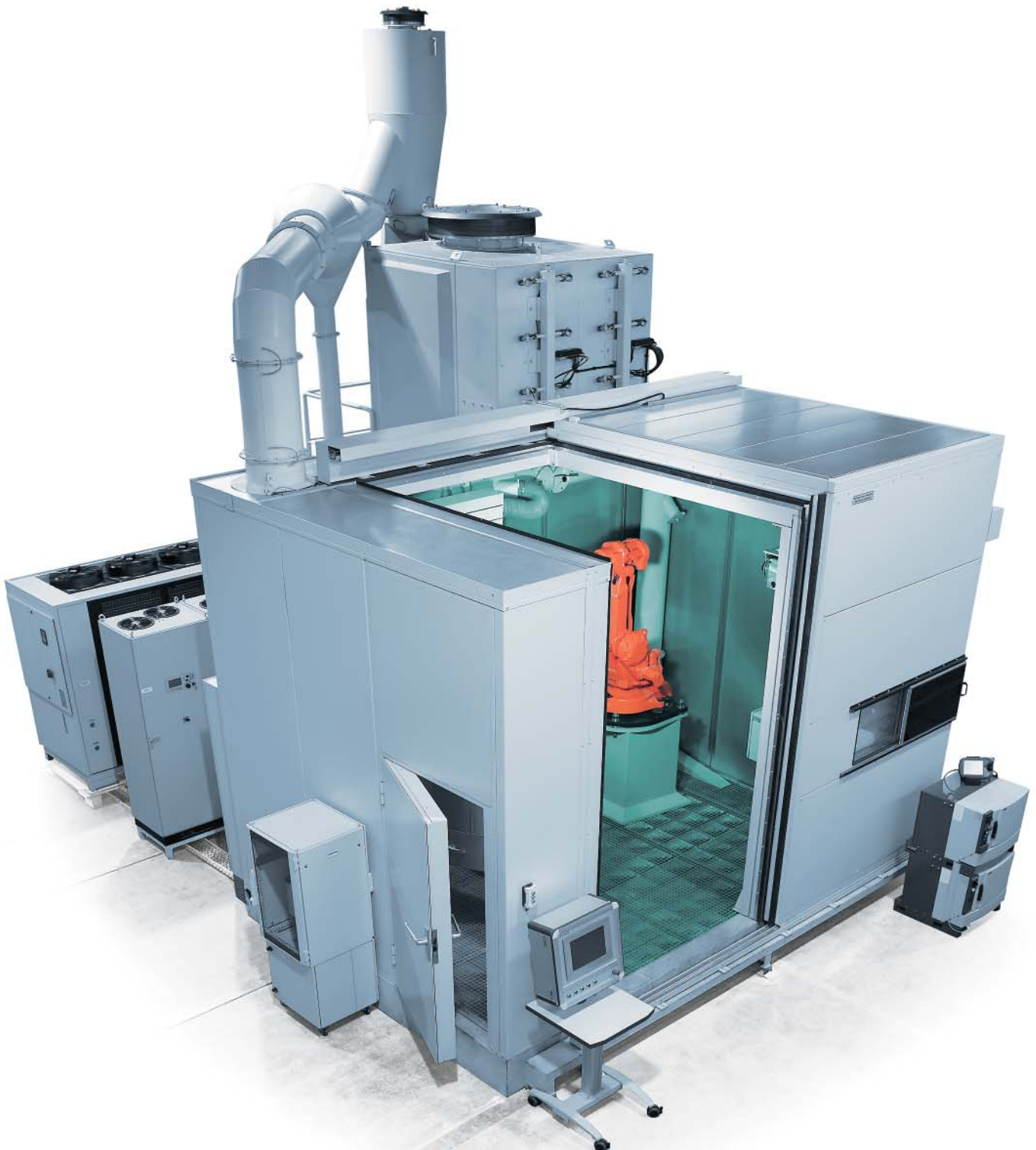




A D V A N C E D C O A T I N G S O L U T I O N S

Key Qualifications

Turnkey Systems for Thermal Spraying



Inspiration for Integration

Coating Centre with Integrative Potential



A whole is always more than the sum of its parts.

