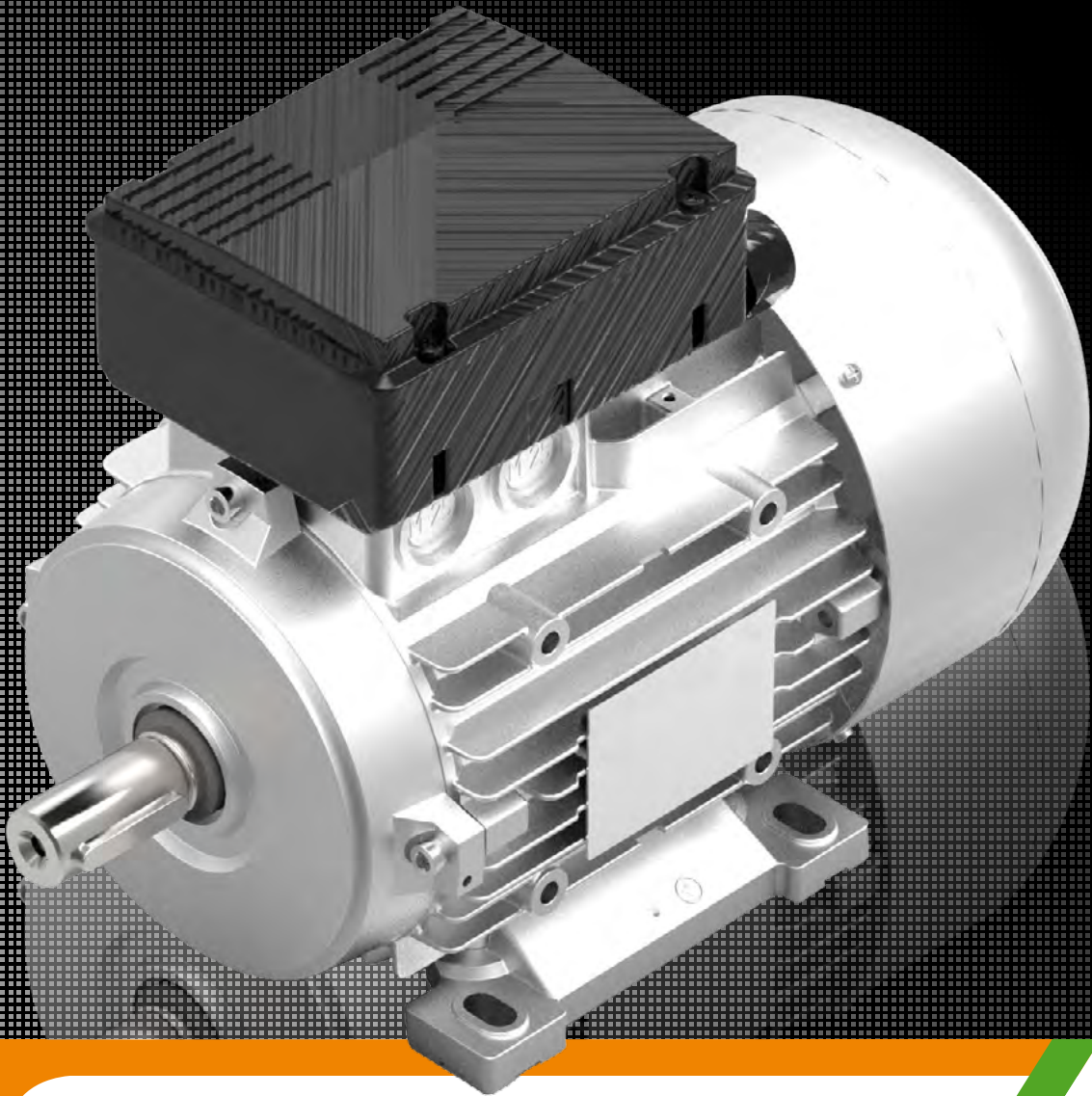




ORANGE1  
HOLDING



# Single Phase Motors

Technical Datasheets

EN



# ORANGE1 HOLDING

## A dynamic, strong and ambitious Group:

Orange1 Holding is an international renown Group, one of the most important European manufacturers of single-phase and three-phase asynchronous electric motors. It has an annual capacity of more than 1 million motors and 5 million electric stators with an annual turnover of approx 150 million euro and more than 1000 workers in 9 production facilities. The group, established in 1971 by Leone Donazzan, chaired today by his son Armando Donazzan, is strongly focused on technological innovation, performance and customization to meet individual clients requirements. As a group of 10 companies it has a powerful advantage: the strength in numbers.



# Single Phase Motors

EME single phase motors are manufactured upon customer's request following the standards indicated at the side. The standard configuration (STD) of single phase motors includes a run capacitor permanently connected. EME also proposes other solutions, such as a centrifugal circuit breaker (DSG) to increase the starting torque, by connecting an additional capacitor to the motor. The availability - upon request subject to additional cost - of versions compliant with these regulations is reported in the Table below:

**UL and CSA approval:** motor manufactured and marked in accordance with the safety requirements determined by the two main North American Control Bodies: E176350 identification for UL and LR109925 for CSA.

