



## GENERAL DESCRIPTION

### Series VMB - VMC SINGLE-PHASE MOTORS.

Single-phase **Vemat** motors are constructed using all the latest technological concepts and international standards and comply with all the technical/normative characteristics listed at the beginning of this catalogue.

#### OPERATION.

The "VMB and VMC" Series motors are constructed for operating voltages of 220-230 Volt 50 or 60 Hz and a power range of from 0.06 to 2.2 kW with 2 and 4 poles.

#### CAPACITORS.

These motors are equipped with 450 Volt capacitors assembled in the motor's terminal board sized for continuous duty S1.

At the client's request, the capacitor normally assembled externally can be assembled in a special plastic container fastened to the motor.

#### TORQUE.

In standard version and sizes from 56 to 100, the motors come equipped with permanently-installed operating capacitor to ensure low starting torque.

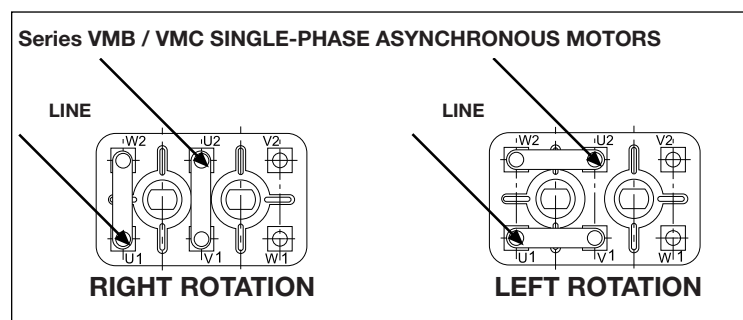
For machines that required higher starting torque (starting with load equal to ...), together with the permanently installed operating capacitor a high-capacity electrolytic type capacitor, capable of providing higher starting torque is also provided for connection usually only during the starting phase

#### CIRCUIT BREAKER.

The circuit breaker is a device capable of detecting when a single-phase asynchronous motor's initial starting phase has been successfully concluded in order to permit the automatic disconnection of the electrolytic starting capacitor. The circuit-breaker is usually assembled directly on the motor and is completely adjustment- and maintenance-free.

The circuit breaker is usually of the electronic type and standard connected to the motor's power supply circuit and is capable of detecting the current absorbed; after the starting phase has been successfully concluded and the current reaches values similar to rated values, a contact opens and disconnects the capacitor.

