

| | | | | | |
|--------|------|------|-------------|-----------|--------|
| | | | Date | Signature | |
| | | | Designed by | | Weight |
| | | | Checked by | | |
| | | | Examine by | | |
| | | | SCALE | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| CHANGE | DATE | NAME | | | |



VALIADIS
HELLENIC MOTORS

MOTOR TYPE K315M-4-6-8
MOUNTING B5

Design Number
Replaced from
Replace the

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

| | | | | | | IE:3 |
|-------------------------------------|---------|-------|---------|------------|------------|----------|
| Type | K315M-4 | | Poles | 4 | Power | 132,0 kW |
| Voltage | 400 | V | Current | 223,8 A | Frequency | 50 Hz |
| Speed | 1485 | r/min | Duty | S1 | Connection | Δ |
| Ins.class | F | | Weight | 1160 kg | IP55 | |
| MAJOR CONTENTS | | | | TEST VALUE | | |
| 95,0 °C PHASE RESISTANCE OF WINDING | Ω | | | 0,0336 | | |
| NO LOAD CURRENT | A | | | 51,251 | | |
| NO LOAD INPUT | W | | | 1980,23 | | |
| CORE LOSS(Pfe) | W | | | 1196,25 | | |
| WINDAGE FRICTION LOSS(Pfw) | W | | | 701,37 | | |
| STATOR WINDING LOSS(Pcu1) | W | | | 1643,47 | | |
| ROTOR WINDING LOSS(Pcu2) | W | | | 1367,18 | | |
| STRAY LOAD LOSS(Ps) | W | | | 1090,16 | | |
| LOCKED ROTOR CURRENT | A | | | 1499,329 | | |
| LOCKED ROTOR INPUT @ FULL LOAD | W | | | 340763 | | |
| LOCKED ROTOR TORQUE | N.m | | | 1821,0 | | |
| PULL OUT TORQUE | N.m | | | 2411,3 | | |
| LOCKED ROTOR CURRENT/RATED CURRENT | P.U | | | 6,70 | | |
| LOCKED ROTOR TORQUE/RATED TORQUE | P.U | | | 2,14 | | |
| PULL OUT TORQUE/RATED TORQUE | P.U | | | 2,83 | | |
| FULL LOAD TORQUE | N.m | | | 849,4 | | |
| FULL LOAD CURRENT | A | | | 223,8 | | |
| FULL LOAD SLIP | % | | | 1,011 | | |
| INPUT @ FULL LOAD | kW | | | 138,020 | | |
| FULL LOAD SPEED | r/min | | | 1484,8 | | |
| EFFICIENCY @ FULL LOAD | % | | | 95,64 | | |
| EFFICIENCY @ 75% LOAD | % | | | 95,94 | | |
| POWER FACTOR @ FULL LOAD | | | | 0,890 | | |
| STATOR WINDING TEMPERATURE RISE | K | | | 60 | | |
| D.E. BEARINGS TEMPERATURE BY PT100 | °C | | | 56,3 | | |
| STATOR WINDING TEMPERATURE | °C | | | 86,1 | | |
| High voltage test | V | 1800 | Imin | | | |
| Insulation resistance | MΩ | | | 500 | | |
| NOISE(LW) | dB(A) | | | 83 | | |
| VIBRATION | mm/s | | | 0,9 | | |

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ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

