

Transport and Installation Instructions

TNX65/42

Note on applicability

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

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Explanation of symbols

This chapter explains the symbols that are used in the user documentation to call attention to dangers and important notes.



This symbol warns against a direct, imminent danger to the life and health of individuals. Failure to observe this danger warning may result in severe health impairment such as perilous injury and even death.



This symbol warns against a direct, imminent danger from electricity. Failure to observe this danger warning may result in severe health impairment such as perilous injury and even death.



This symbol indicates important notes for the proper operation of the machine. Failure to observe this information may result in damage to or malfunction of the machine or its components.

Safety instructions and technical details



The INDEX TRAUB user documentation and, in particular, the document *“Safety instructions and technical details”* must be observed. The document is part of the INDEX TRAUB user documentation.

Information on transport, installation, commissioning



Use only suitable hydraulic jacks, cranes, or forklift to lift the machine. When transporting with transport or armored rollers, ensure that the rollers used have the appropriate load-bearing capacity.

Failure to follow proper procedures for transport, installation and, start-up is prone to cause accidents and may induce damages to or malfunctions of the machine for which **INDEX TRAUB** rejects any liability or warranty.

Prior to delivery of the machine, the procedures for unloading, transporting to the installation site, installation, and start-up must be carefully planned while absolutely observing the cautions below in this document.

Associated transport instructions and/or manufacturer documentation exist for separate units such as chip conveyor, bar feeder, bar loading magazine, and similar devices that must be observed as well.

General hazards during on-site transport



Danger to life!

Do not step under suspended loads.

Machines must be transported by authorized and qualified personnel only.

Act responsibly when transporting the system and always consider the consequences. Avoid dangerous and risky actions.

Slopes and gradients (driveways, ramps, etc.) are particularly dangerous. Use extra care if such passageways cannot be avoided.

Ensure secure and proper seating of the cargo. If necessary, use additional fixtures to ensure that the cargo is not able to slip.

The transport vehicles must be able to produce sufficient traction and braking forces for safe transport.


Dimensions and masses

The machine and control cabinet masses are indicated on the respective machine installation plan.

The masses of optional separate units, such as chip conveyor, bar feeder, bar loading magazine, and similar devices, can be found either in the specific transport instructions/manufacturer documentation for these equipment levels or accessories or in the corresponding machine installation plan.

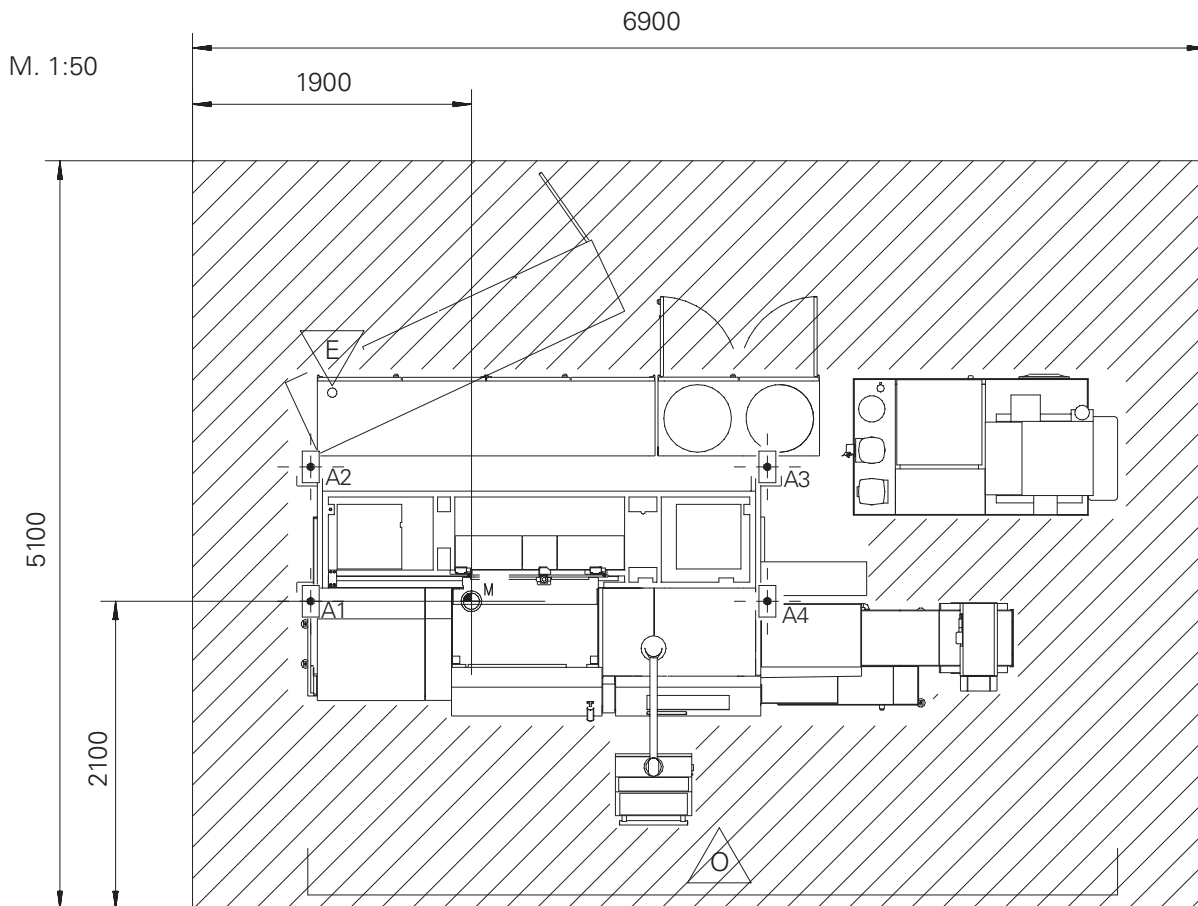
Transporting and lifting aids

For lifting and transporting the individual units, only lifting and transporting aids having sufficient capacity and loading platform must be used.

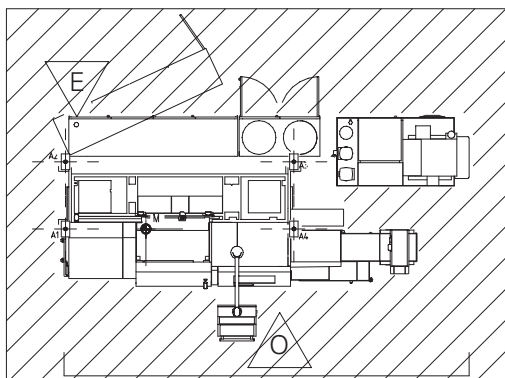
 The corresponding installation and layout plan must be requested before the machine is installed.

Layout chart


Drawing No. 478503



M. 1:100



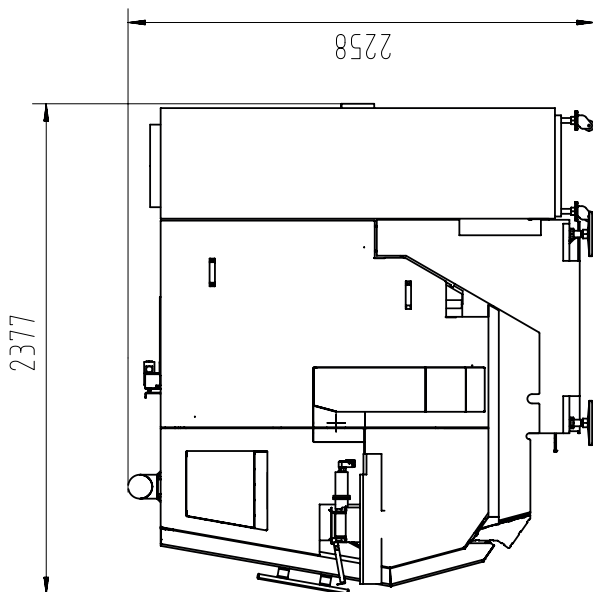
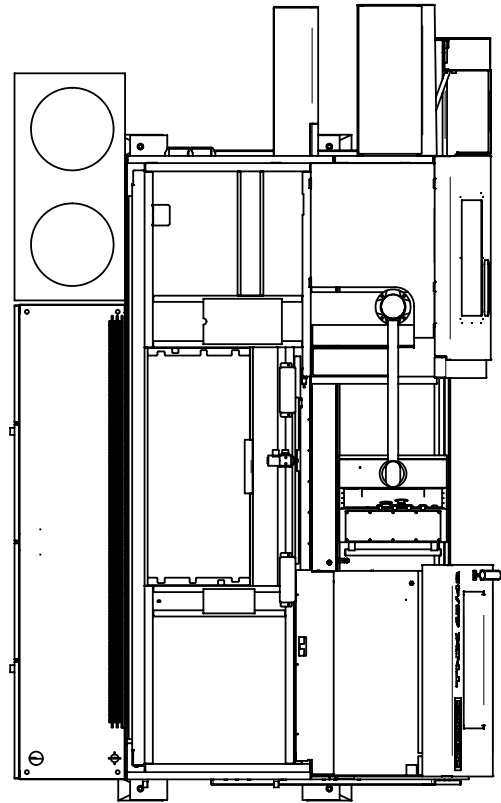
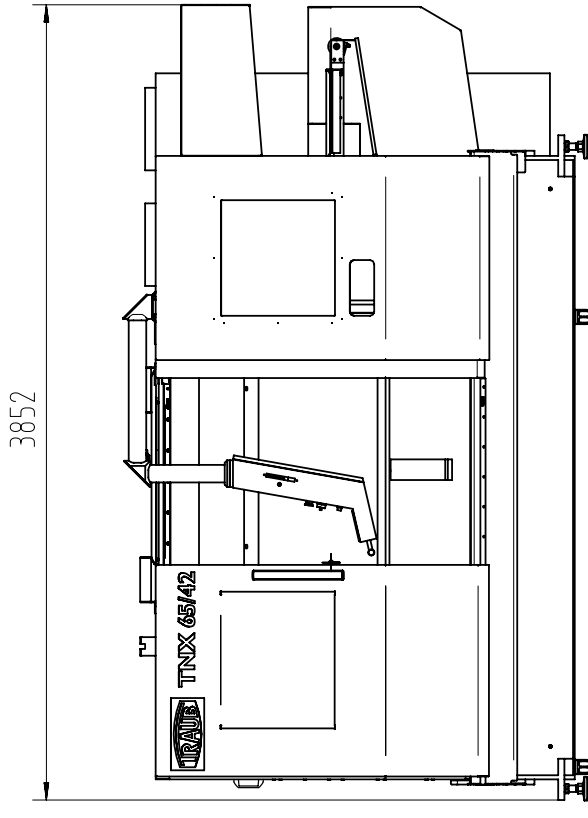
 = Electrical connection

 = Operating side

Example shown

Simplified installation plan

Illustrations show examples



Preparations

This section is addressed to the persons responsible for the installation and their staff.

The information provided here allows you to prepare the installation site and its surroundings such that the machine, when delivered, can be installed and put into operation immediately.

Be sure to carefully plan the delivery, unloading, and transporting of the machine from the unloading site to the installation site.



The installation plan applicable for this machine was already submitted for approval after the contract award. Upon delivery of the machine, it is included in Chapter *Diagrams and drawings* on the supplied data carrier.

Take the size (dimensions) and masses of each unit into consideration.

Suitable transporting and lifting means must be available when the machine is delivered.

Any obstacles along the transport route from the unloading site to the installation site must be eliminated before the machine is delivered.

Check the transport route for load capacity, levelness, damaged pavement, traverse grooves, slopes, gradients, etc.

Is the width and height of entrances and gates sufficient?

If elevators are to be used, do they have sufficient capacities?

Proper planning will pay off!

Suitable transporting and lifting aids

- Crane
- Truck-mounted crane
- Forklift
- Transport trolley
- Transport rollers
- Armored rollers
- Hydraulic jacks
- Forklift (only for separate units).



