



BRUSHLESS DC PLANETARY GEAR MOTORS | Ø 28 - 42 mm 1.6 - 39 W

WITH EXTERNAL DRIVER

We offer a broad range of high quality motors in standard and customized configurations. Our customer-centric approach makes us the ideal supplier for your project, especially to instrument and apparatus builders. In addition, we offer immediate delivery, thanks to always having a high number of motors in stock.

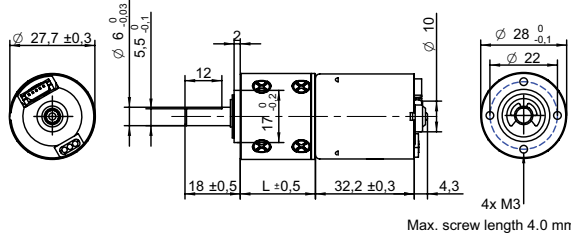
Customizations include:

- ✓ Customized harness
- ✓ Winding configuration
- ✓ Shaft configuration
- ✓ And more...

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DRAWING (mm)
EXTERNAL DRIVER



PHOTO

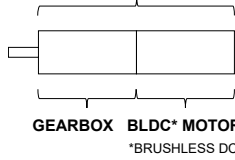


MODEL NO. DESIGNATION

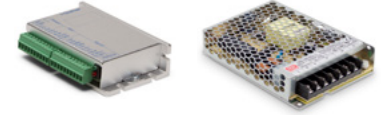


Example: PBT2832-12-4

GEAR MOTOR



OPTIONS DRIVERS AND 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	1.9	2.3	5.7	7.7	11	14	18	25	35	48	55	76	98 ^A	98 ^A	98 ^A
Nominal speed	rpm	1300	1100	380	280	200	150	100	75	53	38	28	20	10	7	6
Peak torque	Ncm	59	59	88	88	120	120	180	180	240	240	290	290	290	290	290
Nominal power	W	2.6	2.6	2.3	2.3	2.3	2.3	1.9	1.9	1.9	1.9	1.6	1.6	1.6	1.6	1.6
Gearbox efficiency	%	80	80	70	70	70	70	60	60	60	60	50	50	50	50	50
Gearbox length L	mm	24.5	24.5	30.9	30.9	30.9	30.9	37.3	37.3	37.3	37.3	43.7	43.7	43.7	43.7	43.7
Weight	g	140	140	150	150	150	150	160	160	160	160	180	180	180	180	180

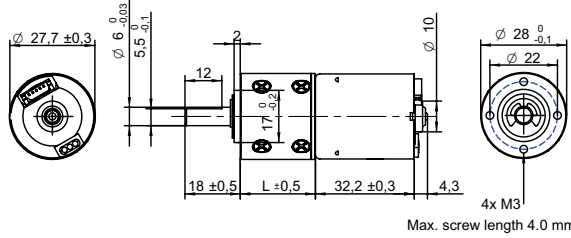
GEAR MOTOR COMBINED DATA			C		GEARBOX SHAFT DATA			C		GEARBOX-SPECIFIC DATA			C	
Service life	hrs	5000			Radial play thrust play	mm	≤ 0.05 ≤ 0.3			Material gear stage	Ratio 5:1 sintered steel			●
Performance tolerances	%	± 15			Shaft axial load	N	25			Material > 5:1 ratio / stage	POM first + sintered steel			●
Operating temperature	°C	-10 to 60		●	Radial load	N	34			Assembly front bell	mm	Maximum screw depth 4.0		
IP rating		IP30			Press fit force max.	N	98							
Manufacturing standard		ISO9001 ISO 14001 IATF 16949			Backlash no load	°	≤ 2.5							
Compliance		RoHS and REACH			Bearing type shaft material		Ball bearing AISI 1144							
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		
Brushless DC motor model: Transmotec BT2832-12					Number of pole pairs		2		Nominal voltage	V	12 24	See separate data sheet
Driver type	External				Number of phases		3		Nominal power	W	1.6 - 39	See separate data sheet
Nominal voltage	V	12			Max. winding temperature	°C	150		Diameter	mm	28 - 42	See separate data sheet
Commutator (hall) voltage	V	3.3-5			Motor insulation class		A					
No load speed	rpm	6000			Slot pole pairs		6S4P					
No load current	mA	90			Rotor magnet		BNM-8					
Nominal speed	rpm	5300		●	Hall sensors and power harness length	mm	160 ± 10					
Nominal torque	mNm	5.8			Power harness end connector		A2502X-03P					
Nominal current	A	0.40			Power harness		UL3132 22AWG 300V 150°C					
Start/Stall torque	mNm	42			Hall sensors harness end connector		KR1500 MX1.5mm					
Start/Stall current	A	2.5			Hall sensors harness		UL10368 26AWG 300V 105°C					
Max. efficiency	%	66			Housing material		SECD-0 0.7T					
Nominal power	W	3.2			Magnet material		Bonding NdFeB					
Terminal resistance	Ω	4.1			Rotor balancing grade		G6.3					
Terminal inductance	mH	1.7								BRUSHLESS DC MOTOR DATA DIAGRAM		
Torque constant	mNm/A	18										
Speed constant	rpm/V	500										
Speed/ torque gradient	rpm/mNm	920										
Rotor inertia	gcm ²	13~17										

CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C	
Power		Hall			
Phase	Cable color	Phase	Cable color		
U	Grey	HU	Green		
V	White	HV	Blue		
W	Brown	HW	Yellow		
		+5V	Red		
		GND	Black		

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

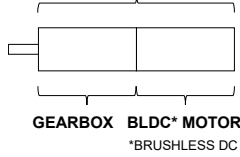


MODEL NO. DESIGNATION

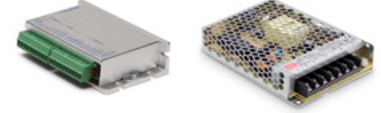


Example: PBT2832-24-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES

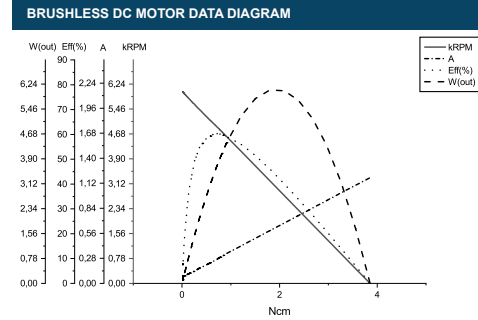


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GEAR MOTOR DATA																	C
Gear ratio		4:1	5:1	14:1	19:1	27:1	35:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1	939:1	
Nominal torque ^ gearbox limit	Ncm	2.5	3.1	7.7	10	15	19	24	33	47	65	74	98^	98^	98^	98^	
Nominal speed	rpm	1200	960	340	250	180	140	94	67	48	34	25	18	9	7	5	
Peak torque	Ncm	59	59	88	88	120	120	180	180	240	240	290	290	290	290	290	
Nominal power	W	3.1	3.1	2.8	2.8	2.8	2.8	2.4	2.4	2.4	2.4	2.0	2.0	2.0	2.0	2.0	
Gearbox efficiency	%	80	80	70	70	70	70	60	60	60	60	50	50	50	50	50	
Gearbox length L	mm	24.5	24.5	30.9	30.9	30.9	30.9	37.3	37.3	37.3	37.3	43.7	43.7	43.7	43.7	43.7	
Weight	g	140	140	150	150	150	150	160	160	160	160	180	180	180	180	180	

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	25			Material > 5:1 ratio / stage	POM first + sintered steel		●	
Operating temperature	°C	-10 to 60		●	Radial load	N	34			Assembly front bell	mm	Maximum screw depth 4.0		
IP rating		IP30			Press fit force max.	N	98							
Manufacturing standard		ISO9001 ISO 14001 IATF 16949			Backlash no load	°	≤ 2.5							
Compliance		RoHS and REACH			Bearing type shaft material		Ball bearing AISI 1144							
Label CE UL		CE no UL no			Motor pinion material shape		Steel straight						●	

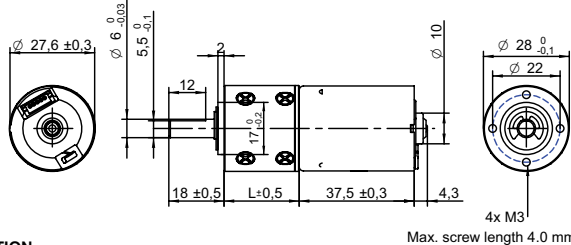
BRUSHLESS DC MOTOR DATA				C	BRUSHLESS DC MOTOR OTHER DATA				C	GEAR MOTOR RANGE STANDARD AVAILABILITY				
Brushless DC motor model: Transmotec BT2832-24					Number of pole pairs			2		Nominal voltage	V	12 24		See separate data sheet
Driver type		External			Number of phases			3		Nominal power	W	1.6 - 39		See separate data sheet
Nominal voltage	V	24			Max. winding temperature	°C		150		Diameter	mm	28 - 42		See separate data sheet
Commutator (hall) voltage	V	3.3-5			Motor insulation class			A						
No load speed	rpm	6000			Slot pole pairs			6S4P						
No load current	mA	62			Rotor magnet			BNM-8						
Nominal speed	rpm	4800		●	Hall sensors and power harness length	mm		160 ± 10						
Nominal torque	mNm	7.9			Power harness end connector			A2502X-03P						
Nominal current	A	0.30			Power harness			UL3132 22AWG 300V 150°C						
Start/Stall torque	mNm	38.			Hall sensors harness end connector			KR1500 MX1.5mm						
Start/Stall current	A	1.2			Hall sensors harness			UL10368 26AWG 300V 105°C						
Max. efficiency	%	56			Housing material			SECD-0 0.7T						
Nominal power	W	3.9			Magnet material			Bonding NdFeB						
Terminal resistance	Ω	19			Rotor balancing grade			G6.3						
Terminal inductance	mH	7												
Torque constant	mNm/A	33												
Speed constant	rpm/V	250												
Speed/ torque gradient	rpm/mNm	610												
Rotor inertia	gcm ²	14~18												



ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

CABLE AND PIN CONFIGURATION EXTERNAL DRIVER						C
Power			Hall			
Phase	Cable color		Phase	Cable color		
U	Grey		HU	Green		
V	White		HV	Blue		
W	Brown		HW	Yellow		
			+5V	Red		
			GND	Black		

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

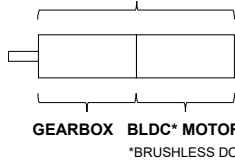


MODEL NO. DESIGNATION

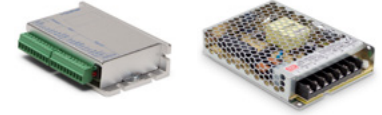


Example: PBT2838-12-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES



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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	2.1	2.6	6.4	9	12	16	20	28	39	55	62	87	98 ^A	98 ^A	98 ^A
Nominal speed	rpm	1300	1000	360	270	190	150	99	71	51	36	27	19	10	7	5
Peak torque	Ncm	59	59	88	88	120	120	180	180	240	240	290	290	290	290	290
Nominal power	W	2.8	2.8	2.4	2.4	2.4	2.4	2.1	2.1	2.1	2.1	1.7	1.7	1.7	1.7	1.7
Gearbox efficiency	%	80	80	70	70	70	70	60	60	60	60	50	50	50	50	50
Gearbox length L	mm	24.5	24.5	30.9	30.9	30.9	30.9	37.3	37.3	37.3	37.3	43.7	43.7	43.7	43.7	43.7
Weight	g	140	140	150	150	150	150	160	160	160	160	180	180	180	180	180

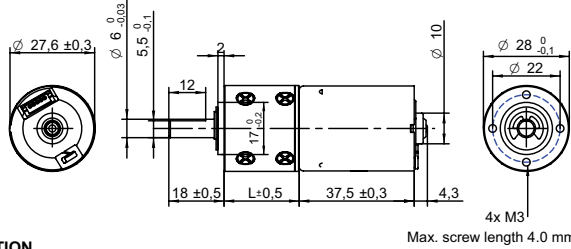
GEAR MOTOR COMBINED DATA			C	GEARBOX SHAFT DATA			C	GEARBOX-SPECIFIC DATA			C
Service life	hrs	5000		Radial play thrust play	mm	≤ 0.05 ≤ 0.3		Material gear stage	Ratio 5:1 sintered steel	●	
Performance tolerances	%	± 15		Shaft axial load	N	25		Material > 5:1 ratio / stage	POM first + sintered steel	●	
Operating temperature	°C	-10 to 60	●	Radial load	N	34		Assembly front bell	mm	Maximum screw depth 4.0	
IP rating		IP30		Press fit force max.	N	98					
Manufacturing standard		ISO9001 ISO 14001 IATF 16949		Backlash no load	°	≤ 2.5					
Compliance		RoHS and REACH		Bearing type shaft material		Ball bearing AISI 1144					
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			
Brushless DC motor model: Transmotec BT2838-12				Number of pole pairs		2		Nominal voltage	V	12 24	See separate data sheet
Driver type		External		Number of phases		3		Nominal power	W	1.6 - 39	See separate data sheet
Nominal voltage	V	12		Max. winding temperature	°C	150		Diameter	mm	28 - 42	See separate data sheet
Commutator (hall) voltage	V	3.3-5		Motor insulation class		A		BRUSHLESS DC MOTOR DATA DIAGRAM			
No load speed	rpm	6000		Slot pole pairs		6S4P					
No load current	mA	54		Rotor magnet		BNM-8					
Nominal speed	rpm	5100	●	Hall sensors and power harness length	mm	160 ± 10	●				
Nominal torque	mNm	6.6		Power harness end connector		A2502X-03P	●				
Nominal current	A	0.4		Power harness		UL3132 22AWG 300V 150°C	●				
Start/Stall torque	mNm	40		Hall sensors harness end connector		KR1500 MX1.5mm	●				
Start/Stall current	A	2.1		Hall sensors harness		UL10368 26AWG 300V 80°C	●				
Max. efficiency	%	72		Housing material		SECD-0 0.7T					
Nominal power	W	3.5		Magnet material		Bonding NdFeB					
Terminal resistance	Ω	3.1		Rotor balancing grade		G6.3					

CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C
Power		Hall		
Phase	Cable color	Phase	Cable color	
U	Grey	HU	Green	
V	White	HV	Blue	
W	Brown	HW	Yellow	
		+5V	Red	
		GND	Black	

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

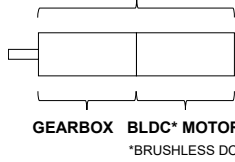


MODEL NO. DESIGNATION

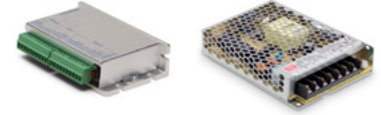
PBT2838 - VOLTAGE - GEAR RATIO

Example: PBT2838-24-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES



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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	2.4	2.9	7.2	10	14	18	22	31	44	61	69	97	98 ^A	98 ^A	98 ^A
Nominal speed	rpm	1300	1100	380	280	200	150	100	75	53	38	28	20	10	7	6
Peak torque	Ncm	59	59	88	88	120	120	180	180	240	240	290	290	290	290	290
Nominal power	W	3.3	3.3	2.9	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.0	2.0	2.0	2.0	2.0
Gearbox efficiency	%	80	80	70	70	70	70	60	60	60	60	50	50	50	50	50
Gearbox length L	mm	24.5	24.5	30.9	30.9	30.9	30.9	37.3	37.3	37.3	37.3	43.7	43.7	43.7	43.7	43.7
Weight	g	140	140	150	150	150	150	160	160	160	160	180	180	180	180	180

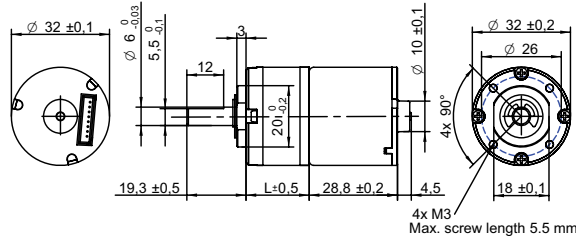
GEAR MOTOR COMBINED DATA			C	GEARBOX SHAFT DATA			C	GEARBOX-SPECIFIC DATA			C
Service life	hrs	5000		Radial play thrust play	mm	≤ 0.05 ≤ 0.3		Material gear stage	Ratio 5:1 sintered steel	●	
Performance tolerances	%	± 15		Shaft axial load	N	25		Material > 5:1 ratio / stage	POM first + sintered steel	●	
Operating temperature	°C	-10 to 60	●	Radial load	N	34		Assembly front bell	mm	Maximum screw depth 4.0	
IP rating		IP30		Press fit force max.	N	98					
Manufacturing standard		ISO9001 ISO 14001 IATF 16949		Backlash no load	°	≤ 2.5					
Compliance		RoHS and REACH		Bearing type shaft material		Ball bearing AISI 1144					
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			
Brushless DC motor model: Transmotec BT2838-24				Number of pole pairs		2		Nominal voltage	V	12 24	See separate data sheet
Driver type		External		Number of phases		3		Nominal power	W	1.6 - 39	See separate data sheet
Nominal voltage	V	24		Max. winding temperature	°C	150		Diameter	mm	28 - 42	See separate data sheet
Commutator (hall) voltage	V	3.3-5		Motor insulation class		A		BRUSHLESS DC MOTOR DATA DIAGRAM			
No load speed	rpm	6000		Slot pole pairs		6S4P					
No load current	mA	44		Rotor magnet		BNM-8					
Nominal speed	rpm	5300	●	Hall sensors and power harness length	mm	160 ± 10	●				
Nominal torque	mNm	7.4		Power harness end connector		A2502X-03P	●				
Nominal current	A	0.3		Power harness		UL3132 22AWG 300V 150°C	●				
Start/Stall torque	mNm	52		Hall sensors harness end connector		KR1500 MX1.5mm	●				
Start/Stall current	A	1.4		Hall sensors harness		UL10368 26AWG 300V 80°C	●				
Max. efficiency	%	72		Housing material		SECD-0 0.7T					
Nominal power	W	4.1		Magnet material		Bonding NdFeB					
Terminal resistance	Ω	13		Rotor balancing grade		G6.3					

CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C
Power		Hall		
Phase	Cable color	Phase	Cable color	
U	Grey	HU	Green	
V	White	HV	Blue	
W	Brown	HW	Yellow	
		+5V	Red	
		GND	Black	

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

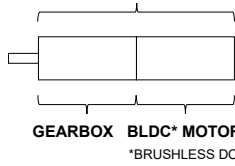


MODEL NO. DESIGNATION

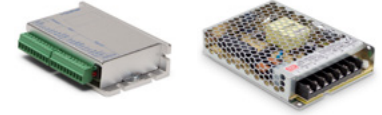


Example: PBT3229-12-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES



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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	2.6	3.2	7.9	11	15	20	25	34	48	67	76	110	120^	120^	120^
Nominal speed	rpm	1200	950	340	250	180	140	93	67	47	34	25	18	9	7	5
Peak torque	Ncm	59	59	120	120	180	180	240	240	290	290	350	350	350	350	350
Nominal power	W	3.2	3.2	2.8	2.8	2.8	2.8	2.4	2.4	2.4	2.4	2.0	2.0	2.0	2.0	2.0
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	180	180	200	200	200	200	230	230	230	230	250	250	250	250	250

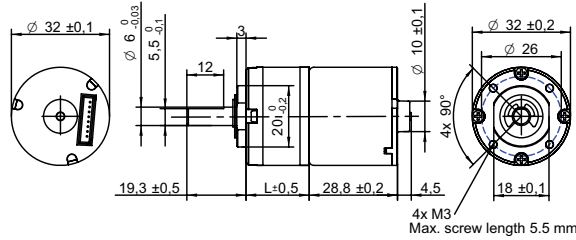
GEAR MOTOR COMBINED DATA			C	GEARBOX SHAFT DATA			C	GEARBOX-SPECIFIC DATA			C
Service life	hrs	5000		Radial play thrust play	mm	≤ 0.05 ≤ 0.3		Material gear stage	Ratio 5:1 sintered steel	●	
Performance tolerances	%	± 15		Shaft axial load	N	25		Material > 5:1 ratio / stage	POM first + sintered steel	●	
Operating temperature	°C	-10 to 60	●	Radial load	N	34		Assembly front bell	mm	Maximum screw depth 5.5	
IP rating		IP30		Press fit force max.	N	98					
Manufacturing standard		ISO9001 ISO 14001 IATF 16949		Backlash no load	°	≤ 2.5					
Compliance		RoHS and REACH		Bearing type shaft material		Ball bearing AISI 1144					
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			
Brushless DC motor model: Transmotec BT3229-12				Number of pole pairs		3		Nominal voltage	V	12 24	See separate data sheet
Driver type		External		Number of phases		3		Nominal power	W	1.6 - 39	See separate data sheet
Nominal voltage	V	12		Max. winding temperature	°C	150		Diameter	mm	28 - 42	See separate data sheet
Commutator (hall) voltage	V	3.3-5		Motor insulation class		A					
No load speed	rpm	6000		Slot pole pairs		9S6P		BRUSHLESS DC MOTOR DATA DIAGRAM			
No load current	mA	85		Rotor magnet		BNM-6					
Nominal speed	rpm	4700	●	Hall sensors and power harness length	mm	160 ± 10	●				
Nominal torque	mNm	8		Hall sensors and power harness end connector		A2501 (XH-8P)	●				
Nominal current	A	0.5		Hall sensors and power harness		UL1007 26AWG 300V 80°C	●				
Start/Stall torque	mNm	42		Connector on motor body		JST:B8B-ZR	●				
Start/Stall current	A	2.1		Housing material		SECD-0.07T					
Max. efficiency	%	69		Magnet material		Bonding NdFeB					
Nominal power	W	4		Rotor balancing grade		G6.3					
Terminal resistance	Ω	4.2									
Terminal inductance	mH	1.2									

CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C
Power		Hall		
Phase	Cable color	Phase	Cable color	
U	White	HU	Yellow	
V	Brown	HV	Blue	
W	Grey	HW	Green	
		+5V	Red	
		GND	Black	

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

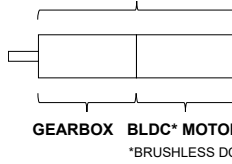


MODEL NO. DESIGNATION

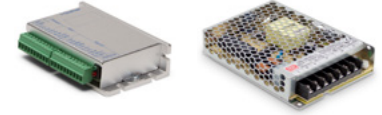


Example: PBT3229-24-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES

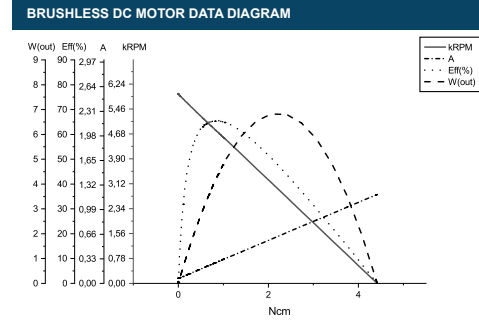


● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

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	2.9	3.6	8.8	12	17	22	28	38	54	75	85	120^	120^	120^	120^	
Nominal speed	rpm	1200	950	340	250	180	140	93	67	47	34	25	18	9	7	5	
Peak torque	Ncm	59	59	120	120	180	180	240	240	290	290	350	350	350	350	350	
Nominal power	W	3.6	3.6	3.1	3.1	3.1	3.1	2.7	2.7	2.7	2.7	2.2	2.2	2.2	2.2	2.2	
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	180	180	200	200	200	200	220	220	220	220	250	250	250	250	250	

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	25			Material > 5:1 ratio / stage	POM first + sintered steel		●	
Operating temperature	°C	-10 to 60		●	Radial load	N	34			Assembly front bell	mm	Maximum screw depth 5.5		
IP rating		IP30			Press fit force max.	N	98							
Manufacturing standard		ISO9001 ISO 14001 IATF 16949			Backlash no load	°	≤ 2.5							
Compliance		RoHS and REACH			Bearing type shaft material		Ball bearing AISI 1144							
Label CE UL		CE no UL no			Motor pinion material shape		Steel straight						●	

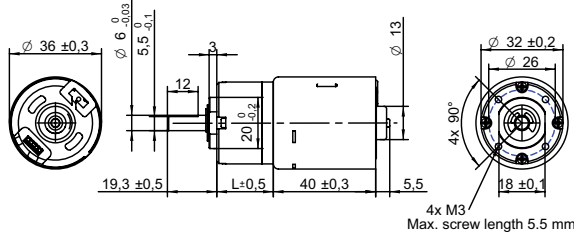
BRUSHLESS DC MOTOR DATA				C	BRUSHLESS DC MOTOR OTHER DATA				C	GEAR MOTOR RANGE STANDARD AVAILABILITY							
Brushless DC motor model: Transmotec BT3229-24					Number of pole pairs				3	Nominal voltage				V	12 24	See separate data sheet	
Driver type		External			Number of phases				3	Nominal power				W	1.6 - 39	See separate data sheet	
Nominal voltage	V	24			Max. winding temperature				°C	150	Diameter				mm	28 - 42	See separate data sheet
Commutator (hall) voltage	V	3.3-5			Motor insulation class				A								
No load speed	rpm	6000			Slot pole pairs				9S6P								
No load current	mA	40			Rotor magnet				BNM-8								
Nominal speed	rpm	4700	●		Hall sensors and power harness length				mm	160 ± 10							
Nominal torque	mNm	9			Hall sensors and power harness end connector				A2501 (XH-8P)								
Nominal current	A	0.3			Hall sensors and power harness				UL1007 26AWG 300V 80°C								
Start/Stall torque	mNm	47			Connector on motor body				JST:B8B-ZR								
Start/Stall current	A	1.3			Housing material				SECD-0.07T								
Max. efficiency	%	65			Magnet material				Bonding NdFeB								
Nominal power	W	4.5			Rotor balancing grade				G6.3								
Terminal resistance	Ω	17															
Terminal inductance	mH	3.7															
Torque constant	mNm/A	38															
Speed constant	rpm/V	250															
Speed/ torque gradient	rpm/mNm	530															
Rotor inertia	gcm ²	20-23															



CABLE AND PIN CONFIGURATION EXTERNAL DRIVER						C
Power			Hall			
Phase	Cable color		Phase	Cable color		
U	White		HU	Yellow		
V	Brown		HV	Blue		
W	Grey		HW	Green		
			+5V	Red		
			GND	Black		

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

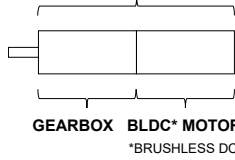


MODEL NO. DESIGNATION

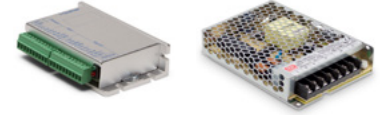


Example: PBT3640-12-4

GEAR MOTOR



OPTIONS DRIVERS AND 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	6.6	8.3	20	28	39	51	63	78^	98^	98^	120^	120^	120^	120^	120^	
Nominal speed	rpm	1200	980	350	260	180	140	96	69	49	35	26	19	9	7	5	
Peak torque	Ncm	59	59	120	120	180	180	240	240	290	290	350	350	350	350	350	
Nominal power	W	8.5	8.5	7.4	7.4	7.4	7.4	6.4	6.4	6.4	6.4	5.3	5.3	5.3	5.3	5.3	
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	250	250	270	270	270	270	300	300	300	300	320	320	320	320	320	

