

# Transport, Installation, Commissioning

**G200.3**

**G220.3**

**(turning length 900 mm)**

## **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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## General note



All documents and drawings (working documents) required for the operation of the machine can be found on the supplied data carrier under Chapter 1, "Instructions", or Chapter 2, "Diagrams and drawings").

Documents and drawings of add-on equipment from other manufacturers can be found in Chapter 3, "Third-party documentation".

In addition, these data/documents are stored on the controller.\*

(\* - **iXpanel** installation required)

## Explanation of symbols

Explanation of the symbols used in the user documentation:

1.



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.

2.



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.

3.



This symbol indicates important notes for the proper operation of the machine.

Failure to observe this caution may cause malfunctions on the machine.

This can result in damage to entire assemblies or parts thereof.

## Safety instructions



The user documentation and, in particular, the document "Safety instructions and technical specifications" must be observed



The safety instructions described in this document relate exclusively to the transport, installation, and commissioning of the machine.

## Information on transport, installation, commissioning



**Use only suitable hydraulic jacks or a crane to lift the machine. When transporting with transport or armored rollers, ensure that the rollers used have the appropriate load-bearing capacity. Plastic plates or Teflon plates are used to reduce rolling resistance and to bridge unevenness and cracks.**



If air cushions are used when transporting the machine to the installation site, be sure to observe the relevant manufacturer's documentation of the air cushion manufacturer.

### When selecting the modules,

- **the condition of the floor**
- **and the suitable size (load capacity), lifting height, and number of modules**

**must be taken into account.**

If the floor is cracked or slightly porous, the manufacturer states that a foil should be laid out on the travel path.

**INDEX** uses the model 4K27NHDL from AeroGO



Transport locks can be identified by their red color.

**All transport devices and transport locks (painted red) that are described in this documentation are part of the machine equipment and remain on the machine or with the customer.**

They must not be sent back to **INDEX**.

**Remove all transport locks prior to commissioning.**

Store the removed transport locks in a safe place so they are available for other transport in the future.





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** 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 (Chapter 1, "Instructions", - Chapter 3, "Third-party documentation") exist for separate units such as chip conveyors, bar guides, bar loading magazines, and similar devices that must be observed as well.



The closing type of the safety interlock (**CTP-LBI**) of the work area door has a feature that prevents:

- that people may inadvertently lock themselves in the event of a power failure or when the machine is switched off with the work area door open,
- that the activated closing function is deactivated in the event of a power failure.

(Source EUCHNER GmbH + Co. KG)

## 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 load. 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 corresponding machine installation plan (Chapter 2, "Diagrams and drawings").

The masses of optional separate units, such as chip conveyors, bar guides, bar loading magazines, 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 a loading platform must be used.

## 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 to this machine was already submitted for approval after the contract award. When the machine is delivered, it can be found in Chapter 2, "Diagrams and drawings" on the supplied data carrier and the controller (**iXpanel** installation required).

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

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

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

## 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 in Chapter 2, “Diagrams and drawings”, to determine the required space.

For add-on equipment such as bar guides, bar loading magazines, etc., there are special installation plans (Chapter 2, “Diagrams and drawings”).

## 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 guidelines and regulations applicable in the country of use must be followed.

## Fastening/anchoring

Doweling of the machine is not necessary.

Bar feeders must always be doweled.

The machine does not need to be doweled in conjunction with a bar feeder. Follow the relevant operating instructions.

**iXcenter** must always be doweled.

The machine does not need to be doweled in conjunction with an **iXcenter**. Follow the relevant operating instructions.

When mounting a robot cell from a third-party manufacturer, doweling is recommended. The machine does not need to be doweled in conjunction with the robot cell from a third-party manufacturer.

Be sure to follow the relevant third-party documentation.



## Ambient conditions

See ambient conditions in document "Safety Instructions and Technical Specifications".



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

## Power supply



The guidelines 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, which means the max. allowed operating voltage fluctuations are +10% or -10%.



The feeder line must comply with the regulations of the local electricity supplier and the VDE directives. For further information, see the machine installation plan in Chapter 2, "Diagrams and drawings".

### 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.



The following values can be taken from the nameplate of the machine or the electrical diagram in Chapter 2 "Diagrams and drawings":

- Machine connection,
- Operating voltage,
- Main circuit breaker.

## 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.

## Compressed-air supply



**Observe the max. allowed connection pressure for the machine. See the pneumatic diagram in Chapter 2, "Diagrams and drawings".**

Machines equipped with pneumatically operated components require a compressed-air supply with the following capacity:

Operating pressure	6 to 10 bar
Air consumption	depending on the machine equipment
Air requirement for window cleaning	briefly up to approx. 1000 l/min.



If the machine is equipped with window cleaning, ensure a sufficient cross-section of the compressed air supply lines on site due to higher compressed air consumption. Both pneumatic feeders on the machine can be used for this purpose.



For the air supply on the machine, see the machine installation plan in Chapter 2, "Diagrams and drawings".

## Pressure accumulator

If the machine was shipped by plane, all pressure accumulators attached to the machine are depressurized and emptied.

Before commissioning the machine, a specialist must fill all pressure accumulators with nitrogen (N<sub>2</sub>). The prescribed pressures must be observed.

For the prescribed pressures, see "Hydraulic diagrams" (Chapter 2 "Diagrams and drawings").



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



## Operating material to be provided

- Coolant <sup>1)</sup>
- Lubricating oil <sup>1)</sup>
- Hydraulic fluid <sup>1)</sup>
- 1 kg of high-performance grease for chuck
- Cooling lubricant



For the appropriate types of lubricating oil, hydraulic fluid, grease, cooling lubricant, and volumes, see Chapter 1, Instructions: “Information on operating materials” and “Hydraulic diagrams” and “Machine installation plan” in Chapter 2, “Diagrams and drawings”.



Caution:

Be sure to use only hydraulic fluid according to **ISO 4406**, having a purity grade of **15/13** (10 µm absolute).

Hydraulic fluid: **HLPD 32**

Lubricating oil: **CGLP 68**

Cooling water: **Antifrogen N** (100 L required)

<sup>1)</sup> The machine is delivered with a full tank.

## Pumps and tanks

Changing the hydraulic fluid and cooling lubricant is part of the periodic maintenance tasks.

To fill the machine's hydraulic fluid tank with hydraulic fluid, a pump with a 10 µm fine filter (absolute) is required that may be used for this purpose only.

A simple pump is sufficient to extract the used hydraulic fluid or 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.

## Chip disposal

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.

This will protect the environment and save costs.

## Disposal of used operating materials

Decide in advance 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 guidelines 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 water or groundwater.

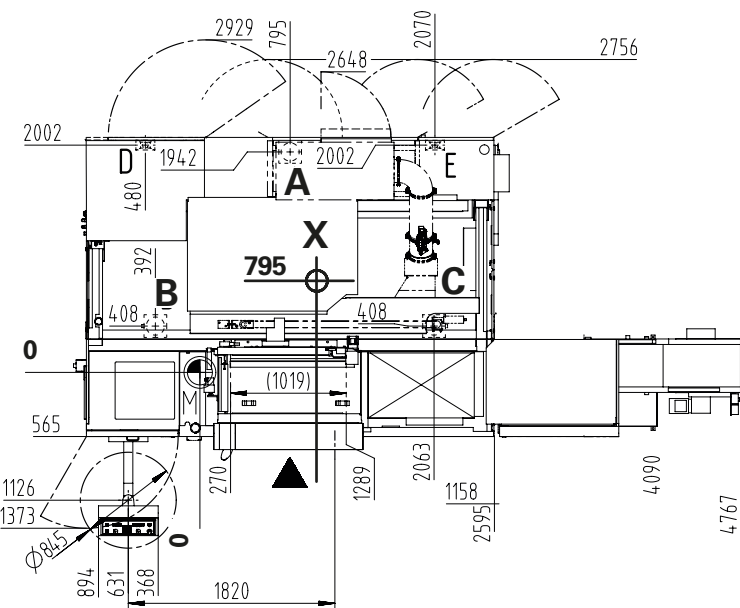
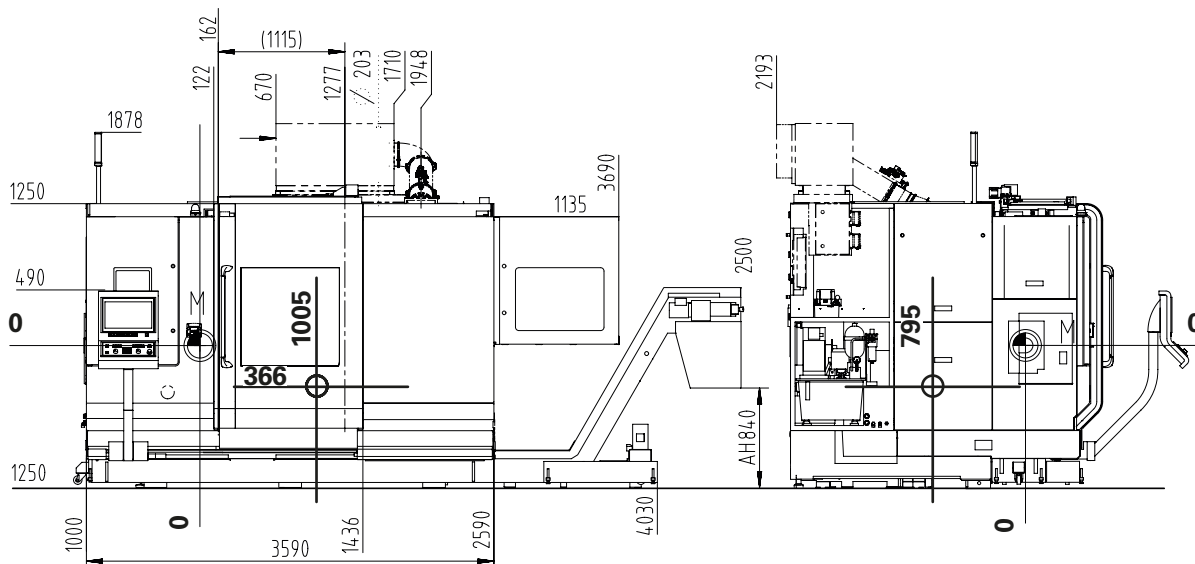
### Possible preventive measures:

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

# Transport

## Transport plan and center of gravity (without means of transport)

### G200.3/G220.3 (900 mm)



DIE232ZZ\_00.eps

- A** approx. 3600 kg
- B** approx. 6300 kg
- C** approx. 4400 kg
- D** approx. 300 kg
- E** approx. 300 kg



**X center of gravity**



Visualization of a machine in standard version.  
Check the currently valid installation plan!

## Delivery

### Machine

The machine is delivered by truck.