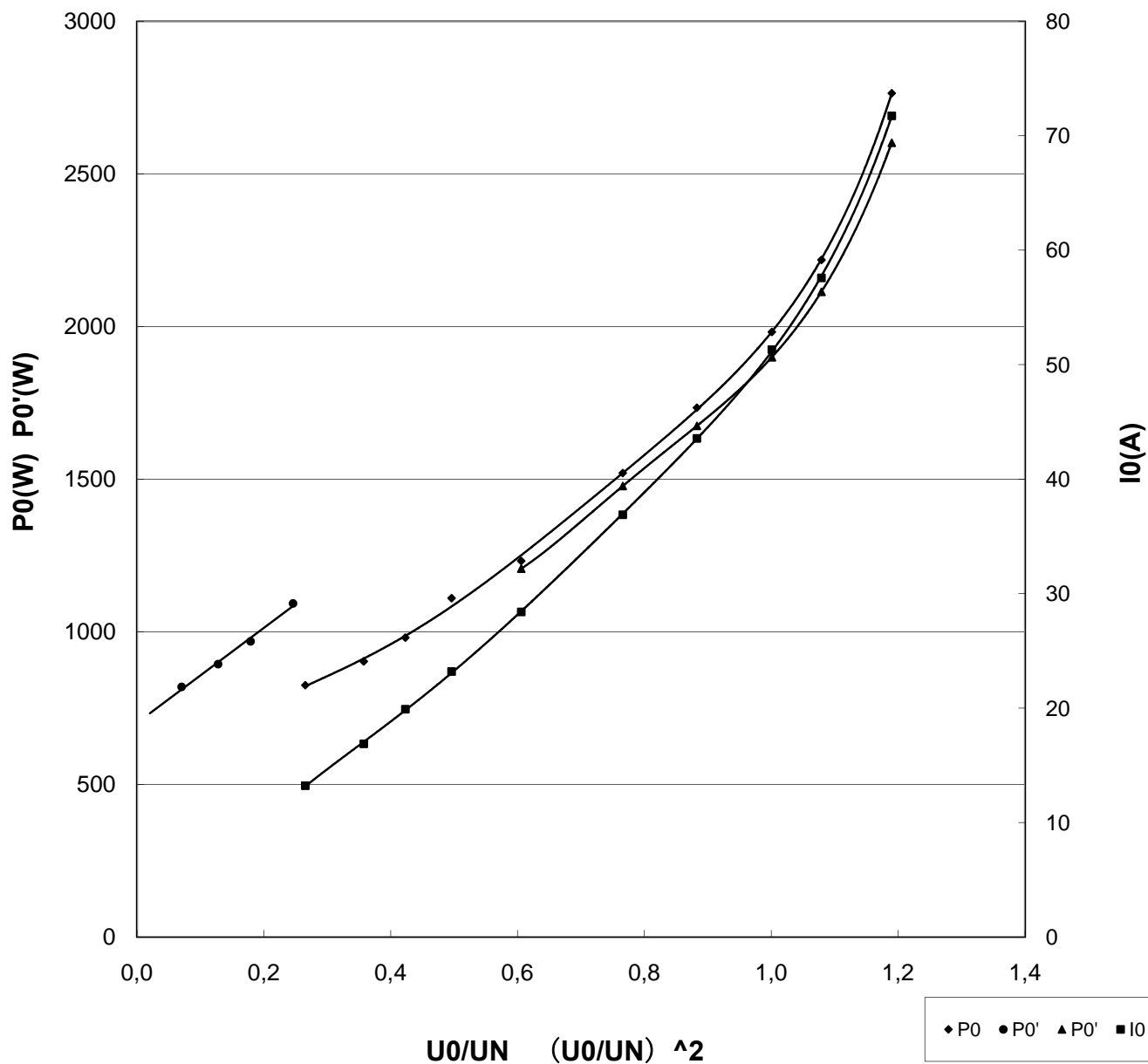
| Type | K315M-4 | | Poles | 4 | | Power | 132,0 kW | | IE:3 | | |
|-----------------------------|---------|-------------|---------|-----------|--------|------------|----------|-------|------|------|---------|
| Voltage | 400 | V | Current | 223,8 | A | Frequency | 50 Hz | | | | |
| Speed | 1485 | r/min | Duty | S1 | | Connection | △ | | | | |
| Ins.class | F | | Weight | 1160 | kg | | | IP55 | | | |
| NO LOAD TEST | | | | | | | | | | | |
| VOL | mul. | HZ | I01 | I02 | I03 | mul. | W1 | W2 | mul. | °C | Ω |
| 475,9 | 1 | 50 | 3,500 | 3,682 | 3,577 | 20 | -750,9 | 889,1 | 20 | 74,4 | 0,02101 |
| 431,6 | 1 | 50 | 2,790 | 2,979 | 2,868 | 20 | -543,5 | 654,4 | 20 | 74,1 | 0,02099 |
| 400,3 | 1 | 50 | 2,487 | 2,657 | 2,552 | 20 | -447 | 546,1 | 20 | 73,7 | 0,02096 |
| 353,1 | 1 | 50 | 2,101 | 2,277 | 2,156 | 20 | -332,1 | 418,8 | 20 | 73,4 | 0,02094 |
| 306,3 | 1 | 50 | 1,766 | 1,955 | 1,812 | 20 | -242,3 | 318,3 | 20 | 73,1 | 0,02092 |
| 242,3 | 1 | 50 | 1,354 | 1,519 | 1,387 | 20 | -141,9 | 203,5 | 20 | 72,8 | 0,02090 |
| 198,4 | 1 | 50 | 1,088 | 1,270 | 1,121 | 20 | -90,3 | 145,8 | 20 | 72,5 | 0,02088 |