#### WIRING DIAGRAMS



**N.B.:** Check the diagram in the terminal junction box before proceeding to connection.



## "SERIES VMB" SINGLE-PHASE MOTORS ELECTRIC CHARACTERISTICS

### • With operating capacitor

MOTOR	Power		Rotation speed [Giri 1']	Rated current 230 Volt [A]	Efficiency $\eta$ [%]	Power factor $\cos \varphi$	Characteristic data			Moment of inertia J [Kgm <sup>2</sup> ]	Capacitor capacity $\mu$ F 450 Volt		Weight		
							Current $I_L/I_N$	Torque					IM B3 [Kg]	IM B5 [Kg]	IM B3 B5 [K g]
	$M_L/M_N$	$M_{max}/M_N$													
<b>2 POLES 3000 RPM</b>															
VMB 56-2A	0,06	0,08	2800	0,70	50,0	0,78	2,4	1,0	2,3	0,00007	3,0	3,1	3,3	3,5	
VMB 56-2B	0,09	0,12	2800	0,80	57,0	0,90	2,5	0,9	1,9	0,00009	5,0	3,5	3,7	3,9	
VMB 56-2C	0,12	0,17	2800	1,15	57,0	0,84	3,0	0,9	2,0	0,00010	5,0	3,9	4,1	4,3	
VMB 63-2B	0,18	0,25	2760	1,65	58,0	0,89	2,7	0,8	2,0	0,000235	8,0	4,4	4,6	4,8	
VMB 63-2C	0,25	0,33	2800	1,85	65,0	0,95	3,1	0,8	2,0	0,000310	10,0	5,2	5,4	5,6	
VMB 71-2B	0,37	0,50	2800	3,10	62,0	0,88	2,7	0,70	1,9	0,000536	12,0	6,3	6,5	6,7	
VMB 71-2C	0,55	0,75	2780	3,60	70,0	0,93	3,2	0,65	1,7	0,000691	20,0	7,7	7,9	8,1	
VMB 80-2B	0,75	1,00	2820	5,20	68,0	0,96	3,7	0,6	1,9	0,001115	25,0	10,6	10,8	11,0	
VMB 80-2C	1,1	1,5	2820	7,90	74,0	0,86	3,9	0,55	2,0	0,001422	30,0	12,2	12,4	12,6	
VMB 90S-2	1,5	2,0	2820	9,50	76,0	0,96	3,5	0,7	2,3	0,0066	50,0	14,5	15,0	15,5	
VMB 90L-2	1,85	2,5	2820	11,8	74,0	0,97	3,8	0,7	2,8	0,0066	50,0	15,1	15,6	16,1	
VMB 90LL-2	2,2	3,0	2830	13,5	75,0	0,95	3,9	0,7	2,5	0,0088	70,0	18,2	18,7	19,2	
<b>4 POLES 1500 RPM</b>															
VMB 56-4A	0,04	0,06	1390	0,50	42,0	0,93	2,0	1,4	2,1	0,00020	3,0	3,1	3,3	3,5	
VMB 56-4B	0,06	0,08	1390	0,73	44,0	0,85	2,1	1,1	2,2	0,00025	4,0	3,5	3,7	3,9	
VMB 56-4C	0,09	0,12	1360	1,10	50,0	0,86	2,0	1,1	1,8	0,00030	5,0	4,0	4,2	4,4	
VMB 63-4B	0,12	0,17	1360	1,10	56,0	0,89	2,2	1,0	1,9	0,000307	6,0	4,3	4,5	4,7	
VMB 63-4C	0,18	0,25	1350	1,65	58,0	0,86	2,3	0,8	1,6	0,000380	8,0	5,1	5,3	5,5	
VMB 71-4B	0,25	0,33	1350	2,50	58,0	0,82	2,0	0,90	1,7	0,000852	8,0	6,3	6,5	6,7	
VMB 71-4C	0,37	0,50	1350	3,30	65,0	0,84	2,5	0,7	1,6	0,001099	12,0	7,4	7,7	8,0	
VMB 80-4B	0,55	0,75	1370	4,40	65,0	0,88	2,6	0,65	1,7	0,002080	20,0	10,3	10,5	10,7	
VMB 80-4C	0,75	1,00	1370	5,60	67,0	0,90	2,9	0,6	1,7	0,002652	25,0	12,2	12,4	12,6	
VMB 90S-4	1,10	1,50	1380	7,70	65,0	0,95	3,2	0,65	1,9	0,0180	30,0	13,2	13,8	14,3	
VMB 90L-4	1,50	2,00	1380	10,00	68,0	0,96	3,2	0,7	1,8	0,0210	40,0	15,2	15,8	15,3	
VMB 90LL-4	1,85	2,50	1400	11,8	71,0	0,96	3,4	0,6	1,8	0,0230	40,0	18,1	18,7	19,2	

## "SERIES VMC" SINGLE-PHASE MOTORS ELECTRIC CHARACTERISTICS

For machines that require elevated starting torque for startings with loads equal to  $M_L/M_N > 1$ , in addition to the permanently-installed capacitor, these motors are equipped with a high-capacity electrolytic capacitor connected only during starting.

### • With electronic circuit breaker for "high starting torque"

MOTOR	Power		Rotation speed [Giri 1']	Rated current 230 Volt [A]	Efficiency $\eta$ [%]	Power factor $\cos \varphi$	Characteristic data			Moment of inertia J [Kgm <sup>2</sup> ]	Capacitor capacity $\mu$ F 450 Volt		Weight		
							Current $I_L/I_N$	Torque					IM B3 [Kg]	IM B5 [Kg]	IM B3 B5 [K g]
	$M_L/M_N$	$M_{max}/M_N$													
<b>2 POLES 1500 RPM</b>															
VMC 90S-2	1,50	2,00	2820	9,50	76,0	0,96	4,2	1,9	2,0	0,0066	30,0	70,0	14,6	15,1	15,6
VMC 90L-2	1,85	2,50	2820	11,80	74,0	0,97	4,5	1,7	2,2	0,0066	40,0	70,0	15,2	15,7	16,2
VMC 90LL-2	2,20	3,00	2840	13,50	75,0	0,95	4,7	1,7	1,9	0,0088	40,0	70,0	18,3	18,8	19,3
<b>4 POLES 3000 RPM</b>															
VMC 90S-4	1,10	1,50	1380	7,70	65,0	0,95	3,2	1,6	1,8	0,0180	30,0	70,0	13,3	13,9	14,4
VMC 90L-4	1,50	2,00	1380	10,00	68,0	0,96	3,2	1,6	1,8	0,0210	40,0	70,0	15,3	15,9	15,4
VMC 90LL-4	1,85	2,50	1400	11,80	71,0	0,96	3,4	1,6	1,8	0,02300	40,0	70,0	18,2	18,8	19,3
VMC 100L-4	2,20	3,00	1420	13,50	74,0	0,96	4,5	1,5	1,7	0,04100	70,0	70,0	22,4	22,9	23,4

