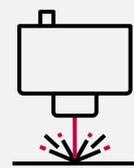


intelliSCAN FT

The smart 2D industry standard

- Designed for 2D applications
- Ideal for the use in e-mobility applications
- Compact and precise scan system
- Flexible optical configuration



**2D scan system
laser welding**

Smart laser welding with the intelliSCAN FT

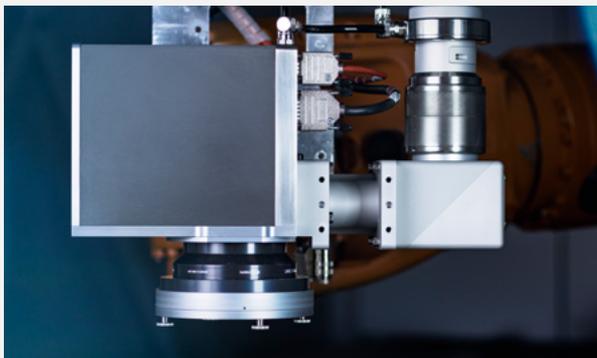
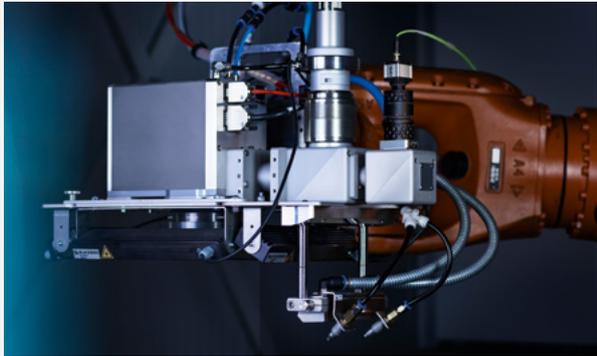
This 2D scan system with F-Theta optics and mechanically adjustable collimation is suitable for both static welding applications and portal machines.

The intelliSCAN FT guides the laser beam quickly and precisely along a 2D contour. The compact design, which supports both straight and angled (90 degrees)

collimators, simplifies integration into machines with limited space. The optics of the scan system are designed for fiber-coupled disk and fiber lasers with a maximum power output of up to 8 kW.

SCANLAB's fully digital iDRIVE technology enables real-time monitoring of all important status parameters of the intelliSCAN FT.

The scan system is equipped with an additional internal sensor system for automatic self-calibration (ASC). This smart reference system enables quick calibration of the galvo drives. Occurring drift effects can thus be actively compensated.



Advantages in 2D applications

- High-precision laser processing and fast positioning
- Freely programmable oscillation with high frequency (wobble)
- Increased efficiency through 2D on-the-fly operation
- Ideally suited for electromobility applications, e.g. welding of hairpins and power electronics

Compact, robust & precise

- Lens protection with interchangeable objective and collimator cover slides
- Intelligent sensor technology for drift compensation preserves the precision
- Optional: ScaVis camera system for position correction of welds

Flexible configuration

- Flexible combination of two collimation and three focusing options
- You can achieve your desired spot size with one of six different optical magnifications
- Process-specific expandable system



Optical specifications intelliSCAN FT

Focal length collimator in mm	116			132		
Focal length focussing optics in mm	255*	420	460	255*	420	460
Fiber adapter	QBH, QD (LLK-D)					
Wave length in nm	1055-1085 (quartz-based), 1055-1085 + 880 (+ NIR), 1030-1090 + 880 (silicon-based)					
Limiting NA (half angle) @ 86 % in rad	0.083			0.073		
Limiting NA (half angle) @ 98.x % in rad	0.125			0.110		
Optical magnification	1 : 2.2	1 : 3.6	1 : 4	1 : 1.9	1 : 3.2	1 : 3.5
Image field size @ z = 0 (elliptical) in mm	170 × 105	340 × 175	380 × 290	170 × 105	340 × 175	380 × 290
Image field size @ z = 0 (rectangular) in mm	95 × 95	175 × 175	245 × 245	95 × 95	175 × 175	245 × 245
Maximum laser power in nm	1055-1085 = 8 kW, 1055-1085 + 880 = 8 kW, 1030-1090 + 880 = 6 kW					
Maximum laser power @ 1 min duty cycle in nm	1055-1085 = 5 kW, 1055-1085 + 880 = 4 kW, 1030-1090 + 880 = 4 kW					
Fiber diameter in μm	≥ 50 (for multi mode lasers)					
Double cover slide assembly	✓	✓	✓	✓	✓	✓
Fume protection module mountable	✓	-	✓	✓	-	✓
Working distance (lower edge scanner) in mm	397	566	563	397	566	563

*Available with single-mode design

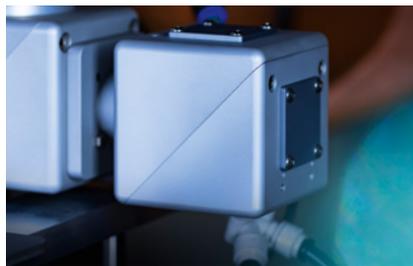
Options and extensions



Camera system ScaVis

The ScaVis camera system was developed together with users to identify component features and the subsequent intelligent seam positioning.

The intuitive software interface with a modular program structure enables the operator to place his individually created weld seam precisely and safely. Process-specific lighting ensures the highest detection rates.



