JOYWELL

MARINE PROPULSION

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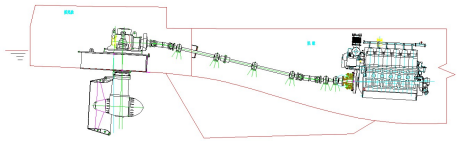
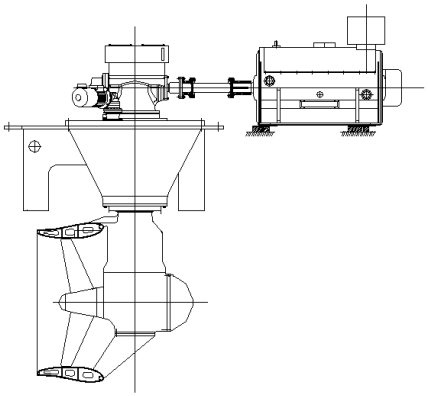
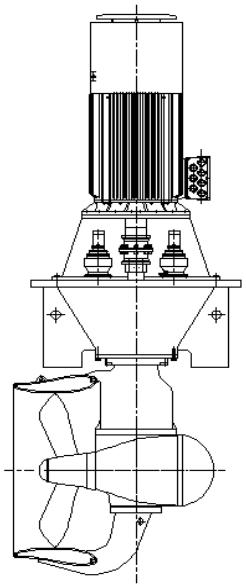
Azimuth thruster with Nozzel





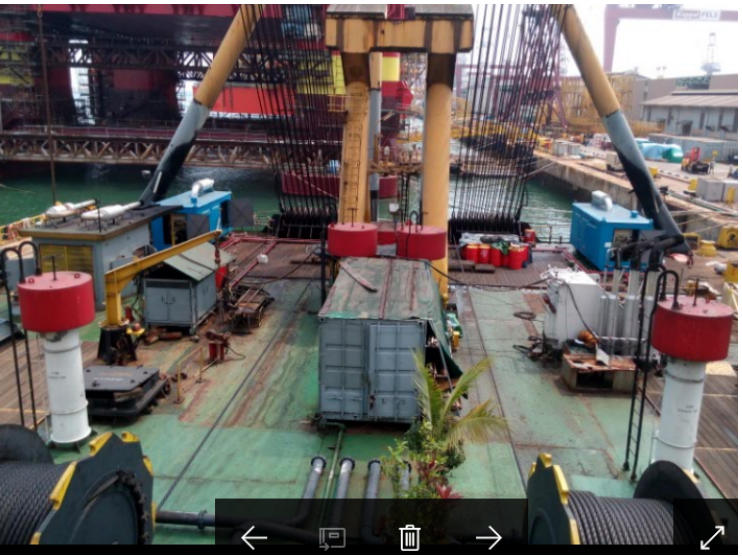


- The rudder steerable propeller is a Z drive propeller combining the steerable propeller with the steering gear, its submerged part could be 360-degree steered freely, so as to generate the thrust from all directions. This device integrates the high efficiency of steerable propeller and flexibility of 360 degree steer gear, is mainly applied in various engineering ships such as port-working tugs, seabed cable layers and floating sheer legs which have the towing requirements and a higher requirements on maneuvering performance.

Contra-Rotating Propeller (Azimuth thruster)

- The rudder contra-rotating propeller is a Z drive propeller combining the contra-rotating propeller with the steering gear , its submerged part could be 360-degree steered freely , so as to generate the thrust from all directions . This device integrates the structural advantages of contra-rotating propeller and flexibility of 360 degree steer gear, which could effectively the diameter of propeller , improve the propelling efficiency and reduce the vibration and noises . It is mainly applied in such boats as transport ship , car ferry ,oil recovery ship and environmental sanitary engineering ship which have the special requirements or special limitation .

Deck Combined Propulsion



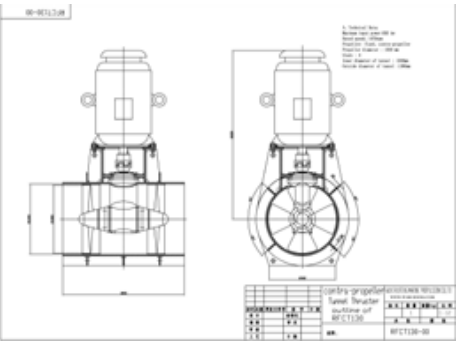
◆ The deck installation is to assemble the boat propeller unit by steering gear and diesel engineer, with the advantages of compact structure, the diesel engineer transmits the power to steering gear through flexible coupling, clutch and universal shaft, the common fixing pedestal could be equipped with such parts as hydraulic station ,electric control box and daily oil tank. Due to the independent unit of the deck combined propeller, the parts and system inside the unit shall be connected, installed and commissioned before being installed on board. The whole unit set will directed installed on the deck seat and covered by the container. The steering gear is installed at the tail of the unit, the vertical height shall be adjusted by the mechanical or hydraulic devices, so that the boat could generate the maximum thrust or be repaired when the load draft changes.

