DATASHEET ALTERNATOR

Alternator ref. KH02970T
Alternator type KH02970TO4D

-GENERAL CHARACTERISTICS-

Voltage Type (V)	400/230	**Altitude (m)**	0-1000
Number of Phase	Three phase	**AVR Regulation**	Yes
Number of pole	4	**Indication of protection**	IP23

Capacity for maintaining short circuit at 3 In for 10 s Yes
Winding type Standard

Efficiency & Power

Frequency (Hz) 50 Hz **Nominal voltage (V)** 400

	Class H				Class F	Class B
	125°C/ 40°C continuous	130°C/ 25°C standby	150°C/ 40°C standby	163°C/ 27°C standby	105°C/ 40°C continuous	80°C/ 40°C continuous
Nominal Rating(Kva)	800	820	840	900	730	640
Nominal Rating(KW)	640	656	672	720	584	512
Efficiency 100%	95.1	95	95	94.8	95.3	95.2

-ELECTRICAL CHARACTERISTICS-

Voltage regulation at established rating (+/- %)	0.5
Insulation class	H
T° class (H/125°), continuous 40°C	H / 125°K
T° class (H/163°C), standby 27°C	H / 163°K
Wave form : NEMA=TIF	<40
Unbalanced load acceptance ratio (%)	100
Number of wires	12
Total Harmonic Distortion in no-load DHT (%)	31
Wave form : CEI=FHT	<2
Total Harmonic Distortion, on linear load DHT (%)	28
Technology	Brushless
L-L Harmonic Maximum - Single (%)	<3
Deviation Factor (%)	6
Shaft Current	<80
Main Stator Capacitance to ground (mdf)	0.05

Reactances

Direct axis synchro reactance unsaturated (Xd) (%)	367
Direct axis transcient reactance saturated (X'd) (%)	16.6
Direct axis subtranscient reactance saturated (X''d) (%)	8.6
Quadra axis synchro reactance unsaturated (Xq) (%)	157
Quadra axis subtranscient reactance saturated (X"q) (%)	18.3
Zero sequence reactance unsaturated (Xo) (%)	3.4
Negative sequence reactance saturated (X2) (%)	13.4

Short circuit ratio

Short circuit ratio (Kcc)	0.5
Subtranscient time constant (T"d) (ms)	18

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Short circuit transcient time constant (T'd) (ms)	225
Open circuit time constant (T'do) (ms)	7700
Subtranscient time constant (T"q) (ms)	18
Leakage stator reactance (Xa)(%)	4.6
Stator Resistance (Ra)(%)	0.109
Armature time constant (Ta) (ms)	20
No load excitation current (io) (A)	0.9
Full load excitation current (ic) (A)	3.5
Full load excitation voltage (uc) (V)	37.2
Heat rejection (W)	32976
No load losses (W)	12780
Stator resistance (for 20°C ambient) (Ω)	0.011
Rotor resistance (for 20°C ambient) (Ω)	2.1
Exciter resistance - stator/inductor (for 20° ambient) (Ω)	10.63
Exciter resistance - rotor/armature (for 20° ambient) (Ω)	0.13
Recovery time (Delta U = 20% transcient) (ms)	200
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	2051.6
Transcient dip (4/4 load) - PF : 0,8 AR (%)	14.3

Additional electrical characteristics-

Winding X1, X2 auxiliary resistance (for 20° ambient) (Ω)	0.44
Auxiliary winding X1, X2 excitation voltage at no load (V)	188
Auxiliary winding X1, X2 excitation voltage on load (V)	203
Winding Z1, Z2 auxiliary resistance (for 20° ambient) (Ω)	
Auxiliary winding Z1, Z2 excitation voltage at no load (V)	

