

**Termal Sprej Usluge i Rešenja – SM SBB TS**

**Tajna da ostanete ispred**

# Termalno Sprej Prskanje osnovni princip



## ■ Oerlikon Metco specijalizovan za:

- Sprej prskanje sagorevanjem praha (Thermospray®)
- Sprej prskanje sagorevanjem žice
- Elektrolučno sprej prskanje žicom
- Visoko Brzinsko Gorivo Kiseonik (HVOF) — Gas i tečno gorivo
- Atmosfersko plazma sprej prskanje
- Plazma sprej prskanje u kontrolisanoj atmosferi (ChamPro™)

# Termalno Sprej Prskanje Prosesi

Plazma



HVOF



Sagorevanje praha



Elektrolučno



Sagorevanje žice



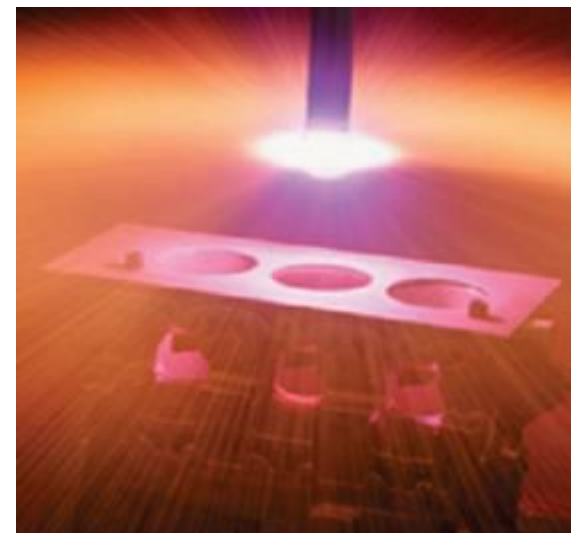
# Prednosti Termal Sprej Prevlaka

## Funkcije prevlake

- Otpornost na habanje
- Oslobađanje od korozije
- Upravljanje toplotnom efikasnosti
- Povećava električna svojstva
- Kontrola dimenzija & zazora
- Spasavanje pohabanih delova

## Smanjenje troškova preko

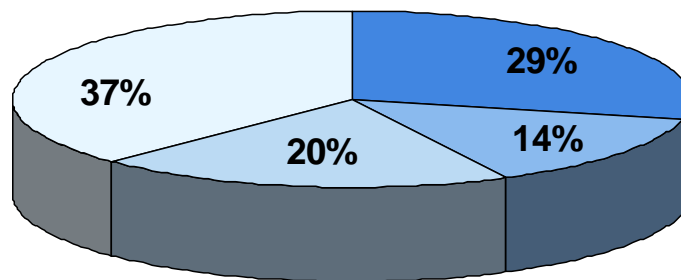
- Boljih performansi
- Proizvava vek delova
- Smanjuje održavanje



## Tehničke karakteristike

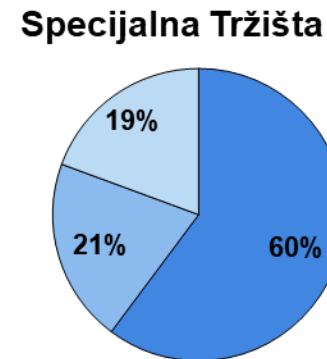
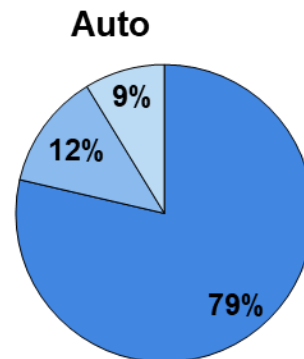
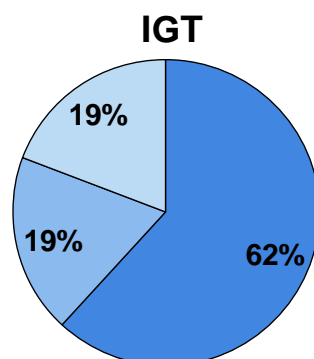
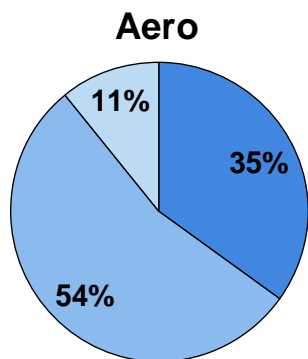
- Niske do visoke radne temperature
- Relativno tanke veoma guste prevlake
- Dobra veza sa supstratom
- Grub do glatki finiš
- Delovi mogu biti ponovo prevlačeni
- Obe i spoljne i unutrašnje površine
- Pre & posle rešenja za prevlake

