

# Transport, Installation, Commissioning

**G400.2/G420**

**G500.2/G520**

**(Turning length 1600 mm)**

## Note on applicability

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

## A word on copyright

This document is protected by copyright and was originally compiled in German. The duplication and distribution of this document or parts thereof is prohibited without prior consent of the copyright owner, and any violators will be prosecuted. All rights, including the right to translate, are reserved.

© Copyright by INDEX-Werke GmbH & Co. KG

<b>Table of contents</b> .....	<b>3</b>
<b>General note</b> .....	<b>6</b>
<b>Explanation of symbols</b> .....	<b>7</b>
<b>Safety instructions</b> .....	<b>8</b>
Information on transport, installation, commissioning .....	8
General hazards during on-site transport .....	10
Dimensions and masses.....	10
Transporting and lifting aids.....	10
<b>Preparations</b> .....	<b>11</b>
Appropriate transporting and lifting aids .....	11
Space requirements .....	12
Floor condition .....	12
Fastening/anchoring .....	12
Ambient conditions.....	13
Power supply .....	14
Main circuit breaker.....	14
External data transfer .....	15
Compressed-air supply .....	16
Pressure accumulator.....	16
Operating material to be provided.....	17
Pumps and tanks.....	18
Chip disposal .....	18
Disposal of used operating materials .....	18
Observing the ground and wastewater regulations.....	18

<b>Transport.....</b>	<b>19</b>
Transport chart (without transport means) with center of gravity.....	19
G400.2/G420.....	19
G500.2/G520.....	20
Delivery.....	21
Machine.....	21
Other separate units.....	22
Transporting the machine 1600 mm.....	23
Working with hydraulic jacks.....	26
Lifting and lowering the machine with hydraulic jacks.....	27
..... when transporting with rollers.....	27
Procedure:.....	27
Lifting.....	27
..... when transporting with air cushions.....	31
Procedure:.....	31
Locations of the air-cushion modules.....	31
Locations of the transport locks on the machine.....	33
Transport lock of the work area door and the operating panel.....	33
Tool carrier 1 (upper) G400.2/G500.2.....	34
Tool carrier 1 (upper) G420/G520.....	35
Tool carriers 2 and 3 (lower) G400.2/G420/G500.2/G520.....	36
Transport lock at workpiece handling unit.....	36
Unloading and transporting of separate units.....	37
Unpack the accessories and check them for completeness.....	37

<b>Installation .....</b>	<b>38</b>
Electrical connection.....	38
Important notes.....	38
Fluidic system .....	39
Installing the machine .....	40
Leveling the machine.....	41
Leveling in the Z and Y directions.....	41
Leveling in the Z direction.....	41
Leveling in the Y direction.....	42
Installation and leveling of expansion stages and add-on equipment.....	44
Installation and leveling of the chip conveyor .....	45
<b>Commissioning.....</b>	<b>46</b>
Cleaning the machine .....	46
Check the operating fluid levels and replenish, if necessary.....	46
Pressure accumulator.....	47
Data loss due to prolonged downtime.....	47
Switching on the machine.....	47
<b>Relocation .....</b>	<b>48</b>
Additional information for a new transport of the machine .....	49
Checking slings .....	49
Drive area guard.....	50
Suspension and lashing points.....	51
Only for machines equipped with chip conveyor.....	52
Only for machines equipped with blank feeder.....	52
Pressure accumulator .....	52
Transporting the machine.....	52

## 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 2 "Diagrams and drawings").

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

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



Maschinendokumentation\_beachten!



(\* - 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 general safety instructions, as a separate document, are part of the **INDEX TRAUB** user documentation.

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 another 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 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 (Chapter 1 “Instructions” - Chapter 3 “Third-party documentation”) exist for separate units such as chip conveyor, bar feeder, bar loading magazine, 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 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 in Chapter 2 "Diagrams and drawings".

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 in Chapter 2 "Diagrams and drawings".



## 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.

## 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. 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!

## Appropriate transporting and lifting aids

- Crane
- Truck-mounted crane
- Forklift (only for separate units)
- 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.

Chapter 2 “Diagrams and drawings” also includes specific 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

Doweling of the machine is not necessary.

Bar guides, bar feeders, and bar loading magazines must generally be anchored in the floor (for information, see the associated operating instructions and the machine installation plan in Chapter 2 “Diagrams and drawings”).

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

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



**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 mains 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 values for:

- machine connection,
- operating voltage,
- main circuit breaker

can be found on the nameplate or in the electrical diagram in Chapter 2 "Diagrams and drawings".



## 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 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, all pressure accumulators must be filled with nitrogen (N<sub>2</sub>) by a specialist. The prescribed pressures must be observed. For the prescribed pressures, see the hydraulic diagrams in Chapter 2 "Diagrams and drawings".



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



## 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: “Notes 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 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 locally valid guide lines and regulations must be taken into consideration.

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.

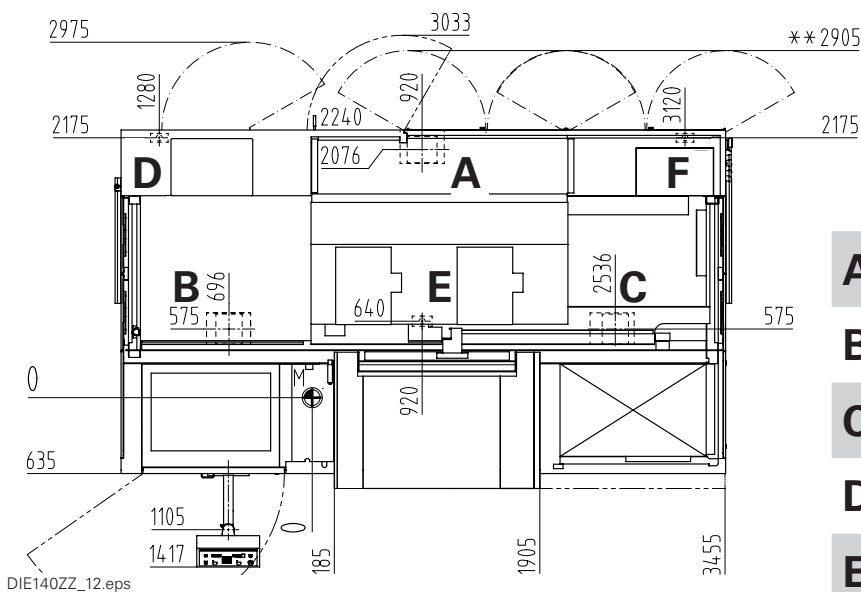
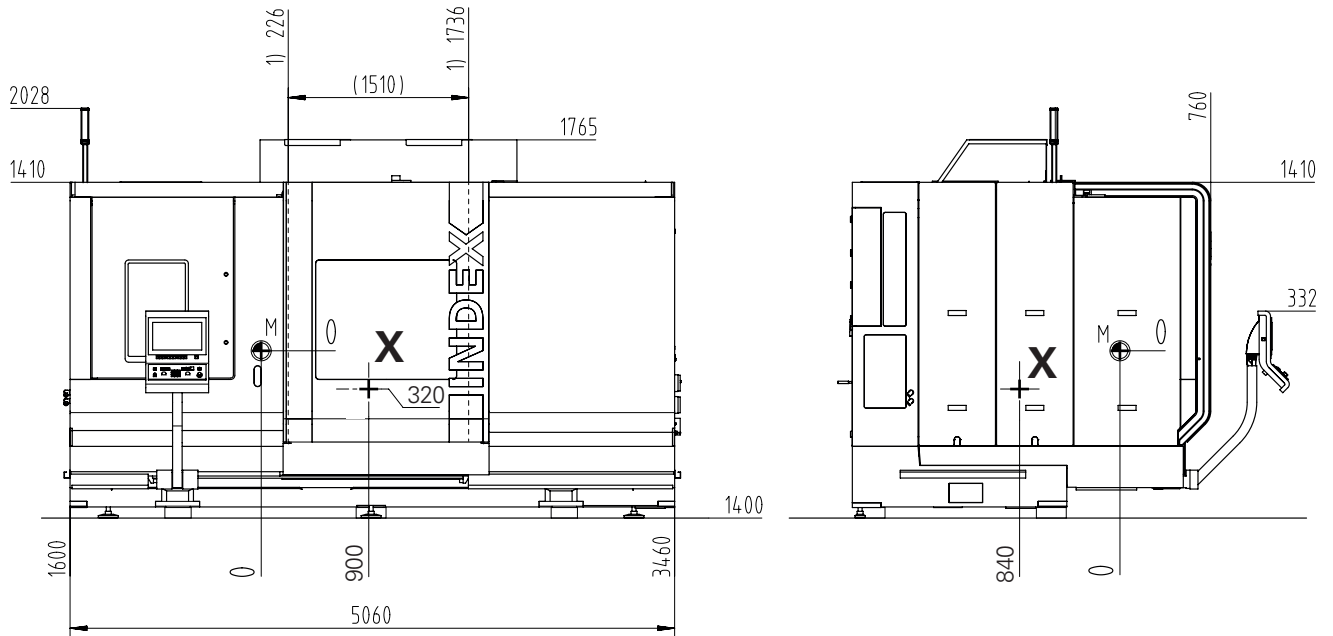
### Possible preventive measures:

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


## Transport

### Transport chart (without transport means) with center of gravity

#### G400.2/G420



<b>A</b>	approx. 4000 kg
<b>B</b>	approx. 8000 kg
<b>C</b>	approx. 8000 kg
<b>D</b>	approx. 1000 kg
<b>E</b>	approx. 1000 kg
<b>F</b>	approx. 1000 kg

