

Satisfaction of Quality

World Class Manufacturer Of Sintered Bushes & Small Structural Powdered Metal Parts







Who We Are? (About Us)

Our focused product lines, motivated associates, shared decisionmaking, and efficient regional production operations offer best cost solutions to your PM challenges. PSP made a commitment more than 8 years ago to be the best in the small parts P/M manufacturer in the industry.

We are committed to customer satisfaction and openly discuss any issues that may arise during our contract period. Status reports are provided at your chosen interval to keep you informed of your project status from purchase order through first article release. We are interested in long term relationships with our clients.

Our team is dedicated to serving you through innovative design engineering development and production of engineered PM components with high quality, competitively priced components. Privately held and closely managed.

Why PM?

The demand for P/M components is growing. Why?... Because of the many advantages powder metallurgy as a metal-forming process offers. Extremely enormous design flexibility, P/M can meet specific strength, tailored properties, design characteristics and, quite often, operational advantages with a high degree of accuracy.

In addition, P/M is efficient on a mass production basis. Products with extremely close tolerances can be net-shape manufactured with virtually no waste and without extensive (if any) secondary machining.

Finally, P/M enables the manufacture of parts or combinations of parts that otherwise may be impossible or too costly to produce using more conventional metal forming techniques or machining processes.

Our Capabilities

- Materials: Bronze, D-Bronze, Iron, Copper-Iron, Copper-Carbon Iron, Phosphorous Iron, nickel/copper/steel, add-mix, pre-alloyed-copper infiltrated, bronze matrix, Harden Steel
- Parts up to 2-3 level complexity & length up to 75mm & Dia. up to 100 mm.
- · Press capacity: Up to 200 tons
- · Densities: to 7.5 grams/cc
- . Sintering furnace: high temperature (1200oC)
- Copper Infiltration
- · Tumbling/Deburring
- · Oil Impregnation & Resin Impregnation
- Stream treatment & Plating.
- · Cash Hardening: Gas Carburize, carbonitride
- · All Secondary Machining Operations to achieve a final parameter.

Our capabilities include high density, high strength, High Performance, High Precision Bushes, Parts, Gears & Gerotors by combining high strength alloys and unique secondary operation

Our complete powdered metal facilities enable us to execute conventional PM and secondary operations in-house, thus taking high-volume powdered metal components to new standards of excellence.

Our professionals select the industry demands components with minimum weight and optimum performance requirements, proper materials & densities and our in-house technology ensures to give our customers greater quality and maintains cost-effective solutions.

Product Catalogue

What is the Powder Metallurgy (PM) ?

Powder metallurgy is the process where by metal parts in large quantities can be made by compressing and sintering various powdered metals such as brass, bronze and iron. Self-lubricating sintered metal bearings are produced by powder metallurgical methods.

Powder metals are fed into a die and axially compacted. The compacted Parts are sintered in a protective gas atmosphere at temperatures below the melting point. Through diffusion, a bonding results at the points of contact of the powder particles. This bonding defines the strength of components. Through subsequent calibration, the specified tolerances primarily in the bore are met without blocking up the pores.

Vacuum impregnation with a suitable lubricant is the final stage of the process, and supplementary heat treatments may be employed.





PM process Steps

(1) Design

PSP designs all tooling required to produce a part to customer specifications.

(2) Blending

Metal powders are first mixed with lubricants and/or other alloys to produce a homogeneous blend of ingredients. Often the blending is done by the metal powder producer.

(3) Compaction

The powder is gravity-fed into the die and is usually compacted at room temperature. The most common compacting pressures are in the 30 - 50 tons per square inch range.

(4) Sintering

During sintering the pressed parts move through a controlled-atmosphere furnace. The pressed powder particles fuse together, forming metallurgical bonds.

(5) Sizing / Coining

Dimensional accuracy can be greatly improved by re-pressing the part after sintering. This operation is called sizing. During Sizing the density, strength and other mechanical properties of the parts are generally increased.

(6) Secondary operations

PSP can provide the part with a variety of secondary operations including grinding, turning, milling, drilling, tapping, reaming, repressing, oil impregnation, Resin impregnation, Steam Treatment, Heat treatment, Plating, double disc grinding, tumble deburring and assembly.

Two & Three Wheelers Parts

also harden steel.

Applications / Product Range

We manufacture bearings, bushings, gears, Gerotors, cams, counterweights, pole pieces, heat treated gears and more Products in a variety of materials including: brass, bronze, and iron steel, Iron Carbon steel, Iron Copper Carbon steel, Iron Copper Carbon Nickel steel alloys &

Diversified Products signifies the commitment and dedication principled in the PSP philosophy. Through Diversified Products, PSP reputation for quality products and quality people advances to a new generation of customer challenges.

Bearings and Bushings

Self-lubricating sintered bearings can be cylindrical, flanged, or spherical. On special request, other shapes are possible, and even tolerances can be altered. Where lubricants are concerned, Depending upon application, bearings are impregnated with oils of varying viscosity

Small Structural Componets

Automotive Components

 Oil-pump Gerotors & gears, Refrigeration Parts, sprockets, synchronizing Rings & Hubs, components, sensor Ring transmission Parts, Timing belt pulleys & Gears, -Bearing Caps, Ridecontrol parts, Steering Column Parts, Shock Absorber Components, Valve-Train Parts like valve guide, valve seat, piston ring, fuel injection pump parts, Air conditioning Parts, Wiper Parts,

Two & Three Wheelers Components

 Clutch Bush, Clutch PressurePlate, Clutch pivot, Engine Bush, Connecting Rod Bush, Pedal Bush, Speedometer Shaft Bush, Gear Box Bush,

Electric and electronic equipment Spare Parts

. Self starter & dynamo Bushes & Parts, Power Tools Parts,

Diesel Engines Parts

. Camshaft Bush, Rocker Arm Shaft Bush, Governing Weight, etc.

