

The Westland Corporation

Westland Corporation

1735 S. Maize Rd.
 Wichita, KS 67209
 800-247-1144
 316-721-1144
 316-721-1495 FAX
 www.westlandusa.com
 westland@westlandusa.com
 Volume 1 Issue 3



P R O C E S S O R

KEY MEASUREMENTS

Dave Larson, President of Westland Corporation

Everything in today's world is measured in one aspect or another. We measure the performance of our sports team, our political candidates, and the mileage obtained in our automobiles.



Dave Larson

It has been said that you can measure a man by the amount of opposition it takes to discourage him.

Measuring Progress

Some might say we are living in discouraging times.

I disagree. There are many positive signs in today's economy and our industry. Business is better.

Even though I cannot pinpoint what actions have led to this optimism, I embrace it.

Measuring Performance

At Westland, we are optimistic about the future. Higher profits and better products don't come easy to any manufacturer; they result from original and forward thinking.

Westland employees treat every day as an opportunity to push the limits of performance, to refine our processes and products.

Measuring Results

Westland Corporation is setting the standard by which other companies can be measured. We have a long-standing reputation of quality products and high-level customer service.

I can pinpoint what leads to this designation ... it is our employees.

Measuring Value

Our people bring enthusiasm, ingenuity and experience to the challenge of producing better molding components.

This means better values for you, our customers.

Measuring Success

There are many ways to measure success. Obviously, the bottom line is one.

Inside, you'll read about the value of measuring your components for wear in order to ensure optimum processing.

At Westland we also measure our success by the success of our customers. Many companies have already benefited from our processing assistance.

I invite you to contact us with your current processing challenge. Then, **measure the results for yourself.**

CAN YOU MATCH ...

The International System of Units (SI), commonly identified with the metric system, consists of seven (7) base units. Can you match each unit with the correct measured property?

(Answers Inside)

	UNIT		MEASURED PROPERTY	ANSWER
1.	meter	A.	mass	
2.	kilogram	B.	electric current	
3.	second	C.	amount of substance	
4.	ampere	D.	length	
5.	kelvin	E.	luminous intensity	
6.	mole	F.	thermodynamic temperature	
7.	candela	G.	time	



From L to R: Dave Larson, President; Dan Johnson, Vice President; and Tom Howell, 1st Shift Supervisor

DAN JOHNSON RECEIVES 20 YEAR AWARD FROM WESTLAND

The manufacturing activities of Westland Corporation are directed by Dan Johnson, who is the Vice President and a shareholder of the Company. With over twenty-five years of manufacturing experience, Dan is responsible for the development of Westland's production expertise.

With the assistance of Senior Maintenance Engineer, Arlo Landreth, Dan developed the design of much of the specialized equipment and tooling that has helped Westland's plant personnel achieve a high level of operational efficiency.

Dan truly has worked his way up from the ground level. Starting in manufacturing over twenty-years ago, Dan has "hands-on" experience in all aspects of the plant operation.

Dan's knowledge and leadership have been a key contribution in the continued success of Westland Corporation.



Westland Cylinder & Screw

COMPONENT REPAIR/ REPLACEMENT GUIDELINES

Proper Timing Maximizes Performance

The repair and/or replacement of machinery components at the proper time is an important element in maximizing processing performance. Well-defined guidelines should be established for the inspection of components and for the criteria for the repair or replacement of components.

Wear Measurement

Barrels and screws should be measured during down-time for a mold change or line alteration, or during a specified time set aside for machine maintenance. These components are relatively easy to measure if the proper equipment is used. After proper cleaning and cooling to room temperature, wear can be measured and recorded so that repair or replacement alternatives can be evaluated.

Measuring Barrel Wear

Wear on the bore of a barrel should be measured in the following manner:

- Clean the barrel ID, while hot, of any adhering plastic with a soft wire brush or copper or brass gauze and allow to cool to room temperature.
- Set the dial bore gauge to the nominal bore diameter of the barrel using a micrometer. Take a gauge reading throughout the length of the barrel at 2 to 3 inch intervals and record the result on a Barrel Inspection Report form*
- Examine and note the condition of the feed hole area for heavily worn "washout" spots, and note other conditions requiring repair (cracks, gouges, bent condition, faulty end cap or nozzle adaptor) on the Report.

Measuring Screw Wear

Screw wear should be measured and the results recorded on a Screw Inspection Report* form in the following manner:

- Clean the screw, while hot, with a soft wire brush and copper or brass gauze and allow to cool to room temperature.
- If an oven is used to clean the screw, take care to avoid temperatures higher than 600°F. Higher temperatures, caused by an oven or the careless use of an acetylene torch, can cause screw warpage, chrome-plating degradation, and surface blemishes. Remove any burrs observed after cleaning.

- Measure the flight diameter every other flight with a flight micrometer. It is preferable to mark the flights and take two measurements at opposite axis at each mark. Record the results on the report.
- Measure the diameter of the root between every other flight in the feed section and in the meter section with a micrometer or caliper and record the measurements.

