

VALIADIS S.A.

ELECTRIC MOTOR TEST REPORT - THREE PHASE INDUCTION MOTOR

| Type | K132M-4 | Poles | 4 | Power | 7,5 | KW | IE:3 |
|-----------------------------------|------------|---------|---------|------------|-----|------|---------|
| Voltage | 400 V | Current | 14,55 A | Frequency | 50 | HZ | |
| Speed | 1461 r/min | Duty | S1 | Connecti | △ | | |
| Ins.class | F | Weight | 84 Kg | | | IP55 | |
| MAJOR CONTENTS | | | | TEST VALUE | | | |
| 95,0 °C PHASE RESISTANCE OF WII | Ω | | | | | | 1,6111 |
| NO LOAD CURRENT | A | | | | | | 6,354 |
| NO LOAD INPUT | W | | | | | | 291,91 |
| CORE LOSS(Pfe) | W | | | | | | 194,49 |
| WINDAGE FRICTION LOSS(Pfw) | W | | | | | | 35,84 |
| STATOR WINDING LOSS(Pcu1) | W | | | | | | 327,91 |
| ROTOR WINDING LOSS(Pcu2) | W | | | | | | 204,83 |
| STRAY LOAD LOSS(Ps) | W | | | | | | 80,21 |
| LOCKED ROTOR CURRENT | A | | | | | | 119,737 |
| LOCKED ROTOR INPUT @ FULL LOAD | W | | | | | | 40681 |
| LOCKED ROTOR TORQUE | N.m | | | | | | 122,3 |
| PULL OUT TORQUE | N.m | | | | | | 158,1 |
| LOCKED ROTOR CURRENT/RATED CURF | P.U | | | | | | 8,37 |
| LOCKED ROTOR TORQUE/RATED TORQL | P.U | | | | | | 2,47 |
| PULL OUT TORQUE/RATED TORQUE | P.U | | | | | | 3,19 |
| FULL LOAD TORQUE | N.m | | | | | | 49,1 |
| FULL LOAD CURRENT | A | | | | | | 14,6 |
| FULL LOAD SLIP | % | | | | | | 2,619 |
| INPUT @ FULL LOAD | KW | | | | | | 8,344 |
| FULL LOAD SPEED | r/min | | | | | | 1460,7 |
| EFFICIENCY @ FULL LOAD | % | | | | | | 89,88 |
| EFFICIENCY @ 75% LOAD | % | | | | | | 90,50 |
| POWER FACTOR @ FULL LOAD | | | | | | | 0,828 |
| STATOR WINDING TEMPERATURE RISE | K | | | | | | 56 |
| D.E. BEARINGS TEMPERATURE BY PT10 | °C | | | | | | 65,5 |
| STATOR WINDING TEMPERATURE | °C | | | | | | 86,8 |
| High voltage test | V | 1800 | | | | Imin | |
| Insulation resistance | MΩ | | | | | | 500 |
| NOISE(LW) | dB(A) | | | | | | 66 |
| VIBRATION | mm/s | | | | | | 0,7 |

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| Voltage | 400 V | Current | 14,55 A | Frequency | 50 HZ | |
| Speed | 1461 r/min | Duty | S1 | Connection | Δ | |
| Ins.class | F | Weight | 84 Kg | | IP55 | |

