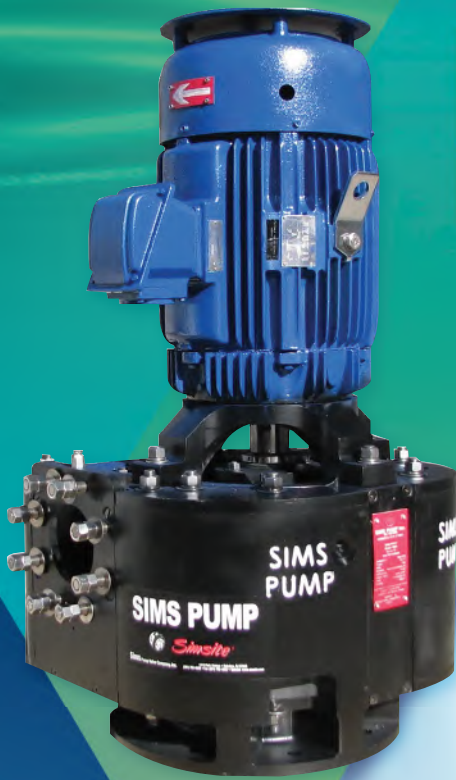


# SIMSITE

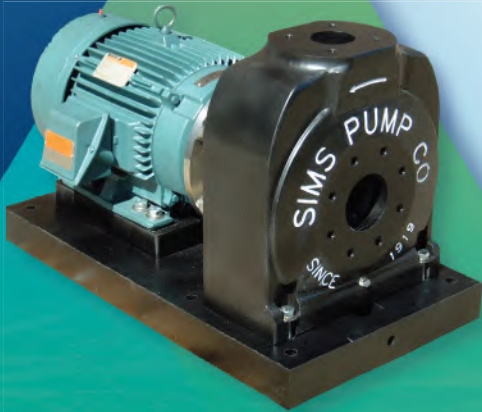
## RETURN ON INVESTMENT (ROI)

### LIFE CYCLE COSTS

SIMSITE® Engineered Structural Composites  
Reduce Energy, Maintenance, & Repair Expenses!

