

MASSIVIT 10000

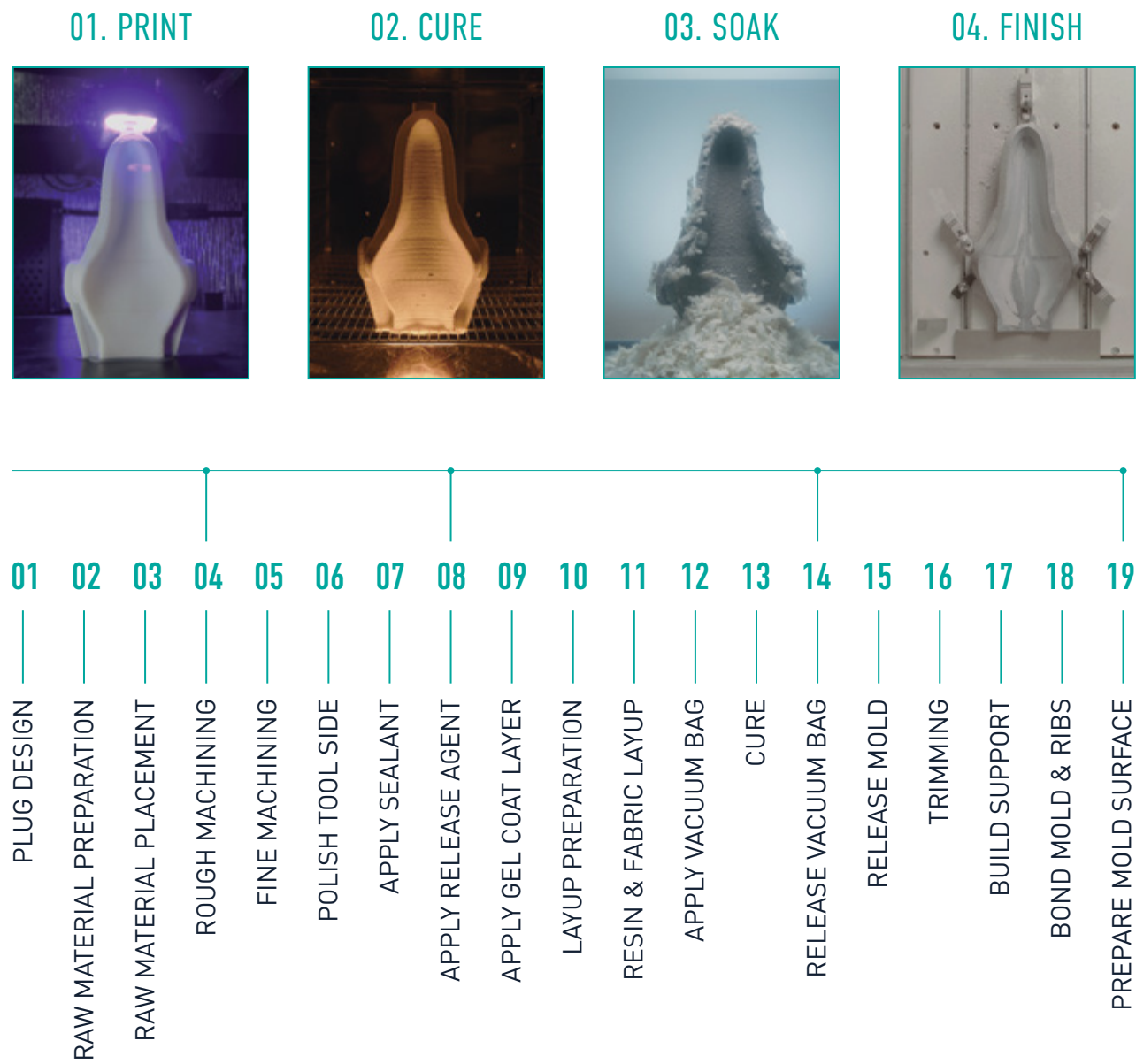
OVERCOMING THE BOTTLENECKS OF
MOLD PRODUCTION FOR COMPOSITES

AUTOMATE YOUR TOOLING

Massivit 3D's Cast-In-Motion (CIM) technology combines ultra-fast, additive manufacturing technology with high-performance, thermoset materials to enable automated tooling for composites. The Massivit 10000 empowers manufacturers to produce complex, custom molds within a matter of days, instead of weeks.