### • Full load data

#### DEFINITIONS

$P_a$ = Absorbed power	[kW]	$I_N$ = rated current [A]
$P_n$ = Rated power (delivered)	[kW]	$I_L$ = Starting current [A]
$V_n$ = Input voltage	[V]	$M_N$ = rated torque [Kgm]
$N_n$ = Speed (with load)	[rpm]	$M_L$ = Starting torque [Kgm]
$\cos \varphi$ = Power factor		$M_{MAX}$ = Pull-in torque [Kgm]
$\eta$ = Efficiency		J = Moment of inertia [Kgm <sup>2</sup> ]



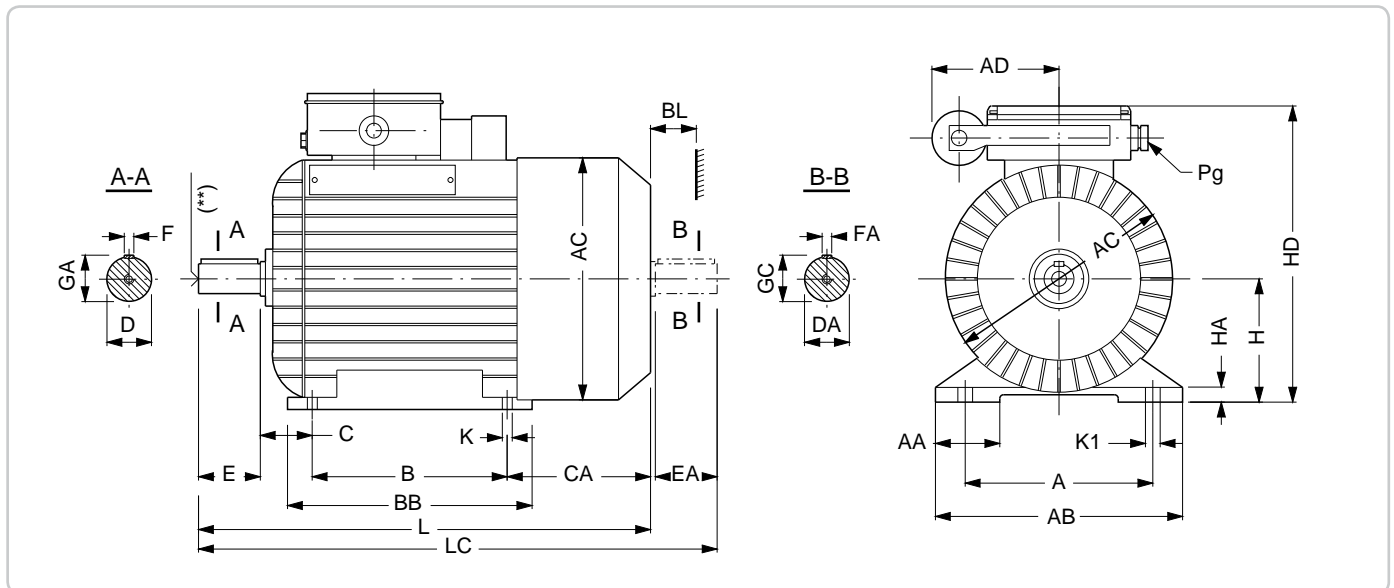
# DIMENSIONAL DRAWINGS

## SINGLE-PHASE ASYNCHRONOUS MOTORS WITH SQUIRREL CAGE ROTOR

Completely sealed IP55 Eurovoltage.  
 Assembly values comply with IEC - UNEL - MEC recommendations.

### VMB - VMC Series

Size of frame: from 56 to 80.  
 Support-foot mounted motors as per UNEL 13113  
 B3, B6, B7, B8, V5, V6 as per DIN 42950  
 IM1001, IM1051, IM1061, IM1071, IM1011, IM1031 as per IEC.



