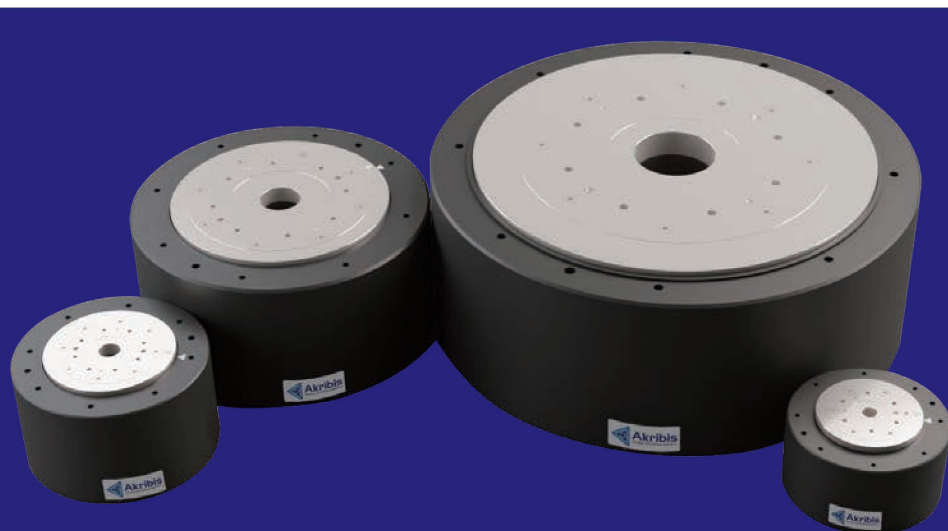




ADR-A SERIES

- ▶ Direct drive brushless motor
- ▶ Fully integrated with encoder and bearing
- ▶ Low cogging torque
- ▶ Precise homing through index pulse
- ▶ Low and high speed windings are optional

EN-24.5.1

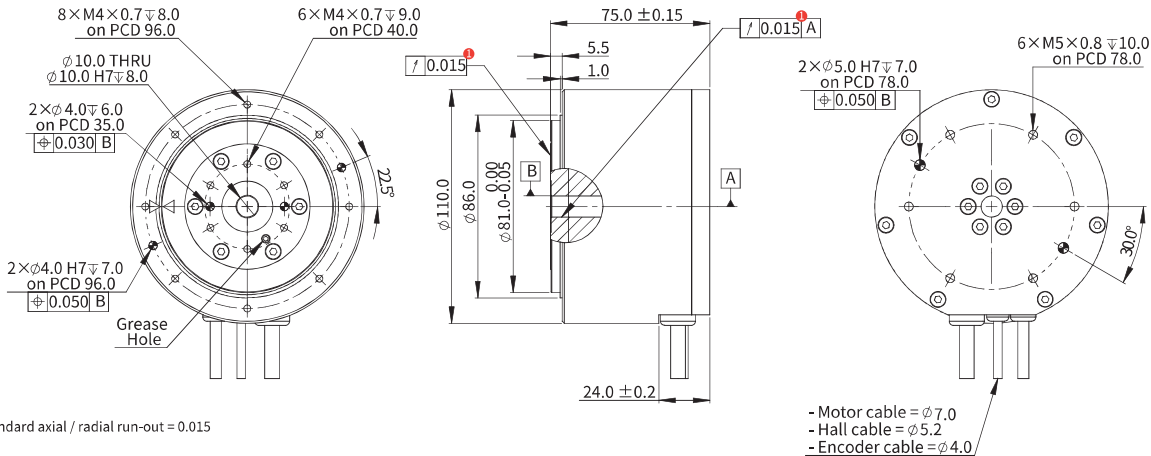
ADR110-A75

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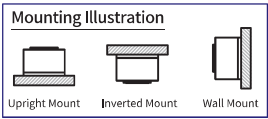
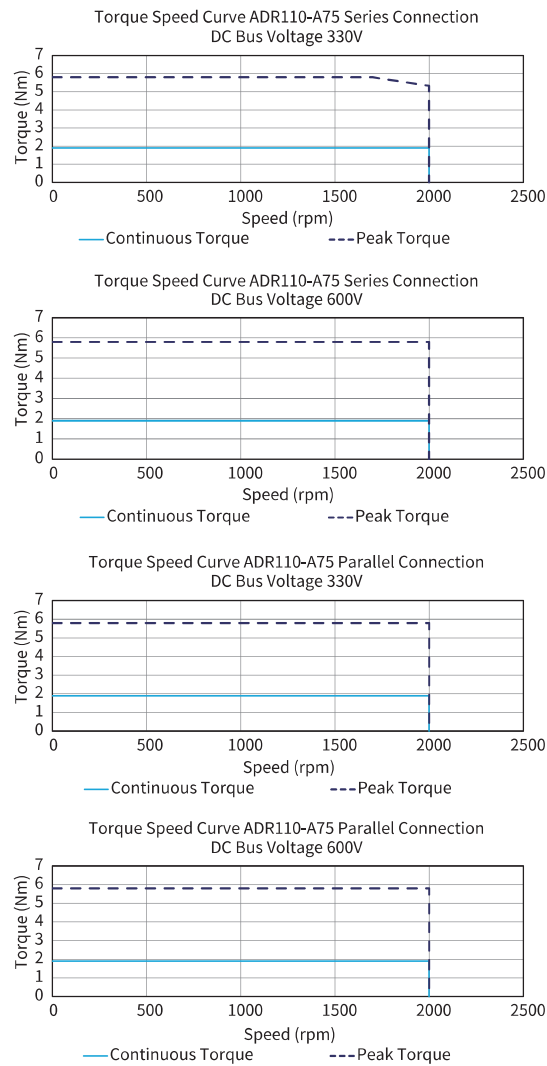
ADR110-A75					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque @100°C ❶		T _{Cn}	Nm	1.9	1.9
Peak Torque		T _{pk}	Nm	5.8	5.8
Torque Constant ±10%		K _t	Nm/Arms	0.65	0.32
Back EMF constant ±10%		K _e	Vpeak/rpm	0.055	0.028
Motor Constant @25°C		K _m	Nm/Sqrt(W)	0.30	0.29
Resistance (L-L) @25°C ±10% ❷		R ₂₅	Ω	3.20	0.86
Inductance (L-L) ±20% ❸		L	mH	11.00	2.70
Electrical time constant		τ _e	ms	3.44	3.14
Continuous Current @100°C ❶		I _{Cn}	Arms	3.0	6.0
Peak Current		I _{pk}	Arms	9.0	18.0
Continuous Power Dissipation @100°C ❶		P _{Cn}	W	55.7	59.9
Max. Coil Temperature		T _{max}	°C	100.0	100.0
Thermal Dissipation Constant ❹		K _{thn}	W/°C	0.7	0.8
Max. Bus Voltage		U _{bus}	Vdc	600.0	600.0
Pole Number		p	-	16	16
Rec. Max Speed @Peak Torque ❺		Ω _{max}	rpm	1700	2000
Rec. Max Speed @Continuous Torque ❺		Ω _{max}	rpm	2000	2000
Mechanical Parameters					
Overall Mass		m _n	kg	3.20	3.20
Rotor Inertia		J _r	kg·m ²	3.086E-04	3.086E-04
Axial Runout ❻		-	μm	15 (10,5)	15 (10,5)
Radial Runout ❻		-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting) ❻		-	N	700	700
Max Axial Load (Inverted / Wall mounting)		-	N	150	150
Max Moment Load (Upright Mounting)		-	Nm	20	20
Max Moment Load (Inverted / Wall Mounting)		-	Nm	2.2	2.2
Encoder Parameters					
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	3005	3005
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	240400	240400
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	480800	480800
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	1202000	1202000
ATOM DX Optical Incremental Encoder		-	lines / rev	5870	5870
ATOM DX Optical Incremental Encoder (80x)		-	counts / rev	469600	469600
Accuracy with Error Mapping ❶		-	arc sec	+/-5.4	+/-5.4
Repeatability ❶		-	arc sec	+/-2.7	+/-2.7
Other Information					
Insulation Class		Class B (130°C)			
Protection Grade		IP40			
Compliance with Global Standards		RoHS, CE, UL (option)			
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.
 - 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 ABI optical SIN/COS encoder (4096x interpolation) under 330V bus voltage.
 - 5 Runout specification define in the datasheet is based on constant loading and temperature condition (the value in parenthesis is optional).
 - 6 Please refer to the illustration for different mountings.
 - 7 Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
- The contents of datasheet are subject to change without prior notice.

