

DATASHEET ALTERNATOR

Alternator ref. KH02401T
Alternator type KH02401TO4N



-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)	660	660	725	745	595	528
Nominal Rating(KW)	528	528	580	596	476	422.4
Efficiency 100%	94.1	94.1	93.9	93.8	94.3	94.5

-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 (%) 60
Number of wires 6
Total Harmonic Distortion in no-load DHT (%) <4
Wave form : CEI=FHT <2
Total Harmonic Distortion, on linear load DHT (%) <4
Technology Brushless
L-L Harmonic Maximum - Single (%) 30
Deviation Factor (%) 5
Shaft Current
Main Stator Capacitance to ground (mfd)

Reactances

Direct axis synchro reactance unsaturated (Xd) (%) 350
Direct axis transient reactance saturated (X'd) (%) 17.5
Direct axis subtransient reactance saturated (X''d) (%) 14
Quadra axis synchro reactance unsaturated (Xq) (%) 178
Quadra axis subtransient reactance saturated (X''q) (%) 16.3
Zero sequence reactance unsaturated (Xo) (%) 0.7
Negative sequence reactance saturated (X2) (%) 15.17

Short circuit ratio

Short circuit ratio (Kcc) 0.363
Subtransient time constant (T''d) (ms) 10

3.351412E+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)	2002
Subtransient time constant (T''q) (ms)	10
Leakage stator reactance (Xa)(%)	0.87
Stator Resistance (Ra)(%)	3
Armature time constant (Ta) (ms)	15
No load excitation current (io) (A)	1.08
Full load excitation current (ic) (A)	4.22
Full load excitation voltage (uc) (V)	48
Heat rejection (W)	32757.62
No load losses (W)	8246.98
Stator resistance (for 20°C ambient) (Ω)	0.00744
Rotor resistance (for 20°C ambient) (Ω)	0.33255
Exciter resistance - stator/inductor (for 20° ambient) (Ω)	11.549
Exciter resistance - rotor/armature (for 20° ambient) (Ω)	0.068
Recovery time (Delta U = 20% transient) (ms)	500
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	1346.04
Transient dip (4/4 load) - PF : 0,8 AR (%)	12

Additional electrical characteristics-

Winding X1, X2 auxiliary resistance (for 20° ambient) (Ω)	0.248
Auxiliary winding X1, X2 excitation voltage at no load (V)	112.6
Winding Z1, Z2 auxiliary resistance (for 20° ambient) (Ω)	0.297
Auxiliary winding Z1, Z2 excitation voltage at no load (V)	11

-MECHANICAL CHARACTERISTICS-

Number of bearing	1
Overspeed (rpm)	2250
Coupling	Direct

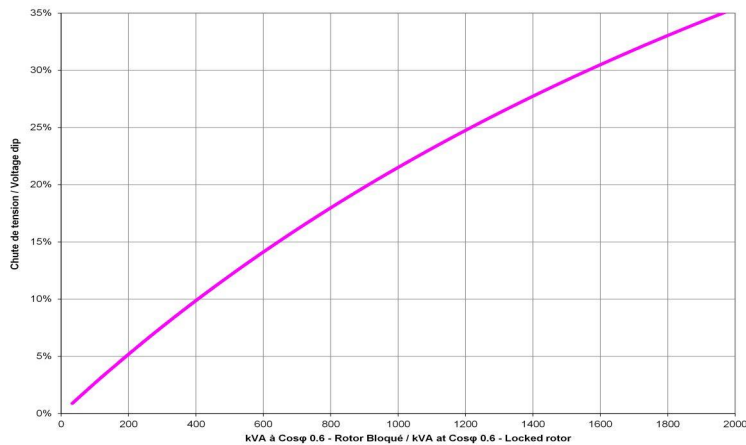
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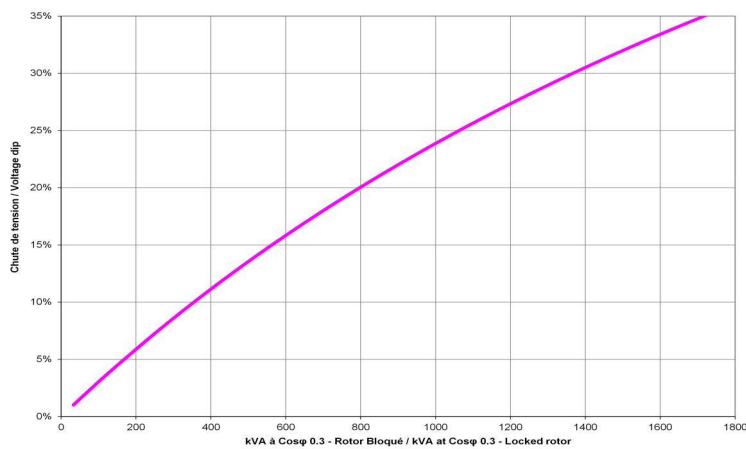


-TECHNICAL CURVES-

Motor starting curve locked rotor (0,6PF)



Motor starting curve locked rotor (0,3PF)

