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STS Rail Transport System Loading Guidelines

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- STS Units – Coupling Order and Appurtenances

Changes to the previous version are highlighted in green.

Drafted/revised: 29.08.2024 D. Yildirim	Checked: 29.08.2024 D. Dorn	Approved: 30.08.2024 E. Rohde
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Loading Instructions for the STS Rail Transport System

1. General

The **STS** rail transport system **or ST-System** was developed by Stahlberg Roensch GmbH. Its further development and operation – including leasing – is handled by **Vossloh Rail Services Deutschland GmbH** or carried out on its behalf.

STS users are solely responsible for their use of the ST-System and indemnify the lessor against any damage that the load may sustain. Before commencing any loading procedures, the user must satisfy himself on his own authority that the STS is suitable for the purpose for which the user intends to use it. **The STS can only be leased in the fully-assembled configuration on flatcars of standard construction.**

The wagon groups are to be configured as STS units for the purposes of loading and transport in accordance with the vehicle dispatch directives of **Vossloh Rail Services Deutschland GmbH**. All the wagons must be coupled as per the marshalling provisions (see Annex 2).

The following restrictions apply: an STS unit assembled this way is configured with a rebound gate wagon at each end, and these rebound gate wagons are equipped with a positioning system. With single-tiered loading, the rebound gate wagons can be located centrally in the STS unit. The vehicle dispatcher will duly provide the shipper (the user as per the **General Contract of Use**) with a detailed layout showing the wagon numbers.

Before using the STS units, the shipper must ensure that the wagons and the STS racks mounted on them are in good order. Any damage discovered should be reported in writing to the ECM responsible, whose contact details can be found on both sides of the freight wagons themselves (see also Annex). If in doubt, get in touch with the ECM directly.

The proper way to load the wagons is to load full lengths of rail – ideally with a gantry crane – onto the STS racks. Care must be taken to ensure that the structural components and equipment mounted on the sides of the STS units (stakes, GPS, etc.) are not damaged in the process.


The shipper assumes full liability for any damage to the STS units sustained during the loading process, and/or for the loss of structural components and/or fastening equipment. Similarly, the user (as per the GCU) is liable for any damage to the vehicles, **including their superstructure (STS) and loads, that is sustained** during the period of use.

2. General Safety Instructions

In addition to the specifications in these guidelines, the user also bears sole and unconditional responsibility for compliance with the provisions that apply in the track area and during the transport and unloading of rails, especially the relevant accident prevention regulations. The user must comply with the exact wording of any applicable national regulations.

During transport or when working on the wagons, rail support arms are to be kept either in the loading position or swung in towards the direction of travel and securely locked in the designated holders. Rail support arms should never be left half open. It is only permissible to open the rebound gate doors for the purpose of loading or unloading, and then only on the loading side. At all other times these doors must remain closed and locked.

The freight cars have no illumination. As such, there is the risk of tripping when walking along the wagons. There is also the danger of falling when stepping from one wagon to the next, as well as the risk of slipping when there is rain, snow or frost. The movements of the rail support arms and rebound gates constitute a crushing hazard.

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Furthermore, some additional restrictions may apply when using the STS system in the winter months due to the accumulation of ice, snow or freezing rain. Accumulations of any kind need to be removed in an appropriate manner, and a proper lubricating film is to be applied before loading commences (Annex 4). The use of thawing agents or abrasives is not permitted for removing these accumulations. It is the shipper's responsibility to create the conditions necessary for loading to be performed in a safe and proper manner.

Every shipper (user as per the GCU) who works with the STS units is obliged to provide his personnel with verifiable instructions on the use of these loading guidelines.

Hauling loaded STS units through curve radii < 150 m is strictly prohibited. ([See information on side of vehicle.](#))

3. Loading Method

The following safety clearances are to be maintained, even after partial unloading:

A = Clearance

The following clearances from the ends of the rails to the end-boards and/or rebound gates on the last wagon, or to other closed and unoccupied rail support arms must be observed:

Rail lengths up to 30 m	min. 50 cm
Rail lengths from 30 up to 60 m	min. 75 cm
Rail lengths from 60 up to 90 m	min. 100 cm
Rail lengths from 90 up to 120 m	min. 125 cm
Rail lengths from 120 up to 180 m	min. 150 cm

B = Safety clearances

For rails loaded end to end, e.g. two "rail clusters" each 60 meters long, an empty wagon must be placed between the rail clusters to act as a "safety wagon". Either an STS center wagon or a standard flatcar can be used as the safety wagon.



C = Overhanging rails

The ends of the rails (also applies to short lengths) can extend beyond the first or last occupied base support and/or rail support arm by between a minimum of 1.5 meters and a maximum of 4 meters.


D = Position

The rails must always be loaded centrally on an STS transportation unit.

In order to allow the *necessary movement* of the rails when traveling in curves, there must be strict compliance with the safety clearances stated in points A to C above.

Transport between manufacturing plants (Loading and unloading using a gantry crane)

Each tier can only be loaded with one type of rail profile. Transporting different rail profiles on the same tier is strictly prohibited.

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IMPORTANT: The rail support arms of any empty STS racks are to be locked into the "open" position at all times while transporting loads.

Transport from plant to construction site (gantry crane loading / pull off at site)

Within Germany, each tier can be loaded with different rail profiles. The different rail profiles on any one tier must be distributed symmetrically. Profiles with smaller overall rail heights are to be regarded as gaps. See Annexes 3 to 7 for the correct spacing of gaps.

