


**Vivekanand College, Kolhapur (Autonomous)**

**B.Voc and Community College**

**Department of Foundry Technology**

<b>Consultancy</b>			
<b>Revenue generated from Consultancy during the year 2018-19</b>			
<b>Name of the Consultant(s) Department</b>	<b>Name of Consultancy Projects</b>	<b>Consulting/Sponsoring Agency</b>	<b>Revenue generated (amount in rupees)</b>
Foundry Technology (B.Voc)	Grain size measurement	Atlanta Metallurgical Services. Shiroli MIDC.	3000/-
	Microstructure of steel		1000/-
	Micro-Vickers Hardness		1000/-
	Microstructure of SG Iron		1000/-
	Grain size & microstructure of steel		2000/-
	Grain size of steel		1000/-
	Grain size & microstructure of steel		2000/-
	Microstructure of SG Iron		1000/-
	Grain size & microstructure of steel		2000/-
	Micro-Vickers Hardness		1000/-
	Microstructure of SG Iron		1000/-
	Micro-Vickers Hardness		1000/-
	Microstructure of Cast Iron		1000/-
	Micro-Vickers Hardness		1000/-
	Grain size & microstructure of steel		2000/-
	Decarburization analysis		1550/-
	Inclusion Rating of Steel		3500/-
	Microstructure of SG Iron		1000/-
	Grain size of steel		1000/-
	Microstructure of SG Iron		1000/-
Microstructure of	1500/-		

	Hardened steel	
	Grain size of steel	1000/-
	Microstructure of SG Iron	1000/-
	Microstructure of Hardened steel	1500/-
	Microstructure of SG Iron	1000/-
	Microstructure of SG Iron	1000/-
	Microstructure of Hardened steel	1500/-
	Microstructure of Cast Iron	1000/-
	Grain boundary oxidation analysis of hardened steel	3000/-
	Microstructure of Induction Hardened steel	2000/-
	Microstructure of Die steel	1500/-
	Microstructure of Hardened steel	1500/-
	Microstructure of Induction Hardened steel	2000/-
<b>Total Revenue Generated</b>		<b>48,550/-</b>

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



# VCK FOUNDRY TECHNOLOGY

## Consultancy Work for the year 2018-2019


Sr. No.	Name of Company	Test Required	No. of samples	Date	Amount
1	Western Precicast Pvt. Ltd.	Grain Size measurement	3	05/06/2018	3000/-
2	Arrow Metallics	Microstructure of Steel	1	09/06/2018	1000/-
3	Param Industries	Micro-Vickers Hardness	1	10/06/2018	1000/-
4	Padmavati Auto Components	Microstructure of SG Iron	1	30/06/2018	1000/-
5	Unique Auto Shaft	Grain Size & microstructure of steel	1	05/07/2018	2000/-
6	Tulip Castings	Grain Size of steel	1	06/07/2018	1000/-
7	Dattachaya Chains	Grain Size & microstructure of steel	1	10/07/2018	2000/-
8	Padmavati Auto Components	Microstructure of SG Iron	1	18/07/2018	1000/-
9	Rolls Energy	Grain Size & microstructure of steel	1	27/07/2018	2000/-
10	Rocket Engg Corp	Micro-Vickers Hardness	1	22/07/2018	1000/-
11	Maurya Industries	Microstructure of SG Iron	1	24/07/2018	1000/-
12	Sai Udyog	Micro-Vickers Hardness	1	26/07/2018	1000/-
13	Unique Auto Assemblies	Microstructure of Cast Iron	1	29/07/2018	1000/-
14	Arrow Metallics	Micro-Vickers Hardness	1	02/08/2018	1000/-
15	Menon Engg Services	Grain Size & microstructure of steel	1	04/08/2018	2000/-
16	Menon Engg Services	Decarburization Analysis	1	04/08/2018	1550/-
17	Menon Engg Services	Inclusion Rating of steel	1	04/08/2018	3500/-
18	Maurya Industries	Microstructure of SG Iron	1	31/08/2018	1000/-
19	Tulip Castings	Grain Size of steel	1	04/09/2018	1000/-
20	Padmavati Auto Components	Microstructure of SG Iron	1	07/09/2018	1000/-
21	Arrow Metallics	Microstructure of Hardened Steel	1	23/09/2018	1500/-
22	Baramati Engg Pvt. Ltd.	Grain Size of steel	3	30/09/2018	1000/-
23	Padmavati Auto Components	Microstructure of SG Iron	1	02/10/2018	1000/-
24	Unique Auto Shaft	Microstructure of Hardened Steel	1	01/11/2018	1500/-



# VCK FOUNDRY TECHNOLOGY

25	Padmavati Auto Components	Microstructure of SG Iron	1	03/11/2018	1000/-
26	Trio Enterprises	Microstructure of SG Iron	1	27/11/2018	1000/-
27	Param Industries	Microstructure of Hardened Steel	1	01/01/2019	1500/-
28	Padmavati Auto Components	Microstructure of Cast Iron	1	04/01/2019	1000/-
29	Perfect pins	Grain Boundary oxidation analysis of hardened steel	1	19/01/2019	3000/-
30	Unique Auto Shafts	Microstructure of Induction Hardened Steel	1	20/01/2019	2000/-
31	Manugraph India Ltd	Microstructure of Die steel	1	20/02/2019	1500/-
32	Manugraph India Ltd-Unit-II	Microstructure of Hardened Steel	1	20/02/2019	1500/-
33	Unique Auto Shafts	Microstructure of Induction Hardened Steel	1	20/02/2019	2000/-
<b>Total Amount</b>					<b>48,550/-</b>



  
**Nodal Officer** 26/2/2019  
B.Voc. & Community College Unit  
Vivekanand College, Kolhapur

Mr. Satish B. Gaikwad.  
Nodal Officer,  
Dept. of B.Voc & Community  
College,  
Vivekanand College,  
Kolhapur.  
Dated 31<sup>st</sup> March, 2019.

To,  
The Principal,  
Vivekanand College.  
Kolhapur.

Subject: About payment of consultancy.....

Sir,

The department of foundry technology under  
B.Voc and Community College scheme offering  
consultancy services to various foundry industries  
located in the Kolhapur foundry cluster.  
We have received the payment of Rs. 48550/-  
as a consultancy fee from Atlanta Metallurgical  
Services, Kolhapur.

I request you to accept the payment of  
the same and give the receipt.

Thanking you,



Yours faithfully,  
S. B. Gaikwad,  
(Satish B. Gaikwad)  
Nodal Officer  
B.Voc. & Community College Unit,  
Vivekanand College, Kolhapur

**HDFC BANK**

HDFC BANK LTD., BHAGIRATHI HEIGHTS, 1116/D, "E" WARD  
SHAHUPURI, KOLHAPUR, KOLHAPUR-416001, MAHARASHTRA  
RTGS / NEFT IFSC : HDFC0000164

Weekly Holiday on SUNDAY

31032019

D D M M Y Y Y Y  
Valid for 3 months only

Or Bearer

या धारक को

Pay The Principal, Vivekanand college Kolhapur.

Rupees रुपये forty eight thousand five hundred & fifty only

अवा करें

₹ 48,550/-

A/c. No.  
खाता क्र.

50200036568577

Brn: 0164 Pdt:200  
REGULAR CA

(New Account)

For ATLANTA METALLURGICAL SERVICES

Payable at par through clearing/transfer at all branches of HDFC BANK LTD

Authorised Signatories

Please sign above / कृपया यहाँ हस्ताक्षर करें

⑈000002⑈ 416240002⑈ 051668⑈ 29

Payment received from Atlanta Metallurgical Services Ltd against Consultancy Services for the department.

*S. B. Ghosh*  
21/7/2019

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: +91-8421246069 +91-9595401694

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

Date-01/06/2018

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are collaborated with your department of foundry technology. 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,



*V. Kulkarni*

Director

Atlanta Metallurgical Services



# ATLANTA

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

• Details of work required-

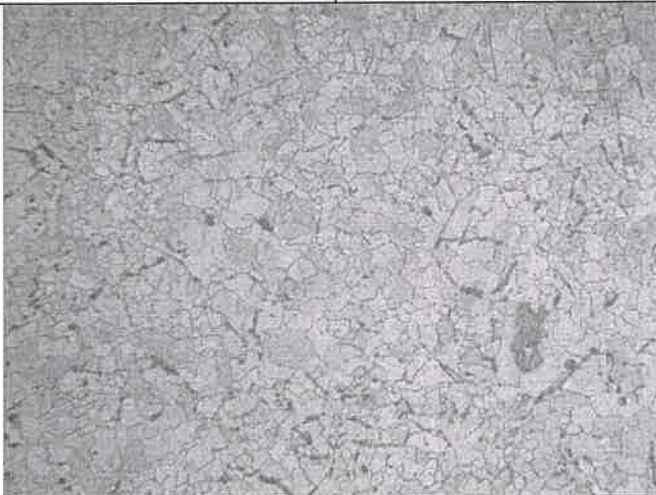

Sr. No.	Name of Company	Test Required	No. of Samples
1	Western Precicast Pvt. Ltd.	Grain Size measurement	3
2	Arrow Metallics	Microstructure of steel	1
3	Param Industries	Micro-Vickers Hardness	1
4	Padmavati Auto Components	Microstructure of S.G. Iron	1







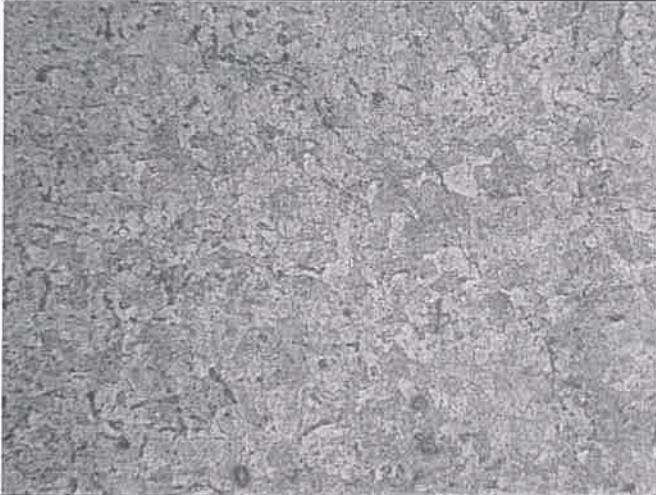

# VCK FOUNDRY TECHNOLOGY

Test Report-Grain Size Measurement					
Test Certificate No.-05061813			Date- 05/06/2018		
Customer Name		Western Precicast Pvt. Ltd.			
		Gat No.170, 171/1, MIDC Kupwad, Sangli.			
Date of Sample Received		Date of Test Completion		Sample Name	
03/06/2018		05/06/2018		Body-GTV-10"#900-L-Side	
Challan Date	Challan No.	Test Method	Heat No.	Heat Lot No.	Grade
03/06/2018	029	ASTM-E-112:2013	P0656	N-180516-1 T-180521-1	ASTM A216 WCB
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Replica-L-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. required		7.0 and above (as per customer standard)			
ASTM Grain Size No. observed		7.0-7.5			
For VCK Foundry Technology  Authorized Signature					

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





# VCK FOUNDRY TECHNOLOGY

Test Report-Grain Size Measurement					
Test Certificate No.-05061814			Date- 05/06/2018		
Customer Name		Western Precicast Pvt. Ltd.			
		Gat No.170, 171/1, MIDC Kupwad, Sangli.			
Date of Sample Received		Date of Test Completion		Sample Name	
03/06/2018		05/06/2018		Body-GTV-10"#900-B-Side	
Challan Date	Challan No.	Test Method	Heat No.	Heat Lot No.	Grade
03/06/2018	029	ASTM-E-112:2013	P0656	N-180516-1 T-180521-1	ASTM A216 WCB
<b>Test Details</b>					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
<b>Total Magnification-100X</b>					
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. required		7.0 and above (as per customer standard)			
ASTM Grain Size No. observed		7.0-7.5			
<b>For VCK Foundry Technology</b>					
 Authorized Signature					

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



# VCK FOUNDRY TECHNOLOGY

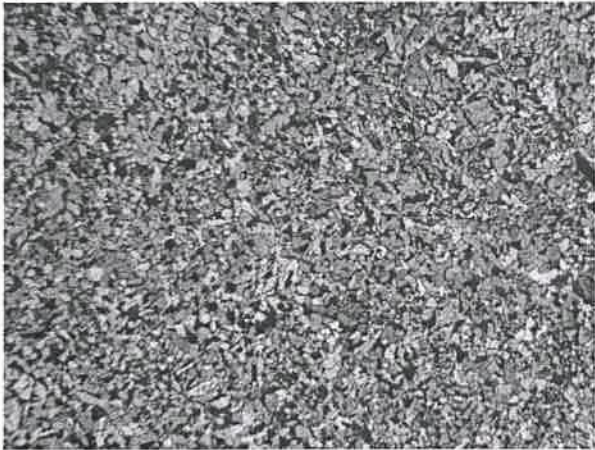
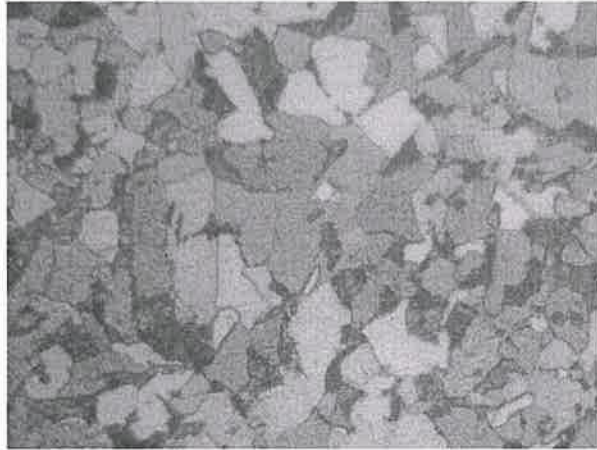

