



APPROVAL OF MANUFACTURER CERTIFICATE

Certificate no.:
AMMM00000NR
Revision No:
5

This is to certify:

that

IREM Co., Ltd.

**29, Buan Nonggondanji-Gil, Haengan-Myeon,
Buan-gun, Jeollabuk-do,
Republic of Korea**

is an approved manufacturer of
Steel Pipes and Fittings

in accordance with

DNV rules for classification – Ships

DNV class programme – DNV-CP-0252 Steel pipes and steel pipe fittings

DNV class programme – DNV-CP-0351 Manufacture of heat treated products - heat treatment workshop

and the following particulars:

Product	Pipes
Application area	Austenitic and ferritic-austenitic steel pipes
Steel type	Austenitic stainless, See page 2
Manufacturing method	Welded
Max. outer diameter	812.8 mm
Max. wall thickness	12.7 mm
Heat treatment condition	Solution heat treated
Additional approval conditions	Approved as Independent Heat Treatment Company, See page 2

Manufacturer(s) approved by this certificate is/are accepted to deliver according to DNV GL, DNV and GL rules.
Materials to be applied to DNV classed object shall fulfill the material requirements in the applicable DNV class rules.

Issued at **Hamburg** on **2025-07-04**

This Certificate is valid until **2028-06-20**.

DNV local unit: **Mokpo**

Approval Engineer: **Christian Wildhagen**



for **DNV**

This document has been digitally signed and will
therefore not have handwritten signature

Stefan Röhr

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Particulars of the approval

Austenitic and Ferritic-austenitic steel pipes

Steel type /grade ³⁾	Manufacturing method ¹⁾	Max. outer diameter [mm]	Max. wall thickness [mm]	Heat treatment condition ²⁾
Austenitic stainless	EFW	812.8	12.7	SHT

Remarks:

- 1) EFW: electric fusion welded
- 2) SHT: Solution Heat Treated (solution annealing)
- 3) Austenitic and ferritic-austenitic steel pipes
 Suitable pipe grades shall be selected from the following recognized standards:
 ISO 9329 Part 4, ISO 9330 Part 6, EN 10216 Part 5, EN 10217 Part 7, ASTM A269, ASTM A312, ASTM A358, ASTM A789, ASTM A790, ASTM A928 or JIS G3459

Special conditions:

Including automatic eddy current testing in lieu of hydraulic testing according to relevant standard for pipes up to 168.28 mm diameter / 7.1 mm wall thickness.

Including austenitic stainless steel for approved low-temperature applications.

Approval scope for Independent Heat Treatment Company

Item	Description
Product type	Steel tubes and pipes
Steel Type	Austenitic stainless steel
Heat Treatment I.D #	No.01
Maximum Loading Weight	1.5 ton
Max. Thickness	12.7 mm
Heat Treatment Type	Solution heat treated (solution annealing with quenching)
Furnace Details	Continuous, Working zone [mm]: Length 11200, Width 1100, Height 820
Heat Treatment Procedure	Doc. No. KSE-H-101 Rev.1 dated 2019-03-15
Temperature Uniformity Survey Procedure	Doc. No. KSE-H-103 Rev.1 dated 2019-03-15