



VERHAAR OMEGA



Transverse Thrusters
series OCP and OFP



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With well over four decades of experience in the field of thrusters and drives, Verhaar Omega has earned its reputation for outstanding quality, performance and reliability. Today over 4000 thruster units have been installed on inland and seagoing vessels around the world.

Transverse thrusters

In principle, transverse thrusters or tunnel thrusters are used as auxiliary propulsion units. Depending on the design of the vessel, transverse thrusters are either installed in the bow or stern. Transverse thrusters considerably improve the vessel's manoeuvrability and reduce its overall operating costs.

Verhaar Omega offers a wide range of thrusters with fixed pitch propellers (OFP series) and thrusters with controllable pitch propellers (series OCP), all designed for optimal performance and manufactured to the highest possible standards:

OCP series

An OCP transverse thruster is a tunnel thruster provided with a controllable pitch propeller. Unlike fixed pitch propellers, controllable pitch propellers are normally driven at a constant and non-reversible shaft speed. OCP transverse thrusters are driven either electrically, hydraulically or by means of a diesel engine.

The thrust direction and thrust force are controlled hydraulically by adjusting the pitch of the propeller blades. Due to the fact that the propeller blades can be rotated clockwise or counter-clockwise, there is no need for a reverse gearbox when driven by a diesel engine. Thrusters with controllable pitch propellers are mostly used in combination with a dynamic positioning system (DP), a computerised system to automatically maintain the vessel's heading and position.

Specific OCP thruster applications are:

- Diving support vessels
- Mobile offshore drilling units
- Platform supply vessels
- Shuttle & bunker tankers
- Cable & pipe laying vessels
- Oceanographic research vessels
- Dredgers & rock dumping vessels
- Mine sweepers
- Cruise Liners & superyachts



OFP series

An OFP transverse thruster is a tunnel thruster with a fixed pitch propeller. In most cases, fixed pitch propellers are used for variable and reversible shaft speeds. OFP transverse thrusters are driven either electrically, hydraulically or by means of a diesel engine. The thrust direction is controlled by reversing the direction of the drive motor, or – with a diesel engine – via a reverse gearbox. The thrust force is controlled by adjusting the speed of the driveshaft.

OFP thruster applications: all types of vessels

OCP and OFP transverse thrusters are used on ships with sufficient draft to guarantee proper functioning. The distance measured from the waterline in the lightest seagoing conditions to the centre of the tunnel should be about one to one and a half times the diameter of the tunnel. For shallow draft vessels we recommend our renowned **Channel Thruster**.

OFP and OCP Thruster Features

- Robust and hydrodynamically streamlined gearbox with built-on propeller
 - Rigid and solid tunnel section provided with stainless steel liner in the propeller's blade tip area, protecting the tunnel against electrolytic corrosion
 - Gravity oil tank including hand pump are included in the scope of supply
 - Flexible shaft coupling between the output shaft of the drive motor and the input shaft of the thruster unit, eliminating possible shaft misalignments and reducing vibration and noise
 - Easy to install, maximum reliability and minimum downtime
 - Optimum input-output ratio, resulting in maximum thrust efficiency and performance
 - Rigid and solid construction reducing vibration and noise
 - Optimum design of propeller keeps cavitation volume low which maximizes thrust efficiency and minimizes noise
- Upon request Verhaar Omega can supply five-blade propeller thrusters for 'silent' operation.



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Drives & Controls

Dependent on your individual needs or preferences, Verhaar Omega offers a complete range of drives, controls and accessories:

- Electric or hydraulic motors
- Diesel engines and reverse gears
- 3-step control drives
- Frequency converters
- Bridge, wing and local control panels
- PLC interfacing to ship's monitoring and control system (PMS, VDR, DP)



OFF & OCP thruster drives:



Electric drive



Diesel engine drive



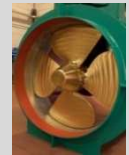
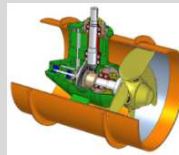
Hydraulic drive

After sales

Verhaar Omega thrusters require little maintenance other than changing oil at regular intervals. In the unlikely event of a breakdown you can always count on our 24/7 call out service and extensive stock of spares.

PERFORMANCE TABLES:



Series OCP with controllable pitch propeller



Thruster Model	Max.* Power [kW]	Max.* Power [hp]	Prop. dia. [mm]	Input speed [rpm]	Gear ratio [i]	Output Speed [rpm]	Tip Speed [m/s]
OCP1100	300	408	1100	1200	2.36	508	29.3
				1500	2.89	519	29.9
				1800	3.50	514	29.6
OCP1160	350	476	1160	1200	2.36	508	30.9
				1500	2.89	519	31.5
				1800	3.50	514	31.2
OCP1200	400	544	1200	1200	2.36	508	31.9
				1500	2.89	519	32.6
				1800	3.50	514	32.3
OCP1250	530	721	1250	1500	3.50	429	28.0
	630	857		1800	3.50	514	33.7
OCP1550	650	884	1550	1500	4.07	369	29.9
	725	986		1800	4.80	375	30.4
OCP1800	1100	1496	1800	1200	3.50	343	32.3
	1050	1428		1500	4.64	323	30.5
	1000	1360		1800	5.54	325	30.6



