

FICHE MEMO - MACHINE

RADIUS AND ANGLES

- Radius  Distance between the center of the mast and the print head.
- Z Height  Distance between the print head and Axis 2.
- Alpha & Beta  Angles of the main and secondary arms.
- Theta  Angle formed by the -Y axis and the arm.
- Main and Jib Lengths  Displayed on the home screen or in the settings.

DIFFERENCE MOTOR DIESEL / ELECTRIC ENGINE

- Diesel Engine   Deploy and tracks movements.
- Electric Motor   Printing and standard operation.
-  Never refuel while the engine is running.

CONTROL STATION N°1

- Travel Levers  Move forward, backward, turn, and pivot.
- Throttle Lever  Push/pull to adjust speed.
- Rotation Lever  Rotate counterclockwise/clockwise.
- Horn Button  Sounds the horn while pressed.
- Emergency Stop   Press in case of danger, turn to reset.
- Headlight Switch   Pull to turn on, push to turn off.
- Fuses   Always check with a multimeter before replacing.
- Ignition Switch   Positions: Pre-heat, OFF, ON, and START.

CRANE PART

- Warning  The MaxiPrinter is not a crane and must not be used to lift loads.
- Arm Levers  Depending on the selected mode, move and extend the arm.
- Safety Key   To be used only in case of emergency.

HMI (Human Machine Interface)

- Auto Start   Activated each time the machine is powered on.
- Main Screen  Access to all functions.
- Slicer Window  Visualization of the ongoing print.

MAIN NOTIFICATIONS

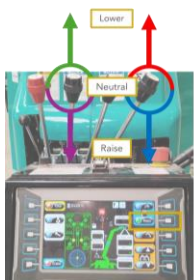
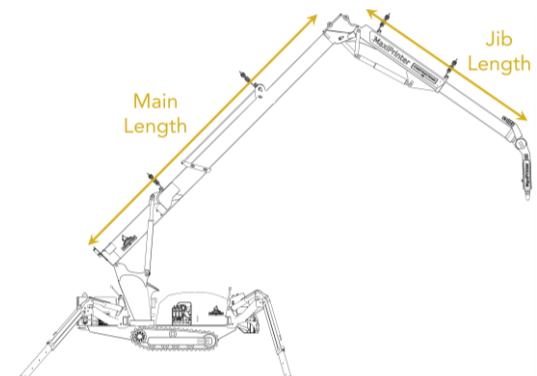
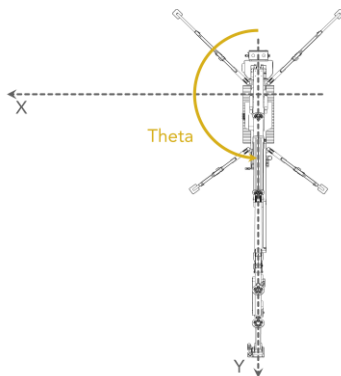
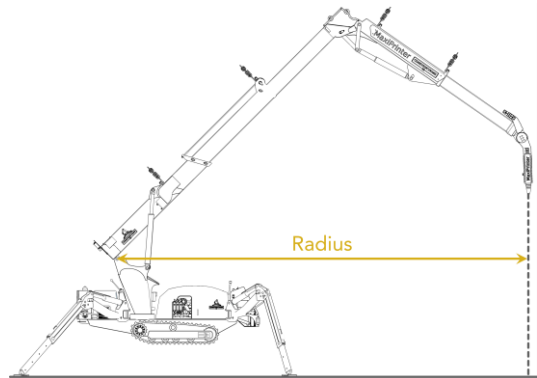
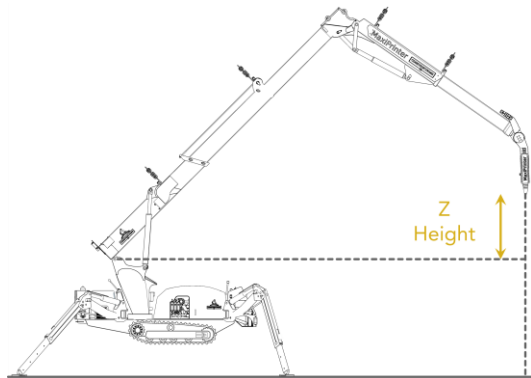
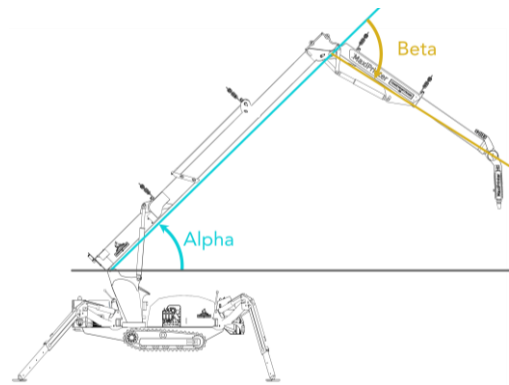
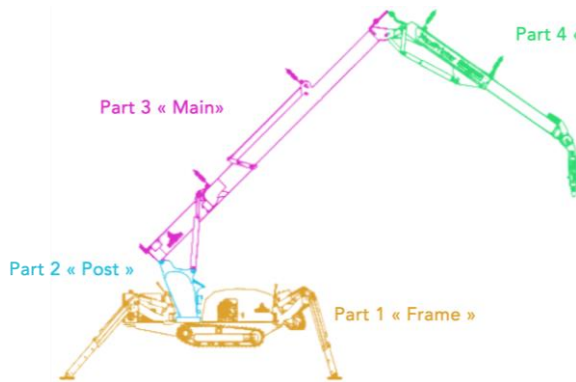
- High pressures/temperatures 
- Arm length issues 
- Machine not leveled 
- Inclinometer or auto-leveling malfunction 

SETTINGS AND GESTION

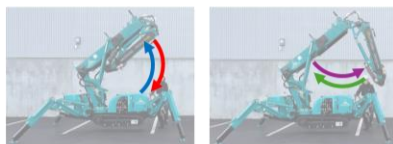
- HMI Settings  Machine and pump settings, access to the manual.
- Wi-Fi Connection   Click the Wi-Fi icon to connect.
- User Management   Add/modify users via the user icon.

FICHE MEMO - MACHINE

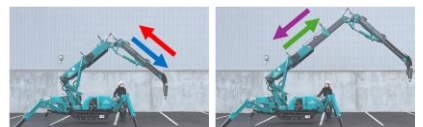
→ The following diagrams illustrate the vocabulary explained earlier.



