

**NUTECH Gesellschaft für Lasertechnik
und Materialprüfung mbH**

Ilshl 5 | 24536 Neumünster, Germany

Phone: +49 (0) 43 21 / 30 66-20

Fax: +49 (0) 4321 / 38 43-5

Mail: nutech@nutech.de

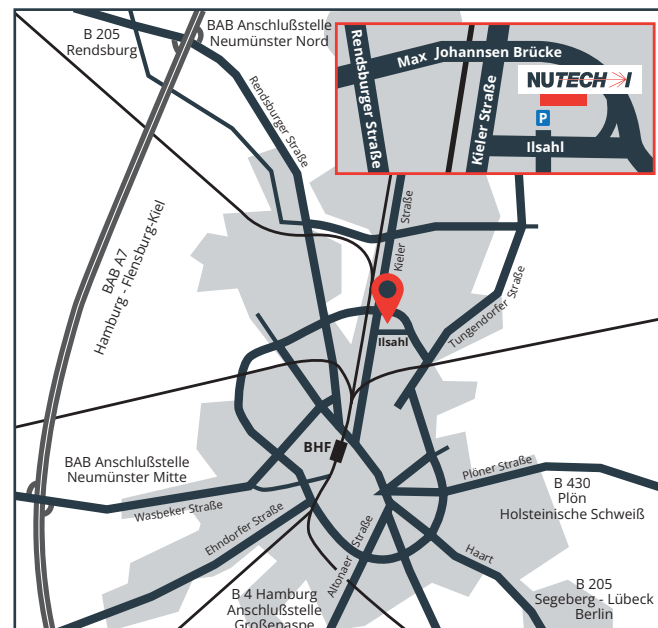
www.nutech.de

Managing directors:

Theodor Fleitmann,

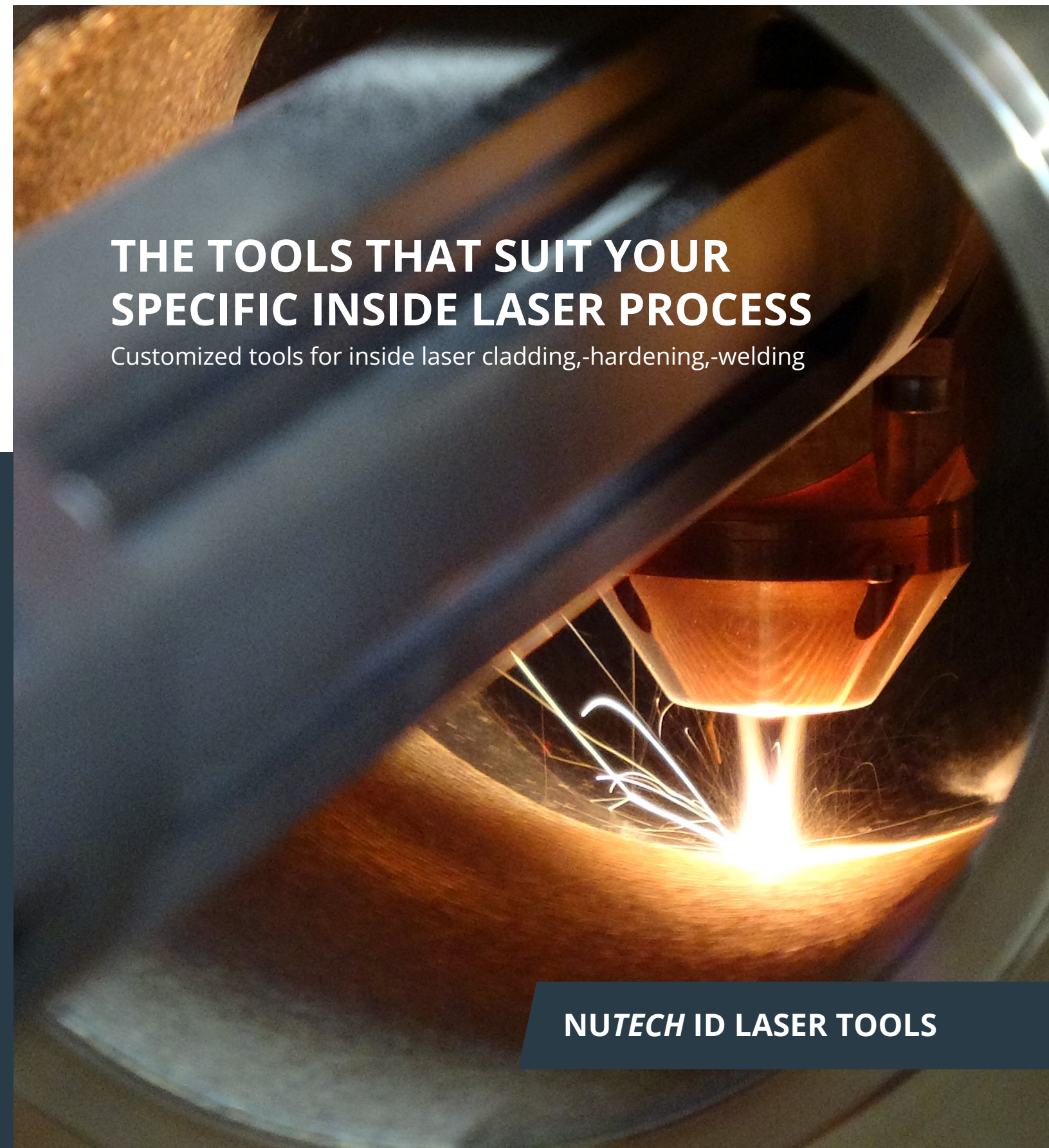
Sven Willrodt,

Sven Krüger



THE TOOLS THAT SUIT YOUR SPECIFIC INSIDE LASER PROCESS

Customized tools for inside laser cladding, -hardening, -welding



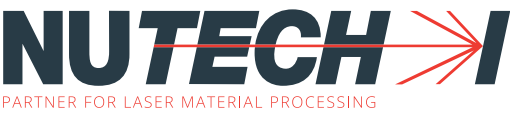
FEW EXAMPLES OF CUSTOMERS THAT RELY ON NUTECH ID LASER TOOLS



www.nutech.de

NUTECH ID LASER TOOLS

CUSTOMIZED, INDUSTRIALLY PROVEN, RELIABLE



CUSTOMIZED TO YOUR NEEDS

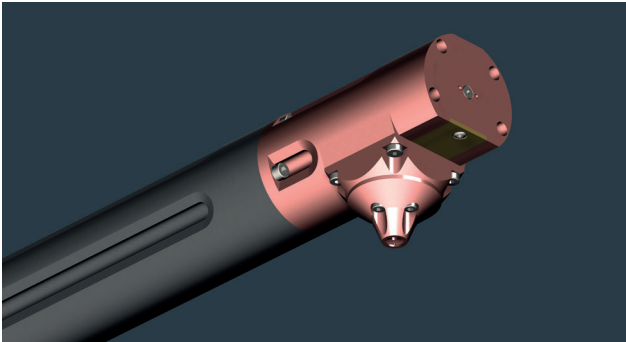
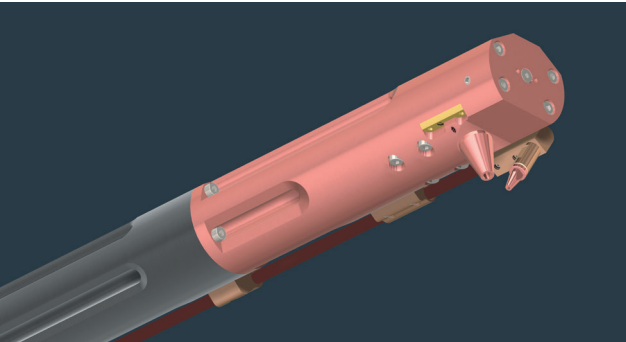
NUTECHs Laser System Technology Division develops and manufactures processing optics for inside laser processing, customized to your requirements.

Our ID tools are used for inside laser welding, powder cladding, wire cladding and hardening. The smallest inside diameter that our smallest tool can clad starts at 25mm. With larger inside diameters the tools are designed for high deposi-

tion rates with laser power of up to 6kW. Our tools can be fitted to all standard laser sources and fiber connectors.

Numerous installations around the world prove the industrial reliability of our systems.

The majority of our tools is used for inside laser powder cladding. The customer can choose between a lateral or multi jet powder supply.



