Electrical Connections Using Wave Threads

The wave thread has a point of full engagement where it cannot be rotated anymore and all the surfaces engage. This is electrical connections will only close when this terminal point is reached. Multiple points have to be contact before the electricity will flow and the connection is sealed.

This is a safety issue with high voltage and/or amperage to minimize arcing. It also allows the wave thread to inherently create a closure or seal. The electrical conduits would be metal and the rest plastic. The dynamics of the thread could allow the plastic to seal the top of the thread.

Figure 1 is a diagram of a wave threaded male component with three electrical conduits, input, output and bridge. The inputs and outputs connect to the surface of the wave thread. The bridge is a safety feature.

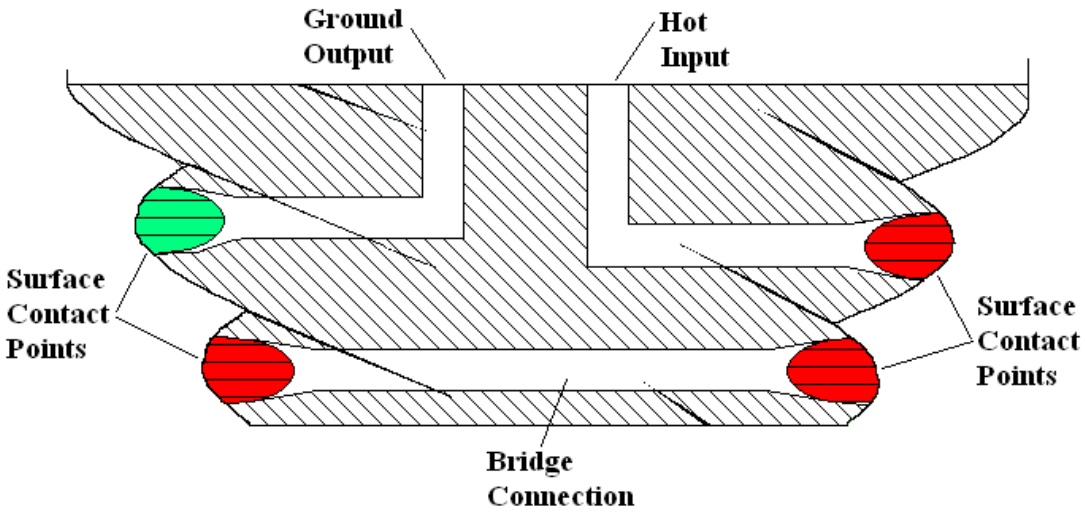

Figure 1

Figure 2 is the receiving female wave thread with three electrical conduits: input, output and a transit connection. The input and output have contact points on the internal surface of the wave thread. The transit is a connection between two surface contact points.

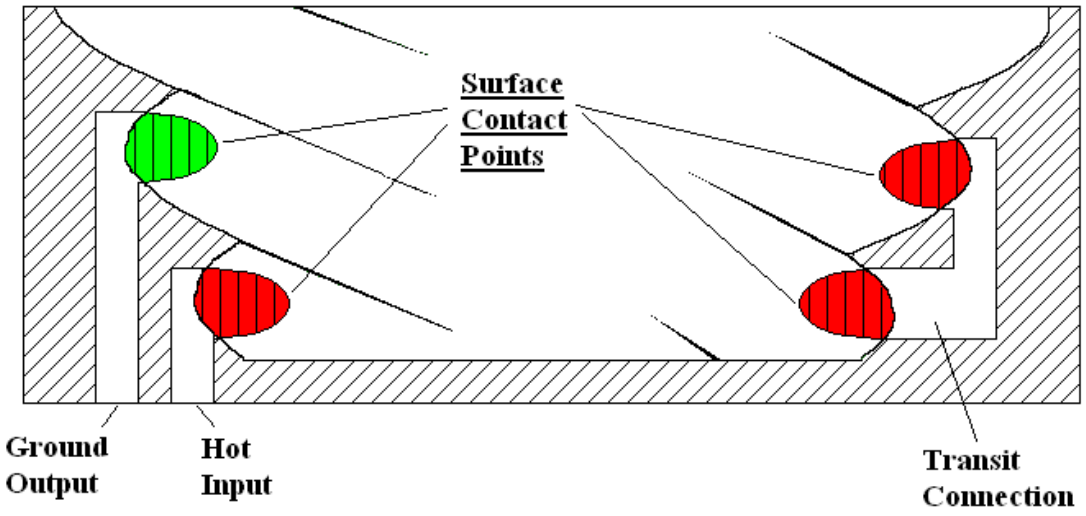

Figure 2

Figure 3 has the external male fully engaged with the internal female that completes the circuit. The ground outputs are connected. The electrical input is shown connecting to the transit, through the bridge, to the input. The four contact points have to engage to complete the circuit.

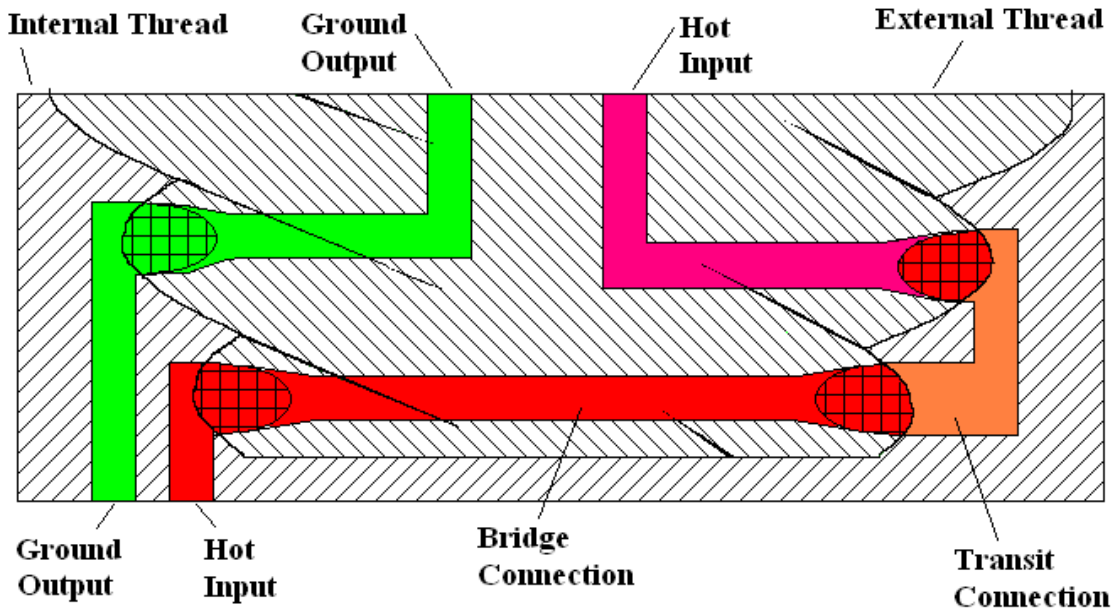

Figure 3

This concept can be incorporated as a quick and secure key connection. It is secure in that the wave thread takes more physical torque to break the connection then to make it. It can be a multiple inputs for multiple phase connection. The contacts remain sealed from the environment even underwater. They cannot oxidize because air is kept out.

This is an example of a quick, reliable connection that is inherently sealed.