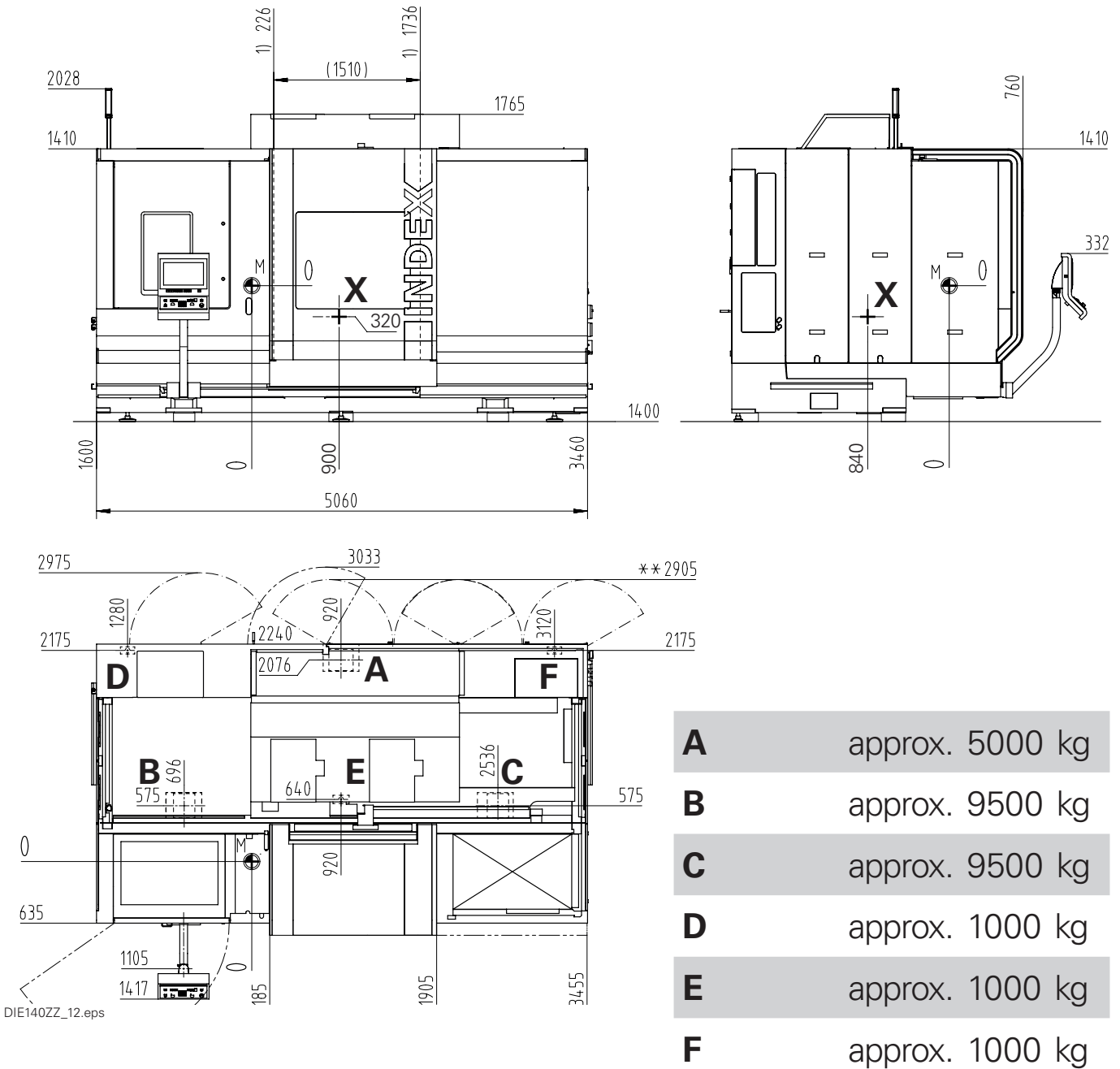
 **X center of gravity**

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

## Transport

### Transport chart (without transport means) with center of gravity

#### G500.2/G520



**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 filled.  
**(The filler neck of the hydraulic fluid tank will be closed. Refit the filling and breathing filter before commissioning.)**



DIE009ZZ\_23.tif

Fig.: Blanking plug

Example:  
Filling and breathing filter  
ARGO-HYTOS GmbH



DIE140ZZ\_44.tif



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 coolant cleaning system. The chip conveyor and coolant cleaning system are separate units.)
- Certain moving parts on the machine, such as sliding guards and the swiveling operating panel, 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 conveyor, bar feeder, bar loading magazine, 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 feeder and bar loading magazine 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 bill of lading with 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 G400.2/G420/G500.2/G520 INDEX


## Transporting the machine 1600 mm

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

Machine mass	
<b>G4xx</b>	<b>G5xx</b>
<b>23,000 kg</b>	<b>27,000 kg</b>
(incl. slings)	

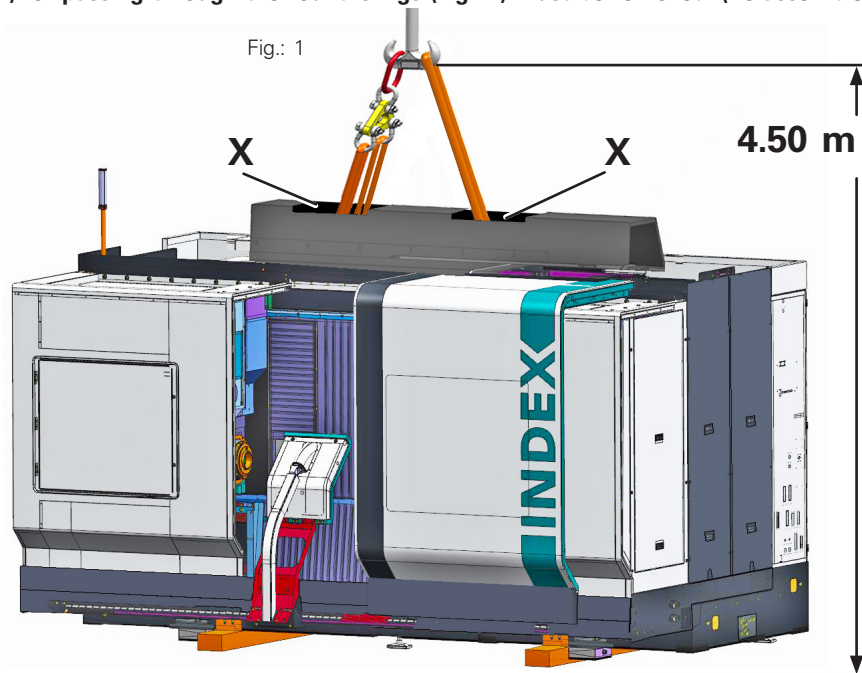
### Caution!

Before attaching the lifting slings (Fig.: 2+3 – rear side of the machine), the upper tool carrier must be positioned at approx. 800 mm (Z axis), and the cover plates (X) for passing through the round slings (Fig.: 1) must be removed. (Re-assemble before commissioning)



**When assembling the slings, be careful not to damage the ballscrew or the glass scale. (Fig.: 2+3)**

Check the proper seating of the ropes/chains/round slings in the transport hooks before lifting the machine. The supplied transport harness including attachments (see parts list "Transport Gear") must be repacked in the appropriate crate after transport and returned to **INDEX**.



DIE140ZZ\_01.tif

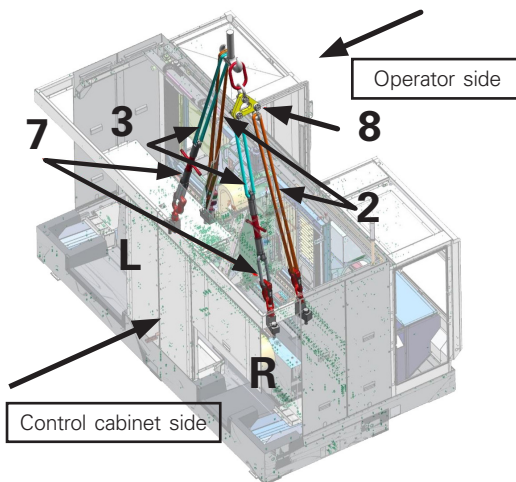
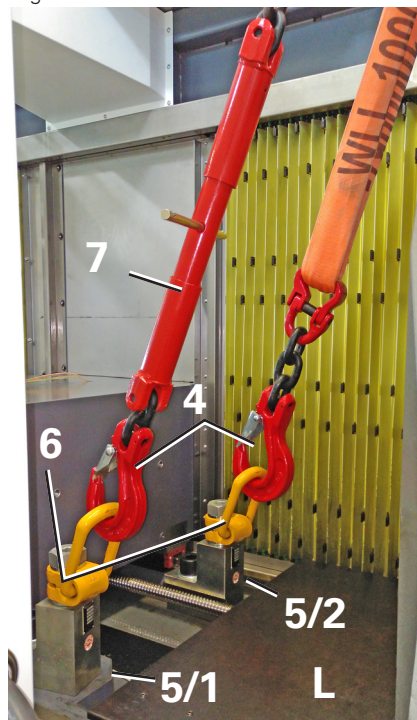


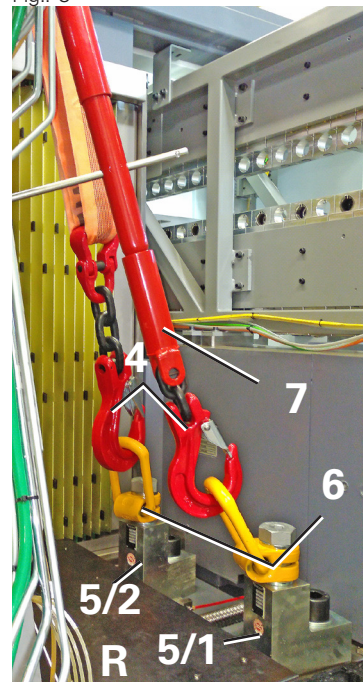
Fig.: 2 and 3  
Rear view of the machine

Fig.: 2



DIE212ZZ\_04.tif

Fig.: 3



DIE212ZZ\_05.tif

DIE212ZZ\_01.tif

	Item	pcs.	Name
Lifting device	2	2	Round sling, for example: Round sling 10 t
	3	2	Round sling 8 t
	4	4	Heavy-duty hook (safety hook 10 t)
	4	4	Screw cyl. M42x80 8.8
	5/1	2	Stop block (210 mm)
	5/2	2	Stop block (180 mm)
	6	4	Load stand M42
	7	2	Turnbuckle
	8	1	Rocker

Parts list "Transport gear"



**After** removing the slings, be sure to remove the protective covers inserted on both sides to protect the ball screw drive and the glass scale (**X Figs.: 2 and 3**).

Also, the foam covers fitted to protect the linear guides (**Y Fig.: 4**) must be removed.

**Both should be kept for any new transport of the machine and, if necessary, reassembled as described.**

Fig.: 2



DIE140ZZ\_46.tif

Fig.: 3



DIE140ZZ\_47.tif

X

Fig.: 4



DIE140ZZ\_48.tif

Y



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 is slightly raised and supported by the crane or hydraulic jacks. Then unscrew and remove the transport locks of the wooden planks.



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



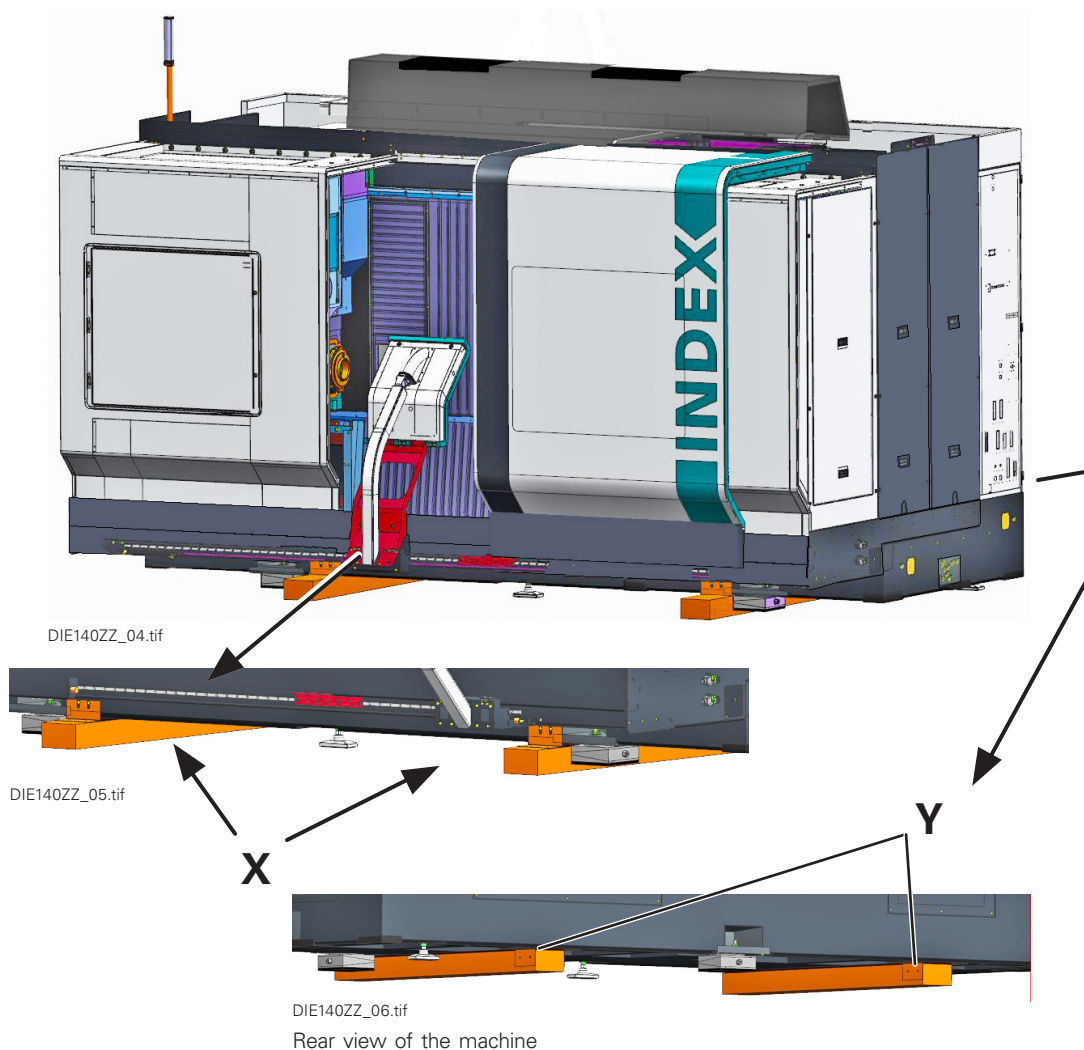
**Danger to life!**

**Do not step under suspended loads.**



Store the wooden planks and the associated transport locks (**X** and **Y**) for any further transport.

