

Safety Gold for Lawkim - A Proud Godrej Moment !



Lawkim's Executive Director, Mr. Vijay Crishna, EVP & Business Head, Mr. Xercsis Marker, AVP, Mr. Abhay Pendse, DGM - Safety Corporate, Mr. Yashpal Singh, and the Lawkim Team receiving the prestigious 'Sarvashreshtha Suraksha Puraskar' (Gold Trophy & Certificate) at the hands of Mr. Bandaru Dattatreya, Hon'ble Minister of State (Independent Charge) Labour & Employment, Government of India.

Lawkim will end Financial Year 2014-15 with a positive, relatively strong business performance despite an average de-growth of 8.7% in the Electrical Motors Industry, although the overall Electrical Industry grew by an average of 8.9% in the last 10 months, largely in cables and switch gears.

We will be close to achieving our topline plan of Rs 295 crores (about 16% growth over last year) but expect to surpass our NOS plan of Rs 3 crores by 17% at around Rs 3.50 crores - after absorbing additional depreciation of Rs 2 crores revised recently under a new notification under the Companies Act . Higher value added product mix, cost take outs and a valuable new customer in Highly India for rotary compressor motor components all together contributed to offset the adverse market conditions to enable us to better our profitability. Our Strategic Direction continues to aim at increasing a higher value product mix in all categories of our business, including Calibration and Inspection Services, for our future growth and profitability improvement. In the next FY we plan to achieve a topline growth of about 19% , with a 100% growth on the bottom-line . The team is gearing up in all aspects to make this happen in a robust and sustained manner.

Taipei International Cycle Show 2015

Lawkim visited the 2015 Taipei International Cycle Show for the first time at the Nangang Exhibition Hall in Taipei, with our mentor and guide Craig Calfee! The importance of the



o c c a s i o n was underlined by the fact that the Show was inaugurated by the President of Taiwan himself, Dr. Ying-jeou Ma, indicating how important cycling has become for the manufacturing capabilities of this tiny island country.

The renowned global show has been taking place for 42 years – with Taiwan's own cycling portfolio of bikes and their components crossing

an export figure of over 29 million bikes to the world market. The average value of these bikes is \$459, which signifies the huge value-added they represent for their country.



It was a massive event with most of the international top brands in attendance – as well as countless small Original Equipment companies that we certainly had never heard of! Bikes with Fat wheels grow in importance, as are electric bikes of all kinds. The off-road electric category is also getting a big push.

The benefit we derived of having Craig Calfee with us helped us understand various aspects of high end bikes as well as to begin establishing networking with bicycle

manufacturers, component manufacturers like Sturmey-Archer (an old brand name from England now owned by Taiwan) and Velo saddles from Taiwan to name just a few. We look to grow these contacts for the future.



Big Wheels!



Inspecting Aluminum Parts



Visit to Supplier at Taichung District



Gears for E-Bike



Shock Controller Unit



New Shimano 105 Crank Parts



Yamaha Motor with rear shock controller



Shifter brake lever



Shimano 105 brake cam



Front derailleur



Reinforced carbon road disc wheel



Shimano XTR Di2 rear derailleur



Bluetooth GPS Interface



Automode Control Unit

TARGETTING THE MAGNETICS OF MOTOR PERFORMANCE

Electrical stampings or laminations form the most important component of the electrical machine. The main function of the stampings is to conduct and regulate the flux generated by the windings and direct it for the intended purpose. In motor laminations, the generated magnetic flux, by wound coils is directed towards the rotor through air gap.

Traditionally electrical Motor stampings have been made in Electrical steels which have served the purpose of generating desired power output. With growing need of power and also conserving the power, the Efficient utilization of electrical energy is of paramount importance.

In order to Improve the Motor efficiency, electric Motor designer analyses, the various losses and works on loss reduction with least cost.

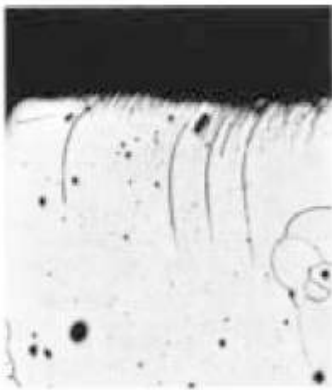
Two of the main loss components are Iron loss and Copper loss. Though they appear to be independent, they are interlinked and have great influence of Magnetic properties of the lamination steel.

Iron loss: Can be further split into Eddy current loss and Hysteresis loss.

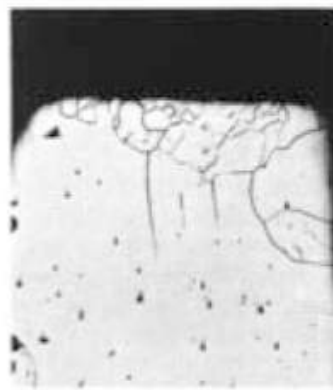
Eddy current loss has been traditionally reduced by laminated Motor cores. This loss has roots in internal resistivity of the Motor lamination material and of the surface resistivity of the laminated cores.

Hysteresis loss has lot interesting linkages with microstructure of the material and links to processing of the Motor laminations; from steel mill to the stamping processor. In the recent times, the Electrical steel processors have made great progress in steel making in terms of regulating the basic steel hygiene (controlling all the unwanted impurities), close control of grain sizes and surface coatings which can ensure lower loss and resistances to high temperature and gases.

