

# 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



# 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.

## 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 furtherly 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	II B	T4
					Ex de	II B	T4
					Ex tD A21 - IP 65	II	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	I	-
					Ex de		-

## MATERIALS

Size (mm)	71-80		90-132		160-280	315		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								
Terminal Box Cover	Cast Iron								

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

## BEARINGS

Frame Size (mm)	D - end	N - end
71*	6202-ZZ	6202-ZZ
80*	6204-ZZ	6204-ZZ
90*	6205-ZZ	6205-ZZ
100*	6206-ZZ	6206-ZZ
112*	6206-ZZ	6206-ZZ
132*	6308-ZZ	6308-ZZ
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	6217-C3	6217-C3	6217-C3	7217 B
355	≥ 4	NU222-C3	6217-C3	NU222-C3	6217-C3 + 7217 B
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 a 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 MUNSELL 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.

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

**T4, T 135°C**

11	12	D5•	160 MA2	2920	3520	88,4	0,82	21,9	36	6,2	2,1	2,8	0,030	115
15	16,5	D5•	160 MB2	2925	3525	89,8	0,83	29,0	49	6,6	2,4	3,0	0,035	129
18,5	20	D5•	160 L2	2925	3525	90,0	0,81	36,7	60	7,1	2,6	3,0	0,040	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	33	D5•	200 LA2	2945	3545	92,0	0,87	54	97	6,8	2,3	2,9	0,165	189
37	40	D5•	200 LB2	2945	3545	92,2	0,87	67	120	6,9	2,4	3,0	0,180	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	83	D5•	280 S2	2960	3560	93,6	0,87	133	242	6,8	2,3	2,7	0,350	484
90	100	D5•	280 M2	2960	3560	94,2	0,88	157	290	7,2	2,3	2,7	0,416	517
110	121	D5•	315 SM2	2975	3575	94,3	0,87	194	353	6,4	2,4	2,4	0,95	760
132	158	D5•	315 MA2	2970	3570	94,3	0,86	235	424	6,5	2,5	2,5	0,95	760
160	192	D5•	315 MC2	2975	3575	94,4	0,87	281	513	6,5	2,5	2,5	1,12	827
200	240	D5•	315 MD2	2980	3580	94,7	0,87	351	640	6,5	2,5	2,5	1,30	887
200	200	D5•	355 LX2	2980	3580	94,5	0,90	339	640	6,5	2,0	2,8	4,4	1770
250	250	D5•	355 LW2	2980	3580	95,4	0,90	420	800	6,5	2,0	3,0	5,1	1950
280	280	D5•	355 LY2	2980	3580	95,8	0,91	464	896	6,8	2,1	3,0	6,0	2145
330	330	D5•	400 LX2	2980	3580	94,5	0,91	555	1056	7,0	2,2	2,8	7,9	2780
400	400	D5•	400 LW2	2980	3580	95,0	0,91	669	1281	7,0	2,2	3,0	8,9	2940
500	500	D5•	400 LY2	2980	3580	95,0	0,91	936	1601	7,2	2,2	3,0	10,0	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.

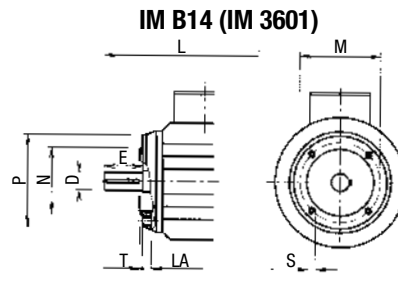
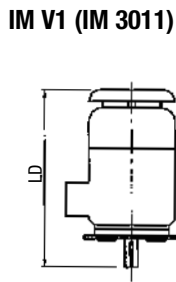
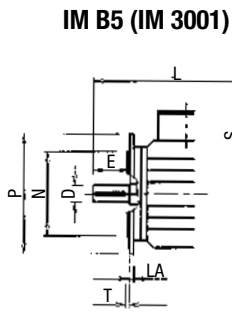
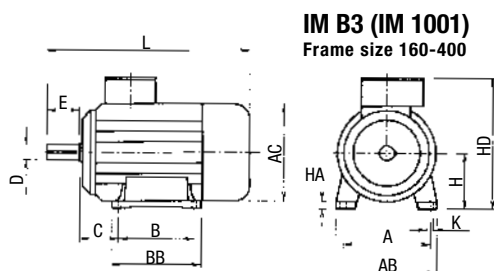
Detailed data for 440V/60Hz on request.

