

**ENERGY IS EXPENSIVE.  
EFFICIENCY IS NOT.**



# GRUNDFOS PUMPS INDIA PVT. LTD.

What began as a liaison office for Grundfos Gulf distribution in Mumbai in 1976, Grundfos India has expanded by leaps and bounds with a head office, warehouse and service-cum training centre in Chennai and 16 regional offices at Mumbai, Delhi, Bangalore, Kolkata, Hyderabad, Cochin, Pune, Ahmedabad, Nagpur and Vizag.

In March 2005, Grundfos India inaugurated a new facility with a well-equipped corporate office, training, production, testing, and extensive warehousing facilities in Chennai. Grundfos India is a part of an International company with global presence. The Grundfos Group is characterized by progress and innovation, but the values remain constant. In their shortest form they make up the slogan: BE > THNIK > INNOVATE

These values and ideals are reflected not only in the pumps and pumping systems produced, but also in the relationship with customers, employees, partners and surroundings.

Grundfos strongly believes in effective management of energy consuming systems, which can lead to significant cost and energy savings as well as increased comfort, lower maintenance costs, and extended equipment life. A successful energy management program begins with a thorough energy audit.

Between 2006 - 2011, the Audit team in Grundfos India has conducted 560 pump audits. All of the audits were conducted at end user sites, which includes Industries, Commercial buildings, Wastewater and Water services.

<b>No of audits during 2006 - 2011</b>	<b>560</b>
<b>Number of pumps audited</b>	<b>4969</b>
<b>Power saving identified in kW</b>	<b>12575</b>
<b>CO<sub>2</sub> emission reduction identified in tons</b>	<b>52066</b>

It is evident on an average 30 to 35% of the power consumption of the pumps in usage could be easily saved. What we need is more commitment from the top management towards energy conservation.





# WHAT IS PUMP AUDIT ?

## › What's Pump Audit ?

A pump audit is a checkup of your pump system. It checks the overall efficiency of your pumps and reveals how much energy could be saved by switching to a different pump / pipe line changes. What is more, it clearly shows the monetary impact of those savings. Because at Grundfos, we believe that energy conservation is most efficient when it benefits everyone.

## › Grundfos Pump Audit

Many pump systems waste energy - and money - day after day. We can help you determine whether your system is one of them. A pump audit will tell you exactly how much you could save by optimising your system. And then we can help you achieve those savings.

## › Energy conservation: A Grundfos Priority

At Grundfos, we want to actively help our customers conserve world's energy resources. We do so by following environmentally responsible principles ourselves, but ven more importantly we create technology that has a real impact on energy consumption worldwide.



# WHY PUMP AUDIT ?

- › Pumps account for 10% of global electrical power consumption
- › Two third of all pumps use upto 60% too much energy
- › If every business switched to a high efficiency pump system there could be global savings of 4% of the total electricity consumption- comparable with the residential electricity consumption of 1 billion people.
- › The life cycle cost of a pump reveal that the energy costs eats away 85%, maintenance costs 10% and the initial investment of the product is a meager 5%

## The reasons for high power consumption in pumps are

- › Improper selection and operation
- › Overdesign
- › Improper layout
- › Old inefficient pump

Given the above, it is evident that pumps become a prime candidate for energy audit in the drive for energy conservation.

**85%**

of a pump's life cycle costs are incurred by power consumption

**5%**

Initial purchase price

**10%**

Service and maintenance



## WHY SAVE ENERGY ?

- › Energy is one of the key barometers in identifying a country's economic development and hence more energy saved improves the country's security as also economy.
- › Higher energy needs results in huge investments in the form of setting up power plants etc.
- › Depleting natural resources; Oil will last for 45 years, Gas 65 years and Coal over 200 years - is quite disturbing and thus the need to save energy becomes inevitable.
- › It's an initiative for a clean, green and sustainable environment.

