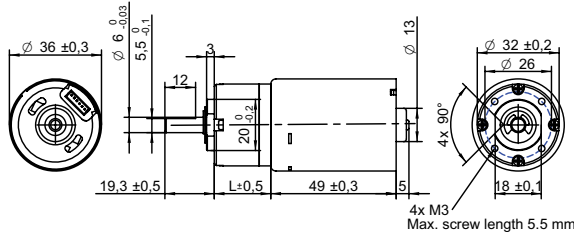


# PBT13649-12 | Ø 36 mm | BRUSHLESS DC PLANETARY GEAR MOTOR



## DRAWING (mm) INTERNAL DRIVER



## PHOTO

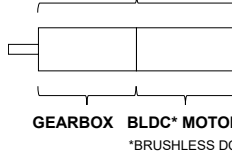


## MODEL NO. DESIGNATION

PBT13649 - VOLTAGE - GEAR RATIO

Example: PBT13649-12-4

## GEAR MOTOR



## OPTIONS POWER SUPPLIES



● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA														C		
Gear ratio		4:1	5:1	14:1	19:1	27:1	35:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1	939:1
Nominal torque   ^ gearbox limit	Ncm	7.7	9.7	24	32	46	59 <sup>A</sup>	74	78 <sup>A</sup>	98 <sup>A</sup>	98 <sup>A</sup>	120 <sup>A</sup>	120 <sup>A</sup>	120 <sup>A</sup>	120 <sup>A</sup>	120 <sup>A</sup>
Nominal speed	rpm	1300	1000	370	270	190	150	100	73	52	37	27	20	10	7	6
Peak torque	Ncm	59	59	120	120	180	180	240	240	290	290	350	350	350	350	350
Nominal power	W	10	10	9.2	9.2	9.2	9.2	7.8	7.8	7.8	7.8	6.5	6.5	6.5	6.5	6.5
Gearbox efficiency	%	80	80	70	70	70	70	60	60	60	60	50	50	50	50	50
Gearbox length   L	mm	20.6	20.6	27	27	27	27	33.4	33.4	33.4	33.4	39.8	39.8	39.8	39.8	39.8
Weight	g	300	300	320	320	320	320	340	340	340	340	370	370	370	370	370

GEAR MOTOR COMBINED DATA			C	GEARBOX SHAFT DATA			C	GEARBOX-SPECIFIC DATA			C
Service life	hrs	5000		Radial play   thrust play	mm	≤ 0.05   ≤ 0.3		Material gear stage	Ratio 5:1 sintered steel		●
Performance tolerances	%	± 15		Shaft axial load	N	29		Material > 5:1 ratio / stage	POM first + sintered steel		●
Operating temperature	°C	-10 to 60	●	Radial load	N	79		Direction of rotation	CCW or CW by reversed DIR polarity		
IP rating		IP30		Press fit force max.	N	150		Assembly front bell	mm	Maximum screw depth 5.5	
Manufacturing standard		ISO9001   ISO 14001   IATF 16949		Backlash no load	°	≤ 3.0					
Compliance		RoHS and REACH		Bearing type   shaft material		Ball bearing   SCM435					
Label CE   UL		CE no   UL no		Motor pinion material   shape		Steel   straight	●				

BRUSHLESS DC MOTOR DATA			C	BRUSHLESS DC MOTOR OTHER DATA			C	GEAR MOTOR RANGE STANDARD AVAILABILITY			
<b>Brushless DC motor model: Transmotec BT3649-12-I</b>				Number of pole pairs		2		Nominal voltage	V	12   24	See separate data sheet
Driver type		Internal		Number of phases		3		Nominal power	W	1.5 - 41	See separate data sheet
Nominal voltage	V	12		Max. winding temperature	°C	150		Diameter	mm	28 - 42	See separate data sheet
No load speed	rpm	6000		Motor insulation class		A		<b>BRUSHLESS DC MOTOR DATA DIAGRAM</b>			
No load current	mA	260		Slot pole pairs		6S4P					
Nominal speed	rpm	5200	●	Rotor magnet		BNM-8					
Nominal torque	mNm	24		Control and power harness length	mm	205 ± 10	●				
Nominal current	A	1.5		Control and power harness end connector		A1501H00-6P	●				
Start/Stall torque	mNm	190		Control and power harness		UL1007 26AWG 300V 80°C	●				
Start/Stall current	A	10		Housing material		SECD-0 1.0T	●				
Max. efficiency	%	74		Magnet material		Bonding NdFeB					
Nominal power	W	13		Rotor balancing grade		G6.3					
Terminal resistance	Ω	0.6									
Terminal inductance	mH	0.4									
Torque constant	mNm/A	20									
Speed constant	rpm/V	500									
Speed/ torque gradient	rpm/mNm	220									
Rotor inertia	gcm <sup>2</sup>	45-48									

## ACCESSORIES

Power supplies LRS V 3.3 - 48 See separate data sheet

## CABLE AND PIN CONFIGURATION INTERNAL DRIVER

Color	Signal	Description
Red	Vcc	Supply voltage 12 V   24 V
Black	GND	0 V
Yellow	DIR	Motor direction. Open DIR: CW   DIR connect to GND: CCW
Blue	PWM	Speed control. PWM 20 kHz 5V. Full speed, connects to GND, PWM, HI/LO, 0/100
White	Enable	Enable control. Open: motor runs   Connect to GND: motor stops