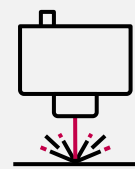


# intelliSCAN FT

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

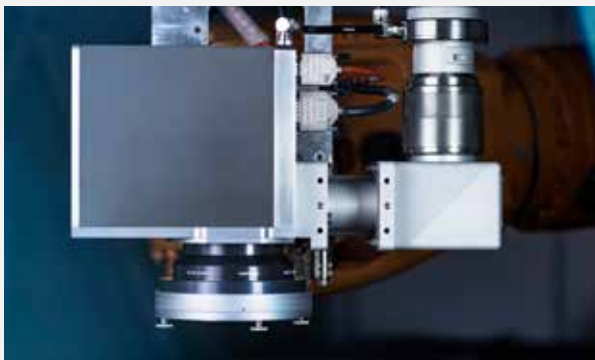
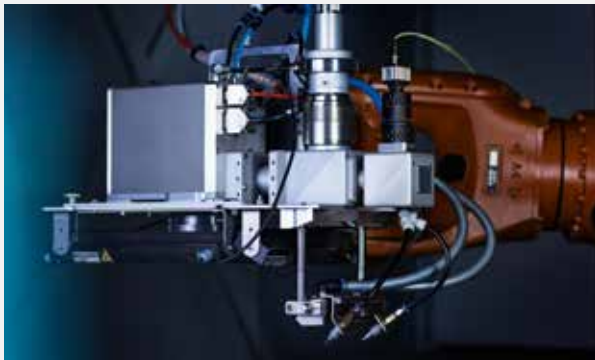
This 2D scan system with F-Theta optics and mechanically adjustable collimation is suitable for both static welding applications and portal machines.

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 selfcalibration (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

<b>Focal length collimator</b>	116 mm			132 mm		
<b>Focal length focussing optics</b>	255 mm*	420 mm	460 mm	255 mm*	420 mm	460 mm
<b>Fiber adapter</b>	QBH, QD (LLK-D)					
<b>Wave length</b>	1055-1085 nm (quartz-based), 1055-1085+880 nm (+NIR), 1030-1090+880 nm (silicon-based)					
<b>Limiting NA (half angle) @ 86%</b>	0,083 rad			0,073 rad		
<b>Limiting NA (half angle) @ 98,x%</b>	0,125 rad			0,110 rad		
<b>Optical magnification</b>	1 : 2,2	1 : 3,6	1 : 4	1 : 1,9	1 : 3,2	1 : 3,5
<b>Image field size@ z=0 (elliptical) in mm</b>	170 × 105	340 × 175	380 × 290	170 × 105	340 × 175	380 × 290
<b>Image field size@ z=0 (rectangular) in mm</b>	95 × 95	175 × 175	245 × 245	95 × 95	175 × 175	245 × 245
<b>Maximum laser power</b>	1055-1085 nm = 8 kW, 1055-1085+880 nm = 8 kW, 1030-1090+880 nm = 6 kW					
<b>Maximum laser power @ 1 min Duty cycle</b>	1055-1085 nm = 5 kW, 1055-1085+880 nm = 4 kW, 1030-1090+880 nm = 4 kW					
<b>Fiber diameter</b>	≥ 50 µm (for multi mode lasers)					
<b>Double cover slide assembly</b>	✓	✓	✓	✓	✓	✓
<b>Fume protection module mountable</b>	✓	-	✓	✓	-	✓
<b>Working distance (lower edge Scanner)</b>	397 mm	566 mm	563 mm	397 mm	566 mm	563 mm

\*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.

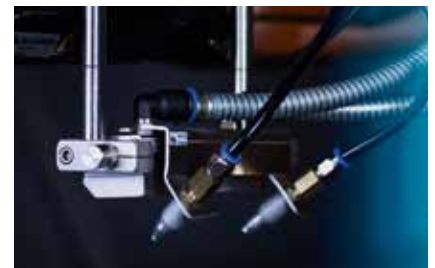
The intuitive software interface with a modular program structure enables the operator to place his individually created weld seam precisely and safely. Process-specific lighting ensures the highest detection rates.



