



Photo by Henk Zuur-Delfzijl, The Netherlands

# ARKLOW RAVEN

BARKMEIJER SHIPYARDS COMPLETES VERSATILE

SINGLE HOLD DRY CARGO VESSEL FOR ARKLOW SHIPPING LTD

*Builders : Barkmeijer Shipyards, Stroobos, The Netherlands*

*Owners : Arklow Shipping Ltd, Arklow Ireland*

June 2007 saw the handing over of the 'Arklow Raven' to her owners Arklow Shipping Ltd based in Arklow, Ireland. The vessel, built by Stroobos-based Barkmeijer Shipyards, is a versatile single-hold dry cargo vessel for unrestricted services. The multipurpose dry cargo coastal vessel is the thirteenth in the 4500 DWT series, and the seventh vessel operating on HFO 380 cSt. The vessel has a total cargo capacity of 4,500 metric tons at a summer-draught of 5.68 m. Meanwhile Barkmeijer Shipyards have already started the production for the fourteenth vessel from these 4500-DWT general cargo vessels. In the mean while, the yard is working on a new

concept for a 5800 DWT series, which the yard hopes will be as successful as the 4500 DWT series. The first vessel of this new series will be delivered mid 2008 to a Dutch owner.

#### **Classification**

Equipped for unrestricted navigation and transport of all kind of dry cargoes, the vessel has provisions for the carriage of containers. The 'Arklow Raven' has been designed and constructed in compliance with the rules and regulations of Bureau Veritas. Her class notation is BV I \* HULL \* MACH, General Cargo Ship, Unrestricted Navigation, AUT-UMS MON-SHAFT, Heavy Cargo 105 kN/m<sup>2</sup>, Non-

Homload 150 kN/m<sup>2</sup> (max block length 5m; minimum spacing between blocks 2m) Strengthbottom. The vessel is also equipped for the carriage of some types of dangerous cargo in bulk in accordance to SOLAS chapter II-2 Regulation 19. The tank top has been strengthened for the carriage of heavy steel coils and containers.

#### **Noise & Vibration Reduction**

In the design of the ship special attention has been paid to reduce the vibration and noise levels. The combination of a tunnel construction in the aft ship and a controllable pitch propeller made it necessary to develop a low

noise highly skewed propeller. The sea trials confirmed that all measures which have been taken in the design of the ship resulted in a very calm and quiet ship.

### General Arrangement

The single-screw dry cargo vessel features a raised forecastle and poop and a radius transom stern. The fore ship section with bulbous bow accommodates the bow thruster room, the paint store and fore peak compartment. The box-shaped cargo hold is equipped with two movable bulkheads and covered with pontoon-type hatch covers fixed on one side. The ballast lines are routed through the double bottom pipe trunk. The ballast tanks are treated with a special tank coating. On the two-tier deckhouse a wheelhouse is fitted with covered bridge-wings.



A single 1800 kW MaK engine drives a CPP

Principal particulars	
Length o.a.	.89.99 m
Length b.p.	.84.98 m
Breadth mld.	.14.00 m
Depth	7.15 m
Draught	.5.68 m
Service speed	.12 kts
Tonnage	
Deadweight	.4,500 t
Gross tonnage	.2,999 t
Hold volume	.5,931.71 cu.m
Container capacity	
In Hold	.102 TEU
On Deck	.48 TEU
Total	.150 TEU
Tank capacities	
Water ballast	.1,839,00 cu.m
Potable water	.88,00 cu.m
Gas oil	.37,00 cu.m
Heavy Fuel oil	.150,00 cu.m
Lube oil	.7,00 cu.m

### Accommodation

The accommodation is designed for a complement of 8 arranged over three decks. The accommodation includes a mess room, a galley, an office, some stores and one spare cabin. The complete accommodation is mechanically ventilated and climate controlled by an air conditioning system. In the accommodation, all bulkheads and ceilings and their linings are in accordance to fire protection method SOLAS I-C. Further, A-0, A-60 and B-0 insulation has been used throughout the accommodation as required by SOLAS. The floating floor and wainscoting provide optimum acoustic insulation and comply with the regulations for seagoing ships.

