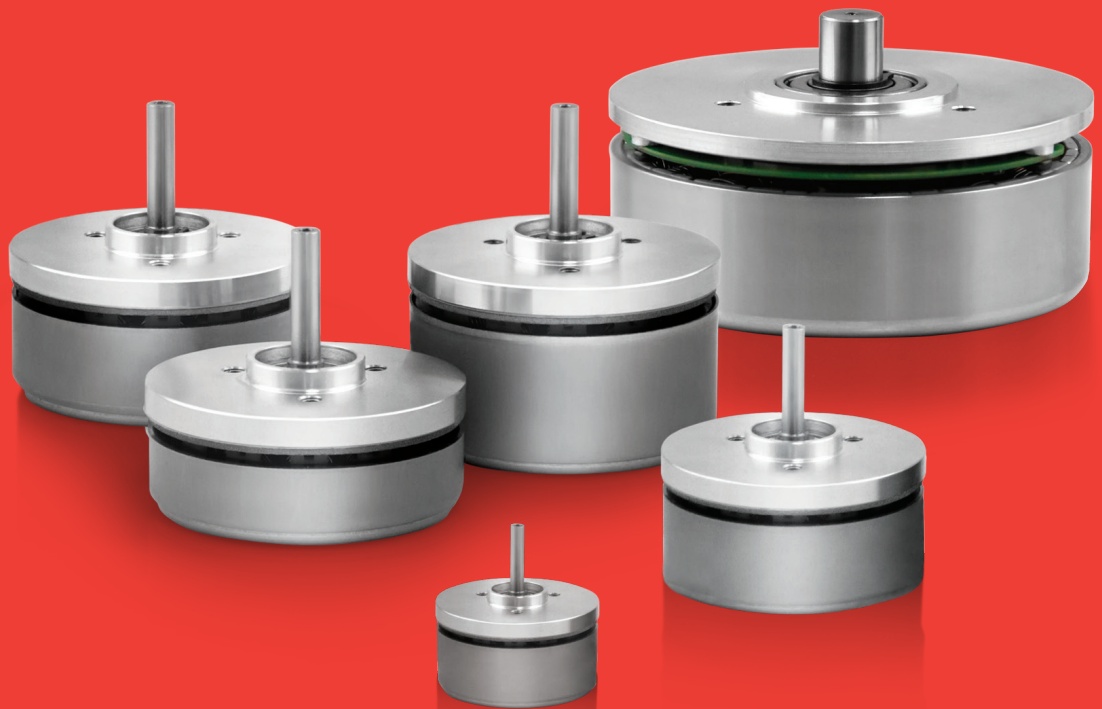


FLAT MOTORS



WAGNER GMBH
Elektrotechnische Systemlösungen

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Connecting dots. Providing solutions.



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servo tecnica

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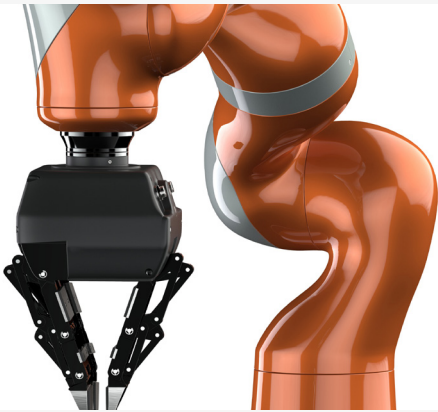
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Industries

Robotics



Smart grippers
Collaborative robots

Medical



Exoskeletons
Prothesis
Breather helmet

Other applications



Drones
Conveyor belts

SVTM F

Flat Brushless DC Motors



HIGH TORQUE



COST-EFFECTIVE



CUSTOMIZABLE

The natural geometry of the outrunner Brushless Flat Motors, as well as the iron core winding, are the perfect fit for applications requiring high-torque in reduced dimensions.

Simplified design, high-end material selection, and automated manufacturing make the Flat Motors a high-performance solution at a competitive price.

Our vocation in listening to the client's requirements has led us to develop a customization-minded offer, focusing on specific application requirements such as integrated feedbacks, special cables and the geometry of shafts and flanges.

