



# ZF-ECOMAT®



## ZF automatic transmission HP 500, HP 590, HP 600 for city buses, line service buses and coaches



- ZF ECOMAT - a modern transmission system for city buses, line service buses and coaches.
- An electronic control unit provides the system with maximum possible shift comfort, safety, economy and service life.
- The Ecomat range is designed for use in buses with a total weight not exceeding 28 t.

### *Special features*

- Smooth moving off, no clutch wear
- Torque converter only operates when moving off
- Close ratio steps in planetary transmission
- Shift points are load and acceleration-dependent
- Consistent level of shift comfort with pressure regulation during gear-shifts
- Electronic control unit communicates with other electronic systems, such as electronic accelerator and EDC units
- Improved safety due to integrated retarder
- Increased road safety due to easy operation; operating errors are excluded
- Fast, straightforward system diagnosis
- Easy installation due to central wiring system
- Automatic "Neutral at Bus Stop" (NBS) as special option for city buses: automatically selects neutral when stationary

### *ZF Auxiliary units*

- Various angle drives can be installed

## Technical data

Type	No. of gears	Max. perm. input-speed (min <sup>-1</sup> )	Max. weight (t) at eng. torque DIN 70020/ISO 1585 [Nm]			Ratios							Weight <sup>3)</sup> (ca. kg)
			City bus	Artic. bus	Coach	1st	2nd	3rd	4th	5th	6th	Rev	
HP 500	4	2 800	19 t 1100 Nm	28 t 1050 Nm	26 t 1100 Nm	3.43	2.01	1.42	1.00	-	-	4.84	300
	5					3.43	2.01	1.42	1.00	0.83	-		310
	6	2 800 <sup>1)</sup>				3.43	2.01	1.42	1.00	0.83	0.59		310
HP 590	4	2 800	19 t 1250 Nm	28 t 1250 Nm	26 t 1250 Nm	3.43	2.01	1.42	1.00	-	-	4.84	305
	5					3.43	2.01	1.42	1.00	0.83	-		315
	6	2 800 <sup>1)</sup>				3.43	2.01	1.42	1.00	0.83	0.59		315
HP 600	4	2 650	19 t 1400 Nm	28 t 1400 Nm	26 t 1400 <sup>2)</sup> Nm	3.43	2.01	1.42	1.00	-	-	4.84	320
	5					3.43	2.01	1.42	1.00	0.83	-		330
	6	2 650 <sup>1)</sup>				3.43	2.01	1.42	1.00	0.83	0.59		330

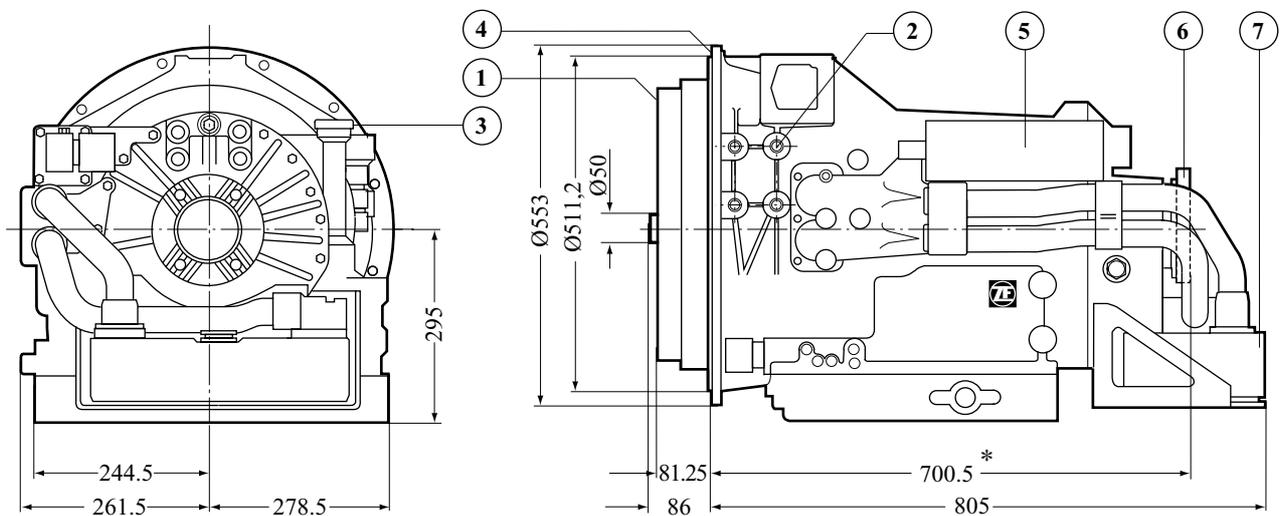
1) For ratio = 0.59; max speed = 1600 min<sup>-1</sup> - only after consultation with ZF

