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|--------------------------------------------------------------------------------------------------------------------------|-------------|-----------|-------|------------|--------------------------------------------------------------------------------------|----------------|----------|-------|--------------------|-------|------|
| <b>Type Test Report</b>                                                                                                  |             |           |       |            | Date of issue: 2015-03-16                                                            |                |          |       |                    |       |      |
|                                                                                                                          |             |           |       |            | Serial No.: 3G1T08150000010079                                                       |                |          |       |                    |       |      |
| Customer:                                                                                                                |             |           |       |            | Type: M1AA 180 MLE 2<br>Product Code: 3GAA181062-_DA                                 |                |          |       |                    |       |      |
| Customer ref.:                                                                                                           |             |           |       |            |                                                                                      |                |          |       |                    |       |      |
| Rating:                                                                                                                  |             |           |       |            | V                                                                                    | Hz             | kW       | r/min | A                  | cos φ | Duty |
| 3~Motor                                                                                                                  |             |           |       |            | 690                                                                                  | Y 50           | 30.0     | 2920  | 31.8               | 0,87  | S1   |
| Insul.cl.F                                                                                                               |             |           |       |            | 400                                                                                  | D 50           | 30.0     | 2920  | 55.1               | 0,87  | S1   |
| IP55                                                                                                                     |             |           |       |            | 460                                                                                  | D 60           | 30.0     | 3525  | 47.8               | 0,87  | S1   |
| Eff class IE1                                                                                                            |             |           |       |            | 50Hz : IE1-90.7(100%)-90.1(75%)-88.3(50%)<br>60Hz : IE1-90.6(100%)-90(75%)-88.3(50%) |                |          |       |                    |       |      |
| Resistance                                                                                                               |             |           |       |            | Insulation resistance at 25 °C                                                       |                |          |       | Overload           |       |      |
| Line                                                                                                                     |             |           |       |            | R > 2000 Mohm 1000 V                                                                 |                |          |       | Current 150% 120s  |       |      |
| U <sub>1</sub> - V <sub>1</sub>                                                                                          |             |           |       |            | 0,31900 Ω                                                                            |                |          |       | Torque 160% 15s    |       |      |
| U <sub>1</sub> - W <sub>1</sub>                                                                                          |             |           |       |            | 0,32000 Ω                                                                            |                |          |       | Speed 120% 120s    |       |      |
| V <sub>1</sub> - W <sub>1</sub>                                                                                          |             |           |       |            | 0,32000 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 D     | 50    | 16,82      | 1,36                                                                                 |                | 3000     | 0,12  |                    |       |      |
| Locked rotor test                                                                                                        |             | 95 D      | 50    | 31,3       | 2,58                                                                                 |                | 0        | 0,50  |                    |       |      |
| Thermal test ( 100% load )                                                                                               | 97,4        | 400 D     | 50    | 54,60      | 32,91                                                                                | 30,09          | 2949     | 0,87  | 90,96              |       |      |
| Partial load points:                                                                                                     |             |           |       |            |                                                                                      |                |          |       |                    |       |      |
| ~75% load                                                                                                                | 73,1        | 400 D     | 50    | 43,10      | 25,38                                                                                | 22,68          | 2963     | 0,85  | 89,34              |       |      |
| ~50% load                                                                                                                | 48,7        | 400 D     | 50    | 31,90      | 17,24                                                                                | 15,05          | 2974     | 0,78  | 87,28              |       |      |
| ~25% load                                                                                                                | 24,4        | 400 D     | 50    | 21,78      | 9,03                                                                                 | 7,52           | 2994     | 1     | 83,09              |       |      |
| Temperature rise at rated load.                                                                                          |             |           |       |            | °C                                                                                   | K              | Method   |       | Measurement method |       |      |
| Stator winding :                                                                                                         |             |           |       |            | 89,0                                                                                 | 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                                                                                                             |             |           |       |            | 2008-04-07                                                                           |                |          |       |                    |       |      |

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