



MAANSHAN IRON AND STEEL CO., LTD.

CERTIFICATE OF PRODUCT QUALITY

Customer: TEWOO METAL (H.K.) LIMITED
 Material description: HOT ROLLED STEEL H-BEAM
 Steel type: ALLOYED, HOT/COLD ROLLED NO ALLOYED, ETC
 Specification: ASTM A6/A6M-2009 ASTM A572/A572M-2012
 ASTM A992/A992M-2011(B:0.0008%-0.0040%)

ADD: NO.8 JIUHUA WEST ROAD, MAANSHAN
 CITY, ANHUI PROVINCE, P.R. CHINA
 POSTCODE: 243000 TEL: (0555)2877326
 QUALITY DEPARTMENT: BILU YU
 TEL: (0555)2

QUALITY NO.: QSR8132703406
 CONTRACT NO.: 18MGE-B-9-27
 MAANSHAN IRON & STEEL CO., LTD.
 SPECIALIZED FOR QUAL DATE: 2016/10/17

LOT No.	Heat No.	Steel Grade	Size (INCH)	Length (M)	Pieces	Theoretical Weight (MT)	Chemical Composition (%)														Mechanical Properties			
							C	Si	Mn	P	S	Cr	Ni	Cu	V	Mo	Nb	B	CEV	Sn	Yield Strength σ_s (Mpa)	Tensile Strength σ_b (Mpa)	Elongation δ_{200} (%)	Yield Ratio
216020736	16201183	MC345B	W10*22	12.192	23	9.177	0.18	0.26	1.22	0.033	0.025	0.02	0.01	0.01	0.020	0.003	0.001	0.0017	0.39	364	525	37.0	0.69	
216020737	16201184	MC345B	W10*22	12.192	71	28.329	0.18	0.27	1.25	0.035	0.024	0.02	0.01	0.01	0.020	0.003	0.001	0.0018	0.40	357	517	37.0	0.69	
216020738	16201184	MC345B	W10*22	12.192	14	5.586	0.18	0.27	1.25	0.035	0.024	0.02	0.01	0.01	0.020	0.003	0.001	0.0018	0.40	357	517	37.0	0.69	
216020132	16200915	MC345B	W12*26	12.192	70	33.04	0.16	0.22	1.28	0.025	0.017	0.02	0.01	0.02	0.021	0.003	0.002	0.0013	0.38	399	520	33.0	0.58	
216020133	16200915	MC345B	W12*26	12.192	10	4.72	0.16	0.22	1.26	0.025	0.017	0.02	0.01	0.02	0.021	0.003	0.002	0.0013	0.38	399	520	35.0	0.77	
216020134	16300923	MC345B	W12*26	12.192	28	12.272	0.16	0.22	1.25	0.033	0.017	0.02	0.01	0.02	0.021	0.003	0.002	0.0013	0.38	421	538	34.5	0.78	
216020135	16100970	MC345B	W12*26	12.192	4	1.888	0.17	0.22	1.25	0.028	0.020	0.02	0.01	0.03	0.022	0.003	0.002	0.0013	0.38	381	532	31.0	0.72	
216020136	16100970	MC345B	W12*26	12.192	8	3.776	0.17	0.22	1.25	0.028	0.020	0.02	0.01	0.03	0.022	0.004	0.002	0.0014	0.39	369	536	33.5	0.69	