Test Report-Grain Size Measurement					
Test Certificate No.-05061815			Date- 05/06/2018		
Customer Name		Western Precicast Pvt. Ltd.			
		Gat No.170, 171/1, MIDC Kupwad, Sangli.			
Date of Sample Received		Date of Test Completion		Sample Name	
03/06/2018		05/06/2018		Body-GTV-10"#900-R-Side	
Challan Date	Challan No.	Test Method	Heat No.	Heat Lot No.	Grade
03/06/2018	029	ASTM-E-112:2013	P0656	N-180516-1 T-180521-1	ASTM A216 WCB
<b>Test Details</b>					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
<b>Total Magnification-100X</b>					
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. required		7.0 and above (as per customer standard)			
ASTM Grain Size No. observed		7.0-7.5			
<b>For VCK Foundry Technology</b>					
 Authorized Signature					

**Nodal Officer**

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



# VCK FOUNDRY TECHNOLOGY


Test Report- Micro Structural Analysis				
Test Certificate No.-09061820			Date- 09/06/2018	
Customer Name		Arrow Metallics.		
		A-21, Five Star MIDC, Kagal, Kohapur		
Date of Sample Received		Date of Test Completion	Sample Name	
08/06/2018		09/06/2018	Bracket	
Challan Date	Challan No.	Test Method	Heat No.	Grade
----	----	ASTM-E-407:2015	18-E-131	IS1030 280-520W
Test Details				
Etchant- 4% Nital		Etching Condition- Immersion Etching		
				
Total Magnification-100X		Total Magnification-500X		
Total Magnification-100X				
Specimen Dimension-		Cut Piece		
Type of Structure Observed		Equiaxed Ferrite-Pearlitic structure is observed.		
Area Fraction-		Pearlite (%)	Ferrite (%)	Other Phases (%)
		28.60	71.40	Nil
For VCK Foundry Technology				
 Authorized Signature				

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



# VCK FOUNDRY TECHNOLOGY

## Test Report- Micro-Vickers Hardness Test

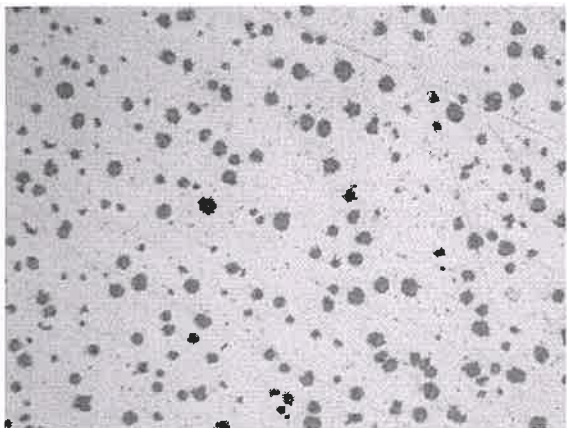
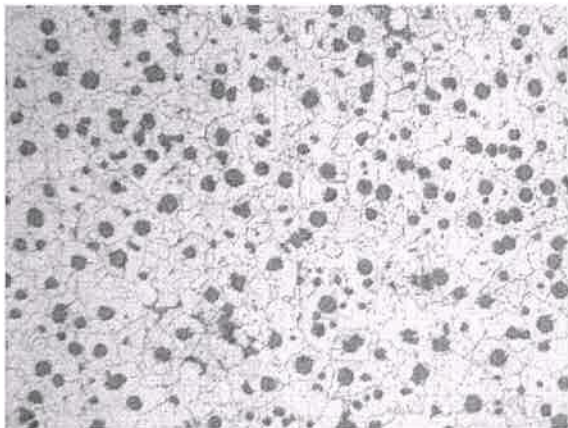

Test Certificate No.-10061842			Date- 10/06/2018		
Customer Name		Param Industries			
		Plot no.-A/80; Laxmi Ind. Estate, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
08/06/2018		10/06/2018		Plain Balancer Shaft-Middle	
Challan Date	Challan No.	Test Method	Inv. No.	Heat No.	Grade
08/06/2018	554	ASTM-E-384-17	-	1533	16MnCr5
<b>Test Details</b>					
Sample Checking Area			O.D.		
Load			1.0Kgf		
Cutoff at HV			550 HV		
Effective Case Depth (ECD)			0.93mm		
Sr. No	Distance (mm)		Hardness value in HV		
1	0.20		689		
2	0.40		641		
3	0.60		604		
4	0.80		577		
5	1.00		536		
6	1.20		473		
7	1.40		-		
8	1.60		-		
9	1.80		-		
10	2.00		-		
11	2.20		-		
For VCK Foundry Technology					
 Authorized Signature					

**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 674		Test Certificate No.-30061848		Date- 30/06/2018	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
29/06/2018		30/06/2018		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
28/06/2018	149	IS-1865:2010 ASTM-E-562:2011	R542513	284	--
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 (Etched)		Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm <sup>2</sup> )	0.959 mm <sup>2</sup>	Pearlite (%)	12.30		
Nodularity (%)	92 %	Ferrite (%)	87.70		
Nodule Count/mm <sup>2</sup>	241	Other (%)	Nil		
For VCK Foundry Technology					
 Authorized Signature					

-----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: +91-8421246069 +91-9595401694

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

Date-01/07/2018

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

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Thanking you,



Yours Sincerely,

Director

Atlanta Metallurgical Services



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Email : atlantametalab@gmail.com Cell: +91-8421246069 +91-9595401694

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

• Details of work required-

Sr. No.	Name of Company	Test Required	No. of Samples
1	Unique Auto Shafts	Grain Size & Microstructure of Steel	1
2	Tulip Castings Pvt. Ltd.	Grain Size analysis of steel	1
3	Dattachaya Chains Pvt. Ltd.	Grain Size & Microstructure of Steel	1

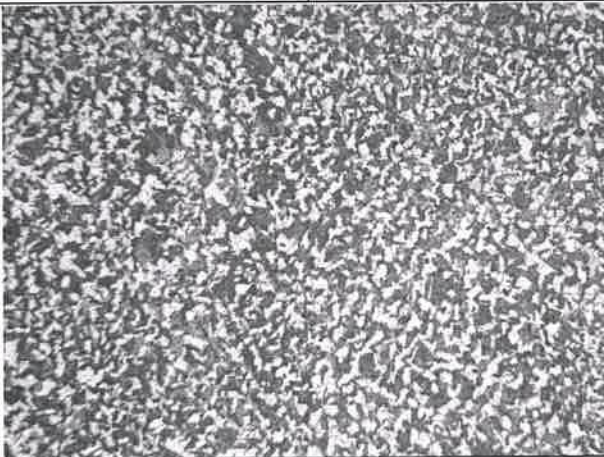






# VCK FOUNDRY TECHNOLOGY

## Test Report- Micro Structural Analysis

<b>Lab ID- M 694</b>		<b>Test Certificate No.-05071868</b>		<b>Date- 05/07/2018</b>	
<b>Customer Name</b>		Unique Auto Shafts			
		Plot no.-87,88; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>	<b>Sample Name</b>		
01/07/2018		05/07/2018	Dia-22.20mm-Omega Bright St. (Inv. No-837)		
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Heat No</b>	<b>Qty.</b>	<b>Grade</b>
01/07/2018	10290	ASTM-E-1122:2015	5807026	8.550 Kg.	45C8
<b>Test Details</b>					
<b>Etchant- 4% Nital</b>			<b>Etching Condition- Immersion-Etching</b>		
					
<b>Total Magnification-100X</b>					
<b>Specimen Dimension-</b>		Sample Cut Piece			
<b>ASTM Grain Size No.-</b>		8.0-8.5			
<b>Type of Structure Observed-</b>		Equiaxed-Ferrite-Pearlitic-structure is observed. Decarburization is not observed in the sample.			
<b>Area Fraction-</b>		Ferrite (%)	Pearlite (%)	Other Phases (%)	
		38.20	61.80	Nil	

For VCK Foundry Technology

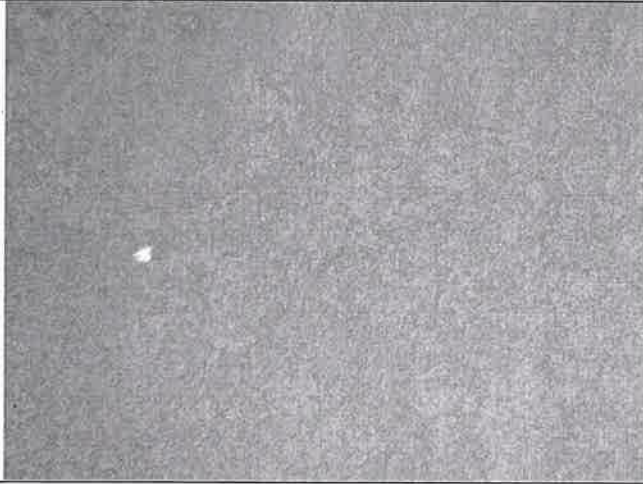

  
Authorized Signature

-----Endof Report-----

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



# VCK FOUNDRY TECHNOLOGY

Test Report-Grain Size Measurement					
Lab ID- M 702		Test Certificate No.-06071842		Date- 06/07/2018	
Customer Name		Tulip Castings Pvt. Ltd.			
		Plot No.-29, MIDC Shirol, Kolhapur-416122			
Date of Sample Received		Date of Test Completion		Sample Name	
06/07/2018		06/07/2018		8"#150-/300-Core	
Challan Date	Challan No.	Test Method	Heat No.	Heat Lot No.	Grade
-----	-----	ASTM-E-112:2013	T-4153	N-0244/18-19 T-0245/18-19	ASTM A216 WCC
Qualifying Heat Nos.		T-4154			
Qualifying Part-		6"#300-Bonnet/Upper Cap			
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Replica			
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			
For VCK Foundry Technology					
 Authorized Signature					

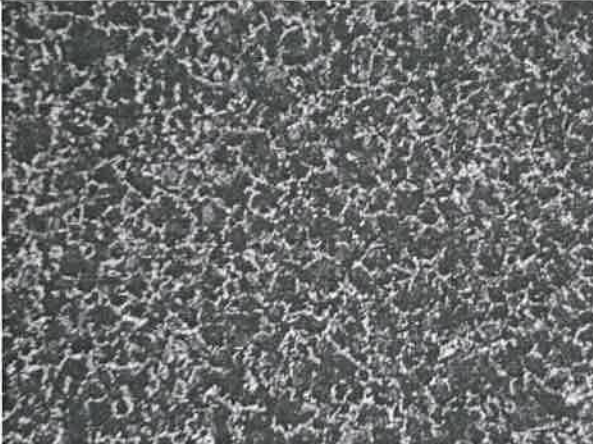

-----End of Report-----

**Nodal Officer**

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



**VCK FOUNDRY TECHNOLOGY**

Test Report- Micro Structural Analysis					
Lab ID- M 724		Test Certificate No.-10071850		Date- 10/07/2018	
Customer Name		Dattachaya Chains Pvt. Ltd.			
		D-12/2, MIDC GokulShirgaon, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
10/07/2018		10/07/2018		Das Metal (1 ½"X 1 ½")	
Challan Date	Challan No.	Test Method	Part No.	Heat No.	Grade
-	--	ASTM-E-407:2015	342	--	EN 8
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
ASTM Grain Size No.-		5.5-6.0			
Type of Structure Observed-		Equiaxed-Ferrite-Pearlitic structure is observed.			
Area Fraction-		Ferrite (%)	Pearlite (%)	Other Phases (%)	
		31.10	68.90	Nil	
For VCK Foundry Technology					
 Authorized Signature					

-----Endof Report-----

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



# ATLANTA

## METALLURGICAL SERVICES

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

Date-13/07/2018

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

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

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Thanking you,



Yours Sincerely,

*Vaibhava*

Director

Atlanta Metallurgical Services



# 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

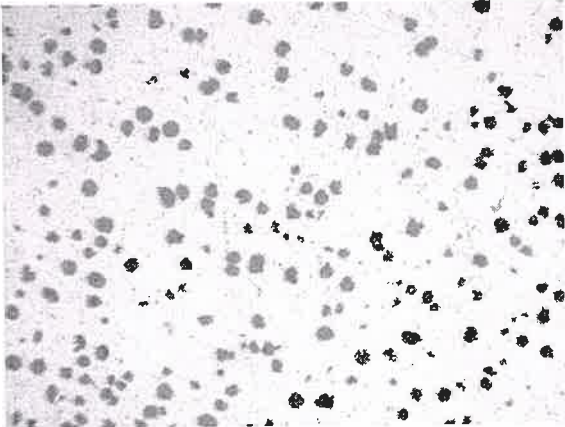
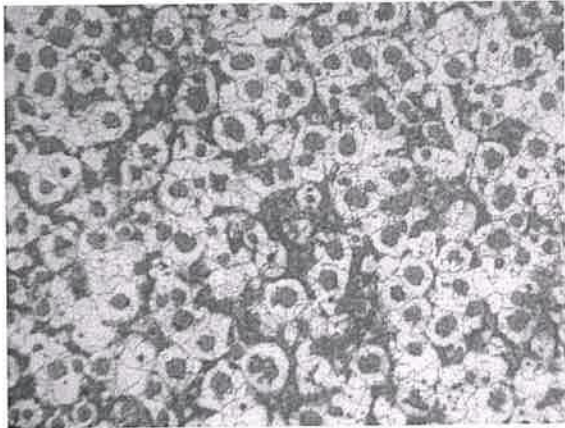

● Details of work required-

Sr. No.	Name of Company	Test Required	No. of Samples
1	Padmavati Auto Components	Microstructure of S.G. Iron	1
2	Rolls Energy	Grain Size & Microstructure of Steel	1
3	Rocket Engg Corp. Pvt. Ltd.	Micro-Vickers Hardness	1
4	Maurya Industries	Microstructure of S.G. Iron	1
5	SaiUdyog	Micro-Vickers Hardness	1
6	Unique Auto Assemblies Pvt. Ltd.	Microstructure of Cast Iron	1





# VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- M 766		Test Certificate No.-18071826		Date- 18/07/2018	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
17/07/2018		18/07/2018		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
13/07/2018	161	IS-1865:2010 ASTM-E-562:2011	R542513	22	--
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)		--			
Observation (Etched)		Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm <sup>2</sup> )	0.959 mm <sup>2</sup>		Pearlite (%)	34.40	
Nodularity (%)	90%		Ferrite (%)	65.60	
Nodule Count/mm <sup>2</sup>	210		Carbide (%)	-	
For VCK Foundry Technology					
 Authorized Signature					

