

Transport and installation instructions

as from serial No. 6050451

TNL18
dynamic

TNL18-9

Note on applicability

Illustrations in this publication may deviate from the product supplied. Errors and omissions due to technical progress expected.

A word on copyright

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Symbols

This chapter describes the symbols used in the documentation for users to highlight risks and tips.



This symbol draws attention to imminent danger to life and health. Failure to observe this danger sign can result in serious damage to health, as well as potentially fatal injuries and even death.



This symbol draws attention to imminent danger due to electricity. Failure to observe this danger sign can result in serious damage to health, as well as potentially fatal injuries and even death.



This symbol draws attention to important information on correct operation of the machine. The machine or parts of the machine may be damaged or malfunction if these instructions are not observed.

Documentation safety instructions

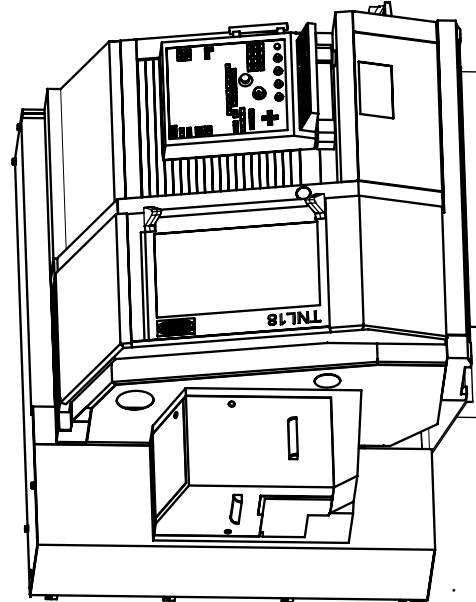
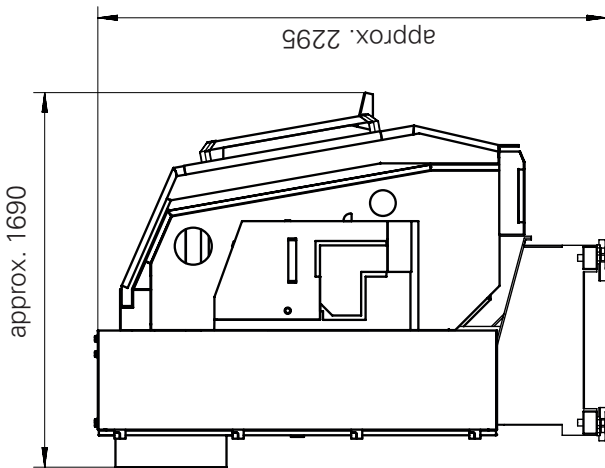


The documentation for users and particularly the safety instructions must be observed. The safety instructions are set out in a separate document forming part of the TRAUB documentation for users.

Installation diagram TNL18-9

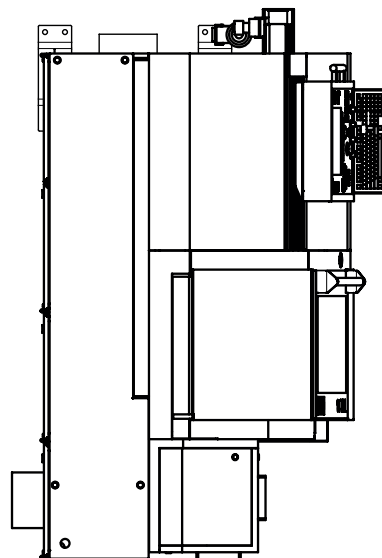
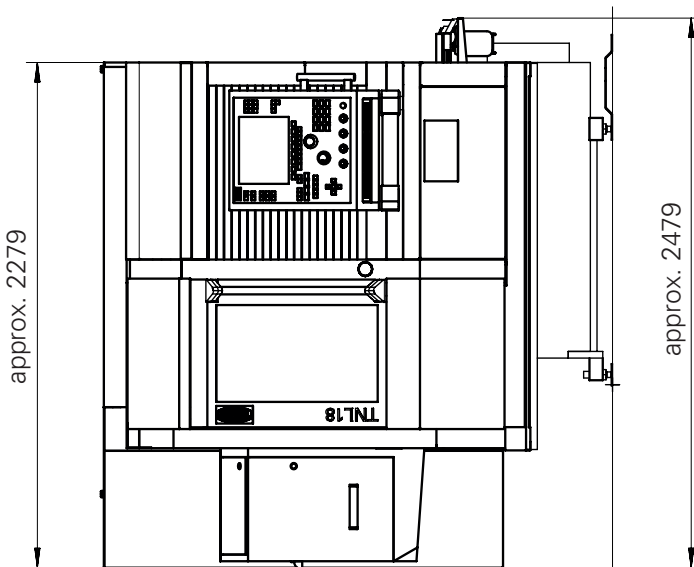


The corresponding installation and layout diagram must be obtained before the machine is installed.



Bearing points (kN)

A1	10.00
A2	17.70
A3	4.60
A4	2.60





Beware of being crushed

The installation site must be selected in such a way that there is no risk of anyone or anything being crushed against walls, pillars or hall installations by moving parts or the machine, including manually operated doors and flaps, etc.



Danger due to falling machine / parts

Ensure there is no-one underneath the suspended load!



Transporting the machine

The machine may only be transported with the aid of a fork lift truck or armoured heavy-duty roller.

It **must** be lifted from the control cabinet side when transported by a fork lift truck.



The machine with bar loading magazine must in all cases be anchored in the ground.

Machine weight and dimensions



The above weights refer exclusively to the basic machine, i.e. **without** chip conveyor, emulsion tank and workpieces.

Machine weight [kg]	TNL18-9
with control cabinet	4000
Machine dimensions [mm]	
Length	2479
Width	1488
Height	2636
Bearing points* [kN]	
A1	10.00
A2	17.70
A3	4.60
A4	2.60

* Bearing points A see chapter *Installation diagrams*

Delivery, unloading and transport of the machine from the unloading point to the installation site must be carefully planned.

Note the size (dimensions) and weight of the individual units.

Any obstacles on the way from the unloading point to the installation site must be removed before the machine is delivered.

Check the route with regard to load capacity, levelness, pavement damage, transverse grooves and gradients, both uphill and downhill.

Information on transporting the machine by truck

The truck should have pneumatic suspension in order to avoid major bumps during transport!

Loading and shipping in crate

The machine can be transported at temperatures down to -20 °C. Special precautions must be taken when transporting the machine in regions with temperatures below -20 °C.

When shipped to countries with extreme climates, the machine must be protected more extensively during transport. The machines are packed by special packaging companies for shipment to such countries. Only bolted (never nailed) crates are used here.

Packagings are invoiced at cost price. They will be taken back in accordance with the new German regulations on packagings if delivered free of charge for the machine manufacturer.

Space required

The following must be assured:

- Sufficient space around the machine.
- Sufficient freedom of movement for the operator.
- Sufficient space for maintenance and repair work.
- All doors on the machine must be able to open completely.
- Space for pallets containing blanks and workpieces, workpiece containers, chip trolleys, tool trolleys, etc.

The space required can be determined with the aid of the installation drawing.

Ambient conditions

Refer to the chapter *Ambient conditions* in the "Safety instructions".



In the event of discrepancies between these requirements and the installation site, the **machine manufacturer** or a **representative of the machine manufacturer** must be contacted without fail.

Substrate, foundations

The load capacity and strength of the flooring must be sufficient to bear the weight of the machine in structural terms.

Expansion joints are not permitted in the area under the machine.

Bar feeding and re-feeding mechanisms, as well as bar loading magazines must be anchored in the foundations as a matter of principle (for further details refer to the associated User manual and Installation drawing).



Bottom sump

If the machine is installed in a bottom sump, the convexity of the floor in the area of the bottom sump should not exceed 5 mm at most; if possible, it should be level or concave. If the permitted unevenness is exceeded, the bottom sump may rub against the underside of the machine / machine components.

Compressed air supply

See chapter *Pneumatic connection*

Equipment to be provided

See chapter *Fuels* and *Notes on Operating Materials*

Accumulator



The directives and regulations of the country of use must always be taken into account.

If the machine is delivered by air freight, all accumulators installed on the machine will be depressurized.

All accumulators must be filled with nitrogen (N₂) by a duly qualified member of staff before the machine is started up. The prescribed pressures must be maintained.

Prescribed pressures can be found in the *Hydraulic circuit diagrams*.



Before the machine is transported by air freight again, all accumulators on the machine must be depressurized by a duly qualified member of staff.

Pumps and tanks

A pump with 10 µm fine filter (absolute) is needed in order to fill the hydraulic fluid tank in the machine; this pump may only be used for this specific purpose.

A simple pump will suffice to extract the spent hydraulic fluid or lubricoolant. The same pump can also be used to fill the lubricoolant tank, but must first be thoroughly rinsed with fresh lubricoolant.

A sturdy container is needed to collect the extracted fluids. Tightly closing and duly labelled metal containers of corresponding capacity can be used for this purpose.

Connection to local extractor unit by customer



If a local extractor unit is connected to the machine by the customer, the extinguishing unit installed in the machine must be adapted accordingly.

Power supply



The directives and regulations of the country of use must always be taken into account.



Keep the mains power input to the machine as short as possible. Cable cross-section must be suitably dimensioned.

A stable supply is required for the interface controller (PLC) and numerical control system (NC) - maximum fluctuation in operating voltage +10% or -10%.

The mains power input must be realized in accordance with the regulations of the relevant power supply company and VDE regulations.

Main fuse



Check the service to establish whether it can bear the additional load required. Any unclear points must be clarified with the relevant power supply company.

The main fuse is not included in the scope of delivery of the machine. It must be installed outside the machine in accordance with DIN EN 60204-1. If an upstream transformer is required, the main fuse must be installed before the upstream transformer, i.e. on the primary side. The values to be secured depend on the operating voltage available.

