

# DATASHEET ALTERNATOR

Alternator ref. KH07830T  
 Alternator type KH07830TO4D



## -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)	3300	3333	3465	3630	3006.3	2541
Nominal Rating(KW)	2640	2666.4	2772	2904	2405	2032.8
Efficiency 100%	96.2	96.2	96.1	96	96.4	96.7

## -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 (%)	8
Number of wires	6
Total Harmonic Distortion in no-load DHT (%)	<3.5
Wave form : CEI=FHT	<2
Total Harmonic Distortion, on linear load DHT (%)	<3.5
Technology	Brushless
L-L Harmonic Maximum - Single (%)	3
Deviation Factor (%)	2
Shaft Current	
Main Stator Capacitance to ground (mF)	0.0003

### Reactances

Direct axis synchro reactance unsaturated (Xd) (%)	314.5
Direct axis transient reactance saturated (X'd) (%)	29.7
Direct axis subtransient reactance saturated (X''d) (%)	16.9
Quadra axis synchro reactance unsaturated (Xq) (%)	186.6
Quadra axis subtransient reactance saturated (X''q) (%)	17.71
Zero sequence reactance unsaturated (Xo) (%)	4.14
Negative sequence reactance saturated (X2) (%)	17.32

### Short circuit ratio

Short circuit ratio (Kcc)	0.396
Subtransient time constant (T''d) (ms)	21.985

3.351412E+10-E

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

# DATASHEET ALTERNATOR

Alternator ref. KH07830T  
Alternator type KH07830TO4D



Short circuit transient time constant (T'd) (ms)	366.839
Open circuit time constant (T'do) (ms)	3376.53
Subtransient time constant (T''q) (ms)	24.2
Leakage stator reactance (Xa)(%)	13.14
Stator Resistance (Ra)(%)	0.703
Armature time constant (Ta) (ms)	43.215
No load excitation current (io) (A)	1.3
Full load excitation current (ic) (A)	4.91
Full load excitation voltage (uc) (V)	57.8
Heat rejection (W)	104739.1
No load losses (W)	30096.05
Stator resistance (for 20°C ambient) (Ω)	0.00034
Rotor resistance (for 20°C ambient) (Ω)	0.44073
Exciter resistance - stator/inductor (for 20° ambient) (Ω)	9.693
Exciter resistance - rotor/armature (for 20° ambient) (Ω)	0.012
Recovery time (Delta U = 20% transient) (ms)	500
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	2738.5
Transient dip (4/4 load) - PF : 0,8 AR (%)	20.28

## Additional electrical characteristics-

Winding X1, X2 auxiliary resistance (for 20° ambient) (Ω)	0.097
Auxiliary winding X1, X2 excitation voltage at no load (V)	88.4
Auxiliary winding X1, X2 excitation voltage on load (V)	88.4
Winding Z1, Z2 auxiliary resistance (for 20° ambient) (Ω)	0.172
Auxiliary winding Z1, Z2 excitation voltage at no load (V)	0
Auxiliary winding Z1, Z2 excitation voltage on load (V)	0

