

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Watertight Door**with type designation(s)
WR 100/WR30-A60 watertight steel door

Issued to

Libra-Plast A/S
HAREID, Norwayis found to comply with
DNV GL rules for classification – Ships**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2019-03-18**This Certificate is valid until **2024-02-03**.DNV GL local station: **Ulsteinvik**for **DNV GL**Approval Engineer: **Alessandro Russo**

Arild Rogne
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.



Job Id: **262.1-009430-3**
Certificate No: **TAS00001TD**

Product description

All doors have a 6 mm door leaf and stiffener arrangements as per following tables:

Handle operated

Door	Door Size	No. of stiffeners	No. of toggles	Stiffeners	Edge Stiffeners	Design Pressure [kN/m ²]
#	Width x Height [mm]			Hw x Tw [mm]	Hw x Tw [mm]	
1	600 x 1200	4	8	30 x 8	60 x 5	45
2	600 x 1400	4	8	30 x 8	60 x 5	45
3	750 x 1400	4	8	30 x 8	60 x 5	41,5
4	850 x 1400	4	8	30 x 8	60 x 5	40
5	910 x 1400	4	8	30 x 8	60 x 5	37
6	600 x 1600	5	8	30 x 8	60 x 5	45
7	750 x 1600	5	8	30 x 8	60 x 5	40
8	850 x 1600	5	8	30 x 8	60 x 5	40
9	910 x 1600	5	8	30 x 8	60 x 5	38
10	600 x 1800	5	8	30 x 8	60 x 5	45
11	750 x 1800	5	8	30 x 8	60 x 5	40
12	850 x 1800	5	8	30 x 8	60 x 5	40
13	910 x 1800	5	8	30 x 8	60 x 5	36
14	600 x 1900	5	8	30 x 8	60 x 5	45
15	750 x 1900	5	8	30 x 8	60 x 5	40
16	850 x 1900	5	8	30 x 8	60 x 5	39
17	910 x 1900	5	8	30 x 8	60 x 5	35
18	600 x 2000	6	8	30 x 8	60 x 5	45
19	750 x 2000	6	8	30 x 8	60 x 5	40
20	850 x 2000	6	8	30 x 8	60 x 5	38
21	910 x 2000	6	8	30 x 8	60 x 5	34
22	580 x 1360	4	8	30 x 8	60 x 5	45
23	660 x 1460	4	8	30 x 8	60 x 5	45
24	810 x 1460	4	8	30 x 8	60 x 5	38
25	660 x 1660	5	8	30 x 8	60 x 5	45
26	810 x 1660	5	8	30 x 8	60 x 5	40
27	660 x 1860	5	8	30 x 8	60 x 5	45
28	810 x 1860	5	8	30 x 8	60 x 5	40

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Wheel operated Alternative 1

Door	No. of toggles	No. Of external stiffeners	Door Size		Stiffeners		Edge Stiffeners	Design Pressure [kN/m ²]
#			Width x Height [mm]		Hw x Bf x T [mm]		Hw x Tw [mm]	
1	8	3	600	1200	65 x	65 x 7	60 x 5	140
2	8	3	600	1400	65 x	65 x 7	60 x 5	110
3	8	3	750	1400	65 x	65 x 7	60 x 5	90
4	8	3	850	1400	65 x	65 x 7	60 x 5	85
5	8	3	910	1400	65 x	65 x 7	60 x 5	80
6	10	5	600	1600	65 x	65 x 7	60 x 5	160
7	10	5	750	1600	65 x	65 x 7	60 x 5	130
8	10	5	850	1600	65 x	65 x 7	60 x 5	110
9	10	5	910	1600	65 x	65 x 7	60 x 5	100
10	10	5	600	1800	65 x	65 x 7	60 x 5	140
11	10	5	750	1800	65 x	65 x 7	60 x 5	115
12	10	5	850	1800	65 x	65 x 7	60 x 5	100
13	10	5	910	1800	65 x	65 x 7	60 x 5	95
14	10	5	600	1900	65 x	65 x 7	60 x 5	135
15	10	5	750	1900	65 x	65 x 7	60 x 5	110
16	10	5	850	1900	65 x	65 x 7	60 x 5	95
17	10	5	910	1900	65 x	65 x 7	60 x 5	90
18	10	5	600	2000	65 x	65 x 7	60 x 5	130
19	10	5	750	2000	65 x	65 x 7	60 x 5	100
20	10	5	850	2000	65 x	65 x 7	60 x 5	90
21	10	5	910	2000	65 x	65 x 7	60 x 5	85
22	8	4	580	1360	65 x	65 x 7	60 x 5	120
23	8	4	660	1460	65 x	65 x 7	60 x 5	95
24	8	4	810	1460	65 x	65 x 7	60 x 5	80
25	10	5	660	1660	65 x	65 x 7	60 x 5	110
26	10	5	810	1660	65 x	65 x 7	60 x 5	115
27	10	5	660	1860	65 x	65 x 7	60 x 5	125
28	10	5	810	1860	65 x	65 x 7	60 x 5	100