The values for machine connection, operating voltage and main fuse can be found in the electrical circuit diagrams and the chapter *Electrical connection*.

External data transmission



Data lines must not be located directly alongside power lines.

Suitable metal conduits must be installed for the data line in order to transmit data from/to external computers and storage systems.

Chip disposal

A chip trolley will be needed if the machine operates with chip conveyor. The height of the chip trolley must be adapted to the discharge height of the chip conveyor.

The chip trolley should include an outlet via which the accumulated lubricoolant can be drained and returned to the lubricoolant tank.



The customer must fit a cover on the collecting bin for discharged metal chips. The cover must be designed in such a way that it is impossible to reach into the discharge chute.

Disposal of spent fuels and fluids



The directives and regulations of the country of use must always be taken into account.

The rules governing environmentally correct disposal of spent fuels and fluids, such as hydraulic fluid, lubricant oil and lubricoolant, must be clarified in good time.

Compliance with regulations concerning groundwater and wastewater



The directives and regulations of the country of use must always be taken into account.

The machine contains aquatic pollutants, such as water-miscible lubricoolants and mineral oils. These substances may leak from the machine in the event of a fault.

For this reason, the machine's installation site must be designed to prevent any harmful effects on bodies of water or the groundwater due to these substances.

Possible precautions

- Place the machine in a leak-proof steel pan.
- Seal the floor of the factory hall.

Positions of the turret-type tool heads and main spindle/opposed spindle



In order to transport the machine, the turret-type tool heads as well as the main and the opposed spindle must be located in the specified positions so that the transport retainers can be fitted.

Main spindle

Z = 205 | Rear limit position

Opposed spindle

X = 0 | Bottom limit position

Z = 9

Turret-type tool head at top

X = 80 | Bottom limit position

Y = 25 | Left-hand limit position

Z = 15

Turret-type tool head at bottom

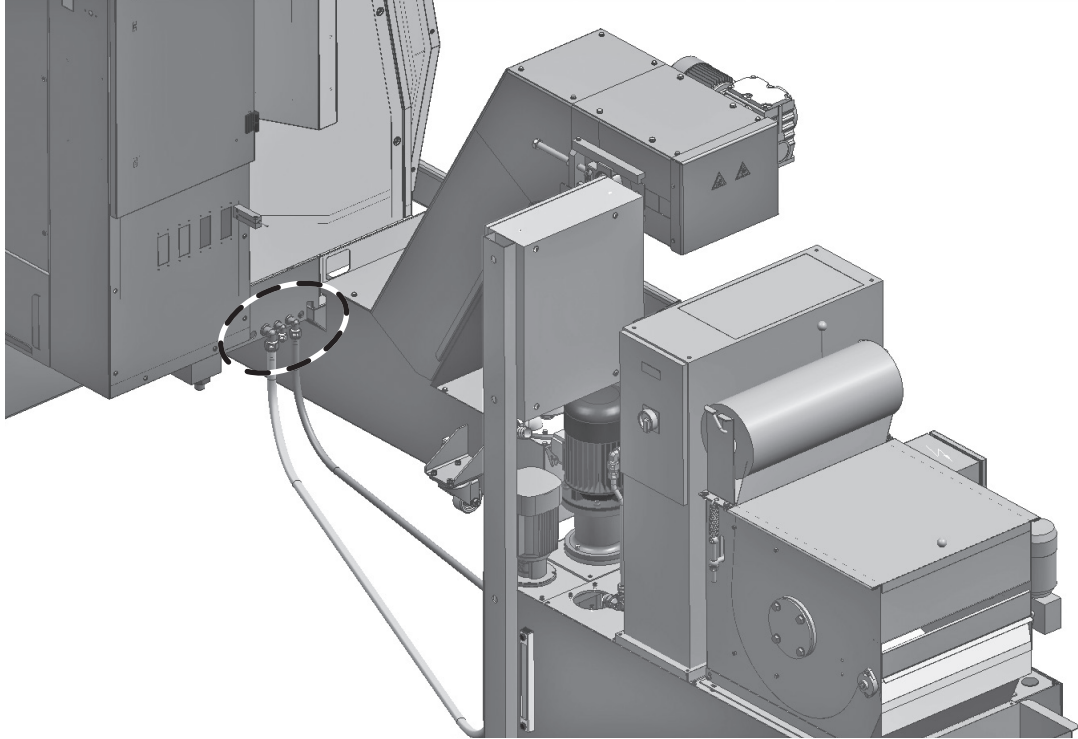
X = 200

Y = 20

Z = 1

Close open hose or pipe lines

To prevent any remaining cutting oil or lubricoolant dripping from the lines, the open hose lines and pipes must be sealed with plugs.



Corrosion protection

Before delivery, all machines are coated to protect them from corrosion. This corrosion protection must be renewed accordingly whenever the machine is subsequently transported again.



Details on corrosion protection can be found in the documentation **Notes on Operating Materials.**

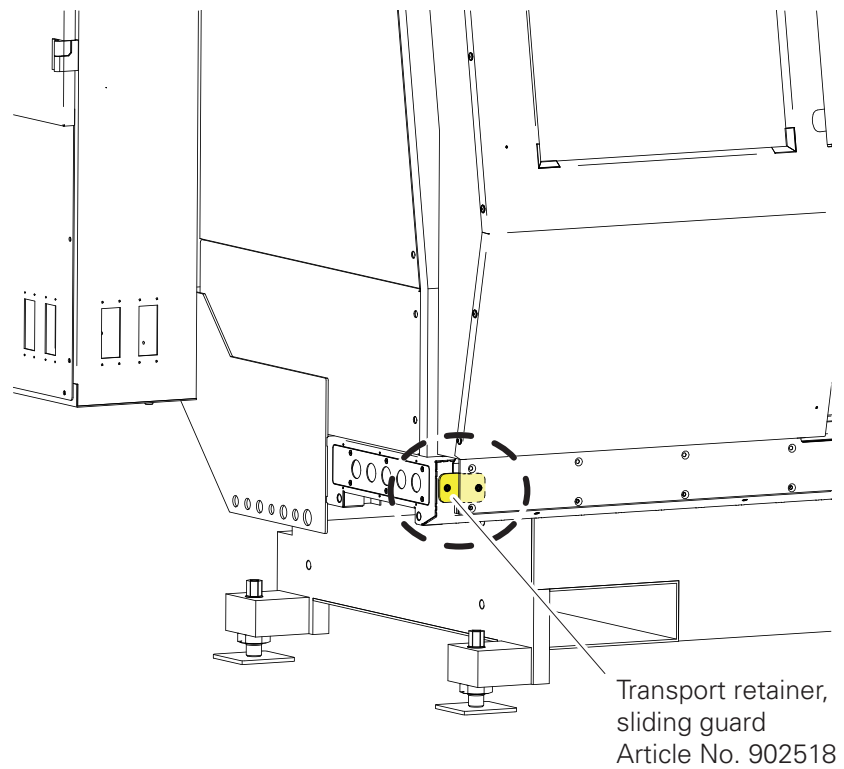
Attach transport retainers and drip tray

Positions of the transport retainers	Article No. of transport retainer	
Turret-type tool head	904051	Angle
Sliding guard	902518	Disc
Control console	901093	Angle
Main spindle	904053	Angle
Opposed spindle	904477	Angle
Drip tray	902857	

Drawing No.

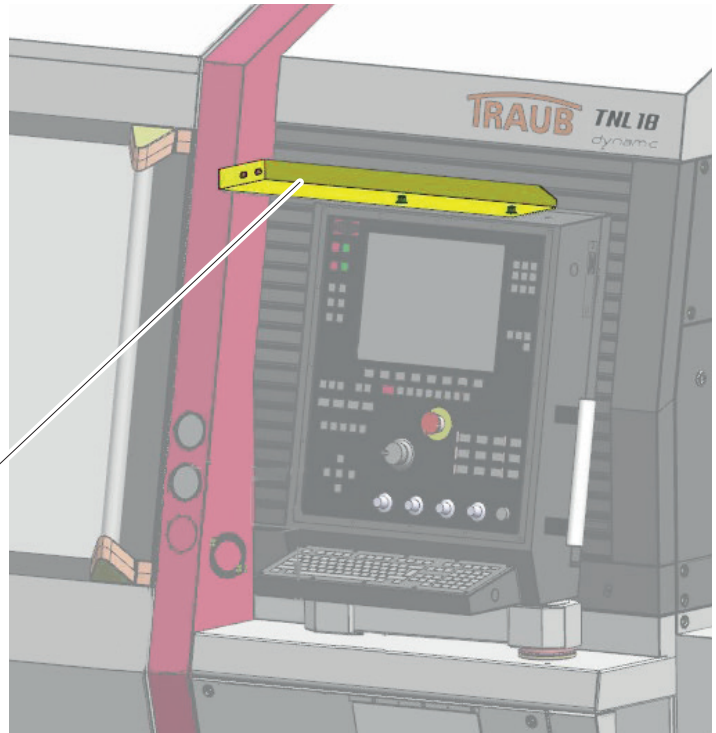
Transport retainers, complete	904050
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Transport retainer, sliding guard



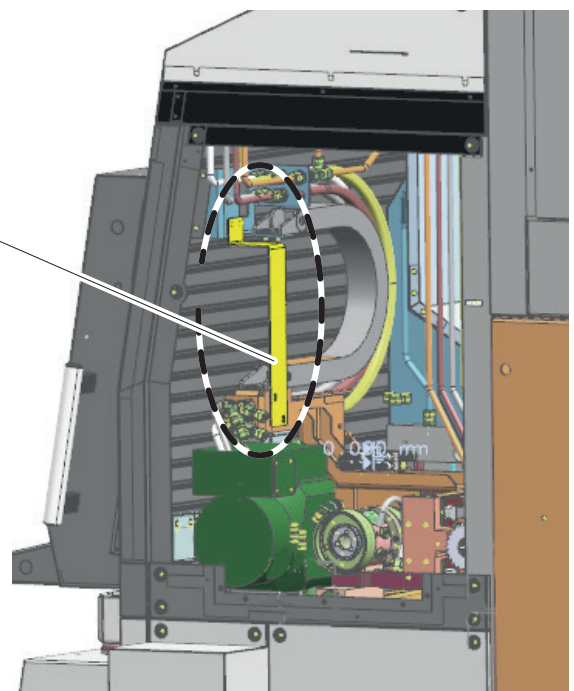
Transport retainer, control console

Secure the control console to the angle bracket with tape over the keyboard housing.