## -MECHANICAL CHARACTERISTICS-

Number of bearing	1
Overspeed (rpm)	2250
Coupling	Direct

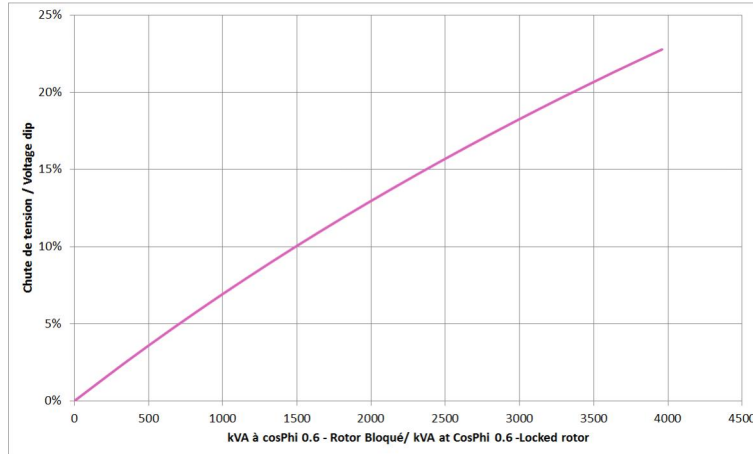
# DATASHEET ALTERNATOR

Alternator ref. KH07830T  
Alternator type KH07830TO4D

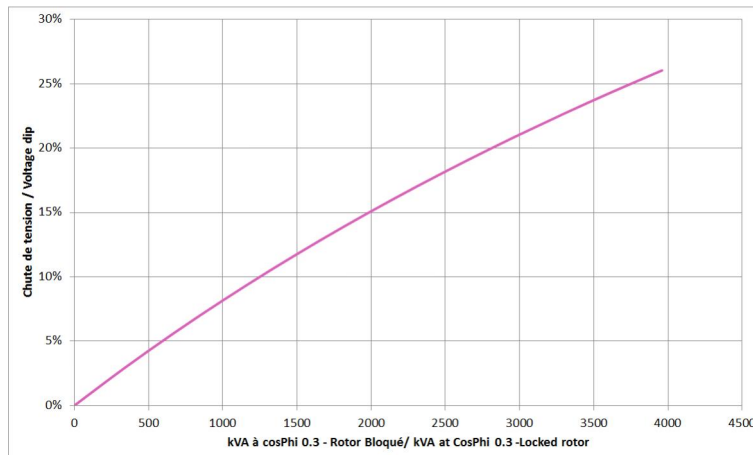


## -TECHNICAL CURVES-

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



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

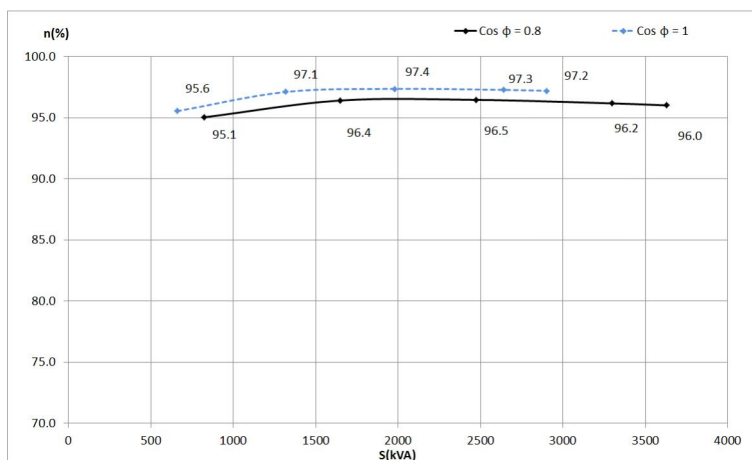


# DATASHEET ALTERNATOR

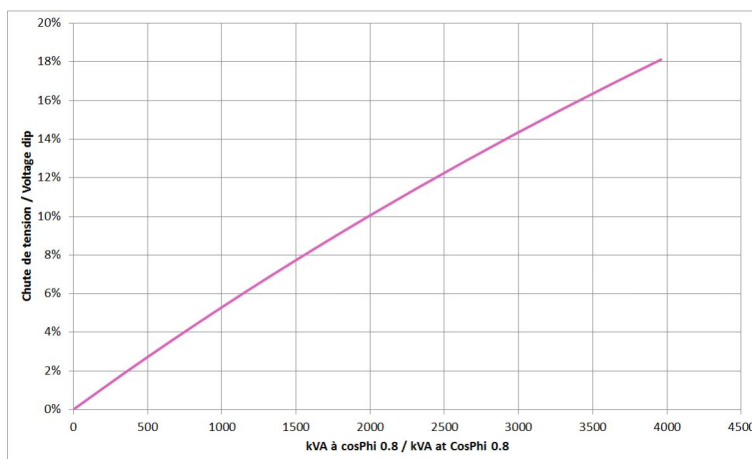
Alternator ref. KH07830T  
Alternator type KH07830TO4D



## Efficiencies curve (by excitation system)



## Loading curve (by excitation system)



# DATASHEET ALTERNATOR

Alternator ref. KH07830T  
Alternator type KH07830TO4D

**KOHLER**<sup>®</sup>

## 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 :

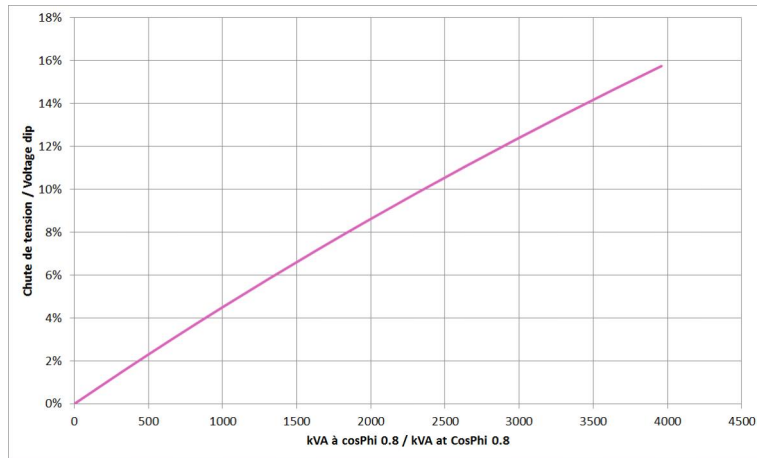
(\*) Capacity for maintaining short circuit at  $3 I_n$  for 10 s = YES

