



# MiniPrinter PRO

Reliability, performance, simplicity

Master the process



# MiniPrinter PRO, the new reference for 3D printing of mortars



Discover the MiniPrinter PRO through our video





# SUMMARY

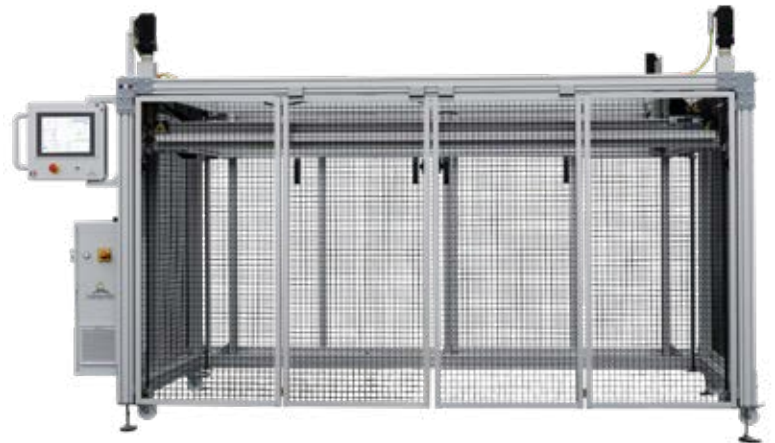
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# MiniPrinter PRO system overview

## Complete solution pack

MiniPrinter PRO or MiniPrinter PRO XL

Choose your size of machine



## MiniPrinter PRO 3D printer

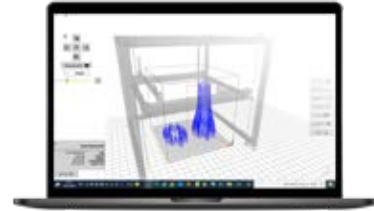


pumping system to choose





automated 1.2m<sup>3</sup> silo kit



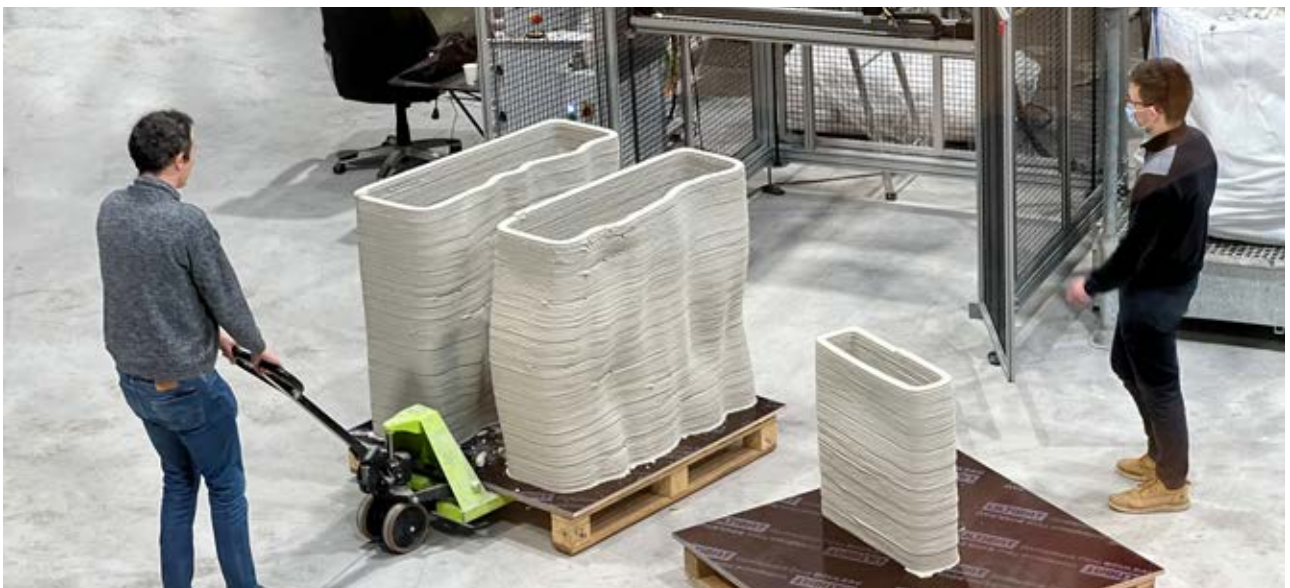
software C3D slicer  
developed by Constructions-3D