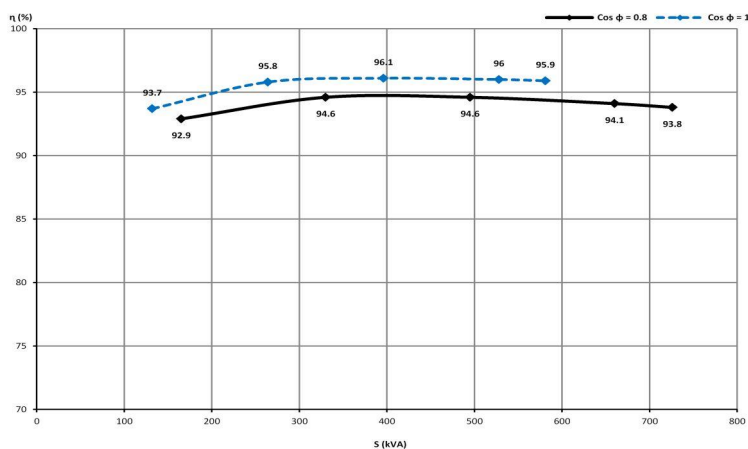


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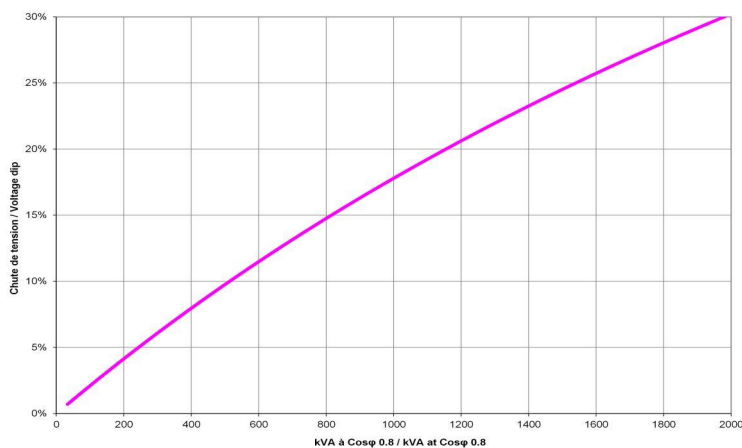
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Efficiencies curve (by excitation system)



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 :

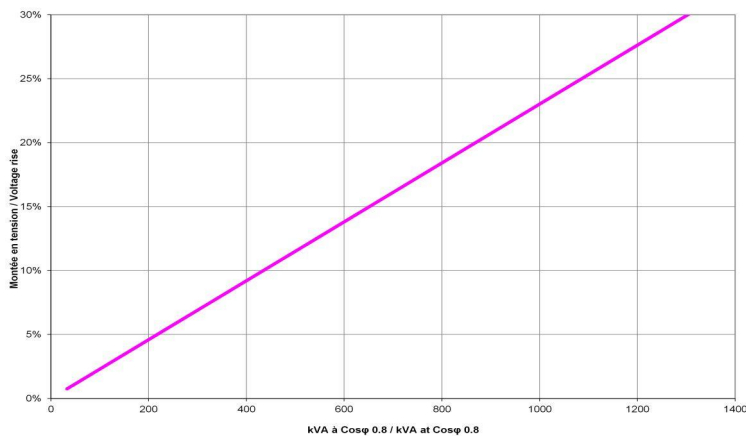
(*) Capacity for maintaining short circuit at $3 I_n$ for 10 s = YES

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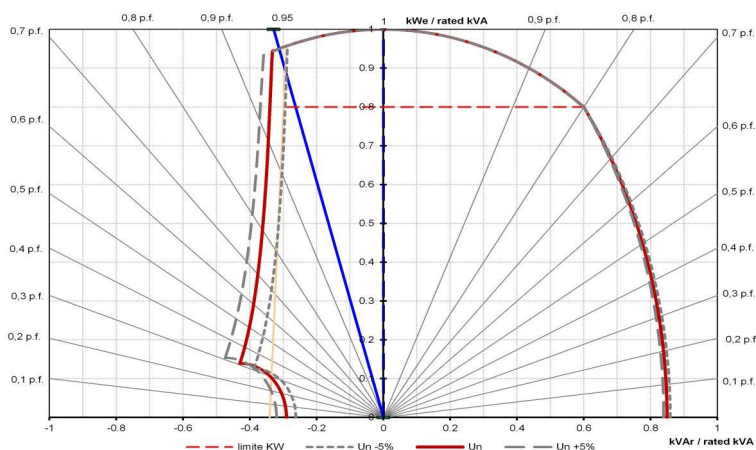
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Rejection curve (by excitation system)



Capability curve (PQ diagram)



