





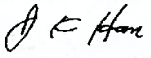
Contract No.	
Customer	DUFERCO
PO No.	32201807C411
L/C No.	2018AMS274
Commodity	CHANNEL
Specification	ASTM A572 G50/A992/CSA G40.21-13 50MM(345MM)

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

		
Factory	63, Jungbong-Daero, Dong-gu, Incheon, S. Korea	
Certificate No.	IM20180903901-2	
Class certificate No.		
Issue date	2018-09-20	

Dimensions	Length	Heat No.	Quantity (PCS)	Weight (kg)	Chemical Composition																	Tensile Test			Yield Ratio(%)	BEND TEST	Impact Test(I)			Remarks (Impact Specimen Size)
					C	Si	Mn	P	S	Cu	Ni	Mo	Cr	Al	V	Nb	Sn	CEq	Tensile Strength	Yield Strength	Elongation (%)	V-Notch	°C							
					×100		×1000		×100			×1000				×100	N/mm <sup>2</sup>		%	AVG	1	2	3							
CN12" 30.0 LBS/FT	40.00 FT	D 149140	5	2,720	17	17	70	24	6	24	10	2	17	3	3	15	12	35	547	390	23.5	0.713								
CN12" 30.0 LBS/FT	40.00 FT	D 149141	216	117,504	18	19	72	25	4	25	13	2	24	4	3	17	10	38	550	394	25.0	0.717								
CN12" 30.0 LBS/FT	40.00 FT	D 149142	76	41,344	20	17	73	24	3	22	10	2	15	4	2	17	9	38	559	385	25.0	0.689								
CN15" 33.9 LBS/FT	40.00 FT	D 149041	18	11,070	18	16	71	30	8	28	11	2	19	3	3	16	14	37	544	398	25.0	0.732								
CN15" 33.9 LBS/FT	40.00 FT	D 149042	96	59,040	17	18	72	28	6	25	9	2	21	4	3	17	12	36	532	383	24.0	0.720								
CN15" 33.9 LBS/FT	40.00 FT	D 149043	210	129,150	19	16	71	29	6	20	10	2	18	4	3	15	9	37	532	390	24.0	0.734								
CN15" 33.9 LBS/FT	40.00 FT	D 149047	66	40,590	19	16	70	24	7	25	11	2	12	3	3	17	12	36	537	384	24.0	0.716								
CN15" 33.9 LBS/FT	40.00 FT	D 149048	120	73,800	19	18	72	16	5	26	9	2	8	4	2	18	11	35	548	396	24.0	0.723								
CN15" 33.9 LBS/FT	40.00 FT	D 149049	30	18,450	18	18	71	24	8	28	10	2	13	3	2	16	11	35	532	388	26.0	0.730								
CN15" 40.0 LBS/FT	40.00 FT	D 149014	5	3,630	9	19	151	10	2	14	7	2	12	36	4	36	6	38	528	423	25.0	0.802								
<b>SUB TOTAL</b>			<b>842</b>	<b>497,298</b>																										

===== NEXT =====

(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	Note
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.	
	 General Manager of Q.A Team



Contract No.	
Customer	DUFERCO
PO No.	32201807C411
L/C No.	2018AMS274
Commodity	CHANNEL
Specification	ASTM A572 G50/A992/CSA G40.21-13 50WM(345WM)

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



PAGE: 13/31

Factory	63, Jungbong-Daero, Dong-gu, Incheon, S. Korea
Certificate No.	IM20180903901-3
Class certificate No.	
Issue date	2018-09-20

Dimensions	Length	Heat No.	Quantity (PCS)	Weight (kg)	Chemical Composition																Tensile Test			Yield Ratio	BEND TEST	Impact Test(L)				Remarks (Impact Specimen Size)
					C	Si	Mn	P	S	Cu	Ni	Mo	Cr	Al	V	Nb	Sn	CE <sub>eq</sub>	Tensile Strength	Yield Strength	Elongation (%)	V-Notch				°C				
					×100			×1000			×100			×1000			×100	N/mm <sup>2</sup>	%	-	AVG	1	2			3				
CN15" 40.0 LBS/FT	40.00 FT	D 149038	90	65,340	18	15	73	25	8	30	11	2	18	3	3	17	11	37	539	368	26.0	0.683								
CN15" 40.0 LBS/FT	40.00 FT	D 149039	168	121,968	18	16	69	28	7	34	12	2	26	4	4	17	14	38	557	409	25.0	0.735								
CN15" 40.0 LBS/FT	40.00 FT	D 149040	36	26,136	18	17	71	27	5	28	11	2	24	4	4	17	11	38	552	408	25.0	0.740								
																			551	396	25.5	0.719								
																			554	400	26.0	0.723								
<b>TOTAL</b>			2,759	1,361,100																										

===== END =====

- 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

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. E. Han*

General Manager of QA Team