

Installation Guide and Support Manual

# PHOENIX

## Phase Converters

# GP50NL







| GENERAL SPECIFICATIONS |             |
|------------------------|-------------|
| HP 5                   | 50          |
| KW                     | 37.3        |
| KVA                    | 43.37       |
| HZ                     | 50/60       |
| ENCL                   | TEFC/NEMA 4 |
| FRAME                  | 326T        |
| IDLER WEIGHT           | 600.8       |
| PANEL WEIGHT           | 57          |

| CONSTRUCTION, DIMENSIONS, WEIGHT |                                          |
|----------------------------------|------------------------------------------|
| ELECTRICAL PANEL                 |                                          |
| ENCLOSURE TYPE                   | NEMA 4                                   |
| ENCLOSURE CERTIFICATIONS         | UL 508A (CSA C22.2 No. 14-13.), TUV, CE. |
| COLOR                            | Light Gray                               |
| HEIGHT                           | 24                                       |
| WIDTH                            | 24                                       |
| DEPT                             | 8                                        |
| MOUNTING                         | WALL MOUNT                               |

| SINGLE PHASE ELECTRICAL SPECS   |          |
|---------------------------------|----------|
| VOLTAGE INPUT                   | 208-250V |
| MOTOR LOAD BREAKER Minimum Size | 80       |
| MOTOR LOAD BREAKER Maximum Size | 250      |
| SERVICE KVA Minimum Size        | 75       |
| SERVICE AMPS Minimum Size       | 312      |
| COPPER WIRE Minimum Size        | 2/0      |

| THREE PHASE ELECTRICAL SPECS   |                     |
|--------------------------------|---------------------|
| VOLTAGE OUTPUT                 | 208-230 Volts Delta |
| MAX OUTPUT INDUCTIVE LOAD AMPS | 130                 |
| MAX OUTPUT RESISTIVE LOAD AMPS | 70                  |
| VOLTAGE BALANCING              | +/- 2%              |
| WIRE SIZE MIN Idler/Generator  | 208-230 Volts Delta |
| LARGEST SPINDLE MOTOR START    | 25                  |
| LARGEST COMPRESSOR LOAD START  | 20                  |
| TOTAL COMBINED HORSEPOWER RUN  | 50                  |

- Optional Feature
- 208, 460 Volt Output (includes transformer)
  - AutoStart and AutoOff with load detection
  - PL Model (includes Start and Stop with Built-in Mag Starter)
  - GPX Model (includes WFI Cloud Controls, Timers, Energy Monitor)
  - Wireless Remote ON/OFF

PHOENIX PHASE CONVERTERS

800-417-6568

# CAUTION

## READ INSTRUCTIONS BEFORE OPERATING

## READ FIRST - BEFORE INSTALLATION

- **Most important step to know.**
- NEVER Start the phase converter with a load, this includes transformers.
- Make sure you have the incoming service to start the phase converter, call your electric company verify the KVA size of the transformer, that KVA number should be larger then the HP of the idler motor.
- **DO NOT use WIRE NUTS for any connection, use the bolt down lugs. Check all make sure all connections even factory connections to the power block are secure, also recheck connections after a few week of using the converter.**
- When powering up the unit, if the idler does **NOT** come up to **FULL SPEED**, then shut the phase converter down right away. If you don't understand then call us or a qualified electrician. if you do not turn the unit **off** you have a chance to damage the idler motor that will **not be covered under warranty**.
- Must be installed by a license industrial electrician, our guidelines are not to supersede local and state laws.



# Power requirements

- You will need to use a **motor load** type breaker. NOT a quick blow or trip breaker.
- Sizing a breaker for a single machine with an inductive load (motors) double the amps size of the machine. Example if the equipment pulls 20 amps use a 40 amp breaker.
- Sizing the equipment for multiple machine double the amp of the largest machine and add the the other machine that will run at the same time. Example; 20 AMP Lathe. 9 amp saw, 6 amp milling machine.  $20 \times 2 = 40 + 9 + 6 = 45$  amps, use the next standard size breaker which would be 50 Amps two pole breaker.
- Use the chart to make sure you don't go over or under the Minimum and maximum size allowed. For rural areas increase the minimum size breaker by 20% Click on the next picture to see this chart.