Motor SIZE	Assembly values in mm											Dimensional values in mm.											
	A	B	C	H	K	K1	Pg	Shaft				AA	AB	AC	AD max	BB	BL min	CA	HA	HD	L	LC	
								D DA	E EA	F FA	GA GC												
56	90	71	36	56	5,8	8	M20x1,5	9j6	20	3h9	10,2	30	110	117	74	92	11	66,5	7	154	188	213,5	
																		-0,5			74,5	196	221,5
																		82,5			204	229,5	
63	100	80	40	63	7	10	M20x1,5	11j6	23	4h9	12,5	36	124	126	74	106	11	79	8	165	214	245	
																		-0,5			94	228	260
																		106			245	283	
71	112	90	45	71	7	10	M20x1,5	14j6	30	5h9	16	45	142	141	90	116	12	88	8,5	182	245	283	
																		-0,5			106	263	301
																		120			277	328	
80	125	100	50	80	10	13	M20x1,5	19j6	40	6h9	21,5	55	160	157	95	130	15	98	9	200	277	328	
																		-0,5			120	299	350
																		120			299	350	

### NOTE

The technical data, dimensional values and all other information provided in this catalogue must not be considered legally binding; we reserve the right to modify data without notice.



# DIMENSIONAL DRAWINGS

## SINGLE-PHASE ASYNCHRONOUS MOTORS WITH SQUIRREL CAGE ROTOR

Completely sealed IP55 Eurovoltage.

Assembly values comply with IEC - UNEL - MEC recommendations.

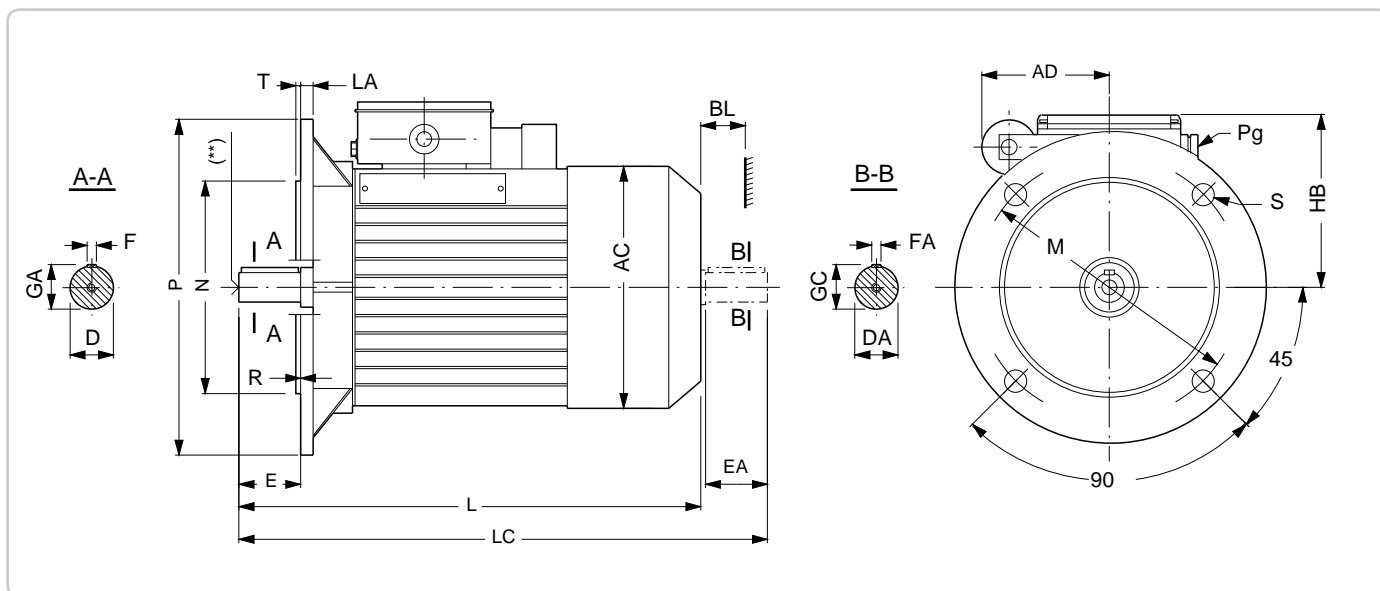
### VMB - VMC Series

Size of frame: from 56 to 80.

Flange motors as per UNEL 13117

B5, V1, V3 as per DIN 42950

IM3001, IM3011, IM3031 as per IEC.