NO LOAD TEST

| VOL | mul. | HZ | I01 | I02 | I03 | mul. | W1 | W2 | mul. | °C | Ω |
|-------|------|----|-------|-------|-------|------|--------|--------|------|------|--------|
| 453,9 | 1 | 50 | 4,959 | 4,920 | 4,911 | 2 | -992,5 | 1249,6 | 2 | 77,6 | 1,0175 |
| 423,5 | 1 | 50 | 3,833 | 3,811 | 3,778 | 2 | -724,5 | 904,11 | 2 | 77,6 | 1,0175 |
| 400,1 | 1 | 50 | 3,209 | 3,188 | 3,142 | 2 | -574,1 | 720,18 | 2 | 77,4 | 1,0168 |
| 353,2 | 1 | 50 | 2,382 | 2,366 | 2,320 | 2 | -372,8 | 479,27 | 2 | 77,3 | 1,0165 |
| 299,9 | 1 | 50 | 1,824 | 1,822 | 1,764 | 2 | -239,5 | 319,97 | 2 | 77,1 | 1,0158 |
| 251,7 | 1 | 50 | 1,450 | 1,451 | 1,407 | 2 | -154,6 | 217,9 | 2 | 76,9 | 1,0152 |
| 199,3 | 1 | 50 | 2,204 | 2,231 | 2,130 | 1 | -180,5 | 271,5 | 1 | 75,4 | 1,0103 |
| 169,8 | 1 | 50 | 1,853 | 1,857 | 1,789 | 1 | -122,0 | 197,2 | 1 | 75,1 | 1,0093 |
| 142,3 | 1 | 50 | 1,530 | 1,560 | 1,484 | 1 | -79,0 | 144,0 | 1 | 74,8 | 1,0083 |
| 98,2 | 1 | 50 | 1,088 | 1,089 | 1,043 | 1 | -28,2 | 76,9 | 1 | 74,5 | 1,0074 |

data calculation of no load

| V% | U0/UN | I0 | P0 | (U0/UN)^2 | P0cu1 | P0' |
|--------|-------|-------|-------|-----------|--------|--------|
| 113,5% | 1,13 | 9,860 | 514,2 | 1,288 | 148,38 | 365,85 |
| 105,9% | 1,06 | 7,615 | 359,2 | 1,121 | 88,49 | 270,73 |
| 100,0% | 1,00 | 6,359 | 292,2 | 1,001 | 61,68 | 230,49 |
| 88,3% | 0,88 | 4,712 | 212,9 | 0,780 | 33,85 | 179,08 |
| 75,0% | 0,75 | 3,607 | 160,9 | 0,562 | 19,82 | 141,12 |
| 62,9% | 0,63 | 2,872 | 126,5 | 0,396 | 12,56 | 113,97 |
| 49,8% | 0,50 | 2,188 | 91,0 | 0,248 | 7,26 | 83,73 |
| 42,5% | 0,42 | 1,833 | 75,2 | 0,180 | 5,09 | 70,10 |
| 35,6% | 0,36 | 1,525 | 65,0 | 0,127 | 3,52 | 61,44 |
| 24,6% | 0,25 | 1,073 | 48,7 | 0,060 | 1,74 | 46,94 |

