



HYREL 3D

High Reliability, High Versatility
 3D Printers from Atlanta, Georgia
 Hyrel3D@gmail.com 404-914-1748
 See hyrel3d.com and hyrel3d.net

Floor and Benchtop Gantry models:



Motion Control:

Four Precision Ball Screw in Z-axis
 Precision Linear Bearing System; 3-Phase motors with Closed-Loop Feedback in X, Y, and Z Axes

Positional Resolution:

~6 microns in the X and Y Axes
 1 micron in the Z-axis (layer thickness)

Positional Accuracy:

+/- 60 microns in the X and Y Axes over build area
 +/- 10 microns in the Z-axis over entire Z height

Integrated Windows PC with Multitouch Screen
 Separate 150+ MHz 32-bit ARM processor
 Integrated Dual CAN-bus architecture
 Integrated Camera for Calibration and Monitoring
 50°C Heated Build Chamber, 120°C Heated Build Plate
 ▶ *Optional 200°C Heated Build Plate on 230VAC Units*

Power: 750 W
 Voltage: 115 / 230 V
 Current: 16 / 8 A
 Frequency: 60 / 50 Hz



Hydra 645, 640, 430



Hydra 340

**with optional second Yoke*

▶ *All Hydra Models are Compatible with Every Modular Head, including Pick-and-Place*

▶ *200C 300x400mm Hotbed available on all Hydra Models*

▶ *40w CO₂ Laser available for 640, 430 and 340 Hydra Models only*

Hydra Model	Build Volume in mm			Max Heads	List Price
	X	Y	Z		
645	600	400	500	5 (10*)	\$15,000
640	600	400	250	5 (10*)	\$11,000
430	400	300	250	5 (10*)	\$10,000
340	400	300	250	5	\$7,500

Desktop Models:

Motion Control:

Precision Ball Screw in Z-axis
 Precision Linear Bearing System in X, Y, and Z Axes

Positional Resolution (System 30M, Engine SR):

~5 microns in the X and Y Axes
 1 micron in the Z-axis (layer thickness)

Positional Accuracy (System 30M, Engine SR):

+/- 50 microns in the X and Y Axes over 200x200mm area
 +/- 10 microns in the Z-axis over 200mm height

Positional Resolution (Engine HIGH Resolution):

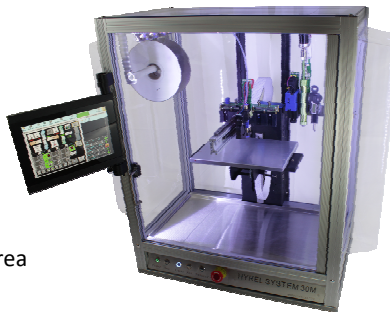
1.25 microns in the X and Y Axes
 1 micron in the Z-axis (layer thickness)

Positional Accuracy (Engine HIGH Resolution):

+/- 12 microns in the X and Y Axes over 100x100mm area
 +/- 10 microns in the Z-axis over 100mm height

Integrated WinBook with Multitouch Screen, Windows 8.1
 Separate 150+ MHz 32-bit ARM processor
 Integrated Dual CAN-bus architecture
 Integrated Camera for Calibration and Monitoring
 80°C Build Plate, Enclosed Build Chamber *Heater optional

750 W, 115 / 230 VAC, 10 / 5 A, 60 / 50 Hz



System 30M
Standard Resolution



Engine SR
Standard Resolution



Engine HR
HIGH Resolution

Model Name	Build Volume in mm			Max Heads	List Price
	X	Y	Z		
30M	200	200	200	4	\$5,000
ESR	200	200	200	4	\$2,500
EHR	100	100	100	5	\$8,000



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Available Print Heads and Accessories:

COLD FLOW means printing at room temperatures with low to medium viscosity materials, including Biologicals, Clays (including PMC, Plasticine, and Porcelain), RTV Silicone, Sugru (Rubber), and your own custom alloys, emulsions, and blends. Can take brass nozzles or luer tips.

EMO-25: Emulsifiable extruder with one 25cc aluminum tube and one each 1.5mm, 2.0mm, and luer lock tips, \$350.

