Tungsten Alloy Radiation Shell

What Is Tungsten Alloy Radiation Shell?

Experiments on the generation of argon tungsten alloy radiation shell during the implosion of double-shell plasma liners are described. The optimum liner length with respect to the maximum tungsten alloy radiation shell yield is determined. At a liner current of ∼1.4 MA, the conversion efficiency of the generator electric energy into the shell energy attains 8–9%. The spectrum of the argon shell is measured by a set of photoemission X-ray diodes with different filters (including an argon gas filter). Based on the measurements of the emission power in different spectral intervals and calculations by the collision- radioactive model, the ion density and electron temperature of the pinch plasma are estimated.

Appliance for Tungsten Alloy Radiation Shell

- The usage of tungsten alloy radiation shell is not subject to NRC, EPA, or special OSHA regulations, so it
- has been widely used, such as:
- Radioactive source containers
- Gamma radiography shields
- Shielding block
- Source holders for oil well logging and industrial instrumentation
- X-ray collimators
- Tungsten alloy PET syringe shield
- Shielding in cancer therapy machines
- Syringe protection for radioactive injections
- Tungsten syringe shielding
- Nuclear shielding wall

Why Use Tungsten Alloy Radiation Shell?

Compared to traditional radiation shielding materials such as lead and boron carbide, tungsten alloy provides excellent density with small capacity. At the same weights high density alloy can provide the same energy absorption as lead using 1/3 less material.

When the weight is certain, more density, more denser, and the thckness would be thinner, tungsten alloy material could be made with thinner thickness but high absorption of radiation in high density. That is why tungsten alloy material is suitable for raidation shell.

During design of shielding, tungsten alloy radiation shell is calculated according to requirements of shield to abate the multiple shielding materials' thickness.

Formula: K = e0.693 d / 1/2
K: Shield weakened multiple
 1/2: The shielding material of the half-value layer values
d: Shielding thickness, with the half-value layer thickness of their units, you need to half-value layer thickness of the quality of translation into the thickness of the material, divided by the density of the material can be obtained.

The shell gives you best protection from the harmful radiation. Meet to the AMS 21014 and ASTM B777 material standard, we can offer tungsten alloy radiation shell with finished machining by CNC according to clients drawings.