Main Mode:



Jib Mode:



FICHE MEMO - PRINT



TRANSPORT ET DEPLACEMENT

• Transport

- Seuls les opérateurs formés sont habilités à manipuler la machine.
- Vérifier le bon état des câbles électriques et installations avant démarrage.
- Éviter tout endommagement des câbles en mode électrique et toute inhalation de gaz en mode thermique.

• Levage

- Utiliser exclusivement les 4 points d'ancrage dédiés avec élingues homologuées.
- Interdiction absolue de se placer sous la machine durant le levage.
- Minimum 2 opérateurs requis pour le levage.
- Vérifier que les pattes soient bien en position de levage.

• Déplacement (Chenilles)

- S'assurer que le bras et les pattes soient repliés.
- Minimum 2 opérateurs requis : 1 pilote et 1 guide.
- Ne jamais déplacer la machine avec le bras étendu.
- Interdiction de rouler sur la voie publique.
- Déplacement à vitesse réduite, prudence accrue en pente ou sur sol irrégulier.
- Toujours dégager le chemin, klaxonner avant de déplacer.



DEPLOYING THE STABILIZERS

• Safety

- Position sensors must work properly.
- Report any anomaly to after-sales service.
- Locking pins and snap pins are mandatory.

• Procedure

- Always deploy on stable, flat ground.
- Raise the tracks 480 mm above the ground.
- Use the "ALL" button to lower the stabilizers simultaneously.
- In case of imbalance, adjust using individual buttons.
- Never use deployment functions when the crane is active.



ARM AND PRINT HEAD

• Mode Main (Axes 2 & 3)

- Toujours mettre en pression le bras.
- Deux leviers permettent le contrôle du bras principal (boom) et secondaire (jib).
- Ne pas opérer si la clé de sécurité est sur "ON".
- Toujours manœuvrer lentement et vérifier qu'aucun obstacle n'est présent.

• Print Head

- Manual deployment after unlocking Axis 4.
- Wearing protective gloves is mandatory when installing the nozzle.

• Jib Mode (Telescopic arms)

- Extension controlled by levers : left for boom, right for jib.
- Operate slowly to avoid damage.
- Don't forget to close the mast valves.

FICHE MEMO - PRINT

AIR PRINT & HMI USAGE

- **Slicer Software**

- Import of .STL, .DXF, .MPP, .MXP, .OBJ files compliant with 3D constraints.
- Generation of GCODE transferable to the HMI.

- **Main HMI Functions**

- **Material Settings** : pump and valve adjustment.
- **Print Control** : file selection, start/pause/stop.
- **Manual Control** : direct arm controls.
- **Data Logging** : real-time values with alerts.
- **Camera** : live print monitoring.
- **Print Assistant** : layer/time/height alarm settings.

POSITIONING & VERIFICATIONS BEFORE AIRPRINT

- **Positioning Assistant**

- Match file reference points with those on site.
- Requires 3 marked points on the slab, visible to the machine.

- **Critical Checks**

- Clear area, "Air Print" message visible.
- Calibrate Z offset via HMI.
- Ensure the arm can reach the entire file without error.

DURING AIR PRINT

- No personnel in the printing zone.
- Activate autolevel.
- Monitor Z offset, file tracking, collisions, and hose behavior.
- Camera feed and emergency stop must always be accessible.
- In case of issue: reposition file or remove obstacles.

PRINT

- **Using the HMI during printing**

- Settings: pump speed, water flow, print speed, pre/post run
- Full-screen data and camera display available.

- **Nozzle Installation**

- Working height: shoulder level on a stable platform.
- Follow the 3-step procedure to secure the hose in its guides.

FICHE MEMO - PRINT

CLEANING AFTER PRINT

- **Safety**

- Wearing PPE is mandatory (risk of splashes and projections).
- At least two trained operators required.

- **Procedure**

- 1 Empty the hopper using the pump.
- 2 Insert the cleaning ball into the hose.
- 3 Connect to a water outlet, activate the suppressor.
- 4 Repeat the cycle until completely clean.
- 5 Remove rotor/stator and clean all pump components.

FOLDING THE MACHINE

- **Telescopic arms**

- Retract using levers (boom and jib).
- Verify safety key is in "OFF" position.

- **Print Head**

- Press the fold button on the HMI.
- Wait until the movement is complete.

- **Folding the Arm**

- Follow the order: boom first, then jib.
- Engine must be on, crane button activated.

STABILIZER RETRACTION AND STORAGE

- **Procédure**

- 1 Descendre les pattes avec les boutons.
- 2 Rentrer la patte intérieure.
- 3 Replier le vérin vers la base.
- 4 Replier la goupille rotative.
- 5 Vérifier chaque étape pour éviter tout basculement ou relâchement.

- **Stockage des éléments**

- MaxiPrinter dans un lieu sec, propre, couvert.
- IHM et composants dans la boîte aluminium.
- Matériau (big bags) : stockage en intérieur conseillé (selon conditionnement et matériau), pas ouvrir les emballages ni retirer le big bag de la palette si le matériau ne sera pas utilisé dans les 24h.
- Tuyaux et système de pompage nettoyés et secs avant stockage.

CHECK LIST - PRINT

2 PERSONNES FORMEES ET EPI : 1 GUIDE + 1 OPERATEUR
RESPECTER L'ORDRE DES ETAPES



TRANSPORT ET DEPLACEMENT

• Transport

- ☐ Vérifier le bon état des câbles électriques et installations avant démarrage.
- ☐ Vérifier que les bras et les pattes soient repliés.

• Levage

- ☐ Mettre les pattes en position de levage.
- ☐ Mettre les élingues aux 4 points d'ancrage.

• Déplacement (Chenilles)

- ☐ Le chemin prévu n'est pas une voie publique.
- ☐ La vitesse est adaptée au parcours.
- ☐ Le chemin est dégagé.
- ☐ Klaxonner avant de démarrer.



DÉPLOIEMENT DES STABILISATEURS

• Sécurité

- ☐ Vérifier que les capteurs de position des pattes fonctionnent correctement.
- ☐ Ouvrir les pattes manuellement.
- ☐ Vérifier que les goupilles de verrouillage sont bien mises.

• Procédure

- ☐ Vérifier que le sol est stable et plat.
- ☐ Descendre les pattes.
- ☐ Faire le niveau de la machine grâce au niveau à bulle.
- ☐ Surélever les chenilles à 480 mm du sol.



