



ADR-A Series



Direct drive,
brushless motor



fully integrated
with encoder
and bearing



Low cogging torque



Low speed and high
speed windings



Precise homing
through index pulse

Specifications

ADR110-A

ADR110 Specifications		ADR110-A75		ADR110-A98	
Model	Units	S	P	S	P
Table diameter	mm	110		110	
Table height	mm	75		98	
Number of poles		16		16	
Continuous torque	Nm	1.9	1.9	4.2	4.2
Peak torque	Nm	5.8	5.8	12.6	12.6
Max. cogging torque (peak to peak)	Nm	0.0024	0.0024	0.0049	0.0049
Torque constant	Nm/Arms	0.65	0.32	1.40	0.70
Back EMF constant	Vpeak/rpm	0.055	0.028	0.119	0.060
Continuous current	Arms	3.0	6.0	3.0	6.0
Peak current	Arms	9.0	18.0	9.0	18.0
Continuous thermal power	W	28.8	28.8	44.1	43.6
Peak thermal power	W	259.2	259.2	396.9	392.0
Max bus voltage	Vdc	550.0	550.0	550.0	550.0
Resistance ^①	ohms	3.20	0.80	4.90	1.21
Inductance ^①	mH	17.15	4.29	26.26	6.49
Electrical time constant	ms	5.36	5.36	5.36	5.36
Motor constant	Nm/Sqrt(W)	0.36	0.36	0.63	0.63
Mass	kg	3.20	3.20	4.60	4.60
Rotor Inertia	kg·m ²	0.0003086	0.0003086	0.0004419	0.0004419
Rec. max speed @230V AC ^② (DIGITAL)	rpm	1200	1200	1000	1200
Rec. max speed @230V AC ^② (SINCOS)	rpm	1,700	2,000	1,000	2,000
AB-3005 optical SINCOS encoder	lines	3,005	3,005	3,005	3,005
DIGITAL Resolution (at 64 X interpolation)	Counts/rev	192,320	192,320	192,320	192,320
SINCOS Resolution (at 512 X interpolation)	Counts/rev	1,538,560	1,538,560	1,538,560	1,538,560
SINCOS Resolution (at 4096 X interpolation)	Counts/rev	12,308,480	12,308,480	12,308,480	12,308,480
Accuracy (based on AB-3005)	arc sec	+/-20	+/-20	+/-20	+/-20
Repeatability (based on AB-3005)	arc sec	+/-2.7	+/-2.7	+/-2.7	+/-2.7
Axial runout	um	15 (10,5) ^②			
Radial runout	um	15 (10,5) ^②			
Max axial load ^③	N	700		700	
Max moment load ^③	Nm	20		20	

① Terminal to terminal, at 25 Deg C.

② Limited by Bus Voltage and Encoder Output Frequency.

③ Please contact our sales representative for inverted mount application.

ADR135-A

Specifications

ADR135 Specifications		ADR135-A90		ADR135-A115	
Model	Units	S	P	S	P
Table diameter	mm	135		135	
Table height	mm	90		115	
Number of poles		16		16	
Continuous torque	Nm	5.2	5.2	11.0	11.0
Peak torque	Nm	15.5	15.5	32.9	32.9
Max. cogging torque (peak to peak)	Nm	0.010	0.010	0.022	0.022
Torque constant	Nm/Arms	1.72	0.86	3.66	1.83
Back EMF constant	Vpeak/rpm	0.147	0.074	0.313	0.156
Continuous current	Arms	3.0	6.0	3.0	6.0
Peak current	Arms	9.0	18.0	9.0	18.0
Continuous thermal power	W	59.4	59.4	96.3	97.2
Peak thermal power	W	534.6	534.6	866.7	874.8
Max bus voltage	Vdc	550.0	550.0	550.0	550.0
Resistance ^①	ohms	6.60	1.65	10.70	2.70
Inductance ^①	mH	45.30	11.20	72.76	18.63
Electrical time constant	ms	6.86	6.79	6.80	6.90
Motor constant	Nm/Sqrt(W)	0.67	0.67	1.12	1.11
Mass	kg	4.80	4.80	4.90	4.90
Rotor Inertia	kg·m ²	0.000992	0.000992	0.001332	0.001332
Rec. max speed @230V AC ^② (DIGITAL)	rpm	630	1,200	330	745
Rec. max speed @230V AC ^② (SINCOS)	rpm	630	1,350	330	745
AB-3005 optical SINCOS encoder	lines	3,005	3,005	3,005	3,005
DIGITAL Resolution (at 64 X interpolation)	Counts/rev	192,320	192,320	192,320	192,320
SINCOS Resolution (at 512 X interpolation)	Counts/rev	1,538,560	1,538,560	1,538,560	1,538,560
SINCOS Resolution (at 4096 X interpolation)	Counts/rev	12,308,480	12,308,480	12,308,480	12,308,480
Accuracy (based on AB-3005)	arc sec	+/- 20	+/- 20	+/- 20	+/- 20
Repeatability (based on AB-3005)	arc sec	+/- 2.7	+/- 2.7	+/- 2.7	+/- 2.7
Axial runout	um	15 (10,5) ^②			
Radial runout	um	15 (10,5) ^②			
Max axial load ^③	N	1050		1050	
Max moment load ^③	Nm	35		35	

- ① Terminal to terminal, at 25 Deg C.
- ② Limited by Bus Voltage and Encoder Output Frequency.
- ③ Please contact our sales representative for inverted mount application.

