

# DATASHEET ALTERNATOR

Alternator ref. KH01050T  
Alternator type KH01050TN4N



## -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 No  
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)	125	125	131	138	114	100
Nominal Rating(KW)	100	100	104.8	110.4	91.2	80
Efficiency 100%	92.2	92.2	92.1	91.9	92.5	92.8

## -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 <50  
Unbalanced load acceptance ratio (%) 100  
Number of wires 12  
Total Harmonic Distortion in no-load DHT (%) <2  
Wave form : CEI=FHT <2  
Total Harmonic Distortion, on linear load DHT (%) <5  
Technology Without collar or brush  
L-L Harmonic Maximum - Single (%) 18  
Deviation Factor (%) 3  
Shaft Current  
Main Stator Capacitance to ground (mfd)

### Reactances

Direct axis synchro reactance unsaturated (Xd) (%) 329  
Direct axis transient reactance saturated (X'd) (%) 15.2  
Direct axis subtransient reactance saturated (X''d) (%) 9.1  
Quadra axis synchro reactance unsaturated (Xq) (%) 167  
Quadra axis subtransient reactance saturated (X''q) (%) 18.6  
Zero sequence reactance unsaturated (Xo) (%) 0.6  
Negative sequence reactance saturated (X2) (%) 13.89

### Short circuit ratio

Short circuit ratio (Kcc) 0.446  
Subtransient time constant (T''d) (ms) 10

3.351411E+10-A

The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever

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Short circuit transient time constant (T'd) (ms)	100
Open circuit time constant (T'do) (ms)	2154
Subtransient time constant (T''q) (ms)	10
Leakage stator reactance (Xa)(%)	0.76
Stator Resistance (Ra)(%)	0.026
Armature time constant (Ta) (ms)	15
No load excitation current (io) (A)	0.66
Full load excitation current (ic) (A)	2.47
Full load excitation voltage (uc) (V)	30.6
Heat rejection (W)	8385.31
No load losses (W)	2355.39
Stator resistance (for 20°C ambient) (Ω)	0.03347
Rotor resistance (for 20°C ambient) (Ω)	2.8934
Exciter resistance - stator/inductor (for 20° ambient) (Ω)	12.941
Exciter resistance - rotor/armature (for 20° ambient) (Ω)	0.459
Recovery time (Delta U = 20% transient) (ms)	500
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	291.22
Transient dip (4/4 load) - PF : 0,8 AR (%)	13

## Additional electrical characteristics-

Winding X1, X2 auxiliary resistance (for 20° ambient) (Ω)	0
Auxiliary winding X1, X2 excitation voltage at no load (V)	0
Auxiliary winding X1, X2 excitation voltage on load (V)	
Winding Z1, Z2 auxiliary resistance (for 20° ambient) (Ω)	0
Auxiliary winding Z1, Z2 excitation voltage at no load (V)	0
Auxiliary winding Z1, Z2 excitation voltage on load (V)	

## -MECHANICAL CHARACTERISTICS-

Number of bearing	1
Overspeed (rpm)	2250
Coupling	Direct

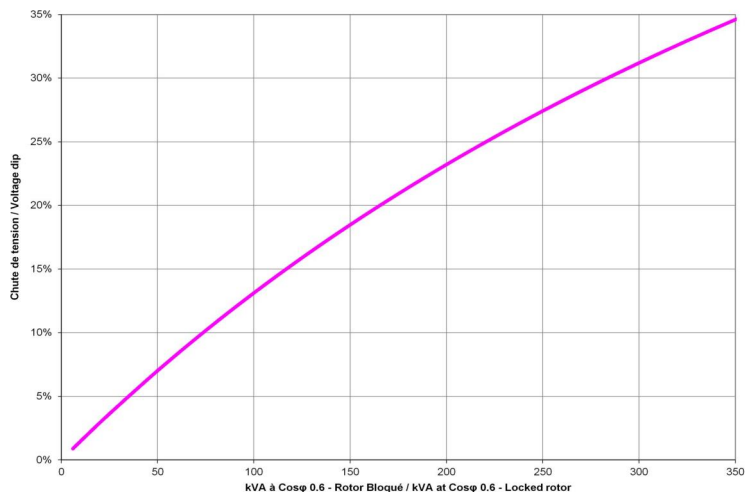
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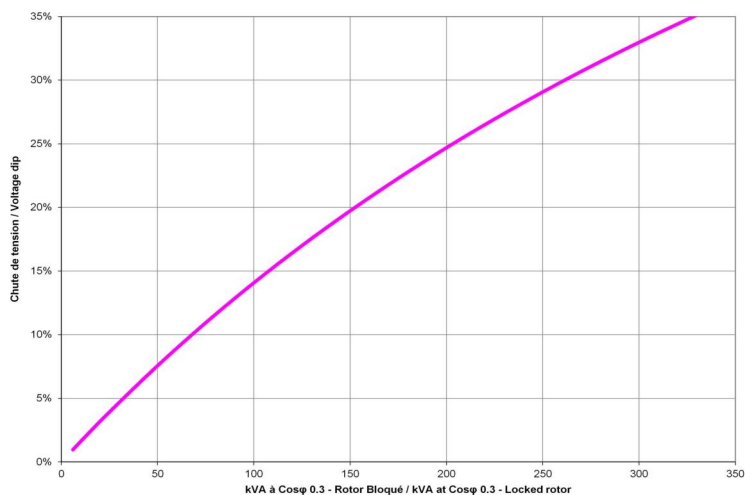


