

# Transport, Installation, Commissioning

**R200**

**Machine 480007 and higher**

## **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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## Safety precautions

### Information on transport, installation, commissioning



**A forklift or other appropriate hydraulic lifting devices must be used for transporting or lifting the machines.**



**If the door to the work area is open, the door safety switch will remain open after disconnecting the power supply line.**



Transport locks can be identified by their red color.

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 exist for separate units such as chip conveyor, bar feeder, bar loading magazine and similar devices. These special transport instructions must also be followed without fail.

## 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 passage-ways 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 "Working Documents".

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 for these equipment levels or add-on equipment, or in the corresponding machine installation plan in Chapter "Working Documents".

## 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.

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

- Forklift
- Transport trolley
- Transport casters
- Hydraulic jacks
- Forklift truck (only for separate units; not suitable for machines).

## 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 containers, chip trolleys, tool trolleys, etc.

Use the machine installation plan in Chapter “Working Documents” to determine the required space.

Chapter “Working Documents” also includes specific installation plans for add-on equipment such as bar feeders, bar loading magazines, etc.

## Subsoil, foundation

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

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

The machine can be anchored in the foundation. For the distances between the anchoring holes, see the machine installation plan in Chapter “Working Documents”.

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

If a bar feeder or bar loading magazine is used, **INDEX** also recommends anchoring the machine in the foundation.

## Environmental conditions

See Environmental Conditions in the document “Safety Precautions”



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



## Power supply



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

The power supplies for the programmable logic controller (PLC) and the numerical control (NC) require stable mains conditions, i.e., 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 IEEE directives. For further information, see the machine installation plan in Chapter "Working Documents".



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

## 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 before the pre-transformer, i.e., on the primary side.

The loads to be protected depend on the existing operating voltage.

The values for:

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

are indicated on the nameplate or the circuit diagram.

## External data transfer



**Data lines must not be routed directly next to power lines.**

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

## Compressed-air supply



Observe the max. allowed connection pressure for the machine. See the pneumatic diagram in Chapter "Working Documents".

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

Operating pressure .....6-10 bar  
Air demand.....depending on the machine equipment

For the air supply on the machine, see the machine installation plan in Chapter "Working Documents".

## Pressure accumulator

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

Before start-up of 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 "Working Documents".

## Operating material to be provided



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

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

For the appropriate types and fill levels of lubricating oil, hydraulic fluid, grease, and cooling lubricant, see Chapter "Notes on Operating Materials", "Maintenance Instructions", as well as "Hydraulic Diagrams" and "Machine Installation Plan" in Chapter "Working Documents".

<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 removal

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

This will protect the environment and save cost.

## 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 waste water regulations

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.



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

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

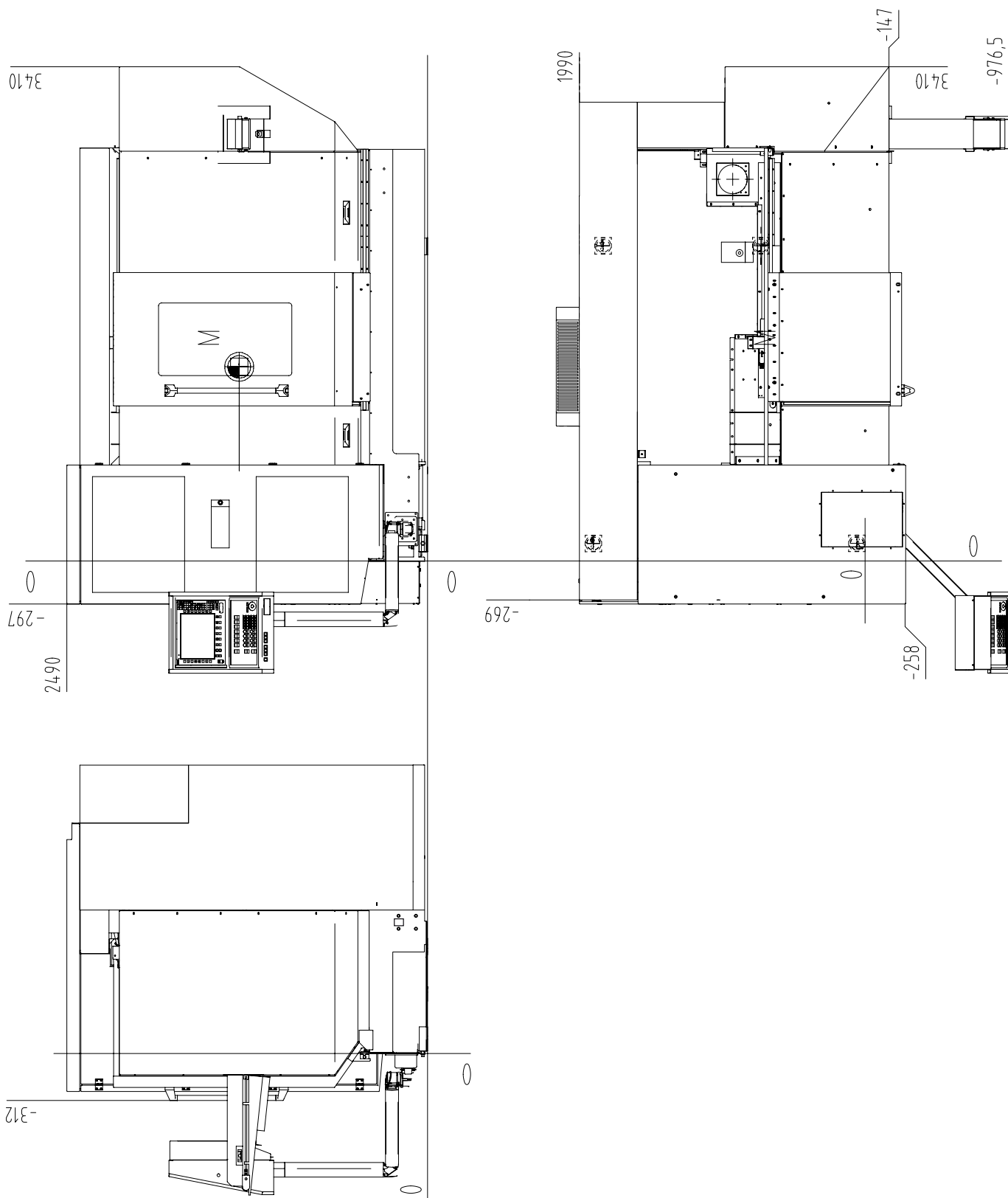
### Possible preventive measures:

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

# Transport

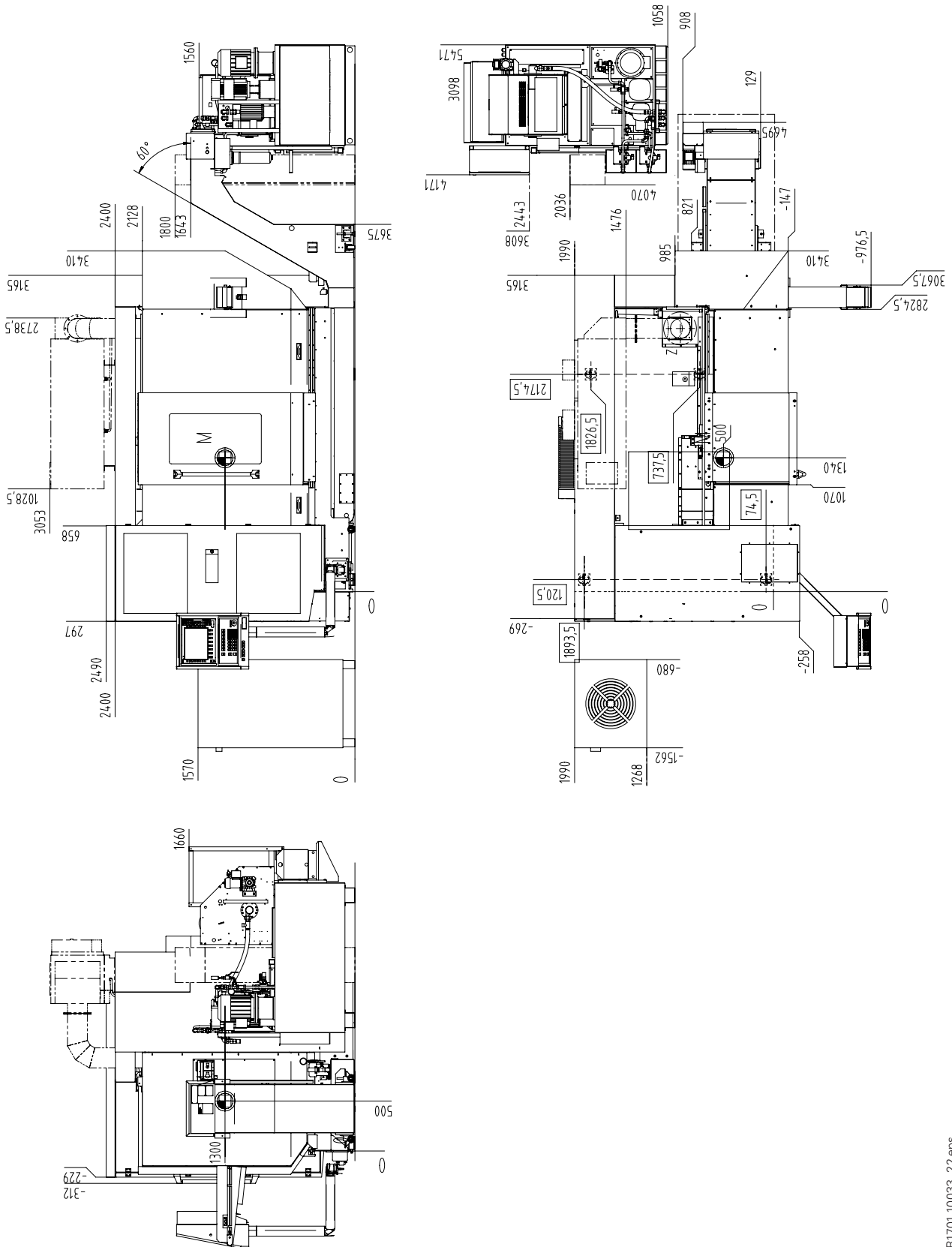
## Transport and Installation Plan R200

### Transport chart



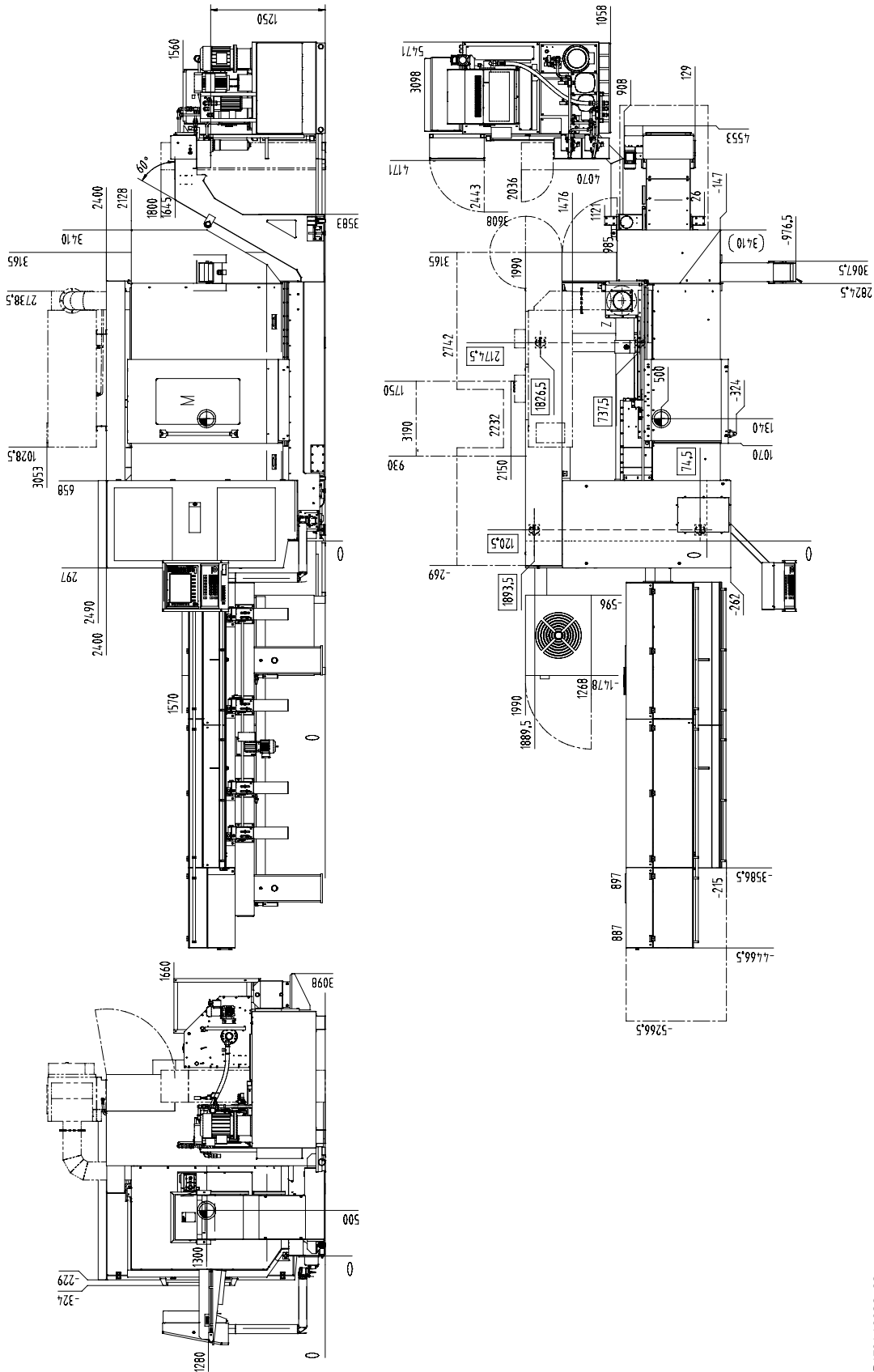
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Installation plan



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Installation plan with SBL 3200



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## **Delivery**

### **Machine**

The machine will be delivered by a truck. It will rest either on planks or will be packed in a crate and then rest on a transport floor.

#### **The machine will be in the following condition when delivered:**

- The hydraulic fluid and lubricating oil tanks will be full.
- 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 have been removed.
- All blank parts of the machine were treated by spray-covering with an anti-rust agent.

### **Pressure accumulator**

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

Before start-up of 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 "Working Documents".

### **Other separate units**

Certain equipment levels or add-on equipment such as chip conveyor, bar feeder, bar loading magazine, etc. are usually separate units.

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.

### **Transport gear**

Transport gears are either packed separately or included with other units.

