Polymer Products for Pump Applications

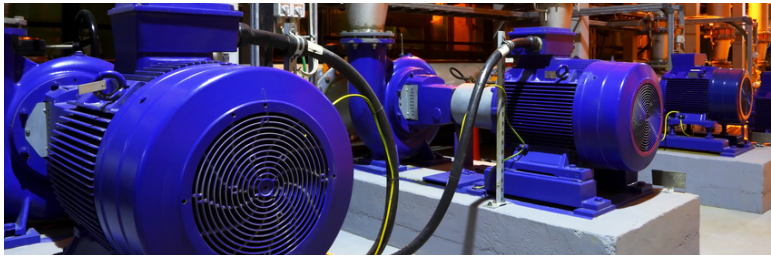
dures®

NON-METALLIC WEAR COMPONENTS FOR THE PUMP INDUSTRY

CDI PRODUCTS®

A Michelin Group Company

Why Pump Users Should Replace Metallic Components with Composite Materials



Thermoplastic Polymer Composites for Pumps

The dures® brand of materials is a proprietary thermoplastic polymer composite family explicitly developed for the manufacture of wear parts for pumps handling a wide range of liquids, including those that contain solid matter. The dures® range of materials enables pump operators to set much tighter clearances, improving reliability, enhancing efficiency, and savings in life cycle costs.

- Extend pump service life by lowering friction and wear
- Reduce downtime with increased pump efficiency
- Inherently corrosion resistant
- High tensile strength and resistance to the harshest of chemicals
- Thermally and electrically insulated
- No galvanic effects that require sheathing
- Quicker production cycles for timely delivery
- Lighter materials which lower freight costs over equipment life cycle

Greater stability while extending MTBF

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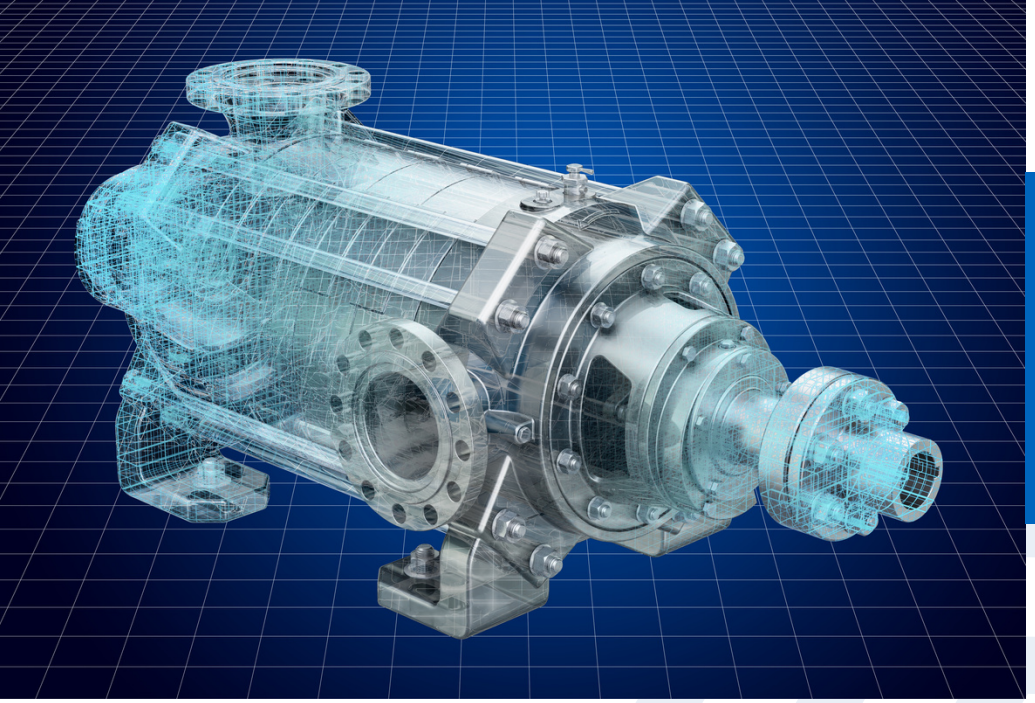
Benefits & Service Applications of dures®

