



— **KRN** ALLOYS PVT. LTD.

INTEGRATED METAL POWDER SOLUTIONS

Delivering uncompromising quality in Water Atomized, Air Atomized, and Sponge Reduced metal powders for advanced industrial applications worldwide.

INTRODUCTION

Advanced Particulate Engineering

At KRN Alloys, we specialize in the engineering and manufacturing of high-purity metal powders. Our relentless focus on process control allows us to tailor particle size distributions, apparent densities, and morphological structures to meet the exact specifications of the most demanding industries. From structural powder metallurgy to specialized thermal applications, our comprehensive portfolio ensures that our partners have the precise metallurgical foundation required to innovate and excel.

OUR VISION

To be the global benchmark in metallurgical particulate science, driving innovation and empowering next-generation manufacturing.

OUR MISSION

Delivering uncompromised precision, scaling advanced atomization capabilities, and forging enduring partnerships through quality.



MANUFACTURING TECHNOLOGIES

W

Water Atomization

High-pressure jets convert molten metal into irregular particles. Ideal for Iron, Copper, and Ferroalloys requiring high compressibility.

S

Sponge Reduction

Solid-state reduction creating a highly porous, sponge-like structure. Perfect for applications needing high surface area or enhanced bonding.

A

Air Atomization

Utilized for low melting point metals like Tin and Zinc, creating semi-rounded to irregular particles ideal for coatings and soldering.

INTEGRATED FACILITY CAPACITY


ENGINEERED FOR GLOBAL SCALE



5,500
MTPA
FERROUS



1,000
MTPA
NON-FERROUS



800
MTPA
AIR
ATOMIZED

01

STRUCTURAL PM & AUTOMOTIVE

High-compressibility matrices engineered for precision gears, complex load-bearing parts, and advanced automotive structural components.

⚙️ FERROUS STRUCTURAL MATRICES

KIP 100.29 & 80.29: Industry-standard WA Iron (AD: 2.9-3.1 g/cc) delivering exceptional dimensional stability for high-volume press-and-sinter operations.

KIPH 100.29: Premium High-Density formulation strictly engineered for critical load-bearing applications requiring superior green density.

KSP 100.24: Specialized Sponge Iron offering tailored interconnected porosity, optimized for components demanding enhanced green strength.

⚙️ NON-FERROUS & ALLOY MATRICES

KCP 100.29 & 100.24: High-purity WA Copper providing superior electrical and thermal conductivity for precision conductive PM parts.

KBR 30 & 40: Atomized Brass (70/30 & 60/40) engineered for an optimal balance of structural integrity and advanced post-sinter machinability.

02

ADVANCED TRIBOLOGY & TOOLING

Optimized morphological structures for high-friction environments, self-lubricating bearings, and superabrasive metal-bonded tools.

⚙️ TRIBOLOGICAL BEARING SYSTEMS

KBP 10: Atomized Bronze 90/10. The global benchmark matrix for self-lubricating porous bearings, ensuring highly efficient tribological performance.

KBP 15: Atomized Bronze 85/15. Formulated with elevated tin content specifically for heavy-duty bushes and wear-resistant sleeves.

⚙️ SUPERABRASIVE TOOLING & FRICTION

KCP 100.24: High-performance WA Copper serving as a critical thermal dissipater in Metal-Bonded Superabrasive Tooling (Diamond Tools) and brake pads.

KIP 300: Ultra-fine WA Iron executing dual roles as a highly reactive binder element and an essential friction modifier in advanced braking systems.

03

WELDING CONSUMABLES & JOINING

Precisely controlled reactivity profiles engineered for coated electrodes, core-wire filling, and critical metallurgical joining.

04

THERMAL, CHEMICAL & DENSE MEDIA

Highly tuned reactive powders configured for exothermic thermal generation, dense media separation, and surface coatings.

🔥 REACTIVE SPONGE FORMULATIONS

KSP 40.29: High-reactivity sponge iron grade engineered to trigger rapid, stable metallurgical reactions within advanced electrode flux formulations.

KSP 40.29C: Coarse-tailored sponge morphology designed specifically to eliminate dusting and guarantee continuous feeding in flux-cored wires.

💧 ATOMIZED DEOXIDIZERS & FILLERS

KIP 40.29: Water Atomized Iron acting as a free-flowing, high-density alternative strictly optimized for gravity-fed flux systems.

KFS 45: WA Ferrosilicon (45% Si) deployed as a vital deoxidizing agent, providing uncompromising metallurgical control of the weld pool.

