

# Motors for Hazardous Areas

D5, D6 SERIES

I M2, II 2G, II 2D

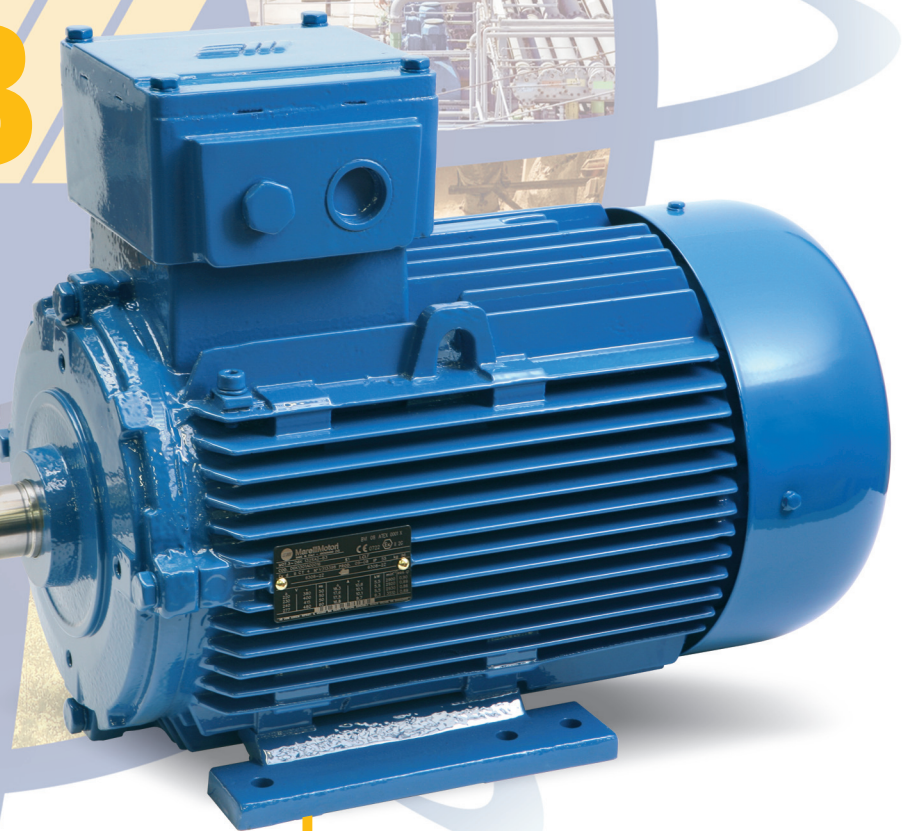
Ex d/de I, Ex d/de IIB, Ex tD A21 IP65



Ex



IIB



**MarelliMotori**

This catalogue refers to ATEX Motors belonging to Group I Category M2 and Group II Category 2G, 2D, 2GD as described.

## STANDARDS

The ATEX Motors described in this catalogue are manufactured in accordance with IEC 60034-1-5-6-7-8-9-12-14, IEC 60072-1, EN 50347, EN 60079-0-1-7, EN 61241-0-1. Approved by SABS (South Africa Bureau Standards) and Gost R (Russia).

## EUROPEAN DIRECTIVES

Title	Directive
Equipment and protective system intended for use in potentially explosive atmospheres (ATEX)	94/9/EC
Electromagnetic Compatibility (EMC)	2004/108/IEC
Low Voltage Directive (LVD)	2006/95/EC
Machinery Directive (MD)	98/37/EC

## CERTIFICATES

Frame size	Number	Temperature Limits
71-132	BVI 08 ATEX 0001	-20°C +40°C*
160-315	CESI 02 ATEX 071	-20°C +40°C*
355-400	CESI 03 ATEX 048	-20°C +40°C*

(\*) Limit +60°C For Temperature Class T3 and/or Maximum Surface Temperature T150°C. -40°C, -55°C limits on request (only for cat. 2G).

## GROUPS

The electrical motors are subdivided into two groups, depending on the intended operating environment.

GROUP	Description
I	equipment used in <b>mines</b> and on the surface of mines
II	equipment used in explosive atmosphere other than mines ( <b>surface industries</b> )

## EQUIPMENT AND AREA CLASSIFICATIONS

The table on the right defines the EQUIPMENT CATEGORY suitable for each CLASSIFIED AREA. Dangerous environments are classified by ZONE, according to the risk generated by explosive GAS (zone 0, 1 and 2) or DUST (zone 20, 21 and 22). The equipment is classified by CATEGORY according to the level of protection the apparatus must have (specified by a number) and the atmosphere in which it will operate (specified by the letter G, D or GD). In the areas and equipment classification lower numbers stand for higher danger and requirement for higher protection. In zone 0/20 the use of electric motors is not allowed.

D	G	SAFE	Zone 2	Zone 1	Zone 0
SAFE		Standard Industrial	3G	2G	
Zone 22		3D	3GD	2GD	
Zone 21		2D	2GD	2GD	
Zone 20		MOTORS NOT PERMITTED			

## TYPES OF PROTECTION

The types of protection are defined as follows:

GAS environments	
<b>PROTECTION</b>	<i>The equipment must be designed in such a way that:</i>
<b>Ex d</b>	• no internal explosion can be spread to the surrounding explosive atmosphere
<b>Ex e</b>	• no sparks, arcs, or hot spots can occur in service, including starting and locked rotor situation, in all internal and external parts of the machine
<b>Ex de</b>	• an "Ex d" flameproof enclosure is combined with the terminal box featuring an "Ex e" increased safety protection
DUST environments	
<b>Ex tD A21 IP65</b>	• The surface temperature of the enclosure must be less than the reference ignition temperature (Tamm) of the dust atmosphere considered.

