

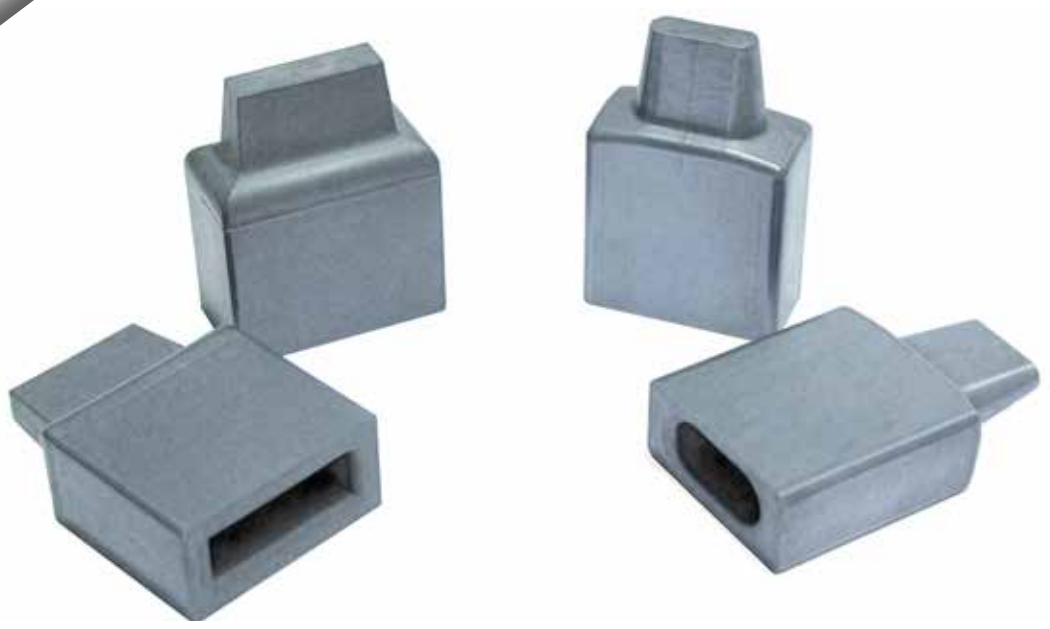


dMT ECOTECH



SPC[®]

**COATINGS
FOR ASRS WAREHOUSE
STACKER CRANES**



dMT-SPC® - SURFACE PROTECTIVE COATING SYSTEMS

MSB - ENHANCED-TRACTION SURFACE COATINGS

Containing an innovative traction enhancer, the block type MSB improves the contact between two surfaces and reduces wear and metal flaking.

By increasing the traction (up to 0.35μ), wheel slippage and "slip-stop" motions, as well as lateral wheel movement, are substantially reduced. Thereby, creating less resistance and wear between the contact surfaces.



TSB - COATING WITH SLIDING EFFECT

Generating a very low coefficient of friction between two surfaces by acting as a dry lubricant, the block type TSB reduces the friction (to constant 0.05μ) and subsequently the wear between the surfaces.



dMT-SPC® dry protective coatings bond strongly to metal surfaces and modify the structure by patching and filling the surface fissures. Coatings bond extremely well to the surface and, with a very thin film, create a dry, smooth surface condition. This in turn distributes heavy loads more evenly over the increased surface, reducing damage.

The **dMT-SPC®** blocks are self-applying and continually repair the coatings to maintain a constant, optimum coefficient of friction between the contacting surfaces. This reduces stress and wear on the metal surfaces.



dMT-SPC® are supplied in various lengths and widths to coat all metal surfaces from 0,60 - 2,40 in. (15-60mm) wide.

For wider surfaces, blocks can be mounted adjacent to each other or custom solutions can be offered. Heavy-duty, spring-loaded, stainless steel applicators are delivered with the blocks.

Installation is usually quite simple and low cost.

