

CAT.VEMX.01.23-ENG



ELSAN ELEKTRİK SAN. ve TİC. A.Ş.

THREE PHASE
SQUIRREL CAGE
TENV (IC410)



**VIBRATION
MOTORS**

EMTAS



EMPOWERED TO EMPOWER

The factory, one of the first electric motor manufacturers in Turkey which was founded in 1964, and was able to manufacture norm electric motors up to 18,5 kW at the beginning, mostly with imported parts and in the form of assembly, has grown and developed continuously, today has come to the point of designing and manufacturing IEC norm motors up to 400 kW, also of designing and building special purpose motors upon customers' specifications.

The company, which has the widest product range in the field of electric motors in our country, responds to almost all kinds of electric motor request with the products it puts on the market under the EMTAŞ brand.

Our factory of 17.000 m² outdoor and 8.500 m² indoor space located in Etimesgut-Ankara, meticulously selected raw materials such as magnetic steel sheet, coil wire, cast iron, aluminium are transformed into high quality products using modern technology by experienced technical personnel.

EMTAŞ which is always in production effort with the most appropriate technology, takes pride of making an important contribution to Turkey's becoming an exporting country from its position as an electric motor importing country.

GENERAL INFORMATION

STANDARDS

Motors in this catalogue are manufactured in compliance with the below standards and suggestions:

TS EN 60034-1	Rating and performance
TS EN IEC 60034-5	Degrees of protection provided by the integral design of rotating electrical machines (IP code) classification
TS 3210 EN 60034-6	Methods of cooling (IC codes)
TS EN 60034-8	Terminal markings and direction of rotation
TS EN 60034-9	Noise limits
TS EN 60034-12	Starting performance of single-speed three-phase cage induction motors
TS EN IEC 60034-14	Measurement, evaluation and limits of vibration severity
TS EN 60034-15	Impulse voltage withstand levels of form-wound stator coils for rotating AC machines
TS EN 60034-18-1	Functional evaluation of insulation systems - General guidelines

GENERAL INFORMATION

Emtaş Vibration Motors are three-phase squirrel cage electric motors that create vibration through the eccentric weights located at the two sides of the motor. Emtaş Vibration Motors provide unchanging reliability and longevity through meticulous design, sturdy construction and strict quality control at every step of its manufacturing process.