## ENERGY EFFICIENCY BENEFITS



### Industry

- › Reduced energy bills
- › Increased competitiveness
- › Increased productivity
- › Improved quality
- › Increased profits



### Nation

- › Reduced fuel imports
- › Avoided costs can be used for welfare measures
- › Conservation of limited resources
- › Improved energy security



### Globe

- › Reduced GHG and other emissions
- › Maintains a sustainable environment





# METHODOLOGY ADOPTED



# HOW TO FIND THE TRUTH

A pump audit involves very little effort on your part - thanks to the latest technologies. The pump auditor will bring everything he needs in a single suitcase. He will attach measuring equipment to your system, wait for the necessary data to be recorded, analyse the information, and prepare a recommendation for you.

## The practicalities of pump audits

When it comes to carrying out the actual pump audit, we distinguish between three different measuring categories. Grundfos will measure:

- countable values like flow and energy consumption
- analogue values like pressure, temperature, water levels, etc.
- incident rates such as pump on/off and valve open/closed

Together, this information allows us to form an accurate image of the system's energy consumption. Each area is covered by special equipment - see below for details.



# INSTRUMENTS USED



Ultrasonic Flow meter for water and sewage (EESIFLO capable of measuring flow in pipes up to DN 2500 mm) – EESIFLO make



Calibrated pressure gauges (Glycerine filled)



Power Analyzer (Up to 1000 Amps) Krykard make





## SEE WHAT YOU CAN SAVE

A pump audit helps you take affirmative action in order to save energy. The pump audit tells you exactly how much you could save with new, more efficient pump technology – and how long it takes to see a return on your investment.

### **Cut your energy costs in half**

When energy accounts for a staggering 85% of the total cost, that's where you can achieve real savings. In many systems, more than half of all the energy consumed by the pumps could be saved. Yes, more than half. It's not just something we say – it's something our pump audits have proven.

### **Short payback times**

The reduced energy costs alone mean that new Grundfos pumps can pay for themselves in very little time. In each case, the pump audit report will show the exact number of months, usually around 18 to 20. After that, the savings translate into pure profit for you. Year after year.

## ENERGY CONSERVATION: A GRUNDFOS PRIORITY

At Grundfos, we want to actively help conserve the world's energy resources. We do so by following environmentally responsible principles ourselves, but even more importantly, we create technology that has a real impact on energy consumption worldwide.

One important factor is our firm belief that everyone should have the opportunity to make an informed choice. The pump audits are one example. Best of all, our products make energy savings financially viable. And that's when things really start having an effect.

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### **Life Cycle Costs reveal the real picture**

At Grundfos, we carefully consider the Life Cycle Cost of all our products – quite simply because that's the only way to show the real cost of owning and operating them. The concept covers everything from purchase price through operation to scrap value. And a pump audit could be described as a spot check of the Life Cycle Cost of your system.

### **Part of the Grundfos partnership cycle**

At Grundfos, we're not content to simply send pumps out into the world. That's not good enough for you. Instead, we take a firm look at every stage of a pump's life and help you optimise your pump performance every step of the way. The pump audit falls into the "analysis" stage by finding out how you can best be helped.



# POWER SAVINGS CERTIFICATE

Pump audits have already created tangible results for customers of all descriptions. From water supply companies to industries, all have cut their energy consumption by 40 to 60% – and their new pumps pay

for themselves in very little time.

A few of the cases in which they took a Pump audit and now they are in profit.

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Ref :  
Date : 23/04/2009

**TO WHOMSOEVER IT MAY CONCERN**

This is to inform you that the following pumps supplied by Granville Pumps India Pvt Ltd, have been giving as the desired power savings and are performing satisfactorily since commissioning. The details of the pumps and power savings are as under:

Application	Pump model	Installation date	Duration (days)	Previous KW X hrsX Days	Power savings KW.Hr
DM Transfer Pump (50 nos.)	GRN 22-8	15-1-09	102	8 X 24 X 102	19384
Effluent Pump (01 nos.)	GRN 20-4	15-1-09	102	6 X 24 X 102	14688
Condensate Extraction Pump (01 nos.)	GRN 32-8	16-2-09	76	5.5 X 24 X 76	10032
Condensate Extraction Pump (01 nos.)	GRN 64-6-2	16-2-09	71	35 X 24 X 71	29560
Condensate Extraction Pump (01 nos.)	GRN 20-7	24-4-09	3	14 X 24 X 3	1008
Condensate Extraction Pump (01 nos.)	GRN 64-6-2	24-4-09	2	11 X 24 X 2	528

We are satisfied with the performance of the pumps.

