



02	26.05.23	Re-issued for acceptance	HR	BGH	ØF
01	23.05.23	Issued for acceptance	HR	BGH	ØF
Rev.	Rev. Date	Description	Prepared	Checked	Approved
Date	Space reserved for supplier's certified stamp		CLIENT STATUS		
Certified by:			1 <input type="checkbox"/> Accepted		
HVSC 16MVA – GAR-H001			2 <input type="checkbox"/> Accepted with comments incorporated		
Supplier Document No. 229741-5284-E-KA-0004		Area	System	3 <input type="checkbox"/> Not accepted revise and resubmit	
Tag No.	PO No.		4 <input type="checkbox"/> For information		
				Date: _____	
				_____ Signature	
Supplier Logo					
 <b>POWER &amp; AUTOMATION</b>					
Customer logo/Name					
					
Document title					
<p style="text-align: center;"><b>First call procedure HVSC GAR-H001</b></p>					
		Total No. of sheets:	PSW Document Number:		
Installation: <b>GAR-H001</b>		8	229741-5284-E-KA-0004		

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### 1. DOCUMENT PURPOSE

Step by step procedure for first calls to High Voltage Shore Connection (HVSC) system. First call procedure must be followed if either of the below cases are true:

- Ships first call to Haugesund cruise port HVSC
- Modifications on shore- or shipside
- More than 12 months since last connection to Haugesund cruise port HVSC

### 2. PERSONS IN CHARGE OF FIRST CALL

In this section the persons in charge from both ship and shore signs that the below procedure is followed, and all relevant boxes are checked. If a step is excluded a comment must be made next to the line.

#### 2.1. From ship

Name	
Company	
Date	
Signature	

#### 2.2. From shore

Name	
Company	
Date	
Signature	

### 3. SHIP INFORMATION

Date	
IMO number	
Name	
Voltage	
Frequency	
Short circuit current	
Phase sequence	

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#### 4. PRIOR TO DOCKING

These procedures should be completed before ships arrival.

- Check that the compatibility assessment has been completed and necessary actions have been taken (only the first time a ship connects to this specific HVSC system)
- Check that output breaker is locked in grounded position
- Shore cabinet grounded and locked with padlock
- Inspect sockets in shore cabinet for damage
- Connect the Cable Management System (CMS)

#### 5. AFTER DOCKING

After the ship is docked, the ship crew and shore crew must follow the procedures below.

- Establish communication between ship crew and shore crew
- Prepare ship HVSC for handling by performing the necessary grounding and lockout-tagout
- Ship and shore crew padlocks the earth switch in shore cabinet
- Go to shell door of the ship and bring the cables in
- Remove covers and inspect for damage
- Connect plugs in the following order in ship:
  - Connect 4 power plugs
  - Connect neutral plug
  - Connect 110V control plug
  - Connect 24V control plug
- Ensure sufficient cable length

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## 6. SIGNAL TEST

In this section, signals between ship and shore are tested.

### 6.1. Emergency Stop Test

Ship crew tests their emergency stops and confirms with shore after each one to receive positive affirmation that they register on shore. Fill lines below with relevant emergency stops.

- \_\_\_\_\_, acknowledged by shore.
- \_\_\_\_\_, acknowledged by shore.
- \_\_\_\_\_, acknowledged by shore.
- \_\_\_\_\_, acknowledged by shore.
- \_\_\_\_\_, acknowledged by shore.
- \_\_\_\_\_, acknowledged by shore.
- \_\_\_\_\_, acknowledged by shore.
- \_\_\_\_\_, acknowledged by shore.

### 6.2. Bond Monitoring Check

Ship crew disconnects the equipotential bond monitoring terminations (power plugs) one at a time on the shipside, and shore confirms that the monitoring system registers this on the HMI.

- Disconnect termination 1, acknowledged by shore.
- Disconnect termination 2, acknowledged by shore.
- Disconnect termination 3, acknowledged by shore.
- Disconnect termination 4, acknowledged by shore.

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### 6.3. Signals - Shore to Ship

Shore personnel set the following signals to high, and ship’s personnel acknowledges state.

Note: Capacitors and transformer signals are not utilized. If transformers exceed heat limit, reduce power signal will be high.

<input type="checkbox"/>	Connector	Pin no.
<input type="checkbox"/> Circuit Breaker closed (either 6.6 or 11 kV)		
<input type="checkbox"/> 6.6 kV	110 VDC	5, 6
<input type="checkbox"/> 11 kV	110 VDC	14, 15
<input type="checkbox"/> Shore grounded indicator	110 VDC	7, 8
<input type="checkbox"/> Reduce power warning	110 VDC	11, 12
<input type="checkbox"/> Shutdown expected warning	110 VDC	11, 13

### 6.4. Signals - Ship to Shore

Ship’s personnel set the following signals to high and shore personnel goes to HMI and acknowledges state.

Note: Capacitors and transformer signals are not utilized. If transformers exceed heat limit, reduce power signal will become high.

<input type="checkbox"/>	Connector	Pin no.
<input type="checkbox"/> Permission to close shore circuit breaker (either 6.6 or 11 kV)		
<input type="checkbox"/> 6.6 kV	110 VDC	1, 2
<input type="checkbox"/> 6.6 kV	24 VDC	1, 2
<input type="checkbox"/> 11 kV	110 VDC	16, 17
<input type="checkbox"/> 11 kV	24 VDC	16, 17
<input type="checkbox"/> Check that ship frequency selection matches with ships expectations.		
<input type="checkbox"/> High=50Hz	110 VDC	9, 10
<input type="checkbox"/> Low=60Hz	110 VDC	9, 10

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## 7. LIVE TEST

In this section, the output circuit breaker is closed to test phase rotation and live test the emergency-stop from ship.

- Go to shore cabinet and remove padlocks from the earth switch
- Open earth switch in shore cabinet and switch output breaker to operating position
- Prepare ship for shore power
- Prepare shore for shore power in HMI and start up the system
- Ship gives permission to close breaker via automatic
- Shore pushes activation button
- Ship personnel check phase rotation and informs shore personnel
- Shore gives verbal confirmation to sync and close to shore
- Ship crew activates emergency stop and system trips. Shore crew informs ship of system status

When live emergency stop test is done, perform load transfer with the steps below.

- Prepare ship for shore power
- Prepare shore for shore power in HMI and start the system
- Ship gives permission to close breaker via automatic
- Shore pushes activation button
- Perform load transfer with maximum 50 kVA/s or agreed level

When load transfer is done, and ship has been connected to shore power perform load transfer back to ship and disconnect with the steps below.

- Perform load transfer back to ship with maximum 50 kVA/s or agreed level
- Ship removes permission to close via automatic and output breaker will open
- Shore switches output breaker back to earthed position, and prepare for disconnection of cables

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## 8. DISCONNECTION

At the end of a successful shore connection, the following steps must be completed to ensure a successful disconnection.

- Ship notifies shore that it is ready to disconnect.
- Ship performs necessary manoeuvres on ship to restore power.
- Ship performs load transfer with maximum 50 kVA/s or agreed level.
- Ship open shore connection breaker on ship when ready.
- Ship withdraws “Permission to close” stopping the system.
- Shore personnel “log out” ship in HMI.
- Shore personnel turns the output breaker in to grounded position and locks it.
- Shore personnel closes earth switch in shore cabinet.
- Shore and ship personnel padlocks earth switch on shore cabinet
- Remove all plugs, inspect for damage and re-attach covers on both shore and ship side of CMS.
- Ship removes their padlock from shore cabinet.