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
- 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



FRAME SIZE			A
IEC	POLES	A	A
71 M	2 - 8	112	2
80 M	2 - 8	125	3
90	S	2 - 8	140
	L	2 - 8	140
100 L	2 - 8	160	3
112 M	2 - 8	190	4
132	S	2 - 8	216
	M	2 - 8	216
			A
D5_160	M	2 - 8	254
	L	2 - 8	254
D5_180	M	2 - 4	279
	L	4 - 8	279
D5_200	L	2 - 8	318
	S	4 - 8	318
D5_225	M	2	356
	M	4 - 8	356
D5_250	M	2	406
	M	4 - 8	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		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.			

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

**T4, T 125°C**

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

**T4, T 135°C**

11	12	D5•	160 M4	1455	1760	88,6	0,81	22,1	72	5,2	2,0	2,1	0,034	123
15	16	D5•	160 L4	1460	1760	89,4	0,81	29,9	98	5,8	2,2	2,4	0,075	135
18,5	20	D5•	180 M4	1460	1765	90,0	0,82	36,2	121	6,2	2,3	2,5	0,090	148
22	24	D5•	180 L4	1465	1765	90,5	0,84	41,8	143	6,3	2,4	2,5	0,110	177
30	33	D5•	200 L4	1470	1765	91,6	0,84	56	195	6,4	2,4	2,8	0,180	205
37	40	D5•	225 S4	1475	1770	92,5	0,86	67	239	6,5	2,3	2,8	0,320	302
45	50	D5•	225 M4	1475	1775	92,5	0,86	82	291	6,5	2,4	2,8	0,410	332
55	60	D5•	250 M4	1475	1775	93,0	0,87	98	356	6,4	2,3	2,6	0,520	370
75	83	D5•	280 S4	1480	1780	93,7	0,86	134	483	7,0	2,5	2,3	0,885	525
90	100	D5•	280 M4	1480	1780	93,9	0,88	157	580	7,1	2,7	2,4	1,060	584
110	121	D5•	315 SM4	1488	1780	93,6	0,85	200	705	6,5	2,6	2,6	2,10	780
132	158	D5•	315 MA4	1485	1785	94,5	0,85	237	848	6,2	2,5	2,5	2,10	780
160	192	D5•	315 MC4	1485	1785	94,8	0,85	287	1028	6,2	2,5	2,5	2,50	859
200	240	D5•	315 MD4	1485	1785	95,3	0,86	353	1285	6,5	2,5	2,6	3,10	965
210	210	D5•	355 LX4	1490	1790	95,3	0,86	370	1345	6,8	2,2	2,4	7,5	1730
270	270	D5•	355 LW4	1490	1790	95,5	0,87	469	1729	6,8	2,2	2,4	9,3	1960
300	300	D5•	355 LY4	1490	1790	95,5	0,87	521	1921	6,8	2,2	2,5	11,2	2180
330	330	D5•	400 LX4	1490	1790	95,1	0,88	569	2113	6,8	2,3	2,2	15,8	2880
400	400	D5•	400 LW4	1490	1790	95,5	0,88	687	2561	6,8	2,3	2,3	18,8	3030
500	500	D5•	400 LY4	1490	1790	95,5	0,88	859	3201	7,2	1,2	2,5	20,7	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
- D6W ● = G for 2G Ex d/de, Ex tD A21 IP65
- D5T ● = M for 2D Ex d/de

