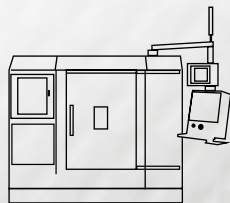




# Laser texturing, engraving, cutting and drilling

GF Machining Solutions brings the machining process full circle with its clean, fully digitized Laser technology, delivering detailed aesthetic and functional texturing, engraving, cutting, drilling, microstructuring, marking and labeling.

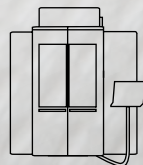
GF Machining Solutions' Microlution brand develops and builds Laser manufacturing systems optimized for small part production. Microlution focuses on integrating femtosecond Lasers and multi-axis scanning systems into its world-class machine tools, resulting in systems that are capable of producing highly accurate parts in a competitive cycle time. Key applications include micro-hole drilling and fine cutting.



**ML-5**

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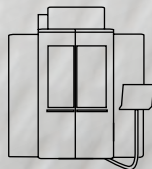
**Ø 280 x h 350**



**LASER P 600 U**

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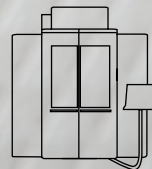
**Ø 420 x h 530**



**LASER P 1000 U**

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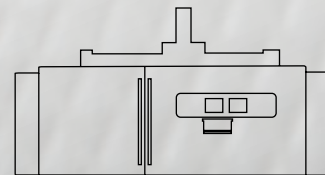
**Ø 510 x h 480**



**LASER P 1200 U**

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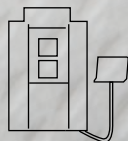
**Ø 920 x h 790**



**LASER P 4000 U**

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**4000 x 3000 x 1170**



**LASER P 400**

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**Ø 120 x h 120**

**Maximum workpiece dimensions in five-axis operation (mm)**

# Microlution ML-5

Three- or five-axis micromachining platform  
optimized for small parts



- + Increased productivity
- + Exceptional precision, speed, and quality
- + HAZ-free, ultrafast Laser micromachining
- + Available with integrated five-axis scanning system allowing for accurate sidewall taper control during hole drilling and fine cutting operations



Main specifications		ML-5
Machine dimension *	mm (in)	2310 x 1050 x 2260 (90.94 x 41.34 x 88.97)
Machine weight (machine only)	kg (lbs)	2730 (6018)
X,Y, Z travels	mm (in)	280 x 350 x 300 (11 x 13.8 x 11.8)
Rotary 4/5 axis **	°	A +95°-45° / C 360°
Laser sources	W	10/20/50

