

Surface Solutions for Efficient

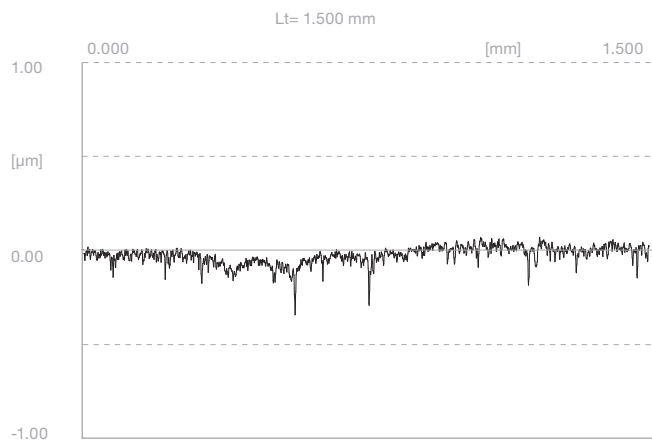
# Racing





**YOU ARE DRIVEN BY DEMANDS FOR ...**

- Performance
- Life time
- Lower costs
- Lighter components
- Reliability



*Measuring results for CAVIDUR® coated camshaft (after polishing):  
 $R_a$ : 0.02 µm,  
 $R_{pk}$ : 0.02 µm*

**OUR EXPERTISE ON SURFACES AT YOUR SERVICE**

## Gear Train



|                          | W-C:H | W-C:Hmod |
|--------------------------|-------|----------|
| Micro hardness (HV)      | 1000  | 1500     |
| Friction coefficient*    | 0.15  | 0.15     |
| Thickness (µm)           | 1-5   | 1-5      |
| Adhesion** LC (N)        | > 40  | > 40     |
| Coating temperature (°C) | < 200 | < 200    |

### Benefits through gear train coating:

- Coating made at low temperature (Max 200°C)
- High hardness (800 HV–1500 HV)
- Reduction of friction coefficient
- Reduction of wear and pitting
- Increase of life time
- Increased reliability and global performance

## Suspension

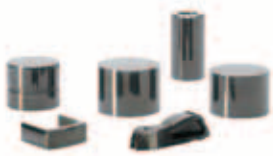
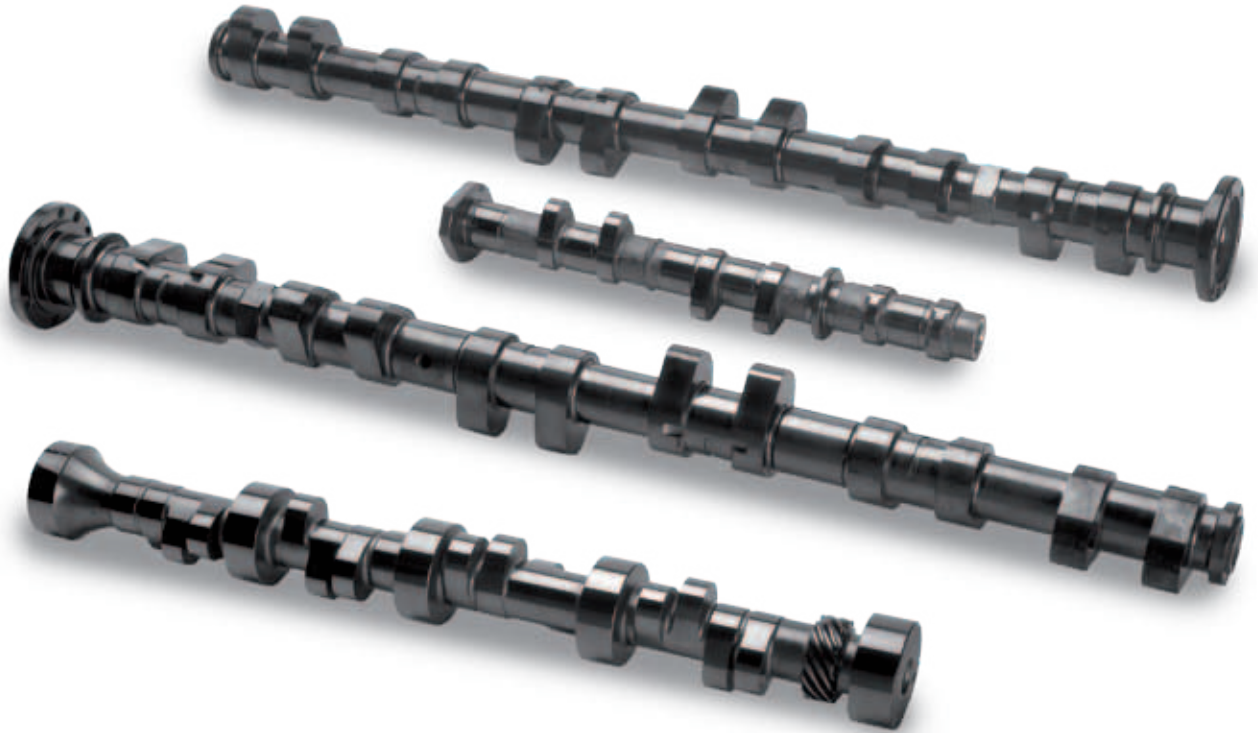