The transport gear is generally supplied at extra cost. Following the installation, the transport gear may be returned to **INDEX** in exchange of a credit.

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 R200

## Transporting the machine

Kunde: _____
Auftr.-Nr.: _____ Masch. Nr.: _____

**Machine mass**

approx. 11000 kg

**Do not step under suspended loads!**

**If any work has to be performed under the machine, such as attaching square timber, positively secure the machine to prevent it from falling down. Lift the machine only as far as absolutely necessary.**

Place the machine on square timber to obtain a sufficient floor clearance to carry it with a forklift.

Also remove the adjustable machine feet and replace them with the red transport blocks shown as item 2 in Figures 3 and 4. Be sure to attach the transport locks (item 3 in Fig. 2) before reaching with the forklift under the machine.

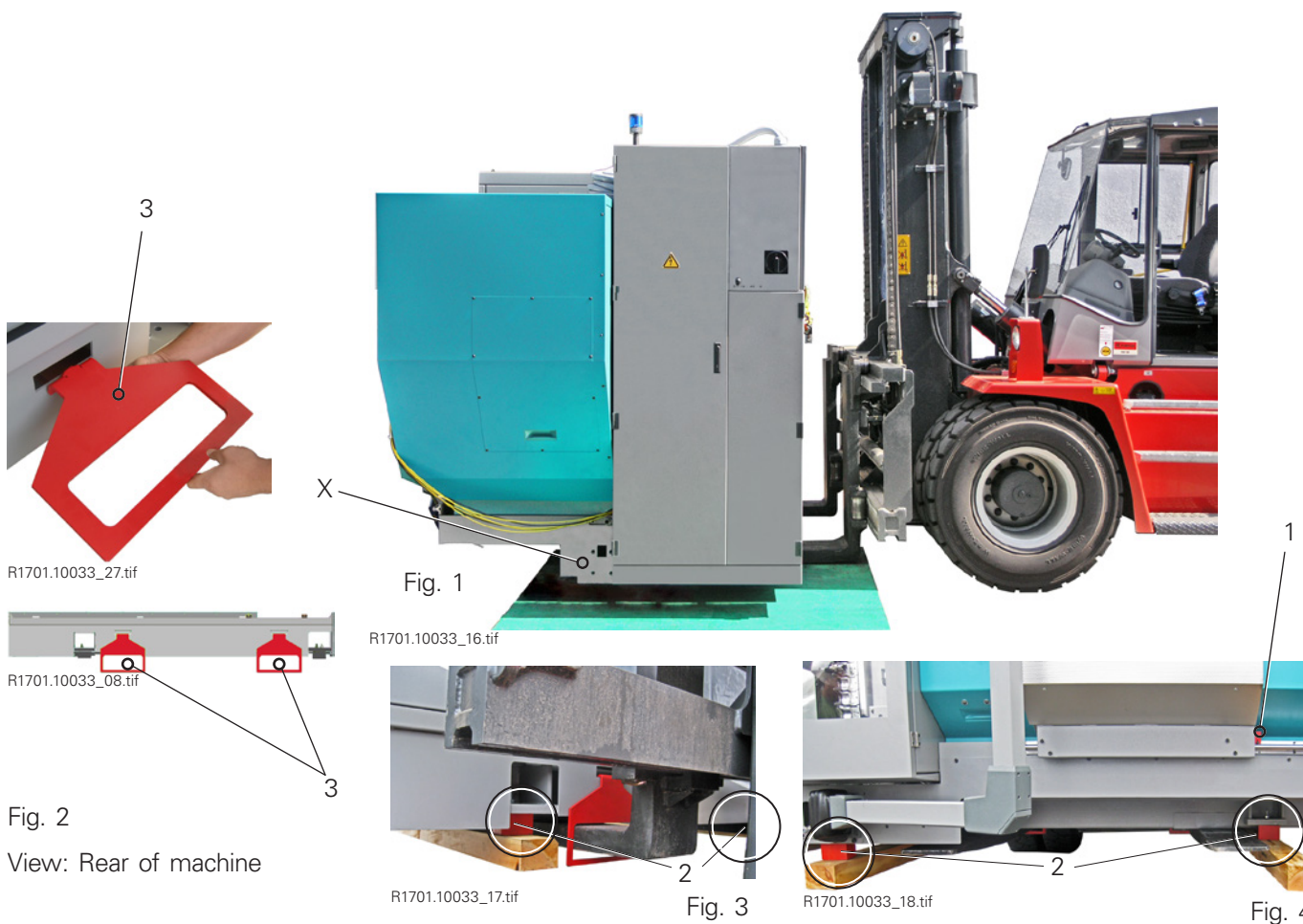


Fig. 2  
View: Rear of machine

Item	pcs.	Designation (see next page)	Order no.
1	2	Transport lock for sliding door	K80381.70
2	4	Spacer blocks	T60151.50
3	2	Lifting lugs for truck transport	R70561.60
4	5	Load stand M20	208310.4625
5	1	Load stand M10	208310.4621
6	1	Plate	R70561.30
X	1	Transport carrier (only for the transport of a machine with WHU) + 4 M20x100	R70562.40

## Transporting with transport casters



Due to the machine's high center of gravity, we recommend transporting with transport casters only if the ground is absolutely even and horizontal.



**INDEX** uses plastic plates or Teflon plates to bridge slightly uneven points and to reduce the rolling resistance. (See Figures 1, 5, 6)  
This applies in particular to transporting on irregular or soft grounds such as industrial parquet floors or rubber or PVC-based floor covers.



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Fig. 5



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Fig. 6

## Suspension and lashing points

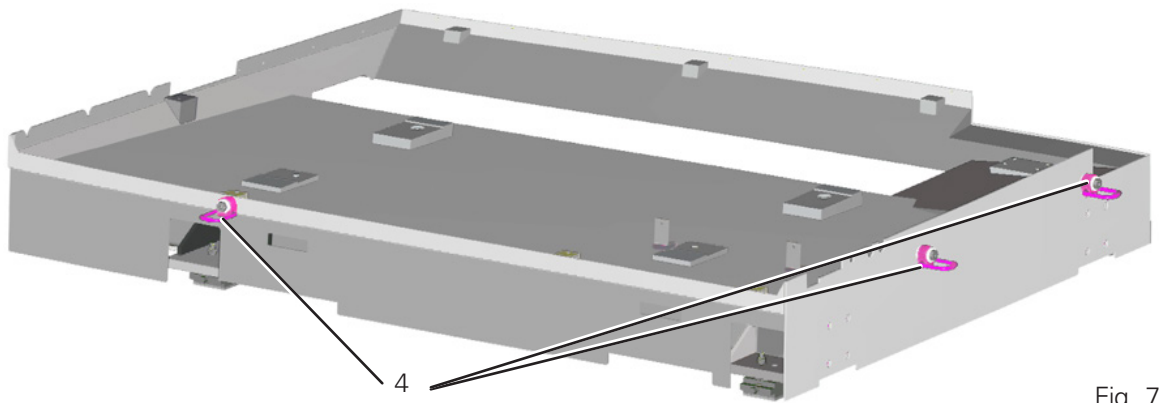


Fig. 7

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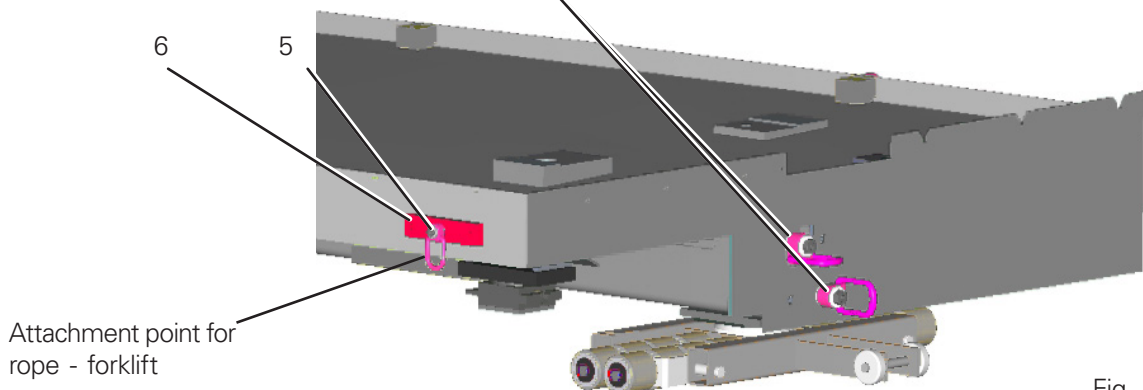


