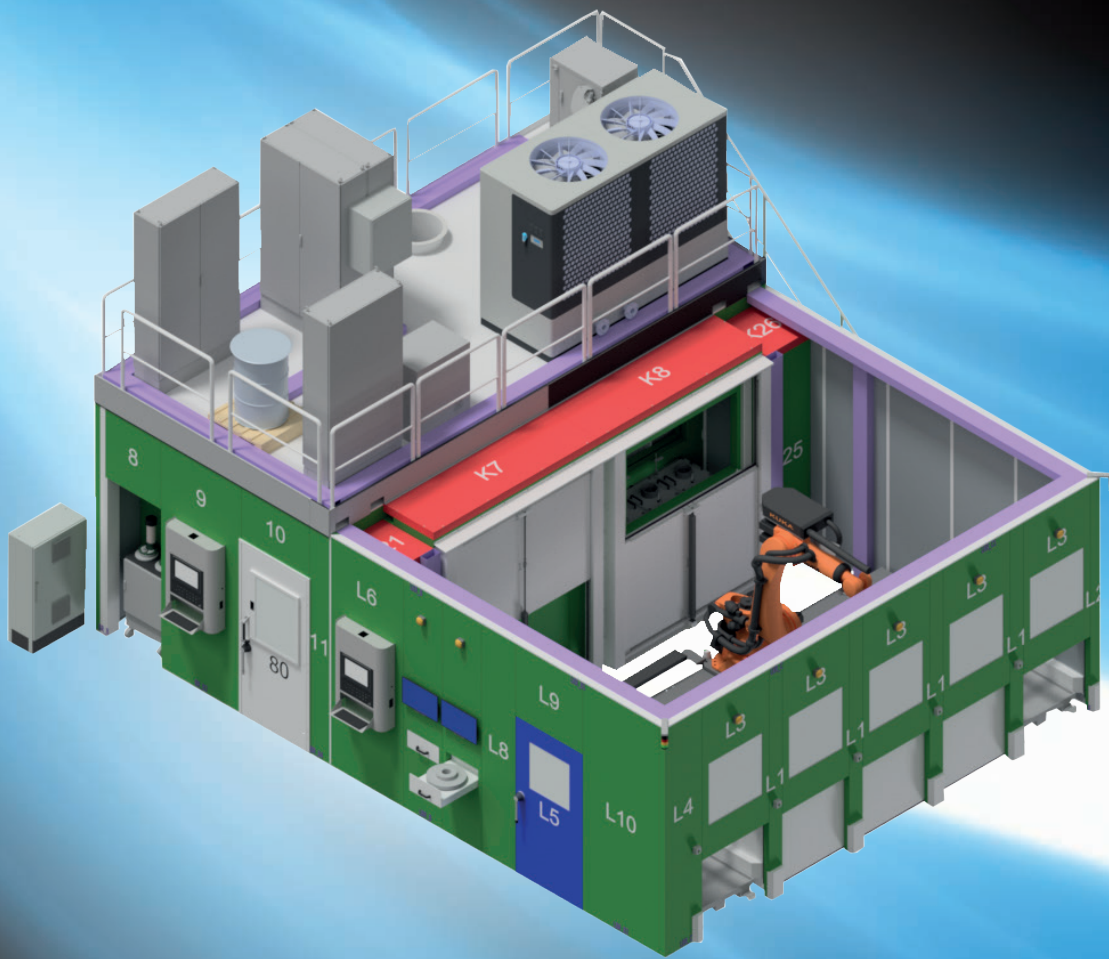


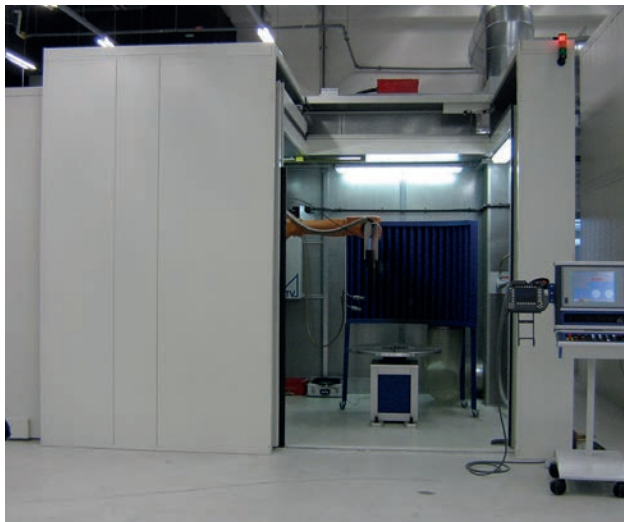
THERMAL SPRAYING

GTV Turn Key System References

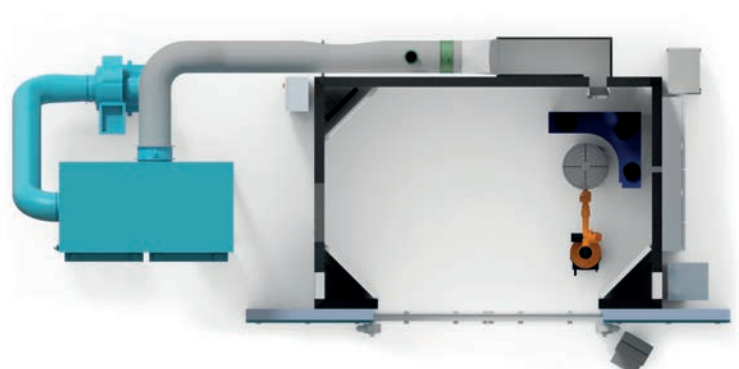
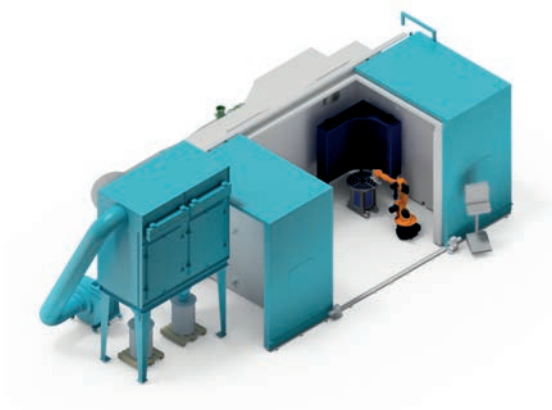


Lufthansa Technik AG, Hamburg (GER)

Year:	2007
Type:	Turn Key Coating Center (3 systems in total)
Process:	Plasma, HVOF
Torch:	F4, Diamond Jet
Description:	GTV dual coating center for repair coating of engine parts using HVOF and plasma process. Component recognition is realized by a scanning system and the operator receives automatic suggestions for selecting and positioning the optimal component fixture.



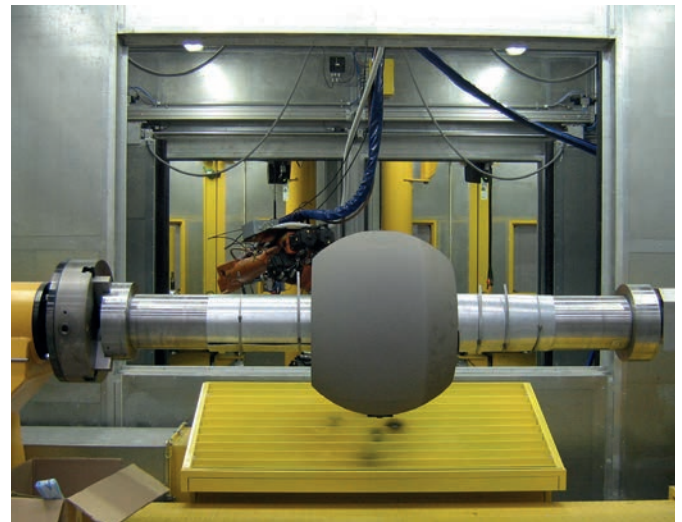
illustration



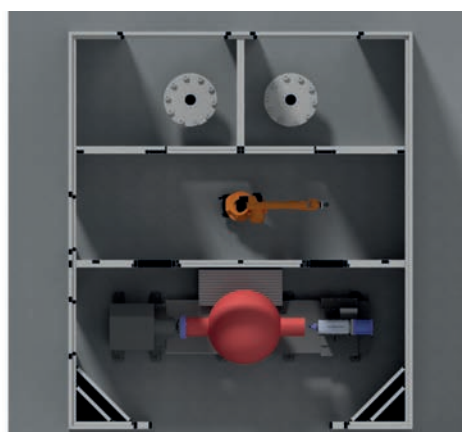
system layout

Flowserve Flow Control GmbH, Ettlingen (GER)