RESULTS AT: 400 V

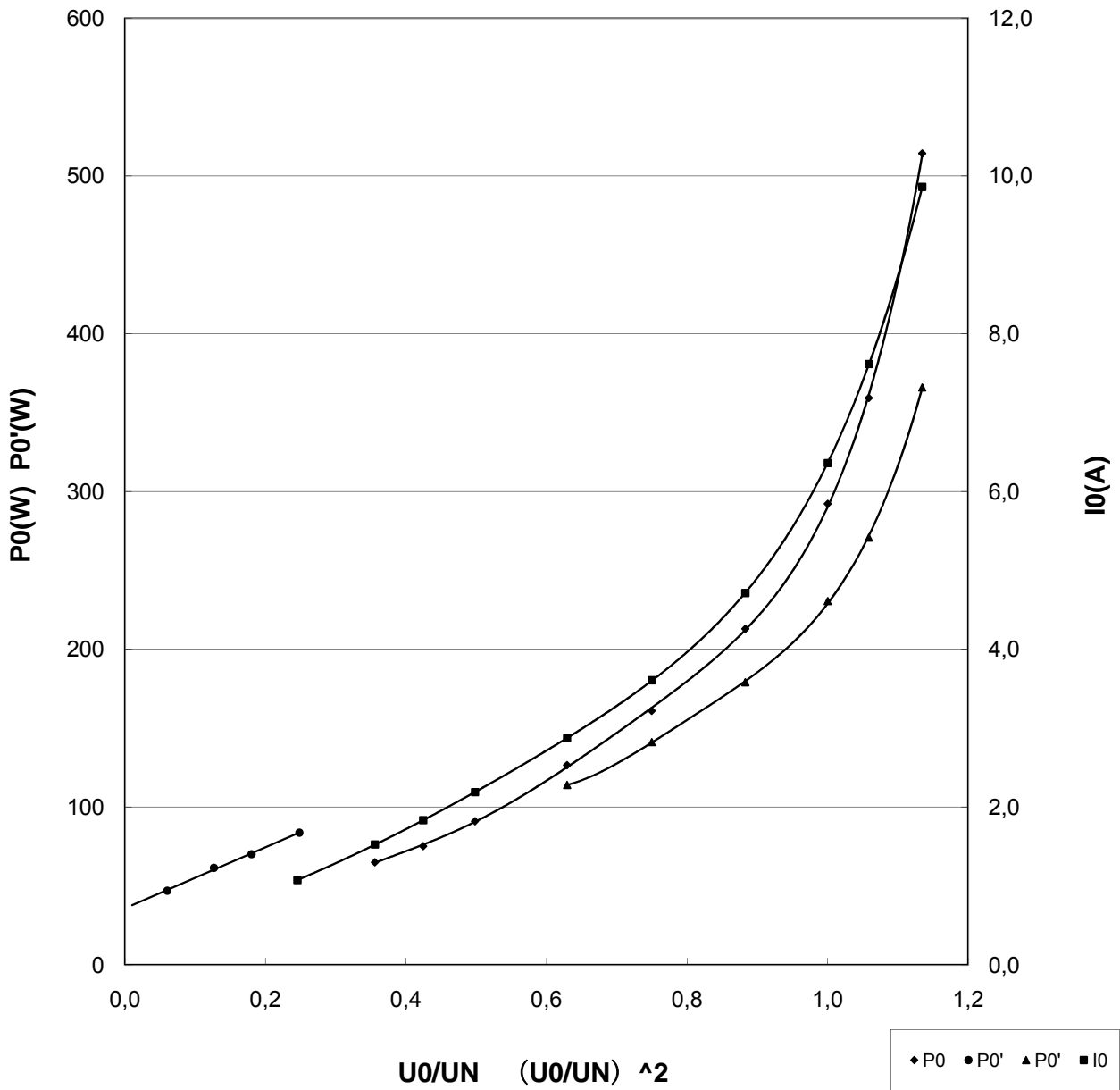
| | | | | | | | | | |
|---------|-------|-------------|--------|-------|------|-------|-------|--|--|
| N.L.AMP | 6,354 | N.L.LOSS(W) | 291,91 | Pw(W) | 35,8 | Pe(W) | 194,5 | | |
|---------|-------|-------------|--------|-------|------|-------|-------|--|--|

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| Type | K132M-4 | | Poles | 4 | | Power | 7,5 KW | | IE:3 |
| Voltage | 400 | V | Current | 14,55 | A | Frequency | 50,0 HZ | | |
| Speed | 1461 | r/min | Duty | S1 | | Connection | Δ | | |
| Ins.class | F | | Weight | 84 | Kg | | | | IP55 |

