

Certificate Number : 22TI031



Date : 2 September 2022

**CERTIFICATE
FOR
APPROVAL OF MANUFACTURERS**

THIS IS TO CERTIFY THAT the works of

**HEROSE GMBH ARMATUREN UND METALLE
Bad Oldesloe, GERMANY**

have been surveyed by NIPPON KAIJI KYOKAI for approval of the Quality Assurance System as well as Production procedures/facilities, Workmanship and Inspection/testing methods under the Rules for Approval of Manufacturers and found to be competent to produce

Valves and Safety Valves (Cryogenic)

to be installed/fitted in ships classed or intended for classification with the society.

This certificate is valid until **1 September 2027** subject to periodical surveillance.

Approval Number : **22CLQA241**

NIPPON KAIJI KYOKAI



(Signature)
(M. Inoue)
General Manager of Survey Department

Note : This certificate is subject to the conditions as per attached sheet.

Attachment to
Certificate Number 22TI031



Name of Manufacturer :

HEROSE GMBH ARMATUREN UND METALLE

Address of Manufacturer :

Elly-Heuss-Knapp-Strasse 12, 23843 Bad Oldesloe, GERMANY

Articles and Approval Conditions of Products :

- Valves and cryogenic Valves (intended but not limited to LNG applications)
- Safety Valves and cryogenic Safety Valves (intended but not limited to LNG applications)

Related Documents :

- Quality Manual (Prozesslandkarte, dated 22 April 2020)
- NK Assessment Record (22HB01021)

-- The End --



NIPPON KAIJI KYOKAI

COPY

TYPE APPROVAL CERTIFICATE

Certificate No. TA22155M

This is to certify that the undernoted product(s) has been approved in accordance with the relevant requirements of "Rules for the Survey and Construction of Steel Ships", "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" as specified below, and that the product(s) is found to comply with "International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code)" as amended by Res.MSC.370(93) and "International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code)" as adopted by Res.MSC.391(95).

This certificate is issued to

Manufacturer:	HEROSE GMBH ARMATUREN UND METALLE
Product description:	Valves for Low Temperature Service
Type designation(s):	As per attached sheet
Applied requirement:	<ul style="list-style-type: none">• Chapter 5 Part N Annex 1, Guidance for the Survey and Construction of Steel Ships• Chapter 5 Part GF Annex 1, Guidance for the Survey and Construction of Steel Ships• Part 6, Chapter 2, Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use
Approval No.:	22LA005B

This certificate is valid until **21 April 2027**.

Issued at Tokyo on **22 April 2022**.

See the conditions on the attachment.


(S. Oishi)
General Manager of
Machinery Department



Condition for approval

1. Particulars

Type	Type No.	Drawing No.	Nominal Size (DN)	Minimum Design Temperature [°C]
Globe Valve	01341	0134x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150, 200	-196°C
		01341-dn200-00xx-wkstliste		
	01342	01342-x-00xx-wkstliste	15, 20, 25, 40, 50	
	01343	01343-x-10xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		01343-0219-301x-wkstliste		
	01345	0134x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50	
	01351	0135x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150	
	01352	01352-x-00xx-wkstliste	10, 15, 20, 25, 40, 50	
	01353	01353-dnxx-zulassung	20, 25, 40, 50, 65, 80	
	01355	0135x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50	
	01420	01420-dnxx-zulassung	10, 15, 20, 25, 40, 50, 65, 80, 100	
	01423	01423-dnxx-zulassung	10, 15, 20, 25, 40, 50, 65, 80, 100	
	01641	0164x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		01641-dn200-00xx-wkstliste		
	01643	01643-x-10xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		01643-0219-301x-wkstliste		
	01645	0164x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50	
	01651	0165x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100	
	01653	01653-dnxx-zulassung	20, 25, 40, 50, 65, 80	
	01655	0165x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50	
	01741	0174x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		01741-dn200-00xx-wkstliste		
	01743	01743-x-10xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		01743-DN200-zulassung		
01745	0174x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50		
01751	0175x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100		
01753	01753-x-zulassung	20, 25, 40, 50, 65, 80		
01755	0175x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50		