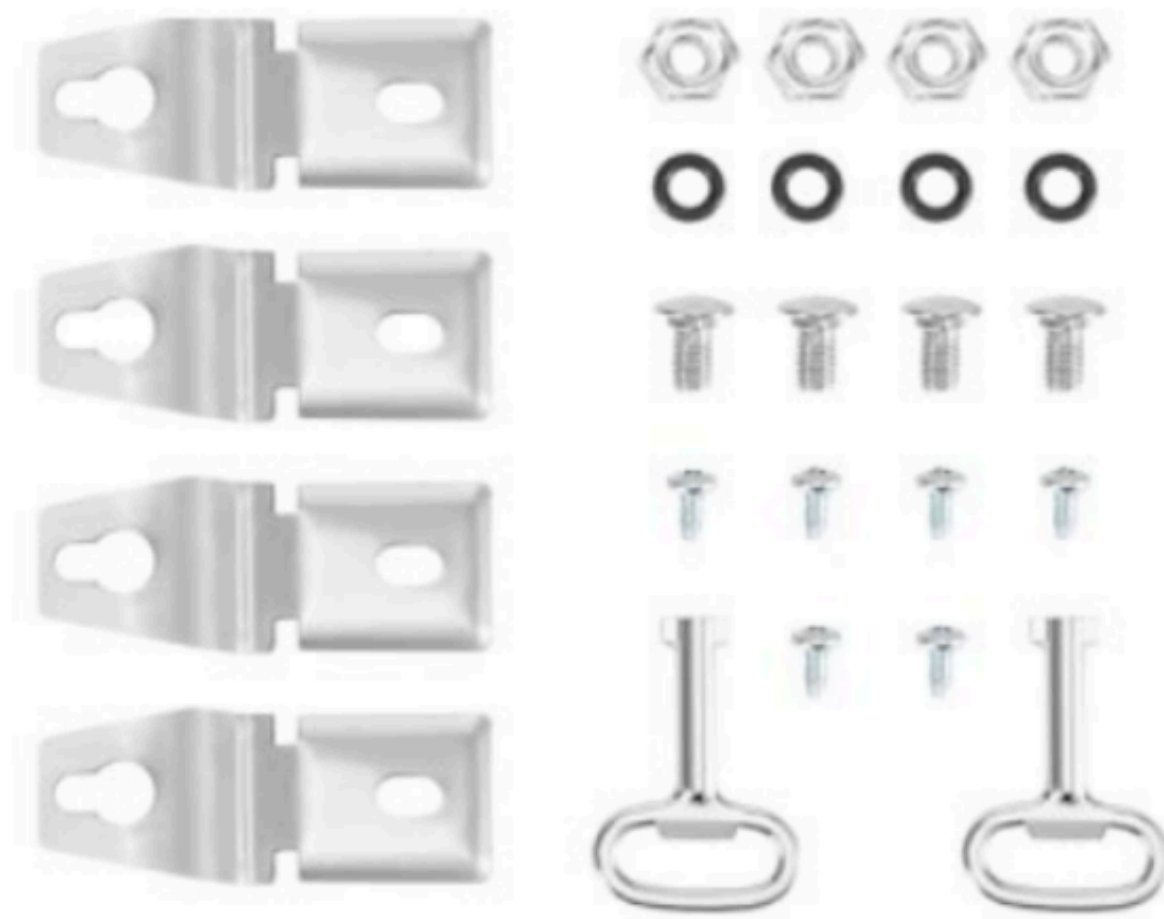
GP50

| WIRE AND BREAKER SIZES |                                 |
|------------------------|---------------------------------|
| SINGLE PHASE           | 3/0 AWG Copper<br>under 50 feet |
| IDLER MOTOR            | 1 AWG COPPER                    |
| BREAKER/FUSE           | 80 MIN / 250 MAX                |



# Mounting the Phase Converter Panel

Mount the enclosure first, to a non-vibrating surface, there are two options provided for mounting, next install the back plate with the four nuts provided. Mounting the phase converter panel near the breaker panel is recommended the larger wire is you single phase line, that is best to keep as short as possible. Every 50 feet you will need to increase the size of the single phase wire.



Additional mounting brackets and hardware are inside the enclosure.



