

ADR-C SERIES

- ▶ Water cooling design
- ▶ High torque density
- ▶ Low cogging torque
- ▶ Large center bore

EN-24.6.1

Introduction

The ADR-C series is a kind of frameless direct drive rotary motor, featuring inner-rotor and water-cooling. It inherits the consistent characteristics of direct drive motors, including a simple structure, compact size, no transmission error, no backlash, high speed, and rapid acceleration and deceleration. The products comply with international standards such as RoHS, CE, and REACH. The motors can operate under a maximum 600Vdc bus voltage, meeting the requirements of different countries and regions.

The water-cooling design of ADR-C series enhances the continuous and peak torque of the motor to 2~2.5 times that of natural cooling conditions. On one hand, this significantly increases the motor constant and output torque; on the other hand, it helps reduce motor thermal deformation and enhances motor positioning accuracy. O-rings can be ordered together with the motor.

The entire ADR-C series adopts the design with large center bore, providing customers with ample space for flexible configuration of components such as encoders, bearings, and brakes. The rotor structure of some models is designed with flanges, enabling customers to assemble rotor in various ways.

The above features make ADR-C suitable for almost any application that demands high torque density, particularly in the Machine Tool industry. Typical applications include grinding machine headstocks for machining operations such as internal and external cylindrical grinding, contour grinding, thread and gear grinding, etc. This motor series is also ideal for five-axis tool grinding machines, actuating the dual rotary motions of the trunnion rotary tables and swivel heads. Its low cogging torque feature enables the machine to realize precise and stable motion, which is crucial in fine surface finish machining.

Continuous Torque $T_{cw} = 44.6\text{Nm} \sim 1009.8\text{Nm}$

Peak Torque $T_{pk} = 127\text{Nm} \sim 2000\text{Nm}$

Features

- ▶ Large center bore
- ▶ Water cooling design
- ▶ High torque density
- ▶ Low cogging torque

Applications

The ADR-C series is ideal for applications requiring substantial torque density, such as photovoltaic industry and semiconductor fabrication, particularly well-suited for CNC turntables.

This is especially crucial for turntables, as their considerable weight necessitates robust torque to maintain precise positioning.



	Model	Diameter (mm)	Height (mm)	● Continuous Torque(T_{cw}) / ■ Peak Torque(T_{pk})							Unit: Nm	
				150	300	450	600	750	900	1050		...
	ADR160-C-065	180	85	● 69.7 / ■ 167								
	ADR210-C-030	230	57	● 44.6 / ■ 127								
	ADR210-C-090	230	117	● 170.5 / ■ 462								
	ADR256-C-120	275	140			● 360.0 / ■ 958						
	ADR290-C-050	310	70	● 187.6 / ■ 523								
	ADR290-C-080	310	100			● 302.4 / ■ 829						
	ADR290-C-120	310	140			● 468.6 / ■ 1406						
	ADR360-C-150	385	175								● 1009.8 / ■ 2000	
	ADR420-C-090	450	110								● 928.1 / ■ 1656	

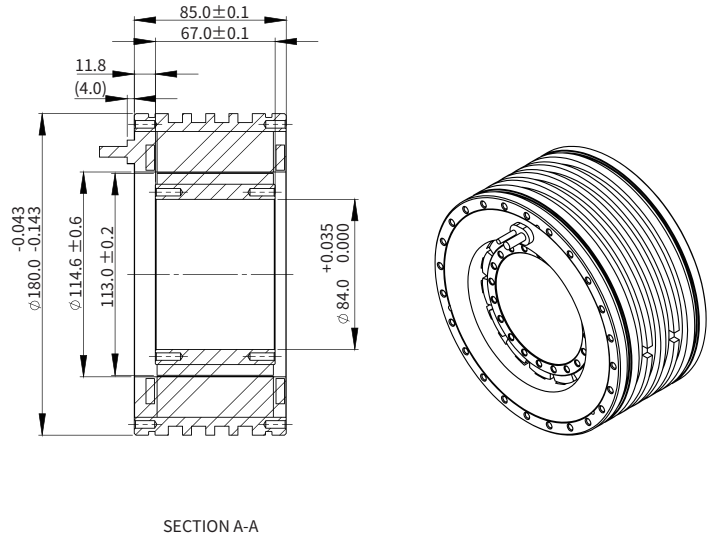
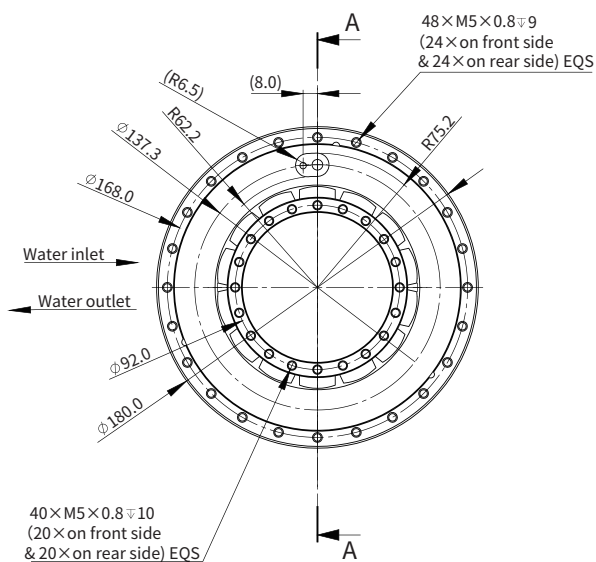
ADR160-C-065

Performance Parameters		Symbol	Unit	Value
Continuous Torque (WC) @130°C ^{①⑤}		T _{cw}	Nm	69.7
Peak Torque		T _{pk}	Nm	167
Torque Constant ±10%		K _t	Nm/Arms	8.2
Back EMF Constant ±10%		K _e	Vpeak/rpm	0.7
Motor Constant @25°C		K _m	Nm/Sqrt(W)	2.6
Resistance (L-L) 25°C ±10% ^②		R ₂₅	Ω	6.7
Inductance (L-L) ±20% ^③		L	mH	38.0
Electrical Time Constant		τ _e	ms	5.7
Continuous Current (WC) @130°C ^{①⑤}		I _{cw}	Arms	8.5
Peak Current		I _{pk}	Arms	24.0
Continuous Power Dissipation (WC) @130°C ^{①⑤}		P _{cw}	W	1022
Max. Coil Temperature		t _{max}	°C	130
Thermal Dissipation Constant (WC) ^{④⑤}		K _{thw}	W/°C	9.7
Thermal Time Constant		τ _{th}	s	148.0
Max. Bus Voltage		U _{bus}	Vdc	600
Pole Number		2P	-	14
Max. Speed ^⑥		Ω _{max}	rpm	660
Cooling Parameters				
Pressure Drop		ΔPa	bar	2
Mechanical Parameters				
Overall Mass (WC)		m _w	kg	7.9
Rotor Inertia		J _r	kg m ²	4.90E-03
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE, Reach		
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.		

- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. WC-Water Cooling.
- ② Resistance is measured by DC current with standard 0.5m cable.
- ③ Inductance is measured by current frequency of 1kHz.
- ④ The value is based on Max. Bus Voltage.
- ⑤ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10L/min. (For detailed test conditions, please consult Akribis)
- ⑥ To consider the water flow, pressure and dissipation, it is advisable to use water with rustproof and antifreeze additives.

