# DATA SHEET
## Synchronous Alternator

| | | | |
|---|---|---|---|
| Customer | : | Notes: | |
| Customer reference | : | | |
| Product line | : GTA201AIHS | Product code | : 14419619 |
| Area classification | : Safe | | 1010299999 |

**General data**

| | |
|---|---|
| Frame (IEC) | : 200 |
| Insulation Class | : 180°C (H) |
| Total Harmonic Distortion (no load) | : ≤ 3% |
| Stator winding pitch | : 2/3 |
| Altitude | : up to 1000 m.a.s.l |
| Number of Leads | : 12 |
| Power factor | : 0.8 to 1.0 |
| Excitation system | : Brushless with Auxiliary Coil |
| Cooling | : IC01 |

| | |
|---|---|
| Degree of protection | : IP23 |
| Mounting style | : B15T |
| Number of poles | : 4 |
| Type of Pole | : Salient |
| Nominal rotation - 50 Hz | : 1500 rpm |
| Nominal rotation - 60 Hz | : 1800 rpm |
| Overspeed | : 2250 rpm |
| Alternator mass | : 231 kg |
| Overload | : 1.1x In per 1h each 6h |
| Momentary Overload | : 1.5x In per 30s |

| | Frequency and number of phases | 50 Hz | | | | 60 Hz | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 3ph | | | 1ph | 3ph | | | | 1ph |
| Voltages (V) | Y connection | **380** | **400** | **415** | **-** | **380** | **416** | **440** | **480** | **-** |
| | YY connection | 190 | 200 | 208 | - | 190 | 208 | 220 | 240 | - |
| | Δ connection | 220 | 230 | 239 | - | 220 | 240 | 254 | 277 | - |
| | ΔΔ connection | 110 | 115 | 120 | - | 110 | 120 | 127 | 138 | - |
| | Zig-zag or single phase delta | - | - | - | 190 - 200 | - | - | - | - | 220 - 240 |
| Output power (kVA) | ΔT=80°C (Ta=40°C) | 33.0 | 33.0 | 31.2 | 18.9 | 35.2 | 38.5 | 40.8 | 43.4 | 23.9 |
| | ΔT=105°C (Ta=40°C) | 37.5 | 37.5 | 35.7 | 21.7 | 40.3 | 44.0 | 46.7 | 49.7 | 27.4 |
| | **ΔT=125°C (Ta=40°C)** | **41.0** | **41.0** | **39.0** | **23.7** | **44.0** | **48.1** | **51.0** | **54.3** | **29.9** |
| | ΔT=150°C (Ta=40°C) | 45.0 | 45.0 | 42.7 | 25.9 | 48.2 | 52.6 | 55.8 | 59.5 | 32.8 |
| | ΔT=163°C (Ta=27°C) | 47.0 | 47.0 | 44.5 | 27.0 | 50.2 | 54.9 | 58.2 | 62.0 | 34.1 |
| Electrical data (FP=0.8 / ΔT=125°C / Ta=40°C) Satured reactances values | Xd(%) Dir. axis synchronous reactance | 291.37 | 277.45 | 263.58 | 388.49 | 372.0 | 341.06 | 323.25 | 290.0 | 431.0 |
| | X'd(%) Dir. axis transient reactance | 22.72 | 21.61 | 20.53 | 30.29 | 29.13 | 26.61 | 25.22 | 22.59 | 33.63 |
| | X"d(%) Dir. axis subtrans. reactance | 18.1 | 17.2 | 16.34 | 24.13 | 23.18 | 21.19 | 20.08 | 17.98 | 26.77 |
| | Xq(%) Quad. axis sync. reactance | 111.2 | 105.9 | 100.61 | 148.27 | 141.98 | 124.32 | 123.36 | 110.66 | 164.48 |
| | X"q(%) Quad. axis subtrans. react. | 17.84 | 17.0 | 16.15 | 23.79 | 22.9 | 33.26 | 19.81 | 17.74 | 26.41 |
| | X2(%) Negative sequence reactance | 17.97 | 17.1 | 16.25 | 23.96 | 23.04 | 27.22 | 19.95 | 17.86 | 26.6 |
| | X0(%) Zero sequence reactance | 3.02 | 2.87 | 2.72 | 4.02 | 3.87 | 3.53 | 3.35 | 3.0 | 4.46 |
| | T'd(ms) Short Circ.Trans.time const. | 43.8 | 43.84 | 43.84 | 58.4 | 43.74 | 66.03 | 43.8 | 43.84 | 58.4 |
| | T"d(ms) Short Circ. Sub. time const. | 0.99 | 0.99 | 0.99 | 1.32 | 0.99 | 1.15 | 0.99 | 0.99 | 1.32 |
| | T'do(ms) Open Circ. time const Trans | 573.0 | 573.89 | 573.89 | 764.0 | 570.0 | 823.38 | 572.44 | 573.89 | 763.25 |
| | T"do(ms) Open Circ. time const Subt | 1.22 | 1.22 | 1.22 | 1.62 | 1.22 | 1.36 | 1.22 | 1.22 | 1.62 |
| | Ta(ms) Armature time const. | 6.35 | 6.35 | 6.35 | 8.47 | 6.34 | 9.59 | 6.35 | 6.35 | 8.46 |
| | uc(V) Full load excitation voltage | 47.1 | 50.9 | 50.9 | 47.1 | 42.15 | 46.74 | 46.47 | 50.26 | 46.47 |
| | ic(A) Full load excitation current | 3.65 | 4.03 | 4.03 | 3.65 | 2.62 | 3.29 | 3.06 | 3.63 | 3.06 |
| | ic(A) No load excitation current | 0.5 | 0.6 | 0.6 | 0.67 | 0.3 | 0.44 | 0.4 | 0.6 | 0.53 |
| | Icc(A) Sustained Short-Circ. Current | 186.88 | 177.54 | 162.77 | 177.54 | 200.55 | 195.66 | 200.76 | 195.94 | 186.88 |
| | Kcc Short-circuit ratio | 0.35 | 0.39 | 0.38 | 0.47 | 0.26 | 0.29 | 0.31 | 0.37 | 0.42 |

