



“Education for Knowledge, Science, and Culture”

- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur
(Autonomous)



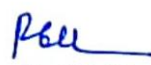
3.5.1 - Revenue generated from consultancy and corporate training during the year (INR in lakhs)

• **List of consultants and revenue generated by them**

Names of the teacher-consultants	Name of the consultancy project	Consulting/Sponsoring agency with contact details	Revenue generated (INR in lakhs)
1. Mr.Abhijit M. Mane 2. Mr.Siddhant A.Karnik	Accura Tech Castings Pvt. Ltd	Metasis Lab ,Shiroli MIDC, Kolhapur	1000
	Tough Casting Pvt. Ltd.		2000
	Trio Enterpriese		2000
	Tulip Casting Pvt. Ltd		2500
	Turno Grind		2500
	Bhakti Industries		1300
	Bharat Auto Ind		2950
	Top Gear Transmission		2250
	Bhakti Industries		1500
	Accura Tech Castings Pvt. Ltd		2000
	Ask Casting		8000
	Impel Founders Pvt. Ltd.		1500
	Dev Metalliks		1000
	Top Gear Transmission		2500
	India Engineers		500
	Dev Metalliks		4950
		Total	38450/-
	Consultancy Amount Distribution Total		38450/-
	To Department: 18148/-	GST 18%	6921/-
	To College: 27223/-	FINAL AMOUNT	45371/-

Revenue generated from corporate training during the year				
Names of the teacher-consultants/corporate trainers	Title of the corporate training programme	Agency seeking training with contact details	Revenue generated (amount in rupees)	Number of trainees
Mr.Abhijit M. Mane Mr.Siddhant A.Karnik	Micro Hardness	Metasis Lab, Shirol MIDC, Kolhapur	13500	3
Mr.Ubed N. Bagwan.	Salt Spray Testing	Mr.Manvendra S.Subhedar	6000	3
		Mob.No. 9922437590		
Names of the teacher-consultants/corporate trainers	Title of the corporate training programme	Agency seeking training with contact details	Revenue generated (amount in rupees)	Number of trainees
Mr.Abhijit M. Mane Mr.Siddhant A.Karnik	Micro Hardness	Metasis Lab, Shirol MIDC, Kolhapur	13500/-	3
Mr.Ubed N. Bagwan.	Salt Spray Testing	Mr.Manvendra S.Subhedar	6000/-	3
		Mob.No. 9922437590		
		Corporate Training Total	19500/-	03

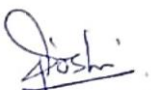

Dr. Shruti Joshi
Coordinator - IQAC
Vivekanand College,
Kolhapur



Dr. R. R. Kumbhar
PRINCIPAL
Vivekanand College
Kolhapur.

INDEX: Revenue generated from consultancy

Sr. No.	Name of Company	Test Required	No. of samples	Amount
1	Accura Tech Castings Pvt. Ltd.	Micro Structural Analysis	2	1000
2	Tough Casting Pvt. Ltd.	Micro Structural Analysis	1	500
		Mirco Hardness	3	1500
3	Trio Enterpriese	Micro Structural Analysis	1	500
		Mirco Hardness	3	1500
4	Tulip Casting Pvt. Ltd	Micro Structural Analysis	1	500
		Rockwell Hardness	1	500
		Mirco Hardness	3	1500
5	Turno Grind	Micro Structural Analysis of Nodular Cast Iron	1	500
		Salt Spray Test	2	2000
6	Bhakti Industries	Microstructural Analysis of Graphite in Cast Iron	2	1000
		C.P.C.	1	300
7	Bharat Auto Ind.	Microstructural Analysis of Graphite in Cast Iron	1	500
		Volume Fraction of phases	1	1450
		Salt Spray Test	1	1000
8	Top Gear Transmission.	G.F.N.	1	300
		Micro Structural Analysis of Nodular Cast Iron	1	500
		Volume Fraction of phases	1	1450
9	Bhakti Industries	Brinell Hardness	2	1000
		Grain Size Measurement	1	500
10	Accura Tech Castings Pvt. Ltd.	Mirco Hardness	3	1500
		Micro structural Analysis of Graphite in Cast Iron	1	500

11	Ask Casting	Mirco Hardness	15	7500
		Micro Structural Analysis of Nodular Cast Iron	1	500
12	Impel Founders Pvt. Ltd.	Inclusion Rating of Steel	3	1500
13	Dev Metalliks	Inclusion Rating of Steel	2	1000
14	Top Gear Transmission	Micro Structural Analysis	5	2500
15	India Engineers	Micro Structural Analysis	2	500
16	Dev Metalliks	Microstructural Analysis of Graphite in Cast Iron	1	500
		Volume Fraction of phases	1	1450
		Salt Spray Test	1	3000
Consultancy Amount Distribution			TOTAL	38450/-
To Department: 18148/-			GST 18%	6921/-
To College: 27223/-			FINAL AMOUNT	45371/-


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METASIS LAB

Chemical, Physical, Metallurgical Testing of Metals, Noise, Vibration,
Surface Roughness, Salt Spray, PMI. Test, Lux Measurement

B-13, Opp. Kolhapur Axle Ltd., MIDC Shirol, Kolhapur - 416122. Cell : +9922437590, 7721995959,
Email : kolhapurmetasys@gmail.com, metasyslab@rediffmail.com, Website : www.metaltestinglab.net

Date: 05/10/2022

To,
The Nodal Officer
Department of Foundry Technology,
Vivekanand College, Kolhapur (Autonomous)

Subject: To provide collaborated testing and consultancy services.

Respected Authority,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We have collaborated with your Foundry Technology department. We have requirement of metallurgical testing at your end.

As department of Foundry technology has established a testing setup which is very useful for industrial purpose, we are requesting you to provide necessary support regarding the same. We are attaching a list of samples and details of test requirements along with this letter.

Thanking you,

Yours Sincerely,

Director

Metasis Lab

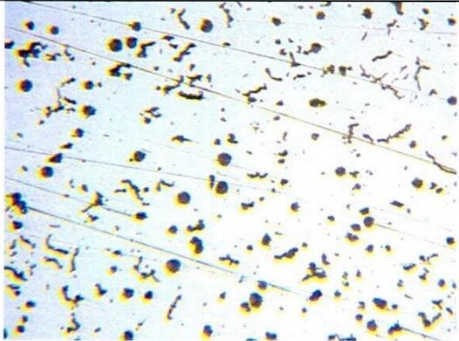
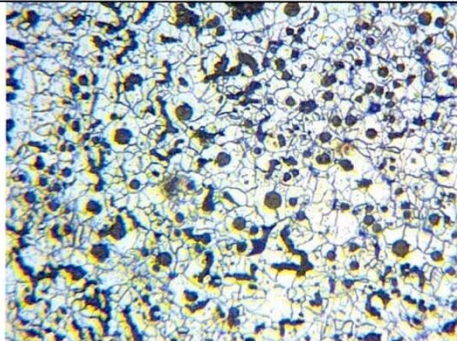
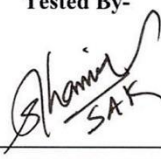

P.T.O. - Terms & Conditions

- Details of work required-

Sr. No.	Name of Company	Test Required	No. of samples
1	Accura Tech Castings Pvt. Ltd.	Micro Structural Analysis	02
2	Tough Casting Pvt. Ltd.	Micro Structural Analysis	01
		Mirco Hardness	03
3	Trio Enterpriese	Micro Structural Analysis	01
		Mirco Hardness	03

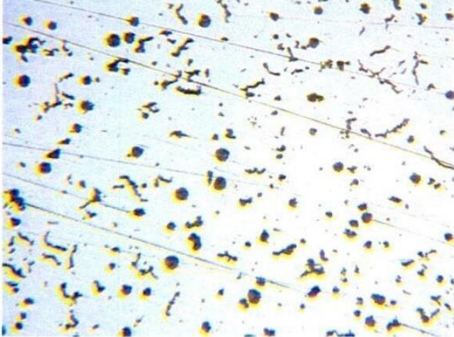
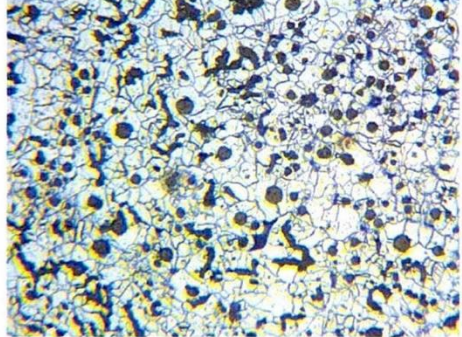
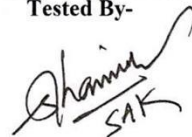
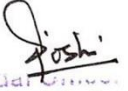


**VCK FOUNDRY
TECHNOLOGY**

Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- CS001		Test Certificate No.-VCKFT202101		Date- 06/10/2021	
Customer Name		Metasis Lab Shiroli MIDC			
		Accura Tech Castings Pvt. Ltd.			
Date of Sample Received		Date of Test Completion	Sample Name		
05/10/2021		06/10/2021	Sample		
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
06/10/2021	FT001	ASTM-E-2567-16a ASTM-E-562:2011 ASTM-E-1245:2016	-	-	SG-400/18
Test Results					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
 <p>Unetched</p>			 <p>Etched</p>		
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
Observation (Unetched)		Vermicular Graphite is present in the structure along with regular Spheroidal Graphite.			
Observation (Etched)		Ferritic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm ²)	0.959 mm ²	Pearlite (%)	24.70	Cementite (%)	-
Nodularity (%)	81%	Ferrite (%)	75.30	Ledeburite (%)	-
Nodule Count/mm ²	223				
Tested By-		For VCK Foundry Technology			
		 Nodal Officer Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur			
-----End of Report-----					



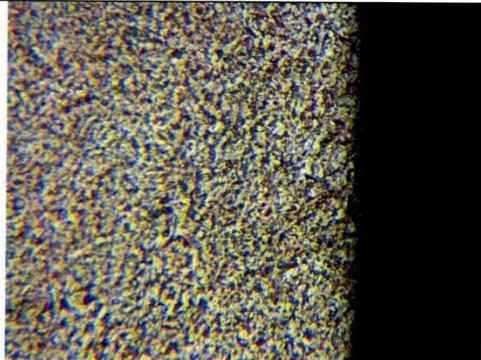
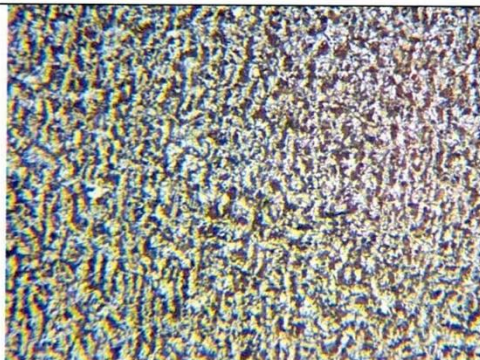
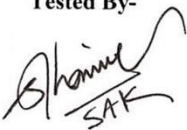
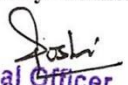
**VCK FOUNDRY
TECHNOLOGY**

Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- CS001		Test Certificate No.- VCKFT202102		Date- 06/10/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Accura Tech Castings Pvt. Ltd.			
Date of Sample Received		Date of Test Completion	Sample Name		
05/10/2021		06/10/2021	Sample		
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
06/10/2021	FT001	ASTM-E-2567-16a ASTM-E-562:2011 ASTM-E-1245:2016	-	-	SG-400/18
Test Results					
Etchant- 5% Nital			Etching Condition- Immersion-Etching		
 <p>Unetched</p>			 <p>Etched</p>		
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
Observation (Unetched)		Vermicular Graphite is present in the structure along with regular Spheroidal Graphite.			
Observation (Etched)		Ferritic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm ²)	0.959 mm ²	Pearlite (%)	24.70	Cementite (%)	-
Nodularity (%)	79%	Ferrite (%)	75.30	Ledeburite (%)	-
Nodule Count/mm ²	217				
Tested By-			For VCK Foundry Technology		
			 Authorized Signatory B.Voc. & Certificate College Urm Vivekanand College, Kolhapur		

-----End of Report-----



VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis					
Lab ID- CS002		Test Certificate No.- VCKFT202103		Date- 09/10/2021	
Customer Name		Metasis Lab Shirol MIDC, Kolhapur			
		Tough Casting Pvt. Ltd.			
Date of Sample Received		Date of Test Completion		Sample Name	
08/10/2021		09/10/2021		Tool Tech Engg-B-26-Boron Steel	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
09/10/2021	FT002	ASTM-E-1245:2016 ASM-Handbook-Vol.-9	-	-	B-26
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Case region-Total Magnification-100X			Core Region-Total Magnification-200X		
Specimen Dimension-		Sample Cut Piece			
Type of Structure Observed		In case region, Decarburization was not observed. Core region shows Equiaxed Ferrite-Pearlitic structure.			
Tested By-  SAK			For VCK Foundry Technology  Nodal Officer B.Voc. & Community College Unit Vivekanand College, Kolhapur		

-----End of Report-----



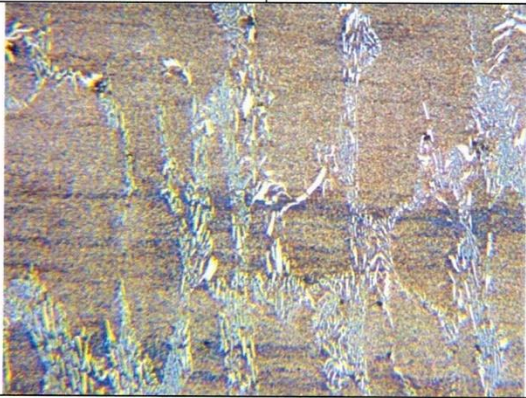
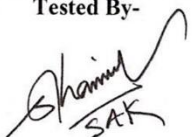
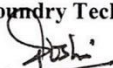
VCK **FOUNDRY**
TECHNOLOGY

Test Report- Mirco Hardness																				
Lab ID- CS002		Test Certificate No.- VCKFT202104		Date- 09/10/2022																
Customer Name		Metasis Lab Shiroli MIDC, Kolhapur																		
		Tough Casting Pvt. Ltd.																		
Date of Sample Received		Date of Test Completion		Sample Name																
08/10/2021		09/10/2022		Steel Plate																
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade															
09/10/2022	FT002	ASTM-E-92	-	-	B-26															
Test Details																				
<table border="1"> <thead> <tr> <th colspan="3">Hardness</th> </tr> <tr> <th>Plate No</th> <th>Thickness</th> <th>Vickers Hardness HV 1 Kg</th> </tr> </thead> <tbody> <tr> <td>P 4259</td> <td>5 mm</td> <td>256 - 258</td> </tr> <tr> <td>PA 5451</td> <td>6 mm</td> <td>265 - 267</td> </tr> <tr> <td>PA 5455</td> <td>6 mm</td> <td>260 - 262</td> </tr> </tbody> </table>						Hardness			Plate No	Thickness	Vickers Hardness HV 1 Kg	P 4259	5 mm	256 - 258	PA 5451	6 mm	265 - 267	PA 5455	6 mm	260 - 262
Hardness																				
Plate No	Thickness	Vickers Hardness HV 1 Kg																		
P 4259	5 mm	256 - 258																		
PA 5451	6 mm	265 - 267																		
PA 5455	6 mm	260 - 262																		
Tested By- 			For VCK Foundry Technology  Nodal Officer B.Voc. & Comm. Studies College Unit Vivekanand College, Kolhapur																	

-----End of Report-----



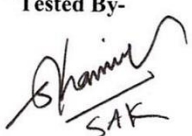
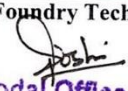
VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis					
Lab ID- CS003		Test Certificate No.- VCKFT2105		Date- 23/10/2022	
Customer Name		Metasis Lab Shirol MIDC			
		Trio Enterpriese			
Date of Sample Received		Date of Test Completion		Sample Name	
21/10/2022		23/10/2022		Test Piece-D3-Tool Steel	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
23/10/2022	FT003	ASTM-E-1245:2016 ASTM-E-562:2011	-	-	AISI-D-3
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
Type of Structure Observed-		Un-dissolved, medium coarse Carbides are observed in the matrix of Tempered Martensite with a small amount of Retained Austenite.			
Area Fraction-Case Region		Tempered Martensite (%)	Retained Austenite (%)	Carbides (%)	
		85.50	2.20	12.30	
Tested By-		For VCK Foundry Technology			
		 Nodaf Officer B.Voc. & Community College Unit Vivekanand College, Kolhapur			
		Authorized Signatory			

-----End of Report-----



VCK FOUNDRY
TECHNOLOGY

Test Report- Mirco Hardness					
Lab ID- CS003		Test Certificate No.- VCKFT2106		Date- 09/10/2022	
Customer Name		Metasis Lab Shirol MIDC, Kolhapur			
		Trio Enterpriese			
Date of Sample Received		Date of Test Completion		Sample Name	
08/10/2021		09/10/2022		Steel Plate	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
09/10/2022	FT003	ASTM-E-92	-	-	B-26
Test Details					
Hardness					
	Plate No	Thickness	Vickers Hardness HV 1 Kg		
	ST 5456	6 mm	276 - 278		
	ST 5457	6 mm	280 - 282		
	ST 5457	6 mm	278 - 280		
Tested By-			For VCK Foundry Technology		
 SAK			 Nodal Officer B.Voc. & Community College Unit Vivekanand College, Kolhapur		

-----End of Report-----

Jr. College Recog. No. H.S.C./1074/R-1/DT : 8-8-1976
Jr. College Code No. 23-09-002
Jr. College U.Dise No. 27341301006

“ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार”
शिक्षणमहर्षी डॉ. बापूजी साळुंखे

Estd. : June 1964



श्री स्वामी विवेकानंद शिक्षण संस्थेचे विवेकानंद कॉलेज, कोल्हापूर (स्वायत्त)

२१३०, ई, ताराबाई पार्क, कोल्हापूर, ता. करवीर, जि. कोल्हापूर - ४१६ ००३

शिवाजी विद्यापीठ, कोल्हापूर संलग्नीत

नॅक मानांकन : 'A' (सी.जी.पी.ए. ३.२४)

कॉलेज उईथ पोटेन्शियल फॉर एक्सलन्स, यु.जी.सी., न्यु दिल्ली
स्टार कॉलेज - डी.बी.टी. - भारत सरकार
आय.एस.ओ. ९००१:२०१५



(स्वायत्त) कोल्हापूर

Ph. : 0231-2658612, 2658840 | Fax : 0231-2658840 | Resi. : 0231-2653962 | Website : www.vivekanandcollege.org | E-mail : info@vivekanandcollege.org

संस्थापक
डॉ. बापूजी साळुंखे
D. Lit.

अध्यक्ष
मा. आमदार चंद्रकांत दादा पाटील
MLA

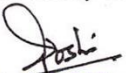
कार्याध्यक्ष
प्राचार्य अभयकुमार साळुंखे
M.A.

सचिव
प्राचार्या सौ. शुभांगी गावडे
M.Sc., B.Ed.

प्राचार्य
डॉ. आर. आर. कुंभार
M.Sc. M.Phil. Ph.D.

जावक क्रमांक वि.सी.के. /

दिनांक :

INVOICE				
The Metasis Lab Shiroli MIDC Kolhapur-416122		INVOICE NO. 2201		DATE - 30.10.2021
		T.C. No.- As per report		DATE -
		CH. NO:		DATE -
		P.O.NO:-		DATE -
Sr. No.	Description	Qty in Nos.	Rate	Amount
1	Microstructure Analysis	4	500	2000
2	Microhardness Test	6	500	3000
		Total		5000.00
		CGST @ 9 %		450.00
		SGST @ 9 %		450.00
GSTIN -		Total Amount		5900
Amount In Words:- Five Thousand Nine Hundred Only				
Pan No.-		For VCK Foundry Technology		
		<div> Nodal Officer Authorised Signature</div> <div>B. Voc. & Community College Unit</div>		



METASIS LAB

Chemical, Physical, Metallurgical Testing of Metals, Noise, Vibration,
Surface Roughness, Salt Spray, PMI. Test, Lux Measurement

B-13, Opp. Kolhapur Axle Ltd., MIDC Shirol, Kolhapur - 416122. Cell : +9922437590, 7721995959,
Email : kolhapurmetasys@gmail.com, metasyslab@rediffmail.com, Website : www.metaltestinglab.net

Date: 10/11/2021

To,
Nodal Officer
Department of Foundry Technology,
Vivekanand College (Autonomous),
Kolhapur.

Subject: To provide collaborated testing and consultancy services.

Respected Authority,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We have collaborated with your Foundry Technology department. We have requirement of metallurgical testing at your end.

As department of Foundry technology has established a testing setup which is very useful for industrial purpose, we are requesting you to provide necessary support regarding the same. We are attaching a list of samples and details of test requirements along with this letter.