Risk of crushing

The installation site must be chosen such that moving parts of the machine, including hand-operated doors, flaps, etc., do not create risks of being crushed against walls, columns, or hall installations.



Danger from falling machine/parts

No persons are allowed to remain under suspended loads!



Transporting the machine

The machine can be transported with a crane, forklift, or armored rollers.

The machine must be lifted from the operating side when transported by a forklift.



In any case, the machine, including the bar loading magazine, must be doweled to the floor.

Information on transporting the machine with a truck

To avoid heavy impact during transport, the truck should have air suspension!

Dimensions (without attachments)

TNX 65/42 / TNX 65/42 with milling unit

Foundation length	mm	3690
Foundation width	mm	1400
Foundation depth	mm	550

Machine weight and machine dimensions



These specifications refer only to the basic machine (i.e., **without** chip conveyor, cooling lubricant system, and oil mist extractor...).

TNX 65/42

Machine weight

Without control cabinet	kg	8600
With control cabinet	kg	9800

Machine dimensions

Length without chip conveyor	mm	3850
Width without control panel	mm	2365
Width without work area door		2330
Height with indicator lamp, orange	mm	2286
Height with multi-indicator lamp		2450
Height during operation (prepared for oil mist extraction)	mm	approx. 2470

TNX 65/42 with milling unit

Machine weight

Without control cabinet	kg	8800
With control cabinet	kg	10000

Machine dimensions

Length without chip conveyor	mm	4744
Width without control panel	mm	2365
Width without work area door		2330
Height	mm	2700 / 3461 ¹⁾
Height during operation (prepared for oil mist extraction)	mm	2700 / 3461 ¹⁾

Support points*

A1	kN	25
A2	kN	25
A3	kN	25
A4	kN	25

* Support points A, see Chapter "Installation and layout charts"

¹⁾ Tool magazine with 120 positions

Space requirements

The following must be ensured:

- Sufficient free space around the machine.
- Sufficient movement space for the operator.
- Sufficient space for maintenance and repair.
- It must be possible to open all doors of the machine completely.
- Space for placing blank and workpiece pallets, workpiece collectors, chip trolleys, tool trolleys, etc.

Use the machine installation plan to determine the required space.

There are special installation plans for add-on equipment such as bar feeders, bar loading magazines, etc.

Floor condition

A special foundation is not necessary. Only the load capacity and strength of the floor area must be suitable for the machine weight based on constructional aspects.



Comply with the requirements set out in **DIN 18202:2019**. In particular, note the information regarding **“Flatness tolerance for finished floors”**.



There must be **no expansion joints** in the area of the machine footprint.



The locally valid guide lines and regulations must be taken into consideration.

Fastening/anchoring



In any case, the machine must be doweled to the floor.

Bar guides, bar feeders, and bar loading magazines must be anchored to the floor.

When attaching a robot cell from a third-party manufacturer, be sure to observe the relevant manufacturer’s documentation.

Ambient conditions

See *Ambient conditions* in the "Safety instructions and technical details".



If the actual conditions at the installation site differ from these specifications, be sure to contact the **machine manufacturer** or **its representative**.

Floor trough



If a floor trough is required, it must be designed according to the specifications "*Information on floor trough drawing*" so that extension of the corresponding chip conveyor is ensured.

The floor in the area of the floor trough must only be max. 5 mm convex, as flat or concave as possible. Exceeding the allowable unevenness may cause the floor trough to contact the machine base / machine components.

Compressed-air supply

See Chapter *Pneumatic connection*.

Operating material to be provided

See Chapters *Operating material* and *Information on operating material*.

Pumps and tanks

A simple pump is sufficient to extract the used cooling lubricant. The same pump may be used to fill the cooling lubricant tank; however, it must be thoroughly flushed with fresh cooling lubricant.

A robust container is required for collecting the extracted fluids. Suitable containers are metal barrels of sufficient capacity and with proper labels, which can be tightly closed.

Connection to local extraction system by customer



If a local extraction system is attached to the machine, any existing fire extinguishing system available on the machine must be adjusted accordingly.

Power supply



The directives and regulations applicable in the country of use must be followed.



The power supply cord to the machine should be as short as possible. Use a sufficient wire size.

The power supply for the machine requires stable mains conditions; the max. allowed operating voltage fluctuations are +10% or -10%.

The mains line must comply with the regulations of the local electricity supplier and the VDE directives.

Main circuit breaker



Check that the building connection has sufficient capacity to cover the additional load to be protected.
Discuss any unclear conditions with your local electricity supplier.

The main circuit breaker is not included in the delivery of the machine. It must be installed outside the machine according to DIN EN 60204-1. If a pre-transformer is required, the main circuit breaker must be installed after the pre-transformer, i.e., on the secondary side. The fuse protection on the primary side must be designed according to the connection data of the pre-transformer. The loads to be protected depend on the existing operating voltage.

For the information on machine connection, operating voltage, main fuse, see the electrical diagrams or Chapter *Electrical connection*.

External data transfer



Data cables must not be routed directly next to live cables.

For data transfer to/from external computers or servers/storage devices, suitable metal conduits must be installed for the data lines.

The connection to the internal network (DNC) requires an RJ45 network cable. An additional connection to the external network (IoT) must be made with a separate RJ45 network cable.

Chip removal

If the machine is equipped with a chip conveyor, a chip trolley, its height matching the chip conveyor's discharge height, is required. The chip trolley should have a device for draining the accumulating cooling lubricant so it can be returned to the cooling lubricant tank.



Chip conveyor without discharge chute

If using a chip conveyor without a discharge chute, the collection bin for the chips must be provided by the customer with a cover. The cover must be designed such that it is not possible to reach into the discharge area of the chip conveyor.

Disposal of used operating materials



The directives and regulations applicable in the country of use must be followed.

Decide in advance on how to dispose of used operating fluids such as hydraulic fluid, lubricating oil, and cooling lubricant in an environmentally friendly manner.

Observing the ground and wastewater regulations



The directives and regulations applicable in the country of use must be followed.

The machine contains water-polluting substances such as water-miscible cooling lubricants and mineral oils. These substances may leak from the machine in case of adverse events.

Therefore, the machine must be installed in a place that excludes any harm by these substances to waters or groundwater.

Possible preventive measures

- Place the machine inside a tight steel trough (floor trough).
- Seal the floor of the factory hall.

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.



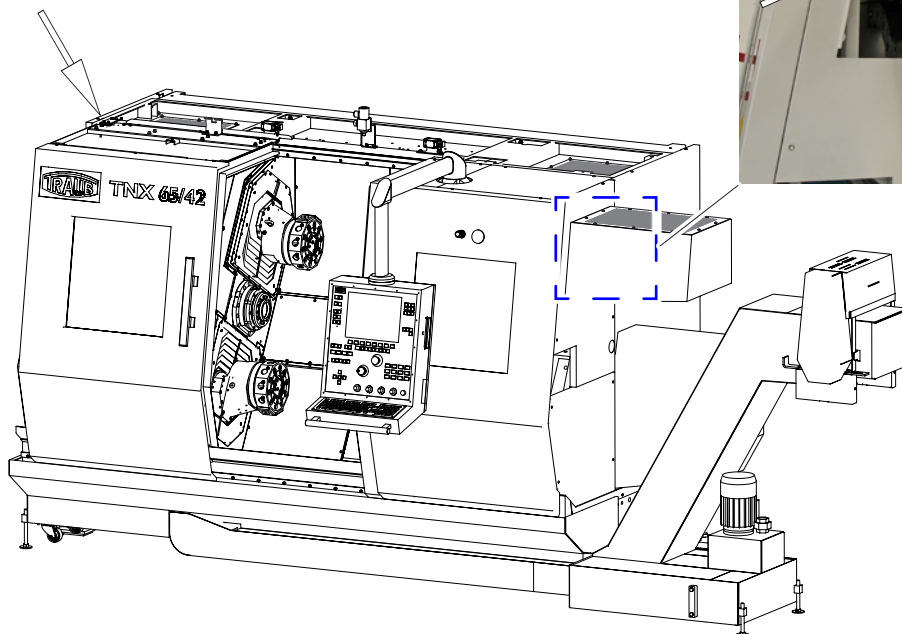
Details on corrosion protection can be found in the documentation **Notes on Operating Materials.**

Attach transport retainers to the machine

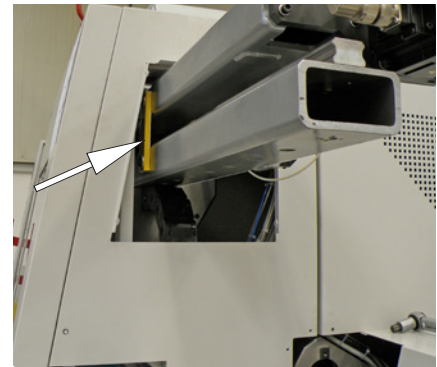
The transport retainers are located on the:

- control console
- tool carrier and opposed spindle
- sliding door
- workpiece handling with remnant removal device

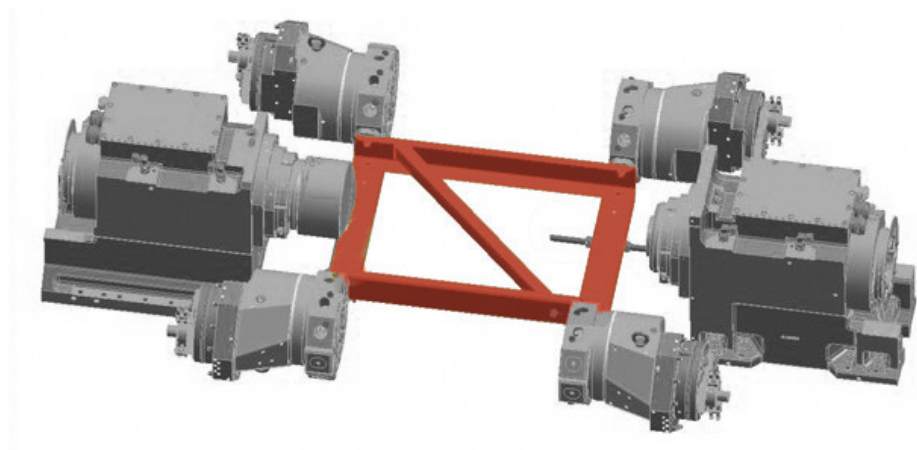
Transport retainers for working area door



Workpiece handling with remnant removal device

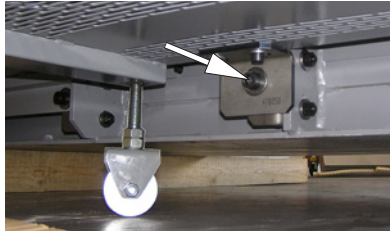


Tool carrier and opposed spindle

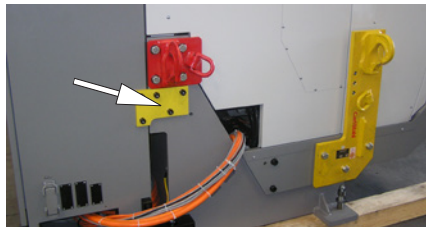


Attach transport retainers to the control cabinet

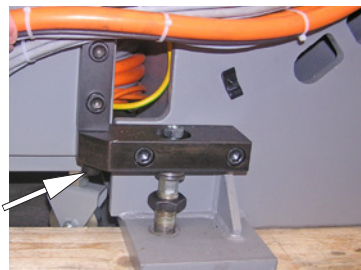
- Attach the retaining bracket to the underside of the control cabinet from the machine bed. The bracket remains connected to the control cabinet as a limit stop.



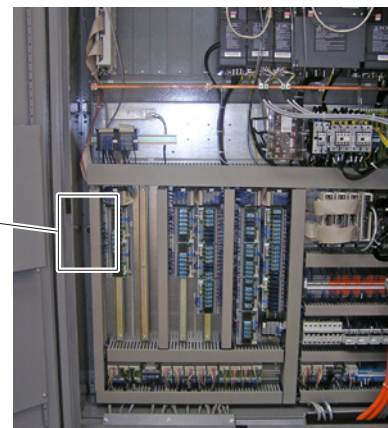
- Secure the locking plate to the machine bed / control cabinet. (The locking plate must be retained by the customer in case the machine has to be transported again).