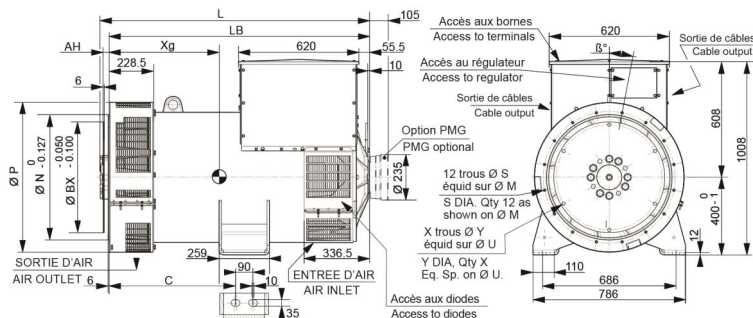
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DIMENSIONS-

Overall dimension drawing (Single bearing)



Dimensions (mm)							Accouplement / Coupling			
Type	L sans/without PMG	LB	C	Xg	Masse/Weight (kg)	Disque / Flex plate	14	18		
ALT-KH02401	1267	1241	560	328.5	1427	Bride/Flange S.A.E 1	X	X		
ALT-KH02850	1357	1331	650	629	1574	Bride/Flange S.A.E 1/2	X	X		
ALT-KH03003	1357	1331	650	636	1635	Bride/Flange S.A.E 0	X	X		
ALT-KH03390	1446	1421	650	673	1788	Bride/Flange S.A.E 00	X	X		
ALT-KH03542	1446	1421	650	681	1837	Bride/Flange S.A.E 00	X	X		

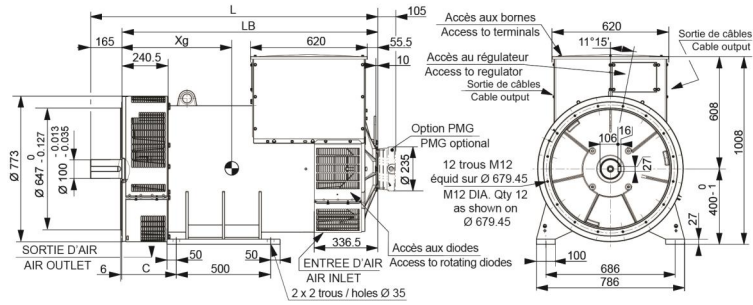
Bride / Flange (mm)						Disque / Flex plate (mm)					
S.A.E.	P	N	M	W	β°	S.A.E.	BX	U	X	Y	AH
1	773	511.175	530.225	7	15°	14	466.7	438.15	8	14	25.4
1/2	773	594.2	619.125	6	15°	18	571.5	542.92	6	17	15.7
0	773	647.7	679.45	7	11° 18'						
00	773	787.4	850.9	6	11° 15'						

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Overall dimension drawing (Two bearings)



Dimensions (mm)				
Type	L sans/without PMG	LB	Xg	Masse/Weight (kg)
ALT -KH02401	1375	1213	596	1483
ALT -KH02850	1468	1303	636	1616
ALT -KH03003	1468	1303	643	1677
ALT -KH03390	1558	1393	682	1829
ALT -KH03542	1558	1393	688	1878

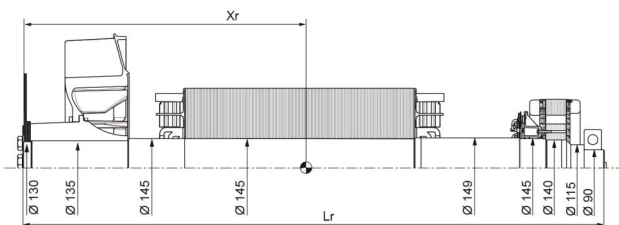
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-TORSIONAL ANALYSIS DATA-

Rotation part drawing for torsional vibration calculation (Single bearing)



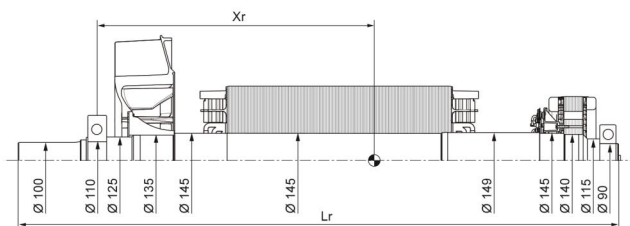
Type	Disque / Flex plate S.A.E. 14				Disque / Flex plate S.A.E. 18			
	Xr	Lr	M	J	Xr	Lr	M	J
ALT -KH02401	579	1255	535	8.39	567	1255	535	8.65
ALT -KH02850	620	1345	596	9.49	604	1345	598	9.75
ALT -KH03003	628	1345	622	10.04	612	1345	624	10.30
ALT -KH03390	666	1435	678	11	654	1435	680	11.27
ALT -KH03542	676	1435	695	11.36	662	1435	697	11.62

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Rotation part drawing for torsional vibration calculation (Two bearings)



Centre de gravité : Xr (mm), Longueur du rotor Lr (mm), Masse : M (kg), Moment d'inertie : J (kgm ²) : (4J = MD ²)				
Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm ²): (4J = MD ²)				
Type	Xr	Lr	M	J
ALT -KH02401	538	1409	506	7.96
ALT -KH02850	578	1499	568	9.07
ALT -KH03003	585	1499	594	9.62
ALT -KH03390	621	1589	650	10.58
ALT -KH03542	629	1589	667	10.94