



# M M FORGINGS LIMITED

## INCOMING METALLURGICAL INSPECTION REPORT

Lot No : 010000355546

QA 007 REV 0

No.Of.Bars:158

Mat.Des : RM - SCR420H, 56DIA REV.03

ICIN Number: 5000371720	Matl : MA044A03056.0D	Supplier : Sunflag Iron & Steel Co Ltd	Supp TC No :0022296	Heat Number : 09672
PO Number : 4500013464	Size : 56.000 DIA	Supp TC date : 13:05:2018	Qty in MT : 16.490	Batch : 0000690531

### Chemical composition in %

		C	Mn	Si	P	S	Ni	Cr	Mo	V	Cu	Nb	B	Al	Ti	Co	Sn	Fe	Sb	Pb	As	Ca	W	Zr	Ta	N2	H2	O2	CE1	CE2
As per Spec.	Min	0.1700	0.5500	0.1500				0.8500						0.0200																
	Max	0.2300	0.9000	0.3500	0.0300	0.0300	0.2500	1.0500	0.0600	0.0200	0.3000	0.0100	0.0006		0.0200		0.0200		0.0100		0.0100					0.0100	0.0002	0.0020		
Act. Analysis	1	0.1840	0.8430	0.2720	0.0230	0.0030	0.0270	0.9790	0.0050	0.0020	0.0230	0.0020	0.0001	0.0330	0.0020		0.0020				0.0050									
	2	0.1890	0.8540	0.2790	0.0240	0.0030	0.0230	0.9920	0.0050	0.0020	0.0230	0.0020	0.0001	0.0320	0.0020		0.0020				0.0050									
	3																													
	4																													
	5																													
As per Tc	1	0.1800	0.8800	0.2900	0.0280	0.0040	0.0350	0.9800	0.0070	0.0050	0.0250	0.0020	0.0002	0.0340	0.0034		0.0010		0.0007		0.0056					0.0093	0.0001	0.0016		

Visual inspection:	Size & Surface satisfactory	Shearability	OK	Forgeability	OK
--------------------	-----------------------------	--------------	----	--------------	----

### Mechanical properties

		UTS (Mpa)	YS (Mpa)	El (%)	RA (%)	Izod		Charpy Impact -1		Charpy Ipmaact -2		RM Hardness(HBW)	Upset Hardness(HBW)	H/T Hardness(HBW)
						Joule	T(° C)	Joule	T(° C)	Joule	T(° C)			
As per Spec.	Min													143
	Max											229	229	187
Tested Value												156,156,156,163,163	170,170,163,163,156	156,156,156,159,152
As per TC														

### Micro

Inclusion rating (%)	A Thin/Thick	B Thin/Thick	C Thin/Thick	D Thin/Thick	Grain size (ASTM)	Decarb (mm)	Macro	Step Down	Bend Test
As per Spec. Min					6.00				
Max	2.00 /1.00	2.00 /1.00	0.50 /0.50	2.00 /1.00	8.00	0.50			
Tested Value	1.00 /-	1.00 /-	- /-	1.00 /-	7	0.14	C1S1R1		
As Per TC Value	1.00 /-	0.50 /-	- /-	1.50 /-	7-7.5	0.19	C2S1R1		

Jominy hardenability (MM)	5.0	7.0																													
As per spec min	32.0	29.0																													
max	37.0	34.0																													
Tested Value	36.0	30.0																													
As per TC Value	36.0	30.0																													

Any other test specified :	Our RM color code: Light Brown / White
----------------------------	--

Remarks : Material Accepted.	Heat code allocated: ZZR
------------------------------	--------------------------

Tested By :LAB1	Lot Cleared Date:02.06.2018	Head Metallurgy
-----------------	-----------------------------	-----------------