ADR175-A

Specifications

ADR175 Specifications		ADR175-A102		ADR175-A138	
Model	Units	S	P	S	P
Table diameter	mm	175		175	
Table height	mm	102		138	
Number of poles		16		16	
Continuous torque	Nm	15.7	15.7	32.9	32.9
Peak torque	Nm	47.2	47.2	98.6	98.6
Max. cogging torque (peak to peak)	Nm	0.094	0.094	0.197	0.197
Torque constant	Nm/Arms	3.93	1.97	8.22	4.11
Back EMF constant	Vpeak/rpm	0.336	0.168	0.703	0.351
Continuous current	Arms	4.0	8.0	4.0	8.0
Peak current	Arms	12.0	24.0	12.0	24.0
Continuous thermal power	W	84.4	83.2	132.8	136.6
Peak thermal power	W	759.4	748.8	1195.2	1229.7
Max bus voltage	Vdc	550.0	550.0	550.0	550.0
Resistance ^①	ohms	5.27	1.30	8.30	2.13
Inductance ^①	mH	45.72	11.27	72.00	18.51
Electrical time constant	ms	8.67	8.67	8.67	8.67
Motor constant	Nm/Sqrt(W)	1.71	1.72	2.85	2.81
Mass	kg	8.5	8.5	12.7	12.7
Rotor Inertia	kg·m ²	0.005422	0.005422	0.007621	0.007621
Rec. max speed @230V AC ^② (DIGITAL)	rpm	400	880	195	470
Rec. max speed @230V AC ^② (SINCOS)	rpm	400	880	195	470
AB-4103 optical SINCOS encoder	lines	4,103	4,103	4,103	4,103
DIGITAL Resolution (at 64 X interpolation)	Counts/rev	262,592	262,592	262,592	262,592
SINCOS Resolution (at 512 X interpolation)	Counts/rev	2,100,736	2,100,736	2,100,736	2,100,736
SINCOS Resolution (at 4096 X interpolation)	Counts/rev	16,805,888	16,805,888	16,805,888	16,805,888
Accuracy (based on AB-4103)	arc sec	+/- 25	+/- 25	+/- 25	+/- 25
Repeatability (based on AB-4103)	arc sec	+/- 2	+/- 2	+/- 2	+/- 2
Axial runout	um	20 (15,10) ^②			
Radial runout	um	20 (15,10) ^②			
Max axial load ^③	N	2310		2310	
Max moment load ^③	Nm	53		53	

- ① Terminal to terminal, at 25 Deg C.
- ② Limited by Bus Voltage and Encoder Output Frequency.
- ③ Please contact our sales representative for inverted mount application.

ADR220-A

Specifications

ADR220 Specifications		ADR220-A120		ADR220-A165	
Model	Units	S	P	S	P
Table diameter	mm	220		220	
Table height	mm	120		165	
Number of poles		24		24	
Continuous torque	Nm	46.0	46.0	94.9	94.9
Peak torque	Nm	137.9	137.9	284.6	284.6
Max. cogging torque (peak to peak)	Nm	0.357	0.357	0.736	0.736
Torque constant	Nm/Arms	8.51	2.84	17.57	5.86
Back EMF constant	Vpeak/rpm	0.728	0.243	1.502	0.501
Continuous current	Arms	5.40	16.20	5.40	16.20
Peak current	Arms	16.20	48.60	16.20	48.60
Continuous thermal power	W	171.17	194.21	300.93	314.93
Peak thermal power	W	1540.52	1747.85	2708.38	2834.35
Max bus voltage	Vdc	550.0	550.0	550.0	550.0
Resistance ⁽¹⁾	ohms	5.87	0.74	10.32	1.20
Inductance ⁽¹⁾	mH	53.60	6.30	106.70	11.90
Electrical time constant	ms	9.13	8.51	10.34	9.92
Motor constant	Nm/Sqrt(W)	3.51	3.30	5.47	5.35
Mass	kg	18.3	18.3	24.1	24.1
Rotor Inertia	kg·m ²	0.017858	0.017858	0.025216	0.025216
Rec. max speed @230V AC ⁽²⁾ (DIGITAL)	rpm	150	540	50	260
Rec. max speed @230V AC ⁽²⁾ (SINCOS)	rpm	150	540	50	260
AB-4103 optical SINCOS encoder	lines	4,103	4,103	4,103	4,103
DIGITAL Resolution (at 64 X interpolation)	Counts/rev	262,592	262,592	262,592	262,592
SINCOS Resolution (at 512 X interpolation)	Counts/rev	2,100,736	2,100,736	2,100,736	2,100,736
SINCOS Resolution (at 4096 X interpolation)	Counts/rev	16,805,888	16,805,888	16,805,888	16,805,888
Accuracy (based on AB-4103)	arc sec	+/-25	+/-25	+/-25	+/-25
Repeatability (based on AB-4103)	arc sec	+/-2	+/-2	+/-2	+/-2
Axial runout	um	25 (10) ⁽²⁾			
Radial runout	um	25 (10) ⁽²⁾			
Max axial load ⁽³⁾	N	2800		2800	
Max moment load ⁽³⁾	Nm	72		72	

- Terminal to terminal, at 25 Deg C.
- Limited by Bus Voltage and Encoder Output Frequency.
- Please contact our sales representative for inverted mount application.