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

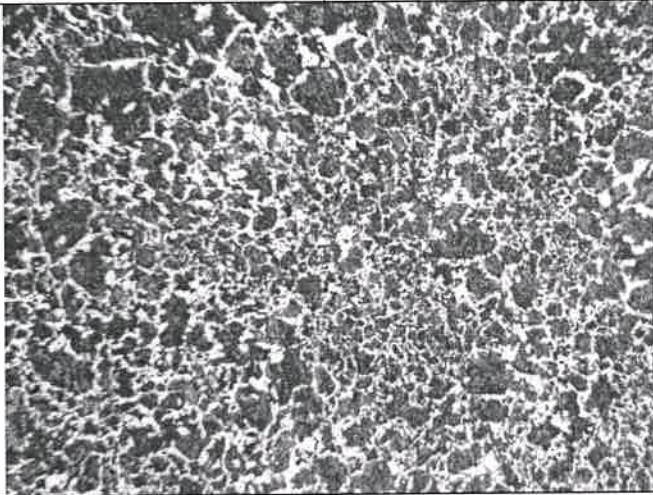

**Nodal Officer**

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



# VCK FOUNDRY TECHNOLOGY

## Test Report- Micro Structural Analysis

<b>Lab ID-M 864</b>		<b>Test Certificate No.-27071846</b>		<b>Date- 27/07/2018</b>	
<b>Customer Name</b>		Rolls Energy			
		W.No-17, Pujari Mala, Ichalakranji, Kolhapur.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
19/07/2018		27/07/2018		Sample VT-1-Dia.-190mm	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Heat Code</b>	<b>Qty.</b>	<b>Grade</b>
--	--	ASTM-E-407:2015	--	--	EN8
<b>Test Details</b>					
<b>Etchant- 4% Nital</b>			<b>Etching Condition- Immersion-Etching</b>		
					
<b>Total Magnification-100X</b>					
<b>Specimen Dimension-</b>		Sample Cut Piece			
<b>ASTM Grain Size No.-</b>		6.0-6.5			
<b>Type of Structure Observed-</b>		Equiaxed-Ferrite-Pearlitic-structure is observed. Decarburization is not observed in the sample.			
<b>Area Fraction-</b>		Ferrite (%)	Pearlite (%)	Other Phases (%)	
		39.20	60.80	Nil	
<b>For VCK Foundry Technology</b>					
 <b>Authorized Signature</b>					

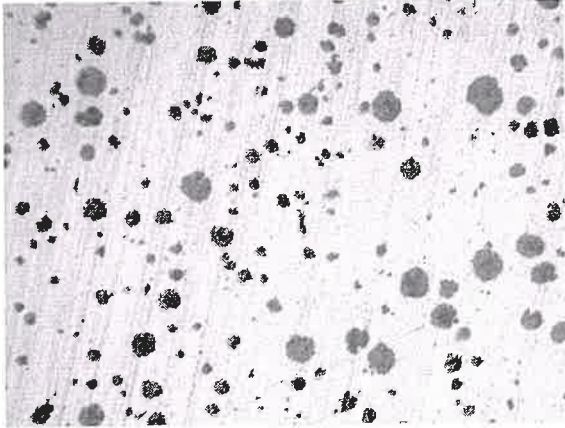
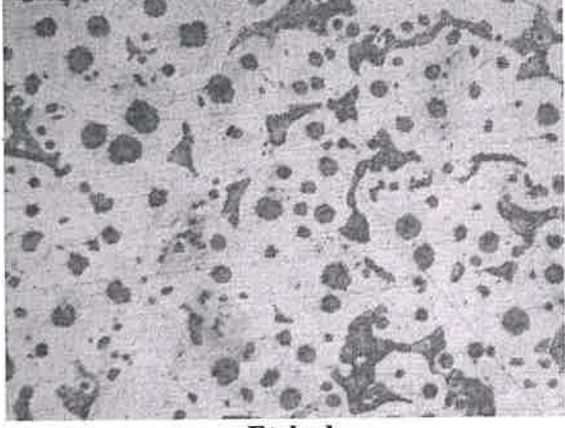

-----End of Report-----

**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 817		Test Certificate No.-24071853		Date- 24/07/2018	
Customer Name		Maurya Industries			
		A-12, MIDC GokulShirgaon, Kolhapur			
Date of Sample Received		Date of Test Completion		Sample Name	
21/07/2018		24/07/2018		Spindle	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
21/07/2018	732	IS-1865:2010 ASTM-E-562:2011	11087959M (11087958)	293	450/12
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)		--			
Observation (Etched)		Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm <sup>2</sup> )	0.959 mm <sup>2</sup>		Pearlite (%)	76.40	
Nodularity (%)	89%		Ferrite (%)	23.60	
Nodule Count/mm <sup>2</sup>	210		Carbide (%)	-	
For VCK Foundry Technology					
 Authorized Signature					


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

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





# VCK FOUNDRY TECHNOLOGY

Test Report- Micro-Vickers Hardness Test					
Lab ID- MH 119		Test Certificate No.-26071841		Date- 26/07/2018	
Customer Name		SaiUdyog			
		Plot no.-D-4/1; MIDC GokulShirgaon, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
25/07/2018		26/07/2018		SU-3815	
Challan Date	Challan No.	Test Method	Part No.	Heat No.	Grade
25/07/2018	220	ASTM-E-384-17	-	F3/07/07	-
<b>Test Parameters</b>					
Sample Checking Area			Inner Diameter		
Load			1.0Kgf		
Cutoff at HV			515 HV		
Effective Case Depth (ECD)			2.36mm		
<b>Test Results</b>					
Sr. No	Distance (mm)		Hardness value in HV		
1	0.20		713		
2	0.50		707		
3	0.80		696		
4	1.10		685		
5	1.40		680		
6	1.70		631		
7	2.00		591		
8	2.30		525		
9	2.60		480		
10	2.90		-		
11	3.20		-		
For VCK Foundry Technology					
 Authorized Signature					

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

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



# VCK FOUNDRY TECHNOLOGY

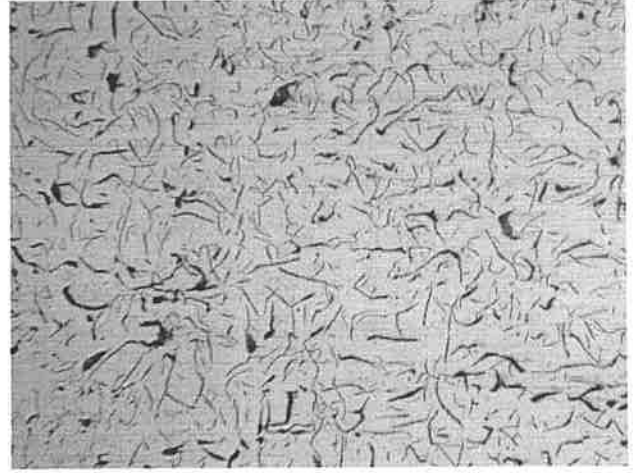
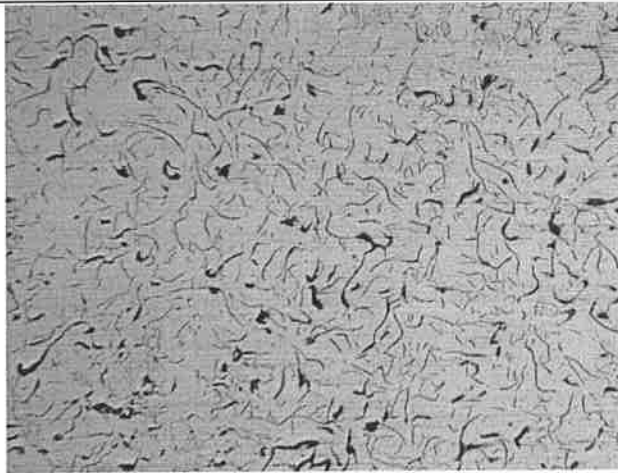
## Test Report- Microstructural Analysis of Graphite in Cast Iron

<b>Lab ID- M 880</b>		<b>Test Certificate No.-29071844</b>		<b>Date- 29/07/2018</b>	
<b>Customer Name</b>		Unique Auto Assemblies Pvt. Ltd. (Unit-I)			
		Plot no.-95,96; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
28/07/2018		29/07/2018		O.P.H. Cover- Pragati Founders (Inv. no-397-Date-21/07/18)	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Heat Code</b>	<b>Qty.</b>	<b>Grade</b>
28/07/2018	10070	ASTM-A-247:2016	-	500	FG-260

### Test Details

**Etchant- Unetched**

**Etching Condition- NA**



**Total Magnification-100X**

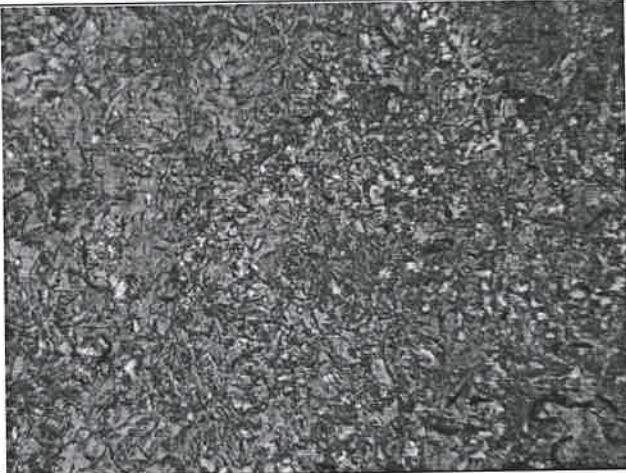

**Observation-**Predominantly A type of Graphite flakes are observed with some B & C type are observed.

<b>Sample-1</b>		<b>ASTM Class</b>			
<b>Average</b>		3-6			
<b>Graphite type distribution</b>	<b>Type A(%)</b>	<b>Type B(%)</b>	<b>Type C(%)</b>	<b>Type D(%)</b>	<b>Type E(%)</b>
<b>Average</b>	88.45	8.75	2.80	-	-

Continued on next page



# VCK FOUNDRY TECHNOLOGY

Test Report- Volume Fraction of phases					
Lab ID- M 880		Test Certificate No.-29071844		Date- 29/07/2018	
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	
28/07/2018		29/07/2018		O.P.H. Cover- Pragati Founders (Inv. no-397-Date-21/07/18)	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
28/07/2018	10070	ASTM-A-247:2016	-	500	FG-260
<b>Test Details</b>					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
<b>Total Magnification-100X</b>					
<b>Observation</b> -Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.					
Sample-1	Frame Area(mm)	Pearlite (%)	Ferrite (%)	Steadite (%)	
Average	0.936	97.80	2.20	-	
<b>For VCK Foundry Technology</b>					
 Authorized Signature					

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

Date-01/08/2018

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are collaborated with your department of foundry technology. 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

Atlanta Metallurgical Services



# ATLANTA

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Email : atlantametalab@gmail.com Cell: +91-8421246069 +91-9595401694

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


• Details of work required-

Sr. No.	Name of Company	Test Required	No. of Samples
1	Arrow Metallics	Micro-Vickers Hardness	1
2	MenonEngg Services	Grain Size & Microstructure of Steel	1
3	MenonEngg Services	Decarburization Analysis	1
4	MenonEngg Services	Inclusion rating Analysis	1
5	Maurya Industries	Microstructure of S.G. Iron	1





# VCK FOUNDRY TECHNOLOGY



Test Report- Micro-Vickers Hardness Test					
Lab ID- MH 128		Test Certificate No.-02081852		Date- 02/08/2018	
Customer Name		Arrow Metalics			
		A-21, Five Star MIDC,Kagal, Kohapur			
Date of Sample Received		Date of Test Completion		Sample Name	
01/08/2018		02/08/2018		LK-405-Region-A (China)	
Challan Date	Challan No.	Test Method	Part No.	Heat No.	Grade
-	-	ASTM-E-384-17	-	-	-
<b>Test Parameters</b>					
Sample Checking Area			Root Region		
Load			1.0 Kgf		
Cutoff at HV			450 HV		
Effective Case Depth (ECD)			3.79mm		
<b>Test Results</b>					
Sr. No	Distance (mm)		Hardness value in HV		
1	0.20		412		
2	0.50		457		
3	1.00		466		
4	1.50		478		
5	2.00		589		
6	2.50		571		
7	3.00		555		
8	3.50		503		
9	4.00		413		
10	4.50				
11	5.00				
12	5.50				
13	6.00				
14	6.50				
For VCK Foundry Technology					
 Authorized Signature					

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

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



**VCK** **FOUNDRY**  
**TECHNOLOGY**

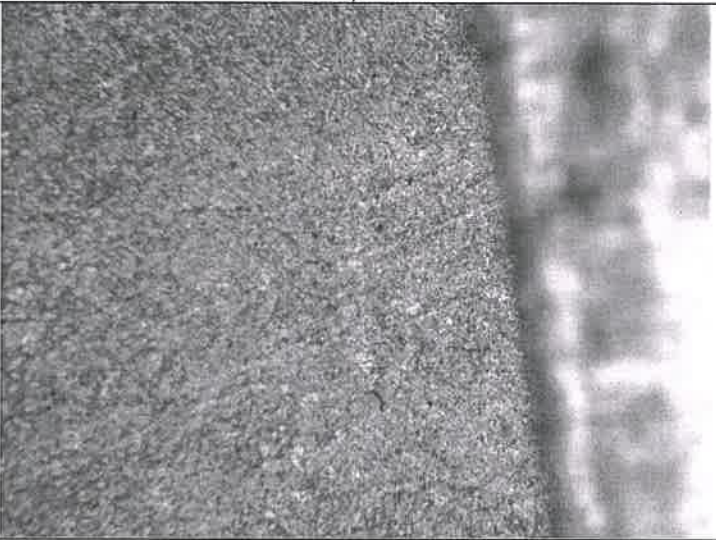

Test Report- Grain Size Measurement					
Lab ID- M 908		Test Certificate No.-04081852		Date- 04/08/2018	
Customer Name		Menon Engineering Services			
		Shiroli MIDC, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
04/08/2018		04/08/2018		Piston CP-206	
Challan Date	Challan No.	Test Method	Inv. No.	Heat No.	Grade
24/07/2018	718	ASTM-E-112:2013	-----	GGN	AISI-4140
<b>Test Details</b>					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
<b>Total Magnification-100X</b>					
Specimen Dimension-		Piston Cut Piece			
Type of Grain Determined-		Globular Cementite is observed in Ferritic Matrix.			
Grain Size Analysis Method-		Manual Comparison Method			
ASTM Grain Size No.-		9.0-9.5			
<b>For VCK Foundry Technology</b>					
 <b>Authorized Signature</b>					