#### The machine is in the following condition when delivered:

- The hydraulic fluid and lubricating oil tanks will be full.  
**(The filler neck of the hydraulic fluid tank is closed.  
Refit the filling and breathing filter before commissioning.)**



DIE009ZZ\_23.tif

Fig.: Blanking plug



DIE140ZZ\_44.tif

Example:  
Filling and breathing filter  
by ARGO-HYTOS GmbH



DIE009ZZ\_22.tif

Fig.:  
Example of filler neck

- The cooling lubricant tank will be empty. (The machine has a chip conveyor with an integrated cooling lubricant tank or a separate cooling lubricant cleaning system. The chip conveyor and cooling lubricant cleaning system are separate units.)
- Certain moving parts on the machine, such as the work area doors and the swiveling operating terminal, are secured by transport locks or were removed.
- Protruding machine parts hampering the transport may have been removed.
- All blank parts of the machine were treated by spray-covering with an anti-rust agent.



### **Other separate units**

Certain equipment levels or add-on equipment, such as chip conveyors, bar guides, bar loading magazines, etc., are usually separate units.

For transport and attachment of a robot cell – **iXcenter** – observe the corresponding documentation for **iXcenter**.

Chip conveyors usually rest on a transport base for shipping.

The bar guides and bar loading magazines are delivered in a special shipping crate.

Loose parts, such as keys, tools, and fittings, are supplied in a separate box, which may be included with a separate unit.

Before unloading, check the machine, the enclosed accessories, and any separate units for external damages and completeness (compare the bill of lading with the delivery form).

Have the carrier confirm any damages or missing parts on the bill of lading or delivery form.

In case of damages during transport, it is recommended to take photos of the damages for evidence.

Inform **INDEX** or the **INDEX** representative.

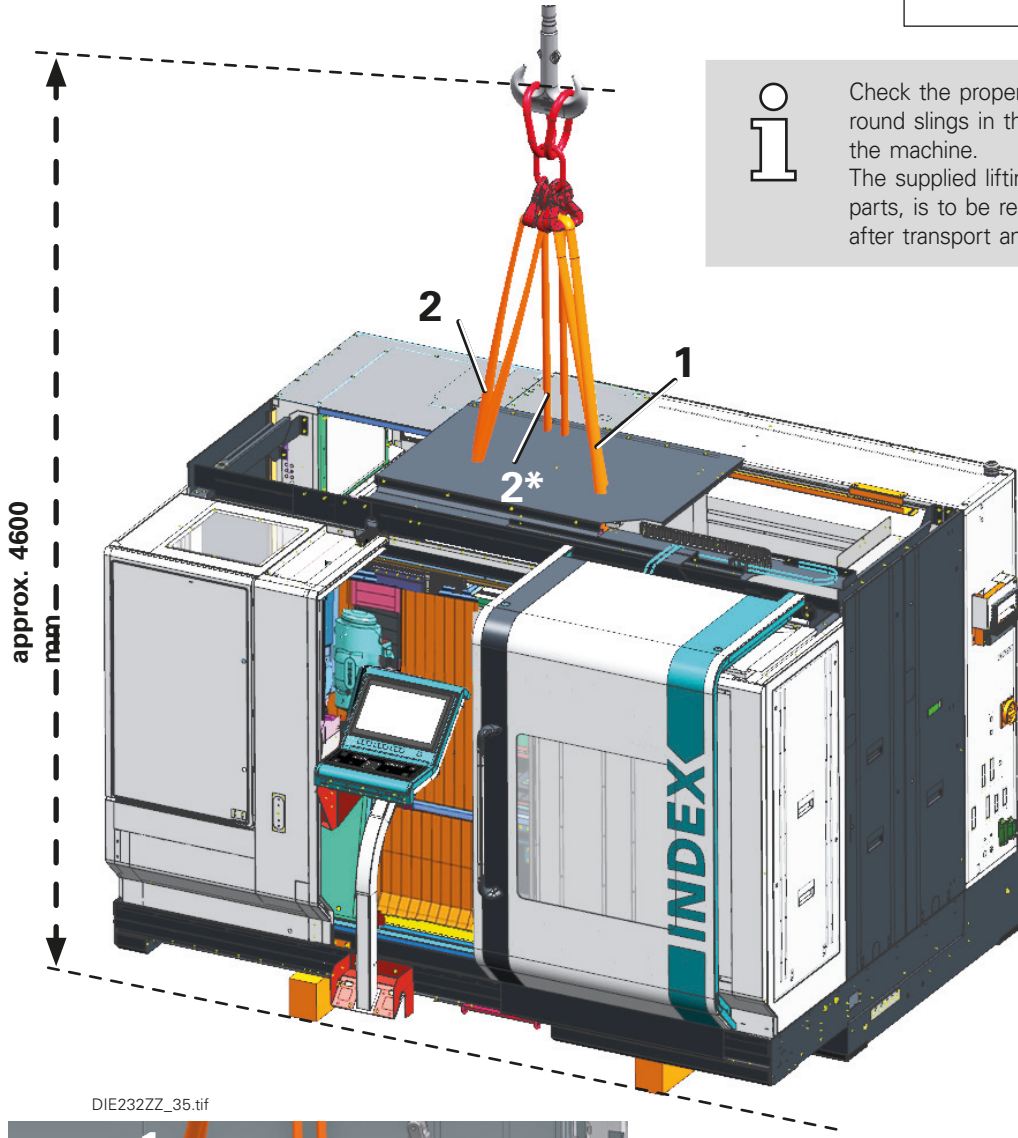
# INDEX G200.3/G220.3

# INDEX

Transporting the machine turning length 900 mm

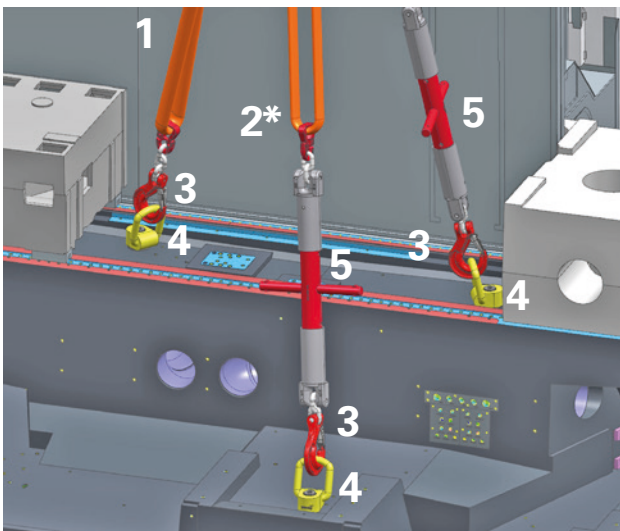
Kunde: \_\_\_\_\_  
 Projekt.-Nr.: \_\_\_\_\_ Masch. Nr.: \_\_\_\_\_

**Machine mass**  
**approx. 15,000 kg**  
 (incl. slings)



**i** Check the proper seating of the ropes/chains/round slings in the transport hooks before lifting the machine.  
 The supplied lifting device, including attachment parts, is to be repacked in the appropriate crate after transport and returned to **INDEX**.

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DIE232ZZ\_03.tif

Rear of the machine

	Item	pcs.	Name
Lifting device	1	1	Round sling, for example: Round sling 8 t/2150 mm
	2	1	Round sling 8 t/1400 mm (at turnbuckle)
	2*	1	Round sling 8 t/1850 mm (at turnbuckle)
	3	3	Heavy-duty hook (safety hook 10 t)
	4	3	Load stand M36
	5	2	Turnbuckle

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0323/Kg/Sp(Transport der Maschine)/20194061



If covers are inserted in the machine to protect the ball screw and the glass scale, the **slinging equipment must first be dismantled** before these protective covers are removed.

Also, the foam covers fitted to protect the linear guides must be removed.

The covers should be kept for any new transport of the machine and, if necessary, remounted.



**Danger to life!**

**Do not step under suspended loads.**



**Danger to life!**

**When transporting with a forklift, the forklift must enter the transport lugs (b) from the control cabinet side!**

The machine was placed on wooden planks for transport.

These wooden planks must be removed before installation at the intended installation site.

For this purpose, the machine must be slightly raised and supported by the crane or hydraulic jacks. Then, unscrew and remove the transport locks of the wooden planks (a) and the transport lugs (b).

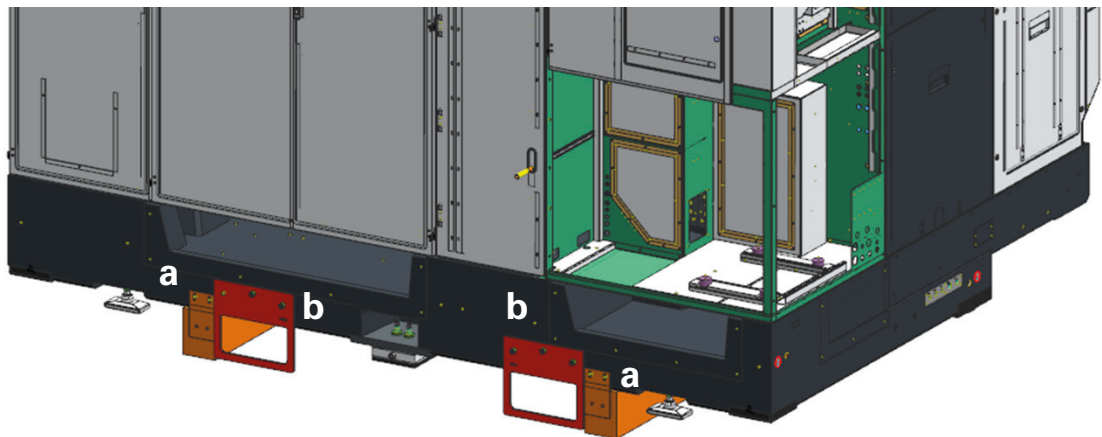


When using a hydraulic jack, always lift on one side only.



Keep transport lugs, wooden planks, and the associated transport locks for any further transport.

**Do not return to INDEX or an INDEX representative.**



DIE232ZZ\_05.png

View: Rear of the machine



## Working with hydraulic jacks



Due to the machine's high center of gravity, we stipulate transporting with transport rollers only on absolutely even and horizontal ground.



**INDEX** uses plastic plates or Teflon plates to bridge slightly uneven points and to reduce the rolling resistance. This applies in particular to transporting on irregular or soft grounds such as industrial parquet floors or rubber or PVC-based floor covers.



To protect the machine bed when lifting the machine with hydraulic jacks, steel plates are cast into the machine bed at the following points. It is nevertheless recommended to use anti-slip mats between the machine bed and the jack claw (**c**) on the hydraulic jack.

Also, use anti-slip mats between the machine bed and the transport rollers/steering gear.



**Only use sufficiently dimensioned hydraulic jacks for lifting or lowering the machine.**

**Always apply the hydraulic jacks only where indicated (see Fig.).**

**Be sure to provide three-point support when lifting or lowering the machine with hydraulic jacks: two transport rollers or armored rollers or supporting on the floor on one side, hydraulic jacks on the other side.**

**Always lift the machine with hydraulic jacks on one narrow side only. The other narrow side must rest on the transport means or on the floor.**

**Do not lift the machine more than absolutely necessary.**

**As the center of gravity is not in the center of the machine, if 2 hydraulic jacks are used, each hydraulic jack should have a minimum capacity of 1/3 of the machine mass.**

**If only one hydraulic jack is used, it should have a capacity of at least 2/3 of the machine mass.**

## Lifting and lowering the machine with hydraulic jacks

### ... when transporting with rollers



Use only transport rollers with a total minimum load capacity of **15 t**. The plate support (Ø170 mm) of the steerable transport rollers fits into the receptacle provided for this purpose in the machine bed.

