



**VCK FOUNDRY
TECHNOLOGY**

Consultancy Work for Year 2021-2022

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
1	Tulip Casting Pvt. Ltd	Micro Structural Analysis	1	500
		Rockwell Hardness	1	500
		Mirco Hardness	3	1500
3	Turno Grind	Micro Structural Analysis of Nodular Cast Iron	1	500
		Salt Spray Test	2	2000
4	Bhakti Industries	Microstructural Analysis of Graphite in Cast Iron	2	1000
		C.P.C.	1	300
5	Bharat Auto Ind.	Microstructural Analysis of Graphite in Cast Iron	1	500
		Volume Fraction of phases	1	1450
		Salt Spray Test	1	1000
6	Top Gear Transmission.	G.F.N.	1	300
		Micro Structural Analysis of Nodular Cast Iron	1	500
		Volume Fraction of phases	1	1450



VCK **FOUNDRY**
TECHNOLOGY

7	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/-



Nodal Officer

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


दि विश्वेश्वर सहकारी बँक लि., पुणे (मल्टीस्टेट बँक)
The Vishweshwar Sahakari Bank Ltd., Pune (MULTI-STATE BANK)
LAXMIPURH-KOLHAPUR BRANCH : Nashik Complex, Kolhapur-416 002

"Valid for 3 months from the date of issue"

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D D M M Y Y Y Y

Pay The Principal Vivekanand College Kolhapur or Bearer
Rupees रुपये
Fourty Five Thousand Three
Hundred Seventy One Only अदा करें।
₹ 45371/-

For METASIS LAB


PROPRIETOR

Please sign above

Current A/c. No.: 022130100000209

PAYABLE AT PAR AT ALL OUR BRANCHES

902000004034220

IFSC - VSB10000022



11085714 416335002 000209 11



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.

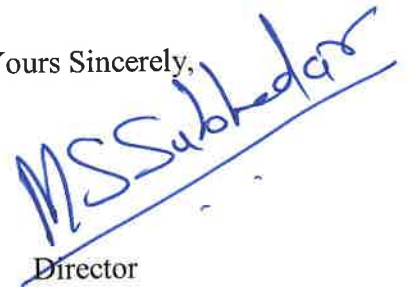
Respected Authority,

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

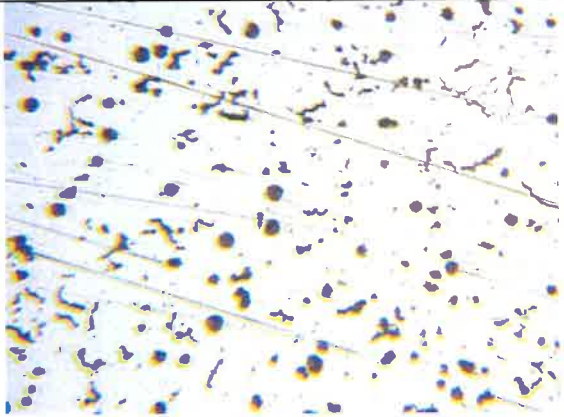
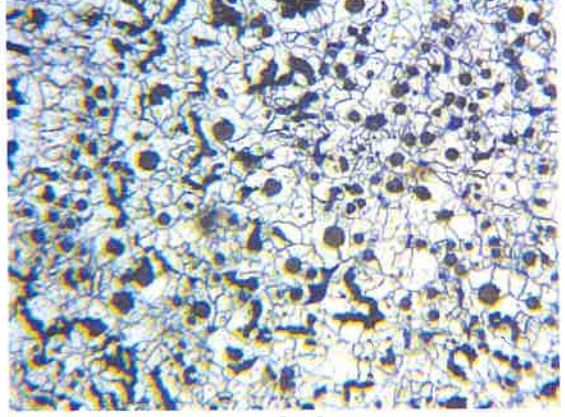


Metasis Lab

- 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

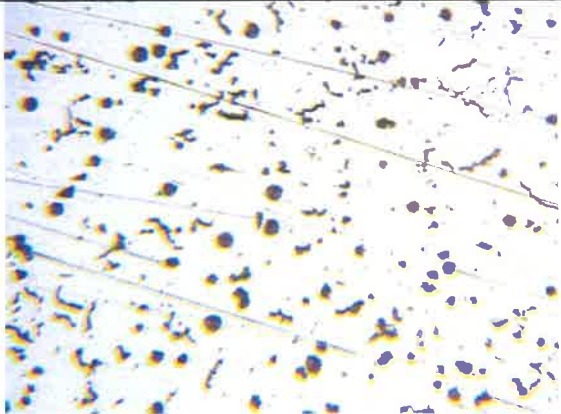
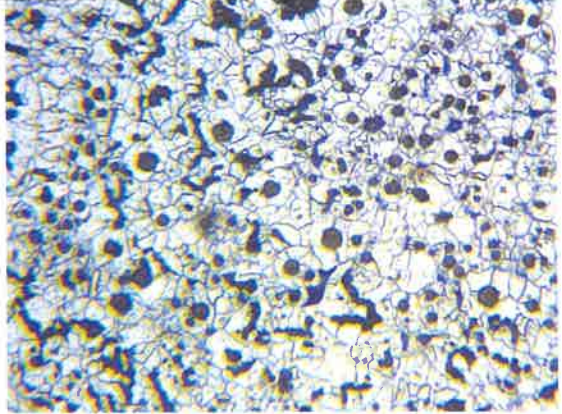
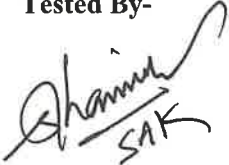
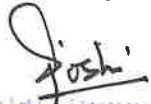


VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- CS001		Test Certificate No.-VCKFT202101		Date- 06/10/2021	
Customer Name		Metasis Lab 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- 4% Nital			Etching Condition- Immersion-Etching		
 <p style="text-align: center;">Unetched</p>			 <p style="text-align: center;">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-----

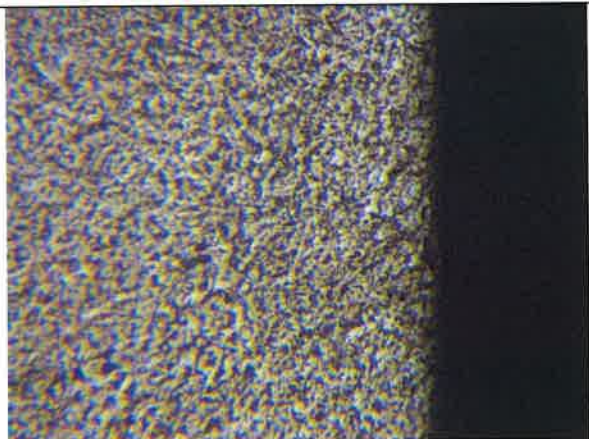
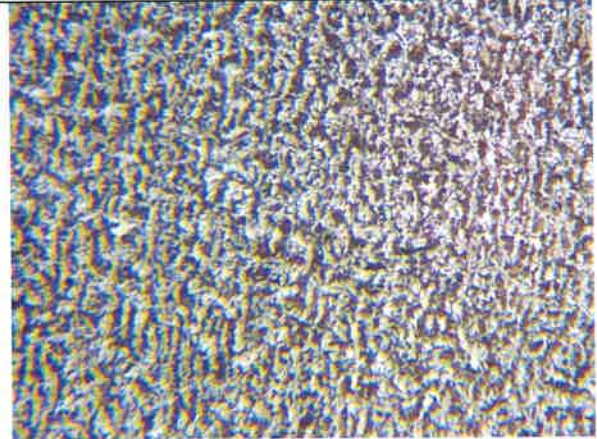
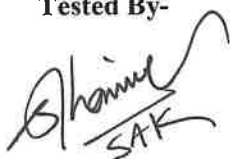
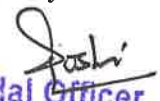


Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- CS001		Test Certificate No.- VCKFT202102		Date- 06/10/2021	
Customer Name		Metasis Lab Shiroli MIDC			
		Accura Tech Castings Pvt. Ltd.			
Date of Sample Received		Date of Test Completion		Sample Name	
05/10/2021		06/10/2021		Sample	
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- 5% Nital			Etching Condition- Immersion-Etching		
 <p style="text-align: center;">Unetched</p>			 <p style="text-align: center;">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		
			 Nodular Castings B.Voc. & Control Engg. College Umri Vivekanand College, Kolhapur		

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




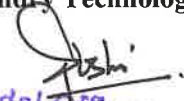
VCK FOUNDRY TECHNOLOGY

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-		For VCK Foundry Technology			
		 Nodal Officer B.Voc. & Community College Unit Authorized Signatory Vivekanand College, Kolhapur			

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



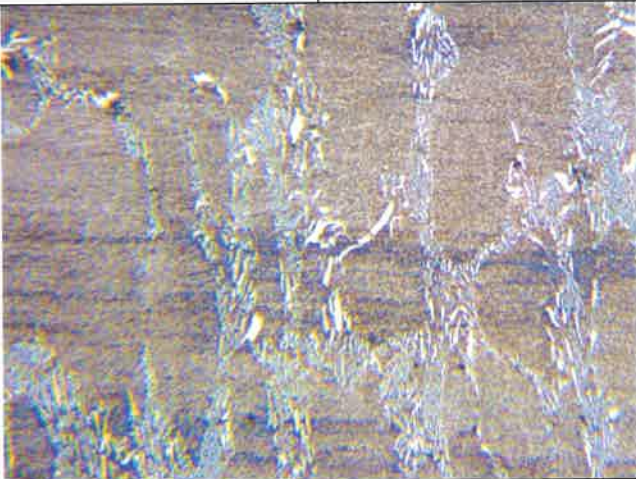

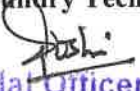
**VCK FOUNDRY
TECHNOLOGY**

Test Report- Mirco Hardness					
Lab ID- CS002		Test Certificate No.- VCKFT202104		Date- 09/10/2022	
Customer Name		Metasis Lab Shirol 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					
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. & Govt. Signatory College Unit Vivekanand College, Kolhapur		

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

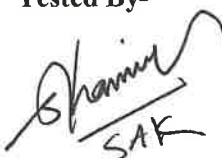
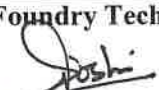


**VCK FOUNDRY
TECHNOLOGY**

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		
			 Nodal Officer B.Voc. & Community College Unit Authorized Signatory Vivekanand College, Kolhapur		
			-----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-  SAK			For VCK Foundry Technology  Nodal Officer B.Voc. & Community College Unit Vivekanand College, Kolhapur		

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



विवेकानंद कॉलेज, कोल्हापूर (स्वायत्त)

२९३०, ई, ताराबाई पार्क, कोल्हापूर, ता. करवीर, जि. कोल्हापूर - ४९६ ००३
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.Lt.

अध्यक्ष
मा. आमदार चंद्रकांत दादा पाटील
MLA

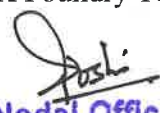
कार्याध्यक्ष
प्राचार्य अभयकुमार साळुंखे
M.A.

