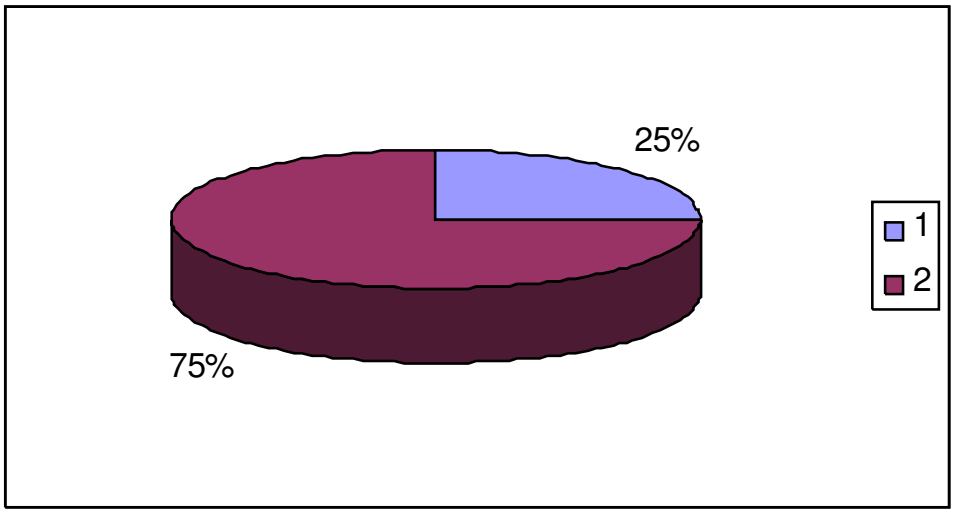
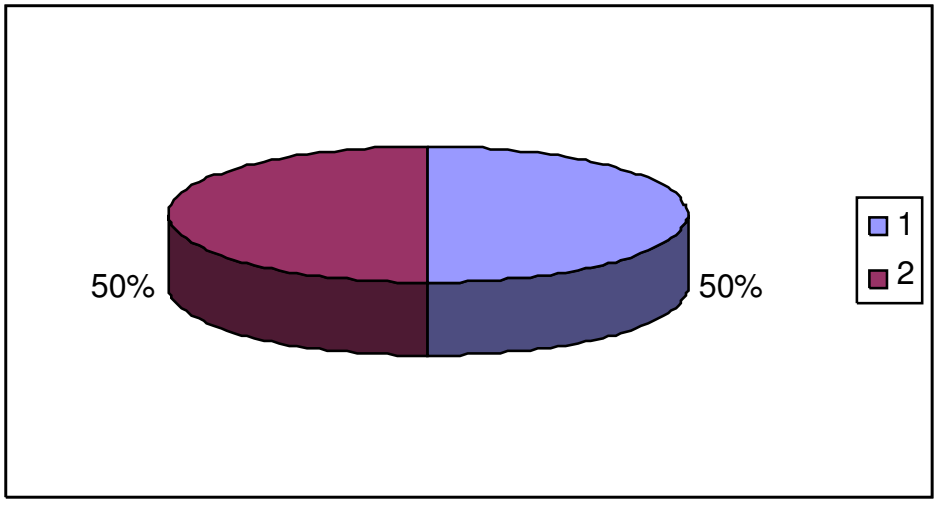
UniquePolymerSystems.com
The Engineer's Choice
... for Solutions

Efficiency and Energy Consumption.