Fig. 8

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## Transporting with a forklift

The forklift should approach the machine from the rear. Observe the following when selecting the forklift:



### Load distribution on the forklift:

Right fork	4,000 kg
Left fork	7,000 kg

- Fork width..... max. 300 mm
- Fork length..... min. 2,200 mm

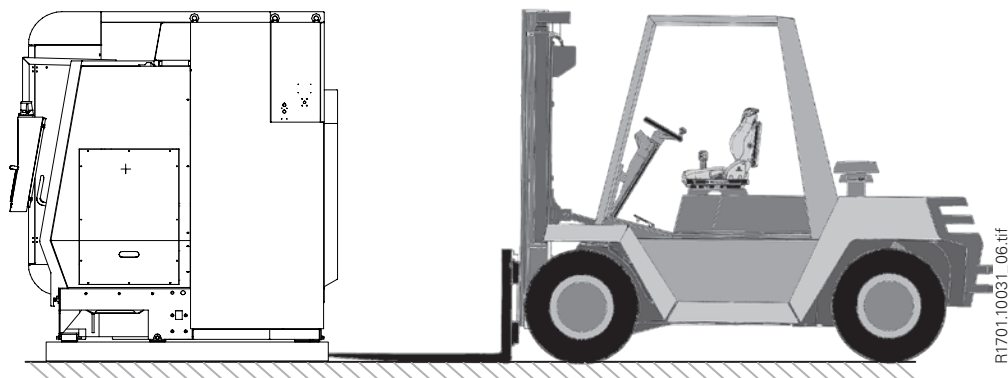
Ensure a fork distance of 1070 mm.

Attach the transport tabs (1) required for transporting with a forklift (Fig.).

This prevents the machine from tilting on the transport forks.



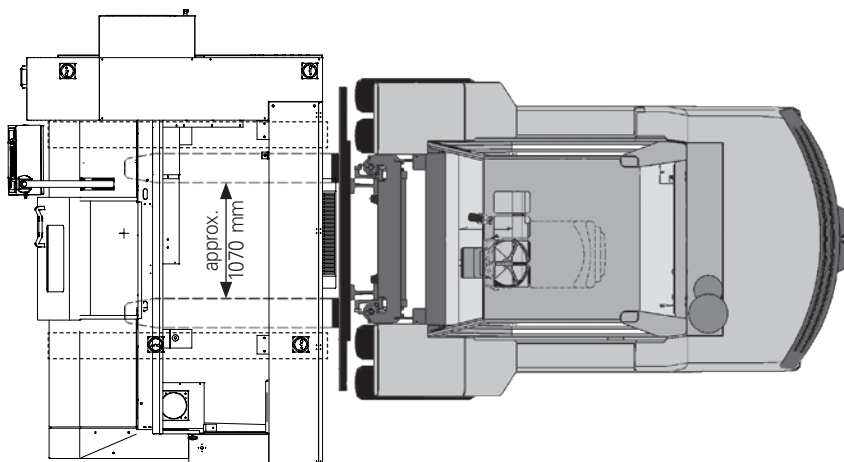
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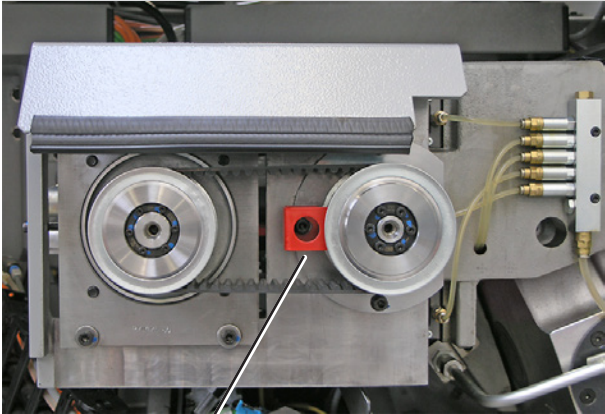


Locations of the transport locks on the machine

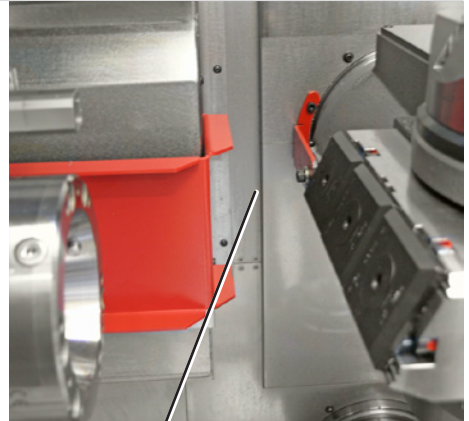
### Locations of the transport locks on the machine



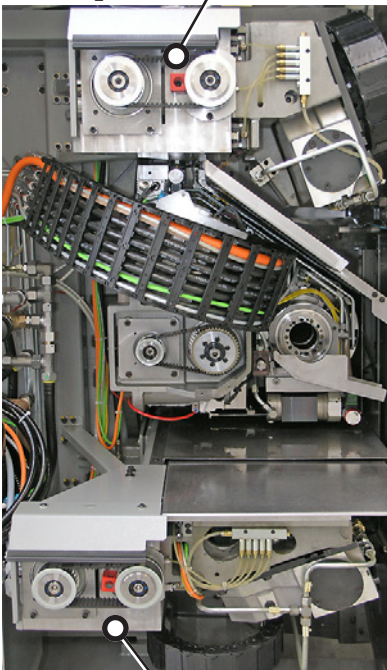
All transport locks must be removed prior to machine start-up. Transport locks can be identified by their red color. Close the fastening points of the transport locks using the provided screws.



