



PRECIHOLE MACHINE TOOLS PVT LTD

Pioneering deep hole drilling in India

After gaining much expertise in deep hole drilling technique, which was not widely known two decades back, a group of enthusiastic technocrats realised their dream by bringing this niche and complicated application to India by setting up Precihole Machine Tools Pvt Ltd. From a humble beginning in 1988, the company today has India's largest and most high-technology deep hole drilling manufacturing centre.

Rachita Jha

Deep hole drilling is the preferred method for drilling depths of more than 10 times the diameter. After gaining extensive experience and expertise in deep hole drilling overseas, Precihole is credited for bringing this niche yet much-needed technology to the Indian job shops.

As the technology is highly specialised and cost-intensive, the biggest challenge for the founders was to offer world-class quality deep hole drilling solutions at affordable costs. This quest to engineer the right solution for Indian markets led to the beginning of indigenous engineering at Precihole.

Today, the company boasts of manufacturing standard range of



As new materials, designs and precision benchmarks become a necessity for the engineering industry, the applications of deep hole drilling are breaking new grounds.

V R Nayak, Chief Executive Officer

machines for deep hole drilling application that can cater to the drilling requirements of sectors ranging from automotive to defence. The promise to deliver exceptional quality and service - faster, with a cost advantage - each time has scripted success for the company. Having witnessed the best-in-class deep hole drilling in other countries, Precihole has been quick in adopting the latest trends in technology in its manufacturing operations and products range in meeting the ever-changing requirements of its user segment. The milestones achieved by the company provide an evidence of the same.

A technological expedition

Nearly two decades ago, Precihole started with two self-made gun drilling machines. The quality and cost value proposition of its products found instant recognition in the Indian defence sector. Soon after its first expansion in 1991, the company had its first breakthrough contract for gun barrels from the ordinance factory in

1993, and became the only company in the private sector to supply gun barrels to Indian defence. Since then, continuous commitment towards upgradations, quality standards & customisations has strengthened the partnership of support and extended co-operation of the company with defence counterparts.

In 1997, Precihole diversified into building custom-built Special Purpose Machines (SPMs) and metal cutting manufacturing line. Quick to realise the need for testing, quality verifications and requirements in automotive industry, the company introduced its range of testing machines in 2000.

In 2003, the company exported its first automatic Deep Hole Drilling Machine (DHDM) to Austria. Later, the dual advantage of a high-performance machine at unmatched cost had users demanding for turnkey solutions.

Further in 2004, Precihole forayed into assembly solutions, adding a new facility dedicated to this application. With preparations on for setting up its new facility at Kalyan, Maharashtra,

the company is currently focussed on building the next-generation DHDM based on the latest machine building technology.

Made in India

To acquire technological capabilities and drill-through difficult-to-machine materials at drill depths of 10 times the diameter with precision may not be practical for general engineering companies to execute in-house. Due to only a handful of companies operating in this field, it was usually outsourced or avoided by many in the manufacturing sector. The expertise of Precihole thus came as a helping hand to bridge the technology gap for companies with similar critical needs in drilling.

With over two decades of experience in a wide range of drilling applications, the company has built an exhaustive database for many applications of deep hole drilling. This made it easy for the company to advance and pioneer the development of SPMs, production lines and assembly lines related to deep hole drilling. The products include DHDMs, honing & lapping machines, SPMs for metal cutting, and the production of complete components, alongwith assembly and testing machines.

The broad range of experience with hole sizes and materials has made the company gain unmatched knowledge of performance relationship between drilling machines and drilling tools. Thus, it was only a matter of time that the company launched its range of indigenous standard machines in DHDM category that offer customer-specific machine configurations. "Skilled manpower and state-of-the-art manufacturing facility have today made the company well-known for this niche application. As new materials, designs and precision benchmarks become a necessity for the engineering industry, the applications of deep hole drilling are breaking new grounds in heavy engineering, medical, automobile,



Large BTA drilling machine

aerospace, oil industry, defence, nuclear, etc," says V R Nayak, CEO, Precihole Machine Tools Pvt Ltd.

High-technology manufacturing

The company houses India's largest & most high-technology deep hole drilling manufacturing centre. It houses three distinct sections of the business - machine tool, subcontract work and gun drills - that complement each other. The number of engineering challenges is plenty in deep hole drilling.

The machines used are of large scale. Designed to optimise job flow, the state-of-the-art manufacturing set-up ensures job is delivered on time, on budget and within the quality specifications. "In the last decade, we have upgraded our processes, technologies, facilities and workforce several times that have resulted in tremendous increase in our capability to design and manufacture state-of-the-art DHDMs, including gun drilling and BTA drilling," says Nayak.

The production plant is equipped with the latest manufacturing facility such as CNC lathes and machining & turn mill centres with trained workforce to produce individual parts weighing up to 30 tonne, and machines for high-speed smaller component manufacturing on CNC turning and milling machines. Considering the high cost of machining deep holes, many companies prefer to subcontract the job.

With a database of more than 3,000 tools and applications gathered over 25 years, Precihole has become a renowned name for many in need of deep hole drilling. This extensive database of drilling tools can be easily customised to varying job requirements, depending on the applications and jobbing materials.

The set-up to execute deep hole drilling operations has extensive specifications for coolant pressures, feeds & speeds and tool life. This is made possible with regular process monitoring of machines that result in

smooth operations for long periods. The components manufactured at the facility too are exposed to strict testing regimes in ensuring that they adhere to the requirements of the customers.

Design engineering

Turn-key and collaborative projects contribute to the maximum work volume at Precihole. "The in-house capability to offer complex designs, control systems and specialised equipment manufacturing gives us a significant edge over our competitors. Custom-designed turnkey systems have been our expertise, and our standard machines are renowned to be reliable & affordable for deep hole drilling. The backbone of our success has been the R&D department and projects division. We have installed state-of-the-art engineering design infrastructure, including the latest softwares & tools for project execution to ensure quality and correctness," avers Nayak.

The company has the latest 3D parametric modelling and Finite Element Analysis (FEA) software to develop new products and continue refining proven designs. The software loaded with over two decades of database on customised projects is an asset for the company and value proposition for customers. The large pool of hole size and tooling specifications - from 2-250 mm diameter, and upto 10,000 mm deep - ensure that each project implemented is financially sound and the best practices are adhered to. The availability of end-to-end engineering solutions like design, manufacturing & assembly in deep hole drilling and related applications have now led to new applications such as medical devices, aerospace, oil exploration and nuclear, coming to seek solutions from Precihole.

Future outlook

At Precihole, a commitment towards cost-efficient solutions has been



Vertical machining centre

the key to success. After gaining many accolades for its engineering excellence in India, the company has now set its eyes on the global markets to establish itself as a one-stop shop - be it design, development, manufacturing or prototype building in a wide variety of precision engineering.

Sharing his future outlook for the company, Nayak avers, "We are planning to upgrade our capabilities in larger machines with higher performances, especially to broaden our global customer base. To implement our plans, we will be investing in additional manpower and machinery to adapt to the customer demands, along with manpower development & training to improve our overall productivity."

The growing demand for engineering goods is keeping the machine tool industry busy. Moreover, with new product designs constantly changing with precision requirements, the need for deep hole drilling capabilities is only going to rise in the coming years. And, Precihole is geared up to meet these challenges. ◀