

BRUSH ENGINEERED MATERIALS INC

FORM 8-K (Current report filing)

Filed 11/7/2006 For Period Ending 11/7/2006

Address	17876 ST. CLAIR AVE. CLEVELAND, Ohio 44110
Telephone	216-383-4062
CIK	0001104657
Industry	Metal Mining
Sector	Basic Materials
Fiscal Year	12/31

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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 OR 15(d) of The
Securities Exchange Act of 1934

Date of Report (Date of earliest event reported) November 7, 2006

Brush Engineered Materials Inc.

(Exact name of registrant as specified in its charter)

Ohio

(State or other jurisdiction
of incorporation)

001-15885

(Commission
File Number)

34-1919973

(IRS Employer
Identification No.)

17876 St. Clair Avenue, Cleveland, Ohio

(Address of principal executive offices)

44110

(Zip Code)

Registrant's telephone number, including area code 216-486-4200

Not Applicable

(Former name or former address, if changed since last report.)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- ☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
 - ☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
 - ☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
 - ☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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Item 7.01 Regulation FD Disclosure

On November 7, 2006, Brush Engineered Materials Inc., an Ohio corporation (the “Company”), updated the “Current Investor Update,” a slide presentation on its website, a copy of which is attached hereto as Exhibit 99.1. This slide presentation shows the Company’s corporate strategy and the financial results through the third quarter of 2006.

Item 9.01 Financial Statements and Exhibits

Exhibits:

<u>Exhibit Number</u>	<u>Description of Exhibit</u>
99.1	Current Investor Update

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Brush Engineered Materials Inc.

November 7, 2006

By: Michael C. Hasychak
Michael C. Hasychak
Vice President, Treasurer and Secretary

Brush Engineered Materials Inc.

Profile

- Publicly traded since 1956: NYSE-listed since 1972
- Founded 1931 as Brush Beryllium Company, recently celebrated 75th anniversary
 - Building off earlier pioneering technical work at Brush Laboratories
 - Initial scope was development of commercial markets
- With onset of WW II and post war period, significant growth in defense and eventually, aerospace applications
- Mid-70s: major expansion of new commercial markets
- Today, commercial markets represent 90% + of revenues



Brush Engineered Materials Inc.

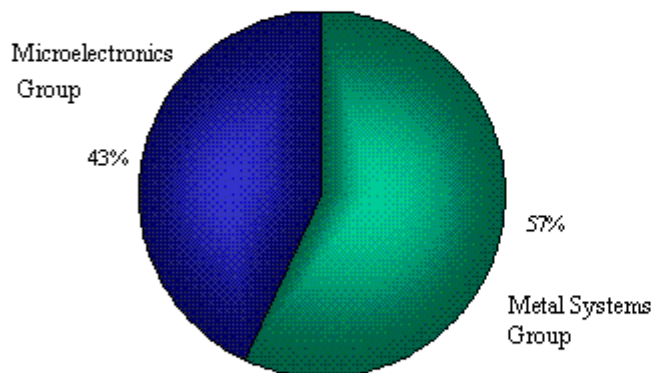
Profile

- A leading manufacturer of high performance engineered materials — a materials technology company
- Operations, service centers and major office locations in North America, Europe and Asia
- Serving long-term growth oriented global markets:
 - Telecommunications and computers
 - Magnetic and optical data storage
 - Aerospace and defense
 - Automotive electronics
 - Industrial components
 - Appliance
 - Medical

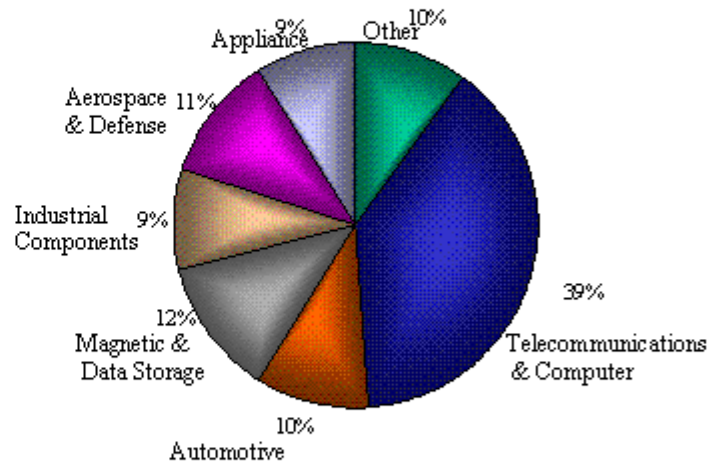


Global Leader in High Performance Engineered Materials

2005 Revenue by Segment



2005 Revenue by Market



Applications

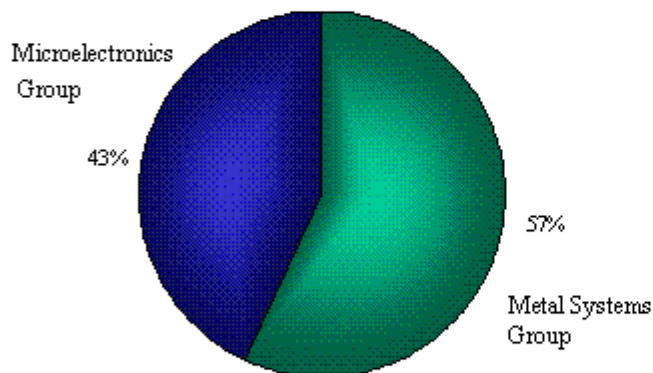
- | | | | | | |
|------------|--------------|-----------------|----------------------|-------------|----------------------|
| ▪ Handsets | ▪ Routers | ▪ Plastic Molds | ▪ Bushings | ▪ Lasers | ▪ Relays |
| ▪ PDAs | ▪ Servers | ▪ X-Ray Windows | ▪ Bearings | ▪ Switches | ▪ Thin Film Circuits |
| ▪ DVDs | ▪ Connectors | ▪ Shielding | ▪ Notebook Computers | ▪ Fine Wire | |

Note: 2005 revenues were \$541.3 million

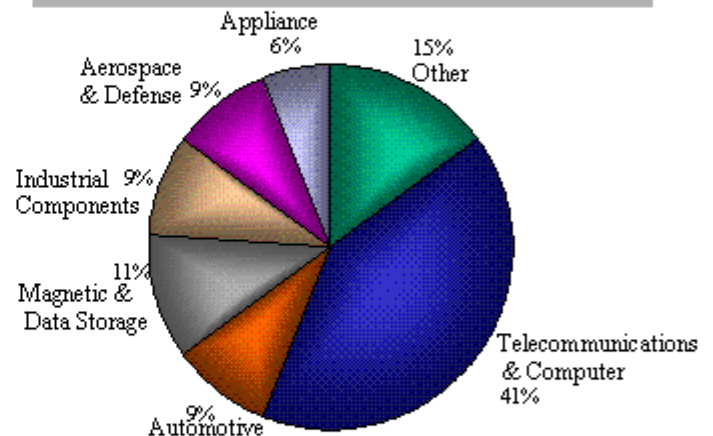


Global Leader in High Performance Engineered Materials

2006 Revenue by Segment



2006 Revenue by Market



Applications

- | | | | | | |
|------------|--------------|-----------------|----------------------|-------------|----------------------|
| ▪ Handsets | ▪ Routers | ▪ Plastic Molds | ▪ Bushings | ▪ Lasers | ▪ Relays |
| ▪ PDAs | ▪ Servers | ▪ X-Ray Windows | ▪ Bearings | ▪ Switches | ▪ Thin Film Circuits |
| ▪ DVDs | ▪ Connectors | ▪ Shielding | ▪ Notebook Computers | ▪ Fine Wire | |

Note: 2005 revenues were \$541.3 million



Brush Engineered Materials Inc.

“Advancing the World’s Technologies”

- BEM Materials are found in a wide range of critical and demanding applications requiring:
 - Strength
 - Reliability
 - Thermal & electrical conductivity
 - Miniaturization
 - Weight reduction
 - Corrosion resistance
 - Reflectivity



Brush Engineered Materials Inc.

End Uses



Cellular phones and other wireless communications

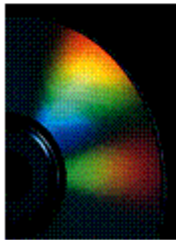
Notebook and network computers



Electronic components in cars and trucks



Life enhancing devices



Magnetic & Optical
Data Storage

Industrial products



Investment Highlights and Strengths

- Global Leader in High Performance Engineered Materials
- Unique Status as Fully Integrated Provider of Beryllium-Containing Products
- Broad Metallurgical Capabilities in Precious and Non-precious Metals
- Global Sales and Distribution Network
- Sales Based on End User Specifications
- Strong Value Proposition in Served Markets
- Strategic Customer Relationships
- Significant Technical Capabilities
- Positive Long-term Market Trends
- Strong Growth in New Products
- High Barriers to Entry
- Capacity to Support Profitable Market Growth
- Strong Balance Sheet



Brush Engineered Materials Inc.
Organized into Two Separate Reportable Segments

Microelectronics

Electronic Products

Williams Advanced Materials Inc.

Metal Systems

Alloy Products

Beryllium Products

Technical Materials, Inc.

Brush Resources Inc.

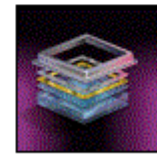
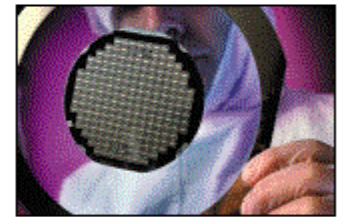


Microelectronics Group - YTD Q3-2006 Sales: \$271.7 million

Williams Advanced Materials (WAM)

\$250.3 million; 45%

- Precious metal and specialty alloys for high reliability applications
- Products include precious and non-precious metal vapor deposition targets, frame lid assemblies, clad and precious metal preforms, high-temperature braze materials and ultra fine wire
- Industries served include magnetic and optical data storage, semi-conductor, performance film, wireless/photronics and precision optics



Electronic Products

\$21.4 million; 4%

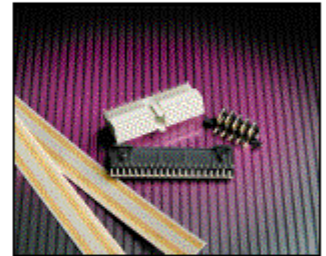
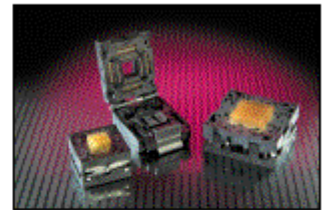
- Products include beryllia ceramic materials, electronic packaging and thick-film circuitry
- Products designed to meet exacting performance requirements of target customers
- Industries served include wireless telecommunications, medical laser, aerospace, defense and automotive

Metal Systems Group - YTD Q3-2006 Sales: \$283.5 million

Alloy Products

\$200.1 million; 36%

- Copper and nickel-based alloy materials, most of which incorporate beryllium
- Strip products are used in electronic connectors including PDA's, wireless communications equipment, notebook and network computers and automotive electronics that require high strength, formability and electrical conductivity
- Bulk products are rod, bar, tube and plate products for heavy equipment and aerospace bushings and bearings, oil & gas components and plastic mold materials where strength, corrosion and wear resistance, thermal conductivity and lubricity are critical performance requirements



Technical Materials, Inc. (TMI)

\$53.0 million; 10%

- Engineered material systems, including clad, plated and electron beam welded metals used in demanding connector applications
- Combines precious and non-precious metals in strip form for use in complex electrical components for telecommunications systems, computers and automotive electronics



Metal Systems Group - YTD Q3-2006 Sales: \$283.5 million

Continued

Beryllium Products

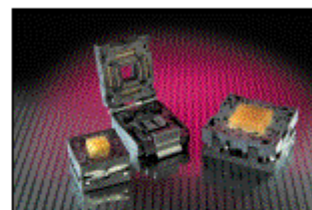
\$28.0 million; 5%

- Pure beryllium and aluminum-beryllium composites for high-performance applications, principally for medical, space and defense applications where stiffness, strength, lightweight, dimensional stability, reflectivity and x-ray/nuclear properties are critical.

Brush Resources

\$2.4 million; 0%

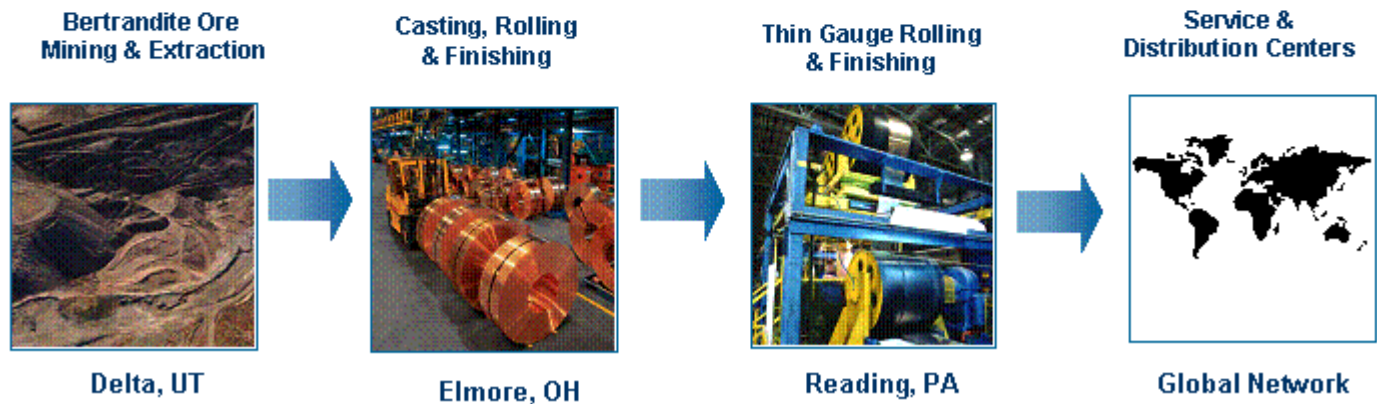
- Brush Resources sells beryllium hydroxide produced through its Utah operations to outside customers and to businesses within the Metal Systems Group.