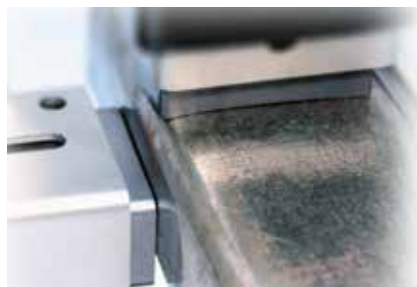


SPC® MSB FOR FLOOR RAILS DRIVE SURFACES (X-AXIS)

MSB blocks increase the traction between the drive wheel and top-of-the-rail, reducing wheel skidding and interruptions due to imprecise positioning.

ASRS cranes run with less noise and vibrations and, in some cases, less power consumption due to reduced drag between wheels and rails.

Braking is also improved through the enhanced traction of the coating.



SPC® TSB FOR FLOOR RAILS GUIDE SURFACES (X-AXIS)

TSB blocks are applied to surfaces where traction is not required, such as guide surfaces on the sides of floor rails (guide rollers).



SPC® TSB FOR LIFT RAILS (Y-AXIS)

TSB blocks are applied to surfaces where traction is not required, such as vertical lift rails.

TSB functions like conventional grease, creating a sliding action between two surfaces.

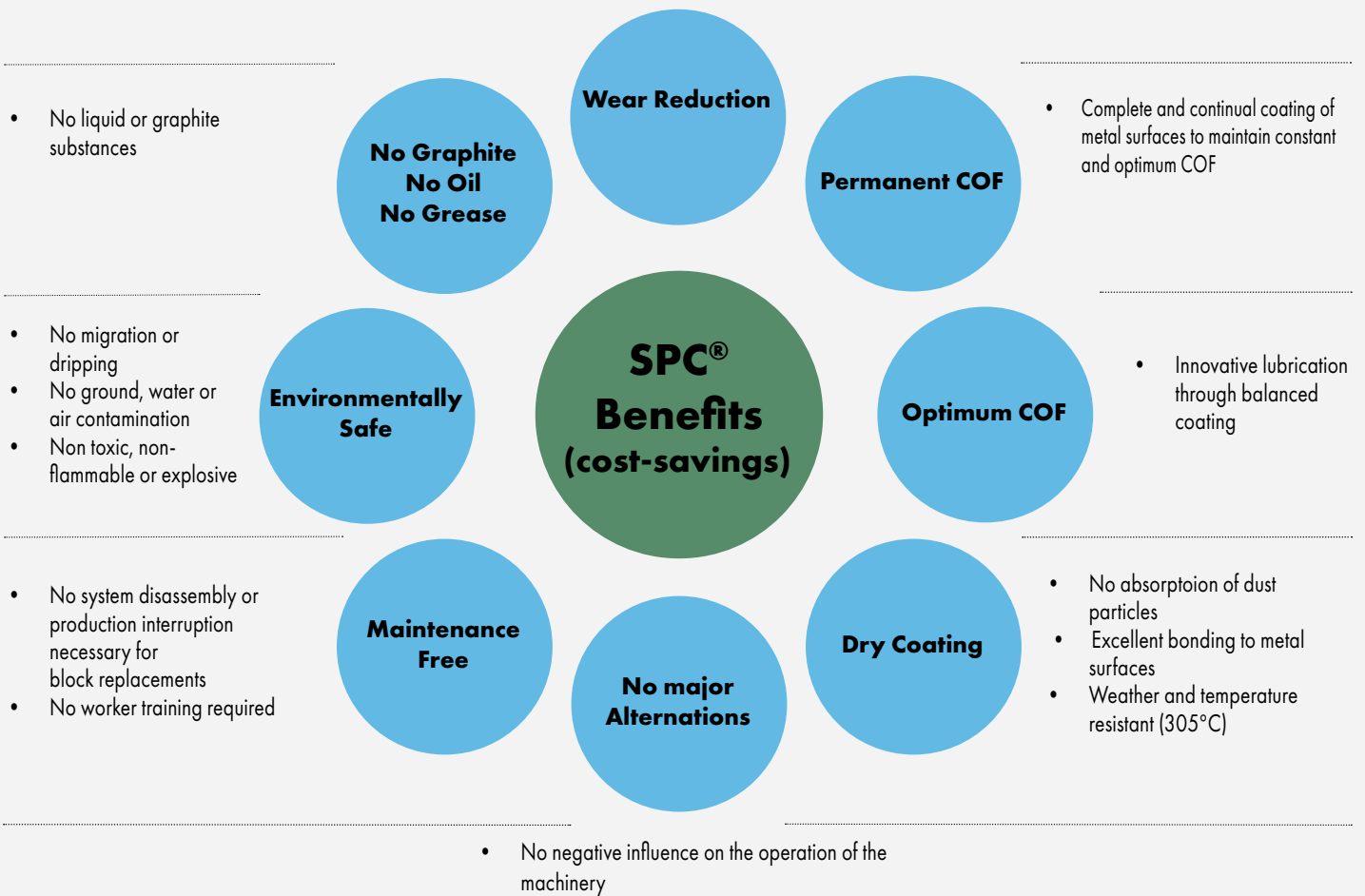
Unlike oil or grease, SPC® coatings do not drip or migrate, need not be collected and disposed of (special waste) and cannot bind dust particles.



