



Changing the way the world designs and manufactures



3D Printing Specialist

About us

- YLEM SA is a new company & an official distributor of HP 3D Printing Solutions in Greece and Cyprus.
- YLEM SA is the outcome of the collaboration between Active Computer Systems, a major systems integrator and 3DHUB Greece a major 3D Printing Services Company.
- YLEM possesses substantial experience in 3D Printing Technologies and Solutions and Technical know-how.
- Ylem will play a significant role in Industry 4.0 implementation in our greater region.
- Our vision is to help transforming our industry in a way that local firms will be able of equally compete with foreign enterprises in terms of cost optimization, quick adaptation, digitization, and final part quality.
- YLEM's Team is consisting of experienced staff in 3D Solutions. Our brand new offices are ready and we are showcasing HP operational demo devices, alongside with business service from our Service Bureau.

Transformation on a global scale



Geographic/number of locations are indicative only





Market growth



"3D printing is poised to disrupt \$4 to 6 trillion (USD) of the current global economy over the next five to 10 years."

- AT Kearney, 3D Printing: ensuring manufacturing leadership in the 21st century, 2018

Source: Mar-2018 3DP Sizing | *Revenue includes hardware, materials, software, services, and service bureau value add



Production Customers are Scaling

Multi-Unit

deployments

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The HP Multi Fusion Technology

- Multi Jet Fusion is a powder bed fusion 3D printing technology introduced to the market by HP in 2016. The technology gets its name from the multiple inkjet heads that carry out the printing process.
- The processes of material recoating and agent distribution and heating are carried out by separate head arrays that move across the print bed in different directions, thus allowing the user to optimize both processes independently.
- The 3D file to be printed is rendered as voxels or volume elements. Voxels are essentially threedimensional equivalents of pixels that 2D printing relies on
- Just as in 2D printing, where pixels are either printed or not, in Multi Jet Fusion printing, the voxels are either fused into the final print or they aren't.
- Another principle carried over from 2D printing into Multi Jet Fusion is the use of color a full-color-ready Multi Jet Fusion printer can mix inks to produce colored voxels, just like a 2D printer produces color on a page.

HP Multi Jet Fusion Process

Basic elements of the process





HP Multi Jet Fusion Process

- In the Multi Jet Fusion printing process, the printer lays down a layer of material powder on the printing bed. Following this, an inkjet head runs across the powder and deposits both a fusing and a detailing agent onto it.
- An infrared heating unit then moves across the print. Wherever a fusing agent was added, the underlying layer melts together, while the areas with detailing agent remain as a powder. The powdery parts shed off, which produces the desired geometry. This also eliminates the need for modeling supports, as the lower layers support those printed above them.
- Multi Jet Fusion printer differs from most other 3D printing technologies in that each new material and agent layer is placed while the previous layer is still molten. This lets both layers fuse completely, delivering improved print durability and finer detail.
- To finish the printing process, the entire powder bed and the printed parts in it are moved to a separate processing station. Here, the majority of the loose unfused powder is vacuumed up, allowing it to be reused instead of producing excess waste.



Voxel-level control today









Vertical market focus



Applications growth



Reinventing HP with HP Multi Jet Fusion

Faster time to market	Reduce cost	Reduced lead time & flexibility	Innovative products
2 – 6 months	~\$10M	6–8 weeks	Improved experience
HP Z 3D Camera	HP Inkjet Printheads	HP Sprocket	Jet Fusion 300/500
Tank Mixer for Indigo	300/500 Series Air Duct	LFP Spare Parts	Notebook Adapter

The impact of 3D Printing Technology on the supply chain



- Decentralize production The 'portable' nature of the technology will enable businesses to take production to local markets or customers faster. As a result, we will see a shift away from mass production in low-cost countries in favor of more local assembly hubs. Companies will have the capability to produce components closer to home rather than rely on imports. This is especially important during times of uncertainty, for example a pandemic, when the cost of purchasing components globally can increase rapidly.
- Drive product customization As a tool-less process, 3D printing technology gives manufacturers unprecedented freedom to tailor offerings to clients' specific requirements and enhance the customer experience. This will result in more agile supply chains which can rapidly adapt to changes in the market. Eventually, we could see design, production and distribution merge into one supply chain function with greater client involvement in the entire design and production process.
- Reduce complexity and improve time-to-market 3D printing technology consolidates the number of components and processes required for manufacturing. This will have a significant impact on global supply chains, decreasing complexities, saving on production costs, enhancing lead times and improving time-to-market
- Improve resource efficiency 3D printing is a 'greener,' more energy-efficient and cost-efficient production method. It creates almost zero waste, lowers the risk of overproduction and excess inventory and reduces the carbon footprint. It takes 'Just-in-Time' manufacturing to a new level.
- Rationalize inventory and logistics As 'on demand' production becomes the norm, the need to transport physical goods across countries and continents will reduce. Combined with the lower number of SKUs required for production, this will have a major impact on warehousing and logistics and will have the potential to overcome tariffs

What's next – HP Metal Jet

Propel your business with the most advanced metals 3D printing technology for mass production.





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Propel your business with the most advanced metals 3D printing technology for mass production.

TAKE ON NEW JOBS AND UNLOCK NEW REVENUE STREAMS

Now you can produce complex parts and new applications that were simply not possible before, in cost-effective high-volume runs.



UP TO 50X MORE PRODUCTIVE¹

Produce high volumes of parts—and large parts
—with a binder jetting build size of 430 x 320 x
200 mm (16.9 x 12.6 x 7.9 in).



