



Photo by Henk Zuur-Delfzijl, The Netherlands

GOUVERNEUR

FERUS SMIT SHIPYARD COMPLETES 6000 TDW DRY CARGO CONTAINER VESSEL

Builders: Ferus Smit Shipyards, Westerbroek, The Netherlands

Owners: Family Ter Stege, Zwartsluis, The Netherlands

On April 19th, 2007, Ferus Smit delivered the 111 m coaster 'Gouverneur' to her owners, Ben and Thea Ter Stege from Zwartsluis. The ship is the eleventh vessel in an impressive series of 15. The same family also owns sister vessel 'Ambassadeur', which was delivered in January 2007.

Ferus Smit operates two shipyards. One of these is located in Westerbroek in The Netherlands, while the other is located in Leer, Germany. The 'Gouverneur' was built at the shipyard in Westerbroek.

The series of 6000 ton ice-strengthened multipurpose ships was developed by Ferus Smit in collaboration with the various owners of the vessels and Wagenborg Shipping who will

operate the vessels. The focus in the design has been on carrying capacity, both in bulk and as containers, a high service speed, and unrestricted service.

The ships are ice-classed for navigation in ice-infested waters and are also certified for operation on the Great Lakes. They sail on heavy fuel oil for economy.

Hull

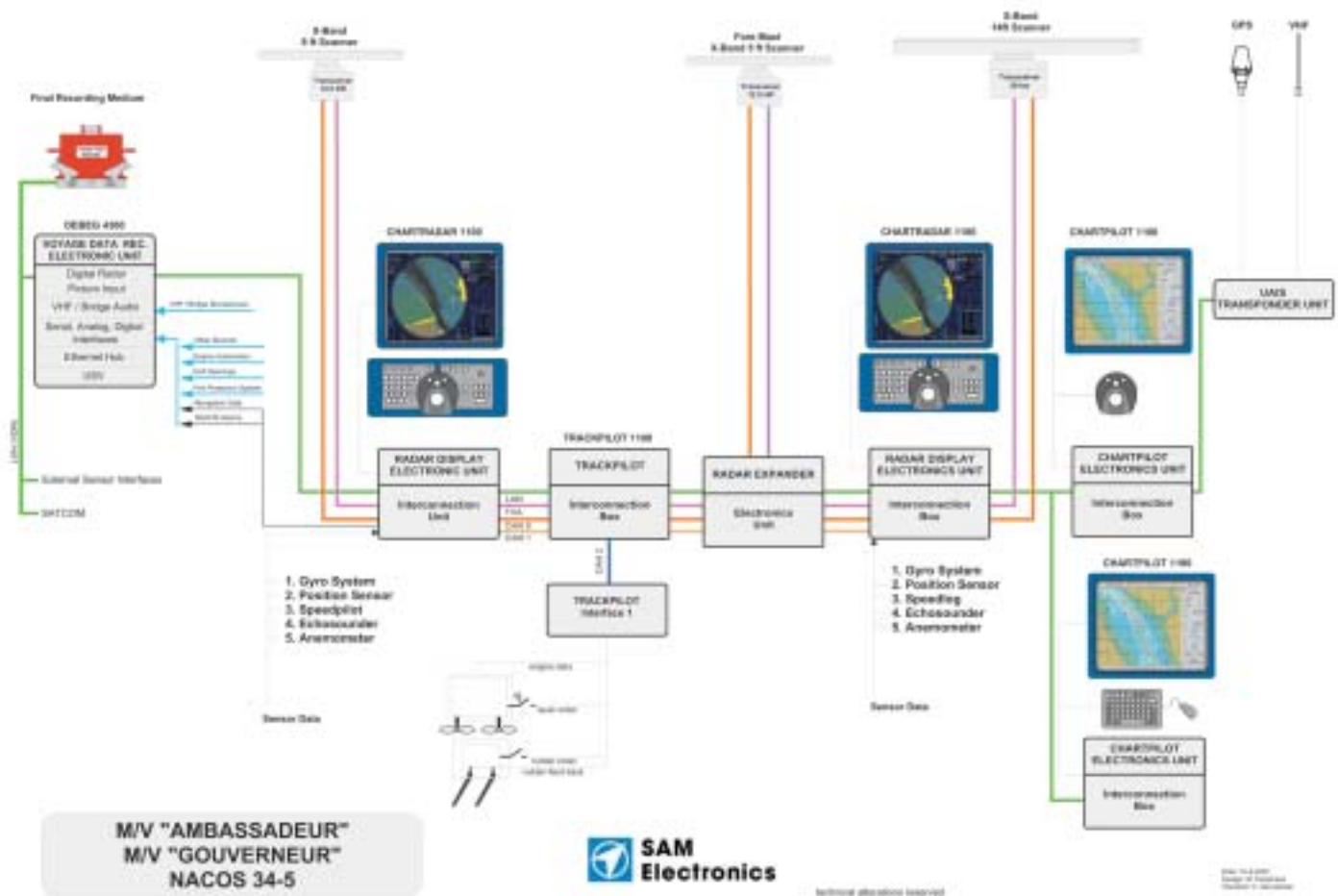
Under the waterline, the ships lines are composed of a large bulbous bow, a long parallel midship to provide for a practical cargo hold, and a wide but shallow transom stern. The transom plating is slightly curved, providing extra strength and a beautiful look to the ves-

