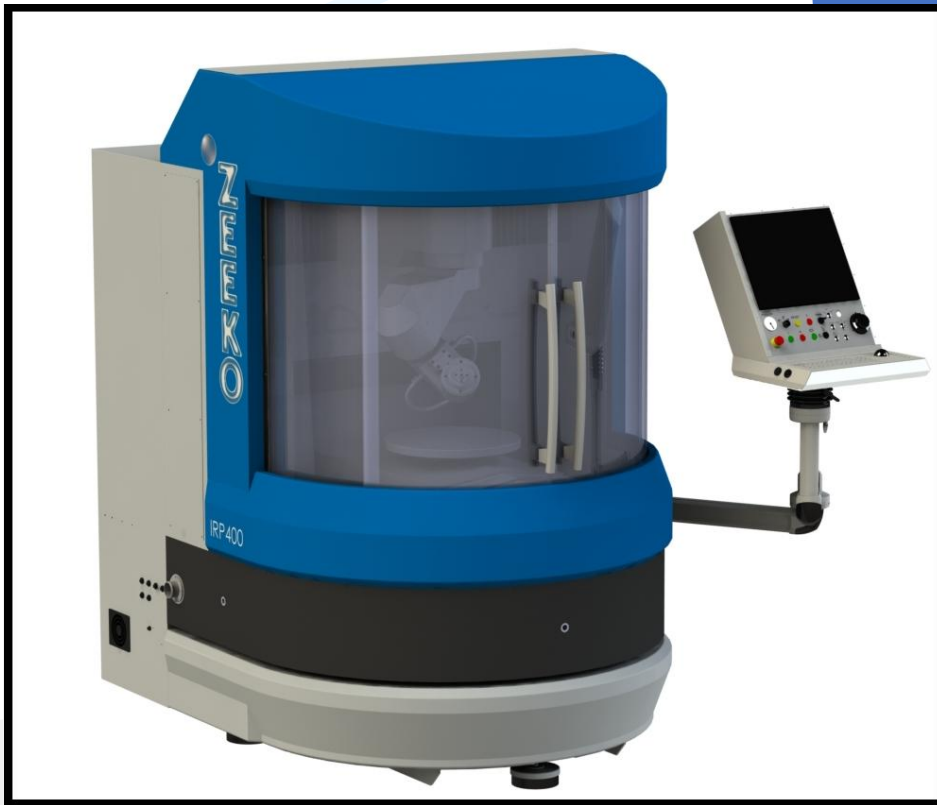


Transport & Installation Manual



IRP400 Fanuc
X-Y Linear Axis

Version 2, Rev e

July 2025

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Preface

Dear Customer,

This Transport and Installation manual describes all steps you must take for transportation and installation of the IRP400 machine.

Please take time to read the manual carefully. Pay attention to the instructions for this manual given on this and the next page.

With the aid of this manual, you can perform the following steps:

- Systematically prepare for the installation of the machine.
- Transport and install the machine safely.
- Connect the machine correctly.

Always keep this manual in the immediate vicinity of the machine. That way, it will always be available for consultation.

In addition to the Transport and Installation manual, the user documentation is comprised of the following:

- Operation manual.
- Software manuals.
- Maintenance manual.

Zeeko LTD

Instructions for this manual

The following signs are used throughout the manual to depict areas of safety or general instruction. Please make yourself aware of these signs and take careful consideration when carrying out the specified maintenance tasks.



WARNING: Identifies a potentially dangerous situation which may cause loss of life, serious.



ATTENTION: Signifies a potentially dangerous situation which may cause injury or serious.



NOTE: Identifies application instructions and other useful and important information.



TIP: Specifies information that could be useful and save you unnecessary time and effort.

Installation requirement

This section covers the following topics:

[Workspace requirements](#)

[Space requirements](#)

[Accessibility](#)

[Supply connections](#)

Workspace requirements

Workspace requirements can be further divided into:

[Floor requirements](#)

[Room temperature](#)

[Storage of the polishing fluid \(lubricant\)](#)

[Electromagnetic influence](#)

Floor requirements

- The installation area for the machine should be self-supporting and level (floor unevenness 3 mm/m² max.).
- The conditions must be such that the machine can rest completely on all 3 levelling elements on the floor.
- When selecting the installation area, avoid placing the machine on a step, drain or the like.
- Contact areas for machine feet but be smooth and level to ensure even contact and weight distribution.
- Total weight of machine itself is 2600 kg (this does not include peripheral equipment such as SMU, chiller, platform, etc.).
- The floor should be capable of supporting a pressure at the 3 contact positions of 60,000 kg / m²

Room temperature

- The room temperature must be 20 °C +/- 1 °C.
- The change in temperature must not exceed 2 °C per day.
- The relative humidity should not exceed 80 %.
- If necessary, provide adequate air condition.

