NEW

S-Max® Flex Robotic Sand 3D Printer

Affordable binder jet system designed for ease of use from the trusted leaders in foundry 3D printing

ExOne™

Flex Some Manufacturing Muscle

All-new, patent-pending robotic sand 3D printer designed for ease of use

Binder jet 3D printing produces molds and cores fast so foundries can operate more efficiently and grow business—and the S-Max Flex sand 3D printer makes it more accessible than ever. The additive robotic manufacturing system is at the intersection of robotics and 3D printing, featuring an industrial robot with an end effector using advanced, patent-pending Single-Pass Jetting (SPJ) to binder jet complex foundry molds and cores into a telescoping job box.

The most affordable sand 3D printer ever offered by ExOne, the S-Max Flex was developed to provide foundries a faster payback and easy integration into digital manufacturing. A flexible footprint, user-friendly operation, and Fabricate MFG software make adoption seamless. This entry-level binder jetting system built on a flexible robotic architecture that is easily scaled, making sand 3D printing a future-safe investment.

The S-Max Flex is the perfect system for pattern shops and foundries looking to step into the next era of metalcasting at an affordable price.

ROBUST, USER-FRIENDLY DESIGN

- Proven industrial robot arm with scalable architecture
- Single-Pass Jetting combines sand deposition, spreading, and binder jetting into each pass of the printhead for fast production speeds
- Titanium components ensure repeatable dimensional accuracy across a range of operating conditions
- Enhanced robot calibration process provides 100-micron accuracy in XYZ space
- Easy-install printhead mount design eliminates timely calibration and alignment for greater uptime and accuracy
- Environmental controls and powder drying to ensure consistent material flow characteristics for reliable print performance
- Fabricate MFG software automates nesting of parts within the job box
- Turnkey system and safety solution configurable to different space requirements

Technical Data

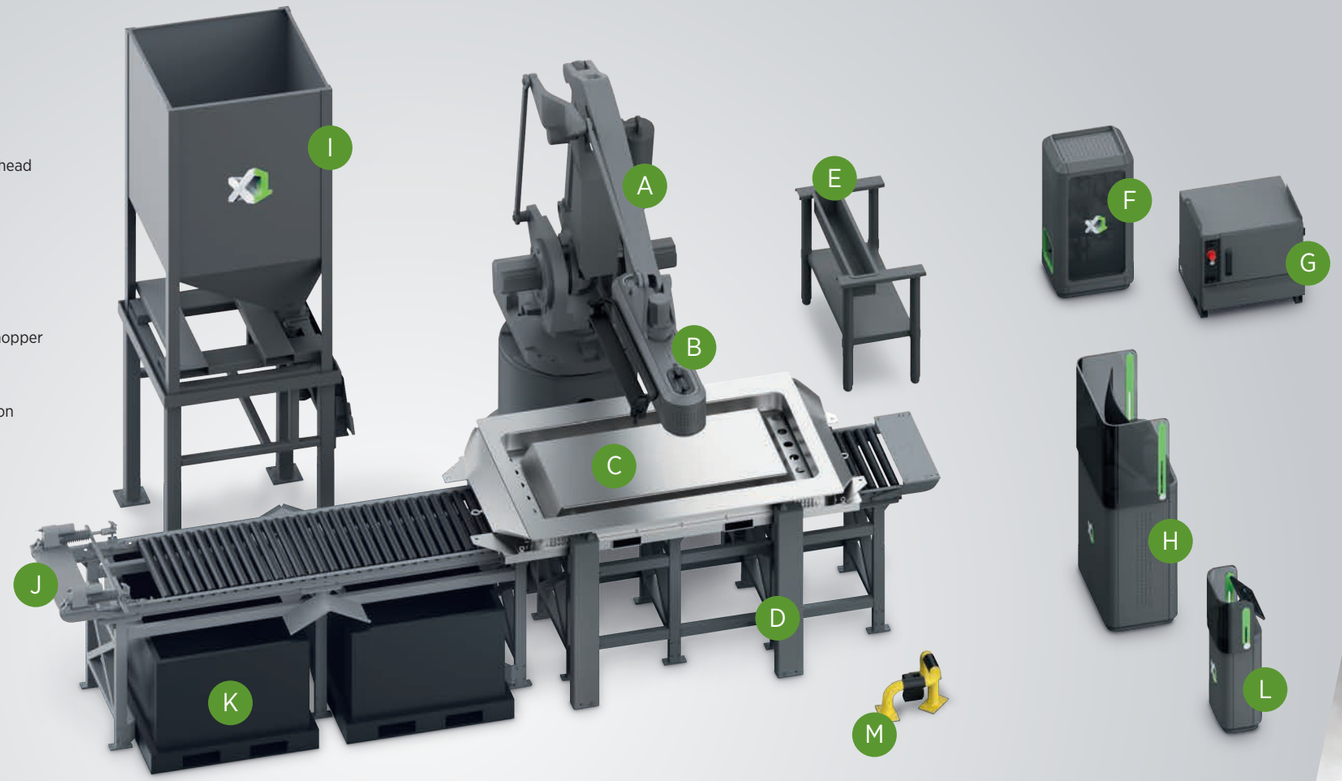
Job box (L × W × H)	1,900 × 1,000 × 1,000 mm (74.8 × 39.3 × 39.3 in)
Built rate	up to 115 l/h
Layer height	0.28 to 0.5 mm (280 to 500 µm)
Dimensional accuracy	+/– 0.5 mm (500 µm)
External dimensions (L × W × H)	8.5 × 4.9 × 4.9 m (28 × 16 × 16 ft)
Binder system	Furan
Electrical requirements	480V, 3 phase, 15 amps