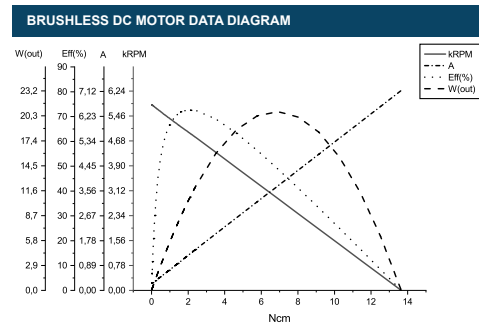
GEAR MOTOR COMBINED DATA			C	GEARBOX SHAFT DATA			C	GEARBOX-SPECIFIC DATA			C
Service life	hrs	5000		Radial play thrust play	mm	≤ 0.05 ≤ 0.3		Material gear stage	Ratio 5:1 sintered steel		●
Performance tolerances	%	± 15		Shaft axial load	N	29		Material > 5:1 ratio / stage	POM first + sintered steel		●
Operating temperature	°C	-10 to 60	●	Radial load	N	79		Assembly front bell	mm	Maximum screw depth 5.5	
IP rating		IP30		Press fit force max.	N	150					
Manufacturing standard		ISO9001 ISO 14001 IATF 16949		Backlash no load	°	≤ 3					
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 model: Transmotec BT3640-12			
Driver type	External		
Nominal voltage	V	12	
Commutator (hall) voltage	V	3.3-5	
No load speed	rpm	6000	
No load current	mA	220	
Nominal speed	rpm	4900	●
Nominal torque	mNm	21	
Nominal current	A	1.3	
Start/Stall torque	mNm	130	
Start/Stall current	A	6.9	
Max. efficiency	%	72	
Nominal power	W	11	
Terminal resistance	Ω	1.1	
Terminal inductance	mH	0.7	
Torque constant	mNm/A	20	
Speed constant	rpm/V	500	
Speed/ torque gradient	rpm/mNm	240	
Rotor inertia	gcm ²	27-33	

BRUSHLESS DC MOTOR OTHER DATA			C
Number of pole pairs		2	
Number of phases		3	
Max. winding temperature	°C	150	
Motor insulation class		A	
Slot pole pairs		6S4P	
Rotor magnet		BNM-8	
Hall sensors and power harness length	mm	155 ± 10	●
Power harness end connector		A2502X-03P	●
Power harness		UL3132 20AWG 300V 150°C	●
Hall sensors harness end connector		KR1500 MX1.5mm	●
Hall sensors harness		UL10368 26AWG 300V 105°C	●
Housing material		SECD-0 1.0T	
Magnet material		Bonding NdFeB	
Rotor balancing grade		G6.3	

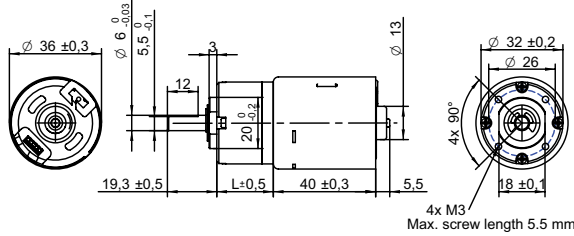
CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C
Power		Hall		
Phase	Cable color	Phase	Cable color	
U	White	HU	Green	
V	Brown	HV	Blue	
W	Grey	HW	Yellow	
		+5V	Red	
		GND	Black	

GEAR MOTOR RANGE STANDARD AVAILABILITY			
Nominal voltage	V	12 24	See separate data sheet
Nominal power	W	1.6 - 39	See separate data sheet
Diameter	mm	28 - 42	See separate data sheet



ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

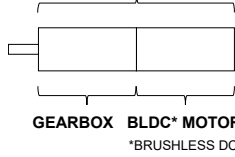


MODEL NO. DESIGNATION

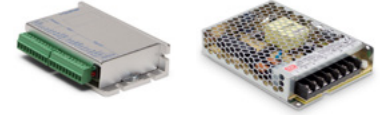


Example: PBT3640-24-4

GEAR MOTOR



OPTIONS DRIVERS AND 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	6.9	8.6	21	29	41	53	66	78^	98^	98^	120^	120^	120^	120^	120^	
Nominal speed	rpm	1300	1000	360	270	190	150	99	71	51	36	27	19	10	7	5	
Peak torque	Ncm	59	59	120	120	180	180	240	240	290	290	350	350	350	350	350	
Nominal power	W	9.1	9.1	8.0	8.0	8.0	8.0	6.8	6.8	6.8	6.8	5.7	5.7	5.7	5.7	5.7	
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	250	250	270	270	270	270	300	300	300	300	320	320	320	320	320	

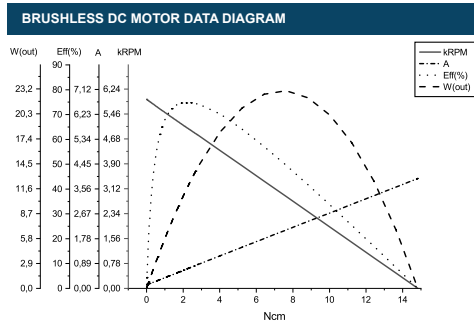
GEAR MOTOR COMBINED DATA				C	GEARBOX SHAFT DATA				C	GEARBOX-SPECIFIC DATA				C
Service life	hrs	5000			Radial play thrust play	mm	≤ 0.05 ≤ 0.3			Material gear stage	Ratio 5:1 sintered steel		●	
Performance tolerances	%	± 15			Shaft axial load	N	29			Material > 5:1 ratio / stage	POM first + sintered steel		●	
Operating temperature	°C	-10 to 60		●	Radial load	N	79			Assembly front bell	mm	Maximum screw depth 5.5		
IP rating		IP30			Press fit force max.	N	150							
Manufacturing standard		ISO9001 ISO 14001 IATF 16949			Backlash no load	°	≤ 3							
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 model: Transmotec BT3640-24				
Driver type		External		
Nominal voltage	V	24		
Commutator (hall) voltage	V	3.3-5		
No load speed	rpm	6000		
No load current	mA	120		
Nominal speed	rpm	5100	●	
Nominal torque	mNm	21		
Nominal current	A	0.7		
Start/Stall torque	mNm	150		
Start/Stall current	A	3.9		
Max. efficiency	%	77		
Nominal power	W	11		
Terminal resistance	Ω	4.2		
Terminal inductance	mH	2.7		
Torque constant	mNm/A	39		
Speed constant	rpm/V	250		
Speed/ torque gradient	rpm/mNm	240		
Rotor inertia	gcm ²	27-28		

BRUSHLESS DC MOTOR OTHER DATA				C
Number of pole pairs		2		
Number of phases		3		
Max. winding temperature	°C	150		
Motor insulation class		A		
Slot pole pairs		6S4P		
Rotor magnet		BNM-8		
Hall sensors and power harness length	mm	155 ± 10		●
Power harness end connector		A2502X-03P		●
Power harness		UL3132 20AWG 300V 150°C		●
Hall sensors harness end connector		KR1500 MX1.5mm		●
Hall sensors harness		UL10368 26AWG 300V 105°C		●
Housing material		SECD-0 1.0T		
Magnet material		Bonding NdFeB		
Rotor balancing grade		G6.3		

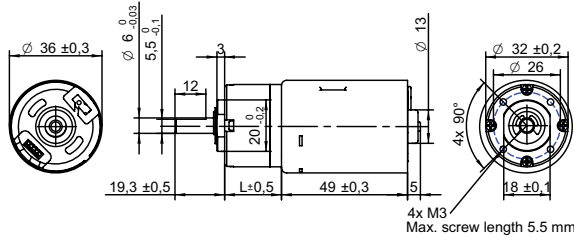
CABLE AND PIN CONFIGURATION EXTERNAL DRIVER						C
Power			Hall			
Phase	Cable color		Phase	Cable color		
U	White		HU	Green		
V	Brown		HV	Blue		
W	Grey		HW	Yellow		
			+5V	Red		
			GND	Black		

GEAR MOTOR RANGE STANDARD AVAILABILITY			
Nominal voltage	V	12 24	See separate data sheet
Nominal power	W	1.6 - 39	See separate data sheet
Diameter	mm	28 - 42	See separate data sheet



ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

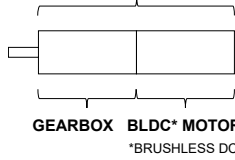


MODEL NO. DESIGNATION

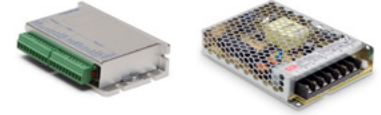


Example: PBT3649-12-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES



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GEAR MOTOR DATA

		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
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	9.2	11	28	38	54	59^	78^	78^	98^	98^	120^	120^	120^	120^	120^
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	12	12	11	11	11	11	9.3	9.3	9.3	9.3	7.8	7.8	7.8	7.8	7.8
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