FROM 19 STEPS TO 4 STEPS

The advent of composite materials has brought significant advancements to the manufacturing arena including markedly improved strength-to-weight ratios. However, the associated tooling processes have – until now – been slow, costly, cumbersome, and wasteful. Tooling workflows have demanded a minimum 19 production steps and are reliant on high-skilled, manual labor.

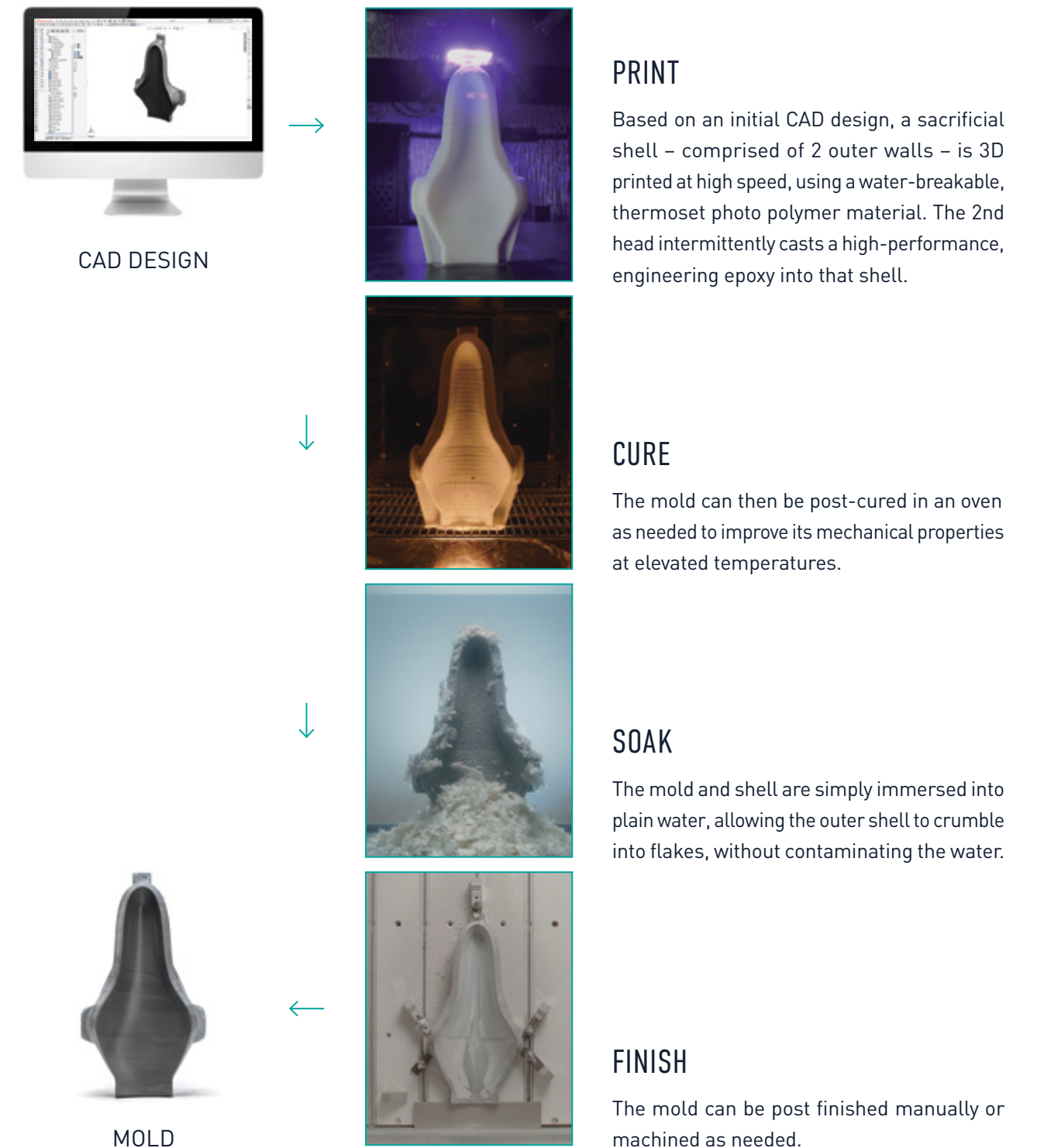


A MILESTONE FOR COMPOSITE MANUFACTURING

The Massivit 10000 brings digital transformation to composite manufacturing, shortening the tooling workflow from 19 steps to just 4.