sel. In the parallel midship, bilge keels are fitted to dampen the rolling motions. The spade rudder is equipped with a flap to increase manoeuvrability at low speeds.

On deck, the 'Gouverneur' features a forecandle, a raised quarterdeck and a deckhouse. She has two box-shaped cargo holds with two hatch ways. The vessel is built with a double hull construction and is suited for unrestricted trading worldwide.

Accommodation

The aft superstructure accommodates the galley, mess room and cabins. The accommodation has private cabins with sanitary facilities for the captain, three officers, four crew



members and the owner. The wheelhouse is situated on top of the superstructure. The complete accommodation is air conditioned with a Novenco Hi-Pres single pipe air conditioning system supplied by Johnson Controls Systems & Services

Cargo Holds

The holds have a maximum stack weight capacity of 50 tonnes and the hatch covers can handle a maximum stack weight of 48 tonnes. The 'Gouverneur' has a total capacity of 242 TEU (114 FEU) of which 138 TEU (66 FEU) can be placed in the holds and 104 TEU (48 FEU) on the hatch covers.

The cargo holds are covered with hatch cover pontoons which are handled by a travelling gantry crane. The hatch covers have a maximum stacking height of five pieces. The hatch cover crane is utilised for lifting and stacking the weather deck hatch covers and for the handling of the grain bulkheads. The hatch cover pontoons and the crane have been supplied by Coops & Nieborg.

The hold is also fitted with two grain bulkheads. Each bulkhead consists of two parts and can be placed in four different positions. The bulkheads are stowed against the engine room bulkhead. The cargo hold is suited for the carriage of dangerous cargoes. Ventilation of the cargo hold is carried out mechanically at a maximum refreshing rate of six air changes per hour.

The cargo holds have the following dimensions:

Hold I	Hold II
Length 27.59 m	Length 50.88 m
Beam 11.50 m	Beam 11.50 m
Depth 9.00 m.	Depth 9.00 m

Ice Class

The design and construction comply with the requirements of Bureau Veritas. The ship has the following class notation: General cargo ship and container ship, Class 1A HULL and MACH, Unrestricted navigation, AUT-UMS, ICE CLASS 1A (Finnish-Swedish Ice Class Rules).

Built under yard number 371, the 'Gouverneur' features the following main characteristics.

Principal Particulars	
Length o. a.	110.78 m
Length p.p.	105.14 m
Breadth mld.	14.00 m
Depth	8.13 m
Draught	6.09 m
Tonnage	
Deadweight	6,000 t
Gross tonnage	3,990 t
Tank capacities	
Water ballast	2,541 cu.m
Fresh water45 cu.m
Heavy fuel oil394 cu.m
Diesel oil44 cu.m

Cargo hold	
Cargo capacity	7,946 cu.m
Tank top load15 ton/sq.m
Hatch cover load	1.5 ton/sq.m
Propulsion	
Engine	2,640 kW
Speed	14 knots

CPP

In order to maximise propulsion efficiency under varying load conditions, the ship is equipped with a single controllable pitch propeller (CPP). The main engine is a MaK medium-speed diesel engine, type 8M25, developing 2,640 kW at 705 rpm using heavy fuel oil. The cooling system features separate HT and LT cooling circuits with a pre-heating circulating pump. The heat exchanger of this pre-heating system is integrated in the hot potable water system. The temperature of the main engine is controlled by a freshwater cooling system outfitted with NRF box coolers. A Vulkan Benelux flexible coupling is fitted between the engine and the Flender GMCP 670 reduction gearbox. The propulsor consists of a Wärtsilä Lips 4D1000 controllable pitch propeller with a diameter of 3,200 mm. The propeller shaft runs in an oil lubricated stern tube. The rudder and steering gear consist of a single Barke flap type rudder controlled by a Tenfjord electro-hydraulic steering engine. At low speeds manoeuvring capa-

bility is enhanced by an electrically driven Jastram bow thruster producing 335 kW.

