

SULZER

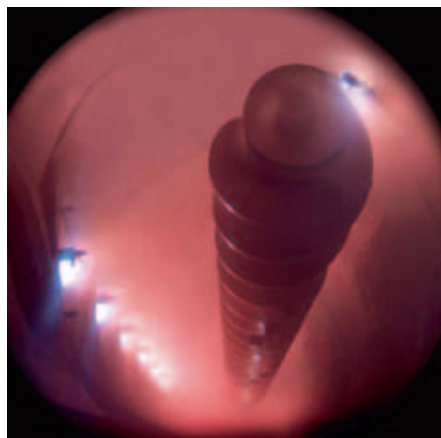
Sulzer Metco

Surface Solutions for Efficient
Plastics Processing



YOUR DEMANDS ...

- Longer tool life
- Lower maintenance costs
- Higher operational reliability
- Corrosion protection
- Reduction of sticking
- Protection against cleaning-related wear and damage
- Inert surfaces
- Experts who understand the details of your application and can therefore deliver surface solutions to meet the challenges

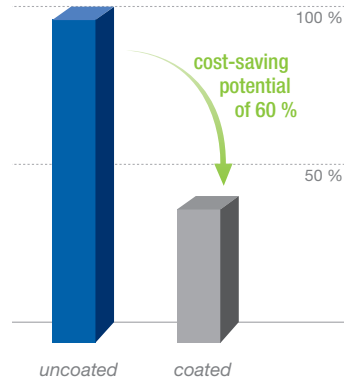


Immediate Benefits via Customised Coatings

Extrusion and Injection Moulding Screws

Advantages of PVD coatings in plastics and elastomer processing:

- Reduction of abrasive wear
- No catalytic decomposition
- Preservation of surface topology
- Reduction of purging compound
- Faster purging times
- Better flow characteristics
- Reduced sticking
- Extended maintenance intervals







- Hardness
- Rigidity
- Inert surfaces

- Sticking
- Scratches
- Abrasive wear
- Corrosion

Large Components? – Our Speciality!

If you need to coat especially long or voluminous components, we have the necessary capacity.

Depending on the process, we treat tools up to 12,000 millimetres in length and up to 1,800 millimetres in diameter.

| | Plasma nitriding | | PVD | |
|---------------|---|--|---|---|
| | Long parts | Big parts | Long parts | Big parts |
| Length (mm) | up to 12,000 | up to 2,600 | 4,500 | up to 1,900 |
| Diameter (mm) | up to 600 | up to 1,800 | up to 600 | up to 1,500 |
| Volume |  3.39 m ³ |  6.62 m ³ |  1.27 m ³ |  3.36 m ³ |

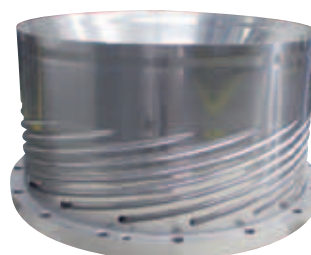
Screws



Screw tips



Die heads/ spiral mandrel distributors



Further applications

- Calibration units
- Jet nozzles
- Film extrusion dies
- Melt pumps
- Elastomer-processing tools

Immediate Benefits via Customised Coatings

- Hardness
- Amorphous surface
- Biocompatibility (100 %)

- Lubricants
- Corrosion
- Galling/cold welding

Success Stories

Caps for Nail Varnish Bottles with afterwards Decorative Chrome Coating

BEFORE: WCC without grease

- Rather fast adhesive wear (galling) within 6-12 months
- Black visible abrasion on produced caps



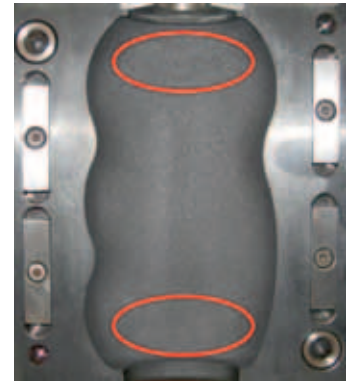
NOW: DYLYN®/DLC without grease:

- In use since 2002 – so far no rework
- No burn-in period, so no black abrasion visible

Cosmetic Bottles in PE with Matt Design (Manufactured with Extrusion Blow Moulding Process)

BEFORE: uncoated

- Erosion of the soft basis material and residues in the red circled areas causing negative effect on the bottles
- Twice a week production stops to rework the texture and to remove residues (blasting)
- Thereby increased wear (edges) and additionally danger of damage (handling)



NOW: DLC + DYLYN® 360

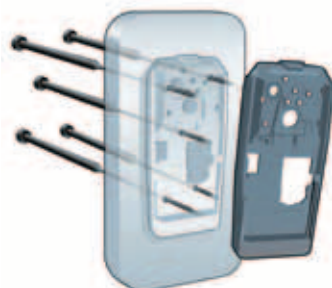
Production feedback after eight months:

- Production without reworking at the surface and any production stops

Thread cores



Ejector pins



PET preform cores



Further applications

- Cooling cores
- Insert cores
- Ejector bushings
- Sprue bushings
- Neck rings
- Base inserts

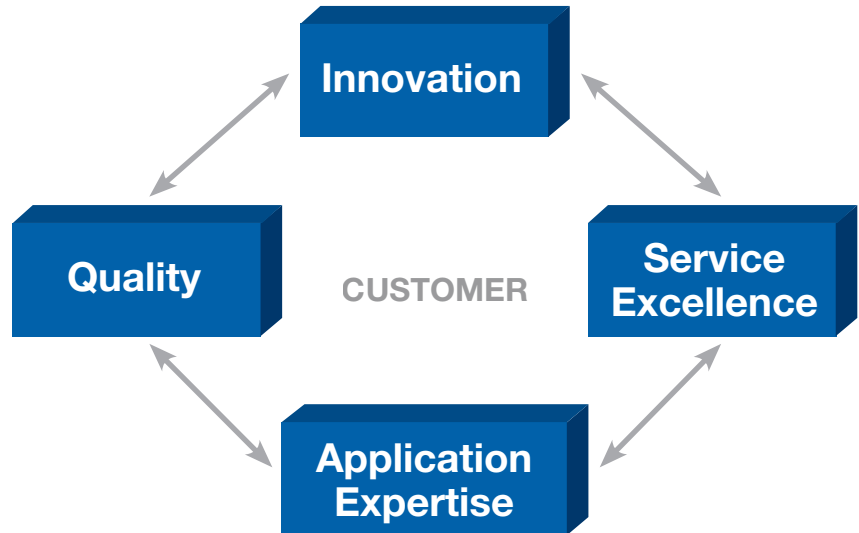
Valuable Competitive Advantages

We provide to our customers the competitive edge by prolonging the life time and reducing maintenance costs. Combined with our application expertise and our surface solutions we significantly improve tool performance with high surface hardness, low wear, corrosion protection and reduction of sticking.

The application expertise of our sales team is not just a phrase: Most of our employees were already in plastics processing for many years before working with us, and have gained important experience which they can transform now into surface solutions – together with our customers.

This application expertise and Sulzer Metco Thin Film's comprehensive range of surface treatment methods are the basis for implementing real solutions.

Our Range of Benefits



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menting real solutions.



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 locations marked in grey are specialised in handling and coating parts for extrusion.

The locations marked in blue are specialised in handling and coating parts for injection moulding.

Sulzer Metco Thin Film

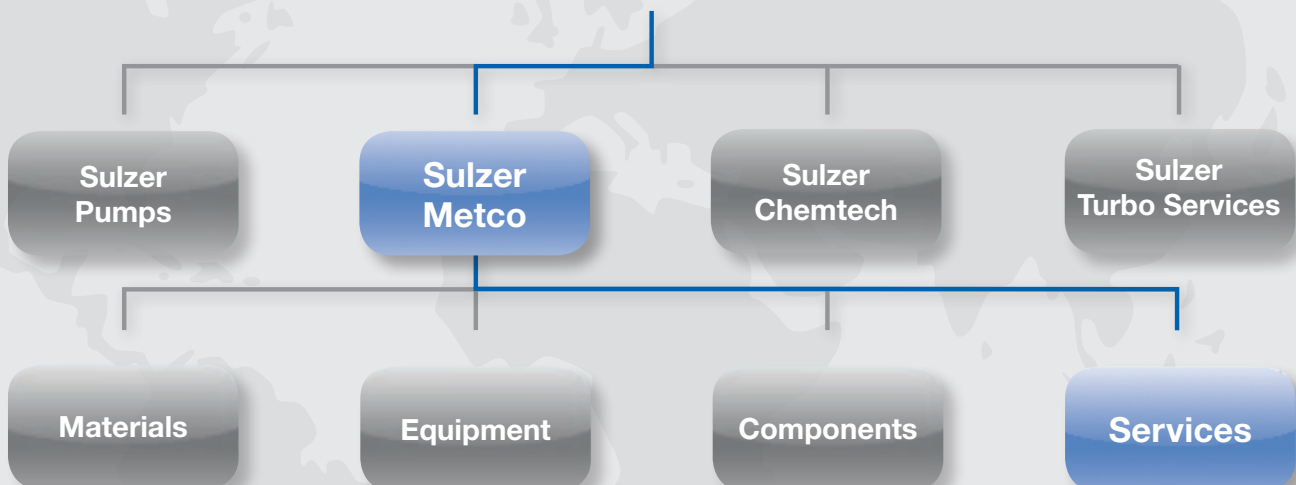
The company stands for many decades of coating expertise within the entire process chain – both in coating services and in thin film equipment. Under the umbrella of the the Sulzer Group, established in 1834 and based in Winterthur (Switzerland), the divisions are global leaders in their respective markets.

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.

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