The deckhouse was mounted onto the hull

after the launching which took place May 3rd, 2007 at Stroobos. The vessel was then towed to Lemmer for outfitting.

### Wheelhouse

The spacious wheelhouse is carried on top of the deckhouse. The 'Arklow Raven' has been GMDSS equipped for regions A1+A2+A3. The package of navigational aids and electronic communications systems, supplied by Sperry Marine, includes the following main components:

- two sea radar systems;
- two ECDIS-systems;
- one MF/ HF SSB/DSC radio telephone;
- two VHF/DSC radio telephones;
- two Inmarsat-C terminals;
- one EPIRB;
- two Radar transponders;
- one gyrocompass;
- one Doppler-speedlog;
- one echo sounder;
- one Navtex;
- two GPS-receivers;
- one AIS unit;
- three GMDSS handheld VHF sets.

\*The wheelhouse in the final stages of outfitting



### Movable Bulkheads

The obstruction-free box-shape cargo hold has a capacity of 5,931.71 m<sup>3</sup> (209,601 cu.ft) and can be subdivided into separated hold sections by means of two movable bulkheads. This allows the carriage of a variety of cargoes including grain and other bulk cargoes, containers, steel coils and/or any combination of these cargoes.

The movable bulkheads, make Roden Staal, are of the corrugated single wall type with a strong beam at the bottom and top of the bulkhead. For positioning of the movable





The Heatmaster boiler



Fuel is treated in a dedicated separator room

bulkheads there are sliding slots fitted on the hatch coaming. On the lower side the grain bulkheads will be positioned by means of container stacking cones in the available ISO-sockets.

The 18 mm thick steel plate tank top has been strengthened with stiffeners allowing a maximum permissible load of 15 t/m<sup>2</sup> suitable for the carriage of a maximum container stack weight (point load) of 42 ton (TEU). For securing project cargo in the hold one tier of lashing eyes are fitted flush in the cargo hold side walls.

#### Hatch Covers

The ten pontoon type hatch covers are of the one-side-fixed-type, make Roden Staal, and allow a coaming deflection clearance of -20/+10 mm. The hatch covers are designed to carry one tier of containers of 15 ton line load and are fitted with dove tail foundations. The electro-hydraulic travelling hatch cover crane, also make Roden Staal, handles both the hatch covers and the movable bulkheads.

\*The hot water generating plant



#### Propulsion Plant

The propulsion plant consists of a MaK marine diesel engine, type 6M25 developing 1,800 kW at 750 rpm. The main engine is driving a Scana Volda four-blade high-skew controllable pitch propeller via a Scana Volda single-stage reduction gearbox with vertical offset. For actuation of the propeller pitch the hydraulic servo unit is integrated in the gearbox. The gearbox is fitted with a clutch in the primary shaft. Furthermore, the gearbox is fitted with a power-take-off which is driving the 400 kVA shaft generator.

#### Course Control

Directional control is with a streamlined flap-type rudder actuated by a ram-type semi-proportional controlled steering gear, make Van der Velden Marine Systems. For optimizing ship handling a 250 kW electric driven Veth bow thruster unit is fitted. The electric motor of the bow thruster is directly driven by the shaft generator, through a frequency converter for speed regulation.

#### Auxiliary Power

Electric power is derived from a 400 kVA, 400 V, 50 Hz shaft generator. The shaft generator can, for a short time, run in parallel to take over the load of the main generator set or the emergency/harbour generator set. Both generator sets consist of a SISU-diesel engine and Stamford generator with an output of 210 kVA, 400V, 50 Hz. The main generator set is placed in the engine room in a sound-absorbing casing. The main generator set and the emergency/harbour generator set are suitable to operate shortly in parallel mode for taking over the ship's load. The emergency/harbour generator set is fitted on the poop deck and is automatically started in case of a black out. Auxiliary engines were supplied by Veth Motoren, Papendrecht.

