

# ADR-A SERIES

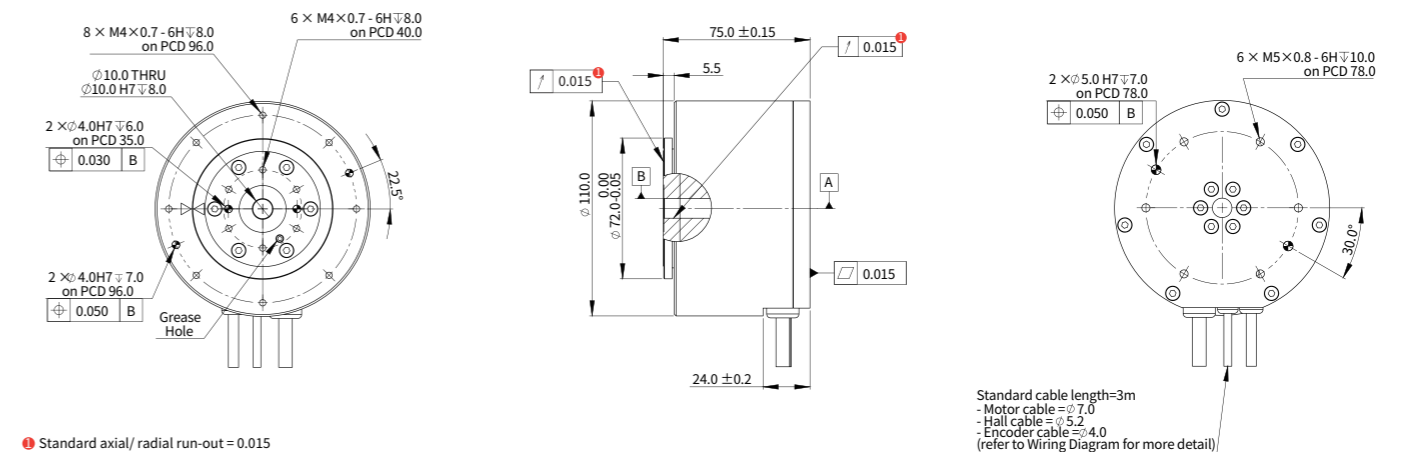
- ▶ Direct drive brushless motor
- ▶ Fully integrated with encoder and bearing
- ▶ Low cogging torque
- ▶ Precise homing through index pulse
- ▶ Low speed and high speed windings

## ADR110-A75

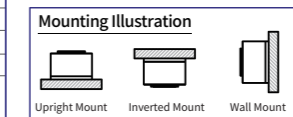
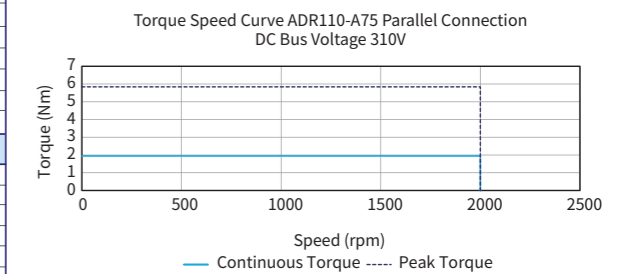
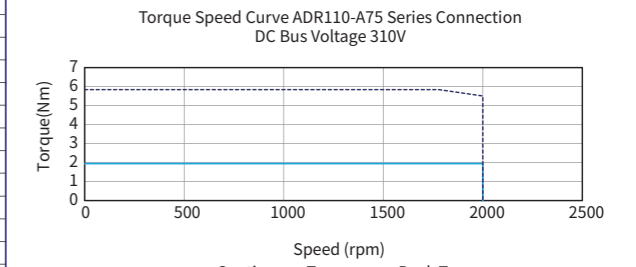
ADR110-A75				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	1.9	1.9
Peak Torque	T <sub>pk</sub>	Nm	5.8	5.8
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	0.65	0.32
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	0.055	0.028
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	0.30	0.30
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	3.20	0.80
Inductance (L-L) ±20%	L	mH	17.15	4.29
Electrical time constant	τ <sub>e</sub>	ms	5.36	5.36
Continuous Current @100°C	I <sub>cn</sub>	Arms	3.0	6.0
Peak Current	I <sub>pk</sub>	Arms	9.0	18.0
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	55.7	55.7
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	0.7	0.7
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	1700	2000
Mechanical Parameters				
Overall Mass	m <sub>n</sub>	kg	3.20	3.20
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	3.086E-04	3.086E-04
Axial Runout	-	μm	15 (10,5)	15 (10,5)
Radial Runout	-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting)	-	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	-	arc sec	+/-5.4	+/-5.4
Repeatability	-	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.

### Dimension



### Torque-Speed Curve

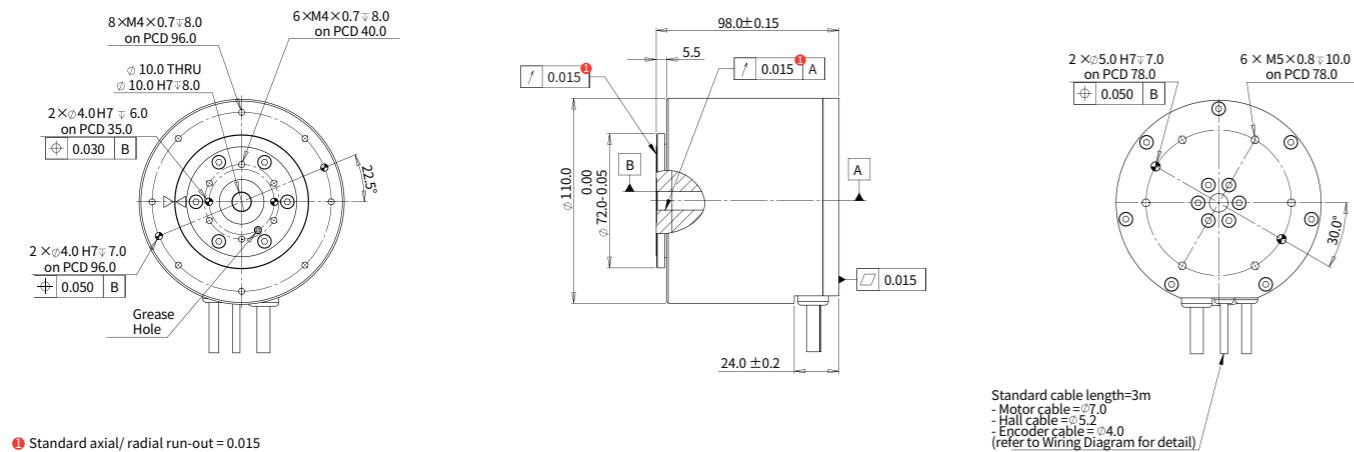


ADR110-A98

ADR110-A98				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	4.2	4.2
Peak Torque	T <sub>pk</sub>	Nm	12.6	12.6
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	1.40	0.70
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	0.119	0.060
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	0.51	0.52
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	4.90	1.21
Inductance (L-L) ±20%	L	mH	26.26	6.49
Electrical time constant	τ <sub>e</sub>	ms	5.36	5.36
Continuous Current @100°C	I <sub>cn</sub>	Arms	3.0	6.0
Peak Current	I <sub>pk</sub>	Arms	9.0	18.0
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	85.3	84.2
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	1.1	1.1
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	1000	2000
Mechanical Parameters				
Overall Mass	m <sub>n</sub>	kg	4.60	4.60
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	4.419E-04	4.419E-04
Axial Runout	-	μm	15 (10,5)	15 (10,5)
Radial Runout	-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting)	-	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	-	arc sec	+/-5.4	+/-5.4
Repeatability	-	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.			

