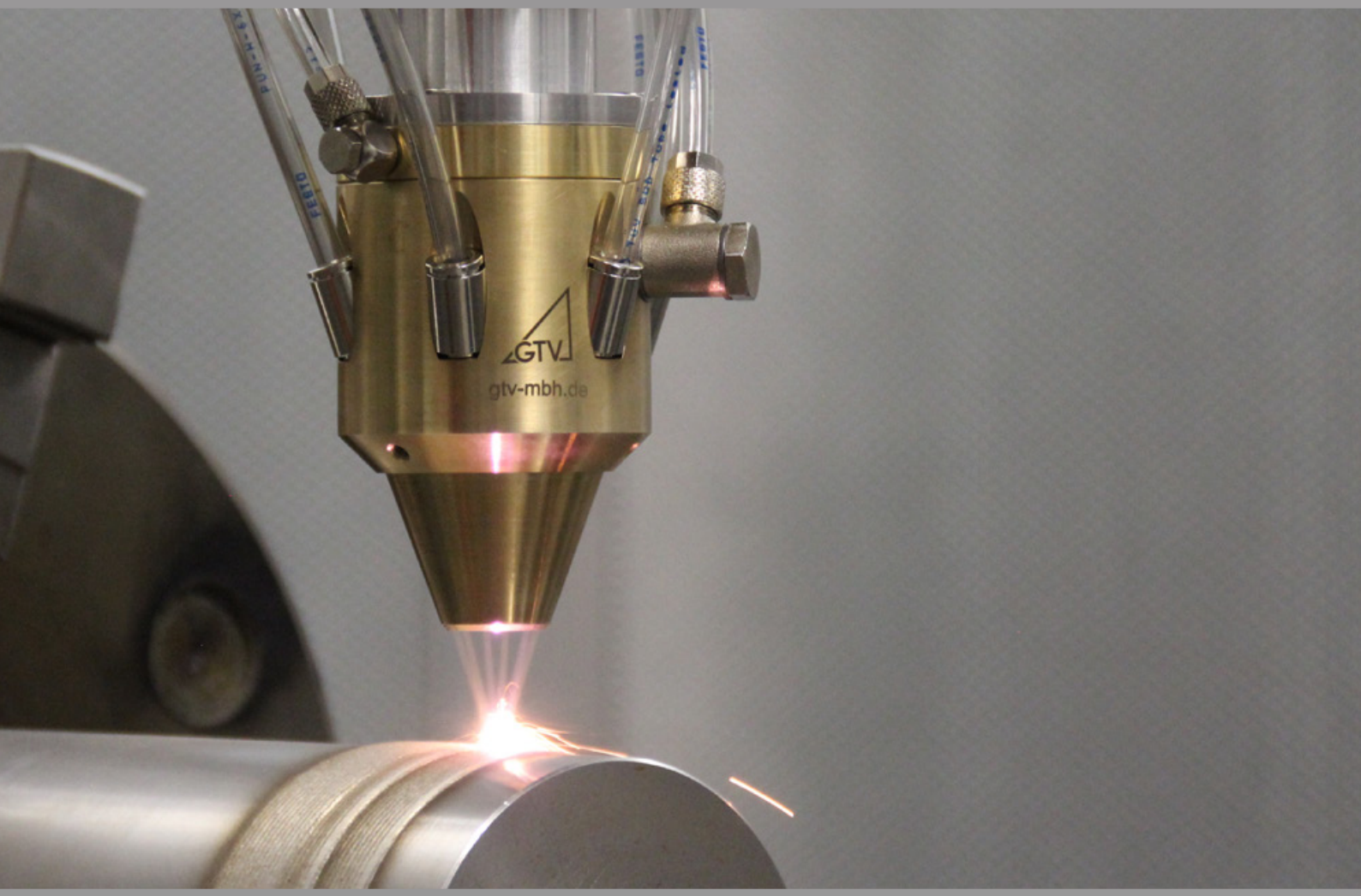
GTV LASER CLADDING

Realized Laser Systems



HS TECHNIK GMBH
SIEGENDORF (AT)