- Fit the M12 cheese head screw at the pivot point of the control cabinet.

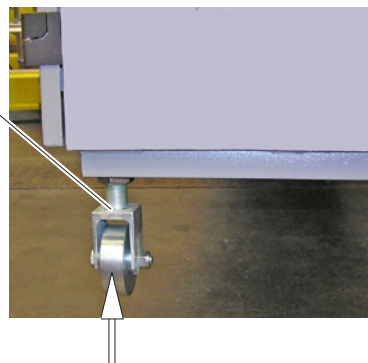


- Fit the fixing screw inside the control cabinet.





Ensure that the four wheels on the control cabinet have been screwed in completely.

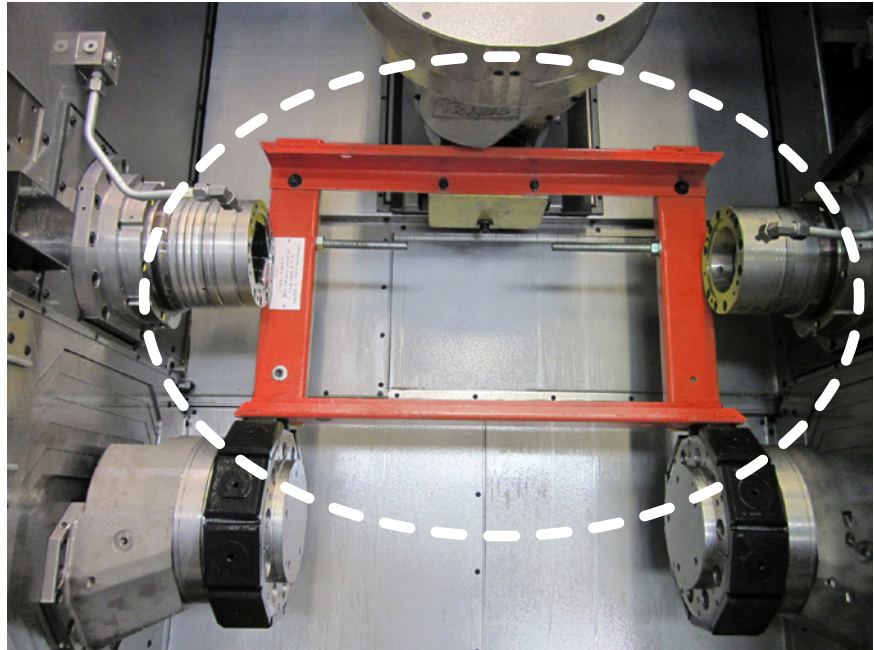


Transport retainers

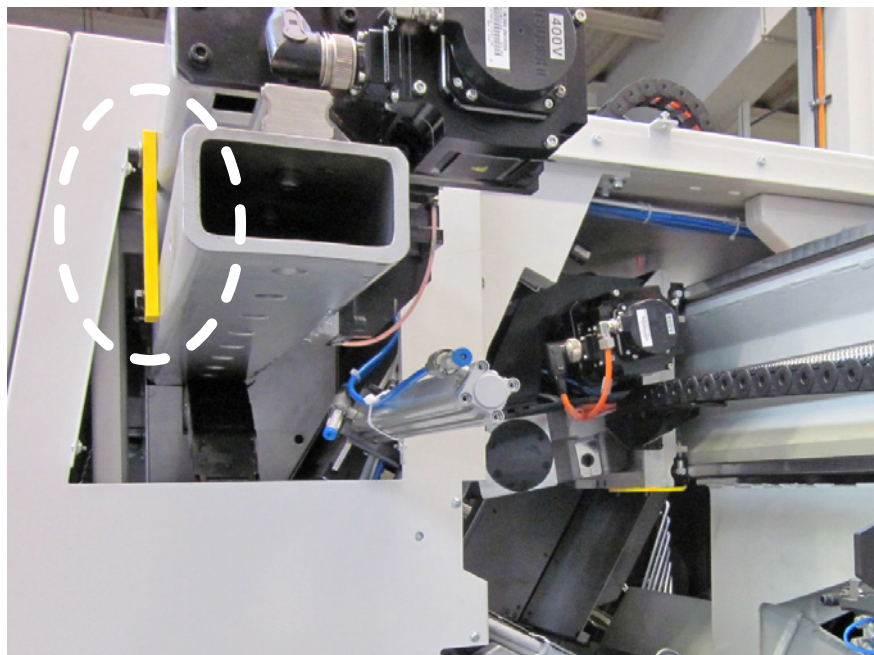
Transport retainers must be fitted to secure the machine for transport.

Position of the transport retainers

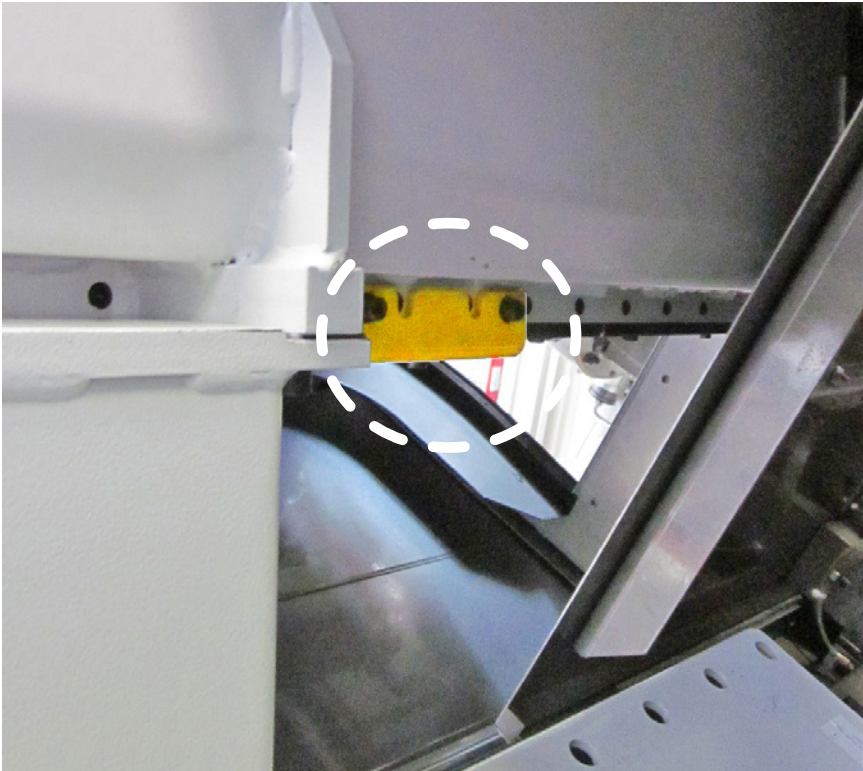
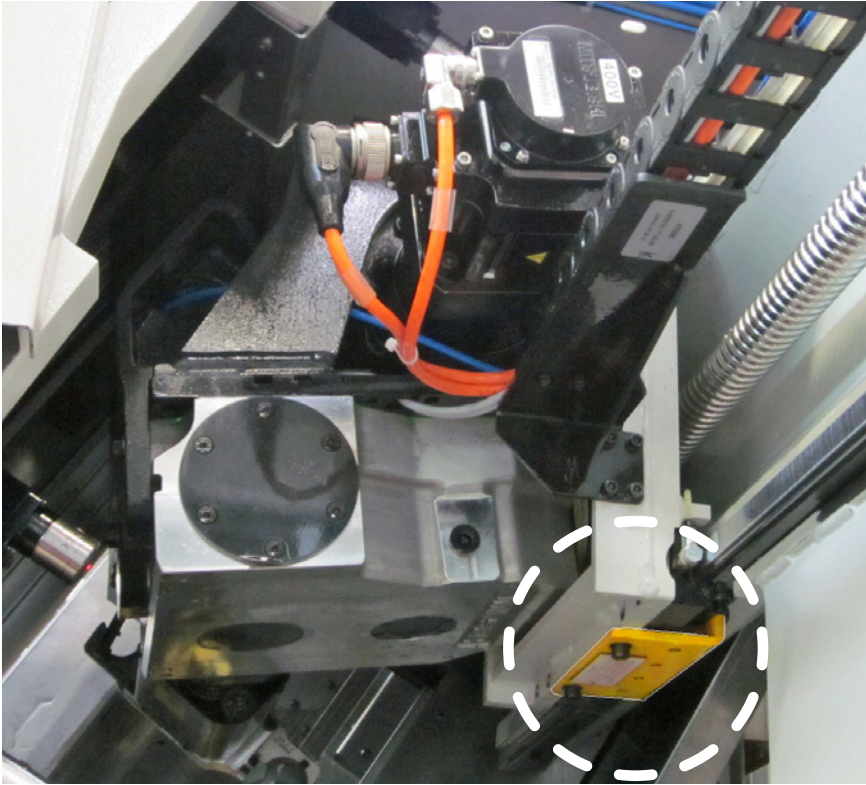
Transport retainer, turret / milling unit / main and opposed spindle



Transport retainer, workpiece handling



Transport retainer, tool changer



Remove the tool chain and chain magazine (only with optional 120 positions)

The chain magazine must be partly dismantled in order to transport the TNX 65/42 with milling unit and tool magazine with 120 positions. The tool chain must be brought into a defined position before it is disconnected.



Risk of injury!

The machine must be switched off and secured to prevent re-activation before starting any assembly / disassembly work.

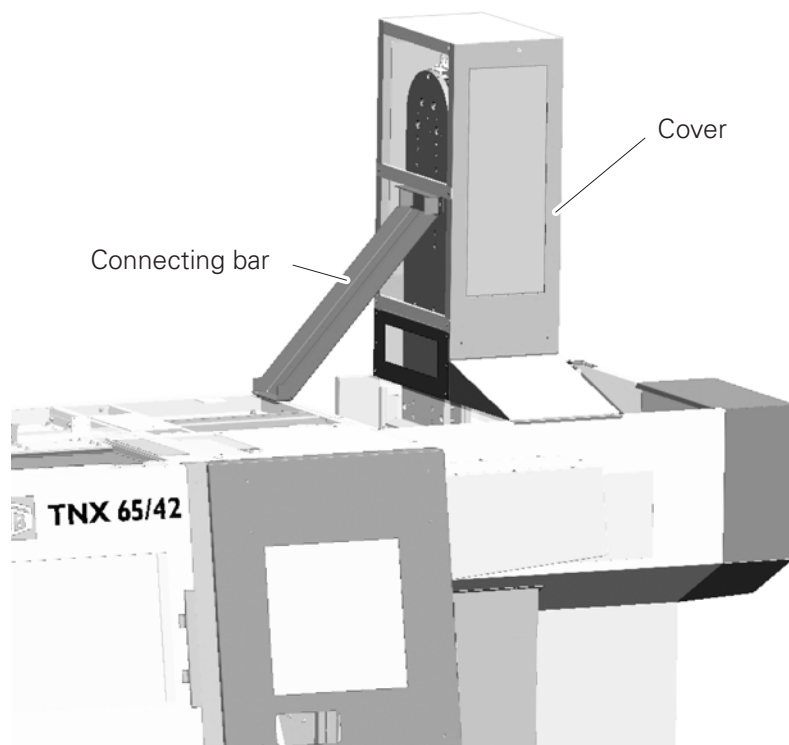
The upper part of the tool magazine must be lifted off with the aid of a crane or fork lift truck.