PROPERTIES

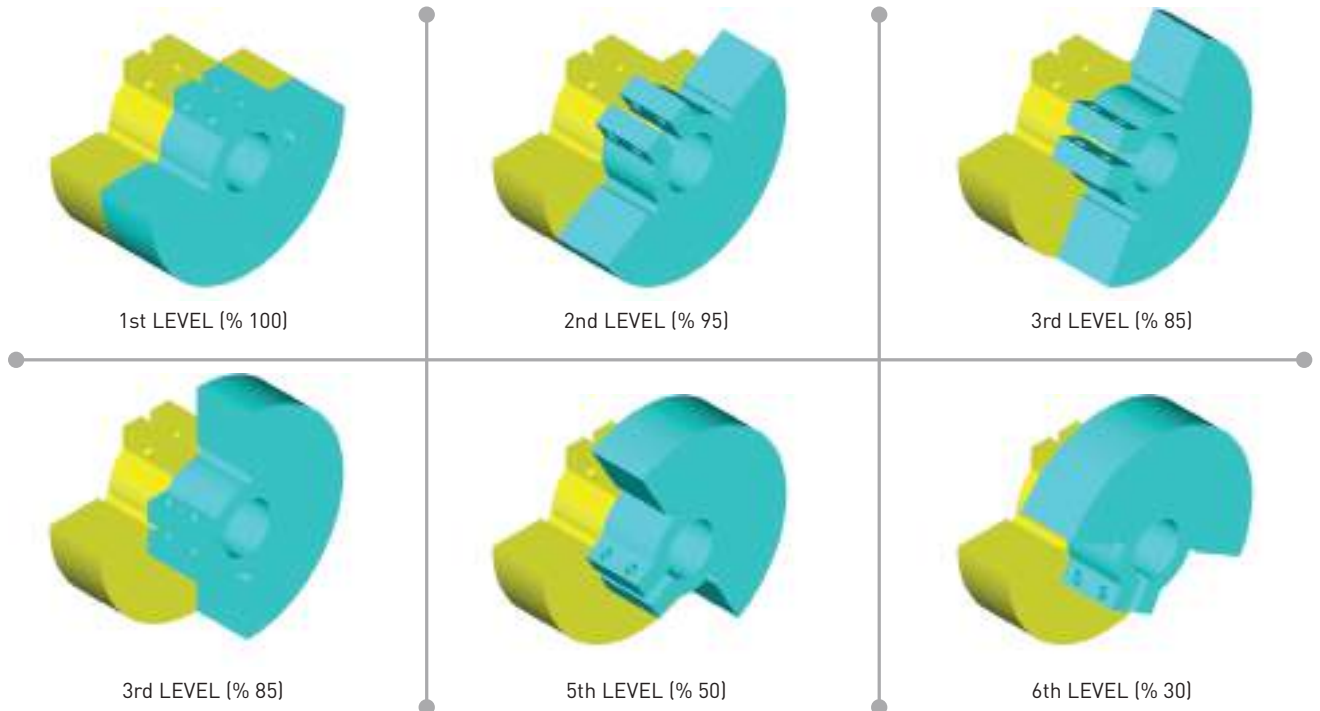
- Models that can provide vibration force of 18100 kgf at rated power of 15 kW
- High-performance electric motors with long operation life time
- Ductile-iron frames and end-shields
- C4 clearance bearings with high-load capacities
- Synthetic resin insulated, F class windings durable for vibration
- Eccentric weights that can easily and infinitely be adjusted with a graduated scale from 0 to 100% and whose adjustment can be seen clearly
- Vibration-proof connections and power cables in the terminal box
- Sheet metal covers and seals that do not allow dust and water to enter inside the motor frame (Protection class IP55)
- Thermistor protection provided as a standart for 132 frame and bigger motors and on request for smaller motors

AREAS OF USE

Emtaş Vibration Motors are generally used in the following areas:

- Transportation of various materials:
i.e Vibratory discharge chutes, corrugated feeders, transfer tubes
- Screening and dewatering processes:
i.e Vibrating screens, strainers, separators
- Compression and homogenize of concrete and various materials:
i.e Prefabricated concrete elements, concrete pillar molds, concrete floors, vibration tables, foundry machines
- Loosening, dissolving and dispersing processes of various materials:
i.e Storage silos, coal tanks, wagons, vibratory screens
- Cleaning operations
- Filter and filter facilities

LEVELS OF ECCENTRIC WEIGHTS



GENERAL INFORMATION



VIBRATION MOTOR SELECTION GUIDE

F = Centrifugal force [kgf]

S = Amplitude [mm]

G = Weight of system or machine [kgf]

R = Weight of motor(s) [kgf]

C = Coefficient depending on speed [mm]

$$F \text{ (kgf)} = \frac{S \text{ (mm)} \times G \text{ (kgf)} + R \text{ (kgf)}}{C \text{ (mm)}}$$

$$S \text{ (mm)} = \frac{C \text{ (mm)} \times F \text{ (kgf)}}{G \text{ (kgf)} + R \text{ (kgf)}}$$

n = 3000 rpm

n = 1500 rpm

n = 1000 rpm

C=0,23

C=0,91

C=2,03

EXAMPLE

Amplitude

Weight of system

Weight of motor(s)

Speed of motor

S = 0,5 mm

G = 250 kgf

R = 26 kgf

n = 3000 rpm

$$F = \frac{0,5 \times (250+26)}{0,23} = 600 \text{ kgf}$$

$$S = \frac{0,23 \times 600}{250 + 26} = 0,5 \text{ mm}$$

A system weighing 276 kgf (incl. material, carrier, motor, etc.) is desired to swing with a vibration amplitude of 0.5 mm and 3000 vibrations/min. Which vibration motor should be chosen for this?

Vibration amplitude of 0.5 mm is marked from the 3000 1/min vibration amplitude scale on the left side of the chart. 276 kgf is marked on the weight scale of the vibrating system. When these two marked points are combined with a line and extended, it is seen that they intersect with 600 kgf on the vibration force scale on the right side of the table. This is the required motor vibration force.