Year:	2008
Type:	Turn Key Coating Center
Process:	Plasma, HVOF, Flame Spraying
Torch:	F6, K2, Top Gun, Diamond Jet, 6PII
Description:	GTV coating center for coating of ball valves using plasma, HVOF and powder flame spraying process. The coating center consists of 3 pcs. work spaces and a robot cell, which allows continuous work in one work space each. Component diameters of 150 mm - 1,200 mm can be processed by the handling system.



illustration



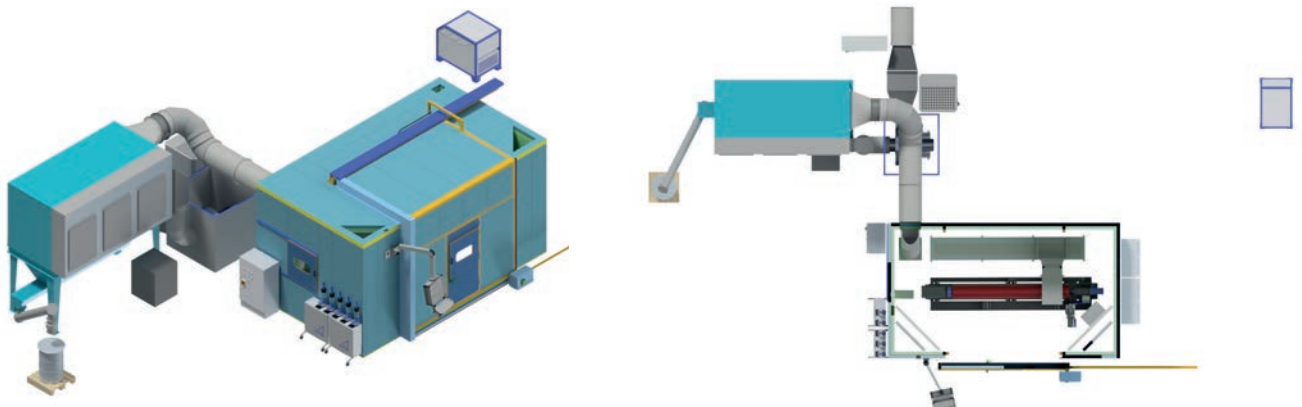
system layout

Kurt Zecher GmbH, Paderborn (GER)

Year:	2010
Type:	Turn Key Coating Center
Process:	Plasma
Torch:	F6
Description:	GTV coating center for coating of anilox rolls using plasma process. In order to change between bond coat and ceramic layer, an F6 torch with injector changer is used. This enables a semi-automatic switching between the powder and coating type.



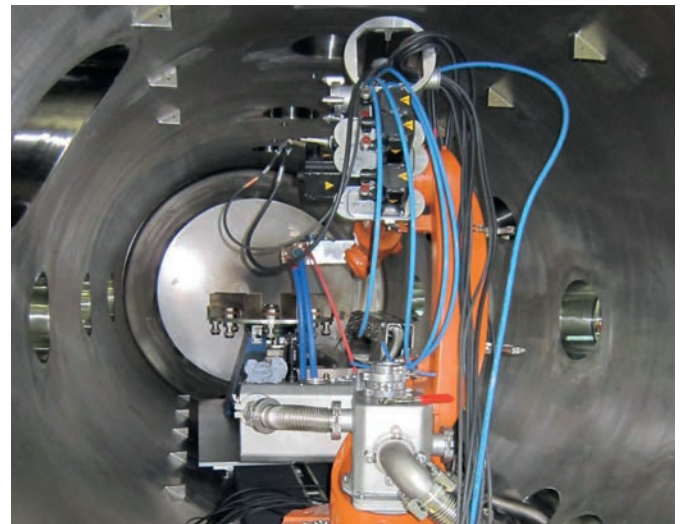
illustration



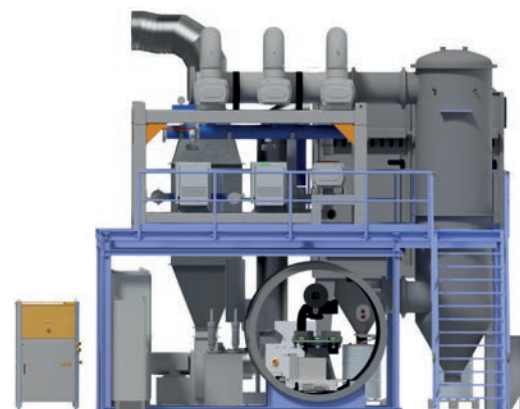
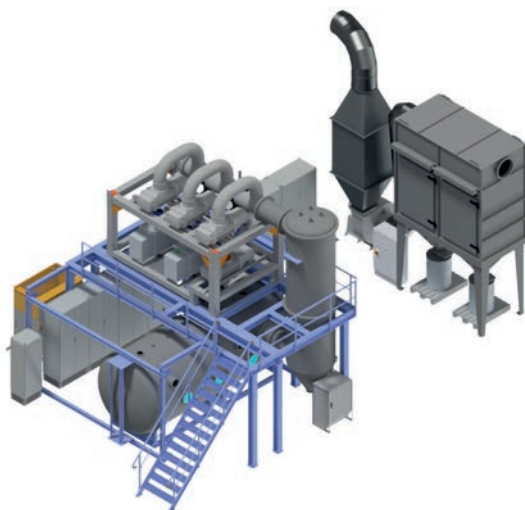
system layout

Technical University of Berlin, Berlin (GER)

Year:	2010
Type:	Turn Key Coating Center
Process:	Vacuum Plasma „Thin Film“
Torch:	F6 VPS / EPI
Description:	GTV coating center for coating of various components for research purposes using vacuum plasma process. A modified KUKA robot with multi-station satellite table is mounted in the vacuum tank. The minimum operating pressure is 1.5 mbar.



illustration



system layout

Georgsmarienhütte GmbH, Georgsmarienhütte (GER)

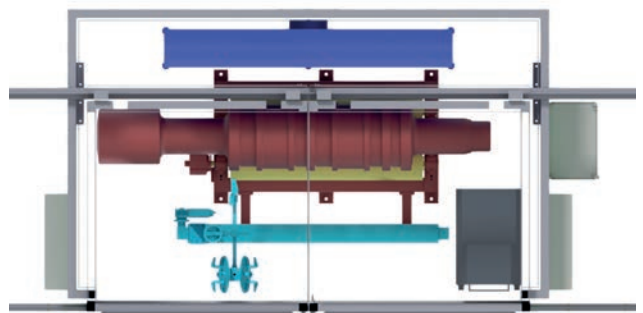
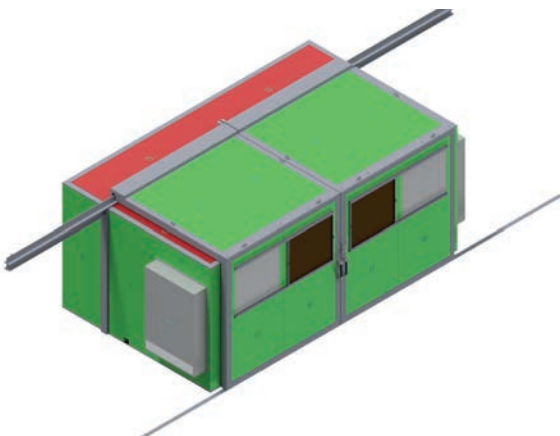
Year:	2011
Type:	Coating System
Process:	Arc Spraying
Torch:	Shark 1000
Description:	GTV coating system for coating of support rolls for steel rolling mills using arc spraying process. A special feature is the in-door installation of the filter system, which is designed according to ATEX.



