

National
Dealer
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Service Offering & Energy Optimization

GRUNDFOS 

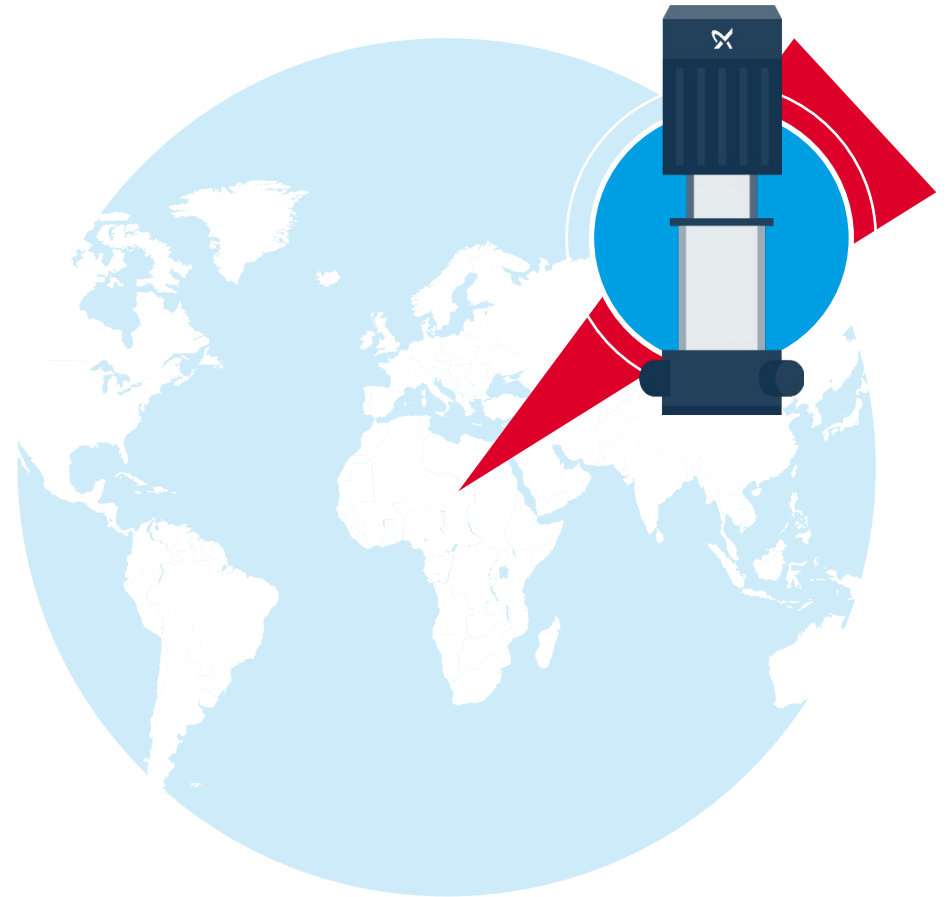
Possibility in every drop



Small changes – great impact

Pumps account for a staggering 10% of the world's total electrical energy consumption.

Even a slight reduction will have a huge impact on the environment worldwide, making energy optimisation an essential focus for all.

