

# functional anti-friction and special coatings

future-oriented systems for the reduction of  
noise and improvement of the gliding properties



surface  
technologies

## powerful and environmentally friendly systems

Aalberts surface technologies in Solingen is the right market partner for you when it comes to maintenance-free lifetime lubrication, permanent corrosion protection without greases or oils, and noise reduction.

we make  
your surfaces  
future-proof



We are happy to take care of our customers' challenges regarding the reduction of friction, wear and noise. You benefit from the following advantages:

- All GLISS-COAT®-coating systems “made in Solingen”
- Process diversity through individual requirements
- Material independent coating systems (metal, plastic)
- High temperature applications possible
- Economic functionality through elimination of maintenance, easier service and avoidance of production downtimes
- Assurance of consistent quality through automated application methods
- Interdisciplinary applications
- Our own development laboratory



Noise and high sound levels are increasingly a burden. Coatings provide an assistance.

All technical values published in this brochure are subject to the test conditions specified. We therefore emphasize that the applications and operating conditions, along with the end user's practical experience, will ultimately determine the level of performance achieved by the coating and/or coating system.

## what is GLISS-COAT®?

GLISS-COAT® refers to dry lubricating anti-friction coatings developed by Alberts surface technologies reduce friction and wear. The coating materials are water-soluble, free of heavy metals and can be applied using various methods.

### how are GLISS-COAT®-layers created?

Individual parts are coated using automated flat spraying systems, while small mass-produced parts are treated in hot drums. The flow behavior of the coatings is adjusted to avoid disturbing edge build-up and drop formation at the edges and the bores.

Most GLISS-COAT®-coatings must be dried after application to the surface of the workpiece to ensure that the systems obtain the desired properties in terms of adhesion, hardness, corrosion protection and lubrication.

### GLISS-COAT®-refinable materials

Depending on the process variant all technically interesting

- metals
- light metals
- plastics

Special applications, among others

- paper
- fleece
- plastic and metal foils
- ceramics



The coatings are developed and tested in our own laboratory.

### advantages of GLISS-COAT®-coatings compared to greases and oilsölen

- repulsion of dust and dirt
- formation of a homogeneous gliding layer
- firm anchoring to the substrate
- no discharge of the medium, therefore ecological advantages
- durable corrosion protection
- partial coating possible
- in many cases lifetime lubrication
- minimization of noises (e.g. squeaking and creaking)
- dry lubricating

## process variants

| 100-W<br>200-W  | 200-W-<br>60P          | 200-W-<br>KP                           | 200-W-<br>S03                                    | 400-W   | 400-W-<br>GD           |
|---|------------------------|--|--|---|------------------------|
| water-based, solvent-free coating systems (basic systems) | universally applicable | with additional anti-corrosion pigment | black dyed surface with anti-friction properties | high-temperature coating, usable up to 600 °C | welding nozzle coating |

## multifunctional combination coatings GLISS-COAT® 2000

There are applications where a coating with GLISS-COAT® alone is not sufficient. In such cases, **combination coatings consisting of an undercoat and a GLISS-COAT®-layer are suitable** (GLISS-COAT® 2000). This is the case, for example, if special requirements are placed on wear and corrosion protection or on the high-pressure absorption capacity of the coating. If the component to be coated consists of an aluminum alloy, a hard-anodized layer (HART-COAT®) is often used as an undercoat.

The pin-disc tribometer test has shown that a combination of a GLISS-COAT®-layer and a HART-COAT®-layer has **a service life almost three times as long as** the corresponding GLISS-COAT®-layer alone. The service life is defined here by the time in which the coefficient of friction is below 0.3. The **wear**, measured by the abrasion of the layer until the end of its running-in period, is **half as much** with the combination coating as with the **GLISS-COAT®-layer alone**.

Toothed belt pulleys made of an aluminum alloy are an example of a mechanical engineering application. The toothed belt pulley has been completely

hard anodized to improve wear protection. A GLISS-COAT®-coating has also been applied to the toothing surface. The combination layer GLISS-COAT® 2000 produces a higher level of wear protection than each layer could produce individually. Therefore, the combination also improves the service life. A pleasant side effect of the GLISS-COAT®-coating is the reduction of noise.



