

ORIGINAL



Contract No.	
Customer	HYUNDAI CORPORATION
PO No.	32201707CP11
L/C No.	
Commodity	H-BEAM
Specification	HOT ROLLED WIDE FLANGE BEAM ASTM A572 G50/A992/CSA G 40.21-13 50MM(345MM) PARA MATERIAL DE VIGA

**INSPECTION CERTIFICATE**  
EN 10204(2004) TYPE 3.1

Factory	63, Jungbong-Daero, Dong-gu, Incheon, S. Korea
Certificate No.	IH20171103619-1
Class certificate No.	
Issue date	2017-11-16

Dimensions	Length	Heat No.	Quantity (PCS)	Weight (kg)	Chemical Composition													Tensile Test			Impact Test(L)			Remarks (Impact Specimen Size)		
					x100			x100			x1000			x100			Yield Ratio(%)	BEND TEST	V-Notch							
					C	Si	Mn	P	S	Cu	Ni	Mo	Cr	Al	V	Nb			Sn	CE(%)	Tensile Strength	Yield Strength	Elongation		AVG	1
8X4X10	40.00 FT	D 143279	146	26,426	14	15	60	25	10	23	9	3	21	5	5	17	12	31	521	418	26.0					
8X4X10	40.00 FT	D 143280	36	6,516	16	21	60	20	8	24	10	2	17	2	3	17	13	32	523	420	25.5					
8X8X35	40.00 FT	D 143435	20	12,700	16	15	65	30	10	27	12	2	22	6	4	17	16	34	527	420	26.5					
8X8X35	40.00 FT	D 143436	2	1,270	18	19	60	26	8	25	9	2	16	4	2	16	11	34	520	415	26.0					
8X8X40	40.00 FT	D 143052	8	5,808	18	14	60	23	6	30	10	2	14	3	2	17	13	34	517	385	24.5					
8X8X40	40.00 FT	D 143057	6	4,356	20	15	63	29	10	30	10	2	22	4	4	18	14	38	516	382	25.0					
8X8X40	40.00 FT	D 143058	4	2,904	19	15	59	25	6	28	10	2	14	3	2	15	12	35	521	387	24.5					
10X5-3/4X26	40.00 FT	D 143808	64	30,208	10	21	146	9	1	12	8	1	6	31	5	35	10	37	524	389	24.0					
10X5-3/4X26	40.00 FT	D 143809	32	15,104	12	12	125	9	4	12	7	2	10	2	26	4	6	37	522	398	24.0					
10X5-3/4X30	40.00 FT	D 143239	6	3,264	16	15	63	25	8	26	9	2	24	3	3	16	11	34	519	394	24.5					
<b>SUB TOTAL</b>			<b>324</b>	<b>108,556</b>																						

===== N E X T =====

Note  
 (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15)  
 (2) Gauge length : 200 mm  
 (3) Y.R = Y.S/T.S

<p>WE HEREBY CERTIFY THAT THE MATERIAL HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR THE ABOVE ORDER.</p>	<p style="font-size: 2em; font-family: cursive;">J. C. Ahn</p> <p>General Manager of QA Team</p>
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ORIGINAL



**INSPECTION CERTIFICATE**

EN 10204(2004) TYPE 3.1

Contract No.	
Customer	HYUNDAI CORPORATION
PO No.	32201707CP11
L/C No.	
Commodity	H-BEAM
Specification	HOT ROLLED WIDE FLANGE BEAM ASTM A572 G50/A992/CSA G 4021-13 50MM(345MM) PARA MATERIAL DE VIGA

Factory: 63, Jungbong-Daero, Dong-gu, Incheon, S. Korea

Certificate No. JH20171103619-2

Class certificate No.

