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Est. 1952 75 YEARS

Custom Attachments for Heavy Equipment, Welding Repairs and Alterations

General Welding Procedures

Rev 4 – Aug. 8, 2022

Nye products are made from ASTM A514 QT100 (Strenx™ or T-1 Structural) and AR400, AR450, and AR500 (Hardox™ or T-1 Abrasion Resistant) steel plate. These extra strong heat-treated alloy steels are heat sensitive and must be treated properly during welding to prevent any unwanted hardening, softening, or embrittlement due to hydrogen contamination. Non heat-treated components are cut from A36/44W structural plate. They do not require pre-heating but will not be harmed by it. When in doubt about the type of steel, assume it is heat-treated alloy and follow these procedures:

- The area to be welded must be completely clean and free from hydrogen sources: dirt, rust, paint, grease, and moisture. Hydrogen contamination can cause HAZ (Heat Affected Zone) cracking.
- Use an IR Thermal Scanner or a temperature indicating crayon for monitoring material temperature.
- If gouging is required, preheat area to be gouged to 100°C [200°F].
- Completely gouge out all traces of cracked material. (Gouge right through if necessary)
- Grind out all traces of carbon and slag.
- Preheat area to be welded to 150°C [300°F]. (Use welding blankets to keep the heat in)
- Do not allow inter-pass temperature to exceed 260°C [500°F] or fall below 120°C [250°F].
- To prevent hydrogen contamination, only use clean welding wire or fresh new electrodes taken from a sealed bag or electrodes that have been stabilized in an electrode oven.
- Use several “stringer” beads as opposed to a few wide beads.
- Blend gusset or bracket end-welds smoothly into the base plate they are welded to by grinding. Avoid sharp changes in material thickness. Taper-off and blend-in welds as opposed to running the welds out past the end of a gusset or perpendicular plate.
- After welding, cover with welding blankets and allow the material to cool slowly in still air.

Buildup/Hardfacing: Worn down parts can be built-up with McKay Hardalloy® 32 or an equivalent filler metal that is specifically designed for weld build-up. Once the worn parts have been built-up to their original shape, a layer (or criss cross pattern) of hard facing should be applied. Mckay Hardalloy® 140 (or equivalent) with a high resistance to abrasion is suitable for this purpose.

Suitable (approved) electrodes:

SMAW - Stick Electrodes:
- For all repairs use: E48018 [E7018]
- For Hard Facing use: Hobart® Hardalloy® 140
- For Build Up use: Hobart® Hardalloy® 32

FCAW – Flux Core Wire with CO2
- For basic repairs use: AWS A5.20 CSA W48.5 E70T-1 (Hobart® FabCO® TR-70)
- For heavy Q&T sections use: AWS A5.20 CSA W48.5-M E70T-5 (Hobart® FabCO® 85)
- For Hard Facing use: Hobart® Fabtuf® 960

For more information, contact Nye technical support at 905 897 2311 or Visit: nye.ca

Rev 0 - Jan 31, 2000 | Rev 1 - Apr 19, 2001 | Rev2 – Oct 2, 2003 | Rev3 – Feb 6, 2007