



ADR-F SERIES

- ▶ High torque density
- ▶ Low cogging torque
- ▶ Small volume and compact design
- ▶ Optional for low speed and high speed windings
- ▶ Direct drive and brushless motor

ADR45-F-5

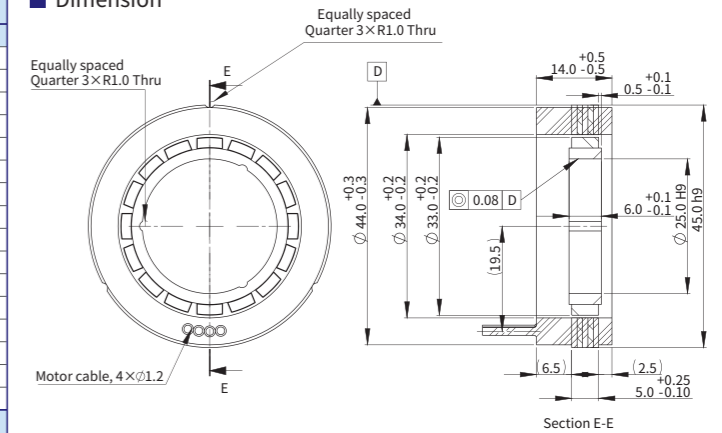
ADR45-F-5				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque (NC) @100°C	T _{cn}	Nm	0.05	0.05
Peak Torque	T _{pk}	Nm	0.15	0.15
Torque Constant ±10%	K _t	Nm/Arms	0.09	0.04
Back EMF Constant ±10%	K _e	Vpeak/rpm	7.32E-03	3.66E-03
Motor Constant @25°C	K _m	Nm/Sqrt(W)	0.04	0.04
Resistance (L-L) 25°C ±10%	R ₂₅	Ω	3.65	0.91
Inductance (L-L) ±20%	L	mH	0.79	0.20
Electrical Time Constant	τ _e	ms	0.22	0.22
Continuous Current (NC) @100°C	I _{cn}	Arms	0.6	1.2
Peak Current	I _{pk}	Arms	2.0	4.0
Continuous Power Dissipation (NC) @100°C	P _{cn}	W	2.6	2.6
Max. Coil Temperature	t _{max}	°C	100	100
Thermal Dissipation Constant (NC)	K _{thn}	W/°C	0.03	0.03
Max. Bus Voltage	U _{bus}	Vdc	48	48
Pole Number	2 _p	-	16	16
Max.Speed	Ω _{max}	rpm	1500	3000

Mechanical Parameters				
Overall Mass (NC)	m _n	kg	0.08	0.08
Rotor Inertia	J _r	kg·m ²	2.60E-06	2.60E-06

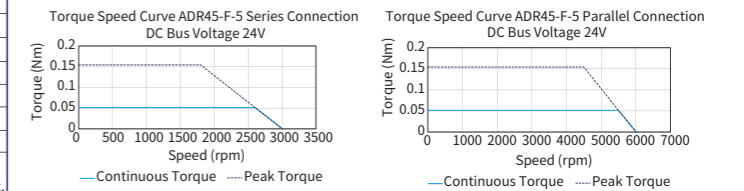
Other Information				
Insulation Class	Class A (105°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE			
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.			

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 - Resistance is measured by DC current with standard 0.5 m cable.
 - Inductance is measured by current frequency of 1 kHz.
 - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under max. bus voltage.
- The contents of datasheet are subject to change without prior notice.