illustration



components



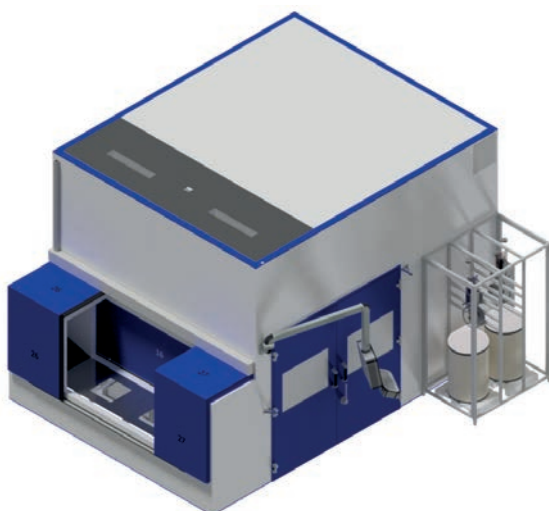
system layout

Autocraft Drivetrain Solutions Ltd., Grantham (GB)

Year:	2012
Type:	Turn Key Coating Center
Process:	Rotating Single Wire Plasma (RSW)
Torch:	RSW
Description:	GTV coating center for internal coating of engine blocks using RSW technology. The coating is used to repair grey cast iron blocks using a primer coat.



illustration



system layout



n.n.

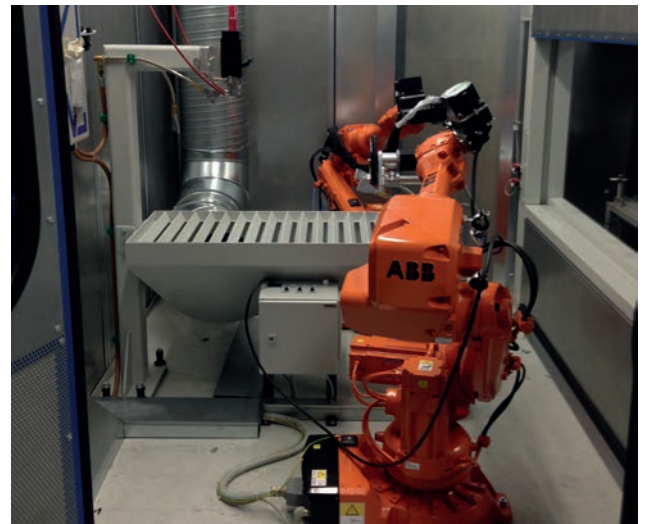
Year: 2013

Type: Turn Key Coating Center

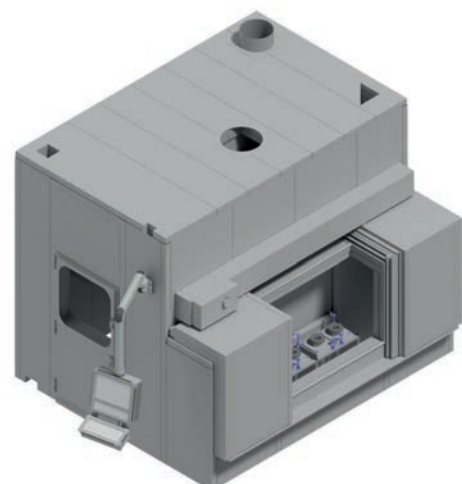
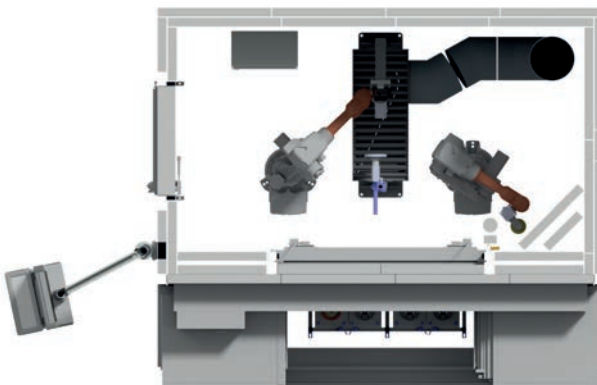
Process: Plasma

Torch: F6

Description: GTV coating center for insulation coating of rings using plasma process. The coating cell is alternately loaded and unloaded with components by two robots through a loading port. The automatic component holder serves as a rotation unit and masking during the coating process under a permanently operating spray torch.



illustration



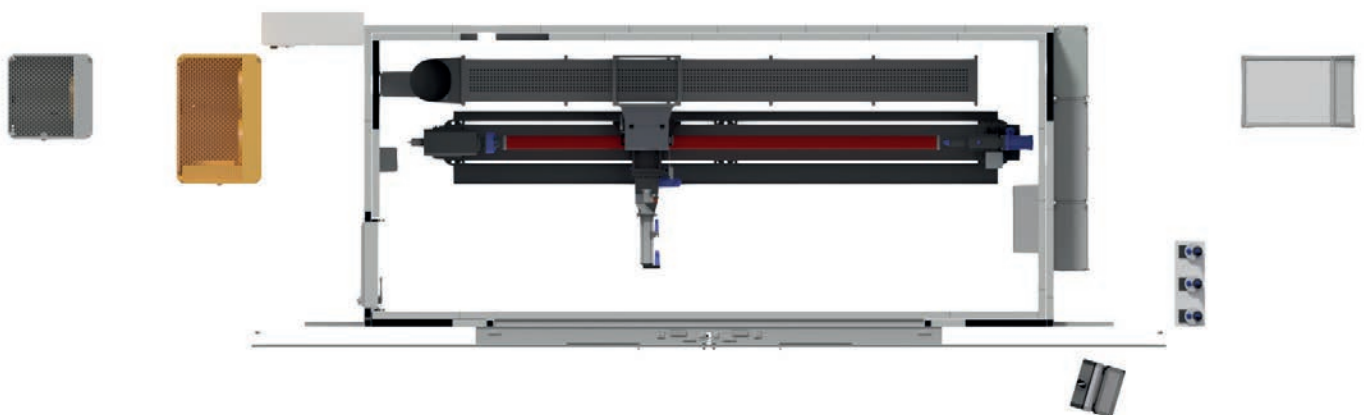
system layout

Heraeus Materials (Materion), Shanghai (CN), Hanau (GER)

Year:	2010 to 2015
Type:	Turn Key Coating Center (5 systems in total)
Process:	Multi-anode Plasma
Torch:	DELTA
Description:	GTV coating center for coating of sputter targets using multi-anode plasma process. A special feature is the coating that is several centimeters thick, realised using special internal water cooling of the component carrier.



illustration



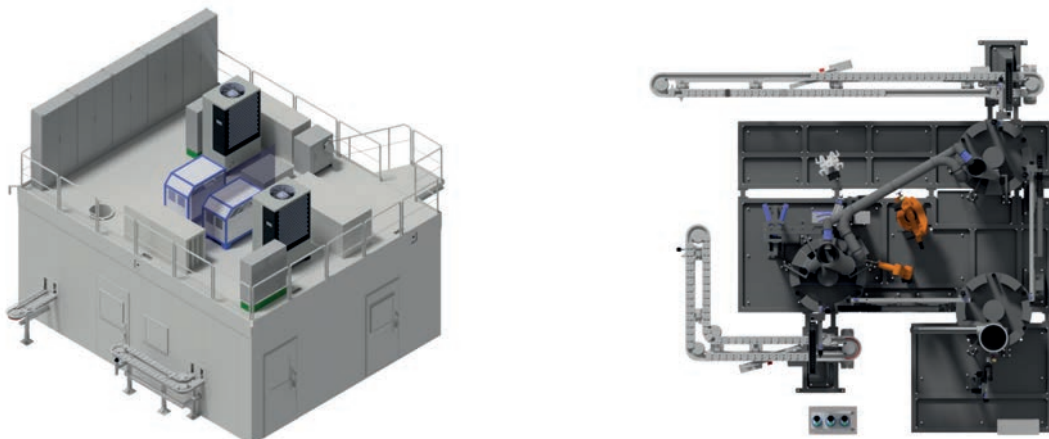
system layout

n.n.

