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High Speed Motor Elements

韩吉绿能 GEM GREEN ENERGY MOTORS

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GREEN ENERGY MOTORS

Ver. 11.0

韩吉绿能 GEM GREEN ENERGY MOTORS

Company Information

We at GEM Co., Ltd. are glad to meet you!

GEM Co. Ltd. specializes in motor elements for spindle machines and we pride ourselves on providing our clients with products known for their high speed, high efficiency and high power density. Our team of developers at GEM has over a decade of experience and consists of experts from the fields of electrical and mechanical engineering. As a result, we design and manufacture all product elements ourselves. Furthermore, to verify that our elements meet our predicted performance targets, we conduct numerous experiments. Each experiment is directly coupled with the actual rated load according to ac dynamometers, which are continuously driven until the coil's temperature is saturated.

We currently produce three different element sizes and each size is then divided into two kinds based on the copper and aluminum bars in the rotor. Additionally, each model is classified according to its capacity, operating speed and length.

We hope that you will choose the following elements for your spindle with confidence.
It is our goal to satisfy the requirements of our clients with our products.
We look forward to seeing you in the future!

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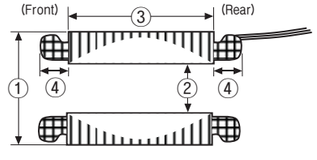
Model Number

A□P - S□□ L□□ V□□ - △△/○○

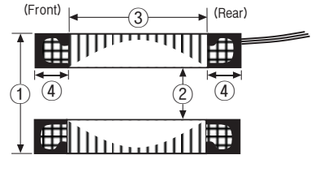
A : Induction motors
□P : Number of poles
S□□ : Outer diameter of the stator [mm]
L□□ : Laminated length [mm]
V□□ : Rated speed [x1000 rpm]
△△ : CU, AL or CS (materials of rotor's conductors)
○○ : LD(Insulation varnish) or HD(Resin Impregnation)

Notes of Dimensions

Pole	Model	① OD ofthe stator	② ID of the stator	③ Length of core	④ Height of the end-winding LD F/R	④ Height of the end-winding HD F/R	⑤ OD of the rotor	⑥ ID of the rotor/max.	⑦ Width of the end-ring CU	⑦ Width of the end-ring CS
A2P	S40	40	22	20~80	8/10	10/12	21.6	8/13	3	6
	S48	48	28	20~80	12/14	14/16	27.6	15.5/18	3	6
	S190	190	83	100~200	50/60	-/-	81	40/50	10	13
	S240	240	110	100~300	60/70	70/80	107	50/60	10	13
A4P	S58	58	38	40~80	10/12	12/14	37.6	20/28	4	6
	S60	60	35	40~80	13/14	15/16	34.6	16/25	4	6
	S70	70	40	40~100	16/18	18/20	39.5	20/28	4	6
	S80	80	50	60~120	18/22	20/25	49.5	24/33	4	6
	S83	83	50	60~120	18/22	20/25	49.5	24/33	4	6
	S90	90	60	60~150	14/17	16/20	59.4	30/41	5	6
	S106	106	65	60~150	23/25	25/28	64.4	40/42	5	6
	S135	135	88	100~250	25/27	30/32	87.2	50/60	6	10
	S150	150	90	100~230	26/30	30/35	89.2	50/60	6	10
	S180	180	115	150~260	40/50	45/55	114	65/80	5	8
	S220	220	130	100~300	-/-	50/60	129	54/65	10	13
	S260	260	160	120~240	30/40	40/50	159	70/80	10	13
	S290	290	155	120~300	-/-	50/60	154	55/65	10	13
A8P	S160	160	110	100~270	30/40	-/-	109.2	70/80	5	8
	S180	180	130	100~330	30/40	-/-	129	80/90	5	8

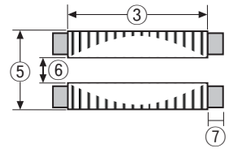


LD



HD

Stator



Rotor

Specification

A2P-S40

CU/LD(HD)		(Avg.) [mNm]	V10	V20	V30	V40	V50	V60	V70	V80	V90	Speed
			10krpm	20krpm	30krpm	40krpm	50krpm	60krpm	70krpm	80krpm	90krpm	
			167Hz	333Hz	500Hz	667Hz	833Hz	1000Hz	1167Hz	1333Hz	1500Hz	
L20	20mm	70	0.05	0.16	0.24	0.33	0.4	0.5	0.5	0.6	0.6	Power [kW]
L30	30mm	120	0.10	0.25	0.40	0.49	0.6	0.8	0.9	1.0	1.1	
L40	40mm	160	0.14	0.36	0.51	0.73	0.9	1.1	1.2	1.3	1.4	
L50	50mm	210	0.19	0.46	0.71	0.95	1.1	1.4	1.6	1.8	1.9	
L60	60mm	250	0.23	0.52	0.85	1.10	1.4	1.6	1.9	2.1	2.3	
L70	70mm	300	0.28	0.65	1.00	1.33	1.6	1.9	2.1	2.4	2.8	
L80	80mm	350	0.32	0.73	1.14	1.47	1.9	2.3	2.7	2.9	3.3	
Laminated length		Torque	Power [kW]									

A2P-S48

CU/LD(HD)		(Avg.) [mNm]	V10	V20	V30	V40	V50	V60	V70	V80	V90	Speed
			10krpm	20krpm	30krpm	40krpm	50krpm	60krpm	70krpm	80krpm	90krpm	
			167Hz	333Hz	500Hz	667Hz	833Hz	1000Hz	1167Hz	1333Hz	1500Hz	
L20	20mm	100	0.05	0.17	0.33	0.5	0.6	0.7	0.8	0.9	1.0	Power [kW]
L30	30mm	160	0.11	0.30	0.50	0.7	0.9	1.1	1.2	1.4	1.5	
L40	40mm	220	0.16	0.41	0.70	1.0	1.2	1.5	1.7	1.9	2.1	
L50	50mm	290	0.22	0.55	0.95	1.3	1.6	1.9	2.3	2.6	2.8	
L60	60mm	380	0.31	0.79	1.3	1.7	2.1	2.5	2.8	3.2	3.4	
L70	70mm	460	0.38	1.00	1.6	2.1	2.5	3.0	3.4	3.8	4.1	
L80	80mm	550	0.45	1.20	2.0	2.6	3.1	3.5	3.9	4.4	4.7	
Laminated length		Torque	Power [kW]									

A2P-S190

CU/LD		(Avg.) [Nm]	V03	V06	V10	V20	V30	Speed
			3krpm	6krpm	10krpm	20krpm	30krpm	
			50Hz	100Hz	167Hz	333Hz	500Hz	
L100	100mm	18	6	11	19	37	56	Power [kW]
L120	120mm	21	7	13	22	44	67	
L140	140mm	25	8	16	26	52	78	
L150	150mm	27	8	17	28	56	83	
L180	180mm	32	10	20	33	67	100	
L200	200mm	35	11	22	37	74	111	
Laminated length		Torque	Power [kW]					

A2P-S240

CU/LD		(Avg.) [Nm]	V03	V06	V10	V20	V30	Speed
			3krpm	6krpm	10krpm	20krpm	30krpm	
			50Hz	100Hz	167Hz	333Hz	500Hz	
L100	100mm	33	11	21	35	70	105	Power [kW]
L120	120mm	41	13	26	43	87	130	
L140	140mm	48	15	30	50	100	150	
L150	150mm	53	17	33	55	110	165	
L180	180mm	64	20	40	67	133	200	
L200	200mm	73	23	46	77	153	230	
L260	260mm	89	28	56	93	187	280	
L270	270mm	95	30	60	100	200	300	
Laminated length		Torque	Power [kW]					

A4P-S58

CU/HD		(Avg.) [Nm]	V06	V09	V12	V15	V18	V21	V24	V27	V30	V33	V36	V39	V42	V45	Speed
			6krpm	9krpm	12krpm	15krpm	18krpm	21krpm	24krpm	27krpm	30krpm	33krpm	36krpm	39krpm	42krpm	45krpm	
			200Hz	300Hz	400Hz	500Hz	600Hz	700Hz	800Hz	900Hz	1000Hz	1100Hz	1200Hz	1300Hz	1400Hz	1500Hz	
L40	40mm	0.7	0.3	0.7	0.9	1.1	1.4	1.6	1.8	2.0	2.3	2.4	2.6	2.8	3.0	3.2	Power [kW]
L50	50mm	0.9	0.5	0.8	1.1	1.4	1.7	2.0	2.3	2.5	2.8	3.1	3.4	3.6	3.9	4.1	
L60	60mm	1.1	0.6	1.0	1.3	1.7	2.1	2.4	2.7	3.1	3.4	3.8	4.0	4.3	4.6	5.0	
L70	70mm	1.3	0.7	1.2	1.6	2.0	2.4	2.8	3.3	3.7	4.0	4.4	4.7	5.2	5.6	6.1	
L80	80mm	1.5	0.9	1.3	1.9	2.4	2.8	3.3	3.8	4.2	4.7	5.3	5.7	6.2	6.6	6.9	
Laminated length		Torque	Power [kW]														

CU - The bars and end-rings in the rotor are made from copper to ensure high motor efficiency. This also allows for decreased vibrations from rotation as the shaft is thicker than those used in aluminum rotors.

AL - The bars and end rings in the rotor are made from aluminum which provides an excellent balance between price and performance.

CS - The rotor with CS is customized in ultra high speed. That has two layers consisted with copper and stainless layer, so the stainless layer provents destruction of copper endrings from centrifugal force as rotating high speed.

LD - This stator is dipped into the insulation varnish. It is our most common model which is suitable to general spindle motors.

HD - The copper coil of the stator is filled with special resin which helps to decrease the temperature of coils.

A4P-S60

CU/LD		(Avg.) [Nm]	V06	V09	V12	V15	V18	V21	V24	V27	V30	V33	V36	V39	V42	V45	Speed
			6krpm	9krpm	12krpm	15krpm	18krpm	21krpm	24krpm	27krpm	30krpm	33krpm	36krpm	39krpm	42krpm	45krpm	
			200Hz	300Hz	400Hz	500Hz	600Hz	700Hz	800Hz	900Hz	1000Hz	1100Hz	1200Hz	1300Hz	1400Hz	1500Hz	
L40	40mm	0.5	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.5	1.7	1.9	2.1	2.1	2.3	2.4	Power [kW]
L50	50mm	0.7	0.3	0.5	0.8	1.0	1.3	1.5	1.7	2.0	2.1	2.4	2.6	2.8	2.9	3.1	
L60	60mm	0.8	0.4	0.7	1.0	1.3	1.6	1.8	2.2	2.4	2.6	2.9	3.1	3.3	3.6	3.9	
L70	70mm	0.9	0.5	0.9	1.2	1.5	1.9	2.1	2.5	2.8	3.1	3.4	3.7	4.0	4.2	4.5	
L80	80mm	1.1	0.5	1.0	1.4	1.8	2.2	2.5	2.9	3.2	3.6	3.9	4.2	4.5	4.9	5.2	
Laminated length		Torque	Power [kW]														

CU/HD		(Avg.) [Nm]	V06	V09	V12	V15	V18	V21	V24	V27	V30	V33	V36	V39	V42	V45	Speed
			6krpm	9krpm	12krpm	15krpm	18krpm	21krpm	24krpm	27krpm	30krpm	33krpm	36krpm	39krpm	42krpm	45krpm	
			200Hz	300Hz	400Hz	500Hz	600Hz	700Hz	800Hz	900Hz	1000Hz	1100Hz	1200Hz	1300Hz	1400Hz	1500Hz	
L40	40mm	0.6	0.3	0.5	0.8	1.0	1.3	1.4	1.7	1.9	2.2	2.4	2.5	2.7	2.9	3.1	Power [kW]
L50	50mm	0.8	0.4	0.7	1.0	1.3	1.6	1.9	2.2	2.4	2.7	3.0	3.2	3.5	3.7	3.9	
L60	60mm	1.0	0.3	0.8	1.2	1.6	1.9	2.3	2.6	3.0	3.3	3.6	3.8	4.2	4.5	4.7	
L70	70mm	1.2	0.5	1.0	1.4	1.9	2.3	2.7	3.1	3.4	3.8	4.2	4.6	5.0	5.4	5.6	
L80	80mm	1.3	0.5	1.2	1.7	2.2	2.6	3.1	3.5	3.9	4.5	4.8	5.3	5.8	6.2	6.5	
Laminated length		Torque	Power [kW]														

