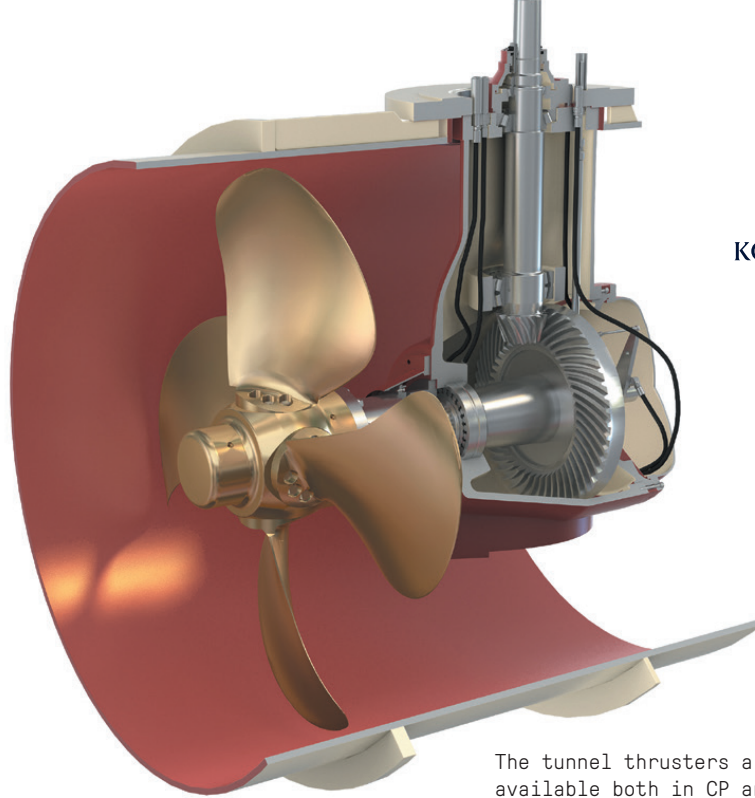


TUNNEL THRUSTERS TYPE TT CP



KONGSBERG



The tunnel thrusters are available both in CP and FP type

KONGSBERG TUNNEL THRUSTERS

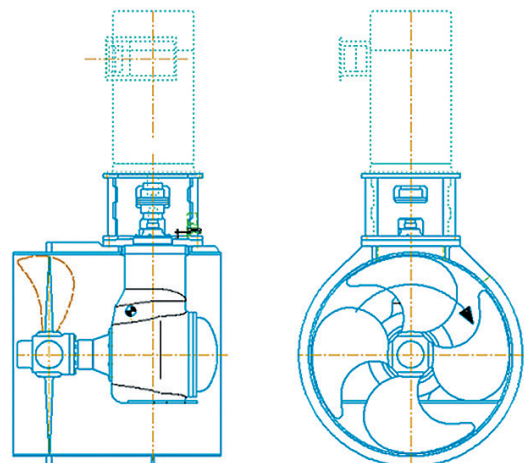
Type TT CP

Key facts

The tunnel thruster is designed for giving max. sideforce to the ship in manoeuvring condition.

The system normally contains of thruster unit with tunnel, hydraulic equipment, remote control and electrical drivemotor with starter.

- Available also in FP type.
- Skew blades.
- Drive shaft seal can be changed without removing electric motor.
- Heavy duty propeller hub with specialblade seals in DP condition.
- Shaft seal pressure control with drainconnection in DP condition.
- Mechanical locked bearings in DP condition.
- Available in super-silent version.
- For ICE version, blade design of caplan type.