🔥 THERMAL & LOW-MELTING SYSTEMS

KSP TW 100: Specialty Thermal Grade Sponge Iron engineered with strictly controlled oxidation curves for commercial exothermic heat packs.

KSnP & KZnP: Air Atomized Tin & Zinc providing exceptional wettability and particle consistency for advanced soldering pastes and surface treatments.

🧪 DENSE MEDIA & ALLOY ADDITIONS

KFS 15: WA Ferrosilicon precisely atomized to generate highly stable, low-viscosity slurries crucial for Dense Media Separation (DMS).

KFS 200 & KSP 200: Standard WA Ferrosilicon tailored for precision foundry alloy additions, alongside coarse sponge iron for industrial scavenging.

Iron Tablets: High-purity compacted iron powder tablets engineered for precise, rapid-dissolving alloying additions in melting practices for balancing the alloy chemistry precisely.

GRADE NAME	PROCESS / BASE MATRIX	KEY SPECS (AD/SI/PURITY)	PRIMARY APPLICATION
🔧 FERROUS & STRUCTURAL MATRICES			
KIP 100.29	WA Iron	AD: 2.9-3.0	General PM Parts
KIPH 100.29	WA Iron (High Dens)	AD: 2.9-3.05	High-Load PM Components
KIP 80.29	WA Iron	AD: 2.9-3.1	Automotive PM
KIP 80.24	WA Iron	AD: 2.4-2.8	Automotive PM
KIP 40.29	WA Iron	AD: 2.6-2.9	Welding Flux Systems
KIP 300	WA Iron (Fine)	-325 mesh: 30-45%	Friction Materials / Chemical
KSP 100.24	Sponge Iron	AD: 2.3-2.6	General PM / Bonding
KSP 200	Sponge Iron	AD: 2.3-2.7	Industrial Blends
KSP 40.29	Sponge Iron	High Reactivity	Welding Consumables
KSP 40.29C	Sponge Iron (Coarse)	Low Fines	Welding Core Wires
KSP TW 100	Sponge Iron	Controlled Oxid.	Air-Activated Heat Packs
🧪 SPECIALTY & REACTIVE FORMULATIONS			
KFS 15	WA Ferrosilicon	Si: ~15%	Dense Media Separation
KFS 45	WA Ferrosilicon	Si: ~45%	Welding Deoxidizers
KFS 200	WA Ferrosilicon	Si: ~20%	Foundry Alloy Additions
🔧 NON-FERROUS & ALLOY SYSTEMS			
KCP 100.29	WA Copper	Cu ≥99.5%	Conductive PM / Tools
KCP 100.24	WA Copper	Cu ≥99.5%	Diamond Tools / Friction
KBR 30	Atomized Brass	70/30 (Cu/Zn)	General Engineering PM
KBR 40	Atomized Brass	60/40 (Cu/Zn)	Cost-sensitive PM
KBP 10	Atomized Bronze	90/10 (Cu/Sn)	Self-Lubricating Bearings
KBP 15	Atomized Bronze	85/15 (Cu/Sn)	Heavy-Duty Bushes/Wear Parts
KSnP	AA Tin	Sn ≥99.5%	Soldering/Coatings
KZnP	AA Zinc	Zn ≥99%	Chemical / Surface Treatments

* AD = Apparent Density (g/cc). WA = Water Atomized. AA = Air Atomized.



CUSTOM PREMIXES & PRE-ALLOYED SYSTEMS

Beyond our standardized catalog, KRN Alloys leverages advanced process control to engineer proprietary **Premixes and Pre-Alloyed Systems**. We precisely tailor elemental blends, critical lubricant additions, and specific morphological structures to match your most demanding manufacturing parameters. **Iron Tablets** can be customized for composition and weights for tailor made melting applications.



TECHNICAL DATA SHEETS (TDS) AVAILABLE

For comprehensive metallurgical profiles, Particle Size Distribution (PSD) curves, and Apparent Density analytics for any specified grade, contact our engineering desk directly at quality@kernalloys.co.in & sales@kernalloys.co.in.



PRODUCTION INFRASTRUCTURE

MELTING & ATOMIZATION

- Medium Frequency Induction Furnaces
- High-Pressure Water Atomization Lines
- Air Atomization Systems

THERMAL PROCESSING

- Continuous Annealing Furnaces (Protective Gas)
- Solid-State Sponge Reduction Kilns
- Controlled Oxidation Reactors

CONDITIONING & BLENDING

- Multi-Deck Gyro Vibratory Screeners
- High-Capacity Double-Cone Blenders
- Automated Packaging & Barcoding Lines

Total Installed Capacity: **7,300 MTPA**

Quality Assurance: **100% Batch Traceability**

GLOBAL STANDARDS

TÜV SÜD ISO 9001:2015 Certified QMS

Our stringent Quality Management System (QMS) is proudly certified by TÜV SÜD. This globally recognized accreditation validates our relentless commitment to continuous process improvement, strict traceability, and consistently exceeding client metallurgical expectations.

