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MAINTENANCE
Surface Treating Technology

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inside

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Optimize critical air flow with proper exhaust

Does it really matter how the exhaust duct is installed? YES! It is critical when installing the exhaust duct that special care is taken to use the proper duct material, correct size and length while minimizing the amount of elbows used.

Improper ducting can damage electrodes, clog cooling passages and deteriorate the duct material itself due to excess ozone. Without proper air flow the expected life of the ceramic electrode decreases and can also cause ozone to be present in the work space, affecting the health and well being of personnel.

It is critical to properly install exhaust duct. Please contact us if you have any questions.

Exhaust duct connections Do's and Don'ts

DO:

- Use as large a duct diameter as possible (but never smaller then the recommended diameter).
- Use PVC, stainless steel or aluminum.
- Minimize the number of elbows and transitions.
- Keep the duct runs as short as possible.
- Seal all duct joints to reduce pressure loss.
- Check to make sure the blower fan is rotating in the correct direction (as indicated on the blower housing).
- Ensure proper electrical connections, as improper connections can cause the fan to rotate in the wrong direction, greatly decreasing performance.

DO NOT

- Do not use galvanized duct. It will quickly corrode and need to be replaced.
- Do not use flexible duct. It will greatly increase static pressure loss. If flexible duct must be used, select a diameter at least 1.3 times than recommended for smooth duct and keep the length to a minimum.
- Do not have any elbows within three (3) duct diameters of the inlet or exit to the blower. They can create turbulence that will affect blower performance.

Clean-in-place roll simplifies maintenance

The ground roll is a critical component of your corona treating system. Damage to the surface of the roll or in the roll covering can lead to backside treatment, pinholes and outright failure of your system. An ounce of up-front preventative maintenance can be worth pounds of downstream cure.

Because treater rolls are heavy and their surfaces are delicate they require significant manpower, equipment and production downtime to remove. To minimize the risk of damaging the roll, not to mention employees, Enercon has developed a clean-in-place roll design.

Enercon engineers have strategically designed our surface treating stations to allow the roll to stay mounted to the station for cleaning. Whether your unit has our flip-open electrodes or pneumatics, we have created an easy alternative to removing the entire roll for cleaning.

For a complete list of cleaning products and procedures acceptable for use on your specific treater roll, please consult your operating manual.

If you have any questions or concerns please contact our support team at 262/255-6070 or info@enerconind.com.

To ensure long-range reliability, it is good practice to have a planned maintenance program.

The Power of e
Technology. Service.Expertise. Personnel.

! Attention ! Power Lok II users

Does the photo above look old? It should. It's from 1991. Maybe you guessed that when you saw the old fashioned watt meter on the panel. 1991 was the last production year Enercon sold the Power Lok II power supply. At the time it represented state-of-the art power supply technology. In fact it was so well designed that there are still many in operation today.

A lot has changed since 1991. Not only have the analog watt meters been replaced by digital meters, today's electronic components are vastly superior to their ancient predecessors. In addition, the components used in the original Power Lok II units are becoming increasingly scarce. We're very proud that these systems are still performing around the world, but as time marches forward it becomes more and more difficult to service and support these units.

The good news is that for the remainder of the year Enercon is offering a significant trade-in value for your Power Lok II power generators. You can replace these dated units with our latest universal Compak™ 2000 power generators. These ultra-reliable power supplies rely on the latest IGBT technology and are loaded with features that optimize productivity for any output requirement. While upgrading you may want to consider adding performance enhancing options such as watt density control, remote control and computer interface technology.

Call Paul Reed at 262/255-6070 for a customized proposal for upgrading your Power Lok II system to 21st century technology.

Did you know?

Frequently Asked Questions

As the industry answer bank on surface treatment, Enercon receives questions everyday about maintenance and performance of surface treatment systems. Below are recently asked questions and the answers we provided.

Q: How can I determine if there is a failure with a roll covering or electrode?

A: Enercon has a device in stock specifically to test for dielectric failures. The instrument, our part number LM4039-01, consists of a transformer and probe to generate approximately 10 KV - 48 KV from a 115 VAC, 50/60 Hz input. The probe is hand-held and generates high voltage at the tip. The tip consists of a 3 - 4" length of wire, which is passed over the area to be tested. If the dielectric is failed, it will generate a direct arc through the failure. If the dielectric is good, a corona will develop.

Q: Why is only part of the electrode discharging corona?

A: There are a few reasons for inconsistent corona, all of which are a result of higher impedance presented to the corona discharge between the electrode and ground roll. To identify causes for inconsistent corona, it is helpful to understand the principle of corona discharge. Corona treatment is simply an electrical circuit. The electrical discharge will seek the path of least resistance, or impedance.

In most corona treating systems, high voltage is applied to the electrode which is suspended over a grounded roll. There is a dielectric covering either on the electrode, the ground roll or both. The dielectric covering can consist of ceramic, silicone, hypalan, epoxy or glass. The dielectric strength of these materials vary and establish the number of electrodes required, or the roll size necessary to safely handle the amount of power discharged. The dielectric material thickness is relatively constant and generally the gauge or thickness of material is also relatively constant, offering consistent impedance to the high voltage discharge to the ground.

Although dirty electrodes or ground roll surfaces can affect the dielectric and affect the corona, the amount is usually insignificant. The major variable that affects the circuit is the distance that must be ionized in the air gap. Air is an extremely good insulator and offers high impedance to corona. The primary reason for variations in corona discharge is due to discrepancies in the air gap between the electrodes and ground roll. At lower power levels, the energy necessary to ionize the air gap will discharge to the path of least resistance, offered by an electrode, or section of an electrode that is closer to the ground roll.

Q: What is the correct electrode air gap?

