



# THREE-PHASE SYNCHRONOUS GENERATOR

Datasheet For 50Hz @ 1500rpm / 60Hz @ 1800rpm

## EG560M-2200N

| Frequency  | HZ                  | 50                         |        |        |        | 60     |        |        |        |
|--|---------------------|----------------------------|--------|--------|--------|--------|--------|--------|--------|
| Rated capacity (kVA)                             | S                   | 2612.5                     | 2750   | 2750   | 2700   | 2852.5 | 3000   | 3162.5 | 3300   |
| Rated power (kW)                                 | P                   | 2090                       | 2200   | 2200   | 2160   | 2282   | 2400   | 2530   | 2640   |
| Voltage (V)                                      | U                   | 380                        | 400    | 415    | 440    | 415    | 440    | 460    | 480    |
| Efficiency of 25% load                           | %                   | 92.1                       | 91.9   | 91.8   | 91.3   | 91.2   | 91.3   | 91.3   | 91.2   |
| 50% load   | %                   | 95                         | 94.9   | 94.9   | 94.7   | 94.6   | 94.7   | 94.7   | 94.7   |
| 75% load   | %                   | 95.6                       | 95.6   | 95.6   | 95.5   | 95.4   | 95.5   | 95.6   | 95.6   |
| 100% load  | %                   | 95.6                       | 96.4   | 95.7   | 95.7   | 95.5   | 96.3   | 95.8   | 95.8   |
| Reactance at Class H                             |                     |                            |        |        |        |        |        |        |        |
| Short-circuit ratio                              | Kcc                 | 0.481                      | 0.551  | 0.619  | 0.755  | 0.407  | 0.45   | 0.491  | 0.551  |
| Direct axis synchronous reactance                | Xd                  | 2.506                      | 2.381  | 2.212  | 1.932  | 2.753  | 2.576  | 2.484  | 2.381  |
| Quadrature axis synchronous reactance            | Xq                  | 1.106                      | 1.051  | 0.976  | 0.853  | 1.215  | 1.137  | 1.096  | 1.051  |
| Direct axis transient reactance saturated        | X'd                 | 0.131                      | 0.125  | 0.116  | 0.101  | 0.144  | 0.135  | 0.13   | 0.125  |
| Direct axis subtransient reactance saturated     | X''d                | 0.1                        | 0.095  | 0.088  | 0.077  | 0.11   | 0.103  | 0.099  | 0.095  |
| Quadrature axis subtransient reactance saturated | X''q                | 0.123                      | 0.117  | 0.109  | 0.095  | 0.135  | 0.127  | 0.122  | 0.117  |
| Zero sequence reactance unsaturated              | X0                  | 0.006                      | 0.006  | 0.005  | 0.005  | 0.006  | 0.006  | 0.006  | 0.006  |
| Leakage reactance                                | X1                  | 0.061                      | 0.058  | 0.054  | 0.047  | 0.067  | 0.063  | 0.06   | 0.058  |
| Negative sequence reactance saturated            | X2                  | 0.11                       | 0.11   | 0.1    | 0.09   | 0.12   | 0.11   | 0.11   | 0.11   |
| Open circuit time constant                       | T'd0                | 5.1                        | 5.1    | 5.1    | 5.1    | 5.1    | 5.1    | 5.1    | 5.1    |
| Short-circuit transient time constant            | T'd                 | 0.268                      | 0.268  | 0.268  | 0.268  | 0.268  | 0.268  | 0.268  | 0.268  |
| Subtransient time constant                       | T''d                | 0.001                      | 0.001  | 0.001  | 0.001  | 0.001  | 0.001  | 0.001  | 0.001  |
| Armature time constant                           | Ta                  | 0.029                      | 0.029  | 0.029  | 0.029  | 0.029  | 0.029  | 0.029  | 0.029  |
| No load excitation current                       | io(A)               | 1.1                        | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    | 1.1    |
| Full load excitation current                     | ic(A)               | 2.9                        | 2.9    | 2.9    | 2.9    | 2.9    | 2.9    | 2.9    | 2.9    |
| Full load excitation voltage                     | uc(V)               | 66                         | 66     | 66     | 66     | 66     | 66     | 66     | 66     |
| No load losses                                   | W                   | 27890                      | 29700  | 30580  | 33060  | 39840  | 41460  | 43080  | 45000  |
| Heat dissipation at full load at Class H         | W                   | 96879                      | 100293 | 99331  | 97761  | 107279 | 108886 | 112298 | 115741 |
| Short circuit current capacity                   | %                   | >300                       |        |        |        |        |        |        |        |
| Recovery time                                    | s                   | 1                          |        |        |        |        |        |        |        |
| Waveform : TIF                                   |                     | <50                        |        |        |        |        |        |        |        |
| Waveform : THD                                   |                     | <2%                        |        |        |        |        |        |        |        |
| Winding pitch                                    |                     | 2/3                        |        |        |        |        |        |        |        |
| Voltage regulation                               |                     | +/- 1%                     |        |        |        |        |        |        |        |
| A.V.R. model                                     |                     | WT-3                       |        |        |        |        |        |        |        |
| Duty   |                     | Continuous                 |        |        |        |        |        |        |        |
| Number of poles                                  |                     | 4                          |        |        |        |        |        |        |        |
| Class of insulation                              |                     | H                          |        |        |        |        |        |        |        |
| Temperature rise                                 |                     | ≤125K                      |        |        |        |        |        |        |        |
| Altitude   |                     | ≤1000m                     |        |        |        |        |        |        |        |
| Rated power factor                               |                     | 0.8                        |        |        |        |        |        |        |        |
| Excitation                                       |                     | Brushless                  |        |        |        |        |        |        |        |
| Stator winding                                   |                     | 6ends                      |        |        |        |        |        |        |        |
| Rotor  |                     | With damping cage          |        |        |        |        |        |        |        |
| Overload   | %                   | 110% rated load for 1 hour |        |        |        |        |        |        |        |
| Stator winding resistance (20°C)                 | ohm                 | 0.0004                     | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 |
| Rotor winding resistance (20°C)                  | ohm                 | 1.730                      | 1.730  | 1.730  | 1.730  | 1.730  | 1.730  | 1.730  | 1.730  |
| Exciter resistance (20°C)                        | ohm                 | 14.8                       | 14.8   | 14.8   | 14.8   | 14.8   | 14.8   | 14.8   | 14.8   |
| Cooling air requirement                          | m <sup>3</sup> /min | 188                        | 188    | 188    | 188    | 226    | 226    | 226    | 226    |
| Energy storage constant ( H )                    | sec.                | 0.2691                     | 0.2691 | 0.2691 | 0.2691 | 0.3699 | 0.3392 | 0.3392 | 0.3392 |
| Method of cooling                                |                     | IC 01                      |        |        |        |        |        |        |        |
| Ambient temperature                              |                     | 40°C                       |        |        |        |        |        |        |        |
| Sense of rotation                                |                     | Counter-clockwise          |        |        |        |        |        |        |        |
| Type of construction                             |                     | Single / Double bearing    |        |        |        |        |        |        |        |
| Degree of protection / enclosure                 |                     | IP21 or IP23               |        |        |        |        |        |        |        |
| Maximum overspeed                                | rpm                 | 2160                       |        |        |        |        |        |        |        |