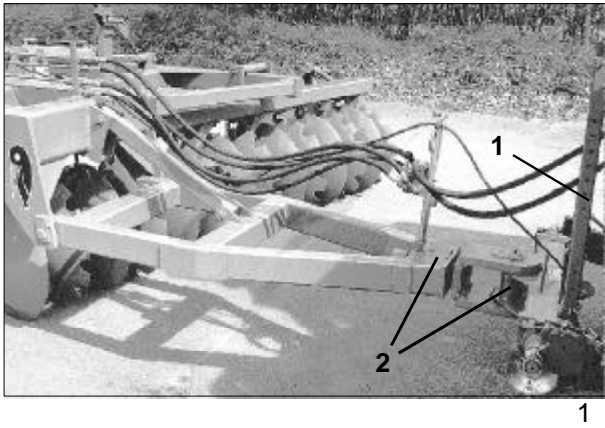
During transit, lock the tractor's hydraulic control units to prevent unintentional operation!

Before leaving the tractor, lower the implement, switch off the engine and remove the ignition key!

Never adjust the implement or perform any other work on the implement unless it has been lowered at the front and rear.



Before initial operation – and after long downtimes – check that all bearings are adequately greased, that all bolts fit snugly, and that the hydraulic system is leakproof. Also check the tyre pressure.



### Coupling / Set-up

Couple the lower link oscillating axle (Axle variants: Cat. III or for "K 700").

Ensure the coupling is properly secured.

Lock the tractor's lower link in central position.

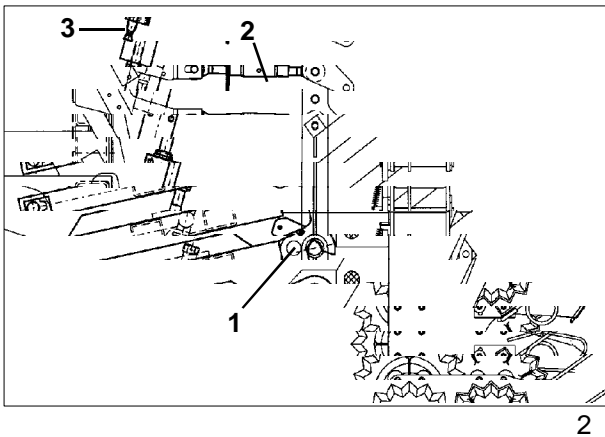
Raise the support legs (1/1).

Couple the hydraulic hoses: 4 connections – 2 twin-action control units.

Ensure that the hydraulic hoses are properly connected (also applies to mounted implements).

Function: "Lift" – Raising or folding in  
"Depress/Lower" – Lower or fold out

The trailed tandem disc harrow and/or any combinations of implements must always be folded in or out when the implement is raised!



### Hitching the Turbo Tiller or Polygon Roller:

Hitch the lower link connections using the ball bushes (quick-release coupler 2/1).

Attach the upper link (2/2) – Place the frame in a horizontal position.

Connect the hydraulics (ensuring they are properly hooked up).

### Parking

The "Königsadler" may be folded in or out (secured for transport) when parked;

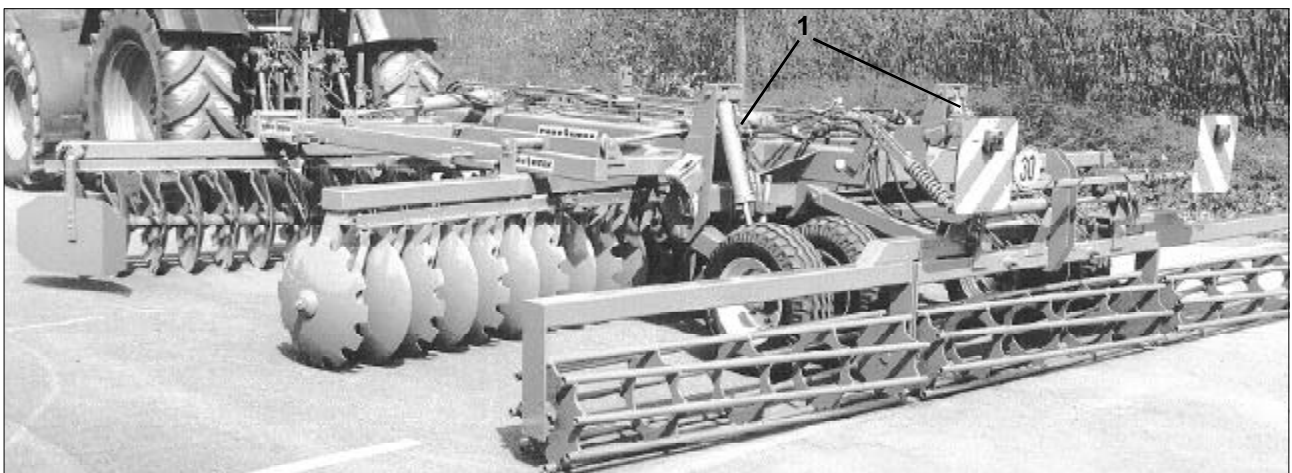
..folded out – lowered onto the tools and support legs (1/1),

