



BRUSHLESS DC MOTORS | Ø 28 - 42 mm 3.2 - 49 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.

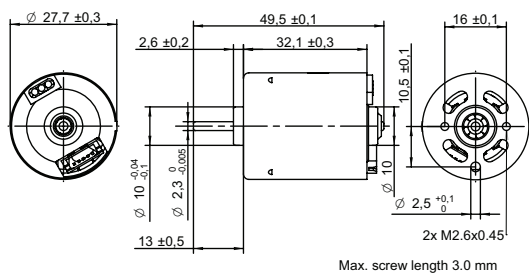
Customizations include:

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

TABLE OF CONTENTS

MODEL	DIAMETER mm	LENGTH mm	VOLTAGE V	SPEED RPM	TORQUE mNm	POWER W	PAGE
BT2832	28	32	12 24	5300 4800	5.8 7.9	3.2 3.9	1
BT2838	28	38	12 24	5100 5300	6.6 7.4	3.5 4.1	2
BT3229	32	29	12 24	4700	8 9	4 4.5	3
BT3640	36	40	12 24	4900 5100	21	11	4
BT3649	36	49	12 24	5200	29 37	16 20	5
BT3657	36	57	12 24	5400	30 35	17 20	6
BT4259	42	59	12 24	4600 5200	54 76	26 41	7
BT4266	42	66	12 24	5200	51 91	28 49	8

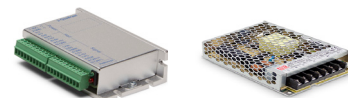
DRAWING (mm)



PHOTO



OPTIONS POWER SUPPLIES



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

MOTOR TYPE

3-Phase, 120-degree, brushless DC Motor with integrated hall sensors.

MOTOR DATA		12V	24V	C
Nominal voltage	V	12	24	
Commutator (hall) voltage	V	3.3~5	3.3~5	
No load speed	rpm	6000		
No load current	mA	90	62	
Nominal speed	rpm	5300	4800	●
Nominal torque	mNm	5.8	7.9	
Nominal current	A	0.40	0.30	
Start/Stall torque	mNm	42	38	
Start/Stall current	A	2.5	1.2	
Max. efficiency	%	66	56	
Nominal power	W	3.2	3.9	
Terminal resistance	Ω	4.1	19	
Terminal inductance	mH	1.7	7	
Torque constant	mNm/A	18	33	
Speed constant	rpm/V	500	250	
Speed/ torque gradient	rpm/mNm	920	610	
Rotor inertia	gcm ²	13~17	14~18	

MECHANICAL DATA

			C
Bearing type		Ball bearing	●
Axial play	mm	0	
Bearing radial clearance	μm	10	
Max. axial load (dynamic)	N	3.2	
Max. force for press fits (static)	N	4.9	

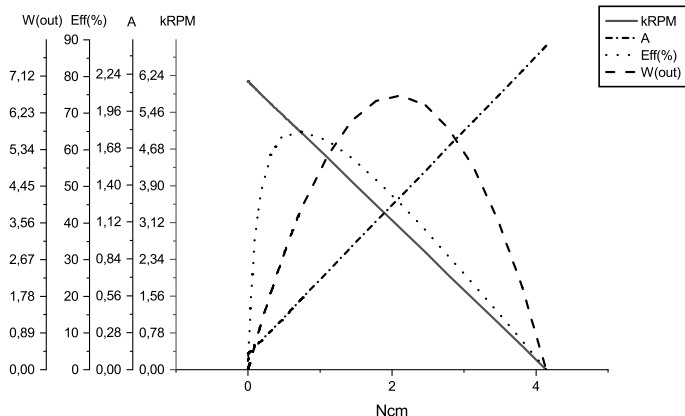
OTHER SPECIFICATIONS

		12V	24V	C
Number of pole pairs		2		
Number of phases		3		
Weight of motor	g	71	71	
Typical noise level	dBA	34	34	
Operating temperature	°C	-40 to +80		
Max. winding temperature	°C	150		
Motor insulation class		A		
IP rating		IP40		
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		KR1500 MX1.5mm		●
Hall sensors harness		UL10368 26AWG 300V 105°C		●
Shaft length from flange	mm	13		●
Shaft diameter ø	mm	2.3		
Housing material		SECD-0 0.7T		
Shaft material		SUS420 J2		
Magnet material		Bonding NdFeB		
Rotor balancing grade		G6.3		
Service life	hrs	5000		
Manufacturing standard		ISO9001 TS16949		