- Record the condition of the root for under-cuts or "washout" conditions. Examine the nose threads and shank for wear requiring repair. Note any cracks or chipped plating. Check the screw for straightness by rolling on a flat table or surface plate.

Equipment needed to measure components:

BARREL: Long-range
dial bore gauge

SCREW: Flight
micrometer (with a
gauge block as an
integral component)

***To request a sample
Screw and/or Barrel
Inspection Report, call
800-247-1144
or send an email to
westland@westlandusa.com**

When To Repair

(As published in Westland's 7th Edition Cylinder and Screw Handbook)

A question often asked is "How much wear on a barrel or a screw justifies the repair or replacement of that component?"

The answer varies depending upon several factors relating to resins being processed and the parts being produced.

Clearly, if the resin being processed has a low viscosity with high flow rates, a doubling of the screw/barrel clearance may result in a production rate that is not economically acceptable. Conversely, some wear may be tolerable processing greater viscosity resins which have a low flow rate.

Westland, working with SPI, studied the maximum clearance dimensions specified by six injection molding machine manufacturers and calculated an average of the clearance for various barrel bore diameters. Those **maximum clearances** are set forth in the table to the right. If the tolerances, specified in these guidelines were applied (for both barrel and screw), the **minimum clearances** as shown in the table would result.

A "normal" clearance between a new barrel and a new screw from the manufacturer might well be an average of the maximum and minimum clearances shown.

Based on the information in studies and our past experience, Westland suggests a **guideline for repair/replacement as follows:**

If the combined wear of the barrel and screw is twice the normal OEM clearance, the barrel or screw (or both) should be repaired or replaced.



Plastic People Are Talking... Word Is, Westland Products Can Breathe New Life Into Your Molding Processes.

SCREW - BARREL CLEARANCE TABLE			
Bore Diameter (Inch)	Avg. Max. Clearance (Inch)	Avg. Min. Clearance (Inch)	Repair/Repl Clearance (Inch)
30 (1 1/4")	.009"	.006"	.015"
35 (1 3/8")	.010"	.006"	.016"
40 (1 1/2")	.010"	.006"	.016"
45 (1 3/4")	.010"	.006"	.016"
50 (2")	.010"	.006"	.016"
55 (2 1/4")	.011"	.007"	.018"
60 (2 3/8")	.011"	.007"	.018"
65 (2 1/2")	.011"	.007"	.018"
70 (3")	.012"	.008"	.020"
75 (3 3/8")	.012"	.008"	.020"
80 (-)	.012"	.008"	.020"
-- (3 1/4")	.013"	.009"	.022"
90 (3 1/2")	.014"	.010"	.024"
100 (4")	.015"	.011"	.026"
105 (4 1/4")	.016"	.012"	.028"
115 (4 1/2")	.017"	.013"	.030"
125 (-)	.017"	.013"	.030"
-- (5 1/4")	.018"	.014"	.032"
135 (-)	.018"	.014"	.032"
155 (6")	.018"	.014"	.032"

THOUSANDTHS OF AN INCH CAN COST THOUSANDS OF DOLLARS

A Westland customer, running PC/ABS, called to report their overall cycle had increased to 49 seconds with a 4% scrap rate. The previous cycle was 40 seconds.

The components were pulled to inspect for wear. The total clearance of the screw and barrel was more than double the OEM specifications.

Westland was able to rebuild the screw by welding the flights and rechroming. After this repair, the customer was able to reduce RPM by 28%, reducing melt temperature and maintaining a 38.5 sec OAL cycle with a 1% scrap rate.

The customer reported to Westland that the pay back on this repair cost was two (2) weeks.

In addition to burning, black specs and heat overrides, too much clearance between the screw and barrel can cause recovery rate loss. If you need to increase RPM to maintain the recovery time, your components should be checked for wear.

Component wear, as illustrated below, can cause black specs, heat overrides, and recovery rate loss.



Can this screw be saved? YES!

DO YOU HAVE SCREWS OR BARRELS IN NEED OF REPAIR?

SEND THEM TO WESTLAND CORPORATION FOR A COMPLETE INSPECTION AND EVALUATION.

In an effort to maintain their recovery rate, they had raised the RPM. This action caused the melt temperature to elevate and they experienced warpage and splay. In order to accommodate the recovery time, the RPM had to be slowed down, which increased the overall cycle.



Scott Tully Lathe Operator
 Terry Hackney CNC Operator
 Darren Good Lathe Operator
 Dale Anderson Lathe Operator

Scenes from The Westland Corporation 2004 Employee Picnic



Teresa Holst
 Human Resources



Vinton Brown CNC Operator
 Matt Cumbie Inside Sales
 Shawn Graves Welder



Robert Rodriguez
 Welder, Polisher



Jeremy Brown (& family) Mill Operator
 Arlo Landreth (and wife) Maintenance



Westland Employees

Westland Corporation
 1735 S. Maize Rd.
 Wichita, KS 67209
 800-247-1144 316-721-1144 316-721-1495 FAX
www.westlandusa.com