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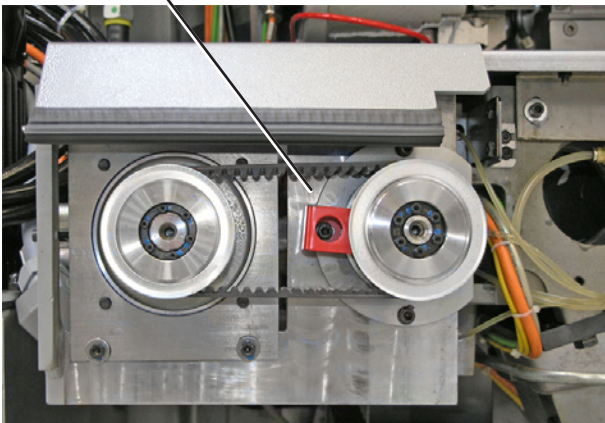
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## R200 with WHX from 11/2019



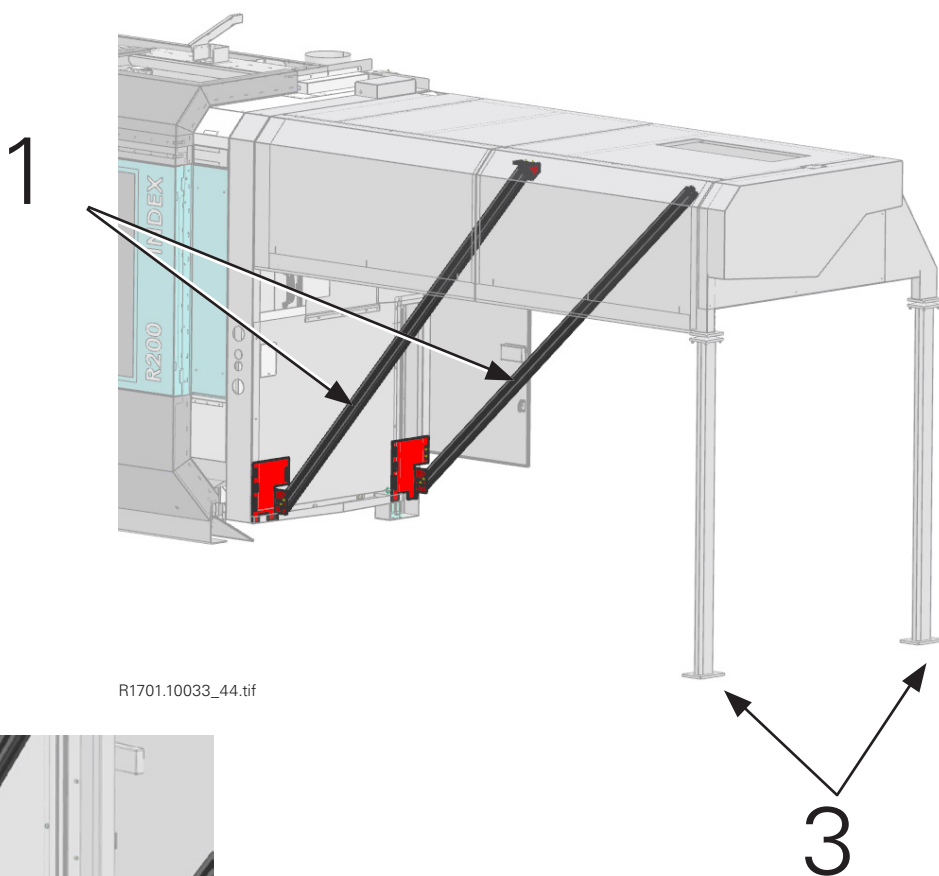
**Caution!**

When transporting the machine again with a handling system, two transport supports (1) must be fitted using the brackets (2) before lifting the machine. The supports (3) of the handling system can then be removed.



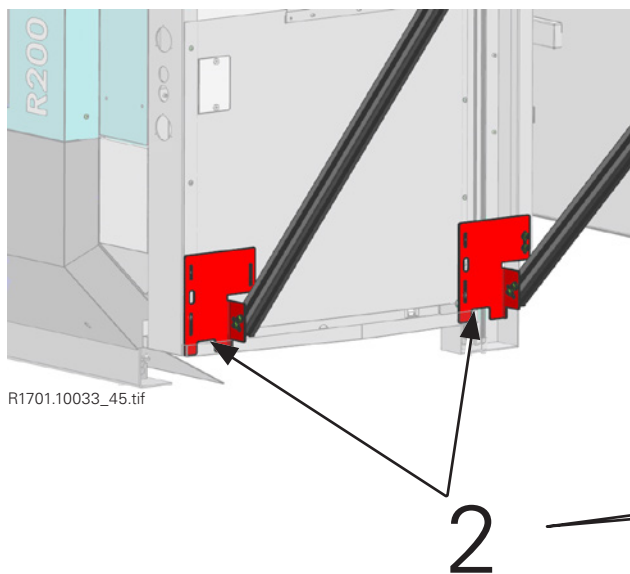
Once the machine is in its final installation site and leveled, first fit the handling supports (3). Then remove the transport supports (1) and the corresponding brackets (2).

Fig.: 1



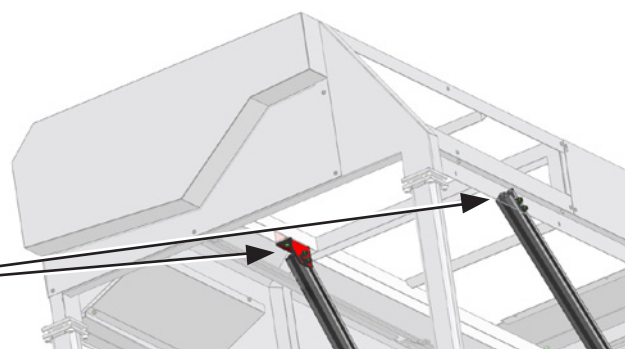
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Fig.: 2



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Fig.: 3



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## Transporting with casters



**Due to the machine's high center of gravity, we recommend transporting with transport casters only if the ground is absolutely even and horizontal.**

Transport casters 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 (casters), which require a solid, even floor of appropriate load capacity and very slow, smooth movements during the transport.

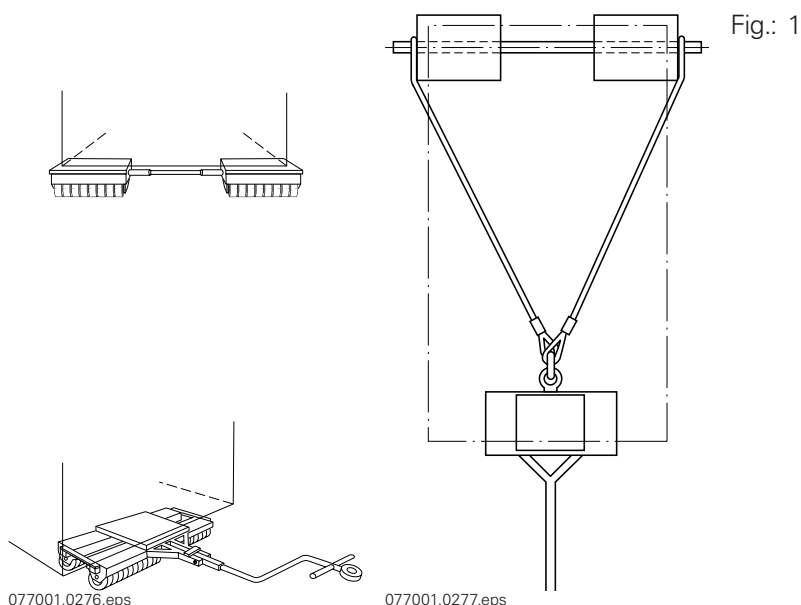
Depending on the size and mass of the machine, two or three transport casters are required for transport, one of which must be steerable.

The trolleys must always be parallel to the load to be lifted and in no case be oblique, because otherwise the casters would "rub out" causing the surfaces to be damaged by the load.

In order to prevent tearing out the steering section, the steering section must be connected to the carrying section by steel cables. (Fig.: 1)

### Notes on using hydraulic jacks for lifting:

- Always move the carrying section under the machine first, and then the steering section.
- For the carrying section, the support plates must always extend slightly beyond the edge of the transport load.
- Then the carrying section must be secured against rolling off.
- For the steering section, the transport load must be supported in the center of the turntable so that the steering bar can move freely.
- Lower the load carefully onto the carrying section.



