



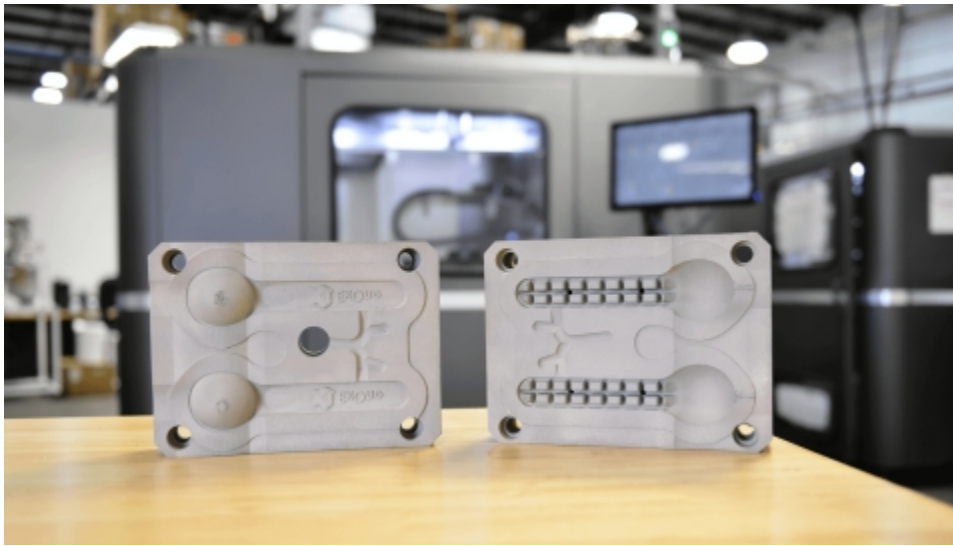
ExOne Launches World's Broadest Portfolio of Industrial- Grade 3D Printed Tooling Solutions

September 7, 2021

With X1 Tooling, manufacturers now have fast, affordable, and local tooling options for the final production of metal, plastic, and composite designs

NORTH HUNTINGDON, Pa.--(BUSINESS WIRE)--Sep. 7, 2021-- The ExOne Company (Nasdaq: XONE), the global leader in industrial sand and metal 3D printers using binder jetting technology, today launches the broadest portfolio of industrial-grade 3D printed tooling available — offering new solutions for plastic injection molding or forming, laying up composites, casting metals, and more.

This press release features multimedia. View the full release here: <https://www.businesswire.com/news/home/20210907005240/en/>



ExOne today launches X1 Tooling, a new portfolio of 3D printed tooling options for manufacturers looking for fast, affordable and local production of tools for the final production of plastic, composite and metal parts. Here, X1 MetalTool is shown for a plastic injection molding application in front of the X1 25Pro® metal 3D printer. (Photo: Business Wire)

and more manufacturers ask us: 'Can you 3D print tooling?' Today, we'd like the market to know that the answer is yes — we can help de-risk your supply chains and make them more sustainable, with less shipping and other forms of waste. Our new tooling portfolio is a grand slam of fast and affordable new tooling options for manufacturers."

Several customers are now using ExOne's binder jet 3D printed tooling options, including Sweden-based [Celwise AB](#), which is using X1 MetalTool 316L for an innovative molded fiber application [detailed in today's simultaneous release](#). Additionally, [North American Mold](#) in Auburn Hills, Michigan, has preliminarily proven out X1 MetalTool 420i and 316L for both injection molding and blow molding applications and will serve as an ongoing development partner to ExOne on these applications, with broad commercial readiness expected in the first half of 2022.

A Fast and Flexible Tooling Portfolio

In all, manufacturers can now leverage six new and affordable tooling applications from ExOne.

For Plastic Production

- X1 MetalTool – This all-new 3D printed metal tooling option has passed preliminary tests to replace standard steel or aluminum tooling for plastic injection molding, blow molding, and other plastic and foam forming applications. X1 MetalTool is available in 420i, a highly durable and affordable steel-bronze matrix, as well as 316L stainless steel, M2 tool steel, and more. This tooling can be finish machined, acid etched and polished to a diamond finish, and is currently ideal for complex inserts. ExOne is currently seeking additional development partners to expand durability testing of this product line.
- X1 ThermoForm – A 3D printed sand form is infiltrated with a durable resin and coated to create small- to large-format molds for a variety of thermoforming applications, such as vacuum forming, compression molds, foam molding, and more.

