



**METAL POWDER
INDUSTRIES FEDERATION**

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PM Automotive Parts Catalog

The Powder Metallurgy Automotive Parts Catalog represents the results of an ambitious industry-wide study to account for every known automotive part made by the PM process. The catalog is divided among three main categories or vehicle areas: Engine, Transmission/Transfer Case, and Body/Chassis. In total, the catalog identifies over 300 individual automotive applications, with total parts exceeding 750. Since the survey results are not final, these totals are undoubtedly on the conservative side, with more applications still to be identified. Some estimates suggest the ultimate number may be closer to 1,000 or more parts. The study is a living document and will be updated on an ongoing basis as new applications are identified.

The study was conducted over a two-year period (2007–08) by MPIF under the auspices of both the MPIF Technical Board and MPIF Industry Development Board. Its objective was to help increase the utilization of PM within the automotive industry.

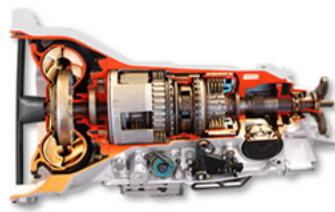
TECHNOLOGY GOALS: The catalog can be used to determine what new applications and PM processes can be developed or integrated for use by all automotive manufacturers.

PROMOTIONAL GOALS: The catalog shows more accurately the use and importance of PM technology in the automotive industry by listing the number of actual PM applications in a vehicle rather than the average number of pounds of PM material.

If you know of parts that should be added to the PM Automotive Parts Catalog, or to comment on the catalog in any way, please [click here](#).



Engine



Transmission/Transfer Case



Body/Chassis

*Advancing Powder Metallurgy
& Particulate Materials Worldwide*

A FEDERATION OF THESE TRADE ASSOCIATIONS:

POWDER METALLURGY PARTS ASSOCIATION
METAL POWDER PRODUCERS ASSOCIATION
POWDER METALLURGY EQUIPMENT ASSOCIATION
METAL INJECTION MOLDING ASSOCIATION
REFRACTORY METALS ASSOCIATION
ISOSTATIC PRESSING ASSOCIATION

Engine—Gasoline/Diesel

Misc. Parts

Air Pump Bearing Retainer
Alternator Heat Sink
Armature
Balance Shaft Sprockets/ Gears
Cam
Connecting Rods
Distributor Gears
Distributor Pole Pieces
EFI Sensor Ring
Emission Control Plates
Endplate
Gasket Inserts
Governor Weight
Ignition Coil (Somaloy)
Injection Clamps
Lever Arm
Lock Plate
Manifold Balance Rotary Solenoid Housing + Armature
Reluctor Wheel
Rocker Arm Ball
Rocker Arm Fulcrum
Rotor Retainer
Spark Plug Insulators Fully Automated
Spring Seat (Dampers)
Sprocket/ Pulley- Intermediate
SS Spacer
Stator
Tensioner Backing Plate
Tensioner Pulley
Throttle Cam
Throttle Shaft Lock
Thrust Plate
Tone Wheels/Sensors
Tungsten heavy alloy crank balance

Camshaft

Camshaft Assembly Lobes
Camshaft Bearing Caps
Camshaft Hold-down Bracket
Camshaft Pulley
Camshaft Retainer
Camshaft Sprocket

Crankshaft

Crankshaft Bearing Caps
Crankshaft Pulley
Crankshaft Sensor
Crankshaft Sprocket

Exhaust

Emissions Mini-Manifold (for California emissions)
Flanges
HEGOs Fittings

Fuel

Fuel Eccentric Ring
Fuel Injection Sprockets
Fuel Injector Sealing Seat
Fuel Injector Solenoid Core
Fuel Pump - Inlet Cover
Fuel Pump Adaptor Plate
Fuel Pump Bushing
Fuel Pump Gears
Fuel Pump Gerotors

Fuel Pump Housing – Ring

HVAC

HVAC Air Conditioner Clutch Hub
HVAC Air Conditioner Compressor Swash Plate
HVAC Air Conditioner Compressor Valve Plate
HVAC Air Conditioner Disk Shoe
HVAC Air Conditioner Fan Motor Bronze Bearings
HVAC Air Conditioner Slider Block

