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# ***AIA ENGINEERING LTD.***

**16<sup>TH</sup> ANNUAL REPORT  
2005-2006**


**AIA ENGINEERING LIMITED**
**BOARD OF DIRECTORS**

Mr. Vinod Narain	Chairman	– Non-Executive-Independent
Mr. Bhadresh K. Shah	Managing Director	– Executive-Promoter
Mr. Jules Spede	Director	– Executive-Independent
Mr. Rajendra S. Shah	Director	– Non-Executive-Independent
Dr. S. R. Ganesh	Director	– Non-Executive-Independent

**BANKERS**

**State Bank of India**  
GVMSAV Ltd. Branch  
Odhav Road  
AHMEDABAD – 382 410

**ABN AMRO BANK N.V.**  
7, Alkapuri, R. C. Dutt Road  
VADODARA – 390 007

**COMPANY SECRETARY**

Mr. S. N. Jetheliya

**AUDITORS**

M/s.Talati & Talati  
Chartered Accountants,  
Ambica Chambers,  
Near Old High Court,  
Navrangpura,  
AHMEDABAD-380 009

**REGISTERED OFFICE**

115, GVMM Estate,  
Odhav Road  
AHMEDABAD – 382 410

**REGISTRAR & TRANSFER AGENTS**

**Intime Spectrum Registry Limited,**  
C/13, Pannalal Silk Mills Compound,  
Kantilal Maganlal Ind. Estate,  
L.B.S. Marg, Bhandup (West)  
MUMBAI – 400 078  
Phone No. 022-25960320-28  
Fax No. 022-25960329

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**SEGMENT I**

***THE WORLD OF AIA ENGINEERING***

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**AIA ENGINEERING LIMITED**

## MAJOR MILESTONES IN THE HISTORY OF AIA ENGINEERING

**1978**

*Ahmedabad Induction Alloys Pvt. Ltd. (which was later to merge with our company) incorporated as a private limited company for the manufacture steel alloy, alloy steel and alloy iron castings used in cement and utility industries*

**1979**

*Commencement of operations for manufacturing of wear parts for cement and power plants*

**1983**

*Commencement of manufacture of centrifugally cast parts for Raymond mills*

**1984**

*Establishment of Research and Development department for process improvement in Raymond mills*

**1985**

*Commencement of Manufacture of High chrome grinding media*

**1988**

*Collaboration agreement with Slegten S.A. Belgium for redesign of liners and other mill internals used in cement/coal mills.*

**1989**

*Commencement of Manufacture of high chrome liners, level control and other diaphragm*

**AIA ENGINEERING LIMITED****1991*****Collaboration agreement with Magotteaux International S.A., Belgium*****1991*****Development of in-house facilities to design and develop liners to optimize tube mill operations*****1995*****Technical collaboration with Southwestern Corporation (SWC), USA for process improvement in Raymond mills*****1997*****Association with Alstom (Earlier known as Stein Industries/GEC Alstom) for process know-how for Stein designed mills for power plants.*****2000*****Termination of collaboration with Magotteaux International, S.A.*****2003*****Acquisition of 100% stake in VEGA UK through VEGA ME, thereby making all VEGA Cos. wholly owned Subsidiaries*****2006*****Successful Completion of IPO***





AIA ENGINEERING LIMITED

## MEET THE MANAGEMENT



*"Board Meeting in Progress: From L to R : Mr. Jules Spede, Mr. Rajendra Shah, Mr. Bhadresh Shah, Mr. Vinod Narain, Mr. S. N. Jetheliya (Company Secretary), Dr. S. R. Ganesh"*

### **Mr. Vinod Narain** **Chairman**

*Based in Bangalore, Vinod Narain is an eminent personality in industry circles. With a National Certificate Course of Mechanical Engineering from Birmingham, England and a Diploma in Automobile Engineering from UEI, he is the founder and Chairman of Welcast Steel.*

### **Mr. Bhadresh Shah** **Managing Director**

*The founder and driving force behind the company, Bhadresh Shah is a metallurgical engineer from IIT Kanpur and his experience spans over two and a half decades and across continents. Not averse to taking calculated risks, it was his initiative to steer the company towards niche castings, using special steel. With a hands-on managerial style, he has contributed immensely towards the improvement of manufacturing processes, new product developments and raising quality standards to international levels by forging several foreign collaborations. He has been the guiding light as the company carved a niche for itself in the domestic as well as international arena.*