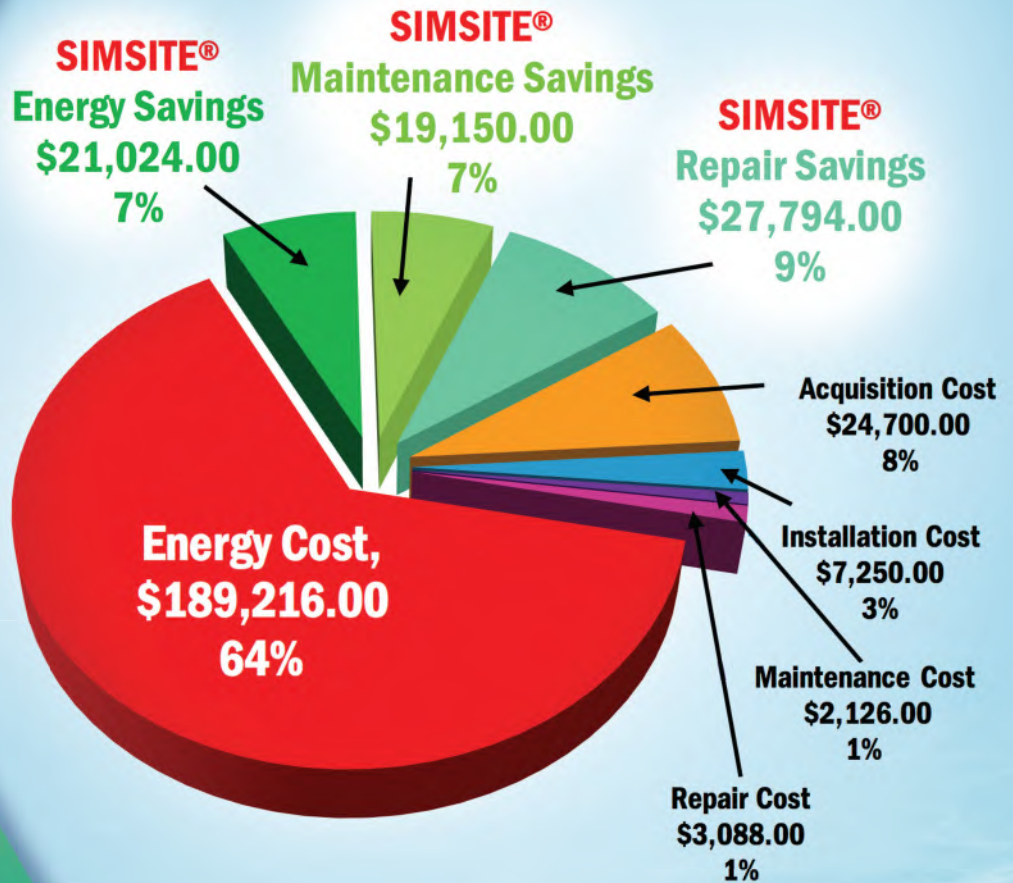


LIFE CYCLE COSTS FOR A 60 HP VERTICAL IN-LINE PUMP IN SALT WATER 5 YEARS



### SIMSITE®

Structural Graphite Composite Pumps, Impellers & Pump upgrades  
Light Weight, Corrosion Resistant, and Engineered for High Efficiency and Long Life!

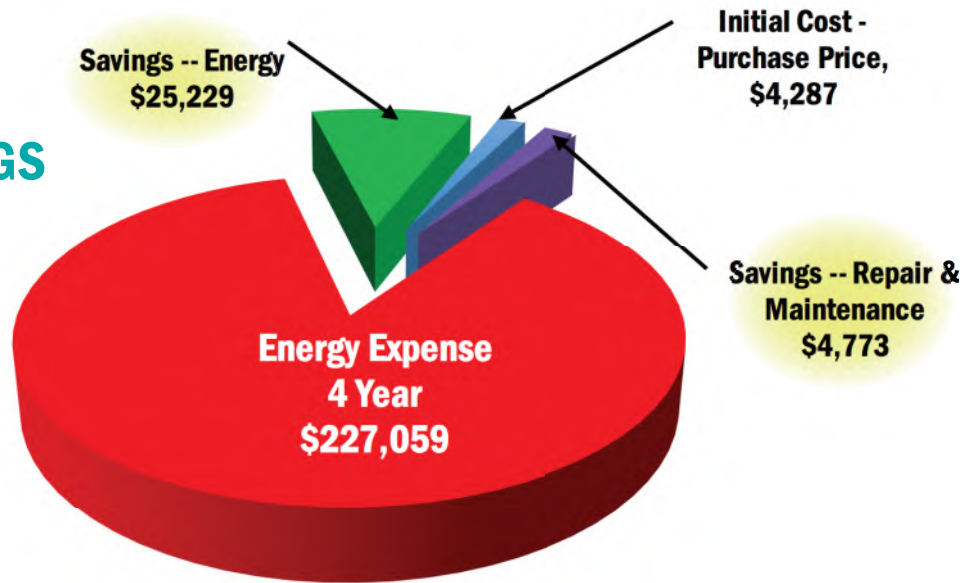


A METALLIC IMPELLER AFTER ONLY 3 MONTHS OF OPERATION IN FRESH WATER!

