

OPA 6 Weld Dynamic Beam Laser

OPA 6 Weld is part of the Dynamic Beam Laser series which is based on Civan's Coherent Beam Combining (CBC) technology. The OPA 6 offers a High Power Single Mode CW Dynamic Beam Laser. By combining multiple single mode fiber lasers in an optical phased array (OPA) we achieve a true dynamic beam laser, enabling tailored control of the laser output. Configurable parameters include beam spot size and shape, focal distance and power modulation, all at MHz speed and without any additional optical elements or moving parts.



Capabilities

- Change beam shape orientation on the fly
- Weld dissimilar materials
- Weld asymmetric materials
- Welding of crack sensitive materials
- Unique capabilities to stabilize keyhole

Applications

- Welding
- Drilling
- Metal Additive Manufacturing
- Cutting
- Surface treatment

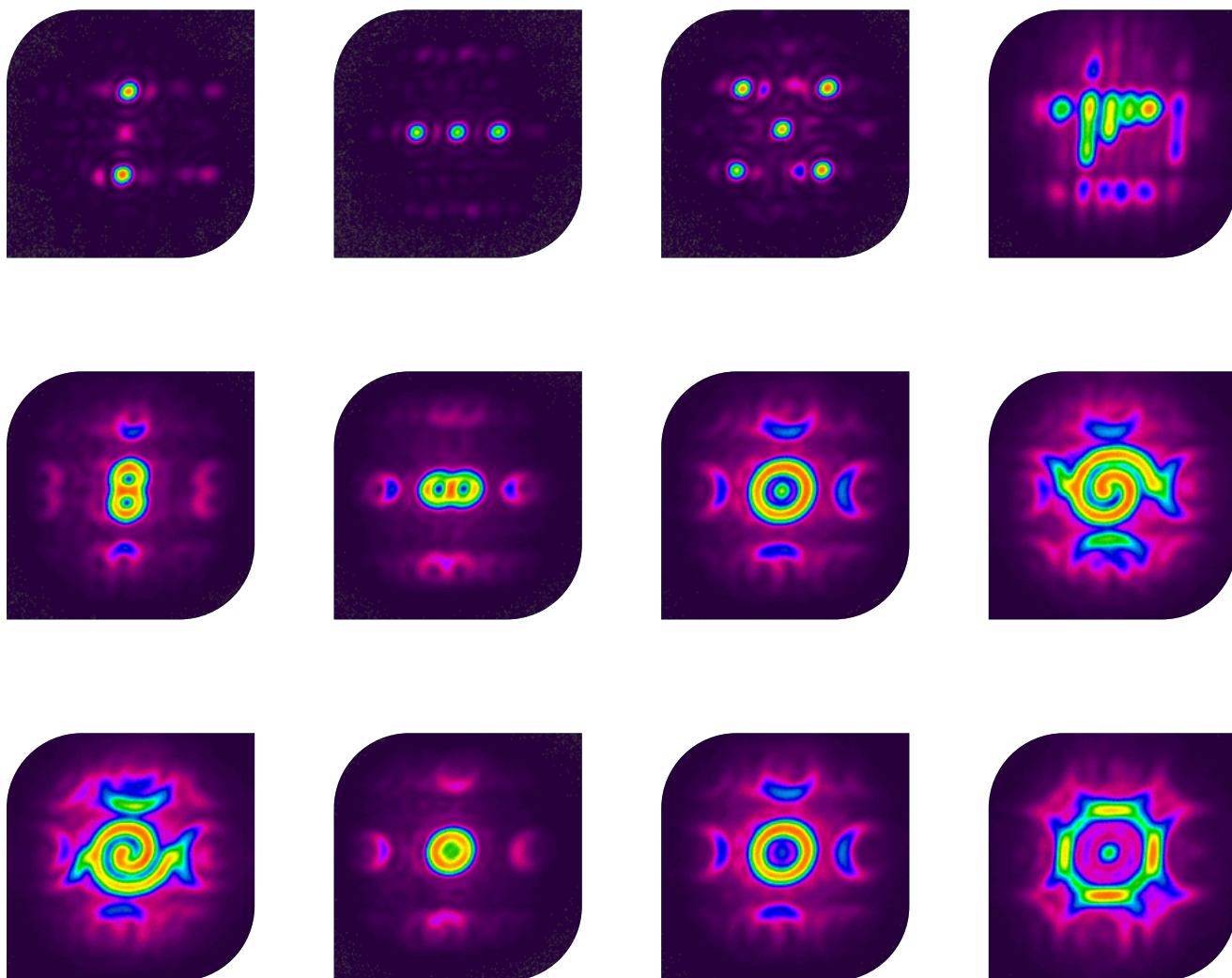
Dynamic Beam Laser Features

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| <ul style="list-style-type: none">• Beam shaping
Ability to design a wide range of arbitrary shapes | <ul style="list-style-type: none">• Beam wobble
Wide range of beam wobble from Hz to MHz |
| <ul style="list-style-type: none">• Shape sequence
Switch between beam shapes at microsecond speeds | <ul style="list-style-type: none">• Focus steering
Change of focal point at MHz frequencies |

Multiple Beam Shapes

The OPA 6 arrives with 20 different beam shapes and more shapes can easily be added by the user with the supplied software. Civan's unique OPA technology allows immediate switching between beam shapes.

Beam Shapes Examples



Technical Specifications

Parameter	OPA 6 7kW	OPA 14kW	OPA 6 28kW
Optical characteristics			