## Lowering the machine at the installation site

When the final location has been determined and properly prepared, the machine can be carefully moved and lowered there.

If a forklift cannot be used for transporting, a transport means must be selected for the transport to the installation site whose loading height matches the lifting height of the hydraulic jacks.

We recommend to use transport casters in this case because they have a lower loading height.

Use only special machine hydraulic jacks with the following characteristics:

- The hydraulic jacks must have a sufficient capacity.
- The jacks must be stable and secured against tilting when lifting and lowering.
- The lifting load must not be able to slip off the jack.
- Sensitive and continuous lowering must be possible.
- The lifting load must not be damaged during lifting and lowering.

### Lowering the machine with hydraulic jacks (Fig.)



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**Attach the hydraulic jacks only at the positions marked with (X) where also the machine feet are located. It may be necessary to remove the guide panels near the chip conveyor opening.**

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

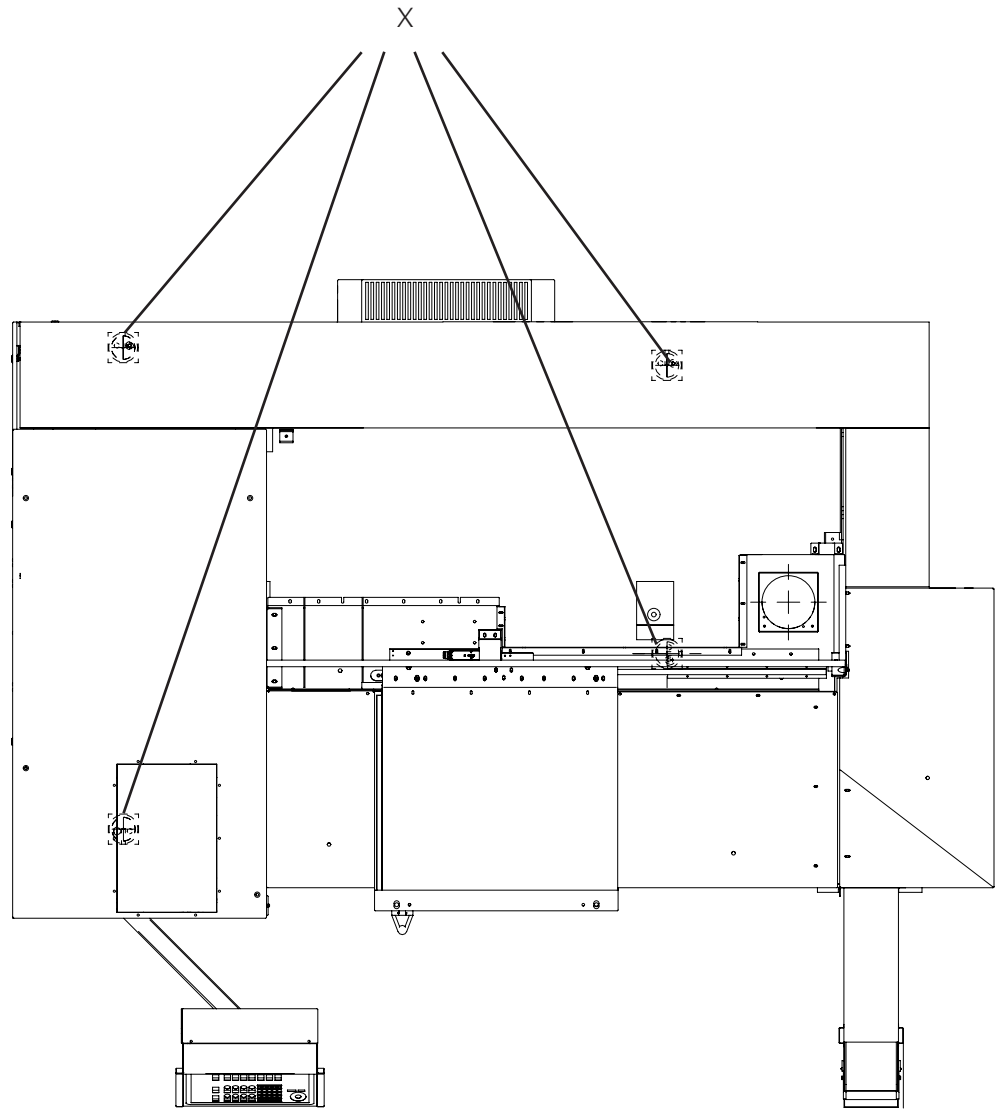
**Always lift the machine with hydraulic jacks on one narrow side only. The other narrow side must rest on the transport means or on the floor.**

**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.**

**Lift the machine incrementally and place wooden blocks underneath after each step. Use the same approach when lowering the machine.**



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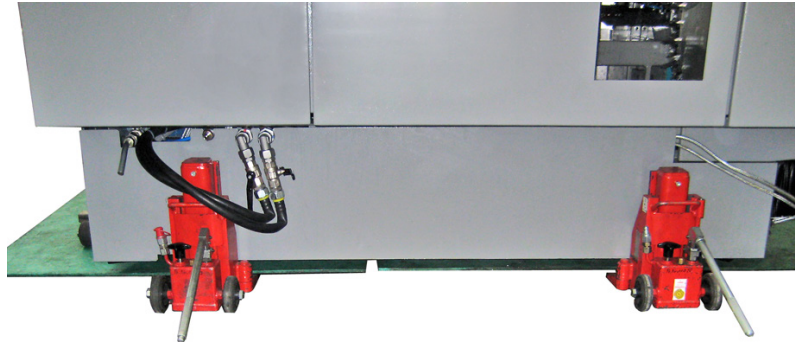


## Position of the hydraulic jacks and transport casters

### Main spindle side

Use a hydraulic jack to lift the machine (Fig. 1) supporting it with wooden blocks, enough so that the carrying section (Figs. 2 + 3) can be slid in underneath.

Fig.: 1



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Fig.: 2



R1701.10033\_10.tif

Fig.: 3



R1701.10033\_11.tif

**Counter spindle side**

Use a hydraulic jack to lift the machine, supporting it with wooden blocks, enough so that the steering caster can be slid in underneath (Fig. 4). Slide the steering caster (X) laterally under the machine, then lower the machine onto the steering caster (X). Make sure that the steering caster (X) is located at the proper position under the machine.

Remove the hydraulic jack and turn the steering caster (X) in the driving direction (arrow).

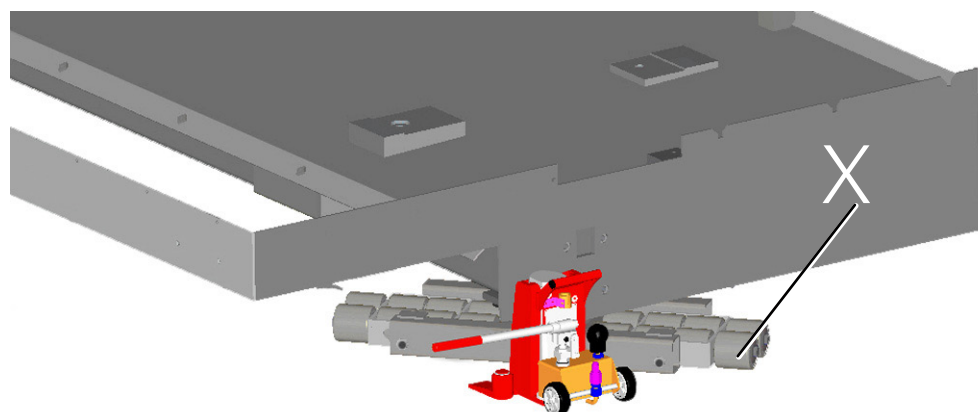


Fig.: 4

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Then attach the load stands for lashing necessary for transporting by truck.