Transport retainer,
control console
Article No. 909439

Transport retainer, main spindle

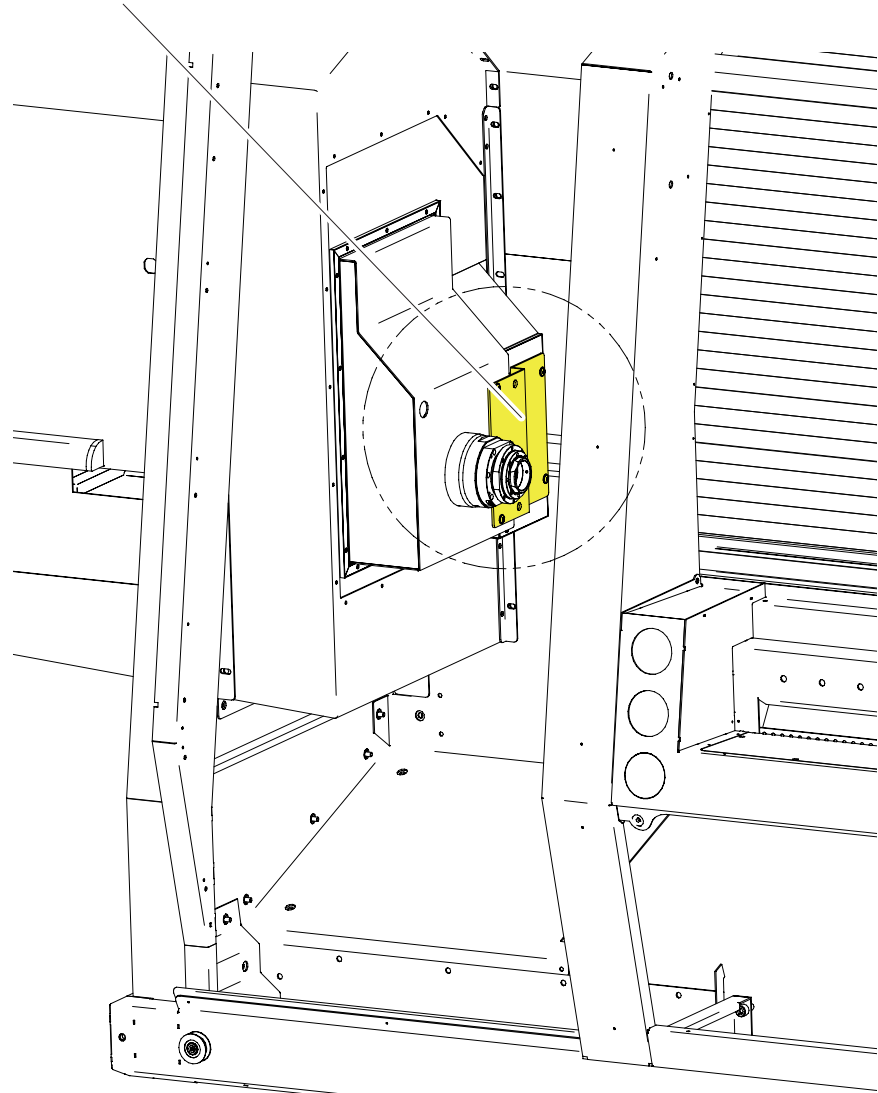


Transport retainer,
main spindle
Article No. 901264

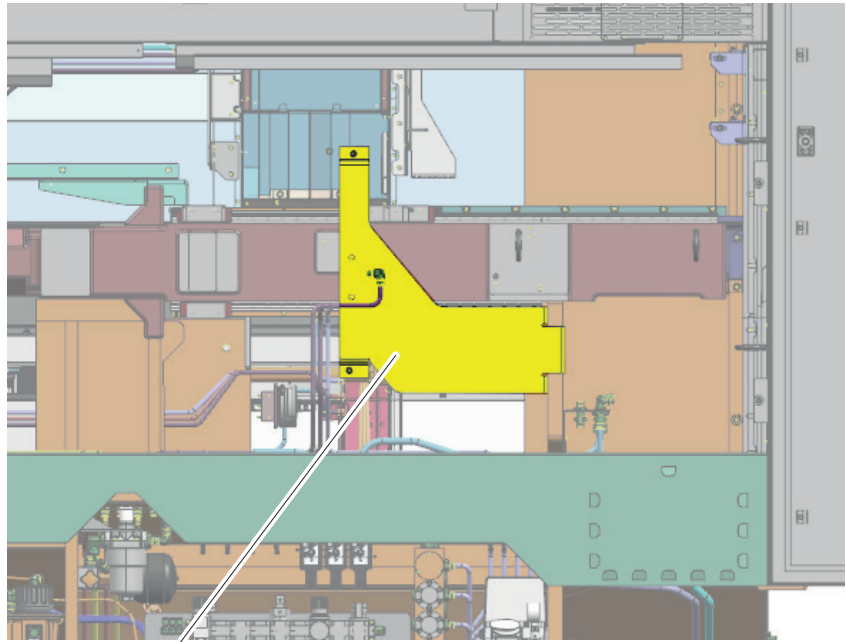
Retainer for opposed spindle

Retainer for opposed spindle Art. No. 904477

After dismantling the retainer, the screws must be refitted in the wiper and metal plate.



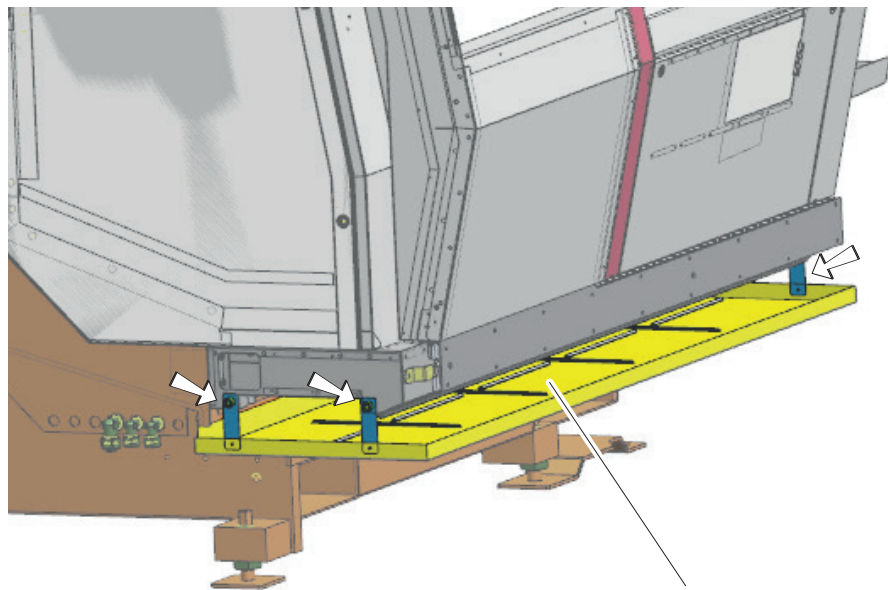
Transport retainer, turret-type tool head top and bottom



Transport retainer, turret-type tool head
Article No. 904051

Attach drip tray

Secure the drip tray to the underside of the machine with four screws.



Drip tray, Article No. 902857

Packaging of the machine, machine components and accessories

- Machine mounted on planks complete with control cabinet.
(The adjusting screws must be removed first)
- Machine components and accessories mounted on pallets and secured.