Different rail lengths on one tier

If a tier is loaded with rails of the same profile but different lengths, the shorter rails must be loaded on the inside so that the longer rails lock the shorter ones in. The values given in A to C also apply to the shorter lengths of rail. Shorter rails are to be regarded as gaps. See Annexes 3 to 7 for the correct spacing of gaps created by shorter rails.

Combining vehicle categories

Combining wagons of different categories (1000 Series or 2000 Series, etc.) is only permitted after consulting Wagon Management (see Annex 1 for contact details). In this case, a wagon with its rebound gates mounted, properly closed and locked must be placed at the front and rear ends of every STS unit. In the case of a single-tiered load, the rebound gates located centrally on the STS unit can be locked in the open position.

Using safety wagons

A safety wagon must be used when transporting rails if the clearance limits described under A cannot be complied with or are exceeded. An STS center wagon or a standard flatcar can be used as the safety wagon.

Addendum: Any standard flatcar employed as a safety wagon is not permitted to carry a load.

Single-tiered load

With single-tiered loading (rails on the base supports only) haulage can also be carried out without rebound gates or with a rebound gate wagon located in the middle of the STS unit. The end plates on the last wagon are to be raised when transporting loads in this manner.

Addendum: Combining different rail profiles in a single-tiered load is permitted.

Minimum and maximum rail lengths


The STS system must not be used to transport rails shorter than 15 meters or longer than 180 meters.

Rails with insulated joints

Rails with insulated joints must be loaded such that there can be no contact between the insulated joints of adjacent rails. When a rail is locked in place with a locking pin, its insulated joint must be a sufficient distance away from the locking pin (see also Section 4, Securing the Load). Unloading should be performed with due caution.

STS units with clamping blocks

Only one type of rail can be loaded on each tier. Combining several rail types on one tier is strictly prohibited because the rails with lower rail heights would not be held in place securely.

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The operating instructions for the clamping block also apply and are to be consulted when following the guidelines described above for loading STS units.

All the tiers must be fully loaded when using the clamping block (see Annexes 3 and 6). Only then can the clamping block exert its full clamping force. Any exceptions must be clarified with the ECM responsible.

4. Securing the load

The rail support arms of each tier need to be swung in and locked in position on all the STS racks that are supporting rails. When swinging a rail support arm closed, ensure that its closing mechanism is locked into position properly and that the synthetic inlay of the rail support arm is resting horizontally on top of the rail-heads underneath. When loading each individual horizontal tier, the locking pins must be removed from their storage places on the respective STS racks and inserted into their designated slots in the base supports and rail support arms as follows:

- a** On every wagon supporting the load, locking pins must be inserted in the slots closest to the outside rails in STS racks 1 and 4 respectively. Locking pins must also be inserted in the manner just described in each of the last STS racks that is supporting the load or an individual rail.
- b** Each partially loaded compartment must also be secured using locking pins on the inside. This also applies to longer rails used to hold in shorter lengths.
- c** In order to prevent the rails from sliding sideways, each locking pin has to be placed in its appropriate empty slot, which is the next closest one after adding together the widths of the rail bases. The load shouldn't be jammed in too tightly and **the minimum total clearance between the rail bases and the locking pins is 10 cm. Additional locking pins should be inserted if gaps appear.** Once loaded onto the base supports or rail support arms, the rails may need to be pushed parallel with each other so that their bases are touching.

With rails resting on a single wagon only, greasing the contact surfaces of the base supports and rail support arms is not permitted.

When loading rails that extend over more than one wagon, biodegradable grease (e.g. Fuchs Plantogel 2N or grease with similar properties) must be applied to the contact surfaces mentioned above (see Annex 2).

The rebound gates (= 2 gates) on the first and last wagons of the STS unit must be locked in the closed position when hauling! The doors are safely closed and locked when they are hard up against the stop with the locking frame in the upright position and the retaining latch pushed down as far as possible and locked in place in the opening of the doors.

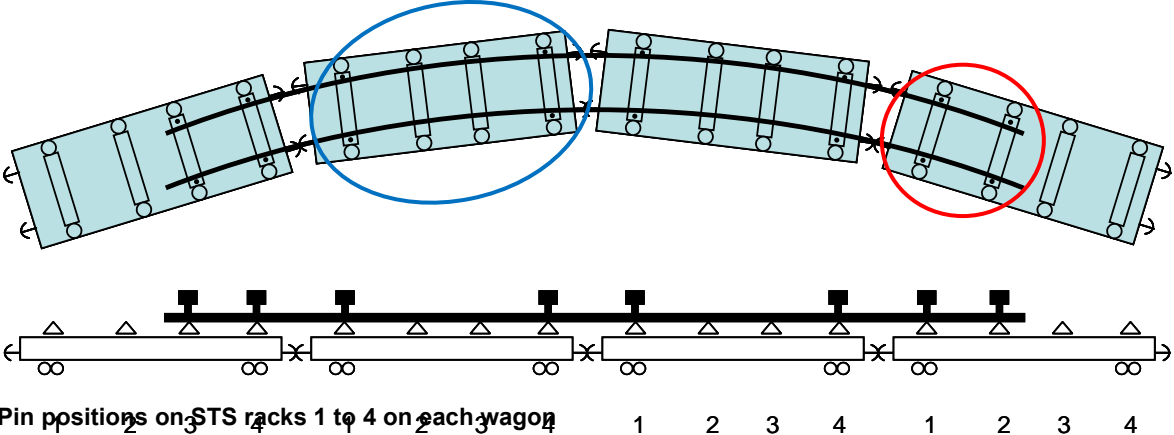
In the event that rebound gates or parts of the rebound gate system do not function correctly, any unoccupied STS racks at the rebound gate wagon end must be locked in the closed position. A damage report on the matter must also be emailed immediately to the ECM responsible. If necessary, a safety wagon is to be used.