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.	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		
		 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: 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,

MSSubhedas
Director

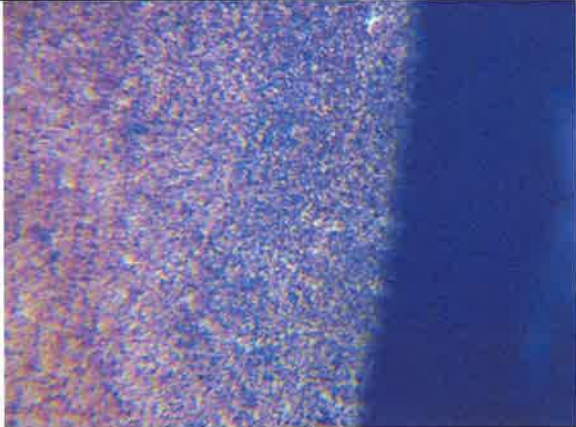
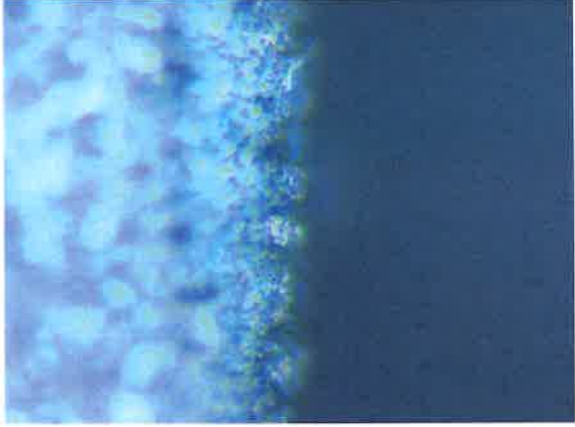


Metasis Lab

- 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


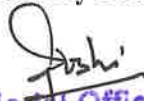
Test Report- Micro Structural Analysis					
Lab ID- CS004		Test Certificate No.-VCKFT202107		Date- 11/11/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Tulip Casting Pvt. Ltd			
Date of Sample Received		Date of Test Completion		Sample Name	
11/11/2021		11/11/2021		Telcon Pin-X-966	
Challan Date	Challan 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		
			 Authorized Signatory Anil Bhaer		

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



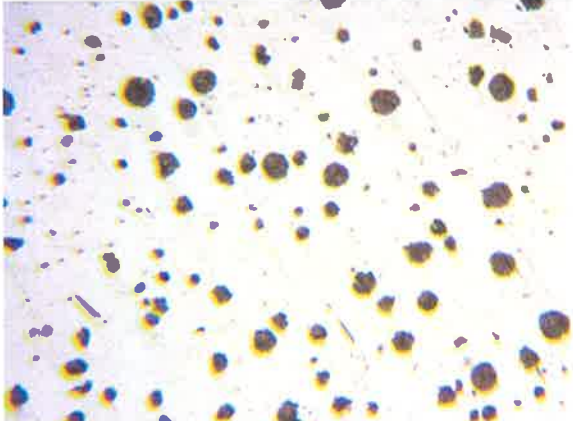
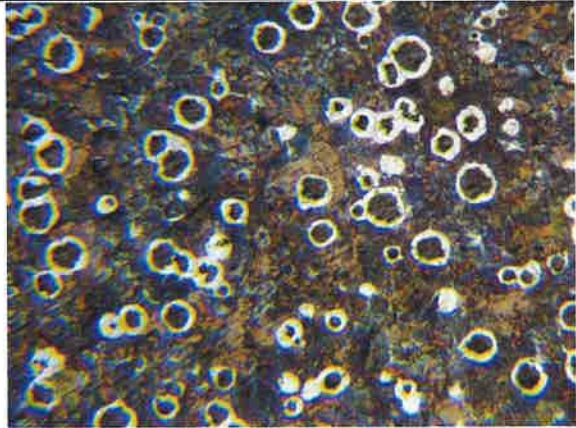


**VCK FOUNDRY
TECHNOLOGY**

Test Report- Mirco Hardness					
Lab ID- CS004		Test Certificate No.- VCKFT202109		Date- 09/10/2022	
Customer Name		Metasis Lab Shirol 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					
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



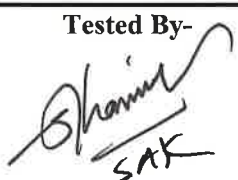

VCK FOUNDRY TECHNOLOGY

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 style="text-align: center;">Unetched</p>			 <p style="text-align: center;">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-----



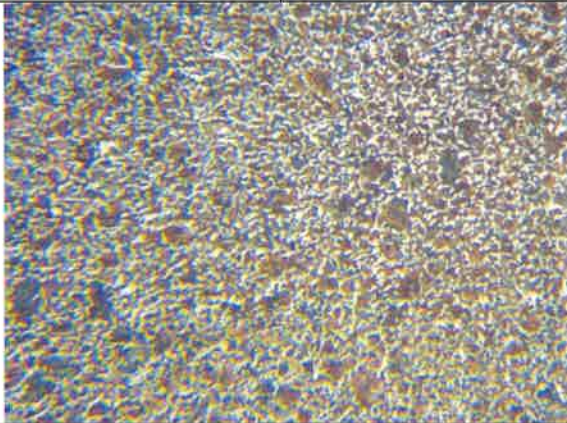
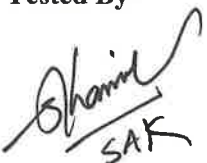
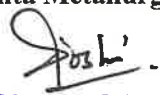
**VCK FOUNDRY
TECHNOLOGY**