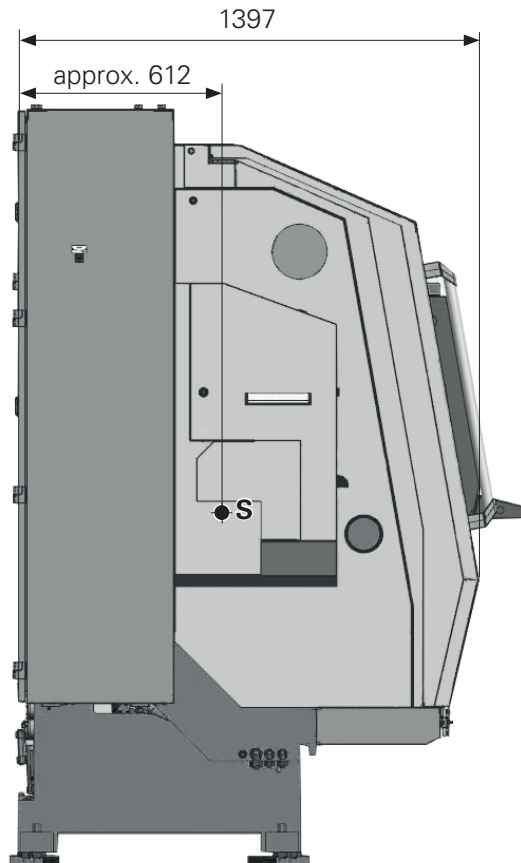
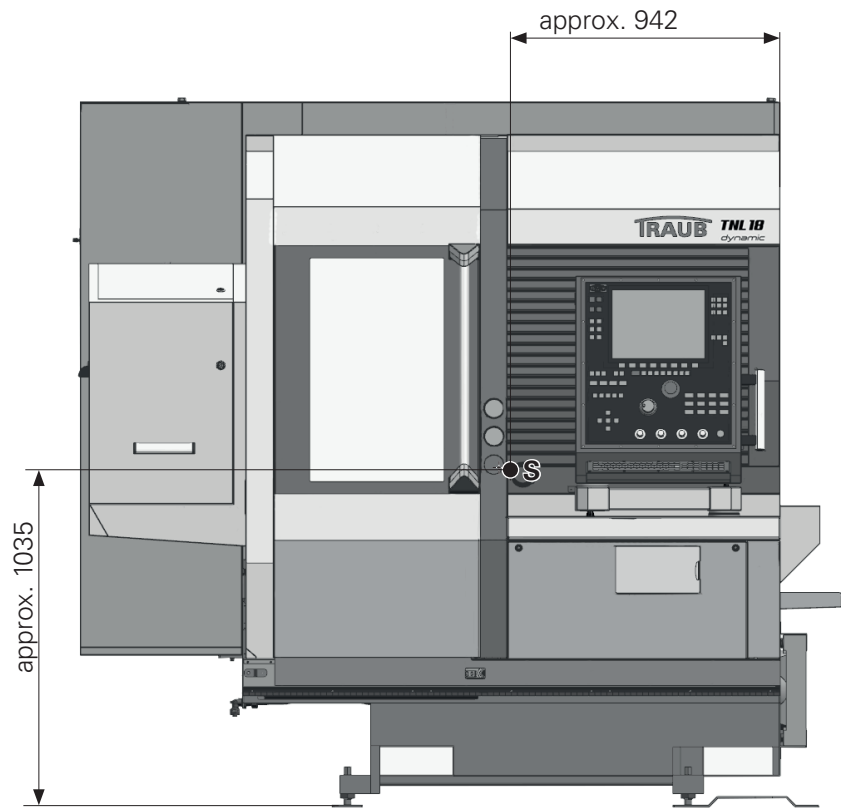
The following are located in the control cabinet:

- Required records, such as geometry record or safety record
- Layout drawing
- Key for the control console
- Key for the fire protection system
(depending on machine equipment)

The following are located in the chip conveyor or chip tray:

- Footplates (4x)
- Adjusting screws (4x)
- Tools for the operator (such as special wrenches)
- Documentation for the user

Centre of gravity of the machine (S)



Machine ready for shipment

Machine mounted on wooden planks and covered with plastic sheeting.

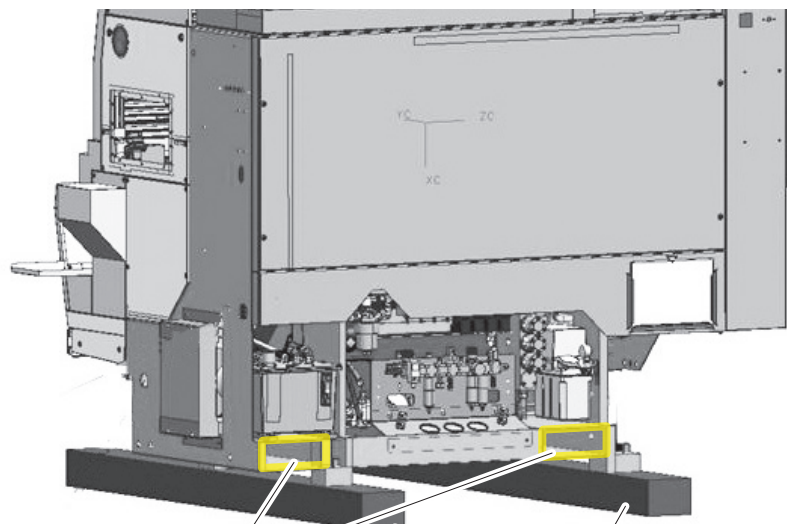
Machine	TNL18-9
• Dimensions LxWxH [mm]	2479 x approx. 2000 x approx. 2740
• Weight [kg]	4000
• Packaging	Planks
Chip conveyor and accessories	
• Dimensions LxWxH [mm]	3100 x 1460 x 1160
• Weight [kg]	—
• Packaging	Pallet

Openings for inserting the fork arms of the fork lift truck

i The machine must be lifted from the control cabinet side when transported by a fork lift truck.

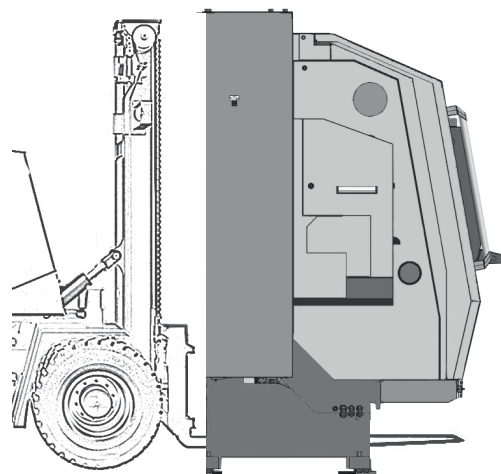
Non-slip rubber mats should be placed over the fork arms of the fork lift truck when transporting the machine.
 The fork arms must be inserted in the openings on the control cabinet side to lift the machine.
 When setting the machine down, ensure that the fork arms are not tilted, otherwise the planks will break.

Fork lift truck requirements		
Lifting force, min.	kg	4500
Fork length, min.	mm	1400
Centre of gravity of the load	mm	700
Max. width of fork arms	mm	210
Max. height of fork arms	mm	90



Openings for inserting the fork arms


Wooden planks

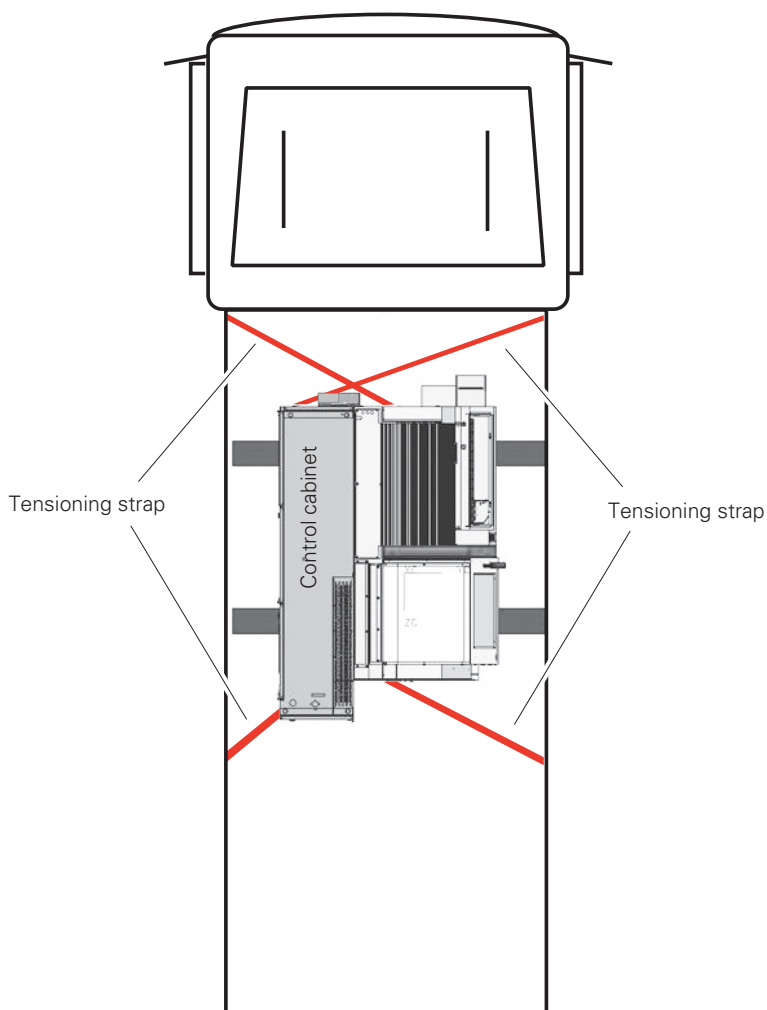


Transporting the machine by truck

The truck should have pneumatic suspension in order to avoid major bumps during transport!

Example for transporting the machine on a truck

 The machine must be transported with the control cabinet on the left (in the direction of travel) (see diagram).

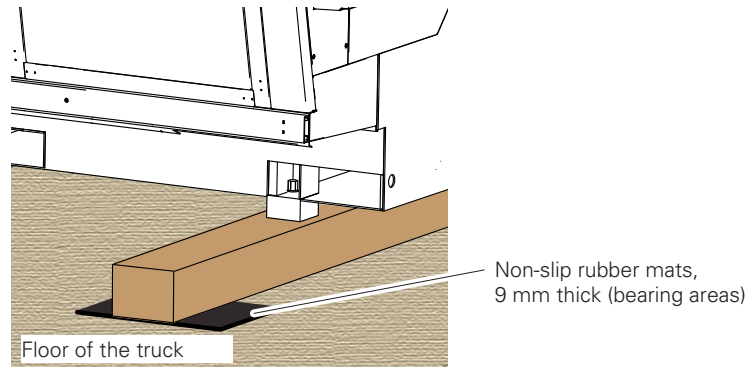


Securing the load

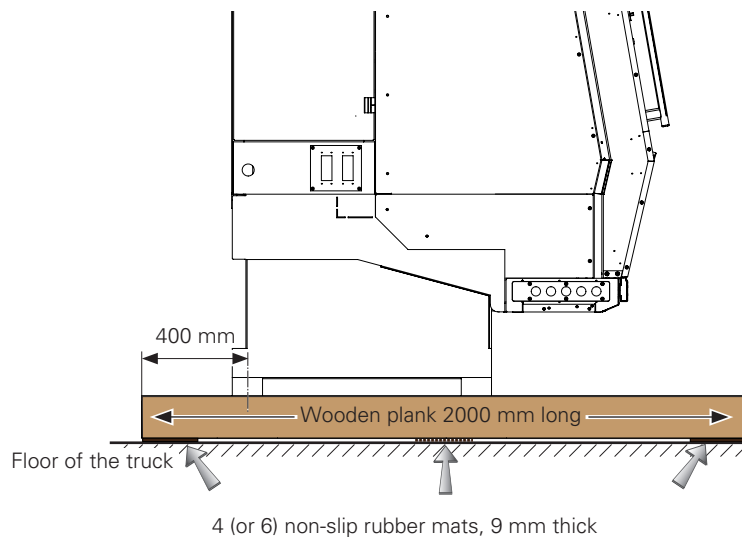
i The load must be secured as follows so that it cannot slip.

