



**VCK FOUNDRY
TECHNOLOGY**

Consultancy work for Academic year 2020-2021

Sr. No	Name of Company	Test Required	No. of Samples	Date	Amount
1	Prashant Enterprises	Micro Structural Analysis of Nodular Cast Iron	1	10-12-2020	1000
2	Yashoda Iron Industries	Microstructural Analysis of Graphite in Cast Iron	1	10-12-2020	1000
3	Padmavati Auto Components	Micro Structural Analysis of Nodular Cast Iron	2	15-12-2020	2000
4	Padmavati Auto Components	Micro Structural Analysis of Nodular Cast Iron	2	15-12-2020	2000
5	Baramati Engineering Pvt. Ltd.	Grain Size Measurement	2	19-12-2020	2000
6	Manugraph India Ltd.	Micro Structural Analysis	1	29-12-2020	1000
7	Babasaheb Industries	Micro structural Analysis of Graphite in Cast Iron	1	05-01-2021	1000
8	Siddhivinayak Founders	Volume Fraction of phases	1	08-01-2021	1450
9	IndraniTechnocrafts	Micro Structural Analysis	1	11-01-2021	1000
10	Maurya Industries	Micro Structural Analysis of Nodular Cast Iron	1	19-01-2021	1000
11	Yashoda Iron Industries	Volume Fraction of phases	1	21-01-2021	1450
12	Prashant Enterprises	Micro Structural Analysis of Nodular Cast Iron	1	28-01-2021	1000
13	Perfect Pins	Micro Structural Analysis	2	04-02-2021	2000
14	Baramati Engineering Pvt. Ltd.	Grain Size Measurement	1	06-02-2021	1000



**VCK FOUNDRY
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16	Padmavati Auto Components	Micro Structural Analysis of Nodular Cast Iron	1	09-02-2021	1000
17	Unique Auto Assemblies Pvt. Ltd.	Micro structural Analysis of Graphite in Cast Iron	1	09-02-2021	1000
18	Unique Auto Assemblies Pvt. Ltd.	Volume Fraction of phases	1	17-02-2021	1450
19	Manugraph India Ltd.	Micro Structural Analysis	1	22-02-2021	1000
20	Siddhivinayak Founders	Microstructural Analysis of Graphite in Cast Iron	1	22-02-2021	1000
21	Babasaheb Industries	Volume Fraction of phases	1	03-03-2021	1450
22	Baramati Engineering Pvt. Ltd.	Grain Size Measurement	1	12-03-2021	1000
23	Unique Auto Assemblies Pvt. Ltd.	Micro Structural Analysis	2	15-03-2021	2000
24	Dattachaya Chains Pvt. Ltd.	Micro Structural Analysis	1	19-03-2021	1000
Total Amount					29800

Consultancy Amount Distribution

To Department	11920/-
To College	17880/-



Joshi

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

INVOICE

The Principal Vivekanand College Tarabai Park , Kolhapur		INVOICE NO. 102	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
SAC CODE - 998346		Total		5000.00
		CGST @ 9 %		450.00
		SGST @ 9 %		450.00
GSTIN - 27APEPS8440R3ZX		Total Amount		5900
Amount In Words:- Five Thousand Nine Hundred Only				
Pan No.- APEPS8440R		For Metasis Lab		
Subject to Kolhapur Jurisdiction Only		Authorised Signature <i>MSSabhedas</i>		

P.T.O. - Terms & Conditions



METASIS LAB

Chemical, Physical, Metallurgical Testing of Metals, Noise, Vibration,
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B-13, Opp. Kolhapur Axle Ltd., MIDC Shirol, Kolhapur - 416122. Cell : +9922437590, 7721995959,
Email : kolhapurmetasys@gmail.com, metasyslab@rediffmail.com, Website : www.metaltestinglab.net

INVOICE

The Principal		INVOICE NO.	552	DATE - 30.11.2021
Vivekanand College		T.C. No.- As per report		DATE -
Tarabai Park , Kolhapur		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
SAC CODE - 998346				
GSTIN - 27APEPS8440R3ZX		Total Amount		10915
Amount In Words:- Ten Thousand Nine Hundred Fifteen Only				
Pan No.- APEPS8440R		For Metasis Lab		
Subject to Kolhapur Jurisdiction Only		Authorised Signature		

P.T.O. - Terms & Conditions



ATLANTA

METALLURGICAL SERVICES

Gat No. 194, Hanuman nagar, Shiye, MIDC Shirol, Kolhapur. 416 122
Email : atlantametalab@gmail.com Cell: +91-8421246069 +91-9595401694

- Metallurgical Testing
- Failure Analysis
- Heat Treat Process Analysis
- Material Solutions
- Metallurgical Consulting

Date: 05/12/2020

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

Subject: To provide collaborated testing and consultancy services.

Respected sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are 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,

Vatharaj

Director

Atlanta Metallurgical Services



**VCK FOUNDRY
TECHNOLOGY**

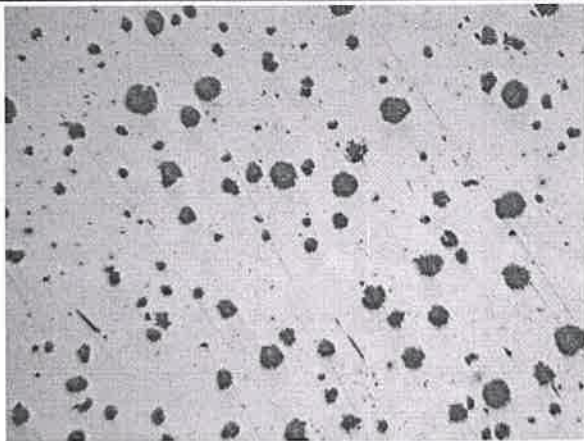
+Test Report- Micro Structural Analysis of Nodular Cast Iron

Lab ID- M 2773		Test Certificate No.- 2018011951		Date- 10/12/2020	
Customer Name		Prashant Enterprises			
		MIDC Shirol, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
08/12/2020		10/12/2020		AT-50 (18ID) Gear	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
10/12/2020	1270	ASTM-E-2567-16a ASTM-E-1245:2016	--	PE-122-08-A-19	SG-500/7

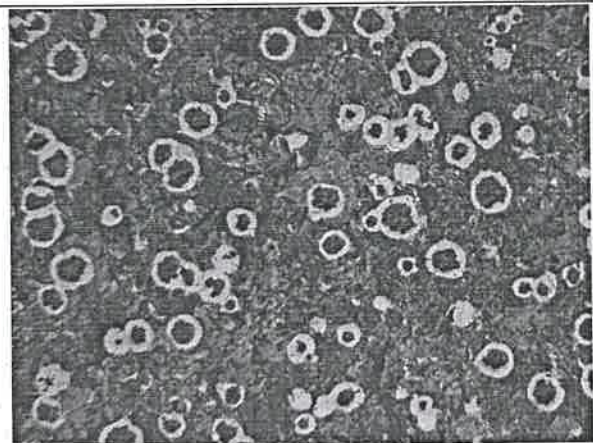
Test Results

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 (mm²)	0.959 mm ²	Pearlite (%)	84.20
Nodularity (%)	94%	Ferrite (%)	15.80
Nodule Count/mm²	145	Carbide (%)	-

Tested By-

S.A.K.
S.A.K.