**ATEX Directive:** motor manufactured and marked in accordance with the requirements of categories 3G and 3D for Zone 2 and Zone 22.



CABLE GLAND	M56 - M71	1 M16 x 1,5
	M80 - M90s	1 M20 x 1,5
	M90L - M100	1 M25 x 1,5



**MANUFACTURING  
STANDARD**

Rated voltage	MM 230V 50Hz
Protection degree	STD IP55 / DSG IP54
Bearings	2RS
Insulation class	F
Duty	S1
Mounting arrangement	IM B3 top terminal
Frame	Aluminium pressure die casting, removable feet
Terminal box	Two components or Capacitor box
Run capacitor	Internal permanently connected capacitor
Start capacitor (DSG)	Internal, connected through circuit breaker
Fan cover	Galvanized steel sheet
Painting	Not painted
Balancing	Full key

# Single Phase Motors

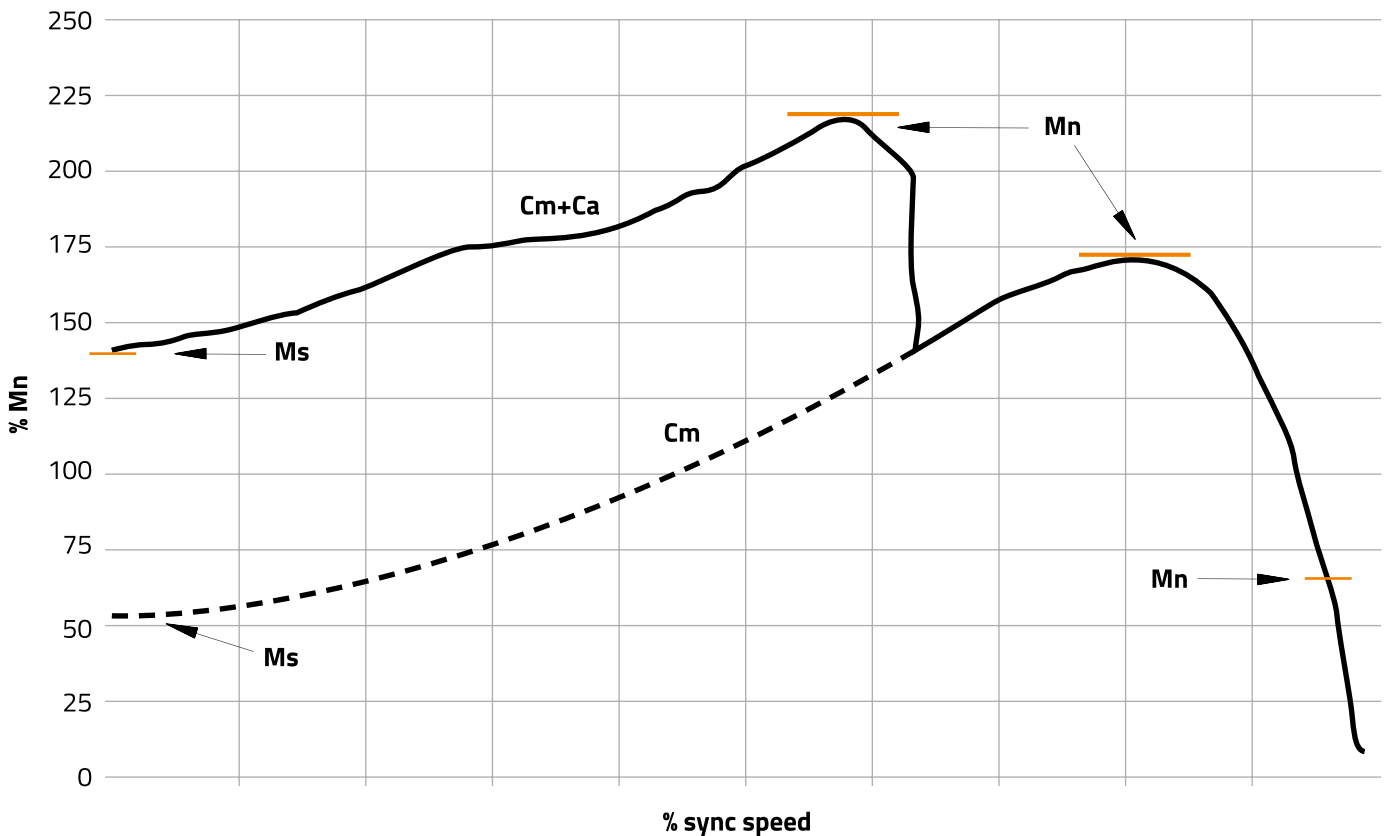
The starting torque of single phase motors is usually lower than the rated torque. When there is a need for the torque to be increased, the motor can be equipped with an additional starting capacitor to be inserted during the start phase. Such starting capacitor must be disconnected when the motor speed is close to the speed of the breakdown torque. To this end the following starting devices are available: **manual starting switch**. It enables the operator to connect and disconnect the additional capacitor manually.

