

Review of World Investment Casting Markets

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Introduction

- Knowledge of our markets and the performance of investment casting as an industry is essential
- The review of global markets gives an understanding of the changes and trends
- Assists the industry in forming a view of how investment casting will fare in the future
- In the present global economic climate understanding the state of the global investment casting industry is more important than ever

Acknowledgements

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ICI (Investment Casting Institute - United States)

CAEF (Casting Association of European Foundries)

CFA (China Foundry Association)

JFS (Japan Foundry Society)

EICF (European Investment Casting Federation)

cmf (Cast Metals Federation, UK)

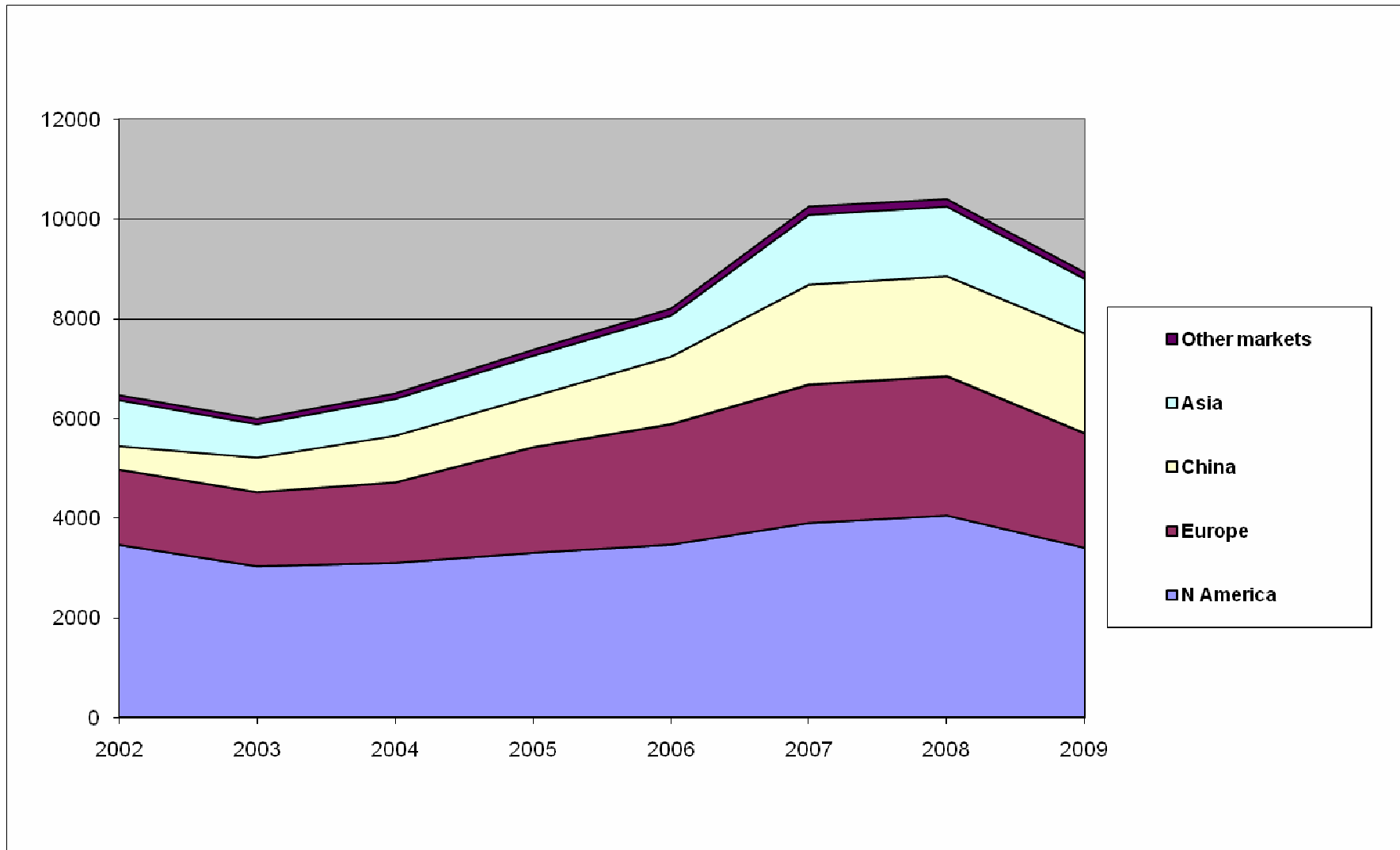
Individual contributors

The information given is based on official figures together with best estimates where statistics are not available. No legal responsibility is accepted for information, advice given or opinions expressed.

