



Woodland

PLASTICS CORPORATION

Your First Choice Thermoset Molder





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- Located west of Chicago in Addison, Illinois
- Founded in 1996 by current President, Steve Sinderson, and his father, Lee Sinderson
- Previous history dating back to 1960s with Woodland Molded Plastics, which was sold to Freudenberg-NOK in 1991 based on interest of Woodland's involvement in an intake manifold for GM's North Star Engine using lost core technology
- Custom Thermoset Molder of Bulk Molding Compound (BMC) & Phenolic resin



Company Profile



- Your First Choice Thermoset Molder
- 20,000 Sq. Ft. Manufacturing Facility
- ISO 9001:2015 certified
- Technology-Integrated Manufacturer
- Estimated Percent of Business in 2021
 - Electrical – 40%
 - Appliance – 30%
 - Automotive – 15%
 - Energy - 5%
 - Other – 10%
- Sales Revenue of \$5M in 2021
- 30 Employees



Molding Processes & Material

Thermoset Molding Processes:

- Injection Molding
- Injection-Compression Molding
- Insert Molding

Thermoset Materials Molded:

- Bulk Molding Compounds (BMCs)
 - ✦ Unsaturated Polyesters
 - ✦ Vinyl Esters
- Phenolics/ Phenolic resins
- Diallyl Phthalates (DAPs)
- Epoxies



Equipment



- WPC has 15 thermoset molding machines with various processes and capabilities
- New 240T Arburg delivered November 2021
- Five 300-400T thermoset injection machines purchased Q4, 2021
- Thermoset injection machine press capacity between 25-500 tons
- Geared towards medium-long production
- All machines connected to real-time ERP manufacturing software system
- Auxiliary equipment, including:
 - Wheelabrators, Finmacs, and Inline Isper Deflash Equipment
 - Post Bake Ovens
 - Automated Degating Machine
 - Vision Inspection Systems



Additional Capabilities/Services



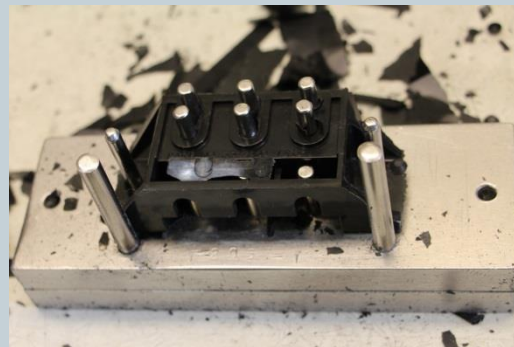
Additionally, Woodland Plastics offers the following capabilities and services:

Additional Processes:

- Assembly
- Deflashing
- Drilling
- Grinding
- Fixturing
- Packaging
- Pad Printing
- Painting
- Post-Baking
- Tapping

Additional Services:

- Engineering
- Design
- Mold Maintenance
- Product Development
- Tooling



Products/Applications



Woodland Plastics can fabricate both Performance and Aesthetic components:

- Automotive

- Ashtrays
- Brush Holders
- Powertrain Components
- Pulleys
- Pump Housings
- Slip Rings
- Solenoids & Caps
- Transmission Components
- Under-the-Hood Components
- Valve Covers



- Appliance

- Bases
- Cookware Components
- Knobs
- Handles
- Housings
- HVAC Components
- Motor Housings
- Grill Handles
- Grill Shelves
- Oven Faceplates
- Oven Control Panels



- Electrical/Lighting

- Circuit Breaker Covers
- Circuit Breaker Handles
- Circuit Breaker Bases
- Electrical Enclosures
- Fuse Blocks
- Electrical Housings
- Insulators
- Relays
- Starter Caps
- Switches
- Terminal Blocks



- Other

- Bearings
- Downhole Centralizers
- HVAC Drain Pans
- Frac Balls
- Fuel Cell Components
- Lawn & Garden
- Oil Pans
- Pump Housings
- Slip Rings
- Thrust Washers
- Valve Housings



ERP System



In support of our commitment to quality, Woodland Plastics provides integrated manufacturing solutions to our customers as a **technology-driven manufacturer**.

- Woodland Plastics utilizes IQMS, a plastics industry-leading manufacturing ERP software solution to manage the entire manufacturing process, including quoting and customer relationship management, real-time production data and scheduling, predictive maintenance for tooling and equipment, just-in-time product delivery, as well as project and asset management tools.

