



## Rockit® 401 - Sustainable solution to replace hard chrome plating

### Replace conventional hard chrome plating by laser cladding with Rockit 401

Roof support cylinders used in coal mining, like many other hydraulic cylinders, require a smooth surface with wear and/or corrosion resistance. Traditionally, they were treated by hard chrome plating.

With the tougher environmental legislations related to the usage of hexavalent chrome ( $\text{Cr}^{6+}$ ), industries are looking for alternatives with not only environmental, but also technical and cost benefits.

Laser cladding with Rockit 401 presents several metallurgical advantages compared with conventional hard chrome plating. It also helps reduce total cost of ownership by extending service life.

Rockit 401 is an alloy featuring both good wear properties and corrosion resistance. Laser cladding allows for hardness up to 55 – 58 HRC.

**For more information, please contact your local sales representative.**

### Main product features:

- Advantages over hard chrome plating
  - Creates a thicker layer than hard chrome plating
  - Strong metallurgic bonding
  - Minimised risk for porosity and cracking
  - Environmentally friendly process
- Unique combination of wear and corrosion resistance
- Excellent welding properties
- Good machinability

### Typical chemical analysis (%)

Fe	C	Cr	Mo	Ni	Others
Bal	0.15	18	0.5	2.5	< 3

### Typical physical properties

Typical physical properties	Rockit® 401
Sieve range	53-180 µm
Coating hardness	55-58 HRC

### Hot hardness (HV<sub>0.05</sub>)

Rockit 401	RT	200° C	300° C	400° C	500° C
Coating hardness	620	520	500	490	480

Samples are laser clad with Rockit 401 on steel substrate with dilution ~5%.

### Wear and corrosion properties

Properties	Testing methods	Rockit 401
Wear <sup>1)</sup>	ASTM G65-Method E	60-65 mm <sup>3</sup>
Corrosion <sup>1) 2)</sup>	Salt spray test ISO 9227 NSS	5000+ hours (Rp 10**)

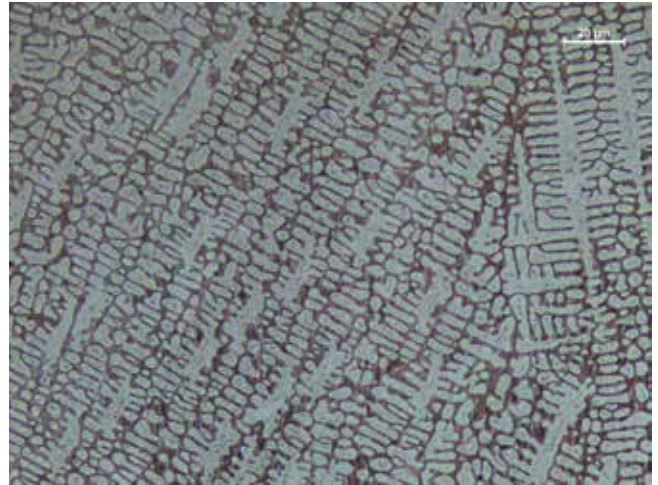
1) Samples are laser clad with Rockit 401 on steel substrate (27SiMn) with coating thickness ~0.5mm, dilution ~9%.

2) Rating according to ISO10289.



Shining surface without corrosion after 5000 hours salt spray test.

### Microstructure



Martensitic matrix with eutectic hard phases (etched in Glyceregia).

### Typical applications

Cylinders for various industries, such as mining, construction, oil & gas, etc.



Excavator hydraulic cylinder pistons.