

ZF 665 ATS

10° Down angle, direct mount marine transmission.

Description

- Fully works tested, reliable and simple to install .
- Design, manufacture and quality control standards comply with ISO 9001 .
- Reverse reduction TWO SPEED transmission equipped with electric shift from first to second speed. .
- Compatible with all types of engines and propulsion systems, including waterjets and surface- piercing propellers, as applicable .
- Suitable for high performance applications in luxury motor yachts, sport fishers, express cruisers and light duty applications (eg. Customs/police boats) .

Features

- Lightweight and robust aluminum alloy casing (sea water resistant) .
- Case hardened and precisely ground gear teeth for long life and smooth running .
- Planetary step-up gear on power input side .
- Output shaft thrust bearing designed to take maximum propeller thrust astern and ahead .
- Smooth and reliable hydraulic shifting with control lever for attachment of push-pull cable or other operating system .
- "SUPERSHIFT" clutch control .
- Suitable for twin engine installations (same torque capacity in ahead or astern mode. Reduction Ratios in ahead or astern are very close.) .

Options

- Engine-matched torsional coupling .
- Propeller shaft flange and coupling bolt sets .
- Classification by all major Classification Societies on request .
- Oil cooler complete with fittings and flexible oil hoses .
- Mounting brackets .
- Electric clutch control (12 or 24 VDC) .

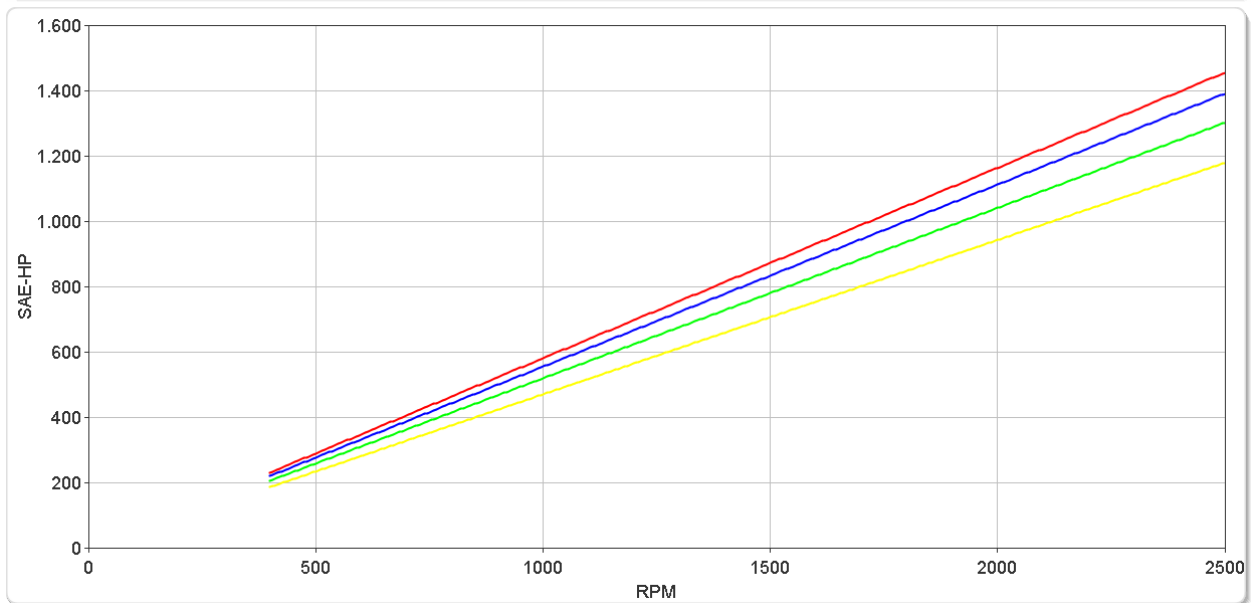
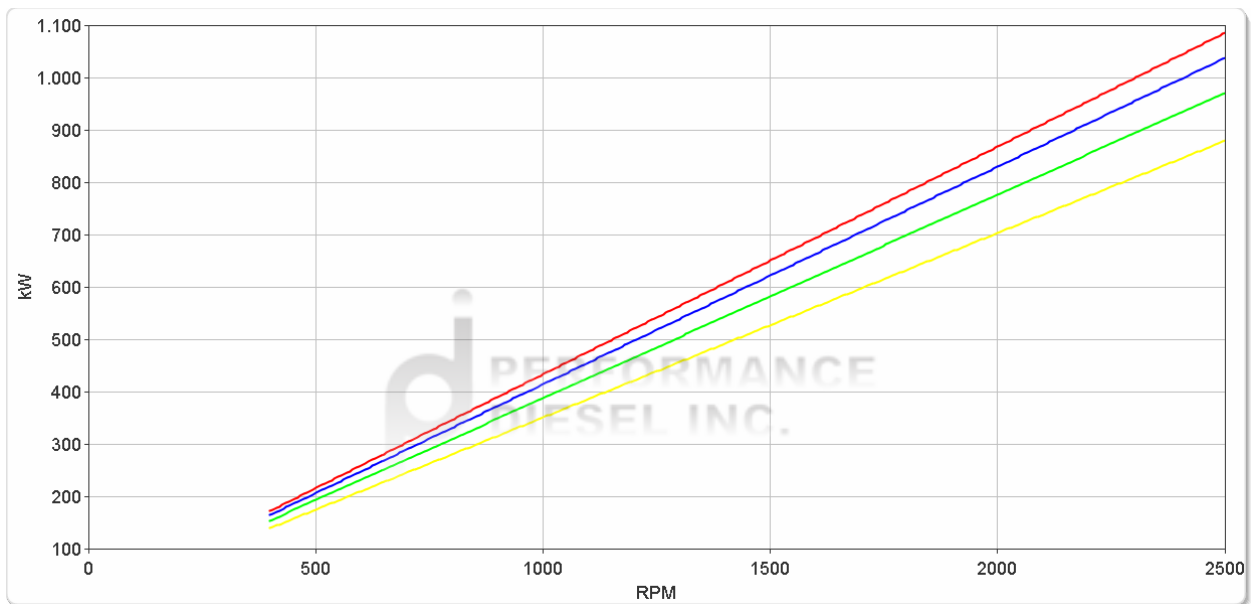
ZF 665 ATS