Year: 2012

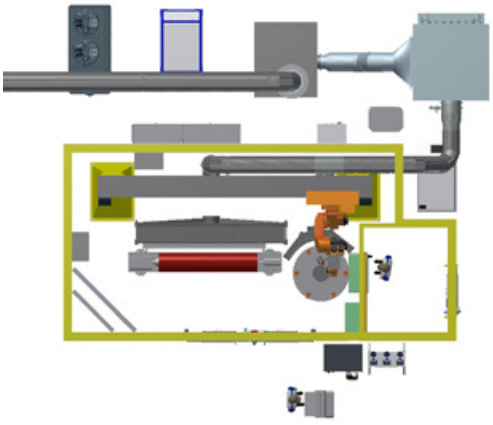
Type: Plasma spray and laser center

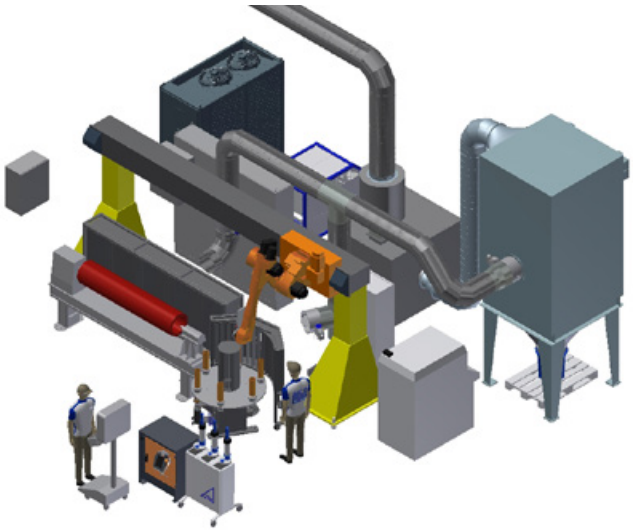
Laser: LDF 5000-100

Laser power: 5.000 W

Description: GTV turnkey combination system for the production of coatings for electrical insulation or conduction, wear and corrosion protection, insulation or heat conduction in laser and plasma processes. Handling and extrtion system for optimum work areas of both processes can be regulated in exchange. Installation was carried out in a combined sound enclosure with laser safety in accordance with DIN EN 60825-4 T2.

illustrations





system layout

FLOWSERVE FLOW CONTROL GMBH
ETTLINGEN (DE)

