

## UltraFlex™ Radiant Return Bends for Delayed Coker Furnaces

*Stay on-line longer with more confidence!*

Decoking operations, such as on-line spalling, can have a significant impact on the life of radiant return bends in delayed coker furnaces. UltraFlex technology delivers a Stellite™ 720 cladding designed to significantly reduce the risk of return bend wall thinning and rupture.

### The UltraFlex Cladding Process

Abrasion Resistance  
Erosion Resistance  
Corrosion Resistance



1. UltraFlex cladding material is prepared in slurry form. Stellite 720 is used for return bend applications.



2. Proprietary flow-coating methods are used to apply an even "green" cladding, typically .020-.030" thick.



3. Cladding is fused to the substrate in a vacuum furnace, creating a dense, uniform, and metallurgically bonded coating.



Clad Return Bends Ready for Sintering



Return Bend Ready for Installation

### Metallurgical Bond

- No flaking or spalling — even in extreme conditions.
- Thermal fatigue testing simulating 20 years of service confirms no defects or spallation.

### A "Pure" Coating

- Small diffusion zone (<.010") compared to hard facing.
- Consistent wear properties from bond through to surface.
- Typical thickness is .020-.030"

### High Surface Quality

- Smooth surface accommodates pigging operations.
- Crack-free coatings possible with many substrates.



Hard Facing vs. UltraFlex Cladding



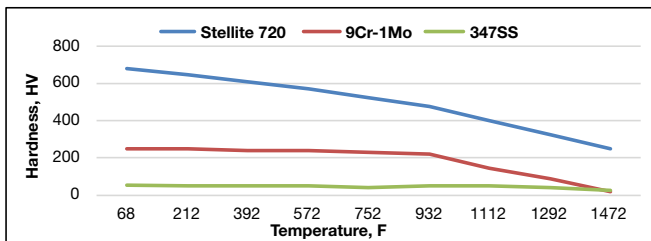
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## Stellite™ 720 • Cladding Material Designed for Radiant Return Bends

- The UltraFlex™ process delivers this very hard Stellite alloy for radiant return bends, which is not possible with casting or weld overlay.
- Excellent high-temperature erosion- and corrosion-resistance.
- Compatible with standard return bend substrates such as 347 and 9Cr1Mo.

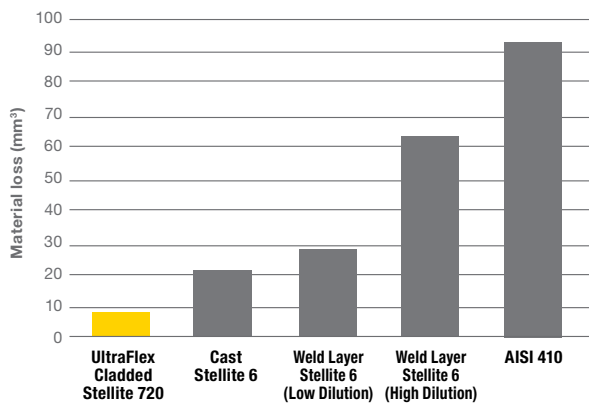
	Nominal Composition (mass %)							Hardness
	Co	Fe	Cr	Mo	Nb	Ni	C	HRC
<b>Stellite 720</b>	Bal.	3 Max	33	18	—	3 Max	2.5	55–60
<b>9Cr-1Mo</b>	—	Bal.	9	1	—	0.5	0.1	20–25
<b>347</b>	—	Bal.	18	1 Max	0.8 Min	11	0.08	<10

- High chrome and moly content in Stellite 720 offers significant corrosion resistance benefits.
- Higher bulk hardness offers considerable erosion benefits over unprotected return bends.



- Stellite 720 maintains better wear properties at high temperatures experienced during on-line spalling.

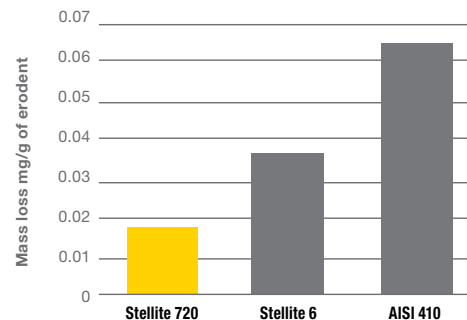
### ASTM G65-B Abrasion Wear Resistance



**Up to 6x Better**  
Abrasion Resistance versus Weld Overlay

### Erosion at 700°C at 60° Angle

with an Al<sub>2</sub>O<sub>3</sub> catalyst used for fluidized catalytic cracking



**Stellite 720 Offers**  
Superior Erosion Resistance

## CONTACT US

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