

MODEL HU OR HUB

HEAVY-DUTY DRAWBAR DOOR OPERATOR

INSTALLATION INSTRUCTIONS

NOTICE

This operator has been thoroughly tested prior to shipment. All portions of electrical circuit and all mechanical components were operating properly.

If operator does not function properly when installed, double-check all field wiring connections. Then call factory toll-free at 1-800-333-1717.

Do not alter factory wiring!

Thank You

Quality Control Inspector

GENERAL. The operator is hung centrally over sectional doors as in conventional practice. Required clearance is 2 1/2 inches, as indicated on the information drawing (use angle iron hangers of adequate size -- 1 1/2" x 1 1/2" x 1/8" minimal). Satisfactory operation depends on proper alignment of the operator with the path of the door.

FRONT-END INSTALLATION. Locate the lower edge of the front mounting bracket 1 inch above the highest rise of the door at the center of the door. Bolt it in place. Where headroom is close, the front mounting bracket can be mounted even with high rise.

DOOR BRACKET. Mount the door bracket on the center of the door directly below the front mounting bracket, and as close as possible to the axis of the top rollers.

HANGING. Attach the front end of the operator to the front mounting bracket. Raise the operator and open the door. With the door open, the operator should be directly above the door bracket. Block the operator into approximately horizontal position so that it clears the top edge of the fully-opened door by about 1 inch. Hang the rear using suitable angle iron at the holes provided. On doors over 10 feet, a center support should be used.

DOOR LINK. The door link is designed to be adjustable. It is important to make sure the door link is vertical when the door is closed.

CLUTCH ADJUSTMENT. Factory adjustment is light, as it is intended that the installer will tighten only enough to provide proper drive and give safe operation. Take up one-half turn at a time on the jam nut until proper adjustment is obtained. In cases of door interference, a too-tight clutch adjustment can transfer load to the belts and chain, cause failure of other operator parts, and reduce the safety of operation.

LUBRICATION. The operator bearings and motor are factory lubricated for life. To prevent excessive dryness or, under humid conditions, to prevent rust, it may be advisable to oil the roller chain.

LIMIT SWITCH ADJUSTMENT. Limit switches are factory set for short travel. Travelers should be at least 2 feet from either end of the rail.

1. Disconnect the door from the traveler.
2. Turn the power on and push the OPEN or CLOSE button. The traveler should move approximately 2 feet.
3. Adjust the limit nuts by releasing the spring-loaded guide and turning the nuts in the desired direction. One complete turn will allow the traveler (or door) to move approximately 4 inches.
4. Be sure the spring-loaded guide is properly locked into both limit nuts when adjustment is complete.
5. On three-phase equipment, if the door closes when the OPEN button is depressed or opens when the CLOSE button is pushed, reverse any two or three motor leads. Do not reverse the push-button leads.

ELECTRICAL. See the applicable wiring diagram (secured inside the control box cover). This diagram is self-explanatory. Any electrician should be able to make this hookup. The circuit is protected by standard overload devices. Each type of operator has a definite type and size of the original overload protection. Where extra three-button stations are used, be sure that OPEN and CLOSE buttons are wired in parallel and the STOP buttons are wired in series.

IMPORTANT NOTICE

This operator is supplied with a three-button control station (OPEN-CLOSE-STOP) accompanied by a precautionary sign:

WARNING
TO PREVENT ENTRAPMENT
DO NOT START DOOR
DOWNWARD UNLESS DOORWAY
IS CLEARED

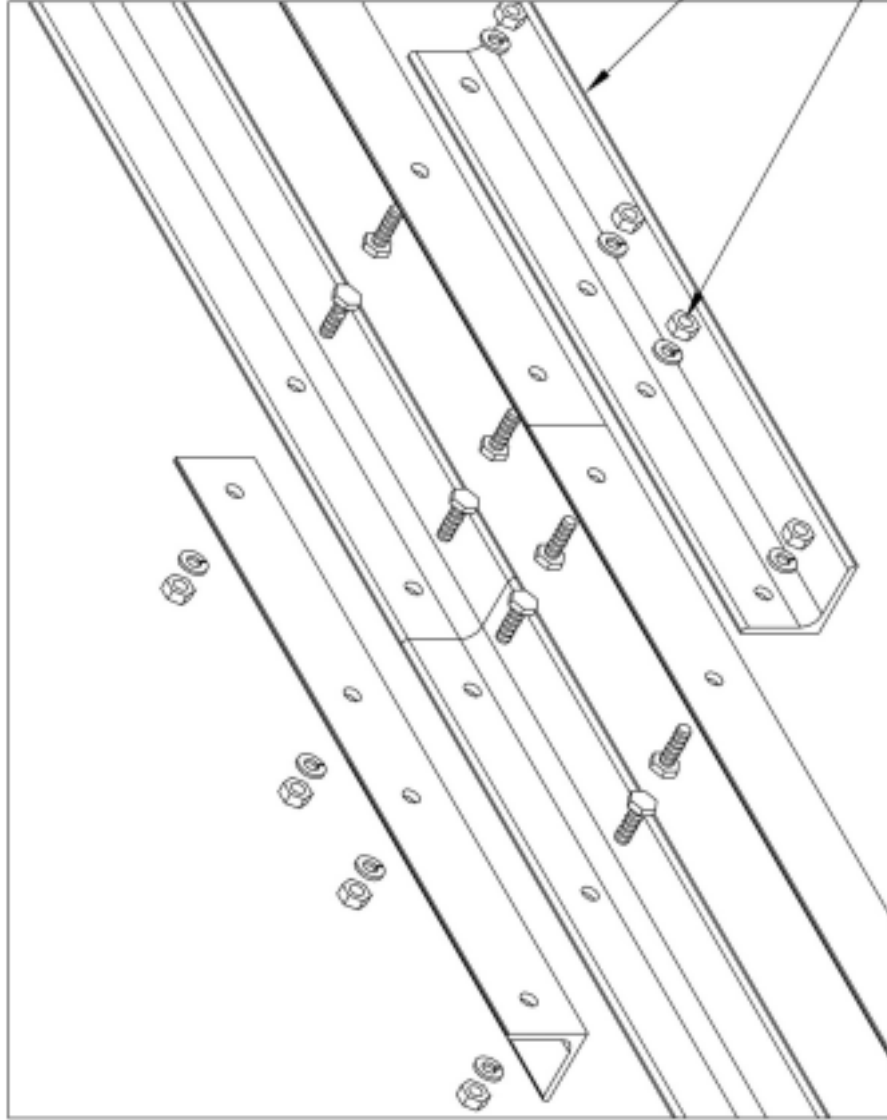
It is vital that the three-button station be mounted within sight of the door and that the warning sign be mounted adjacent to the three-button station.

ASSEMBLY INSTRUCTIONS

1. ASSEMBLE RAIL SPLICES AT ENDS OF ONE SECTION OF RAIL ASSEMBLIES. ATTACH WITH 3/8" HARDWARE PROVIDED WITH HEADS OF SCREWS ON INSIDE OF RAILS.
2. ATTACH SECOND SECTION OF RAIL ASSEMBLY TO SPLICES. RAIL SECTIONS SHOULD BE END TO END WITH SPLICES AS SHOWN AT LEFT.

RAIL SPLICE
2100-1855, 2 REQ'D

3/8" HARDWARE
ASSEMBLE WITH
BOLT HEADS TO
INSIDE OF RAILS



3/8" HARDWARE CONSISTS OF:
8 2400-016 3/8" LOCKWASHERS
8 2400-015 3/8-16 HEXNUTS
8 2400-014 3/8-16 X 1" HEX HD SCREWS

| | | | | | | | |
|---|--|----------|--|--|--|-----------------|--|
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES FRACTIONS ± 1/32 ANGLES ± 1° ± PLACE DECIMALS ± .015 ± PLACE DECIMALS ± .005 | | CUSTOMER | | OPERATOR SPECIALTY CO., INC CASNOVIA, MI 49318 1-800-333-1717 / 616-675-5050 | | OSCO | |
| MATERIAL | | PROJECT | | SIZE | | FORMER ENG. NO. | |
| NEXT ASSY. | | APPROVED | | A | | 2700-403 | |
| | | CHECKED | | DATE | | REV. | |
| | | PREPARED | | PR 6/7/02 | | SCALE | |
| | | | | | | SHEET | |
| | | | | | | OF | |
| INSTRUCTIONS FOR ATTACHING RAIL SPLICES TO MULTI-SECTION RAIL ASSEMBLIES | | | | | | | |

The three-button station must be connected so the STOP circuit between terminals #2 and #4 is not bypassed. Also, if additional three-button stations are to be connected, the STOP buttons must be wired in series.