When opening the rebound gates, the gates must be swung a full 90° against the stop until the safety latches have securely caught hold. The rebound gates are now locked in the open position.

Annex 1 – Positioning locking pins

Locking pins are to be inserted in a wagon's front and rear STS racks. Locking pins are not inserted in the inside STS racks of a wagon (blue circle). On the wagon where the rail ends are (red circle), locking pins are also to be placed in the last STS rack supporting the load.

Visual representation travelling through a curve:




Locking pins above bogie: rails laterally restrained sideways



Without locking pins: rails free to slide



Locking pin in a rail support arm

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Annex 2 – Coupling the STS

<p>Scope:</p>	<p>This procedure applies to all employees who carry out the work of coupling or uncoupling single wagons or groups of vehicles.</p> <p>This procedure describes the coupling of railway vehicles for which the companies belonging to Vossloh Rail Services Deutschland GmbH are registered as keeper and/or ECM in the national vehicle registry. This procedure applies at the following sites:</p> <ul style="list-style-type: none"> • Vossloh Rail Services Deutschland GmbH – plant locations: <ul style="list-style-type: none"> Bützow Hamburg Leipzig Nuremberg • voestalpine Track Solutions Duisburg GmbH • voestalpine Track Solutions Königsborn GmbH • any applicable third parties <p>This procedure is based on the Process Instructions entitled <i>Maintenance and repair Rail Transport System (STS)</i></p> <p>In special cases, the ECM responsible may permit the use of this procedure by other maintenance and repair facilities or by mobile service providers.</p> <p>The use of this procedure must be approved in writing.</p> <p>Submitting this procedure to the health & safety officer before use is recommended!</p>
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<p>Guidelines:</p>	<p>The requirements from the following regulations must be complied with:</p> <ul style="list-style-type: none"> • Part B of VDV Directive 757 • the infrastructure operator's regulations • national regulations • the accident prevention regulations BGV A1 and BGV D 30 • manufacturer's specifications • GUV-I 8601
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<p>Tools and Resources:</p>	<p>Safety equipment (Sh2 immediate stop post and wheel chocks). The operational safety regulations of third-party users must be observed.</p>
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STS Loading Guidelines**Description of duties:**

The following protective clothing must be worn when performing the tasks described below:

Ankle-high S3 safety shoes, protective gloves and a hardhat or bump cap

Work to be carried out:

1. Securing the track

Tracks that workers need to enter must be made safe in advance according to the infrastructure operator's regulations. The safeguards must ensure that unintended traffic on the secured track is rendered impossible.

Safety equipment may only be removed by the personnel who initially employed it for safety purposes.

2. Securing the wagons

The vehicles can only be secured when immobile. The type and amount of safety equipment is to be selected such that the wagons cannot move of their own accord.

3. Uncoupling wagons

When entering the track area, ensure that vehicles are completely immobile and that there are no obstructions.

When entering or leaving the Berne Rectangle, always hold on to the coupling screw lever when going under the buffers.

Uncoupling must be performed in the following order:

- Close the air stopcock
- Separate the brake couplings and hang them in the holder to keep them clean
- Unscrew the screw coupling
- Unhook the **coupling shackle** and hang it on the safety hook

4. Coupling the wagons

When entering the track area, ensure that vehicles are completely immobile and that there are no obstructions.

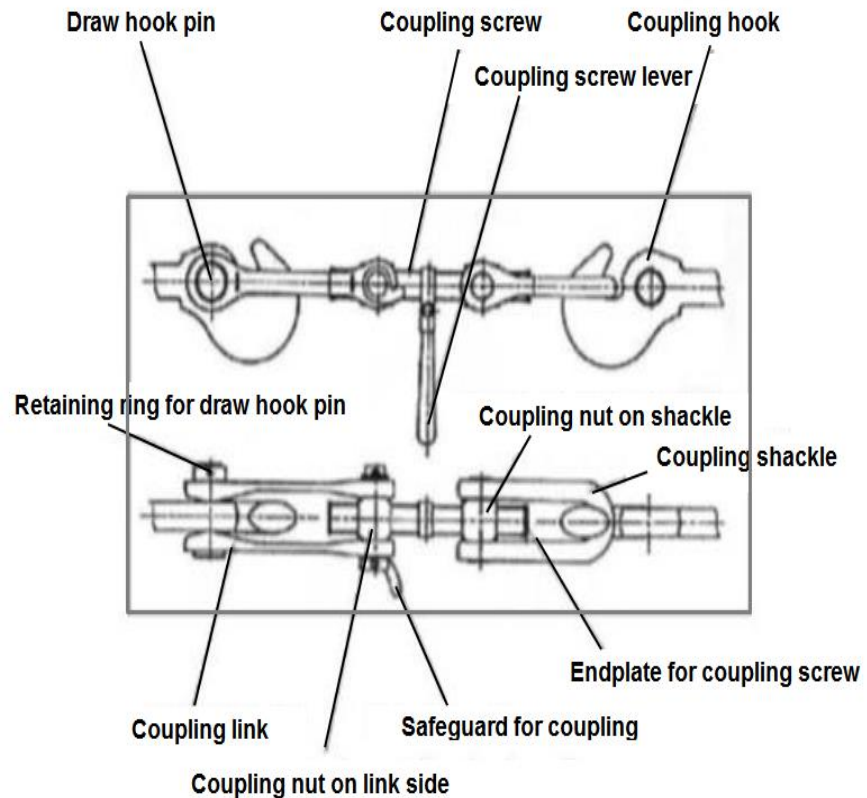
The tension on any compressed buffers should be released on straight track, but the buffer plates of the vehicles must remain touching when the vehicles are immobile. When entering or leaving the Berne Rectangle, always hold on to the coupling screw lever when going under the buffers.

