Certificate no.:
TAP0000318

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Globe Valve

with type designation(s)
3241 Series, 3256 Series

issued to
Samson Controls (China) Co., Ltd.
Beijing, **China**

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV rules for classification – Ships Pt.5 Ch.7 Liquefied gas tankers
DNV rules for classification – Ships Pt.6 Ch.2 Sec.5 Gas fuelled ship installations – Gas fuelled LNG
DNV class programme DNV-CP-0186 – Type approval – Valves

Application:

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

Type:	Temperature range:	Max. working press.:	Sizes:
3241 Series	see certificate		
3256 Series	see certificate		

Issued at **Hamburg** on **2025-06-18**
This Certificate is valid until **2030-06-17**.
DNV local unit: **Dalian NB & CMC**

for **DNV**

Approval Engineer: **Ana Cristina Do Carmo Insfran**

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 USD 300 000.

Product description

The 3241 and 3256 valve type series are designed either as globe valves.
The type approval does not include actuator and/or other equipment for remote control of the valves.

Design standards for valves acc. pressure / temperature ratings: EN 12516 / ASME B16.34.
Flange standards: ASME B16.5 and ASME B16.25

Series 3241

Nominal size	DN	DN 15 – DN 300
	ANSI	NPS ½" – NPS 12"
Design pressure	PN	16 – 40 [bar]/ 150-300 [psi]
	ANSI Class	150 – 300
Temperature range	-196°C to +450°C	

Series 3256

Nominal size	DN	DN 15 – DN 50
	ANSI	NPS ½" – NPS 2"
Design pressure	PN	420 [bar] / 3620 [psi]
	ANSI Class	2500
Temperature range	-196°C to +450°C	

Materials:

Materials for valve body – castings

EN Material	EN standard	EN Mat. No.	ANSI material	UNS No.
GP240GH	DIN EN 10213	1.0619	A216 WCC	J02503
GX2CrNi19-11	DIN EN 10213	1.4309	A351 CF3	J92500
GX5CrNi19-10	DIN EN 10213	1.4308	A351 CF8	J92600
GX2CrNiMo19-11-2	DIN EN 10213	1.4409	A351 CF3M	J92800
GX5CrNiMo19-11-2	DIN EN 10213	1.4408	A351 CF8M	J92900

Materials for valve bonnet – forgings

EN Material	EN standard	EN Mat. No.	ANSI Material	UNS No.
P250GH	DIN EN 10222-2	1.0460	A105	K03504
X2CrNi19-11	DIN EN 10272	1.4306	A182 F304L	S30403
X5CrNi18-10	DIN EN 10222-5	1.4301	A182 F304	S30400
X5CrNiMo17-12-2/ X2CrNiMo17-12-2	DIN EN 10222-5	1.4401/ 1.4404	A182 F316/ A182 F316L	S31600/ S31603
X5CrNiMo17-12-2/ X2CrNiMo17-12-2	DIN EN 10222-5	1.4401/ 1.4404	A182 F316/ A182 F316L	S31600/ S31603

Materials for valve bonnet – Bar stock

EN Material	EN Standard	EN Mat. No.	ANSI Material	UNS No.
P250GH	DIN EN 10273	1,0460	A105	K03504
X2CrNi19-11	DIN EN 10272	1,4306	A479 304L	S30403
X5CrNi18-10	DIN EN 10272	1,4301	A479 304	S30400
X5CrNiMo17-12-2/ X2CrNiMo17-12-2	DIN EN 10272	1.4401/ 1.4404	A479 316/ A479 316L	S31600/ S31603
X5CrNiMo17-12-2/ X2CrNiMo17-12-2	DIN EN 10272	1.4401/ 1.4404	A479 316/ A479 316L	S31600/ S31603

Materials for fabrication of pressure retaining valve items such as valve body and bonnet shall be supplied by DNV Approved Material Manufacturers.

All material properties shall comply with requirements specified in DNV Rules Materials & Welding Pt.2 Ch. 1 to Ch. 4. Materials for valve bodies and bonnet to be installed in cryogenic systems, e.g., LNG, as well as in ship's gas fuel systems shall comply with DNV Rules Pt.5 Ch.7 – Liquefied gas tankers, Section 6 – Materials of construction, quality control and marking.

For cryogenic application material certificates shall provide material properties for the relevant minimum design temperature, in particular Charpy impact test results according to DNV Rules Pt. 5 Ch. 7, Table 4.

Application/Limitation

Stainless steel globe valves approved for the use in ships piping, machinery piping, fuel systems and cargo handling piping systems. Operating media include flammable gases, nitrogen and cryogenic liquefied gases including LNG.

Minimum design temperature: -196 °C
Maximum design temperature: +450 °C

Design pressures see table overview on page 2.

For maximum allowable working pressure at ambient and elevated temperatures see ASME B16.34 or EN 12516-1 as appropriate.

In seawater applications, used material shall be properly protected. Surface preparation and coating shall be approved by society. Austenitic stainless steels shall not be considered as seawater resistant material.

Valves may not be used for media specified as toxic and/or dangerous fluids.

