INDIA'S NO. 1 MAGAZINE FOR AUTOMOTIVE NEWS, VIEWS & ANALYSIS

Auto Monitor

Network 18

Vol. 13 No. 02 • 4 February 2013 www.amonline.in 32 Pages • ₹ 50

INTERVIEW Pg 10

India Key To BRIC Presence

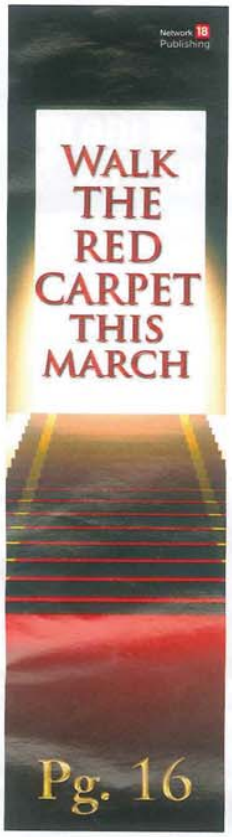
Anders Grundstromer, Scania CV India's new MD

INTERVIEW Pg 12

On A Roll

Prabhakar Kadapa, Managing Director, Avtec

Scan this code on your smart phone to visit www.amonline.in



New Generation Face Gears

■ **Nabeel A. Khan**
Mumbai

Avtec Ltd., part of the CK Birla Group, will start mass production in India of crown gears and other patented technology from ASSAG, the Swiss company it recently acquired, Prabhakar Kadapa, Managing Director of Avtec told Auto Monitor. ASSAG crown gears were previously manufactured only in limited numbers, owing to their niche market in the Netherlands.

"ASSAG does the design and prototype building, but we will do the manufacturing here in India. That is the plan. We'll manufacture and export to the parent company or the end consumers. We wanted to have an overseas export footprint, and not limit ourselves only to the Indian market," Kadapa explained.

A basic spur face gear set consists of a cylindrical pinion and a disc shaped angular face gear. The cylindrical pinion can move freely in the axial direction without affecting the contact pattern.

The face gear has an angular drive in which the axis angle can be in the range of zero degrees to approximately 135 degrees. They are used more and more as an alternative to bevel and worm gears. The difference between normal gears and face gears is that the latter can be moved axially. The ASSAG face gear, marketed under the brand name Cylkro, is unique given its optimized shape and material properties. Cylcro face gears are also often used as differential gears. The axial freedom makes these drives robust and easy to install at the same time.

Upon inquiring whether the timing of the acquisition was well thought out, Kadapa replied, "If we had acquired the company at the peak time, it would have cost 30-40 percent more."

Kadappa sees huge potential for this technology in the automotive, construction equipment, and medical equipment sectors. According to experts, although the technology is still in its nascent stage, both in India and abroad, it has high adoptability. Avtec seems to be following their strategy and trying to leverage the opportunities they envisaged during acquisition. "We bought this company especially because of the intellectual property rights. They have about seven different patents in face gear technology," he said.

The advantage crown gears offer is that they can run without any constraint. They allow axial float, and this is useful where unconstrained movement is important. Some of the applications are in the Sydney Monorail, in AutoTram gear boxes, and in the landing gear of the Airbus A350. Up in the air, temperatures can be extremely high or extremely low, and gears must perform well in all conditions. The axial float allows perpetual clearance. So, expansion or contraction due to temperature does not affect the profile of the gear teeth. Face gears are also used in

■ Contd. on Pg 08

Advantages Of Face Gear

- Axial position of pinion is nearly free (without affecting the contact pattern or backlash)
- Multiple pinions could be placed on one face gear (multiple output shafts)
- High efficiency
- No axial forces on the pinion
- Can be used as angular gears and differentials
- Can withstand extreme temperature variations
- Easy mounting, space saving, and free combinations for differentials and multiple outputs

An example of space saving combined with multiple drives can be seen in the new Audi Quattro, which uses a self-locking crown gear differential. Two Cylkro face gears with different tooth geometries create a 40:60 torque split in this lightweight differential. Using the Cylkro face gear technology, Audi realized a substantial weight reduction compared to a conventional differential.

Read Interview on Page 14

DATA MONITOR

Top 5 Car Makers

Company	Dec-11	Dec-12	Change
Maruti	77,475	82,073	5.93%
Hyundai	29,516	26,697	-9.55%
M&M	21,540	25,014	16.13%
Tata Motors	34,264	24,669	-28.00%
TKM	15,948	12,071	-24.31%

Top 5 Car Exporters

Company	Dec-11	Dec-12	Change
Hyundai	19,433	21,136	8.76%
Maruti	14,526	12,916	-11.08%
Nissan	2,211	8,793	297.69%
Ford	1282	4382	241.81%
TKM	-	2,307	#DIV/0!

