power*SCAN* II

high power. small spots. flexible field sizes.

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

Features

- Suitable for multi-kW CO_2 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

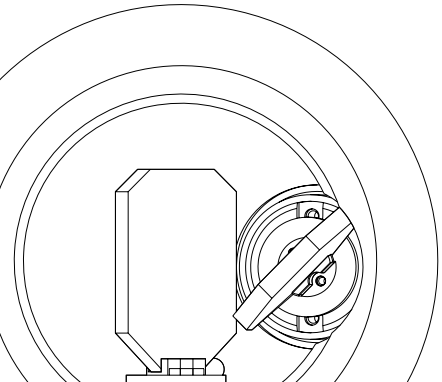
The large mirror aperture of 50 mm or 70 mm and a high-dynamics z-axis enable power*SCAN* II systems to focus the laser beam onto very small spots, also in combination with large field sizes. A supplementary stepper motor can achieve any needed image field size within a wide range.

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



新特光电
Sintec Optronics

Technical Specifications

Optical Specifications (Examples) – CO_2-Laser

Type	50i	50i	50i	50i	70i	70i	70i
Image field size [1] [mm²]	250 x 250	300 x 300	800 x 800	1200 x 1200	500 x 500	1000 x 1000	1500 x 1500
Free working distance A' [1]	252 mm	317 mm	1007 mm	1557 mm	570 mm	1260 mm	1945 mm
Focus diameter (center of image field) [1,2]	165 µm	195 µm	455 µm	665 µm	240 µm	434 µm	625 µm
Mean focus diameter (field) [1,2]	175 µm	200 µm	480 µm	700 µm	252 µm	457 µm	660 µm
Rayleigh length	1.5 mm	2.1 mm	11.5 mm	24.4 mm	3.7 mm	11.5 mm	23.5 mm
Typical processing speed	6 m/s	7 m/s	21 m/s	31 m/s	17 m/s	36 m/s	54 m/s

[1] for z = 0, z shift possible

[2] $1/e^2$, M^2=1, fully illuminated, 10.6 µm.

Dynamics (with vector tuning)

(all angles are in optical degrees)

Type	50i	70i
Tracking error	0.45 ms	1.2 ms
Step response time [3]		
1% of full scale	1.0 ms	3.5 ms
10% of full scale	4.5 ms	6.5 ms

[3] settling to 1/1000 of full scale

Precision & Stability

(all angles are in optical degrees)

Repeatability (RMS)	< 4 µrad
Positioning resolution	18 Bit for XY, 16 Bit for Z
Temperature drift	< 15 ppm/K
Long-term drift [4]	
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

[4] at constant ambient temperature and load

Common Specifications

Wavelength	10.6 µm or 9.4 µm
Max. laser power cw	2.5 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	Type 50i: approx. 35 kg Type 70i: approx. 37 kg

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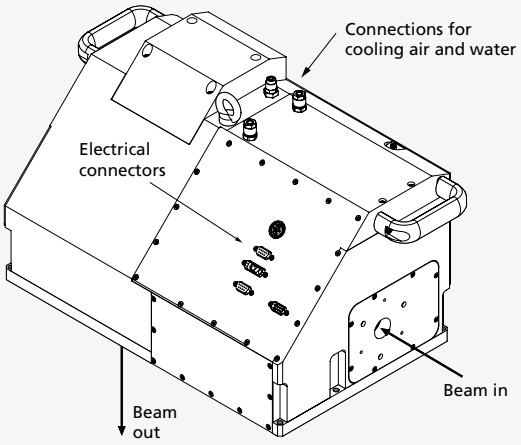
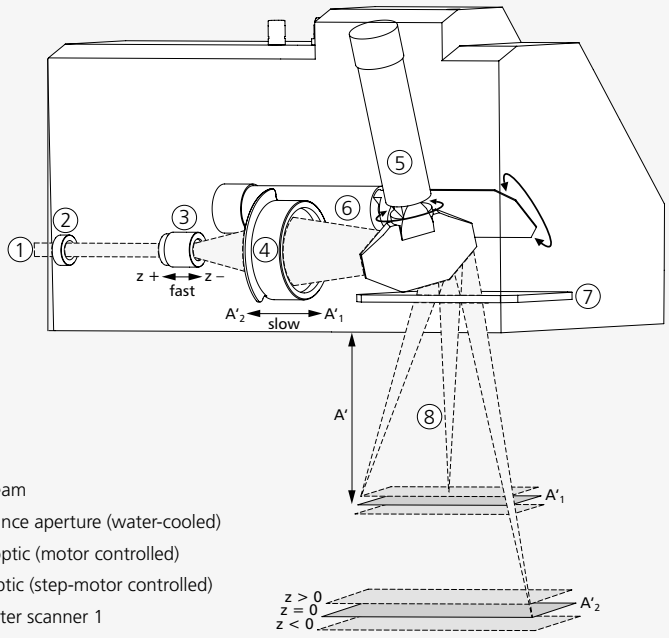


	power*SCAN* II 50i	power*SCAN* II 70i
Aperture	50 mm	70 mm
Beam displacement	72.72 mm	97.5 mm
Heigth	266 mm	283 mm
Width	433.2 mm	475 mm
Depth	268 mm	306 mm

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