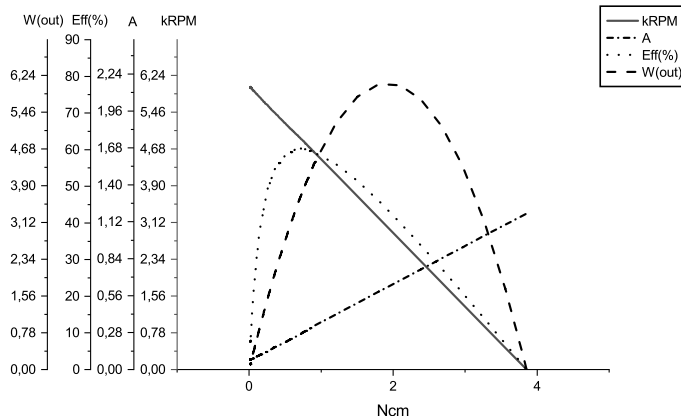
CABLE AND PIN CONFIGURATION EXTERNAL DRIVER

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

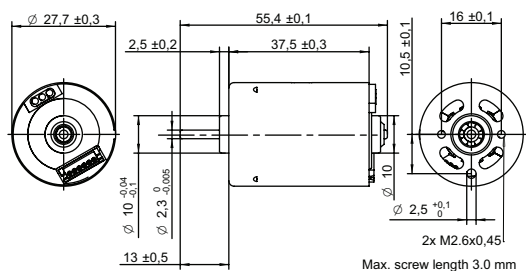
MOTOR DATA DIAGRAM 12V



MOTOR DATA DIAGRAM 24V



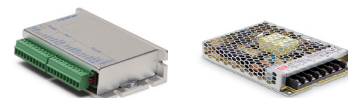
DRAWING (mm)



PHOTO



OPTIONS POWER SUPPLIES



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

MOTOR TYPE

3-Phase, 120-degree, brushless DC Motor with integrated hall sensors.

MOTOR DATA		12V	24V	C
Nominal voltage	V	12	24	
Commutator (hall) voltage	V	3.3~5	3.3~5	
No load speed	rpm	6000		
No load current	mA	54	44	
Nominal speed	rpm	5100	5300	●
Nominal torque	mNm	6.6	7.4	
Nominal current	A	0.4	0.3	
Start/Stall torque	mNm	40	52	
Start/Stall current	A	2.1	1.4	
Max. efficiency	%	72	72	
Nominal power	W	3.5	4.1	
Terminal resistance	Ω	3.1	13	
Terminal inductance	mH	1.2	4.9	
Torque constant	mNm/A	19	38	
Speed constant	rpm/V	500	250	
Speed/ torque gradient	rpm/mNm	770	720	
Rotor inertia	gcm ²	14~17	50~58	

MECHANICAL DATA

			C
Bearing type		Ball bearing	●
Axial play	mm	0	
Bearing radial clearance	μm	10	
Max. axial load (dynamic)	N	3.2	
Max. force for press fits (static)	N	4.9	