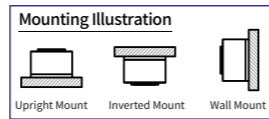
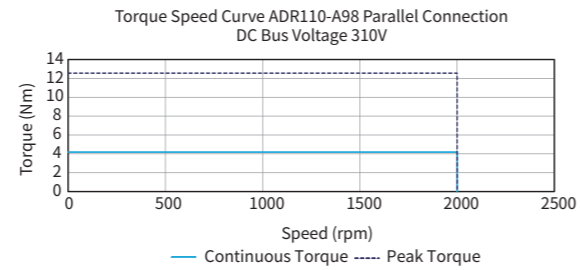
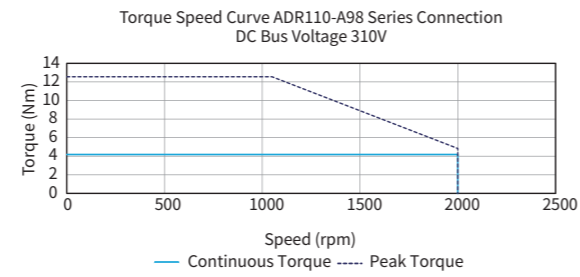
- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - Resistance is measured by DC current with standard 3 m cable.
  - Inductance is measured by current frequency of 1 kHz.
  - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
  - The runout value in parenthesis is optional.
  - Please refer to the illustration for different mountings.
  - Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
- The contents of datasheet are subjected to change.

Dimension



● Standard axial/ radial run-out = 0.015

Torque-Speed Curve

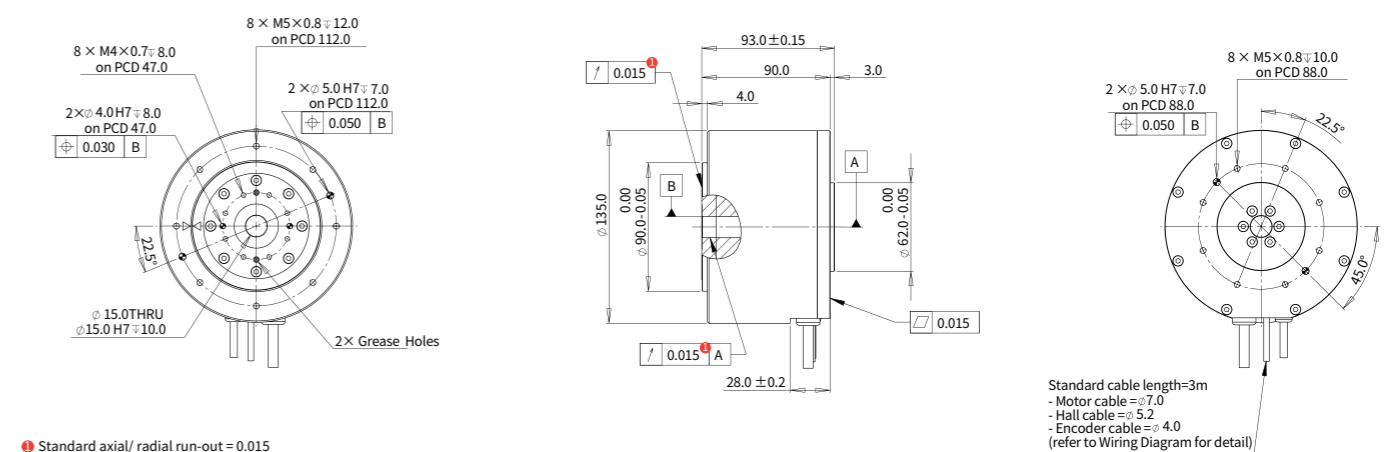


ADR135-A90

ADR135-A90				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	5.2	5.2
Peak Torque	T <sub>pk</sub>	Nm	15.5	15.5
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	1.72	0.86
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	0.147	0.074
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	0.55	0.55
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	6.60	1.65
Inductance (L-L) ±20%	L	mH	45.30	11.20
Electrical time constant	τ <sub>e</sub>	ms	6.86	6.79
Continuous Current @100°C	I <sub>cn</sub>	Arms	3.0	6.0
Peak Current	I <sub>pk</sub>	Arms	9.0	18.0
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	114.9	114.9
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	1.5	1.5
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	630	1350
Mechanical Parameters				
Overall Mass	m <sub>n</sub>	kg	4.80	4.80
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	9.916E-04	9.916E-04
Axial Runout	-	μm	15 (10,5)	15 (10,5)
Radial Runout	-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting)	-	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	-	arc sec	+/-5.4	+/-5.4
Repeatability	-	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.			

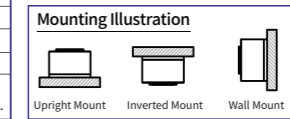
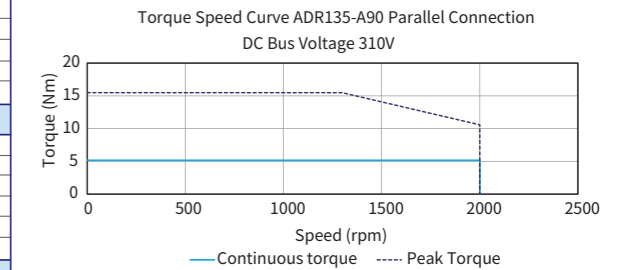
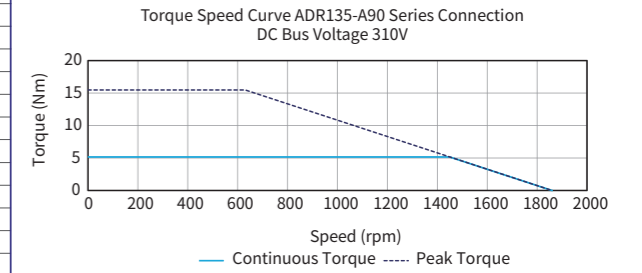
- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - Resistance is measured by DC current with standard 3 m cable.
  - Inductance is measured by current frequency of 1 kHz.
  - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
  - The runout value in parenthesis is optional.
  - Please refer to the illustration for different mountings.
  - Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
- The contents of datasheet are subjected to change.

