

CROWLEY®



Name	IMO Number	Year Built
<i>Pacific Reliance/650-1</i>	9386548	2006
<i>Gulf Reliance/650-2</i>	9398474	2006
<i>Resolve/650-3</i>	9369382	2007
<i>Integrity/650-4</i>	9369394	2008
<i>Courage/650-5</i>	9369409	2008
<i>Commitment/650-6</i>	9369411	2009
<i>Pride/650-7</i>	9369423	2009
<i>Achievement/650-8</i>	9542568	2010
<i>Innovation/650-9</i>	9542594	2010
<i>Vision/650-10</i>	9542609	2010

650 CLASS ARTICULATED TUG BARGE FLEET (ATB)

This is the largest Crowley class of ATBs, with 10 vessels in operation. This class features improved vessel cargo systems for maximum flexibility and cargo integrity. Though larger than the 550 class of ATBs, these vessels safely maintain 12 knots and can handle extreme weather. These ATBs were also designed for easy modification to allow transport of EZ chemicals such as cyclohexane, paraxylene and styrene.

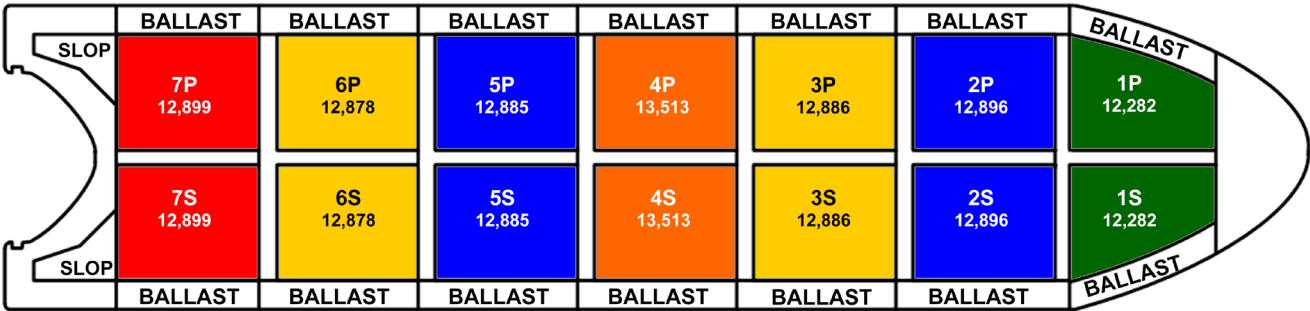
650 Class Design Highlights:

- 181,640 barrels at 96% capacity
- Twin-screw Intercon notch connection
- 10,500-HP tug
- 1,508-1,799-HP per engine barge
- Designed to carry clean petroleum products, heated cargoes and EZ chemicals
- Barge built under the ABS SafeHull program
- Meets full SOLAS criteria for enhanced crew safety
- Redundant steering system with oversized rudders for maximum handling capability
- Transfer rates of up to 20,000 barrels per hour
- Cargo pump in each of the 14 cargo tanks to assure maximum cargo integrity and segregation flexibility
- Remote radar gauging in all cargo and ballast tanks
- Remote operated ballast system to enable vessel to exchange ballast at sea
- Dual-mode inert gas vapor collection system, with a layer of inert gas covering the product in the tank making the tank atmosphere too lean for combustion
- Enhanced mooring system featuring 1,000 feet of Spectra-type lines on split drums with a high-speed recovery rate of 100 feet per minute
- Two anchor windlasses each equipped with 10 shots of chain for offshore mooring operation
- Barge meets OCIMF and ISCOTT requirements
- Vacuum system with three retention tanks to easily handle cargo changes
- Advanced foam firefighting system, fire monitor mounted on tug, fixed Co2 for all machinery spaces and foam coverage system for cargo manifold area

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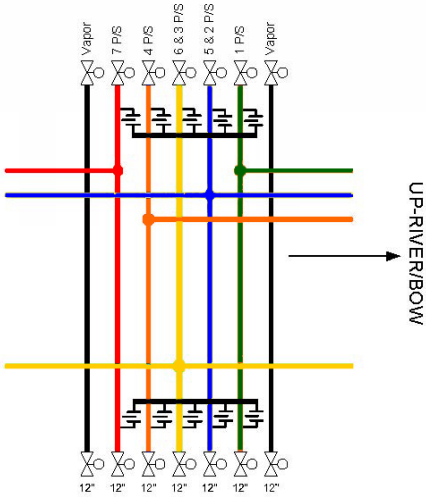
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Cargo Systems at 96% Capacity

3P/S & 6P/S	51,528 bbls
2P/S & 5P/S	51,562 bbls
4P/S	27,026 bbls
7P/S	25,789 bbls
1P/S	24,564 bbls

*Quantities are approximate based on gross bbls capacities



GENERAL SPECIFICATIONS

FLAG
United States

BUILDER
Halter Marine

OVERALL DIMENSIONS
LOA Coupled: 675'9" (650-1&/650-2)
683'9" (650-3 through 650-5)
689' (650-6 through 650-10)
Breadth: 74'
Depth: 40'
Design Draft: 30'4"
DWT: 27,023 LT
Tonnage (tug): 1,043

TANK CAPACITY
Cargo @96%: 181,640 bbls
MGO: 100 per 15 gallons/tank

CARGO EQUIPMENT
Tanks: 14
Segregations: 5
Pumps: 5 Flowserve 4 Stage Deepwell

Capacity: 427 M3/HR (650-1/650-2)
426 M3/HR (650-3 through 650-10)
Crane: 2: 10 ton

MACHINERY
Main Engine: 2:CAT 3512 (650-1 though 650-6)
2:2 CUMMINS QSK50-DM (650-7 through 650-10)
Emissions Standard: Tier I
HP (per engine): 1,508 (650-1 through 650-6)
1,799 (650-7 through 650-10)
Propeller: Fixed Pitch (650-1 through 650-5)
Controllable Pitch (650-6 through 650-10)
Generators: 2
Ballast System: 2 Deepwell Pump-7,142 bbls/hr
Cleaning System: ScanJet SC-30T 20.4m³/hr@8bar
(650-2/650-6/650-7/650-9/650-10 only)
others N/A
Heating System: Vapor Power ONC-5937-AHK-100
Lightering Pin: 50" Bore Intercontinental Engineering Pin
Nitrogen IG System: Air Products 1500m³/hr N2 flow rate at 3PSI (650-3 and 650-4)

*All information contained herein (including but not limited to any specifications, particulars, capacities, or capabilities) is believed to be correct, but is not guaranteed and is subject to change without notice. Particulars are entirely without warranty as to their correctness and interested parties must inspect the vessel, its certificates and drawings accordingly.

9487 Regency Square Blvd • Jacksonville, FL 32225 • O: +1•904•727•2200

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