



MANUAL

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Electromagnetic Brake motor EMB Series

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Equipped with electromagnetic brake EMB series of high performance, compact micro brakes for braking and maintenance.

EMB brakes ensure sufficient torque for holding applications while also being usable as emergency brakes.

EMB brakes boast a variety of advantages, including quiet operation, long service life, slim form factors, high torque in a compact package, stable braking force. Be careful when handling such parts and materials as striking or dropping them or applying excessive force could cause them to become damaged or deformed.

Smart EC motors can be configured and ordered online. Fast, easy and online : www.dnj.co.kr (dnj@dnj.co.kr)

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No. 2003C V10. 2020 DNJWITH

Ø70 mm, 24VDC, brushless, 2600rpm, 90 Watt, Standard Hollow Shaft, Brake



DSM EC MOTOR

Built in Electromagnetic Brakes

- Brushless DC motor with electromagnetic brake
- External diameter Ø70
- Hall sensor (5~24Vdc, open-collector)
- High torque density
- Insulation class F
- Robust ball bearing system for long service life
- Customizing

with Hall sensors

Part numbers

702-24V-90P | 702-24V-120P

Motor data

Ratings

1 Nominal Voltage	V
2 Current	A
3 Power	W
4 Speed	RPM
5 Torque	N.m

24	24				
5.0	7.0				
90	120				
2200	2900				
0.38	0.40				

Electrical characteristics

1 Maximum Operating Voltage	V
2 Maximum Output Power	W
3 No Load Speed	RPM
4 No Load Current	mA
5 Stall Torque	N.m
6 Torque Constant	mN.m/A
7 Back EMF Constant	mV/RPM
8 Terminal resistance phase to phase	Ω
9 Terminal inductance phase to phase	mH
10 Minimum Insulation resistance (dc 500V)	MΩ
11 Noise (Rad.30[cm] DC24V, No load)	dB

30	30				
154	204				
2600	3600				
600	800				
1.74	1.75				
85	64				
8.88	6.42				
0.50	0.30				
0.98	0.54				
10	10				
0.0	0.0				

Specifications

Mechanical data (preload ball bearing)

1 Max. axial load (dynamic)	kgf.cm	455
2 Max. force for press fits (static)	kgf.cm	600

Refer to bellow T-I, T-N drawing

Thermal data

Temperature ratings

1 Max. permissible winding temp.	°C	+160
2 Max. permissible bearing temp.	°C	+110

Ambient condition

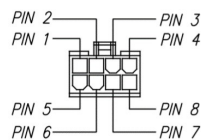
1 Operation condition	°C	-10~50
2 Storage condition	°C	-10~60

Other specifications

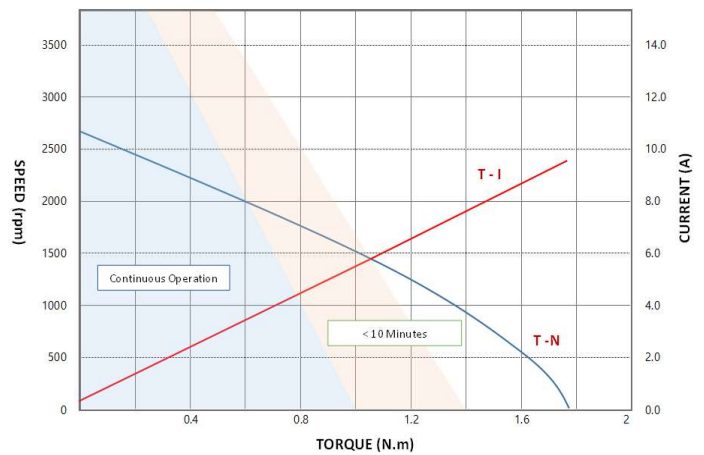
1 Number of pole pairs	pole	8
2 Number of phases	phase	3
3 Weight	gram	1025

Electromagnetic Brakes		(Specification)
Model No.		BXW-02-10H-24V-5
Coil	Voltage (V)	24
	Wattage (W)	6.6
	Current (A)	0.275
	Resistance (Ω)	87.3
Static friction torque (N.m)		0.5
Heat resistance class		F
Lead Wire		UL3398 AWG 26 40mm
Armature pull-in time (sec)		0.01
Armature release time (sec)		0.01

