



ROLLER COVERING FOR THE METAL INDUSTRY

CONTINUOUS ANNEALING LINE

In order to produce the steel grades needed for today's car, packaging and building industry, most cold rolling mills and galvanizing lines are equipped with continuous annealing furnaces.

Ductility and hardness changes can be created in the steel strip by heating it above its recrystallization temperature and then cooling it down in a controlled way. Both in horizontal as in vertical annealing furnaces, rollers are used to transport the strip through every section. These rollers are generally made out of refractory steel and are submitted to scratching, wear and pick-up of metal particles. Furthermore, the surface roughness needed to assure a good grip on the steel strip, gets lost in time.

Hannecard proposes carbide coatings with extreme durability for every position of the annealing furnace (up to 900 °C). Not only the lifetime is extended, also functionality and stability are maintained much longer, improving the quality of the strip and reducing cost and downtime.

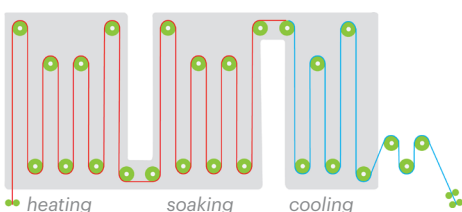
Next to the last generation HVOF technology, Hannecard also uses the unique HVAF spray technology to increase the quality of the carbide.



Our covering solution for annealing surface rollers: HanneSpray

Hannecard offers different types of thermal spray coatings. The Hannecard plus versions are optimized to obtain higher properties.

Example of a vertical annealing furnace



Solution	Type	Characteristics	Application
HanneSpray-W	Tungsten carbide based	<ul style="list-style-type: none"> As-sprayed roughness (Ra) 5-7 µm* Hardness up to 1100 HV Very high abrasion resistance Temperature resistance max 500 °C (940 °F) 	<ul style="list-style-type: none"> Bridle, deflector, detour and pinch rollers outside the furnace Furnace entry and exit
HanneSpray-W Plus**	Tungsten carbide based	<ul style="list-style-type: none"> As-sprayed roughness (Ra) 2-4 µm* Hardness up to 1300 HV Extreme abrasion resistance Temperature resistance max 500 °C (940 °F) 	<ul style="list-style-type: none"> Bridle, deflector, detour and pinch rollers outside the furnace Furnace entry and exit
HanneSpray-Cr	Chromium carbide based	<ul style="list-style-type: none"> As-sprayed roughness (Ra) 5-7 µm* Hardness up to 900 HV High corrosion resistance Temperature resistance max 900 °C (1650 °F) 	<ul style="list-style-type: none"> Conveyor, deflector, detour, pinch, hot bridle rollers and seal rollers outside the furnace All furnace section: preheating, heating & soaking, cooling, overaging
HanneSpray-Cr Plus**	Chromium carbide based	<ul style="list-style-type: none"> As-sprayed roughness (Ra) 2-4 µm* Hardness up to 1100 HV Very high corrosion resistance Improved abrasion resistance Temperature resistance max 900 °C (1650 °F) 	<ul style="list-style-type: none"> Conveyor, deflector, detour, pinch, hot bridle rollers and seal rollers outside the furnace All furnace section: preheating, heating & soaking, cooling, overaging
HanneSpray KarGen	Multi-layer	<ul style="list-style-type: none"> Presealed Ra of 3-4 µm High temperature up to 1010 °C (1850 °F) Anti-adherent finish, reducing pickup Abrasion resistance Suitable for high manganese content steels 	<ul style="list-style-type: none"> Conveyor, deflector, detour, pinch, hot bridle rollers All furnace section: preheating, heating & soaking, cooling, overaging
HanneSpray KarGen Plus***	Multi-layer	<ul style="list-style-type: none"> Presealed Ra of 3-4 µm High temperature up to 1150 °C (2100 °F) Anti-adherent finish, reducing pickup Abrasion resistance Suitable for high manganese content steels 	<ul style="list-style-type: none"> Conveyor, deflector, detour, pinch, hot bridle rollers All furnace section: preheating, heating & soaking, cooling, overaging

*Roughness can be increased thanks to special treatment to max. 10 µm
 **Only available in Europe
 ***Only available in the US

Our advantages

- Extreme high hardness and abrasion resistance
- Solutions for reduced pickup
- High temperature resistance solutions
- Surface roughness (Ra) possible from 0,05 µm to 10 µm
- Cylindrical, crowned, tapered and double tapered finishing
- No dimensional limitations
- Solutions suitable for high manganese content steels

ROLLERS FOR WATER QUENCHING

As final part of the cool down operation, water quenching can lead to steel grades with higher hardness.

Squeegee rollers are used to remove the rest water of the strip. Hannecard proposes high end rubber and polyurethane covers that insure excellent lifetime and superior squeegee quality, but also react well to temperature peaks and to dry nip situations due to the rapidly evaporating water.

Our covering solutions for squeegee rollers

Type	Solution	Characteristics
High-end rubber	ClearSqueeze-XPE Blue 60, 70 and 80 Shore A	<ul style="list-style-type: none"> • Excellent squeegee behaviour and efficiency, low energy use • Excellent lifetime • Temperature resistance up to 140 °C
High-end rubber	SmartSqueeze Grey 60, 70 and 80 Shore A	<ul style="list-style-type: none"> • Improved resistance to abrasion, tear and edge cutting • Improved resistance to high shear and load • Excellent lifetime • Temperature resistance up to 130 °C
High-end polyurethane	Hannethane-XP Brown 70, 80 and 90 Shore A	<ul style="list-style-type: none"> • Extreme resistance to abrasion, tear and edge cutting • Very good resistance to high shear and load • Excellent squeegee dynamics • Outstanding lifetime • Temperature resistance up to 100 °C
High temperature polyurethane	Hannetherm-XP Brown 80 and 90 Shore A	<ul style="list-style-type: none"> • Extreme resistance to abrasion, tear and edge cutting • Very good resistance to high shear and load • Excellent squeegee dynamics • Outstanding lifetime • Temperature resistance up to 140 °C

MORE INFORMATION?

For more information, please contact your local Hannecard partner or visit our website at:

www.hannecard.com