Indoor or outdoor enclosure

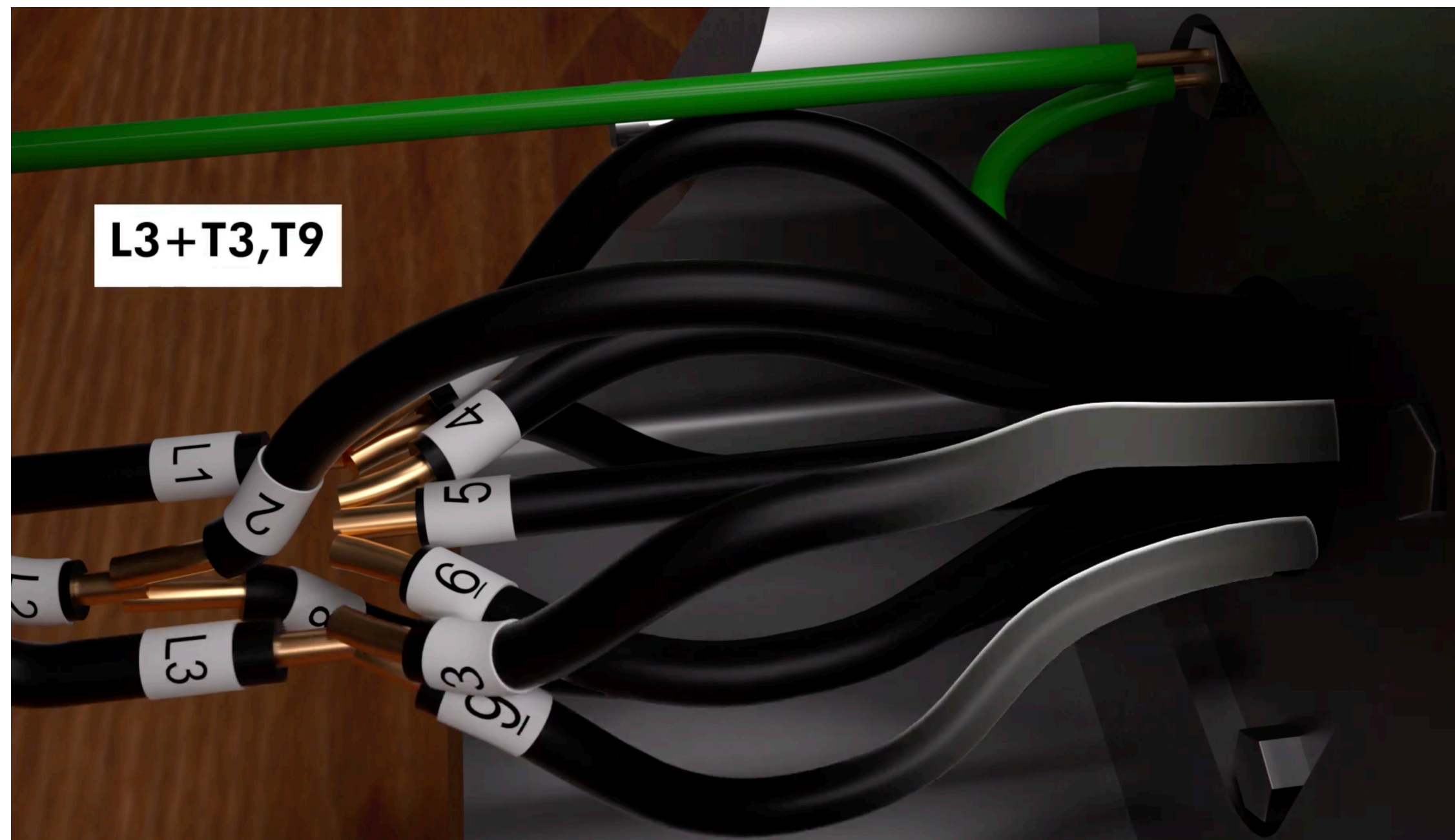




## CONNECTING THE IDLER MOTOR WIRES

THIS IS JUST A ILLUSTRATION OF WHAT WIRES GET CONNECTED TOGETHER, **DO NOT USE WIRE NUTS**, USE BOLT DOWN LUGS

IF YOU HAVE 9 LEADS AT  
THE MOTOR CLICK HERE



IF YOU HAVE 12 LEADS AT  