 **BRUSH**
ENGINEERED MATERIALS

Fully Integrated Beryllium Producer

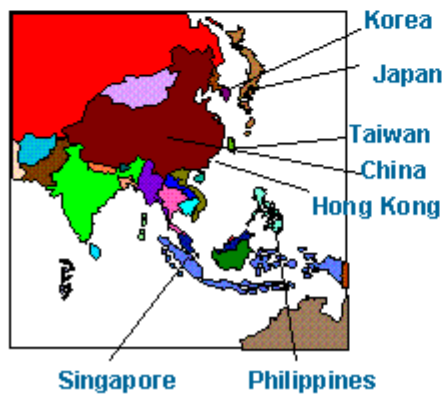
- Beryllium and beryllium alloys are critical to many high performance applications
 - Strong
 - Lightweight
 - Good formability
 - High reliability
 - Thermal and electrical conductivity
 - Corrosion and wear resistant
- Operate the only active bertrandite ore mine in the developed world
 - 7,500 acres in Juab County, Utah
 - Approximately 100 years of proven reserves



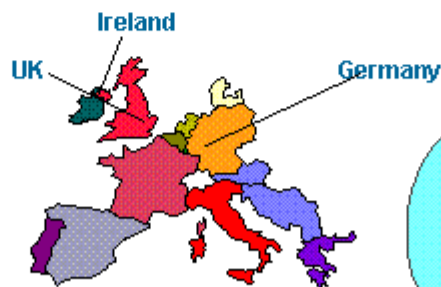
Global Sales and Distribution Network

- Operations in the U.S. and ten foreign locations
- Recent expansion to Taiwan, China and Korea
- International sales for YTD Q3 were 34%

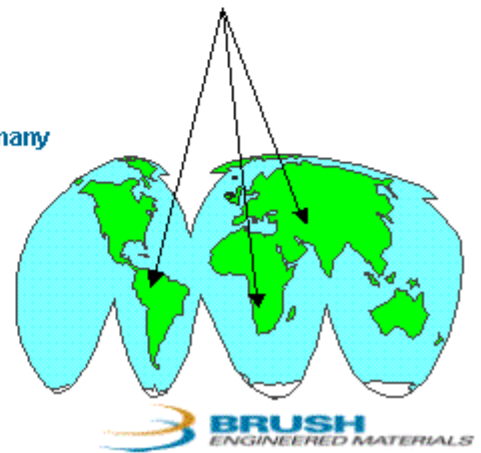
◀ ----- Asia / Pacific ----- ▶

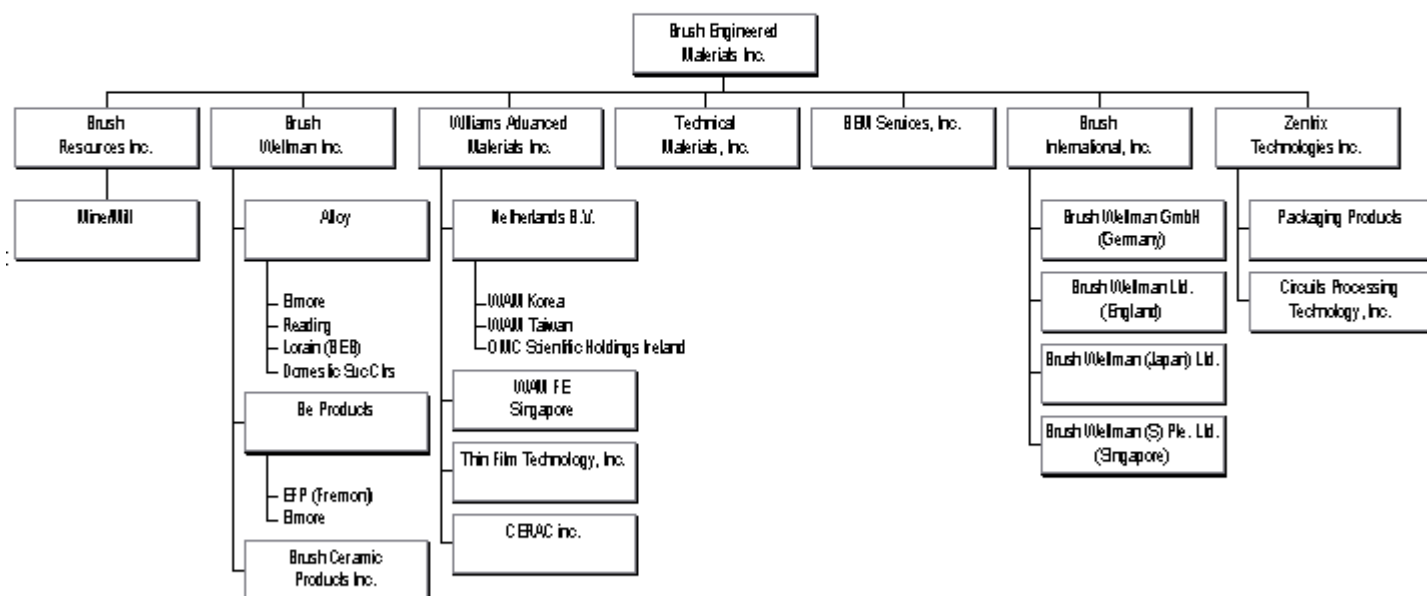


◀ ----- Europe ----- ▶



◀ - Exports from USA - ▶

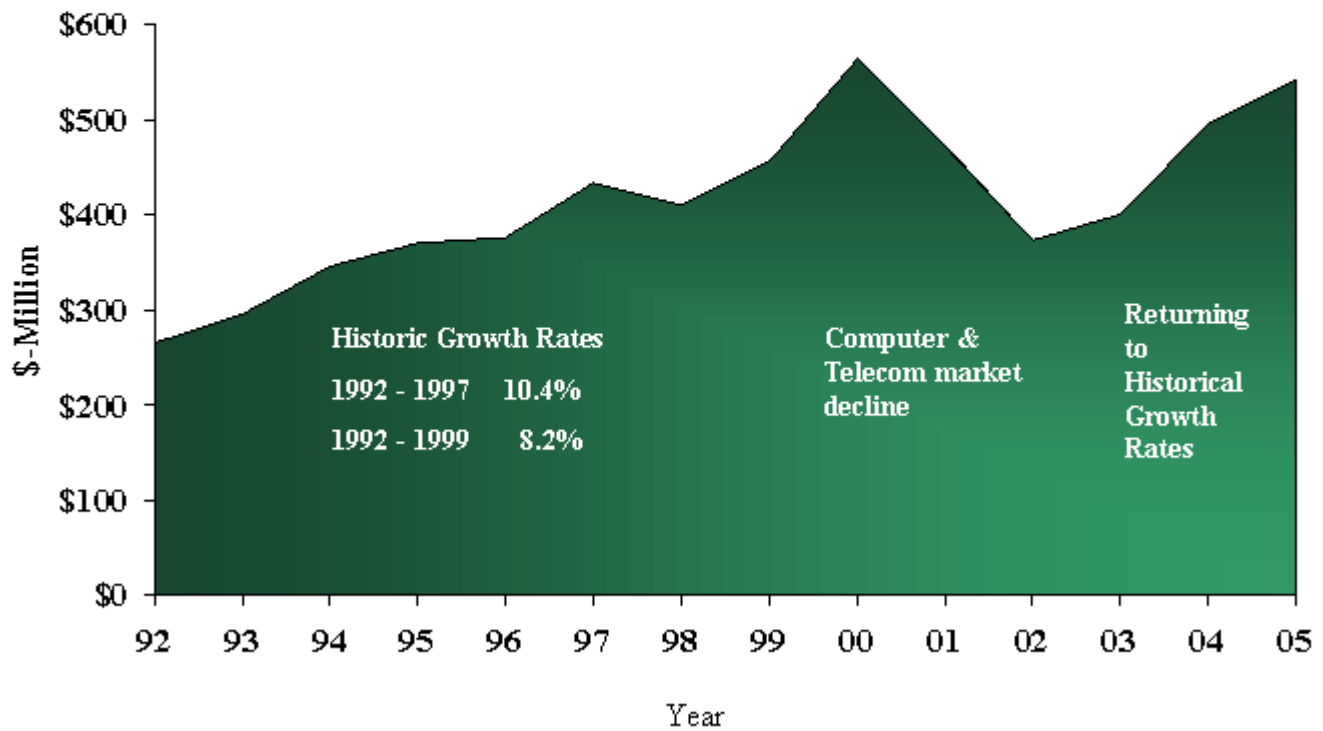




Key Financial Statistics

	YTD			
\$in millions	Q3			
	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Sales	\$401.1	\$496.3	\$541.3	\$555.2
EBIT	(8.9)	25.0	19.5	30.8
EPS	(.80)	.86	.92	.96
G.P.%	18.2%	22.4%	20.3%	20.5%
O.P.%	(2.2%)	5.0%	3.6%	5.5%
Depreciation & Amort.	20.7	23.8	22.8	17.6
Capital Spending	6.3	10.1	14.2	9.7
Debt	99.2	72.5	57.2	80.5
Cash	5.1	49.6	10.6	11.8
Debt/Total Cap.	39%	26%	21%	24%

In 2001, the computer and telecom market decline drove sales back to mid-90's levels
In 2003, growth began to return to historical rates
In 2004 and 2005 growth accelerated

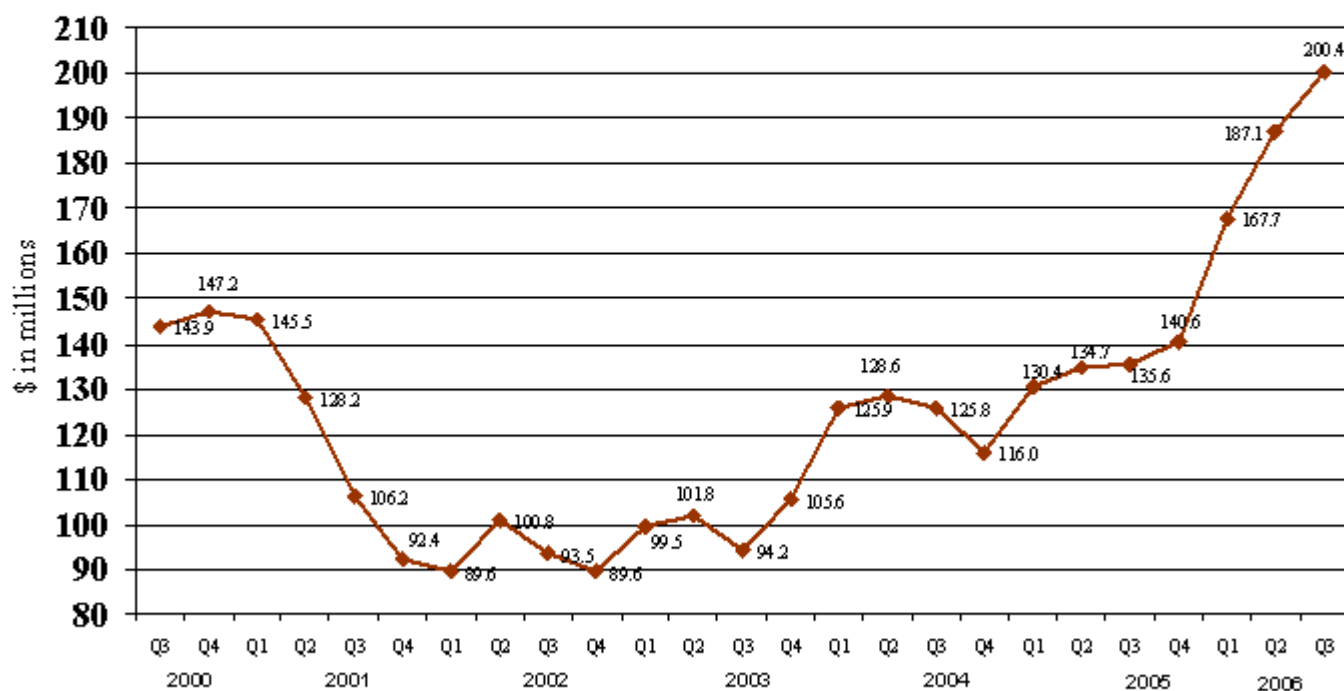


The decline in the telecom/computer market resulted in a 50% drop in the market segment's revenue comparing 2003 to 2000. Since 2004, this market continues to grow.

\$ in millions

	<u>2000</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>Change</u> <u>04-05</u>
Telecom/Computer	\$277	\$139	\$206	213	\$7
Automotive	62	53	59	53	(6)
Industrial	62	42	43	51	8
Magnetic and Optical Data Storage	56	53	52	67	15
Defense/Aerospace	34	37	49	58	9
Appliance	19	27	33	46	13
All Other	<u>54</u>	<u>50</u>	<u>55</u>	<u>53</u>	<u>(2)</u>
—	\$564	\$401	\$497	\$541	\$44

The 3rd quarter 2006 was the fifteenth consecutive quarter where sales were higher than the comparable quarter of the prior year.



Positive Market Trends

- Electronic component manufacturers are being driven by end user demands to produce products that are smaller, lighter and faster
- Increased electronic component performance characteristics require materials that have enhanced mechanical, electrical and thermal properties
- Growing opportunity for thin film physical vapor deposition (PVD) products in the LCD, data storage and semiconductor markets
- Spending and conditions in the telecommunications and computer market have improved
- Conditions have improved in the oil and gas, undersea, aerospace and heavy equipment markets.

