

# Instructions

## Three-Phase Molded Vacuum Interrupter

Contents: MVI3 Molded Vacuum Interrupter, Operating Handle, Instruction Sheets.

Elastimold MVI molded rubber vacuum interrupters are suitable for submersible service in underground vaults and manholes, or above grade in a padmount enclosure.

**Handling and Storage:** Interrupters are securely mounted in a sturdy shipping carton that includes provisions for forklift use during handling. Each 3-phase interrupter is provided with lifting eyes to allow the interrupter to be lifted into position. If the interrupter is not installed immediately and is stored outside, a insulated cap must be installed on each bushing.

### DANGER

All apparatus must be de-energized during installation or removal of part(s).

All apparatus must be installed and operated in accordance with individual user, local, and national work rules. These instructions do not attempt to provide for every possible contingency.

Do not touch or move energized products.

Excess distortion of the assembled product may result in its failure.

Inspect parts for damage, rating and compatibility with mating parts.

FOR MORE INFORMATION ON PARTS, INSTALLATION RATINGS AND COMPATIBILITY, CALL THE NEAREST ELASTIMOLD OFFICE.

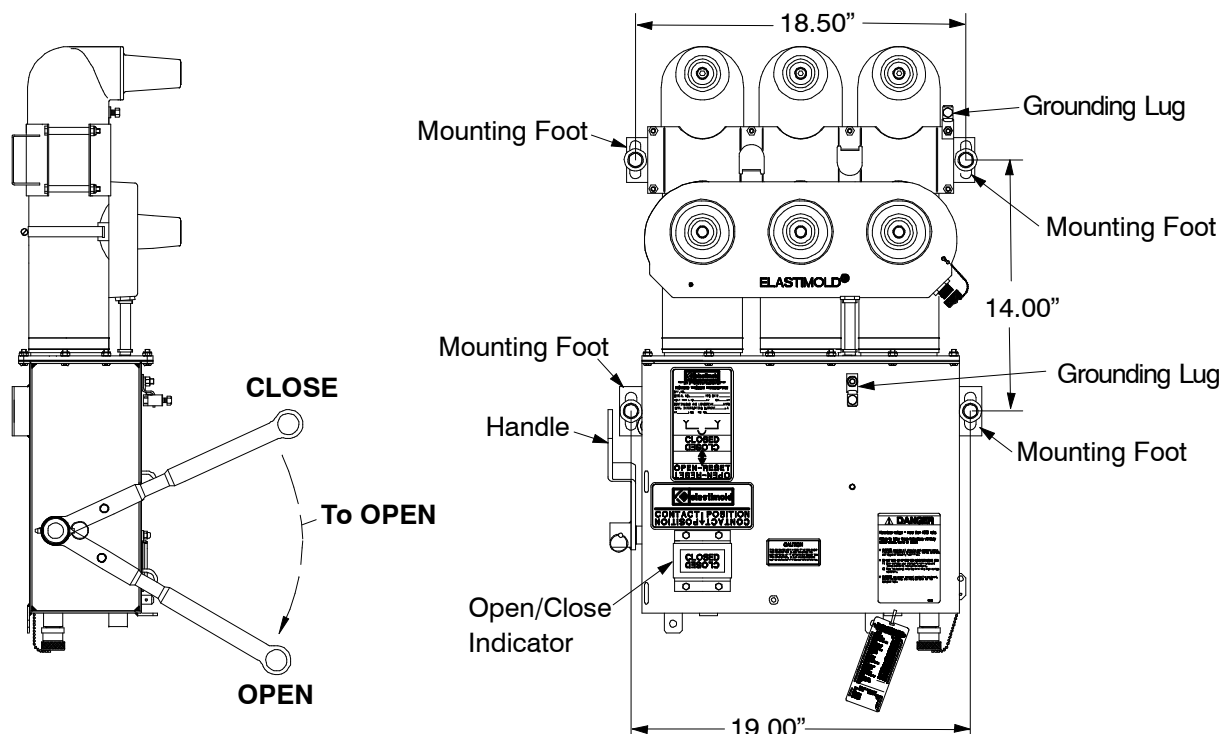
This product should be installed only by competent personnel trained in good safety practices involving high voltage electrical equipment. These instructions are not intended as a substitute for adequate training or experience in such safety practices.