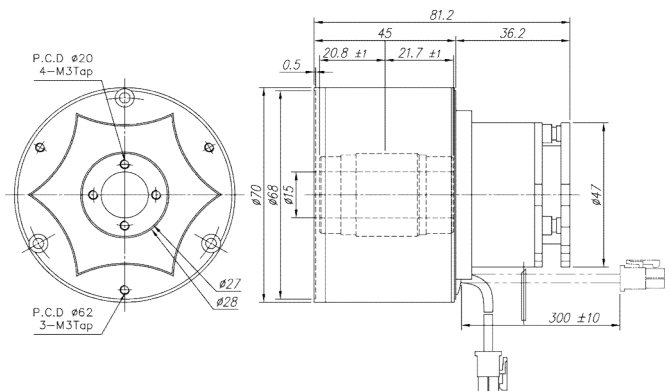
Pin Allocation		(Molex 5557-08R)
1 black	GND	Motor UL1061 AWG 22
2 blue	Motor winding W	Hall sensor UL1061 AWG 26
3 green	Motor winding V	
4 yellow	Motor winding U	
5 red	Vhall 5 ... 24Vdc	
6 brown	Hall sensor C	
7 gray	Hall sensor B	
8 white	Hall sensor A	



702-24V-90P T-N-I curve



Dimensions in [mm]



Ø70 mm, 24VDC, brushless, 2600rpm, 90 Watt, Hollow disc flange option, Brake



DSM EC MOTOR

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- Brushless DC motor with electromagnetic brake
- External diameter Ø70
- Hall sensor (5~24Vdc, open-collector)
- High torque density
- Insulation class F
- Robust ball bearing system for long service life
- Customizing

with Hall sensors

Part numbers

702-24V-90P	702-24V-120P				
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Motor data

Ratings

1 Nominal Voltage	V	24	24				
2 Current	A	5.0	7.0				
3 Power	W	90	120				
4 Speed	RPM	2200	2900				
5 Torque	N.m	0.38	0.40				

Electrical characteristics

1 Maximum Operating Voltage	V	30	30				
2 Maximum Output Power	W	154	204				
3 No Load Speed	RPM	2600	3600				
4 No Load Current	mA	600	800				
5 Stall Torque	N.m	1.74	1.75				
6 Torque Constant	mN.m/A	85	64				
7 Back EMF Constant	mV/RPM	8.88	6.42				
8 Terminal resistance phase to phase	Ω	0.50	0.30				
9 Terminal inductance phase to phase	mH	0.98	0.54				
10 Minimum Insulation resistance (dc 500V)	MΩ	10	10				
11 Noise (Rad.30[cm] DC24V, No load)	dB	0.0	0.0				

Specifications

Characteristic Curves

Mechanical data (preload ball bearing)

1 Max. axial load (dynamic)	kgf.cm	455
2 Max. force for press fits (static)	kgf.cm	600

Refer to bellow T-I, T-N drawing

Thermal data

Temperature ratings

1 Max. permissible winding temp.	°C	+160
2 Max. permissible bearing temp.	°C	+110

Ambient condition

1 Operation condition	°C	-10~50
2 Storage condition	°C	-10~60

Other specifications

1 Number of pole pairs	pole	8
2 Number of phases	phase	3
3 Weight	gram	1059

Electromagnetic Brakes

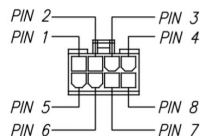
(Specification)

Model No.	BXW-02-10H-24V-5
Voltage (V)	24
Wattage (W)	6.6
Coil Current (A)	0.275
Resistance (Ω)	87.3
Static friction torque (N.m)	0.5
Heat resistance class	F
Lead Wire	UL3398 AWG 26 40mm
Armature pull-in time (sec)	0.01
Armature release time (sec)	0.01

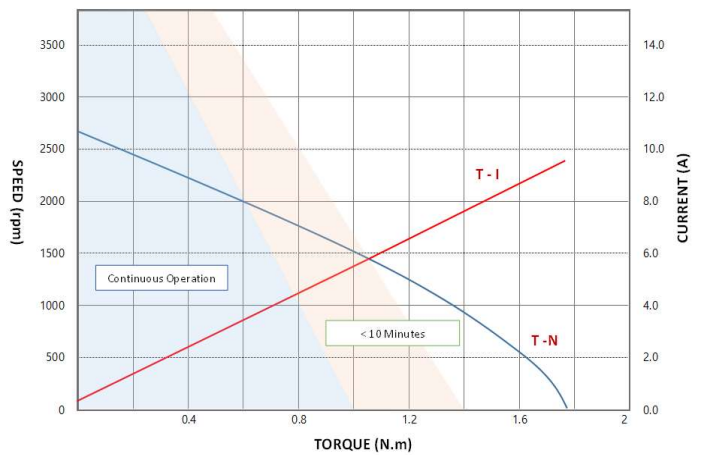
Pin Allocation

(Molex 5557-08R)

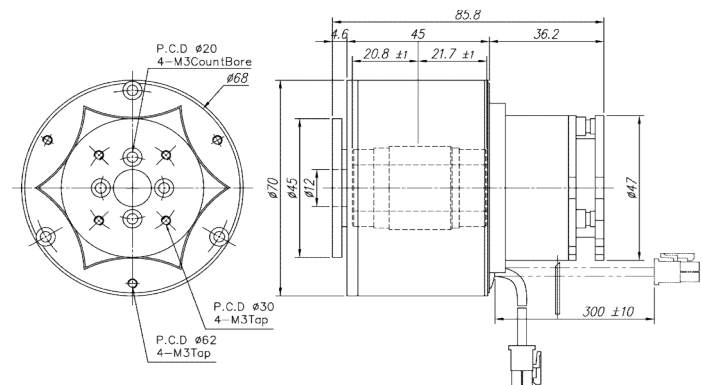
1 black	GND	Motor	UL1061 AWG 22
2 blue	Motor winding W	Hall sensor	UL1061 AWG 26
3 green	Motor winding V		
4 yellow	Motor winding U		
5 red	Vhall 5 ... 24Vdc		
6 brown	Hall sensor C		
7 gray	Hall sensor B		
8 white	Hall sensor A		



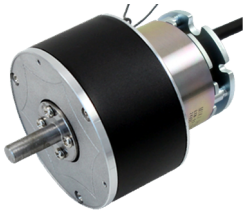
702-24V-90P T-N-I curve



Dimensions in [mm]



Ø70 mm, 24VDC, brushless, 2600rpm, 90 Watt, Solid shaft option, Brake



DSM EC MOTOR

Built in Electromagnetic Brakes

- Brushless DC motor with electromagnetic brake
- External diameter Ø70
- Hall sensor (5~24Vdc, open-collector)
- High torque density
- Insulation class F
- Robust ball bearing system for long service life
- Customizing

with Hall sensors

Part numbers

702-24V-90P	702-24V-120P				
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Motor data

Ratings

1 Nominal Voltage	V	24	24				
2 Current	A	5.0	7.0				
3 Power	W	90	120				
4 Speed	RPM	2200	2900				
5 Torque	N.m	0.38	0.40				

Electrical characteristics

1 Maximum Operating Voltage	V	30	30				
2 Maximum Output Power	W	154	204				
3 No Load Speed	RPM	2600	3600				
4 No Load Current	mA	600	800				
5 Stall Torque	N.m	1.74	1.75				
6 Torque Constant	mN.m/A	85	64				
7 Back EMF Constant	mV/RPM	8.88	6.42				
8 Terminal resistance phase to phase	Ω	0.50	0.30				
9 Terminal inductance phase to phase	mH	0.98	0.54				
10 Minimum Insulation resistance (dc 500V)	MΩ	10	10				
11 Noise (Rad.30[cm] DC24V, No load)	dB	0.0	0.0				

Specifications

Mechanical data (preload ball bearing)

1 Max. axial load (dynamic)	kgf.cm	455
2 Max. force for press fits (static)	kgf.cm	600

Refer to bellow T-I, T-N drawing

Thermal data

Temperature ratings

1 Max. permissible winding temp.	°C	+160
2 Max. permissible bearing temp.	°C	+110

Ambient condition

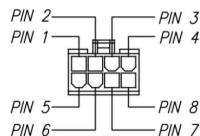
1 Operation condition	°C	-10~50
2 Storage condition	°C	-10~60

