

## **LMT in India: Large drills for large motors**

**They are up to three meters long, and have a maximum diameter of 200 mm: line boring bars from LMT Kieninger. This high-tech tool is indispensable for the special holes needed when making large diesel engines. In India, about 60 of these special tools are now in use at large companies in the commercial vehicle industry. A crucial factor in this success is the know-how of the field service staff at LMT India. They agree the design in close contact with customers.**

Diesel engines are used in locomotives, push enormous ships forward, or provide emergency electrical power in hospitals. The variety of these applications is reflected in the large dimensions of the motors. A diesel-powered emergency electrical power unit can easily way 25 tonnes and have an engine capacity of no less than 40 liters. At the other end of the scale we find small engines with a capacity of just 0.8 liters, like those used in small cars.

### **Supreme discipline when drilling**

They all, of course, use the same basic principle. A camshaft and a crankshaft, for instance, are indispensable. It is also not hard to see that these control and drive shafts must always be borne in extremely accurately machined holes. The problem here lies with the position of the holes and the precision of their diameters. Thanjavur Balasubramaniam Kirthivasan of LMT India explains that “Machining these bearing tunnels is a supreme discipline among the various kinds of drilling work involved in producing motors”. Line boring bars, as they are known, are the tools often used for this job. They vary in size as much as the engine blocks that they machine: 500 millimeters to 3.10 meters long, with a diameter between 30 and 200 millimeters. Indexable inserts, located in adjustable cartridges on the boring bar, are used for the metal removal itself.

### **Experts from LMT India agree tools with the customer**

Being so complex to manufacture and calling for such high levels of expertise, they provide a good example of LMT Kieninger’s unique strengths: the development and construction of special tools. These valuable tools have of course also been affected by the general drop in sales in the year of the crisis. Nevertheless, together with the special machine they need, they represent a genuine investment for any company in this field. In spite of the difficulties, LMT Kieninger has already delivered 15 line boring

bars to India in 2009. Kirthivasan tells us that "A total of about 60 boring bars are now being used in India". How can this success be explained? Kirthivasan has an idea: "Naturally there are only a few manufacturers of these tools in the whole world, and Kieninger is a master of the technology. But there is something else that is also important: the advice given to the customer. The requirements, after all, are quite different depending on the engine being made." Put another way, competent field service staff trained in the latest technology on the one hand, and the developers at Kieninger on the other, must work together closely to ensure that the tools perform properly when they reach the customer. "Exactly this cooperation between India and Germany is what we find here" confirms Thilo Nietzsche, Sales Engineer at LMT Kieninger. "LMT India in Chennai has all the necessary know-how. Their experts have long been accepted in the market. This is an inestimable advantage."

### **Expensive design**

The line boring bars are then developed in Germany by a small group of workers. The expense is nevertheless high. "Something like 50 design hours are needed for each boring bar," explains Nietzsche. The production department then has the job of assembling a tool that can consist of about 70 individual parts. This takes up to a week. The tool is then delivered between altogether 10 and 14 weeks after receipt of order. "At the same time many customers also order the associated special machine. It can take up to nine months to deliver the machine. So the boring bar is always ready in time" says Nietzsche.

**Fotos:** Large tools for making large engines: enormous boring bars like this machine the bearing tunnels in diesel engines.

The final result: a diesel engine for commercial vehicles.

### **Your contact person at LMT**

Mr. Volker Reinsch  
Phone: +49(0) 41 51 12 498  
Fax: +49 (0) 41 51 - 12 77 498  
E-mail: [vreinsch@lmt-tools.com](mailto:vreinsch@lmt-tools.com)  
[www.lmt-tools.com](http://www.lmt-tools.com)

Leading Metalworking  
Technologies

**BELIN  
FETTE  
KIENINGER  
ONSRUD**

in alliance

**BILZ  
BOEHLERIT**