The Westland Corporation

PROCESSOR

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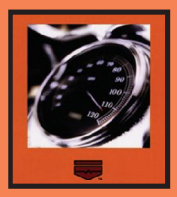

SURCHARGES, SHIPMENTS AND YOUR PROCESS

Dave Larson, President of Westland Corporation


Dave Larson

The economy seems to be holding steady in spite of obstacles affecting most if not all manufacturers conducting business in the United States. The world-wide steel market continues to be volatile as a result of several global situations which have forced the rise in the price of steel and the raw materials used to produce steel.

The biggest impact has come from China's rapid economic growth. It has been reported that China's steel demand has hit 257 million metric tons in recent years, an increase of 22%. China's demand for steel has certainly contributed to the rapid rise in the price of steel and steel scrap.

Another contributor to the tightness in the steel market is the bankruptcy and foreclosure of more than 30 steel companies in North America from 2000 to 2004. What was once an overcapacity has now turned into a shortage.

Steel availability issues continue to generate surcharges from major steel companies. Many steel companies give monthly updates on their webpage of current steel surcharges.

As I stated in a previous issue, Westland's policy has always been to pass these surcharges directly on to our customers, eliminating any percentage markup on these added costs. We regret them, but until the market stabilizes, it is a reality we all have to live with.

Westland was recently faced with another interesting element to the increase in demand from China. We received an email from one of our freight management companies that advised us of a backlog of cargo on the Trans Atlantic route. This is a result of carriers pulling capacity from this route and giving that capacity to the Trans Pacific route, specifically China.

During the 2005 China International Logistics Week held in Shanghai from May 18th through the 21st, it was reported that China has eight 100-million-tonnage ports, accounting for half of the world's ten largest ports. China now has become one of the most dynamic and potential global shipping markets. In 2004, the shipping capacity of containers in China's ports stood at 616 million standardizing boxes, ranking the world's top.

All this information again leads to the very real need to run our businesses as lean and as profitable as possible. Westland can help you evaluate your current processes and together work towards improving your bottom line through supplying just the right screw and barrel, engineered for your particular application.

We have the products and the people to make a difference. Call us today and put our high performance philosophy to work for you and your company.

Don't forget to swing hard, in case you hit the ball. ~Woodie Held

In the early years of baseball, players made their own bats, all from wood. Players did not start using metal bats until the first aluminum bats were developed in the 1970's. Despite their popularity, Major League Baseball has never allowed anything other than wood bats to be used.

CAN YOU NAME the desired Major League Baseball ballpark orientation as stated in the Official Baseball Rules? (answer inside)

SCREW MATERIAL GUIDELINES

Proper Selection is Essential For Longer Life And Increased Profits

As with screw design, the screw material selected for a particular application should be based on the resins that are to be processed. Most resins, without fillers, can be satisfactorily processed using screws that are manufactured from hardened or nitrided steels or chrome-plated.

As glass fibers, spheres, mica, calcium carbonate and other fillers are added, special base screw materials must be selected. Some resins may develop acids and other corrosive elements requiring corrosion-resistant alloys or coatings to prevent corrosive wear.

What A Processor Should Know

An understanding of the types of materials is helpful in making a screw selection decision. There are several options available at various levels of cost and considerable difference in wear characteristics.

The majority of screws are manufactured from a 4000 series alloy steel (usually 4140) or a nitriding steel (such as Nitralloy 135M). In many cases, these materials are either chrome-plated or nitrided. (See Fig 1 on page 3.)

Some screws are made from tool steels which, in a heat-treated and hardened condition, are very resistant to abrasive and adhesive wear. (See Fig 2 on Page 3.)

A limited number of screws are manufactured from stainless steels or special alloys that resist corrosive wear. In some cases, wear resistance is increased through the use of protective coatings. Nitrided, chrome plated and some alloy screws are also flight hard surfaced for greater wear resistance.

Base Material

Nearly all of the materials from which screws are made require a secondary treatment to provide resistance to wear. Some materials are flame-hardened, nitrided or heat-treated and others are chrome-plated. Most of these base materials and recommended treatments are listed in the table found on page four of this newsletter, which also indicates the recommended suitability for processing in various resin wear conditions. The two most common treatments are:

Refer to Base Screw Materials Chart On Page Four

Chrome-Plating – Although most processors are familiar with chrome-plating, the critical specification is the depth of the plating, which should be a generous .003" to .005" (see related article in this issue).

Nitriding – A 4140 alloy steel screw can be nitrided satisfactorily, however, a nitriding steel (such as Nitralloy 135M) has aluminum added to give a better response in nitriding hardness, both as to consistency and depth. There are two types of nitriding that are common to screw manufacture: gas nitriding and ion nitriding.

Flight Hard-Surfacing

Most of the screws that are not manufactured from solid tool steels have a flight hard-surfacing material welded to form the outside diameter of the screw flights. These hard-surfacing materials are predominantly cobalt-based or nickel-based.

The most common cobalt-based materials include the Stellites (6 and 12) which exhibit uniform wear and are satisfactory in non-corrosive environments.

The nickel-based materials include the Colmonoys (56 and 83). The wear and corrosion resistance of these materials is somewhat better than the Stellites, based on the field experience of our customers.

Unless the resins being processed have abrasive additives, both types of flight hard-surfacing materials work quite well. None of the more commonly used types of flight hard-surfacing, however, can approach the wear resistance of the tool steel screws.

HOW DO BARRIER SCREWS DIFFER FROM MIXING SCREWS?

Mixing Screws are designed to improve melt homogenization, including color dispersion.

Barrier screws are designed to control the melting process. Control of the melt process is achieved by using two screw channels in the transition section of the screw separated by a barrier flight.