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-  SAK			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-		For Atlanta Metallurgical Services			
 SAK		 Nodal Officer Authorized Signatory B.V.O.S 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 Shiroli 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-

Shamir
SAK

For Atlanta Metallurgical Services

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

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



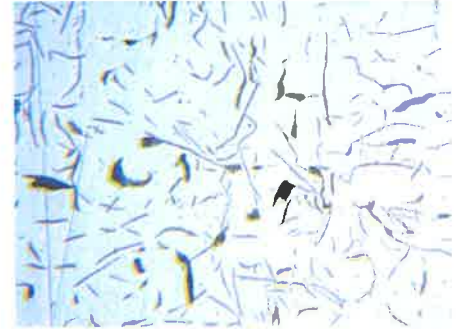
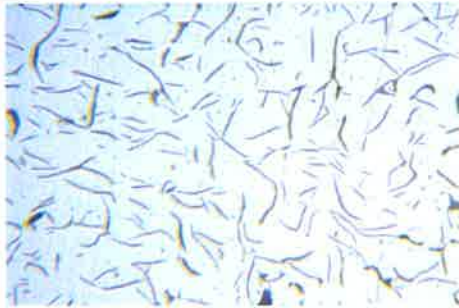
**VCK FOUNDRY
TECHNOLOGY**

Test Report- Microstructural Analysis of Graphite in Cast Iron

Lab ID- CS009		Test Certificate No.-VCKFT14			Date- 29/11/2021	
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	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-

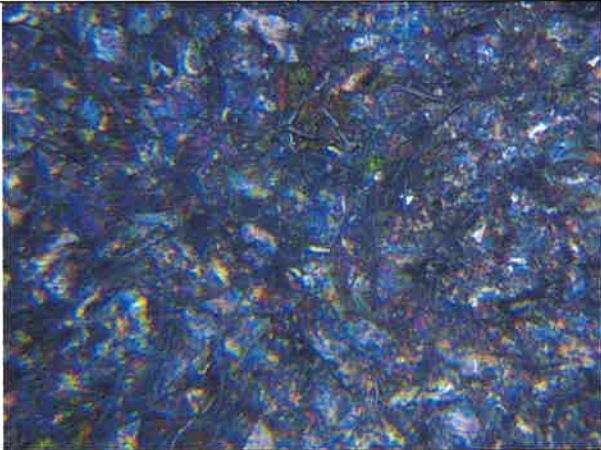
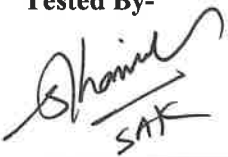
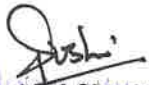
Shamir
SAK

For VCK Foundry Technology

Shamir
Notary Officer
Authorized Signator
B.Voc. & Community College U.
Vivekanand College, Kolhapur



**VCK FOUNDRY
TECHNOLOGY**

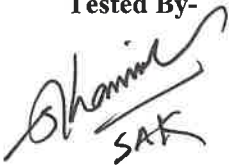

Test Report- Volume Fraction of phases					
Lab ID- CS009		Test Certificate No.- VCKFT15		Date- 29/11/2021	
Customer Name		Metasis Lab Shiroli MIDC			
		Bharat Auto Ind.			
Date of Sample Received		Date of Test Completion		Sample Name	
26/11/2021		29/11/2021		Escort Bearing Cap	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
29/11/2021	FT007	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		
			 Authorised Signatory		

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

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



**VCK FOUNDRY
TECHNOLOGY**

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-			For VCK Foundry Technology		
					
			Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur		

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



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

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

शिवाजी विद्यापीठ, कोल्हापूर संलनीत

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
प्राचार्य 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

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
Total Amount				10915

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 -

GSTIN - 27APEPS8440R3ZX

Amount In Words:- Ten Thousand Nine Hundred Fifteen Only

Pan No.- For VCK Foundry Technology

[Signature]
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.metalltestinglab.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.