No Load Curve



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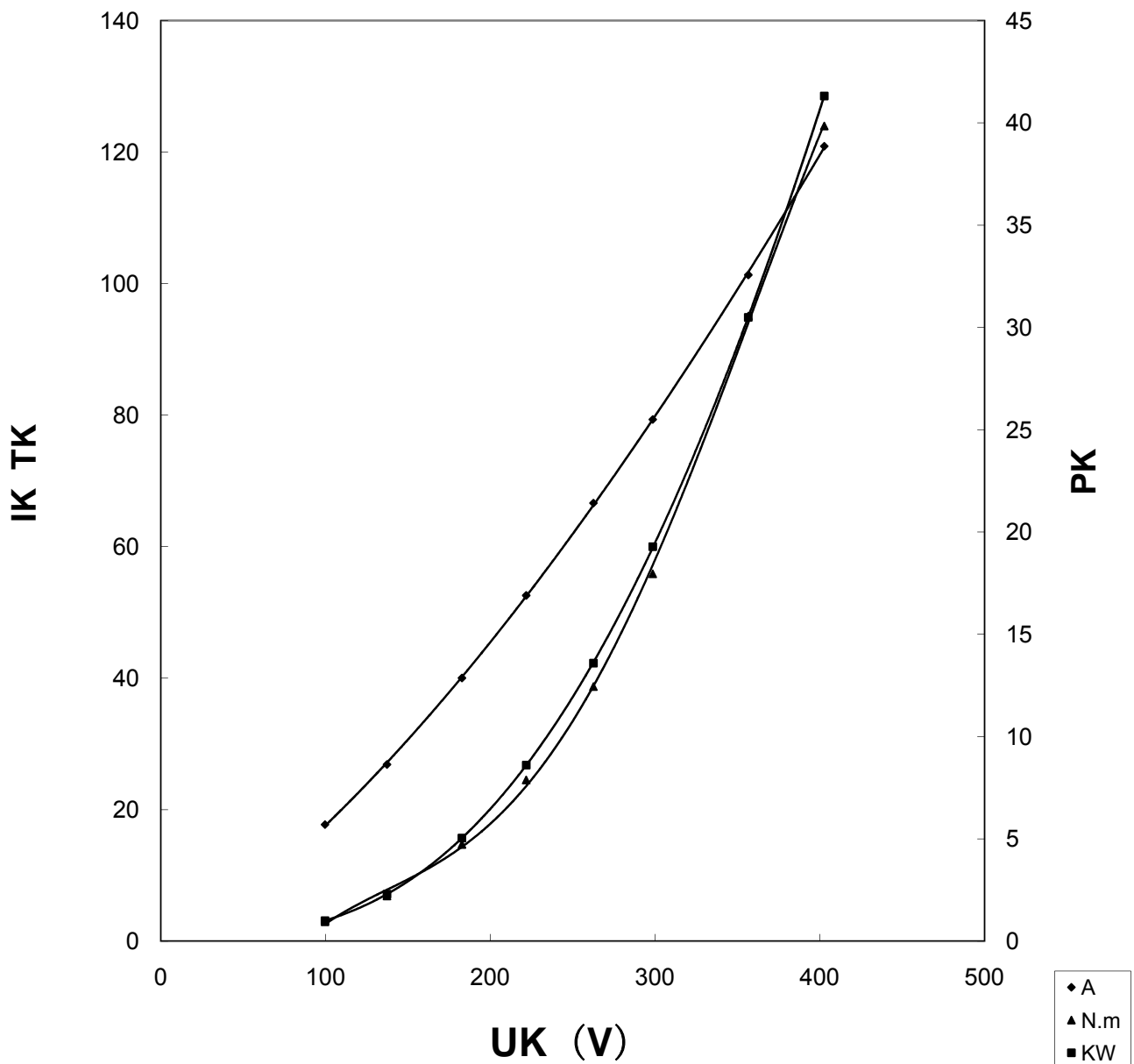
| | | | | | | | | | | |
|---|-----------|-----------------------|------------|-------------------------|------|-----------------------------------|--------------|----------------|------------------|----|
| Type | K132M-4 | | Poles | 4 | | Power | 7,5 | | IE:3 | KW |
| Voltage | 400 | V | Current | 14,55 | A | Frequency | 50,0 | | HZ | |
| Speed | 1461 | r/min | Duty | S1 | | Connection | Δ | | | |
| Ins.class | F | | Weight | 84 | Kg | IP55 | | | | |
| LOCKED ROTOR TEST | | | | | | | | | | |
| VOL | mul. | Ik1 | Ik2 | Ik3 | mul. | W1 | W2 | mul. | Torqu (Kg.m) | |
| 402,7 | 1,0 | 2,398 | 2,424 | 2,431 | 50,0 | -12,5 | 838,8 | 50,0 | 12,65 | |
| 356,6 | 1,0 | 2,010 | 2,034 | 2,035 | 50,0 | -13,0 | 622,9 | 50,0 | 9,70 | |
| 298,6 | 1,0 | 1,561 | 1,597 | 1,602 | 50,0 | -16,0 | 401,6 | 50,0 | 5,70 | |
| 262,6 | 1,0 | 3,256 | 3,355 | 3,382 | 20,0 | -48,9 | 728,4 | 20,0 | 3,95 | |
| 221,8 | 1,0 | 2,558 | 2,639 | 2,690 | 20,0 | -42,9 | 473,1 | 20,0 | 2,50 | |
| 182,8 | 1,0 | 1,942 | 2,001 | 2,061 | 20,0 | -34,7 | 286,8 | 20,0 | 1,50 | |
| 137,3 | 1,0 | 1,299 | 1,340 | 1,392 | 20,0 | -23,4 | 138,4 | 20,0 | 0,70 | |
| 99,7 | 1,0 | 1,715 | 1,779 | 1,827 | 10,0 | -29,0 | 129,3 | 10,0 | 0,30 | |
| data calculation of locked rotor | | | | | | | | | | |
| UK | IK | PK | TK | | | LOGUK | LOGIK | LOGPK | LOGTK | |
| V | A | KW | N.m | | | | | | | |
| 402,70 | 120,88 | 41,315 | 123,97 | | | 2,6050 | 2,0824 | 1,6161 | 1,1021 | |
| 356,60 | 101,32 | 30,495 | 95,06 | | | 2,5522 | 2,0057 | 1,4842 | 0,9868 | |
| 298,60 | 79,33 | 19,280 | 55,86 | | | 2,4751 | 1,8995 | 1,2851 | 0,7559 | |
| 262,60 | 66,62 | 13,590 | 38,71 | | | 2,4193 | 1,8236 | 1,1332 | 0,5966 | |
| 221,80 | 52,58 | 8,604 | 24,50 | | | 2,3460 | 1,7208 | 0,9347 | 0,3979 | |
| 182,80 | 40,03 | 5,042 | 14,70 | | | 2,2620 | 1,6023 | 0,7026 | 0,1761 | |
| 137,30 | 26,87 | 2,300 | 6,86 | | | 2,1377 | 1,4293 | 0,3617 | -0,1549 | |
| 99,70 | 17,74 | 1,003 | 2,94 | | | 1,9987 | 1,2489 | 0,0013 | -0,5229 | |
| performance collection of locked rotor | | | | | | | | | | |
| | | at rated volts | | at rated current | | at 2.5 times rated current | | at 100V | | |
| VOLTS (V) | | 400 | | 86,586 | | 170,2 | | 100,0 | | |
| AMPS (A) | | 119,7 | | 14,6 | | 36,4 | | 17,81 | | |
| INPUT (KW) | | 40,68 | | | | 4,3 | | 1,013 | | |
| TORQUE (N.m) | | 122,28 | | | | | | | | |