## GROUP (IIA, IIB, IIC)

Gas atmospheres are further divided into 3 sub-groups (IIA, IIB and IIC), according to the severity of the environment. **This catalogue refers to motors belonging to group IIB**, which are suitable for medium-danger environment (some examples of IIB atmosphere are: coke-oven gas, ethylene, ethylene oxide, ethyl ether, formic aldehyde).

## NOMENCLATURE

The data sheets included in this catalogue refer to the series shown in this table.

Series	Frame size where applicable	Ex	Group	Category	Protection	Group	Temperature Class Maximum surfaces temperature
D6C	71 - 132	Ex	II	2G	Ex d	II B	T4
D6X		Ex	II	2G	Ex de	II B	T4
D6A		Ex	II	2D	Ex tD A21 - IP 65	II	T125°C
D6W		Ex	II	2GD	Ex d Ex de Ex tD A21 - IP 65	II B II B II	T4 T4 T125°C
D5C	160 - 400	Ex	II	2G	Ex d	II B	T4
D5X		Ex	II	2G	Ex de	II B	T4
D5A		Ex	II	2D	Ex tD A21 - IP 65	II	T135°C
D5T	160 - 315	Ex	I	M2	Ex d Ex de	I	- -

## MATERIALS

Size (mm)	71-80		90-132		160-280	315-355		355-400		
	Ex d IIB	Ex tD A21 IP65 Ex de IIB	Ex d IIB	Ex tD A21 IP65 Ex de IIB		2-6 poles	≥ 8 poles	2 poles	4 poles	
Frame endshields	Cast Iron					Steel				
Fan cowl	Steel									
Fan	Thermolastic*						Metallic			
Terminal Box	Cast Iron					Steel				
Terminal Box Cover	Cast Iron					Steel				

(\*) Metal is used for motors of M2 category.

**Ex d I, Ex de I, Ex d IIB, Ex de IIB, Ex tD A21 [P65]**

**400V 50Hz / 440V 60Hz**

All rated values refer to: Ambient Temperature ≤ 40°C, Installation ≤ 1000 m a.s.l, Insulation cl. F, duty S1.

RATED OUTPUT [kW]	MOTOR TYPE		PERFORMANCE AT RATED OUTPUT					PERFORMANCE AT RATED VOLTAGE					MOMENT OF INERTIA J [kgm <sup>2</sup> ]	WEIGHT IM 1001 Approx. [kg]
			SPEED		EFFICIENCY η [%]	POWER FACTOR cos φ	400V 50Hz							
			50 Hz	60 Hz			RATED CURRENT I [A]	RATED TORQUE T <sub>n</sub> [Nm]	STARTING CURRENT I <sub>s</sub> /I <sub>n</sub> p.u.	STARTING TORQUE T <sub>s</sub> /T <sub>n</sub> p.u.	BREAKDOWN TORQUE T <sub>MAX</sub> /T <sub>n</sub> p.u.			

**2 poles = 3000/3600 rpm - 50/60 Hz**

**T4, T 125°C**

0,37 0,55	0,44 0,66	D6• 71 MA2 D6• 71 MB2	2840 2840	3408 3408	75,4 76,8	0,81 0,81	0,9 1,3	1,24 1,85	5,6 5,8	2,6 2,8	- -	0,00048 0,00048	18 18
0,75 1,1	0,90 1,30	D6• 80 MA2 D6• 80 MB2	2860 2870	3432 3444	79,6 80,9	0,80 0,81	1,7 2,4	2,50 3,66	6,2 6,4	2,8 3,1	2,9 3,2	0,00092 0,00092	23 23
1,5 2,2	1,7 2,5	D6• 90 S2 D6• 90 L2	2870 2870	3444 3444	82,6 83,8	0,84 0,86	3,1 4,4	4,99 7,32	7,3 7,5	2,9 3,7	3,3 3,9	0,00175 0,00175	35 35
3	3,5	D6• 100 LA2	2880	3456	84,6	0,89	5,8	9,95	7,7	3,1	3,3	0,0037	53
4	4,6	D6• 112 M2	2890	3468	86,5	0,90	7,4	13,2	7,5	2,7	2,9	0,0060	62
5,5 7,5 9	6,3 9,0 10,8	D6• 132 SA2 D6• 132 SB2 D6• 132 MB2	2920 2920 2928	3504 3504 3514	87,9 88,8 89,1	0,89 0,90 0,90	10,2 13,6 16,2	18,0 24,5 29,4	7,2 7,2 7,3	2,7 2,7 2,9	2,9 2,9 3,0	0,0171 0,0171 0,0171	99 99 99

