Improve Longevity & Performance with Simsite® Products!
Sims – the proven name in pump technology

For more than 70 years, the Sims Pump Valve Company has been a leader in pump technology. From the invention of the original Sims Pump Valve to the development of the Simsite totally non-metallic composite pump, Sims has offered innovative solutions for marine and industrial pump applications.

Since it began in 1919, Sims has focused on complete customer satisfaction with every product manufactured. A unique unconditional customer guarantee is made possible by the highest standards of engineering, manufacture, and customer service.

What is Simsite®?

Simsite is a structural composite material. More specifically, it is a graphite combination-fiber reinforced composite with phenolic resin offered exclusively by the Sims Pump Valve Company.

The structural design of Simsite is unique. Fibers are interwoven in a bi-directional or tri-directional weave. The reinforcing fibers are all continuous for higher strength and flexibility. As a heavy-duty structural composite, its characteristics can be changed to accommodate the required structural strength of the parts being manufactured.

Trouble-free performance

Impellers machined from Simsite are light weight and offer tremendous mechanical strength and corrosion resistance. Simsite has been used successfully in the manufacture of casing rings since 1955 and in impellers since 1961. Simsite outlasts parts made of metals such as bronze, stainless steel or monel. Simsite is excellent for applications where salt water or brackish water is present. It is also ideal for use with hydrocarbon fuels, solvents, and with most acids and alkaline solutions.
Lower costs – increased performance

Operating and maintenance costs are drastically reduced

Simsite Impellers and Rings are excellent for new or retrofit applications. They are light weight and virtually indestructible. Wear of pump parts is greatly reduced because of Simsite’s balance, light weight and self-lubricating properties. This means far less replacement of parts, less downtime, and years of trouble free performance.

Customized for maximum performance

Because Simsite Impellers are computer designed and precision machined, the impeller vanes can be designed to maximize efficiency. Problems such as recirculation and cavitation can be minimized or eliminated with Simsite Impellers. Impeller vane shapes can easily be modified to provide the best vane shape for specific applications. The following graph shows that Simsite Impellers are not subject to many of the hydraulic losses found with cast and moulded impellers.

Hydraulic Performance

Outstanding characteristics give more of what you need

Simsite Impellers are 100% machined on both exterior and interior surfaces which insures perfect symmetry in the location and shape of the vanes. A smooth interior surface increases the efficiency of the pump by reducing flow resistance. You can be sure that Simsite impellers maintain hydraulic and mechanical balance for the life of the impeller. Simsite Impellers are not subject to the compromises and losses in performance found in metallic impellers.
Key reasons to choose Simsite® Impellers and Casing Rings

❖ **ELIMINATES ELECTROLYSIS** — Simsite is an inert composite which does not conduct electrolysis. Prolonged exposure to salt water will not affect Simsite parts.

❖ **CORROSION RESISTANT** — One of the most important advantages Simsite has over metal is its resistance to corrosion and erosion in salt water. It is also excellent with most chemical applications and is not subject to damage by gasoline, oil or refinery by-products.

❖ **COMPUTERIZED HIGH EFFICIENCY DESIGN** — All Simsite Impellers and parts are precision machined which increases accuracy and efficiency. Impeller vane shapes are contoured for maximum performance and efficiency.

❖ **EXCEPTIONAL MECHANICAL STRENGTH** — The extraordinary high strength of Simsite enables it to replace metal impellers which are subject to corrosion and erosion.

❖ **TIGHTER SEALS** — Simsite Casing Rings and Wear Rings will not gall or seize like metal rings. Therefore, Simsite Rings can operate with a tighter clearance permitting less leakage through the rings and increasing pump efficiency. Additionally, Simsite Casing and Wear Rings seal the casing. This prevents the “wash out” of the casing ring areas that is a common maintenance problem with centrifugal pumps.

❖ **LIGHT WEIGHT** — The exceptional high strength-to-weight ratio of Simsite permits a much lighter weight impeller. This means a substantial reduction in start-up load, longer bearing and mechanical seal life, and less shaft deflection.

❖ **REDUCES NOISE AND VIBRATION** — Because of the high efficiency design of the Simsite Impeller, its light weight, its noise absorbing characteristics, and its precision machined design, noise and vibration are reduced in the pump.

