



Cooling Tower Motors
MAAV series



ABOUT US

DAC Electric is an international operating electro-technical company with its Sales Headquarter located in The Netherlands and two Research & Development branches in the Czech Republic. Next to these three main offices, the company has representations and agencies in Singapore, Russia, China, Syria, Egypt and Indonesia.

Our main activities lay in the branches *Industry, Water and Energy*.

We are specialized in developing, manufacturing and supplying special electric machines and drives. Our customers are serviced with advice, engineering and eventually with a tailor made machine.

Next to our special engineered products we supply all standardized serial drive technology products from other manufacturers such as;

Motors, gearboxes, generators, transformers, frequency converters and electronic components.

Our highly experienced design department has the ability to design and customize standard and non standard motors for every application.

We provide our customers with extensive opportunities to improve the technical condition and operating reliability of their equipment, to optimize work, to improve efficiency and to lower operating costs.

The unique flexibility of being able to supply special tailor-made products and standard industrial machines, combined with more than 100 years experience in the field of drive technology makes us the partner you are looking for!



Three-phase low-speed induction motors of the series **MAAV** are intended for direct drives of axial-flow fans for cooling towers without gears, for the environment with the ambient temperature up to +40°C (**MAAV-T+** up to +60°C).

Due to a direct low speed the noise and vibration levels are reduced, life of the parts of the set is longer, the assembly costs are reduced and the requirements for maintenance are lower in comparison with a high-speed motor with a gearbox.

Removal of a gearbox with oil filling is also beneficial for environment protection.

The motors are designed for a possibility of the speed- changing ratio 1:2, enabling thus a more economical adjustment of the cooling power of a tower in different climatic conditions.

They may be also delivered as single-speed ones (without the designation D).

The **MAAV** motors are made for humid environment corresponding to the conditions of cooling towers-relative humidity up to 100%, temperature of moist air being delivered (forming at the same time a cooling agent removing heat losses from the motor

DESIGN

The frame is robust, made of grey cast iron, with ribs on the surface.

The motor is cooled by external air flowing round the motor, inside the motor there is an auxiliary ventilation circuit. (**MAAV-T** has its own fan)

The rotor is mounted in anti friction bearings with grease lubrication, calculated service life is 110000 running hours.

The relubrication interval is either 3 years or 15000 running hours.

The motor is mounted in a vertical position with the upward shaft extension.

The motor withstands axial and radial loads from the axial-flow fan being driven.

The shaft extension is provided with a work centre with a thread and with a thread angle 60°.

The motor is provided with 2 heating elements 150W/230V to be heated during rest periods. The end windings are fitted with 6pcs (in 2 sets) of thermistors for thermal protection being embedded in to them

POLE CHANGEING MOTORS

Type	MAAV.....		40-290D		45-180D		75-207D		75-180D		90-180D		105-180D		125-180D	
Power	P	kW	40	5	45	6	75	9,4	75	9,4	90	11,3	105	13	125	16
Speed	n	min ⁻¹	292	146	182	90	209	104	181	90	185	92	184	92	184	92
Number of poles	2p		20	40	32	64	28	56	32	64	32	64	32	64	32	64
Rated torque	M _n	Nm	1308	327	2361	635	3.430	863	3957	996	4659	1172	5456	1354	6481	1664
Rated voltage	U _n	V	3 AC - 400V		3 AC - 400V		3 AC - 400V		3 AC - 400V		3 AC - 400V		3 AC - 400V		3 AC - 400V	
Frequency	f	Hz	50 Hz		50 Hz		50 Hz		50 Hz		50 Hz		50 Hz		50 Hz	
Connection			YY/Y		YY/Y		YY/Y		YY/Y		YY/Y		YY/Y		YY/Y	
Rated current	I _n	A	94	31	107	35	178	60	187	60	218	71	248	73	303	94
Efficiency		%	88,1	72,9	88	72,8	89	73,7	87,6	72	90,1	75,7	89,5	77	89,8	75,3
Power factor	cos		0,7	0,32	0,69	0,34	0,68	0,31	0,66	0,31	0,66	0,31	0,68	0,33	0,66	0,33
Short-circuit current	I _k	A	451	72	420	70	750	120	670	110	754	125	754	125	1080	190
Short-circuit torque	M _k	Nm	1260	270	1645	390	2470	480	2720	590	2300	420	2300	420	3600	860
Rotor inertia	J	Kg.m ²	20		70		79		91		125		150		175	
Motor weight	m	Kg	1150		2180		2300		2300		2910		3050		3280	

