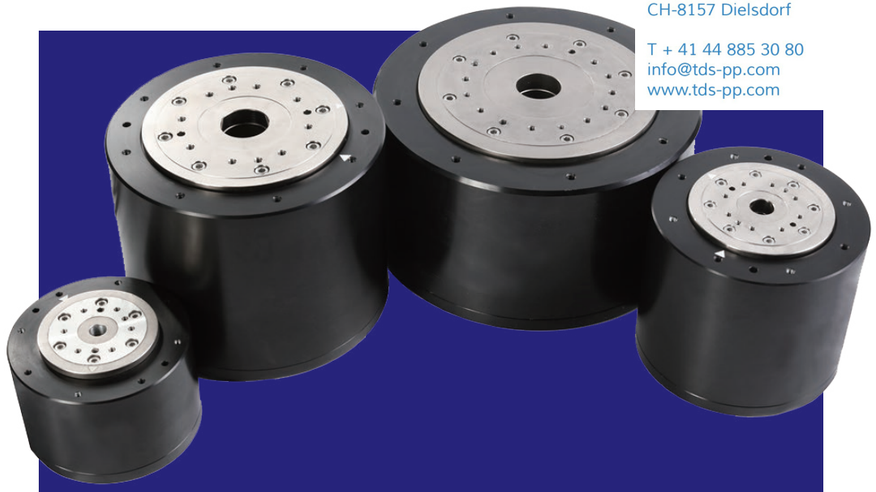
TDS Precision Products

TDS Precision Products GmbH
Industriestrasse 1a
CH-8157 Dielsdorf

T + 41 44 885 30 80
info@tds-pp.com
www.tds-pp.com



ADR-A SERIES

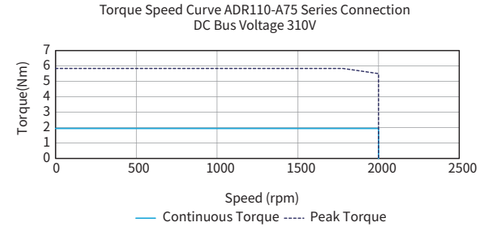
- Direct drive brushless motor
- Fully integrated with encoder and bearing
- Low cogging torque
- Precise homing through index pulse
- Low speed and high speed windings

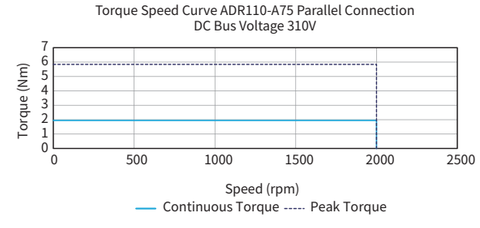
ADR110-A75

ADR110-A75				
Performance Parameters	**Symbol**	**Unit**	**Series**	**Parallel**
Continuous Torque @100°C[1]	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	0.30
Resistance (L-L) @25°C ±10%[2]	R_{25}	Ω	3.20	0.80
Inductance (L-L) ±20%[3]	L	mH	17.15	4.29
Electrical time constant	τ_e	ms	5.36	5.36
Continuous Current @100°C[4]	I_{cn}	Arms	3.0	6.0
Peak Current	I_{pk}	Arms	9.0	18.0
Continuous Power Dissipation @100°C[1]	P_{cn}	W	55.7	55.7
Max. Coil Temperature	T_{max}	°C	100.0	100.0
Thermal Dissipation Constant[1]	K_{thn}	W/°C	0.7	0.7
Max. Bus Voltage	U_{bus}	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC[6]	Ω_{max}	rpm	1700	2000
Mechanical Parameters				
Overall Mass	m_n	kg	3.20	3.20
Rotor Inertia	J_r	kg·m²	3.086E-04	3.086E-04
Axial Runout[5]	-	µm	15 (10,5)	15 (10,5)
Radial Runout[5]	-	µm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting)[6]	-	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
Accuracy with Error Mapping[7]	-	arc sec	+/-5.4	+/-5.4
Repeatability[7]	-	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.		

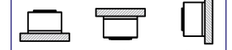
[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
[2] Resistance is measured by DC current with standard 3 m cable.
[3] Inductance is measured by current frequency of 1 kHz.
[4] The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
[5] The runout 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 subjected to change.

■ Torque-Speed Curve

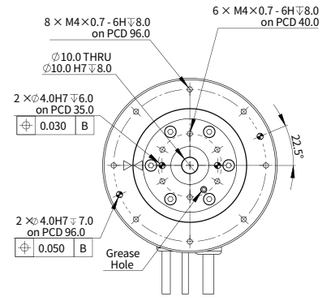


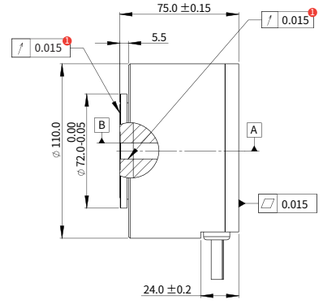


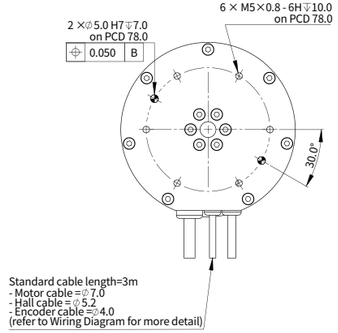
Mounting Illustration



■ Dimension





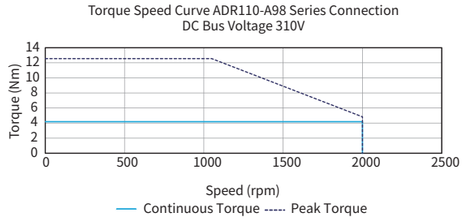


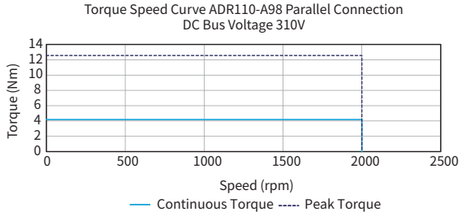
[1] Standard axial/ radial run-out = 0.015