Year:	2015
Type:	Turn Key Coating Center
Process:	Multi-anode Plasma, Arc Spraying
Torch:	2 x DELTA, SHARK 1000
Description:	GTV coating center for coating of stainless steel tubes using multi-anode plasma and arc process. The components are automatically fed into the system by a conveyor belt. The coating process is carried out automatically in 2 different coating rooms. Masking of components and cleaning of masks is done fully automatic. The transport within the coating center is carried out by 2 pcs. pick and placer. The coated components are transported out of the center again by a conveyor belt.



illustration



system layout

Robert Bosch LLC, Anderson (USA), Bamberg (GER)

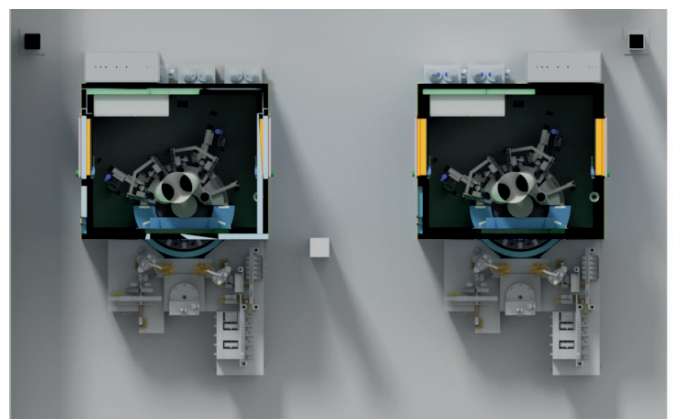
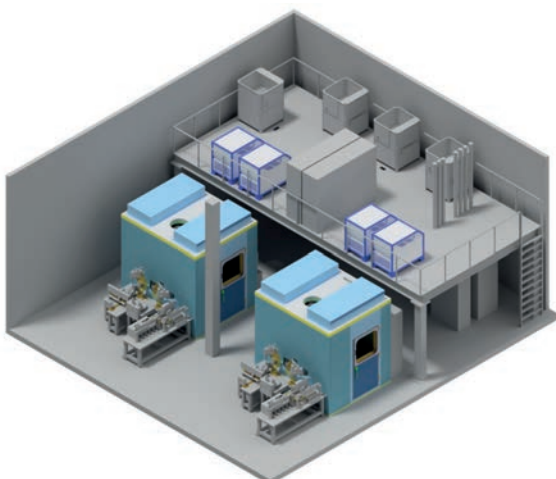
Year:	2013 to 2016
Type:	Mass Production Turn Key Coating Center (12 systems in total)
Process:	Plasma, Suspension
Torch:	F6 TWIN
Description:	GTV mass production coating center for coating of SE sensors using plasma and plasma suspension process. The components are fed into the process using a GTV multi-station indexing table. Loading and unloading of the indexing table is realised with a special loading system. Specially modified powder canisters allow a continuous filling of powder during the spray process.



illustration



component



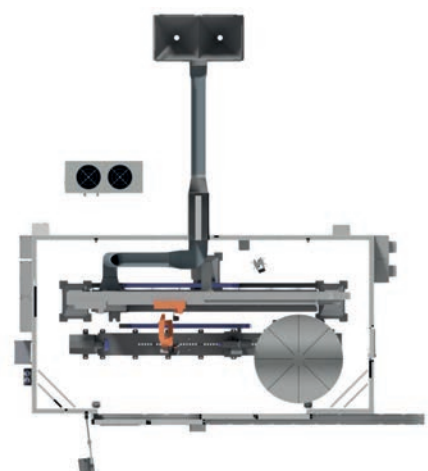
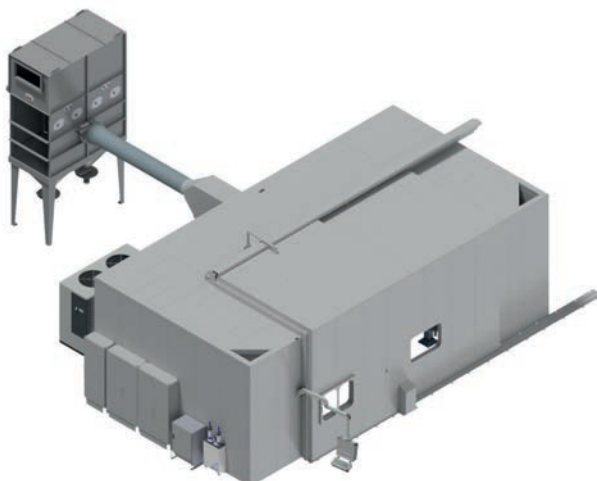
system layout

SMS Group, Bhubaneswar (IN), Mönchengladbach (GER), Belo Horizonte (BRA), Shanghai (CN), Tscheljabinsk (RU)

Year:	2012 to 2016
Type:	Turn Key Coating Center (6 systems in total)
Process:	HVOF, Arc Spraying
Torch:	JP5000, LDU
Description:	GTV coating center for coating of large components for steel production using HVOF and arc process. The robot mounted on a JET axis enables linear high-speed coating with a traverse speed of up to 3.2 m/s.



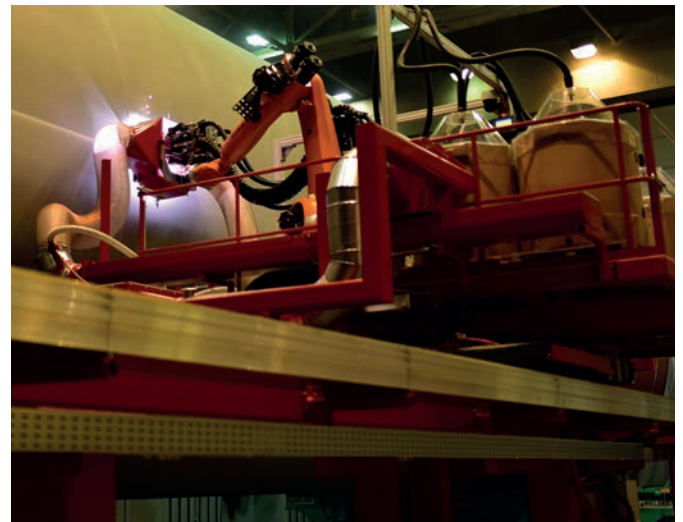
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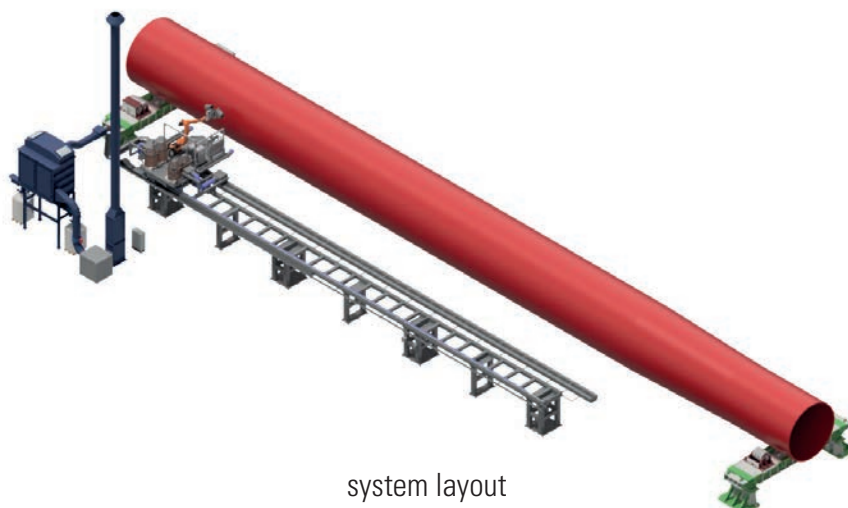
system layout