Thanking you,

Yours Sincerely,

MSSubhadar
Director

Metasis Lab

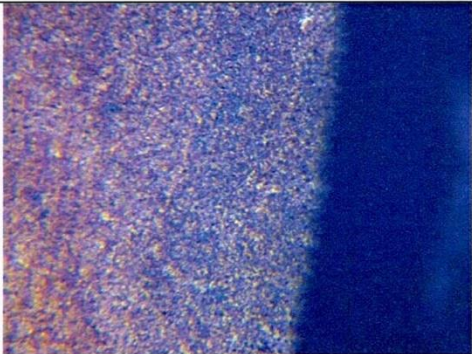
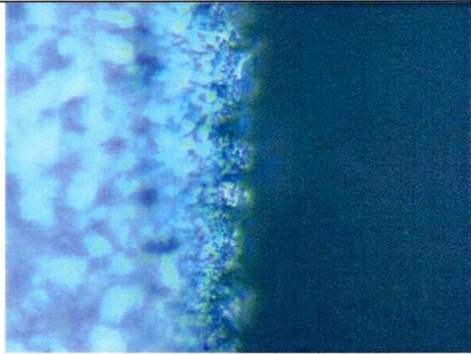
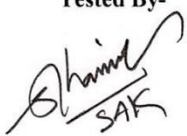
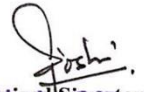
P.T.O. - Terms & Conditions

- Details of work required-

Sr. No.	Name of Company	Test Required	No. of samples
1	Tulip Casting Pvt. Ltd	Micro Structural Analysis	01
		Rockwell Hardness	01
		Mirco Hardness	03
2	Turno Grind	Micro Structural Analysis of Nodular Cast Iron	01
		Salt Spray Test	02
3	Bhakti Industries	Microstructural Analysis of Graphite in Cast Iron	02
		C.P.C.	01
4	Bharat Auto Ind.	Microstructural Analysis of Graphite in Cast Iron	01
		Volume Fraction of phases	01
		Salt Spray Test	01



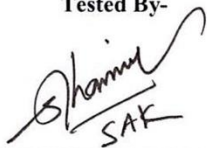
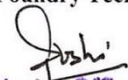
VCK FOUNDRY
TECHNOLOGY

Test Report- Micro Structural Analysis					
Lab ID- CS004		Test Certificate No.-VCKFT202107		Date- 11/11/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Tulip Casting Pvt. Ltd			
Date of Sample Received		Date of Test Completion		Sample Name	
11/11/2021		11/11/2021		Telcon Pin-X-966	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
11/11/2021	FT004	ASTM-E-1245:2016 ASTM-E-562:2011		-	-
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Case region-Total Magnification-100X			Case Region-Total Magnification-500X		
Specimen Dimension-		Sample Cut Piece			
Type of Structure Observed		In case region, Tempered Martensite is observed some amount of Carbides and less than 10% Retained Austenite. Grain Boundary Oxidation was observed (Avg.-15 μ m) in the structure.			
Area Fraction-Case Region		Tempered Martensite (%)	Retained Austenite (%)	Carbides (%)	
		92.95	5.20	1.85	
Tested By-		For VCK Foundry Technology			
		 Authorised Signatory Head Office			

-----End of Report----- B.Voc. & Community College Unit
Vivekanand College, Kolhapur

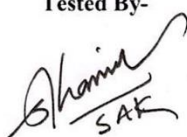



VCK FOUNDRY
TECHNOLOGY

Test Report- Rockwell Hardness					
Lab ID- CS004		Test Certificate No.- VCKFT202108		Date- 09/10/2022	
Customer Name		Metasis Lab Shiroli MIDC, Kolhapur			
		Tulip Casting Pvt. Ltd			
Date of Sample Received		Date of Test Completion		Sample Name	
08/10/2021		09/10/2022		Plate	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
09/10/2022	FT004	ASTM-E-92	-	-	EN8
Test Details					
		Hardness In HRC			
		22.5 - 23.4			
Tested By-		For VCK Foundry Technology			
 SAK		 Nodal Officer Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur			



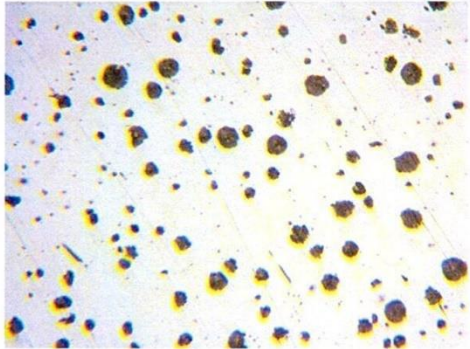
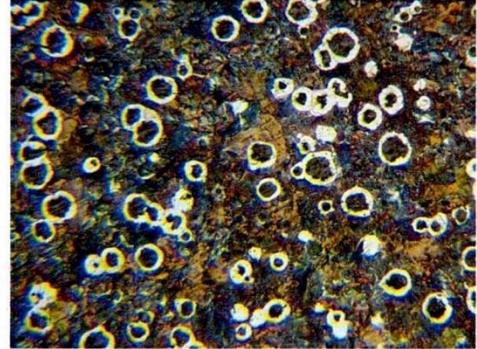
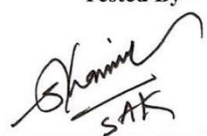
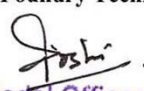
VCK FOUNDRY
TECHNOLOGY

Test Report- Mirco Hardness																				
Lab ID- CS004		Test Certificate No.- VCKFT202109		Date- 09/10/2022																
Customer Name		Metasis Lab Shiroli MIDC, Kolhapur																		
		Tulip Casting Pvt. Ltd																		
Date of Sample Received		Date of Test Completion		Sample Name																
08/10/2021		09/10/2022		Shaft																
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade															
09/10/2022	FT004	ASTM-E-92	-	-																
Test Details																				
<table border="1"> <thead> <tr> <th colspan="3">Hardness</th> </tr> <tr> <th>Sr. No</th> <th>Thickness</th> <th>Vickers Hardness HV 1 Kg</th> </tr> </thead> <tbody> <tr> <td>S4355</td> <td>6 mm</td> <td>280 - 282</td> </tr> <tr> <td>S4356</td> <td>6 mm</td> <td>278 - 280</td> </tr> <tr> <td>S4357</td> <td>6 mm</td> <td>241 - 243</td> </tr> </tbody> </table>						Hardness			Sr. No	Thickness	Vickers Hardness HV 1 Kg	S4355	6 mm	280 - 282	S4356	6 mm	278 - 280	S4357	6 mm	241 - 243
Hardness																				
Sr. No	Thickness	Vickers Hardness HV 1 Kg																		
S4355	6 mm	280 - 282																		
S4356	6 mm	278 - 280																		
S4357	6 mm	241 - 243																		
Tested By- 			For VCK Foundry Technology  Authorized Signatory																	

B.Voc. & Community College Unit
Vivekanand College, Kolhapur

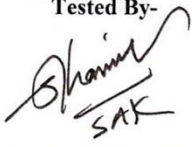
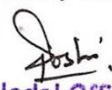


VCK FOUNDRY
TECHNOLOGY

Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- CS005		Test Certificate No.-VCKFT2110		Date- 19/11/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Turno Grind			
Date of Sample Received		Date of Test Completion		Sample Name	
14/11/2021		19/11/2021		AT-50 (18ID) Gear	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
19/11/2021	FT005	ASTM-E-2567-16a ASTM-E-1245:2016	--	PE-122-11-A-19	SG-500/7
Test Results					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
 <p>Unetched</p>			 <p>Etched</p>		
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
Observation (Unetched)		Regular spheroidal Graphite is present in the structure.			
Observation (Etched)		Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm ²)	0.959 mm ²	Pearlite (%)	84.20		
Nodularity (%)	94%	Ferrite (%)	15.80		
Nodule Count/mm ²	145	Carbide (%)	-		
Tested By-		For VCK Foundry Technology			
		 Nodal Officer Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur			
-----End of Report-----					



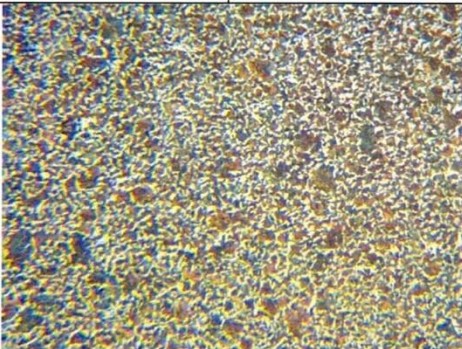
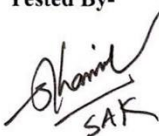
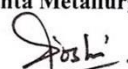
VCK FOUNDRY
TECHNOLOGY

Test Report- Salt Spray Test					
Lab ID- CS005		Test Certificate No.- VCKFT2111		Date- 19/11/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Turno Grind			
Date of Sample Received		Date of Test Completion		Sample Name	
14/11/2021		19/11/2021		M 12 x 160 Stud , Zing Coating	
Challan Date	Challan No.	Test Method	Part No	Heat No	Quantity
19/11/2021	FT005	ASTM-E-2567-16a ASTM-E-1245:2016	--	PE-122-11-A-25	2
Test Results					
Salt Spray Corrosion Test					
Salt Spray Solution- 5 % NaCl		pH - 6.82 (6.5- 7.5)			
Temp - 35 ⁰ C		RH - 99 %			
Duration - 100 Hrs.		Fog Collection - 1.63 ml / Hour			
Result					
Upto 24 Hrs		No White rust observed			
Upto 48 Hrs		No White rust observed			
Upto 72 Hrs		No White rust observed			
Upto 96 Hrs		No White rust observed			
Upto 100 Hrs		No White rust observed			
Tested By-		For VCK Foundry Technology			
		 Nodal Officer Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur			

-----End of Report-----




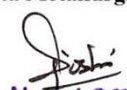
**VCK FOUNDRY
TECHNOLOGY**

Test Report- Micro Structural Analysis					
Lab ID- CS006		Test Certificate No.-VCKFT2112		Date 23/11/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Bhakti Industries			
Date of Sample Received		Date of Test Completion		Sample Name	
22/11/2021		23/11/2021			
Challan Date	Challan No.	Test Method	Heat No	Qty.	Grade
23/11/2021	FT006	ASTM-E-1245:2016 IS-4748:2009	PE-122-11-A-25 PE-122-11-A-26	2	45C8
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
ASTM Grain Size No.-		8.0-8.5			
Type of Structure Observed-		Equiaxed-Ferrite-Pearlitic-structure is observed. Decarburization is not observed in the sample.			
Area Fraction-		Ferrite (%)	Pearlite (%)	Other Phases (%)	
		37.60	62.40	Nil	
Tested By-  SAK			For Atlanta Metallurgical Services  Nodal Officer B.V. V. Community College Unit Vivekanand College, Kolhapur		

