Marcon International, Inc.

Vessels and Barges for Sale or Charter Worldwide

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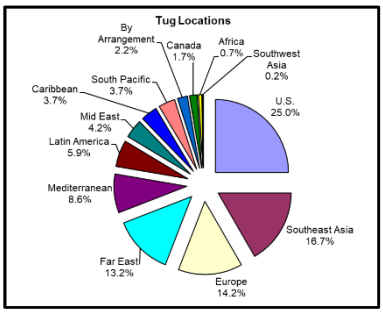
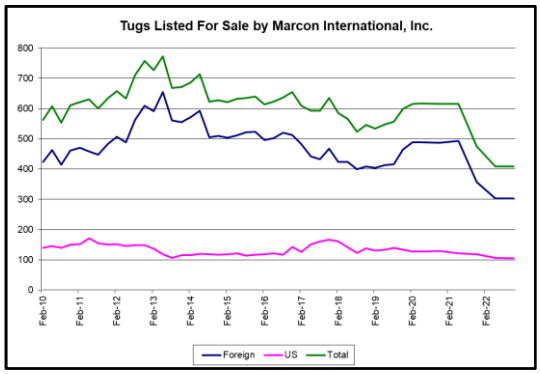
Tug Market Report

Of the 13,426 vessels and 3,742 barges that Marcon tracked as of November 2022, 5,199 are tugs with 408 officially on the market for sale worldwide, down 67 or 14.11% from one year ago, November 2021, and down 227 or 35.75% from November 2017. 98.10% of U.S. and 43.23% of foreign tugboats for sale are direct from Owners. 76 or 18.63% of the tugs worldwide, primarily foreign flagged, were built within the last 10 years, are newbuilding re-sales or currently under construction – compared to 23.37% one year ago and 32.44% five years ago. 71 (17.40%) are over 50 years of age, with six of those over 75 years old. Eleven have no age listed. The oldest tug Marcon currently has listed is a 1940 built 122' LOA, 1,950BHP single screw tug located on the U.S. Great Lakes. This *"old lady"* is balanced by a 460BHP 47.6' LOA twin screw tug newbuild resale for delivery to Southeast Asia in 2022.

Market Overview

The majority of tugs Marcon tracks for sale as of this report are in the US with 102 tugs officially on the market (vs. 117 one year ago), followed by 68 in Southeast Asia (80), 58 in Europe (54), 54 in the Far East (58), 35 in the Mediterranean (58), 24 in Latin America (33), 17 in the Mid East (31), Caribbean and South Pacific with 15 each (9 and 15, respectively), 9 where location unstated (10), 7 in Canada (6), 3 in Africa (4) and 1 in Southwest Asia (0). Where machinery is known, CAT diesels power 108 or 27% of the tugs listed for sale. This is followed by 58 vessels with EMDs, 46 Niigata, 43 Cummins, 36 Yanmar, 11 Mitsubishi and 10 with Deutz. 90 tugs are powered by other machinery from Akasaka to Wartsila with one Fairbanks Morse tug on the market.





Five years ago, 32.44% of tugs for sale worldwide, primarily foreign flag, were built within the previous 10 years compared to 18.63% today. Then 11.81% of the tugs on the market were 50+ years old compared to 17.40% today. At that time, Marcon had five tugs older than 75 years compared to six today. The average age of all tugs that Marcon has for sale worldwide today is 29 years, with 1993 average build date, compared to 26 years, 1991 average built, in November 2017. The U.S. had the largest selection of tugs listed in 2017 with 164 available (25.8%), followed by 126 in Southeast Asia (19.8%), 70 in Europe (11.0%), 61 in the Mid East (9.6%), Far East 53 (8.3%), Mediterranean 46 (7.2%), 33 in Latin America (5.2%), 20 in the South Pacific (3.1%), 18 Africa (2.8%), 17 Canada (2.4%), 15 in the Caribbean (2.4%), 10 where location is unknown (1.6%) and 2 in Southwest Asia (0.3%).

Looking at tugs for sale worldwide, conventional twin screw tugs lead with 256 (62.7%) available, followed by 96 azimuthing (23.5%), 37 single-screw (9.1%), 12 Voith Schneider tractors (2.9%) and 7 triple screw (1.7%). This is fairly comparable to five years ago when 14.3% of the 635 tugs for sale were single screw, 58.4% twin screw, 23.1% azimuthing, 3.5% VS tractor and 0.6% triple screw tugs. Bearing in mind that we are focusing on those available for sale, it seems that for the past five years, azimuthing and conventional twin screw tugs have maintained steady positions in the market. Single screw tugs are mostly relegated to nearly zero commercial work, except in certain specific cases. Available for sale units have dropped considerably with many of those being scrapped due to age and condition. It is noted that in November 2022, Sea-Web reported 2,182 tugs worldwide scuttled, broken up or to be broken up world-wide. This is up 4.05% from November 2021's 2,097. Scrapped vessels increased 34.60% between November 2020 and November 2021, after averaging 2% from 2018 to 2019 and then 2019 to 2020. With the decrease in rate of scrapping, it seems that many companies have finished a concentrated effort to scrap its excess tonnage during the worst of the economic fallout of the pandemic. In certain areas of the market, we have seen an increase in demand for tugs and barges, with there being a shortage of units with desired specifications.

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Marcon's database shows 227 fewer tugs officially for sale than five years ago in November 2017 with largest shifts in the lower horsepower categories. There are 60 fewer tugs are today listed in the 3-4,000HP range with average age increasing from 24 to 28 years. The 2-3,000HP range lost 56 tugs while their average age increased from 29 to 34 years. The 4-5,000HP range decreased by 42 tugs with average age rising from 19 to 21 years. 32 fewer tugs are listed in the 1-2,000HP range, with average age increasing from 29 to 34 years old. There are 24 fewer 5-6,000HP tugs with average age increasing from 16 to 23 years now. The under 1,000HP tugs category decreased by 10 with a ten year decrease in age to 35 years. There were minor changes in the higher horsepower ranges as far as number available for sale and average age. In summary, we saw a 35.75% drop in listings with a three year increase in overall average age.

Marcon has closed 18 sales and one charter to date in 2022 and we have several additional sales pending at year end and in the first quarter of 2023. These sales included five tugs including 3,000BHP and 3,900BHP twin screw ocean towing tugs; and 1,300BHP and 2,800BHP coastal / ocean twin screw tugs with Marcon acting as sole broker in each transaction. All of these tugs were active and working within the US Registry, and each vessel was certified with a USCG COI Sub "M" certification. The fifth tug sold was a small line handling tug in the Caribbean during the first few months of 2022. Marcon also concluded the sale of a 5,000BHP AHTS between US operators.

The US market for tugs has continued to tighten, and it's been nearly impossible to develop any Azimuthing style tugs in the USA. Owners appear to be keen on continuing to maintain their operating units, with upgrades for machinery as needed when Tier rating requirements are required or upgraded, such as with CARB - California Air Resource Board. This year the CARB has totally phased out Tier 1 tugs from operating in California waters, and at the end of 2023 Tier 2 rated machinery will also be phased out. Tier 3 will be required from January 2024 and is supposed to be good (if it isn't changed by CARB) until December 2027. In certain situations where Tier ratings are required on specific projects and Owner will seek out a Tier 2 rated tug (such as the Houston Ship Canal dredging), or when it's time to retire an older engine and improve fuel consumption. Owners must still often wait months to obtain machinery, even for overhauls and general repairs, due to continued supply chain disruptions, and this will continue into 2023.

Newbuilding costs continue to rise, and the largest component coming out of the US shipyards are Azimuthing ship assist / escort tugs. Shipyards are busy, however, as it doesn't look like the cost increases will reverse itself moving forward. Looking back: between 2000 and 2010 newbuild costs for tugs in the USA effectively doubled. By the end of 2020, that price had doubled again. As noted in an earlier report in 2022, newbuilding costs in US yards jumped some 50-60% between Nov. 2021 and June 2022, and delivery timing delays also continue as everyone must wait for the required parts and machinery to be delivered. Speaking with one Owner earlier in the month he had undertaken the rebuild of a pair of Z-drives. One gear was questionable, and it was decided to replace this one item as part of the rebuild. No problem, as long as you have six months to wait for delivery of this one part.

Recent Marcon Tug Sales & Charters

Marcon has sold five tugs totaling 11,085BHP to date in 2022, after selling or fixing tows for nine tugs totaling 45,690BHP in 2021. In 2020, we sold or chartered eight tugs totaling 32,250HP. Since our first sale in 1983, Marcon sold or chartered 383 tugs totaling 1,247,772BHP out of 1,545 sales and charters total.

Marcon is pleased to announce the sale of a U.S. flag 9,000 ton deadweight ocean deck barge on a private basis. Marcon acted as sole broker in the transaction.

In November, Marcon closed on the private and confidential sale of a twin screw tug.

In October, Marcon closed on a private and confidential short-term charter of a crew boat and on the private and confidential sales of a platform supply vessel and an inland deck barge.

In June, Marcon closed on two private and confidential sales, one of an ocean deck barge and the other of an offshore support vessel.

A U.S.-flagged 170’ x 30’ inland spud barge was sold on a private and confidential basis. The 270ST deadweight barge was rebuilt in 2017 with the new owners receiving a barge in like-new conditions. She is now working for her new Owners.

Featured Tugs Available for Sale in Descending BHP Order

File: TG65136 Tug - Twin Screw: 136.0' loa x 34.0' beam x 20.0' depth. Built in 1976 by Service Machine; Amelia, LA. Rebuilt: 1991. U.S. flag. GRT: 163. Class: ABS - Loadline. Laid-up. FO: 150,000g. FW: 12,000g. Winch: Intercon DD225/GM 6-71. Line Pull: 60T Brake. Stern Roller. Main Engines: 2 x EMD 16-645E5 total **5,700BHP**. Last Overhauled: Rebuilt 2003. 138" x 94" 4-blade SS props on 11.5" shafts. Propellers are inboard turning. Shaft brakes (38VC 1200 Split). Gensets: 2 - 99kW / John Deere 6068-75 280vAC. Quarters: 12 in 7 cabins. AirCon. Galley. Bow pud, *"D"* fendering. Double chine hull design. Keel coolers. Contact Marcon for further details, price guidance. **U.S. Northwest.**

File: TG57135 Tug - Twin Screw: 136.0' loa x 34.8' beam x 20.0' depth. Built in 1974 by Service Machine; Amelia, LA. Rebuilt: 1995. U.S. flag. GRT: 163. Class: ABS Loadline. USCG COI - Sub. M. FO: 150,000g. FW: 18,374g. Winch: Intercon. DD 225/GM6-71. Line Pull: 60T Brake. Main Engines: 2 x EMD 16-645E5 total **5,700BHP**. 2 - 138" x 90" FP props on 11.5" shafts. 40" CM 550 Clutches. Propellers are inboard turning. **Bollard Pull: 65T**. Gensets: 1-99kW / John Deere 6068-75, 1-99kW / John Deere 4045AFM85. Quarters: 12. AirCon. Galley. Raised foc'stle bow. Double chine hull design. Keel coolers. Hydraulic ISI 5 pin tow pins aft. Contact Marcon for further details, price guidance. **U.S. West Coast.**

File: TG57009 Tug - Twin Screw: 136.2' loa x 36.5' beam x 17.00' loaded draft. Built in 1978 by McDermott Shipyard; Amelia, LA. U.S. flag. GRT: 199. ABS +A1, Towing Unrestricted Service, +AMS. USCG COI Sub M. FO: 218,000g. FW: 15,800g. Winch: Markey TDSD-36 double drum. Wire: 2,200' x 2.25" & 2,800' x 2.125". Main Engines: 2 x EMD 16-645E7A total **5,750BHP**. 120" x 80-90" 5-blade props. Tier 2 MEs. Speed about 15kn free. Gensets: 2-99kW / John Deere 4.5L 2841F Tier 2 120/208vAC 3ph 60Hz. Quarters: 8. AirCon. Galley. Triple rudders. M/Es have an MDEC electronic upgrade to Tier 2. ITC - 563G / 168N. SOLAS Exempt. **U.S. Northwest.**

File: TG48137 Tug - Twin Screw: 136.6' loa x 40.0' beam x 20.2' depth. Built in 1982 by Main Iron Works Inc.; LA. U.S. flag. GRT: 161. Class: ABS + A1, Towing Service + AMS, Unrestricted Service exp. Feb 2022. FO: 173,250g. FW: 25,000g. BW: 83,060g. Crane: Nautilus 5T hyd. Winch: Markey TDS-36 double drum. Line Pull: 125T. Wire: 2,200' x 2.25". Main Engines: 2 x Alco 12-251E total **4,860BHP**. 126" x 122" 4-blade props on stainless shafts. Kort nozzles. Gensets: 2 - 150kW / GM8V71. Quarters: 13 bunks. AirCon. Galley. Raised foc'stle bow & **upper pilothouse** with 56' eye level. Secondary Almon Johnson tow winch with capacity for 1,800' 2.25" wire. Rescue boat. ITC Tonnage: 815G / 244N. **U.S. Gulf Coast.**

File: TG44164 Tug - Twin Screw: 163.8' loa x 41.3' beam x 18.9' depth x 15.75' loaded draft. Built in 2010 by Malaysian shipyard. Malaysia flag. GRT: 959. BV I +Hull, +Mach Tug, FiFi-1, Waterspray, AHT, Unrestricted. SS due 30 May 2025. Dwt: 700mt. 220m2 clear deck. FO: 500m3. FW: 242m3. DW: 65m3. BW: 65m3. Winch: 150mt brake AHT double drum waterfall. Line Pull: 80mt. Wire: 1,000m x 52mm. Stern Roller. Main Engines: 2 x Cummins QSK60-M total **4,400BHP**. 2 - 4-blade FP props. Kort nozzles. P/S Tailshaft Surveys due Jun 2020. 10kn service speed. Bowthruster 350HP. **Bollard Pull: 54.8mt**. Speed about 12kn max on 13mt/pd. Pumps: FO: 70m3/hr. FW: 70m3/hr. Fire: 1,200m3/hr. Gensets: 2 -265kW / Cummins QSM11-D(M), 1 - 150kW / Cummins 50Hz AC. FiFi 1. 1,200/300m3/h water/foam remote joystick monitors. Quarters: 42 berths in 12 cabins. AirCon. Galley. Handy-sized anchor handling tug. 120T SWL stern roller. 200T SWL Karm Fork & tow pins 2 - 10T tuggers and 2 - 5T capstans. Foam: 16m3. CO2 system: 6 - 45kg tanks. Dispersant: 19m3. Sewage treatment: 2.1m3/d. 6 person rigid rescue boat. Four Crowcon H2S sensors. **Southeast Asia.**