BRAS ET TÊTE D'IMPRESSION

- ☐ La clé de sécurité est en position OFF.
- ☐ Mettre en pression le bras en mode main, pousser le levier 2 (pour le ramener vers la flèche).
- ☐ Vérifier qu'aucun obstacle n'est présent.
- ☐ Appuyer sur « crane ».
- ☐ Lever la flèche en mode main.
- ☐ Déverrouiller et accompagner la tête d'impression.
- ☐ Ouvrir le bras en mode main.
- ☐ Depuis l'IHM étendre les télesco jusqu'à : flèche 5000 et bras 3100.
- ☐ Mettre une buse à la tête d'impression.



POSITIONNEMENT ET VERIFICATIONS AVANT AIRPRINT

• Assistant de Positionnement

- ☐ Activer l'autolevel
- ☐ Prise des points sur la dalle.
- ☐ Génération du fichier sur le Slicer.

• Vérifications critiques

- ☐ Vérifier : zone dégagée, message "Air Print" visible sur l'IHM.
- ☐ Dans l'assistant de positionnement de l'IHM, cliquer sur « Set Z offset » après la prise des points.
- ☐ Vérifier que l'imprimante est capable d'atteindre l'ensemble du fichier sans erreur.

CHECK LIST - PRINT

2 PERSONNES FORMEES ET EPI : 1 GUIDE + 1 OPERATEUR



PENDANT L'AIR PRINT

- ☐ Aucune présence humaine dans la zone d'impression.
 - ☐ Vérifier la hauteur de la buse par rapport à la dalle/au support, lors de la première couche.
 - ☐ Vérifier le bon suivi du fichier et les potentielles collisions.
 - ☐ Surveiller le comportement du tuyau.
 - ☐ Garder la main près de l'arrêt d'urgence.
- ➔ En cas de problème : repositionner le fichier, ou déplacer les obstacles.



IMPRESSION

- ☐ Positionner les guides tuyaux.
- ☐ Installer les tuyaux.
- ☐ Lancer le print.
- ☐ Ajuster les paramètres au besoin : vitesse pompe, débit eau, vitesse d'impression, pre/post run.



APRÈS IMPRESSION

- ☐ Suivre la procédure de nettoyage indiquée par l'IHM.
- ☐ Appuyer sur le bouton **Fold** de l'IHM pour replier la tête d'impression.
- ☐ Démarrer le moteur en manuel.
- ☐ Appuyer sur « crane ».
- ☐ Rétracter le bras puis la flèche en mode **jib**.
- ☐ Replier le bras puis la flèche en mode **main**.
- ☐ Relever les pattes avec le bouton **ALL**.
- ☐ Arrêter le moteur.
- ☐ Replier les pattes manuellement.
- ☐ Vérifier que les goupilles sont bien installées au bon endroit.
- ☐ Ranger tous les éléments dans la caisse grise.
- ☐ Stocker la MaxiPrinter, sa caisse, et les autres éléments comme la pompe dans un lieu sec, propre et couvert.

SAFETY

General Safety Precautions



Read the manual
and labels



Mandatory
training



Protective
Equipment



Fire extinguisher
and first aid kit



Follow supervisor
instructions and
signals



No modifications
allowed



Check for leaks
and safety
systems



Prepare and store
properly in case of
anomalies



Safe refueling /
Keep fire sources
away



No handling at
high temperature



Beware of exhaust
gases and
asbestos dust



Injury prevention

Starting the MaxiPrinter



Pre-start
inspection



Worksite safety
measures



Caution when
starting

TRANSPORT AND MOVEMENT



Post-start
inspection



Maneuvers and
direction changes



Safe movement



Caution on slopes



Unstable, snowy
or icy ground /
Winter conditions



Autonomous
parking / loading



Loading /
unloading with
crane



Road transport

OPERATION AND PRECAUTIONS



Pre-work
inspection and
control screen



Weather
conditions



Stable ground
positioning /
Deploying
stabilizers



Electrical safety /
Cable hazard
awareness



Jib/Main arm
operation and
switching



Safe use / Cable
handling



Area with high
microwave
emissions



High oil
temperature

BATTERY AND PRECAUTIONS



Battery
Handling



Use of jumper
cables



Recharging

MAINTENANCE AND SERVICING



Failure reporting



Clean work area
and cleaning
before inspection



Follow supervisor
instructions



Use proper tools
and lighting



Avoid dropping
objects into the
machine



Restricted access
/ Work under the
machine



Fire prevention /
Response to
anomalies



Noise
awareness and
working at
height



Caution:
maintenance
while engine is
running



Refueling / Oil
top-up



Hammering /
Welding work



Battery
disconnection



Monitor high-
pressure hoses /
Track tension



High-pressure oil
/ Elevated
temperatures



Waste
management



Post-maintenance
inspection

CONSTRUCTIONS-3D
website:



QUICK START

MaxiPrinter Movements

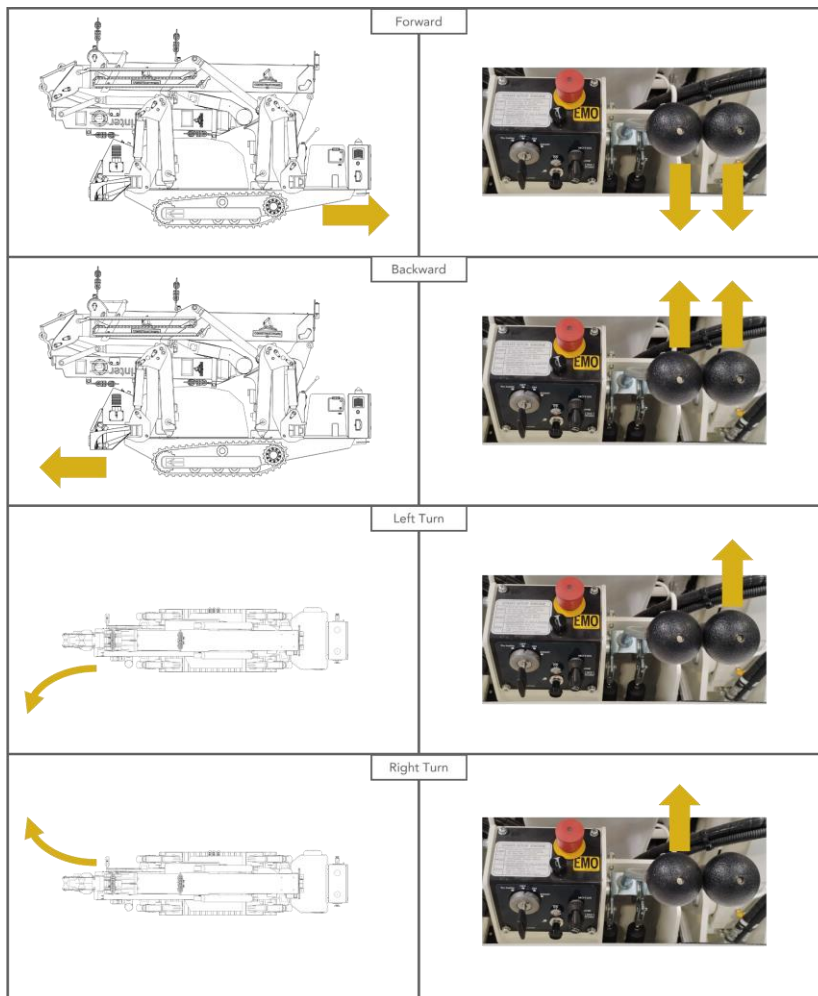


CAUTION: Before any movement, make sure the legs, the boom, and the arm are properly folded (see "MaxiPrinter Legs" and "MaxiPrinter Boom and Arm").

Before moving, make sure the path is clear. Start the engine using the button, then follow the joystick instructions.



Lever operation for tracked movement:



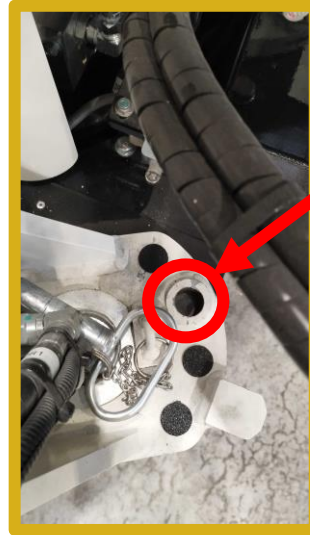
QUICK START

Slinging the MaxiPrinter



CAUTION: Before any movement, ensure that the legs, boom, and arm are fully retracted (see "MaxiPrinter Legs" and "MaxiPrinter Boom and Arm").

Leg orientation to follow for lifting the machine:



Sling positions on the leg:



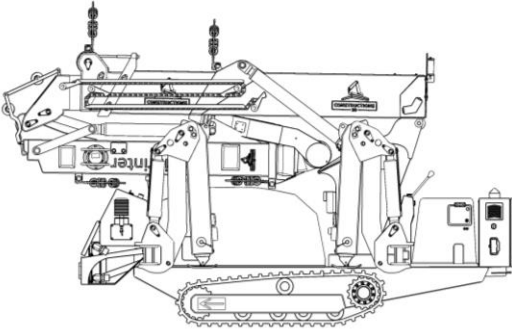
CAUTION: Make sure the hook is oriented from the inside to the outside. For any lifting operation, contact the After-Sales Service team before proceeding.



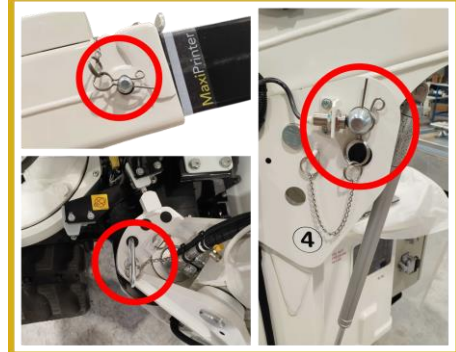
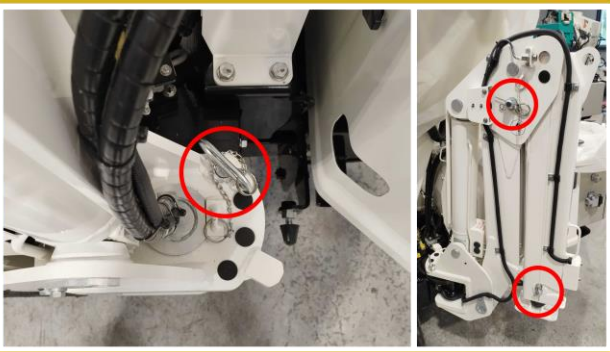
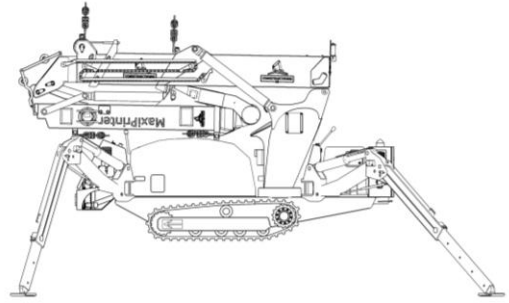
QUICK START

