

The PMSM is a brushless permanent magnet motor based on axial flux technology. The motor type is commonly referred to as “pancake motor” because of its flat design. Compared to a traditional induction motor, the weight is lower and the efficiency is higher, which means you can run your system longer and with less heating of the motor. The motor type also opens up for new applications where you cannot fit a larger motor.

The PGR gearboxes are developed for in-wheel mounting and allows the complete powertrain to be placed outside the vehicle frame, freeing up valuable space.

Typical applications for the motor type include:

- Cars, motorcycles, mopeds and other On and Off-road vehicles
- Material handling vehicles, such as forklifts and AGVs
- Various agriculture and turf equipment
- Wheelchairs, cleaning machines, personal transports etc.



This datasheet shows a number of combinations of motors in sizes 130, 150 and 172 together with different gearboxes. Other combinations may be available on request. Contact Regal for more information.

GENERAL SPECIFICATIONS

Motor type	Synchronous AC with axial flux
Magnet material	Neodymium (NdFeB)
Protection class	IP65
Ambient	Storage (-20°C to +40°C) , Operation (-10°C to +40°C)
Insulation	Insulation class F (155°C) – IEC 60034
Cooling	Forced air (air flow 5 m/s)
Battery voltage	Versions available for 24-96 V _{DC}

GEARBOX SPECIFICATIONS

GEARBOX SPECIFICATIONS	PGR 500			PGR 1500		
	1	2	3	1	2	3
Stages	1	2	3	1	2	3
Ratio i=	4/7	16/24/42	96/144	5	25/40/64	100/150/240
Rated Output Torque		160 Nm			800 Nm	
Max. Peak Output Torque		500 Nm			2000 Nm	
Max Axial Forces		2500 N			5000 N	
Max Radial Forces		7000 N			21000 N	
Calculated Lifetime		20000 h			20000 h	
Max. Allowed Surface Temp		90° C			90° C	
Gearbox weight	6,9 kg	7,3 kg	8,4 kg	14,0 kg	15,5 kg	17,5 kg

2016-09-07, specifications subject to change without notice



PMSM 130 SPECIFICATIONS

Battery Voltage	Versions available for 24-72V _{DC}					
Traction Power	Up to 3,3 kW					
Nominal Power	Up to 2,8 kW					
Rated Motor Speed	3000-6000 rpm					
Motor Peak Torque	16,2 Nm					
Gearbox Type	PGR 500			PGR 1500		
Ratio i=	16	24	42	100	150	240
Output speed (rpm)	187-375	125-250	71-142	30-60	20-40	12,5-25
Nominal Output Torque (Nm)	71	107	160	446	669	800
Peak Output Torque (Nm)	260	389	500	1620	2000	2000

PMSM 150 SPECIFICATIONS

Battery Voltage	Versions available for 36-72V _{DC}					
Traction Power	Up to 3,9 kW					
Nominal Power	Up to 3,4 kW					
Rated Motor Speed	3000-6000 rpm					
Motor Peak Torque	20,2 Nm					
Gearbox Type	PGR 500			PGR 1500		
Ratio i=	16	24	42	100	150	240
Output speed (rpm)	187-375	125-250	71-142	30-60	20-40	12,5-25
Nominal Output Torque (Nm)	96	144	160	600	800	800
Peak Output Torque (Nm)	323	485	500	2000	2000	2000