### **Mr. Jules Spede** **Director**

*Highly regarded in the high chrome industry; Jules Spede brings to the table, his vast experience and comprehensive understanding of the market. Based in France, he spearheads international sales and is the points-man for discussion on potential collaborations with customers, suppliers and OEMs. Post 31st March, 2006 Jules has resigned from the board and taken charge of AIA's subsidiary, Vega, as Managing Director.*

### **Dr. S R Ganesh** **Director**

*With a management consulting background, Dr. Ganesh provides strategic insights and facilitates more informed decision making. Formerly, a Consulting Advisor to TCS, Mumbai and an Advisor to the Essar Group his academic credentials include Mechanical Engineering from IIT Mumbai, S.M (Management) from Sloan School of Management, MIT, USA and Ph.D in Business Studies) from London Business School, UK.*

### **Mr. Rajendra Shah** **Director**

*A distinguished Ahmedabad based industrialist and Managing Director of Harsha Engineers Ltd (HEL), Rajendra Shah offers the company the benefit of his vast experience and industry stature. He is a vital think-tank member and his views are crucial while making policy decisions.*



## BUSINESS MODEL DEBRIEF

AIA Engineering Ltd is a niche player in the value added high chrome metallurgy segment catering to the cement, mining and thermal power industries in the grinding/crushing operations.

Two types of mills are used for the grinding operation in the above mentioned industries - tube mills (which are horizontal) and vertical mills. AIAL is involved in design, manufacture, supply and services of various parts in these mills, collectively called as mill internals.

The essential purpose of the mill is to grind the raw materials / inputs and it forms a very crucial part of the production process as it has a direct bearing on the cost and quality of the final output.

### A COMPLETE SOLUTIONS PROVIDER

#### TUBE MILL – OPERATIONAL OVERVIEW

A tube mill for cement grinding is a horizontal cylindrical shell and the inner surface is fitted with wear resistant Liners. Spherical balls of different sizes, collectively called as Grinding Media, and the material to be ground are fed to the mill from one end. The mill is made to rotate around its axis. The working profile of the first chamber liners are designed such that as a result of this rotation, the grinding media are lift to a specified height and dropped on the material. The feed is crushed and ground due to the impact and abrasive action of the balls.

Apart from the grinding operations, the liners and the grinding balls protect the main body of the mills from wear and tear.

The Mill is separated into two chambers by an assembly of diaphragms, grates and black plates which screen the feed such that only a certain size of feed can pass into the second chamber

The end product of fine material is discharged from the other end through a discharge diaphragm.

For mineral grinding, tube mills normally have a single chamber without partition.

#### TUBE MILL INTERNALS - PRODUCT PROFILE

##### ✧ GRINDING MEDIA

Grinding Media are cast steel high chrome balls must adhere to standards like :

- Sufficiently hard, abrasion and wear resistant to deformation
- Should not develop cracks on the surface during the operation.
- The core of these balls should have uniform distribution metallurgy, which is developed from satisfactory heat treatment.

*The cost of grinding media as compared to other operating cost like Power for grinding may be quite low but its influence on the production and efficiency is significant*

##### **AIAEL's expertise-**

The company provides customized solutions as regards alloy compositions and other metallurgical aspects to provide the most economic alternative. It results in -

- ◆ Uninterrupted mill operations
- ◆ Optimum mill efficiency.
- ◆ Increase in mill availability solution to the customer.



## AIA ENGINEERING LIMITED

### ◇ LINERS

A liner imparts suitable trajectory to the balls so as to ensure efficient crushing of feed material. The liners should also be designed such that there is no direct impact of balls on liners resulting in loss of energy and breakage. Liners are uniquely designed to suit a particular application.

Industry		Products	
Cement	Inlet Liners	First Chamber Liners	Second Chamber Liners
Mining	Inlet Liner	Outlet Liners	Shell Liners
Thermal Power		Single Inlet / Outlet Liners	Double Inlet / Outlet Liners

### AIAEL's expertise-

AIAEL offers tailor made metallurgical solutions for specific applications to ensure maximum mill availability and minimum maintenance cost. The company offers a few or all of the following advantages depending upon the type of liner.