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



## 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.



DIE002ZZ\_04.tif



**Only use sufficiently dimensioned hydraulic jacks for transporting the machine.**

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

**Be sure to provide for 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.**

**The locations shown for the hydraulic jacks must absolutely be observed. The supporting points for the transport rollers are reinforced by additional cast steel plates.**

## Lifting and lowering the machine with hydraulic jacks

### ..... when transporting with rollers

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. (Fig.: Locations for jacks and transport rollers)
- Release the clamp on the bar (**b**) and push the transport rollers together.



- 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**).



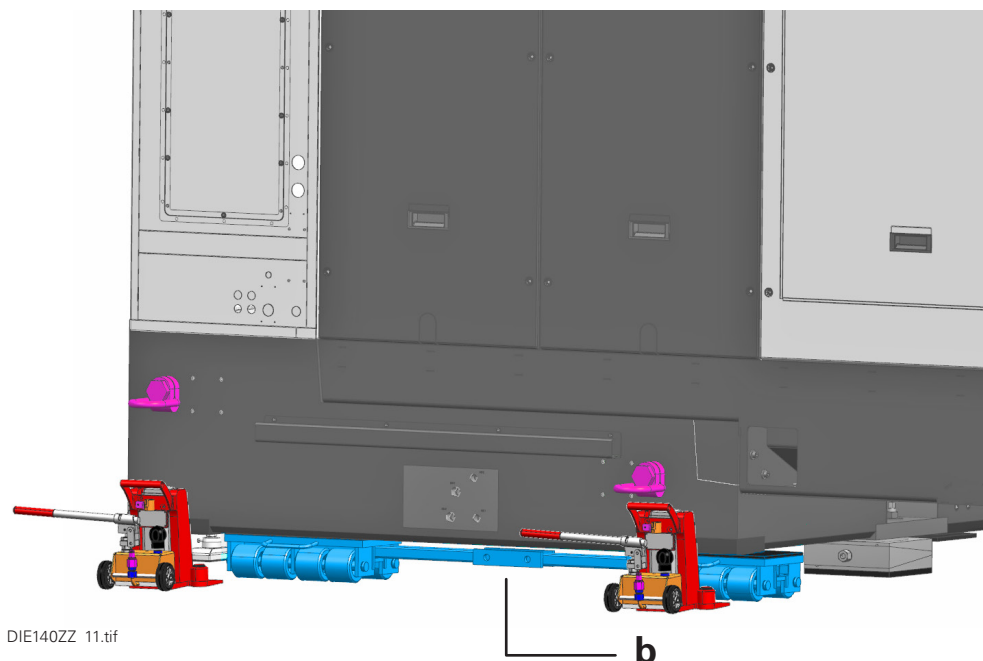
**Place anti-slip mats between the machine and the support of the transport rollers.**

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

DIE140ZZ\_10.tif

**X**

Fig.  
Locations for hydraulic jacks and transport rollers



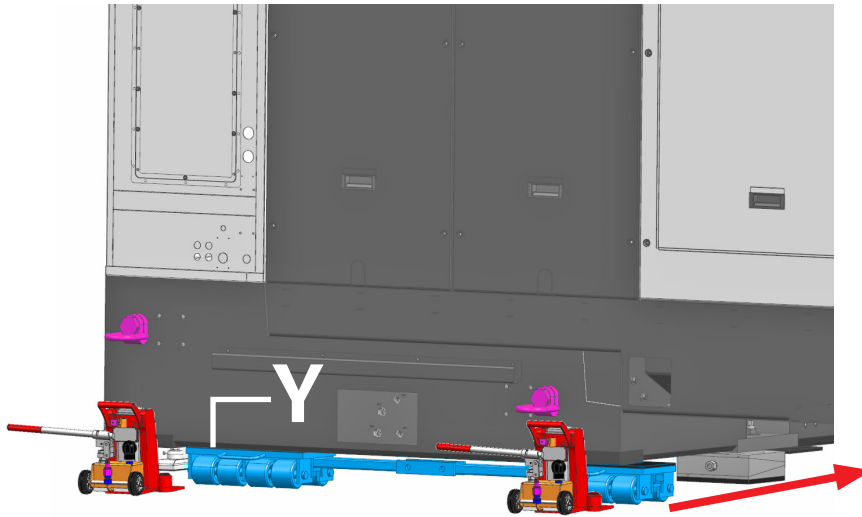
DIE140ZZ\_11.tif

**b**

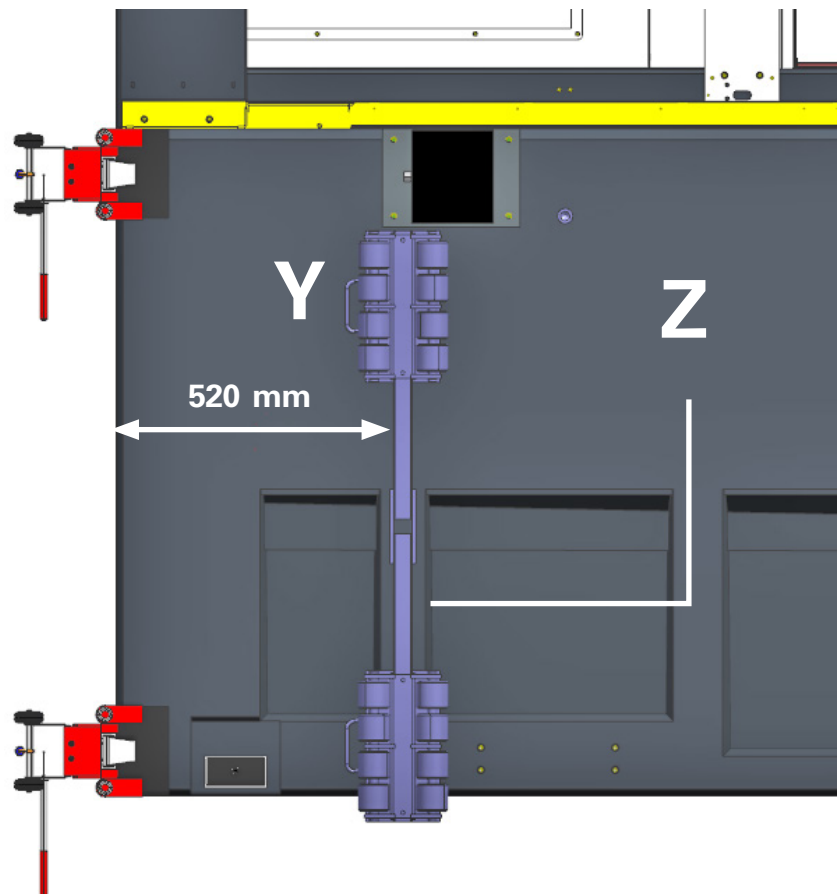


The transport roller (Y) can be repositioned by 520 mm to allow for tighter radii.

Make sure that the rib (Z) of the machine bed rests on the transport roller. (See Fig.)



DIE140ZZ\_11.tif



DIE140ZZ\_34.tif

Fig.:  
Location of the transport rollers after shifting by 520 mm. (bottom view)

- Attach hydraulic jacks **X** and raise the machine. (Fig.: Locations for hydraulic jacks and transport rollers)



Use only transport rollers with a minimum load capacity of 23 t or 27 t (depending on the machine type). This ensures that the plate support (Ø175 mm) of the steering gear fits into the mounting provided for this purpose in the machine bed.

- It is recommended to move in the steering gear (**d**) from the right at an angle of 45°.
- Make sure that the plate support of the steering gear fits correctly into the mounting under the machine bed.

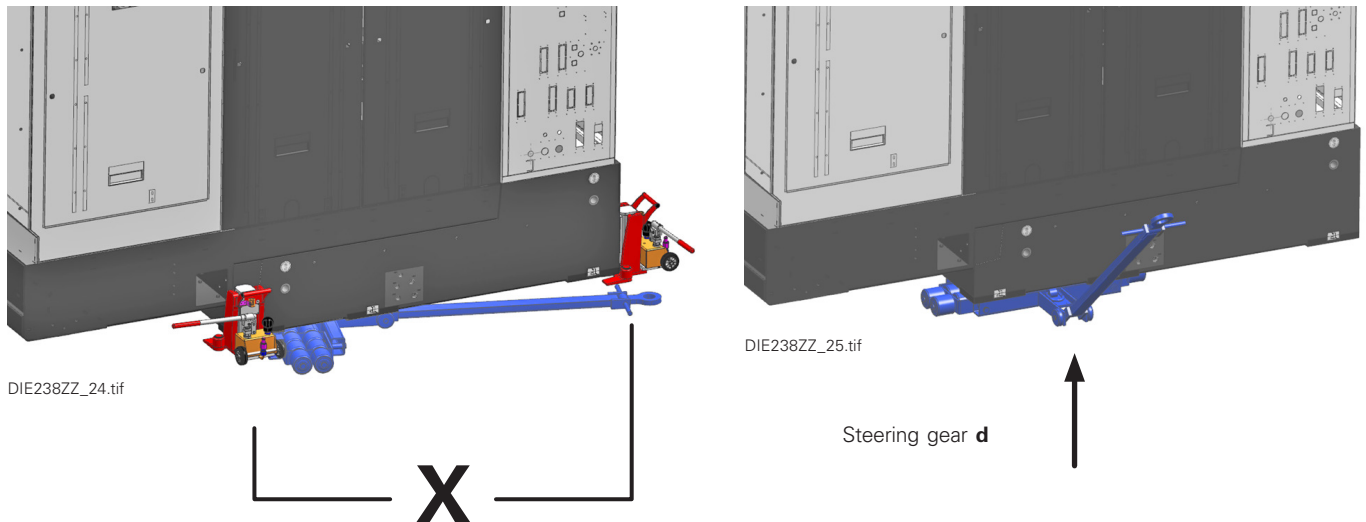
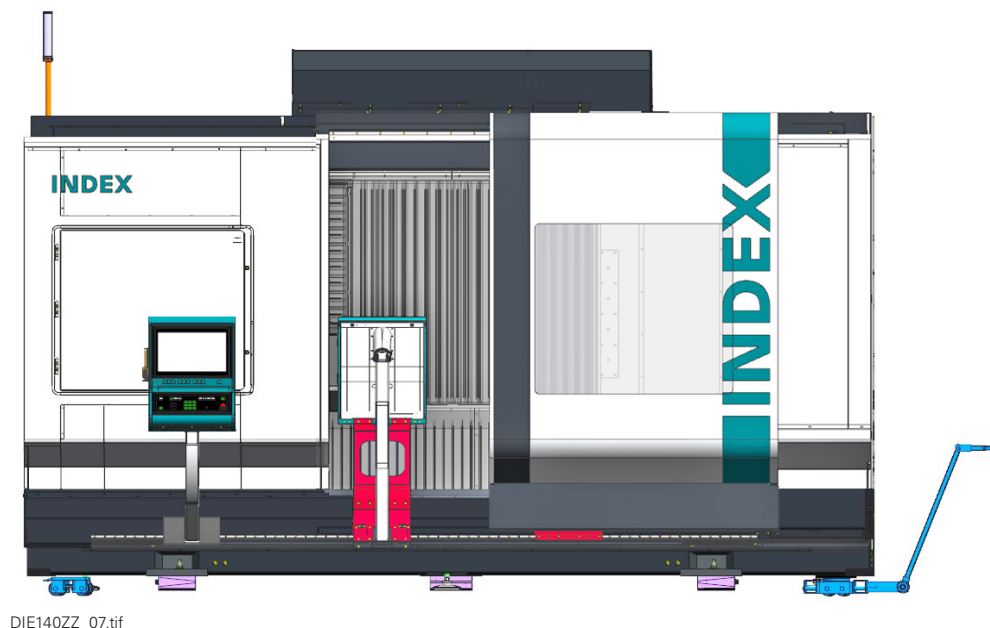