Dimension



Torque-Speed Curve



ADR45-F-10

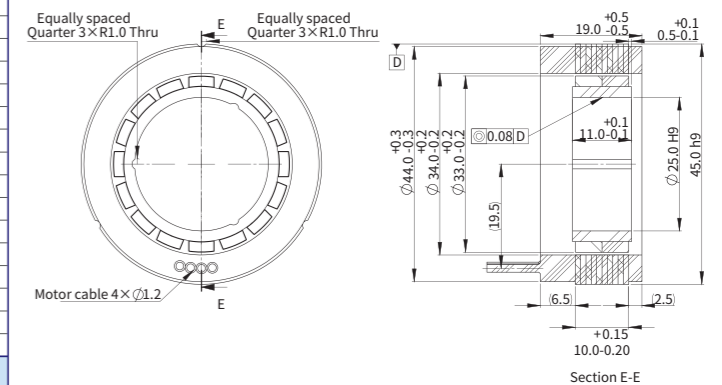
ADR45-F-10				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque (NC) @100°C	T _{cn}	Nm	0.10	0.10
Peak Torque	T _{pk}	Nm	0.30	0.30
Torque Constant ±10%	K _t	Nm/Arms	0.17	0.09
Back EMF Constant ±10%	K _e	Vpeak/rpm	1.46E-02	7.32E-03
Motor Constant @25°C	K _m	Nm/Sqrt(W)	0.06	0.06
Resistance (L-L) 25°C ±10%	R ₂₅	Ω	5.40	1.35
Inductance (L-L) ±20%	L	mH	1.30	0.33
Electrical Time Constant	τ _e	ms	0.24	0.24
Continuous Current (NC) @100°C	I _{cn}	Arms	0.6	1.2
Peak Current	I _{pk}	Arms	2.0	4.0
Continuous Power Dissipation (NC) @100°C	P _{cn}	W	3.8	3.8
Max. Coil Temperature	t _{max}	°C	100	100
Thermal Dissipation Constant (NC)	K _{thn}	W/°C	0.05	0.05
Max. Bus Voltage	U _{bus}	Vdc	48	48
Pole Number	2 _p	-	16	16
Max.Speed	Ω _{max}	rpm	1500	3000

Mechanical Parameters				
Overall Mass (NC)	m _n	kg	0.11	0.11
Rotor Inertia	J _r	kg·m ²	5.20E-06	5.20E-06

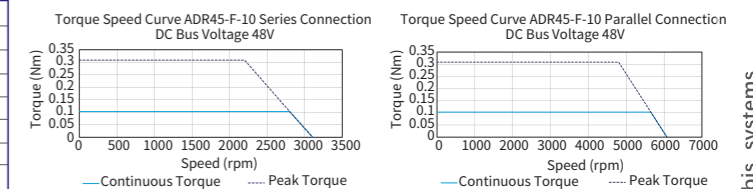
Other Information				
Insulation Class	Class A (105°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE			
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.			

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 - Resistance is measured by DC current with standard 0.5 m cable.
 - Inductance is measured by current frequency of 1 kHz.
 - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under max. bus voltage.
- The contents of datasheet are subject to change without prior notice.

Dimension



Torque-Speed Curve



ADR60-F-10

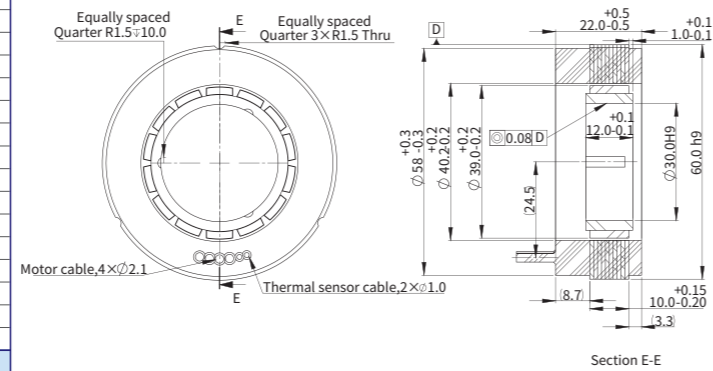
ADR60-F-10					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque (NC) @100°C		T _{cn}	Nm	0.33	0.33
Peak Torque		T _{pk}	Nm	0.95	0.95
Torque Constant ±10%		K _t	Nm/Arms	0.11	0.05
Back EMF Constant ±10%		K _e	Vpeak/rpm	8.97E-03	4.49E-03
Motor Constant @25°C		K _m	Nm/Sqrt(W)	0.11	0.11
Resistance (L-L) 25°C ±10%		R ₂₅	Ω	0.65	0.16
Inductance (L-L) ±20%		L	mH	0.47	0.12
Electrical Time Constant		τ _e	ms	0.72	0.72
Continuous Current (NC) @100°C		I _{cn}	Arms	3.1	6.2
Peak Current		I _{pk}	Arms	10.9	21.7
Continuous Power Dissipation (NC) @100°C		P _{cn}	W	12.1	12.1
Max. Coil Temperature		t _{max}	°C	100	100
Thermal Dissipation Constant (NC)		K _{thn}	W/°C	0.16	0.16
Max. Bus Voltage		U _{bus}	Vdc	48	48
Pole Number		2 _p	-	14	14
Max.Speed		Ω _{max}	rpm	1500	3000