MaxiPrinter Legs

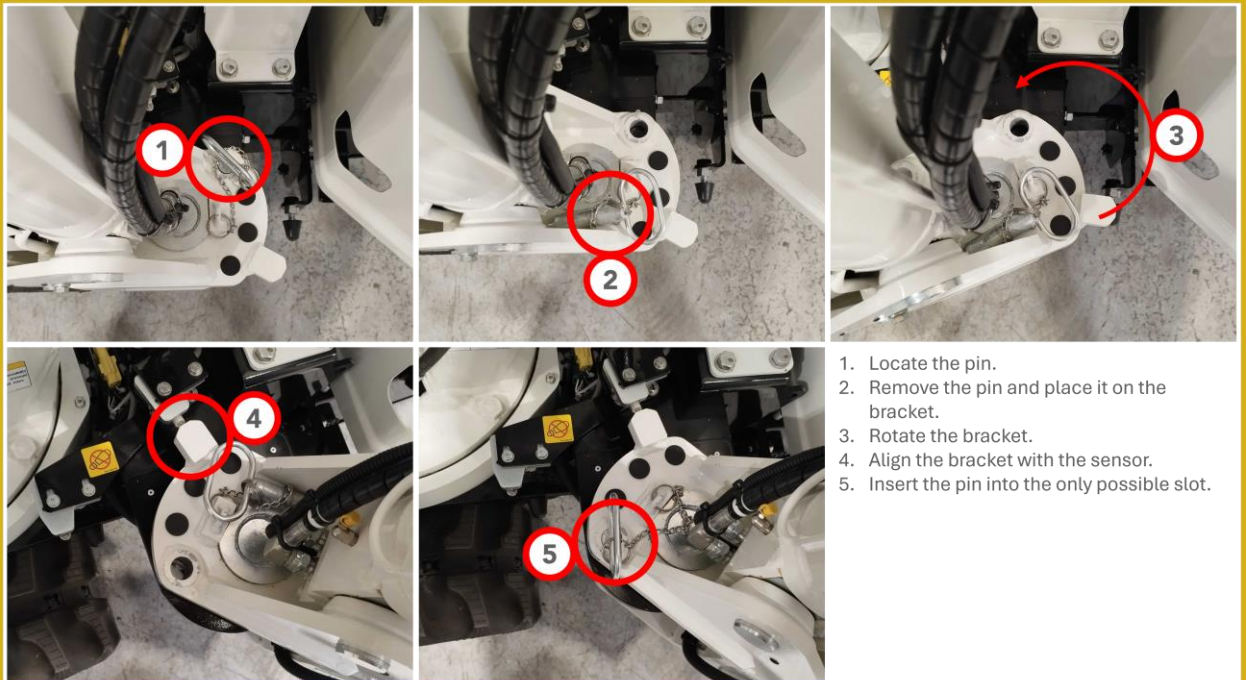
Folded



Deployed



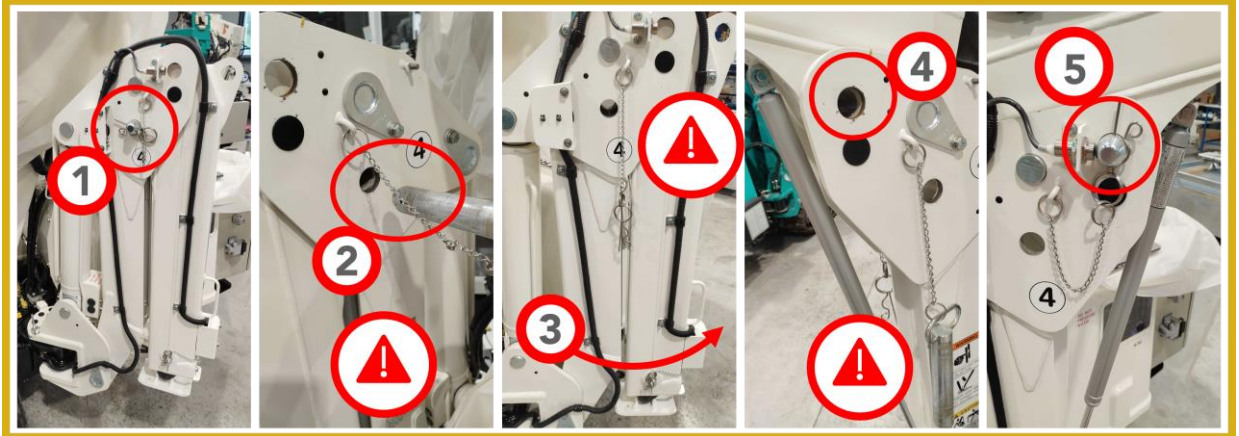
Leg and pin handling before deployment:



QUICK START

MaxiPrinter Legs (Outriggers)

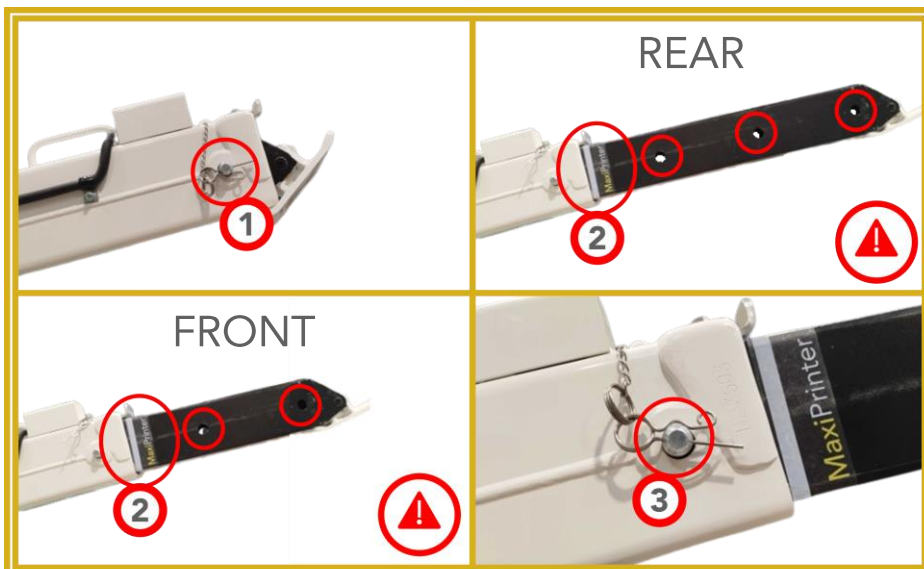
Leg and pin handling before deployment:



CAUTION: When a pin is not in place:



- The leg extension may fall, potentially crushing a foot or severing a finger.
- The moving part of the leg may drop, hitting a person or crushing/trapping something.

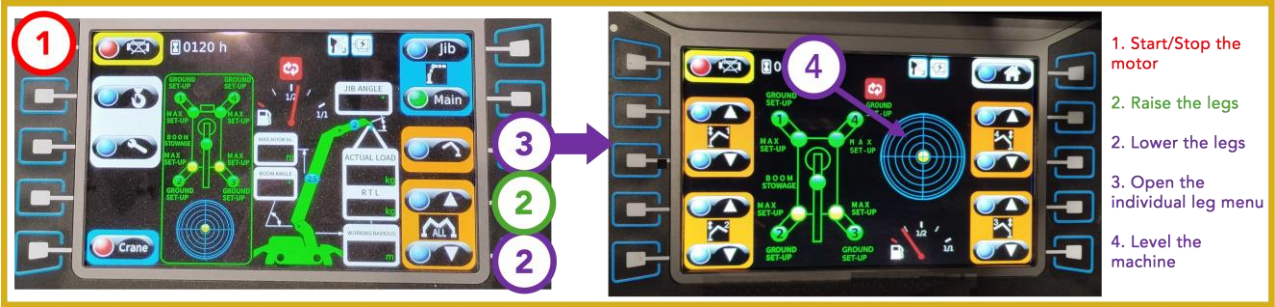


QUICK START

MaxiPrinter legs

Leg Deployment:

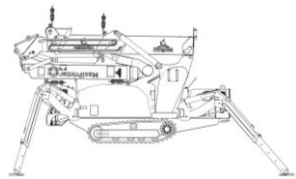
Connect the machine (see Connection section) and power it on.