DIMENSIONS													SHAFT EXTENSION								FLANGE B5					FLANGE B14										
AA	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	
29	138	146	119	179	90	112	11	45	120	71	8	190	176	7	280	315	295	131	14	14	30	30	5	5	16	16	130	110	160	10		7	85	70	105	2,5
31	156	166	133	193	100	126	13	50	150	80	8	213	199		335	380	350	141	19	19	40	40	6	6	21,5	21,5										
34	172	184	208	268	125	152	13,5	56	184	90	10	298	284	10	385	440	400	160	24	24	50	50			27	27	165	130	200	12	3,5	10	115	95	140	3
36	196	204	215	275	140	172	16	63	187	100	12	315	301		445	510	460					8	8													
40	225	228	226	286	140	172	16	70	195	112	13	338	324	12	460	525	475	175	28	28	60	60			31	31	215	180	250	14,5	4	14	130	110	160	3,5
45	255	386	241	301	178	214	18	89	246	132	15	373	359		550	635	565	205	38	38	80	80	10	10	41	41	265	230	300							

DIMENSIONS													SHAFT EXTENSION								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																														
			254																																				
324			241		283				466																														
368			279		321		121	180	488																														
			305		350		133	200	508																														
			286																																				
406			311		360		149	225	593																														
465			349		406		168	250	618																														

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							
			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.			

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

T4, T 125°C

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

T4, T 135°C

7,5	9	D5• 160 M6	965	1165	86,0	0,82	15,4	74	5,0	2,0	2,3	0,087	131
11	13,2	D5• 160 L6	967	1165	88,0	0,82	22,0	108	5,5	2,3	2,5	0,110	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	D5• 200 LA6	970	1170	88,2	0,83	36	182	5,2	2,1	2,3	0,170	185
22	26	D5• 200 LB6	972	1170	89,0	0,83	43	216	5,5	2,4	2,4	0,220	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	D5• 250 M6	975	1175	91,0	0,84	70	362	6,5	2,6	2,6	0,570	342
45	54	D5• 280 S6	980	1180	92,5	0,83	85	438	6,0	2,5	2,5	0,850	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	D5• 315 SM6	985	1185	94,0	0,83	139	726	6,3	2,6	2,6	2,60	748
90	108	D5• 315 MA6	985	1185	94,0	0,84	165	872	6,0	2,5	2,5	2,60	748
110	132	D5• 315 MB6	985	1185	94,0	0,84	201	1065	6,0	2,5	2,5	3,00	799
132	158	D5• 315 MC6	985	1185	93,3	0,85	240	1278	6,3	2,5	2,5	3,60	889
160	192	D5• 315 MD6	985	1185	94,8	0,86	283	1550	6,3	2,7	2,5	4,40	994
160	160	D5• 355 LX6	990	1190	95,0	0,86	283	1542	6,8	2,3	2,5	11,2	1820
230	230	D5• 355 LW6	990	1190	95,0	0,86	407	2216	7,0	2,3	2,6	14,0	2060
250	250	D5• 355 LY6	990	1190	95,0	0,86	440	2409	7,0	2,3	2,4	15,5	2190
280	280	D5• 400 LX6	995	1194	95,0	0,87	490	2685	6,8	2,2	2,4	22,7	2860
315	315	D5• 400 LW6	995	1194	95,0	0,87	551	3020	6,8	2,2	2,4	25,5	3040
350	350	D5• 400 LY6	995	1194	95,0	0,87	612	3356	7,0	2,2	2,4	29,0	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
- D6W for 2GD Ex d/de, Ex tD A21 IP65
- D5T for M2 Ex d/de