ADR110-A98

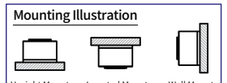
ADR110-A98				
Performance Parameters	**Symbol**	**Unit**	**Series**	**Parallel**
Continuous Torque @100°C[1]	T_{cn}	Nm	4.2	4.2
Peak Torque	T_{pk}	Nm	12.6	12.6
Torque Constant ±10%	K_t	Nm/Arms	1.40	0.70
Back EMF constant ±10%	K_e	Vpeak/rpm	0.119	0.060
Motor Constant @25°C	K_m	Nm/Sqrt(W)	0.51	0.52
Resistance (L-L) @25°C ±10%[2]	R_{25}	Ω	4.90	1.21
Inductance (L-L) ±20%[3]	L	mH	26.26	6.49
Electrical time constant	τ_e	ms	5.36	5.36
Continuous Current @100°C[1]	I_{cn}	Arms	3.0	6.0
Peak Current	I_{pk}	Arms	9.0	18.0
Continuous Power Dissipation @100°C[1]	P_{cn}	W	85.3	84.2
Max. Coil Temperature	T_{max}	°C	100.0	100.0
Thermal Dissipation Constant[1]	K_{thn}	W/°C	1.1	1.1
Max. Bus Voltage	U_{bus}	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC[4]	Ω_{max}	rpm	1000	2000
Mechanical Parameters				
Overall Mass	m_n	kg	4.60	4.60
Rotor Inertia	J_r	kg·m²	4.419E-04	4.419E-04
Axial Runout[5]	-	μm	15 (10,5)	15 (10,5)
Radial Runout[5]	-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting)[6]	-	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
Accuracy with Error Mapping[7]	-	arc sec	+/-5.4	+/-5.4
Repeatability[7]	-	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.		

■ Torque-Speed Curve



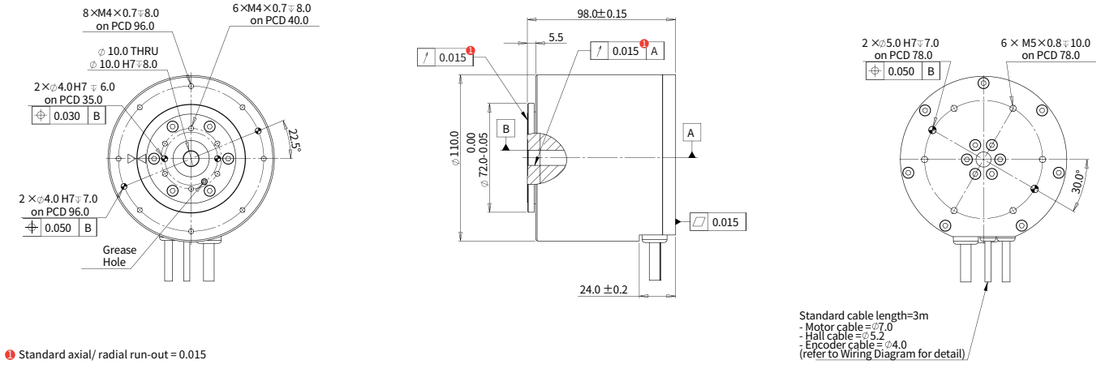


Mounting Illustration



[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
[2] Resistance is measured by DC current with standard 3 m cable.
[3] Inductance is measured by current frequency of 1 kHz.
[4] The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
[5] The runout 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 subjected to change.

■ Dimension

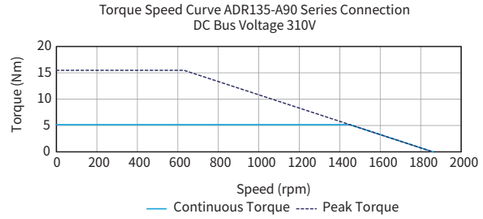


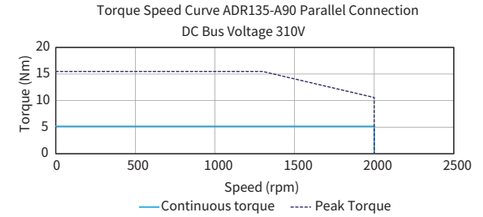
[1] Standard axial/ radial run-out = 0.015