Dimension



Torque-Speed Curve

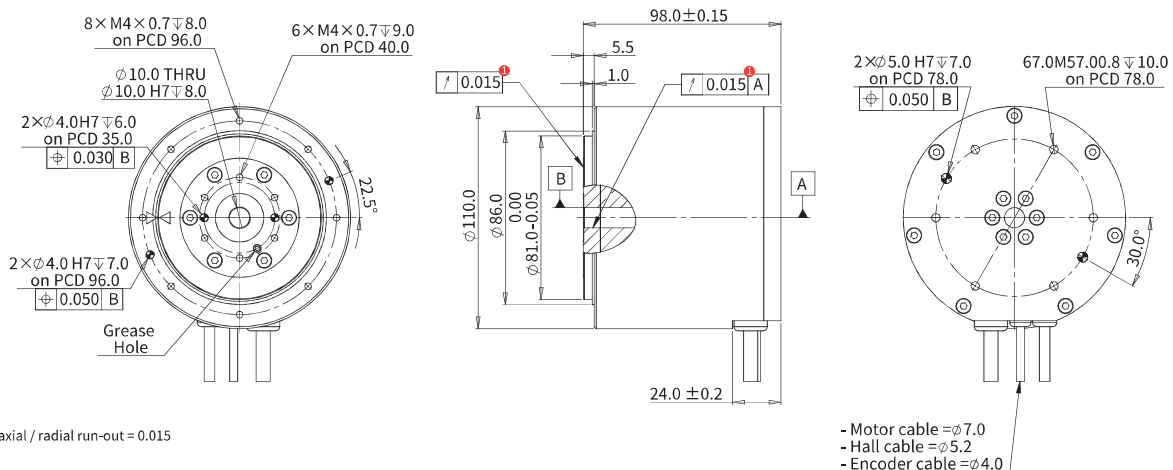


ADR110-A98

ADR110-A98				
Performance Parameters		Symbol	Unit	Series
Continuous Torque @100°C		T _{cn}	Nm	4.2
Peak Torque		T _{pk}	Nm	12.6
Torque Constant ±10%		K _t	Nm/Arms	1.40
Back EMF constant ±10%		K _e	Vpeak/rpm	0.119
Motor Constant @25°C		K _m	Nm/Sqrt(W)	0.51
Resistance (L-L) @25°C ±10%		R ₂₅	Ω	4.90
Inductance (L-L) ±20%		L	mH	23.50
Electrical time constant		τ _e	ms	4.80
Continuous Current @100°C		I _{cn}	Arms	3.0
Peak Current		I _{pk}	Arms	9.0
Continuous Power Dissipation @100°C		P _{cn}	W	85.3
Max. Coil Temperature		T _{max}	°C	100.0
Thermal Dissipation Constant		K _{thn}	W/°C	1.1
Max. Bus Voltage		U _{bus}	Vdc	600.0
Pole Number		p	-	16
Rec. Max Speed @Peak Torque		Ω _{max}	rpm	1000
Rec. Max Speed @Continuous Torque		Ω _{max}	rpm	2000
Mechanical Parameters				
Overall Mass		m _n	kg	4.60
Rotor Inertia		J _r	kg·m ²	4.419E-04
Axial Runout		-	μm	15 (10,5)
Radial Runout		-	μm	15 (10,5)
Max Axial Load (Upright Mounting)		-	N	700
Max Axial Load (Inverted / Wall mounting)		-	N	150
Max Moment Load (Upright Mounting)		-	Nm	20
Max Moment Load (Inverted / Wall Mounting)		-	Nm	2.2
Encoder Parameters				
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	3005
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	240400
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	480800
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	1202000
ATOM DX Optical Incremental Encoder		-	lines / rev	5870
ATOM DX Optical Incremental Encoder(80x)		-	counts / rev	469600
Accuracy with Error Mapping		-	arc sec	+/-5.4
Repeatability		-	arc sec	+/-2.7
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP40		
Compliance with Global Standards		RoHS, CE, UL (option)		
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.		

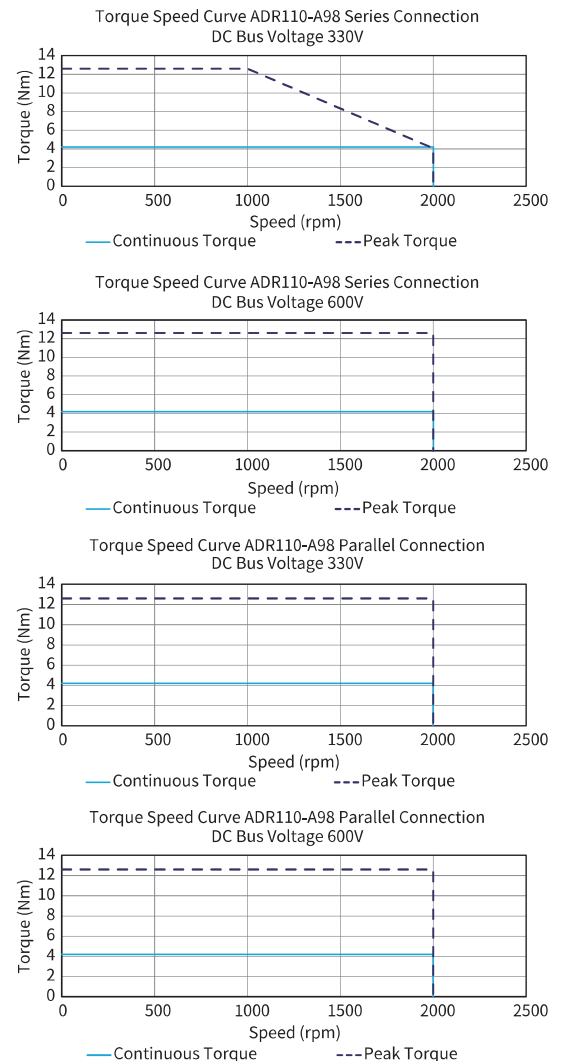
- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 ② Resistance is measured by DC current with standard 0.5m cable.
 ③ Inductance is measured by current frequency of 1kHz.
 ④ The value is based on ABI optical SIN/COS encoder (4096x interpolation) under 330V bus voltage.
 ⑤ Runout specification define in the datasheet is based on constant loading and temperature condition (the value in parenthesis is optional).
 ⑥ Please refer to the illustration for different mountings.
 ⑦ Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
 The contents of datasheet are subject to change without prior notice.

Dimension



① Standard axial / radial run-out = 0.015

Torque-Speed Curve



ADR135-A90

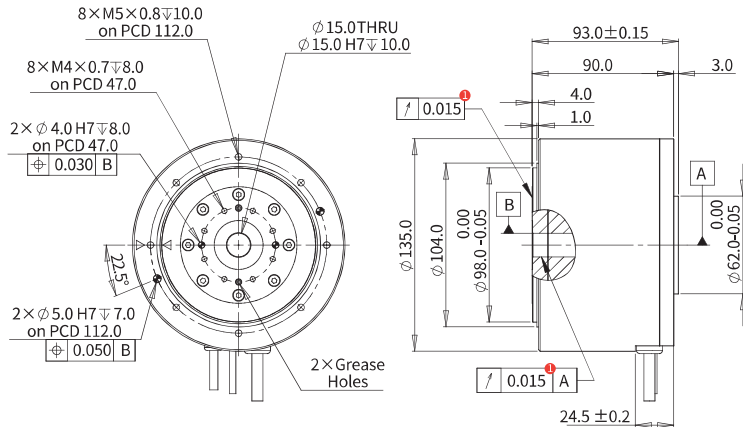
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ADR135-A90					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque @100°C ❶		T _{Cn}	Nm	5.2	5.2
Peak Torque		T _{pk}	Nm	15.5	15.5
Torque Constant ±10%		K _t	Nm/Arms	1.72	0.86
Back EMF constant ±10%		K _e	V _{peak} /rpm	0.147	0.074
Motor Constant @25°C		K _m	Nm/Sqrt(W)	0.55	0.55
Resistance (L-L) @25°C ±10% ❷		R ₂₅	Ω	6.60	1.65
Inductance (L-L) ±20% ❸		L	mH	45.30	11.20
Electrical time constant		τ _e	ms	6.86	6.79
Continuous Current @100°C ❶		I _{Cn}	Arms	3.0	6.0
Peak Current		I _{pk}	Arms	9.0	18.0
Continuous Power Dissipation @100°C ❶		P _{Cn}	W	114.9	114.9
Max. Coil Temperature		T _{max}	°C	100.0	100.0
Thermal Dissipation Constant ❶		K _{thn}	W/°C	1.5	1.5
Max. Bus Voltage		U _{bus}	V _{dc}	600.0	600.0
Pole Number		p	-	16	16
Rec. Max Speed @Peak Torque ❹		Ω _{max}	rpm	630	1350
Rec. Max Speed @Continuous Torque ❹		Ω _{max}	rpm	1350	1350
Mechanical Parameters					
Overall Mass		m _n	kg	4.80	4.80
Rotor Inertia		J _r	kg·m ²	9.916E-04	9.916E-04
Axial Runout ❺		-	μm	15 (10,5)	15 (10,5)
Radial Runout ❺		-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting) ❻		-	N	1050	1050
Max Axial Load (Inverted / Wall mounting)		-	N	180	180
Max Moment Load (Upright Mounting)		-	Nm	35	35
Max Moment Load (Inverted / Wall Mounting)		-	Nm	3.9	3.9
Encoder Parameters					
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	3005	3005
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	240400	240400
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	480800	480800
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	1202000	1202000
ATOM DX Optical Incremental Encoder		-	lines / rev	5870	5870
ATOM DX Optical Incremental Encoder (80x)		-	counts / rev	469600	469600
Accuracy with Error Mapping ❷		-	arc sec	+/-5.4	+/-5.4
Repeatability ❷		-	arc sec	+/-2.7	+/-2.7
Other Information					
Insulation Class		Class B (130°C)			
Protection Grade		IP40			
Compliance with Global Standards		RoHS, CE, UL (option)			
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.			