| Efficiency (%) | Power factor | 0.8 | 1.0 | 0.8 | 1.0 | 0.8 | 1.0 | 0.8 | 1.0 | 0.8 | 1.0 | 0.8 | 1.0 | 0.8 | 1.0 | 0.8 | 1.0 | 0.8 | 1.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 25% of load | 85.5 | 89.6 | 85.3 | 89.5 | 85.6 | 89.8 | 78.7 | 82.4 | 87.4 | 90.8 | 87.2 | 90.8 | 87.2 | 90.8 | 86.7 | 90.4 | 80.2 | 83.6 |
| | 50% of load | 87.6 | 91.7 | 87.6 | 91.8 | 87.8 | 92.1 | 80.6 | 84.4 | 88.5 | 92 | 88.6 | 92.2 | 88.8 | 92.4 | 88.9 | 92.6 | 81.7 | 85 |
| | 75% of load | 86.2 | 90.8 | 86.2 | 91 | 86.5 | 91.3 | 79.4 | 83.5 | 86.7 | 90.5 | 87.1 | 91 | 87.4 | 91.4 | 87.7 | 92 | 80.4 | 84.1 |
| | 100% of load | 84 | 89.1 | 84.2 | 89.6 | 84.4 | 89.8 | 77.2 | 82 | 84.4 | 88.5 | 85 | 89.3 | 85.4 | 89.8 | 85.9 | 90.7 | 78.6 | 82.6 |
| | 125% of load | 81.5 | 87.3 | 81.7 | 87.9 | 81.9 | 88.1 | 75 | 80.3 | 81.8 | 86.6 | 82.5 | 87.5 | 83 | 88 | 83.6 | 89.2 | 76.4 | 81 |

**Other characteristics**

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|---|---|
| Air flow | : 0.5 m³/s |
| Exciter stator winding resistance at 20ºC | : 10.55 ohm |
| Stator winding resistance at 20ºC | : 0.183 ohm |
| Rotor winding resistance | : 0.77 ohm |
| Stator winding layers | : 2 |
| Inertia WR² | : 0.36 kgm² |
| NDE Bearing | : 6210-2RS |
| DE bearing | |
| Flange | : SAE 3 |
| Coupling disc | : SAE 11,5 |

**Automatic voltage regulator**

| | |
|---|---|
| Accuracy (stability) | : +/- 0.5% |
| Rated current | : 5 A |
| Analog input | : Yes |
| Digital input | : No |
| Peak current | : 7 A/10 s |
| Droop / TC | : Yes |
| Dynamic recovery | : 8 to 500 ms |
| U/F | : Yes |
| Internal voltage adjustment | : +/- 15% |
| External voltage adjustment | : +/- 10% |
| Transient recovery time for ΔU=20% | : 500 ms |

**According to:**

IEC 60034
NBR 5117
NEMA MG1
VDE530
ISO 8528
CSA

| Rev. | Changes Summary | Performed | Checked | Date |
|---|---|---|---|---|
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|---|---|---|---|---|
| Performed by | | | | |
| Checked by | | | Page | Revision |
| Date | 10/08/2022 | | 1 / | |