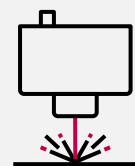


## **intelliSCAN FT**

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

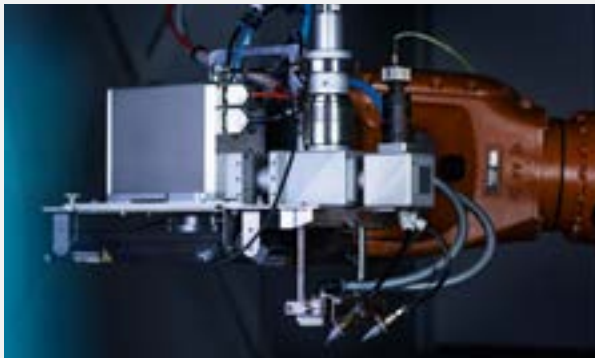
This 2D scan system with F-Theta optics and mechanically adjustable collimation is suitable for both static welding applications and portal machines.

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 galvanometer 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)					
Wavelength	1030 - 1080 nm + NIR (quartz), 1055 - 1085 nm (quartz), 1055 - 1085 nm + NIR (quartz), 1030 - 1090 nm + NIR (silicon)					
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	1030 - 1080 nm + NIR = 8 kW, 1055 - 1085 nm = 8 kW, 1050 - 1085 nm + NIR = 8 kW, 1030 - 1090 nm + NIR = 6 kW					
Maximum laser power @ 1 min duty cycle	1030 - 1080 nm + NIR = 4 kW, 1055 - 1085 nm = 5 kW, 1055 - 1085 nm + NIR = 4 kW, 1030 - 1090 nm + NIR = 4 kW					
Fiber diameter in μm	≥ 50 (for multi mode lasers)					
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.

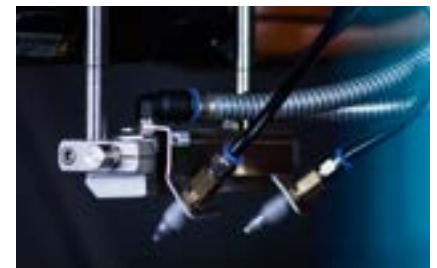
The intuitive software interface with a modular program structure enables the operator to place his individually created weld seam precisely and safely. Process-specific lighting ensures the highest detection rates.



### Beam splitter

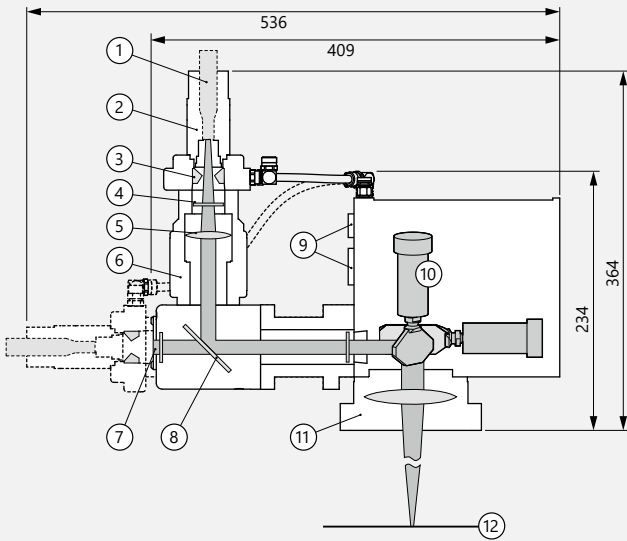
The addition of a beam splitter to the scan system enables the ScaVis camera system and other sensor components to be attached simultaneously.

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



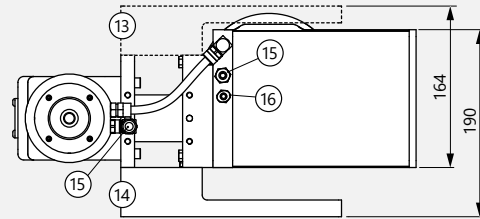
### Air management

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.

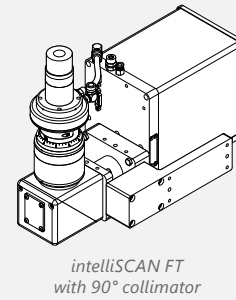
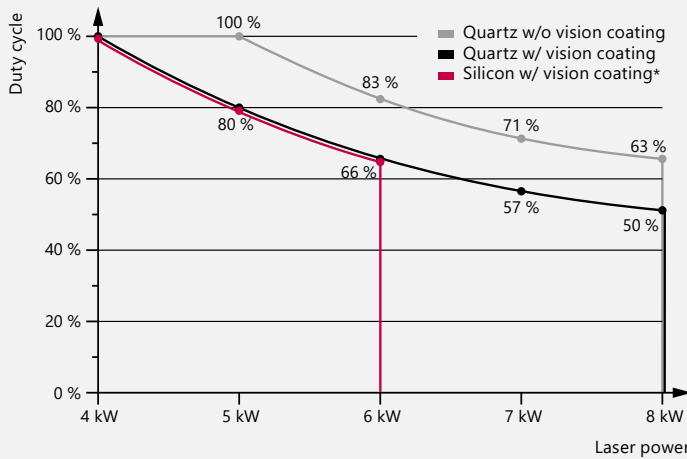


**Key**

- 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 90° collimator

All dimensions in mm

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

## Technical data

Double cover slide assembly	Yes
Fume protection module	Yes, optional
Weight (without attachments)	14.4 kg
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 $\mu$ rad
Long-term drift over 8 h (operating temperature)	< 0.2 mrad (with ASC, at operating temperature)
Camera / process sensor connection	Yes
Collimator cover slide	Yes, interchangeable
IP protection class	IP54
Design for OCT option	On request