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| Type | K132M-4 | Poles | 4 | Power | 7,5 | IE:3 | KW |
| Voltage | 400 V | Current | 14,55 A | Frequency | 50,0 | | HZ |
| Speed | 1461 r/min | Duty | S1 | Connection | Δ | | |
| Ins.class | F | Weight | 84 Kg | | | | IP55 |

Locked Rotor Curve



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|-----------|------------|---------|---------|------------|------|----|------|
| Type | K132M-4 | Poles | 4 | Power | 7,5 | KW | IE:3 |
| Voltage | 400 V | Current | 14,55 A | Frequency | 50 | HZ | |
| Speed | 1461 r/min | Duty | S1 | Connection | Δ | | |
| Ins.class | F | Weight | 84 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 |
|--------------|-------|-------|-------|-------|------|-------|--------|------|-------|-------|-------|-------|-------|-------|
| 10,31 | 398,8 | 2,892 | 2,912 | 2,880 | 5 | 497,4 | 1159,2 | 5 | 58,50 | 84,4 | 83,0 | 63,6 | — | 24,7 |
| 10,59 | 398,7 | 2,880 | 2,903 | 2,879 | 5 | 498,1 | 1155,5 | 5 | 59,20 | 85,6 | 84,1 | 64,7 | — | 25,1 |
| 11,28 | 399,9 | 2,903 | 2,921 | 2,898 | 5 | 505,5 | 1166,2 | 5 | 59,40 | 86,3 | 84,9 | 65,2 | — | 25,1 |
| 12,00 | 400,1 | 2,903 | 2,920 | 2,893 | 5 | 501,2 | 1166,1 | 5 | 59,40 | 86,7 | 85,3 | 65,1 | — | 24,9 |
| 12,29 | 400,3 | 2,905 | 2,924 | 2,891 | 5 | 498,3 | 1167,9 | 5 | 58,70 | 86,8 | 85,4 | 65,4 | — | 24,7 |
| 12,59 | 400,2 | 2,900 | 2,915 | 2,884 | 5 | 497,4 | 1164,4 | 5 | 58,60 | 86,6 | 85,4 | 65,5 | — | 24,7 |
| 13,30 | 400,0 | 2,902 | 2,919 | 2,887 | 5 | 503,2 | 1165,3 | 5 | 58,60 | 86,8 | 85,4 | 65,5 | — | 24,7 |

