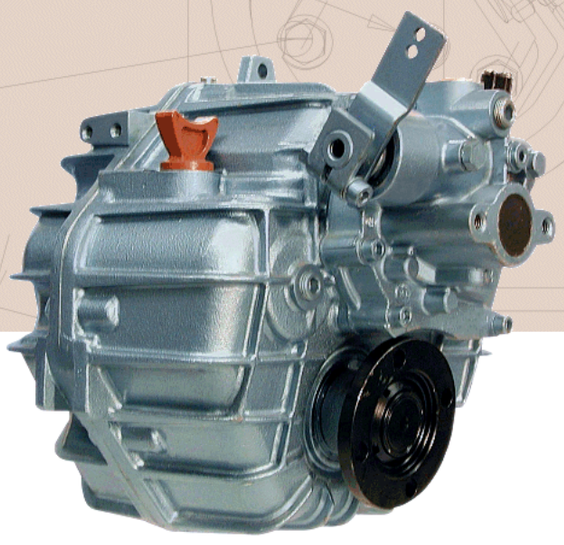


ZF 25 A

8° Down angle, direct mount marine transmission.
Maximum rated input: 107kW (143hp)

Description

- Reverse reduction marine transmission with hydraulically actuated multi-disc clutches.
- Suitable for high performance applications in luxury motoryachts, sport fishers, express cruisers etc.
- Robust design also withstands continuous duty in workboat applications.
- Fully works tested, reliable and simple to install.
- Design, manufacture and quality control standards comply with ISO 9001.
- Compatible with all types of engines and propulsion systems, including waterjets and surface- piercing propellers, as applicable.

Features

- Lightweight and robust aluminum alloy casing (sea water resistant).
- Case hardened and precisely ground gear teeth for long life and smooth running.
- 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.
- Suitable for twin engine installations (same ratio and torque capacity in ahead or astern mode).
- Replaceable oil filter cartridge.
- Compact, space saving design due to 8° down-angle and beveloid gear principle.
- "SUPERSHIFT" clutch control.
- Ratios: 1.548, 1.926, 2.292, 2.714
- Capable of input speeds up to 5500rpm.

Options

- Engine-matched dual stage coupling.
- SAE 3, SAE 4, SAE 5 and B.W. adapters.
- Oil cooler complete with fittings and flexible oil hoses.
- Propeller shaft flange.
- Control cable bracket for mounting of push-pull cable to the control lever.
- Classification by all major Classification Societies on request.
- SAE «A» Power Take Off.
- Trolling valve (mechanical) for slow-speed drive.
- Thermostatic valve for better performance of trolling valve in cold sea water.
- Electric Trolling.
- "EASIDOCK".

ZF 25 A

P Duty

RATIOS		MAX. TORQUE		POWER/RPM		SAMPLE POWER CAPACITIES						MAX. RPM
'A' Pos	'B' Pos	NM	ftlb	kW	hp	kW	hp	kW	hp	kW	hp	
						2600 rpm		2800 rpm		3300 rpm		
1.548	1.548	310	229	0.0325	0.0435	84	113	91	122	107	144	5500
1.926	1.926	310	229	0.0325	0.0435	84	113	91	122	107	144	5500
2.292	2.292	250	184	0.0262	0.0351	68	91	73	98	86	116	5500
2.714	2.714	240	177	0.0251	0.0337	65	88	70	94	83	111	5500

P Duty Gasoline

RATIOS		MAX. TORQUE		POWER/RPM		SAMPLE POWER CAPACITIES						MAX. RPM
'A' Pos	'B' Pos	NM	ftlb	kW	hp	kW	hp	kW	hp	kW	hp	
						4000 rpm		4400 rpm		4800 rpm		
1.548	1.548	310	229	0.0325	0.0435	130	174	143	192	156	209	5500
1.926	1.926	310	229	0.0325	0.0435	130	174	143	192	156	209	5500
2.292	2.292	250	184	0.0262	0.0351	105	140	115	154	126	169	5500
2.714	2.714	240	177	0.0251	0.0337	101	135	111	148	121	162	5500

