Optimize to economize

ALL-PUMPS

Significant savings through efficient pumping

ALFA LAVAL

Realize the potential

"Cutting energy costs is not just about buying a high-quality pump. It's about selecting the right pump for each application." Russell Jones, Alfa Laval

When you want to save on energy costs, pumps might not be your first thought. But think again. Pumps actually consume around 10% of the world's energy – more, in fact, than any other type of equipment.[1]

And while pump optimization is not a new idea, the drive to reduce CO_2 emissions and operating costs gives it ever greater relevance.

As well as comparing purchase price, it is also important to compare energy consumption over a lifecycle. Considering pump sizing at an early stage in plant design is a must. Even comparing premium brands you can save 25% or more – for lower efficiency competitors that could increase to over 50%.

For existing plants where pump optimization has not been a key issue, an upgrade could be worthwhile, with payback potentially achieved in as little as three months.

Major savings

Energy is a challenge that affects us all. New legislation is compelling the world to adopt higher efficiency standards for electrical motors, typically increasing efficiency by around 2%. Clearly there is a great opportunity when energy savings as high as 50% can be achieved by optimizing pump selection.

Quality counts

It is important to choose a well designed and built pump. Close tolerances and optimized internal design are the key to maximizing performance, and that requires a robust construction. Less robust pumps, often made from thinner material, tend to expand and contract under pressure, requiring larger clearances and resulting in lower efficiency. But that's just part of the story – the critical issue is selecting the right pump for the specific task.

- Consider overall system design in addition to pump design. Even with high quality pumps, actual pump performance can vary dramatically from application to application.
- Select a pump as close as possible to its best efficiency point.
- Look for a broad product offering, plus the availability of a computer-aided selection tool. These will help you get closer to optimum performance.
- To control flow rate, use a variable frequency drive to adjust pump speed directly, rather than adjusting back pressure via valves. Energy savings of 30–40% are possible.

1) BPMA, 2009

Case: Keeping energy down (under)

The more pumps, the more you save. A report published details of savings achieved at one of leading milk producer Murray Goulburn's facilities*. Correctly sized Alfa Laval pumps were installed in two milk separator pre-heater banks. The results exceeded expectations.

- Up to 42% lower pump system running costs
- Reduced carbon emissions
- Improved process control
- Annual saving per pump: €1,430

* Case Study: Energy Efficiency Best Practice, Pumping Systems. Sustainability Victoria, 2010.

Case: Filtering out costs

Processes that typically use bigger pumps, for example high pressure filtration, have great potential. A US dairy achieved significant savings by installing Alfa Laval LKHPF 60 pumps in a reverse osmosis process.

A one-week run time trial was carried out to evaluate power consumption compared with existing pumps at the site.

- 15% reduction in power usage
- Annual saving of €1,245 per pump
- Potential annual saving of €20,700 for a typical reverse osmosis system

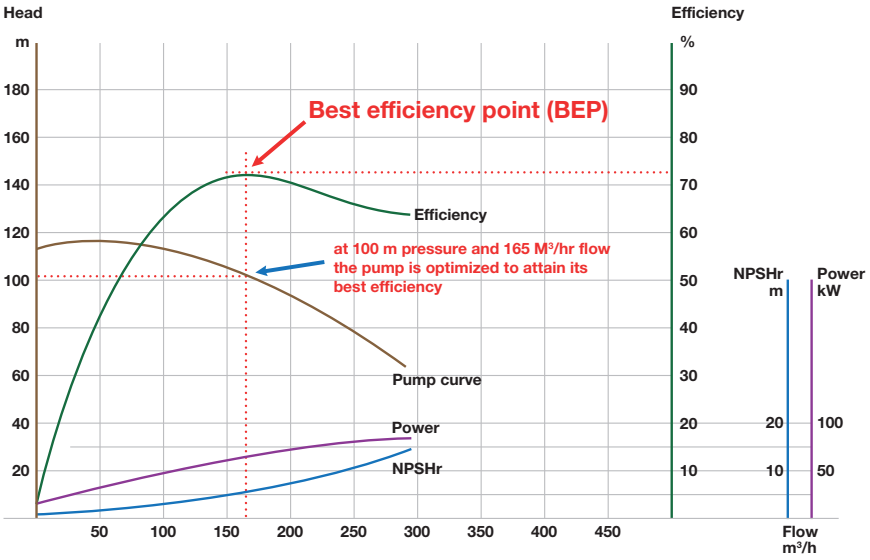
Learn more at www.alfalaval.com/food

The secret of selection

For every centrifugal pump size there is an optimum head and flow point where a pump is most efficient. This is called the "best efficiency point" (or BEP). If the duty point required is some distance away from the BEP, the efficiency of the pump may be low.

Unfortunately, many pumps do not operate at BEP. Computer-aided selection tools, such as Alfa Laval's CAS program, are a big help in selecting the right pump for the task at hand.

- When designing a new system: small changes to the process design can greatly affect the efficiency of any given pump.
- If there is a fixed duty point, review multiple pumps to check which size is most efficient.
- Balancing system requirements, duty points and pump price can be complex. Computerized tools such as Alfa Laval's CAS program allow a full analysis to optimize selection.



- When the viscosity of the pumped media starts to increase, consider a positive displacement pump, which may use significantly less power as viscosity rises.

For support, go to:
www.alfalaval.com/food

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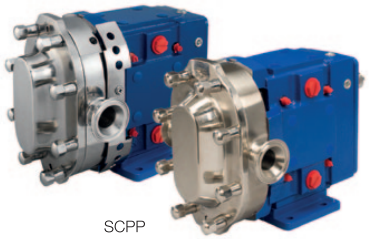
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