ADR360-A

Specifications

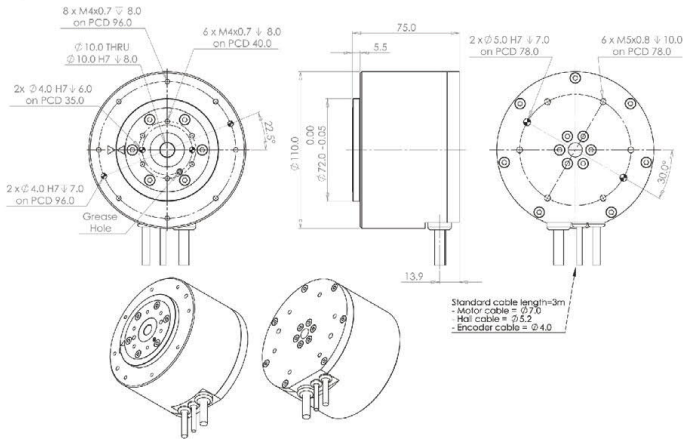
ADR360 Specifications		ADR360-A150		ADR360-A215	
Model	Units	S	P	S	P
Table diameter	mm	360		360	
Table height	mm	150		215	
Number of poles		32		32	
Continuous torque	Nm	184.8	184.8	377.9	377.9
Peak torque	Nm	554.5	554.5	1133.8	1133.8
Max. cogging torque (peak to peak)	Nm	1.980	1.980	4.090	4.090
Torque constant	Nm/Arms	18.48	9.24	37.79	18.90
Back EMF constant	Vpeak/rpm	1.580	0.790	3.231	1.616
Continuous current	Arms	10.00	20.00	10.00	20.00
Peak current	Arms	30.00	60.00	30.00	60.00
Continuous thermal power	W	304.78	304.78	526.37	500.00
Peak thermal power	W	2743.00	2743.00	4737.33	4500.00
Max bus voltage	Vdc	550.0	550.0	550.0	550.0
Resistance ⁽¹⁾	ohms	3.05	0.76	5.26	1.25
Inductance ⁽¹⁾	mH	31.70	7.92	54.74	13.00
Electrical time constant	ms	10.40	10.40	10.40	10.40
Motor constant	Nm/Sqrt(W)	10.59	10.59	16.47	16.90
Mass	kg	56.0	56.0	71.0	71.0
Rotor Inertia	kg·m ²	0.204636	0.204636	0.322304	0.322304
Rec. max speed @230V AC ⁽²⁾ (DIGITAL)	rpm	90	220	30	105
Rec. max speed @230V AC ⁽²⁾ (SINCOS)	rpm	90	220	30	105
AB-7500 optical SINCOS encoder	lines	7,500	7,500	7,500	7,500
DIGITAL Resolution (at 64 X interpolation)	Counts/rev	480,000	480,000	480,000	480,000
SINCOS Resolution (at 512 X interpolation)	Counts/rev	3,840,000	3,840,000	3,840,000	3,840,000
SINCOS Resolution (at 4096 X interpolation)	Counts/rev	30,720,000	30,720,000	30,720,000	30,720,000
Accuracy (based on AB-7500)	arc sec	+/-30	+/-30	+/-30	+/-30
Repeatability (based on AB-7500)	arc sec	+/-2	+/-2	+/-2	+/-2
Axial runout	um	40 (15) ⁽²⁾			
Radial runout	um	40 (15) ⁽²⁾			
Max axial load ⁽³⁾	N	11200		11200	
Max moment load ⁽³⁾	Nm	245		245	

- Terminal to terminal, at 25 Deg C.
- Limited by Bus Voltage and Encoder Output Frequency.
- Please contact our sales representative for inverted mount application.

