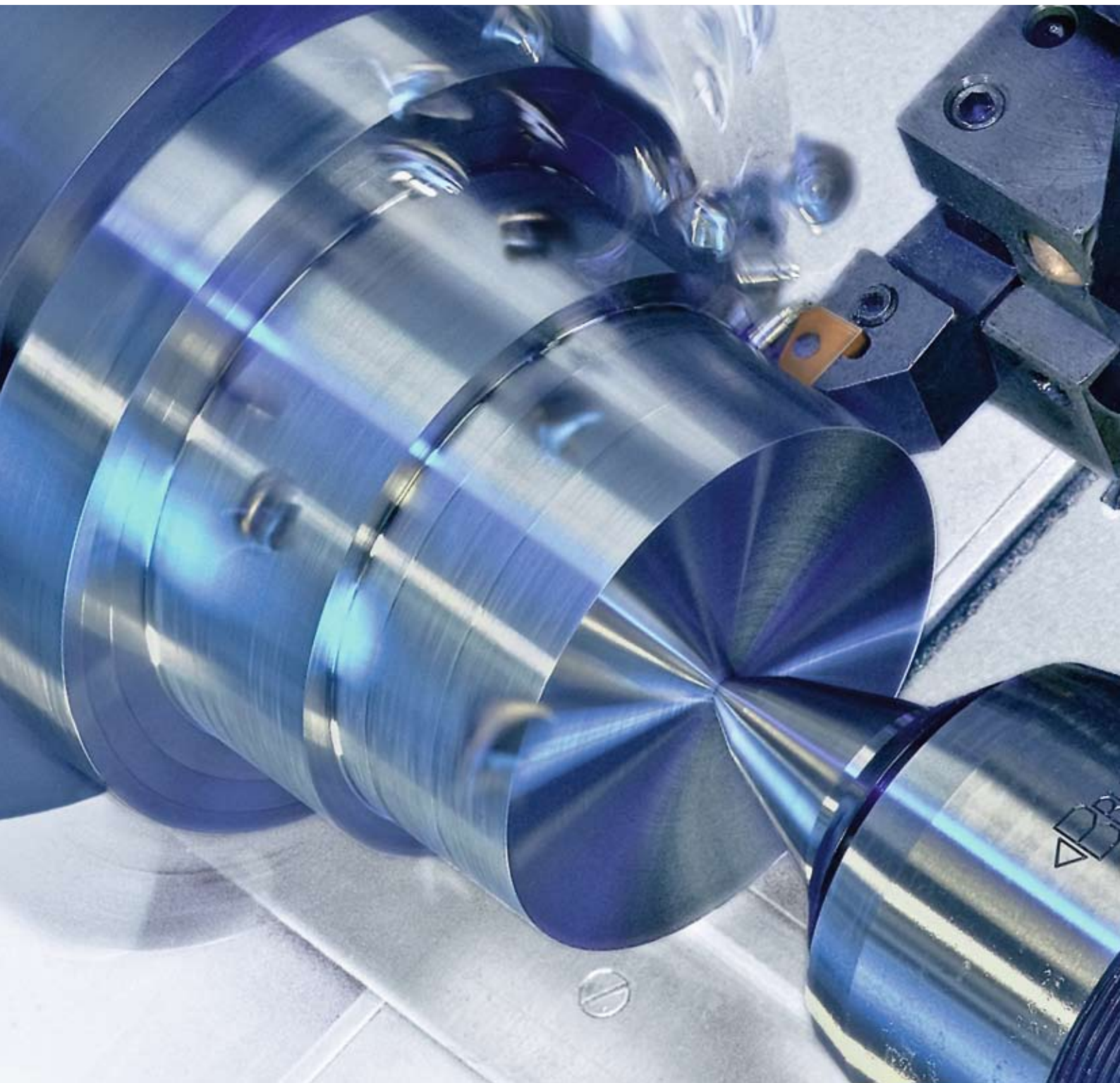


SULZER

Sulzer Metco

Surface Solutions for Efficient
Machining





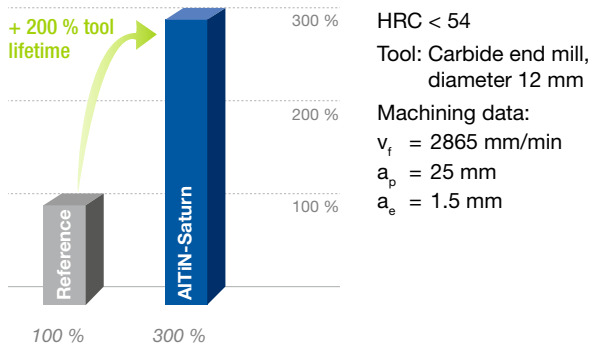
YOU ARE DRIVEN BY DEMANDS FOR ...

- Enhanced wear protection
- Improved thermal protection
- Enhanced tool performance
- Extended tool life
- Reduced life-time costs of the tools
- Higher cutting speeds and feed rates