Failure to follow these instructions will result in damage to the product and serious or fatal injury.

If this product is supplied with a protective shipping cover(s), remove this shipping cover(s) and replace with the appropriate HV insulated cap(s) or connector(s) before submerging or energizing the circuit.

### IMPORTANT

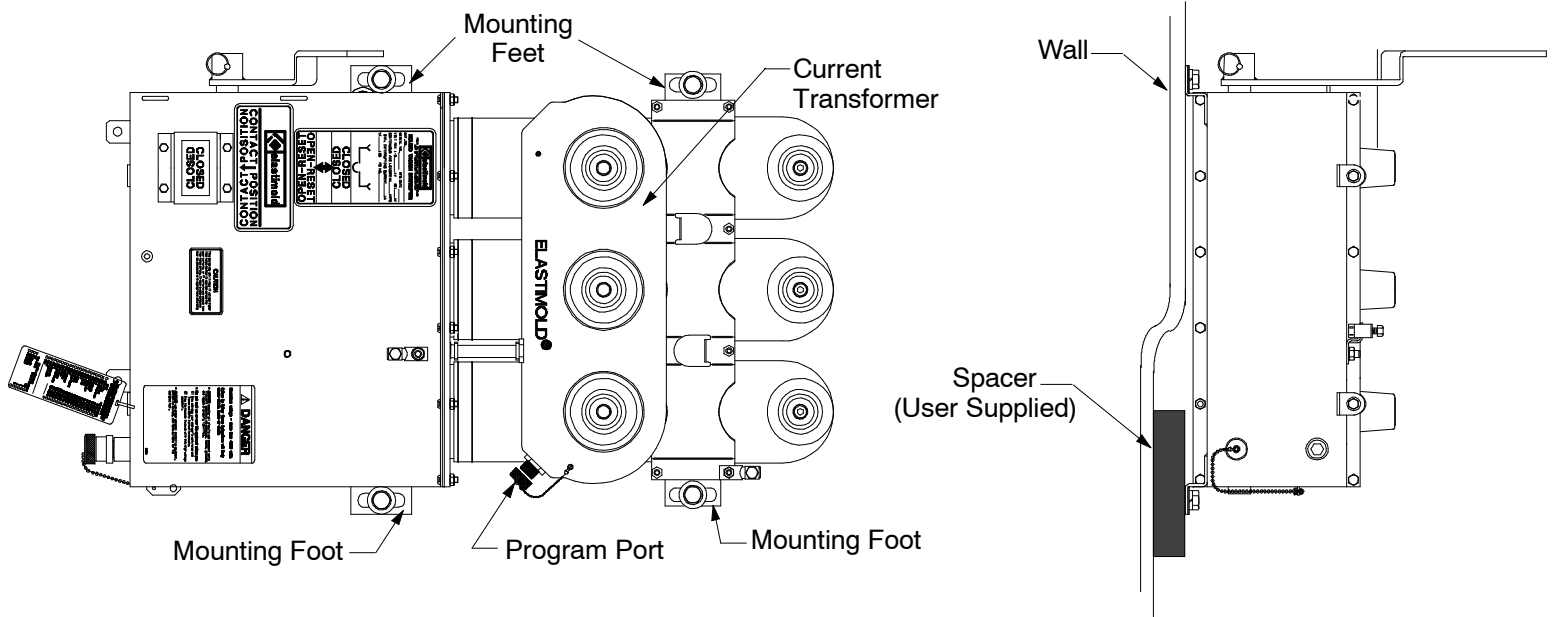
1. Check contents of package to ensure they are complete and undamaged.
2. Check all components to ensure proper fit with cable and/or mating products.
3. Read entire installation instructions before starting.
4. Have all required tools at hand and maintain cleanliness throughout the procedure.