The "solids" channel retains the solid material until is has been melted. As the plastic is melted, it crosses over the undercut barrier flight into the "melt" channel. As the plastic moves forward, the "solids" channel decreases in volume and terminates, while the "melt" channel volume increases and becomes the meter section of the screw.

Plastic People Demand A Good Mixer

Barrier screws restrict solid bed breakup and thereby improve the melting process. In some cases, a higher production rate can be achieved because of the controlled melting.

To learn more about Westland's patented Eagle Mixer or Eagle Barrier Screws, visit our webpage or call to speak with one of our sales engineers.

www.westlandusa.com

800-247-1144

Screw Material Construction

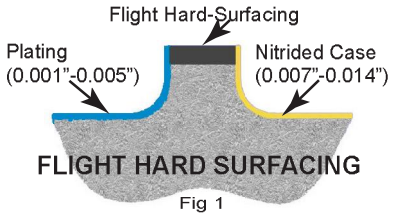

Fig 1

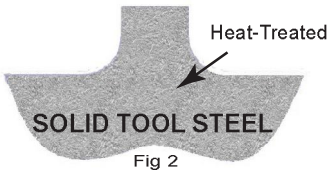

Fig 2

SCREW REPAIR

The decision to repair a screw rather than purchase a replacement should be based on:

(1) the size of the screw;

(2) the amount of the wear on the root of the screw; and

(3) the design of the screw.

Westland recommends:

"If the design of the worn screw matches your processing needs and the root is not worn enough to alter that design, rebuild it."

Exception: On smaller screws (under 50mm or 2"), a new tool steel screw with increased wear resistance can be purchased at a cost comparable to having a chrome screw rebuilt.

Screw repair consists of rebuilding the flights with hard facing to the OEM diameter specification and rechroming or renitirding the surface if required.

A properly rebuilt and polished screw can be as effective as a new one and an economical alternative to a new screw purchase.

Send your worn screws to Westland for a complete inspection and evaluation.

CHROME PLATING

.003" - .005 vs .001"-.0015"

It's What You Know

When Bill Parcels was head coach for the New England Patriots, he made the following statement regarding his then 2nd year quarterback Drew Bledsoe:

> When you don't know that you don't know, it's a lot different than when you do know that you don't know. He knows now that he doesn't know. Last year, he didn't know that.

What do you know about the chrome-plating on your screws? When requesting quotes from different screw manufacturers, the chrome plating is an important issue to understand.

Westland Corporation has worked with a chrome plating company for over 20 years, helping to perfect the technology used on our screws.

Westland's Standards And Advantages

Every chrome-plated screw quoted and built by Westland has a high quality chrome plating of .003"-.005" per side, which is evenly distributed on the entire flighted length of the screw excluding the flight outside diameter.

This process results in a component that is extremely wear resistant in all areas, with a high rebuild ability.

Westland standard screws feature .003"-.005" chrome plate thickness

Flash Chrome

Many screw manufacturers today use a process described as "flash chroming" which applies a very thin layer of chrome, resulting in a thickness usually between .001" to .0015".

Many times this flash chrome procedure results in low levels of chrome in some places on the screw, causing different concentrations of wear in different areas of the screw, which can lead to flaking and peeling.

Know What You Are Comparing

Westland's mission of providing quality components to our customers is reflected in our policy of quoting components which will be more wear resistant and offer you longer service. We believe this to be most cost effective for you.

When comparing prices on a comparable screw, be sure to ask each manufacturer about the chrome plating thickness and/or process.

Westland can provide, upon request, a quote using the flash chrome process if requested by our customers. Your satisfaction is our ultimate goal.

If you have further questions regarding chrome plating or any of our products and services, contact one of our sales engineers at 800-247-1144.

Answer to CAN YOU NAME: "It is desirable that the line from home base through the pitchers plate to second base shall run East Northeast." - Official Baseball Rules, section 1.04. www.ballparks.com/baseball/index.htm

Do You Have A Scheduled Plant Shut Down?

Plant vacation and holiday shut downs are an excellent time to send Westland your worn screws and cylinders.

Ship them with your instructions for evaluation and/or printing to:

Westland Corporation
1735 S. Maize Rd.
Wichita, KS 67209

Westland will promptly report our findings and recommendations to you.

Dale Anderson Retires

Tom Howell, 1st Shift Supervisor, Dale Anderson

After 30 years of exemplary service, Dale Anderson retired from Westland. Last we knew, Dale was on his way to Colorado to do some fishing. Our best wishes go with him.

Kathy Hampton Receives Ten Year Award

Dan Johnson, Kathy Hampton, Dave Larson

Kathy started at Westland on the front desk. Currently she handles Westland's marketing and other support services. Congrats Kathy.

BASE SCREW MATERIALS

MATERIAL	Treatment (a)	FH (b)	Application
ALLOY STEELS:			
4140	Chrome-Plated	Yes	Normal
4140 or Nitralloy	Nitrided	Yes	Normal
TOOL STEELS:			
CPM9V	Heat Treated	No	Abrasive
CPMM4	Heat Treated	No	Abrasive
CPMS90V	Heat Treated	No	Abrasive & Corrosive
SPECIAL ALLOYS:			
Nickel 718	Age Hardened	No	Corrosive
Monel K-500	Age Hardened	No	Corrosive

(a) Chrome-plating of .003" - .005" and gas or ion nitriding
(b) Flight hardsurfacing required

To request a copy of our detailed Screw Material Guidelines, call or email us at:

800-247-1144 westland@westlandusa.com

This information can also be found on our web page:

www.westlandusa.com

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