Issue date: 2017-11-16

Dimensions	Length	Heat No.	Quantity (PCS)	Weight (kg)	Chemical Composition													Tensile Test			BEND TEST	Impact Test(L)			Remarks (Impact Specimen Size)	
					%										x1000			Yield Ratio <sup>(3)</sup>	V-Notch	°C						
					C	Si	Mn	P	S	Cu	Ni	Mo	Cr	Al	V	Nb	Sn			CE <sup>(1)</sup>		Tensile Strength	Yield Strength	Elongation		AVG
10X5-3/4X30	40.00 FT	D 143763	48	26,112	18	15	62	19	6	19	8	1	17	3	2	16	9	34	548	401	23.5	-	-	-	-	0.73
12X6-1/2X30	40.00 FT	D 143038	6	3,264	17	14	60	25	11	32	10	2	14	3	2	18	14	33	505	393	26.0	-	-	-	-	0.78
12X6-1/2X30	40.00 FT	D 143039	84	45,696	16	15	58	24	10	24	8	2	13	3	2	14	11	31	509	406	25.0	-	-	-	-	0.80
12X6-1/2X30	40.00 FT	D 143040	6	3,264	16	15	59	27	9	31	10	2	13	3	2	17	14	32	517	380	26.5	-	-	-	-	0.74
12X6-1/2X35	40.00 FT	D 143016	12	7,620	18	16	62	23	8	36	10	2	15	3	1	13	16	35	521	389	22.5	-	-	-	-	0.75
12X6-1/2X35	40.00 FT	D 143034	12	7,620	16	13	63	29	8	31	10	2	14	3	2	17	14	32	515	387	22.0	-	-	-	-	0.75
12X6-1/2X35	40.00 FT	D 143036	42	26,670	18	13	61	20	12	23	8	2	16	2	3	17	11	34	515	381	22.0	-	-	-	-	0.74
18X7-1/2X50	40.00 FT	E 199882	2	1,814	18	16	64	16	6	23	15	3	12	2	14	1	10	34	550	434	22.0	-	-	-	-	0.79
18X7-1/2X50	40.00 FT	E 199883	1	907	18	15	65	20	8	30	11	2	12	2	14	2	14	35	531	405	23.5	-	-	-	-	0.76
18X7-1/2X50	40.00 FT	E 199884	10	9,070	19	14	65	18	9	33	9	2	12	1	13	1	16	36	545	402	23.5	-	-	-	-	0.74
<b>SUB TOTAL</b>			<b>223</b>	<b>132,037</b>																						

\*\*\*\*\* N E X T \*\*\*\*\*

Note  
 (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15)  
 (2) Gauge length : 200 mm  
 (3) YR = Y.S/T.S

WE HEREBY CERTIFY THAT THE MATERIAL HAS BEEN MADE AND TESTED IN ACCORDANCE WITH THE ABOVE SPECIFICATION AND ALSO WITH THE REQUIREMENTS CALLED FOR THE ABOVE ORDER.

J. C. Ahn

General Manager of Q.A Team

Contract No.	
Customer	HYUNDAI CORPORATION
PO No.	32201707CP11
L/C No.	
Commodity	H-BEAM
Specification	HOT ROLLED WIDE FLANGE BEAM ASTM A572 G50/A992/CSA G 40.21-13 50WM(345WM) PARA MATERIAL DE VIGA

**ORIGINE**

**INSPECTION CERTIFICATE**

EN 10204(2004) TYPE 3.1

<b>HYUNDAI STEEL</b>	
Factory	63, Jungbong-Daero, Dong-gu, Incheon, S. Korea
Certificate No.	IH20171103619-3
Class certificate No.	
Issue date	2017-11-16