**RETURN ON INVESTMENT**  
**BRONZE VS SIMSITE®**

**SIMSITE®**  
**IMPELLER & RINGS**

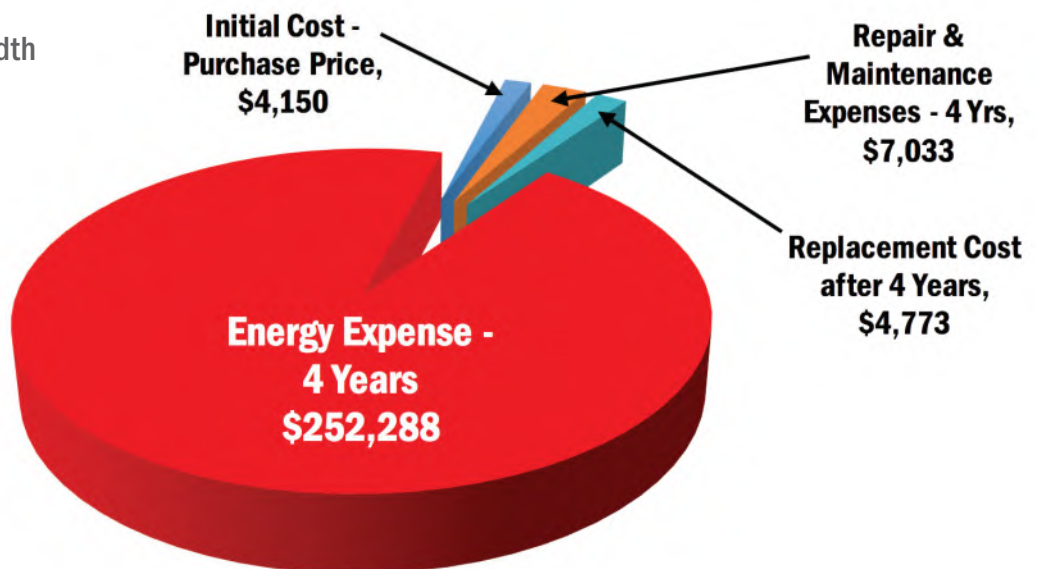
Model: Allweiler 150-315  
 Size: 12.06 Dia x 4.16 Width  
 in Seawater- 4 Years



**RETURN ON INVESTMENT USING**  
**SIMSITE® STRUCTURAL COMPOSITE 1ST YEAR ROI = 175%**

**BRONZE**  
**IMPELLER & RINGS**

Model: Allweiler 150-315  
 Size: 12.06 Dia x 4.16 Width  
 in Seawater - 4 Years





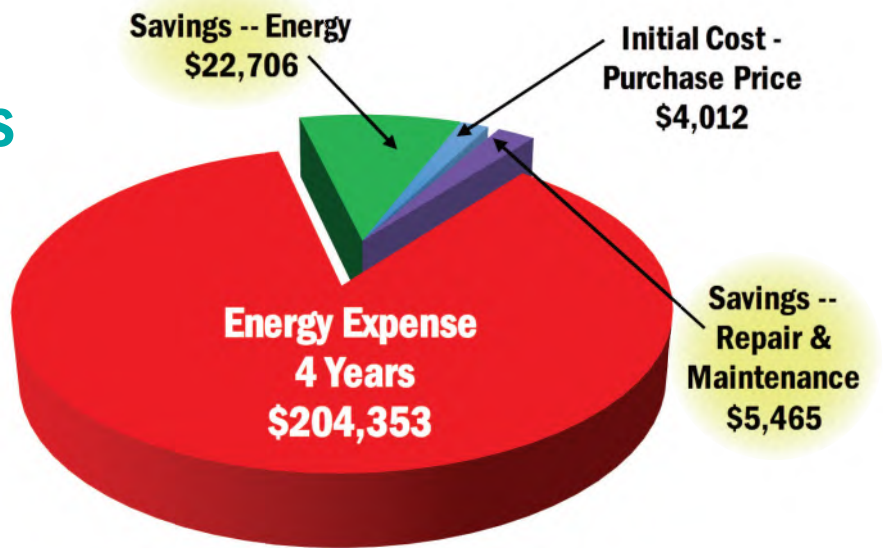
**RETURN ON INVESTMENT**  
**BRONZE** vs **SIMSITE**<sup>®</sup>