Benefits

High power density

High torque

High efficiency

Cost-effective

Compact

Customizable



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Product code

SVTM F ○○ - ◇.◇◇◇◇ - ◇◇ - □ - △ ◇ ☆

F Series

○ Diameter
ø20mm [01]; ø32mm [02]; ø45mm [03]; ø90mm [04];

◇ Rated torque

◇ Nominal voltage

□ Shaft
Single [S]; Double [D]

△ Connection
Wires/Flexprint [W];
Fiber glass and connectors [C]

◇ Sensor
Sensorless [0];
Hall Sensor [H]

☆ Customization

Features

Winding 3 phases

Operating temperature -25° +80°

Insulation class B, 130°C

Magnets Neodymium

Design technology Ironcore

Feedback

Hall Sensor (standard)

Customizations

Integrated feedback

Flange shape

Shaft

Connectors

Wires

*Not available for frameless version

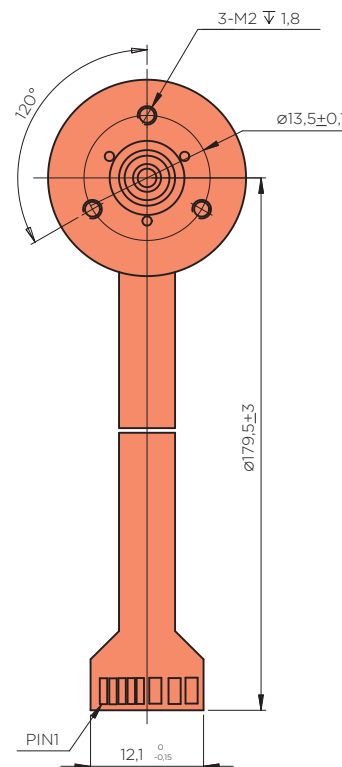
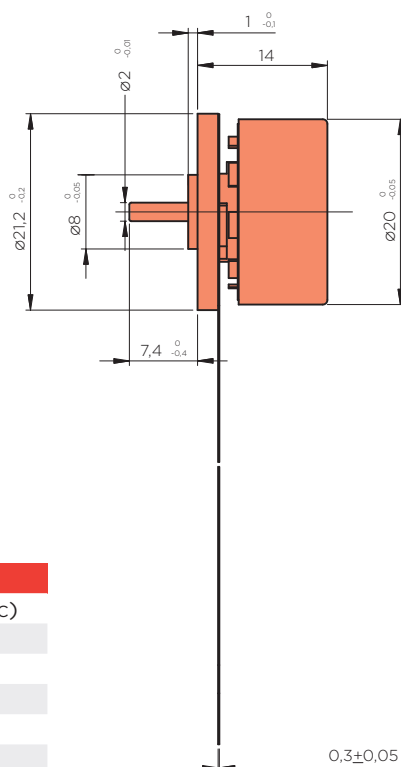


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5 Watt



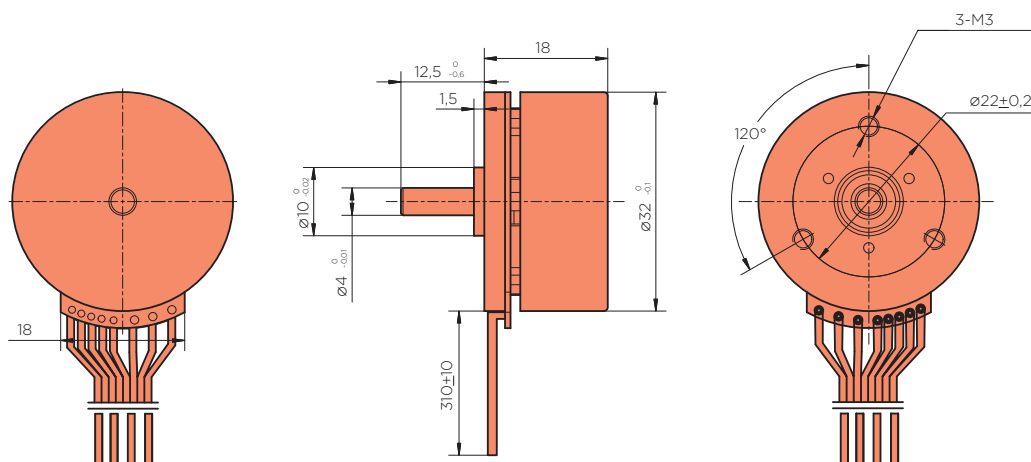
Flying leads

PIN1	red	V Hall (5-24 V _{DC})
PIN2	green	Hall W
PIN3	blue	Hall U
PIN4	white	Hall V
PIN5	black	GND
PIN6	yellow	Phase W
PIN7	brown	Phase V
PIN8	gray	Phase U

Outrunner BLDC

Values	Units	Tollerance	SVTM F 01 ..12..	01 ..24..
Motor data				
1 Nominal voltage	VDC		12	24
2 No load speed	rpm	±10%	9350	9290
3 No load current	mA		52	26
4 Rated speed	rpm	±10%	5170	5220
5 Rated torque	mNm		7.59	7.74
6 Rated current	A		0.7	0.34
7 Peak torque	mNm		19	20
8 Peak current	A	±10%	1.62	0.85
Characteristics				
9 Line to line resistance	ohms@25°C	±10%	7.2	26.1
10 Line to line inductance	mH	±20%	0.62	2.6
11 Torque constant	mNm/A	±10%	12	24
12 Back EMF constant	Vrms/kRPM	±10%	0.89	1.78
13 Rotor inertia	g cm²			5.1
Mechanical data (preloaded ball bearings)				
14 Max axial-force	N			1.8
15 Max radial-force*	N			5.3
16 Shaft radial play	mm @4N			0.02
17 Shaft axial play	mm @4N			0.08
18 Length	mm			14
Other specifications				
19 Number of poles	#			8
20 Number of phases	#			3
21 Weight	g			23
22 Operation ambient	°C			-25 +80

*@ 5mm from the flange

**Flying leads**

PIN1	red	V Hall (5-24 Vdc)
PIN2	green	Hall W
PIN3	blue	Hall U
PIN4	white	Hall V
PIN5	black	GND
PIN6	yellow	Phase W
PIN7	brown	Phase V
PIN8	gray	Phase U