2) For coaches above 1400 Nm - only after consultation with ZF

3) Transmission with retarder and oil cooler (without oil)

Oil fill quantity for initial fill: approx. 30 dm<sup>3</sup>

## Installation dimensions



### Key to drawing

- |                                 |  |
|---------------------------------|--|
| ① Input                         | ⑥ DIN 165 output flange (various flange versions possible) |
| ② Side mounting faces           | ⑦ Oil cooler   |
| ③ Oil filler tube with dipstick |  |
| ④ SAE 1 engine mounting flange  |  |
| ⑤ Retarder accumulator          |  |

\* Depending on output flange type

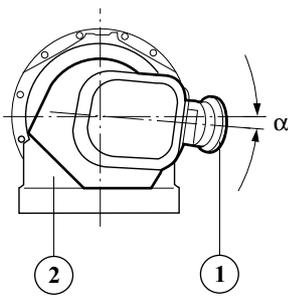
**60°, 65°, 80° angle drives**

For transverse installation of engine/transmission unit, the following angle drives (WTR) are available:

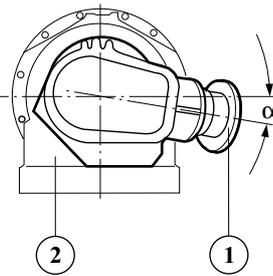
WTR	Ratios	Engine torque max. (Nm)	Weight (~ kg)	Position	
				right	left
60°	0.97	1 400	97	○ ( $\alpha = 5^\circ$ )	○ ( $\alpha = 5^\circ$ )
65°	1.03	1 400	97	○ ( $\alpha = 3.5^\circ; 10^\circ$ )	○ ( $\alpha = 5^\circ$ )
80°	0.97	1 400	97		○ ( $\alpha = 3^\circ; 6^\circ; 9^\circ$ )
80° LHD with offset axle	0.91	1 250	125		○ ( $\alpha = 5^\circ$ )
80° RHD with offset axle	0.98	1 250	125	○ ( $\alpha = 5^\circ$ )	

Max. permissible input speed = 2 400 min<sup>-1</sup>

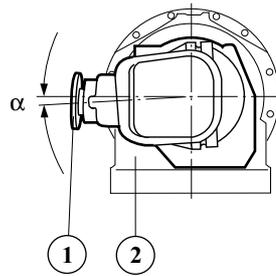
**60° WTR**



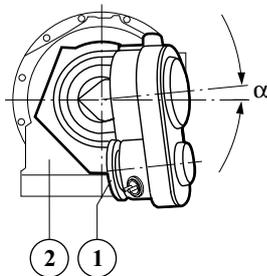
**65° WTR**



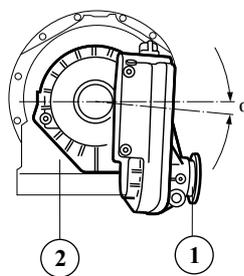
**80° WTR**



**80° LHD angle drive with offset axle**



**80° RHD angle drive with offset axle**



Key to drawing

- ① Output (various flange types available)
- ② Ecomat transmission

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Subject to technical change without notice. For installation investigation purpose, please request installation drawings; only the data contained therein is binding.

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