ADR135-A90

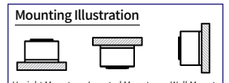
ADR135-A90				
Performance Parameters	**Symbol**	**Unit**	**Series**	**Parallel**
Continuous Torque @100°C[1]	T_{cn}	Nm	5.2	5.2
Peak Torque	T_{pk}	Nm	15.5	15.5
Torque Constant ±10%	K_t	Nm/Arms	1.72	0.86
Back EMF constant ±10%	K_e	Vpeak/rpm	0.147	0.074
Motor Constant @25°C	K_m	Nm/Sqrt(W)	0.55	0.55
Resistance (L-L) @25°C ±10%[2]	R_{25}	Ω	6.60	1.65
Inductance (L-L) ±20%[3]	L	mH	45.30	11.20
Electrical time constant	τ_e	ms	6.86	6.79
Continuous Current @100°C[1]	I_{cn}	Arms	3.0	6.0
Peak Current	I_{pk}	Arms	9.0	18.0
Continuous Power Dissipation @100°C[1]	P_{cn}	W	114.9	114.9
Max. Coil Temperature	T_{max}	°C	100.0	100.0
Thermal Dissipation Constant[1]	K_{thn}	W/°C	1.5	1.5
Max. Bus Voltage	U_{bus}	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC[4]	Ω_{max}	rpm	630	1350
Mechanical Parameters				
Overall Mass	m_n	kg	4.80	4.80
Rotor Inertia	J_r	kg·m²	9.916E-04	9.916E-04
Axial Runout[5]	-	μm	15 (10,5)	15 (10,5)
Radial Runout[5]	-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting)[6]	-	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
Accuracy with Error Mapping[7]	-	arc sec	+/-5.4	+/-5.4
Repeatability[7]	-	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.		

■ Torque-Speed Curve



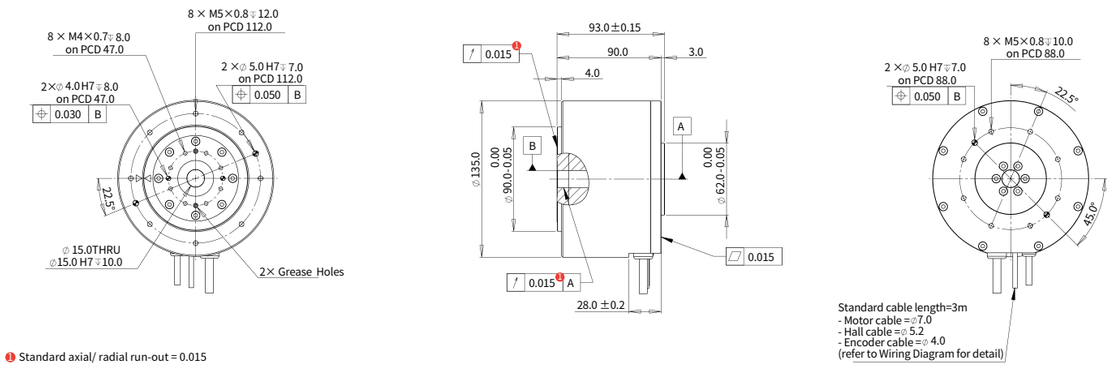


Mounting Illustration



[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
[2] Resistance is measured by DC current with standard 3 m cable.
[3] Inductance is measured by current frequency of 1 kHz.
[4] The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
[5] The runout 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 subjected to change.

■ Dimension

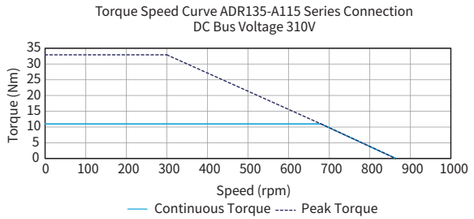


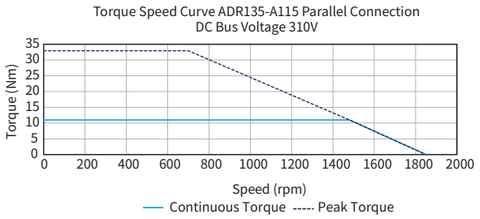
[1] Standard axial/ radial run-out = 0.015

ADR135-A115

ADR135-A115				
Performance Parameters	**Symbol**	**Unit**	**Series**	**Parallel**
Continuous Torque @100°C[1]	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%[2]	R_{25}	Ω	10.70	2.70
Inductance (L-L) ±20%[3]	L	mH	72.76	18.63
Electrical time constant	τ_e	ms	6.80	6.90
Continuous Current @100°C[1]	I_{cn}	Arms	3.0	6.0
Peak Current	I_{pk}	Arms	9.0	18.0
Continuous Power Dissipation @100°C[1]	P_{cn}	W	186.2	187.9
Max. Coil Temperature	T_{max}	°C	100.0	100.0
Thermal Dissipation Constant[1]	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 @230V AC[4]	Ω_{max}	rpm	330	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[5]	-	μm	15 (10,5)	15 (10,5)
Radial Runout[5]	-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting)[6]	-	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
Accuracy with Error Mapping[7]	-	arc sec	+/-5.4	+/-5.4
Repeatability[7]	-	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.		

Torque-Speed Curve

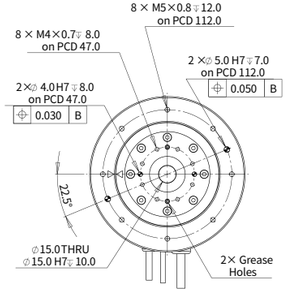


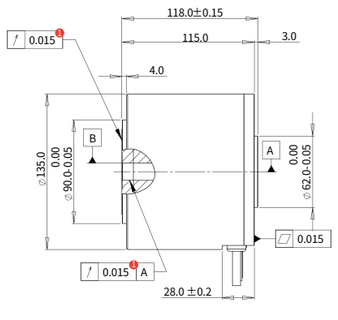


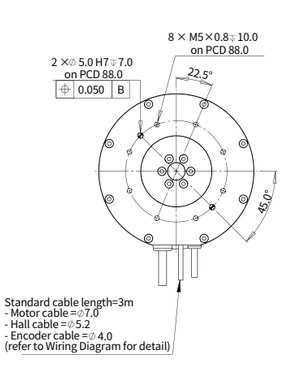
Mounting Illustration

[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
[2] Resistance is measured by DC current with standard 3 m cable.
[3] Inductance is measured by current frequency of 1 kHz.
[4] The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
[5] The runout 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 subjected to change.