|                             | CAVIDUR®<br>BA | CrNmod  | TiN  |
|-----------------------------|----------------|---------|------|
| Micro hardness (GPa)        | 24             | 22      | 25   |
| Friction coefficient*       | 0.08           | 0.2     | 0.65 |
| Thickness (µm)              | 2.5-3          | 3-5     | 3-4  |
| Adhesion** LC (N)           | 24-26          | 38      | 36   |
| Coating temperature (°C)    | 180-200        | 500     | 400  |
| Max temperature of use (°C) | 400            | 650     | 550  |
|                             | black          | rainbow | gold |

### Benefits through suspension coating:

- Coating applied over the hard chromium
- Reduction of wear of the seal
- Reduction of licking
- Increase of drivability

# Valve Train and Valves



## Benefits through valve train and valve coating

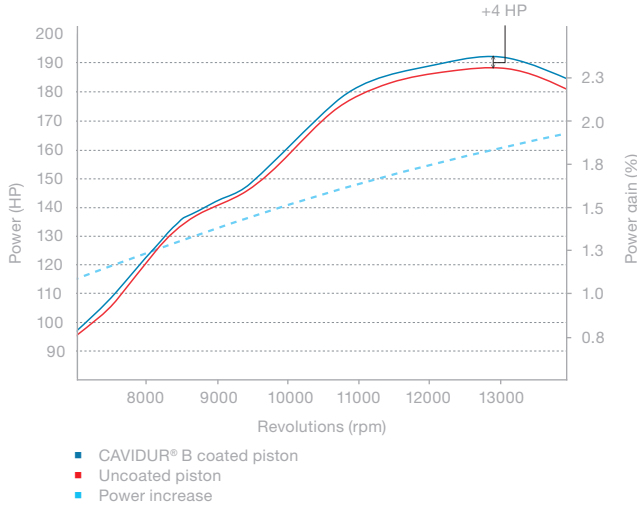
- Reduction of friction
- Reduction of wear
- Increase of performance
- Increase of reliability
- Increase of life time
- Lighter design allowed

|                             | CAVIDUR® B | CAVIDUR® BA | CAVIDUR® N | CAVIDUR® NF | CAVIDUR® W | CrN        |
|-----------------------------|------------|-------------|------------|-------------|------------|------------|
| Micro hardness (GPa)        | 24         | 24          | 30         | 25–30       | 35         | 23         |
| Friction coefficient*       | 0.08       | 0.08        | 0.1        | 0.09        | 0.1        | 0.5        |
| Thickness (µm)              | 2.5–3      | 2.5–3       | 3          | 3           | 3          | 3–5        |
| Adhesion** LC (N)           | 18         | 24–26       | 32         | 32          | 32         | 38         |
| Coating temperature (°C)    | 180–200    | 180–200     | 250–350    | 250–350     | 250–350    | 500        |
| Max temperature of use (°C) | 400        | 400         | 400        | 400         | 400        | 650        |
|                             | <b>DLC</b> |             |            |             |            | <b>PVD</b> |

