



Vijayanagar Works, Vidyanagar Post, Bellary Dist, Karnataka INDIA  
 Regd. Office : JSW Centre, Bandra Kurla Complex, Bandra(East), Mumbai 400051

**MILL TEST CERTIFICATE**  
 (According to EN 10204 - 3.1)

TO:  
 SALGITTER MANNAMANN INTERNATIONAL GMBH  
 SCHWANNSTR 12  
 40476 DUSSELDORF  
 GERMANY

TC No: Germany/Exp13-14/Sap00705

Product: Hot Rolled Steel Coils

Date: 12-04-2014  
 Sales contract No. JSW/HRS/2013-14/2922 DATED: 07.03.2014  
 Specification : EN 10149-2-2005, S355 MC

**Specifications requirements:-**

(Reference: As per TDC no.: IM/JSW/2010-11/HRS/133 Dt. : 31-10-2010 and S355 MC)

Cast/Heat No.	Coil No.	Nominal Size (mm)				Metric Tonnes	C														YS	UTS	EL	Impact @ 20°C	Bend test	Remarks			
		T	X	W	L		%	Mn	S	P	SI	AI	Cr	NI	Nb	Mo	V	TI	Cu	N							Si+2SP	C.E.	
D609515	14542887	8.00	X	1.500	X	coil	27.430	0.078	1.00	0.010	0.013	0.014	0.047	0.015	0.013	0.025	0.001	0.001	0.014	0.005	0.0047	0.0465	0.249	439	523	28	196,220,232	Pass	
D609518	14542886	8.00	X	1.500	X	coil	27.290	0.079	1.01	0.009	0.014	0.015	0.047	0.012	0.013	0.025	0.001	0.001	0.014	0.006	0.0049	0.0500	0.251	420	499	30	288,280,284	Pass	
E609528	14544198	8.00	X	1.500	X	coil	27.320	0.071	1.00	0.010	0.011	0.015	0.055	0.016	0.014	0.030	0.001	0.001	0.017	0.006	0.0042	0.0425	0.242	469	540	26	182,172,168	Pass	
E609543	14544143	8.00	X	1.500	X	coil	23.560	0.076	1.01	0.008	0.018	0.018	0.045	0.021	0.011	0.029	0.001	0.002	0.017	0.009	0.0047	0.0630	0.250	437	511	29	288,329,340	Pass	
E609545	14544435	8.00	X	1.500	X	coil	23.910	0.077	1.05	0.007	0.014	0.012	0.041	0.016	0.013	0.030	0.001	0.001	0.016	0.006	0.0042	0.0470	0.256	433	466	34	360,358,362	Pass	
F609538	14543754	8.00	X	1.500	X	coil	27.330	0.070	1.08	0.009	0.017	0.012	0.055	0.011	0.012	0.023	0.001	0.003	0.016	0.006	0.0036	0.0545	0.254	454	526	27	384,389,387	Pass	
D609518	14542902	10.00	X	1.500	X	coil	27.240	0.079	1.01	0.009	0.014	0.015	0.047	0.012	0.013	0.025	0.001	0.001	0.014	0.006	0.0049	0.0500	0.251	424	508	29	288,280,284	Pass	
D609542	14542903	10.00	X	1.500	X	coil	27.400	0.077	1.06	0.009	0.011	0.024	0.041	0.015	0.013	0.029	0.001	0.001	0.014	0.008	0.0040	0.0515	0.258	449	518	28	301,304,290	Pass	
D609542	14542904	10.00	X	1.500	X	coil	27.570	0.077	1.06	0.009	0.011	0.024	0.041	0.015	0.013	0.029	0.001	0.001	0.014	0.008	0.0040	0.0515	0.258	449	518	28	301,304,290	Pass	
E609521	14542905	10.00	X	1.500	X	coil	27.560	0.085	1.00	0.010	0.014	0.013	0.050	0.014	0.012	0.027	0.001	0.001	0.018	0.006	0.0064	0.0480	0.256	394	484	28	196,202,238	Pass	
E609521	14542908	10.00	X	1.500	X	coil	27.270	0.085	1.00	0.010	0.014	0.013	0.050	0.014	0.012	0.027	0.001	0.001	0.018	0.006	0.0064	0.0480	0.256	394	484	28	196,202,238	Pass	
E609524	14544022	10.00	X	1.500	X	coil	27.220	0.074	1.06	0.009	0.012	0.012	0.039	0.014	0.015	0.022	0.001	0.001	0.014	0.006	0.0064	0.0480	0.256	394	484	28	196,202,238	Pass	
E609543	14542907	10.00	X	1.500	X	coil	27.355	0.076	1.01	0.008	0.018	0.018	0.045	0.021	0.011	0.029	0.001	0.002	0.017	0.009	0.0047	0.0630	0.250	437	519	29	301,308,290	Pass	
E609545	14544020	10.00	X	1.500	X	coil	27.560	0.077	1.05	0.007	0.014	0.012	0.041	0.016	0.013	0.030	0.001	0.001	0.016	0.006	0.0042	0.0470	0.256	399	485	31	288,329,340	Pass	
E609545	14544021	10.00	X	1.500	X	coil	24.290	0.077	1.05	0.007	0.014	0.012	0.041	0.016	0.013	0.030	0.001	0.001	0.016	0.006	0.0042	0.0470	0.256	399	485	31	360,358,362	Pass	
F609550	14544018	10.00	X	1.500	X	coil	27.440	0.071	1.10	0.008	0.016	0.012	0.048	0.027	0.014	0.027	0.001	0.001	0.018	0.050	0.0042	0.0520	0.263	417	503	29	361,341,370	Pass	
F609550	14544019	10.00	X	1.500	X	coil	27.510	0.071	1.10	0.008	0.016	0.012	0.048	0.027	0.014	0.027	0.001	0.001	0.018	0.050	0.0042	0.0520	0.263	417	503	29	361,341,370	Pass	
D609542	14542890	12.00	X	1.500	X	coil	27.260	0.077	1.06	0.009	0.011	0.024	0.041	0.015	0.013	0.029	0.001	0.001	0.014	0.008	0.0040	0.0515	0.258	439	531	25	301,304,290	Pass	
F609516	14542706	12.00	X	1.500	X	coil	27.570	0.070	1.02	0.008	0.011	0.009	0.044	0.012	0.013	0.025	0.001	0.003	0.019	0.006	0.0040	0.0365	0.244	420	511	27	230,210,227	Pass	