File: TG42102 Tug - Twin Screw: 106.5' loa x 33.5' beam x 17.0' depth x 12.00' light draft x 14.50' loaded draft. Built in 1981 by Edward Sanchez; Fall River, MA. U.S. flag. GRT: 197. Class: ABS + A1 Towing Service exp. May 2016. Docking Survey overdue July 2014. FO: 77,000g. FW: 6,898g. BW: 49,450g. Winch: Single drum. Wire: 2,400' x 2". Main Engines: 2 x Alco 12-251C total **3,800BHP**. Last Overhauled: 2002. 2 - 116" x 80" FP props on 10.75" shafts. 4,300HP @ 1,000RPM / Turbo charged. P/S Tailshaft Surveys due July 2016. **Bollard Pull: 52.3ST**. Gensets: 2 - 75kW / GM6-71. Galley. Reportedly a heavily built boat. Raised pilot house with 45' height of eye. Maximum air draft 64'. Port M/E blown. ITC - 361G / 108N. Laid up for several years. Sold to current Owner via Marcon. KEEN SELLER. Inviting all serious cash offers *"as is, where is"*. **U.S. Northwest.**

File: TG41001 Tug - Twin Screw: 121.0' loa x 34.0' beam x 19.2' depth x 15.00' light draft x 18.50' loaded draft. Built in 1971 by Halter Marine; New Orleans, LA. Rebuilt: 2003. U.S. flag. GRT: 196. Class: ABS + A1 Towing + AMS. Unrestricted. Special & Docking Surveys due Nov 2018. In Layup status. Dwt: 499T. FO: 110,400g. FW: 6,100g. BW: 20,700g. Winch: Skagit DTW double drum & capstan. Line Pull: 125T. Wire: 2,500' x 2". Stern Roller. Main Engines: 2 x Alco 12-251C total **4,100BHP**. Last Overhauled: 2004. 132" x 95" 4-blade props. Range at 11kn abt. 9,200nm. Bollard Pull: 63ST. Speed about 11-13kn free. Gensets: 2 - 150kW / GM 8V71 440vAC 60Hz. Quarters: 9 crew. AirCon. Galley. **Upper Pilot house** with 49' height of eye. Full package of certificates, photos, work history, details on repairs / upgrades and owner's brochures available. Reduced price. Available *"as is, where is"*. **U.S. Gulf Coast.**

File: TG40115 Tug - Twin Screw: 110.0' loa x 32.0' beam x 19.4' depth x 15.90' loaded draft. Built in 1972 by Quality Equipment; Houma, LA. Rebuilt: 2000. U.S. flag. GRT: 199. Class: ABS Loadline, Exp. Oct 2023; USCG COI Sub. "M" Exp. Oct 2024. Light Disp.: 695lt. FO: 80,000g. FW: 6,000g. Winch: Almon-Jonson V-4 Single Drum. Line Pull: 126,000 lb. Wire: 2,600' x 2.25". Main Engines: 2 x EMD 16-645E2 total **3,900BHP**. Last Overhauled: 2000. 2 - FP 96" x 110" props on 9.75" shafts. Kort nozzles. **Bollard Pull: 55ST**. Speed about 13kn. Gensets: 2-75kW / John Deere 4045T, 480vAC 60Hz. AirCon. Galley. Completed "life extension" program 10/2000 at Owner's shipyard. Hydraulic tow pins. Vessel is working steady and will have delayed delivery with time to be determined in late 2022. **U.S. West Coast.**

File: TG40022 Tug - Twin Screw: 109.0' loa x 31.0' beam x 14.0' depth. Built in 1975 by Halter Marine Services Inc. U.S. flag. GRT: 198. Class: ABS +A1 Towing Service, +AMS, SS due 11/2019. FO: 83,302g. FW: 5,086g. BW: 11,411g. Winch: Markey single drum. Wire: 2,000' x 2". Stern Roller. Main Engines: 2 x EMD 16-645E6 total **4,000BHP**. 100"x76" 4-blade props. Speed about 8.5-10kn on 80-95gph. Gensets: 2 - 99kW / GM6-71. 10 in 5 cabins. AirCon. Galley. **Upper pilothouse**. Molded *"D"* fendering system. Sold to present owner by Marcon. Not officially on the market, but may develop for sale. Tug laid-up since early 2020. Try offers. **U.S. Northeast.**

File: TG39139 Tug - Twin Screw: 139.0' loa x 34.0' beam x 17.2' depth x 10.60' light draft x 14.90' loaded draft. Built in 1976 by Burton Shipyard; Port Arthur, TX. Rebuilt: 2000. U.S. flag. GRT: 198. Class: ABS +A1 Towing Service exp. 30 May 2025. USCG COI - exp. 13 Sept 2024. Dwt: 636lt. FO: 129,600g. FW: 21,300g. BW: 122,400g. Winch: Intercon Double drum. Line Pull: 100T. Wire: 2 - 2,500' x 2". Main Engines: 2 x EMD 16-645E6 total **3,900BHP**. 2 - FP 115" x 90" 4-blade props. Bollard Pull: 50T. Speed about 10kn on 165gph. Gensets: 2 - 100kW. 14 in 6 rooms. AirCon. Aluminum **upper pilothouse**. 51' min/54.9' max height above water. 6' x 2' stern roller. Tow pins. Open wheels. **JAK system pins** still installed and could be made operational. May be developed for charter or sale, subject to prior commitments. **U.S. Northeast.**

File: TG36032 Tug - Azimuthing: 105.5' loa x 34.8' beam x 15.70' loaded draft. Built in 1983 by Carrrington Slipways Pty Ltd; Australia. Australia flag. GRT: 396. Class: LR+100A1, +LMC, UMS. SS due Dec. 2022. FO: 148m3. Winch: Norwich. Main Engines: 2 x Daihatsu 6DSM28 total **3,600BHP**. 2 - Niigata ZP-3B props. 10/22 ME - about 50,000 hrs. total. **Bollard Pull: 46mt**. Gensets: CAT. Firefighting: Class *"A"*. Foam - 14m3. **Australia. Prompt.**

File: TG36031 Tug - Azimuthing: 105.5' loa x 34.8' beam x 15.70' loaded draft. Built in 1984 by Tamar Steel Boats; Launceston, Australia. Australia flag. GRT: 427. Class: LR+100A1, +LMC, UMS. SS due June 2024. FO: 168m3. Winch: Norwinch. Main Engines: 2 x Daihatsu 6DSM28 total **3,600BHP**. 2 - Niigata ZP-38 props. 10/22 ME - about 79,000 hrs. total. **Bollard Pull: 46mt**. Gensets: Cummins. Firefighting: Class *"A"*. Foam - 16m3. **Australia. Prompt.**

File: TG36030 Tug - Azimuthing: 105.3' loa x 34.5' beam x 16.4' depth x 15.75' loaded draft. Built in 1983 by Carrington Slipways; Australia. Australia flag. GRT: 350. LR+100A1, +LMC, UMS SS due Mar 2023. FO: 186m3. Winch: TMS Engineering fwd. only. Main Engines: 2 x Niigata 6L228 BXE total **3,600BHP**. 2 - Niigata ZP-3B props. **Bollard Pull: 43mt**. Gensets: CAT. **Australia. Prompt.**

File: TG36026 Tug - Azimuthing: 105.6' loa x 34.8' beam x 15.75' loaded draft. Built in 1983 by Tamar Shipbuilding Pty Ltd; Australia. Papua New Guinea flag. GRT: 427. Class: DNV-GL + 1A1 Tug E0. Special Survey due 31 May 2023. Winch: Norwinch fwd & aft. Main Engines: 2 x Daihatsu 6DSM-28 total **3,600BHP**. 2 - Niigata ZP-38 props. **Bollard Pull: 46mt**. Gensets: Cummins. **Australia. Prompt.**

File: TG32025 Tug - Twin Screw: 105.0' loa x 29.5' beam x 15.6' depth x 12.30' loaded draft. Built in 1989 by Astilleros Unidos de Mazatlan SA; Mexico. Panama flag. GRT: 330. Class: Ex DNV (exp 2017). Drydocked Fall 2022. New Class pending. Dwt: 221T. FO: 162.8m32. FW: 37.3m3. Winch: Tow hook. Main Engines: 2 x Deutz SBV6M628 total **3,200BHP**. 2 - Kaplan props. Kort nozzles. **Bollard Pull: 38T**. Gensets: 2 - 110kW / CAT 3304. Optional - Owner has a tow winch that is compatible with the tug, but not currently installed. Tug is reportedly in very good condition and turnkey. **Caribbean.**

File: TG30051 Tug - Twin Screw: 95.9' loa x 28.0' beam x 13.7' depth x 10.50' loaded draft. Built in 1971 by Southern Shipbuilding. Panama flag. GRT: 303. Class: Last Drydocking Fall 2021. Winch: 2 Markey Capstans. Main Engines: 2 x GM 12-645-E2 total **3,000BHP**. 2 - FP props. Speed about 12kn. Gensets: 2 - 60kW. **Central America.**

File: TG24161 Tug - Twin Screw: 100.0' loa x 27.1' beam x 12.0' depth. Built in 1968 by Main Iron Works, Houma, LA. U.S. flag. GRT: 149. FO: 32,000g. FW: 5,000g. Winch: 2 - Patterson barge winches. Wire: 100' x 1-1/8". Main Engines: 2 x CAT 3512 total **2,400BHP**. 88" x 66" 4-blade stainless props. M/Es rebuilt 2008 starboard and 2010 port. Gensets: 1 - 75kW / GM4-71 (port); 1 - 55kW / GM4-71 (stbd). 4 cabins. AirCon. Galley. 24' height of eye. Vertical capstan aft. **U.S. East Coast.**

File: TG22108 Tug - Twin Screw: 80.0' loa x 26.2' beam x 14.2' depth x 9.85' loaded draft. Built in 1982 by Astilleros Cartagena. Panama flag. GRT: 291. Ex LR. Last DD Oct 2021. Dwt: 192mt. 56m2 clear deck. Main Engines: 2 x CAT D399 total **2,400BHP**. 2 - FP props. Refurbished engine 2014. **Bollard Pull: 25.5mt**. Speed about 8-10kn. Gensets: 2 - 35kVA / Stamford C245B 220vAC 60Hz driven by GM4L-71. FiFi 3,000gpm. Coastal / Harbor / Firefighting tug. Completed dry-docking in October 2021. Sold to current Owner by Marcon. **South America West Coast.**

File: TG18110 Tug - Twin Screw: 88.1' loa x 24.0' beam x 11.8' depth x 10.50' loaded draft. Built in 1948 by Alexander Shipyards / Astivik S.A. Rebuilt: 2009. Colombia flag. GRT: 186. Class: 40, 2-B-01, G, Seagoing, National Load Line. FO: 21,288g. FW: 10,000g. Stern Roller. Main Engines: 2 x GM 16V149TI total **2,000BHP**. 2 - FP props. Keel Coolers. Originally powered by twin GM8-268As 925HP each. Gensets: 2 - 75kW / GM 671. Quarters: 4. AirCon. Rebuilt at owner's shipyard. Welding machine. Main engines were repaired at the end of 2015. **Caribbean.**

File: TG18058 Tug - Triple Screw: 92.0' loa x 36.0' beam x 8.5' depth x 3.80' light draft x 5.80' loaded draft. Built in 2010 by Fred Wahl Shipyard; Oregon. U.S. flag. GRT: 165. Class: ABS Loadline. USCG Sub M. FO: 23,000g. FW: 2,000g. BW: 25,000g. Crane: Palfinger PL12000 MB. Winch: Markey TES-22 Single Drum; 2 - 45T Nabrico Face Winches. Wire: 1,500' x 1.375". Main Engines: 3 x CAT C18 total **1,800BHP**. 3 - 50" x 34" FP props. Tier 2 / Acert. Bollard Pull: 33,000lb. Gensets: 2 - 99kW / CAT C4.4; 1 - 30kW / CAT C2.2. 10 bunks / 3 heads. AirCon. Galley. Shallow draft arctic tug with ABS Ocean Loadline. Push knees forward. Tunneled stern for propellers. Steel hull, aluminum house. King River Class. Water maker. Tier II main engines and generators. Fuel centrifuge. MSD for up to 12 persons. Markey electric bow winch with 2" plasma line. Markey TES-22 electric towing winch with galvanized 1,500' x 1.375" wire. 12,000 lbs. Palfinger deck crane. 2 Nabrico 45 ton make-up winches. Sat phone. Flir camera. Engine Hours August 2020: Port gen 12,263; Stb gen 13,149; Hotel gen 3,420; Port main 12,850; Center main 12,331; Stb main 12,349. Sold to current Owner via Marcon. May be developed for sale. Recently drydocked and complete Sub M certification. Further details and price guidance on request. **U.S. Northwest. Prompt.**

File: TG17094 Tug - Twin Screw: 98.0' loa x 27.6' beam x 10.6' depth. Built in 1965 by Barker Barge; Lockport, LA. U.S. flag. GRT: 127. Class: USCG COI Sub Ch. M Exp Aug 2023. FO: 51,400g. FW: 10,000g. Crane: 10,000lb. Winch: Markey TYS-32D single drum + 2 Beebe aft. Wire: 1,800' x 1.75". Main Engines: 2 x CAT D398B total **1,700BHP**. 2-FP 98" x 62" stainless steel props on 9" shafts. Abt. 11,027h on M/Es since last full overhaul. Gensets: 2 - 60kW / GM6-71. Quarters: 7 berths. AirCon. Galley. Available for short or Long term lease, either Time or BBC, or will consider outright sale. Sub Chapter M Compliant. Working. **U.S. Northwest.**

File: TG13001 Tug - Twin Screw: 53.2' loa x 20.1' beam x 5.9' depth. Built in 1949 by Foss Launch & Tug Co. Rebuilt: 1996. U.S. flag. GRT: 45. Class: None. FO: 3,900g. FW: 300g. Winch: Single Drum. Main Engines: 2 x CAT 3412 total **1,340BHP**. 2 - FP props on 5" shafts. **Bollard Pull: 33,550lb**. Gensets: 1 - 20kW / Northern Lights, 1 - 7.5kW / Onan. All welded steel construction. MSD system (Ahead Model AT-16D). Extensively rebuilt at Marco Shipyard, Seattle, WA in 1996. **U.S. Northwest.**

File: TG08065 Tug - Twin Screw: 65.0' loa x 23.0' beam x 5.0' depth x 6.00' light draft x 8.00' loaded draft. Built in 1969. U.S. flag. GRT: 85. USCG COI Sub M; exp. Feb 2026. 12' x 18' clear deck. FO: 16,500g. Winch: 1 - 6T. Main Engines: 2 x CAT D353 total **1,200BHP**. 2 - 62" 4-blade props on 5" shafts. Endurance: 20 days or 3,000 miles. Speed about 10kn. Gensets: 1 - 10kW / Miller; 1 - 5kW / Farymann. **U.S. Gulf Coast.**

Worldwide Number of Tugs

While information in ***IHS Fairplay Sea-web*** only covers *"sea-going"* vessels over 100GRT, there are many tugs either under that tonnage or in inland service. According to Sea-web, as of 14 November 2022, there were 20,998 *"sea-going"* tugs over 100GRT worldwide, up from 20,543 (2.21%) and 18,811 (11.63%) in November 2021 and 2017, respectively. Total horsepower is 57,387,304BHP, up 1,689,378BHP (3.03%) over the past year. Even considering flags of convenience, the largest national fleet of tugs over 100GRT continues to be under Indonesian flag with 5,479 tugs totaling 9,914,664BHP. The U.S., as the second largest national fleet of tugs, operates 1,483 *"sea-going"* tugs over 100GRT, or 7.06% of the world market, totaling 5,579,183BHP (9.72% global BHP). Average age of tugs worldwide is 23.1 years (built 2000) with the U.S. flag *"sea-going"* fleet at 35.1 years (built 1988). The *"Unknown"* flag group is 11.02% of the world market, comprised of 2,313 tugs totaling 4,417,555BHP or average 1,910BHP each with an average age of 35.6 years. This large *"Unknown"* group indicates to us that older, lower horsepower tugs may be falling off the radar. Five years ago, average age of the worldwide fleet was 21.1 years (built 1996). Average horsepower of the worldwide fleet over the past five years has held steady at approximately 2,700BHP.