-MECHANICAL CHARACTERISTICS-

Number of bearing	1
Overspeed (rpm)	2250
Coupling	Direct

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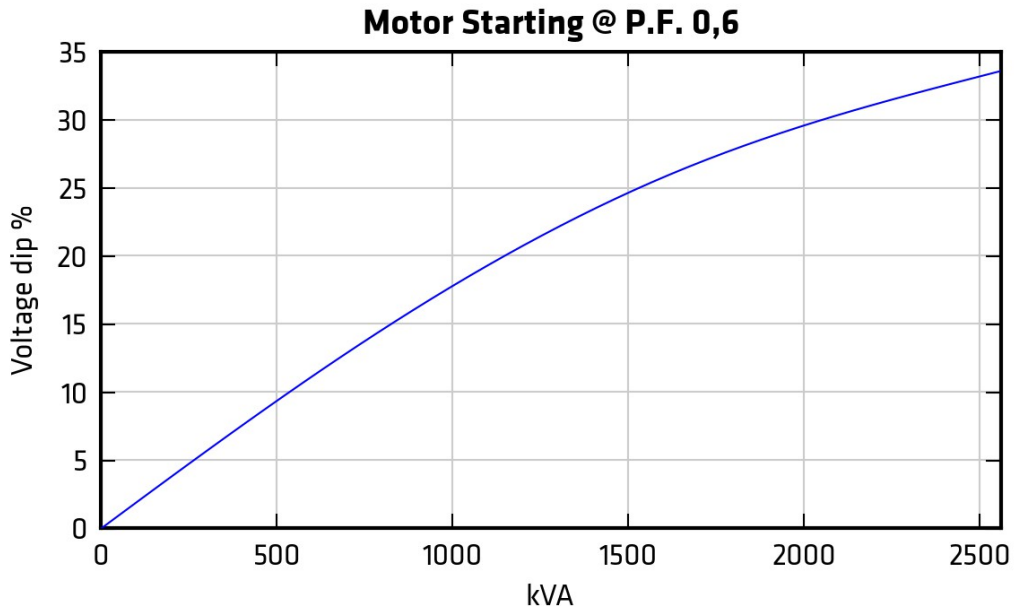
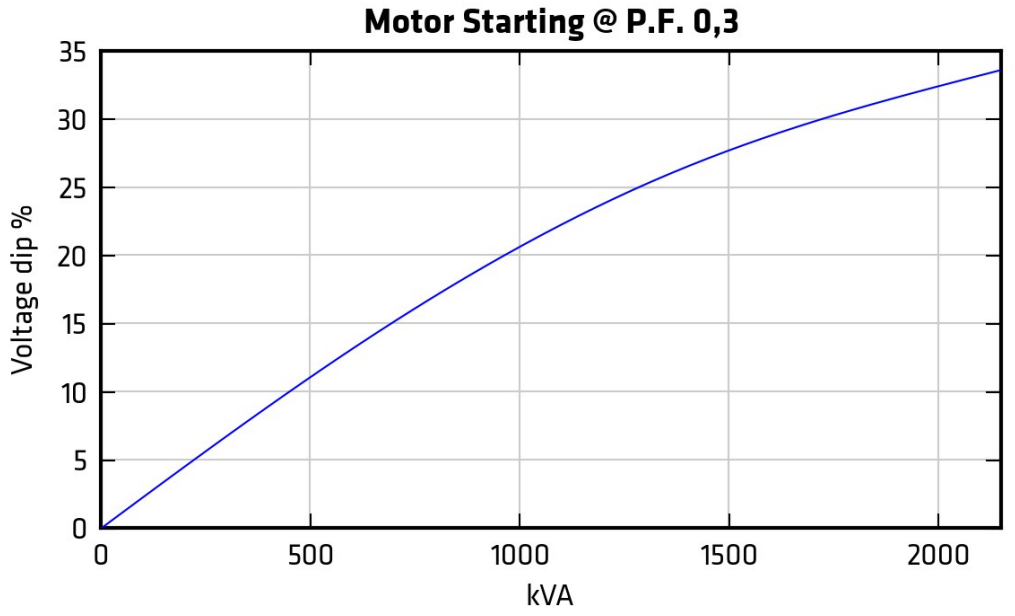
-TECHNICAL CURVES-

Motor starting curve locked rotor (0,6PF)



Motor starting curve locked rotor (0,3PF)