Toothed belt pulley made of an aluminum alloy that has been hard anodized using the HART-COAT® process. The toothing surface was additionally coated with GLISS-COAT®.

## friction-enhancing coating GLISS-COAT® STOP

Non-positive pigments are embedded in this layer system (see section of the REM image on the right). The static coefficient of friction of the layer is thus significantly increased. The layer applied by spraying connects two surfaces positively and thus ensures the transmission of force.



## areas of application

GLISS-COAT® is used wherever dynamic friction in tribological systems is to be improved, where permanent corrosion protection without greases and oils is required or where noise reduction is a priority.

### applications can be found in industries such as

- analytics
- apparatus engineering
- automotive industry
- aviation
- furniture industry
- insert and outsert injection molding technology
- lignite opencast mining
- mechanical engineering
- medical technology
- solar technology
- textile industry
- toolmaking
- wind turbines

### typical components for a GLISS-COAT®-coating

- bearings of engines, turbines and rotors
- bolts, screws, nuts
- coil compression springs for damping systems
- gears
- guides, rollers
- movable vehicle interior components, e.g. hinge pins, bearing bolts, locking rods, guide plates
- plain bearings, bushings
- rolling bearings
- seat locks
- spindles, shafts
- valves, cocks
- vehicle locks



Pendulum plates for swivel chairs, coated with GLISS-COAT® 200-W-60P



Shafts and springs made of steel, locking bolts made of plastic for car seats, each with GLISS-COAT® surface.

## seat frame

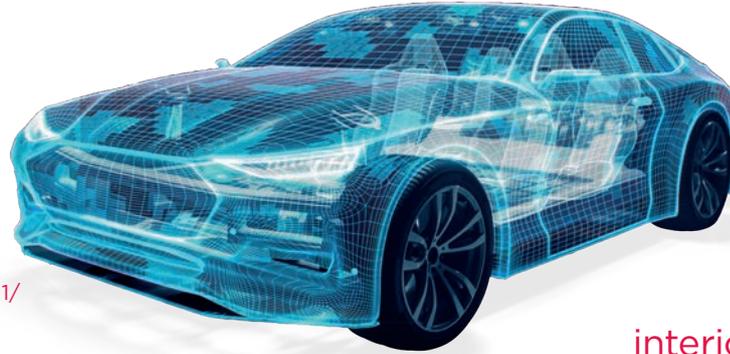
fittings  
brackets  
bearing bolts  
interlocks

## tailgate

safety bearings  
springs  
locking bars

## e-mobility

cupholders in  
lightweight  
construction  
motor brackets



## locks

bolts  
safety bearings  
pawls

## assistance systems

round symmetric anchors

## interior

armrests  
hinge axes  
slides and plates for cup holders

1/ Applications of GLISS-COAT® in the car.

2/ A drum manufacturer has developed a so-called ZoomBassDrum. The extendable and easily dismantled bass drum allows variable sound production and easy access to the inside of the shell. In the manufacturing process, the bass drum shells are now cut up and equipped with a zoom system.

The sliding rods of the zoom system are provided with the dry-lubricating anti-friction coating GLISS-COAT®, so that the distances between the shells can be adjusted easily and with little friction (infinitely variable). The decorative, dark coating makes the use of lubricating grease unnecessary.

3/ Polarizing filter rings for camera lenses are first chemically blackened and then coated with GLISS-COAT®. The black surface prevents light reflections. The reduction in the coefficient of friction of their surfaces facilitates assembly and disassembly of the polarizing filter rings.

4/ Automatic wind deflector systems reduce wind turbulence in convertible vehicles on all seats. In order to be able to operate the systems reliably without the use of grease, parts of the open mechanics (shown here in the rear) have been coated with GLISS-COAT®. In addition to the improvement in sliding properties, the black appearance and corrosion protection also play an important role here.



## GLISS-COAT® FLOCK

GLISS-COAT® FLOCK is a **coating to increase the absorption capacity for impact and noise**. For this purpose, a sliding GLISS-COAT®-adhesive is combined with polymer fibers.

