Application Profile

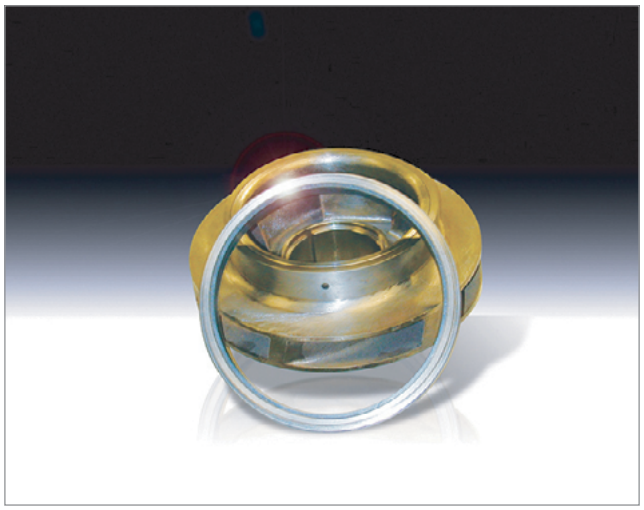
DuPont™ Vespel® CR-6100 Pump Wear Components

Product Description

Vespel® CR-6100 wear components are based on an advanced composite material consisting of a high performance Teflon® PFA fluorocarbon resin and oriented carbon fibers (PFA/CF Reinforced Composite, 20 wt% random x-y oriented carbon-fiber). The patented manufacturing process creates parts which exhibit:

- Excellent dimensional stability
- Proven run-dry performance
- High temperature serviceability (up to 500 °F [260 °C])
- Broad chemical compatibility
- Machining ease and assembly installation

Vespel® CR-6100 wear components have been successfully used in thousands of centrifugal pumps in major refineries, chemical plants, power plants, pipeline terminals, and municipal water utilities.



Why Use Vespel® CR-6100?

Pump performance and reliability are significantly improved.

- Because Vespel® CR-6100 is non-metallic, has a low coefficient of friction, and excellent dimensional stability, it can withstand short-duration off-design conditions such as start-up, slow-rolling, low-flow, cavitation, or run-dry situations. The pump remains available for service, resulting in potentially lower repair costs.
- With these characteristics, clearance at wear components can be reduced. This results in efficiency gains which lead to significant operating cost reductions, particularly when applied to populations of pumps.
- Improved reliability: Pumps with reduced clearance also exhibit lower vibration levels and reduced cavitation. Seals and bearings last longer, and MTBR increases.

Example: One customer installed Vespel® CR-6100 wear rings, throat bushings, and pressure reducing bushings in two multistage gasoline shipping pumps. This conversion resulted in a 7% efficiency gain and a 90% reduction of overall vibration levels. The pumps have been in service over four years without failure, where the previous MTBR was 12 months.

Vespel® CR-6100 offers improved performance versus other wear ring materials.

- Vespel® CR-6100 is based on a fluoropolymer, which gives it broad chemical resistance and a low coefficient of friction. These characteristics coupled with its high temperature resistance and low thermal growth make Vespel® CR-6100 a suitable candidate for a wide range of applications.
- The durability of Vespel® CR-6100 aids installation and machining, and stays tough during operation.

Where to Use DuPont™ Vespel® CR-6100

DuPont™ Vespel® CR-6100 is used for I.D.-mounted (in compression) wear components in nearly all centrifugal pump types in non-abrasive process services up to 500 °F (260 °C).

Pump Services

Vespel® CR-6100 has been used in thousands of pumps in a broad range of hydrocarbon, chemical and water services. Some applications include:

- Boiler feed
- Condensate
- Propane
- Butane
- Ethylene
- LPG
- Diesel
- Gas oil
- Sour water
- Naphtha
- Gasoline
- MEA
- DEA
- Sulfuric acid
- Ammonia
- Hydrofluoric acid
- Caustic
- Lube oil

Pump Components

- Wear rings
- Line shaft bearings
- Inter-stage bearings
- Throat bushings
- Pressure-reduced bushings

Pump Types

- Overhung horizontal
- Between bearings
- Vertical
- Multistage

Applications are not limited to those listed.

Vespel® CR-6100 is fast and easy to machine.

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