This particularly applies to our multi-functional coating centres. Here, Thermico's specifically developed modular design offers the options of integrating

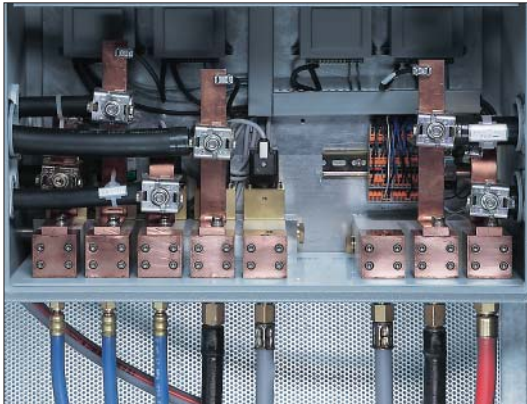
- single-cathode plasma,
- three-cathode plasma with axial feeding system,
- HVOF and

other processes smoothly into an installation, creating a system of perfectly matched components that works extremely efficiently and reliably, proving its modularity with the option of upgrading and integrating plasma and HVOF processes if required.

Adapting hardware and software to the specific conditions of thermal spraying, our online diagnosis, off-line programmable software and competent handling of all technologies involved in the system guarantee a secure and optimum flow of the overall system functions. A reliable 24h/48h service, calibrating service, online diagnosis and programming via modem, as well as training by our experts, are also part and parcel of our services.

All in all, a top-quality product that has proved itself many times over.

The aviation industry, which requires highly complex solutions due to its innovation rate, besides the extremely complex documentation and inspection requirements, relies on Thermico systems.



The jam box allows a parallel connection of the CJS, A60 and Axial III torches, for example.

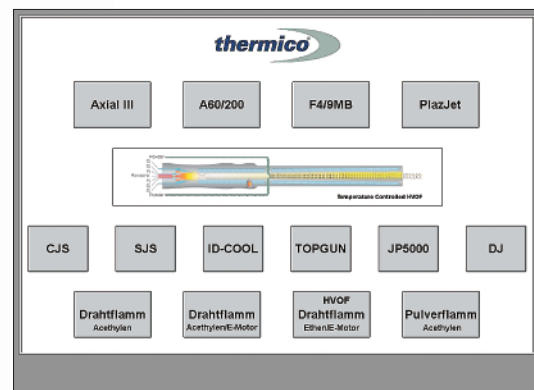
In Sight

PC Visualization, PLC Process Control and Software Tools

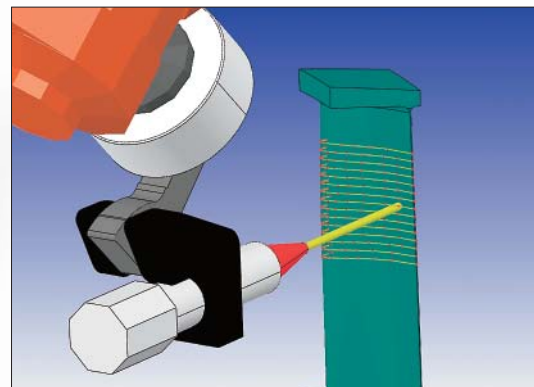
The PC visualization software was developed to simplify visualization and analysis of the processes. It allows the simple loading of formulas and process data capture at a glance, while storage and analysis take place in the background.

PLC process control provides stable process intelligence, linking functional groups via the system bus »Device-Net« and guaranteeing fail-safe electronic modules. Thermico use standard modules and provide an industry-tested, reliable control technology.

Our offline programming and simulation software »Thermal Spray Pro« guarantees user-friendly programming and simulation of the motion sequences of robot-supported coating centres.



Choice menu of PC visualization for supported torch technologies.



The offline programming software »Thermal Spray Pro« simulates the motion sequence of a coating process.

Fine Arts

Powder Feeders to Meet Sophisticated Requirements

For a satisfactory coating result, a precise powder feed is essential – which is why Thermico's powder feeders have a crucial influence on the overall picture.

Our CPF powder feeder has an accuracy of up to $\pm 2\%$ and operates on volumetric and gravimetric feeding principles. It is dust-protected and there are different versions available for plasma, laser and HVOF coating.