- Bigger depth of cut
- Savings in cooling lubricants, separating agents
- Environmentally-friendly production

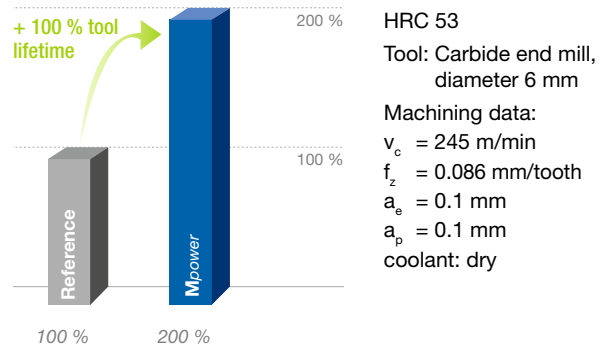


Substantial Tool Life Improvement

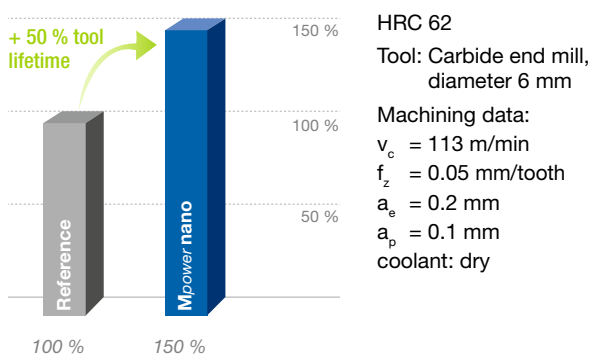
Milling of mold steel



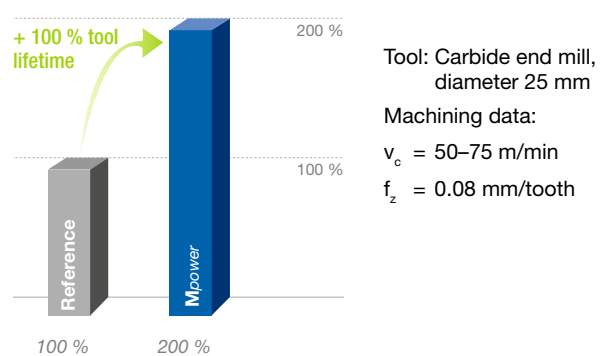
Milling of 1.2767 (X5NiCrMo4)



Milling of 1.2379 (X155CrVMo12 1)