A4P-S70

CU/LD		(Avg.) [Nm]	V06	V09	V12	V15	V18	V21	V24	V27	V30	V33	V36	V39	V42	V45	Speed
			6krpm	9krpm	12krpm	15krpm	18krpm	21krpm	24krpm	27krpm	30krpm	33krpm	36krpm	39krpm	42krpm	45krpm	
			200Hz	300Hz	400Hz	500Hz	600Hz	700Hz	800Hz	900Hz	1000Hz	1100Hz	1200Hz	1300Hz	1400Hz	1500Hz	
L40	40mm	0.8	0.3	0.6	1.0	1.2	1.4	1.7	1.9	2.2	2.4	2.6	2.9	3.1	3.4	3.6	Power [kW]
L50	50mm	1.0	0.4	0.7	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	
L60	60mm	1.1	0.4	0.9	1.4	1.8	2.2	2.5	2.9	3.2	3.6	4.0	4.3	4.7	5.0	5.4	
L70	70mm	1.3	0.5	1.0	1.7	2.1	2.5	2.9	3.4	3.8	4.2	4.6	5.0	5.5	5.9	6.3	
L80	80mm	1.5	0.6	1.2	1.9	2.4	2.9	3.4	3.8	4.3	4.8	5.3	5.8	6.2	6.7	7.2	
L100	100mm	1.9	0.7	1.4	2.4	3.0	3.6	4.2	4.8	5.4	6.0	6.6	7.2	7.8	8.4	9.0	
Laminated length		Torque	Power [kW]														

CU/HD		(Avg.) [Nm]	V06	V09	V12	V15	V18	V21	V24	V27	V30	V33	V36	V39	V42	V45	Speed
			6krpm	9krpm	12krpm	15krpm	18krpm	21krpm	24krpm	27krpm	30krpm	33krpm	36krpm	39krpm	42krpm	45krpm	
			200Hz	300Hz	400Hz	500Hz	600Hz	700Hz	800Hz	900Hz	1000Hz	1100Hz	1200Hz	1300Hz	1400Hz	1500Hz	
L40	40mm	1.0	0.4	0.7	1.2	1.5	1.8	2.1	2.4	2.7	3.0	3.3	3.6	3.9	4.2	4.5	Power [kW]
L50	50mm	1.2	0.5	0.9	1.5	1.9	2.3	2.6	3.0	3.4	3.8	4.1	4.5	4.9	5.3	5.6	
L60	60mm	1.4	0.5	1.1	1.8	2.3	2.7	3.2	3.6	4.1	4.5	5.0	5.4	5.9	6.3	6.8	
L70	70mm	1.7	0.6	1.3	2.1	2.6	3.2	3.7	4.2	4.7	5.3	5.8	6.3	6.8	7.4	7.9	
L80	80mm	1.9	0.7	1.4	2.4	3.0	3.6	4.2	4.8	5.4	6.0	6.6	7.2	7.8	8.4	9.0	
L100	100mm	2.4	0.9	1.8	3.0	3.8	4.5	5.3	6.0	6.8	7.5	8.3	9.0	9.8	10.5	11.3	
Laminated length		Torque	Power [kW]														

A4P-S80

CU/HD		(Avg.) [Nm]	V03	V06	V9	V12	V15	V18	V21	V24	V27	V30	V33	V36	V39	Speed
			3krpm	6krpm	9krpm	12krpm	15krpm	18krpm	21krpm	24krpm	27krpm	30krpm	33krpm	36krpm	39krpm	
			100Hz	200Hz	300Hz	400Hz	500Hz	600Hz	700Hz	800Hz	900Hz	1000Hz	1100Hz	1200Hz	1300Hz	
L60	60mm	1.9	0.3	1.0	1.8	2.6	3.2	3.8	4.4	5.3	5.9	6.5	7.0	7.5	8.0	Power [kW]
L80	80mm	2.7	0.5	1.6	2.6	3.6	4.5	5.4	6.2	7.0	8.0	8.8	9.6	10.5	11.2	
L100	100mm	3.4	0.7	2.0	3.3	4.5	5.6	6.8	7.9	9.1	10.0	11.2	12.2	12.9	13.7	
L120	120mm	4.1	0.9	2.5	3.9	5.5	6.8	8.1	9.5	10.8	12.0	13.2	14.2	15.5	16.5	
Laminated length		Torque	Power [kW]													

