

# **Everything You Need to Know About VFD / Servo Maintenance**

**Pravin Mahajan**  
[WWW.BAIZAAUTOMATION.COM](http://WWW.BAIZAAUTOMATION.COM)

# Who am I ?

I am very passionate about keeping Industry running. With maintenance background I have knowledge of how to fix them when they breakdown. I get great deal of satisfaction understanding how things work. Since 2009 I have been helping businesses repairing and servicing electronic automation equipment. We are a company that's committed to 'Keeping Industry Running'

I am on mission to Help 1,000,000 Maintenance Professional to Master the Art of Variable Frequency Drive.



**Pravin Mahajan**  
Entrepreneur/Coach

## Definition of VFD

# Variable Frequency Drive

A Variable Frequency Drive (VFD) is a type of motor controller which drives an electric motor by varying the frequency and voltage supplied to the motor itself. Common terms used for a VFD are adjustable speed drive, variable speed drive, AC drive, adjustable frequency drive, inverter, and Microdrive.

Variable Frequency Drives (VFDs) are motor controllers that allow one-way current through diodes/IGBTs to control the frequency and voltage of electricity reaching a device's electric motor. VFDs must be regularly maintained and share many of the same maintenance requirements as other electronic components and power supplies. They need cool and dry environments with minimal dust and disruption, and the connections must remain stay tight for consistent performance.

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# VFD Maintenance

The three key tenets of maintaining variable frequency drives—keeping them clean, dry, and with tight connections—are relatively simple. However, owners and facility managers need to implement regular preventative maintenance and inspection processes to make sure each requirement is met.

**1. Keeping VFDs Clean :** Most VFDs have side vents to allow for better airflow. These vents provide some degree of protection against solid foreign objects, but they do allow dust to accumulate inside the unit and on the vents themselves. This can prevent heat sinks and circulating fans from cooling the VFD unit. They require regular cleaning so the material doesn't build up enough to impede airflow or jeopardize performance.

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# VFD Maintenance

**2. Keeping VFDs Dry :** Like most electronics, VFDs are vulnerable in the presence of moisture. Protecting storage spaces with dehumidifiers helps keep the ambient humidity level low enough to reduce the risk of corrosion. The open vents and unsealed cover mean that moisture can easily get inside the unit and cause corrosion. Even water dripping from a nearby dehumidifier unit can be enough to ruin the device, so it's important to plan the space correctly and regularly inspect on-site VFDs.

**3. Keeping VFD Connections Tight :** VFDs require tight connections to perform. The connections may loosen over time due to mechanical vibration, heat cycles, or even incidental movement throughout long periods of time. Facility managers should have the connections inspected regularly to check for loose connections.

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Benefits of VFD Preventive Maintenance

## **Benefits of VFD Preventive Maintenance**

In today's competitive era, quality is a prime factor. Quality output from any machine depends on machine's repeat performance. To get repeat performance; machine maintenance is a key factor. Maintenance of machines with Computerized Numerical Controls & Servo Drives requires special skills. In order to help our customers in getting the best throughput from the machine, we have introduced the concept of Preventive Maintenance Contracts for the Drives.

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Benefits of VFD Preventive Maintenance

## **Benefits of VFD Preventive Maintenance**

1. Helps you in minimizing the maintenance & operation cost with minimum downtime of your machine due to Drive breakdown by proper maintenance.
2. Increased Reliability. Extended Life Time. Easier Budgeting
3. Attention by skilled and trained technicians who will attend to your machine, suggest timely remedial measures and recommend suitable spare parts to be procured if any. This will help you in proper maintenance of your drive at minimal cost.
4. Corrective Maintenance vs. Preventive Maintenance Cost is less.

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SHUTDOWN

# CONSEQUENCES A PRODUCTION SHUTDOWN

Industrial production is dependent on the proper functioning of a production chain. Some machines are so important in the production process that their failure is said to be "critical" as it leads to a total shutdown in production... Its consequences can be serious for the entire company, and the associated costs can be prohibitive...

For example, at Nylstar (a manufacturer of nylon thread), a 60% drop in voltage, in a single phase, for seven hundred milliseconds, is all it takes to shutdown production...

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SHUTDOWN

# CONSEQUENCES A PRODUCTION SHUTDOWN

Elsewhere, at a paper mill, a mini-power outage will cause a 200-meter long tear in the paper. Or at a car manufacturer where the breakdown of a press results in thousands of euros of net loss per hour. Likewise for a glassworks where a furnace breakdown means that the cooled glass has to be attacked on the ground with a jackhammer! There is no shortage of examples and no manufacturing sector is immune...

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SHUTDOWN

# CONSEQUENCES A PRODUCTION SHUTDOWN

1. TENSIONS WITHIN THE TEAMS
2. LOSS OF TURNOVER
3. LATE DELIVERY PENALTIES
4. DECREASE IN CUSTOMER LOYALTY RATE

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# Baiza Automation Experience over 15 years in VFD Preventive Maintenance

For 15 years, Baiza Automation has been supporting its customers and their industrial changes. By increasing our skills and know-how, we have become the sole and preferred point of contact for many industries and companies seeking a partner that can guarantee their productivity.

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