6,65 m DN35  
Pumping pipe



Pumping rotors and stators set





# General system overview

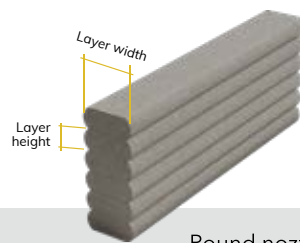
Featuring a large print area 1,2 x 1,2 x 1,2 m ou **2,5** x 1,2 x 1,2 m), the Mini Printer Pro is a new benchmark in the world of 3D printing of mortar. This robust, versatile 3D printer is designed to meet the high expectations of professionals seeking precision, efficiency and ease of use.

The MiniPrinter PRO comes with different pumping options (see p.18-21) In terms of materials, Constructions-3D can also provide different solutions tailored to your needs.



|                          |  |
|--------------------------|--|
| Type                     | Additive manufacturing technology based on material extrusion in successive layers, consisting of a 3D mortar printer coupled to a pumping solution. |
| Pumping system           | Autonomous mixing and pumping (see options p.18-21)  |
| Print file compatibility | 2D (DXF) and 3D (STL) (refer to C3D slicer p.12)   |
| Multi-part 3D printing   | (see p.5)  |

## Print capacity



|              |  |
|--------------|--|
| Layer height | 5 mm - 20 mm   |
| Layer width  | 20 mm - 100 mm**   |
| Material     | Open to any type of 3D printing mortar that is compatible with the tolerances of the pumping system (see « Pumping System » p.18-21) |

\*\*Note : Depending on the printed material

## User interface

The interface controls the MiniPrinter PRO 3D printer and the pumping system.

|                                   |   |
|-----------------------------------|---|
| Type                              | Touch screen attached to the machine frame  |
| Nozzle speed                      | Up to 400 mm/s  |
| Material flow                     | (refer to « pumping system » p.18-21)   |
| Water and material dosing on pump | Ajusted from the user interface   |
| Available languages               | English, French, German (other languages available on request)  |
| Accessible data when printing     | Material pressure and temperature<br>Mixing water flow rate and temperature<br>Mixer cycles<br>Notes added manually when printing<br>Print settings modifications |
| Exporting print-related data      | CSV format via the USB port<br>Prints break and resume  |
| Other features                    | Customized settings for materials mixing<br>water pressure and temperature thresholds   |



# 3D printing materials



The «Complete MiniPrinter PRO + Pumping System» is open to any type of 3D material subject to pumpability within the tolerance of the pump.