80-2-77 type vibration motor, which gives 800 kgf vibration force, is selected from the page where 3000 rpm vibration motors are located. The 3rd eccentric weight level of this motor gives the desired 600 kgf vibration force.

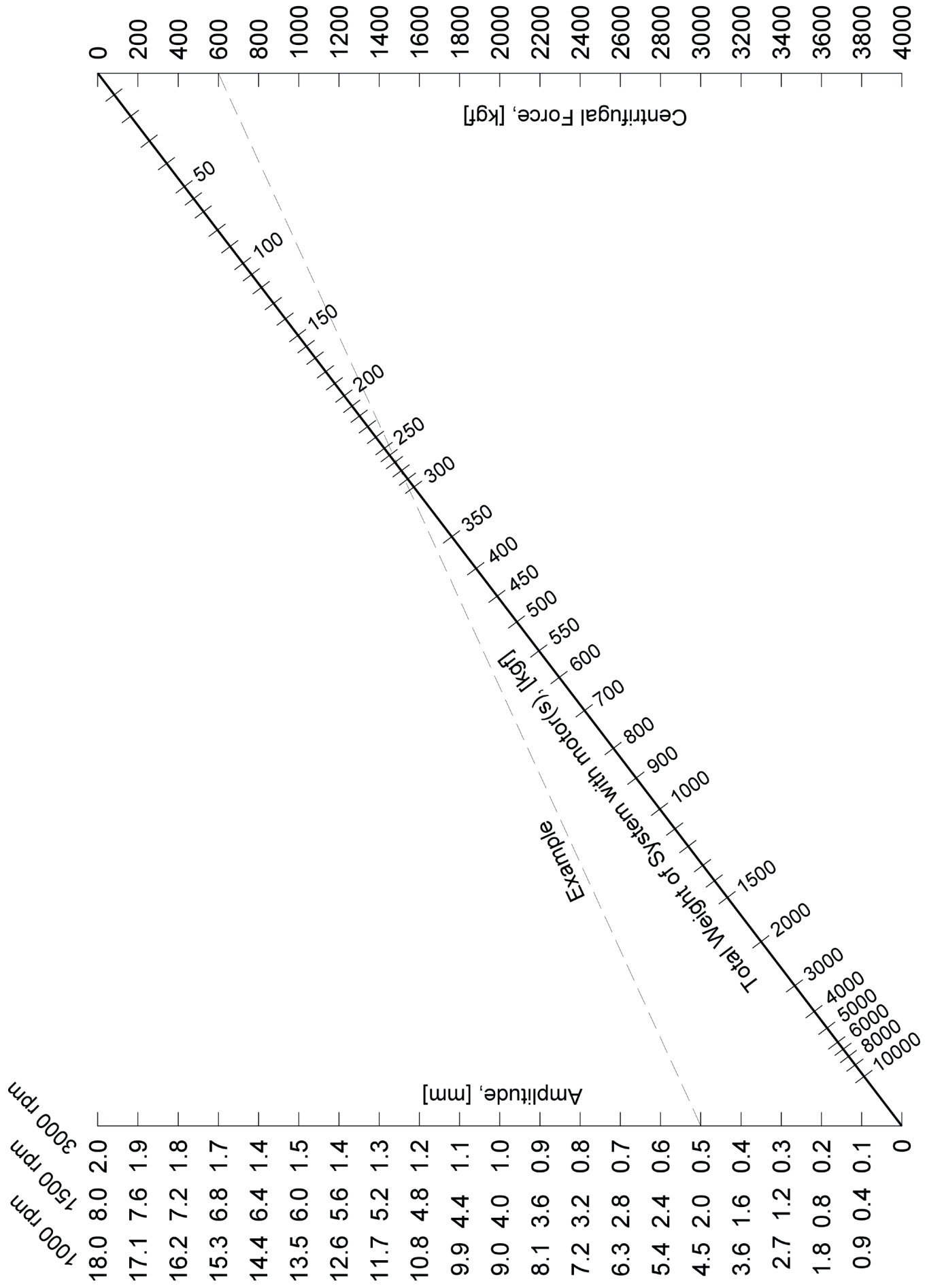
NOTE: The vibration frequency is equal to 1/60 of the motor speed.