Motor SIZE	Assembly values in mm																Dimensional values in mm									
	Shaft				B5 flange						Reduced B5 flange						Pg	AC	AD max	BL min	HB	L	LC			
	D DA	E EA	F FA	GA GC	M	N	P	LA	S Ø	T n°	M	N	P	LE	S Ø	T n°								R		
56																								188	213,5	
	9j6	20	3h9	10,2	100	80j6	120	8	7	4	3						0	M20x1,5	117	74	11	98	196	221,5		
																									204	229,5
63																								214	245	
	11j6	23	4h9	12,5	115	95j6	140	9	10	4	3						0	M20x1,5	126	74	11	102	228	260		
71																								245	283	
	14j6	30	5h9	16	130	110j6	160	9	10	4	3,5	115	95j6	140	14	M8	4	3	0	M20x1,5	141	90	12	111	263	301
80																								277	328	
	19j6	40	6h9	21,5	165	130j6	200	10	12	4	3,5	130	110j6	160	14	M8	4	3,5	0	M20x1,5	157	95	15	120	299	350

### NOTE

The technical data, dimensional values and all other information provided in this catalogue must not be considered legally binding; we reserve the right to modify data without notice.



# DIMENSIONAL DRAWINGS

## SINGLE-PHASE ASYNCHRONOUS MOTORS WITH SQUIRREL CAGE ROTOR

Completely sealed IP55 Eurovoltage.

Assembly values comply with IEC - UNEL - MEC recommendations.

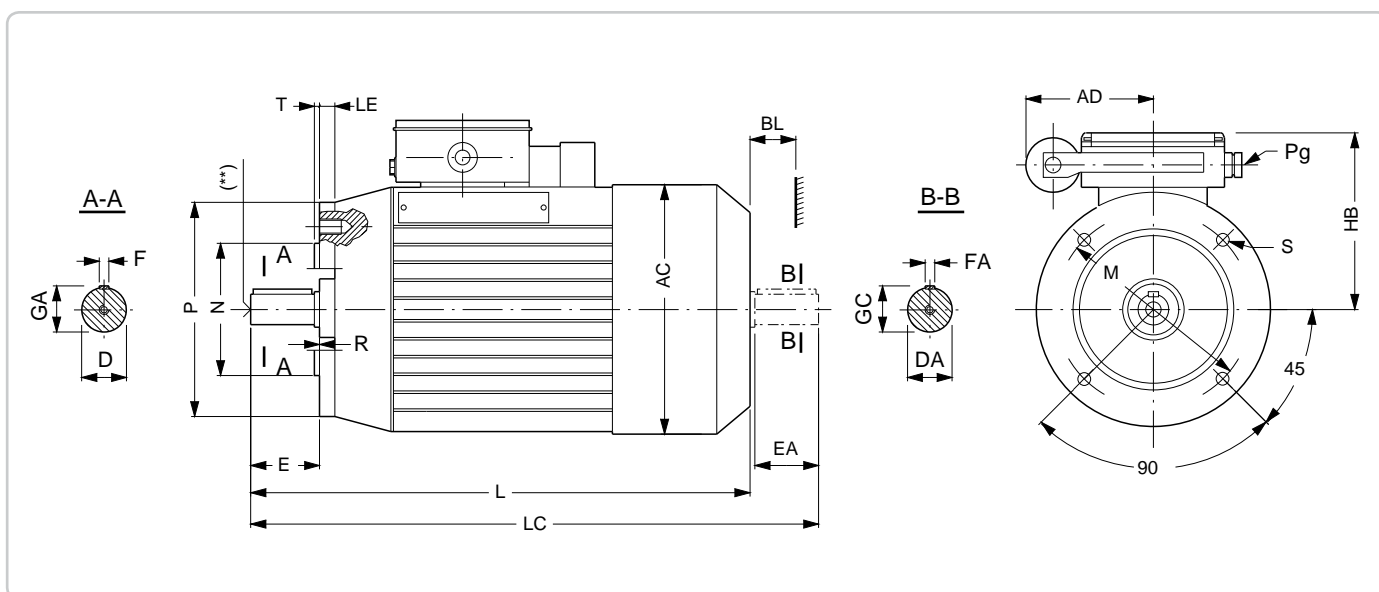
### VMB - VMC Series

Size of frame: from 56 to 80.

