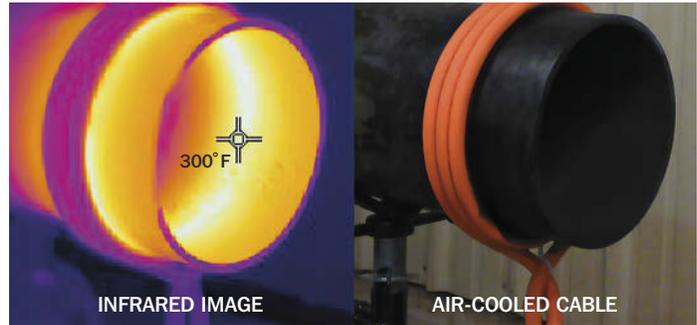




Induction Heating Systems Educational Grant Assistance Tool

Welding with Induction Heating Improves Consistency and Saves Time

In welding preheat, the heat can be applied directly around the area of the weld joint, or the entire part can be heated. When a welding application requires any type of heat treatment, induction heating is a method that offers many benefits; including greater consistency in heating, faster time-to-temperature of the part, ease of use and safety in operation.



This simple and cost-effective heating process can deliver fast and consistent heat for:



- Welding fabrication and construction
- Preheating of welds
- Post-weld heat treatment
- Coating removal
- Shrink-fit applications

Applications that would typically require hours to heat can be done in minutes utilizing induction heating.

Induction heating benefits

Compared to using open flame or resistance for preheating and stress relieving, induction offers numerous advantages. Some key benefits of induction include:

- Temperature uniformity
- Reduced cycle time
- Efficiency/utility costs
- Versatility
- Minimized safety risks
- Decreased consumable costs
- Ease of use



How induction heating works

Induction heating creates a magnetic field that generates eddy currents within the base metal, heating it internally from within. Induction accessories, such as cables or blankets, are placed on the part to generate the magnetic field.



Pros:

- Offers quick setup, often in less than five minutes, with a variety of tool options to fit the part being heated.
- Heats from the inside out ensuring fast time-to-temperature with an even heat profile.
- Produces a uniform and consistent heated area, making it easy to achieve and even stay within a strict temperature window.
- Extremely efficient from a power usage standpoint and does not require personnel to watch it* — temperatures can be maintained during breaks and shift changes.
- Provides safety benefits since the output coils don't get hot or create an uncomfortably hot environment for welders.
- Provides the flexibility to heat many different sizes and shapes of parts and delivers localized heating where the part is.

Cons:

- Induction can have a higher initial cost for equipment than other methods, but the return on investment is fast.
- Requires minimal operator training to ensure proper wrapping techniques.

* As specified in ANSI Z49.1, Supervisors shall assure that fire watchers are assigned and hot-work authorization procedures are followed where required.

- Educational discounts
- Free training with curriculum development
- Eligible for funding grants
- Curriculum available through OpenBook™

ArcReach® Heater

The ArcReach Heater air-cooled induction system is ideal for preheat and bakeout applications.



ArcReach accessory

ArcReach Compatible with select ArcReach welding power sources. Use existing on-site welding equipment up to 200 feet away as the heating power source. ArcReach technology increases jobsite productivity and efficiency by eliminating the time spent walking back to make adjustments.

Integrated temperature recording for quality control requirements



Automatically and accurately documents joint temperature every time a heating cycle is completed. Export data and create temperature charts with the ArcReach Heater Data Application.

Easy to use and set up



Welders will find the system intuitive to set up, use and tear down without having to wait for the tools to cool down. Heating profiles can be manually entered or loaded via a USB drive using the ArcReach Heater Data Application.

Powered by on-site welding power sources



Enables welders to use the same equipment used for welding. Utilizes standard weld cables to power the ArcReach Heater and eliminates the requirement for expensive power drops.

Temperatures up to 600°F / 315°C



Ideal for preheat and bakeout applications on pipe, plate, or odd geometries. Induction heating provides a fast time-to-temperature, consistent quality and even heat zone controlled throughout the part.

Choice of two heating tools



Air-cooled cables (available in 30-, 50- or 80-foot lengths) are flexible for use on pipe, plate or odd geometries. Air-cooled quick wrap is a simple tool for pipe applications up to 10 inches in diameter.

