

USP to Existing Coating Solutions

	Chrome Plating	Thermal Spray	Traditional DLC	C4E
Hardness/wear resistance	+	+	++	++
Corrosion resistance	--	+	+	++
Chemical inertness	--	-	+	++
Friction	--	-	+	++
Internal coverage/uniformity	+	++	-	++
Environmental impact	--	+	++	++
Deposition rate	++	++	--	++

Examples of parts we can address are:

- Crossovers
- Fatigue nipples
- Plungers
- Completion valves
- Flapper valves
- Pump barrels
- Pump liners
- Pipe fittings (tees, elbows)
- Quills
- Inserts
- Rotors
- Rod pump components
- Valves and valve seats
- Flow spool
- Lifting operation components
- Sleeves (wear components)

C4E
PECVD and PVD
Coating Technologies

Oil & Gas Industry



About

The oil & gas industry offers its own challenges in working with components including:

- Exposed to abrasive wear by oil/sand/mud/stones
- Subject to sludge build-up, corrosive attack from acids and salt water
- Components in constant sliding contact (i.e. valves) causing fatigue and failure

The greatest challenge is lost revenue due to down time of the manufacturing facility.

C4E's unique coating technology, especially in the area of DLC, can be applied on internal and external surfaces offering excellent uniformity, reducing wear, halting erosion, blocking corrosion, minimizing friction and maximizing flow.

C4E's unprecedented PECVD and PVD coating technologies provide hard coatings with high deposition speeds of several microns per minute shrinking process times significantly. Thick coatings up to 50 microns can be created much faster than with traditional PECVD or PVD systems. What took hours or days before is done within a few minutes now.

C4E Coatings Offer

- Prolonging service life in extreme environments
- Minimizing down time
- Superior replacement for hard chrome and thermal spray
- Outstanding corrosion and fouling resistance
- Chemically-inert layer not reacting to acids and extremely durable under aggressive liquids or process gas exposure
- Near frictionless surface and improved flow characteristics
- Greater wear resistance than alternative coatings
- Extreme hardness
- Environmentally friendly and benign coating and deposition processes
- Excellent uniformity

C4E understands your business and is partnering with multiple customers to help them grow and better compete in their industry with innovative solutions for hard coatings, including pre-treatment, cleaning and quality control.

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