

# VALIADIS S.A.

## ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

|                              |      |                   |      |                   |       |                   |
|------------------------------|------|-------------------|------|-------------------|-------|-------------------|
| <b>NAMEPLATE DATA</b>        | IEC  | TYPE              | 4    | KW                | 970   | RPM               |
| AK132M-6 <b>FRAME</b>        | 3    | <b>PHASE</b>      | 400  | <b>VOLTS</b>      | 50    | <b>HZ/CYCLES</b>  |
| 83.0 <b>EFFICIENCY</b>       | 9.27 | <b>AMPS</b>       | 55   | <b>IP</b>         | IC01  | <b>IC</b>         |
| 6 <b>POLE</b>                | S1   | <b>DUTY</b>       | 0.75 | <b>PF</b>         | N/A   | <b>EFF2</b>       |
| VALIADIS <b>MANUFACTURER</b> |      | <b>SERIAL NO.</b> | F    | <b>INS. CLASS</b> | DELTA | <b>CONNECTION</b> |

| MAJOR CONTENTS                         | UNIT     | TESE VALUE              |
|--|----------|-------------------------|
| STATOR RESISTANCE OF PHASE TO PHASE    | 75 DEG.C | OHM 2.9130              |
| NO LOAD CURRENT                        |          | AMP 5.83                |
| NO LOAD INPUT                          |          | kW 0.4326               |
| CORE LOSS (Pfe)                        |          | kW 0.291                |
| WINDAGE FRICTION LOSS (Pfw)            |          | kW 0.012                |
| STATOR WINDING LOSS(Pcu1)              |          | kW 0.3706               |
| ROTOR WINDING LOSS(Pcu2)               |          | kW 0.1077               |
| STRAY LOAD LOSS (Ps)                   |          | kW 0.0240               |
| FULL LOAD CURRENT                      |          | AMP 9.21                |
| LOCKED ROTOR CURRENT                   |          | AMP 64.43               |
| LOCKED ROTOR CURRENT/FULL LOAD CURRENT |          | P.U. 7.0                |
| LOCKED ROTOR INPUT @ 100% VOLT         |          | kW 25.956               |
| FULL LOAD TORQUE                       |          | N.m. 39.22              |
| LOCKED ROTOR TORQUE                    |          | N.m. 84.64              |
| LOCKED ROTOR TORQUE/FULL LOAD TORQUE   |          | P.U. 2.16               |
| PULL OUT TORQUE                        |          | N.m. 133.76             |
| PULL OUT TORQUE/FULL LOAD TORQUE       |          | P.U. 3.41               |
| PULL UP TORQUE                         |          | N.m. 64.34              |
| PULL UP TORQUE/FULL LOAD TORQUE        |          | P.U. 1.64               |
| EFFICIENCY @ FULL LOAD                 |          | % 83.24                 |
| POWER FACTOR @ FULL LOAD               |          | 0.753                   |
| FULL LOAD SLIP                         |          | 2.60%                   |
| FULL LOAD SPEED                        |          | r/min 974               |
| STATOR WINDING TEMPERATURE RISE        | 30 SECS  | K 65.2                  |
| DE BEARING TEMPERATURE BY PT100        |          | Deg. C 48.0             |
| NDE BEARING TEMPERATURE BY PT100       |          | Deg. C 46.0             |
| TEMPERATURE ON LEADS BY PT100          |          | Deg. C                  |
| TEMPERATURE IN TERMINAL BOX BY PT100   |          | Deg. C                  |
| AMBIENT TEMPERATURE BY PT100           |          | Deg. C                  |
| SOUND PRESSURE LEVEL                   |          | dB (A) 56.1             |
| VIBRATION                              |          | mm/s 1.3                |
| MOMENT OF INERTIA                      |          | kgm <sup>2</sup> 0.0357 |
| WEIGHT                                 |          | kg 45                   |

The data above is calculated as per IEC 34-2 , all data at nominal Volts

|                      |         |     |              |  |
|----------------------|---------|-----|--------------|--|
| <b>VALIADIS S.A.</b> | SCALE   | N/A |              |  |
|                      | DATE    |     | REV          |  |
| AK132M-6             | DRAWN   |     | DOCUMENT NO. |  |
| 4 kW                 | APPRVD  |     |              |  |
| 400 VOLTS 50 Hz      | CHECKED |     |              |  |

