

TYPE APPROVAL CERTIFICATE

This is to certify:

That the **Weathertight hatch**

with type designation(s)
WRH-S A2

Issued to

Libra-Plast A/S
HAREID, Norway

is found to comply with

DNV rules for classification – High speed and light craft

DNV rules for classification – Ships

DNV-OS-C301 – Stability and watertight integrity, Edition July 2020 (Amended August 2021)

Application :

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

Size up to 2000 mm x 3000 mm

Pressure (kN/m²) up to 140

Issued at **Høvik** on **2023-04-03**

This Certificate is valid until **2028-04-02**.

for **DNV**

DNV local unit: **Norway NB**

Approval Engineer: **Grzegorz Wolski**

Thomas Revheim
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

WTH-S A2

Is a hatch fabricated from 6 or 8 mm thick aluminium main plate. Plate is reinforced by up to eleven flat bars of 50 mm x 8 mm or 80 mm x 8 mm welded to the main plate by intermittent welding in middle and by double continuous welding at its ends. Edge of hatch is stiffened by gasket rim welded at 90-degree angle to the main plate.

Hatch is of single acting type with up to sixteen linked toggles and handle mounted centrally or close to non-hinged edge of hatch.

For further details see the drawings listed under Type Approval documentation below.

Application/Limitation

The application is limited to vessels built to DNV rules and for a design pressure as per table below.

Light opening (W)	Light opening (L)	Stiffener Quantity	Stiffener spacing	Gasket Rim (H x W)	Stiffeners (H x W)	Toggle Quantity	Hinge Quantity	Pressure pl. 8 mm [kN/m ²]	Pressure pl. 6 mm [kN/m ²]
-------------------	-------------------	--------------------	-------------------	--------------------	--------------------	-----------------	----------------	--	--

Without pl. stiffeners

600	600	-	-	50x8	-	4	2	75	46
	700	-	-	50x8	-	4	2	50	34
	800	-	-	50x8	-	6	2	45	29
700	700	-	-	50x8	-	4	2	45	30
	800	-	-	50x8	-	6	2	35	25
800	800	-	-	50x8	-	6	2	30	19

With pl. stiffeners

600	600	1	268	50x8	50x8	4	2	55	50
	700	2	230	50x8	50x8	4	2	70	60
	800	2	267	50x8	50x8	6	2	55	50
	900	3	230	50x8	50x8	6	2	70	60
	1000	3	230	50x8	50x8	6	2	55	50
	600	1	267	80x8	80x8	4	2	110	100
	700	2	230	80x8	80x8	4	2	140	125
	800	2	267	80x8	80x8	6	2	115	105
	900	3	230	80x8	80x8	6	2	135	125
	1000	3	230	80x8	80x8	6	2	120	115
700	700	2	230	50x8	50x8	4	2	55	49
	800	2	267	50x8	50x8	6	2	45	38
	900	3	230	50x8	50x8	6	2	50	47
	1000	3	230	50x8	50x8	6	2	40	38
	700	2	230	80x8	80x8	4	2	105	95
	800	2	267	80x8	80x8	6	2	85	75
	900	3	230	80x8	80x8	6	2	105	95
	1000	3	230	80x8	80x8	6	2	90	85
800	800	2	267	50x8	50x8	6	2	37	30
	900	3	230	50x8	50x8	6	2	40	36
	1000	3	230	50x8	50x8	6	2	32	29
	1400	5	230	50x8	50x8	8	3	32	32
	800	2	267	80x8	80x8	6	2	65	60
	900	3	230	80x8	80x8	6	2	80	75

Light opening (W)	Light opening (L)	Stiffener Quantity	Stiffener spacing	Gasket Rim (H x W)	Stiffeners (H x W)	Toggle Quantity	Hinge Quantity	Pressure pl. 8 mm [kN/m ²]	Pressure pl. 6 mm [kN/m ²]
	1000	3	230	80x8	80x8	6	2	65	65
	1400	5	211	80x8	80x8	8	3	75	70
900	900	3	230	50x8	50x8	6	2	32	29
	1000	3	230	50x8	50x8	6	2	26	23
	1400	5	211	50x8	50x8	8	3	28	25
	1800	6	247	50x8	50x8	8	3	25	22
	900	3	230	80x8	80x8	6	2	65	60
	1000	3	230	80x8	80x8	6	2	54	50
	1400	5	211	80x8	80x8	8	3	55	55
	1800	6	247	80x8	80x8	8	3	50	48
1000	1000	3	230	80x8	80x8	8	2	43	-
	1400	5	230	80x8	80x8	10	3	48	-
	1800	6	247	80x8	80x8	10	3	40	-
	2200	8	231	80x8	80x8	12	4	44	-
	3000	11	240	80x8	80x8	14	5	43	-
1400	1400	5	230	80x8	80x8	12	3	65	-
	1800	6	247	80x8	80x8	12	3	55	-
	2200	8	231	80x8	80x8	14	4	60	-
	3000	11	240	80x8	80x8	16	5	60	-
1800	1800	6	247	80x8	80x8	12	3	35	-
	2200	8	231	80x8	80x8	14	4	55	-
	3000	11	240	80x8	80x8	16	5	36	-
2000	2000	7	238	80x8	80x8	14	4	29	-
	2500	9	239	80x8	80x8	16	5	30	-
	3000	11	240	80x8	80x8	16	5	30	-

Watertight appliances are subject for hose and function testing after installation onboard the vessel, witnessed by a DNV surveyor, except in cases where plan approval of the hatch arrangement determines that tests are not required.

Hatches are calculated with respect to water pressure only, any other loading pattern is to be assessed on a case-by-case basis.

Hatches cannot be used as emergency exit type.

Dimensions of the light opening of the hatch can be smaller than shown on the drawings, if scantlings, maximum distance between the cleats and fabrication method and material are maintained.

Consideration shall be given if located in highly stressed areas or in areas critical to fatigue from global hull loads.

Type Approval documentation

Drawing No. A-3-01895 Rev. 2 dated 26 Jun 2022 from manufacturer.

Tests carried out

According to DNV rules for classification: Class Programme DNV-CP-0338, September 2022.

Marking of product

The product is to be marked with the following info:

- Manufacturer's name or brand
- DNV Type Approval Certificate No. TAS00003JD
- The specific type designation: WTH-S A2

Periodical assessment

DNV surveyor has the permission to perform Certification Retention Survey at any time during the validity period of this certificate. Periodical assessment will be required 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.