THE MOTOR CLICK HERE

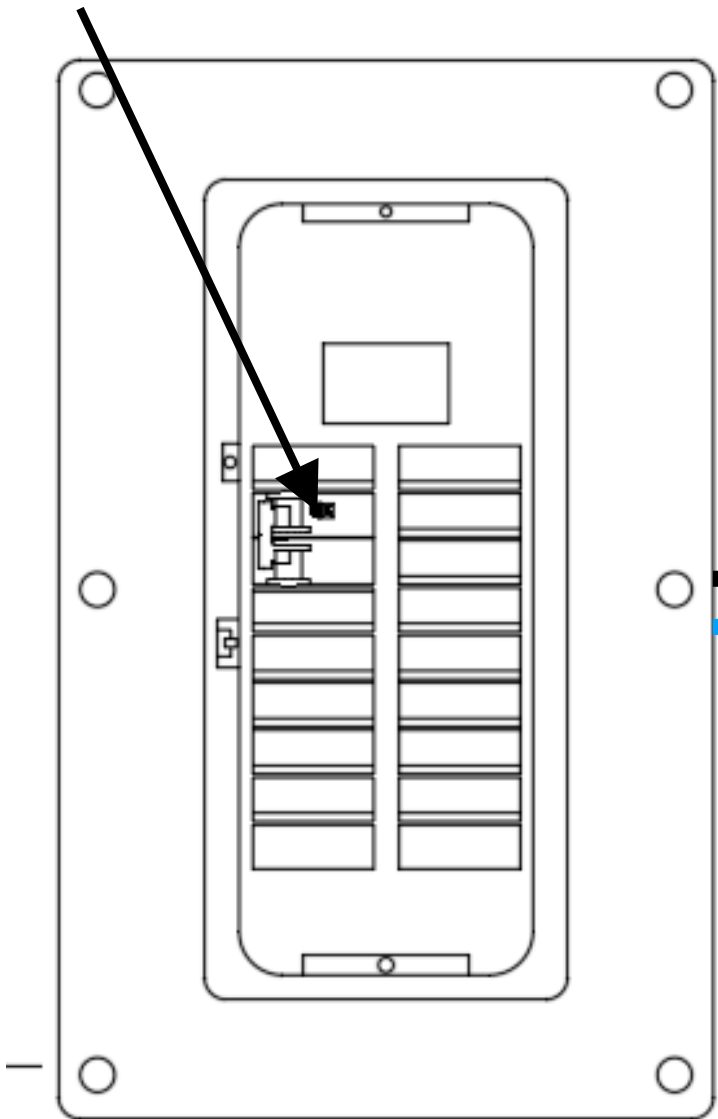




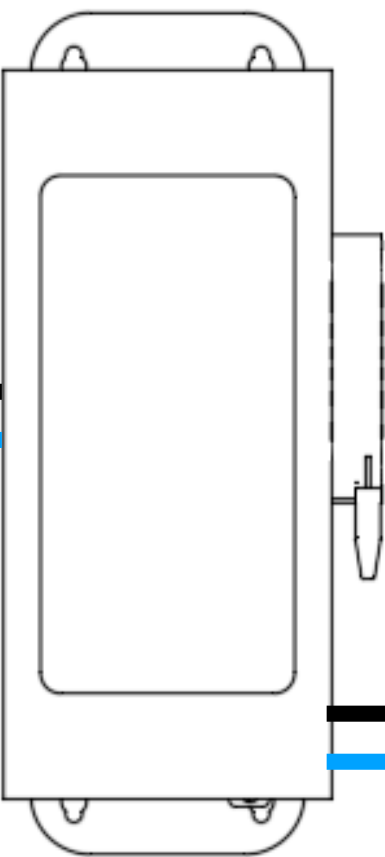
# PL AND PH MODELS

MUST BE INSTALLED BY A INDUSTRIAL LICENSED ELECTRICIAN

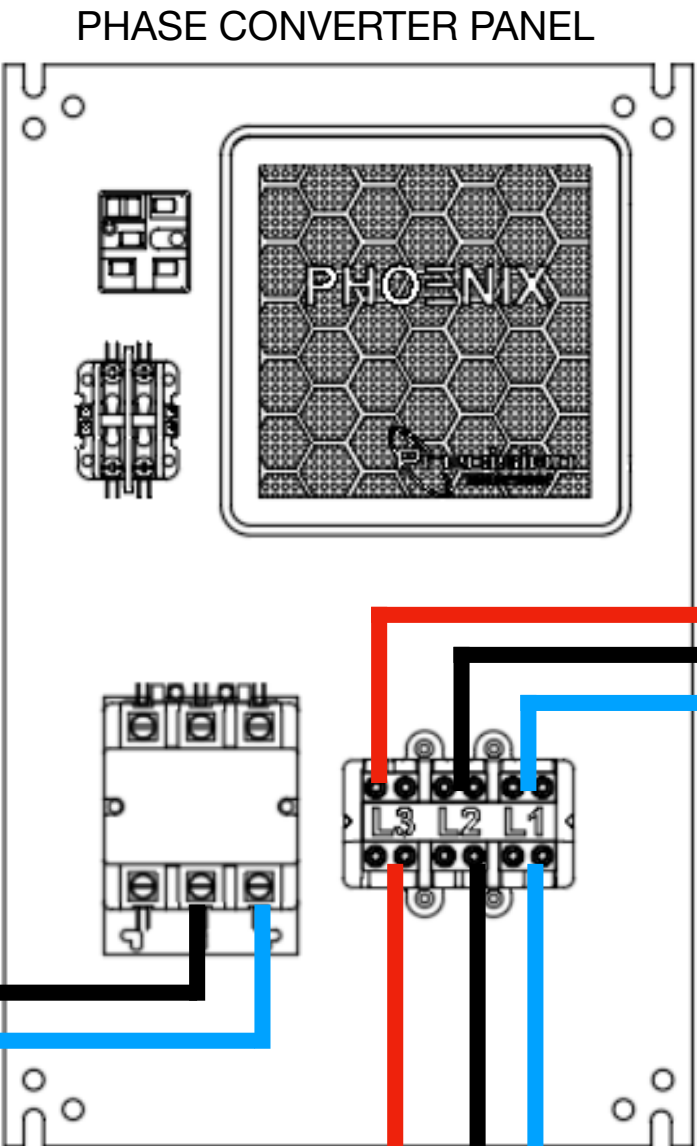
Motor Load Breaker should be size  
Twice the full load amps of your  
equipment