Other specifications

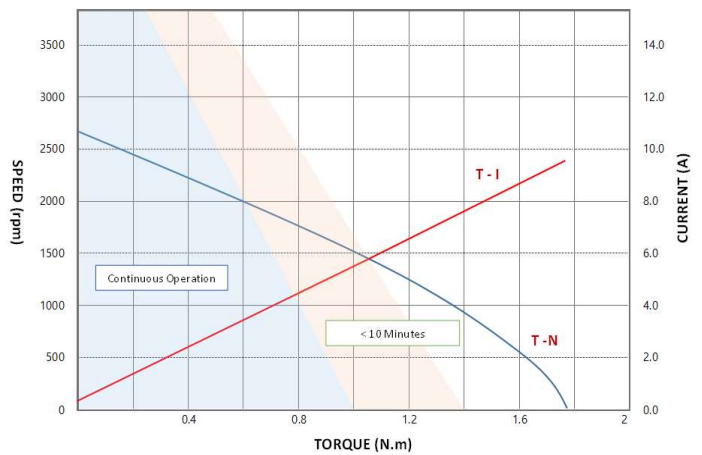
1 Number of pole pairs	pole	8
2 Number of phases	phase	3
3 Weight	gram	1080

Electromagnetic Brakes		(Specification)
Model No.		BXW-02-10H-24V-5
Coil	Voltage (V)	24
	Wattage (W)	6.6
	Current (A)	0.275
	Resistance (Ω)	87.3
Static friction torque (N.m)		0.5
Heat resistance class		F
Lead Wire		UL3398 AWG 26 40mm
Armature pull-in time (sec)		0.01
Armature release time (sec)		0.01

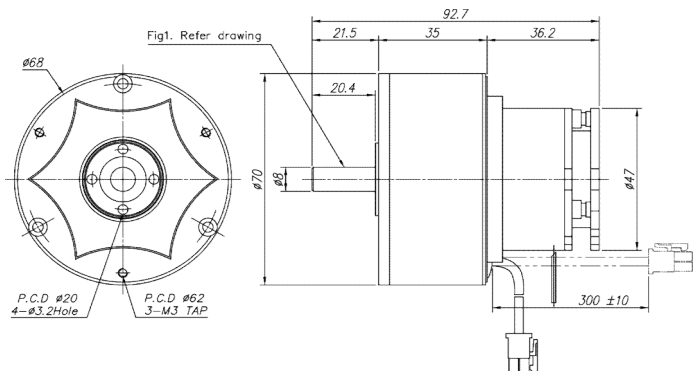
Pin Allocation		(Molex 5557-08R)
1 black	GND	Motor UL1061 AWG 22
2 blue	Motor winding W	Hall sensor UL1061 AWG 26
3 green	Motor winding V	
4 yellow	Motor winding U	
5 red	Vhall 5 ... 24Vdc	
6 brown	Hall sensor C	
7 gray	Hall sensor B	
8 white	Hall sensor A	



702-24V-90P T-N-I curve



Dimensions in [mm]



Ø70 mm, 24VDC, Brushless, 3600rpm, 120 Watt, Standard Hollow Shaft, Brake



DSM EC MOTOR

Built in Electromagnetic Brakes

- Brushless DC motor with electromagnetic brake
- External diameter Ø70
- Hall sensor (5~24Vdc, open-collector)
- High torque density
- Insulation class F
- Robust ball bearing system for long service life
- Customizing

with Hall sensors

Part numbers

702-24V-90P | 702-24V-120P

Motor data

Ratings

1 Nominal Voltage	V
2 Current	A
3 Power	W
4 Speed	RPM
5 Torque	N.m

24	24				
5.0	7.0				
90	120				
2200	2900				
0.38	0.40				

Electrical characteristics

1 Maximum Operating Voltage	V
2 Maximum Output Power	W
3 No Load Speed	RPM
4 No Load Current	mA
5 Stall Torque	N.m
6 Torque Constant	mN.m/A
7 Back EMF Constant	mV/RPM
8 Terminal resistance phase to phase	Ω
9 Terminal inductance phase to phase	mH
10 Minimum Insulation resistance (dc 500V)	MΩ
11 Noise (Rad.30[cm] DC24V, No load)	dB

30	30				
154	204				
2600	3600				
600	800				
1.74	1.75				
85	64				
8.88	6.42				
0.50	0.30				
0.98	0.54				
10	10				
0.0	0.0				

