

## North America 2015 9<sup>th</sup> - 11<sup>th</sup> of Nov

### AUTOMOTIVE LIGHTWEIGHT

# PROCUREMENT SYMPOSIUM

## Cobo Center, Detroit, USA



### SYMPOSIUM FOCUS

- Aluminum
- Carbon Fibre
- Composites
- High Strength Steel
- Magnesium

The 3<sup>rd</sup> Automotive Lightweight Procurement Symposium to be focused on automotive lightweighting, supply / process chain and procurement management, will take place in Detroit from the 9<sup>th</sup> – 11<sup>th</sup> of Nov 2015. The symposium is held in the days leading up to the "ALUMINUM USA" exhibition taking place at the Cobo Center, Detroit, Michigan (Walking distance to symposium venue)

### ATTENDING COMPANIES:



### ORGANIZING PARTNERS & SPONSORS



AluMag®  
 Europe 2016 27<sup>th</sup> - 29<sup>th</sup> of Nov  
 AUTOMOTIVE LIGHTWEIGHT  
**PROCUREMENT SYMPOSIUM**  
 Hilton Hotel in Duesseldorf, Germany

AluMag®  
 Asia 2016 6<sup>th</sup> - 8<sup>th</sup> of July  
 AUTOMOTIVE LIGHTWEIGHT  
**PROCUREMENT SYMPOSIUM**  
 Jumeirah Himalayas Hotel in Shanghai, China

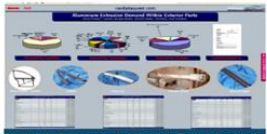
## AluMag® offers the four following services - worldwide:



Market Research

- Aluminium Extrusion Customer Database
- Foundry & Tool Maker Database
- Automotive Application, Material & Process Analyses
- Various Industrial Application Research & Analyses

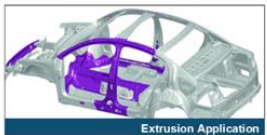
AluMag as your provider of automotive research and forecasting studies, offers you and your business, the market intelligence you need to realize the best strategic decisions



Material - Process - Application Trend Analysis

### Large variety of market access, local & global:

- business database with 6,970+ companies and 18.700+ contacts
- 150+ satisfied customers worldwide
- Arranged 20+ roadshows/events since 2008



Extrusion Application

### Your Benefits:

- Learn about your [potential] clients and competitors
- Obtain an inside view of the market
- Identify opportunities and threats
- Minimize risk and optimize profits
- Position your company successfully
- Based on data off the shelf, secondary re-research and interviews, AluMag generates validated researches



Market Development

- Analysis & Development of Market Opportunities
- Accelerate Market Penetration
- Manage New Product Launches
- Establish a Sales Force Sales on Demand

AluMag guides and supports your organization globally through the different market development phases until we have successfully launched, implemented or executed your project.



Map of activity - SAMPLES

Manage and integrate each aspect of your organization by initiating, planning, controlling, executing and closing out a new project. AluMag offers liaison management services as an addition to our customer's staff by bringing in the resources that define us.



JATCO Head Quarters Meeting in Japan

### Your Benefits

- Analysis and development of Markets
- Realize opportunities
- Accelerate market penetration
- Establish a sales force
- Provide warehousing and distribution services
- Manage new product launches
- Sales on demand



Roadshows / Events

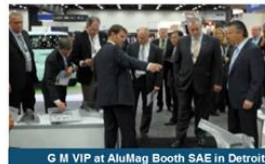
- Organization of Technical & Commercial Roadshows
- Oversea Commercial & Technical Events
- Host In-House Events & Presentation
- Common Technology Booth at Leading Exhibitions

AluMag roadshows, tech-meetings and symposia are the first class events used by exhibitors and guest as a unique benchmark platform.



Daimler Sindelfingen as Roadshow Location

The AluMag think tank events are bringing in decision makers and executives in EUROPE, ASIA and NAFTA.



G M VIP at AluMag Booth SAE in Detroit

### Upcoming Events:

- 2015 Nov: Automotive Light-weight Procurement Symposium in Detroit, USA
- 2016 April Common tech- booth at the SAE World Congress in Detroit, USA
- 2016 Jul: Automotive Light-weight Procurement Symposium in Shanghai, China
- 2016 Nov: Automotive Light-weight Procurement Symposium in Duesseldorf, Germany.