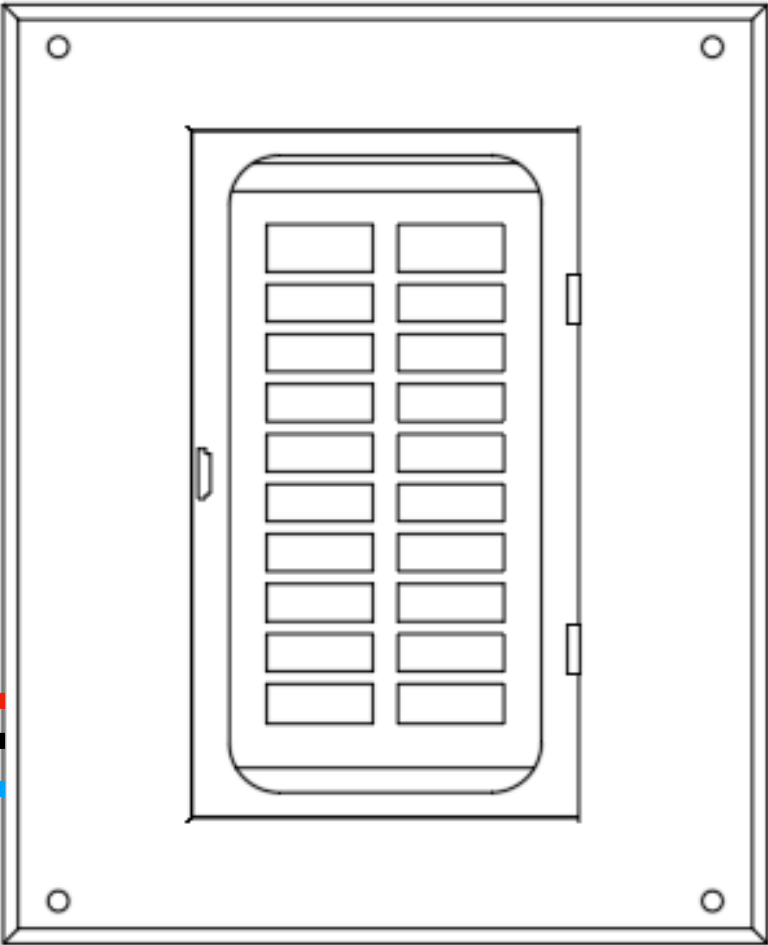
SINGLE PHASE CIRCUIT  
BREAKER PANEL



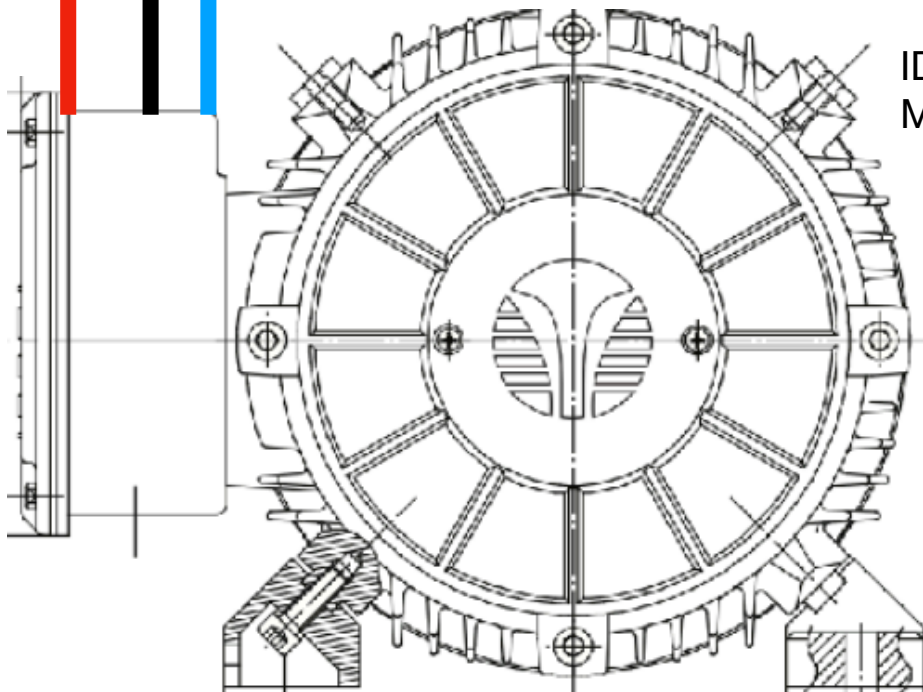
DISCONNECT  