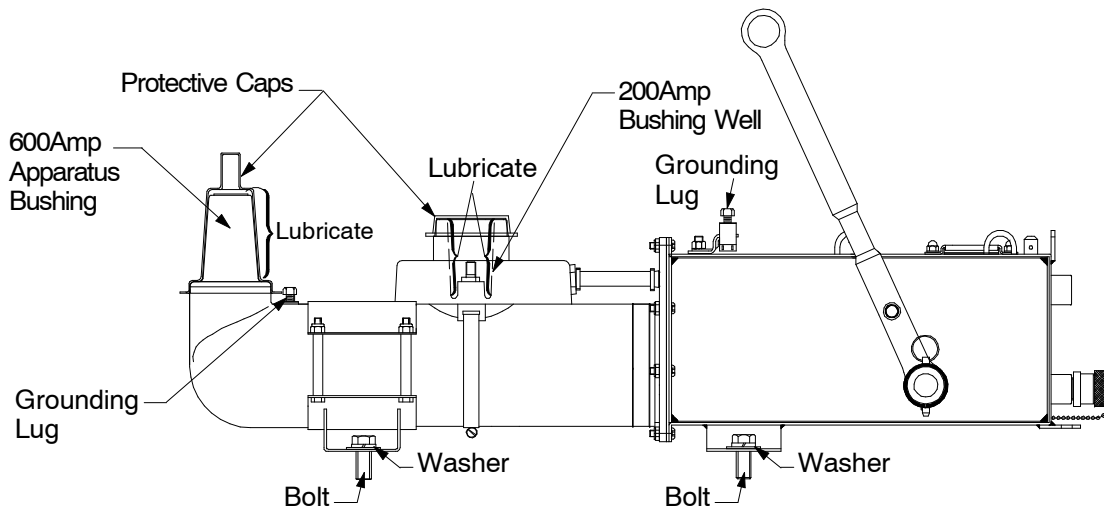
## INSTALLATION

This equipment has been thoroughly inspected and adjusted at the factory.

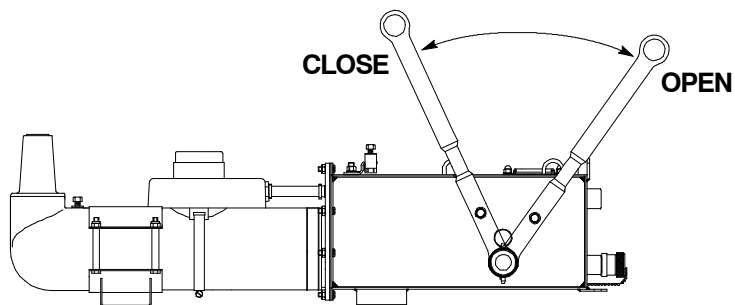
1. Remove the interrupter from the shipping carton.
2. **IMPORTANT:** Interrupter must be secured by a bolt and washer at each mounting foot on the back of the unit. Mount interrupter to wall. The use of spacers (user supplied) is required if the wall is uneven.



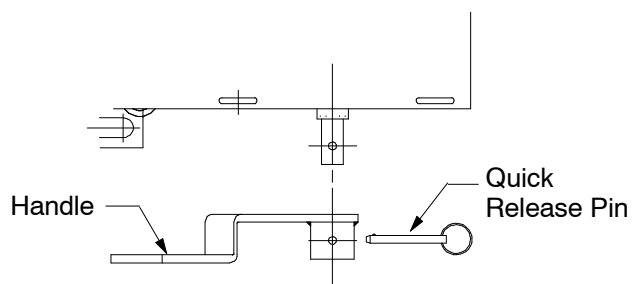
3. Testing of the MVI3 may be conducted as outlined on page 4, TESTING AND EVALUATION OF MOLDED VACUUM INTERRUPTER.
4. Two ground lugs are provided for the interrupter ground. The interrupter ground and all cable shields must be properly attached to the system ground.
5. The interfaces of the interrupter can be 600 amp apparatus bushings, 200 amp bushing wells or a combination of both.
6. **DANGER: Protective shipping covers are used to protect the bushing(s) or bushing well(s) during shipment and are to be removed prior to termination.** Do not submerge or energize without installing the appropriate HV connectors.
7. Prior to installing bushings or connectors, remove the shipping covers and clean the interfaces. Lubricate the interface with Elastimold approved lubricant. DO NOT SUBSTITUTE. Other lubricants may be harmful to the products.
8. Install connectors following the instructions included with those products.



