

Coating types

Overall characteristics of Dylun®/DLC

- coating thickness varies from 2-3µm - up to 8µm possible
- coating of difficult shapes and geometries are in general no problem

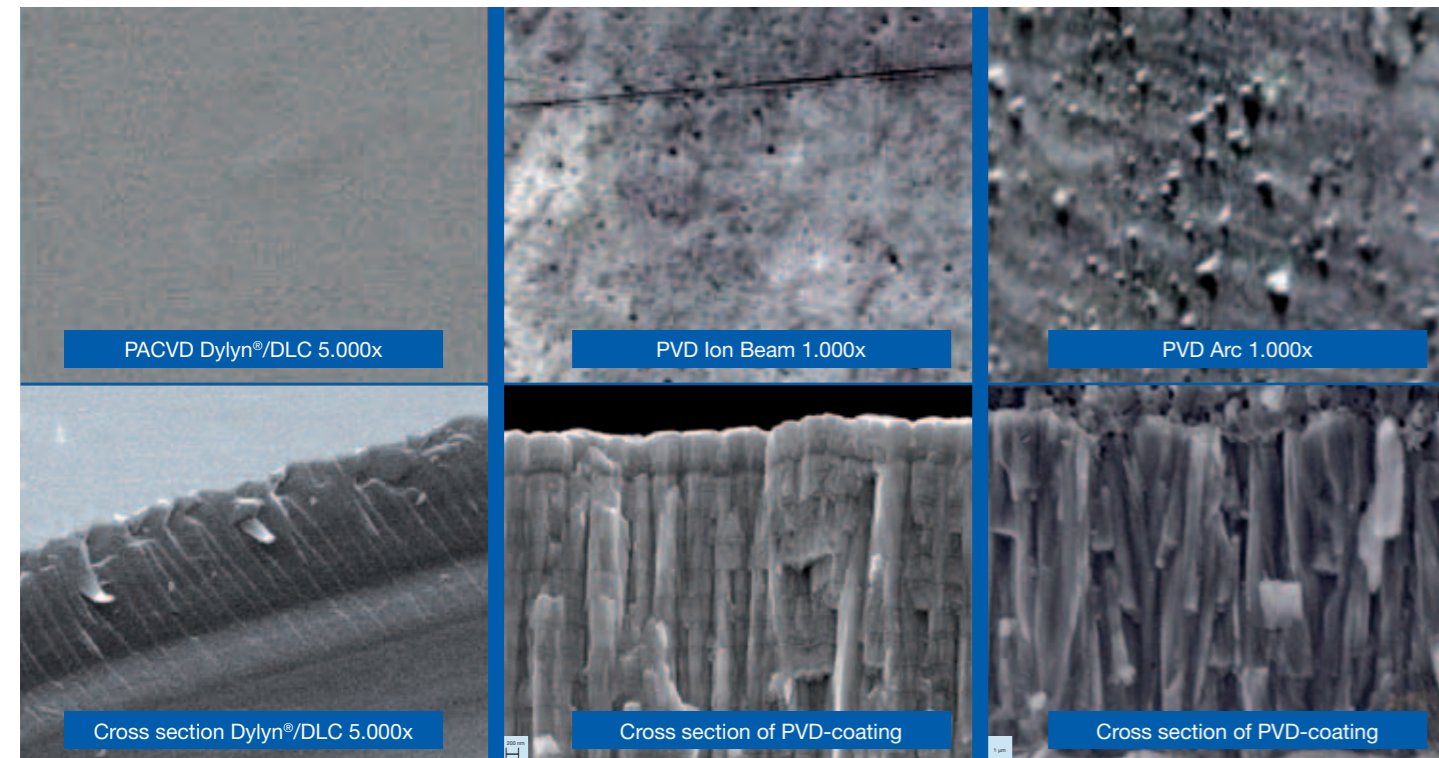
coating type	microhardness		coefficient of friction against steel (dry conditions)	surface energy (mN/m)	working temperature	deposition temperature
	Vickers	Rc				
Dylun®/DLC	3000	85	0.12	42	570° F 300° C	390° F < 200° C
Dylun®	1800	78	0.05	30	570° F 300° C	
For comparison :						
TIN	2300	80	0.4 - 0.5	40 - 42	840° F 450° C	482 - 932° F 250 - 500° C
Chrome	1000	68	0.2 - 0.4	50 - 60	600° F 325° C	122 - 176° F 50 - 80° C
Nickel Teflon	800	60	0.1 - 0.2	20 - 30	480° F 250° C	

hardness

Material	Hardness (HV)
Diamond	8000
DLC	3000
TIN	2300
CrN	2000
Dylun®	1800
WCC	1000
Hard Chrome	1000
Nickel Teflon	800
52100	800

coefficient of friction

Material	Coefficient of Friction
PTFE	0.05
Dylun®	0.05
DLC	0.12
Diamond	0.4
Nickel Teflon	0.15
WCC	0.25
Hard Chrome	0.3
TIN	0.45
CrN	0.45
52100	0.7