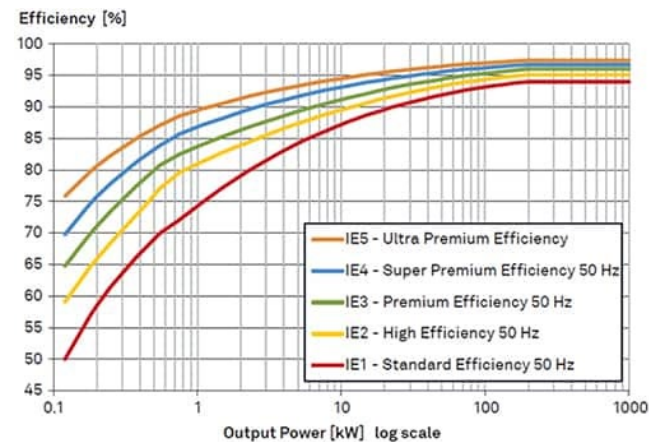
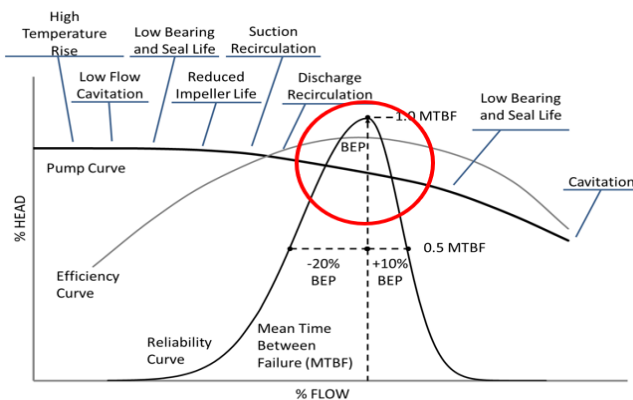
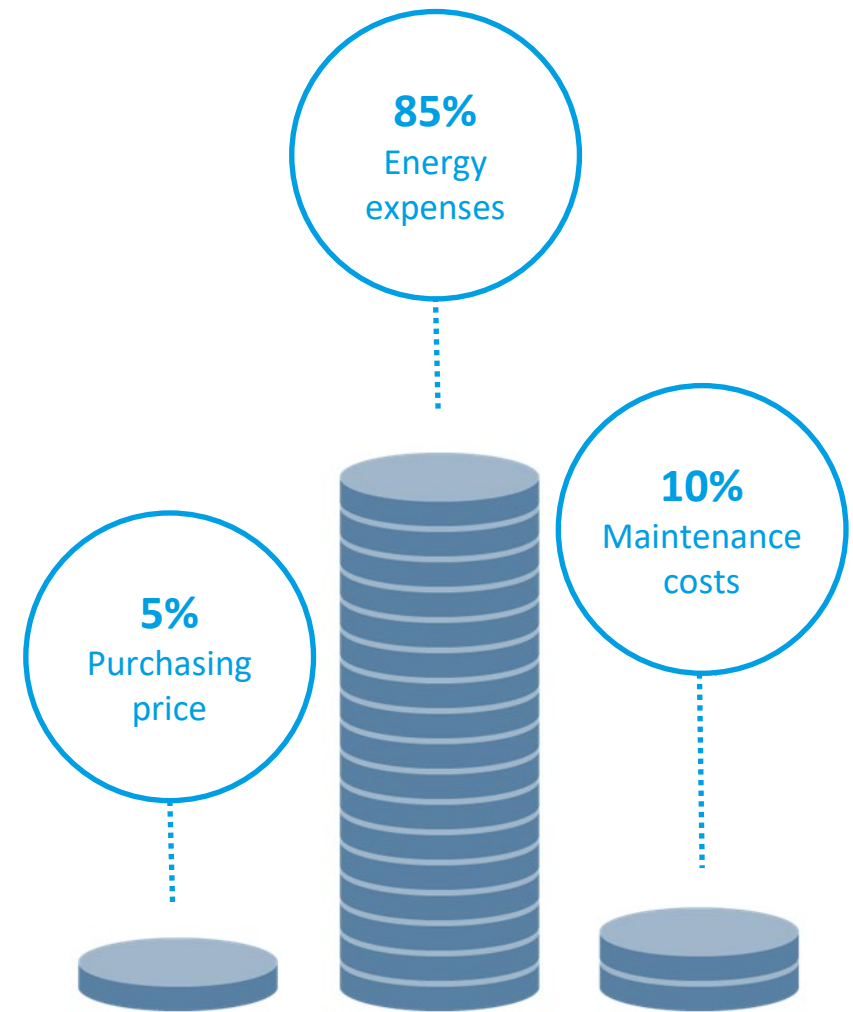




A great potential for cost savings

Of the total lifecycle cost of a Grundfos pump, only about 5% is the actual purchasing price, while 85% is made up of energy costs.

This means that there is a great potential for achieving lifecycle cost savings thanks to energy optimisation.