Strategic Localization

- Warehousing & Distribution Service
- Supplier & Tie-up Localization
- Identification & Trade-off of new Technology
- Foreign Market Business Cases and whose Realization

AluMag has the global expertise to search, identify, evaluate and validate potential strategic business opportunities for expansions and partnerships that will assist your business growth plans regionally and globally



On-Site Greenfield Planning Meeting

### Services for:

- Search, develop and present potential acquisition candidates for regional and global business expansions
- Localization of new manufacturing / service sites for business expansions
- Identification of new technology supplier development related to products, processes and materials
- Search, develop and present potential business partners / suppliers to support regional and/or global supply programs
- Evaluate potential competitor profiles for new or existing business in non-presence geographies
- Evaluate new emerging technologies and processes for business expansions

### Are you:

- looking for specific data, information and outlook about product, material, customer, supplier, technologies, ...
- want to discuss your project, increase sales, access new markets, ...
- interested to participate in one of our roadshows / events or organize your customized showcase ...
- looking to localize, expand into new markets, countries, tie-up targets, ...

please contact your AluMag Team to receive a quote or proposal

## CONTACTS & PROJECT TEAM



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## **N. America Automotive Lightweight Procurement Symposium 2015 9<sup>th</sup> – 11<sup>th</sup> Nov**

Cobo Center One Washington Blvd. Detroit, Michigan, 48226 USA



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# **AluMag<sup>®</sup>**

Europe ■ India ■ Americas ■ Asia  
**THE MARKET DEVELOPER**

## Company Speechs by:

Ford Research and Innovation Center

Carbon War Room and Meritor Headquarters

Striko Westofen America

Kurtz

Bharat Forge Aluminiumtechnik

C.P.C. USA

BOCAR Group

Ford Motor Company

Automotive Insight

EJOT Fastening Systems LP USA

UACJ Corp.

Lightweight Innovations for Tomorrow

Aluminum Blanking Company

# Agenda

## Agenda: (Is Continuously Being Updated)

### Monday The 9th Of November – Cobo Center, Detroit

05:30pm - 07:30pm



Pre-registration and Welcome

Reception

### Tuesday The 10th Of November – Cobo Center, Detroit

08:30am – 09:15am



Registration

Morning Coffee / Tea

09:15am – 09:30am



Welcome:

Mr. Jost GAERTNER - Managing Partner At AluMag Automotive GmbH

09:30am – 10:25am



Opening Keynote: Mr. Craig RENNEKER - Chief Engineer, New A/T Programs & Component – Transmission & Driveline Engineering At Ford Research & Innovation Center

**Lightweight Transmission & Driveline Components: Practical Challenges**

10:25am – 11:00am

Break for Refreshments/Coffee/Tea, Snacks, Networking, Tech Exhibition

11:00am – 11:45am



Paper 1: Mr Mike ROETH – Executive Director At North American Council for Freight Efficiency (NACFE) & Operations Leader – Carbon War Room



Paper 1: Mr. Karl MAYER – Director Product Line Management At Meritor

**Lightweighting Heavy Duty Class 8 Tractors and Trailers**

11:45am – 01:45pm

Break for Lunch, Refreshments, Networking, Tech Exhibition

01:45pm – 02:25pm



Paper 2: Mr Ryan BROWN – Director Of Sales At StrikoWestofen America

**Analysis Of Cost Drivers When Buying Lightweight Solutions / Materials & The Elimination Of These**

02:30pm – 03:10pm



Paper 3: Mr. Lothar HARTMANN – Managing Director Foundry Machines & Trimming Presses At Kurtz GmbH

**Chassis & Suspension Weight Reduction By LPDC Aluminum With Hollow Cross Sections**



Mr. Kevin CROY - NAFTA Sales Manager Foundry Machines & Trimming Presses At Kurtz GmbH

03:15pm – 03:45pm



Paper 4: Mr. Jörg MANTWILL – Director Sales At Bharat Forge Aluminiumtechnik GmbH & Co. KG

**HCM And Aluminum Forging – Partnership To Birth Chassis Parts' Safety**

03:45pm – 04:15pm

Break for Refreshments/Coffee/Tea, Snacks, Networking, Tech Exhibition

04:15pm – 04:55pm



Paper 5: Mr. Gary F. RUFF - President and Chief Executive Officer, Ruff and Associates, LLC 8/12 - Present