Coupling must be performed in the following order:

- Ensure the spacing between the block nuts and the coupling screw lever is the same
- Place the **coupling shackle on the hook opposite**
- Screw the screw coupling closed until there is slight pressure on the buffer plates while ensuring that the screw coupling still has some adjustment
- Put the coupling screw lever into its retaining element
- Connect the brake couplings
- Put any unused screw and brake couplings into their designated holders (safety hook and brake coupling holders)

- Open the air stopcocks belonging to the brake couplings connected

Labelling of component parts



Safety instructions:


- If there is pressure on the brake systems of a vehicle, blow out the brake coupling before connecting it by quickly opening and closing its stopcock (approx. 2 seconds); the head of the coupler must be prevented from "flapping around" during this process.
- Air hoses may only be connected when they are depressurized.
- When hooking screw couplings into place, take hold of the **coupling shackle** in such a way as to avoid trapping body parts **(WARNING: crushing hazard)**.

Quality control and measuring equipment:

While tightening the screw coupling, check that the drawgear compresses properly as follows:

Use the coupling screw lever to tighten the screw coupling until the opposing buffer plates are touching. Ideally, this should be performed on straight track. Continue using the lever to further tighten the screw coupling one full turn until the coupling screw lever is again secured in its support. This step should require noticeably more physical effort!


With the lever secured in its support, the distance between the coupling nut and the end of the thread (the coupling screw lever near the screw's midpoint) should now be 30 - 40 mm on each side (left and right).

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	<p>If you are able to continue turning the screw coupling with minimal effort, this may be an indication that the drawgear is defective. This must be immediately reported to the ECM responsible for the vehicle.</p>
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<p>Transport:</p>	<p>Wagons shall be delivered by commissioned RUs. Shunting services shall be provided at the service site by a commissioned RU.</p>
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<p>Procedure in the event of defects / damage:</p>	<p>Inform the railway operations manager immediately if, for any reason, the vehicle cannot properly be made safe. The ECM must be informed if any defects are discovered during maintenance work and/or when coupling vehicles. Before issuing an order for haulage, ensure that any defective and/or damaged vehicles have been cleared for use in writing by the ECM.</p>
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Annex 3

STS 1001 – 10nn



Equipped with the following superstructure

- 1st generation STS racks (steel contact surface / yellow) Abbrev. "I. Gen."
- **STS clamping block**

Loading and unloading

Approved for: Loading and unloading using a gantry crane
Unloading (pulling off) new rails to supply construction sites

Not permitted for: **Loading (pulling on) old rails to remove them from construction sites**

Note: No flame-cutting of any kind is permitted on STS units without the use of fire-proof underlays! (sheet metal, protective mats, etc.)

Maintenance and operation – **wagon without clamping block**

1. Inspect base supports and rail support arms


The contact surfaces and chamfered edges must be degreased and cleaned of all debris.

2. Lubricating/greasing base supports and rail support arms

Before every loading procedure, apply an even layer of grease to the contact surfaces of the rail support arm and the base support using a notched spatula (triangular teeth, 3 mm edge length). Hold the spatula at a slight angle towards the pulling direction and apply the grease evenly over the entire length and width of the contact surface between the outermost locking pins.

Approximately 125 grams of grease must be applied to each rail support arm using the spatula mentioned above.

Type of grease to be used: **Fuchs PLANTOGEL 2N** or grease with the same properties.

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STS 1001 – 10nn

Maintenance and operation – wagon with clamping block

1. Inspecting base supports and rail support arms

Clamping block: Base supports and rail support arms of the clamping blocks are to be cleaned and degreased.

Rack: The contact surfaces and chamfered edges must be degreased and cleaned of all foreign matter.

2. Lubricating/greasing base supports and rail support arms

Clamping block: Base support and rail support arms of the clamping block are not to be greased under any circumstances. Any grease on these surfaces must be removed.

IMPORTANT:

Wagon 3 and 5 are each equipped with either one or two clamping blocks. Always clamp only once per rail cluster. When transporting 120-meter-long rails, please make sure that the clamping blocks on only one of the clamping wagons are applied.

1st generation STS units equipped with clamping blocks must always be loaded with 3 full tiers of rails. Only then can the clamping block bring its full clamping force to bear on the load.

Rack: Before every loading procedure, apply an even layer of grease to the contact surfaces of the rail support arm and the base support using a notched spatula (triangular teeth, 3 mm edge length). Holding the spatula at a slight angle towards the pulling direction, apply the grease evenly over the entire length and width of the contact surface between the outermost locking pins.

Approximately 125 grams of grease must be applied to each rail support arm using the spatula mentioned above.

Type of grease to be used: **Fuchs PLANTOGEL 2N** or grease with the same properties.