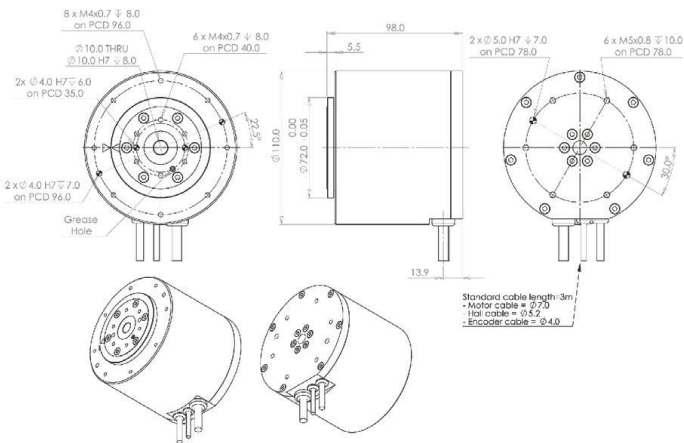
ADR110-A

Dimensions

ADR110-A75



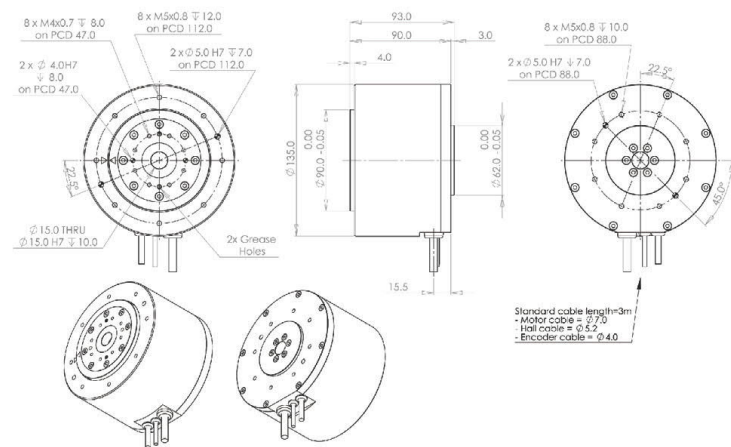
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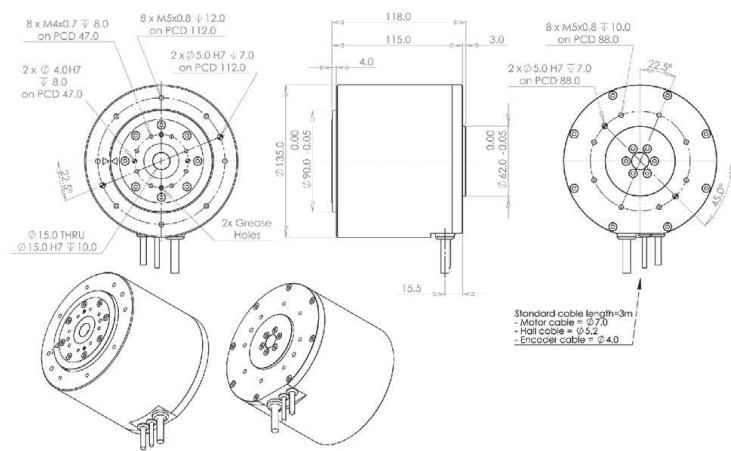
ADR135-A

Dimensions

ADR135-A90



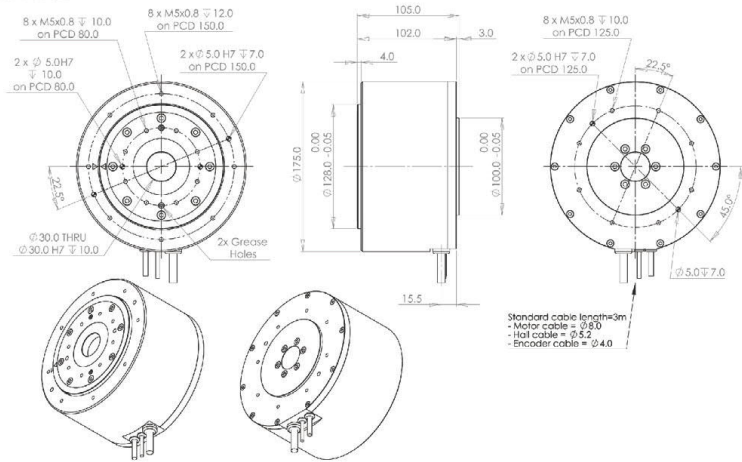
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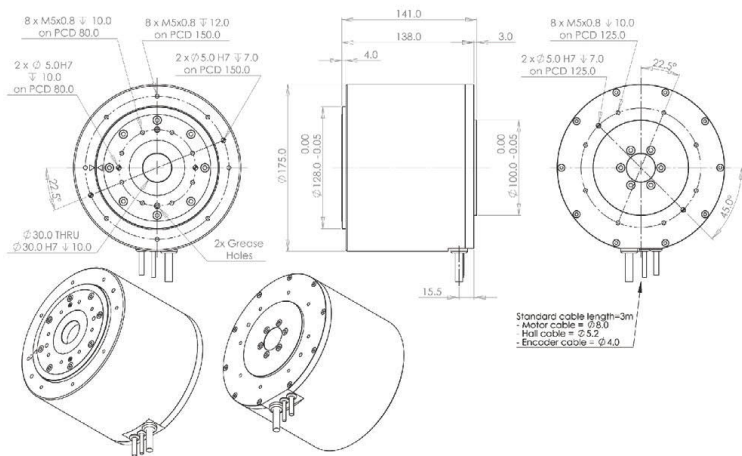
ADR175-A