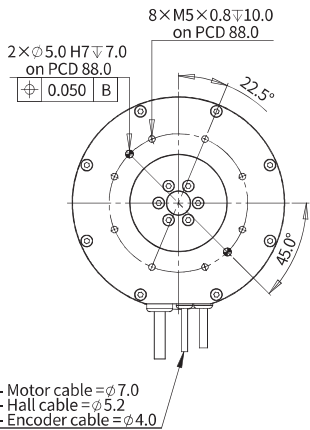
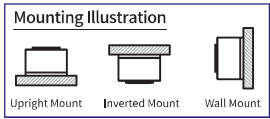
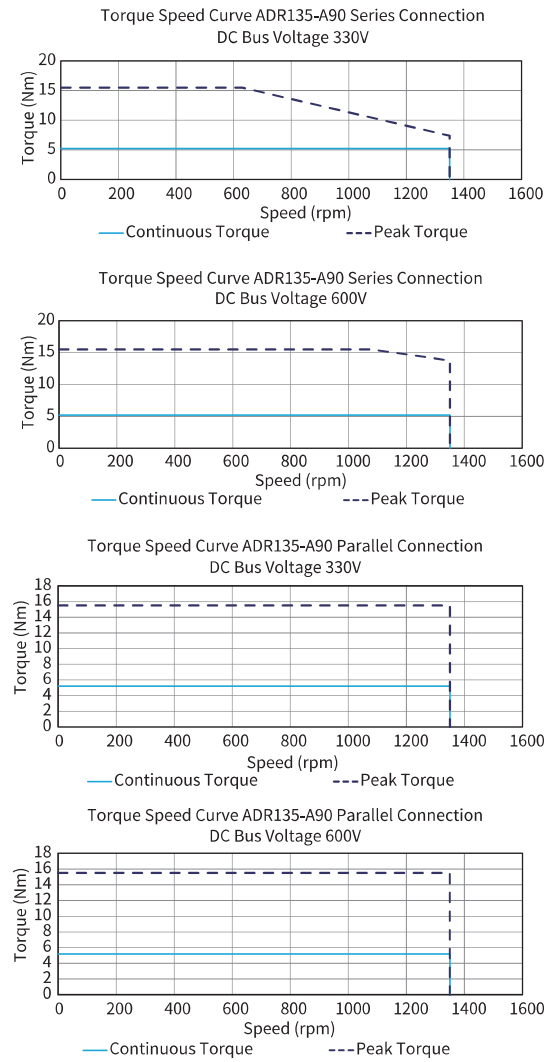
- ❶ Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
❷ Resistance is measured by DC current with standard 0.5m cable.
❸ Inductance is measured by current frequency of 1kHz.
❹ The value is based on ABI optical SIN/COS encoder (4096x interpolation) under 330V bus voltage.
❺ Runout specification define in the datasheet is based on constant loading and temperature condition (the value in parenthesis is optional).
❻ Please refer to the illustration for different mountings.
❼ Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
The contents of datasheet are subject to change without prior notice.

Dimension



❶ Standard axial / radial run-out = 0.015

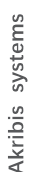
Torque-Speed Curve



- Motor cable = ∅7.0
- Hall cable = ∅5.2
- Encoder cable = ∅4.0

ADR135-A115					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque @100°C ❶		T _{cn}	Nm	11.0	11.0
Peak Torque		T _{pk}	Nm	32.9	32.9
Torque Constant ±10%		K _t	Nm/Arms	3.66	1.83
Back EMF constant ±10%		K _e	Vpeak/rpm	0.313	0.156
Motor Constant @25°C		K _m	Nm/Sqrt(W)	0.91	0.91
Resistance (L-L) @25°C ±10% ❷		R ₂₅	Ω	10.70	2.7
Inductance (L-L) ±20% ❸		L	mH	72.76	18.63
Electrical time constant		τ _e	ms	6.80	6.90
Continuous Current @100°C ❶		I _{cn}	Arms	3.0	6.0
Peak Current		I _{pk}	Arms	9.0	18.0
Continuous Power Dissipation @100°C ❶		P _{cn}	W	186.2	187.9
Max. Coil Temperature		T _{max}	°C	100.0	100.0
Thermal Dissipation Constant ❶		K _{thn}	W/°C	2.5	2.5
Max. Bus Voltage		U _{bus}	Vdc	600.0	600.0
Pole Number		p	-	16	16
Rec. Max Speed @Peak Torque ❸		Ω _{max}	rpm	330	745
Rec. Max Speed @Continuous Torque ❹		Ω _{max}	rpm	650	745
Mechanical Parameters					
Overall Mass		m _n	kg	4.90	4.90
Rotor Inertia		J _r	kg·m²	1.332E-03	1.332E-03
Axial Runout ❺		-	μm	15 (10,5)	15 (10,5)
Radial Runout ❺		-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting) ❻		-	N	1050	1050
Max Axial Load (Inverted / Wall mounting)		-	N	180	180
Max Moment Load (Upright Mounting)		-	Nm	35	35
Max Moment Load (Inverted / Wall Mounting)		-	Nm	3.9	3.9
Encoder Parameters					
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	3005	3005
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	240400	240400
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	480800	480800
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	1202000	1202000
ATOM DX Optical Incremental Encoder		-	lines / rev	5870	5870
ATOM DX Optical Incremental Encoder (80x)		-	counts / rev	469600	469600
Accuracy with Error Mapping ❷		-	arc sec	+/-5.4	+/-5.4
Repeatability ❷		-	arc sec	+/-2.7	+/-2.7
Other Information					
Insulation Class		Class B (130°C)			
Protection Grade		IP40			
Compliance with Global Standards		RoHS, CE, UL (option)			
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			