Y  
Attachment point  
Pull cable for forklift

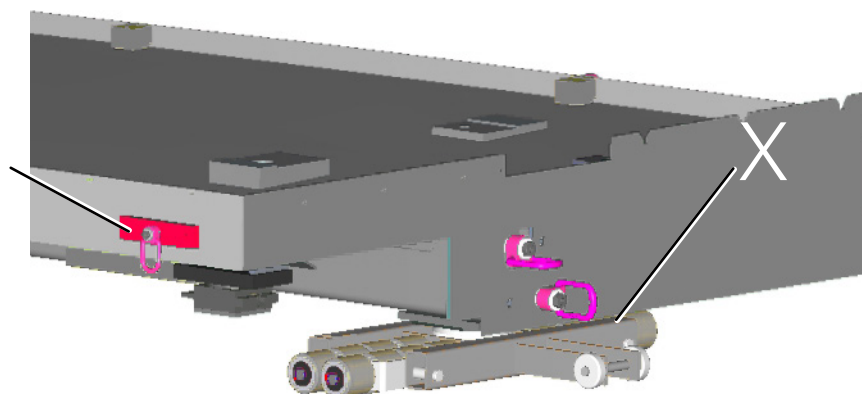


Fig.: 5

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**Use the steering caster (X) only for steering.  
By attaching a pull cable to the attachment point (Y), the machine can be pulled by a forklift (Fig.: 5).**

## 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 (see the manufacturer's 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.

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 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 the valid safety standards.



See the order confirmation for the precise electrical requirements. The electrical specifications provided are decisive 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). Be sure to observe the clockwise phase sequence for the connection.

The electrical connection is indicated in the wiring diagrams.

The machine is prepared for connection to three-phase power supplies (TN mains system).

Before connecting, check that the available line voltage matches the machine's operating voltage. If this is not the case, you will need an appropriate transformer connected in front of the machine.

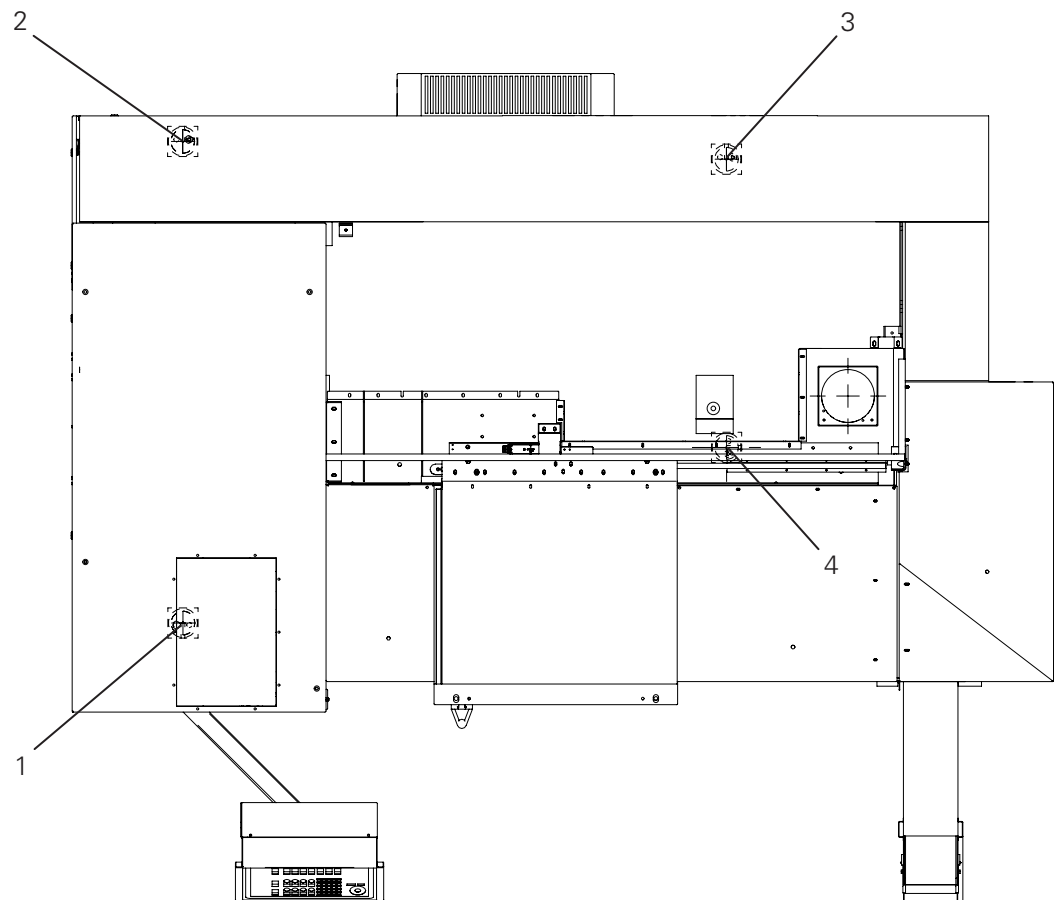
## Installing the machine

The R200 machines are equipped with four adjustable feet as standard (see Fig. "Adjustable machine foot").



Screw in the machine foot 3 before lowering the machine onto the floor. **Machine foot 4 is loaded up to 5,500 kg.**

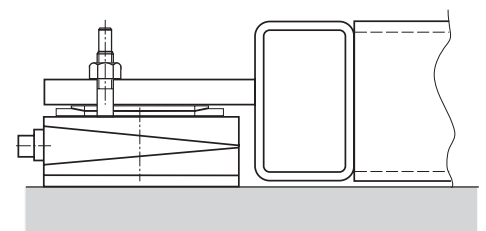
1-4 machine feet



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Fig.: "Leveling the entire machine"

Fig.: Adjustable machine foot



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## Leveling the machine

To level the machine, place precision spirit levels at certain points on the machine bed (see Fig. 1).

- Place precision spirit level in the Y-direction as shown in Fig. 2.
- Place precision spirit level in the Z direction as shown in Fig. 3.