WorkCenter #	Item Number	Description	Parts To Go	Hrs To Go	STD Cycle	Last Cycle	AVG Cycle	Act Cav	Std Cav	Uphrs	DumHrs	Mfg#	Priority Note	WkOrd Qty	Total Scrap	Work Center Description	FG Lot #
33	263-MOLD	Plug Retaining - M	18449	32.57	DOWN	07:00:01	10/14/2015	4	4	0.00	1.59	263-MOLD		27796	0	Alburg 25 Ton Press	2630111536
33	262-MOLD	Plug Retaining - M	7687	13.57	DOWN	07:00:01	10/14/2015	4	4	1.59	0.00	262-MOLD		27783	0	Alburg 25 Ton Press	2620111535
34				0.00	Unshed	07:00:01	10/14/2015					DOWN-TIME			0	Alburg 25 Ton Press	
38	248-MOLD	W166 THERMO CUT	2473	25.30	DOWN	07:00:01	10/14/2015	2	2	1.53	0.05	248-MOLD		3617	0	Alburg 375 Ton Press	10131518
36	264-MOLD	Plug Retaining	1513	2.76	DOWN	07:00:01	10/14/2015	4	4	1.30	0.04	264-MOLD		3500	0	Alburg 80 Ton Press	26410121596
04	213A	Housing, Ign. Cont.	2005	32.30	Unshed	07:00:01	10/14/2015	1	1	0.00	1.59	213-MOLD		2005	0	HPM 200 Ton Press	08211504
04	213B	Bottom Cover	92	1.48	Unshed	07:00:01	10/14/2015	1	1	0.00	1.59	213-MOLD		92	0	HPM 200 Ton Press	08211504
33	194	ASHCUP	1161	8.70	DOWN	07:00:01	10/14/2015	4	4	0.00	1.59	194-MOLD		1161	0	New Britain 250 Ton Press	10051510
38	274-MOLD	Governor Spool	8246	22.81	DOWN	07:00:01	10/14/2015	8	8	1.00	0.59	274-MOLD		10463	0	New Britain 250 Ton Press	10131508
32	141	Toyota Ash Cup	283	2.35	DOWN	07:00:01	10/14/2015	4	4	1.59	0.00	141-MOLD		2847	0	New Britain 500 Ton Press	10131501
31	267-MOLD	Terminal Block	10282	13.46	DOWN	07:00:01	10/14/2015	8	8	1.59	0.00	267-MOLD		26807	0	New Britain 500 Ton Press	2670111501
32	255-MOLD	Insulator 14443954	1639	1.48	DOWN	08:30:05	10/14/2015	8	8	1.50	0.00	255-MOLD		8261	0	Hesse 80 Ton Press	10131512
35				0.00	DOWN	07:00:01	10/14/2015					DOWN-TIME			0	Tohiba 130 Ton Press	

Production Schedule – Per Machine Press



Real Time Graph of Job Molding Cycles

General Job Information										
WO #	614740	Work Center #	01	Customer	234000					
Order #	1894	Center Description	New Britain 500 Ton Press		Electrical Compon					
Mfg #	267-MOLD	Mfg Description	Terminal Block - Cavities 41 - 48							
Production Summary										
STD Cycle	39.00	Next Config #	267-MOLD	OEE Factors						
Last Cycle	37.614	Next Description	Terminal Block - Cavities 41 - 48	Availability	98.98					
AVG Cycle	37.62	Next Material	BMC 605-183 BK	Performance	101.8					
Shift Up Hours	1.64	Next Order #	6958	Quality	100					
Hours To Go	13.44	Cycles To Date	10320	Cycles Req	3726					
Shift Down Time	0.02	Daily Cycles	154	Cycles Left	1286					
Continuously Down	0.00	Shift Cycles	154	Cycle Effective %	101.80					
Down Time Description										
Item #	Item Description	Total Parts	Total Floor Dispo	Shift Parts	Parts to Go	Act Cav	Std Cav	Hrs to Go	Bad Pt	
267-MOLD	Terminal Block	82560	0	1232	10286	8	8	13.44		
Cycles Graph Summary										
Prod Date	Shift	Std Cav	Act Cav	Good Parts	Rejects	Prod Hrs	Avg Cycle	Down Time	Scrap %	Performance
10/5/2015	1	8	8	1357	51	2.25	44.21	3.03	3.62	1
10/6/2015	1	8	8	0	0	0		0.69	0	0
10/6/2015	2	8	8	0	0	0			8	0
10/6/2015	3	8	8	0	0	0			8	0
10/7/2015	1	8	8	0	0	0			8	0
10/7/2015	2	8	8	3714	30	2.69	37.63		0.8	2.22
10/7/2015	3	8	8	6100	0	8	37.51		0	1.22
10/8/2015	1	8	8	6000	72	7.96	37.65	0.04	1.19	1.22
10/8/2015	2	8	8	6185	-73	8	37.65		-1.19	1.22
10/8/2015	3	8	8	6100	4	8	36.93		0.07	1.22
10/9/2015	1	8	8	6159	1	8	37.54		0.02	1.22
10/9/2015	2	8	8	4178	54	5.61	37.51	2.39	1.28	1.2
10/11/2015	3	8	8	6000	112	7.95	37.48	0	1.83	1.23
10/12/2015	1	8	8	6130	14	8	37.53		0.23	1.23
10/12/2015	2	8	8	6000	112	8	37.51		1.83	1.22
10/12/2015	3	8	8	6193	49	8	37.51		-0.6	1.23
10/13/2015	1	8	8	6040	8	7.91	37.55	0.00	0.13	1.22
10/13/2015	2	8	8	6113	15	8	37.57		0.24	1.22
10/13/2015	3	8	8	6136	0	8	37.6		0	1.23