| 169,3 | 1 | 50 | 1,989 | 1,967 | 2,016 | 10 | -104,6 | 202,7 | 10 | 71,9 | 0,02084 |
| 143,1 | 1 | 50 | 1,689 | 1,666 | 1,709 | 10 | -63,6 | 153,9 | 10 | 71,7 | 0,02083 |
| 106,2 | 1 | 50 | 1,324 | 1,301 | 1,341 | 10 | -18,8 | 101,3 | 10 | 71,5 | 0,02081 |
| data calculation of no load | | | | | | | | | | | |
| V% | U0/UN | I0 | P0 | (U0/UN)^2 | P0cu1 | P0' | | | | | |
| 119,0% | 1,19 | 71,727 | 2764,0 | 1,415 | 162,15 | 2601,85 | | | | | |
| 107,9% | 1,08 | 57,580 | 2218,0 | 1,164 | 104,39 | 2113,61 | | | | | |
| 100,1% | 1,00 | 51,307 | 1982,0 | 1,002 | 82,78 | 1899,22 | | | | | |
| 88,3% | 0,88 | 43,560 | 1734,0 | 0,779 | 59,61 | 1674,39 | | | | | |
| 76,6% | 0,77 | 36,887 | 1520,0 | 0,586 | 42,70 | 1477,30 | | | | | |
| 60,6% | 0,61 | 28,400 | 1232,0 | 0,367 | 25,29 | 1206,71 | | | | | |
| 49,6% | 0,50 | 23,193 | 1110,0 | 0,246 | 16,85 | 1093,15 | | | | | |
| 42,3% | 0,42 | 19,907 | 981,0 | 0,179 | 12,39 | 968,61 | | | | | |
| 35,8% | 0,36 | 16,880 | 903,0 | 0,128 | 8,90 | 894,10 | | | | | |
| 26,6% | 0,27 | 13,220 | 825,0 | 0,071 | 5,46 | 819,54 | | | | | |
| RESULTS AT: 400 V | | | | | | | | | | | |
| N.L.AMP | 51,25 | N.L.LOSS(W) | 1980,23 | Pw(W) | 701,4 | Pe(W) | 1196,2 | | | | |

