

# PROPLASMA HP



SPRAY MORE!  
SAVE MORE!

SAINT-GOBAIN COATING SOLUTIONS





# PROPLASMA HP

With the goal to improve the productivity and the versatility, Saint-Gobain designed the ProPlasma HP plasma gun. Simple and unique at the same time, the ProPlasma HP gun reaches very high level of productivity with low energy requirements. Using the ProPlasma HP gun results in lower cost of operation, lower energy consumption, less powder needs, less waste, etc...

## 2 GUNS IN 1, VERSATILE

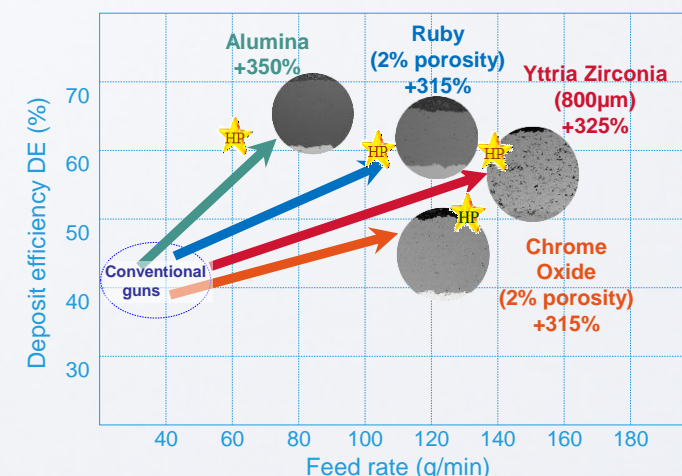
Our ProPlasma HP gun can run as a conventional gun or as a high power gun and it require a few minutes to switch from HP mode to Standard mode.

Compared to conventional single electrode plasma guns, our ProPlasma HP gun has **higher arc stability**. The particle fusion is very uniform and thus the **deposit efficiency improved**.

The ProPlasma HP gun is suitable for long term spray operations **up to 60 kW**.

The ProPlasma HP gun has been approved already for spraying most of the materials such as ceramics, metals, carbides and compounds (abradables...) .

Our ProPlasma HP gun **can be plugged on any existing plasma equipment**.



## ENERGY SAVER

The advanced design of the ProPlasma HP allows a **high enthalpy and arc stability and faster deposition rates** :

- Limits the electrical power requirement and the excessive consumption of expensive gases such as Argon, Hydrogen or Helium,
- Reduces overspray and decreases the amount of fumes during spraying,
- Reduces spray time and equipment down time,
- Reduces maintenance time and maintenance frequency,
- Reduces the ratio power / deposited material (eg.  $\text{Cr}_2\text{O}_3$ ):

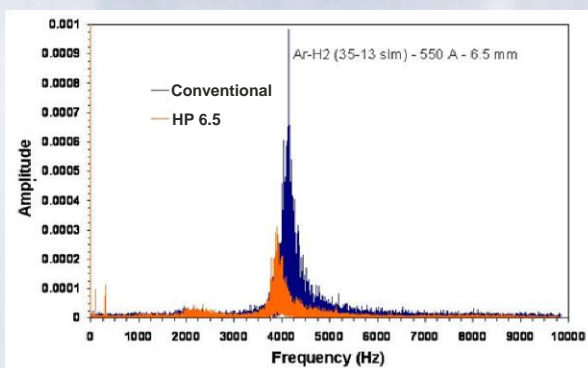
ProPlasma 15,9 kWh/kg versus conventional gun 44,8 kWh/kg.

## HIGHER POWER, HIGHER SPRAY RATES

The ProPlasma HP runs with a conventional plasma spray system using a single power source. The ProPlasma HP gun can be used from 30 kW **up to 60 kW**, allowing deposition rates **3 to 4 times higher than with conventional plasma guns**.