A4P-S83

CU/LD(HD)		(Avg.) [Nm]	V03	V06	V9	V12	V15	V18	V21	V24	V27	V30	V33	V36	V39	Speed
			3krpm	6krpm	9krpm	12krpm	15krpm	18krpm	21krpm	24krpm	27krpm	30krpm	33krpm	36krpm	39krpm	
			100Hz	200Hz	300Hz	400Hz	500Hz	600Hz	700Hz	800Hz	900Hz	1000Hz	1100Hz	1200Hz	1300Hz	
L60	60mm	2.0	0.5	1.2	1.9	2.5	3.2	3.8	4.5	5.2	5.7	6.4	6.9	7.4	8.0	Power [kW]
L70	70mm	2.3	0.5	1.4	2.2	3.0	3.8	4.5	5.3	6.0	6.8	7.4	8.2	8.8	9.6	
L80	80mm	2.7	0.6	1.6	2.5	3.4	4.4	5.3	6.2	6.9	7.7	8.5	9.2	10.2	11.0	
L90	90mm	3.0	0.7	1.8	2.9	3.9	5.0	5.8	6.9	7.8	8.6	9.4	10.5	11.4	12.7	
L100	100mm	3.4	0.8	2.1	3.2	4.4	5.5	6.7	7.5	8.7	9.5	10.6	11.6	13.0	14.0	
L110	110mm	3.7	0.9	2.2	3.6	4.9	6.0	7.3	8.5	9.5	10.6	11.7	13.2	14.4	15.4	
L120	120mm	4.1	0.9	2.4	3.9	5.3	6.6	7.9	9.3	10.6	11.7	13.2	14.6	15.7	16.9	
Laminated length		Torque	Power [kW]													

A4P-S90

CU/HD		(Avg.) [Nm]	V03	V06	V9	V12	V15	V18	V21	V24	V27	V30	V33	V36	V39	Speed
			3krpm	6krpm	9krpm	12krpm	15krpm	18krpm	21krpm	24krpm	27krpm	30krpm	33krpm	36krpm	39krpm	
			100Hz	200Hz	300Hz	400Hz	500Hz	600Hz	700Hz	800Hz	900Hz	1000Hz	1100Hz	1200Hz	1300Hz	
L60	60mm	2.2	0.5	1.4	2.1	3.0	3.6	4.5	5.2	5.7	6.4	7.2	7.4	8.3	8.7	Power [kW]
L70	70mm	2.6	0.7	1.6	2.6	3.4	4.4	5.3	6.1	6.6	7.5	8.2	9.1	9.9	10.6	
L80	80mm	3.0	0.7	1.8	3.0	3.9	4.9	5.9	6.8	7.8	8.9	9.7	10.5	11.1	12.3	
L90	90mm	3.5	0.9	2.1	3.3	4.4	5.6	6.8	7.8	9.0	10.1	11.2	11.8	13.2	13.7	
L100	100mm	3.9	1.0	2.3	3.7	5.0	6.3	7.8	8.7	9.8	11.3	12.1	13.5	14.6	15.3	
L110	110mm	4.2	1.1	2.6	4.0	5.5	6.9	8.1	9.8	11.2	12.2	13.5	14.4	16.0	17.0	
L120	120mm	4.7	1.4	3.0	4.4	6.1	7.9	9.3	10.8	11.8	13.6	14.8	15.9	17.3	18.6	
L130	130mm	5.2	1.5	3.3	5.0	6.7	8.2	9.9	11.7	13.3	14.9	16.0	17.5	18.8	20.5	
L140	140mm	5.5	1.6	3.4	5.5	7.0	8.9	10.9	12.5	14.2	15.6	17.1	19.0	20.7	22.3	
Laminated length		Torque	Power [kW]													