dures®

Material	CDI Material Benefits	Max Temp	CDI Critical Pump Components	Service Applications
dures® 150	• Excellent chemical resistance • High compressive strength • Superior abrasion resistance	150° F [66° C]	Line Shaft Bushing/ Spider Bushing, Bowl Bushing, Suction Bell Bushing, Stuffing Box Bushing	Water, Abrasive Service, Sump, Utility, River Water, Condensate, Dewatering
dures® 200	• API 610 Recognized Material • Higher creep resistance than PTFE • Higher thermal stability than PTFE • More cost-effective than leading industry competitor for operating temp <200°F	200° F [93° C]	Case Wear Ring, Interstage Bushing, Throat/ Throttle Bushing, Balance Drum Bushing, Center Stage Bushing, Line, Shaft Bushing/ Spider Bushing, Bowl Bushing, Suction Bell Bushing, Stuffing Box Bushing, Pressure Reducing Bushing, Disaster Bushing	Aggressive Acids and Bases, Aromatics, Amines
dures® 250	• Best material for abrasion or presence of solid particulate • Excellent chemical resistance and combination of strength and flexibility • Filler can reinforce/lubricate material	250° F [121° C]	Case Wear Ring, Interstage Bushing, Throat/ Throttle Bushing, Balance Drum Bushing, Center Stage Bushing, Line, Shaft Bushing/ Spider Bushing, Bowl Bushing, Suction Bell Bushing, Stuffing Box, Bushing, Pressure Reducing Bushing, Disaster Bushing	Water, Abrasive Service, Sump, Utility, River Water, Condensate, Dewatering
dures® A451	• API 610 Recognized Material • Excellent chemical resistance and combination of physical strength and flexibility • Filler can be used to reinforce/lubricate material	275° F [135° C]	Case Wear Ring, Interstage Bushing, Throat/ Throttle Bushing, Balance Drum Bushing, Center Stage Bushing, Line, Shaft Bushing/ Spider Bushing, Bowl Bushing, Suction Bell Bushing, Stuffing Box, Bushing, Pressure Reducing Bushing, Disaster Bushing	Clean Services, General Hydrocarbon, Light Hydrocarbon, Fuels, Oils, Caustic, Desalination
dures® XPC-2	• API 610 Recognized Material • Excellent chemical resistance and combination of physical strength and flexibility • Filler can be used to reinforce/lubricate material	550° F [288° C]	Shaft Sleeves, Impeller Wear Rings, Case, Wear Ring, Interstage Bushing, Throat/ Throttle Bushing, Balance Drum Bushing, Center Stage Bushing, Line Shaft Bushing/ Spider Bushing, Bowl Bushing, Suction, Bell Bushing, Stuffing Box Bushing, Pressure Reducing Bushing, Disaster Bushing	Clean Services, Boiler Feed Water, Boiler Circulating, General Hydrocarbon, Light Hydrocarbon



What composite material design elements were essential to make the dures® material the ideal choice instead of steel components.

dures® design advantages

- Suitable for inclusion within API and technically supported
- Ability for standardization and selection consolidation
- Sacrificial material
- Ability to withstand upset conditions without damage to other pump components
- Greater stability – (reduced clearances where appropriate)
- Extend MTBF/MTBR
- Eliminating vibration
- Readily available

Increased Equipment Efficiency + Reduction of Energy Consumption + Reduced Maintenance and Downtime

= Significant ROI for the end user.

What sets CDI apart.

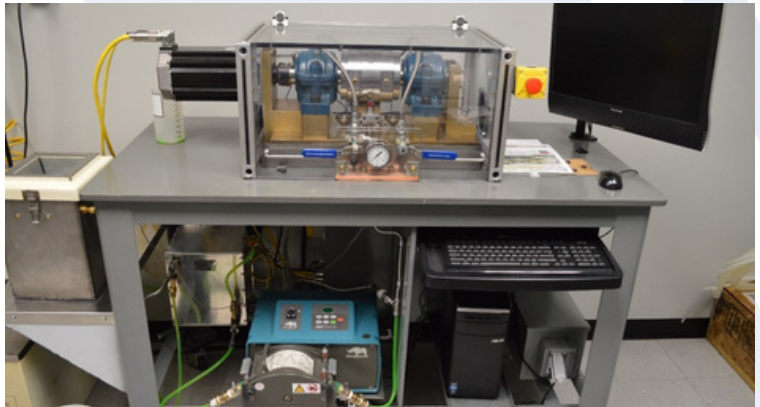
Materials expertise, collaborative partnerships, vertical integration, and superior value set us apart.

Our experts stay abreast of the latest advancements and develop solutions using our proprietary formulations. We can design custom blends tailored and validated to your specific application.

Our collaborative partnerships with OEMs provide tangible ROI to end users' operations for new projects and existing installations.

Our in-house engineering, material development, and manufacturing offer full vertical integration. From raw materials to finished products, we have the expertise and industry knowledge to solve your toughest challenges.

Our products are engineered to meet and exceed the highest standards while still delivering superior value.



What makes us unique.

Plastics

Since we design and specify our compounds, we have superior control over the properties and performance of our materials. The broadest range of plastics manufacturing and processing methods enables us to use the most appropriate method per application.