## MTS Prodaje po industrijama



- Aero
- Industrija Gasnih Turbina
- Auto
- Specijalna tržišta

## MTS Prodaje po Regionima



- Evropa
- Amerika
- Azija Pacific

\* IGT = Industrija Gasnih Turbina

# Aktivnosti na Turbinama (Aero & IGT\*)

## Industrija Definicije / Segmenti

- Vazduhoplovstvo  
Komercijalno & vojno
- Elektrane  
Gas, para, tečna i alternativna goriva,  
nove tehnologije
- OEM
- Popravke

## Kupci

- |                             |                  |
|-----------------------------|------------------|
| ■ General Electric          | ■ Airlines       |
| ■ Siemens /<br>Westinghouse | ■ Chromalloy     |
| ■ PWA                       | ■ Sermatech      |
| ■ Rolls Royce               | ■ MHI            |
| ■ SNECMA                    | ■ Wood Group     |
| ■ MTU                       | ■ HAESL          |
| ■ Lufthansa                 | ...I mnogi drugi |



\* IGT = Industrijske Gasne Turbine

# Aktivnosti na Automobilima

## Industrija Definicija

- Automobili i SUV's (velike i male zapremine)
- Putnička vozila
- Motocikli & Skuteri
- Marine, npr. Motori
- Motorne sanke, rekreativna vozila
- Vozila koja se obično pokreću pomoću motora ili alternativnih pogona



## Kupci

- Bosch
  - Ceramic Sensor
  - Daihatsu
  - Daimler Chrysler
  - Denso
  - Federal Mogul
  - Haldex Friction Products
  - Hoerbiger
  - IP Rings India
  - Izumi Kogyo
  - NGK
  - PSA Peugeot/Citroen
  - Riken
  - Scania
  - Taiho Kogyo
  - Toyota
  - Volkswagen
  - Volvo
  - ZF
- .... I mnogi drugi

# Aktivnosti na Specijalnom Tržištu

## Industrija Definicije

- Ulje i Gas
- Korozivne aplikacije
- Celuloza i papir
- Medicinski aparati
- Istraživačke laboratorije
- Prevoz
- Štampanje
- Industrija čelika
- Thermal spraj industrija
- Strateška tržišta rasta



## Kupci

- Aesculap
- BTG Eclepens
- Caterpillar
- Depuy Bioland
- Freiburger Metall
- Heidelberger Druck
- Hydrodyne
- John Crane
- Kurashiki Boring
- MAN
- Metso
- Mannesmann
- Pamarco
- Rossmould
- Sandvik
- Striker
- Tocalo
- Voith

.... I mnogi drugi



# Global Customer Support Services

## ■ Field Service

- Commissioning of new installations
- Preventive maintenance agreements and breakdown repairs
- Equipment calibrations
- Safety inspections
- Telephone technical support



## ■ Spare Parts

- Original equipment spare parts
- ISO 9001 certified
- Global availability
- Global logistics for materials and spare parts



## ■ Technical Training

- Standard and customized courses
- Operator, Maintenance and engineering level training on or off site