Fig.: Locations for hydraulic jacks and transport rollers

- Lower the machine onto the steering gear and remove lifter **X**.  
When turning the steering roller in the direction of travel, a jack can be used to relieve some of the load on the roller.

Now the machine is ready for further transport.



DIE140ZZ\_07.tif

Transport rollers have the advantage of a low loading height so that the machine can be loaded and unloaded using hydraulic jacks. Disadvantages are, however, the relatively small wheels (rollers), which require a solid, even floor of appropriate load capacity and very slow, smooth movements during the transport.

Depending on the size and mass of the machine, two or three transport rollers are required for transport, one of which must be steerable.

The trolleys must always be parallel to the load to be lifted and in never be oblique, because otherwise the rollers would be damaged by the load.

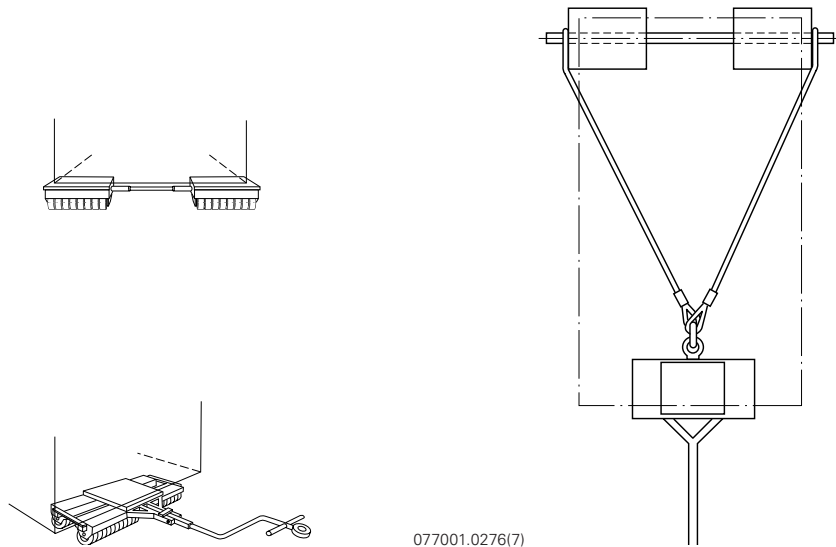


**Connect the steerable and fixed transport rollers with steel cables (Fig.). This will prevent the rollers from slipping when being pulling.**

**Secure the load with suitable straps.**

**In addition, be sure to always use anti-slip mats between the supports of the transport rollers and the machine bed.**

Fig.:



..... 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")

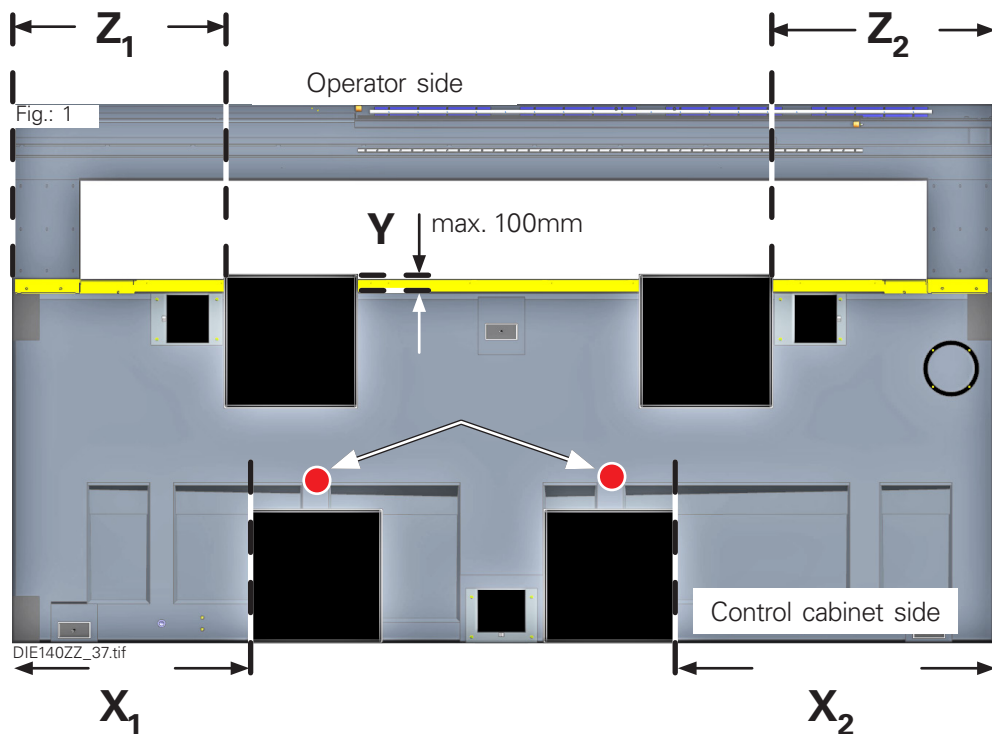


Fig.: 1  
Locations of the air-cushion modules under the machine

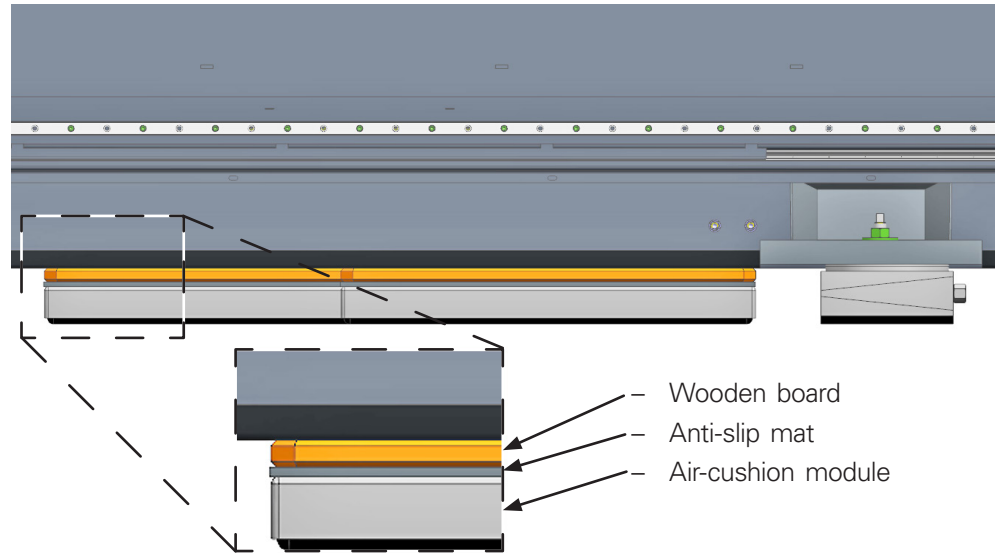
2. Place modules under the machine (see Fig.: 1).  
Always position modules at points ( $X_{1/2}$ ) only under the respective reinforcements/ribs (•). A maximum projection ( $Y$ ) of 100 mm beyond the outline is permitted.  
Also, be sure to maintain the positions ( $X$  and  $Z$ ) from the outer edge of the machine.

**Locations of the air-cushion modules**

	$X_1$	$X_2$	$Z_1$	$Z_2$
<b>G400.2/G420</b>	1220	1635	1090	1140
<b>G500.2/G520</b>				

3. Wooden boards and anti-slip mats must be placed between the air-cushion modules and the machine. (see Fig. 2)

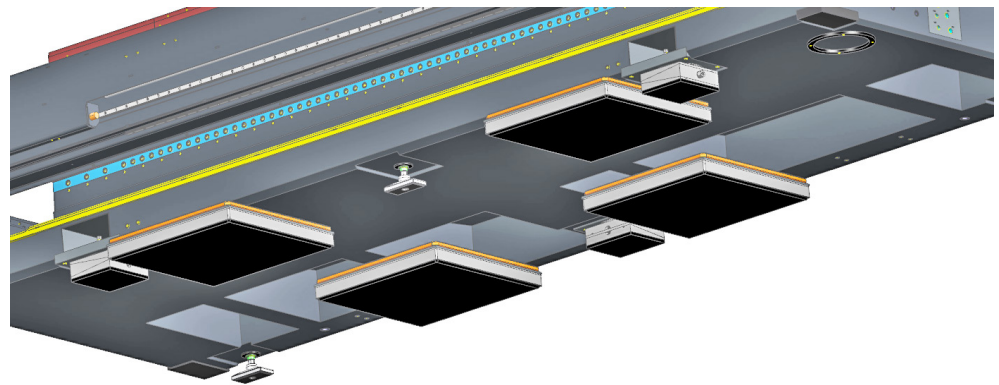
Fig.: 2



DIE140ZZ\_39.tif

Fig. 2  
Placing wooden boards and anti-slip mats

Fig.: 3



DIE140ZZ\_38.tif

Fig.: 3  
Locations of the air-cushion modules (with wooden boards and anti-slip mats) under the machine



## Locations of the transport locks on the machine

### Transport lock of the work area door and the operating panel

For transporting the machine, the work area door (1) was opened (Fig.: a) and secured (Y).

The operating panel (2) was partially detached and swiveled into the work area (Fig.: a).

The operating panel is secured by means of the transport lock (X).

