Assembly Instructions
Battery Racks

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Alpha Industrial Power Inc
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Power
Battery Rack Assembly Instructions

Note:
Installer is cautioned to review the drawings and illustrations contained in this manual before proceeding. If there are questions regarding the safe operation of the installation of the racks, please contact Alpha Industrial Power or your nearest Alpha representative.

Note:
Alpha Industrial Power shall not be held liable for any damage or injury involving its enclosures, power supplies, generators, batteries, or other hardware if used or operated in any manner or subject to any condition not consistent with its intended purpose, or is installed or operated in an unapproved manner, or improperly maintained.

Contacting Alpha Industrial Power:

www.alpha.com

OR

For general product information and customer service (8AM to 5PM, Eastern Time) call
1-800-996-6104

For complete technical support, call
1-800-996-6104
1.0 Introduction

These instructions detail the proper assembly of Alpha battery racks.

Note:
Use a crew of at least two persons trained in handling, installing, operating, and maintaining batteries and battery systems to assemble the battery racks. Rack components must be assembled and secured on-site in accordance with these assembly instructions and all applicable codes and laws.

During assembly procedure, do not tighten the hardware until the final step. This will prevent hole alignment problems due to tolerance stacking. Once the battery rack is assembled, tighten all the hardware to its specified torque.

1.1 Tools required:

- Chalk line
- 13mm wrench
- Torque wrench (0-250 in-lbs)
- 13mm socket
- Concrete drill with bit for anchor bolts (when applicable)
- Level
- Multimeter (grounding verification)
- Measuring Tape

Note:
Inspect contents upon receipt. If items are damaged or missing, immediately contact Alpha Industrial Power and the shipping company. Most shipping companies have only a short claim period.

Do not proceed with the installation of the battery rack if parts are missing or damaged.
1.0 Introduction, continued

1.1 Parts List

Please refer to the bill of material enclosed with each rack. Each battery rack is unique and will contain different parts for each configuration.

1.2 Pre-installation

✓ Note:
The following items must be addressed prior to assembly and installation.

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2.0 Assembly Procedure

2.1 Determine the type of battery rack you are installing. Every battery rack will be marked with the rack type, depth of the rack and the length of the battery rack.

**2P – 350 / 2700**

<table>
<thead>
<tr>
<th>Total Length of the rack in mm</th>
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<tbody>
<tr>
<td>Total Depth of the rack in mm</td>
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</table>

Battery Rack Type (see section 2.2)

1P ~ 1 Battery Row

Depths(B): 250; 350; 450; 550; 650

2P ~ 2 Tier – single row

Depths(B): 350; 500; 550; 650

3P ~ 3 Tier – single row

Depths(B): 350; 650

4P ~ 4 Tier – single row

Depths(B): 500
2.1 Rack Type continued

2G ~ 2 Step
Depths(B): 470; 570; 670; 870

3G ~ 3 Step
Depths(B): 690; 990; 1260

4G ~ 4 Step
Depths(B): 1110

2P - 2G ~ 2 Tier - 2 Step
Depths(B): 470; 670

2P - 3G ~ 2 Tier - 3 Step
Depths(B): 670; 690

2P - 4G ~ 2 Tier - 4 Step
Depths(B): 1110
2.2 Identify the parts required to construct the battery rack.

![Angle Clip “L”](image)

![Angle Clip “D”](image)

![Outside Rail](image)

![Mid-Support Rail](image)

![Support Foot](image)

![M8 Hex Nut](image)

![M8 x 20 Bolt](image)

2.3 Utilizing the footing layout diagram assemble the frames.

![Footing Layout Diagram](image)

NOTE: Frames may or may not be equally spaced
2.4 Assemble the rails to the frame

2.4.1 Attach the rail to the frame with one angle clip “L” and 2 each M8 Bolts

2.4.2 Attach the rail to the intermediate frame with one angle clip “L” & 2 each M8 bolts
2.4.3 Attach the diagonal cross rack bracing (All assemblies will not have bracing)

2.4.4 Level Rack by adjusting the insulated foot.
2.4.5 Installation of middle support rail (if required)

One or more mid-support rails may be required. Space evenly between outside rails. Install procedure same as outside rails. (2.4.1 & 2.4.2)

2.4.6 At this time, verify or torque all hardware to 75 in-lbs (8Nm)

2.4 Installation is now complete for Standard battery racks and the rack is ready for battery installation. Follow the battery layout provided for you installation to install the battery system.

![Diagram of battery rack with middle support rail installed]

**Note:**
For Seismic battery rack installation continue to section 3.0
3.0 Seismic Battery Hardware Installation

**Note:**
For Seismic battery rack installation, perform steps 2.4.1 through 2.4.6. On seismic racks the insulated foot is replaced with a floor flange for bolting the battery rack to the floor. After battery installation follow seismic battery installation instructions.

3.1 Identify the individual components of the seismic installation.

![Wing Nut](attachment:wing_nut.png)

![Flat Washer](attachment:flat_washer.png)

![Battery Hold-down Angle Bar](attachment:battery_hold-down_angle_bar.png)

![Fixing Rod](attachment:fixing_rod.png)

3.2 Some racks may need the installation of the seismic flange to the frame (see figure 3.2.A). With the beveled hole facing down install with the flat head bolt to frame leg. Install the M8 anchor bolts into the slots on the floor foot flange (figure 3.2.B). Pre-drill the anchor holes per the footing layout in section 2.3. When anchor bolts supplied by factory – torque the bolts to 221 in-lbs (25Nm) into concrete floor. For all other surfaces please refer to all local and state building codes.
3.3 Install the batteries onto the racks.

**Note:**
When installing the batteries leave a 10mm spacing between cells to accommodate the fixing rods during the seismic hardware installation.

3.4 Layout the battery hold-down angle bars to verify installation position

3.5 Position the hold-down angle bars onto the batteries. Align the fixing rods with the holes and hook the rod under the outside rail.
3.6 Feed the fixing rod through the holes in the hold-down angle bar. Insert washer and install wing nut until hand tight as shown in figure 3.6.A. Fixing rods are installed in opposite directions on every-other battery spacing (see figure 3.6.B & 3.6.C)

![Figure 3.6.A](image)

3.7 Installation is now complete for **Seismic** battery racks.

![Figure 3.6.B](image) ![Figure 3.6.C](image)

**Note:**
Manufacturer shall not be liable for, and user shall indemnify and save manufacturer harmless from any and all claims and liabilities arising out of the use, maintenance, transportation, or installation of any equipment warranted hereunder. The foregoing limited warranty is in lieu of all warranties express or implied, including any warranty of merchantability or fitness for a particular purpose. Manufacturer shall not have any liability for any special, incidental, indirect, or consequential damages.

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