The figure below shows the locations where the hydraulic jacks (**X**) and transport rollers (**Y**) must be positioned on the machine frame.

Steel plates are cast in at the described points to reinforce the machine bed.

#### Procedure:

##### Lifting



- This procedure applies in principle also to lowering the machine after the transport using rollers – only in reverse order.
- **It is essential to connect and secure both fixed transport rollers with a bar (b).**

- Attach hydraulic jacks **X** and raise the machine.
- Place suitable timber underneath and secure.
- Release the clamp on the bar (**b**) and push the transport rollers together.

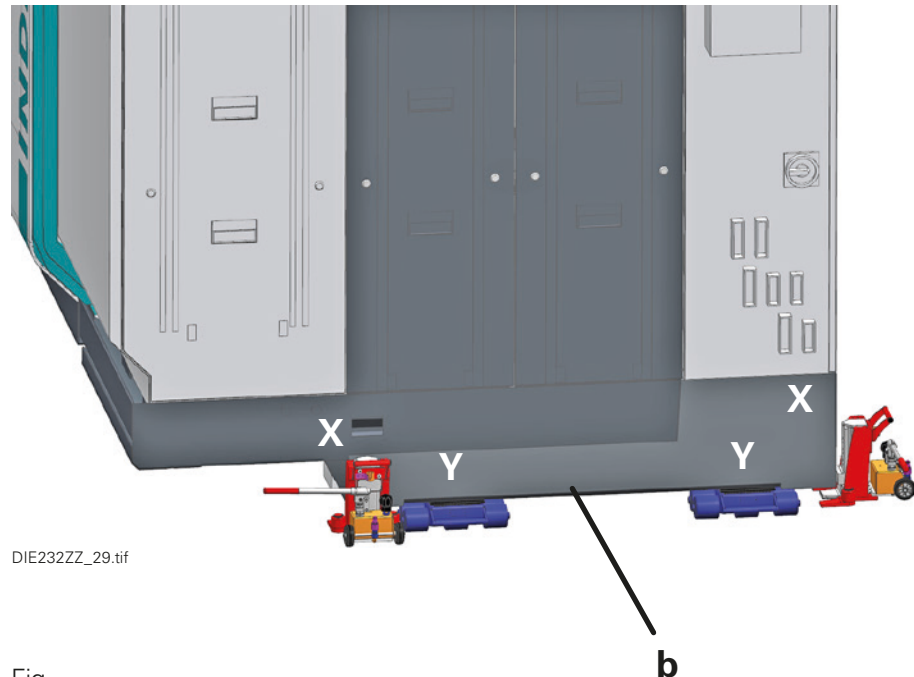


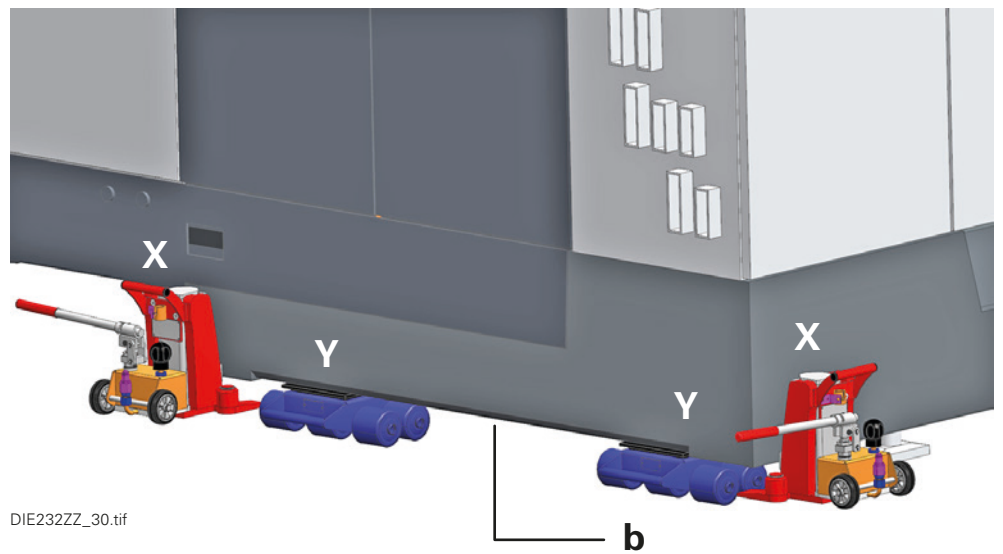
Fig.  
Locations for hydraulic jacks  
and transport rollers

- Slide rigid transport rollers (**Y**) between the hydraulic jacks under the machines and pull them apart again to the required extent and retighten clamp (**b**).



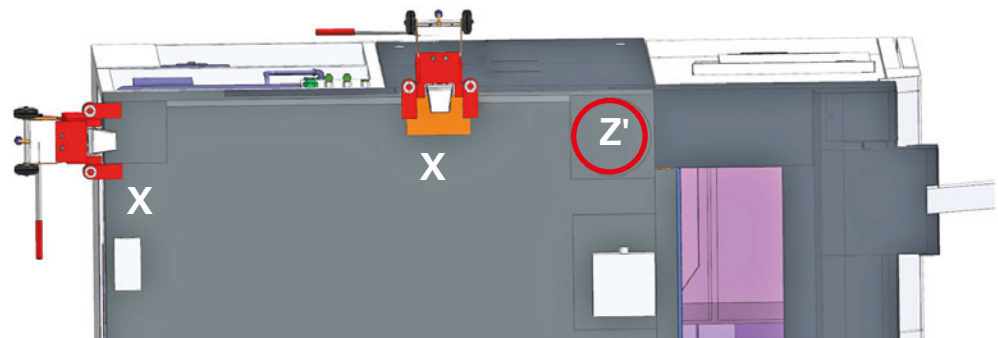
**Place anti-slip mats between the machine and the support of the transport rollers.**

- Lower the machine onto the transport rollers and remove the jacks (**X**).

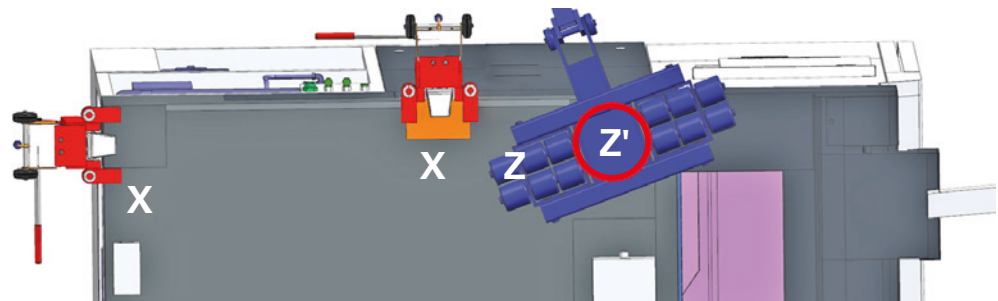


### Retracting the steering gear

- Attach hydraulic jacks **X** and raise the machine. (Fig.: Locations for hydraulic jacks and steering gear).
- Move the steering gear (**Z**) under the machines. Make sure that the plate support of the steering gear is seated correctly in the provided mounting (**Z'**) under the machine bed.



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DIE232ZZ\_32.tif

Fig.: Locations for hydraulic jacks and the steering gear.

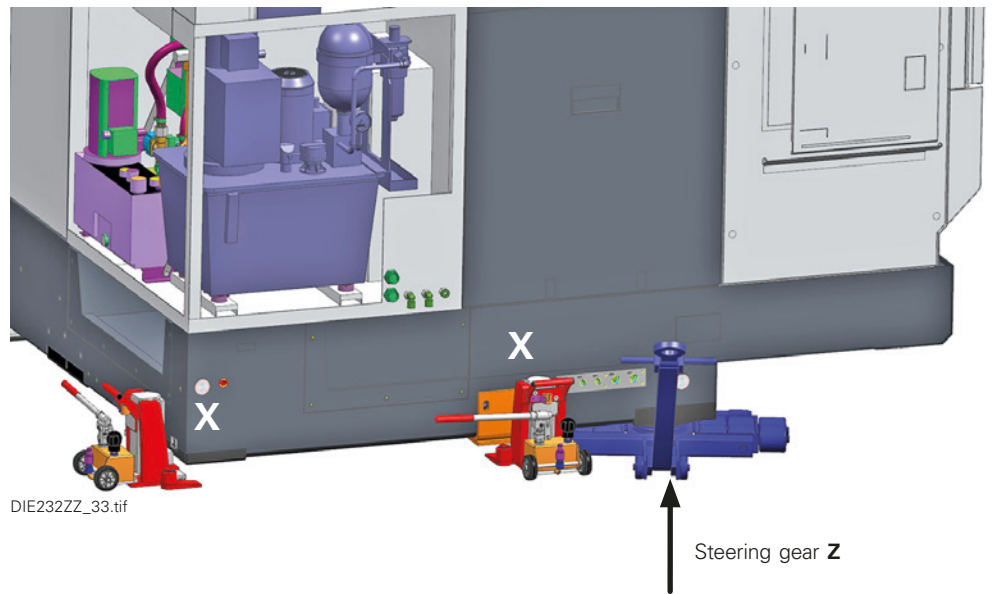


Fig.: Locations for hydraulic jacks and steering gear

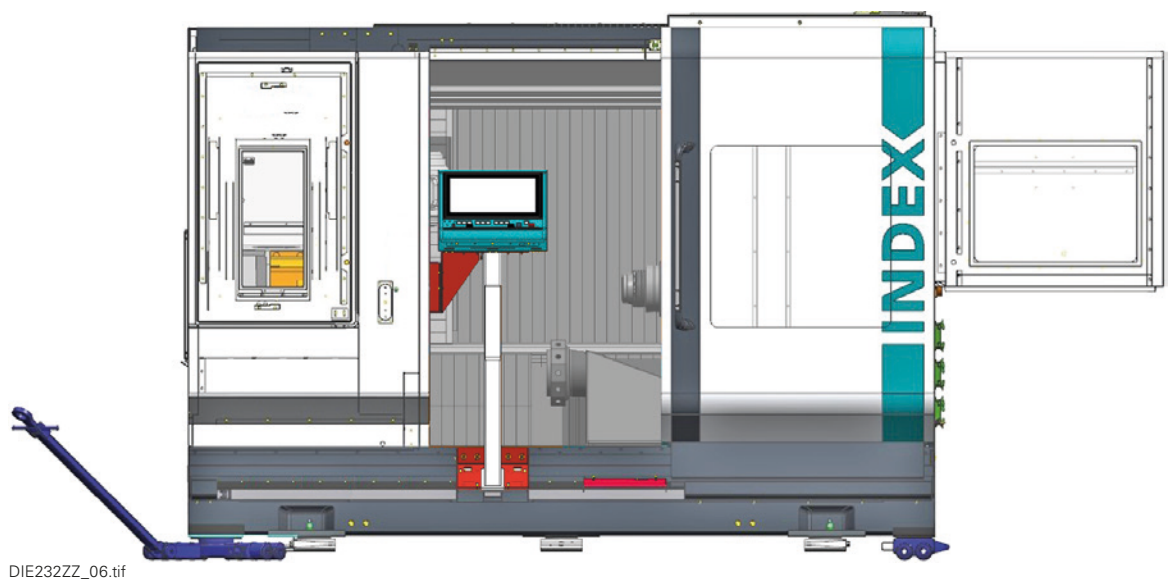
- Lower the machine onto the steering gear and remove lifter X.