Lower heating expenses



The ArcReach Heater system eliminates the costly overruns common with heating contractors, and allows contractors to regain control of heating costs and timelines.

Minimize safety risks



Eliminates safety concerns caused by traditional resistance and open-flame heating.

Learn more: InductionSales@MillerWelds.com or MillerWelds.com/induction

Purpose of the Miller Grant Assistance Tool

In these times of tight budgets, many organizations are exploring funding alternatives as a potential source of support for a variety of welding-related projects using Miller ArcReach® Heater Induction Systems. Grants can help your organization gain additional resources.

However, most organizations find it difficult to identify eligible grant funding sources and apply for grants. The grant world is highly competitive. Most funders are inundated with grant applications, so the more closely your grant application matches the grant funder's goals and mission, the more likely you are to be awarded grant funding.

Grants are awarded by public or private funders to conduct certain activities that help meet their goals. By aligning your projects to the funders' mission, grants can provide an organization with funding for projects that otherwise could not be conducted without the extra resources. The purpose of the Miller Grant Assistance Tool is to help you research appropriate grants and prepare a strong grant application for your welding-related project.

Goal of Your Grant Application

Obtaining Miller equipment like the ArcReach® Heater Induction Systems will be the goal of your application as a core component of meeting industry needs for state-of-the-art technology and equipment to build skills, build experience, and build careers.

Grant Opportunities for Your Project

There are two types of grant funding sources.

- 1) Federal, state, and local government agencies
- 2) Private, corporate, and public foundations

When searching for grant opportunities for your welding training project, seek grant funders whose mission and goals align with your organization's mission, goals, and priorities to assure your project is eligible for funding.

As you find potential funders, examine their grant programs. Look at what types of activities they fund, their stated purpose, their preferred method of contact, and their grant cycles. Check their history of giving to projects and organizations like yours.

Carefully read the grant instructions, sometimes called an "RFP" (Request for Proposals) or "Guidelines," and follow all directions. As you write your grant application, tailor your language to the funders' point of view, and show how your project can address their concerns and meet their needs.

Grant deadlines are strict and unyielding. Late applications will likely eliminate your chance at funding for that cycle. Be sure you know all that is required of your organization before applying for grant funds.

Contact the funding agency to let them know of your interest, to ask questions, and for possible feedback. Local foundations may even accept an invitation to meet with you. To assure a productive dialogue, learn as much as you can about the funding agency before speaking with them.

Contacting a funder is an opportunity to gain "between the lines" information and a competitive advantage. It helps you decide if it is worthwhile to apply for a grant and if so, how to shape your application in order to win an award. Ask if the funder thinks your project meshes well with their priorities, and what to do to enhance your odds for a favorable review. Use this information when drafting your application and follow up with a thank you note.

Tip

Make a grant application checklist from the grantor's guidelines to make sure your application contains all that the grantor requires.

Grant Resources

Below is a list of online grant resources to begin your search.

Federal grant opportunities

Educational and training grants are often administered by the U.S. Department of Labor or U.S. Department of Education. Federal grants are usually lengthy and require partnerships with other institutions like industry, non-profits, or other educational institutions. However, federal grants can be of longer duration and offer larger award amounts than private ones. Find a searchable list of federal grants at: grants.gov/

State grant opportunities

Perkins IV is the principal source of Carl D. Perkins Career and Technical Education Act of 2006 federal funding for the improvement of secondary and post-secondary career and technical education programs across the nation. Locate your state contact by searching the Perkins Collaborative Resource Network at:

cte.ed.gov/stategrants/stateprofiles.cfm

The U.S. Economic Development Administration's (EDA) Economic Development Directory provides links to resources for each state including EDA regional office contacts, state government contacts, and EDD, TAAC, RLF, university centers, and tribal planning organization sites: eda.gov/resources/

Workforce Investment Boards direct federal, state, and local funding to workforce development programs. U.S. Workforce System contacts for the Workforce Investment Boards for each state can be found at: servicelocator.org/wibcontacts/

Private foundations are usually looking to fund eligible, realistic projects that will allow them to have a positive impact with a relatively small investment. Corporate foundations are looking to benefit the communities where they are located and/or do business. Look to the Foundation Center for related resources for special guidance that can help maximize your understanding of the grants process and help you submit a successful grant application. Foundations that support educational projects can be researched at the Foundation Center at: foundationcenter.org/findfunders/