**SIMSITE**<sup>®</sup>  
**IMPELLER & RINGS**

Model: GZUT 250 WLS

Size: 12.12 Dia. x 5.00 Width

in Seawater- 4 Years



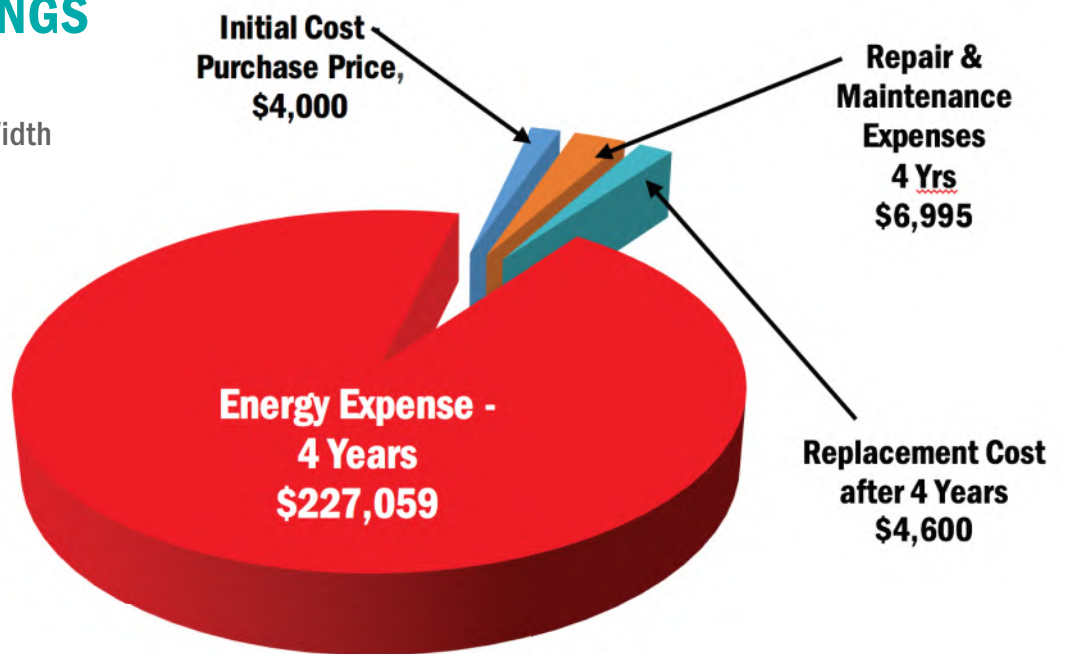
**RETURN ON INVESTMENT USING**  
**SIMSITE**<sup>®</sup> **STRUCTURAL COMPOSITE** **1ST YEAR ROI = 171%**