SDS-5, -10, -30, -60: Extruders which accept BD brand 5, 10, 30, or 60cc luer compatible syringes, respectively, \$400 each.

DSD-50: DUAL dispensing from standard 1:1 fixed ratio, two-part syringes. \$500.

SMH-2: Ratiometrically controlled two-part dispensing through a blending nozzle. \$1,000 – *requires two matching EMO or SDS feeder heads.*

WARM FLOW means printing at elevated temperatures with low to high viscosity materials, including Waxes, Polyurethane, Polycaprolactone, and your own custom alloys, emulsions, and blends. Can take brass nozzles or luer tips.

VOL-25: Heated emulsifiable extruder (up to 100°C) with one 25cc aluminum tube and one each 1.5mm, 2.0mm, and luer lock tips, \$600.

KRA-15: Heated emulsifiable extruder (up to 180°C) with one 15cc stainless tube and one each 1.5mm, 2.0mm, and luer lock tips, \$750.

KR2-15: Heated emulsifiable extruder (up to 180°C) with improved 15cc stainless delivery and one each 1.5mm, 2.0mm, and luer lock tips, \$1000.

HSD-10: Heated emulsifiable extruder (up to 130°C) with four 10cc polyamide Ardes syringes, \$850.

HSD-30: Heated emulsifiable extruder (up to 75°C) with two disposable 30cc BD syringes, \$650.

HOT FLOW means printing 1.75mm filaments at up to 450°C, with materials including ABS, BendLay, Flex45, HIPS, LayWood, Ninjaflex, Nylon (including Taulman 618, 645, 910), PC, PEEK, PEI, PET, PETG, PLA, Plastink Rubber, PP, PVA, T-Glase and your own custom filaments.

MK1-250: 1.75mm Filament Single-Drive extruder (typical filaments up to 250°C) with 0.5mm nozzle, \$325.

MK2-250: 1.75mm Filament **Dual-Drive** extruder (**flexible** filaments up to 250°C) with 0.5mm nozzle, \$450.

MK1-450: 1.75mm Filament Single-Drive extruder (**275°C to 450°C**) with one 0.5mm nozzle, \$450.

- Nozzles in a variety of sizes (and blanks) are available.

CROSSLINK ON DEMAND means photoinitiating crosslinking of your material with specific wavelengths; this is compatible with all of our COLD and WARM flow heads. Please inquire if you have a specific wavelength need not shown.

PCA-450: 450nm assembly for cold and warm flow heads, \$150.

PCA-400: 400nm assembly for cold and warm flow heads, \$150.

PCA-365: 365nm assembly for cold and warm flow heads, \$150.

PCA-310: 310nm assembly for cold and warm flow heads, \$500.

PCA-280: 280nm assembly for cold and warm flow heads, \$500.

ADDITONAL TOOLS include the following, some of which will take up one or more tool position(s) on a printer.

USB Microscope: For close inspection of work and automated capture, \$200.

Quiet Storm: Additional cooling for bridging and lower temperature materials (like PLA), \$175.

Feed Chamber Cooling Fan: Additional cooling of the feed chamber for lower temperature materials (like PLA), \$25.

Spindle Tool: For drilling mounting holes in circuit boards; also **light** engraving, routing and milling operations, \$525.

Drill Bit Kit: A variety of drilling and milling bits for the Spindle Tool, \$150.

Luer Tip Kit: With a variety of sizes, connectors and plastic syringes, \$200.

LA6-540: 6w laser at 450nm (*protective glasses included*), \$1000.

LA5-808: 5w laser at 808nm (*protective glasses included*), \$1000.

Clench Valve: Instantly stops emulsion flow while maintaining reservoir pressure, \$500.

Print Head Software Developer's Kit: *Create your own head*, with full Real Time Kernel Source Code in C and full Controller Board, *plus two hours of assistance from our lead developer*, \$500.



HYDRA ONLY options include the following:

PNP: The Pick-and-Place set includes the optics, part positioning, component reel mounting and dispensing fixture. \$2,500.

40w CO₂ Laser: Available when ordered at the same time as the Hydra 640, 430, or 340 (*not available on the 645*). \$2,000.

ST3: A three-phase spindle tool is in development for Hydra models, \$750.