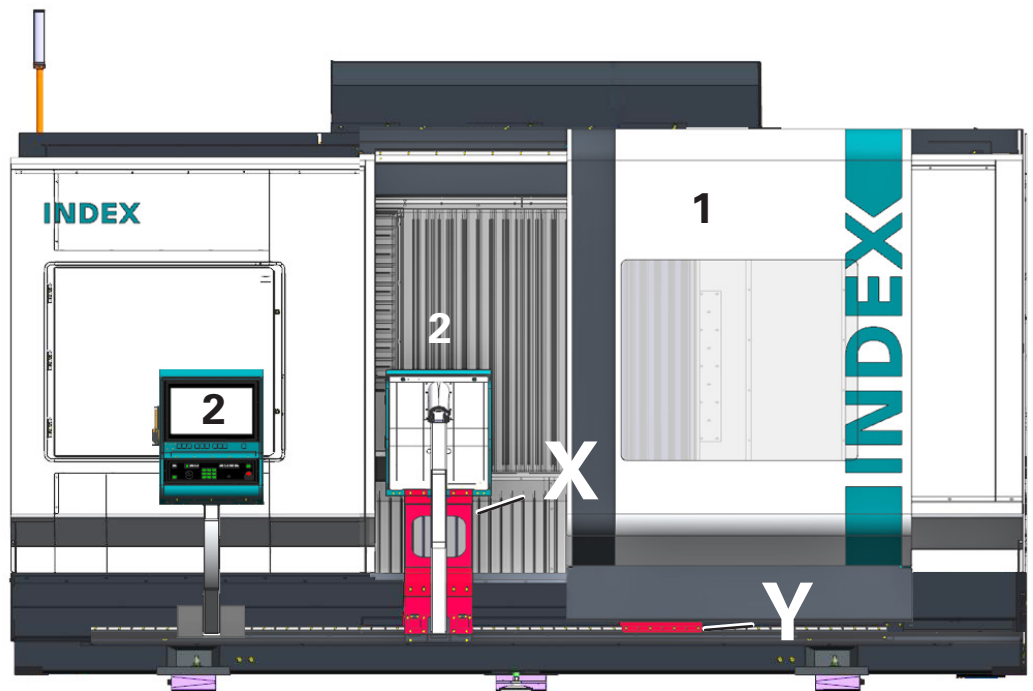
- Release and remove the transport lock of the work area door (Y) from the guide bar and the sheet metal cover of the work area door.
- Before commissioning, it is essential to return the operating panel (2) back to the position outside the work area and secure it.



**Always stabilize the operating panel (2) when swiveling it out and removing the transport lock (X) (danger of tipping over).**

- Remove the transport lock (X) and bolt the operating panel (2) to the sliding console again.

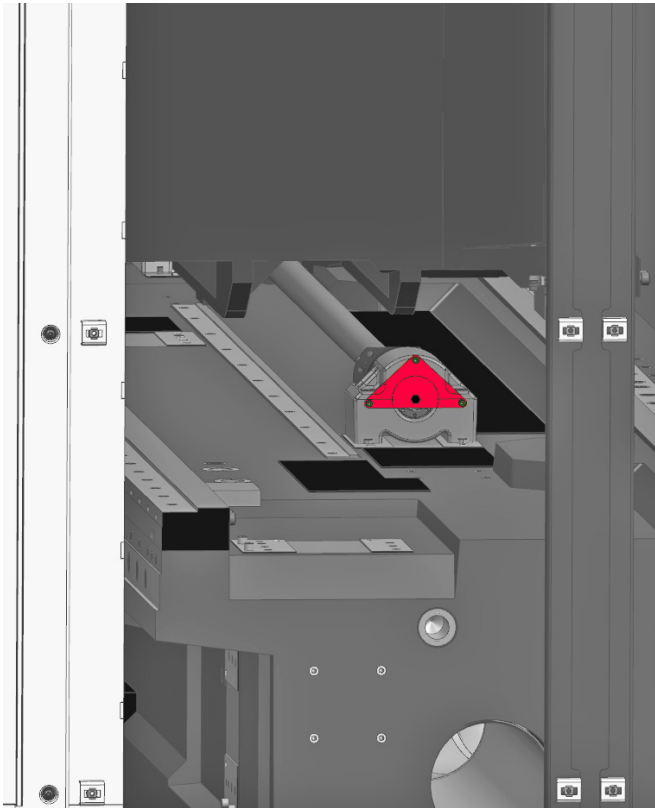
Fig.: a



**Transport lock**

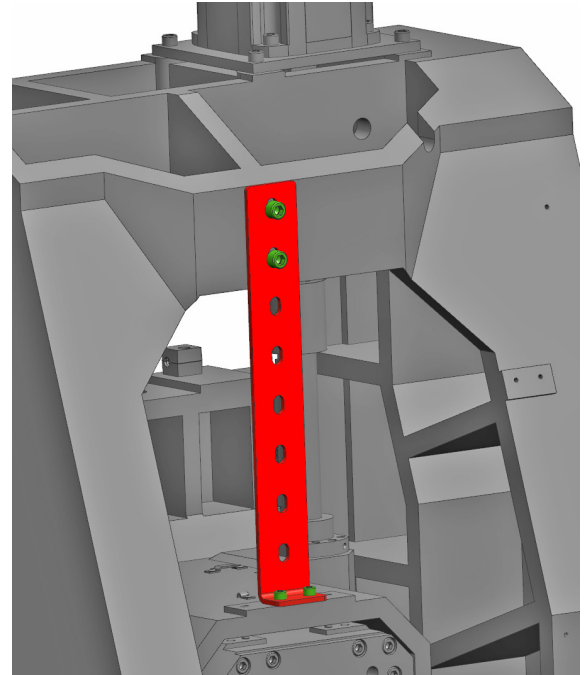
**Tool carrier 1 (upper) G400.2/G500.2**