Krebs Korrosionsschutz GmbH, Rostock (GER)

Year:	2016
Type:	Coating System
Process:	Arc Spraying
Torch:	2 x SHARK 1000A
Description:	2 pcs. twin wire arc coating systems with automatic suction unit for coating of monopiles for off-shore wind turbines. The components are up to 60 meters in length and up to 10 meters in diameter and the coating length is about 30 meters. The entire spraying equipment is travelling along the component and can be moved after spraying.



illustration



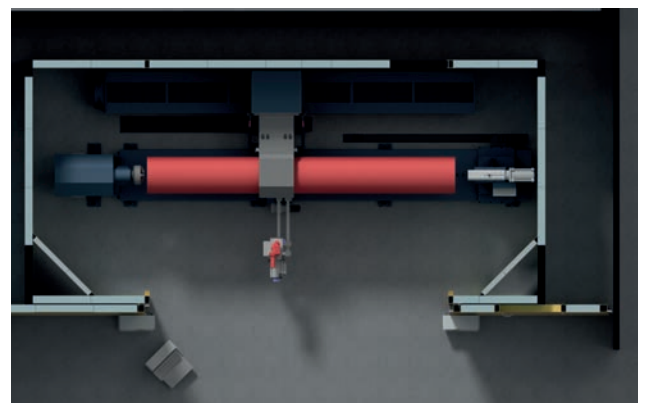
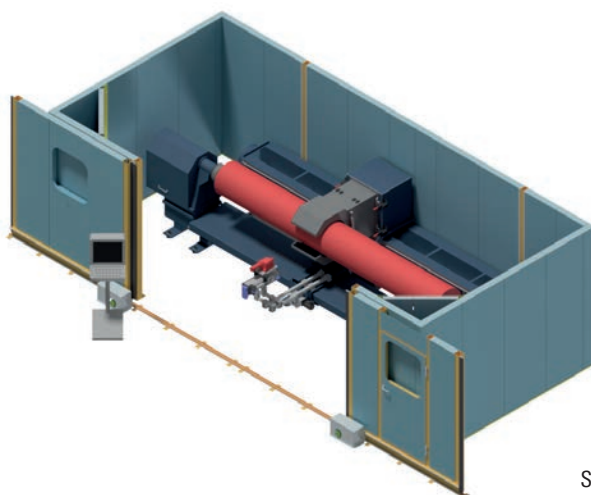
system layout

Schlie Hydraulik-Service GmbH, Hamburg (GER)

Year:	2016
Type:	Turn Key Coating Center
Process:	Wire Flame Spraying
Torch:	107 K
Description:	GTV coating center for repair coating of components using wire flame spraying process. The handling system can pick up various component dimensions with rotational symmetry. The system is loaded and unloaded through the 90° angle sliding gate system using an on-site hall crane.



illustration



system layout

n.n.

Year: 2014 to 2017

Type: Mass production Turn Key Coating Center

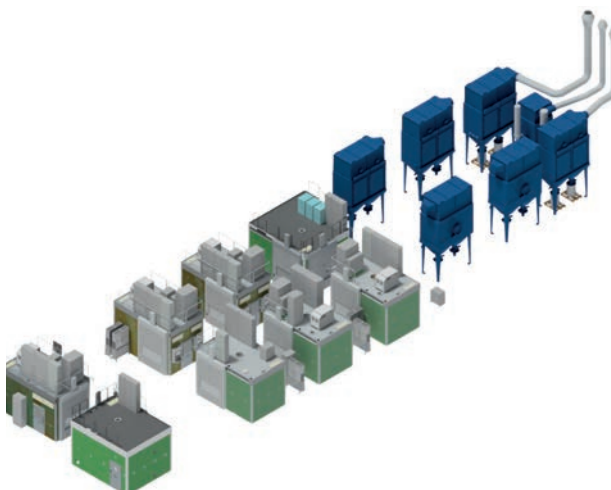
Process: Plasma, Arc Spraying

Torch: DELTA RE, Shark 1000, PENTA

Description: GTV mass production coating system with a total of 8 systems for coating of components for electric vehicles. The coating is carried out in various steps using plasma and arc process, including 2 laser systems for pre- and post-processing of the components. The systems are connected by an automated transport system. An MES system is used for process data acquisition and quality control.



illustration

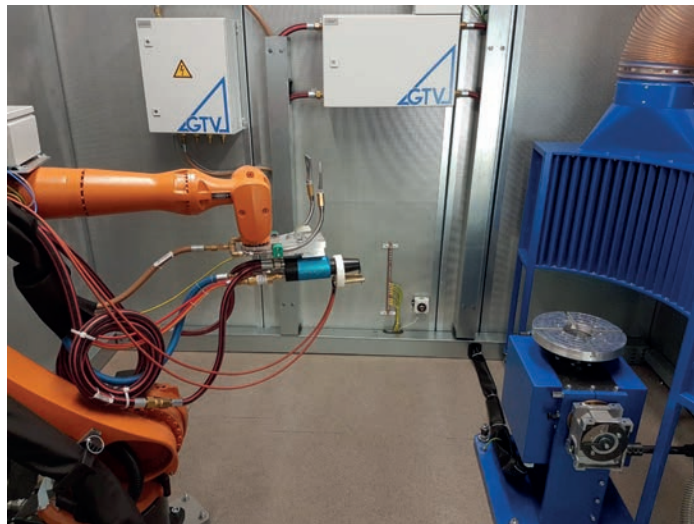


system layout

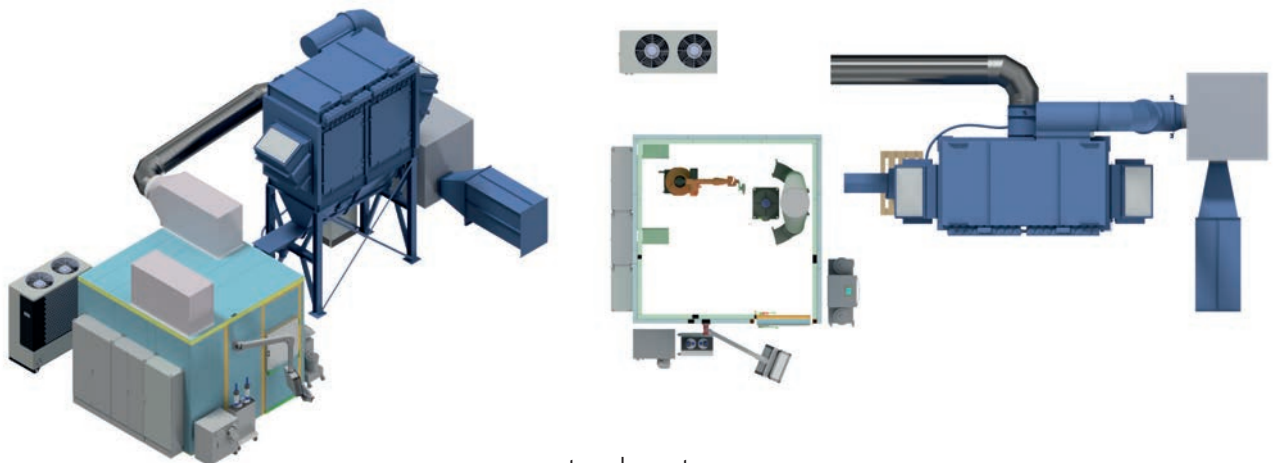


Robert Bosch GmbH, Stuttgart (GER)

Year:	2017
Type:	Turn Key Coating Center
Process:	HVOF Suspension
Torch:	Top Gun SS (suspension setup)
Description:	Pilot system for suspension spraying with KUKA robot, turn-tilt table and extraction system. The suspension is fed to the process using the GTV suspension feeder. The coating system can process either aqueous or solvent-based suspensions.