- **Non-slip rubber mats**
9 mm thick non-slip rubber mats must be placed between the floor and the wooden planks under the four (or six) bearing points of the machine.

i The two wooden planks should only rest on the non-slip rubber mats at the outer bearing points of the machine. The wooden planks should not rest on the floor in the middle. If the wooden planks sag in the middle and rest on the floor, non-slip rubber mats must also be fitted there.

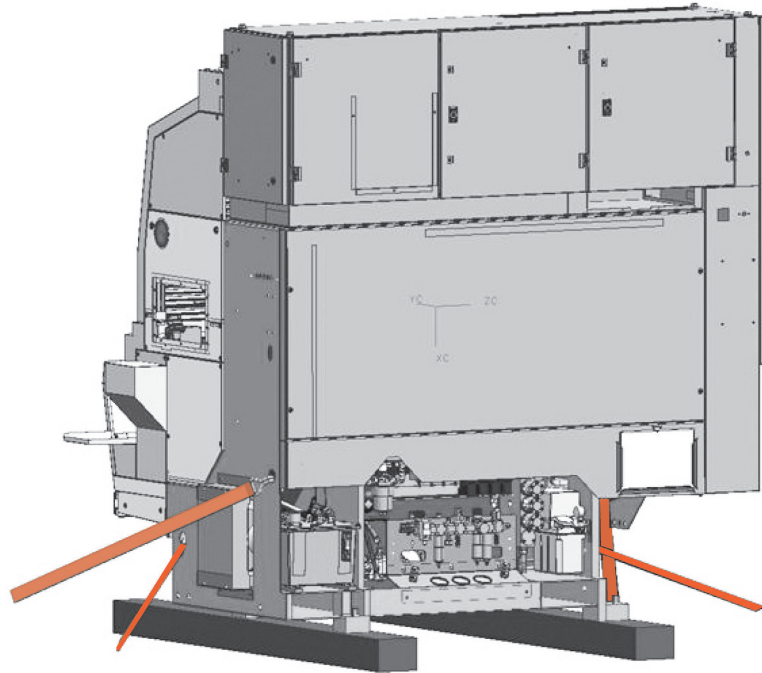


- The two wooden planks (2000 mm long) must be wider than the machine to improve its stability.



- **Diagonal lashing**

The machine must be diagonally lashed to the floor of the truck with suitable straps. These straps can be secured to four openings in the bottom box of the machine.



Unloading and transporting the machine with a fork lift truck



Danger due to falling machine / parts

Ensure there is no-one underneath the suspended load!



Beware of tipping over!

The machine must be secured to prevent it tipping over when transported by a fork lift truck!

Note the machine's centre of gravity!

Fork lift truck requirements

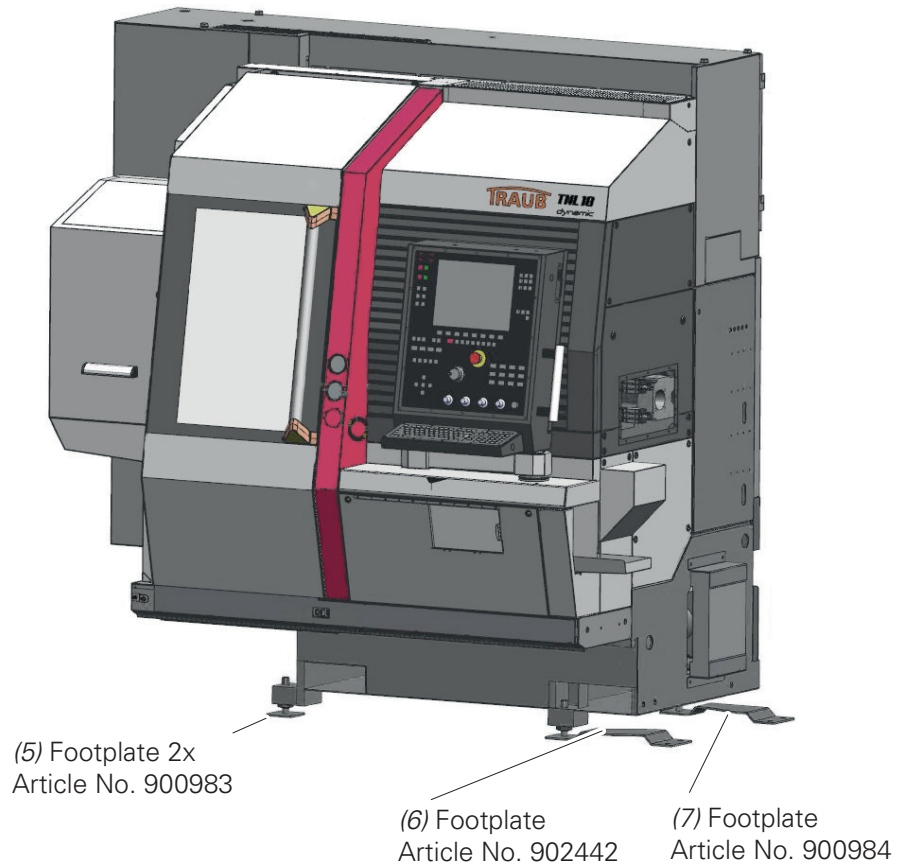
Lifting force, min.	4500 kg
Fork length, min.	1400 mm
Centre of gravity of the load	700 mm
Max. width of fork arms	210 mm
Max. height of fork arms	90 mm

- Non-slip mats should be placed on the fork arms when transporting the machine.
- Insert the fork arms in the openings on the control cabinet side of the machine and unload it from the truck.
When setting the machine down, ensure that the fork arms are not tilted, otherwise the planks will break.

It is advisable to remove the planks from the machine before transporting it further.

- For this purpose, lift the machine slightly with the fork lift truck and support it as appropriate.
- Take out the screws in the planks and remove the planks.
- Then refit the four adjusting screws (they are located among the accessories in the chip conveyor or chip tray).
- Transport the machine to its installation site with the fork lift truck and place it in the position required for installation.

- Lower the machine so that the four footplates (5, 6 and 7) can just be pushed under the four bearing points. Ensure that the adjusting screws (4) are lined up with the recesses in the footplates (see diagram below).
- Lower the machine onto the footplates.
- Unscrew the hexagon locknuts (9) from the adjusting screws (4).



See "**Installation of the machine**" for further information.

Transporting the machine on rollers



Beware of tipping over!

The machine must be secured to prevent it tipping over when transported on rollers!

After removing the planks, the machine can also be lowered onto rollers and transported to its installation site and/or moved into the position required for installation.

The transport supports Art. No. 086641 and 086642 which are required for this purpose are available on loan from TRAUB and must be returned without delay and in full after use.

For a complete overview of the transport device, see drawing No. 086640.



Screw in the four adjusting screws and lower the machine onto the adjusting screws (the transport supports must fit under the machine for installation).

The adjusting screws are enclosed with the auxiliaries in the chip conveyor or chip tray.



When transporting the machine on heavy-duty rollers, ensure that the adjusting screws do not scrape along the ground or rest on the rollers.

Example for transporting the machine on rollers



Technical requirements for rollers

Height	kg	max. 110
Steerable	mm	max. 610 x 520
Adjustable	mm	min. 620 - 1000 x 200

For example, rollers of type F6 and L6, made by GKS, for loads up to 12 tonnes.

Mount transport supports

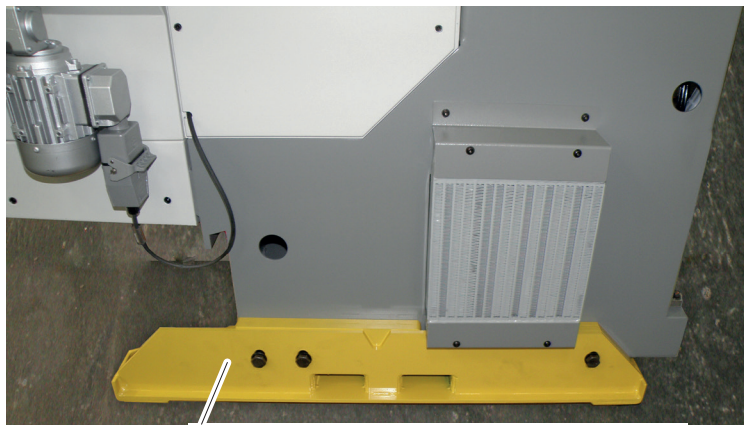
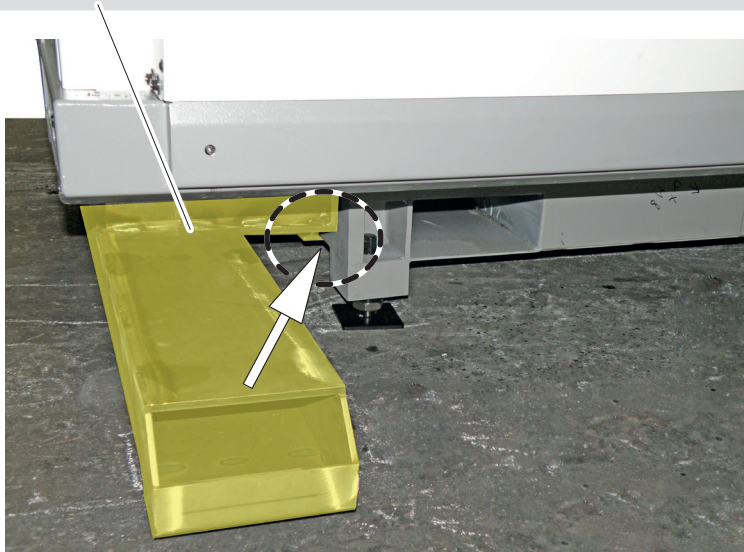
Attach the transport supports to the right and left-hand ends of the machine with the screws provided for this purpose (the machine is raised by means of adjusting screws).