The result of consistent R&D efforts was the Thermico CPF powder feeder to overcome the poor flow properties of micro-fine powders of less than $10\ \mu\text{m}$. Thermico have come up with a vibration system that fluidizes the powder.

Gravimetric control via the control circuit scale/feeder wheel ensures a steady carrier gas flow to achieve a high degree of precision.

Stand-alone and remote versions are available.



In Control

Gas-Kerosene Control

Our modular system and block technology with a special sealing concept using O-ring seals make our gas-kerosene control flexible and efficient.

We use high precision thermal mass flow controls for gas and high precision mass flow controls for liquid fuels, featuring a flow sensor free from mechanically moving modules and with a carbide-reinforced precision pump. Data communication via system bus »Device-Net«.

Depending on the customer's requirements, the case is constructed either in a cabinet design, separating the electrics from the gas area, or in a modular drawer design. All versions are equipped with hydrogen sensors and guarantee a high level of safety. Nitrogen scavenging of the casing is optional.



Solid Ground

Sophisticated Torch Technology

Thermal spraying requires highly developed torch technology that constantly adapts to the increasing requirements of the industry. Below please find a selection of Thermico torches.

Our Plasma Torches

Best-Seller - The A 60

Professional single-cathode plasma torch featuring radial powder injection, designed for wattages of up to 60 kW and suitable for a wide variety of applications in complex component geometries. Fulfills all the requirements of the aviation industry in terms of layer specifications and product stability.

Rising Star - The A 60/200

Enhanced version of the A60 plasma torch for higher performances of up to 80 kW in plasma tensions of up to 200 V. Guarantees high cost-efficiency in materials which require processing with high thermal energy.

Going Further - The A60 Extension

90° A60 60 kW extension for the internal coating of construction modules with an internal diameter of at least 180 mm. Effective insulation against the effects of heat and dust. Extensions according to customers' requirements possible in lengths of 400 mm and over 6000 mm.

Shooting Star - The Axial III

Professional three-cathode plasma torch with axial powder feed – designed for wattages of 30 to 150 kW. Achieves excellent layer results with high application efficiency and is also approved by the aviation industry.

Insider - The ID Axial III

Internal spray torch designed for the coating of components with complex geometries and pipes with an internal diameter of at least 335 mm and wattages of up to 135 kW. Sophisticated, contemporary and efficient.





Our HVOF Torches

Brilliant - The SJS

Kerosene HVOF torch with axial powder injection. Suitable for the application of chromium carbide nickel-chromium layers. Reliable at high powder flow rates and high application efficiency.

Favorite - The CJS

Highly flexible, featuring radial powder injection. Combines cost-effectiveness with brilliant results – thanks to Thermico's patented temperature-controlled HVOF process.

Cool-Headed - The ID CoolFlow

A high-pressure high-speed flame spray torch for internal coating (starting from 150 mm) and the coating of complex modular geometries. Operates at low to moderate component temperatures.

Simply Cool - The ID CoolFlow Mono

High-pressure high-speed flame spray torch with valve injection. Suitable for smaller internal diameters starting from 90 mm.

Hot Springs

Sources of Current

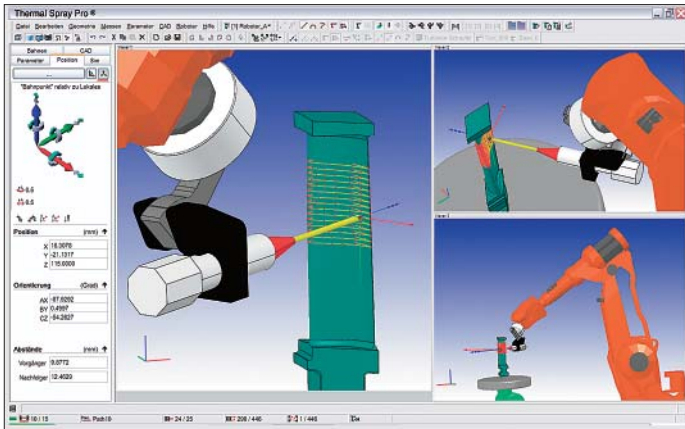
Thermico installations are high-performance DC plasma stream sources in IGBT construction for single- and multiple-cathode DC plasma torches.