Specifications

Mechanical data (preload ball bearing)

1 Max. axial load (dynamic)	kgf.cm	455
2 Max. force for press fits (static)	kgf.cm	600

Refer to bellow T-I, T-N drawing

Thermal data

Temperature ratings

1 Max. permissible winding temp.	°C	+160
2 Max. permissible bearing temp.	°C	+110

Ambient condition

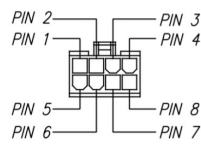
1 Operation condition	°C	-10~50
2 Storage condition	°C	-10~60

Other specifications

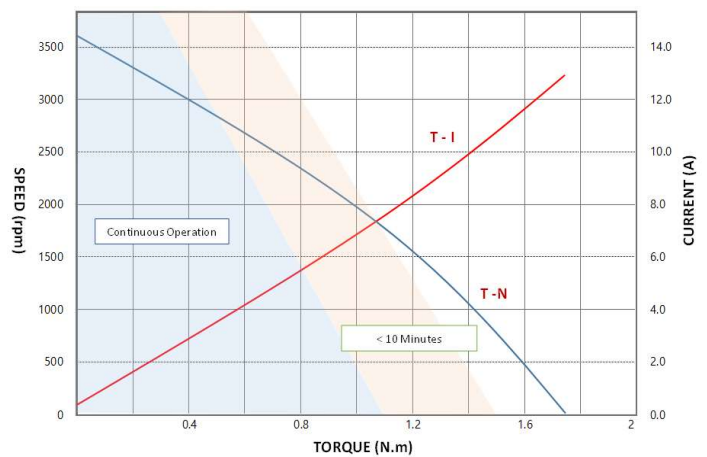
1 Number of pole pairs	pole	8
2 Number of phases	phase	3
3 Weight	gram	1015

Electromagnetic Brakes	(Specification)
Model No.	BXW-02-10H-24V-5
Voltage (V)	24
Wattage (W)	6.6
Coil	Current (A) 0.275
	Resistance (Ω) 87.3
Static friction torque (N.m)	0.5
Heat resistance class	F
Lead Wire	UL3398 AWG 26 40mm
Armature pull-in time (sec)	0.01
Armature release time (sec)	0.01

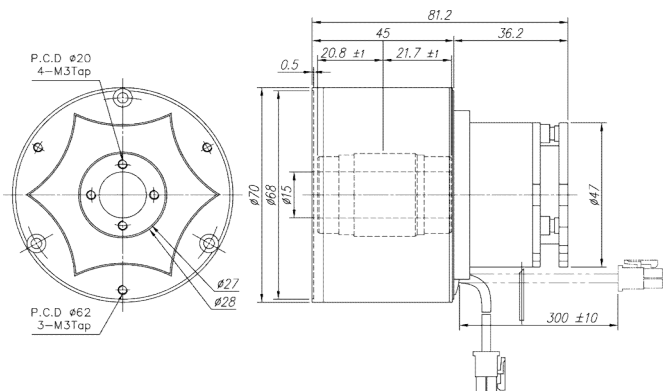
Pin Allocation	(Molex 5557-08R)
1 black	GND
2 blue	Motor winding W
3 green	Motor winding V
4 yellow	Motor winding U
5 red	Vhall 5 ... 24Vdc
6 brown	Hall sensor C
7 gray	Hall sensor B
8 white	Hall sensor A



702-24V-120P T-N-I curve



Dimensions in [mm]



Ø70 mm, 24VDC, Brushless, 3600rpm, 120 Watt, Hollow disc flange option, Brake



DSM EC MOTOR

Built in Electromagnetic Brakes

- Brushless DC motor with electromagnetic brake
- External diameter Ø70
- Hall sensor (5~24Vdc, open-collector)
- High torque density
- Insulation class F
- Robust ball bearing system for long service life
- Customizing

with Hall sensors

Part numbers

702-24V-90P | 702-24V-120P

Motor data

Ratings

1 Nominal Voltage	V
2 Current	A
3 Power	W
4 Speed	RPM
5 Torque	N.m

24	24				
5.0	7.0				
90	120				
2200	2900				
0.38	0.40				

Electrical characteristics

1 Maximum Operating Voltage	V
2 Maximum Output Power	W
3 No Load Speed	RPM
4 No Load Current	mA
5 Stall Torque	N.m
6 Torque Constant	mN.m/A
7 Back EMF Constant	mV/RPM
8 Terminal resistance phase to phase	Ω
9 Terminal inductance phase to phase	mH
10 Minimum Insulation resistance (dc 500V)	MΩ
11 Noise (Rad.30[cm] DC24V, No load)	dB