## -TECHNICAL CURVES-

### Motor starting curve locked rotor (0,6PF)



### Motor starting curve locked rotor (0,3PF)

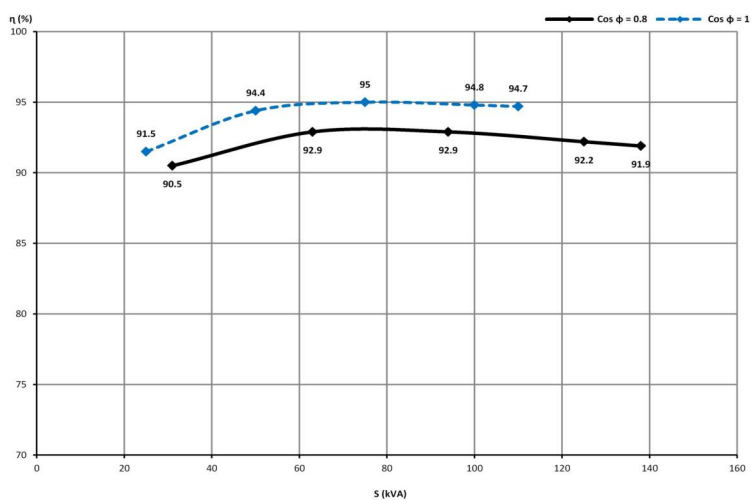


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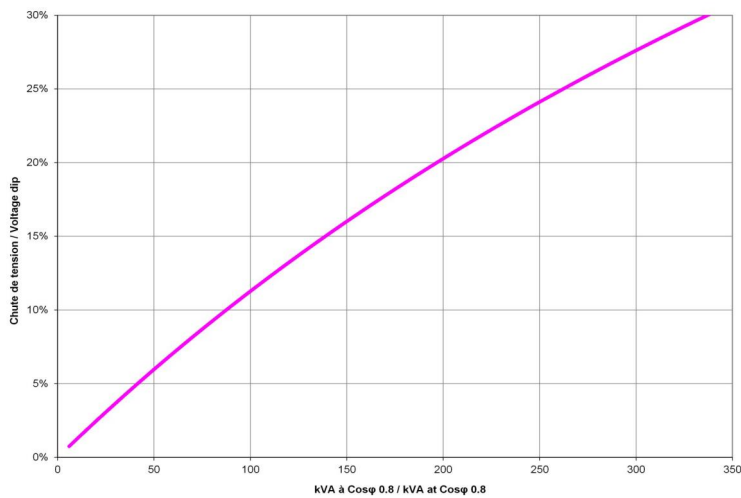
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## Efficiencies curve (by excitation system)



## 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 delta : current value x 1.732
- Parallel star : current value x 2

### Influence due to short-circuit

Curves are based on a three-phase short-circuit. For the other types of short-circuit, use the following multiplication factors :

