MarelliMotori Industrial

A6C A5C-B6C B5C B5H

Model	A6C A5C B6C B5C B5H
Power	Up to 2.400 kW
Voltages	Up to 11.000 V
Model IP55	LV A6C - B6C - A5C - B5C MV B5H
Frame	71 ÷ 560
Poles	2, 4, 6, 8 and 10
Cooling	IC 411 (IC 416 optional)
IP	IP 56 or IP 65 (IP 65 not available for A6C)
Enclosure	TEFC MOTORS – Totally Enclosed Fan Cooled
Main Applications	Cement, Chemical, Manufacturing processes, Metals, Mining, Power, Pulp and paper, Sugar mill, Water pumping and treatments
Sector	Industrial

Poles	**2 Poles**	**4 Poles**	**6 Poles**	**8 Poles**	**10 Poles**
| kW | 50 Hz	900	2000	1800	1250	1000
Poles	**2 Poles**	**4 Poles**	**6 Poles**	**8 Poles**	**10 Poles**
(kW 60 Hz)	-	2400	2160	1500	1200

Main components

Housing

Motors from size 71 to 132 are made in cast iron.
Motors from size 160 to 280 are made either in aluminum or in cast iron (optional).
Starting from frame 315 and up to 500 the frame is in cast iron only.
(EN 1561-GJL – 200)

Shield

Made of grey cast-iron (EN 1561 – GJL 200) up to 560 frame size motors.

Shaft

General data

Made in carbon steel (EN 10083 – 2 C40 – TN) up to 500 frame

Shaft design

Cylindrical shaft with key.

Material

The table below, show the materials used on the mechanical components for standard motors.
Terminal box casted with frame for 71 and 80 sizes

Components	Frame size 71-132	Frame size 160-280	Frame size 315	Frame size 355-400	Frame size 450-500
Frame	Cast Iron	Aluminum / Cast Iron	Cast Iron	Cast Iron	Cast Iron
Endshields	Cast Iron	Cast Iron / Aluminum	Cast Iron	Cast Iron	Cast Iron
Fan Cowl	Steel	Steel	Steel	Fibreglass	Fibreglass
Fan	Thermoplastic	Thermoplastic	Thermoplastic	2 poles polyamide >= 4 poles aluminum	2 poles polyamide >= 4 poles aluminum
Terminal Box	Cast Iron	Steel	Steel	Cast Iron	Steel

Main terminal box

Mounted on top and made of cold-rolled formable steels EN 10025 – S235JR or cast iron depending from size. Degree of protection of standard terminal box is IP 55.

<table>
<tr><th>Frame size</th><th>Type of terminal</th><th>Terminal size</th><th>Maximun conductor section [mm²]</th><th>Maximun cable diameter</th><th>Clearance holes formetric cablands</th></tr>
<tr><td>71-80</td><td rowspan="6">Threaded Terminals</td><td rowspan="2">M6</td><td rowspan="2">10</td><td>15</td><td>M25 X 1,5 + M20 X 1,5 (aux)</td></tr>
<tr><td>90-132</td><td>21</td><td>M25 X 1,5 + M20 X 1,5 (aux)</td></tr>
<tr><td>160-250</td><td>M8</td><td>35</td><td>38</td><td>M40 Knockout opening
M50 Knockout opening</td></tr>
<tr><td>280-315M</td><td rowspan="3">M12</td><td rowspan="2">120</td><td rowspan="2">43</td><td>2 X M63 Knockout opening</td></tr>
<tr><td>315L</td><td>2 X M63</td></tr>
<tr><td>355-400</td><td rowspan="3">Flat copper bars</td><td>2 X 300</td><td>/</td><td rowspan="3">Undrilled gland plate</td></tr>
<tr><td>450-500</td><td>6 X 300</td><td>/</td><td rowspan="2"></td></tr>
<tr><td>500</td><td>M16</td><td>8 X 300</td><td>/</td></tr>
</table>

Construction

Cooling System

IC 411 as per IEC60034-6
Totally enclosed standard motor, frame surface cooled with fan
4: Frame surface cooled
1: Self circulation of primary coolant
1: Self circulation of secondary coolant
On request for variable speed application an external ventilation unit can be supplied to get the IC 416 cooling type.