**Advanced Counter Pressure Casting Process for Light-Weighting of Auto and Truck Chassis and Suspension Components**

05:00pm – 05:55pm



Closing Keynote: Mr. Gilberto SALDIVAR – New Projects Group Manager At Bocar Group

**Key Factors To Achieve Mechanical Properties In Lightweight Structural Parts**

05:55pm – 06:00pm



Summary:

Mr. Roberto BOEKER – Managing Partner At AluMag Automotive LLC

# Agenda

06:00pm - 08:00pm



Dinner Speech:

Mr. Richard KLEIN -  
Responsibility Strategic Planning -  
Business Development & German  
Business At BOCAR

Wednesday The 11th Of Nov – Cobo Center, Detroit

08:15am – 08:55am



Mr. Ali JAMMOUL – Global Director  
Body Exterior And Safety Engineering  
At Ford

**Body Lightweighting**

09:00am – 09:40am



Paper 1: Dr. Gerald COLE – President  
At Light Weight Strategies LLC

**Light Weighting the Automotive  
Industry - The Road to 2025 CAFÉ**

09:45am – 10:25am



Paper 2: Mr. Laurence CLAUS -  
President At NMI Training & Consulting  
Inc. & Technical Consultant To EJOT  
Fastening Systems LP USA

**EJOT Fastening Solutions Enable  
Lightweight Body-in-white Assembly**

10:25am – 11:00am

Break for Refreshments/Coffee/  
Tea, Snacks, Networking, Tech  
Exhibition

11:00am – 11:40am



Paper 3: Dr. Akio NIIKURA - General  
Manager R&D Division At UACJ Corp.

**UACJ's Global Strategy And  
Approach To The Automotive  
Aluminum Market**

11:45am – 12:05pm



Paper 4:  
Mr. Lawrence E. BROWN – Executive  
Director At Lightweight Innovations For  
Tomorrow

**Lightweight Innovations For  
Tomorrow!!!!**

12:10pm – 12:40pm



Closing Keynote:  
Ms. Laura ANDERSON – CEO At  
Aluminum Blanking Company

**The Story Behind Aluminum's  
Sourcing Evolution: A North  
America Perspective**

12:40pm – 12:45pm



Summary:

Mr. Jost GAERTNER, Managing  
Partner At AluMag Automotive  
GmbH

12:45 pm – 01:30pm



Reception Speech With Snacks &  
Finger Food

Mr. Michael KOEHLER - Industry Vice  
President At Reed Exhibitions USA

01:30pm – 05:30pm



Individual Or Guided Visit At The  
2015 "Aluminum USA" Exhibition

# EXHIBITOR

**Aluminum Blanking Company**  
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**C.P.C. USA**  
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# EXHIBITOR

**EJOT Fastening Systems LP**  
**USA 48393 Wixom MI**  
**Tel.: + +1 262 612 3550**  
**<http://www.ejot-usa.com>**

The EJOT logo consists of the letters 'EJOT' in a bold, red, sans-serif font. A registered trademark symbol (®) is located to the upper right of the letter 'T'.

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**Kurtz GmbH**  
**GER 97892 Kreuzwertheim**  
**Tel.: +49 9342 807 0**  
**<http://www.kurtzrsa.de>**

The kurtz ersa logo features a blue icon on the left, which is a stylized 'K' shape composed of two overlapping geometric forms. To the right of the icon, the words 'kurtz' and 'ersa' are written in a lowercase, blue, sans-serif font.

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**StrikoWestofen GmbH**  
**GER 51643 Gummersbach**  
**Tel.: +49 2261 709 10**  
**[www.strikowestofen.com](http://www.strikowestofen.com)**

The StrikoWestofen Group logo features the words 'StrikoWestofen' in a bold, black, sans-serif font. A small red circle is positioned to the upper right of the letter 'n'. Below this, the word 'Group' is written in a smaller, black, sans-serif font.



## Striko Westofen<sup>®</sup> Group



**Mr Ryan BROWN**  
**Director Of Sales**

**Striko Westofen America**  
**USA, 49464 Zeeland, Mi**

**Tel.: +1 616 7723705**  
**[www.strikodynarad.com/](http://www.strikodynarad.com/)**

### **TITLE**

**Analysis Of Cost Drivers When Buying Lightweight Solutions / Materials &  
The Elimination Of These**

### **ABSTRACT**

77% of the total energy required to cast an aluminum part in HPDC is spent in the melting and holding process, before the metal reaches the shot sleeve on any HPDC Machine.

