

### /// Eagle watertight sliding door

The electro-hydraulic watertight sliding door EAGLE is a compact watertight door. It is supplied as a completely finished and tested unit, ready for welding in. It combines the well-known proven mechanical design of the doors with a standardized and simplified hydraulic and electrical system. Available in a wide range of sizes and with various options to assemble a custom made door.

The design and manufacture of EAGLE doors are in full compliance with the IMO/SOLAS safety regulations for Cargo vessels to fulfil the watertight integrity of the vessel and is type approved by all major classification societies.

### /// General description/ operation & control



The EAGLE is a compact door which means that the power pack, valve block, hand pump and control box are pre-mounted on the bulkhead plate and welded to the door frame. Rail extensions with support and bolts, wheelhouse panel and emergency station are loose supplied. Each door has an independent electric-hydraulic system with one power source consisting of a motor and pump capable of closing or opening the door between 20-40 seconds.

#### Normal local operation

Local power operation by handle (optional push buttons) at either side of the bulkhead, closing and opening. "Door open" as well as "Door close" is active operated which means that the door will stop after the release of the handle (or push buttons). The motor is only running while the handle (or push buttons) is operated.

#### Emergency local operation

Local emergency operation by a hand pump operable from either side of the bulkhead, to allow closing and opening. To close the door: The hand pump is to be operated. To open the door: Operate the handle/valve in "open" direction and then the hand pump is to be operated.

#### Optional: Remote power operation

By master mode switch from the wheelhouse panel. The main control in the wheelhouse is executed with a "master mode" switch with two modes of control. The 'doors closed' mode automatically re-closes the doors after they have been opened locally (pre-warning of 5-10 seconds according SOLAS is provided). The 'local control' mode allows the doors to be opened locally without automatic re-closure.

#### Optional: Emergency remote operation

Emergency operation by a hand pump, above bulkhead deck, closing only.

#### Alarm/indication signals

Locally there are two audible alarm (sounder) combined with a visual alarm (flash light). At the remote emergency station a visual indication (red/green lights) is present. The wheelhouse panel shows the location of the doors and is equipped with indication lights for open/close indication and alarm signalling incl. buzzer when main or control power supply is lost.



## Specifications

### Cylinders

Standard: Two (2) cylinders, one located at the top of the door, one at the bottom.

Optional: One (1) cylinder, located at the centre of the door (*cylinder and bracket loose supplied, piping is yard supply*).

### Sill height

Standard: 140mm sill

Optional: 20mm sill (Low sill execution)

### Available sizes

Height: max. 2100mm. Width: max. 1400mm

### Water pressure

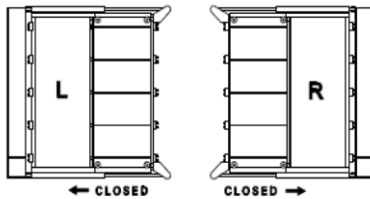
Max. 25 mWc (i.e. test pressure) at size 2000x800 mm

Limited to 8,5 mWc (i.e. test pressure) at size 2100x1400 mm



Option: Low sill

### Sliding directions



#### Sliding direction:

L = left closing

R = right closing

### Hydraulic system

20 or 25L tank combined with 0,75 kW e-motor with gear pump. Local hand pump, operable at both sides of door. Valve block with integrated control lever operable on both sides of the door including 2 proximity switches (IP68) to activate pump motor.

### Electrical system

IP 68 RAL 7032 watertight e-box with local control and indication system. IP 68 position indicators open/closed. IP 66 sounder/flash light, both sides of door. Power supply: 400 VAC, 3ph, 50Hz or 440 VAC, 3ph, 60Hz for pump motor: 24 VDC for control and indication system.

### Alarm indication

Alarm indication by 2 sounders/flashlights. One mounted on the control box and one mounted on the opposite side of the bulkhead.

### Surface treatment

Door frame and door plate: shotblasted SA2,5 and primed with one layer of Hempel's shopprimer E1527C.

Cylinders: Shotblasted and primed.

Catch blocks, rails, wheels and tank: Galvanised.

### Installation, operation and maintenance manual

Two (2) hard copy in English language.

One (1) CD-Rom in English language.