**Simsite® Impellers – perfect for retrofit and replacement applications**

Simsite Impellers are an ideal replacement for bronze or other metallic impellers, especially in corrosive pumping applications. Because Simsite is an inert material, electrolysis within the pump is reduced considerably. As metallic impellers corrode, they become unbalanced, causing premature wear on all other rotating parts. By replacing worn out parts with Simsite, the pump lasts longer and costs are reduced.
Simsite® Impellers benefit you in many ways

**UNIQUE FEATURES** | **BENEFITS**
--- | ---
Machined from a solid block of Simsite® composite | • Higher efficiency design  
• Maximum hydraulic stability  
• Reduced radial forces  
• Reduces recirculation damage
Structural composite | • Not subject to stress crack failure  
• Outstanding resistance to corrosion & erosion  
• Can be repaired
Precision machined | • Radial forces reduced  
• Saves shaft; reduces premature wear  
• Bearing life is increased  
• Loading is reduced  
• Mechanical seal life is increased
Self-lubricating | • Allows for the pump to run dry for a reasonable period of time without damage to pump  
• Allows for tighter clearances  
• Increases efficiency
Resistant to corrosion and erosion | • Maintains structural integrity and performance  
• Increases the life of the pump

Simsite® Impellers are excellent for a variety of applications

- Marine  
- Pulp and Paper  
- Mining  
- Chemical  
- Utility  
- Pollution  
- Water Treatment  
- Petrochemical  
- Construction
The following chart compares Simsite® with other materials

<table>
<thead>
<tr>
<th>APPLICATION</th>
<th>GRP*</th>
<th>CAST IRON</th>
<th>BRONZE</th>
<th>STAINLESS STEEL</th>
<th>SIMSITE®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance to salt water</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
</tr>
<tr>
<td>Resistance to chemicals</td>
<td>Good</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
</tr>
<tr>
<td>Mechanical balance after six months service in salt water</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Hydraulic balance after six months service in salt water</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Method of manufacture</td>
<td>Cast</td>
<td>Cast</td>
<td>Cast</td>
<td>Cast</td>
<td>Precision Machined</td>
</tr>
<tr>
<td>Casting imperfections</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Conducts electrolysis</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Operates at 400° F</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>Subject to chloride stress corrosion</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Subject to stress crack failure</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

*Glass reinforced polyester
Simsite® Casing Rings and Wear Rings

Quality manufactured for longer life

Simsite Casing Rings and Wear Rings are sized to fit the pump housing. They are manufactured to tight tolerances and machined to the dimensions specified. Like all Sims products, they are quality control inspected before leaving the plant. Rings machined from Simsite are structural and rugged enough to withstand a great deal of use and abuse.

How they work

Simsite Rings are designed to seal tightly into the pump casing. When the composite becomes immersed in the fluid being pumped it swells slightly, forming an excellent seal against the metal casing. This prevents corrosion and erosion of the pump casing. Another important benefit is that tighter clearances are maintained with Simsite Rings which reduces leakage and achieves greater pump efficiency.

Availability

Simsite Casing Rings and Wear Rings are readily available from stock or they may be custom manufactured to specifications. Clearances are set at the factory. Whenever possible, impellers and casing rings are sold as a set for better performance and longevity. Requests for unusual sizes are filled quickly from an ample supply of material stock and computer-aided manufacture.

Durability

Simsite Rings have the same durability as Simsite Impellers; they have the same resistance to corrosion and erosion. The rings are self-lubricating and have a lower co-efficient of friction which prevents galling and seizing. These features guarantee extended life and lower costs of operation.
Sims Pump Valve Company – achieve the ideal performance

Sims is ready to supply you with impellers and rings which allow your pumps to achieve ideal performance parameters. Our commitment is to lower maintenance costs and increase pump life.

Other Simsite products:
- Complete, composite pumps
- Bearings
- Wear plates
- Bushings
- Back plates
- Power ends
- Frame adaptors
- Strainer boxes
- Husheaters
- Packing rings
- Other structural components

REPAIRS – Your repair problems will be solved by sending us the complete pump or rotating element for overhaul. We will renew or machine your impeller, rings, shaft and shaft sleeves, bearings, balance the rotor and properly fit your pump with new Simsite Casing Rings. Your impeller assembly is returned better than when it was originally purchased. Your pump casing will be built up and rebored to standard size as required. The casings will be protected with our Simsite Epoxy Coating.

Sims will replace your metallic impellers and casing rings with Simsite ones, thus increasing operating efficiency and reducing maintenance cost.

Sims – A tradition of innovation continues ... you can achieve the ideal!

For more information on how to order contact our engineering department.

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