ADVANCED TESTING EQUIPMENT

OPTICAL EMISSION SPECTROMETER (OES)

Precise elemental and trace chemical composition profiling.

TEST SIEVE SHAKER

Particle size distribution (PSD) analysis and PSD Curves.

HALL FLOWMETER & DENSITY APPARATUS

Apparent Density (AD), tap density, and standard flow rate measurement.

METALLURGICAL MICROSCOPES

Surface morphology, structural, and internal porosity examination.

PILOT SINTERING & COMPACTION LAB

In-house hydraulic presses and test furnaces to validate green strength, compressibility, and final sintered densities prior to dispatch.

LECO ANALYZER

Ultra-precise determination of Carbon, Oxygen, and Nitrogen for absolute purity control.

CERTIFICATE



ADVANCED TESTING EQUIPMENT

The Certification Body of TÜV SÜD

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K R N ALLOYS PRIVATE LIMITED
SURVEY NO.77/2, KANKAR, MORBI, DIST. GANDHAR, GUJARAT, INDIA

Manufacture and Supply of Metal Powders and Fluxes

PILOT SINTERING & COMPACTION LAB

024-09-25 until 2027-09-24

In-house hydraulic presses and test furnaces to validate green strength, compressibility, and final sintered densities prior to dispatch.

Certificate Registration No. 99 100 24248

Date of initial certification: 2024-09-25

Issue Date: 2024-09-25 Rev. 00

LECO ANALYZER

Ultra-precise determination of Carbon, Oxygen, and Nitrogen for absolute purity control.



THE PM ADVANTAGE

WHY POWDER METALLURGY?

Powder Metallurgy (PM) fundamentally outperforms traditional casting and machining. When paired with KRN's metallurgical expertise, manufacturers achieve unprecedented efficiency, precision, and commercial scalability.

95%

MATERIAL UTILIZATION

Compared to ~50% in standard machining.

30%

COST REDUCTION

In complex, high-volume part production.

100%

ALLOY CONSISTENCY

Ensuring perfectly uniform mechanical properties.



ZERO WASTE

Highly efficient, environmentally sustainable process.



DELIVERING THE PM PROMISE THROUGH CUSTOM ENGINEERING

To unlock peak PM efficiency, standard powders aren't enough. KRN engineers **Custom Premixes & Pre-Alloyed Systems** specifically for your tooling. By precisely tuning Apparent Density, PSD curves, and custom lubricants, we optimize compaction flow, eliminate excessive die wear, and guarantee absolute dimensional stability.

THE KRN DIFFERENCE

YOUR CATALYST FOR PM EXCELLENCE



METALLURGICAL PRECISION

Our strictly controlled atomization ensures ideal particle morphology and packing behavior. This directly translates to superior compressibility, reduced ejection forces, and flawless dimensional stability in your press operations.



AGILE SCALE & SUPPLY

With a robust 5,500 MTPA infrastructure, we deliver the uninterrupted high-volume capacity required for demanding automotive and industrial contracts, while guaranteeing absolute batch-to-batch repeatability.



ENGINEERING PARTNERSHIP

We collaborate closely with your tooling and production teams. By optimizing the raw powder characteristics to match your specific press capabilities, we help you drastically reduce tool wear and minimize rejection rates to zero.



SUSTAINABLE SCIENCE

GREEN TECHNOLOGY & SUSTAINABILITY

KRN Alloys is fundamentally committed to integrating environmentally responsible practices into heavy industry. We continuously invest in "Green Technologies" to ensure our advanced manufacturing footprint is as ecological as it is economical.



Closed-Loop Water Systems: Utilizing 100% closed-loop cooling and atomization water circuits, drastically reducing freshwater consumption.



Energy-Optimized Furnaces: Deployment of highly efficient induction melting technologies that lower power consumption.



Scrap & Resource Circularity: Our induction melting and atomization lines actively upcycle high-grade industrial steel scrap into premium powders.




PRECISION ENGINEERED PARTICULATE SOLUTIONS

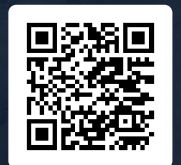
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SCAN TO CONNECT