

Contract No.	
Customer	DUFERCO
L/C No.	
P/O No.	32201305C100
Commodity	H-BEAM
Specification	ASTM A572 G50/A992/ CSA 350W

MILL TEST CERTIFICATE

HYUNDAI STEEL	
Head Office	1, Songhyeon-dong, Dong-gu, Incheon, 401-712, S. Korea
Certificate No.	IH20130701409 - 1
Class Cert. No.	
Date of Issue	2013-07-09

Dimensions & Length	Heat No.	Pieces Weights (kg)	Chemical Composition (%)													Tensile Test			Impact Test (V-notch)				Remarks (Impact Specimen Size)	
			C	Si	Mn	P	S	Cu	Mo	Al	Nb	Sn	CE(1)	Tensile Strength	Yield point	Elongation(2)	Yield Ratio	AVG	1	2	3			
			x100			x1000			x100			x1000			x100			N/mm ²			%			
4X4X13 40.00 FT	D 114773	132 31,152	20	21	60	27	8	17	2	10	15	8	18	8	35	529.6	396.2	24.0	0.78					
6X4X9 40.00 FT	D 114798	180 29,340	16	15	59	33	9	23	2	8	18	7	15	10	32	526.6	402.1	25.0	0.76					
6X4X9 40.00 FT	D 114799	12 1,956	17	15	58	32	13	21	2	8	16	9	15	12	32	524.7	397.2	26.0	0.76					
6X4X16 40.00 FT	D 114788	108 31,320	17	14	59	32	14	30	2	8	13	17	16	32	527.6	392.3	25.8	0.74						
6X4X10 40.00 FT	D 114356	300 54,300	17	14	59	32	10	26	2	8	13	15	14	32	527.6	401.1	25.8	0.78						
6X4X10 40.00 FT	D 114357	218 39,096	16	12	57	34	8	24	2	8	13	16	13	30	527.6	438.4	24.0	0.82						
6X4X10 40.00 FT	D 114358	17 3,077	17	14	61	33	12	32	2	8	12	16	16	33	524.7	418.7	26.0	0.80						
6X5-1/4X18 40.00 FT	D 114316	96 31,392	18	15	60	27	7	23	2	8	12	15	18	33	514.8	373.0	26.5	0.73						
6X8X40 40.00 FT	D 114131	30 21,780	19	15	59	33	7	25	2	8	14	18	13	34	525.6	384.4	25.1	0.73						
SUB TOTAL		1,091 243,413																						

(Note) (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15) (2) Gauge length: 200 mm (3) Yield Ratio = YP/TS

K.S. Shim
General Manager of Q.A Team

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Customer	DUFERCO
L/C No.	
P/O No.	32201305C100
Commodity	H-BEAM
Specification	ASTM A572 G50/A992/ CSA 350W

Head Office	1, Songhyeon-dong, Dong-gu, Incheon, 401-712, S. Korea
Certificate No.	IH20130701409 - 2
Class Cert. No.	
Date of Issue	2013-07-09

Dimensions & Length	Heat No.	Pieces Weights (kg)	Chemical Composition (%)											Tensile Test			Impact Test (V-notch)				Remarks (Impact Specimen Size)	
			C	Si	Mn	P	S	Cu	Mo	Al	Nb	Sn	CE ⁽¹⁾	Tensile Strength	Yield point	Elongation ⁽²⁾	Yield Ratio	AVG	1	2		3
			x100			x1000			x100		x1000			x100		N/mm ²		%		C		
3X6X40 40.00 FT	D 115200	10 7,280	17	14	60	28	8	28	2	4	19	15	33	507.0 510.9	402.7 405.0	25.5 25.0	0.79					
10X5-3/4X22 40.00 FT	D 114629	192 60,648	18	12	60	35	15	32	2	3	20	15	35	513.9 515.8	380.5 381.5	26.5 26.0	0.74					
10X5-3/4X22 40.00 FT	D 114630	72 28,728	20	17	60	38	10	31	2	3	15	13	35	508.0 511.9	367.7 370.7	26.0 25.5	0.72					
10X6-3/4X22 40.00 FT	D 114631	8 3,192	19	14	60	39	8	27	2	3	13	15	35	518.8 514.8	372.7 375.6	26.1 26.5	0.72					
10X5-3/4X22 40.00 FT	D 114633	16 6,384	18	15	60	34	10	31	2	3	15	16	34	509.1 509.0	372.7 373.6	24.0 24.5	0.74					
10X5-3/4X30 40.00 FT	D 114636	40 21,760	17	16	62	28	11	32	2	3	17	14	33	501.1 500	367.7 368.7	25.5 25.0	0.73					
10X5-3/4X30 40.00 FT	D 114637	16 8,704	16	16	58	30	12	28	2	3	15	17	32	508.0 509.9	365.8 367.7	25.5 25.0	0.72					
10X10X49 40.00 FT	E 167415	29 25,781	17	11	72	15	16	23	2	3	12	10	33	512.9 514.8	395.2 389.3	26.0 26.3	0.77					
10X10X49 40.00 FT	E 167416	6 5,334	18	10	64	19	16	24	2	3	11	10	32	498.2 500.1	372.7 376.6	27.0 27.3	0.75					
SUB TOTAL		348 167,791																				