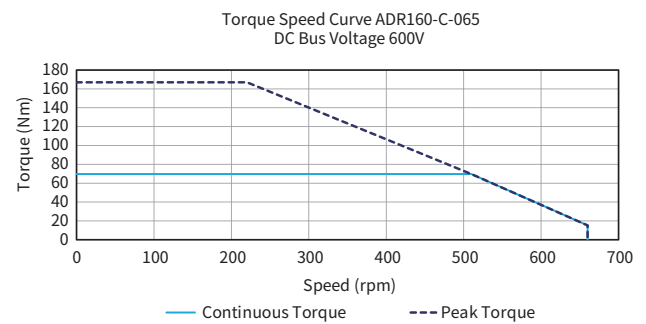
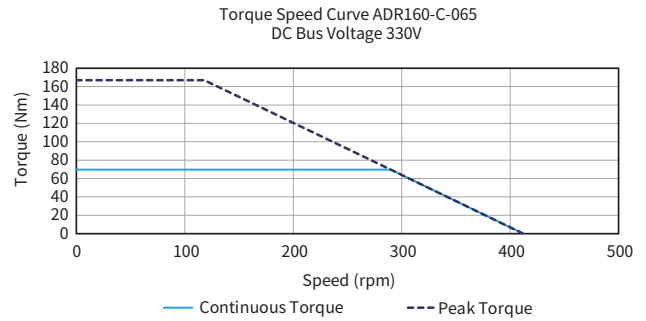
The contents of datasheet are subject to change without prior notice.

Dimensional Drawing



Note: The product comes with two O-rings. O-ring size: 171.12 x 2.62mm.

Torque-Speed Curve

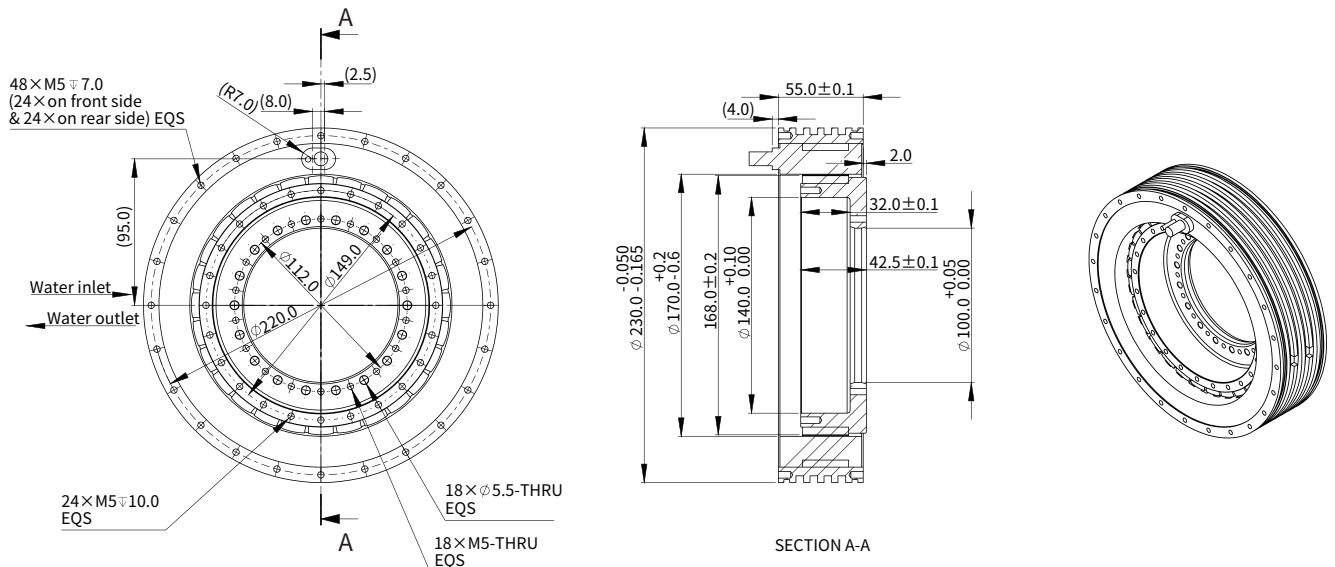


ADR210-C-030

Performance Parameters		Symbol	Unit	Value
Continuous Torque (WC) @130°C	T_{cw}	Nm		44.6
Peak Torque	T_{pk}	Nm		127
Torque Constant $\pm 10\%$	K_t	Nm/Arms		9.9
Back EMF Constant $\pm 10\%$	K_e	Vpeak/rpm		0.85
Motor Constant @25°C	K_m	Nm/Sqrt(W)		2.5
Resistance (L-L) 25°C $\pm 10\%$	R_{25}	Ω		10.6
Inductance (L-L) $\pm 20\%$	L	mH		35.4
Electrical Time Constant	τ_e	ms		3.3
Continuous Current (WC) @130°C	I_{cw}	Arms		4.5
Peak Current	I_{pk}	Arms		13.9
Continuous Power Dissipation (WC) @130°C	P_{cw}	W		454.5
Max. Coil Temperature	t_{max}	°C		130
Thermal Dissipation Constant (WC)	K_{thw}	W/°C		4.3
Thermal Time Constant	τ_{th}	s		231.2
Max. Bus Voltage	U_{bus}	Vdc		600
Pole Number	2P	-		28
Max. Speed	Ω_{max}	rpm		570
Cooling Parameters				
Pressure Drop	ΔP_a	bar		3
Mechanical Parameters				
Overall Mass (WC)	m_w	kg		7.0
Rotor Inertia	J_r	kg m ²		1.40E-02
Other Information				
Insulation Class	Class B (130°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE, Reach			
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.			

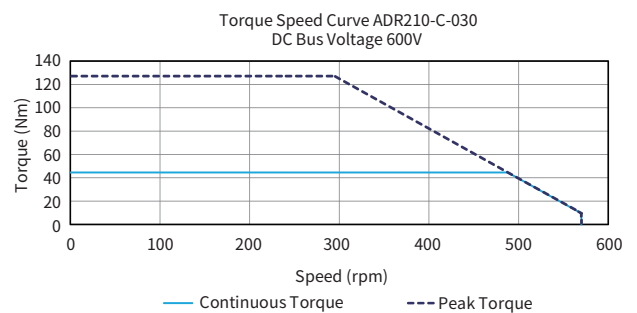
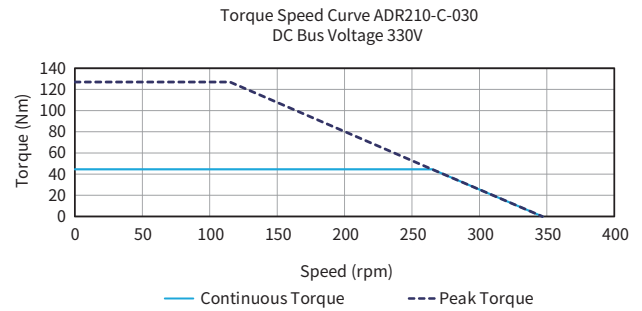
- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.WC-Water Cooling.
 - ② Resistance is measured by DC current with standard 0.5m cable.
 - ③ Inductance is measured by current frequency of 1kHz.
 - ④ The value is based on Max. Bus Voltage.
 - ⑤ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10L/min.
(For detailed test conditions, please consult Akribis)
To consider the water flow, pressure and dissipation, it is advisable to use water with rustproof and antifreeze additives.
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Dimensional Drawing



Note: The product comes with two O-rings. O-ring size: 221.92×2.62mm.

Torque-Speed Curve



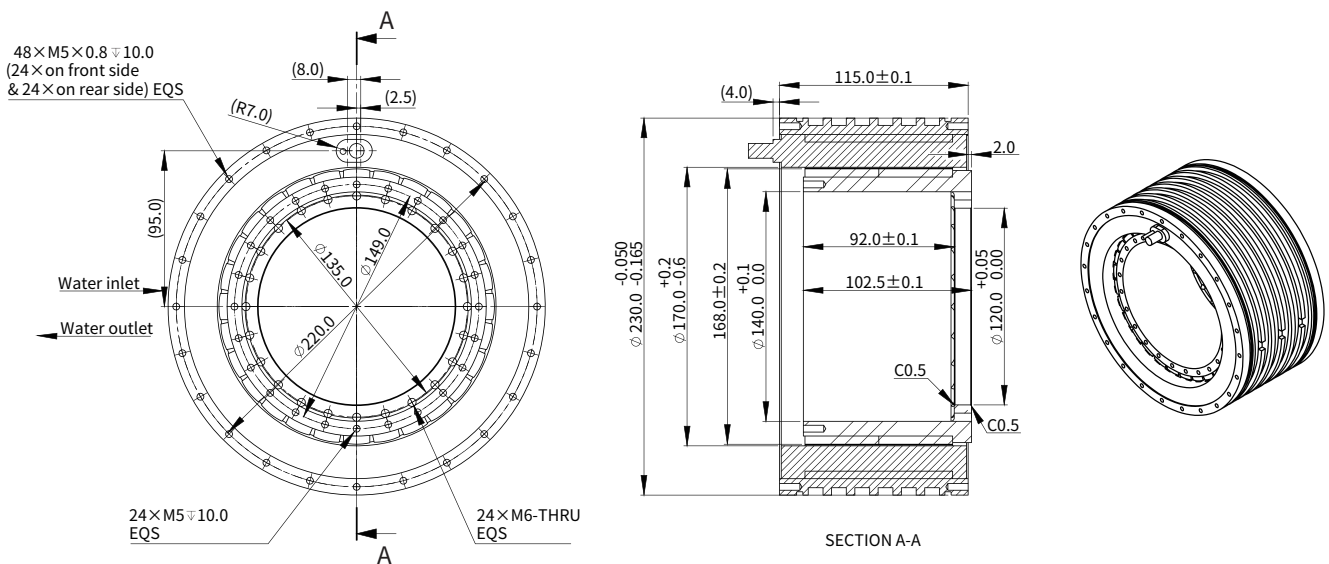
ADR210-C-090

Performance Parameters		Symbol	Unit	Value
Continuous Torque (WC) @130°C ^{①②}		T _{cw}	Nm	170.5
Peak Torque		T _{pk}	Nm	462
Torque Constant ±10%		K _t	Nm/Arms	15.5
Back EMF Constant ±10%		K _e	Vpeak/rpm	1.3
Motor Constant @25°C		K _m	Nm/Sqrt(W)	5.0
Resistance (L-L) 25°C ±10% ^③		R ₂₅	Ω	6.3
Inductance (L-L) ±20% ^④		L	mH	23.8
Electrical Time Constant		τ _e	ms	3.8
Continuous Current (WC) @130°C ^{①⑤}		I _{cw}	Arms	11.0
Peak Current		I _{pk}	Arms	33.1
Continuous Power Dissipation (WC) @130°C ^{①⑤}		P _{cw}	W	1614
Max. Coil Temperature		t _{max}	°C	130
Thermal Dissipation Constant (WC) ^{①⑤}		K _{thw}	W/°C	15.4
Thermal Time Constant		τ _{th}	s	111.4
Max. Bus Voltage		U _{bus}	Vdc	600
Pole Number		2P	-	28
Max. Speed ^⑥		Ω _{max}	rpm	360
Cooling Parameters				
Pressure Drop		ΔP _a	bar	3
Mechanical Parameters				
Overall Mass (WC)		m _w	kg	15.2
Rotor Inertia		J _r	kg m ²	3.20E-02
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE, Reach		
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.		

- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. WC-Water Cooling.
- ② Resistance is measured by DC current with standard 0.5m cable.
- ③ Inductance is measured by current frequency of 1KHz.
- ④ The value is based on Max. Bus Voltage.
- ⑤ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10L/min. (For detailed test conditions, please consult Akribis)
- ⑥ To consider the water flow, pressure and dissipation, it is advisable to use water with rustproof and antifreeze additives.

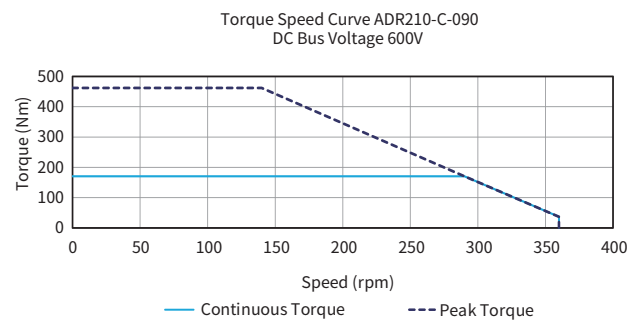
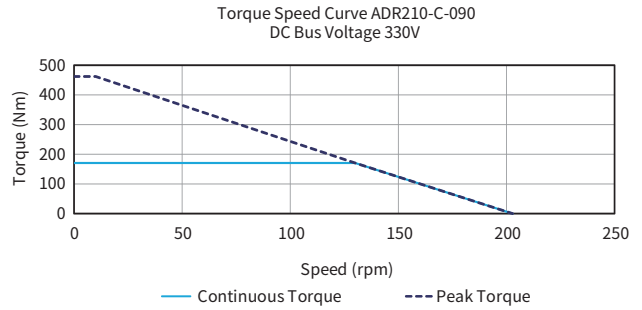
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Dimensional Drawing



Note: The product comes with two O-rings. O-ring size: 221.92 × 2.62mm.

Torque-Speed Curve

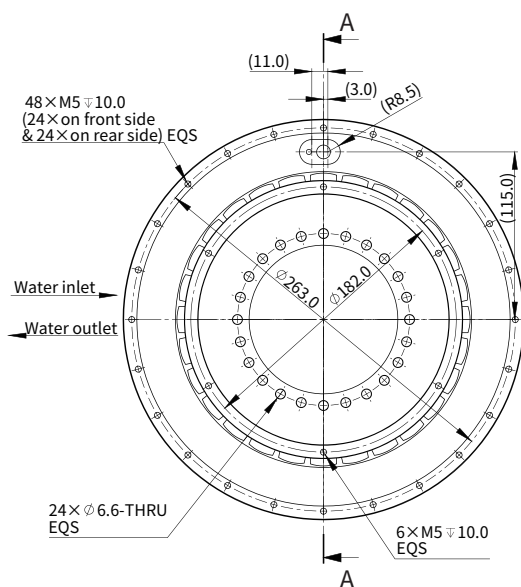


ADR256-C-120

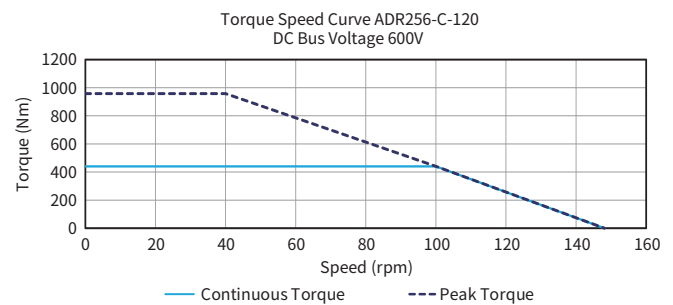
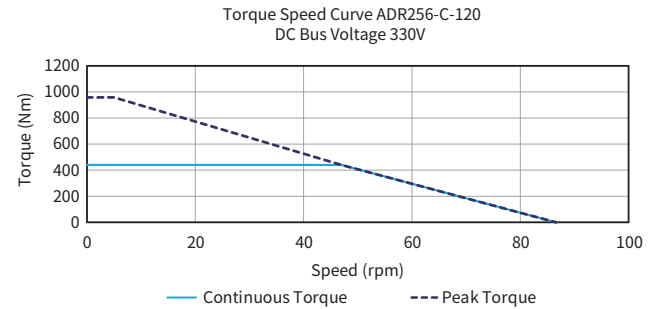
Performance Parameters		Symbol	Unit	Value
Continuous Torque (WC) @130°C		T_{cw}	Nm	440.0
Peak Torque		T_{pk}	Nm	958
Torque Constant $\pm 10\%$		K_t	Nm/Arms	40.0
Back EMF Constant $\pm 10\%$		K_e	Vpeak/rpm	3.4
Motor Constant @25°C		K_m	Nm/Sqrt(W)	10.6
Resistance (L-L) 25°C $\pm 10\%$		R_{25}	Ω	9.6
Inductance (L-L) $\pm 20\%$		L	mH	79.0
Electrical Time Constant		τ_e	ms	8.3
Continuous Current (WC) @130°C		I_{cw}	Arms	11.0
Peak Current		I_{pk}	Arms	28.5
Continuous Power Dissipation (WC) @130°C		P_{cw}	W	2451
Max. Coil Temperature		t_{max}	°C	130
Thermal Dissipation Constant (WC)		K_{thw}	W/°C	23.3
Thermal Time Constant		τ_{th}	s	135.6
Max. Bus Voltage		U_{bus}	Vdc	600
Pole Number		2P	-	28
Max. Speed		Ω_{max}	rpm	110
Cooling Parameters				
Pressure Drop		ΔP_a	bar	1
Mechanical Parameters				
Overall Mass (WC)		m_w	kg	24.8
Rotor Inertia		J_r	kg m ²	7.10E-02
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE, Reach		
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.		

- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. WC-Water Cooling.
 - ② Resistance is measured by DC current with standard 0.5m cable.
 - ③ Inductance is measured by current frequency of 1kHz.
 - ④ The value is based on Max. Bus Voltage.
 - ⑤ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10L/min. (For detailed test conditions, please consult Akribis)
To consider the water flow, pressure and dissipation, it is advisable to use water with rustproof and antifreeze additives.
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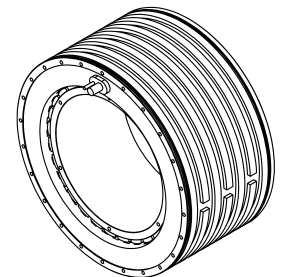
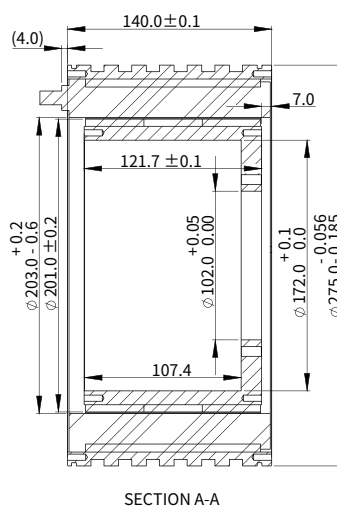
Dimensional Drawing



Torque-Speed Curve



Note: The product comes with two O-rings. O-ring size: 270.0 × 2.65mm.

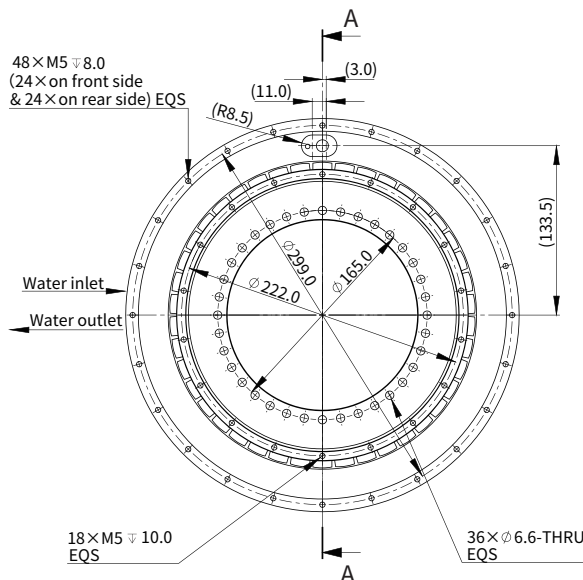


ADR290-C-050

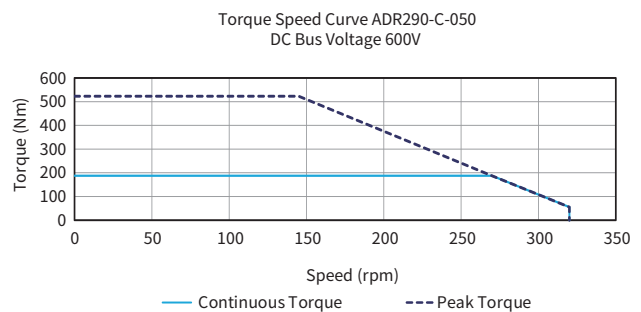
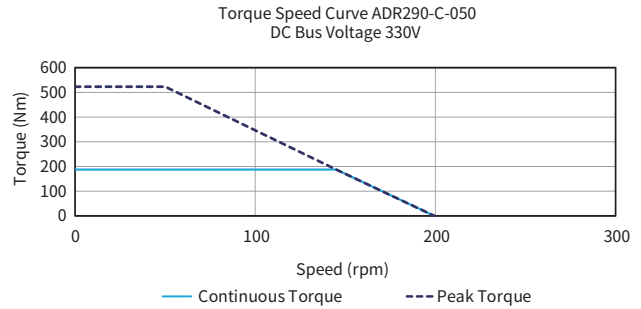
Performance Parameters		Symbol	Unit	Value
Continuous Torque (WC) @130°C ^{①⑤}		T _{cw}	Nm	187.6
Peak Torque		T _{pk}	Nm	523
Torque Constant ±10%		K _t	Nm/Arms	16.6
Back EMF Constant ±10%		K _e	Vpeak/rpm	1.4
Motor Constant @25°C		K _m	Nm/Sqrt(W)	6.2
Resistance (L-L) 25°C ±10% ^②		R ₂₅	Ω	4.8
Inductance (L-L) ±20% ^③		L	mH	19.9
Electrical Time Constant		τ _e	ms	4.1
Continuous Current (WC) @130°C ^{①⑤}		I _{cw}	Arms	11.3
Peak Current		I _{pk}	Arms	35.6
Continuous Power Dissipation (WC) @130°C ^{①⑤}		P _{cw}	W	1298
Max. Coil Temperature		t _{max}	°C	130
Thermal Dissipation Constant (WC) ^{①⑤}		K _{thw}	W/°C	12.4
Thermal Time Constant		τ _{th}	s	164.0
Max. Bus Voltage		U _{bus}	Vdc	600
Pole Number		2P	-	42
Max. Speed ^④		Ω _{max}	rpm	320
Cooling Parameters				
Pressure Drop		ΔP _a	bar	2
Mechanical Parameters				
Overall Mass (WC)		m _w	kg	14.2
Rotor Inertia		J _r	kg m ²	5.76E-02
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE, Reach		
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.		

- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. WC-Water Cooling.
 - ② Resistance is measured by DC current with standard 0.5m cable.
 - ③ Inductance is measured by current frequency of 1kHz.
 - ④ The value is based on Max. Bus Voltage.
 - ⑤ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10L/min. (For detailed test conditions, please consult Akribis)
To consider the water flow, pressure and dissipation, it is advisable to use water with rustproof and antifreeze additives.
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Dimensional Drawing



Torque-Speed Curve



Note: The product comes with two O-rings. O-ring size: 305.0 × 2.62mm.

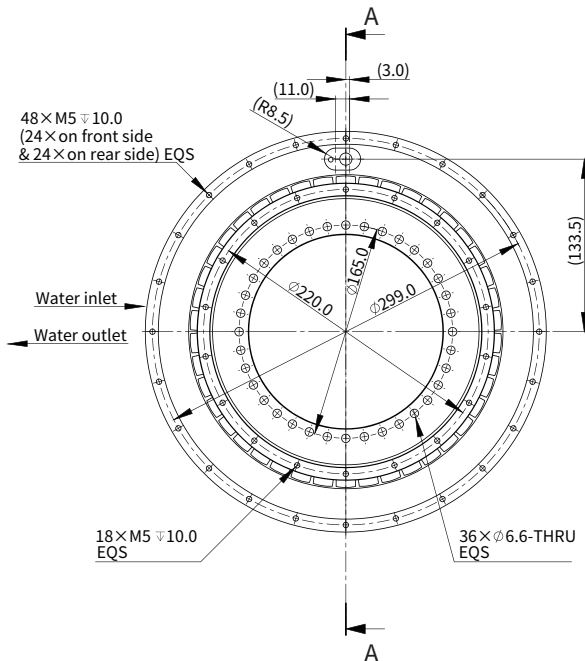
ADR290-C-080

Performance Parameters		Symbol	Unit	Value
Continuous Torque (WC) @130°C		T_{CW}	Nm	302.4
Peak Torque		T_{pk}	Nm	829
Torque Constant $\pm 10\%$		K_t	Nm/Arms	25.2
Back EMF Constant $\pm 10\%$		K_e	V _{peak} /rpm	2.2
Motor Constant @25°C		K_m	Nm/Sqrt(W)	7.7
Resistance (L-L) 25°C $\pm 10\%$		R_{25}	Ω	7.2
Inductance (L-L) $\pm 20\%$		L	mH	30.0
Electrical Time Constant		τ_e	ms	4.2
Continuous Current (WC) @130°C		I_{CW}	Arms	12.0
Peak Current		I_{pk}	Arms	37.3
Continuous Power Dissipation (WC) @130°C		P_{CW}	W	2195
Max. Coil Temperature		t_{max}	°C	130
Thermal Dissipation Constant (WC)		K_{thw}	W/°C	20.9
Thermal Time Constant		τ_{th}	s	159.0
Max. Bus Voltage		U_{bus}	Vdc	600
Pole Number		2P	-	42
Max. Speed		Ω_{max}	rpm	210
Cooling Parameters				
Pressure Drop		ΔP_a	bar	2
Mechanical Parameters				
Overall Mass (WC)		m_w	kg	22.0
Rotor Inertia		J_r	kg m ²	9.75E-02
Other Information				
Insulation Class	Class B (130°C)			
Protection Grade	IP00			
Compliance with Global Standards	RoHS, CE, Reach			
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.			

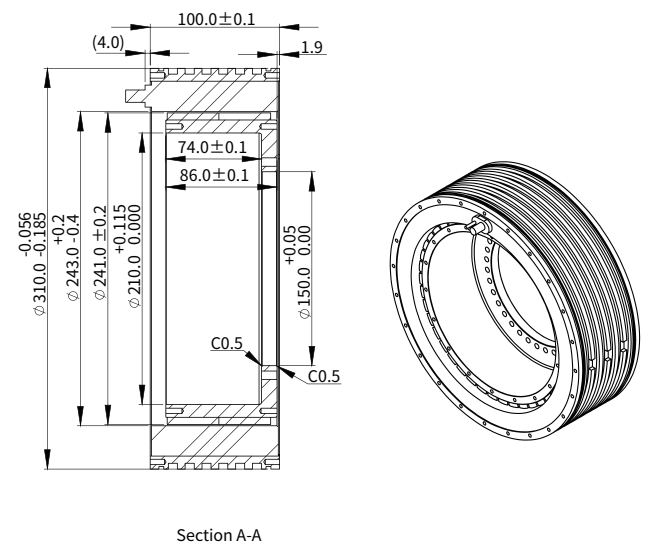
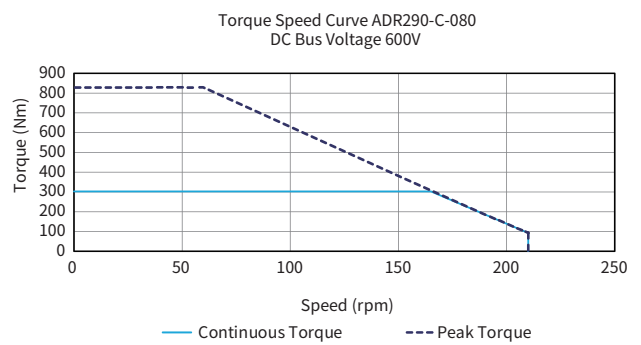
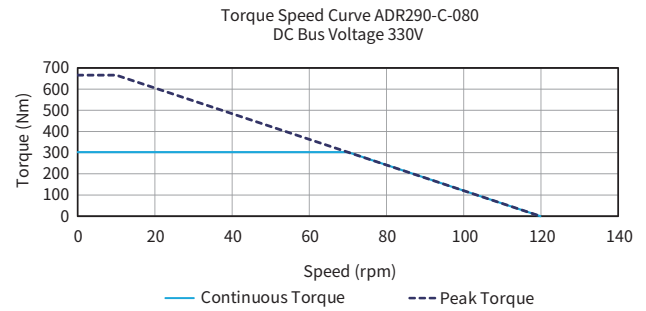
- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. WC-Water Cooling.
- ② Resistance is measured by DC current with standard 0.5m cable.
- ③ Inductance is measured by current frequency of 1kHz.
- ④ The value is based on Max. Bus Voltage.
- ⑤ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10L/min. (For detailed test conditions, please consult Akribis)
To consider the water flow, pressure and dissipation, it is advisable to use water with rustproof and antifreeze additives.