-----End of Report-----



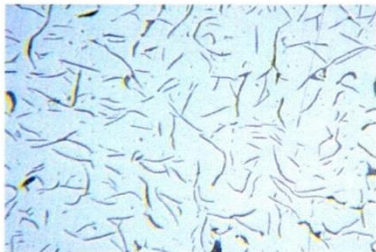
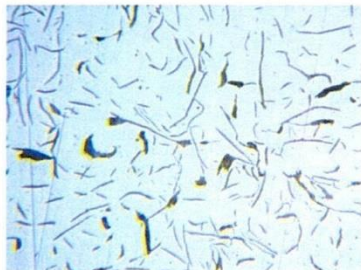
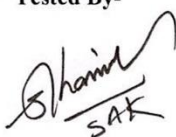
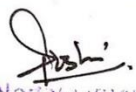
**VCK FOUNDRY
TECHNOLOGY**

Test Report- C.P.C.					
Lab ID- CS006		Test Certificate No.- VCKFT2113		Date 23/11/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Bhakti Industries			
Date of Sample Received		Date of Test Completion		Sample Name	
22/11/2021		23/11/2021		C.P.C.	
Challan Date	Challan No.	Test Method	Heat No	Qty.	Grade
23/11/2021	FT006	ASTM-E-1245:2016 IS-4748:2009	-	-	-
Test Details					
Test Results					
A) % of Fixed Carbon :		97.2 %	B) V. M. Content :		1.8 %
C) Ash Content :		1.0 %			
Tested By-			For Atlanta Metallurgical Services		
			 Nodal Officer Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur		

-----End of Report-----

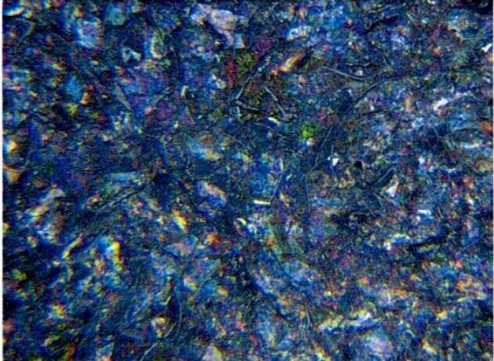
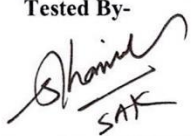



**VCK FOUNDRY
TECHNOLOGY**

Test Report- Microstructural Analysis of Graphite in Cast Iron					
Lab ID- CS009		Test Certificate No.-VCKFT14		Date- 29/11/202	
Customer Name		Metasis Lab Shiroli MIDC			
		Bharat Auto Ind.			
Date of Sample Received		Date of Test Completion		Sample Name	
26/11/2021		29/11/2021		Escort Bearing Cap	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
29/11/2021	FT007	IS-7754:2018 ASTM-E-562:2011	--	--	FG 260
Test Details					
Etchant- Unetched			Etching Condition- NA		
					
Total Magnification-100X					
Predominantly Form I-Distribution A type of Graphite flakes are observed along with some amount of Form I-Distribution B type.					
Sample-1		ASTM Class			
Average		3-5			
Graphite type distribution	Type A(%)	Type B(%)	Type C(%)	Type D(%)	Type E(%)
Average	90 to 92	8 to 10	-	-	-
Tested By-			For VCK Foundry Technology		
			 Nodal Officer Authorized Signator B.Voc. & Community College Ur. Vivekanand College, Kolhapur		



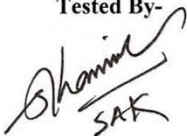
**VCK FOUNDRY
TECHNOLOGY**

Test Report- Volume Fraction of phases					
Lab ID- CS009		Test Certificate No.- VCKFT15		Date- 29/11/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Bharat Auto Ind.			
Date of Sample Received		Date of Test Completion		Sample Name	
26/11/2021		29/11/2021		Escort Bearing Cap	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
29/11/2021	FT007	ASTM-E-1245:2016	--	--	FG 260
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.					
Ternary Phosphorus Eutectic is observed in Pearlitic matrix with following percentages.					
Sample-1	Frame Area(mm)	Pearlite (%)	Ferrite (%)	Steadite (%)	
Average	0.936	98.60	1.40	--	
Tested By-  SAK			For VCK Foundry Technology  Authorized Signatory		

-----End of Report-----

B.Voc. & Community College U.
Vivekanand College, Kolhapur



Test Report- Salt Spray Test					
Lab ID- CS009		Test Certificate No.- VCKFT16		Date- 29/11/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Bharat Auto Ind.			
Date of Sample Received		Date of Test Completion		Sample Name	
26/11/2021		29/11/2021		M 12 x 160 Impeller , Zing Coating	
Challan Date	Challan No.	Test Method	Part No	Heat No	Quantity
29/11/2021	FT007	ASTM-E-2567-16a ASTM-E-1245:2016	--	-	1
Test Results					
Salt Spray Corrosion Test					
Salt Spray Solution- 5 % NaCl		pH - 6.82 (6.5- 7.5)			
Temp - 35 ⁰ C		RH - 99 %			
Duration - 100 Hrs.		Fog Collection - 1.63 ml / Hour			
Result					
Upto 24 Hrs		No White rust observed			
Upto 48 Hrs		No White rust observed			
Upto 72 Hrs		No White rust observed			
Upto 96 Hrs		No White rust observed			
Upto 100 Hrs		No White rust observed			
Tested By-  SAK			For VCK Foundry Technology  Nodal Officer Authorized Signatory B.Vec. & Community College Unit Vivekanand College, Kolhapur		

-----End of Report-----

Jr. College Recog. No. H.S.C./1074/R-1/DT : 8-8-1976
Jr. College Code No. 23-09-002
Jr. College U.Dise No. 27341301006

“ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार”
शिक्षणमहर्षी डॉ. बापूजी साळुंखे

Estd. : June 1964



श्री स्वामी विवेकानंद शिक्षण संस्थेचे विवेकानंद कॉलेज, कोल्हापूर (स्वायत्त)

२१३०, ई, ताराबाई पार्क, कोल्हापूर, ता. करवीर, जि. कोल्हापूर - ४१६ ००३

शिवाजी विद्यापीठ, कोल्हापूर संलग्नीत

नॅक मानांकन : 'A' (सी.जी.पी.ए. ३.२४)

कॉलेज उईथ पोटेन्शियल फॉर एक्सलन्स, यु.जी.सी., न्यू दिल्ली
स्टार कॉलेज - डी.बी.टी. - भारत सरकार
आय.एस.ओ. ९००१:२०१५



(स्वायत्त) कोल्हापूर

Ph. : 0231-2658612, 2658840 | Fax : 0231-2658840 | Resi. : 0231-2653962 | Website : www.vivekanandcollege.org | E-mail : info@vivekanandcollege.org

संस्थापक

डॉ. बापूजी साळुंखे
D. Lit.

अध्यक्ष

मा. आमदार चंद्रकांत दादा पाटील
MLA

कार्याध्यक्ष

प्राचार्य अभयकुमार साळुंखे
M.A.

सचिव

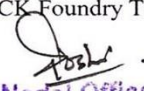
प्राचार्या सौ. शुभांगी गावडे
M.Sc., B.Ed.

प्राचार्य

डॉ. आर. आर. कुंभार
M.Sc. M.Phil. Ph.D.

जावक क्रमांक वि.सी.के. /

दिनांक :

INVOICE				
The Metasis Lab Shiroli MIDC Kolhapur-416122		INVOICE NO.	2202	DATE - 30.11.2021
		T.C. No.-	As per report	DATE -
		CH. NO:		DATE -
		P.O.NO:-		DATE -
Sr. No.	Description	Qty in Nos.	Rate	Amount
1	Microstructure Analysis	5	500	2500
2	Microhardness Test	3	500	1500
3	Rockwell Hardness	1	500	500
4	Salt Spray Test Hrs	300	10	3000
5	CPC	1	300	300
6	Volume Fraction	1	1450	1450
		Total		9250.00
		CGST @ 9 %		832.50
		SGST @ 9 %		832.50
GSTIN - 27APEPS8440R3ZX		Total Amount		10915
Amount In Words:- Ten Thousand Nine Hundred Fifteen Only				
Pan No.-		For VCK Foundry Technology		
		 Nodal Officer B.Voc. & Community College Unit Vivekanand College, Kolhapur		



METASIS LAB

Chemical, Physical, Metallurgical Testing of Metals, Noise, Vibration,
Surface Roughness, Salt Spray, PMI. Test, Lux Measurement

B-13, Opp. Kolhapur Axle Ltd., MIDC Shirol, Kolhapur - 416122. Cell : +9922437590, 7721995959,
Email : kolhapurmetasys@gmail.com, metasyslab@rediffmail.com, Website : www.metaltestinglab.net

Date: 02/12/2021

To,
The Nodal Officer
Department of Foundry Technology,
Vivekanand College, Kolhapur (Autonomous)

Subject: To provide collaborated testing and consultancy services.

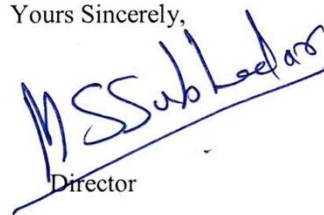
Respected Authority,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We have collaborated with your Foundry Technology department. We have requirement of metallurgical testing at your end.

As department of Foundry technology has established a testing setup which is very useful for industrial purpose, we are requesting you to provide necessary support regarding the same. We are attaching a list of samples and details of test requirements along with this letter.