- Optimum lifting action on the balls
- Optimum expansion of the ball charge.
- Minimize the dead zone of the ball charge.
- Significant reduction of the wear rates of the balls and the liners.
- Maximum productivity due to adequate crushing phenomenon and optimum use of energy.
- Minimum operating cost due to longer lifetime.
- Minimum downtime of the mill on account of liners.
- Minimal inventory

### ◇ Diaphragm

Diaphragms in ball mills are like gates to a new domain. Their function is to screen the material from the granulometry point of view. They help ensure the optimum grinding efficiency by not only controlling the size but also the timing and manner in which feed should be screened.

### VERTICAL MILL OPERATIONS OVERVIEW:

In these mills the grinding takes place when the feed material passes between the rotating table liners and rollers. Over a period, these mill internals also wear out. With increasing wear of these internals, the grinding operation becomes less efficient and the output reduces. Thus replacement is required.

While tube mill is the most versatile for all grinding processes and has a wide range of applications, vertical mills are becoming more popular in case of dry grinding due to lower power consumption.

### VERTICAL MILL PARTS – PRODUCT PROFILE

#### ◇ Rollers & Table liners:

AIAEL manufactures rollers and table liners for various makes of vertical mills

- ◆ Monoblock rolls for Loeche and Polysius mills
- ◆ Segmented rolls for Atox and Polysius mills
- ◆ Segmented tables for Loeche, Polysius and Atox mills
- ◆ Grinding rings and Hollow balls for E mills
- ◆ Rolls and table segments of Raymond/CE mills



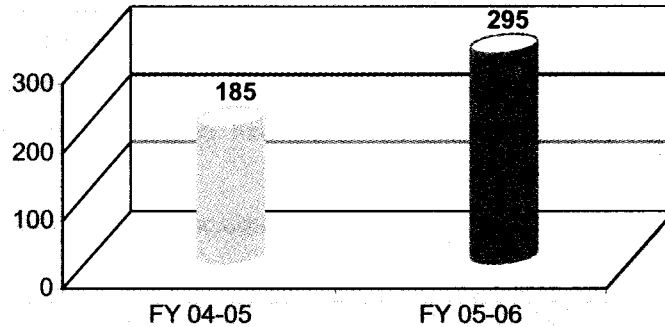


## AIA ENGINEERING LIMITED

The rollers as well as the liners are manufactured in mono-block segmented or inserted construction as necessitated by the application.

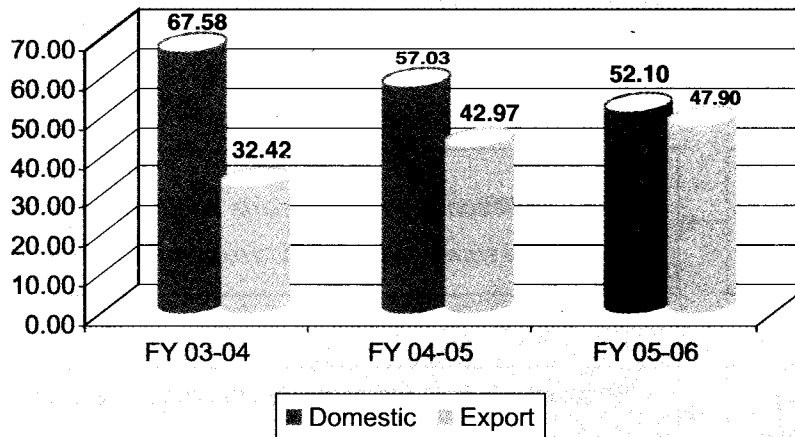
### Order Book

**Order Book (Rs. crores)**



% Contribution of Export and Domestic Sales to the Total Revenue Pie.

**Break Up of Sales (%)**




**AIA ENGINEERING LIMITED**

## NOT JUST PRODUCTS BUT COMPLETE SOLUTIONS

### SERVICES:

AIA advises on the composition of grinding media (total tonnage, size distribution, metallurgy) and designs other mill internals depending on the feed and the desired fineness of the finished product. It also offers other services such as installation supervision and mill process optimization for maximum efficiency.

AIA offers process improvement services to clients, which include the following:

