DATASHEET ALTERNATOR

Alternator ref.   KH01220T
Alternator type   KH01220TN4N

KOHLER.

-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 ln 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)	200	200	212	220	182	160
Nominal Rating(KW)	160	160	169.6	176	145.6	128
Efficiency 100%	92.5	92.5	92.3	92.2	92.7	93

-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 (%)	<2.5
Wave form : CEI=FHT	<2
Total Harmonic Distortion, on linear load DHT (%)	<2.5
Technology	Without collar or brush
L-L Harmonic Maximum - Single (%)	18
Deviation Factor (%)	3
Shaft Current	
Main Stator Capacitance to ground (mdf)	

Reactances

Direct axis synchro reactance unsaturated (Xd) (%)	339
Direct axis transcient reactance saturated (X'd) (%)	14.4
Direct axis subtranscient reactance saturated (X''d) (%)	11.5
Quadra axis synchro reactance unsaturated (Xq) (%)	173
Quadra axis subtranscient reactance saturated (X"q) (%)	15.1
Zero sequence reactance unsaturated (Xo) (%)	0.6
Negative sequence reactance saturated (X2) (%)	13.35

Short circuit ratio

Short circuit ratio (Kcc)	0.401
Subtranscient time constant (T"d) (ms)	10

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Short circuit transcient time constant (T'd) (ms)	100
Open circuit time constant (T'do) (ms)	2351
Subtranscient time constant (T"q) (ms)	10
Leakage stator reactance (Xa)(%)	0.72
Stator Resistance (Ra)(%)	0.025
Armature time constant (Ta) (ms)	15
No load excitation current (io) (A)	0.79
Full load excitation current (ic) (A)	3.03
Full load excitation voltage (uc) (V)	41.3
Heat rejection (W)	12894.02
No load losses (W)	3401.83
Stator resistance (for 20°C ambient) (Ω)	0.0201
Rotor resistance (for 20°C ambient) (Ω)	0.26968
Exciter resistance - stator/inductor (for 20° ambient) (Ω)	14.42
Exciter resistance - rotor/armature (for 20° ambient) (Ω)	0.032
Recovery time (Delta U = 20% transcient) (ms)	500
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	496.14
Transcient 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-

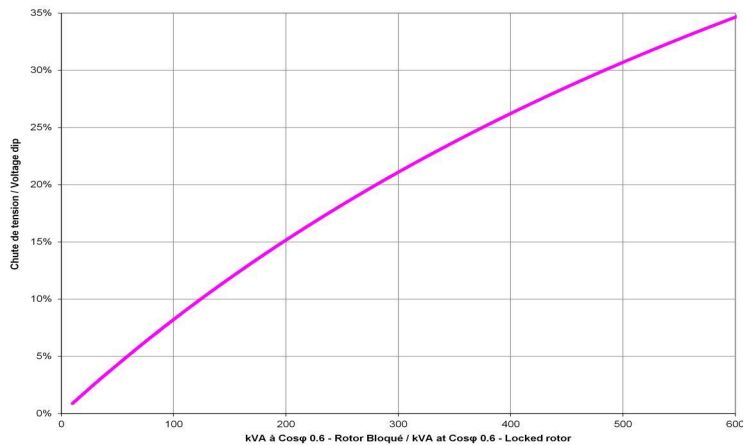|	
Number of bearing	1
Overspeed (rpm)	2250
Coupling	Direct

DATASHEET ALTERNATOR

Alternator ref.   KH01220T
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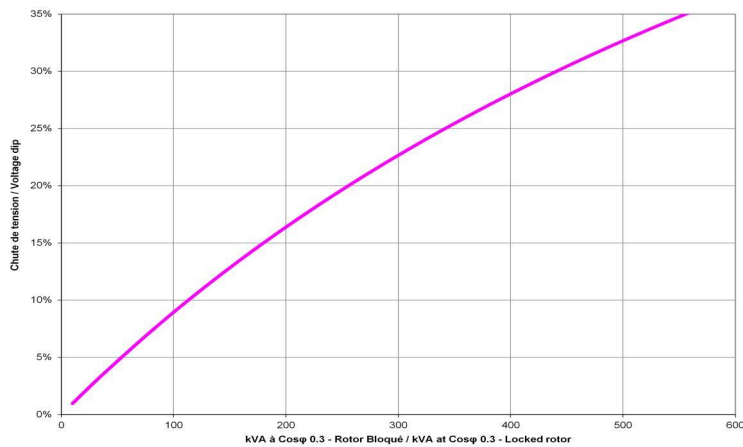
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-TECHNICAL CURVES-