Thanking you,

Yours Sincerely,



Director

Metasis Lab

P.T.O. - Terms & Conditions

- Details of work required-

Sr. No.	Name of Company	Test Required	No. of samples
1	Top Gear Transmission.	G.F.N.	01
		Micro Structural Analysis of Nodular Cast Iron	01
		Volume Fraction of phases	01
2	Bhakti Industries	Brinell Hardness	02
		Grain Size Measurement	01
3	Accura Tech Castings Pvt. Ltd.	Mirco Hardness	03
		Micro structural Analysis of Graphite in Cast Iron	01

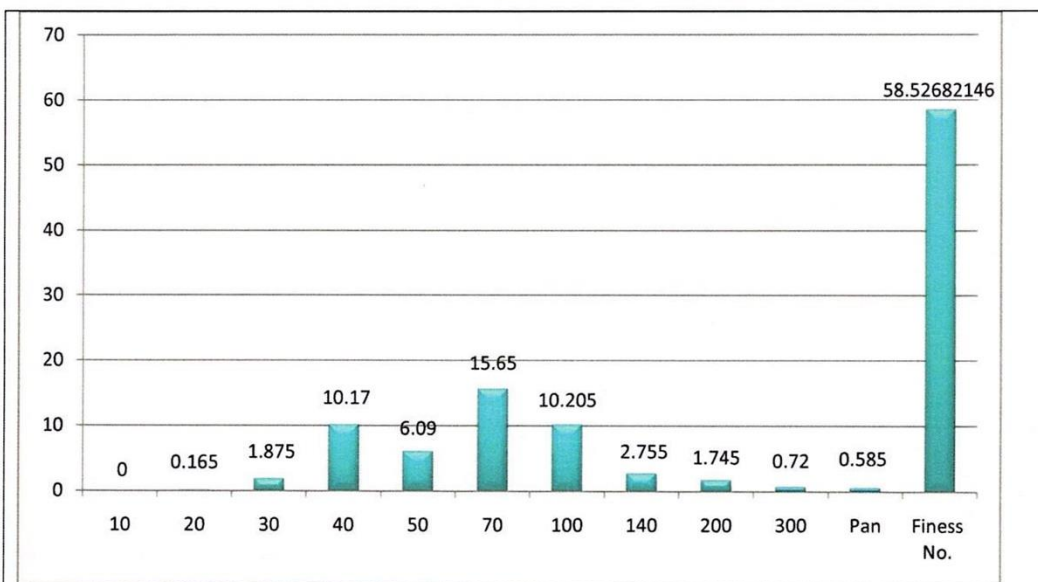


VCK FOUNDRY
TECHNOLOGY

Test Report- G.F.N.					
Lab ID- CS0013		Test Certificate No.-VCKFT2117		Date- 04/12/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Top Gear Transmission			
Date of Sample Received		Date of Test Completion		Sample Name	
02/12/2021		04/12/2021		Return Sand	
Challan Date	Challan No.	Test Method	Part No	Heat No	Quantity
04/12/2021	FT008	ASTM-E-2567-16a ASTM-E-1245:2016	--	-	-
Test Results					
Test Results					
A) Total Clay Content :		11.3 %	B) Active Clay Content :		7.8 %
C) Dead Clay Content :		3.5 %	D) Volatile Matter Content :		3.6 %
E) Loss On Ignition :		5.8 %	F) Finesse No. :		58.53



VCK **FOUNDRY**
TECHNOLOGY



Tested By-

Shamir
SAF

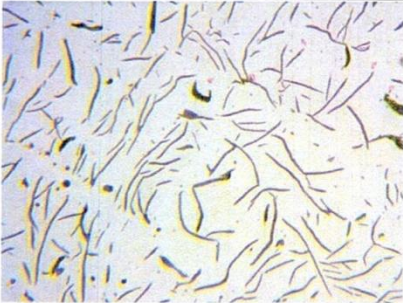
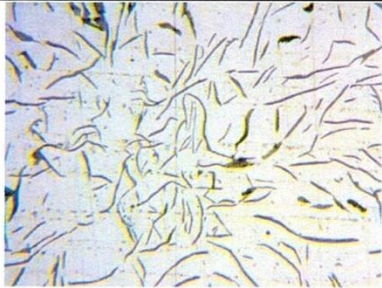
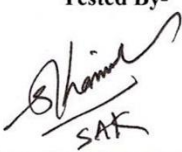

For VCK Foundry Technology

Joshi
Nodal Officer
Authorized Signatory
B.Voc. & Community College Unit
Vivekanand College, Kolhapur

-----End of Report-----

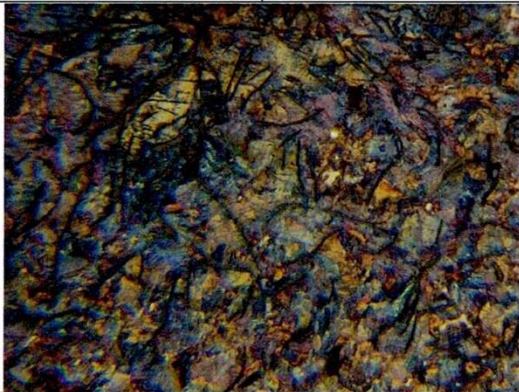
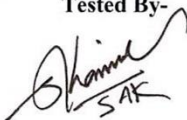



VCK FOUNDRY TECHNOLOGY

Test Report- Microstructural Analysis of Graphite in Cast Iron					
Lab ID- CS0013		Test Certificate No.- VCKFT2118		Date- 04/12/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Top Gear Transmission			
Date of Sample Received		Date of Test Completion	Sample Name		
02/12/2021		04/12/2021	Cover for Oil		
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
04/12/2021	FT008	IS-7754:2018 ASTM-E-562:2011	59/774	19A11C	--
Test Details					
Etchant- Unetched			Etching Condition- NA		
					
Total Magnification-100X					
Observation-Predominantly A types of Graphite flakes are observed with some B type are observed.					
Sample-1		ASTM Class			
Average		2-5			
Graphite type distribution	Type A(%)	Type B(%)	Type C(%)	Type D(%)	Type E(%)
Average	92 to 94	6 to 8	-	--	-
Tested By-  SAK			For VCK Foundry Technology  Nodal Officer Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur		




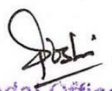
VCK FOUNDRY TECHNOLOGY

Test Report- Volume Fraction of phases					
Lab ID- CS0013		Test Certificate No.- VCKFT2119		Date- 04/12/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Top Gear Transmission			
Date of Sample Received		Date of Test Completion		Sample Name	
02/12/2021		04/12/2021		Cover for Oil	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
04/12/2021	FT008	ASTM-E-1245:2016 ASTM-E-562:2011	59/774	19A11C	--
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Observation- Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.					
Sample-1	Frame Area(mm)	Pearlite (%)	Ferrite (%)	Steadite (%)	
Average	0.936	98.90	1.10	--	
Tested By-  SAK			For VCK Foundry Technology  Authorized Signatory Nodal Officer B.Voc. & Community College Unit Vivekanand College, Kolhapur		

-----End of Report-----

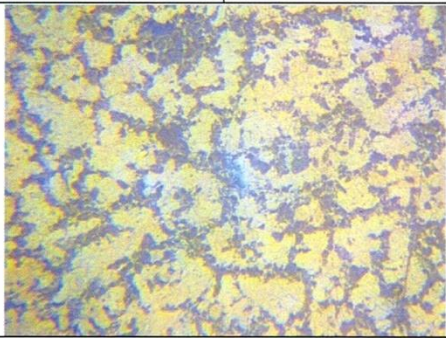


B.Voc. & Community College Unit
Vivekanand College, Kolhapur



Test Report- Brinell Hardness					
Lab ID- CS006		Test Certificate No.-VCKFT2120		Date- 10/12/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Bhakti Industries			
Date of Sample Received		Date of Test Completion		Sample Name	
07/12/2021		10/12/2021		Plate	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
10/12/2021	FT009	ASTM-E-92	-	-	FG-200
Test Details					
Hardness In BHN					
Part No		(250 Kg x 5 mm Ball)			
11 E 376		196 - 198			
3 M 27		187 - 189			
Tested By-			For VCK Foundry Technology		
 SAK			 Nodal Officer Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur		



VCK FOUNDRY TECHNOLOGY

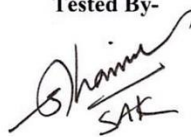

Test Report- Grain Size Measurement									
Lab ID- CS006		Test Certificate No.- VCKFT2121				Date- 10/12/2021			
Customer Name		Metasis Lab Shirol MIDC							
		Bhakti Industries							
Date of Sample Received		Date of Test Completion			Sample Name				
07/12/2021		10/12/2021			4X600-GTV Body-C-Side				
Challan Date	Challan No.	Test Method			Heat No.	Heat Lot No.		Grade	
10/12/2021	FT009	ASTM-E-112:2013			B-10923	S-613 P-614		ASTM A216 WCC	
Qualifying Heat Nos.	B9948	B9925	B9917	B9925,B9951	B9916	B9951	B-9951	B9925	
Qualifying Part	8X600-GTV Body	12X300- Plug	4X600-GTV Body	20X150- Lower Cap	2X600-PV Body	20X150- Upper Cap	12X300- Upper Cap	12X300- Lower Cap	
Test Details									
Etchant- 4% Nital					Etching Condition- Immersion-Etching				
									
Total Magnification-100X									
Specimen Dimension-		Replica-B-Side							
Type of Grain Determined-		Equiaxed-Ferrite-Pearlitic-Type-A Grains, No Widmanstatten Ferrite.							
Grain Size Analysis Method-		Manual Comparison Method							
ASTM Grain Size No.-		8.0-8.5							
Tested By-					For VCK Foundry Technology				
					 Authorized Signatory				

-----End of Report-----

B.Voc. & Community College Unit
Vivekanand College, Kolhapur



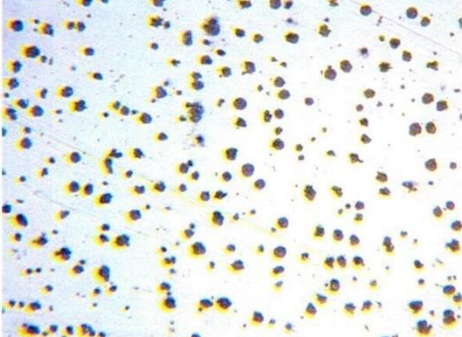
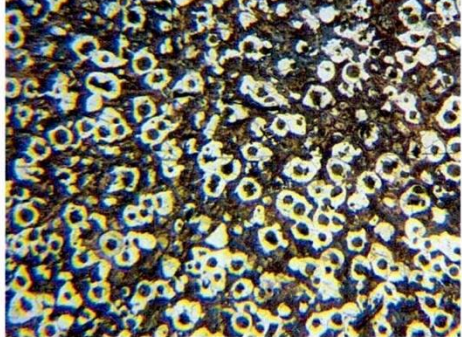


