

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Watertight Door**with type designation(s)  
**W52 - W108 Doors wheel & handle**

Issued to

**Fabryka Sprzetu Okretowego MEBLOR S.A.**  
**CZARNKOW, Poland**is 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 **2017-03-08**This Certificate is valid until **2022-03-07**.DNV GL local station: **Gdansk CMC**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.



## Product description

Watertight doors of hinged type.

Number of toggles on the door:

Model 3X2: 10 toggles  
Model 3VIII1: 8 toggles  
Model 2VIII2: 8 toggles  
Model 2VI1: 6 toggles

## W52 DOORS WHEEL & HANDLE

Door blade thickness: 8 mm

Stiffeners: 60 x 8 mm

Edge Stiffeners: 70 x 8 mm

Material: Steel Min. 355 MPa yield strength for door plate and stiffeners

Max. Stiffener spacing and toggle distance: according to drawings

Optional porthole: made of hardened glass of 19 mm thickness.

The maximum design pressure that the door withstands from either sides, is given on drawing number N19/34.145 rev. B and reported in the table below:

| Door | Model  | Door Size  |             | Max Pressure |
|------|--------|------------|-------------|--------------|
| #    | #      | Width [mm] | Height [mm] | P [kPa]      |
| 1    | 2VI1   | 600        | 1400        | 65           |
| 2    | 2VI1   | 650        | 1400        | 60           |
| 3    | 2VI1   | 700        | 1400        | 55           |
| 4    | 2VI1   | 750        | 1400        | 52           |
| 5    | 2VI1   | 800        | 1400        | 47           |
| 6    | 2VIII2 | 850        | 1400        | 42           |
| 7    | 2VIII2 | 900        | 1400        | 37           |
| 8    | 2VIII2 | 950        | 1400        | 33           |
| 9    | 2VIII2 | 1000       | 1400        | 30           |
| 10   | 2VI1   | 600        | 1450        | 72           |
| 11   | 2VI1   | 650        | 1450        | 58           |
| 12   | 2VI1   | 700        | 1450        | 48           |
| 13   | 2VI1   | 750        | 1450        | 39           |
| 14   | 2VI1   | 800        | 1450        | 33           |
| 15   | 2VIII2 | 850        | 1450        | 42           |
| 16   | 2VIII2 | 900        | 1450        | 37           |
| 17   | 2VIII2 | 950        | 1450        | 33           |
| 18   | 2VIII2 | 1000       | 1450        | 30           |
| 19   | 2VI1   | 600        | 1500        | 72           |
| 20   | 2VI1   | 650        | 1500        | 58           |
| 21   | 2VI1   | 700        | 1500        | 48           |

Job Id: **262.1-009597-2**  
Certificate No: **TAS00000XM**

| Door | Model  | Door Size  |             | Max Pressure |
|------|--------|------------|-------------|--------------|
| #    | #      | Width [mm] | Height [mm] | P [kPa]      |
| 22   | 2VI1   | 750        | 1500        | 39           |
| 23   | 2VI1   | 800        | 1500        | 33           |
| 24   | 2VIII2 | 850        | 1500        | 40           |
| 25   | 2VIII2 | 900        | 1500        | 35           |
| 26   | 2VIII2 | 950        | 1500        | 32           |
| 27   | 2VIII2 | 1000       | 1500        | 29           |
| 28   | 2VI1   | 600        | 1550        | 72           |
| 29   | 2VI1   | 650        | 1550        | 58           |
| 30   | 2VI1   | 700        | 1550        | 48           |
| 31   | 2VI1   | 750        | 1550        | 39           |
| 32   | 2VI1   | 800        | 1550        | 33           |
| 33   | 2VIII2 | 850        | 1550        | 38           |
| 34   | 2VIII2 | 900        | 1550        | 34           |
| 35   | 2VIII2 | 950        | 1550        | 30           |
| 36   | 2VIII2 | 1000       | 1550        | 27           |
| 37   | 2VI1   | 600        | 1600        | 72           |
| 38   | 2VI1   | 650        | 1600        | 58           |
| 39   | 2VI1   | 700        | 1600        | 48           |
| 40   | 2VI1   | 750        | 1600        | 39           |
| 41   | 2VI1   | 800        | 1600        | 33           |
| 42   | 2VIII2 | 850        | 1600        | 36           |
| 43   | 2VIII2 | 900        | 1600        | 32           |
| 44   | 2VIII2 | 950        | 1600        | 29           |
| 45   | 2VIII2 | 1000       | 1600        | 26           |
| 46   | 3VIII1 | 600        | 1650        | 79           |
| 47   | 3VIII1 | 650        | 1650        | 67           |
| 48   | 3VIII1 | 700        | 1650        | 58           |
| 49   | 3VIII1 | 750        | 1650        | 50           |
| 50   | 3VIII1 | 800        | 1650        | 44           |
| 51   | 3X2    | 850        | 1650        | 39           |
| 52   | 3X2    | 900        | 1650        | 35           |
| 53   | 3X2    | 950        | 1650        | 31           |
| 54   | 3X2    | 1000       | 1650        | 28           |
| 55   | 3VIII1 | 600        | 1700        | 79           |
| 56   | 3VIII1 | 650        | 1700        | 67           |
| 57   | 3VIII1 | 700        | 1700        | 58           |
| 58   | 3VIII1 | 750        | 1700        | 50           |
| 59   | 3VIII1 | 800        | 1700        | 44           |