THE dMT-SPC[®] SOLUTION

With SPC[®] the down-times can be reduced to a minimum

- **Substantial reduction of surface wear (50-80%)**
- **Increase of the operating life of metal parts 3-5 times**

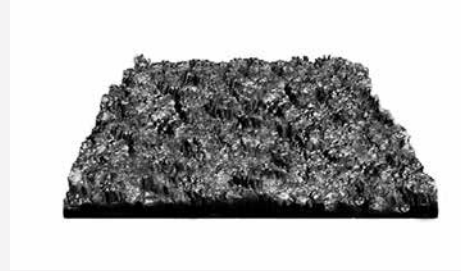




DMT-SPC® SURFACE PROTECTIVE COATINGS ARE PRIMARILY APPLIED WHERE CONVENTIONAL LIQUID LUBRICANTS CANNOT BE USED OR, IF SO, THEN WITH HIGH MAINTENANCE COSTS.

Left side:

It is common knowledge that metal surfaces are not as smooth as they appear to the eye. Surfaces, seen through a microscope, appear peppered with peak and canyons, reducing the actual surface which can support heavy loads.



Right side:

SPC® protective coatings create a smooth surface, filling the canyons and providing additional support for heavy loads, thus increasing traction and reducing wear.



APPLICATIONS EXAMPLE

BEFORE AND AFTER

Prior Situation:

Substantial metal flaking occurs on many ASRS stacker cranes, either on the rails or drive wheels treads or on both.

Relatively short wheel service lives and metal flakes along the rails are proof of high metal surface wear. The shiny metal particles indicate high surface pressure poorly distributed and excessive lateral pressure wheel migration.