Oil Pump

Oil Pump Backing Plates
Oil Pump Gears
Oil Pump Gerotors
Oil Pump Sprocket

Power Steering

Power Steering Pump Cam Ring
Power Steering Pump Rotor
Power Steering Pump Lower Pressure Slide Plates
Power Steering Pump Upper Pressure Slide Plates
Power Steering Pump Vanes/Slippers
Power Steering Pump Yoke

Starter

Starter Motor Frame
Starter Motor Pinions
Starter Motor Plunger Stop
Starter Motor Pole Piece

Transfer Pump

Transfer Pump Blade
Transfer Pump Liner
Transfer Pump Pressure Plate

Turbo Charger

Turbo Charger Adjustment Gear (Hot Side)
Turbo Charger Adjustment Ring (Hot Side)
Turbo Charger Adjustment Vanes
Turbo Charger Thrust Bearing

Valve Guides & Seats

Valve Guides
Valve Seat Inserts- Exhaust
Valve Seat Inserts- Intake

VVT (Hydraulic/Mechanical)

VVT - Cam (Sprocket)
VVT - Drive (Outside Member)
VVT - Rotor (Inside Member)

Water Pump

Water Pump Flange
Water Pump Impeller
Water Pump Pulley
Water Pump Pulley Hub

Engine—HEV-Electric Motor

Misc. Parts

Cam
End Plate
Housing
MoCu heat sinks
Rotor
Stator

Transmission/Transfer Case—Automatic

Misc. Parts

Armature - Sensor Ring
Clutch Adjustment Ring
Counterweight + Sleeve
Direct Clutch Hub
Drive Sprocket
Driven Sprocket
Forward Clutch Hub
Intermediate Clutch Hub
Lock-up Clutch Collar
Lock-up Converter Hub
Magnetic Clutch Housing
Output Shaft Hub
Park Guide Actuator
Parking Gear
Parking Pawl
Power Take Off Gear
Power Take Off Hub
Pressure Reaction Plates
Ring Gear Hub
Spacer
Support Hub
TCC Stator Clutch Cam
TCC Stator Clutch Sleeve
TCC Turbine Hub
Thrust Washer

One-way Clutch

One-way Clutch Inner Race
One-way Clutch Notch Plate
One-way Clutch Outer Cam
One-way Clutch Outer Race
One-way Clutch Pocket Plate
One-way Clutch Unitized Module

Planetary Carrier

Planetary Carrier Frame
Planetary Carrier Gears
Planetary Carrier Spacer/Tube

Pump

Pump Cam Ring
Pump Gears
Pump Gerotor
Pump Rotors
Pump Stator
Pump Vanes

Transmission/Transfer Case—CVT-Automatic

Misc. Parts

Annulus Gear
Oil Pump Sprocket
Pressure Reaction Plates
Sun Gear

Planetary Carrier

Planetary Carrier Gears
Planetary Carrier Housing
Planetary Pinion

Pump

Pump Cam Ring
Pump Gears-Gerotor
Pump Rotors
Pump Stator
Pump Vanes

Transmission/Transfer Case—Manual

Misc. Parts

Clutch Hub
Detent-Guide
Friction Materials - Clutch Pads
Shift Fork
Shift Levers
Shift Locking Lever Cover
Shift Pivot Bushing
Spacer-oil Slinger
Speed Gear
Thrust Washer

Synchronizer

Synchronizer Cone
Synchronizer Housing
Synchronizer Hub
Synchronizer Keys
Synchronizer Ring
Synchronizer Sleeve

Misc. Parts

Annulus Gear
Apply Cam
Armature - Sensor Ring
Base Cam
Bushing
Case Drive Sprocket
Case Driven Sprocket
Case Inner Mode Hub
Case Main Shaft Hub
Case Planetary Carrier Gear
Case Planetary Carrier Housing
Clutch Backing Plate
Clutch Coating
Clutch Housing
Clutch Hub
Differential Carrier
Lock-up Clutch Collar
Oil Pump Rotor
Oil Pump Stator
Reduction Carrier
Reduction Hub
Sleeve
Sun Gear
Tone Wheel