**T4, T 135°C**

11 15 18,5	12 16,5 20	D5• 160 MA2 D5• 160 MB2 D5• 160 L2	2920 2925 2925	3520 3525 3525	88,4 89,8 90,0	0,82 0,83 0,81	21,9 29,0 36,7	36 49 60	6,2 6,6 7,1	2,1 2,4 2,6	2,8 3,0 3,0	0,030 0,035 0,040	115 129 143
22	24	D5• 180 M2	2930	3530	90,5	0,84	41,8	72	7,0	2,5	3,0	0,048	154
30 37	33 40	D5• 200 LA2 D5• 200 LB2	2945 2945	3545 3545	92,0 92,2	0,87 0,87	54 67	97 120	6,8 6,9	2,3 2,4	2,9 3,0	0,165 0,180	189 209
45	50	D5• 225 M2	2960	3560	92,5	0,88	80	145	6,6	2,4	3,0	0,225	304
55	60	D5• 250 M2	2960	3560	93,0	0,87	98	177	6,7	2,4	3,0	0,250	336
75 90	83 100	D5• 280 S2 D5• 280 M2	2960 2960	3560 3560	93,6 94,2	0,87 0,88	133 157	242 290	6,8 7,2	2,3 2,3	2,7 2,7	0,350 0,416	484 517
110 132 160 200	121 158 192 240	D5• 315 SM2 D5• 315 MA2 D5• 315 MC2 D5• 315 MD2	2975 2970 2975 2980	3575 3570 3575 3580	94,3 94,3 94,4 94,7	0,87 0,86 0,87 0,87	194 235 281 351	353 424 513 640	6,4 6,5 6,5 6,5	2,4 2,5 2,5 2,5	2,4 2,5 2,5 2,5	0,95 0,95 1,12 1,30	760 760 827 887
250 315	300 375	D5• 355 LA2 D5• 355 LB2	2980 2980	3576 3576	96,2 96,4	0,90 0,90	417 524	800 1008	6,3 6,4	2,5 2,4	2,4 2,3	3,7 4,5	1620 1810
330 400 500	330 400 500	D5• 400 LX2 D5• 400 LW2 D5• 400 LY2	2980 2980 2980	3580 3580 3580	94,5 95,0 95,0	0,91 0,91 0,91	555 669 936	1056 1281 1601	7,0 7,0 7,2	2,2 2,2 2,2	2,8 3,0 3,0	7,9 8,9 10,0	2780 2940 3150

I<sub>s</sub> = Starting current, T<sub>s</sub> = Starting torque, T<sub>MAX</sub> = Breakdown torque.  
Ex d I and Ex de I type of protection available from frame size 160 to 315 included.  
Detailed data for 440V/60Hz on request.

Higher output available for Temperature Class T3 and/or Maximum Surface Temperature T150°C.  
Motor not multivoltage. Output values at 440V/60Hz refer to motors with dedicated winding.

**SERIES SELECTION**

- D6• ● = C for 2G Ex d IIB
- D6• ● = X for 2G Ex de IIB
- D5• ● = A for 2D Ex tD A21 IP65
- D6 W for 2GD Ex d/de, Ex tD A21 IP65
- D5 T for M2 Ex d/de

**IM B3 (IM 1001)**  
Frame size 160-400

**IM B5 (IM 3001)**

**IM V1 (IM 3011)**

**IM B14 (IM 3601)**

FRAME SIZE		A	A
IEC	POLES		
71 M	2 - 8	112	2
80 M	2 - 8	125	3
90	S	140	3
	L	140	3
100 L	2 - 8	160	3
112	M	190	4
	S	190	4
132	M	216	4
	S	216	4

		A
IEC	POLES	
D5_160	M	254
	L	254
D5_180	M	279
	L	279
D5_200	L	318
	S	318
D5_225	M	356
	L	356
D5_250	M	406
	L	406

Ex d I, Ex de I, Ex d IIB, Ex de IIB, Ex tD A21 [P65]

400V 50Hz / 440V 60Hz

All rated values refer to: Ambient Temperature ≤ 40°C, Installation ≤ 1000 m a.s.l, Insulation cl. F, duty S1.

RATED OUTPUT [kW]	MOTOR TYPE SERIES FRAME SIZE		PERFORMANCE AT RATED OUTPUT					PERFORMANCE AT RATED VOLTAGE					MOMENT OF INERTIA J [kgm <sup>2</sup> ]	WEIGHT IM 1001 Approx. [kg]
			SPEED [rpm]		EFFICIENCY η [%]	POWER FACTOR cos φ	400V 50Hz							
			50 Hz	60 Hz			RATED CURRENT I [A]	RATED TORQUE T <sub>n</sub> [Nm]	STARTING CURRENT I <sub>s</sub> /I <sub>n</sub> p.u.	STARTING TORQUE T <sub>s</sub> /T <sub>n</sub> p.u.	BREAKDOWN TORQUE T <sub>MAX</sub> /T <sub>n</sub> p.u.			