**VCK FOUNDRY
TECHNOLOGY**

Test Report- Mirco Hardness																				
Lab ID- CS001		Test Certificate No.-VCKFT2122		Date- 18/12/2021																
Customer Name		Metasis Lab Shiroli MIDC																		
		Accura Tech Castings Pvt. Ltd.																		
Date of Sample Received		Date of Test Completion	Sample Name																	
15/12/2021		18/12/2021	R.A. Support																	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade															
18/12/2021	FT010	ASTM-E-92	-	-																
Test Details																				
<table border="1"> <thead> <tr> <th colspan="3">Hardness</th> </tr> <tr> <th>Sr. No</th> <th>Thickness</th> <th>Vickers Hardness HV 1 Kg</th> </tr> </thead> <tbody> <tr> <td>H 1722</td> <td>5 mm</td> <td>256 - 258</td> </tr> <tr> <td>H 1723</td> <td>6 mm</td> <td>265 - 267</td> </tr> <tr> <td>H 1724</td> <td>6 mm</td> <td>260 - 262</td> </tr> </tbody> </table>						Hardness			Sr. No	Thickness	Vickers Hardness HV 1 Kg	H 1722	5 mm	256 - 258	H 1723	6 mm	265 - 267	H 1724	6 mm	260 - 262
Hardness																				
Sr. No	Thickness	Vickers Hardness HV 1 Kg																		
H 1722	5 mm	256 - 258																		
H 1723	6 mm	265 - 267																		
H 1724	6 mm	260 - 262																		
Tested By-  SAK			For VCK Foundry Technology  Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur																	

-----End of Report-----



VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- CS001		Test Certificate No.- VCKFT2123		Date- 18/12/2021	
Customer Name		Metasis Lab Shirolu MIDC			
		Accura Tech Castings Pvt. Ltd.			
Date of Sample Received		Date of Test Completion	Sample Name		
17/12/2021		18/12/2021	R.A. Support		
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
18/12/2021	FT010	ASTM-E-2567-16a ASTM-E-562:2011 ASTM-E-1245:2016	R 542513	264	--
Test Results					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
 <p>Unetched</p>			 <p>Etched</p>		
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
Observation (Unetched)		Regular spheroidal Graphite is present in the structure.			
Observation (Etched)		Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm ²)	0.959 mm ²	Pearlite (%)	61.30	Cementite (%)	-
Nodularity (%)	96%	Ferrite (%)	38.70	Ledeburite (%)	-
Nodule Count/mm ²	236				
Tested By-			For VCK Foundry Technology		
 <p>SAK</p>			 <p>Authorized Signatory Nodal Officer B.Voc. & Community College Unit Vivekanand College, Kottapur</p>		
-----End of Report-----					

Jr. College Recog. No. H.S.C./1074/R-1/DT : 8-8-1976
Jr. College Code No. 23-09-002
Jr. College U.Dise No. 27341301006

“ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार”
शिक्षणमहर्षी डॉ. बापूजी साळुंखे

Estd. : June 1964



श्री स्वामी विवेकानंद शिक्षण संस्थेचे विवेकानंद कॉलेज, कोल्हापूर (स्वायत्त)

२१३०, ई, ताराबाई पार्क, कोल्हापूर, ता. करवीर, जि. कोल्हापूर - ४१६ ००३

शिवाजी विद्यापीठ, कोल्हापूर संलग्नीत

नॅक मानांकन : 'A' (सी.जी.पी.ए. ३.२४)

कॉलेज उईथ पोटेन्शियल फॉर एक्सलन्स, यु.जी.सी., न्यू दिल्ली

स्टार कॉलेज - डी.बी.टी. - भारत सरकार

आय.एस.ओ. ९००१:२०१५



(स्वायत्त) कोल्हापूर

Ph. : 0231-2658612, 2658840 | Fax : 0231-2658840 | Resi. : 0231-2653962 | Website : www.vivekanandcollege.org | E-mail : info@vivekanandcollege.org

संस्थापक

डॉ. बापूजी साळुंखे
D. Lit.

अध्यक्ष

मा. आमदार चंद्रकांत दादा पाटील
MLA

कार्याध्यक्ष

प्राचार्य अभयकुमार साळुंखे
M.A.

सचिव

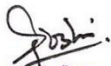
प्राचार्या सौ. शुभांगी गावडे
M.Sc., B.Ed.

प्राचार्य

डॉ. आर. आर. कुंभार
M.Sc. M.Phil. Ph.D.

जावक क्रमांक वि.सी.के. /

दिनांक :

INVOICE				
The Metasis Lab Shiroli MIDC Kolhapur-416122		INVOICE NO. 2203		DATE - 31.12.2021
		T.C. No.- As per report		DATE -
		CH. NO:		DATE -
		P.O.NO:-		DATE -
Sr. No.	Description	Qty in Nos.	Rate	Amount
1	Microstructure Analysis	2	500	1000
2	Microhardness Test	3	500	1500
3	Brinell Hardness (BHN)	2	500	1000
4	Grain Size Measurement	1	500	500
5	Volume Fraction	1	1450	1450
6	GFN	1	300	300
		Total		5750.00
		CGST @ 9 %		517.50
		SGST @ 9 %		517.50
GSTIN -		Total Amount		6785
Amount In Words:- Six Thousand Seven Hundred Eighty Five Only				
Pan No.-		For VCK Foundry Technology		
		 Nodal Officer Authorised Signature B.Voc. & Community College Unit Vivekanand College, Kolhapur		



METASIS LAB

Chemical, Physical, Metallurgical Testing of Metals, Noise, Vibration,
Surface Roughness, Salt Spray, PMI. Test, Lux Measurement

B-13, Opp. Kolhapur Axle Ltd., MIDC Shirol, Kolhapur - 416122. **Cell : +9922437590, 7721995959,**
Email : kolhapurmetasys@gmail.com, metasyslab@rediffmail.com, Website : www.metaltestinglab.net

Date: 04/01/2022

To,
The Nodal Officer
Department of Foundry Technology,
Vivekanand College, Kolhapur (Autonomous),

Subject: To provide collaborated testing and consultancy services.

Respected Authority,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We have collaborated with your Foundry Technology department. We have requirement of metallurgical testing at your end.

As department of Foundry technology has established a testing setup which is very useful for industrial purpose, we are requesting you to provide necessary support regarding the same. We are attaching a list of samples and details of test requirements along with this letter.

Thanking you,

Yours Sincerely,

Director

Metasis Lab

P.T.O. - Terms & Conditions

- Details of work required-

Sr. No.	Name of Company	Test Required	No. of samples
1	Ask Casting	Mirco Hardness	15
		Micro Structural Analysis of Nodular Cast Iron	01
2	Impel Founders Pvt. Ltd.	Inclusion Rating of Steel	03
3	Dev Metalliks	Inclusion Rating of Steel	02

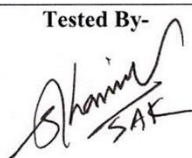
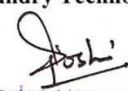


VCK FOUNDRY
TECHNOLOGY

Test Report- Mirco Hardness																																															
Lab ID- CS014		Test Certificate No.-VCKFT2124		Date- 08/01/2022																																											
Customer Name		Metasis Lab Shirol MIDC, Kolhapur																																													
		Ask Casting																																													
Date of Sample Received		Date of Test Completion		Sample Name																																											
04/01/2022		15/01/2022		Plate																																											
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade																																										
08/01/2022	FT011	ASTM-E-92	-	15																																											
Test Details																																															
<table border="1"> <thead> <tr> <th colspan="3">Hardness</th> </tr> <tr> <th>Plate No</th> <th>Thickness</th> <th>Vickers Hardness HV 1 Kg</th> </tr> </thead> <tbody> <tr> <td>P 4259</td> <td>5 mm</td> <td>256 - 258</td> </tr> <tr> <td>PA 5451</td> <td>6 mm</td> <td>265 - 267</td> </tr> <tr> <td>PA 5455</td> <td>6 mm</td> <td>260 - 262</td> </tr> <tr> <td>PB 5455</td> <td>6 mm</td> <td>244 - 246</td> </tr> <tr> <td>PA 5456</td> <td>6 mm</td> <td>251 - 253</td> </tr> <tr> <td>PB 5456</td> <td>6 mm</td> <td>276 - 278</td> </tr> <tr> <td>PA 5457</td> <td>6 mm</td> <td>280 - 282</td> </tr> <tr> <td>PB 5457</td> <td>6 mm</td> <td>278 - 280</td> </tr> <tr> <td>PB 5458</td> <td>6 mm</td> <td>241 - 243</td> </tr> <tr> <td>PA 5458</td> <td>6 mm</td> <td>257 - 259</td> </tr> <tr> <td>PA 5459</td> <td>6 mm</td> <td>266 - 268</td> </tr> <tr> <td>PA 5460</td> <td>6 mm</td> <td>270 - 272</td> </tr> </tbody> </table>						Hardness			Plate No	Thickness	Vickers Hardness HV 1 Kg	P 4259	5 mm	256 - 258	PA 5451	6 mm	265 - 267	PA 5455	6 mm	260 - 262	PB 5455	6 mm	244 - 246	PA 5456	6 mm	251 - 253	PB 5456	6 mm	276 - 278	PA 5457	6 mm	280 - 282	PB 5457	6 mm	278 - 280	PB 5458	6 mm	241 - 243	PA 5458	6 mm	257 - 259	PA 5459	6 mm	266 - 268	PA 5460	6 mm	270 - 272
Hardness																																															
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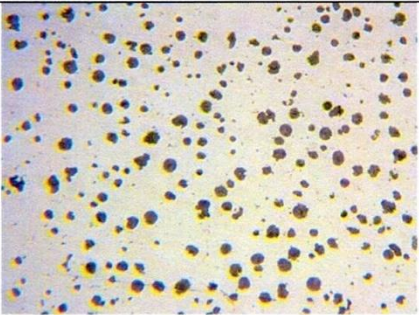
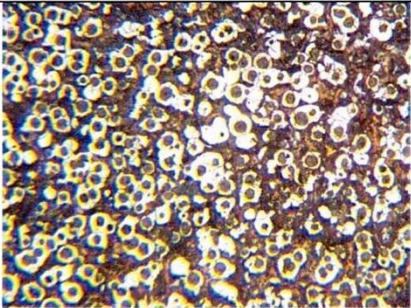
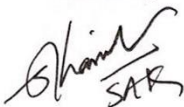

VCK FOUNDRY
TECHNOLOGY

PA 5603	6 mm	278 - 280	
PB 5604	6 mm	272 - 274	
P 6223	4 mm	260 - 262	
Tested By- 		For VCK Foundry Technology  Nodal Officer Authorized Signatory B. Voc. & Community College Unit Vivekanand College, Kolhapur	

-----End of Report-----



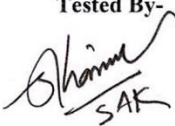



VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- CS014		Test Certificate No.- VCKFT2124		Date- 08/01/2022	
Customer Name		Metasis Lab Shirol MIDC, Kolhapur			
		Ask Casting			
Date of Sample Received		Date of Test Completion	Sample Name		
04/01/2022		08/01/2022	R.A. Support		
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
08/01/2022	FT011	ASTM-E-2567-16a ASTM-E-562:2011 ASTM-E-1245:2016	R 542513	256	--
Test Results					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
 <p>Unetched</p>			 <p>Etched</p>		
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
Observation (Unetched)		Regular spheroidal Graphite is present in the structure.			
Observation (Etched)		Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm ²)	0.959 mm ²	Pearlite (%)	54.40	Cementite (%)	-
Nodularity (%)	94%	Ferrite (%)	45.60	Ledeburite (%)	-
Nodule Count/mm ²	262				
Tested By-			For VCK Foundry Technology		
			 Nodal Officer Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur		
-----End of Report-----					