For VCK Foundry Technology

Authorized Signatory

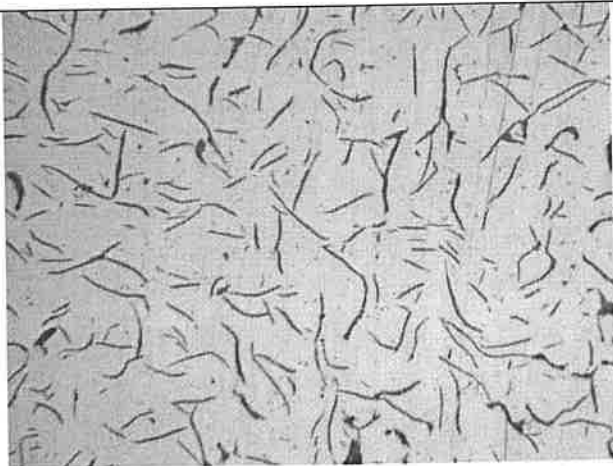
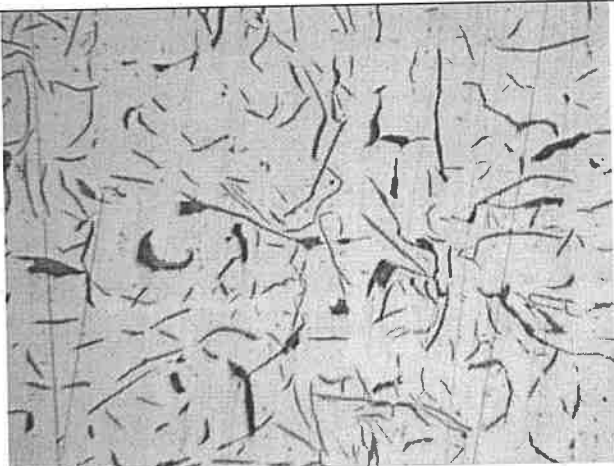
Joshi
Nodal Officer

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

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



Test Report- Microstructural Analysis of Graphite in Cast Iron

Lab ID- M 2768		Test Certificate No.-201901194		Date- 10/12/2020	
Customer Name		Yashoda Iron Industries			
		Plot No.- 2/3, Shirol MIDC, Kolhapur			
Date of Sample Received		Date of Test Completion		Sample Name	
07/12/2020		10/12/2020		Escort Bearing Cap	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
10/12/2020	39	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	-	-	-



**VCK FOUNDRY
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Tested By-

Shamir
S.A.K.

For VCK Foundry Technology

Authorized Signatory

[Signature]

End of Report

Nodal Officer

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



VCK FOUNDRY TECHNOLOGY

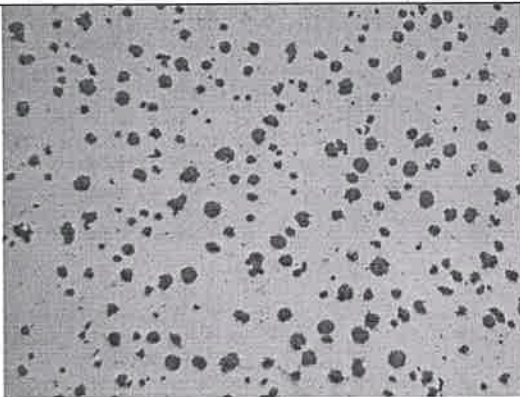
Test Report- Micro Structural Analysis of Nodular Cast Iron

Lab ID- M 2769		Test Certificate No.-2015011943		Date- 15/12/2020	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
14/12/2020		15/12/2020		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
15/12/2020	117	ASTM-E-2567-16a ASTM-E-562:2011 ASTM-E-1245:2016	R 542513	256	--

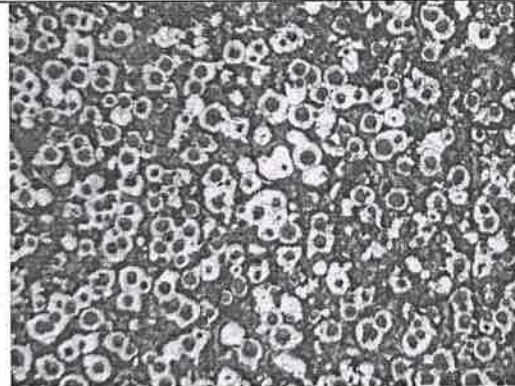
Test Results

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

Shamir S.A.K

Joshi

Authorized Signatory

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

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

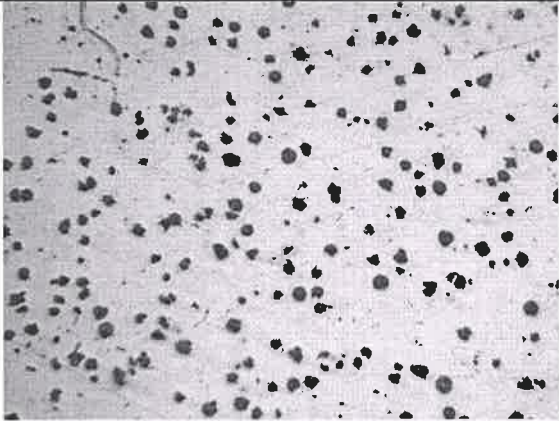
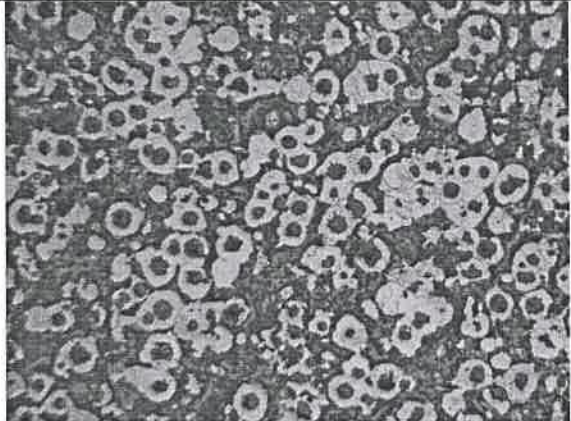


**VCK FOUNDRY
TECHNOLOGY**

Test Report- Micro Structural Analysis of Nodular Cast Iron

Lab ID- M 2770		Test Certificate No.-17011955		Date- 15/12/2020	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
14/12/2020		15/12/2020		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
14/12/2020	126	ASTM-E-2567-16a ASTM-E-562:2011 ASTM-E-1245:2016	R 542513	278	--

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 (%)	59.80	Cementite (%)	-
Nodularity (%)	95%	Ferrite (%)	40.20	Ledeburite (%)	-
Nodule Count/mm ²	233				

Tested By-

(Signature)
S.A.K

For VCK Foundry Technology

(Signature)
Authorized Signatory

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



VCK FOUNDRY TECHNOLOGY

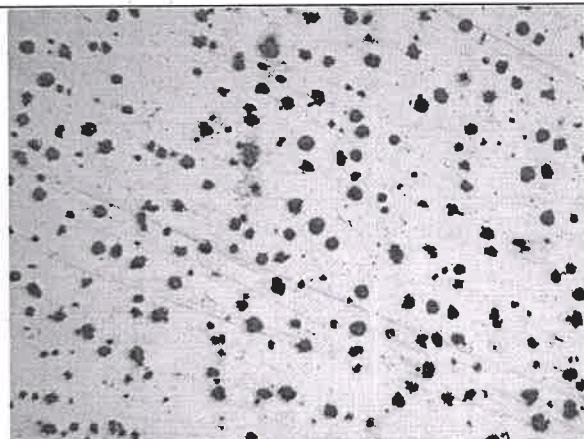
Test Report- Micro Structural Analysis of Nodular Cast Iron

Lab ID- M 2771		Test Certificate No.-2017011956		Date- 15/12/2020	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
14/12/2020		15/12/2020		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
14/12/2020	118	ASTM-E-2567-16a ASTM-E-562:2011 ASTM-E-1245:2016	R 542513	264	--

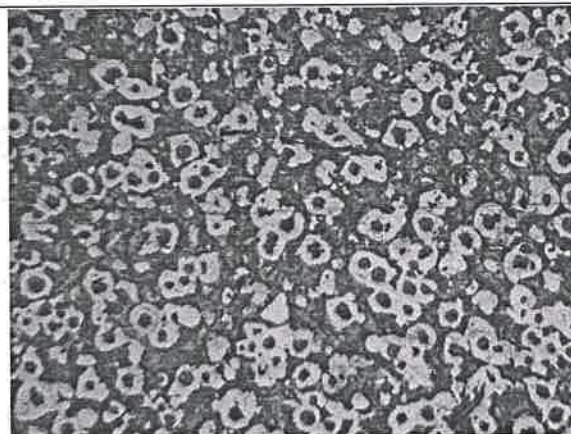
Test Results

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 (mm²)	0.959 mm ²	Pearlite (%)	61.30	Cementite (%)	-
Nodularity (%)	96%	Ferrite (%)	38.70	Ledeburite (%)	-
Nodule Count/mm²	236				

Tested By-

For VCK Foundry Technology

(Signature)
S.A.K.

