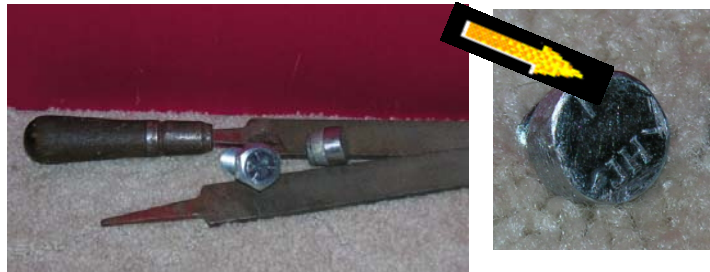


Metal Impactor Construction



Start by obtaining two fairly good sized metal spheres, one with a one-half inch diameter and the other with a one inch diameter. Once you have these, find the mass of each and go to your local hardware store to purchase bolts that will allow you to make the same shaped impactors that the Deep Impact Design Engineering Team used. These shapes are the sphere, a bullet shape and a blunt headed impactor.

Using a set of good metal files is the simplest way to take the edges off the heads of the bolts and make them circular to fit the one half and the one inch diameter PVC guides. Make sure you do not leave any sharp or rough leading edges on the bolt head as doing so will increase drag when the angled PVC guide is used.



After you round the heads of the bolts for the blunt nose impactors, start cutting off sections of the threaded portion until you have matched the mass of the corresponding sphere.



If you find that you have cut off too much of the threaded area, the needed extra mass can be obtained by adding either hot glue or metal epoxy to the bolt head.



To make the bullet shaped impactor, round the bolt head as you did for the blunt impactor. Once you have the head rounded, drill three slanted impressions into the top of the bolt head surface. Next mix some of the epoxy metal and push it onto the bolt head so that the mixture is forced into the drilled grooves.



Now shape the putty into the form of a bullet making sure that you do not have the putty extending past the filed portion of the bolt head.

Again, cut off small sections of the threaded area to equalize the mass of the bullet shaped impactor with that of the corresponding sphere. Do this in small increments as you will find it difficult to add mass to this shaped object but it can be done.



When you have finished you will have two sets of the same shaped impactors that the Deep Impact Design Engineering Team tested in their experiments. Keep the PVC tubing handy as you size the bolt heads so that you do not file them to much and they go down the tubes in a sloppy manner. You want them to just fit but still be able to slide freely.