Service Offerings



SERVICE AGREEMENTS



STANDARD SERVICE AGREEMENT



CUSTOMISED SERVICE AGREEMENT



PERFORMANCE AGREEMENT



ENERGY EARNINGS



REPAIR SERVICES



REPAIR



REPLACEMENT



SPARE PARTS



SERVICE KITS



OPERATION SERVICES



INSTALLATION



COMMISSIONING



LASER ALIGNMENT



INSPECTION



VIBRATION MEASUREMENT



THERMAL SCAN



DIGITAL SERVICES



OPTIMISATION SERVICES



ENERGY CHECK



ENERGY AUDIT



DIGITAL SERVICES



Service Agreements

Leave your service, maintenance and system analysis tasks to expert service technicians, and save time, money and resources.

With a service agreement, for a fixed period of time, you get scheduled maintenance to ensure your system runs at peak performance and stays as energy-efficient as possible.

Benefits:

- Optimised and reliable pump operation
- Reduced operating costs
- Predictable service and maintenance costs
- Prolonged system lifetime





Two types of Repair

Downtime is inconvenient and expensive so to minimise this, we offer two types of repair service: on-site and workshop repair.

Workshop repair:

Workshop repairs are the ideal choice for smaller pumps that can be shipped easily.

On-site repair:

Having our service technician come to you to do on-site repair is the best option for large installed pumping systems.





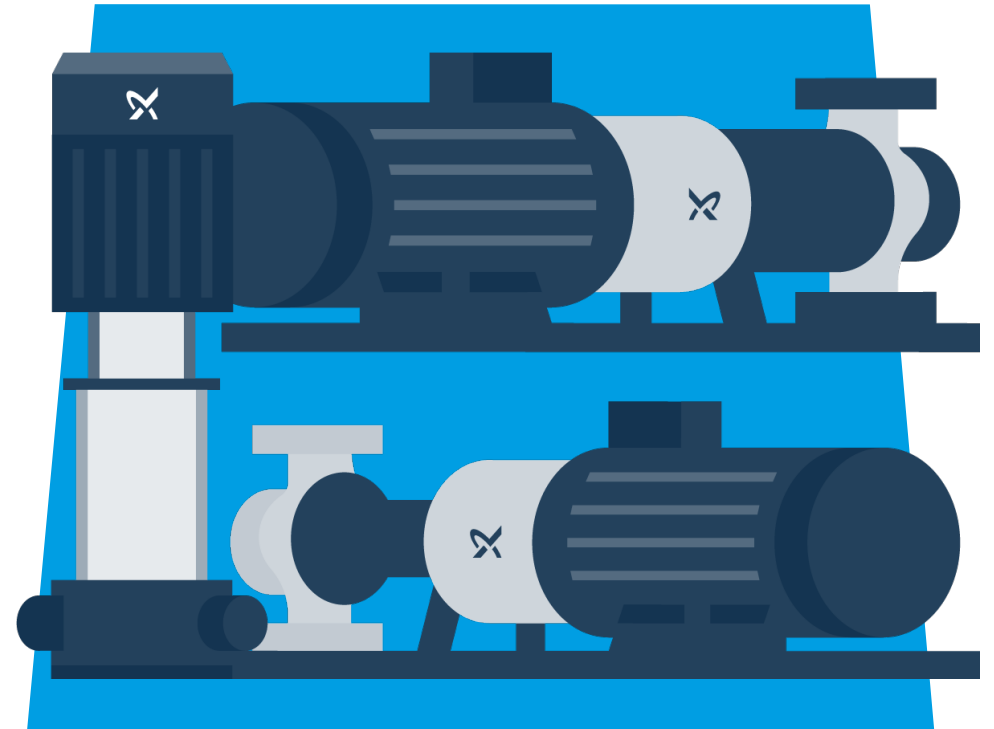
Operation Services

Our Operation Services support you in all phases – from Installation and Commissioning to optimisation and alignment.

All of our service technicians are experts in pumps and are trained on a regular basis in the newest technologies.