Dimensions

ADR175-A102



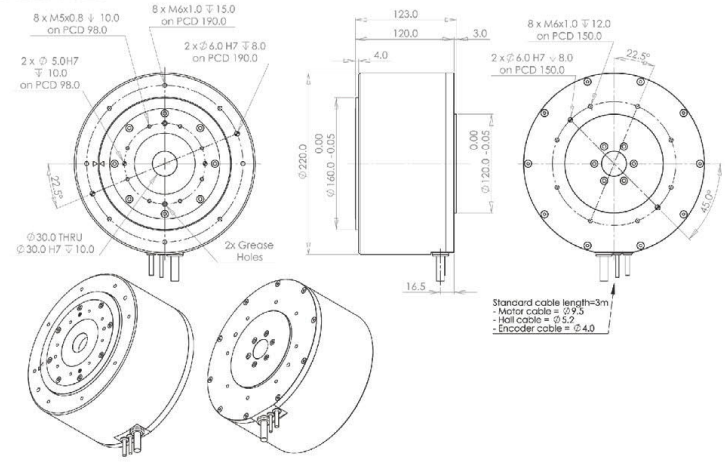
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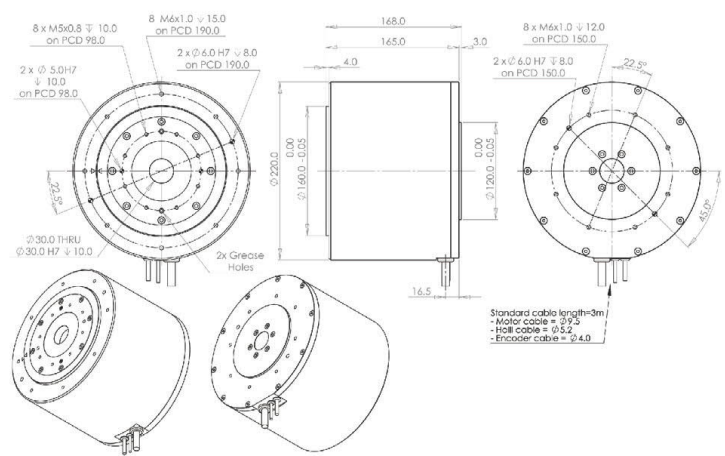
ADR220-A

Dimensions

ADR220-A120



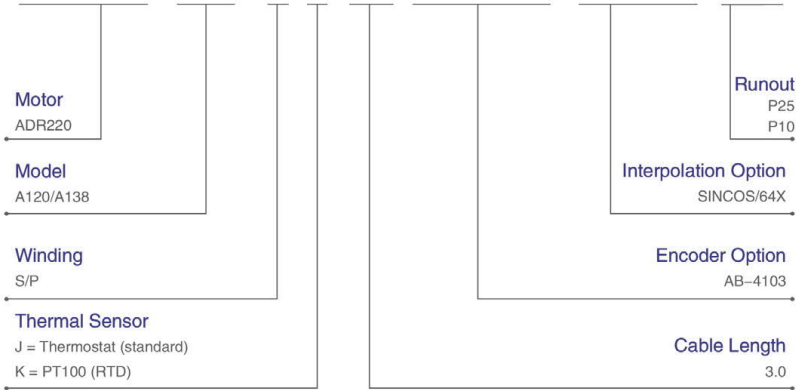
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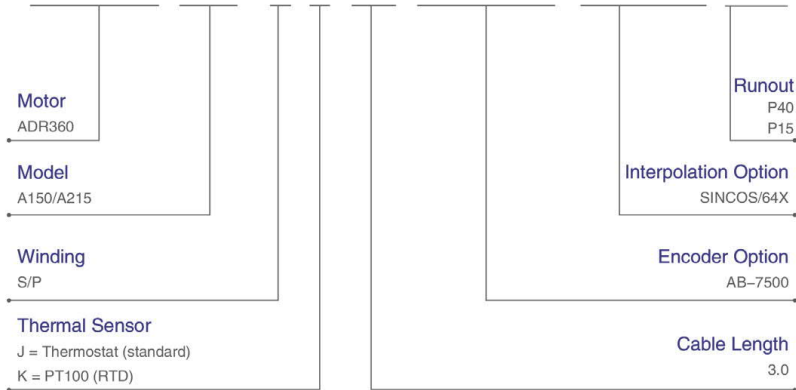
ADR-A