Operation Mode	CW/Modulated	CW/Modulated	CW/Modulated
Efficient power[kW]	7	14	28
Power tunability	10-100%	10-100%	10-100%
Polarization	Circular	Circular	Circular
Wavelength[nm]	1064 ± 1	1064 ± 1	1064 ± 1
Optical output			
Beam output	Free Space Collimated beam	Free Space Collimated beam	Free Space Collimated beam
Beam type	Circular	Circular	Circular
Fiber length	3	3	1
General characteristics			
Environmental conditions for operation	(+)5°C to +45°C humidity < 60% non-condensing	(+)5°C to +45°C humidity < 60% non-condensing	(+)5°C to +45°C humidity < 60% non-condensing
Environmental conditions for transportation and storage	(-)20°C to +45°C humidity < 60% non-condensing	(+)5°C to +45°C humidity < 60% non-condensing	(+)5°C to +45°C humidity < 60% non-condensing
Cooling			
Method	Tap and slightly DI-water		
Cooling power consumption [kW]	25	49	99
Nominal water flow rate [LPM]	130	180	330
Cooling water temperature range	21±1 °C	21±1 °C	21±1 °C
Electrical characteristics			
Supply voltage	3 x 400 V/50 Hz	3 x 400 V/50 Hz	3 x 400 V/50 Hz
Power consumption [kW] (w/o chiller)	33	65	130

*All power levels in the range of 7 – 28kW are available for order

Technical Specifications

Parameter	OPA 6 7kW	OPA 14kW	OPA 6 28kW
Electrical characteristics			
Supply voltage	400VAC 50Hz/60Hz	400VAC 50Hz/60Hz	400VAC 50Hz/60Hz
Power consumption [kW] (w/o chiller)	33	65	130
Optical Cabinet			
Weight	1300 Kg	1300 Kg	1350 Kg
Dimensions W*D*H	2m *1m *1.4m	2m *1m *1.4m	2m *1m *1.4m
Electrical Cabinet			
Weight	500 Kg	500 Kg	1000 Kg
Dimensions W*D*H	0.8m *1.04m *1.6m	0.8m *1.04m *1.6m	1.1m*1.2m*2.1m
Laser Head			
Weight	50 Kg	50 Kg	50 Kg
Dimensions	0.385m*0.395m*0.31m	0.385m*0.395m*0.31m	0.385m*0.395m*0.31m

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