(Signature)
Authorized Signatory

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

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



VCK FOUNDRY TECHNOLOGY

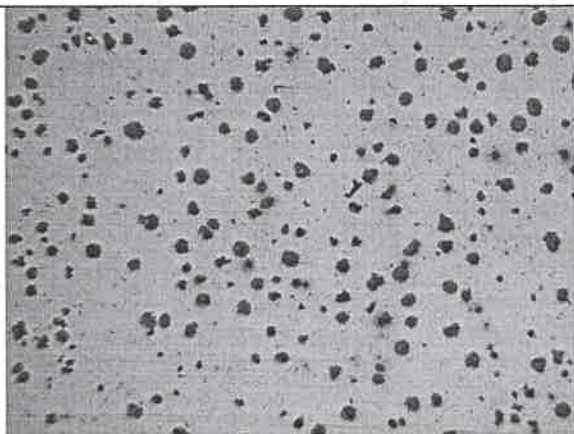
Test Report- Micro Structural Analysis of Nodular Cast Iron

Lab ID- M 2778		Test Certificate No.-18011950		Date- 15/12/2020	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
14/12/2020		15/12/2020		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
14/12/2020	127	ASTM-E-2567-16a ASTM-E-562:2011 ASTM-E-1245:2016	R 542513	286	--

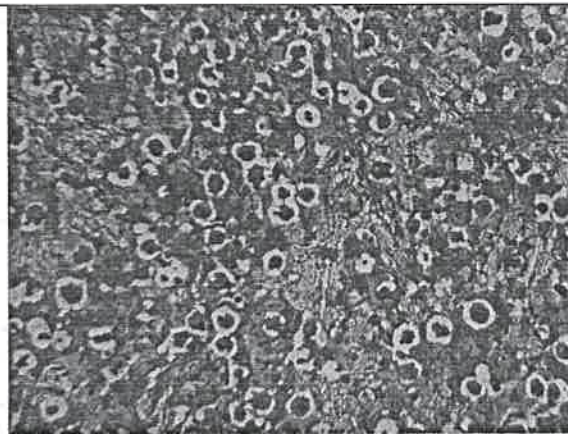
Test Results

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 (mm²)	0.959 mm ²	Pearlite (%)	72.30	Cementite (%)	4.60
Nodularity (%)	94%	Ferrite (%)	17.30	Ledeburite (%)	5.80
Nodule Count/mm²	218				

Tested By

Shamir S.A.K.

For VCK Foundry Technology

Joshi
Authorized Signatory

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

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



**VCK FOUNDRY
TECHNOLOGY**

Test Report- Grain Size Measurement

Lab ID- M 2767		Test Certificate No.-201501194		Date- 19/12/2020	
Customer Name		Baramati Engineering Pvt. Ltd.			
		C-8-11,24; Baramati Co-Op. Ind. Estate, Bhigwan Road, Baramati.			
Date of Sample Received		Date of Test Completion		Sample Name	
15/12/2020		12/12/2020		20X150-Lower Cap-O. D. Face	
Challan Date	Challan No.	Test Method	Heat No.	Heat Lot No.	Grade
12/12/2020	01	ASTM-E-112:2013	B-9920	N-608 T-609	ASTM A216 WCC
Qualifying Heat Nos.	B-9923,B-9912,B-9918	B-9913,B-9923	B-9951,B-9923	B-9948,B-9925,B-9951	B-9918,B-9913
Qualifying Part	20"#150-Lower Cap	20"#150-Upper Cap	12"#300-Upper Cap	12"#300-Lower Cap	12"#300-Plug

Test Details

Etchant- 4% Nital	Etching Condition- Immersion-Etching
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Total Magnification-100X

Specimen Dimension-	Replica-O.D. Face
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-----


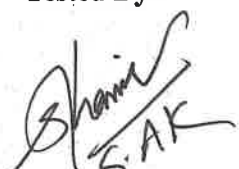

Nodal Officer

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



**VCK FOUNDRY
TECHNOLOGY**

Test Report- Grain Size Measurement

Lab ID- M 2800		Test Certificate No.-202001199			Date- 19/12/2020			
Customer Name		Baramati Engineering Pvt. Ltd.						
		C-8-11,24; Baramati Co-Op. Ind. Estate, Bhigwan Road, Baramati.						
Date of Sample Received		Date of Test Completion			Sample Name			
15/12/2020		19/12/2020			4X600-GTV Body-L-Side			
Challan Date	Challan No.	Test Method			Heat No.	Heat Lot No.		Grade
15/12/2020	01	ASTM-E-112:2013			B-9919	N-613 T-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-L-Side						
Type of Grain Determined-		Equiaxed-Ferrite-Pearlitic-Grains are observed, 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				

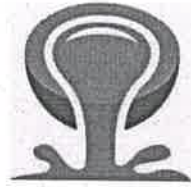
-----End of Report-----

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



Test Report- Micro Structural Analysis					
Lab ID- M 2781		Test Certificate No.-20011914		Date- 29/12/2020	
Customer Name		Manugraph India Ltd.			
		Unit No.-2, Kodoli, Panhala, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
28/12/2020		29/12/2020		Test Piece-D3-Tool Steel	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
28/12/2020	117098	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		
			Authorized Signatory		

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



**VCK FOUNDRY
TECHNOLOGY**

Tested By-

Shamir
S.A.K

For VCK Foundry Technology

Josh

Authorized Signatory

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

Nodal Officer

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



ATLANTA

METALLURGICAL SERVICES

Gat No. 194, Hanuman nagar, Shiye, MIDC Shirol, Kolhapur. 416 122
Email : atlantametalab@gmail.com Cell: +91-8421248089 +91-9595401694

- Metallurgical Testing
- Failure Analysis
- Heat Treat Process Analysis
- Material Solutions
- Metallurgical Consulting

Date: 04/01/2020

To,

Nodal Officer

Department of Foundry Technology,

Vivekanand College (Autonomous),

Kolhapur.

Subject: To provide collaborated testing and consultancy services.

Respected sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are 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,

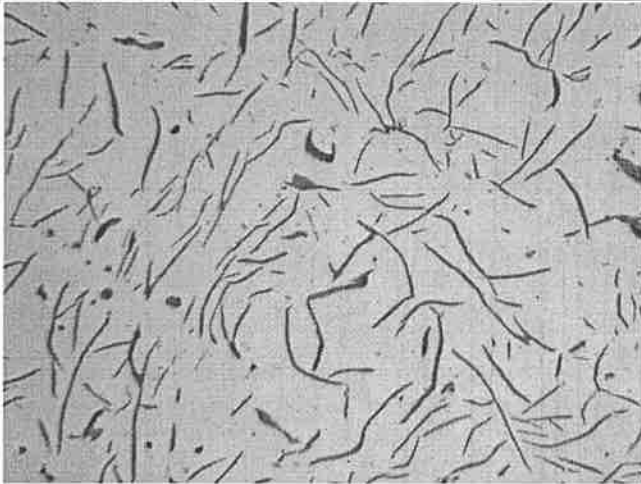
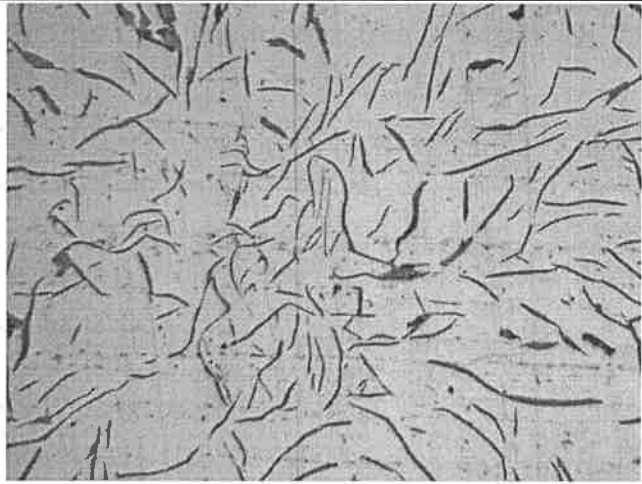
Vedhanay
Director