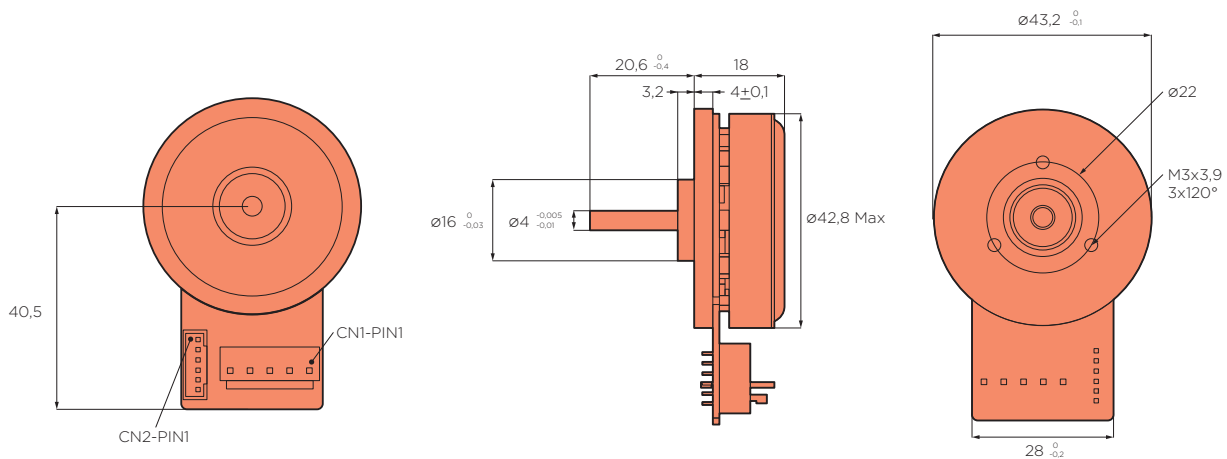
Outrunner BLDC

Values	Units	Tolerance	SVTM F 02..9..	02..12..	02..24..	02..48..
Motor data						
1 Nominal voltage	VDC		9	12	24	48
2 No load speed	rpm	±10%	3750	4650	4550	4800
3 No load current	mA		0.252	0.29	0.14	0.077
4 Rated speed	rpm	±10%	2100	2800	2760	2950
5 Rated torque	mNm		24.6	25.1	25.5	24.7
6 Rated current	A		1.06	1	0.5	0.257
7 Peak torque	mNm		73.8	75.3	76.5	74.1
8 Peak current	A	±10%	3.4	3.2	1.7	0.97
Characteristics						
9 Line to line resistance	ohms@25°C	±10%	2.87	3.43	13.7	53
10 Line to line inductance	mH	±20%	1.61	1.87	7.73	27.8
11 Torque constant	mNm/A	±10%	23	24.8	51	96.1
12 Back EMF constant	Vrms/kRPM	±10%	1.7	1.83	3.77	7.1
13 Rotor inertia	g cm ²				35	
Mechanical data (preloaded ball bearings)						
14 Max axial-force	N				4.8	
15 Max radial-force*	N				14	
16 Shaft radial play	mm @4N				0.02	
17 Shaft axial play	mm @4N				0.14	
18 Length	mm				18	
Other specifications						
19 Number of poles	#				8	
20 Number of phases	#				3	
21 Weight	g				50	
22 Operation ambient	°C				-25 +80	

* @ 5mm from the flange

SVTM F 03

30 Watt

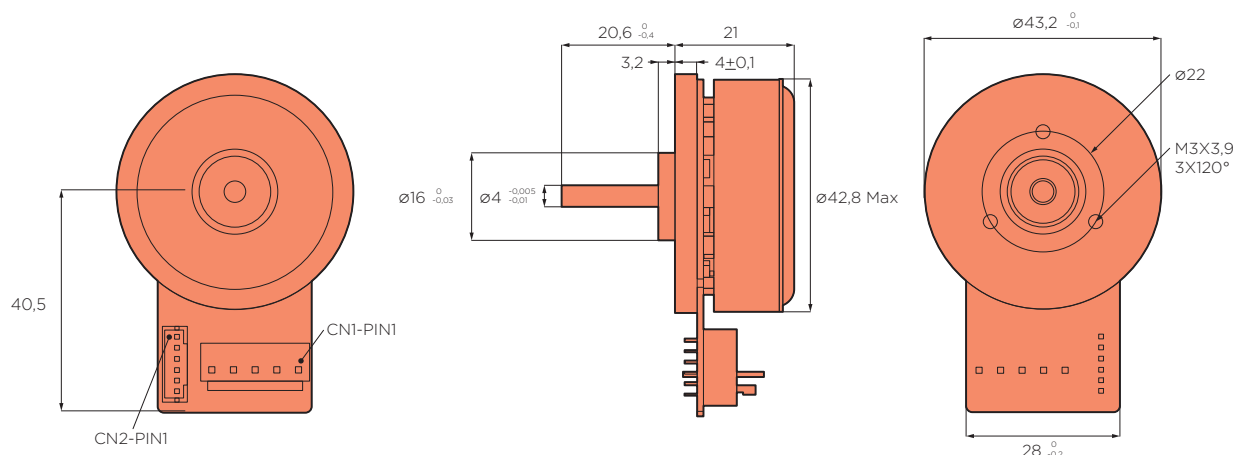


Connector 1		Connector 2	
JST B5P-VH		JST B6B-PH-K-S	
PIN1	GND	PIN1	GND
PIN2	Phase U	PIN2	V Hall (4.5-18VDC)
PIN3	Phase V	PIN3	Hall W
PIN4	Phase W	PIN4	Hall U
PIN5	GND	PIN5	Hall V
		PIN6	GND