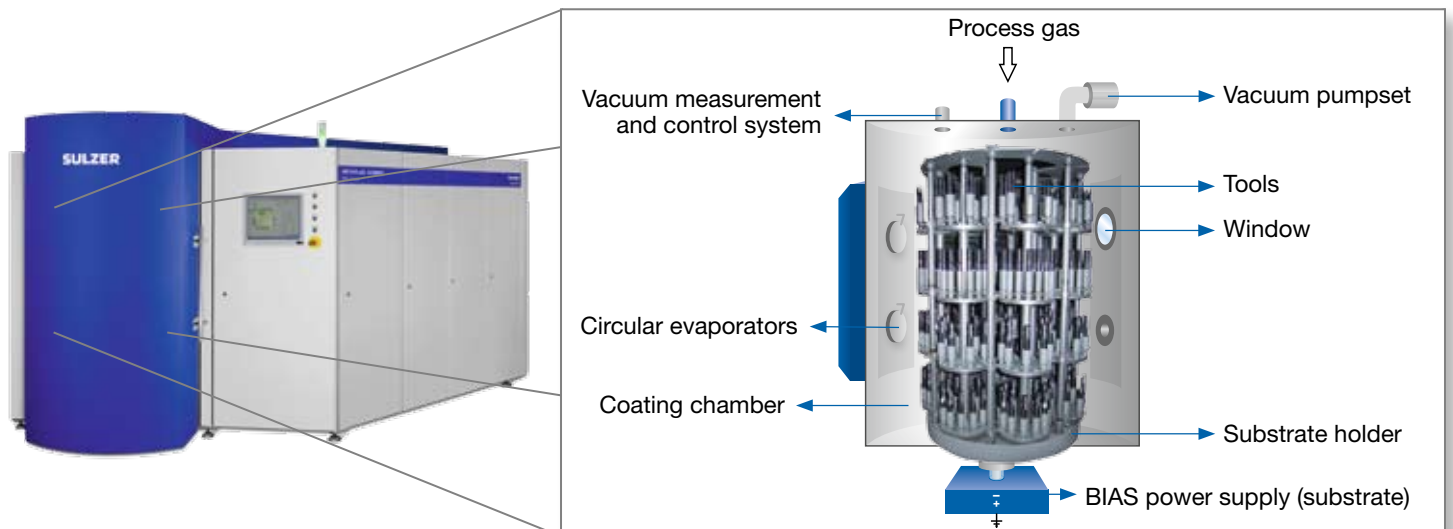
Rough milling of beta-Ti (Ti3Al8V6Cr4Zr4Mo)



MAXIT PVD ARC Coating System and Principle Layout

The APA ARC and the Standard ARC technology (see illustration), i. e. the most common processes utilized in this industry, are part of our core competencies. Also, certain machining applications benefit from our W-C:H and DLC

coatings. The latter play a strong role in Aluminium machining. Our recent developments in the area of HIPIMS-technology (High-Power Impulse Magnetron Sputtering) carry interesting potentials for future applications.



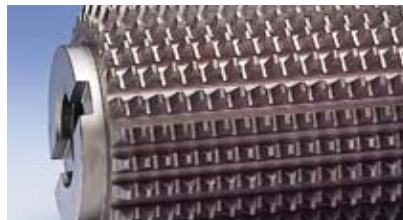
Thin Film Coatings for Machining – Specifications and Properties

Coating	Composition	Colour	Hardness (HV)	Friction Coefficient Against Steel	Working Temp. (°C)	Recommended Applications
M_{power}	TiAlSiXN	Copper	3600	0.45	1150	Drilling, milling of stainless steel
M_{power}*	TiAlSiXN (multi-, nanolayer)	Copper	3600	0.45	1150	Turning, milling of steel 58–65 HRC
M_{tec}	AlTiN (Al55Ti45)	Anthracite	3400	0.4	900	Drilling of unalloyed steel
M_{force}	AlCrXN	Steel grey	3300	0.4	1100	Hobbing of alloyed and unalloyed steel
Saturn	AlTiN (Al66Ti34)	Anthracite violett	3400	0.4	900	Drilling, milling and turning of steels and Ni-Alloys
Saturn + ZrN	AlTiN, ZrN	Light gold	3400	0,3	900	Milling, turning of Ti-Alloys, stainless steel
TiN	TiN	Gold	2500	0.4	700	Broaching of unalloyed steel
TiCN	TiCN (monolayer, gradient, multilayer)	Grey, copper	3000	0.3	500	Threading of alloyed steel, cast Aluminium alloys
DLC	W-C:H + a-C:H	Black	2200–2800	0.1	350	Threading and broaching of cast and wrought Aluminium alloys
W-C:H	W-C:H (on hard coatings)	Black	1000–1500	0.15	350	Threading and broaching of cast and wrought Aluminium alloys, Titanium and Titanium alloys
CrNmod	CrN (multilayer with toplayer)	Rainbow	2500	0.3	700	Drilling, milling, threading of wrought Aluminium alloys



