



# RMD News

## The Rotational Molding Division of SPE Newsletter



1st Quarter 2018

Volume 18 Issue

ROTATIONAL MOLDING

### In the News:

**Jerico Plastic Industries, Inc.  
Announces the Installation  
of a New Orenda AirForce  
Mill Pulverizer**



### In the News:



2018

**Rotational Molding**  
Materials Machinery Molds and More

June 3-6  
Marriott Cleveland East  
Cleveland, OH

**Presentations on:**

Design, Materials, Processing and Marketing & Business

**Speakers include:**

Andrew Meloeny, VEXAGroup - Fuel Tank Regulations  
Ben Ismert, Ripple Engineering - Internal Cooling  
Bobby Richards, Nylene - Polyamide Advancements  
*with more to be announced!*



Plant Tour  
Diversified Mold & Castings

Social Networking, Table-top Displays,  
Raffles and more!

**Questions?**

Larry Whittemore  
lwhittemore@stonersolutions.com  
800-227-5538 x3118

Russ Boyle  
russ.boyle@gulfviewplastics.com  
727-379-3072



[4spe.org/rotomolding2018](http://4spe.org/rotomolding2018)

RMD'S GO-TO

GUY

Larry Schneider

By: Glenn Beall

### In this issue:

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ROTATIONAL MOLDING

Division Chair's Letter P.2

Jerico Plastic Industries Inc.  
Installs new AirForce Pulverizer P.3

Trilogy Plastics Wins P. 7

RMD's Got-To Guy P.9

## Chairman's Message



**Gary McQuay**

Greetings Fellow SPE Rotational Molding Division Members,

SPE Rotational Molding Division's TopCon 2018 is just around the corner - June 3<sup>rd</sup> through June 6<sup>th</sup> - and it will be held at the Marriott Cleveland East. Larry Whittemore and his crew have a great line of speakers lined up, and it promises to be an exciting and informative few days. Anyone even remotely connected with the rotational molding industry should not miss this event. Registration is painless if you just get on the 4SPE.org website, click events, and scroll down and click on the Rotational Molding Conference 2018. The registration is simple enough that even I can do it without any help from my granddaughter.

Thanks to the hard work of Larry Schneider, SPE has again awarded our division the Silver Pinnacle award. Larry has been a staple in our division from the beginning, and I, along with the entire board of directors, want to express our thanks for his continued commitment and hard work.

I am looking forward to the coming months and am excited about some of the things the board has in the works. Please stay tuned, and all will be revealed as things unfold.

I hope to see you all in Cleveland in June.

Gary

### Newsletter Comments/Questions? Contact:

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**[Russ.boyle@gulfviewplastics.com](mailto:Russ.boyle@gulfviewplastics.com)**  
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## ***INDEX***

<b>RMD TopCon 2018</b>	<b>P. 5</b>
<b>Plastics Consulting Adds New Product Line</b>	<b>P. 11</b>
<b>Recent Publications on Rotomolding</b>	<b>P. 12</b>
<b>Designer's Corner</b>	<b>P. 16</b>

**In The News: Jerico Plastic Industries, Inc Announces New Pulverizer** Continued on Page 4

## Jerico Plastic Industries, Inc. Announces The Installation of a New Orenda AirForce Mill Pulverizer

Wadsworth, OH, USA - Jerico Plastic Industries, Inc. announces the installation of a new Orenda AirForce mill pulverizer in its Minerva, Ohio manufacturing plant. The new mill features two air intake manifolds, specially designed carrying plate and lid, an isolated cooling chamber and double-faced disposable discs. These innovations combine to produce unparalleled cooling, material of superior quality and a dramatic reduction in mill melts.



Benefits expected to be realized from the new AirForce mill include:

- *Improved production rates*
- *Energy savings*
- *Water cooling elimination*
- *Lower maintenance / operating costs*
- *Wider spectrum of processable materials*
- *Excellent finished material quality*
- *Disposable double faced discs:*
- *Elimination of disk re-sharpening and associated costs*
- *Extended disk life*
- *Savings over conventional disc costs*

Continued on page 4



Submit your news story or  
technical article to the  
RMD Newsletter !

The submission deadline for the next edition is Sept. 1st.

## **In The News: Jerico Plastic Industries, Inc Announces New Pulverizer** Continued from page 3

The addition of the AirForce mill to Jerico's production line follows five years of solid growth for Jerico. During 2018, the company will increase extrusion and pulverizing capacity to handle growth and production of new product development programs.