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|                       |                     |                   |              |                   |              |                   |
|-----------------------|---------------------|-------------------|--------------|-------------------|--------------|-------------------|
| <b>NAMEPLATE DATA</b> | IEC                 | <b>TYPE</b>       | 4            | <b>KW</b>         | 970          | <b>RPM</b>        |
| AK132M-6              | <b>FRAME</b>        | 3                 | <b>PHASE</b> | 400               | <b>VOLTS</b> | 50                |
| 83.0                  | <b>EFFICIENCY</b>   | 9.27              | <b>AMPS</b>  | 55                | <b>IP</b>    | IC01              |
| 6                     | <b>POLE</b>         | S1                | <b>DUTY</b>  | 0.75              | <b>PF</b>    | N/A               |
| VALIADIS              | <b>MANUFACTURER</b> | <b>SERIAL NO.</b> | F            | <b>INS. CLASS</b> | DELTA        | <b>CONNECTION</b> |

| <b>TEST DATA</b> | NO LOAD | 25% LOAD | 50% LOAD | 75% LOAD | 100% LOAD | 125% LOAD | LOCKED ROTOR |
|------------------|---------|----------|----------|----------|-----------|-----------|--------------|
| EFFICIENCY       | 0       | 67.6     | 78.6     | 82.3     | 83.2      | 82.9      |              |
| PF               | 0.107   | 0.349    | 0.539    | 0.671    | 0.753     | 0.802     | 0.581        |
| RPM              | 1000    | 995      | 988      | 982      | 974       | 965       | 0            |
| SLIP             | 0.00%   | 0.50%    | 1.20%    | 1.80%    | 2.60%     | 3.50%     | 100.00%      |
| AMPS             | 5.83    | 6.14     | 6.82     | 7.85     | 9.21      | 10.87     | 64.43        |
| VOLTS            | 400     | 400      | 400      | 400      | 400       | 400       | 400          |
| TORQUE NM        | 0       | 9.63     | 19.35    | 29.18    | 39.22     | 49.55     | 84.64        |
| KW INPUT         | 0.4326  | 1.484    | 2.5456   | 3.6468   | 4.8054    | 6.0393    | 25.956       |
| KW OUTPUT        | 0       | 1.004    | 2.002    | 3.001    | 4.000     | 5.007     |              |

| <b>LOSSES (kW)</b>  | 25% LOAD | 50% LOAD | 75% LOAD | 100% LOAD | 125% LOAD |
|---------------------|----------|----------|----------|-----------|-----------|
| STATOR LOSS Pcu1    | 0.165    | 0.203    | 0.269    | 0.371     | 0.516     |
| STATOR LOSS %       | 11.10%   | 7.98%    | 7.38%    | 7.71%     | 1.99%     |
| ROTOR LOSS Pcu2     | 0.005    | 0.025    | 0.056    | 0.108     | 0.183     |
| ROTOR LOSS %        | 0.35%    | 0.97%    | 1.52%    | 2.24%     | 0.71%     |
| CORE LOSS Pfe       | 0.291    | 0.291    | 0.291    | 0.291     | 0.291     |
| CORE LOSS %         | 19.61%   | 11.43%   | 7.98%    | 6.06%     | 1.12%     |
| WINDGE/FRICTION Pfw | 0.012    | 0.012    | 0.012    | 0.012     | 0.012     |
| WINDGE/FRICTION %   | 0.81%    | 0.47%    | 0.33%    | 0.25%     | 0.05%     |
| STRAY LOAD LOSS Ps  | 0.007    | 0.013    | 0.018    | 0.024     | 0.030     |
| STRAY LOAD LOSS %   | 0.50%    | 0.50%    | 0.50%    | 0.50%     | 0.50%     |