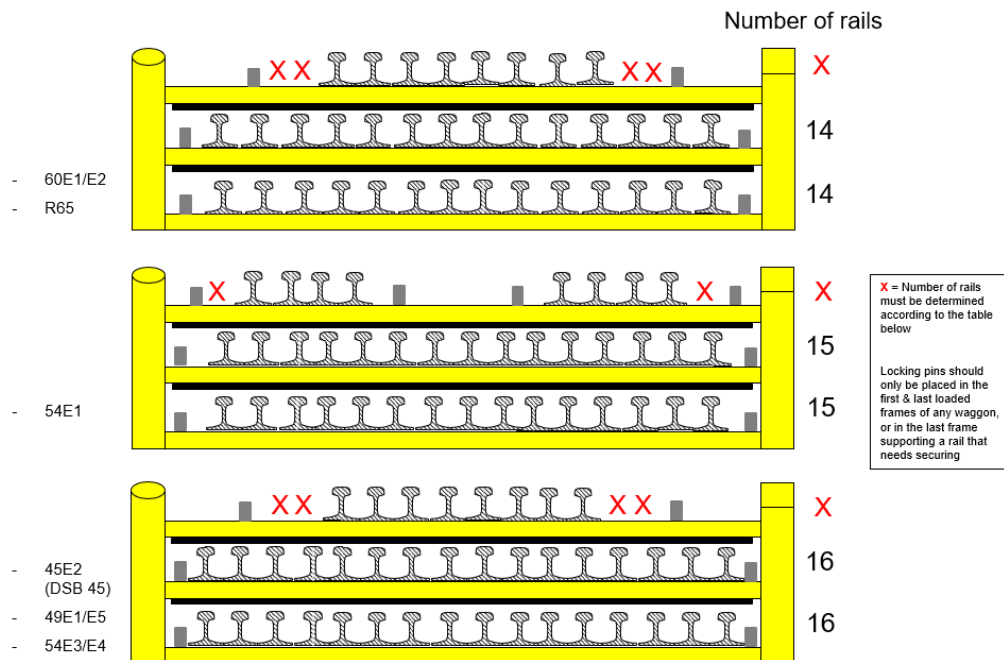
IMPORTANT:

Grease must be applied to all the contact surfaces of the base supports and rail support arms.

STS 1001 – 10nn

Load distribution

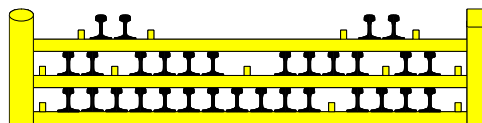
STS racks are loaded as follows:



With fewer rails, the locking pins are accordingly placed closer together. On any tiers not loaded to full capacity, the load must either be placed centrally or **equally distributed towards the outer ends**. Shorter or missing lengths of rail sometimes create gaps that are hidden from view by the tier of rails above.

There should be no more than 6 of these gaps per tier and they should be distributed as evenly as possible (see diagram below). Locking pins are placed in these gaps to secure the load as shown above.

Example:




Number of rails making up the load

The STS system can be loaded with up to 3 tiers of rails. Maximum permissible loads are given in the table below. These numbers may be exceeded if necessary when hauling short rails (short, non-standard lengths) but this must be checked on a case-by-case basis.

allowed number of rails / STS 1001 - 10nn		
Type	max. number per tier	max. number per tier
45E2 (DS B45)	16	48
49E1/E5	16	48
54E3/E4	16	44
54E1	15	44
60E1/E2	14	42
R65	14	38

The list of rail profiles shown is not exhaustive. Please contact the contracting party / contact person if loading any rail profiles not listed here

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Annex 4

STS 2001 – 20nn



Equipped with the following superstructure

- 1st generation STS racks (steel contact surface / yellow) Abbrev. "I. Gen."

Loading and unloading

Approved for: Loading and unloading using a gantry crane
 Unloading (pulling off) new rails to supply construction sites
 Loading (pulling on) old rails to remove them from construction sites

Not permitted for: ---

Note: No flame-cutting of any kind is permitted on STS units without the use of fire-proof underlays! (sheet metal, protective mats, etc.)

Maintenance and operation

1. Inspecting base supports and rail support arms

The contact surfaces and chamfered edges must be degreased and cleaned of all foreign matter.

2. Lubricating/greasing base supports and rail support arms

Before every loading procedure, apply an even layer of grease to the contact surface of the rail support arm and the base support using a notched spatula (triangular teeth, 3 mm edge length). Holding the spatula at a slight angle towards the pulling direction, apply the grease evenly over the entire length and width of the contact surface between the outermost locking pins.

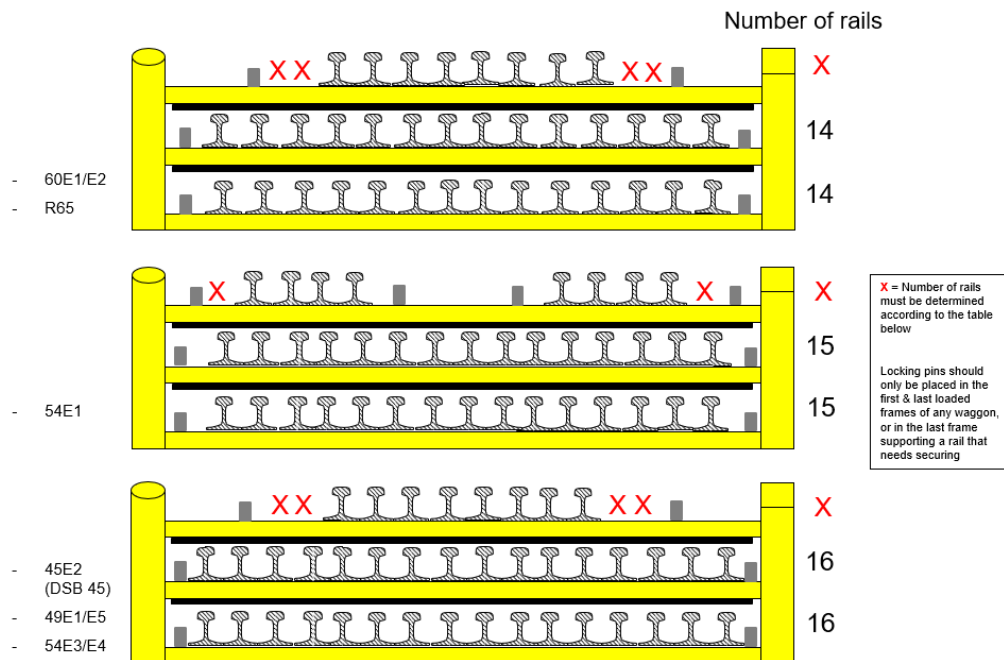
Approximately 125 grams of grease must be applied to each rail support arm using the spatula mentioned above.