216020137	16100969	MC345B	W12*26	12.192	9	4.248	0.17	0.24	1.27	0.033	0.024	0.02	0.01	0.03	0.022	0.004	0.002	0.0014	0.39	370	524	34.0	0.71	
216020164	16300921	MC345B	W12*35	12.192	24	15.216	0.17	0.23	1.22	0.030	0.019	0.01	0.01	0.02	0.043	0.004	0.002	0.0012	0.39	366	532	35.0	0.69	
216020165	16300921	MC345B	W12*35	12.192	27	17.118	0.17	0.23	1.22	0.030	0.019	0.01	0.01	0.02	0.043	0.004	0.002	0.0012	0.39	406	610	32.0	0.67	
116020763	16101013	MC345B	W14*43	12.192	10	7.8	0.17	0.30	1.24	0.030	0.020	0.02	0.01	0.02	0.043	0.004	0.002	0.0012	0.39	416	623	34.0	0.67	
116020765	16200964	MC345B	W14*43	12.192	6	4.68	0.17	0.26	1.27	0.033	0.022	0.02	0.01	0.01	0.021	0.002	0.002	0.0014	0.39	450	546	23.5	0.82	
116020766	16200964	MC345B	W14*43	12.192	19	14.82	0.17	0.26	1.27	0.033	0.022	0.02	0.01	0.01	0.020	0.002	0.002	0.0015	0.39	389	516	25.0	0.75	
116020754	16200963	MC345B	W14*48	12.192	14	12.292	0.18	0.26	1.22	0.033	0.018	0.03	0.01	0.02	0.021	0.004	0.002	0.0015	0.39	401	524	25.5	0.77	
116020755	16300966	MC345B	W14*48	12.192	15	13.17	0.17	0.26	1.26	0.035	0.018	0.03	0.01	0.02	0.021	0.004	0.002	0.0014	0.40	373	522	25.5	0.71	
116020756	16300966	MC345B	W14*48	12.192	1	0.878	0.17	0.26	1.26	0.035	0.018	0.03	0.01	0.02	0.019	0.003	0.002	0.0016	0.39	395	531	26.0	0.74	
116020745	16200964	MC345B	W14*53	12.192	10	9.63	0.17	0.26	1.27	0.033	0.022	0.02	0.01	0.01	0.020	0.002	0.002	0.0015	0.39	387	529	25.5	0.73	
116020746	16300966	MC345B	W14*53	12.192	18	17.334	0.17	0.26	1.26	0.035	0.018	0.03	0.01	0.02	0.019	0.003	0.002	0.0016	0.39	387	529	25.5	0.73	
116020739	16301004	MC345B	W14*58	12.192	18	22.158	0.19	0.33	1.34	0.031	0.018	0.02	0.01	0.01	0.019	0.003	0.002	0.0016	0.39	382	522	27.0	0.73	
116020740	16301004	MC345B	W14*58	12.192	12	14.772	0.19	0.33	1.34	0.031	0.018	0.02	0.01	0.01	0.026	0.003	0.002	0.0017	0.42	403	573	25.5	0.53	
116020576	15210737	MC345B	W18*106	12.192	6	11.556	0.18	0.29	1.26	0.029	0.020	0.02	0.01	0.02	0.042	0.002	0.003	0.0016	0.40	401	570	25.5	0.53	
																				374	516	25.5	0.72	