HOW IT WORKS

The Massivit 10000 utilizes a dual-head system to directly print and cast molds.



A RANGE OF APPLICATIONS

Massivit 3D's cutting-edge Cast-In-Motion technology enables direct tooling for a range of applications. It also allows for jigs and fixtures to be produced simultaneously with their associated mold.



TOOLS

MANDRELS

JIGS & FIXTURES

PLUGS

Industries:

Marine · Automotive · Rail · Construction · Baths & Kitchen Refurbishments · Sporting Goods · Aerospace

DESIGN FREEDOM

Based on proven additive manufacturing technology already adopted across 40 countries, the Massivit 10000 offers complete geometry freedom for complex molds.



KEY BENEFITS FOR COMPOSITE MANUFACTURING

- **Speed up** mold production time by 80%
- Cut manufacturing **costs by 75%**
- Produce **isotropic molds** suited to high temperatures
- Achieve **complex geometries**
- Benefit from **high mechanical and thermal properties** enabled by advanced thermosets
- Reduce **manual labor** by 90%
- **Eliminate** production of a plug or master
- Diminish **waste** of expensive materials
- **Unattended shell removal. Non-contaminating,** water-breakable material enables reuse of water



TRUE ISOTROPY – ADVANCED THERMOSETS OFFER PREDICTABILITY

The Massivit 10000 introduces to market **the first true isotropic 3D printed mold** for composite manufacturing.

Unlike other additive manufacturing tooling processes – that may result in uneven molecular bonds due to their layering mechanism – Cast-In-Motion leverages a thermoset casting material that guarantees consistent mechanical and thermal properties across all axes. In particular, it offers a consistent and low thermal expansion (CTE) at high temperatures. It also provides high thermal stability (HDT) up to 155°C.

THERMOPLASTIC AM EXTRUSION (Filament or Pellets)

ANISOTROPIC

Extruded Bead 4
Extruded Bead 3
Extruded Bead 2
Extruded Bead 1



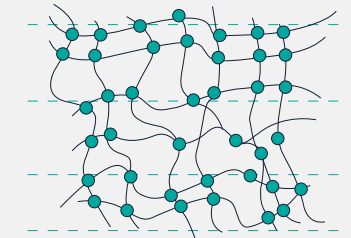
3D printed extruded layers.
Time intervals between extrusions result in cooling, causing an inconsistent interface between layers that is a recognized weakness.

There are no molecular bonds between layers.

MASSIVIT 3D'S THERMOSET Cast In Motion (CIM)

ISOTROPIC

Cast 3
Cast 2
Cast 1



Single, uniform cast.

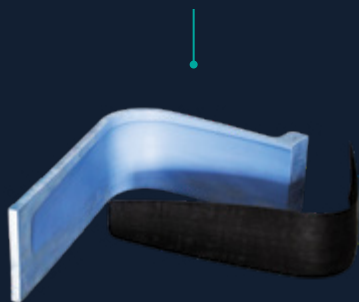
Fully cross-linked molecular bonds between casting intervals.

ECO-TOOLING – REDUCING WASTE

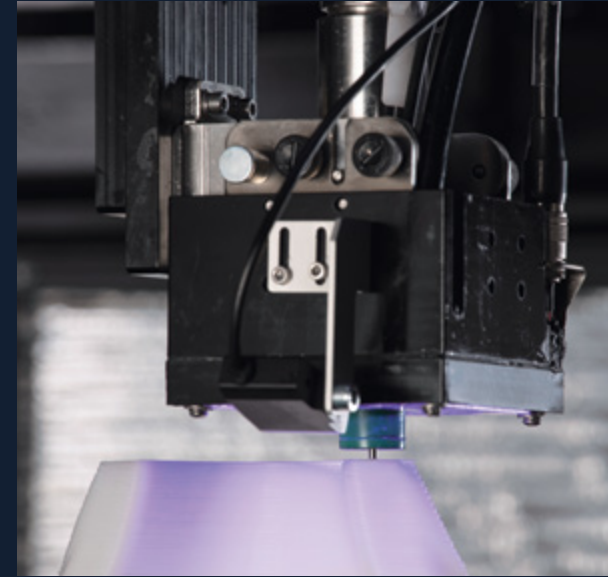
By directly casting the mold, Massivit 3D's additive manufacturing technology minimizes material waste associated with multiple stages of conventional tooling processes.