Job Id: **262.1-009597-2**  
Certificate No: **TAS00000XM**

| Door | Model  | Door Size  |             | Max Pressure |
|------|--------|------------|-------------|--------------|
| #    | #      | Width [mm] | Height [mm] | P [kPa]      |
| 60   | 3X2    | 850        | 1700        | 39           |
| 61   | 3X2    | 900        | 1700        | 35           |
| 62   | 3X2    | 950        | 1700        | 31           |
| 63   | 3X2    | 1000       | 1700        | 28           |
| 64   | 3VIII1 | 600        | 1750        | 79           |
| 65   | 3VIII1 | 650        | 1750        | 67           |
| 66   | 3VIII1 | 700        | 1750        | 58           |
| 67   | 3VIII1 | 750        | 1750        | 50           |
| 68   | 3VIII1 | 800        | 1750        | 44           |
| 69   | 3X2    | 850        | 1750        | 39           |
| 70   | 3X2    | 900        | 1750        | 35           |
| 71   | 3X2    | 950        | 1750        | 31           |
| 72   | 3X2    | 1000       | 1750        | 28           |
| 73   | 3VIII1 | 600        | 1800        | 79           |
| 74   | 3VIII1 | 650        | 1800        | 67           |
| 75   | 3VIII1 | 700        | 1800        | 58           |
| 76   | 3VIII1 | 750        | 1800        | 50           |
| 77   | 3VIII1 | 800        | 1800        | 44           |
| 78   | 3X2    | 850        | 1800        | 39           |
| 79   | 3X2    | 900        | 1800        | 35           |
| 80   | 3X2    | 950        | 1800        | 31           |
| 81   | 3X2    | 1000       | 1800        | 28           |
| 82   | 3VIII1 | 600        | 1850        | 79           |
| 83   | 3VIII1 | 650        | 1850        | 67           |
| 84   | 3VIII1 | 700        | 1850        | 58           |
| 85   | 3VIII1 | 750        | 1850        | 50           |
| 86   | 3VIII1 | 800        | 1850        | 44           |
| 87   | 3X2    | 850        | 1850        | 39           |
| 88   | 3X2    | 900        | 1850        | 35           |
| 89   | 3X2    | 950        | 1850        | 31           |
| 90   | 3X2    | 1000       | 1850        | 28           |
| 91   | 3VIII1 | 600        | 1900        | 79           |
| 92   | 3VIII1 | 650        | 1900        | 67           |
| 93   | 3VIII1 | 700        | 1900        | 58           |
| 94   | 3VIII1 | 750        | 1900        | 50           |
| 95   | 3VIII1 | 800        | 1900        | 44           |
| 96   | 3X2    | 850        | 1900        | 39           |
| 97   | 3X2    | 900        | 1900        | 35           |

