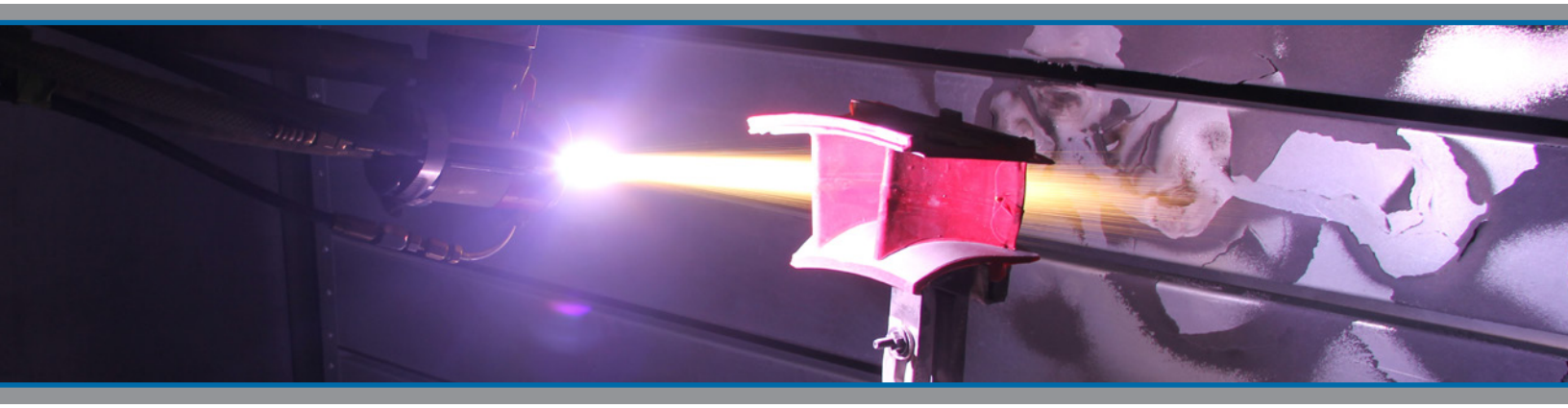
green belting

Masking for Plasma Spray

More than just tape!



Save Time and Money with the Right Materials and Methods

Plasma Spray coatings are a form of thermal spray used for precision coating of parts and components. Extremely high temperatures (exceeding 15,000° F in the jet) allow the plasma spray to melt materials that have extremely high melting temperatures. Plasma spray is the only method used to produce pure ceramic coatings from ceramic powder.

Common applications for plasma spray include thermal barrier coatings, abradable coatings, corrosion resistant coatings, and wear coatings. Plasma spray coatings are often applied to gas turbine components, both in production and repair.

The Need for Masking

In many cases items receiving plasma spray coatings have specific non-target areas that must be protected from the coating spray. These areas must be masked with a durable masking material that will stand up to the abrasion and heat of both the surface preparation (grit blasting) and thermal spray processes.

Advantages of Engineered Masking Solutions from Green Belting

Engineered to meet the demands of a wide range of thermal spray coating processes including plasma spray, Green Belting Industries masking materials offer superior performance. All Green Belting Industries thermal spray masking materials are engineered for:

- **Abrasion Resistance** – The types of coatings and thicknesses used are engineered to resist the abrasive forces of both the grit blast and plasma spray coating processes. Green Belting Industries products can be applied once for both grit blasting and plasma spray coatings.
- **Strong Adhesion of Tapes** – Masking tapes exhibit high adhesion to metal and to themselves (to prevent flagging).
- **Resistance to Heat Transfer** – From the substrate to the coatings and adhesives, Green Belting Industries masking materials are engineered to resist the extreme temperatures of thermal spray coating processes including flame spray.
- **Highly Conformable** – Our tapes and compounds are easy to work with and conform well to surface contours in more complex masking applications.
- **Clean Release** – Despite high adhesion the tapes are designed to remove cleanly with no adhesive residue.

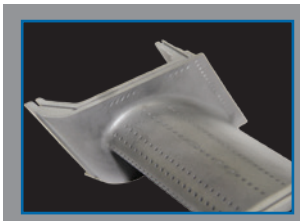
Opportunities for Time and Cost Savings

The costs associated with masking for plasma spray coating include the time and materials involved in the masking process, as well as possible added time for clean-up afterwards if inferior products or methods are used.

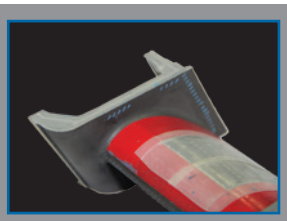
For example, clean-up or repair may be required if the masking material has failed during the spray-coating process, or if residue has been left by an inferior masking material with a low-grade adhesive.

Further costs arise if parts must be masked twice, once for grit blasting (surface preparation) and again prior to receiving the spray coating. Use of high-quality Green Belting Industries thermal spray masking materials can eliminate all of these added costs.