Cutting

- Indexable inserts
- Drilling tools
- Milling tools
- Threading tools



Indenting

- Hobs
- Form cutters
- Cutting wheels
- Cutting knives and stick blades



Broaching

- Broaches
- Profile broaching tools
- Spiral broaching tools

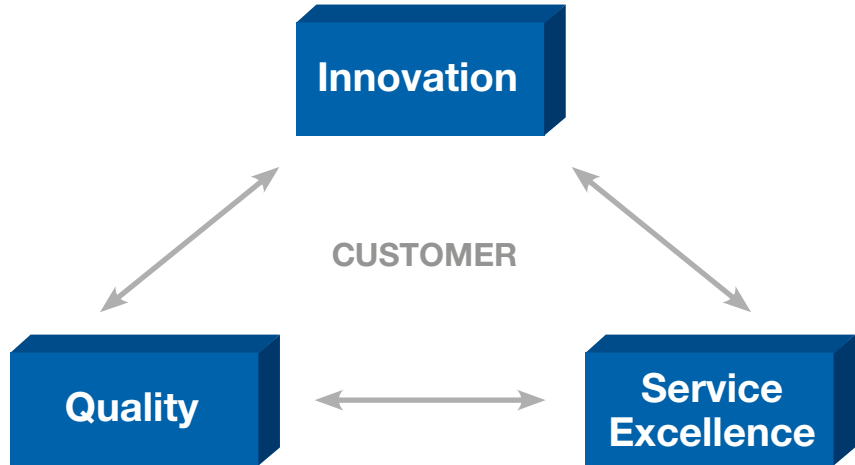
Crucial Competitive Advantages

For an industry that is to such a high degree driven by the demand for longer tool life, our main focus is to make every single tool more durable.

The results are significantly reduced production costs. Also, by allowing higher cutting rates, the coated tools make for shorter delivery times.

Our handling expertise for all kinds of parts completes the performance portfolio.

Our Triangle of Benefits



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
 - Webbased order tracking
 - Preparation, pre-treatment, post-treatment
- Expertise transfer: consulting and training
- Cutting-edge thin film equipment
- Individual Shop-in-Shop concepts

Sulzer Metaplas GmbH
Germany
Headquarters
Am Böttcherberg 30–38
51427 Bergisch Gladbach
Tel.: +49 2204 299-0
Fax: +49 2204 299-266
e-mail: metaplas@sulzer.com

Sulzer Metaplas GmbH
Germany
Theodor-Heuss-Straße 63
38228 Salzgitter
Tel.: +49 5341 8587-0
Fax: +49 5341 8587-16
e-mail: thinfilm.salzgitter@sulzer.com

Sulzer Metaplas GmbH
Germany
Bernd-Beltrame-Straße 5
09399 Niederwürschnitz
Tel.: +49 37296 9324-0
Fax: +49 37296 9324-119
e-mail: thinfilm.niederwuerschnitz@sulzer.com

Sulzer Metaplas GmbH
Germany
Oststrasse 68
32051 Herford
Tel.: +49 5221 6933-30
Fax: +49 5221 6933-25
e-mail: thinfilm.herford@sulzer.com

Sulzer Metaplas GmbH
Germany
Im Ghai 20
73776 Altbach
Tel.: +49 7153 613117-0
Fax: +49 7153 613117-9
e-mail: thinfilm.altbach@sulzer.com