### General arrangement drawings

- |                             |                             |                                  |
|-----------------------------|-----------------------------|----------------------------------|
| - 441.11.co HxW (1 cyl. LC) | - 441.51.co HxW (2 cyl. LC) | - 441.21.co HxW (Eagle Low sill) |
| - 441.12.co HxW (1 cyl. RC) | - 441.52.co HxW (2 cyl. RC) | - 441.22.co HxW (Eagle Low sill) |

*All components are pre-mounted by Winel incl. local electric wiring unless otherwise specified.*

## /// Mandatory selections

### Power-pack unit

- Power-pack unit mounted on bulkhead plate and welded to doorframe
- All components for the power-pack unit loose supplied no bulkhead plate
- Power-pack unit mounted on bulkhead plate and welded to doorframe (=unit 1) on REVERSE side (180°)

### Power supply

- Motor 208-290Vac 50Hz 3Ph or 60Hz 3Ph / 24Vdc present for control
- Motor 360-504Vac 50Hz 3Ph or 60Hz 3Ph / 24Vdc present for control
- Motor 690Vac 60Hz 3Ph / 24Vdc present for control

### Hand pump

- One hand pump operable by two handles, on both sides of the bulkhead
- Two hand pumps, both operated parallel with door movement

### Control

- Single Control; control handles with bulkhead feed through
- Double Control; two separate control handles without bulkhead feed through
- Pushbutton Control; control by means of 2 pushbuttons (loose supplied) from both sides

## /// Options

### Sill plates

Sill plate stainless steel for flush installation on deck: pre-mounted bolted hinged plate mounted on doorframe. Plate will be lifted up by doorplate during closing of the door. *For 140mm sill only.*

### 24Vdc transformer indication

24Vdc transformer in separate watertight box, loose supplied.

### NMD package

- Low level switch; switch which indicates the when oil level is to low in local hydraulic unit
- Brass glands
- Increased cable space under e-box; e-box will be placed 150 mm higher. A 70mm hole will be made in the side plate of the bulkhead plate to accommodate ship's cabling.  
Internal wiring numbering; all internal wiring of control system will be numbered according e-diagram.
- Test pressure + 5mWc; doors will be pressure tested 5 mWc higher then design pressure.

### Emergency station for doors

Manual hand pump unit with valve, oil tank and lever to close door from above bulkhead deck level. Indication box for open and closed (red/green led) included welding plate and mounting material. One hydraulic pipe system (between hand pump and the door). Piping is yard supply.

- 3 ltr. oil tank for doors with door width < 1000mm
- 5 ltr. oil tank for doors with door width > 1000mm

### Remote closure indication box (for DNV classified doors)

Consist of: Remote closure indication box (2x) showing warning on each side of the door that door is in central close mode operation. IP67 box incl. red led with text: 'remote controlled'. Incl. welding bracket (2x) & bolts (8x). Loose supplied. *Only applicable on DNV classified doors.*

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**Safety bar**

Additional sensor in clear opening. Sensor will be triggered when clear opening is blocked for some reason and the door automatically opens. Note: not covered by SOLAS. Yard has to discuss the use of a safety bar/sensor with owner and class/flag state.

**1200mm stop**

Additional sensor located at 1200mm width of door. According SOLAS a watertight sliding door has a maximum clear opening of 1200mm. During normal operation the door cannot be opened further than 1200mm. In case door is opened further an alarm will be given at wheelhouse panel.

**A60 Insulation**

The door blade will be insulated with an approved A60 MED insulation material. The hand pump and control handle at the bulkhead will be elongated 60mm to accommodate insulation material at bulkhead plate.

**Fire door on frame**

An additional A60 hinged fire door will be placed on the door frame.

**EEX execution**

- Reversed bulkhead plate: the bulkhead with power pack and controls will be 180 degrees rotated. To be used when on one side of door is EEX applicable and to ensure controls are located outside EEX zone
- EEX Sounder & flashlight: an EEX sounder/flashlight will be placed on the non-component side of bulkhead in case EEX is applicable on that side of door.
- Full EEX components; all electrical components will be executed in EEX (e-motor and electrical components in hydraulic system). The starter/control box will be loose supplied and needs to be located outside EEX zone.

**End layer paint inside bulkhead plate**

For easy painting on board the inside bulkhead plate can be painted in a final colour (to be advised by yard at order) before installation of the components.

**End layer paint door and frame**

The complete doorframe and doorplate can be painted in a final colour (specification to be advised by yard at order). Note: Paint will be damaged during testing, transport and installation on board.

**Installation, operation and maintenance manual**

Additional hard copy in English language.  
Additional CD-rom in English language.