## Two types of automatic switches:

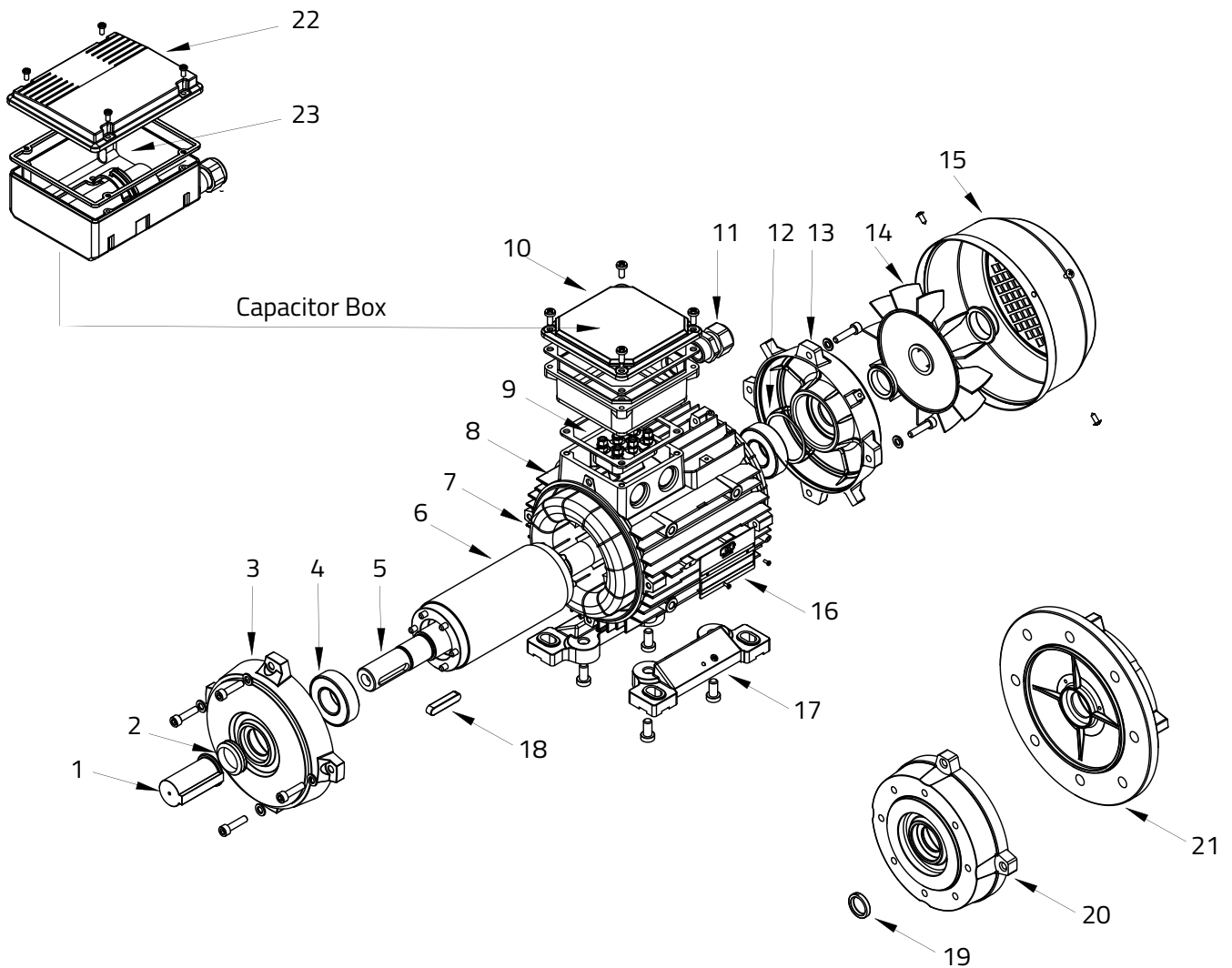
- centrifugal switch (standard in the DSG range) applied to the rear motor shield. The additional capacitor is managed automatically both during the starting phase and in case of overload. Although this is the most reliable solution it produces an increase in motor length;
- voltmetric or temporized relay. This device is located inside the terminal box and is designed to manage the additional capacitor during the starting phase only. Its installation does not affect the standard motor size.

To sum up and illustrate the starting behaviour when the aforementioned solutions are applied, please consult the following chart.

## TORQUE - Speed



# Exploded



<b>1</b>	Shaft protection	<b>13</b>	End-shield (non-drive end)
<b>2</b>	Dust seal (V-ring)	<b>14</b>	Cooling fan (PVC)
<b>3</b>	End-shield (drive end)	<b>15</b>	FH Fan cover
<b>4</b>	Bearing	<b>16</b>	Nameplate
<b>5</b>	Shaft	<b>17</b>	Foot
<b>6</b>	Rotor	<b>18</b>	Shaft key
<b>7</b>	Stator assembly	<b>19</b>	Oil seal
<b>8</b>	Casing	<b>20</b>	B14 flange
<b>9</b>	Terminal board	<b>21</b>	B5 flange
<b>10</b>	Terminal box	<b>22</b>	Capacitor box
<b>11</b>	Cable gland	<b>23</b>	Capacitor
<b>12</b>	Pre-load washer		

## Legend

size	Pn	n	In	Cosφ	η	Mn	Mm
frame size	rated power	rated speed	rated current	power factor	efficiency	rated torque	maximum torque
Ms	Is	Cm	Ca	J	kg	UL / CSA / ATEX	
stand-still torque	locked-rotor current	run capacitor	start capacitor (DSG)	inertia	weight	versions with extra price	