Sulzer Sorevi S.A.S.
France
125 Rue des fougères
74890 Bons-en-Chablais
Tel.: +33 4 50 31 40 06
Fax: +33 4 50 31 75 34
e-mail: thinfilm.bonsenchablais@sulzer.com

Sulzer Sorevi S.A.S.
France
5 Allée Skylab – Parc d'Ester
BP 6810
87068 Limoges Cedex
Tel.: +33 5 55 37 04 90
Fax: +33 5 55 38 13 35
e-mail: thinfilm.limoges@sulzer.com

Sulzer Metco (US) Inc.
USA
6000 North Bailey Avenue, Suite 9
Amherst, NY 14226
Tel.: +1 716 270 2228
Fax: +1 716 270 2230
e-mail: thinfilm.amherst@sulzer.com

Sulzer Metco (US) Inc.
USA
12 T.W. Alexander Dr., Bldg. 200 Suite B
Research Triangle Park, NC 27709
Tel.: +1 919 485 6001
Fax: +1 919 485 8995
e-mail: thinfilm.rtp@sulzer.com

**Sulzer Metco
Surface Technology (Shanghai) Co. Ltd.**
P.R. China
666 Min Bei Road
Minhang, Shanghai 201107
Tel.: +86 21 5226 2000
Fax: +86 21 5226 4701
e-mail: smcn.shanghai@sulzer.com

The marked locations are specialized in handling and coating parts for the machining industry

Sulzer Metco Thin Film

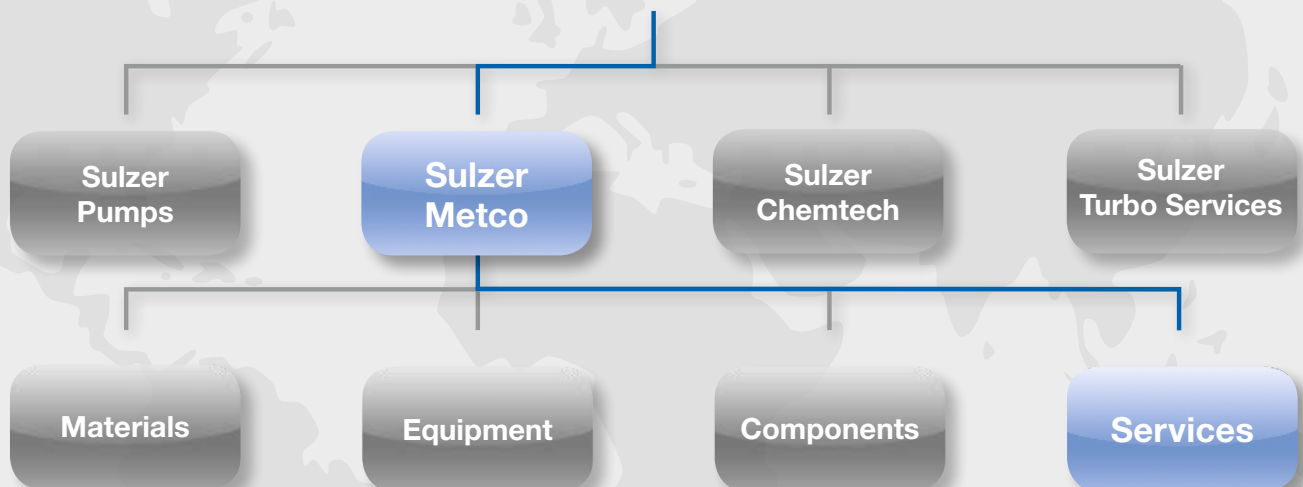
The company stands for many decades of coating expertise within the entire process chain – both in coating services and in thin film equipment. Under the umbrella of the the Sulzer Group, established in 1834 and based in Winterthur (Switzerland), the divisions are global leaders in their respective markets.

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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