Top 35 *"Sea-Going"* Tug Fleets by Units as Of November 2022 According to IHS Fairplay Sea-Web

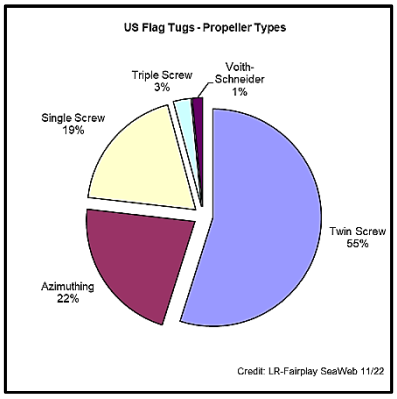
Flag	Total BHP	%	# Tugs	%	Avg BHP	Avg Age
Worldwide	**57,387,304**	**100.00%**	**20,998**	**100.00%**	**2,733**	**2000**
Indonesia	9,914,664	17.28%	5,479	26.09%	1,810	2010
Unknown	4,417,555	7.70%	2,313	11.02%	1,910	1987
United States Of America	**5,579,183**	**9.72%**	**1,483**	**7.06%**	**3,762**	**1988**
Japan	2,761,191	4.81%	745	3.55%	3,706	2007
Korea, South	1,873,804	3.27%	593	2.82%	3,160	1997
Russia	1,532,424	2.67%	575	2.74%	2,665	1995
Malaysia	1,236,380	2.15%	535	2.55%	2,311	2007
India	1,478,919	2.58%	501	2.39%	2,952	2002
Panama	1,349,864	2.35%	434	2.07%	3,110	1995
Singapore	1,185,364	2.07%	431	2.05%	2,750	2011
Turkey	1,244,568	2.17%	340	1.62%	3,660	2007
Philippines	688,067	1.20%	291	1.39%	2,364	1983
Brazil	1,163,951	2.03%	286	1.36%	4,070	2006
Italy	1,105,261	1.93%	284	1.35%	3,892	1996
Australia	1,178,363	2.05%	273	1.30%	4,316	2005
Iran	585,693	1.02%	251	1.20%	2,333	1993
China, People's Republic Of	772,391	1.35%	244	1.16%	3,166	1997
United Kingdom	857,047	1.49%	244	1.16%	3,512	1999
Canada	734,173	1.28%	242	1.15%	3,034	1983
St Vincent & The Grenadines	1,002,216	1.75%	241	1.15%	4,159	2011
Nigeria	565,595	0.99%	199	0.95%	2,842	1992
Egypt	667,842	1.16%	190	0.90%	3,515	1999
United Arab Emirates	572,509	1.00%	181	0.86%	3,163	2005
France	467,412	0.81%	171	0.81%	2,733	2009
Vietnam	449,416	0.78%	171	0.81%	2,628	2005
Spain	666,070	1.16%	168	0.80%	3,965	1999
Netherlands	568,261	0.99%	157	0.75%	3,619	2006
Mexico	641,822	1.12%	155	0.74%	4,141	1999
Ukraine	281,035	0.49%	140	0.67%	2,007	1986
Greece	317,520	0.55%	136	0.65%	2,335	1985
Venezuela	437,975	0.76%	134	0.64%	3,268	1996

Breakdown of U.S. *"Sea-Going"* Fleet

Following is a breakdown of the U.S. sea-going tug fleet over 100GRT as of November 2022, according to **IHS Fairplay Sea-web**. As of November 14, 2022, the U.S. domestic tug fleet consisted of 1,483 *"sea-going"* tugs totaling 5,579,183BHP. The U.S. flag fleet decreased by two or 0.13%, total horsepower increased by 11,678BHP or 0.21% and average age increased by seven months to 34.5 years, compared to one year ago. The U.S. fleet over 100GRT decreased by 59 or 3.83% but increased by 141,143BHP or 2.60% since November 2017. Average age increased by eight months from 34.4 to 35.1 years. The fleet data supports what we have witnessed in the market with older, lower horsepower units being scrapped and replaced with higher horsepower units. We continue to see units scrapped or offered for sale outside the U.S. due to post-merger fleet consolidations and the uneven economic conditions.

U.S. Sea-Going Tug Fleet Over 100GRT By BHP According to Lloyd's Register as of November 2022

	Unknown BHP	Under 999	1000-1999	2000-2999	3000-3999	4000-4999	5000-5999	6000-6999	7000-7999	8000-8999	9000 Plus	Total
Total #	100	39	208	195	279	272	139	136	41	14	60	1,483
Avg. BHP		798	1,513	2,365	3,413	4,351	5,365	6,452	7,213	8,225	11,331	
Avg. LOA	87	77	85	96	104	105	106	109	144	135	160	
Avg. Beam	28	23	26	29	32	35	36	39	40	42	49	
Avg. Depth	11	9	11	13	15	16	17	18	20	21	24	
Avg. Year Built	1976	1958	1969	1978	1983	1996	2003	2009	1988	2007	2010	1987



Of the 1,485 U.S. tugs in Sea-web, 160 have unknown engines. 502, or 34% where type is known, are powered by CATs, 444 (30%) by EMDs, 80 (5%) by General Motors / Detroit Diesels, Cummins 4%, Alcos and M.T.U.s (Rolls Royce) with 3% each, and Fairbanks Morse, GE Marine and Wartsila have 2% each of the market share. Five years ago, of 1,542 U.S. flag tugs, 499 or 38% were powered by EMDs, 426 (32%) by CATs and 106 (8%) by GM / DD. Comparing November 2022 against November 2017, EMDs lost eight percentage points, GM / DD lost three percentage points, CATs gained one percentage point and Alcos and Cummins lost one percentage point each. In the current fleet, 290 (19%) and 814 (55%) are conventional single and twin screw, respectively. 320 azimuthing (21%), 38 triple screw (3%) and 23 Voith tractor tugs (2%) make up the remaining 26%. Compared to November 2017, today there are 75 fewer single screw, 20 fewer twin screw and 37 more azimuthing tugs in the U.S. tug fleet where over 100GT.

Worldwide Articulated Push Tugs Fleet

According to **IHS Fairplay Sea-web**, as of 14 November 2022, there are 248 articulated push tugs above 100GT worldwide. 67.34% or 167 are U.S.-flagged with average 6,317BHP and average age of 24 years - with many older units being conversions of conventional tugs. The second largest fleet with 16 ATB tugs is attributed to *"unknown flag"*; followed by seven each flagged in Liberia and South Korea and six each in Canada and Indonesia. The remaining 81 are spread among 19 countries. The average age of non-U.S. flagged articulated push tugs is 33 years with average 4,449BHP. Of total tugs worldwide, ATB tugs make up 1.22%. However, in the U.S., articulated push tugs account for 11.34% of all tugs. Since November 2021, there one less ATB under foreign flag, but no change in those in the U.S. Average age in the U.S. increased from 23 to 24 years old, with outside the U.S., also increasing one year to 33 years old. The youngest ATB fleets sail under Liberian and Russian flags; Russia with a 2020-built, 3,400BHP ATB and Sierra Leone with seven average 2020-built ATBs. Mexico has the oldest ATB, a 1,775BHP 1968-built unit.

Sea-web Articulated Push Tugs Summary as of 14 November 2022

	Total BHP	%	# Tugs	%	Avg BHP	Avg Age	Age in Years
US	1,054,969	74.54%	167	67.34%	6,317	1999	24
Foreign	360,350	25.46%	81	32.66%	4,449	1990	33

Marcon is currently tracking 133 ATB tugs worldwide with nine currently for sale, ranging in age from four to 49 years old. Of these nine, seven are in the U.S. and one each are in Canada and Northern Europe. We continue to follow changes in ATB fleets outside the U.S. given the increased popularity of these units.

New Construction & Shipyard News

According to the **U.S. Coast Guard Merchant Vessels of the U.S.** database updated November 1, 2022, 63 towing vessels are listed with 2022 build dates. These range from 24' to 136' LOA, 950BHP to 7,125BHP (where BHP given) vessels. In 2021, 107 towing vessels were built or completed; following 128 built or completed in 2020, 113 in 2019 and 93 in 2018.

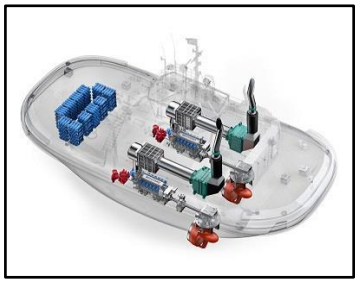
IHS Fairplay Sea-Web as of November 14, 2022 reports 858 towing vessels, all over 99GT, built or to be built in 2022 or later. The 858 towing vessels represent 3,079,452HP (average 3,589HP). 229 are on order for Indonesia, 97 for Turkey, 94 for St Vincent & The Grenadines, 52 for Singapore, 41 for France, Bangladesh 28, 22 each for Japan, Russia and *"unknown"*, 21 for Brazil and 20 for the U.S. The remaining 182 are being built for 53 other countries. Looking at average BHP for each country's newbuilds is interesting as France has the lowest with an average 556BHP compared to the U.S. with average 7,960BHP, which is surpassed only by Hong Kong and Vanuatu building seven tugs total with an average 8,300BHP.

In June 2022, **Robert Allan Ltd.** was pleased to announce that the twin screw tug *"Karya Pacific 2232"* was completed by **PT. Karya Teknik Utama** (KTU) and has wrapped up successful trials off Batam, Indonesia, just south of Singapore. The *"Karya Pacific 2232"* is a TRAder 2700 steel tug designed especially for PT. Karya Teknik Utama by Robert Allan Ltd. The drive is conventional shaft propulsion, with or without nozzles. The *"Karya Pacific 2232"* is fitted with open screws. The tug is designed for towing barges in the Indonesian archipelago where depth of water is sometimes limited. As the name implies, the first tug of this series will operate in the fleet of **PT. Karya Pacific Shipping**, a sister company of the shipyard. Three more are under construction, one more with open screws and two with nozzles. Key particulars of the *"Karya Pacific 2232"* are: LOA: 27.1m; Beam, ex fenders: 8.8m; Depth amidships: 4.0m; Draft (navigational): 3.0m; GRT: 245. The *"Karya Pacific 2232"* was designed to ABS rules with the following notation: American Bureau of Shipping, ✠ A1 Towing Vessel, □, ✠ AMS, Unrestricted Navigation. However, it was built under Biro Klasifikasi Indonesia (BKI) survey. Tank capacities of the *"Karya Pacific 2232"* are: Fuel oil: 78m3; Potable water: 51m3; Sewage tank: 11m3. Accommodations are outfitted for a crew of 12. An alternate MLC compliant arrangement is also available for a crew of 10. Main propulsion consists of a pair of Yanmar 6EY17w 6-cylindar in line diesel engines, each rated 837kW at 1,450RPM, and each driving a Yanmar YXH500L 4.96:1 reverse reduction gear. Shafts are 165mm stainless steel turning 2,000mm 4-bladed open propellers. Although engines and gears are hard mounted the tug is surprisingly smooth and quiet. The electrical plant consists of two Yanmar generators. On trials, the *"Karya Pacific 2232"* exceeded performance expectations with the following results: Bollard pull: 23.3mt; Free running speed, ahead: 12.3 knots. The spacious wheelhouse is ASD tug style with split consoles and excellent all-around visibility.

The electric tugboat *"Taiga"* is the result of a collaboration between **Tokyo Kisen Co., Ltd**. and **e5 Lab Inc**., a Japanese consortium with the purpose of planning and developing fully electric vessels. Constructed at the **Kanagawa Dockyard Co., Ltd**. at Kobe, the tug is due for delivery by end of December 2022, becoming the first vessel of its kind to operate in Japanese waters. It is equipped with ABB's Onboard DC Grid™, complete with a high battery capacity. Designed to enable zero-emission operations in harborside environments, the tug delivers superior performance while supporting Japan's ambition of achieving net-zero GHG emissions from international shipping by 2050. Tokyo Kisen's harbor tug will be used to maneuver other vessels by pushing or towing them with 2.5mW-hour battery systems supplied and integrated by ABB, reducing greenhouse gas emissions on a day-to-day basis, and acting as spinning reserve back-up power to prevent prolonged outages. The tug's future-proof configuration also enables it to achieve emission-free operations by integrating alternative energy sources as technologies mature. In addition to the energy storage solution, ABB supplies the tug with its award-winning power system platform Onboard DC Grid™, which enables simple, flexible, and functional integration of energy sources and loads. Leveraging Onboard DC Grid™, the tug's engines will be able to run at variable speeds for optimized energy economy at each load level. This helps cut fuel consumption, reducing the environmental impact as a result. The batteries will be able to provide power to the tug's propulsion system almost instantaneously, where ABB's Power and Energy Management System (PEMS™) will control the overall power distribution, increase fault tolerance and provide a high degree of reliability.

Marcon International, Inc.
Tug Boat Market Report – November 2022

It was announced in August 2022 that emissions around the Port of New Orleans will be reduced by the equivalent of roughly two tons over the next several months as **Crescent Towing** is replacing 20 old diesel-powered engines on 10 tugboats in their fleet. The air pollution reduction project is being completed in partnership with Environmental Initiative, a national nonprofit organization that has been cleaning up diesel vehicles since 2005. Tugboats *"Alabama"*, *"Angus R. Cooper"*, *"Ervin S. Cooper"*, *"G. Shelby Friedrichs"*, *"Louisiana"*, *"Margaret F. Cooper"*, *"Miriam W. Cooper"*, *"Mississippi"*, *"New Orleans"*, and *"Texas"* will be upgraded. The boats operate in Orleans Parish and provide ship escort, docking, and undocking from the mouth of the Mississippi River to Baton Rouge, Louisiana. Marine diesel engines can operate for several decades – and many older machines lack the environmental controls that are now standard in newer equipment. When tugboats operate, their engines emit pollutants that can cause heart and lung disease and a range of other negative health effects. Residents in Orleans Parish are exposed to a multitude of air pollution sources including interstate highways, activities related to the oil and gas industry, petrochemical production, and river-based industries, including diesel-powered freight. The Crescent Towing project builds upon the Port of New Orleans' $6 million investment in local air quality, that has reduced particulate emissions by 4.03 tons annually and nitrous oxide emissions by 76.1 tons annually. Environmental Initiative has been collaborating with fleets across several states to reduce emissions from school buses, construction equipment, tugboats, locomotives, and other diesel fleets. The project is being funded through U.S. Environmental Protection Agency – Region 6 Diesel Emission Reduction Act grant. Crescent Towing is also investing their own capital in the project as part of federal grant cost share agreements.