Requirements to be met by a fork lift truck

Min. lifting height	mm	3500
Min. fork length	mm	1000
Max. fork width	mm	150
Forks adjustable to a minimum distance of	mm	114

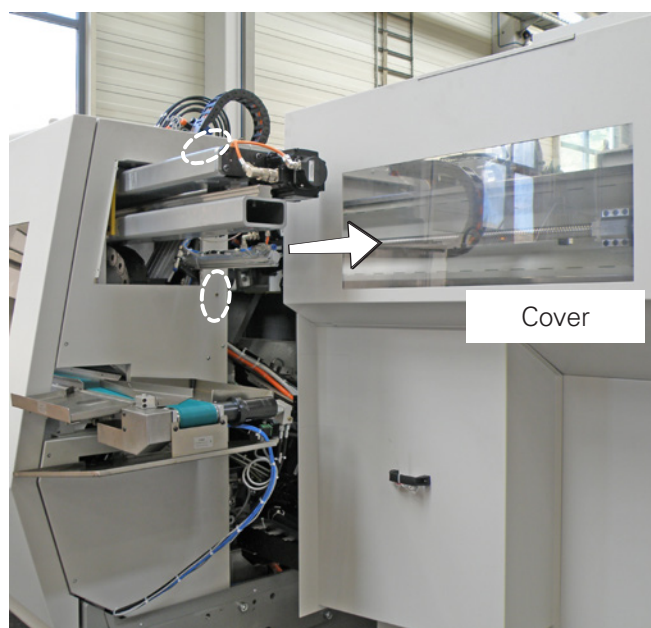
Disassembly

- Remove the connecting bar between the chain magazine and the machine.
- Remove the cover over the chain magazine.



Remove the cover on the milling unit with tool changer

Disconnect the cables from the cover to the machine.
Unscrew the cover of the milling unit with tool changer at the five retaining points and remove it.



**Separate the chain of the chain magazine
(only with optional 120 positions)**

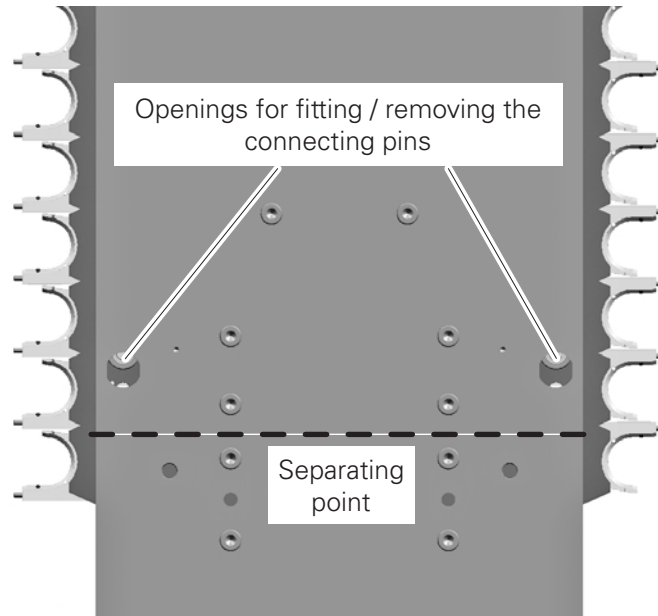


Risk of injury! – The chain is tensioned

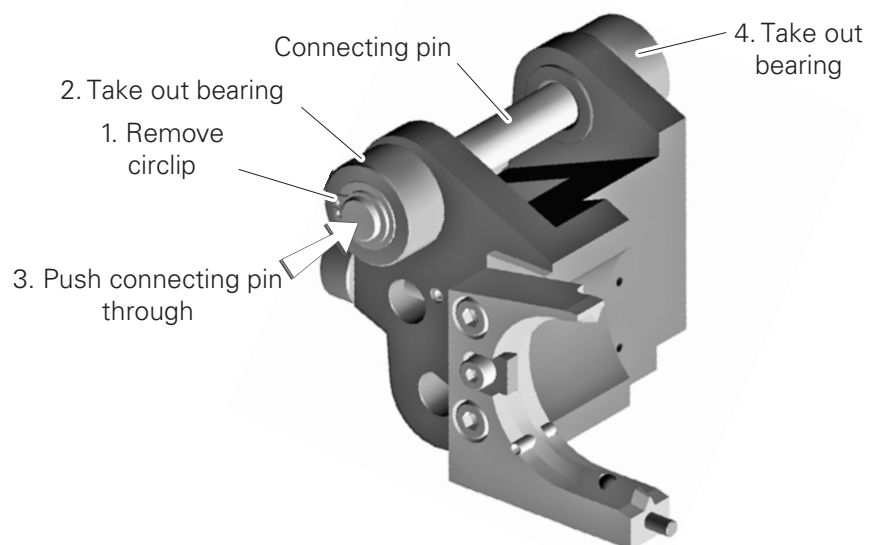
The tool chain must be secured by suitable means at the separating points before the connecting pins are unscrewed.

The tool chain must be brought to a defined indexing position before being separated.

Two openings are provided in the tool magazine for fitting / removing the connecting pins of the chain links.



- Remove the circlip from each connecting pin and take out the front bearing. Push the connecting pins through and remove them with the rear bearing.



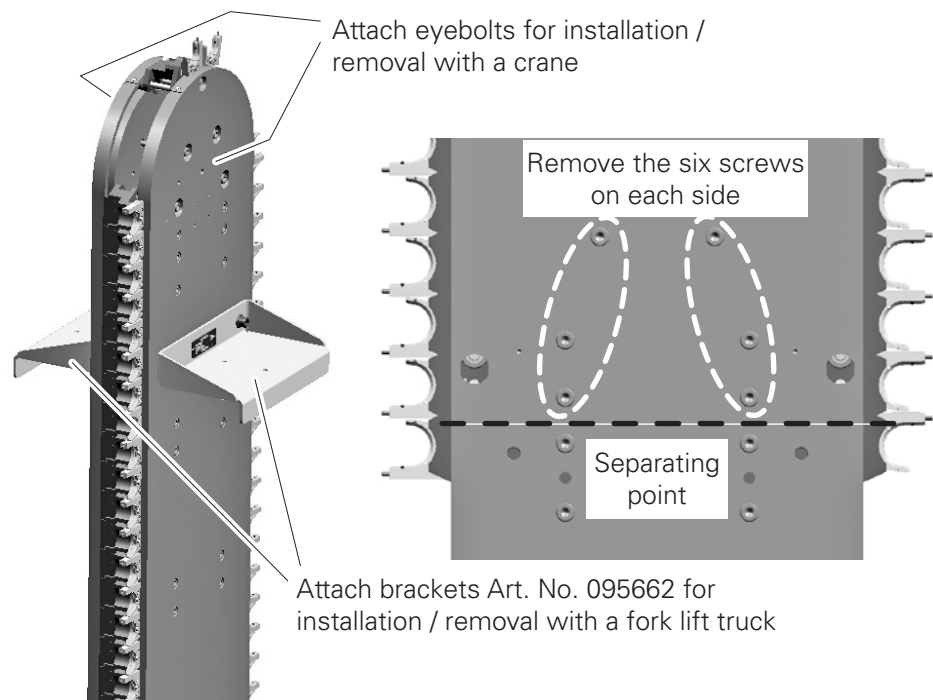
Remove upper part of chain magazine



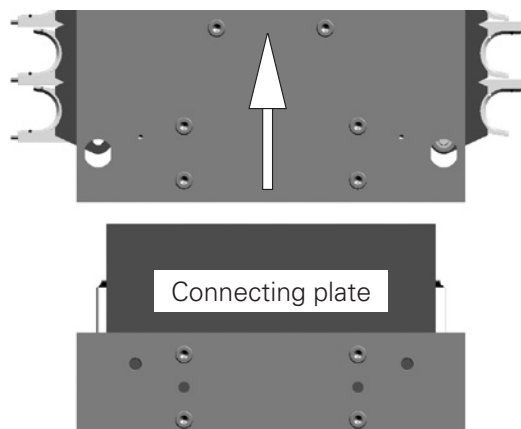
Danger due to falling parts

Ensure there is no-one underneath the suspended load!

- Before starting, secure the upper part of the chain magazine with the aid of eyebolts and a crane.
A suitable fork lift truck can also be used instead of a crane. In this case, two brackets must be screwed onto the M12 threads provided for this purpose (the brackets Art. No. 095662 are available on loan from TRAUB).
- Take out the six screws on each side of the chain magazine.



- Lift the upper part of the chain magazine off with the aid of eyebolts and a crane or the brackets Art. No. 095622 and a fork lift truck. Place the chain magazine on a suitable conveyance after being removed. The connecting plate remains attached to the bottom part.

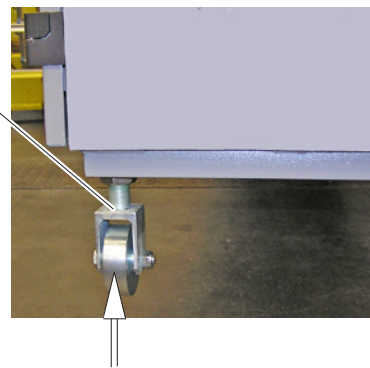


Delivery of the machine

- Machine mounted on planks complete with control cabinet.
The control cabinet is secured to the machine for transport.
- Moving parts are secured by means of transport retainers for transport.
- The fluid cabinet is securely connected to the machine.
- The central lubrication system is filled, the hydraulic and cooling units are empty.



Ensure that the four wheels on the control cabinet have been screwed in completely.



- Machine components and accessories mounted on pallets and secured

Transport by crane (min. load capacity 12 t)

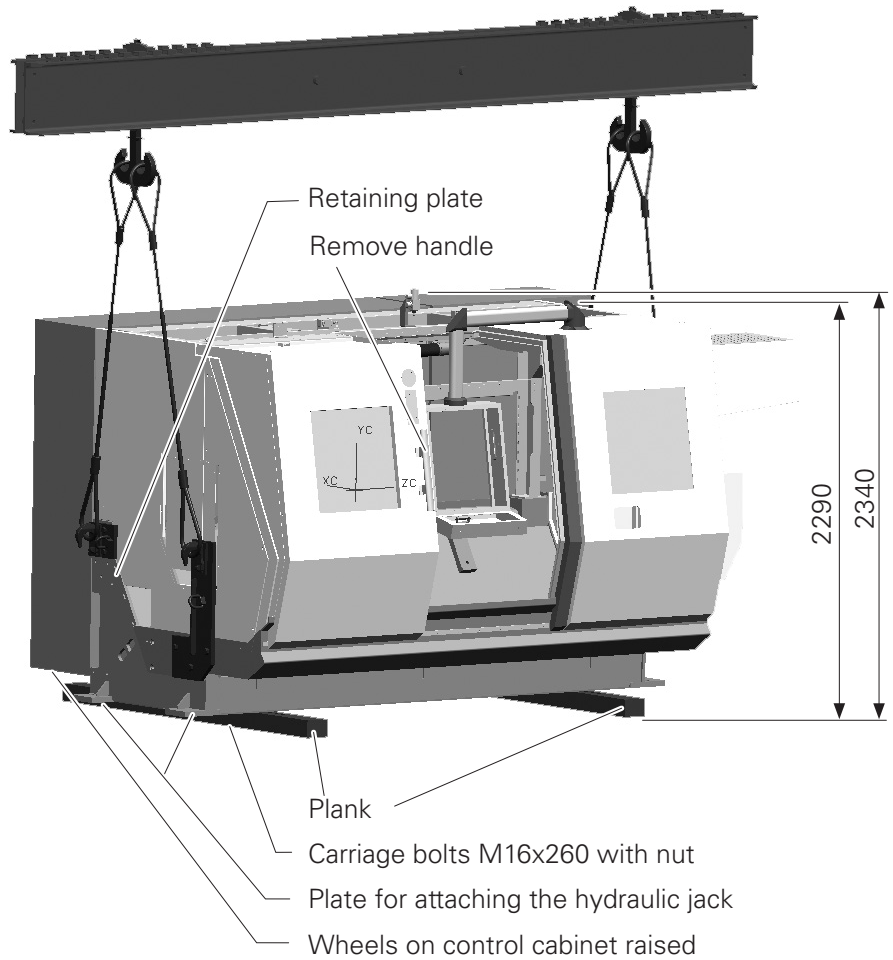


Danger due to falling machine / parts

Ensure there is no-one underneath the suspended load!