Service life	hrs	5000	
Performance tolerances	%	± 15	
Operating temperature	°C	-10 to 60	●
IP rating		IP30	
Manufacturing standard		ISO9001 ISO 14001 IATF 16949	
Compliance		RoHS and REACH	
Label CE UL		CE no UL no	

GEARBOX SHAFT DATA

Radial play thrust play	mm	≤ 0.05 ≤ 0.3	
Shaft axial load	N	29	
Radial load	N	79	
Press fit force max.	N	150	
Backlash no load	°	≤ 3	
Bearing type shaft material		Ball bearing SCM435	
Motor pinion material shape		Steel straight	●

GEARBOX-SPECIFIC DATA

Material gear stage		Ratio 5:1 sintered steel	●
Material > 5:1 ratio / stage		POM first + sintered steel	●
Assembly front bell	mm	Maximum screw depth 5.5	

BRUSHLESS DC MOTOR DATA

Brushless DC motor model: Transmotec BT3649-12	
Driver type	External
Nominal voltage	V 12
Commutator (hall) voltage	V 3.3-5
No load speed	rpm 6000
No load current	mA 280
Nominal speed	rpm 5200 ●
Nominal torque	mNm 29
Nominal current	A 1.8
Start/Stall torque	mNm 210
Start/Stall current	A 11
Max. efficiency	% 75
Nominal power	W 16
Terminal resistance	Ω 0.6
Terminal inductance	mH 0.4
Torque constant	mNm/A 19
Speed constant	rpm/V 500
Speed/ torque gradient	rpm/mNm 180
Rotor inertia	gcm ² 46-48

BRUSHLESS DC MOTOR OTHER DATA

Number of pole pairs	2
Number of phases	3
Max. winding temperature	°C 150
Motor insulation class	A
Slot pole pairs	6S4P
Rotor magnet	BNM-8
Hall sensors and power harness length	mm 160 ± 10 ●
Power harness end connector	A2502X-03P ●
Power harness	UL3132 22AWG 300V 150°C ●
Hall sensors harness end connector	A1501H00-5P ●
Hall sensors harness	UL1007 26AWG 300V 80°C ●
Housing material	SECD-0 1.0T
Magnet material	Bonding NdFeB
Rotor balancing grade	G6.3

CABLE AND PIN CONFIGURATION EXTERNAL DRIVER

Power		Hall	
Phase	Cable color	Phase	Cable color
U	White	HU	Green
V	Brown	HV	Blue
W	Grey	HW	Yellow
		+5V	Red
		GND	Black

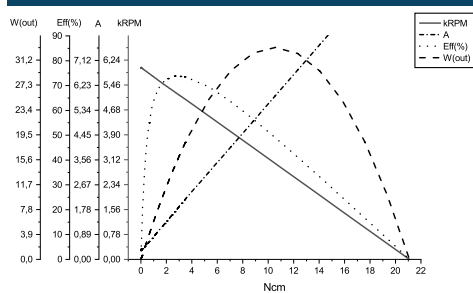
ACCESSORIES

Power supplies LRS V 3.3 - 48 See separate data sheet

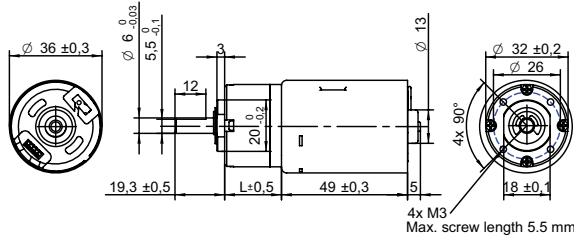
GEAR MOTOR RANGE STANDARD AVAILABILITY

Nominal voltage	V 12 24	See separate data sheet
Nominal power	W 1.6 - 39	See separate data sheet
Diameter	mm 28 - 42	See separate data sheet

BRUSHLESS DC MOTOR DATA DIAGRAM



DRAWING (mm)
EXTERNAL DRIVER



PHOTO

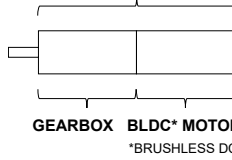


MODEL NO. DESIGNATION

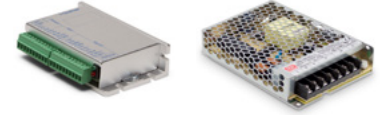


Example: PBT3649-24-4

GEAR MOTOR



OPTIONS DRIVERS AND 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

		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	12	15	37	39 ^A	59 ^A	59 ^A	78 ^A	78 ^A	98 ^A	98 ^A	120 ^A	120 ^A	120 ^A	120 ^A	120 ^A
Nominal speed	rpm	1300	1000	370	270	190	150	100	73	52	37	27	20	10	7	5
Peak torque	Ncm	59	59	120	120	180	180	240	240	290	290	350	350	350	350	350
Nominal power	W	16	16	14	14	14	14	12	12	12	12	10	10	10	10	10
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

Service life	hrs	5000
Performance tolerances	%	± 15
Operating temperature	°C	-10 to 60 ●
IP rating		IP30
Manufacturing standard		ISO9001 ISO 14001 IATF 16949
Compliance		RoHS and REACH
Label CE UL		CE no UL no

GEARBOX SHAFT DATA

Radial play thrust play	mm	≤ 0.05 ≤ 0.3
Shaft axial load	N	29
Radial load	N	79
Press fit force max.	N	150
Backlash no load	°	≤ 3
Bearing type shaft material		Ball bearing SCM435
Motor pinion material shape		Steel straight ●

GEARBOX-SPECIFIC DATA

Material gear stage		Ratio 5:1 sintered steel ●
Material > 5:1 ratio / stage		POM first + sintered steel ●
Assembly front bell	mm	Maximum screw depth 5.5

BRUSHLESS DC MOTOR DATA

Brushless DC motor model: Transmotec BT3649-24		
Driver type	External	
Nominal voltage	V	24
Commutator (hall) voltage	V	3.3-5
No load speed	rpm	6000
No load current	mA	160
Nominal speed	rpm	5200 ●
Nominal torque	mNm	37
Nominal current	A	1.1
Start/Stall torque	mNm	280
Start/Stall current	A	7.8
Max. efficiency	%	76
Nominal power	W	20
Terminal resistance	Ω	2
Terminal inductance	mH	1.8
Torque constant	mNm/A	36
Speed constant	rpm/V	250
Speed/ torque gradient	rpm/mNm	140
Rotor inertia	gcm ²	45-49

BRUSHLESS DC MOTOR OTHER DATA

Number of pole pairs		2
Number of phases		3
Max. winding temperature	°C	150
Motor insulation class		A
Slot pole pairs		6S4P
Rotor magnet		BNM-8
Hall sensors and power harness length	mm	160 ± 10 ●
Power harness end connector		A2502X-03P ●
Power harness		UL3132 22AWG 300V 150°C ●
Hall sensors harness end connector		A1501H00-5P ●
Hall sensors harness		UL1007 26AWG 300V 80°C ●
Housing material		SECD-0 1.0T
Magnet material		Bonding NdFeB
Rotor balancing grade		G6.3

CABLE AND PIN CONFIGURATION EXTERNAL DRIVER

Power		Hall	
Phase	Cable color	Phase	Cable color
U	White	HU	Green
V	Brown	HV	Blue
W	Grey	HW	Yellow
		+5V	Red
		GND	Black

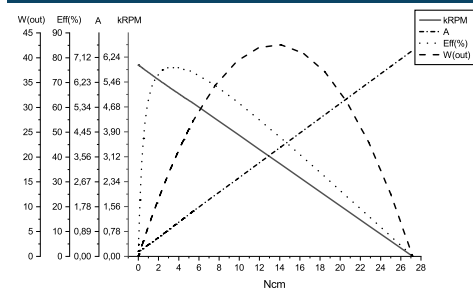
ACCESSORIES

Power supplies LRS V 3.3 - 48 See separate data sheet

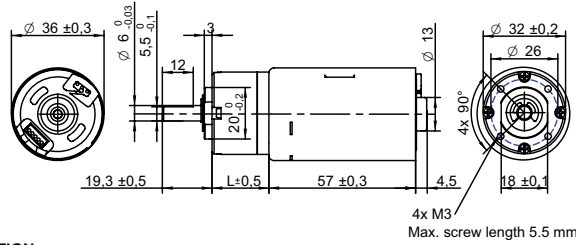
GEAR MOTOR RANGE STANDARD AVAILABILITY

Nominal voltage	V	12 24	See separate data sheet
Nominal power	W	1.6 - 39	See separate data sheet
Diameter	mm	28 - 42	See separate data sheet