Losses are measured/calculated as per IEC 34-2-The Summation of Losses Method

All data is measured at Nominal Volts

### TEMPERATURES

|                                      |               |                                      |        |                      |
|--------------------------------------|---------------|--------------------------------------|--------|----------------------|
| STATOR RESISTANCE COLD               | 2.2928 OHMS @ | 9.0                                  | DEG.C. | BETWEEN STATOR LEADS |
| STATOR RESISTANCE ADJUSTED           | 2.9130 OHMS @ | 75                                   | DEG.C. | BETWEEN STATOR LEADS |
| STATOR RESISTANCE HOT                | 2.91456 OHMS  | after test of temp rise              |        | BETWEEN STATOR LEADS |
| WINDING TEMPERATURE RISE             | 65.2 DEG.C.   | at full load steady state at         |        | 30 SECS              |
| WINDING TEMPERATURE RISE             | DEG.C.        | at full load steady state at         |        | 0 SECS               |
| PT100 TEMPERATURE OF DE WINDING      | DEG.C.        | at full load steady state at ambient |        | DEG.C.               |
| PT100 TEMPERATURE OF NDE WINDING     | DEG.C.        | at full load steady state at ambient |        | DEG.C.               |
| PT100 TEMPERATURE OF DE BEARING      | 48.0 DEG.C.   | at full load steady state at ambient |        | 10.0 DEG.C.          |
| PT100 TEMPERATURE OF NDE BEARING     | 46.0 DEG.C.   | at full load steady state at ambient |        | 10.0 DEG.C.          |
| PT100 TEMPERATURE OF IN TERMINAL BOX | DEG.C.        | at full load steady state at ambient |        | DEG.C.               |
| PT100 TEMPERATURE OF ON STATOR LEAD  | DEG.C.        | at full load steady state at ambient |        | DEG.C.               |

### OTHER

|                  |      |                   |                       |     |          |
|------------------|------|-------------------|-----------------------|-----|----------|
| NOISE LEVEL (Lp) | 56.1 | dB(A) 1meter      | INSULATION RESISTANCE | 500 | MEG.OHMS |
| VIBRATION LEVEL  | 1.3  | mm/sec on no load | D.E. BEARING          |     |          |
| WEIGHT           | 45   | kg                | N.D.E. BEARING        |     |          |
| H-POT TEST VOLTS | 1800 | VOLTS             |                       |     |          |

|  |  |  |  |                |            |                     |  |
|--|--|--|--|----------------|------------|---------------------|--|
| <b>VALIADIS S.A.</b>                                     |  |  |  | <b>SCALE</b>   | <b>N/A</b> |                     |  |
|  |  |  |  | <b>DATE</b>    |            | <b>REV</b>          |  |
| <b>AK132M-6</b><br><b>4 kW</b><br><b>400 VOLTS 50 Hz</b> |  |  |  | <b>DRAWN</b>   |            | <b>DOCUMENT NO.</b> |  |
|  |  |  |  | <b>APPRVD</b>  |            |                     |  |
|  |  |  |  | <b>CHECKED</b> |            |                     |  |