Type of grease to be used: **Fuchs Plantogel 2N** or grease with the same properties.

STS 2001 – 20nn

Load distribution

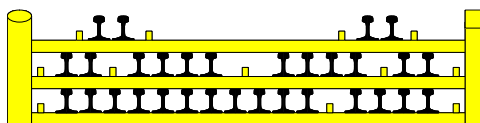
STS racks are loaded as follows:



With fewer rails, the locking pins are accordingly placed closer together. On any tiers not loaded to full capacity, the load must either be placed centrally or **equally distributed towards the outer ends**. Shorter or missing lengths of rail sometimes create gaps that are hidden from view by the tier of rails above.

There should be no more than 6 of these gaps per tier and they should be distributed as evenly as possible (see diagram below). Locking pins are placed in these gaps to secure the load as shown above.

Example:




Number of rails making up the load

The STS system can be loaded with up to 3 tiers of rails. Maximum permissible loads are given in the table below. These numbers may be exceeded if necessary when hauling short rails (short, non-standard lengths) but this must be checked on a case-by-case basis.

allowed number of rails / STS 2001 - 20nn		
Type	max. number per tier	max. number per tier
45E2 (DS B45)	16	48
49E1/E5	16	48
54E3/E4	16	40
54E1	15	40
60E1/E2	14	36
R65	14	34

The list of rail profiles shown is not exhaustive. Please contact the contracting party / contact person if loading any rail profiles not listed here

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Annex 5

STS 3001 – 30nn



Equipped with the following superstructure

- 1st generation STS racks (steel contact surface / yellow) Abbrev. "I. Gen."

Loading and unloading

Approved for: Loading and unloading using a gantry crane
Unloading (pulling off) new rails to supply construction sites
Loading (pulling on) old rails to remove them from construction sites

Not permitted for: ---

Note: No flame-cutting of any kind is permitted on STS units without the use of fire-proof underlays! (sheet metal, protective mats, etc.)

Maintenance and operation

1. Inspecting base supports and rail support arms

The contact surfaces and chamfered edges must be degreased and cleaned of all foreign matter.

2. Lubricating/greasing base supports and rail support arms

Before every loading procedure, apply an even layer of grease to the contact surface of the rail support arm and the base support using a notched spatula (triangular teeth, 3 mm edge length). Holding the spatula at a slight angle towards the pulling direction, apply the grease evenly over the entire length and width of the contact surface between the outermost locking pins.

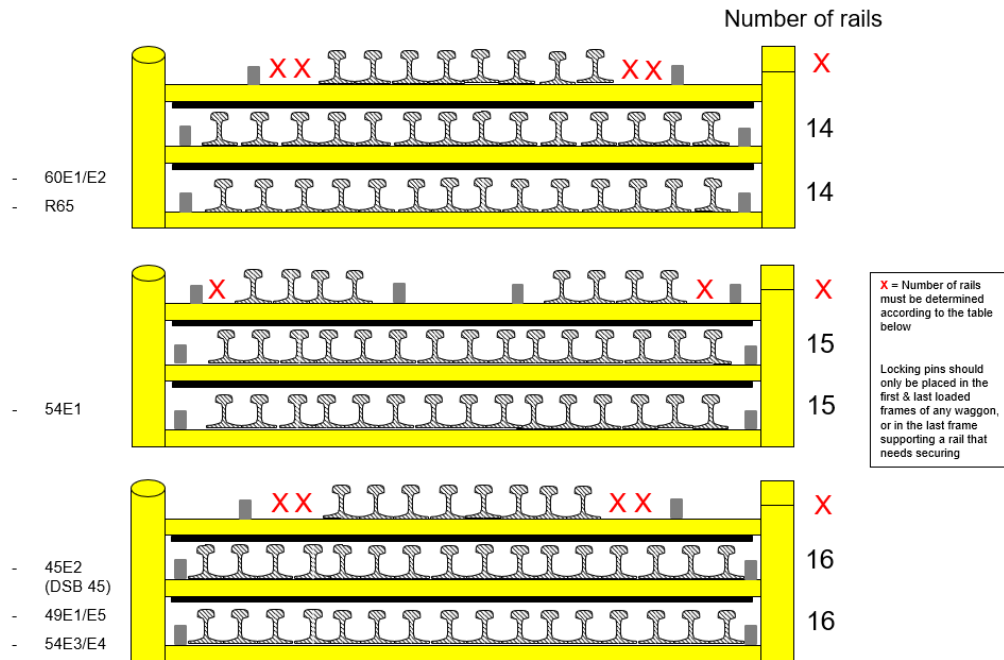
Approximately 125 grams of grease must be applied to each rail support arm using the spatula mentioned above.

Type of grease to be used: **Fuchs Plantogel 2N** or grease with the same properties.

