



Certificate No:
TAP000028W

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Safety Valve

with type designation(s)
SPRV-F-8R-130-BS

Issued to

Hansun Engineering Co., Ltd.
Busan, Korea, Republic of

is found to comply with

DNV class programme DNV-CP-0186 – Type approval – Valves
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems

Application :

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

K. factor: 0.657

Issued at **Høvik** on **2023-09-21**

for **DNV**

This Certificate is valid until **2028-09-20**.

DNV local station: **Gimhae Station**

Approval Engineer: **Andreas Hansen**

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.



Product description

Direct loaded spring operated safety valve for use in CO₂ service, designed according to ISO 4126--1.

Inlet/outlet	:	½" PT
Orifice diameter	:	4.5 mm
Set pressure	:	100 bar
Coefficient of discharge (certified)	:	0.657

Material of construction:

Body / Bonnet / Spring housing	:	JIS H3250 C3604 / KS D5101 C3604
Poppet cap	:	ASTM A276 316 / KS D360 STS316
Spring	:	SAE 9254 / KS D3556 CL.2
O-ring	:	NBR

Application/Limitation

The safety valve covered by this certificate is approved to be used for CO₂ service with the design pressure of 165 bar(g).

Design temperature range depending on utilization of non-metallic material:

NBR	:	-25°C to +100°C
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Materials and material protection chosen for the specific system shall be suitable for the intended medium and environmental conditions.

The safety valve covered by this certificate may not be used on any pressurized systems for carriage and operation of media specified as toxic and/or dangerous fluid and cryogenic media on ships subject to the IGC Code.

On boilers or steam-heated steam generators the following limitations apply:

- Safety valves of ordinary type with seats of less than 38 mm inside diameter shall not be used. (Reference is made to DNV-RU-SHIP Pt.4 Ch.7 Sec.5 [2.1.8])
- For full lift safety valves, the inside seat diameter shall not be less than 20 mm. (reference is made to DNV-RU-SHIP Pt.4 Ch.7 Sec.5 [2.1.8])
- The discharge from safety valves shall be to a point where hazard is not created. (reference is made to DNV-RU-SHIP Pt.4 Ch.6 Sec.5 [7.4.1])

Threaded joints in CO₂ systems are only allowed inside protected spaces and in CO₂ cylinder rooms.

Valves covered by this certificate are not to be considered fire safe and therefore shall not be installed wherever fire safe application is required; e.g. as pressure relief valves on cargo tanks in liquefied gas tankers.

Type Approval documentation

Document no.	Title	Rev.	Date
SPRV-F-8R-130-BS	Pressure Relief Valves ½" PT x 100bar	1	2021-06-08
PRV-F-8R-B	Pressure Relief Valve SPRV-Body (1/2 PT Female)	0	2015-12-18
PRV-BNT-M-8G6G-BS	Pressure Relief Valve SPRV-Bonnet	0	2015-12-18
PRV-PPTCAP-S6	Pressure Relief Valve SPRV-Poppet Cap	2	2016-02-11
PRV-PPT-S6	Pressure Relief Valve SPRV-Poppet	1	2016-02-11
PRV-DISC-BS	Pressure Relief Valve SPRV-Disc	0	2015-12-18
XSPR-SB1870-BRN-9254	Ball Valve (3000 Series) Disc Spring	0	2021-10-25
PRV-SPRHSG-BS	Pressure Relief Valve SPRV-Spring Housing	1	2015-12-28
PRV-ADBLT-M101P-BS	Pressure Relief Valve SPRV-Adjustable Bolt	1	2021-06-28
HSET-DNVGL-2103-001	Test report: Hydraulic test, witnessed by DNV	-	2021-07-09
HSET-DNV-2110-001	Test report: Operating sensitivity test, witnessed by DNV	-	2021-10-26
KG 21-41	Test report: Capacity test, witnessed by DNV	-	2021-10-06
HSDFR-2206-001	Discharge Capacity Design Calculation	0	-
HSDC-2308-001	Design calculation – SPRV Series Relief Valves	0	2023-08-22

Tests carried out

Capacity test, operating sensitivity test, and hydraulic pressure test.



Job Id: **262.1-034325-1**
Certificate No: **TAP000028W**

Product testing and Certification

Production testing and certification for the actual intended application shall follow the latest applicable editions of the Rules (as mentioned on the front page of this certificate) and as outlined in design standard.

Marking of product

Minimum marking requirements shall be as outlined in the standard ISO 4126-1 [10].

Periodical assessment

For retention of Type Approval, a DNV Surveyor shall perform a 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 DNV-CP-0338.