RISI Technical Topics

ISSUE: 06-98 Page 1 of 2
TOPICS: Area Codes
Electric Detonators
DDT Devices

Area Codes

Well, they caught up with us again - another new area code. But this one is easier to remember - 925. Some hints for remembering:

> If you are a numerologist, and have a good memory, our new area code is just the sum of our two previous area codes (925 = 510 + 415).
>
> If that doesn't work just think of civilized working hours (not ours) i.e. 9 to 5, or 925 AD, the year Athelstan started his campaign to unify all of England,
>
> And if that doesn't work just think of Dolly Parton (I mean her movie "9 to 5").

Electric Detonators

When talking about our Exploding BridgeWire (EBW) Detonators and Exploding Foil Initiators (EFI), we like to use the following chart to compare EBW's and EFl's with conventional primary . explosive devices.

	Primary		Secondary	
	Hot Wire	**SCB**	**EBW**	**EFI**
Current Threshold	1 amp	15 amps	200 amps	2000 amps
Voltage Threshold	20 volts	20 volts	500 volts	1500 volts
Energy Threshold	0.2 joule	0.003 joule	0.2 joule	0.2 jouie
Power Threshold	1 watt	2 watts	100 kilowatts	3 megawatts
Function Time	1 millisec	50 microsecs	1 microsec	0.1 microsec

Invariably someone always objects to this comparison, pointing out that EBW's have been built that fire at 0.1 joule or EFI's can fire as low as 0.1 joule and they are right. But as an approximate comparison, it has always fascinated us that the threshold energy is relatively constant for three of the four types of electric detonators. The safety of EBW's and EFl's does not come from their energy thresholds but instead from the high power required to initiate the devices.

Please go to page 2

Hot wire and SCB devices are listed as using primary explosives and this is generally true since the most common of these devices are built that way. Primary explosives inherently burn up to a detonation. However both Hot Wire and SCB initiators can be built with secondary explosives by using the DDT phenomena.

DDT Devices

DDT initiators or Deflagration to Detonation Transition devices use the initiation mechanism of a Hot Wire or SCB to start a burn in a secondary explosive. The explosive burning generates enough gas pressure to rupture a disc which accelerates across a gap and impacts a secondary explosive pellet with sufficient kinetic energy to detonate the explosive pellet. An alternate DDT construction is to provide sufficient confinement to allow the secondary explosive burn to build up into a detonation. We are not overly fond of these devices (even though we manufacture a few) since in our opinion, they sacrifice safety by using the low power of the Hot Wire or SCB to initiate the secondary explosive. They also tend to be expensive since the detonator container must allow for the gas to build up to a relatively high pressure before rupturing.

For Technical Contract and
Orderi ng Information, Contact:

RISI

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

We accept Visa, MasterCard
and American Express