Motor starting curve locked rotor (0,6PF)

Motor starting curve locked rotor (0,3PF)
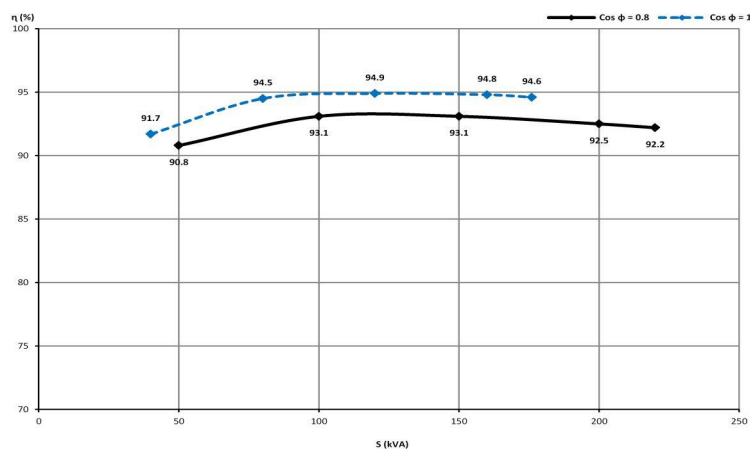
DATASHEET ALTERNATOR

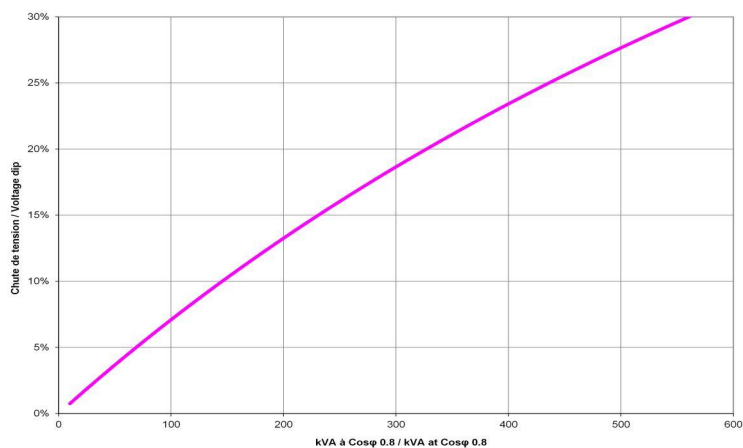**Alternator ref.**   KH01220T
Alternator type   KH01220TN4N

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Efficiencies curve (by excitation system)

Loading curve (by excitation system)

DATASHEET ALTERNATOR

Alternator ref.   KH01220T
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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 :
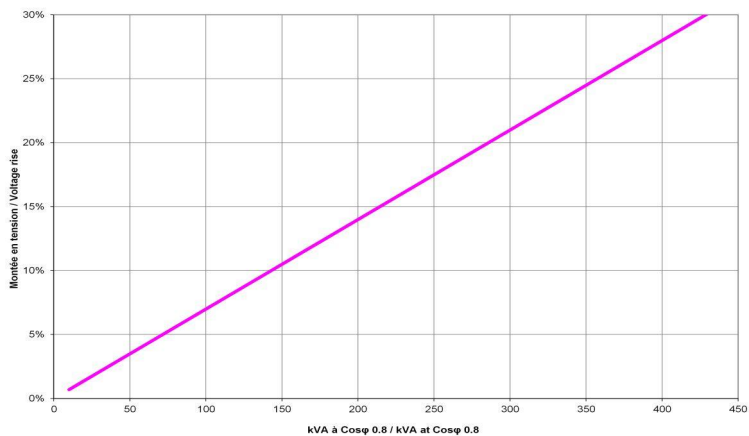
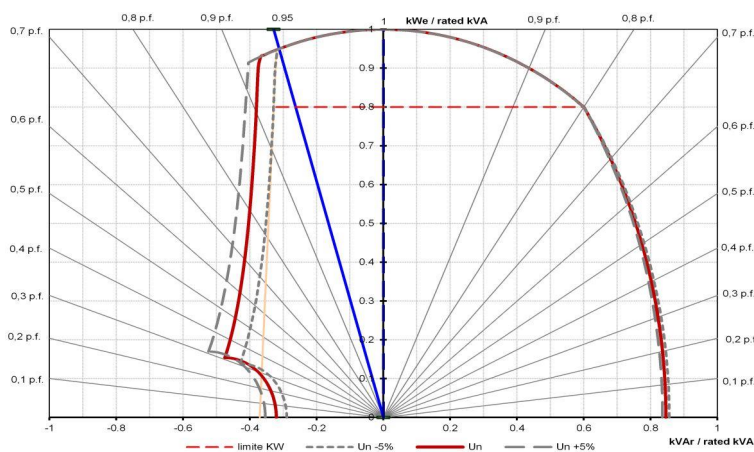(*) Capacity for maintaining short circuit at 3 In for 10 s = YES

DATASHEET ALTERNATOR

Alternator ref. KH01220T
Alternator type KH01220TN4N

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Rejection curve (by excitation system)

Montée en tension / Voltage rise (y-axis)
kVA à Cosφ 0.8 / kVA at Cosφ 0.8 (x-axis)

Capability curve (PQ diagram)

Legend: ----- limite KW   ----- Un -5%   ⎯ Un   ----- Un +5%
kWe / rated kVA (vertical axis)
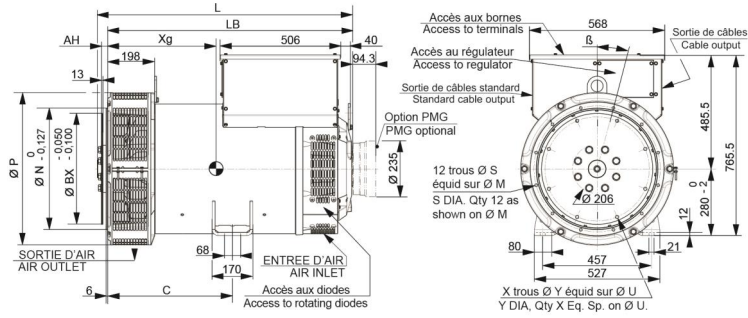kVAr / rated kVA (horizontal axis)

DATASHEET ALTERNATOR

Alternator ref. KH01220T
Alternator type KH01220TN4N

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DIMENSIONS-

Overall dimension drawing (Single bearing)

Dimensions (mm)

Type	L sans/without PMG	LB	Xg	C	Masse/Weight (kg)
ALT -KH01100	944**/935	892	408	429	569
ALT -KH01220	944**/935	892	414	429	599
ALT -KH01420	944**/935	892	423	429	674
ALT -KH01421	944**/935	892	423	429	682
ALT -KH01640	989**/980	937	445	429	754
ALT -KH01641	989**/980	937	445	429	754
ALT -KH02100*	1084**/1075	1032	493	525	888
ALT -KH02101*	1084**/1075	1032	493	525	888

Accouplement / Coupling

Disque / Flex plate	11 1/2	14	18
Bride/Flange **S.A.E 3**	X		
Bride/Flange **S.A.E 2**	X		
Bride/Flange **S.A.E 1**	X	X	
Bride/Flange **S.A.E 1/2**		X	
Bride/Flange **S.A.E 0**		X	X

Bride / Flange (mm)

S.A.E.	P	N	M	S	β°
3	600***/641	409.575	428.625	11	15°
2	600***/641	447.675	466.725	11	15°
1	600***/641	511.175	530.225	12	15°
1/2	713	584.2	619.125	14	15°
0	713	647.7	679.45	14	11° 15'

Disque / Flex plate (mm)