MOTORS FOR VARIABLE FREQUENCY DRIVE (VFD)

Type	MAAV.....		40-290I	40-291S	75-190IS	90-180I	110-180I	125-180I	125-145I	200-108I
Power	P	kW	40	40	75	90	110	125	125	200
Speed	n	min ⁻¹	291	290	190	181	181	180	145	108
Number of poles	2p		10	20	32	16	16	16	16	20
Rated torque	M _n	Nm	1314	1316	3774	4754	5810	6621	8244	17702
Rated voltage	U _n	V	380	400	400	365	380	380	400	385
Frequency	f	Hz	24,7	49,7	52,5	24,6	24,5	24,5	19,8	18,3
Connection			Y	Y	Y	Y	Y	Y	Y	D
Rated current	I _n	A	77	93	175	178	214	239	231	398
Efficiency		%	90,9	89,5	89,2	92,1	93,0	92,6	91,0	92,7
Power factor	cos		0.87	0.70	0.69	0.87	0.84	0.86	0.86	0.81
Short-circuit current	I _k	A	-	490	705	-	-	-	-	-
Short-circuit torque	M _k	Nm	-	1590	3400	-	-	-	-	-
Rotor inertia	J	Kg.m ²	17	18	90	95	110	135	150	430
Motor weight	m	Kg	1100	1150	2180	2800	3050	3280	3550	5950

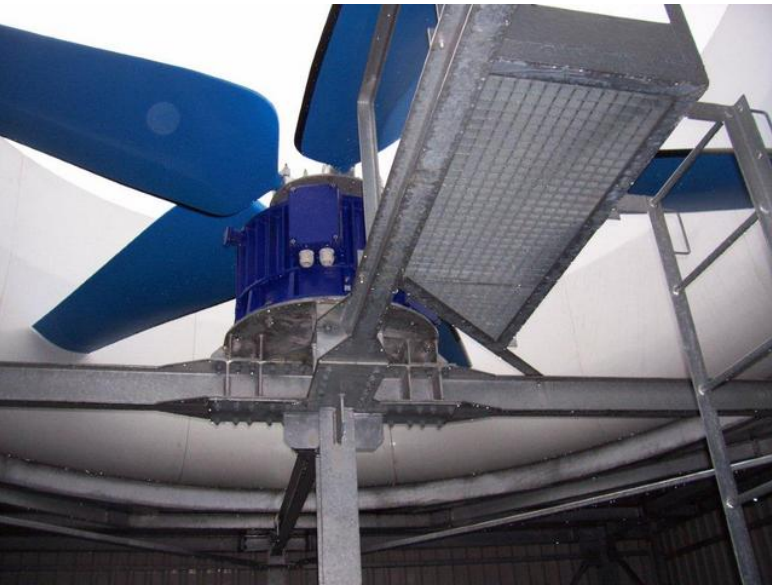
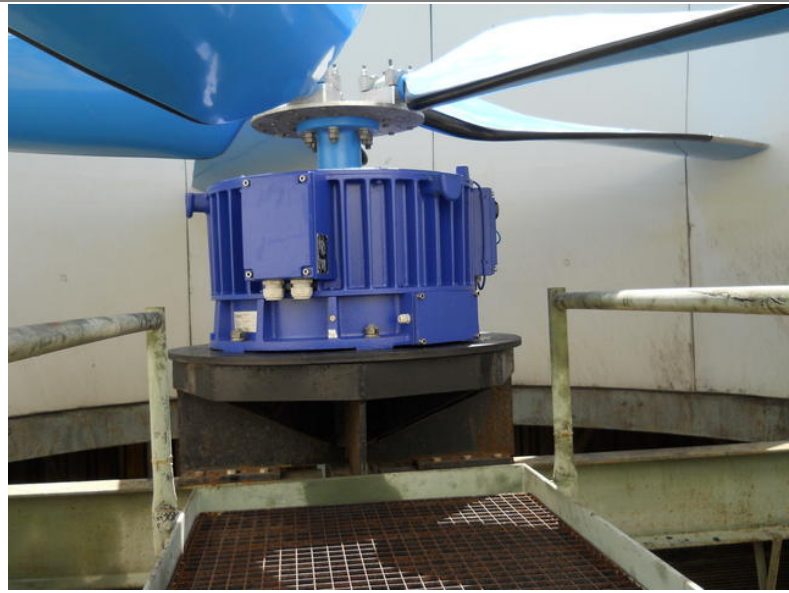
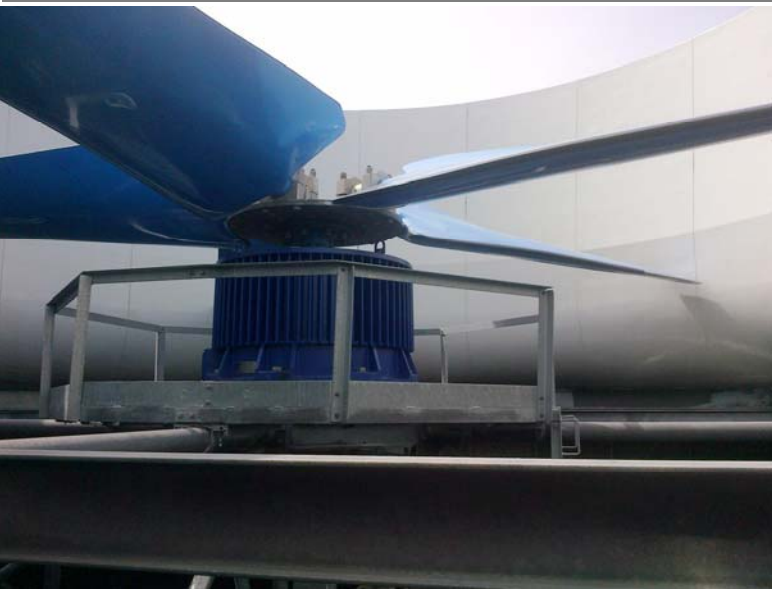