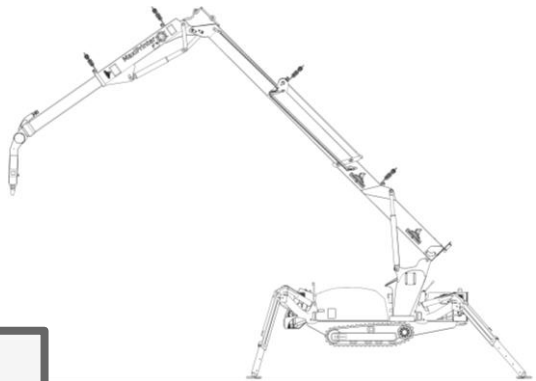
CAUTION: When lowering or raising the legs, make sure no person or object is in the path.

MaxiPrinter Main and Jib

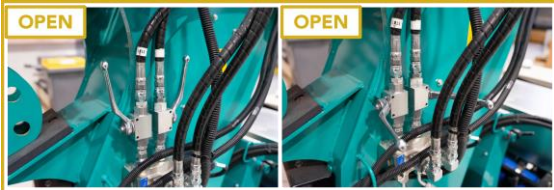
Folded



Deployed



Valves



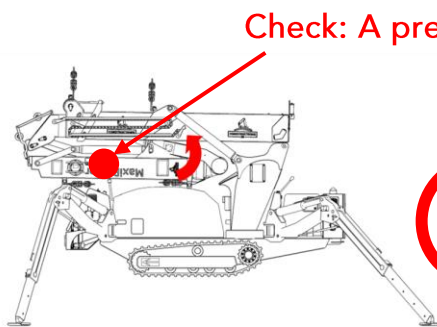
Telescopic arms length

MAIN : 5000 JIB : 3100

QUICK START

MaxiPrinter Main and Jib

Operating the levers to deploy or retract the boom and arm:



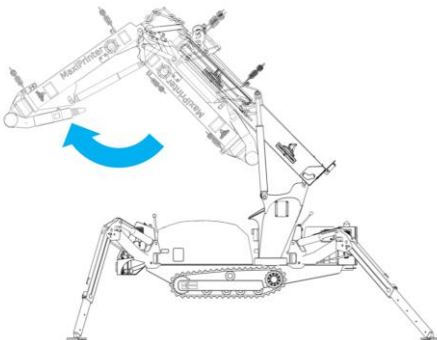
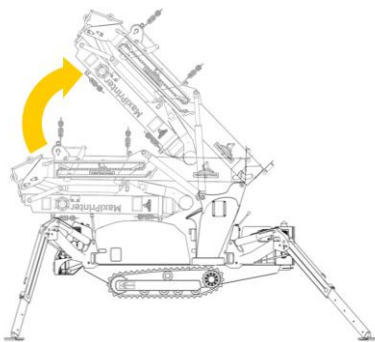
Check: A pressurized hose moves in this area.



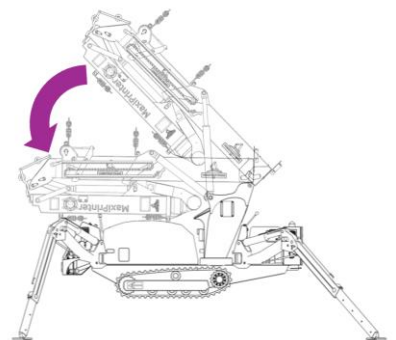
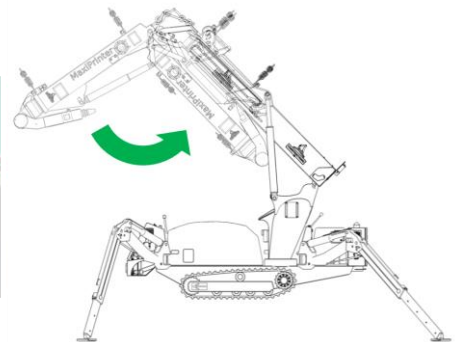
CAUTION: When the boom and arm are fully retracted, pressurize the arm. Once this is done, the boom and arm can be deployed.

Press the Crane button, then the Main button, and start the engine for the following operations:

Deploy



Fold



QUICK START

MaxiPrinter Main and Jib

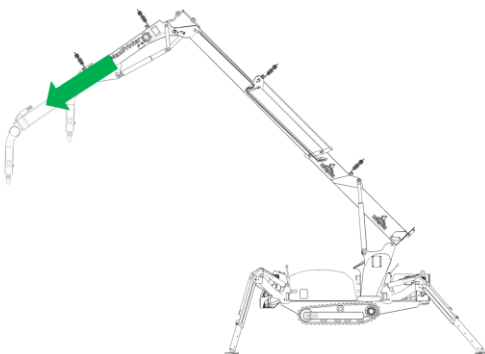
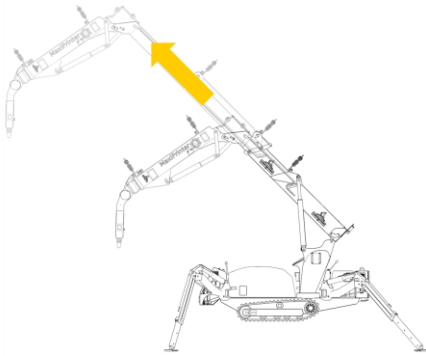
Operating the levers to extend or retract the boom and arm

Press the Crane button, then the Jib button, and start the engine for the following operations:

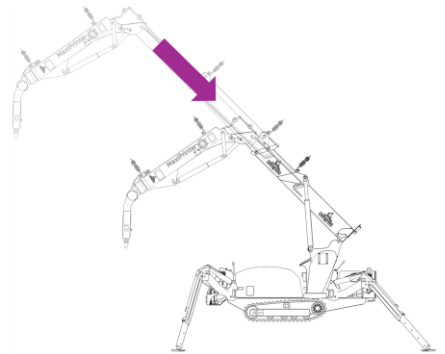
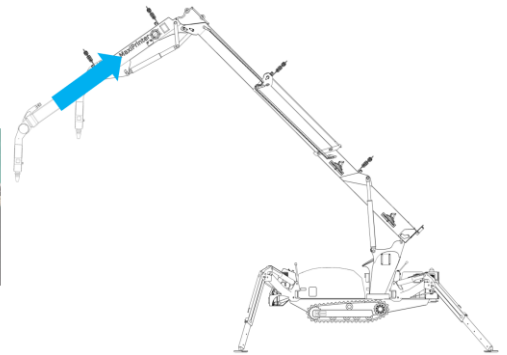
Extend

Using the HMI: Click the icon to display the telescopic lengths, start the engine on the HMI, then enter "main:5000" and "jib:3100", and click GO.