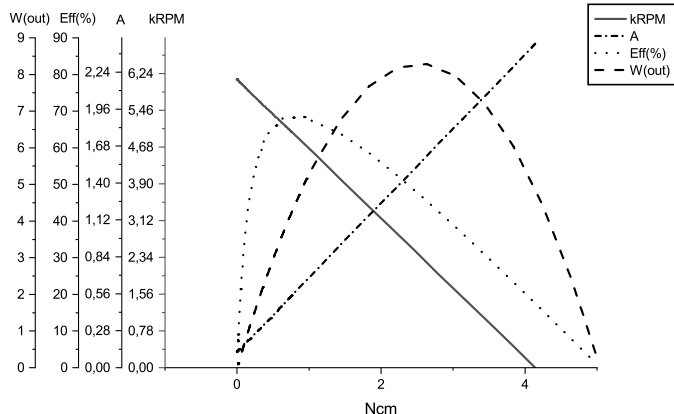
OTHER SPECIFICATIONS

		12V	24V	C
Number of pole pairs		2		
Number of phases		3		
Weight of motor	g	71	70	
Typical noise level	dBA	38	37	
Operating temperature	°C	-40 to +80		
Max. winding temperature	°C	150		
Motor insulation class		A		
IP rating		IP40		
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		KR1500 MX1.5mm		●
Hall sensors harness		UL1007 26AWG 300V 80°C		●
Shaft length from flange	mm	13		●
Shaft diameter ø	mm	2.3		
Housing material		SECD-0 0.7T		
Shaft material		SUS420 J2		
Magnet material		Bonding NdFeB		
Rotor balancing grade		G6.3		
Service life	hrs	5000		
Manufacturing standard		ISO9001 TS16949		

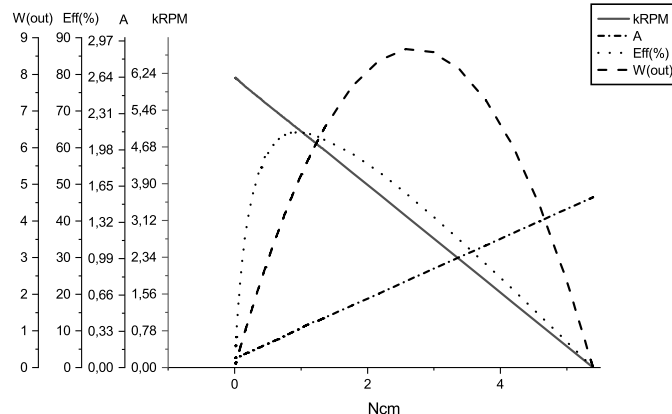
CABLE AND PIN CONFIGURATION EXTERNAL DRIVER

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

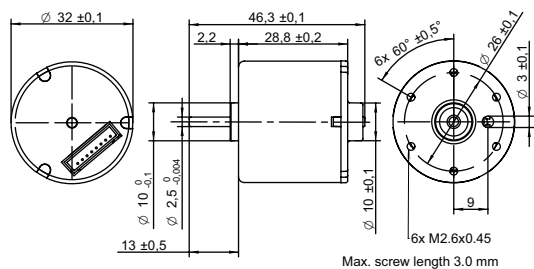
MOTOR DATA DIAGRAM 12V



MOTOR DATA DIAGRAM 24V



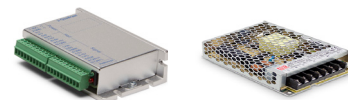
DRAWING (mm)



PHOTO



OPTIONS POWER SUPPLIES



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

MOTOR TYPE

3-Phase, 120-degree, brushless DC Motor with integrated hall sensors.

MOTOR DATA		12V	24V	C
Nominal voltage	V	12	24	
Commutator (hall) voltage	V	3.3~5	3.3~5	
No load speed	rpm	6000		
No load current	mA	85	40	
Nominal speed	rpm	4700	4700	●
Nominal torque	mNm	8	9	
Nominal current	A	0.5	0.3	
Start/Stall torque	mNm	42	47	
Start/Stall current	A	2.1	1.3	
Max. efficiency	%	69	65	
Nominal power	W	4	4.5	
Terminal resistance	Ω	4.2	17	
Terminal inductance	mH	1.2	3.7	
Torque constant	mNm/A	21	38	
Speed constant	rpm/V	500	250	
Speed/ torque gradient	rpm/mNm	590	530	
Rotor inertia	gcm ²	24~28	20~23	

MECHANICAL DATA

			C
Bearing type	Sleeve bearing		●
Axial play	mm	0.28	0.3
Max. axial load (dynamic)	N	3.2	

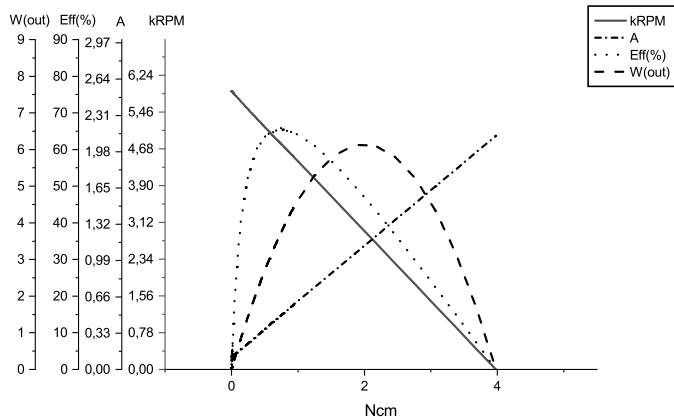
OTHER SPECIFICATIONS

	12V	24V	C
Number of pole pairs	3		
Number of phases	3		
Weight of motor	g	79	76
Typical noise level	dBA	29	31
Operating temperature	°C	-40 to +80	
Max. winding temperature	°C	150	
Motor insulation class	A		
IP rating	IP40		
Slot pole pairs	9S6P		
Rotor magnet	BNM-6	BNM-8	
Hall sensors and power harness length	mm	160 ± 10	●
Hall sensors and power harness end connector	A2501 (XH-8P)		●
Hall sensors and power harness	UL1007 26AWG 300V 80°C		●
Connector on motor body	JST:B8B-ZR		●
Shaft length from flange	mm	13	●
Shaft diameter Ø	mm	2.5	
Housing material	SECD-0 1.0T		
Shaft material	SUS420 J2		
Magnet material	Bonding NdFeB		
Rotor balancing grade	G6.3		
Service life	hrs	5000	
Manufacturing standard	ISO9001 TS16949		

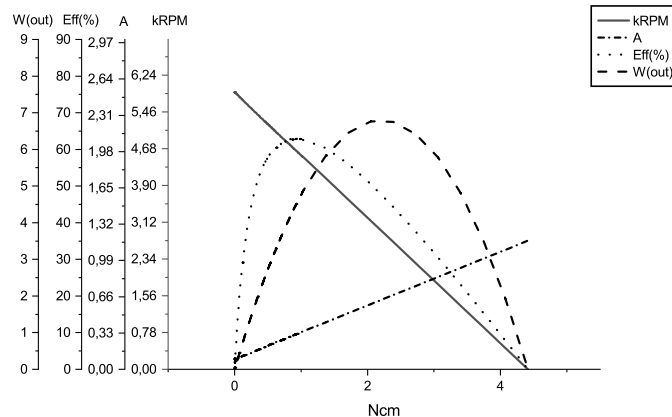
CABLE AND PIN CONFIGURATION EXTERNAL DRIVER

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

MOTOR DATA DIAGRAM 12V



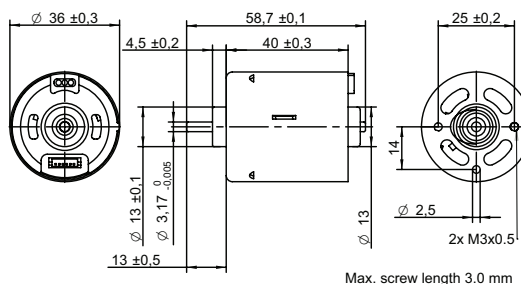
MOTOR DATA DIAGRAM 24V



BT3640 | Ø 36 mm | BRUSHLESS DC MOTOR WITH EXTERNAL DRIVER



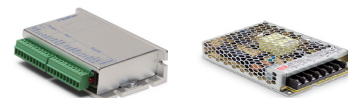
DRAWING (mm)



PHOTO



OPTIONS POWER SUPPLIES



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

MOTOR TYPE

3-Phase, 120-degree, brushless DC Motor with integrated hall sensors.