- ## ■ Dimension



ADR-A Series

ADR175-A102

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Voice Coil Motors

Direct Drive Rotary Motors

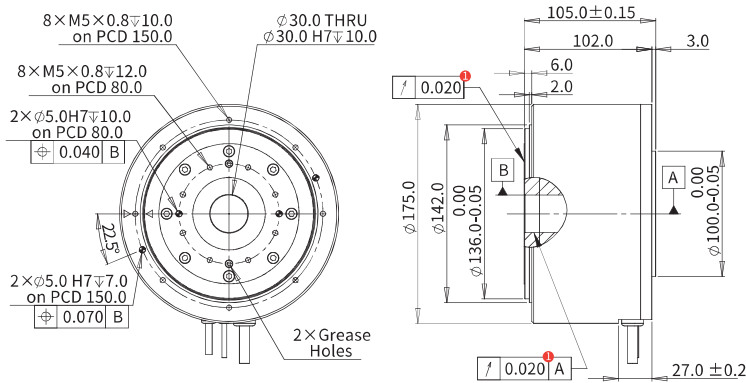
Motion Control of Gantry Stages

Akribis systems

ADR175-A102				
Performance Parameters		Symbol	Unit	Series
Continuous Torque @100°C		T _{cn}	Nm	15.7
Peak Torque		T _{pk}	Nm	47.2
Torque Constant ±10%		K _t	Nm/Arms	3.93
Back EMF constant ±10%		K _e	Vpeak/rpm	0.336
Motor Constant @25°C		K _m	Nm/Sqrt(W)	1.40
Resistance (L-L) @25°C ±10%		R ₂₅	Ω	5.27
Inductance (L-L) ±20%		L	mH	37.00
Electrical time constant		T _e	ms	7.02
Continuous Current @100°C		I _{cn}	Arms	4.0
Peak Current		I _{pk}	Arms	12.0
Continuous Power Dissipation @100°C		P _n	W	163.1
Max. Coil Temperature		T _{max}	°C	100.0
Thermal Dissipation Constant		K _{thn}	W/°C	2.2
Max. Bus Voltage		U _{bus}	Vdc	600.0
Pole Number		p	-	16
Rec. Max Speed @Peak Torque		Ω _{max}	rpm	400
Rec. Max Speed @Continuous Torque		Ω _{max}	rpm	750
Mechanical Parameters				
Overall Mass		m _n	kg	8.5
Rotor Inertia		J _r	kg·m ²	5.422E-03
Axial Runout		-	μm	20 (15,10)
Radial Runout		-	μm	20 (15,10)
Max Axial Load (Upright Mounting)		-	N	2310
Max Axial Load (Inverted / Wall mounting)		-	N	240
Max Moment Load (Upright Mounting)		-	Nm	53
Max Moment Load (Inverted / Wall Mounting)		-	Nm	5.8
Encoder Parameters				
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	4103
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	328240
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	656480
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	1641200
ATOM DX Optical Incremental Encoder		-	lines / rev	8192
ATOM DX Optical Incremental Encoder (200x)		-	counts / rev	1638400
Accuracy with Error Mapping		-	arc sec	+/-4
Repeatability		-	arc sec	+/-2
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP40		
Compliance with Global Standards		RoHS, CE, UL (option)		
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.		

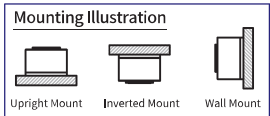
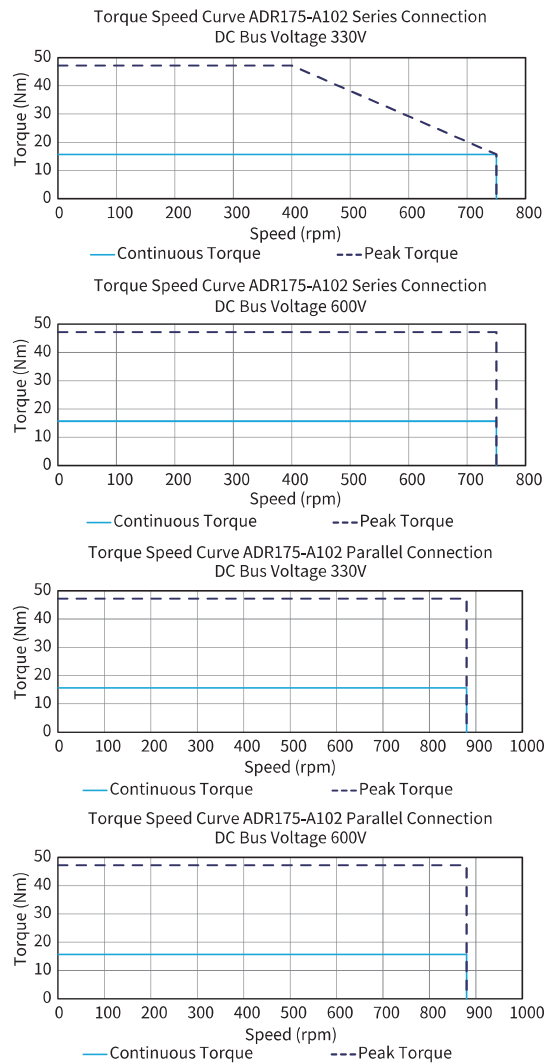
- 1 Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
2 Resistance is measured by DC current with standard 0.5m cable.
3 Inductance is measured by current frequency of 1kHz.
4 The value is based on ABI optical SIN/COS encoder (4096x interpolation) under 330V bus voltage.
5 Runout specification define in the datasheet is based on constant loading and temperature condition (the value in parenthesis is optional).
6 Please refer to the illustration for different mountings.
7 Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
The contents of datasheet are subject to change without prior notice.

Dimension



1 Standard axial / radial run-out = 0.020

Torque-Speed Curve



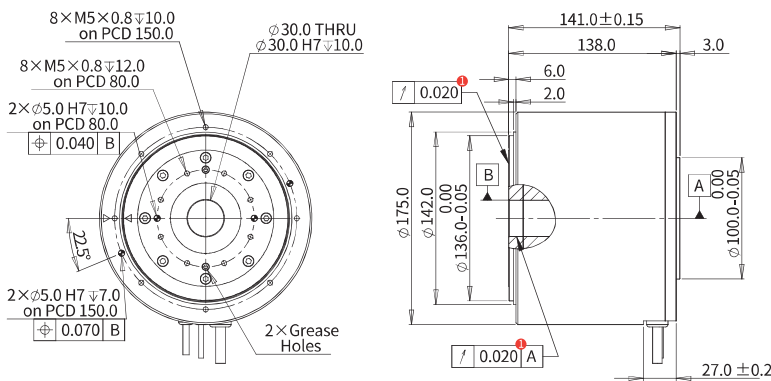
- Motor cable = φ8.0
- Hall cable = φ5.2
- Encoder cable = φ4.0

ADR175-A138

ADR175-A138					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque @100°C ①		T _{cn}	Nm	32.9	32.9
Peak Torque		T _{pk}	Nm	98.6	98.6
Torque Constant ±10%		K _t	Nm/Arms	8.22	4.11
Back EMF constant ±10%		K _e	Vpeak/rpm	0.703	0.351
Motor Constant @25°C		K _m	Nm/Sqrt(W)	2.33	2.30
Resistance (L-L) @25°C ±10% ②		R ₂₅	Ω	8.30	2.13
Inductance (L-L) ±20% ③		L	mH	72.00	18.51
Electrical time constant		τ _e	ms	8.67	8.67
Continuous Current @100°C ①		I _{cn}	Arms	4.0	8.0
Peak Current		I _{pk}	Arms	12.0	24.0
Continuous Power Dissipation @100°C ①		P _{cn}	W	256.8	264.2
Max. Coil Temperature		T _{max}	°C	100.0	100.0
Thermal Dissipation Constant ④		K _{thn}	W/°C	3.4	3.5
Max. Bus Voltage		U _{bus}	Vdc	600.0	600.0
Pole Number		p	-	16	16
Rec. Max Speed @Peak Torque ⑤		Ω _{max}	rpm	195	470
Rec. Max Speed @Continuous Torque ⑥		Ω _{max}	rpm	360	470
Mechanical Parameters					
Overall Mass		m _n	kg	12.7	12.7
Rotor Inertia		J _r	kg·m ²	7.621E-03	7.621E-03
Axial Runout ⑦		-	μm	20 (15,10)	20 (15,10)
Radial Runout ⑦		-	μm	20 (15,10)	20 (15,10)
Max Axial Load (Upright Mounting) ⑧		-	N	2310	2310
Max Axial Load (Inverted / Wall mounting)		-	N	240	240
Max Moment Load (Upright Mounting)		-	Nm	53	53
Max Moment Load (Inverted / Wall Mounting)		-	Nm	5.8	5.8
Encoder Parameters					
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	4103	4103
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	328240	328240
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	656480	656480
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	1641200	1641200
ATOM DX Optical Incremental Encoder		-	lines / rev	8192	8192
ATOM DX Optical Incremental Encoder (200x)		-	counts / rev	1638400	1638400
Accuracy with Error Mapping ⑨		-	arc sec	+/-4	+/-4
Repeatability ⑩		-	arc sec	+/-2	+/-2
Other Information					
Insulation Class		Class B (130°C)			
Protection Grade		IP40			
Compliance with Global Standards		RoHS, CE, UL (option)			
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.			