Mechanical Parameters					
Overall Mass (NC)		m _n	kg	0.22	0.22
Rotor Inertia		J _r	kg·m ²	1.02E-05	1.02E-05

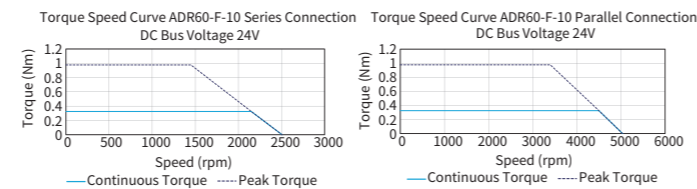
Other Information				
Insulation Class		Class A (105°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE		
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience		Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 - Resistance is measured by DC current with standard 0.5 m cable.
 - Inductance is measured by current frequency of 1 kHz.
 - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under max. bus voltage.
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Dimension



Torque-Speed Curve



ADR60-F-20

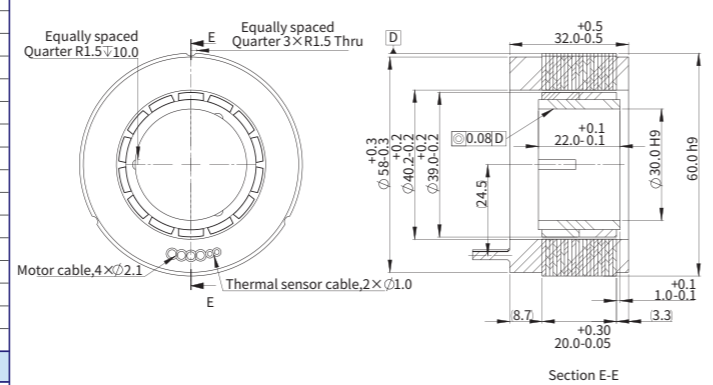
ADR60-F-20					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque (NC) @100°C		T _{cn}	Nm	0.65	0.65
Peak Torque		T _{pk}	Nm	1.90	1.90
Torque Constant ±10%		K _t	Nm/Arms	0.21	0.11
Back EMF Constant ±10%		K _e	Vpeak/rpm	1.79E-02	8.97E-03
Motor Constant @25°C		K _m	Nm/Sqrt(W)	0.16	0.16
Resistance (L-L) 25°C ±10%		R ₂₅	Ω	1.10	0.28
Inductance (L-L) ±20%		L	mH	0.81	0.20
Electrical Time Constant		τ _e	ms	0.74	0.74
Continuous Current (NC) @100°C		I _{cn}	Arms	3.1	6.2
Peak Current		I _{pk}	Arms	10.9	21.8
Continuous Power Dissipation (NC) @100°C		P _{cn}	W	20.5	20.5
Max. Coil Temperature		t _{max}	°C	100	100
Thermal Dissipation Constant (NC)		K _{thn}	W/°C	0.27	0.27
Max. Bus Voltage		U _{bus}	Vdc	48	48
Pole Number		2 _p	-	14	14
Max.Speed		Ω _{max}	rpm	1500	3000