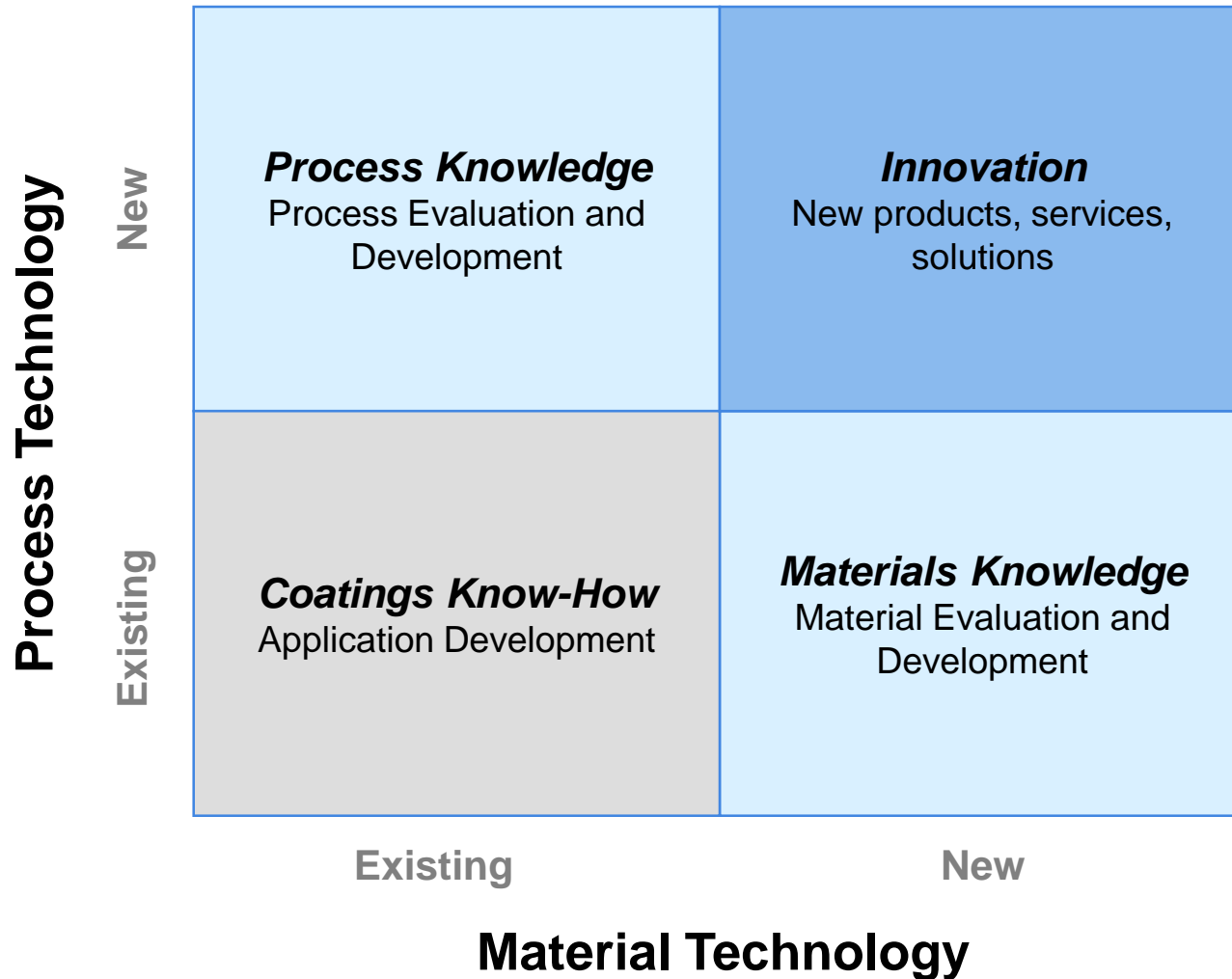
## ■ Global / multi-regional contracts

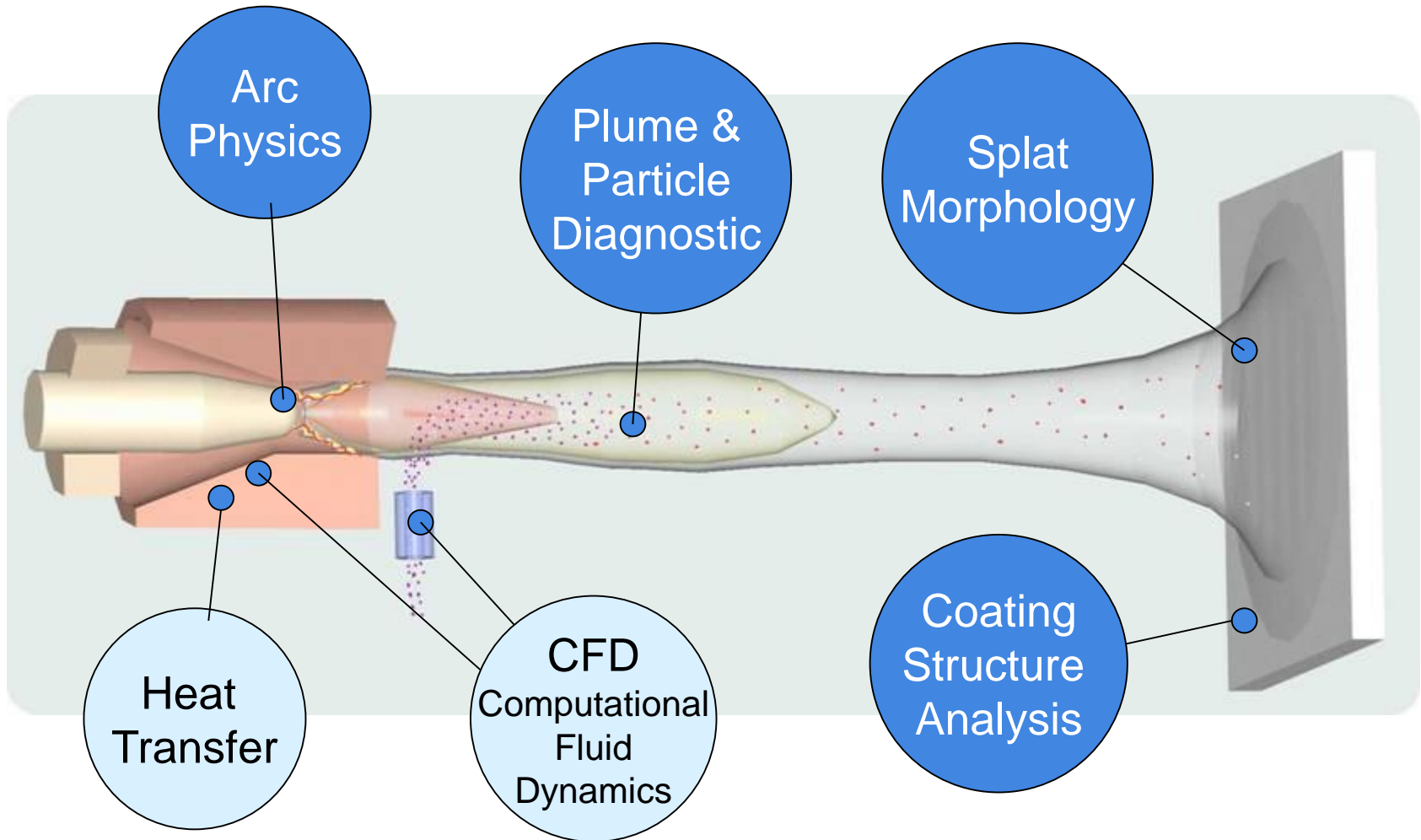
# Research and Development

- In-house product research and development
  - Partner with Sulzer Innotec for key technologies
  - Network with other research facilities and universities
- 3 R&D centers in US, Europe and Japan
