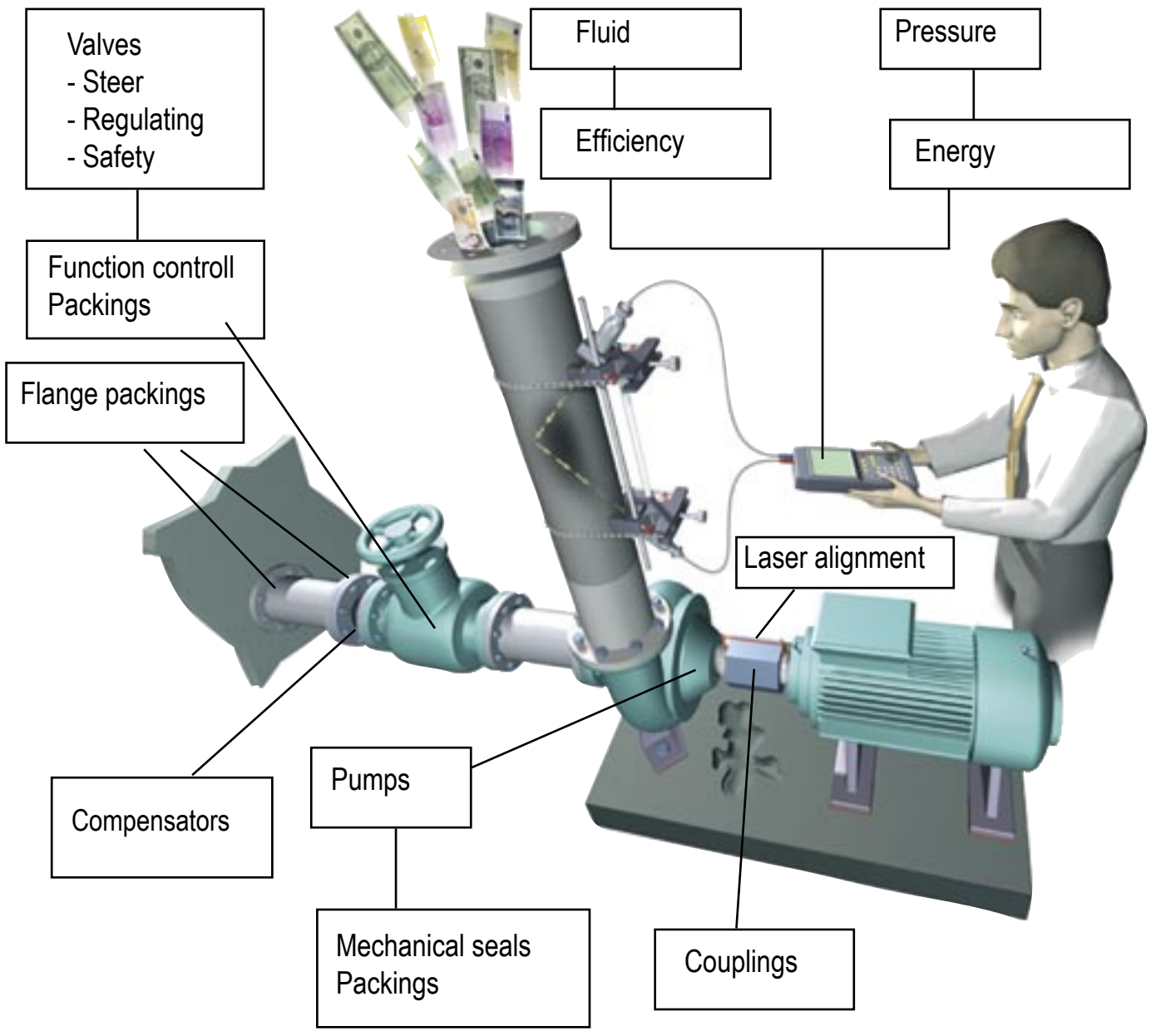
We have the resources and leading competence to find cost reduction possibilities in most pump systems



The energy cost represents 60 to 95 percent of the pump's total life cycle cost (LCC).