MAANSHAN IRON AND STEEL CO., LTD.

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 Material description: HOT ROLLED STEEL H-BEAM.
 Steel type: ALLOYED, HOT/COLD ROLLED NO ALLOYED, ETC
 Specification: ASTM A6/A6M-2009 ASTM A572/A572M-2012
 ASTM A992/A992M-2011(B:0.0008%-0.0040%)

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 TEL: (0555)2

QUALITY NO.: QSR8132703406
 CONTRACT NO.: 18MGE-B-9-27
 MAANSHAN IRON & STEEL CO., LTD.
 SPECIALIZED FOR QUALITY INSPECTION
 DATE: 2018-8-11

LOT No.	Heat No.	Steel Grade	Size (INCH)	Length (M)	Pieces	Theoretical Weight (MT)	Chemical Composition (%)																	Mechanical Properties			
							C	Si	Mn	P	S	Cr	Ni	Cu	V	Mo	Nb	B	CEV	Sn	Yield Strength σ_s (Mpa)	Tensile Strength σ_b (Mpa)	Elongation δ 200 (%)	Yield Ratio			
							116020577	15404343	MC345B	W18*106	12.192	11	21.186	0.17	0.30	1.37	0.032	0.021	0.04	0.01	0.02	0.038	0.004	0.004	0.0016	0.42	373
116020684	16400454	MC345B	W18*35	12.192	12	7.606	0.16	0.24	1.08	0.024	0.020	0.02	0.01	0.01	0.017	0.002	0.001	0.0013	0.35	390	516	25.0	0.76				
116020685	16400454	MC345B	W18*35	12.192	48	30.432	0.16	0.24	1.08	0.024	0.020	0.02	0.01	0.01	0.017	0.002	0.001	0.0013	0.35	368	487	25.5	0.76				
116020686	16301008	MC345B	W18*35	12.192	42	26.628	0.18	0.26	1.24	0.030	0.020	0.03	0.01	0.01	0.021	0.005	0.001	0.0012	0.40	365	476	24.0	0.77				
116020643	16400452	MC345B	W18*65	12.192	20	23.66	0.16	0.28	1.22	0.025	0.019	0.02	0.01	0.01	0.020	0.003	0.002	0.0014	0.37	370	507	27.0	0.73				
116020647	16101043	MC345B	W18*65	12.192	5	5.915	0.17	0.30	1.28	0.032	0.019	0.03	0.01	0.02	0.003	0.002	0.0013	0.40	366	525	28.5	0.70					
116020591	15404423	MC345B	W18*78	12.192	6	8.268	0.17	0.27	1.24	0.025	0.012	0.02	0.01	0.01	0.021	0.002	0.0013	0.40	366	525	28.5	0.70					
116020592	15110330	MC345B	W18*78	12.192	21	28.938	0.16	0.30	1.24	0.026	0.016	0.02	0.01	0.02	0.002	0.003	0.0017	0.39	403	537	25.5	0.75					
116020583	15210732	MC345B	W18*86	12.192	6	9.366	0.16	0.32	1.29	0.029	0.020	0.02	0.01	0.01	0.025	0.003	0.002	0.0014	0.38	405	542	25.5	0.75				
116020584	15210580	MC345B	W18*86	12.192	6	9.366	0.17	0.30	1.26	0.026	0.022	0.02	0.01	0.01	0.020	0.004	0.003	0.0015	0.39	402	536	26.0	0.75				
116020585	15210733	MC345B	W18*86	12.192	7	10.927	0.17	0.30	1.25	0.028	0.019	0.02	0.01	0.01	0.021	0.002	0.003	0.0024	0.39	399	541	25.5	0.74				
116020586	15210736	MC345B	W18*86	12.192	8	12.488	0.18	0.30	1.29	0.033	0.025	0.03	0.01	0.03	0.022	0.004	0.003	0.0015	0.39	381	526	25.0	0.72				
116030127	16101453	MC345B	W24*117	12.192	6	12.726	0.16	0.28	1.26	0.030	0.017	0.01	0.01	0.01	0.035	0.001	0.001	0.0021	0.38	371	512	28.0	0.72				
116030128	16301383	MC345B	W24*117	12.192	12	25.452	0.18	0.28	1.26	0.030	0.017	0.01	0.01	0.01	0.035	0.001	0.001	0.0021	0.38	393	524	23.5	0.75				
116030125	16101453	MC345B	W24*146	12.192	10	26.46	0.16	0.28	1.28	0.030	0.017	0.01	0.01	0.03	0.044	0.002	0.001	0.0013	0.41	398	528	24.0	0.75				
116030126	16101453	MC345B	W24*146	12.192	3	7.938	0.16	0.28	1.26	0.030	0.017	0.01	0.01	0.035	0.001	0.001	0.0021	0.38	412	520	25.0	0.79					
116030123	16201379	MC345B	W24*162	12.192	8	23.504	0.17	0.31	1.24	0.031	0.023	0.01	0.01	0.035	0.001	0.001	0.0021	0.38	416	525	27.0	0.79					
116030124	16201379	MC345B	W24*162	12.192	7	20.566	0.17	0.31	1.24	0.031	0.023	0.01	0.01	0.033	0.002	0.001	0.0023	0.39	384	505	25.0	0.76					
116030189	16101454	MC345B	W24*68	12.192	16	19.696	0.17	0.32	1.28	0.029	0.021	0.01	0.01	0.033	0.002	0.001	0.0023	0.39	389	519	25.0	0.74					
116030190	16301392	MC345B	W24*68	12.192	13	16.003	0.18	0.29	1.21	0.029	0.020	0.02	0.01	0.02	0.037	0.002	0.002	0.0014	0.39	402	539	26.0	0.75				
116030173	16201380	MC345B	W24*76	12.192	8	11.024	0.17	0.29	1.25	0.032	0.014	0.02	0.01	0.01	0.022	0.002	0.001	0.0011	0.39	398	532	25.0	0.75				
116030174	15309009	MC345B	W24*76	12.192	8	11.024	0.17	0.27	1.20	0.035	0.022	0.02	0.01	0.02	0.026	0.003	0.002	0.0014	0.38	416	548	28.5	0.76				
							0.17	0.27	1.20	0.035	0.022	0.02	0.01	0.02	0.026	0.003	0.002	0.0014	0.38	422	550	27.0	0.77				



