

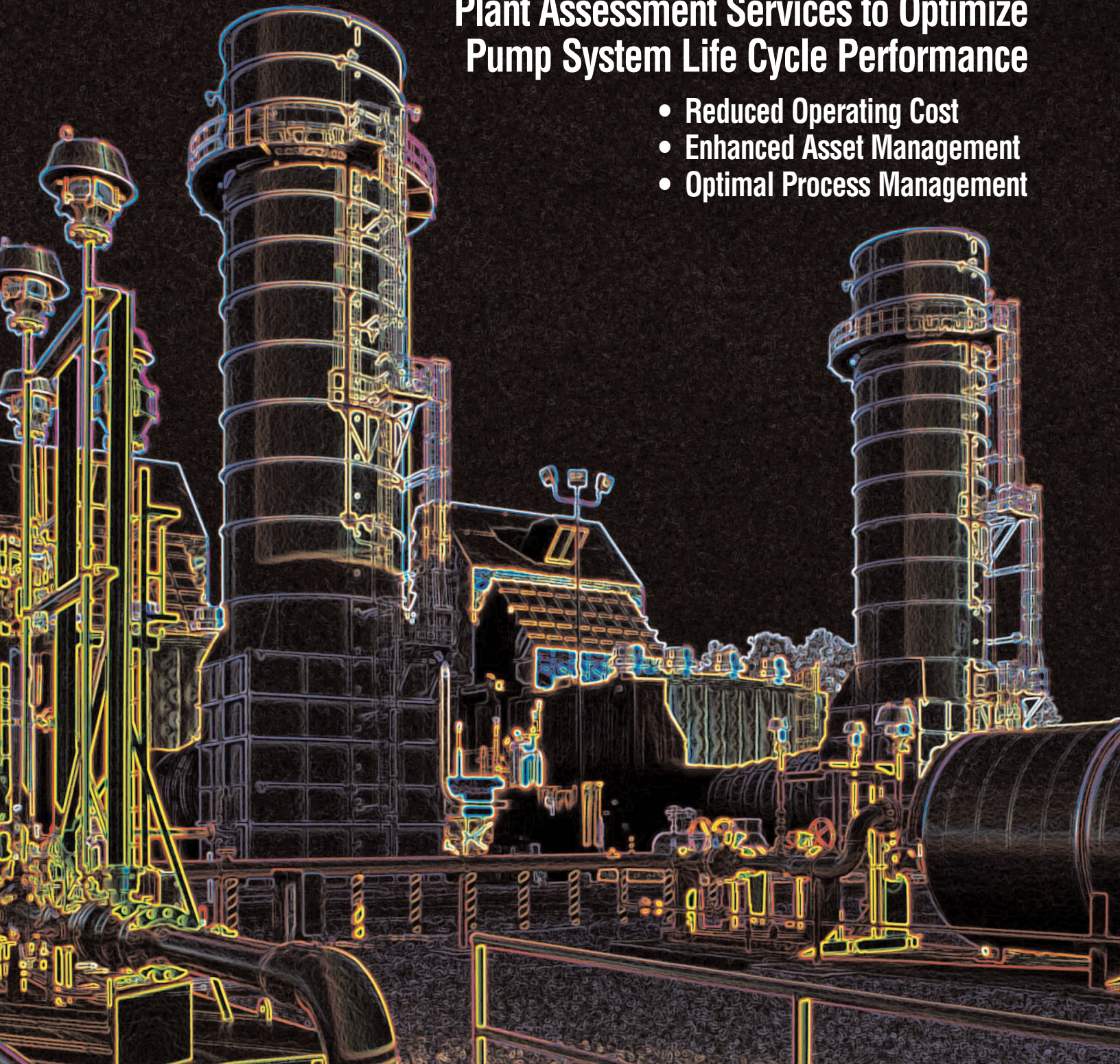
PUMP**SMART**[®]

CONTROL SOLUTIONS

Performance Services

**Plant Assessment Services to Optimize
Pump System Life Cycle Performance**

- Reduced Operating Cost
- Enhanced Asset Management
- Optimal Process Management



PUMPSMART® PERFORMANCE SERVICES

Identifying Opportunities to Optimize Pump Life Cycle Performance

Optimizing pump life cycle performance provides a new path to help reduce plant-operating cost. The largest consumers of industrial motor energy, typically, are the centrifugal pumps moving fluid throughout your operation.

Optimizing pump performance has the potential to achieve 30% to 70% improvements in energy and maintenance cost, while improving both pump and process reliability. Let PumpSmart™ Performance Services help reengineer your process for the future.

Maximizing Pump Efficiency

Recent studies show that the average pumping efficiency in industrial plants is below 40%. Pump over-sizing and throttled valves are identified as the two major contributors to efficiency loss. Pumping system performance is affected by several factors:

- Efficiency of the pump and system components
- Overall system design
- Efficient pump control
- Efficiency of drives
- Appropriate maintenance cycles

Assessing Your Systems

Pump assessments help identify process modifications that offer the most potential for efficiency improvements:

- Motor efficiency via replacement or upgrade
- Best match between component size and load requirement
- Reduced load on motor through improved process and system design
- Use of variable speed control instead of throttling or bypass mechanisms

The following pump symptoms are indicators of potential opportunity: throttled valve; bypass line normally open; multiple parallel pump system with the same number of pumps always operating; continuous pump operation in a batch environment, and presence of cavitation noise.

Drawing on over 150 years of ITT Goulds Pumps system experience, PumpSmart™ Performance Services' team of consultants provides in-depth pump and process assessments to identify the factors limiting pump performance. After completing an onsite assessment, a recommendation report is provided with strategies to improve pump performance. Design and equipment modifications are typical. In many cases, the application of intelligent flow control systems is needed to fully optimize system efficiency. A financial analysis includes total installed cost and annual savings to provide a clear return on investment.

PumpSmart™ Control Solutions

When employed, ITT PumpSmart™ Control Solutions' variable speed technologies provide the following pump adaptations:

- automatically adjusts to process changes
- automatically adjusts to pump system changes
- protects pumps from system upsets
- provides on line condition monitoring

Smart pumping systems with embedded sensors and controls allow for smoother transitions such as start-ups and production changes, tighter control during continuous operation, and faster diagnostics of potential system problems before product quality or process operation is negatively affected.

Calculate The Savings

Case studies have demonstrated life cycle cost savings up to 70% through optimization. In a marketplace that is relentless on cost, can you continue to afford overall pumping efficiency below 40%?

Process pumps, depending on type, have mechanical designs that allow high efficiency operation. When applied, the design goal is to size the pump to operate near its best efficiency point (BEP) under normal operating conditions. However, there are wide swings in process demand and actual process requirements often change with time. As a result, sizing a fixed speed pump to operate near its BEP is similar to "shooting" at a moving target.

Pumping Systems are Energy Intensive

Industry	Pump Energy (% Of Total Motor Energy)
Petroleum	59%
Pulp & Paper	31%
Chemical	26%

Among all rotating assets in industrial plants, centrifugal pumps have the highest potential for electrical energy savings. The excess energy in fixed-speed pumping systems, not used for moving fluid, is often dissipated into the infrastructure and can contribute to lower equipment reliability.

A Network Of Experts

In addition to providing pump assessments and smart pump technologies, PumpSmart™ Performance Services utilizes a network of affiliated consultants for process variability studies and project design.

To learn how to make a quantum leap in reducing plant operating cost, contact your local representative for more information or to arrange for plant assessment.

Goulds Pumps

Visit our website at www.gouldspumps.com or www.pumpsmart.com