Electric Power

Auxiliary power is supplied by either a Stamford shaft generator, type HCM 534 E, 240 kW/400 VAC, 50 Hz or by two diesel generator sets, both consisting of a Cummins

Lawrence Seaway. The Coops & Nieborg hatch cover crane features two storage cranes each with a SWL of 1000 kg.

Fibreglass piping

The engine room accommodates auxiliary systems such as the bilge and ballast system, the fire-fighting and deck washing system.

pump. Alfa Laval has supplied a self-cleaning fuel oil separator, a diesel oil separator and a lube oil separator. A Heatmaster hot water system is used for heating the HFO tanks, the separators and the AC system. This heating system consists of a 300 kW heat exchanger fitted in the cooling water system of the main engine, an electrical 48 kW heater, an oil fired hot water boiler of 285 kW, four circulation pumps, and heating coils in five bunker tanks, the settling tank and the daily service tank.

The bilge water is treated by a B+V Turbulo bilge water separator. The bilge water separator and sludge pump have been supplied by Uittenbogaart. Potable water is supplied throughout the vessel by a hydrophore set which is fed by two centrifugal pumps. Potable water can also be generated by means of an evaporator which has a capacity of 4 m³ per day. The tank sounding system is pneumatically controlled. The ballast, fuel and potable water tank levels can be viewed on a control panel situated in the engine room. Working air and starting air is supplied by two Sperre air compressors, each with a capacity of 25 m³ per hour at 30 bar.

Heating, Ventilation and AC Installation

The complete HVAC installation for the 'Gouverneur' has been supplied by Johnson Controls Systems & Services. This installation consists of the accommodation, the engine room and the two cargo holds.

The central air handling unit (including the cooling plant) of the accommodation has received a lot of careful thought and this has resulted in a compact unit, where compressor, condensing unit and the air handling unit are assembled on one small frame. The air handling unit is controlled by a PLC, resulting in an extremely accurate control of the cooling plant, heating plant and the humidifier at variable climate conditions. Each unit is tested



A MaK diesel engine delivers 2640 kW of propulsion power

6 CTA 8.3 D(M), 140 kW diesel engine, driving a Stamford UCM 274H generator, 175 kVA. The emergency power is supplied by an emergency generator set consisting of a Cummins 4 BT 3.9 G3 diesel engine with a Stamford UCM 224E generator. The generator sets have been supplied by De Ruyter Dieseltechniek.

The electrical supply system on board consists of the following three electric power circuits:

- 3-phase 400V AC, 50 Hz as main supply,
- 230V AC, 50 Hz for lighting/emergency supply,
- 24V DC for instrumentation.

The electrical installation has been installed by Eekels Elektrotechniek, who also fitted the alarm & monitoring systems.

Deck Equipment

The forecastle carries two SEC anchor handling and mooring winches, each equipped with a chain wheel, a mooring drum and a warping end. The windlass handles two bower anchors with anchor chain cables, supplied by Wortelboer. Two chain stoppers of the fall-over type are situated in front of the anchor winches. Aft, the poop deck carries two mooring winches, each with a mooring drum and a warping end. The mooring arrangement complies with the regulations of the St.

These systems all use Azcue pumps. The bilge and ballast lines in the engine room are made of galvanized steel pipe fitted with manually controlled valves. The main bilge and ballast lines in the double bottom, including the branch pipes leading to the tanks, are made of fibre glass and fitted with pneumatic remote control valves. The ballast tanks have been treated with a Hempel Hempadur 350 DE coating. The fuel oil system uses an Azcue HFO transfer pump and a diesel oil transfer

The hatch covers are manoeuvred by a travelling gantry crane



in the workshop to ensure and confirm the performance before delivery to the shipyard. All of the used components are first class brands and ensure a durable and reliable installation.

Johnson Controls Systems & Services has also supplied the other components to complete the installation for the accommodation including the Novenco cabin units, individual reheat system with thermostats for each cabin, and pre-manufactured spiroduck with 15mm thick insulation.