## MMSTD - SINGLE PHASE standard motors - 230V, 50Hz

SIZE	Pn		n	In(230V)	Cosφ	η	Mn	Ms/Mn	Is/In	Cm	J	kg	UL	CSA	ATEX
	kW	Hp	min <sup>-1</sup>	A		%	Nm			μF	kgm <sup>2</sup>				
<b>3000 min<sup>-1</sup> - 2 poles</b>															
M56	0,11	0,15	2680	1	0,94	50	0,39	1,2	1,9	6,3	0,00008	3,3	x	x	x
M63a	0,185	0,25	2700	1,55	0,94	55	0,65	0,85	2,4	8	0,00014	4,4	x	x	x
M63b	0,25	0,35	2750	2,2	0,88	56	0,87	1	2,7	10	0,00024	4,6	x	x	x
M71a	0,37	0,5	2700	3,2	0,84	61	1,31	0,67	2,8	12	0,0004	6,6	x	x	x
M71b	0,55	0,75	2730	4,3	0,92	61	1,92	0,62	2,8	16	0,00038	7,7	x	x	x
M80a	0,75	1	2770	5,1	0,94	68	2,58	0,83	3,6	20	0,00066	10	x	x	x
M80b	1,1	1,5	2750	7,1	0,96	70	3,82	0,55	3,5	25	0,00083	11,4	x	x	x
M80c	1,5	2	2700	9,8	0,95	70	5,3	0,58	3,6	35	0,00092	12,3	x	x	x
M90Sb	1,5	2	2750	9	0,98	75	5,2	0,74	3,7	40	0,00114	14,7	x	x	x
M90La	1,85	2,5	2780	10,7	0,99	76	6,35	0,65	3,5	50	0,00182	16,8	x	x	x
M90Lb	2,2	3	2740	12,7	0,99	76	6,67	0,7	3	60	0,00182	16,8	x	x	x
M100L	2,5	3,5	2850	14,7	0,99	73	8,4	0,7	4	80	0,0039	22	x	x	x
<b>1500 min<sup>-1</sup> - 4 poles</b>															
M56	0,09	0,12	1300	1	0,9	40	0,66	0,75	1,7	5	0,00012	3,3	x	x	x
M63a	0,11	0,15	1330	1,15	0,93	45	0,79	1	1,6	6	0,0002	4	x	x	x
M63b	0,18	0,25	1350	1,7	0,99	48	1,31	1	1,6	10	0,0003	4,7	x	x	x
M71a	0,25	0,35	1330	2	0,93	60	1,8	1	2,3	10	0,00064	6,5	x	x	x
M71b	0,37	0,5	1300	3,2	0,92	55	2,72	1	2,5	16	0,00086	7,7	x	x	x
M80a	0,55	0,75	1360	3,7	0,98	64	3,86	0,52	2,7	14	0,00142	8,9	x	x	x
M80b	0,75	1	1400	5,3	0,94	65	5,1	0,5	3,5	20	0,00184	10,4	x	x	x
M90S	1,1	1,5	1360	7	0,95	72	7,72	0,6	2,6	35	0,00242	13,3	x	x	x
M90La	1,5	2	1360	9,3	0,96	73	10,8	0,5	3	45	0,00247	16,2	x	x	x
M90Lb	1,85	2,5	1360	12,1	0,91	73	13	0,5	3,1	55	0,00268	17,8	x	x	x
M100La	1,85	2,5	1360	12,2	0,94	70	13	0,6	3	55	0,00403	21,4	x	x	x
M100Lb	2,2	3	1350	13	0,97	76	15,6	0,5	4	70	0,00506	23,9	x	x	x
<b>1000 min<sup>-1</sup> - 6 poles</b>															
M71	0,18	0,25	920	1,8	0,8	55	1,92	0,7	2,2	8	0,00065	7	x	x	x
M80a	0,25	0,35	940	2,5	0,8	55	2,54	0,6	2,7	10	0,00142	8,5	x	x	x
M80b	0,37	0,5	920	3,3	0,94	51	3,84	0,65	2,1	16	0,00186	10	x	x	x
M90S	0,55	0,75	915	4,25	0,88	64	5,74	0,5	2,3	20	0,0039	12,2	x	x	x
M90La	0,75	1	945	5,8	0,88	64	7,6	0,5	2,7	25	0,00296	14,5	x	x	x
M90Lb	1,1	1,5	880	8	0,95	63	11,94	0,5	2	40	0,00267	17	x	x	x
M100La	1,1	1,5	935	8,1	0,91	65	11,95	0,4	2,3	35	0,00343	20	x	x	x
M100Lb	1,5	2	930	10,6	0,96	64	15,4	0,5	2,9	50	0,00403	21,3	x	x	x

SIZE	Pn		n	In(230V)	Cosφ	η	Mn	Ms/Mn	Is/In	Ca	Cm	J	kg	UL	CSA	ATEX
	kW	Hp	min <sup>-1</sup>	A		%	Nm			μF	μF	kgm <sup>2</sup>				