With manufacturing facilities in Minerva, Ohio and Greensboro, Georgia, Jerico Plastic Industries, Inc. is committed to excellence in rotational molding and custom compounding. As a custom manufacturer of color compounds, specialty resins and recycled products, the company currently offers rotational molding PP, cross-linkable PE, flame retardant PE and special effects PE compounds.

For more information, contact Steve Copeland, President, 330-334-5244 or Brandi Frey, [info@jericoplastic.com](mailto:info@jericoplastic.com).

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## In The News: TopCon 2018

2018

# Rotational Molding

Materials Machinery Molds and More

June 3-6

Marriott Cleveland East  
Cleveland, OH



### ***Presentations on:***

Design, Materials, Processing  
and Marketing & Business

### ***Speakers include:***



Andrew Meloeny, VEXAGroup, *Fuel Tank Regulations*

Ben Ismert, Ripple Engineering, *Internal Cooling*

Bobby Richards, Nylene, *Polyamide Advancements*



Plant Tour

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Social Networking, Table-top Displays, Raffles and *much more!*

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## In The News: TopCon 2018

2018

# Rotational Molding

## Materials Machinery Molds and More

**June 3-6**  
**Marriott Cleveland East**  
**Cleveland, OH**  
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## In The News: Trilogy Plastics Wins

### TRILOGY PLASTICS WINS

by Glenn L. Beall

Trilogy Plastics' president, Steve Osborn, and vice president, Bruce Frank, deserve our congratulations. Trilogy is believed to be the only rotational molding company to be among the final four in the Plastics News (no need for “”) highly contested and very prestigious PROCESSOR OF THE YEAR COMPETITION in 2016 and again in 2017.

In the final judging conducted by members of the Plastics News (no need for apostrophe) editorial staff, Petoskey Plastics, Inc. was chosen as the 2017 Processor of the Year. Petoskey Plastics is a blown film manufacturer and converter that specializes in using recycled plastics.

However, Trilogy did not leave empty-handed. They received the 2017 Plastics News Excellence Award for Industry and Public Service. The company also received a lot of good, almost free, publicity in the January 8th and March 12th, 2018, issues of Plastics News and again on their website on March 26, 2018.



The judges were impressed by Trilogy's ongoing commitment to young people. Company managers participate in a "Hard Hats Reading Program" by devoting time to read with local elementary school students. Trilogy also hosts summer plant tours for the children of immigrant families.

Daren Balderson, Trilogy's vice president of production, is a member of a group of manufacturing executives who helped establish a High School Tech Center and continues to serve on the Center's Advisory Board. Trilogy also supports high school sports both financially and through volunteerism.

Trilogy's director of human resources, Holly Blanton, said that the company really cares about their 200-plus employees. The company has reduced loss of time for back injuries by providing stretching exercises before the start of each shift.

Kim Lynch, Trilogy's technical specialist, helps new employees get started with their new jobs. She then follows up for as long as it takes while they settle in to that job.

Blanton believes that the popular exit interview is not as useful as "stay interviews" which are conducted monthly by supervisors - sometimes for only five or ten minutes. The interviews let the company learn about and correct company or personal issues that might otherwise cause an employee to decide to leave. The monthly one-on-one



## In The News:

Continued from Page 7

attention is undoubtedly good for morale.

Trilogy also has a program where employees can take classes to learn additional skills so they can then take a test to earn a promotion to the next job title.

Trilogy has been successful in encouraging community activism by awarding points for volunteer work. These points can be used to "work off" negative points assessed for unexcused absences. The Salvation Army, Habitat for Humanity, The Alliance for Children and Families have benefited.

These volunteer activities have resulted in Trilogy receiving several Chamber of Commerce Golden Spade Awards and being named Large Company of the Year in Alliance, Ohio.

The company's caring and volunteering culture starts at the top. Bruce Frank and Steve Osborn practice what they preach. Osborn is on the board as vice chairman of Andrews School in Willoughby, Ohio. He also serves on Hiram College's Board of Visitors and has had several volunteer roles at University School in Hunting Valley, Ohio.

In 1987 Steve Osborn left a secure consulting job at Ernst & Ernst and purchased a small, troubled rotational molding company with thirteen employees in an aging building. By the end of 2017 the company had over 200 employees with 2017 sales of \$17 million and was 29th in the 2017 Plastics News rankings of rotational molding companies.