For Shree Cement, Deewar and Ram

Authorized Signatory:  
S.D. Bhatnagar Deewar Ram

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A Company of  
ThyssenKrupp

**ThyssenKrupp Electrical Steel India Private Limited**

**TO WHOM IT MAY CONCERN**

This is to certify that 8 nos. of Grundfos pumps supplied by M/s. Lazmi Techno Services, Nashik for the following are working satisfactory.

Model no.	Application	Power Consumption with old pump (KW)	Power Consumption with new pump (KW)	Power saving (KW)
GR15-03	Clean effluent sump pump at ETP	14.5	5.35	11.54
GR15-05	Cooling tower make up water supply pump at WTP	10.4	6.2	4.2
MM55-180	Cooling tower Supply pump 6 (2)	20.3	8.94	11.36
GR15-15	Naphtha supply pump	23.8	0.88	21.11
GR15-05	Drinking water & boiler water supply pumps at WTP	14.3	2.88	11.12
GR15-10	Hydrant water supply pump at Fire Fighting	7.1	3.83	3.47
GR15-06	Sprinkler water supply pump at Fire Fighting	6.88	5.51	1.55
GR15-16	Boiler feed water	9.2	5.5	3.7

We are satisfied with the performance of the Grundfos pumps.

For TRES India,

*[Signature]*  
P. Sengupta  
General Manager - Maintenance & Instrument.

**We supply**  
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# POWER SAVINGS CERTIFICATE



Sanjay Pokal  
Manager - MCS & Utility

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Crop Protection Division  
Santa Monica Works  
Corlim, Bhas  
GOA - 403 110

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www.syngenta.com

Date: 30/08/2011

## To Whom It May Concern

This is to inform & certify that the Energy Efficient Pumps we have procured post Energy Audit conducted by M/s Grundfos Pumps India Pvt. Ltd., have been giving us desired power savings & are performing to our satisfaction.

The detail on Pumps & respective Power Savings is as follows:

Pump Model - Grundfos	Application	Installation date	Power savings - KWH		
			2009	2010	2011 (till and July)
NKL25 - 250 / 284	CHW circulation	Feb-09	142625	164253	
NK 80 - 200 / 222 - 55kw, Panel 1V_5p	CHW supply	Feb-09	221829	328280	138244
NK 80 - 200 / 222 - 55kw, Panel 5V_5p	CW Supply	Apr-09	498572	546455	340275

We appreciate the Pump Audit conducted by Grundfos Pumps India Pvt Ltd and also satisfied with Performance of Grundfos Pumps.

Sanjay Pokal

For  
Syngenta India Ltd  
Corlim, Bhas Goa



## TO WHOMSOEVER IT MAY CONCERN

This is to inform you that following pumps supplied by **Grundfos Pumps India Pvt Ltd** have been giving us desired power savings and are performing satisfactorily since commissioning.

The details of Pumps & respective power saving is as follows:

Application	Pump Model	Installation Date	Saving KW	Avg kWh Units Saved per Month
Glycol Pump-1	CRN 84 - 2	Jun-08	4	800
Glycol Pump-2	CRN 84 - 2	Jun-08	4	400
C.T. Pump-1	NB 125-200/221	Jul-08	6	300
C.T. Pump-2	NB 100-200/170	Jul-08	11	2750
WTP pump-1	CR 20 - 03	Jun-08	3	825
Pump House pump-T	CR 15 - 04	Jul-08	2	330

Total Units saved per Month

$4 \times 800 + 4 \times 400 + 6 \times 300 + 11 \times 2750 + 3 \times 825 + 2 \times 330 = 5625 \times 5$

*5.625 for month*

We are satisfied with the Performance of Grundfos Pumps.