Special flange motors as per UNEL 13118

B14, V18, V19 as per DIN 42950

IM3601, IM3611, IM3631 as per IEC.



Motor SIZE	Assembly values in mm																	Dimensional values in mm							
	Shaft				Reduced B5 flange							B14 flange						Pg	AC	AD max	BL min	HB	L	LC	
	D DA	E EA	F FA	GA GC	M	N	P	LE	S Ø	T n°	M	N	P	LE	S Ø	T n°	R								
56																		M20x1,5					188	213,5	
	9j6	20	3h9	10,2							65	50j6	80	12,5	M5	4	2,5	0	117	74	11	98	196	221,5	
																							204	229,5	
63																		M20x1,5					214	245	
	11j6	23	4h9	12,5							75	60j6	90	9,5	M5	4	2,5	0	126	74	11	102	228	260	
																							245	283	
71																		M20x1,5					263	301	
	14j6	30	5h9	16	115	95j6	140	14	M8	4	3	85	70j6	105	12	M6	4	2,5	0	141	90	12	111	277	328
																							299	350	
80																		M20x1,5							
	19j6	40	6h9	21,5	130	110j6	160	14	M8	4	3,5	100	80j6	120	12	M6	4	3	0	157	95	15	120		

### NOTE

The technical data, dimensional values and all other information provided in this catalogue must not be considered legally binding; we reserve the right to modify data without notice.



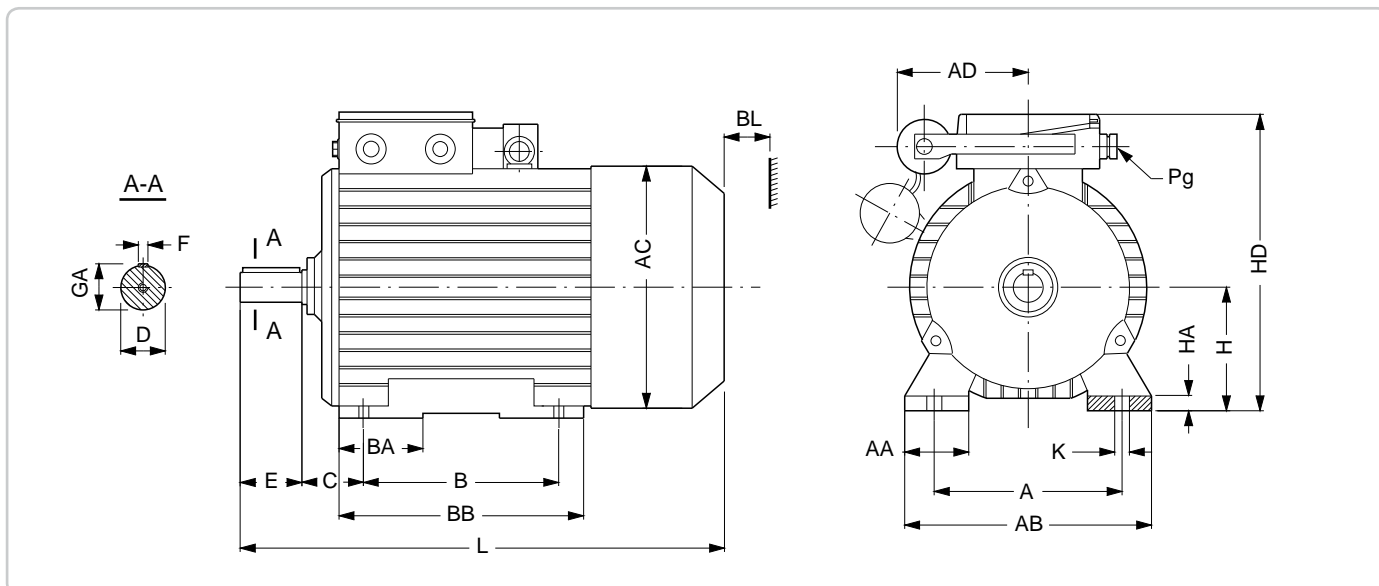
## DIMENSIONAL DRAWINGS

### SINGLE-PHASE ASYNCHRONOUS MOTORS WITH SQUIRREL CAGE ROTOR

Completely sealed IP55 Eurovoltage.  
 Assembly values comply with IEC - UNEL - MEC recommendations.

#### VMB - VMC Series

Size of frame: from 90 to 100.  
 Support-foot mounted motors as per UNEL 13113  
 B3, B6, B7, B8, V5, V6 as per DIN 42950  
 IM1001, IM1051, IM1061, IM1071, IM1011, IM1031 as per IEC.