Production Schedule – Per Job

ERP-Predictive Maintenance



Using ERP software for Predictive Maintenance

The screenshot displays the 'Equipment Information' window for a 'Terminal Block'. The window is divided into several sections:

- Equipment Information:** Contains fields for Equipment # (267), Class (TL), Description (Terminal Block), Model Type (B Cavity Mold), Serial #/Other (PH3394659), Owner (Whisper Corporation), Vendor (Diamond Tool & Mold, Inc.), Total Units (451074), Task Reset Option (Default), UOM (Cycles), Location (TOOL RACK P-1), Installation Date (1/20/2014 10:02:00 AM), Last Updated, EPlant, GL Account, Labor GL Account, MRO Code (PH TL), Service Dates (In-Service, Out of Service, Back In Service), and Out of Service Reason (Down for Cleaning).
- Activity Summary:** A list of related documents including Purchase Orders, AP Invoices, AR Invoices, DM Order, Attached Labor, Inventory, General Journal, and Current Date Range.

Predictive Maintenance – Tooling/Molds

The screenshot displays the 'Task List' window for a 'New Britain 200 Ton Press'. The main area contains a table with the following data:

Task #	Description	Total Units	Archived?
01-200	grease logging	25.94	Yes
02-2000	grease traps	1209.46	Yes
MPC	repair all quick fix items	Yes	
MPC	fix Ejector No. clamp issue	250	Yes
MPC	check worn rollers	188	Yes
MPC	2000 HI Oil Filling	2209.27	Yes
MPC	Check on the motor and	1356	Yes
MPC	Breakdown support on rollers	188	Yes
MPC	FIX OIL LEAKS (BU FEND)	250	Yes
MPC	Breakdown both VCO Cyl and PMS	188	Yes
MPC	Final tool tests	360	Yes

Below the table, there are sections for 'Attached Inventory' and 'Assigned Employees'.

Predictive Maintenance – Machine Press

A History of Quality



- QS9000→ ISO 9001 2000→ISO 9001 2008→ISO/TS 16949 2009→IATF 16949 2016→ISO 9001 2015
- ISO 9001:2015 certified
- A copy of our quality certificate is available to download/print from WPC website:
 - <https://www.woodlandplastics.com/pdf/ISO9001-2015.pdf>
- Technology, Teamwork, Continuous Improvement, Sense of Urgency, Always Exceeding Customers Expectations



Using ERP for Quality



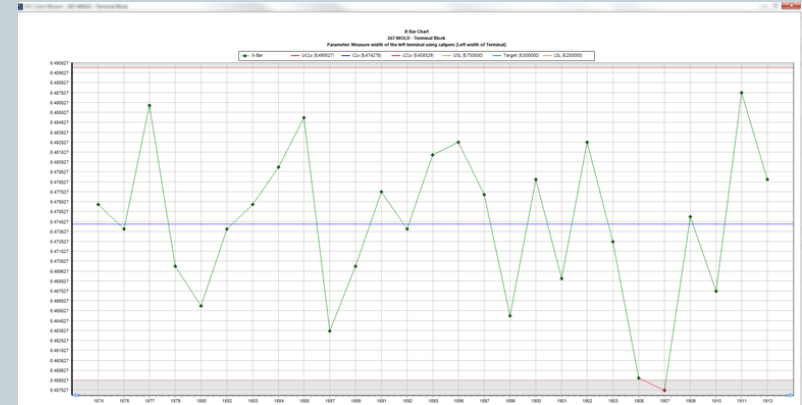
- Incoming Material Inspection, First and Last Piece Inspections, 4-Hour Part Quality Inspection, Layered Process Audits, Final/Shipping Inspection
- Attribute and SPC data collected