Millions of Dollars are unnecessarily wasted every year in gas consumption and in metal loss during the melting process.

Efficient melting processes will not only improve the quality of the metal that is discharged from the melting furnace, but it also reduces the cost drivers associated with melting aluminum – as previously mentioned, in gas consumption and metal losses.

Thus, the metal quality and profitability of every die caster or foundry starts in the melt shop.

# Striko Westofen America

North American Lightweight  
Procurement Symposium  
Nov. 9-11, 2015

„The efficiency  
of a **casting process**  
starts in the **melt shop.**“

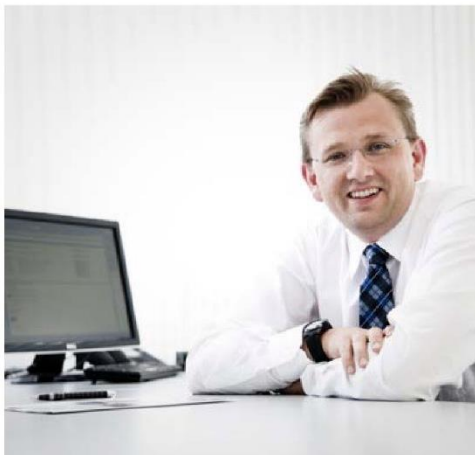
*Quote from a leading die-caster  
and long-time StrikoWestofen customer*

**StrikoWestofen°**

**STRIKOWESTOFEN**

**SUPPLYING FOUNDRIES FOR OVER 60 YEARS**

**StrikoWestofen°**



*Rudolf Riedel - CEO StrikoWestofen Group*

› „As a globally acting company with over **60 years of history** in thermal process technology we have a very good sense for the needs of our customers.“

› „More than **8,000 units sold worldwide** are proof and basis for our continuous innovations.“

# Striko Westofen America

**STRIKOWESTOFEN**  
**HEADQUARTERED IN GERMANY**

**StrikoWestofen** °



**STRIKOWESTOFEN**  
**NORTH AMERICAN HQ IN ZEELAND, MI**

**StrikoWestofen** °



# Striko Westofen America

**STRIKOWESTOFEN**

**StrikoWestofen<sup>o</sup>**

**WE ARE WHERE OUR CUSTOMERS ARE**

- › Subsidiaries, sales and service partners
  - › In 25 countries
  - › Throughout Europe, Asia and America



Efficiency. Powered by knowledge.

Page 5



## **TOPICS COVERED**

**Industry Bell Curve**

**Operational Costs of the Melt Shop**

**Reduction of Energy Consumption**

**Increasing Metal Yield & Melting Capacity**

**Return on Investment – Shaft Melting**

**Dosing Process Control**

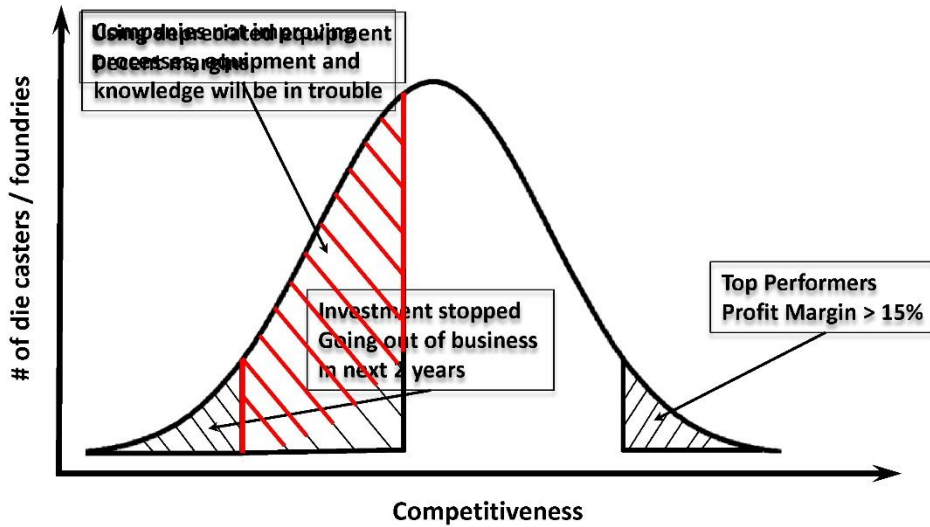
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## INDUSTRY BELL CURVE

3 years later...