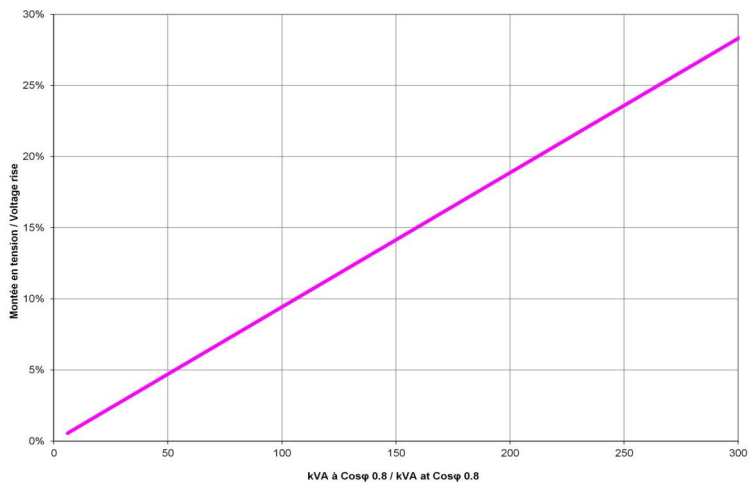
(\*) Capacity for maintaining short circuit at  $3 I_n$  for 10 s = YES

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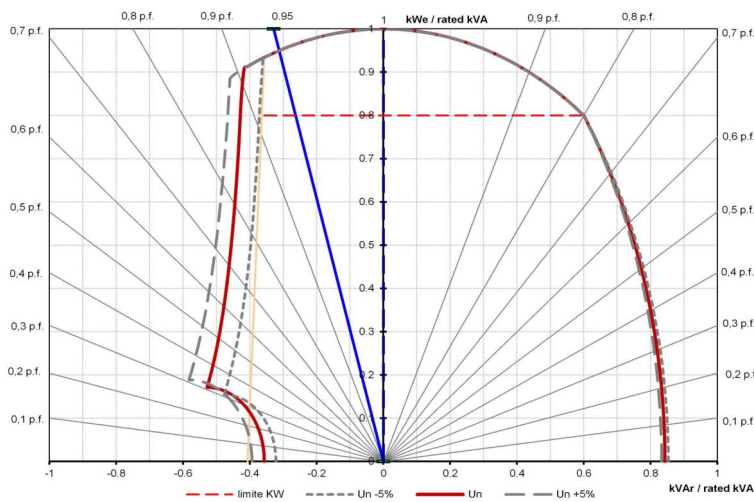
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## Rejection curve (by excitation system)



## Capability curve (PQ diagram)









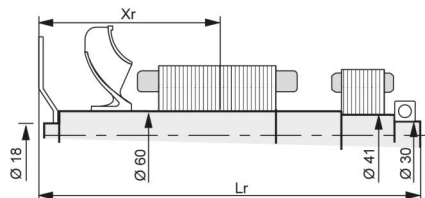
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## -TORSIONAL ANALYSIS DATA-

### Rotation part drawing for torsional vibration calculation (Single bearing)



Centre de gravité : Xr (mm), Longueur du rotor Lr (mm), Masse du rotor : M (kg), Moment d'inertie : J (kgm<sup>2</sup>) : (4J = MD)  
 Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm<sup>2</sup>): (4J = MD)

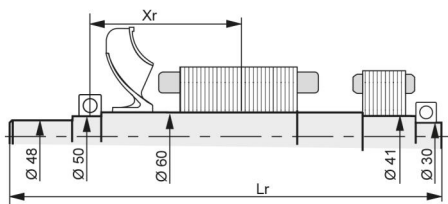
Disque / Flex plate	S.A.E. 8				S.A.E. 10				S.A.E. 11 1/2				S.A.E. 14			
	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J	Xr	Lr	M	J
ALT-KH00750	356	724	118	0.841	348	716	118	0.854	334	702	117	0.869	320	690	120	0.993
ALT-KH00751	356	724	118	0.841	348	716	118	0.854	334	702	117	0.869	320	690	120	0.993
ALT-KH00910	376	724	134	0.992	363	716	134	1.005	349	702	133	1.020	335	690	136	1.144
ALT-KH00911	376	724	134	0.992	363	716	134	1.005	349	702	133	1.020	335	690	136	1.144
ALT-KH01050	394	794	149	1.108	385	786	149	1.121	372	772	148	1.136	357	760	150	1.260
ALT-KH01190	411	794	161	1.215	403	786	161	1.228	390	772	160	1.243	375	760	162	1.367
ALT-KH01340	431	834	176	1.350	423	826	176	1.363	410	812	175	1.378	395	800	178	1.502

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## Rotation part drawing for torsional vibration calculation (Two bearings)



Type	$X_r$	$L_r$	M	J
ALT -KH00750	330	807	112	0.815
ALT -KH00751	330	807	112	0.815
ALT -KH00910	346	807	128	0.966
ALT -KH00911	346	807	128	0.966
ALT -KH01050	374	877	143	1.082
ALT -KH01190	387	877	155	1.189
ALT -KH01340	407	907	171	1.324