Atlanta Metallurgical Services






VCK FOUNDRY TECHNOLOGY

Test Report- Microstructural Analysis of Graphite in Cast Iron

Lab ID- M 2780		Test Certificate No.-2118011963			Date- 05/01/2021	
Customer Name		Babasaheb Industries				
		B-78, Tasawade MIDC, Satara				
Date of Sample Received		Date of Test Completion		Sample Name		
04/01/2021		05/01/2021		Cover for Oil		
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade	
04/01/2021	599	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	-	--	-	
Continued on next page-						

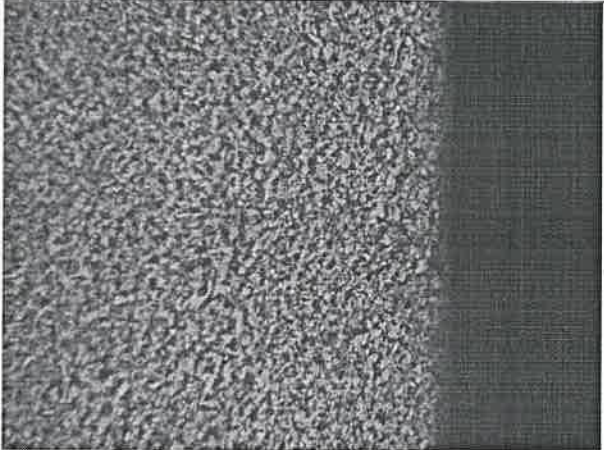
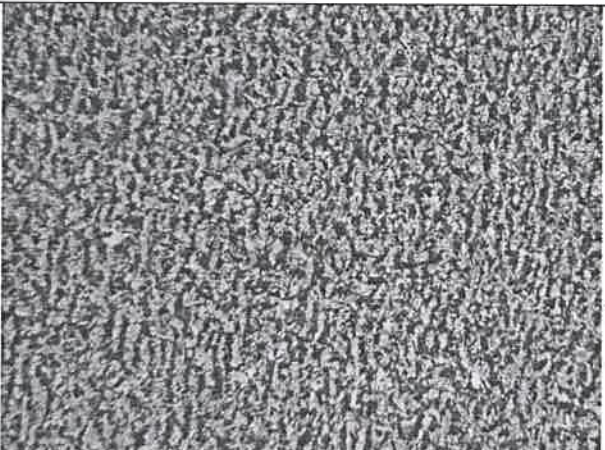




Test Report- Volume Fraction of phases					
Lab ID- M 2742		Test Certificate No.-2108011953		Date- 08/01/2021	
Customer Name		Siddhivinayak Founders			
		MIDCGokulShirgaon, Kolhapur			
Date of Sample Received		Date of Test Completion		Sample Name	
05/01/2021		08/01/2021		Sample 1 (4029,4030,1067,29906,29905,2747,29822,29810,HSG-Phoenix)	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
05/01/2021	132	ASTM-E-1245:2016 ASTM-E-562:2011	--	1A	--
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Ternary Phosphorus Eutectic is observed in Pearliticmatrix with following percentages.					
Sample-1	Frame Area(mm)	Pearlite (%)	Ferrite (%)	Steadite (%)	
Average	0.936	95.55	1.20	3.25	
Tested By-			For VCK Foundry Technology		
			 Authorized Signatory		

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

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



Test Report- Micro Structural Analysis					
Lab ID- M 2787		Test Certificate No.-2120011913		Date- 11/01/2021	
Customer Name		Indrani Technocrafts			
		Shiroli MIDC, Kolhapur			
Date of Sample Received		Date of Test Completion		Sample Name	
10/01/2021		11/01/2021		Tool Tech Engg-B-26-Boron Steel	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
10/01/2021	308	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			
					
		Authorized Signatory			

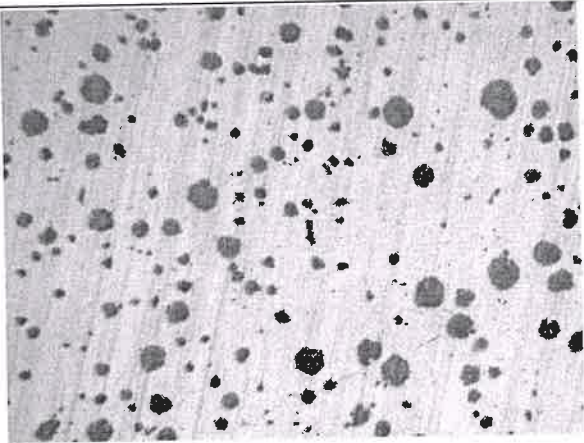
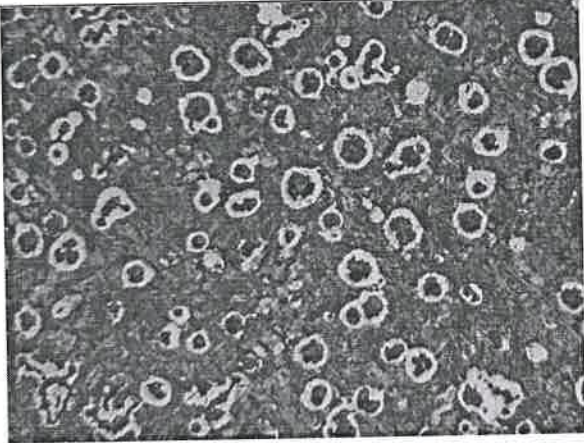
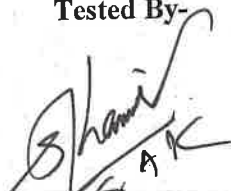

-----End of Report-----

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



**VCK FOUNDRY
TECHNOLOGY**

Test Report- Micro Structural Analysis of Nodular Cast Iron

Lab ID- M 2775		Test Certificate No.- 2117011954		Date- 19/01/2021		
Customer Name		Maurya Industries				
		A-12, MIDC GokulShirgaon, Kolhapur				
Date of Sample Received		Date of Test Completion		Sample Name		
17/01/2021		19/01/2021		Manual Slack Adjuster		
Challan Date	Challan No.	Test Method		Part No	Heat No	Grade
17/01/2021	278	ASTM-E-2567-16a ASTM-E-1245:2016		Z-089389	EL-12	SG-600/3
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 observed 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 (mm²)	0.959 mm ²	Pearlite (%)		85.10		
Nodularity (%)	92%	Ferrite (%)		14.90		
Nodule Count/mm²	178	Other (%)		-		
Tested By- 			For VCK Foundry Technology  Authorized Signatory			