Year: 2013

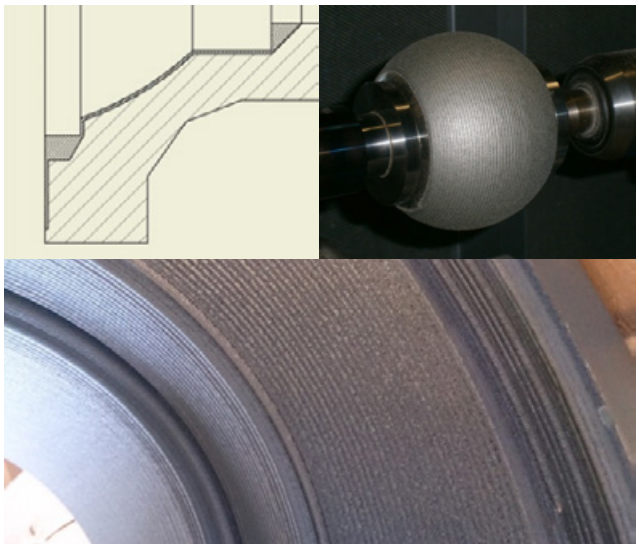
Type: Laser cladding system

Laser: LDF 4000-100

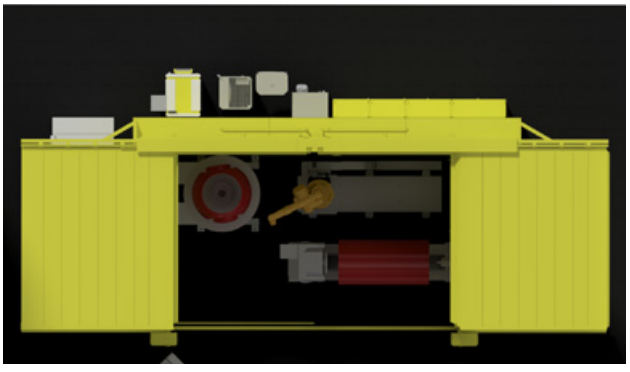
Laser power: 4.000 W

Description: GTV turnkey installation for the fully automatic internal and external coating (using laser-beam switch) of valve balls and their housing. The robot on instruction switches between the respective optics for internal and external cladding. Rotary tilting table for components with a diameter of 1.800 mm and 4.000 kg weight. Laser coating handling (WLB) for components up to 3.000 mm length and 1.000 kg weight. The entire system is prepared for an upgrade for thermal spraying by HVOF K2 operation.

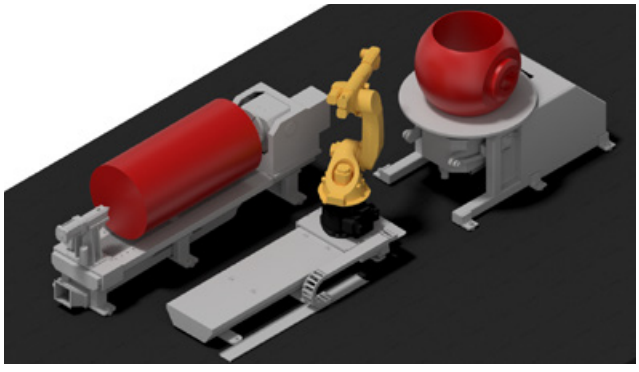
illustration



components



system layout



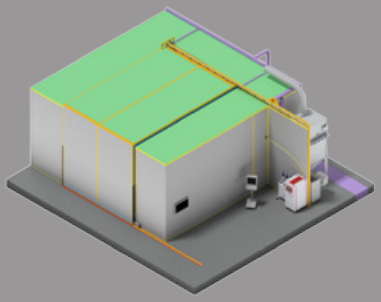
NAMRC UNIVERSITY OF SHEFFIELD
SHEFFIELD (GB)