The Massivit 10000 eliminates extensive handling of materials and stocks, enabling a reduced carbon footprint. It facilitates on-site, on demand manufacturing – thereby decreasing transportation and outsourcing requirements. In addition, the advanced water-breakable 3D printing material crumbles, leaving the water uncontaminated and ready for reuse.

APPLICATIONS



SUBSYSTEMS



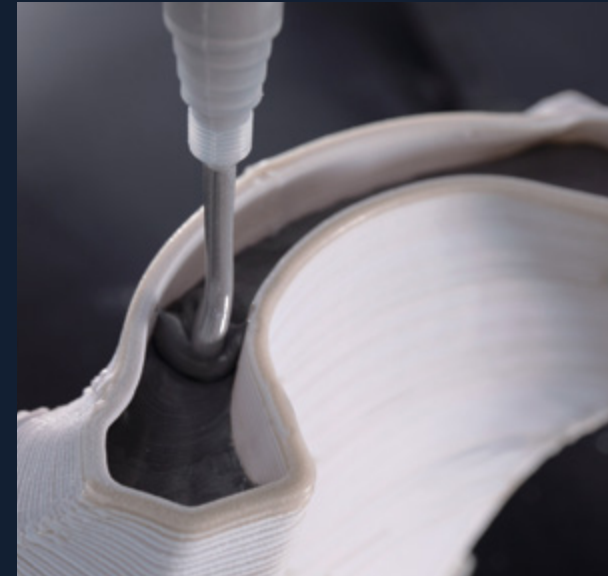
UV SYSTEM

A ring-shaped UV system allows equal curing from all directions. The system is water-cooled to allow work inside a heated chamber.



LINEAR MOTORS

Linear motors are used to give the print head maximum speed and accuracy.



STATIC MIXER

The components flow through separate pipes and are only mixed at the exact moment of casting by a static mixer which is easy to clean and replace.



CMS SYSTEM

An automated casting system dispenses the A&B components according to the required ratio. The system heats up the two components to ensure a streamlined flow.

SPECS AT A GLANCE

Print Configuration	CIM technology: 1 printing head and 1 casting head
	Thermally-controlled print chamber up to 60°C. Removable & interchangeable print tray. Printed shell layer thickness ranges from 0.5 mm-1.3 mm.
Print Volume	W x L x H: 1.42 x 1.11 x 1.5 m / 4'8" x 3'8" x 4'11"
Maximum Object Weight	300kg /660 lbs
Motion System	Linear motors for X/Y print head and servo motors for print tray (Z) height
Materials	Proprietary Water-Breakable gel + proprietary casting material
Workflow and Software	Software on machine: proprietary front-end software. Input format: STL. Smart Slicer (CAD SW not included)
System Dimensions	W x L x H: 3.1 x 2.2 x 3.1 m / 10'2" x 7'3" x 10'2"
CMS Dimensions	W x L x H: 1.3 x 1.3 x 1.7 m / 4'3" x 4'3" x 5'7"
System Weight	Unpacked ~3500 kg / 7716 lbs. Packed ~4000 kg / 8818 lbs. CMS Unpacked ~621 kg / 1369 lbs. Packed ~687 kg / 1514 lbs

ABOUT MASSIVIT 3D

Massivit 3D Printing Technologies Ltd. www.massivit3d.com (Tel Aviv Stock Exchange: MSVT) is a leading provider of large-scale 3D printing systems. The company was established with a vision to overcome existing limitations in production speed, size, and material versatility that impact a range of industries including Automotive, Marine, Rail, Construction, and Aerospace. Massivit 3D develops and manufactures technology comprising patented hardware, advanced, thermoset polymer materials, and sophisticated software. Founded in 2013, Massivit 3D is headquartered in Lod, Israel. The company provides its customers across 40 countries with end-to-end services, supported via an extensive global dealer network.

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