STS 3001 – 30n

Load distribution

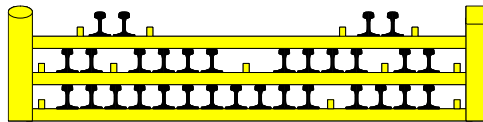
STS racks are loaded as follows:



With fewer rails, the locking pins are accordingly placed closer together. On any tiers not loaded to full capacity, the load must either be placed centrally or equally distributed towards the outer ends. Shorter or missing lengths of rail sometimes create gaps that are hidden from view by the tier of rails above.

There should be no more than 6 of these gaps per tier and they should be distributed as evenly as possible (see diagram below). Locking pins are placed in these gaps to secure the load as shown above.

Example:




Number of rails making up the load

The STS system can be loaded with up to 3 tiers of rails. Maximum permissible loads are given in the table below. When hauling short rails (short, non-standard lengths), these numbers may be exceeded if required, but this must be checked on a case-by-case basis.

allowed number of rails / STS 3001 - 30nn		
Type	max. number per tier	max. number per tier
45E2 (DS B45)	16	48
49E1/E5	16	44
54E3/E4	16	40
54E1	15	40
60E1/E2	14	36
R65	14	34

The list of rail profiles shown is not exhaustive. Please contact the contracting party / contact person if loading any rail profiles not listed here

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Annex 6

STS 5001 – 50nn



Equipped with the following superstructure

- 1st generation STS racks (steel contact surface / yellow) Abbrev. "1. Gen."

Loading and unloading

Approved for: Loading and unloading using a gantry crane
Unloading (pulling off) new rails to supply construction sites
Loading (pulling on) old rails to remove them from construction sites

Not permitted for: ---

Note: No flame-cutting of any kind is permitted on STS units without the use of fire-proof underlays! (sheet metal, protective mats, etc.)

Maintenance and operation

1. Inspecting base supports and rail support arms

The contact surfaces and chamfered edges must be degreased and cleaned of all foreign matter.

2. Lubricating/greasing base supports and rail support arms

Before every loading procedure, apply an even layer of grease to the contact surface of the rail support arm and the base support using a notched spatula (triangular teeth, 3 mm edge length). Holding the spatula at a slight angle towards the pulling direction, apply the grease evenly over the entire length and width of the contact surface between the outermost locking pins.

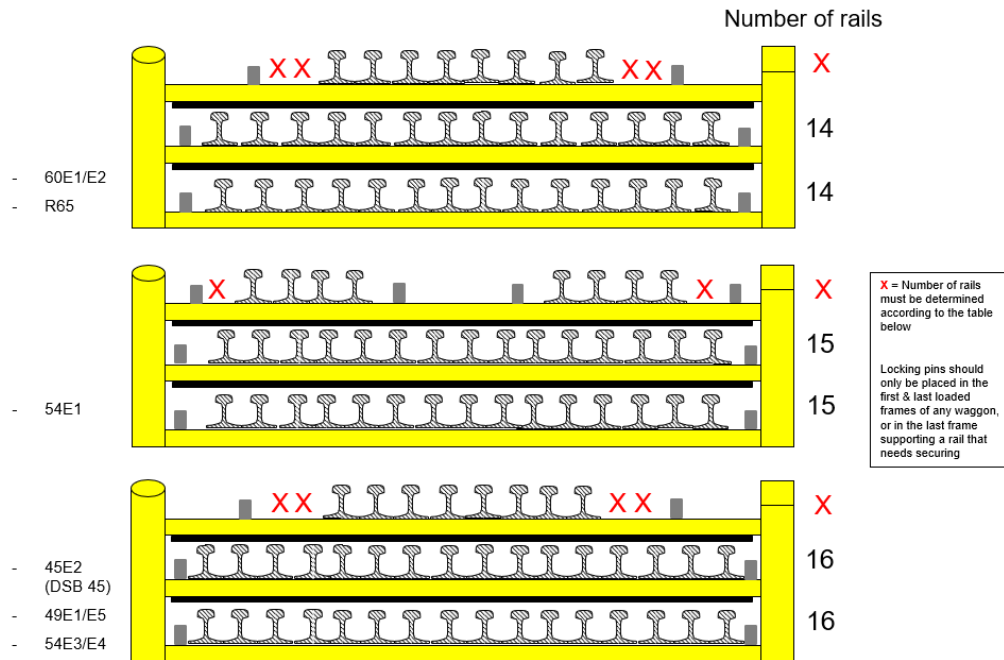
Approximately 125 grams of grease must be applied to each rail support arm using the spatula mentioned above.

Type of grease to be used: **Fuchs Plantogel 2N** or grease with the same properties.

STS 5001 – 50nn

Load distribution

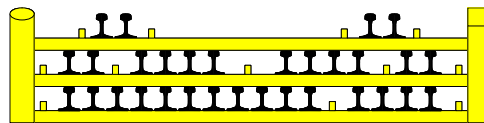
STS racks are loaded as follows:



With fewer rails, the locking pins are accordingly placed closer together. On any tiers not loaded to full capacity, the load must either be placed centrally or **equally distributed towards the outer ends**. Shorter or missing lengths of rail sometimes create gaps that are hidden from view by the tier of rails above.

There should be no more than 6 of these gaps per tier and they should be distributed as evenly as possible (see diagram below). Locking pins are to be placed in these gaps to secure the load as shown above.

Example:




Number of rails making up the load

The STS system can be loaded with up to 3 tiers of rails. Maximum permissible loads are given in the table below. These numbers may be exceeded if necessary when hauling short rails (short, non-standard lengths) but this must be checked on a case-by-case basis.

allowed number of rails / STS 5001 - 50nn		
Type	max. number per tier	max. number per tier
45E2 (DS B45)	16	48
49E1/E5	16	48
54E3/E4	16	44
54E1	15	44
60E1/E2	14	40
R65	14	36

The list of rail profiles shown is not exhaustive. Please contact the contracting party / contact person if loading any rail profiles not listed here

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		Version: N

Annex 7

STS 6001 – 60nn



Equipped with the following superstructure

- 1st generation STS racks (steel contact surface / yellow) Abbrev. "I. Gen."