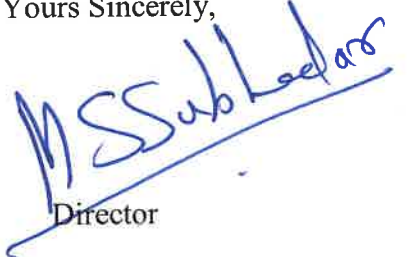
Respected Authority,

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

- **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

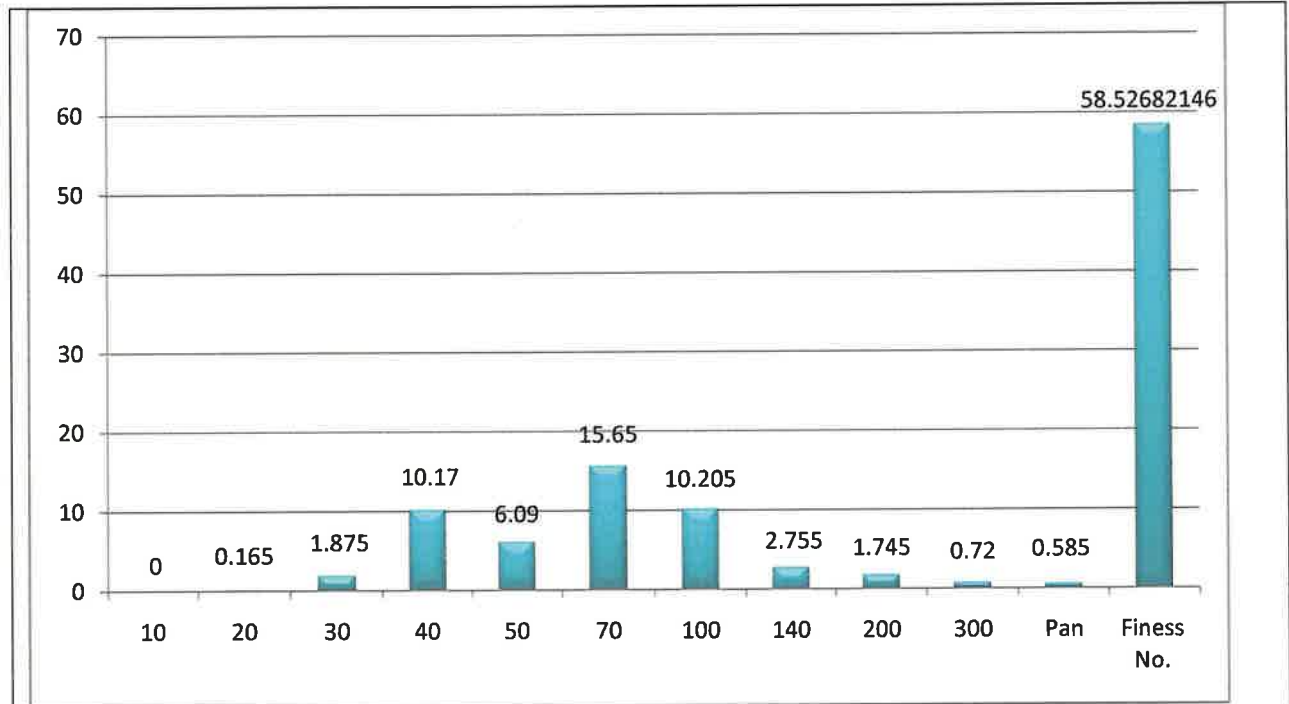


VCK FOUNDRY
TECHNOLOGY

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-

Ahmad
SAR

For VCK Foundry Technology

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

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


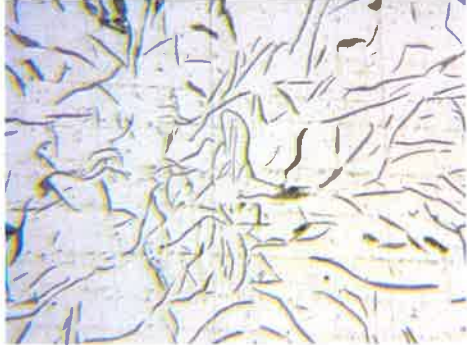


**VCK FOUNDRY
TECHNOLOGY**

Test Report- Microstructural Analysis of Graphite in Cast Iron

Lab ID- CS0013		Test Certificate No.- VCKFT2118			Date- 04/12/2021	
Customer Name		Metasis Lab Shiroli 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-

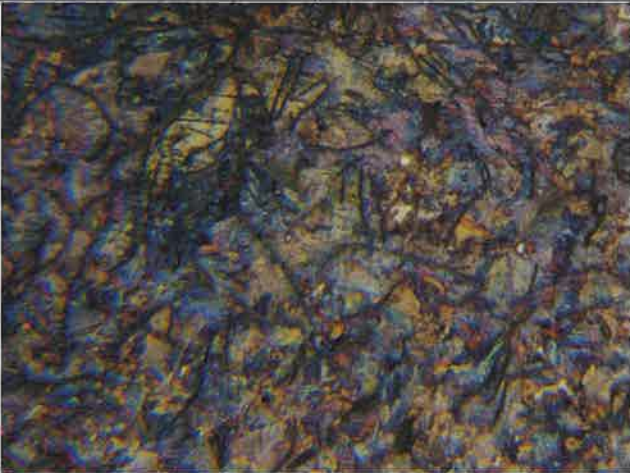
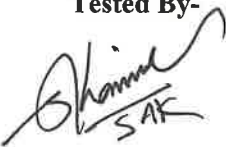

Shamir
SAK

For VCK Foundry Technology

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



VCK FOUNDRY TECHNOLOGY

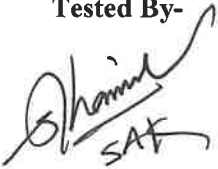

Test Report- Volume Fraction of phases					
Lab ID- CS0013		Test Certificate No.- VCKFT2119		Date- 04/12/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Top Gear Transmission			
Date of Sample Received		Date of Test Completion		Sample Name	
02/12/2021		04/12/2021		Cover for Oil	
Challan Date	Challan 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-			For VCK Foundry Technology		
			 Nodal Officer Authorized Signatory		

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

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



**VCK FOUNDRY
TECHNOLOGY**

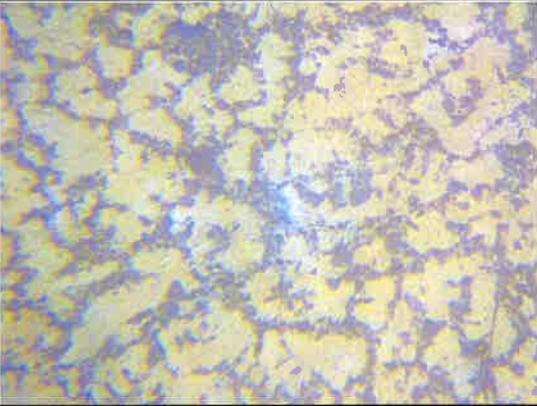

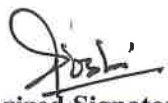
Test Report- Brinell Hardness					
Lab ID- CS006		Test Certificate No.-VCKFT2120		Date- 10/12/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Bhakti Industries			
Date of Sample Received		Date of Test Completion		Sample Name	
07/12/2021		10/12/2021		Plate	
Challan Date	Challan No.	Test Method	Heat 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		
					