Part Numbering

ADR220-A120-S-J-3.0-AB-4103-SINCOS-P25



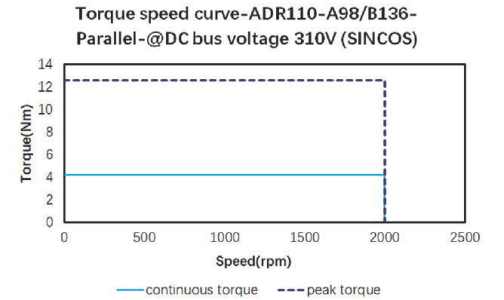
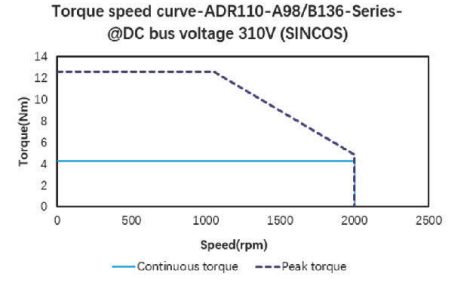
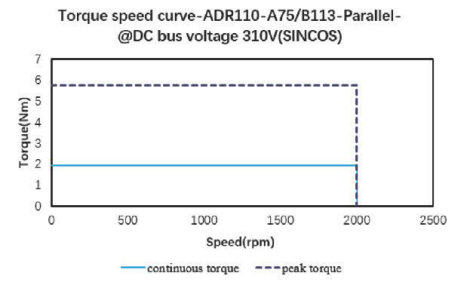
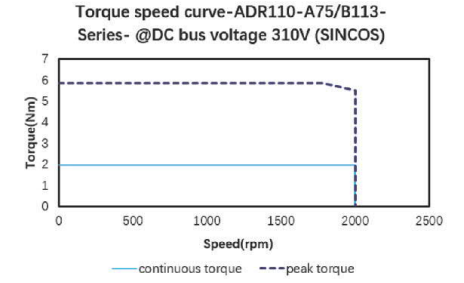
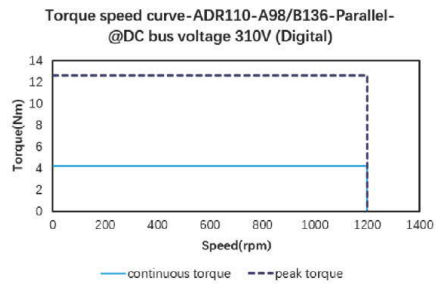
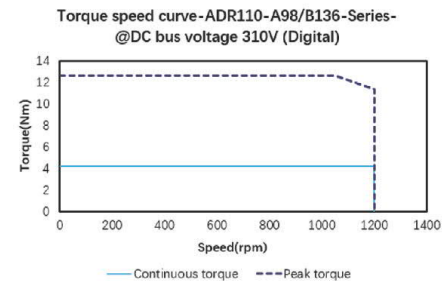
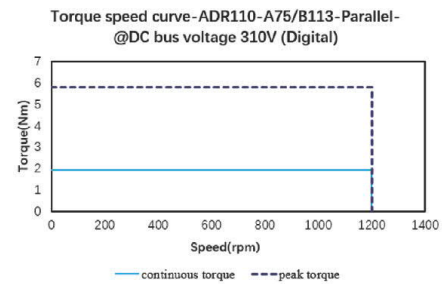
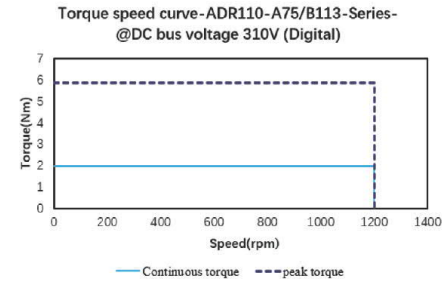
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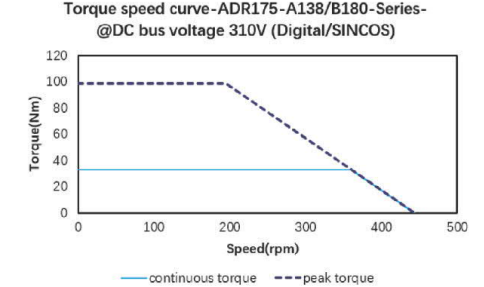
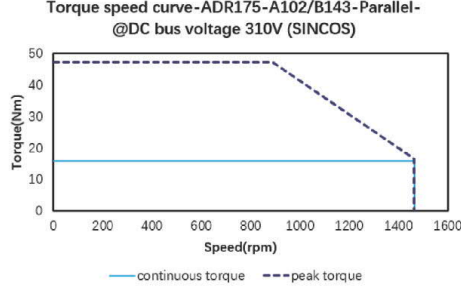
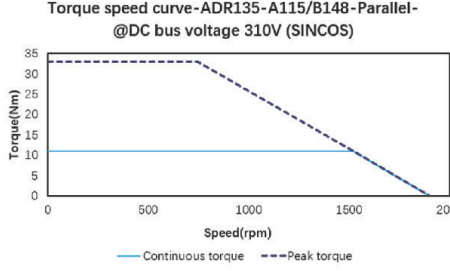