Mechanical Parameters					
Overall Mass (NC)		m _n	kg	0.35	0.35
Rotor Inertia		J _r	kg·m ²	2.03E-05	2.03E-05

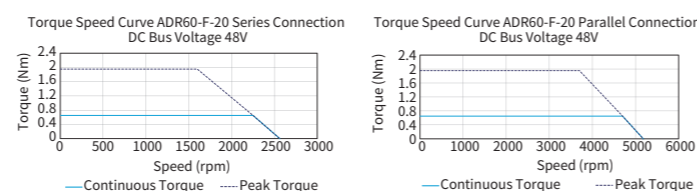
Other Information				
Insulation Class		Class A (105°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE		
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience		Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 - Resistance is measured by DC current with standard 0.5 m cable.
 - Inductance is measured by current frequency of 1 kHz.
 - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under max. bus voltage.
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Dimension



Torque-Speed Curve



ADR75-F-15

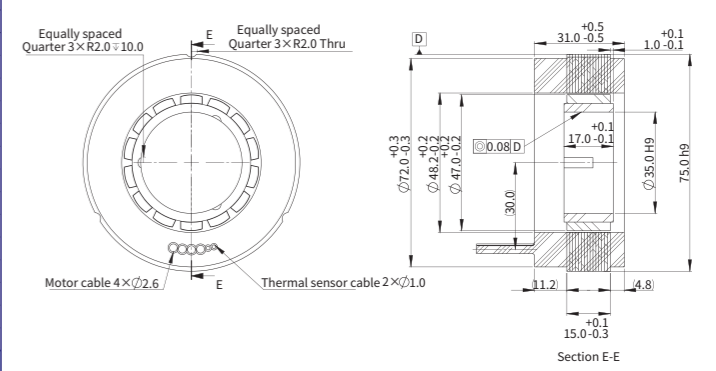
ADR75-F-15					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque (NC) @100°C		T _{cn}	Nm	0.80	0.80
Peak Torque		T _{pk}	Nm	2.41	2.41
Torque Constant ±10%		K _t	Nm/Arms	0.12	0.06
Back EMF Constant ±10%		K _e	Vpeak/rpm	1.03E-02	5.13E-03
Motor Constant @25°C		K _m	Nm/Sqrt(W)	0.20	0.20
Resistance (L-L) 25°C ±10%		R ₂₅	Ω	0.25	0.06
Inductance (L-L) ±20%		L	mH	0.40	0.10
Electrical Time Constant		τ _e	ms	1.60	1.60
Continuous Current (NC) @100°C		I _{cn}	Arms	6.7	13.4
Peak Current		I _{pk}	Arms	20.1	40.2
Continuous Power Dissipation (NC) @100°C		P _{cn}	W	21.8	21.8
Max. Coil Temperature		t _{max}	°C	100	100
Thermal Dissipation Constant (NC)		K _{thn}	W/°C	0.29	0.29
Max. Bus Voltage		U _{bus}	Vdc	48	48
Pole Number		2 _p	-	14	14
Max.Speed		Ω _{max}	rpm	1500	3000

Mechanical Parameters					
Overall Mass (NC)		m _n	kg	0.46	0.46
Rotor Inertia		J _r	kg·m ²	3.25E-05	3.25E-05

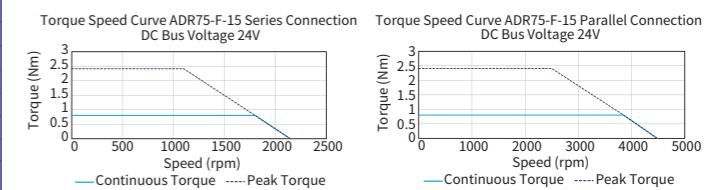
Other Information				
Insulation Class		Class A (105°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE		
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience		Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 - Resistance is measured by DC current with standard 0.5 m cable.
 - Inductance is measured by current frequency of 1 kHz.
 - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under max. bus voltage.
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Dimension