Transmission/Transfer Case—Axle-Differential

Misc. Parts

ABS Tone Ring
Axle Retainer
Bearing Pre-load Adjuster
Cam Plate, Locking Differential
Differential Gear Clutch Ring
End Caps, Locking Differential
Fly Weights, Locking Differential
Half Shaft Weights
Reaction Blocks, End Caps, Locking Differential

Transmission/Transfer Case—HEV-Auto

Misc. Parts

Annulus Gear
Direct Clutch Hub
Drive Sprocket
Driven Sprocket
Output Shaft Hub
Parking Gear
Parking Pawl
Pressure Plates
Ring Gear Hub
Sun Gear
Support Hub

Planetary Carrier

Planetary Carrier Frame
Planetary Carrier Gears
Planetary Carrier Spacer/Tube

Pump Cam Ring

Pump Gears/Gerotor
Pump Rotors
Pump Stator
Pump Vanes

Body/Chassis—Steering & Suspension

Misc. Parts

Ball Joint Bearing
Drive Axle Bearing Retaining Nut
Spring Seat Collar
Trailer Axle Bearing Retaining Nut
Vibration Dampener Spacer

Shock Absorber

Shock Absorber Compression Valves
Shock Absorber Cylinder Ends
Shock Absorber Piston
Shock Absorber Strut Rod Guides

Steering

Steering Axle Bearing Retaining Nut
Steering End Plate
Steering Rack Guide
Steering Shifting Lever

Body/Chassis—Brake

Misc. Parts

ABS Sensor Pad Holder
ABS Sensor Ring
Adjuster Nuts
Brake Caliper Bushings
Disc Brake Pads
Drum Brake Wheel Cylinder Piston
Friction Materials - Brakes
Lock-Master Cylinder
Pistons
Sensor Mount
Spacers for Brake/Clutch Pedal Assembly

Body/Chassis—Body

Misc. Parts

Air Line Spacers
CD Player Motor Bushings
Electric Motor Cores and Armatures
Headlight Activator Gears
Instrument Parts
Locking Lug Nut
Locking Lug Nut Wrench
Power Antenna Motor Bushings
Power Seat Motor Bushings
Truck Seat Spacers
Trunk Release Gear

Auto Roof

Hinge Bracket for Sun Roof Assembly
Hinge Brackets - Auto Roof
Sunroof Stop Cam

Door

Door Hinge Bushings
Door Hinges
Door Notch Sleeve
Electric Remote Door Gears
Electric Remote Mirror Gears
Hardware in Minivan Sliding Doors
Power Window Motor Bushings
Window Lift Gears

Light

Light Bulb Filaments
Short Moly Wire for Halogen Lamps (EU & Asia)
Tungsten electrodes for Xenon Lamps

Windshield Washer

Windshield Wiper Gears
Windshield Wiper Head Bearings
Windshield Wiper Head Bushings
Windshield Wiper Knurled Drivers
Windshield Wiper Motor Flux Rings
Windshield Wiper Spherical Bearings

Body/Chassis—Interior

Misc. Parts

Airbag Hardware
Airbag Disk Burst Wedge
CD Player Micro Bearings
Headrest Lock Plate
Ignition Lock Sidebar
Lock Parts
Pinion Gears
Power Liftgate Gear/Pinion
Rear View Mirror Mount
Speedometer Gears
Tachometer Sensing Ring

Seat

Power Seat Adjustment Rack
Power Seat Pinion
Power Seat Rack
Seat Adjustment Gears
Seat Adjustment Levers
Seat Belt Wedge Retainer
Seat Recliner Parts
Seat Safety Belt Locks

Steering Column

Steering Column Collar
Steering Column Flag
Steering Column Gears/Ignition Key Lock Gear
Steering Column Inner Cylinder Bulkhead
Steering Column Lock Bolt
Steering Column Locking Wedge
Steering Column Magnetic Pole Piece
Steering Column Passive Restraint Locking Pawls
Steering Column Pawl
Steering Column Rack Bearing
Steering Column Signal Light Lever
Steering Column Solenoid Actuator
Steering Column Staff
Steering Column Support
Steering Column Tilt Ratchet Lever
Steering Column Torsion Bar Bushing