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



VCK FOUNDRY TECHNOLOGY

Test Report- Grain Size Measurement

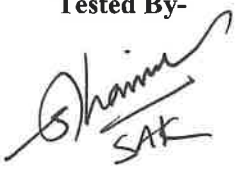

Lab ID- CS006		Test Certificate No.- VCKFT2121			Date- 10/12/2021			
Customer Name		Metasis Lab Shirol MIDC						
		Bhakti Industries						
Date of Sample Received		Date of Test Completion			Sample Name			
07/12/2021		10/12/2021			4X600-GTV Body-C-Side			
Challan Date	Challan No.	Test Method			Heat No.	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

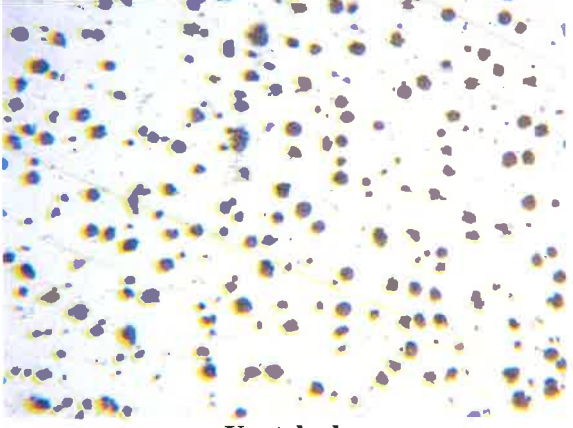
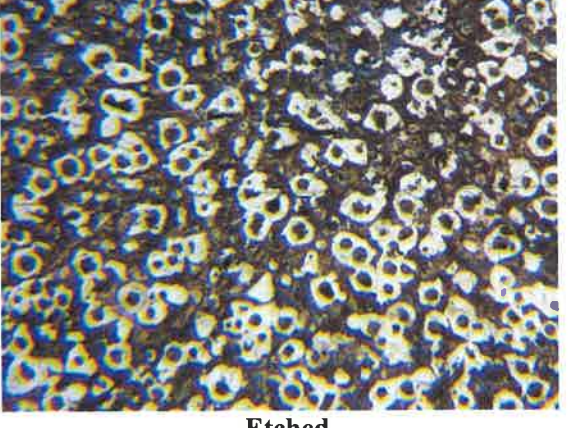


Test Report- Mirco Hardness					
Lab ID- CS001		Test Certificate No.-VCKFT2122		Date- 18/12/2021	
Customer Name		Metasis Lab Shirol MIDC			
		Accura Tech Castings Pvt. Ltd.			
Date of Sample Received		Date of Test Completion		Sample Name	
15/12/2021		18/12/2021		R.A. Support	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
18/12/2021	FT010	ASTM-E-92	-	-	
Test Details					
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 Shirol 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 style="text-align: center;">Unetched</p>			 <p style="text-align: center;">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		
			 Authorized Signatory B.Voc. & Community College Unit Vivekanand College, Kolhapur		
-----End of Report-----					



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
प्राचार्य 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

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

- 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					
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		



VCK FOUNDRY
TECHNOLOGY

PA 5603	6 mm	278 - 280
PB 5604	6 mm	272 - 274
P 6223	4 mm	260 - 262

Tested By-

Ashwin
SAK

For VCK Foundry Technology

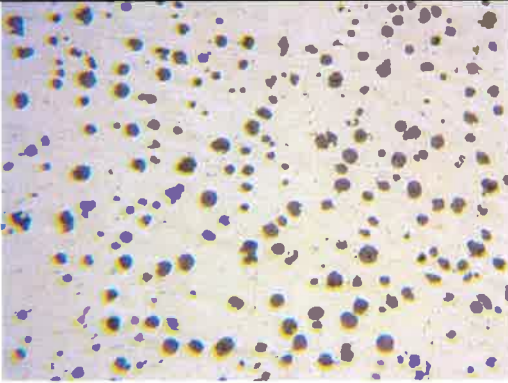
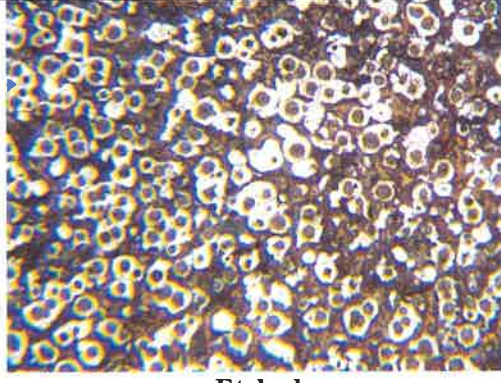


Joshi

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

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



VCK FOUNDRY TECHNOLOGY

Test Report- 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		
 Unetched			 Etched		
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		
 SAR			 Nodal Officer Authorized Signatory		