4 poles = 1500/1800 rpm - 50/60 Hz

T4, T 125°C

0,25 0,37	0,30 0,44	D6• 71 MA4 D6• 71 MB4	1410 1410	1692 1692	68,6 71,0	0,65 0,68	0,8 1,1	1,69 2,51	4,2 4,4	2,5 2,6	2,0 2,0	0,00097 0,00097	19 19
0,55 0,75	0,66 0,90	D6• 80 MA4 D6• 80 MB4	1410 1420	1692 1704	72,0 73,7	0,80 0,81	1,4 1,8	3,72 5,04	5,9 5,9	2,7 2,7	2,5 2,5	0,00245 0,00245	24 24
1,1 1,5	1,30 1,70	D6• 90 S4 D6• 90 L4	1420 1420	1704 1704	78,2 79,3	0,79 0,81	2,6 3,4	7,40 10,1	6,1 6,2	3,0 3,2	3,0 3,2	0,0034 0,0034	36 36
2,2 3	2,5 3,5	D6• 100 LA4 D6• 100 LB4	1440 1440	1728 1728	84,2 84,4	0,82 0,81	4,6 6,3	14,6 19,9	5,9 5,9	2,8 2,7	2,9 2,9	0,0075 0,0075	56 56
4	4,6	D6• 112 M4	1445	1734	85,7	0,82	8,2	26,4	6,8	2,8	3,0	0,0125	68
5,5 7,5	6,3 9,0	D6• 132 SA4 D6• 132 MA4	1450 1450	1740 1740	87,9 88,2	0,82 0,82	11,0 15,0	36,2 49,4	6,2 6,3	2,5 2,6	2,6 2,8	0,032 0,032	101 101

T4, T 135°C

11 15	12 16	D5• 160 M4 D5• 160 L4	1455 1460	1760 1760	88,6 89,4	0,81 0,81	22,1 29,9	72 98	5,2 5,8	2,0 2,2	2,1 2,4	0,034 0,075	123 135
18,5 22	20 24	D5• 180 M4 D5• 180 L4	1460 1465	1765 1765	90,0 90,5	0,82 0,84	36,2 41,8	121 143	6,2 6,3	2,3 2,4	2,5 2,5	0,090 0,110	148 177
30	33	D5• 200 L4	1470	1765	91,6	0,84	56	195	6,4	2,4	2,8	0,180	205
37 45	40 50	D5• 225 S4 D5• 225 M4	1475 1475	1770 1775	92,5 92,5	0,86 0,86	67 82	239 291	6,5 6,5	2,3 2,4	2,8 2,8	0,320 0,410	302 332
55	60	D5• 250 M4	1475	1775	93,0	0,87	98	356	6,4	2,3	2,6	0,520	370
75 90	83 100	D5• 280 S4 D5• 280 M4	1480 1480	1780 1780	93,7 93,9	0,86 0,88	134 157	483 580	7,0 7,1	2,5 2,7	2,3 2,4	0,885 1,060	525 584
110 132 160 200	121 158 192 240	D5• 315 SM4 D5• 315 MA4 D5• 315 MC4 D5• 315 MD4	1488 1485 1485 1485	1780 1785 1785 1785	93,6 94,5 94,8 95,3	0,85 0,85 0,85 0,86	200 237 287 353	705 848 1028 1285	6,5 6,2 6,2 6,5	2,6 2,5 2,5 2,5	2,6 2,5 2,5 2,6	2,10 2,10 2,50 3,10	780 780 859 965
250 315	300 375	D5• 355 LA4 D5• 355 LB4	1490 1490	1788 1788	95,7 95,8	0,86 0,86	438 552	1600 2016	5,6 5,6	2,1 2,1	2,5 2,5	6,1 7,4	1690 1880
330 400 500	330 400 500	D5• 400 LX4 D5• 400 LW4 D5• 400 LY4	1490 1490 1490	1790 1790 1790	95,1 95,5 95,5	0,88 0,88 0,88	569 687 859	2113 2561 3201	6,8 6,8 7,2	2,3 2,3 1,2	2,2 2,3 2,5	15,8 18,8 20,7	2880 3030 3240

I<sub>s</sub> = Starting current, T<sub>s</sub> = Starting torque, T<sub>MAX</sub> = Breakdown torque.

Ex d I and Ex de I type of protection available from frame size 160 to 315 included.

Detailed data for 440V/60Hz on request.

Higher output available for Temperature Class T3 and/or Maximum Surface Temperature T150°C.

Motor not multivoltage. Output values at 440V/60Hz refer to motors with dedicated winding.

SERIES SELECTION

- D6• = C for 2G Ex d IIB
- D6• = X for 2G Ex de IIB
- D5• = A for 2D Ex tD A21 IP65
- D6 W for 2GD Ex d/de, Ex tD A21 IP65
- D5 T for M2 Ex d/de

DIMENSIONS														SHAFT EXTENSION						FLANGE B5					FLANGE B14										
A	AB	AC	AD	B	BB	BC	C	CA	H	HA	HD	K	L	LC	LD	W	D	DA	E	EA	F	FA	GA	GC	M	N	P	S	T	LA	M	N	P	S	T
9	138	146	119	90	112	11	45	120	71	8	200	274	7	280	315	295	14	14	30	30	5	5	16	16	130	110	160	10	7	85	70	105		2,5	
1	156	166	133	100	126	13	50	150	80	10	214	288	10	335	380	350	19	19	40	40	6	6	21,5	21,5	165	130	200	12	10	100	80	120	M6		
4	172	184	208	125	152	13,5	56	184	90	10	298	284	10	385	440	400	24	24	50	50	8	8	27	27	165	130	200	12	3,5	115	95	140	M8	3	
6	196	204	215	140	172	16	63	187	100	12	315	301	12	445	510	460	28	28	60	60	8	8	31	31	215	180	250	14,5	4	130	110	160			
0	225	228	226	140	172	16	70	195	112	13	338	324	12	460	525	475	28	28	60	60	8	8	31	31	215	180	250	14,5	4	130	110	160			
5	255	386	241	178	214	18	89	246	132	15	373	359	12	550	635	565	38	38	80	80	10	10	41	41	265	230	300	14,5	4	165	130	200	M10	3,5	