Motor SIZE	Assembly values in mm										Dimensional values in mm									
	A	B	C	H	K	Pg	Shaft				AA	AB	AC	AD	BA	BB min	BL	HA	HD	L
90S	140	100	56	90	10	13,5	24j6	50	6h9	27	30	170	60	110	33	155	15	14	233	302
				-0,5																
90L	140	125	56	90	10	13,5	24j6	50	8h9	27	30	170	60	110	33	155	15	14	233	327
				-0,5																
100L	160	140	63	100	12	13,5	28j6	60	8h9	31	47	200	135	135	33	170	15	14	241	369
				-0,5																

#### NOTE

The technical data, dimensional values and all other information provided in this catalogue must not be considered legally binding; we reserve the right to modify data without notice.



## DIMENSIONAL DRAWINGS

### SINGLE-PHASE ASYNCHRONOUS MOTORS WITH SQUIRREL CAGE ROTOR

Completely sealed IP55 Eurovoltage.

Assembly values comply with IEC - UNEL - MEC recommendations.

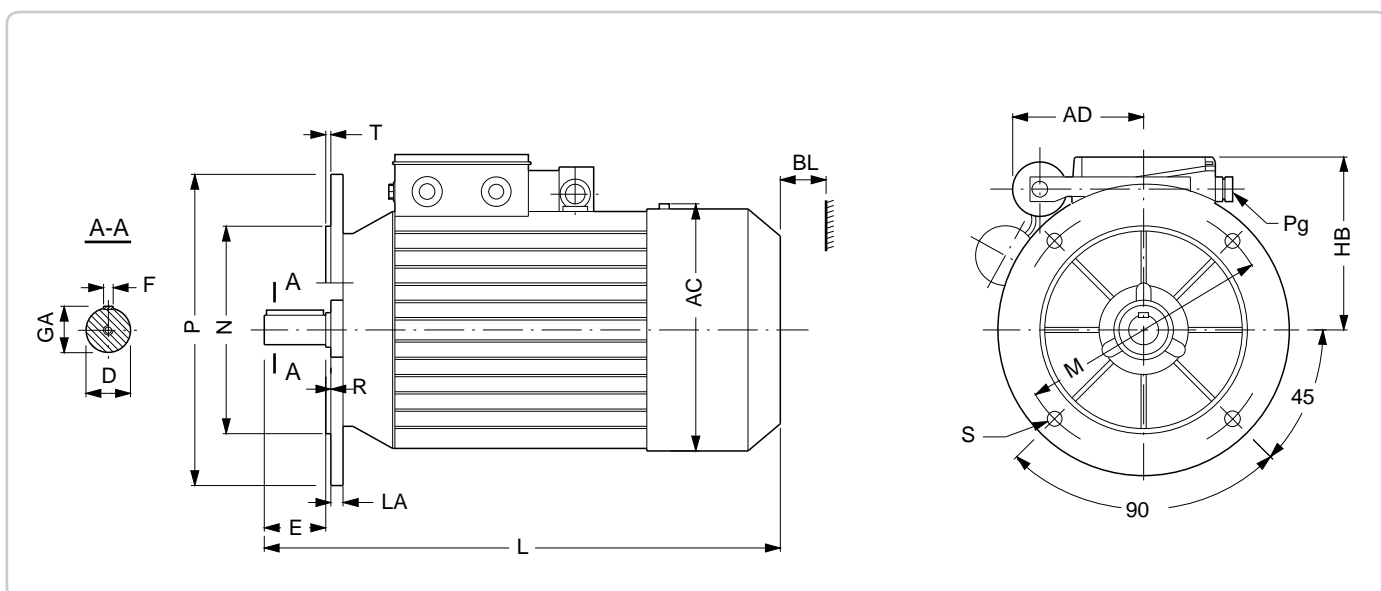
#### VMB - VMC Series

Size of frame: from 90 to 100.

Flange motors as per UNEL 13117

B5, V1, V3 as per DIN 42950

IM3001, IM3011, IM3031 as per IEC.