Year: 2014

Type: Laser cladding system

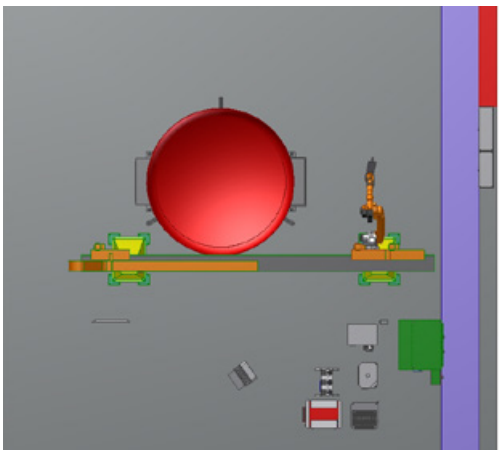
Laser: LDF 15000-100

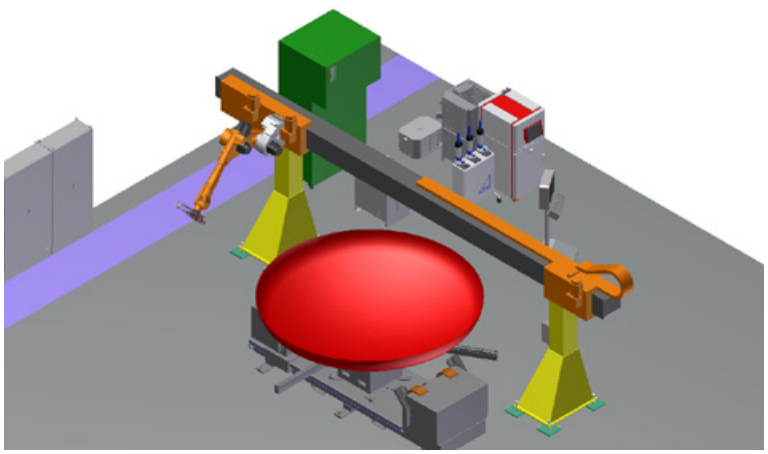
Laser power: 15.000 W



Description: GTV turnkey laser cladding installation for the internal coating of large pipe segments up to 4.000 mm diameter and 6.000 mm length as well as external coating of plates and cylinders. Cabin dimensions 10.000 mm x 10.000 mm x 5.000 mm (width x depth x height)

illustrations





system layout

REPAIR AND MANUFACTURING OF PLASTICIZING SCREWS

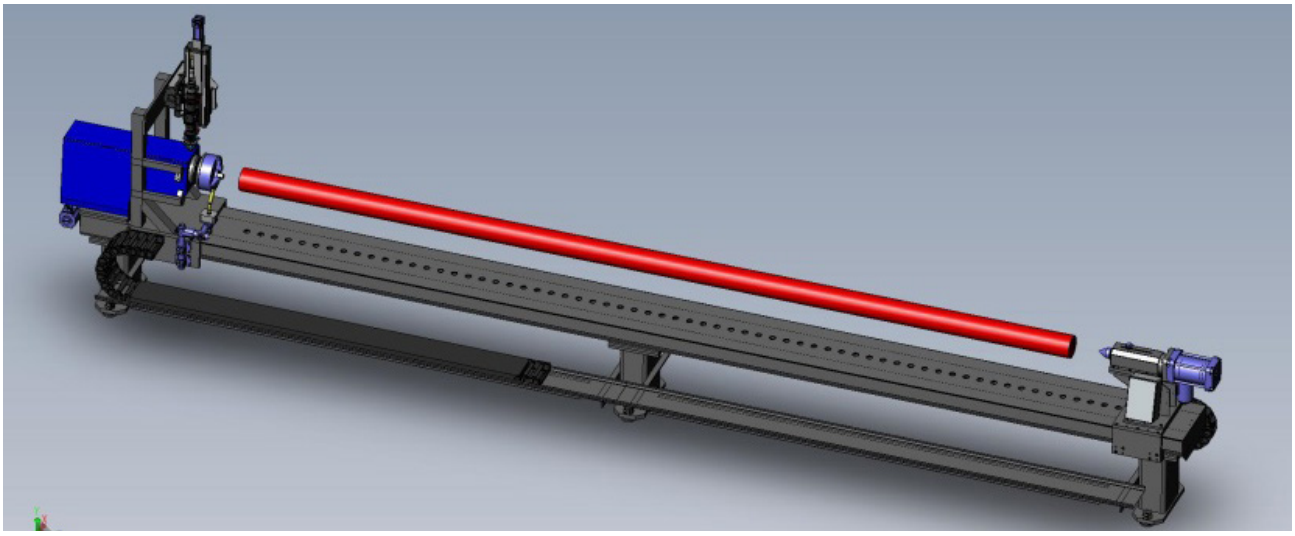
Year: 2013 / 2016

Type: HVOF spray and laser cladding system

Laser: LDF 4000-100

Laser power: 4.000 W

Description: GTV combination system for coating of armoured plasticizing screws for injection molding machines in the laser and HVOF process. Component length between 2.000 mm and 6.000 mm. Handling and extraction system for optimum work areas of both processes can be regulated in exchange. Installation was carried out in an existing sound enclosure, which was upgraded laser safely. Fully automatic operation after inserting the component by constant heat distribution, post-heating unit, seam tracking system and camera-based GTV laser power control.



system layout

components

GTV VERSCHLEISSSCHUTZ GMBH
LUCKENBACH (DE)