SHOULD BE USED  
IF YOUR RUN IS  
OVER 50 FEET



PHASE CONVERTER PANEL



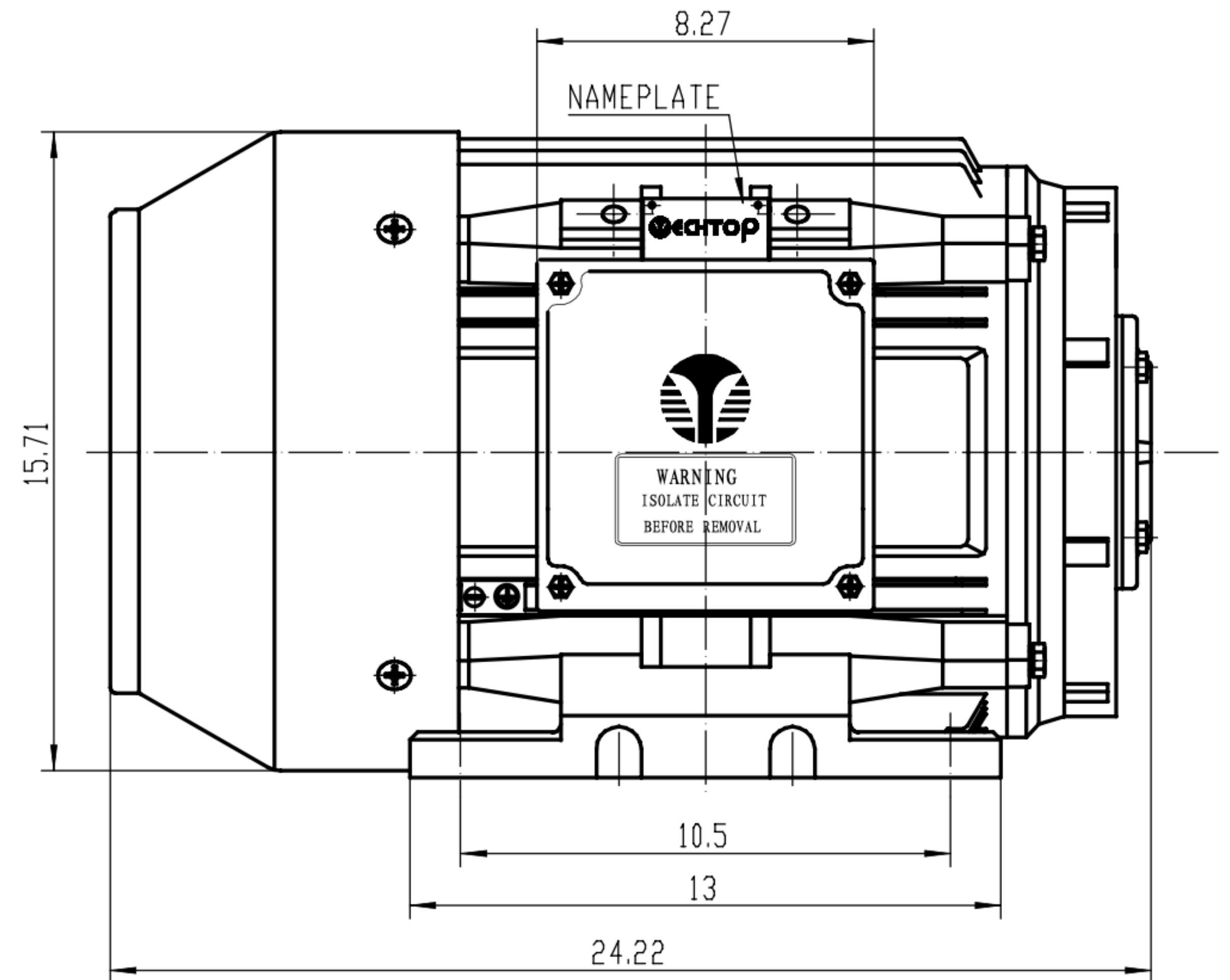