- Segment and applications oriented portfolio management of R&D projects

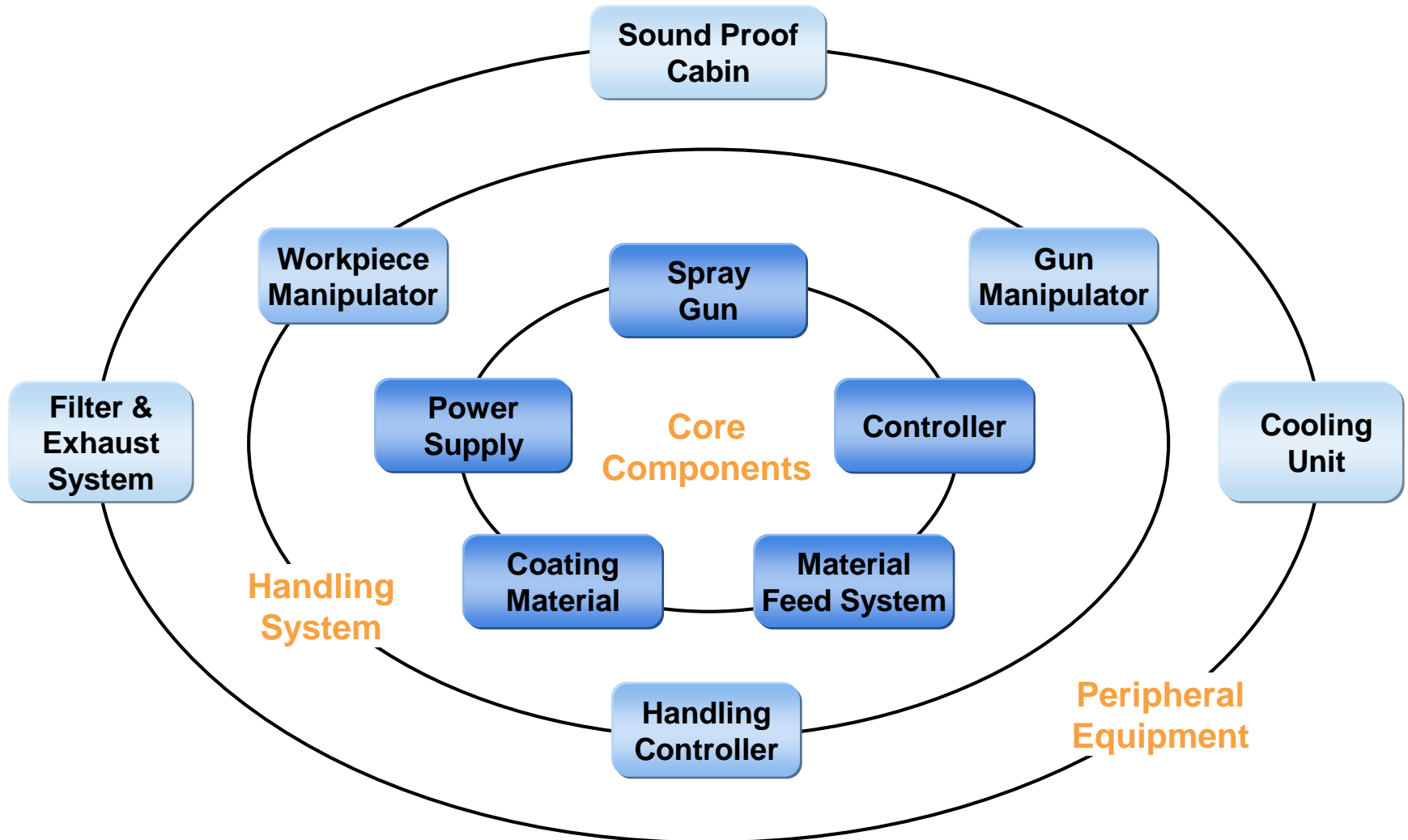


# Linking Technologies





# Thermal Spray Process – Key Elements



# **Thermal Sprej Materijali**

***The Secret of Staying Ahead***

Termal sprej procesi koriste ili prah ili žicu za sirovine prevlaka:

Prahovi



Plazma



HVOF



Plameni



Žice



Elektrolučni



Plameni žica



# Materials Highlights

Coating Powders	Coating Powders	Matrix Materials	Pack Diffusion Alloys	Auxiliary Materials	Welding Rod / Wire	Braze Materials
<ul style="list-style-type: none"> <li>▪ Samo-utapajući</li> <li>▪ Metali &amp; legure</li> <li>▪ MCrAlY<sup>1</sup> &amp; Superlegure</li> <li>▪ Karbidi</li> <li>▪ Samotrošeci</li> <li>▪ Keramike</li> <li>▪ Kermeti</li> <li>▪ Kompoziti &amp; mešavine</li> <li>▪ PTA<sup>2</sup> preklapajući materijali</li> </ul>	<ul style="list-style-type: none"> <li>▪ Punjene žice</li> <li>▪ Metali &amp; legure žica</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hard matrix powders</li> <li>▪ Soft matrix powders</li> <li>▪ Electrically conductive gold fillers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Powders</li> </ul>	<ul style="list-style-type: none"> <li>▪ Masking products</li> <li>▪ Sealers</li> <li>▪ Surface prep. materials</li> </ul>	<ul style="list-style-type: none"> <li>▪ Filled tube rods</li> <li>▪ Flexible rods</li> <li>▪ Filled tube wires</li> <li>▪ Composite rods</li> </ul>	<ul style="list-style-type: none"> <li>▪ High temp. alloys</li> <li>▪ Superalloys</li> <li>▪ Wide gap fillers</li> <li>▪ Activated diffusion alloys</li> <li>▪ Powders</li> <li>▪ Pastes</li> <li>▪ Tapes</li> <li>▪ Preforms</li> <li>▪ Foils</li> </ul>

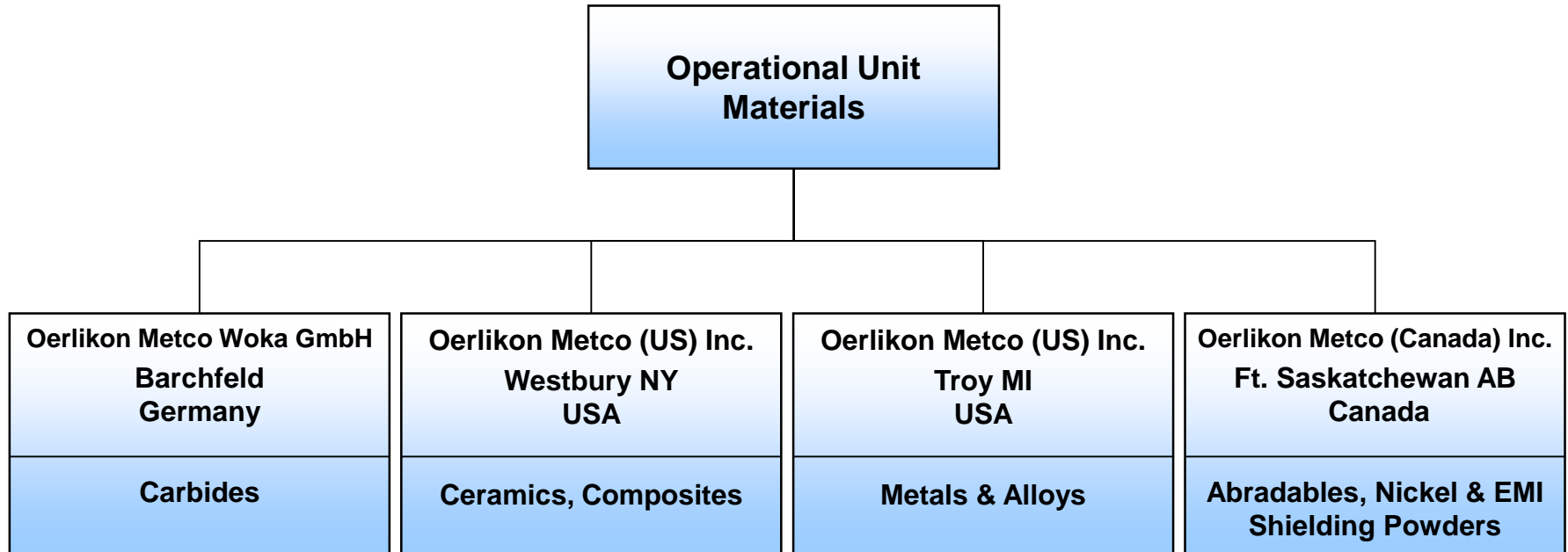
## Prepoznatljivi Oerikon Metco Brandovi Materijala