(Note) (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15) (2) Gauge length: 200 mm (3) Yield Ratio = YP/TS

K.S. Shim
General Manager of Q.A Team

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HYUNDAI STEEL	
Head Office	1, Songhyeon-dong, Dong-gu, Incheon, 401-712, S. Korea
Certificate No.	IH20130701409 - 3
Class Cert. No.	
Date of Issue	2013-07-09

Dimensions & Length	Heat No.	Pieces Weights (kg)	Chemical Composition (%)											Tensile Test			Impact Test (V-notch)				Remarks (Impact Specimen Size)	
			C	Si	Mn	P	S	Cu	Mo	Al	Nb	Sn	CE ⁽¹⁾	Tensile Strength	Yield point	Elongation ⁽²⁾	Yield Ratio	AVG	1	2		3
			x100	x1000	x100	x1000	x1000	x1000	x1000	x1000	x1000	x1000	x100	N/mm ²	N/mm ²	%	%	(')	C			
10X10X49 40.00 FT	E 167417	17 15,113	18	14	64	22	15	25	2	3	11	10	33	500.1	377.6	27.0	0.76					
10X10X49 40.00 FT	E 167418	20 17,780	20	10	70	33	16	26	2	2	12	10	36	503.1	374.6	27.0	0.74					
12X4X14 40.00 FT	D 115182	192 48,768	18	14	58	26	10	27	2	4	17	19	33	519.8	374.6	23.5	0.72					
12X4X14 40.00 FT	D 115184	60 15,240	16	14	59	27	8	27	2	10	18	14	31	504.1	393.2	26.0	0.78					
12X4X19 40.00 FT	D 114510	2 690	16	15	58	33	8	25	2	15	14	14	31	525.6	422.7	26.0	0.80					
12X4X19 40.00 FT	D 115180	70 24,150	18	14	60	30	9	26	2	18	13	13	33	528.6	416.8	22.0	0.79					
12X4X19 40.00 FT	D 115181	100 34,500	20	14	58	23	7	26	2	18	16	16	34	529.6	429.8	23.5	0.80					
12X4X22 40.00 FT	D 114590	10 3,990	15	14	59	27	8	42	2	5	15	12	31	509.9	395.2	26.5	0.78					
12X4X22 40.00 FT	D 115174	60 23,940	18	14	71	32	12	27	2	4	18	14	35	532.5	415.8	24.0	0.78					
SUB TOTAL		531 184,171																				

(Note) (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15) (2) Gauge length : 200 mm (3) Yield Ratio = YP/TS

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General Manager of Q.A Team

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P/O No.	32201305C100
Commodity	H-BEAM
Specification	ASTM A572 G50/A992/ CSA 350W

MILL TEST CERTIFICATE

HYUNDAI STEEL	
Head Office	1, Songhyeon-dong, Dong-gu, Incheon, 401-712, S. Korea
Certificate No.	IH20130701409 - 4
Class Cert. No.	
Date of Issue	2013-07-09