POLE CHANGEING MOTORS

VFD

Type	MAAV-T.....		75-207D		75-180D		90-180D		110-180D		110-180I
Power	P	kW	75,0	10,0	75,0	9,4	90,0	11,3	110	15	110
Speed	n	min ⁻¹	212	106	185	92	185	92	185	92	181
Number of poles	2p		28	56	32	64	32	64	32	64	16
Rated torque	M _n	Nm	3385	905	3880	975	4659	1172	5688	1557	5810
Rated voltage	U _n	V	3 AC - 400V		3 AC - 400V		3 AC - 400V		3 AC - 400V		3 AC - 400V
Frequency	f	Hz	50 Hz		50 Hz		50 Hz		50 Hz		50 Hz
Connection			YY / Y		YY / Y		YY / Y		YY / Y		Y
Rated current	I _n	A	175	61	178	59	218	71	275	92	199
Efficiency		%	90,8	76,5	90,3	75,7	90,1	75,7	90,1	76,1	93,2
Power factor	cos		0,68	0,31	0,67	0,31	0,66	0,31	0,64	0,31	0,86
Short-circuit current	I _k	A	670	120	635	110	754	125	1010	160	-
Short-circuit torque	M _k	Nm	1500	325	1800	350	2300	420	2990	540	-
Rotor inertia	J	Kg.m ²	105		125		150		175		150
Motor weight	m	Kg	2540		2910		3050		3280		3425







PRODUCTS

The existence of DAC Electric is based on designing and engineering special tailored made products. Although very successful in this, to serve our customers in their broad needs of products in drive industry we have extend our product range with drive components from other well known manufacturers.

Therefore we offer a wide range of products which are divided in below five sections:

MOTORS

- Low voltage Squirrel cage motors
- High voltage Squirrel cage motors
- Low voltage Slip ring motors
- High voltage Slip ring motors
- Direct current motors
- Permanent Magnet motors
- Submersible motors
- Low speed direct drive motors

GENERATORS

- Hydro generators
- Low voltage generators
- High voltage generators

TRANSFORMERS

- Oil filled transformers
- Dry type transformers in VPI execution
- Dry type transformers in cast resin execution

MECHANICS

- Couplings
- Gearboxes

ELECTRONICS

- Softstarters
- Variable speed drives
- Electronic components

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