#### Bilge & Ballast System

Bilging, ballasting, deck washing and fire-fighting is served by two ballast pumps, two general service pumps and three ejectors, delivered by A. de Jong TH. One general service

\*The booster unit heats the heavy fuel to decrease its viscosity





\*The hull is painted in Arklow Shipping's typical green

pump is placed forward in the bow thruster room. The bilge line, both ballast lines and the remote controlled ballast tank valves, which are fitted on the branch suction lines, are placed in the pipe tunnel amidships. The ballast system is remote controlled from a control cabinet in the engine room featuring a mimic diagram of the vessel's ballast system. One ejector is dedicated to serve the hold bilges in accordance with SOLAS requirements, the second ejector is serving the ballast tanks and engine room bilges. A third ejector is placed in the forecabin to serve the chain lockers. In accordance to MARPOL regulations a 15 ppm bilge water separator is fitted, and is provided with an oil content alarm unit.

### Deck Equipment

The vessel features a single anchor handling winch and a capstan. The Ridderinkhof windlass forward is fitted with two chain wheels for 36 mm diameter U3 stud link chain cable and two warping heads of 360 mm diameter and handles two High Holding Power POOL TW fully balanced bow anchors each weighing 1,575 kg. Anchors and anchor chain cables were supplied by Wortelboer. On the aft ship

a Lagendijk telescopic store crane with a safe working load of 999 kg at 10,5 metre is provided to handle the stores and gangway.

### Life-saving Appliances

For life-saving services, one davit-launched combined rescue boat/life raft is located on starboard side and a life raft davit is located on port side. Rescue boat and davit were supplied by Promac from Zaltbommel. Life-saving appliances further include four 12-person inflatable RFD life rafts and a number of personal live-saving equipment such as life jackets, immersion suits, life buoys and a set of emergency signals.

### Conclusion

With the 'Arklow Raven', another vessel is added to the green-hulled Arklow fleet. In total, Arklow shipping has 37 vessels ranging from 3.000 to 14.000 GT. Eleven of these are sister vessels of the 'Arklow Raven' and all of those have a name starting with Arklow and the letter R. A thirteenth sister vessel is scheduled to be delivered by Barkmeijer in October 2007. Arklow Shipping started up in Ireland in 1966 with a fleet of seven ships.

Currently, its 37 ships trade mainly in the North Sea, the Baltic Sea and up to the shores of North Africa. The company has offices in Arklow, Wicklow, Ireland and Rotterdam, the Netherlands.

Barkmeijer has a healthy order book with a 5800 DWT and a 4500 DWT to be delivered in 2008, two 5500 DWT coasters, two innovative 126 m Ice-classed coasters.