## Steps for printing : From file to on-site printing

3D drawings



Files format :  
STL / DXF



3D or 2D file conversion



C3D Slicer



3D printing



MiniPrinter PRO









# Examples of work areas

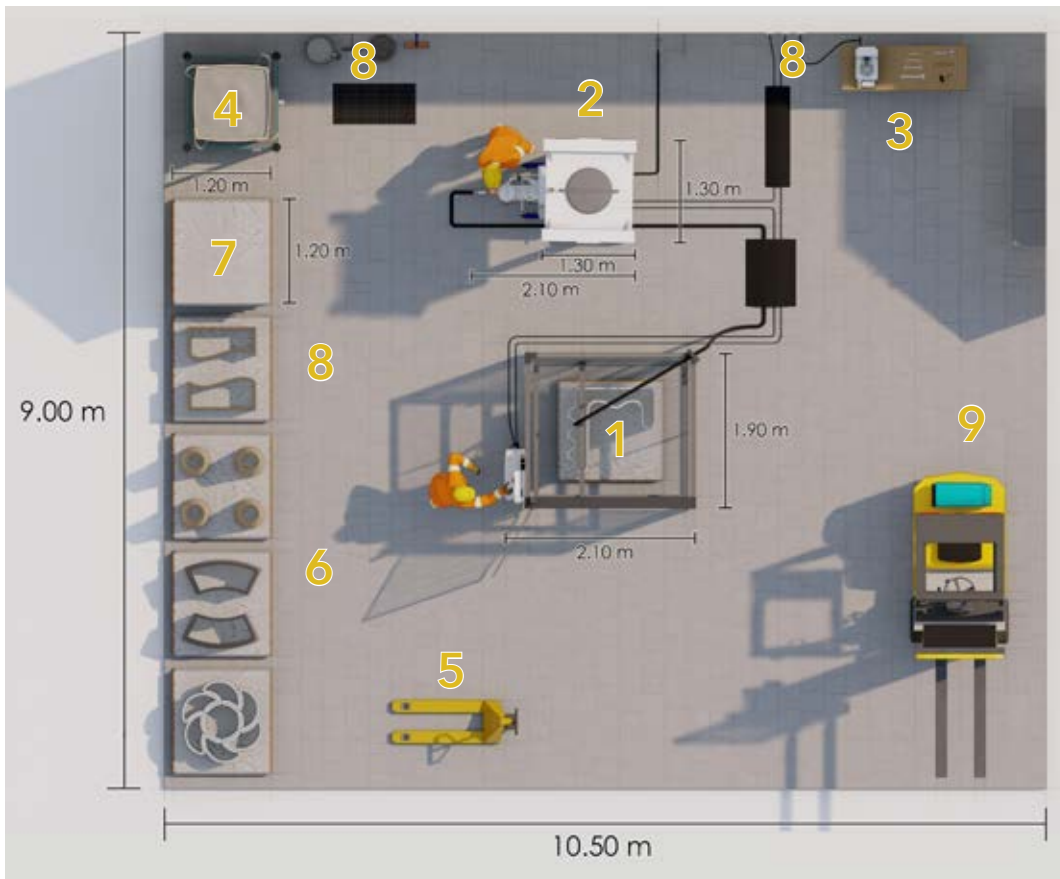
## MiniPrinter PRO + pump



- 1) 3D Printer MiniPrinter PRO
- 2) Pumping system
- 3) Table with Constructimètre and tools (not supplied)
- 4) Filtering Bigbag holder (not supplied)
- 5) Manual pallet truck (not supplied)
- 6) Print beds with freshly printed parts (two print beds supplied with the MiniPrinter PRO)
- 7) Possible location for a stock of ready-to-use stacked print beds
- 8) Recommended location for power and water connectors



## MiniPrinter PRO + pump + silo



- 1) 3D Printer MiniPrinter PRO
- 2) Pumping system
- 3) Table with Constructimètre and tools (not supplied)
- 4) Filtering Bigbag holder (not supplied) and cleaning area.
- 5) Manual pallet truck (not supplied)
- 6) Print beds with freshly printed parts (two print beds supplied with the MiniPrinter PRO)
- 7) Possible location for a stock of ready-to-use stacked print beds
- 8) Recommended location for water and electricity connections
- 9) Forklift for loading the silo (not supplied)

# Software: C3D Slicer

The C3D Slicer is specially developed by Constructions-3D to meet the ergonomic, reliability and compliance requirements of construction 3D printing.