Ratings

Pleasure Duty

	RATIOS					MAX. TORQUE		POWER/RPM		INPUT POWER CAPACITY				MAX. RPM		
	1st	2nd				Nm	ftlb	kW	hp	2100 rpm		2300 rpm			2450 rpm	
										kW	hp	kW	hp		kW	hp
■	1.525	1.225,1.277,1.325,1.363,1.401	4152	3062	0.4348	0.5830	913	1224	1000	1341	1065	1428	2500			
■	1.757	1.411,1.471,1.526,1.571,1.613	4152	3062	0.4348	0.5830	913	1224	1000	1341	1065	1428	2500			
■	1.971	1.583,1.650,1.712,1.762,1.810	4152	3062	0.4348	0.5830	913	1224	1000	1341	1065	1428	2500			
■	2.226	1.788,1.863,1.934,1.990,2.044	4152	3062	0.4348	0.5830	913	1224	1000	1341	1065	1428	2500			
■	2.448	1.966,2.050,2.127,2.189,2.248	3969	2927	0.4156	0.5573	873	1170	956	1282	1018	1365	2500			
■	2.517	2.022,2.107,2.187,2.251,2.312	3715	2740	0.3890	0.5217	817	1095	895	1200	953	1278	2500			
■	2.960	2.377,2.478,2.572,2.646,2.718	3365	2482	0.3524	0.4725	740	992	810	1087	863	1158	2500			

* Special Order Ratio.