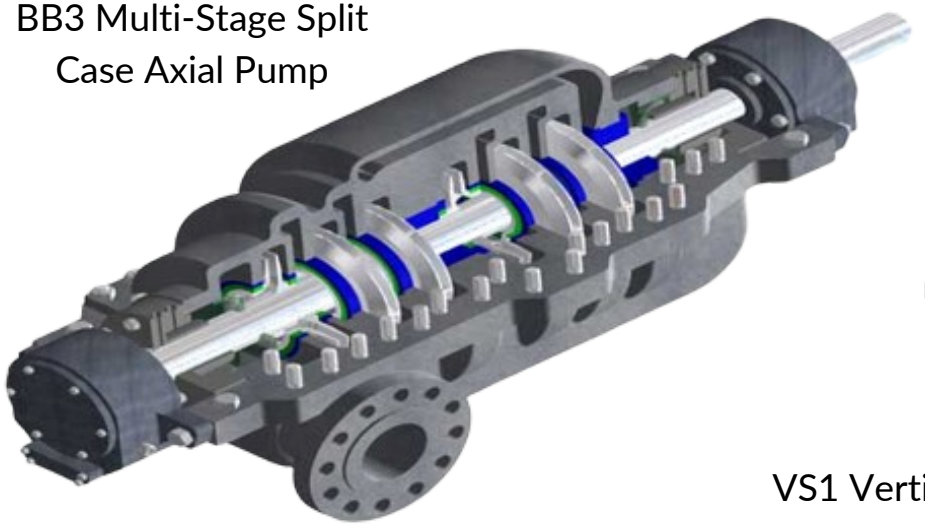
Composites

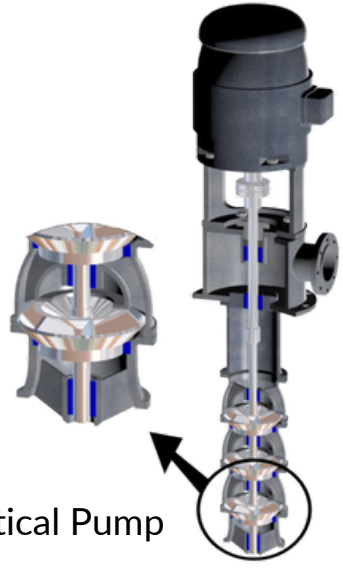
Strategic integration of metal components with thermoplastic composites solves challenges that no single material can accomplish. Not only do we manufacture composite products, but we also develop our unique composite materials.

Custom Compounds

Our custom compounds are created from different polymers and filler packages, each designed to specifically address customer requirements.

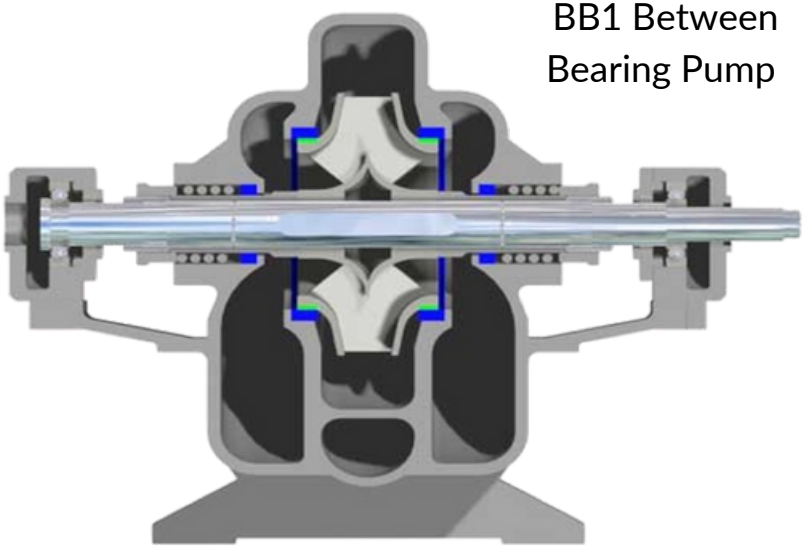
BB3 Multi-Stage Split Case Axial Pump





VS1 Vertical Pump

BB1 Between Bearing Pump



How we support the global pump industry

Beyond API 610

We have subject matter experts that understand a broad range of pump applications, outside of API 610 standards.

- High Pressure Shale Fields (Oil and Gas)
- Artificial Lift (Electric Submersible Pump ESP)
- HPI (Hydrocarbon Process Industry)
- Chemical (Diaphragm Pumps)
- Marine transportation
- Offshore
- Water treatment/Wastewater
- Water desalination
- Power & Nuclear
- Pharma, Food & Beverage

Reverse Osmosis Pump

Electric Submersible Pump

Diaphragm Pump

CDI PRODUCTS®
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Contact us today for quality products for your most critical pump applications.

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