Job Id: **262.1-009597-2**  
 Certificate No: **TAS00000XM**

| Door | Model  | Door Size  |             | Max Pressure |
|------|--------|------------|-------------|--------------|
| #    | #      | Width [mm] | Height [mm] | P [kPa]      |
| 98   | 3X2    | 950        | 1900        | 31           |
| 99   | 3X2    | 1000       | 1900        | 28           |
| 100  | 3VIII1 | 600        | 1950        | 79           |
| 101  | 3VIII1 | 650        | 1950        | 67           |
| 102  | 3VIII1 | 700        | 1950        | 58           |
| 103  | 3VIII1 | 750        | 1950        | 50           |
| 104  | 3VIII1 | 800        | 1950        | 44           |
| 105  | 3X2    | 850        | 1950        | 39           |
| 106  | 3X2    | 900        | 1950        | 35           |
| 107  | 3X2    | 950        | 1950        | 31           |
| 108  | 3X2    | 1000       | 1950        | 28           |
| 109  | 3VIII1 | 600        | 2000        | 79           |
| 110  | 3VIII1 | 650        | 2000        | 67           |
| 111  | 3VIII1 | 700        | 2000        | 58           |
| 112  | 3VIII1 | 750        | 2000        | 50           |
| 113  | 3VIII1 | 800        | 2000        | 44           |
| 114  | 3X2    | 850        | 2000        | 39           |
| 115  | 3X2    | 900        | 2000        | 35           |
| 116  | 3X2    | 950        | 2000        | 31           |
| 117  | 3X2    | 1000       | 2000        | 28           |

## W108 DOORS WHEEL & HANDLE

Door blade thickness: 8 mm

Stiffeners: 60 x 40 x 6 mm

Edge Stiffeners: 80 x 10 mm

Material: Steel Min. 355 MPa yield strength for door plate and stiffeners

Max. Stiffener spacing and toggle distance: according to drawings

Optional porthole: made of hardened glass of 19 mm thickness.

The maximum design pressure that the door withstands from either sides, is given on drawing number N19/34.145 rev. B and reported in the table below:

| Door | Model  | Door Size  |             | Max Pressure |
|------|--------|------------|-------------|--------------|
| #    | #      | Width [mm] | Height [mm] | P [kPa]      |
| 1    | 2VI1   | 600        | 1400        | 114          |
| 2    | 2VI1   | 650        | 1400        | 105          |
| 3    | 2VI1   | 700        | 1400        | 98           |
| 4    | 2VI1   | 750        | 1400        | 91           |
| 5    | 2VI1   | 800        | 1400        | 85           |
| 6    | 2VIII2 | 850        | 1400        | 80           |

Job Id: **262.1-009597-2**  
Certificate No: **TAS00000XM**

| Door | Model  | Door Size  |             | Max Pressure |
|------|--------|------------|-------------|--------------|
| #    | #      | Width [mm] | Height [mm] | P [kPa]      |
| 7    | 2VIII2 | 900        | 1400        | 76           |
| 8    | 2VIII2 | 950        | 1400        | 70           |
| 9    | 2VIII2 | 1000       | 1400        | 63           |
| 10   | 2VI1   | 600        | 1450        | 126          |
| 11   | 2VI1   | 650        | 1450        | 102          |
| 12   | 2VI1   | 700        | 1450        | 84           |
| 13   | 2VI1   | 750        | 1450        | 69           |
| 14   | 2VI1   | 800        | 1450        | 58           |
| 15   | 2VIII2 | 850        | 1450        | 87           |
| 16   | 2VIII2 | 900        | 1450        | 78           |
| 17   | 2VIII2 | 950        | 1450        | 70           |
| 18   | 2VIII2 | 1000       | 1450        | 63           |
| 19   | 2VI1   | 600        | 1500        | 126          |
| 20   | 2VI1   | 650        | 1500        | 102          |
| 21   | 2VI1   | 700        | 1500        | 84           |
| 22   | 2VI1   | 750        | 1500        | 69           |
| 23   | 2VI1   | 800        | 1500        | 58           |
| 24   | 2VIII2 | 850        | 1500        | 83           |
| 25   | 2VIII2 | 900        | 1500        | 74           |
| 26   | 2VIII2 | 950        | 1500        | 66           |
| 27   | 2VIII2 | 1000       | 1500        | 60           |
| 28   | 2VI1   | 600        | 1550        | 126          |
| 29   | 2VI1   | 650        | 1550        | 102          |
| 30   | 2VI1   | 700        | 1550        | 84           |
| 31   | 2VI1   | 750        | 1550        | 69           |
| 32   | 2VI1   | 800        | 1550        | 58           |
| 33   | 2VIII2 | 850        | 1550        | 79           |
| 34   | 2VIII2 | 900        | 1550        | 70           |
| 35   | 2VIII2 | 950        | 1550        | 63           |
| 36   | 2VIII2 | 1000       | 1550        | 57           |
| 37   | 2VI1   | 600        | 1600        | 126          |
| 38   | 2VI1   | 650        | 1600        | 102          |
| 39   | 2VI1   | 700        | 1600        | 84           |
| 40   | 2VI1   | 750        | 1600        | 69           |
| 41   | 2VI1   | 800        | 1600        | 58           |
| 42   | 2VIII2 | 850        | 1600        | 75           |
| 43   | 2VIII2 | 900        | 1600        | 65           |
| 44   | 2VIII2 | 950        | 1600        | 60           |