### 3000 min<sup>-1</sup> - 2 poles

M63a	0,18	0,25	2700	1,5	0,94	55	0,65	1,8	2,8	16	8	0,00014	4,4	x	x	x
M63b	0,25	0,35	2750	2,1	0,95	55	0,87	1,8	2,7	20	10	0,00017	4,9	x	x	x
M71a	0,37	0,5	2700	3,2	0,84	61	1,31	1,3	2,8	63-80	12	0,0004	7	x	x	x
M71b	0,55	0,75	2730	4,3	0,92	61	1,92	1,4	2,8	63-80	16	0,00038	8,3	x	x	x
M80a	0,75	1	2770	5,1	0,94	68	2,58	1,5	3,6	63-80	20	0,00066	10	x	x	x
M80b	1,1	1,5	2750	7,1	0,96	70	3,82	1,6	3,5	80-100	25	0,00083	11,8	x	x	x
M80c	1,5	2	2700	9,8	0,95	70	5,3	1,6	3,3	80-100	35	0,00092	12,5	x	x	x
M90S	1,5	2	2750	9	0,98	75	5,2	1,9	3,7	100-125	40	0,00114	15	x	x	x
M90La	1,85	2,5	2780	10,7	0,99	76	6,35	2	3,5	100-125	50	0,00182	16,8	x	x	x
M90Lb	2,2	3	2740	12,7	0,99	76	6,67	1,9	3	125-156	60	0,00182	16,8	x	x	x
M100L	2,5	3,5	2850	14,7	0,99	73	8,4	1,8	4	125-156	80	0,0039	22,4	x	x	x

### 1500 min<sup>-1</sup> - 4 poles

M63a	0,11	0,15	1330	1,15	0,93	45	0,79	1,8	1,6	14	6,3	0,0002	4	x	x	x
M63b	0,185	0,25	1350	1,7	0,99	48	1,31	1,7	1,6	20	10	0,0003	4,7	x	x	x
M71	0,37	0,5	1300	3,2	0,92	55	2,72	1,5	2,3	63-80	16	0,00086	8	x	x	x
M80a	0,55	0,75	1360	3,7	0,98	64	3,86	1,3	2,7	63-80	16	0,00142	9	x	x	x
M80b	0,75	1	1400	5,3	0,94	65	5,1	1,3	3,5	63-80	20	0,00184	10,4	x	x	x
M90S	1,1	1,5	1380	6,7	0,98	71	7,6	1,3	3,3	80-100	35	0,00185	13,4	x	x	x
M90La	1,5	2	1360	9,3	0,96	73	10,8	1,5	3	100-125	45	0,00247	16,2	x	x	x
M90Lb	1,85	2,5	1360	12,1	0,91	73	13	1,5	3,1	100-125	55	0,00268	18,2	x	x	x
M100La	1,85	2,5	1360	12,2	0,94	70	13	1,6	3	100-125	55	0,00403	21,5	x	x	x
M100Lb	2,2	3	1350	13	0,97	76	15,6	1,7	4	125-156	70	0,00506	24	x	x	x

### 1000 min<sup>-1</sup> - 6 poles

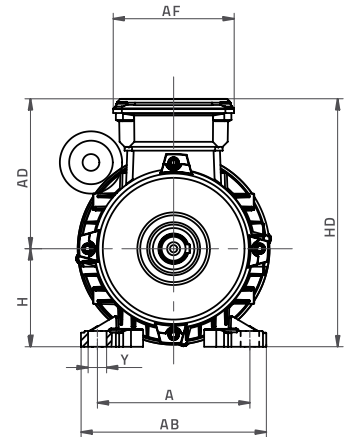
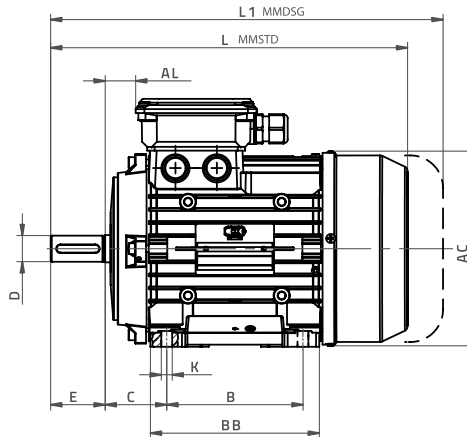
M80	0,37	0,5	920	3,3	0,94	51	3,84	1,5	2,1	63-80	16	0,00186	10,3	x	x	x
M90S	0,55	0,75	915	4,25	0,88	64	5,74	1,3	2,3	63-80	20	0,0039	12,6	x	x	x
M90La	0,75	1	945	5,8	0,88	64	7,6	1,3	2,7	80-100	25	0,00296	14,9	x	x	x
M90Lb	1,1	1,5	930	8,3	0,96	60	11,3	1,4	2,5	80-100	35	0,00267	17,4	x	x	x
M100La	1,1	1,5	935	8,1	0,91	65	11,25	1,5	2,3	100-125	35	0,00343	20,5	x	x	x
M100Lb	1,5	2	930	10,6	0,96	64	15,4	1,4	2,9	100-125	50	0,00403	21,8	x	x	x