Torque-Speed Curve



ADR75-F-30

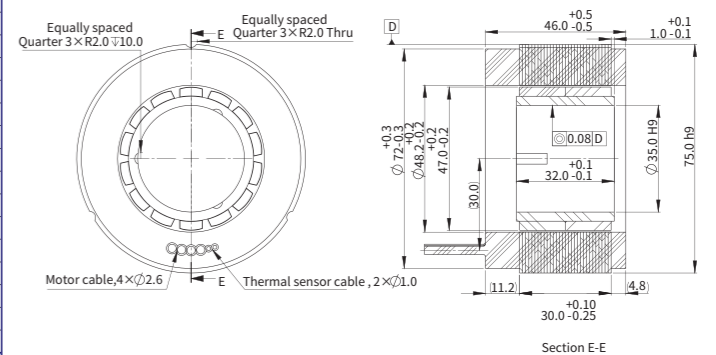
ADR75-F-30					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque (NC) @100°C		T _{cn}	Nm	1.61	1.61
Peak Torque		T _{pk}	Nm	4.82	4.82
Torque Constant ±10%		K _t	Nm/Arms	0.24	0.12
Back EMF Constant ±10%		K _e	Vpeak/rpm	2.05E-02	1.03E-02
Motor Constant @25°C		K _m	Nm/Sqrt(W)	0.32	0.32
Resistance (L-L) 25°C ±10%		R ₂₅	Ω	0.38	0.10
Inductance (L-L) ±20%		L	mH	0.70	0.18
Electrical Time Constant		τ _e	ms	1.84	1.84
Continuous Current (NC) @100°C		I _{cn}	Arms	6.7	13.4
Peak Current		I _{pk}	Arms	20.1	40.2
Continuous Power Dissipation (NC) @100°C		P _{cn}	W	33.1	33.1
Max. Coil Temperature		t _{max}	°C	100	100
Thermal Dissipation Constant (NC)		K _{thn}	W/°C	0.44	0.44
Max. Bus Voltage		U _{bus}	Vdc	48	48
Pole Number		2 _p	-	14	14
Max.Speed		Ω _{max}	rpm	1500	3000

Mechanical Parameters					
Overall Mass (NC)		m _n	kg	0.80	0.80
Rotor Inertia		J _r	kg·m ²	6.47E-05	6.47E-05

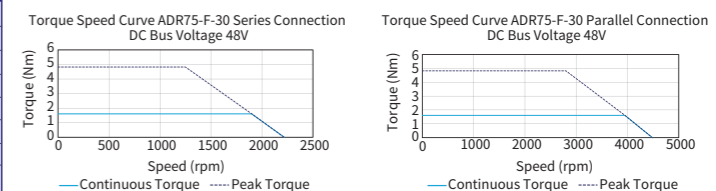
Other Information				
Insulation Class		Class A (105°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE		
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience		Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.		

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 - Resistance is measured by DC current with standard 0.5 m cable.
 - Inductance is measured by current frequency of 1 kHz.
 - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under max. bus voltage.
- The contents of datasheet are subject to change without prior notice.