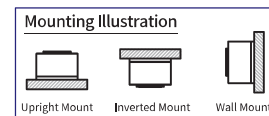
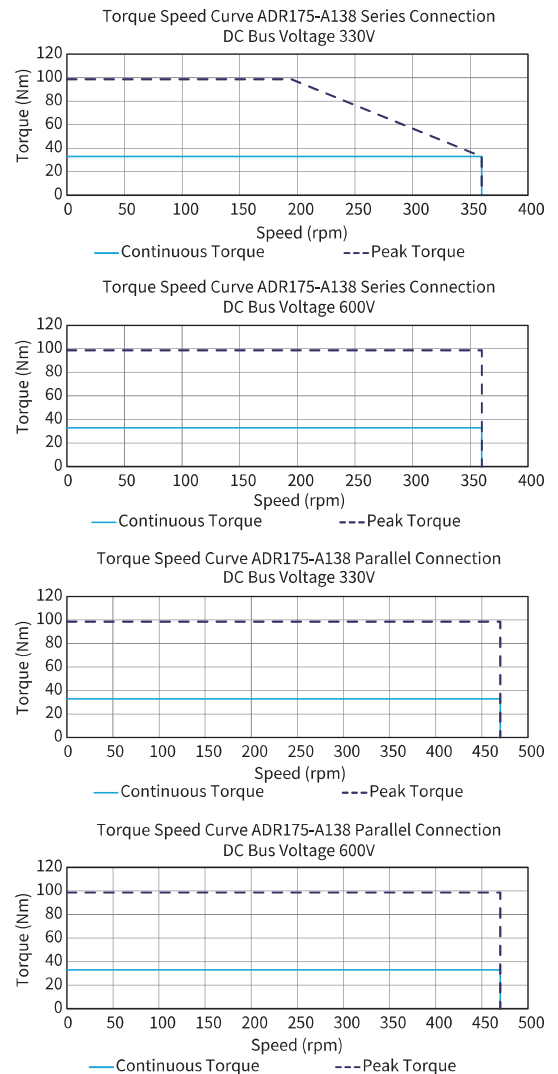
- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 ② Resistance is measured by DC current with standard 0.5m cable.
 ③ Inductance is measured by current frequency of 1kHz.
 ④ The value is based on ABI optical SIN/COS encoder (4096x interpolation) under 330V bus voltage.
 ⑤ Runout specification define in the datasheet is based on constant loading and temperature condition (the value in parenthesis is optional).
 ⑥ Please refer to the illustration for different mountings.
 ⑦ Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
 The contents of datasheet are subject to change without prior notice.

Dimension



① Standard axial / radial run-out = 0.020

Torque-Speed Curve



- Motor cable = φ8.0
- Hall cable = φ5.2
- Encoder cable = φ4.0

ADR-A Series

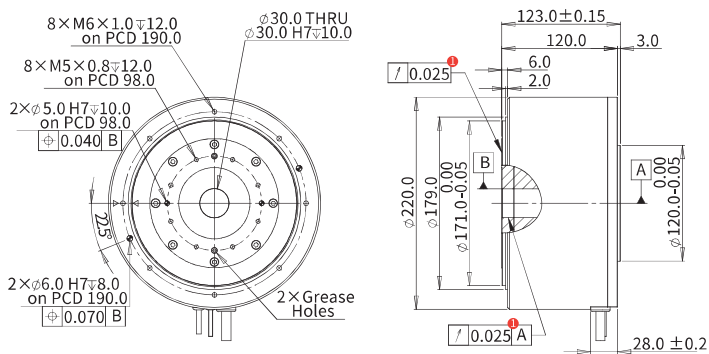
ADR220-A120

ADR220-A120					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque @100°C ❶		T _{cn}	Nm	46.0	46.0
Peak Torque		T _{pk}	Nm	137.9	137.9
Torque Constant ±10%		K _t	Nm/Arms	8.51	2.84
Back EMF constant ±10%		K _e	Vpeak/rpm	0.727	0.242
Motor Constant @25°C		K _m	Nm/Sqrt(W)	2.87	2.69
Resistance (L-L) @25°C ±10% ❷		R ₂₅	Ω	5.87	0.7
Inductance (L-L) ±20% ❸		L	mH	53.60	6.30
Electrical time constant		τ _e	ms	9.13	8.51
Continuous Current @100°C ❶		I _{cn}	Arms	5.4	16.2
Peak Current		I _{pk}	Arms	16.2	48.6
Continuous Power Dissipation @100°C ❶		P _n	W	331.0	375.5
Max. Coil Temperature		T _{max}	°C	100.0	100.0
Thermal Dissipation Constant ❶		K _{thn}	W/°C	4.4	5.0
Max. Bus Voltage		U _{bus}	Vdc	600.0	600.0
Pole Number		p	-	24	24
Rec. Max Speed @Peak Torque❹		Ω _{max}	rpm	150	540
Rec. Max Speed @Continuous Torque❹		Ω _{max}	rpm	320	540
Mechanical Parameters					
Overall Mass		m _n	kg	18.3	18.3
Rotor Inertia		J _r	kg·m ²	1.786E-02	1.786E-02
Axial Runout❺		-	μm	25 (10)	25 (10)
Radial Runout❺		-	μm	25 (10)	25 (10)
Max Axial Load (Upright Mounting)❺		-	N	2800	2800
Max Axial Load (Inverted / Wall mounting)		-	N	300	300
Max Moment Load (Upright Mounting)		-	Nm	72	72
Max Moment Load (Inverted / Wall Mounting)		-	Nm	7.9	7.9
Encoder Parameters					
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	4103	4103
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	328240	328240
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	656480	656480
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	1641200	1641200
ATOM DX Optical Incremental Encoder		-	lines / rev	8192	8192
ATOM DX Optical Incremental Encoder(200x)		-	counts / rev	1638400	1638400
Accuracy with Error Mapping❶		-	arc sec	+/-4	+/-4
Repeatability❶		-	arc sec	+/-2	+/-2
Other Information					
Insulation Class		Class B (130°C)			
Protection Grade		IP40			
Compliance with Global Standards		RoHS, CE, UL (option)			
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.
- 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 ABI optical SIN/COS encoder (4096x interpolation) under 330V bus voltage.
- 5 Runout specification define in the datasheet is based on constant loading and temperature condition (the value in parenthesis is optional).
- 6 Please refer to the illustration for different mountings.
- 7 Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.

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

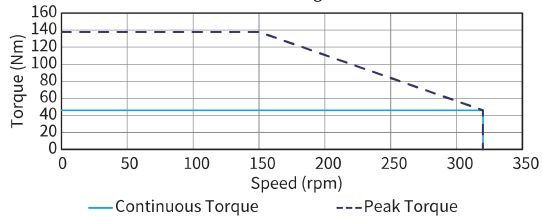
■ Dimension



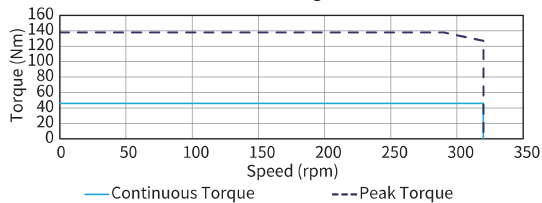
① Standard axial / radial run-out = 0.025

- Torque-Speed Curve

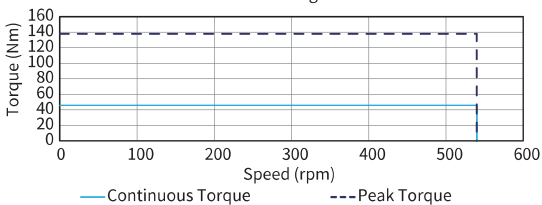
Torque Speed Curve ADR220-A120 Series Connection
DC Bus Voltage 330V



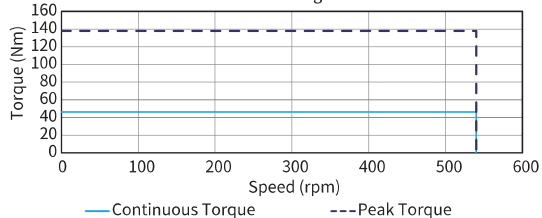
Torque Speed Curve ADR220-A120 Series Connection
DC Bus Voltage 600V



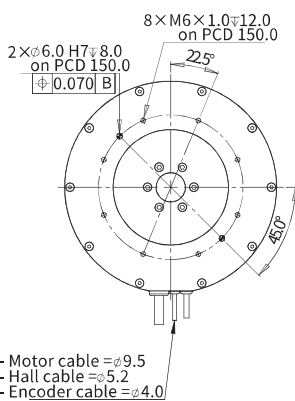
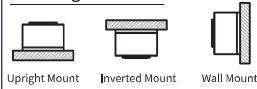
Torque Speed Curve ADR220-A120 Parallel Connection
DC Bus Voltage 330V