| | | | | | | | | | | | | | | |
|-------------------------------|--|--------|--|---|--|--------|--|---|------|------|------|------|---|------|
| The average of the last three | | 14,515 | | A | | 8352,5 | | W | 58,6 | 86,7 | 84,0 | 65,5 | — | 24,7 |
|-------------------------------|--|--------|--|---|--|--------|--|---|------|------|------|------|---|------|

T1 : DE BEARING TEMPERATURE T4 : CORE TEMPERATRE T5: FRAME TEMPERATRE
 T2~T3 : DE WINDING TEMPERATURE T6 : AMBIENT TEMPERATURE

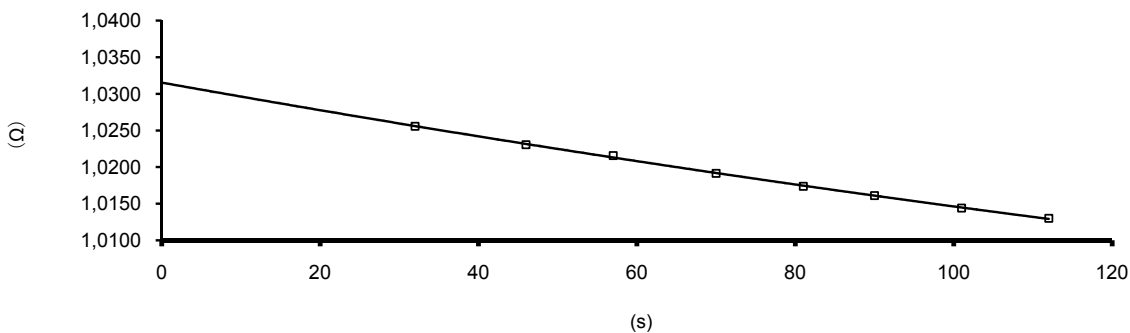
WINDING RESISTANCE (HOT) AT END OF TEMPERATURE RISE TEST

| | | | | | | | | | | | | |
|----------------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|--|--|
| TIME (S) | 32 | 46 | 57 | 70 | 81 | 90 | 101 | 112 | | | | |
| RESISTANCE (Ω) | 1,0256 | 1,0231 | 1,0216 | 1,0192 | 1,0174 | 1,0161 | 1,0144 | 1,0130 | | | | |

WINDING RESISTANCE(COLD)

| Δ | U1-V1 | U1-W1 | V1-W1 | AVERAGE | MIN | AMBIENT TEM. |
|---|--------|--------|--------|---------|---------|--------------|
| | 0,8440 | 0,8447 | 0,8442 | 0,84430 | 0,84400 | 24,4 °C |
| Y | U1-U2 | V1-V2 | W1-W2 | AVERAGE | MIN | AMBIENT TEM. |
| | | | | | | °C |

resistance curve when break off electricity



| | | | | |
|---------------------------------|---------|----------------------------------|-------|---|
| resistance value at 0 sec (Ω) | 1,0315 | calculation value of temp.rising | 57,33 | K |
| 30 S (Ω) | 1,0258 | calculation value of temp.rising | 55,58 | K |
| full load current | 14,55 A | modify value of temp. rising | 56 | K |