**BRONZE**  
**IMPELLER & RINGS**

Model: GZUT 250 WLS

Size: 12.12 Dia. x 5.00 Width

in Seawater - 4 Years



# COST COMPARISON BRONZE VS SIMSITE® IN SEAWATER

## IMPELLER COST COMPARISON BRONZE VS SIMSITE® STRUCTURAL COMPOSITE IN SEAWATER OVER 4 YEARS

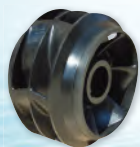
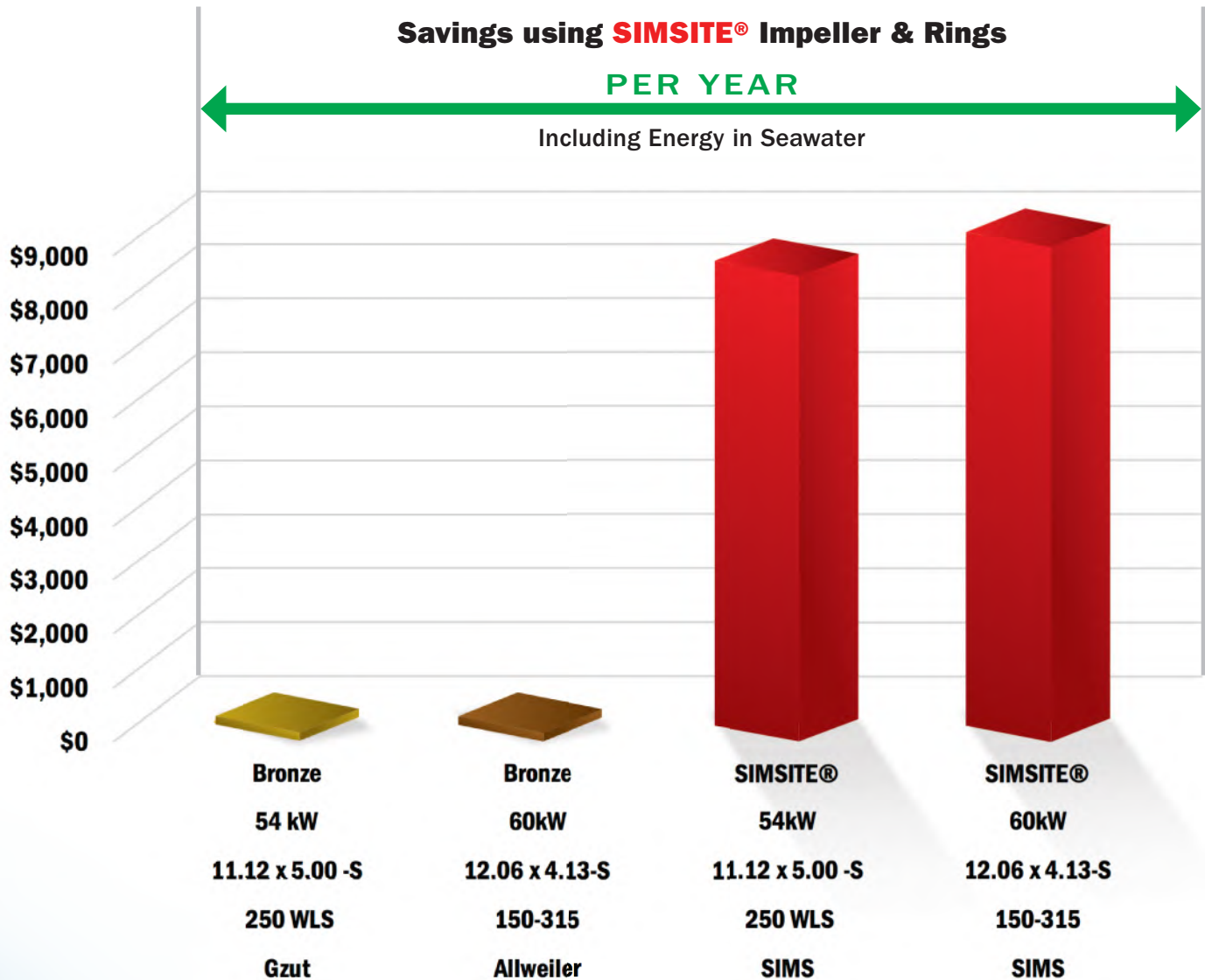
MANUFACTURER	GZUT	ALLWEILER	SIMS	SIMS
MODEL NO.	250 WLS	150-315	250 WLS	150-315
DIA X WIDTH	11.12 X 5.00-S	12.06 X 4.13-S	11.12 X 5.00-S	12.06 X 4.13-S
HP	54 KW	60KW	54KW	60KW
DRAWING NO.			5165A1112	4632A1206
MATERIAL	<b>BRONZE</b>	<b>BRONZE</b>	<b>SIMSITE®</b>	<b>SIMSITE®</b>
PURCHASE PRICE	\$4,000	\$4,150	\$4,012	\$4,287
12 MONTHS R & M	\$1,635	\$1,580	\$0	\$0
24 MONTHS R & M	\$1,709	\$1,651	\$750	\$775
36 MONTHS R & M	\$1,785	\$1,726	\$0	\$0
48 MONTHS R & M	\$6,466	\$6,576	\$780	\$806
<b>TOTAL EXPENSE - 4 YEARS</b>	<b>\$15,595</b>	<b>\$15,683</b>	<b>\$5,542</b>	<b>\$5,868</b>

