

## high power. small spots. flexible field sizes

The new powerSCAN II scan system sets standards for cutting and welding applications with high-power lasers.

### Features

- Suitable for multi-kW CO<sub>2</sub> lasers
- Spot sizes as small as 165 µm
- 3D processing thanks to integrated z-axis

### Innovations

- Flexible image field sizes with motorized, continuous adjustability
- Light-weight mirrors for highest dynamic performance
- Reduced Drift
- Digital servo electronics
- Application-specific tunings
- Software-independent Interlock signal
- Industrial-suited housing, optional protective window at beam exit
- More compact design: approx. 33% smaller footprint

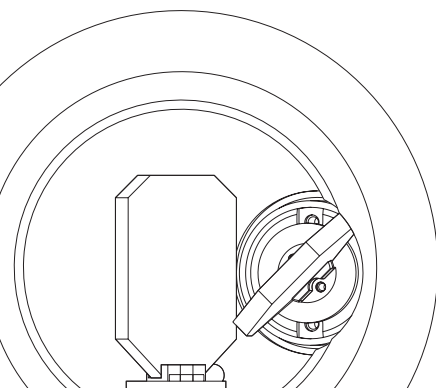
The large mirror aperture of 50 mm and a high-dynamics z-axis enable powerSCAN II systems to focus the laser beam onto very small spots, also in combination with large field sizes. A supplementary stepper motor can achieve any needed image field size within a wide range.

### Typical Applications

- Cutting of paper, cardboard, films
- Marking of textiles, wood, leather
- Welding of metal components
- Cutting of fiber composite materials

### Industries

- Packaging and printing industry
- Textile processing
- Automotive



Optical Specifications (Examples) – CO<sub>2</sub>-Laser

Image field size <sup>(1)</sup> [mm <sup>2</sup> ]	250 x 250	300 x 300	500 x 500	800 x 800	1000 x 1000	1200 x 1200	1500 x 1500
Free working distance A' <sup>(1)</sup>	252 mm	317 mm	592 mm	1007 mm	1282 mm	1557 mm	1967 mm
Focus diameter (center of image field) <sup>(1,2)</sup>	165 µm	195 µm	300 µm	455 µm	560 µm	665 µm	820 µm
Mean focus diameter (field) <sup>(1,2)</sup>	175 µm	200 µm	315 µm	480 µm	590 µm	700 µm	865 µm
Rayleigh length	1.5 mm	2.1 mm	4.9 mm	11.5 mm	17.4 mm	24.4 mm	37.4 mm
Focus range in z direction	± 5 mm	± 10 mm	± 40 mm	± 120 mm	± 200 mm	± 295 mm	± 470 mm
Typical processing speed	2.5 m/s	3 m/s	5 m/s	8 m/s	10 m/s	12 m/s	15 m/s

<sup>(1)</sup> for z=0<sup>(2)</sup> 1/e<sup>2</sup>, M<sup>2</sup>=1, fully illuminated, 10.6 µm.

## Dynamics

(all angles are in optical degrees)

## with Vector Tuning

Tracking error	< 0,45 ms
Typical positioning speed	20 rad/s
Step response time <sup>(3)</sup>	
1% of full scale	1,0 ms
10% of full scale	4,5 ms

<sup>(3)</sup> settling to 1/1000 of full scale

## Precision &amp; Stability

(all angles are in optical degrees)

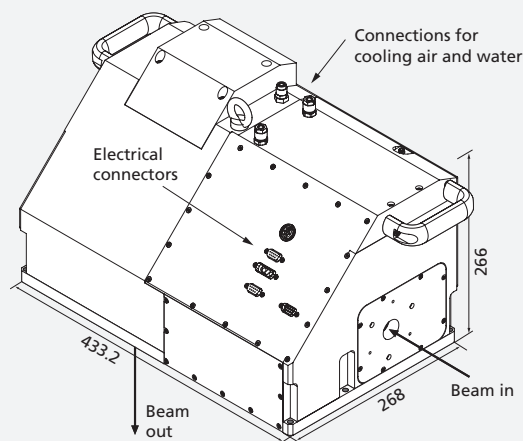
Repeatability (RMS)	< 4 µrad
Positioning resolution	18 Bit für XY, 16 Bit für Z
Temperature drift	< 15 ppm/K
Long-term drift <sup>(4)</sup>	
8-h-drift (after 30 min warm-up)	
Offset [µrad]	< 50 µrad
Gain [ppm]	< 50 ppm
Optical performance	
Typical scan angle	±0.35 rad
Gain error	< 5 mrad
Zero offset	< 5 mrad

<sup>(4)</sup> at constant ambient temperature and load

## Common Specifications

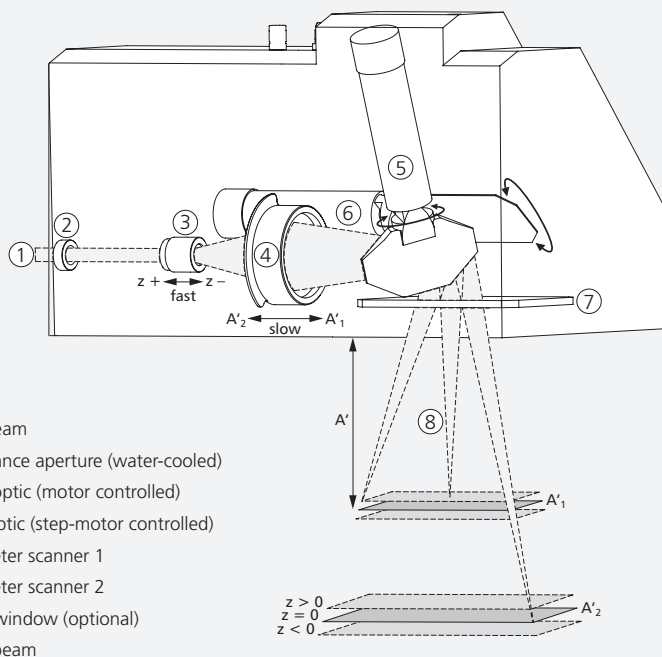
Wavelength	10.6 µm or 9.4 µm
Max. laser power cw	2 kW
for 50% duty cycle	4 kW
Entrance aperture	16 mm
Power requirements	(48 ± 2) V DC, max. 20 A
Interface	SL2-100
Water cooling	3 l/min, p < 4.5 bar
Air cooling	20 l/min, Δp < 2 bar
Operating temperature	25 °C ± 10 °C
Weight	ca. 35 kg

## powerSCAN II 50i



All dimensions in mm

## Principle of operation



## Legend

- 1 Entering beam
- 2 Beam entrance aperture (water-cooled)
- 3 Diverging optic (motor controlled)
- 4 Focusing optic (step-motor controlled)
- 5 Galvanometer scanner 1
- 6 Galvanometer scanner 2
- 7 Protective window (optional)
- 8 Emerging beam

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 Product photos are non-binding and may show customized features.