The ProPlasma HP gun is a universal multi-mode plasma spray gun suitable for a wide range of thermal spray applications such as dense wear-resistant coatings or porosity controlled TBCs. It can run with a wide range of parameters with  $\text{Ar-H}_2$  or  $\text{Ar-He}$  or  $\text{Ar-H}_2\text{-He}$ .

## HIGHER PLASMA STABILITY



## OPTIMIZED DESIGN, USER FRIENDLY, CONSISTANCY

Compared to multi-electrodes or cascaded plasma guns, the ProPlasma HP gun has an optimised design using a single anode and single cathode. Our **self-aligning technology** guaranty the concentricity of the cathode and anode in a coaxial position, giving **perfect consistency** during operation even after each rebuilding.

The maintenance of the ProPlasma gun only takes a **few minutes** and can be done completely **from the front side**, no need to dismantle the gun from the robot. The powder injector holders are **easy to set-up**, can be placed on every angular position and allow to choose freely the number of injectors.





Thermal spray industry faces a strategic dilemma between increasing revenue and decreasing cost to enhance profitability. Changing to new "high power" plasma systems is still a difficult choice to make due to the upfront investment required to start production and the switch to a different technology. As a response to these challenges, Saint-Gobain Coating Solutions designed the Pro Plasma HP gun. On top of improving the thermal spray productivity and enhancing the coating performances, the ProPlasma HP permits an economical optimisation by minimizing the cost of the change; the **ProPlasma HP can be plugged on an existing plasma spray equipment** thanks to conversion couplings kits.

Moving from mono application spray systems to flexible spray systems reduces the investments required for each new application or coating product change. This can be easily achieved by using the ProPlasma HP which can run as a conventional gun or as a high power plasma gun.

#### RUBY

2% porosity – 57% DE  
4,1 kg/h deposition rate  
7,2 kg/h feed rate

#### SG DV1196 - $\text{Al}_2\text{O}_3$

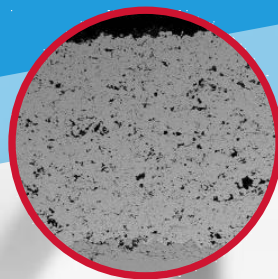
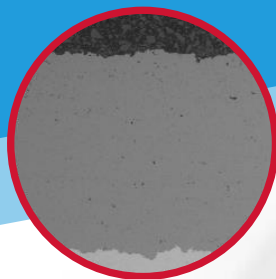
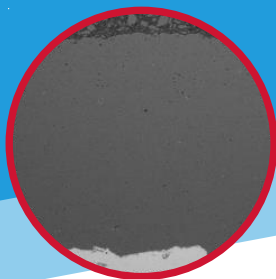
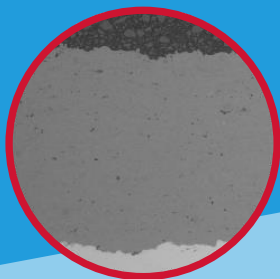
2% porosity – 65% DE  
2,9 kg/h deposition rate  
4,5 kg/h feed rate

#### SG 2525 - $\text{Cr}_2\text{O}_3$

2% porosity – 51% DE  
3,7 kg/h deposition rate  
7,2 kg/h feed rate

#### SG 204 - YZ

14% porosity – 57% DE  
5,13 kg/h deposition rate  
9,0 kg/h feed rate



Saint-Gobain Coating Solutions also designs and produces the core components of full plasma systems, ready to be integrated to turnkey systems: plasma control console, power source, water cooling unit, powder feeder, robot integration...

Our systems are based on a PLC control of the spray parameters. The ease of use with the automatic modes and the manual modes allows the operator to control and monitor all of the parameters such as the gun power, the powder flow rate, the gas flow rates, the water cooling conditions...



#### *ProPLASMA HP in figures*

Continuous operation power\*  
Number of powder injectors  
Available powder injector holders  
Water cooling inlet requirements  
\*at the power source

30 to 60 kW  
1 to 6  
-15°, 0°, +15°  
>20 SPLM - 18 bars - 12°C

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