

**SeAH CSS**SeAH Changwon Integrated Special Steel  
147 Jeoldhyeon-ro, Seongsan, Changwon, Gyeongnam, Korea**INSPECTION CERTIFICATE**Date : 2019-04-02  
Cert. No. : 190331-2046

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Steel Grade : 410

Size : DIAMETER 76.2 MM

Article : ROUND BARS

Specification : ASTM A479

Edition/Addenda : 11

Delivery Condition : FULL ANNEALING

SMOOTH TURNED

Customer : SIN GHEE HUAT CORPORATION LTD

Supplier : HYOSUNG TNC CORPORATION

Purchase order No : P003202

Heat No. : N17602

Melting Process : E.A.F. - V.O.D. - STRAND CASTING

Inspection Items	Chemical Composition (wt %)																Nonmetallic Inclusion (ASTM E45)							
	C	Si	Mn	P	S	Cu	Ni	Cr	Mo								(Method A)							
	Spec.	Min.	Max.														A(T)	A(H)	B(T)	B(H)	C(T)	C(H)	D(T)	D(H)
		0.150	1.000	1.000	0.0400	0.0300	0.500	11.500																
Ladle		0.141	0.409	0.596	0.0265	0.0105	0.132	0.472	11.802	0.148							1.5	.0	2.0	.0	2.0	.0	1.0	.0

Inspection Items	Tensile Test (N/mm <sup>2</sup> )				Hardness (HB)		Impact Test				Decarburized Layer		Grain Size	Micro Structure	Ultrasonic Test
	YS0.2%	TS	EL(%)	RA(%)			Type				DM-T	DM-F			
	Spec.	Min.	Max.												
		275	485	20	45										
4501-1		320.0	620.0	31.0	75.0										
						223									GOOD

Lot No.	Bundle No.	Length(mm)	Number of Qt.	Total Length	Weight (kg)	Weight (lb)	Case No.	<<Remark>> EN 10204 Type 3.1 / NO REPAIR WELDING. FREE FROM MERCURY CONTAMINATION. FULL ANNEALED HEAT TREATMENT: 850°C, 30 MIN/INCH. FURNACE COOLING CERTIFIED TO ASTM A276 & ASME SA276 410, SA479 410 CERTIFIED TO ASTM A182 F6A CLASS 1, ASME SA182 F6A CLASS 1 MECHANICAL PROPERTIES TESTED ACC. TO ASTM A370
A8A0544501	A8A05445011	6000 - 6000	5		1,067	2,352		
A8A0544501	A8A05445012	6000 - 6000	5		1,068	2,355		
TOTAL				10	2,135	4,707		

**CERTIFIED TRUE COPY****SIN GHEE HUAT CORPORATION LTD.**We hereby certify that the material described herein has been made in accordance with the rules of the contract.  
Our quality system is certified in accordance with ISO 9001: 2015 by DNV GL.Certified by **Young Seung Lee.**

Manager of Quality Assurance Team.