Agenda

- World Investment Casting Markets 2009
- Market Sector Trends
- Future Prospects
- World Market Summary
- Japan, Taiwan, Korea, Market Review – K Itoh
- Discussion

World Investment Casting Sales, US\$M

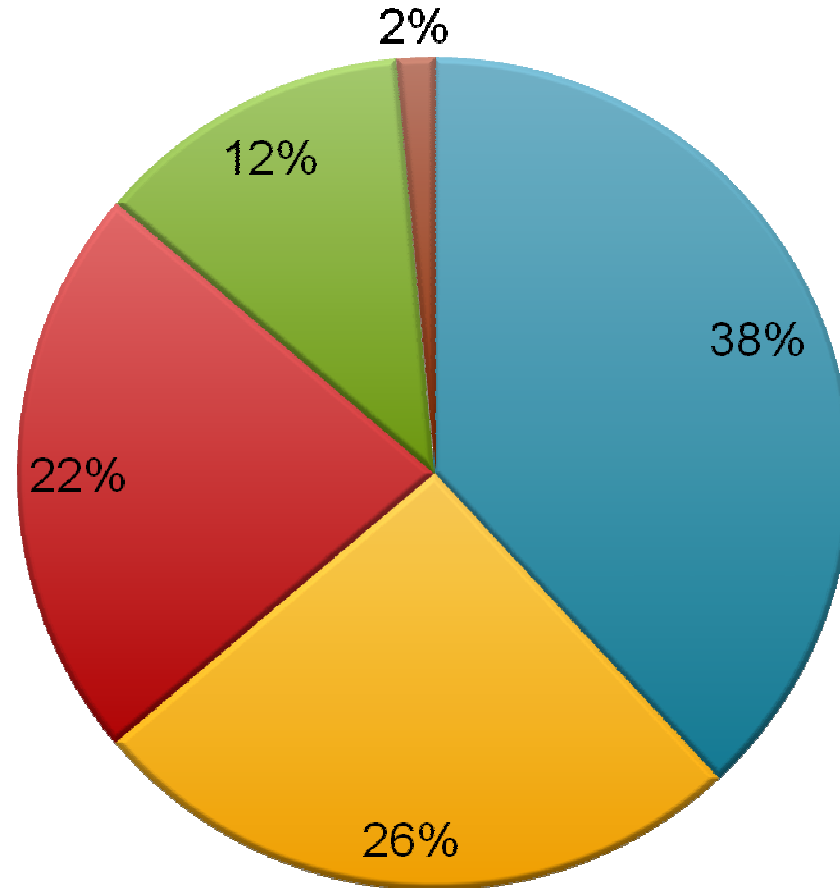


Global Investment Casting Sales 2009

- No official statistics available yet
- Market information suggests sales were down by 14% overall to US\$8,900M (\$8.9B)
 - -16 < -20% in N America & Europe
 - 0% < -25% across Asia
- High Added Value castings performed well till mid 2009 maintaining sales values
- China – increased sales of High Added Value castings offset the fall of <50% in Commercial casting sales