**VCK FOUNDRY
TECHNOLOGY**

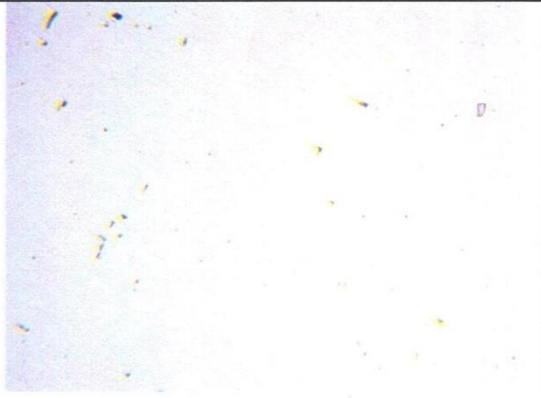


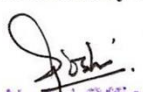
Test Report- Inclusion Rating of Steel									
Lab ID- CS024			Test Certificate No.-VCKFT2126			Date- 18/01/2022			
Customer Name			Metasis Lab Shirol MIDC						
			Impel Founders Pvt. Ltd.						
Date of Sample Received			Date of Test Completion			Sample Name			
12/01/2022			18/01/2022			ShifterFinger-GB60-Smith & Founders (Inv. No.-557, Date-12/01/2019)			
Challan Date	Challan No.	Test Method		Batch Code	Qty.	Grade			
18/01/2022	FT012	IS-4163:2004-Re.-2017		-	3	16Mn5Cr4			
Test Details									
Etchant- N. A.					Etching Condition- N. A.				
									
Total Magnification-100X									
Specimen Dimension-		Sample Cut Piece							
Inclusion Rating		A Type		B Type		C Type		D Type	
		Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick
		0.0	0.0	0.5	0.5	0.5	0.0	1.0	1.0
Tested By-  SAK					For VCK Foundry Technology  Authorized Signatory				

-----End of Report-----

B.Voc. & Community College Unit
Vivekanand College, Kolhapur



**VCK FOUNDRY
TECHNOLOGY**

Test Report- Inclusion Rating of Steel									
Lab ID- CS018			Test Certificate No.-VCKFT2127			Date- 22/01/2022			
Customer Name			Metasis Lab Shirol MIDC						
			Dev Metalliks						
Date of Sample Received			Date of Test Completion			Sample Name			
20/01/2022			22/01/2022			Rocker Arm-LH-Smith & Founders (Inv. No.-654, Date-12/01/2019)			
Challan Date	Challan No.	Test Method		Batch Code	Qty.	Grade			
22/01/2022	FT013	IS-4163:2004-Re.-2017		-	2	45C8			
Test Details									
Etchant- N. A.					Etching Condition- N. A.				
									
Total Magnification-100X									
Specimen Dimension-		Sample Cut Piece							
Inclusion Rating		A Type		B Type		C Type		D Type	
		Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick
		0.0	0.0	0.5	1.0	0.5	0.5	1.0	1.0
Tested By- 					For VCK Foundry Technology  Authorized Signatory B. Voc. & Community College Unit Vivekanand College, Kolhapur				

-----End of Report-----

Jr. College Recog. No. H.S.C./1074/R-1/DT : 8-8-1976
Jr. College Code No. 23-09-002
Jr. College U.Dise No. 27341301006

“ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार”
शिक्षणमहर्षी डॉ. बापूजी साळुंखे

Estd. : June 1964



श्री स्वामी विवेकानंद शिक्षण संस्थेचे विवेकानंद कॉलेज, कोल्हापूर (स्वायत्त)

२१३०, ई, ताराबाई पार्क, कोल्हापूर, ता. करवीर, जि. कोल्हापूर - ४१६ ००३

शिवाजी विद्यापीठ, कोल्हापूर संलग्नीत

नॅक मानांकन : 'A' (सी.जी.पी.ए. ३.२४)

कॉलेज उईथ पोटेंशियल फॉर एक्सलन्स, यु.जी.सी., न्यू दिल्ली
स्टार कॉलेज - डी.बी.टी. - भारत सरकार
आय.एस.ओ. ९००१:२०१५



(स्वायत्त) कोल्हापूर

Ph. : 0231-2658612, 2658840 | Fax : 0231-2658840 | Resi. : 0231-2653962 | Website : www.vivekanandcollege.org | E-mail : info@vivekanandcollege.org

संस्थापक

डॉ. बापूजी साळुंखे
D. Lit.

अध्यक्ष

मा. आमदार चंद्रकांत दादा पाटील
MLA

कार्याध्यक्ष

प्राचार्य अभयकुमार साळुंखे
M.A.

सचिव

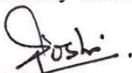
प्राचार्या सौ. शुभांगी गावडे
M.Sc., B.Ed.

प्राचार्य

डॉ. आर. आर. कुंभार
M.Sc. M.Phil. Ph.D.

जावक क्रमांक व्हि.सी.के. /

दिनांक :

INVOICE				
The Metasis Lab Shiroli MIDC Kolhapur-416122		INVOICE NO. 2204		DATE - 29.01.2022
		T.C. No.- As per report		DATE -
		CH. NO:		DATE -
		P.O.NO:-		DATE -
Sr. No.	Description	Qty in Nos.	Rate	Amount
1	Microstructure Analysis	1	500	500
2	Microhardness Test	15	500	7500
3	Inclusion Rating of Steel	5	500	2500
		Total		10500.00
		CGST @ 9 %		945.00
		SGST @ 9 %		945.00
GSTIN -		Total Amount		12390
Amount In Words:- Twelve Thousand Three Hundred Ninety Only				
Pan No.-		For VCK Foundry Technology		
		 Nandan Uincer Authorised Signature B.Voc. & Community College Unit Vivekanand College, Kolhapur		



METASIS LAB

Chemical, Physical, Metallurgical Testing of Metals, Noise, Vibration,
Surface Roughness, Salt Spray, PMI. Test, Lux Measurement

B-13, Opp. Kolhapur Axle Ltd., MIDC Shirol, Kolhapur - 416122. Cell : +9922437590, 7721995959,
Email : kolhapurmetasys@gmail.com, metasyslab@rediffmail.com, Website : www.metaltestinglab.net

Date: 04/03/2022

To,
The Nodal Officer
Department of Foundry Technology,
Vivekanand College, Kolhapur (Autonomous)

Subject: To provide collaborated testing and consultancy services.

Respected Authority,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We have collaborated with your Foundry Technology department. We have requirement of metallurgical testing at your end.

As department of Foundry technology has established a testing setup which is very useful for industrial purpose, we are requesting you to provide necessary support regarding the same. We are attaching a list of samples and details of test requirements along with this letter.

Thanking you,

Yours Sincerely,

Director

Metasis Lab

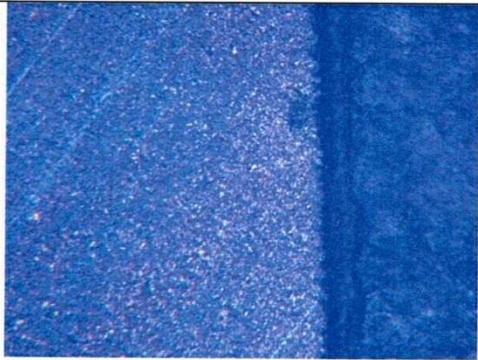
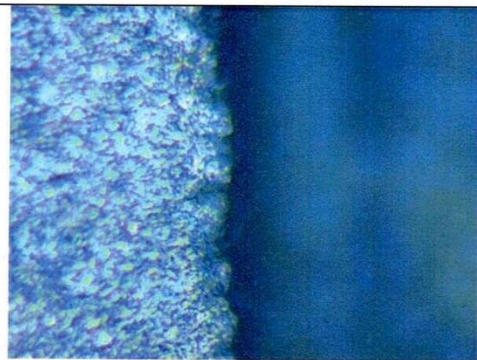
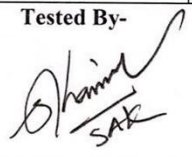
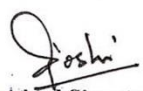
P.T.O. - Terms & Conditions

- **Details of work required-**

Sr. No.	Name of Company	Test Required	No. of samples
1	Top Gear Transmission	Micro Structural Analysis	05
2	India Engineers	Micro Structural Analysis	02
3	Dev Metalliks	Microstructural Analysis of Graphite in Cast Iron	01
		Volume Fraction of phases	01
		Salt Spray Test	01

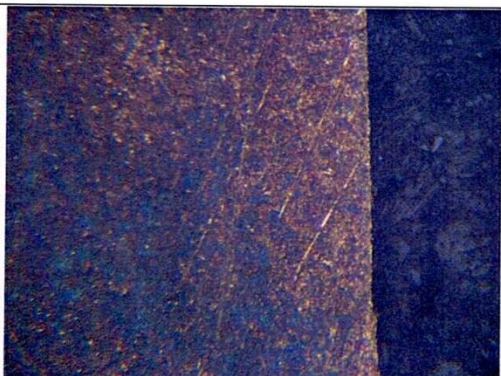
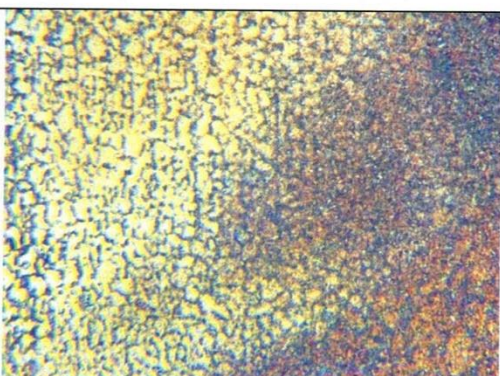
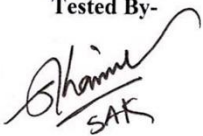