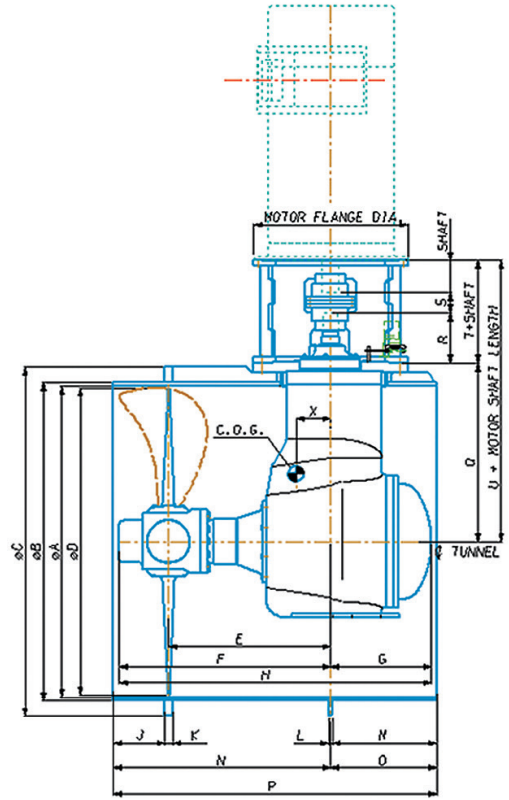
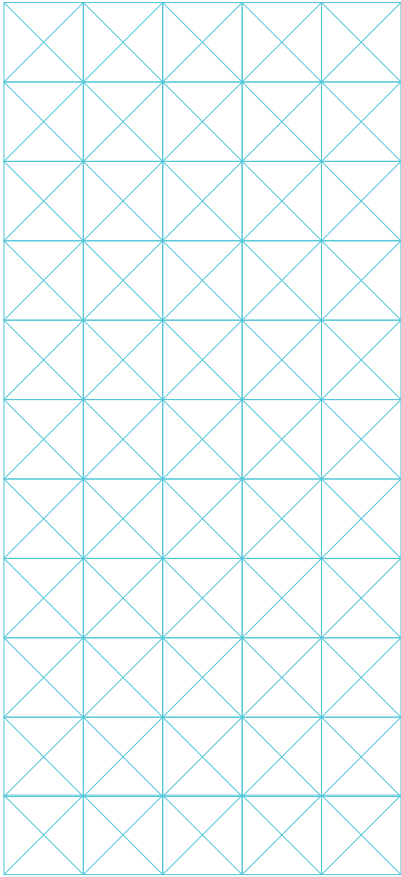


ØD mm	INPUT RPM	FREQUENCY HZ	GEAR RATIO		OUTPUT RPM	TIP SPEED M/S	EL MOTOR		DIESEL	
			Z1	Z2			VERSION AUX/AUD	VERSION ICE/DPN/DPD	VERSION AUX/AUXD	VERSION ICE/DPN/DPD
1100	1465	50	13/41		465	26,8	330	300	290	260
1100	1755	60	13/41		556	32,0	390	350	340	310
1300	1470	50	13/49		390	26,5	495	445	435	390
1300	1470	50	13/43		444	30,3	580	520		
1300	1760	60	13/49		467	31,8	595	535	520	475
1300	1760	60	13/43		532	36,2	680	620		
1650	1475	50	11/52		312	27,0	720	645	630	570
1650	1475	50	13/49		391	33,8	900	850		
1650	1475	50	12/51		347	30	800	750		
1650	1180	60	13/49		313	27,0	750	700		
1650	1770	60	11/52		374	32,3	865	780	760	685
1650	1770	60	12/51		416	36	950	900		
1650	1180		13/49		313	27	750	700		
1850	1475	50	12/63		281	27,2	880	800	780	700
1850	1475	50	11/52		312	30,2	1000	900		
1850	1475	50	13/53		362	35	1130	1030		
1850	1180	60	13/53		289	28,0	900	800		
1850	1770	60	12/63		337	32,7	1050	950	930	840
1850	1770	60	11/52		374	36,3	1200	1100		
1850	1180	60	11/52		250	24,2		700		
1850	1180	60	13/53		289	28	900	800		
2000	980	50	13/49		260	27,2	1100	1000		
2000	1480	50	11/53		307	32,2	1295	1165	1140	1025
2000	1480	50	12/53		335	35,1	1400	1250		
2000	1180	60	11/53		245	25,6	1030	925	905	815
2000	1180	60	11/43		302	31,6	1300	1170		
2000	1180	60	13/49		313	32,8	1400	1200		
2200	980	50	13/56		228	26,2	1240	1115	1090	980
2200	980	50	12/47		250	28,8	1380	1250		
2200	980	50	12/47		250	28,8		1100 *		
2200	980	50	12/47		250	28,8	1380	1250 *		
2200	980	50	13/56		228	26,2	1240	1115		
2200	1480	50	13/64		301	34,6	1500	1350		
2200	1480	50	11/54		301	34,7	1500	1350		
2200	880	60	12/47		225	25,9		1200		
2200	1190	60	12/47		304	35	1700	1550		
2200	1190	60	13/64		242	27,8		1050 *		
2200	1190	60	12/47		304	35	1700	1550 *		
2200	1190	60	13/56		276	31,8		1355 *		
2200	1190	60	13/56		276	31,8	1510	1355 *		
2200	1190	60	13/56		276	31,8	1510	1355	1325	1190
2200	1190	60	13/64		242	27,8	1150	1050	1020	925
2200	1190	60	11/54		242	27,9	1200	1150 *		

