



Certificate No:
TAP00000HW

TYPE APPROVAL CERTIFICATE

This is to certify:

That the **Safety Relief Valve for LNG/LPG Service**

with type designation(s)
PSL-MP

Issued to

Fukui Seisakusho Co., Ltd.
Hirakata, Osaka Pref., Japan

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL rules for classification – Ships Pt.5 Ch.7 Liquefied gas tankers
DNV GL class programme DNVGL-CP-0186 – Type approval – Valves

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

K. factor: See page 2
Temperature range: -196°C to 125°C (See page 2)
Max. working press.: 25 bar(g) (See page 2)

Issued at **Høvik** on **2021-07-27**

This Certificate is valid until **2026-06-30**.

for **DNV**

DNV local station: **Kobe**

Approval Engineer: **Mehdi Rowshan**

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Zeinab Sharifi
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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 300,000 USD.



Form code: TA 251

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Product description

Single and multi setting with single and dual pilot operated safety valves with flanged end connections

Sizes:

2"x 3", 3"x 4", 4"x 6", 6"x 8" and 8"x 10"

Design:

Discharge coefficient according to ASME VIII div.1:

sonic flow: $K_d = 0.843$

sub sonic flow: $K_d = -0.255 \times (P_2/P_1) + 0.992$

Material used based on temperature range:

Temperature range	-196°C to 125°C	-45°C to 125°C	-28.8°C to 125°C
Body material	SCS13	SCPL1	SCPH2
Nozzle		SUS304	
Seat retainer		SUS304	
Retainer bolt		SUS304	
Gasket & Piston Seal		PTFE	
Bolt & nut		SUS304	
Cover		SCS13	

Application/Limitation

Valves covered by this certificate may be used with gases under following design temperature depending on soft material used:

Material	Temperature range (°C)
NBR	: -50 to 120
FPM	: -15 to 125
CR	: -40 to 80
EPDM	: -30 to 120
Silicone	: -54 to 125
Teflon	: -196 to 125

Pressure-Temperature ratings shall follow the corresponding flange standard (e.g., ASME B16.5) for elevated properties as appropriate to the design conditions.

Materials and material protection chosen for the specific system shall be suitable for the intended medium and environmental conditions. Valves of austenitic stainless steel shall not be used in direct contact with seawater.

Valves covered by this certificate are not to be considered fire safe and therefore shall not be installed wherever fire safe application is required.

EPDM may not be used for hydrocarbon services.

Type Approval documentation

Tests carried out

Function and seat tightness test (at ambient and cryogenic temperatures)

Production testing and Certification

Production testing and certification for the actual intended application shall follow the standard ISO 4126 [6]/API 527 and the latest applicable edition of the rules (as mentioned on the front page of this certificate), as appropriate.

Marking of product

The following minimum information shall be marked on on the body or on a plate of non-corrosive material fixed to the body of all safety valves:

- size designation of inlet
- material of the body
- manufacturer's name or trademark
- an arrow sign showing the direction of flow, where the inlet and outlet connections have the same



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dimensions or the same pressure rating
- set pressure

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.