

In this issue:

- Learn how water chemistry can affect your machine performance
- Learn what simple steps you can take to protect your investment.
- See what effects conveyor belt wear have on your productivity

Individual Highlights:

- Good water chemistry for your wet machine 1 - 2
- Are you able to use the full width of your machine's conveyor belt? 3
- What can FESCO do for you? 4
- Calendar events and contact information 4

FESCO has focused on wide belt sanding and deburring machinery in this issue. E-mail me with your own topics for future issues. **John Hochreiter**

Good water chemistry for your wet machine

Many people choose a wet process for their metal sanding and finishing machines without realizing the commitment that is necessary to keep these machines running properly.

Identifying the Problem

There are a number of factors that affect the water chemistry in your machine. These factors can change by the day, week, or month. Concentrations of additives are effected by evaporation rates of the water. Concentrations of dissolved solids also change with water levels in your sump. Every day that you add water to your machine you are, potentially, adding harmful minerals to the sump. The problem stems from the fact that city water has sodium (salt), calcium, magnesium, and sulfur dissolved in the water. These chemicals are not necessarily harmful to humans if the

concentrations are kept below certain levels. If you were to evaporate the water you would be left with a residue of these minerals. Every time you refill your machine the concentrations of these chemicals increase.

Doing Everything Right

Most customers will tell you that they are doing everything right. They keep the water levels close to filled in the sump. They check the additive concentrations with the refractometer, and they change the water and clean the tank on a regular basis. The first two items alone are not enough to eliminate corrosion, and changing the water often enough is an expensive proposition.

Water levels in wide belt sanders can change drastically during an average day. If the tank is filled in the morning and the concentration of additive is 3%, after 8 hours of run time that concentration can increase to 4.5%. After 16 hours the concentration can be up to 6%. When the sump is close to

sucking air, the concentration can be 8%. High concentrations like these are bad for the rubber and plastic components in the machine. Parts will be left with an oily residue and will not dry properly. Subsequent operations down the line will be affected; from welding fumes created from the residue to worn press brake tooling, to paint and anodizing lines becoming contaminated, the problem just moves down the line.

Refractometers read a percentage of dissolved solids. The calcium and sodium in your sump are dissolved solids. If you have high concentrations of these solids in your tank you cannot be certain what the refractometer is reading. You could read 3% which is actually 2% salt and 1% rust inhibitor. This is a recipe for corrosion of the machine.

Changing the water is something that must be done on a regular basis to keep the mineral content in check. Customers are reluctant to do this, however, because the water is considered hazardous waste and



needs to be disposed of properly. The cost of this disposal should be weighed against the cost of the machine corrosion that will result if the water change is not done.

What is the solution?

There are several keys to good water chemistry in your wet machine sump.

1 - Use a reverse/osmosis water filter to supply water lost to evaporation in your machine. This will filter out the dissolved solids that build up in the sump. These can be purchased at most hardware or plumbing supply stores and should cost between two and three hundred dollars. This will supply 20 to 30 gallons a day of pure water for your machine.

2 - Always check the concentration levels when the sump is full. Modify concentration levels at this point. Additives in wide belt sanders are meant to be more of a rust inhibitor rather than a grinding aid. That being said, it is best to maintain the lowest recommended percentage when the tank is full, knowing that the concentrations will increase throughout the day as the water evaporates.

3 - Make certain that the water jets are not clogged. Clogged jets allow heat to build during grinding. This heat can cook the additive. The smoke that ensues gets trapped in the water and results in a black film that remains on your parts after processing.

4 - Bacteria can build up in the sump if the water stays stagnant. If you do not use your machine every day, then consider starting it every day to aerate the water. Anaerobic bacteria like an oxygen starved environment. Running your machine adds oxygen. For extended periods of inactivity consider using an aquarium pump connected to a six inch bubble stone to supply air to the water in the sump. To eliminate any electrical shock hazard, do not place this pump on the machine itself.

What else can you do?

Naturally proper cleaning and lubrication are essential to any machine tool. First, when rust is spotted, do not let it continue. Scrape off any loose paint, sand lightly, and paint with a rust inhibiting paint. There are many commercially available rust preventive

paints available that will stop rust in its tracks and provide protection for the area painted. I have found Rust-oleum's "rust reformer" works well and is available at MSC Industrial Supply Co. A marine supply store is another good source for this type of product. Second, rust is an indication that proper procedures are not being followed. Investigate to determine the cause and correct the situation.

