Three phase asynchronous motor with frequency control – Series ATF

The output power of the motor shaft is determined under the following conditions:
- Nominal voltage indicated on motor nameplate with a tolerance of ± 10%
- Frequency of the supply voltage with a tolerance of ± 1%
- Ambient temperature - to 40 ° C
- Height above sea level to 1000m
- Environmental humidity - up to 80%
- Type S1 - continuous operation according to EN 60034 -1.

In case of deviation from the above indicated conditions, the advisable output power is defined according to the following formula:

$$P_d = k_t \cdot k_h \cdot P_n$$

Where P_d is the admissible output power, k_t is the correction quotient taking into account the influence of the ambient temperature, k_h is the correction quotient taking into account the altitude, and P_n is the output power of the motor, indicated on its nameplate.

The correction coefficients are defined by the following two tables.

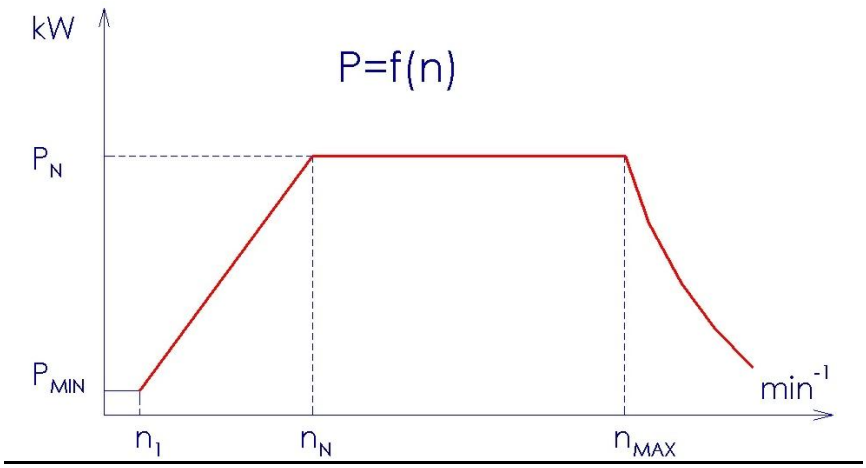
Table 1

t [°C]	40	45	50	55	60
k_t [-]	1.00	0.95	0.90	0.83	0.76

Table 2

h [m]	1000	1500	2000	2500	3000	4000
k_h [-]	1.00	0.98	0.95	0.91	0.87	0.78

Regulate the rotation speed of the motor



Regulating the speed of the motors is carried out in two ranges:

- $\underline{n_1 - n_N}$ The change of rotation speed is carried out when the torque of the motor is constant. The frequency of the voltage changes in the range from 5Hz to 50Hz. The output of the motor increases from P_{MIN} to P_N.
- $\underline{n_N - n_{MAX}}$ The change of rotation speed is performed at constant power. The motor's torque decreases inversely proportional to the rotation speed.
- When changing the rotation speed, the ratio of the maximum torque to the nominal rotating torque remains unchanged

Cooling – A fan powered by a three-phase induction motor is mounted on the rear bearing shield. The terminals of the stator winding are not placed in a common terminal box with the terminals of the main motor.

BEARINGS - All motors are produced with single-row ball bearings, enclosed at both sides, with decreased level of noise and vibrations with increased tolerance – C3. To compensate for any dilatation, there is an axial freedom. The bearings are axially pre-loaded with a string in advance (table 3).

Table 3

Series	ATF 71	ATF 80	ATF 90,	ATF 100	ATF 112	ATF 132	ATF 160
Front bearing	6202 2Z	6204 2Z	6205 2Z	6206 2Z	6206 2Z	6308 2Z	6309 2Z
Rear bearing	6202 2Z	6204 2Z	6205 2Z	6206 2Z	6206 2Z	6308 2Z	6308 2Z
Axial freedom	1,0	1,5	1,5	1,5	1,5	2,0	2,0
String	35b	47b	52d	62b	62b	90b	100b

DEGREE OF PROTECTION: IP - The motors are supplied in IP54 according to IEC/ISO 34-5.