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

| | | | | | | | | | |
|-----------|---------|-------|---------|-------|----|------------|----------|--|------|
| Type | K315M-4 | | Poles | 4 | | Power | 132,0 kW | | IE:3 |
| Voltage | 400 | V | Current | 223,8 | A | Frequency | 50,0 Hz | | |
| Speed | 1485 | r/min | Duty | S1 | | Connection | Δ | | |
| Ins.class | F | | Weight | 1160 | kg | | IP55 | | |

No Load Curve



VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

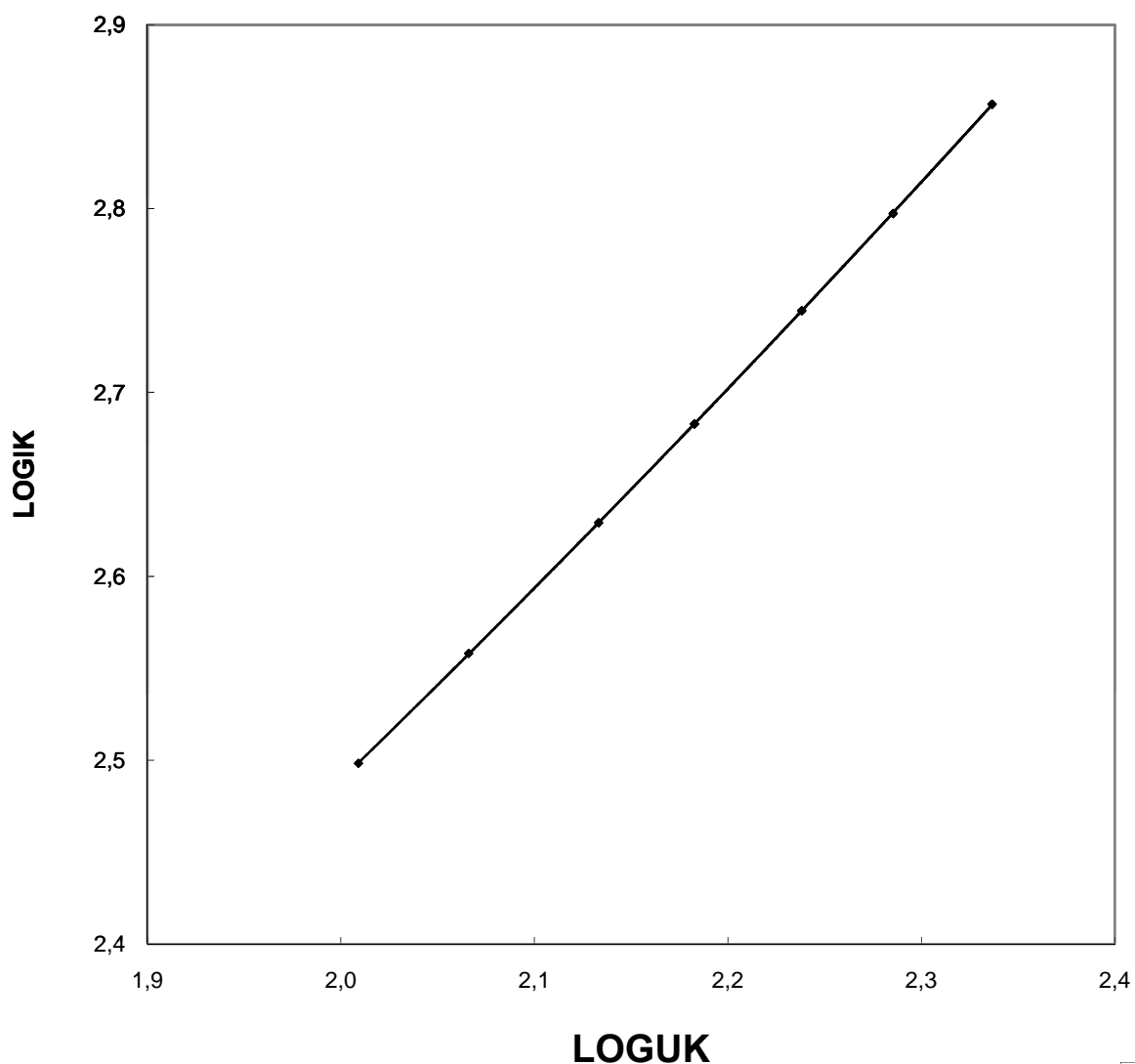
| Type | K315M-4 | | Poles | 4 | | Power | 132,0 | | IE:3 | kW |
|--|----------------|--------|------------------|-------|----------------------------|------------|---------|--------|------------------|----|
| Voltage | 400 | V | Current | 223,8 | A | Frequency | 50,0 | | Hz | |
| Speed | 1485 | r/min | Duty | S1 | | Connection | Δ | | | |
| Ins.class | F | | Weight | 1160 | kg | | IP55 | | | |
| LOCKED ROTOR TEST | | | | | | | | | | |
| VOL | mul. | Ik1 | Ik2 | Ik3 | mul. | W1 | W2 | mul. | Torqu (kg.m) | |
| 217,1 | 1,0 | 3,575 | 3,585 | 3,627 | 200,0 | -158,9 | 579,1 | 200,0 | 42,8 | |
| 192,9 | 1,0 | 3,119 | 3,127 | 3,162 | 200,0 | -127,4 | 446,5 | 200,0 | 32,6 | |
| 173,1 | 1,0 | 2,763 | 2,768 | 2,799 | 200,0 | -103,7 | 353,7 | 200,0 | 25,3 | |
| 152,3 | 1,0 | 2,397 | 2,403 | 2,428 | 200,0 | -80,2 | 268,4 | 200,0 | 19,2 | |