This technology represents a giant leap in plasma spraying technology, ensuring an improved reproducibility of the results and an extended plasma electrode life, delivering an almost ideal direct current with a residual ripple of $<0.5\%$. The current is secondarily indexed with a frequency of up to 60,000 Hz. The degree of effectiveness is $>90\%$, the $\cos\Phi > 0.95$.



Head Office

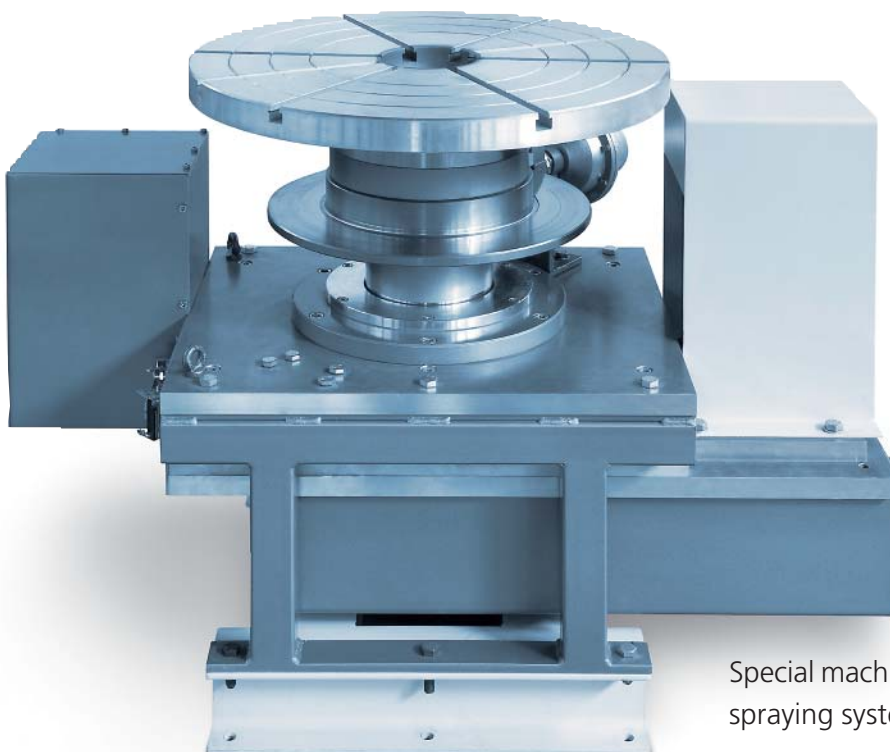
Offline Programming for Robot-Based Installations



Robot-based installations by Thermico combine a high degree of functionality, mobility and convenience. The heart of our coating centre is Thermico's specifically developed software, »Thermal Spray Pro«. This CAD-based software makes it much easier to program the robot path, providing tools such as »Automated Spraying Beam Calibration« or »Consistent Layer Thickness«.

Indispensable for the user-friendly programming of complex components, this brilliant development pools all the advantages, from simulating robot movements and simplified adjustments of robot path parameters through reading in CAD formats of components or the simple generation of CAD models using the program, to programming without reference workpieces.

Last but not least you will benefit from the automatic change protocol and the graphic clarity of complex programs through 3D visualization.



To move the components, Thermico offer a range of rotary tables, spraying benches and traverse axes designed for the special conditions of thermal spraying: rotary tables with internal suction, rotary tilting tables, indexing tables, integrated indexing tables with material locks, spraying benches, traverse axes (X, X-Y and multiple axis systems) and robot traverse axes.

Special machines can be constructed and integrated into spraying systems at the customer's request.

Sound Check

Sound Booths Featuring Sealing Rail L-Doors

Thermico sound booths are suitable for plasma and HVOF processes and are available as single- and double-walled models. Specifically developed swing doors make their use practicable and flexible.

Our L-doors with their special labyrinth seal offer a high degree of sound protection, allowing a reduction of noise exposure to 75 dB.