Dimension





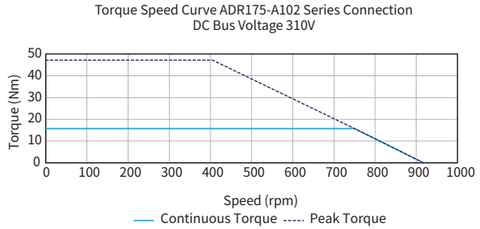


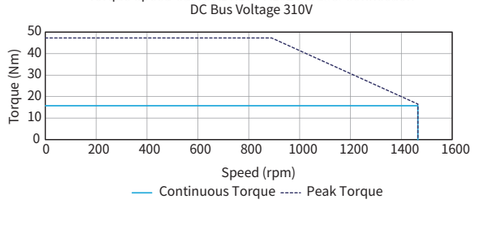
[1] Standard axial/ radial run-out = 0.015

ADR175-A102

ADR175-A102				
Performance Parameters	**Symbol**	**Unit**	**Series**	**Parallel**
Continuous Torque @100°C[1]	T_{cn}	Nm	15.7	15.7
Peak Torque	T_{pk}	Nm	47.2	47.2
Torque Constant ±10%	K_t	Nm/Arms	3.93	1.97
Back EMF constant ±10%	K_e	Vpeak/rpm	0.336	0.168
Motor Constant @25°C	K_m	Nm/Sqrt(W)	1.40	1.41
Resistance (L-L) @25°C ±10%[2]	R_{25}	Ω	5.27	1.30
Inductance (L-L) ±20%[3]	L	mH	45.72	11.27
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	163.1	160.9
Max. Coil Temperature	T_{max}	°C	100.0	100.0
Thermal Dissipation Constant[1]	K_{thn}	W/°C	2.2	2.1
Max. Bus Voltage	U_{bus}	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC[4]	Ω_{max}	rpm	400	880
Mechanical Parameters				
Overall Mass	m_n	kg	8.5	8.5
Rotor Inertia	J_r	kg·m²	5.422E-03	5.422E-03
Axial Runout[5]	-	μm	20 (15,10)	20 (15,10)
Radial Runout[5]	-	μm	20 (15,10)	20 (15,10)
Max Axial Load (Upright Mounting)[6]	-	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
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.		

Torque-Speed Curve

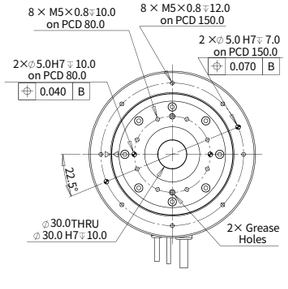


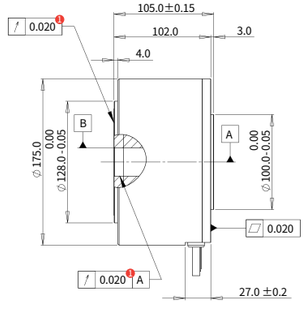


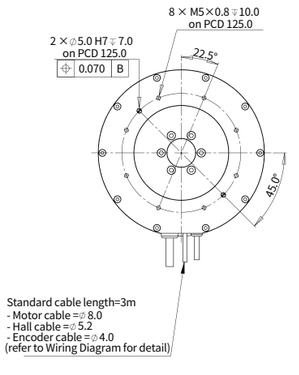
Mounting Illustration

[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
[2] Resistance is measured by DC current with standard 3 m cable.
[3] Inductance is measured by current frequency of 1 kHz.
[4] The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
[5] The runout 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 subjected to change.

Dimension







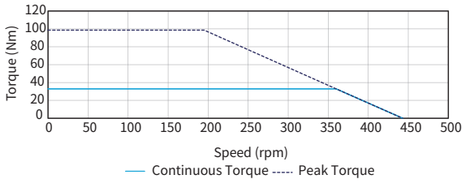
[1] Standard axial/ radial run-out = 0.020

ADR175-A138

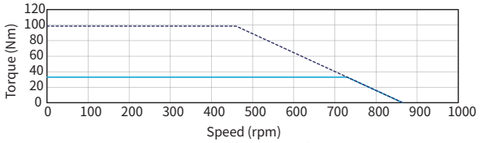
ADR175-A138					
Performance Parameters	**Symbol**	**Unit**		**Series**	**Parallel**
Continuous Torque @100°C[1]	T_{cn}	Nm		32.9	32.9
Peak Torque	T_{pk}	Nm		98.6	98.6
Torque Constant ±10%	K_t	Nm/Arms		8.22	4.11
Back EMF constant ±10%	K_e	Vpeak/rpm		0.703	0.351
Motor Constant @25°C	K_m	Nm/Sqrt(W)		2.33	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[1]	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 @230V AC[4]	Ω_{max}	rpm		195	470
Mechanical Parameters					
Overall Mass	m_n	kg		12.7	12.7
Rotor Inertia	J_r	kg·m²		7.621E-03	7.621E-03
Axial Runout[5]	-	μm		20 (15,10)	20 (15,10)
Radial Runout[5]	-	μm		20 (15,10)	20 (15,10)
Max Axial Load (Upright Mounting)[6]	-	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
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.				

