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|--------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------|---------|---------------------------------------------------------|--------------------|-------|-------|----|----|-------|---|-------|------|-----|------|------|------|-------|------|----|-----|------|------|------|------|------|----|-----|------|------|------|------|------|----|
| <b>Type Test Report</b>                                                                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       | Date of issue: 2015-03-16                            |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
|                                                                                                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       | Serial No.: 3G1T13230000013463                       |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Customer:                                                                                                                |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       | Type: M1AA 225 SMC 2<br>Product Code: 3GAA221062-_SA |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Customer ref.:                                                                                                           |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Rating:                                                                                                                  |             | <table><tr><td>V</td><td>Hz</td><td>kW</td><td>r/min</td><td>A</td><td>cos φ</td><td>Duty</td></tr><tr><td>230</td><td>D 50</td><td>55.0</td><td>2955</td><td>164.0</td><td>0,91</td><td>S1</td></tr><tr><td>400</td><td>Y 50</td><td>55.0</td><td>2955</td><td>95.0</td><td>0,91</td><td>S1</td></tr><tr><td>460</td><td>Y 60</td><td>55.0</td><td>3545</td><td>82,2</td><td>0,91</td><td>S1</td></tr></table> |       |                                                      |         |                                                         |                    |       | V     | Hz | kW | r/min | A | cos φ | Duty | 230 | D 50 | 55.0 | 2955 | 164.0 | 0,91 | S1 | 400 | Y 50 | 55.0 | 2955 | 95.0 | 0,91 | S1 | 460 | Y 60 | 55.0 | 3545 | 82,2 | 0,91 | S1 |
| V                                                                                                                        | Hz          | kW                                                                                                                                                                                                                                                                                                                                                                                                              | r/min | A                                                    | cos φ   | Duty                                                    |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| 230                                                                                                                      | D 50        | 55.0                                                                                                                                                                                                                                                                                                                                                                                                            | 2955  | 164.0                                                | 0,91    | S1                                                      |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| 400                                                                                                                      | Y 50        | 55.0                                                                                                                                                                                                                                                                                                                                                                                                            | 2955  | 95.0                                                 | 0,91    | S1                                                      |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| 460                                                                                                                      | Y 60        | 55.0                                                                                                                                                                                                                                                                                                                                                                                                            | 3545  | 82,2                                                 | 0,91    | S1                                                      |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| 3~Motor                                                                                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Insul.cl.F                                                                                                               |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| IP55                                                                                                                     |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Eff class IE1                                                                                                            |             | 50Hz : IE1-92.1(100%)-91.8(75%)-90.3(50%)<br>60Hz : IE1-92.4(100%)-92.1(75%)-90.6(50%)                                                                                                                                                                                                                                                                                                                          |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Resistance                                                                                                               |             | Ambient: 25 °C                                                                                                                                                                                                                                                                                                                                                                                                  |       | Insulation resistance at 25 °C                       |         | Overload                                                |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Line                                                                                                                     |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       | R > 2000 Mohm 1000 V                                 |         | Current 150% 120s<br>Torque 160% 15s<br>Speed 120% 120s |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| U <sub>1</sub> - V <sub>1</sub>                                                                                          |             | 0,18800 Ω                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| U <sub>1</sub> - W <sub>1</sub>                                                                                          |             | 0,18700 Ω                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| V <sub>1</sub> - W <sub>1</sub>                                                                                          |             | 0,18700 Ω                                                                                                                                                                                                                                                                                                                                                                                                       |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
|                                                                                                                          |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       | High-voltage test winding 2400 V                     |         | 60 s                                                    |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Test                                                                                                                     | Torque [Nm] | Line U[V]                                                                                                                                                                                                                                                                                                                                                                                                       | f[Hz] | Input I[A]                                           | P1 [kW] | Output P2 [kW]                                          | n[r/min]           | cos φ | η [%] |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| No load test                                                                                                             |             | 400 Y 50                                                                                                                                                                                                                                                                                                                                                                                                        |       | 20,59                                                | 1,27    |                                                         | 3000               | 0,09  |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Locked rotor test                                                                                                        |             | 92 Y 50                                                                                                                                                                                                                                                                                                                                                                                                         |       | 55,0                                                 | 2,72    |                                                         | 0                  | 0,31  |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Thermal test ( 100% load )                                                                                               | 177,9       | 400 Y 50                                                                                                                                                                                                                                                                                                                                                                                                        |       | 93,50                                                | 59,60   | 55,03                                                   | 2953               | 0,92  | 92,33 |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Partial load points:                                                                                                     |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| ~75% load                                                                                                                | 133,5       | 400 Y 50                                                                                                                                                                                                                                                                                                                                                                                                        |       | 71,4                                                 | 44,96   | 41,27                                                   | 2966               | 0,91  | 91,80 |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| ~50% load                                                                                                                | 89,0        | 400 Y 50                                                                                                                                                                                                                                                                                                                                                                                                        |       | 51,20                                                | 30,86   | 27,51                                                   | 2977               | 0,87  | 89,15 |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| ~25% load                                                                                                                | 44,5        | 400 Y 50                                                                                                                                                                                                                                                                                                                                                                                                        |       | 33,10                                                | 16,05   | 13,76                                                   | 2989               | 0,70  | 85,69 |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Temperature rise at rated load.                                                                                          |             | [°C]                                                                                                                                                                                                                                                                                                                                                                                                            |       | [K]                                                  | Method  |                                                         | Measurement method |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
|                                                                                                                          |             | Stator winding :                                                                                                                                                                                                                                                                                                                                                                                                |       | 79,0                                                 | 3       |                                                         | 1 Resistance       |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
|                                                                                                                          |             | Frame :                                                                                                                                                                                                                                                                                                                                                                                                         |       |                                                      |         |                                                         | 2 Thermometer      |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
|                                                                                                                          |             | Bearing D-end :                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                      |         |                                                         | 3 Thermocouples    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Ambient Temperature :                                                                                                    |             | 25                                                                                                                                                                                                                                                                                                                                                                                                              |       |                                                      | 3       |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| Manufactured and tested in accordance with rules of IEC 60034-1 and IEC 60034-2-1.<br>PLL determined from residual loss. |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| On behalf of customer                                                                                                    |             |                                                                                                                                                                                                                                                                                                                                                                                                                 |       |                                                      |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |
| On behalf of manufacturer                                                                                                |             | Date of test                                                                                                                                                                                                                                                                                                                                                                                                    |       | 2013-06-05                                           |         |                                                         |                    |       |       |    |    |       |   |       |      |     |      |      |      |       |      |    |     |      |      |      |      |      |    |     |      |      |      |      |      |    |

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