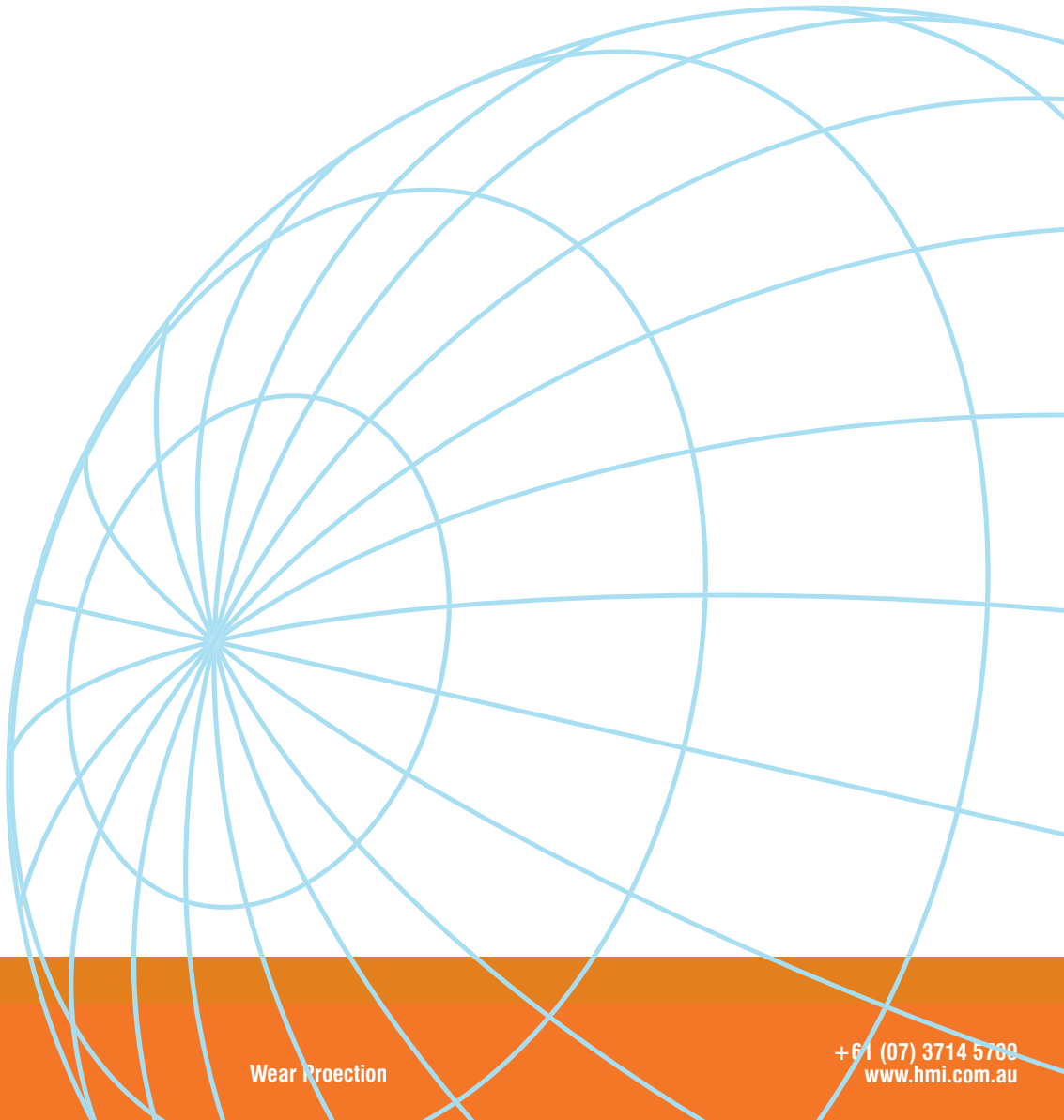
HARD METAL INDUSTRIES

Tungchip



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HARD METAL INDUSTRIES

Tungchip Dispenser

ADDITIONAL INFORMATION ON WELDING WITH MIG CARBIDE

PREPARATION

Always try to grind the weld area to clean and remove any oxide build up (rust). Many shops do not clean to save time and money, the surface does not have to be perfect.

WIRE

The most versatile wire size is ±1.2mm LH/S6 wire. This wire can be used with the higher voltage and lower amps to make thinner weld beads with deep penetration. The best wires are triple or double de-oxidized, low hydrogen. They make a very clean puddle for the carbide to drop through and have a high tolerance for dirty base metal surfaces. Using Ni Cr wires provides good resistance against corrosion and increases working temperature. Alloyed wires like manganese / chrome alloys allow the matrix to harden and have been found to be successful in certain light impact applications.

CARBIDE DEPOSITIONS

Many MIG carbide users are now favouring 12 x 20 mesh size or something close to this range. Some customers have found that for very fine particle abrasion 20 x 30 mesh is a better size. A good choice for general service is the 12 x 30 mesh size. For pure rock service 20 x 30 mesh, has been found to be successful. When working in mixed materials that are damp and tend to clump together, a larger particle will tend to attract the material, assisting with material on material wear. This is general information obtained from customer's experiments and comments. We recommend you undertake your own trials.

SCREENING USED CARBIDE

After several cycles, used carbide tends to pick up over-sized particles, splatter, dust, dirt, etc. This contamination will begin to affect the feed ability and the quality of the weld. Screen the recycled carbide through 200 - 400mm diameter sieve screens of the same mesh as your carbide. For example, if you are using 12 x 20 carbide, buy two screens and one bottom pan. The top set would be 12 mesh. The middle set will be 20 mesh. Discard or re-crush everything on top of the 12 mesh and dispose of everything in the bottom pan (environmentally correctly). Screens available on request.

GASES AND VOLTAGES

Argon/O2(2%) is the most popular mix. Pure Argon is also used; however it is not as popular. 75/25 (75% Argon/25% CO2) is another choice. Pure CO2 is the cheapest gas and can be used with high voltage. The higher the voltage the more penetration and the flatter the bead will be. All gases can be used with high or low voltage.

- Low Heat 24-26 volts
- Medium Heat 27-29 volts
- Hot 30-33 volts

MINIMIZING DISTORTION

To minimize distortion (especially on thinner parts), use lower volts and amps with pure Argon. Use preheats on all parts to eliminate or minimize distortion. Most thick and wide cutting edges can be made perfectly flat with only preheat. Thinner parts should be pre-bowed and warped (along the preheat). This information is used as a guide only. It is recommended that you undertake trials yourself to evaluate the particular alloy and product you are working with.

TYPICAL WELD SETTING

Weld settings for medium weld speeds would be the following:

- Wire Size: 1.15mm 1.6mm 2.36mm
- Volts (V) : 29-30 29-31 30-32
- Amps (A): 230-245 290-300 325-360
- Gas : Argon or Argon/O2
- Low flat bead shape with medium penetration

WELDING TECHNIQUES

Single layer welds are recommended. Multiple layers tend to dissolve the carbide in the lower layers and produce a very hard deposit that will chip and break off with only light impact. Use oscillated beads about 15mm-25mm wide (37mm max). Oscillation frequency should be 70-85 cps (cycles per second). Aim carbide into the trailing side of the arc puddle. The aim point is critical for good carbide distribution. If these basic parameters are followed, consistent and reliable work can be readily produced by any weld shop. The process requires operating trials to fine tune the process. Product and application variances must be taken into account before applying Tungchip Tungsten Carbide Grit.

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