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

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



# VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis					
Lab ID- M 908		Test Certificate No.-04081853		Date- 04/08/2018	
Customer Name		Menon Engineering Services			
		Shiroli MIDC, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
04/08/2018		04/08/2018		Piston CP-206	
Challan Date	Challan No.	Test Method	Inv. No.	Heat No.	Grade
24/07/2018	718	ASTM-E-1077:2013	----	GGN	AISI-4140
<b>Test Details</b>					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
<b>Total Magnification-100X</b>					
Specimen Dimension-		Piston Cut Piece- Location-C			
Observation		Decarburization was not found near surface. There is no evidence Decarburization in forged area combustion bowl.			
<b>For VCK Foundry Technology</b>					
 Authorized Signature					

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

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







# VCK FOUNDRY TECHNOLOGY

## Test Report- Inclusion Rating of Steel

<b>Lab ID- M 908</b>		<b>Test Certificate No.-04081851</b>		<b>Date- 04/08/2018</b>	
<b>Customer Name</b>		Menon Engineering Services			
		Shiroli MIDC, Kolhapur.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
04/08/2018		04/08/2018		Piston CP-206	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Inv. No.</b>	<b>Heat No.</b>	<b>Grade</b>
24/07/2018	718	ASTM-E-1122:2015	----	GGN	AISI-4140

### Test Details

<b>Etchant- N. A.</b>	<b>Etching Condition- N. A.</b>
	

### Total Magnification-100X

<b>Specimen Dimension-</b>	Piston Cut Piece							
<b>Inclusion Rating</b>	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	0.0	1.5	1.5

For VCK Foundry Technology

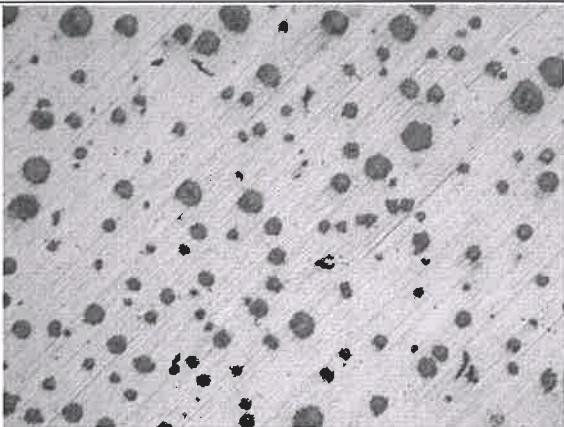
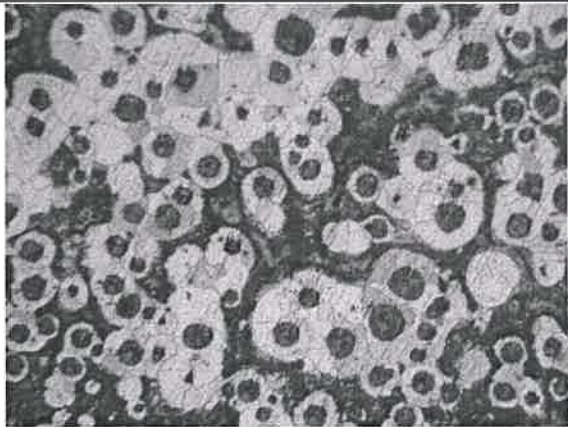
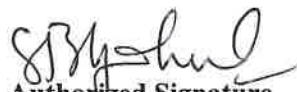
  
Authorized Signature

-----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 1024		Test Certificate No.-3108186		Date- 31/08/2018	
Customer Name		Maurya Industries			
		A-12, MIDC GokulShirgaon, Kolhapur			
Date of Sample Received		Date of Test Completion		Sample Name	
29/08/2018		31/08/2018		End Cap Radial	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
29/08/2018	1331	ASTM-E-2567-16a ASTM-E-1245:2016	11059730	8H7/7	65-45-12
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 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 (mm <sup>2</sup> )	0.959 mm <sup>2</sup>	Pearlite (%)	45.70		
Nodularity (%)	91%	Ferrite (%)	54.30		
Nodule Count/mm <sup>2</sup>	155	Carbide (%)	-		
For VCK Foundry Technology					
 Authorized Signature					

Format No.-AMS/TR/10-R.00-----End of Report-----



**भारतीय स्टेट बैंक**  
**State Bank of India**

(06587) - M.I.D.C.(SHIROLI), KOLHAPUR  
PLOT NO.P/9, MIDC INDUSTRIAL ESTATE,  
DIST:KOLHAPUR, MAHARASHTRA 416122  
Tel: 230-2468183 IFS Code : SBIN006587

केवल 3 महीने के लिए वैध / VALID FOR 3 MONTHS ONLY

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PAY *Vivekanand College Kolhapur*

को या उनके आदेश पर OR ORDER

रुपये RUPEES *Three Thousand Two Hundred only*

अदा करें ₹ *3200/-*

खा. सं.  
A/c No.

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ATLANTA METALLURGICAL SERVICES

MULTI-CITY CHEQUE Payable at Par at All Branches of SBI

Please sign above

⑈691699⑈ 416002005⑈ 000401⑈ 29

24-07-2017

MANIPAL TECHNOLOGIES LIMITED, BANGALORE / CTS-2010



# ATLANTA

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- Metallurgical Testing
- Failure Analysis
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- Metallurgical Consulting

Date-16/08/2018

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are collaborated with your department of foundry technology. 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

Atlanta Metallurgical Services



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

Sr. No.	Name of Company	Test Required	No. of Samples
1	Padmavati Auto Components	Microstructure of SG Iron	1
2	Arrow Metallics	Micro-Vickers Hardness	1
3	Arrow Metallics	Microstructure of Steel	1



**VCK FOUNDRY TECHNOLOGY**

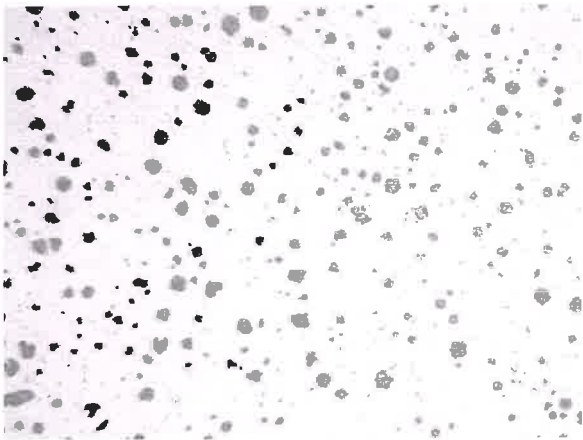
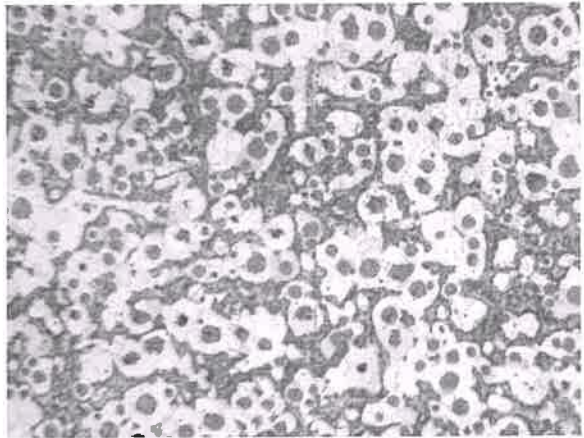


1964

**Test Report- Micro Structural Analysis of Nodular Cast Iron**

<b>Lab ID- M 975</b>		<b>Test Certificate No.-19081878</b>		<b>Date- 19/08/2018</b>	
<b>Customer Name</b>		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
19/08/2018		19/08/2018		R.A. Support	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Part No</b>	<b>Heat No</b>	<b>Grade</b>
19/08/2018	214	IS-1865:2010 ASTM-E-562:2011	R542513	262	550 B 06

**Test Results**

<b>Etchant- 4% Nital</b>	<b>Etching Condition- Immersion-Etching</b>
 <b>Unetched</b>	 <b>Etched</b>

**Total Magnification-100X**

<b>Specimen Dimension-</b>	Sample Cut Piece		
<b>Observation (Unetched)</b>	--		
<b>Observation (Etched)</b>	Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.		
<b>Graphite Analysis (Unetched Area)</b>		<b>Phase Analysis (Etched Area)</b>	
<b>Frame Area (mm<sup>2</sup>)</b>	0.959 mm <sup>2</sup>	<b>Pearlite (%)</b>	39.80
<b>Nodularity (%)</b>	92%	<b>Ferrite (%)</b>	60.20
<b>Nodule Count/mm<sup>2</sup></b>	255	<b>Carbide (%)</b>	-

**Tested By-**

*[Signature]*

**For VCK Foundry Technology Dept.**

*[Signature]*  
**Authorized Signatory**

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





**VCK FOUNDRY  
TECHNOLOGY**

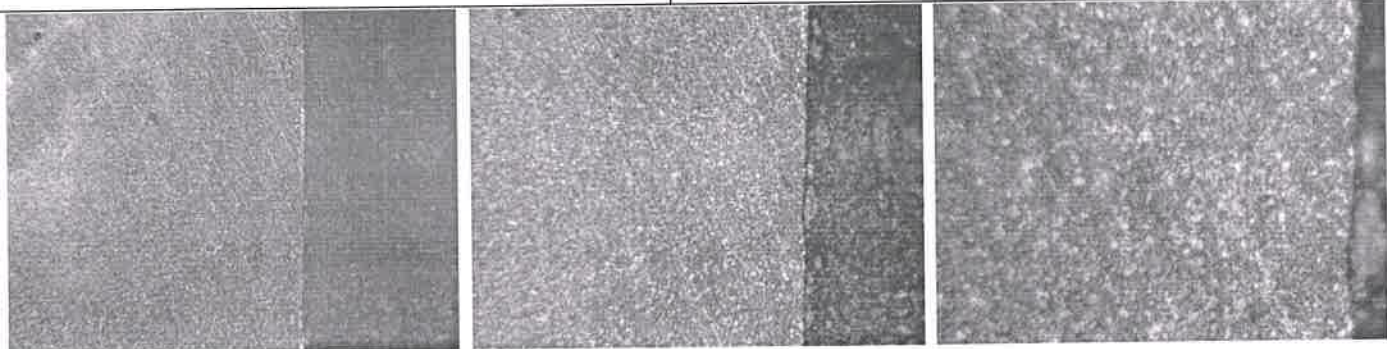




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**Test Report- Micro-Vickers Hardness Test**

<b>Lab ID- MH 164</b>		<b>Test Certificate No.-19081839</b>		<b>Date- 19/08/2018</b>	
<b>Customer Name</b>		Arrow Metallics			
		A-21, Five Star MIDC,Kagal, Kohapur			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
18/08/2018		19/08/2018		LK-405-Region-B	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Part No.</b>	<b>Heat No.</b>	<b>Grade</b>
-	-	ASTM-E-384-17	-	H-68	-
<b>Test Parameters</b>					
<b>Sample Checking Area</b>			<b>Location-B</b>		
<b>Load</b>			1.0 Kgf		
<b>Cutoff at HV</b>			450 HV		
<b>Effective Case Depth (ECD)</b>			4.28mm		
<b>Test Results</b>					
<b>Sr. No</b>	<b>Distance (mm)</b>		<b>Hardness value in HV</b>		
1	0.20		495		
2	0.50		529		
3	1.00		581		
4	1.50		561		
5	2.00		529		
6	2.50		500		
7	3.00		476		
8	3.50		457		
9	4.00		411		
10	4.50		-		
11	5.00		-		
12	5.50		-		
13	6.00		-		
14	6.50		-		
<b>Tested By-</b>			<b>For VCK Foundry Technology Dept.</b>		
					
			<b>Authorized Signatory</b>		

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

Test Report-Micro-structural Analysis					
Lab ID- M 976		Test Certificate No.-19081867		Date- 19/08/2018	
Customer Name		Arrow Metallics			
		A-21, Five Star MIDC,Kagal, Kohapur			
Date of Sample Received		Date of Test Completion		Sample Name	
18/08/2018		19/08/2018		LK-405-Region-B	
Challan Date	Challan No.	Test Method	Part No.	Heat No.	Grade
-----	-----	ASTM-E-562:2011	-	H-68	-
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X		Total Magnification-200X		Total Magnification-500X	
Specimen Dimension-		Cut Piece-Location-B			
Type of Structure Observed-		No Decarburization has been found. Tempered Martensite is observed with less than 5% Retained Austenite.			
Area Fraction-		Tempered Martensite (%)	Retained Austenite (%)	Other Phases (%)	
		96.20	3.80	Nil	
Tested By-			For VCK Foundry Technology Dept.		
			 Authorized Signatory		

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





# ATLANTA

## METALLURGICAL SERVICES

Gat No. 194, Hanuman nagar, Shiye, MIDC Shirol, Kolhapur. 416 122  
Email : atlantametalab@gmail.com Cell: +91-8421246069 +91-9595401894

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

Date-01/09/2018

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are collaborated with your department of foundry technology. 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

Atlanta Metallurgical Services



# ATLANTA

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



• Details of work required-

Sr. No.	Name of Company	Test Required	No. of Samples
1	Tulip Castings Pvt. Ltd.	Grain Size of Steel	1
2	Padmavati Auto Components	Microstructure of S.G. Iron	1
3	Arrow Metallics	Detailed Analysis of heat treated steel casting	1
4	BaramatiEngg. Pvt. Ltd.	Grain Size of Steel	3





