# **PRODUCT INFORMATION PACKET**

Model No: LM28910 Catalog No: LM28910 Elevator Duty Motor, 60 & 75 HP, 3 Ph, 60 & 60 Hz, 230/460 & 230/460 V, 1800 & 1800 RPM, 364T Frame, DP



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## Nameplate Specifications

| Phase                  | 3                     | Output HP                  | 60 & 75 Hp          |
|------------------------|-----------------------|----------------------------|---------------------|
| Output KW              | 45.0 & 56.0 kW        | Voltage                    | 230/460 & 230/460 V |
| Speed                  | 1785 & 1785 rpm       | Service Factor             | 1.0 & 1.0           |
| Frame                  | 364T                  | Enclosure                  | Drip Proof          |
| Thermal Protection     | No Protection         | Efficiency                 | 93.6 & 93.6 %       |
| Ambient Temperature    | 40 °C                 | Frequency                  | 60 & 60 Hz          |
| Current                | 145/72.5 & 179/89.5 A | Power Factor               | 82                  |
| Duty                   | 120/80 Starts/Hour    | Insulation Class           | F                   |
| Design Code            | INV                   | KVA Code                   | F                   |
| Drive End Bearing Size | 313                   | Opp Drive End Bearing Size | 311                 |
| UL                     | Recognized            | CSA                        | Υ                   |
| CE                     | Y                     | IP Code                    | 22                  |
| Number of Speeds       | 1                     |                            |                     |

# **Technical Specifications**

| Electrical Type       | Squirrel Cage Induction Run | Starting Method       | Wye Start Delta Run |
|-----------------------|-----------------------------|-----------------------|---------------------|
| Poles                 | 4                           | Rotation              | Reversible          |
| Resistance Main       | .106 Ohms                   | Mounting              | Rigid Base          |
| Motor Orientation     | Horizontal                  | Drive End Bearing     | Ball                |
| Opp Drive End Bearing | Ball                        | Frame Material        | Rolled Steel        |
| Shaft Type            | т                           | Overall Length        | 28.40 in            |
| Frame Length          | 15.48 in                    | Shaft Diameter        | 2.375 in            |
| Shaft Extension       | 5.88 in                     | Assembly/Box Mounting | F1/F2 CAPABLE       |
| Outline Drawing       | XH2D1SS1-1548               | Connection Drawing    | A-EE7308AA-LN       |

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| T                | 12 _                               |                                    |      | A-EE7308AA-LN  |
|------------------|------------------------------------|------------------------------------|------|--|
| T<br>T<br>T      | 6 _<br>7 _                         |                                    |      |  |
| T<br>T<br>T      | 2 –<br>4 –<br>8 –                  | L2                                 |      |  |
| T<br>T<br>T<br>T | 3 –<br>5 –<br>9 –                  | L3                                 |      | TI2<br>TI<br>T9<br>T12<br>T12<br>T12<br>T12<br>T12<br>T12<br>T12<br>T12<br>T12<br>T12                            |
|                  |                                    |                                    |      |  |
|                  | T   2 -<br>T   -<br>T 4 -<br>T 7 - |                                    |      | T3 T8 T5 T10 T5<br>T5 T8 T5 T10 T5 T5<br>T11 T2 T8 T5 T11  |
|                  | T2 -<br>TI0-<br>T5 -               | L2                                 |      |  |
|                  | 18 –<br>T3 –<br>TII–<br>T6 –       | L3                                 |      | VIEW OF TERMINAL END   |
|                  | т9 —<br>Н                          | HIGH VOLTAGE                       |      |  |
|                  |                                    |                                    |      | UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES<br>TOL. ON XX±.02 XXX±.005 XXXX±.0005 ANGLES±7'30"           |
| 2                | 08-09-1999                         | RE-ISSUE, ADDED '-' TO PART NUMBER | BLR  | R MAX. SURFACE ROUGHNESS<br>UNLESS OTHERWISE NOTED BRAWN TRB 07-16-1999   FINISH FINISH CHKD<br>BY ML 06-18-1999 |
|                  | 06-18-1999                         | NEW DRAWING                        | TRB  | B MATERIAL APPD GK 06-18-1999  |
| REV              | DATE                               | CHANGE                             | NAME | PART NAME 3 PHASE CONNECTION DIAGRAM   |
|                  |                                    | 1                                  | 1    | PURCHASED CADD FILE NO. EE7308AALN   |

