

Grant Application: Barkema Trust for CNC Plasma Cutter

Board Policy Statement:

According to school board policy 704.4, Gifts – Grants – Bequests, grants may be accepted when they will further the interests of the school district, and the board has sole authority to determine whether the gift furthers the interests of the school district.

Consequently, all grants must be approved by the school board before the grant may be accepted for the school district.

Background:

The industrial technology department would like to add a plasma cutter to its inventory of tools in order to help prepare students for the modern workplace

Plasma cutting is a process that cuts through electrically conductive materials by means of an accelerated jet of hot plasma. Typical materials cut with a plasma torch include steel, stainless steel, aluminum, brass and copper, although other conductive metals may be cut as well. Plasma cutting is often used in fabrication shops, automotive repair and restoration, industrial construction, and salvage and scrapping operations. Due to the high speed and precision cuts combined with low cost, plasma cutting sees widespread use from large-scale industrial CNC applications down to small hobbyist shops.

The basic plasma cutting process involves creating an electrical channel of superheated, electrically ionized gas, i.e., plasma from the plasma cutter itself, through the work piece to be cut, thus forming a completed electric circuit back to the plasma cutter through a grounding clamp. This is accomplished by a compressed gas (oxygen, air, inert and others depending on material being cut) which is blown through a focused nozzle at high speed toward the work piece. An electrical arc is then formed within the gas, between an electrode near or integrated into the gas nozzle and the work piece itself. The electrical arc ionizes some of the gas, thereby creating an electrically conductive channel of plasma. As electricity from the cutter torch travels down this plasma it delivers sufficient heat to melt through the work piece. At the same time, much of the high velocity plasma and compressed gas blow the hot molten metal away, thereby separating, i.e. cutting through, the work piece.

The district has already received \$15,000 from the federal Carl Perkins grant facilitated by North Iowa Area Community College. Perkins funds are directed toward helping schools acquire technical vocational tools to help prepare students for the modern industrial workplace. The total cost of a plasma cutter is \$28,000.

Recommended Action:

I recommend the board move to approve the grant applications to the Foster and Evelyn Barkema Charitable Trust and the Wright County Charitable Foundation.