## The C3D Slicer offers the following features :

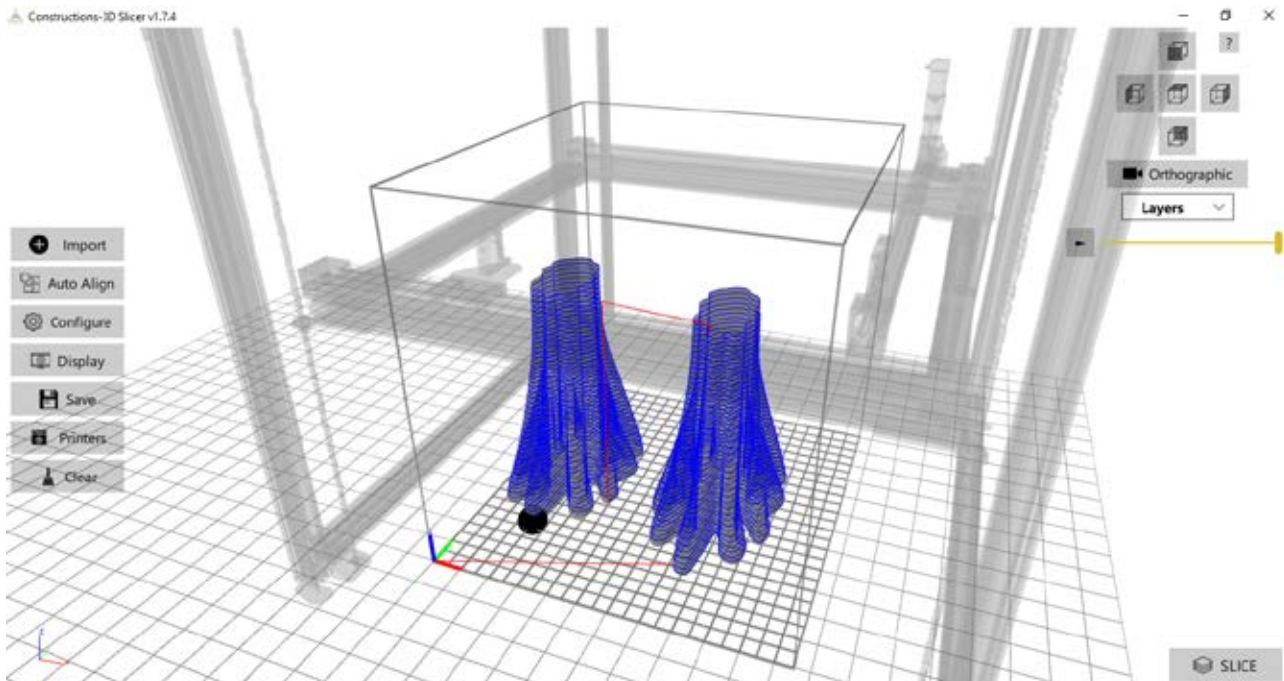
- Part orientation
- Part scaling
- Multi-part treatment
- 3D visualization and STL file processing
- 3D visualization and processing of DXF files
- 3D visualization of G-CODE files
- Visualisation of part positioning errors in the print area
- Curving accuracy selection
- Layer height selection
- Nozzle speed selection
- G-code generation type selection :
  - Spiral, semi spiral or layer per layer
- Choice of the starting point of the print
- Estimated printed material quantity
- Estimated printing time
- Data of the achieved vertical printing speed
- Common platform to the various C3D 3D printers