View from the work area

Fig. 1

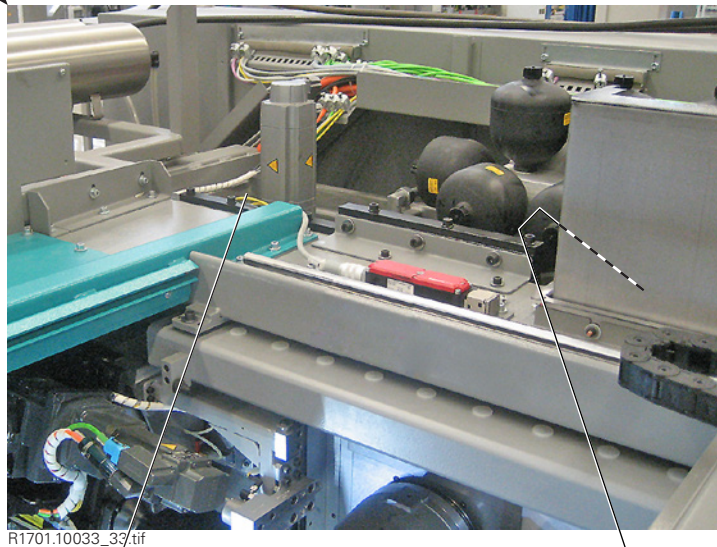


Fig. 2

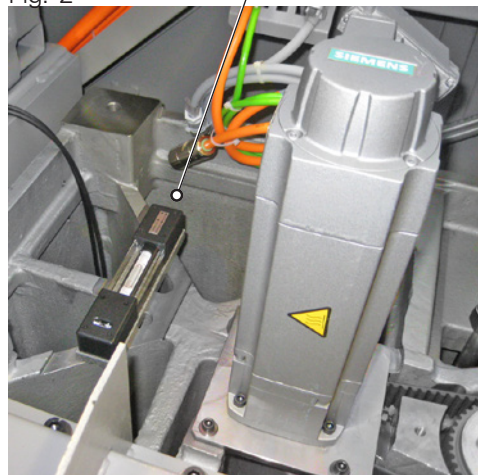
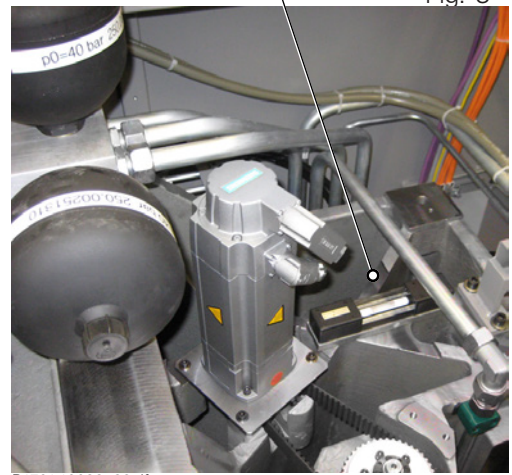


Fig. 3



- Now level the machine by adjusting the machine feet 1, 2, and 4. (Fig.: "Leveling the entire machine")
- After the machine has been leveled, attach the machine foot 3 only slightly. Take care not to change the position of the machine.



## Running machines on an external cooling water system

To ensure reliable operation of one or more machines on an external cooling water system, the following points must be observed:

- Provide the cooling systems with frequency-controlled pumps. This will compensate for pressure fluctuations and excessive pressure due to differing usage quantities.  
Ensure trouble-free operation of the cooling system at partial loads.
- Install an overpressure relief device in the cooling line.
- Consider the pressure difference (see table) in the cooling water line between the supply and return sections.
- Reduce the cooling water amount to the prescribed amount via a control valve on each machine. This is to ensure an even supply to all machines.
- The supply lines should be routed to the machines as straight as possible. This avoids swirls due to pressure booster pumps or line redirections resulting in problems of the flow sensors. (See the installation plan for details.)
- Install thermometers and pressure gauges in the forward and return flows of each cooling water line to be able to assess the cause of failure in case of problems.
- Install filters (fineness <0.1mm) with shut-down valves in the inlet flow of the cooling water line of all machines.
- Install shut-off valves or solenoid valve for each machine, so each machine can be disconnected separately if repairs are necessary.
- Disconnect the machine from the water circuit (e.g., via solenoid valves) at power-down (main switch), so cooling water will no longer flow through the control cabinet.
- When connecting older machines to the external cooling water supply, be sure to consult **INDEX** Werke or a representative beforehand.

### Technical data of the cooling water supply

Machine	Water temperature [°C]	Cooling water flow $Q_{min}/Q_{max}$ [l/min]	Differential pressure $P_{inlet}$ and $P_{return}$ [bar]	Required cooling capacity [kW]	Pressure in the cooling system [bar]
R200	20°C ±2°K	70 - 90	4	15	8
R300	20°C ±2°K	70 - 90	4	21	8

## 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 rotating axis with  $\pm 0.1$  mm/m accuracy.

(For further information, see the corresponding installation plan in Chapter "Working Documents".)

### Workpiece conveyor belt

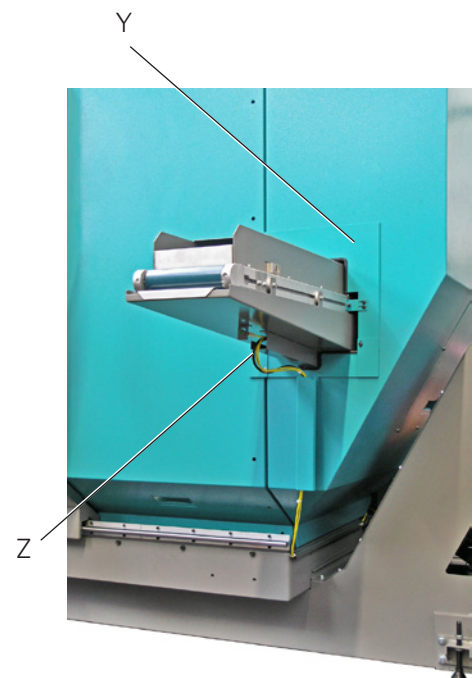
The conveyor belt was removed for transport. (Fig.: 1)

- Attach the conveyor belt and fasten it with screws at the positions X (Fig. 1).
- Slide cover sheet Y (Fig. 2) across the conveyor belt and fasten it.
- Connect all supply lines Z (Fig. 2) before starting the machine.



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Fig.: 1



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Fig.: 2



## 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 the machine is ready for operation.

## 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 only after a long time so that 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



For information on the lubricating oil, hydraulic fluid and cooling lubricant grades, as well as on volumes and filling positions, see Chapter "Maintenance Regulations" and the machine installation plan in Chapter "Working Documents".

## Pressure accumulator

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

Before start-up of 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 "Working Documents".

## Removing the transport locks



If the door to the work area is open, the door safety switch will remain open after disconnecting the power supply line.



Transport locks can be identified by their red color.

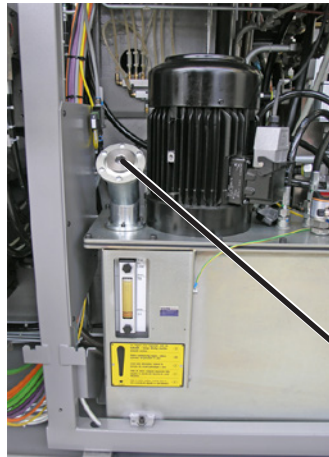
Remove all transport locks prior to machine start-up.  
Store the removed transport locks at a safe place so they are available for another transport in the future.



Fig.:  
Transport locks at work area door

## Attaching filling/breathing filter

Before putting the machine into operation, it is essential to replace the blanking plugs on the hydraulic systems with filling and ventilation filters.



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## 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 Chapter "Operating the Machine".



Be sure to fill the cooling lubricant tank before switching on the machine. The cooling lubricant pump will be damaged by running dry.

## Relocation

### 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 chip conveyor's cooling lubricant motor and drive motor.

Pull out the chip conveyor and clean it.

### Only for machines equipped with bar feeder or bar loading magazine

Loosen the two hydraulic lines P and T to the bar feeder or bar loading magazine.

For the bar feeder, disconnect the connector of one power line; for the bar loading magazine, disconnect the connectors of three power lines.



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

Provide for the transport gear appropriate for the machine. It can be ordered from **INDEX** by specifying the type and number of the machine.



**Replace the filling and breathing filters with blanking plugs.**

For information, see the printed document "Important Notes Before Start-up". Reverse the steps described there.





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