Dust Control

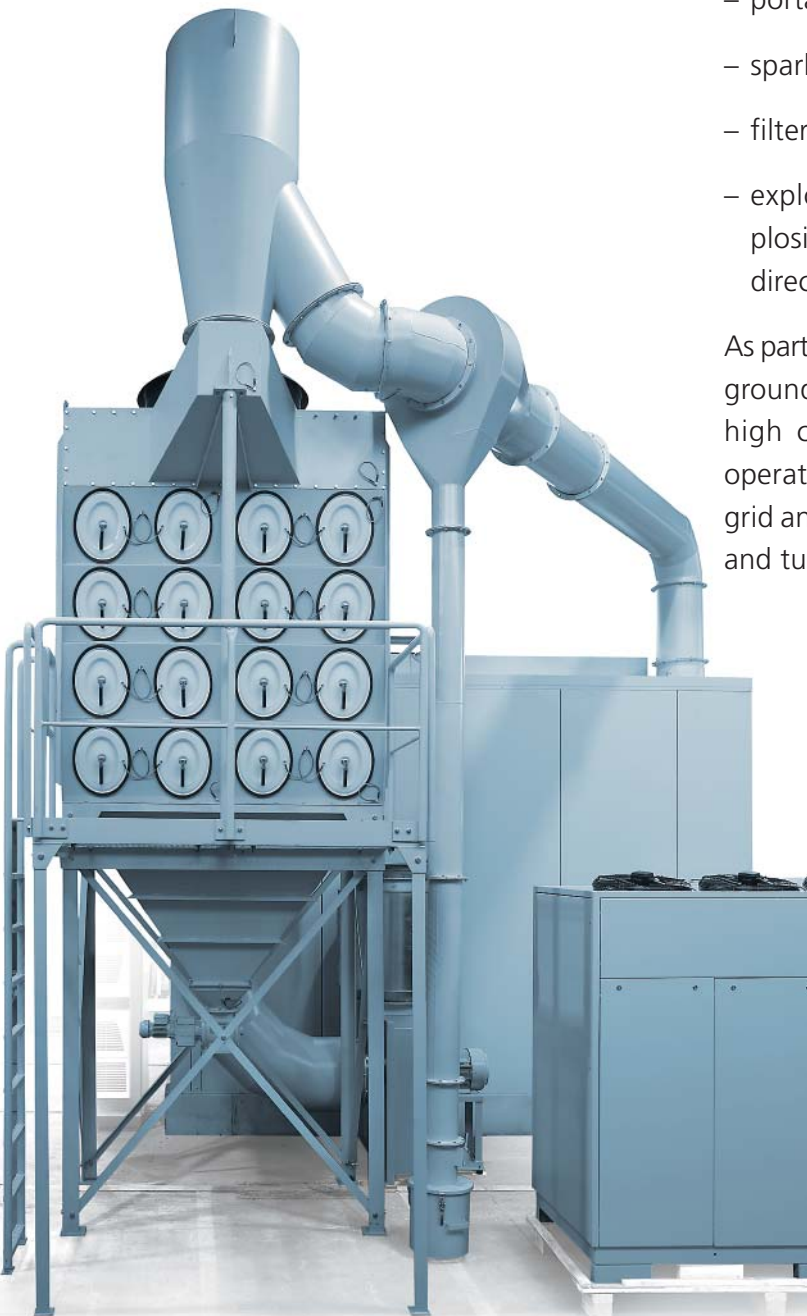
Our Special Dust Extraction Concept

For a high degree of safety and convenience, we have developed optimized suction and filter systems for dusts caused by plasma and HVOF spraying.

Our modular programme for handling spraying dust includes:

- ground suction
- suction walls
- ceiling suction
- portable extraction hoods
- spark separators
- filtering installations
- explosion-proof filtering installations featuring explosion funnel and release valves according to ATEX directives.

As part of our robot-protected spraying centre, Thermico's ground suction system is an intricate procedure with a high convenience level, enhancing safe and clean operation. Dust particles are collected through a floor grid and conducted to the filter via extraction elements and tubes.





A D V A N C E D C O A T I N G S O L U T I O N S

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