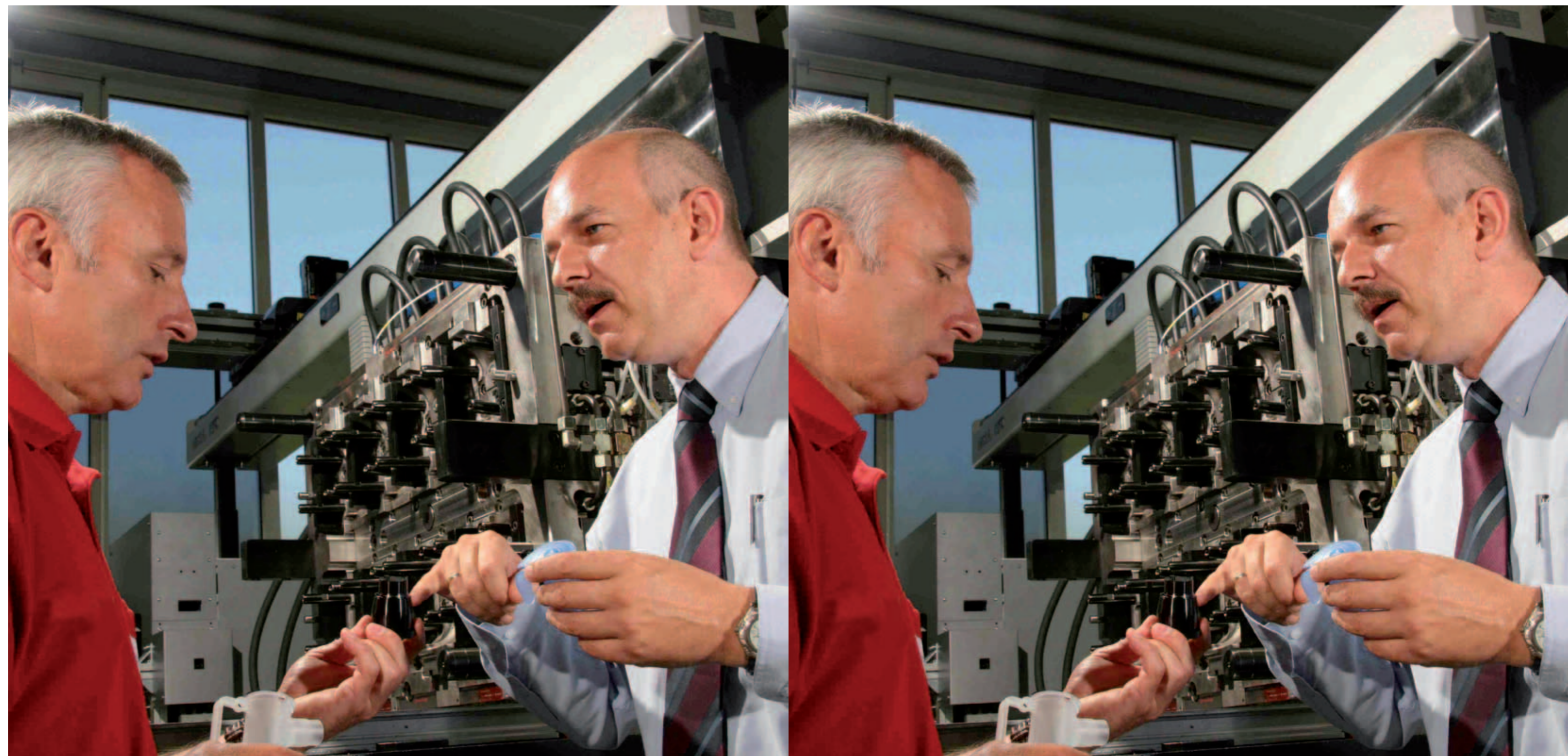


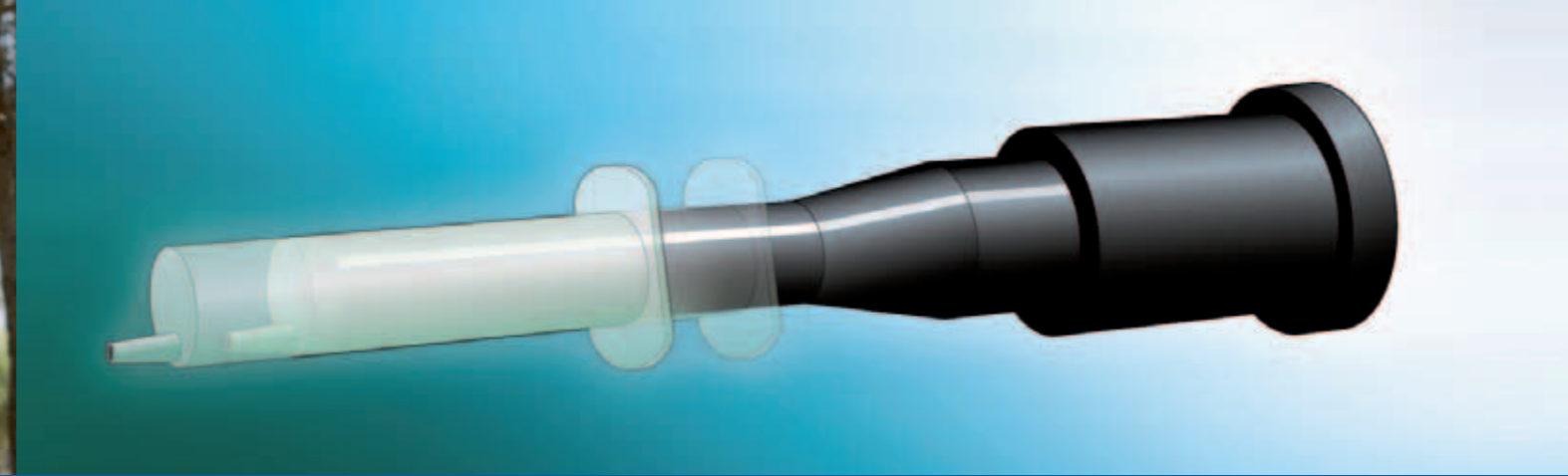
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Sulzer Metco

Dylun®/DLC coatings for plastic injection
Coatings that improve uptime and reduce maintenance





What kind of coating properties can improve the uptime of your injection machines?

In plastic part manufacturing it is all about uptime and increasing speed. Maintenance cycles are a crucial component of manufacturing costs. DLC coatings can bring you to the next level...

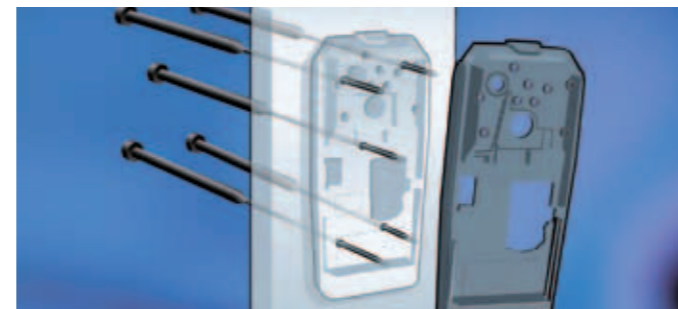
Coating properties

- Low surface energy
- Low microporosity
- High hardness
- Low friction
- Conformal coating
- Low coating thickness (2-3µm)
- Low deposition temperature
- Biocompatible
- Conformal coating



Your added value

- High wear resistance
- Consistent release
- Corrosion resistance
- Less maintenance
- Little or no lubricants needed
- No galling or cold welding
- Less production stops
- No change of mold design needed



Mobile phone | Ejectors



Sight glasses of mobile phones | Mold inserts



Syringes | Ejector bushings



Medical | Ejector pins



Caps & closures | Thread cores & ejector sleeves



Caps & closures | Caps for nail varnish bottles



PET preform | Cores



PET bottles | Blow mold

Moving mold parts and form giving mold parts : unique coating recipes