The frequency of 3000 rpm vibration motors is 50 t/sec,

Frequency of 1500 rpm vibration motors is 25 t/sec,

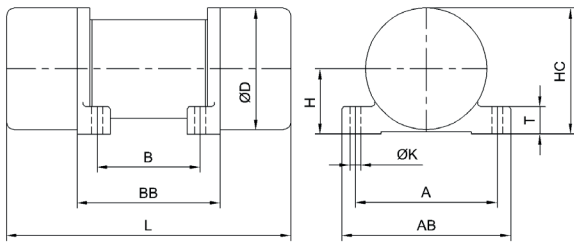
The frequency of 1000 rpm vibration motors is 16.7 t/sec



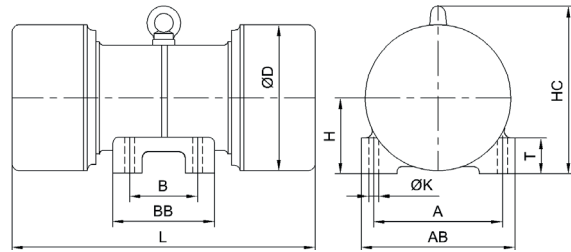


PERFORMANCE DATA AND DIMENSIONS

MODEL 1



MODEL 2

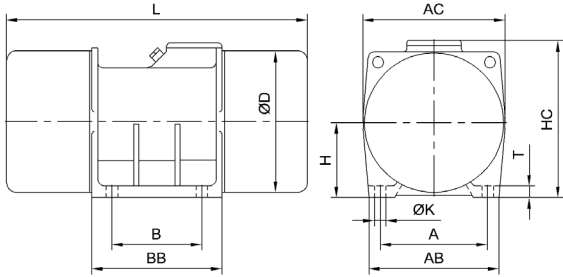


MOTOR TYPE	MODEL	Max. % 100 [kgf]*	RATED CURR. [A]	RATED INPUT [kW]	STATIC MOMENT [kgmm]	BEARING NO	WEIGHT OF MOTOR [kg]	CENTRIFUGAL FORCE					
								Max. % 100 [kgf]	2. LEVEL % 95 [kgf]	3. LEVEL % 85 [kgf]	4. LEVEL % 70 [kgf]	5. LEVEL % 50 [kgf]	Min. % 30 [kgf]
3000 rpm		2 POLES						400 V - 50 Hz					
VEMS 80-2-53	1	533	0,85 \triangle	0,5	53	6304	18	533	515	462	377	266	138
VEMS 80-2-77	2	778	1,27 \triangle	0,7	77	NJ 304	27	778	752	674	550	389	201
VEMS 90-2-116	2	1160	2,60 \triangle	1,7	115	NJ 2305	42	1160	1120	1004	820	580	300
VEMS 112-2-210	3A	2107	3,80 \triangle	2	209	NJ 2308	70	2107	2036	1825	1490	1054	545
VEMS 132-2-530	3B	5306	6,75 \triangle	4	527	NJ 2310	123	5306	5125	4595	3752	2653	1373
1500 rpm		4 POLES						400 V - 50 Hz					
VEMS 80-4-29	1	297	0,68 \triangle	0,27	118	6304	22	297	287	257	210	148	77
VEMS 80-4-47	2	478	0,92 \triangle	0,37	190	6305	33	478	461	414	338	239	124
VEMS 90-4-117	2	1175	1,05 \triangle	0,55	467	NJ 2307	45	1175	1135	1018	831	588	304
VEMS 90-4-159	2	1595	1,32 \triangle	0,75	634	NJ 2307	48	1595	1540	1381	1128	797	413
VEMS 90-4-181	2	1812	2,00 \triangle	1,1	720	NJ 2307	58	1812	1750	1569	1281	906	469
VEMS 100-4-242	3A	2425	2,66 \triangle	1,5	964	NJ 2308	78	2425	2342	2100	1714	1212	628
VEMS 100-4-282	3A	2829	3,61 \triangle	2	1125	NJ 2308	84	2829	2732	2450	2000	1414	732
VEMS 112-4-327	3A	3274	4,18 \triangle	2,2	1302	NJ 310	106	3274	3162	2835	2315	1637	847
VEMS 112-4-413	3A	4133	4,47 \triangle	2,4	1643	NJ 2311	122	4133	3992	3579	2923	2067	1070
VEMS 112-4-456	3A	4563	5,89 \triangle	3,2	1814	NJ 2311	131	4563	4408	3952	3227	2282	1181
VEMS 132-4-551	3B	5514	5,66 \triangle	3,5	2192	NJ 2313	166	5514	5326	4775	3899	2757	1427