BRUSHLESS DC MOTOR DATA DIAGRAM



DRAWING (mm)
EXTERNAL DRIVER



PHOTO

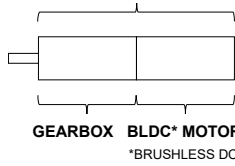


MODEL NO. DESIGNATION

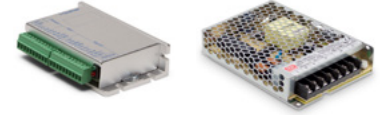


Example: PBT3657-12-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES

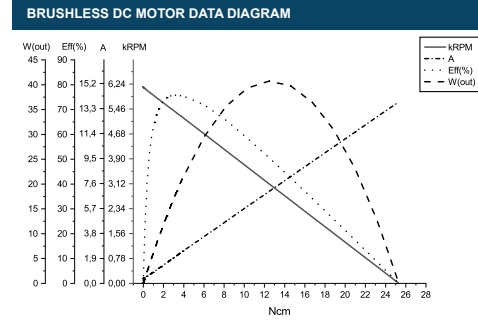


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GEAR MOTOR DATA																	C
Gear ratio		4:1	5:1	14:1	19:1	27:1	35:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1	939:1	
Nominal torque ^ gearbox limit	Ncm	9.5	12	29	39 ^A	56	59 ^A	78 ^A	78 ^A	98 ^A	98 ^A	120 ^A	120 ^A	120 ^A	120 ^A	120 ^A	
Nominal speed	rpm	1400	1100	390	290	200	160	110	77	54	39	29	21	11	8	6	
Peak torque	Ncm	59	59	120	120	180	180	240	240	290	290	350	350	350	350	350	
Nominal power	W	14	14	12	12	12	12	10	10	10	10	8.5	8.5	8.5	8.5	8.5	
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	340	340	360	360	360	360	380	380	380	380	410	410	410	410	410	

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 V 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							
Compliance		RoHS and REACH			Bearing type shaft material		Ball bearing SCM435							
Label CE UL		CE no UL no			Motor pinion material shape		Steel straight						●	

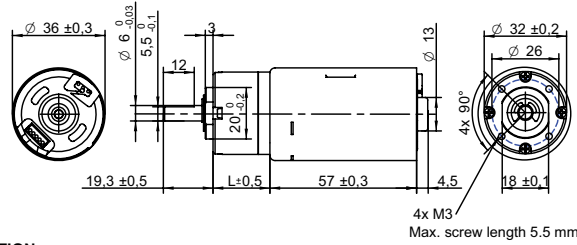
BRUSHLESS DC MOTOR DATA				C	BRUSHLESS DC MOTOR OTHER DATA				C	GEAR MOTOR RANGE STANDARD AVAILABILITY				
Brushless DC motor model: Transmotec BT3657-12					Number of pole pairs			2		Nominal voltage	V	12 24		See separate data sheet
Driver type		External			Number of phases			3		Nominal power	W	1.6 - 39		See separate data sheet
Nominal voltage	V	12			Max. winding temperature	°C		150		Diameter	mm	28 - 42		See separate data sheet
Commutator (hall) voltage	V	3.3-5			Motor insulation class			A						
No load speed	rpm	6000			Slot pole pairs			6S4P						
No load current	mA	280			Rotor magnet			BNM-8						
Nominal speed	rpm	5400		●	Hall sensors and power harness length	mm		160 ± 10						
Nominal torque	mNm	30			Power harness end connector			XHP-3						
Nominal current	A	1.9			Power harness			UL3132 20AWG 300V 150°C						
Start/Stall torque	mNm	260			Hall sensors harness end connector			ZHR-5						
Start/Stall current	A	14			Hall sensors harness			UL10368 26AWG 300V 105°C						
Max. efficiency	%	78			Housing material			SECD-0 1.0T						
Nominal power	W	17			Magnet material			Bonding NdFeB						
Terminal resistance	Ω	0.6			Rotor balancing grade			G6.3						
Terminal inductance	mH	0.4												
Torque constant	mNm/A	19												
Speed constant	rpm/V	500												
Speed/ torque gradient	rpm/mNm	180												
Rotor inertia	gcm ²	48-51												



CABLE AND PIN CONFIGURATION EXTERNAL DRIVER						C
Power			Hall			
Phase	Cable color		Phase	Cable color		
U	White		HU	Green		
V	Brown		HV	Blue		
W	Grey		HW	Yellow		
			+5V	Red		
			GND	Black		

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

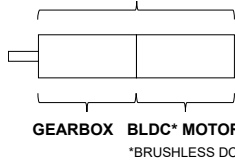


MODEL NO. DESIGNATION

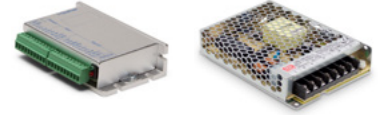


Example: PBT3657-24-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES



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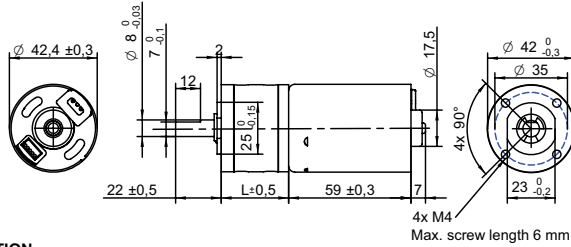
GEAR MOTOR DATA																	C
Gear ratio		4:1	5:1	14:1	19:1	27:1	35:1	51:1	71:1	100:1	139:1	189:1	264:1	516:1	721:1	939:1	
Nominal torque ^ gearbox limit	Ncm	11	14	34	39 ^A	59 ^A	59 ^A	78 ^A	78 ^A	98 ^A	98 ^A	120 ^A	120 ^A	120 ^A	120 ^A	120 ^A	
Nominal speed	rpm	1400	1100	390	290	200	160	110	77	54	39	29	21	11	8	6	
Peak torque	Ncm	59	59	120	120	180	180	240	240	290	290	350	350	350	350	350	
Nominal power	W	16	16	14	14	14	14	12	12	12	12	10	10	10	10	10	
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	340	340	360	360	360	360	380	380	380	380	410	410	410	410	410	

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 V 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							
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			
Brushless DC motor model: Transmotec BT3657-24					Number of pole pairs	2				Nominal voltage	V	12 24	See separate data sheet
Driver type		External			Number of phases	3				Nominal power	W	1.6 - 39	See separate data sheet
Nominal voltage	V	24			Max. winding temperature	°C	150			Diameter	mm	28 - 42	See separate data sheet
Commutator (hall) voltage	V	3.3-5			Motor insulation class	A							
No load speed	rpm	6000			Slot pole pairs	6S4P				BRUSHLESS DC MOTOR DATA DIAGRAM			
No load current	mA	160			Rotor magnet	BNM-8							
Nominal speed	rpm	5400	●		Hall sensors and power harness length	mm	160 ± 10	●					
Nominal torque	mNm	35			Power harness end connector	XHP-3		●					
Nominal current	A	1.1			Power harness	UL3132 20AWG 300V 150°C		●					
Start/Stall torque	mNm	310			Hall sensors harness end connector	ZHR-5		●					
Start/Stall current	A	8.4			Hall sensors harness	UL10368 26AWG 300V 105°C		●					
Max. efficiency	%	80			Housing material	SECD-0 1.0T							
Nominal power	W	20			Magnet material	Bonding NdFeB							
Terminal resistance	Ω	1.8			Rotor balancing grade	G6.3							
Terminal inductance	mH	1.4											
Torque constant	mNm/A	38			CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C				
Speed constant	rpm/V	250			Power		Hall						
Speed/ torque gradient	rpm/mNm	160			Phase	Cable color	Phase	Cable color					
Rotor inertia	gcm ²	52-61			U	White	HU	Green					
					V	Brown	HV	Blue					
					W	Grey	HW	Yellow					
							+5V	Red					
							GND	Black					

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

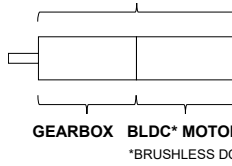


MODEL NO. DESIGNATION

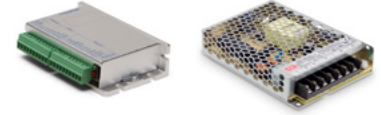


Example: PBT4259-12-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES

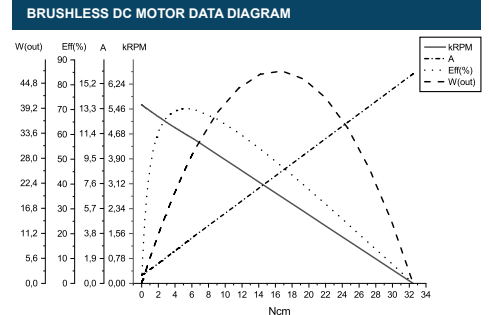


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GEAR MOTOR DATA																				C		
Gear ratio		4:1	14:1	17:1	24:1	49:1	61:1	84:1	104:1	144:1	212:1	294:1	504:1	624:1	720:1	864:1	1062:1	1470:1	2500:1	3000:1	3600:1	
Nominal torque ^ gearbox limit	Ncm	17	53	65	78 ^A	160	180 ^A	180 ^A	200 ^A	200 ^A	250 ^A	250 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	
Nominal speed	rpm	1200	330	270	190	95	76	55	45	32	22	16	9	7	6	5	4	3	2	2	1	
Peak torque	Ncm	88	240	240	240	530	530	530	590	590	740	740	880	880	880	880	880	880	880	880	880	
Nominal power	W	21	19	19	19	16	16	16	16	16	13	13	13	13	13	13	11	11	11	11	11	
Gearbox efficiency	%	80	70	70	70	60	60	60	60	60	50	50	50	50	50	50	40	40	40	40	40	
Gearbox length L	mm	32.5	39.2	39.2	39.2	45.9	45.9	45.9	45.9	45.9	52.6	52.6	52.6	52.6	52.6	52.6	59.6	59.6	59.6	59.6	59.6	
Weight	g	470	530	530	530	570	570	570	570	570	620	620	620	620	620	620	660	660	660	660	660	