Brush has generated year-over-year sales growth in fifteen consecutive quarters

Capacity to Support Profitable Market Growth

Well-positioned to support rapid sales growth without significant incremental cash investment

- Operating with significant available excess capacity
 - \$140 million invested between 1996 and 2000
 - Alloy Products capacity utilization is currently at 50%
 - Significant productivity gains in recent years
-

Financial and Operational Initiatives

*Our on-going performance improvement initiatives are
focused on five key areas*

- Expanding and diversifying the revenue base
 - New products
 - New markets
 - New applications
 - New geographies
 - Improving margins through increased operating efficiency
 - Six Sigma and Lean Manufacturing
 - Controlling overhead costs
 - Maintaining a strong balance sheet
 - Positioning for global market growth
 - Improve quality, cost, speed and service
-

Expand and Diversify Revenue Base

BEM continues to aggressively work to broaden its base with initiatives targeted at new products, new end use markets and new high-growth regions

New Products

- *Alloy 390* – Telecom & Datacom
- *PM Plated Strip* – Telecom & Auto
- ***Toughmet*** – Bushings & Bearings
- *MoldMax XL* – Plastic Molds
- *Welded Tube* – Oil & Gas
- *Silver DVD Alloy (Silx)* - DVD
- *Visi-Lid* – Telecom & Military

New End Use Markets

- Alloy
 - Heavy Equipment
 - Pumps, Valves, Fittings
 - Oil & Gas Safety Components
- WAM
 - Semiconductors
 - Data Storage
 - Magnetic Media
 - Thin Film Transistor/Liquid Crystal Display

New High-Growth Regions

- Singapore
 - Taiwan
 - Hong Kong
 - Korea
 - China
-

Improving Margins Through Increased Operating Efficiency

Lean Manufacturing and Six Sigma initiatives enabled Brush's Alloy Products business to improve operational efficiency and reduce costs from 2002 to 2005

- Increased pounds sold per employee 18%
- Increased pounds shipped 50%
- Reduced inventory¹ 41%
- Improved yields 12%
- Reduced manufacturing overhead 20%
- Improved safety performance 43%
- Reduced unplanned equipment downtime 35%

¹days of sales on hand

Debt Obligations

(\$ in millions)

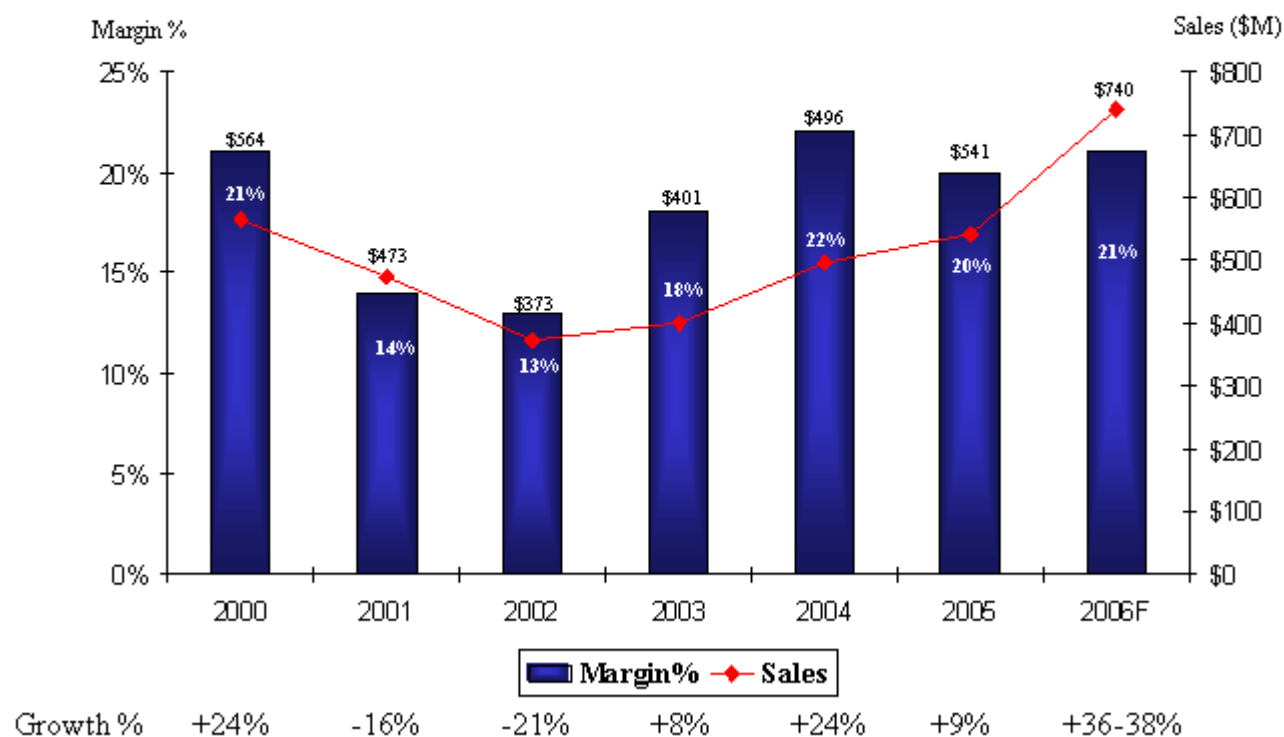
	<u>2000</u>	<u>2004</u>	<u>2005</u>	YTD Q3 <u>2006</u>
Balance Sheet Debt & AEP Lease	\$128.4*	\$ 72.5	\$57.2	80.5
**Off-balance Sheet Leases	<u>17.9</u>	<u>13.1</u>	<u>11.8</u>	<u>10.6</u>
Total	\$146.3	\$85.6	\$69.0	\$91.1
Debt to Debt Plus Equity	36%	26%	21%	24%

*2000 Balance Sheet debt includes major equipment lease

**Note - Excludes precious metal consignment
and leases of:

\$51.0	\$17.1	\$43.7	\$59.1
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Historical Gross Margins



Segment Sales Review

\$ in millions	2002		2003	
	\$	%	\$	%
▪ Microelectronics	\$139.2	37%	\$157.3	39%
– WAM	109.1	29%	127.8	32%
– Electronic Products	<u>30.1</u>	<u>8%</u>	<u>29.5</u>	<u>7%</u>
▪ Metal Systems	\$233.6	63%	\$243.7	61%
– Alloy	151.9	41%	162.3	40%
– TMI	44.4	12%	41.9	11%
– Beryllium Products	31.6	8%	35.2	9%
– Brush Resources*	5.7	2%	4.3	1%
▪ TOTAL	<u>\$372.8</u>	100%	<u>\$401.0</u>	100%

*Effective 1/1/05 Brush Resources Inc. is included in Metal Systems Group.
Prior years have been restated to reflect this change.



Segment Sales Review

\$ in millions	2004		2005		YTD Q3-2006	
	\$	%	\$	%	\$	%
▪ Microelectronics	195.6	39%	235.0	43%	271.7	49%
- WAM	165.7	33%	209.6	38%	250.3	45%
- Electronic Products	29.9	6%	25.4	5%	21.4	4%
▪ Metal Systems	\$300.7	61%	\$306.3	57%	\$283.5	51%
- Alloy	202.9	41%	208.2	39%	200.1	36%
- TMI	53.6	11%	49.9	9%	53.0	10%
- Beryllium Products	39.5	8%	42.6	8%	28.0	5%
- Brush Resources*	4.7	1%	5.6	1%	2.4	0%
▪ TOTAL	<u>\$496.3</u>	100%	<u>\$541.3</u>	100%	<u>\$555.2</u>	100%

*Effective 1/1/05 Brush Resources Inc. is included in Metal Systems Group.
Prior years have been restated to reflect this change.



Segment Earnings 2002 - 2006

\$ in millions	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	YTD Q3 <u>2006</u>
Microelectronics	\$3.8	\$12.6	\$18.5	\$19.0	\$24.1
Metal Systems	(34.8)	(16.0)	4.5	6.3	10.0
Other	<u>8.2</u>	<u>(5.5)</u>	<u>2.0</u>	<u>(5.8)</u>	<u>(3.3)</u>
Total Operating Profit	<u>\$(22.8)</u>	<u>\$(8.9)</u>	<u>\$25.0</u>	<u>\$19.5</u>	<u>\$30.8</u>

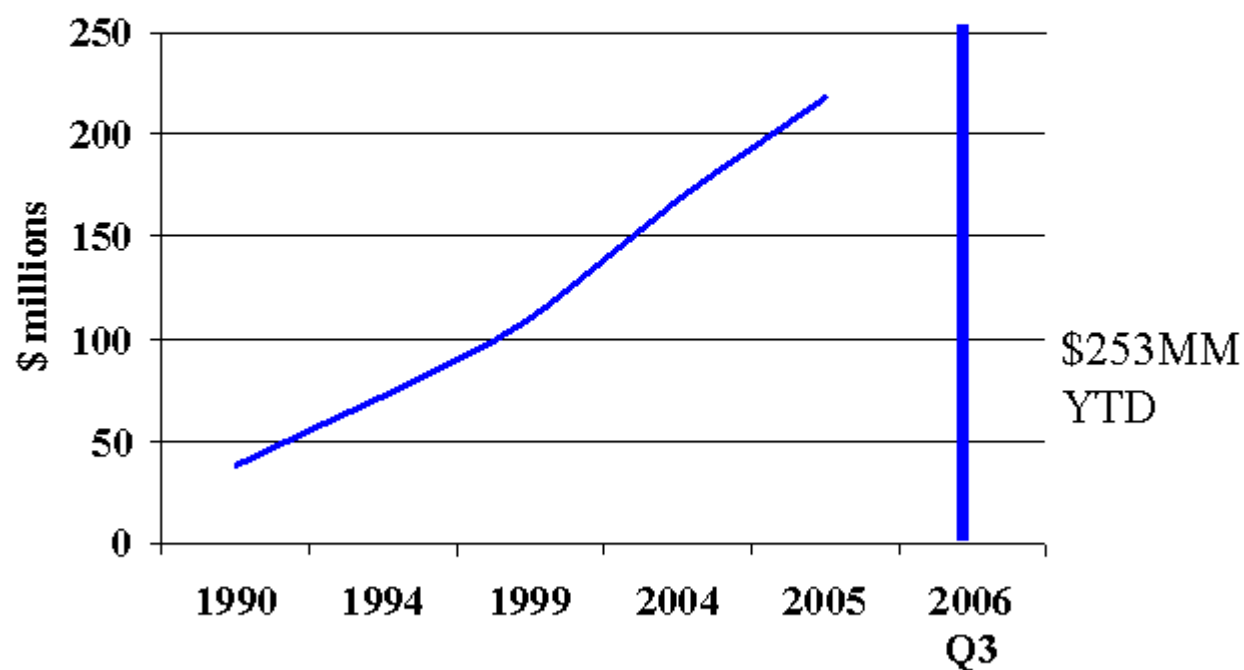


What We Do

Williams Advanced Materials develops, manufactures and markets materials and services of unique value for the Data Storage, Wireless/Photonics, Semiconductor, Optics, Hybrid Microelectronics and Performance Coating industries. We also support emerging technologies such as TFT/LCD, MRAM and Nanotechnology. Williams products are primarily based on specialty metal products used in high reliability and performance applications.

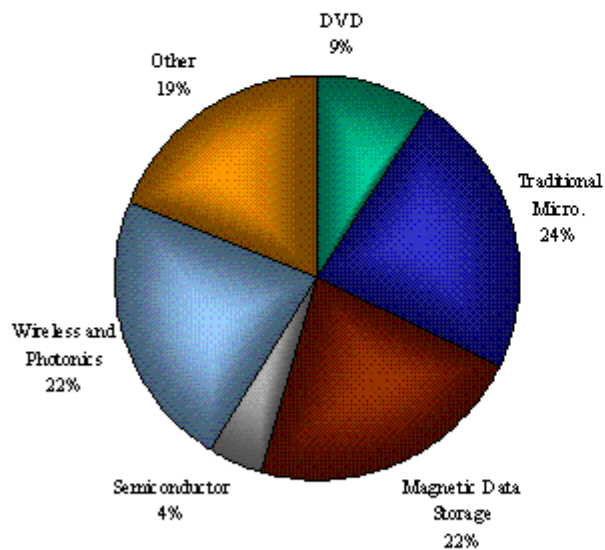


Sales History

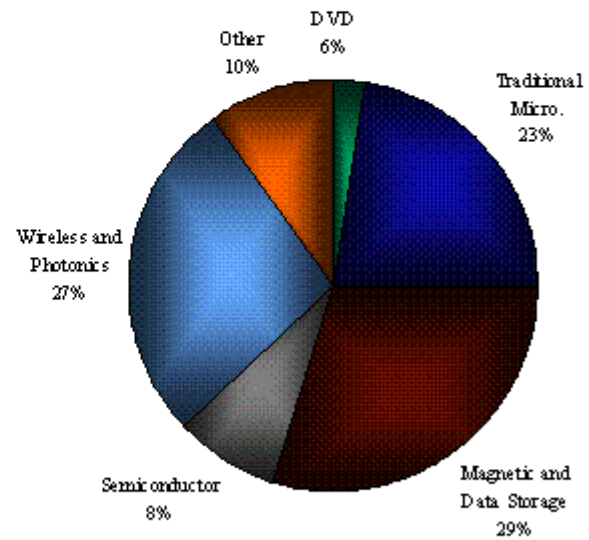


Revenue by Market

2004



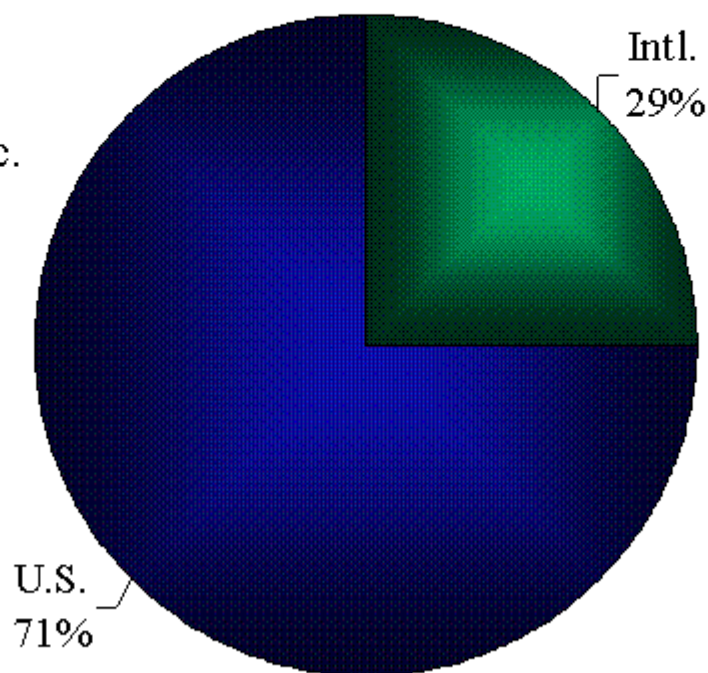
2006



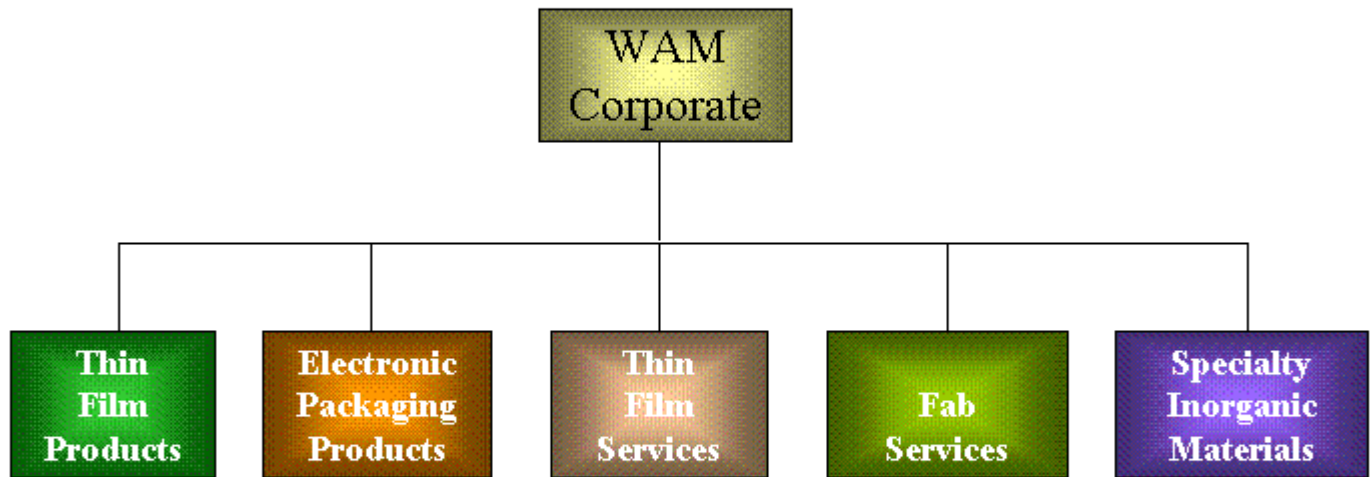
International/Domestic Revenue

2006

Williams
Advanced
Materials Inc.