Now the machine is ready for further transport.



**It may only be pushed or pressed on the drawbar of the steering gear.**

If a forklift or similar is used for support, the drawbar of the steering gear must be hooked into the coupling provided for this purpose and secured.



### ... when transporting with air cushions

After selecting the appropriate air-cushion modules for this machine, the following procedure must be followed.

#### Procedure:

1. Lift the machine using hydraulic jacks.  
(Proceed as described in Section "... when transporting with rollers".)

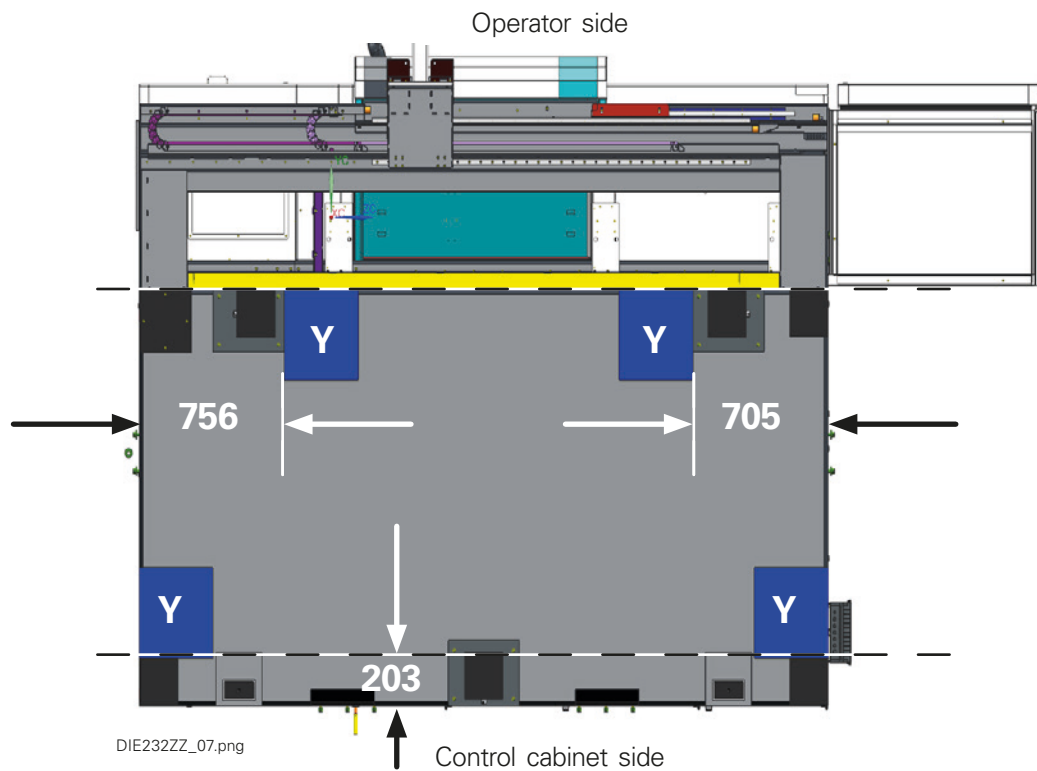
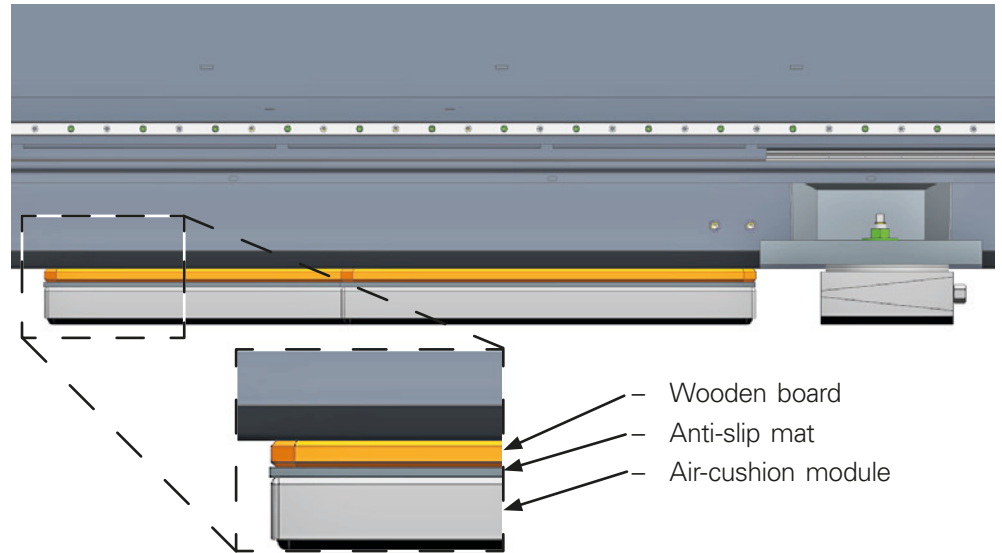


Fig.: 1

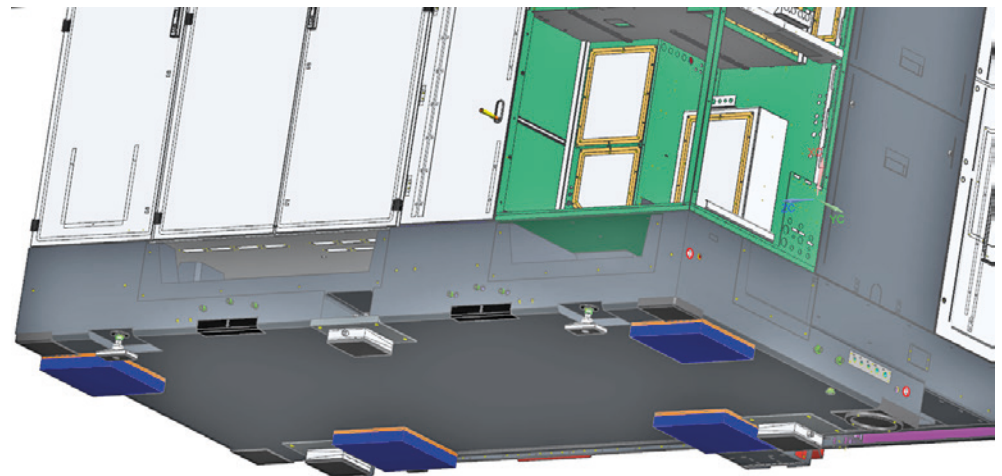
Locations of the air-cushion modules under the machine.

2. Place air cushion modules (Y) under the machine according to the specified dimensions.  
Always position air cushion modules at points only under the respective reinforcements/ribs. A maximum projection of 100 mm beyond the outline is permitted.

3. Wooden boards and anti-slip mats must be placed between the air-cushion modules and the machine.



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DIE232ZZ\_08.png

## Locations of the transport locks on the machine

### Transport locks for work area door and operating terminal

For transporting the machine, the work area door was opened and secured (**Y**).

The operating terminal was partially detached and swiveled into the work area position.

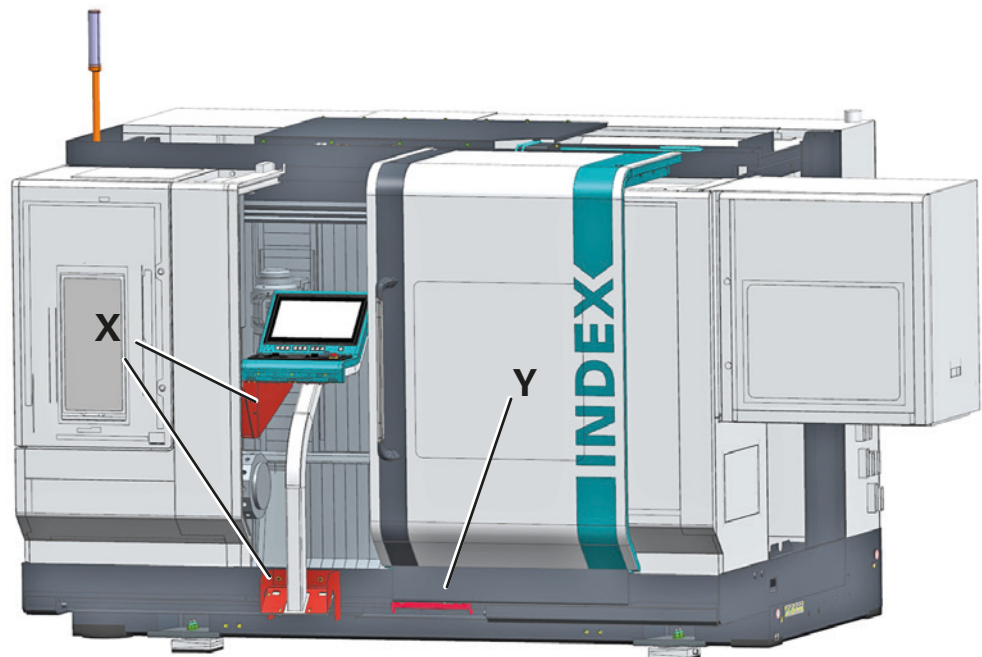
The operating terminal was secured by means of the transport lock (**X**).

- Release and remove the transport lock of the work area door (**Y**) from the guide bar and the cover of the work area door.



**Always stabilize the operating terminal when swiveling it out and removing the transport locks (**X**) (danger of tipping over).**

- Removing the transport lock (**X**).
- Swing the operating terminal back to the position outside the work area and screw it to the sliding console.