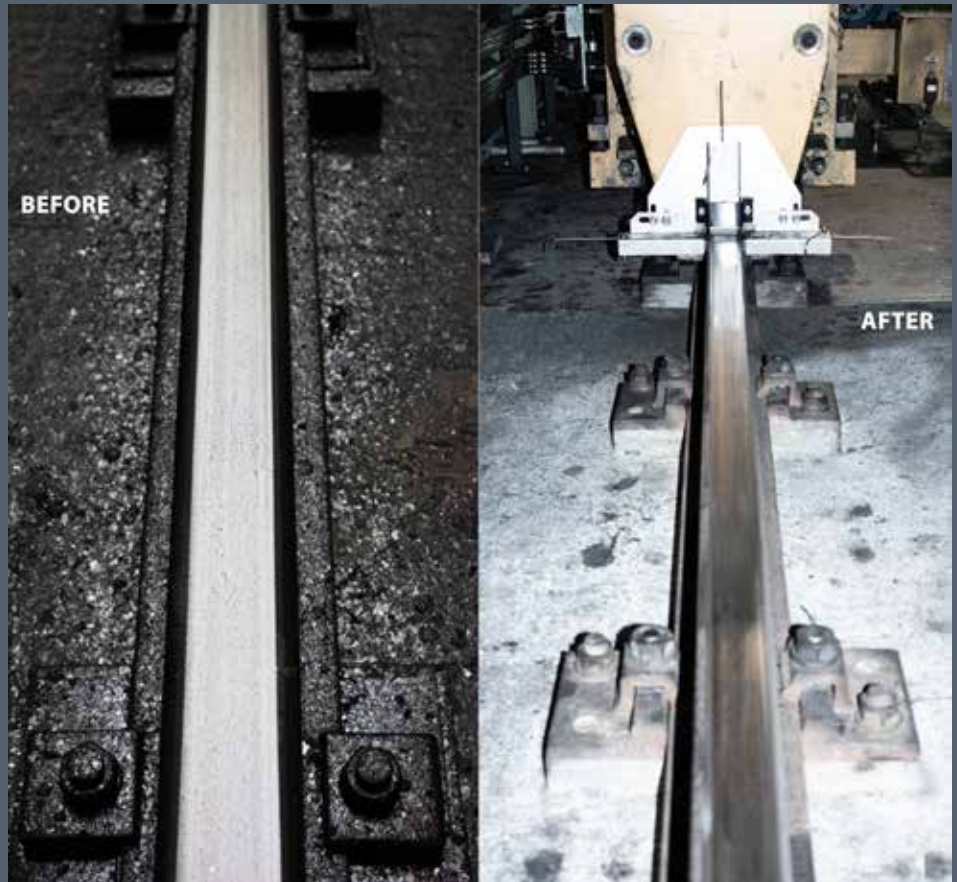
Increasingly higher crane weights and traversing speeds, combined with starting, accelerating and breaking action under varying loads, amplify this situation.

Because a crane does not tend to drive in a straight line, but migrates laterally somewhat across the top-of-the rail, the stress on the metal surfaces is increased even further.

Our solution:

The dMT-SPC® system applied to the top-of-the rail smooths and balances the surface and distributes heavy loads over more area. The enhanced-traction additive reduces wheel migration and the "slip-stick" motions. Less stress and temperature occur on the surface, resulting in vastly reduced flaking and metal wear.

By reducing metal wear by up to 80%, equipment operating lives can be increased by up to 3-5 times, resulting in substantial cost-savings.



Prior: picture with uncoated rail

Solution: picture of rail after many months of treatment with SPC® protective coating (note absence of metal flakes)

FURTHER APPLICATIONS FOR SPC®

- Crane wheel flanges and treads, rails and all other types of wheel / rail-equipped systems
- Transfer cars
- Suspension tracks
- Support rollers, rings and thrust rollers on rotating equipment, (i.e. kilns, furnaces, dryers)
- Pulleys on cranes / hoists / wire rope drums
- Locomotive wheels
- Various other metal surfaces

INDUSTRIAL BRANCHES

- Aluminum & Steel plants (cranes, conveying)
- Automobile Assembly plants (cranes, conveying, ASRS cranes)
- Building & insulation materials producers (rotating dryers, cranes, conveying)
- Cement, gypsum, lime and related industries (rotating kilns, dryers, cranes, conveying)
- Chemical plants (rotating kilns, dryers, conveying, ASRS cranes)
- Coal-burning power plants and waste incineration plants (rotating kilns, cranes, conveying)
- Foundries of all types (cranes, conveying)
- Glass production of all types (cranes, conveying)
- Warehousing Operations (only with high rack storage ware houses with ASRS cranes)
- Mining (conveying, numerous other types of heavy equipment, locomotives)
- Paper factories (cranes, conveying, ASRS cranes)
- Port Facilities & Container Terminals (cranes, conveying)
- Primary and secondary smelting / recycling plants (rotating furnaces, cranes, conveying)
- Ship Building and Ship Repair Facilities (cranes)
- Sugar factories (rotating dryers, conveying)
- Wood industry (rotating dryers, cranes, conveying)

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