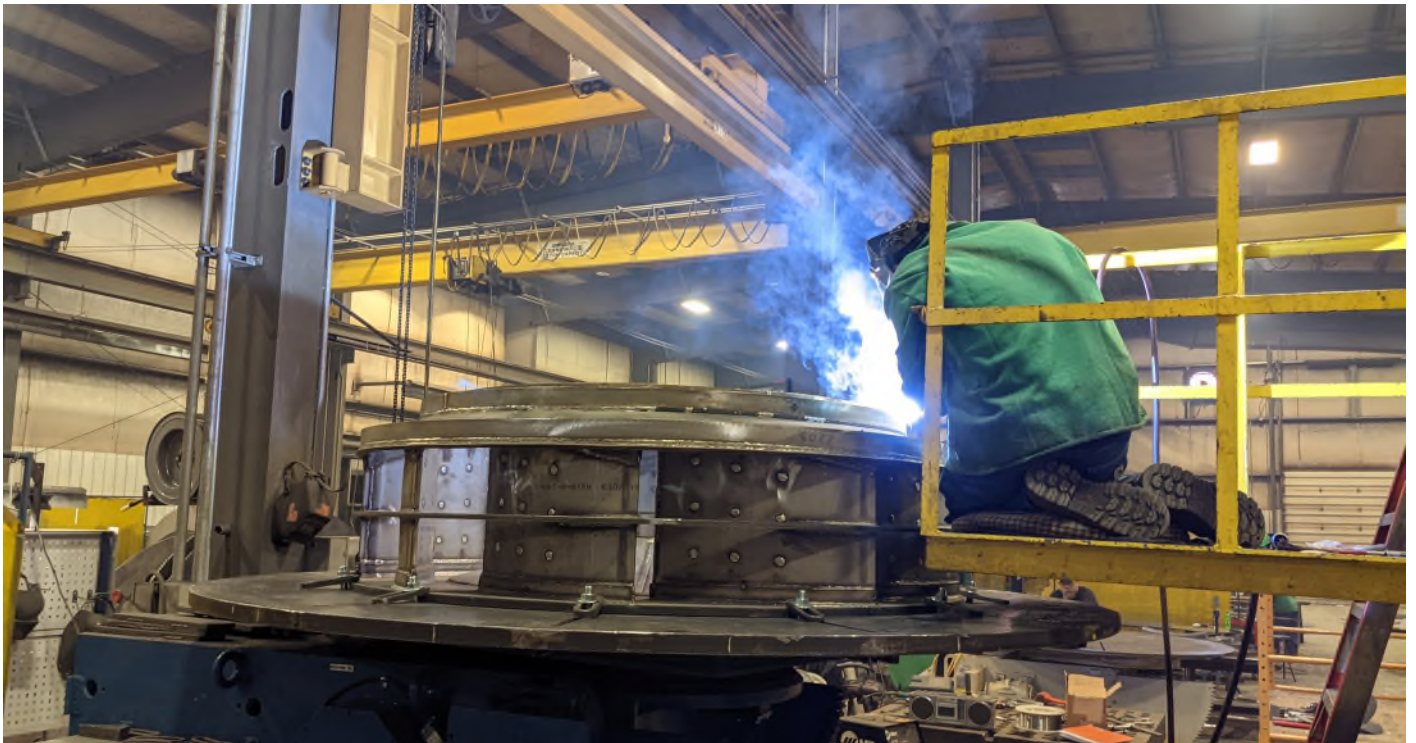


WELDING OF FAN COMPONENTS IN-SITU

INTRODUCTION

Fans and blowers may need to have components welded in-situ after the equipment has shipped from the factory. This is commonly referred to as “field welding” and may need to be performed during installation, rotor balancing, and/or repairs from erosion, corrosion, or over stressed components. Recommended guidelines for the different components are listed below. All welding in the field must be done per the proper welding procedure (WPS) by qualified welders that have successfully passed a welding performance qualification (WPQ) for the materials being welded. **nyb** requires that welders be qualified to ASME Section IX for all components or/and AWS D1.1 for structural steel and/or AWS D14.6 for rotating equipment. Other welding qualifications may be acceptable upon approval from **nyb** Engineering.



It is very important to note that welding on rotating components of a fan or blower may cause severe injury or death if not performed in accordance with the proper WPS from **nyb**. Materials vary greatly in rotating components due to the design factors such as the application, operating temperature, speed, airstream gases, and required reliability. It cannot be assumed all the materials and welding procedures are the same for rotating and stationary components or that they are the same from one fan to a different fan. It is very common that the weld area will require pre-heat, maintain proper interpass temperatures, and/or special post cooling procedures. The welding may also have to be dressed or contain no start-stops in high stress areas.

All surfaces to be welded must be clean and free of paint, dirt, scale, oil, and any buildup from the airstream particulate. The surface may have to be wire brushed, ground, or sandblasted.

Ensure that the grounding clamp is placed so that current will not pass through a bearing, coupling, or motor. This is a very common mistake on plug and axial fans. This will result in failure of those components.

Stationary Steel Components such as housings, inlet boxes, evases, diffusers, pedestals, ducting, bases, silencers, dampers, and variable inlet vanes:

Verify the material of construction with **nyb** customer service or the technical service department before welding.

