Postalloy®
HARDFACE TECHNOLOGIES

OPERATING MANUAL

TungGuard™

MIG Carbide System

Controlled carbide delivery for wear-resistant GMAW overlays.

Get Started in Minutes

The TungGuard™ MIG Carbide System delivers tungsten carbide into the molten weld pool while using the GMAW process to create a wear-resistant embedded coating.

Typical Starting Setup

- **Wire:** Postalloy® PS98WC Matrix, typically **.045” or 1/16”.**
- **Shielding gas:** High argon content such as **98% Ar/2% O_2 or 95% Ar/5% O_2.**
- **Carbide size:** Fine, medium, or coarse; **medium** is the most common size for dropped carbide applications.

Startup Steps

1. **Place and secure the feeder** near the welding area. The unit includes three **1/4”-20 TPI studs** on the base that can be used to anchor the feeder.
2. **Load carbide** into the top hopper (figure 1 on page 3).
3. **Connect the feed tube** and attach it to the welding gun shroud using the supplied bracket and clamp.
4. **If using Auto Feed, install the reed switch** (figure 3 on page 3) on the welding lead. The reed switch must be **perpendicular** to the welding cable to detect current.
5. **Power on and choose a mode:**

- **Manual Feed:** continuous operation with dial control.
- **Auto Feed:** feeder turns on when welding starts and shuts off when welding stops.

6. **Set the dial to start at 4–5** and adjust for consistent carbide placement.

What the System Does

TungGuard™ provides controlled tungsten carbide delivery into a MIG weld pool to improve the performance of carbide-embedded parts in demanding wear environments.

How Carbide Moves Through the System

Carbide is loaded into the **top hopper**, transported by a **vibratory trough** into a **lower hopper**, and dispensed through the **blue hose** toward the welding gun shroud. The dial controls the flow speed of the carbide exiting the hose.