Community foundations pool assets from families, individuals, businesses and non-profits to support a wide variety of projects in their geographically defined community. This unique charitable-giving model is found in every state in the nation. Find and contact community foundations in your area for their current grant opportunities by using the map at:

cof.org/community-foundation-locator

Other grant resources

- US Census Bureau
census.gov/topics.html
- Bureau of Labor Statistics
bls.gov/home.htm
- Bureau of Labor Statistics Standard Occupational Classification
bls.gov/soc/
- American Welding Society
aws.org/w/a/foundation/grants/welder_workforce.html
- General nonprofit advancement
nonprofitadvancement.org/
- Citations in grant application
bibme.org/easybib.com/
- NAICS Codes
naics.com/search/
- Grant Wrangler Bulletin for K-12 grants
grantwrangler.com/grantmanager/searchdisplay.aspx
- Miller website
MillerWelds.com
- Miller ArcReach® Heater Induction Systems
MillerWelds.com/products/induction-weld-preheating-equipment
- UW-Madison Library Research Guide for Grant Proposal Writing
researchguides.library.wisc.edu/content

Grant Application Process Overview

Generally, there are three steps to the grant application process.

1) Plan and develop the application

Most successful grant applications take more time to prepare than to write. Start as early as possible. See the *Grant Opportunities for Your Project* and *Grant Resources* sections to identify a grant that matches your project.

Before you apply for grant funding, your organization should be sure it is ready to implement the project if your grant application is successful. Begin the grant application process only once you have the leadership approval and staff time available. Collect reliable data and statistics that support your understanding of your project's need or problem. National data websites such as the U.S. Bureau of Labor Statistics are listed in the *Grant Resources* section.

Grant funders want to know every detail of your project plan, so planning and execution are critical to winning a grant. Identify who, what, when, how, and how much your project will cost to implement. This process also helps you identify any gaps or obstacles in your concept so that you can work through them before submitting your application. The result will be a more logical, concise application which can offer you a tremendous edge in the competitive grants world.

Recruit and assign tasks to those who can help you with the budget, proofreading, obtaining letters of support from partners, etc. Identify and recruit any necessary external grant partners and ask for written commitments.

Be specific and realistic about the results you can deliver, and how you will measure their impact on your project and on the problem. Promise as much as you are confident that you can deliver in the project, but no more.

Tip

Once you have a final draft of the grant application, give it to a “cold” reader to catch grammar, spelling and other errors.

Tip

Delays routinely occur during the grant preparation process, so allow plenty of time for your grant's team to work on the application process.

2) Write and edit the application

Once you have clarified most of the project details, create a draft of the grant application using the funder's required format. Each grant funder will have their own application with instructions and requirements for completing it.

Before you begin preparing a grant application, read all the instructions twice. The number one reason a grant application is declined is that the applicant did not follow the instructions.

Make sure the draft is edited and proofread, preferably by more than one person. Choose words and phrases that convey you understand and appreciate the funder's point of view. Avoid jargon and spell out all acronyms when used initially.

3) Submit the application

Submit the grant application to the funder on or before the deadline in the required manner (i.e., funder's online site, via email, hand-delivery, etc.). Grant reviewers usually have to read a stack of grant applications, so make a good impression by submitting a clear, well-written, properly organized application.

Common Elements of a Grant Application

The grant application process below provides an overview of the basic steps of planning a project through grant application submission. This highly competitive undertaking can be undermined by inadequate planning, preparation, disorganization and/or poor presentation.

All successful applicants allow enough time to plan, organize and write a grant application that scores well in the grant review process.

The elements of most grant applications are outlined below. While they may or may not be organized in the same order, these elements create a framework to support your case for grant funding. In essence, you are seeking to inform readers about:

- Your organization's capacity and success record to administer grant funds
- The purpose of your project
- Why your project is important
- Whether your project is supported by believable evidence
- The goals your project will achieve
- How your project will achieve its goal(s)
- Whether the cost to conduct your project is reasonable
- How the results will be measured/evaluated
- What will be done with the results

Tip

Consider how your organization would respond to these common elements of a grant application. Tailor answers to fit your situation.