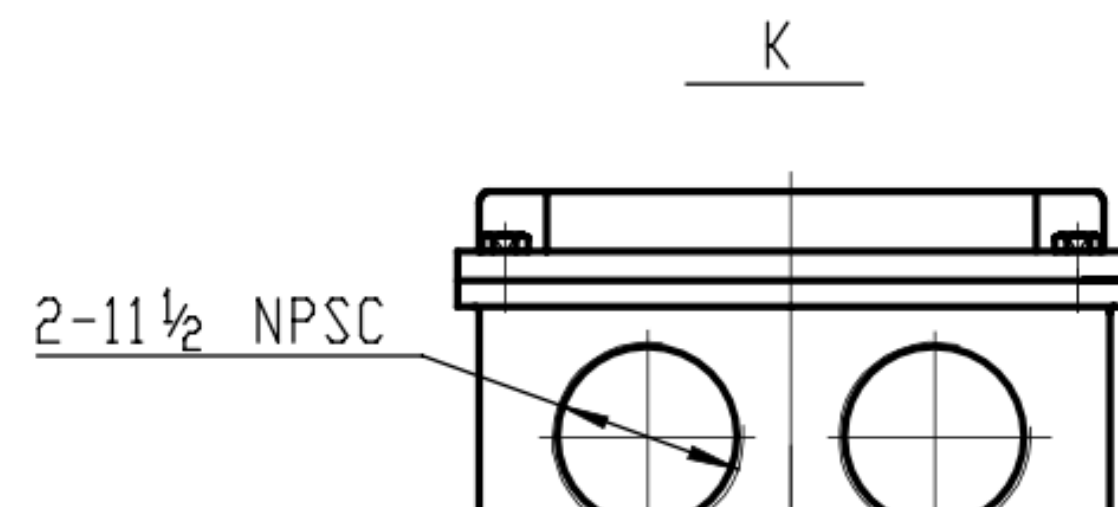
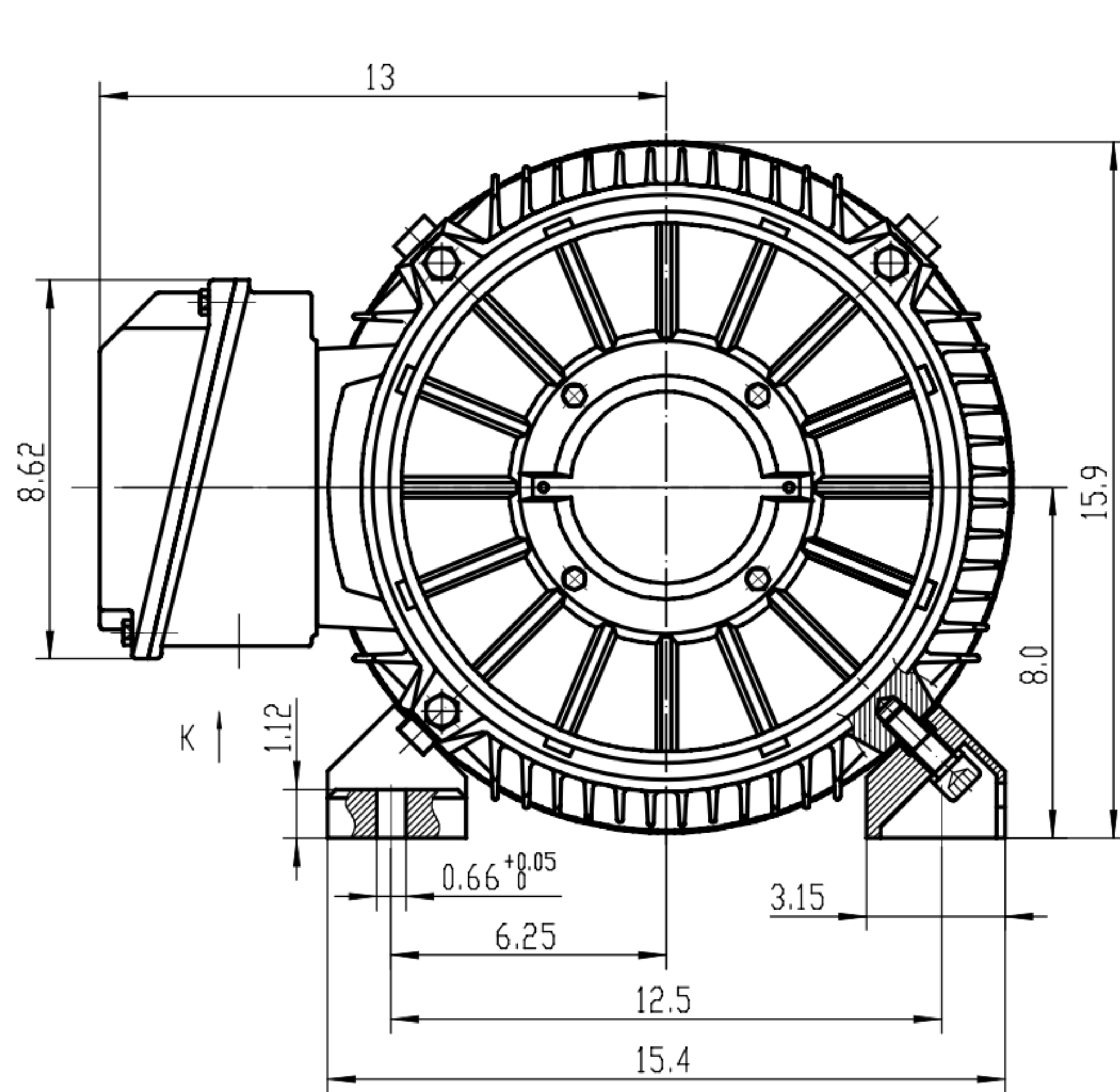
LOAD CENTER,  
3PH BREAKER  
PANEL, OR  
EQUIPMENT