Contact us for a free gap gauge at 262/255-6070 or info@enerconind.com

A: The electrode air gap can vary between 0.040" – 0.100," depending on the material in the system; but, the gap must be consistent across all electrodes. The recommended gap is 0.060." However, if the material is relatively thick, or if a potential splice results in a tail or splice of greater thickness, then increasing the gap is acceptable.

The minimum air gap is 0.040." If the distance between the electrodes and the ground roll is less, the cooling air required to ensure the temperatures of the electrodes do not exceed safe operating temperatures will be restricted.

The proper gapping procedure can be found in the station manual. If you need an air gap gauge, please contact us to receive one at no charge.

If you have a question that needs answered, please feel free to call us at 262/255-6070 or email us at info@enerconind.com.

Interlock Requirements and Troubleshooting

Safety Interlocks are important components every Enercon surface treating system has. The station requires that all standard interlocks, as well as any optional or customer supplied interlocks, be satisfied prior to operation. These precautions ensure the safe operation of your surface treating system.

The standard interlocks provided with Enercon surface treaters are the **Zero Speed Interlock**, the **Electrode Position Interlock** and the **Exhaust Air Flow Interlock**. Other optional interlocks may include the Differential Pressure Interlock for purged systems, access Door Interlocks, Trip Cable Interlocks and **E-Stop Interlocks**. Each of these interlocks are connected in series. If just one of the interlocks is open, the power supply will not be allowed to enter the RUN mode when the start command is received.

If any of these interlocks remain open when all interlock requirements appear to have been met, it will be necessary to troubleshoot the interlocks either as a group or individually. Detailed requirements for checking any specific interlock can be obtained by contacting Enercon's customer service department. A few standard interlock troubleshooting tips are described below.

Electrode Position Interlock

This interlock closes, shown left, when the electrode assembly it is monitoring is in the treat position. If the contact is open when the electrode assembly is in the proper position the possible causes can include, but are not limited to: incorrect positioning of the "V" notch and roller on the collar, incorrect adjustment of the interlock switch, failed or damaged switch or damaged interconnect wiring from the switch to the power supply.

E-Stop

The E-Stop interlock is closed when the switch is in the out position and opens when the switch is pressed in. If the contact is open when the switch is out the possible causes can include, but are not limited to: failed or damaged switch or damaged interconnection wiring from the switch to the power supply.

Zero Speed Interlock

This interlock closes when the ground roll of your system is turning at or above the minimum speed requirement of your system. If the contact is open when the roll is turning at the proper speed the possible causes can include, but are not limited to: incorrect speed set point, incorrect alignment of the speed sensor, failed or damaged speed sensor or damaged interconnect wiring from the speed sensor to the power supply.

Exhaust Air Flow Interlock

This interlock closes when the exhaust airflow of your system is at or above the minimum CFM requirement for your system. If the contact is open when the blower is on the possible causes can include, but are not limited to: incorrect set point of the air flow sensor, incorrect alignment of the airflow sensor, failed or damaged airflow sensor or damaged interconnect wiring from the speed sensor to the power supply.

Enercon Support Services

Preventative Maintenance
Let our PM Team tune-up your team's operating, maintenance and troubleshooting techniques.

Receive audit reports with recommendations for your equipment and spare parts inventory.

Global Technical Service
"Hot Line" technical support is available 24/7/365. Prompt, worldwide field service is always at your disposal.

Web Support
Visit our web site www.enerconind.com/treating for the latest interactive trouble-shooting tips, including diagrams and step-by-step instructions.

Free Testing
Use our Surface Treating Laboratory and application expertise to test new materials and applications.

Startup Assistance
Ensure you're up and running quickly with the assistance of our Applications Specialists Team. Let our Team train yours throughout the entire startup phase.

Training
Hands-on training courses are available for your personnel free at our factory. Utilize operational models at our testing facility to simulate line conditions.

TO CONTACT US:

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e Maintenance Tips

"An ounce of prevention is worth a pound of cure."

- Benjamin Franklin

As you know, routine preventive maintenance is at the heart of every successful manufacturing operation. Our decades of experience have proven that a committed and aggressive preventive maintenance program is the best insurance against downtime, scrap and prolonging the life of the equipment.

Fortunately, Enercon customers have significant maintenance related resources reserved exclusively for them. You can visit our website for troubleshooting information, talk to a service expert who can often solve a problem over the phone or select from a variety of the following service options.

Startup made easy

It's your choice. An experienced Enercon field service engineer can supervise the installation of your new treater, or after it is complete he can review the installation to ensure the station is installed correctly. He will also provide hands on training for your operators as well as routine care and trouble shooting tips for your maintenance team.

Preventive Maintenance service program

Protect your investment, and receive a discount, by planning ahead. Our service engineers are proficient at spotting potential problems before they affect your productivity. He will:

- Alert your personnel to any potential problems and take corrective action
- Provide instruction and training on the best preventative maintenance practices
- Coach how to employ the latest troubleshooting and repair techniques
- Identify critical spare parts which should be part of your maintenance inventory
- Help you refine your ongoing maintenance program

Field Service Visits

Need help NOW? We provide emergency field service when your team needs help resolving a problem. With extensive hands-on experience and direct access to our engineering department, our field service engineers will travel to your facility and repair the equipment. While there, he will determine if other system components may require repair.

Enercon service options have been designed with your success in mind. Not only will our programs ensure your equipment has been installed and is operating properly, but it will also provide the foundation for continual smooth running in the future. No matter what your need- set up, preventative or emergency field service – you are never alone. Our service team constantly receives high ratings from our customers in the converting industry.

Enercon's customer service team is available 24/7; contact Paul Reed for more information at 262/255-6070 or preed@enerconmail.com.

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ADDRESS SERVICE REQUESTED