Business Structure Today and Evolving



WAM Headquarters



Buffalo, NY USA - Manufacturing Facility

- 100,000 Sq. Ft. overall, 6,500 Sq. Ft. of cleanroom, state-of-the-art machining/ milling/rolling/stamping/ cladding centers, target bonding, hydrostatic wire extrusion, high purity refining/recycling, metals casting, automated plating, full analytical capabilities, product Research & Development.



Specialty Alloys Operations



- Wheatfield, NY USA- *Williams Specialty Alloys*
 - 30,000 Sq. Ft. with volume vacuum casting, rolling, annealing, powder atomizing and machining. 10 acres for expansion.



Williams Thin Film Products Operations



- Brewster, NY USA –
 - 35,000 Sq. Ft. with vacuum melting, hot-pressing, milling, hot & cold rolling automated machining and target bonding capabilities.
 - Acreage to more than double our facility as needed.



Far East Operations



Singapore - *WAM Far East Pte. Ltd.*

- Target bonding, bonding wire production, Combo-Lids® assembly



Subic Bay, Philippines

- Combo-Lids®, low-cost lids and preform - assembly, inspection and packaging.



Taoyuan County, Taiwan - *WAM Taiwan*

- Target bonding, evaporation materials & bonding wire.



European Operation



- Limerick, Ireland – OMC Scientific, Ltd.
 - Subsidiary of WAM
 - Provides precision parts cleaning and reconditioning services for film Physical Vapor Deposition (PVD) customers in Europe.
 - Unique technology applied to opportunities in North America and Asia.
 - Efforts focused in the semiconductor, magnetic media and other technology based markets.



Thin Film Technology (TFT)



- Buellton, CA
 - Subsidiary of WAM
 - Thin film coating and substrate patterning.
 - Visi-Lid™ supply chain management.
 - Capabilities: Electron Beam Evaporation, DC/RF Magnetron Sputtering, Photolithography (Substrate Patterning), Dicing, Tooling design, In House Machine shop



CERAC

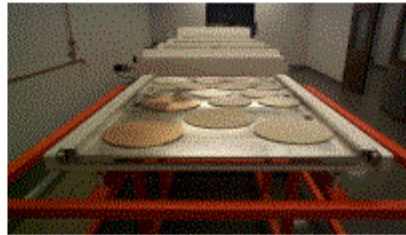
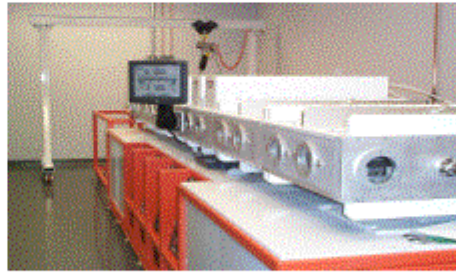
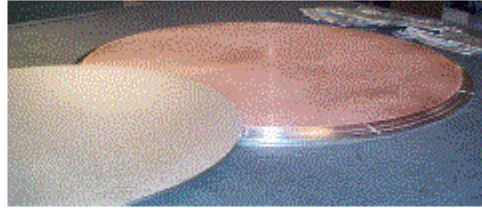


- Milwaukee, WI
 - Subsidiary of WAM
 - Physical Vapor Deposition (PVD) materials for ophthalmic, optic and performance applications.
 - Specialty Inorganic Materials
 - Unique technologies in chemical and powder processing



Target Bonding Centers

- Localized debonding/
bonding of PVD targets to
backing plates:
 - Buffalo, NY
 - Brewster, NY
 - Santa Clara, CA
 - Limerick, Ireland
 - Singapore
 - Taiwan



Global Service and Support

- **Regional Offices (Sales and Applications Engineering support)**

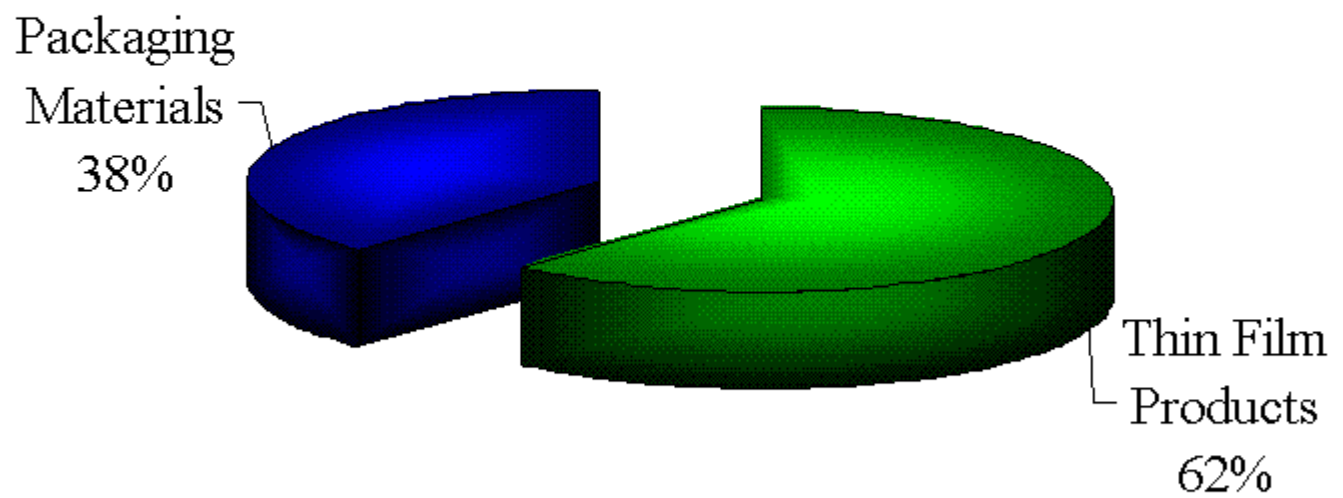
Buffalo, NY	Tokyo, Japan
Brewster, NY	Taoyuan, Taiwan
Boston, MA	Singapore
Tucson, AZ	Manila, Philippines
Santa Clara, CA	London, England
Buellton, CA	Seoul, Korea
Milwaukee, WI	Limerick, Ireland

- **Worldwide Representatives**

Florida	Italy	France
India	China	Germany
Sweden	Israel	

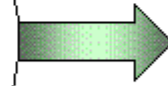


Product Mix



Thin Film Products

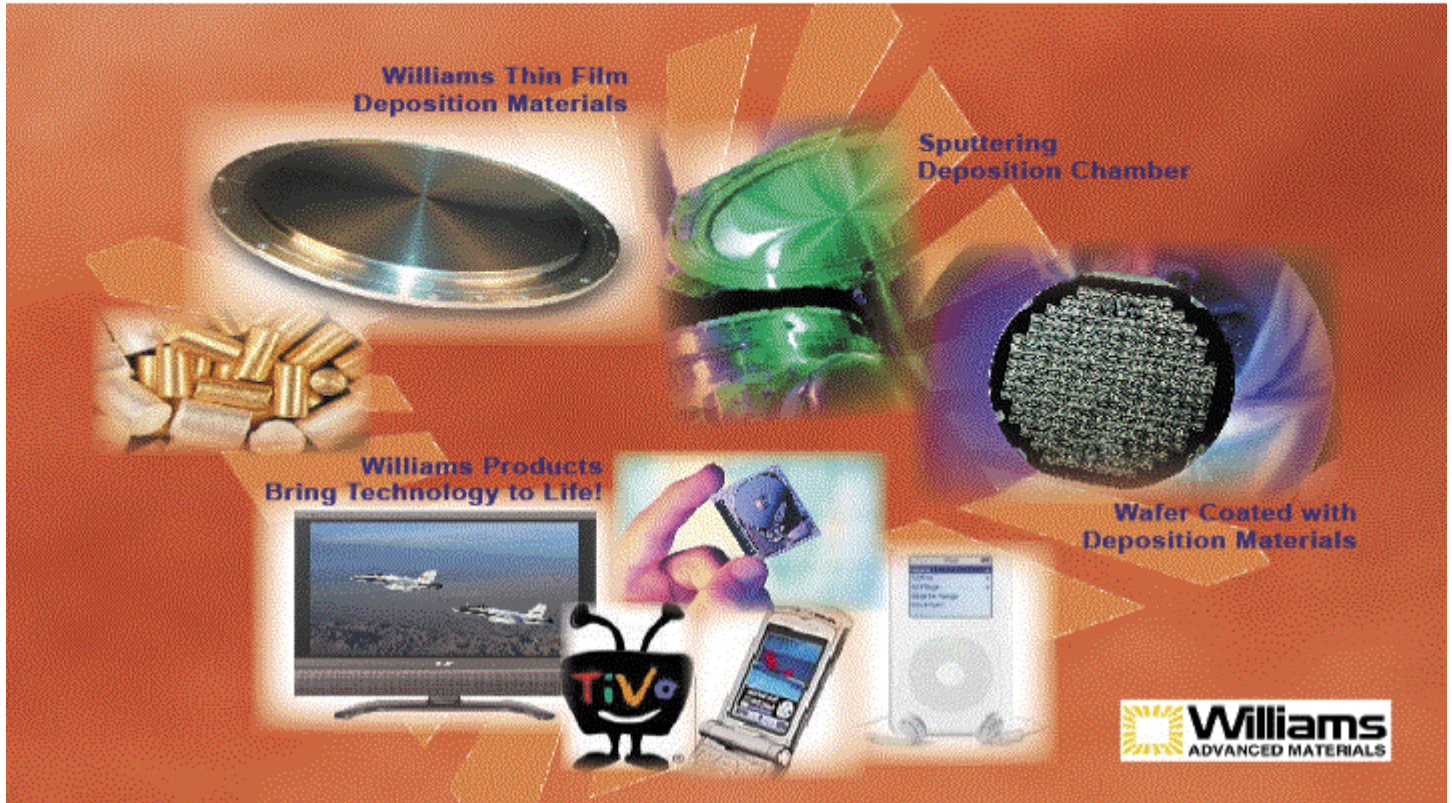
- **PVD Materials**
 - Precious Metal Target Materials
 - Non-Precious Metal, Cermets, Ceramics
 - Vacuum Induction Melting
 - Hot Pressing
 - Hot Isostatic Pressing
 - EVAPro™ Evaporation Materials
 - Localized Target Bonding
- **Chamber Services**
 - Shield Cleaning and conditioning
 - PM Refining and Upgrading
 - Logistics Support



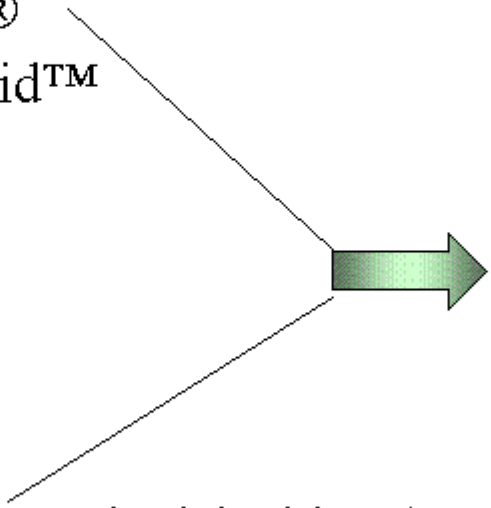
Buffalo
Brewster
Milwaukee
Wheatfield
Singapore
WAM
Taiwan
Santa Clara
Ireland



End Product Examples Utilizing Thin Film Deposition Materials



Packaging Materials

- FLA/Combo-Lid®
 - Seam Seal/Microlid™
 - Preforms
 - Clad Materials
 - Braze Materials
 - Ni Alloys
 - Dental
 - Coating, patterning and Visi-Lid™ (TFT)
 - Packages (Zentrix)
- 

Buffalo
Singapore
Wheatfield
Buellton
WAM
Taiwan
WAM
Philippines

New Product and Technology Development

- Visi-Lid™ - A transparent lid for Photonics applications
- Semiconductor Target designs and enhancements for wafer fabrication
- Silver Alloys for HD-DVD and Blue Ray Disc manufacturing
- UBM Grade™ materials for Flip Chip applications
- Expanded refining/chamber services supporting the thin film materials business
- TFT-LCD services
- Magnetic Media materials
- Nanotechnology Materials



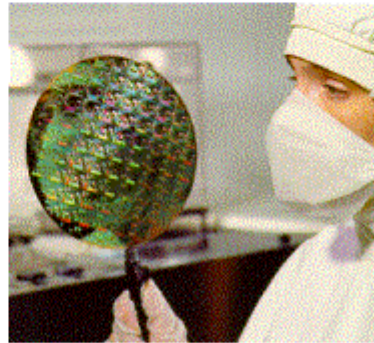
Key Markets – Wireless and Photonics

- Thin Film and Packaging materials for varied wireless and photonic applications including RF Power Amplifiers, HBT's, SAW Devices, Light Emitting Diodes (LEDs), Laser Recorders and Micro Electro Mechanical Systems (MEMS)



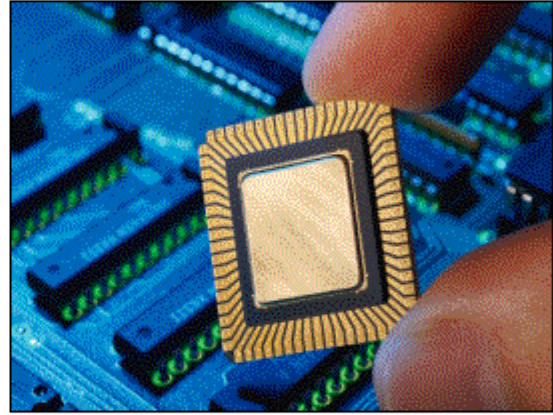
Key Markets – Semiconductor Wafer Fabrication

- Thin film materials and chamber services for silicon wafer and UBM (Under Bump Metallization) technologies.
- Numerous commercial and military microelectronic applications.