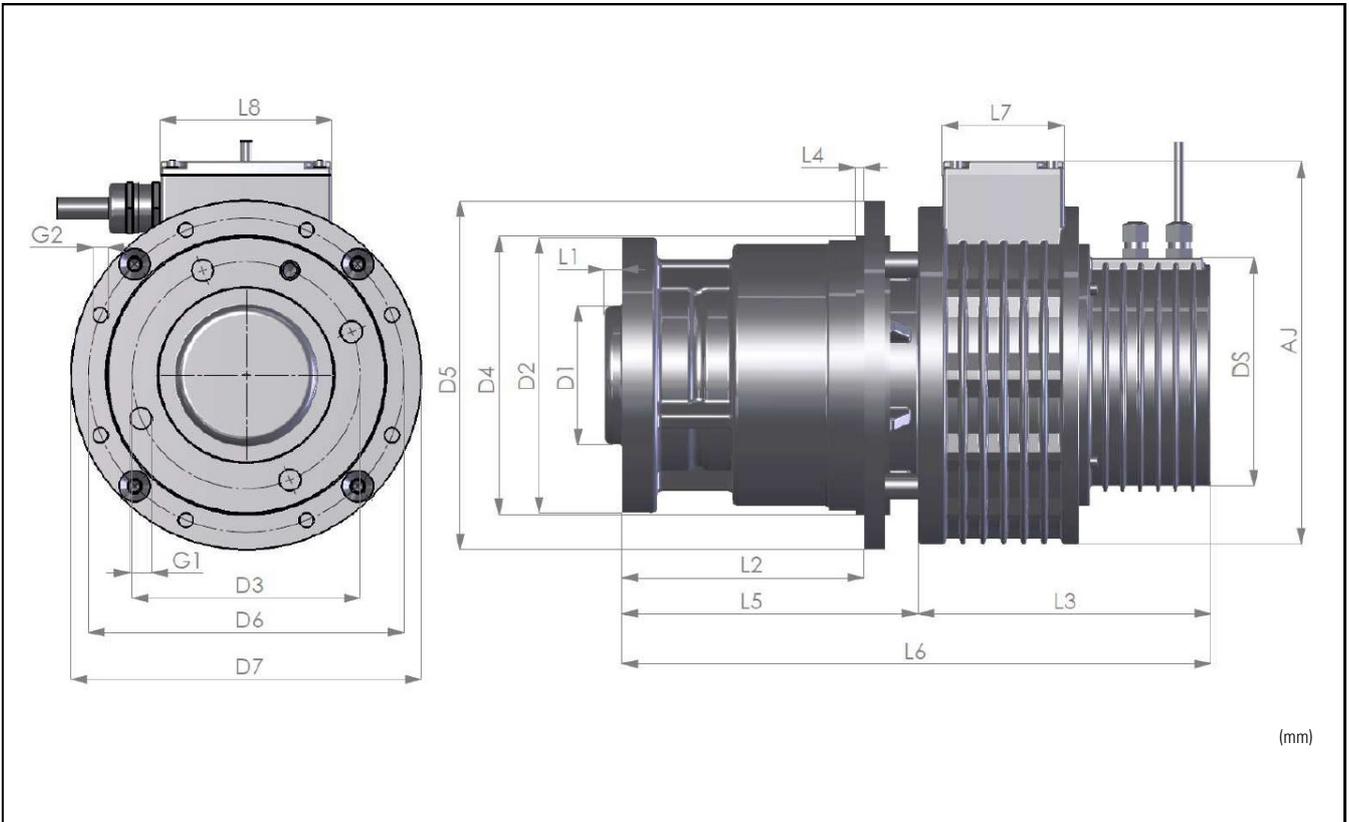
PMSM 172 SPECIFICATIONS

Battery Voltage	Versions available for 48-96V _{DC}					
Traction Power	Up to 8,8 kW					
Nominal Power	Up to 8,0 kW					
Rated Motor Speed	3000-6000 rpm					
Motor Peak Torque	54 Nm					
Gearbox Type	PGR 500			PGR 1500		
Ratio i=	4	7	16	25	40	N/A
Output speed (rpm)	750-1500	428-850	187-375	120-240	75-150	N/A
Nominal Output Torque (Nm)	63	111	160	397	636	N/A
Peak Output Torque (Nm)	216	378	500	1350	2000	N/A

2016-09-07, specifications subject to change without notice

DIMENSIONS (With electromechanical brake)

	TDSG 130-				TDSG 150-				TDSG 172-			
	500 1/2 stage	500 3 stage	1500 1/2 stage	1500 3 stage	500 1/2 stage	500 3 stage	1500 1/2 stage	1500 3 stage	500 1/2 stage	500 3 stage	1500 1/2 stage	1500 3 stage
D1	63		80		63		80		63		80	
D2	128		158		128		158		128		158	
L1		10				10				10		
D3	100		130		100		130		100		130	
G1	M12 x 1,5		M14 x 1,5		M12 x 1,5		M14 x 1,5		M12 x 1,5		M14 x 1,5	
D4	130		160		130		160		130		160	
L4		5				5				5		
D5	170		200		170		200		170		200	
D6	150	60	180	150	150	60	180	150	150	60	180	150
G2	M10 (x6)	M10 (x4)	M10 (x8)		M10 (x6)	M10 (x4)	M10 (x8)		M10 (x6)	M10 (x4)	M10 (x8)	
D7		194				216				245		
L2		105		138		105		138		105		138
L3		167				168,5				185		
L5	128	155	169	200	128	155	169	200	128	155	169	200
L6	295	322	336	367	296,5	323,5	337,5	368,5	313	340	354	385
L7		69,5				69,5				84		
L8		98				98				120		
DS		125				125				125		
AJ		220				241				274		



2016-09-07, specifications subject to change without notice



REGAL COMPONENTS AB • LEFFLERSGATAN 1 • SE-754 50 UPPSALA • SWEDEN
+46 (0)18-65 70 00 • WWW.REGAL.SE • INFO@REGAL.SE

Regal