Dimension



● Standard axial/ radial run-out = 0.015

Torque-Speed Curve

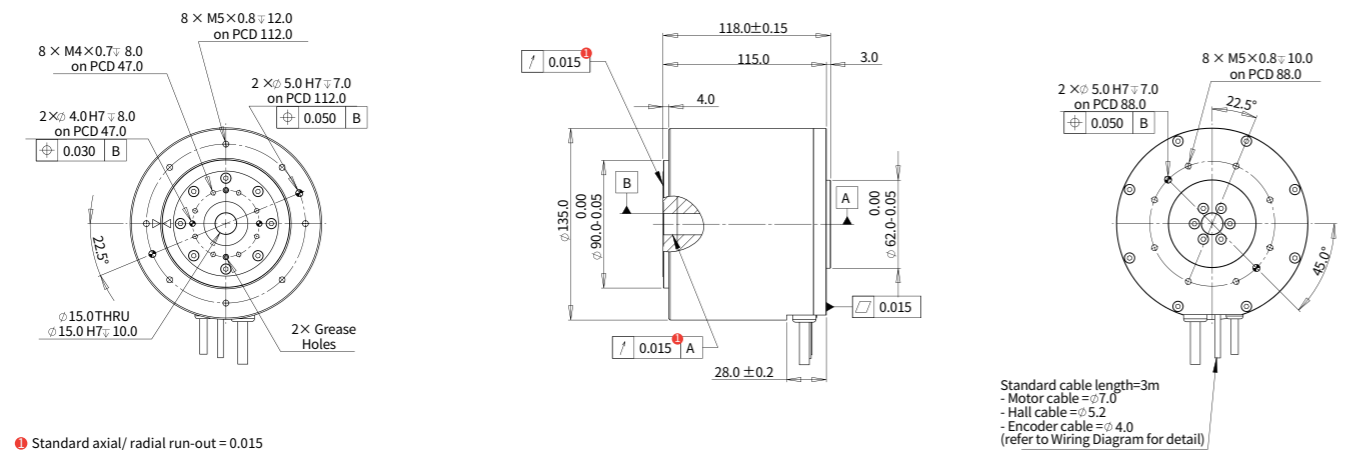


ADR135-A115

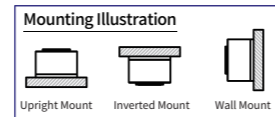
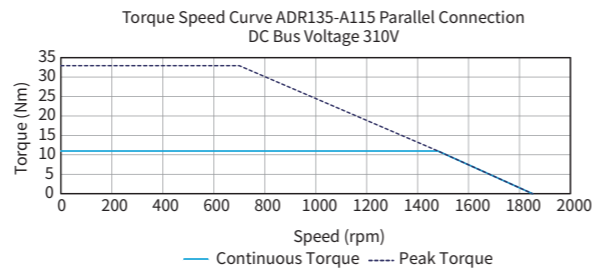
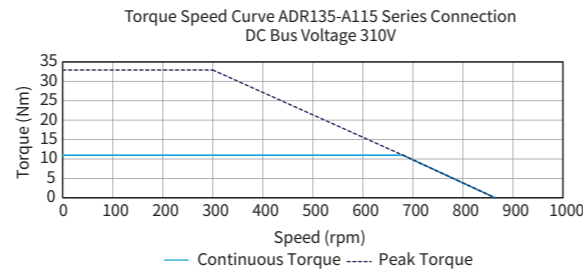
ADR135-A115				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	11.0	11.0
Peak Torque	T <sub>pk</sub>	Nm	32.9	32.9
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	3.66	1.83
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	0.313	0.156
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	0.91	0.91
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	10.70	2.70
Inductance (L-L) ±20%	L	mH	72.76	18.63
Electrical time constant	τ <sub>e</sub>	ms	6.80	6.90
Continuous Current @100°C	I <sub>cn</sub>	Arms	3.0	6.0
Peak Current	I <sub>pk</sub>	Arms	9.0	18.0
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	186.2	187.9
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	2.5	2.5
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	330	745
Mechanical Parameters				
Overall Mass	m <sub>n</sub>	kg	4.90	4.90
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	1.332E-03	1.332E-03
Axial Runout	-	μm	15 (10,5)	15 (10,5)
Radial Runout	-	μm	15 (10,5)	15 (10,5)
Max Axial Load (Upright Mounting)	-	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	-	arc sec	+/-5.4	+/-5.4
Repeatability	-	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.