Storage of the polishing fluid (lubricant)

- Observe all regulations regarding the storage of polishing fluid and other chemicals associated with the machine's use, such as solvents and adhesives etc. Please observe your local COSHH and health & safety regulations before using any chemicals.

Electromagnetic Influence

- Interference caused by other electrical installations (high frequency) must be avoided.

Space Requirements

The installation area of the machine should be an area measuring approximately 3500 mm x 3500 mm x 2500 mm (W x D x H) according to the installation plan shown below. A clearance of at least 1m above the machine may be required for maintenance work.

This area comprises:

- The installation area of the machine.
- Work area of about 1000 mm in front of the machine.
- Walkway of about 800 mm to the left and right of the machine.
- Maintenance area of about 800 mm at the rear of the machine.
- The overall height of the machine is 2275 mm.

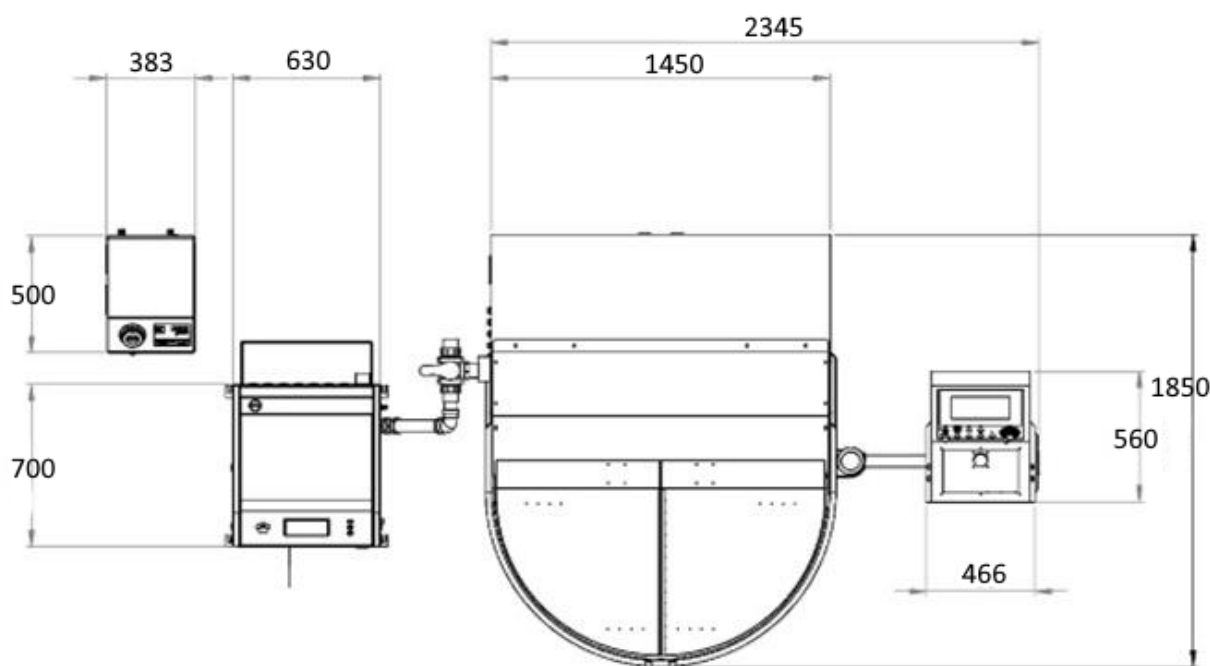


Figure 1 - Machine dimensions

Accessibility



- For maintenance work it may be necessary to have one meter (1000 mm) clearance above the machine or a facility to move the machine into another area.

NOTE: The above distances should be checked for compliance with local Health and Safety regulations.