Torque-Speed Curve

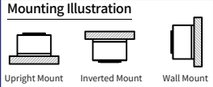
Torque Speed Curve ADR175-A138 Series Connection
DC Bus Voltage 310V



Torque Speed Curve ADR175-A138 Parallel Connection
DC Bus Voltage 310V

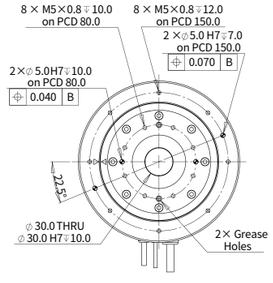


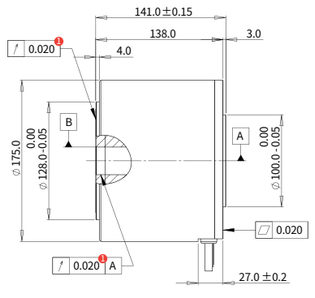
Mounting Illustration

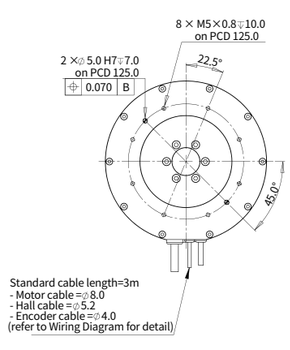


❶ Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
❷ Resistance is measured by DC current with standard 3 m cable.
❸ Inductance is measured by current frequency of 1 kHz.
❹ The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
❺ The runout 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 subjected to change.

Dimension







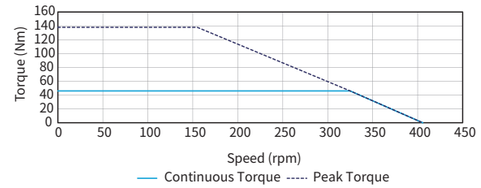
❶ Standard axial/ radial run-out = 0.020

ADR220-A120

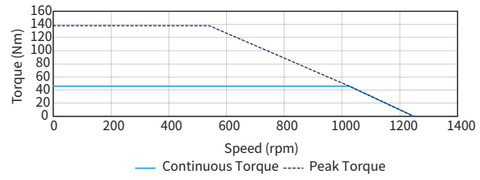
ADR220-A120					
Performance Parameters	**Symbol**	**Unit**		**Series**	**Parallel**
Continuous Torque @100°C[1]	T_{cn}	Nm		46.0	46.0
Peak Torque	T_{pk}	Nm		137.9	137.9
Torque Constant ±10%	K_t	Nm/Arms		8.51	2.84
Back EMF constant ±10%	K_e	Vpeak/rpm		0.727	0.242
Motor Constant @25°C	K_m	Nm/Sqrt(W)		2.87	2.69
Resistance (L-L) @25°C ±10%[2]	R_{25}	Ω		5.87	0.74
Inductance (L-L) ±20%[3]	L	mH		53.60	6.30
Electrical time constant	τ_e	ms		9.13	8.51
Continuous Current @100°C[1]	I_{cn}	Arms		5.4	16.2
Peak Current	I_{pk}	Arms		16.2	48.6
Continuous Power Dissipation @100°C[1]	P_{cn}	W		331.0	375.5
Max. Coil Temperature	T_{max}	°C		100.0	100.0
Thermal Dissipation Constant[1]	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 @230V AC[4]	Ω_{max}	rpm		150	540
Mechanical Parameters					
Overall Mass	m_n	kg		18.3	18.3
Rotor Inertia	J_r	kg·m²		1.786E-02	1.786E-02
Axial Runout[5]	-	μm		25 (10)	25 (10)
Radial Runout[5]	-	μm		25 (10)	25 (10)
Max Axial Load (Upright Mounting)[6]	-	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
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.				

Torque-Speed Curve

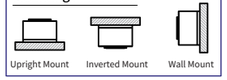
Torque Speed Curve ADR220-A120 Series Connection
DC Bus Voltage 310V



Torque Speed Curve ADR220-A120 Parallel Connection
DC Bus Voltage 310V

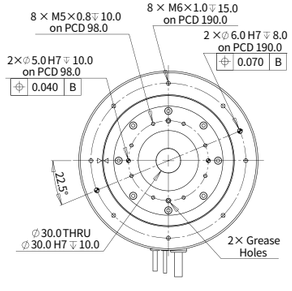


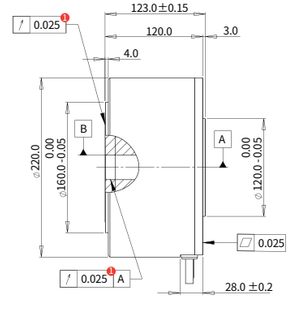
Mounting Illustration

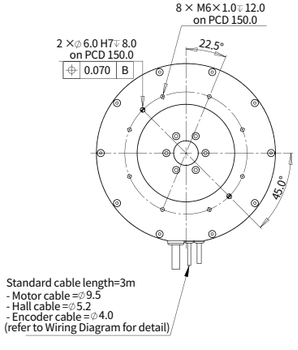


❶ Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
❷ Resistance is measured by DC current with standard 3 m cable.
❸ Inductance is measured by current frequency of 1 kHz.
❹ The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
❺ The runout 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 subjected to change.