## Handle Locations

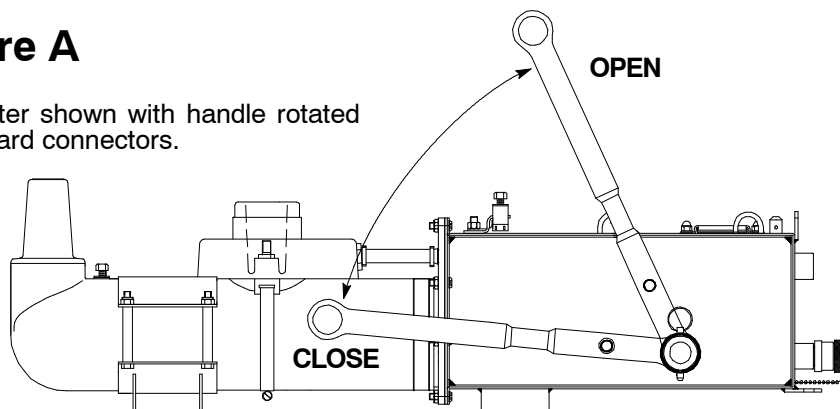


The interrupter is shipped with the handle positioned as shown above. The handle may be rotated 60° by removing quick release pin. To adjust the position, rotate the handle 60° as shown in Figure A. Reassemble the quick release pin.

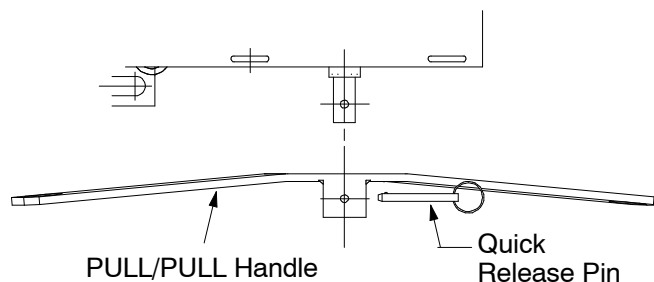


### Figure A

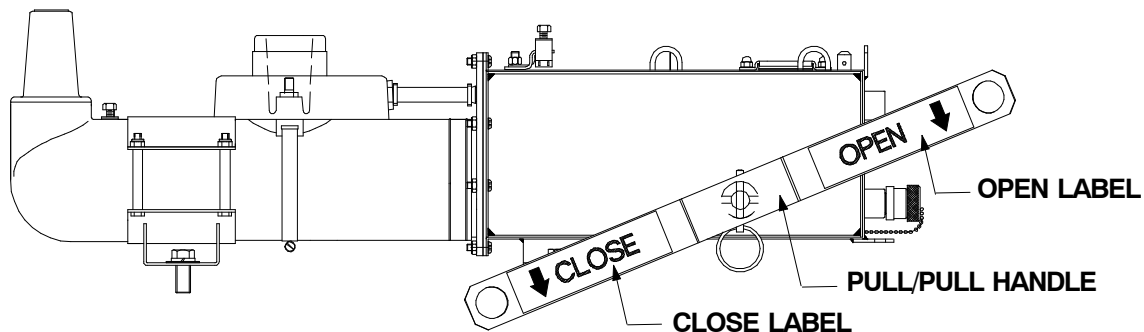
Interrupter shown with handle rotated 60° toward connectors.



For Rise Pole installations, install PULL/PULL Handle as shown in Figure B, using quick release pin. Install OPEN and CLOSE labels if desired.



### Figure B



## TESTING AND EVALUATION OF MOLDED VACUUM INTERRUPTERS

Under normal service conditions, MVI interrupters require no maintenance.

**CAUTION:** All sources must be isolated prior to performing these checks. Be sure that clearance has been obtained and established user safety procedures are being followed.

1. Mechanically operate the MVI carrying out three closings and openings. Latching can be ensured by noting the position shown in the interrupter window and listening for an audible "click" as the interrupter handle is rotated between the two positions.
2. With the interrupter contacts closed measure the resistance. Each interrupter module must be below 200 micro-ohms.
3. Vacuum retention can be ensured by performing 30KVAC hi-potential test across the open contacts of the MVI for 1 minute. To avoid possible generation of harmful x-rays do not exceed 30kV AC. With the circuit de-energized, open the interrupter and ground one tap. With the opposite tap properly terminated, perform an AC hi-potential test across the open contacts.
4. Perform an AC Withstand Test, as noted in the previous section, in accordance with user requirements.