Benefits:

- Correct and effective installation
- Optimal pump performance
- Prolonged lifetime



Energy optimization services



COST LEVEL

Energy check basic



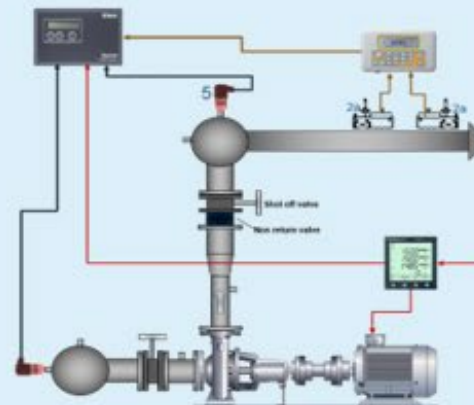
Energy check



Energy check advanced

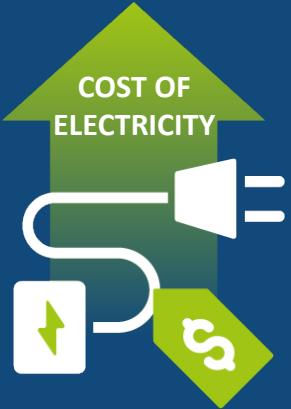
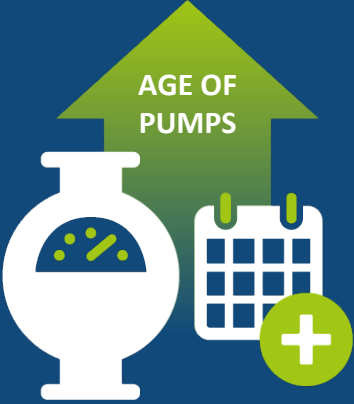


Pump Audit



COMPLEXITY & LEVEL OFF EFFICIENCY POTENTIAL

How to identify the pumps for energy saving



Energy price



Oversized pump



Energy Check

Energy Check identifies opportunities for improvement of energy efficiency in your system based on pump nameplate specifications.

The energy check process includes:

- Site visit to gather data from your pumping system
- Energy check report
- Presentation of final report

The energy check report provides recommendations for replacement pumps with the same specifications but lower energy consumption.

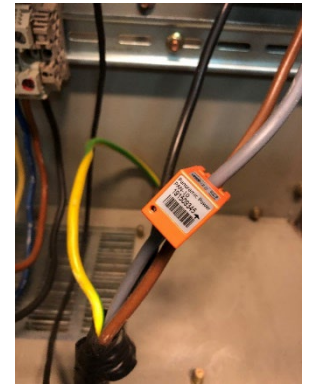
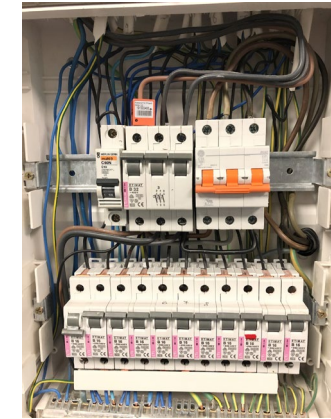
TYPE	ANY PUMP	
Q:	820 m ³ /h	H: 32 m
n:	XXX rpm	Efficiency 65 %
NPSHr:	X.X m	P motor XXX KW
Serial No.	Mfr Date	

TYPE	ANY PUMP	
Q:	820 m ³ /h	H: 32 m
n:	XXX rpm	Efficiency 82 %
NPSHr:	X.X m	P motor XXX KW
Serial No.	Mfr Date	

Energy Check Advance - Wireless Power Sensors



- Need to be a qualified electrician and of course have customer permission
 - Service engineer with relevant qualification
 - Customer representative if qualified
- Need to document with pictures if possible:
 - Name of control panel
 - Name of control circuit/ equipment being measure
 - Serial number of sensor/s used
 - Serial number of data bridge



TIPS

1. Keep data bridge as close to control panel as close as possible
2. Check bridge has 2 green lights: may need extended antenna
3. Arrow on sensor must follow flow of current
4. Measure voltage and take notes



References:



YEARLY SAVINGS (MYR)
29,825

PAYBACK TIME (YRS)
1.51

ENERGY SAVINGS (kWh/Yr)
76475

EMISSION REDUCTION (CO₂ /Yr)
49.71

INVESTMENT COST (MYR)
47,000

Executive Summary

We have now finished your Energy Check and it shows that you can save (MYR) 29,825.17 annually on energy expenses through some relatively straightforward improvements to your pump installations.