Dimension





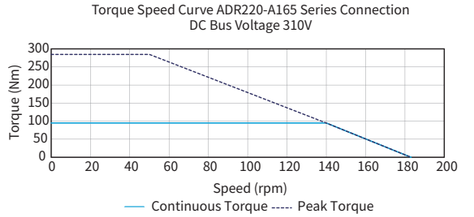


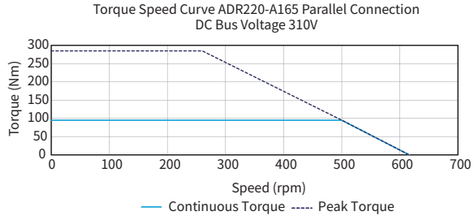
❶ Standard axial/ radial run-out = 0.025

ADR220-A165

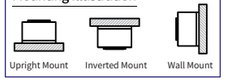
ADR220-A165				
Performance Parameters	**Symbol**	**Unit**	**Series**	**Parallel**
Continuous Torque @100°C[1]	T_{cn}	Nm	94.9	94.9
Peak Torque	T_{pk}	Nm	284.6	284.6
Torque Constant ±10%	K_t	Nm/Arms	17.57	5.86
Back EMF constant ±10%	K_e	Vpeak/rpm	1.502	0.501
Motor Constant @25°C	K_m	Nm/Sqrt(W)	4.47	4.37
Resistance (L-L) @25°C ±10%[2]	R_{25}	Ω	10.32	1.20
Inductance (L-L) ±20%[3]	L	mH	106.70	11.90
Electrical time constant	τ_e	ms	10.34	9.92
Continuous Current @100°C[4]	I_{cn}	Arms	5.4	16.2
Peak Current	I_{pk}	Arms	16.2	48.6
Continuous Power Dissipation @100°C[1]	P_{cn}	W	581.9	608.9
Max. Coil Temperature	T_{max}	°C	100.0	100.0
Thermal Dissipation Constant[1]	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 @230V AC[4]	Ω_{max}	rpm	50	260
Mechanical Parameters				
Overall Mass	m_n	kg	24.1	24.1
Rotor Inertia	J_r	kg·m²	2.522E-02	2.522E-02
Axial Runout[5]	-	μm	25 (10)	25 (10)
Radial Runout[5]	-	μm	25 (10)	25 (10)
Max Axial Load (Upright Mounting)[6]	-	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
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.		

Torque-Speed Curve



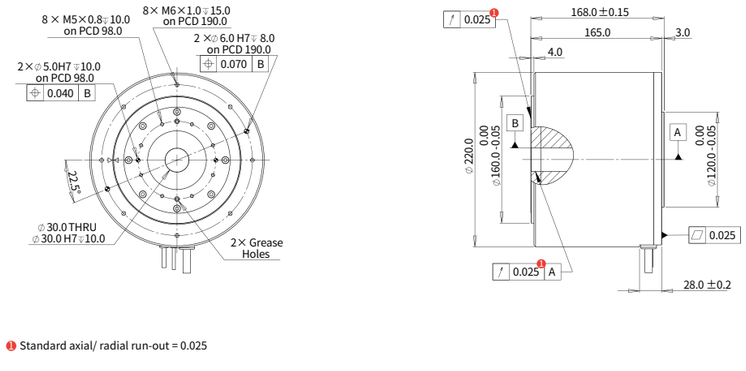


Mounting Illustration



[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
[2] Resistance is measured by DC current with standard 3 m cable.
[3] Inductance is measured by current frequency of 1 kHz.
[4] The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
[5] The runout 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 subjected to change.

Dimension

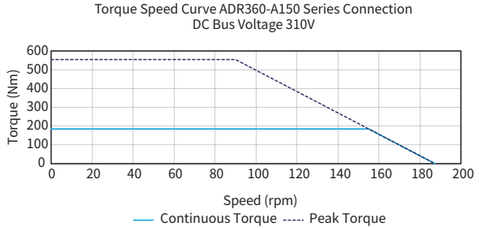


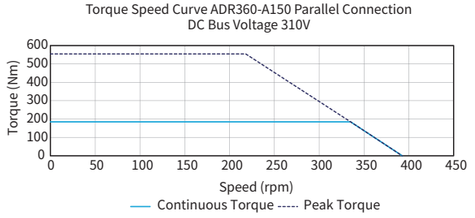
[1] Standard axial/ radial run-out = 0.025

ADR360-A150

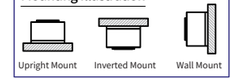
ADR360-A150				
Performance Parameters	**Symbol**	**Unit**	**Series**	**Parallel**
Continuous Torque @100°C[1]	T_{cn}	Nm	184.8	184.8
Peak Torque	T_{pk}	Nm	554.5	554.5
Torque Constant ±10%	K_t	Nm/Arms	18.48	9.24
Back EMF constant ±10%	K_e	Vpeak/rpm	1.580	0.790
Motor Constant @25°C	K_m	Nm/Sqrt(W)	8.64	8.64
Resistance (L-L) @25°C ±10%[2]	R_{25}	Ω	3.05	0.76
Inductance (L-L) ±20%[3]	L	mH	31.70	7.92
Electrical time constant	τ_e	ms	10.40	10.40
Continuous Current @100°C[1]	I_{cn}	Arms	10.0	20.0
Peak Current	I_{pk}	Arms	30.0	60.0
Continuous Power Dissipation @100°C[1]	P_{cn}	W	589.3	589.3
Max. Coil Temperature	T_{max}	°C	100.0	100.0
Thermal Dissipation Constant[1]	K_{thn}	W/°C	7.9	7.9
Max. Bus Voltage	U_{bus}	Vdc	600.0	600.0
Pole Number	p	-	32	32
Rec. Max Speed @230V AC[4]	Ω_{max}	rpm	90	220
Mechanical Parameters				
Overall Mass	m_n	kg	56.0	56.0
Rotor Inertia	J_r	kg·m²	2.046E-01	2.046E-01
Axial Runout[5]	-	μm	40 (15)	40 (15)
Radial Runout[5]	-	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
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.		