| 135,9 | 1,0 | 2,120 | 2,123 | 2,144 | 200,0 | -64,6 | 211,4 | 200,0 | 14,8 | |
| 116,4 | 1,0 | 3,601 | 3,602 | 3,643 | 100,0 | -95,4 | 306,5 | 100,0 | 10,7 | |
| 102,1 | 1,0 | 3,136 | 3,141 | 3,173 | 100,0 | -73,1 | 234,0 | 100,0 | 8,1 | |
| data calculation of locked rotor | | | | | | | | | | |
| Uk | IK | PK | TK | | LOGUk | LOGIk | LOGPk | LOGTk | | |
| V | A | kW | N.m | | | | | | | |
| 217,05 | 719,15 | 84,040 | 418,95 | | 2,3366 | 2,8568 | 1,9245 | 2,6222 | | |
| 192,95 | 627,21 | 63,820 | 318,99 | | 2,2854 | 2,7974 | 1,8050 | 2,5038 | | |
| 173,05 | 555,30 | 50,000 | 247,94 | | 2,2382 | 2,7445 | 1,6990 | 2,3943 | | |
| 152,32 | 481,86 | 37,640 | 187,67 | | 2,1827 | 2,6829 | 1,5756 | 2,2734 | | |
| 135,89 | 425,78 | 29,360 | 145,04 | | 2,1332 | 2,6292 | 1,4678 | 2,1615 | | |
| 116,42 | 361,49 | 21,110 | 104,37 | | 2,0660 | 2,5581 | 1,3245 | 2,0186 | | |
| 102,11 | 314,98 | 16,090 | 78,89 | | 2,0090 | 2,4983 | 1,2066 | 1,8970 | | |
| performance collection of locked rotor | | | | | | | | | | |
| | at rated volts | | at rated current | | at 2.5 times rated current | | at 100V | | | |
| VOLTS (V) | 400 | | 75,164 | | 173,8 | | 100,0 | | | |
| AMPS (A) | 1499,3 | | 223,9 | | 559,8 | | 305,97 | | | |
| INPUT (kW) | 340,76 | | | | 50,8 | | 15,147 | | | |
| TORQUE (N.m) | 1821,04 | | | | | | | | | |