Dimension



Torque-Speed Curve

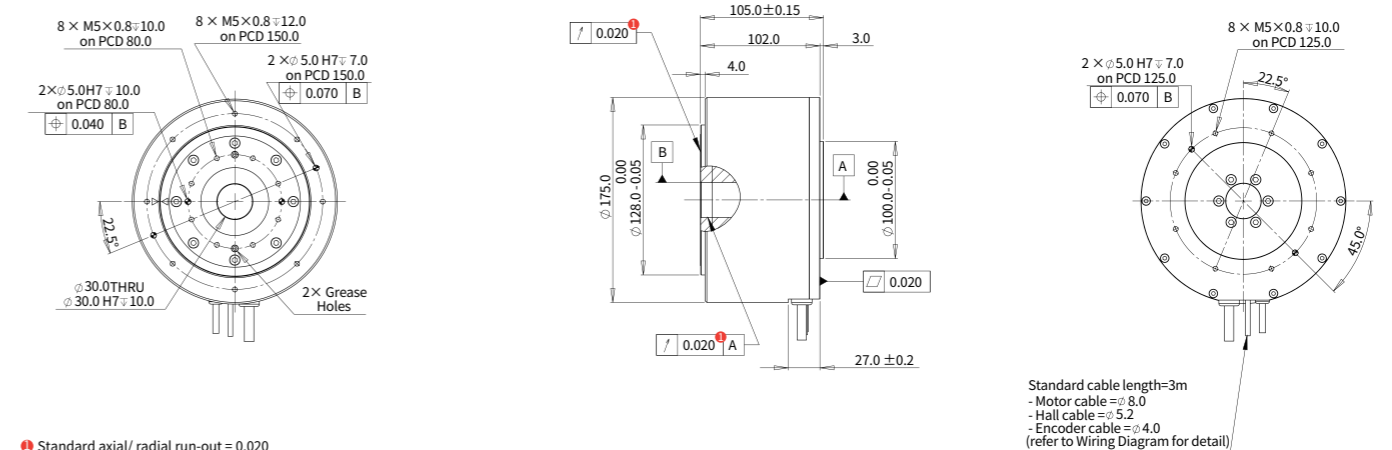


ADR175-A102

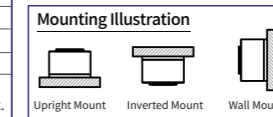
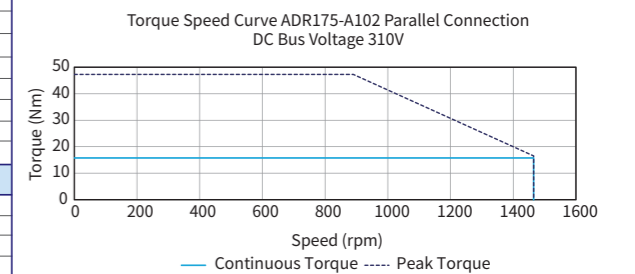
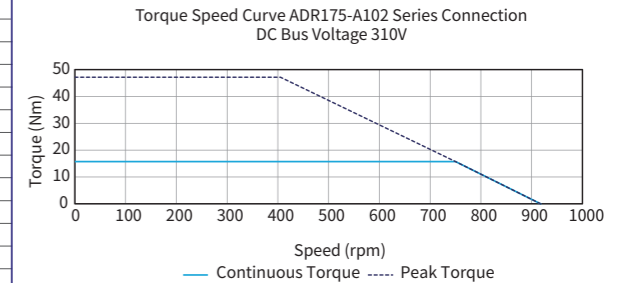
ADR175-A102				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	15.7	15.7
Peak Torque	T <sub>pk</sub>	Nm	47.2	47.2
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	3.93	1.97
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	0.336	0.168
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	1.40	1.41
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	5.27	1.30
Inductance (L-L) ±20%	L	mH	45.72	11.27
Electrical time constant	τ <sub>e</sub>	ms	8.67	8.67
Continuous Current @100°C	I <sub>cn</sub>	Arms	4.0	8.0
Peak Current	I <sub>pk</sub>	Arms	12.0	24.0
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	163.1	160.9
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	2.2	2.1
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	400	880
Mechanical Parameters				
Overall Mass	m <sub>n</sub>	kg	8.5	8.5
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	5.422E-03	5.422E-03
Axial Runout	-	μm	20 (15,10)	20 (15,10)
Radial Runout	-	μm	20 (15,10)	20 (15,10)
Max Axial Load (Upright Mounting)	-	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	-	arc sec	+/-4	+/-4
Repeatability	-	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 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



Torque-Speed Curve



ADR175-A138

ADR175-A138				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	32.9	32.9
Peak Torque	T <sub>pk</sub>	Nm	98.6	98.6
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	8.22	4.11
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	0.703	0.351
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	2.33	2.30
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	8.30	2.13
Inductance (L-L) ±20%	L	mH	72.00	18.51
Electrical time constant	τ <sub>e</sub>	ms	8.67	8.67
Continuous Current @100°C	I <sub>cn</sub>	Arms	4.0	8.0
Peak Current	I <sub>pk</sub>	Arms	12.0	24.0
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	256.8	264.2
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	3.4	3.5
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0
Pole Number	p	-	16	16
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	195	470

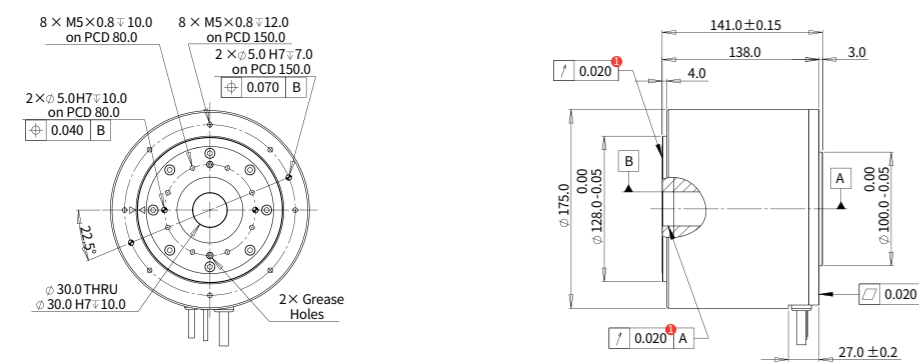
Mechanical Parameters				
Overall Mass	m <sub>n</sub>	kg	12.7	12.7
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	7.621E-03	7.621E-03
Axial Runout	-	μm	20 (15,10)	20 (15,10)
Radial Runout	-	μm	20 (15,10)	20 (15,10)
Max Axial Load (Upright Mounting)	-	N	2310	2310
Max Axial Load (Inverted / Wall mounting)	-	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	-	arc sec	+/-4	+/-4
Repeatability	-	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.			

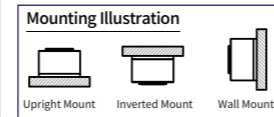
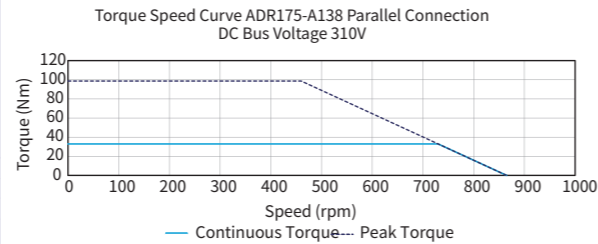
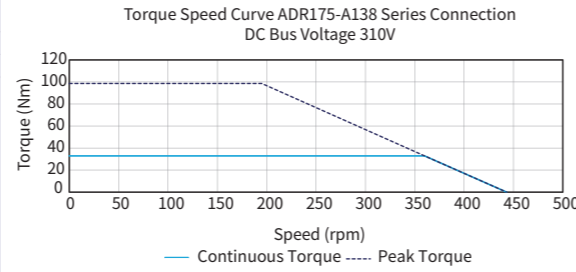
- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - Resistance is measured by DC current with standard 3 m cable.
  - Inductance is measured by current frequency of 1 kHz.
  - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
  - The runout value in parenthesis is optional.
  - Please refer to the illustration for different mountings.
  - Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
- The contents of datasheet are subjected to change.