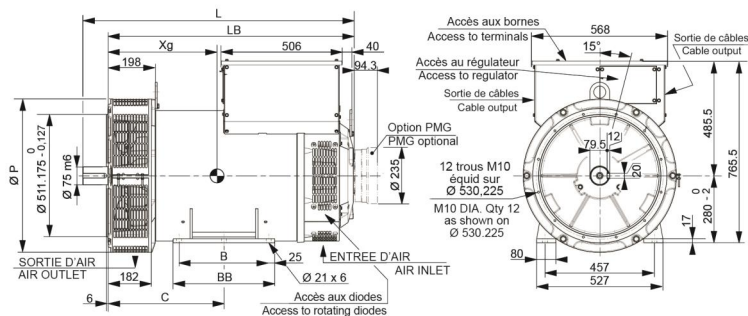| S.A.E.	BX	U	X	Y	AH
11 1/2	352.42	333.38	8	11	39.6
14	466.72	438.15	8	14	25.4
18****	571.5	542.92	6	17	15.7

* Hauteur d'axe = 355 mm disponible en option   ** Dimensions avec SAE 11.5   *** Dimension spécifique LSA 463 S2/S3/S4   **** Option
* Shaft height = 355 mm optional   ** Dimensions with SAE 11.5   *** Specific dimension LSA 463 S2/S3/S4   **** Optional

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Overall dimension drawing (Two bearings)

Dimensions (mm)							
Type	L sans/without PMG	LB	C	BB	B	P	Xg	Masse/Weight (kg)
ALT -KH01100	997	892	389	368	318	600	413	569
ALT -KH01220	997	892	389	368	318	600	418	599
ALT -KH01420	997	892	389	368	318	600	427	674
ALT -KH01421	997	892	389	368	318	640	427	682
ALT -KH01640	1042	937	389	368	318	640	449	754
ALT -KH01641	1042	937	389	368	318	640	449	754
ALT -KH02100	1137	1032	485	424	374	640	496	888
ALT -KH02101	1137	1032	485	424	374	640	496	888

-TORSIONAL ANALYSIS DATA-

Rotation part drawing for torsional vibration calculation (Single bearing)

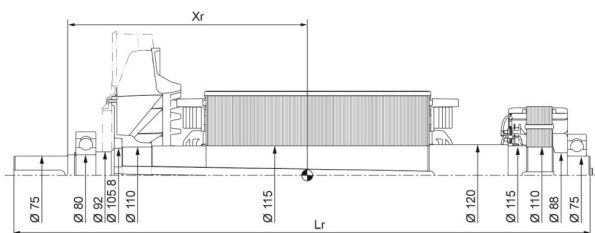|	Flex plate - Disque S.A.E. 11 1/2				Flex plate - Disque S.A.E. 14			
Type	Xr	Lr	M	J	Xr	Lr	M	J
ALT - KH01100	386	928	245	2.45	372	928	245	2.61
ALT - KH01220	394	928	257	2.69	380	928	257	2.85
ALT - KH01420	405	928	277	2.98	391	928	277	3.14
ALT - KH01421	405	928	278	3.05	391	928	278	3.21
ALT - KH01640	433	973	308	3.35	419	973	308	3.51
ALT - KH01641	433	973	308	3.35	419	973	308	3.51
ALT - KH02100	481	1068	363	4.08	467	1068	363	4.24
ALT - KH02101	481	1068	363	4.08	467	1068	363	4.24

Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm2): (4J = MD2)
Centre de gravité : Xr (mm), Longueur du rotor Lr (mm), Masse : M (kg), Moment d'inertie : J (kgm2) : (4J = MD2)

Rotation part drawing for torsional vibration calculation (Two bearings)

Centre of gravity: Xr (mm), Rotor length: Lr (mm), Weight: M (kg), Moment of inertia: J (kgm²): (4J = MD²)
Centre de gravité : Xr (mm), Longueur du rotor Lr (mm), Masse : M (kg), Moment d'inertie : J (kgm²) : (4J = MD²)

Type	Xr	Lr	M	J
ALT -KH01100	415	990	218	2.28
ALT -KH01220	421	990	230	2.52
ALT -KH01420	430	990	250	2.81
ALT -KH01421	430	990	251	2.88
ALT -KH01640	456	1035	281	3.18
ALT -KH01641	456	1035	281	3.18
ALT -KH02100	503	1130	337	3.91
ALT -KH02101	503	1130	337	3.91