Torque Speed Curve ADR220-A120 Parallel Connection
DC Bus Voltage 600V



Mounting Illustration



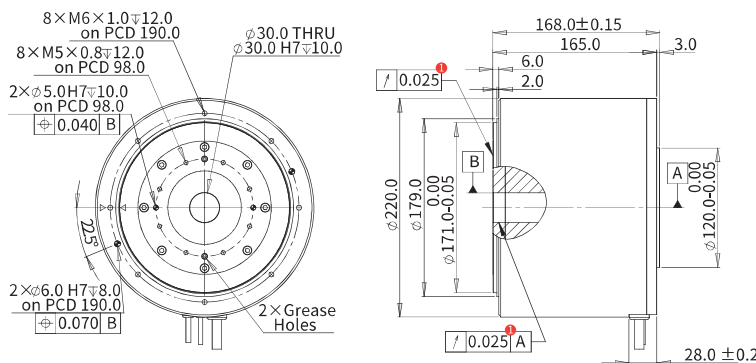
- Motor cable = $\phi 9.5$
- Hall cable = $\phi 5.2$
- Encoder cable = $\phi 4.0$

ADR220-A165

ADR220-A165					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque @100°C ❶		T _{cn}	Nm	94.9	94.9
Peak Torque		T _{pk}	Nm	284.6	284.6
Torque Constant ±10%		K _t	Nm/Arms	17.57	5.86
Back EMF constant ±10%		K _e	Vpeak/rpm	1.502	0.501
Motor Constant @25°C		K _m	Nm/Sqrt(W)	4.47	4.37
Resistance (L-L) @25°C ±10% ❷		R ₂₅	Ω	10.32	1.20
Inductance (L-L) ±20% ❸		L	mH	106.70	11.90
Electrical time constant		T _e	ms	10.34	9.92
Continuous Current @100°C ❶		I _{cn}	Arms	5.4	16.2
Peak Current		I _{pk}	Arms	16.2	48.6
Continuous Power Dissipation @100°C ❶		P _{cn}	W	581.9	608.9
Max. Coil Temperature		T _{max}	°C	100.0	100.0
Thermal Dissipation Constant ❶		K _{thn}	W/°C	7.8	8.1
Max. Bus Voltage		U _{bus}	Vdc	600.0	600.0
Pole Number		p	-	24	24
Rec. Max Speed @Peak Torque ❹		Ω _{max}	rpm	50	260
Rec. Max Speed @Continuous Torque ❹		Ω _{max}	rpm	140	260
Mechanical Parameters					
Overall Mass		m _n	kg	24.1	24.1
Rotor Inertia		J _r	kg·m ²	2.522E-02	2.522E-02
Axial Runout ❺		-	μm	25 (10)	25 (10)
Radial Runout ❺		-	μm	25 (10)	25 (10)
Max Axial Load (Upright Mounting) ❻		-	N	2800	2800
Max Axial Load (Inverted / Wall mounting)		-	N	300	300
Max Moment Load (Upright Mounting)		-	Nm	72	72
Max Moment Load (Inverted / Wall Mounting)		-	Nm	7.9	7.9
Encoder Parameters					
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	4103	4103
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	328240	328240
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	656480	656480
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	1641200	1641200
ATOM DX Optical Incremental Encoder		-	lines / rev	8192	8192
ATOM DX Optical Incremental Encoder(200x)		-	counts / rev	1638400	1638400
Accuracy with Error Mapping ❼		-	arc sec	+/-4	+/-4
Repeatability ❼		-	arc sec	+/-2	+/-2
Other Information					
Insulation Class		Class B (130°C)			
Protection Grade		IP40			
Compliance with Global Standards		RoHS, CE, UL (option)			
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.			

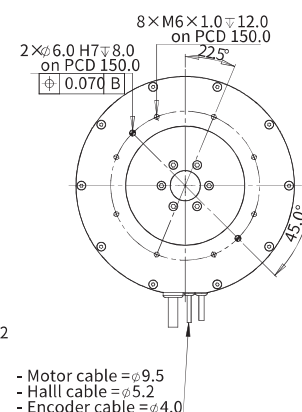
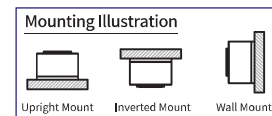
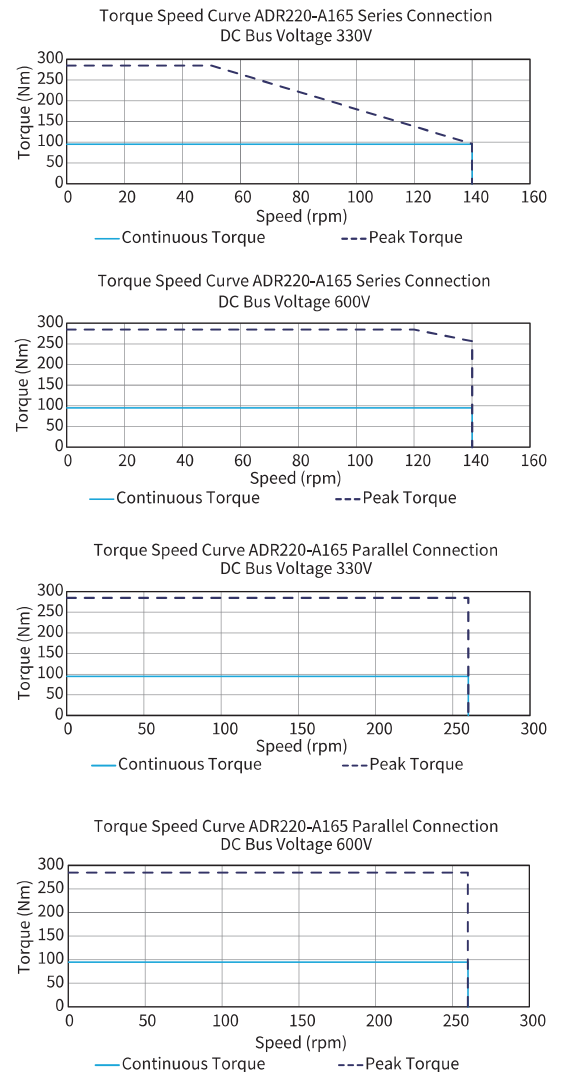
- ① Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
 ② Resistance is measured by DC current with standard 0.5m cable.
 ③ Inductance is measured by current frequency of 1kHz.
 ④ The value is based on ABI optical SIN/COS encoder (4096x interpolation) under 330V bus voltage.
 ⑤ Runout specification define in the datasheet is based on constant loading and temperature condition (the value in parenthesis is optional).
 ⑥ Please refer to the illustration for different mountings.
 ⑦ Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
 The contents of datasheet are subject to change without prior notice.