Specification

A4P-S106

CU/HD		(Avg.) [Nm]	V03 3krpm 100Hz	V06 6krpm 200Hz	V09 9krpm 300Hz	V12 12krpm 400Hz	V15 15krpm 500Hz	V18 18krpm 600Hz	V21 21krpm 700Hz	V24 24krpm 800Hz	V27 27krpm 900Hz	V30 30krpm 1000Hz	V33 33krpm 1100Hz	Speed
L60	60mm	4.1	1.0	2.5	3.8	5.3	6.4	8.1	9.5	11.1	12.2	13.6	14.8	Power [kW]
L70	70mm	4.9	1.2	2.9	4.5	6.1	8.1	9.5	11.2	13.4	14.7	16.6	18.1	
L80	80mm	5.7	1.4	3.4	5.2	7.4	9.0	11.2	13.4	14.8	16.8	18.4	20.9	
L90	90mm	6.5	1.6	4.3	6.0	8.1	10.4	12.8	14.8	16.8	18.5	21.1	23.7	
L100	100mm	7.1	1.8	4.3	6.6	9.0	11.3	13.7	16.7	18.5	21.3	23.9	25.5	
L110	110mm	8.0	2.0	4.8	7.5	10.3	12.3	14.9	18.2	21.0	24.2	26.1	29.3	
L120	120mm	8.7	2.3	5.3	8.2	11.1	13.6	16.8	19.7	22.7	25.5	29.1	31.3	
L130	130mm	9.4	2.4	5.7	8.8	12.0	14.9	18.3	21.4	25.1	27.7	30.3	33.9	
L140	140mm	10.3	2.6	6.1	9.4	13.3	16.7	19.7	23.3	26.8	30.1	33.6	36.9	
L150	150mm	11.1	2.9	6.8	10.3	13.9	17.4	21.3	25.3	29.2	31.7	36.3	40.2	
Laminated length		Torque	Power [kW]											

A4P-S135

CU/HD		(Avg.) [Nm]	V03 3krpm 100Hz	V06 6krpm 200Hz	V09 9krpm 300Hz	V12 12krpm 400Hz	V15 15krpm 500Hz	V18 18krpm 600Hz	V21 21krpm 700Hz	V24 24krpm 800Hz	V27 27krpm 900Hz	V30 30krpm 1000Hz	Speed
L100	100mm	16	5	10	15	21	26	31	36	41	45	50	Power [kW]
L130	130mm	21	6	13	20	27	34	41	48	54	60	67	
L170	170mm	28	8	17	27	36	44	53	62	70	79	87	
L200	200mm	33	10	20	31	42	53	63	73	83	93	102	
L250	250mm	41	12	26	39	53	66	79	92	104	117	129	
Laminated length		Torque	Power [kW]										

A4P-S150

CU/HD		(Avg.) [Nm]	V03 3krpm 100Hz	V06 6krpm 200Hz	V10 10krpm 333Hz	V20 20krpm 667Hz	V30 30krpm 1000Hz	Speed
L80	80mm	14	5	10	16	32	48	Power [kW]
L100	100mm	17	6	12	20	40	60	
L120	120mm	21	7	14	24	48	72	
L150	150mm	26	9	18	30	60	90	
L180	180mm	31	11	22	36	72	108	
L200	200mm	34	12	24	40	80	120	
L230	230mm	40	14	28	46	92	138	
Laminated length		Torque	Power [kW]					

A4P-S180

CU/HD		(Avg.) [Nm]	V03 3krpm 100Hz	V06 6krpm 200Hz	V10 10krpm 333Hz	V20 20krpm 667Hz	Speed
L100	100mm	38	13	26	44	88	Power [kW]
L120	120mm	45	16	32	53	106	
L150	150mm	57	20	40	66	132	
L180	180mm	68	24	48	79	158	
L200	200mm	76	26	53	88	176	
L230	230mm	87	30	61	101	202	
L250	250mm	95	33	66	110	220	
Laminated length		Torque	Power [kW]				

A4P-S220

CU/LD		(Avg.) [Nm]	V03 3krpm 100Hz	V06 6krpm 200Hz	V10 10krpm 333Hz	V20 20krpm 667Hz	Speed
L100	100mm	40	13	25	42	84	Power [kW]
L120	120mm	48	15	30	50	101	
L150	150mm	60	19	38	63	126	
L180	180mm	73	23	46	76	153	
L200	200mm	80	25	50	84	168	
L250	250mm	100	31	63	105	209	
L300	300mm	124	39	78	130	260	
Laminated length		Torque	Power [kW]				