**Z**



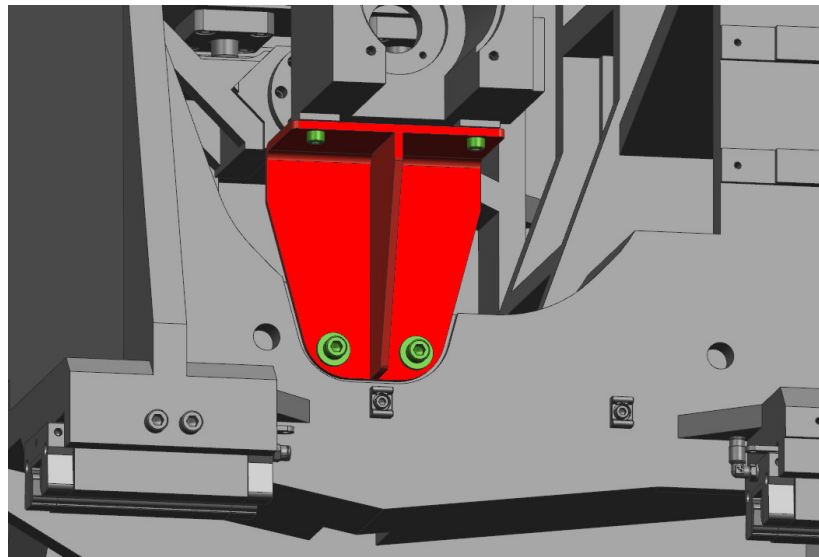
DIE140ZZ\_17.tif

**X**



DIE140ZZ\_40.tif

**Y**

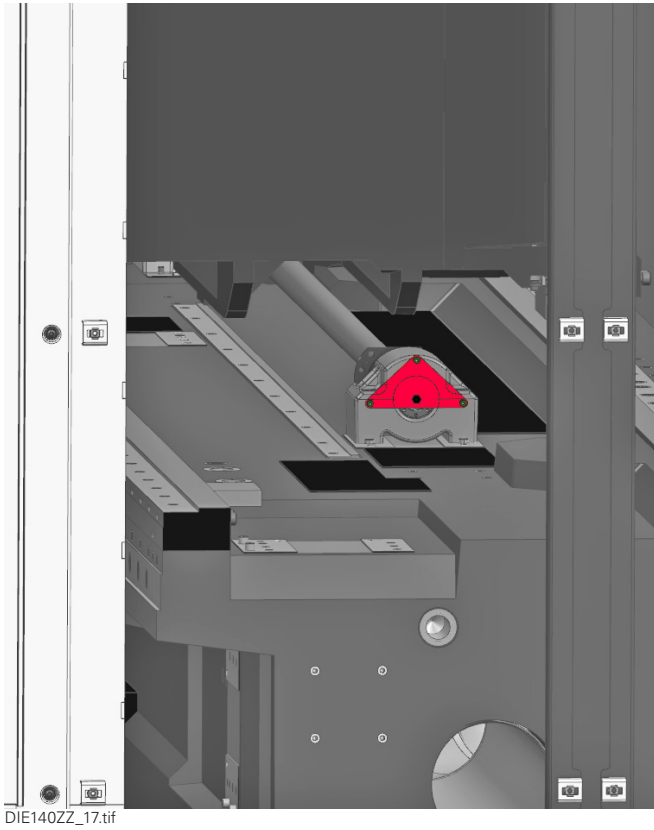


DIE140ZZ\_41.tif

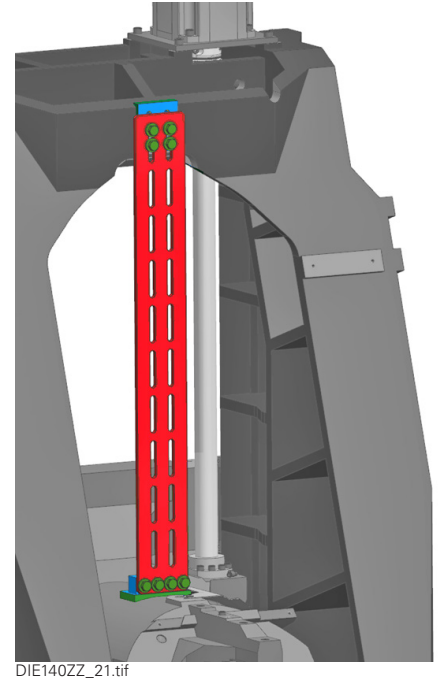
## Transport lock

### Tool carrier 1 (upper) G420/G520

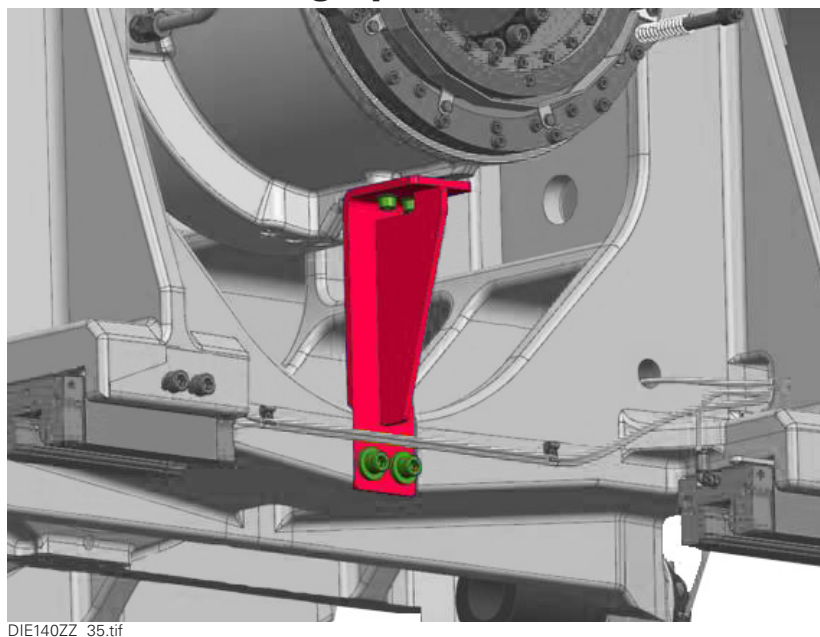
**Z**



**X**



### Y (motor milling spindle)



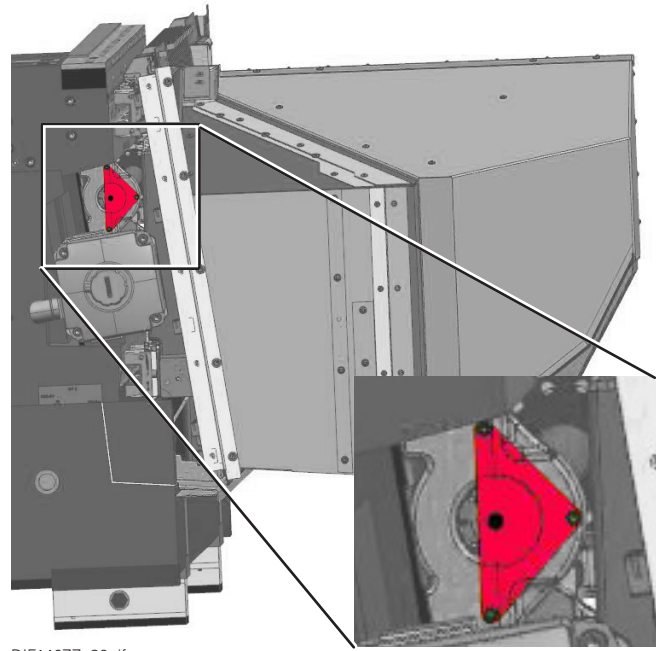
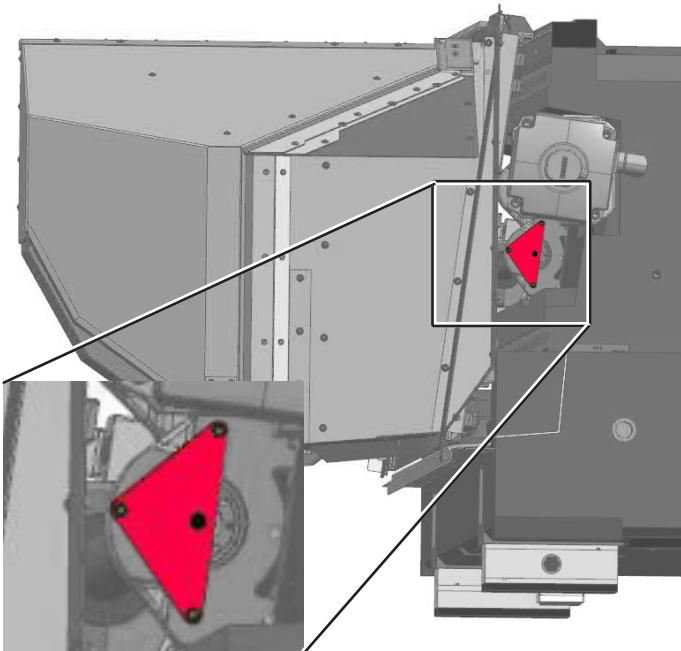
Locations of the transport locks on the machine

**Tool carriers 2 and 3 (lower) G400.2/G420/G500.2/G520**



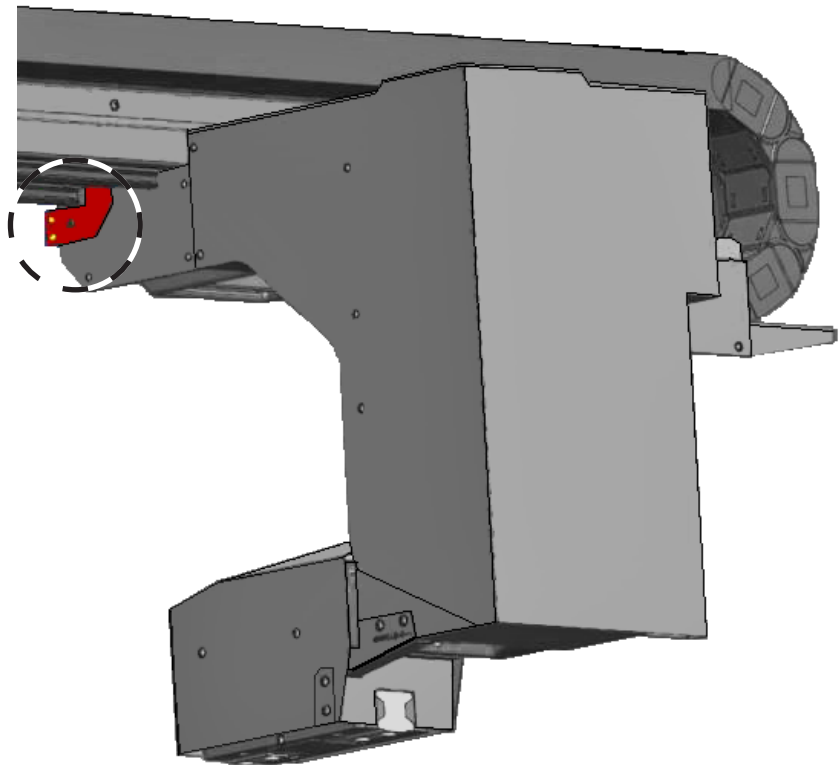
There are no transport locks for the X axes on tool carriers 2 and 3 (lower). Here, the axes in the X direction are moved only fully down to the end positions.

**Z**



**Transport lock at workpiece handling unit**

**Z5**



DIE140ZZ\_15.tif

## Unloading and transporting of separate units



Equipment levels or add-on equipment such as chip conveyors, bar feeders, bar loading magazines, etc., 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 auxiliary 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 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 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 locally valid guide lines and regulations must be taken into consideration.

## Fluidic system



**Caution!**

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

The lubrication system (Y) was not emptied before transport.



**Caution!**

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.

The hydraulic tank of the hydraulic system (Z) was not emptied for transporting.

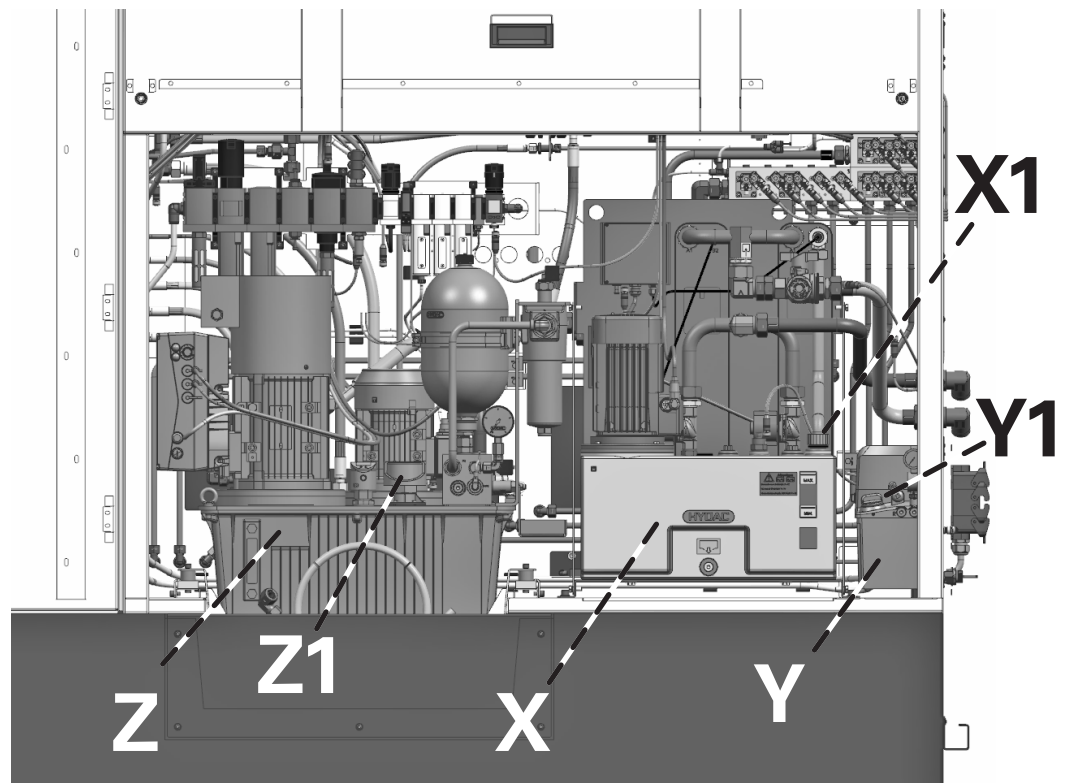


**Caution!**

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



For the appropriate types of lubricating oil, hydraulic fluid, grease, and cooling lubricant, see the Chapter 1, Instructions “Notes on Operating Materials” and “Hydraulic diagrams” and “Machine installation plan” in Chapter 2 “Diagrams and drawings”.



DIE140ZZ\_14.tif

## Installing the machine

The machines G400.2/G420/G500.2/G520 are equipped with six adjustable feet as standard (see Figs.: "Adjustable machine foot" and "Leveling the entire machine"). However, only the machine feet **A, B, and C** (wedge shoes) are used here to level the machine.



DIE002ZZ\_04.tif  
Fig.: Hydraulic jacks



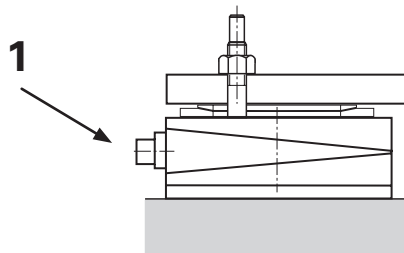
To enable the installation of a bar feeder, the machine must be adjusted to 1400 mm +/- the main spindle height. Note the adjustment range of the wedge shoes +/- 10 mm



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

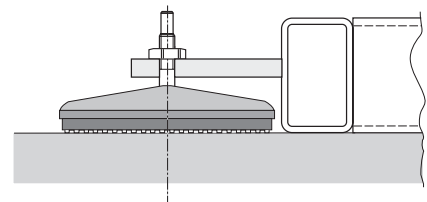
Before finally setting the machine down at the installation site, turn back the machine feet **D, E** and **F** as far as necessary so that they have no influence on the alignment of the machine. Also, rotate the wedge shoes **B** and **C** so that the set screws **(1)** point outwards.