## OPERATIONAL COSTS OF THE MELT SHOP:

Energy Costs and Metal Loss Drive Operational Costs

- › Over 95% of the total cost of furnace ownership is generated by
  - › Energy consumption
  - › Loss of metal
- › 77% of the energy used for an aluminum die-casting operation goes into
  - › Melting process
  - › Holding process
  - › Dosing process

\*Source: NADCA Survey





**Keep melt shop costs down**  
**STRIKOMELTER®: Shaft Melter**

Efficiency. Powered by knowledge.

**StrikoWestofen®**



**REVERB FURNACE**

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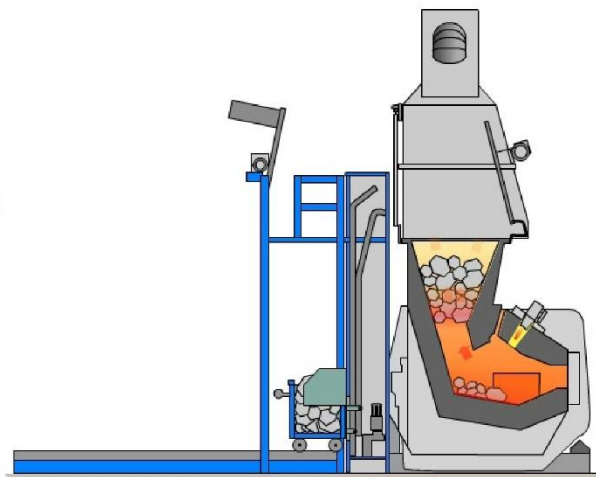
**StrikoWestofen®**

## **REDUCTION OF ENERGY CONSUMPTION:** **Advantages of Shaft Melting Furnaces**

- › **ETAMAX® shaft geometry**  
uses hot exhaust gases from holding and melting to preheat the charging material

### **Results:**

- › **Rapid melting process**
- › **High melt quality**
  - › Minimal oxide inclusions
  - › Density index 6% or better
- › **Low energy consumption**
- › **Reduced CO<sub>2</sub>-emissions**



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### REDUCTION OF ENERGY CONSUMPTION: Benefits of Lower Gas Consumption

- › Molten aluminum above 1220°F can absorb high amounts of hydrogen
  - › Gas-fired melting process can increase hydrogen content in aluminum
  - › Hydrogen must be minimized via degassing before casting process
- 
- › Especially important for thin-walled structural castings
  - › Melting technology key factor to success at HPDC



### REDUCTION OF ENERGY CONSUMPTION: Benefits of Lower Gas Consumption

- › Energy consumption of less than 850 BTU/lb (validated under operating conditions)
- 
- › Savings of 10 to 60 percent compared to competitive technologies



### REDUCTION OF ENERGY CONSUMPTION: Benefits of Lower Gas Consumption

- › **CO<sub>2</sub> emissions of 129 kg/t**
  - › Compared to 180 kg/ton with other tower melter
- › **CO<sub>2</sub> savings / year**
  - › Emissions of 400 – 900 cars



### INCREASING METAL YIELD AND MELTING CAPACITY: Shaft Melting Process Advantages

- › **Metal yield up to 99.7 %**
  - › Ex. Melting 10 mil. lbs./yr,  
1% metal loss savings  
=\$100,000 / year  
at \$1.00/lb.



- › **High productivity**
  - › Charging ingots and  
production returns





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### INCREASING METAL YIELD AND MELTING CAPACITY: Shaft Melting Process Advantages

#### › Sludge

- › Forms when holding temperatures are too low, below 1225°F

#### › Corundum

- › Forms when holding temperatures are too high and in difficult-to-clean areas



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### Theoretical/Best Practice Energy Use In Metalcasting Operations

**J. F. Schifo**

**J.T. Radia**

KERAMIDA Environmental, Inc.  
Indianapolis, IN

May 2004

Prepared under Contract to  
Advanced Technology Institute  
North Charleston, SC

for the  
U.S. Department of Energy  
Industrial Technologies Program  
Washington, DC