Dimensions & Length	Heat No.	Pieces Weights (kg)	Chemical Composition (%)											Tensile Test			Impact Test (V-notch)				Remarks (Impact Specimen Size)			
			C	Si	Mn	P	S	Cu	Mo	Al	Nb	Sn	CE(1)	Tensile Strength	Yield point	Elongation(2)	Yield Ratio	AVG	1	2		3		
			×100			×1000		×100		×1000			×100		N/mm ²	%		C						
12X4X22 40.00 FT	D 115175	10 3,990	19	16	70	24	15	24	2	7	11	4	18	13	35	526.6 522.7	408.9 406.0	25.0 25.3	0.78 0.78					
12X6-1/2X26 40.00 FT	D 114644	24 11,328	16	14	58	27	12	25	2	8	14	4	15	16	31	512.9 510.9	386.4 381.5	25.0 24.5	0.75 0.75					
12X6-1/2X26 40.00 FT	D 114646	40 18,880	17	14	58	26	5	25	2	8	13	4	16	14	32	511.9 512.9	380.5 378.5	24.5 24.0	0.74 0.74					
12X6-1/2X26 40.00 FT	D 114647	72 33,984	17	16	58	24	10	22	2	7	12	5	17	12	31	502.1 506.0	382.5 383.4	25.6 25.0	0.76 0.76					
12X8X40 40.00 FT	D 114186	2 1,452	19	12	58	34	8	33	10				15	19	35	522.7 525.6	379.5 387.4	27.5 27.0	0.73 0.74					
12X8X40 40.00 FT	D 114699	30 21,780	17	16	60	26	6	32	9				17	14	33	509.0 511.9	368.7 370.7	25.5 25.0	0.72 0.72					
12X8X40 40.00 FT	D 115409	12 8,712	15	13	57	22	16	36	2	9	13		15	16	31	501.1 505.0	392.3 397.2	26.0 26.0	0.78 0.79					
14X5X26 40.00 FT	D 115303	50 23,600	17	13	58	33	7	30	2	8	18	5	13	15	33	526.8 521.7	398.1 394.2	25.0 25.5	0.76 0.76					
14X5X26 40.00 FT	D 115304	180 84,960	17	15	56	28	6	32	2	9	13	5	15	17	32	529.5 534.5	403.1 407.0	24.0 23.5	0.76 0.76					
SUB TOTAL		420 208,686																						

(Note) (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15) (2) Gauge length: 200 mm (3) Yield Ratio = YP/TS

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Contract No.	
Customer	DUFERCO
L/C No.	
P/O No.	32201305C100
Commodity	H-BEAM
Specification	ASTM A672 G50/A992/ CSA 350W

MILL TEST CERTIFICATE

HYUNDAI STEEL	
Head Office	1, Songhyeon-dong, Dong-gu, Incheon, 401-712, S. Korea
Certificate No.	IH20130701409 - 5
Class Cert. No.	
Date of Issue	2013-07-09

Dimensions & Length	Heat No.	Pieces Weights (kg)	Chemical Composition (%)											Tensile Test			Impact Test (V-notch)				Remarks (Impact Specimen Size)	
			C	Si	Mn	P	S	Cu	Mo	Al	Nb	Sn	CE ⁽¹⁾	Tensile Strength	Yield point	Elongation ⁽²⁾	Yield Ratio	AVG	1	2		3
			x100	x100	x100	x1000	x100	x100	x100	x1000	x100	N/mm ²	%				()	C				
14X6-3/4X30 40.00 FT	D 114445	111 60,384	18	14	60	29	13	30	2	4	18	14	34	539.4	393.2	24.0	0.73					
14X14-1/2X90 40.00 FT	N 020344	22 35,904	20	16	67	27	15	25	1	4	17	11	36	528.6	408.9	25.0	0.77					
14X14-1/2X90 40.00 FT	N 020345	14 22,848	18	14	68	27	17	24	2	3	17	10	34	523.7	411.9	24.5	0.79					
14X14-1/2X90 40.00 FT	N 020346	4 6,528	18	17	67	27	13	24	2	4	18	11	34	530.5	408.0	25.0	0.77					
14X14-1/2X132 40.00 FT	N 020336	15 35,910	18	14	101	19	13	16	1	4	15	7	39	550.2	392.3	24.6	0.71					
14X14-1/2X132 40.00 FT	N 020337	3 7,182	15	18	112	25	14	23	1	4	18	9	38	527.2	398.1	25.0	0.73					
14X14-1/2X132 40.00 FT	N 020678	3 7,182	19	14	123	15	11	21	2	4	16	15	44	529.9	381.5	25.0	0.72					
14X14-1/2X132 40.00 FT	N 020681	5 11,970	19	14	100	24	18	16	2	4	15	8	40	556.0	408.9	25.5	0.74					
16X7X36 40.00 FT	D 114462	120 78,360	19	15	68	32	10	21	2	4	19	12	35	541.3	403.1	24.5	0.74					
SUB TOTAL		297 266,268																				

(Note) (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15)

(2) Gauge length: 200 mm

(3) Yield Ratio = YP/TS

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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General Manager of Q.A Team	

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2010044 A4(210x297)

Contract No.	
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L/C No.	
P/O No.	32201305C100
Commodity	H-BEAM
Specification	ASTM A572 G50/A992/ CSA 350W

MILL TEST CERTIFICATE

HYUNDAI STEEL	
Head Office	1, Songhyeon-dong, Dong-gu, Incheon, 401-712, S. Korea
Certificate No.	IH20130701409 - 7
Class Cert. No.	
Date of Issue	2013-07-09