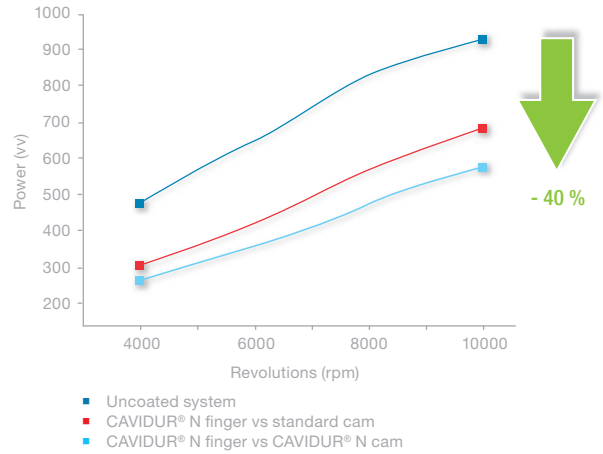
\* against steel in dry conditions  
 \*\* under constant load

# Crucial Competitive Advantages

**Increased power with coated pistons**



**Reduction of power loss due to friction**



Formula 1™ Engine W-C:H DTM Performance  
 Power NASCAR Friction CAVIDUR® WRC DLC



## WHAT CAN WE DO FOR YOU?

- Standard and custom coating solutions
- International presence and logistics for job coating:
  - Regional pick-up and delivery service
  - Experienced, qualified staff
  - Short reaction time through 24-hour operation
  - Web based order tracking
  - Preparation, pre-treatment, post-treatment
- Expertise transfer: consulting and training
- Cutting-edge thin film equipment

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The marked locations are specialized in handling and coating parts for racing applications.

## Sulzer Metco Thin Film

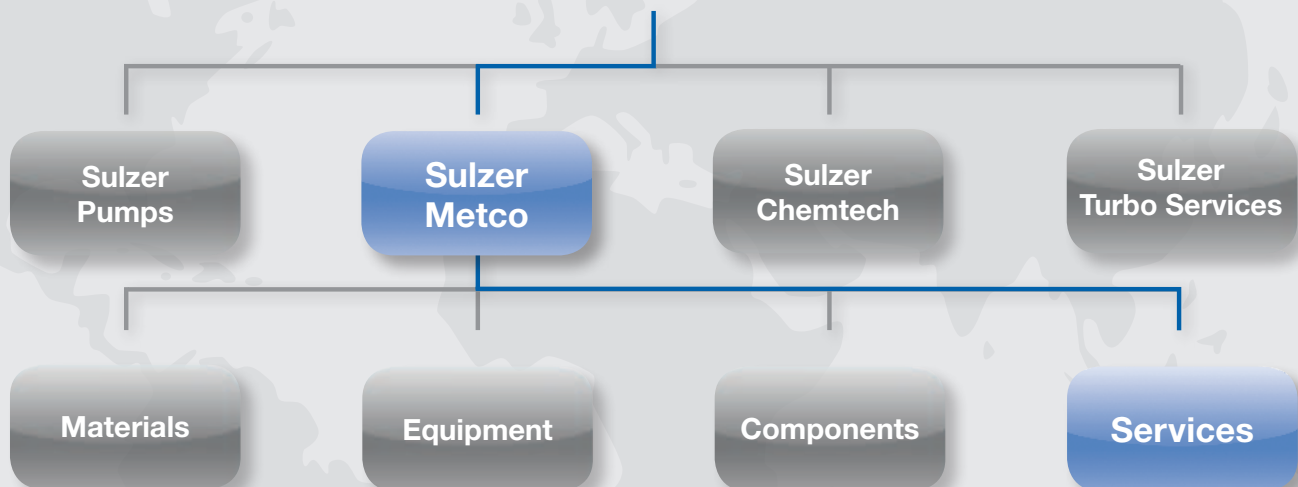
The company stands for many decades of coating expertise within the entire process chain – both in coating services and in thin film equipment. Under the umbrella of the the Sulzer Group, established in 1834 and based in Winterthur (Switzerland), the divisions are global leaders in their respective markets.

The division Sulzer Metco coats and refines surfaces. As part of this division, the Business Unit Services guaran-

tees the expertise of Sulzer Metco as a solution provider of surface coatings worldwide.

New employees, new locations and constant innovations expand and strengthen our development, production and service network so that we are closer to customers and can respond faster. The headquarters of Sulzer Metco Thin Film are located in Bergisch Gladbach near Cologne, Germany.

# SULZER



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