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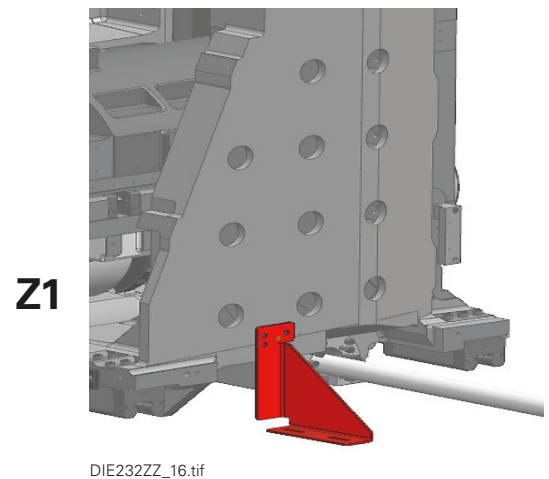
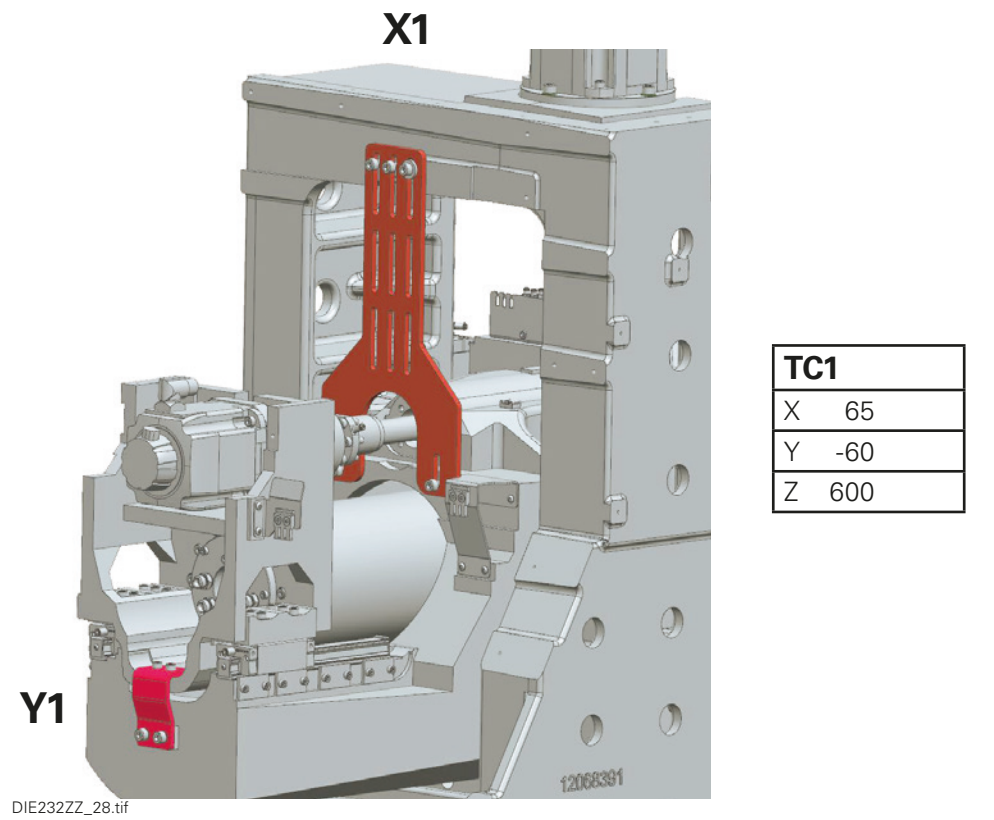
**Transport locks of tool carrier**

**Tool carrier 1 (TC\* top) G200.3**

Before attaching the transport locks, the tool carriers were moved to the following positions:



The tool carriers are located at defined positions and are secured there with transport locks. If the machine is at the installation site, the transport locks must be removed before commissioning. Before a new transport/change of location, the tool carriers must be moved back to the defined positions, and the transport locks must be installed.

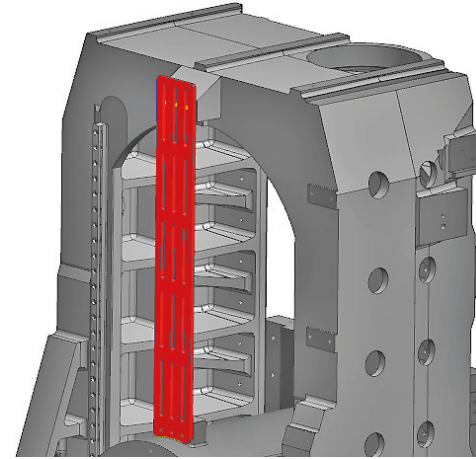


(\*TC = tool carrier)

**Tool carrier 1 (TC\* top) G220.3 with milling spindle**

Before attaching the transport locks, the tool carriers were moved to the following positions:

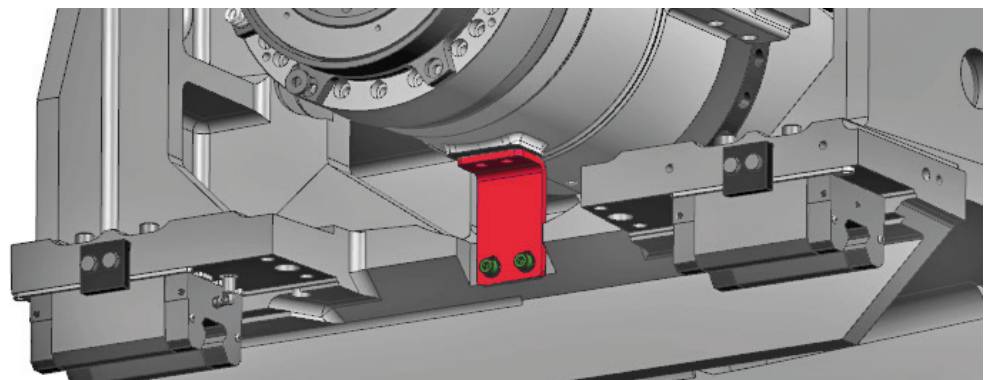
**X1**



DIE232ZZ\_17.tif

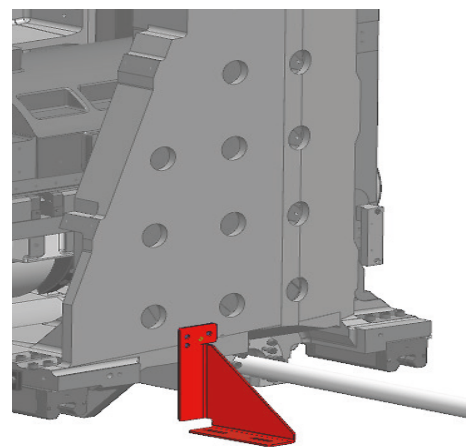
TC1	
X	0
Y	-60
Z	700

**Y1**



DIE232ZZ\_18.tif

**Z1**



DIE232ZZ\_16.tif

(\*TC = tool carrier)

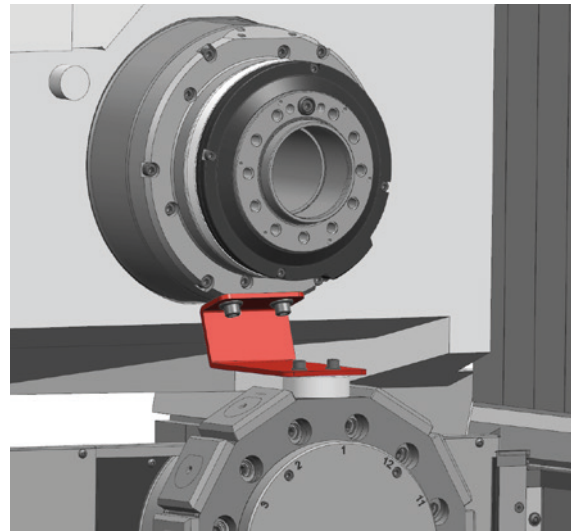
**Tool carriers 2 and 3 (TC\* bottom) G200.3/G220.3**



There are no separate transport locks for the X axes on tool carriers 2 and 3. These are braked without power.

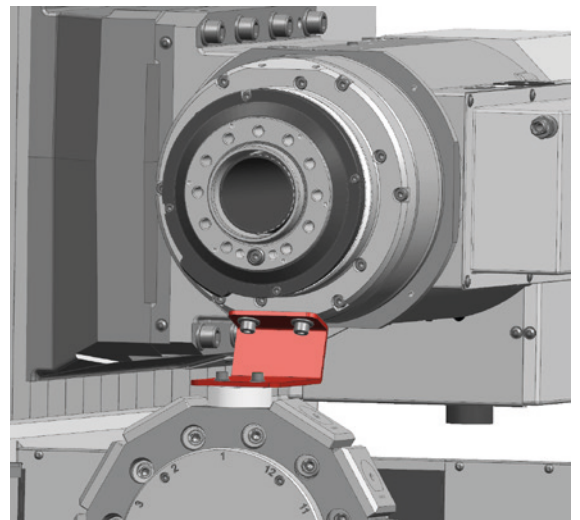
Before attaching the transport locks, the tool carriers were moved to the following positions:

<b>TC2</b>	
X	218
Y	5
Z	85



DIE232ZZ\_20.tif

<b>TC3</b>	
X	218
Y	5
Z	1105



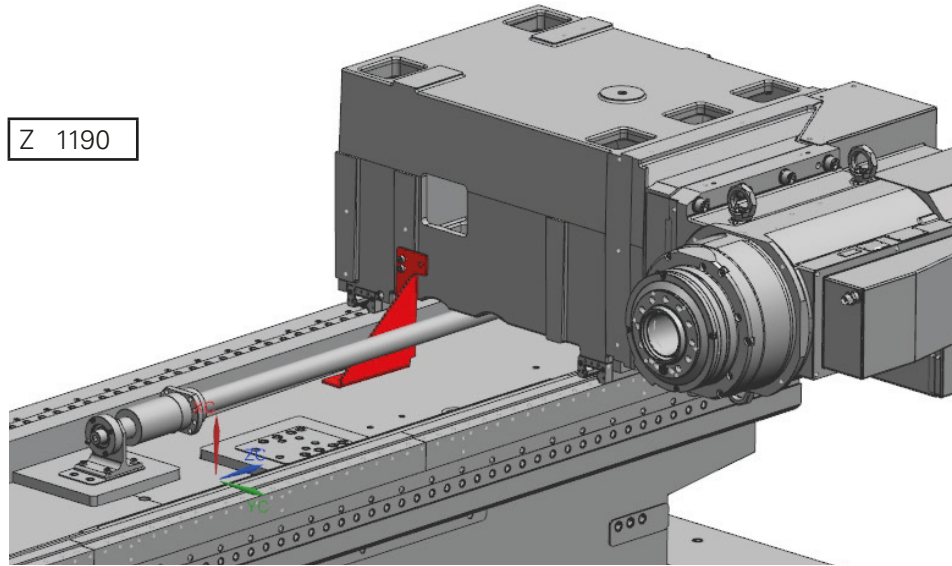
DIE232ZZ\_21.tif

(\*TC = tool carrier)

