VULQ1-S / BEAMS series

MULTIBEAM LASER MARKING SYSTEMS

Laser marking now AUGMENTED

VULQ1™ product offer overview

BETTER LASER SOLUTIONS FOR A BETTER MANUFACTURING

Laser is the production tool of the future. But the way laser solutions are designed today limits their performance.

Conventional laser processing reaches 3 limits:

- **Throughput limit:** with high power laser available, throughput is limited by the speed of the laser beam onto the sample. This is particularly true for high resolution applications.
- **Economical limit:** adding to the processing time induced by throughput limit, it is frequent to use only part of the available laser power.
- **Environmental limit:** laser processing is intrinsically a green production tool, it will be even greener running at 100% of its capacity.

Multibeam laser processing with VULQ1™ unlocks these three bottlenecks.

Multibeam processing is the combination of dynamic laser beam shaping with **VULQ1™** and traditional laser beam delivery systems.

Powered by our patented programmable multibeam technology, VULQ1™ accelerates laser processing manyfold compared to conventional laser marking.

VULQ1-S SYSTEMS
FLASH series

- Model NS NIR
- Model NS VIS

VULQ1-S SYSTEMS
BEAMS series

- Model NS NIR
- Model NS VIS
- Model FS NIR

VULQ1-M / Modules

- BBD-P010
- NIR-P050
- VIS-P050
- NIR-P100

VULQ1-S / BEAMS series
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VULQ1-S / BEAMS accelerate laser processing throughput manyfold by combining scanning with dynamically programmable multibeam technology.

VULQ1-S / BEAMS is a stand-alone multibeam laser marking system, ready for integration into all production environments, production line or stand-alone machine.

VULQ1-S / BEAMS address an extended scope of applications thanks to their multiple operation modes: standard vectorial mode, multibeam mode and our patented PIXEL-STAMP mode.

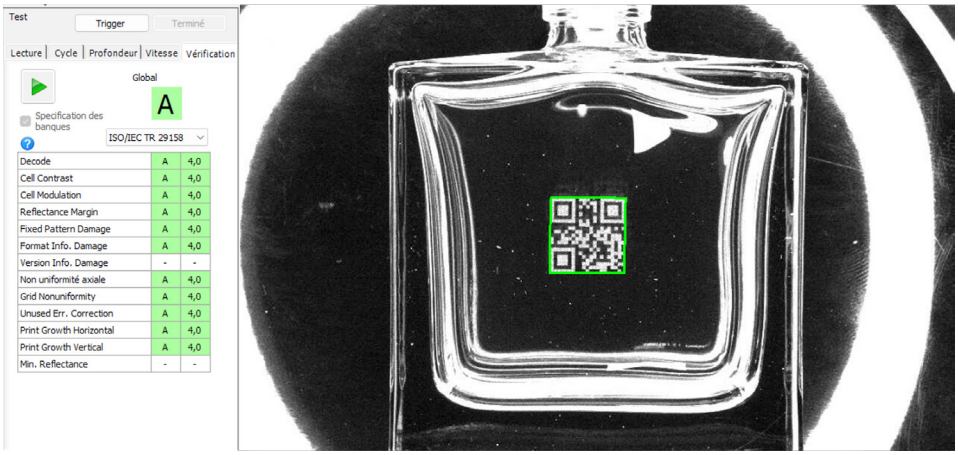
VULQ1-S / BEAMS laser systems are available in 1030nm, 1064nm and 532nm single wavelength, up to 72W output power and 6,4mJ pulse energy to deliver superior throughput.

MAIN APPLICATIONS

- High speed Datamatrix and QR codes marking on primary packaging
- High speed surface decoration and texturing
- High speed micro-drilling of thin layers

FEATURES

- **Typical 3-10x cycle time reduction vs conventional laser marking**
- Texturing down to micron level with cm²/s rate with PIXEL-STAMP marking patent
- Dynamically configurable beam shape and Z focus



More applications ?

Check our website

www.qiova.com

Figure 1: A Grade QR code marking on glass with VULQ1-S BEAMS FS NIR. Marking Time = 2s

Product line	Model	Max energy	Max power	Pulse duration	Wavelength	Materials	Marking time
VULQ1-S BEAM series	NS NIR	6,4 mJ	64 W	ns	1064 nm	Metals, coated materials, polymers, molded compound	**3-10x shorter[1]**
	NS VIS	3,2 mJ	32 W	ns	532 nm	Polymers, films, multilayers, elastomers	**3-10x shorter[1]**
	FS NIR	720 µJ	72 W	ps-fs	1030-1064 ns	Ceramic, glass	**3-10x shorter[1]**