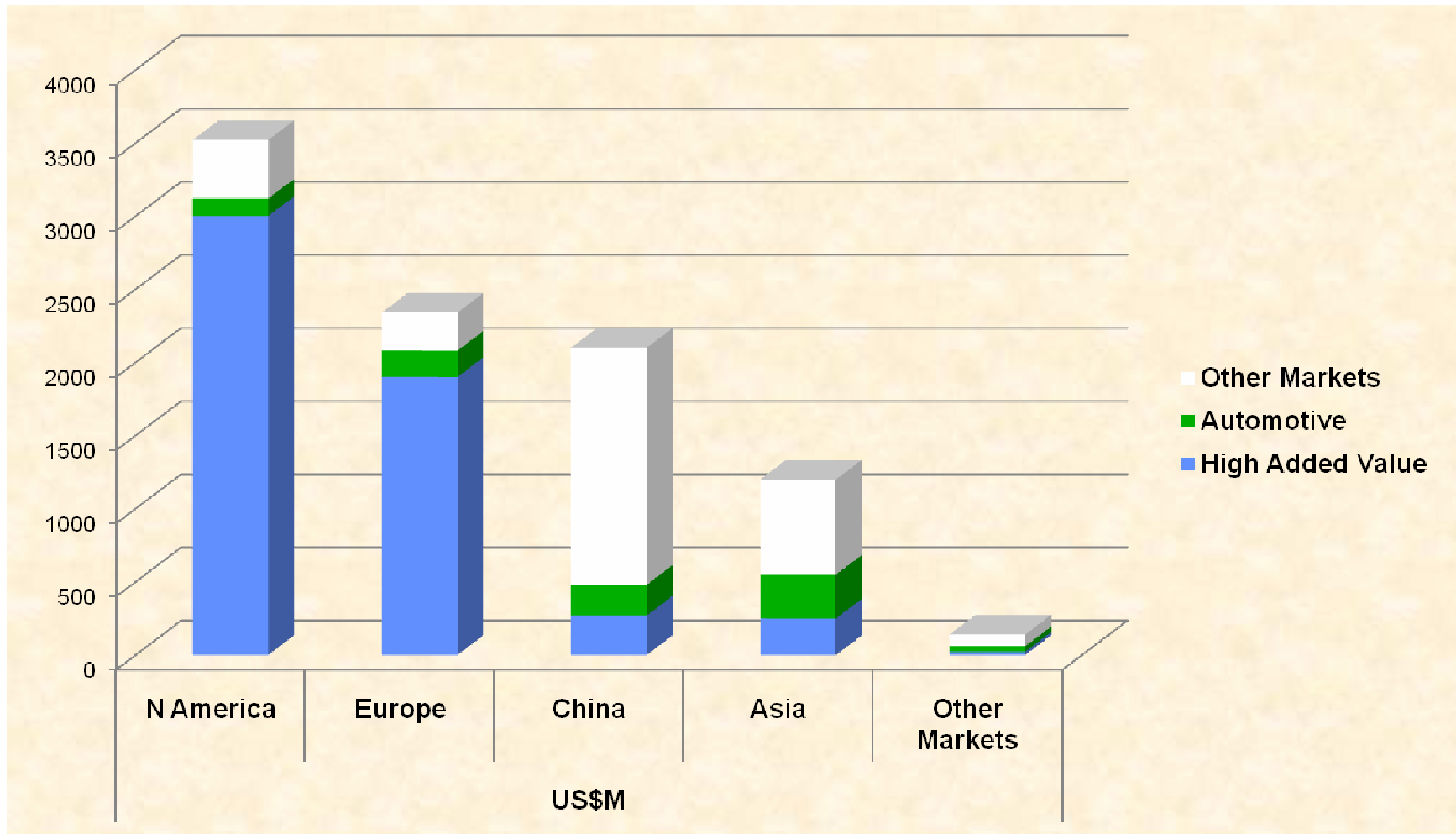
Sales by Region 2009, US\$M

■ N America ■ Europe ■ China ■ Asia ■ Other markets



Sales by Market Sector 2009

US\$M



Market Trends - Aerospace

- Rescheduling has resulted in drop in sales of < 20%
- Engine spares down but recovering
- Business jet sector severely impacted
- However order books remain very strong
- New models introduced
 - A380, A350, 787, 747-8
- China entered commercial jet market with inaugural flight of ARJ21-700
 - C919 'Jumbo' scheduled for 2014

Market Trends – Industrial Gas Turbines

- IGT market remained very strong till 3rd qtr of 2009
- Since then rescheduling of orders has resulted in fall in production of 30%
- Job losses in USA & Europe
- Reduced usage has extended service intervals
- New power generation projects on hold
- In the long term the continued demand for power expected to return sales to former levels

Automotive

- Car and Truck sales badly affected by recession from mid 2008
 - Many job losses
 - Long shut downs
- Asian automotive industry less badly affected
- In USA & Europe government scrappage schemes boosted car sales through 2009
 - Smaller fuel efficient cars selling well
- Turbocharger wheel production now improving in Japan and elsewhere

Market Trends

MEDICAL

- Fall in elective surgery has reduced sales in West
- Order books reasonable
- Ageing population will drive sales

COMMERCIAL

- Mixed picture, slow improvement
- New opportunities being found/created
- N American & European sales steady
 - Some short time working
- Outsourced castings transferred back from Asia

Looking to the Future

- Market conditions are stabilising following global economic difficulties
- New investment casting potential exists:
 - Advanced fuel & exhaust systems
 - Multiple turbochargers & direct fuel injection
 - Hybrid & electric vehicles
- Medical products keep developing:
 - Implants
 - Diagnostic equipment
 - Injury stabilising appliances
- IGT growth to restart
- Aerospace will require more complex castings

Summary

- World investment casting sales have fallen back towards 2006 levels
- Global economic problems continue to cause difficulties
- High cost of all industrial raw materials impacting on production costs
- Pressure on foundries to reduce prices
- Aerospace down by 15<20% despite order backlog
- IGT production down by 30%, but good long term prospects
- Automotive showing signs of improvement
- Commercial sector reasonable
- Future for investment casting remains good but sales are unlikely to reach 2008 levels for some time