Dimension



Standard axial/ radial run-out = 0.020

Torque-Speed Curve



ADR220-A120

ADR220-A120				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	46.0	46.0
Peak Torque	T <sub>pk</sub>	Nm	137.9	137.9
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	8.51	2.84
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	0.727	0.242
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	2.87	2.69
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	5.87	0.74
Inductance (L-L) ±20%	L	mH	53.60	6.30
Electrical time constant	τ <sub>e</sub>	ms	9.13	8.51
Continuous Current @100°C	I <sub>cn</sub>	Arms	5.4	16.2
Peak Current	I <sub>pk</sub>	Arms	16.2	48.6
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	331.0	375.5
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	4.4	5.0
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0
Pole Number	p	-	24	24
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	150	540

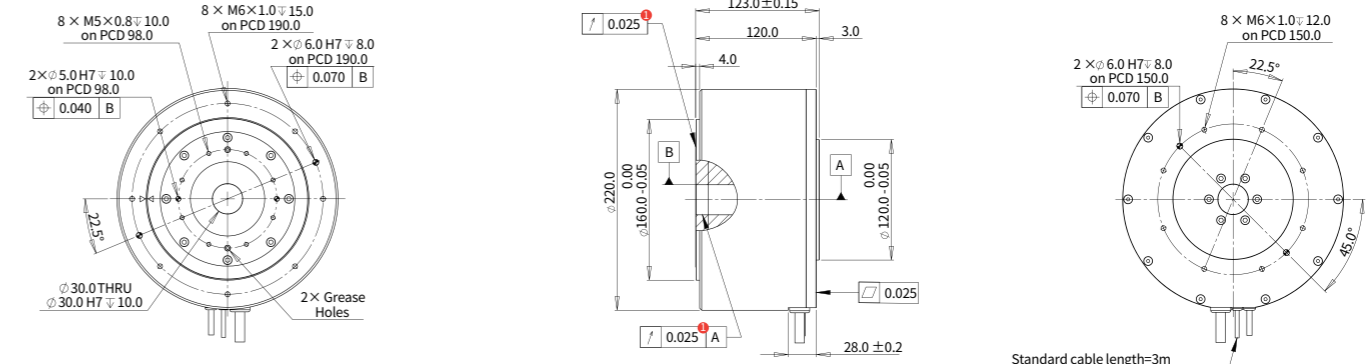
Mechanical Parameters				
Overall Mass	m <sub>n</sub>	kg	18.3	18.3
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	1.786E-02	1.786E-02
Axial Runout	-	μm	25 (10)	25 (10)
Radial Runout	-	μm	25 (10)	25 (10)
Max Axial Load (Upright Mounting)	-	N	2800	2800
Max Axial Load (Inverted / Wall mounting)	-	N	300	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	-	arc sec	+/-4	+/-4
Repeatability	-	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.			

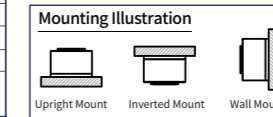
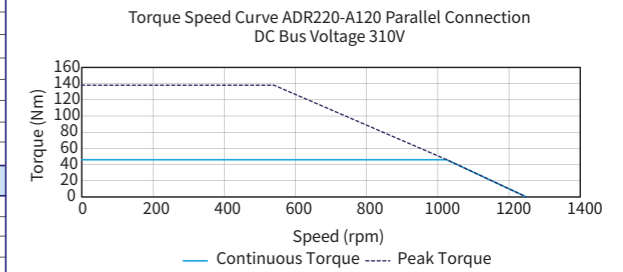
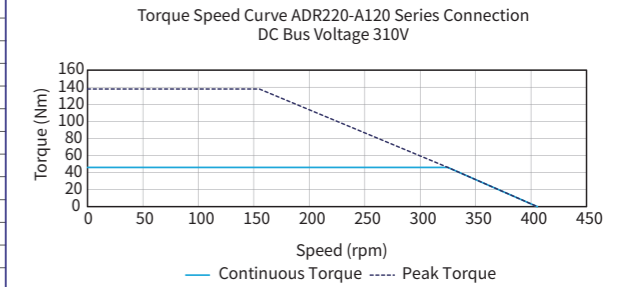
- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - Resistance is measured by DC current with standard 3 m cable.
  - Inductance is measured by current frequency of 1 kHz.
  - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
  - The runout value in parenthesis is optional.
  - Please refer to the illustration for different mountings.
  - Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
- The contents of datasheet are subjected to change.

Dimension



Standard axial/ radial run-out = 0.025

Torque-Speed Curve



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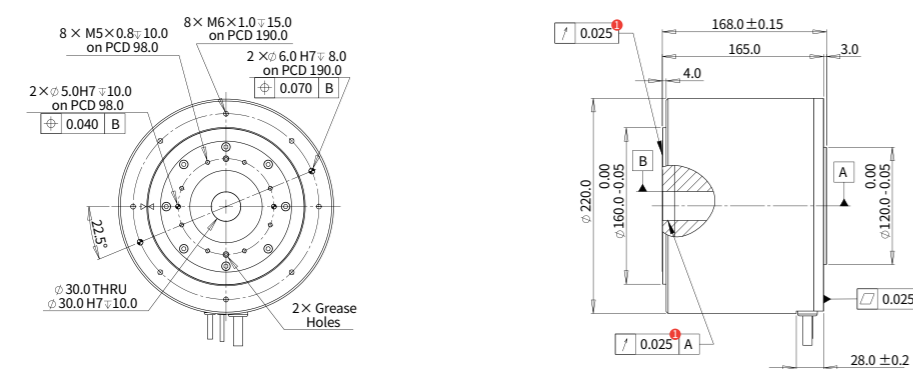
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ADR220-A165

ADR220-A165				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	94.9	94.9
Peak Torque	T <sub>pk</sub>	Nm	284.6	284.6
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	17.57	5.86
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	1.502	0.501
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	4.47	4.37
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	10.32	1.20
Inductance (L-L) ±20%	L	mH	106.70	11.90
Electrical time constant	τ <sub>e</sub>	ms	10.34	9.92
Continuous Current @100°C	I <sub>cn</sub>	Arms	5.4	16.2
Peak Current	I <sub>pk</sub>	Arms	16.2	48.6
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	581.9	608.9
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	7.8	8.1
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0
Pole Number	p	-	24	24
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	50	260
Mechanical Parameters				
Overall Mass	m <sub>n</sub>	kg	24.1	24.1
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	2.522E-02	2.522E-02
Axial Runout	-	μm	25 (10)	25 (10)
Radial Runout	-	μm	25 (10)	25 (10)
Max Axial Load (Upright Mounting)	-	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	-	arc sec	+/-4	+/-4
Repeatability	-	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.			