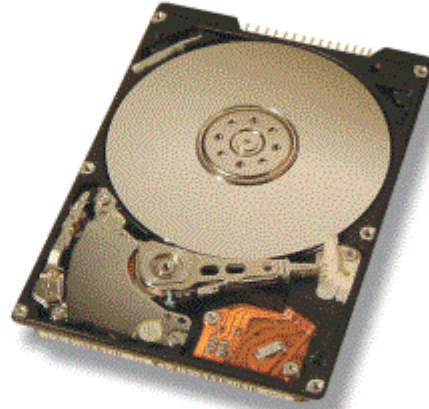
Key Markets – Semiconductor Packaging

- High reliability semiconductor packaging materials.
- Applications focused in space, military and satellite market segments.



Key Markets – Magnetic Head and Media

- Thin film materials for both the read/write head and disc platter.
- Chamber Services complement materials offering.
- Applications growing into many commercial and mobile electronic products.



Distinctive Competencies



New Platforms by Market

New Thin Film Materials and Designs for:

- Magnetic Media
- Semiconductor Wafer Fabrication
- Under Bump Metallization (UBM) for Flip Chip
- Wireless and Photonics



Our focus is on materials, circuitry, subassemblies and packaging for the wireless and fiber-optic telecom market, military, medical and automotive applications

- Signal amplifiers transmit signals through air (wireless) or optical fiber media by boosting signal strength while maintaining integrity. Thermal management and reliability properties are of paramount importance.
- Signal amplifiers are critical active components located in base stations for wireless (cellular) and in regenerator stations along fiber-optic (Internet) links.

Electronic Products

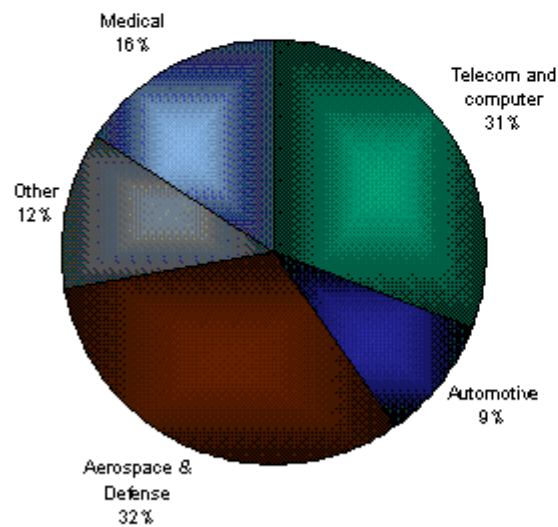
Our Overall Strategy

- Vertically integrate materials to subsystem assembly, providing customized solutions
- Meet the Customer's needs
 - Materials or subassemblies
- Fast Flexible Manufacturing Systems
 - Responsive to market needs

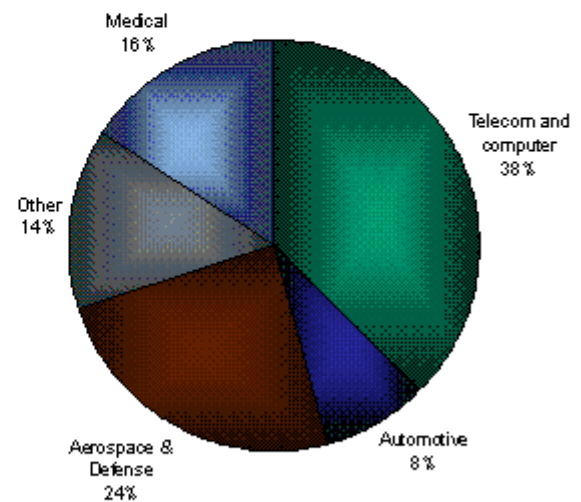
Electronic Products

Revenue by Market

2005



YTD 3Q 2006

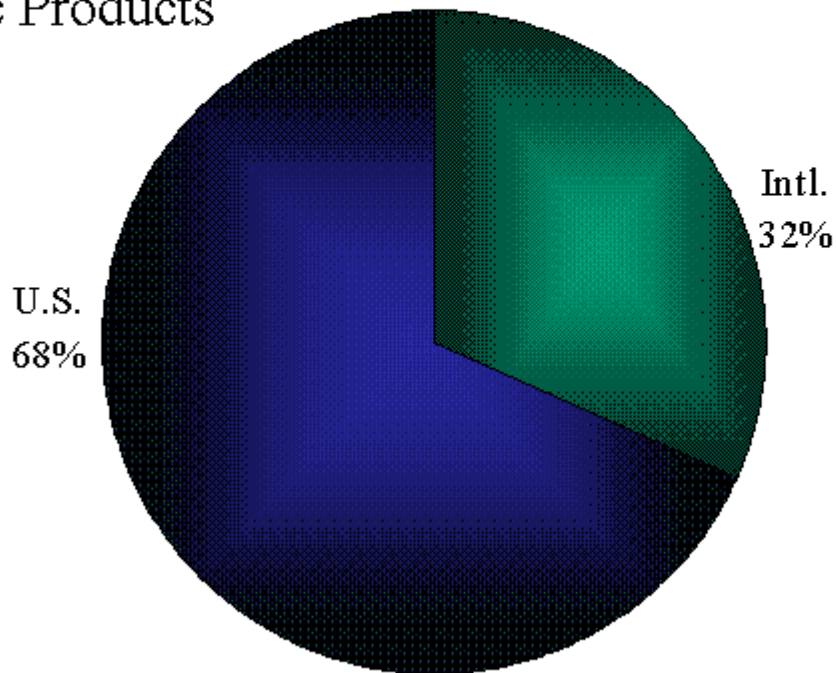


Electronic Products

International/Domestic Revenue

2006

Electronic Products



Electronic Products

Business Groups

- Packaging
 - Electronic Packaging Products
- Circuitry
 - Circuits Processing Technology
- Materials
 - Brush Ceramic Products

Electronic Products

Electronic Packaging Products

- Located in Newburyport, Massachusetts
- Products
 - RF Power Packages for base stations in cellular phone & wireless data networks, for cellular handsets, for military radar applications and for digital TV
 - Automotive Components for ignition systems in cars and trucks
 - Power Circuit Assemblies for DC motor controls

Electronic Products

Circuits Processing Technology (CPT)

- Located in Oceanside, California
- Products
 - High Frequency Military and Aerospace Circuitry used in military radar and missile guidance
 - High Frequency Wireless circuitry for satellite communications, flight hardware and other telecom applications
 - Fiber Optic Package components for amplifiers in fiber optic networks
 - Medical equipment and implant circuitry

Electronic Products

Brush Ceramic Products

- Located in Tucson, Arizona
- Products
 - Ceramic substrates used in commercial and military packaging applications
 - Ceramic laser bores for gas lasers used in medical and industrial applications
 - Machined ceramic components used in military, oil and gas, semiconductor and microwave applications

Electronic Products

New Products & Platforms by Market

Electronic Products

- BW 1000 Substrate sales started this year
- E-materials Packaging applications
- Luxtel reflectors – development program in final stages.
- High-strength metallization for military applications
- High Conductivity ceramic packages booked over \$0.5M
- Licensed plastic ACP technology from RJR Polymers

Electronic Products

Brush Wellman Inc. Alloy Vision

Brush Wellman Alloy Products is ***the leading global supplier of High Performance Copper Alloys*** providing technical, manufacturing, supply chain, and commercial ***excellence*** in the form of ***high reliability products*** and ***tailored services*** to satisfy our customers most demanding applications.

We provide these services in a culture of ***local support*** and ***global teamwork***.



Brush Wellman Inc. Alloy Mission

Safely and reliably provide the highest quality, innovative products and services, fast and on-time to all customers, when they want them at the lowest possible cost.



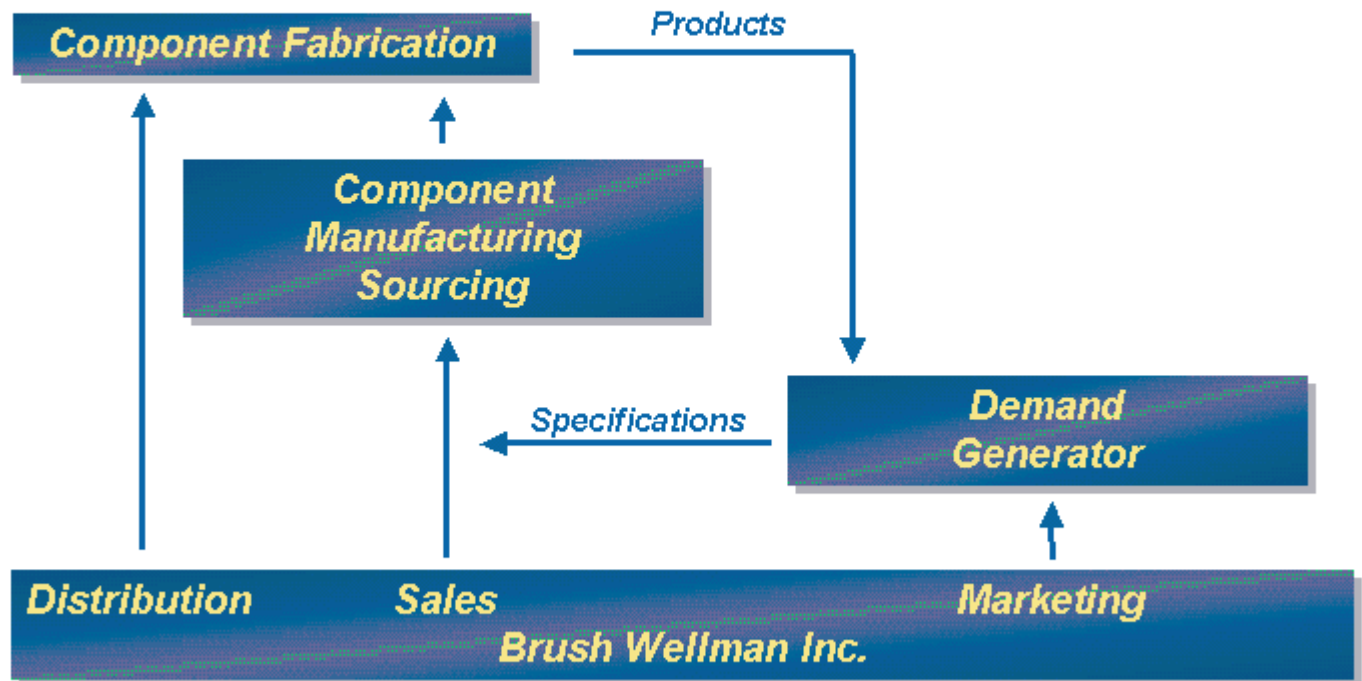
Alloy Products

Operations Strategy—Lean Sigma

- ***Safety*** practices to provide an injury and illness free workplace
- ***Lean Manufacturing*** to reduce cycle times, further increase capacity, and provide industry leading service to our customers
- ***Six Sigma*** to provide industry leading product quality and to reduce costs
- ***Supply Chain Management*** to provide exactly what is needed, when it's needed, to where it's needed in exactly the right quantity
- ***Total Productive Maintenance*** to provide industry leading equipment reliability

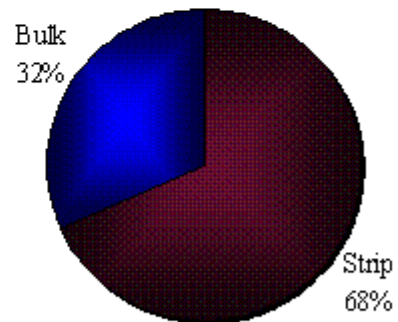


Sales Based on End User Specifications

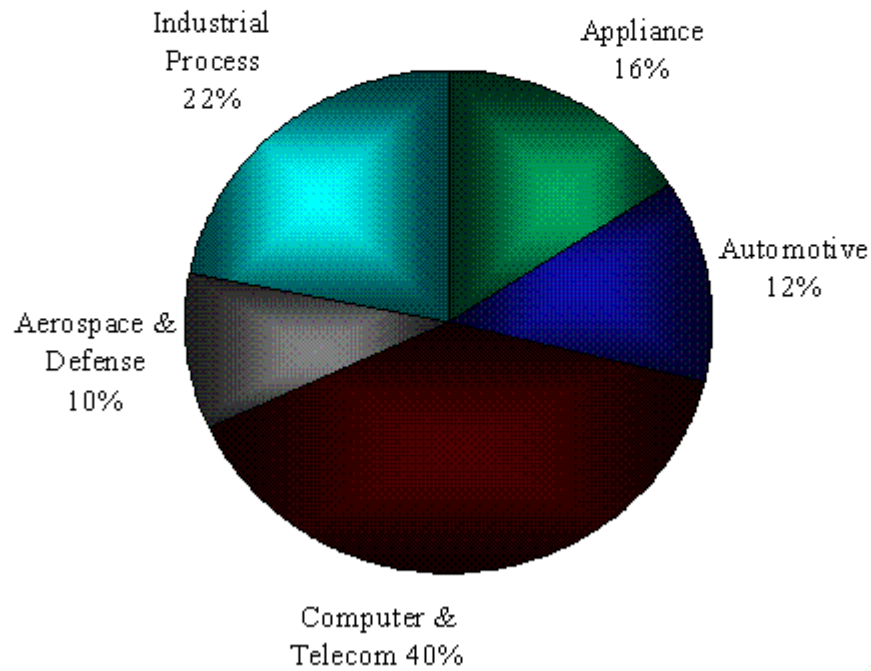


Brush Wellman Inc. Alloy Products

- The largest business within the Metal Systems Group, Alloy Products represents \$203 million, or 70% of the Metal Systems Group (YTD September 2006 data)
- Manufactures and sells copper and nickel based alloy systems metallurgically tailored to meet customers' specific performance requirements
- Product families:
 - Strip products include thin gauge precision strip and thin diameter rod and wire. These products provide a combination of high strength, formability and electrical conductivity for connectors, contacts, switches, relays and shielding used in mobile communications devices, wireless communications equipment, storage area network systems, data networking equipment, servers, personal computers, appliances, and automotive electronics.
 - Bulk products include rod, bar, tube and plate. These products are known for superior strength, corrosion and wear resistance, thermal conductivity and lubricity. Applications include bearings and bushings for aerospace and heavy equipment, welding rods, oil & gas drilling components, plastic mold tooling and telecommunications housing equipment



