



## 1. PRODUCT OVERVIEW

**KRN Custom Premixes** are highly engineered, Ready-to-Press (RTP) metal powder blends formulated to meet exact customer specifications. By homogeneously blending base matrices (Iron, Copper, Bronze) with precise alloying elements (Graphite, Nickel, Molybdenum) and specialized lubricants, we eliminate the need for in-house mixing at the customer's facility, guaranteeing absolute batch-to-batch consistency.

### ENGINEERED FOR YOUR TOOLING

Every press operates differently. We tailor the **Apparent Density (AD)**, **flow characteristics**, and **green strength** of the premix to perfectly match your specific die cavities and compaction tonnage, drastically reducing tool wear and rejection rates.

## 2. METALLURGICAL ADVANTAGES

- Zero Segregation:** Advanced binder-treatment options physically adhere fine alloying elements (like graphite) to the base particles, preventing segregation during transit.
- 100% Process Traceability:** Strict ISO 9001:2015 blending controls ensure exact replication of complex multi-element chemistries.
- Dust Reduction:** Bonded mixes significantly reduce airborne dust on the press floor, improving ESG compliance.
- Optimized Die Filling:** Engineered particle size distributions (PSD) guarantee rapid, consistent powder flow into complex die geometries.
- Lower Production Cost:** Eliminates the capital expenditure, labor, and quality risks associated with in-house powder blending.

## 3. BASE MATRIX OPTIONS

Primary Powder	Key Characteristics
Water Atomized Iron	High compressibility for dense structural parts.
Sponge Iron	High green strength, interconnected porosity.
Atomized Copper	High conductivity, excellent thermal properties.
Pre-Alloyed Bronze	Perfect for self-lubricating bearings (90/10).

## 4. TYPICAL CUSTOM ADDITIONS

Additive	Purpose / Typical Range
Alloying Elements	Graphite, Copper, Nickel, Molybdenum, Mn
Lubricants	Zinc Stearate, EBS Wax, Kenolube (0.5% - 1.5%)
Machinability Enhancers	MnS (Manganese Sulfide) or custom agents
Bonding Agents	Organic binders to prevent dust segregation

## 5. CORE PM APPLICATIONS

- Automotive Components:** High-density iron-carbon-copper premixes for gears, sprockets, and synchronizer hubs.
- Tribological Bearings:** Bronze and Iron-Bronze blends precision-tuned for self-lubricating porous bearings.
- Soft Magnetic Composites (SMC):** Insulated iron powder blends for highly efficient electric motor cores.

## 6. USAGE & SUPPLY

- Usage: Do not remix.** Premixes are provided "Ready-To-Press". Remixing at the plant level may break engineered bonds and cause graphite segregation.
- Packaging:**
  - 25 kg high-density bags / pails.
  - 1,000 kg bulk super-sacks (FIBC).
  - Vacuum sealing available for moisture-sensitive blends.

## 7. DISCLAIMER

As this product is formulated to custom specifications, exact metallurgical values (AD, Flow, PSD, Chemistry) will be provided via a specific Certificate of Analysis (CoA) matching your approved blend. This information is intended as a general guide. Powders must be stored in a dry, temperature-controlled environment.