Dimensions & Length	Heat No.	Pieces Weight (kg)	Chemical Composition (%)											Tensile Test			Impact Test (V-notch)				Remarks (Impact Specimen Size)	
			C	Si	Mn	P	S	Cu	Mo	Al	Nb	Sn	CE(1)	Tensile Strength	Yield point	Elongation(2)	Yield Ratio	AVG	1	2		3
			x100			x1000		x100		x1000				x100	N/mm ²		%		()	C		
18X11X76 40.00 FT	N 019796	2,758	16	14	104	21	18	28	2	4	30	21	12	39	541.3	405.0	25.0	0.75				
18X11X76 40.00 FT	N 019817	1,379	19	16	69	32	16	17	2	4	18	8	36	521.7	385.4	26.5	0.74					
18X11X76 40.00 FT	N 019852	4,137	20	16	67	25	18	20	2	4	17	10	36	539.4	402.1	25.0	0.74					
18X11X76 40.00 FT	N 019856	9,653	18	18	107	29	16	20	1	5	15	9	40	527.6	392.3	27.0	0.74					
18X11X76 40.00 FT	N D19861	4,137	19	15	69	34	16	20	2	4	15	10	36	539.4	398.1	26.5	0.74					
18X11X76 40.00 FT	N 019863	4,137	19	14	64	24	14	20	2	4	13	9	34	530.5	395.2	26.0	0.74					
18X11X76 40.00 FT	N 019865	8,274	19	14	64	26	20	24	2	4	13	10	34	555.0	418.7	24.0	0.75					
18X11X76 40.00 FT	N 019867	6,895	19	17	69	35	20	19	2	4	13	9	35	538.4	398.1	25.5	0.74					
18X11X76 40.00 FT	N 020094	13,790	18	18	67	29	17	17	3	4	14	9	34	541.3	408.9	25.5	0.76					
SUB TOTAL		55,160																				

(Note) (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15) (2) Gauge length: 200 mm (3) Yield Ratio = YP/TS

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Commodity	H-BEAM
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Dimensions & Length	Heat No.	Pieces Weights (kg)	Chemical Composition (%)											Tensile Test			Impact Test (V-notch)			Remarks (Impact Specimen Size)		
			C	Si	Mn	P	S	Cu	Mo	Al	Nb	Sn	CE ⁽¹⁾	Tensile Strength	Yield point	Elongation ⁽²⁾	Yield Ratio	AVG	1		2	3
			×100		×1000		×100		×1000		×100		×100		N/mm ²		%	()	C			
21X6-1/2X44 40.00 FT	E 167592	43 34,314	20	9	79	19	17	21	2	3	11	10	38	559.0	435.4	23.5	0.78					
21X6-1/2X50 40.00 FT	E 167587	67 60,769	19	9	59	33	16	23	2	4	11	12	34	524.7	392.3	26.0	0.75					
21X6-1/2X50 40.00 FT	E 167588	6 5,442	18	12	65	27	13	25	2	2	10	11	34	543.3	434.4	26.5	0.80					
21X6-1/2X57 40.00 FT	E 167583	40 41,360	19	10	62	18	14	24	2	2	10	11	34	514.8	379.5	27.5	0.74					
21X6-1/2X57 40.00 FT	E 167584	20 20,680	19	9	63	18	16	27	2	2	11	10	34	529.6	421.7	26.0	0.80					
21X12-1/4X101 40.00 FT	N 020773	5 9,180	19	22	77	24	14	27	2	2	16	13	37	538.5	377.6	25.0	0.71					
21X12-1/4X101 40.00 FT	N 020784	2 3,664	18	20	94	27	19	27	2	2	13	39	530.5	408.0	24.0	0.77						
21X12-1/4X101 40.00 FT	N 020793	8 14,656	19	22	77	23	14	29	2	4	14	37	540.3	381.5	25.0	0.71						
21X12-1/4X101 40.00 FT	N 020795	5 9,160	21	16	74	23	19	26	2	4	13	39	557.0	404.0	26.0	0.72						
SUB TOTAL		196 199,206																				

(Note) (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15) (2) Gauge length: 200 mm (3) Yield Ratio = YP/TS