Job Id: **262.1-009597-2**  
Certificate No: **TAS00000XM**

| Door | Model  | Door Size  |             | Max Pressure |
|------|--------|------------|-------------|--------------|
| #    | #      | Width [mm] | Height [mm] | P [kPa]      |
| 45   | 2VIII2 | 1000       | 1600        | 54           |
| 46   | 3VIII1 | 600        | 1650        | 164          |
| 47   | 3VIII1 | 650        | 1650        | 140          |
| 48   | 3VIII1 | 700        | 1650        | 120          |
| 49   | 3VIII1 | 750        | 1650        | 105          |
| 50   | 3VIII1 | 800        | 1650        | 92           |
| 51   | 3X2    | 850        | 1650        | 82           |
| 52   | 3X2    | 900        | 1650        | 73           |
| 53   | 3X2    | 950        | 1650        | 65           |
| 54   | 3X2    | 1000       | 1650        | 59           |
| 55   | 3VIII1 | 600        | 1700        | 164          |
| 56   | 3VIII1 | 650        | 1700        | 140          |
| 57   | 3VIII1 | 700        | 1700        | 120          |
| 58   | 3VIII1 | 750        | 1700        | 105          |
| 59   | 3VIII1 | 800        | 1700        | 92           |
| 60   | 3X2    | 850        | 1700        | 82           |
| 61   | 3X2    | 900        | 1700        | 73           |
| 62   | 3X2    | 950        | 1700        | 65           |
| 63   | 3X2    | 1000       | 1700        | 59           |
| 64   | 3VIII1 | 600        | 1750        | 164          |
| 65   | 3VIII1 | 650        | 1750        | 140          |
| 66   | 3VIII1 | 700        | 1750        | 120          |
| 67   | 3VIII1 | 750        | 1750        | 105          |
| 68   | 3VIII1 | 800        | 1750        | 92           |
| 69   | 3X2    | 850        | 1750        | 82           |
| 70   | 3X2    | 900        | 1750        | 73           |
| 71   | 3X2    | 950        | 1750        | 65           |
| 72   | 3X2    | 1000       | 1750        | 59           |
| 73   | 3VIII1 | 600        | 1800        | 164          |
| 74   | 3VIII1 | 650        | 1800        | 140          |
| 75   | 3VIII1 | 700        | 1800        | 120          |
| 76   | 3VIII1 | 750        | 1800        | 105          |
| 77   | 3VIII1 | 800        | 1800        | 92           |
| 78   | 3X2    | 850        | 1800        | 82           |
| 79   | 3X2    | 900        | 1800        | 73           |
| 80   | 3X2    | 950        | 1800        | 65           |
| 81   | 3X2    | 1000       | 1800        | 59           |
| 82   | 3VIII1 | 600        | 1850        | 164          |