..folded in – lowered as far as necessary to allow the mounted implement to touch the ground and be parked on the support legs.

Shut off the stop valves at the lifting cylinders (3/1).

Make sure the parking position is safe!

Prevent hydraulic couplings from dirt.



3



4

## Transport Position

“Raise” the trailed tandem disc harrow (so the frame is more or less horizontal);

The lifting height of the turbo tiller or the polygon roller can be adjusted via the spindle (2/3).

Shut off the stop valve on the two lifting cylinders (6/1).

Raise the support legs (6/2).

Before folding in the implements, position the locking pins (5/1, 7/1 among others) in such a way that when folded in they arrest automatically. Ensure that they are securely locked in place (adjusting the stop screws as required, e.g.. 4/1).

Packer roller: Shut off the stop valve (7/2).

Engage spool valves on tractor to prevent unwanted operation.

Fit lighting set and warning boards according to national road regulations.

Observe the transport rules on page 9!



5

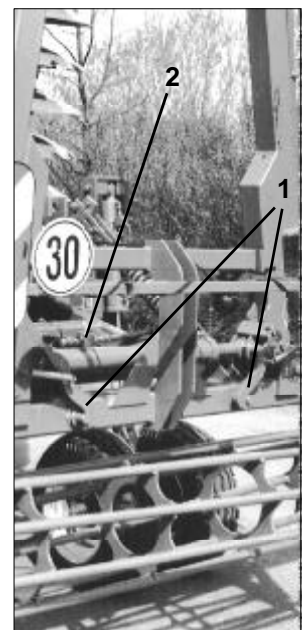
**Conversion to Operating Position:** “Fold in” the relevant “implement” by briefly pressing the pressure transducer and disengage the locking device (5/1, 7/1 among others).

Fold out the implements (the cylinder should fully extend).

Open both stop valves (6/1) and lower the trailed tandem disc harrow forwards/backwards.



6



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8

## Operation

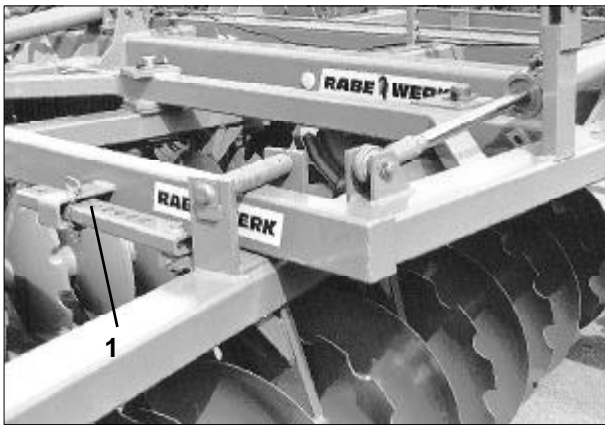
The depth of the trailed tandem disc harrow is regulated exactly using the hydraulic control units (lower link) and via its bogie wheels.

If a packer roller, polygon roller or turbo tiller has been mounted, it can "run freely" or – as it is pin-adjustable, limiter included – it can support the harrow's weight.

The maximum working speed of the disc harrow is approx. 10 km/h. It will need to be adjusted to a slower speed when used on stony ground.

When taking tight corners – e.g. on turn land – lift the trailed tandem disc harrow to an adequate height.