Type	Type No.	Drawing No.	Nominal Size (DN)	Minimum Design Temperature [°C]
Globe Valve	01841	0184x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150, 200	-196°C
		01841-dn200-00xx-wkstliste		
	01843	01843-x-10xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		01843-dn200-zulassung		
	01845	0184x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50	
	01851	0185x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100	
	01853	01853-dnxx-zulassung	20, 25, 40, 50, 65, 80	
	01855	0185x-x-00xx-wkstliste	10, 15, 20, 25, 40, 50	
	03341	03341-dnxx-zulassung	15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		03341-dn200-zulassung		
	03343	03343-dnxx-zulassung	15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		03343-dn200-zulassung		
	03351	03351-x-00xx-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150	
	03641	03641-dnxx-zulassung	15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		03641-dn200-zulassung		
	03643	03643-x-10xx-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		03643-dn200-301x-wkstliste		
	03651	03651-x-00xx-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150	
	03741	03741-x-00xx-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150, 200	
		03741-dn200-zulassung		
03743	03743-x-101x-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150, 200		
	03743-dn200-zulassung			
03751	03751-x-00xx-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150		
03841	03841-x-00xx-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150, 200		
	03841-dn200-zulassung			
03843	03843-x-10xx-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150, 200		
	03843-dn200-zulassung			
03851	03851-x-00xx-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150		

Type	Type No.	Drawing No.	Nominal Size (DN)	Minimum Design Temperature [°C]
Globe Valve Bellow Sealed	01252	01252-DNxx-wkstliste	10, 15, 20, 25, 32, 40, 50	-196°C
	01262	01262-x-002x-wkstliste	10, 15, 20, 25, 40, 50	
	01272	01272-x-00xx-wkstliste	10, 15, 20, 25, 40, 50	
	01282	01282-x-00xx-wkstliste	10, 15, 20, 25, 32, 40, 50	
	03252	03252-x-00xx-wkstliste	15, 20, 25, 40, 50	
	03272	03272-x-00xx-wkstliste	15, 20, 25, 40, 50	
Check Valve	05414	05414-x-000x-wkstliste	10, 15, 20, 25, 32, 40, 50, 65, 80, 100, 150, 200	
		05414-dn200-zulassung		
	05417	05417-x-000x-wkstliste	10, 15, 20, 25, 40, 50	
	05419	05419-x-000x-wkstliste	15, 20, 25, 40, 50, 65, 80, 100, 150	
	05714	05714-x-000x-wkstliste	10, 15, 20, 25, 40, 50, 65, 80, 100, 150	
	05717	05717-x-000x-wkstliste	10, 15, 20, 25, 40, 50	
	05719	05719-dnxx-zulassung	15, 20, 25, 40, 50, 65, 80, 100, 150	

2. Design pressure (barg) for each nominal diameter (DN) approved by the Society is as follows;

Nominal Diameter (DN)	Design Pressure (barg)
10, 15, 20, 25, 32, 40, 50, 65, 80	50
100	40
150	25
200	20

3. Details of construction is to be in accordance with the Manufacture's drawing approved on 22 April 2022 with the following comments.

Comments;

Material test is to be carried out in the presence of the Society's surveyor for the following parts;

Globe Valve:

- Body, Elongation tube, Head Piece (also referred to as Top work or Upper Part) for all type of Globe valves
- Tube and Flange for Top Entry valves (type: 01420 and 01423)
- Plate for some Actuated valves (type: 01343, 01643, 01743, 03343, 03743 and 03843, whose nominal size is DN150 or under)

Attached sheet to the Certificate No. TA22155M (4/4)

- Tube, Cap and Headpiece(s) for Shut-off valves (type: 01353, 01653, 01753 and 01853)
- Flanges for valves with flanged connections (type: 03341, 03343, 03641, 03643, 03741, 03743, 03841 and 03843, whose nominal size is DN200)
- Ring for bellow, Plate and Adapter Fitting for Bellow sealed valves (type: 01252, 01262, 01272, 01282, 03252 and 03272)

Check Valve:

- Body and Cap for all type of Check valves

4. Welded sleeve connections shall only be used for open-ended lines with an external diameter of 50 mm or less and design temperatures not colder than -55°C . In addition, screwed connection cannot be used for cargo piping and should only be used for accessory lines and instrumentation lines with external diameters of 25mm or less, as per 5.8.2, Part N of NK Rules (IGC Code 5.8.2) and 7.3.6, Part GF of NK Rules (IGF Code 7.3.6).
5. Compatibility with intended fluids is to be otherwise confirmed by the Society.
6. Production inspection is required for each product in the presence of the Society's surveyor, as per Annex 1 5.3.2, Part N and GF of NK Guidance.