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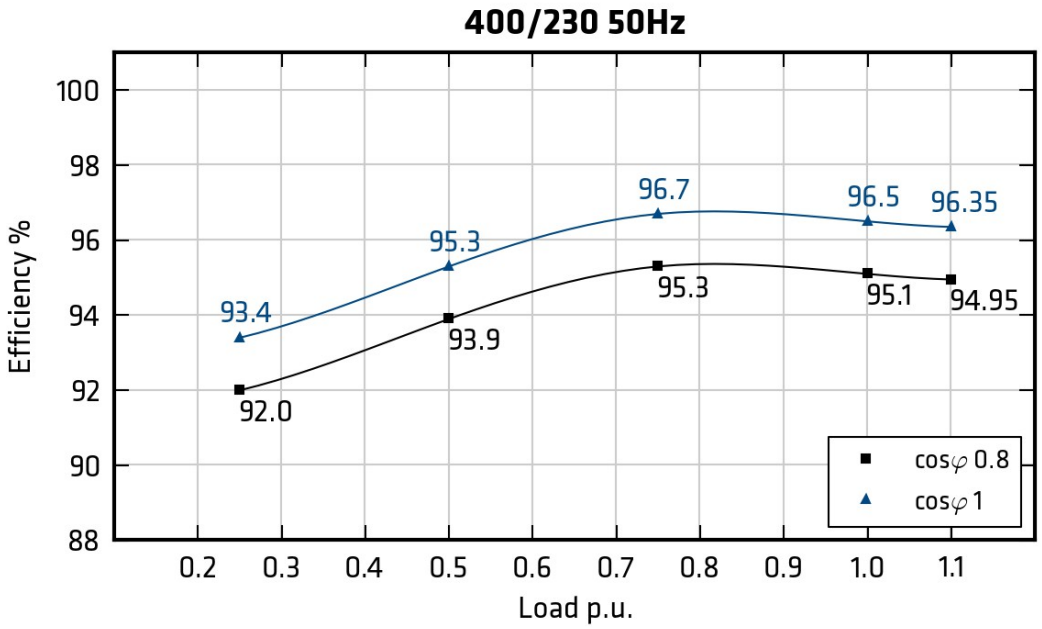
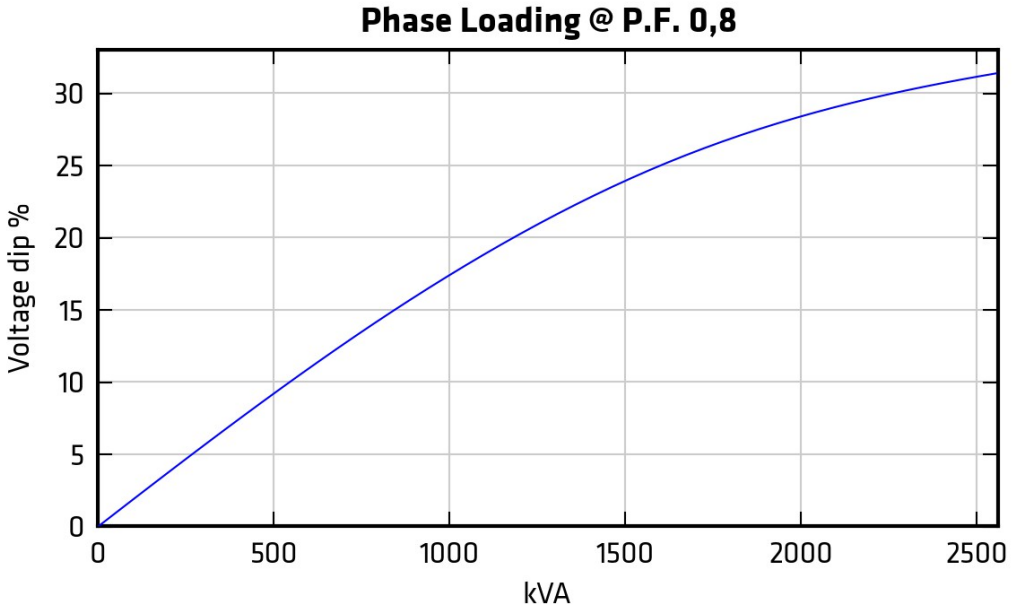
Efficiencies curve (by excitation system)



Loading curve (by excitation system)



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Short circuit curve at no load and rated speed

Influence due to connection

Curves shown are for star (Y) connection

For other connections, use the following multiplication factors :

- Series to Parallel star : current value x 2
- Series to Series delta : current value x 1.72
- Series star to Parallel delta : current value x 3.44

Influence due to short-circuit

The indicated coefficient have to be used to correct the three phase short circuit curves values as a function of the type of short circuit voltage.