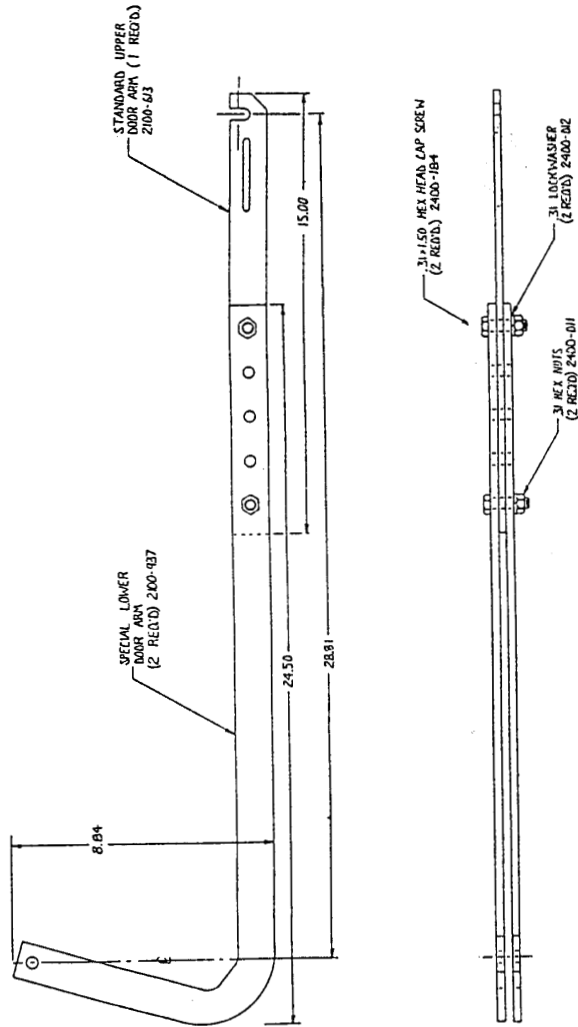
NOTE: a STOP button must be used when the installation has radio controls or a single button.

| <u>Desired Function</u> | <u>Connecting Terminals</u> |
|-------------------------|-----------------------------|
| OPENING DEVICE | #1 and #4 |
| STOP | #2 and #4 |
| CLOSE | #3 and #4 |
| OPEN and CLOSE | #4 and #5 |
| SAFETY TO REVERSE | #1 and #6 |
| 24VAC POWER | #2 and #10 |