Tests carried out

Test standards:	DNV Rules Pt. 5 Ch. 7 Liquefied gas tankers DNV Rules Pt. 6 Ch.2 Section 5 Gas fuelled ship installations DNV Rules Pt.4 Ch.6 – Piping systems DNV Class Programme CP 0186 - Valves
Valve test	Purpose
Pressure test	Minimum test pressure = 1,5 times the design pressure Test standard: DNV Rules Pt.4 Ch. 6; DNV - CP 0186 - Valves
Seat tightness	To confirm the capability of the seat with the specified leakage rate Seat tightness test at ambient temperature, test fluid: Nitrogen Test standard EN 12266-1
Seat tightness	Seat tightness test at cryogenic temperature, test temperature -196°C, test fluid Helium Test standard EN 12266-1
Functional test	Functional test at cryogenic temperature, test temperature -196°C, test fluid Helium, (20 cycles open/close) Test standard EN 12266-2

Type Approval documentation

Production testing and valve certification

I. Application for Liquefied gas tankers

1. Certification of valves [DN ≥ 100 **or** Working temperature < -55°C]
For all valves having a nominal diameter DN ≥ 100 or a working temperature below -55°C a Product Certificate (PC) shall be issued by DNV based on the following scope of tests and according to:
DNV Rules Part 5, Chapter 7 – Liquefied gas tankers, Section 5, Item 13.1.1 and 13.1.2

Type of test	Test pressure
Shell strength	1,5 times the design pressure
Tightness test of pressure bearing housing	1,1 times the design pressure
Seat tightness test	1,1 times the specific shutoff differential pressure
Functional test	Design / work pressure

DNV Rules Pt. 5 Ch. 7, Section 1, Table 7 – Compliance documents

DN ≥ 100 or Working temperature < -55°C	Type of certificate / Issued by Product Certificate (PC) / DNV

2. Additional cryogenic testing – 10 % of each type and size of valve
In addition, cryogenic testing consisting of valve operation and leakage verification for a minimum of 10% of each type and size of valve intended to be used at a working temperature below -55°C shall be carried out.

3. Material certification of valves
DNV Rules Part 5, Chapter 7 – Liquefied gas tankers

Pt. 5 Ch. 7, Section 1, Table 8 – Compliance documents for material quality and testing
Material certificates of valve bodies

Valve nominal diameter	Type of Certificate / Issued by
DN > 100, design temperature <-55°C	Material Certificate (MC) / DNV
DN > 100, design temperature ≥ -55°C	Material Declaration (MD) / Manufacturer
DN ≤ 100	Material Declaration (MD) / Manufacturer

4. Certification of valves [DN < 100 and working temperature ≥ -55°C]
For all valves having a nominal diameter DN < 100 intended for use at a working temperature ≥ -55°C a Product Declaration (PD) shall be issued based on the tests listed above and according to
DNV Rules Part 5, Chapter 7 – Liquefied gas tankers, Section 1, Table 7 – Compliance documents

Valve nominal size DN < 100	Type of certificate / Issued by Product Declaration (PD) / Manufacturer

Important Note:
For valves intended to be installed in ship's gas fuel systems certification requirements according to DNV Rules Pt. 6 Ch.2 Section 5 – "Gas fuelled ship installations" are to be observed.
These are different to applicable requirements provided in DNV Rules Pt. 5 Ch. 7 – Liquefied gas tankers.

Production testing and valve certification - continuation

II. Application in Gas as fuel systems

For each valve intended to be installed in ship's gas fuel supply systems a Product Certificate (PC) shall be issued based on the following scope of tests and according to
DNV Rules Part 6, Chapter 2, Section 5 – Gas fuelled ship installations

1.

Type of test	Test pressure
Shell strength	1,5 times the design pressure
Tightness test of pressure bearing housing	1,1 times the design pressure 1,1 times the specific shutoff differential pressure
Functional test	Design / work pressure

2. Valves in LNG / Gas fuel system – Table 3 Certification required

Valve design conditions - Test and certification	Type of certificate / Issued by
Design temperature < 0°C / DNV Pt.5 Ch.7 irrespective of size	Product Certificate (PC) / DNV
Design pressure > 10 bar/ DNV Pt.5 Ch.7 irrespective of size	Product Certificate (PC) / DNV
Design pressure ≤ 10 bar Design temperature ≥ 0°C	Product Declaration (PD) / Manufacturer

3. Material certificates
DNV Pt. 6 Ch.2 Section 5 – Gas fuelled ship installations
Table 4 Certification of material quality and testing

Design temperature	Type of certificate / Issued by
< 0°C	Material Certificate (MC) / DNV
≥ 0°C	Material Declaration (MD) / Manufacturer

III Application in machinery piping systems

Valves intended to be installed in piping systems listed in DNV Rules Pt.4 Ch.6 – Section 1
shall be certified according to
DNV Rules Pt.4 Ch.6 – Piping systems, Section 1, Table 3 Compliance documents – piping components

Valve nominal size / Pressure rating	Type of certificate / Issued by
DN > 100 mm / PN > 16 bar	Product Certificate (PC) / DNV
DN ≤ 100 mm / PN ≤ 16 bar	Product Declaration (PD) / Manufacturer

Material certificates (valve bodies)
In accordance with DNV Rules Pt.4 Ch.6 – Piping systems, Section 2, Table 3 – Material certificates

Marking of product

Each valve shall be clearly marked for identification. The identification marking may be performed on the body or on a plate of non-corrosive material. When a metallic plate is used, the plate shall be permanently fixed to the body. Identification marking on the body shall be located to non-stressed areas and shall be clearly legible.
The identification marking shall as a minimum include the following:

- Manufacturer's name or trade mark
- Valve type designation
- Size
- Maximum design pressure and temperature
- Arrow to indicate direction of flow on one way flow valves

Production Places

SAMSON CONTROLS (CHINA) Co., LTD.
No.11, Yong Chang Nan Lu, BDA, Beijing 100176 China

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 Type Approval are complied with Refer to DNV-CP-0338, Sec.4.

The certificate is only valid if required periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com

End of Certificate