Beam splitter

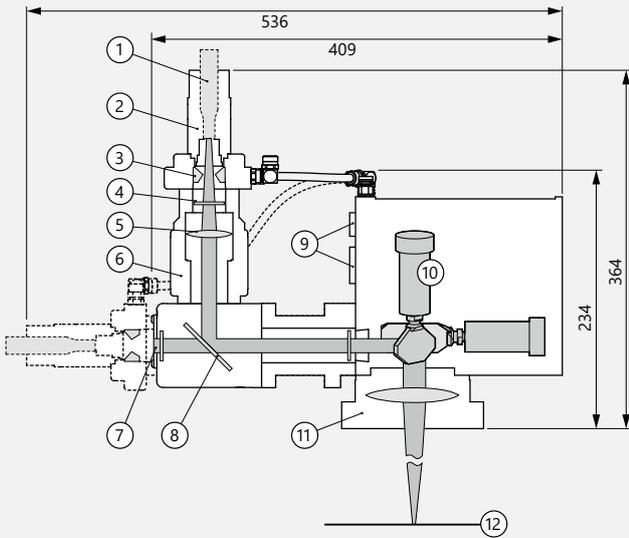
The addition of a beam splitter to the scan system enables the ScaVis camera system and other sensor components to be attached simultaneously.

Hence for example, intelligent seam positioning can be carried out coaxially with ScaVis, as well as optical process monitoring.



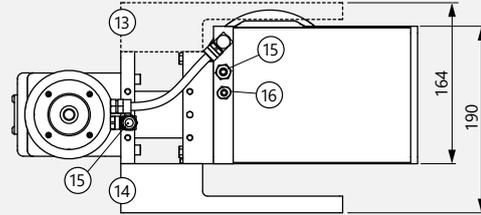
Air management

With the proven interaction of Crossjet, process nozzles, fume protection module and the supply of purge air, the deposition of smoke and particles on optical components can be prevented and the service life of your scan system can be maximized.

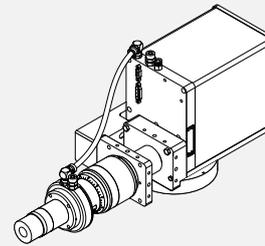
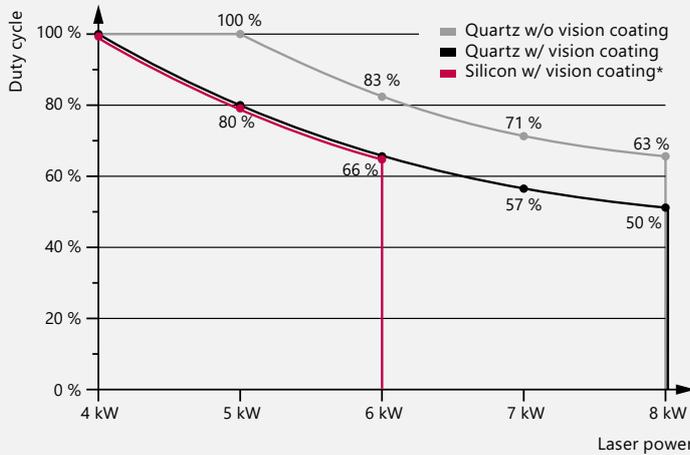


Key

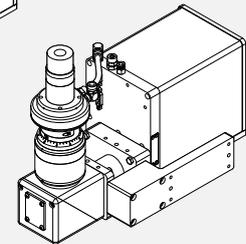
- 1 Fiber connector
- 2 Fiber adapters
- 3 Aperture, cooled
- 4 Collimator cover slide
- 5 Collimating lens
- 6 Adjusting ring Z-direction
- 7 Camera / process sensor connection
- 8 Beam splitter
- 9 Power & data connection
- 10 Galvanometer scanner
- 11 Lens
- 12 Working surface
- 13 Assembly, left
- 14 Assembly, right
- 15 Cooling fluid interface
- 16 Purge air interface



Objective $f = 460$ mm and QBH fiber adapter



intelliSCAN FT with 180° collimator



intelliSCAN FT with 90° collimator

All dimensions in mm

*The silicon coating is optimized for the combination with sensors (e.g. pyrometers, OCT, or cameras).

Technical data

Machine interface (mounting side)	Left / right (default), see diagram above
Collimator version	Straight (180°) / deflected (90°)
Weight (without attachments)	12.8 kg @ straight, 14.4 kg @ deflected
Operating temperature	25 °C ± 10°C
Supply voltage (requirements)	30 V DC (29 - 33 V), respectively max. 8 A
Specification cooling fluid	2 l/min at 20 °C and $\Delta p < 0.1$ bar; $p < 4$ bar
Filter unit purge air specification	ISO 8573 - 1 : 2010, class 5.4.4
Positioning accuracy	< 0.2 mm
Repeatability (RMS)	< 2 μ rad
Long-term drift over 8 h (operating temperature)	< 0.2 mrad (with ASC, at operating temperature)
Camera / process sensor connection	Only possible with deflected collimator (90°)
Collimator cover slide	Yes, interchangeable
IP protection class	IP54
Design for OCT option	On request

07 / 2022 | Information is subject to change without notice. Product photos are non-binding and may show customized features.



Blackbird Robotersysteme GmbH
 Carl-Zeiss-Str. 5 | 85748 Garching | Germany
 T: +49 89 307 484 700 | info@blackbird-robotics.de



North American Services provided by ABICOR BINZEL US

650 Medimmune Ct, Suite 110
 Frederick, MD 21703 USA | customerservice@abicorusa.com
 Toll Free: 800-542-4867 | Office: 301-846-4196