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

| | | | | | | |
|-----------|------------|---------|---------|------------|-------|------|
| Type | K315M-4 | Poles | 4 | Power | 132,0 | IE:3 |
| Voltage | 400 V | Current | 223,8 A | Frequency | 50,0 | kW |
| Speed | 1485 r/min | Duty | S1 | Connection | Δ | Hz |
| Ins.class | F | Weight | 1160 kg | | | IP55 |

LOCKED



◆ LOGIK

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

| | | | | | | | | | | | |
|-----------|---------|-------|---------|-------|----|------------|--------|----|------|--|--|
| Type | K315M-4 | | Poles | 4 | | Power | 132 kW | | IE:3 | | |
| Voltage | 400 | V | Current | 223,8 | A | Frequency | 50 | Hz | | | |
| Speed | 1485 | r/min | Duty | S1 | | Connection | Δ | | | | |
| Ins.class | F | | Weight | 1160 | kg | IP55 | | | | | |

TEMPERATURE RISE TEST

| TIME (h:min) | V | I1 | I2 | I3 | mul. | W1 | W2 | mul. | T1 °C | T2 °C | T3 °C | T4 °C | T5 °C | T6 °C | T7 °C | T8 °C | T9 °C | T10 °C | T11 °C | T12 °C | T13 °C | |
|-------------------------------|-------|---------|-------|-------|------|--------|-------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|------|
| 10,30 | 400,4 | 2,249 | 2,250 | 2,280 | 100 | 507,7 | 889,9 | 100 | 50,6 | — | 67,3 | 65,8 | — | — | — | — | — | — | 31,7 | — | 9,2 | |
| 11,01 | 400,3 | 2,256 | 2,258 | 2,287 | 100 | 509,9 | 892,5 | 100 | 52,2 | — | 72,0 | 71,3 | — | — | — | — | — | — | 34,3 | — | 9,2 | |
| 11,26 | 400,3 | 2,239 | 2,242 | 2,271 | 100 | 506,9 | 886,4 | 100 | 53,6 | — | 75,6 | 74,2 | — | — | — | — | — | — | 36,0 | — | 9,6 | |
| 12,00 | 400,3 | 2,259 | 2,261 | 2,290 | 100 | 512,1 | 893,7 | 100 | 54,5 | — | 79,9 | 78,5 | — | — | — | — | — | — | 37,7 | — | 9,7 | |
| 12,30 | 400,3 | 2,284 | 2,285 | 2,315 | 100 | 517,8 | 903,4 | 100 | 55,9 | — | 83,3 | 81,9 | — | — | — | — | — | — | 40,5 | — | 10,3 | |
| 12,58 | 400,3 | 2,248 | 2,250 | 2,278 | 100 | 510,3 | 889,6 | 100 | 56,3 | — | 85,2 | 83,7 | — | — | — | — | — | — | 41,9 | — | 10,6 | |
| 13,29 | 400,3 | 2,256 | 2,257 | 2,287 | 100 | 512,3 | 892,6 | 100 | 56,2 | — | 85,8 | 84,4 | — | — | — | — | — | — | 42,4 | — | 10,8 | |
| 13,59 | 400,4 | 2,213 | 2,216 | 2,244 | 100 | 502,9 | 876,1 | 100 | 56,3 | — | 86,1 | 84,7 | — | — | — | — | — | — | 42,4 | — | 11,0 | |
| The average of the last three | | 225,000 | | A | | 139460 | | W | | 56,3 | — | 85,7 | 84,7 | — | — | — | — | — | — | 42,4 | — | 10,8 |

T1 T2 : DE BEARING TEMPERATURE

T11 : CORE TEMPERATRE

T12: FRAME TEMPERATRE

T3~T10 : DE WINDING TEMPERATURE

T13 : AMBIENT TEMPERATURE

WINDING RESISTANCE (HOT) AT END OF TEMPERATURE RISE TEST

| | | | | | | | | | | |
|------------------|---------|---------|---------|---------|---------|---------|---------|---------|--|--|
| TIME (S) | 50 | 99 | 135 | 186 | 222 | 255 | 320 | 370 | | |
| RESISTANCE (Ω) | 0,02083 | 0,02074 | 0,02067 | 0,02058 | 0,02053 | 0,02047 | 0,02039 | 0,02035 | | |

WINDING RESISTANCE(COLD)

| | | | | | | |
|---|---------|---------|---------|---------|---------|--------------|
| Δ | U1-V1 | U1-W1 | V1-W1 | AVERAGE | MIN | AMBIENT TEM. |
| | 0,01653 | 0,01654 | 0,01658 | 0,01655 | 0,01653 | 8,7 °C |
| Y | U1-U2 | V1-V2 | W1-W2 | AVERAGE | MIN | AMBIENT TEM. |
| | | | | | | °C |