DRIVING SHAFT END - The dimensions of the driving shaft end are indicated in the tables of overall and joining dimensions. Normally, the motors are produced with a cylindrical shaft end and without an internal thread. On request, they can be produced with an internal thread and a center taper according to DIN 332 form DS. When storing or transporting, the driving shaft end is protected with an anticorrosive lubricant and plastic protector.

THERMAL INSULATION CLASS - The thermal class of insulation is F (155°C).

DIRECTION OF ROTATION: clockwise

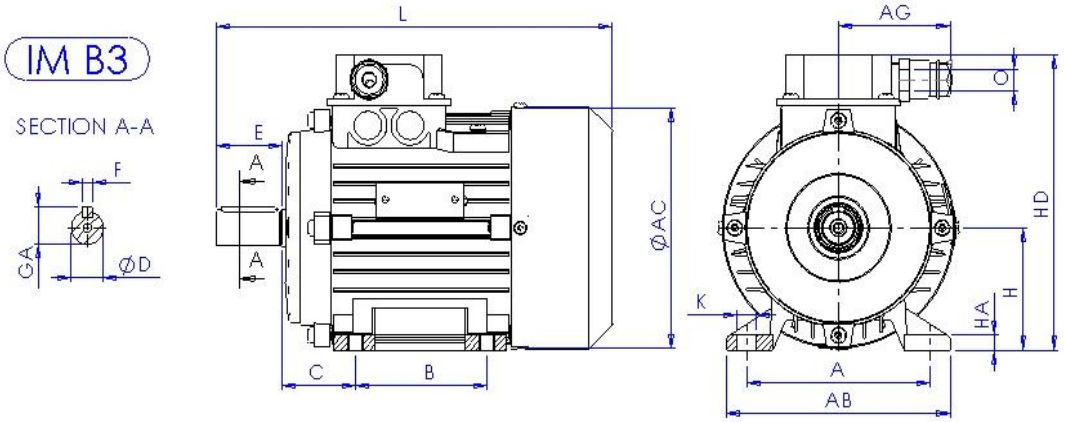
PROTECTIVE VARNISH - RAL 5010. The motors can be painted with different varnishes on request.

