



Technical Topics

ISSUE: 07-93 Page 1 of 2
TOPICS: Resistance
Detonator Cord Retainers

RESISTANCE

Every once in a while, we get a query on the resistance of our Exploding Bridgewire (EBW) detonators. The questioner's side of the conversation usually goes like this:

"What is the resistance of the RP ? You must be kidding. It can't be that small!"

Well, it is!

All of our detonators use gold bridgewires, generally 0.0015 inches in diameter. The 0.0015 wire runs about 6 ohms per foot and since most of our detonators have a 0.040 inch electrode spacing, this works out to be about 0.020 ohms or 20 milliohms for the bridgewire in a typical detonator. Add on another 30 milliohms to cover the electrical lead wires, and this works out to be about 50 milliohms for the complete detonator. Some of our dets have shorter electrode spacing and some have longer leads so the number can be either slightly higher or lower.

We use gold since it's nice and inert and won't corrode away over a long period of time (we know of 35 year old EBW's with gold bridgewires that are still working fine), and also since it provides good initiation characteristics to the explosives we use (we don't use it because we're spendthrifts as our accountant believes).

The most important thing about measuring resistance is to use a current limited meter with an absolute guaranteed upper limit of output of less than 50 milliamps through the detonator even if everything goes wrong.

The detonator can actually handle more than 50 milliamps but this is a good conservative value (customers are hard to come by so we hate to blow them up). RISI EBW's can handle 3 to 4 amps before the bridgewire melts open, but at lower current levels some strange things happen. Very slight resistive heating of the bridgewire can cause the explosive next to the wire to shrink away and affect the performance i.e. higher threshold, larger standard deviation, etc.

If you really insist on measuring the resistance to the nearest milliohm, don't expect to use any old meter. For accurate readings, you must use a 4 wire, current limited bridge. If you operate in the real world and don't have access to such a gadget, we recommend that you use a standard battery operated galvanometer—if it reads near zero, that's a good detonator. Please go to page 2



Technical Topics

ISSUE: 07-93 Page 2 of 2
TOPICS:

DET CORD RETAINERS

As pictured on the RP-80 data sheet in our catalog, we offer a clever little retainer for butting the RP-80 detonator to standard Det Cord. It's a nice way of insuring that the detonator is in the best position for reliably initiating the cord. In the good old days, we used to ship one of these free with every RP-80 detonator, but alas, times have changed. We no longer include them in each shipment UNLESS YOU ASK FOR THEM. They are still free but you have to request them. It turns out only about half of the customers who use the RP-80 use the retainers so a lot of retainers have been going unused.

These retainers also work well with the RP-501 and the RP-83 so if you need them for these dets, just request them. The price is the same. Free.

For Technical Contract and
Ordering Information, Contact:

We accept Visa, MasterCard
and American Express



Telephone (925) 866-0650
Fax (925) 866-0564
e-mail: rvarosh@risi-usa.com



A subsidiary of Reynolds Industries, Incorporated