Metco<sup>®</sup>, AMDRY<sup>®</sup>, Diamalloy<sup>®</sup>, Durabrade<sup>®</sup>, WOKA<sup>™</sup>, Sprasteel<sup>®</sup>, Sprabond<sup>®</sup>, Metcolloy<sup>®</sup>, Metcoseal<sup>®</sup>, PlasmaDur<sup>™</sup>, WokaDur<sup>™</sup>, E-Fill<sup>®</sup>, Tuffstudds<sup>®</sup>

<sup>1</sup> Metal + Chromium + Aluminum + Yttrium

<sup>2</sup> Plasma Transferred Arc





# Izrada Materijala

## Oerikon Metco (US) Inc.

### ■ Company Data

- Osnovana 1933; Deo Oerikon Metco od 1994
- 70 zaposlenih
- Lokacije: Westbury NY, Troy MI

### ■ Products

- Abradables, metals & alloys, ceramics, wires, brazing materials

### ■ Markets

- Thermal spray industry
- Aero & IGT (industrial gas turbine) OEM's
- Automotive sector
- Other strategic growth industries

### ■ Process Capabilities

- Research, testing & manufacturing
- Gas atomization
- Sintering / crushing
- Spray drying
- Cladding
- Blending
- Wire manufacturing
- Application development



### ■ Certifications

- ISO 9000
- NADCAP
- CAA
- OEM's (R-R, GE, PWA and more)

# Izrada Materijala

## Oerlikon Metco WOKA GmbH

### ■ Company Data

- Osnovana 1977; deo orlikon Metco od Dec 2003
- 70 zaposlenih
- Locacija: Barchfeld, Germany

### ■ Products

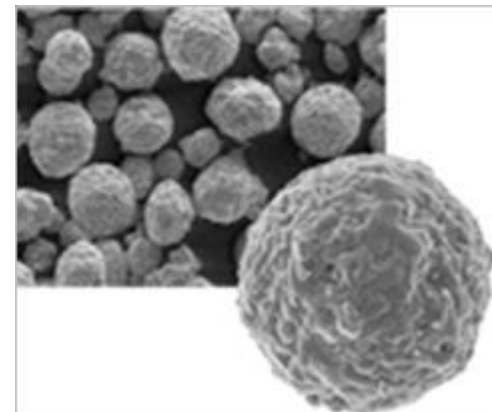
- Tungsten & chrome carbides
- Welding rods
- Matrix materials

### ■ Markets

- Thermal spray industry
- PTA (plasma transferred arc) sector
- Component manufacturers

### ■ Process Capabilities

- Research, testing & manufacturing
- Materials manufacturing (attritor milling, agglomeration, sintering, spray-drying, screening)
- Application development



## Oerlikon Metco (Canada) Inc.

### ■ Company Data

- Founded in 1963, formerly Westaim Ambeon Corp., part of Sulzer Metco since Jan 2004
- 110 employees (Alberta, Canada)

### ■ Products

- Nickel & composite powders (abradables)
- Abrasion & corrosion resistant materials
- Anti-fretting powders
- Materials for honeycomb structures
- Materials for EMI (electromagnetic interference) shielding seals
- Wear studs for stud welding applications

### ■ Markets

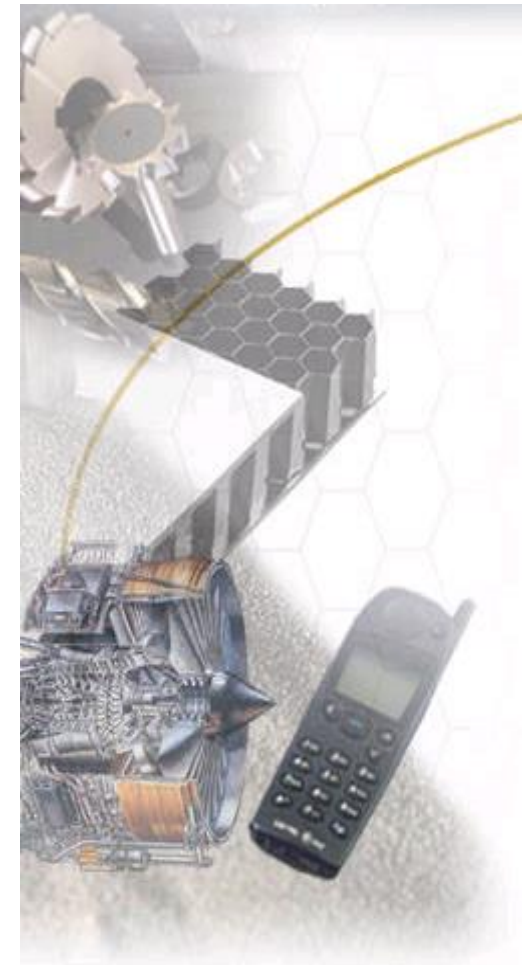
- Aerospace & IGT
- Electronics
- Industrial catalysts