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

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

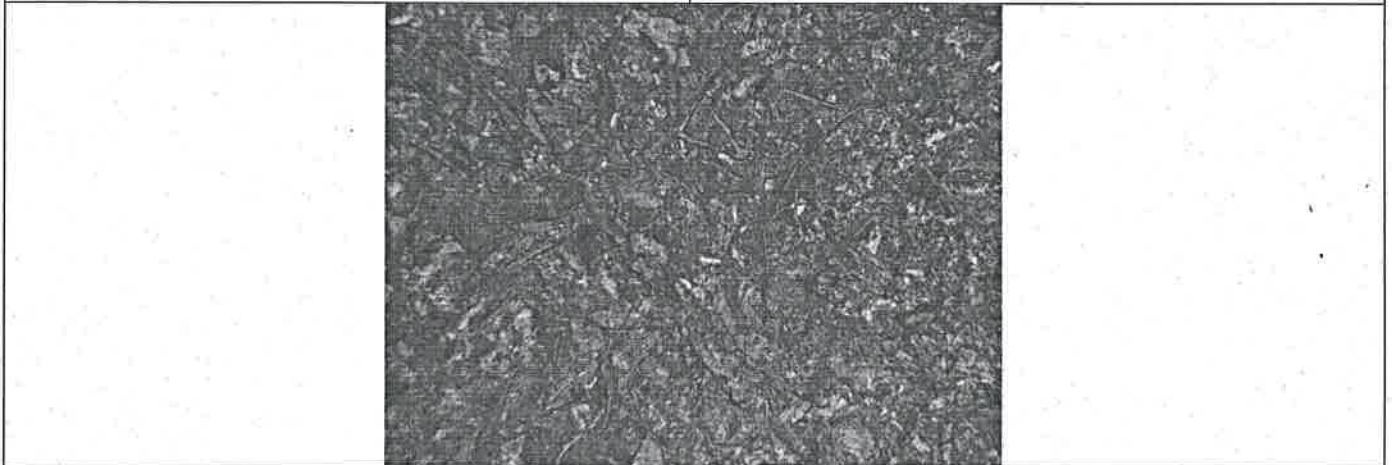


Test Report- Volume Fraction of phases

Lab ID- M 2768		Test Certificate No.-211901194		Date- 21/01/2020	
Customer Name		Yashoda Iron Industries			
		Plot No.- 2/3, Shirol MIDC, Kolhapur			
Date of Sample Received		Date of Test Completion		Sample Name	
19/01/2021		21/01/2021		Escort Bearing Cap	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
19/01/2021	39	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-

S.A.K.
S.A.K.

For VCK Foundry Technology

Joshi

Authorized Signatory

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

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

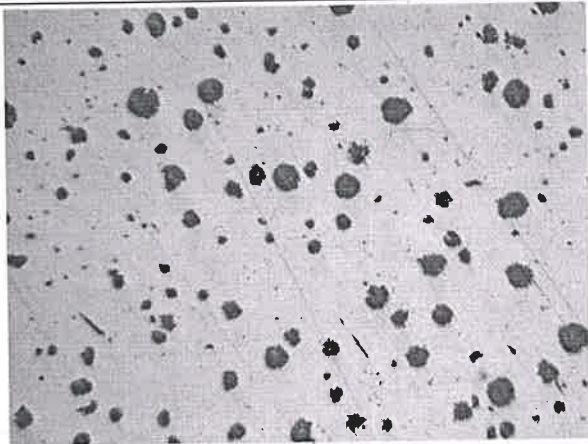
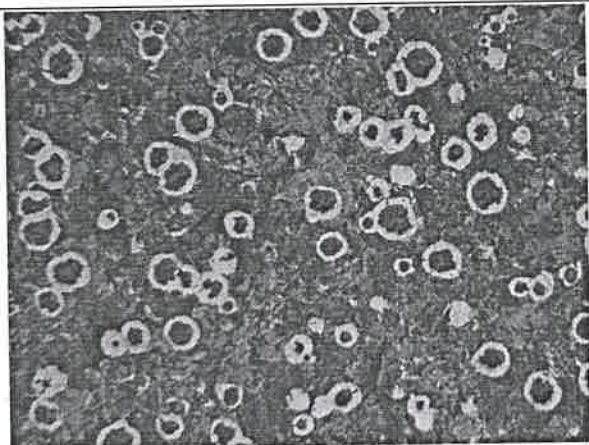


VCK FOUNDRY TECHNOLOGY

+Test Report- Micro Structural Analysis of Nodular Cast Iron

Lab ID- M 2773		Test Certificate No.-2118011951		Date- 28/01/2021	
Customer Name		Prashant Enterprises			
		MIDC Shiroli, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
27/01/2021		28/01/2021		AT-50 (18ID) Gear	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
27/01/2021	1270	ASTM-E-2567-16a ASTM-E-1245:2016	--	PE-122-08-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-

Shamir
S.A. K

For VCK Foundry Technology

Joshi
Authorized Signatory

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

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



**VCK FOUNDRY
TECHNOLOGY**

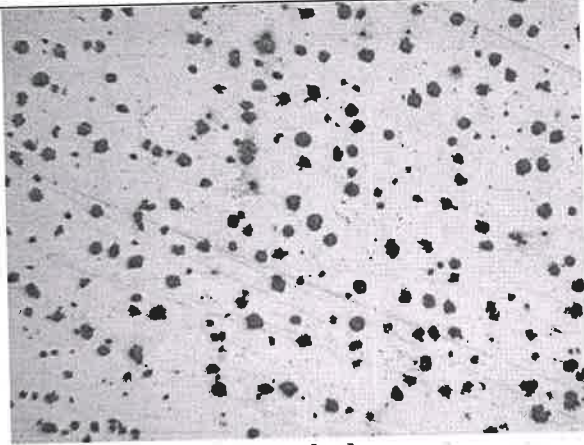
Test Report- Micro Structural Analysis of Nodular Cast Iron

Lab ID- M 2771		Test Certificate No.-2117011956		Date- 09/02/2021	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
08/02/2021		09/02/2021		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
08/02/2021	118	ASTM-E-2567-16a ASTM-E-562:2011 ASTM-E-1245:2016	R 542513	264	--

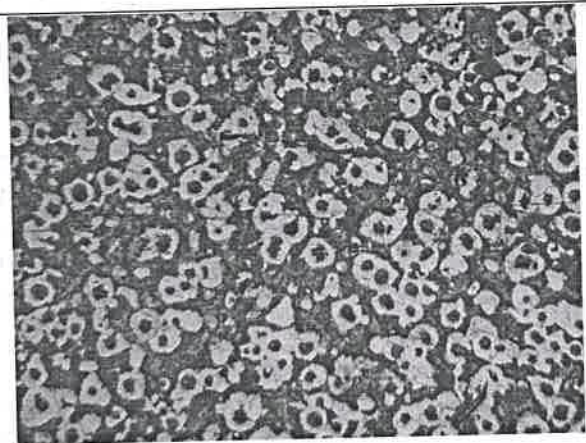
Test Results

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 (%)	61.30	Cementite (%)	-
Nodularity (%)	96%	Ferrite (%)	38.70	Ledeburite (%)	-
Nodule Count/mm ²	236				

Tested By-

Shamir
SAR

For VCK Foundry Technology

Joshi

Authorized Signatory

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

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



ATLANTA

METALLURGICAL SERVICES

Gat No. 194, Hanuman nagar, Shiye, MIDC Shirol, Kolhapur. 416 122
Email : atlantametalab@gmail.com Cell: +91-8421246089 +91-9595401694

- Metallurgical Testing
- Failure Analysis
- Heat Treat Process Analysis
- Material Solutions
- Metallurgical Consulting

Date: 03/02/2020

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

Subject: To provide collaborated testing and consultancy services.

Respected sir,

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

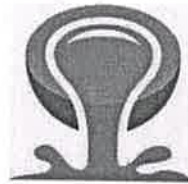
As department of Foundry technology has established a testing setup which is very useful for industrial purpose, we are requesting you to provide necessary support regarding the same. We are attaching a list of samples and details of test requirements along with this letter.