If raised while implements are mounted, do not only lift the trailed tandem disc harrow "at the front" as this will burden the mounted implements.



9

## Adjustments

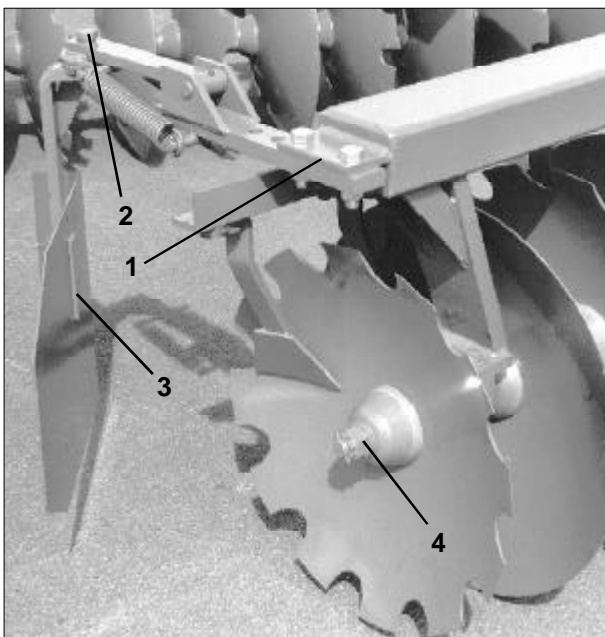
**Working Depth:** hydraulic control units (position or mixed control) at the front, limitator (8/1) at the transport wheel at the rear – set to the same position on both sides.

**Work Intensity:** The greater the cutting angle on the discs, the harder the tandem disc harrow works, - peg in the perforated jibs (9/1) (ensuring both the left and right-hand set of discs has the same angle). It is usually advantageous to set the front sets of discs one hole "higher" (larger cutting angle).

**Type of Tilth/Surface:** Depending on the soil, working depth and speed among others the field will be evenly tilled as the cutting angle settings on the front and rear sets of discs and the tilling adjustments from front to back are more or less different;

Where a slight clodding of the cutting angles occurs in the mid-section, for example, extend the cutting angle of the front set of discs or lower the front discs slightly – or throttle the speed as required.

*- only one optimal travel speed applies to each disc position -*

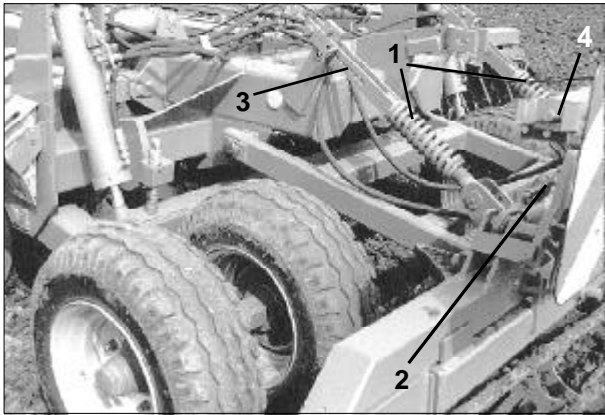


10

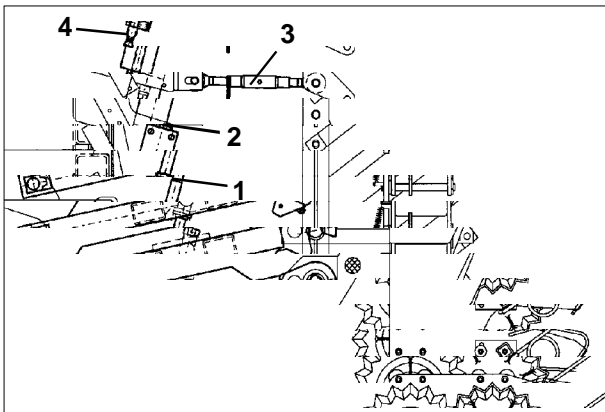
**Side plates:** Adjust the spacing (10/1), angles (10/2) and height (10/3) to suit the ground, speed, working depth and "surface" as this will prevent soil from being cast out to the sides.

Ensure that enough distance is kept from the soil's surface.