### ■ Process Capabilities

- R&D, testing & manufacturing
- Materials manufacturing
- Application development

### ■ Certifications

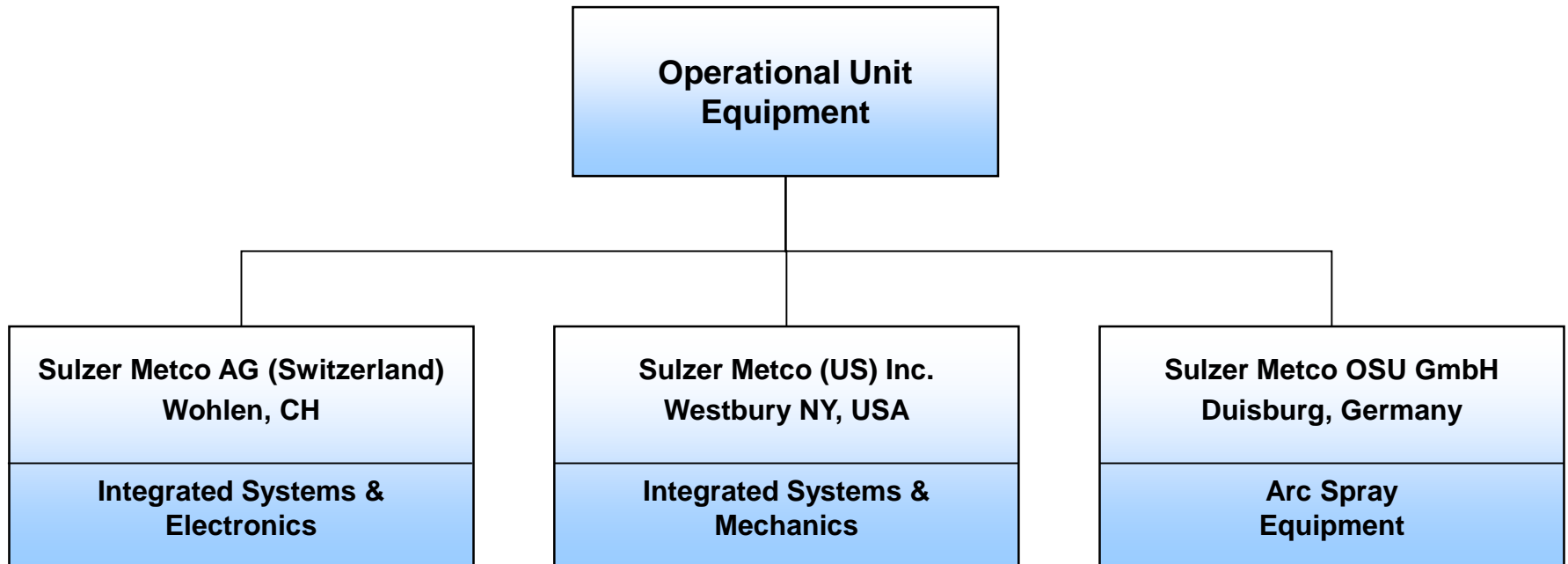
- ISO 9000
- NADCAP
- CAA
- OEM's (R-R, GE, PWA and more)