MOTOR DATA		12V	24V	C
Nominal voltage	V	12	24	
Commutator (hall) voltage	V	3.3~5	3.3~5	
No load speed	rpm	6000		
No load current	mA	220	120	
Nominal speed	rpm	4900	5100	●
Nominal torque	mNm	21	21	
Nominal current	A	1.3	0.7	
Start/Stall torque	mNm	130	150	
Start/Stall current	A	6.9	3.9	
Max. efficiency	%	72	77	
Nominal power	W	11		
Terminal resistance	Ω	1.1	4.2	
Terminal inductance	mH	0.7	2.7	
Torque constant	mNm/A	20	39	
Speed constant	rpm/V	500	250	
Speed/ torque gradient	rpm/mNm	240	240	
Rotor inertia	gcm ²	27~33	27~28	

MECHANICAL DATA

			C
Bearing type		Ball bearing	●
Axial play	mm	0.63	0.69
Bearing radial clearance	μm	12	
Max. axial load (dynamic)	N	4.9	
Max. force for press fits (static)	N	13	

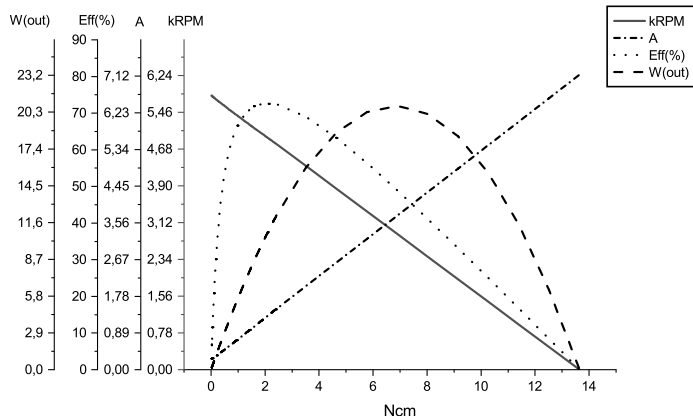
OTHER SPECIFICATIONS

		12V	24V	C
Number of pole pairs		2		
Number of phases		3		
Weight of motor	g	150		
Typical noise level	dBA	37	35	
Operating temperature	°C	-40 to +80		
Max. winding temperature	°C	150		
Motor insulation class		A		
IP rating		IP40		
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		●
Shaft length from flange	mm	13		●
Shaft diameter Ø	mm	3.17		
Housing material		SECD-0 1.0T		
Shaft material		S70C		
Magnet material		Bonding NdFeB		
Rotor balancing grade		G6.3		
Service life	hrs	5000		
Manufacturing standard		ISO9001 TS16949		

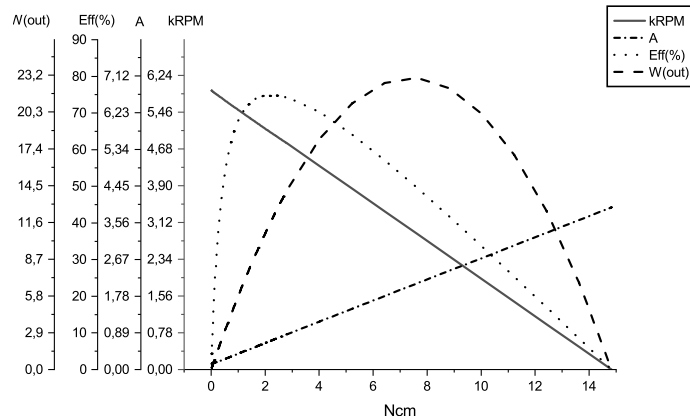
CABLE AND PIN CONFIGURATION EXTERNAL DRIVER

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

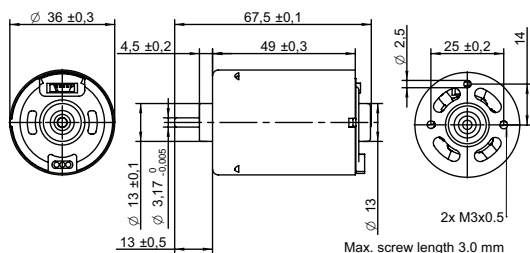
MOTOR DATA DIAGRAM 12V



MOTOR DATA DIAGRAM 24V



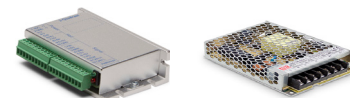
DRAWING (mm)



PHOTO



OPTIONS POWER SUPPLIES



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

MOTOR TYPE

3-Phase, 120-degree, brushless DC Motor with integrated hall sensors.