Dimensions	Length	Heat No.	Quantity (PCS)	Weight (kg)	Chemical Composition													Tensile Test			Yield Ratio <sup>(a)</sup>			BEND TEST			Impact Test(L)			Remarks (Impact Specimen Size)						
																		Tensile Strength	Yield Strength	Elongation <sup>(b)</sup>	%	Yield Ratio <sup>(a)</sup>	BEND TEST	AVG	V-Notch											
					C	Si	Mn	P	S	Cu	Ni	Mo	Cr	Al	V	Nb	Sn								Ce <sub>eq</sub>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	%	1		2	3				
18X7-1/2X50	40.00 FT	E 199885	15	13,605	18	16	65	18	9	32	8	2	12	2	12	2	12	2	12	2	12	35	521	380	23.5	0.73										
18X7-1/2X50	40.00 FT	E 199886	18	16,326	18	17	63	22	11	23	8	1	11	3	11	1	10	33					517	379	24.0	0.73										
18X7-1/2X50	40.00 FT	E 199888	4	3,628	18	14	65	26	7	26	9	1	13	2	14	2	12	34					536	383	23.5	0.72										
18X7-1/2X65	40.00 FT	E 199870	10	11,790	18	15	97	19	8	25	10	2	7	2	14	3	11	39					549	423	23.5	0.77										
18X7-1/2X65	40.00 FT	E 199871	25	29,475	19	17	101	21	12	32	11	2	9	2	15	5	14	41					546	420	23.0	0.77										
18X7-1/2X71	40.00 FT	E 199865	26	33,514	19	16	94	25	7	31	8	2	12	3	13	4	13	40					542	379	24.5	0.70										
18X7-1/2X71	40.00 FT	E 199866	1	1,289	20	15	95	23	6	29	9	2	11	2	14	4	12	41					549	381	26.0	0.69										
18X7-1/2X71	40.00 FT	E 199869	7	9,023	18	12	95	21	10	29	9	2	9	1	14	3	19	39					555	388	26.0	0.70										
12X8X50	40.00 FT	D 143208	36	32,652	10	20	132	10	2	13	5	1	10	19	42	5	9	36					550	385	27.0	0.70										
12X8X50	40.00 FT	D 143209	8	7,256	10	17	132	10	1	13	6	1	9	26	42	5	10	36					538	375	27.0	0.70										
<b>SUB TOTAL</b>			<b>150</b>	<b>158,558</b>																																

\*\*\*\*\* N E X T \*\*\*\*\*

Note	(1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15) (2) Gauge length : 200 mm (3) YR = Y.S/T.S
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J. C. Ahn	General Manager of Q.A Team



Factory 63, Jungbong-Daero, Dong-gu, Incheon, S. Korea

Certificate No. IH20171103619-4

Class certificate No.

Issue date 2017-11-16



INSPECTION CERTIFICATE

EN 10204(2004) TYPE 3.1

Contract No.	
Customer	HYUNDAI CORPORATION
PO No.	32201707CP11
I/C No.	
Commodity	H-BEAM
Specification	HOT ROLLED WIDE FLANGE BEAM ASTM A572 G50/A992/CSA G 40.21-13 50MM(315MM) PARA MATERIAL DE VIGA

Dimensions	Length	Heat No.	Quantity (PCS)	Weight (kg)	Chemical Composition														Tensile Test			Impact Test(L)			Remarks (Impact Specimen Size)					
					x100							x1000							Yield Strength N/mm2	Elongation %	Yield Ratio	BEND TEST	V-Notch							
					C	Si	Mn	P	S	Cu	Ni	Mo	Cr	Al	V	Nb	Sn	CE <sub>eq</sub>					AVG	1		2	3			
12X8X50	40.00 FT	D 143210	3	2,721	19	14	71	16	4	28	10	2	19	3	2	17	17	38	553	21.0	0.72									
12X8X50	40.00 FT	D 143213	1	907	19	14	74	28	10	30	10	2	19	3	3	18	19	38	549	24.0	0.74									
12X8X50	40.00 FT	E 200421	1	907	18	16	65	17	9	25	8	2	11	3	15	3	10	34	536	23.5	0.76									
16X7X40	40.00 FT	D 143231	56	40,656	17	12	60	14	4	28	13	2	17	3	2	19	13	34	526	26.0	0.76									
16X7X40	40.00 FT	E 200441	4	2,904	19	18	63	22	6	28	10	3	14	18	15	3	12	36	522	25.5	0.75									
21X6-1/2X44	40.00 FT	E 200111	26	20,748	13	17	53	25	8	26	10	2	14	3	13	1	10	28	529	23.0	0.76									
21X6-1/2X44	40.00 FT	E 200112	10	7,980	13	14	52	21	8	24	10	2	19	3	11	3	11	28	527	23.5	0.75									
21X6-1/2X44	40.00 FT	E 200116	1	798	13	14	52	25	6	30	10	2	15	3	12	2	21	28	508	28.0	0.78									
21X6-1/2X57	40.00 FT	E 200174	20	20,680	19	15	63	18	7	26	10	2	12	4	15	1	11	35	512	28.5	0.79									
24X7X55	40.00 FT	E 200118	25	24,950	13	14	50	19	5	21	7	1	12	3	12	3	11	26	508	29.5	0.79									
<b>SUB TOTAL</b>			<b>147</b>	<b>123,251</b>																										