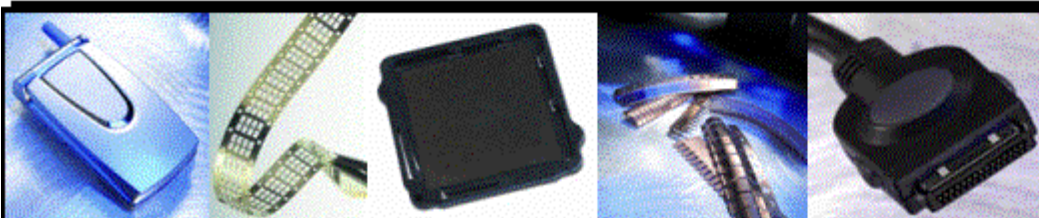
Alloy Products Revenue by Market Nine Months 2006



Strip Alloy Applications

(strength, conductivity, spring characteristics)

- Automotive electronics
- Appliance switches
- Pressure Responsive Devices
- Fire Extinguisher Sprinkler Heads
- EMI Shielding
- Current Carrying Springs and Relays
- Integrated Circuit Sockets
- Electrical and Electronic Connectors in Mobile Handsets, PDA's, Base Stations, Storage Area Networks, Servers, and Personal Computers



Strip Products - Strategy

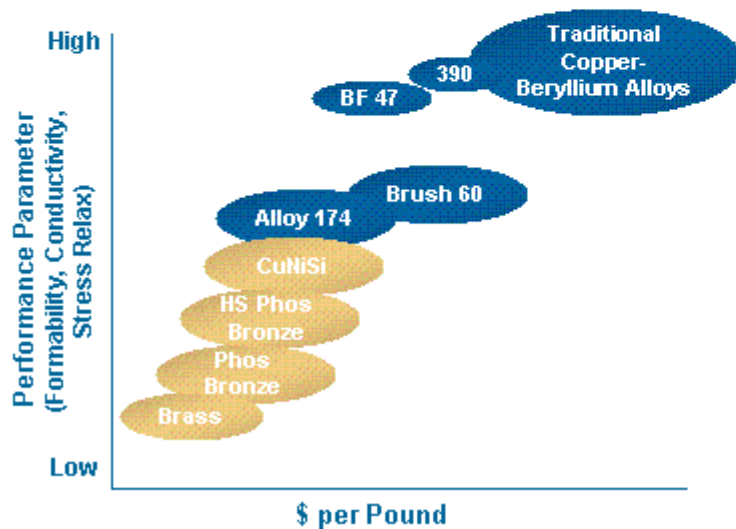
- **Maintain focus on major end-use markets**
 - Computer
 - Telecommunications (mobile & Infrastructure)
 - Automotive
 - Appliance
 - Military
 - Medical
- **Defend leadership in traditional alloy strip, rod & wire**
 - Reduce total cost of manufacture to allow penetration of mid-range alloy applications
 - Enhance product properties to provide additional value to customers
- **Introduce new alloys to meet needs of targeted market opportunities**
- **Geographic Growth**



Strip Products Strong Value Proposition

Copper-beryllium alloys, while premium priced, provide best-in-class performance

Competitive Alloy Comparison



Note: Blue denotes Brush Engineered Materials' alloys; beige represents competitive materials.

Brush Value Proposition

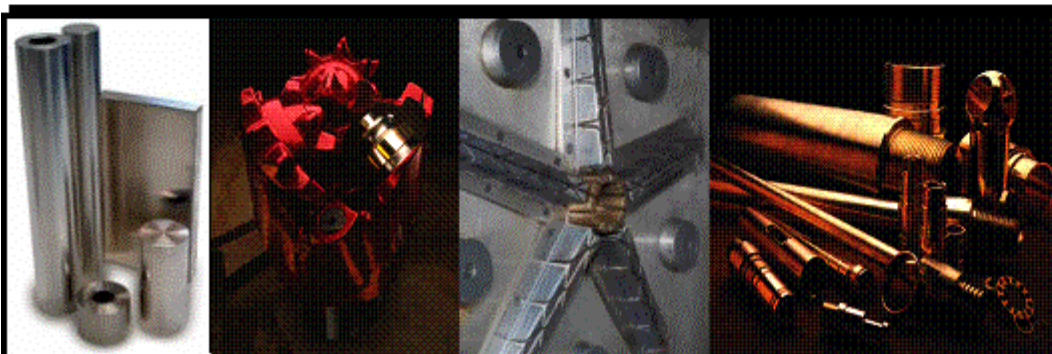
- Unique, high-performance materials
- Technical design capabilities
- Outstanding service center network
- Global marketing, sales and distribution



Bulk Alloy Applications

(strength, corrosion resistance, non-galling, conductivity)

- Aircraft Bushings
- Heavy Equipment Bearing and Wear Applications
- Oilfield well drilling, completion and production equipment
- Plastic Injection & Blow Molds
- Power Generation
- Tooling for Metalworking
- Undersea/Marine Housings for Telecom & Instrumentation
- Welding Electrodes & Dies

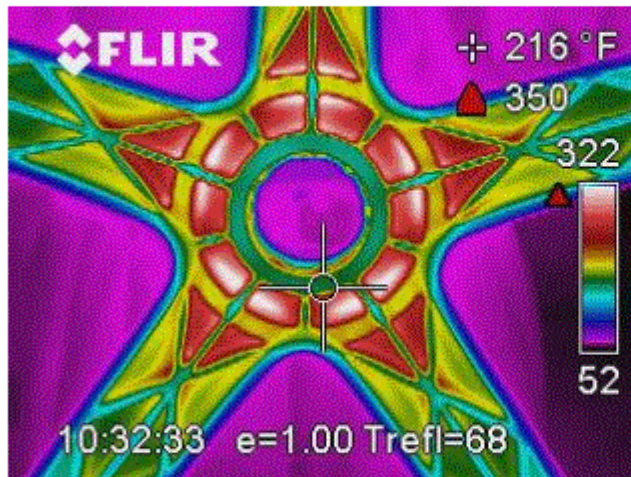


Bulk Products - Strategy

- **Maintain focus on traditional end-use markets**
 - Aerospace
 - Oil & Gas
 - Plastics
 - Power Generation
 - Resistance Welding
 - Undersea
- **Introduce new alloys or product forms to meet needs of targeted market opportunities**
- **Focus on new non-traditional growth markets**
 - Bearings, Condensers, Heat Exchangers, Heavy Equipment & Mining, Marine, Offshore & Downhole power cables, Oil & Gas well completions, and Pumps
- **Geographic Growth**
 - Expand commercial operations in Asia Pacific, improve customer awareness and distribution



MoldMAX® Alloys for the Plastics Industry



Brush Wellman engineers use infrared imaging at the customers facility to pinpoint where MoldMAX® will provide the maximum benefit.

Value Proposition

- Provides molders with 20-40% increase in productivity
- Capital avoidance due to increased productivity
- Enables improved quality of molded parts
- ROI < 3 months

Technical advantages

- Hardness of steel with the thermal conductivity of copper
- Fast machining rates
- High polishability



Lorain Casting Facility

Spinodal and Equacast™ Technology-Winning!

High performance copper based engineered materials:

- Strength and hardness found in CuBe products
- Thermal conductivity

The value proposition differentiates:

- Corrosion resistance
- Superb tribological properties (low friction, excellent wear resistance) adding value in reliability, uptime, and maintenance savings
- Machinability and design simplicity adding cost benefits to offset increased material costs
- Casting capability including size, shapes, tubes and quality
- No EH&S issues

Developing applications in markets where we are strong:

- Drilling Equipment, Aircraft Parts, Mold Tooling

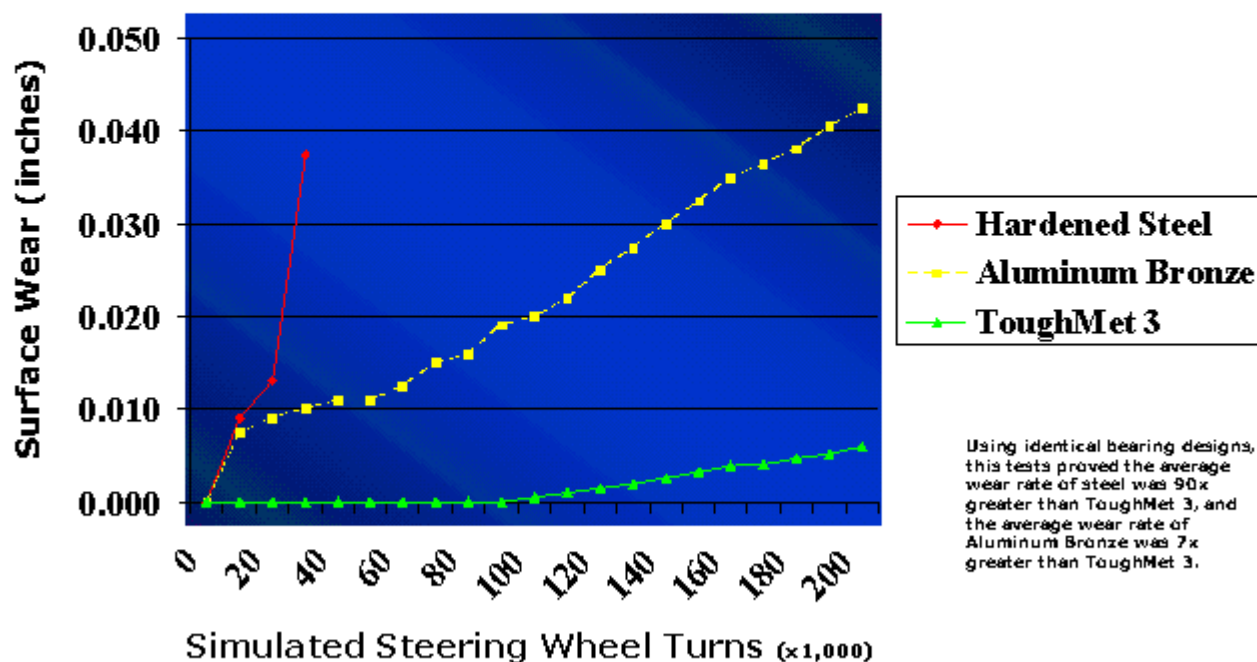
Developing markets/applications where technology is strong:

- Oil Well Completion Equipment, Mining, Heavy Equipment, Drivetrain Components, Hydraulic Systems, Engine Bearings, Semiconductor Fabrication

Lorain Technology: Expanding Brush Wellman's market and application reach



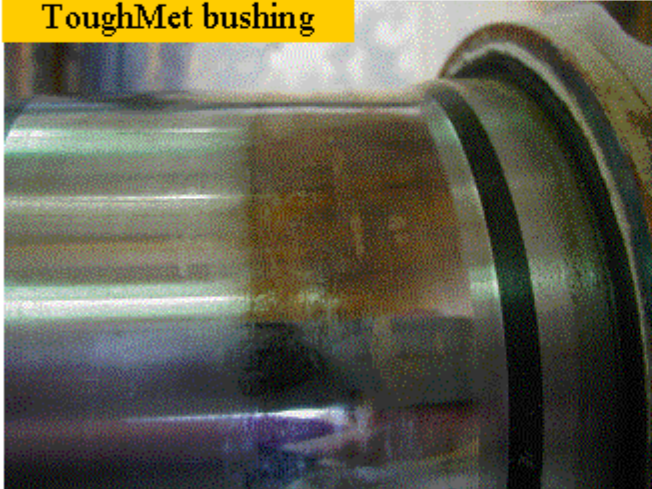
ToughMet® Outlasts Conventional Bearing Materials in 300-ton Mining Truck Steering Test



ToughMet Bushings Protect Steel Mating Parts.

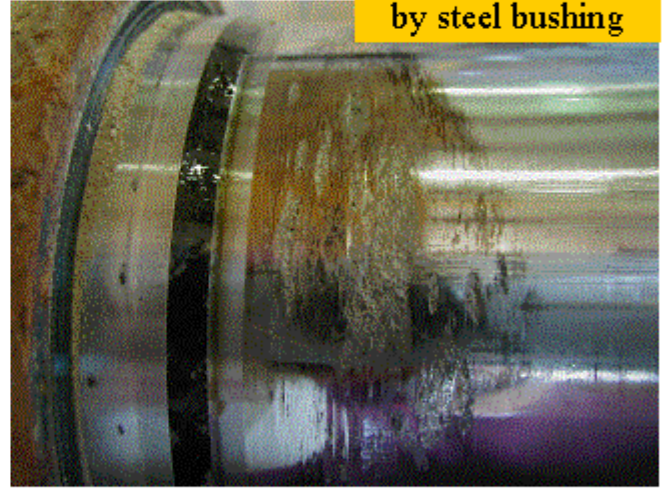
Example: Lubrication failure on bulldozer undercarriage

Steel pin protected by
ToughMet bushing



Left side pin after 500 running hours
against ToughMet 3 CX105 bushing.

Steel pin damaged
by steel bushing



Right side pin after 500 running hours
against hardened steel (HRC 50)
bushing.