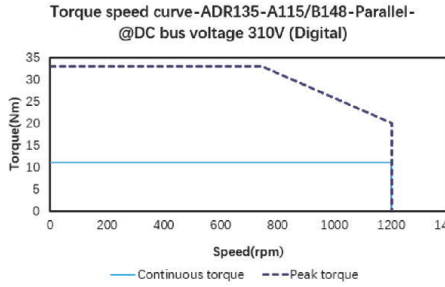
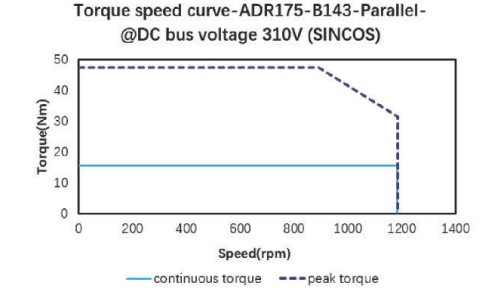
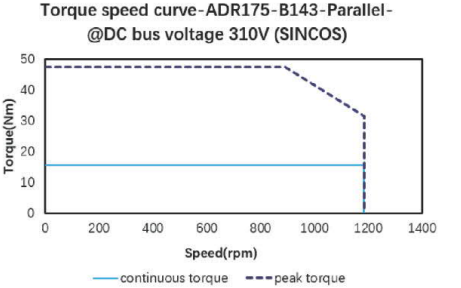
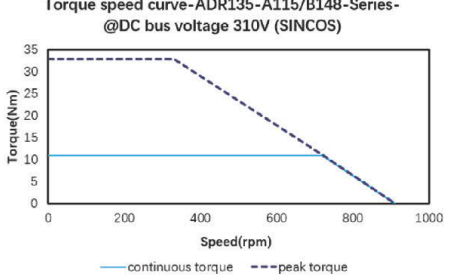
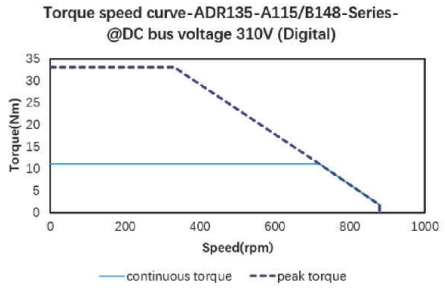
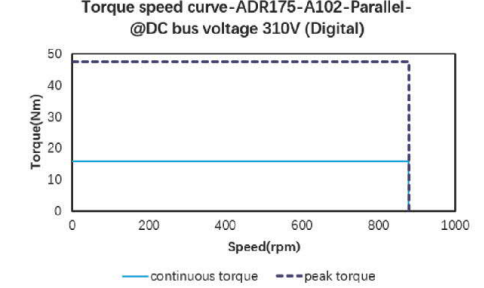
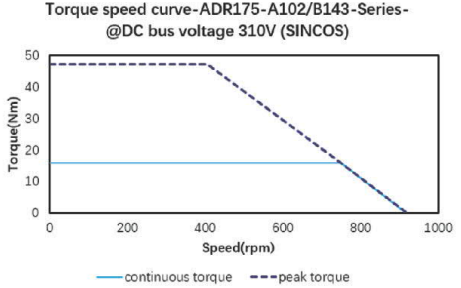
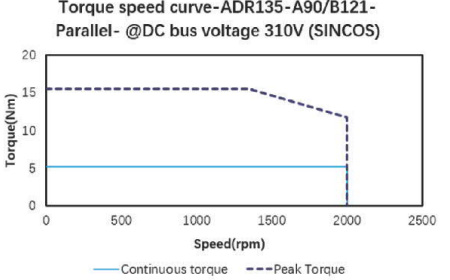
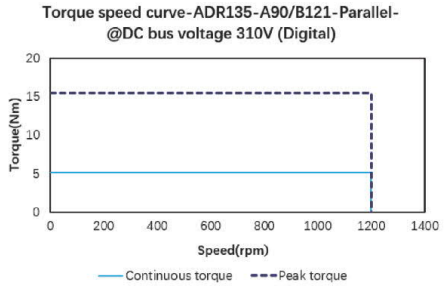
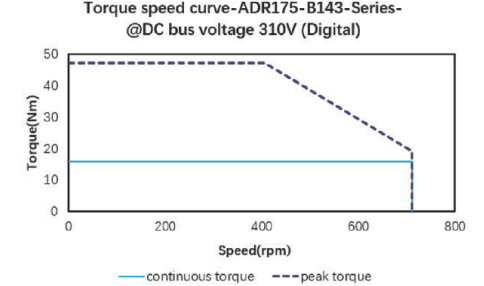
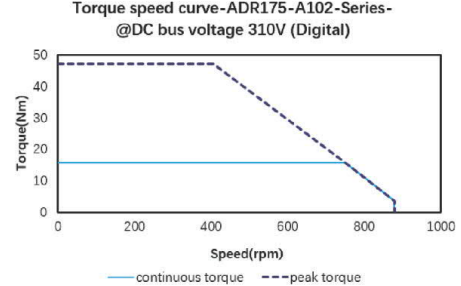
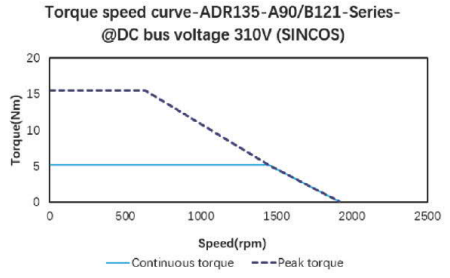
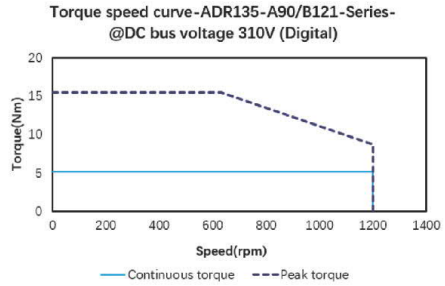