Supply connections

[Power supply](#)

[Compressed air](#)

[Chiller requirements](#)

Power Supply

The machine is designed for operation on a 3-Phase, 4 Wire (i.e. 3 Phases + Earth)

- 400 V/50/60 *Hz: 3-PE ± 5 %.
- 10 kVA (customer must supply a power supply or transformer to meet this specification)



WARNING: The machinery must only be plugged into a socket which has a protective earthed conductor. The primary side must match the incoming customer supply voltage. If a supply transformer is required, the secondary voltage supply to the machine must match the machine voltage specification.



WARNING: If the mains voltage supply is not the same as that specified on the machine rating plate, the transformer tapplings (if applicable) must be interchanged to correspond with the existing mains voltage. **This MUST only be performed by qualified personnel.**

Compressed air

The pressure at the compressed air supply must be a minimum of 6 bar. Although the main regulator is set to 4 bar or less, 6 bar is required to fully actuate the main on/off valve.

The supply line is equipped with a shut-off valve and adequate water trap.

The compressed air line is connected on the left-hand side of the machine towards the rear by means of a 12mm nylon hose/tube.

Chiller requirements

The maximum chiller system pressure through the machine should be no more than 3 bar (43.5 PSI / 0.3 MPa). The recommended pressure is 1 bar (14.5 PSI / 0.1 MPa).

12 mm push-fit connections are pre-installed on the machine for the chiller input and output pipes.

Delivery

The machine and control cabinet are delivered as one unit.

- The total weight of the machine with packaging is approximately 3800 Kg.
- Dimensions of machine with packaging are approximately* 2260 mm x 2260 mm x 2650 mm (Height).
- Pallet is constructed from ISPM-15 Heat Treated plywood.

*Dimensions may vary depending on the packaging crate construction method used by the transport company



ATTENTION: Please observe all instructions for transport of the machine if you are responsible for unloading.

Immediately notify the carrier or Railroad Company and Zeeko Ltd of any damages and other defects, e.g. missing items.

Transport



ATTENTION: *The Transport and Installation of the machine must strictly be carried out only in the presence of Zeeko personnel.*

[Taking delivery](#)

[Transporting the machine.](#)

[Lifting the machine on and from the pallet.](#)

Taking delivery

Once the machine has arrived at its destination, it should be removed from the travel crate and a visual inspection performed to ensure that no damage has occurred in transit and that all necessary items are included.



ATTENTION: *Immediately notify the carrier and Zeeko Ltd of any transit damages and other defects, e.g. missing items.*

Transporting the machine

The machine should be positioned whilst still on the transportation pallet.



ATTENTION: *Safety instructions for transport with a forklift:*

In order to minimise the risk of the machine tipping:

- The machine **MUST ONLY** be transported on the pallet. Risk of Tipping Over!
- The machine **MUST ONLY** be transported by a forklift – NOT a pallet truck. Risk of Tipping Over!
- The lift truck must have a minimum lifting capacity of 5 tonnes.
- The lift truck forks must be at least 1700 mm long.
- Note the centre of gravity shown in *(Figure 2 - Centre of gravity)*. Risk of Tipping Over!

- The lorry and the forklift must always be on level ground. Risk of Tipping Over!
- The machine weighs approximately 3800 kg (with packing)
- Only qualified personnel should perform transport, lifting and positioning of the machine.



WARNING: DO NOT LIFT THE MACHINE FROM THE 16 mm HOLES IN THE SIDE OF THE GRANITE BASE (SEVERE DAMAGE WILL BE CAUSED!)

- Remove the packaging materials from the machine (shrink wrap) – NOT THE PALLET.



ATTENTION: Please note the centre of gravity. See (Figure 2 - Centre of gravity).

- Move the forks of the lift truck or forklift as far as possible under the pallet.

