



**ASM International  
Bengaluru Chapter**

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**Titled**  
**“Material Processing by Laser Technology  
For Cladding and Hardening Applications”**

BY  
**Mr. MANOJ RATHOD**  
Vice President (Sales)

Coherent Laser India Private Limited, A - 454, 1st Floor, TTC Industrial Area,  
M.I.D.C, Mahape, Navi Mumbai- 400710, India.

*Date & Time: 30.05.2020, Saturday at 5:00 pm*  
*On-Line Tech Talk on: RingCentral Platform*

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**Dr. Nataraj J R**  
Secretary ASM (I),

**Address: ASM (I) Bangalore Chapter**  
C/o ACE Carbonitriders

A-145, 3rd Cross, 1st Stage, Peenya Industrial Area, Bangalore-58  
Telephone: 080-2839 5888/2839; E-mail : [asmblr2015@gmail.com](mailto:asmblr2015@gmail.com)

# Title: Material Processing by Laser Technology For Cladding and Hardening Applications

MR. MANOJ RATHOD

Vice President (Sales)

Coherent Laser India Private Limited, A - 454, 1st Floor, TTC Industrial Area,  
M.I.D.C, Mahape, Navi Mumbai- 400710, India.

## Abstract of the Talk:

Laser cladding and Laser hardening will be in very high demand in near future due to flexibility, very much reliable process and having very less running cost compare to conventional methods. Automotive industry, Defence and Aerospace, Oil and gas industry, as well as other general engineering tool and die moulds repairs are major applications. In Engineering field remanufacturing by Laser cladding will be in demand in coming generation due to cost effectiveness and to reduce wear resistance and corrosion resistance by coating metal powder. Main advantages of laser cladding is that it is a metallurgy bond hence fusion is perfect with very less dilution compare to conventional technologies like PTA , HVOF etc . Fibre Laser technology and Direct Diode laser can be used for cladding of various metal powders like stellite, TC , SS 304-316L, etc. A manipulator like Robot or Multiple CNC axis are used to carry laser gun /head and deposit metal powder on shafts, Valves using various optics and nozzle. This way base metal like carbon steel can be cladded with SS or other super alloy powders like cobalt chrome etc and better properties surface can be achieved like higher hardness, reduce wear/corrosion resistance. In near future laser hardening will also be in very much demand where conventional technique of Induction hardening or Nitriding become cumbersome to use. Diode laser of 975nm wave length or Fiber laser of 1064 nm is focused by optics to heat the metal. Biggest advantages of laser hardening are quenching Process is not required and mass of metal itself is used for quenching and it is called self-quenching laser process.

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**-Mrs. Vaishali J P**