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Dimensional Drawing



Torque-Speed Curve



Note: The product comes with two O-rings. O-ring size: 305.0 × 2.62mm.

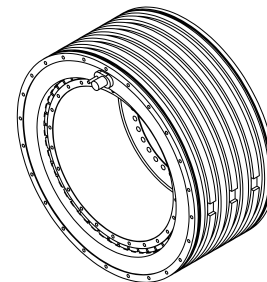
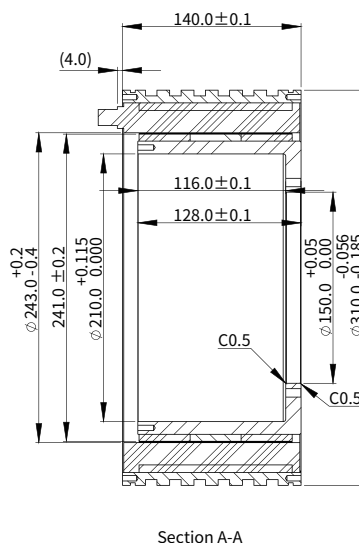
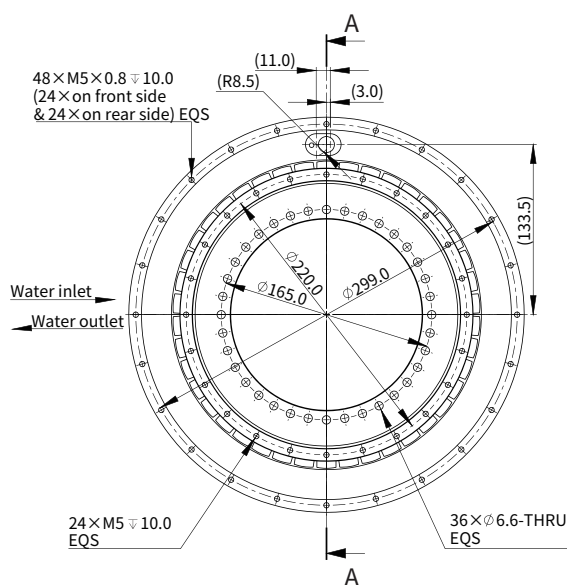
ADR290-C-120

Performance Parameters		Symbol	Unit	Value
Continuous Torque (WC) @130°C		T _{cw}	Nm	468.6
Peak Torque		T _{pk}	Nm	1406
Torque Constant ±10%		K _t	Nm/Arms	21.3
Back EMF Constant ±10%		K _e	Vpeak/rpm	1.8
Motor Constant @25°C		K _m	Nm/Sqrt(W)	10.9
Resistance (L-L) 25°C ±10%		R ₂₅	Ω	2.5
Inductance (L-L) ±20%		L	mH	11.0
Electrical Time Constant		τ _e	ms	4.3
Continuous Current (WC) @130°C		I _{cw}	Arms	22.0
Peak Current		I _{pk}	Arms	74.6
Continuous Power Dissipation (WC) @130°C		P _{cw}	W	2562
Max. Coil Temperature		t _{max}	°C	130
Thermal Dissipation Constant (WC)		K _{thw}	W/°C	24.4
Thermal Time Constant		τ _{th}	s	156.0
Max. Bus Voltage		U _{bus}	Vdc	600
Pole Number		2P	-	42
Max. Speed		Ω _{max}	rpm	270
Cooling Parameters				
Pressure Drop		ΔP _a	bar	2
Mechanical Parameters				
Overall Mass (WC)		m _w	kg	32.0
Rotor Inertia		J _r	kg m ²	1.17E-01
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE, Reach		
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.		

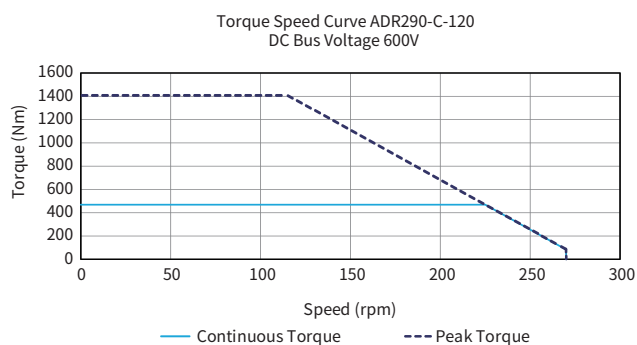
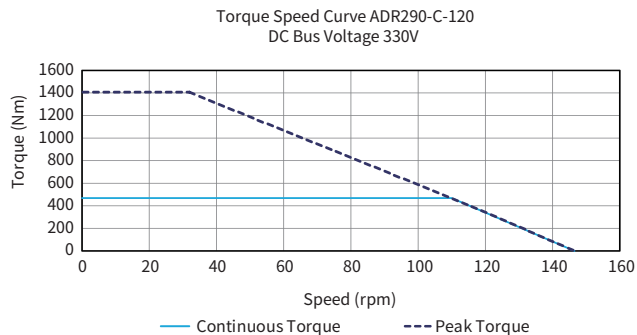
- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. WC-Water Cooling.
- ② Resistance is measured by DC current with standard 0.5m cable.
- ③ Inductance is measured by current frequency of 1kHz.
- ④ The value is based on Max. Bus Voltage.
- ⑤ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10L/min. (For detailed test conditions, please consult Akribis)
To consider the water flow, pressure and dissipation, it is advisable to use water with rustproof and antifreeze additives.

The contents of datasheet are subject to change without prior notice.

Dimensional Drawing



Torque-Speed Curve



Note: The product comes with two O-rings. O-ring size: 305.0 × 2.62mm.

ADR360-C-150

Performance Parameters		Symbol	Unit	Value
Continuous Torque (WC) @130°C		T_{cw}	Nm	1009.8
Peak Torque		T_{pk}	Nm	2000
Torque Constant $\pm 10\%$		K_t	Nm/Arms	34.0
Back EMF Constant $\pm 10\%$		K_e	Vpeak/rpm	2.9
Motor Constant @25°C		K_m	Nm/Sqrt(W)	19.4
Resistance (L-L) 25°C $\pm 10\%$		R_{25}	Ω	2.0
Inductance (L-L) $\pm 20\%$		L	mH	14.0
Electrical Time Constant		τ_e	ms	6.9
Continuous Current (WC) @130°C		I_{cw}	Arms	29.7
Peak Current		I_{pk}	Arms	65.0
Continuous Power Dissipation (WC) @130°C		P_{cw}	W	3735
Max. Coil Temperature		t_{max}	°C	130
Thermal Dissipation Constant (WC)		K_{thw}	W/°C	35.6
Thermal Time Constant		τ_{th}	s	112.0
Max. Bus Voltage		U_{bus}	Vdc	600
Pole Number		2P	-	42
Max. Speed		Ω_{max}	rpm	165
Cooling Parameters				
Pressure Drop		ΔP_a	bar	2
Mechanical Parameters				
Overall Mass (WC)		m_w	kg	58.2
Rotor Inertia		J_r	kg m ²	4.40E-01
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE, Reach		
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.		

① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. WC-Water Cooling.

② Resistance is measured by DC current with standard 0.5m cable.

③ Inductance is measured by current frequency of 1kHz.

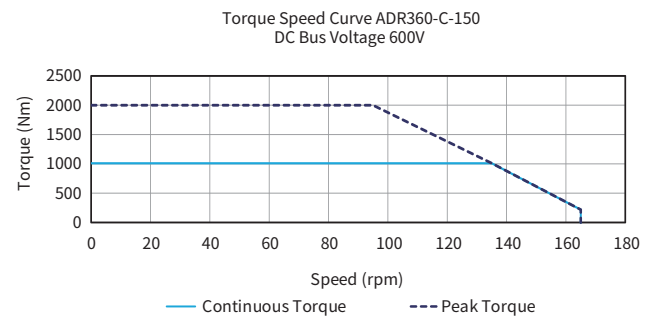
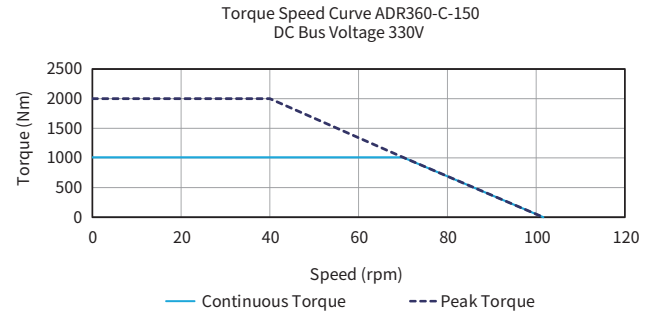
④ The value is based on Max. Bus Voltage.

⑤ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10L/min. (For detailed test conditions, please consult Akribis)

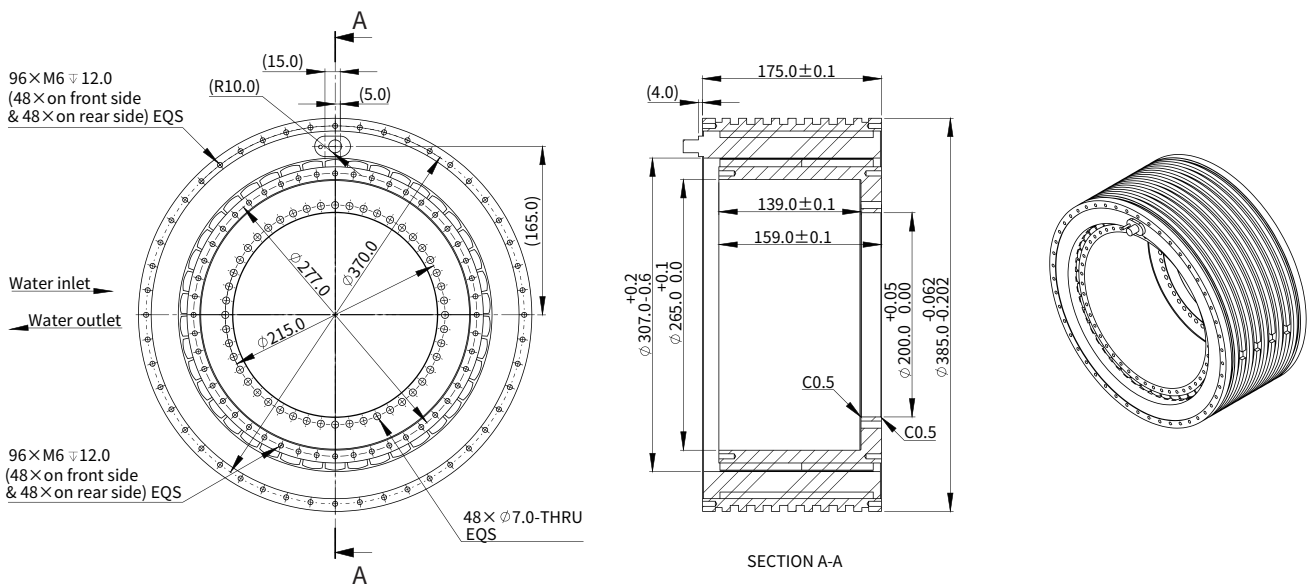
To consider the water flow, pressure and dissipation, it is advisable to use water with rustproof and antifreeze additives.

The contents of datasheet are subject to change without prior notice.

Torque-Speed Curve



Dimensional Drawing



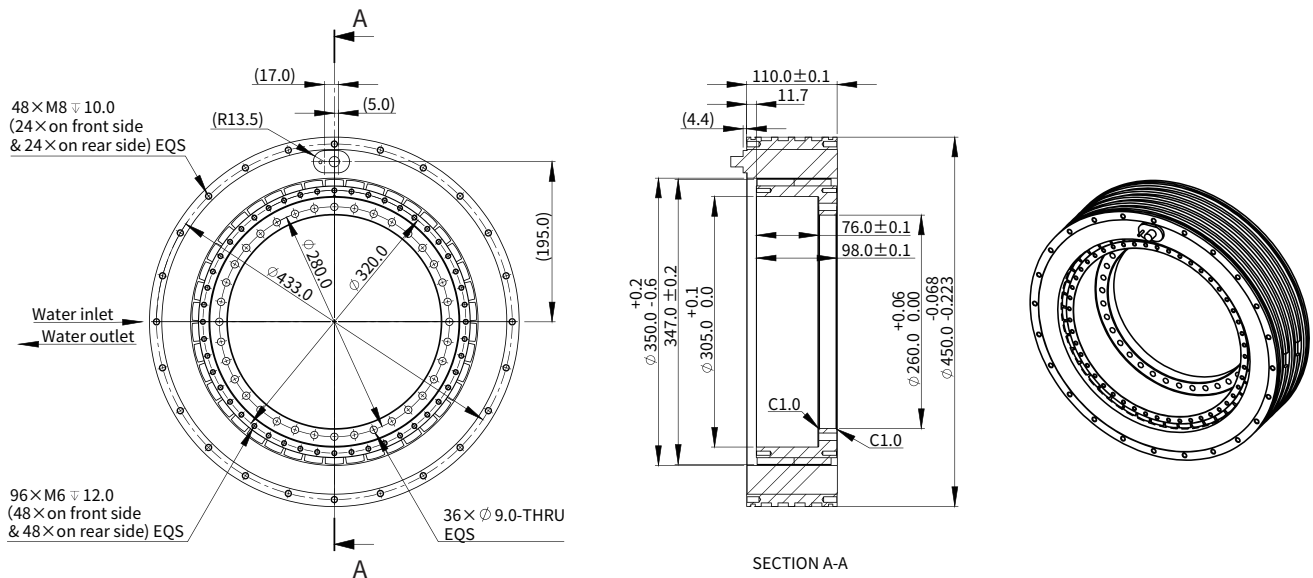
Note: The product comes with two O-rings. O-ring size: 376.0 × 6.0mm.