Figure 1: Typical setup for tungsten carbide drop

Figure 2: Attached hose to feeder and welding gun

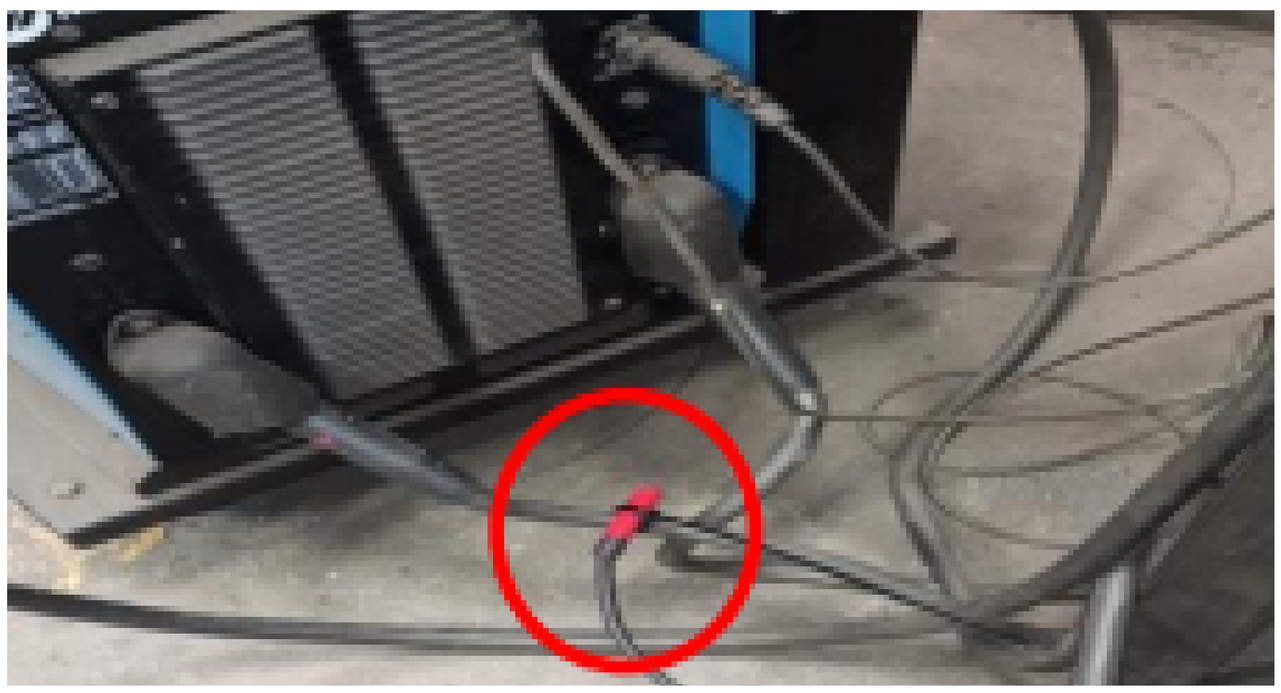

Figure 3: Reed Switch usage

Equipment Placement

Position the feeder on a stable surface near your workstation. Use the three **1/4”-20 TPI studs** if you need to anchor the unit.

Feed Tube Attachment

The hopper dispenses carbide through the tube, which is attached to the welding gun shroud using the supplied bracket and clamp.

Control Box Basics

The control box includes:

— **Dial** for adjusting feeder power output and carbide feed rate.
1 = very low, 10 = very high.
4–5 is a good starting point.

— **Toggle switch** with two operating modes:

- **Manual Feed**
- **Auto Feed**

Reed Switch

Foot Pedal (optional)

Tungsten Carbide Chips

Postalloy Hardface Technologies supplies tungsten carbide in **fine, medium, and coarse** sizes. **Medium** is the most common for dropped carbide applications.

Postalloy® PS98WC Matrix Wire

Postalloy® PS98WC Matrix wire is alloyed with chromium and molybdenum and was developed for use with MIG carbide embedding. It produces a clean, fluid weld bead that readily accepts carbide grit.

Key Performance Points:

- Matrix hardness of **55–59 Rc** helps protect carbide grit (carbide hardness **>75 Rc**).
- Supports even carbide distribution throughout the deposit.
- Suitable for **carbon, low alloy,** and **manganese steel.**

Shielding Gas

High argon content is preferred:

- **98% Ar / 2% O_2**
- **95% Ar / 5% O_2**

Welding Technique

- **Single-layer welds** are recommended. Multi-layer welds may melt carbide in lower layers, creating a very hard, brittle deposit prone to chipping or spalling.
- Use a weave/oscillation of **½”–1” (12–25 mm)** or wider as needed.
- Direct carbide into the last **½” (6 mm)** of the molten weld pool. Aiming too close to the arc can melt carbides and create a brittle weld structure.

Preheat

Preheat requirements depend on base material composition, carbon content, thickness, and the specific steel type. High carbon low alloy steels, high strength low alloy types, and higher hardness wear plate (such as AR450 and AR500) may require preheat. A typical preheat temperature for **GET tools is 302°F (150°C).** If unsure, reach out to discuss your application.

Screen & Recycle Used Carbide

Approximately half of the carbide flowing down the feed tube will enter the weld pool. Collect excess carbide and recycle it when possible. Sieves are available to remove dust, weld spatter, and other impurities before reusing carbide in the feeder.

Unit Includes

- Hopper assembly with vibratory feeder and control box
- Integrated removable carbide hopper
- Vibratory feed chute
- Dispensing neck
- Current sensing reed switch with optional foot pedal control
- Heat resistant feed tube

Unit Product Codes

110V Unit — MIGUNIT110

220V Unit — MIGUNIT220

For additional information, application support, or troubleshooting assistance with the TungGuard™ MIG Carbide System, please contact your Postalloy® representative or Postle Industries technical support. Always follow the operating instructions, safety guidelines, and recommended welding practices outlined in this manual to ensure consistent performance and safe use. Thank you for choosing Postalloy® hardfacing solutions.