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 4:1 sintered steel	●
Performance tolerances	%	± 15	Shaft axial load	N	29	Material 14:1-24:1 ratio / stage	POM first + steel	●
Operating temperature	°C	-10 to 60	Radial load	N	79	Material > 24:1 ratio / stage	POM first + sintered steel + steel last	
IP rating		IP30	Press fit force max.	N	150	Direction of rotation	CCW or CW by reversed V polarity	
Manufacturing standard		ISO9001 ISO 14001 IATF 16949	Backlash no load	°	≤ 3	Assembly front bell	mm	Maximum screw depth 6.0
Compliance		RoHS and REACH	Bearing type shaft material		Ball bearing SCM435			
Label CE UL		CE no UL no	Motor pinion material shape		Steel straight	●		

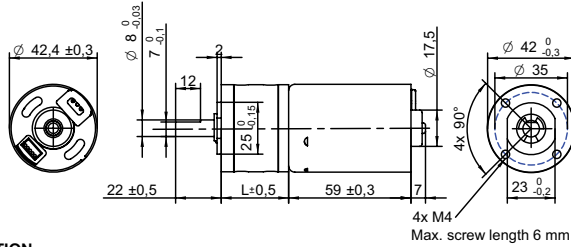
BRUSHLESS DC MOTOR DATA		C	BRUSHLESS DC MOTOR OTHER DATA		C	GEAR MOTOR RANGE STANDARD AVAILABILITY	
Brushless DC motor model: Transmotec BT4259-12			Number of pole pairs		3	Nominal voltage	V 12 24 See separate data sheet
Driver type		External	Number of phases		3	Nominal power	W 1.6 - 39 See separate data sheet
Nominal voltage	V	12	Max. winding temperature	°C	150	Diameter	mm 28 - 42 See separate data sheet
Commutator (hall) voltage	V	3.3-5	Motor insulation class		A		
No load speed	rpm	5700	Slot pole pairs		9S6P		
No load current	mA	470	Rotor magnet		BNM-8		
Nominal speed	rpm	4600	Hall sensors and power harness length	mm	155 ± 10		
Nominal torque	mNm	54	Power harness end connector		A2502X-03P		
Nominal current	A	3.2	Power harness		UL3132 20AWG 300V 150°C		
Start/Stall torque	mNm	330	Hall sensors harness end connector		KR1500 MX1.5mm		
Start/Stall current	A	16	Hall sensors harness		UL10368 26AWG 300V 105°C		
Max. efficiency	%	70	Housing material		SECD-0 1.4T		
Nominal power	W	26	Magnet material		Bonding NdFeB		
Terminal resistance	Ω	0.4	Rotor balancing grade		G6.3		
Terminal inductance	mH	0.2					
Torque constant	mNm/A	21					
Speed constant	rpm/V	500					
Speed/ torque gradient	rpm/mNm	86					
Rotor inertia	gcm ²	130-148					



CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C
Power		Hall		
Phase	Cable color	Phase	Cable color	
U	Brown	HU	Green	
V	Grey	HV	Blue	
W	White	HW	Yellow	
		+5V	Red	
		GND	Black	

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

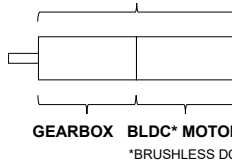


MODEL NO. DESIGNATION

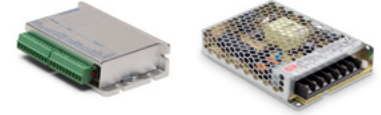


Example: PBT4259-24-4

GEAR MOTOR



OPTIONS DRIVERS AND POWER SUPPLIES

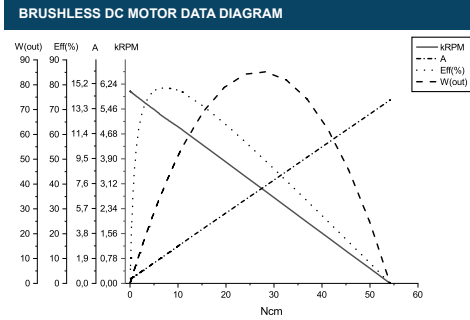


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GEAR MOTOR DATA		C																				
Gear ratio		4:1	14:1	17:1	24:1	49:1	61:1	84:1	104:1	144:1	212:1	294:1	504:1	624:1	720:1	864:1	1062:1	1470:1	2500:1	3000:1	3600:1	
Nominal torque ^ gearbox limit	Ncm	24	74	78 ^A	78 ^A	180 ^A	180 ^A	180 ^A	200 ^A	200 ^A	250 ^A	250 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A
Nominal speed	rpm	1300	370	300	220	110	84	61	50	36	24	18	10	8	7	6	5	4	2	2	1	1
Peak torque	Ncm	88	240	240	240	530	530	530	590	590	740	740	880	880	880	880	880	880	880	880	880	880
Nominal power	W	33	29	29	29	25	25	25	25	25	20	20	20	20	20	20	16	16	16	16	16	16
Gearbox efficiency	%	80	70	70	70	60	60	60	60	60	50	50	50	50	50	50	40	40	40	40	40	40
Gearbox length L	mm	32.5	39.2	39.2	39.2	45.9	45.9	45.9	45.9	45.9	52.6	52.6	52.6	52.6	52.6	52.6	59.6	59.6	59.6	59.6	59.6	59.6
Weight	g	480	540	540	540	580	580	580	580	580	630	630	630	630	630	630	670	670	670	670	670	670

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 4:1 sintered steel	●
Performance tolerances	%	± 15	Shaft axial load	N	29	Material 14:1-24:1 ratio / stage	POM first + steel	●
Operating temperature	°C	-10 to 60	Radial load	N	79	Material > 24:1 ratio / stage	POM first + sintered steel + steel last	
IP rating		IP30	Press fit force max.	N	150	Direction of rotation	CCW or CW by reversed V polarity	
Manufacturing standard		ISO9001 ISO 14001 IATF 16949	Backlash no load	°	≤ 3	Assembly front bell	mm	Maximum screw depth 6.0
Compliance		RoHS and REACH	Bearing type shaft material		Ball bearing SCM435			
Label CE UL		CE no UL no	Motor pinion material shape		Steel straight	●		

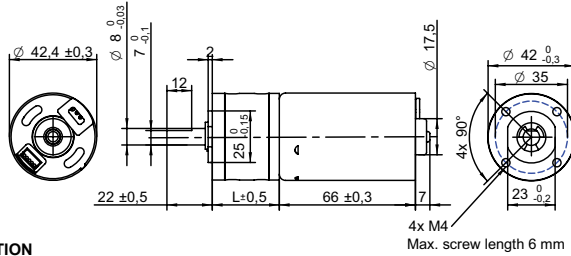
BRUSHLESS DC MOTOR DATA		C	BRUSHLESS DC MOTOR OTHER DATA		C	GEAR MOTOR RANGE STANDARD AVAILABILITY	
Brushless DC motor model: Transmotec BT4259-24			Number of pole pairs		3	Nominal voltage	V 12 24 See separate data sheet
Driver type		External	Number of phases		3	Nominal power	W 1.6 - 39 See separate data sheet
Nominal voltage	V	24	Max. winding temperature	°C	150	Diameter	mm 28 - 42 See separate data sheet
Commutator (hall) voltage	V	3.3-5	Motor insulation class		A		
No load speed	rpm	6000	Slot pole pairs		9S6P		
No load current	mA	270	Rotor magnet		BNM-8		
Nominal speed	rpm	5200 ●	Hall sensors and power harness length	mm	155 ± 10 ●		
Nominal torque	mNm	76	Power harness end connector		A2502X-03P ●		
Nominal current	A	2.2	Power harness		UL3132 20AWG 300V 150°C ●		
Start/Stall torque	mNm	540	Hall sensors harness end connector		KR1500 MX1.5mm ●		
Start/Stall current	A	14	Hall sensors harness		UL10368 26AWG 300V 105°C ●		
Max. efficiency	%	78	Housing material		SECD-0 1.4T		
Nominal power	W	41	Magnet material		Bonding NdFeB		
Terminal resistance	Ω	0.9	Rotor balancing grade		G6.3		
Terminal inductance	mH	0.6					
Torque constant	mNm/A	40					
Speed constant	rpm/V	250					
Speed/ torque gradient	rpm/mNm	68					
Rotor inertia	gcm ²	130-148					



CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C
Power		Hall		
Phase	Cable color	Phase	Cable color	
U	Brown	HU	Green	
V	Grey	HV	Blue	
W	White	HW	Yellow	
		+5V	Red	
		GND	Black	

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



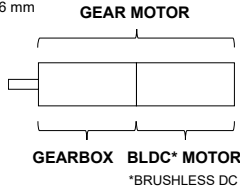
PHOTO



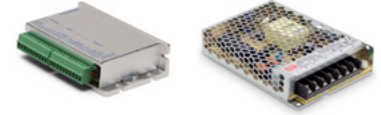
MODEL NO. DESIGNATION

PBT4266 - VOLTAGE - GEAR RATIO

Example: PBT4266-12-4



OPTIONS DRIVERS AND POWER SUPPLIES

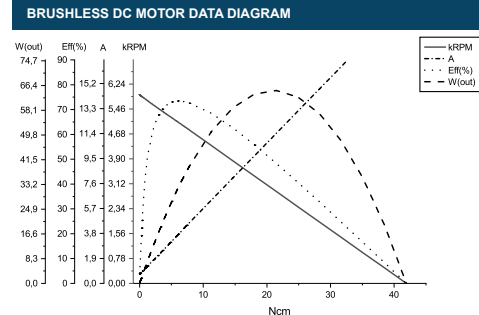


● C = customizations are offered on demand even for smaller quantities. Typical customizations are indicated with a green dot at column end. Please contact us for any customization request.