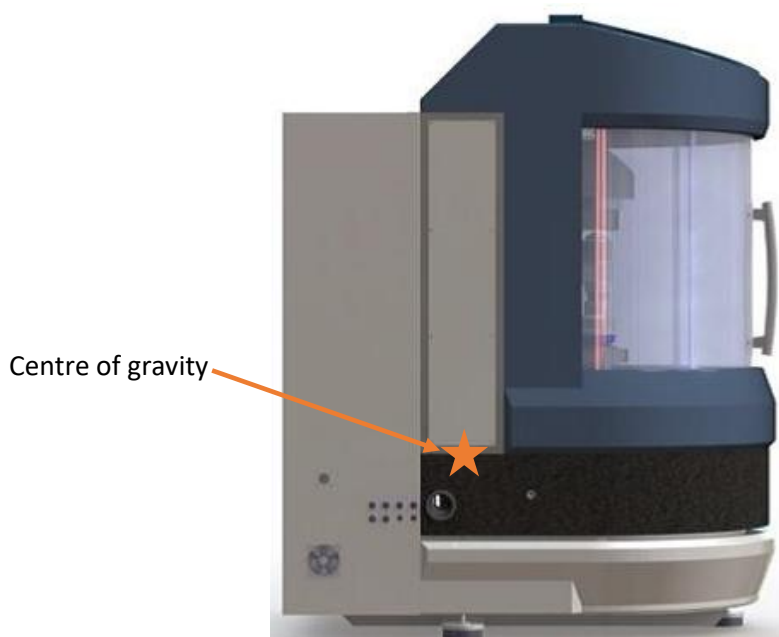


Figure 2 - Centre of gravity



ATTENTION: The pallet must be lifted in the forklift zones marked in (Figure 3 - Pallet forklift zones). Risk of Tipping Over!



Figure 3 - Pallet forklift zones

To move the machine on its pallet to the location in which it is to be installed:

- Move the forks of the lift truck or forklift as far as possible under the pallet.
- Slowly lift the pallet and carefully move it to the installation site.

Lifting the Machine

Lifting the machine from the Pallet:

[Prepare the installation area.](#)

[Lifting the machine from the pallet onto the floor.](#)

Prepare the installation area

Once a suitable installation area has been determined and is compliant with the installation requirements as explained in section [Delivery](#).

Mark the installation area.

- Consider and mark the positions for the levelling elements.



NOTE: The installation area must be clean and level ([see section - Floor requirements](#)).

Place the machine with the three levelling elements on the planned position.

Lifting the machine from the floor onto the pallet



ATTENTION: Do not use other pallets than provided by Zeeko. Risk of Tipping Over!

*The machine MUST ONLY be lifted, NOT TRANSPORTED without the pallet.
Risk of Tipping Over!*



WARNING: DO NOT LIFT THE MACHINE FROM the 16 mm HOLES IN THE SIDE OF THE GRANITE BASE (SEVERE DAMAGE WILL BE CAUSED!)



ATTENTION: Please note the centre of gravity. See (Figure 2 - Centre of gravity).

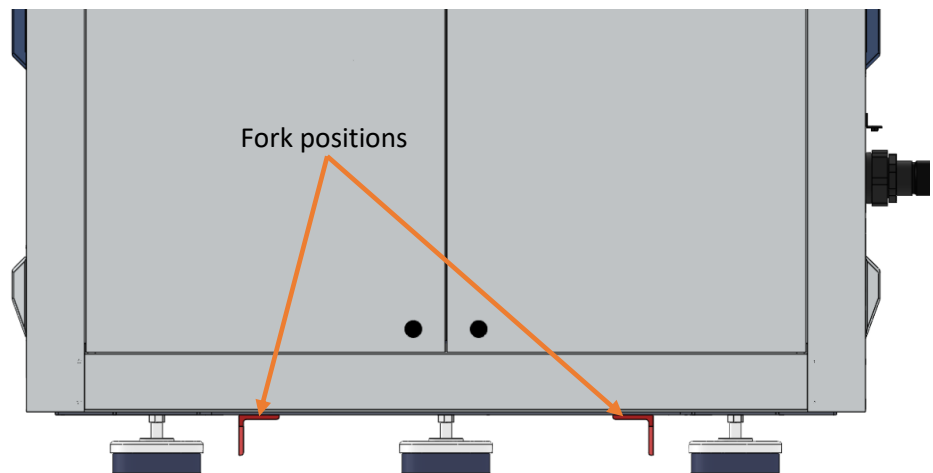


Figure 4 - Forklift zones



ATTENTION: The machine must be lifted in the forklift zones marked in (Figure 4 - Forklift zones). Risk of Tipping Over!

- Slowly lift the machine.



ATTENTION: The rear and front side of the pallet are marked in Figure 3 - Pallet forklift zones. Do not put the machine in any other way on the pallet. Risk of Tipping Over!

- Slowly lift the machine clear of the pallet.
- Remove the pallet.
- Move the machine into position and gently lower the machine until the feet are on the floor.

Installation

Remove the transit brackets

- Remove any further packaging.
- Remove the transit brackets.