L Duty

RATIOS		MAX. TORQUE		POWER/RPM		SAMPLE POWER CAPACITIES						MAX. RPM
'A' Pos	'B' Pos	NM	ftlb	kW	hp	kW	hp	kW	hp	kW	hp	
						2100 rpm		2500 rpm		2800 rpm		
1.548	1.548	238	176	0.0249	0.0334	52	70	62	84	70	94	5500
1.926	1.926	238	176	0.0249	0.0334	52	70	62	84	70	94	5500
2.292	2.292	238	176	0.0249	0.0334	52	70	62	84	70	94	5500
2.714	2.714	228	168	0.0239	0.0320	50	67	60	80	67	90	5500

M Duty

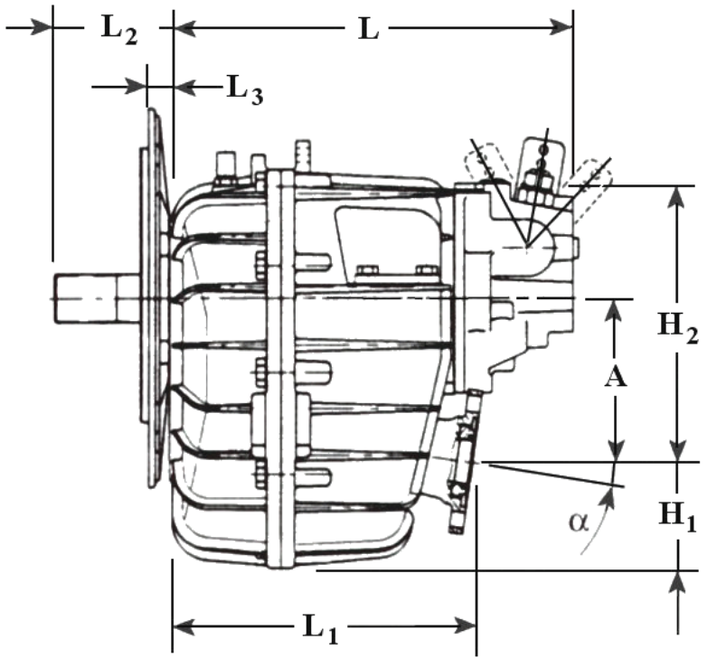
RATIOS		MAX. TORQUE		POWER/RPM		SAMPLE POWER CAPACITIES						MAX. RPM
'A' Pos	'B' Pos	NM	ftlb	kW	hp	kW	hp	kW	hp	kW	hp	
						2100 rpm		2500 rpm		2800 rpm		
1.548	1.548	203	150	0.0213	0.0285	45	60	53	71	60	80	5500
1.926	1.926	203	150	0.0213	0.0285	45	60	53	71	60	80	5500
2.292	2.292	203	150	0.0213	0.0285	45	60	53	71	60	80	5500
2.714	2.714	194	143	0.0203	0.0272	43	57	51	68	57	76	5500

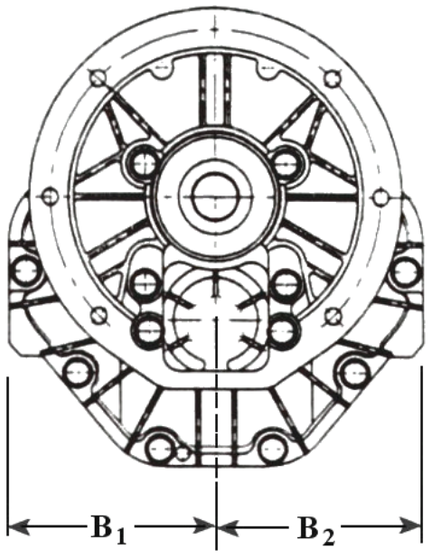
C Duty

RATIOS		MAX. TORQUE		POWER/RPM		SAMPLE POWER CAPACITIES						MAX. RPM
'A' Pos	'B' Pos	NM	ftlb	kW	hp	kW	hp	kW	hp	kW	hp	
						1800 rpm		2100 rpm		2400 rpm		
1.548	1.548	164	121	0.0172	0.0230	31	41	36	48	41	55	3200
1.926	1.926	164	121	0.0172	0.0230	31	41	36	48	41	55	3200
2.292	2.292	164	121	0.0172	0.0230	31	41	36	48	41	55	3200
2.714	2.714	159	117	0.0166	0.0223	30	40	35	47	40	54	3200

"A" POS = continuous running position (normally AHEAD). "B" POS = reverse position. B/W = Borg Warner adaptor.