This savings estimate is based on our inspection of 4 pumps installed in your facilities. By investing in more energy efficient pumps and other small improvements, your organisation can reduce energy usage by 76,474.80 kWh per year. Your investment to realise these improvements is MYR 47,000.00, which translates to a payback time of 1.51 years. This report explains in more detail how you can achieve this.

Our recommendation is that the opportunities presented in this Energy Check Report be considered carefully. We are ready to help you every step of the way in achieving these savings, and look forward to helping you realise the additional operational, environmental and business benefits of these recommendations.

If I can be of any further help in explaining these findings to you or anyone else in your organisation, please don't hesitate to contact me.

Azlan Shafie
Grundfos Malaysia
azlan@grundfos.com



Disclaimer

The potential savings shown in this Energy Check report are based upon a straight replacement without changes to the valve system and also the pump data gathered within an one hour from the pump/flow transmitter and/or the flow meter. While every effort is made to present an accurate illustration as possible, Grundfos cannot be held responsible for the data in the report and delivery and accuracy thereof. The report is to be used as a guideline and should not be passed onto any third party without the written permission from the local Grundfos office.

PROJECT NAME: TOYO MEMORY



Energy Check results

YEARLY SAVINGS (MYR)
29,825

PAYBACK TIME (YRS)
1.51

ENERGY SAVINGS (kWh/Yr)
76,474.80

INVESTMENT COST (MYR)
47,000

Breakdown of the potential savings

From the data collected during the Energy Check we have calculated the potential energy savings for each assessed pump. We then considered the price of purchasing newer, more energy efficient pumps, the annual operating cost with the new pumps and the related payback time.

For an investment of MYR 47,000.00 a potential energy savings of 76,474.80 kWh/yr can be achieved with a payback time of 1.51 years.

More details are shown below:

Pump data

Number of pumps assessed	4
Number of pumps with potential energy savings	2

Supplied data

Price per kWh (MYR)	0.39
Energy price increase yearly (%)	3.0
Expected target payback period (yrs)	3.00
CO ₂ rate (g/kWh)	650.0

Pump life cycle

Savings over 10 year period	305,149.34
Savings over 15 year period	324,337.28

Financial data

New pump equipment (MYR)	47,000.00
Installation (MYR)	0.00
Commissioning (MYR)	0.00
Accessories (MYR)	0.00
Service contract (MYR)	0.00
Maintenance of cost of existing system (MYR)	-0.00
Grants/incentives (MYR)	-0.00
Total Investment (MYR)	47,000.00

	Tag	Model	Pump Quantity	Operating Time (hours)	Pump Flow (GPM)	Pump Flow (m3/hr)	Outlet pressure (Bar)	Inlet pressure (Bar)	Head (m)	Rated P2 (kW)	Motor Efficiency class	VFD	Power P1 (kW)	Total Efficiency	Energy (kWh/year)	Energy Cost (MYR/year)
Existing	UDI WATER PUMP	AB B33.4B.2	2	4380	480.0	109.0	5.5	0.5	51.0	37.0	STD	YES	36.19	41.8%	317,011	\$ 123,634
Replacement	UDI WATER PUMP	NK 65-225/232 -	2	4380	480.0	109.0	5.5	0.5	51.0	30.0	IE3	YES	21.91	69.0%	191,932	\$ 74,853
														Savings	125,079	\$ 48,781
															39.5%	