Motor type	Assembly values in mm												Dimensional values in mm					
	Shaft				Normal flange								Pg	AC	AD	BL min	HB	L
	D	E	F	GA	M	N	P	LA	R	S	T							
90S	50	6h9	27	165	130	200	10,5	0	11,5	4	3,5	13,5	60	110	15	130	302	
90L	24j6	50	8h9	27	165	130	200	10,5	0	11,5	4	3,5	13,5	60	110	15	130	327
100L	28j6	60	8h9	31	215	180	250	10,5	0	14	4	4	13,5	135	135	15	140	369

#### NOTE

The technical data, dimensional values and all other information provided in this catalogue must not be considered legally binding; we reserve the right to modify data without notice.



## SAFETY

### GENERAL RULES AND PRESCRIPTIONS



Although the three-phase asynchronous motors illustrated in this catalogue comply perfectly with all the safety standards and regulations in force. However certain danger areas inevitably remain due to the presence of voltage and moving parts. As per internationally-approved IEC 364 Standards, installation and maintenance operations must be performed exclusively by qualified personnel. Failure to respect the above can raise the risk of damage and injury. We recommend observing all the local standards and regulations in force and scrupulously respecting the instructions for motor operation provided.

### ELECTRICAL CONNECTION



Before performing any operations on the motor, make sure that no voltage is present and that the motor cannot be accidentally switched on. This precaution also applies to any accessories installed for the motor such as anti-condensate devices, servo-assisted ventilation, etc... Before connecting power supply to the motor, make sure that the mains voltage and frequency match the data listed on the motor's rating plate, paying particular attention to the accepted ranges of tolerance, while bearing in mind that the power line must be sized to the power of the user (CEI 64-8 Standards).

**Always make the ground connection!**

### MOTOR INSTALLATION SITE



**Vemat** motors are designed for use in industrial surroundings as per harmonised EN 60034 Standards. Other installations (e.g. places where children are present), may require the installation of additional protections directly at the site of motor operation. Special attention must be paid to the surrounding conditions at the motor installation site, such as the degree of insulation necessary against penetration by water. **Vemat** motors come with IP55 Protection rating; for areas where greater protection is required, consult this catalogue's Accessories section or contact our Technical Office directly.

### NOTE:

**Catalogue data is not binding.  
This catalogue invalidates and replaces all previous issues.**





# DET NORSKE VERITAS QUALITY MANAGEMENT SYSTEM CERTIFICATE

Certificato No. / Certificate No. **CERT-11553-2003-AQ-VEV-SINCERT**

Si attesta che / This certifies that

Il sistema di gestione per la qualità di / the quality management system of

**VEMAT MOTORI S.r.l.**

Via Gualda, 10 - 36075 Montecchio Maggiore (VI) - Italy

È conforme ai requisiti della norma per i sistemi di gestione per la qualità  
Conforms to the quality management systems standard

**UNI EN ISO 9001:2008 (ISO 9001:2008)**

Questa certificazione è valida per il seguente campo applicativo:  
This certificate is valid for the following products or services:

*(Further clarifications regarding the scope and applicability of the requirements of the standards may be obtained by consulting the certified organization)*

**Progettazione, sviluppo, produzione e vendita di motori elettrici asincroni monofase e trifase**  
*Design and manufacture of asynchronous three-phase and single-phase electric motors*

Data Prima Emissione  
First Issue Date  
**2003-01-07**

Campo e data  
Place and date  
**Agrate Brianza, (MB) 2011-11-08**

Settore EA: 19

**Francesco Paolo Nasuti**  
Lead Auditor



ACCREDIA  
Società per Azioni  
Via G. Cesare, 103 - 00199 Roma  
Tel. +39 06 596331 - Fax +39 06 596332  
www.accredia.it

Data di scadenza  
Expiry Date  
**2014-12-06**

per l'Organismo di Certificazione  
for the Accredited Unit  
**DET NORSKE VERITAS ITALIA S.R.L.**

**Zeno Beltrami**  
Management Representative

*La validità del presente certificato è subordinata a sorveglianza periodica (ogni 6, 9 o 12 mesi) e al riesame completo del sistema (con periodo triennale)*  
*The validity of this certificate is subject to periodic audits (every 6, 9 or 12 months) and the complete re-assessment of the system every three years*



VEMAT MOTORI S.r.l. - Registered office: Via Pantano, 2 - 20122 Milano - Italy  
Productive unit and administrative offices: Via Gualda, 10 Z.I. - 36075 Montecchio Maggiore (VI) - Italy  
Tel. +39 0444 491973 r.a. - Fax +39 0444 491978 - e-mail: [vemat@vemat.it](mailto:vemat@vemat.it) - [www.vemat.it](http://www.vemat.it)