OR



Retract



QUICK START

MaxiPrinter Print Head

How to unlock:



CAUTION: When unlocking and folding the print head, guide the movement to prevent it from hitting any object or person.

How to fold the print head: Click the Fold button on the HMI.

Nozzle Installation

Slicer

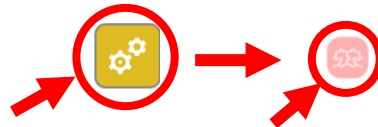
Refer to the specific Slicer documentation for all handling and file generation procedures.

Positioning Assistant Summary:

1. Import your file.

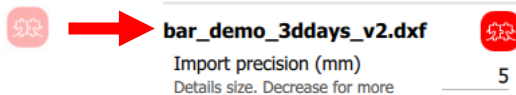
File +

2. Click the assistant button in the file configuration section.



3. Import your set of points (.csv or .dxf).

Configure



4. Import the points for the machine.



QUICK START

Preparation for Printing



CAUTION: Check the condition of all cables and hoses before connecting them.

Connections:

- ❖ Electrical: machine power supply, pump power supply
- ❖ Concrete hose (see next section)
- ❖ Water hoses for the pump
- ❖ Compressor hose

During the AirPrint :

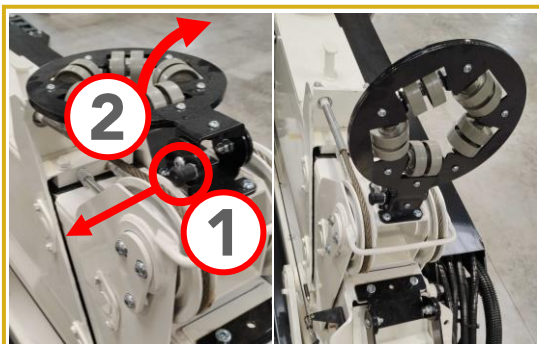


CAUTION: Keep your hand on the emergency stop button. In case of any issue during the AirPrint, press it immediately without hesitation.

Check the distance between the nozzle and the ground during the first layer to avoid contact with the ground.

Ensure the printer reaches all points from the file: the machine must not trigger any errors during the first layers.

Concrete Hoses:



Position the guides, then install the hoses from the rear of the machine toward the front.

During printing, monitor the hose behavior to ensure it does not hit anyone or cause any damage.

QUICK START

MaxiPrinter HMI

Slicer :

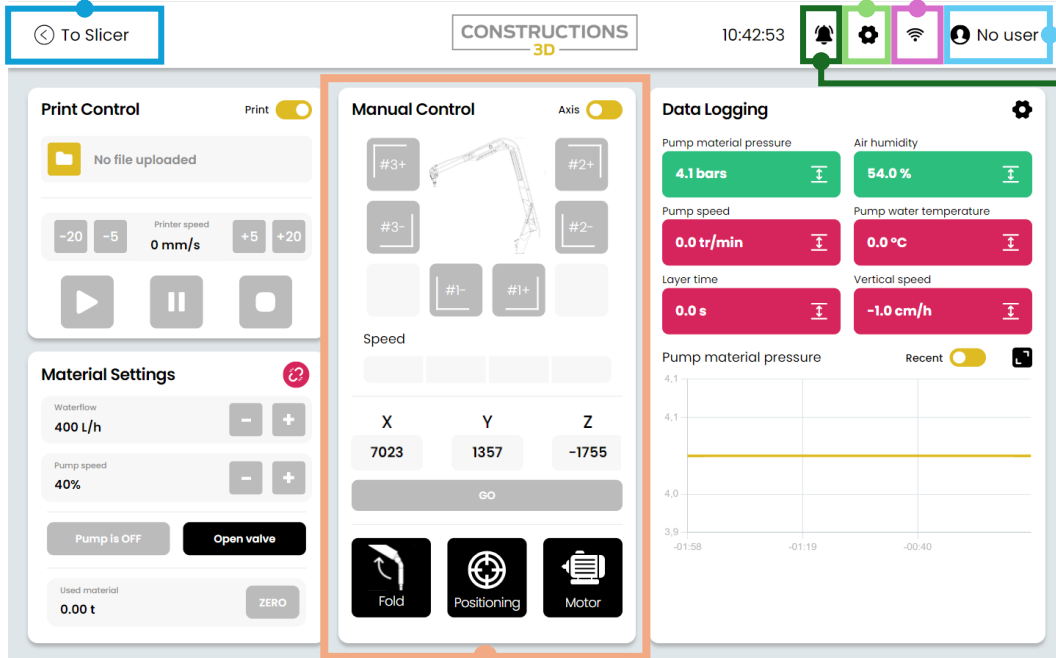
Click to open the Slicer and view the current print.

Settings : Machine and Print Settings

Wifi

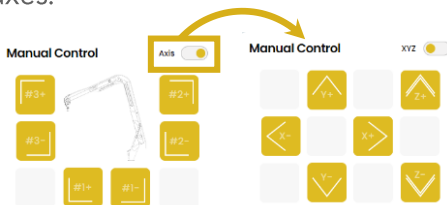
User manager

Notifications



Jog mode:

Switch between Axis and XYZ modes. Axis = movement of axes 1, 2, or 3 / XYZ = movement along coordinate axes.



Printer Speed:

Change speed by clicking one of the buttons.



Coordinates boxes:

Allows moving the arm to the requested point.



Fold / Positioning and Motor buttons:

Gray = disabled, Black = button OFF, Orange = button ON

Deploy/Fold: Click to deploy or fold the print head.



Positioning: See the Positioning Assistant section.

Motor: Start the engine.

QUICK START

MaxiPrinter HMI

Play / Pause / Stop buttons:

Orange = ability to start, pause, or stop the print.

Printer Speed:

Adjust the machine speed during printing.

File Selector:

Orange = motor is on, file selection is available
Gray = file selection not available

Print progress percentage & remaining time

Camera:

The camera in the print head streams the print and the hose live.