30	30				
154	204				
2600	3600				
600	800				
1.74	1.75				
85	64				
8.88	6.42				
0.50	0.30				
0.98	0.54				
10	10				
0.0	0.0				

Specifications

Characteristic Curves

Mechanical data (preload ball bearing)

1 Max. axial load (dynamic)	kgf.cm	455
2 Max. force for press fits (static)	kgf.cm	600

Refer to bellow T-I, T-N drawing

Thermal data

Temperature ratings

1 Max. permissible winding temp.	°C	+160
2 Max. permissible bearing temp.	°C	+110

Ambient condition

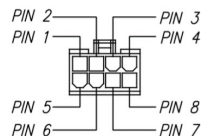
1 Operation condition	°C	-10~50
2 Storage condition	°C	-10~60

Other specifications

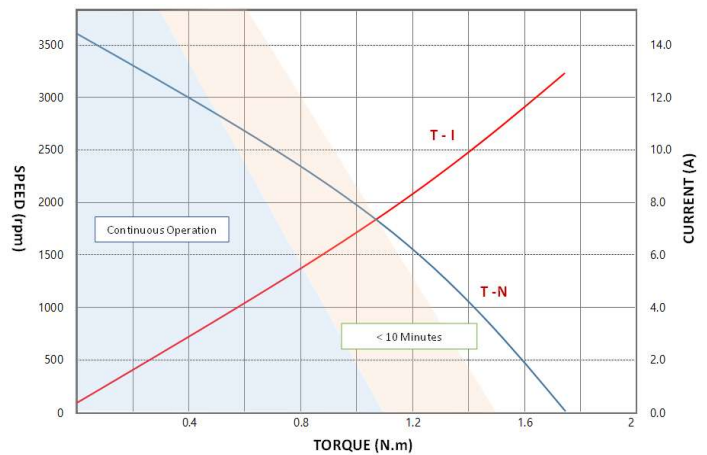
1 Number of pole pairs	pole	8
2 Number of phases	phase	3
3 Weight	gram	1049

Electromagnetic Brakes		(Specification)
Model No.		BXW-02-10H-24V-5
Coil	Voltage (V)	24
	Wattage (W)	6.6
	Current (A)	0.275
	Resistance (Ω)	87.3
Static friction torque (N.m)		0.5
Heat resistance class		F
Lead Wire		UL3398 AWG 26 40mm
Armature pull-in time (sec)		0.01
Armature release time (sec)		0.01

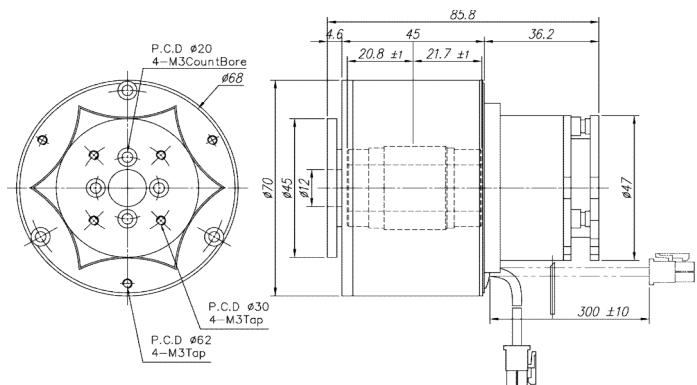
Pin Allocation		(Molex 5557-08R)
1 black	GND	Motor UL1061 AWG 22
2 blue	Motor winding W	Hall sensor UL1061 AWG 26
3 green	Motor winding V	
4 yellow	Motor winding U	
5 red	Vhall 5 ... 24Vdc	
6 brown	Hall sensor C	
7 gray	Hall sensor B	
8 white	Hall sensor A	