**VCK FOUNDRY TECHNOLOGY**

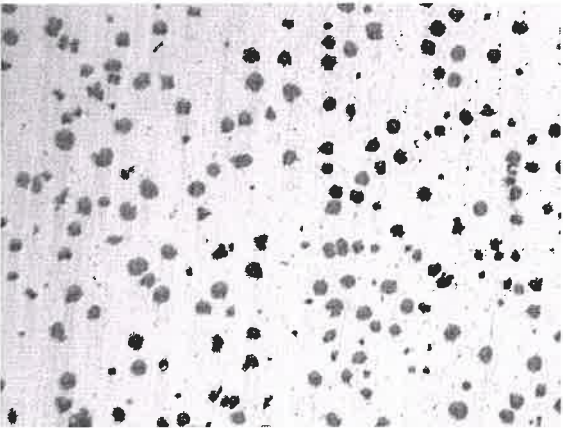
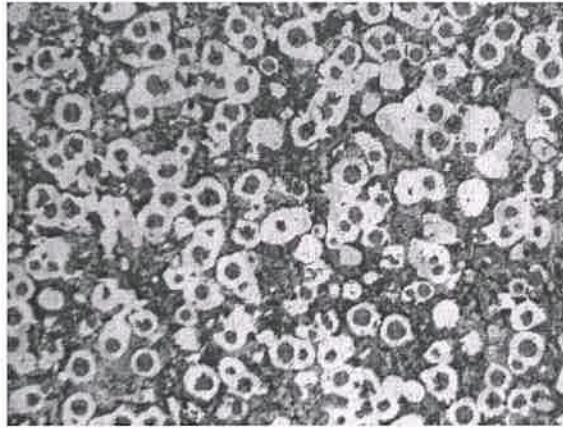

Test Report-Grain Size Measurement					
Lab ID- M 1043		Test Certificate No.-04091821		Date- 04/09/2018	
Customer Name		Tulip Castings Pvt. Ltd.			
		Plot No.-29, MIDC Shiroli, Kolhapur-416122			
Date of Sample Received		Date of Test Completion		Sample Name	
02/09/2018		04/09/2018		4"#300-Expanding Gate Valve Bonnet-O.D. Face	
Challan Date	Challan No.	Test Method	Heat No.	Heat Lot No.	Grade
-----	-----	ASTM-E-112:2013	T-4842	N-0458/18-19 T-0460/18-19	ASTM A216 WCC
Qualifying Heat Nos.					
Qualifying Part-					
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
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			
For VCK Foundry Technology   Authorized Signature					

-----Endof 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- M1068		Test Certificate No.-070918533		Date- 07/09/2018	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
07/09/2018		07/09/2018		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
06/09/2018	316	IS-1865:2010 ASTM-E-562:2011	R542513	16	550 B 06
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)		--			
Observation (Etched)		Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm <sup>2</sup> )	0.959 mm <sup>2</sup>	Pearlite (%)	50.60		
Nodularity (%)	92%	Ferrite (%)	49.40		
Nodule Count/mm <sup>2</sup>	235	Carbide (%)	-		
For VCK Foundry Technology					
 Authorized Signature					

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

Nodal Officer

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



# VCK FOUNDRY TECHNOLOGY

## Test Report-Micro-structural Analysis

<b>Lab ID- M 2051</b>		<b>Test Certificate No.-2309181</b>		<b>Date- 23/09/2018</b>	
<b>Customer Name</b>		Arrow Metallics			
		A-21, Five Star MIDC,Kagal, Kohapur			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
22/09/2018		23/09/2018		LK-405-Location-B	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Part No.</b>	<b>Heat No.</b>	<b>Grade</b>
-----	-----	ASTM-E-1245:2016 IS-6396:2018	-	18-I-74-2	-

### Test Details

**Etchant- 4% Nital**

**Etching Condition- Immersion-Etching**



<b>Total Magnification-100X</b>	<b>Total Magnification-200X</b>	<b>Total Magnification-500X</b>	
<b>Specimen Dimension-</b>	Cut Piece-Location-B		
<b>Type of Structure Observed-</b>	Decarburization has been found (0.641mm). Tempered Martensite is observed with less than 5% Retained Austenite.		
<b>Area Fraction-</b>	<b>Tempered Martensite (%)</b>	<b>Retained Austenite (%)</b>	<b>Other Phases (%)</b>
	97.90	2.10	Nil

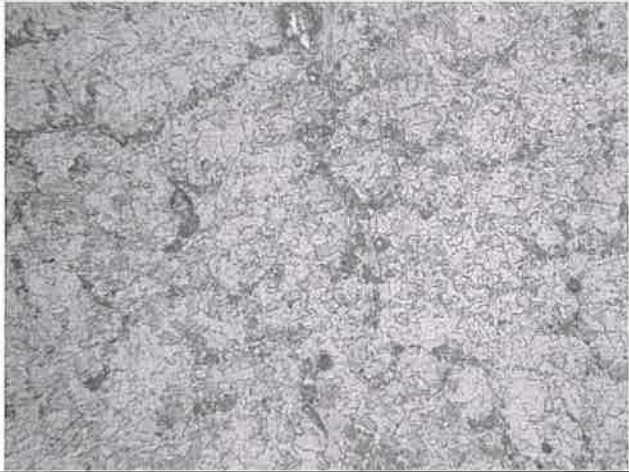

For VCK Foundry Technology

Authorized Signature

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



# VCK FOUNDRY TECHNOLOGY

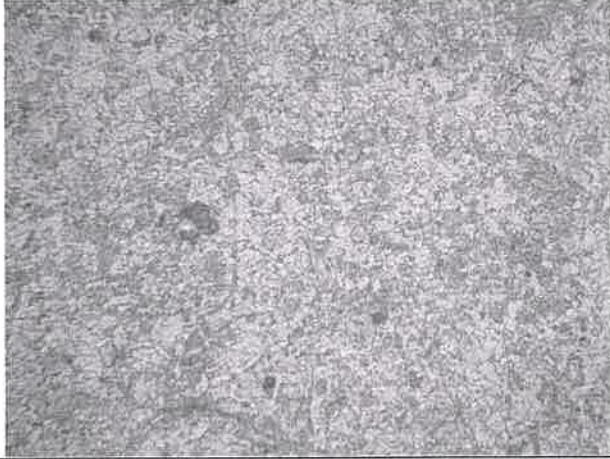

Test Report- Grain Size Measurement					
Lab ID- M 2098		Test Certificate No.-30091824		Date- 30/09/2018	
Customer Name		Baramati Engineering Pvt. Ltd.			
		C-8-11,24; Baramati Co-Op. Ind. Estate, Bhigwan Road, Baramati.			
Date of Sample Received		Date of Test Completion		Sample Name	
29/09/2018		30/09/2018		4#600-GTV Body-R-Side	
Challan Date	Challan No.	Test Method	Heat No.	Heat Lot No.	Grade
29/09/2018	63	ASTM-E-112:2013	B-9546	N-501 T-502	ASTM A216 WCC
		Qualifying Heat Nos.-			
		Qualifying Part-			
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			
<b>For VCK Foundry Technology</b>   <b>Authorized Signature</b>					

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

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



# VCK FOUNDRY TECHNOLOGY

Test Report- Grain Size Measurement					
Lab ID- M 2097		Test Certificate No.-30091823		Date- 30/09/2018	
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	
29/09/2018		30/09/2018		4#600-GTV Body-B-Side	
Challan Date	Challan No.	Test Method	Heat No.	Heat Lot No.	Grade
29/09/2018	63	ASTM-E-112:2013	B-9546	N-501 T-502	ASTM A216 WCC
		Qualifying Heat Nos.-			
		Qualifying Part-			
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			
For VCK Foundry Technology   Authorized Signature					



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

Nodal Officer

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



**VCK FOUNDRY TECHNOLOGY**

Test Report- Grain Size Measurement					
Lab ID- M 2096		Test Certificate No.-30091822		Date- 30/09/2018	
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	
29/09/2018		30/09/2018		4#600-GTV Body-L-Side	
Challan Date	Challan No.	Test Method	Heat No.	Heat Lot No.	Grade
29/09/2018	63	ASTM-E-112:2013	B-9546	N-501 T-502	ASTM A216 WCC
		Qualifying Heat Nos.-			
		Qualifying Part-			
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Replica-L-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			
For VCK Foundry Technology   Authorized Signature					

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


**Nodal Officer**

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





# VCK FOUNDRY TECHNOLOGY

Test Report- Micro-Vickers Hardness Test					
Lab ID- MH114		Test Certificate No.-22071825		Date- 22/07/2018	
Customer Name		Rocket Engineering Corp. Pvt. Ltd.			
		D-19, MIDC Shirol, Kolhapur-416122			
Date of Sample Received		Date of Test Completion		Sample Name	
19/07/2018		22/07/2018		Gov. Weight-Sample-1	
Challan Date	Challan No.	Test Method	Part No.	Heat No.	Grade
18/07/2018	6917	ASTM-E-384-17	-	-	-
<b>Test Parameters</b>					
Sample Checking Area			Root Region		
Load			1.0Kgf		
Cutoff at HV			450 HV		
Effective Case Depth (ECD)			-		
<b>Test Results</b>					
Sr. No	Distance (mm)		Hardness value in HV		
1	0.10		811		
2	0.50		785		
3	0.90		781		
4	1.30		775		
5	1.70		769		
6	2.10		763		
7	2.50		759		
8	2.90		756		
9	3.30		747		
10	3.70		744		
11	4.10		738		
12	4.50		724		
13	4.90		713		
14	5.30		707		
15	5.70		701		
16	6.10		701		
<b>For VCK Foundry Technology</b>					
 Authorized Signature					

-----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: +91-8421246069 +91-9595401694

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

Date-30/09/2018

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are collaborated with your department of foundry technology. 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,



*Vatane*

Director

Atlanta Metallurgical Services



# ATLANTA

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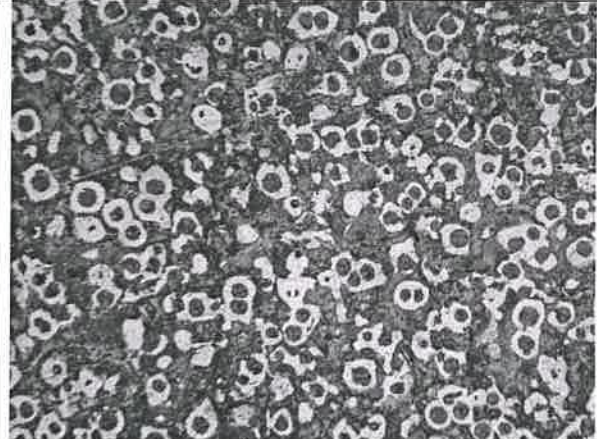

• Details of work required-

Sr. No.	Name of Company	Test Required	No. of Samples
1	Padmavati Auto Components	Microstructure of S.G. Iron	1





# VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- M 2112		Test Certificate No.-02101859		Date- 02/10/2018	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
02/10/2018		02/10/2018		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
30/09/2018	150	ASTM-E-2567-16a ASTM-E-1245:2016	D2-106407	180	550 B 06
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)		--			
Observation (Etched)		Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm <sup>2</sup> )	0.959 mm <sup>2</sup>	Pearlite (%)	64.40		
Nodularity (%)	93%	Ferrite (%)	33.60		
Nodule Count/mm <sup>2</sup>	234	Carbide (%)	-		
For VCK Foundry Technology					
 Authorized Signature					



# ATLANTA

## METALLURGICAL SERVICES

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

Date-30/10/2018

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are collaborated with your department of foundry technology. 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,

*Vakam*

Director

Atlanta Metallurgical Services



# ATLANTA

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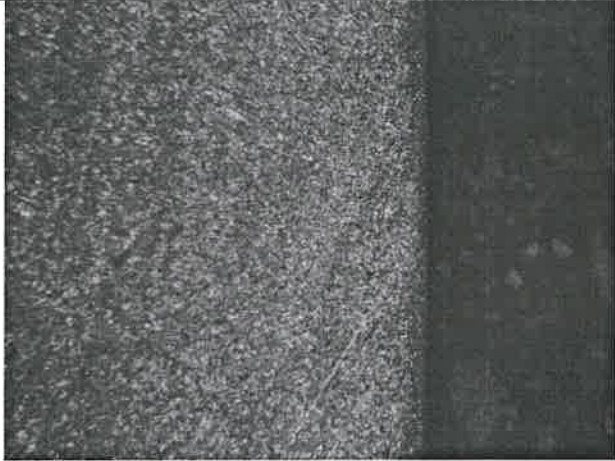
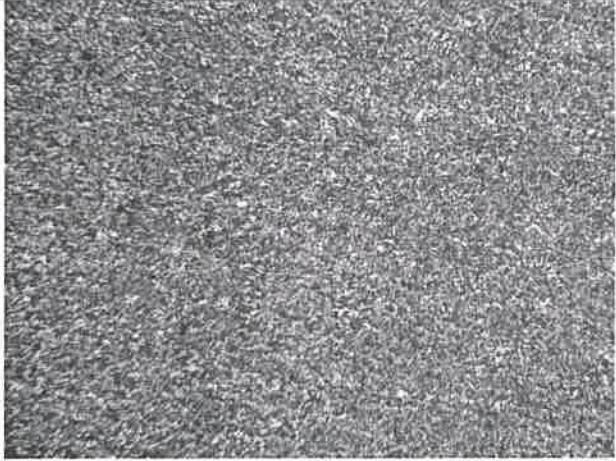

- Details of work required-

Sr. No.	Name of Company	Test Required	No. of Samples
1	Unique Auto Shafts	Microstructure of Hardened Steel	1
2	Padmavati Auto Components	Microstructure of S.G. Iron	1
3	Trio Enterprises	Microstructure of S.G. Iron	1





# VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis					
Lab ID- M-2356		Test Certificate No.-01111841		Date- 01/11/2018	
Customer Name		Unique Auto Shafts			
		Plot no.-87,88; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
Date of Sample Received		Date of Test Completion		Sample Name	
30/10/2018		01/11/2018		Reverse Idler Shaft-5823 2635 7901	
Challan Date	Challan No.	Test Method	Batch Code	Qty.	Grade
30/10/2018	10542	ASTM-E-1245:2016	J-1	-----	----
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Case region-Total Magnification-100X			Core Region-Total Magnification-100X		
Specimen Dimension-		Sample Cut Piece			
Type of Structure Observed		In case region, Tempered Martensite is observed Nil Carbides and less than 5% Retained Austenite. Core region shows Low carbon tempered Martensite with some amount of Bainite and Ferrite.			
Area Fraction-Case Region		Tempered Martensite (%)		Retained Austenite (%)	
		98.20		1.80	
		Carbides (%)		Nil	
<b>For VCK Foundry Technology</b>  Authorized Signature					

Format No.-AMS/TR/11-R.00-----End of Report-----Nodal Officer-----

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

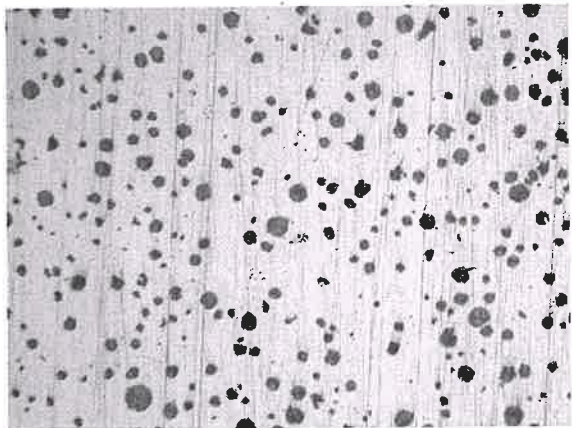
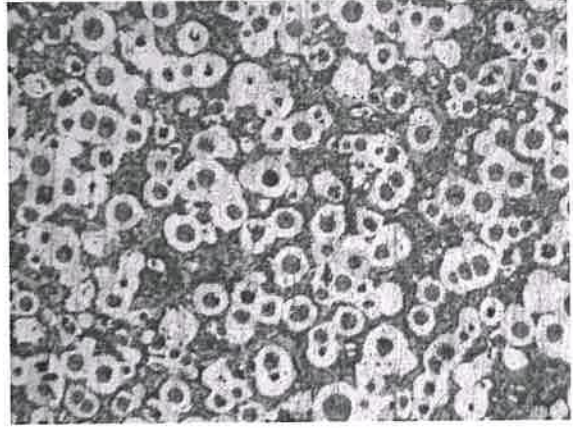


# VCK FOUNDRY TECHNOLOGY

## Test Report- Micro Structural Analysis of Nodular Cast Iron

Lab ID- M 2395		Test Certificate No.-03111865		Date- 03/11/2018	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
03/11/2018		03/11/2018		R.A. Support	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
02/11/2018	24	ASTM-E-2567-16a ASTM-E-1245:2016	R 542513	77	550 B 06

### Test Results

Etchant- 4% Nital	Etching Condition- Immersion-Etching
 Unetched	 Etched

### Total Magnification-100X

Specimen Dimension-	Sample Cut Piece		
Observation (Unetched)	--		
Observation (Etched)	Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.		
Graphite Analysis (Unetched Area)		Phase Analysis (Etched Area)	
Frame Area (mm <sup>2</sup> )	0.959 mm <sup>2</sup>	Pearlite (%)	44.60
Nodularity (%)	92%	Ferrite (%)	55.40
Nodule Count/mm <sup>2</sup>	235	Carbide (%)	-

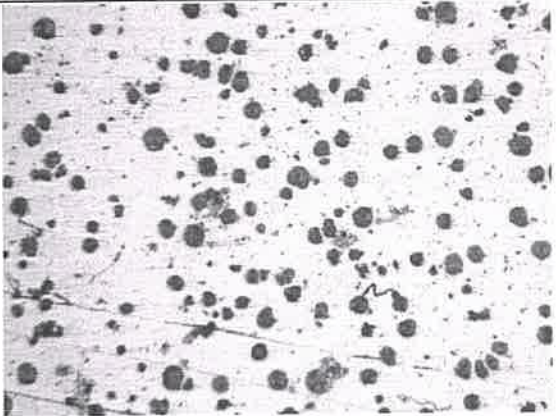
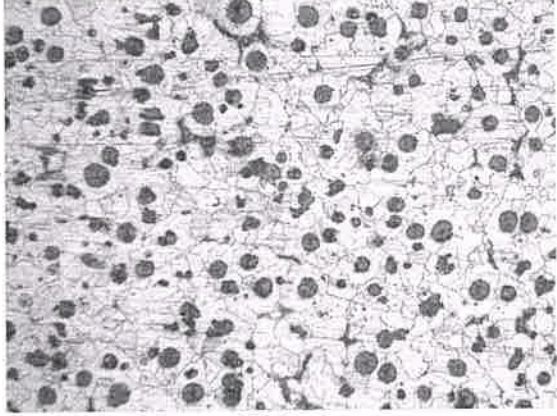

For VCK Foundry Technology

  
 Authorized Signature





# VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis of Nodular Cast Iron					
Lab ID- M-2490		Test Certificate No.-2711185		Date- 27/11/2018	
Customer Name		Trio Enterprises			
		B-4, Shirol MIDC, Kolhapur			
Date of Sample Received		Date of Test Completion		Sample Name	
25/11/2018		27/11/2018		Belt Wheel	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
25/11/2018	1965	ASTM-E-2567-16a ASTM-E-1245:2016	--	21M18	SG 400/12
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)		--			
Observation (Etched)		Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.			
Graphite Analysis (Unetched Area)			Phase Analysis (Etched Area)		
Frame Area (mm <sup>2</sup> )	0.959 mm <sup>2</sup>	Pearlite (%)	81.50		
Nodularity (%)	93%	Ferrite (%)	18.50		
Nodule Count/mm <sup>2</sup>	218	Carbide (%)	-		
For VCK Foundry Technology					
 Authorized Signature					

Format No.-AMS/TR/10-R.00

-----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: +91-8421246069 +91-9595401694

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

Date-30/12/2018

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are collaborated with your department of foundry technology. 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,



*V. K. Kulkarni*

Director

Atlanta Metallurgical Services



# ATLANTA

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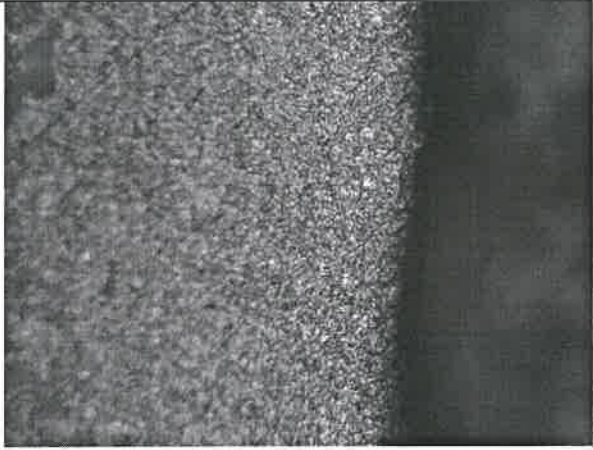
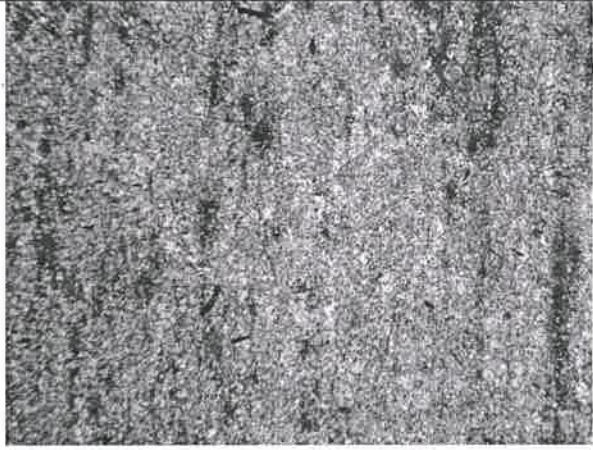

• Details of work required-

Sr. No.	Name of Company	Test Required	No. of Samples
1	Param Industries	Microstructure of Hardened Steel	1
2	Padmavati Auto Components	Microstructure of Cast Iron	1
3	Perfect Pins	Grain Boundary Oxidation analysis of hardened Steel	1
4	Unique Auto Shafts	Microstructural Analysis of Induction Hardened steel	1





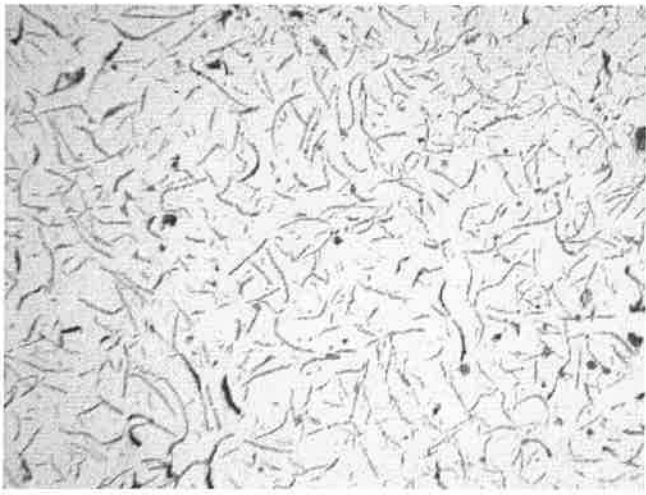
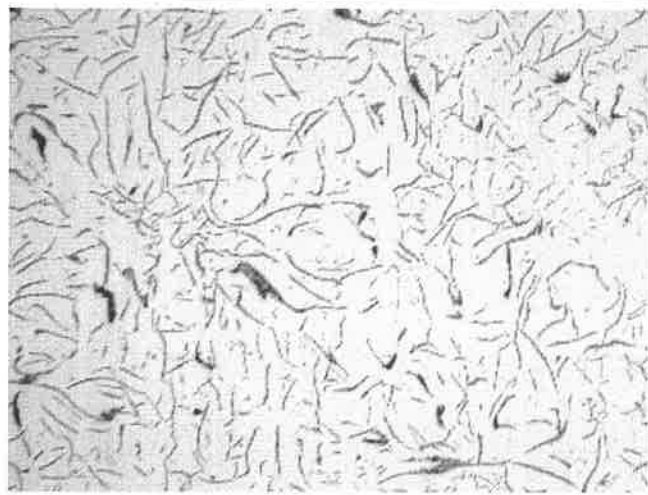
# VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis					
Lab ID- M 2704		Test Certificate No.-01011910		Date- 01/01/2019	
Customer Name		Param Industries			
		Plot no.-A/80; Laxmi Ind. Estate, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
30/12/2018		01/01/2019		Plain Balancer Shaft-Top	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
30/12/2018	171	ASTM-E-1245:2016 ASTM-E-562:2011		-	16MnCr5
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Case region-Total Magnification-200X			Core Region-Total Magnification-100X		
Specimen Dimension-		Sample Cut Piece			
Type of Structure Observed		In case region, Tempered Martensite is observed with some amount of Carbides and less than 5 % Retained Austenite. Core region shows Low carbon tempered Martensite with some amount of Bainite and Ferrite.			
Area Fraction-Case Region		Tempered Martensite (%)	Retained Austenite (%)	Carbides (%)	
		95.85	2.50	1.65	
For VCK Foundry Technology					
 Authorized Signature					





# VCK FOUNDRY TECHNOLOGY

## Test Report- Microstructural Analysis of Graphite in Cast Iron

<b>Lab ID- M 2720</b>		<b>Test Certificate No.-04011917</b>			<b>Date- 04/01/2019</b>	
<b>Customer Name</b>		Padmavati Auto Components				
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.				
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>		
04/01/2019		04/01/2019		Cover Thermostat		
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Part No</b>	<b>Heat No</b>	<b>Grade</b>	
02/01/2019	106	IS-7754:2018 ASTM-E-562:2011	R 505727	185	--	
<b>Test Details</b>						
<b>Etchant- Unetched</b>			<b>Etching Condition- NA</b>			
						
<b>Total Magnification-100X</b>						
<b>Observation-</b> Predominantly A types of Graphite flakes are observed with some B type are observed.						
<b>Sample-1</b>			<b>ASTM Class</b>			
<b>Average</b>			<b>4-6</b>			
<b>Graphite type distribution</b>	<b>Type A(%)</b>	<b>Type B(%)</b>	<b>Type C(%)</b>	<b>Type D(%)</b>	<b>Type E(%)</b>	
<b>Average</b>	87 to 89	11 to 13	-	-	-	
<b>Continued on next page-</b>						

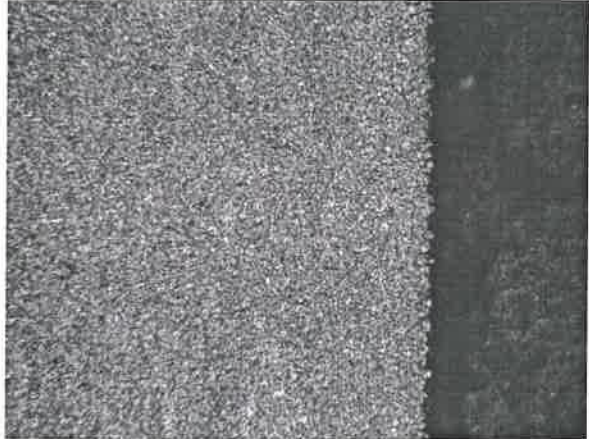
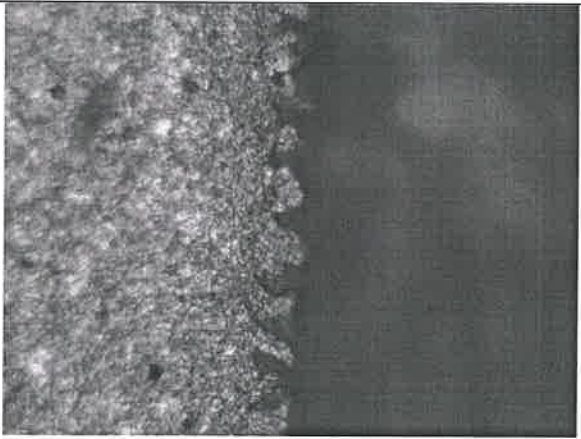