MOTOR DATA		12V	24V	C
Nominal voltage	V	12	24	
Commutator (hall) voltage	V	3.3~5	3.3~5	
No load speed	rpm	6000		
No load current	mA	280	160	
Nominal speed	rpm	5200	5200	●
Nominal torque	mNm	29	37	
Nominal current	A	1.8	1.1	
Start/Stall torque	mNm	210	280	
Start/Stall current	A	11	7.8	
Max. efficiency	%	75	76	
Nominal power	W	16	20	
Terminal resistance	Ω	0.6	2	
Terminal inductance	mH	0.4	1.8	
Torque constant	mNm/A	19	36	
Speed constant	rpm/V	500	250	
Speed/ torque gradient	rpm/mNm	180	140	
Rotor inertia	gcm ²	46~48	45~49	

MECHANICAL DATA

			C
Bearing type	Ball bearing		●
Axial play	mm	0.51	0.47
Bearing radial clearance	μm	12	
Max. axial load (dynamic)	N	4.9	
Max. force for press fits (static)	N	13	

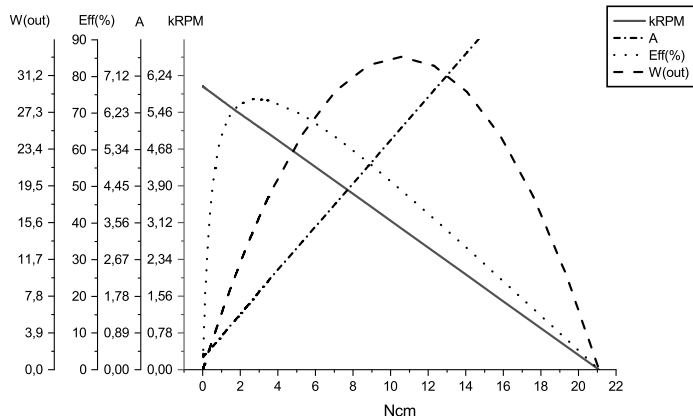
OTHER SPECIFICATIONS

		12V	24V	C
Number of pole pairs		2		
Number of phases		3		
Weight of motor	g	200		
Typical noise level	dBA	37	38	
Operating temperature	°C	-40 to +80		
Max. winding temperature	°C	150		
Motor insulation class		A		
IP rating		IP40		
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		●
Shaft length from flange	mm	13		●
Shaft diameter Ø	mm	3.17		
Housing material		SECD-0 1.0T		
Shaft material		S70C		
Magnet material		Bonding NdFeB		
Rotor balancing grade		G6.3		
Service life	hrs	5000		
Manufacturing standard		ISO9001 TS16949		

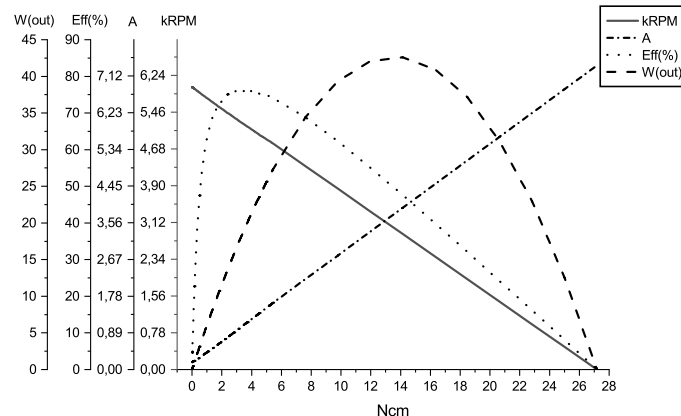
CABLE AND PIN CONFIGURATION EXTERNAL DRIVER

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

MOTOR DATA DIAGRAM 12V



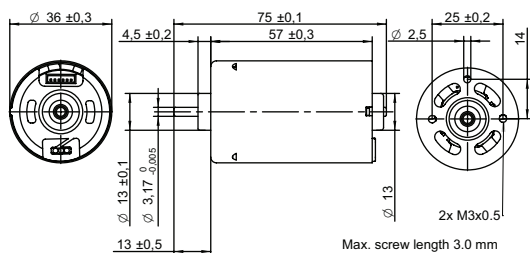
MOTOR DATA DIAGRAM 24V



BT3657 | Ø 36 mm | BRUSHLESS DC MOTOR WITH EXTERNAL DRIVER



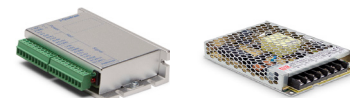
DRAWING (mm)



PHOTO



OPTIONS POWER SUPPLIES



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

MOTOR TYPE

3-Phase, 120-degree, brushless DC Motor with integrated hall sensors.