Transport support, Article No. 086641



Care must be taken to ensure that the transport support Art. No. 086641 is fitted so that it engages the machine correctly.

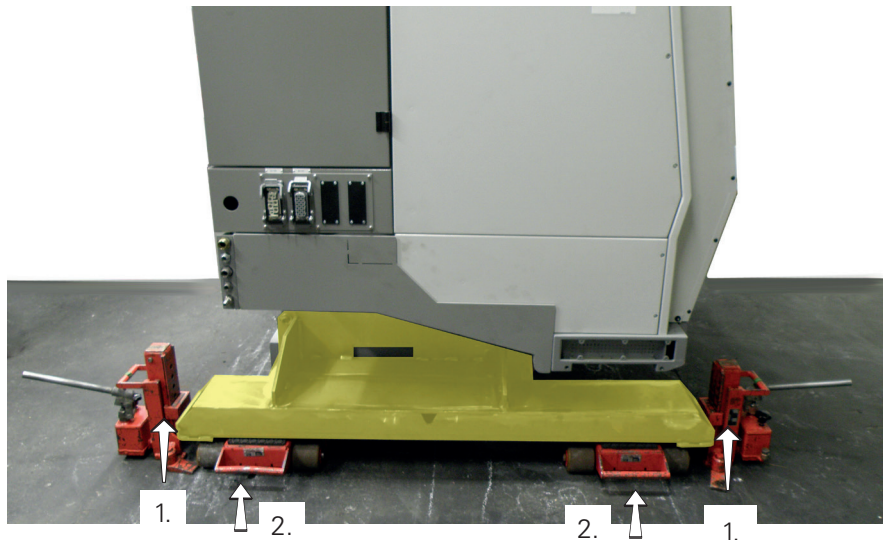


Transport support, Article No. 086642

Place machine on rollers

Two or four hydraulic jacks are needed to lift the machine. Position the hydraulic jacks as shown in the following diagrams and lift the machine.

First place the rigid rollers under the transport supports Art. No. 086641 at the appropriate positions and carefully lower the machine onto the rollers.

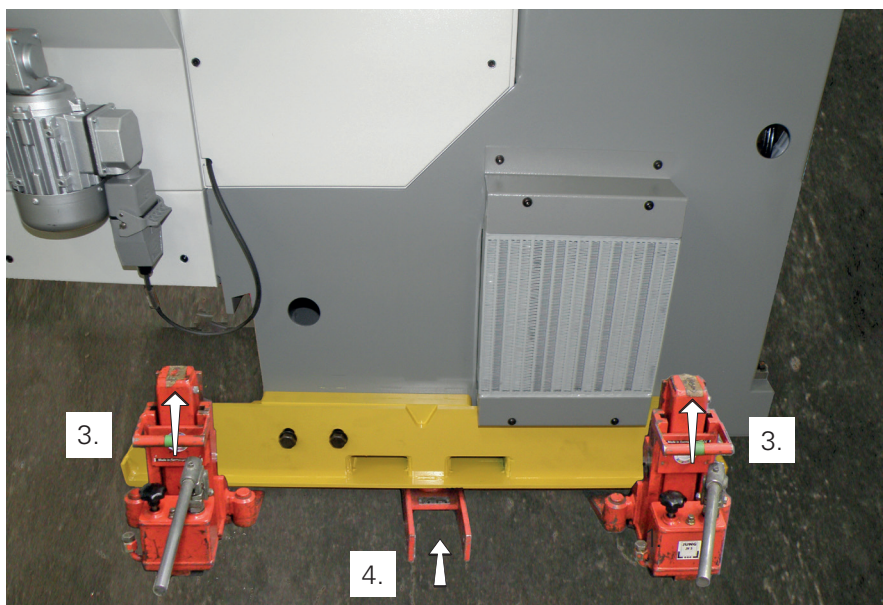


- Then place the steerable rollers under the transport support Art. No. 086642 at the appropriate positions. Carefully lower the machine onto the rollers. Ensure that the item being transported rests in the middle of the turntable (see illustrations on next page) so that the steering bar can move freely.

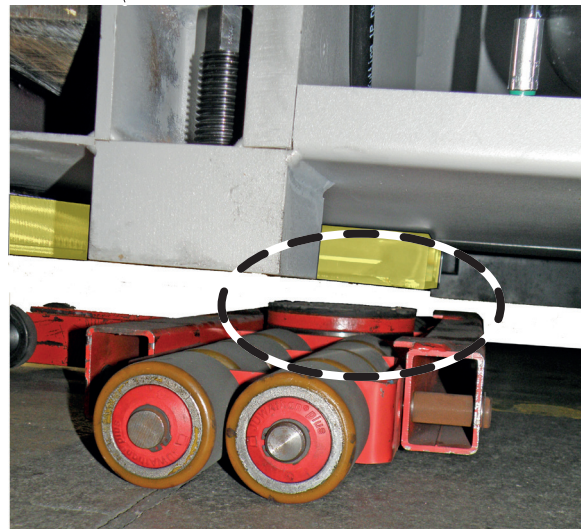
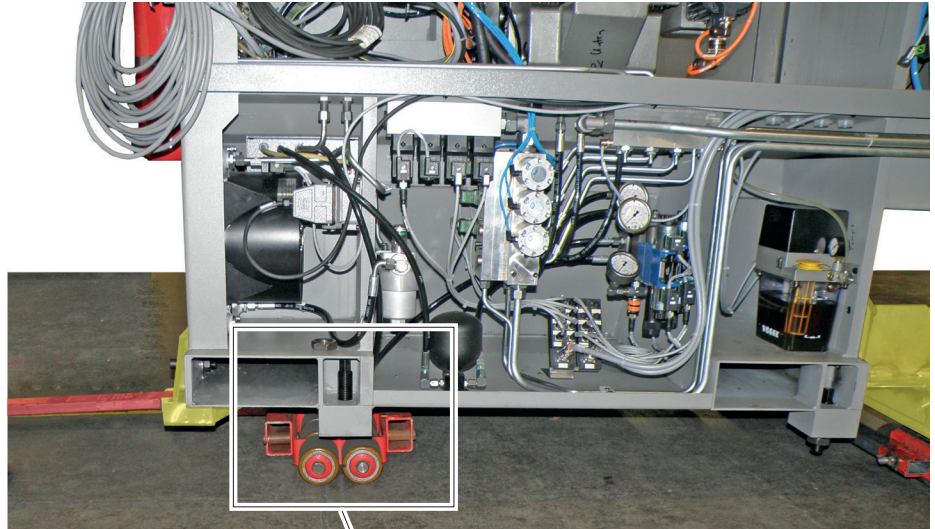


Beware of being crushed on ramps or uneven floors!

The machine must be secured so that it cannot roll away inadvertently.



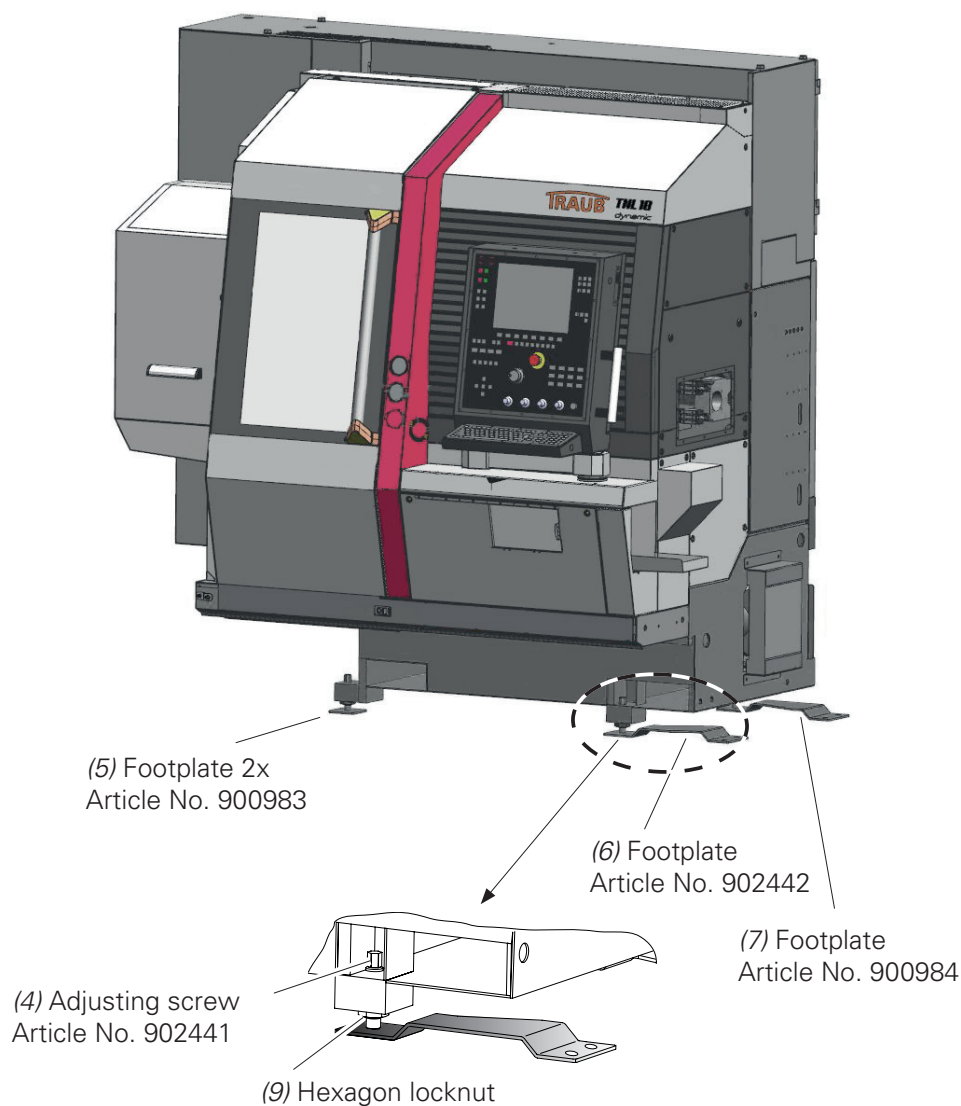
Ensure that the turntable of the steered roller is positioned correctly.



