

4500 HP – 60 T BP DOUBLE ENDED TUG “ GIANO ”
British Flag- Port of Registry : London - O.N. 9920395 –
IMO N. 9674610 – CALL SIGN : 2IDN5



<https://www.youtube.com/watch?v=RhM5xWGqAPI>

LENGHT O.A. :	25,14 m	
LENGHT P.P. :	23,99 m	
WIDTH :	13,02 m	
MOULD.DEPTH (from baseline) :	3,65 m	
MAX. DRAFT :	5,40 m	
GRT :	272,33	
SPEED :	11,5 Kn ahead-astern- 7Kn transverse -	
ENGINES :	2 CAT 3512 C HD 1678 KW AT 1800R.P.M –Total 3358 KW	
PROPULSION :	2 X SCHOTTEL SRP 3000 CP IN LINE	
BOLLARD PULL LR certified :	63 Tons AHEAD, 59 TONS ASTERN,- 65 TONS TRANSVERSE with 10° list-	
CLASS :	LR \boxtimes 100A1 ESCORT TUG – FI.FI. SHIP1 (2400 MC3/H) – water spray -	
NAVIGATION :	LR UNRESTRICTED – MCA Class 1 -	
YEAR OF BUILT :	2015 - Last dry dock July 2019	
TOW WICH AFT :	75 T PULL 190 T STAT. LOAD 150 M X 52 mm DYNEEMA 220 T MBL	
TOW WICH FORE:	75 T PULL 190 T STAT. LOAD 150 M X 52 mm DYNEEMA 220 T MBL	
G.O. :	70 m3	
FRESH WATER :	60 m3	
NAV AIDS :	2x Radar Furuno- NET NAV plotter – GMDSS zone 2	
MAX BOLLARD PULL FOR WICH IMO RESOLUTION MSC.415 (97) 2008 IS Code for Escort tugs – SELF TRIPPING – CRITERION IS SATISFIED :	130 T	

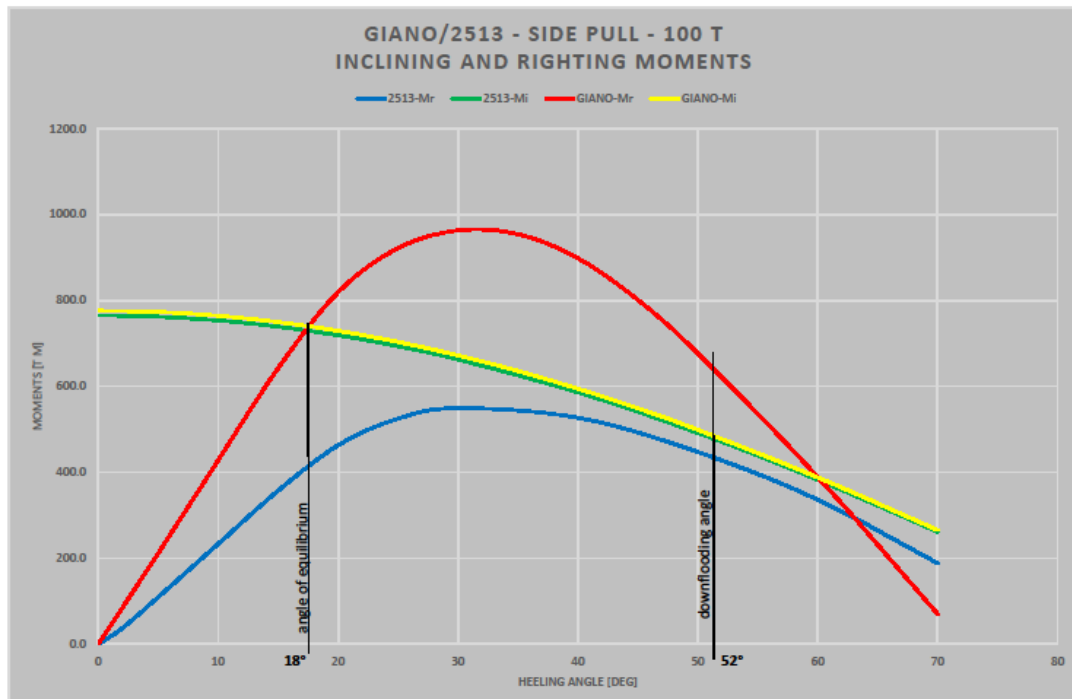


INDIRECT POWER ESCORTING CAPABILITIES

Giano tug is able to develop a very high steering forces when connected at "center lead aft" position, both at arrival and departure of large ships. Giano tug can operate safely, in indirect escort mode, at an angle that it may cause the girting of majority of tugs, for lack of transversal stability. This is due to 2 main factors :

- Transversal stability between 2 and 3 times the conventional ASD/Tractor tug in service
- Propulsion at both ends that will allow not only a total control of tug's position, but also will increase the hydrodynamic forces created during the indirect escort mode, adding to the drag of the hull and appendices, the steering power applied directly on the hawser by the forward thruster, which has the rotation axis positioned about 1 m from the forward tow point. This gives Giano tug the ability of levering the tow without a negative lever arm, at any speed from 0 to 10 Kn. Giano tug operate safely with a list of 18° under the inclining moment created by 100 T BP forces athwartship (90°). This can be considered a limit condition for ship-handling tugboats.
- (see fig 1 stability comparison with an industry leader's compact 2513 ASD tug)

Fig. 1



Giano tug is able to apply power steering while levering and escorting in indirect mode creating a large steering force, thus facilitating the towing In / Out of the harbour of large vessels.

(See Fig 2 sequence of indirect power steering of a 80.000 DWT 300m x 40 m Container ship



Fif 2

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ESCORT TRANSVERSE POWER BRAKING

A valuable feature of Giano tug when assisting very large ships like the new 20.000 TEU, is that when it is positioned at "center lead aft" and the Pilot requires to reduce the ship's speed at the entrance of the harbour for an emergency manouvre, Giano tug's Skipper can effectively and safely brake the convoy by transversing the thrust at full power, consequently turning the tug at 90°. It must be noted that the braking power on the tow line can exceed the 100 T with the tug listing up to 15° to Stb/Pt with the ship's speed consequently reduced in matter of seconds.

(see fig 3 Escort Power Braking of a 150.000 DWT Container carrier)

Fig 3



360° towing power - Controlling and checking the tow while on Push - Pull mode – Side stepping speed of 7 Kn

Giano tug is III generation "Double Ended" azimuth tugboat of exceptional maneuverability, with the unique ability to stay at a constant distance from the tow, sidestepping in transverse position (90°) while the ship is moving ahead, in / out of the harbor, at speed up to 7 Kn, ready, on Pilot's command, to push-pull.

Giano tug is able to check the stern of the tow in push-pull mode instantly, because always in the right position to do so. This capacity is particularly useful during towing in restricted spaces. Any other tugboat ASD or Voith Tractor cannot do this because their side stepping speed is limited to Max 3 Kn.

(see Fig 4 : push-pull during a tow out - side stepping speed > 5 Kn - 360° maneuverability)

Fig 4



<https://www.youtube.com/watch?v=uUoVYx15fg8&t=77s>