Degree of protection

Motors are supplied in IP 55 as per IEC60034-5 (IP 56 or IP 65 available on request)

Mounting

Mounting and positions are defined according to IEC 60034 - 7
See complete list at page 20 of Industrial motors catalogue.

Technical data	
Stator/Rotor core	Laminated and enamel-insulated on both sides to minimise eddy-current losses. The stator winding is made of flat copper or round copper wire depending on the machine size. The completely wound stator pack with housing is thereby impregnated in an epoxy-resin VPI from 355 frame size. The subsequent heat treatment hardens the resin. Up to 315 frame size the wound stator pack is impregnated by rolling deep technology.
Rotor	Short circuit rotor type. Depending on machine size, the rotor construction is either a solid shaft or welded ribbed shaft. The rotor winding can be either a pressure die cast aluminum or a copper bar construction.
Bearing	General data Antifriction bearings grease lubricated (ball or roller type) or oil lubricated sleeve bearing. The theoretical lifetime of bearings, L10h according to ISO 281/1 standard, of standard horizontal construction motors, without external forces (radial and/or axial) is in excess of 50 000 hours. On request, the lifetime of bearings, L10h can be in excess of 100.000 hours. Sleeve bearings available as an option from 355 frame and above. On request special bearings are designed where high radial and axial forces are applied. The motors from 160 to 250 frame size have single screen prelubricated ball bearings (without grease nipples). The correspondent grease life under normal operating conditions for a motor with horizontal shaft, at 50Hz and maximum ambient temperature of 40°C is 10 000 hours in continuous duty for 2-pole motors 20 000 hours in continuous duty for 24-pole motors The motors from 280 frame size and above have regreasable bearings (with grease nipples Tecalemit UNI type) and the relative exhausted grease drainage.

Impregnation system	Up to 315 frame size: stator is impregnated with rolling deep technology. Starting from 355 frame size: stator is VPI treated with an unsaturated polyester amide resin which is polymerised in an oven. (For other size is available on request)
Insulation system	Low and medium voltage Stator: F class insulated with a synthetic enamel. (H class insulation available on request)
Protective treatments	Dedicated protective enamel is applied on the winding.
Grounding	Two terminals exist for grounding, one inside the terminal box and one outside.
Condensation drainage	When installed outdoors or used for intermittent work in environments with high humidity levels, motors must be provided with holes for condensation drainage. Motors with frame sizes from 280 to 500 have holes for condensation drainage as standard. Motors can be supplied with drainage holes on request.

Anticondensation heaters

Motors subject to atmospheric condensation, either through standing idle in damp environments or because of wide ambient temperature variations, may be fitted with anticondensation heaters.
Anticondensation heaters are normally switched on automatically when the supply to the motor is interrupted, heating the motor to avoid water condensation.
They are normally mounted on D-end winding heads.
Normal feeding voltage is 220//230/240V.
Motors can be supplied with anticondensation heaters with terminals in main terminal box (Opt. 108) or, with terminals in a separate terminal box (Opt. 109).
The power values normally used are shown in the table below:

Frame size	Power [W]
90 - 112	8
132	25
160 - 180	50
200 - 250	65
280	100
315	200
355	300
400 - 450	400
500	600
560	800

Thermal protections	Standard magnetothermal circuit brakers are sufficient to suitably protect the motor from overloading. Anyway the motors can be supplied with additional thermal protections with the characteristics described in the following table.

Type	Operating principle	Active temperature [°C]
Positive temperature coefficient thermistors PTC	At the active temperature this device quickly changes its resistance value.	155
Platinum resistance thermometer PT100	Variable linear resistance with the winding temperature, particularly suitable for a continuous winding temperature monitoring.	Set up in control panel

Motors from 315 frame size are supplied with N. 3 PTC with terminals in main terminal box, in standard execution.
Frame size from 355 are supplied with terminals in separate terminal box, in standard execution.
Motors from 160 frame size can be supplied with PT100 thermal detectors on the bearings on request.

Optional features

List	Dual/multiple winding configuration flanged shaft or special shaft end on both sides increase protection degree up to IP56 and IP65 encoder vibration sensors special frame design to suite the application special bearings (sleeve or angular contact bearings) reinforced winding for VFD operation insulated bearings design for VFD application shaft earth brush for VFD application other options available on request