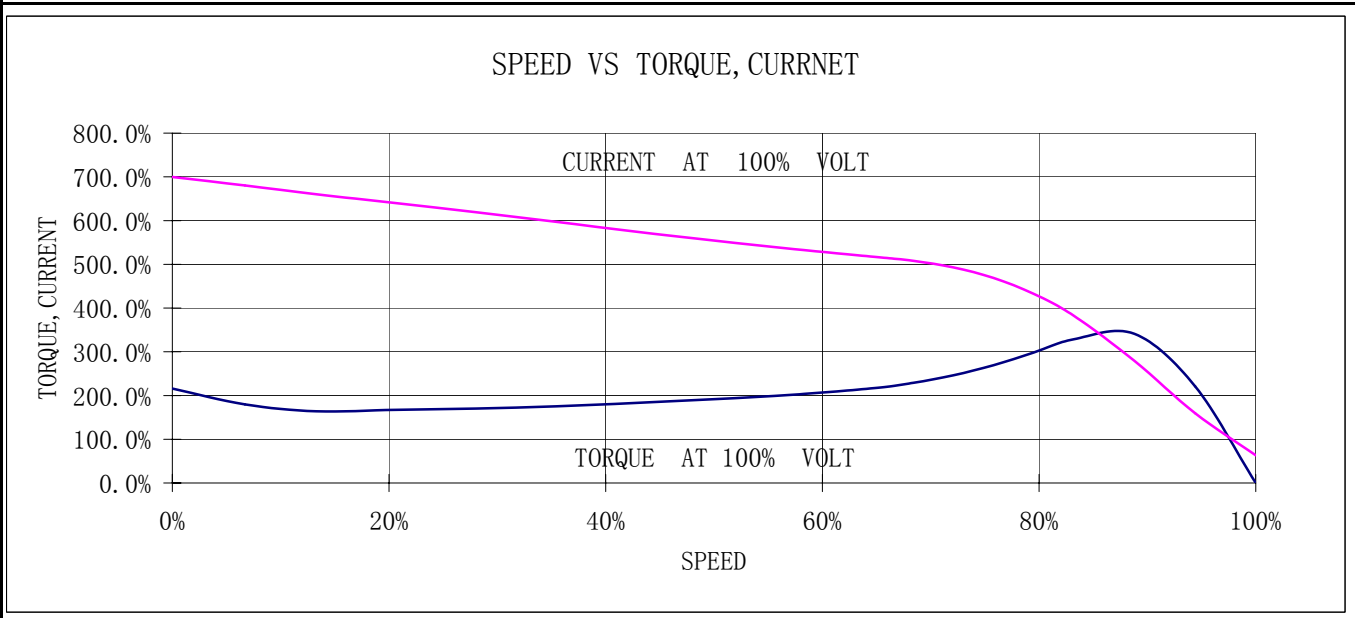
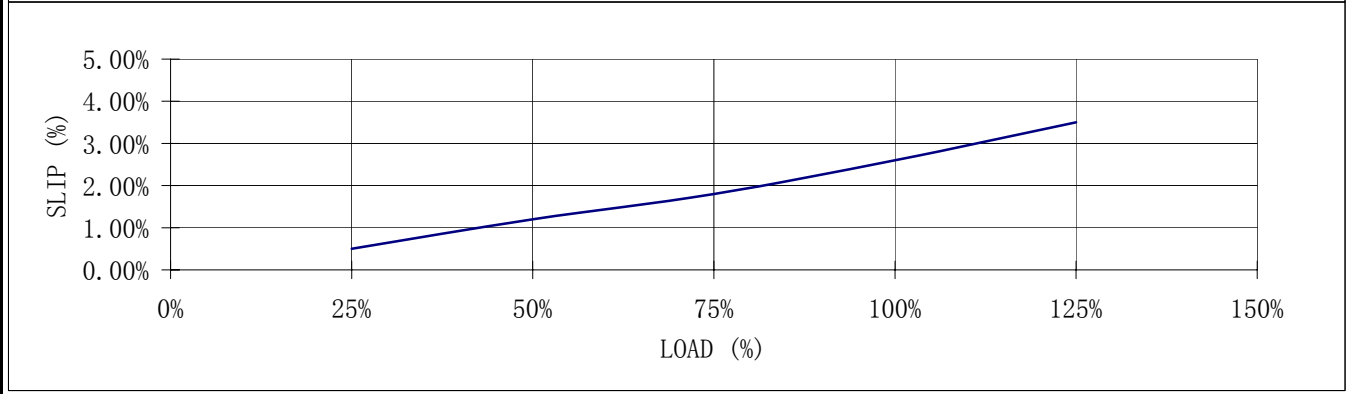
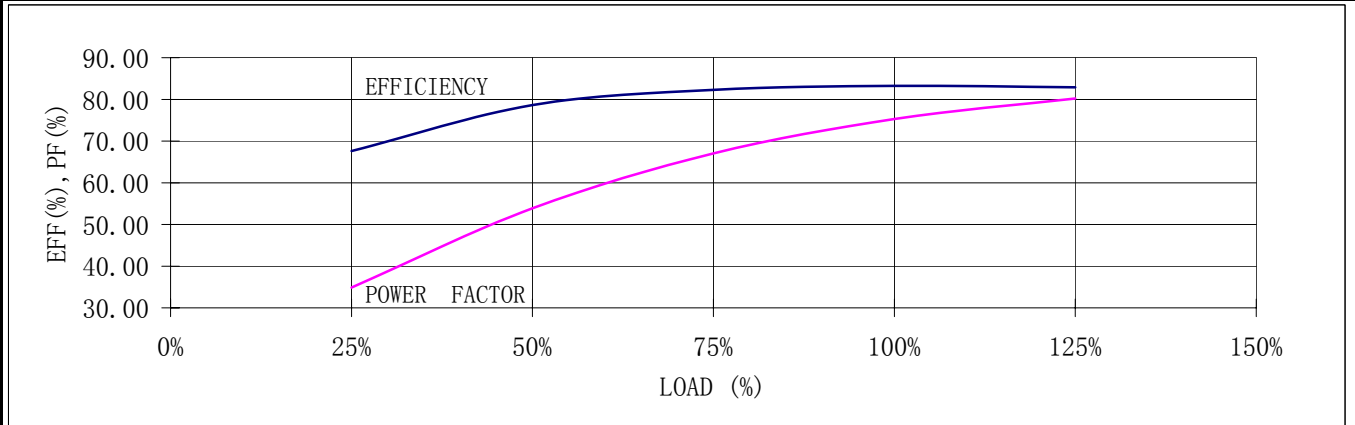
RESULT SUMMARY