Year: 2014

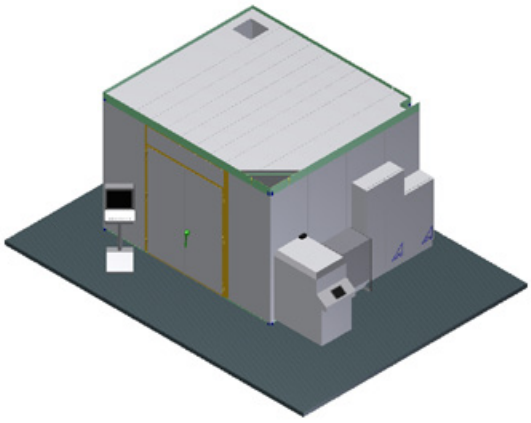
Type: Laser cladding system (R&D)

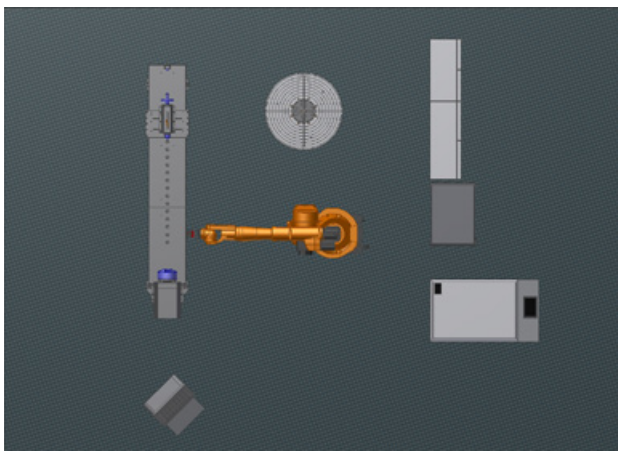
Laser: LDF 6000-100

Laser power: 6.000 W

Description: Own system with turntable and handling, use for research and development, i.a. coating development, coating of test components and more. Research assignment: Introduction of preheated powder to reduce the laser power, obtaining the same layer qualities.

illustrations





system layout

COATING OF EXTRUDER SCREWS

Year: 2015

Type: Laser cladding system

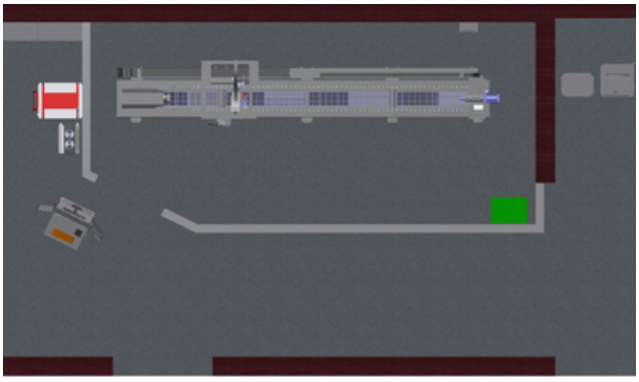
Laser: LDF 4000-100

Laser power: 4.000 W

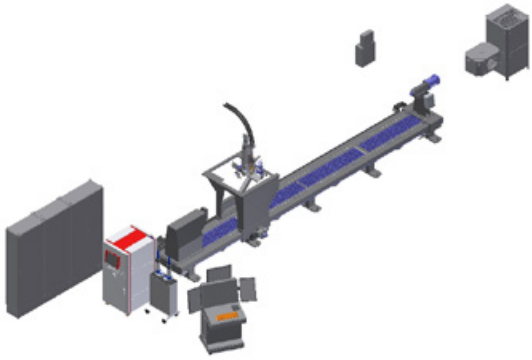
Description: GTV laser cladding system for coating of extruder screws for pipe and profile extrusion. Automatic operation after inserting the component by constant heat distribution, post-heating unit, seam tracking system and camera-based GTV laser power control.