The first hydrogen-powered tug worldwide is equipped with **SCHOTTEL** propulsion systems. The vessel, which will be among the cleanest of the fleet of the **Port of Antwerp-Bruges**, has recently been launched by the Spanish shipyard **Astilleros Armon** and will enter operations at the Belgian port in early 2023. Jacques Vandermeiren, CEO at Port of Antwerp-Bruges: *"With the Hydrotug, the Port of Antwerp-Bruges is making an important step in the transition to a sustainable, CO2-neutral port. The port is systematically pursuing a policy of making its entire fleet eco-friendly by incorporating the most environmentfriendly technologies available on the market."* The main propulsion system of the tug consists of two SCHOTTEL RudderPropellers type SRP 460 (2,000kW each) featuring propeller diameters of 2.4 meters. With this thruster configuration, the 31-meter long and 12.5-meter wide vessel will achieve a bollard pull of about 65 metric tons. The SRP units are driven by combustion engines that burn hydrogen in combination with diesel. Combustion of hydrogen does not emit any CO2, and the particle filter combined with the catalyser will result in minimal emissions of NOx and particulates. Following its delivery, the tug will execute harbour operations in Port of Antwerp-Bruges. The Port of Antwerp-Bruges is one of the biggest ports in the world and the second-largest seaport in Europe, after Rotterdam. Thanks to its location, it offers direct access to the rest of Europe over roads and rail.

Bisso Towboat Co., Inc. is pleased to announce that it signed an agreement with **Main Iron Works, LLC**, Houma, LA to begin construction of a 5,000BHP ASD Tractor Tug. The tug will feature two Caterpillar 3516E Tier 4F main propulsion engines generating 2,500BHP each at 1,600RPM. The engines will drive two Kongsberg US205S Azimuthing Thrusters with 2,400mm diameter stainless steel propellers in stainless steel nozzles. Estimated Bollard Pull will be 66 tons. Auxiliary equipment will include a JonRie Series 240 Escort Winch, Caterpillar C4.4 118KW Generator sets and a full complement of safety, monitoring and electronic equipment. Tankage includes capacities for 30,162 gallons of diesel fuel, 1,442 gallons of lube oil, 1,442 gallons of hydraulic oil, 2,000 gallons of DEF and 9,538 gallons of potable water. The new tug will be the sixth ASD Tractor Tug constructed by Main Iron Works for Bisso in the past eight years and further enhance Bissos' position of operating the largest fleet of ASD Tractor Tugs serving the Mississippi River ship-assist trade, with ten ASD Tractor Tugs. Construction is scheduled to commence in late 2022 with delivery in early 2024. The picture shows the most recent delivery, *"Capt Joseph Bisso"*, from January 2022. This new tug will be similar hull/profile, but just a slightly different BHP, 5,000 vs 6,008.

Robert Allan Ltd. has been awarded a contract by **Rio Maguari Shipyard** (Estaleiro Rio Maguari – ERM), located in Belém, Brazil, to develop the design package for an innovative Articulated Tug and Barge (ATB) for shipping containers along the coast of Brazil. These two ATB convoys will be owned and operated by **Aliança Navegação e Logística** (ANL), a major logistics services provider in Latin America, and part of the Maersk Group. Robert Allan Ltd.'s engineering team was tasked with developing an ATB suitable for operations along the entire coast of Brazil, including the south where the worst environmental conditions along coastal Brazil are found. Design work started by engaging in-house experts with Computational Fluid Dynamics (CFD) and Motions Analysis experience to predict the vessel reactions to the expected conditions, which served as a foundation and guidance for our design processes. The same team performed extensive hull optimization studies in an effort to significantly reduce fuel consumption while providing excellent directional stability for the ATB convoys. Analysis was also performed using Robert Allan Ltd.'s Proteus DS dynamic analysis software package to check the pin loads at the ATB tug barge connecting pins and ensure that they were within allowable limits during extreme sea conditions. The TRAnsfer 3800 tug will measure 37.5m by 13.0m, by 6.2m depth, have a marine diesel fuel storage capacity of 360m³ and a freshwater capacity of 45m³. Propulsion machinery will include two Wärtsilä 6L32 main engines, each delivering 3,200kW at 750RPM, and powering Schottel SRP630FP Z-drives with 3.4m propellers. The ATB connecting pins are Intercon model 34C, rated to permit the tug to stay in the notch during all loading/offloading operations by allowing relative vertical movement of the tug and barge while still connected. The fully airconditioned and MLC compliant accommodations are designed to a very high standard for a crew of up to 14, with a spacious and bright mess/ lounge area, large cabins, and a fitness room. The tug is designed to American Bureau of Shipping (ABS) Class requirements and for compliance with Brazilian Flag Rules (NORMAM-01/DPC) with the following notation: ABS ✠ A1 Towing Vessel ATB, □ + AMS, ABCU, BP, UWILD, PMP-CBM (Coastal Service). Each barge will measure 130.0m by 28.0m, by 8.0m depth, and will be able to carry approximately 700 TEUs, including dangerous goods and reefer containers, distributed above and below deck. The barges will be fitted with a 500kW Schottel SST2 bow thruster, and generator sets capable of powering the anti-heeling system, bow thruster, and reefer containers. The barge is designed to American Bureau of Shipping (ABS) Class requirements and for compliance with Brazilian Flag Rules (NORMAM-01/DPC) with the following notation: ABS ✠ A1 □ Barge (Container Barge), ATB, UWILD, CSC, CLP-V, Brazil Domestic Service. After the construction of these vessels, ERM will have completed a total of 100 vessels designed by Robert Allan Ltd.

Robert Allan Ltd. is pleased to announce that *"Ghanim-1"*, *"Ghanim-2"*, *"Ghanim-3"* and *"Ghanim-4"*, four TRAktor 2700-Z tugs were successfully delivered for operations in Kuwait's **Shuwaikh Port**. The newly completed tractor tugs designed by Robert Allan Ltd. were constructed at **Grandweld Shipyard** in Dubai. The tugs were designed to perform multiple tasks including ship assist, escort, towing, fire fighting, oil pollution response and others. Key particulars of the TRAktor 2700-Z are: LOA (excluding fenders): 27.5m; Beam, moulded: 11.5m; Depth, moulded: 4.3m; Maximum draft (navigational): 5.75m; GRT: 346. Main tank capacities at 100% are: Fuel Oil: 94m3; Potable Water: 31m3; Recovered Oil: 60m3; Fire-Fighting Foam: 9m3; Dispersant: 8m3; Technical Fresh Water: 37m3. The new TRAktor 2700Z tugs are powered by two Caterpillar 3512C main engines, each rated 1,678kW, driving a Kongsberg US205S P20 Z-drive, delivering a bollard pull in excess of 50mt. The vessel has been designed to the high standards of outfitting for an operating crew of up to eight. All accommodation spaces including Master and Chief Engineer's single cabins and three double crew cabins along with the galley and mess are located above Main Deck. The tugs are outfitted for safe and efficient performance of ship handling, escort, and harbour towing. The deck machinery comprises of DMT hydraulic single drum escort towing winch and hydraulic anchor mooring windlass/winch at the bow. The escort towing winch is spooled with 600m of high-performance synthetic towline. In addition, a towing hook is provided on the Aft Deck. The tugs are equipped with a powerful FFS offship fire fighting system with two monitors that can deliver up to 2,400m3/hr of water or 300m3 of foam/water mix. The tugs are protected by a water spray system. Each tug is equipped with a dispersant system and has the capability of storing recovered oil in three onboard dedicated tanks. A large hold is arranged aft of the Engine Room with a shipping hatch and sufficient space to accommodate a workshop and the necessary portable equipment. A Toimil Marine fully foldable telescopic crane with a 10m outreach is fitted on the aft deck. The tugs were built to the following Bureau Veritas Notation: I ✠ HULL, ✠ MACH, Escort Tug, FiFi 1, Water Spray; Oil Recovery Ship, Second Line, •AUT-UMS; INWATERSURVEY.

Operator of the port of Pointe-à-Pitre, **Caraibes Remorquage** entrusted the construction of a second OST 30. to **Piriou**. Following the *"Pointe Tali"*, which was delivered in 2018, the *"Pointe Vigie 2"* arrived in Guadeloupe on 21 October under its own power, ending a voyage of almost 13,000nm from Vietnam, via Singapore, Ceylon, Suez, Malta, and a last stopover in Las Palmas (Canaries) before crossing the Atlantic. Built in Ho-Chi-Minh City by the group's Vietnamese subsidiary, this new 30.30m tug is both more powerful and better equipped than the first, with, in particular, an aft winch for towing at sea, a handling crane and ship firefighting equipment. With a bollard pull of 60mt, it is equipped with two azimuth thrusters, and integrated hydraulic clutches, powered by two diesel engines generating 1,902kW each. Principally designed for assisting container ships on stopovers in the port of Pointe-à-Pitre, the *"Pointe Vigie 2"* reinforces the Guadeloupe fleet and will also carry out missions in other ports in the archipelago attached to the *"Grand Port Maritime"* of Guadeloupe: Basse-Terre, MarieGalante, etc. The OST 30 is a versatile tug designed for towing and push-pull harbour assistance as well as for high sea towing operations. Featuring a 30.3m length, it can also provide assistance to vessels approaching access channels. It is equipped with two azimuth stern drive propellers and integrated slipping clutches. These propellers are driven by two high speed marine Diesel engines. On the bridge, the ergonomics of the unique control room allows the captain to perform all driving and manoeuvring tasks by himself thanks to a very good visibility both at horizontal and vertical over the working area and the environment. In order to answer Caraibes Remorquage specific operating conditions, this tug features: a pneumatic starter system in order to limit the number of batteries on board; gasoil and fresh water systems for ship supply; a 1/2 Fi-Fi equipment to perform firefighting; a rear winch and a towing hook for deep sea towing; fenders adapted to push low freeboard barges; and an indirect refrigeration system involving all the vessel equipment with box coolers adapted to tropical conditions and no seawater circulation. This tug is designed to carry out every three years careening with special antifouling and ICAF system. Accommodation is compliant with the latest ILO 2006 standards and special care was taken to sound insulation and air conditioning. Overall length 30.3m; Overall breadth: 10.4m; Depth at main deck: 4.45m; Max. draught: 5.0m; Bollard pull @ 100 % MCR: 60mt; Fuel oil capacity: 87m3; Fresh water capacity: 26m3; Speed: 12.5kn; Propulsion: two x 1,902kW: Crew: 6; Hull / superstructure: steel.

DMT Marine Equipment has signed a contract to deliver electric towing and anchor mooring winches, along with other deck fittings to fully equip two tugboats built by Louisiana-based **Conrad Shipyard**. The delivery of the equipment is scheduled for mid-2023. In the past five years since entering the U.S. market with the delivery of an electro-hydraulic winch for a great tug operator, DMT Marine Equipment has significantly increased its presence in the region. More than 20 projects were completed and over 120 pieces of equipment were produced and delivered to U.S. customers. High quality customized winches, electric and hydraulic control systems, and various deck fittings, all made by DMT, are mounted onboard several American vessels.

On 16 June 2022, it was announced the construction of a new 4,000HP tug for **PNE Marine Holdings, LLC**. The new tug is the sister ship to *"Polaris"*, which was delivered to **Polaris New Energy, LLC** earlier this year. *"**Master Boat Builders** is humbled by the vote of confidence from Polaris New Energy to request construction of a sister ship to Polaris, which was delivered earlier this year,"* said Garrett Rice, President of Master Boat Builders. *"We are incredibly excited to continue this relationship with such a well-respected company in the industry."* The sister ship to *"Polaris"* will be coupled with a barge currently under construction at **Fincantieri Bay Shipbuilding Company** and will form a Jones Act compliant articulated tug barge (ATB) to help fuel the cruise ship industry's new LNG-powered ships in Port Canaveral in Florida. The tug is expected to be delivered to PNE Marine Holdings, LLC in 2023.

Master Boat Builders, Inc. reports that it is to construct a fourth new tugboat for **Bay Houston Towing Co.** of Houston, Texas. Master Boat Builders is currently building three vessels of the same **Robert Allan Ltd.** ZTech design for Bay Houston and will soon begin construction on this fourth vessel in the series. The ABS-classed tugboat will have an overall length of 85', beam of 38.5', and produce a bollard pull of over 52mt. The vessel will feature two Caterpillar main engines (3512E), EPA Tier 4 certified and each producing 2,213HP., along with two Schottel Z-Drive thrusters (SRP 430FP), and a Markey Machinery Company bow winch (DEPCF-48).

Robert Allan Ltd. is pleased to announce that the RApport 2600 tug *"Hayden Grace"* was successfully delivered to **Bay-Houston Towing Co.** and started her commitments in Galveston, Texas in November. The newly completed RApport series tug was constructed at **Master Boat Builders Inc.** of Coden, Alabama. Three vessels of this type have been ordered by Bay Houston Towing. The RApport 2600 is the first in her series of vessels for Bay Houston Towing and takes some design cues from previously completed Z-Tech® tugs designed by Robert Allan Ltd. The design team and the client worked seamlessly addressing operational challenges the vessel would face. Main features of this latest RApport design include compact size and shallow draft allowing it to operate in more confined waterways than previous Z-Tech® vessels, as well as a special styled deckhouse. Particulars of *"Hayden Grace"* are: LOA: 85'; Beam, moulded: 38.5'; Depth, moulded: 16.6'; GT: ITC: < 400; US Regulatory: < 200. The tug was designed and constructed to comply with all applicable Rules and Regulations of: ABS ✠A1 Towing Service, ✠ AMS, and USCG Sub-Chapter M. Tank capacities are as follows: Fuel oil: ~35,000g; Potable water: 4,200g. Sea trial results showed *"Hayden Grace"* met all requirements to the design: Bollard pull, ahead: 52.5mt; Free running speed, ahead: 12.5 knots. The Master and Chief Engineer's cabin, along with the galley and mess, are located on the main deck, while two cabins for four crew members are located on the lower deck. The main propulsion for the tug comprises a pair of Caterpillar 3512E, EPA Tier 4 certified diesel engines, each rated 2,213BHP at 1,600RPM, and driving a Schottel SRP 430FP Z-drive unit with Ø2200 propeller. The electrical plant consists of two identical John Deere 4045AFM85 diesel gensets, each with a power output of 99ekW 480V, 3-Phase, 60Hz. Ship-handling fenders at the bow consist of one tier of 36" OD x 18" ID cylindrical fender at the main deck level; a 20" x 18" W-fender below the cylindrical fender and along the sheer lines of the main deck; and 18" OD x 9" ID cylindrical fendering at the stern.