DIMENSIONS														FLANGE B5 - V1						FLANGE B14																		
AB	AC	AD	B	BB	C	H	HA	HD	K	L	LD	D	E	M	N	P	LA	S	T	M	N	P	S	T														
300			210	296	108	160	22	446	14	648	710	42	110	300	250	350	15	18	5																			
	314		254	283	121	180	24	466	14	723	790	48	110	350	300	400	18	18	5																			
324			279	321	133	200	24	488	18	830	895	55	140	400	350	450	16	18	5																			
368		354	305	350	133	200	24	508	18	830	895	55	140	400	350	450	16	18	5																			
			286	360	149	225	28	593	18	800	895	60	140	400	350	450	16	18	5																			
406		411	311	360	149	225	28	593	18	800	895	60	140	400	350	450	16	18	5																			
			140	406	168	250	22	618	22	830	895	65	140	500	450	550	18	18	5																			
465			178	406	168	250	22	618	22	830	895	65	140	500	450	550	18	18	5																			



Ex d I, Ex de I, Ex d IIB, Ex de IIB, Ex tD A21 [IP65]

400V 50Hz / 440V 60Hz

All rated values refer to: Ambient Temperature ≤ 40°C, Installation ≤ 1000 m a.s.l, Insulation cl. F, duty S1.

RATED OUTPUT [kW]	MOTOR TYPE		PERFORMANCE AT RATED OUTPUT					PERFORMANCE AT RATED VOLTAGE					MOMENT OF INERTIA J [kgm <sup>2</sup> ]	WEIGHT IM 1001 Approx. [kg]
			SPEED		EFFICIENCY η [%]	POWER FACTOR cos φ	400V 50Hz							
			[rpm]				RATED CURRENT I [A]	RATED TORQUE T <sub>n</sub> [Nm]	STARTING CURRENT I <sub>s</sub> /I <sub>n</sub> p.u.	STARTING TORQUE T <sub>s</sub> /T <sub>n</sub> p.u.	BREAKDOWN TORQUE T <sub>MAX</sub> /T <sub>n</sub> p.u.			
50 Hz 60 Hz	SERIES	FRAME SIZE	50 Hz	60 Hz										

6 poles = 1000/1200 rpm - 50/60 Hz

T4, T 125°C

0,37 0,55	0,44 0,66	D6• 80 MA6 D6• 80 MB6	930 930	1116 1116	64,5 66,9	0,60 0,69	1,4 1,7	3,8 5,6	3,7 3,9	2,0 2,0	1,8 1,9	0,0029 0,0029	25 25
0,75 1,1	0,90 1,30	D6• 90 S6 D6• 90 L6	920 920	1104 1104	66,7 69,9	0,72 0,74	2,3 3,1	7,8 11,4	4,0 4,2	2,1 2,3	2,3 2,4	0,0037 0,0037	42 42
1,5	1,7	D6• 100 LA6	930	1116	76,6	0,77	3,7	15,4	3,8	2,0	1,9	0,0075	56
2,2	2,5	D6• 112 M6	940	1128	80,3	0,77	5,1	22,3	4,0	1,5	1,6	0,0125	71
3 4 5,5	3,5 4,6 6,3	D6• 132 SA6 D6• 132 MA6 D6• 132 MB6	950 950 960	1140 1140 1152	84,7 85,0 85,4	0,75 0,75 0,76	6,8 9,1 12,2	30,2 40,2 54,7	4,5 4,6 4,6	2,0 2,0 1,9	2,3 2,4 2,5	0,0390 0,0390 0,0390	106 106 106

T4, T 135°C

7,5 11	9 13,2	D5• 160 M6 D5• 160 L6	965 967	1165 1165	86,0 88,0	0,82 0,82	15,4 22,0	74 108	5,0 5,5	2,0 2,3	2,3 2,5	0,087 0,110	131 147
15	18	D5• 180 L6	970	1170	88,2	0,82	30,0	147	5,2	2,3	2,2	0,130	165
18,5 22	22 26	D5• 200 LA6 D5• 200 LB6	970 972	1170 1170	88,2 89,0	0,83 0,83	36 43	182 216	5,2 5,5	2,1 2,4	2,3 2,4	0,170 0,220	185 203
30	36	D5• 225 M6	975	1175	90,5	0,84	57	294	6,2	2,4	2,4	0,470	309
37 44	44 54	D5• 250 M6 D5• 280 S6	975 980	1175 1180	91,0 92,5	0,84 0,83	70 85	362 438	6,5 6,0	2,6 2,5	2,6 2,5	0,570 0,850	342 479
55	66	D5• 280 M6	980	1180	93,0	0,84	102	535	6,0	2,5	2,5	1,075	518
75 90 110	90 108 132	D5• 315 SM6 D5• 315 MA6 D5• 315 MB6	985 985 985	1185 1185 1185	94,0 94,0 94,0	0,83 0,84 0,84	139 165 201	726 872 1065	6,3 6,0 6,0	2,6 2,5 2,5	2,6 2,5 2,5	2,60 2,60 3,00	748 748 799
132 160	158 192	D5• 315 MC6 D5• 315 MD6	985 985	1185 1185	93,3 94,8	0,85 0,86	240 283	1278 1550	6,3 6,3	2,5 2,7	2,5 2,5	3,60 4,40	889 994
200 250	240 300	D5• 355 LA6 D5• 355 LB6	990 990	1188 1188	95,5 95,7	0,85 0,85	355 443	1927 2409	5,4 5,4	2,2 2,2	2,2 2,2	10,5 13,1	1660 1890
280 315 350	280 315 350	D5• 400 LX6 D5• 400 LW6 D5• 400 LY6	995 995 995	1194 1194 1194	95,0 95,0 95,0	0,87 0,87 0,87	490 551 612	2685 3020 3356	6,8 6,8 7,0	2,2 2,2 2,2	2,4 2,4 2,4	22,7 25,5 29,0	2860 3040 3300