**Counter spindle**

**Z5**

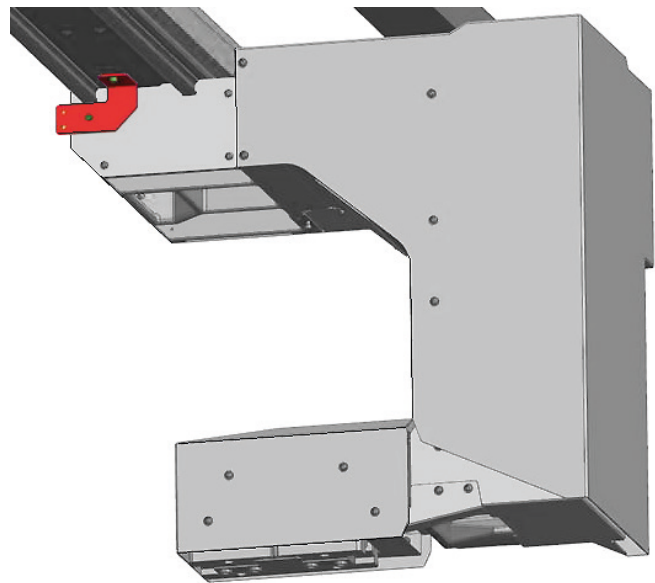
Z 1190



DIE232ZZ\_25.tif

**Workpiece handling unit**

**Z8**

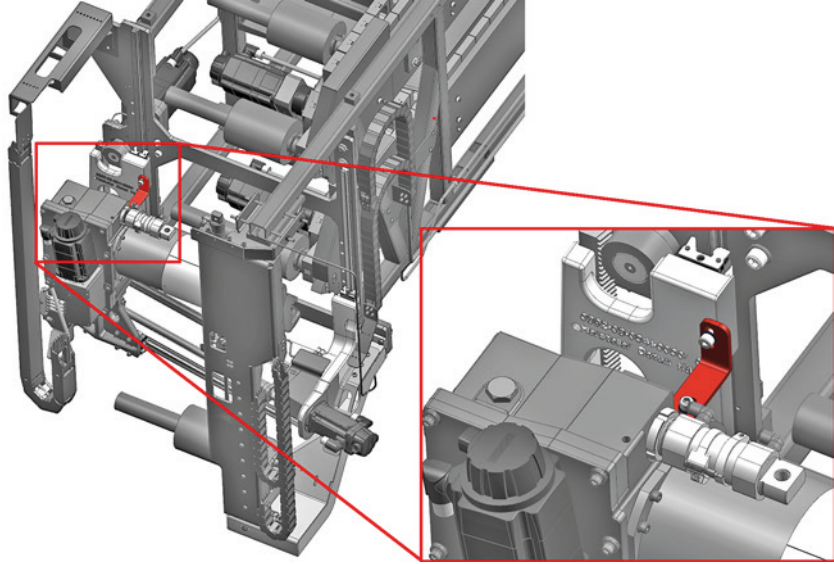


DIE232ZZ\_19.tif

Workpiece handling unit 1 shaft	Z 3305
Workpiece handling unit 2 shafts	Z 3200
Workpiece handling unit 1 flange	Z 3400

(relative to center of the gripper and the machine zero point)

**Tool magazine**



DIE235ZZ\_28.tif



## Unloading and transporting of separate units

Equipment levels or add-on equipment such as chip conveyors, bar guides, bar loading magazines are separate units.

They have dedicated transport regulations that must be observed for unloading and transporting.

(Chapter 1 "Instructions" - Chapter 3 "Third-party documentation")



**Do not step under suspended loads.**

Minor separate units do not have specific transport regulations.

They either rest on a pallet or are included in the packaging of another unit.



**Follow the manufacturer's documentation!**

Documents and drawings of add-on equipment from other manufacturers can be found in Chapter 3, "Third-party documentation".

Use suitable transport ropes or straps for unloading and transporting.

Attach the transport ropes or straps, making sure they cannot slip and the load is securely suspended.

Attach the ropes or straps to any eyebolts that are provided for transport.

## Unpack the accessories and check them for completeness

After unloading, unpack the machine accessories and check them against the information on the delivery form for completeness (compare with the bill of lading or delivery form).

In case of discrepancies, contact **INDEX** or your **INDEX** representative.

## Installation

### Electrical connection

#### 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 wiring diagram.

The control cabinet may only be opened 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**'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 electrical 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 guidelines and regulations applicable in the country of use must be followed.

## Fluidic system

The cooling system, lubrication system, and hydraulic system are located on the left front/rear side of the machine.

Coolant tank (**X**), lubricating oil tank (**Y**), and hydraulic fluid tank (**Z**) were not emptied before transport.



Fill only the coolant indicated on the coolant tank (**X**) at the filler neck (**X1**).  
The filler neck has a ventilation opening.



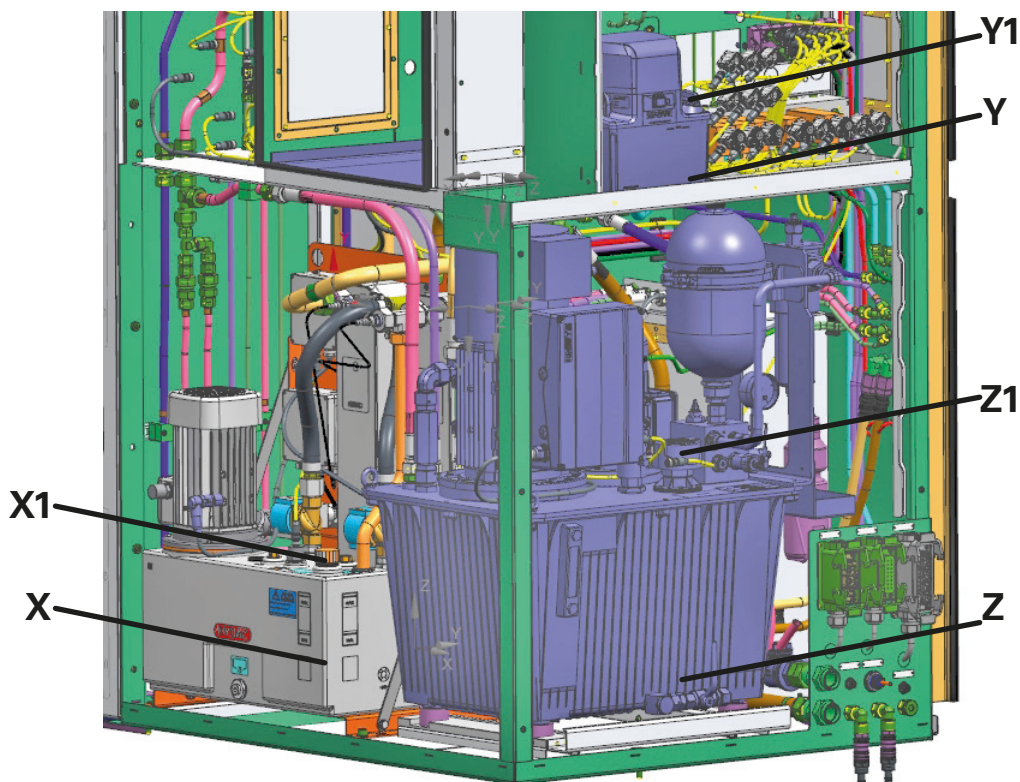
Fill in only the lubricating oil type indicated on the lubricating oil tank (**Y**) at the filler neck (**Y1**).  
The filler neck has a ventilation opening.



Fill in only the fluid type indicated on the hydraulic fluid tank (**Z**) at the filler neck (**Z1**).  
The filler neck has a ventilation opening.



For the appropriate types of lubricating oil, hydraulic fluid, grease, cooling lubricant, and volumes, see Chapter 1, Instructions: "Information on operating materials" and "Hydraulic diagrams" and "Machine installation plan" (Chapter 2, "Diagrams and drawings").



DIE232ZZ\_09.jpg



## Installing the machine

The G200.3/G220.3 machines are equipped with five adjustable machine feet as standard. Only machine feet **A, B, C** (wedge shoes) are used to level the machine.

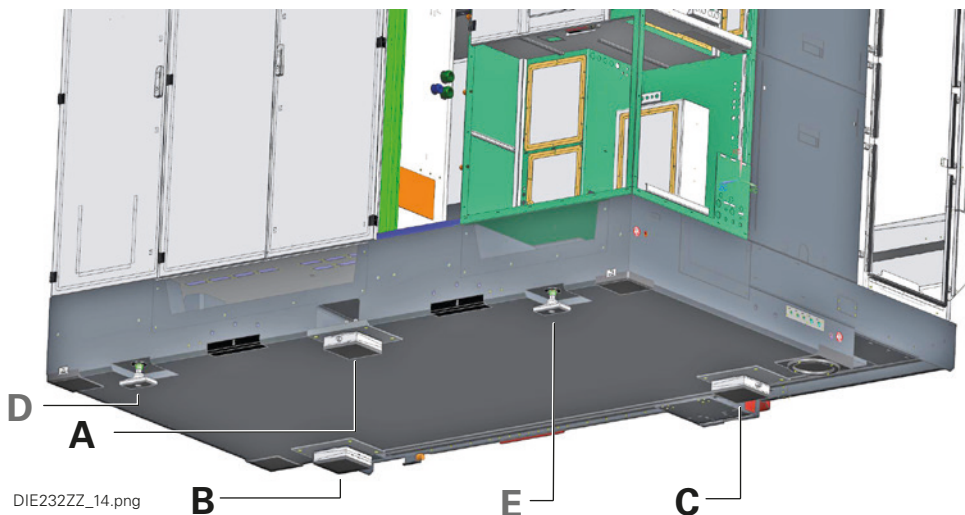


To enable the installation of a bar feeder, the machine must be adjusted to 1400 mm +/- the main spindle height. Note the adjustment range of the wedge shoes +/- 10 mm.



### Be sure to follow the procedure described below.

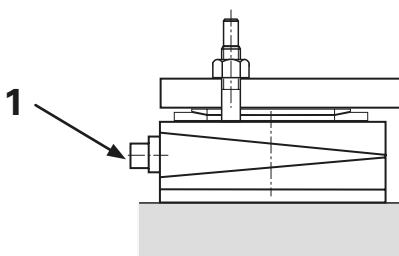
Before finally setting the machine down at the installation site, turn back the machine feet **D, E** as far as necessary so that they have no influence on the alignment of the machine. Also, rotate the wedge shoes **A, B, C** so that the set screws **(1)** point outwards.



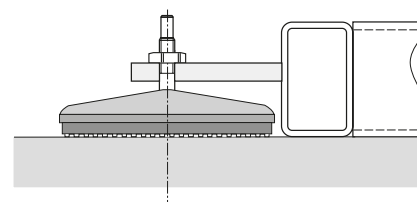
DIE232ZZ\_14.png

Adjustable machine foot (wedge shoe)  
**A, B, C**

Adjustable machine foot  
**D, E**



R1701.10031\_25.eps



L1901.10011\_02.eps

## Leveling the machine

**(Accuracy 0.1 mm/m – also check by inverting the level)**

### Leveling in the Z and Y directions

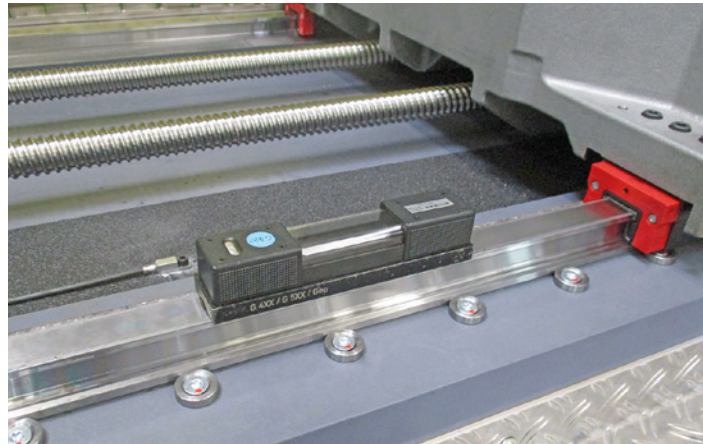
To level the machine, place spirit levels at certain points. For example: precision spirit level 0.10 mm/m (Roeckle).