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Series OFP with fixed pitch propeller							
Thruster Model	Max. * Power [kW]	Max. * Power [hp]	Prop. dia. [mm]	Input speed [rpm]	Gear ratio [i]	Output Speed [rpm]	Tip Speed [m/s]
OFP320	25	34	320	1500 1800	1.00 1.00	1500 1800	26,7 32,0
OFP370	35	48	370	1500 1800	1.00 1.00	1500 1800	30,2 36,3
OFP440	45	61	440	1500 1800	1.00 1.50	1500 1200	35,3 27,6
OFP530	60	82	530	1500 1800	1.50 1.50	1000 1200	27,8 33,3
OFP580	90	122	580	1500 1800	1.50 1.85	1000 975	30,0 29,6
OFP660 OFP715	120 150	163 204	660 715	1500 1800	1.57 2.00	955 900	33,0 33,7
OFP750 OFP805	200 225	272 306	750 805	1500 1800	2.00 2.39	750 753	29,5 31,7
OFP950 OFP1000	250 275	340 374	950 1000	1500 1800	2.45 2.89	612 623	30,5 32,6
OFP1100 OFP1160 OFP1200	300 350 400	408 476 544	1100 1160 1200	1200 1500 1800	2.36 2.89 3.50	508 519 514	29,3 31,5 32,3
OFP1250 OFP1250	448 538	609 732	1250 1250	1500 1800	3.56 3.50	422 514	27,6 33,7
OFP1550 OFP1550	770 760	1047 1034	1550 1550	1500 1800	4.11 4.88	365 369	29,6 29,9
OFP1800 OFP1800 OFP1800	846 890 1060	1150 1210 1442	1800 1800 1800	1200 1500 1800	3.50 4.64 5.57	343 323 323	32,3 30,4 30,6

* The actual maximum power can deviate, as it depends on the application and classification society.

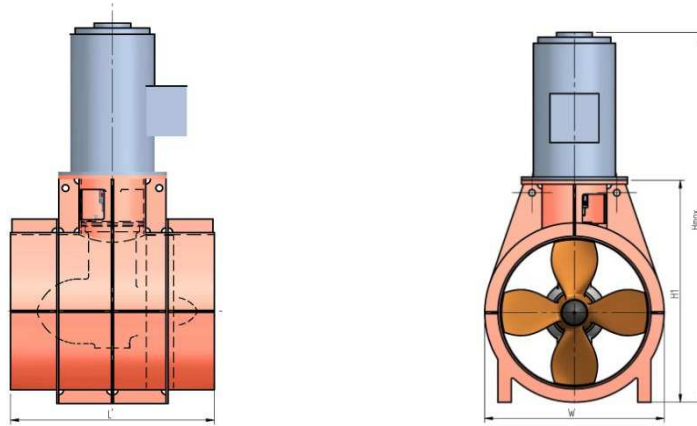
Besides the above specified range, upon request Verhaar Omega thruster units can be tailored to suit your individual needs and specific demands. Whether it concerns light duty or heavy duty applications, simple harbour manoeuvring or dynamic positioning, we always have the ideal thruster unit available.

Rules and regulations

Verhaar Omega thrusters are built fully in accordance with the rules and regulations set by the major classification societies such as LRS, GL, BV, DNV, ABS, RINA and RMRS



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OFP & OCP DIMENSIONS

OFP & OCP Thruster Model	Outer tunnel diameter [mm]	Tunnel wall thickness [mm]	L [mm]	W [mm]	H1* [mm]
OFP320	360	10	500	490	615
OFP370	410	10	500	550	645
OFP440	480	10	500		
OFP530	570	10	1000	710	905
OFP580	620	10	1000	760	945
OFP660	708	12	1000	908	1181
OFP715	763	12	1000	963	1209
OFP750 ¹	804	15	1000	1004	1259
OFP805	859	15	1000	1059	1286
OFP950 ²	1004	15	1500	1204	1485
OFP1000 ²	1054	15	1500	1254	1510
OFP1100 ¹ / OCP1100	1155	15	1500	1355	1678
OFP1160 ¹ / OCP1160	1216	15	1500	1416	1708
OFP1200 ¹ / OCP1200	1258	15	1500	1460	1729
OPP1250 ³ / OCP1250	1308	15	1500	1616	2008
OFP1550 / OCP1500	1610	15	1900	2014	2446
OFP1800 / OCP1800	1860	15	2000	2690	1960

Above dimensions are applicable to steel tunnels. Please contact Verhaar Omega for the aluminum tunnel dimensions.

* Hmax. depends on the electric motor type and brand.

¹ Type approved by BV till April 20, 2016

² Type approved by BV till August 24, 2017

³ Type approved by GL till May 20, 2018



All data subject to change without prior notice.



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