# VCK FOUNDRY TECHNOLOGY

Test Report- Volume Fraction of phases					
Lab ID- M 2720		Test Certificate No.-04011917		Date- 04/01/2019	
Customer Name		Padmavati Auto Components			
		2498, Vivekanand Nagar, Korochi, Hatkanangle, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
04/01/2019		04/01/2019		Cover Thermostat	
Challan Date	Challan No.	Test Method	Part No	Heat No	Grade
02/01/2019	106	ASTM-E-1245:2016 ASTM-E-562:2011	R 505727	185	--
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Observation- Segregated Ferrite is observed in the structure. Pearlitic matrix is observed with following percentage of Ferrite and Pearlite.					
Sample-1	Frame Area(mm)	Pearlite (%)	Ferrite (%)	Steadite (%)	
Average	0.936	76.90	23.10	--	
For VCK Foundry Technology					
 Authorized Signature					



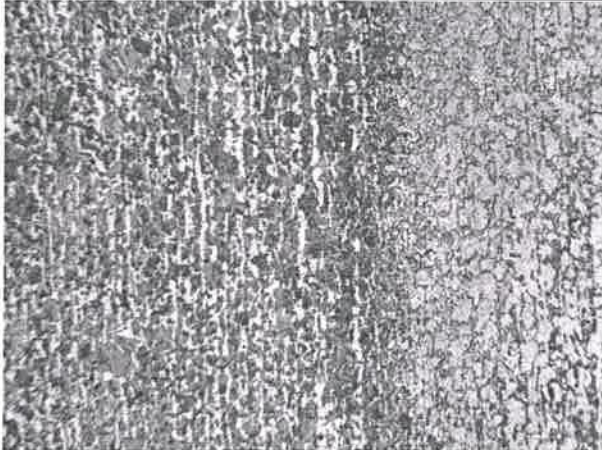
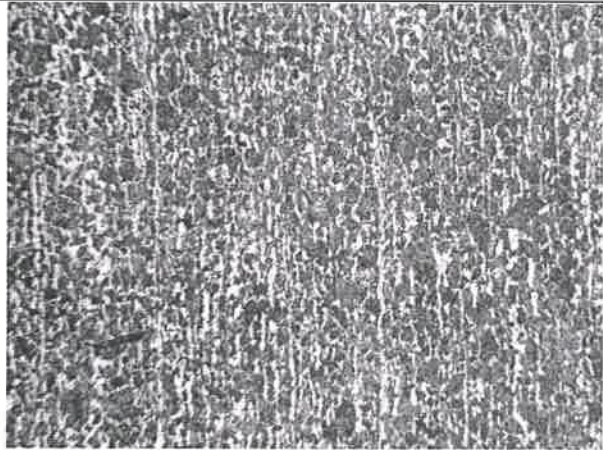

# VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis					
Lab ID- M 2785		Test Certificate No.-1901193		Date- 19/01/2019	
Customer Name		Perfect Pins			
		D-3, MIDC Shirol, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
19/01/2019		19/01/2019		Telcon Pin-12360	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
		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 with some amount of Carbides and more than 10% Retained Austenite. Grain Boundary Oxidation was observed (Avg.-16 $\mu\text{m}$ ) in the structure.			
Area Fraction-Case Region		Tempered Martensite (%)	Retained Austenite (%)	Carbides (%)	
		86.45	10.85	2.70	
For VCK Foundry Technology					
 Authorized Signature					



# VCK FOUNDRY TECHNOLOGY

## Test Report- Micro Structural Analysis

<b>Lab ID- M 2796</b>		<b>Test Certificate No.-20011916</b>		<b>Date- 20/01/2019</b>	
<b>Customer Name</b>		Unique Auto Shafts			
		Plot no.-87,88; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
19/01/2019		20/01/2019		Shaft B-C-Range-R-138533	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Batch Code</b>	<b>Qty.</b>	<b>Grade</b>
19/01/2019	10676	ASTM-E-1245:2016 ASTM-E-562:2011	A1 U-19	-----	----
<b>Test Details</b>					
<b>Etchant- 4% Nital</b>			<b>Etching Condition- Immersion-Etching</b>		
					
From 2.5 to 3.5mm			Core area		
Total Magnification-100X			Total Magnification-100X		
<b>Specimen Dimension-</b>		Sample Cut Section			
<b>50% Martensitic Depth</b>		50% Martensitic area is observed at 2.80mm.			
<b>Type of Structure Observed- (Core Region)</b>		Core region shows Banded-Ferrite-Pearlitic structure. Ferrite-36.20 % & Pearlite-63.80 %.			
<b>For VCK Foundry Technology</b>					
 Authorized Signature					

Format No.-AMS/TR/07-R.00-----End of Report-----**Nodal Officer**

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





# ATLANTA

## METALLURGICAL SERVICES

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

Date-18/01/2019

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

We have metallurgical testing and consultancy setup in MIDC Shirolji, Kolhapur. We are collaborated with your department of foundry technology. 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

Atlanta Metallurgical Services



# ATLANTA

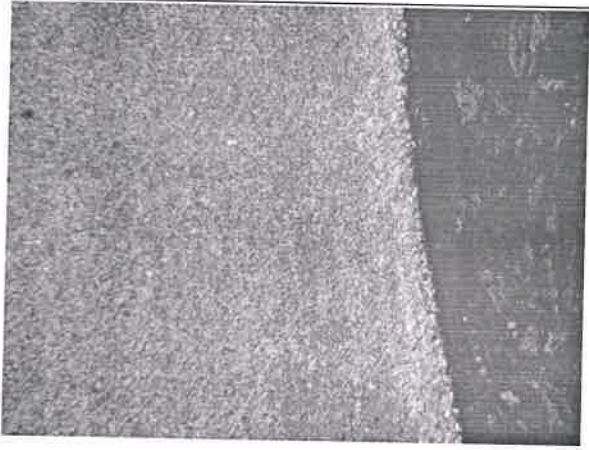



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- Metallurgical Consulting

Sr. No.	Name of Company	Test Required	No. of Samples
1	Unique Auto Shaft	Microstructure of Hardened Steel	1
2	Unique Auto Shaft	ITP Analysis	1
3	Unique Auto Shaft	ITP Analysis	1

**Test Report- Micro Structural Analysis**

<b>Lab ID- M 2797</b>		<b>Test Certificate No.-20011917</b>		<b>Date- 20/01/2019</b>	
<b>Customer Name</b>		Unique Auto Shafts			
		Plot no.-87,88; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
19/01/2019		20/01/2019		5 <sup>th</sup> & Reverse Shift Rail-3361320	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Batch Code</b>	<b>Qty.</b>	<b>Grade</b>
19/01/2019	10676	ASTM-E-1245:2016 ASTM-E-562:2011	M1	-----	----
<b>Test Details</b>					
<b>Etchant- 4% Nital</b>			<b>Etching Condition- Immersion-Etching</b>		
					
<b>Case region-Total Magnification-100X</b>			<b>Core Region-Total Magnification-100X</b>		
<b>Specimen Dimension-</b>		Sample Cut Piece			
<b>Type of Structure Observed</b>		In case region, Tempered Martensite is observed Nil Carbides and less than 5% Retained Austenite. Core region shows Low carbon tempered Martensite with some amount of Bainite and Ferrite.			
<b>Area Fraction-Case Region</b>		<b>Tempered Martensite (%)</b>	<b>Retained Austenite (%)</b>	<b>Carbides (%)</b>	
		98.50	1.50	Nil	
<b>Tested By-</b>			<b>For VCK Foundry Technology Dept.</b>		
					
			<b>Authorized Signatory</b>		

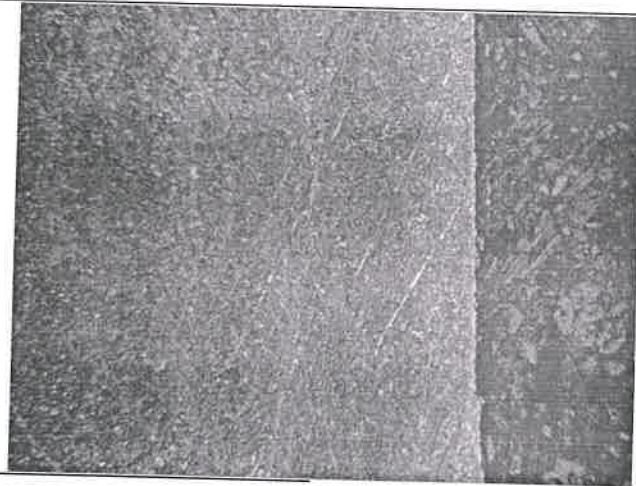
**Test Report- Micro Structural Analysis**

<b>Lab ID- M 2796</b>		<b>Test Certificate No.-20011916</b>		<b>Date- 20/01/2019</b>	
<b>Customer Name</b>		Unique Auto Shafts			
		Plot no.-87,88; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
19/01/2019		20/01/2019		Shaft B-C-Range-R-138533	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Batch Code</b>	<b>Qty.</b>	<b>Grade</b>
19/01/2019	10676	ASTM-E-1245:2016 ASTM-E-562:2011	A1 U-19	-----	----

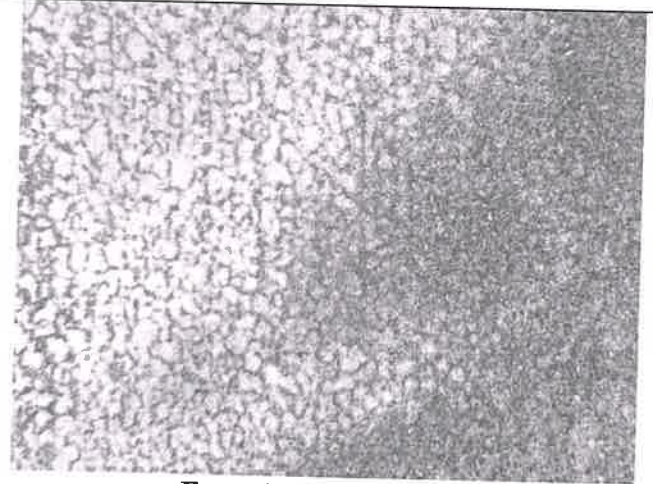
**Test Details**

**Etchant- 4% Nital**

**Etching Condition- Immersion-Etching**



Near Surface



From 1.5mm to 2.5mm

**Total Magnification-100X**

<b>Specimen Dimension-</b>	Sample Cut Section
<b>Type of Structure Observed- (Case Region)</b>	Fine Tempered Martensite is observed near surface with 1.25 % Retained Austenite. Carbides are not observed in the structure. Decarburization was not observed.
<b>5% ITP Depth-</b>	Intermediate Transformation Product is observed near surface at 2.20mm (around 5%).

**Tested By-**

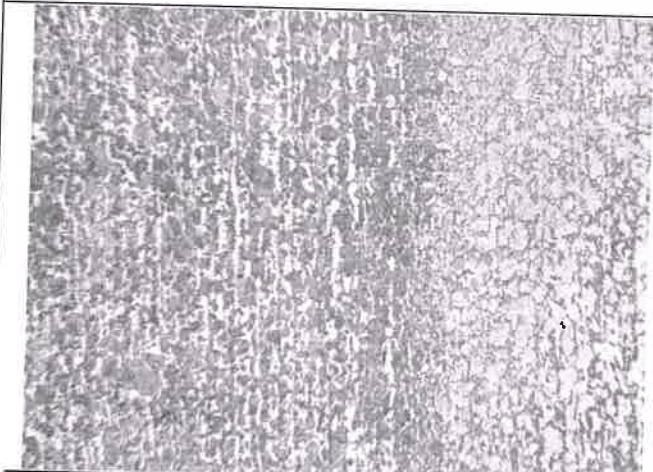
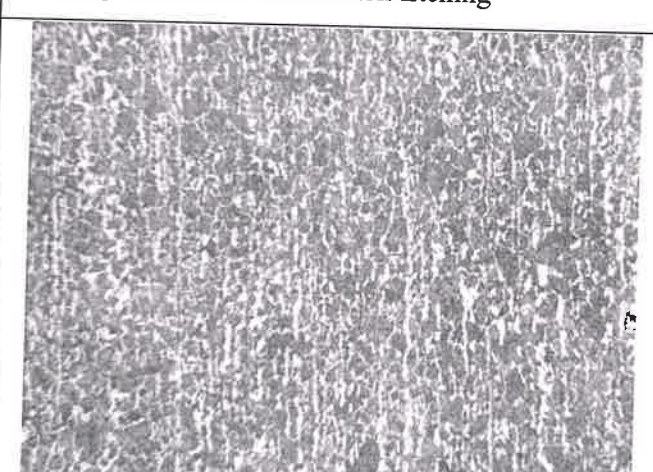


**For VCK Foundry Technology Dept.**




**Authorized Signatory**

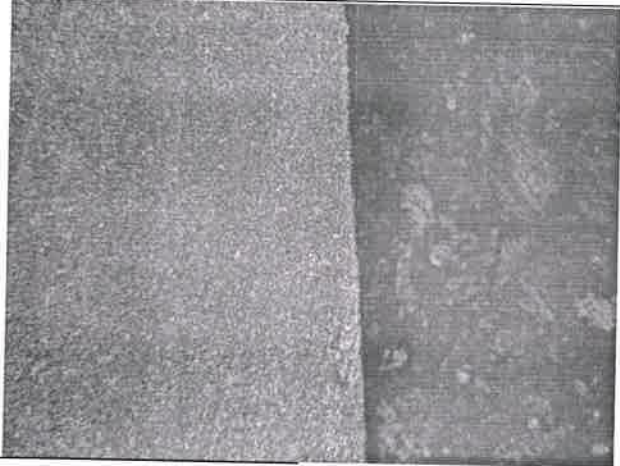
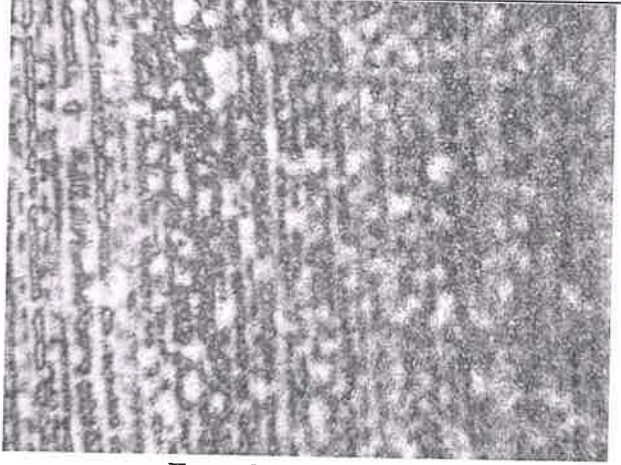


