

## **Partially Welded Contacts and Effects on Auxiliary Contacts**

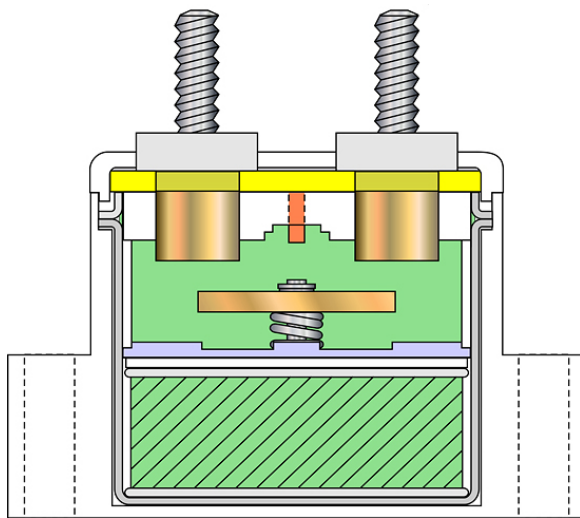
We have received some inquiries from customers who claim that the auxiliary contacts are either “welded” or unexpectedly staying closed when the main contacts are open.

It is highly likely that the reason for this is partially welded power contacts. Possible reasons for welded contacts are discussed in detail in our online application notes:

<http://www.gigavac.com/sites/default/files/Welded-Contacts.pdf>

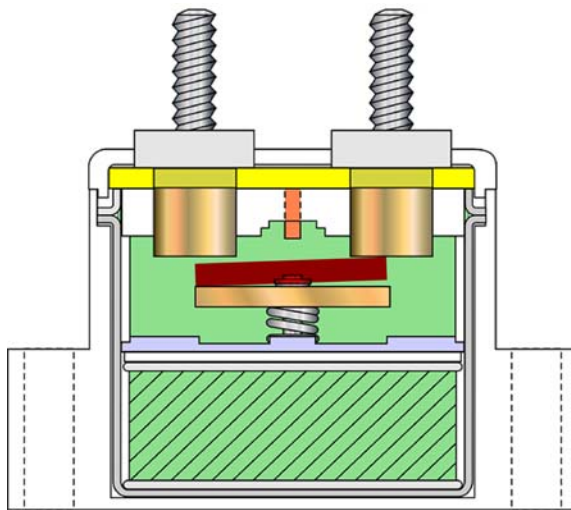
In most cases, welded contacts result in continuity across the main contacts because the contacts do not open. A partial weld results in one side of the main contacts opening, while the other side remains closed (illustrated below):

**Open Contacts**



**Partial Weld**

(auxiliary contacts remain closed)



The contactor on the right shows a partial weld. Instead of the contacts opening fully, they open only slightly on one side (as indicated by the red bar).

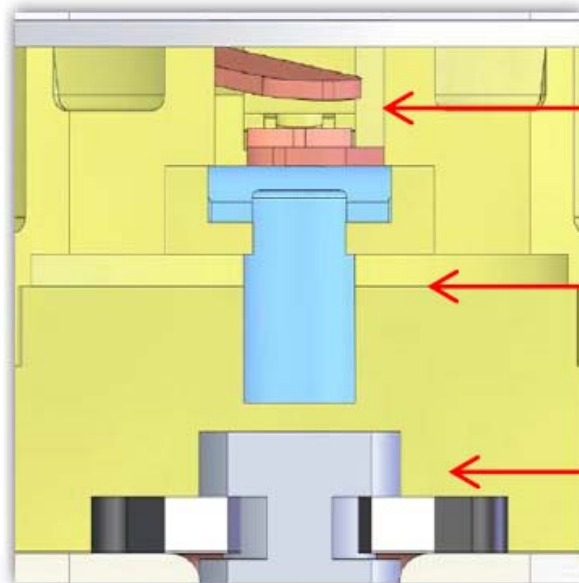
The auxiliary contacts on the GIGAVAC contactors are designed to always stay closed in this case (assuming Normally Open auxiliary contacts). **The auxiliary contacts will only open if the contacts fully open on both sides. This is done for safety reason and is an intended function of the relay.**

**As a result, this fault condition (closed auxiliary contacts, open main contacts) is always the result of welded main contacts.** GIGAVAC is not aware of any cases in which auxiliary contacts were actually welded when used within operating parameters. Every instance where the auxiliary contacts indicated closed, the main contacts showed signs of being welded.

Since partial welds are relatively easy to break open, it is possible to actuate the coil 10-20 times with no load on the contacts. This process will usually return the contactor to a normal state of operation.

Note that the GIGAVAC design for the auxiliary contacts is linked to the main power contact plunger to ensure fail-safe operation:

Auxiliary contacts are mechanically linked to the main armature for fail-safe position



Auxiliary Contacts

Plunger

Main Contacts