Transport machine to installation site

- Transport the machine to its installation site or move it into the position required for installation and secure it so that it cannot roll away inadvertently.
- First attach the hydraulic jacks to the machine side with the steerable rollers and uniformly lift it until the rollers can be pulled out. Lower the machine slowly and evenly onto the two footplates (5) Art. No. 900983, taking care to ensure that the adjusting screws engage the recesses in the footplates.
- Then lift the other side of the machine until the rollers can be pulled out. Lower the machine slowly and evenly onto the footplates (6) Art. No. 900984 and (7) Art. No. 902442.

Positioning the footplates



Electrical connection

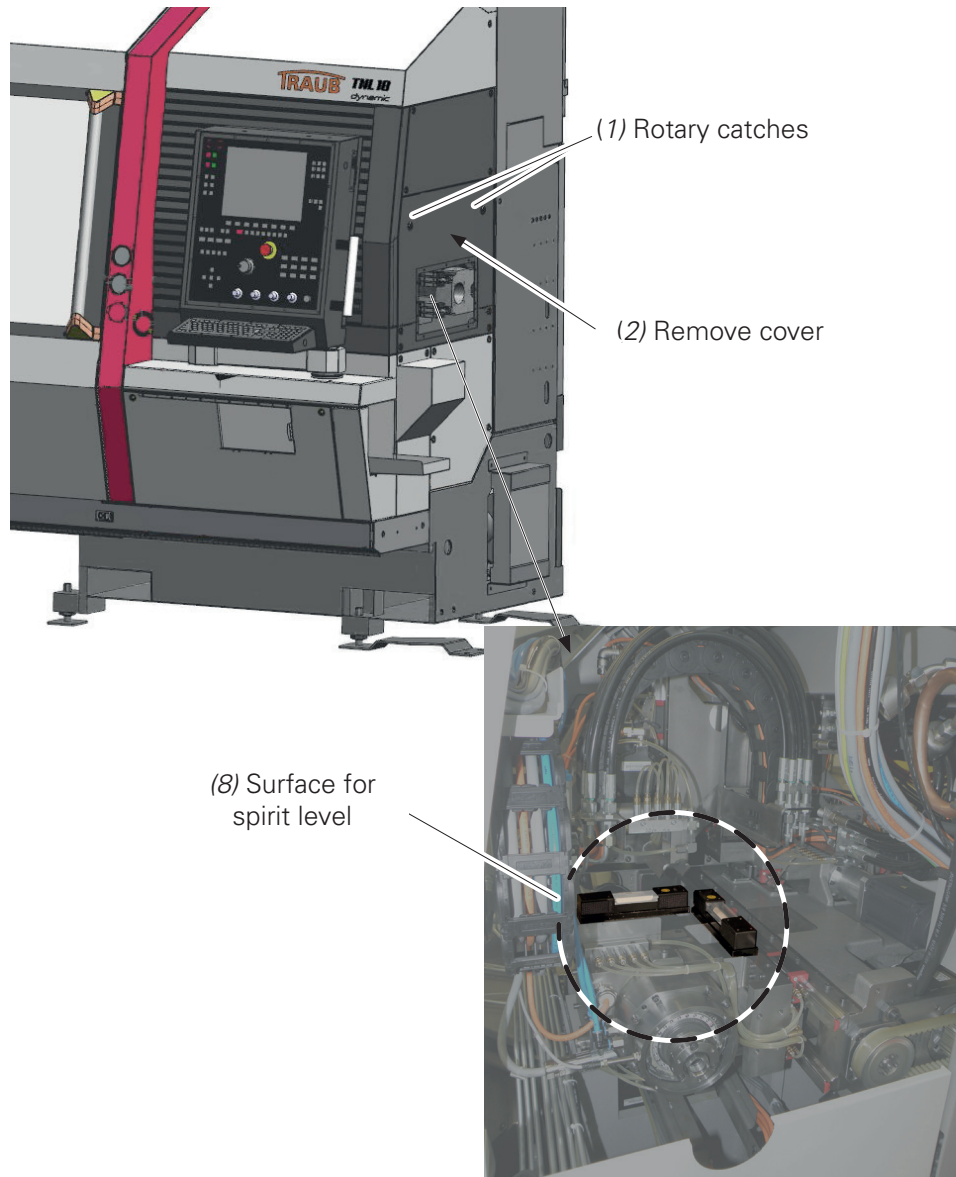
Check rated values against the data and conditions specified in the chapter "Electrical connection".

Aligning and anchoring the machine

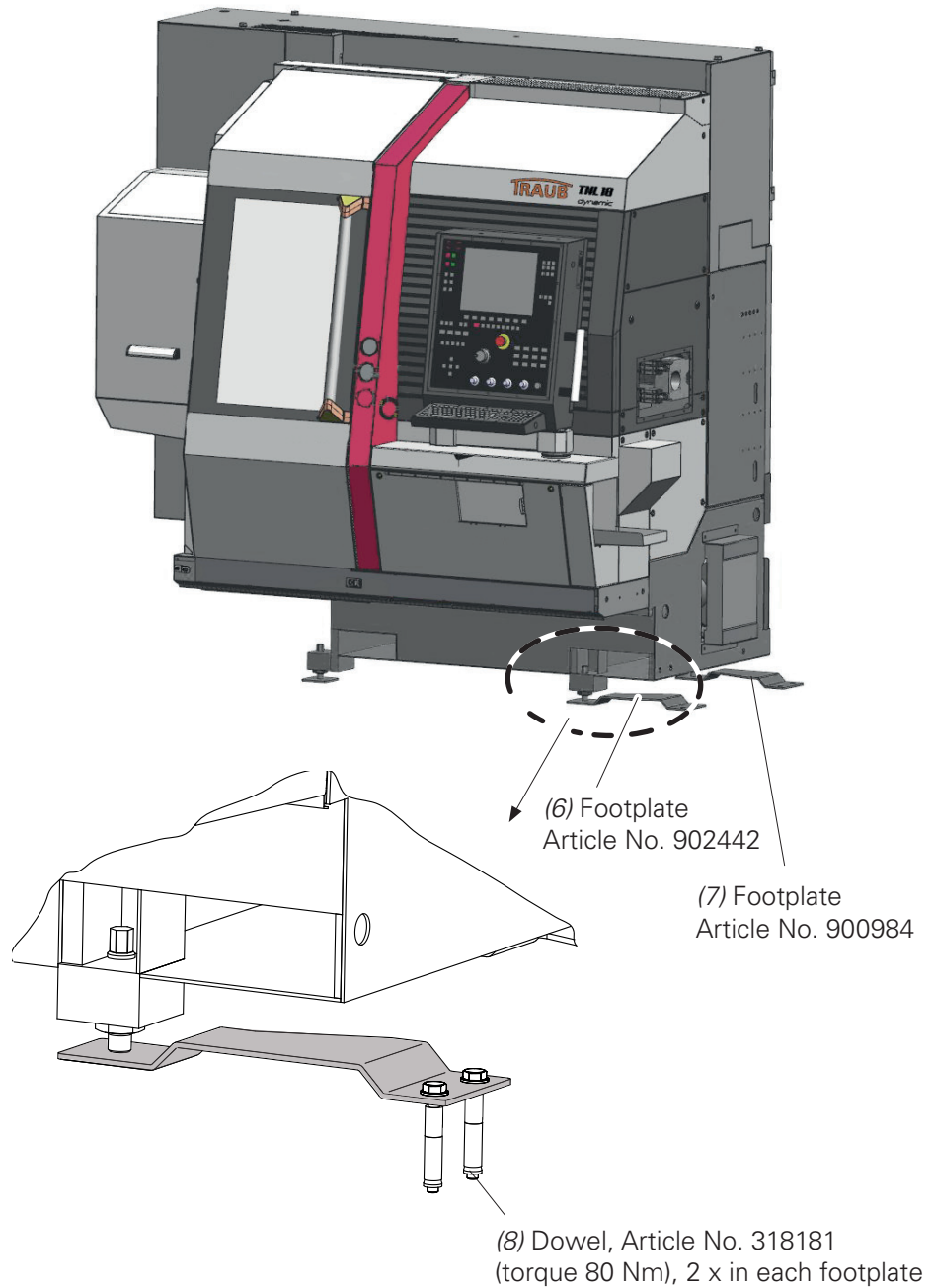
- Turn adjusting screw **A3** up so that it lifts off the base plate completely.
- Open the rotary catches (1) to release the cover (2) and remove it.
- Place a spirit level on the surface (8) provided at the main spindle and align the machine to a **main spindle height of 1150 mm** by turning the adjusting screws **A1, A2** and **A4**.
- Turn down adjusting screw **A3**.