ERROR: undefined OFFENDING COMMAND: Pscrip

STACK:



1.0/1.0

40

F4

## **CERTIFICATION DATA SHEET**

#### CONN. DIAGRAM: A-EE7308AA-LN OUTLINE: XH2D1SS1-1548

230/460&230/460

145/72.5&179/89.5

**WINDING #:** C3644009 R2 1

3 60/60

CATALOG : LM28910

MOUNTING: F1/F2 CAPABLE

120/80 STARTS/HOUR

## TYPICAL MOTOR PERFORMANCE DATA

| HP    | kW        | SYNC. RPM | F.L       | RPM  | FRAME  | ENCLOSURE | KV | A CODE | D    | ESIGN |
|-------|-----------|-----------|-----------|------|--------|-----------|----|--------|------|-------|
| 60&75 | 45.0&56.0 | 1800      | 1785&1785 |      | 364T   | DP        |    | F      |      | INV   |
|       |           |           |           |      |        |           |    |        | -    | -     |
| PH Hz | VOLTS     | AMPS      |           | STAR | Τ ΤΥΡΕ | DUTY      |    | INSL   | S.F. | АМВ∘С |

| FULL LOAD EFF: | 93.6&93.6 | 3/4 LOAD EFF: | 94.1 | 1/2 LOAD EFF: | 93 | GTD. EFF | ELEC. TYPE      |
|----------------|-----------|---------------|------|---------------|----|----------|-----------------|
| FULL LOAD PF:  | 82&83.5   | 3/4 LOAD PF:  | 77   | 1/2 LOAD PF:  | 68 | 92.4     | SQ CAGE IND RUN |

WYE START DELTA RUN

| F.L. TORQUE LOCKED ROTOR AMPS |           | L.R. TORQUE            | B.D. TORQUE            | F.L. RISE°C |
|-------------------------------|-----------|------------------------|------------------------|-------------|
| 177 <b>LB-FT</b>              | 870 / 435 | 325 <b>LB-FT</b> 184 % | 450 <b>LB-FT</b> 254 % | 65          |

| SOUND PRESSURE<br>@ 3 FT. | SOUND POWER   | ROTOR WK^2 | MAX. WK^2 | SAFE STALL TIME | STARTS /<br>HOUR | APPROX.<br>MOTOR WGT |
|---------------------------|---------------|------------|-----------|-----------------|------------------|----------------------|
| 76 <b>dBA</b>             | 86 <b>dBA</b> | 0 LB-FT^2  | - LB-FT^2 | - SEC.          | -                | - LBS.               |

#### **\*\*\* SUPPLEMENTAL INFORMATION \*\*\***

| DE BRACKET<br>TYPE | ODE BRACKET<br>TYPE | MOUNT<br>TYPE | ORIENTATION | SEVERE<br>DUTY | SEVERE HAZARDOUS<br>DUTY LOCATION |       | SCREENS | PAINT          |  |
|--------------------|---------------------|---------------|-------------|----------------|-----------------------------------|-------|---------|----------------|--|
| STANDARD           | STANDARD            | RIGID         | HORIZONTAL  | FALSE          | NONE                              | FALSE | NONE    | GRAY - LINCOLN |  |

| BEARINGS |      | CDEASE     |                   |      |             | SHAFT                   | FRAME        |  |
|----------|------|------------|-------------------|------|-------------|-------------------------|--------------|--|
| DE       | ODE  | GREASE     | GREASE SHAFT TYPE |      | SPECIAL ODE | MATERIAL                | MATERIAL     |  |
| BALL     | BALL |            |                   |      | NONE        |                         |              |  |
| 313      | 311  | POLYREX EM | I                 | NONE | NONE        | 1045 HOT ROLLED (C-204) | ROLLED STEEL |  |