## ENERGY SAVINGS USING A SIMSITE® VS BRONZE IMPELLER & RINGS

MANUFACTURER	GZUT	ALLWEILER	SIMS	SIMS
MODEL NO.	250 WLS	150-315	250 WLS	150-315
DIA X WIDTH	11.12 X 5.00 -S	12.06 X 4.13-S	11.12 X 5.00 -S	12.06 X 4.13-S
HP	54 KW	60KW	54KW	60KW
MATERIAL	<b>BRONZE</b>	<b>BRONZE</b>	<b>SIMSITE®</b>	<b>SIMSITE®</b>
DRAWING NO.			5165A1112	4632A1206
ENERGY COST PER YEAR	\$56,765	\$63,072	\$51,088	\$56,765
ENERGY COSTS - 4 YEARS	\$227,059	\$252,288	\$204,353	\$227,059
<b>ENERGY SAVINGS PER YEAR</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,676</b>	<b>\$6,307</b>
<b>ENERGY &amp; MAINTENANCE SAVINGS PER YEAR</b>	<b>\$0</b>	<b>\$0</b>	<b>\$8,190</b>	<b>\$8,761</b>

# SAVINGS USING SIMSITE® IMPELLERS & RINGS PER YEAR

## MAINTENANCE, REPAIR & ENERGY SAVINGS IN SEAWATER



**Sims**  
Since 1919

1314 Park Avenue, Hoboken, N.J. 07030

+1 (201)-792-0600; +1 (201)-792-0606 [www.SIMSITE.com](http://www.SIMSITE.com)

<b>SUBJECT</b>	<b>BENEFIT OF SIMSITE®</b>	<b>REASON</b>
PUMP PERFORMANCE	BETTER PERFORMANCE HIGH EFFICIENCY	<ol style="list-style-type: none"> <li>1. Superior Engineering Design</li> <li>2. 100% Machined (inside &amp; outside) on 5-Axis CNC machines.</li> <li>3. Smoother Vane Surfaces.</li> <li>4. Self-Lubricating Surfaces.</li> <li>5. Less leakage through Rings.</li> <li>6. No Casting Imperfections.</li> </ol>
CORROSION RESISTANCE	LITTLE OR NO CORROSION (Non Corrosive in Saltwater & Sewage –Good in Chemical Resistance)	<ol style="list-style-type: none"> <li>1. Phenolic / Epoxy Resin Matrix and Graphite Fibers will not corrode in salt water.</li> <li>2. Simsite® is Corrosion Resistant to Most Acid and Alkaline Solutions.</li> </ol>
ELECTROLYSIS RESISTANCE	NO ELECCTROLYSIS	<ol style="list-style-type: none"> <li>1. The Graphite Used in Simsite® is Non-Conductive.</li> <li>2. The more Simsite® in the Pump the Lower the Electrolysis.</li> </ol>
START UP TORQUE	LOWER AMPS LESS SHAFT DEFLECTION	<ol style="list-style-type: none"> <li>1. Light Weight. (Simsite® Specific Gravity is 1/6 or 15% the Weight of Bronze and Stainless and 1/3 the Weight of Titanium)</li> <li>2. Always Balanced.</li> </ol>
POWER CONSUMPTION	LOWER AMPS	<ol style="list-style-type: none"> <li>1. Light Weight. (Simsite® Specific Gravity is 1/6 or 15% the Weight of Bronze, and Stainless Steel and 1/3 the Weight of Titanium.)</li> <li>2. Better Hydraulic Engineering Design. (Higher Efficiencies)</li> <li>3. Always Balanced.</li> </ol>
HYDRAULIC BALANCE	REDUCED HYDRAULIC FORCE	<ol style="list-style-type: none"> <li>1. Precision Machining - - All the vanes are within .002 inches of each other. All exit ports are equally spaced.</li> <li>2. There are No Casting Imperfections.</li> </ol>
MECHANICAL BALANCE	ALWAYS BALANCED	<ol style="list-style-type: none"> <li>1. Simsite® Impellers are machined on a 5-axis CNC Machines. The center-of-axis-of-rotation is in the Center of the impeller creating perfect symmetry.</li> <li>2. Simsite® Impellers, Rings, &amp; Guide Bearings will not Corrode in Salt Water and therefore will not go into an imbalance.</li> </ol>
WEIGHT	LIGHT WEIGHT	Simsite® Specific Gravity is approximately 1/6 or 15% the Weight of Bronze, 1/6 the weight of Stainless Steel and 1/3 the Weight of Titanium.
EFFICIENCY	HIGH EFFICIENCY	<ol style="list-style-type: none"> <li>1. Smoother Surfaces.</li> <li>2. Precision Machining.</li> <li>3. No Casting Imperfections.</li> <li>4. Minimum Casing Ring Clearances.</li> <li>5. Better Hydraulic Engineering Design.</li> </ol>
CAVITATION	REDUCES CAVITATION	<ol style="list-style-type: none"> <li>1. Simsite® Impellers are Engineered to Reduce or Eliminate Cavitation.</li> <li>2. The Simsite® Structural Composite is good against the effects of Cavitation.</li> </ol>
NPSH (Net Positive Suction Head)	LOWER NPSHR	<ol style="list-style-type: none"> <li>1. Engineering Design -- The Simsite® Impeller Vanes are Engineered to Reduce the NPSHR.</li> <li>2. Engineering Expertise.</li> </ol>