During the frictional stress, a lubricating film is formed both on the polymer fibers and on the surface of the friction partner. The wear behavior is significantly improved. This effect can be increased even further by additional post-treatment and especially the running-in behavior can be optimized.

### GLISS-COAT® FLOCK refinable materials

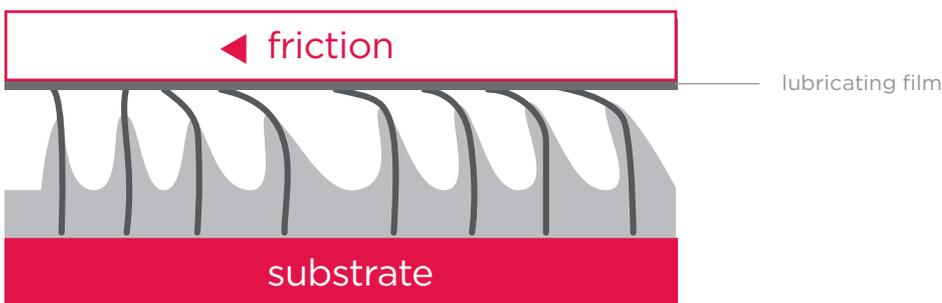
- anodized aluminum
- blasted metal surfaces
- phosphated ferrous materials
- plastics

### layer properties

- anti-friction properties
- flexible tolerance compensation
- improved corrosion resistance
- increased wear resistance
- increases shock absorption
- prevents squeaking, creaking and impact noises

### applications

- all types of springs
- boxes/casings
- guides
- gliding mechanisms
- locking pins
- profiles
- running rails
- bearings
- partial coatings possible too



During the frictional stress, a lubricating film is formed both on the polymer fibers and on the surface of the friction partner.

Compression springs coated with GLISS-COAT® FLOCK for automatic tailgate openings of passenger cars can absorb shocks and noise to a high degree.



# competence center

---

## individual coating of round symmetrical components

One of our specialties is the coating of round symmetrical components with bonded coatings. About 15 million components of this type are coated by us every year.

Aalberts surface technologies in Solingen is the competence center for the coating of round symmetrical components. **The application of anti-friction coatings is carried out on circular spraying machines.** An example of typical round symmetrical components are armatures for solenoid valves for switching and braking systems, which are becoming increasingly important in the automotive sector. Even after many millions of switching cycles, the coated armatures show no impairment of their anti-friction properties in endurance testing.

### characteristics of the individual coating of round symmetrical components

- uniform coating application
- narrow tolerance range
- high output
- partial coating possible
- suitable for water- and solvent-based bonded coating systems



Installations for the coating of round symmetrical components.

## what are phosphatings?

By chemical reactions of metallic surfaces with aqueous phosphate solutions a so-called conversion layer of firmly adhering metal phosphates is formed.

We carry out zinc-iron phosphatings and offer barrel phosphatings with and without oiling and rack phosphatings without oiling.

### characteristics of phosphatings

- a simple solution for low corrosion protection
- frequently used as transport protection
- only suitable for mild steel alloys
- well established primer for further coatings



Steel guide rail with cathodic dip coating

## what is CDC?

CDC (cathodic dip coating or e-coating) is a process in which the workpiece to be coated is electrically negative charged and is dipped into a paint bath containing positively charged paint particles. These particles are attracted to the workpiece, deposited on it and form a uniform film over the entire surface. After application of the paint coating, a heat treatment (baking) is carried out.

### characteristics of CDC

- homogeneous coating thicknesses, even with large quantities
- corrosion protection and stone chip protection (conditionally)
- good edge coverage
- all-side coating with defined contact point
- environmentally friendly and economical
- good cost-efficiency for small components
- good ductility (layer does not break even with springs)
- good adhesion primer for further topcoats (wet paint, powder, ...)

### areas of application of CDC

- automotive industry (corrosion resistance)
- mechanical engineering (corrosion protection, also for stamped parts)
- device components with complicated part geometry