GEAR MOTOR DATA																				C			
Gear ratio		4:1	14:1	17:1	24:1	49:1	61:1	84:1	104:1	144:1	212:1	294:1	504:1	624:1	720:1	864:1	1062:1	1470:1	2500:1	3000:1	3600:1		
Nominal torque ^ gearbox limit	Ncm	16	50	60	78 ^A	150	180 ^A	180 ^A	200 ^A	200 ^A	250 ^A	250 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	
Nominal speed	rpm	1300	370	310	220	110	86	62	50	36	25	18	10	8	7	6	5	4	2	2	1		
Peak torque	Ncm	88	240	240	240	530	530	530	590	590	740	740	880	880	880	880	880	880	880	880	880	880	
Nominal power	W	22	19	19	19	17	17	17	17	17	14	14	14	14	14	14	11	11	11	11	11	11	
Gearbox efficiency	%	80	70	70	70	60	60	60	60	60	50	50	50	50	50	50	40	40	40	40	40	40	
Gearbox length L	mm	32.5	39.2	39.2	39.2	45.9	45.9	45.9	45.9	45.9	52.6	52.6	52.6	52.6	52.6	52.6	59.6	59.6	59.6	59.6	59.6	59.6	
Weight	g	520	570	570	570	610	610	610	610	610	660	660	660	660	660	660	710	710	710	710	710	710	

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 4:1 sintered steel	●
Performance tolerances	%	± 15	Shaft axial load	N	29	Material 14:1-24:1 ratio / stage	POM first + steel	●
Operating temperature	°C	-10 to 60	Radial load	N	79	Material > 24:1 ratio / stage	POM first + sintered steel + steel last	
IP rating		IP30	Press fit force max.	N	150	Direction of rotation	CCW or CW by reversed V polarity	
Manufacturing standard		ISO9001 ISO 14001 IATF 16949	Backlash no load	°	≤ 3	Assembly front bell	mm	Maximum screw depth 6.0
Compliance		RoHS and REACH	Bearing type shaft material		Ball bearing SCM435			
Label CE UL		CE no UL no	Motor pinion material shape		Steel straight			●

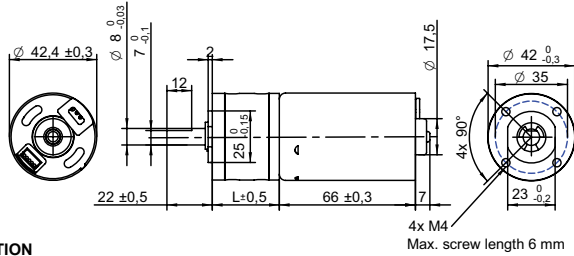
BRUSHLESS DC MOTOR DATA		C	BRUSHLESS DC MOTOR OTHER DATA		C	GEAR MOTOR RANGE STANDARD AVAILABILITY		
Brushless DC motor model: Transmotec BT4266-12			Number of pole pairs		3	Nominal voltage	V 12 24	See separate data sheet
Driver type		External	Number of phases		3	Nominal power	W 1.6 - 39	See separate data sheet
Nominal voltage	V	12	Max. winding temperature	°C	150	Diameter	mm 28 - 42	See separate data sheet
Commutator (hall) voltage	V	3.3-5	Motor insulation class		A			
No load speed	rpm	6000	Slot pole pairs		9S6P			
No load current	mA	550	Rotor magnet		BNM-8			
Nominal speed	rpm	5200	Hall sensors and power harness length	mm	155 ± 10			
Nominal torque	mNm	51	Power harness end connector		A2502X-03P			
Nominal current	A	3	Power harness		UL3132 20AWG 300V 150°C			
Start/Stall torque	mNm	430	Hall sensors harness end connector		KR1500 MX1.5mm			
Start/Stall current	A	22	Hall sensors harness		UL10368 26AWG 300V 105°C			
Max. efficiency	%	78	Housing material		SECD-0 1.4T			
Nominal power	W	28	Magnet material		Bonding NdFeB			
Terminal resistance	Ω	0.3	Rotor balancing grade		G6.3			
Terminal inductance	mH	0.1						
Torque constant	mNm/A	20						
Speed constant	rpm/V	500						
Speed/ torque gradient	rpm/mNm	100						
Rotor inertia	gcm ²	155-156						



CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C
Power		Hall		
Phase	Cable color	Phase	Cable color	
U	Brown	HU	Green	
V	Grey	HV	Blue	
W	White	HW	Yellow	
		+5V	Red	
		GND	Black	

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet

DRAWING (mm)
EXTERNAL DRIVER



PHOTO

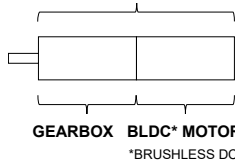


MODEL NO. DESIGNATION

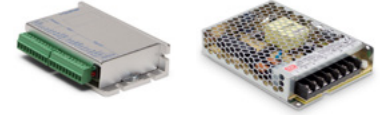


Example: PBT4266-24-4

GEAR MOTOR



OPTIONS DRIVERS AND 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	14:1	17:1	24:1	49:1	61:1	84:1	104:1	144:1	212:1	294:1	504:1	624:1	720:1	864:1	1062:1	1470:1	2500:1	3000:1	3600:1	
Nominal torque ^ gearbox limit	Ncm	29 ^A	78 ^A	78 ^A	78 ^A	180 ^A	180 ^A	180 ^A	200 ^A	200 ^A	250 ^A	250 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A	290 ^A
Nominal speed	rpm	1300	370	300	220	110	85	61	50	36	24	18	10	8	7	6	5	4	2	2	2	1
Peak torque	Ncm	88	240	240	240	530	530	530	590	590	740	740	880	880	880	880	880	880	880	880	880	880
Nominal power	W	39	34	34	34	29	29	29	29	29	24	24	24	24	24	24	20	20	20	20	20	20
Gearbox efficiency	%	80	70	70	70	60	60	60	60	60	50	50	50	50	50	50	40	40	40	40	40	40
Gearbox length L	mm	32.5	39.2	39.2	39.2	45.9	45.9	45.9	45.9	45.9	52.6	52.6	52.6	52.6	52.6	52.6	59.6	59.6	59.6	59.6	59.6	59.6
Weight	g	530	580	580	580	620	620	620	620	620	670	670	670	670	670	670	720	720	720	720	720	720

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 4:1 sintered steel		●	
Performance tolerances	%	± 15			Shaft axial load	N	29			Material 14:1-24:1 ratio / stage	POM first + steel		●	
Operating temperature	°C	-10 to 60		●	Radial load	N	79			Material > 24:1 ratio / stage	POM first + sintered steel + steel last			
IP rating		IP30			Press fit force max.	N	150			Direction of rotation	CCW or CW by reversed V polarity			
Manufacturing standard		ISO9001 ISO 14001 IATF 16949			Backlash no load	°	≤ 3			Assembly front bell	mm	Maximum screw depth 6.0		
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					
Brushless DC motor model: Transmotec BT4266-24					Number of pole pairs	3				Nominal voltage	V	12 24		See separate data sheet	
Driver type		External			Number of phases	3				Nominal power	W	1.6 - 39		See separate data sheet	
Nominal voltage	V	24			Max. winding temperature	°C	150				Diameter	mm	28 - 42		See separate data sheet
Commutator (hall) voltage	V	3.3-5			Motor insulation class	A				BRUSHLESS DC MOTOR DATA DIAGRAM					
No load speed	rpm	6000			Slot pole pairs	9S6P									
No load current	mA	300			Rotor magnet	BNM-8									
Nominal speed	rpm	5200		●	Hall sensors and power harness length	mm	155 ± 10								
Nominal torque	mNm	91			Power harness end connector	A2502X-03P									
Nominal current	A	2.6			Power harness	UL3132 20AWG 300V 150°C									
Start/Stall torque	mNm	680			Hall sensors harness end connector	KR1500 MX1.5mm									
Start/Stall current	A	17			Hall sensors harness	UL10368 26AWG 300V 105°C									
Max. efficiency	%	79			Housing material	SECD-0 1.4T									
Nominal power	W	49			Magnet material	Bonding NdFeB									
Terminal resistance	Ω	0.7			Rotor balancing grade	G6.3									

CABLE AND PIN CONFIGURATION EXTERNAL DRIVER				C
Power		Hall		
Phase	Cable color	Phase	Cable color	
U	Brown	HU	Green	
V	Grey	HV	Blue	
W	White	HW	Yellow	
		+5V	Red	
		GND	Black	

ACCESSORIES
Power supplies LRS V 3.3 - 48 See separate data sheet