Trilogy continues to invest in technology. The company's nine molding machines are supported by four CNC routers. RotoLog, EZ Logger, and infra-red IRT technology brings Trilogy as close to closed-loop molding as is currently possible. This level of technology has earned Trilogy the reputation of being the go-to hi-tech rotational molder that does not shy away from non-standard materials or difficult projects.

Trilogy recently added "Top-Operator" Awards for both molding and finishing personnel to promote excellence in safety, productivity and attitude. All of which contributes to the company's 99% on-time delivery record.

A long-time member of the Association of Rotational Molders, Osborn has served on several committees and the Association's board of directors. His work for the Association has resulted in his being awarded the Distinguished Service Award in 2005. In 2012 Steve --- was inducted into the prestigious Rotational Molding Hall of Fame which is the Association's highest member award.

What Steve Osborn and his team have done with a troubled company of thirteen in an aging building should be an inspiration for all of us. He certainly has my compliments for what they have achieved.



## In The News: RMD's GO-TO-GUY

# RMD'S GO-TO GUY

by Glenn Beall

One of the best rotational molding industry events is the Rotoplas Exposition and Conference. This event, which is held every thirty-six months, draws attendees and exhibitors from all over the United States and many other countries. Rotoplas is sponsored by the Association of Rotational Molders (ARM). The most recent (September 25-28, 2017) Rotoplas in Rosemont (Chicago), Illinois, was an unqualified success.

As in the past, ARM donated a Rotoplas booth to the Society of Plastics Engineers' (SPE) Rotational Molding Division (RMD). Traffic at the booth was steady. A significant number of American and especially international attendees who visited the booth had never heard of SPE. If they had, they did not know that SPE had a Rotational Molding Division with its very own, very good newsletter. The most popular literature on the table was the division's newsletter and Plastics Engineering magazine.

All things considered, RMD's participation in Rotoplas was worth the effort. A lot more rotational molding industry people now know more about SPE and the RMD.

Speaking of effort, the RMD board of directors has become aware that board member, Larry Schneider, put a lot of effort into making the RMD Rotoplas booth a success. He single-handedly arranged for the booth space, table, carpet and chairs. He secured the pass-out literature from SPE and tracked down the RMD banner and logo displays. He delivered all of these items to the Stephens Convention Center in Rosemont.



RMD board member Larry Schneider

Continued on page 10

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## In The News: RMD's GO-TO-GUY

Continued from page 9

Getting everything from the car to the booth required a major effort for a person working alone. This was followed up by a very, very long walk back from a distant parking lot in order to set up the booth. This whole exercise had to be repeated in reverse at the end of Rotoplas.

Larry was in the RMD booth for the whole exposition. Other RMD board members also helped man the booth when their other commitments allowed. This gave Larry a break and an opportunity to quickly walk the show.

During the March 13<sup>th</sup> RMD board of directors meeting there was a unanimous vote to present Larry with a plaque acknowledging their thanks for his extra effort in making the Rotoplas booth a success. The board's thanks and the plaque was presented to Larry by Glenn Beall, a founder and past chairman of the RMD board of directors.

Larry --- is the owner and president of Schneider Plastics, Inc. in Wadsworth, Illinois, and a charter member of SPE's Rotational Molding Division. He has served the division as treasurer, secretary, and chairman of the board of directors. He currently serves --- as the chairman of the Awards Committee. Larry is also the division's go-to guy who never says "no" when something extra needs doing.

The division is lucky to have Larry continuing to serve on the board. Thank you, Larry, for your many years of service.



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## In The News: Plastics Consulting adds new product line

### Plastics Consulting announces a new product line, the LRM 500 Rotational Molder



Finally, there is a new laboratory-sized rotomolder available. Introducing the LRM 500 Lab Rotomolder manufactured by STP Rotomachinery of Sherbrooke, QC, and sold by Plastics Consulting of Palm City, FL.

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## In the News: Scientific Literature