# Dimensions MMSTD - MMDSG

## External capacitor, Terminal box - two components

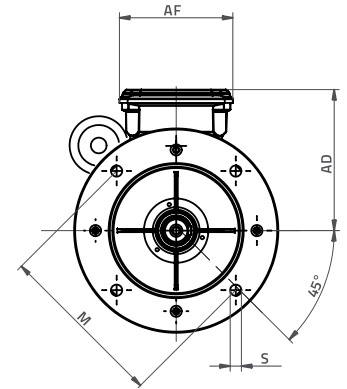
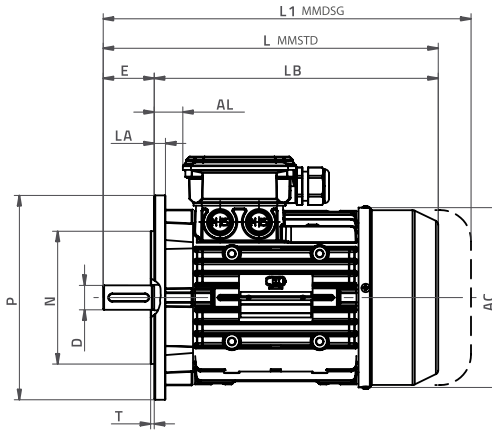
### B3

B6  
B7  
B8  
V5  
V6



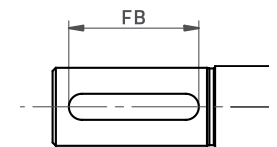
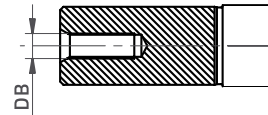
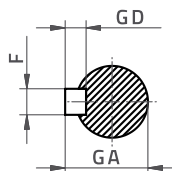
### B5

V1  
V6



#### Tolerances (DIN 748 - 7160 - 7161 - 42948)

D	≤ 28 mm	j6
	38 - 50 mm	k6
	> 50 mm	m6
N	≤ 230 mm	j6
	> 230 mm	h6
H	≤ 250 mm	+0 / -0,5 mm
	> 250 mm	+0 / -1 mm



Dimensions in mm

SIZE	B3														B5														
	A	AB	AC	AD	AF	AL	B	BB	C	D	DB	E	F	FB	GA	GD	H	HD	L	L1	K	Y	P	N	M	T	S	LA	LB
M56	90	109	115	112	93	13	71	91	36	9	M3	20	3	15	10,2	3	56	168	189		6	11	120	80	100	3	7	8	169
M63	100	120	123	113	93	19	80	106	40	11	M4	23	4	15	12,5	4	63	176	208	249	7	12	140	95	115	3	10	10	185
M71	112	136	147	125	93	24	90	108	45	14	M5	30	5	20	16	5	71	196	242	286	8	12	160	110	130	3	10	9,5	212
M80	125	160	165	133	111	23	100	125	50	19	M6	40	6	30	21,5	6	80	213	279	305	9,5	17	200	130	165	3,5	12	10,5	239
M90S	140	170	181	138	111	28	100	131	56	24	M8	50	8	40	27	7	90	228	305	330	9,5	17	200	130	165	3,5	12	11	255
M90L	140	170	181	138	111	28	125	156	56	24	M8	50	8	40	27	7	90	228	330	355	9,5	17	200	130	165	3,5	12	11	280
M100L	160	200	198	149	111	36	140	170	63	28	M10	60	8	50	31	7	100	249	370	400	11	21	250	180	215	4	14,5	15	310

All the charts include approximate values and dimensions. EME Spa reserve the right to modify values and/or dimensions without notice.



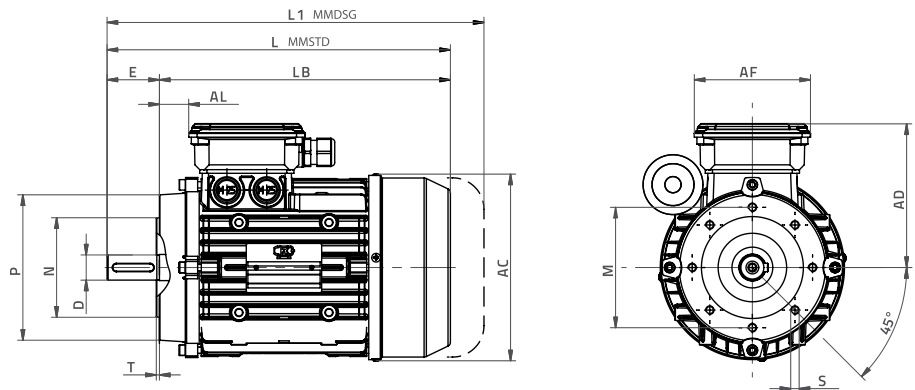
# Dimensions MMSTD - MMDSG

## External capacitor, Terminal box - two components

### B14

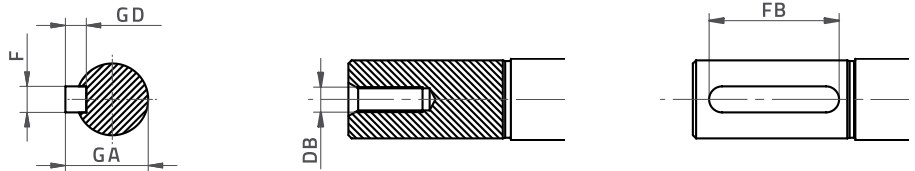
V18

V19



#### Tolerances (DIN 748 - 7160 - 7161 - 42948)

D	≤ 28 mm	j6
	38 - 50 mm	k6
	> 50 mm	m6
N	≤ 230 mm	j6
	> 230 mm	h6
H	≤ 250 mm	+0 / -0,5 mm
	> 250 mm	+0 / -1 mm