|             | THERMO-PROTE | CTORS    |          | THEDMISTORS                               | CONTROL | SPACE HEATERS     |  |
|-------------|--------------|----------|----------|---|---------|-------------------|--|
| THERMOSTATS | PROTECTORS   | WDG RTDs | BRG RTDs | THERMISTORS                               | CUNTRUL |                   |  |
| NONE        | NOT          | NONE     | NONE     | NONE                                      | FALSE   | NONE <b>Volts</b> |  |
| *           |              |          | II       | NVERTER TORQUE: NO<br>NV. HP SPEED RANGE: | NONE    |                   |  |
| Ν           |              |          | E        | NCODER: NONE                              |         |                   |  |
| 0           |              |          | N<br>N   | one none<br>one none Pi                   | PR      |                   |  |
| т           |              |          | B        | RAKE: NONE NOR<br>ONE P/N NONE            | NE      |                   |  |
| E           |              |          | N<br>N   | ONE NONE<br>ONE FT-LB NONE                | V NONI  | E Hz              |  |

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|                       |       |              |             |              | Data           | Sheet        |                |               |                       |                    |        |
|-----------------------|-------|--------------|-------------|--------------|----------------|--------------|----------------|---------------|-----------------------|--------------------|--------|
|                       | Date: | 1/:          | 31/2018     |              |                |              | <b>n</b>       |               | LM28910               |                    | -      |
|                       |       |              |             |              | ∎∃⊒            | SON          |                |               |                       |                    |        |
|                       |       |              |             |              |                |              | J              |               | Data                  | @ <b>460</b>       | v      |
|                       |       |              |             |              | Mote           | or Load Data | 6              |               | Data                  | e -00              | •      |
| Load                  |       | 0%           | 25%         | 50%          | 75%            | 100%         | 115%           | 125%          | LR                    |                    |        |
| Current (Amps)        |       | 28.5         | 33.5        | 44.0         | 57.5           | 72.5         | 82.5           | 89.5          | 435                   |                    | _      |
| Torque (ft-lb)<br>RPM |       | 0.00         | 44.0        | 88.0<br>1792 | 132            | 177          | 203            | 221<br>1780   | 325                   | -                  |        |
| Efficiency (%)        |       | 1000         | 89.5        | 93.0         | 94.1           | 93.6         | 93.6           | 93.6          | 0                     |                    | _      |
| P.F. (%)              |       | 5.0          | 46.5        | 68.0         | 77.0           | 82.0         | 83.0           | 83.5          | 34.0                  |                    |        |
|                       |       |              | Motor Speed | Data         |                |              | _              |               |                       |                    |        |
|                       |       | LR           | Pull-Up     | BD           | Rated          | Idle         |                |               |                       |                    |        |
| Speed (RPM)           |       | 0            | 900         | 1700         | 1785           | 1800         |                |               | nformation Block      |                    |        |
| Current (Amps)        |       | 435          | 390         | 280          | 72.5           | 28.5         | HP<br>Sync BPM |               | 60.0                  |                    |        |
| Torque (It-Ib)        |       | 323          | 290         | 430          | 177            | 0.00         | Frame          |               | 364                   |                    |        |
|                       | — Ef  | ficiency (%) | — P.F. (%   |              | Current (Amps) |              | Enclosure      |               | DP                    |                    |        |
| 100.0                 |       |              |             |              |                | 100.0        | Construction   |               | TDR                   |                    |        |
|                       |       |              |             |              |                |              | Voltage        |               | 230/460#230/460       | V                  |        |
|                       |       |              |             |              | /              | 90.0         | Frequency      |               | 60                    | Hz                 |        |
| 90.0                  |       |              |             |              |                |              | Design         |               | В                     |                    |        |
| E                     |       |              |             |              |                | 80.0         | LR Code letter | r             | G 1 15                |                    |        |
| F 80.0                |       |              |             | $\nearrow$   |                | 70.0         | Temp Rise @    | FL            | 65                    | °C                 |        |
| F                     |       |              |             |              |                | A            | Duty           |               | 60 MIN                |                    |        |
| 70.0                  |       |              |             |              |                | 60.0 P       | Ambient        |               | 40                    | °C                 |        |
| P                     |       |              |             |              |                | S            | Elevation      | .0            | 1,000                 | feet               |        |
| F                     |       |              |             |              |                | 50.0         | Rotor/Shart wi | <u> </u>      | 0.00<br>C3644009 B2   | LD-Ft <sup>2</sup> |        |