Thanking you,

Yours Sincerely,

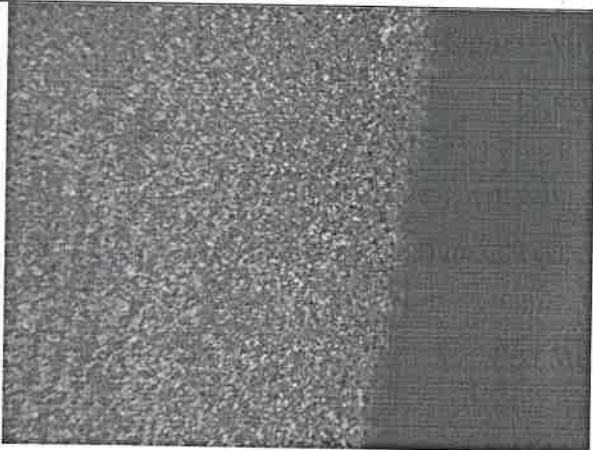
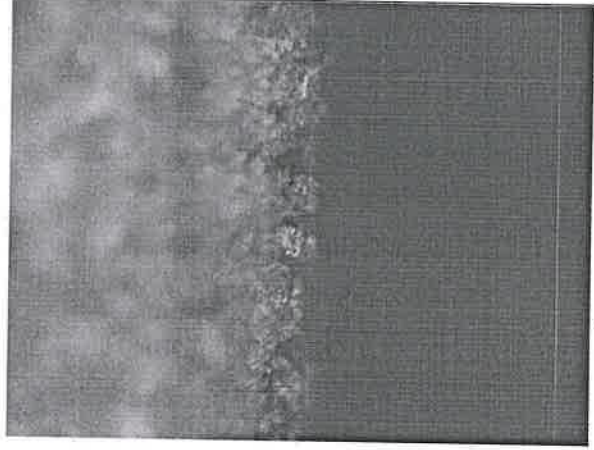
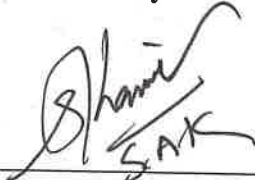

Vathanes
Director

Atlanta Metallurgical Services



**VCK FOUNDRY
TECHNOLOGY**

Test Report- Micro Structural Analysis

Lab ID- M 2783		Test Certificate No.-211901191		Date- 04/02/2021	
Customer Name		Perfect Pins			
		D-3, MIDC Shirol, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
02/02/2021		04/02/2021		Telcon Pin-X-966	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
02/02/2021	73	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			

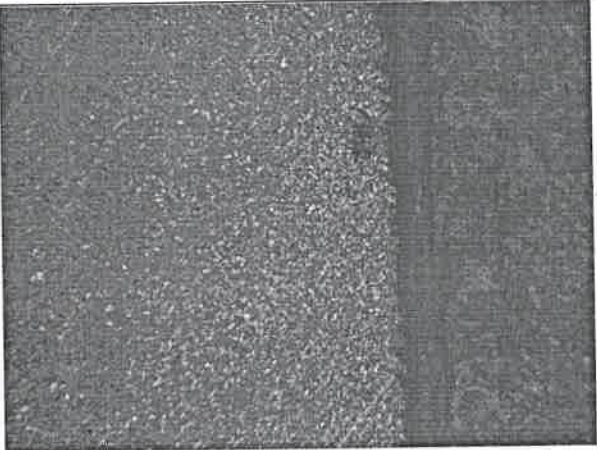
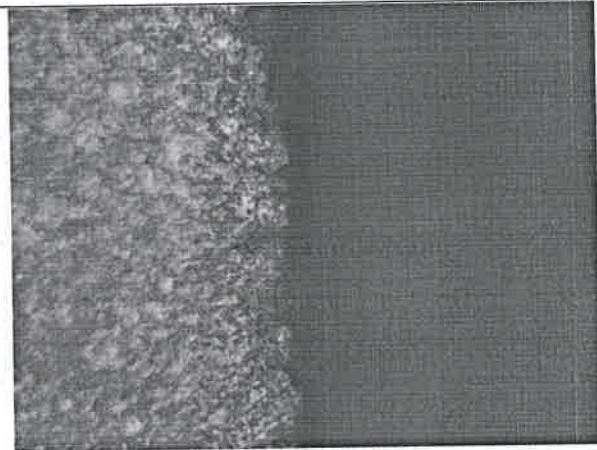
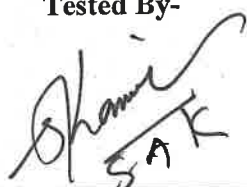

-----End of Report-----

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



**VCK FOUNDRY
TECHNOLOGY**

Test Report- Micro Structural Analysis


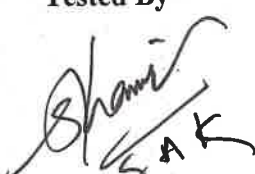

Lab ID- M 2784		Test Certificate No.-211901192		Date- 04/02/2021	
Customer Name		Perfect Pins			
		D-3, MIDC Shiroli, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
02/02/2021		04/02/2021		Telcon Pin-T-102	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
02/02/2021	73	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.-20 μ m) in the structure.			
Area Fraction-Case Region		Tempered Martensite (%)		Retained Austenite (%)	
		90.60		7.10	
				Carbides (%)	
				2.30	
Tested By- 			For VCK Foundry Technology  Authorized Signatory		

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



**VCK FOUNDRY
TECHNOLOGY**

Test Report- Grain Size Measurement

Lab ID- M 2800		Test Certificate No.-212001199				Date- 06/02/2021		
Customer Name		Baramati Engineering Pvt. Ltd.						
		C-8-11,24; Baramati Co-Op. Ind. Estate, Bhigwan Road, Baramati.						
Date of Sample Received		Date of Test Completion			Sample Name			
04/02/2021		06/02/2021			4X600-GTV Body-L-Side			
Challan Date	Challan No.	Test Method			Heat No.	Heat Lot No.	Grade	
04/02/2021	02	ASTM-E-112:2013			B-9919	N-613 T-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-L-Side						
Type of Grain Determined-		Equiaxed-Ferrite-Pearlitic-Grains are observed, 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				

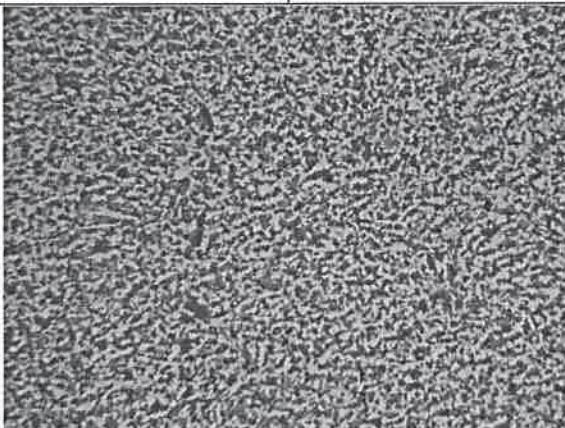
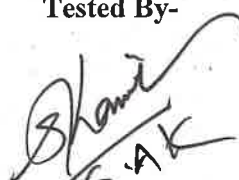