The machine must not be lifted via the control cabinet!

View of the machine in transport condition

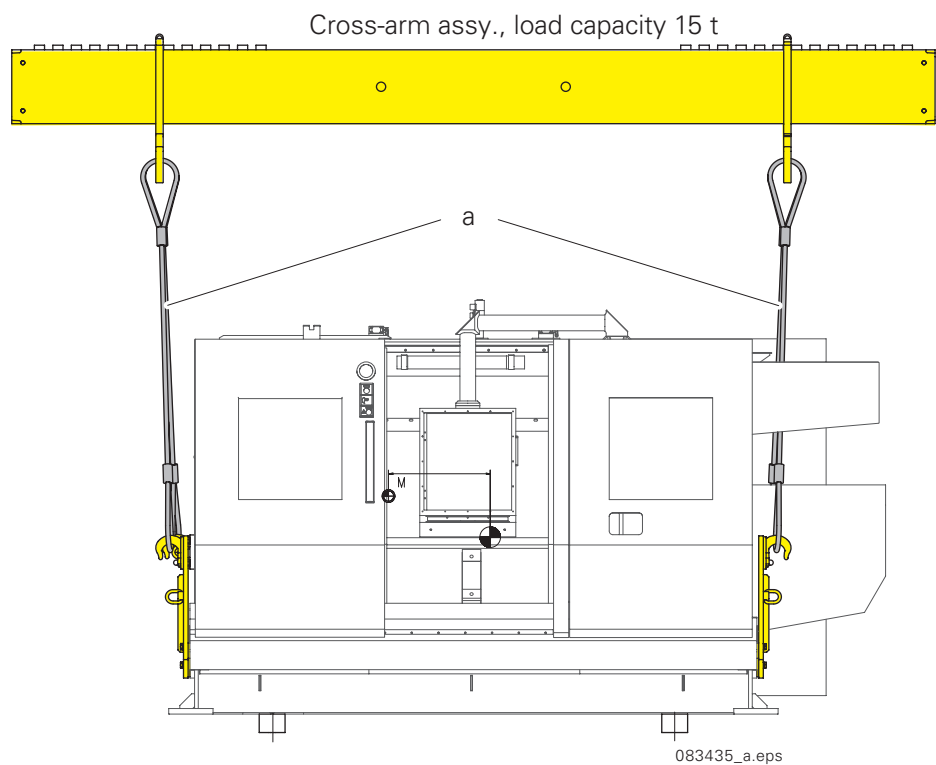


Set of hoisting gear and fittings

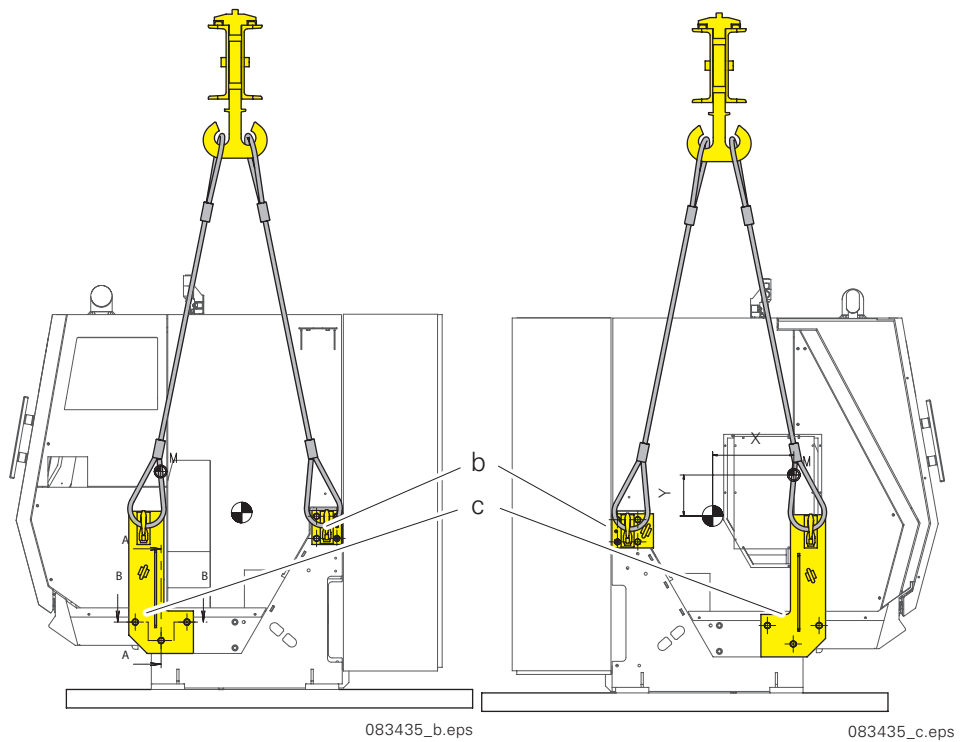


The complete set of hoisting gear and fittings (Article No. 083435) is available from TRAUB on loan and must be returned **completely and without delay** after use.

Suspension points, front view



Side views



Item	Designation	Article No.
a	4x Sling rope, L=2130 mm	083414
b	Attachment hook (8x hex head screw M20x40 10.9 DIN933)	083429 left 083427 right
c	Screw-on bracket (6x hex head screw M20x100 10.9 DIN933) (6x lock washer A 20 DIN 126)	083437 left 083436 right

TNX 65/42 Centers of gravity (machine with control cabinet)

Version	Tool carrier	Overall weight	Centre of gravity		
			X	Y	Z
1	1 top left	9.760 t	440	-222	551
	2 bottom right				
	3 top right				
	4 bottom left				
2	1 top left	8.326 t	467.5	-233	568
	2 bottom right				
3	1 top left	9.041 t	436	-255	501
	2 bottom right				
	4 bottom left				

Transport by fork lift truck

Requirements to be met by a fork lift truck

Min. lifting capacity	kg	12000
Min. fork length	mm	2200
Load center	mm	1200



The fork lift truck must have a minimum load capacity of 12 t. The machine may only be lifted from the operator side. When setting down the machine, ensure that the fork arms are not inclined, otherwise the planks may break.



To prevent damage to the machine, the rear wheel must be removed from the control cabinet before transporting it.



Transport by truck

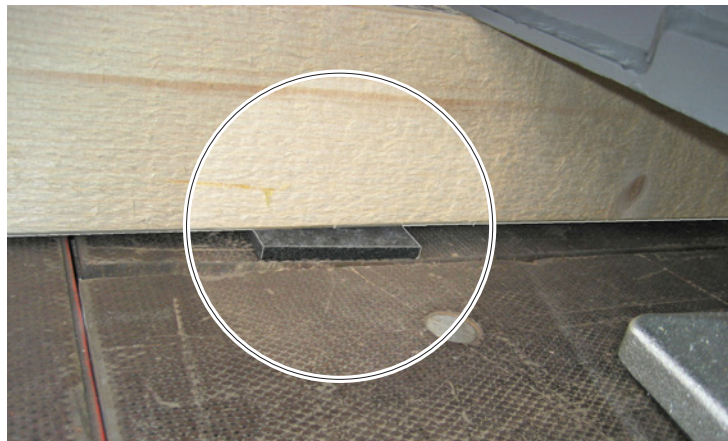
The truck should have pneumatic suspension in order to avoid major bumps during transport!



The load must be secured so that it cannot slip.

Measures to prevent the load slipping

- Non-slip rubber mat between loading surface and machine.



- The machine base must be diagonally lashed to the loading surface with suitable lashing straps / chains.



Installing the machine by crane



Danger due to falling machine / parts

Ensure there is no-one underneath the suspended load!



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.

Remove wooden planks

When delivered, the machine is positioned on and screwed to two wooden planks.

- Lift the machine by crane and secure it with suitable supports.
- Unscrew the wooden planks.



Ensure that the four wheels on the control cabinet have been screwed in completely.

- Lift the machine (remove the supports) and slowly lower it onto the feet.

Positioning and installing the machine with transport rollers



Danger due to the load slipping

The load must be secured with appropriate lashing belts.

Transport rollers are used if a suitable crane is not available at the installation site and a mobile crane or fork lift truck cannot be used.

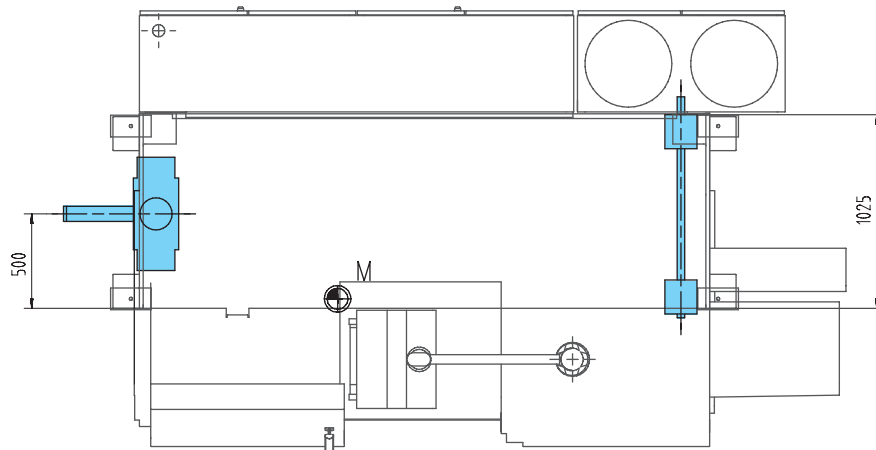
Due to the low loading height of the transport rollers, the machine can be loaded and unloaded with the aid of hydraulic jacks.

Each hydraulic jack must be able to support a full load of 10 t.

Three rollers are required for transport, including one steerable roller. The rollers must be dimensioned for loads of up to 12 t.

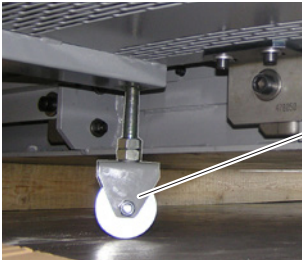
The rollers must always be positioned parallel to the material being hoisted.

Transport diagram



Lifting the machine with hydraulic jacks

There are two U-sections on both the right and left-hand sides of the machine for positioning the hydraulic jacks.



- Uniformly raise the machine with the aid of the jacks.
- The wooden planks are screwed onto the four feet on the machine.
- Unscrew the wooden planks (if they have not been removed already)
 - If the rear wheel has been removed for transport, it must now be screwed back into place.

Positioning the transport rollers

Always place the rigid transport rollers under the machine first, and then place the steerable roller at the appropriate point under the machine. The load must always be lowered onto the rigid transport rollers first.



The object to be transported must rest on the middle of the rotating plate on the steered transport roller so that the steering column can move freely.



Ensure that the four wheels on the control cabinet have been screwed in completely.

- Carefully lower the load onto the rigid transport rollers and secure it so that it cannot roll away inadvertently.
- Carefully lower the load onto the steerable transport roller.
- Move the machine to its installation site and secure the transport rollers so they cannot roll away inadvertently.
- First position the hydraulic jacks on the side of the machine with the steerable transport roller and lift it uniformly until the roller can be pulled out.
- Lower the machine onto the feet slowly and uniformly.
- Lift the other side of the machine until both transport rollers can be pulled out. Lower the machine slowly and uniformly onto the positioning elements.

Rough alignment of the machine

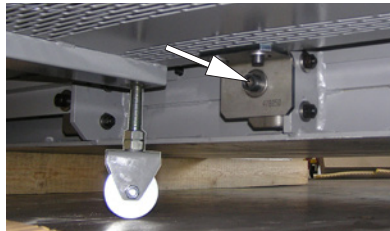
- Place a spirit level lengthwise on the clamping cylinder and crosswise on the hood.
- The distance from the floor must equal 70 mm at all four installation points.
- Adjust the four outer feet and align the machine with the aid of the spirit level.
- Secure the adjusting screws of the feet with the locknuts.