Dimensions in mm

SIZE																					B14							
	A	AB	AC	AD	AF	AL	B	BB	C	D	DB	E	F	FB	GA	GD	H	HD	L	L1	K	Y	P	N	M	T	S	LB
M56	90	109	115	112	93	13	71	91	36	9	M3	20	3	15	10,2	3	56	168	189		6	11	80	50	65	2,5	M5	169
M63	100	120	123	113	93	19	80	106	40	11	M4	23	4	15	12,5	4	63	176	208	249	7	12	90	60	75	2,5	M5	185
M71	112	136	147	125	93	24	90	108	45	14	M5	30	5	20	16	5	71	196	242	286	8	12	105	70	85	2,5	M6	212
M80	125	160	165	133	111	23	100	125	50	19	M6	40	6	30	21,5	6	80	213	279	305	9,5	17	120	80	100	3	M6	239
M90S	140	170	181	138	111	28	100	131	56	24	M8	50	8	40	27	7	90	228	305	330	9,5	17	140	95	115	3	M8	255
M90L	140	170	181	138	111	28	125	156	56	24	M8	50	8	40	27	7	90	228	330	355	9,5	17	140	95	115	3	M8	280
M100L	160	200	198	149	111	36	140	170	63	28	M10	60	8	50	31	7	100	249	370	400	11	21	160	110	130	3,5	M8	310

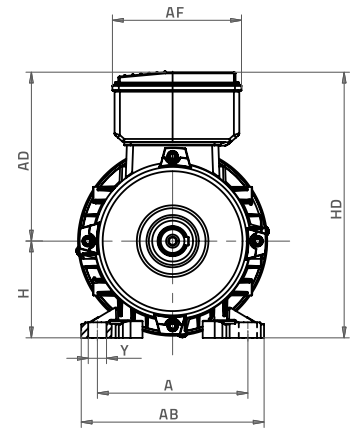
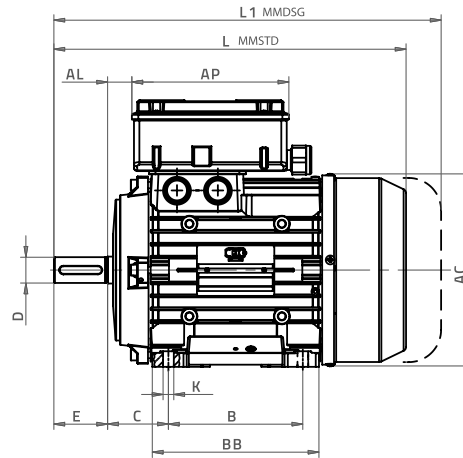
All the charts include approximate values and dimensions. EME Spa reserve the right to modify values and/or dimensions without notice.

# Dimensions MMSTD - MMDSG

Internal capacitors into Capacitor box

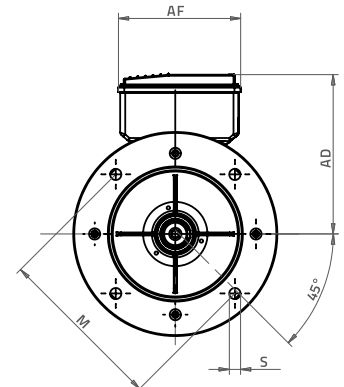
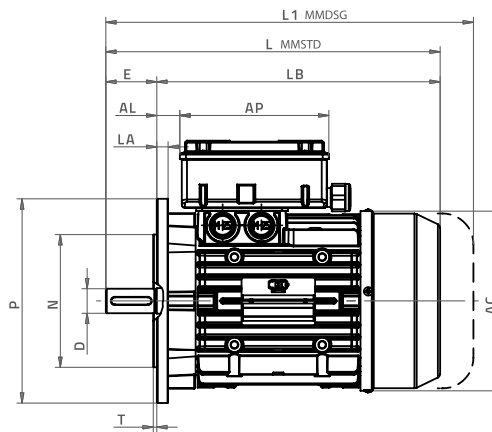
## B3

- B6
- B7
- B8
- V5
- V6



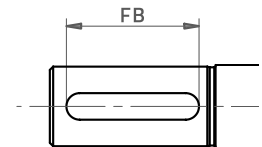
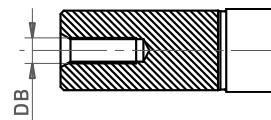
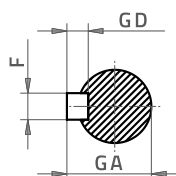
## B5

- V1
- V6



**Tolerances (DIN 748 - 7160 - 7161 - 42948)**

D	≤ 28 mm	j6
	38 - 50 mm	k6
	> 50 mm	m6
N	≤ 230 mm	j6
	> 230 mm	h6
H	≤ 250 mm	+0 / -0,5 mm
	> 250 mm	+0 / -1 mm