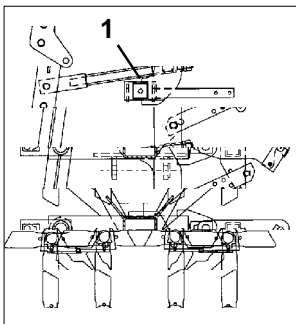
Raise the relevant side plate at the field edge.



11



12



13



14

**Mounted Implements:** These may be subjected to additional loads, but the amount of pressure will need to be limited – Do not overtension the springs (11/1, 12/1).

Fully extend the "cylinders for folding"; close the stop valve on the packer roller (11/2).

Packer roller – use the pin to preselect the roller pressure in the perforated jibs (11/3).

For the turbo tiller (13) and/or polygon roller (12) – preselect the desired pressure using the pins in the perforated plate (12/2).

Place the frame in a horizontal position; if the tools in the front row show signs of coasting/sticking, extend the upper link (12/3) a little – and lift the "front row" slightly.

Adjust the lifting height using the spindle (12/4). When in use, ensure that this spindle does not limit the lowering/ working depth of the mounted implement – in other words does not contact.

**Trailer Coupling (14):** If a roller needs be coupled, for example – where hydraulics are used to operate the implement - ensure they are properly connected.

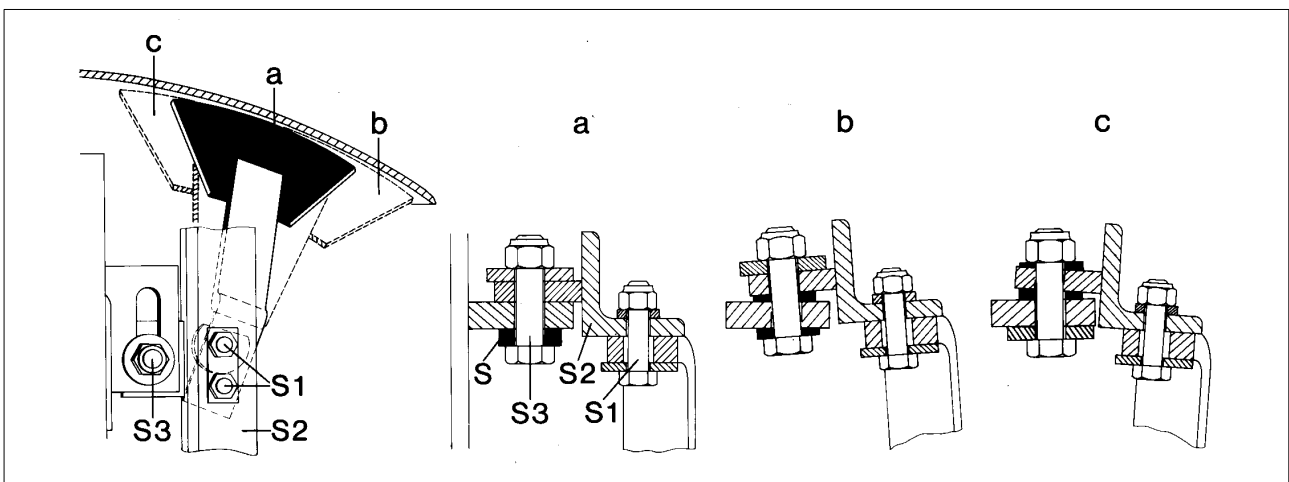
Always couple the implement when in operation and never during transportation on public roads.

**Disc Scrapers:** Each scraper can be individually adjusted (bolts 15/S1) and all of them can be re-adjusted "per set of discs" by shifting the retainer (bolts 15/S3).

Align the scrapers along the full width of the disc camber.

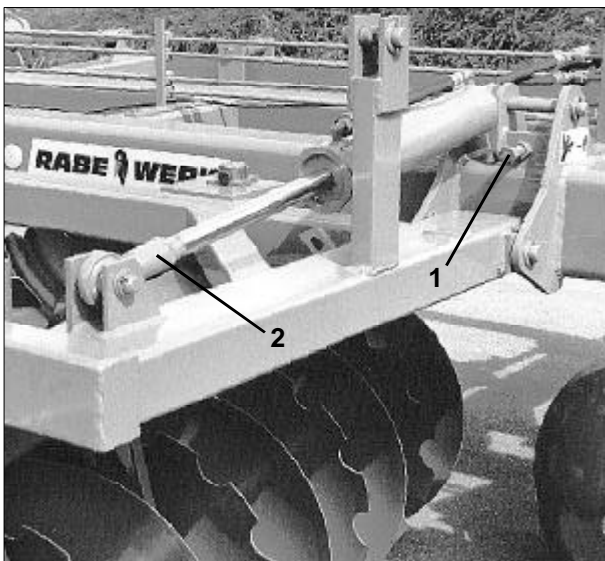
By adding wedges (15/S) the position of the scrapers is:

- normal (15/a)
- further out on the disc (15/b)
- further in on the disc (15/c)



15





16

## Maintenance

Switch off the engine and remove the ignition key when working on the mounted implement!

Never work on a raised implement! If it needs to be raised, secure first against accidental lowering!

Prior to working on the hydraulic system, fold out and lower the implement, and depressurize the unit!

Dispose of oil in a due and proper manner! (mineral-based hydraulic oil).

Changing wheels requires having sufficient training; always use the correcting fitting tools.

After initial operation (approx. 8 hrs) tighten all screws; then check their snugness at regular intervals.

Tighten the wheel nuts to 260 Nm, the wheel axle bolts to 650 Nm (M 20 x 1.5 - 10.9), the disc shafts to 1200 Nm (use a dowel pin to secure the castellated nuts 10/4).

Check and/or readjust the wheel bearings = roller bearings. Grease via the hub cap – annually (lithium-based multi-purpose grease).

Grease all bearings with a grease nipple at regular intervals, e.g.: hinge pins on the coupling. Repeat daily when using in dusty conditions (1/2), grease all bearings on wheel carriage (fold-in disc harrow), bearing of tiller blades (turbo tiller) every 25 hrs.

Lubricate articulate parts and keep spindles in good running order.

Check the hydraulic hose lines at regular intervals and replace if damaged or brittle (Spare Parts List). Hose lines age naturally; they should not be used for longer than 5-6 years.

Coat all tools on parked implements with an anticorrosive agent and the cylinder rod with acid-free grease.

Repair damage to paint work.

If necessary, readjust the stop screws to ensure the implement locks in securely and without clearance when in transport position – e.g. 16/1, 11/4, 13/1.

Adjust the folded down frames to a horizontal position using the supporting studs (trailed tandem disc harrow/rear, rollers and turbo tiller) or at the ram rod eyes (16/2) – tighten the ball eye securely using a locknut and ensure that there is sufficient overlap of thread.

Replace any worn tools in good time (see Spare Parts List for shaft and tine arrangements).

Tyre pressure: 1.5 bar

## Caution / Transport



Set implement to transportation position; ensure it is roadworthy.

Never ride on the implement, and stay clear of danger zones.

Adjust the transportation speed to suit the path and road conditions.

Maximum speed: 30 km/h.

Observe your local traffic regulations (Highway Code). The Highway Code prescribes that the user is responsible for the safe configuration of the tractor and the implement when being transported on public roads and paths.



Implements must not impair the safe driving of traction machines. Neither the permissible axle loads, the permissible total weight nor the wheel bearing capacity (depending on the speed and tyre pressure) may be exceeded as a result of the mounted implement. To ensure safe steering, the front axle load must be no less than 20 % of the empty weight of the vehicle.

The maximum transportation width is 3 m.

The maximum length of the traction machine must not exceed 18 m.

A special permit is required where the maximum permissible dimensions are surpassed.

Trailed implements that exceed 3 t in weight require an operating permit; a brake system must be available for axle loads greater than 3 t.



No part may protrude from the implement to such an extent that it may unnecessarily endanger other traffic (§ 32 German Highway Code). Parts that protrude by necessity are to be covered up and clearly marked. Safety devices are also required to mark the outer contours of the implements and for rear protection – e.g. red-and-white striped 423 x 423 mm warning signs. (Stripes must each be 100 mm in width pointing outwards/down at an angle of 45°).

Trailed implements or semi-mounted implements are to be equipped with rear red reflectors, side yellow reflectors, and always to be transported with lighting equipment "on", even in daylight (with side lights – whenever the implement overlaps the tractor's lights by more than 400 mm).

A lighting unit – with warning signs – can also be ordered at a later date from RABE.