Figure 2: BEAMS series overview

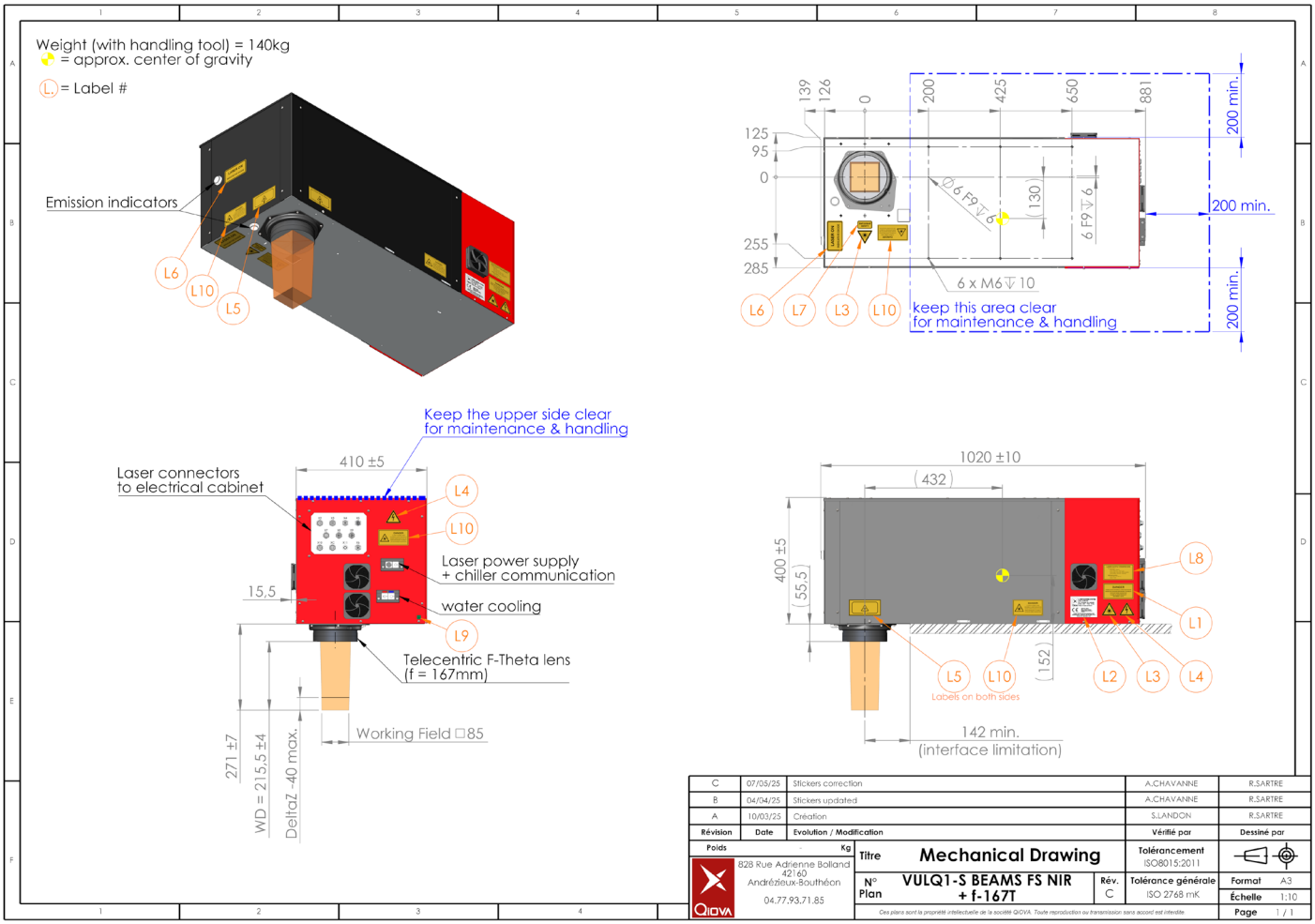
[1] Marking time typically 3-10x shorter than conventional laser marking

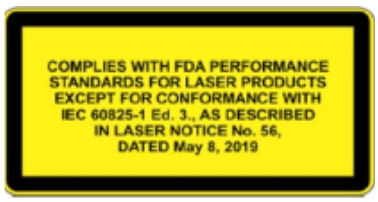
Specifications

MODEL		BEAMS NIR	BEAMS VIS
Laser processing			
Laser output			
Wavelength		1000-1100 nm	500-550 nm
Max power		72 W	24 W
Min pulse duration		250 fs	5 ns
Max pulse energy[1]		6,4 mJ	3,2 mJ
Max Pulse Repetition Rate		1 MHz	100 kHz
Optical output			
F-theta focal length		F80, F160, F167 Telecentric	F80, F160
Working distance range		80 - 220 mm	80 - 220 mm
Max 3D scanning volume		100 mm x 100 mm x 40 mm	100 mm x 100 mm x 40 mm
Modes of operation			
Single beam processing		YES	YES
Multibeam processing		YES	YES
FULL-STAMP marking		NO	NO
PIXEL-STAMP marking		YES	YES
Dimensions and weight			
Laser head			
Laser head max dimensions	Length	1030 mm	1030 mm
	Width	431 mm	431 mm
	Height	461 mm	361 mm
Laser head max weight		140 kg max. without handling tool	120 kg max. without handling tool
Electrical cabinet			
Max dimensions		0,6 m x 0,6 m x 2 m	
Max weight		200 kg max.	
Cable length to laser head		5 m standard	
Safety and cretifications			
Laser safety class[2]		4	
Safety level performance[3]		d	
Safety contacts type		Dry contacts	
CE compliance		YES	
Utility & ambiant			
Electrical input	Voltage	230 VAC	
	Frequency	50-60 Hz	
	Supply	3 different lines 14 A / 8,2 A / 6 A	
	Max Power	6,5 kVA	
PLC communication		Ethernet, EthernetIP, ProfiNet	
Electrical outputs	Opto outputs (open collector)	Supply voltage : 5 V (not provided)	
		Commuting level : 5 V	
		Sink current : 35 mA	
	DAC	Max 15 mA	
		Software adjustable Max voltage (2.5 V / 5 V / 10 V)	
		Max frequency 800 kHz	
Environment			
Temperature	Min storage range	10-40°C, non condensing	
	Min operation range	15-30°C, non condensing	
Humidity		< 80%, non condensing	
Altitude		< 3000 m	

[1] *Depends on pulse duration and wavelength – contact us for more details capabilities*
[2] *According to IEC 6025-1:2014*
[3] *According to ISO 13849-1:2023*

Laser head drawing with F167 telecentric lens





QiOVA follows a policy of continuous product improvement.
Specifications are subject to change without notice.

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