Dimensions in mm

SIZE	B3															B5														
	A	AB	AC	AD	AF	AP	AL	B	BB	C	D	DB	E	F	FB	GA	GD	H	HD	L	L1	K	Y	P	N	M	T	S	LA	LB
M56	90	109	115	112	92	121	13	71	91	36	9	M3	20	3	15	10,2	3	56	168	189		6	11	120	80	100	3	7	8	169
M63	100	120	123	113	92	121	19	80	106	40	11	M4	23	4	15	12,5	4	63	176	208	249	7	12	140	95	115	3	10	10	185
M71	112	136	147	125	92	121	24	90	108	45	14	M5	30	5	20	16	5	71	196	242	286	8	12	160	110	130	3	10	9,5	212
M80	125	160	165	133	119	146	23	100	125	50	19	M6	40	6	30	21,5	6	80	213	279	305	9,5	17	200	130	165	3,5	12	10,5	239
M90S	140	170	181	138	119	146	28	100	131	56	24	M8	50	8	40	27	7	90	228	305	330	9,5	17	200	130	165	3,5	12	11	255
M90L	140	170	181	138	119	146	28	125	156	56	24	M8	50	8	40	27	7	90	228	330	355	9,5	17	200	130	165	3,5	12	11	280
M100L	160	200	198	149	119	146	36	140	170	63	28	M10	60	8	50	31	7	100	249	370	400	11	21	250	180	215	4	14,5	15	310

All the charts include approximate values and dimensions. EME Spa reserve the right to modify values and/or dimensions without notice.

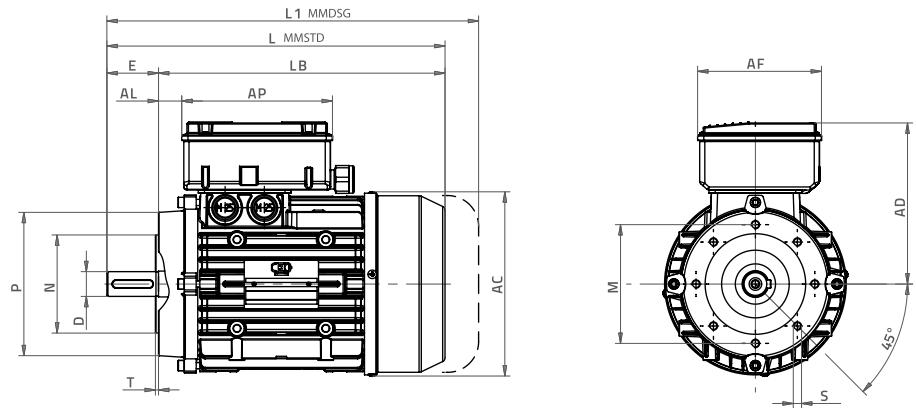
# Dimensions MMSTD - MMDSG

Internal capacitors into Capacitor box

## B14

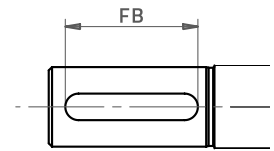
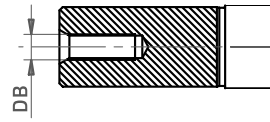
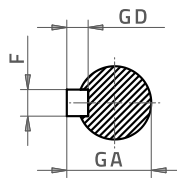
V18

V19



### Tolerances (DIN 748 - 7160 - 7161 - 42948)

D	≤ 28 mm	j6
	38 - 50 mm	k6
	> 50 mm	m6
N	≤ 230 mm	j6
	> 230 mm	h6
H	≤ 250 mm	+0 / -0,5 mm
	> 250 mm	+0 / -1 mm



Dimensions in mm

SIZE																					B14									
	A	AB	AC	AD	AF	AP	AL	B	BB	C	D	DB	E	F	FB	GA	GD	H	HD	L	L1	K	Y	P	N	M	T	S	LB	
M56	90	109	115	112	92	121	13	71	91	36	9	M3	20	3	15	10,2	3	56	168	189		6	11	80	50	65	2,5	M5	169	
M63	100	120	123	113	92	121	19	80	106	40	11	M4	23	4	15	12,5	4	63	176	208	249	7	12	90	60	75	2,5	M5	185	
M71	112	136	147	125	92	121	24	90	108	45	14	M5	30	5	20	16	5	71	196	242	286	8	12	105	70	85	2,5	M6	212	
M80	125	160	165	133	119	146	23	100	125	50	19	M6	40	6	30	21,5	6	80	213	279	305	9,5	17	120	80	100	3	M6	239	
M90S	140	170	181	138	119	146	28	100	131	56	24	M8	50	8	40	27	7	90	228	305	330	9,5	17	140	95	115	3	M8	255	
M90L	140	170	181	138	119	146	28	125	156	56	24	M8	50	8	40	27	7	90	228	330	355	9,5	17	140	95	115	3	M8	280	
M100L	160	200	198	149	119	146	36	140	170	63	28	M10	60	8	50	31	7	100	249	370	400	11	21	160	110	130	3,5	M8	310	

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