In spite of this, the lamination steel when cut to required profiles, the shear action induces lot of stresses along the cut edges, which increase the need of magnetic motive force(MMF). In order to improve the efficiency of the motor at least cost, Lawkim embarked on improving annealing process. We could improve the efficiency by about 2% .



Edge of a 24-gauge lamination. Deformation and strains, produced at the edge by punching, are clearly visible.



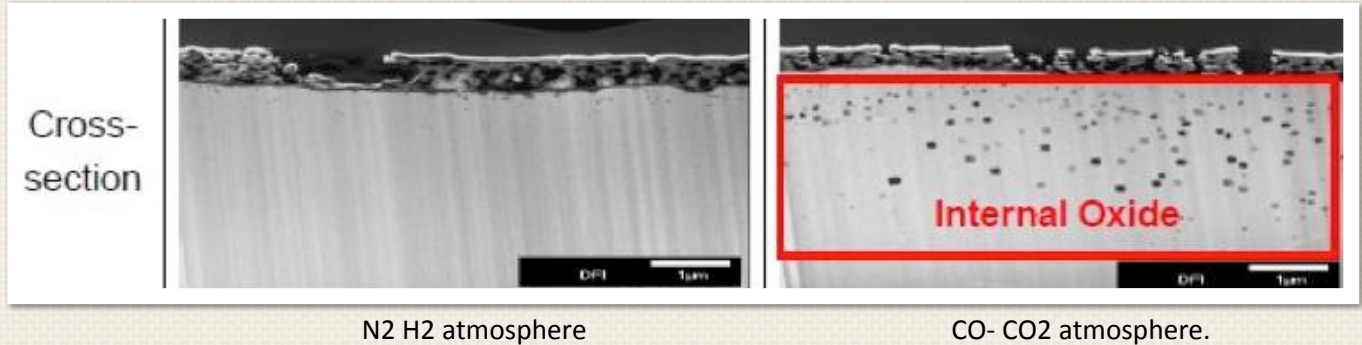
The same lamination after a stress-free anneal at 1475°F (802°C) for one hour. Note the recrystallization that indicates elimination of the high stresses.

With the Brockhaus Magnetization measurement equipment that we have recently installed we are now able to explore various means of improving efficiency further. We understand this enables us to improve, for example, our annealing process further. We concluded that H-value (ampere turns required) at given flux density needs to be optimized to improve the efficiency of motors. Generally this factor is not monitored but our study revealed that there is optimum point for each lamination type. This optimization could be achieved by fine tuning of annealing process parameters and most importantly without adding cost. This improvement of around 2%, although seems small but is vital as one reaches peak efficiency levels.

In order to improve any process, appropriate relevant parameters should be measured with acceptable levels of precision. Our new test equipment served the purpose, measuring these parameters for stator stacks before and after the annealing process. Hence we established a data base of magnetic properties and co-related magnetic performance with annealing process parameters.

Our new understandings that Magnetic parameters are greatly influenced by the following factors and the equipment that we have installed to track our processes give us much greater control over motor performance than before:

- a) furnace gas environment
- b) Furnace gas composition and purity of gases
- c) Rate of heating , soaking and cooling ,
- d) Any contaminations induced due to punching oils etc.



ACQUIRING THE RICHES OF BETTER LEARNING!

GODREJ Disha, the vocational training initiative under our corporate 'GOOD & GREEN' efforts, endeavours to direct and guide youth at the bottom of the income pyramid towards a brighter future through skills training – with an ambitious goal of training 1 million rural and urban youth in skilled employment by 2020. In line with this, Lawkim's contribution has been to train 150 underprivileged youth from neighbouring ITIs in Lonand and Satara during FY 2014-15. Aiming at imparting training in 2 vocations viz. Fitter & TDM (Tool & Die Maker).



We are proud that the feedback given by the students and their teachers concerned indicates that the effect of our training has been very high impact. We believe it is because our Engineers have driven the program with great zeal and intelligence, employing world class know-how and contents that they have acquired during their long tenure with the Company.

Our Divisional Personnel Head who witnessed the final session at the Plant, was impressed by the diligent efforts being put in by one and all.

When he interacted with the students and the teacher of that batch, he could see the confidence of their becoming richer than before by way of information/learning which they said they would not have got in their academic Institute! The teacher who had accompanied the students confided to him that they don't get the co-operation like this from other business Organizations and said he wished there could be many more such 'Godrej Companies' in our industry !



From the Editor's Desk.....

Dear Friends,

At Lawkim we greatly enjoy welcoming guests, visitors and technical personnel from customers - so it was a great pleasure to welcome Mr. P D Lam and Ms. Nyrika Crishna to the Lawkim factory on 11th March 2015. You see them here on the shopfloor !



Punching above our Weight!



Above you see the new facilities that we have created using our punching facilities that now include our 550T Press - enabling us to handle a wide variety of punching work. We hope this will aid our efforts a lot in the future.

In a year that has seen good progress by the Lawkim team towards the robust future that we want to build - I extend my warmest best wishes to all members of Team Lawkim - both in the factory and at home!

*Warmly,
Vijay Krishna*