For Pepsico India Holdings Pvt. Ltd.,  
Raj

Manager Mfg.  
(Prashant Gao)

## FEW OF THE AUDITED SITES

Client: Vardhaman Special Steels, Ludhiana  
Application: Furnace Cooling Water Pump  
Old pump Power: 106 kW

Old installation



New pump Power: 63kW (PACO KP 8015 – 3/4)  
Power saving: 43 kW (Successfully implemented)

New installation



Client: ThyssenKrupp  
Application: Coolant circulation pump  
Old pump Power: 148 kW (Horizontal Split case pump)

Old installation



New pump Power: 90 kW (Hydro 6 X CRN 90-4)  
Power saving: 58 kW (Successfully implemented)

New installation



Client: ISRO, Bangalore  
Application : Chilled water and Condenser cooling water  
Power savings: 18 kW

Old installation



New installation





## FEW OF THE AUDITED SITES

Client: JK Tyres, Kankroli  
Application: Cooling tower return water pump  
Old pump Power: 42 kW

Old installation



New pump Power: 22kW  
Power saving: 20 kW achieved

New installation



Client: Godrej & Boyce Mfg. Co., Mumbai  
Application: Water Supply  
Power savings: 7 kW

Old installation



New installation



Client: Bunge Iron, Trichy  
Application: C Tank cooling water pump  
Old pump Power: 22kW

New installation



New pump Power: 15 kW (Hydro 3 X NK 80-160)  
Power saving: 7 kW (Successfully implemented)

## PARTIAL LIST OF AUDITED CLIENTS

## AUTOMOBILE INDUSTRIES

- Mahindra & Mahindra, Nasik
- Tata Motors, Pune
- MICO, Jaipur
- MICO, Nasik
- MICO, Bangalore
- Eicher Motors, Bhopal
- General Motors, Baroda
- Ashok Leyland, Nagpur
- Delphi TVS, Chennai
- Maruti, Delhi
- Renault Nissan, Chennai

## PHARMA INDUSTRIES

- Cipla, Chandigarh
- Cipla, Goa
- Orchid Health Care, Chennai
- Syngenta, Goa
- Orchid Pharmaceutical, Chennai
- Lupin Pharmaceuticals, Ankleshwar
- Dr. Reddy's Lab, Hyderabad

## BEVERAGE INDUSTRIES

- Varun Beverages, Rajasthan
- SMV Beverages, Nagpur
- Hindustan Coca-Cola, Hyderabad
- Pepsico, Palakkad
- Pepsico, Roha
- Pepsico, Nalawangala
- Hindustan Coca Cola, Dasna
- Hindustan Coca Cola, Ahmedabad

## TYRE INDUSTRIES

- Good Year Tyres, Faridabad
- MRF Tyres, Pondicherry
- Apollo Tyres, Kerala
- JK Tyres, Udaipur
- Balakrishna Tyres, Rajasthan

## PAPER PLANTS

- Tamilnadu News Print and Papers Limited, Kagithapuram
- Andhra Pradesh Paper Mills, Rajmundhary
- Balarpur Industries, Bhigwan

## COMMERCIAL BUILDINGS

- Wipro, Bangalore
- Classic Golf Resorts, Manesar
- Sasken Technologies, Bangalore
- Intel, Bangalore
- Narayana Hrudayalaya, Bangalore
- Manipal Hospital, Bangalore
- Infosys, Bangalore
- WIPRO Kolkata
- HCL, Noida

## HOTELS

- Taj Group of Hotels
- Windsor Manor, Bangalore
- Le Meridian, Bangalore
- Le Royal Meridian, Chennai
- Marriot Hotel, Goa
- Park Hotel, Bangalore
- Chola Sheraton, Chennai
- The Leela, Goa
- The Surya, Delhi

## TEXTILE INDUSTRIES

- Vandhana Group Industries
- Visaka Industries, Nagpur
- Indo Rama, Nagpur
- Abhishek Industries Ltd., Chandigarh
- GTN Textiles Ltd., Kerala

## WATER SUPPLY

- Mulbhagalu Pump House, Karnataka
- Ambarnath Booster Station, Ambarnath
- Barrage Head Works, Badlapur

## POWER PLANTS

- Sri Indira Power, Karnataka
- Ravi Kiran Power Projects, Karnataka

## OTHERS

- Thyssenkrupp, Nasik
- Sumul Diary, Surat
- Atul, Vapi
- Essar Steels, Ankleshwar
- Hatsun Agro, Chennai
- Sterlite Group of Industries
- JSW, Bellary
- Saint Gobain Glass Limited, Chennai



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