Outrunner BLDC

Values	Units	Tolerance	SVTM F 03..24..
Motor data			
1 Nominal voltage	VDC		24
2 No load speed	rpm	±10%	6500
3 No load current	mA		0.27
4 Rated speed	rpm	±10%	5000
5 Rated torque	mNm		50
6 Rated current	A		1.42
7 Peak torque	mNm		150
8 Peak current	A	±10%	4.8
Characteristics			
9 Line to line resistance	ohms@25°C	±10%	1.42
10 Line to line inductance	mH	±20%	0.59
11 Torque constant	mNm/A	±10%	35.3
12 Back EMF constant	Vrms/kRPM	±10%	2.61
13 Rotor inertia	g cm ²		99
Mechanical data (preloaded ball bearings)			
14 Max axial-force	N		10
15 Max radial-force*	N		28
16 Shaft radial play	mm @4N		0.02
17 Shaft axial play	mm @4N		0.14
18 Length	mm		18
Other specifications			
19 Number of poles	#		16
20 Number of phases	#		3
21 Weight	g		80
22 Operation ambient	°C		-25 +80

*@ 5mm from the flange

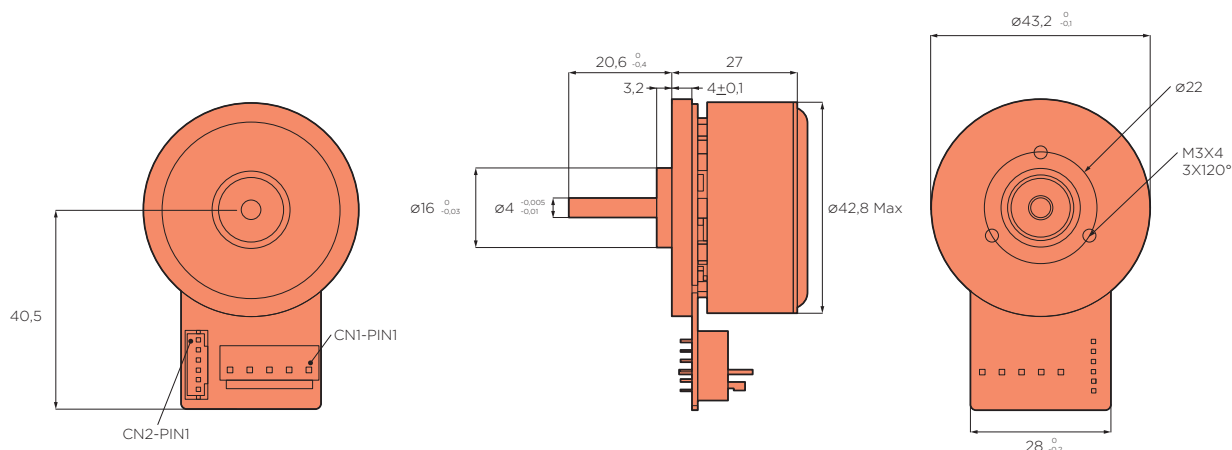


Connector 1		Connector 2	
JST B5P-VH		JST B6B-PH-K-S	
PIN1	GND	PIN1	GND
PIN2	Phase U	PIN2	V Hall (4.5-18VDC)
PIN3	Phase V	PIN3	Hall U
PIN4	Phase W	PIN4	Hall W
PIN5	GND	PIN5	Hall V
		PIN6	GND

Outrunner BLDC

Values	Units	Tolerance	SVTM F 03..24..
Motor data			
1 Nominal voltage	VDC		24
2 No load speed	rpm	±10%	6700
3 No load current	mA		0.33
4 Rated speed	rpm	±10%	5260
5 Rated torque	mNm		84
6 Rated current	A		2.46
7 Peak torque	mNm		250
8 Peak current	A	±10%	7.8
Characteristics			
9 Line to line resistance	ohms@25°C	±10%	0.7
10 Line to line inductance	mH	±20%	0.33
11 Torque constant	mNm/A	±10%	34.2
12 Back EMF constant	Vrms/kRPM	±10%	2.53
13 Rotor inertia	g cm ²		135
Mechanical data (preloaded ball bearings)			
14 Max axial-force	N		10
15 Max radial-force*	N		28
16 Shaft radial play	mm @4N		0.02
17 Shaft axial play	mm @4N		0.14
18 Length	mm		21
Other specifications			
19 Number of poles	#		16
20 Number of phases	#		3
21 Weight	g		120
22 Operation ambient	°C		-20 +80

*@ 5mm from the flange

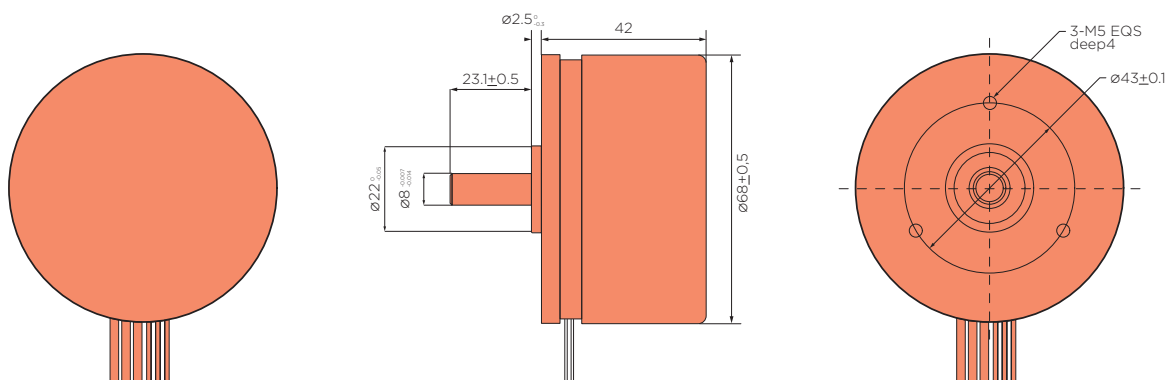


Connector 1		Connector 2	
JST B5P-VH		JST B6B-PH-K-S	
PIN1	GND	PIN1	GND
PIN2	Phase U	PIN2	V Hall (4.5-18VDC)
PIN3	Phase V	PIN3	Hall U
PIN4	Phase W	PIN4	Hall W
PIN5	GND	PIN5	Hall V
		PIN6	GND

Outrunner BLDC

Values	Units	Tolerance	SVTM F 03..24..
Motor data			
1 Nominal voltage	VDC		24
2 No load speed	rpm	±10%	6100
3 No load current	mA		0.38
4 Rated speed	rpm	±10%	4840
5 Rated torque	mNm		130
6 Rated current	A		3.49
7 Peak torque	mNm		390
8 Peak current	A	±10%	11
Characteristics			
9 Line to line resistance	ohms@25°C	±10%	0.56
10 Line to line inductance	mH	±20%	0.27
11 Torque constant	mNm/A	±10%	37.2
12 Back EMF constant	Vrms/kRPM	±10%	2.75
13 Rotor inertia	g cm ²		181
Mechanical data (preloaded ball bearings)			
14 Max axial-force	N		10
15 Max radial-force*	N		28
16 Shaft radial play	mm @4N		0.02
17 Shaft axial play	mm @4N		0.14
18 Length	mm		27
Other specifications			
19 Number of poles	#		16
20 Number of phases	#		3
21 Weight	g		150
22 Operation ambient	°C		-20 +80