**Models HU and HUB
Parts List #126
See Drawing #2120-177**

| <u>Part Number</u> | <u>Description</u> | <u>Part Number</u> | <u>Description</u> |
|--------------------|--------------------------------------|--------------------|--|
| 2520-114 | Rotary Limit Switch (4 LS) | 2100-054 | Chain Tension Bolt |
| 2500-764 | Limit Switch | 2100-232 | Front Idler Sprocket Assembly |
| 2100-057 | Screw Shaft | 2110-347 | Traveler Assembly, complete |
| 2200-030 | Nut | | |
| 2100-261 | Detent | 2200-150 | #41 Chain, per foot |
| 2200-029 | Flange Bearing, 1/2" (2) | 2200-027 | #41 Master Link |
| 2200-275 | Rotary Limit Sprocket, 48 B 15, 5/8" | 2110-156 | Header Bracket |
| 2200-008 | Rotary Limit Sprocket, 48 B 10, 1/2" | 2110-349 | Rail Assembly, 10' |
| 2200-350 | Sprocket, 48 B 20, 5/8" | 2110-540 | Rail Assembly, 12' |
| 2200-200 | #48 Roller Chain, 27 Links | 2110-541 | Rail Assembly, 14' |
| 2200-010 | #48 Master Link | 2100-1855 | Rail Splice |
| | | | |
| 2110-356 | Intermediate Shaft Assembly | WD # | Controller, 115V |
| 2100-765 | Intermediate Shaft | 2110-150 | Enclosure, NEMA 1 |
| 2200-213 | Sprocket, 41 B 9 T (2) | 2500-2084 | Contact, 24VAC, 4-Pole, MMTC |
| 2200-309 | #7 Double V-Belt Pulley | 2500-766 | Transformer, 115V - 24V, 75VA |
| 2200-215 | Precision Bearing, 5/8" (2) | 2500-542 | Relay, MR |
| 2110-353 | Output Shaft and Clutch Assembly | 2500-541 | Relay, R-1 |
| 2100-1004 | Output Shaft | 2500-872 | Time-Delay Close Relay, optional |
| 2200-294 | Plate Sprocket, 41 A 36 | 2500-024 | Time-Delay Socket, optional |
| 2100-669 | Clutch Hub | 2500-001 | Time-Delay On/Off Switch, optional |
| 2200-306 | Clutch Spring | | |
| 2200-061 | Hex Nut, 5/8" - 18 | WD # | Controller, 230V, 1 Phase and 3 Phase same as 115-1-60 with the following changes: |
| 2400-062 | Jam Nut, 5/8" - 18 | 2500-767 | Transformer, 208/240-24V, 75 VA |
| 2200-215 | Precision Bearing, 5/8" (2) | 2500-543 | Relay, MR |
| 2400-239 | Roll Pin, 3/16" x 1 1/8" | | |
| 2200-213 | Sprocket, 41 B 9 T | WD # | Controller, 460V, 3 Phase, same as 115-1-60 with the following changes: |
| 2100-564 | Clutch Disc | 2500-768 | Transformer, 460-24V, 75 VA |
| 2100-1007 | Clutch Hub with Key | 2500-543 | Relay, MR |
| | | | |
| 2510-097 | Magnetic Brake, 115V | | |
| 2510-098 | Magnetic Brake, 230V | | |
| 2220-004 | Brake and Puck Assembly | | |
| 2500-177 | Solenoid, 220V | <u>Motors</u> | |
| 2500-178 | Solenoid, 115V | 2500-2160 | 1/2 HP, 115/230V, 1 Phase |
| 2100-614 | Brake Lever | 2500-1600 | 1/2 HP, 230/460V, 3 Phase |
| 2100-545 | Brake Disc | 2500-2161 | 3/4 HP, 115/230V, 1 Phase |
| 2200-243 | Spring | 2500-1601 | 3/4 HP, 230/460V, 3 Phase |
| 2100-726 | Brake Rod | 2500-2162 | 1 HP, 115/230V, 1 Phase |
| | | 2500-1602 | 1 HP, 230/460V, 3 Phase |
| | | | |
| 2110-227 | Door Disconnect Assembly | | |
| 2300-124 | V-Belt, 4K290 | | |

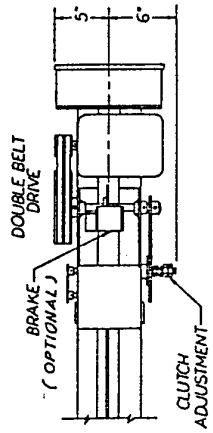
| REVISIONS | | |
|-----------|----------------------------|----|
| DATE | DESCRIPTION | BY |
| 2-17-41 | REVISED PER JTC'S SKETCH | SM |
| 3-11-41 | REVISED TO LATEST PRACTICE | SM |