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| Voltage | 400 | V | Current | 14,55 | A | Frequency | 50,0 | | KW |
| Speed | 1461 | r/min | Duty | S1 | | Connection | Δ | | HZ |
| Ins.class | F | | Weight | 84 | Kg | | | | IP55 |

LOAD TEST

| V | HZ | I1 | I2 | I3 | mul. | W1 | W2 | mul. | RPM | Resista nce Ω | Temper ature °C | Torqu e N.m |
|-------|-------|-------|-------|-------|------|--------|--------|------|--------|------------------|--------------------|----------------|
| 400,0 | 49,99 | 3,998 | 4,023 | 3,987 | 5 | 770,8 | 1608,2 | 5 | 1440,5 | 1,0458 | 86,3 | 68,92 |
| 400,0 | 50,00 | 3,451 | 3,474 | 3,439 | 5 | 641,7 | 1388,8 | 5 | 1450,3 | 1,0494 | 87,4 | 59,06 |
| 400,5 | 49,98 | 2,942 | 2,963 | 2,931 | 5 | 508,2 | 1184,4 | 5 | 1459,5 | 1,0494 | 87,4 | 49,48 |
| 400,0 | 49,99 | 2,621 | 2,635 | 2,604 | 5 | 423,6 | 1049,2 | 5 | 1465,4 | 1,0467 | 86,6 | 42,95 |
| 400,2 | 49,99 | 2,298 | 2,311 | 2,284 | 5 | 324,3 | 914,3 | 5 | 1471,5 | 1,0451 | 86,1 | 36,10 |
| 400,2 | 50,00 | 1,793 | 1,805 | 1,778 | 5 | 150,2 | 690,7 | 5 | 1481,3 | 1,0409 | 84,8 | 24,01 |
| 400,1 | 49,98 | 1,510 | 1,519 | 1,494 | 5 | 12,2 | 537,6 | 5 | 1487,5 | 1,0357 | 83,2 | 15,18 |
| 400,0 | 50,00 | 3,207 | 3,289 | 3,148 | 2 | -319,6 | 511,2 | 2 | 1498,7 | 1,0298 | 81,4 | 0,35 |
| 400,2 | 50,00 | 3,204 | 3,191 | 3,154 | 2 | -571,5 | 718,1 | 2 | 1500,0 | 1,0184 | 77,9 | 0,0 |

slope A= 0,03342 intercept B= 12,64 relative coefficient r= 0,988

| LOAD % | P2 W | I A | P1 W | Pcu1s W | Ss % | Pcu2s W | Ps W | Pz W | N.m | EFF % | P.F |
|--------|---------|--------|---------|------------|---------|------------|---------|---------|------|----------|-------|
| 150,0 | 11250 | 21,6 | 12883,0 | 720,4 | 4,325 | 517,6 | 186,6 | 1654,9 | 74,7 | 87,3 | 0,862 |
| 125,0 | 9375 | 17,9 | 10563,5 | 495,8 | 3,469 | 342,5 | 126,8 | 1195,5 | 61,6 | 88,7 | 0,852 |
| 100,0 | 7500 | 14,6 | 8344,2 | 327,9 | 2,619 | 204,8 | 80,2 | 843,3 | 49,0 | 89,9 | 0,828 |
| 75,0 | 5625 | 11,5 | 6215,6 | 205,5 | 1,894 | 110,2 | 44,4 | 590,4 | 36,4 | 90,5 | 0,779 |
| 50,0 | 3750 | 8,9 | 4171,3 | 123,4 | 1,246 | 48,0 | 19,3 | 421,0 | 24,0 | 89,9 | 0,674 |
| 25,0 | 1875 | 7,0 | 2191,6 | 75,8 | 0,631 | 12,1 | 4,8 | 323,0 | 12,0 | 85,6 | 0,452 |

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| Voltage | 400 | V | Current | 14,55 | A | Frequency | 50,0 HZ | | |
| Speed | 1461 | r/min | Duty | S1 | | Connection | Δ | | |
| Ins.class | F | | Weight | 84 | Kg | | IP55 | | |

Load Curve