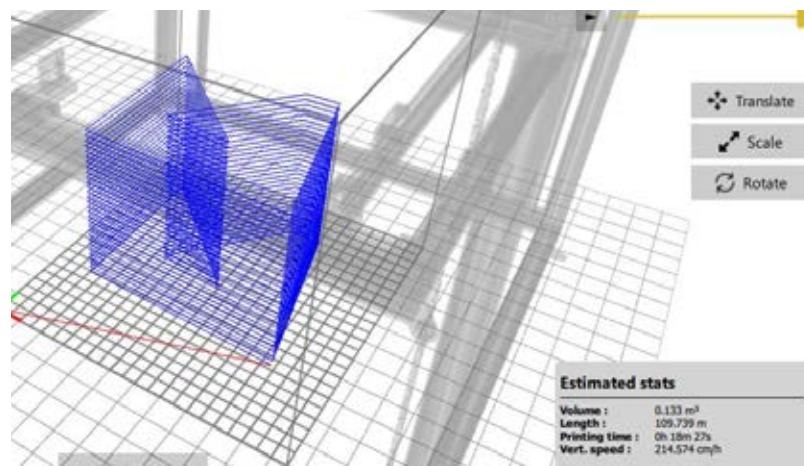
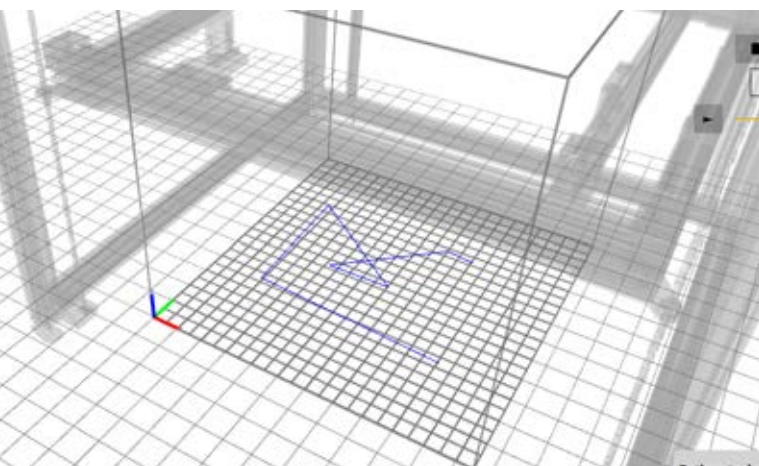


# C3D Slicer interface

## Single and multi-part printing



## Instant drawing mode



With the drawing mode, generate your G-code directly in the C3D Slicer and save time

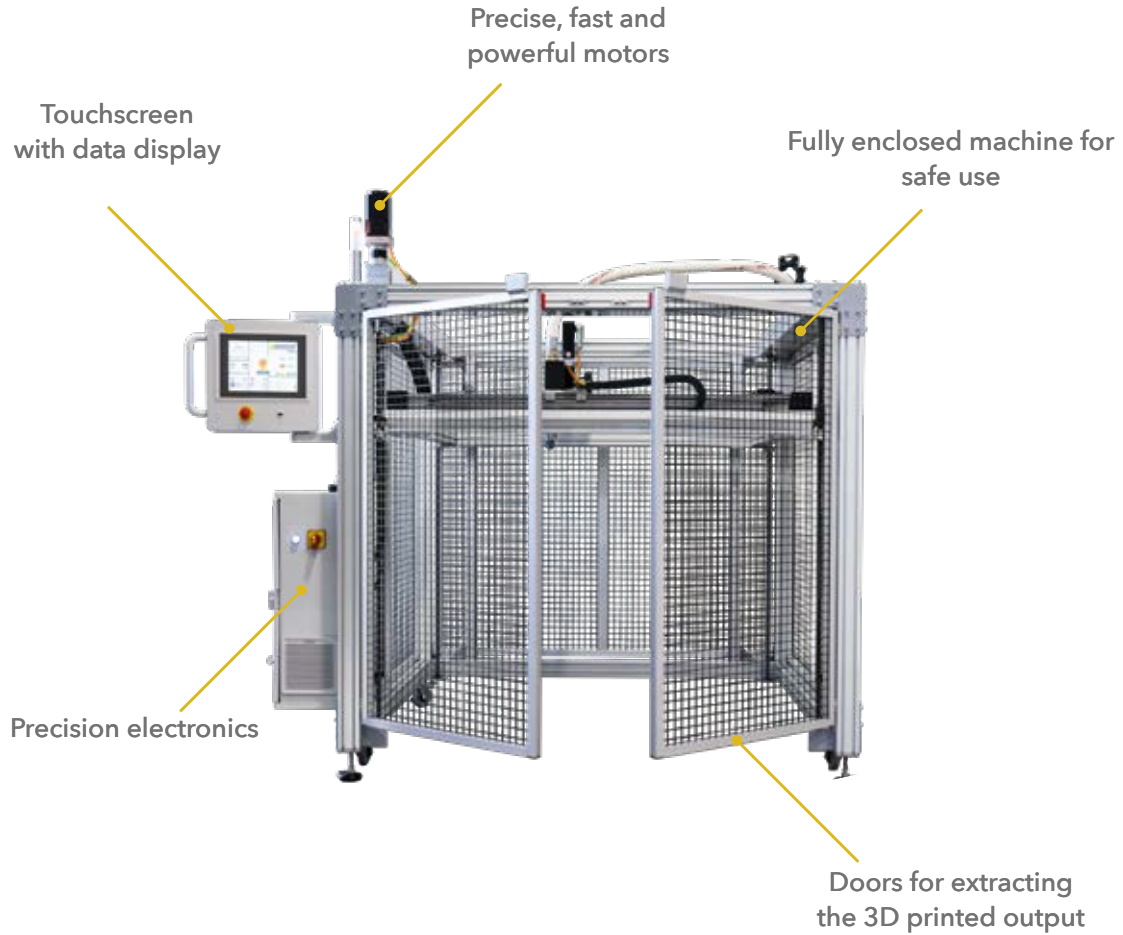
Preview print time, amount of material required and vertical print speed