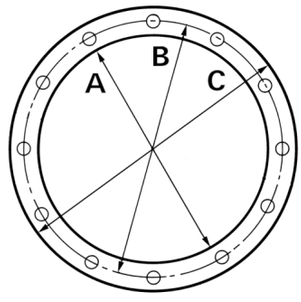
ZF 25 A





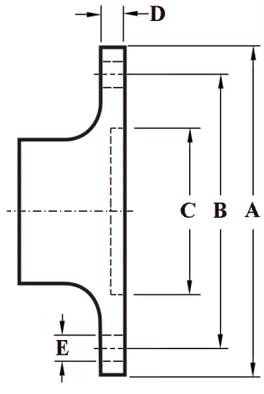
mm (inches)										
Angle	A	B_1	B_2	H_1	H_2	L	L_1	L_2	L_3	Bell Hsg.
8.0	115 (4.54)	147 (5.79)	147 (5.79)	75.0 (2.94)	228 (8.98)	293 (11.5)	216 (8.50)	82.5 (3.25)	17.5 (0.69)	B/W
Weight kg (lb)						Oil Capacity Litre (US qt)				
24.0 (53.0)						1.80 (1.90)				

SAE Bell Housing Dimensions



SAE No.	A		B		C		Bolt Holes		
							No.	Diameter	
	mm	in	mm	in	mm	in		mm	in
3	409.58	16.125	428.63	16.875	450.85	17.75	12	10.32	13/32
4	361.95	14.25	381.0	15.0	403.23	15.875	12	10.32	13/32
5	314.33	12.375	333.38	13.125	355.6	14.0	8	10.32	13/32

Output Coupling Dimensions



A		B		C		D		Bolt Holes		
								No.	Diameter (E)	
mm	in	mm	in	mm	in	mm	in		mm	in
102	4.02	82.5	3.25	63.5	2.50	10.0	0.39	4	11.5	0.45

Refer to Installation Drawing for detailed dimensions.

Technical Notes

Duty Definitions

Duty	Description	Average Engine Operating Hours	Typical Hull Forms	Typical Applications
P Duty	Highly intermittent operation with very large variations in engine speed and power	500 hours/year 300 hours/year for mechanical transmissions	Planing.	Private, non-commercial, non-charter sport/leisure activities.
L Duty	Intermittent operation with large variations in engine speed and power	2500 hours/year (for hydraulic transmissions smaller than the ZF 650 series, 2000 hours/year).	Planing and semi-displacement.	Private and charter, sport/leisure activities, naval and police activities.
M Duty	Intermittent operation with some variations in engine speed and power	4000 hours/year. 3500 hours/year for gearboxes smaller than ZF 1900 series and workboat ZF W2700 series.	Semi-displacement and displacement.	Charter and commercial craft (example: crew boats and fast ferries), and naval and police activities
C Duty	Continuous operation with little or no variations in engine speed and power	Unlimited	Displacement.	Heavy duty commercial vessels, tugs, fishing boats.

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 thc 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.

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.

Classification

In most cases, the maximum medium and continuous duty ratings permittcd by ZF are accepted in full by major classification societies. If classification is required, contact ZF regarding proper procedures (also for yacht service, and ice classifications).

Trolling Valves

Trolling valves are available as an option on most models of marine transmissions. In most cases, trolling valves are easily retrofitted. A thermostatic oil by-pass valve and remote oil cooler may be required to maintain proper operation and recommended oil temperature. Consult ZF for details and limits.

Non Reversing and 'U' Drive Options

In principle, all transmissions are available as non-reversing units (for instance, for controllable pitch propeller applications). Many parallel shaft transmissions can also be supplied with input and output on the same side (U-drive). Consult ZF for details.

Power Take Offs (PTO's)

All PTO'S are retrofittable except where stated otherwise. Most transmissions can be offered with clutchable or permanently driven (live) PTO'S. Consult ZF for details and limits.