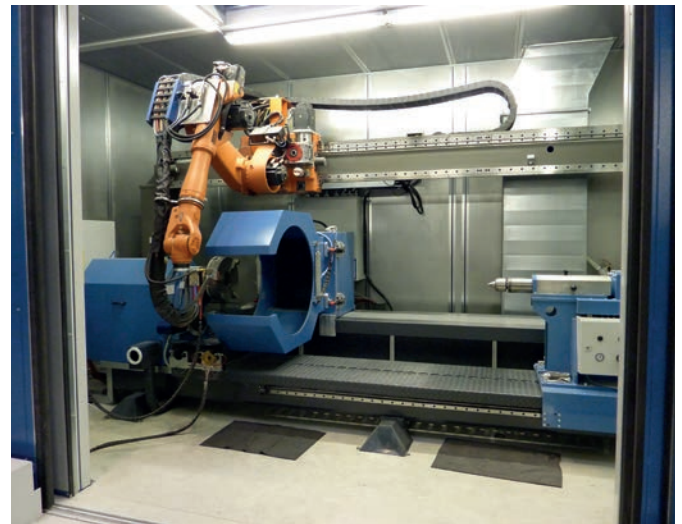
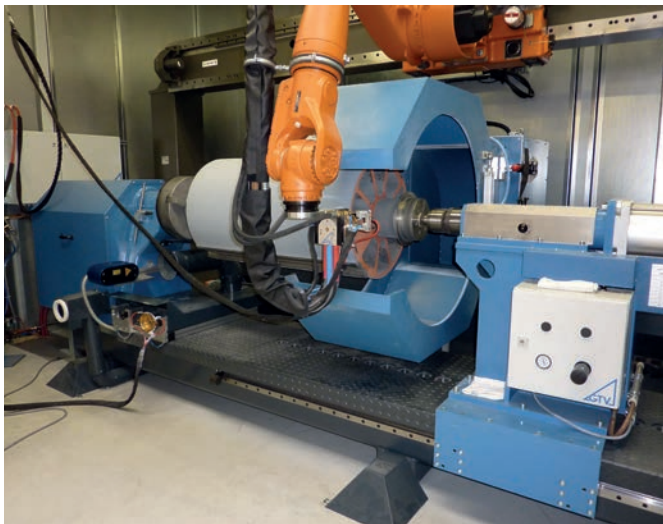
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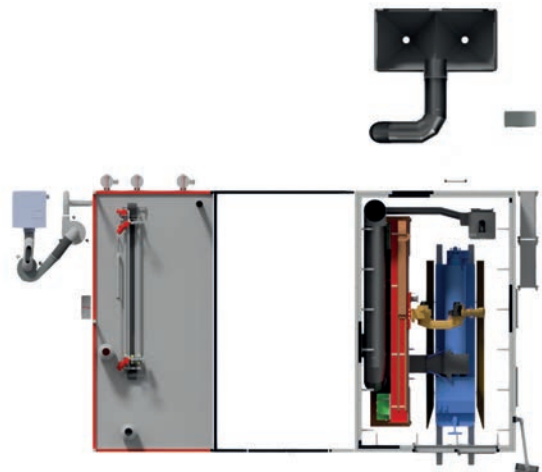
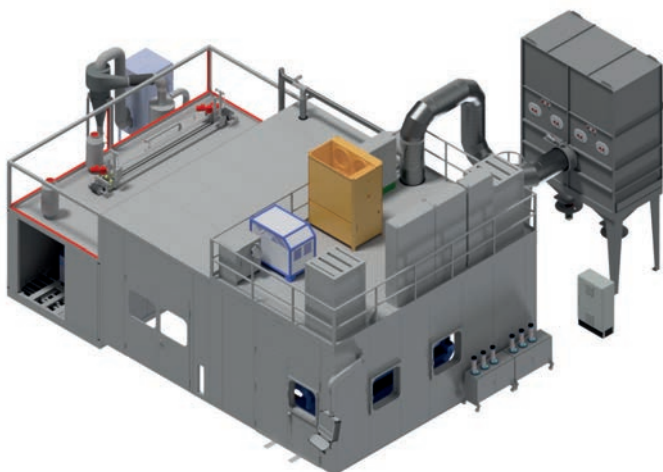
system layout

Koenig Bauer KBA-Industrial Solutions, Radebeul (GER)

Year:	2014 and 2016
Type:	Turn Key Coating Center (2 systems in total)
Process:	Multi-anode Plasma, Grit Blasting
Torch:	DELTA
Description:	GTV coating center for coating of printing rolls using multi-anode plasma process. The GTV Delta injector changer ensures automatically switching between bond and top coat. A GTV NIR (Near InfraRed) sensor measures particle temperature and velocity online.



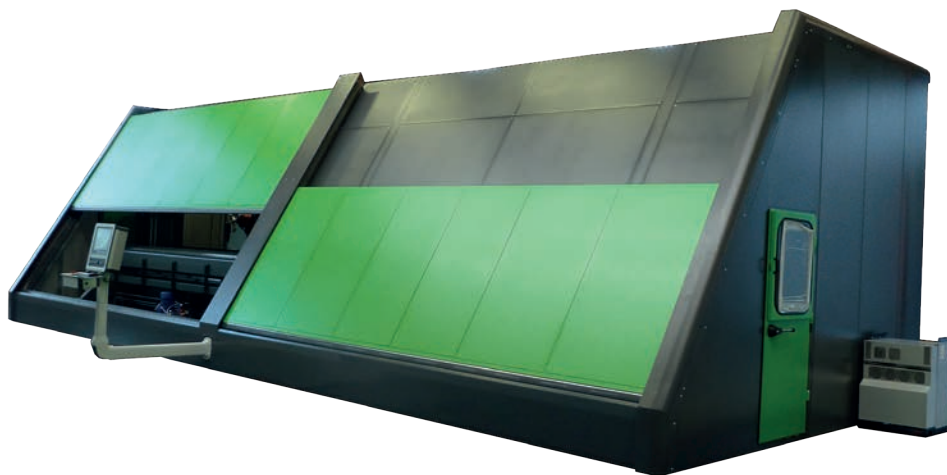
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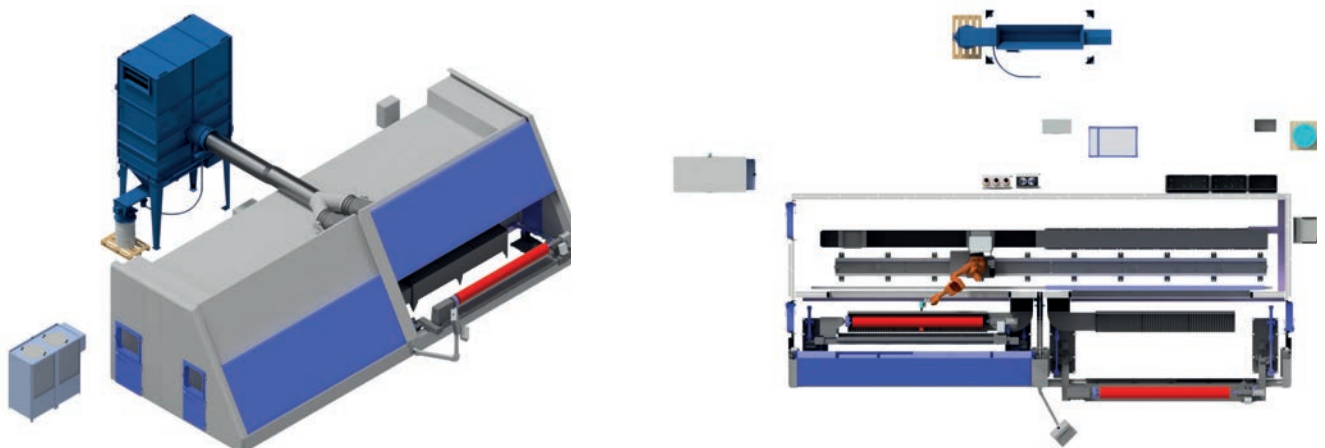
system layout