Centrica power dashboard



Calculation details

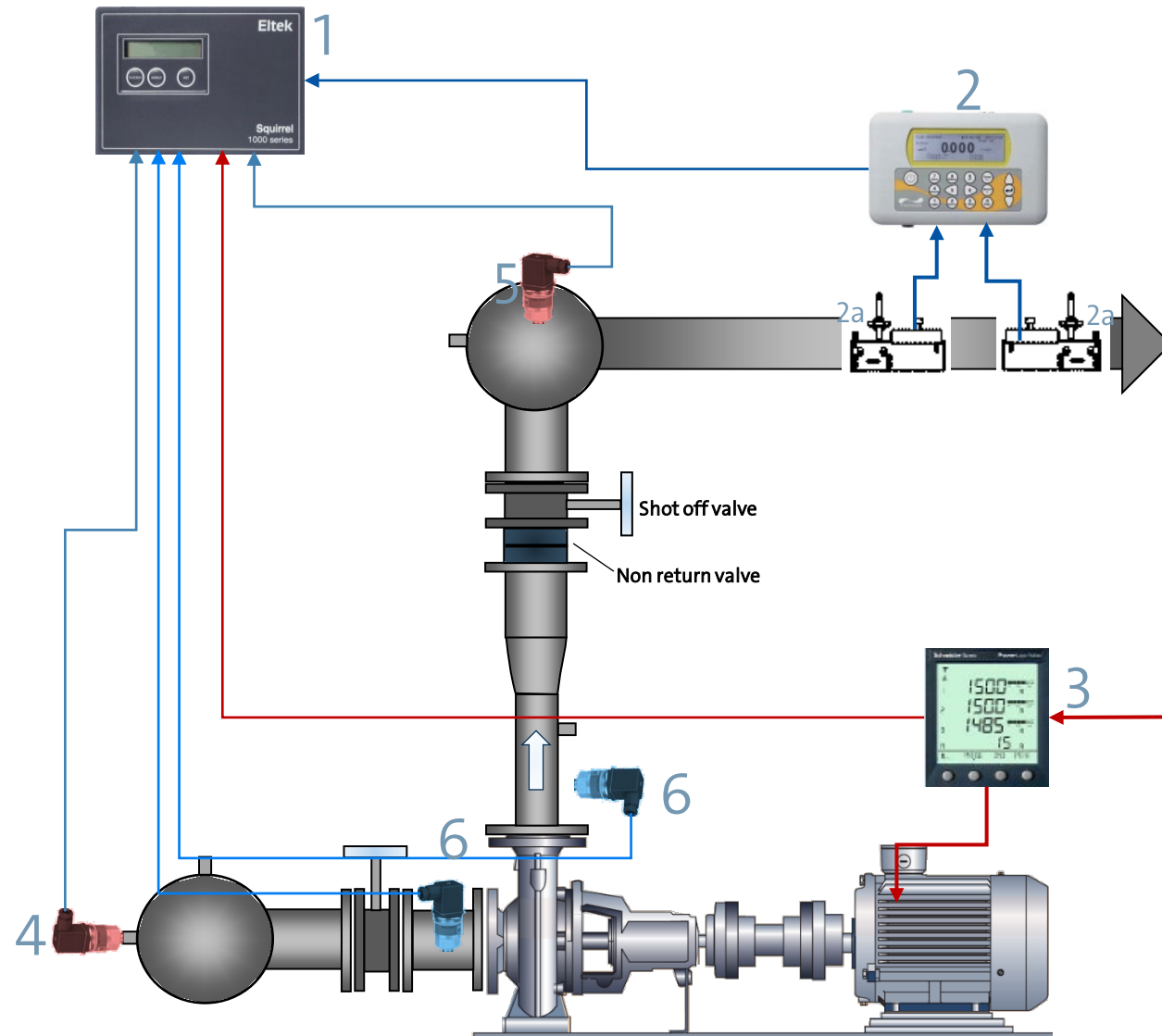
For UDI pump:
 -Measured flow 329GPM
 -Head 51m
 -Measured Power 24.8kW
 The resulting efficiency for the existing pump is 41.8%

Energy Audit and how to get the data analysed?



Energy Audit Example for Single pump application

1. Data logger
2. Flow meter [2a ultra sonic sensors]
3. Power meter
4. Pressure sensor inlet
5. Pressure sensor discharge
6. Optimal place for pressure sensors



6 Tons Boiler feed pumps improvement



Background:

Original boiler design: 18 bars
Used to operate at 16 bar
After 2019 operating at 7 bars – facing cavitation problem

Vertical:

F&B

Solution:

Upgrade motor from MG motor of CR15-17 (15kW) to be MGE motor CRE15-17 (11kW) and using pressure control across control valve.

Energy saving: 30%