A4P-S260

CU/HD		(Avg.) [Nm]	V03	V06	V10	V15	Speed
			3krpm	6krpm	10krpm	15krpm	
			100Hz	200Hz	333Hz	500Hz	
L120	120mm	95	30	60	100	150	Power [kW]
L160	160mm	130	40	80	134	200	
L200	200mm	160	50	100	167	250	
L240	240mm	190	60	120	200	300	
L300	300mm	240	75	150	250	375	
Laminated length		Torque	Power [kW]				

A4P-S290

CU/HD		(Avg.) [Nm]	V03	V06	V10	V12	Speed
			3krpm	6krpm	10krpm	12krpm	
			100Hz	200Hz	333Hz	400Hz	
L120	120mm	130	40	82	136	163	Power [kW]
L160	160mm	160	50	100	168	202	
L200	200mm	200	63	126	210	252	
L220	220mm	210	66	132	220	264	
L250	250mm	255	80	160	267	320	
L300	300mm	300	94	188	314	375	
Laminated length		Torque	Power [kW]				

A8P-S160

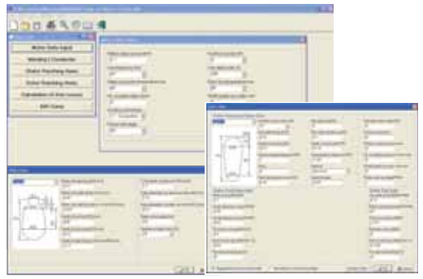
CU/LD		(Avg.) [Nm]	V1.5	V2.0	V2.5	V3.0	V3.5	V4.0	V5.0	Speed
			1.5krpm	2krpm	2.5krpm	3krpm	3.5krpm	4krpm	5krpm	
			100Hz	133Hz	167Hz	200Hz	233Hz	267Hz	333Hz	
L120	120mm	40	4.3	8	11	13	16	18	21	Power [kW]
L170	170mm	57	6	11	17	20	23	27	29	
L220	220mm	74	8	15	21	25	30	35	38	
L270	270mm	94	11	19	26	32	38	43	48	
Laminated length		Torque	Power [kW]							

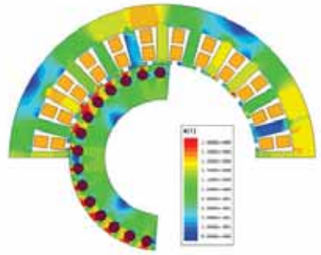
A8P-S180

CU/LD		(Avg.) [Nm]	V1.5	V2.0	V2.5	V3.0	V3.5	V4.0	V5.0	Speed
			1.5krpm	2krpm	2.5krpm	3krpm	3.5krpm	4krpm	5krpm	
			100Hz	133Hz	167Hz	200Hz	233Hz	267Hz	333Hz	
L100	100mm	46	5	9	12	16	20	21	22	Power [kW]
L180	180mm	84	11	17	23	29	35	37	39	
L260	260mm	128	15	25	35	42	51	59	66	
L330	330mm	154	18	32	42	54	65	68	72	
Laminated length		Torque	Power [kW]							

▶ Design

GEM design program

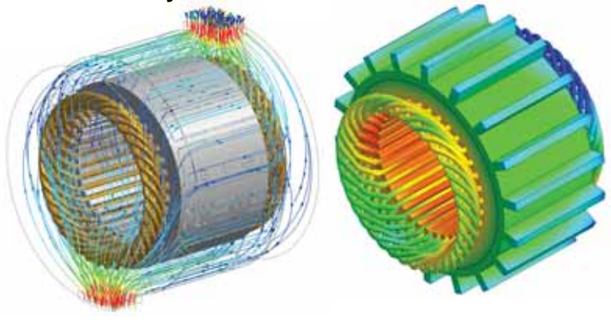




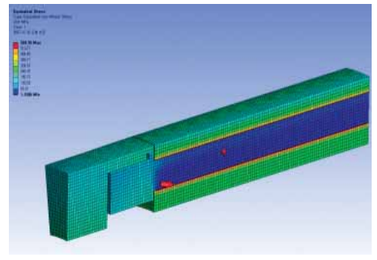
Fluxdensity Distribution

Eqvalent fluxline of an induction motor

Thermal analysis



Structure analysis



▶ Experiment

Dynamometer test

Temperature test