IDLER/GENERATOR  
MOTOR

230V Connection for NL and PL Models (low voltage)

460V Connection for NH and PH Models (high voltage)



Weight: 50 HP = 600.8 lbs







# 50 HP Rotary Phase Converter Components

| Item Number | Description<br>(Click on the description to visit the link to that item)                             | Quantity in Model | Price                   | SKU#<br>(Click on 3D viewing) |
|-------------|------------------------------------------------------------------------------------------------------|-------------------|-------------------------|-------------------------------|
| 9           | <a href="#">Relay</a>                                                                                | 1                 | <a href="#">47.00</a>   | GP90-66                       |
|             | <a href="#">Complete Run Bank Assembly - Prewired</a>                                                | 1                 | 490.00                  | *                             |
| 27          | <a href="#">3 Pole Contactor 75 amp - 230V</a>                                                       | 1                 | <a href="#">182.90</a>  | <a href="#">C375C</a>         |
| 4           | <a href="#">9 Bank Start and Run Capacitor Holder Only with Base</a>                                 | 1                 | <a href="#">239.00</a>  | CB409HO                       |
| 2           | <a href="#">3 Phase Power Block</a>                                                                  | 1                 | <a href="#">395.00</a>  | <a href="#">GPB603</a>        |
| 3           | <a href="#">630 MFD 220V Start Capacitor</a>                                                         | 3                 | <a href="#">24.14</a>   | <a href="#">PTMJ630</a>       |
| 5           | <a href="#">100 MFD 370V Run Capacitor</a>                                                           | 1                 | <a href="#">26.00</a>   | <a href="#">TRC100</a>        |
| 1           | <a href="#">Complete Capacitor Start Bank Assembly - Prewired</a>                                    | 1                 | <a href="#">490.00</a>  | <a href="#">CB30230</a>       |
| *           | <a href="#">Complete Back Plate Assembly - Prewird PL Model. (with Start and Stop Button)</a>        | 1                 | 2750..                  | CBA50NL                       |
| *           | <a href="#">Complete Panel with NEMA 4 Enclosure - Prewird NL Model (with Start and Stop Button)</a> | 1                 | 2935.00                 | GP50NLPO                      |
| *           | <a href="#">Idler Motor</a>                                                                          | 1                 | 3175.00                 | *                             |
| *           | <a href="#">Complete Unit Phase Converter Panel (NL Model) and Idler/Generator Motor</a>             | 1                 | <a href="#">5760.00</a> | <a href="#">GP50NL</a>        |