# Recent Publications Related to Rotomolding

## by: Denis Rodrigue

Period: January-April 2018

### Simulation of Micropelletization Mechanisms in Polymer Melt - Air Systems

**By:** Schafer C; Aquite WM; Osswald TA

**Journal:** INTERNATIONAL POLYMER PROCESSING

**Volume:** 33

**Issue:** 1

**Pages:** 76-88

**DOI:** 10.3139/217.3394

#### Abstract

This paper presents a series of simulation approaches to model the mechanisms associated with the flow and breakup of a polymer melt in a new micropelletization technique. This has proven to be an alternative way of producing micropellets and powders with physical properties demanded in polymer processes such as sintering, rotomolding, injection molding, and extrusion. The new technique involves extruding a polymer melt strand through a capillary and stretching it with a stream of hot air, causing the formation of Rayleigh disturbances that lead to breakup of the strand into small particles. Experimental work has demonstrated that the viscoelastic response of the extruded thread influences the breakup process, affecting the final shape and size distribution of the particles. This work presents simulation results for the melt flow behavior that reproduces what has been observed experimentally during the breakup stage. A free-surface viscoelastic solver, implemented in the OpenFOAM computational fluid dynamics software, allows visualization of viscoelastic effects on the melt as it leaves the extrusion die and meets the stream of air. Modeling of the viscoelastic fluid flow in this process is intended to serve as a tool for process control and understanding of influential factors in the development of micropellets for a range of materials and process conditions.

## In the News: Scientific Literature

Continued from page 12

### Modelling of an Innovative Liquid Rotational Moulding Process

**By:** Agbessi Y; Bereaux Y; Charmeau JY; Le Goff R; Biglione, J

**Journal:** INTERNATIONAL JOURNAL OF MATERIAL FORMING

**Volume:** 11

**Issue:** 2

**Pages:** 257-267

**DOI:** 10.1007/s12289-017-1349-4

#### Abstract

An innovative liquid rotational moulding process aiming at using standard injection-moulding polymer grades, shortening cycle times and accessing more higher-end markets is studied. In this new process the polymer is melted beforehand in a conventional injection unit and injected into the mould rotating around two axes. This work focuses on modelling the liquid polymer flow occurring in this process, as well as providing guidance on the choice of process parameters. First, a stability criterion for rimming flow is derived, defining the process and material parameters space available for a functional process. From this criterion it appears that initial thickness and density have a destabilising effect while liquid viscosity and angular velocity have a stabilising effect. Next, using Lax-Friedrichs scheme, the one-dimensional, transient, gravity-driven liquid film is numerically modelled, linking the total extent of spreading to the frequency of orientation reversals and to the major and minor angular velocities ratio; the closer this ratio is to one, the larger the extent of spreading. Then Computational Fluid Dynamics (CFD) simulations are carried out to take into account three-dimensional features in the moulding of a cubic part. Finally, comparison with trials performed on the moulding of the same cubic part validates entirely this approach. In particular, some peculiar features of spreading can only be explained and reproduced when employing three-dimensional CFD simulations.

### Fracture Toughness of Rotational Molded Polyethylene and Polypropylene

**By:** Saifullah A; Thomas B; Cripps R; Tabeshfar K; Wang L; Muryn C

**Journal:** POLYMER ENGINEERING AND SCIENCE

**Volume:** 58

**Issue:** 1

**Pages:** 63-73

**DOI:** 10.1002/pen.24531

Continued on page 14

## In the News: Scientific Literature

Continued from page 13

### Abstract

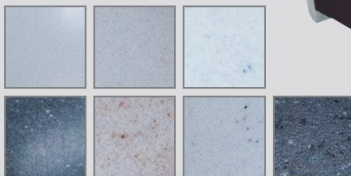
In this work the fracture toughness of rotational molded polyethylene (PE) and polypropylene (PP) was measured using J integral methods at static loading rates and at room temperature. Two different commercially available rotational molding grades of PE and PP, which have been used in various rotational molded products such as small leisure craft, water storage tanks, and so on, were tested in this study. Scanning electron microscope (SEM), optical microscope, differential scanning calorimetry (DSC), solid-state nuclear magnetic resonance (solid-state NMR), and X-ray scattering were used to investigate the microstructure and fracture surfaces as well as to compare the toughness properties of these materials. In PE higher molecular weight and broader molecular weight distribution larger amorphous and crystal region thicknesses are found to be related to higher toughness values. High molecular weight favors higher number of entanglements that improve fracture energy, and broader distribution increases long-chain branching of higher-molecular-weight fractions which creates higher entanglements at the branch sites. Larger amorphous regions promote microvoiding more easily compared to thinner amorphous regions, leading to greater plastic deformation and energy absorption. Higher crystal thickness also contributes to micro-voiding in the amorphous region. In PP greater plastic deformation observed in the fracture surfaces is related to higher fracture-toughness values.

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## Designer's Corner



### DESIGNER'S CORNER

Part 11

### REINFORCING FEATURES

### PART 1

By: Glenn Beall

#### Editor's Note:

This is the 7th in a series of twenty-six articles that will review how to design rotationally molded plastics parts and products. We look forward to publishing these articles over many issues. This is a great opportunity for newcomers to the community as well as an always appreciated chance for review of important information.