Industrial Technologies Program  
Boosting the productivity and competitiveness of U.S. industry through improvements in energy and environmental performance



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### SUMMARY ENERGY CONSUMPTION AND MELT LOSS: 3rd Party Verification

**Table 21 - Aluminum Melt Furnace Comparisons**

	Melt		Tapped				Ship**
	Gross Btu/pound	Melt Loss	Btu/pound	Btu(10 <sup>6</sup> )/Ton	Tacit Btu/pound	Tacit Btu(10 <sup>6</sup> )/Ton	Tacit Btu(10 <sup>6</sup> )/Ton
Reverberatory Gas Furnace AFS Article (25)	1,975	5.5%	2,090	4.18	2,142	4.28	6.59
Reverberatory Gas Furnace Actual*	2,418	5.5%	2,559	5.12	2,623	5.25	8.07
Stack Melter, Die Cast Facility(26)	703	1.25%	712	1.42	730	1.46	2.25
Stack Melter Actual	861	1.25%	872	1.74	893	1.79	2.75

\* "Actual" is the total energy usage including downshifts and weekends based on running at 50% of rated capacities. (Actual data on die casting operation stack melter.) Reverberatory "Actual" using the same ratio of energy differences as stack melter.

\*\*Tons shipped considered 65% of melt. (Yield)

<http://energy.gov/eere/amo/downloads/itp-metal-casting-theoreticalbest-practice-energy-use-metalcasting-operations>

### ROI CALCULATION: Shaft vs. Reverb Melting Furnace Comparison

"Die Casting Direct"

Aluminum/day = 100,000 lbs.

Prod days/yr = 240

\$ / lb. Al = \$ 0.90

\$ / Therm = \$ 0.42

Current Furnace = 50,000 lb. Reverb

Melt loss = 4.2 %

BTU/lb = 2418

### ROI CALCULATION:

Shaft vs. Reverb Melting Furnace Comparison

Annual gas savings:

$$240 \text{ days} \times 100,000 \text{ lbs./day} = 24 \text{ mil. lbs/yr.}$$

$$\text{BTU savings potential} = 2418 - 861 = 1,557 \text{ BTU/lb.}$$

$$1,557 \text{ BTU} \div 100,000 \text{ BTU/Therm} = 0.01557$$

$$24 \text{ mil lbs} \times 0.01557 \text{ Therms} \times \$ 0.42/\text{Therm} =$$

$$\$ 156,945/\text{yr.}$$

### ROI CALCULATION:

Shaft vs. Reverb Melting Furnace Comparison

Annual Melt Loss Savings:

$$4.2 \% \text{ Reverb} - 1.25 \% \text{ Shaft} = 2.95 \% / \text{lb.}$$

$$24 \text{ mil lb.} \times \Delta 2.95 \% \times \$ 0.90/\text{lb Al} =$$

$$\$ 637,200/\text{yr.}$$

**StrikoWestofen<sup>®</sup>**

**DOSING PROCESS CONTROL:**

Status quo in 80% of North American Die Cast Facilities



**StrikoWestofen<sup>®</sup>**

**WESTOMAT<sup>®</sup> - World Class Dosing Units.**

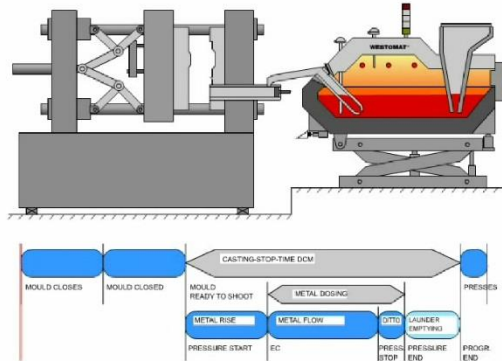


The WESTOMAT<sup>®</sup> has virtually become a synonym for dosing furnaces. After all, it guarantees the highest precision and is more economical than automatic ladling systems with dipping furnaces by two thirds of energy consumption. Suitable for dosing from high pressure to sand casting.