#### Leveling in the Z direction

- Place the spirit level on the guide bar Z1.



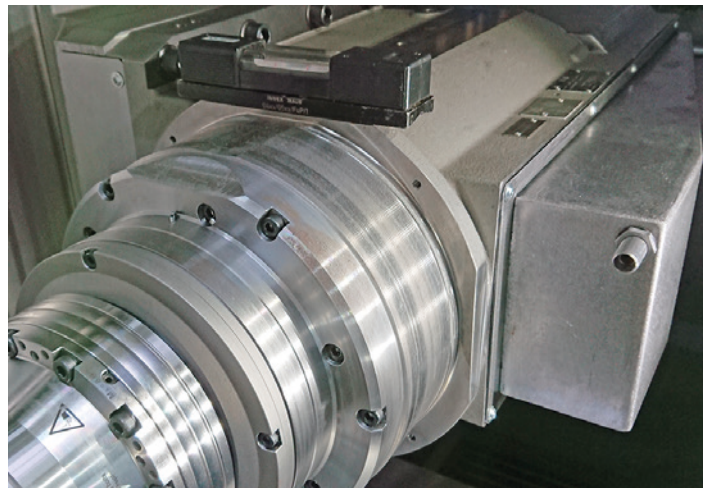
DIE140ZZ\_36.tif



DIE140ZZ\_51.tif

#### Leveling in the Y direction

- Place a second spirit level on the surface of the counter spindle (Fig.) (Y direction).



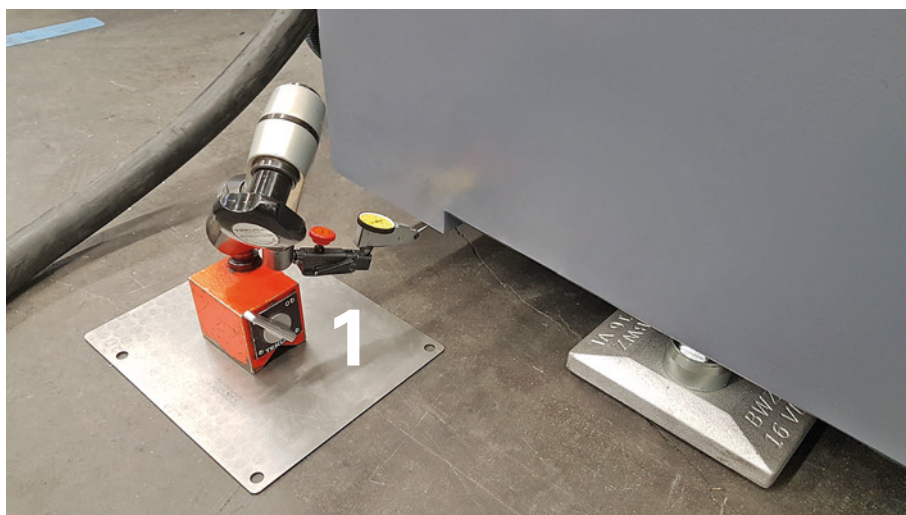
DIE232ZZ\_22.png

- Next, level the machine by adjusting the machine feet **A**, **B**, and **C**. The machine must then be absolutely horizontal..
- Do not remove the spirit levels yet.



A dial gauge is required for adjusting the machine feet **D** and **E** as described below. Place the dial gauge at the bottom on a flat surface (small metal plate **1**) and set it against the machine bed from below.

- Next, tighten the machine feet **D** and **E** to a pretension of 0.1 mm (check with the dial gauge).



DIE140ZZ\_50.tif

- While setting the machine feet **D**, **E**, the position of the machine must not change.

To verify, check the indications of the two spirit levels once again.



After completing the leveling procedure, remove the spirit levels from the machine.

In addition, all covers must be reinstalled, and all access doors must be closed.

## Installation and leveling of configuration levels and add-on equipment

The bar feeder must always be doweled (in conjunction with a bar feeder, the machine does not need to be doweled).

Bar feeders have leveling elements that allow them to be aligned flush with the work spindle with  $\pm 0.1$  mm/m accuracy.

The workpiece conveyor belt, pallet station, etc., also have leveling elements that allow them to be aligned longitudinally and laterally to the main spindle's axis of rotation with  $\pm 0.1$  mm/m accuracy.

(For further information, see the corresponding installation plan in Chapter 2, "Diagrams and drawings".)



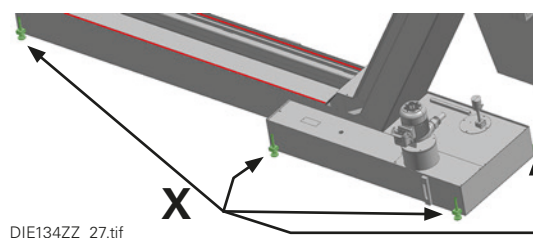
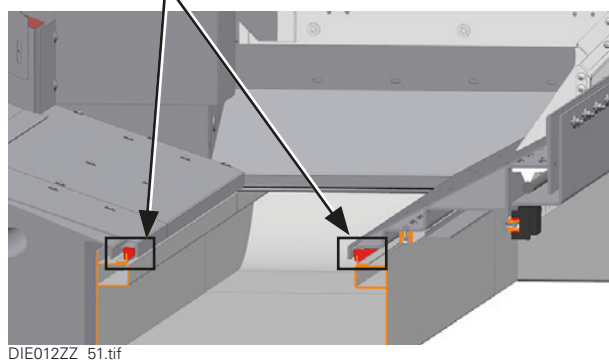
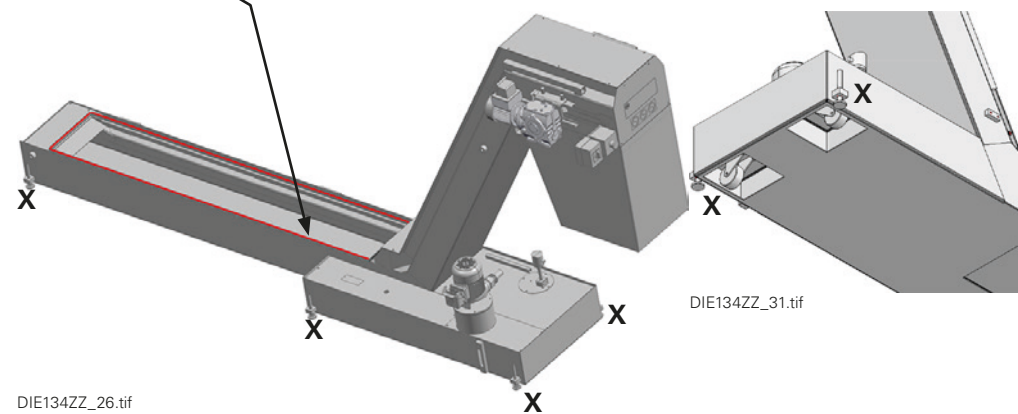
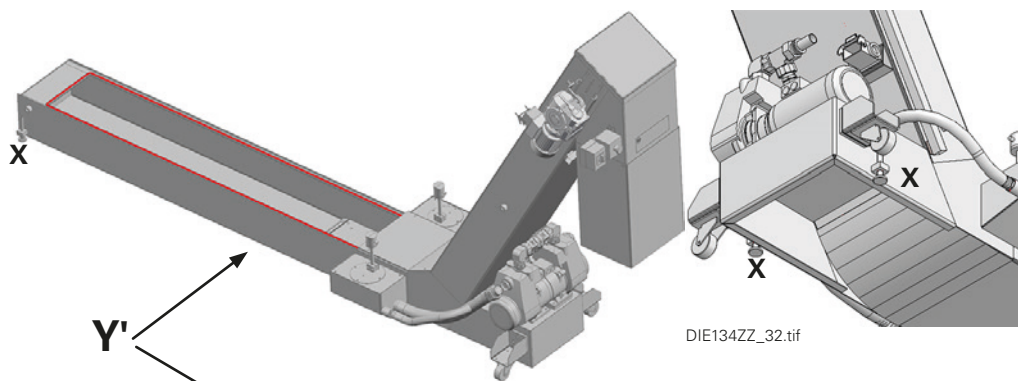
### Installation and leveling of the chip conveyor

Observe the following when installing the chip conveyor in the machine: After pushing the chip conveyor into the machine, ensure that it is raised high enough – using the adjusting screws (X) – so that the chip conveyor's circumferential sealing lip (Y') is positioned on the contact surface (Y) below the machine and therefore provides a seal.



**i** Before removing the chip conveyor from the machine, be sure to lower it back onto the rollers again using the adjusting screws (X). Pay attention to sealing lips (Y')!

**i** Due to the different chip conveyors that can be installed on the machines, the respective manufacturer's documentation must be observed during installation.



## Commissioning

This section lists all the actions that must be carried out in the order given before the machine is ready for start-up.

Only then is the machine ready for operation.



Before commissioning the machine, unscrew all transport locks (**recognizable by their red color**) and keep them for another transport in the future.  
**Refer to Section "Location of transport locks".**

## Cleaning the machine

All blank parts of the machine were treated by spray-covering with an anti-rust agent. Usually, this protective cover is flushed away by the cooling lubricant during the operation of the machine.



**To prevent solvent splashes from entering the eyes when cleaning the machine, be sure to wear suitable safety goggles. For cleaning the inside of the machine's work area, protect your hands and arms by wearing clothes with long sleeves and suitable gloves. Risk of injury by sharp machine parts and cutting edges!**

The anti-rust agent must be washed off if the machine is put into operation after a long time and the protective layer has become very tough.

The mounting surfaces for tool holders and add-on equipment must also be cleaned.

For this purpose, only solvents may be used that do not affect the machine paint. Suitable solutions are turpentine, petroleum, or benzene.

## Check the operating fluid levels and replenish, if necessary.

Hydraulic system: ..... Fluid level check

Cooling lubricant unit:..... Replenish cooling lubricant

Central lubrication system: ..... Fluid level check

Add-on equipment:..... Fluid level check

Cooling: ..... Level check



For information on the lubricating oil, hydraulic fluid, cooling lubricant, and coolant grades, as well as on volumes and filling positions, see Chapter 1, Instructions: "Information on operating materials" and "Hydraulic diagrams" and "Machine installation plan" (Chapter 2, "Diagrams and drawings").



## Pressure accumulator

If the machine was shipped by plane, all pressure accumulators attached to the machine are depressurized.

Before commissioning the machine, a specialist must fill all pressure accumulators with nitrogen (N<sub>2</sub>). The prescribed pressures must be observed.

For the prescribed pressures, see the hydraulic diagrams in Chapter 2, "Diagrams and drawings".

## Data loss due to prolonged downtime



The machine is functional only after all data have been entered.

After a prolonged downtime of the machine, data may be lost in the RAM.