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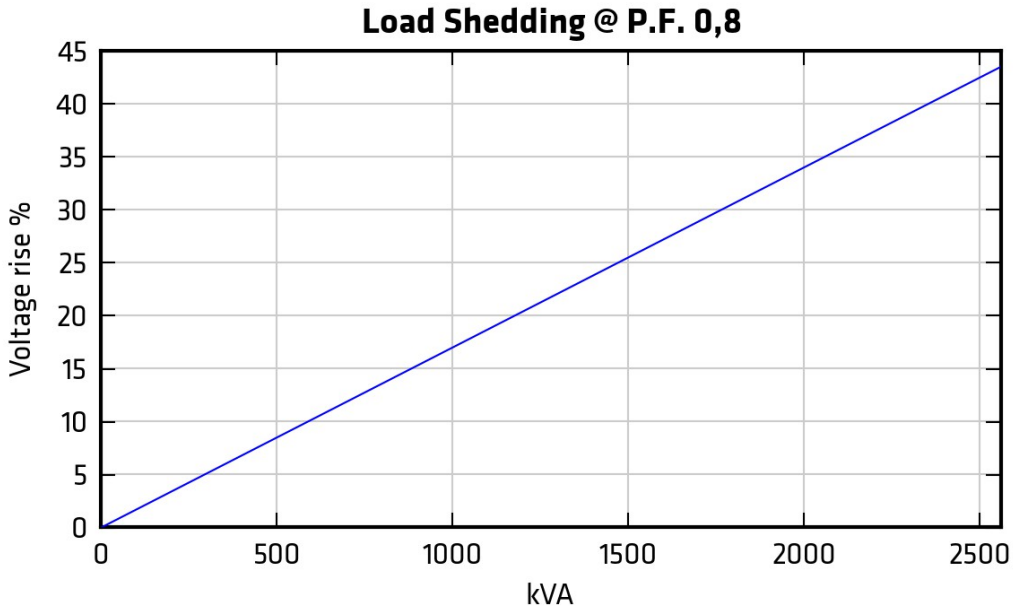
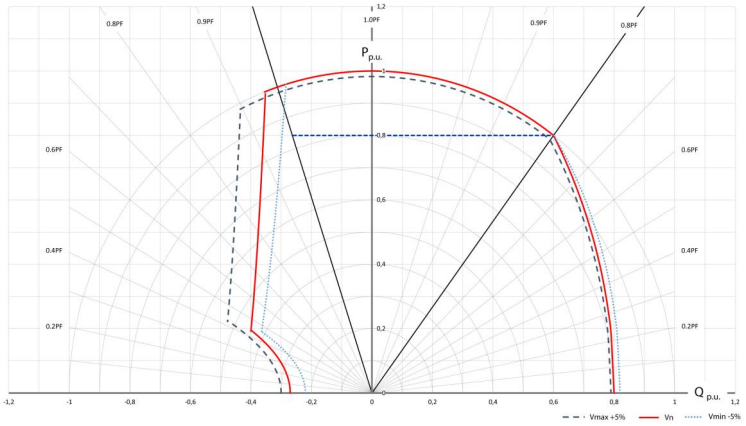
Rejection curve (by excitation system)



Capability curve (PQ diagram)



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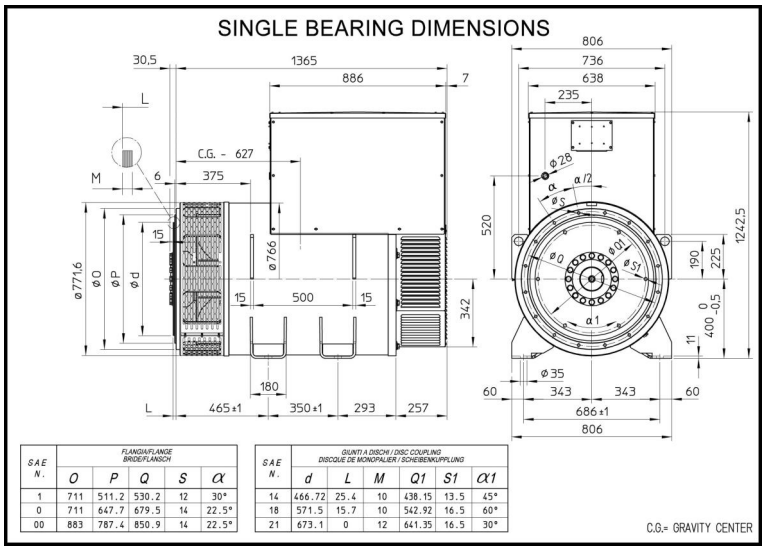
DIMENSIONS-

Overall dimension drawing (Single bearing)



S.A.E. N.	FLANGIA/FLANGE BRIDE/FLANSCH				
	O	P	Q	S	α
1	711	511.2	530.2	12	30°
0	711	647.7	679.5	14	22.5°
00	883	787.4	850.9	14	22.5°

S.A.E. N.	GIUNTI A DISCHI / DISC COUPLING DISQUE DE MONOPALIER / SCHEIBENKUPPLUNG					
	d	L	M	Q1	S1	α1
14	466.72	25.4	10	438.15	13.5	45°
18	571.5	15.7	10	542.92	16.5	60°
21	673.1	0	12	641.35	16.5	30°