# DATASHEET ALTERNATOR

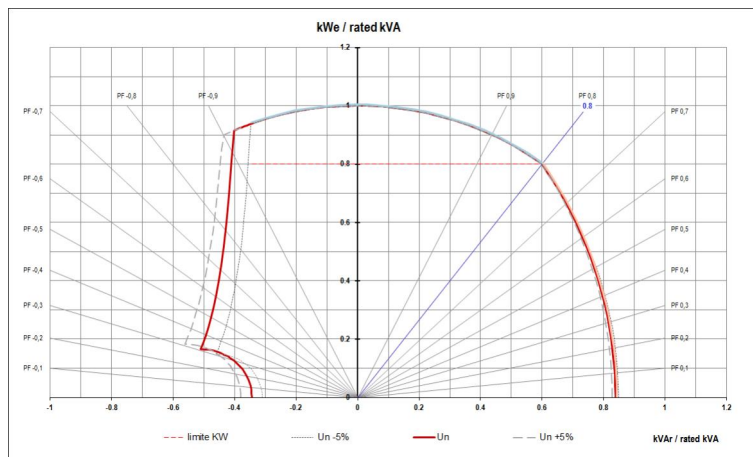
Alternator ref. KH07830T  
Alternator type KH07830TO4D



## Rejection curve (by excitation system)



## Capability curve (PQ diagram)



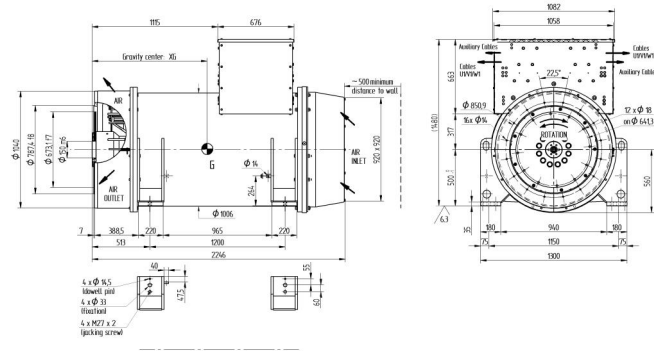
# DATASHEET ALTERNATOR

Alternator ref. KH07830T  
 Alternator type KH07830TO4D



## DIMENSIONS-

### Overall dimension drawing (Single bearing)



Type	Weight (kg)	Stator Length (mm)	XG (mm)
KH05640	5250	1500	942
KH06550	5700	1500	969
KH07830	6300	1500	1010





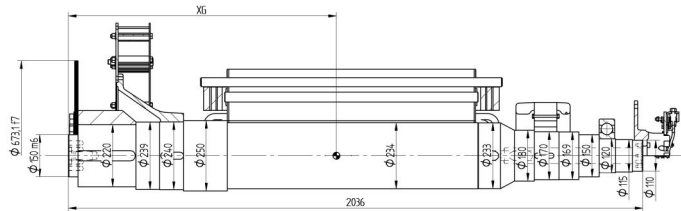
# DATASHEET ALTERNATOR

Alternator ref. KH07830T  
 Alternator type KH07830TO4D



## -TORSIONAL ANALYSIS DATA-

Rotation part drawing for torsional vibration calculation (Single bearing)



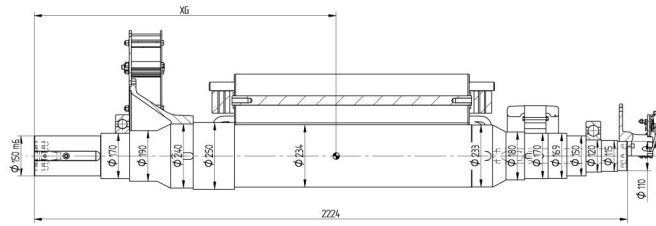
Type	XG (mm)	Weight (kg)	MR2 (kg.m <sup>2</sup> )
KH05640	841	2024	78.7
KH06550	874	2187	87.4
KH07830	924	2415	99.6

# DATASHEET ALTERNATOR

Alternator ref. KH07830T  
Alternator type KH07830TO4D



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



Type	XG (mm)	Weight (kg)	MR2 (kg.m <sup>2</sup> )
KH05640	1072	1906	75.3
KH06550	1103	2069	84.0
KH07830	1152	2297	96.2