The plastics molding industry is now under extreme pressure to reduce costs. The cost of a rotational molded product is, to a great extent, dictated by the plastic material being molded and the wall thickness of the part. The recommended wall thickness for different rotational molding materials was reviewed in the March, 2002 issue of this newsletter.

The ideal wall thickness is always the thinnest wall that will satisfy both the functional and manufacturing requirements of the product. Rotational molding excels in the production of large parts with relatively thin walls. During the rotational molding process, the plastic simply adheres to and coats the cavity as the molding machine rotates the hot cavity through the puddle of material in the bottom of the cavity. In many instances the process is capable of molding parts with walls too thin to satisfy the functional requirements of the product. In these cases the wall thickness must be increased as function always takes priority over cost and processing considerations.

Increasing the wall thickness will produce a stronger part. There are, however, other ways of increasing strength while keeping the wall thickness to a minimum. This article and the next two will review some of those techniques.

For a given wall thickness, radiused corners are stronger than square corners. Crowning or doming a flat surface increases its stiffness. The most frequent technique for increasing the strength of a thin-walled part is the use of reinforcing ribs.

Rotational molding is not a good process for producing the common solid reinforcing ribs of the type used on parts produced by closed-molding techniques such as injection or compression molding. This process is at its best while producing hollow ribs (Figure 1).

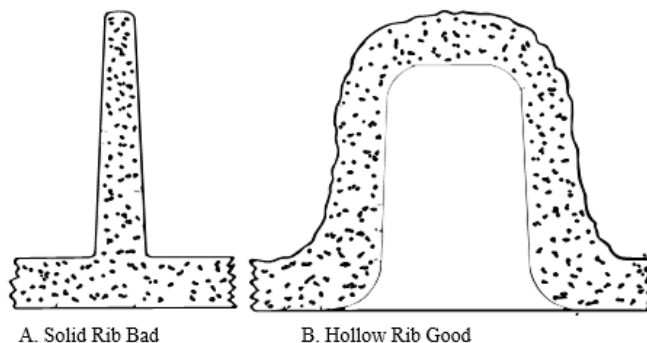


Figure 1

## Designer's Corner

Continued from page 16

The refuse container shown in Figure 2 is rectangular in cross-section. The four flat walls in the sides of the container are subject to an outward thrusting force when the container is filled to capacity. Adding vertical reinforcing ribs on these four walls would increase their ability to resist that force. Doming these surfaces inward or outward would also increase their stiffness. The bottom of the container and if necessary the lid could also be stiffened with reinforcing ribs.

The shape of reinforcing ribs can be rounded or trapezoidal in cross-section. The ribs must project above or below the nominal wall of the part at a distance of at least four times the nominal wall thickness in order to provide a significant stiffening effect.

Hollow reinforcing ribs become closely spaced parallel walls, and they must follow the same rules. Outwardly projecting hollow ribs must have a minimum width of three and preferably five

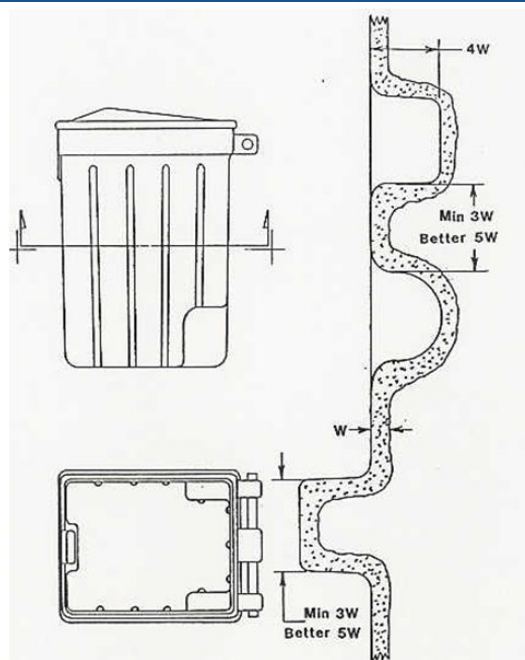


Figure 2

times the nominal wall thickness. The recommended proportions for stiffening ribs are shown in Figure 2.

If the width of a rib or the space between ribs is less than three times the nominal wall thickness, the powdered plastic has difficulty flowing into these restricted areas. This problem becomes magnified as the depth of these recessed areas increases. Ribs that project more than four times the nominal wall thickness should be designed with proportionately wider spaces for the powdered plastic to flow into.

