



M/V Pacific Defiance

- ▶ **Bollard Pull** 220-238 tonnes
- ▶ **Brake Horsepower** 17,614 BHP
- ▶ **Clear Deck Space** 650 m²
- ▶ **Winch Line Pull** 500 tonnes

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| | | | |
|------------------|--------------------|------------------|------------|
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General Information

| | |
|-----------------|---|
| Built: | Drydocks World, Singapore, February 2013 |
| Call Sign: | JZZT |
| IMO No.: | 9456197 |
| Classification: | DNV-GL +1A Fire fighter(I) Offshore service vessel(Anchor handling, Towing) SPS Clean DPS(2) E0 ICE(C) |

Dimensions

| | |
|------------------------|-------------|
| Length, overall: | 92 metres |
| Length, BP: | 79.8 metres |
| Breadth, moulded: | 22 metres |
| Depth, main deck: | 9 metres |
| Design draft: | 5.5 metres |
| Maximum draft midship: | 7.5 metres |
| GT: | 6639 |
| NT: | 1992 |

Capacities

| | |
|------------------------------------|---|
| Deadweight (maximum): | 4522.97 t |
| Clear Deck Area: | 36 m x 18 m = 650 m ² |
| Deck Strength: | 10 t/m ² |
| Deck Cargo: | 1500 t (C.G. at 0.9 m above deck) |
| Fuel: | 1172 m ³ (dedicated) 1940 m ³ (including combination BO, Mud tanks) |
| Potable Water: | 1350 m ³ |
| Ballast Water / Drill Water: | 2965 m ³ |
| Brine / DMA / Glycol / Liquid Mud: | 860 m ³ (90% full) - s.g. of 2.5 t/m ³ |
| Dry Bulk: | 236 m ³ (8334 cubic feet) (in 4 tanks) |
| Ship's Stores: | Freezer (-25 degrees Celsius) - 25 m ³ Cold Room (+4 degrees Celsius) - 25 m ³ Provisions store - 90 m ³ |

Machinery

| | |
|-----------------------|--|
| Main Engines: | 4 x 3,285 kW = 13,140 kW (17,614 BHP), MAN 9L 27/38 Engines, Tier II Compliant |
| Propulsion: | 2 x MAN Acpha CPP propellers in KORT nozzles, with Hi-Lift Flap Rudders |
| Azimuth Thruster: | 1 x 880 kW (1,180 BHP) Azimuth drop-down thruster, 15.0 t thrust |
| Bow Thrusters: | 2 x 880 kW (2,360 BHP) Brunvoll tunnel thruster, 13.0 t thrust |
| Stern Thrusters: | 2 x 880 kW (2,360 BHP) Brunvoll tunnel thruster, 13.0 t thrust |
| Shaft Generators: | 2 x AEM, 2800 kW, 3500 kVA each, 440V, 60 Hz |
| Auxiliary Generators: | 1 x Caterpillar diesel generator, 1425 kW, 440V, 60 Hz capable of driving FiFi pump, Azimuth drop-down thruster (IMO TIER II compliant) |

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Emergency Generators: 1 x Caterpillar diesel generator, 350 kW, 440V, 60 Hz (Emergency / Harbour Generator), IMO TIER II compliant