DIMENSIONS

FRAME SIZE																FLANGE B5 V1							
IEC	POLES	A	AB	AC	B	BB	C	H	HA	HD	K	L	LD	D	E	M	N	P	LA	S	T		
D5_280	S	457	540	490	368	480	190	280	40	710	22	960	1045	65	140	500	450	550	18	18	5		
	4-8				75																		
	M				419									65									
	4-8				75																		
D5_315	SM	508	590	604	457	520	216	315	45	820	27	1102	1177	65	600	550	660	22	22	6			
	4-8													80									
	MA													1102							1177	65	140
	4-8													1132							1207	80	170
	MD													1102							1177	70	140
	4-8													1132							1207	90	170
D5_355	L	610	740	750	630	706	254	355	26	1050	27	1550	1655	75	740	680	800	25	24	6			
	4-8													100							210		
D5_400	LX-LW-LY	686	836	850	710	880	280	400	35	1130	33	1780	1880	75	940	880	1000	26	28	6			
	LZ					1025																	
	4-8					880																	
	LZ					1025																	

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								
			[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											

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

T4, T 125°C

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

T4, T 135°C

4 5,5 7,5	4,8 6,6 9	D5• 160 MA8 D5• 160 MB8 D5• 160 L8	710 720 720	860 870 870	81,5 82,4 84,7	0,73 0,74 0,74	9,7 13,0 17,3	54 73 99	4,2 4,2 4,2	1,9 1,9 2,0	2,1 2,1 2,1	0,080 0,092 0,110	115 123 133
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	22 26	D5• 225 S8 D5• 225 M8	730 730	880 880	89,0 90,0	0,76 0,76	40 47	242 288	5,2 5,3	2,2 2,2	2,4 2,4	0,420 0,520	294 326
30	36	D5• 250 M8	730	880	91,0	0,76	63	392	5,5	2,3	2,5	0,620	356
37 45	44 54	D5• 280 S8 D5• 280 M8	735 735	885 885	92,5 93,0	0,80 0,80	72 87	480 584	6,0 6,0	2,5 2,5	2,5 2,5	1,050 1,250	520 553
55 75 90 110 132	66 90 108 132 158	D5• 315 SM8 D5• 315 MA8 D5• 315 MC8 D5• 315 MD8 D5• 315 ME8	740 740 740 740 740	890 890 890 890 890	93,5 93,8 94,4 94,5 94,6	0,81 0,82 0,83 0,83 0,83	105 141 166 202 243	709 967 1160 1418 1702	6,5 6,0 6,2 6,2 6,2	2,3 2,1 2,2 2,2 2,2	2,4 2,2 2,3 2,3 2,3	2,80 2,80 3,50 4,00 4,30	776 776 886 924 993
150 180 200	150 180 200	D5• 355 LX8 D5• 355 LW8 D5• 355 LY8	740 743 744	890 893 894	94,8 95,3 95,6	0,84 0,84 0,85	272 325 356	1934 2311 2565	6,6 6,8 7,2	1,5 1,5 2,0	2,4 2,5 2,6	13,2 16,2 18,0	1840 2040 2170
230 250 280	230 250 280	D5• 400 LX8 D5• 400 LW8 D5• 400 LY8	745 745 745	895 895 895	95,6 95,5 95,6	0,81 0,82 0,83	429 461 510	2945 3201 3586	6,6 6,8 6,8	2,1 2,2 2,2	2,2 2,3 2,2	25,0 29,7 33,2	2760 2940 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.

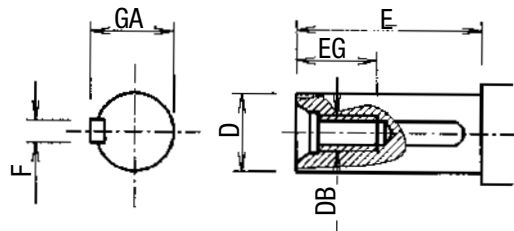
Motor not multivoltage. Output values at 440V/60Hz refer to motors with dedicated winding.

SERIES SELECTION

- D6• • = C for 2G Ex d IIB
- D6• • = X for 2G Ex de IIB
- D6• • = 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	


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