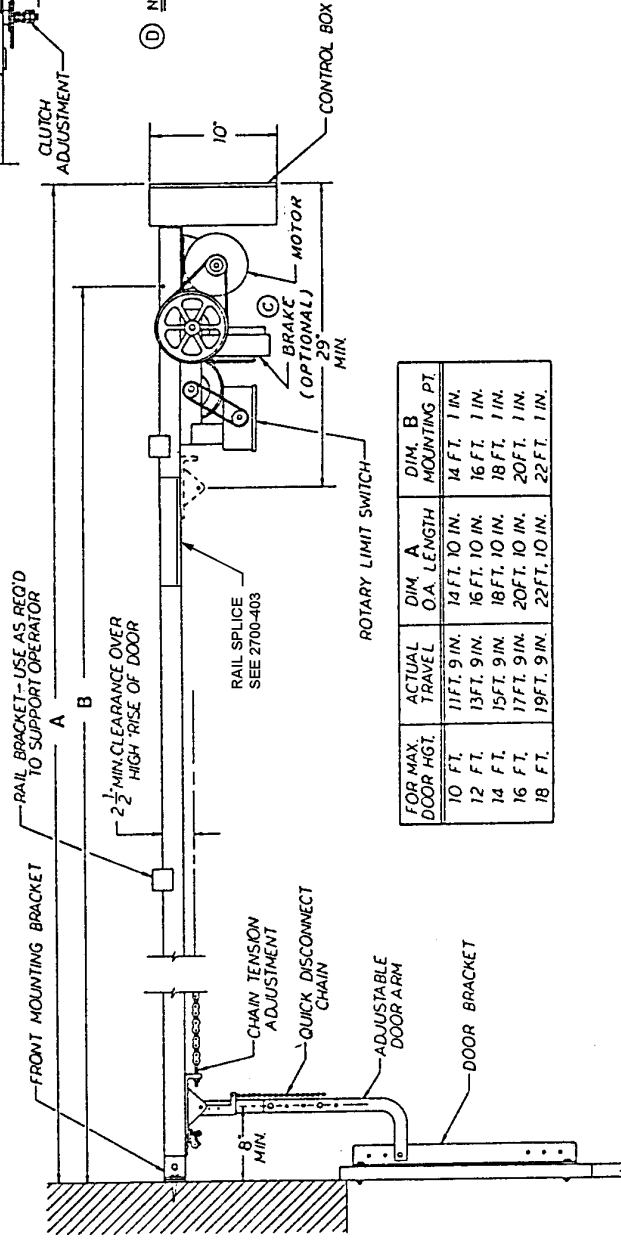
NOTE: DOOR ARM SLIDE LATCH AND FASTENERS ARE NOT SHOWN.

| | | | |
|---|------------------|-----------------------------------|-----------------------|
| OPERATOR QUALITY CO., INC. 2400 24th ST. FORT WORTH, TEXAS | | OSCO | |
| PART NO. 910009 | | "HUB" GURTY "H" DOOR ARM ASSEMBLY | |
| DATE: 1-15-73 | BY: D | REVISED BY: 1100 | REVISED DATE: 2-10-77 |
| DESIGNED BY: 1100 | CHECKED BY: 1100 | APPROVED BY: 1100 | DATE: 2-10-77 |

| REVISIONS | | |
|-----------|--|--------------|
| CODE | DESCRIPTION | BY DATE |
| A | WAS 200-011 | H/S:B 1-8-79 |
| B | H ¹ HV ¹ HUB ADDED | H/S:B 5-8-80 |
| C | BRAKE (OPTIONAL) | H/S:B 5-8-80 |
| D | ADDED NEMA 12 ENCL. LBN | P-Y: 5-8-80 |
| E | WAS 230-003 | MMW 5-10-82 |