World Industrial Electrical Energy Demand
25 % Pumping Systems

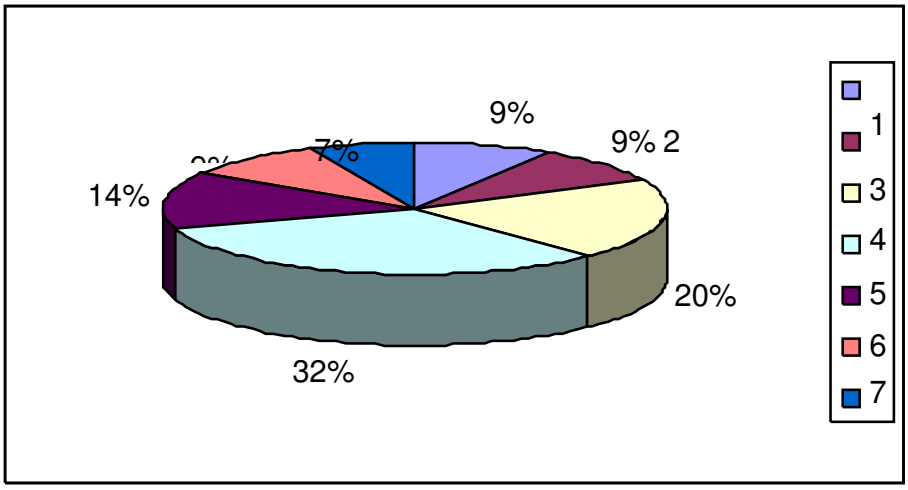


Industrial Plant Energy Usage
Pumping Systems 25-50%



Pumping systems account for nearly 25% of the world's industrial electrical energy demand and range from 25%-50% of the energy usage in certain industrial operations. Pumping systems are used in everyday life life from, domestic appliances to the water we drink from the tap.

Life Cycle cost of an Industrial Pump



32% - Energy cost throughout working life
20% - Cost of maintenance
14% - Actual cost of pump when purchased
9% - Installation
9% - Downtime
9% - Operation costs
7% - Environment

As we can read from the graph above, the actual cost of the pump accounts for only 14% of the overall operating cost through the life of the pump. **Energy and maintenance account for over 50%, with downtime adding another 9%.**

Although in many cases it is not practical to change pumps and adjust operating efficiencies, there are ways of improving –

a). The flow rate in the pump
b). The Energy consumption
c). The cost of Maintenance.

Unique Polymers has developed a low friction coating that is proven to

a). I**NCREASE** the flowrate through the pump
b). **REDUCE** the Energy consumption
c). **REDUCE** the cost of Maintenance

The Super Low Friction Efficiency coating is a high performance solvent free coatings designed for use as a resurfacing and lining system to improve the efficiency in fluid flow environments.

Best Efficiency Point

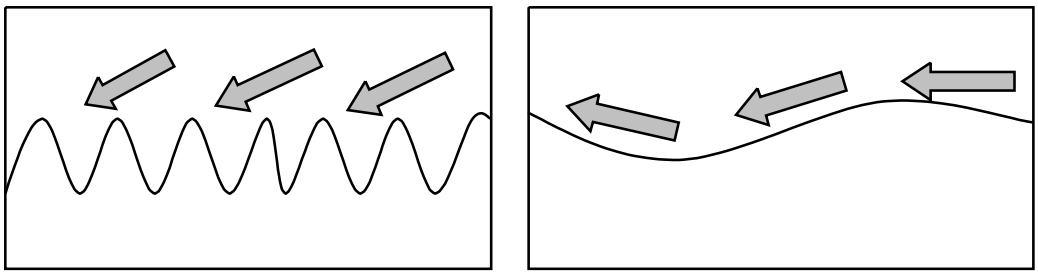
All pumps when first installed are designed to work at their **Best Efficiency Point**, however there can be many reasons for the pump not to be operating at its B.E.P.

1. Discharge Valve is throttled back
2. Pump is started with closed discharge valve
3. Closed valve on the system
4. Suction pipework is corroded
5. Damage by cavitation, abrasion and chemical attack to the wet end of the pump.

The **Unique Polymers UPS 210 Super Low Friction Efficiency Coating** can help in the latter areas!

By rebuilding the damaged areas such as the Volute, Impeller, Back Plate, Flanges, Pump Casing etc, with the Unique Polymers UPS 200 Ceramic Carbide Wearing Compound, we have extended the life of the component and equipment. However, to increase the efficiency and reduce the maintenance of the pump, a smooth and hard wearing surface must be applied to the repaired area.

The UPS 210 Super Low Friction Efficiency Coating is brush applied and has self leveling properties which enable the user to have a smooth finish to the repair.



General Ceramic Coatings **Super Low Friction Efficiency Coating**

As we can see from the two diagrams above, normal Ceramic Carbide Coatings leave brush marks across the surface, these offer areas of resistance when the fluid is pumped over the surface. However the self leveling properties of **the Unique Polymers UPS 210 Super Low Friction Efficiency coating** means the majority of the brush marks are smoothed away, allowing the fluid being pumped to run more easily over the surface, **Reducing Friction, Wear and Energy Consumption**, while **Increasing the Flow Rate of the pump.**

Furthermore, the high concentration of Ceramic and Carbide particles within the coating offers a higher level of protection to the Metal component and equipment being repaired.

Over the **TOTAL LIFE CYCLE OF THE PUMP**, the majority of operating costs will be caused by:

A). Energy Consumption	**32%**
B). Maintenance	**20%**
C). Downtime	**9%**
TOTAL	**61%**

By using Unique Polymers UPS 210 Super Low Friction Efficiency Coating we can work to reduce all three of the above.