MAXIPRINTER  
MINIPRINTER PRO  
MINIPRINTER EDU  
CONSTRUCTIMETER  
TRAINING AND SUPPORT

# Sub-systems technical details



# 3D Printer MiniPrinter PRO



## General



**MiniPrinter PRO**



**MiniPrinter PRO XL**

|                                 |   |                                   |
|---------------------------------|---|-----------------------------------|
| Print volume (excluding nozzle) | 1200 x 1200 x 1200 mm (X x Y x Z)                         | 2500 x 1200 x 1200 mm (X x Y x Z) |
| Volume of the 3D printer frame  | 2250 x 1850 x 2180 mm (L x P x H)                         | 3450x 1850 x 2180 mm (L x P x H)  |
| Poids                           | 430 kg - 948 Lbs  | 515 kg                            |
| Type                            | 3-axis gantry   | " " "                             |
| Contrôle                        | Via a touch screen attached to the 3D printer frame (p.7) | " " "                             |

## Print capacity

Continuous mortar layers extrusion resulting for to the pumping system  
(« pumping system » p.18-21)

|                                      |   |
|--------------------------------------|---|
| Printing head speed                  | Up to 400 mm/s  |
| Relative accuracy of X, Y and Z axes | 0,1 mm  |
| Printing nozzle                      | Extrusion nozzle with interchangeable tips and pneumatic valve* to prevent residual material flow during interruptions in the extrusion process |

Print data report exportable to CSV format from the control screen

\*Note: The pneumatic valve requires compressed air which can be supplied by an existing network, or a small compressor not supplied. The standard connection required to supply the MiniPrinter PRO's pneumatic valve is a standard 8 mm push-in fitting.

## Electrical requirements

|                           |                     |
|---------------------------|---------------------|
| Voltage                   | 380V 3 phases 50 Hz |
| Power supply socket       | 3P + N + PE 16A     |
| Maximum power consumption | 5 KVA               |

## Accessories

|   |  |
|---|--|
| Concrete pumping pipe                                   | DN35 or DN50, length 6,65 m                                |
| Extrusion end fittings in diameters from 10 mm to 35 mm | (1x Ø 15mm, 1x Ø 20mm, 1 x Ø 25mm, 1 x Ø 30mm, 1 x Ø 35mm) |







# Pumping system: Kit C3D MAI Multimix 3D

*Consistency, precision, finesse*



Consistency, precision and finesse are the hallmarks of the C3D MAI Multimix 3D. In combination with the MiniPrinter Pro, this pumping solution is ideally suited to the printing of masterpieces with fine details.