Rotating Components:

Centrifugal and Mixed Flow Impellers, Axial Rotors:

Welding should be done under the supervision of **nyb** manufacturing, engineering, **nyb** certified contractor, or technical service personnel.

In situations where **nyb** customer service, engineering, or technical service determines that the customer may weld on a rotating component, the WPS will be supplied by **nyb** for special materials, special welding, and/or custom designed rotors.

Axial Fan Blades:

Welding is not permitted, and the blade must be replaced.

Fan Shafts:

Welding is not permitted except to repair surface damage (not more than .125" [3 mm] deep) in the rotor hub, shaft seal area, bearing seat, and coupling hub sections of the shaft.

Machining to the proper surface finish is required after weld repairing these areas.

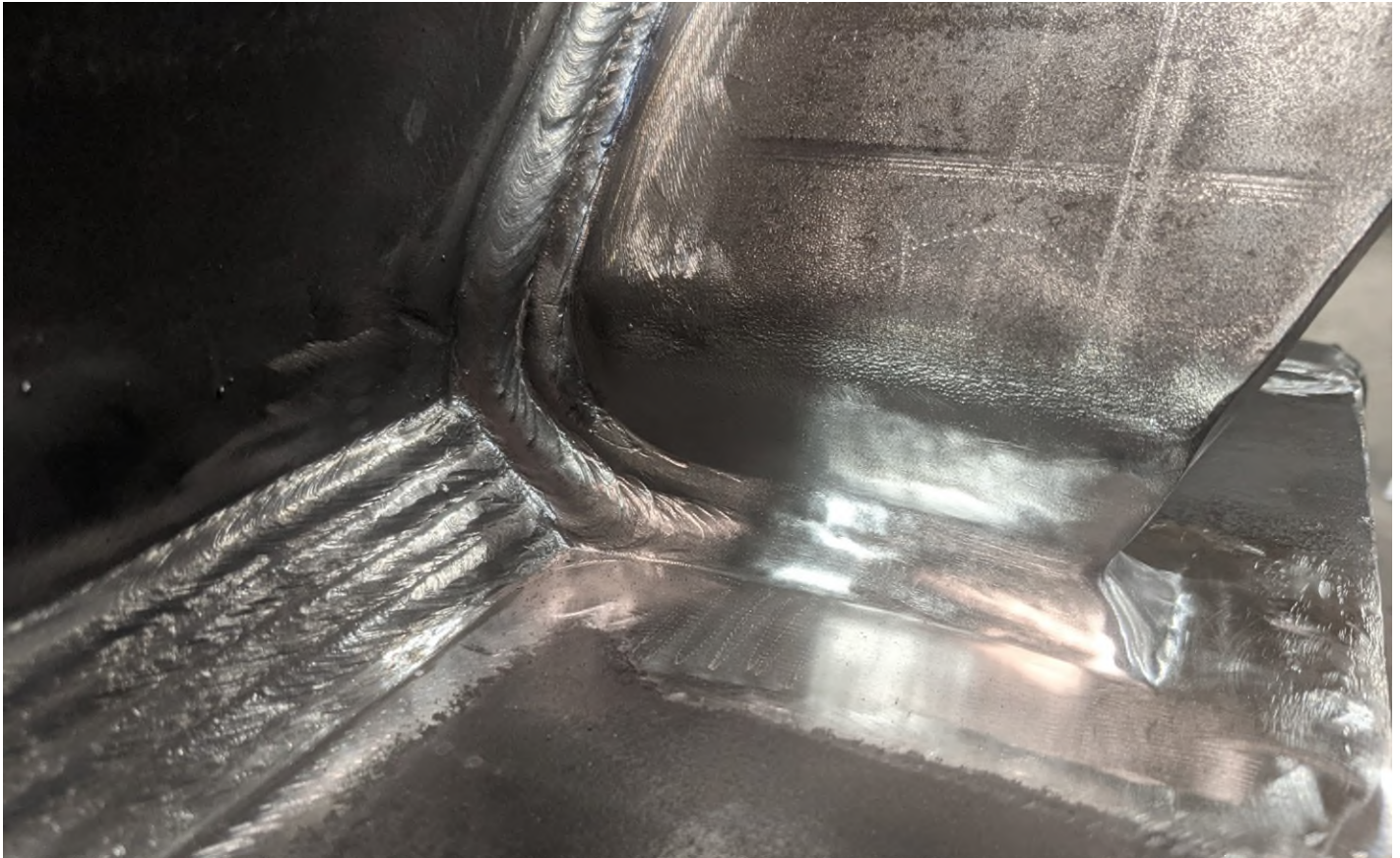
Motor Shafts:

Welding is not permitted. The shaft must be replaced.

Damper or Variable Inlet Vane Shafts:

Welding is not permitted. The shafts must be replaced.

All welding on critical or high stressed areas of rotating components will require NDT inspections to verify that no cracking is present.



CONCLUSIONS

nyb cannot guarantee the integrity and warranty of the welding if not performed under the supervision of **nyb** manufacturing, engineering, **nyb** certified contractor, or technical service. If welding is performed on fans or blowers under warranty without consulting **nyb**, the warranty may be voided.

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