TeroLabSurface Anilox GmbH, Salzkotten (GER)

Year:	2016
Type:	Turn Key Coating Center
Process:	Plasma, HVOF
Torch:	F6, K2
Description:	GTV coating center for coating of anilox rolls using plasma and HVOF process. Due to the inclined arrangement of the lift gates, the handling systems can be folded out alternately and the components can be changed ergonomically using a hall crane. A robot transvers system is mounted behind the two roller handling systems. Thus, the coating process can be carried out in both spray rooms.



illustration



system layout

Heidelberg Manufacturing GmbH, Amstetten (GER)

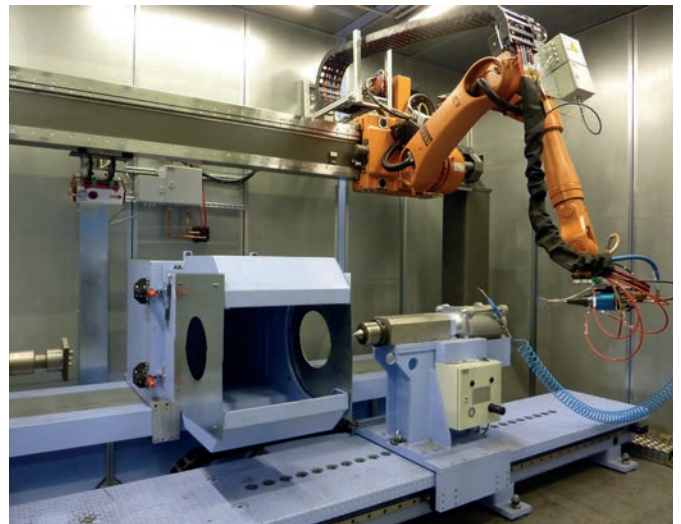
Year: 2007 and 2016

Type: Turn Key Coating Center (2 systems in total)

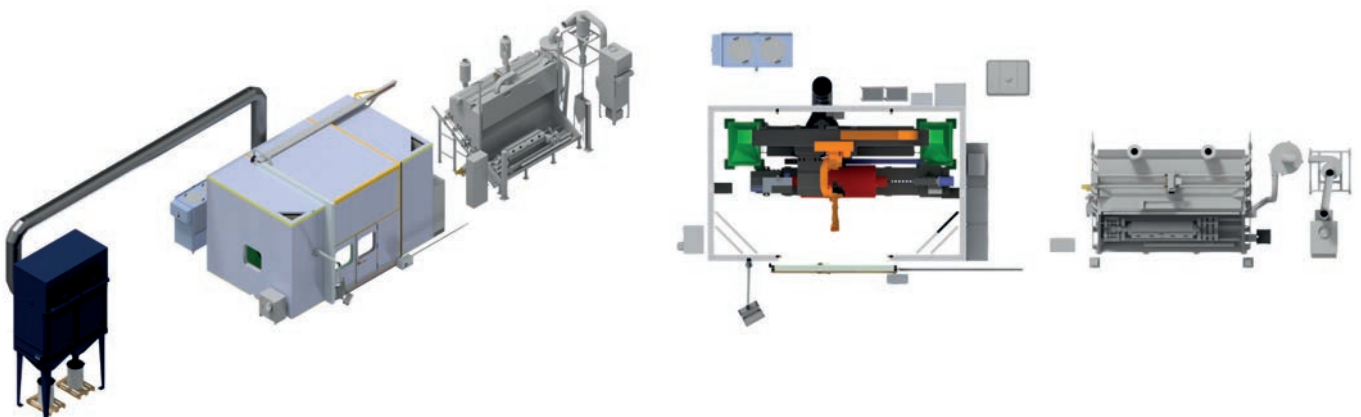
Process: HVOF, Grit Blasting

Torch: K2

Description: GTV coating center for coating of printing rolls using HVOF process. The JET axis for the robot is equipped with an edge detection system and enables linear high-speed coating at a traverse speed of up to 3.2 m/s. The system automatically recognizes the component sections to be coated linearly.



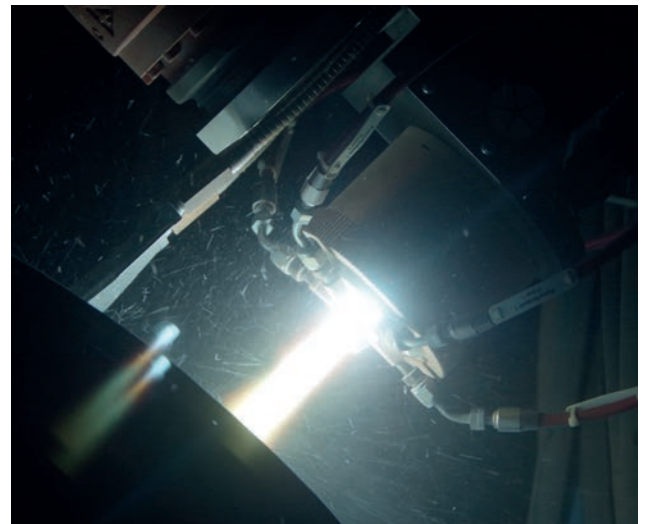
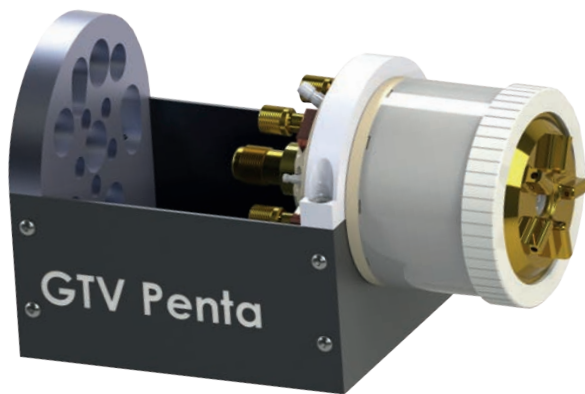
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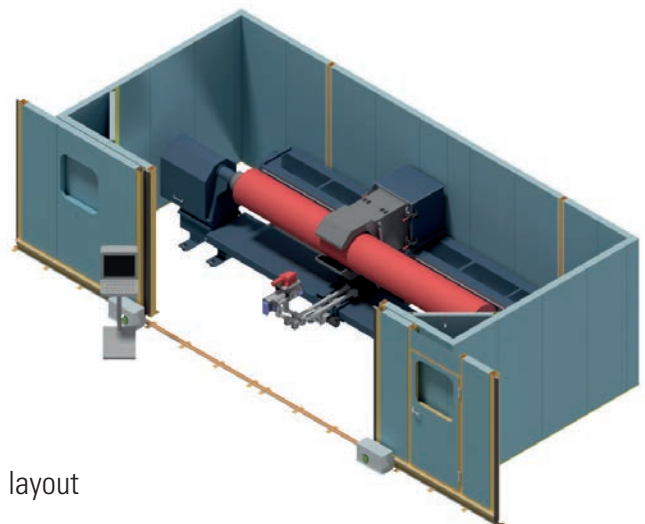
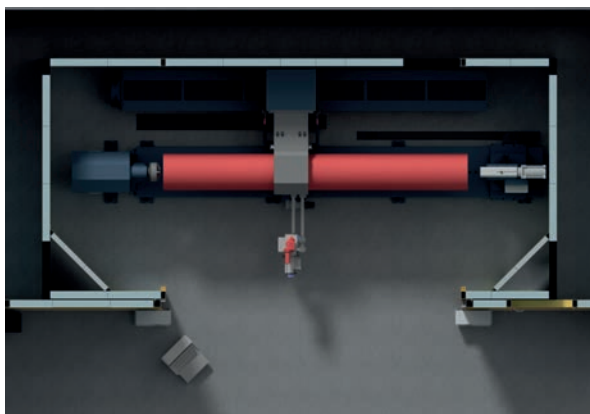
system layout