I<sub>s</sub> = Starting current, T<sub>s</sub> = Starting torque, T<sub>MAX</sub> = Breakdown torque.

Ex d I and Ex de I type of protection available from frame size 160 to 315 included.

Detailed data for 440V/60Hz on request.

Higher output available for Temperature Class T3 and/or Maximum Surface Temperature T150°C.

Motor not multivoltage. Output values at 440V/60Hz refer to motors with dedicated winding.

SERIES SELECTION

- D6• ● = C for 2G Ex d IIB
- D6• ● = X for 2G Ex de IIB
- D5• ● = A for 2D Ex tD A21 IP65
- D6 W for 2GD Ex d/de, Ex tD A21 IP65
- D5 T for M2 Ex d/de

DIMENSIONS																							
FRAME SIZE		A	AB	AC	B	BB	C	H	HA	HD	K	L	LD	D	E	FLANGE B5 V1							
IEC	POLES															M	N	P	LA	S	T		
D5_280	S	2	457	540	490	368	190	280	40	710	22	960	1045	65	140	500	450	550	18	18	5		
		4 - 8				480								75									
	M	2				419								65									
		4 - 8												75									
D5_315	SM	2	508	590	604	457	520	216	315	45	820	28	1102	1177	65	600	550	660	22	22	6		
	SM	4 - 8												80	170								
	MA	2												1102	1177							65	140
	MA-MC	4 - 8												1132	1207							80	170
	MD	2												1102	1177							70	140
	MD-ME	4 - 8												1132	1207							90	170
D5_355	LA-LB	2	610	740	770	630	818	254	355	40	1025	33	1475	1595	75	140	740	680	800	25	24		
		4 - 8												1545	1665	100						210	
D5_400	LX-LW-LY	2	686	836	850	710	880	280	400	35	1130	33	1780	1880	75	140	940	880	1000	26	28		
		4 - 8					880						1850	1950	100	210							

Ex d I, Ex de I, Ex d IIB, Ex de IIB, Ex tD A21 IP65

400V 50Hz / 440V 60Hz

All rated values refer to: Ambient Temperature ≤ 40°C, Installation ≤ 1000 m a.s.l, Insulation cl. F, duty S1.

RATED OUTPUT [kW]	MOTOR TYPE		PERFORMANCE AT RATED OUTPUT					PERFORMANCE AT RATED VOLTAGE					MOMENT OF INERTIA J [kgm <sup>2</sup> ]	WEIGHT IM 1001 Approx. [kg]
			SPEED		EFFICIENCY η [%]	POWER FACTOR cos φ	400V 50Hz							
			[rpm]				RATED CURRENT I [A]	RATED TORQUE T <sub>n</sub> [Nm]	STARTING CURRENT I <sub>s</sub> /I <sub>n</sub> p.u.	STARTING TORQUE T <sub>s</sub> /T <sub>n</sub> p.u.	BREAKDOWN TORQUE T <sub>MAX</sub> /T <sub>n</sub> p.u.			
50 Hz	60 Hz	SERIES	FRAME SIZE	50 Hz	60 Hz									

8 poles = 750/900 rpm - 50/60 Hz

T4, T 125°C

0,18	0,22	D6•	80 MA8	680	816	49,3	0,65	0,8	2,5	2,6	1,9	-	0,0029	25
0,25	0,30	D6•	80 MB8	690	828	53,8	0,68	1,0	3,5	2,7	1,9	-	0,0029	25
0,37	0,44	D6•	90 S8	675	810	55,9	0,66	1,4	5,2	2,8	2,0	2,0	0,0037	42
0,55	0,66	D6•	90 L8	680	816	60,9	0,69	1,9	7,7	2,9	2,0	2,1	0,0037	42
0,75	0,90	D6•	100 LA8	680	816	67,6	0,66	2,4	10,5	2,7	1,5	1,9	0,0075	56
1,1	1,30	D6•	100 LB8	695	834	70,2	0,66	3,4	15,1	2,7	1,4	1,8	0,0075	56
1,5	1,70	D6•	112 M8	700	840	75,8	0,71	4,0	20,5	2,8	1,2	1,7	0,0132	71
2,2	2,5	D6•	132 SA8	710	852	80,7	0,70	5,6	29,6	3,2	1,5	1,7	0,039	106
3	3,5	D6•	132 MA8	710	852	81,0	0,70	7,6	40,3	3,1	1,4	1,6	0,039	106