-----End of Report-----

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



**VCK FOUNDRY
TECHNOLOGY**

Test Report- Micro Structural Analysis

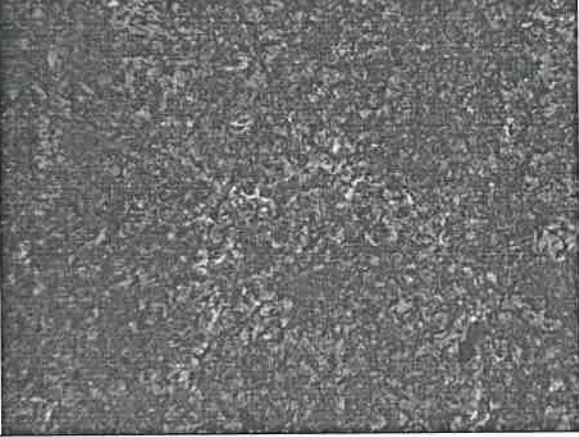


Lab ID- M 2739		Test Certificate No.-211001198		Date- 09/02/2021	
Customer Name		Unique Auto Assemblies Pvt. Ltd. (Unit-I)			
		Plot no.-95,96; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
Date of Sample Received		Date of Test Completion		Sample Name	
09/02/2021		09/02/2021		S. Lever-85CD-Western Miniforge (Inv. No.-422, Date-04/01/2019)	
Challan Date	Challan No.	Test Method	Batch Code	Qty.	Grade
09/02/2021	10164	ASTM-E-1245:2016 IS-4748:2009-Re.-2017	-	1	-
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
ASTM Grain Size No.-		7.5-8.5			
Type of Structure Observed-		Equiaxed-Ferrite-Pearlitic-structure is observed. Decarburization is not observed in the sample.			
Area Fraction-		Ferrite (%)	Pearlite (%)	Other Phases (%)	
		39.90	60.10	Nil	
Tested By- 			For VCK Foundry Technology 		
			Authorized Signatory		

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

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



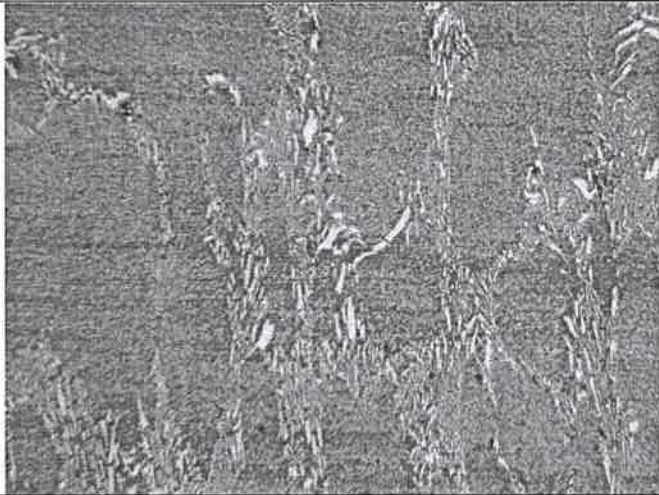
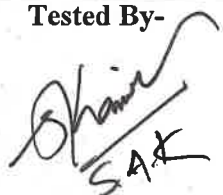

**VCK FOUNDRY
TECHNOLOGY**

Test Report- Volume Fraction of phases					
Lab ID- M 2795		Test Certificate No.-2120011931		Date- 17/02/2021	
Customer Name		Unique Auto Assemblies Pvt. Ltd. (Unit-I)			
		Plot no.-95,96; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
Date of Sample Received		Date of Test Completion		Sample Name	
15/02/2021		17/02/2021		Top Cover-GB40-Hi-Cast Ind. (Inv. no-1592-Date-15/01/19)	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
15/02/2021	10169	ASTM-E-1245:2016 ASTM-E-562:2011			FG-260
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Observation-Ternary Phosphorus Eutectic is observed in the structure along with Ferrite in Pearlitic matrix.					
Sample-1		Frame Area(mm)	Pearlite (%)	Ferrite (%)	Steadite (%)
Average		0.936	96.55	1.20	2.25
Tested By-			For VCK Foundry Technology		
			 Authorized Signatory		

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

Nodal Officer
B.Voc. & Community College Unit
Vivakanand College, Kolhapur

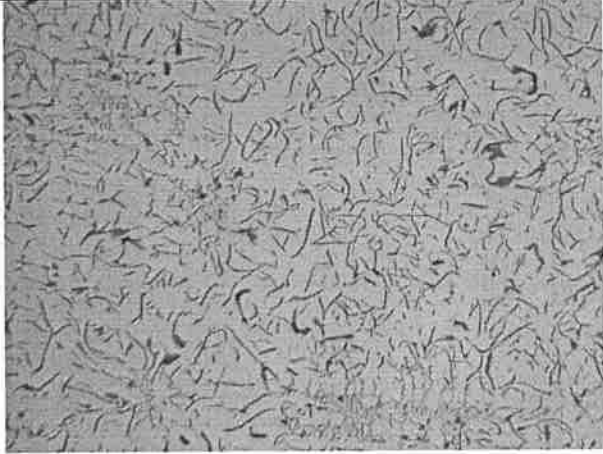
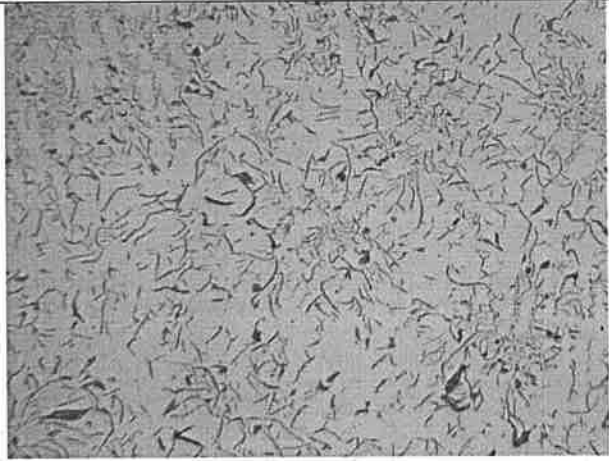


Test Report- Micro Structural Analysis					
Lab ID- M 2781		Test Certificate No.-2120011914		Date- 22/02/2021	
Customer Name		Manugraph India Ltd.			
		Unit No.-2, Kodoli, Panhala, Kolhapur.			
Date of Sample Received		Date of Test Completion	Sample Name		
20/02/2021		22/02/2021	Test Piece-D3-Tool Steel		
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
20/02/2021	117098	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		
			 Authorized Signatory		

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

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



Test Report- Microstructural Analysis of Graphite in Cast Iron					
Lab ID- M 2742		Test Certificate No.-08011953		Date- 22/02/2021	
Customer Name		Siddhivinayak Founders			
		MIDC GokulShirgaon, Kolhapur			
Date of Sample Received		Date of Test Completion		Sample Name	
20/02/2021		22/02/2021		Sample 1 (4029,4030,1067,29906,29905,2747,29822,29810,HSG-Phoenix)	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
20/02/2021	132	IS-7754:2018 ASTM-E-562:2011	--	1A	--
Test Details					
Etchant- Unetched			Etching Condition- NA		
					
Total Magnification-100X					
Observation- Predominantly A type of Graphite flakes are observed with some B, D type are observed.					
Sample-1			ASTM Class		
Average			4-7		
Graphite type distribution	Type A(%)	Type B(%)	Type C(%)	Type D(%)	Type E(%)
Average	80 to 84	14 to 16	-	2 to 4	-
Continued on next page-					



Tested By-

Shani
SAR

For VCK Foundry Technology

Josh

Authorized Signatory

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

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



ATLANTA

METALLURGICAL SERVICES

Gat No. 194, Hanuman nagar, Shiye, MIDC Shirol, Kolhapur. 418 122
Email : atlantametalab@gmail.com Cell: +91-8421246069 +91-9595401694

- Metallurgical Testing
- Failure Analysis
- Heat Treat Process Analysis
- Material Solutions
- Metallurgical Consulting

Date: 03/03/2021

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

Subject: To provide collaborated testing and consultancy services.

Respected sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are 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.