- The End -



NIPPON KAIJI KYOKAI

COPY

TYPE APPROVAL CERTIFICATE

Certificate No. TA22180M

This is to certify that the undernoted product(s) has been approved in accordance with the relevant requirements of "Rules for the Survey and Construction of Steel Ships", "Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use" as specified below, and that the product(s) is found to comply with "International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code)" as amended by Res.MSC.370(93) and "International Code of Safety for Ships using Gases or Other Low-flashpoint Fuels (IGF Code)" as adopted by Res.MSC.391(95).

This certificate is issued to:

Manufacturer	HEROSE GMBH ARMATUREN UND METALLE
Product description	Safety Valves for Low temperature service
Type designation(s)	As per attached sheet
Applied requirements	• Chapter 6 Part N Annex 1, Guidance for the Survey and Construction of Steel Ships • Chapter 6 Part GF Annex 1, Guidance for the Survey and Construction of Steel Ships • Part 6, Chapter 2, Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use
Approval No.	22LA006B

This certificate is valid until **21 April 2027**

Issued at Tokyo on **22 April 2022**

See the conditions specified in the attached sheet.



(S. Oishi)
General Manager of
Machinery Department

NIPPON KAIJI KYOKAI

Attached sheet to the Certificate No.TA22180M

Approval conditions

1. Particulars:

Type	Inlet Size (NPS)	Throat diameter d ₀ [mm]	Kdr-value		Set pressure range [bar-g]	Minimum Design Temperature [°C]
			Steam/Gas	Liquid		
06800	1/2	12.5	0.60	–	3.0 – 25.0	-196°C
06801	3/4	15.0	0.50	0.34		
06805	3/4, 1	20.0	0.60	0.45		
06806	1	23.0	0.66	0.48		
06011	1/4, 3/8, 1/2	6.0	0.09	0.09	5.0 – 55.0	
06012 06016	1/4, 3/8, 1/2	6.0	0.42	–	1.0 – 55.0	
06386	1/2, 3/4, 1	10.5, 14.0	0.67	–	0.2 – 40.0	
06387	1/2	10.5	0.67	–	0.2 – 25.0	
06416	1/2, 3/4, 1	10.5, 14.0	0.67	–	0.2 – 40.0	
06417	1/2	10.5	0.67	–	0.2 – 25.0	
06383	1/2, 3/4	7.0	0.82	–	3.3-50.0	
06388	1/2, 3/4	10.5	0.58	–	2.9-50.0	
06413	1	15.0	0.50	–	2.9-50.0	
06418	1.1/4, 1.1/2, 2	23.0	0.62	–	2.0-50.0	
06420, 06421, 06425,	1/2, 3/4	7.0	0.78	–	0.4 – 50.0	
06426, 06440,	1/2, 3/4	10.5	0.69	–		
06441, 06445, 06446	3/4, 1	14.0	0.66	–	0.4 – 40.0	
	1, 1.1/4	18.0	0.66	–		
	1.1/4	23.0	0.54	–	0.4 – 10.0	
06474 06478	1/4, 3/8, 1/2, 3/4	6.0	0.66	–	0.4 – 55.0	

2. Detail of construction is to be in accordance with the Manufacture's drawings approved on 22 April 2022 with the following comment.

Comment;

Material test is to be carried out in the presence of the Society's surveyor for Inlet Body, Outlet Body and Bonnet.

3. Compatibility with intended fluids is to be otherwise confirmed by the Society.
4. Production inspection is required for each product in the presence of the Society's surveyor, as per Annex 1 6.4.3, Part N and GF of NK Guidance.

-The End-