## General

|               |   |
|---------------|---|
| Control mode  | Manual from the pump control panel or automated from the MiniPrinter PRO user interface |
| Cleaning time | 20 min  |
| Weight        | 390 kg - 860 Lbs  |
| Dimensions    | 201 x 75 x 103 cm (l x L x h)   |

## Capacity

|   |                                     |
|---|-------------------------------------|
| Mortar pumping flow rates                       | from 2 L/Min to 17 L/Min            |
| Maximum pumping pressure                        | 40 bars                             |
| Maximum particle size                           | 4 mm*                               |
| Compatible with pumping hoses                   | DN25 and DN35 diameter              |
| Water flow adjustment range for material dosing | From 250 L/H to 2300L/H             |
| Tolerance for soft fibres                       | 20 mm long, dosage up to 2% by mass |

\* Depending on the nature of the material and the dimensions of the used piping

## Electrical requirements

|                    |                     |
|--------------------|---------------------|
| Voltage            | 380V 3 phases 50 Hz |
| Three-phase socket | 3P + N + PE 32A     |
| Nominal power      | 10 KVA              |

## Accessories

|   |   |
|---|---|
| Cover connecting the pump to the feeding silo |   |
| Material                                      | Connected pressure Sensor and connected thermometer |
| Water   | Connected flowmeter and connected thermometer       |



# Pumping system : Kit C3D M-TEC Duomix connect

*Flexibility, Handling ease, Robustness*



Its handling ease and flexibility make it the perfect versatile combination.  
This pumping system is compatible with a wide range of materials and applications :  
construction, production, R&D and education.

## General

|               |   |
|---------------|---|
| Control mode  | Manual control from the pump control panel or automated control from the MiniPrinter PRO user interface     |
| Sensor        | Sensor kit developed by C3D to display and record direct pumping data on the MiniPrinter Pro user interface |
| Cleaning time | 15 min  |
| Weight        | 260 kg (573 Lbs)  |
| Dimensions    | 1350 x 640 x 1390 mm  |

## Capacity

|   |                                       |
|---|---------------------------------------|
| Mortar pumping flow rates                       | from 4 L/Min to 20 L/Min              |
| Maximum pumping pressure                        | 40 bars                               |
| Maximum particle size                           | 6 mm*                                 |
| Compatible with pumping hoses                   | with standard diameters DN35 and DN50 |
| Water flow adjustment range for material dosing | From 250 L/H to 800 L/H               |
| Tolerance for soft fibres                       | 20 mm long, dosage up to 2% by mass   |

*\*Depending on the nature of the material used*

## Electrical requirements

|                    |                     |
|--------------------|---------------------|
| Voltage            | 380V 3 phases 50 Hz |
| Three-phase socket | 3P + N + PE 32A     |
| Nominal power      | 10 KVA              |

## Accessories

|  |   |
|--|---|
| <i>Cover connecting the pump to the feeding silo</i> |   |
| Material   | Connected pressure sensor and connected thermometer |
| Water  | Connected flowmeter and connected thermometer       |



# Kit C3D M-TEC P50

## General

|                               |  |
|-------------------------------|--|
| Use                           | Pumping of mortars and micro concretes   |
| Maximum particle size         | 8-10mm*                                  |
| Compatible with pumping hoses | standard diameter DN35 and DN50          |
| Tolerance for soft fibers     | 20 mm in length, dosage up to 2% by mass |
| Sensors                       | Material pressure and temperature        |

*\*Depending on the material type, rotor and stator*



## Feed silo

Compatible with the C3D M-TEC Duomix CONNECT and C3D MAI Multimix 3D pumping kits, the silo is a significant asset for a more reliable and automated printing process.