VEMS 160-4-736	3B	7361	10,26 \triangle	5,8	2927	NJ 2315	260	7361	7110	6375	5205	3681	1905
1000 rpm		6 POLES						400 V - 50 Hz					
VEMS 90-6-108	2	1082	2,20 \triangle	1,1	968	NJ 2307	64	1082	1045	937	765	541	280
VEMS 112-6-145	3A	1455	2,85 \triangle	1,5	1302	NJ 310	106	1455	1405	1260	1029	727	377
VEMS 112-6-202	3A	2029	3,74 \triangle	2	1815	NJ 310	128	2029	1960	1757	1435	1015	525
VEMS 132-6-359	3B	3590	4,75 \triangle	2,6	3210	NJ 313	184	3590	3468	3109	2539	1795	929
VEMS 132-6-416	3B	4164	5,89 \triangle	3,2	3725	NJ 313	194	4164	4022	3606	2945	2082	1078
VEMS 160-6-583	3B	5830	6,84 \triangle	4	5215	NJ 2314	262	5830	5631	5049	4122	2915	1509
VEMS 160-6-705	3B	7054	8,12 \triangle	4,5	6311	NJ 2315	290	7054	6814	6109	4988	3527	1826
VEMS 160-6-881	3B	8811	13,30 \triangle	7,5	7882	NJ 2317	398	8811	8511	7631	6231	4406	2281
VEMS 160-6-981	3B	9813	16,63 \triangle	8	8778	NJ 2317	420	9813	9478	8498	6939	4906	2540
VEMS 180-6-130	3B	12700	17,20 \triangle	9,2	11691	NJ 2320	508	12700	12267	10999	8980	6350	3287
VEMS 180-6-136	3B	13654	20,52 \triangle	11	12215	NJ 2320	525	13654	13189	11825	9655	6827	3534
VEMS 200-6-137	3B	13700	20,62 \triangle	11,2	12256	NJ 2320	628	13700	13233	11865	9687	6850	3546
VEMS 200-6-153	3B	15300	23,47 \triangle	12,5	13687	NJ 2322	668	15300	14779	13250	10819	7650	3960
VEMS 200-6-181	3B	18100	28,12 \triangle	15	16192	NJ 2322	741	18100	17483	15675	12799	9050	4685
600 rpm		10 POLES						400 V - 50 Hz					
VEMS 100-10-59	1	590	1,15	0,5	1467	6406	69	590	570	511	417	295	153

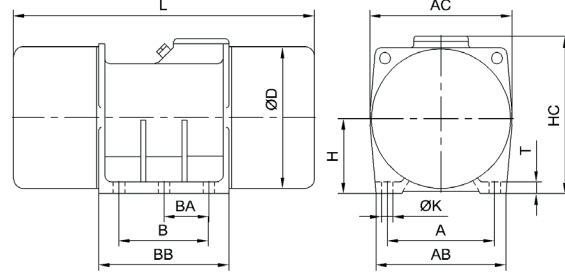
IMPORTED NOTE

- Our vibration motors can only be started with direct on line method (DOL).
- Our company reserves the right to make changes in the value, size and construction defined in this document, without prior notice, and to change or invalidate this document at any time, without prior notice, due to its continuous improvement policy.
- Our company cannot be held responsible for any income or profit loss that may occur under any circumstances.
- " * " Eccentric Weights impact force tolerance is $\pm 2\%$.