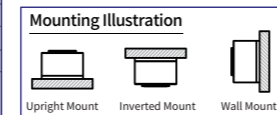
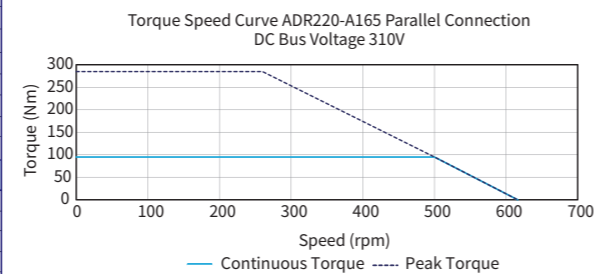
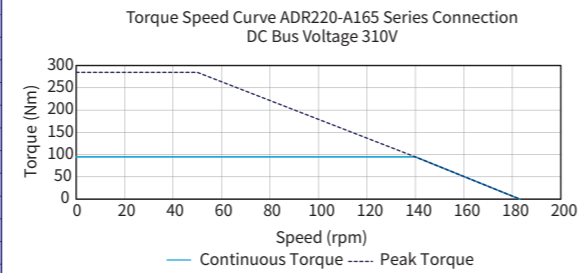
- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - Resistance is measured by DC current with standard 3 m cable.
  - Inductance is measured by current frequency of 1 kHz.
  - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
  - The runout value in parenthesis is optional.
  - Please refer to the illustration for different mountings.
  - Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
- The contents of datasheet are subjected to change.

Dimension



Standard axial/ radial run-out = 0.025

Torque-Speed Curve

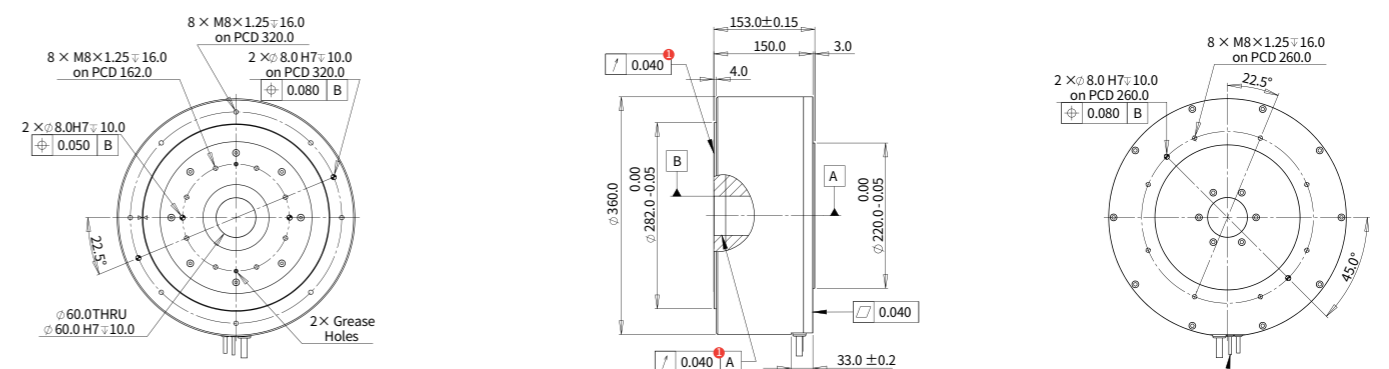


ADR360-A150

ADR360-A150				
Performance Parameters	Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	184.8	184.8
Peak Torque	T <sub>pk</sub>	Nm	554.5	554.5
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	18.48	9.24
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	1.580	0.790
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	8.64	8.64
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	3.05	0.76
Inductance (L-L) ±20%	L	mH	31.70	7.92
Electrical time constant	τ <sub>e</sub>	ms	10.40	10.40
Continuous Current @100°C	I <sub>cn</sub>	Arms	10.0	20.0
Peak Current	I <sub>pk</sub>	Arms	30.0	60.0
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	589.3	589.3
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	7.9	7.9
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0
Pole Number	p	-	32	32
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	90	220
Mechanical Parameters				
Overall Mass	m <sub>n</sub>	kg	56.0	56.0
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	2.046E-01	2.046E-01
Axial Runout	-	μm	40 (15)	40 (15)
Radial Runout	-	μm	40 (15)	40 (15)
Max Axial Load (Upright Mounting)	-	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	-	arc sec	+/-4	+/-4
Repeatability	-	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.			

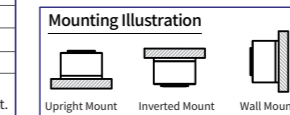
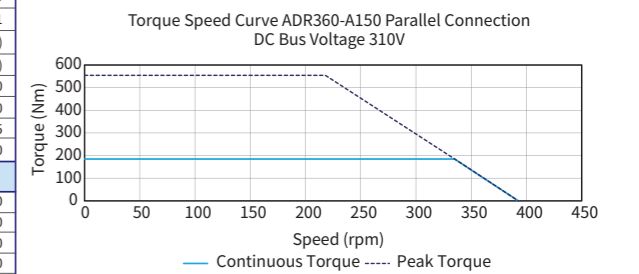
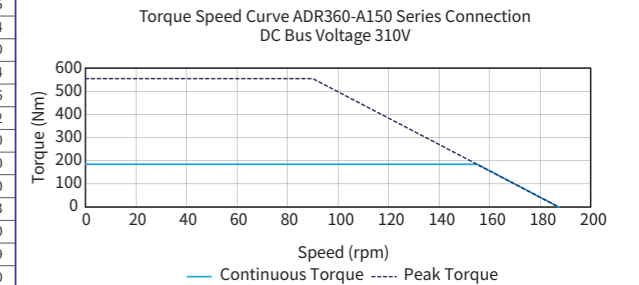
- Measurement is taken at ambient temperature 25°C. Value depends on the thermal environment.
  - Resistance is measured by DC current with standard 3 m cable.
  - Inductance is measured by current frequency of 1 kHz.
  - The value is based on ABI optical SIN/COS encoder (4096x interpolation) under maximum bus voltage.
  - The runout value in parenthesis is optional.
  - Please refer to the illustration for different mountings.
  - Based on ABI optical SIN/COS encoder (4096x interpolation) with standard runout.
- The contents of datasheet are subjected to change.