Master Boat Builders, Inc. end of July announced that it has executed a contract to build a new tugboat in its Coden, Ala., yard for **Suderman & Young Towing Company** of Houston, Texas. Master Boat Builders currently has three tugs under construction of a different design for Suderman & Young. *"We at Master Boat Builders take pride in our work and are heartened by this vote of confidence from the team at Suderman & Young,"* said Garrett Rice, president of Master Boat Builders. *"Suderman & Young is one of the premiere tugboat operators in the United States and we are excited to continue partnering with them to provide another quality tugboat to serve the western Gulf Coast ports."* Naval architect and marine engineering firm, **Robert Allan Ltd.** designed the tugboat, which will meet United States Coast Guard Sub-M regulations and will be classed through the American Bureau of Shipping. The tugboat will have an overall length of 98.5', beam of 42.4', and produce a bollard pull of over 80mt. The vessel will feature two Caterpillar main engines (3516E), EPA Tier 4 certified and each producing 3,500HP, along with two Schottel Z-Drive thrusters (SRP 510FP), and a Markey Machinery Company bow winch (DEPSF-48-100).

Master Boat Builders, Inc. recently announced that it has executed a contract to build two new tugboats in its Coden, Ala., shipyard for **Moran Towing Corporation** based in New Canaan, Conn. The new tugs will be the first that Master Boat Builders will build for Moran Towing - one of the oldest and respected maritime operators in the United States. Moran Towing is known for expansive coast to coast operations, utilizing its versatile fleet to provide vessel towing, bulk marine transportation, LNG support operations, and environmental recovery services. *"We look forward to working with Master Boat on this project. Master Boat has a great reputation for delivering quality equipment on a consistent basis and we hope this new contract will lead to future opportunities for collaboration between the two companies,"* said Sean Perreault, Vice President, Engineering Services of Moran Towing. *"While we have an ongoing commitment to our traditional suppliers, our demand from customers has given us the opportunity to work with new partners that we hope will become long term relationships."* Naval architect and marine engineering firm, **Crowley Engineering Services** created the tugboat design, which will meet United States Coast Guard Sub-M regulations and will be classed through the American Bureau of Shipping. The new tugboats will have an overall length of 86', beam of 36', and produce a bollard pull of over 55mt. The vessel will feature two Caterpillar main engines (3512E), EPA Tier 4 certified and each producing 2,549HP, along with two Kongsberg thrusters (US 205S FP), and a Markey Machinery Company bow winch (DEPC-48). *"Moran is one of the most respected tugboat operators in the US and we are honored they have chosen us to build their next set of tugs,"* said Garrett Rice, President of Master Boat Builders.

Robert Allan Ltd. is pleased to announce that **Seabulk**'s newest Advanced Rotortug, *"Hermes"* has recently been delivered. *"Hermes"* joins sister ship *"Nike"*, delivered in 2021, in operation in Mobile, Alabama. Both vessels are to the ART 90-98 Advanced Rotortug design by Robert Allan Ltd., built by **Master Boat Builders Inc.** of Coden, Alabama. The Advanced Rotortugs® (ART) incorporate the patented triple Z-drive Rotortugs® concept, featuring omni-directional manoeuvrability, and the benefits of a fully redundant and precise propulsion machinery configuration. The Rotortug® concept offers increased redundancy for ship-handling, terminal support and escort towing, as well as enhanced crew safety. Seabulk now has five ARTs in their fleet which speaks to the operational benefits. Key particulars of the *"Hermes"* and *"Nike"* are: Length, overall: 98.5 ft; Beam, moulded: 43.5 ft; Depth, least moulded: 15.5 ft; Maximum draft (navigational): 19.5 ft; Gross Tonnage: 299 GRT; Bollard Pull 87.4 short tons. The *"Hermes"* is compliant with USCG Subchapter M and constructed to ABS rules and with the following notation: ✠A1, Towing Service, Escort Vessel, ✠AMS, UWILD. Tank capacities of the *"Hermes"* are: Fuel oil: 47,551 USG; Potable water: 5,109 USG; Foam: Portable ISO Tanks; Accommodations are outfitted to high, MLC compliant standards for a crew of up to 8 personnel. The Master and Chief Engineer cabins are located on the main deck with two double crew cabins located in the lower accommodations. Main propulsion comprises three of CAT 3512E main engines, each rated at 2,375HP at 1,800RPM, EPA Tier 4 certified and each driving a Schottel SRP 430 fixed pitch Z-drive. The electrical plant comprises two (2) identical Caterpillar C 7.1 diesel gen-sets each with a power output of 118ekW. On the foredeck is a Jonrie Intertech Series 240 hydraulically driven single drum winch carrying 600ft of 8" SAMSON Saturn 12 HMPE rope. The line pull is 25 tons at 100fpm and has a 300 ton brake. On the aft deck is a Jonrie Intertech Series 500 hydraulically driven double drum winch. It carries 650ft of 8" SAMSON Saturn 12 HMPE rope on the hawser drum with a line pull of 25 tons at 100fpm and a 300 ton brake. The towing drum has a capacity of 2,100ft of 2.25" steel wire with a line pull of 50 tons at 30fpm, a 150 ton brake and is fitted with a spooling gear. This allows ship handling over the bow or stern and towing over the stern. Fire fighting capacity is 3,000gpm with a single FFS pump and monitor driven off the port main engine PTO. Foam is carried in portable ISO tanks loaded on deck when required. The tug has extensive ship-handling fendering all around, consisting of a cylindrical and W-fender at the bow and stern and D-fender installed along the sides. On trials, the *"Hermes"* met performance expectations with the following results: Bollard pull: 87.4 short tons Free running speed, ahead: 12.5 knots.

The Azimuth Stern Drive (ASD) Tug 2811 *"TSM Odet"* was delivered to **Thomas Services Maritimes** (TSM) at their establishment in Sète at the French Mediterranean coast on 21 June 2022. The powerful vessel is built to the highest standards of safety, performance and comfort and equipped for both handling ships in harbours and sea towage. The Damen ASD Tug 2811 has 60mt of bollard pull. It is a highly manoeuvrable tug with ergonomic deck lay-out, allowing easy access to winches, bollards and fairleads. The 360 degrees rotating thrusters – propellers in nozzles - generate high towing power and provide ease of manoeuvring. Through slipping clutches these Kongsberg thrusters seamlessly work together with the powerful Caterpillar main engines. This results in economic and fuel efficient operations. *"TSM Odet"* was built at the **Damen Song Cam** yard in Vietnam and sailed on her own keel to Port of Sète, which took just over 50 days, consuming just over 3m³ of fuel per day. The rounded hull shape of the Damen ASD Tug 2811 is based on the successful ASD 2810 model and is considered as one of the most efficient hull forms for tugs. TSM will employ the new vessel in port operations, terminal operations and sea towage. *"TSM Odet"* is equipped with a high capacity aft winch to allow for open sea towing operations. The vessel is furthermore equipped with a state of the art digital Alarm, Monitoring & Control System (AMCS), which integrates data from all systems on board, connected by sensors and controls. This connectivity also allows for remote monitoring, enabling owners to optimise fleet performance and efficiency. Firefighting equipment (FiFi-1) was installed, as well as a deck crane. The vessel is equipped with a winterisation package that increases overall energy efficiency. The HVAC system uses excess heat from the engines. Damen double glazing safety glass increases comfort when heating or air conditioning is engaged. The unique Damen philosophy of standardisation of vessels allows for easy maintenance and rapid availability of equipment and components. TSM has already gained good experience with the Damen quality and service following the 2021 delivery of the two RSD 2513 tugs *"TSM Rouen"* and *"TSM Honfleur"*. TSM owns and operates 25 vessels and offers marine services to the offshore renewables industry, harbour and sea towage. The company was established in 1905 and has built an impressive maritime legacy. 175 staff work at TSM. It is based at the French port of Rouen, with subsidiaries in various French ports like Dieppe, Brest, Bordeaux and Sète.

Fairplay Towage Group, one of Europe's leading tugboat operators with over 100 tugs in operation, has placed an order with **Damen Shipyards Group** for two Damen RSD Tugs 2513. The vessels will be delivered in January 2023. The twin-fin Reverse Stern Drive (RSD) Tug 2513 is one of Damen's most capable and innovative harbour tugs with excellent seakeeping behaviour, superb manoeuvrability and outstanding towing characteristics, with a maximum of 80mt bollard pull. As one of Damen's Next Generation Tugs Series, the RSD tug 2513 also has a focus on offering increased safety, sustainability, reliability and efficiency. Fairplay's new tugs will be equipped with powerful render recovery winches with auto tensioning systems, as well as FiFi1-rated fire-fighting systems. Fairplay has also voluntarily opted for immediate IMO Tier 3 compliance by specifying Damen's Marine NOX reduction system with its advanced active emissions control system using SCR (selective catalytic reduction). The vessels were already in production at Damen's specialist tug building facility, Damen Song Cam Shipyard, Vietnam, when the order was placed, ensuring the rapid delivery. Other factors in Fairplay's decision to source their latest vessels from Damen included their design and quality and the Damen Triton digital platform for the optimisation of operational efficiency. The tugs are to be named *"Fairplay-90"* and *"Fairplay-91"*.

With a festive ceremony, **Damen Shipyards Group** delivered the *"Fairplay-37"* to **Fairplay Towage Polska** in Gdynia, Poland on October 13th. This Damen Shoalbuster 2711 ICE is set to play an important role in the development of the emerging offshore wind energy sector in the Polish sector of the Baltic Sea and beyond. Thanks to her Ice-class properties, the vessel can operate all year round in the Baltic. The shallow draft tug can perform towing operations in both shallow an in deep waters, it can assist with installation operations thanks to her line handling equipment and a deck crane. The 27.06m length vessel has a max beam of 11.55m and a working draft of 2.90m. She is propelled by twin Caterpillar 3512C engines, driving two propellers in nozzles and providing a bollard pull of 47mt. *"Fairplay-37"* is IMO Tier III certified, indicating that she produces minimal emission. Fairplay Towage Polska will be able to engage the vessel in sustainable operations, adding to the purpose of offshore wind park installations, to provide clean energy. This vessel to the standardized Damen Shoalbuster Design was built by Damen Shipyards Hardinxveld at SAFE shipyard in Gdansk. Damen engineers have provided detailed engineering to client demand and provided supervision during the construction at the yard. While the standard design was presented with the option to build the Shoalbuster 2711 to ice-class, this is the first vessel of this type to actually be constructed for operations in icy conditions. *"This vessel will be the first in our fleet of this power that is able to enter Baltic and North Sea ports with limited depths,"* says Offshore Wind project manager Arkadiusz Ryz from Fairplay Towage Polska. *"I am convinced that this Shoalbuster, meeting IMO Tier III emission requirements, will open up new markets for us. She has the potential to play an important role in developing our presence in the emerging offshore wind industry in Poland."* Building on the success of the first order ever placed by Fairplay Towage Polska in a new Damen vessel, the companies have meanwhile signed further newbuilding orders bolstering the Group's capacity. Those tugs of Damen's proven RSD2513 design will be delivered ex yard in Q1 2023.

Engaging her impressive 70 ton bollard pull, Azimuthing Stern Drive tug *"Fairplay-93"* will be performing towage services in **Port of Rotterdam** from the first months of 2023 onwards. **Fairplay Towage** has closed a lease contract with **Damen Marine Services**, who is able to deliver the vessel at very short notice following the contract signing on 27 October. The contract marks the third contract that Fairplay Towage concludes with Damen within the last 18 months, encompassing a total of four vessels. The 23 meter long vessel, with a 12 meter beam and 5.40 meter draught, is built to the Damen standardized ASD 2312 design. It was constructed at the Damen Song Cam Shipyard in Vietnam to be available for European delivery in the fourth quarter of this year. The possibility of very quick delivery of this ready-built tug enables rapid deployment in the Towage Group's operations. Two azimuthing stern drive propellers in nozzles each span a diameter of 2.8 meter. Power comes from two Caterpillar 3512TA engines, providing total of 5,102HP propulsion. Twin fins under the hull allow for side stepping as a special manoeuvre in narrow harbours. An exhaust gas after treatment system is installed to ensure the vessel's compliance with IMO tier III emission standards. The vessel has a FiFi-1 fire extinguishing system that can spray up to 1,400m3 of water per hour.

In a major milestone **Damen**'s first all-electric harbour tug, the RSD-E Tug 2513, was officially delivered to its new owner, **Ports of Auckland** (POAL). The revolutionary tug was named *"Sparky"* and also received her Māori name, *"Tiaki"*, in a special blessing ceremony held in Auckland on August 8. This powerful new tug, which has a 70mt bollard pull, is capable of manoeuvring even the largest vessels and can undertake two or more assignments before being recharged, which takes just two hours. With its pristine environment and unique ecosystem in the Pacific Ocean, New Zealand is renowned for its commitment to sustainable development. In 2016, Ports of Auckland adopted the goal of becoming a zero emissions port by 2040 and, in light of the impetus to tackle climate change, the port authority challenged Damen to develop a fully electric tug. Over the course of the next six years the two organisations worked closely to develop this pioneering, sustainable vessel type. Arnout Damen, Chief Executive Officer of Damen, commented: *"I'm very proud about the fact that we can use our expertise together with our client to develop new sustainable ways of keeping ports operational, while lowering the impact on the environment as much as possible. Ports of Auckland is aiming to become a zero emissions port by 2040 and its ambitions align with Damen's, as we continue our efforts to become the most sustainable shipbuilder in the world." "Ports of Auckland has taken a bold step in pioneering the use of fully electric harbour tugs and it is an honour to have worked with them on this project,"* added Pim Schuurman, Damen's Regional Sales Manager Asia Pacific. *"We hope that in the future we will be able to look back and see that Sparky marked the beginning of a significant shift from diesel to clean, zero emissions electric tugs."*

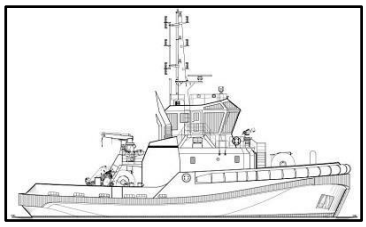
On 28 November, Arnout Damen of **Damen Shipyards**, Derrick York of **Caterpillar Inc** and Kees-Jan Mes of **Pon Power** signed a Memorandum of Understanding (MoU) for the joint development of a series of dual-fuel methanol / diesel powered tugs. This follows Damen's recent delivery of its first, all-electric RSD-E Tug 2513, *"Sparky"*, to Ports of Auckland, New Zealand, continuing its commitment to becoming the world's most sustainable shipbuilder. Damen's long-term strategy to achieve this includes offering a full range of sustainable tugboats featuring both zero emission electric and carbon neutral methanol powered vessels. The methanol ready CAT 3500E series dual-fuel pilot engines will be delivered to Damen by Pon Power in 2024 when the process of integration and testing will begin. This will be a complex undertaking involving integrating the engines with all aspects of the ship's control, monitoring, ventilation and other systems and will take place in close cooperation with the classification societies. The aim is to have methanol powered vessels to be series production-ready in 2026. Damen's strategy is to offer fully-electric models offering bollard pulls of 40, 60 and 80 metric tons respectively and methanol-fueled models with 60, 80 and 100 metric tons bollard pull. Electrically-powered tugs are ideal for zero emission operations in harbors and terminals where low cost electricity can be easily accessed between assignments via onshore infrastructure. With its greater energy density than batteries, methanol delivers increased energy storage capacity, making it suited for longer duration operations while remaining CO_2 neutral. All the vessels will be equipped with a standard Emission Reduction System developed and delivered by Damen Sustainable Solutions B.V. Joost Mathôt, Director of Products at Damen's Workboats division, said, *"We're delighted to be working with Caterpillar on this ground-breaking project. It is of mutual benefit to all the parties involved to begin operating the pilot engines as soon as possible, so that we can experience what it means to use methanol as a fuel in a maritime environment. We are very happy to be continuing our longstanding partnerships and are very confident that together we will be able to offer our end customers the sustainable solutions they are asking for, in the near future." "For Damen, the introduction of methanol-fueled propulsion systems is the logical next step in our drive towards low-emission propulsion right across our product range and an integral part of our drive to become the world's most sustainable shipbuilder." "Our collaboration with Damen Shipyards Group and Pon Power brings together immeasurable expertise that allows us to learn together and innovate to address the great challenge of the energy transition,"* added Brad Johnson, Vice President and General Manager Caterpillar Marine. *"This is an exciting technical challenge to tackle, but most importantly, it fosters our industry's goal to reach sustainable, low carbon operations."*