The machine must be adjusted to exactly the **main spindle height of 1150 mm** so that the chip conveyor can be fitted.
The permissible deviation must not exceed 0.5 mm over 1000 mm.



- Lock the adjusting screws (4) with the hex nuts (3).
- Drill a 110 mm deep hole into the foundation through each of the four holes in the two footplates (6 and 7) with a stone drill, dia. 18 mm; insert four dowels (8) Art. No. 318181 and screw tight (torque 80 Nm).



Remove transport retainers and drip tray from the machine



All retainers and the drip tray must be removed from the machine before the chip conveyor is installed and before commissioning the machine.

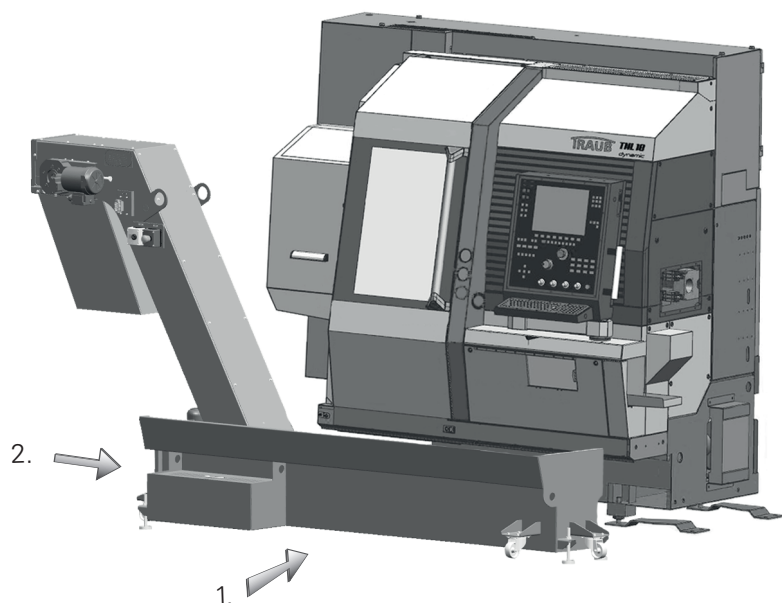
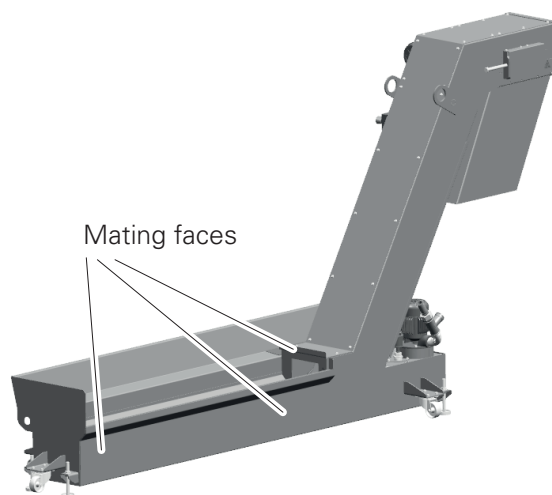
Positions of the transport retainers see chapter "**Preparing the machine for transport**".

After removing the retainers and drip tray, they should be stored in a safe place so that they can be reused (e.g. when transporting the machine again or for decommissioning).

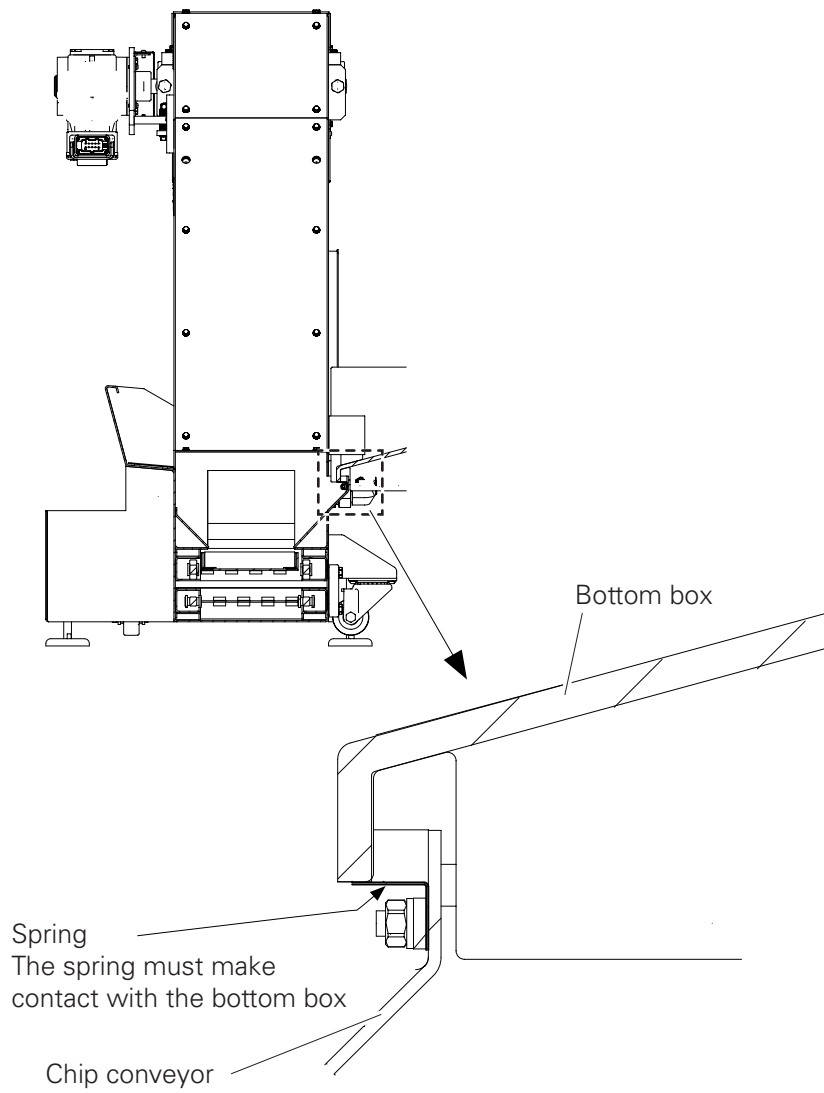
Transport and installation of the chip conveyor and chip tray

i Note the manufacturer's user manual

- Transport the chip conveyor and chip tray to the machine, then lift them off the pallet and set them down with the aid of suitable hoisting gear.
- Remove the accessories and documentation from the chip conveyor or chip tray if this has not been done already.
- From the operating side, push the chip conveyor and chip tray under the machine as far as possible, then slide them to the right as far as possible.
- Lift the chip conveyor and chip tray by means of the four feet until the sealing plate (see diagram on following page) makes contact with the bottom box.
- Remove the plugs from the hose lines and connect the hose lines.
- Connect the lubricoolant pumps to the power supply.



Sealing plate on chip conveyor



Machine connection to central extractor unit

Shutoff damper for fire protection (optional)



If the owner does not have a shutoff damper for fire protection in the central extractor system, such a damper must be installed by the machine manufacturer's service personnel when installing the machine.

Indicator lamp

Connect the indicator lamp on the machine if removed for transport.

Fuels

Fill with fuels. Refer to chapter **Fuels**.



The control cabinet may only be opened when the master switch is off and must be locked in accordance with the applicable safety standards whenever the master switch is on.

Notes

- The electrical connections may only be made by duly qualified electricians.
- The electrical documentation supplied is definitive and binding.
It must be available to the machine manufacturer's service personnel at all times.
- Potentiometer and switch settings, machine parameters, etc. may only be changed by the machine manufacturer's service personnel.
- The machine must be connected to the power supply via the master switch (multi-wire cable).
It is essential to ensure a clockwise phase sequence when connecting the machine.
- The feeder to the master switch on the control cabinet can be routed from above or through a duct in the base of the control cabinet.
- The control voltages are connected to the PE on one side in accordance with EN 60204 Part 1 (VDE 0113).



Note the information in the circuit diagrams

Overview of fuels



The information in the data sheets of the fluid manufacturers and in the document **Notes on Operating Materials** must be observed during all work involving fuels and fluids.

The filling quantities of the fuels and fluids are stated in the respective fluid schedules.

	Quantity [litres]	Designation	Initial start-up
Central lubrication	3		Factory-filled by TRAUB
Hydraulic system/cooling system	11		To be provided by the customer
Compressed air	see chapter Pneumatic connection		

Supply of compressed air



The information in the data sheets of the fluid manufacturers and in the document **Notes on Operating Materials** must be observed during all work involving fuels and fluids.

The filling quantities of the fuels and fluids are stated in the respective fluid schedules.

The necessary compressed air is conditioned in a maintenance unit on which settings are not required.

The values can be read off on pressure gauges to check normal functioning.

Air consumption

The air consumption depends on the machine's equipment configuration and cycle time.

A value of approx. 300 NI/min is assumed on average for a standard machine.



Before switching on the machine, the key-operated switch must be set to "**Production mode**" in order to prevent the machine starting or moving unexpectedly.



Before starting up the machine for the first time, the operator must ensure that the machine and its safety mechanisms are in perfect working order. This must also be checked regularly during normal operation of the machine, but at least whenever it has been repaired or serviced.



- Switch ON the master switch on the control cabinet!



- Switch ON the NC control on the machine control panel.



- Switch drives ON.

- Open and close sliding cover
Operability of the door switches must be checked by opening and closing the sliding cover. Operation of the machine cannot be commenced until the safety facilities have responded.



**INDEX-Werke GmbH & Co. KG
Hahn & Tessky**

Plochinger Straße 92
D-73730 Esslingen

Fon +49 711 3191-0
Fax +49 711 3191-587

info@index-werke.de
www.index-werke.de