Cold Gas Spray Systems

The new Generation of Cold Spray System **KINETIKS 4000**
FST Cooperates with CGT in the Global Promotion of Cold Gas Technology

FST has promotional restrictions in: Germany, France, Italy, Belgium, Spain, USA, Canada, Mexico, Taiwan
Cold Gas Spray Systems

Cold Spray
1. Carrier Gas + Powder
2. Process Gas (Nitrogen, Argon, Helium)
3. Nozzle
4. High Velocity Gas Stream
5. Component
Cold Gas Spray Systems

- Cold Gas is a NEW generation High Velocity Thermal Spray Process
- More than with the HVOF process, the kinetic energy is used as the energy carrier
- The Jet can reach temperate of up to 800 °C while the particles will be accelerated >1.000m/sec
- Spray Rates are 3 to 15 kg/hr. Typical deposit efficiencies >80%
- Coatings are dense and oxide free
- Typical materials include: Zinc, Copper, Aluminum Nickel alloys, Tantalum, Niobium, etc.
- Applications can be found in; Automotive Industry, Corrosion market, Electronics. New applications in other and new market are found regularly, making Cold Gas the fastest growing technology
Cold Gas Spray Systems

References

Over 40 Systems Sold World-Wide
Cold Gas Spray Systems

System Overview

Control cabinet supports:
- 2 Gases
- 2 Heater
- 2 Powder Feeder

Heater
- 17 KW
- Or
- 30 KW

Active Jet Heater
- 17 KW

Powder Feeder 1

Powder Feeder 2

N2

He

Power

Gas

Nozzle
Cold Gas Spray Systems

System Overview

- Heater 30KW
- Heater 17KW
- Active Jet Heater 17KW
- Control Cabinet
- Nozzle
- High Pressure Powder Feeder
Cold Gas Spray Systems

Control Cabinet

- Touch Screen Operation
- Mass Flow Controlled
- New modular Software Design
- From 17 up to 47 KW heating power
- Control for one or two Powder Feeders
- More than 8 System Configurations
Cold Gas Spray Systems

Heaters

Coil heater
200 m² Helium -> 450 °C

Filament heater
70 m² Nitrogen -> 550 °C

30 KW

17 KW
Powder Feeder
PF 4000 Comfort

- TuV certified High Pressure Powder Feeder
- Low Maintenance
- Easy of use; Push, Turn and Pull
- Safety First
Cold Gas Spray Systems

Cold Gas Gun
Active Jet

Filament heater
70 m² Nitrogen -> 600 °C

- Max 800°C at 40 bar for nitrogen (with preheater HT 300/17)
- Max 800°C at 30 bar for helium (with Linspray preheater)
**Nozzles**

- Nozzle Type 27 TC
- Nozzler Type 24 TC MOC
- Nozzle Type 33
- Under Development >800°C
Cold Gas Spray Systems

Kinetics 4000/17

FEATURES

• 17 KW
• 40 bar
• 550 °C (Nitrogen)
• 350 °C (Helium)
Kinetics 4000/34

Features
- 34 KW
- 40 bar
- 800 °C (Nitrogen)
- 650°C (Helium)
Kinetics 4000/47

Features
47 KW
30 bar
800 °C (Nitrogen)
800 °C (Helium)
# Gas Flow Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Nitrogen</th>
<th>Helium</th>
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</thead>
<tbody>
<tr>
<td>Kinetiks 3000</td>
<td>600 °C 3 MPa</td>
<td>450 °C 3 MPa</td>
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<tr>
<td>(previous version)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kinetiks 4000/17</td>
<td>550 °C 4.0 MPa</td>
<td>350 °C 4.0 MPa</td>
</tr>
<tr>
<td>Kinetiks 4000/34</td>
<td>800 °C 4.0 MPa</td>
<td>650 °C 4.0 MPa</td>
</tr>
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<td>Kinetics 4000/47</td>
<td>800 °C 3.0 MPa</td>
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</tr>
</tbody>
</table>

**Note:** The temperatures and pressures listed are for the gases Nitrogen and Helium.
Cold Gas Spray Systems

Coatings

Arc Sprayed
1,5 wt.% oxygen

Cold Gas Sprayed
< 0,1 wt.% oxygen
Coatings

Ta, 38/10 µm deoxidised (250 ppm O)  
AMPERIT® 151  
Ta, special grade

Nb, 38/10 µm deoxidised (600 ppm O)  
AMPERIT® 161  
Nb, special grade
Cold Gas Spray Systems

www.fst.nl

www.cgt-gmbh.com