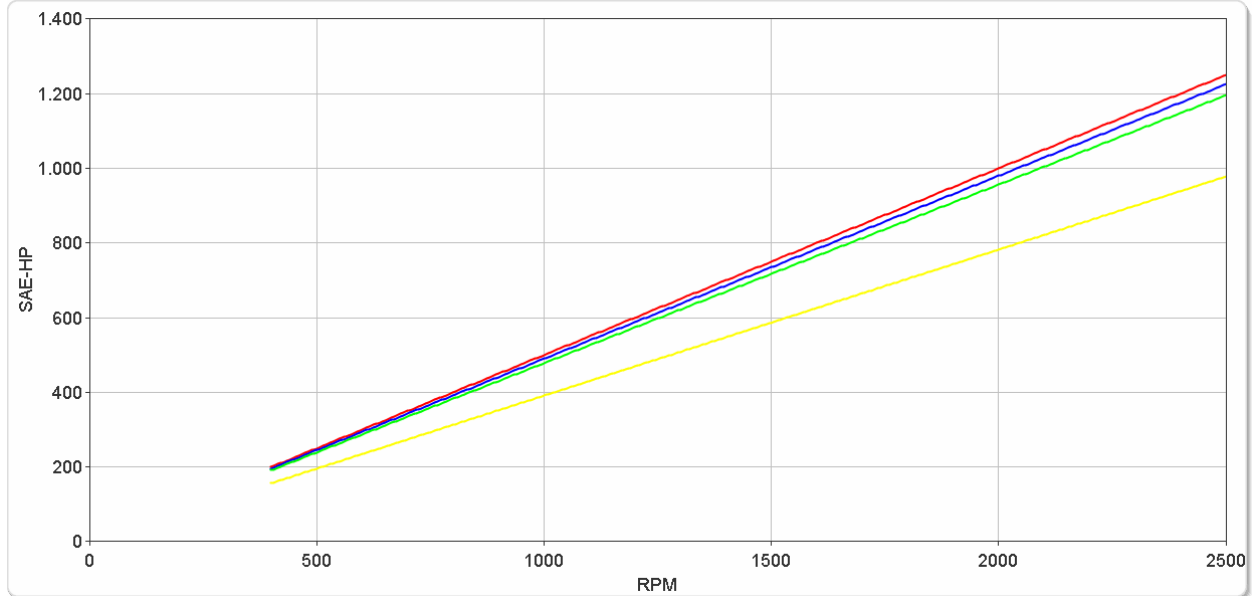
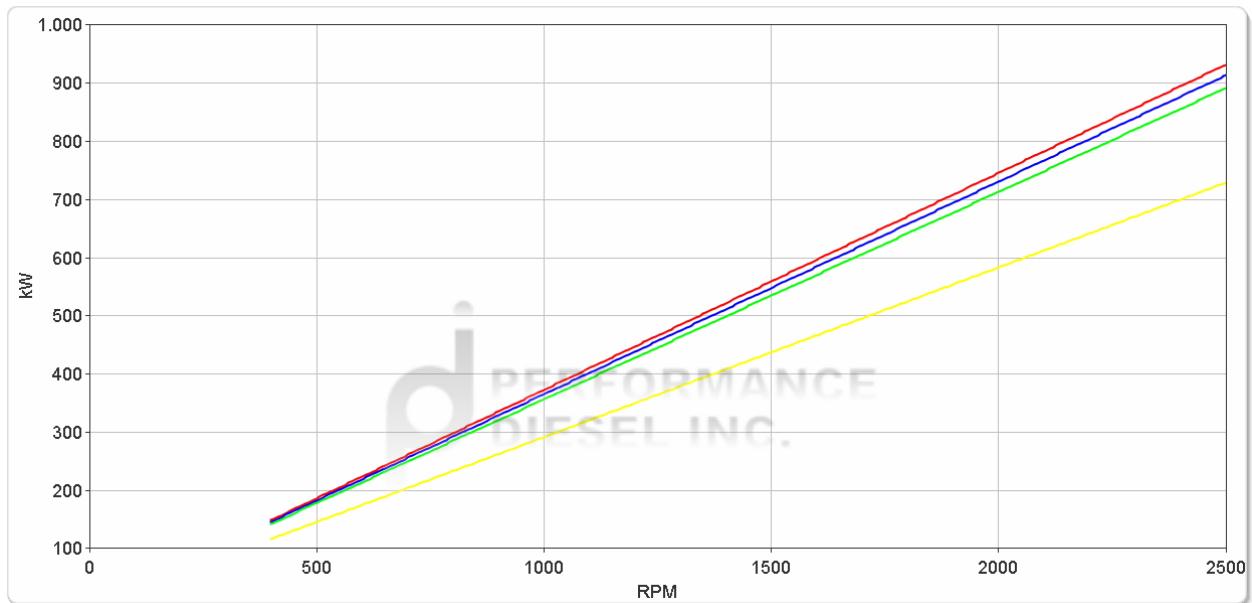
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Ratings