VCK FOUNDRY
TECHNOLOGY

Test Report- Micro Structural Analysis					
Lab ID- CS013		Test Certificate No.-VCKFT2128		Date- 10/03/2022	
Customer Name		Metasis Lab Shirol MIDC			
		Top Gear Transmission			
Date of Sample Received		Date of Test Completion		Sample Name	
08/03/2022		10/03/2022		Telcon Pin-T-102	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
10/03/2022	FT014	ASTM-E-1245:2016 ASTM-E-562:2011	-	5	-
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Case region-Total Magnification-100X			Case Region-Total Magnification-500X		
Specimen Dimension-		Sample Cut Piece			
Type of Structure Observed		In case region, Tempered Martensite is observed some amount of Carbides and less than 10% Retained Austenite. Grain Boundary Oxidation was observed (Avg.-20 μ m) in the structure.			
Area Fraction-Case Region		Tempered Martensite (%)	Retained Austenite (%)	Carbides (%)	
		90.60	7.10	2.30	
Tested By- 		For VCK Foundry Technology  Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur			
-----End of Report-----					



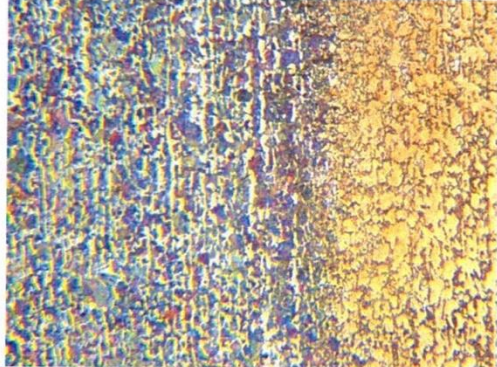
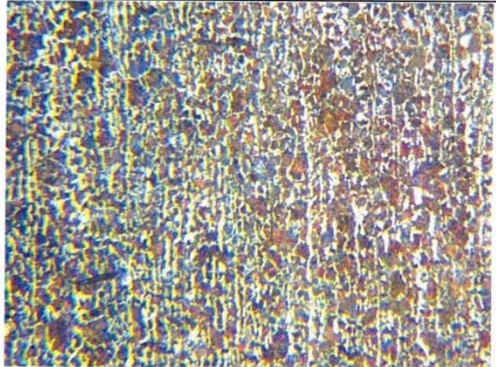
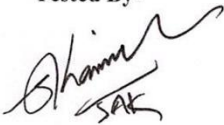
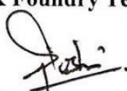
**VCK FOUNDRY
TECHNOLOGY**

Test Report- Micro Structural Analysis					
Lab ID- CS011		Test Certificate No.-VCKFT2129		Date- 10/03/2022	
Customer Name		Metasis Lab Shirol MIDC			
		India Engineers			
Date of Sample Received		Date of Test Completion		Sample Name	
08/03/2022		10/03/2022		Shaft B-C-Range-R-138533	
Challan Date	Challan No.	Test Method	Batch Code	Qty.	Grade
10/03/2022	FT015	ASTM-E-1245:2016 ASTM-E-562:2011	A1 U-19	----	----
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Near Surface			From 1.5mm to 2.5mm		
Total Magnification-100X					
Specimen Dimension-		Sample Cut Section			
Type of Structure Observed- (Case Region)		Fine Tempered Martensite is observed near surface with 1.25 % Retained Austenite. Carbides are not observed in the structure. Decarburization was not observed.			
5% ITP Depth-		Intermediate Transformation Product is observed near surface at 2.20mm (around 5%).			
Tested By-			For VCK Foundry Technology		
					
			Authorized Signatory		

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VCK FOUNDRY
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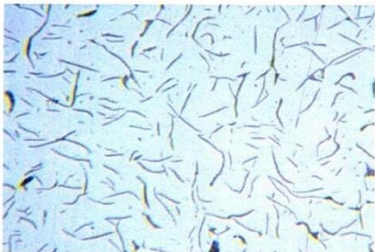
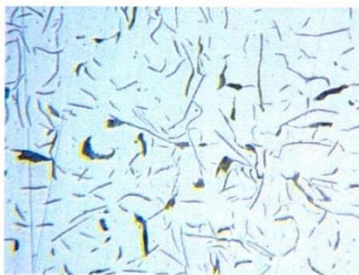
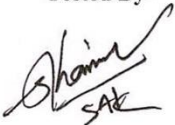

Test Report- Micro Structural Analysis					
Lab ID- CS011		Test Certificate No.- VCKFT2130		Date- 10/03/2022	
Customer Name		Metasis Lab Shirol MIDC			
		India Engineers			
Date of Sample Received		Date of Test Completion		Sample Name	
08/03/2022		10/03/2022		Shaft B-C-Range-R-138533	
Challan Date	Challan No.	Test Method	Batch Code	Qty.	Grade
10/03/2022	FT015	ASTM-E-1245:2016 ASTM-E-562:2011	A1 U-19	----	----
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
From 2.5 to 3.5mm			Core area		
Total Magnification-100X			Total Magnification-100X		
Specimen Dimension-		Sample Cut Section			
50% Martensitic Depth		50% Martensitic area is observed at 2.80mm.			
Type of Structure Observed- (Core Region)		Core region shows Banded-Ferrite-Pearlitic structure. Ferrite-36.20 % & Pearlite-63.80 %.			
Tested By- 			For VCK Foundry Technology  Nodal Officer Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur		

-----End of Report-----



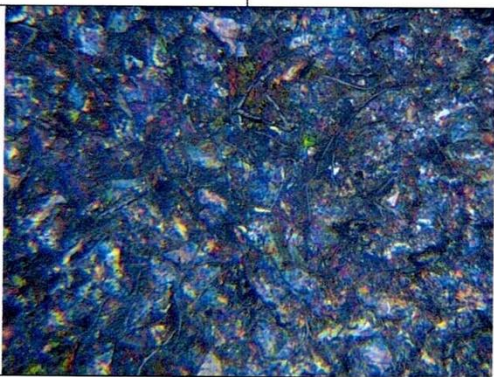
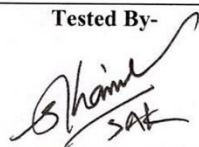
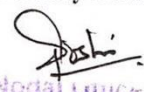
**VCK FOUNDRY
TECHNOLOGY**

Test Report- Microstructural Analysis of Graphite in Cast Iron

Lab ID- CS018		Test Certificate No.-VCKFT2131		Date- 22/03/2022	
Customer Name		Metasis Lab Shirol MIDC			
		Dev Metalliks			
Date of Sample Received		Date of Test Completion		Sample Name	
16/03/2022		22/03/2022		Escort Bearing Cap	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
22/03/2022	FT016	IS-7754:2018 ASTM-E-562:2011	--	5	FG 260
Test Details					
Etchant- Unetched			Etching Condition- NA		
					
Total Magnification-100X					
Predominantly Form I-Distribution A type of Graphite flakes are observed along with some amount of Form I-Distribution B type.					
Sample-1		ASTM Class			
Average		3-5			
Graphite type distribution	Type A(%)	Type B(%)	Type C(%)	Type D(%)	Type E(%)
Average	90 to 92	8 to 10	-	-	-
Tested By- 			For VCK Foundry Technology  Authorized Signator: B.Voc. & Community College Uni- Vivekanand College, Kolhapur		

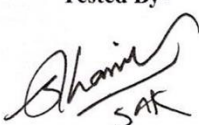



VCK FOUNDRY TECHNOLOGY

Test Report- Volume Fraction of phases					
Lab ID- CS018		Test Certificate No.- VCKFT2132		Date- 22/03/2022	
Customer Name		Metasis Lab Shirolu MIDC			
		Dev Metalliks			
Date of Sample Received		Date of Test Completion		Sample Name	
16/03/2022		22/03/2022		Escort Bearing Cap	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
22/03/2022	FT016	ASTM-E-1245:2016	--	--	FG 260
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.					
Ternary Phosphorus Eutectic is observed in Pearlitic matrix with following percentages.					
Sample-1	Frame Area(mm)	Pearlite (%)	Ferrite (%)	Steadite (%)	
Average	0.936	98.60	1.40	--	
Tested By-		For VCK Foundry Technology			
		 Nodal Officer B.V. Vastani Vivekanand College, Kolhapur			
-----End of Report-----					



**VCK FOUNDRY
TECHNOLOGY**

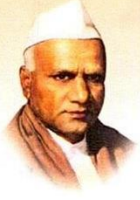
Test Report- Salt Spray Test					
Lab ID- CS018		Test Certificate No.- VCKFT2133		Date- 22/03/2022	
Customer Name		Metasis Lab Shirol MIDC			
		Dev Metalliks			
Date of Sample Received		Date of Test Completion		Sample Name	
16/03/2022		22/03/2022		M 12 x 160 Impeller , Zing Coating	
Challan Date	Challan No.	Test Method	Part No	Heat No	Quantity
22/03/2022	FT016	ASTM-E-2567-16a ASTM-E-1245:2016	--	-	2
Test Results					
Salt Spray Corrosion Test					
Salt Spray Solution- 5 % NaCl		pH - 6.82 (6.5- 7.5)			
Temp - 35 ⁰ C		RH - 99 %			
Duration - 100 Hrs.		Fog Collection - 1.63 ml / Hour			
Result					
Upto 24 Hrs		No White rust observed			
Upto 48 Hrs		No White rust observed			
Upto 72 Hrs		No White rust observed			
Upto 96 Hrs		No White rust observed			
Upto 100 Hrs		No White rust observed			
Upto 150 Hrs		No White rust observed			
Tested By-		For VCK Foundry Technology			
 SAK		 Authorized Signatory			

B.Voc. & Community College Unit
Vivekanand College, Kolhapur

r. College Recog. No. H.S.C./1074/R-1/DT : 8-8-1976
r. College Code No. 23-09-002
r. College U.Dise No. 27341301006

“ज्ञान, विज्ञान आणि सुसंस्कार यांसाठी शिक्षण प्रसार”
शिक्षणमहर्षी डॉ. बापूजी साळुंखे

Estd. : June 1964



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(स्वायत्त) कोल्हापूर

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M.Sc., B.Ed.

प्राचार्य

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M.Sc. M.Phil. Ph.D.

जावक क्रमांक वि.सी.के. /

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		CH. NO:		DATE -
		P.O.NO:-		DATE -
Sr. No.	Description	Qty in Nos.	Rate	Amount
1	Microstructure Analysis	8	500	4000
2	Volume Fraction	1	1450	1450
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		Total		7950.00
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		SGST @ 9 %		715.50
GSTIN -		Total Amount		9381
Amount In Words:- Nine Thousand Three Hundred Eighty One Only				
Pan No.-		For VCK Foundry Technology		
		<div>Signature</div> <div>Nodal Officer</div> <div>Authorised Signature</div> <div>B. Voc. & Community College Unit</div> <div>Vivekanand College, Kolhapur</div>		