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Date of Issue	2013-07-09

Dimensions & Length	Heat No.	Pieces Weights (kg)	Chemical Composition (%)											Tensile Test			Impact Test (V-notch)				Remarks (Impact Specimen Size)	
			C	Si	Mn	P	S	Cu	Mo	Al	Nb	Sn	CE(1)	Tensile Strength	Yield point	Elongation(2)	Yield Ratio	AVG	1	2		3
			×100			×10000			×100			×1000			×100			N/mm ²				%
21X12-1/4X101 40.00 FT	N 020796	1 1,832	19	18	76	33	19	24	2	4	17	13	37	539.4	402.1	24.0	0.74					
21X12-1/4X101 40.00 FT	N 020799	1 1,832	20	18	74	23	17	27	2	8	18	13	38	544.3	390.3	25.5	0.72					
21X12-1/4X101 40.00 FT	N 020800	10 18,320	19	16	76	28	15	30	2	4	17	16	37	542.3	380.5	26.0	0.70					
21X12-1/4X101 40.00 FT	N 020801	3 5,496	18	15	71	22	17	25	2	4	17	12	36	539.4	386.4	26.0	0.72					
21X12-1/4X111 40.00 FT	N 020766	3 6,042	19	17	77	33	17	29	2	16	14	13	38	531.5	394.2	25.0	0.74					
21X12-1/4X111 40.00 FT	N 020796	1 2,014	19	18	76	33	19	24	2	4	17	13	37	539.0	410.9	25.0	0.74					
21X12-1/4X111 40.00 FT	N 020797	5 10,070	19	19	73	31	18	28	2	16	16	13	37	536.1	402.1	26.5	0.73					
21X12-1/4X111 40.00 FT	N 020798	8 16,112	18	19	78	28	17	26	2	6	19	13	37	534.6	392.3	24.6	0.73					
21X12-1/4X122 40.00 FT	N 020777	4 8,856	19	16	69	32	17	25	2	3	16	14	36	527.6	395.2	25.0	0.75					
SUB TOTAL		36 70,574																				

(Note) (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15) (2) Gauge length: 200 mm (3) Yield Ratio = YP/TS

K.S. Shim
General Manager of Q.A Team

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

HMS I 102(A)-3a * 현대제철은 검사증명서를 사본으로 제출하지 않습니다. 사본일 경우, 현대제철 각 영업소로 확인하시기 바랍니다. 문의)02-772-2125 2010044 A4(210X297)

Contract No.	
Customer	DUFERCO
L/C No.	
P/O No.	32201305C100
Commodity	H-BEAM
Specification	ASTM A572 G50/A992/ CSA 350W

MILL TEST CERTIFICATE

HYUNDAI STEEL	
Head Office	1, Songhyeon-dong, Dong-gu, Incheon, 401-712, S. Korea
Certificate No.	IH20130701409 - 11
Class Cert. No.	
Date of Issue	2013-07-09

Dimensions & Length	Heat No.	Pieces Weights (kg)	Chemical Composition (%)											Tensile Test				Impact Test (V-notch)				Remarks (Impact Specimen Size)
			C	Si	Mn	P	S	Cu	Mo	Al	Nb	Sn	CE(1)	Tensile Strength	Yield point	Elongation(2)	Yield Ratio	AVG	1	2	3	
			x100			x1000			x100		x1000			x100		N/mm ²		%		C		
21X12-1/4X122 40.00 FT	N 020778	8 17,712	18	15	70	28	20	26	2	3	16	15	34	535.4	382.5	25.0	0.71					
21X12-1/4X122 40.00 FT	N 020792	2 4,428	20	14	103	31	17	30	2	3		13	43	534.5	404.0	24.0	0.76					
24X9X68 40.00 FT	N 020277	2 2,468	18	14	64	30	14	25	8		14	10	34	546.2	416.8	25.0	0.76					
24X9X68 40.00 FT	N 020278	22 27,148	18	16	64	33	14	27	2	5	16	12	35	551.1	419.7	24.5	0.76					
24X9X68 40.00 FT	N 020280	28 34,552	20	15	63	33	20	26	8		14	11	36	539.2	423.6	24.5	0.77					
24X9X76 40.00 FT	N 020282	19 26,201	18	17	68	25	19	30	8		17	13	35	521.7	392.3	27.5	0.75					
24X9X76 40.00 FT	N 020283	20 27,580	17	14	65	30	17	28	2	3	15	16	33	528.8	393.2	26.0	0.75					
24X9X76 40.00 FT	N 020284	5 6,895	19	17	69	28	13	24	2	3	17	10	35	528.6	399.1	25.5	0.76					
24X9X94 40.00 FT	N 020274	19 32,414	17	14	104	22	20	28	2	4	22	11	40	576.7	427.6	22.0	0.74					
SUB TOTAL		125 179,398																				

(Note) (1) Ceq: (CE=C+Mn/6+Cr/5+V/5+Mo/5+Ni/15+Cu/15) (2) Gauge length: 200 mm (3) Yield Ratio = YP/TS

K.S. Shim
General Manager of Q.A Team

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

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