Torque-Speed Curve



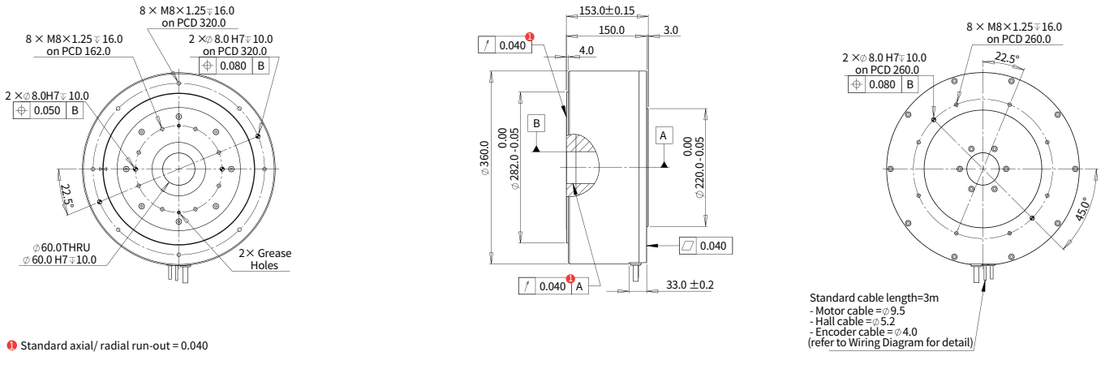


Mounting Illustration



[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
[2] Resistance is measured by DC current with standard 3 m cable.
[3] Inductance is measured by current frequency of 1 kHz.
[4] The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
[5] The runout 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 subjected to change.

Dimension

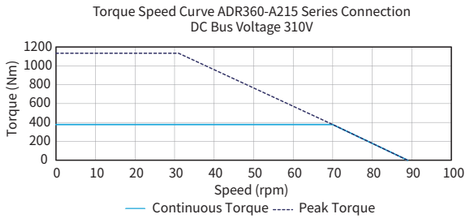


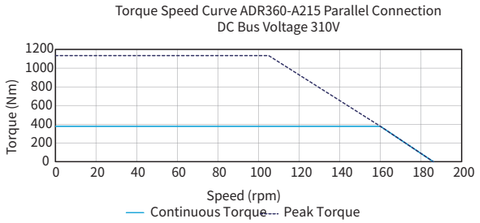
[1] Standard axial/ radial run-out = 0.040

ADR360-A215

ADR360-A215				
Performance Parameters	**Symbol**	**Unit**	**Series**	**Parallel**
Continuous Torque @100°C [1]	T_{cn}	Nm	377.9	377.9
Peak Torque	T_{pk}	Nm	1133.8	1133.8
Torque Constant ±10%	K_t	Nm/Arms	37.79	18.90
Back EMF constant ±10%	K_e	Vpeak/rpm	3.230	1.615
Motor Constant @25°C	K_m	Nm/Sqrt(W)	13.45	13.80
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	10.0	20.0
Peak Current	I_{pk}	Arms	30.0	60.0
Continuous Power Dissipation @100°C [1]	P_{cn}	W	1017.8	966.8
Max. Coil Temperature	T_{max}	°C	100.0	100.0
Thermal Dissipation Constant [1]	K_{thn}	W/°C	13.6	12.9
Max. Bus Voltage	U_{bus}	Vdc	600.0	600.0
Pole Number	p	-	32	32
Rec. Max Speed @230V AC [4]	Ω_{max}	rpm	30	105
Mechanical Parameters				
Overall Mass	m_n	kg	71.0	71.0
Rotor Inertia	J_r	kg·m²	3.223E-01	3.223E-01
Axial Runout [5]	-	µm	40 (15)	40 (15)
Radial Runout [5]	-	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
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.		

■ Torque-Speed Curve

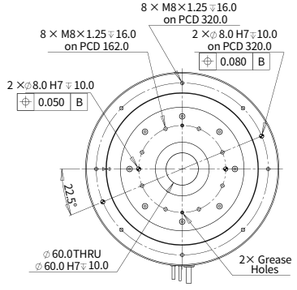


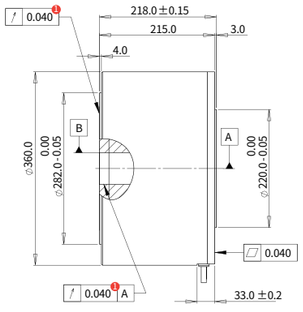


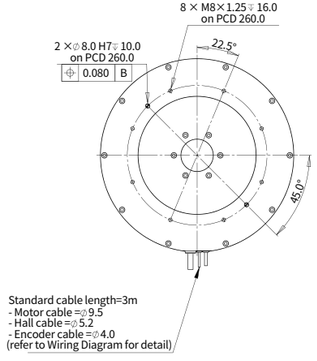
Mounting Illustration

[1] Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
[2] Resistance is measured by DC current with standard 3 m cable.
[3] Inductance is measured by current frequency of 1 kHz.
[4] The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
[5] The runout 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 subjected to change.