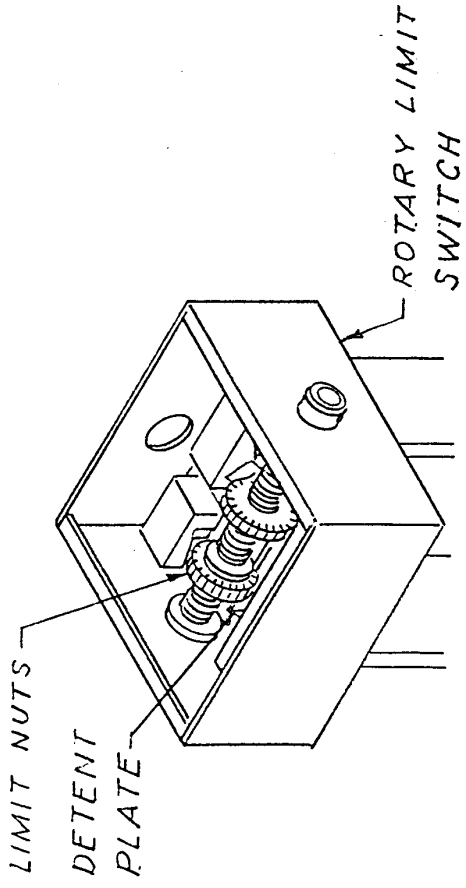


NOTE ON NEMA 12 MODELS, THE CONTROL BOX IS REMOTE. THE BRAKE / LIMIT SWITCH ENCLOSURE ARE GASKETED AND THE MOTOR IS A TE TYPE



| FOR MAX DOOR HGT. | ACTUAL TRAVEL | DIM A O.A. LENGTH | DIM B MOUNTING PT. |
|-------------------|---------------|-------------------|--------------------|
| 10 FT. | 11 FT. 9 IN. | 14 FT. 10 IN. | 14 FT. 1 IN. |
| 12 FT. | 13 FT. 9 IN. | 16 FT. 10 IN. | 16 FT. 1 IN. |
| 14 FT. | 15 FT. 9 IN. | 18 FT. 10 IN. | 18 FT. 1 IN. |
| 16 FT. | 17 FT. 9 IN. | 20 FT. 10 IN. | 20 FT. 1 IN. |
| 18 FT. | 19 FT. 9 IN. | 22 FT. 10 IN. | 22 FT. 1 IN. |

| | |
|--|------------------|
| OPERATOR SPECIALTY CO., INC. | |
| SCALE: 1/8" = 1" | DESIGNED BY B.H. |
| DATE: 6-30-77 | REVISED |
| DIMENSION DRAWING | |
| H ¹ HV ¹ DRAMB ¹ OPERATOR | |
| ORDER NUMBER | 2700-159 |



REMOVE COVER. DEPRESS DETENT PLATE, AND ROTATE LIMIT NUTS IN DESIRED DIRECTION. BE SURE DETENT PLATE IS PROPERLY LOCKED INTO BOTH LIMIT NUTS, AFTER ADJUSTMENT IS COMPLETED. REPLACE COVER.

NOTE:
FOR LIMIT SWITCH ASSEMBLY INFORMATION, REFER TO 2520-114

| | | |
|--|--------------------------|----------------------------|
| OPERATOR SPECIALTY CO., INC. CASNOVIA, MI., 49318 | | DRAWN BY H.S.B. |
| SCALE: NONE | APPROVED BY: | REVISED |
| DATE: 6-11-79 | LIMIT SWITCH INFORMATION | |
| "HSL" "HSLG" "GSL" "GSLG" | | DRAWING NUMBER 2700-135 |

WIRING SPECIFICATIONS

1. Select from the chart at right the section corresponding to the phase, voltage, and horsepower of your operator.
2. The distance shown on the chart is measured in feet from the operator to the power source. **DO NOT EXCEED THE MAXIMUM DISTANCE.**
3. When large-gauge wire is used, a separate junction box (not supplied) may be needed for the operator power connection.
4. Select the gauge for control wiring from the top chart below. If a greater distance is required, our remote station interface is suggested. Call the factory.
5. Wire run calculations are based on the National Electrical Code, Article 430, allowing 5 percent voltage drop.
6. Supply voltage must be within 10 percent of the operator rating under load conditions.
7. Connect power in accordance with local codes.
8. The wire tables are based on standard copper wire. Wire insulation must be suitable to the application.

NOTE: If the power run is over 500 feet, consult your power utility company about possible power drops overhead or underground.