THE ADVANTAGE OF A LATERAL NOZZLE IS:

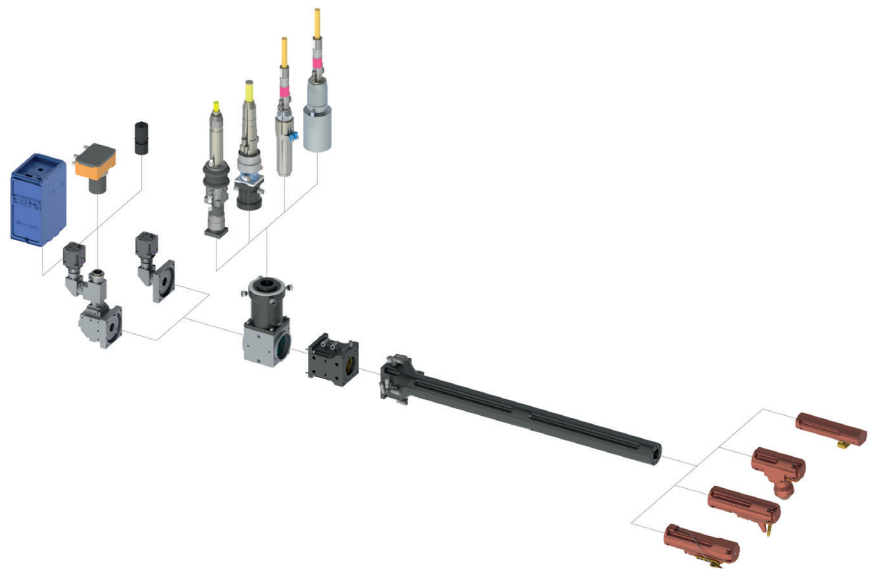
- / Inexpensive nozzle tips as wear parts
- / Easily exchange of nozzle tip (e.g. change powder bore diameter or length to change distance between process and tip end)
- / Easily adjustment to different distances / different Laser spot diameters

THE ADVANTAGE OF A MULTI JET NOZZLE IS:

- / 4 powder jets
- / Regardless of cladding direction, inside or outside cladding in tight environments
- / Water cooled nozzle
- / High powder efficiency
- / Two gas options to avoid oxygen:
 - / Cone gas – coaxial to Laser beam
 - / Forming gas – concentric gas supply

HIGHLY CUSTOMIZABLE

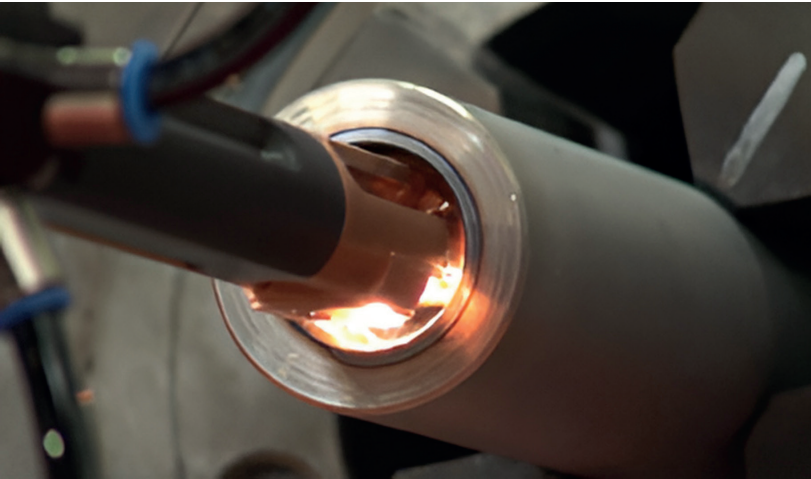
Over the past few years, we have developed a modular system to standardize the design and manufacture of these optics. This enables us to serve a wide range of different applications or customer requests at a viable cost within a short period of time.



THE FEATURES OF OUR TOOLS ARE

- / Cover slide between fiber and collimator to avoid pollution of first lens during changing fiber, temperature monitoring is possible
- / Internal overpressure of the optical chamber against dust and smoke at optical components from environment
- / All optical glass lenses outside the immersion and process area
- / Quick exchange process cover slide, possible with temperature monitoring
- / Temperature monitoring of process head
- / Cooling water management: Separate circuits for collimation, focussing unit and process head, no interaction of preheated cooling water to other components system
- / Especially cooling design for the process mirror: cooling water flows direct around a part of the process mirror for max. cooling efficiency
- / All media – water, several gases and powder are internally guided to protect against process environment
- / Modular design for easy maintenance and exchange of spare parts, wear and spare part management
- / Beam bending cube: 0° or 90°, possible with CCD/ CMOS camera observation incl. cross hair generator, if favoured, it can be equipped additional with e.g. EMAqS camera or Clamir system
- / Easy exchange of wear parts

Cladding in 25mm



Inside clad extruder barrel