Fig.:  
Adjustable machine foot (wedge shoes)  
**A, B, C**



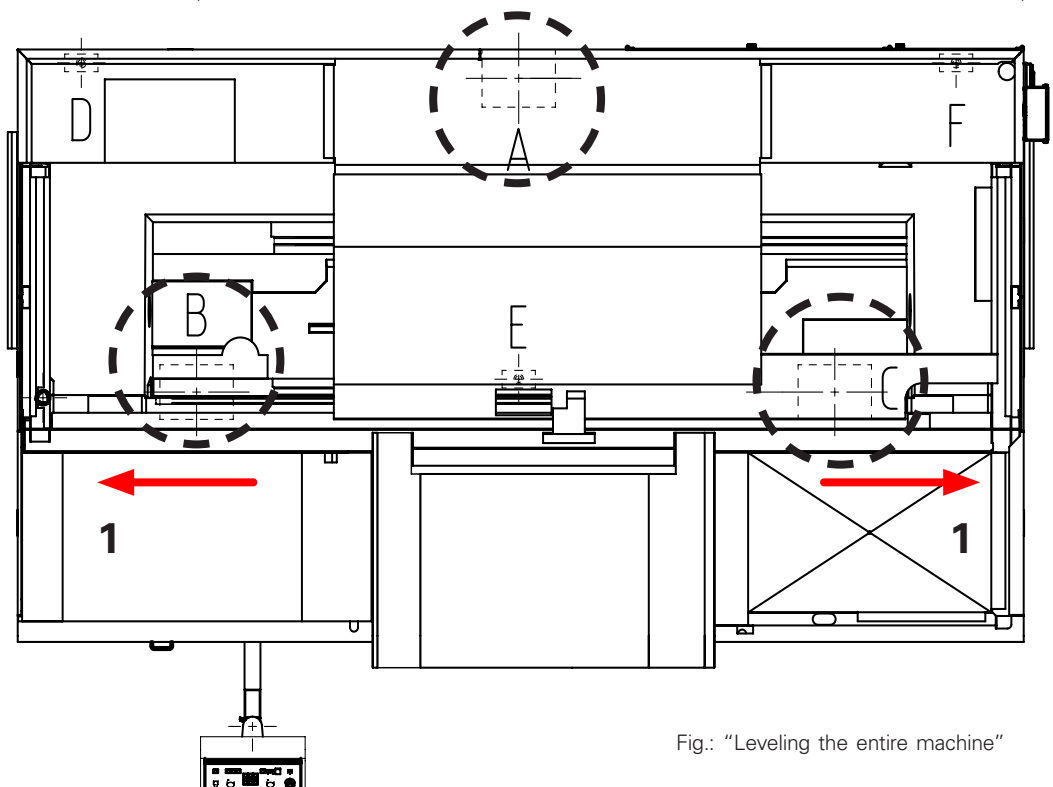
R1701.10031\_25.eps

Fig.:  
Adjustable machine foot  
**D, E, F**



L1901.10011\_02.eps

Adjusting screws **(1)** of the wedge shoes **(B + C)** point outwards



DIE140ZZ\_13.eps

Fig.: "Leveling the entire machine"



## 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 precision spirit levels at certain points. (see Figs.: 1-2)



Turn back machine feet **D**, **E**, and **F** as far as necessary so that they do not influence the alignment of the machine.

See Section “Installing the Machine”, Fig. “Leveling the entire machine”.

### Leveling in the Z direction

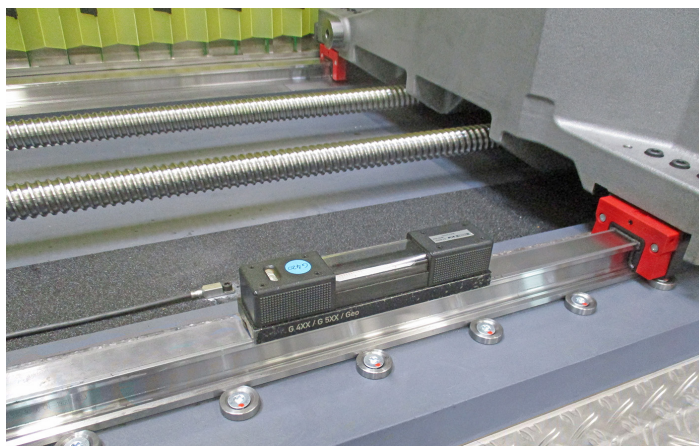
- Place the precision spirit level on the guide bar Z1 (Fig.: 1).
- Now align the machine in the Z direction using the wedge shoes **B** and **C**.



DIE140ZZ\_36.tif

Fig.: Example precision spirit level 0.10 mm/m (Roeckle)

Fig.: 1

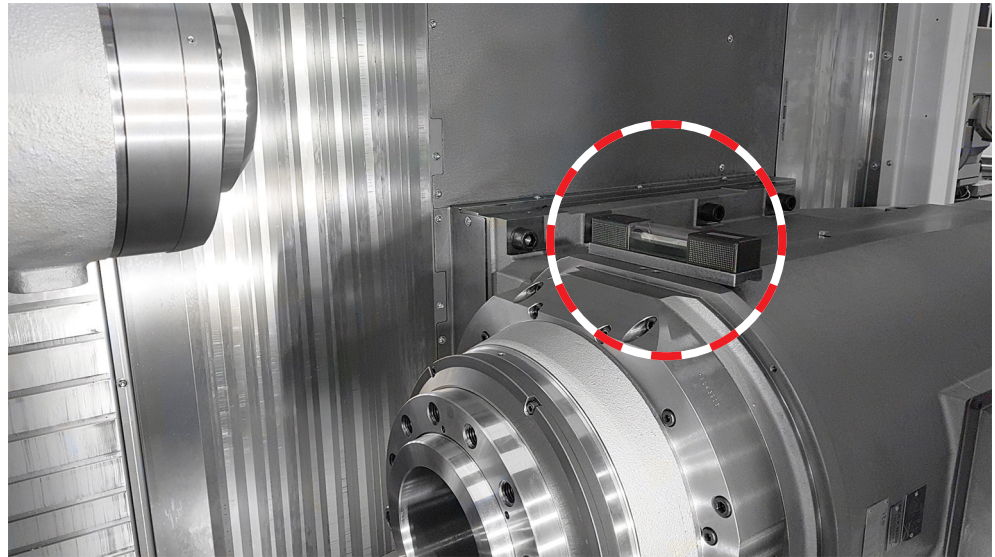


DIE140ZZ\_51.tif

**Leveling in the Y direction**

- Then place a second spirit level on a surface as described in Fig.: 2. (Y direction)
- Now align the machine in the Y direction using the wedge **A**.  
(See Section "Installing the Machine", Fig. "Leveling the entire machine")

Fig.: 2



DIE238ZZ\_15.tif

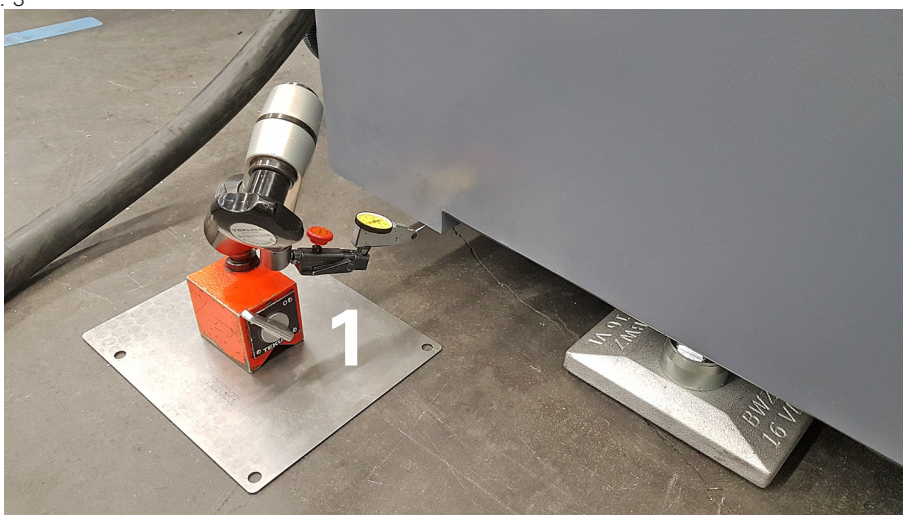
Fig.: Leveling the machine in the Y direction



A dial gauge is required for adjusting the machine feet **D** and **E** as described below. Place the dial gauge at the bottom (Fig.: 3) on a flat surface (small metal plate **1**) set against the machine bed from below.

- Next, apply the machine feet **D** and **F** with a pretension of 0.1 mm (dial gauge) (Fig.: 3).

Fig.: 3



DIE140ZZ\_50.tif

- Apply the front machine foot **E** by hand and pretension it with an open-end spanner and rotating it 20-30°.
- While setting the machine feet **D**, **E**, and **F**, the position of the machine must not change.

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



**After completing the leveling procedure, be sure to remove the spirit levels from the machine.**

**Also secure the two rear access doors.  
(Fig.: 4: previous version (a) with 5 M10 screws each)**

Fig.: 4



DIE140ZZ\_33.tif

## Installation and leveling of expansion stages and add-on equipment

A bar feeder or bar loading magazine must be fastened to the machine using dowels. The dowels are included with the machine.

The bar guide, bar feeder, or bar loading magazine 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 (Figs. a and b).

**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.

Fig.: a

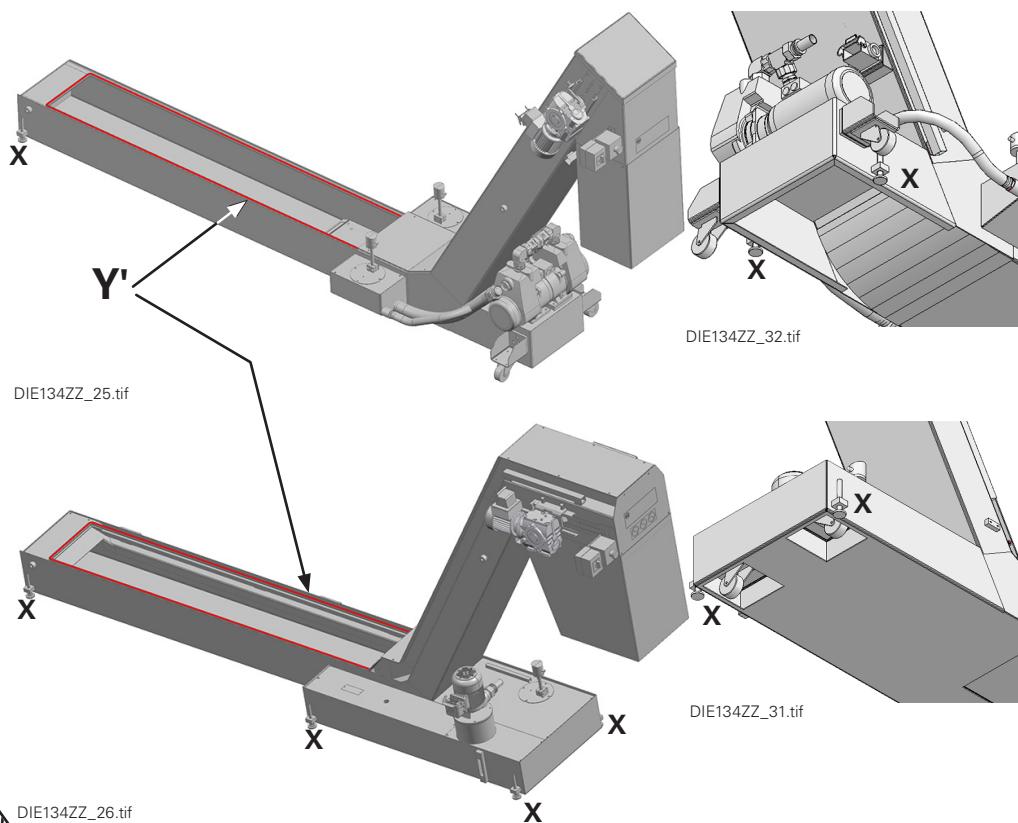


Fig. b

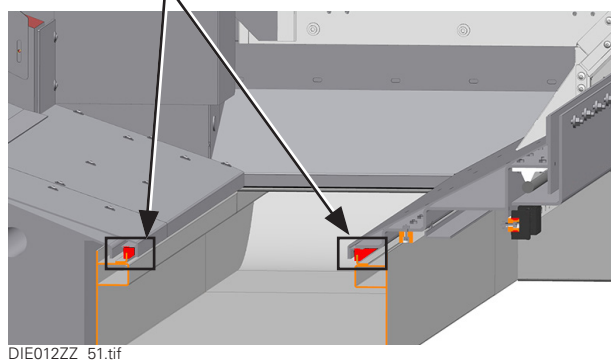
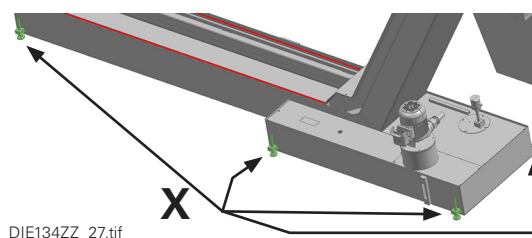


Fig.: Adjustable feet on the chip conveyor



## 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 coolant 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 plan in Chapter 1 Instructions: "Notes 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 accumulators attached to the machine are depressurized.