In a ceremony held on 22 August, Mr Kommer Damen, Chairman of the **Damen Shipyards Group** and Mr Bram Muller, CEO of **Muller Dordrecht**, signed a contract for the supply of a Damen ASD Tug 3212. Headquartered in Dordrecht in the Netherlands, Muller Dordrecht has a history of providing towage, emergency response and salvage, heavy transport and other services going back for over a century. Its decision to purchase an ASD Tug 3212 was based on both the vessel's versatility and capability, and Damen's ability to deliver it in a relatively short time. With 83mt of bollard pull, the 32m Damen ASD Tug 3212 has a well-earned reputation for being capable of operating effectively both in harbor and when undertaking offshore towage of large structures. Highly maneuverable and with excellent sea-keeping characteristics, the class also comes with a wide range of options to equip them for specific roles. Muller Dordrecht has opted for almost all of them, including the IMO Tier III after-treatment system for low NOx emissions, a large aft deck winch together with an open stern, hydraulic towline guide pins, a deck crane and a support boat. The

winterization package for operations in high latitudes has also been specified, which includes additional insulation, heated windows and GMDSS A3 rated communications. Despite the requirement to install all these additional features, Damen will be delivering the tug in just nine months. This is achievable due to Damen's long-established policy of building certain popular models in anticipation of future sales, based on market intelligence and industry feedback. With an ASD Tug 3212 already in build at Damen Song Cam Shipyard in Vietnam, Muller Dordrecht can take delivery of the vessel it needs on a timescale that satisfies its counterparties. On delivery, the new vessel will start work in the North Sea area, operating out of Rotterdam. There is a high level of offshore activity in the region, particularly in relation to renewable energy as well as O&G decommissioning. Day rates look to remain firm for premium workboats into the foreseeable future, not least because high-efficiency new vessels are in short supply and very much in demand. The relationship between Muller Dordrecht and Damen goes back almost fifty years and in the past Muller Dordrecht's fleet has included both Damen Pushy Cats and Multi Cats. However, this purchase represents the first new build contract in many years.

Harbour tugs *"Dóris"* and *"Tétis"* are successfully operating in the Portuguese Port of Leixões, near the city of Porto, following very short term delivery by **Damen Shipyards**. The vessels can perform a wide variety of towing, pushing and indirect towing operations that ideally suit the confined space inside the harbour. Both Reversed Stern Drive tugs are built to the standard Damen design RSD 2513. After Damen won the tender process from APDL (Administração dos Portos do Douro), the **Portuguese port authority of Douro and Leixões** late 2021, the shipyard group was able to deliver both swiftly. Both vessels arrived at the Port of Leixões 13th of June 2022 and are operational under Portuguese flag since July 21 this year. The vessels are equipped with the Damen exhaust aftertreatment system to comply to IMO Tier III emission standards, achieving dramatic reduction of NOx emissions. As the Port of Leixões is situated nearby urban areas, this is an important feature and a clear goal for APDL. As a special feature agreed for this project, the emissions during the first years of operations will be monitored as well the operational profile. Analysis of the tug's operations will provide insight in the possibility of the employment of full electric tugs, that APDL may consider. Clean but mighty, the RSD 2513 vessels have a 70mt bollard pull. The design features Damen's revolutionary Twin Fin skeg to enhance directional stability and to provide a higher indirect towing force. This makes the vessel ideal for confined harbour spaces. Renowned for its versatility and manoeuvrability, the RSD Tug 2513 can perform bow to bow towing, as a tractor or escort tug. Vessels are also equipped with FIFI 1 notation, thus providing an additional safety feature for port operations. Notable safety characteristics include the special safety glass at the wheelhouse, whereas crew comfort is enhanced thanks to reduced noise and vibration levels. The RSD Tug 2513 vessels are equipped with 'Damen Triton', a digitalised remote monitoring platform that collects data from sensors throughout the vessel, helping the operator to maximise operational insight and to improve effectivity, efficiency and utilization. By using Triton monitoring and Triton Fuel reports, APDL is able to see where they can save fuel, reduce emissions and optimize operations. Because Triton is able to run various data driven applications, independent of supplier, APDL is ready to use Triton as a state of the art digital platform to support the operation of these vessels. Mr. Nuno Araújo, President of the Board of Directors of APDL, comments: *"The acquisition of these state-of-the-art tugboats fulfils the purpose of APDL, to decarbonise the port activity, reducing emissions of the port of Leixões operations."* The Damen RSD Tug 2513 is available with hybrid or full electric propulsion. The first fully electric RSD-E Tug 2513 has recently been awarded *"Tug of the Year"* at the ITS conference.

Chinese shipyard, **Jiangsu Zhenjiang**, has made a number of deliveries of tugs over the past six months. Following are a sampling. On 27th June, 2022, a 3,676kW ASD tugboat *(pictured top left)* with FiFi built for a domestic shipowner was delivered. The vessel has length of 39.63m, breadth of 10.4m, moulded depth of 4.7m, ahead pull of 62.3mt, astern pull of 57.4mt, range of 700 nm and speed of 13.7kn. On 25th of July, a 6,000HP ASD Tugboat, named *"Shan Gang Tuo 1" (pictured top right)*, was delivered. The vessel measured 37.6m x 11.0m x 5.0m; ahead pull of 76.3mt, astern pull of 68.7mt, range of 1,000nm and speed of 13.6kn. On 2 August, a 5,360kW ASD tugboat built for **Jiangsu Zhitai** and named *"Zhi Tai Tuo 2" (pictured second left)* was delivered. The vessel has LOA of 38.5m, breadth of 11.4m, depth of 5.3m, bollard pull: 85mt ahead and 76mt astern; endurance of 1,000nm and speed of 13.5kn. On 19th August, 4,710kW ASD tugboat named *"Su Gang Tuo 6" (pictured second right)* and built for **Jiangsu Sugang Shipping** for inland river use was delivered. The vessel has length of 37.5m, breadth of 11m, BP ahead of 81mt, BP astern of 72.8mt, endurance of 700nm, speed of 13.8kn and equipped with FiFi I. On 25th of Aug., two ASD tugboats with FiFi1, *"Yonggang Xiaotuo No.11"* and *"Yonggang Xiaotuo No.12" (pictured third left)* were delivered, built for **Ningbo Oil Handling & Tug (Barge) Co., Ltd.** *"Yonggang Xiaotuo No.11"*: Rated Power: 2,942kW, measures 37.6m x 10.4m x 4.5m, Forward Towing Force: 51.8mt, Backward Towing Force: 45.4mt, Speed: 12.65kn, Endurance ability: 1,200nm, External Firefighting FiFi-1. *"Yonggang Xiaotuo No.12"*: Rated Power: 2,646kW, measures 37.6m x 10.4m x 4.5m, Forward Towing Force: 42.87mt, Backward Towing Force: 39.8mt, Speed: 12.7kn, Endurance ability: 1,200nm, External Firefighting FiFi-1. On 16th Sep, two ASD tugboats built for **Guangxi Beibuwan** named *"Xin Bei Bu Wan Gang 19"* and *"Xin Bei Bu Wan Gang 21"* and one ASD tugboat built for **Beibuwan Port** named *"Bei Bu Wan Tuo 12" (pictured third right)* were delivered. The *"Xin Bei Bu Wan Gang 19"* measures 38m x 10.4m x 4.6m; has ahead pull of 51.2mt, astern pull of 46.5mt, endurance of 1,200nm and speed of 13.15kn. The *"Xin Bei Bu Wan Gang 21"* measures 39.4m x 11.0m x 5.1m, power of 5,120kW, ahead pull of 89mt, astern pull of 80mt, endurance of 1,200nm and speed of 13.5kn. The *"Bei Bu Wan Gang 12"* measures 38m x 10.4m x 4.6m, power of 2,942kW, ahead pull of 51.2mt, astern pull of 46.4mt, endurance of 1,200nm and speed of 13.15kn. On 14 October, one 2 x 2,206kW ASD tugboat built for **Liaoning**, *"Bao Hang 10" (pictured fourth left)* was delivered. The vessel measures 38.2m x 10.8m x 5.15m, has ahead pull of 71.6mt, astern pull of 66.6mt, endurance of 700nm and speed of 13.5kn. On 9th Nov, a 4,020kW ASD tugboat built for **Hainan Hongzhou** named *"Hua Hai Tuo 8" (pictured bottom right)* was delivered. The vessel measures 38.75m x 10.6m x 4.8m, ahead pull of 64.1mt, astern pull of 56.9mt, endurance of ≥900nm and speed of 13.8kn. On 8th Dec, self-designed by the shipyard and built for **Qingdao Port, China**, the first ASD tugboat with Hybrid propulsion and Smart notation, *"Qing Gang Tuo 1" (pictured bottom right)*, was delivered. The vessel is designed by diesel and electric propulsion modes. Li-battery and generators are mixed as hybrid power. Li-battery group can be charged fully around 2.5hr through shore power system and be charged by diesel engine abundant power. During free sailing and operation, three modes can be exchanged freely in pureelectric, diesel engine and hybrid propulsion. In battery mode, it can achieve zero fuel consumption and emission. Through calculation, 227mt fuel oil can be saved per vessel one year, equal to over 1.5 million RMB, reducing CO2 emission of over 700mt. The vessel is registered in CCS with notation of AUT-0, Hybrid, i-Ship (N, M, E, I) and its additional marking. 12,568 sensors are installed on board, among them, 4,216 data and six sets of AI modeling system and more personalized demand smart devices shown in intelligent system. The ship intelligence system can analyze the signals of Marine communication equipment in real time and evaluate the collision risk (CRI). Analyze and evaluate the operating status and health status of the equipment in the engine room, and provide auxiliary decision-making for ship operation and maintenance. The energy consumption of the main engine and Li-battery is monitored and analyzed in real time to provide energy consumption data support for the optimal navigation plan. Data of intelligent navigation, intelligent engine room and intelligent energy efficiency management system will be collected to form a unified integrated platform of on-board data and applications, so as to realize the comprehensive monitoring and intelligent management of the ship both at ship terminal and shorebased. The vessel measures 39m x 11.5m x 5.3m, main engine power of 2 x 1,912kW, Li-battery capacity of 2,760kWh, driven E-motor power of 2 x 600kW. Under diesel engines: BP ahead 61.3mt, astern 57.7mt; under E-motor: BP ahead 25mt, astern 23mt. Max. speed 11.41kn and endurance of over 2.5hr with 10kn speed.

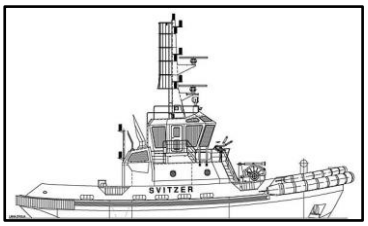


Misurata Free Zone and **Med Marine** signed a contract for construction of new state-of-the-art vessel, MED-A2885 class tugboat. It is RAstar-2800 design of well-known Naval Architecture and Marine Engineering firm, Canadian **Robert Allan Ltd**. The vessel will be built in Med Marine's Eregli Shipyard in Turkey's Zonguldak region. MED-A2885 offers the opportunity to expand operational capabilities for the Misurata Free Zone when joins its fleet. MED-A2885 Technical Details: Bollard Pull 85TBP; Free Running Speed 12kn; Complement 8 persons; LOA 28.40m; Breadth, moulded 13.00m; Depth, moulded 5.40m; Draft, extreme 5,70 m.

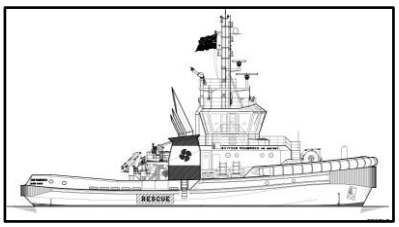
Med Marine methanol dual-fuel tugboat design wins **RINA** approval. RINA has granted the Approval in Principle for a methanol dual fuel tugboat designed by Med Marine. The AiP was delivered during a ceremony held in Istanbul, Turkey, at the International Tug & Salvage Convention on 29th September 2022. The main characteristics of Med Marine's innovative tugboat with methanol dual fuel engine are: LOA 24.25m; Breath Central Hull 11.80m; Design Draft 3.75m; Power 1,335kW; International GT: 390 (est); Bollard Pull: 40mt. Mr. Konstantinos Papalexopoulos, Marine Southern Europe Area Operations at RINA: *"RINA supports the shipping industry's initiatives aimed at decarbonizing the sector. We are delighted with the results of the hard work of Med Marine and to have granted the Approval in Principle for this methanol dual fuel tugboat. This alternative fuel is gaining increasing attention and will be part of the mix to achieve IMO's targets and possibly develop zero carbon vessels. We are working for the future and the future will be shaped by the actions of today"*.

Turkish shipbuilder **Med Marine** has introduced a new design for a multipurpose tugboat ready for harbour and offshore operations. The MED-MPW series are workboats are in lengths from 16m to 32m, depending on area and profile of operations. Options for propulsion systems and deck machinery will be available, including high capacity marine crane for heavy duties, clean deck layout, enough space for containers, anchor-handling, dynamic positioning and different working conditions. This design was unveiled at an offshore oil and gas exhibition in Abu Dhabi, United Arab Emirates November 2022 and the workboats will be built at the Eregli Shipyard, Turkey, with the first planned for the tug owner's own fleet. Med Marine has indicated future tugs could be built with propulsion options including hybrid batteries and methanol duel fuel-driven engines, initially for its own fleet.

On June 07, **Med Marine** delivered the second MEDA2885, named *"Svitzer Suez 3"*, of two newbuildings for **Svitzer**. Both vessels are **Robert Allan Ltd**-design RAstar 2800 tugs with firefighting and escort notations. This is a state of the art tug boat with full escort capability and can provide 75mt Bollard Pull which ensures Towage operations in Suez Canal to be performed in safe and powerful way. With the delivery of said vessels, Svitzer will increase its presence to a total of six vessels in the Suez Strait region which consists of Port Said and Port Suez. Med Marine delivered the first boat at the end of April 2022. The tugboat's specifications include: Length o.a.: 28.40m; Beam: 13.00m; Depth: 5.40m; Draft baseline: 4.10m; Draft extreme: 5.70m; Gross tonnage: < 500; Bollard pull: 75mt; Speed: 12 knots (approx.); Main engines: Caterpillar 3516C/ 2 x 2,100kW @ 1,600 RPM; Emission standard: IMO Tier II; ASD Propulsion units: 2 - Kongsberg US 255S FP with slipping clutch for FIFI 1; Accommodation: 10 people with MLC Compliance.