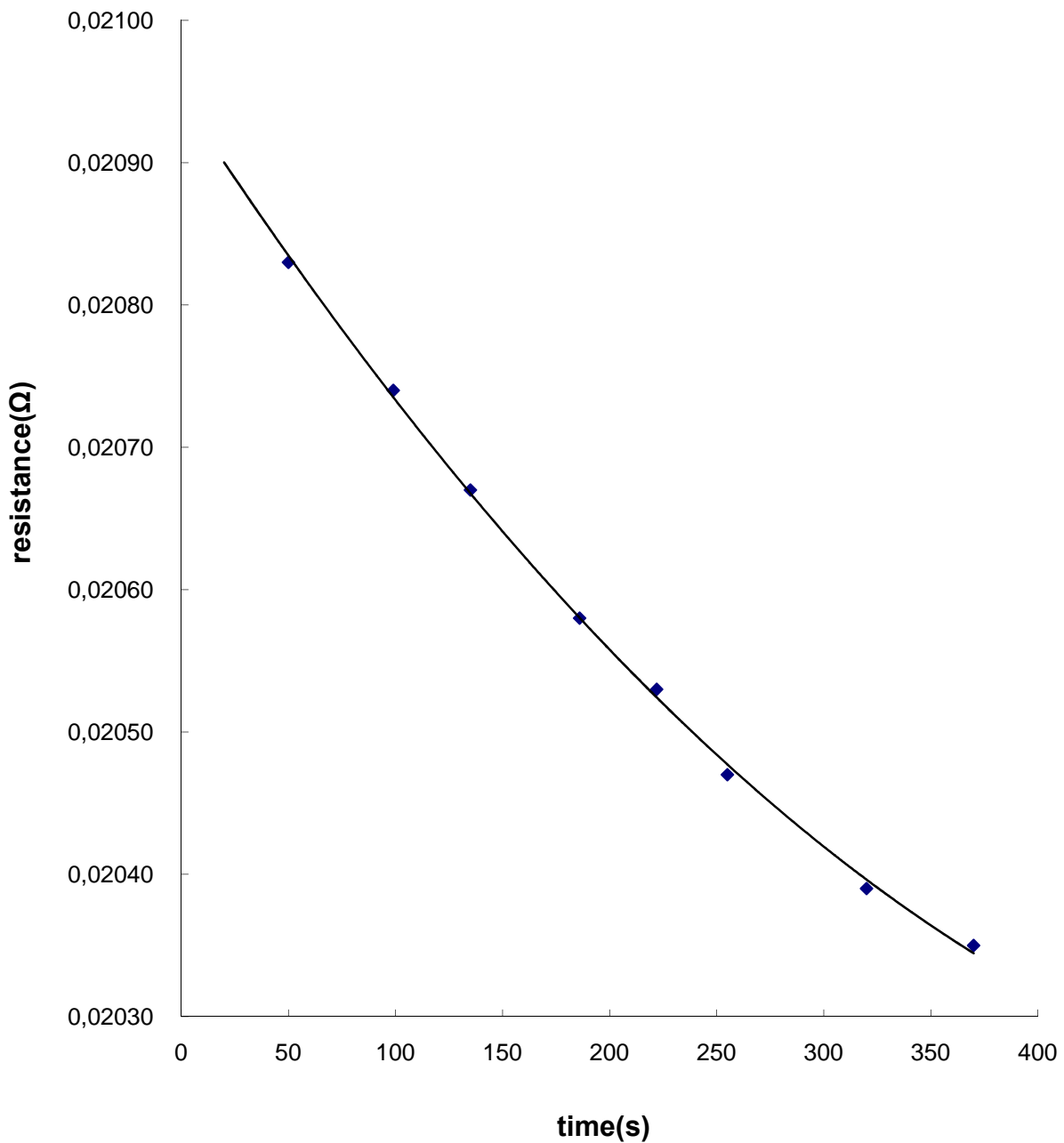
| | | | | | |
|---------------------------------|--|----------|----------------------------------|-------|---|
| resistance value at 0 sec (Ω) | | 0,020946 | calculation value of temp.rising | 63,00 | K |
| 90 S (Ω) | | 0,020755 | calculation value of temp.rising | 60,20 | K |
| full load curent | | 223,81 A | modify value of temp. rising | 59,56 | K |

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

| | | | | | | |
|-----------|------------|---------|---------|--------------|-------|------|
| Type | K315M-4 | Poles | 4 | output Power | 132,0 | IE:3 |
| Voltage | 400 V | Current | 223,8 A | Frequency | 50,0 | kW |
| Speed | 1485 r/min | Duty | S1 | Connection | Δ | Hz |
| Ins.class | F | Weight | 1160 kg | | IP55 | |

