



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAP0000014**  
Revision No:  
**3**

## This is to certify:

**That the Globe Valve**

with type designation(s)  
**240 series, 250 series**

Issued to

**SAMSON AG Mess- und Regeltechnik**  
**Frankfurt am Main, Germany**

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 :

**Products approved by this certificate are accepted for installation on all vessels classed by DNV.**

Type:	Temperature range:	Max. working press.:	Sizes:
<b>240 series</b>	<b>See cert.</b>	<b>See cert.</b>	<b>See cert.</b>
<b>250 series</b>	<b>See cert.</b>	<b>See cert.</b>	<b>See cert.</b>

Issued at **Hamburg** on **2022-07-27**

This Certificate is valid until **2027-07-26**.

for **DNV**

DNV local station: **Augsburg**

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

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**Olaf Drews**  
**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

The 240 and 250 valve type series are designed either as globe valves, angle valves or three-way valve. The type approval does not include actuator and/or other equipment for remote control of the valves.

- Sizes Series 240 (3241, 3244, 3246 and 3248)

Valve type series		240 type series			
Valve design types		3241	3244	3246	3248
Nominal size	DN	DN 15 – DN 300	DN 15 – DN 150	DN 15 – DN 250	DN 25 – DN 150
Pressure rating	ANSI	NPS ½” – NPS 12”	NPS ½” – NPS 6”	NPS ½” – NPS 10”	NPS 1” – NPS 6”
	PN	PN 16 – PN 40	PN 16 – PN 40	PN 16 – PN 100	PN 16 – PN 100
	ANSI Class	150 – 300	150 – 300	150 – 600	150 – 600

- Sizes Series 250 (3251, 3253, 3254, 3256)

Valve type series		250 type series			
Valve design types		3251	3253	3254	3256
Nominal size	DN	DN 15 – DN 500	DN 15 – DN 500	DN 50 – DN 300	DN 15 – DN 400
Pressure rating	ANSI	NPS ½” – NPS 20”	NPS ½” – NPS 20”	NPS 2” – NPS 12”	NPS 1” – NPS 16”
	PN	PN 16 – PN 320	PN 16 – PN 400	PN 10 – PN 320	PN 16 – PN 400
	ANSI Class	150 – 2500	150 – 1500	300 – 1500	150 – 2500

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

Flange standards: ASME or EN Standards.

### 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 - continuation**

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

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 has to be issued by DNV based on the following scope of tests and according to: DNV Rules Pt. 5 Ch. 7 – Liquefied gas tankers, Section 5, Item 13.2

<u>Type of test</u>	<u>Test pressure</u>
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 design pressure
Functional test	Design / work pressure

DNV Rules Pt. 5 Ch. 7, Section 1, Table 7 – Certification of components

<u>DN ≥ 100 or Working temperature &lt; -55°C</u>	<u>Type of certificate / Issued by</u>
	VL Certificate / DNV

2. **Additional cryogenic testing – 10 % of the batch**

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 working temperature < -55°C**

DNV Rules Pt. 5 Ch. 7 – Liquefied gas tankers

DNV Rules Pt. 5 Ch. 7, Section 1, Table 8 – Certification of material quality and testing  
 Material certificates of valve bodies

<u>Valve nominal diameter</u>	<u>Type of Certificate / Issued by</u>
DN > 100	VL Certificate / DNV
DN ≤ 100	W Works Certificate / Manufacturer

4. **Certification of valves [ Working temperature ≥ -55°C]**

For all valves intended for use at a working temperature ≥ -55°C a works certificate has to be issued based on the tests listed above and according to DNV Rules Pt. 5 Ch. 7 – Liquefied gas tankers, Section 1

<u>Valve nominal size</u>	<u>Type of certificate / Issued by</u>
DN < 100 mm	W Works Certificate / Manufacturer

Material certificates (valve bodies)  
 W Works Certificate, issued by 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 - 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 is to be issued based on the following scope of tests and according to DNV Rules Pt. 6 Ch. 2 Section 5 – Gas fuelled ship installations – Gas fuelled

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 design pressure
Functional test	Design / work pressure

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

<u>Valve design conditions - Test and certification</u>	<u>Type of certificate / Issued by</u>
Design temperature < 0°C / DNV Rules Pt.5 Ch.7 irrespective of size	VL Certificate / DNV
Design pressure > 10 bar/ DNV Rules Pt.5 Ch.7 irrespective of size	VL Certificate / DNV
Design pressure ≤ 10 bar Design temperature ≥ 0°C	Works certificate / Manufacturer

#### Material certificates

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

	<u>Type of certificate / Issued by</u>
Design temperature < 0°C	VL Certificate / DNV
≥ 0°C	W Works Certificate / Manufacturer

### III. Application in machinery piping systems

For valves intended to be installed in piping system listed in DNV Rules Pt.4 Ch.6 – Section 1 shall be certified according to DNV Rules Pt.4 Ch.6 – Piping systems, Section 9

<u>Valve nominal size / Pressure rating</u>	<u>Type of certificate / Issued by</u>
DN > 100 mm / PN > 16 bar	VL Certificate / DNV
DN ≤ 100 mm / PN ≤ 16 bar	W Works Certificate / Manufacturer
Ship side valves DN > 100 mm regardless of pressure rating	VL Certificate / DNV

#### Material certificates (valve bodies)

In accordance with DNV Rules Pt.4 Ch.6 – Piping systems, Section 2 – Table 3

#### Note:

Valves having a nominal diameter DN >100 and to be fabricated with a design temperature > 400°C shall provide VL material certificates for valve body and bolts.

## 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

Manufacturer address SAMSON AKTIENGESELLSCHAFT·  
Weismüllerstraße 3 · 60314 Frankfurt am Main, Germany

Manufacturer address SAMSON REGULATION S.A.S.  
1 · rue Jean Corona · 69120 VAULX-EN-VELIN, Lyon, France

## 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