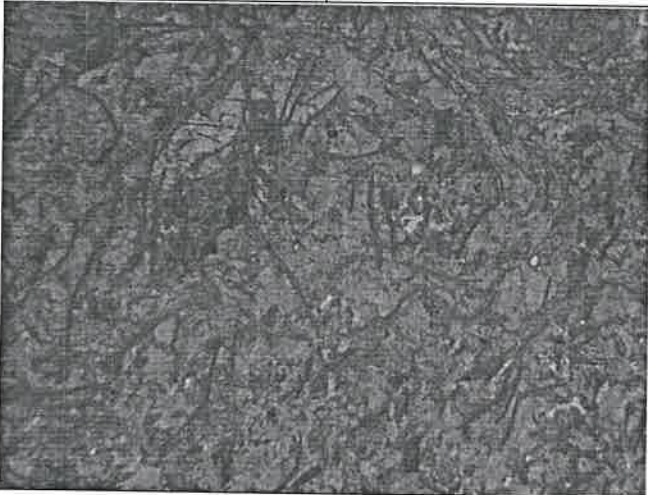
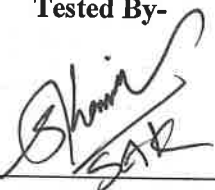

Thanking you,

Yours Sincerely,

Vathore
Director

Atlanta Metallurgical Services



Test Report- Volume Fraction of phases					
Lab ID- M 2780		Test Certificate No.-2118011963		Date- 03/03/2021	
Customer Name		Babasaheb Industries			
		B-78, Tasawade MIDC, Satara			
Date of Sample Received		Date of Test Completion		Sample Name	
02/03/2021		03/03/2021		Cover for Oil	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
02/03/2021	615	ASTM-E-1245:2016 ASTM-E-562:2011	59/774	19A17C	--
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  Authorized Signatory		


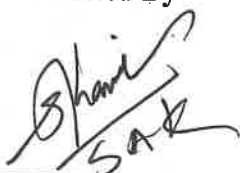

-----End of Report-----

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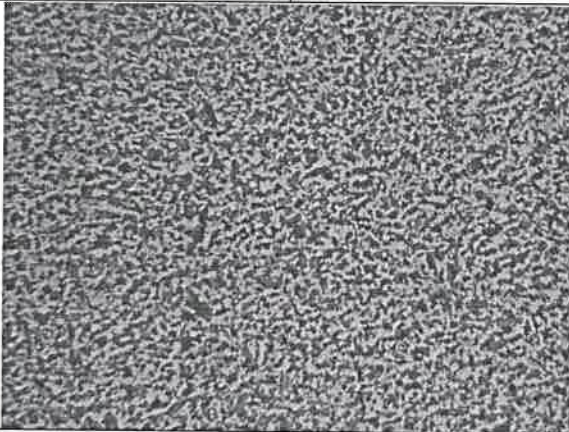


Test Report- Grain Size Measurement

Lab ID- M 2802		Test Certificate No.-2120011911				Date- 12/03/2021		
Customer Name		Baramati Engineering Pvt. Ltd.						
		C-8-11,24; Baramati Co-Op. Ind. Estate, Bhigwan Road, Baramati.						
Date of Sample Received		Date of Test Completion			Sample Name			
10/03/2021		12/03/2021			4X600-GTV Body-R-Side			
Challan Date	Challan No.	Test Method			Heat No.	Heat Lot No.		Grade
10/03/2021	07	ASTM-E-112:2013			B-9919	N-623 T-624		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-R-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-----

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Test Report- Micro Structural Analysis					
Lab ID- M 2739		Test Certificate No.-1001198		Date- 15/03/2021	
Customer Name		Unique Auto Assemblies Pvt. Ltd. (Unit-I)			
		Plot no.-95,96; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
Date of Sample Received		Date of Test Completion		Sample Name	
12/03/2021		15/03/2021		S. Lever-85CD-Western Miniforge (Inv. No.-422, Date-04/01/2019)	
Challan Date	Challan No.	Test Method	Batch Code	Qty.	Grade
12/03/2021	10164	ASTM-E-1245:2016 IS-4748:2009-Re.-2017	-	-	-
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
ASTM Grain Size No.-		7.5-8.5			
Type of Structure Observed-		Equiaxed-Ferrite-Pearlitic-structure is observed. Decarburization is not observed in the sample.			
Area Fraction-		Ferrite (%)		Pearlite (%)	
		39.90		60.10	
Other Phases (%)		Nil			
Tested By-			For VCK Foundry Technology		
					
			Authorized Signatory		

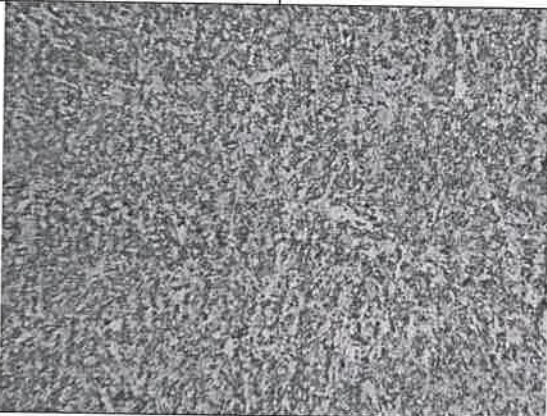


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Test Report- Micro Structural Analysis

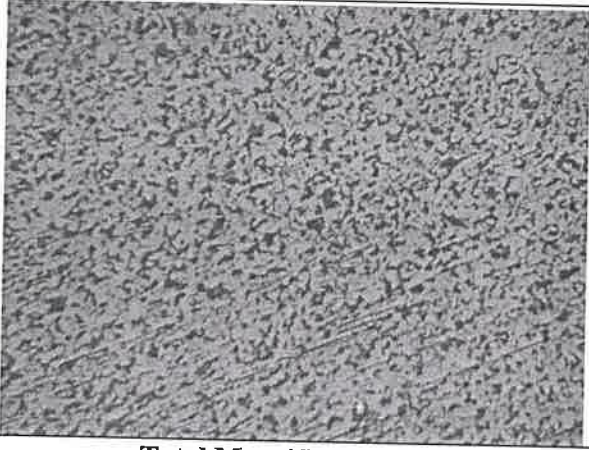
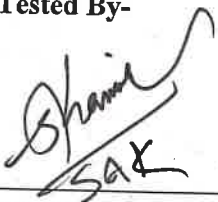

Lab ID- M 2789		Test Certificate No.-2120011923		Date- 15/03/2021		
Customer Name		Unique Auto Assemblies Pvt. Ltd. (Unit-I)				
		Plot no.-95,96; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.				
Date of Sample Received		Date of Test Completion		Sample Name		
12/03/2021		15/09/2021		Shifter Finger-GB60-Smith & Founders (Inv. No.-557, Date-12/01/2019)		
Challan Date	Challan No.	Test Method		Batch Code	Qty.	Grade
12/03/2021	10169	ASTM-E-1245:2016 IS-4748:2009-Re.-2017		-	-	16Mn5Cr4
Test Details						
Etchant- 4% Nital			Etching Condition- Immersion-Etching			
						
Total Magnification-100X						
Specimen Dimension-		Sample Cut Piece				
ASTM Grain Size No.-		7.0-8.0				
Type of Structure Observed-		Equiaxed-Ferrite-Pearlitic-structure is observed. Decarburization is not observed in the sample.				
Area Fraction-		Ferrite (%)		Pearlite (%)		Other Phases (%)
		63.30		36.70		Nil
Tested By- 			For VCK Foundry Technology  Authorized Signatory			

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Test Report- Micro Structural Analysis					
Lab ID- M 13021		Test Certificate No.-21130220103		Date- 19/03/2021	
Customer Name		Dattachaya Chains Pvt. Ltd.			
		D-12/2, MIDC GokulShirgaon, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
17/03/2021		19/03/2021		Dattashirol-Patti-Sample-B	
Challan Date	Challan No.	Test Method	Heat No	Qty.	Grade
17/03/2021	D54	ASTM-E-1245:2016 IS-4748:2009	-	-	-
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
ASTM Grain Size No.-		7.0-7.5			
Type of Structure Observed-		Equiaxed-Ferrite-Pearlitic-structure is observed. Decarburization is not observed in the sample.			
Area Fraction-		Ferrite (%)	Pearlite (%)	Other Phases (%)	
		35.70	64.30	Nil	
Tested By-		For VCK Foundry Technology			
					
		Authorized Signatory			

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

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