Three-phase Electric Motors - Series ATF

50Hz 400V

TYP, TYPE	Bemessungs-leistung Rated Output		Betriebswerte bei Bemessungsleistung Parameters at Rated Output							Anlaufverhalten Starting performance			Gewicht IMB3 Weight IM B3
	P_N		I_N	η	$\cos\varphi$	M_N	n_1	n_N	n_{MAX}	I_S/I_N	M_S/M_N	M_{MAX}/M_N	M
	kW	HP	A	%	-	N.m	min^{-1}	min^{-1}	min^{-1}	-	-	-	kg
												1500min^{-1}	2p=4
ATF 71 A 4	0.25	0.34	0.8	65	0.67	1.59	150	1500	4500	3.1	2.0	2.1	6.3
ATF 71 B 4	0.37	0.5	1.1	68	0.72	2.36	150	1500	4500	3.3	2.0	2.1	7.0
ATF 71 C4	0.55	0.75	1.4	67	0.84	3.50	150	1500	4500	4.0	2.1	2.4	8.0
ATF 80 A 4	0.55	0.75	1.6	70	0.71	3.50	150	1500	4500	4.0	2.1	2.5	8.3
ATF 80 B 4	0.75	1.00	2.1	72	0.72	4.78	150	1500	4500	4.3	2.5	2.8	9.4
ATF 80 C 4	1.10	1.50	3.2	70	0.71	7.0	150	1500	4500	4.0	2.1	2.5	10.0
ATF 80 D 4	1.50	2.00	4.2	72	0.72	9.6	150	1500	4500	4.3	2.5	2.8	11.8
ATF 90 S 4	1.10	1.50	2.8	76	0.75	7.0	150	1500	4500	4.7	2.5	2.8	11.5
ATF 90 L 4	1.50	2.00	3.7	76	0.77	9.6	150	1500	4500	4.6	2.6	2.9	13.5
ATF 90 LB4	2.20	3.00	5.2	79	0.78	14.0	150	1500	4500	5.2	2.4	2.6	15.1
ATF 100 LK4	2.20	3.00	5.0	82	0.78	14.0	150	1500	4500	5.2	2.2	2.6	18.7
ATF 100 L4	3.00	4.00	6.8	82	0.78	19.1	150	1500	4500	5.3	2.5	2.8	22.0
ATF 100 LB4	4.00	5.50	8.9	80	0.81	25.5	150	1500	4500	5.2	2.5	2.9	24.2
ATF 112 M4	4.00	5.50	8.9	80	0.81	25.5	150	1500	4500	6.3	2.6	3.0	26.6
ATF 112 MB4	5.50	7.50	11.8	83	0.81	35.0	150	1500	4500	6.9	2.6	3.0	30.2
ATF 132 S4	5.50	7.50	11.4	85	0.82	35.0	150	1500	4500	6.5	2.2	2.9	40.5
ATF 132 M4	7.50	10.00	16.0	86	0.79	47.8	150	1500	4500	7.0	2.2	2.9	50.0
ATF 132 MA4	9.50	12.70	20.2	86	0.79	60.5	150	1500	4500	7.0	2.2	2.9	50.0
ATF 132 MB4	11.00	15.00	23.4	86	0.79	70.1	150	1500	4500	7.1	2.2	2.9	60.0
												1000min^{-1}	2p=6
ATF 71 A 6	0.18	0.25	0.7	57	0.68	1.7	100	1000	3000	2.5	1.8	2.0	5.3
ATF 71 B 6	0.25	0.34	0.9	60	0.66	2.4	100	1000	3000	2.8	1.9	2.0	6.5
ATF 80 A 6	0.37	0.50	1.2	68	0.66	3.6	100	1000	3000	4.0	2.3	3.0	10.0
ATF 80 B 6	0.55	0.75	1.6	70	0.69	5.3	100	1000	3000	4.0	2.7	3.2	12.0
ATF 90 S 6	0.75	1.00	2.5	61	0.70	7.2	100	1000	3000	4.2	2.1	3.0	14.0
ATF 90 L 6	1.10	1.50	3.7	60	0.71	10.6	100	1000	3000	5.0	2.3	2.8	15.2
ATF 100 L6	1.50	2.00	3.7	78	0.75	14.4	100	1000	3000	5.0	2.5	3.2	21.5
ATF 112 M6	2.20	3.00	5.3	80	0.75	21.2	100	1000	3000	5.1	2.4	3.0	26.2
ATF 132 S6	3.00	4.00	7.2	82	0.73	28.8	100	1000	3000	5.6	2.3	3.0	-
ATF 132 MK6	4.00	5.50	9.2	83	0.76	38.5	100	1000	3000	6.0	2.2	3.0	-
ATF 132 M6	5.50	7.50	11.8	85	0.79	52.9	100	1000	3000	6.0	2.1	3.0	-

Three-phase Electric Motors - Series ATF
Overall and Joining Dimensions - IMB3



TYP, TYPE	Abmessungen, Dimensions [mm]												Welle, Shaft [mm]			
	A	B	C	HA	AB	AC	AG	H	HD	K	L	O	D	E	GA	F
ATF 71	112	90	45	11	136	138	70	71	180	7x12	334	M16	14	30	16	5
ATF 80	125	100	50	13	155	160		80	183		377		19	40	21.5	6
ATF 90 S	140	100	56	13	184	178		90	222	10	408		24	50	27	8
ATF 90 L		125					85				433	M20				
ATF 100 L	160		63	15	200	196		100	240		478		28	60	31	8
ATF 112 M	190	140	70		220	218		112	262	12	488					
ATF 132 S	216		89	20	260	258	95	132	310		550	M25	38	80	41	10
ATF 132 M		178									590					