For Composite Production

Already the global leaders in selling binder jet 3D printers for sand molds and cores for metalcasting applications, ExOne is expanding its tooling portfolio following the previously announced acquisition of assets from Freshmade 3D as well as successful testing of new 3D printed metal tooling options with global manufacturing customers.

New X1 Tooling products will be on display next week at Chicago's McCormick Place during Rapid + TCT, North America's largest and most influential additive manufacturing event. ExOne will be located in booth E7613.

"Today's launch of the X1 Tooling portfolio is the direct result of strong customer demand for tooling options that speed up delivery times and bring tooling closer to the point of final production, wherever that is for them," said John Hartner, ExOne's CEO.

"As the COVID pandemic has continued disrupting supply chains, we've had more

- X1 Layup – A 3D printed sand form is infiltrated with a durable resin and coated for high-precision, high-temperature composite layup applications. X1 Layup offers dimensional tolerances of +/- 0.025” and tooling can be precision machined to +/- 0.005” if needed.
- X1 Washout – This 3D printed sacrificial tooling washes out with tap water after traditional layup and autoclaving of composite materials, including carbon fiber. X1 Washout is a sand form 3D printed with a water-soluble binder and surface coated. Ideal for ducting, mandrels and other designs with trapped geometries.

For Metal Production

- X1 SandCast – ExOne is the longtime market leader in selling 3D printers for sand molds and cores for metalcasting. Sandcastings can be delivered in a variety of sand types and binders, including sustainable inorganic formulas for high-quality aluminum castings.
- X1 MetalTool – In addition to plastic forming applications, X1 MetalTool can also be used to directly 3D print end-of-arm tooling, and rugged perishable or consumable cutting tools in a variety of metals, including tool steels.
- X1 DieMold – Still in development, rugged die molds 3D printed in H13 tool steel are currently fast-tracked with several global manufacturers after passing proof of concept tests.

Flexible Tooling Options and Sizes

Manufacturers can now purchase X1 Tooling products directly from ExOne through the company’s ExOne Adoption Centers — or manufacturers can purchase a 3D printer for tooling applications.

Sizing options vary for the type of tooling as detailed below:

- All sand- and sand-infiltrated tools, which includes X1 ThermoForm, X1 Layup, X1 Washout, X1 SandCast, are produced in the build volume of ExOne S-Max® series printers: 1800 x 1000 x 700 mm (70.9 x 39.4 x 27.6 in.). The printed sections can also be segmented and assembled together before epoxy infiltration to make even larger tools.
- Currently, all X1 MetalTool and X1 DieMold tools are 3D printed in an X1 25Pro® build volume of 400 x 250 x 250 mm (15.75 x 9.84 x 9.84 in), with development underway to 3D print tooling options in the X1 160Pro™, which offers a build volume of 800 x 500 x 400 mm (31.5 x 19.7 x 15.8 in).

What is Binder Jet 3D Printing?

ExOne’s binder jet 3D printing transforms powdered materials — metal, sand or ceramic — into highly dense and functional precision parts at high speeds.

An industrial printhead selectively deposits a binder into a bed of powder particles creating a solid part one thin layer at a time, similar to printing on sheets of paper. When printing metals, the final bound metal part must be sintered in a furnace to fuse the particles together into a solid object. ExOne now delivers high densities of greater than 97% for most metals, in line with Metal Injection Molding or gravity castings.

Binder jet 3D printing technology is viewed as a desirable and sustainable production method, largely because of its high speed, low waste and cost, as well as material flexibility.

For more information, visit www.exone.com/X1Tooling

About ExOne

ExOne is the pioneer and global leader in binder jet 3D printing technology. Since 1995, we’ve been on a mission to deliver powerful 3D printers that solve the toughest problems and enable world-changing innovations. Our 3D printing systems quickly transform powder materials — including metals, ceramics, composites and sand — into precision parts, metalcasting molds and cores, and innovative tooling solutions. Industrial customers use our technology to save time and money, reduce waste, improve their manufacturing flexibility, and deliver designs and products that were once impossible. As home to the world’s leading team of binder jetting experts, ExOne also provides specialized 3D printing services, including on-demand production of mission-critical parts, as well as engineering and design consulting. Learn more about ExOne at www.exone.com or on Twitter at @ExOneCo. We invite you to join with us to #MakeMetalGreen™.

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