

DATASHEET ALTERNATOR

Alternator ref. KH00470T
Alternator type KH00470TO4N



-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)	15		15.5	16	14	12
Nominal Rating(KW)	12		12.4	12.8	11.2	9.6
Efficiency 100%	86.3		86.1	86	86.6	86.9

-ELECTRICAL CHARACTERISTICS-

Voltage regulation at established rating (+/- %) 1
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 <45
Unbalanced load acceptance ratio (%) 100
Number of wires 12
Total Harmonic Distortion in no-load DHT (%) 28
Wave form : CEI=FHT <2
Total Harmonic Distortion, on linear load DHT (%) 22
Technology Without collar or brush
L-L Harmonic Maximum - Single (%) <3
Deviation Factor (%) 6
Shaft Current <80
Main Stator Capacitance to ground (mfd)

Reactances

Direct axis synchro reactance unsaturated (Xd) (%) 144
Direct axis transient reactance saturated (X'd) (%) 12.4
Direct axis subtransient reactance saturated (X''d) (%) 8.5
Quadra axis synchro reactance unsaturated (Xq) (%) 80
Quadra axis subtransient reactance saturated (X''q) (%) 45.3
Zero sequence reactance unsaturated (Xo) (%) 5.5
Negative sequence reactance saturated (X2) (%) 14.9

Short circuit ratio

Short circuit ratio (Kcc) 1.1

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Subtranscient time constant (T''d) (ms)	10
Short circuit transcient time constant (T'd) (ms)	42
Open circuit time constant (T'do) (ms)	840
Subtranscient time constant (T''q) (ms)	9
Leakage stator reactance (Xa)(%)	3.7
Stator Resistance (Ra)(%)	0.059
Armature time constant (Ta) (ms)	11
No load excitation current (io) (A)	0.35
Full load excitation current (ic) (A)	1.2
Full load excitation voltage (uc) (V)	18.8
Heat rejection (W)	1905
No load losses (W)	457
Stator resistance (for 20°C ambient) (Ω)	0.314
Rotor resistance (for 20°C ambient) (Ω)	10.884
Exciter resistance - stator/inductor (for 20° ambient) (Ω)	15.71
Exciter resistance - rotor/armature (for 20° ambient) (Ω)	1.453
Recovery time (Delta U = 20% transcient) (ms)	200
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	48
Transcient dip (4/4 load) - PF : 0,8 AR (%)	14.2

Additional electrical characteristics-

Winding X1, X2 auxiliary resistance (for 20° ambient) (Ω)	3.75
Auxiliary winding X1, X2 excitation voltage at no load (V)	177
Auxiliary winding X1, X2 excitation voltage on load (V)	186

-MECHANICAL CHARACTERISTICS-

Number of bearing	1
Overspeed (rpm)	2250
Coupling	Direct

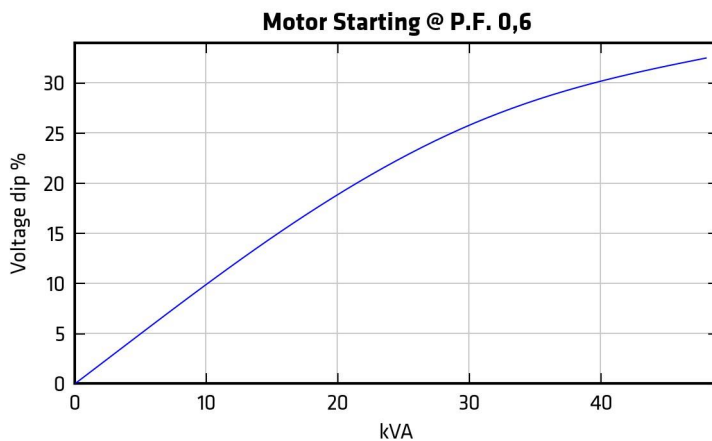
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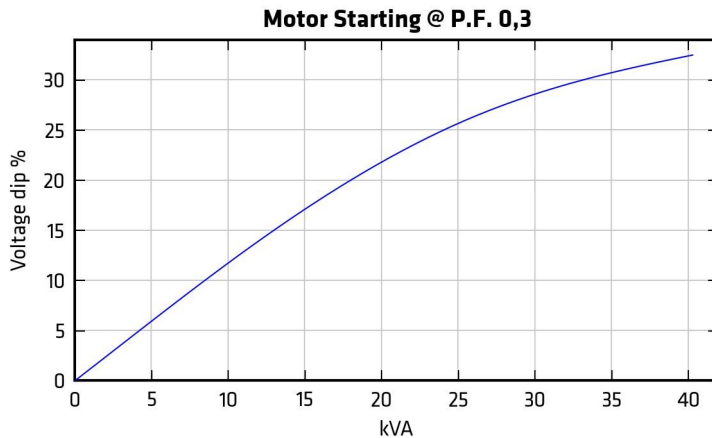