The engine room has been equipped with Novenco two-speed fans and mist eliminators. Throughout the engine room the air is redistributed by air ducts and the heating is provided by heating units. The heating of other technical spaces is provided by separate heating units. Some of the installed heating units are using hot-water and others use electrical heating elements. The ventilation of the two cargo holds is provided by special Johnson Controls Systems & Services fans. These fans for each hold are fitted with spark minimizing features and a special explosion-proof Eexd IIC T6 electric motor.

Life-Saving Appliances

The life-saving equipment consists of a Hatecke free fall lifeboat and two 12-person life rafts, situated on each side of the boat deck on a cradle with hydrostatic release. Appliances furthermore include a rescue boat handled by a davit which can also be used for the life rafts.

The davit has a fixed radius of 3 m. Nautische Unie Hunfeld has supplied most of the life-saving appliances.

A free fall lifeboat is located on the aft deck



Fire-Fighting Equipment

The fire-fighting equipment includes fire-fighting pumps which consist of the general service pumps situated in engine room and an emergency fire-fighting pump which is situated in the bow thruster space. All pumps have a capacity of 38 m³ per hour. The cargo hold and engine room are fitted with two separate CO₂ fire extinguishing systems. The fire-fighting equipment furthermore includes a water mist installation for local protection of the main engine, auxiliary engines, boiler and separators. The CO₂ and water mist installation have been supplied by Ajax Fire Protection Systems, based in Amsterdam.

Navigation equipment

The wheelhouse is situated on top of the aft superstructure. The 'Gouverneur' has been equipped with the highly sophisticated NACOS System (Navigation and Command System) and GMDSS for regions A1+A2+A3. The package of navigational aids and electronic communications systems was supplied by SAM-Electronics Nederland BV.

The Integrated Navigation and Command System NACOS 35-5 includes the following main components:

- one X-Band Chart Radar 1100 series systems, with 8ft scanner;
- one additional X-Band fore mast gearbox with 5ft scanner, with the SAM KVM Interswitch technology. That means you can select the scanner you want to display;
- one S-Band ChartRadar 1100 series system with 14ft scanner;
- two ECDIS-systems / Chart Pilot-1100 (for paperless sailing);



- one TrackPilot-1100, Track keeping system with dedicated Conning Monitor;
- one AIS unit (DEBEG-3400), fully integrated into the NACOS / Radar system;
- one complete VDR system / DEBEG-4300;
- one Doppler-speed log / Consilium;
- one Echo sounder 100kHz transducer / DEBEG-4630;
- one DGPS receiver / DEBEG-4422D,
- one Anemometer for wind speed and direction;
- one Gyrocompass system (Anschuetz), Standard 22 G/GM with repeaters;
- one Anschuetz PilotStar-D autopilot 2. Note : SAM 1100 Trackpilot is autopilot 1;
- one Magnetic compass system (Anschuetz), with camcourse system.

Communication equipment

The GMDSS radio station fulfilling the requirements of IMO/SOLAS 74 for sea area A1,A2,A3 consists of the following:

- one MF/ HF SSB/DSC radio telephone / DEBEG-3105
- two VHF/DSC radio telephones
- two Inmarsat-C terminals / DEBEG-TT3000E
- one Inmarsat F-55 terminal;
- one EPIRB / DEBEG-3545
- two Radar transponders system / DEBEG-5900
- one Navtex / DEBEG-2902,
- three GMDSS handheld VHF sets / DEBEG SP-3300,

Brewery transport

The 'Gouverneur' is a repeat build of a design which has already proven its worth. The first assignment of the 'Gouverneur' was to ship an entire Heineken brewery from Riga (Latvia) to Tunisia. This happened under the

command of her captain Danny Harms, whose partner Sandra de Wit christened the ship. An impressive video of the side-launching of the 'Gouverneur' into the narrow Winschoterdiep canal can be downloaded from the builders site at www.ferus-smit.nl. In 2010, the yard can celebrate its hundredth year of operation.