* Source: SIAM/ ** Excluding exports/ *** all sub segments considered/ ^ excluding MRPL

Rochi Engineers In JV With PURItech

■ **Our Bureau**
Mumbai

Pune-based Rochi Engineers is looking to set up a manufacturing facility for diesel filters and emission control technologies in association with Germany's PURItech GmbH. The company is looking to manufacture around 200,000 units per annum at the Pune facility, mainly for exports to Europe and North America. They will also evaluate opportunities for advanced emission control products in the domestic market as and when new emission control regulations are implemented by the Indian government.

The JV will set up a research and development centre and a manufacturing facility in Pune, which is expected to come onstream by 2014. The facility will design and manufacture emission control systems for diesel engines, including diesel particulate filters, catalytic convertors, diesel oxidation catalyst systems, and filter cleaning and detection devices.

"Rochi Engineers currently supplies exhaust systems,

■ Contd. on Pg 08

Bernhard Kahlert, MD, PURItech and Pradeep Kharkar, CEO, Rochi Engineers

On A Roll

Prabhakar Kadapa, Managing Director, Avtec, is the man who brought the ASSAG acquisition deal to the table, and took the engine manufacturing company to a new level by wooing many new customers. He spoke to **Nabeel A Khan** about the opportunities that have opened up with this acquisition and how they might be leveraged.

> We acquired ASSAG for anywhere between ₹100-110 crores. The company by itself is profitable. And we have seen the synergy benefits.

AD> Where are you looking to sell the new ASSAG face gear technology that you will produce here in India?

We have to go to all the automobile people. We can also go to LCV, tractor, and agricultural equipment OEMs. The applications are very wide. All customers are the same, but which customers will be willing to try it out, that's the question. Our first step is consolidating what we acquired in Switzerland, and then we will bring it to India.

AD> What kind of advantage does this new gear technology offer?

In this technology, the axial position of the pinion is nearly free (without affecting the contact pattern or backlash), and multiple pinions can be placed on one face gear (multiple output shafts), offering greater efficiency. There are no axial forces on the pinion and it can withstand extreme temperature variations. It is also space saving, and allows for easy mounting and free combinations for differentials and multiple outputs.

An example of space saving combined with the possibility of multiple drives can be seen in the recently launched version of the Audi Quattro, which has a self-locking crown gear differential. Two Cylkro face gears with different tooth geometries, resulting in a 40:60 torque split, are built into this lightweight differential. Using the Cylkro face gear technology, Audi realized a substantial weight reduction over a conventional differential.

AD> Was product synergy the major driver for this acquisition, or was it the value of the company?

We acquired ASSAG for anywhere between ₹100-110 crores. The company by itself is profitable. And we have seen the synergy benefits. The company can work in tandem with our tech centre in India. ASSAG also have a known design capability. They can design any complex gearbox. They have a patented technology that can be used in a gearbox, but they can also design conventional gearboxes.

We intend to integrate operations, we are going to do our R&D and use their design capability. We are investing 20-25 crores in the Indian technical centre. It started operations in 2012. The Indian tech centre has the capability to design transmission and gearboxes and currently I'm designing a new 4x4 transfer case for a European customer. It is to be used in SUVs. We are also exploring opportunities in India.

AD> This acquisition is sure to win you new business in overseas markets. How do you see your exports growing?

Today 10 percent of our revenues come from exports. We plan to increase it to 22 percent. The current pie size is ₹850 crores this year. We close in March, so it's an estimate. I'm hoping the last three months will be strong. Last year it was ₹650 crores. Our PAT is 7-8 percent. This year is hard.

We are also working with Daimler on various programs currently. My product is getting launched in Jan. So far we have seen small numbers, but now we have to go for large numbers.

> All customers are the same, but which customers will be willing to try it out, that's the question. Our first step is consolidating what we acquired in Switzerland, and then bring it to India.

AD> You were planning to shift some assemblies and production to Hosur for better logistics and become a just-in-time supplier. How is that progressing?

Last time I told you we were setting up a components plant in Hosur. It's almost ready, but currently we are only doing the Caterpillar components there. For Daimler LDT we make engines, and for HDT we make a system for transmission. We also do gearbox assembly there for Ford. March onwards we'll start the transmission assembly for Ashok Leyland that we're making in Pithampur. The assembly lines are ready, we are waiting for the final validation from the customer. That will make the process just-in-time as we get closer to the customer. Today we have a transit time of almost 40 hours.

AD> Can you tell us about the investments you are looking at for this process?

Current investment there is ₹40 crore. Some of the current and existing equipment will also shift there to form a completely new venture there. We are doing it in phases and also creating space there for some of my switch products that we'll be making there. AD