

분말사출성형 소개 및 활용사례

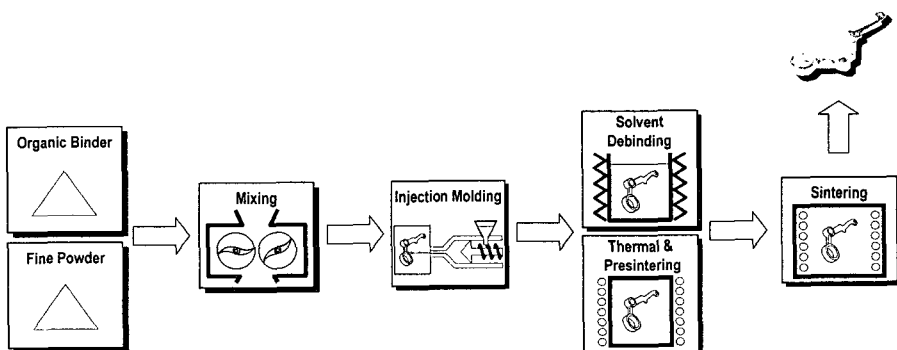
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권영삼, 정성택, 정석환
(주)세타텍

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Powder Injection Molding

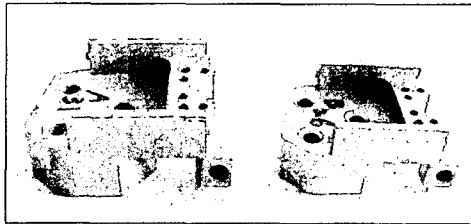


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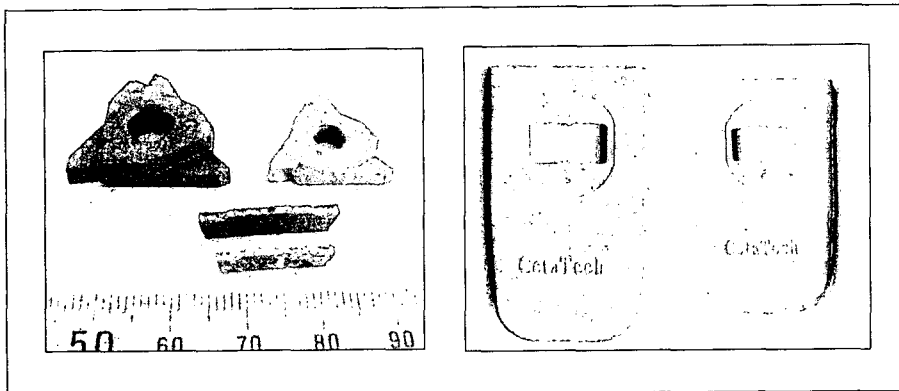
CetaTech, Inc.
Ceramic, Metal & Plastic Processing Technology

PIM Process

Injection Molding Sintered



PIM Process



PIM Industry

Total Sales Amount (2003)	\$800 million
Current Growth Rate (2003)	5-20 %
Estimated Sales Amount (2010)	\$2,200 million
Number of PIM Companies (2001)	550
Saturation Percentage of Current Market	30 %

Successful PIM Companies

PCC Advanced Forming Technology (USA)	\$35 million
Advanced Materials Technologies (Singapore)	\$20 million
Injex (Japan)	\$20 million
Ortho Organizers (USA)	\$20 million
Phillips Plastics (USA)	\$10 million
BASF (Germany) – Feedstock Maker	\$40 million 150 Companies
Arburg (Germany) – Molding Machine Maker	\$40 million 150 Companies

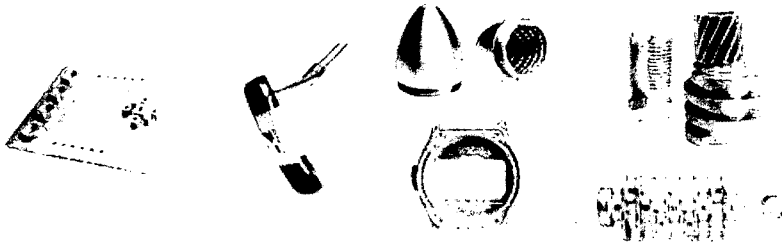
Reference of PIM Company

Total Sales Amount	\$20 million
Profit Margin	20 %
Number of Employees	100
Number of Injection Molding Machines	25
Number of Debinding Units	15
Number of Sintering Furnaces	15
Amount of Feedstock Consumed per Month	5 ton
Amount of Parts Produced per Month	10 million

Properties of PIM Part

Density	> 98 %
Mechanical Properties	Equivalent to Wrought
Shape	Complex
Surface Finish	0.8 μm
Wall Thickness	0.7 ~ 25 mm
Tolerance	0.1 %
Size	0.1 ~ 200 g / 0.1 ~ 100 mm

Shape Complexity of PIM



Available Materials

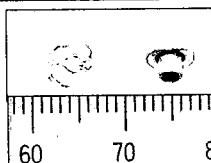
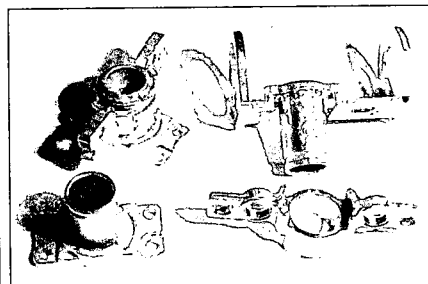
Metallic	Steel, Stainless Steel, Tool Steel, Tungsten Heavy Alloys, Titanium, Molybdenum, Copper, Bronze, Nickel, Mo-Cu, W-Cu
Ceramic	Alumina, Zirconia, Silicon Nitride, Silicon Carbide, Tungsten Carbide
Market Share	Alumina & Silica: 22 % Stainless Steel: 21 % Steel: 21 % Cemented Carbide: 10 %

Related Industry

Medical	Surgical Tools, Dental Bracket
Electronics	Electronics/Fiber Optics Packaging, Microwave/Data Storage/ Cellular Phone Components, Housing, Heat Sink
Automotives	Gears
Military	Hand Gun Components, Shape Charge Liner, Projectile
Arts	Sculptures, Educational Application
Miscellaneous	Golf, Accessories, Hand Tools, Scissors, Gears, Toothbrush Components

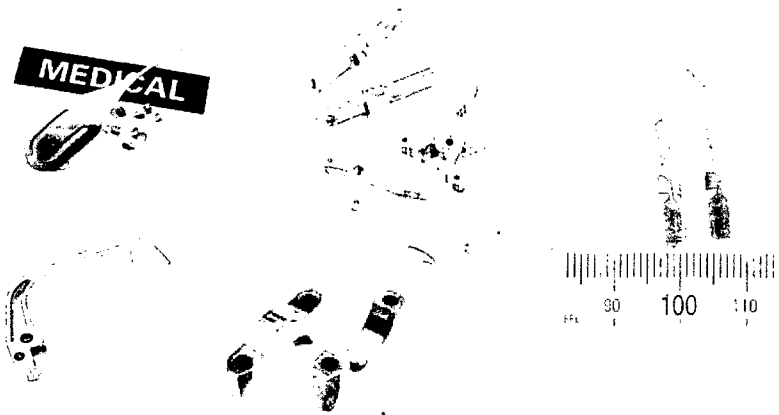
PIM Application

Cellular Phone Components



PIM Application

Medical Application & Surgical Tools

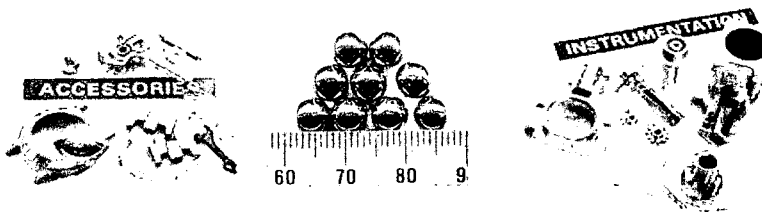


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PIM Application

Others



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