The IRP400-FL has four sets of transit brackets. These orange brackets hold the moving parts of the machine in position whilst the machine is in transit. The transit brackets for the IRP400 hold in place:

- The console on the side of the machine
- The X-axis to bridge at the rear of the machine
- The Y-axis and C-axis to the bridge
- The A, B and H-axis assembly to the C-axis

Adjusting the machine

- Position an engineer's spirit level (20 μm / division) on the C-axis table and use this to level the machine by adjusting the threaded bars on the 3 levelling positions. Ensure that the machine is level in both the x- and y- directions.
- Once the machine has been levelled, screw the lock nuts down onto the base to tighten threaded pins and tighten them.
- Once the lock nuts are secured, re-check the levels of the machine to ensure it has been accurately aligned.

Connection

[Connecting the polishing fluid system](#)

[Connecting the compressed air supply](#)

[Electrical connection](#)

Connecting the polishing fluid system

Connecting the polishing fluid system:

[Connecting the polishing fluid supply hose\(s\)](#)

[Connecting the polishing fluid drain hose](#)

Connecting the polishing fluid supply hose(s)

The machine is delivered with a polishing fluid supply hose.

Connect the hose to the appropriate connection adapter of the machine (see *Figure 6 - Supply connections to IRP400 machine*).

Connect the other end of the hose to SMU unit.

Connecting the polishing fluid drain hose

The machine is delivered with a fluid drainpipe assembly.

Connect the drainpipe assembly to the machine and to the SMU (see *Figure 7*).

Connecting the compressed air supply

The compressed air supply can be connected with an adequate standard type of air hose.

Electrical connection

Setting the mains voltage:



WARNING: Work on electrical parts and equipment must only be done by a qualified electrician or by duly trained personnel under the instruction and supervision of a qualified electrician, in accordance with electro-technical rules and regulations.

The machine should be equipped with a 32A Euro-plug, 3-Phase, 4 Wire (i.e. 3 Phases + Earth). This must be supplied by the customer and fitted in line with the local electrical regulations at the site.

The cable is located in the mechanical and electrical cabinet. See (*Figure 5 - Electrical connection of the machine*).



Figure 5 - Electrical connection of the machine

The mains voltage is:

- 400 V /50/60 *Hz: 3-PE $\pm 5\%$.



WARNING: The machinery must only be plugged into a socket which has a protective earthed conductor. The primary side must match the incoming customer supply voltage. If a supply transformer is required, the secondary voltage supply to the machine must match the machine voltage specification.

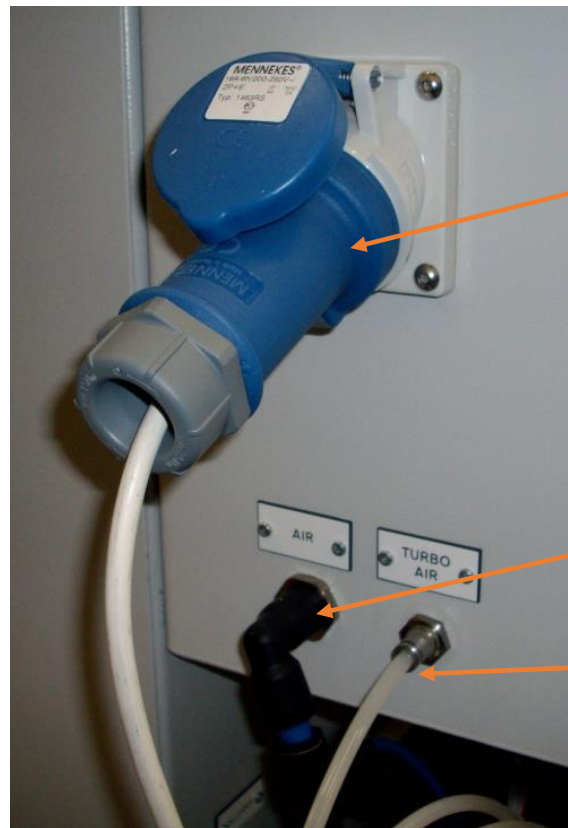


WARNING: If the mains voltage supply is not the same as that specified on the machine rating plate, the transformer tapplings (if applicable) must be interchanged to correspond with the existing mains voltage. **This MUST only be performed by qualified personnel.**

Main isolator switch in the OFF position.



Connection outside the pneumatic cabinet.