LOW COST²

• Get final metal parts faster with a low price industrial production-grade 3D printer.²

HIGH-QUALITY METAL PARTS

• Easily produce geometrically complex parts without trade-offs, with HP voxel-level 1200 x 1200 dpi 3D printing accuracy.



HP Metal Jet Applications Examples



Our Current Portfolio



1. Production Service available in 2020. Select Metal Jet availability in 2020, broad availability in 2021



Thank you

HP Jet Fusion 3D Printing Solutions

	HP Jet Fusion 5210 Pro/521 3D Printing Solutions	HP Jet Fusion 5200 3D Printing Solution	HP Jet Fusion 4200 3D Printing Solution	HP Jet Fusion 500 Series 3D Printers
Ideal for	Mid-volume production environments producing over 550 parts per week ¹	Mid-volume production environments producing over 200 parts per week ¹	Industrial prototyping and final part production environments producing up to 200 parts per week [®]	Small/medium-sized product development teams, design firms, and universities averaging up to 100 parts per week ²
Running costs	Best	Better	Good	Fair
Recommended HP Care Service ³	HP Manufacturing Care ⁴ (24/7 remote assistance with next business day onsite response time) ⁵	HP Production Care (Next business day onsite response time)	HP Production Care (Next business day onsite response time)	HP Foundation Care (Second business day onsite response time)
Capability to print in	Gray			580: Color 540: White
Current material breadth	HP 3D HR PA 11 HP 3D HR PA 12 HP 3D HR PA 12 GB ⁶ BASF Ultrasint™ TPU01		HP 3D HR PA 11 HP 3D HR PA 12 HP 3D HR PA 12 GB VESTOSINT® 3D Z2773 PA 12 ⁷ ESTANE® 3D TPU M95A ⁸	HP 3D HR CB PA 12
Effective building volume (X, Y, Z)	380 × 284 × 380 mm (15 × 11.2 × 15 in)			Up to 332 × 190 × 248 mm (13.1 × 7.5 × 9.8 in)
Software	HP 3D Process Control / HP 3D Center / HP SmartStream 3D Command Center / HP SmartStream 3D Build Manager		HP 3D Center / HP SmartStream 3D Command Center / HP SmartStream 3D Build Manager	HP SmartStream 3D Command Center / HP SmartStream 3D Build Manager
Print time ^e	11.5 hrs (Balanced print mode) 9.5 hrs (Fast print mode)		16.5 hrs (Balanced print mode) 11.5 hrs (Fast print mode)	N/A (Time to part: as fast as 14 hrs ¹⁰ or 20 hrs ¹¹)
Doorway clearance	2320 mm (91.3 in)			900 mm (36 in)
Operating footprint		21.5 m² (232 ft²)		7.1 m ² (77 ft ²)

1. The HP Jet Fusion 5200 achieves a favorable cost per part versus the HP Jet Fusion 4200 for production volumes of over 200 parts per week. Part is 30 cm3 part at a 10% packing density using HP 3D High Reusability PA 12 material, and up to 80% powder reusability ratio. Assuming 5 years of depreciation, 292 working days per year and assuming one printer, one processing station, and two build units for both HP Jet Fusion 4200 and HP Jet Fusion 5200 3D Printing Solutions.

2. Based on internal and third-party testing for HP Jet Fusion 580 Color and 540 3D Printers, printing and cooling time is a fraction of the time of the printing times of comparable plastic fused deposition modeling (FDM), stereolithography (SLA), and material jetting solutions from \$20,000 USD to \$120,000 USD on market as of June, 2017. Testing variables for the Jet Fusion 540 3D Printer: Part quantity: 1 full build chamber of parts from HP Jet Fusion 540 3D at 10% of packing density versus same number of parts on above-mentioned competitive devices; Part size: 30 cm³; Layer thickness: 0.08 mm/0.003 inches. Competitor testing variables are comparable. 3. Available for further to Terms & Conditions of HP Limited Marranty and/or Service Agreement. Please consult your local sales representative of further details.

4. Service level agreement can be customized. For more information contact your local sales representative.

5. Optional four-hour onsite response time available.

6. Expected general availability beginning 2020 for HP Jet Fusion 5200 Series 3D Printing Solutions.

7. The only terms and conditions governing the sale of HP 3D printer solutions are those set forth in a written sales agreement. The only warranty statements for Such products and services. Nothing herein should be construed as constituting an additional warranty or additional binding terms and conditions. HP shall not be liable for technical or editorial errors or omissions contained herein and the information herein is subject to change without notice. The Materials Certified for HP Jet Fusion 3D Printing have not been designed, manufactured, or tested by HP for compliance with legal requirements and recipients are responsible for making their own determination as to the suitability of VESTOSINT[®] 3D 22773 for their purposes, including but not limited as regards direct or indirect food contact applications.

8. Expected general availability beginning 2020.

9. Average results assuming a full job from "print" to "job finished" using HP 3D High Reusability PA 12 material.

10. Assumes "Fast Cool and Reclaim" print mode. Job duration begins at the moment the job is selected to print at the control panel and ends at the time the parts are ready to be removed from the build chamber. Does not include part cleaning.

11. Assumes default "Auto Cool and Reclaim" print mode. Job duration begins at the moment the job is selected to print at the control panel and ends at the time the parts are ready to be removed from the build chamber. Does not include part cleaning.

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