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## OPERATING INSTRUCTIONS

These interrupters should be operated by qualified personnel, with terminations fully connected and in good condition. Do not exceed the continuous, loadbreak, or fault close rating shown on the unit nameplate.

1. Interrupter operation - Remove the padlock from the interrupter handle to be operated. Operate locks if installed and if required.
2. TO CLOSE THE INTERRUPTER - Push the handle forward approximately 45 degrees until the interrupter operates; an audible "click" will be heard. The position indicator will show the red "Close" position status indicator.
3. TO OPEN THE INTERRUPTER - Pull the handle in a reversed motion approximately 45 degrees until the interrupter operates; an audible "click" will be heard. The position indicator will show the green "Open" position status indicator.
4. TO RESET THE INTERRUPTER- After a trip operation pull the handle to the "Open" position then push the handle forward to the "Close" position. The position indicator will indicate "Close".
5. Reinstall padlocks and operate locks as required by the applicable operating system.

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## VOLTAGE TEST

Some ELASTIMOLD loadbreak elbow connectors are equipped with an integral capacitance test point that can be used to establish whether or not the circuit is energized. When using the test point, complete the following steps:

1. Remove test point cap with a hotstick. When removing cap, PEEL OFF AT AN ANGLE rather than pulling directly in line with the test point assembly.
2. **WARNING: THE VOLTAGE TEST POINT IS A CAPACITANCE DEVICE, IT IS NOT DIRECTLY CONNECTED TO THE CONDUCTOR.** Do not use conventional voltage measuring equipment. Follow the manufacturer's directions for the meter that is used. Test with a suitable sensing device, made for use with separable connectors manufactured with capacitive test points, to determine if cable is energized. Contamination, moisture, dirt, etc. around the test point or use of the wrong measuring equipment can provide a false "no voltage" indication on an energized elbow. To prevent serious or fatal injury treat the elbow as energized until the "no voltage" test point indication is confirmed by other means.
3. After voltage detection has been made, clean and lubricate the inside surface of the cap with silicone grease and replace it on the test point.

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## PRE-COMMISSIONING TEST PROCEDURE

### Three-Phase Molded Vacuum Interrupters using Internal or 80 Electronic Control

1. Connect a Programming Cable (MVI-STP-USB) between the USB port of the computer and the programming port of the Current Sensing Unit on the MVI in the case of an Internal Control, or the programming port on the control in the case of an 80 control.
2. Open the Eset Software and click on "Communications" at the top of the screen. Next click on read amps. Pass current through the closed contacts of the MVI and read the current on the computer amp meter screen. The test current and the reading should be within +/- 5% of each other.
3. Set a TCC curve and a minimum trip setting using the Eset Program, and download the settings to the Control using the UPDATE button.
4. Pass enough current through the contacts to cause the MVI to trip and verify the trip function.
5. Set the desired TCC curve, minimum trip and remaining settings using the Eset program for the specific field application.
6. Program the Control with these setting be clicking on the UPDATE button.
7. After the Control has been programmed verify the settings in the Control by clicking on the ACQUIRE button.
8. When either a single phase or three phase MVI is used with the Disable setting, the operator must be aware of the possibility of closing on a fault. Should such event occur, then the MVI experiencing the fault close must be checked according to all of the tests defined in "Testing and Evaluation of Molded Vacuum Interrupters".
9. Disconnect the Programming Cable and replace the cap on the programming port.

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## PRE-COMMISSIONING TEST PROCEDURE

### Three-Phase Molded Vacuum Interrupters using 10, 20, or 30 Electronic Control

1. Set a TCC curve and minimum trip setting using the rotary dials and dip switches on the control. If using a 20 Control also set the Ground Fault to the block position.
  2. Pass enough current through the contacts of one of the phases to cause the MVI to trip and verify the trip function. Also the LED representing the correct phase should be light up.
  3. Set the desired TCC curve, minimum trip and remaining settings using the rotary dials and dip switches for the specific field application.
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