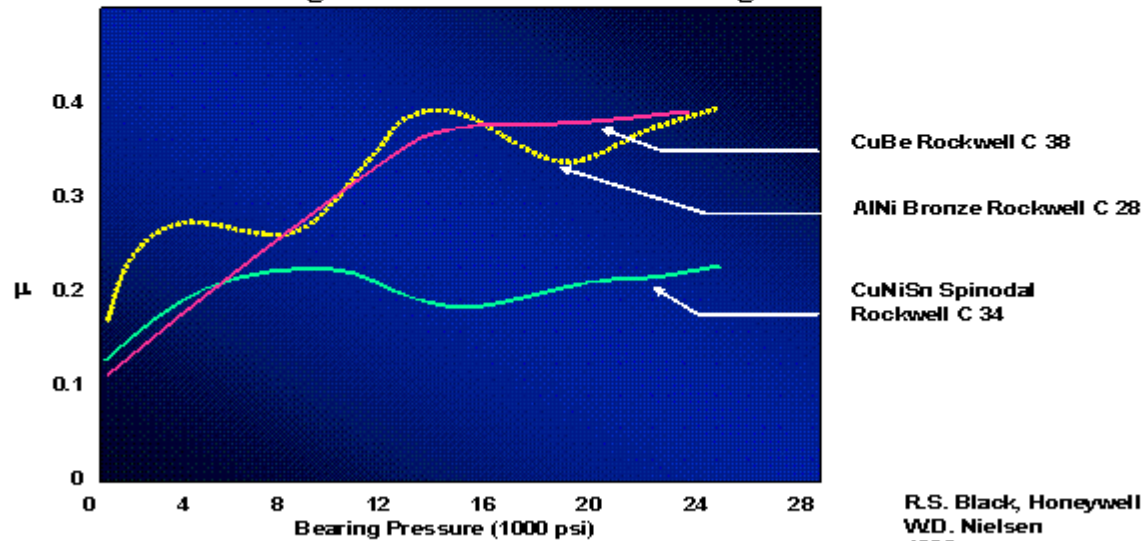
Pin hardness = HRC60.



ToughMet® Industrial Components Results:

ToughMet® Alloy Bushings Provide Superior Power Efficiency Performance

in a Comparison of Dynamic Coefficient of Friction μ vs
Bearing Pressure for Three Bearing Materials

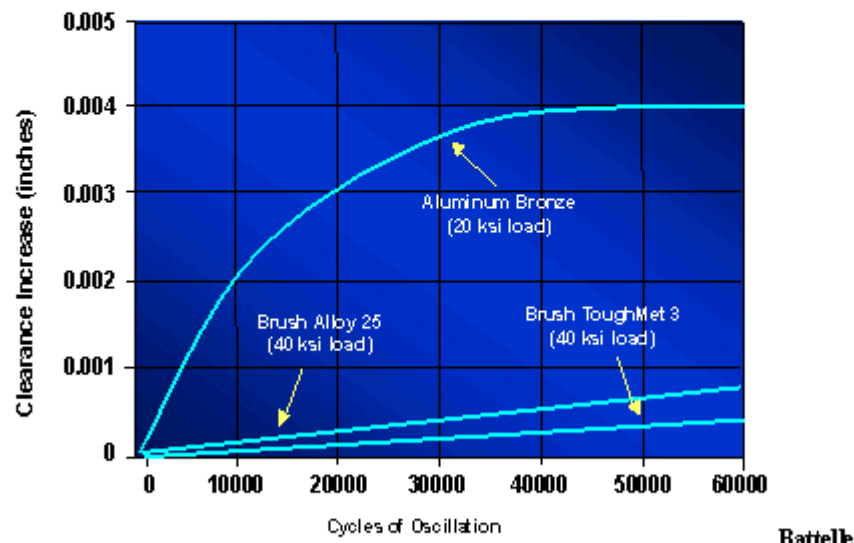


R.S. Black, Honeywell
W.D. Nielsen
1996



Significantly Higher Durability has been Confirmed for ToughMet®

Comparative Sleeve Bearing Wear Tests.



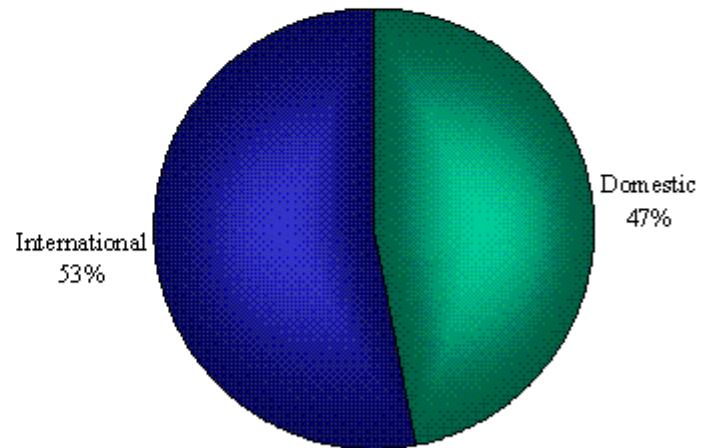
Battelle



Brush International, Inc.

- Brush International Inc. is a wholly owned subsidiary of Brush Engineered Materials
- Service centers in Germany, England, Japan and Singapore
- Representative offices in Korea, China and Taiwan
- Primary focus on the distribution of alloy products while providing local support to other Brush Engineered Materials' subsidiaries operating internationally

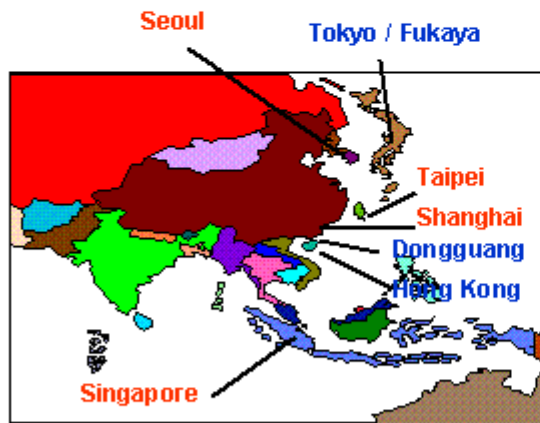
*International/Domestic Revenue
Nine Months 2006*



Brush International, Inc.

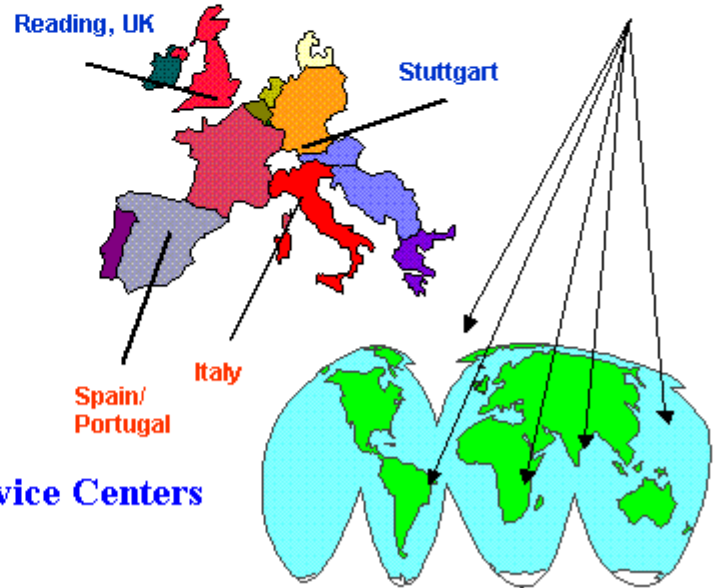
ASIA

BWS	BWC	BWT	BWJ	BWK
S.E. Asia	China	Taiwan	Japan	Korea



EUROPE

BWL	BWG	BWG	BWG
UK/ Ireland	Germany	Italy	Spain



EXPORT

BWI
Export

BW Technical / Marketing & BW Service Centers

TMI - From a Customer Perspective

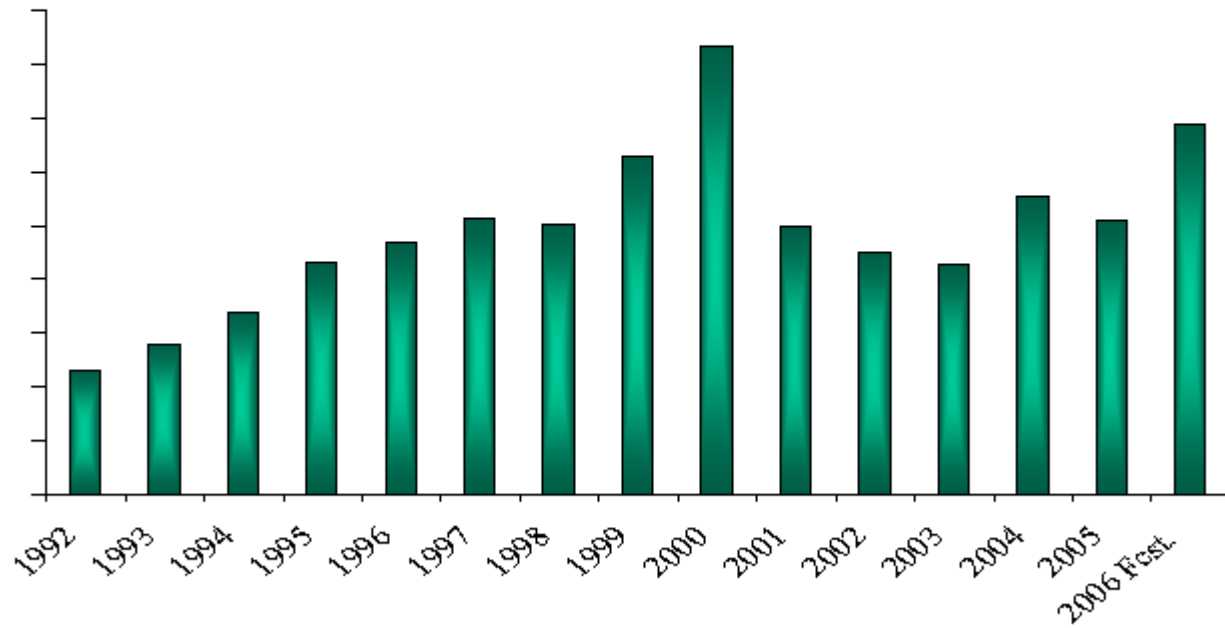


-
- | | |
|------|--|
| WHAT | TMI provides our customers the ability to demand varied performance (electrical, thermal, or mechanical) from a metal surface area or section. |
| WHO | We provide this “service” to the telecommunication, automotive, computer, semiconductor and other industries. |
| HOW | By offering various forms of strip metal products: clad metals, plated metals, electron beam welded, solder plated, reflowed or printed-on, milled and/or skived metal strip or various combinations of the above. |
-

Sales Growth



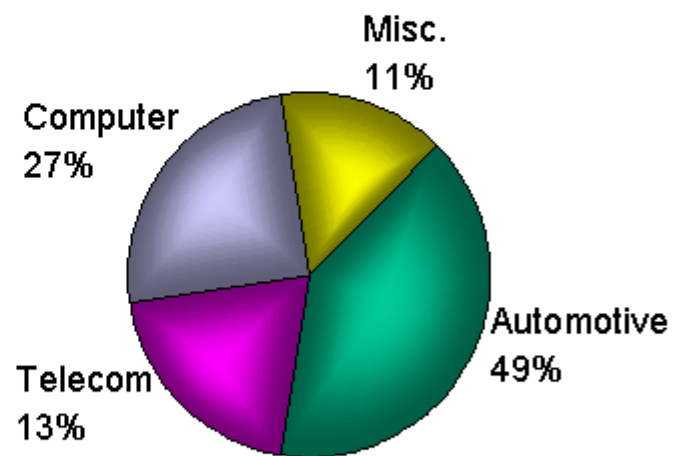
\$ Millions



Our Major Markets



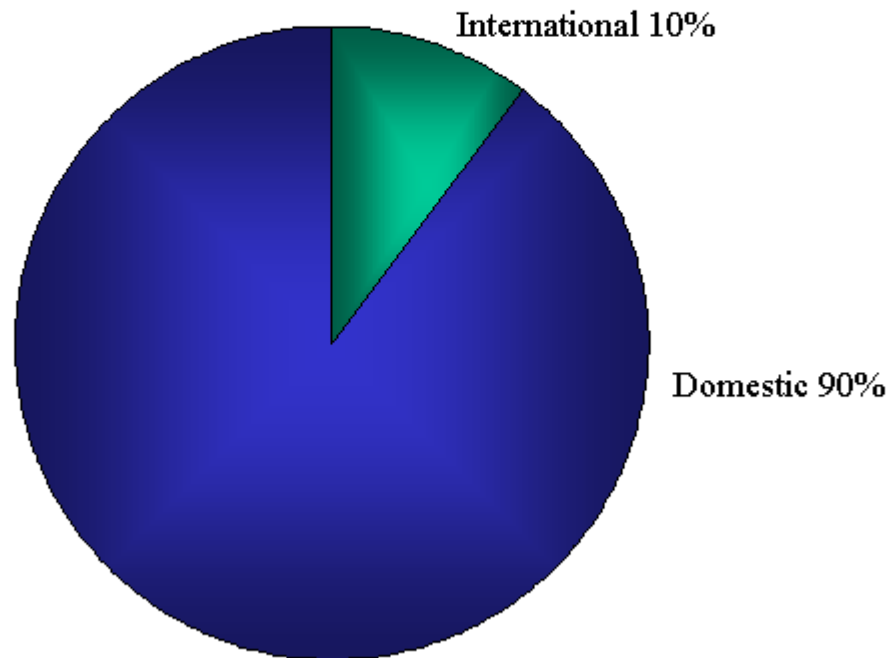
- Automotive
- Telecommunications
- Computer
- Jewelry
- Semiconductor
- Appliances
- Medical
- Aircraft



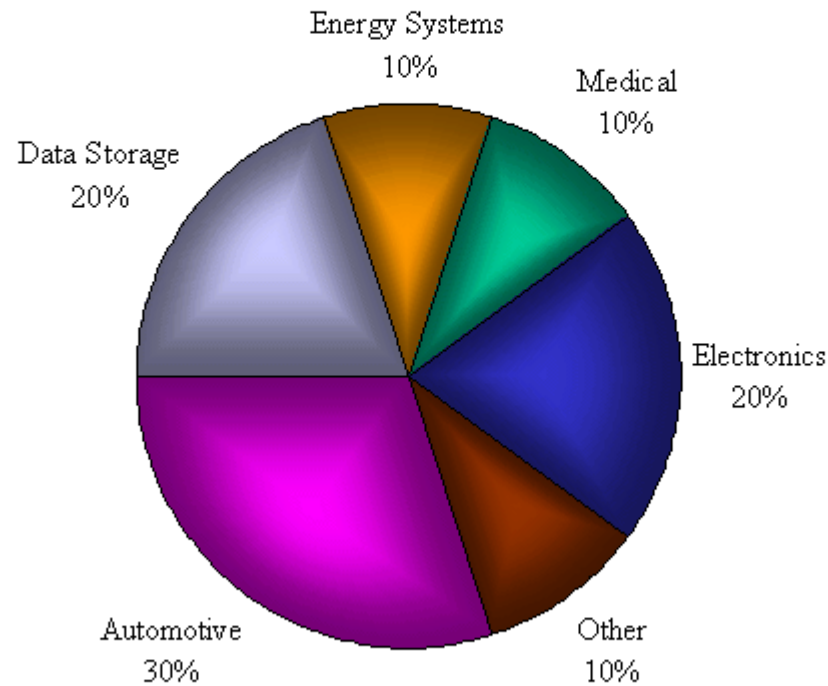
International/Domestic Revenue 2006 Fcst.