Set up control cabinet on wheels

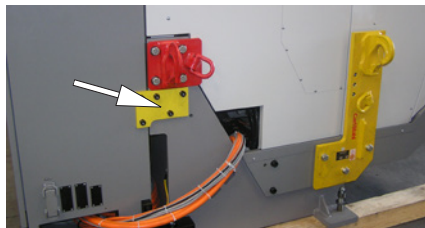
- Lightly position the four wheels to support the control cabinet on the ground.

Remove transport retainers from the control cabinet

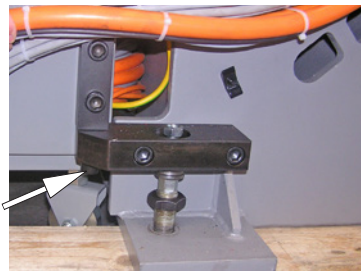
- Unscrew the retaining bracket underneath the control cabinet from the machine bed. The bracket remains connected to the control cabinet as a limit stop.



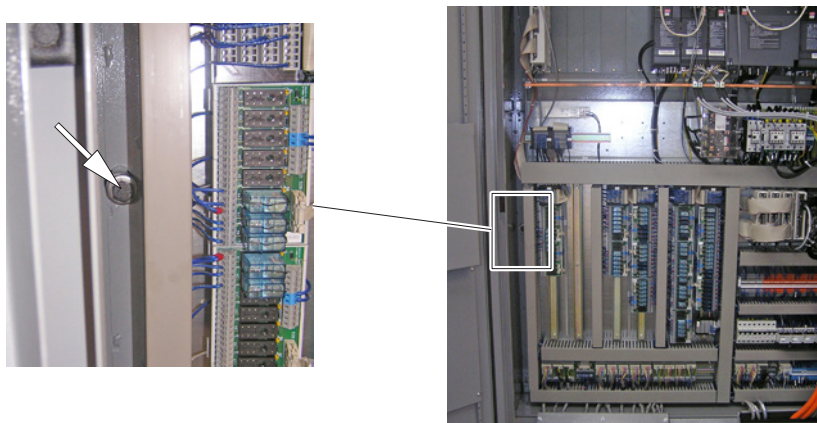
- Remove the locking plate on the machine bed / control cabinet. (The locking plate must be retained by the customer in case the machine has to be transported again.)



- Unscrew the M12 cheese head screw at the turning point of the control cabinet.

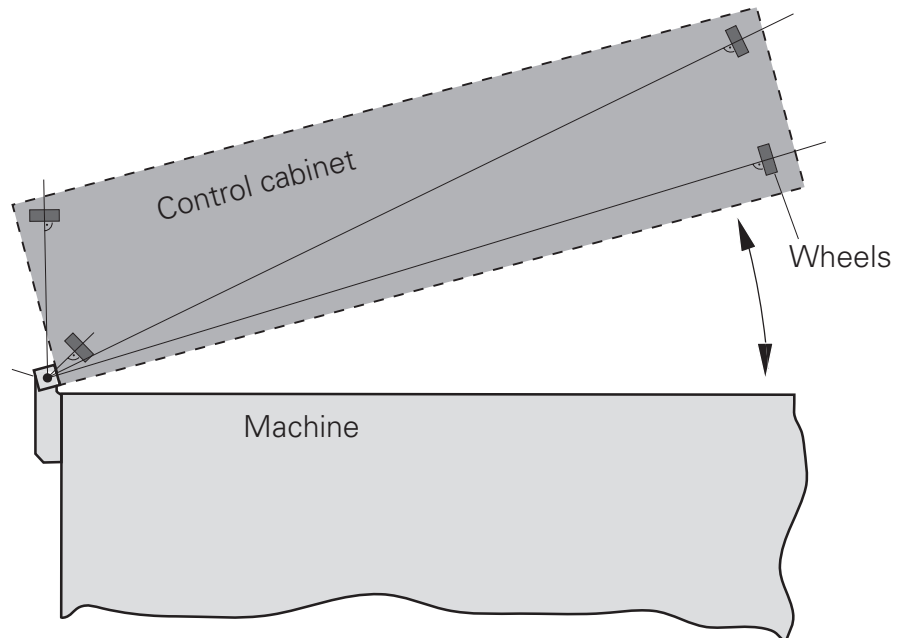


- Take out the fixing screw in the control cabinet.



Aligning the wheels on the control cabinet

- Raise the control cabinet with the aid of the four wheels until it lifts off the two bearing points on the machine bed. Ensure that the wheels are at right angles to the pivot point and secure the wheels with locknuts.



- The control cabinet can now be swivelled to the rear.

Indicator lamp

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

Remove transport retainers from the machine

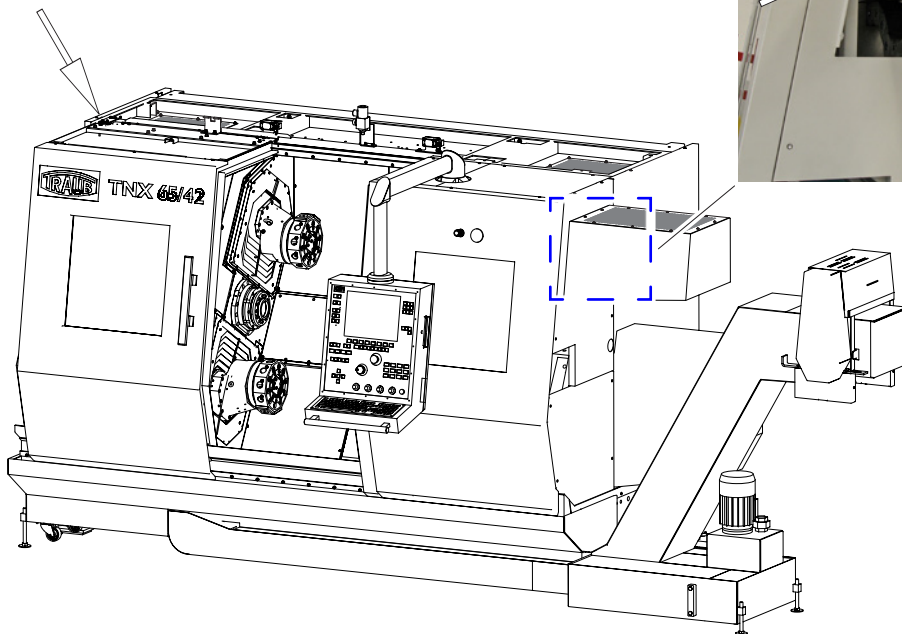
The transport retainers are located on the:

- control console
- sliding door
- workpiece handling with remnant removal device
- tool carrier and opposed spindle

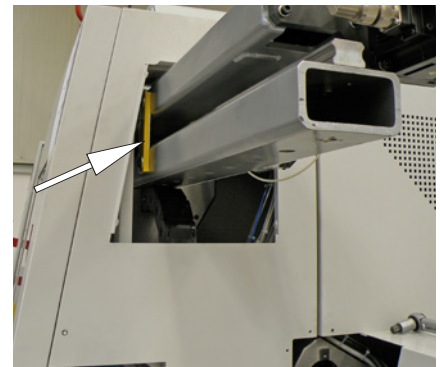
Transport retainers

- **Working area door**
- **Workpiece handling with remnant removal device**

Transport retainers for working area door

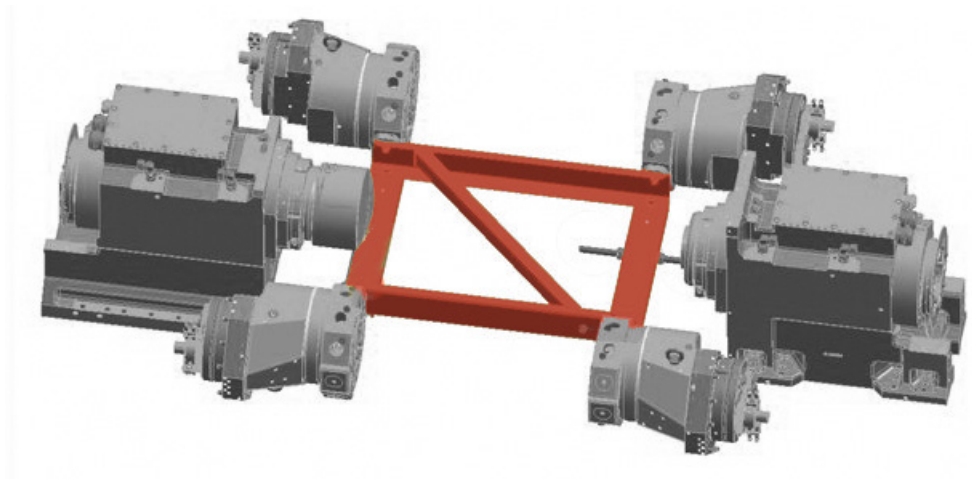


Workpiece handling with remnant removal device

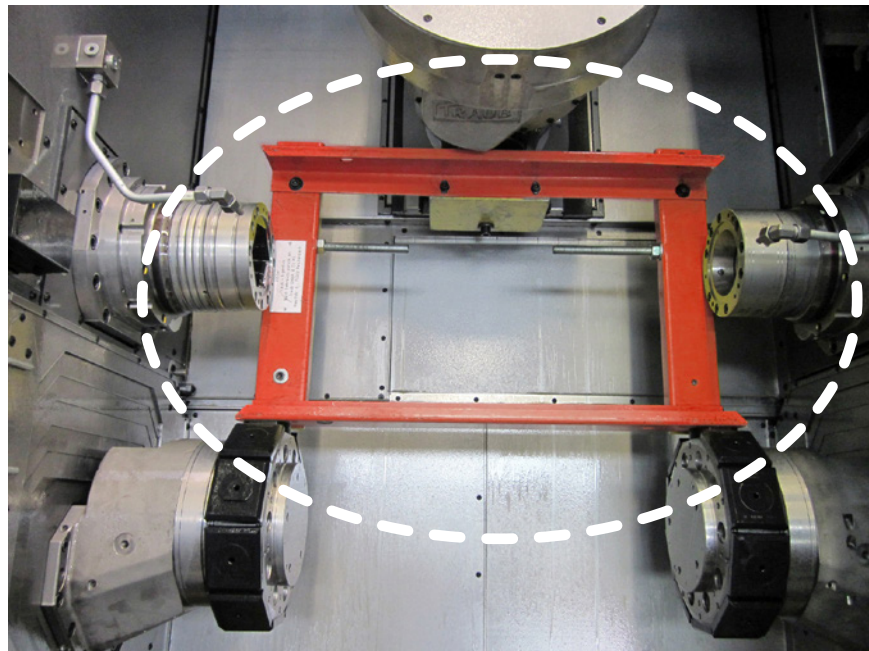


Transport retainer for turret (tool carrier / main spindle and opposed spindle / milling unit)

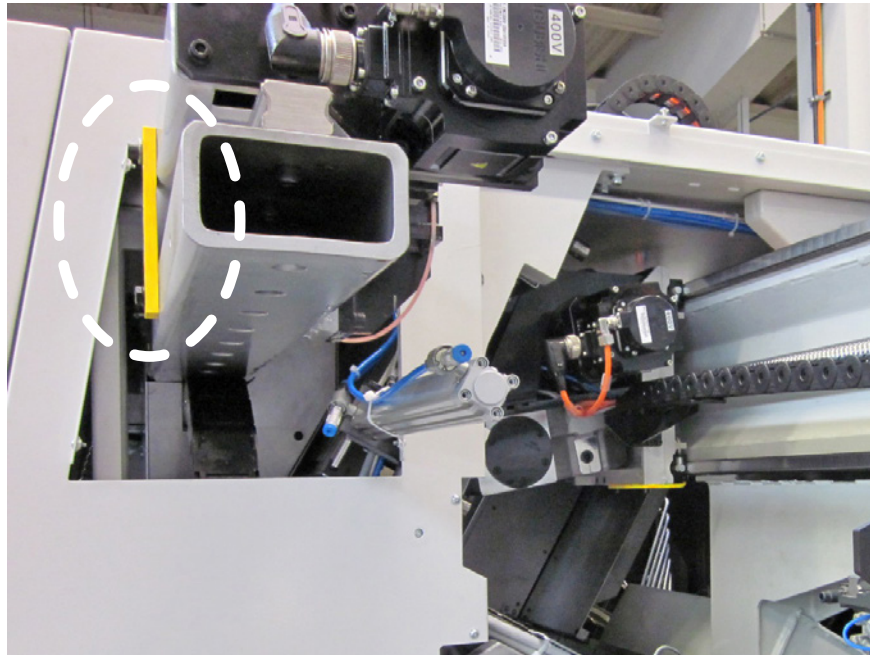
Transport retainer for turret / main spindle and opposed spindle