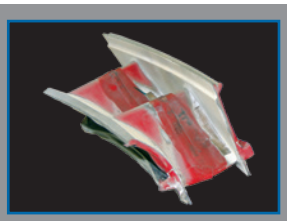
Grit blasting prepares the surface to receive the HVOF spray coating. Masking also protects the part from the grit blast particles.



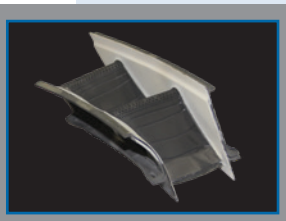
Pre-Masking



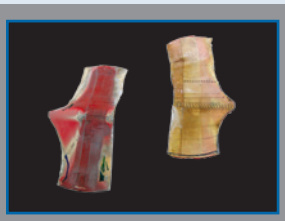
Masking Detail



Post-Spray



Post-Spray (Masking Removed)



Post-Spray Tape (Front and Back)

Improving Time and Cost Efficiencies with Green Belting Industries Engineered Masking Solution

To improve masking efficiency, we recommend the following masking strategies:

- **Eliminate Unnecessary Masking Layers** – When using weaker masking tapes, more layers (three or four) are generally used to ensure the tape provides a suitable barrier to protect the part being sprayed. Stronger Green Belting Industries silicone glass tapes (plasma spray masking tapes) can be applied with just one or two layers. This allows for faster masking and less tapes consumption. The 170 Series tapes can reduce labour and processing times while reducing tape consumption considerably.
- **Use Die Cuts to Save Time and Improve Safety** – For repetitive masking jobs, Green Belting Industries offers both Pre-Cut lengths and widths and Die-Cut to allow for faster masking and better accuracy. Less cutting during tape application results in reduced risk of injury such as cuts and repetitive strain injury.
- **Reduce or Eliminate Clean-Up Time** – Unlike other tapes, thermal spray masking tapes leave no adhesive residue which eliminates the need for additional clean up efforts, again producing a time and cost savings.
- **Eliminate Repetitive Masking** – Green Belting Industries masking products are suited to endure both grit blast and flame spray coatings with one application. Therefore, no additional masking is needed (mask only once). The result is a more efficient masking solution, that saves valuable time, money and increases the efficiency of your operation.

Product Recommendations for Flame Spray

Tapes

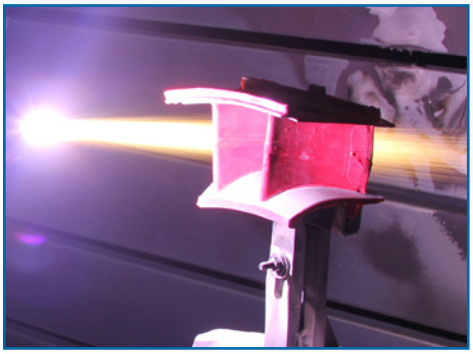
- **170-10S YL** – A reliable masking tape for most standard plasma spray applications.
- **170-10S Green** – For applications that involve higher abrasion. This tape produces cleaner coating lines and may be used with fewer layers (and less quantity) than standard tapes.
- **170-10S Red** – Recommended for applications involving higher temperatures. This tape resists burning / scorching which leaves cleaner coating lines and less residue from any scorching that may occurs.

Compounds

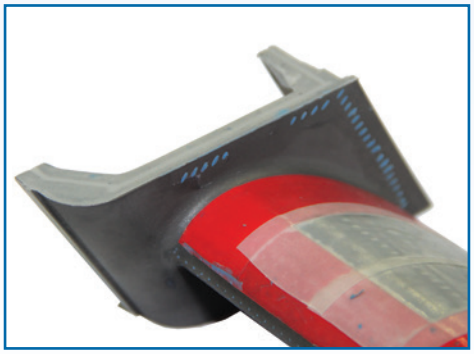
- **High Velocity Masking Compound (HVMC)** – Ideal for creating reusable masking moulds, plugs, caps, & sleeves.

Fabrics

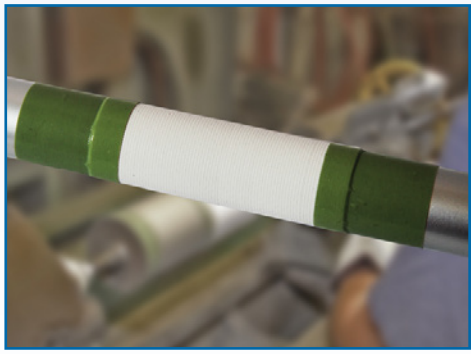
- For secondary masking, **SW-35** thermal spray masking blanket (silicone coated glass fabric) can be deployed to protect against overspray. This material is reusable for many cycles.



170 -10s Red Plasma Spray Masking Tape



HVMC – High Velocity Masking Compound (blue) and 170-10s Red Plasma Spray Masking Tape



170-10S Green Masking Tape with SW-35 Silicone Coated Fiberglass Fabric (white)

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As an ISO 9001 Quality Registered Company, our ongoing procedure for quality assurance starts with thorough inspection of all raw materials to ensure compliance with our required specifications. All manufacturing processes are closely monitored, and finished product is tested against our high internal standards and customer specifications. This assures that we always deliver consistently high quality products.