Business Machines Parts

· Fax, Printer, Type Writer, Etc.

Industrial gears & sprockets

. Textile Machinery Parts & Bushes

Home Appliances components

Washing M/c, Mixer & Juicer, Refrigerator, A/C, Cooler, etc.

Agricultural Equipment Parts (Tractor)

Farm and garden equipment Spare Parts





Material Specifications

Grade	Material	Use	Composition Percent				Properties						Equivalent
			Cu %	Sn %	Fe %	C %	Density gm / cc	Porosity %	K Factor psi	Apparent Hardness	UTS. psi	Comp. Yield Strength psi	Specifications MPIF std.
PM-1	Bronze	Bush	87.5-90.5	9.5-10.5	1.0 MAX	< 0.3	6.4-6.8	19	26000	-	14000	11000	CT-1000 -K26
PM-2	Bronze	Bush	87.5-90.5	9.5-10.5	1.0 MAX	< 0.3	5.8-6.2	24	19000	-	8000	7000	CT-1000 -K19
PM-3	Bronze	Bush	87.5-90.5	9.5-10.5	1.0 MAX	< 0.3	6.8-7.2	12	37000	-		-	CT-1000 -K37
PM-4	Iron	Bush	-	-	96.25 Min	0.25 MAX	5.7-6.1	20	15000	-	16000	12000	F-0000 -K15
PM-5	Fe-Cu.	Bush	7.0-11.0	-	Remainder	< 0.3	5.8-6.2	19	20000	-	-	-	FC-1000 -K20
PM-6	Fe-Cu.	Bush	18.0-22.0	-	Remainder	< 0.3	5.8-6.2	19	25000	-	-		FC-2000 -K25
PM-7	Fe-Cu-C	Bush	18.0-22.0		75.1-81.4	0.6-0.9	6.0-6.4	17	46000	-		-	FC-2008 -K46
PM-8	Cu-Steel	Parts	1.5-3.9		93.2-97.9	0.6-0.9	5.8 MIN			RB50	35000	30000	FC-0208 -30
PM-9	Cu-Steel	Parts	4.0-6.0		91.1-95.4	0.6-0.9	5.9 MIN		-	RB60	58000	52000	FC-0508 -40
PM-10	Cu-Steel	Parts	7.0-9.0		88.1-92.4	0.6-0.9	6.0 MIN		-	RB65	55000	50000	FC-0808 -45
PM-11	Fe-Cu.	Parts	9.5-10.5	-	87.2-90.5	.03 MAX	6.0 MIN			RB15	30000	26000	FC-1000 -20
PM-12	D-Bronze	Bush	34-38	3.5-4.5	54.2-62.0	0.5-1.3	6.0-6.4	17	22000	-	-		FCTG -3604-K22
PM-13	Steel	Parts	-	-	97.7 MIN	0.0-0.3	6.1 MIN	-	-	RF40	18000	16000	F-0000 -10
PM-14	Steel	Parts	-		97.4-99.7	0.3-0.6	6.1 MIN		-	RB25	24000	21000	F-0005 -15
PM-15	Steel	Parts	-	-	97.1-99.4	0.6-0.9	5.8 MIN	-	-	RB35	29000	25000	F-0008 -20
PM-16	D-Bronze	Bush	50.2-58	5.5-6.5	36-40	0.5-1.3	6.0-6.4	17	22000				CFTG - 3806-K22

Quality Assurance

Advanced controlled manufacturing tools, certified calibrated metrology equipment, and quantitative documentation methods enable PSP to meet detailed customer requirements. Process documentation and employee training are the culture of PSP. Manufacturing operators are educated on the requirements for each component before they are processed.

PSP applies statistical methods to production and final inspection to ensure that consistent quality components are shipped to our clients. You are aware that Sintered product manufactured by PSP gives totally full proof by Q.C. & Standardized Control Production Process.

Our in-house capabilities allow for the necessary agility and flexibility required for today's manufacturing demands. Precision is guaranteed through computer-aided design, state-of-the-art inspection and advanced testing procedures. You can trust the PSP support team of professionals for total dedication and a solid commitment to producing the very best in machined products.

Important TIPS for RFQ

It is recommended that when enquiring for sintered products, as much information as possible is given relating to the component and its application the following covers some relevant points that are important.

- · Specify the initial ordering quantities, the annual usage and overall potential.
- Wherever possible, describe the application in detail, the physical properties required, and performance expected of the component. Any information on loading or operating conditions should be included.
- Supply a fully detailed drawing including all dimensions & tolerance limits for each dimension. Remember to have tolerances as liberal as possible to achieve maximum economics.
- . State the material used if an existing part, if not, provide a material specification, or, state if you wish us to recommend a suitable one. Also send a samples if available.



Mfrs. All Types of Sintered Bushes, Powder Metal Stuctural Parts

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