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

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



**VCK FOUNDRY
TECHNOLOGY**

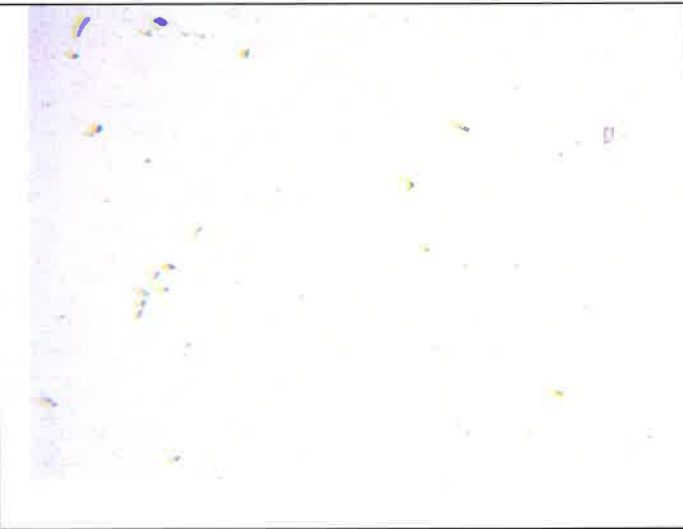


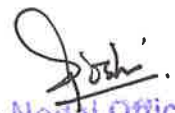
Test Report- Inclusion Rating of Steel									
Lab ID- CS024			Test Certificate No.-VCKFT2126			Date- 18/01/2022			
Customer Name			Metasis Lab Shirol MIDC						
			Impel Founders Pvt. Ltd.						
Date of Sample Received			Date of Test Completion		Sample Name				
12/01/2022			18/01/2022		ShifterFinger-GB60-Smith & 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-					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-----



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

२९३०, ई, ताराबाई पार्क, कोल्हापूर, ता. करवीर, जि. कोल्हापूर - ४९६ ००३
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 व्हि.सी.के. /

दिनांक :

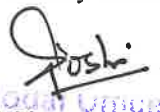
INVOICE

The Metasis Lab		INVOICE NO.	2204	DATE -	29.01.2022
Shiroli MIDC		T.C. No.-	As per report	DATE -	
Kolhapur-416122		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


Nodal Officer
Authorised Signature
P.V.C. & 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.

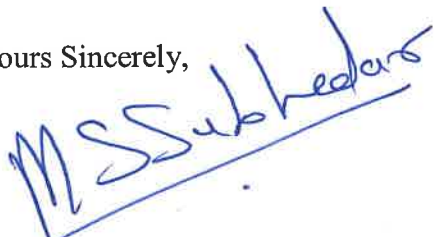
Respected Authority,

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


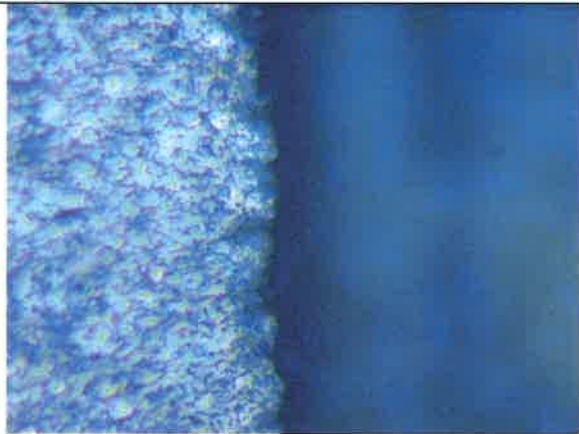
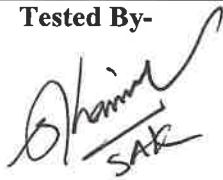
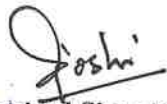
Metasis Lab

- **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



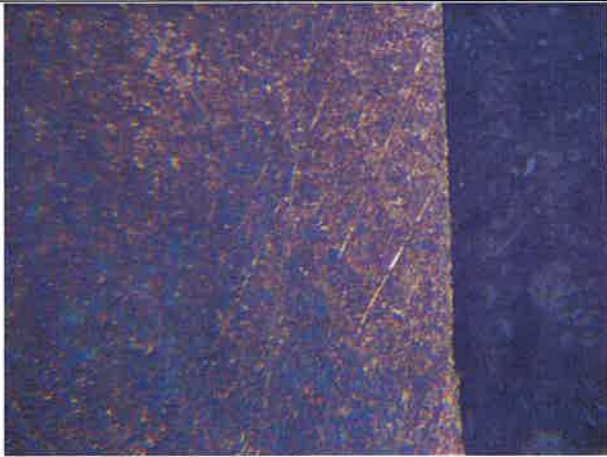
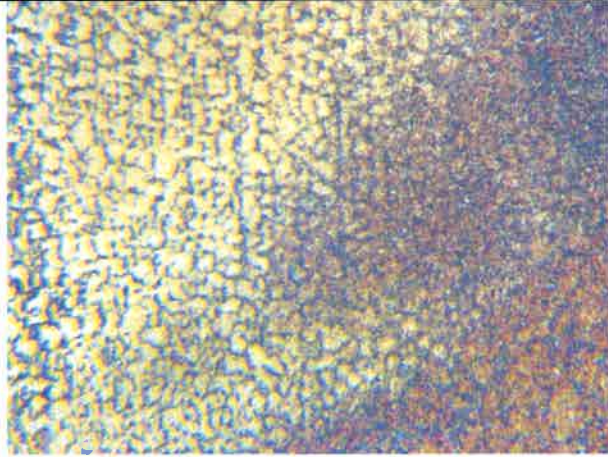
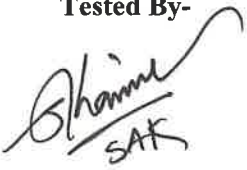

VCK FOUNDRY TECHNOLOGY

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 μm) 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