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**Specifications requirements:-**

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Castl	Coil No.	Nominal Size (mm)				Metric Tonnes	C	Mn %	S %	P %	SI %	Al %	Cr %	Ni %	Nb %	Mo %	V %	Ti %	Cu %	N %	SH+2.5P C.E. %	YS Mpa	UTS Mpa	EL %	Impact @ 20°C	Bend test 0.5T, 180°	Remarks			
		T	X	W	X																							L		
F609547	14543810	20.00	X	1.500	X	coil	27.170	0.072	1.07	0.008	0.018	0.015	0.013	0.026	0.001	0.001	0.018	0.007	0.0038	0.0600	0.254	406	519	26	148	152	148	Pass		
F609550	14543811	20.00	X	1.500	X	coil	27.540	0.071	1.10	0.008	0.016	0.012	0.048	0.027	0.014	0.027	0.001	0.018	0.050	0.0042	0.0520	0.263	400	509	27	252	260	270	Pass	
F609553	14543802	20.00	X	1.500	X	coil	27.150	0.082	1.03	0.008	0.015	0.022	0.055	0.018	0.013	0.026	0.002	0.001	0.018	0.013	0.0034	0.0595	0.259	443	528	26	212	218	220	Pass
F609553	14543803	20.00	X	1.500	X	coil	27.700	0.082	1.03	0.008	0.015	0.022	0.055	0.018	0.013	0.026	0.002	0.001	0.018	0.013	0.0034	0.0595	0.259	443	528	26	212	218	220	Pass
F609553	14544438	20.00	X	1.500	X	coil	27.590	0.082	1.03	0.008	0.015	0.022	0.055	0.018	0.013	0.026	0.002	0.001	0.018	0.013	0.0034	0.0595	0.259	443	528	26	212	218	220	Pass
F609556	14543812	20.00	X	1.500	X	coil	27.245	0.071	1.04	0.008	0.014	0.014	0.040	0.014	0.011	0.025	0.001	0.019	0.006	0.0039	0.0490	0.248	384	498	28	228	234	230	Pass	
Total Weight in Metric Tonnes						1124.660	MT																							
Grand Total of Weight						1124.660	MT																							

We hereby certify that the material (Hot Rolled Steel Coils) described herein have been tested and inspected with satisfactory results in accordance with the requirements of the above specification.

Grade code: JLTRS3  
 Product : Hot rolled Steel coils, Fully Killed, mill edge, unpickled.  
 Process Route: BOF-LHF-CCM-HSM  
 Legend: BOF = Basic Oxygen Furnace, LHF = Ladle Heating Furnace  
 CCM = Continuous Casting Machine, HSM = Hot Strip Mill  
 T X W X L = Thickness X Width X Length  
 1Mpa=1N/mm<sup>2</sup>  
 YS= Yield Strength.  
 UTS = Ultimate Tensile Strength.  
 EL=%Elongation on standard gauge length 5.65√A0 for > 3.0mm and 80 mm G.L. for < 3.0 mm nominal thickness.  
 CE=(C+Mn/6+Cr+Mo+V)/5+(Ni+Cu)/15  
 chemistry = Ladle sample analysis.  
 Tensile Test Piece: Longitudinal  
 Test Temperature: Ambient (25°C ±2°)  
 Impact values are calculated to full size specimen  
 Certified By  
 Authorised signatory  
 For JSW Steel Ltd.,