## StrikoWestofen<sup>o</sup>

### DOSING PROCESS CONTROL:

#### Westomat<sup>®</sup> for HPDC, Gravity and Sand Casting



- › Lowest energy consumption: 1/3 electricity of conventional ladle system
- › High dosing accuracy, up to +/-1%
- › Best metal quality; least disruption of metal in dosing process; porous plugs available
- › High productivity; uptimes to 98%
- › Long life time

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### DOSING PROCESS CONTROL:

#### Energy, Melt Loss, Melt Quality, Repeatability

› Energy consumption



› Metal yield



› System availability



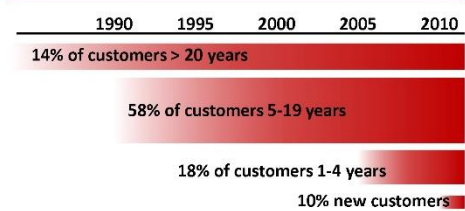
### STRIKOWESTOFEN: Forming Long-Term Partnerships

- › Customer base
  - › leading manufacturers
  - › leading foundries
  - › around the globe

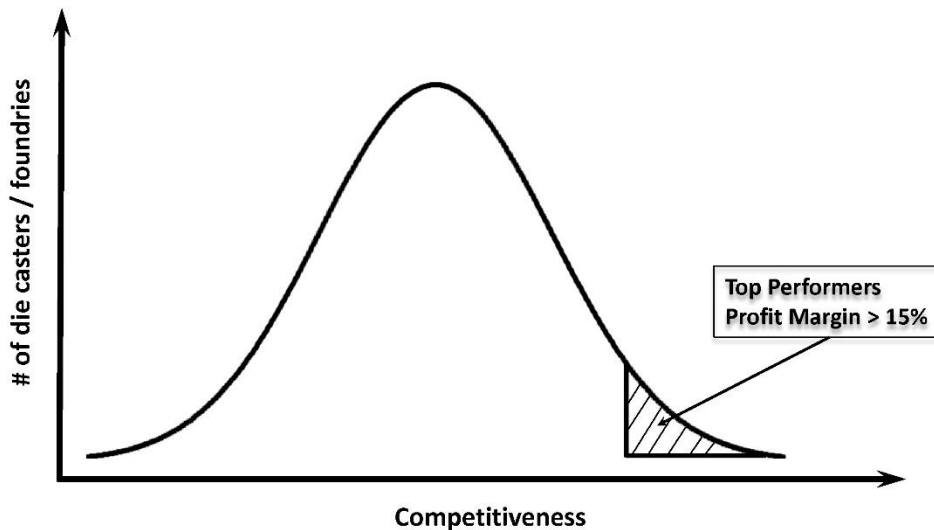
- › General Motors
- › Tesla
- › Magna
- › Pace Industries
- › Gibbs Die Casting

- › Partnerships over decades
  - › 14% > 20 years
  - › 58% 5 – 19 years
  - › 18% 1 - 4 years

Duration of StrikoWestofen's customer relationships

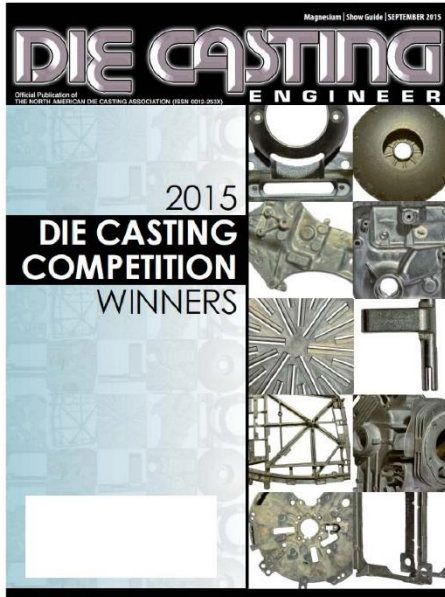


### INDUSTRY BELL CURVE



## StrikoWestofen<sup>o</sup>

### 2015 DIE CASTING COMPETITION WINNERS



#### > 5 awards presented for HPDC aluminum castings

- > 1 x < 1 lb Castings
- > 2 x 1 -10 lbs. Castings
- > 1 x > 10 lb. Castings
- > 1 x Structural Die Casting

✓ All 5 using StrikoWestofen melting and/or dosing equipment!

### REFERENCES



# Striko Westofen America



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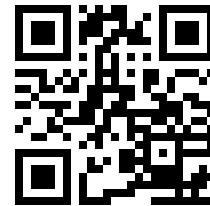
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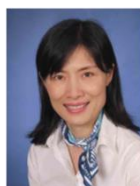


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