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| 83.0                  | <b>EFFICIENCY</b>   | 9.27              | <b>AMPS</b>  | 55                | <b>IP</b>    | IC01              |
| 6                     | <b>POLE</b>         | S1                | <b>DUTY</b>  | 0.75              | <b>PF</b>    | N/A               |
| VALIADIS              | <b>MANUFACTURER</b> | <b>SERIAL NO.</b> | F            | <b>INS. CLASS</b> | DELTA        | <b>CONNECTION</b> |

**LOAD TEST**



|                      |                 |               |                     |
|----------------------|-----------------|---------------|---------------------|
| <b>VALIADIS S.A.</b> | <b>SCALE</b>    | N/A           |                     |
|                      | <b>DATE</b>     |               | <b>REV</b>          |
|                      | <b>AK132M-6</b> | <b>DRAWN</b>  | <b>DOCUMENT NO.</b> |
|                      | <b>4</b>        | <b>APPRVD</b> |                     |
| <b>400</b>           | <b>CHECKED</b>  |               |                     |

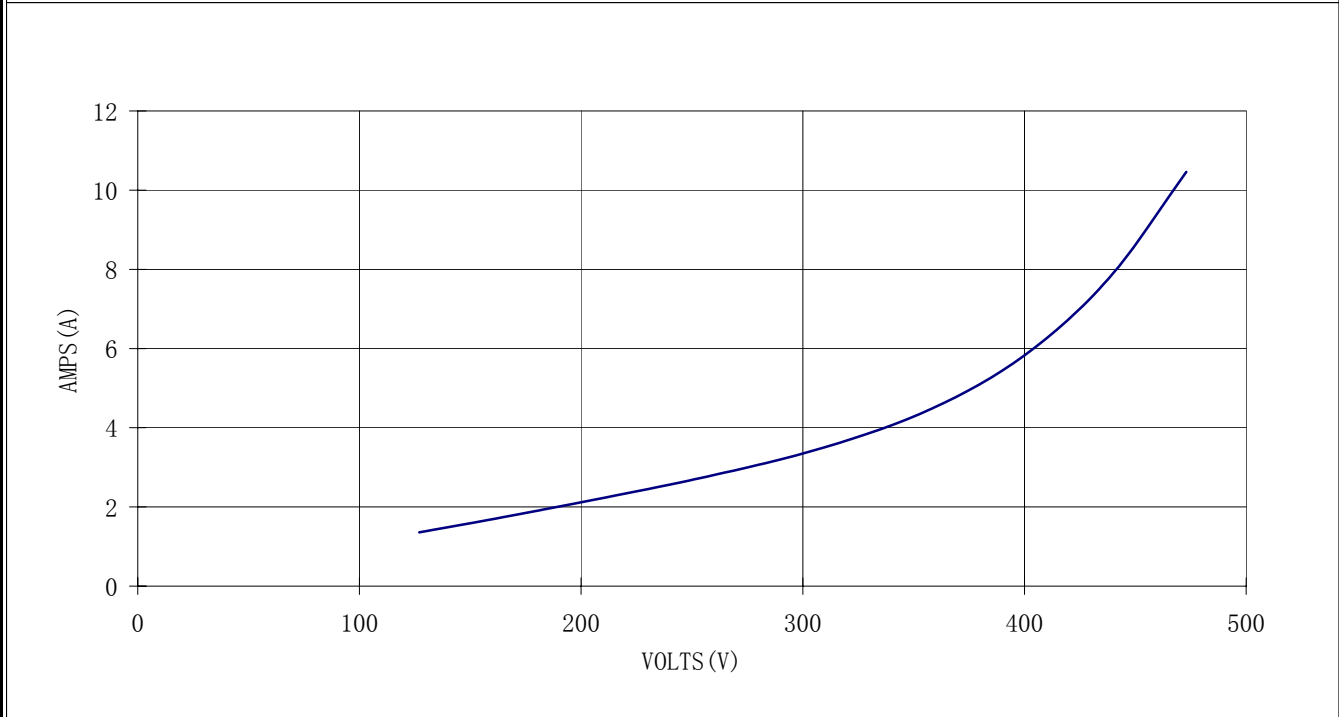
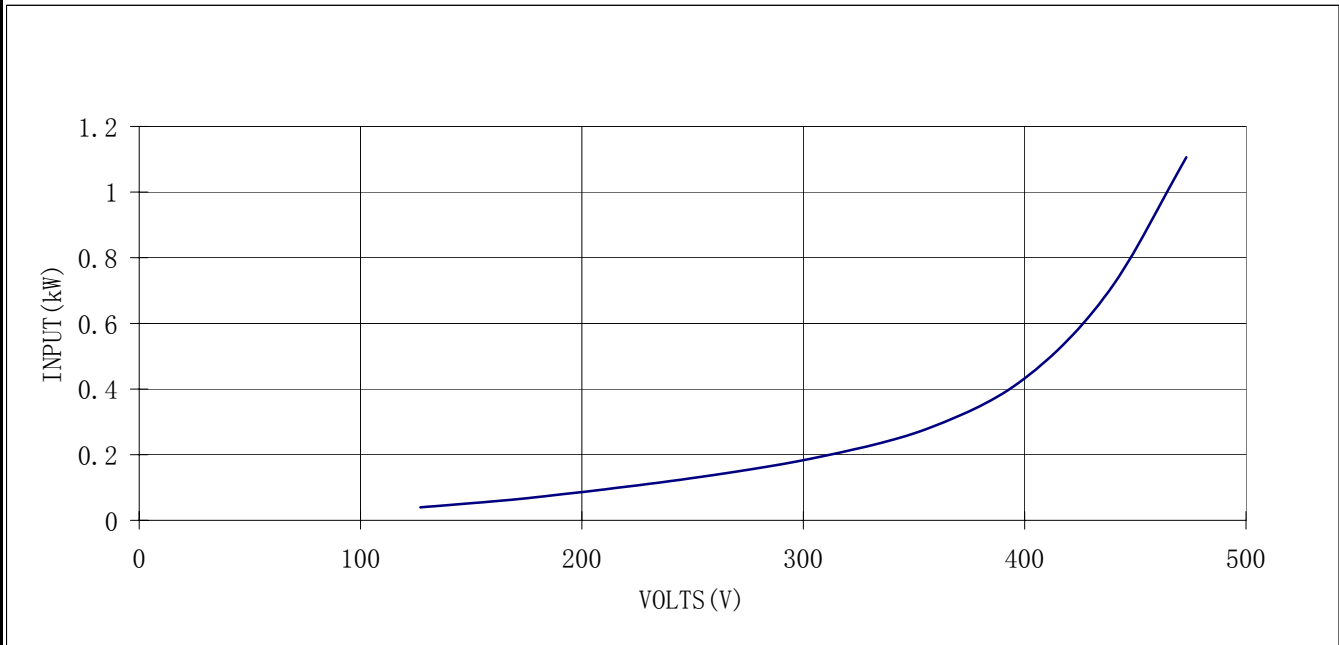
4 kW  
400 VOLTS 50 Hz

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| AK132M-6              | <b>FRAME</b>        | 3                 | <b>PHASE</b> | 400               | <b>VOLTS</b> | 50                |
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| 6                     | <b>POLE</b>         | S1                | <b>DUTY</b>  | 0.75              | <b>PF</b>    | N/A               |
| VALIADIS              | <b>MANUFACTURER</b> | <b>SERIAL NO.</b> | F            | <b>INS. CLASS</b> | DELTA        | <b>CONNECTION</b> |

### NO LOAD TEST



|     |                      |    |                |               |     |              |
|-----|----------------------|----|----------------|---------------|-----|--------------|
|     | <b>VALIADIS S.A.</b> |    |                | <b>SCALE</b>  | N/A |              |
|     |                      |    |                | <b>DATE</b>   |     | REV          |
|     | AK132M-6             |    |                | <b>DRAWN</b>  |     | DOCUMENT NO. |
|     | 4                    | kW |                | <b>APPRVD</b> |     |              |
| 400 | VOLTS                | 50 | <b>CHECKED</b> |               |     |              |

CURVE