T4, T 135°C

4	4,8	D5•	160 MA8	710	860	81,5	0,73	9,7	54	4,2	1,9	2,1	0,080	115
5,5	6,6	D5•	160 MB8	720	870	82,4	0,74	13,0	73	4,2	1,9	2,1	0,092	123
7,5	9	D5•	160 L8	720	870	84,7	0,74	17,3	99	4,2	2,0	2,1	0,110	133
11	13,2	D5•	180 L8	725	875	86,7	0,75	24,4	145	4,5	2,0	2,2	0,160	188
15	18	D5•	200 L8	725	875	88,0	0,75	33	197	5,0	2,1	2,3	0,220	216
18,5	22	D5•	225 S8	730	880	89,0	0,76	40	242	5,2	2,2	2,4	0,420	294
22	26	D5•	225 M8	730	880	90,0	0,76	47	288	5,3	2,2	2,4	0,520	326
30	36	D5•	250 M8	730	880	91,0	0,76	63	392	5,5	2,3	2,5	0,620	356
37	44	D5•	280 S8	735	885	92,5	0,80	72	480	6,0	2,5	2,5	1,050	520
45	54	D5•	280 M8	735	885	93,0	0,80	87	584	6,0	2,5	2,5	1,250	553
55	66	D5•	315 SM8	740	890	93,5	0,81	105	709	6,5	2,3	2,4	2,80	776
75	90	D5•	315 MA8	740	890	93,8	0,82	141	967	6,0	2,1	2,2	2,80	776
90	108	D5•	315 MC8	740	890	94,4	0,83	166	1160	6,2	2,2	2,3	3,50	886
110	132	D5•	315 MD8	740	890	94,5	0,83	202	1418	6,2	2,2	2,3	4,00	924
132	158	D5•	315 ME8	740	890	94,6	0,83	243	1702	6,2	2,2	2,3	4,30	993
160	190	D5•	355 LA8	740	888	95,3	0,83	292	2063	5,2	2,2	2,2	12,7	1710
200	240	D5•	355 LB8	740	888	95,4	0,83	364	2578	5,0	2,1	2,2	15,4	1910
230	230	D5•	400 LX8	745	895	95,6	0,81	429	2945	6,6	2,1	2,2	25,0	2760
250	250	D5•	400 LW8	745	895	95,5	0,82	461	3201	6,8	2,2	2,3	29,7	2940
280	280	D5•	400 LY8	745	895	95,6	0,83	510	3586	6,8	2,2	2,2	33,2	3200

I<sub>s</sub> = Starting current, T<sub>s</sub> = Starting torque, T<sub>MAX</sub> = Breakdown torque.  
Ex d I and Ex de I type of protection available from frame size 160 to 315 included.  
Detailed data for 440V/60Hz on request.

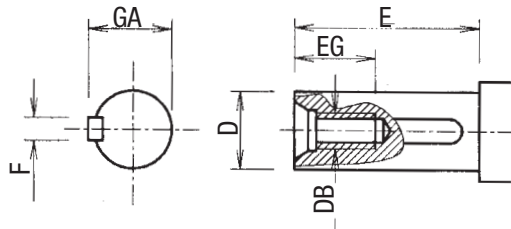
Higher output available for Temperature Class T3 and/or Maximum Surface Temperature T150°C.  
Motor not multivoltage. Output values at 440V/60Hz refer to motors with dedicated winding.

**SERIES SELECTION**

- D6• ● = C for 2G Ex d IIB
- D5• ● = X for 2G Ex de IIB
- = A for 2D Ex tD A21 IP65
- D6W for 2GD Ex d/de, Ex tD A21 IP65
- D5T for M2 Ex d/de

SHAFT EXTENSION

Tapped holes as per DIN 332



D	14	19	24	28	38	42	48	55	60	65	70	75	80	90	100
toll.	j6			k6				m6							
E	30	40	50	60	80	110	110	110	140	140	140	140	170	170	210
F h9	5	6	8	8	10	12	14	16	18	18	20	20	22	25	28
GA	16	21,5	27	31	41	45	51,5	59	64	69	74,5	79,5	85	95	106
DB	M5	M6	M8	M10	M12	M16			M20				M24		
EG	12,5	19	19	22	28	36			42				48		

## BEARINGS

Frame Size (mm)	D - end	N - end
71*	6202-2Z	6202-2Z
80*	6204-2Z	6204-2Z
90*	6205-2Z	6205-2Z
100*	6206-2Z	6206-2Z
112*	6206-2Z	6206-2Z
132*	6308-2Z	6308-2Z
160 - 180M	6310-Z-C3	6209-Z-C3
180L	6310-Z-C3	6210-Z-C3
200	6312-Z-C3	6210-Z-C3
225	6313-Z-C3	6213-Z-C3
250	6314-Z-C3	6213-Z-C3
280 2 poles	6314-Z-C3	6314-Z-C3
280 ≥ 4 poles	NU2217-EC-C3	6314-Z-C3
315 2 poles	6316-C3	6316-C3
315 ≥ 4 poles	NU2219-EC-C3	6316-C3

Frame Size	Poles	B 3		V 1	
		D - end	N - end	D - end	N - end
355-400	2	6317-C3	6317-C3	6317-C3	7317-B
355	≥ 4	6322-C3	6322-C3	6322-C3	6322-C3
400	≥ 4	NU222-C3	6222-C3	NU222-C3	6222-C3 + 7222 B

These tables describe the bearing types used in standard configurations. Different types are available on request (for high loads applications).