⏪ To Slicer

CONSTRUCTIONS
—3D—

16:58:00



Admin

Print Control

0% - 00:03 left



40mm.mxp



Printer speed

100 mm/s



Material Settings



Waterflow

300 l/h



Pump speed

40%



Pre-run

2.0s



Post-run

2.0s



Used material

0.00 t



Zero

Data Logging

Pump material pressure

4.1 bars

Air humidity

54.0 %

Pump speed

0.0 tr/min

Machine speed

0.0 mm/s

Layer time

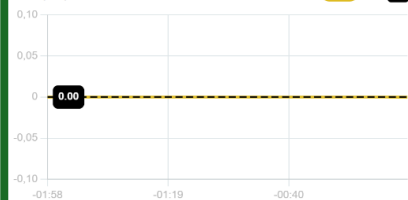
0.0 s

Vertical speed

-1.0 cm/h

Pump speed

Recent



X

7023

Y

1357

Z

-1755

Layer

0

Camera



Print assistant

Next alarm in:



NA



NA



NA

Used Material:

Click to reset.

Pre-run Post-run setup:

Adjust during printing using + and -.

Pump Speed: Adjust during printing using + and -.

Waterflow: Adjust during printing using + and -.

Data logging:

Real-time display of print data. Select which data to display. Click on a data point to view its graph.

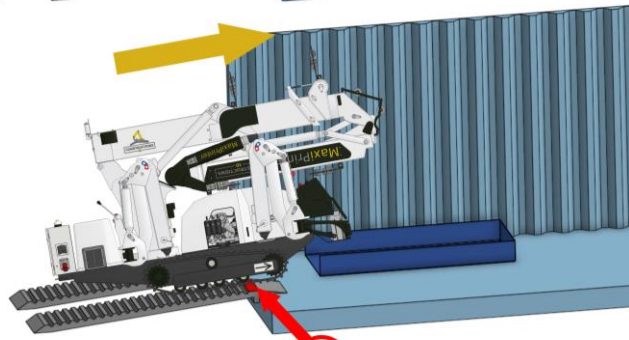
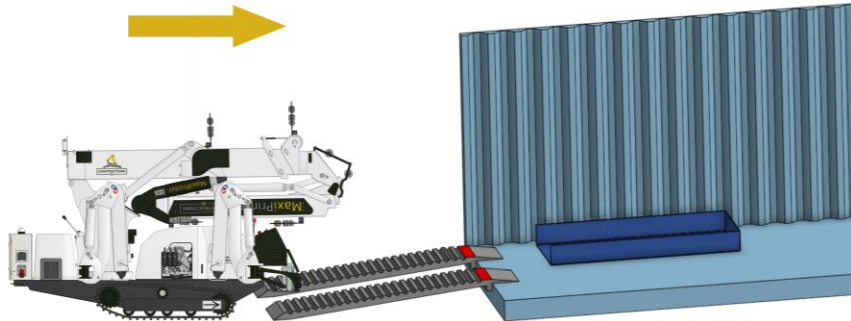
Print Assistant:

Set alarms during printing.

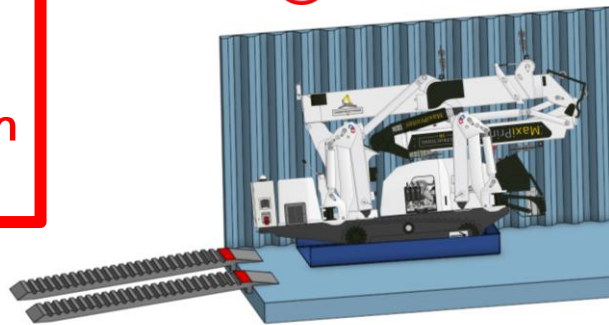
CONTAINER

Loading and Unloading of Components

Install ramps between the container and the floor to move the machine on it



**Tipping hazard
warning – extreme
caution required when
moving the MXP**



Information about compatible
trolley sizes: minimum and
maximum dimensions, as well as
fork width

CONTAINER

Positioning and securing of all components

Ramps



Pipe



Compressor

Grey Box

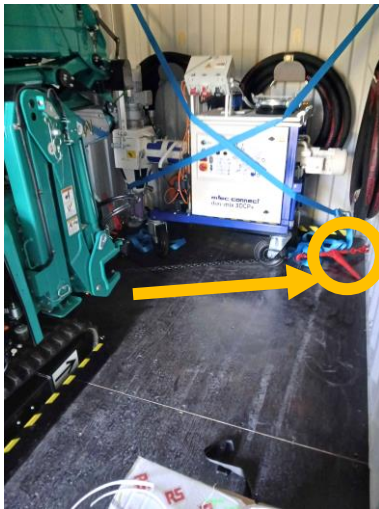
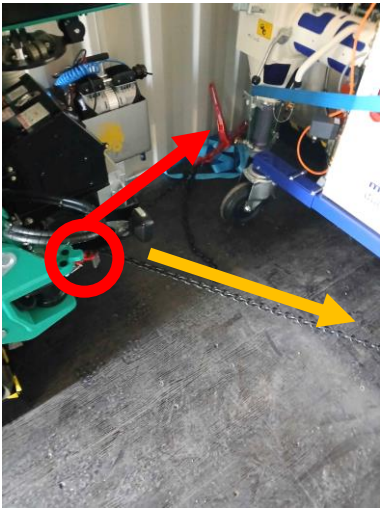


Attention à respecter les emplacements

Préparation au grutage

CONTAINER

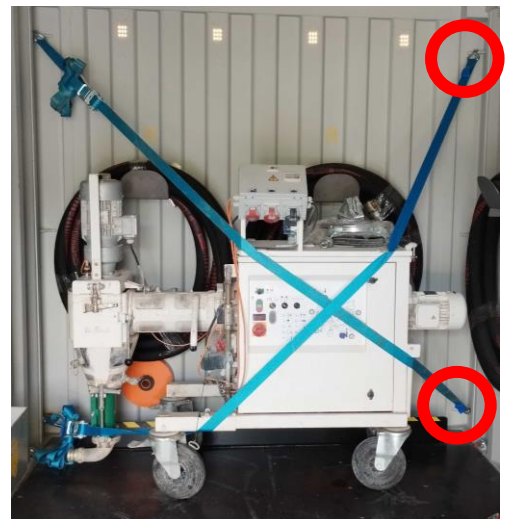
Positioning and slinging MXP



Silo



Pump



Tighten to secure, ensuring the wheels remain in contact with the ground.