RESISTANCE CURVE



VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

| Type | K315M-4 | | Poles | 4 | Power | 132,0 | | | | | IE:3 | |
|-----------|---------|--------|--------------|---------|-------------------------|-----------|--------|---------|--------|--------------|----------------|------------|
| Voltage | 400 | V | Current | 223,8 | A | Frequency | 50,0 | | | | | kW |
| Speed | 1485 | r/min | Duty | S1 | Connection | Δ | | | | | | Hz |
| Ins.class | F | | Weight | 1160 | kg | IP55 | | | | | | |
| LOAD TEST | | | | | | | | | | | | |
| V | HZ | I1 | I2 | I3 | mul. | W1 | W2 | mul. | r/min | Resistance Ω | Temperature °C | Torque N.m |
| 400,2 | 50,01 | 3,487 | 3,493 | 3,540 | 100 | 733,6 | 1377,8 | 100 | 1476,2 | 0,0218 | 86,2 | 1286,9 |
| 400,2 | 50,00 | 2,834 | 2,837 | 2,874 | 100 | 627,1 | 1117,3 | 100 | 1481,1 | 0,0219 | 87,5 | 1067,7 |
| 400,2 | 50,00 | 2,183 | 2,186 | 2,213 | 100 | 493,3 | 860,7 | 100 | 1485,7 | 0,0219 | 87,9 | 829,82 |
| 400,4 | 50,00 | 1,709 | 1,711 | 1,732 | 100 | 377,8 | 673,9 | 100 | 1489,3 | 0,0219 | 87,1 | 642,71 |
| 400,2 | 49,99 | 1,181 | 1,182 | 1,196 | 100 | 228,1 | 465,0 | 100 | 1493 | 0,0218 | 86,4 | 419,4 |
| 400,2 | 50,00 | 0,860 | 0,860 | 0,869 | 100 | 123,6 | 334,1 | 100 | 1495,5 | 0,0218 | 85,5 | 274,79 |
| 400,3 | 49,99 | 0,730 | 0,730 | 0,737 | 100 | 74,5 | 276,8 | 100 | 1496,4 | 0,0217 | 85 | 209,19 |
| 400,3 | 50,0 | 2,515 | 2,622 | 2,581 | 20,0 | -415,5 | 562,4 | 20 | 1499,5 | 0,0216 | 83,0 | 5,31 |
| 400,2 | 50,0 | 2,490 | 2,668 | 2,554 | 20,0 | -447,9 | 549,0 | 20 | 1500,0 | 0,0210 | 74,9 | 0,00 |
| slope A= | 0,00152 | | intercept B= | 394,5 | relative coefficient r= | 0,972 | | | | | | |
| LOAD % | P2 W | I A | P1 W | Pcu1s W | Ss % | Pcu2s W | Ps W | Pz W | N.m | EFF % | P.F | |
| 150,0 | 198000 | 348,23 | 209783,1 | 3978,7 | 1,663 | 3403,6 | 2490,9 | 11770,9 | 1279,3 | 94,38 | 0,870 | |
| 125,0 | 165000 | 283,18 | 173463,5 | 2631,1 | 1,302 | 2208,6 | 1717,7 | 8455,0 | 1062,3 | 95,12 | 0,884 | |
| 100,0 | 132000 | 223,81 | 138020,1 | 1643,5 | 1,011 | 1367,2 | 1090,2 | 5998,4 | 846,3 | 95,64 | 0,890 | |
| 75,0 | 99000 | 168,77 | 103186,8 | 934,6 | 0,727 | 735,0 | 605,8 | 4173,0 | 630,9 | 95,94 | 0,882 | |
| 50,0 | 66000 | 118,13 | 68934,5 | 457,9 | 0,464 | 312,0 | 265,4 | 2932,9 | 417,6 | 95,74 | 0,842 | |
| 25,0 | 33000 | 73,34 | 35219,8 | 176,5 | 0,231 | 78,3 | 67,3 | 2219,7 | 210,2 | 93,70 | 0,693 | |

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|-----------|---------|-------|---------|-------|--------------|-----------|------|
| Type | K315M-4 | | Poles | 4 | output Power | 132,0 | IE:3 |
| Voltage | 400 | V | Current | 223,8 | A | Frequency | 50,0 |
| Speed | 1485 | r/min | Duty | S1 | Connection | Δ | Hz |
| Ins.class | F | | Weight | 1160 | kg | IP55 | |

LOAD CURVE