GfE Fremat GmbH, Brand-Erbisdorf (GER)

Year:	2016
Type:	Turn Key Coating Center
Process:	Multi-anode Plasma
Torch:	PENTA
Description:	GTV Penta system for coating of sputter targets using multi-anode plasma process. The 5-fold radial powder injection enables high powder feed rates (up to 500 g/min) with simultaneously high deposition rates and thus significantly reduced process times. The Penta torch is especially developed for coating of large components and replaces several standard plasma torches.



torch



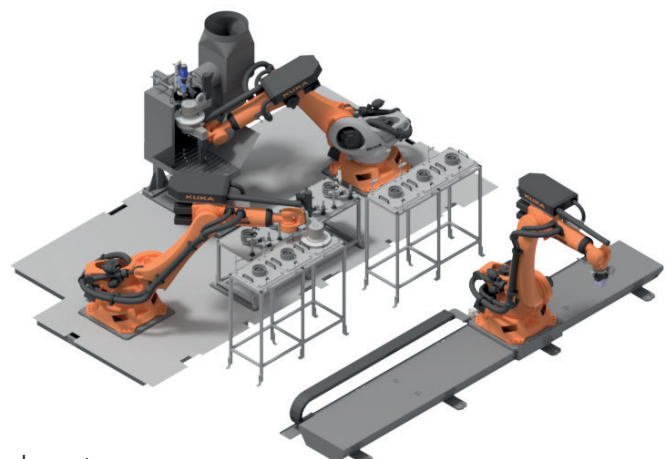
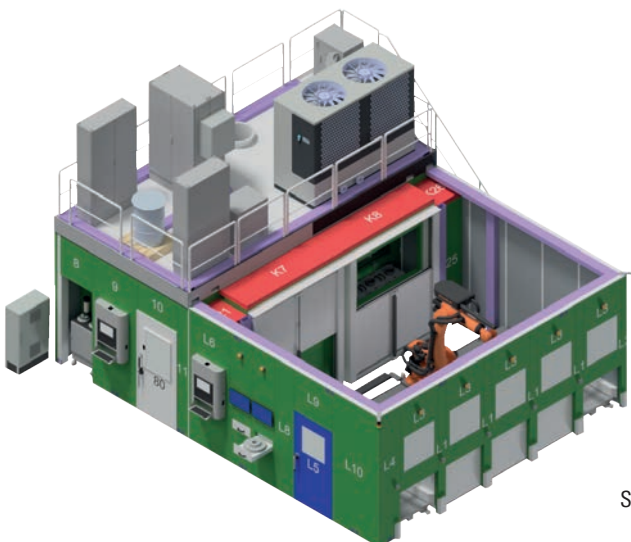
system layout

Buderus Guss GmbH, Biedenkopf-Ludwigshütte (GER)

Year:	2018
Type:	Mass production Turn Key Coating Center
Process:	HVOF
Torch:	K2, Diamond Jet 2700
Description:	GTV mass production coating center for coating of brake discs using HVOF process. The system is loaded with pallets by the operator through the loading station. The handling, coating and output of the brake discs are carried out automatically by 3 robots. An MES system is used for process data acquisition as well as for QM tasks.



illustration



system layout

Aerotech Peissenberg (GER) and AT Engine Mexico, Hermosillo (MEX)

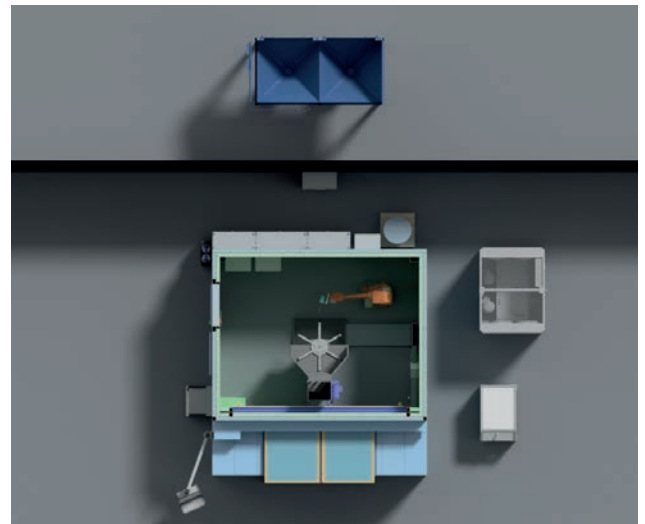
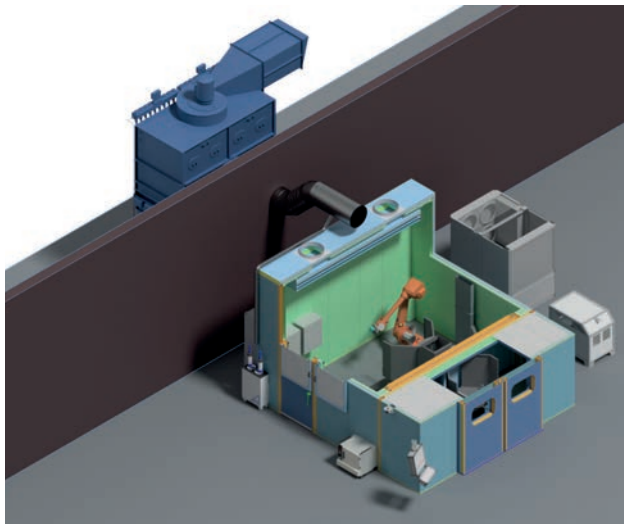
Year: 2013 and 2018

Type: Turn Key Coating Center (2 systems in total)

Process: Plasma, HVOF

Torch: F4, K2

Description: GTV dual coating center for coating of aerospace components using plasma and HVOF process. The components are safely fed to the process using a two station turn table to enable almost continuous coating.



system layout

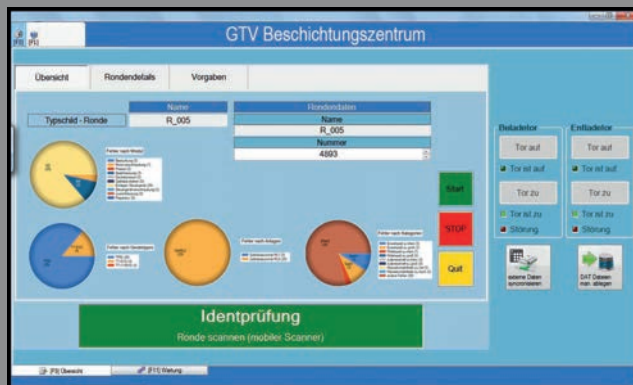


Turn-Key Center and Stand-Alone Systems



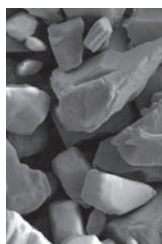
Accessories/Periphery:

Torches, Robots, Roller-Handling-Systems, Suctions, Acoustical Chambers, Power Supplies, Electrical and Gas Control Units, Robot Positioning Units, Powder Feeder, Filter Systems etc.



MES and automation concepts:

Fully automatic production process control as well as complete process data acquisition and archiving through development and integration of customer-specific MES concepts (Manufacturing Execution System)



Spare and Wear Parts:

for TS-Torches, Powder Feeder and TS-Accessories

Materials:

Powder, Wire, Sealer, Masking Tapes, Suspension

Service:

Repairing, Maintenance, Calibration, Training, Coating Development





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.

Through many years of experience with all thermal spray processes, as well as their automation and process control, GTV can provide tailor-made system solutions that give the customer a measurable competitive advantage.



GTV Verschleißschutz 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