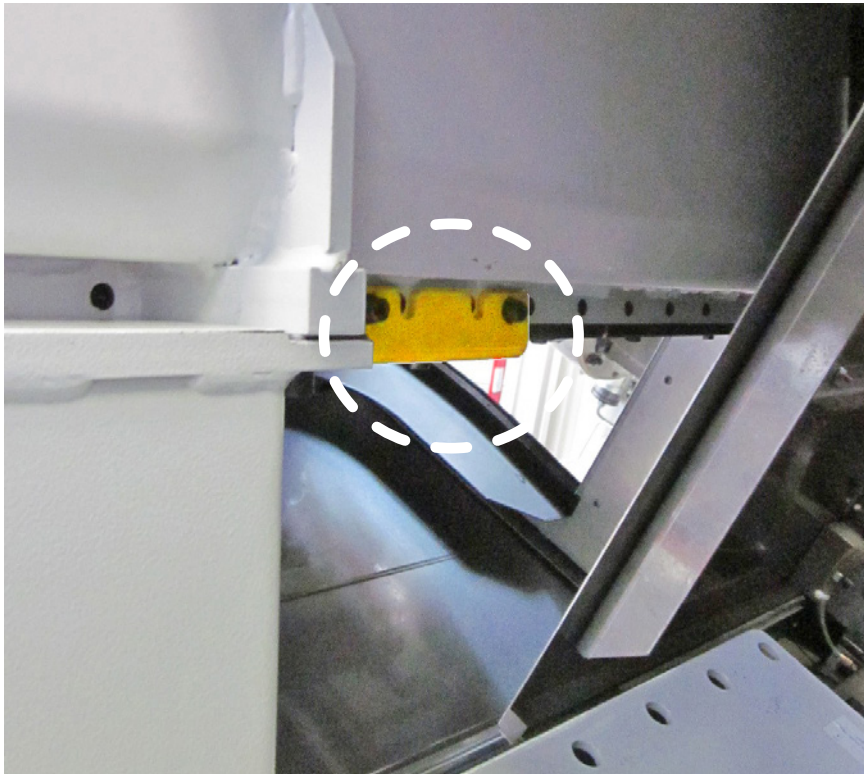
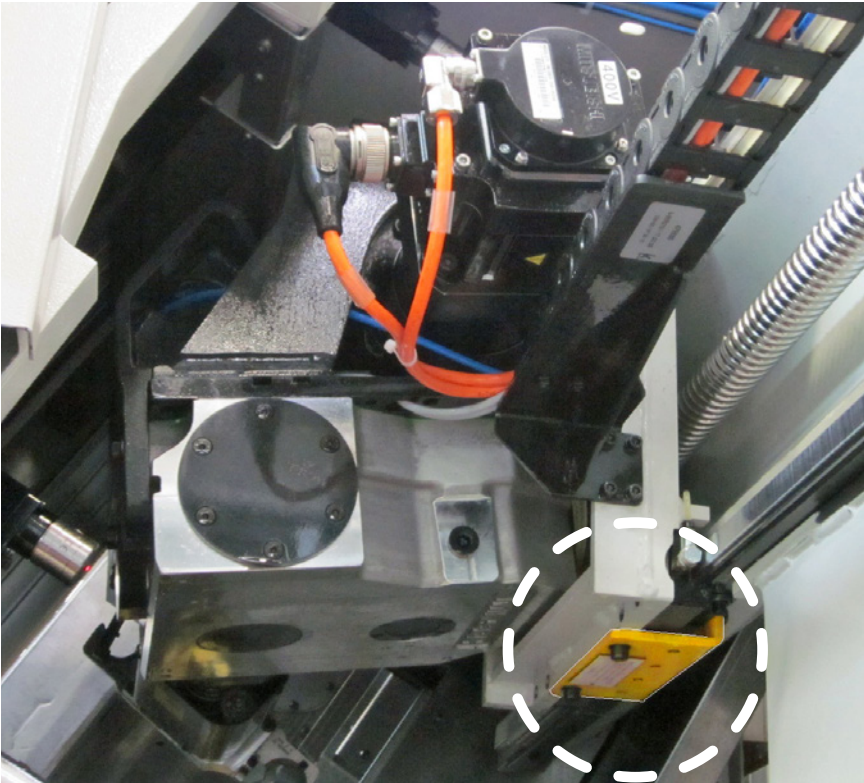
Transport retainer for turret / milling unit / main spindle and opposed spindle



Transport retainer for workpiece handling



Transport retainer for tool changer if necessary



Installation of the tool chain and chain magazine (only with optional 120 positions)

Install upper part of chain magazine



Danger due to falling parts

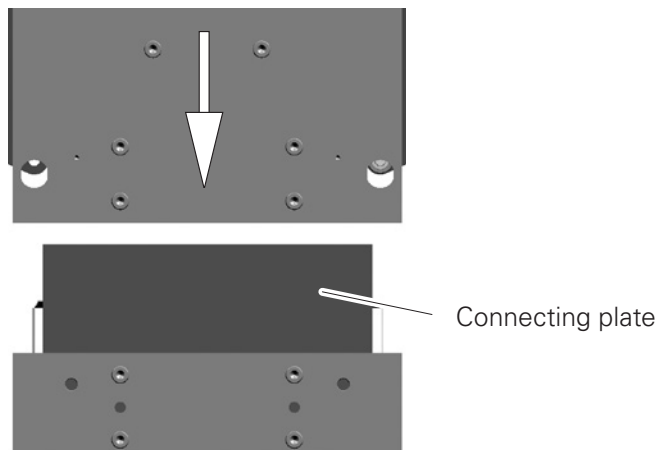
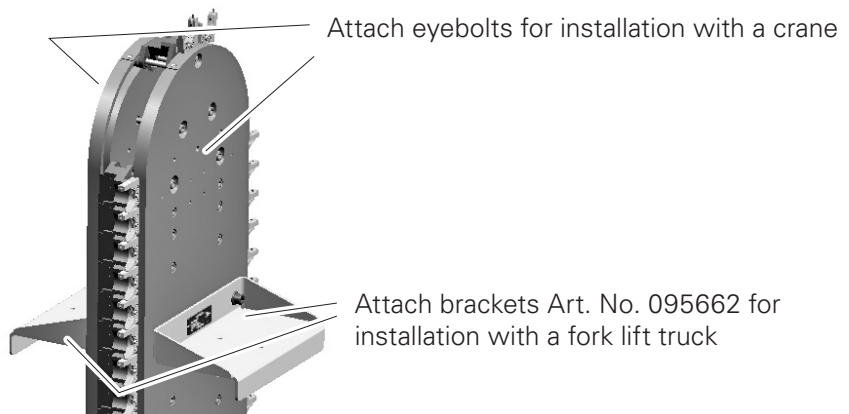
Ensure there is no-one underneath the suspended load!

- Lift the upper part of the chain magazine with the aid of eyebolts and a crane.
A suitable fork lift truck can also be used instead of a crane. In this case, two brackets must be screwed onto the M12 threads provided for this purpose (the brackets Art. No. 095662 are available on loan from TRAUB).

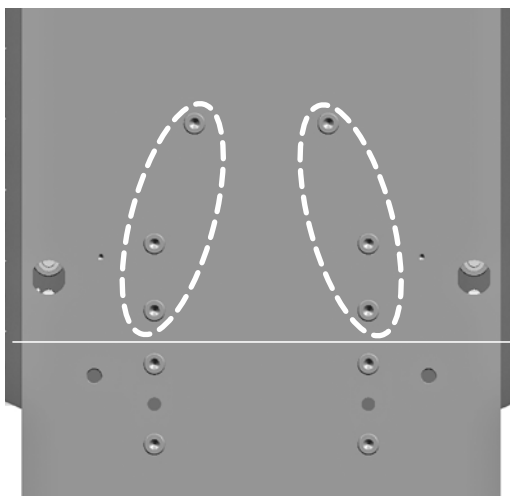
Requirements to be met by a fork lift truck

Min. lifting height	mm	3500
Min. fork length	mm	1000
Max. fork width	mm	150
Forks adjustable to a minimum distance of	mm	114

- Carefully lower the upper part of the chain magazine over the connecting plate in the bottom part of the chain magazine.
- Remove the eyebolts or brackets Art. No. 095662.



- Secure the chain magazine on both sides with the six screws provided.



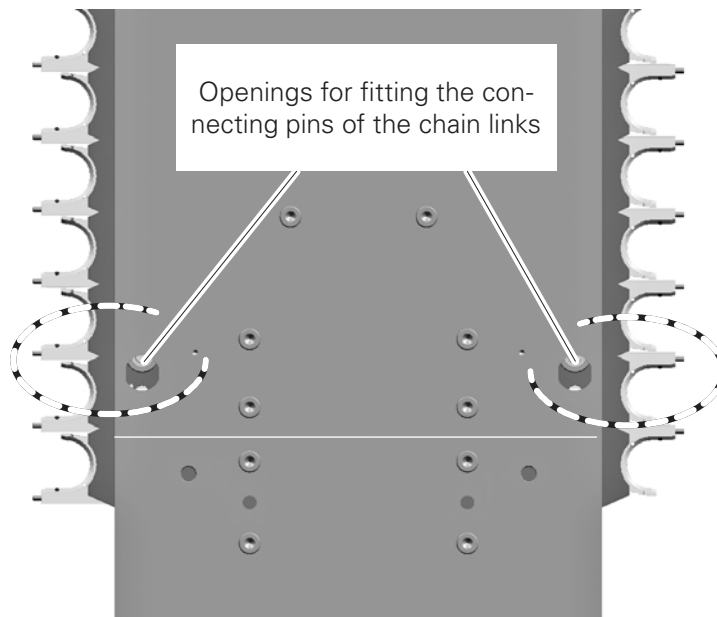
Connect the chain of the chain magazine (only with optional 120 positions)



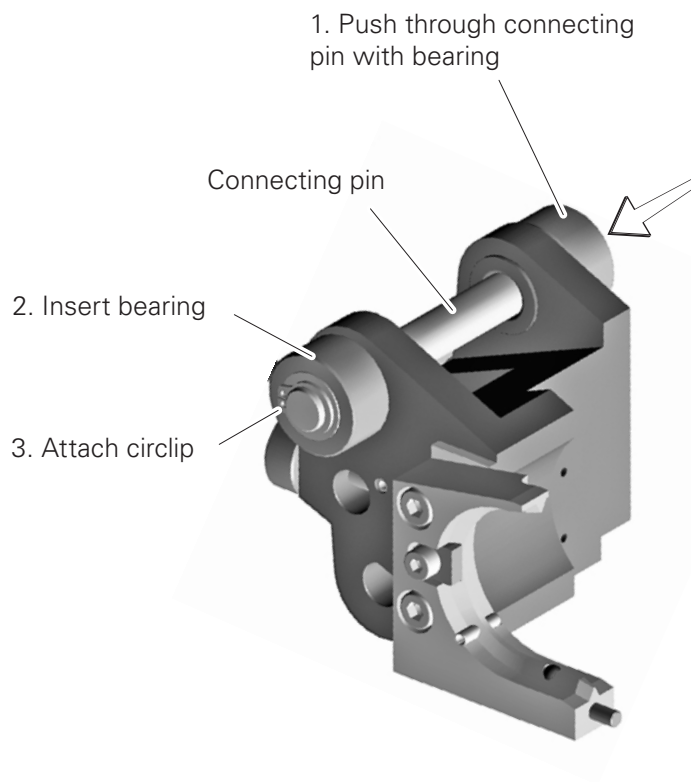
Risk of injury!

