

CERTIFICATE OF QUALIFICATION MANUFACTURERS OF SPECIAL MATERIALS

Certificate No:
COQ000000Z

This is to certify:

That

SeAH Changwon Integrated Special Steel Corporation
Changwon-si, Gyeongsangnam-do, Republic of Korea

has undergone a qualification exercise as per:

NORSOK M-650 Edition 4, ISO 17782 (2018) and DNVGL-SE-0079¹⁾

and the requirements stated in the standards above have been fulfilled for the following:

Product:	Seamless pipes and tubes
Grade:	NORSOK M-630 MDS D41 - UNS S31803 and UNS S32205 NORSOK M-630 MDS D48 - UNS S31803 and UNS S32205
Manufacturing process:	Hot and cold finished pipes and tubes
Maximum qualified thickness:	Hot finished: 13.13 mm Cold finished: 13.05 mm
Maximum qualified weight:	All

¹⁾ The qualification exercise was carried out to verify compliance with all the requirements in NORSOK M-650 without a defined order and without authorization from Company or Main Contractors.

QTR Reference No: **SeAHCSS-QTR-202001**
MPCR Reference No: **SeAHCSS-MPCR-202001**

Issued at **Høvik** on **2020-09-23**

This Certificate is valid until **2025-09-22**.

Material specialist: **Vebjørn Andresen**

for **DNV GL**




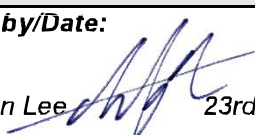





Digitally Signed By: Løken, Sondre
Location: DNV GL Høvik, Norway
Signing Date: 16.10.2020


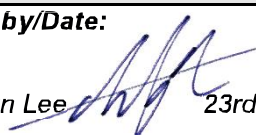
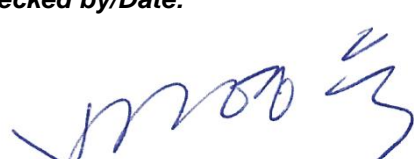



Sondre Løken

Group Leader, Materials Advisory

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	Qualification Test Record (QTR) NORSOK M-650		QTR. No.: SeAHCSS-QTR-202001		
			Rev. No.: 0		
Manufacturer name /Address /Web page:	SeAH CSS (SeAH Changwon Integrated Special Steel Corporation) 147, Jeokhyeon-ro, Seongsan-gu, Changwon, Gyeongnam, Korea www.seahss.co.kr				
Reference standards:	NORSOK M-650 Edition 4 DNVGL-SE-0079 Edition June 2016				
Material designation and MDS No.:	Seamless pipes; NORSOK M-630 Ed. 6 MDS D41 Rev.5 S31803 and S32205 Seamless tubes; NORSOK M-630 Ed. 6 MDS D48 Rev.5 S31803 and S32205				
Manufacturing Summary doc. No.:	MS S31803			Rev. No.: 6	
Products and Manufacturing process(es):	Raw materials are melted(EAF) and refined(VOD) using SeAH CSS own facility. Seamless pipes and tubes which are produced by extrusion/drawing/pilgering processes. All manufacturing is progressed using SeAH CSS's own facility.				
Mandatory conditions and sub-contractors:	<ul style="list-style-type: none"> • The steel making shall carried out using EAF and for refining according to MQ-P10-01 R.0. • The pipes and tubes shall be solution annealed followed by water quenching using heat treatment furnace I.D no. 1 according to MQ-P30-03 R.4. • All material test is carried out at any other ISO 17025 certified lab. • Chemical analysis is carried out at SeAH CSS own lab. • Non-destructive inspection shall be carried out by certified person according to ISO 9712. 				
Other information:	Furnace temperature uniformity test is carried out according to MQ-P30-04 R.1.				
Qualification expires:	Valid 5 years (from 23 rd Sep. 2020 to 22 nd Sep. 2025)				
Tested and qualified thickness and weight					
Products and manufacturing process(es):	Test record No.	Tested thickness, mm	Qualified thickness, mm	Test piece weight, kg	Qualified weight, kg
Hot finished pipes and tubes	MQ-P4003-01	11.07	1.65 ~ 13.13	N/A	N/A
Cold finished pipes and tubes		10.5	1.65 ~ 13.05	N/A	N/A
Qualification/acceptance signatures					
Manufacturer:	Prepared by/Date: Yeonggeun Lee  23rd Sep. 2020 Prepared by/Date: Joongul Lee  23rd Sep. 2020		Checked by/Date:  Youngsook Bae 23rd Sep. 2020		
	<p>The manufacturer and this QTR are evaluated and found to be in compliance with the requirements of NORSOK M-650 and DNVGL-SE-0079 for supply of the above listed products and materials. This acceptance does not exempt any purchaser from his responsibility to ensure that this qualification is valid for his products within the essential variables of NORSOK M-650 and DNVGL-SE-0079.</p>				
Qualified/Accepted by (company name /address): Young Ki Lim, Senior Principal Specialist - Material/Welding DNV GL, 48120 Busan, South Korea 			Signature/Date:  25th Sep. 2020 Digitally Signed By: Andresen, Vebjørn Location: DNV GL Høvik, Norway Signing Date: 28.09.2020  25th Sep. 2020		

