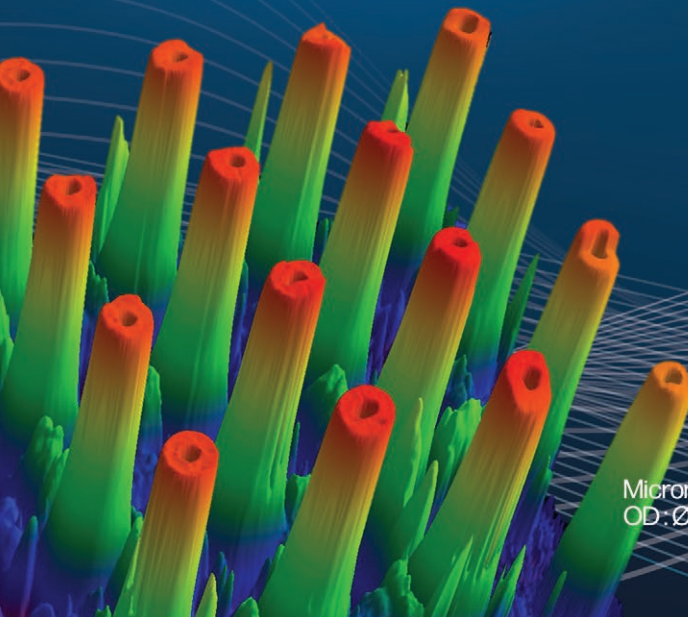




Centre for Micro-Nano Manufacturing & Metrology

Pioneering research in advanced manufacturing



Microneedles machined at CMTI
OD: \varnothing 100 μ m, ID: \varnothing 60 μ m, Height: 300 μ m

Endeavour

The Central Manufacturing Technology Institute has many facets in technology development, assimilation and dissemination. Customisation and new technology development to support industries are essential in driving the country's manufacturing economy. One such technological area is precision engineering. Our organisation has contributed considerably to the nation for several decades in this field. CMTI has always been persevering through continual sustainable innovation in precision engineering to make India a base for a globally competitive manufacturing hub.

As CMTI's Director, it is my privilege to introduce our endeavours in precision engineering.



Distinction

The Centre for Micro-Nano Manufacturing and Metrology is a state of art centre at Central Manufacturing Technology Institute. This centre caters to manufacturing cum inspection of precision-engineered components ranging from automobile and biomedical to strategic sectors.

We are uniquely placed, as we have a balanced approach towards manufacturing, inspection & certification, research and development in frontier areas. This holistic approach helps us in pioneering advanced manufacturing applications. We have one of the best talents for consultation in the country.

I, Niranjan Reddy, head of the centre, take pleasure in showcasing our capabilities to hand-hold in your technological endeavours.



Micro-Nano Manufacturing

The Micro-Nano Manufacturing group encompasses micromachining facilities using conventional, non-traditional, speciality laser machining systems and nano-coating facilities. The group provides machining services and research facilities to several industries, academia and national laboratories. The group can machine features as small as 30 micrometres and deposit as small as 5 nanometres.

From sensor heads to bio-medical implants, this group caters to niche activities that the country requires. Auto, bio-medical, and aerospace giants of the industries are the customers of this group. Several national laboratories belonging to strategic sectors have their critical components fabricated by this group.



Laser Processing

The Laser Processing laboratory works on micromachining using Femto Second laser and Excimer Laser machining systems. Their expertise includes the creation of test artefacts for metrology, micro leaks for pharmaceuticals, fabrication of device transducers for aerospace, micromachining microfluidic channels for biomedical and preparing masks for MEMS devices. This group provides one of the most sought-after high-technology services in the country.



Surface Engineering

The Surface Engineering laboratory houses a Plasma Enhanced Chemical Vapour Deposition and Magnetron Sputter Physical Vapour Deposition systems. The group focuses on research on applications of Diamond-like Carbon and Carbon Nanotubes. The group also works closely with metallisation for applications in semiconductors and MEMS. It has generated enough research base that has helped provide inputs and services to various multi-national corporations, organisations and academia.

The group has also diversified into micro additive manufacturing involving nanomaterials infusion to create miniaturised prototypes with high mechanical strength and significant applications in electronic industries.



Precision Metrology

The Precision Metrology Group houses the finest laboratory comprising dimensional metrology equipment and expertise in the country. An award-winning laboratory that provides services to various certification labs and industries across the country which are accredited and certified.

This unique lab is established 6 metres below ground to offer the highest accuracy unabated by temperature and vibrations. Because of our stringent measurement norms, our certifications hold high esteem across the globe.

With more than 1000+ assignments each year, we have a significant base of customers who always return smiling.



Rajkot Outreach Centre

CMTI has an Outreach Centre at Metoda GIDC, Rajkot, which has several testing and inspection facilities to cater to industries around the region. The Centre for Micro-Nano Manufacturing and Metrology supports this facility and provides material testing and dimensional metrology services at this outreach centre.

The outreach centre also carries out several knowledge dissemination activities and has served industries belonging to heavy machinery, machine tools and automobile sectors.





Let us help grow your business.

Mr. Niranjan Reddy

Centre Head

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