OPTIMIZED UPTIME

Easy-install printheads and ease-for-access of maintenance ensure systems stay up and running.

3D printing system

A Industrial robot
B Single Pass Jetting printhead
C Telescoping build box
D Build station
E Cleaning station
F Fluids cabinet
G Robot controller
H Printer operator station
I Bulk sand conditioning hopper
J Depowdering station
K Depowdering bins
L Ancillary operation station
M Safety curtain



12 hours for printing the complete job box

Binder Jetting on the S-Max® Flex

Leverage the best expertise of Desktop Metal and ExOne with the all-new additive robotic manufacturing system for fast, quality sand 3D printing at an affordable price

1

SAND PREPARATION
Foundry-grade sand is mixed and sieved before loading into the hopper to be automatically drawn by the machine during the build

2

BUILD PREPARATION
Fabricate MFG aids in nesting parts within the job box to load onto the machine and print directly from CAD files without the lead time of traditional tooling

3

BINDER JETTING
As the system fetches, meters, and spreads sand, precise industrial printheads deposit binder layer by layer to build complex core and mold geometries

4

BULK DESANDING
The S-Max Flex features a room temperature curing process allowing the finshed build to directly slide to the desanding station where a release gate enables bulk desanding as the job box collapses around the build

5

CONTINUOUS PRODUCTION
While the first job box is removed to the desanding station, the next build can begin in parallel by positioning a new job box in the build area

6

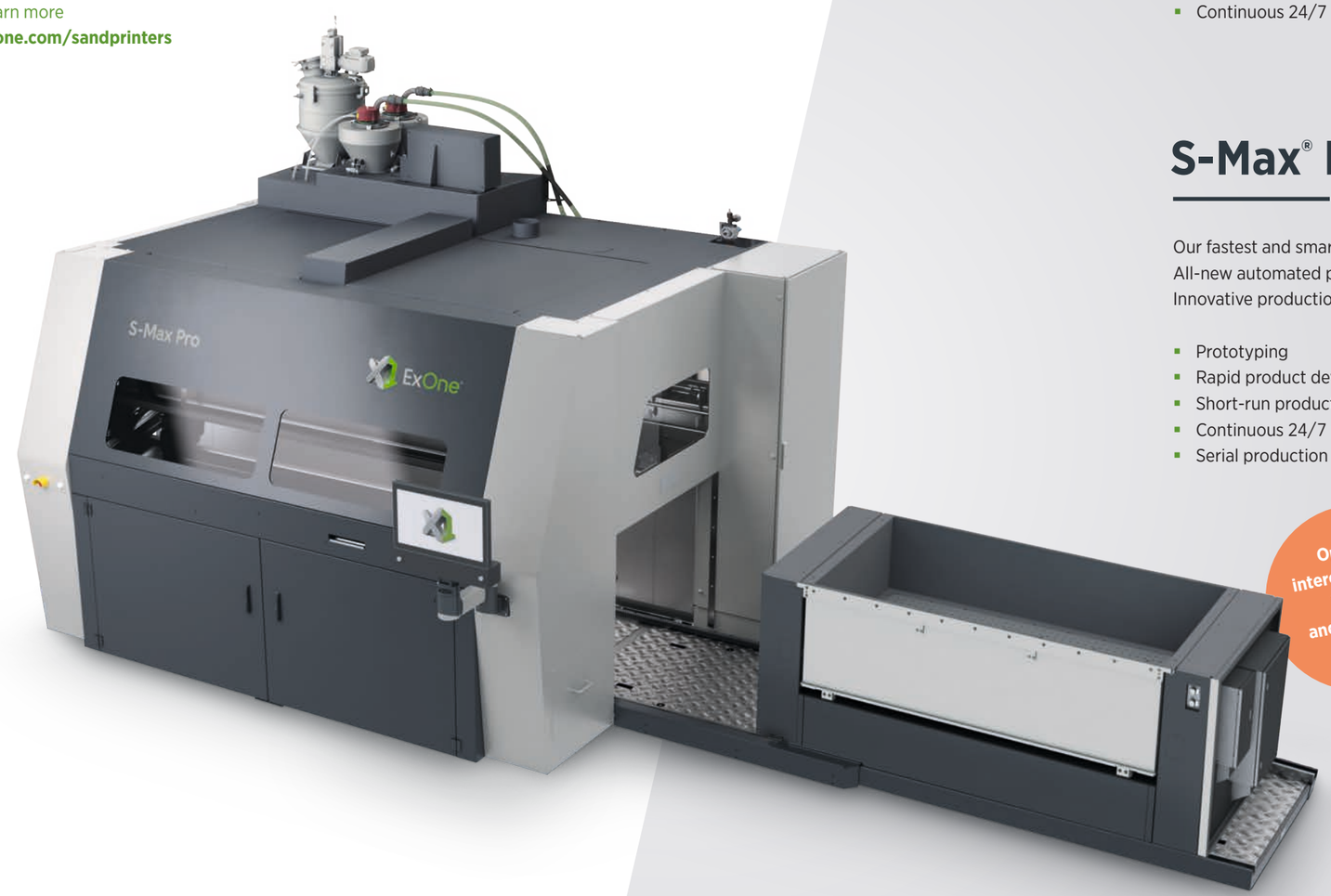
FINISHING
Molds and cores are finished with fine desanding to ensure top quality. An optional post cure is possible or printed parts can be utilized immediately for same-day castings