MOTOR DATA		12V	24V	C
Nominal voltage	V	12	24	
Commutator (hall) voltage	V	3.3~5	3.3~5	
No load speed	rpm	6000		
No load current	mA	280	160	
Nominal speed	rpm	5400	5400	●
Nominal torque	mNm	30	35	
Nominal current	A	1.9	1.1	
Start/Stall torque	mNm	260	310	
Start/Stall current	A	14	8.4	
Max. efficiency	%	78	80	
Nominal power	W	17	20	
Terminal resistance	Ω	0.6	1.8	
Terminal inductance	mH	0.4	1.4	
Torque constant	mNm/A	19	38	
Speed constant	rpm/V	500	250	
Speed/ torque gradient	rpm/mNm	180	160	
Rotor inertia	gcm ²	48~51	52~61	

MECHANICAL DATA

			C
Bearing type		Ball bearing	●
Axial play	mm	0.64	0.71
Bearing radial clearance	μm	12	
Max. axial load (dynamic)	N	4.9	
Max. force for press fits (static)	N	13	

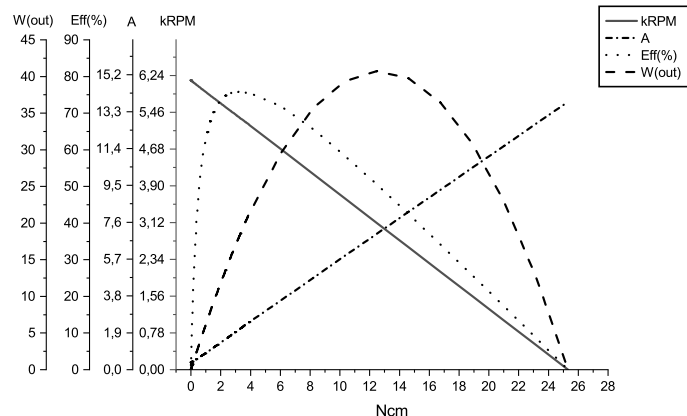
OTHER SPECIFICATIONS

		12V	24V	C
Number of pole pairs		2		
Number of phases		3		
Weight of motor	g	230	240	
Typical noise level	dBA	37	38	
Operating temperature	°C	-40 to +80		
Max. winding temperature	°C	150		
Motor insulation class		A		
IP rating		IP40		
Slot pole pairs		6S4P		
Rotor magnet		BNM-8		
Hall sensors and power harness length	mm	160 ± 10		●
Power harness end connector		XHP-3		●
Power harness		UL1312 20AWG 300V 150°C		●
Hall sensors harness end connector		ZHR-5		●
Hall sensors harness		UL10368 26AWG 300V 105°C		●
Shaft length from flange	mm	13		●
Shaft diameter Ø	mm	3.17		
Housing material		SECD-0 1.0T		
Shaft material		S70C		
Magnet material		Bonding NdFeB		
Rotor balancing grade		G6.3		
Service life	hrs	5000		
Manufacturing standard		ISO9001 TS16949		

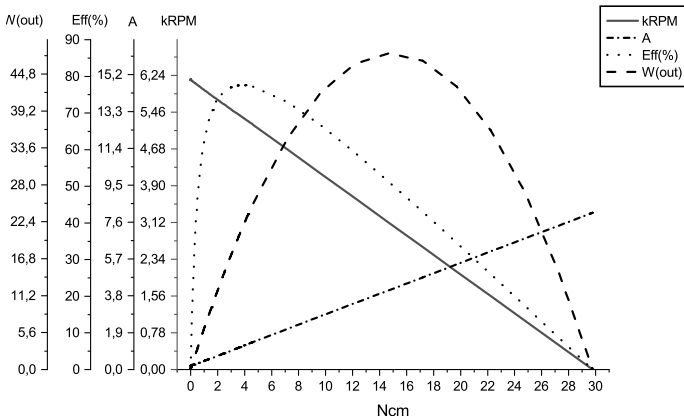
CABLE AND PIN CONFIGURATION EXTERNAL DRIVER