Before start-up of the machine, all accumulators must be filled with nitrogen (N<sub>2</sub>) by a specialist. 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

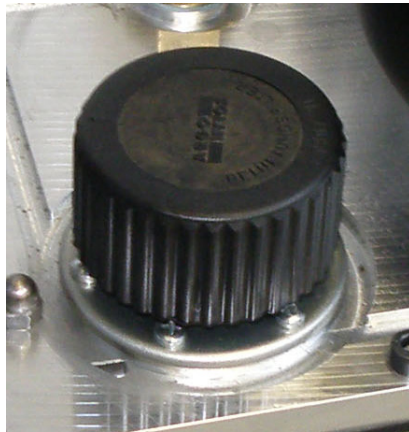


Be sure to clean the contact surfaces of oil and grease before reattaching the transport locks.

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 a new transport of the machine



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



DIE140ZZ\_52.tif

Fig.:

View of slinging equipment as a whole – with turnbuckle

### Checking slings



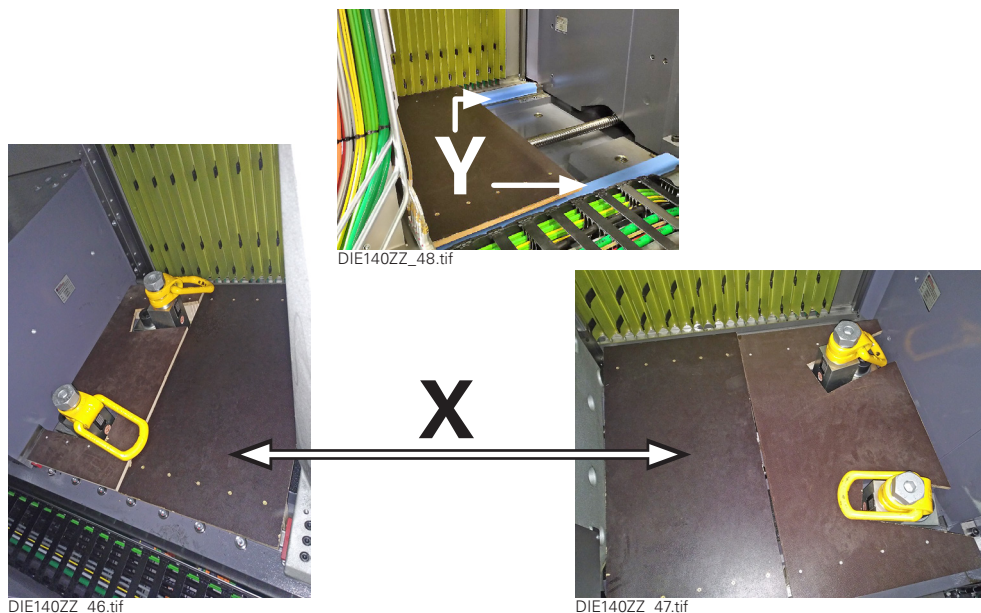
Before re-use, be sure to check and evaluate the entire transport gear (visual inspection).

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

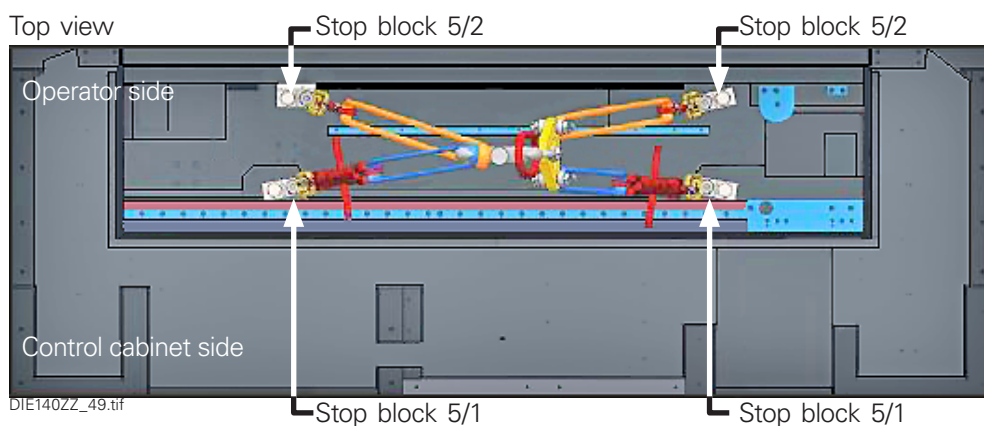
Drive area guard



Before transporting the machine again and refitting the slings, be sure to insert both the foam covers (Y) required to protect the linear guides and the two protective covers for the ballscrew and glass scale (X).



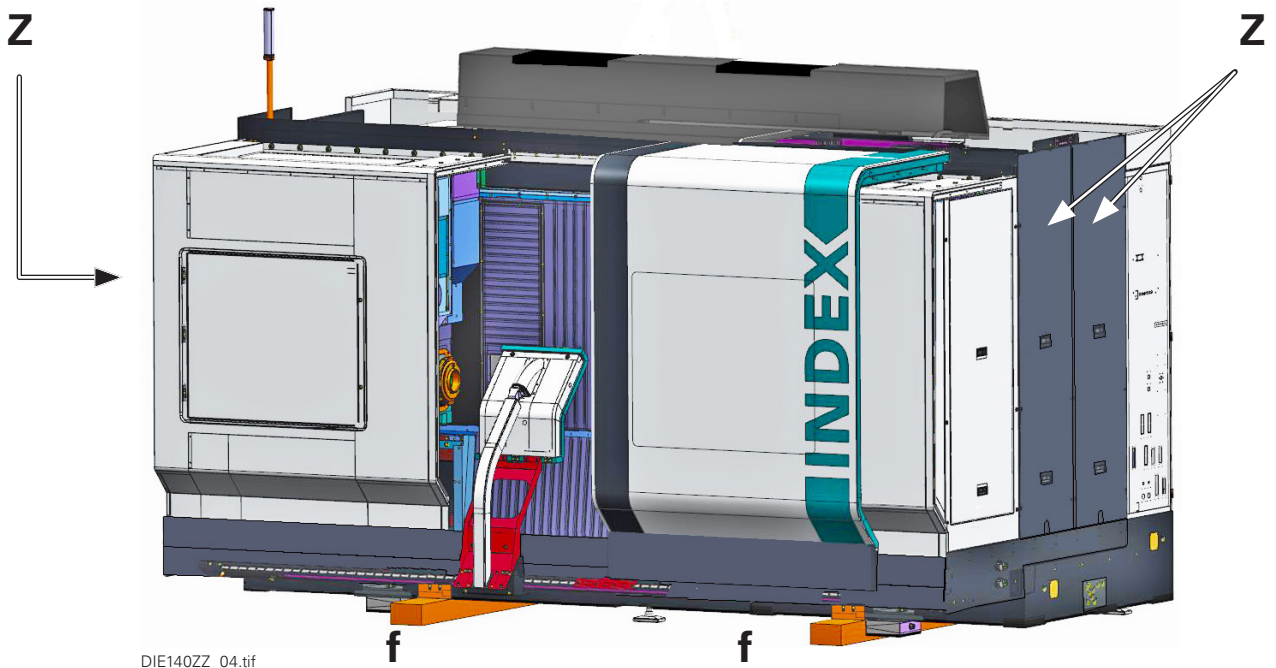
The tightening torque for the screws of the stop blocks (5/1 and 5/2) of 300 Nm must be observed.



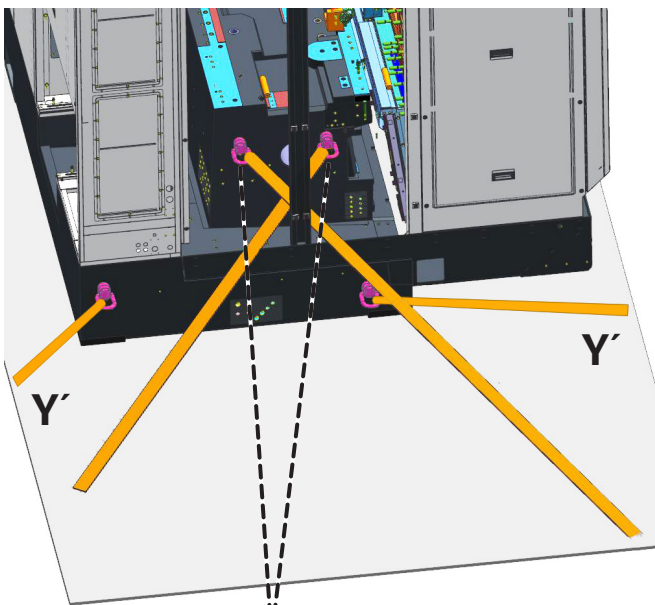
**Suspension and lashing points**

Suspension and lashing points (**Y+Y'**) are used to secure the load on the truck.

**i** The load must be secured to prevent slipping on the loading platform using the lashing points (**Y+Y'**). In addition, the wooden planks must be reassembled and placed under anti-slip mats between the loading platform and the two bolted wooden planks (**f**). In addition, several side panels (**Z**) on both sides of the machine must be removed.

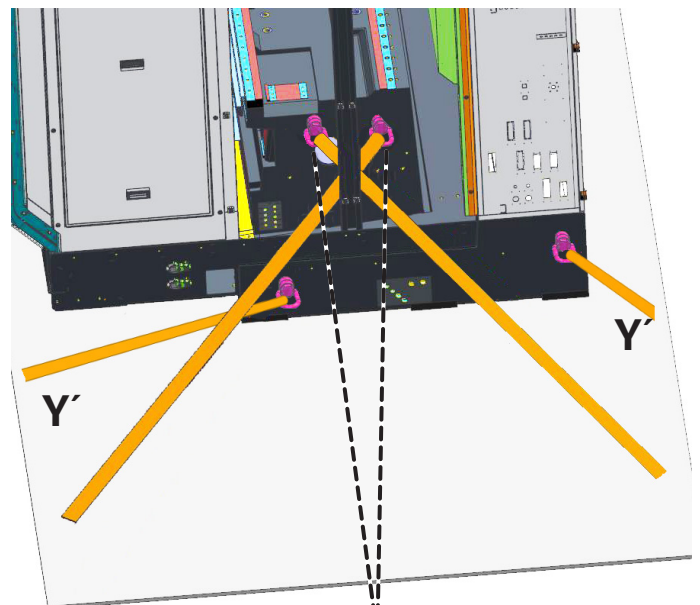


DIE140ZZ\_04.tif



DIE140ZZ\_27.tif

**Y**



DIE140ZZ\_28.tif

**Y**

**Only for machines equipped with chip conveyor**

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

Pull out the chip conveyor and clean it.

**Only for machines equipped with blank feeder**

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

Provide the appropriate lifting devices for auxiliary units such as bar feeder unit or similar.

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

**Transporting the machine**

Provide the lifting device and accessories suitable for the machine. These can be ordered from **INDEX** by specifying the machine type and machine number.





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

Plochinger Straße 92  
D-73730 Esslingen

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

[info@index-werke.de](mailto:info@index-werke.de)  
[www.index-werke.de](http://www.index-werke.de)