\*Photo's by mark Verschut, Barkmeijer Shipyards

### Subcontractors and suppliers of equipment fitted on board the 'Arklow Raven' (partial list)

<b>Ajax Fire Protection Systems,</b> Amsterdam	fixed CO <sub>2</sub> flooding system for engine; watermist installation
<b>Alewijnse Noord,</b> Drachten	electrical installation; alarm- & monitoring system; galley equipment
<b>Alfa Laval Benelux,</b> Breda	fuel oil separator; lube oil separators
<b>Arco Reuver,</b> Reuver	engine room gratings; stair steps
<b>Belkoned Marine Service,</b> Best	sea trial; speed & manoeuvring measurements
<b>Bloksma Heat Exchangers,</b> Almere	box coolers
<b>Börger Machinefabriek,</b> Hoogezand	ventilation cowls & goosenecks
<b>Bosch Rexroth,</b> Rotterdam	air dryer
<b>Bureau Veritas,</b> Rotterdam	classification
<b>Castrol Marine,</b> Rotterdam	lube oils
<b>Centraalstaal,</b> Groningen	prefab steel sections
<b>Chemetall,</b> Oss	Ampak anodes for cathodic protection
<b>Conoship International,</b> Groningen	stability calculations; tank sounding tables
<b>Datema Delfzijl,</b> Delfzijl	central antenna system; navigation- & search lights; Light Partner lighting systems
<b>DESMI K&amp;R Pompen,</b> Utrecht	pumps
<b>Draka Kabel,</b> Amsterdam	fibreglass cables; telecom cables; feedcables
<b>Dulasta,</b> Staphorst	bilge well gratings
<b>Econosto Nederland,</b> Capelle a/d IJssel	whistle controller
<b>Heatmaster,</b> H.I. Ambacht	heating installation main engine
<b>Helmerts,</b> Sappemeer	carpentry; insulation work
<b>Hempel (The Netherlands),</b> Vlaardingen	paint systems; tank coatings
<b>Hydrographic and Marine Consultants,</b> Almere-stad	Loading instrument, CPC class approved
<b>IHC Lagersmit,</b> Kinderdijk	SUPREME® stern tube seal
<b>Intersona,</b> Heerde	noise and vibration calculations
<b>Jager,</b> Dokkum	rope reels
<b>Jong T.H., A. de,</b> Dordrecht	bilge ejectors
<b>Kostabo,</b> Harlingen	fire-fighting; life-saving appliances; fire extinguishers; medicines
<b>Kroon, Technische Groothandel,</b> Hoogezand	ship's hardware; engine room tools
<b>Lagendijk Constructie,</b> Wemeldinge	store cranes
<b>MaK Nederland,</b> Dordrecht	main engine; flexible coupling & silencer
<b>Materiaal Metingen Europe (MME),</b> Ridderkerk	Harbinger® aluminium gangway with ring platform and bulwark ladder
<b>Northrop Grumman Sperry Marine,</b> Rotterdam	complete navigational & communication package
<b>N.R. Koeling,</b> Krimpen a/d IJssel	HVAC installation for accommodation
<b>ODS,</b> Barendrecht	steel pipes; welding bends; flanges; fittings; valves



**Recoma Technische Installaties,**  
Leeuwarden ..... : airconditioning-, sanitary system

**Repos, Dokkum** ..... : name plates

**Ridderinkhof, Hasselt** ..... : windlass; capstan

**Roden Staal, Drachten** ..... : hatch cover system & crane; grain bulkheads

**Scana Volda, Volda (N)** ..... : propeller system; reduction gear box

**Schutte, Stadskanaal** ..... : manhole covers & rings

**Sperre Rotterdam, Ridderkerk** ..... : starting air compressors

**Theunissen Technical Trading, Malden** ..... : Zenitel communication equipment

**Tjamme Vis Scheepsstoffering, Hoogkerk** ..... : upholstery

**Trinox, Rotterdam** ..... : doors; windows

**Uittenbogaard, T.B., Rotterdam** ..... : B+V Turbulo® bilge water separator; Megator sludge pump

**Valveco, Ridderkerk** ..... : valves & pipe couplings

**Velden Marine Systems, Van der, Krimpen a/d Lek** ..... : Barke® rudder & steering gear installation

**Veth Motoren, Papendrecht** ..... : Scania/Sisu Diesel generator sets; Veth Tunnel-Thrusters with E-motor; Veth-Jet bowthruster

**Voorden-Promac, van, Zaltbommel** ..... : Scana Volda propulsion systems; Promac-Halecke

**Walinga, Harlingen** ..... : rescue boats; Global-Davit liferaft davit

**Weewer Isolatie, Groningen** ..... : rigging; fire retardant insulation engine room

**Winteb, Winschoten** ..... : ventilation check valves

**Winter, Jan, Steenwijk** ..... : painting & tank coating

**Wismarer Korrosion Schutz, Wismar, (G)** ..... : ballast tank coating application

**Wolfard & Wessels Werktuigbouw, Foxhol** ..... : engine room installation; piping & installation; fuel heating system

**Wortelboer, Rotterdam** ..... : anchors & anchor chain cables

**GENERAL ARRANGEMENT**

**CONTAINER VESSEL**