\*D6A motors can be equipped with different bearing types

## TERMINAL BOX AND CABLE ENTRY

The terminal box is located on top of the motor (referred to a B3 mounting) for all sizes from 71 to 400 and it is usually equipped with 6 terminals. The terminal box can be rotated by steps of 90°.

Frame Size (mm)	Type of terminal	Terminal thread	Cable entrance holes
71 - 80	Threaded terminals	M6	M25 x 1,5**
90 - 132	Threaded terminals	M6	M32 x 1,5 + M20 x 1,5*
160 - 200	Threaded terminals	M6	M40 x 1,5 + M40 x 1,5* + M20 x 1,5*
225 - 250	Threaded terminals	M8	M50 x 1,5 + M50 x 1,5* + M20 x 1,5*
280 - 315	Threaded terminals	M12	M75 x 1,5 + M75 x 1,5* + M20 x 1,5*
355 - 400	Threaded terminals	M20	M75 x 1,5 + M75 x 1,5

(\*): Closed with a certified plug, in accordance with Directive 94/4/EC, when not used.

(\*\*): Valid for Ex d protection. For Ex de protection cable entry is M32 x 1,5 + M20 x 1,5.

## SURFACE PROTECTION

**External surface.** The standard painting process consists of an epoxy-vinyl / polyamidic paint with a thickness not less than 50 µm. A special painting process, consisting in the addition of a polyacrilic paint to the standard one, is available on request; in this case the total thickness of the painting is not less than 200 µm. The finishing paint is RAL 5010; other RAL or MUNSSELL colours are available on request.

## DRAINAGE HOLE

A drainage hole is available on request from frame size 132 (only for horizontal mounting).

## THERMAL PROTECTION

Motors with a frame size ≥ 90 mm are provided with 3 PTC in their standard configuration. PTC, PT100 and Space Heaters are available on request according to the following table:

Frame size	Type of protection	PTC	PT 100	Anticondensation Heaters	PTC + Heaters	PT100 + Heaters
71 - 80	d de	optional	-	-	-	-
90 - 132	d de	standard	optional	optional *	optional	-
160 - 250	d de	standard	optional optional*	optional	optional	optional*
280 - 315	d de	standard	optional optional*	optional	optional	optional optional*
355 - 400	d de	standard	optional	optional	optional	optional

(\*): PT100 terminal in auxiliary terminal box, except for motors of category M2.

(\*\*): PT100 optional for Ex d from frame size 132. For Ex de please contact Marelli Motori sales department.

**OPTIONS** Other options are available on request. Please contact Marelli Motori for more information and/or quotation.

**FREQUENCY CONVERTER SUPPLY** Please contact Marelli Motori for specific data sheet and quotation relevant to Ex d/de IIB motors fed by frequency converter.

Contact Marelli Motori S.p.A. for PT100 in bearings and other combinations of protections.


**HEADQUARTERS**

Marelli Motori S.p.A.  
Via Sabbionara, 1  
36071 Arzignano (VI) Italy  
(T) +39 0444 479.711  
(F) +39 0444 479.888  
www.marellimotori.com  
sales@marellimotori.com

**ITALIAN BRANCHES**

**Milan**  
Via Cesare Cantù, 29  
20092 Cinisello Balsamo (MI) - Italy  
(T) +39 02 660.131.66  
(F) +39 02 660.134.83  
milan@marellimotori.com

**Florence**

Via Panciatichi, 37/2  
50127 Firenze - Italy  
(T) +39 055 431.838  
(F) +39 055 433.351  
florence@marellimotori.com


**MARELLIMOTORI OVERSEAS COMPANIES**
**GREAT BRITAIN**

Marelli UK, Ltd  
Meadow Lane - Loughborough  
Leicester LE111NB  
UK

(T) +44 1509.615518  
(F) +44 1509.615514  
uk@marellimotori.com

**GERMANY**

Marelli Central Europe GmbH  
Heilswannenweg 50  
31008 Elze  
Germany

(T) +49 5068.462-400  
(F) +49 5068.462-409  
germany@marellimotori.com

**USA**

Marelli USA, Inc  
1620 Danville Road  
PO Box 410  
Harrodsburg, KY 40330  
USA

(T) +1 (859) 734-2588  
(F) +1 (859) 734-0629  
usa@marellimotori.com

**MALAYSIA**

Marelli Asia Pacific Sdn Bhd  
Lot PT 5038-5041 Jalan Teluk Datuk 28/40,  
Off Persiaran Sepang, Seksyen 28,  
40400 Shah Alam  
Selangor D.E., Malaysia

(T) +60.3.5192.7213  
(F) +60.3.5192.6293  
asiapacific@marellimotori.com

**SOUTH AFRICA**

Marelli Electrical Machines South Africa (Pty) Ltd  
Unit 4, 55 Activia Rd - Activia Park  
Elandsfontein, 1406 - Gauteng  
Republic of South Africa

(T) +27 11.822.5566  
(F) +27 11.828.8089  
southafrica@marellimotori.com