Light Duty

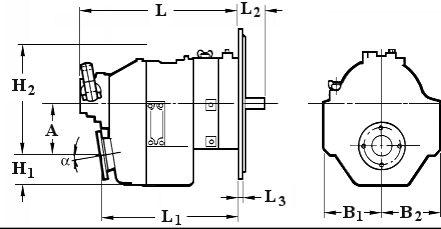
	RATIOS						MAX. TORQUE		POWER/RPM		INPUT POWER CAPACITY						MAX. RPM
	1st	2nd					Nm	ftlb	kW	hp	2100 rpm		2300 rpm		2450 rpm		
											kW	hp	kW	hp	kW	hp	
■	1.525	1.225,1.277,1.325,1.363,1.401	3561	2626	0.3729	0.5000	783	1050	858	1150	914	1225	2500				
■	1.757	1.411,1.471,1.526,1.571,1.613	3561	2626	0.3729	0.5000	783	1050	858	1150	914	1225	2500				
■	1.971	1.583,1.650,1.712,1.762,1.810	3561	2626	0.3729	0.5000	783	1050	858	1150	914	1225	2500				
■	2.226	1.788,1.863,1.934,1.990,2.044	3490	2574	0.3654	0.4901	767	1029	841	1127	895	1201	2500				
■	2.448	1.966,2.050,2.127,2.189,2.248	3490	2574	0.3654	0.4901	767	1029	841	1127	895	1201	2500				
■	2.517	2.022,2.107,2.187,2.251,2.312	3406	2512	0.3566	0.4783	749	1004	820	1100	874	1172	2500				
■	2.960	2.377,2.478,2.572,2.646,2.718	2786	2055	0.2917	0.3912	613	822	671	900	715	958	2500				

* Special Order Ratio.



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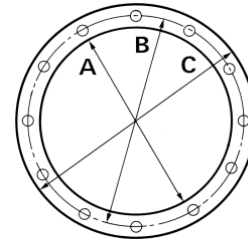
Dimensions



mm (inches)										
Angle	A	B ₁	B ₂	H ₁	H ₂	L	L ₁	L ₂	L ₃	Bell Hsg.
10.0	269 (10.6)	310 (12.2)	310 (12.2)	157 (6.17)	592 (23.3)	884 (34.8)	724 (28.5)	-	-	
Weight kg (lb)						Oil Capacity Litre (US qt)				
353 (777)						15.0 (15.9)				

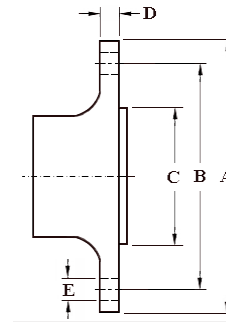
SAE Bell Housing Dimensions

SAE No.	A		B		C		Bolt Holes No.	Diameter	
	mm	in	mm	in	mm	in		mm	in
1	511.18	20.125	530.23	20.875	552.45	21.75	12	11.91	15/32