Job Id: **262.1-009597-2**  
Certificate No: **TAS00000XM**

| Door | Model  | Door Size  |             | Max Pressure |
|------|--------|------------|-------------|--------------|
| #    | #      | Width [mm] | Height [mm] | P [kPa]      |
| 83   | 3VIII1 | 650        | 1850        | 140          |
| 84   | 3VIII1 | 700        | 1850        | 120          |
| 85   | 3VIII1 | 750        | 1850        | 105          |
| 86   | 3VIII1 | 800        | 1850        | 92           |
| 87   | 3X2    | 850        | 1850        | 82           |
| 88   | 3X2    | 900        | 1850        | 73           |
| 89   | 3X2    | 950        | 1850        | 65           |
| 90   | 3X2    | 1000       | 1850        | 59           |
| 91   | 3VIII1 | 600        | 1900        | 164          |
| 92   | 3VIII1 | 650        | 1900        | 140          |
| 93   | 3VIII1 | 700        | 1900        | 120          |
| 94   | 3VIII1 | 750        | 1900        | 105          |
| 95   | 3VIII1 | 800        | 1900        | 92           |
| 96   | 3X2    | 850        | 1900        | 82           |
| 97   | 3X2    | 900        | 1900        | 73           |
| 98   | 3X2    | 950        | 1900        | 65           |
| 99   | 3X2    | 1000       | 1900        | 59           |
| 100  | 3VIII1 | 600        | 1950        | 164          |
| 101  | 3VIII1 | 650        | 1950        | 140          |
| 102  | 3VIII1 | 700        | 1950        | 120          |
| 103  | 3VIII1 | 750        | 1950        | 105          |
| 104  | 3VIII1 | 800        | 1950        | 92           |
| 105  | 3X2    | 850        | 1950        | 82           |
| 106  | 3X2    | 900        | 1950        | 73           |
| 107  | 3X2    | 950        | 1950        | 65           |
| 108  | 3X2    | 1000       | 1950        | 59           |
| 109  | 3VIII1 | 600        | 2000        | 164          |
| 110  | 3VIII1 | 650        | 2000        | 140          |
| 111  | 3VIII1 | 700        | 2000        | 120          |
| 112  | 3VIII1 | 750        | 2000        | 105          |
| 113  | 3VIII1 | 800        | 2000        | 92           |
| 114  | 3X2    | 850        | 2000        | 82           |
| 115  | 3X2    | 900        | 2000        | 73           |
| 116  | 3X2    | 950        | 2000        | 65           |
| 117  | 3X2    | 1000       | 2000        | 59           |

## Application/Limitation

The doors have been Type Approved with respect to watertightness only.



Job Id: **262.1-009597-2**  
Certificate No: **TAS00000XM**

The watertight doors are found to comply with DNV GL Rules for Ships, DNVGL-RU-SHIP-Pt3Ch12 January 2017 Sec.3 "4. Watertight doors and hatches" for maximum design pressures as specified above.

The design pressure at the location where the doors are to be fitted shall be equal or less than the pressure specified, for the relevant model, in the tables above.

Dimensions of the light opening of the doors can be smaller than shown on the drawings, provided that scantlings and distance between the cleats and the spacing of the stiffeners are maintained.

The Type Approval does not cover the supporting structure of the doors, which is subject to design approval.

Interface showing door frame and bulkhead shall be submitted for case-by-case approval and particular consideration shall be given if located in highly stressed areas or in areas critical to fatigue from global hull loads.

Each door shall be hydrostatically tested, according to, DNVGL-RU-SHIP-Pt3Ch12 (January 2017) Sec.1 "2.3 Testing" before installation on board, in the presence of a DNV GL surveyor.

The complete installation shall be function and leak tested according to DNVGL-RU-SHIP-Pt2Ch4 Sec.8 (January 2017).

The watertight doors described in this certificate are of hinged type, and may not be used where water tight sliding doors are required.

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

Operation, control and alarms of the doors shall be according to relevant vessel requirements.

Optional porthole to be according DNVGL-RU-SHIP-Pt3Ch12 (January 2017) Sec.6 1.1.4

## **Type Approval documentation**

Drawing N19/34.145 (5 sheet) rev.B, dated 2017-02-06 Watertight door with central locking

## **Tests carried out**

Test reports dated 2012- 05-24 and 2012-06-20, witnessed by DNV Gdansk.

## **Marking of product**

- Manufacturer's name or brand
- DNVGL Type Approval Certificate No. TAS00000XM
- Type designation & model number.
- Max allowable design pressure as specified above

## **Periodical assessment**

DNV GL' surveyor has the permission to perform Certification Retention Survey at any time during the validity period of this certificate.

Periodical assessment shall be done bi-yearly with a time window of +/- 3 months.