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 ASTM A992/A992M-2011(B:0.0008%-0.0040%)

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QUALITY NO.: QSR8132703406
 CONTRACT NO.: 16MGE-B-9-27

DATE: 2016-3-17

LOT No.	Heat No.	Steel Grade	Size (INCH)	Length (M)	Pieces	Theoretical Weight (MT)	Chemical Composition (%)														Mechanical Properties			
							C	Si	Mn	P	S	Cr	Ni	Cu	V	Mo	Nb	B	CEV	Sn	Yield Strength σ_s (Mpa)	Tensile Strength σ_b (Mpa)	Elongation δ_{200} (%)	Yield Ratio
116030175	15404329	MC345B	W24*76	12.192	8	11.024	0.17	0.30	1.25	0.025	0.018	0.03	0.03	0.04	0.024	0.002	0.003	0.0015	0.39	392	536	27.0	0.73	
116030154	16201380	MC345B	W24*84	12.192	23	35.052	0.17	0.29	1.25	0.032	0.014	0.02	0.01	0.01	0.022	0.002	0.002	0.0016	0.39	378	510	28.5	0.74	
116030148	16301383	MC345B	W24*94	12.192	14	23.898	0.18	0.28	1.26	0.033	0.024	0.02	0.01	0.03	0.044	0.002	0.001	0.0013	0.41	423	552	23.5	0.77	
116030149	16301383	MC345B	W24*94	12.192	8	13.656	0.18	0.28	1.26	0.033	0.024	0.02	0.01	0.03	0.044	0.002	0.001	0.0013	0.41	419	550	21.0	0.76	
216020541	16101249	MC345B	W8*15	12.192	52	14.248	0.17	0.28	1.21	0.031	0.026	0.02	0.01	0.01	0.020	0.006	0.001	0.0014	0.38	381	540	31.0	0.71	
216020542	16101249	MC345B	W8*15	12.192	48	13.152	0.17	0.28	1.21	0.031	0.026	0.02	0.01	0.01	0.020	0.006	0.001	0.0014	0.38	381	540	31.0	0.71	
TOTAL:																								
					851	744.665															426	557	31.5	0.76

<NOTE> STEEL GRADE IS BASED ON THIS CERTIFICATE.

Consignor:

Quality Control Center Auditor:





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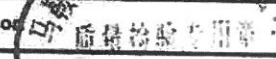