Dimension



① Standard axial / radial run-out = 0.025

Torque-Speed Curve



- Motor cable = φ9.5
- Halli cable = φ5.2
- Encoder cable = φ4.0

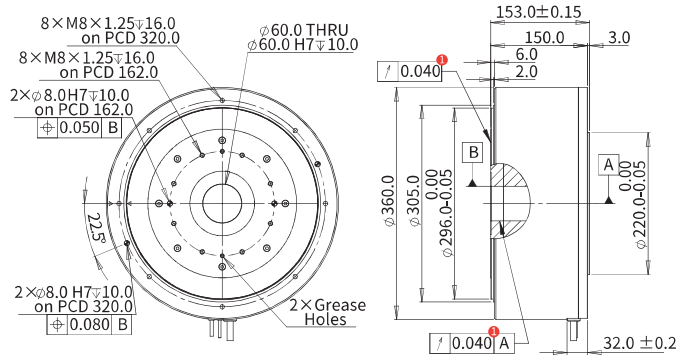
ADR-A Series

ADR360-A150

ADR360-A150				
Performance Parameters		Symbol	Unit	Series
Continuous Torque @100°C ❶		T _{cn}	Nm	184.2
Peak Torque		T _{pk}	Nm	552.5
Torque Constant ±10%		K _t	Nm/Arms	25.4
Back EMF constant ±10%		K _e	Vpeak/rpm	2.171
Motor Constant @25°C		K _m	Nm/Sqrt(W)	11.88
Resistance (L-L) @25°C ±10% ❷		R ₂₅	Ω	3.05
Inductance (L-L) ±20% ❸		L	mH	31.70
Electrical time constant		τ _e	ms	10.40
Continuous Current @100°C ❶		I _{cn}	Arms	7.3
Peak Current		I _{pk}	Arms	21.8
Continuous Power Dissipation @100°C ❶		P _{cn}	W	309.7
Max. Coil Temperature		T _{max}	°C	100.0
Thermal Dissipation Constant ❶		K _{thn}	W/°C	4.1
Max. Bus Voltage		U _{bus}	Vdc	600.0
Pole Number		p	-	32
Rec. Max Speed @Peak Torque ❹		Ω _{max}	rpm	90
Rec. Max Speed @Continuous Torque ❺		Ω _{max}	rpm	120
Mechanical Parameters				
Overall Mass		m _n	kg	56.0
Rotor Inertia		J _r	kg·m ²	2.046E-01
Axial Runout ❻		-	μm	40 (15)
Radial Runout ❻		-	μm	40 (15)
Max Axial Load (Upright Mounting) ❻		-	N	11200
Max Axial Load (Inverted / Wall mounting)		-	N	350
Max Moment Load (Upright Mounting)		-	Nm	245
Max Moment Load (Inverted / Wall Mounting)		-	Nm	27.0
Encoder Parameters				
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	7500
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	600000
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	1200000
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	3000000
ATOM DX Optical Incremental Encoder		-	lines / rev	15000
ATOM DX Optical Incremental Encoder(200x)		-	counts / rev	3000000
Accuracy with Error Mapping ❹		-	arc sec	+/-4
Repeatability ❹		-	arc sec	+/-2
Other Information				
Insulation Class		Class B (130°C)		
Protection Grade		IP40		
Compliance with Global Standards		RoHS, CE, UL (option)		
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.		

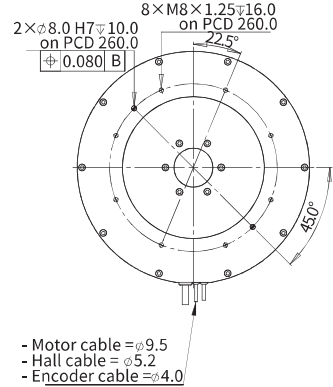
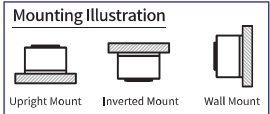
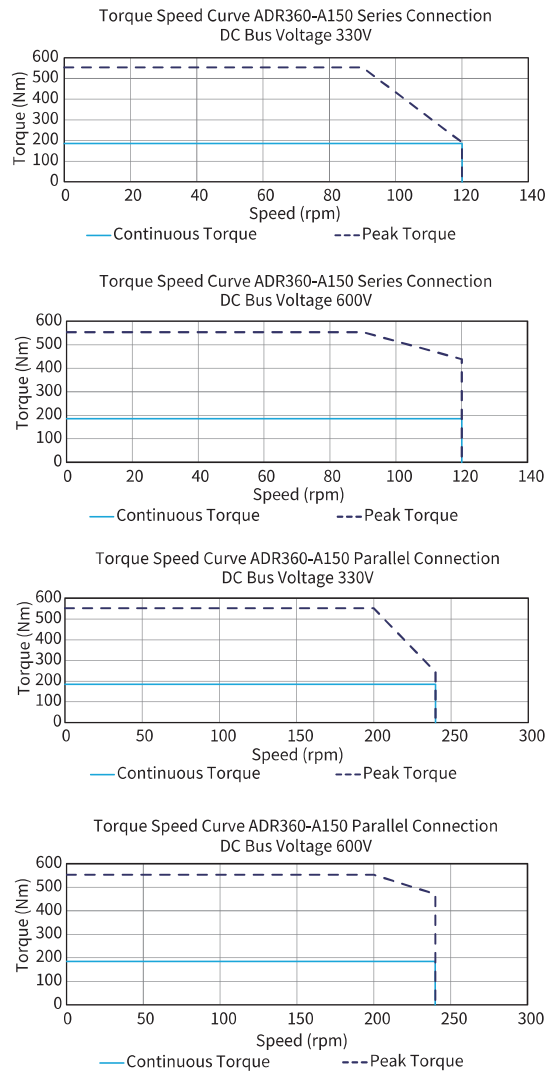
- ❶ Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
❷ Resistance is measured by DC current with standard 0.5m cable.
❸ Inductance is measured by current frequency of 1kHz.
❹ The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
❺ Runout specification define in the datasheet is based on constant loading and temperature condition (the value in parenthesis is optional).
❻ Please refer to the illustration for different mountings.
❼ Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
The contents of datasheet are subject to change without prior notice.

Dimension



❶ Standard axial / radial run-out = 0.040

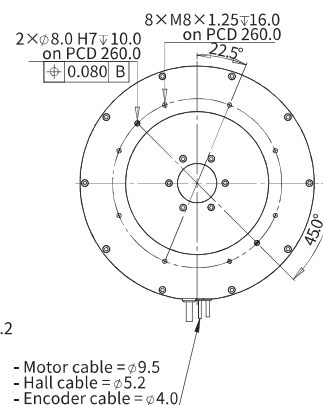
Torque-Speed Curve



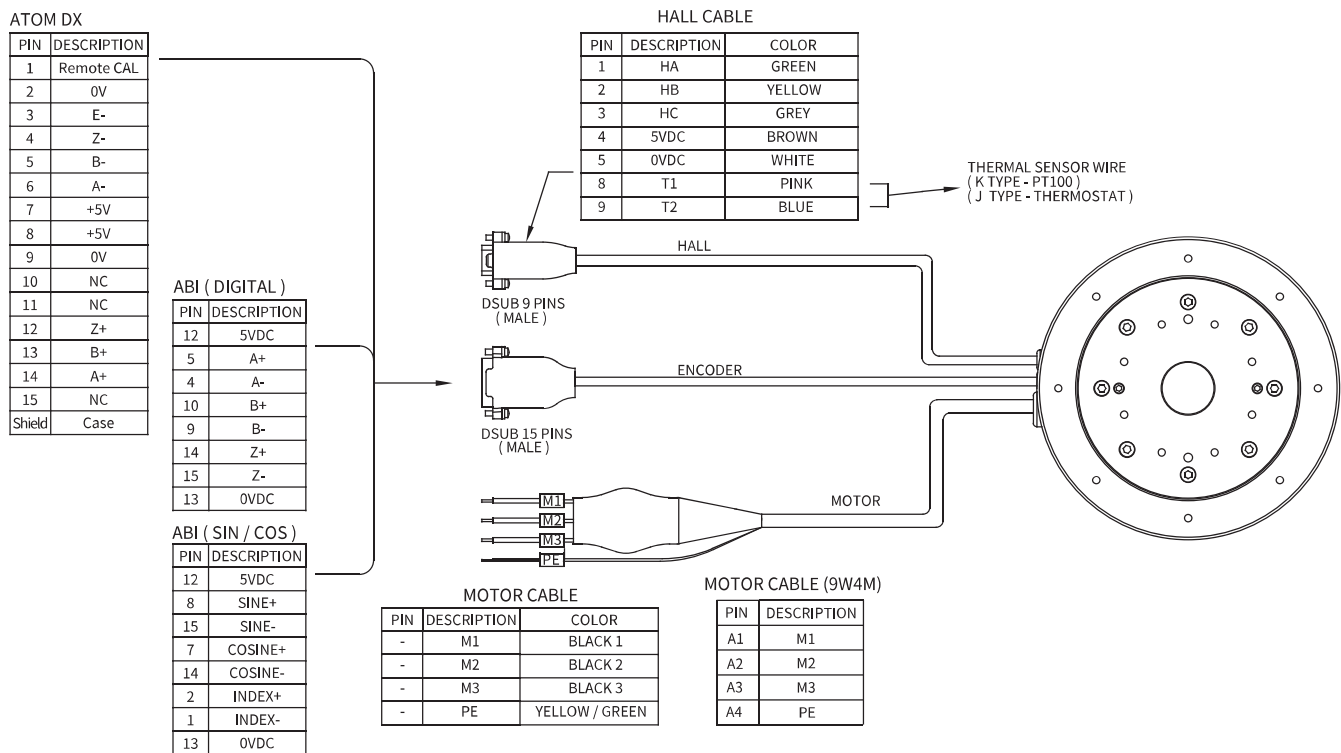
Introduction
Sizing Guide
Frequently Asked Questions
Linear Motors
Voice Coil Motors
Direct Drive Rotary Motors
Motion Control of Gantry Stages