We have separated mold components into two functional groups having unique functions and for this reason use different types of coatings for each group. The reasons for the group split and the unique properties that optimize coating performance for each group are shown below.



Moving mold components

Unique benefits: reduce operational costs by increasing lifetime of mold components

- Less wear so longer life of moving parts
- Less galling
- Increased protection against corrosion
- Less or even no use of lubricants
- Less and shorter start and stop of machines

Moving parts that perform better with Sulzer Dylun®/DLC

Ejector pins, sliders, thread cores, ejector sleeves, leader pins, collapsible cores, wear plates, ...



Form-giving mold components

Unique benefit: increase uptime by lubricant free production

- Less build up of residues on the mold surface
- Better protection against corrosion
- Better protection of the surface against scratches
- Less abrasive wear
- No increase of roughness after coating
- Preservation of release properties

Moving parts that perform better with Sulzer Dylun®/DLC

Cores used on PET preforms or syringes, blow molds using PET preforms for bottles and tubes, mold cavities used in the manufacturing of lenses, cell phone screens or caps & closures, ...

Cost savings analysis

Find out if your company will benefit from the use of Dylun®/DLC coatings. Calculate potential cost savings by inputting real operating figures. Send a mail to thinfilm.sulzermetco.com and we will send the calculation sheet to you.