Towing and Anchor Handling

| | |
|----------------------------|--|
| Bollard Pull: | 228.95 MT at 100% MCR 243.95 MT with independent driven azimuth thruster |
| Main Winch: | Rolls Royce Brattvaag waterfall type winch, 3 drums (1 x SL500WX and 2 x BSL400WX), all drums provided with remote controlled spooling gears |
| Load Capacity: | 1 x 500 t and 2 x 400 t |
| Brake Capacity: | 600 t on drum's 1st layer |
| Tow Drum Dimension: | dia.2800 mm x W 5500mm x H 5000 mm Drum pocket dia.2800 mm x W 900mm x H 5000mm with 700mm split opening |
| Tow Drum Wire Capacity: | 13,600 m of dia.76 mm wire / 9800 m of dia.87 mm wire / 9100m of dia.90mm wire / 1900 m of 8" rope Load capacity - 1st layer 500 t @ 15 mtr/min |
| AH Drum Dimension: | AH Drum Stbd side dia.1500mm x W 2500mm x H 3750mm Load capacity - 1st layer 400 t @ 20.1 mtr/min AH Drum Port side dia.1500mm x W 2000mm x H 3750mm Drum pocket dia.1500 mm x W 900mm x H 3750mm Load capacity - 1st layer 400 t @ 20.1 mtr/min |
| AH Drum Wire Capacity: | AH Drum Stbd Side 4100 m of dia.76 mm wire / 3100 m of dia.87 mm wire / 2800m of dia.90mm wire AH Drum Port Side 3200 m of dia.76 mm wire / 2450 m of dia.87 mm wire / 2200m of dia.90mm wire |
| Secondary Winch Dimension: | dia.1500mm x W 4500mm x H 4500mm Drum pocket dia.1500mm x W1100mm x H 4500mm |
| Secondary Winch Capacity: | 1600 mtr of 8" rope / 7800m of dia.90mm wire |
| Chain Gypsy Cable Lifter: | 2 x 84 mm, 2 x 76 mm |
| Rig Chain Locker: | 624 m ³ chain capacity (in 4 lockers of 156 m ³ each) |
| Stern Roller: | Rolls Royce double stern roller, 2 x 3 m length x 4.5 m diameter, SWL 750 t (Environmental friendly grease lubricated). Anchor Recovery Frame: Odium, Max. Dynamic Forces: Wire Tension 300 t Transversal Load 75 t Deployment Speed 80 seconds |
| Tow Pins / Guide Pins: | Karmoy 2 sets of combined Towing Pin and Karm Forks, each unit comprises one pair of tow pins and one fork, SWL 650 t. Stop Pins (Norman Pins) with wire stopper, roller: SWL @ bottom 230 t, SWL @ top 100 t |
| Wire Chain Stopper: | 2 x 650 t |
| Popup Pins: | 2 x hydraulic SWL top 100 t, SWL bottom 230 t |

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Spare Reel Capacity: 1500 mtr of dia.76 mm wire

Deck Machinery

| | |
|----------------------|---|
| Tuggers: | RRM, 2 x 24 t, capacity 600 m of 26 mm wire each; Locally, remote, portable-wireless control. RRM, 1 x 17t, capacity 200 m of 25 mm wire each; Locally, remote, portable-wireless control. |
| Capstans: | RRM, 2 x 15 t with warping head and drum; Drum capacity 45 m x 20 mm wire; Locally, remote, portable-wireless control. |
| Windlass: | RRM combined windlass / mooring winch Duty on warping ends, 13 t @ 0-15 m/min, light line 0-48 m/min. Duty on cable lifters, nom pull 13.6 t @ 0-12.2 m/min, max pull 20.4 t @ 0-11.3 m/min. Duty on mooring drums, two de-clutchable mooring drums, diameter drum 640 x 1200 x 1000 length, stowing capacity 230 m of 60 mm rope, duty on mooring drums 19 t @ 0-12 m/min, 2 t @ 0-41 m/min, lowering 0-43 m/min. |
| Bow Mooring: | See Windlass |
| Smit Towing Bracket: | 1 x 300 t |
| Crane Capacity: | RRM 2 x cargo rail double jib crane max. working radius 14.3 m, min. working radius 3.2 m SWL of 3 t @ 10 - 14.3 m SWL of 5 t @ 3.2 - 10 m 1 x provisions crane, knuckle type, capacity 5 t @ 15 m radius. Winch hook travel of up to 1000 m |

Electronics

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|----------------------------|--|
| Main Radar: | Furuno FAR 2137 S Band 10 cm ARPA, 21" |
| Auxiliary Radar: | Furuno FAR 2117 X Band 3 cm ARPA, 21" |
| Auto Pilot: | Tokimec PR 6114-ZZ |
| Gyro Compass: | Tokimec TG 8000 x 3 units |
| Magnetic Compass: | Tokimec Reflector Magnetic Compass |
| Echo Sounder: | Skipper GDS 102, dual frequency 50 kHz and 200 kHz |
| DGPS : | Furuno GP150 x 2 units |
| Anemometer : | Gill Wind Observer, Ultrasonic x 3 units |
| Speed Log: | Furuno DS-80 Doppler Speed log |
| Communications: | Radio Plant Furuno RC-1800T 250 W GMDSS Dual C with SSAS & LRIT compliance |
| ECDIS: | Furuno FMD3200 x 2 units |
| Weather Fax: | Furuno FAX-408 |
| Satellite Communication: | FBB: Sailor 500 |
| AIS: | Furuno FA-150 |
| Voyage Data Recorder(VDR): | Furuno VR-3000 VDR |
| VHF: | Furuno FM 8800S semi duplex marine VHF, Furuno FM 8800D full duplex marine VHF |