illustration

components



system layout



ON-SITE REPAIR

Year: 2015

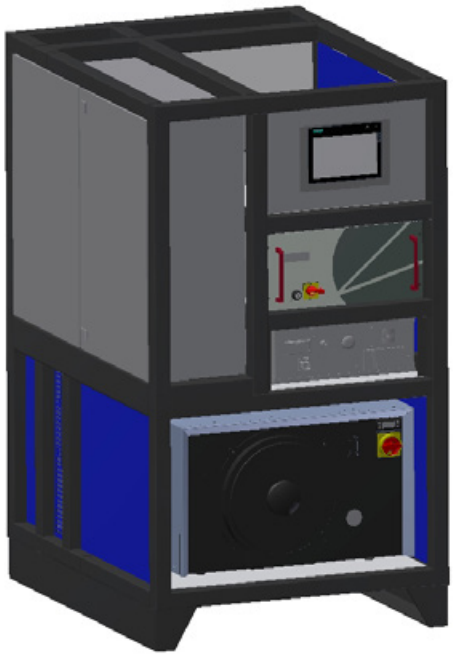
Type: Mobile laser cladding unit

Laser: LDM 4000 -100

Laser power: 4.000 W

Description: GTV laser cladding unit with powder feeder and optics for mobile use (by crane or fork lift truck). Enables repair coatings on site. Handling of optics as well as the temporary safety is implemented differently depending on the ambient conditions by the specialized executive company on site.

illustration



transport framework with system control and cooler for optics

COATING OF ROTORS FOR GAS TURBINES

Year: 2015

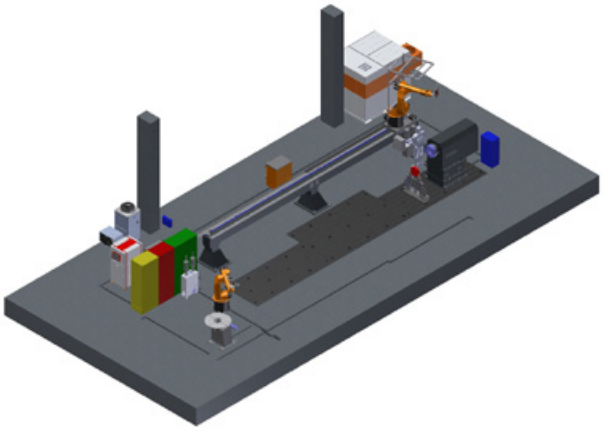
Type: Laser cladding system

Laser: LDF 4000-100

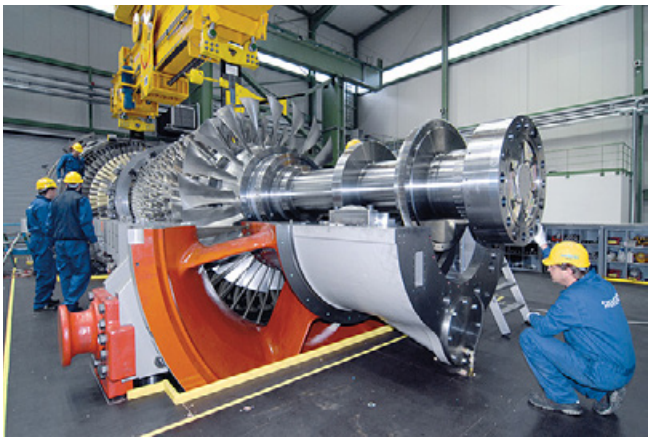
Laser power: 4.000 W

Description: GTV turnkey laser system for coating of gas turbine rotors. Division of the total system in the main cabin for processing parts up to 8 m long, 3 m in diameter and 30 tonnes gross weight. An additional cabin with a separate robot and rotary tilting table can be used for smaller components and internal coating. To ensure the cabin safety a combination of passive and active elements has been chosen.