ADR420-C-090

Performance Parameters		Symbol	Unit	Value
Continuous Torque (WC) @130°C ^{①②}		T _{cw}	Nm	928.1
Peak Torque		T _{pk}	Nm	1656
Torque Constant ±10%		K _t	Nm/Arms	34.5
Back EMF Constant ±10%		K _e	Vpeak/rpm	2.9
Motor Constant @25°C		K _m	Nm/Sqrt(W)	20.0
Resistance (L-L) 25°C ±10% ^③		R ₂₅	Ω	2.0
Inductance (L-L) ±20% ^④		L	mH	20.8
Electrical Time Constant		τ _e	ms	10.5
Continuous Current (WC) @130°C ^{①②}		I _{cw}	Arms	26.9
Peak Current		I _{pk}	Arms	50.4
Continuous Power Dissipation (WC) @130°C ^{①②}		P _{cw}	W	3064
Max. Coil Temperature		t _{max}	°C	130
Thermal Dissipation Constant (WC) ^{①②}		K _{thw}	W/°C	29.2
Thermal Time Constant		τ _{th}	s	150.0
Max. Bus Voltage		U _{bus}	Vdc	600
Pole Number		2P	-	42
Max. Speed ^⑤		Ω _{max}	rpm	165
Cooling Parameters				
Pressure Drop		ΔP _a	bar	1
Mechanical Parameters				
Overall Mass (WC)		m _w	kg	51.2
Rotor Inertia		J _r	kg m ²	4.50E-01
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP00		
Compliance with Global Standards		RoHS, CE, Reach		
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.		

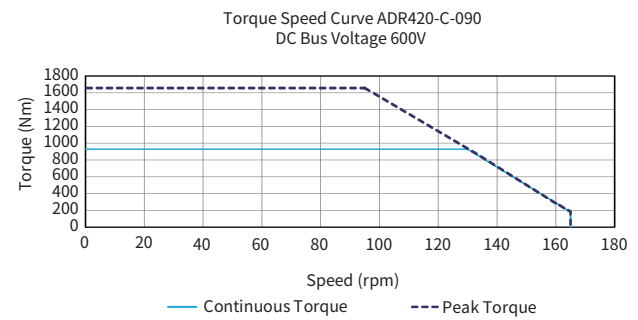
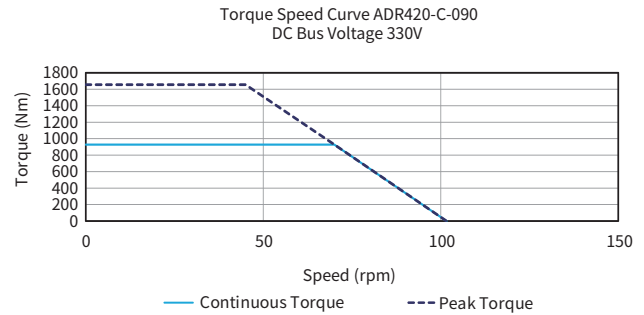
- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment. WC-Water Cooling.
 - ② Resistance is measured by DC current with standard 0.5m cable.
 - ③ Inductance is measured by current frequency of 1kHz.
 - ④ The value is based on Max. Bus Voltage.
 - ⑤ Water cooling test conditions: the inlet water temperature of motor is 20°C, and the flow rate is 10L/min. (For detailed test conditions, please consult Akribis)
To consider the water flow, pressure and dissipation, it is advisable to use water with rustproof and antifreeze additives.
- The contents of datasheet are subject to change without prior notice.

Dimensional Drawing



Note: The product comes with two O-rings. O-ring size: 440.0×4.0mm.

Torque-Speed Curve



Motor Cable Connection

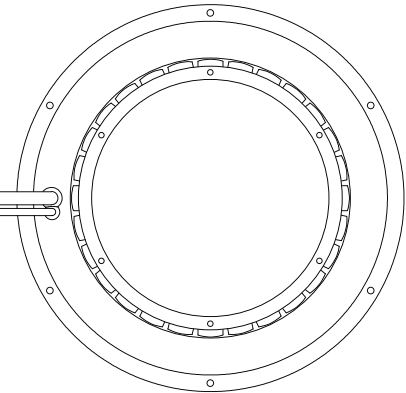
POWER CABLE

PIN	DESCRIPTION	COLOR
A1	M1	BLACK
A2	M2	BLACK
A3	M3	BLACK
A4	PE	YELLOW/GREEN

*Please ignore PIN definition with flying leads option.



POWER CABLE
THERMAL SENSOR CABLE



THERMAL SENSOR CABLE

PIN	DESCRIPTION	COLOR
-	T1	PINK
-	T2	BLUE
-	T3	YELLOW
-	T4	GRAY

Power Cable Information

Specification	Unit	
Cable Diameter	mm	φ"A" ¹
Cable Length	m	0.5 ¹
Number of Cores	-	4
Cable Colour	-	Orange
Minimum Bending Radius	mm	Moving: Cable diameter×12
		Fixed: Cable diameter×6
CE Compliance	-	Yes

Motor	ADR160-C-065	ADR210-C-030	ADR210-C-090	ADR290-C-050	ADR256-C-120
φ"A"	φ8.0	φ9.5	φ9.5	φ9.5	φ9.5
Motor	ADR290-C-080	ADR290-C-120	ADR360-C-150	ADR420-C-090	
φ"A"	φ9.5	φ12.6	φ12.6	φ12.6	

¹ Cable diameter within +/-0.3mm tolerance, cable length within +/-60.0mm tolerance. Certain specifications in the drawing are subject to change.

Thermal Sensor Cable Information

Specification	Unit	
Cable Diameter	mm	φ3.6 ¹
Cable Length	m	0.5 ¹
Number of Cores	-	4
Cable Colour	-	Black
Minimum Bending Radius	mm	Moving: Cable diameter×12
		Fixed: Cable diameter×6
CE Compliance	-	Yes

¹ Cable diameter within +/-0.3mm tolerance, cable length within +/-60.0mm tolerance. Certain specifications in the drawing are subject to change.

Part Numbering

ADR160-C-065-W-KT-M-NF-005-XF-000

Motor Model:

ADR160-C
ADR210-C
ADR256-C
ADR290-C
ADR360-C
ADR420-C

Design Control Code:

000

Stack Height:

ADR160-C:065
ADR210-C:030 / 090
ADR256-C:120
ADR290-C:050 / 080 / 120
ADR360-C:150
ADR420-C:090

Power Cable:

XF/XW

Cable Length:

005

Cooling Type:

W

Sensor Cable:

NF

Thermal Sensor:

KT/DE

Winding Code:

M

- ① W = Water Cooling
- ② KT = PT100+KTY84
- ③ DE = PT1000+SNM (PTC)
- ④ M = Mid Speed Winding
- ⑤ NF = Without Built-in Hall Sensor C/W Flying Leads
- ⑥ 005 = 0.5m
- ⑦ XF = Without Ferrite Bead C/W Flying Leads
- ⑧ XW = Without Ferrite Bead C/W D-Sub 9W4 Male Connector
- ⑨ 000 = Standard Model (For more options, please consult cust-service@akribis-sys.com)

