

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Weathertight hatch

with type designation(s)
WRH-F 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 2000 mm x 3000 mm
Pressure (kN/m²) up to 140

Issued at **Høvik** on **2023-02-14**

This Certificate is valid until **2028-02-13**.

DNV local unit: **Norway NB**

Approval Engineer: **Grzegorz Wolski**

for **DNV**

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

WRH-F A2

Is a hatch fabricated from 6 mm thick aluminium main plate. Plate is reinforced by up to ten 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)	Leaf cover (mm)	Stiffener Quantity	Max distance between stiffener	Gasket Rim (H x W)	True length	Chosen Profile type Stiffeners (H x W)	Toggle + Hinge Quantity	Allowed pressure on hatch Weather kN/m ²
600	600	8	-	-	50x8	447	-	6 + 2	75
	700	8	-	-	50x8	447	-	6 + 2	50
	800	8	-	-	50x8	447	-	6 + 2	45
700	700	8	-	-	50x8	497	-	6 + 2	45
	800	8	-	-	50x8	497	-	6 + 2	35
800	800	8	-	-	50x8	547	-	6 + 2	30

600	600	8	2	268	50x8	447	50x8	6 + 2	55
	700	8	2	230	50x8	447	50x8	6 + 2	70
	800	8	2	267	50x8	447	50x8	6 + 2	55
	900	8	2	230	50x8	447	50x8	6 + 2	70
	1000	8	3	230	50x8	447	50x8	6 + 2	55
	600	8	2	267	80x8	447	80x8	6 + 2	110
	700	8	2	230	80x8	447	80x8	6 + 2	140
	800	8	2	267	80x8	447	80x8	6 + 2	115
	900	8	2	230	80x8	447	80x8	6 + 2	135
	1000	8	3	230	80x8	447	80x8	6 + 2	120
700	700	8	2	230	50x8	497	50x8	6 + 2	55
	800	8	2	267	50x8	497	50x8	6 + 2	45
	900	8	2	230	50x8	497	50x8	6 + 2	50
	1000	8	3	230	50x8	497	50x8	6 + 2	40
	700	8	2	230	80x8	497	80x8	6 + 2	105
	800	8	2	267	80x8	497	80x8	6 + 2	85
	900	8	2	230	80x8	497	80x8	6 + 2	105
	1000	8	3	230	80x8	497	80x8	6 + 2	90
800	800	8	2	267	50x8	547	50x8	6 + 2	37
	900	8	2	230	50x8	547	50x8	6 + 2	40
	1000	8	3	230	50x8	547	50x8	6 + 2	32
	1400	8	4	230	50x8	547	50x8	8 + 3	32

Light opening (W)	Light opening (L)	Leaf cover (mm)	Stiffener Quantity	Max distance between stiffener	Gasket Rim (H x W)	True length	Chosen Profile type Stiffeners (H x W)	Toggle + Hinge Quantity	Allowed pressure on hatch Weather kN/m ²
	800	8	2	267	80x8	547	80x8	6 + 2	65
	900	8	2	230	80x8	547	80x8	6 + 2	80
	1000	8	3	230	80x8	547	80x8	6 + 2	65
	1400	8	4	230	80x8	547	80x8	8 + 3	75
900	900	8	2	230	50x8	597	50x8	6 + 2	32
	1000	8	3	230	50x8	597	50x8	6 + 2	26
	1400	8	4	211	50x8	597	50x8	8 + 3	28
	1800	8	5	247	50x8	597	50x8	8 + 3	25
	900	8	2	230	80x8	597	80x8	6 + 2	65
	1000	8	3	230	80x8	597	80x8	6 + 2	54
	1400	8	4	211	80x8	597	80x8	8 + 3	55
	1800	8	5	247	80x8	597	80x8	8 + 3	50
1000	1000	8	3	230	80x8	420	80x8	8 + 2	43
	1400	8	4	230	80x8	420	80x8	10 + 3	48
	1800	8	5	247	80x8	420	80x8	10 + 3	40
	2200	8	6	231	80x8	420	80x8	12 + 4	44
	3000	8	10	240	80x8	420	80x8	14 + 5	43
1400	1400	8	4	230	80x8	447	80x8	12 + 3	65
	1800	8	5	247	80x8	447	80x8	12 + 3	55
	2200	8	6	231	80x8	447	80x8	14 + 4	60
	3000	8	10	240	80x8	447	80x8	16 + 5	60
1800	1800	8	5	247	80x8	447	80x8	12 + 3	35
	2200	8	6	231	80x8	447	80x8	14 + 4	55
	3000	8	10	240	80x8	447	80x8	16 + 5	36
2000	2000	8	6	238	80x8	447	80x8	14 + 4	29
	2500	8	8	239	80x8	447	80x8	16 + 5	30
	3000	8	10	240	80x8	447	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 (wheel loads etc.) 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. 1 dated 08 November 2022 from manufacturer.

Tests carried out

According to DNV rules for classification: Class Programme DNV-CP-0338, September 2021.

Marking of product

The product is to be marked with the following info:

- Manufacturer's name or brand
- DNV Type Approval Certificate No. TAS00003JH
- The specific type designation: WRH-F 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.