Svitzer recently announced that it is further strengthening its fleet in Brazil with two newbuilds. The two new azimuth stern drive (ASD) 70mt bollard pull tugboats will be delivered by Brazilian shipyard **Rio Maguari** in 2024. In 2021, Svitzer expanded its port coverage in Brazil by adding Suape and Pecem to the footprint and ordering four newbuilds, also to be delivered by Rio Maguari, as part of the company's strong growth ambitions in Brazil. With the latest two newbuilds, Svitzer Brazil is further strengthening its fleet to meet customer demands. Commenting on the investment in new tugs Daniel Reedtz Cohen, Managing Director Svitzer Brazil says: *"…The two new tugs are a vital addition to our existing fleet as they will be equipped with FiFi 1 (firefighting) capabilities, which we know is highly requested by both our customers and port authorities...."* The two new tugs will be from the RAmparts 2300 series designed by Robert Allan Ltd.



Svitzer, a leading global towage provider and part of **A.P. Moller-Maersk**, recently announced the purchase of a new tug to support terminal operations in Milford Haven, UK. The addition of the *"Svitzer Pembroke"* to the UK fleet will free up the 86mt bollard pull ASD tug *"Svitzer Ramsey"* for relocation to London to cater for expected growth at the River Thames and River Medway. The *"Svitzer Pembroke"* was originally built for Svitzer at Zamakona Shipyard, Spain, but in 2014 the vessel was sold, and has operated under the name *"Boa Odin"* for the past eight years. The 100mt bollard-pull ASD tug has both aft towing winch and firefighting capabilities. This makes the *"Svitzer Pembroke"* uniquely suited to supporting Svitzer's Terminal activities at Milford Haven and strengthens the existing fleet's emergency response capability. The arrival of the *"Svitzer Pembroke"* in Milford Haven allows Svitzer to redeploy the *"Svitzer Ramsey"* to London, where escort tugs with bollard pull from 80mt and upward, plus fire fighting capabilities, are becoming increasingly important for serving customers effectively on River Thames and River Medway. The newly reacquired tug has already arrived in the UK and will return to service in the coming months. The UK has been the launching off point for the company's EcoTow project, with Svitzer's entire fleet London, Felixstowe, Southampton and Scotland switching to low carbon biofuels. The service is set to be rolled out across the remaining ports in the UK and across Svitzer's global operations.

Svitzer Americas has announced that it will take delivery of two new ASD tugboats and one workboat and thereby further modernising and expanding the fleet in the Americas region. Based in Panama, Svitzer Americas is heavily engaged in the region with harbour towage and terminal towage as the main market segments. With the three newbuilds, the fleet will reach 82 vessels operating in ports and terminals across 12 different countries in the Americas. The two new tugboats will service Svitzer's operations in the Bahamas and the Dominican Republic, while the new workboat will service Svitzer's operations in Costa Rica. The *"Svitzer Isabela"*, which will be deployed to the Dominican Republic, is named after the first established Spanish town in the Dominican Republic. She is a 70mt bollard-pull ASD tug from the Ramparts 2400SX series and will be delivered by Turkish shipyard **Sanmar**. The *"Svitzer Abaco"*, which will be deployed to the Bahamas, is also a 70mt bollard-pull ASD tug but from the Damen 2312 series. She is named after a Bahamian Island and will delivered by the **Damen** shipyard in Vietnam. The *"Svitzer Moín"* is a survey vessel, which will service Svitzer's operation in Costa Rica and perform regular surveys of the water depths at the APM Terminal Moín in Costa Rica to determine when dredging is required as the port is slowly silting. The survey vessel is built at **Besiktas Shipyard** in Turkey. All three newbuilds are expected to be fully operational by the end of November 2022.

The *"Svitzer Koombana"* and *"Svitzer Marlston"* received a traditional maritime naming ceremony, blessing the tugs into the **Svitzer** fleet and to their new home, the Port of Bunbury. The *"Koombana"* and *"Marlston"* were introduced earlier this year into Bunbury. The tugs were designed by Dutch shipbuilding company, **Damen**, and built in Vietnam. They are named after Koombana – the local bay upon which Bunbury is located, and Marlston – the prominent local hill overlooking the Bunbury and Koombana Bay. The new tugs are state-of-the-art and small but powerful, reverse stern drive tugs with first class firefighting capability. The Damen RSD 2513s are the first of their kind in Australia – demonstrating Svitzer's ongoing investment into the national harbour towage fleet. At the event Svitzer's General Manager Harbour Towage – West, Jodie Ransom noted that only last month the Bunbury crew reported the highest emissions savings in its short period of operations, under Svitzer's carbon reduction program. Through the month of November alone the Bunbury team saved 3,714mt of CO2 through fuel efficient operations. Exports from the Port of Bunbury include alumina, woodchips, mineral sands, spodumene and silica sand and imports include caustic soda and mineral sands.

SAAM Towage welcomes the tug known as *"Cóndor"*, acquired from **Sanmar Shipyards** in Turkey and now located in the Port of Callao. This is the sixth tug to join the fleet in Peru, and its main features are its energy efficiency and high maneuverability. Cristián Cifuentes, Country Manager of SAAM Towage Chile, highlighted that *"Cóndor is designed to maneuver safely in ports with reduced spaces. Thanks to its design characteristics, it is also an energy-efficient ship, which contributes to our tug optimization strategy."* The ship is based on the design of the RA2400SX series by Canadian naval architects at **Robert Allan Ltd**., like the four vessels provided by the shipyards to SAAM, *"Halcón III"* in Chile, *"Albatros"* in Peru and *"SAAM Palenque"* in Panamá. The 24m vessel has a bollard pull of 70mt and has two main Caterpillar 3615C engines.

Robert Allan Ltd. announced that **SAAM Towage Canada** has signed a construction contract with **Sanmar Shipyards** to add two new state-of-the-art battery electric tugs to their operations in Vancouver, British Columbia (BC), Canada. This exciting development aligns perfectly with the Port of Vancouver's stated goal to become the world's most sustainable port as well as the city's own goal to become the greenest. These will be a major step in that direction and a further demonstration of the local BC marine industry's leadership in accelerating progress towards decarbonization of towage and harbour operations worldwide. SAAM's fleet of ship-docking tugs in Vancouver is very well-utilized and requires a battery electric tug to have a large battery capacity to meet their service needs. Time between missions can be short, again suggesting high battery capacity and relatively quick recharging periods. Space between the port's *"finger piers"* is limited, thus requiring a tug of compact dimensions and exceptional manoeuvrability, yet also high bollard pull to meet the needs of handling ever-larger commercial vessels. The ElectRA 2300-SX is the optimal solution to these needs. With a nominal battery capacity of 3,616kWh, this compact, 23m length design delivers exceptional endurance compared to even larger peers. Zero-emission mission endurance is several hours for normal operations, or it can deliver its impressive bollard pull of 70mt for up to a full hour. With its quiet battery electric propulsion system and SANMAR's well-established attention to noise and vibration control measures, the ElectRA 2300-SX are expected to be remarkably comfortable for crews to work on. The electrical propulsion motors also deliver full torque at any vessel speed, thus giving these tugs unrivaled thrust responsiveness and fineness of control in their ship-handling role. A customized skeg, specifically tuned to SAAM's exacting preferences for manoeuvrability and controllability, is a major achievement of the design. After surveying SAAM's local crews for the most desirable characteristics, Robert Allan Ltd. undertook a sea trials program on two tugs in their local fleet, then built and validated dynamic manoeuvring models using computational fluid dynamics (CFD). These models allowed the manoeuvrability and directional stability to be carefully evaluated for a pair of skeg options on the new design, with the result being a skeg option specific to SAAM Canada that is expected to provide optimal manoeuvring characteristics as per the local crews' preferences. Airborne emissions of CO2 and other products of combustion will be zero when operating on the batteries, which will be charged at dock from the local hydroelectric power grid. This charging capacity, it should be mentioned, is customizable on all ElectRA in accordance with customer needs. Reductions of CO2 emissions alone compared to a conventional diesel tug are expected to exceed 1,000 metric tons per annum (per tug), which is roughly equivalent to the emissions of 400-500 cars for the pair. The tugs' impact on the underwater environment will be as low as practicable. As a proud member of both Green Marine and the Port of Vancouver's ECHO program, SAAM Canada is dedicated to the reduction of underwater radiated noise and recognizes the benefits of battery electric propulsion in this regard. SAAM will therefore be seeking an underwater radiated noise notation (ABS UWN) for the vessels, to be assigned after sea trials in local waters. The tugs are also designed for zero discharges. As typical with all ElectRA, the deckhouse is stylishly designed and set aft, yielding a distinctive appearance that hints at its special calling while also being optimal for working under the bow flare of container ships, especially in combination with the folding mast option. Within the deckhouse are spacious and well-lit MLC compliant accommodations for a crew of up to four persons, although SAAM will typically crew the tugs with just a pair of highly skilled mariners each, as is typical for their operations in Vancouver. The deckhands aboard will find a flush working deck forward with a double-drum electric hawser winch. There is ample space to work and minimal clutter, in part due to the availability of an aft anchoring option. The Masters will revel at the excellent sightlines afforded from the steering position, including that of the large diameter cylindrical fender forward. That fender extends well aft, thus providing excellent cushioning for bow, bow quarter, and side contact with an assisted vessel. The fendering system is also designed to be exceptionally soft, with both 20 and 25mt/m2 (at full bollard pull) options available for selection. Another option available on the design is an FFV1 fire-fighting notation (2,400m3/hr) with both waterspray and foam. A pair of 940ekW, IMO Tier III emissions compliant generators are aboard for powering this optional system and other ancillary functions. Escort notation is also available on request, as are other optional notations. Steel cutting of the first ElectRA 2300-SX for SAAM is already underway, and delivery is expected in 2023. The arrival of these state-ofthe-art battery electric tugs is eagerly anticipated. Perhaps one of the most exciting features of all is that unlike with a conventional diesel tug, the ElectRA 2300-SX's performance has the potential to significantly improve over its service life. By leveraging anticipated future improvements in battery density by occasionally refreshing battery cells, ElectRA series tugs may prove to be some of the longest tenured assets in future fleets! ElectRA 2300-SX Facts & Figures: LOA: 23.40m; Beam, moulded: 11.85m; Depth, least moulded: 4.94m; Maximum draft: 5.50m; GT: 295 tons; Bollard pull: 70mt; Battery capacity: 3,616kWh nominal at beginning of life Charging rate to suit. Example Class notations: ✠A1 Towing Vessel, ✠AMS, ✠ABCU, BP (70), QR, FFV1, ESS-LiBattery, UWILD, IHM, UWN(x).

Sanmar Shipyards has delivered its seventh tugboat to **SAAM Towage** which has joined the operator's fleet of tugs operating in Panama Canal Waters. She was renamed *"SAAM Quibian"* by her new owners. The twin Z-drive tugboat is a sister to five of the six other tugs that Sanmar has delivered to SAAM Towage and, like them, is based on the exclusive-to-Sanmar RAmparts 2400SX design from Canada-based naval architects **Robert Allan Ltd**. Like all modern tugs in Sanmar's popular RAmparts 2400SX series, *"SAAM Quibian's"* high standard of machinery automation maximises efficiency and reduces its impact on the environment. Measuring 24.4m LOA with a moulded breadth of 11.25m, moulded depth of 4.38m and maximum operating draft of approximately 5.7m, *"SAAM Quibian"* has been designed for maximum efficiency in the performance of ship-handling duties for sea going ships. Powered by two Caterpillar 3516C main engines, each producing 2,100kW at 1,600RPM, *"SAAM Quibian"* can achieve a bollard pull ahead of 70mt and a free running speed of a minimum of 12 knots. The tug has been constructed in accordance with American Bureau of Shipping (ABS) requirements for the following notation: ✠A1, ✠AMS, FI-FI 1, Towing Vessel, MLC Compliance, ✠ABCU, UWILD, QR, Unrestricted Service. *"SAAM Quibian's"* five sisters are *"SAAM VALPARAISO"*, *"SAAM PALENQUE"*, *"ALBATROS"*, *"HALCON III"*, and *"SAAM CONDOR"*. The other tug Sanmar has delivered to SAAM Towage is *"MATAQUITO II"*, which is based on the exclusive to Sanmar RAstar 2900SX design from Robert Allan Ltd.

Recently, **Wilson Sons**' new tugboat *"WS Centaurus"*, which started operating in June, joined the company's fleet in São Luís to support berthing and unberthing of iron ore ships at the Ponta da Madeira Terminal and at the Port of Itaqui and Alumar. With 91mt of bollard pull, it is the most powerful tugboat operating in Brazil. *"'WS Centaurus' will operate in São Luis do Maranhão, helping to increase the efficiency of Wilson Sons' fleet of 11 tugboats already operating in the area. The tug will manoeuvre the large iron ore ships berthing at the Ponta da Madeira terminal, as these vessels require powerful tugs. Its operation will also be important in the Port of Itaqui, which has been growing in terms of agribusiness activities, with cargos of grains, fertilisers and liquids, such as oil and derivatives,"* explains Márcio Castro, executive director of the Tugboat division at Wilson Sons. *"WS Centaurus"* is the first of six new tugs with an innovative concept in Brazil. With Damen RSD 2513 design, its hull features a more efficient hydrodynamics for an estimated reduction of up to 14% in greenhouse gas emissions. The twin fins improve seaworthiness and increase drag capacity during manoeuvres, which ensures smaller fuel consumption and, consequently, lower emissions. In addition, the new vessels are the first in Brazil to follow the IMO TIER III standard, which promotes reduced nitrogen oxide emissions by more than 75% and helps improve air quality in the ports where they operate. This standard is required in some regions of North America and Europe. Built at Wilson Sons' shipyard in Guarujá (SP), designed by **Damen Shipyards**, the new tug is a 25m long 13m beam firefighting-certified (Fi-Fi 1) escort tug. Another two new tugs will be delivered later 2022 — and the others will come into operation in 2023.

The new **Wilson Sons** tugboat, the *"WS Orion"*, was delivered for operation and joins the *"WS Centaurus"*, in supporting the operations of berthing and unberthing of ships, in São Luís (MA), serving the terminals of Ponta of Madeira, Itaqui and Alumar. The first operation took place on October 24, at the Ponta da Madeira terminal, during the mooring maneuver of a large ship used to export iron ore. Named on October 13, in Rio de Janeiro, the *"WS Orion"* has the capacity to support large ships that transport up to 400,000 tons of cargo. Built at the Wilson Sons shipyard, in Guarujá (SP), the vessel has the same characteristics as the *"WS Centaurus"*, launched in June this year. The new RSD 2513 class tug has escort tug class notation and FIFI-1 certified fire fighting equipment, which has a flow rate of 2,400m³ of water per hour. The design of the *"WS Orion"* is by Damen Shipyards and the vessel is 25m long with a beam of 13m. It operates fore and aft with the same efficiency, and can be used both in port maneuvers and oceanic towage. The bollard pull is over 90mt, making the new tug one of the two most powerful in operation in Brazil. The new tug is the second in a series of six new tugs by the company that combine performance with sustainability. Its innovative design allows an estimated reduction of up to 14% in greenhouse gas (GHG) emissions due to more efficient hydrodynamics through the double fin keels, which improve navigation and increase the drag capacity during maneuvers. This new hull design guarantees a reduction in fuel consumption and, consequently, in emissions. The *"WS Orion"* will promote the reduction of nitrogen oxide emissions by approximately 75%.