# **Thermal Spray Equipment**

***The Secret of Staying Ahead***



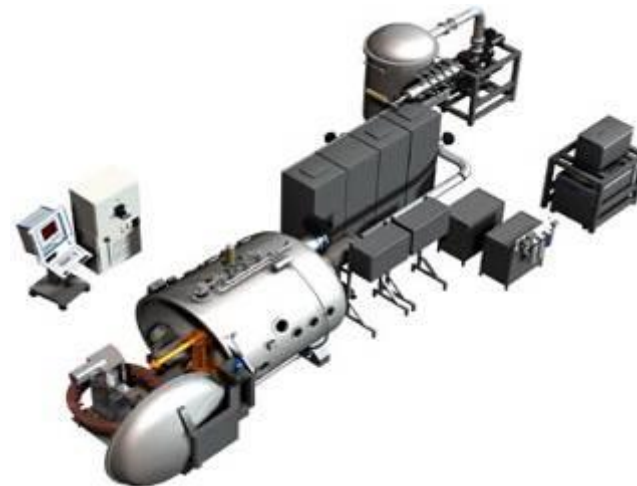
# Equipment Highlights

Powder Combustion	Wire Combustion	Arc Wire	HVOF	Plasma	Accessory & Handling
<p><b>Spray Guns</b></p> <ul style="list-style-type: none"> <li>6P-II</li> <li>5P-II</li> <li>6PT-II</li> <li>5PT-II</li> </ul> <p><b>Controllers</b></p> <ul style="list-style-type: none"> <li>6C</li> <li>6CE</li> <li>3GF</li> <li>3AF</li> </ul> <p><b>Feeders</b></p> <ul style="list-style-type: none"> <li>5MPE</li> <li>9MP</li> <li>Twin 10 C</li> </ul> <p><b>Air Control</b></p> <ul style="list-style-type: none"> <li>6A</li> </ul>	<p><b>Spray Guns</b></p> <ul style="list-style-type: none"> <li>16E</li> <li>5K</li> <li>3XT</li> <li>5XT</li> </ul> <p><b>Controllers</b></p> <ul style="list-style-type: none"> <li>6CW</li> <li>6CEW</li> <li>3GF</li> <li>3AF</li> </ul> <p><b>Mobile</b></p> <ul style="list-style-type: none"> <li>Roadrunner</li> </ul> <p><b>Air Control</b></p> <ul style="list-style-type: none"> <li>6A</li> </ul>	<p><b>Spray Guns</b></p> <ul style="list-style-type: none"> <li>PPG</li> <li>PPGT</li> <li>CAP 150</li> <li>CAP 300</li> <li>LD/U3</li> <li>LD/U2</li> <li>Robo 300</li> <li>LD/SE2</li> <li>Tube 300</li> <li>VisuArc 350</li> </ul> <p><b>Arc Units</b></p> <ul style="list-style-type: none"> <li>SmartArc</li> <li>CAP 150</li> <li>CAP 300</li> <li>EcoArc 250</li> <li>EcoArc 600</li> <li>FlexiArc 200</li> <li>FlexiArc 300</li> <li>Robo 300</li> <li>StrongArc</li> <li>Tube 300</li> <li>VisuArc 350</li> </ul>	<p><b>Spray Guns</b></p> <ul style="list-style-type: none"> <li>Diamond Jet <ul style="list-style-type: none"> <li>Air cooled</li> <li>Water cooled</li> </ul> </li> <li>WokaJet</li> <li>WokaStar</li> </ul> <p><b>Controllers</b></p> <ul style="list-style-type: none"> <li>DJC</li> <li>MultiCoat HVOF</li> <li>UniCoat LF</li> <li>UniCoat GF</li> <li>UniCoat GLF</li> </ul> <p><b>Feeders</b></p> <ul style="list-style-type: none"> <li>Single 120-H</li> <li>Single 220-H</li> <li>Twin 120-H</li> <li>9MP-DJ</li> </ul> <p><b>Cooling Units</b></p> <ul style="list-style-type: none"> <li>Climet-RC-HV</li> </ul>	<p><b>Spray Guns</b></p> <ul style="list-style-type: none"> <li>9MB</li> <li>3MB</li> <li>F4</li> <li>Triplex</li> <li>Triplex Pro</li> <li>11MB</li> <li>F210</li> <li>F100</li> <li>O3CA</li> </ul> <p><b>Power Supplies</b></p> <ul style="list-style-type: none"> <li>10MR</li> <li>TriStar IPS</li> <li>PT 1120</li> </ul> <p><b>Cooling Units</b></p> <ul style="list-style-type: none"> <li>Climet-HE</li> <li>Climet-RC</li> </ul> <p><b>Controllers</b></p> <ul style="list-style-type: none"> <li>9MC</li> <li>MultiCoat</li> <li>UniCoat</li> </ul> <p><b>Feeders</b></p> <ul style="list-style-type: none"> <li>Single 120-A</li> <li>Single 220-A</li> <li>Twin 120-A</li> <li>Twin 10 C</li> <li>9MP</li> <li>5MPE</li> </ul>	<p><b>Accessories</b></p> <ul style="list-style-type: none"> <li>Spray booths</li> <li>Spray hoods</li> <li>Vacuum chambers</li> <li>Exhaust &amp; filtration units</li> <li>QuikSwap AP</li> </ul> <p><b>Handling &amp; Manipulation</b></p> <ul style="list-style-type: none"> <li>Robotics</li> <li>Turntables</li> <li>Traverse units</li> <li>RotaPlasma</li> <li>Carousels</li> <li>Gantries</li> </ul> <p><b>Sensors &amp; Controls</b></p> <ul style="list-style-type: none"> <li>Accuraspray-g3</li> <li>SpraySentry</li> </ul>

# Integrated Thermal Spray Systems

- **Fully engineered systems using state-of-the-art equipment for all processes**

- Guns
- Controllers
- Powder and wire feeders
- Power and gas supply units
- Auxiliary Systems
- Robotics
- Diagnostics



- **Manual and automated**

- **Standardized and customized systems**

- **System integration services**

- Needs consultation
- Engineering design
- Customized handling
- Facilities support
- Installation
- Commissioning
- Training





To take control of your surface engineering challenges, contact:

- Your local Sulzer Metco Sales Office
- Visit our web site at <http://www.sulzermetco.com>
- Email us at [info@sulzermetco.com](mailto:info@sulzermetco.com)



***The Secret of Staying Ahead***