Certificate No:
TAS0000355

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Weathertight Door

with type designation(s)
WRD-D S2

Issued to
Libra-Plast A/S
HAREID, **Norway**

is found to comply with
DNV-OS-C301 – Stability and watertight integrity, Edition July 2020 (Amended August 2021)
DNV rules for classification – Ships
DNV rules for classification – High speed and light craft

Application :

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

Issued at **Høvik** on **2021-11-19**
This Certificate is valid until **2026-11-18**.
DNV local station: **Norway Newbuilding**

Approval Engineer: **Grzegorz Wolski**

for **DNV**

Håvard Helling
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

WRD-D S2
Is a door fabricated from 6 mm thick steel main plate. Plate is reinforced by up to six stiffeners welded to the main plate by intermittent welding in middle and by double continuous welding at its ends. Edge of door is stiffened by gasket rim welded at 90-degree angle to the main plate.

Door is of single acting type with up to ten linked toggles and handle mounted centrally or close to non-hinged edge of door.

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

Application/Limitation

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

Light Opening			Toggles + Hinges		Stiffener			Pressure [kPa]
Main door width [mm]	Side door width [mm]	Height [mm]	Main door	Side door	Number [pcs]	Size [mm]	Spacing [mm]	
600	400	1400	5 + 3	2 + 3	4	50 x 10	385	75
	500			2 + 3				
	600			4 + 3				
700	400			2 + 3				50
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
800	400			2 + 3				37
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
900	400			2 + 3				33
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
	900			4 + 3				
1000	400			2 + 3	6		231	36
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
	900			4 + 3				
	1000			4 + 3				
600	400	1600	5 + 3	2 + 3	5	50 x 10	338,8	78
	500			2 + 3				
	600			4 + 3				
700	400			2 + 3				51
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
800	400			2 + 3				40
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
900	400			2 + 3				36
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
	900			4 + 3				
1000	400	1600	5 + 3	2 + 3	6	50 x 10	271	38
	500			2 + 3				

	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
	900			4 + 3				
	1000			4 + 3				
600	400			2 + 3				70
	500			2 + 3				
	600			4 + 3				
700	400			2 + 3				46
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
800	400			2 + 3				34
	500			2 + 3				
	600			4 + 3	5		388,8	
	700			4 + 3				
	800			4 + 3				
900	400	1800	5 + 4	2 + 3		50 x 10		30
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
	900			4 + 3				
1000	400			2 + 3				38
	500			2 + 3				
	600			4 + 3				
	700			4 + 3	7		259,2	
	800			4 + 3				
	900			4 + 3				
	1000			4 + 3				
600	400			2 + 3				66
	500			2 + 3				
	600			4 + 3				
700	400			2 + 3				43
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
800	400			2 + 3				34
	500			2 + 3				
	600			4 + 3	5		413,8	
	700			4 + 3				
	800			4 + 3				
900	400	1900	5 + 4	2 + 3		50 x 10		30
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
	900			4 + 3				
1000	400			2 + 3				35
	500			2 + 3				
	600			4 + 3				
	700			4 + 3	7		275,8	
	800			4 + 3				
	900			4 + 3				
	1000			4 + 3				
600	400			2 + 3				53
	500	2100	5 + 4	2 + 3	5	50 x 10	463,8	
	600			4 + 3				
700	400			2 + 3				35
700	500	2100	5 + 4	2 + 3	5	50 x 10	463,8	35
	600			4 + 3				

	700			4 + 3				
800	400			2 + 3				27
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
900	400			2 + 3	6		371	32
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
	900			4 + 3				
1000	400			2 + 3	8		265	33
	500			2 + 3				
	600			4 + 3				
	700			4 + 3				
	800			4 + 3				
	900			4 + 3				
	1000			4 + 3				

The window, with 10mm toughened safety glass, is approved for a max design pressure of 35 kN/m² (600 x 600 mm height x width), 60 kN/m² (550 x 350 mm height x width) and up to 80 kN/m² (for smaller sizes).

Weathertight 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 door arrangement determines that tests are not required.

The design pressure at the location where the doors are to be fitted shall be equal or less than the pressure stated in table above.

Doors with side scuttles is to be fitted with a deadlight if located in a position where deadlight is required for side scuttles.

Dimensions of the light opening of the door 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.

The door frame may be welded or bolted to the bulkhead (ref. drawing no. LG-3-00142 Rev.C)

Type Approval documentation

Drawing No. A-1-00012 Rev.A dated 17 November 2019 from manufacturer.
Drawing No. A-3-00265 Rev.E dated 30 November 2015 from manufacturer.
Drawing No. A-3-01061 Rev.A dated 27 October 2017 from manufacturer.
Drawing No. A-3-01070 Rev.A dated 15 November 2017 from manufacturer.
Drawing No. LG-3-00142 Rev.C dated 24 July 2019 from manufacturer.

Tests carried out

According to DNV rules for classification: Class Programme DNVGL-CP-0338, September 2018.

Marking of product

The product or packing is to be marked with name and address of manufacturer, type designation, approved pressure and certificate number.

Periodical assessment

DNV surveyor is to be given permission to perform a Certification Retention Survey at any time during the validity period of this certificate and at least every second year.