-TECHNICAL CURVES-

Motor starting curve locked rotor (0,6PF)



Motor starting curve locked rotor (0,3PF)

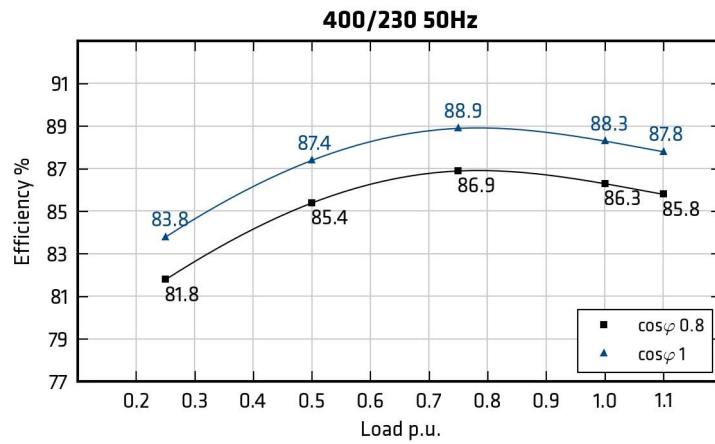


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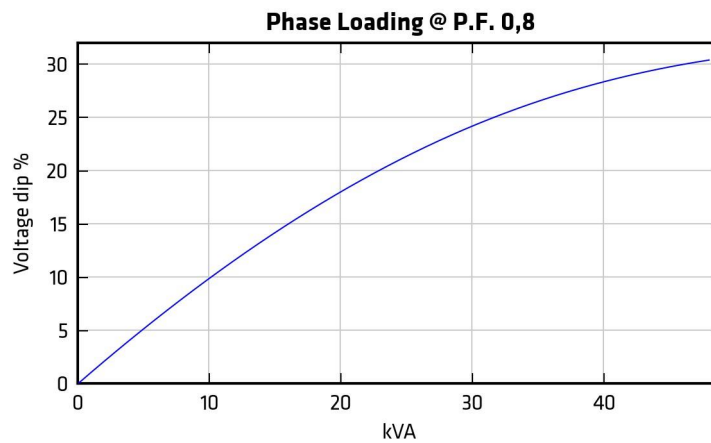
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Efficiencies curve (by excitation system)



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

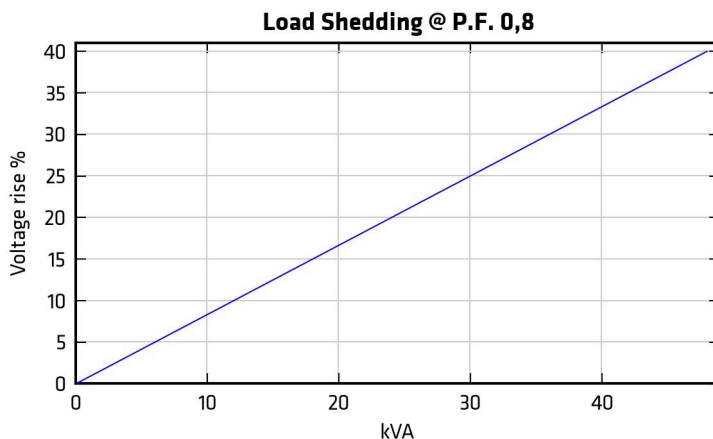
The indicated coefficient have to be used to correct the three phase short circuit curves values as a function of the type of short circuit voltage.

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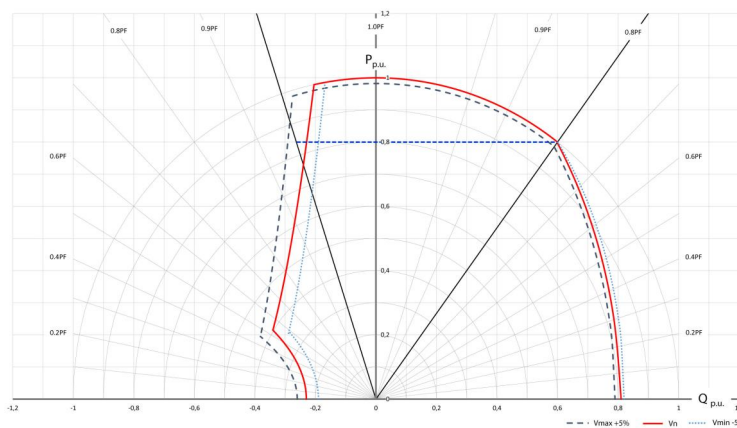
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Rejection curve (by excitation system)



