



Welcome, to EMT Electric Motor, Drives & Engineering Newsletter

PLEASE PASS ALONG TO YOUR:

PURCHASING

MAINTENANCE

ENGINEERING

PROCUREMENT

Opportunities for Savings — Motors, Drives, Pumps & Fans

Efficiency ...

Not all electric motors are created equal. Like most other products, quality and efficiency vary within and between brands, and some motors are designed and built to be more efficient. For example, a 10 kW high-efficiency motor (HEM) will have an efficiency of 93 percent, compared with the standard electric motor's 88 per cent—a saving of 4.3 per cent in both energy and greenhouse gas emissions. The reduction in electricity costs will usually recoup the premium paid for a HEM in under two years.

The gap between standard and high-efficiency motors becomes increasingly wide as motor size decreases. Many small motors, such as those used in exhaust fans, may have efficiencies as low as 50 per cent.

Use variable speed

Most fans and pumps tend to run at constant speed, even though the flow they're required to deliver may vary. This means they are running too fast and using too much electricity *most* of the time. Big savings are possible because reducing the flow by 50 per cent will reduce the power required by around 85 per cent.

Did You Know ?

- EMT can help you with Electric Motors & Variable Frequency Drives. Call us on (02) 9838 8181 to see how we can serve you better.

Variable speed can be achieved with a so-called *variable-speed drive* (VSD), an electrical device which controls power to the motor. Other advantages of a VSD include:

- * it acts as a 'soft starter' which prevents the electrical system overloading (which can drop the voltage and affect other equipment) and avoids the cost of other starter controllers;

- * the ability to control the speed often results in a higher quality of service (for example, better comfort or process control);

- * the ability to control speed allows the motor size to be matched more closely to the actual load, as the VSD can operate the motor at full or higher speed for short periods.

Avoid undersized piping or ductwork

Money saved by installing undersized piping or ductwork can be a very costly false saving, as it puts additional loads on the fans, pumps and motors. Ensure that the full effect of such additional loads is evaluated and included in the process of selecting system components.

Don't forget the transmission

Getting the motor to turn is only the first step. The efficiency of belt drives can drop from 90 to 60 percent if poorly designed or maintained.

Maintenance

Check that drive belts, chains and couplings are in good condition and adjusted in accordance with the equipment supplier's recommendations. Check for motors which are running hot, as this is a sign that energy is

being lost. Use an infrared non-contact thermometer in preference to touching the casing. A motor casing temperature of 60°C or higher should be investigated. ***Do not put hands near moving parts, couplings etc. even if the motor is stopped.***

Checking out your motors

An energy audit should identify significant electric motors and reveal opportunities to reduce electricity consumption and greenhouse gas emissions.

If an energy audit is not being conducted, a survey of the following data will often reveal motors which are running unnecessarily. For each motor, record:

- * the motor's application or location for example, main fan, air handling unit in pool hall;

- * the purpose of the motor;

- * the nominal power (in kW or horsepower) from the motor identification plate;

- * how the motor is controlled (float switch, time switch, etc.);

- * the motor's operating times;

- * the actual power (preferably) or motor current. An electrician or other suitably qualified person can measure this by using a clamp-on meter. In some facilities, you may be able to determine the motor power by running only this motor (possibly after hours), and timing the electricity meter. (To Be Continued in July).



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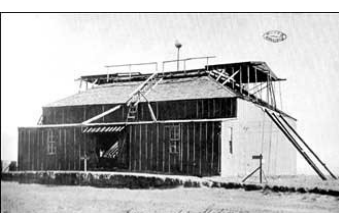
The Man Who Electrified The World

Today is Part 7 of a story about one of the world's greatest geniuses—Nikola Tesla.

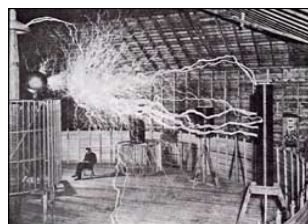
THE WAR OF THE CURRENTS

Without preliminaries or apologies Westinghouse explained the situation. "Your decision," said the Pittsburgh magnate, "determines the fate of the Westinghouse Company." "Suppose I should refuse to give up my contract; what would you do then?" asked Tesla. "In that event you would have to deal with the bankers, for I would no longer have any power in the situation," Westinghouse replied. "And if I give up the contract you will save your company and retain control so you can proceed with your plans to give my polyphase system to the world?" Tesla continued. "I believe your polyphase system is the greatest discovery in the field of electricity," Westinghouse explained. "It was my efforts to give it to the world that brought on the present difficulty, but I intend to continue, no matter what happens, to proceed with my original plans to put the country on an alternating current basis." "Mr. Westinghouse," said Tesla, drawing himself up to full height of six feet two inches and beaming down on the Pittsburgh magnate who was himself a big man, "you have been my friend, you believed in me when others had no faith; you were brave enough to go ahead and pay me a million dollars when others lacked courage; you supported me when even your own engineers lacked vision to see the big things ahead that you and I saw; you have stood by me as a friend. The benefits that will come to civilization from my polyphase system mean more to me than the money involved. Mr. Westinghouse, you will save your company so that you can develop my inventions. Here is your contract and here is my contract—I will tear both of them to pieces and you will no longer have any troubles from my royalties. Is that sufficient?" Matching his actions to his words Tesla tore up the contract and threw it in the waste basket; and Westinghouse, thanks to Tesla's magnificent gesture, was able to return to Pittsburgh and use the facilities of the reorganized company, which became the present Westinghouse Electric and Manufacturing Company, to make good his promise to Tesla to make his alternating current system available to the world." (O'Neill, *Prodigal Genius*, pp. 81-82).

In 1899, in Pike's Peak, Colorado, Tesla demonstrated the feasibility of transmitting electricity through the earth *without* the use of wires. (This story continues in our July Newsletter.)



Tesla's Colorado Laboratory 1899



Tesla with his Magnifying Transmitter producing millions of volts of electricity.

Source: © 2008 by Niall Kilkenny

Our People

ROBERT SHORT

Robert spent some 30 years running his own business in Pump Sales, Service, Data Logging & Electrical Meters. Robert joins the team at EMT Monophase Brookvale Branch in the capacity of Internal Sales & Pump Specialist. EMT welcomes Robert and we are sure that both our staff and customers will benefit from Robert's vast knowledge and experience.



MICHAEL SQUILLACE

After spending 6 years in screen printing machinery and repairs Michael joins our EMT Monophase Brookvale Branch as Apprentice Electrical Fitter. EMT welcomes Michael. We are sure Michael will be an asset to our company and a valuable member of our team.



WOULD YOU LIKE MORE INFORMATION ?

- Please send me a Product Catalogue CD Rom
- Please send me a Single Phase Motor Catalogue
- Please send me a Three Phase Motor Catalogue
- Please send me a VSD Catalogue

Have you relocated? Please help us keep our records up to date by including your new details.

NEW DETAILS:

Name: _____

Position: _____

Company: _____

Address: _____

Suburb: _____ State: _____ Post Code: _____

Tel: _____ Fax: _____

Email: _____

Photocopy this form and mail or fax to:

EMT Pty. Ltd. 1/114 Station Road, Seven Hills NSW 2147
Tel: (02) 9838 8181 Fax: (02) 9838 8421

OR

EMT Pty. Ltd. 40 Sydenham Road, Brookvale NSW 2100
Tel: (02) 9905 2755 Fax: (02) 9905 7399