MODEL 3A



MODEL 3B



MOTOR TYPE	MODEL	RATED INPUT [kW]	A	AB	AC	B	BB	BA	D	H	HC	K	T	L
3000 rpm			2 POLES						400 V - 50 Hz					
VEMS 80-2-53	1	0,5	180	215	-	126	176	-	153	82,5	225	15	45	300
VEMS 80-2-77	2	0,7	165	200	-	85	130	-	178	95	225	15	45	340
VEMS 90-2-116	2	1,7	180	215	-	95	137	-	203	105	245	17	50	445
VEMS 112-2-210	3A	2	255	310	300	155	290	-	253	130	276	21	25	510
VEMS 132-2-530	3B	4	230	295	320	165	277	82,5	293	155	315	21	30	515
1500 rpm			4 POLES						400 V - 50 Hz					
VEMS 80-4-29	1	0,27	180	215	-	126	176	-	153	82,5	105	15	45	350
VEMS 80-4-47	2	0,37	165	200	-	85	130	-	178	95	105	15	45	420
VEMS 90-4-117	2	0,55	180	215	-	95	137	-	203	105	245	17	50	445
VEMS 90-4-159	2	0,75	180	215	-	95	137	-	203	105	245	17	50	445
VEMS 90-4-181	2	1,1	180	215	-	95	137	-	203	105	245	17	50	530
VEMS 100-4-242	3A	1,5	225	274	274	155	270	-	218	116	265	21	20	560
VEMS 100-4-282	3A	2	225	274	274	155	270	-	218	116	265	21	20	590
VEMS 112-4-327	3A	2,2	225	310	300	155	290	-	253	130	276	21	25	560
VEMS 112-4-413	3A	2,4	255	310	300	155	290	-	253	130	276	21	25	650
VEMS 112-4-456	3A	3,2	255	310	300	155	290	-	253	130	276	21	25	650
VEMS 132-4-551	3B	3,5	230	295	320	165	275	82,5	293	155	315	21	30	615
VEMS 160-4-736	3B	5,8	320	390	372	200	334	100	348	190	396	28	30	615
1000 rpm			6 POLES						400 V - 50 Hz					
VEMS 90-6-108	2	1,1	180	215	-	95	137	-	203	105	245	17	50	525
VEMS 112-6-145	3A	1,5	255	310	300	155	290	-	253	130	276	21	25	560
VEMS 112-6-202	3A	2	255	310	300	155	290	-	253	130	276	21	25	650
VEMS 132-6-359	3B	2,6	230	295	320	165	277	82,5	293	155	315	21	30	695
VEMS 132-6-416	3B	3,2	230	295	320	165	277	82,5	293	155	315	21	30	695
VEMS 160-6-583	3B	4	320	390	372	200	334	100	348	190	396	28	30	755
VEMS 160-6-705	3B	4,5	320	390	372	200	334	100	348	190	396	28	30	855
VEMS 160-6-881	3B	7,5	320	395	395	200	419	100	348	200	406	28	35	940
VEMS 160-6-981	3B	8	320	395	395	200	419	100	348	200	406	28	35	980
VEMS 180-6-130	3B	9,2	380	460	460	250	474	125	433	231	465	37	38	965
VEMS 180-6-136	3B	11	380	460	460	250	474	125	433	231	465	37	38	965
VEMS 200-6-137	3B	11,2	400	500	500	310	474	155	488	250	515	37	45	905
VEMS 200-6-153	3B	12,5	400	500	500	310	474	155	488	250	515	37	45	945
VEMS 200-6-181	3B	15	400	500	500	310	524	155	488	250	515	37	45	995
600 rpm			10 POLES						400 V - 50 Hz					
VEMS 100-10-59	1	0,5	226	262	254	118	178	-	253	135	262	17	45	430

- Dimensions are in mm's.

- Please consult our company for foot hole (A, B, BA and K) dimensions different from the dimensions in the table above.

MOTOR PARTS



1	FRAME	9	BEARING CAP
2	STATOR	10	ECCENTRIC WEIGHT - NON ADJUSTABLE
3	WINDING	11	ECCENTRIC WEIGHT - ADJUSTABLE
4	SHAFT	12	COWL
5	ROTOR	13	TERMINAL TABLE
6	BEARING PRESURE RING	14	TERMINAL COVER
7	BEARING	15	CABLE GLAND
8	END SHIELD		



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