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**Test Report- Micro Structural Analysis**

<b>Lab ID- M 2796</b>		<b>Test Certificate No.-20011916</b>		<b>Date- 20/01/2019</b>	
<b>Customer Name</b>		Unique Auto Shafts			
		Plot no.-87,88; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
19/01/2019		20/01/2019		Shaft B-C-Range-R-138533	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Batch Code</b>	<b>Qty.</b>	<b>Grade</b>
19/01/2019	10676	ASTM-E-1245:2016 ASTM-E-562:2011	A1 U-19	-----	----
<b>Test Details</b>					
<b>Etchant- 4% Nital</b>			<b>Etching Condition- Immersion-Etching</b>		
 <p>From 2.5 to 3.5mm</p>			 <p>Core area</p>		
Total Magnification-100X			Total Magnification-100X		
<b>Specimen Dimension-</b>		Sample Cut Section			
<b>50% Martensitic Depth</b>		50% Martensitic area is observed at 2.80mm.			
<b>Type of Structure Observed- (Core Region)</b>		Core region shows Banded-Ferrite-Pearlitic structure. Ferrite-36.20 % & Pearlite-63.80 %.			
<b>Tested By-</b>			<b>For VCK Foundry Technology Dept.</b>		
			 <b>Authorized Signatory</b>		

Format No.-AMS/TR/07-R.00-----End of Report-----

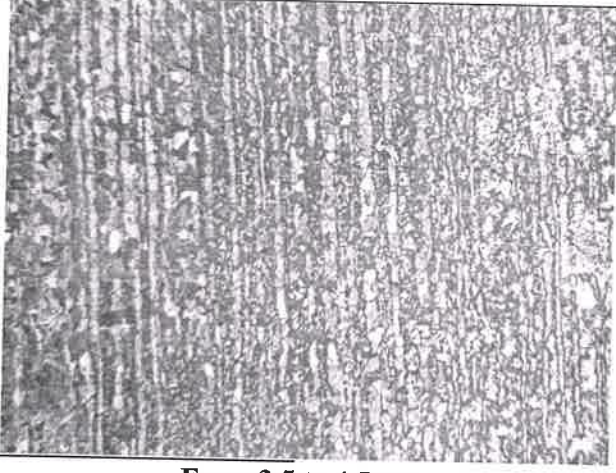



**Test Report- Micro Structural Analysis**

<b>Lab ID- M 2798</b>		<b>Test Certificate No.-20011918</b>		<b>Date- 20/01/2019</b>	
<b>Customer Name</b>		Unique Auto Shafts			
		Plot no.-87,88; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
19/01/2019		20/01/2019		Shifter Shaft (Reverse) 2691 2651 7918	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Batch Code</b>	<b>Qty.</b>	<b>Grade</b>
19/01/2019	10676	ASTM-E-1245:2016 ASTM-E-562:2011	A1 U19	-----	----
<b>Test Details</b>					
<b>Etchant- 4% Nital</b>			<b>Etching Condition- Immersion-Etching</b>		
 <p align="center">Near Surface</p>			 <p align="center">From 2.5mm to 3.5mm</p>		
<b>Total Magnification-100X</b>					
<b>Specimen Dimension-</b>		Sample Cut Section			
<b>Type of Structure Observed- (Case Region)</b>		Fine Tempered Martensite is observed near surface with 1.05 % Retained Austenite. Carbides are not observed in the structure. Decarburization was not observed.			
<b>5% ITP Depth-</b>		Intermediate Transformation Product is observed near surface at 3.10mm (around 5%).			
<b>Tested By-</b>			<b>For VCK Foundry Technology Dept.</b>		
			 <b>Authorized Signatory</b>		

Continued on next page-



**Test Report- Micro Structural Analysis**

<b>Lab ID- M 2798</b>		<b>Test Certificate No.-20011918</b>		<b>Date- 20/01/2019</b>	
<b>Customer Name</b>		Unique Auto Shafts			
		Plot no.-87,88; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>		<b>Sample Name</b>	
19/01/2019		20/01/2019		Shifter Shaft (Reverse) 2691 2651 7918	
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Batch Code</b>	<b>Qty.</b>	<b>Grade</b>
19/01/2019	10676	ASTM-E-1245:2016 ASTM-E-562:2011	A1 U19	-----	----
<b>Test Details</b>					
<b>Etchant- 4% Nital</b>			<b>Etching Condition- Immersion-Etching</b>		
					
From 3.5 to 4.5mm			Core area		
Total Magnification-100X			Total Magnification-100X		
<b>Specimen Dimension-</b>		Sample Cut Section			
<b>50% Martensitic Depth</b>		50% Martensitic area is observed at 3.80mm.			
<b>Type of Structure Observed- (Core Region)</b>		Core region shows Banded-Ferrite-Pearlitic structure. Ferrite-35.80 % & Pearlite-64.20 %.			
<b>Tested By-</b>			<b>For VCK Foundry Technology Dept.</b>		
					
			<b>Authorized Signatory</b>		

Format No.-AMS/TR/07-R.00-----End of Report-----



# ATLANTA

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

Date-17/02/2019

To

Nodal Officer

Dept. of Foundry Technology

Vivekanand College, Kolhapur

Subject- To provide collaborated testing and consultancy services

Dear sir,

We have metallurgical testing and consultancy setup in MIDC Shirol, Kolhapur. We are collaborated with your department of foundry technology. 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,

*Vatona*

Director

Atlanta Metallurgical Services





# ATLANTA

## METALLURGICAL SERVICES

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- Material Solutions
- Metallurgical Consulting

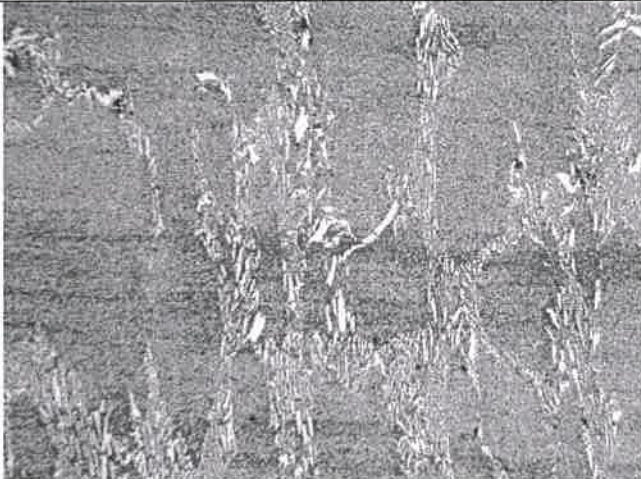

• Details of work required-

Sr. No.	Name of Company	Test Required	No. of Samples
1	Manugraph India Ltd.	Microstructure of Die Steel	1
2	Manugraph India Ltd.-Unit-II	Microstructural Analysis of Hardened steel	1
3	Unique Auto Shafts	Microstructural Analysis of Induction Hardened steel	1

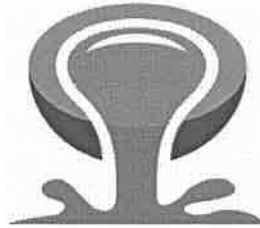




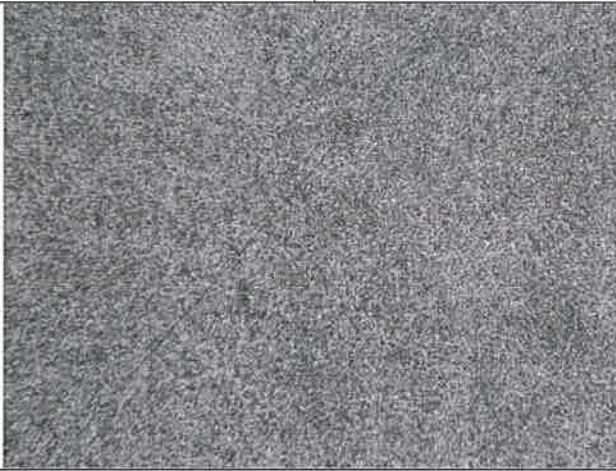

# VCK FOUNDRY TECHNOLOGY

Test Report- Micro Structural Analysis					
Lab ID- M 2781		Test Certificate No.-20021914		Date- 20/02/2019	
Customer Name		Manugraph India Ltd.			
		Unit No.-2, Kodoli, Panhala, Kolhapur.			
Date of Sample Received		Date of Test Completion	Sample Name		
18/02/2019		20/02/2019	Test Piece-D3-Tool Steel		
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
17/02/2019	117098	ASTM-E-1245:2016 ASTM-E-562:2011	-	-	AISI-D-3
<b>Test Details</b>					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
<b>Total Magnification-100X</b>					
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	
<b>For VCK Foundry Technology</b>					
					
<b>Authorized Signature</b>					

Format No.-AMS/TR/22-R.00-----End of Report-----



# VCK FOUNDRY TECHNOLOGY

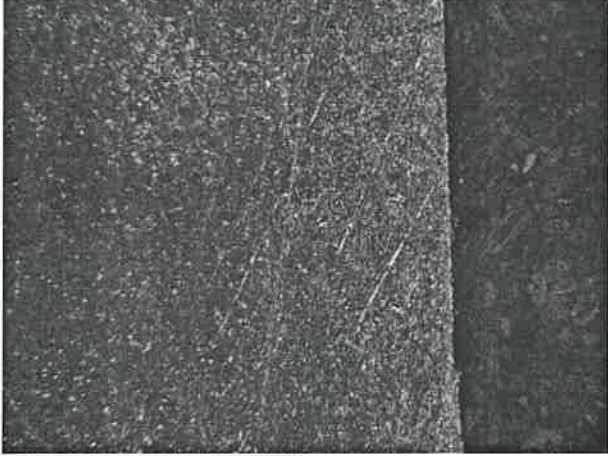
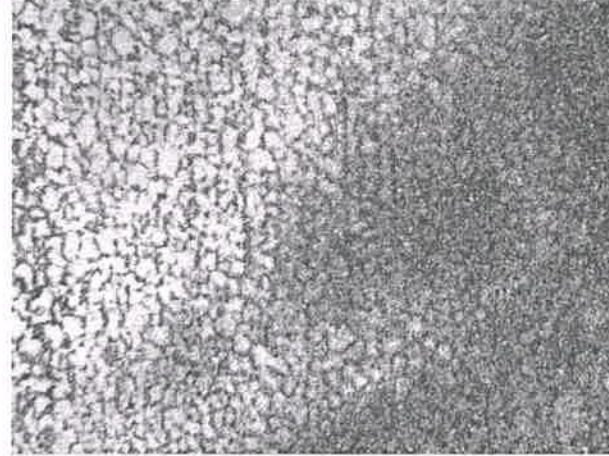

Test Report- Micro Structural Analysis					
Lab ID- M 2782		Test Certificate No.-20021915		Date- 20/02/2019	
Customer Name		Manugraph India Ltd.			
		Unit No.-2, Kodoli, Panhala, Kolhapur.			
Date of Sample Received		Date of Test Completion		Sample Name	
18/02/2019		20/02/2019		Test Piece-EN-31	
Challan Date	Challan No.	Test Method	Heat Code	Qty.	Grade
17/02/2019	117098	ASTM-E-1245:2016 ASTM-E-562:2011	-	-	EN-31
Test Details					
Etchant- 4% Nital			Etching Condition- Immersion-Etching		
					
Total Magnification-100X					
Specimen Dimension-		Sample Cut Piece			
Type of Structure Observed-		Tempered Martensite is observed with less than 5% Retained Austenite.			
Area Fraction-Case Region		Tempered Martensite (%)	Retained Austenite (%)	Carbides (%)	
		97.65	2.35	Nil	
For VCK Foundry Technology  Authorized Signature					

Format No.-AMS/TR/22-R.00-----End of Report-----



# VCK FOUNDRY TECHNOLOGY

## Test Report- Micro Structural Analysis

<b>Lab ID- M 2796</b>		<b>Test Certificate No.-20021916</b>		<b>Date- 20/02/2019</b>	
<b>Customer Name</b>		Unique Auto Shafts			
		Plot no.-87,88; Ichalkaranji Ind. Co-Op Estate, Shahapur, Ichalkaranji.			
<b>Date of Sample Received</b>		<b>Date of Test Completion</b>	<b>Sample Name</b>		
19/02/2019		20/02/2019	Shaft B-C-Range-R-138533		
<b>Challan Date</b>	<b>Challan No.</b>	<b>Test Method</b>	<b>Batch Code</b>	<b>Qty.</b>	<b>Grade</b>
19/02/2019	10676	ASTM-E-1245:2016 ASTM-E-562:2011	A1 U-19	-----	----
<b>Test Details</b>					
<b>Etchant- 4% Nital</b>			<b>Etching Condition- Immersion-Etching</b>		
					
<b>Near Surface</b>			<b>From 1.5mm to 2.5mm</b>		
<b>Total Magnification-100X</b>					
<b>Specimen Dimension-</b>	Sample Cut Section				
<b>Type of Structure Observed- (Case Region)</b>	Fine Tempered Martensite is observed near surface with 1.25 % Retained Austenite. Carbides are not observed in the structure. Decarburization was not observed.				
<b>5% ITP Depth-</b>	Intermediate Transformation Product is observed near surface at 2.20mm (around 5%).				
<b>For VCK Foundry Technology</b>					
					
<b>Authorized Signature</b>					

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