

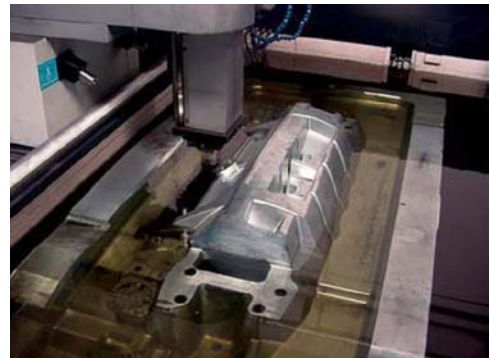
ELECTRICAL DISCHARGE MACHINING (EDM)

Description and characteristics of the technology

The EDM is a manufacturing process also known as electrical discharge machining. The EDM process is the generation of an electric arc between a workpiece and an electrode in a dielectric medium, removing particles from the piece until you get the shape of the electrode. Both workpiece and electrode should be conductors, so you can set the arc causing material removal.

ELECTROEROSIÓN POR PENETRACIÓN

In this type of EDM, the electrode is **graphite** due to having a high vaporization temperature and be more wear-resistant. The electrode is manufactured in the high speed machining centre, in order to create an electrode male or female, with the opposed shape as desired and resulting in the workpiece.



This manufacturing process is ideal for:



- **Weak materials**, because it does not generate shearing forces like the machining processes, like the turning and drilling.
- Make **very inclined holes** on curve surfaces without slipping problems as well as with small diameter and big depth.
- Work with **any conductive material**, because is a thermal process essentially.
- Adjusted **tolerances**, from $\pm 0,025$ to $\pm 0,127$ mm.
- Achieve **complex configurations**, impossible otherwise.
- **Avoid** in some occasions a **rough finish** in the part by means of acid, naming this as "EDM finish"

WIRE EDM

Aitiip Technology Center, has a fixed bed machine, designed for **high precision** work on submerged cutting mode. The clamping table of the parts is fixed, so that the weight of the piece rests directly on the machine frame. The directions and displacement of the axes X, Y, U, V, Z is thus subject only to **light and constants forces**.



This technology incorporates an erosion expert system that guarantees maximum productivity and generates programs automatically. It also has an automatic compensation of the bending point of the wire on the guides for precision cutting of tapered geometries.

Incorpora un sistema de **enhebrado automático** válido para gran variedad de clases de hilos, recubiertos o no, desde \varnothing 0.1 mm hasta \varnothing 0.36 mm (patente ONA) (Estándar) y con una autonomía de hilo de hasta 220 horas.

It incorporates an **automatic threading** system valid for a variety of kinds of wires, coated or not, from \varnothing 0.1 mm to 0.36 mm \varnothing (ONA patent) (standard) and with a range of wire up to 220 hours.

Advantages

- Does not require electrode pre-machining.
- It is a high-precision process.
- You can build complex geometries.
- You can machine previously hardened materials to avoid the deformations produced in the case of making this heat treatment after the end of the piece.