Using ERP for Quality



- Detailed reports are exported from collected data to analyze over a specific time period
- Data is easily shared with customers and suppliers



Quality Highlights

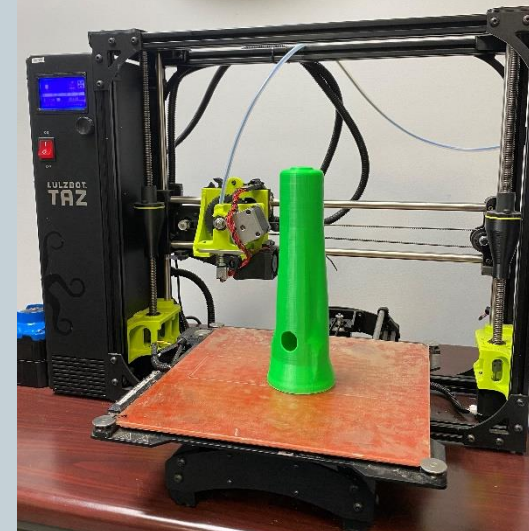
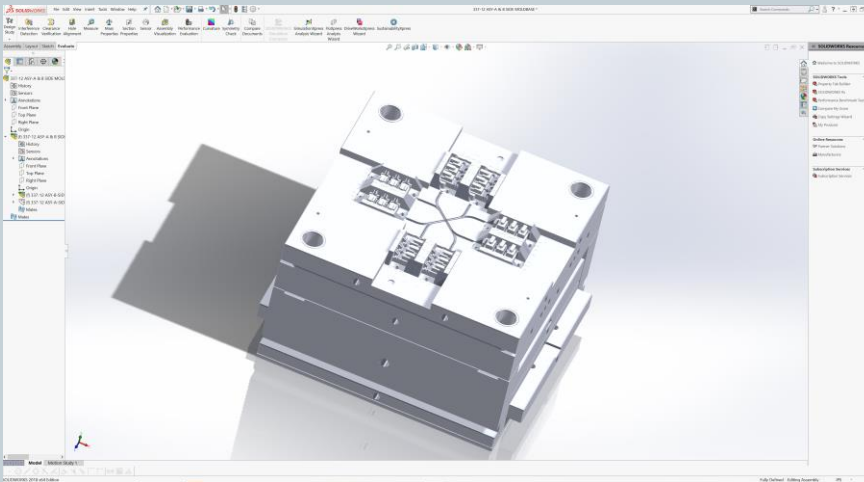
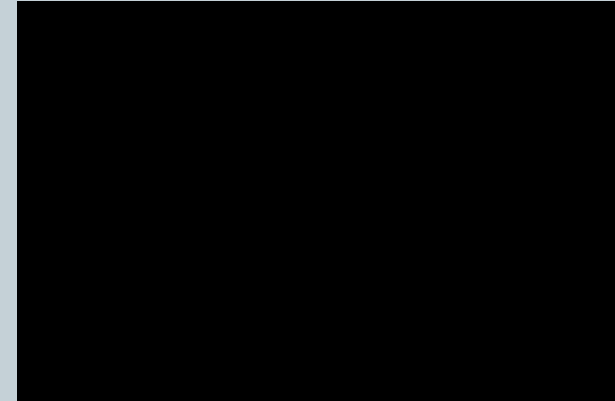


- Process Flow, Control Plans, and PFMEA
- All quality documents are in a controlled environment and accessible throughout the plant via IQMS
- Revision Control
- Instructions, training videos (English and Spanish)
- Gauge calibration is controlled through IQMS

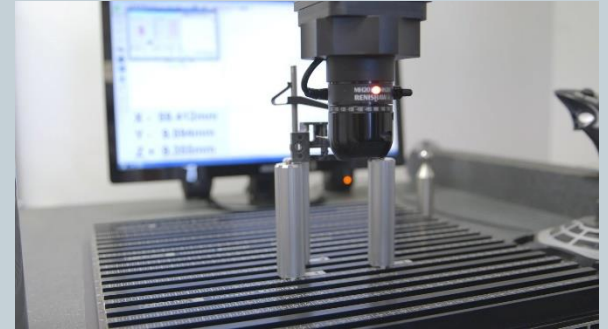
Engineering Highlights



- Solidworks/Autocad part and tool review
- 3D printing for quick prototyping
- Engineering Change Order in IQMS



Plant Tour





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- <https://www.youtube.com/user/WoodlandPlastics/>