Dimension



Torque-Speed Curve



ADR90-F-20

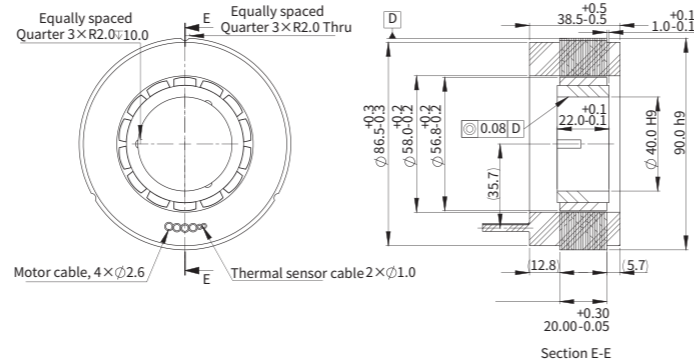
ADR90-F-20				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque (NC) @100°C	T _{cn}	Nm	1.88	1.88
Peak Torque	T _{pk}	Nm	5.61	5.61
Torque Constant ±10%	K _t	Nm/Arms	0.28	0.14
Back EMF Constant ±10%	K _e	Vpeak/rpm	2.39E-02	1.20E-02
Motor Constant @25°C	K _m	Nm/Sqrt(W)	0.38	0.38
Resistance (L-L) 25°C ±10%	R ₂₅	Ω	0.37	0.09
Inductance (L-L) ±20%	L	mH	0.80	0.20
Electrical Time Constant	τ _e	ms	2.16	2.16
Continuous Current (NC) @100°C	I _{cn}	Arms	6.7	13.4
Peak Current	I _{pk}	Arms	22.5	45.0
Continuous Power Dissipation (NC) @100°C	P _{cn}	W	32.2	32.2
Max. Coil Temperature	t _{max}	°C	100	100
Thermal Dissipation Constant (NC)	K _{thn}	W/°C	0.43	0.43
Max. Bus Voltage	U _{bus}	Vdc	48	48
Pole Number	2 _p	-	14	14
Max.Speed	Ω _{max}	rpm	1500	3000

Mechanical Parameters				
Overall Mass (NC)	m _n	kg	0.85	0.85
Rotor Inertia	J _r	kg·m ²	1.03E-04	1.03E-04

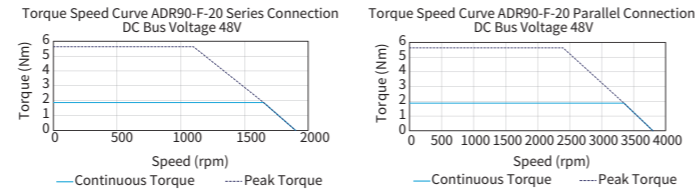
Other Information				
Insulation Class	Class A (105°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE			
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.			

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 - Resistance is measured by DC current with standard 0.5 m cable.
 - Inductance is measured by current frequency of 1 kHz.
 - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under max. bus voltage.
- The contents of datasheet are subject to change without prior notice.

Dimension



Torque-Speed Curve



ADR90-F-40

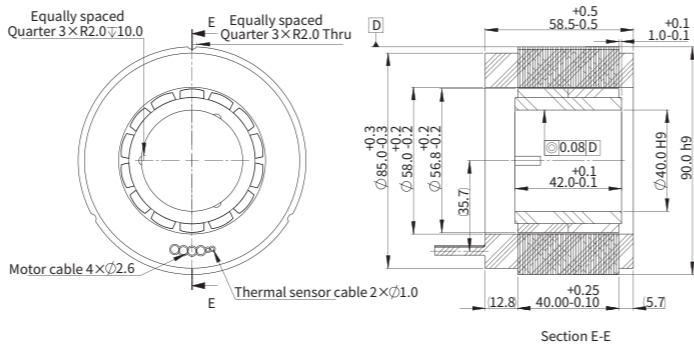
ADR90-F-40				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque (NC) @100°C	T _{cn}	Nm	3.75	3.75
Peak Torque	T _{pk}	Nm	11.22	11.22
Torque Constant ±10%	K _t	Nm/Arms	0.56	0.28
Back EMF Constant ±10%	K _e	Vpeak/rpm	4.79E-02	2.39E-02
Motor Constant @25°C	K _m	Nm/Sqrt(W)	0.61	0.61
Resistance (L-L) 25°C ±10%	R ₂₅	Ω	0.57	0.14
Inductance (L-L) ±20%	L	mH	1.45	0.36
Electrical Time Constant	τ _e	ms	2.54	2.54
Continuous Current (NC) @100°C	I _{cn}	Arms	6.7	13.4
Peak Current	I _{pk}	Arms	22.5	45.0
Continuous Power Dissipation (NC) @100°C	P _{cn}	W	49.7	49.7
Max. Coil Temperature	t _{max}	°C	100	100
Thermal Dissipation Constant (NC)	K _{thn}	W/°C	0.66	0.66
Max. Bus Voltage	U _{bus}	Vdc	48	48
Pole Number	2 _p	-	14	14
Max.Speed	Ω _{max}	rpm	750	1500