Solid reinforcing ribs are not recommended for rotational molded products. In those cases when solid ribs cannot be avoided, they must be kept as small as possible. The proportion of solid ribs that have been successfully produced are shown in Figure 3. Ribs of this type can only be produced as outwardly extending projections.

These solid ribs are thicker and take longer to cool than the nominal wall of the part. Solid ribs will shrink more than the rest of the part. The increase in shrinkage in these thicker and stronger solid ribs may deform the walls to which they are attached. The increase in shrinkage in solid ribs normally results in a sink mark on the inside surface of a part. These sink marks may or may not be acceptable.

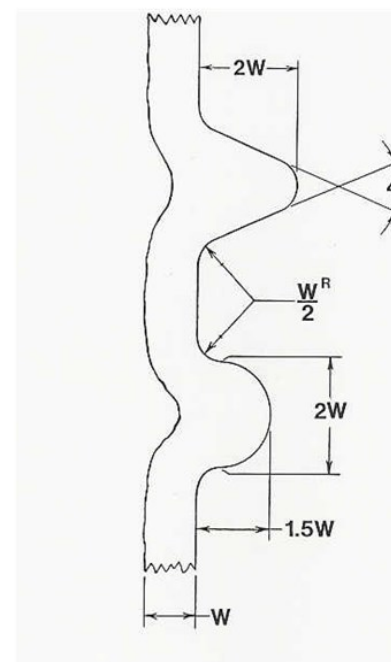


Figure 3



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## Product Design & Development, Injection Molding, Rotational Molding

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### **Rotational Molding Division Newsletter and Website Advertising**

Business card	\$350.00
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***View the current and previous  
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## RMD Interim Financial Report

SPE's Rotational Molding Division  
Annual Financial Report 2015 -- 2016  
July 1, 2015 to June 30, 2016

	Actual	Budget
Cash Balance: Beginning Period	\$73,873.70	
Cash Receipts in Period		
SPE Rebate	\$581.26	\$1,100.00
Interest	\$34.25	\$50.00
Bank fee reimbursement	\$20.00	
Newsletter Ads/Sponsorships	\$2,500.00	\$2,000.00
TopCon 2016	\$282.00	\$20,000.00
* Interest--should be on last yr	\$3.61	
Total Income in Period	\$3,421.12	\$23,150.00
Cash Disbursements		
Postage	\$6.10	
Awards	\$1,656.04	\$1,500.00
Bank Fees	\$6.00	
IDES show	\$1,871.00	\$3,000.00
TopCon 2016	\$16,505.41	\$1,000.00
Board Mtg		\$1,000.00
Website		\$500.00
ANTEC student activities		\$1,500.00
Advertizing		\$3,500.00
Total Disbursements	\$20,044.55	\$12,000.00
Balance at end of Period	\$57,250.27	

---

Balance is made up as follows:	
Checking Account	\$5,861.85
Savings Account	\$51,388.42
Total Balance	\$57,250.27

---

\* interst payment made 6/30/15 which should have been included in last years statement but was

Respectfully submitted  
By Russ Boyle

### SPE's Digitized Presentations

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Past Division Chairman 2000-2001

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Past Division Chairman 1999-2000

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Web Page Chairman  
Director 2014-2017

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Webinar Chairman  
Past Division Chairman 2007-2008

### Jon Ratzlaff

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Past Division Chairman  
2001-2002  
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Glenn Beall	1999-2000	Paul Nugent	2005-2006
Barry Aubrey	2000-2001	Ken Wessler	2006-2007
Jon Ratzlaff	2001-2002	Michael Paloian	2007-2008
Marshall Lampson	2002-2003	Greg Stout	2008-2009
Ken Pawlak	2003-2004	C. "Hank" White	2009-2012
Larry Schneider	2004-2005	Rob Donaldson	2012-2015

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## Officers/Directors/Chairman

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ANTEC Technical Program Chairman  
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Awards Chairman  
Past Division Chairman  
2004-2005

### Thomas Steele

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Grants and Scholarships Chairman  
Past Division Chairman  
2006-2007

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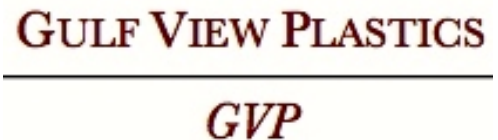
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The Rotational Molding Division would like to acknowledge and thank the following organizations that share their resources with the RMD by allowing and encouraging their employees to serve as members of the RMD Board of Directors:



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