Hydraulic Azimuth Thruster

- Hydraulic azimuth thruster use hydraulic source as driving power, and directly drive the propellers by hydraulic motor. They have the advantages of compact structure, convenient install and maintain, lower use cost, shorter production period and others. The power range of the products is from 60HP to 500HP. They are used in yachts, open body mud ships, easy type engineering ships and others.

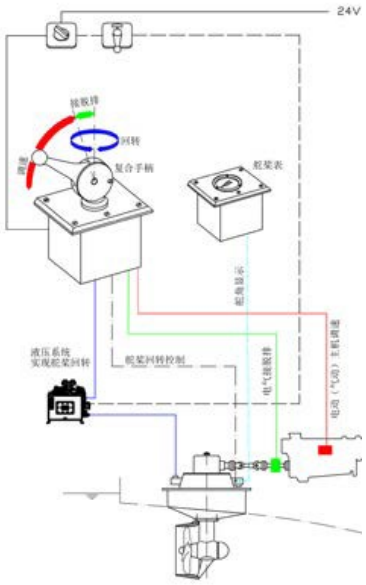
Marine Propulsion

Fixed Pitch Propeller



Contra-Rotating Pitch Propeller

Azimuth Thruster Control System



Application of Ship

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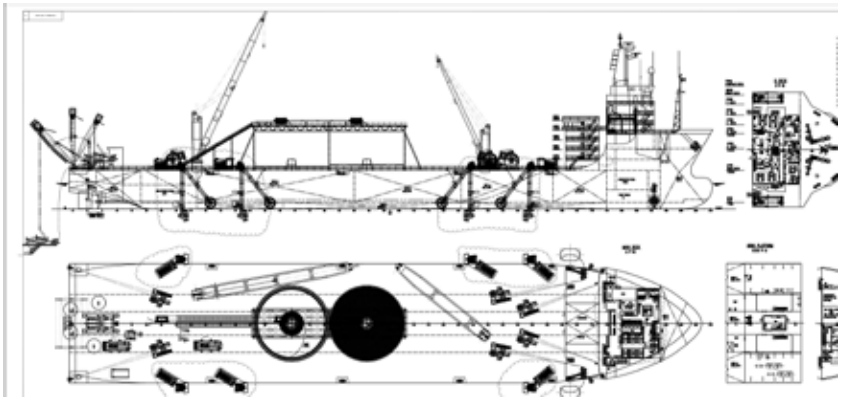
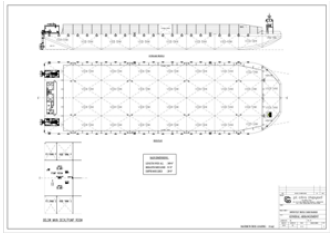
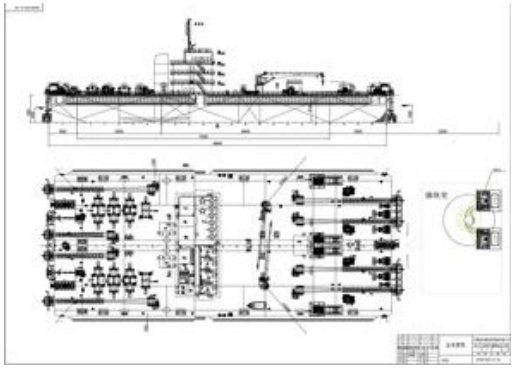
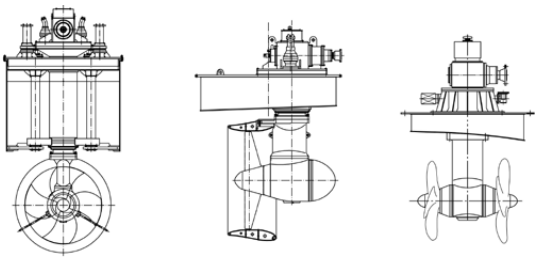






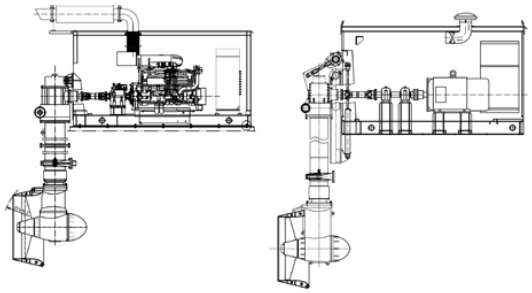
Model Parameters

◆ Well mounted single propeller azimuth thrusters and contra-rotating propeller azimuth thrusters parameter list