*@ 5mm from the flange



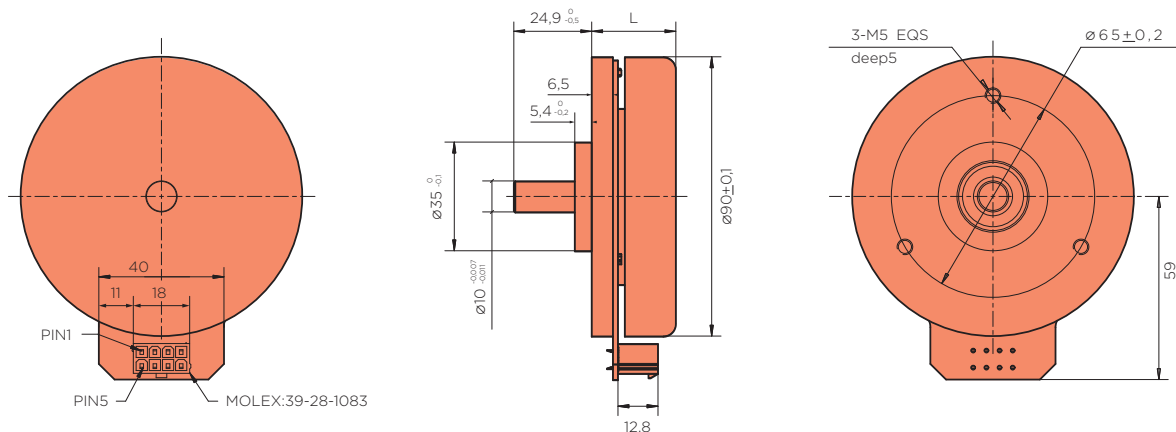
Flying leads

AWG26	red	V Hall (5 VDC)
AWG26	green	Hall V
AWG26	blue	Hall U
AWG26	white	Hall W
AWG26	black	GND
AWG18	yellow	Phase U
AWG18	red	Phase V
AWG18	black	Phase W

Outrunner BLDC

Values	Units	Tolerance	SVTM F 04..24..
Motor data			
1 Nominal voltage	VDC		24
2 No load speed	rpm	±10%	4400
3 No load current	mA		0.65
4 Rated speed	rpm	±10%	3700
5 Rated torque	mNm		290
6 Rated current	A		5.6
7 Peak torque	mNm		870
8 Peak current	A	±10%	5.6
Characteristics			
9 Line to line resistance	ohms@25°C	±10%	0.25
10 Line to line inductance	mH	±20%	0.3
11 Torque constant	mNm/A	±10%	54
12 Back EMF constant	Vrms/kRPM	±10%	4.0
13 Rotor inertia	g cm ²		1000
Mechanical data (preloaded ball bearings)			
14 Max axial-force	N		10
15 Max radial-force*	N		28
16 Shaft radial play	mm @4N		0.02
17 Shaft axial play	mm @4N		0.08
18 Length	mm		42
Other specifications			
19 Number of poles	#		14
20 Number of phases	#		3
21 Weight	g		500
22 Operation ambient	°C		-20 +80

*@ 10mm from the flange

**Connector**

MOLEX 39-28-1083

PIN1	Hall U
PIN2	Hall V
PIN3	V Hall (5-24 VDC)
PIN4	Phase W
PIN5	Hall W
PIN6	GND
PIN7	Phase U
PIN8	Phase V

Outrunner BLDC

Values	Units	Tolerance	SVTM F 05..24..	05..48..
Motor data				
1 Nominal voltage	VDC		24	48
2 No load speed	rpm	±10%	3300	1900
3 No load current	mA		0.7	0.35
4 Rated speed	rpm	±10%	2700	1670
5 Rated torque	mNm		457	964
6 Rated current	A		6.8	3.9
7 Peak torque	mNm		1600	3000
8 Peak current	A	±10%	23	13
Characteristics				
9 Line to line resistance	ohms@25°C	±10%	0.21	0.65
10 Line to line inductance	mH	±20%	0.19	0.9
11 Torque constant	mNm/A	±10%	63	241
12 Back EMF constant	Vrms/kRPM	±10%	5.2	17.9
13 Rotor inertia	g cm ²		3000	5000
Mechanical data (preloaded ball bearings)				
14 Max axial-force	N		45	45
15 Max radial-force*	N		110	110
16 Shaft radial play	mm @4N		0.02	0.02
17 Shaft axial play	mm @4N		0.08	0.08
18 Length	mm		27	40
Other specifications				
19 Number of poles	#		22	22
20 Number of phases	#		3	3
21 Weight	g		600	1000
22 Operation ambient	°C		-20 +80	-20 +80

* @ 10mm from the flange





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how can I help you?



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