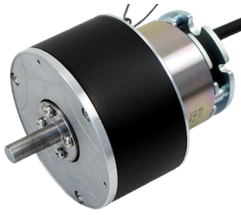


702-24V-120P T-N-I curve



Dimensions in [mm]





DSM EC MOTOR

Ø70 mm, 24VDC, Brushless, 3600rpm, 120 Watt, Solid shaft option, Brake

Built in Electromagnetic Brakes

- Brushless DC motor with electromagnetic brake
- External diameter Ø70
- Hall sensor (5~24Vdc, open-collector)
- High torque density
- Insulation class F
- Robust ball bearing system for long service life
- Customizing

with Hall sensors

Part numbers

702-24V-90P	702-24V-120P				
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Motor data

Ratings							
1 Nominal Voltage	V	24	24				
2 Current	A	5.0	7.0				
3 Power	W	90	120				
4 Speed	RPM	2200	2900				
5 Torque	N.m	0.38	0.40				

Electrical characteristics

1 Maximum Operating Voltage	V	30	30				
2 Maximum Output Power	W	154	204				
3 No Load Speed	RPM	2600	3600				
4 No Load Current	mA	600	800				
5 Stall Torque	N.m	1.74	1.75				
6 Torque Constant	mN.m/A	85	64				
7 Back EMF Constant	mV/RPM	8.88	6.42				
8 Terminal resistance phase to phase	Ω	0.50	0.30				
9 Terminal inductance phase to phase	mH	0.98	0.54				
10 Minimum Insulation resistance (dc 500V)	M Ω	10	10				
11 Noise (Rad.30[cm] DC24V, No load)	dB	0.0	0.0				

Specifications

Mechanical data (preload ball bearing)			
1 Max. axial load (dynamic)	kgf.cm	455	Refer to bellow T-I, T-N drawing
2 Max. force for press fits (static)	kgf.cm	600	

Thermal data

Temperature ratings		
1 Max. permissible winding temp.	°C	+160
2 Max. permissible bearing temp.	°C	+110
Ambient condition		
1 Operation condition	°C	-10~50
2 Storage condition	°C	-10~60

Other specifications

1	Number of pole pairs	pole	8
2	Number of phases	phase	3
3	Weight	gram	1070

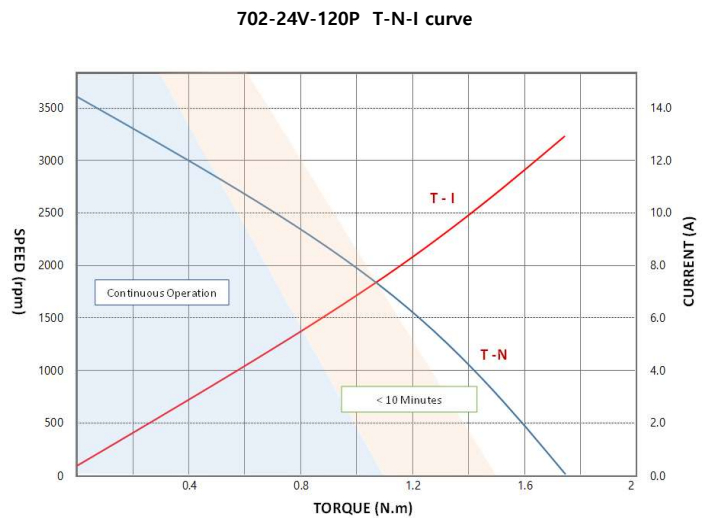
Electromagnetic Brakes

Model No.		BXW-02-10H-24V-5
Coil	Voltage (V)	24
	Wattage (W)	6.6
	Current (A)	0.275
	Resistance (Ω)	87.3
Static friction torque (N.m)		0.5
Heat resistance class		F
Lead Wire		UL3398 AWG 26 40mm
Armature pull-in time (sec)		0.01
Armature release time (sec)		0.01

Pin Allocation

1 black	GND	Motor	UL1061 AWG 22
2 blue	Motor winding W	Hall sensor	UL1061 AWG 26
3 green	Motor winding V		
4 yellow	Motor winding U		
5 red	Vhall 5 ... 24Vdc		
6 brown	Hall sensor C		
7 gray	Hall sensor B		
8 white	Hall sensor A		

Characteristic Curves



Dimensions in [mm]