# **SIMSITE®** STRUCTURAL COMPOSITES SIGNIFICANTLY REDUCE ENERGY CONSUMPTION

Today, there is a tremendous amount of effort being put forth to reduce energy expenses and consumption. The DOE (Department of Energy) and the Hydraulic Institute have been working together to reduce the energy consumption of pumps, motors, and pump systems. This is where **SIMSITE®** Structural Composites can shine – they can significantly reduce energy consumption by making the operating point the Best Efficiency Point – in some cases, energy consumption is reduced, by as much as 15%, or more!

It starts with the concept of using **SIMSITE®** Structural Composites for all pump applications:

## **SIMSITE®** Composite Components Are Corrosion & Erosion Resistant:

Corrosion, Erosion, Erosion, Cavitation, Rotor Imbalance, and Leakage between the Wear Rings, Casing Rings, & Interstage Bushings are major contributors to the loss of Pump Efficiency

Damage from Corrosion, Erosion, and Cavitation quickly destroys the metallic pump and pump parts which makes the pump inefficient and drastically increases energy consumption and performance deterioration!



## Upgrading Existing Pumps with **SIMSITE®** qualified structural composite components can reduce Energy in Four Major Ways:

1. **SIMSITE®** Impellers & Rings can be Re-Engineered to operate at the Best Efficiency Point (BEP).
2. **SIMSITE®** Structural Composite Components Do Not Corrode in Seawater, or wastewater, so the pump efficiency will not deteriorate over time.
3. **SIMSITE®** Pumps & Impellers are designed with state-of-the-art CFD Techniques on 5 to 8 Axis Machining Centers to maximize Efficiency.
4. **SIMSITE®** Structural Composite Impellers & Pumps are machined from one center position on CNC Machines from solid blocks of our patented structural composite, which enables the **SIMSITE®** Impellers to be perfectly balanced – both mechanically and hydraulically, and they remain perfectly balanced for the life of the pump.





**WHEN ONLY THE BEST WILL DO!**

A tradition of innovation continues...

...you can achieve the ideal!



**Sims**

Since 1919

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