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

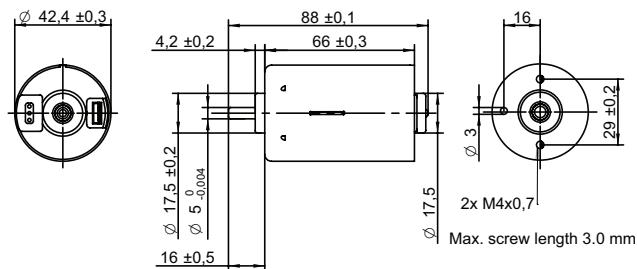
MOTOR DATA DIAGRAM 12V



MOTOR DATA DIAGRAM 24V



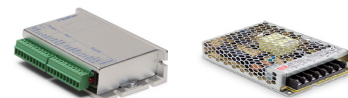
DRAWING (mm)



PHOTO



OPTIONS POWER SUPPLIES



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

MOTOR TYPE

3-Phase, 120-degree, brushless DC Motor with integrated hall sensors.

MOTOR DATA		12V	24V	C
Nominal voltage	V	12	24	
Commutator (hall) voltage	V	3.3~5	3.3~5	
No load speed	rpm	6000		
No load current	mA	550	300	
Nominal speed	rpm	5200	5200	●
Nominal torque	mNm	51	91	
Nominal current	A	3	2.6	
Start/Stall torque	mNm	430	680	
Start/Stall current	A	22	17	
Max. efficiency	%	78	79	
Nominal power	W	28	49	
Terminal resistance	Ω	0.3	0.7	
Terminal inductance	mH	0.1	0.5	
Torque constant	mNm/A	20	40	
Speed constant	rpm/V	500	250	
Speed/ torque gradient	rpm/mNm	100	57	
Rotor inertia	gcm ²	155~156	157~159	

MECHANICAL DATA

			C
Bearing type		Ball bearing	●
Axial play	mm	0.56	0.45
Bearing radial clearance	μm	13	
Max. axial load (dynamic)	N	7.1	

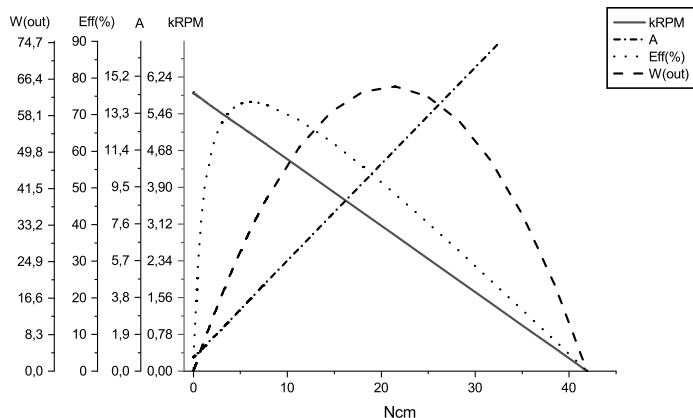
OTHER SPECIFICATIONS

		12V	24V	C
Number of pole pairs		3		
Number of phases		3		
Weight of motor	g	380	390	
Typical noise level	dBA	42	38	
Operating temperature	°C	-40 to +80		
Max. winding temperature	°C	150		
Motor insulation class		A		
IP rating		IP40		
Slot pole pairs		9S6P		
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		●
Shaft length from flange	mm	16		●
Shaft diameter ø	mm	5		
Housing material		SECD-0 1.4T		
Shaft material		SUS420 J2		
Magnet material		Bonding NdFeB		
Rotor balancing grade		G6.3		
Service life	hrs	5000		
Manufacturing standard		ISO9001 TS16949		

CABLE AND PIN CONFIGURATION EXTERNAL DRIVER

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

MOTOR DATA DIAGRAM 12V



MOTOR DATA DIAGRAM 24V