### Beam splitter

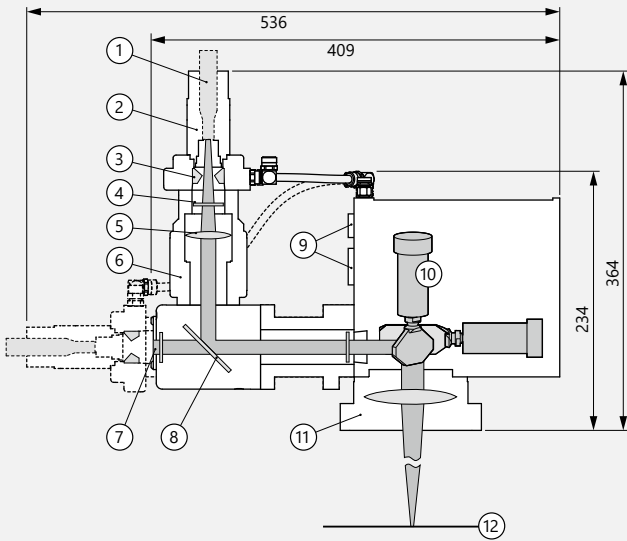
The addition of a beam splitter to the scan system enables the ScaVis camera system and other sensor components to be attached simultaneously.

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



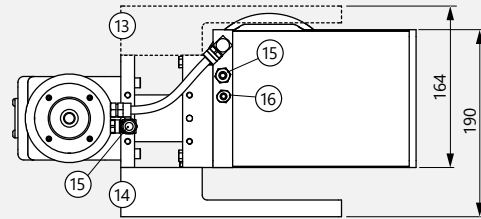
### Air management

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.

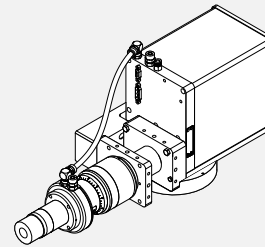
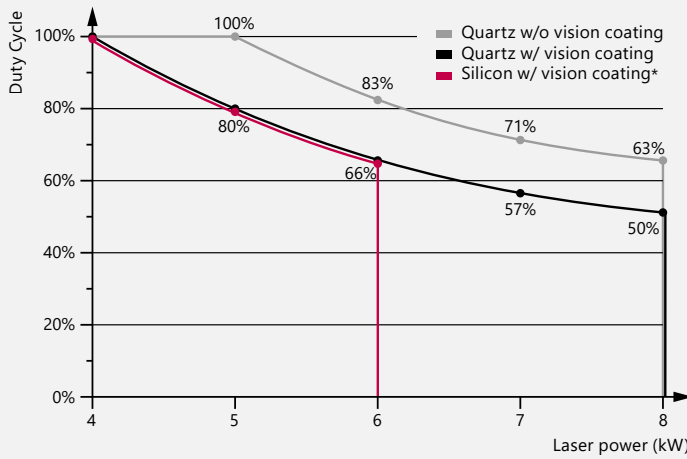


**Key**

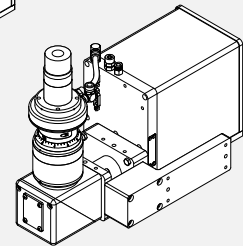
- 1 Fiber connector
- 2 Fiber adapters
- 3 Aperture, cooled
- 4 Collimator cover slide
- 5 Collimating lens
- 6 Adjusting ring Z-direction
- 7 Camera / process sensor connection
- 8 Beam splitter
- 9 Power & data connection
- 10 Galvanometer scanner
- 11 Lens
- 12 Working surface
- 13 Assembly, left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

<b>Machine interface (mounting side)</b>	Left / right (default), see diagram above
<b>Collimator version</b>	Straight (180°) / deflected (90°)
<b>Weight (without attachments)</b>	12.8 kg @straight, 14.4 kg @deflected
<b>Operating temperature</b>	25°C ± 10°C
<b>Supply voltage (Requirements)</b>	30 V DC (29 - 33 V), respectively max. 8 A
<b>Specification cooling fluid</b>	2 l/min at 20°C and $\Delta p < 0,1$ bar; $p < 4$ bar
<b>Filter unit purge air specification</b>	ISO 8573-1:2010, class 5.4.4
<b>Positioning accuracy</b>	< 0,2 mm
<b>Repeatability (RMS)</b>	< 2 $\mu$ rad
<b>Long-term drift over 8 h (Operating temperature)</b>	< 0,2 mrad (with ASC, at operating temperature)
<b>Camera / process sensor connection</b>	Only possible with deflected collimator (90°)
<b>Collimator cover slide</b>	Yes, interchangeable
<b>IP protection class</b>	IP54
<b>Design for OCT option</b>	On request