Dimension



Standard axial/ radial run-out = 0.040

Torque-Speed Curve



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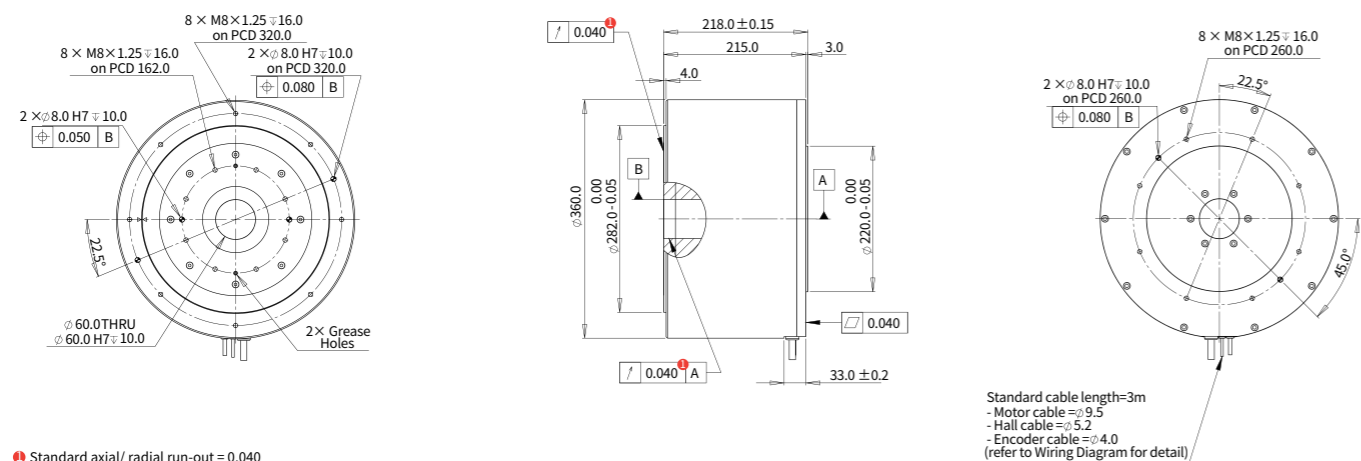
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### ADR360-A215

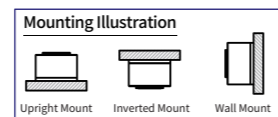
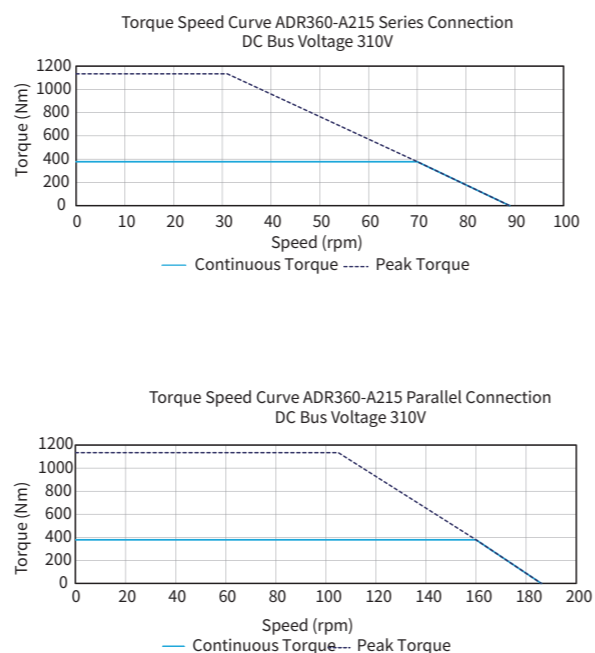
ADR360-A215					
Performance Parameters		Symbol	Unit	Series	Parallel
Continuous Torque @100°C	T <sub>cn</sub>	Nm	377.9	377.9	
Peak Torque	T <sub>pk</sub>	Nm	1133.8	1133.8	
Torque Constant ±10%	K <sub>t</sub>	Nm/Arms	37.79	18.90	
Back EMF constant ±10%	K <sub>e</sub>	Vpeak/rpm	3.230	1.615	
Motor Constant @25°C	K <sub>m</sub>	Nm/Sqrt(W)	13.45	13.80	
Resistance (L-L) @25°C ±10%	R <sub>25</sub>	Ω	5.26	1.25	
Inductance (L-L) ±20%	L	mH	54.74	13.00	
Electrical time constant	τ <sub>e</sub>	ms	10.40	10.40	
Continuous Current @100°C	I <sub>cn</sub>	Arms	10.0	20.0	
Peak Current	I <sub>pk</sub>	Arms	30.0	60.0	
Continuous Power Dissipation @100°C	P <sub>cn</sub>	W	1017.8	966.8	
Max. Coil Temperature	T <sub>max</sub>	°C	100.0	100.0	
Thermal Dissipation Constant	K <sub>thn</sub>	W/°C	13.6	12.9	
Max. Bus Voltage	U <sub>bus</sub>	Vdc	600.0	600.0	
Pole Number	p	-	32	32	
Rec. Max Speed @230V AC	Ω <sub>max</sub>	rpm	30	105	
Mechanical Parameters					
Overall Mass	m <sub>n</sub>	kg	71.0	71.0	
Rotor Inertia	J <sub>r</sub>	kg·m <sup>2</sup>	3.223E-01	3.223E-01	
Axial Runout	-	μm	40 (15)	40 (15)	
Radial Runout	-	μm	40 (15)	40 (15)	
Max Axial Load (Upright Mounting)	-	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	-	arc sec	+/-4	+/-4	
Repeatability	-	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 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.