===== N E X T =====

Note

- (1) C<sub>eq</sub>: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15)
- (2) Gauge length : 200 mm
- (3) Y.R = Y.S/T.S

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J. C. Ahn

General Manager of QA Team



ORIGINAL



Contract No.	
Customer	HYUNDAI CORPORATION
PO No.	32201707CP11
L/C No.	
Commodity	H-BEAM
Specification	HOT ROLLED WIDE FLANGE BEAM ASTM A572 G50/A992/CSA G 4021-13 500MM(345MM) PARA MATERIAL DE VIGA

INSPECTION CERTIFICATE

EN 10204(2004) TYPE 3.1

Factory	63, Jungbong-Daero, Dong-gu, Incheon, S. Korea
Certificate No.	IH20171103619-5
Class certificate No.	
Issue date	2017-11-16

Dimensions	Length	Heat No.	Quantity (PCS)	Weight (kg)	Chemical Composition													Tensile Test			Impact Test(L)			Remarks (Impact Specimen Size)						
					x100													Yield Ratio(%)	BEND TEST	V-Notch										
					C	Si	Mn	P	S	Cu	Ni	Mo	Cr	Al	V	Nb	Sn			CE <sub>eq</sub>	Tensile Strength	Yield Strength	Elongation		AVG	1	2	3		
x1000													%			°C														
24X7X55	40.00 FT	E 200119	16	15,968	14	14	52	14	8	17	6	1	10	3	10	3	9	27	493	390	25.5									
24X7X55	40.00 FT	E 200128	1	998	14	14	52	21	6	28	13	2	14	2	13	2	11	29	501	410	26.5									
24X7X55	40.00 FT	E 200131	1	998	14	14	51	23	6	26	12	2	20	3	12	2	11	30	522	435	22.5									
24X7X55	40.00 FT	E 200132	5	4,990	13	16	52	21	7	24	10	1	18	3	13	1	11	28	510	422	23.0									
24X7X55	40.00 FT	E 200133	15	14,970	13	15	59	28	8	28	10	2	22	3	13	4	14	30	513	422	23.0									
24X7X55	40.00 FT	E 200134	7	6,986	13	15	51	19	4	27	9	1	14	3	13	1	10	27	515	428	22.5									
24X7X55	40.00 FT	E 200135	7	6,986	13	15	54	20	9	24	10	2	17	2	11	2	12	28	504	412	23.5									
24X7X55	40.00 FT	E 200136	4	3,992	13	17	52	19	9	23	9	2	15	3	12	3	10	27	498	408	23.5									
24X7X55	40.00 FT	E 200137	6	5,988	13	15	51	19	7	24	10	2	16	3	12	2	9	28	496	382	27.0									
24X7X55	40.00 FT	E 200139	3	2,994	14	15	53	18	7	24	10	1	14	2	12	2	9	28	480	379	28.5									
<b>TOTAL</b>			<b>909</b>	<b>587,272</b>																										

===== END =====

<p>Note</p> <p>(1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15)</p> <p>(2) Gauge length : 200 mm</p> <p>(3) Y.R = Y.S/T.S</p>	
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J. C. Ahn

General Manager of Q.A Team