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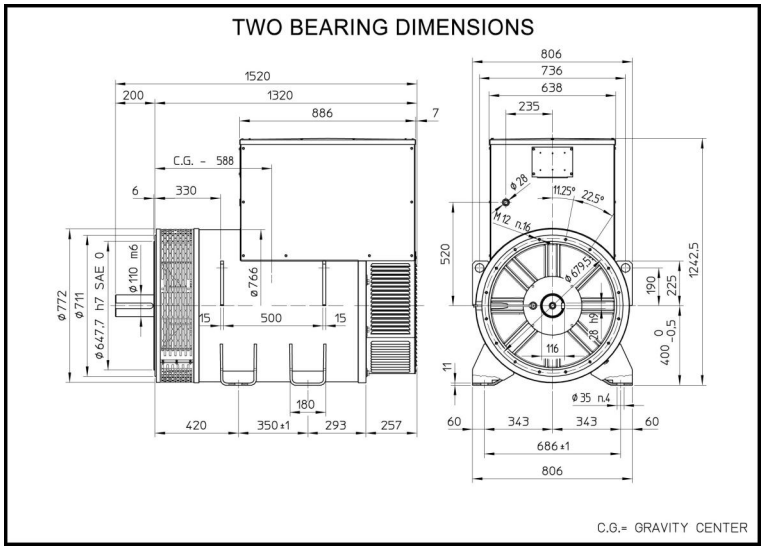
Overall dimension drawing (Two bearings)



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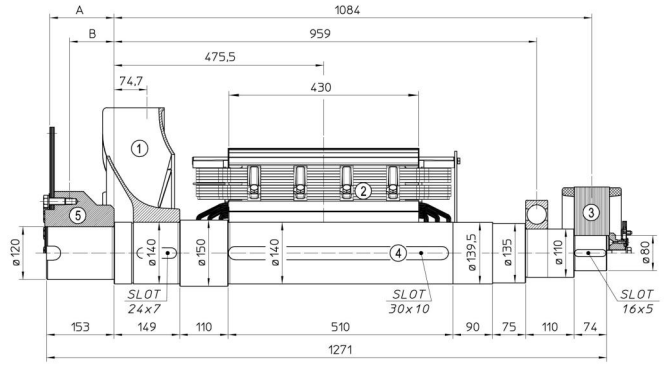
-TORSIONAL ANALYSIS DATA-

Rotation part drawing for torsional vibration calculation (Single bearing)

SINGLE BEARING MOMENTS OF INERTIA



POS.	COMPONENT	WEIGHT (kg)	J (kgm^2)
1	FAN	26.2	1.0289
2	MAIN ROTOR	476.5	13.7333
3	EX. ROTOR	40.1	0.4889
4	SHAFT	135.9	0.3141
TOTAL		678.7	15.5652

POS.	COMPONENT	SAE N°	A	B	WEIGHT (kg)	J (kgm^2)
5	SHAFTS COUPLING FLEX PLATE	14	155.7	99.5	56.5	0.8261
		18	145.7	100.7	60.9	1.2458
		21	130.0	98.5	69.0	2.2332

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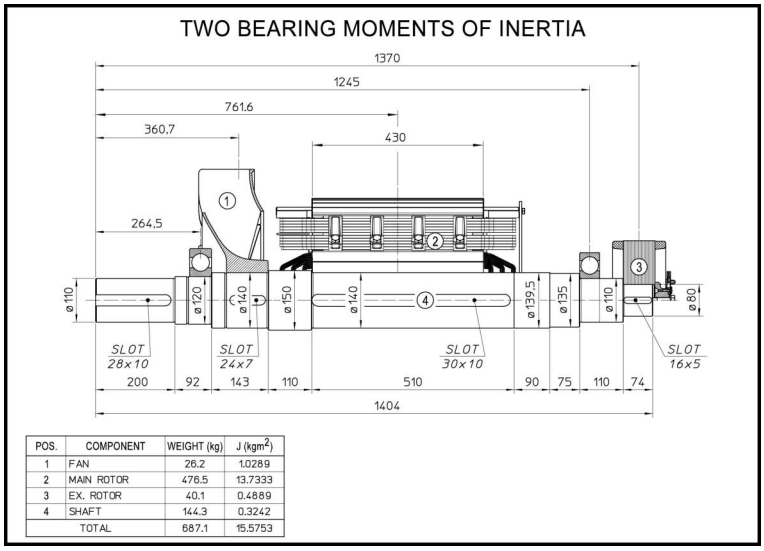
Rotation part drawing for torsional vibration calculation (Two bearings)



POS.	COMPONENT	WEIGHT (kg)	J (kgm^2)
1	FAN	26.2	1.0289
2	MAIN ROTOR	476.5	13.7333
3	EX. ROTOR	40.1	0.4889
4	SHAFT	144.3	0.3242
	TOTAL	687.1	15.5753