Loading and unloading

Approved for: Loading and unloading using a gantry crane
Unloading (pulling off) new rails to supply construction sites

Not permitted for: Loading (pulling on) old rails to remove them from construction sites

Note: No flame-cutting of any kind is permitted on STS units without the use of fire-proof underlays! (sheet metal, protective mats, etc.)

Maintenance and operation

1. Inspecting base supports and rail support arms

The contact surfaces and chamfered edges must be degreased and cleaned of all foreign matter.

2. Lubricating/greasing base supports and rail support arms

Before every loading procedure, apply an even layer of grease to the contact surface of the rail support arm and the base support using a notched spatula (triangular teeth, 3 mm edge length). Holding the spatula at a slight angle towards the pulling direction, apply the grease evenly over the entire length and width of the contact surface between the outermost locking pins.

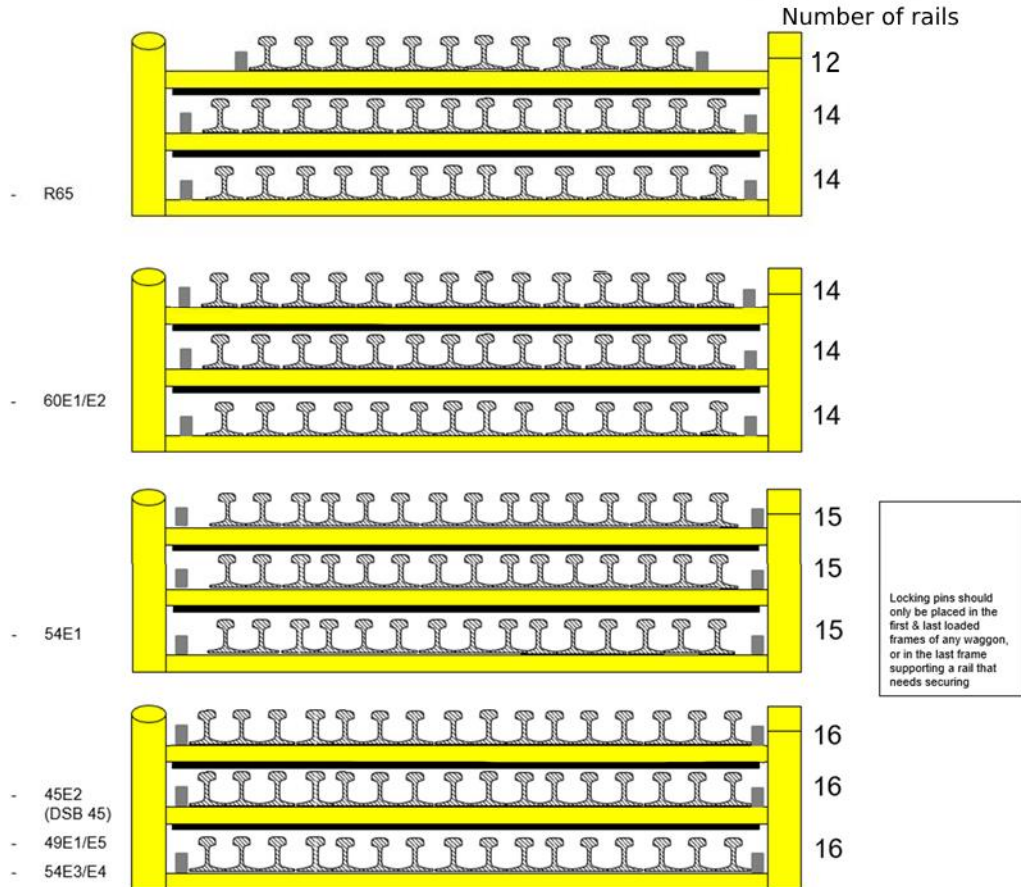
Approximately 125 grams of grease must be applied to each rail support arm using the spatula mentioned above.

Type of grease to be used: **Fuchs Plantogel 2N** or grease with the same properties

STS 6001 – 60nn

Load distribution

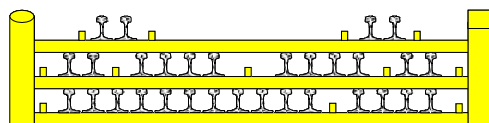
STS racks are loaded as follows:



With fewer rails, the locking pins are accordingly placed closer together. On any tiers not loaded to full capacity, the load must either be placed centrally or equally distributed towards the outer ends. Shorter or missing lengths of rail sometimes create gaps that are hidden from view by the tier of rails above.

There should be no more than 6 of these gaps per tier and they should be distributed as evenly as possible (see diagram below). Locking pins are to be placed in these gaps to secure the load as shown above.

Example:



Number of rails making up the load

The STS system can be loaded with up to 3 tiers of rails. Maximum permissible loads are given in the table below. These numbers may be exceeded if necessary when hauling short rails (short, non-standard lengths) but this must be checked on a case-by-case basis.

Permitted number of rails / STS 6001-60nn		
Type	max. number per layer	max. number per layer
45E2 (DS B45)	16	48
49E1/E5	16	48
54E3/E4	16	48
54E1	15	45
60E1/E2	14	42
R65	14	40

The list of rail profiles shown is not exhaustive. Please contact the contracting party / contact person if loading any rail profiles not listed here