P40 = Axial Runout 40um, Radial Runout is 40um
 P25 = Axial Runout 25um, Radial Runout is 25um
 P20 = Axial Runout 20um, Radial Runout is 20um
 P15 = Axial Runout 15um, Radial Runout is 15um

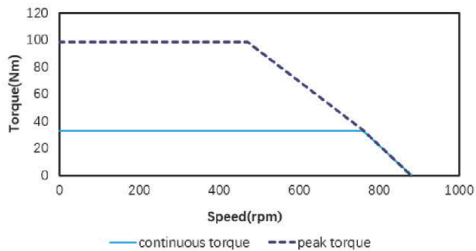
P10 = Axial Runout 10um, Radial Runout is 10um
 P5 = Axial Runout 5um, Radial Runout is 5um

Torque-Speed-Curve

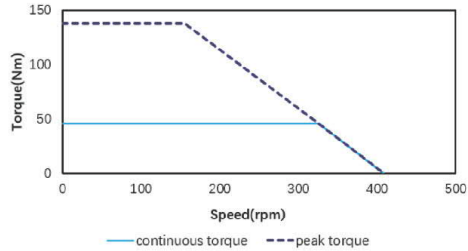




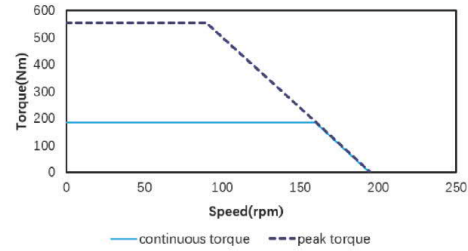
Torque speed curve-ADR175-A138/B180-Parallel-@DC bus voltage 310V (Digital/SINCOS)



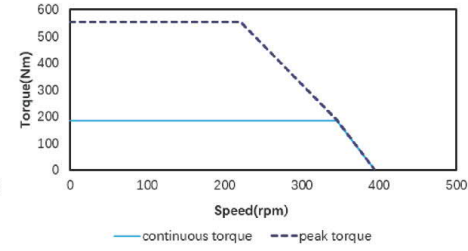
Torque speed curve-ADR220-A120/B167-Series-@DC bus voltage 310V (Digital/SINCOS)



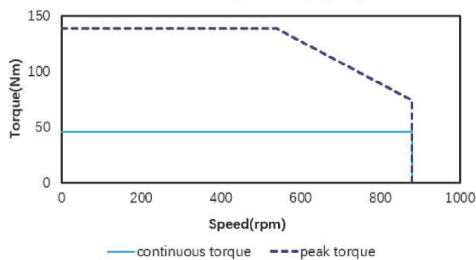
Torque speed curve-ADR360-A150-Series-@DC bus voltage 310V (Digital/SINCOS)



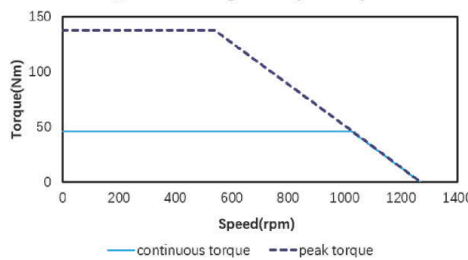
Torque speed curve-ADR360-A150-Parallel-@DC bus voltage 310V (Digital/SINCOS)



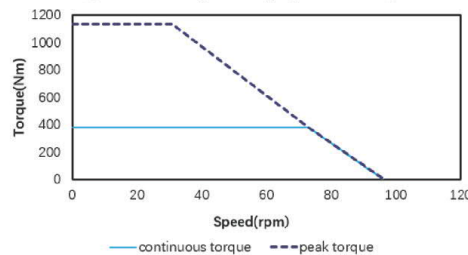
Torque speed curve-ADR220-A120-Parallel-@DC bus voltage 310V (Digital)



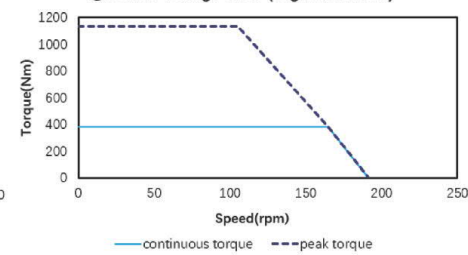
Torque speed curve-ADR220-A120-Parallel-@DC bus voltage 310V (SINCOS)



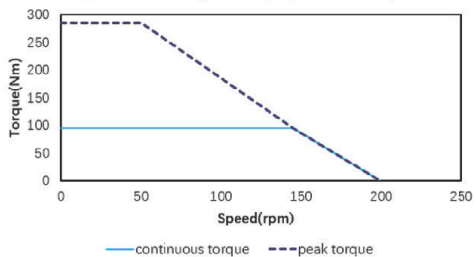
Torque speed curve-ADR360-A215-Series-@DC bus voltage 310V (Digital/SINCOS)



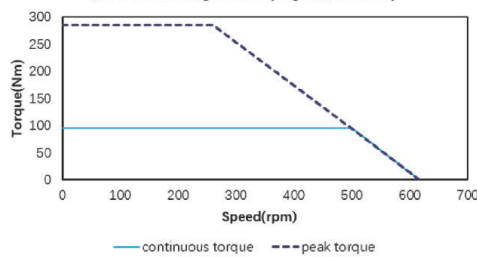
Torque speed curve-ADR360-A215-Parallel-@DC bus voltage 310V (Digital/SINCOS)



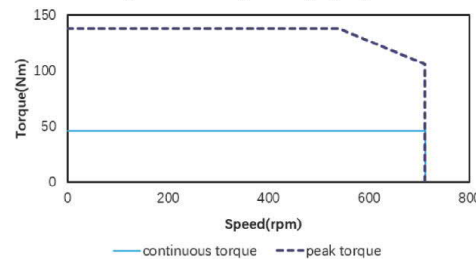
Torque speed curve-ADR220-A165/B217-Series-@DC bus voltage 310V (Digital/SINCOS)



Torque speed curve-ADR220-A165/B217-Parallel-@DC bus voltage 310V (Digital/SINCOS)



Torque speed curve-ADR220-B167-Parallel-@DC bus voltage 310V (Digital)



Torque speed curve-ADR220-B167-Parallel-@DC bus voltage 310V (SINCOS)