The tool chain must be secured at the separating points by suitable means so it cannot fall down.

Two openings are provided in the tool magazine for fitting the connecting pins of the chain links.



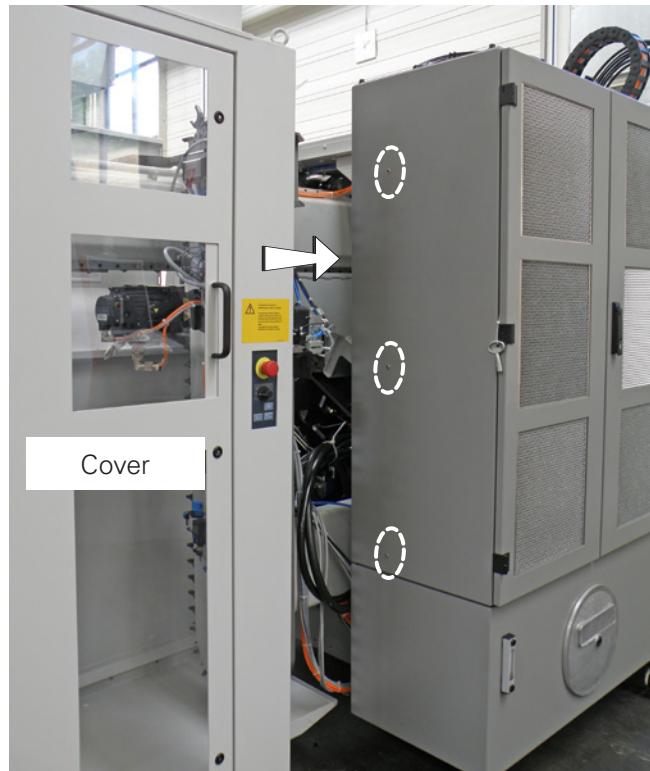
- Lift the ends of the chain with suitable means, move them into position to connect the chain links and secure them so they cannot fall down.
- Push through the connecting pin with bearing and fit the bearing on the opposite side.
- Attach the circlip to the connecting pin.



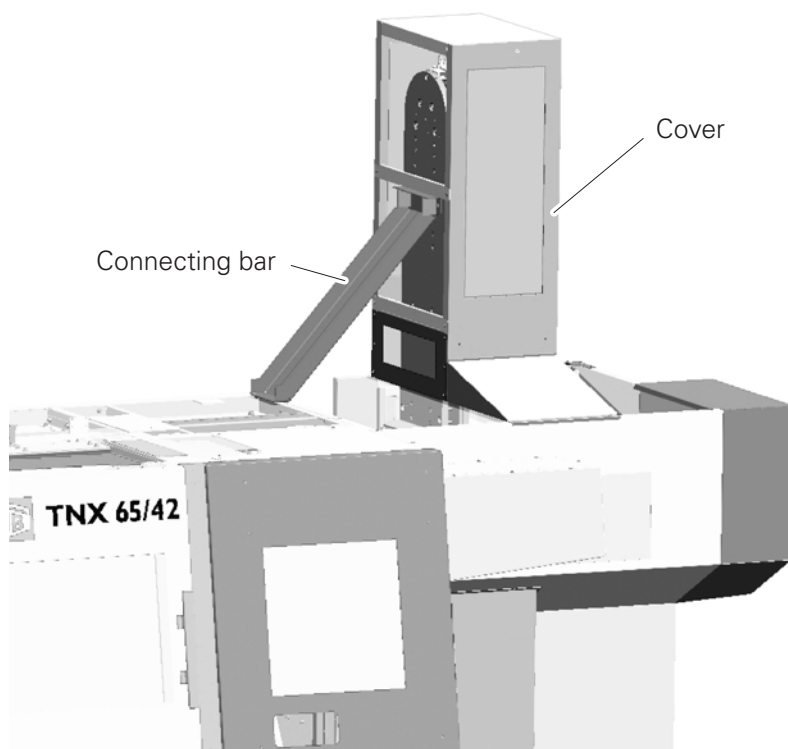
Install cover on milling unit with tool changer

Attach the cover of the milling unit with tool changer and secure it at the five fixing points.

Reconnect the cables to the machine cover.



- Position the cover on the chain magazine with suitable aids and secure it.
- Refit the connecting bar.



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 [liters]	Designation	Initial start-up
Central lubrication	6		Factory-filled by TRAUB
Hydraulic system	180		To be provided by the customer
Lubricoolant unit	Note the corresponding manufacturer's documentation		
Compressed air	See chapter Pneumatic connection		
Bar loading magazine	Note the corresponding manufacturer's documentation		

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 200 - 300 NI/min (without window clearing blower) is assumed on average for a standard machine.

Important notes



Caution! Danger to Life!

All work on the electrical equipment must be carried out exclusively by properly trained qualified personnel.



The control voltages are connected on one side with PE according to EN 60204-1. See the information on the electrical diagram.

The control cabinet may be opened only when the main switch is switched off. While the main switch is switched on, the control cabinet must be secured according to valid safety standards.



See the order confirmation for the precise electrical requirements. The electrical documentation supplied is definitive and binding. They must be available to **INDEX TRAUB**'s customer service at any time.

The machine must be connected to the electrical supply network via the main switch (multi-wire cable). The connection must be made with a clockwise rotating field.

The power connection is indicated in the wiring diagrams.

The machine is prepared for connection to three-phase power lines (TN-S network).

Before connecting the machine, check that the existing power settings and network form of the respective power supply company match the ratings defined for the machine.

If this is not the case, an upstream transformer is required.



The feeder to the main switch on the control cabinet can be routed from above or through a duct in the base of the control cabinet.



The directives and regulations applicable in the country of use must be followed.

Precise alignment of the machine

Requirements

- The hydraulic unit in the fluid cabinet must be filled with hydraulic fluid.
- The machine must be connected to the power supply.

Switching on the machine



Before the machine is put into operation for the first time, its owner must ensure that the machine and its safety mechanisms are in good working order. This must also be checked at reasonable, regular intervals during operation, but at least whenever the machine has been repaired or serviced.

- Switch on the machine at the master switch.
- Press "NC ON".
- Press "Drives ON".
- Open/close working area door (activate safety function).

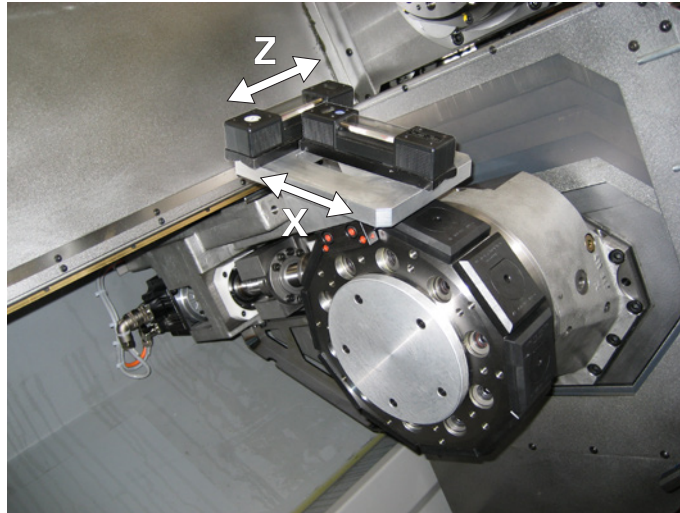
Check / correct position and torsion of the machine

Precision adjustment of the machine is carried out with the aid of a fixture inserted in the turret on tool carrier 2.

Spirit levels with an accuracy of 0.02 mm/m are placed on this fixture in Z and X directions in order to check the machine's position and torsion.

Check / correct with tool carrier 2

- Move tool carrier to the limit position Z+.
- Mount the invariable fixture in position 1 of the turret on tool carrier 2.
- Place two spirit levels on the fixture, one in Z-direction and one in X-direction.



- Advance in Z-direction to check the machine and uniformly adjust the right or left feet to re-align it if necessary. The deviation must not exceed 0.01 mm over the entire distance traveled.
- Move to the limit position Z- to check the machine's torsion. The deviation must not exceed 0.01 mm over the entire distance traveled. If this is not the case, the machine must be re-aligned by adjusting the appropriate outer foot.
- Secure the adjusting screws of the feet with the locknuts.



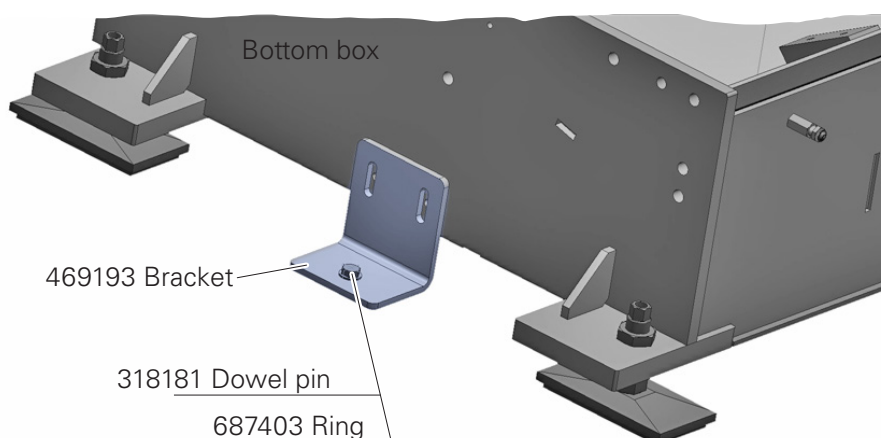
Switch off the control system, disconnect the machine from the power supply and secure it so that it cannot be reactivated.

Secure machine to the floor

The machine can be secured to the floor if necessary. The following parts are enclosed with the accessories for this purpose:

- 2 retaining brackets, Article No. 469193
- 2 rings, Article No. 687403
- 2 dowel pins, Article No. 318181

- Screw the two retaining brackets (Article No. 469193) to the right and left-hand sides of the bottom box. The brackets must lie squarely on the foundations.
- Using a dia. 18 mm stone drill, drill a hole 110 mm deep through each of the retaining brackets.
- Fit the ring (Article No. 687403) under the screw head of the dowel pin and insert the dowel pin (Article No. 318181) in the hole. The machine is anchored to the foundations by tightening down the hex bolt with the specified torque (approx. 80 Nm).



Transport and installation of the chip conveyor



Note the corresponding manufacturer's documentation

- Lift the chip conveyor off the pallet with a rope and set it down.
- Turn up the feet until the chip conveyor rests on the rollers.
- The two stop bolts on the bottom box must be set to 20 mm.
- Push the chip conveyor as far as possible under the machine from the operator side.
- Raise the chip conveyor with the adjusting screws until it is horizontal and the bottom edge of the chip conveyor is 50 mm from the floor all-round.

Setting the level switch of the chip conveyor



Note the corresponding manufacturer's documentation

The level switch on the chip conveyor is normally set to emulsion as standard medium.

When the machine is operated with cutting oil, the level switch must be switched over accordingly before starting.

Note the User Manual (parameter list) provided by the manufacturer.

Lubricoolant unit



Note the corresponding manufacturer's documentation

The cooling lubricant unit has to be aligned to the respective emulsion or cutting oil medium as required.

Note the User Manual (parameter list) provided by the manufacturer.

Bar feeding mechanisms



Note the corresponding manufacturer's documentation

The bar feeding mechanisms and other accessories must be mounted, aligned and secured to the floor as directed by the respective manufacturers.

Switching on the 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 working area door
Operability of the door switches must be checked by opening and closing the working area door. Operation of the machine cannot be commenced until the safety facilities have responded.





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