SANMAR Shipyards is delighted with the huge interest shown by operators around the world in its exclusive ground-breaking ElectRA series of eco-friendly electric tugboats. The latest in a rapidly increasing number of orders is a recently signed contract to provide Norwayheadquartered marine services company **Buksér og Berging** with its first electric tugboat. Based on the exclusive to SANMAR ElectRA 2200SX design from Canadian naval architects **Robert Allan Ltd**, the new-build tug, which is due to be delivered in November 2023, will join the Buksér og Berging tugs in the Port of Oslo. The ElectRA 2200SX will be the eighth tug SANMAR has delivered to Buksér og Berging from its custom-built, state-of-the-art shipyards in Türkiye. The operator has a well-deserved reputation for being environmentally-aware, with recent deliveries from SANMAR including the Tier lll emissions compliant sister escort tugs *"Bamse"* and *"Bob"* and in 2014 and 2015 *"Borgoy"* and *"Bokn"*, the world's first two purely LNG-fuelled tugboats. The new electric tug will have 22.4m LOA, with a moulded beam of 10.84m and moulded depth of 4.4m. Powered by 1,718kW of battery, 2 x 1,400kW electrical motors and Schottel SRP 340 LE FP thrusters. It will achieve a bollard pull ahead of 45mt and a speed of 11.8 knots. Caterpillar C32 IMO Tier lll switchable marine generator set will provide 940eKW at 1,800RPM. Deck equipment will include a DMT TW-E250kN fore winch, Data Hidrolik DTH 50-120P tow hook, Palfinger PK11001MC deck crane and Data Hidrolik DTC 4000 EP-L rope reel. The tug will be built to ABS classifications A1, Towing vessel, +AMS, +ABCU, BP, ESS Li-Battery, UWILD.

"Freyja Of Scapa", the third new tug built by **Sanmar Shipyards** for **Orkney Islands Council**, has been welcomed to its new home in the Scapa Flow after completing a 3.500 nautical mile delivery voyage from the Sanmar Tuzla Shipyard. Like its previously delivered sister tugs *"Odin Of Scapa"* and *"Thor Of Scapa"*, the RAstar 3200SX design *"Freyja Of Scapa"* is based on Canadian naval architects **Robert Allan Ltd**'s specific design to provide the levels of performance and seakeeping ability that is essential when operating in extremely challenging conditions such as those often found in the seas around Orkney. Measuring 32m LOA with a moulded breadth of 13m and moulded depth of 5.35m, *"Freyja Of Scapa"* is powered by two high-speed marine diesel Caterpillar 3516C engines, each producing 2,350kW at 1,800RPM to drive Kongsberg US255CP azimuth thrusters, achieving an impressive bollard pull of 78-plus metric tons and a free-running speed ahead of over 14 knots. The Z-drive tug has FiFi 1 fire-fighting capability and can carry 165m3 of fuel oil and 20m3 of fresh water. Accommodation comprises two cabins for two officers in the upper deck and four cabins for four, which can increase to six crew with pullman beds, in the lower deck. *"Freyja Of Scapa"* has been classified by RINA C Tug, Escort Tug, Fire Fighting Ship 1, Water Spraying, AUT-UMS, INWATERSURVEY, MLC Design, Unrestricted Navigation.

Sanmar has delivered two more tugboats to **SMS Towage**, the UK's largest independent family towage company, and one of the Turkish shipbuilder's oldest and most loyal customers. The delivery of the two RAmparts 2200 class sister tugs, which previously worked in Sanmar's own fleet, brings the total number of tugboats Sanmar has delivered to SMS Towage to 14. The first was *"Scotsman"* which was delivered in 2008. Known as *"Sirapinar XVIII"* and *"Sirapinar XV"* while working in Türkiye, the tugs have been renamed *"Trueman"* and *"Kingsman"* by their new owner, which has a fleet of tugs strategically positioned around the UK in the Humber, Bristol Channel, Belfast, Portsmouth, Teeside and the River Tyne. The twin sisters are based on the RAmparts 2200 design from Canadian naval architects **Robert Allan Ltd** and measure 22.4m LOA, with a moulded beam of 10.84m, least moulded depth of 4.4m and approximate navigational draft of 4.85m. The twin Z-drive, diesel powered tugs are designed for low manning operation and maximum efficiency in the performance of shiphandling duties for sea going ships. They are both powered by two Caterpillar 3512 C main engines, each producing 1,500kW at 1,600RPM to drive 360-degree azimuthing Schottel SRP 360 FP thrusters. *"Trueman"* and *"Kingsman"* can achieve bollard pulls of 52mt ahead and 49mt astern and a free running speed of 11.5 knots. The tugs' tank capacities include approximately 72m3 of fuel oil, 10.8m3 of fresh water and a 2.4m3 foam tank. A fire-fighting pump is driven through clutched flexible coupling in front of each main engine with a capacity of 1,200m3/hour. Both Trueman and Kingsman are classified by Registro Italiano Navale (RINA) as C Tug AUT-UMS, INWATERSURVEY, Unrestricted Navigation, MLC DESIGN.

Wagenborg Towage has acquired an 80mt bollard pull ASD 3280 tug from **UZMAR** fleet. With this new tug, Wagenborg strengthens her position in the towage market in the Eemshaven and ems region. The delivery agreement was signed on 17 August at UZMAR Istanbul Office and the tug left Turkey for Eemshaven on 21 August. Formerly known as *"Anka 8"*, the tug will be named *"Waterlines"* and will be the largest tug in the fleet of Wagenborg Towage, currently comprising six tugs mainly operating in the Netherlands and Germany. The 80mt bollard pull tug was built in 2020 by UZMAR Shipyard in Turkey and delivered to UZMAR Fleet to operate at Istanbul Ambarlı Port. The ASD 3280 Tug is highly maneuverable and high-performance with a modern design. Thanks to her operational flexibility, the tug can be used for port and terminal (un)berthing operations, escort operations, fire-fighting operations, along with coastal and offshore towing operations.

KOTUG's subsidiary **KOTUG Guyana** has been awarded a second contract by ExxonMobil affiliate **Esso Exploration and Production Guyana** to support operations in Guyana. KOTUG's latest addition, the 120mt bollard pull strong *"SD Honour"*, will join the fleet of dedicated offshore terminal tugs supporting the two floating production, storage and offloading vessels (FPSOs), *"Liza Destiny"* and *"Liza Unity"*, on the Stabroek Block, offshore Guyana with static tow, push-pull duties and general offshore support to very large crude carriers (VLCCs) taking offload cargo from the FPSOs. KOTUG International has been supporting EEPGL since October 2021 with the offshore terminal tug *"SD Power"*, marking KOTUG's first operation in South America. ExxonMobil's first offshore Guyana project, Liza Phase 1, began producing via the *"Liza Destiny"* FPSO in late 2019. Liza Phase 2, via the, *"Liza Unity"* FPSO, started production in February and ramped-up to 220,000 boepd in five months. In July, the U.S. major said it is already producing more than the 340,000 barrels of oil equivalent per day (boepd) target it had originally set for itself by the end of 2022 in Guyana. Guyana's Stabroek block is 6.6 million acres (26,800 square kilometers). ExxonMobil affiliate Esso Exploration and Production Guyana Limited is the operator and holds 45% interest in the block. Hess Guyana Exploration Ltd. holds 30% interest, and CNOOC Petroleum Guyana Limited holds 25% interest.

Company News

KOTUG International B.V. (KOTUG) announces the successful closure of the intended acquisition of **SEAWAYS INTERNATIONAL** (Seaways). As a result, Seaways is now a 100% owned subsidiary of the KOTUG Group of Companies. The acquisition of Seaways brings together the assets, expertise and people of two leading companies that support the worldwide floating facility business such as FSO, FPSO, FLNG, FSRU and SPM Terminals. With all customary, governmental, and other required approvals, KOTUG will now focus on the integration of Seaways and strengthening its leading presence in the floating offshore market. The founder and former owner of the family-owned Seaways, Captain Ashish Nijhawan will be stepping down from his role as Managing Director effective immediately. Under his leadership, the company has been built from scratch to become the thriving business it is today. Owning and operating an impressive fleet comprising DPS-2 capability AHTs, Fast Crew Suppliers (Crew Boats for Passenger Transportation) and Cargo Barges, and also providing terminal management services. Ard-Jan Kooren, President & CEO of KOTUG: *"It is with great respect that we say goodbye to Captain Ashish Nijhawan, his sons and wife, whose accomplishments have been outstanding. Today, we welcome 340 new colleagues into the family-owned KOTUG Group of Companies, whose corporate cultures and values are very similar and compatible." "I am very proud of the company we have built, and I am incredibly thankful to everyone who has worked to support our journey. I have deep trust in a bright future for Seaways under the leadership of KOTUG executing their vision to be the world's leading towage and maritime service provider,"* said Captain Ashish Nijhawan.

Boskalis and its co-shareholder **KS Investments Pte. Ltd**. (**Keppel**) have completed the sale of their equity stakes in their harbor towage activities in Singapore and Malaysia (**Keppel Smit Towage Pte Ltd** and **Maju Maritime Pte Ltd**) to **Rimorchiatori Mediterranei S.p.A**. The intended sale was announced on 15 November 2021. Boskalis received EUR 92 million in cash for its 49% equity stake in the joint ventures resulting in a pretax book gain of approximately EUR 50 million, both of which will be included in the 2022 first half year results. The activities and results of KST and Maju were deconsolidated as per 1 January 2022. Keppel Smit Towage (KST) was established in 1991 as a joint venture between Keppel and SMIT, a wholly-owned subsidiary of Boskalis. Over the past thirty years, KST/Maju has developed into one of the largest and leading providers of harbor towage services in Southeast Asia. KST/Maju operates a large fleet of tugboats in Singapore and through its joint venture in Malaysia. The sale of KST/Maju follows the strategic decision taken by Boskalis in 2019 to divest its harbor towage activities. Boskalis divested its stakes in Saam Smit Towage and Kotug Smit Towage in 2019. Rimorchiatori Mediterranei S.p.A. is a subsidiary of Rimorchiatori Riuniti Group, a leading maritime service provider headquartered in Genoa, Italy established in 1922. Rimorchiatori Mediterranei operates a fleet of more than 100 modern vessels in more than 20 major ports employing approximately 900 people.

SAAM concluded the purchase of **Ian Taylor**'s towage operations in Peru. *"This transaction will allow us to continue consolidating our presence in Peru, with the service offering we are known for and extensive geographic coverage. We are committed to continuing to operate with excellence and safety once we add this first-rate fleet,"* said SAAM Towage Managing Director Hernán Gómez. SAAM Towage has been operating since 2021 in Peru. With this investment, it strengthens its presence on the Pacific Coast and adds new tugs to the six already operating in the Peruvian ports. SAAM Towage is the leading provider of towage services in the Americas. With a fleet of more than 180 tugs at 80 ports in the Americas, the company completes over 110,000 maneuvers for around 37,000 vessels every year.

SAAM signed a binding agreement with the German liner shipping company **Hapag-Lloyd** for the sale of 100% of the shares of subsidiaries **SAAM Ports** and **SAAM Logistics** as well as real estate assets related to the logistics business. The value of the transaction amounts to approximately US$ 1 billion, after the usual price adjustments customary for a transaction of this kind. A net profit of US$ 400 million is estimated for SAAM. The transaction includes the sale of SAAM's ownership stake in ten port terminals throughout six countries in the Americas, bonded warehouses and integrated logistics operations for importers and exporters. The agreement also includes the sale of the real estate assets where SAAM Logistics currently operates and will materialize once the relevant approvals have been received and conditions precedent have been fulfilled. *"This is good news for SAAM, its shareholders, and also for SAAM Ports and SAAM Logistics, as well as for employees and the communities in which SAAM Ports and SAAM Logistics operate, given the experience and financial strength of the new owner,"* says Macario Valdés, CEO of SM SAAM. This acquisition is a recognition of SAAM's contribution to the port and logistics development of the region in over six decades and will strengthen the company's capital structure and help us capitalize on a pipeline of organic and inorganic growth opportunities in the towage and air cargo logistics business divisions. Once the transaction is approved, SAAM will focus on the development of the above operations, which together account for approximately 55% of SAAM's Ebitda. *"This agreement will allow us to continue to boost the towage business, where SAAM Towage is already the third largest player globally thanks to the strategy we have deployed since 2019 with the acquisitions of the entire joint venture with Boskalis, the acquisition of Intertug, Standard Towing and Ian Taylor Peru, and the announcement of the purchase of Starnav's assets in Brazil. In addition, to strengthen our air cargo logistics strategy, we acquired 50% of Aerosan from American Airlines,"* Valdés concluded.

November 21st, **Middle River Marine, LLC**. announced the acquisition of assets of **Kindra Lake Towing LP**, of Chicago. The agreement will expand MRM's bulk material logistic operations with the addition of five vessels, marine equipment, and a harbor slip in South Chicago. This agreement creates an organization better able to serve customers and grow in the marketplace. Middle River will expand its affreightment, towing, fleeting and terminal services to customers on the Illinois Waterways, including Lake Michigan. Additionally, Middle River is excited to increase its workforce and add more experience to our team. This marks another step forward in MRM's ability to serve the construction materials, agricultural products, and industrial commodities in Illinois, Northwest Indiana, and the Great Lakes. *"Our people make the difference and we're happy to welcome new coworkers to expand the MRM team,"* said Aaron Halcomb, President of Middle River Marine. *"For our customers, this further extends our ability to economically, efficiently, and sustainably meet their logistics needs."* Kindra, through its two companies, began in South Chicago in 1983 cleaning and repairing barges. Beginning in 1992, Kindra began moving barges between South Chicago and Burns Harbor, Gary, Buffington, and Indiana Harbor in Northwest Indiana as well as Lemont, Illinois. They have provided Coast Guard approved fleeting areas for tank barges as well as marine equipment and services for special projects. John Kindra, President of Kindra Lake Towing said, *"Since starting Kindra Lake Towing in 1992 with three tugboats, it has been fun, challenging, rewarding and a pleasure growing our companies. We have grown internally through the development and promotion of our employees. Our continued success has been due to the loyalty of our customers."* Middle River Marine began river and rail terminal operations on the Great Lakes and the Illinois river system in 1998. Terminal operations now include South Chicago, Calumet Park, Lemont, Joliet, Rock Creek, and Henry. MRM's marine operations now include eleven vessels, and 88 barge fleet with over 120 total coworkers.