



CSIR-CMERI

Testing Facility and Charges

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Centre for Advanced Manufacturing & Metrology

Sl. No.	Machine Name	Description	Image	Machine Hour Rate (INR)
1.	Precision CNC Cylindrical Grinding machine (HiLife Swift 500)	Travel: 400 X 300 X 300		900
2.	PLC 3-axis surface grinding	Job length = 700mm; Table speed = 2.5-25 m/min		730
3.	Pryosha surface grinding machine	Travel: 1075 X 550 X 550 Surface finish: 0.18 μ m		760
4.	Universal 5-axis CNC Machining centre (DMG CMX 70U)	Job size = 750x600x520 mm; Spindle speed: 50-12000 rpm		1750
5.	Electronica Expart1, CNC EDM Die Sinking	Travel: 400 X 300 X 300		1160








Centre for Advanced Manufacturing & Metrology

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
6.	Submerged Wire-EDM (CHAMER G43S)	Job size = 725x560x215 mm; Ra= 0.18-0.25 μ m		1240
7.	4-axis CNC milling m/c (ACE Designer, MCV 350)	(Job size = 400x350x480 mm; Spindle speed: 60-6000 rpm)		1030
8.	Schaublin, 125CCN, RTM, High precision with hard turning facilities	Turning Dia. and length: 270mm & 115mm RPM: 5000 (Max.)		1340
9.	Mikron VCP 710, Vertical Machining Center	Working Area: 900 X 600 X 500 RPM: 18000 (Max.)		1400
10.	LT-20 2-Axis CNC Lathe (Ace Designer)	Turning Dia. and length: 236mm & 485mm RPM: 3000 (Max.)		1150








Centre for Advanced Manufacturing & Metrology

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
11.	CNC Plasma Cutting m/c (CXL-2500)	(Rapid feed control; Job size = 3000x1500 mm)		1500
12.	Tube Bending Machine-100 CNC-2X	(Feed control; Job size = 3000 mm; max. D*t = 114*6 (in mm))		1000
13.	Wire Arc Additive Manufacturing Machine	6 Axis WAAM, Deposition rate: 5-40 kg/min		2355
14.	Fluidized Bed Heat Treatment Furnace	800 mm x 500 mm T upto 1100 °C		1497
15.	Friction Stir Welding Machine	(RPM – 3000 max , Travel speed – 3000mm/min, Bench size 600x600 mm)		1281



Centre for Advanced Manufacturing & Metrology

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
16.	Universal Profile Projector	Range: X axis : 200 mm; Y axis : 100 mm, Angle : 0 – 360 degree Resolution : 1 μ m / 1 min of arc		1250
17.	Co-ordinate Measuring Machine	Range: 600 mm X 800 mm X 500 mm, Resolution: 0.1 μ m Repeatability: 2 μ m		1850
18.	Laser Interferometer Measurement System	Measuring Range: 0 – 40 m Resolution: 0.001 μ m / 0.01 arc sec; Accuracy: \pm 0.7 ppm		1350
19.	3-D Optical Surface Profiler	Vertical range (Z) : 2.2 mm, as standard (>10 mm with Z-stitching) Vertical resolution : 0.1 \AA Noise floor (Z) : 75 mm with X, Y stitching)		2300
20.	Universal Length Measuring Machine	Range: 0-1 metre; Resolution: 0.01 μ m Repeatability: 0.1 μ m; Measuring force: 0-12N		1400





Materials Processing and Microsystems Laboratory

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
1.	UTM (50 kN Capacity) Tensile, Compression and Bending)	50kN Static Machine		925
2.	Fourier Transform Infra-Red Spectrophotometer (FTIR)	400 nm to 4000 nm		1013
3.	Thermal Behavior study using (TGA/DSC/DTA)	Temp. range: RT – 1559 deg C		1058
4.	UV-VIS-NIR Spectrophotometer	Scan range: 165 nm to 3300 nm, Max. resolution: 0.1 nm		974
5.	High Speed Imaging System	Performance:1024x1024 pixels@5400		1600
6.	Potentiostat/Galvanostat/EIS Analyzer	Current range 4A, Voltage 40 V min, resolution 1.2 fA, 300nV		1600





Materials Processing and Microsystems Laboratory

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
7.	Mini Dry Dynamometer	<ul style="list-style-type: none">• Measuring Range: Fx,Fy,Fz -250...250 N Mx, Mz - 8...8 , -11...11 N-m• Threshold: <0.002 N• Sensitivity: Fx,Fz -26 pC/N Fy -13 pC/N• Clamping area: 55x80 mm		1500
8.	Atomic Force Microscope	Max scanning area 160μmX160μm		2200