Subcontractors and suppliers of equipment fitted on board the 'Gouverneur' (partial list)

- Alfa Laval, Utrecht** : separators; heat exchangers
- Atlas Copco Ketting Marine Center, IJmuiden** : starting air receivers; working air dryers
- Beeker Marine Systems, Reinbek (G)** : Barke rudder
- Bendit Isolatie-techniek, Groningen** : insulation
- Boer Staal, De, Uitgeest** : steel plates & profiles
- Bosch Rexroth, Boxtel** : air preparation units & pneumatic ballast control system
- Börger Machinefabriek, Hoogezand** : mooring rope containers; grain bulkhead pockets; gangway; coaming platforms; engine foundation components; oil- and expansion tanks.
- Bureau Veritas, Rotterdam** : classification
- Caldic Techniek, Rotterdam** : Stamford generators
- Cappellen Consultancy, Van, Papendrecht** : noise and vibration measurements
- Castrol Nederland, Rotterdam** : lubrication
- Centraalstaal, Groningen** : prefab steel sections kit
- Coops & Nieborg, Hoogezand** : hatch covers; hatch cover crane
- Corrosion & Water-Control, Moerkapelle** : impressed current anti-fouling (ICAF) system; impressed current cathodic protection (ICCP) system
- Discom, Alblasserdam** : silencers for the main engine

- Eekels Elektrotechniek, Kolham** : electrical installation; alarm & monitoring system; bridge console, MCC cabinets & switchboards; Aqua Signal lighting; Tyco fire alarm system
- Flender Bruinhof Marine, Rotterdam** : Flender reduction gearbox
- Haan, Gebr. De, Hoogezand** : heating-, ventilation- and sanitary systems
- Hatecke, Ernst, Drochtersen (G)** : free fall life boat, MOB boat, MOB crane
- Heatmaster, H.I. Ambacht** : heating system for the cargo
- Helmers, Sappemeer** : carpentry and insulation
- Hempel, Vlaardingen** : paint systems
- Imtech Marine & Offshore, Rotterdam** : Mitsubishi Electric circuit-breakers
- International Paint** : International® marine coatings
- Johnson Controls Systems & Services (York), Dordrecht** : airconditioning installation; mechanical ventilation systems
- Jong T.H., A. de, Dordrecht** : Ellehammer ejectors
- JVS Scheeps- en Industrie-techniek, Papendrecht** : Jastram bowthruster unit
- Kroon, Hoogezand** : Alvedoor fire doors; ship's hardware; manhole covers and rings; engine room equipment.
- Leeuwen Buizen, Van, Zwijndrecht** : steel pipes and components
- MaK (Nederland), Dordrecht** : main engine
- Mar-In Controls, Krimpen a/d IJssel** : fuel supply module
- MaraSoft, Urk** : Marad planned maintenance system
- Mx Brandbeveiliging, Almere** : Fixed CO₂ firefighting installation for engine room and cargo holds, inclu smoke and sampling systems for the cargo holds; local application watermist for engine room; engineering and nozzles waterspray (sprinkler) system Cargo hold I
- Nautische Unie Hunfeld, Farmsum** : life-saving appliances; nautical & medical inventory; fire fighting equipment; navigation lights

- Nicoverken Marine Services, Schiedam** : Blucher Metal stainless steel drainage system
- Noordhof Schilderwerken, Kropswolde** : painting
- Reikon, Spijkenisse** : Azcue pumps; Gefico freshwater generator; Trojan Technology UV-sterilizer
- Rolls-Royce Marine Benelux, Pernis RT** : steering gear; tank level gauging equipment
- Rotor, Eibergen** : electric motors
- Ruyter Dieseltechniek, De, Sliedrecht** : Cummins/Stamford diesel generator sets
- Snijder Filtertechniek, Hasselt** : Separ fuel filters / water separators
- SAM Electronics Nederland, Rotterdam** : communications & navigation systems
- SARC, Bussum** : LOCOPIAS loading software for intact stability and strength calculations, including loading options for grain loading and general cargo
- Shell Marine Products, Vondelingenplaat RT** : lubricants
- Ship's Equipment Centre (SEC), Groningen** : winches; mooring equipment
- Sperre, Ridderkerk** : starting air compressors
- Theunissen, Malden** : SeaTeleCom communication equipment; Pesch searching lights.
- Trinox, Hardinxveld-Giessendam** : portholes & windows
- Uittenbogaart, T.B., Rotterdam** : B+V bilge water separator; Megator sludgepump
- Viking Life-Saving Equipment, Zwijndrecht** : life rafts; lifesaving equipment
- Vulkan Benelux, H.I. Ambacht** : Vulkan Rato-R highly flexible couplings
- Wärtsilä Propulsion Netherlands, Drunen** : Lips CPP propeller; seals with ceramic coated liner and viton seals; white metal bearing
- Winel, Assen** : watertight musketeer doors; fire doors; Bolero tank vent check valves
- Wortelboer, Rotterdam** : anchors & anchor chains

General Arrangement