In such a case, the lost data must be re-entered or re-loaded before the machine can be put back into operation.

The data are recorded in the start-up report and backed up on a storage medium. The start-up report and the storage medium are located in the document pocket in the door of the control cabinet.



## Switching on the machine

See document "Operating the Machine".

## Relocation



Be sure to clean the contact surfaces of oil and grease before reattaching the transport locks.

Refer to Sections "Transporting the machine" and "Location of the transport locks".



Replace filling/breathing filters on the hydraulic and cooling units with a blanking plug.



DIE009ZZ\_22.tif



DIE009ZZ\_23.tif

Fig.:  
Example of filler neck and blanking plug



DIE140ZZ\_44.tif

Example:  
Filling and breathing filter  
by ARGO-HYTOS GmbH



## Additional information for any new transport of the machine



Before transporting the machine again, be sure to read Chapter "Transporting" and Section "Location of the transport locks ....".

All transport locks and transport devices must be mounted. The assemblies may have to be moved to a defined position in order to be able to mount the transport locks.



When assembling the slings, be careful not to damage the ballscrew or the glass scale.



The tightening torque of 300 Nm for the screws (M36) of the slings must be strictly observed.

### Checking the lifting device



DIE232ZZ\_34.tif



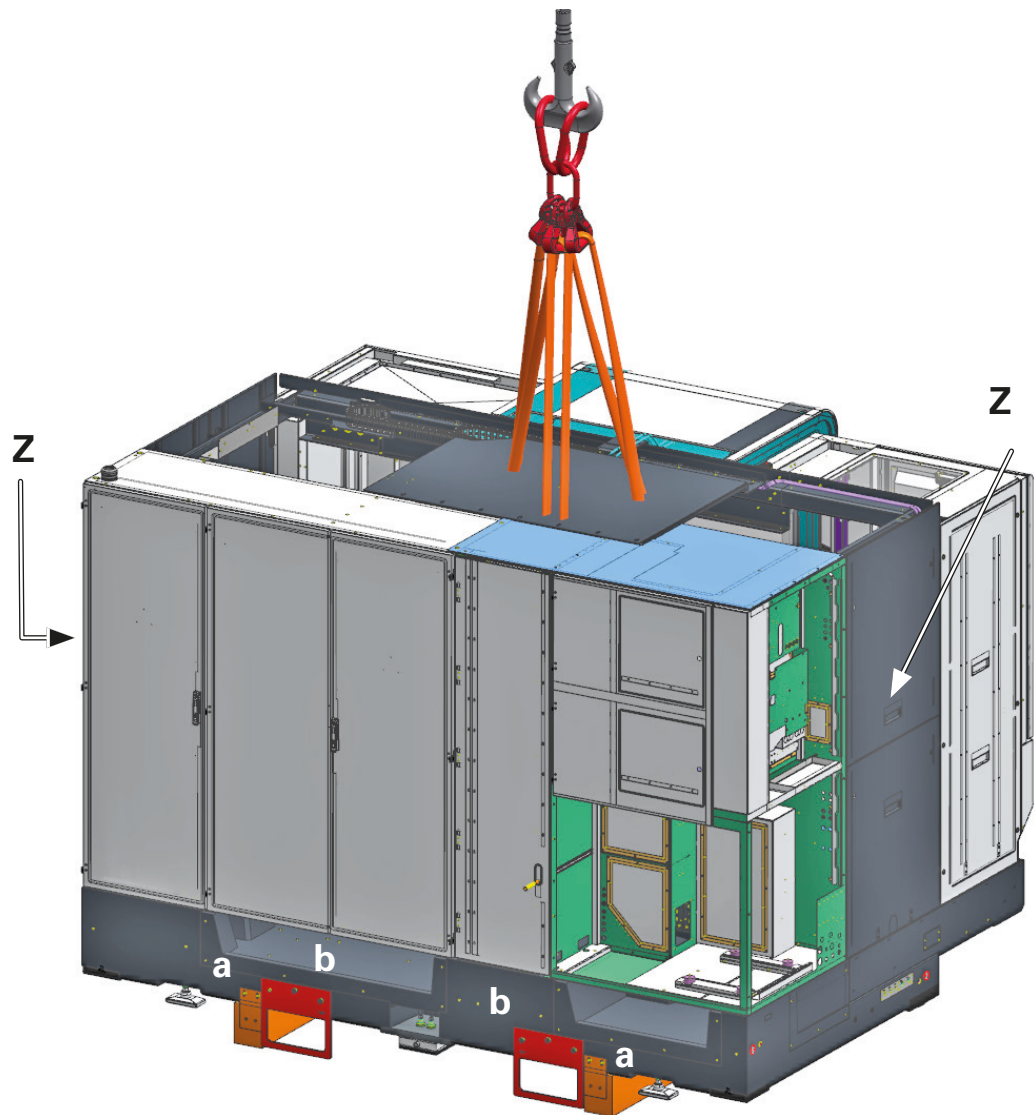
Before re-use, be sure to check and evaluate the entire transport gear (visual inspection).

**In the event of obvious damage, such as deformation or cracks, it must no longer be used.**

Fig.:  
View of slinging equipment as a whole – with turnbuckle

### Loading the machine onto a truck

1. First, the wooden planks (**a**) must be mounted again.
2. When transporting with a forklift truck, the transport lugs (**b**) must be mounted
3. In addition, several side panels (**Z**) on both sides of the machine must be removed for lashing on the truck.

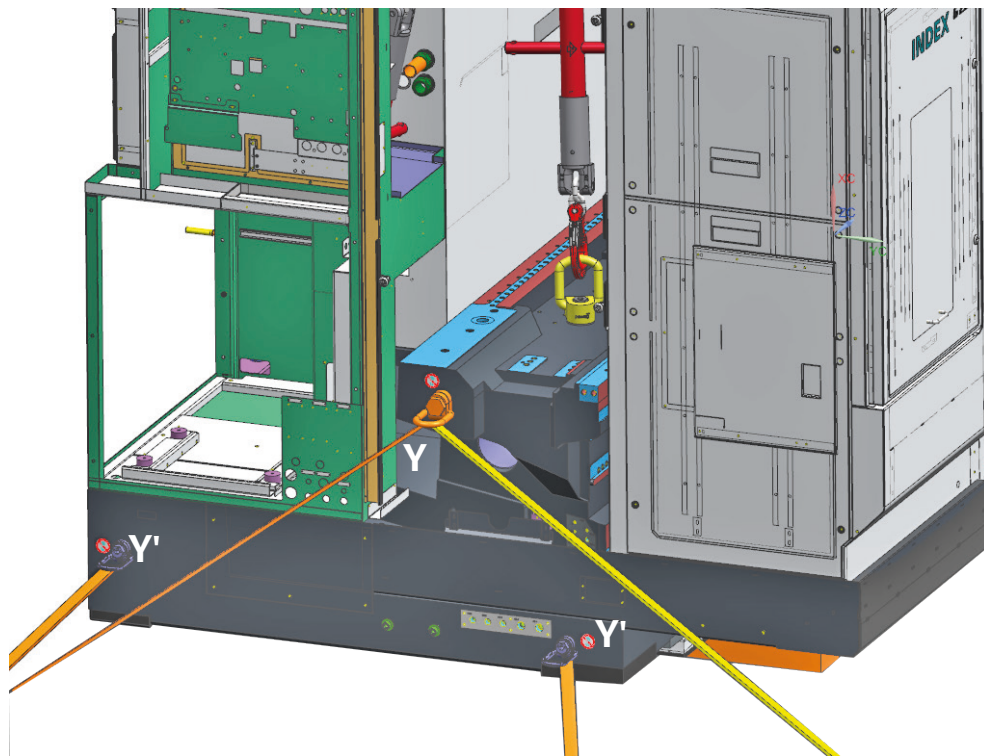


DIE232ZZ\_13.tif

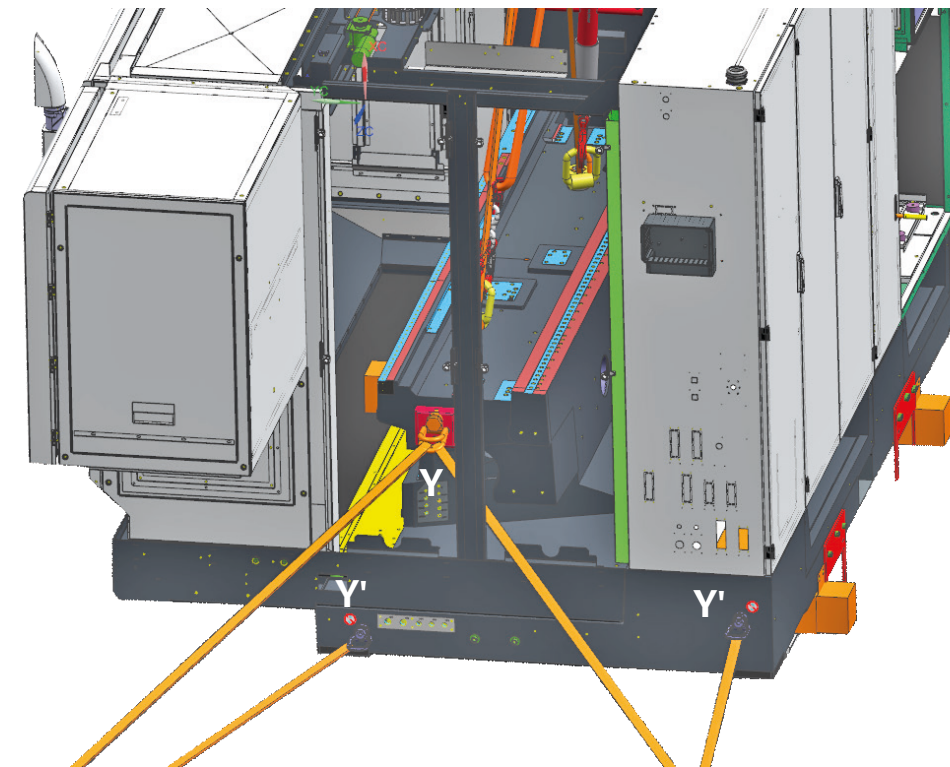
### Suspension and lashing points

Anti-slip mats must be placed between the loading platform and the two screwed-on wooden planks.

The machine must be secured using the lashing points (**Y+Y'**) to prevent slipping on the loading platform.



DIE232ZZ\_11.png



DIE232ZZ\_12.png

**Only for machines equipped with chip conveyor**

Unscrew the cooling lubricant hose from the screw connection above the cooling lubricant tank and loosen the power line connections to the cooling lubricant pump and to the chip conveyor's drive motor.

Pull out the chip conveyor and clean it.

**Only for machines with sep. feeding unit**

Disconnect the energy supplies, and close the connections, if applicable.

Provide the appropriate lifting device for the respective feeding unit.

**Pressure accumulator**

**For transport by air, all pressure accumulators attached to the machine must be depressurized and emptied by a specialist.**

**Set the main switch to OFF and lock it against powering on.**

**Depressurize the hydraulic system by opening the accumulator drain valves.**



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



# INDEX

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