FOR EXAMPLE:

Cost of Pump	**$23,000**
Energy Consumption	**$51,000**
Maintenance	**$32,000**
Operating	**$15,000**
Downtime	**£ 9,000**
Installation	**£ 9,000**
Environment	**£ 7,000**

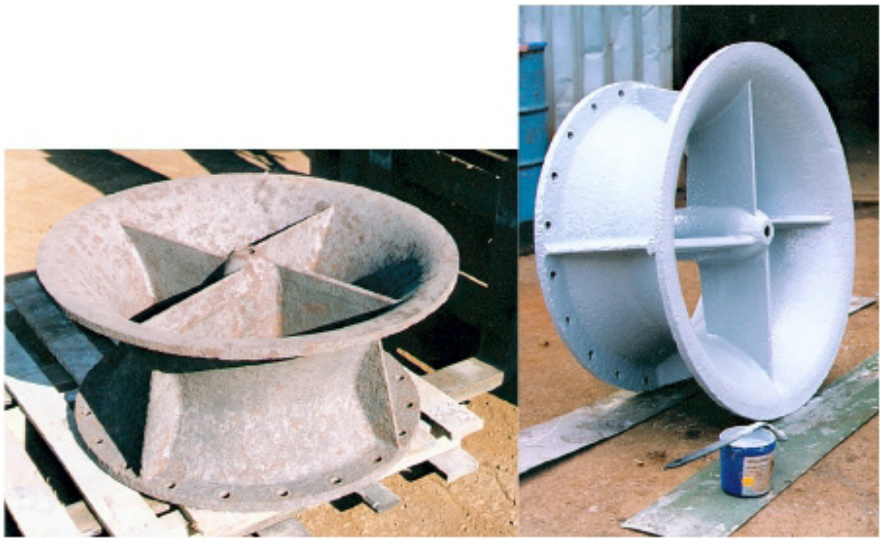
TOTAL LIFE CYCLE COST OF PUMP £100,000

Unique Polymers UPS 210 Super Low Friction Efficiency Coating is proven to increase flow rates by up to 8 %, thus reducing energy consumption, maintenance and downtime.

Examples of Application

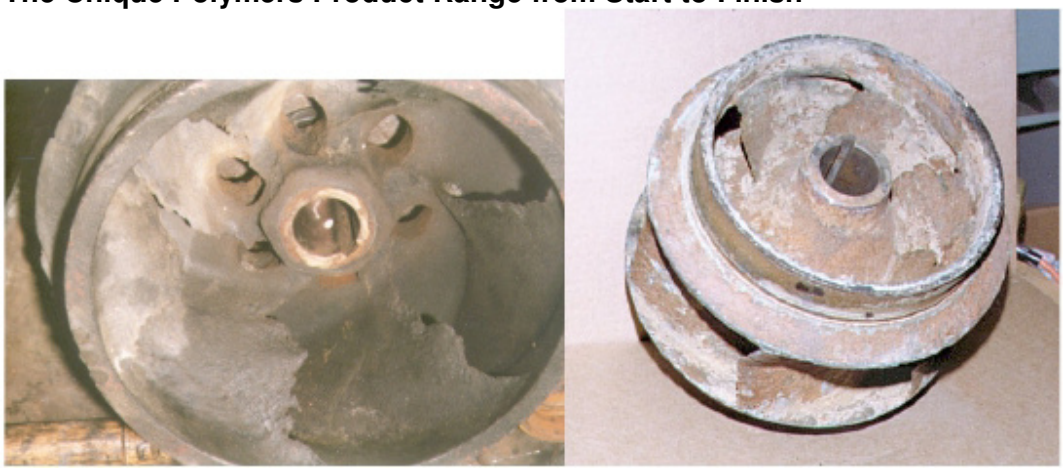
Before and After Impeller was coated with UPS 210 Super Low Friction Efficiency Coating (Red).

Pump Impeller blasted and cleaned with Unique Polymers Universal Cleaner and coated with UPS 210 Super Low Friction Efficiency Coating (Grey)



Pump Impeller blast prepared and coated with UPS 210 Super Low Friction Efficiency Coating.

The Unique Polymers Product Range from Start to Finish



Pump Impeller ready to blasted

Pump Impeller blasted and then degreased with Unique Polymers Universal Cleaner. The damaged blades rebuilt with UPS 200 Ceramic Carbide Wearing Compound

The Impeller is coated with UPS210 Super Low Friction Efficiency Coating and left to cure.