Auxiliary power to SMU chiller

Main air (6 bar) min

Turbo air (up to 20 bar)

Auxiliary power to the slurry system

Slurry in from SMU

External on/off valve

H-axis chiller in/out

Compressed air (6 bar) min for external on/off valve

C-axis chiller in/out

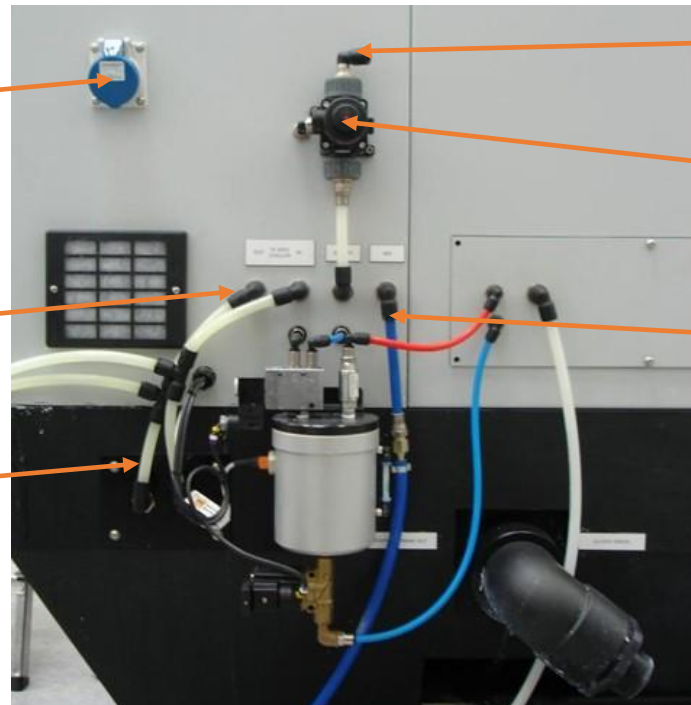


Figure 6 - Supply connections to IRP400 machine

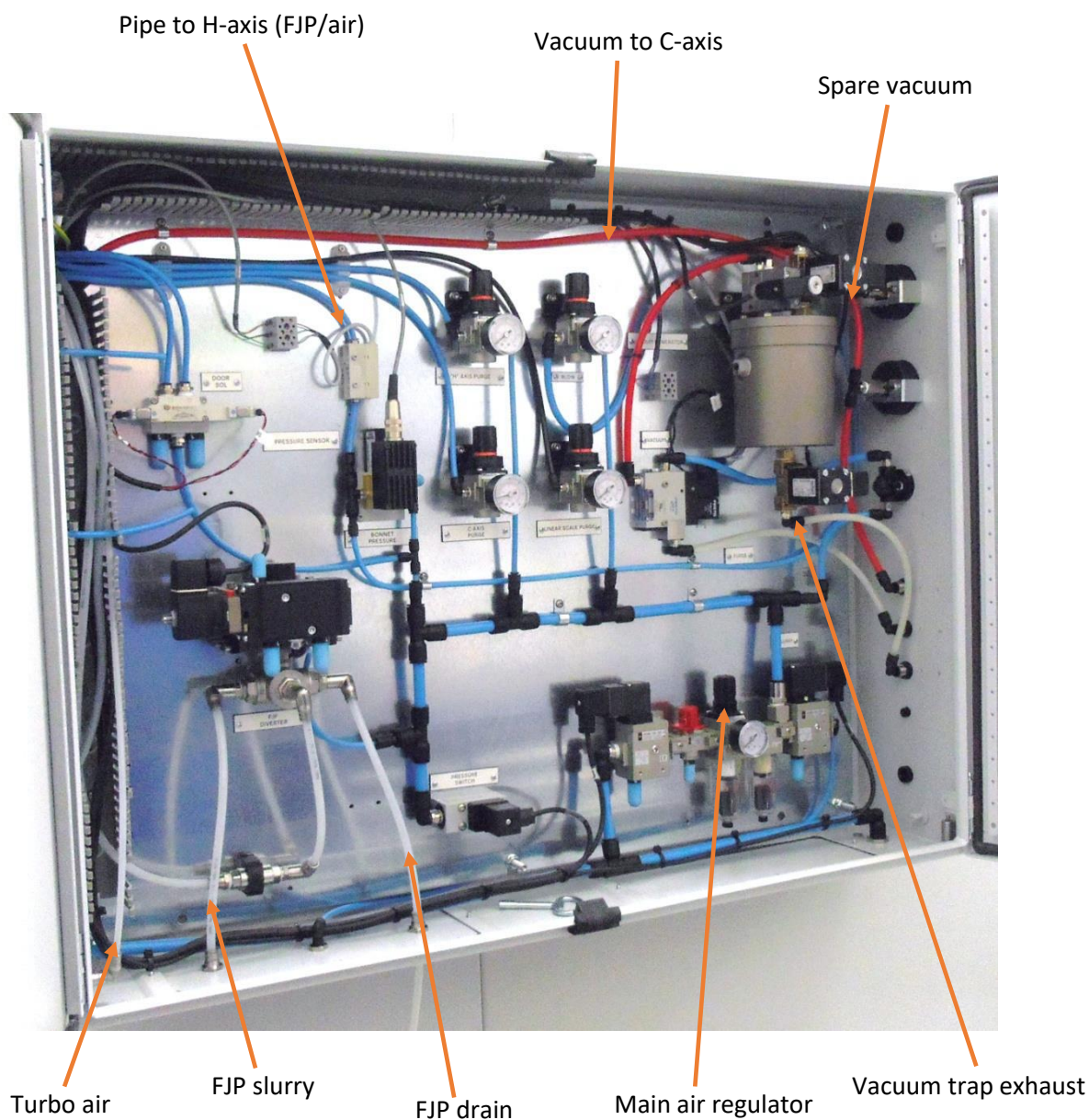
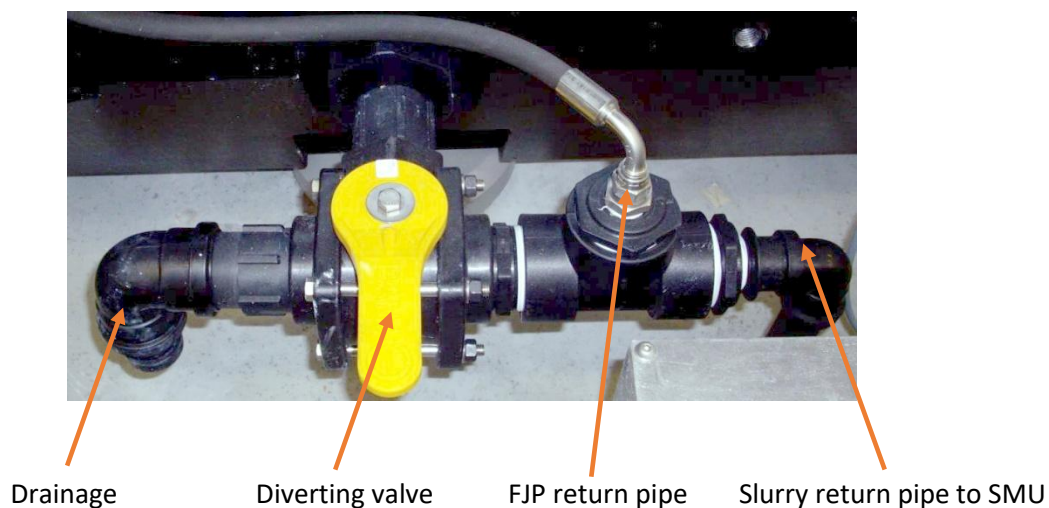


Figure 7 – Return fluid connection between polishing enclosure and pump



Polishing fluid supply

The polishing fluid supply hose is connected at mid-height at the left-hand side of the machine via the external slurry on/off valve. See *(Figure 7)*

Polishing fluid return

The return hose is connected to the machine via a 50mm hose connection at low height at the left-hand side of the machine. See *(Figure 7)*

Operation at startup



ATTENTION: *Safety Instruction! Familiarise yourself with the machine prior to start-up.*

The following conditions must be met before putting the machine into operation:

- The space requirements and ambient conditions at the site of installation must be met.
- The power, compressed air and coolant supply connections required by the machine must be connected.
- The machine panelling has been mounted.
- The mechanical and electrical cabinet doors are closed.
- The “EMERGENCY STOP” button is unlocked, i.e. not locked (unlocking is achieved by turning clockwise).

The following jobs must be done prior to putting the machine into operation:

- Transport the machine to its site of installation. Read the transport safety instructions.
- Lift the machine off the pallet.
- Put the machine into place on the levelling elements and align it.
- Fill the polishing fluid (lubricant) supply unit and connect it to the machine.
- Connect the compressed air supply Connect the machine to the power supply.