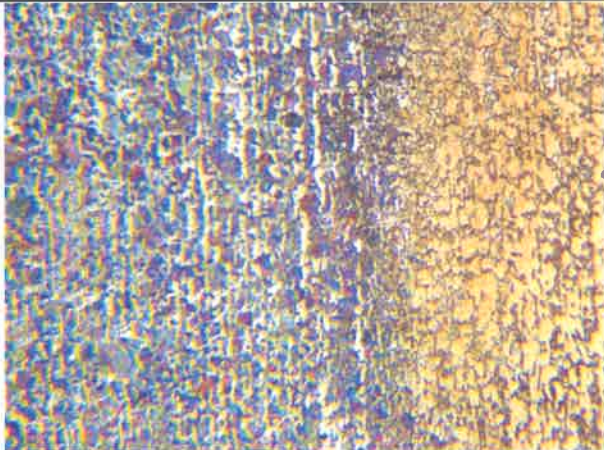
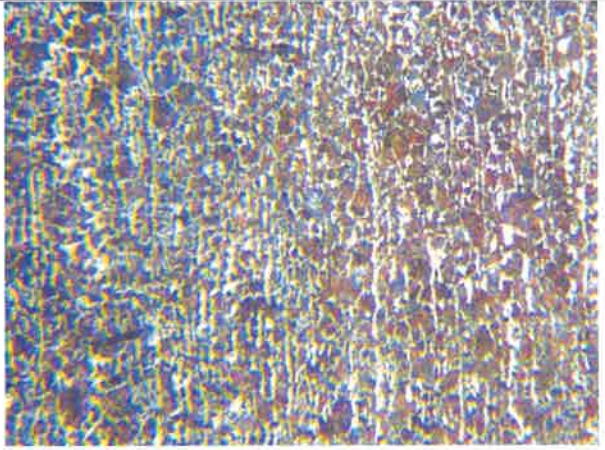


Test Report- Micro Structural Analysis					
Lab ID- CS011		Test Certificate No.-VCKFT2129		Date- 10/03/2022	
Customer Name		Metasis Lab Shirol MIDC			
		India Engineers			
Date of Sample Received		Date of Test Completion		Sample Name	
08/03/2022		10/03/2022		Shaft B-C-Range-R-138533	
Challan Date	Challan 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		
 <p>Near Surface</p>			 <p>From 1.5mm to 2.5mm</p>		
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		

Continued on next page-



VCK FOUNDRY TECHNOLOGY

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**

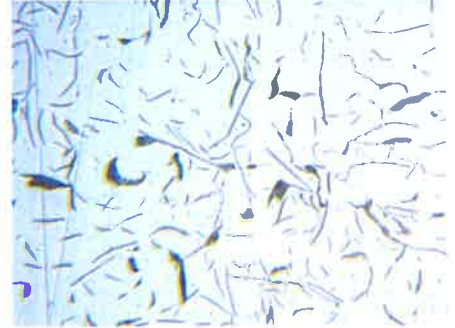
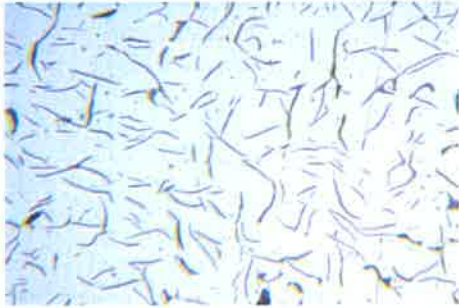
Test Report- Microstructural Analysis of Graphite in Cast Iron

Lab ID- CS018		Test Certificate No.-VCKFT2131			Date- 22/03/2022	
Customer Name		Metasis Lab Shiroli 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-

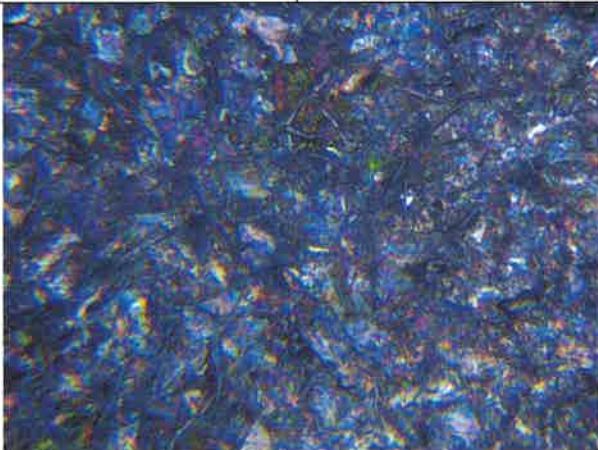


Shamir SAK

For VCK Foundry Technology

Joshi
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 Shiroli 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 Authorized Signatory B. V. Joshi Vivekanand College, Kolhapur		

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

B. V. Joshi
Vivekanand College, Kolhapur



**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		
					
			Authorized Signatory		

B. Veda. & Commerce College (W)
Vivekanand College - Kolhapur



विवेकानंद कॉलेज, कोल्हापूर (स्वायत्त)

२९३०, ई, ताराबाई पार्क, कोल्हापूर, ता. करवीर, जि. कोल्हापूर - ४९६ ००३

शिवाजी विद्यापीठ, कोल्हापूर संलग्नीत

नेक 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

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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

INVOICE				
The Metasis Lab Shiroli MIDC Kolhapur-416122		INVOICE NO.	2205	DATE - 29.03.2022
		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	8	500	4000
2	Volume Fraction	1	1450	1450
3	Salt Spray Test Hrs	250	10	2500
		Total		7950.00
		CGST @ 9 %		715.50
		SGST @ 9 %		715.50
GSTIN -		Total Amount		9381
Amount In Words:- Nine Thousand Three Hundred Eighty One Only				
Pan No.-		For VCK Foundry Technology		
		 Nodal Officer Authorised Signature B.Voc. & Community College Unit Vivekanand College, Kolhapur		