	Manufacturing Procedure Conformity Record (MPCR) ISO 17782		MPCR. No.: SeAHCSS-MPCR-202001		
			Rev. No.: 0		
Manufacturer name /Address /Web page:	SeAH CSS (SeAH Changwon Integrated Special Steel Corporation) 147, Jeokhyeon-ro, Seongsan-gu, Changwon, Gyeongnam, Korea www.seahss.co.kr				
Reference standards:	ISO 17782 Edition 2018 DNVGL-SE-0079 Edition June 2016				
Material designation and MDS No.:	Seamless pipes; NORSOK M-630 Ed. 6 MDS D41 Rev.5 S31803 and S32205 Seamless tubes; NORSOK M-630 Ed. 6 MDS D48 Rev.5 S31803 and S32205				
Manufacturing Procedure Summary doc. No.:	MS S31803			Rev. No.: 6	
Products and manufacturing process(es):	Raw materials are melted(EAF) and refined(VOD) using SeAH CSS own facility. Seamless pipes and tubes which are produced by extrusion/drawing/pilgering processes. All manufacturing is progressed using SeAH CSS's own facility.				
Mandatory conditions and sub-contractors:	<ul style="list-style-type: none"> The steel making shall carried out using EAF and for refining according to MQ-P10-01 R.0. The pipes and tubes shall be solution annealed followed by water quenching using heat treatment furnace I.D no. 1 according to MQ-P30-03 R.4. All material test is carried out at any other ISO 17025 certified lab. Chemical analysis is carried out at SeAH CSS own lab. Non-destructive inspection shall be carried out by certified person according to ISO 9712. 				
Other information:	Furnace temperature uniformity test is carried out according to MQ-P30-04 R.1.				
Qualification expires:	Valid 5 years (from 23 rd Sep. 2020 to 22 nd Sep. 2025)				
Tested and qualified thickness and mass					
Products and manufacturing process(es):	Test record No.	Tested thickness, mm	Qualified thickness, mm	Test piece mass, kg	Qualified mass, kg
Hot finished pipes and tubes	MQ-P4003-01	11.07	1.65 ~ 13.13	N/A	N/A
Cold finished pipes and tubes		10.5	1.65 ~ 13.05	N/A	N/A
Qualification/acceptance signatures					
Manufacturer:	Prepared by/Date: Yeonggeun Lee  23 rd Sep. 2020		Checked by/Date: 		
	Prepared by/Date: Joongul Lee  23 rd Sep. 2020		Youngsook Bae 23 rd Sep. 2020		
<p>The manufacturer and this MPCR are evaluated and found to be in compliance with the requirements of ISO 17782 and DNVGL-SE-0079 for supply of the above listed products and materials.</p> <p>This acceptance does not exempt any purchaser from his responsibility to ensure that this qualification is valid for his products within the essential variables of ISO 17782 and DNVGL-SE-0079.</p>					
Qualified/Accepted by (company name /address): Young Ki Lim, Senior Principal Specialist - Material/Welding DNV GL, 48120 Busan, South Korea Vebjørn Andresen, Principal Engineer - Materials DNV GL, 1363 Høvik, Norway			Signature/Date:  25 th Sep. 2020  25 th Sep. 2020		



Digitally Signed By: Andresen, Vebjørn
Location: DNV GL Høvik, Norway
Signing Date: 28.09.2020