Mechanical Parameters				
Overall Mass (NC)	m _n	kg	1.49	1.49
Rotor Inertia	J _r	kg·m ²	2.04E-04	2.04E-04

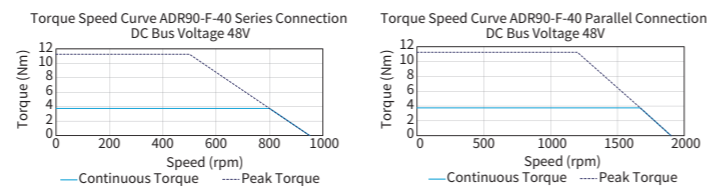
Other Information				
Insulation Class	Class A (105°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE			
Ambient Temperature	Operation	0°C to 40°C (non-freezing)		
	Storage	-15°C to 70°C (non-freezing)		
Ambient Humidity	Operation	10%RH to 80%RH (non-condensing)		
	Storage	10%RH to 90%RH (non-condensing)		
Recommended Ambience	Indoor (no direct sunlight); No corrosive gas, inflammable gas, oil mist or dust.			

- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 - Resistance is measured by DC current with standard 0.5 m cable.
 - Inductance is measured by current frequency of 1 kHz.
 - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under max. bus voltage.
- The contents of datasheet are subject to change without prior notice.

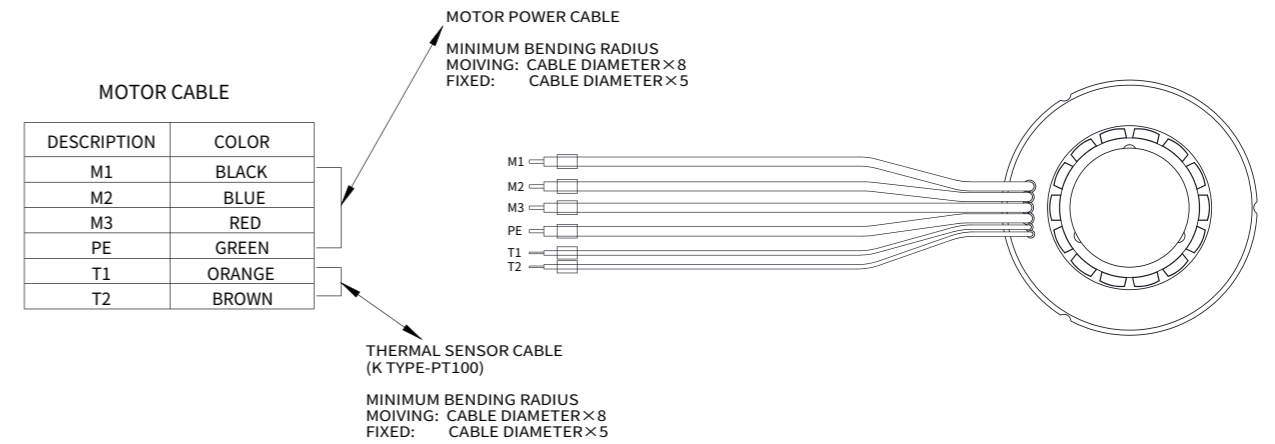
Dimension



Torque-Speed Curve



Motor Cable Connection



Part Numbering