■ Dimension

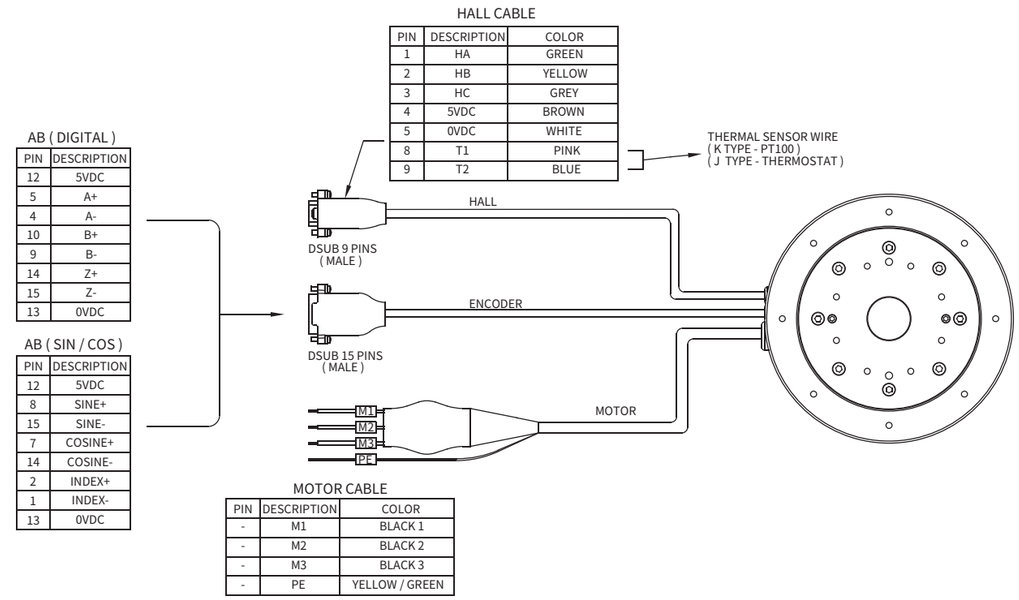






[1] Standard axial/ radial run-out = 0.040

Motor Cable Connection



Part Numbering

ADR110-A98 -S-J-H9D-3.0-FB-AB-3005-SINCOS-P15

- Motor: ADR110 / ADR135
- Model: ADR110-A75 / A98; ADR135-A90 /A115
- UL Compliance: U [1] / (blank) [2]
- Winding: S=Series / P=Parallel
- Thermal Sensor: J=Thermostat(standard) / K=PT100(RTD)
- Hall Cable Options: H9D [3] / NH [4]
- Runout: [6] P5 / P10 / P15
- Interpolation Options: SINCOS 80X / 160X / 400X
- Encoder Options: AB-3005
- Motor Cable Options: FB [5]
- Cable Length (m): 3.0

[1] U=UL-complied version (and CE-complied)
[2] (blank)= standard, only CE-complied
[3] H9D= With Built-in hall sensor, comes with 9-Pins D-Sub Connector
[4] NH= Without Built-in Hall Sensor but with Thermal Sensor
[5] FB = With ferrite bead
[6] P5 = Axial Runout 5um, Radial Runout is 5um.
P10 = Axial Runout 10um, Radial Runout is 10um
P15=Axial Runout 15um, Radial Runout is 15um.

ADR-A Series

ADR175-A138[ ]-S-J-H9D-3.0-FB-AB-4103-80X-P10

- Motor: ADR175 / ADR220
- Model: ADR175-A102 / A138 ADR220-A120/A165
- UL Compliance: U[1] /(blank)[2]
- Winding: S=Series / P=Parallel
- Thermal Sensor: J=Thermostat(standard) / K=PT100(RTD)
- Hall Cable Options: H9D[3] / NH[4]
- Runout:[6] P10 P15 P20 P25
- Interpolation Options: SINCOS 80X / 160X / 400X
- Encoder Options: AB-4103
- Motor Cable Options: FB[5]
- Cable Length (m): 3.0

1. U=UL-complied version (and CE-complied)
2. (blank)= standard, only CE-complied
3. H9D= With Built-in hall sensor, comes with 9-Pins D-Sub Connector
4. NH= Without Built-in Hall Sensor but with Thermal Sensor
5. FB = With ferrite bead
6. ADR175 / ADR220 : P10 = Axial Runout 10um, Radial Runout is 10um
   ADR175 : P15=Axial Runout 15um, Radial Runout is 15um.
   ADR175 : P20 = Axial Runout 20um, Radial Runout is 20um.
   ADR220 : P25 = Axial Runout 25um, Radial Runout is 25um.

ADR360-A150[ ]-S-J-H9D-3.0-FB-AB-7500-400X-P15

- Motor: ADR360
- Model: A150 / A215
- UL Compliance: U[1] /(blank)[2]
- Winding: S=Series / P=Parallel
- Thermal Sensor: J=Thermostat(standard) / K=PT100(RTD)
- Hall Cable Options: H9D[3] / NH[4]
- Runout:[6] P15 / P40
- Interpolation Options: SINCOS 80X / 160X / 400X
- Encoder Options: AB-7500
- Motor Cable Options: FB[5]
- Cable Length (m): 3.0

1. U=UL-complied version (and CE-complied)
2. (blank)= standard, only CE-complied
3. H9D= With Built-in hall sensor, comes with 9-Pins D-Sub Connector
4. NH= Without Built-in Hall Sensor but with Thermal Sensor
5. FB = With ferrite bead
6. P15=Axial Runout 15um, Radial Runout is 15um.
   P40=Axial Runout 40um, Radial Runout is 40um.

TDS Precision Products

TDS Precision Products GmbH
Industriestrasse 1a
CH-8157 Dielsdorf

T + 41 44 885 30 80
info@tds-pp.com
www.tds-pp.com