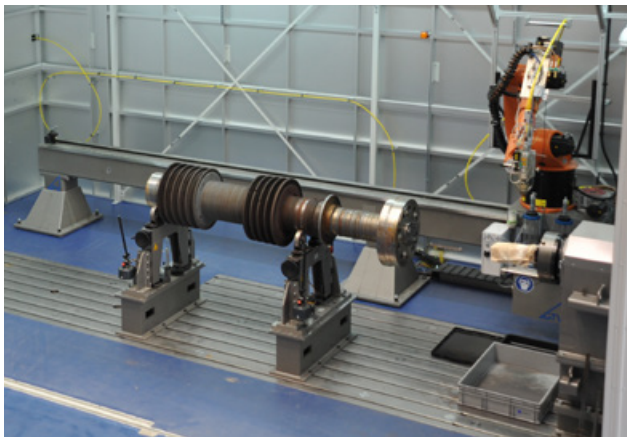
illustrations



system layout



components



COATING OF AGRICULTURAL BLADES

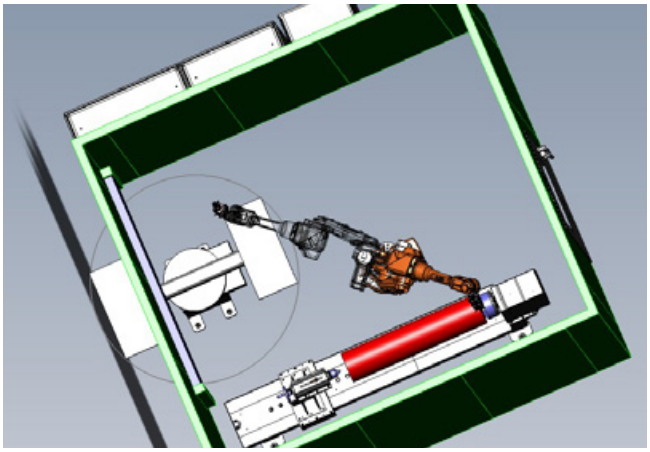
Year: 2016

Type: Laser cladding system

Laser: LDF 8000-100

Laser power: 8.000 W

Description: GTV turnkey laser system for coating of knives for the agricultural industry. By using a 180 ° turn stroke table the laser process can almost continuously process compact products in series. Larger components can then be processed on the GTV laser handling (GTV-WLB).



system layout

illustration

components

GTV SYSTEMS

in cooperation with
Zierhut Messtechnik

LPowC

LASER POWER CONTROL

The GTV LPowC system is designed for laser power control during the laser process. An intelligent camera directly records the laser spot of the laser welding through a coupling optics at the tip of the laser nozzle. The obtained image is evaluated in the camera using the LPC algorithm for image processing. The laser power is then apdapted to the process so that the melt pool characteristics are optimal with regard to the requested parameters.

Four digital outputs of the camera are used for information transfer between the camera and the laser controller. The signals are detected by the laser unit and directly fed into the laser power control.

The system is characterized by high reliability, ease of use and great flexibility both in hardware and in software.

CladdOn

COMPACT LASER CONTROL
WITH POWDER FEED UNIT

The compact GTV laser control with integrated powder feed unit „CladdOn" was developed for the fast and efficient entry into laser cladding. In addition, it is possible to integrate the GTV „CladdOn" unit into existing GTV thermal spraying systems.

In the standard version, the system can be used as a powder feeder and control unit for various laser sources and thus offers a wide range of expansion possibilities.

The process visualization and control is carried out via a Siemens touch screen and a fold-out keyboard integrated in the front panel. However, the actual operation of the system is carried out via solid push-buttons. All relevant process parameters (for example laser power, gas, water and powder flows) can be read or adjusted in the operator menu. Furthermore, a recipe memory and an optional process data acquisition are integrated in the control unit. The compact design on wheels allows a flexible use of the system.

Ever since the company was established in 1982, the name GTV has stood for top quality and a high level of delivery reliability for all types of thermal spray products.

GTV provides its customers with many years of experience in all aspects of the high-technology field of thermal spray technology, enabling them to make use of the effective and efficient GTV system solutions in order to gain a substantial competitive advantage in the market.

GTV GmbH
Gewerbegebiet „Vor der Neuwiese", D-57629 Luckenbach, Germany
Phone: +49 (0)2662 95 76-0, Fax: +49 (0)2662 95 76-30
E-Mail: office@gtv-mbh.de, Internet: www.gtv-mbh.de