Output Coupling Dimensions

A		B		C		D		Bolt Holes No.	Diameter (E)	
mm	in	mm	in	mm	in	mm	in		mm	in
205	8.07	170	6.69	140	5.51	20.0	0.79	10	18.3	0.72



Duty Definitions

PLEASURE DUTY DEFINITION Highly intermittent operation with very large variations in engine speed and power

Average engine operating 500 hours/year
hours limit: 300 hours/year for mechanical gearboxes

Typical hull forms: Planing.

Typical applications: Private, non-commercial, non-charter sport/leisure activities.

LIGHT DUTY DEFINITION Intermittent operation with large variations in engine speed and power

Average engine operating 2500 hours/year
hours limit: (for hydraulic gearboxes smaller than the ZF 650 series, 2000 hours/year).

Typical hull forms: Planing and semi-displacement.

Typical applications: Private and charter, sport/leisure activities, naval and police activities.

Duty Ratings

Ratings apply to marine diesel engines at the indicated speeds. At other engine speeds, the respective power capacity (kW) of the transmission can be obtained by multiplying the Power/Speed ratio by the speed.

Approximate conversion factors:

1 kW = 1.36 metric hp

1 kW = 1.34 U.S. hp (SAE)

1 U.S. hp = 1.014 metric hp

1 Nm = 0.74 lb.ft.

Ratings apply to right hand turning engines, i.e. engines having counterclockwise rotating flywheels when viewing the flywheel end of the engine.

These ratings allow full power through forward and reverse gear trains, unless otherwise stated.

Contact your nearest ZF Sales and Service office for ratings applicable to gas turbines, gasoline (petrol) engines, as well as left hand turning engines, and marine transmissions for large horsepower capacity engines.

Ratings apply to marine transmissions currently in production or in development and are subject to change without prior notice.

NOTE: THE MAXIMUM RATED INPUT POWER MUST NOT BE EXCEEDED (SEE RESPECTIVE RATINGS IN THE TECHNICAL DATA SHEETS)

Safe Operating Notice

The safe operation of ZF products depends upon adherence to technical data presented in our brochures. Safe operation also depends upon proper installation, operation and routine maintenance and inspection under prevailing conditions and recommendations set forth by ZF. Damage to transmission caused by repeated or continuous emergency manoeuvres or abnormal operation is not covered under warranty. It is the responsibility of users and not ZF to provide and install guards and safety devices, which may be required by recognized safety standards of the respective country (e.g. for U.S.A. the Occupational Safety Act of 1970 and its subsequent provisions).

Monitoring Notice

The safe operation of ZF products depends upon adherence to ZF monitoring recommendations presented in our operating manuals, etc. It is the responsibility of users and not ZF to provide and install monitoring devices and safety interlock systems as may be deemed prudent by ZF. Consult ZF for details and recommendations.

Torsional Responsibility and Torsional Couplings

The responsibility for ensuring torsional compatibility rests with the assembler of the drive and driven equipment. ZF can accept no liability for gearbox noise caused by vibrations or for damage to the gearbox, the flexible coupling or to other parts of the drive unit caused by this kind of vibration.

Contact ZF for further information and assistance. ZF recommends the use of a torsional limit stop for single engine powered boats, wherein loss of propulsion power can result in loss of control. It is the buyer's responsibility to specify this option, which can result in additional cost and a possible increase in installation length.

ZF can accept no liability for personal injury, loss of life, or damage or loss of property due to the failure of the buyer to specify a torsional limit stop.

ZF selects torsional couplings on the basis of nominal input torque ratings and commonly accepted rated engine governed speeds. Consult ZF for details concerning speed limits of standard offering torsional couplings, which can be less than the transmission limit. Special torsional couplings may be required for Survey Society Ice Classification requirements.