S-Max® Machines From the Trusted Experts

ExOne's family of sand 3D printers produce sand cores and molds in a digital workflow at foundries and pattern shops around the world. Foundries have trusted our machines for two decades to go from design to metalcasting in hours or days instead of weeks and months.

No more patterns needed for sand molds. No more boxes needed for blowing cores. No jigs or fixtures needed for core assembly. Print complex cores in one piece. This is how cores were meant to be made and ExOne is the partner with the combined foundry and 3D printing expertise to ensure your success.

Learn more
exone.com/sandprinters



S-Max®

A large and robust sand 3D printer known for reliable performance. Double job box option.
Printing cold-hardening binders since 2010.

- Prototyping
- Rapid product development
- Short-run production
- Continuous 24/7 production

APPLICATION
Binders: Furan, CHP

TECHNICAL DATA
Job box (L x W x H): 1,800 × 1,000 × 700 mm (70.9 × 39.4 × 27.6 in)
Build volume: 1,260 l (44 ft³)
Build rate**: up to 125 l/h
Layer height***: 0.2 to 0.5 mm (200 to 500 µm)
Dimensional accuracy****: +/– 0.5 mm (500 µm)

S-Max® Pro

Our fastest and smartest large sand 3D printer.
All-new automated printhead and recoater.
Innovative production features. Reliable since 2019.

- Prototyping
- Rapid product development
- Short-run production
- Continuous 24/7 production
- Serial production

Optional interchangeable job box and desanding options

APPLICATION
Binders for standard job box: Furan, CHP
Binders for box-in-box: Furan, HHP, Inorganic, (CHP)

TECHNICAL DATA
Job box* (L x W x H): 1,800 × 1,000 × 400 / 700 mm (70.9 × 39.4 × 15.7 / 27.6 in)
Build volume: 720 l (25 ft³) / 1,260 l (44 ft³)
Build rate**: up to 145 l/h
Layer height***: 0.2 to 0.5 mm (200 to 500 µm)
Dimensional accuracy****: +/– 0.5 mm (500 µm)

* Available with 400 mm height with box-in-box or 700 mm height with standard job box.
** Depending on layer height.
*** Depending on material.
**** Depending on part size and geometry (0.1 % of part size).

Specifications are subject to change without notice.
Some data may be dependent on size and characteristics of powder being processed.

Subject to change without notice.
All information in this brochure is purely informative and non-binding.

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Learn more
www.exone.com/s-max-flex

ExOne™

ExOne has facilities and representatives around the world. To reach us, feel free to call or email us at the locations below, or visit us at exone.com/locations.

ExOne is now part of Desktop Metal's group of #TeamDM brands, which exist to make Additive Manufacturing 2.0 a reality so we can unlock the vast benefits of 3D printing at meaningful production volumes.

Americas Headquarters
ExOne Operating, LLC
Pennsylvania, USA
americas@exone.com
+1 877 773 9663

European Headquarters
ExOne GmbH
Gersthofen, Germany
europe@exone.com
+49 821 65063-0

Asian Headquarters
ExOne KK
Kanagawa, Japan
asia@exone.com
+81 465 44 1303

www.exone.com