\* Width x depth x height \*\* Option



## AgieCharmilles

# LASER P 400

A concentration of technologies for production of small precision parts

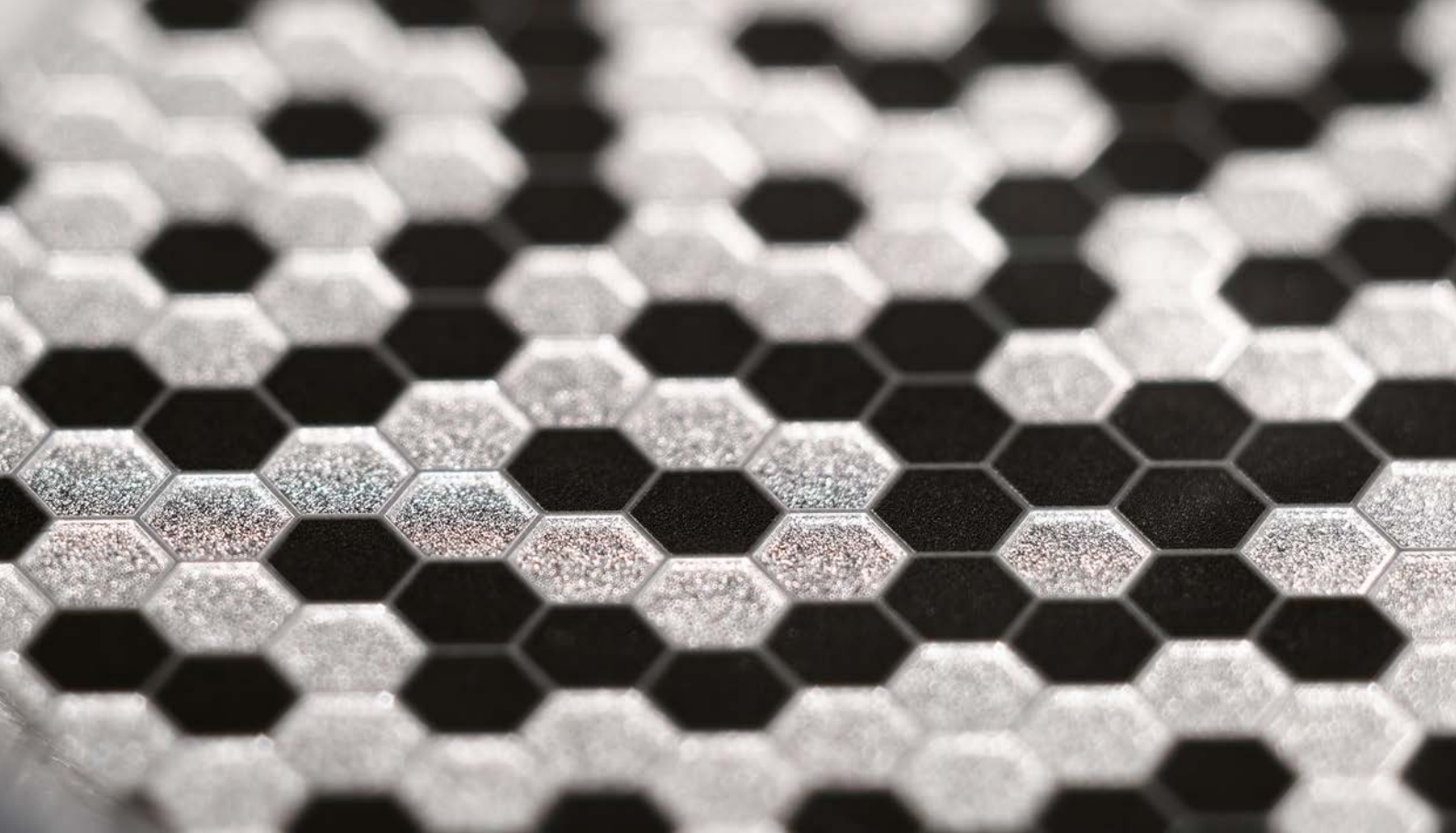


- + Compact and high-performance Laser solution
- + Dual Laser: nano and/or femto
- + Three- or five-axis solution for engraving and texturing
- + GF Machining Solutions' all-in-one software concept
- + Clean and fully digitized process



Main specifications		LASER P 400
Dimension of complete equipment *	mm (in)	1230 x 2330 x 2490 (48.42 x 91.73 x 98.03)
Machine weight (machine only)	kg (lbs)	2400 (5291.09)
Maximum workpiece dimensions 3Ax/5Ax *	mm (in)	600 x 400 x 250 / Ø120 x h120 (23.62 x 15.75 x 9.84 / Ø4.72 x h 4.72)
Maximum workpiece weight 3Ax/5Ax	kg (lbs)	50/4 (110/8.82)
Table size **	mm (in)	680 x 400 (26.77 x 15.74)
X,Y, Z travels	mm (in)	600 x 400 x 300 (23.62 x 15.75 x 11.81)
Rotary 4/5 axis ***	mm (in)	A 115°-105°/B 360° (A 4.53°-4.13°/B 14.17°)
Laser sources	W	Multi-Laser sources: nanosecond and/or ultrashort pulsed laser ***
Power consumption		Electrical: 3 x 400 Vac + ground; 6 kVA Pneumatic: 6 bars 500 l/h (132.09 gal/h)

\* Width x depth x height \*\* Length x width \*\*\* Option



AgieCharmilles

# LASER P 600/1000/1200 U

The five-axis texturing world reference in mold and die



- + Versatile five-axis solution for engraving and texturing
- + GF Machining Solutions' all-in-one software concept
- + Flexible Automation solutions
- + Clean and fully digitized process



Main specifications		LASER P 600 U	LASER P 1000 U	LASER P 1200 U
Ytterbium pulsed fiber Laser	W	20/30/50/100	20/30/50/100	50/100
Focal length	mm (in)	100/160/254 (3.9/6.3/10)	100/160/254 (3.9/6.3/10)	100/160/254 (3.9/6.3/10)
Machine dimensions *	mm (in)	2050 x 2280 x 2770 (80.7 x 89.8 x 109)	2240 x 2605 x 2845 (88.2 x 102.6 x 112)	2240 x 3395 x 2930 (88.2 x 133.7 x 115.3)
Approx machine weight	kg (lbs)	5000 (11023)	6500 (14330)	8700 (19180)
Max. power consumption	kW	4	4	4
X,Y, Z travels	mm (in)	600 x 460 x 830 (23.6 x 18.1 x 32.7)	1000 x 550 x 880 (39.4 x 21.6 x 34.6)	1200 x 900 x 1200 (47.2 x 35.4 x 47.2)
Laser titling axis A	°/s, °	180, 210	180, 210	180, 210
Max. 5 axis machining volume	mm (in)	Ø 370 x 530 ** (Ø 14.6 x 20.9 **)	Ø 510 x 480 (Ø 20.1 x 18.9)	Ø 865 x 790 (Ø 34.1 x 31.1)
Max. workpiece volume	mm (in)	Ø 420 x 530 (Ø 16.5 x 20.9)	Ø 510 x 480 (Ø 20.1 x 18.9)	Ø 920 x 790 (Ø 36.2 x 31.1)
Max. workpiece weight 5 axis	kg (lbs)	75 (165)	150 (330)	1700 (3748)

\* Width x depth x height \*\* FL160

AgieCharmilles

# LASER P 4000 U

Unique five-axis Laser texturing solution  
for extra-large tools



- + Unique machine design for large molds
- + Five-axis solution for engraving and texturing
- + Large access and easy loading
- + GF Machining Solutions' all-in-one software concept
- + Clean and fully digitized process



Main specifications		LASER 4000 U
Ytterbium pulsed fiber Laser	W	50/100
Focal length	mm (in)	330/420 (6.3/10/12.3/16.5)
Machine dimensions *	mm (in)	7000 x 10000 x 5250 (275.6 x 393.7 x 206.7)
Approx machine weight	kg (lbs)	32000 (70548)
Max. power consumption	kW	12.5
X,Y, Z travels	mm (in)	4000 x 3000 x 1500 (157.5 x 118.1 x 59)
Laser tilting axis A	°/s, °	180, 270
Max. 5 axis machining volume	mm (in)	2800 x 1800 x 1170 (110.2 x 70.9 x 46.1)
Max. workpiece volume	mm (in)	4000 x 3000 x 1170 (157.5 x 118.1 x 46.1)
Max. workpiece weight 5 axis	kg (lbs)	> 20000 (> 44092)

\* Width x depth x height