Capability curve (PQ diagram)



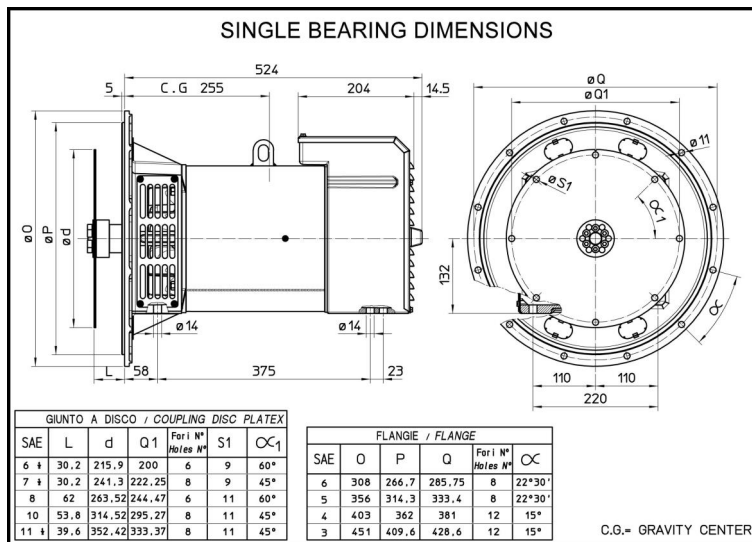
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DIMENSIONS-

Overall dimension drawing (Single bearing)

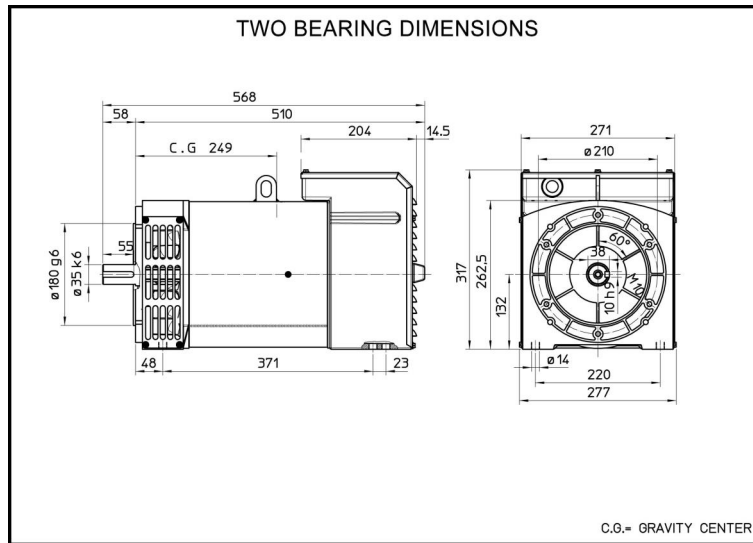


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Overall dimension drawing (Two bearings)



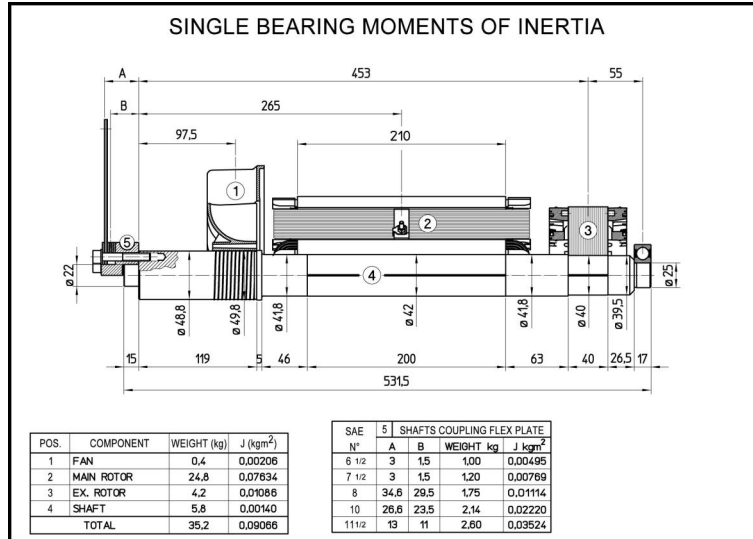
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-TORSIONAL ANALYSIS DATA-

Rotation part drawing for torsional vibration calculation (Single bearing)



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Rotation part drawing for torsional vibration calculation (Two bearings)