| 60.0                  |       |              |             |              |                | 40.0         | no. Ha         |               |                       |                    |        |
|                       |       | Λ            |             |              |                |              | Sound Pressu   | ire @1M       | 76                    | dBA                |        |
| 50.0                  | ~     | /            |             |              |                | 30.0         | VFD Rating     |               | NONE                  |                    |        |
|                       | /     |              |             |              |                | 20.0         | Outline Dwg    |               | XH2D1SS               | 1-1548             |        |
| 10.0                  |       |              |             |              |                | 20.0         | Conn. Diag     |               | A-EE7308              | AA-LN              |        |
| 40.0                  |       |              |             |              |                | 10.0         | Additional Spe | ecifications: |                       |                    |        |
|                       |       |              |             |              |                |              | 0              |               |                       |                    |        |
| 30.0                  | 2001  | 1000         |             |              | 1200/          | 0.0          |                | EQU           | IV CKT (OHMS / PHASE) |                    |        |
| 0%                    | 20%   | 40%          | LOAD        | % 100%       | 120%           | 140%         | 0.0710         | 0.0330        | 0.3640                | 0.5160             | 9.2240 |
|                       |       |              |             |              |                |              |                |               | •                     |                    |        |
|                       |       |              |             |              | Speed -        | Torque C     | urve           |               |                       |                    |        |
|                       |       |              |             |              | •              | •            |                |               |                       |                    |        |
|                       |       |              |             |              | Torque         |              | Amps           |               |                       |                    |        |
| 500.0                 |       |              |             |              |                |              |                |               |                       | 500.0              |        |
| 150.0                 |       |              |             |              |                |              |                |               |                       |                    |        |
| 450.0                 |       |              |             |              |                |              |                |               |                       | 450.0              | ,      |
| 400.0                 |       |              |             |              |                |              |                |               |                       | 400.0              | ,      |
|                       |       |              |             |              |                |              |                |               |                       |                    |        |
| 350.0                 | -     |              |             |              |                |              | $\succ$        |               |                       | 350.0              | n      |
|                       |       |              |             |              |                |              |                |               |                       |                    |        |
| T 300.0               |       |              |             |              |                |              |                |               |                       | 300.0              | A      |
|                       |       |              |             |              |                |              |                |               |                       |                    | м      |
| Q 250.0               |       |              |             |              |                |              |                |               |                       | 250.0              | S P    |
| U<br>F 200.0          |       |              |             |              |                |              |                |               |                       | 200.0              |        |
|                       |       |              |             |              |                |              |                |               |                       |                    |        |
| 150.0                 |       |              |             |              |                |              |                |               |                       | 150.0              | .      |
|                       |       |              |             |              |                |              |                |               |                       |                    |        |
| 100.0                 |       |              |             |              |                |              |                |               |                       | 100.0              |        |
|                       |       |              |             |              |                |              |                |               |                       |                    |        |
| 50.0                  |       |              |             |              |                |              |                |               |                       | 50.0               |        |
|                       |       |              |             |              |                |              |                |               |                       | _                  |        |
| 0.0                   | 0     | 200          | 400         | 600          | 800            | 1000         | 1200           | 1400          | 1600 1800             | 2000               |        |
|                       |       |              |             |              |                |              |                |               |                       |                    |        |
| 11                    |       |              |             |              |                | RPM          |                |               |                       |                    |        |