USE COPPER WIRE ONLY

| POWER WIRING | | | | | | | | | |
|---------------------|-------------------|-----------|------------|------------|-------------------|-----------|------------|-----|----|
| | Max Distance (ft) | | | Volts & HP | Max Distance (ft) | | | | |
| | Single Unit | Dual Unit | Wire Gauge | | Single Unit | Dual Unit | Wire Gauge | | |
| Single Phase | 115V | 120 | 60 | 12 | 208V | 475 | 240 | 12 | |
| | | 190 | 95 | 10 | | 230V | 760 | 380 | 10 |
| | | 305 | 150 | 8 | | 1200 | 600 | 8 | |
| | 1/3HP | 485 | 240 | 6 | 1/3HP | 1915 | 960 | 6 | |
| | 115V | 125 | 60 | 12 | 208V | 370 | 185 | 12 | |
| | | 200 | 100 | 10 | | 230V | 585 | 295 | 10 |
| | | 315 | 160 | 8 | | 935 | 465 | 8 | |
| | 1/2HP | 500 | 250 | 6 | 1/2HP | 1485 | 740 | 6 | |
| | 115V | 65 | 30 | 12 | 208V | 260 | 130 | 12 | |
| | | 105 | 50 | 10 | | 230V | 415 | 205 | 10 |
| | | 165 | 80 | 8 | | 665 | 330 | 8 | |
| | 3/4HP | 265 | 130 | 6 | 3/4HP | 1055 | 600 | 6 | |
| 115V | 55 | 30 | 12 | 208V | 225 | 115 | 12 | | |
| | 85 | 45 | 10 | | 230V | 360 | 180 | 10 | |
| | 140 | 70 | 8 | | 570 | 285 | 8 | | |
| 1HP | 225 | 115 | 6 | 1HP | 910 | 455 | 6 | | |
| Three Phase | 208V | 650 | 325 | 12 | 460V | 2850 | 1425 | 12 | |
| | 230V | 1035 | 515 | 10 | | 4535 | 2265 | 10 | |
| | 1645 | 825 | 8 | 7210 | | 3605 | 8 | | |
| | 1/3HP | 2615 | 1310 | 6 | 1/3HP | 11465 | 5730 | 6 | |
| | 208V | 620 | 305 | 12 | 460V | 2705 | 1350 | 12 | |
| | 230V | 985 | 490 | 10 | | 4305 | 2150 | 10 | |
| | 1565 | 780 | 8 | 6850 | | 3425 | 8 | | |
| | 1/2HP | 2485 | 1240 | 6 | 1/2HP | 10895 | 5445 | 6 | |
| | 208V | 440 | 220 | 12 | 460V | 1935 | 965 | 12 | |
| | 230V | 700 | 350 | 10 | | 3075 | 1540 | 10 | |
| | 1115 | 558 | 8 | 4890 | | 2445 | 8 | | |
| | 3/4HP | 1775 | 885 | 6 | 3/4HP | 7780 | 3890 | 6 | |
| 208V | 345 | 170 | 12 | 460V | 1595 | 795 | 12 | | |
| 230V | 545 | 275 | 10 | | 2535 | 1265 | 10 | | |
| 870 | 435 | 8 | 4030 | | 2015 | 8 | | | |
| 1HP | 1380 | 690 | 6 | 1HP | 6405 | 3205 | 6 | | |
| 208V | 235 | 120 | 12 | 460V | 1040 | 520 | 12 | | |
| 230V | 380 | 190 | 10 | | 1655 | 825 | 10 | | |
| 1 1/2 HP | 600 | 300 | 8 | | 1 1/2 HP | 2635 | 1315 | 8 | |
| | 955 | 480 | 6 | HP | 4190 | 2095 | 6 | | |
| 208V | 180 | 90 | 12 | 460V | 795 | 400 | 12 | | |
| 230V | 290 | 145 | 10 | | 1265 | 635 | 10 | | |
| 460 | 230 | 8 | 2015 | | 1005 | 8 | | | |
| 2HP | 730 | 365 | 6 | 2HP | 3205 | 1600 | 6 | | |

| CONTROL WIRING | | |
|-----------------------------------|-------------------|------------|
| Volts | Max Distance (ft) | Wire Gauge |
| 24V | 250 | 14 |
| | 350 | 12 |
| Over 350 ft, see interface chart. | | |

| CONTROL WIRING w/ INTERFACE | | |
|-----------------------------|--------------------|------------|
| Volts | Distance Over (ft) | Wire Gauge |
| 24V | 350 | 14 |