Technical Materials Inc.

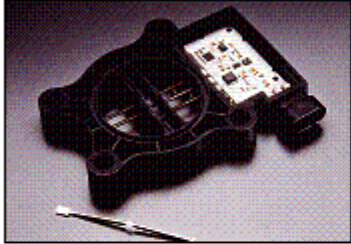


Major Applications, New Products and Platforms





Our Major Applications

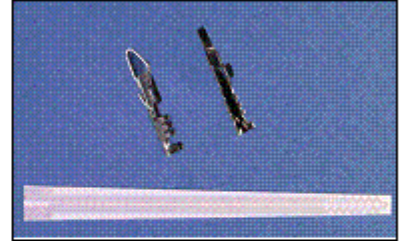


Leadframe

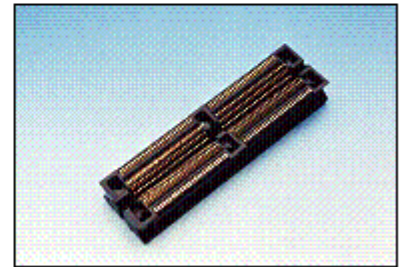


Air Bag Sensor

- Capacitors
- Coins and Tokens
- Connectors
- Contact Probes
- Fuses
- Leadframes
- Micro Motor
- Microwave
- Potentiometers
- Relays
- Sensors
- Solder Clips
- Switches



Connectors



Electroplating



- Precious and non-precious metals
 - Overall and selective stripe capabilities
 - Combination with current TMI technologies
-

Stripe Plating Application

Cellular Phone Battery Contact



Base Material

- Base Material: BeCu
- Overall Ni plating
- Selective Au (one side)
- Selective SnPb (both sides)

Competitive Advantage



- Quality
 - ISO 9001:2000 / ISO 14001
 - State-of-the-art equipment
 - Vision Systems / PLC Systems for consistent quality
 - Design Support
 - Technical knowledge
 - Engineering expertise
 - Overall Capabilities
 - Slitting and leveling
 - Inlay / Electron-Beam Welding / Solder / Milling / Skiving / Plating
 - Any combination of the above processes
 - Large coil handling capability
-

Strategic Concept



- Total capability under one roof
 - Make it easy for our customers to get what they need to satisfy their customers' requirements
 - Make our customers competitive with reliable products
 - Solve problems for our customers with engineered strip metal solutions
 - Explore and develop new markets and geographic regions for manufacturing (*China*).
-

Growth in Electroplating



- Precious and non-precious metals
 - Overall and selective stripe plating capabilities
 - Combination with other TMI technologies
 - Proprietary closed contact plating technology
 - Building additional lines to further increase capacity
-



Technical Materials Inc.

- Surgical devices
 - Digital cameras & hi-res copier leadframes
 - Micromotor components for consumer electronics
 - Resistors and fuses for automotive applications
 - Disk drive suspension materials
 - Coatings for automotive
-

Summary



-
- From 1992-2000 TMI sales more than quadrupled.
 - 2001 and 2003 proved to be extremely difficult years due to major served markets being severely depressed; however, TMI remained profitable all three years.
 - 2004 sales improved only to be followed by a drop-off in 2005. In both years product mix impacted overall profitability.
 - We have added major new technical capabilities using state-of-the-art equipment in precious metal electroplating to better serve worldwide customer demand (*both technical & capacity*).
 - We are ISO 9001:2000 and ISO 14001 registered.
 - We will add additional Plating technology and capacity to service market demand as required.
 - We are making further inroads into new markets (*disc drives*) and other markets (*consumer, medical, appliance, energy*) in order to broaden our served market base and will have a much different served market profile by the year 2007.
-

Brush Wellman

Beryllium Products

Products

Beryllium Metal - One of the lightest metals known

- Family of vacuum hot and hot/cold isostatically pressed powder-derived metals

AlBeMet™

- Family of lightweight alloy composites
- Extruded, rolled sheet and hot isostatically pressed powder-derived metals

Brush Wellman

Beryllium Products

Products - Cont.

- E-Materials
- Family of low expansion, lightweight electronic packaging materials
 - Composites of beryllium metal and beryllium oxide

Beryllium Oxide/

- Chemicals
- Ceramic-grade beryllium oxide powder
 - Specialty beryllium-containing chemicals

Brush Wellman Beryllium Products

Facilities

Elmore, Ohio

Fremont, California

Key Product Attributes

- Be/AlBeMet™
 - Light Weight (Density)
 - High Stiffness (Elastic Modulus)
 - High Thermal Conductance/Capacity
 - Low Thermal Expansion
- Be
 - Transparent to X-Rays
 - Neutron Reflector

Brush Wellman Beryllium Products

Primary Competition... Alternative Materials

Organic Composites (e.g. Carbon epoxy)

Silicon carbide

Metal Matrix Composites (e.g. Al - silicon carbide)

Pyrolytic graphite

Aluminum (high strength grades)

Major Defense/Aerospace Applications for Brush Wellman Beryllium Products

Optics

Optical substrate and support structure for visual and infrared target acquisition systems (fighter aircraft, helicopters, unmanned aerial vehicles, tanks), surveillance systems and astronomical telescopes.

Satellites

Structures and sensors for defense and commercial telecommunications satellites.

Electronics

Electronic packaging for defense avionics, radar and electronic countermeasures systems for helicopters and fighter aircraft. Applications include circuit boards, covers and packages.

BRUSHWELLMAN
ENGINEERED MATERIALS

Major Commercial Applications for Brush Wellman Beryllium Products

X-ray Windows

Radiographic tube components for ★ medical diagnostic (x-ray, mammography, CAT-scan), ★ industrial and ★ scientific equipment.

Optical Scanners

Mirrors for laser scanners used in reprographic and other high-performance laser applications.

Motion control

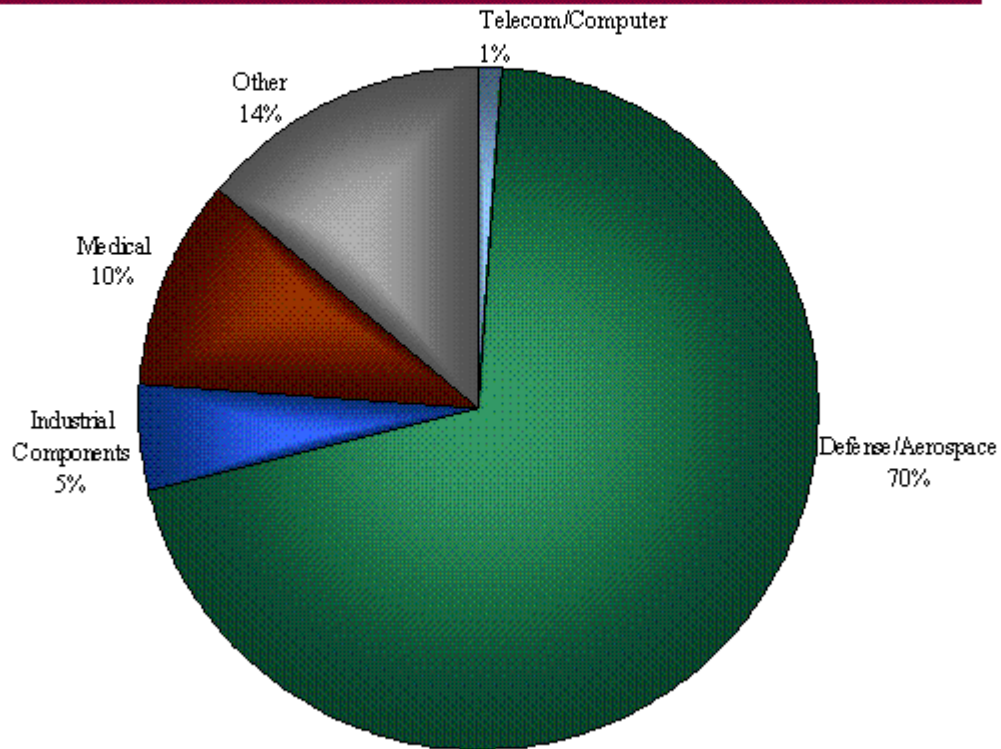
Structural components for high-precision semiconductor processing and industrial robotic equipment

Acoustics

High performance speaker components

Revenue by Market

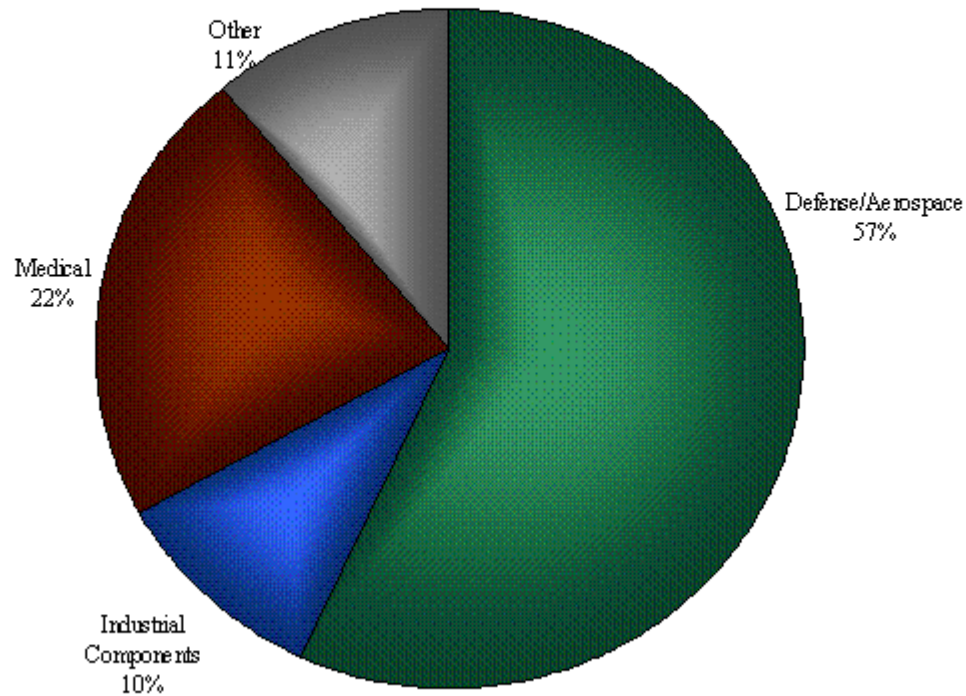
2005



BRUSHWELLMAN
ENGINEERED MATERIALS

Revenue by Market

3rd Quarter 2006



BRUSHWELLMAN
ENGINEERED MATERIALS

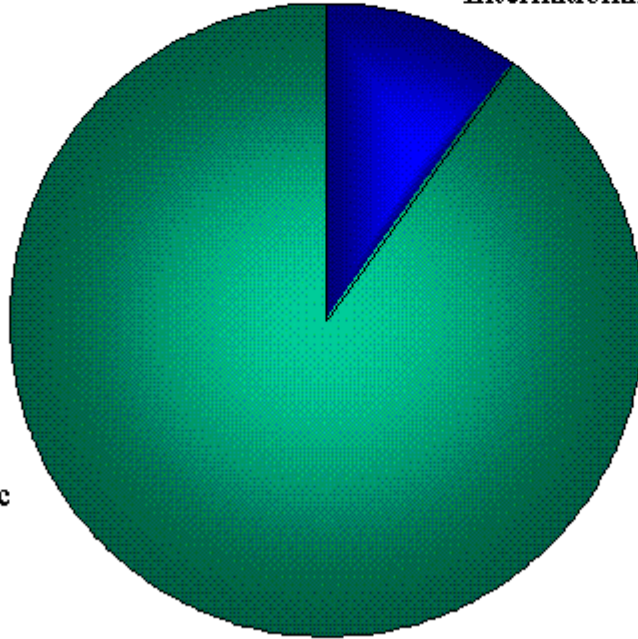
International/Domestic Revenue

2006

Beryllium Products

International 10%

Domestic
90%



BRUSHWELLMAN
ENGINEERED MATERIALS

Major Applications, New Products and Platforms

Beryllium Products

<u>Product</u>	<u>Market</u>
New AlBeMet Products	Defense
Fabricated Products	Defense
Acoustic	Speakers
High grade Be foil	Medical x-ray

Beryllium Health and Safety

Brush has continued to make progress on issues related to beryllium health and safety

- Improved worker protection programs in place
 - Rates of sensitization down among new workers
 - Strong focus on regulations related to beryllium exposure
-

Litigation

	<u>Total Cases Pending</u>	<u>Total Plaintiffs (including spouses)</u>
12/31/04	12	56
09/30/05	15	60
12/31/05	13	54
06/30/06	14	56
09/29/06	12	53

Litigation

- In Q-3 2006, one purported class action was dismissed, and one third party case was settled and dismissed. No cases were filed during the third quarter.
 - Our caseload and number of plaintiffs will vary from quarter to quarter depending on new cases, additional plaintiffs, settlements, dismissals, amendments to complaints, etc.
- The Company believes it has substantial defenses in pending cases.