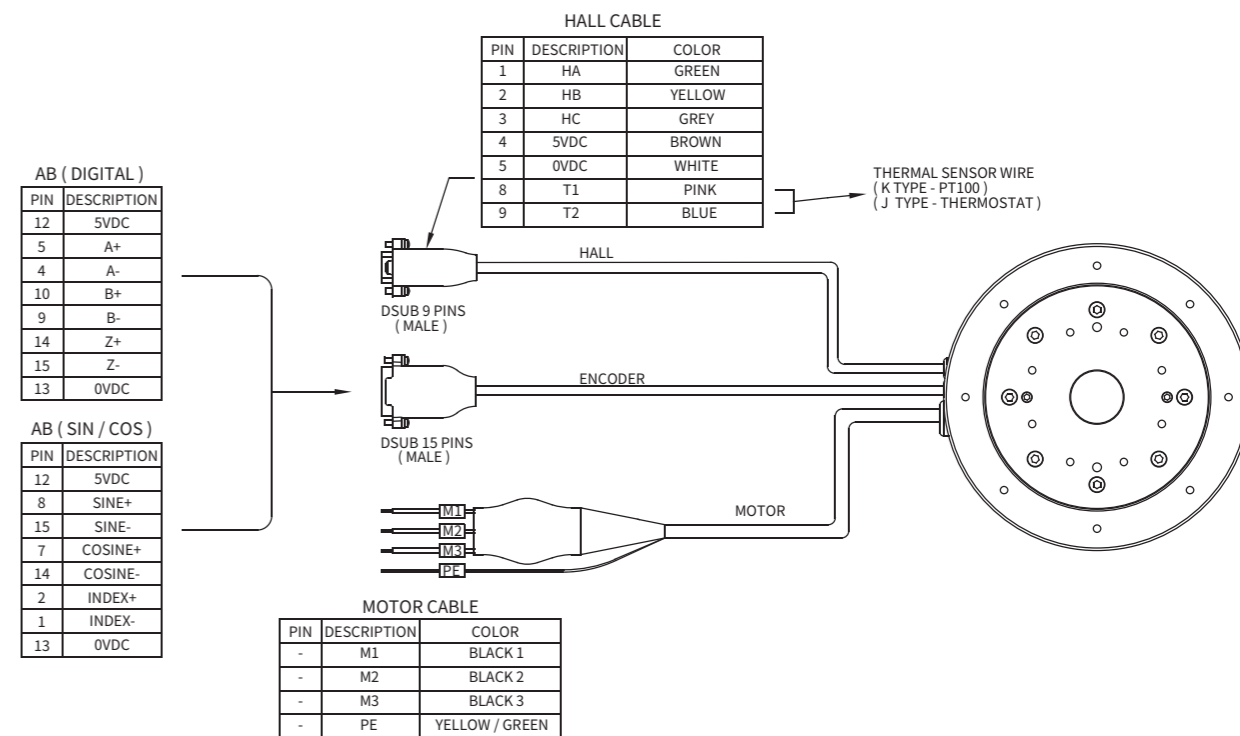
#### Dimension



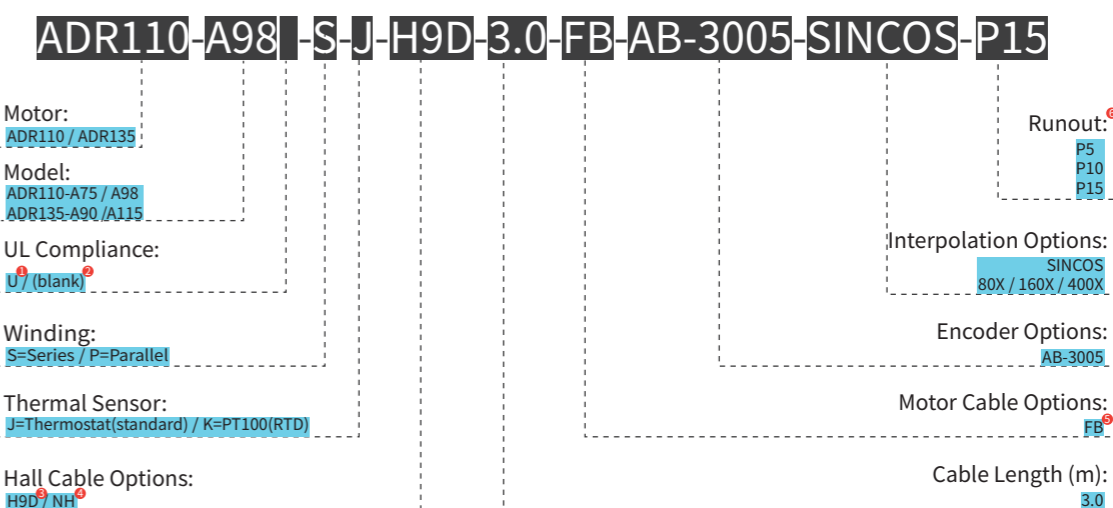
#### Torque-Speed Curve



### Motor Cable Connection



### Part Numbering

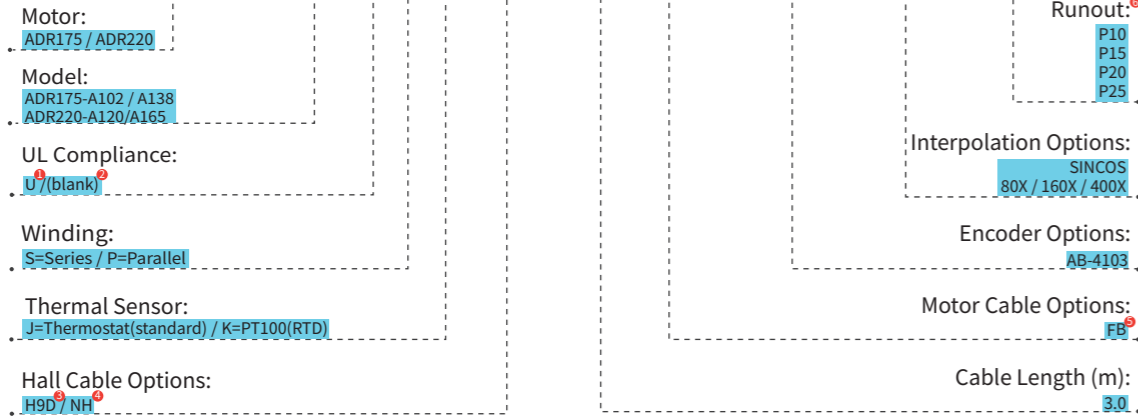


- ① U=UL-complied version (and CE-complied)
- ② (blank)= standard, only CE-complied
- ③ H9D= With Built-in hall sensor, comes with 9-Pins D-Sub Connector
- ④ NH= Without Built-in Hall Sensor but with Thermal Sensor
- ⑤ FB = With ferrite bead
- ⑥ P5 = Axial Runout 5um, Radial Runout is 5um.
- ⑦ P10 = Axial Runout 10um, Radial Runout is 10um
- ⑧ P15=Axial Runout 15um, Radial Runout is 15um.

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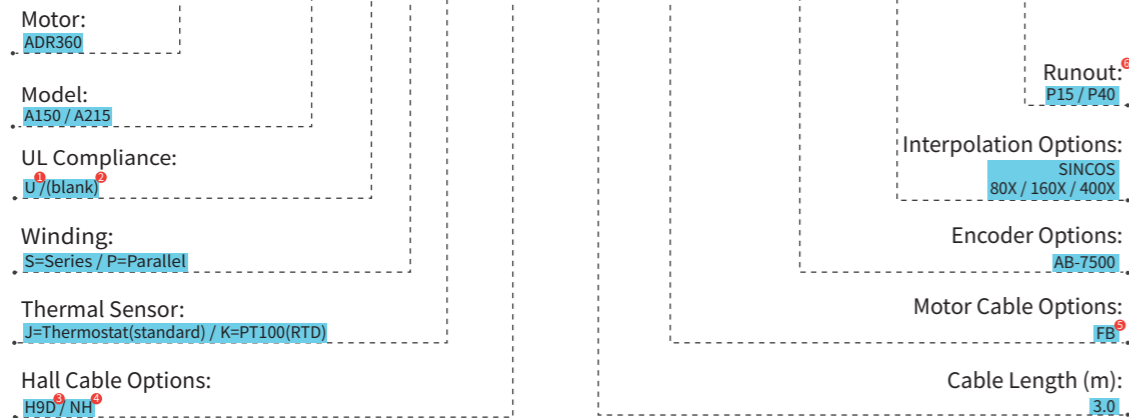
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## ADR175-A138-S-J-H9D-3.0-FB-AB-4103-80X-P10



- 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



- 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.