## General

|                                   |  |
|-----------------------------------|--|
| Use                               | Supply and storage for dry mortar premix |
| Storage capacity                  | 1,2 m3                                   |
| Height                            | 2,955 m                                  |
| Height in transport configuration | 2,085 m                                  |
| Floor area                        | 1,2 x 1,2 m                              |
| Tare weight                       | 500 kg - 1,102 Lbs                       |





# On-site training

## Training on the MiniPrinter PRO and its pumping system

Two half days of theoretical and practical usersite training.

### Theoretical training - Morning

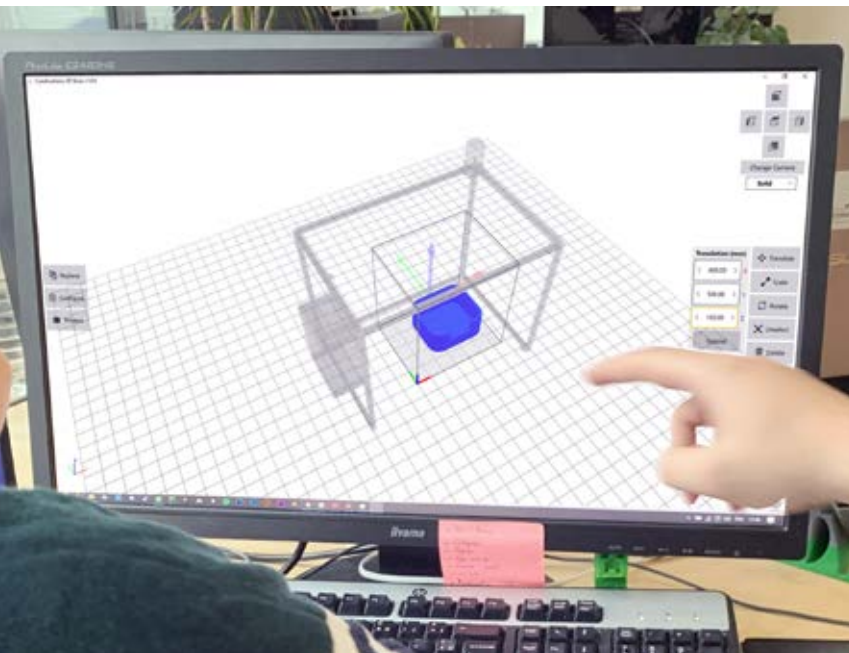
- Printer and pump system operation principle
- Overview of the software suite
- 3D part file generation principle for printing
- G-code print path generation support
- Support and Troubleshooting
- Support for the organisation and optimisation of the printing area

### Hands-on, afternoon

- Equipment installation and assembly
- Print area setup
- Launch of «dry printing».
- Launching prints with mortar
- User safety
- Support and Troubleshooting
- Cleaning & Maintenance







# Discover our other products



## Constructimeter

Automated testing press for fresh 3D printing material



## MaxiPrinter

On site 3D printer. The complete solution for automated construction



## MiniPrinter EDU

Compact 3D printer developed for education



## Training and support

Master the knowledge, take a big step forward, and launch your own 3D construction printing business.

# They trust us





# Our project

**LA CITADELLE**  
des **SAVOIR-FAIRE** 

The first 3D concrete printed building in France  
The most ambitious project of open-air laboratory for 3D construction  
Work in progress

**30/03/2020**

Obtaining  
the building permit

**11 200 m<sup>2</sup>**

or 13 395 sqyd

Building land  
area

**2 800 m<sup>2</sup>**

or 3 349 sqyd

3D printed  
buildings

**1500 m<sup>2</sup>**

or 1 794 sqyd

Warehouse for  
the manufacture  
of 3D printers

*L'Accueil*

*La Tour*

*Le Pavillon*







# Complete solutions for automated construction

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