Ø D mm	INPUT RPM	FREQUENCY HZ	GEAR RATIO Z1 Z2		OUTPUT RPM	TIP SPEED M/S	EL MOTOR		DIESEL	
							VERSION AUX/AUD	VERSION ICE/DPN/DPD	VERSION AUX/AUXD	VERSION ICE/DPN/DPD
2400	980	50	11/51		211	26,6	1580	1420	1390	1250
2400	980	50	13/54		236	29,6	1700	1550		310
2400	980	50	11/51		211	26,6	1580	1420 *	435	390
2400	1480	50	12/62		286	36	1920	1740		
2400	1480	50	12/62		286	36	2050	1850 *	520	475
2400	1190	60	12/62		230	28,9	1480	1350	1320	1180
2400	1190	60	11/51		257	32,3	1910	1720	1680	1510
2400	1190	60	13/54		286	36	2000	1850		
2400	1190	60	12/62		230	28,9	1650	1500 *		
2400	1190	60	11/51		257	32,3	1910	1720 *		
2650	980	50	13/56		228	31,6	2400	2160	2110	2000
2650	980	50	13/59		216	30	2250	2100		
2650	880	60	13/56		204	28,3	2150	1935	1892	1700
2650	880	60	13/59		194	26,9	2050	1850	780	700
2650	1190	60	13/59		262	36,4	2500	2400		
2800	980	50	12/53		222	32,5	2650	2385	2330	2095
2800	880	60	12/53		199	29,2	2380	2140	2090	1880
3000	735	50	13/56		171	26,8	2510	2260	2210	1990
3000	980	50	13/56		228	35,7	3350	3000		
3000	880	60	13/56		204	32,1	3000	2700	2640	2370
3000	710	60	13/56		165	25,9	2450	2200		
3300	735	50	13/62		154	26,6	3100	2790	2730	2450
3300	735	50	13/54		177	30,6	3400	3100	1140	1025
3300	880	60	13/62		185	31,9	3700	3330	3250	2930
3300	710	60	13/62		149	25,7	2700	2700	905	815
3300	880	60	13/54		212	36,6	4100	3700		
3300	710	60	13/54		171	29,5	3400	3100		

* High grade material.

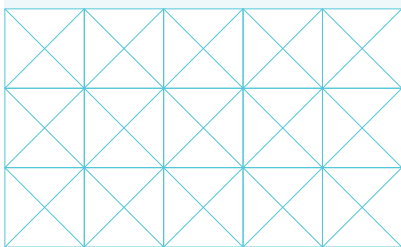
HIGH TIP SPEED. SUBJECT TO CASE BY CASE APPROVAL.							EL. MOTOR
Ø D mm	INPUT RPM	FREQUENCY HZ	GEAR RATIO Z1 Z2		OUTPUT RPM	TIP SPEED M/S	Version AUX2/AUX2D
2 200	1 190	60	12	47	304	35,0	1 700
2 400	1 190	60	12	54	286	36,0	2 000
2 650	1 190	60	13	59	262	36,4	2 500
3 300	880	60	13	54	212	36,6	3 800



TECHNICAL DATA

TT-UNIT REFERED TO PROPELLER DIA D

ØD	1100	1300	1650	1850	2000	2200	2400	2650	2800	3000	3300
øA	1 120	1 328	1 680	1 880	2 026	2 230	2 430	2 680	2 836	3 038	3 346
øB	1 150	1 358	1 714	1 924	2 070	2 274	2 480	2 730	2 896	3 098	3 416
øC	1 330	1 538	1 914	2 124	2 270	2 474	2 680	2 930	3 196	3 398	3 716
E	670	749	943	1 000	1 070	1 190	1 305	1 443	1 503	1 653	1 730
F	885	1 023	1 266	1 323	1 424	1 576	1 725	1 906	2 013	2 208	2 340
G	460	495	567	635	656	712	783	861	893	975	1 011
H	1 345	1 518	1 833	1 958	2 080	2 288	2 508	2 767	2 906	3 183	3 351
J	215	270	310	315	340	365	420	457	505	540	650
K	30	30	50	50	50	50	50	50	50	60	60
L	15	15	20	20	20	20	20	20	20	25	25
M	462	497	565	650	655	710	790	790	2000		
N	900	1 035	1 275	1 340	1 435	1 580	1 750	1 925	2 035	2 225	2 410
O	470	505	575	660	665	720	800	875	915	975	1 040
P	1 370	1 540	1 850	2 000	2 100	2 300	2 550	2 800	2 950	3 200	3 450
Q	638	756	957	1 075	1 160	1 275	1 380	1 527	1 610	1 723	1 875
R	204	223	263	300	330	380	380	413	440	509	580
S	25	45	112	112	130	150	180	203	203	219	255
T	229	268	375	412	460	530	560	616	643	728	835
U	867	1 024	1 332	1 487	1 620	1 805	1 940	2 143	2 253	2 451	2 710
X	135	185	225	250	275	300	350	375	400	425	450
Weight - AUX	1 150	2 000	3 550	4 600	6 100	8 100	10 500	14 050	16 350	20 450	27 250
Weight - ICE/ DPN/DPD	1 150	2 000	3 700	4 600	6 400	8 500	10 900	14 300	16 500	20 750	27 500



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