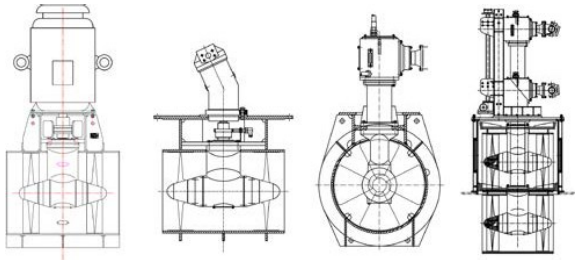
Type	Max. input power		Input Speed rpm	Propeller Diameter mm
	Unit (kW)	Unit (HP)		
RFRP-W-80/RFCRP-W-80	59	80	1000-1800	400-600
RFRP-W-150/RFCRP-W-150	110	150	1000-1800	500-900
RFRP-W-250/RFCRP-W-250	184	250	1000-1800	650-1100
RFRP-W-400/RFCRP-W-400	294	400	1000-1800	750-1200
RFRP-W-600/RFCRP-W-600	441	600	1000-1800	1000-1400
RFRP-W-1000/RFCRP-W-1000	736	1000	1000-1800	1150-1600
RFRP-W-1400/RFCRP-W-1400	1030	1400	750-1500	1350-1850
RFRP-W-1600/RFCRP-W-1600	1177	1600	750-1500	1600-2100
RFRP-W-1800/RFCRP-W-1800	1324	1800	750-1500	1600-2100
RFRP-W-2000/RFCRP-W-2000	1471	2000	750-1500	1750-2300
RFRP-W-2400/RFCRP-W-2400	1765	2400	750-1500	1950-2500
RFRP-W-2700/RFCRP-W-2700	1986	2700	750-1500	2000-2600
RFRP-W-3000/RFCRP-W-3000	2207	3000	750-1500	2200-2800
RFRP-W-3500/RFCRP-W-3500	2574	3500	600-1000	2200-2800
RFRP-W-3700/RFCRP-W-3700	2721	3700	600-1000	2400-3000
RFRP-W-4000/RFCRP-W-4000	2942	4000	600-1000	2500-3200
RFRP-W-4500/RFCRP-W-4500	3310	4500	600-1000	2700-3500
RFRP-W-5000/RFCRP-W-5000	3678	5000	600-1000	3000-3800

◆ Deck combination single propeller azimuth thrusters and contra-rotating propeller azimuth thrusters parameter list



Type	Max. input power		Input speed rpm	Propeller diameter mm
	Unit (kW)	Unit (HP)		
RFDRP80 RFCRP-D-80	59	80	1000-1800	400-600
RFDRP150 RFCRP-D-150	110	150	1000-1800	500-900
RFDRP250 RFCRP-D-250	184	250	1000-1800	650-1100
RFDRP400 RFCRP-D-400	294	400	1000-1800	750-1200
RFDRP600 RFCRP-D-600	441	600	1000-1800	1000-1400
RFDRP1000 RFCRP-D-1000	736	1000	1000-1800	1150-1600
RFDRP1400 RFCRP-D-1400	1030	1400	750-1500	1350-1850
RFDRP1600 RFCRP-D-1600	1177	1600	750-1500	1600-2100
RFDRP1800 RFCRP-D-1800	1324	1800	750-1500	1600-2100
RFDRP2000 RFCRP-D-2000	1471	2000	750-1500	1750-2300
RFDRP2400 RFCRP-D-2400	1765	2400	750-1500	1950-2500
RFDRP2700 RFCRP-D-2700	1986	2700	750-1500	2000-2600

◆ Contra-rotating Propeller Tunnel Thruster Parameter List



Type	Max. input power (kW)	Rated input speed (rpm)	Propeller diameter ΦD(mm)	Tunnel inner diameter ΦD1(mm)	Tunnel wall thickness T(mm)	Tunnel Min. Length L(mm)	Max. thrust (kN)
RFCT45	80	1470	450	470	12	750	11
RFCT50	110	1470	500	520	12	800	18
RFCT60	132	1470	600	620	15	900	21.5
RFCT70	200	1470	700	725	15	1050	33
RFCT80	280	1470	800	825	15	1150	46
RFCT90	355	1470	900	925	20	1300	57
RFCT100	400	1470	1000	1030	20	1400	64
RFCT115	500	1470	1150	1180	20	1500	80
RFCT130	650	1470	1300	1335	20	1650	102
RFCT145	800	970	1450	1485	25	1750	125
RFCT165	1000	970	1650	1685	25	2000	155
RFCT180	1200	970	1800	1840	25	2250	185
RFCT200	1450	970	2000	2040	30	2500	220
RFCT220	1650	970	2200	2240	30	2800	248