Wheel operated Alternative 2

Door	No. of toggles	No. Of stiffeners	Door Size		Stiffeners	Edge Stiffeners	Design Pressure [kN/m ²]
#			Width x Height [mm]		Hw x Bf x T [mm]	Hw x Tw [mm]	
1	8	3	600	1200	65 x 65 x 7	60 x 5	140
2	10	3	600	1400	65 x 65 x 7	60 x 5	110
3	10	3	750	1400	65 x 65 x 7	60 x 5	90
4	10	3	850	1400	65 x 65 x 7	60 x 5	85
5	10	3	910	1400	65 x 65 x 7	60 x 5	80
6	12	6	600	1600	65 x 65 x 7	60 x 5	195
7	14	6	750	1600	65 x 65 x 7	60 x 5	195
8	14	6	850	1600	65 x 65 x 7	60 x 5	185
9	14	6	910	1600	65 x 65 x 7	60 x 5	175
10	12	6	600	1800	65 x 65 x 7	60 x 5	170
11	14	6	750	1800	65 x 65 x 7	60 x 5	155
12	14	6	850	1800	65 x 65 x 7	60 x 5	145
13	14	6	910	1800	65 x 65 x 7	60 x 5	140
14	12	6	600	1900	65 x 65 x 7	60 x 5	160
15	16	6	750	1900	65 x 65 x 7	60 x 5	140
16	16	6	850	1900	65 x 65 x 7	60 x 5	130
17	16	6	910	1900	65 x 65 x 7	60 x 5	125
18	12	6	600	2000	65 x 65 x 7	60 x 5	150
19	16	6	750	2000	65 x 65 x 7	60 x 5	125
20	16	6	850	2000	65 x 65 x 7	60 x 5	120
21	16	6	910	2000	65 x 65 x 7	60 x 5	115
22	10	4	580	1360	65 x 65 x 7	60 x 5	120
23	10	4	660	1460	65 x 65 x 7	60 x 5	95
24	10	4	810	1460	65 x 65 x 7	60 x 5	80
25	12	4	660	1660	65 x 65 x 7	60 x 5	170
26	12	6	810	1660	65 x 65 x 7	60 x 5	140
27	12	6	660	1860	65 x 65 x 7	60 x 5	150
28	14	6	810	1860	65 x 65 x 7	60 x 5	165

Application/Limitation

The watertight doors are found to comply with DNVGL-RU-SHIP July 2018 Pt.3 Ch.12 Sec.3 [4.3].

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

Port holes may not be fitted in watertight doors that are located below the freeboard deck.

The Type Approval does not cover the supporting structure of the doors, which is subject to approval. Interface showing door frame and bulkhead shall be submitted for case-by-case approval by yard/end user.

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

Indication open/closed for the watertight door has to be fitted on the bridge.

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

Fire safety:

With respect to fire safety properties please see separate DNV GL certificate MEDB00004K8 (expiring 03-02-2024) for these doors.

Type Approval documentation

Drawings: T-1 -0169 Rev. H (handle operated)
T-1- 0179 Rev. E (wheel operated)
T-3-16899 (port hole)
T-3-22305 (wheel toggle system)
LG-3-00142-B

Tests carried out

Prototype test reports dated 2009-10-13, 2009-10-16, and 2010-02-05, witnessed by DNV Ulsteinvik.

Tests to be carried out

Each door, intended to be installed on Ships, is to be tested for tightness through hydrostatic testing at the design pressure according to DNVGL-RU-SHIP Pt.2 Ch.4 (July 2018), at the manufacturer.

The complete door installation is to be operationally and leak tested onboard.

The tests are to be witnessed by a DNV GL surveyor.

Marking of product

The product is to be marked with the following info:

- Manufacturer's name or brand
- DNVGL Type Approval Certificate No. TAS00001TD
- The specific type designation:
WR 100/WR30 – A60, Handle
WR 100/WR30 – A60, Wheel Alt.1
WR 100/WR30 – A60, Wheel Alt.2

Periodical assessment



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DNV GL 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 DNVGL-CP-0338.