Akribis systems

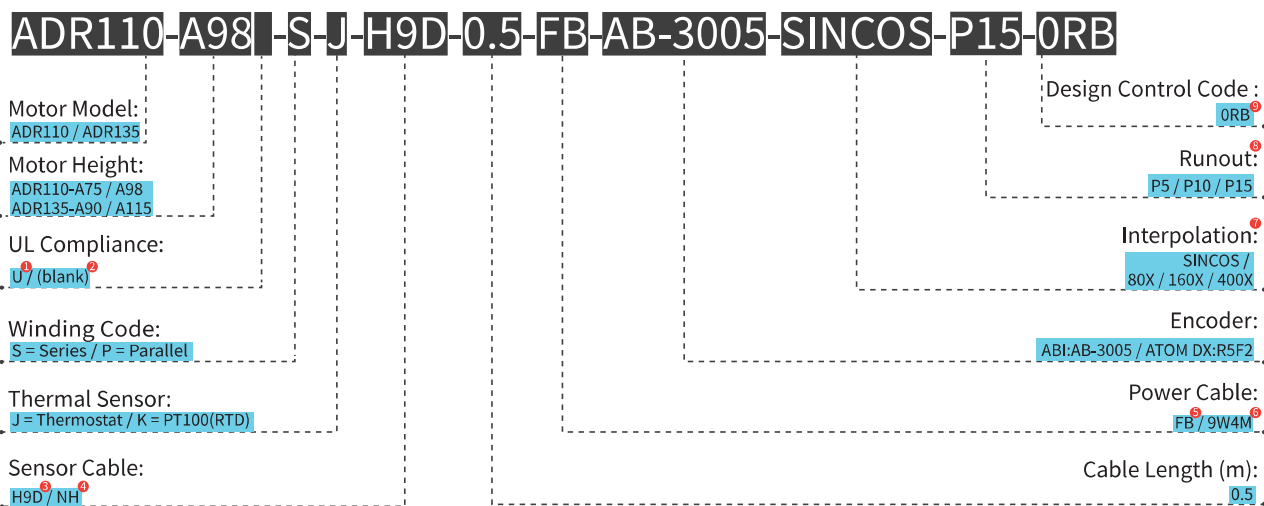
ADR360-A215					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque @100°C ①		T _{cn}	Nm	377.0	377.0
Peak Torque		T _{pk}	Nm	1131.0	1131.0
Torque Constant ±10%		K _t	Nm/Arms	52.00	26.00
Back EMF constant ±10%		K _e	Vpeak/rpm	4.444	2.222
Motor Constant @25°C		K _m	Nm/Sqrt(W)	18.51	18.99
Resistance (L-L) @25°C ±10% ②		R ₂₅	Ω	5.26	1.25
Inductance (L-L) ±20% ③		L	mH	54.74	13.00
Electrical time constant		τ _e	ms	10.40	10.40
Continuous Current @100°C ①		I _{cn}	Arms	7.3	14.5
Peak Current		I _{pk}	Arms	21.8	43.5
Continuous Power Dissipation @100°C ①		P _{cn}	W	535.0	508.2
Max. Coil Temperature		T _{max}	°C	100.0	100.0
Thermal Dissipation Constant ①		K _{thn}	W/°C	7.1	6.8
Max. Bus Voltage		U _{bus}	Vdc	600.0	600.0
Pole Number		p	-	32	32
Rec. Max Speed @Peak Torque ⑤		Ω _{max}	rpm	80	185
Rec. Max Speed @Continuous Torque ⑤		Ω _{max}	rpm	105	210
Mechanical Parameters					
Overall Mass		m _n	kg	71.0	71.0
Rotor Inertia		J _r	kg·m ²	3.223E-01	3.223E-01
Axial Runout ⑥		-	μm	40 (15)	40 (15)
Radial Runout ⑥		-	μm	40 (15)	40 (15)
Max Axial Load (Upright Mounting) ⑥		-	N	11200	11200
Max Axial Load (Inverted / Wall mounting)		-	N	350	350
Max Moment Load (Upright Mounting)		-	Nm	245	245
Max Moment Load (Inverted / Wall Mounting)		-	Nm	27.0	27.0
Encoder Parameters					
ABI Optical Incremental Encoder (SIN/COS)		-	lines / rev	7500	7500
ABI Optical Incremental Encoder Digital Resolution (80x)		-	counts / rev	600000	600000
ABI Optical Incremental Encoder Digital Resolution (160x)		-	counts / rev	1200000	1200000
ABI Optical Incremental Encoder Digital Resolution (400x)		-	counts / rev	3000000	3000000
ATOM DX Optical Incremental Encoder		-	lines / rev	15000	15000
ATOM DX Optical Incremental Encoder(200x)		-	counts / rev	3000000	3000000
Accuracy with Error Mapping ⑦		-	arc sec	+/-4	+/-4
Repeatability ⑦		-	arc sec	+/-2	+/-2
Other Information					
Insulation Class		Class B (130°C)			
Protection Grade		IP40			
Compliance with Global Standards		RoHS, CE, UL (option)			
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.			



Motor Cable Connection



Part Numbering



- 1 U = UL-complied version (and CE-complied)
- 2 (blank) = Standard, only CE-complied
- 3 H9D = With Built-in Hall Sensor C/W 9-Pins D-Sub Connector
- 4 NH = Without Built-in Hall Sensor C/W Flying Leads
- 5 FB = With Ferrite Bead C/W Flying Leads
- 6 9W4M = Without Ferrite Bead C/W D-Sub 9W4 Male Connector
- 7 This item should be empty when ATOM encoder is selected
- 8 P5 = Axial Runout 5µm, Radial Runout is 5µm
- 9 P10 = Axial Runout 10µm, Radial Runout is 10µm
- 10 P15 = Axial Runout 15µm, Radial Runout is 15µm
- 11 ORB = Standard Model (for more options, please consult cust-service@akribis-sys.com)

ADR175-A138-S-J-H9D-0.5-FB-AB-4103-80X-P10-0RB

Motor Model:

ADR175 / ADR220

Motor Height:

ADR175-A102 / A138
ADR220-A120 / A165

UL Compliance:

U / (blank)

Winding Code:

S = Series / P = Parallel

Thermal Sensor:

J = Thermostat / K = PT100(RTD)

Sensor Cable:

H9D / NH

Design Control Code :

0RB

Runout:

P10 / P15 / P20 / P25

Interpolation:

SINCOS / 80X
160X / 200X / 400X

Encoder:

ABI:AB-4103 / ATOM DX:R5G2

Power Cable:

FB / 9W4M

Cable Length (m):

0.5

- ① U = UL-complied version (and CE-complied)
- ② (blank) = Standard, only CE-complied
- ③ H9D = With Built-in Hall Sensor C/W 9-Pins D-Sub Connector
- ④ NH = Without Built-in Hall Sensor C/W Flying Leads
- ⑤ FB = With Ferrite Bead C/W Flying Leads
- ⑥ 9W4M = Without Ferrite Bead C/W D-Sub 9W4 Male Connector
- ⑦ This item should be empty when ATOM encoder is selected
- ⑧ ADR175 / ADR220 : P10 = Axial Runout 10µm, Radial Runout is 10µm
ADR175 : P15 = Axial Runout 15µm, Radial Runout is 15µm
ADR175 : P20 = Axial Runout 20µm, Radial Runout is 20µm
ADR220 : P25 = Axial Runout 25µm, Radial Runout is 25µm
- ⑨ 0RB = Standard Model (for more options, please consult cust-service@akribis-sys.com)

ADR360-A150-S-J-H9D-0.5-FB-AB-7500-400X-P15-0RB

Motor Model:

ADR360

Motor Height:

A150 / A215

UL Compliance:

U / (blank)

Winding Code:

S = Series / P = Parallel

Thermal Sensor:

J = Thermostat / K = PT100(RTD)

Sensor Cable:

H9D / NH

Design Control Code :

0RB

Runout:

P15 / P40

Interpolation:

SINCOS / 80X
160X / 200X / 400X

Encoder:

ABI:AB-7500 / ATOM DX:R5G2

Power Cable:

FB / 9W4M

Cable Length (m):

0.5

- ① U = UL-complied version (and CE-complied)
- ② (blank) = Standard, only CE-complied
- ③ H9D = With Built-in Hall Sensor C/W 9-Pins D-Sub Connector
- ④ NH = Without Built-in Hall Sensor C/W Flying Leads
- ⑤ FB = With Ferrite Bead C/W Flying Leads
- ⑥ 9W4M = Without Ferrite Bead C/W D-Sub 9W4 Male Connector
- ⑦ This item should be empty when ATOM encoder is selected
- ⑧ P15 = Axial Runout 15µm, Radial Runout is 15µm
P40 = Axial Runout 40µm, Radial Runout is 40µm
- ⑨ 0RB = Standard Model (for more options, please consult cust-service@akribis-sys.com)