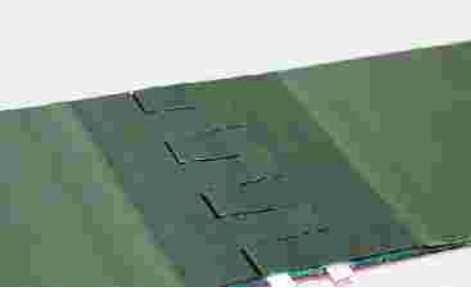
What Can FESCO do to help?

Certain minor modifications to your existing machine can result in drastic savings. Nothing can take the place of daily cleaning and maintenance of your machine, but FESCO can help. Call for details as to how I can help you protect your investment and increase your productivity. A yearly preventative maintenance service call can address these issues and provide the following: cleaning, application of rust preventative, calibration and leveling services, scheduled repairs, and retraining operators on proper setup, operations, and maintenance procedures. I will always try to call if I am in your immediate area. Scheduling can be arranged to take advantage of these visits and save you money.

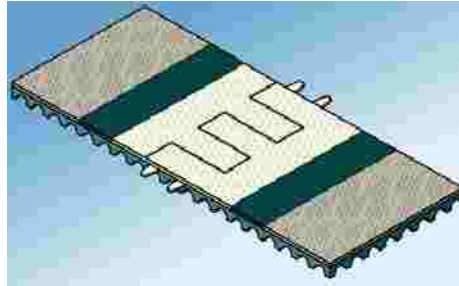


FESCO can provide water chemistry analysis, make recommendations on how to reduce chlorides, inhibit bacterial growth, and improve rust inhibiting performance of the coolant.

Proper conveyor belt increases productivity.



Flexible lace splice



Are you able to use the full width of your conveyor belt ?

Uneven conveyor belt wear is the number one problem experienced by customers. If you paid for a 36" wide machine and 36" wide abrasives and you can't sand across the full 36" you are losing money! Most of the time when customers say "the table is out of level" it is really uneven conveyor belt wear.

What causes uneven conveyor belt wear? If everything were level to start with, then uneven wear would be caused by operators placing thin parts in one spot on the table, leaving the other side of the table exposed to wear. The solution is simple, tell the operators to use the whole table or avoid running thin parts. This sounds simple, but some shops cannot avoid running thin material. Once the conveyor belt is worn uneven, using the whole width of the conveyor belt is not an option, the machine will only sand on one side. With large parts they have to run them through once, turn the part 180° and run it again. All of this extra work adds up to decreased productivity.

What is the solution? The solution is to kiss grind the high spots down level with the low spots. If this is not possible then the other option is to replace the belt. Most people are reluctant to kiss grind the conveyor belt because they think they are grinding away what they paid good money for, but the reality is, if you don't do this right away, you will suffer from decreased productivity until you finally decide to kiss grind it. Many customers live in a constant wear situation throughout the life of the belt. They have grown to accept that parts have to be run multiple times in different locations on the belt to be processed properly. When calculating the added cost, you have to consider that the abrasive belts are being worn unevenly and in some cases, the belts are thrown away with unused abrasive on them. The cost of the conveyor belt might be minor compared to the added cost involved in processing parts through your wide belt machine.

FESCO's sells top quality belting including quick change styles

"Never remove the table from a machine again. Flexible pinned lacing provides a uniform thickness throughout the splice."

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Request to be called the next time I am in your area. This can provide considerable savings to your company.

FESCO is on the
Web at:
fescoequipmentservice.com

What Can FESCO Do for Your Company?

FESCO provides experienced, professional machine tool service. I have received extensive training at a variety of factories in Europe and the US on every aspect of the machine tool market.

Installations or Training: New machine installations, setup, and

training on a variety of metal fabrication machinery.

Service: Provides all aspects of industrial machine service from troubleshooting in person or over the phone to incremental service, yearly preventive maintenance, and

complete machine rebuilds.

Parts: FESCO can provide a variety of replacement parts for your machinery. Call for price and availability.

Sales: FESCO maintains an inventory of certified used machinery and can also list your machinery for resale.

Sample of services offered

Comprehensive wide belt machinery service.

Shear blade replacement and flipping. Precision gapping and alignment standard.

Electronic troubleshooting: Most industrial machine failures

are caused by a failure of an electronic component. Board level troubleshooting available.

Hydraulic and Pneumatic service and troubleshooting. Twenty five years in the business provides a unique advantage in

troubleshooting older machinery.

HVAC machinery: FESCO and its associates are fully capable of servicing all of your HVAC fabrication machinery needs, from roll formers to slitters and spot welders, we can provide solutions.

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