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LOT No.	Heat No.	Steel Grade	Size (INCH)	Length (M)	Pieces	Theoretical Weight (MT)	Chemical Composition (%)														Mechanical Properties			Yield Ratio
							C	Si	Mn	P	S	Cr	Ni	Cu	V	Mo	Nb	B	CEV	Sn	Yield Strength σ_s (Mpa)	Tensile Strength σ_b (Mpa)	Elongation δ 200 (%)	
216020738	16201183	MC345B	W10*22	12.192	53	21.147	0.18	0.26	1.22	0.033	0.025	0.02	0.01	0.01	0.020	0.003	0.001	0.0017	0.39	364	525	37.0	0.69	
216020738	16201184	MC345B	W10*22	12.192	7	2.793	0.18	0.27	1.25	0.035	0.024	0.02	0.01	0.01	0.020	0.003	0.001	0.0018	0.40	357	619	33.0	0.58	
215123255	15109087	MC345B	W12*35	12.192	7	4.438	0.17	0.29	1.29	0.026	0.019	0.02	0.01	0.02	0.046	0.003	0.003	0.0015	0.40	420	628	33.0	0.67	
216020164	16300921	MC345B	W12*35	12.192	36	22.824	0.17	0.23	1.22	0.030	0.019	0.01	0.01	0.02	0.043	0.004	0.002	0.0012	0.39	406	610	32.0	0.67	
216020165	16300921	MC345B	W12*35	12.192	13	8.242	0.17	0.23	1.22	0.030	0.019	0.01	0.01	0.02	0.043	0.004	0.002	0.0012	0.39	416	623	34.0	0.67	
116020684	16400454	MC345B	W18*35	12.192	36	22.824	0.16	0.24	1.08	0.024	0.020	0.02	0.01	0.01	0.017	0.002	0.001	0.0013	0.35	390	516	25.0	0.76	
116020686	16301008	MC345B	W18*35	12.192	3	1.902	0.18	0.26	1.24	0.030	0.020	0.03	0.01	0.01	0.021	0.005	0.001	0.0012	0.40	365	476	24.0	0.77	
116030133	16301386	MC345B	W24*104	12.192	14	26.46	0.17	0.27	1.22	0.030	0.020	0.02	0.01	0.01	0.023	0.001	0.001	0.0013	0.38	392	525	24.5	0.75	
116030134	16201380	MC345B	W24*104	12.192	7	13.23	0.17	0.29	1.25	0.032	0.014	0.02	0.01	0.01	0.022	0.002	0.002	0.0016	0.39	391	533	24.0	0.73	
216020800	15309151	MC345B	W6*15	12.192	50	13.7	0.16	0.22	0.84	0.030	0.013	0.02	0.01	0.01	0.016	0.002	0.002	0.0012	0.31	372	514	34.0	0.72	
216020801	15109434	MC345B	W6*15	12.192	54	14.796	0.18	0.25	0.85	0.024	0.014	0.02	0.01	0.02	0.017	0.004	0.002	0.0017	0.33	366	525	34.5	0.69	
216020819	16101229	MC345B	W6*25	12.192	64	28.928	0.17	0.24	1.24	0.028	0.025	0.02	0.01	0.01	0.044	0.003	0.001	0.0017	0.39	428	572	32.5	0.75	
216020820	16101229	MC345B	W6*25	12.192	30	13.56	0.17	0.24	1.24	0.028	0.025	0.02	0.01	0.01	0.044	0.003	0.001	0.0017	0.39	418	557	29.0	0.75	
216020548	16400544	MC345B	W8*10	12.192	76	13.908	0.17	0.23	0.93	0.033	0.017	0.02	0.01	0.02	0.017	0.004	0.002	0.0013	0.34	357	509	31.5	0.70	
216020549	16400543	MC345B	W8*10	12.192	70	12.81	0.16	0.22	1.01	0.026	0.019	0.02	0.01	0.01	0.016	0.003	0.001	0.0012	0.34	417	540	31.5	0.77	
216020550	16301405	MC345B	W8*10	12.192	53	9.699	0.16	0.22	1.01	0.026	0.019	0.02	0.01	0.01	0.016	0.003	0.001	0.0012	0.34	417	540	31.5	0.77	
TOTAL:					573	231.261																		

<NOTE> STEEL GRADE IS BASED ON THIS CERTIFICATE.

Consignor: 
 Quality Control center Auditor: 
 MAANSHAN IRON & STEEL CO., LTD.
 QUALITY CONTROL CENTER