

APPROVAL OF MANUFACTURER CERTIFICATE

This is to certify:

That

Pantech Steel Industries Sdn Bhd
Kapar, Selangor, Malaysia

is an approved manufacturer of
Steel Pipes and Fittings

in accordance with
DNV GL rules for classification – Ships

and the following particulars:

Product	Fittings
Application area	Piping fittings
Steel type	Carbon and carbon-manganese
Manufacturing method	Seamless
Max. outer diameter	See page 2
Max. wall thickness	See page 2
Heat treatment condition	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 GL classed object shall fulfill the material requirements in the applicable DNV GL class rules.

Issued at **Hamburg** on **2020-02-14**

for **DNV GL**

This Certificate is valid until **2023-02-13**.

DNV GL local station: **Kuala Lumpur**

Approval Engineer: **Stefan Röhr**

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Thorsten Lohmann
Head of Section

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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 300,000 USD.



Particulars of the approval

Piping fittings (elbows)

Steel type	Grade ^{2) 3)}	Manufacturing method ¹⁾	Max. outer diameter [mm]	Max. wall thickness [mm]	Heat treatment condition ²⁾
C and C-Mn	ASTM A234 Grade WPB	HFS	609.6	19	acc. to standard
C and C-Mn	ASTM A420 Grade WPL 6	HFS	457.2	11	acc. to standard

Piping fittings (tees)

Steel type	Grade ^{2) 3)}	Manufacturing method ¹⁾	Max. outer diameter [mm]	Max. wall thickness [mm]	Heat treatment condition ²⁾
C and C-Mn	ASTM A234 Grade WPB	HFS	406.4	12.7	acc. to standard
C and C-Mn	ASTM A420 Grade WPL 6	HFS	152.4	21.95	acc. to standard

Piping fittings (reducers)

Steel type	Grade ^{2) 3)}	Manufacturing method ¹⁾	Max. outer diameter [mm]	Max. wall thickness [mm]	Heat treatment condition ²⁾
C and C-Mn	ASTM A234 Grade WPB	HFS	457.2	16	acc. to standard
C and C-Mn	ASTM A420 Grade WPL 6	HFS	152.4	21.95	acc. to standard

Remarks:

- 1) HFS: hot finished seamless
- 2) Including equivalent grades to other standards
- 3) Suitable pipe fittings shall be selected from the following recognized standards:
EN 10253, ASTM A234, ASTM A403, ASTM A420, ASTM A744, ASTM A815, ASTM A960,
ASTM A961, JIS B2312, JIS B2313 or JIS B2316