In the early 90s companies within the European Industrial Group started to make diagnostics through inspecting the capacity and energy use in vacuum- and liquid pumps

Surprisingly many pumps did not perform as well as they should. A large amount of money could be saved by renovating and upgrading the existing pumps instead of buying new pumps. As we have carried out thousands of renovations and upgrading, we have acknowledged how our customers (industries, power plants, communities, etcetera) can reduce the costs when using the pump systems. We do this through our portable diagnosis equipment for vacuum and centrifugal pumps.

This allows us to identify those pumps whose costs are unnecessarily high and thereafter determine which working method to use. These methods can be frequent steering, pipe routing, change of pump, renovation of existing pump, exchange of the electric motor and mechanical seals.

Even today, more than 15 years later, we still identify pumps that cost too much due to low capacity and high energy consumption.

What is your situation?

Do you know the condition of all your pumps

Do you have pumps which are noisy, vibrate or break down regularly

Have you got pumps that require more energy than 50 kW?

Let us show what we can do and we are certain that we will find a way to reduce your costs.

Reduced energy costs and increased capacity

As the critical tolerances have increased due to years of erosion, corrosion, wear, chemical attacks or cavitations, many pumps have a reduced capacity and increased energy consumption.

With our mobile diagnostic equipment and leading expertise in liquid pumps and systems we can identify potential improvements while the system is running.

We optimize pump systems as one of our key services, the intention being to make the systems more efficient, increase the life cycle and reduce maintenance and energy costs.

As much as 75 percent of all pump systems are incorrectly dimensioned. This could be due to over-dimensioning at the beginning or changes in the system.

Pumps can also have been dimensioned for a lower capacity than they require.

In both scenarios the pump is not using its full capacity and is therefore less efficient.

Wear affects mechanical seals and bearings which automatically leads to higher maintenance costs.

The pump must simply fit the system. This requires a careful investigation of the system's efficiency.

When this investigation is carried out we can make a full analysis and propose the solutions that are required to attain the optimum running conditions.

Our first two questions are: How should the system perform? What pressure and flow does it need to have in order to function optimally? Our third question is: How does the system perform today?

As the customer is not sure of how the pump system should perform under existing running conditions, the third answer can be a little indecisive.

We inspect the flow, pressure, energy and the pumps/systems graphical curves etcetera.

This examination will then lead to various proposals.

We can propose to turn of (remove?) the diameter of (from) the pump wheel, renovate the pump or simply change the pump.

In some cases the flow and pressure alter with changes in the running conditions.

It may then be convenient to frequency control the pump.

The system can be optimized in many different ways.

Try us!

Mixing pump Z 22 in cast iron

	Energy use	Revolution	Production
Before	367 kW	637 rpm	11.9 t/h
After	281 kW	594 rpm	13.2 t/h

Saving 9.5 kW per ton of paper.
86 kW x 8 000 h = 688 MW x € 50 = € 34 400 per year

Cooling pump (saltwater)

After renovating and upgrading:
- 200 m3/hour more than uncoated.
- 70 m3 more than a pump in stainless.

An additional two cooling pumps were renovated.
- Only two pumps were required where there where previously three.

Calculated savings.
- Energy use per pump 315 kW/hour
- Running time per year 8500 h/year
- Yearly energy use 2 677 MWh
- Energy savings x € 50 = € 134 000/year

Sewage-treatment plant

4 ABS scan pump z22
- Corrosion on one pump wheel
- Renovating and upgrading
- After repair 4 400 l/s
- Before 4 000 l/s
- Pressure transmitter installed, efficiency increased to 82.3% after renovation
- New pumps efficiency is 75%
- The customer installed an uncoated pump parallel with the upgrade
- After 11 000 hours both pumps were tested
  - -The uncoated pump needed 209 kW/h
  - -The coated pump needed only 185 kW/h
  - -The difference was 192 000 kWh/year
  - - Savings: 192 MW x € 50 = € 9 600 per pump per year
- After 20 000 hours the pressure transmitter showed that the efficiency was still better than a new pump
- Many more pumps have been upgraded since than

Centrifugal pump tested at a pump manufacturer

	Before	After	Gain
Flow	985 m3/h	1105.6 m3/h	+12%
Energy requirement	190.9 kW	180.7 kW	–5.3%
Efficiency	66.3%	76.2%	+14.9%