Environmental Engineering Group

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
1.	Bench top P-X-Ray Diffractometer	Model : MiniFlex600 Make: Rigaku		1800
2.	Atomic Absorption Spectroscopy with Graphite Furnace and Microwave Digester ((Arsenic /copper/lead /cadmium/Nickel/Zinc /Aluminium	ppm and ppb level present in water and wastewater.		1000





Foundry

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
1	Micro Injection Moulding Machine	Injected product : 3-25 gm Injection pr. 140 MPa. Platen size : 80X80 X 80 mm(max.)		900
2.	Hydraulic Forging Press	Platen size : 820X920 Daylight Gap: 600 mm. Pressing Speed:12mm/sec		6670
3	Rheo Pressure/Continuous Die Casting System	Platen size : 1000 mmX1000 mmX 1000 mm capacity up to 3.5 kg. Per shot		3922
4.	Induction, Melting F/C	200 kg1500°C		2640
5.	Vacuum Sintering Furnace	1000°C Heating Zone 100mmX100mm		1110



CSIR-CMERI

Material & Structure Evaluation Group

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
1.	Universal Testing Machine 8801	NABL 100kN Tensile, Fatigue, Compression, Fracture Toughness etc.		1500
2.	Universal Testing Machine ZD100	100 ton Tensile, Compression, Bending		1000






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Industrial Service and Research Group

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
1.	100 kN Servo Hydraulic Universal Testing Machine	Tensile, Fatigue, Compression, Bending, Fracture Toughness etc.		5000
2.	Semi Automatic Optical Microscope with Image analysis	Microstructural characterization with image processing Upto 1000X		2500
3.	Atomic Emission Spectrometer (AES)	Chemical Composition of Fe based alloys and Al alloys		2600
4.	Ultrasonic Testing (UT)	Flaw detection		2000
5.	Video Imagoscopy	Internal tube/header inspection		2600







Surface Engineering & Tribology Group

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
1.	Field Emission Scanning Electron Microscope with attached EDX and deformation stage	Resolution: 1nm at 15kV, Max magnification: 8,00,000 X		9000
2.	Energy Dispersive X-Ray Spectroscopy (EDS or EDX)	Oxford EDS, Si drift detector.		4000
3.	Dynamic Mechanical Analyzer. PerkinElmer DMA 8000	Storage modulus, loss modulus, and tan delta of a material can be measured in the temperature range of -150 oC to 400 oC range.		1200
4.	Hyper Flash Diffusivity Testing Apparatus	temperature range-100°C to 500°C. Thermal diffusivity and thermal conductivity range-0.01 mm ² /s to 2000 mm ² /s and < 0.1 W/(m*K) to 4000 W/(m*K), respectively		1000






Surface Engineering & Tribology Group

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
5.	Spectro-Visc Automatic Viscometer with TAN/TBN	It conforms to the requirements in ASTM D445, D446, D7279, IP 71 and ISO 3104.		1500
6.	Table top Low Load Friction and Wear Monitor	It helps to Characterize tribological and mechanical properties of a wide range of surfaces.		1500
7.	Raman Spectroscopy	Raman spectroscopy is a non-destructive chemical analysis technique that can provide detailed information about chemical structure, phase and polymorphism, crystallinity and molecular interaction.		4000
8.	PerkinElmer Spectrum OilExpress System	high-throughput oil analysis.		1000







Surface Engineering & Tribology Group

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
9.	Ferrogram Maker And Wear Particle Analyzer	Ferrogaphy is a technique for analyzing particles present in fluids that have been magnetically separated onto a microscope slide for viewing.		1200
10.	Nanoparticle Size Analyzer with Zeta Potential	Particle size analyzer measure the particles size by determining the angular variation in intensity of light scattered when the laser beam passes through the dispersed particles in liquid medium		1000
11.	Video Based Contact Angle Goniometer	The contact angle measurement system is mainly used for the automatic measurement of the wetting behavior of solids, as well as for series of tests and system surface analysis.		1000



Surface Engineering & Tribology Group

Sl. No.	Machine Name	Description	Image	Machine Hour Rate(INR)
12.	Four Ball Tester	This instrument is used to determine Wear Preventive properties (WP), Extreme Pressure properties (EP) and friction behavior of lubricants		1000
13.	Rheometer	Upto 1000°C		2000
14.	Advion Expression CMS (CMS-3013-0140) (ESI-MS)	It helps in determination of molecular weight of the developed molecule		1200
15.	Surface Analyzer (BET, Pore Volume, Adsorption-Desorption)	Using the BET, the true or specific surface area, including surface irregularities and pore walls, of a particle is determined at an atomic level by adsorption of an un-reactive gas		1200