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Discharge Pumps

| | |
|------------------------|---|
| Fuel Oil: | 1 x 150 m ³ /hr - 9 bar (90 m head) |
| Base Oil: | 1 x 150 m ³ /hr - 9 bar (90 m head) |
| Dirty Oil: | 1 x 9 m ³ /hr - 2 bar |
| Potable Water: | 1 x 150 m ³ /hr - 9 bar (90 m head) |
| Ballast / Drill Water: | 1 x 150 m ³ /hr - 9 bar (90 m head) |
| Liquid Mud: | 1 x 75 m ³ /hr - 18 bar |
| Brine / Mud: | 1 x 75 m ³ /hr - 18 bar |
| Dry Bulk: | 50-80 t per hour |
| Cargo Flow Meters : | Fuel Oil, base oil and fresh water |
| Hose Connections : | All systems have 5" female camlock couplings with all liquid cargo discharge points installed capable of fitting "Avery Hardoll Dry Break Couplings". |

Dynamic Positioning

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|--------------------|--|
| Type: | Duplex C series from Converteam |
| Reference Systems: | Guidance Navigation RadaScan Veripos DGPS HPR prepared |
| Control Modes: | Joystick manual/auto heading, Mixed axis mode, Auto pilot mode, Ship Follow, ROV follow, Auto Track mode, Auto Sail mode, Simulation, Model Control, Dynamic Positioning |
| Joystick: | Independent Joystick Converteam |

External Fire Fighting

| | |
|-------------------|--|
| Capacity: | 2400 m ³ /hr, independent from propulsion engines |
| Monitors: | 2 x 1200 m ³ /hr |
| Throw Length: | 120 m |
| Throw Height: | 50 m |
| Drenching System: | Installed |

Standby Rescue Equipment

1. 1 x MOB boat MP-660 Springer with 230 HP inboard engine and water jet propulsion. Max. speed including crew 32-34 knots, with boat davit for quick launch & recovery.
2. Rescue zone on both Port and starboard side Main Deck

Ice Capability

1. ICE Class C0

Anti-Pollution

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|------------------|---|
| Dispersant Tank: | 17 m ³ |
| Spray Booms: | Fixed installed spray nozzles for neat and dilute, PS and SB. |

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Accommodation

| | |
|---------|--|
| Berths: | 29 x 1 man (single) cabins 4 x 2 man (double) cabins 37 persons (Total) 1 x Client's office 1 x Messroom 1 x Dayroom 1 x Conference room 1 x Hospital |
|---------|--|

Environmental Features

1. All mud tanks of free flowing design with external stiffening and sloped floors. Mud tanks have their own recirculating system with internal spray nozzles.
2. Oily water separator with 15 ppm monitor but can operate below 5 ppm according to IMO MEPC 107(49).
3. Sewage Treatment Plant according to IMO MEPC 159(55).
4. Cargo loading & discharge station provided with save all to inboard tank.
5. Stern Roller fitted with environmental friendly grease system.
6. Galley macerator

Miscellaneous

1. Deck strengthened for heavy cargoes 10 t/m².
2. Pneumatic bulk handling system, capable of discharging 2 type of dry bulk simultaneously.
3. Provided with 3 Xenon 2000 watt search lights.
4. Wood sheathed main deck except for aft area which is steel plated for anchor handling activities.
5. Provided with anchor recovery frame suitable to launch and recover torpedo anchors.
6. CCTV monitoring system for winches and deck
7. ROV Garage: Available space to facilitate ROV equipment (L x W x H: 9 x 5 x 5.5 m)

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FUEL EFFICIENCY

FUEL OIL CONSUMPTION ON PASSAGE

| Fuel Oil Consumption (t/24 hours)-Seastate 2Φ | | | | |
|---|--|--|--|---|
| Draft(m) | 10.00 knot [MAIN ENGINE 1 & 2 WORKING] | 12.00 knot [MAIN ENGINE 1 & 2 WORKING] | 14.00 knot [MAIN ENGINE 1 & 2 WORKING] | 16.00 knot [MAIN ENGINE 1 , 2,3 &4 WORKING] |
| 5 | 16.98 | 20.11 | 26.09 | 38.89 |
| 5.5 | 18.52 | 21.92 | 28.25 | 41.95 |
| 6 | 20.03 | 23.21 | 30.25 | 44.96 |
| 6.5 | 21.26 | 25.12 | 33.04 | 48.21 |
| 7.5 | 23.95 | 28.68 | 36.94 | 54.82 |

Φ: Seastate 2 is Light breeze, 4–6 knot wind, 1–2 ft wave height