Are you protecting your equipment?

When inadequate cordsets are used with equipment such as heaters, pumps, power tools, etc, the risk of damage over time becomes more prevalent. One of the main issues is the voltage drop that will occur when using cordsets of improper gauge, or cordsets that are too long to handle the required voltage. You may receive a call that your equipment is not working well and service people will inspect it and see nothing wrong. Once in use again with incorrect cordsets it can still function inadequately.

In the chart below, under the #10ga wire column, a 30A system with a 100 ft cord has a drop of 7.2V or 6%. Any voltage drop over 5% can begin to cause equipment problems. That same cordset at a 50 ft length only drops 3.6V or 3%, so that equipment should function properly with that length of cord.

Whenever you have distances of greater than 50 ft, it's always best to check, as with 30A supply you may need to have 8ga or even 6ga cordsets to operate properly, depending on surge. Hy-Cor specializes in cordset sizing and also supplies AC Circuit testers to be able to test your systems under load. Don't let your equipment operate in the field with improper cordsets. It's hard on your equipment and harder on your wallet !

Approximate Voltage Drop for Various Extension Cord Guages, Lengths & Amps

Cord Length (ft)	Current Flowing Through Cord			
	10A	15A	20A	30A
Cord Size #12 Gauge Wire				
10	0.4V (0.3%)	0.6V (0.5%)	0.8V (1.7%)	
20	0.8V (0.7%)	1.1V (0.9%)	1.5V (1.3%)	
30	1.1V (0.9%)	1.7V (1.4%)	2.3V (1.9%)	
40	1.5V (1.3%)	2.3V (1.9%)	3.1V (2.6%)	
50	1.9V (1.6%)	2.9V (2.4%)	3.8V (3.2%)	
100	3.8v (3.3%)	5.7V (4.8%)	7.7V (6.4%)	
Cord Size #10 Gauge Wire				
10	0.2V (0.2%)	0.4V (0.3%)	0.5V (0.4%)	0.7V (0.6%)
20	0.5V (0.4%)	0.7V (0.6%)	1.0V (0.8%)	1.4V (1.2%)
30	0.7V (0.6%)	1.1V (0.9%)	1.4V (1.2%)	2.2V (1.8%)
40	1.0V (0.8%)	1.4V (1.2%)	1.9V (1.6%)	2.9V (2.4%)
50	1.2V (1.0%)	1.8V (1.5%)	2.4V (2.0%)	3.6V (3.0%)
100	2.4V (2.0%)	3.6V (3.0%)	4.8V (4.0%)	7.2V (6.0%)
Note 1:	Numbers are rounded to the nearest 0.1V and 0.1%			
Note 2:	Voltage drops shown are the same for any single-phase supply voltage. Voltage drop depends only on amps.			
Note 3:	Values are approximate, as they are affected by factors such as temperature.			
Note 4:	For a given cord size and amps, voltage drop is uniform over a length of cord, so for example, a 40ft cord has twice the voltage drop as a 20ft cord. That means the numbers in the voltage drop columns can be added together. For example, the voltage drop for a 70ft cord can be found by adding together the voltage drop for a 30ft cord and a 40ft cord.			

OHMS Law

Ohms= $\frac{\text{Volts}}{\text{Amperes}}$ ***Amperes=*** $\frac{\text{Volts}}{\text{Ohms}}$

Volts= Amperes x Ohms

Power

Watts= Amperes x Volts x Amps x Ohms, or $\frac{\text{Volts x Volts}}{\text{Ohms}}$

Amperes= $\frac{\text{Watts}}{\text{Volts}}$

HP= $\frac{\text{Volts x Amps x Efficiency}}{746}$

Power Factor= $\frac{\text{Watts}}{\text{Amperes x Volts}}$

3-phase Amperes=

$$\frac{\text{746 x HP (Horsepower)}}{\text{1.732 x Volts x Efficiency x Power Factor}}$$

Single-phase Kilowatts=

$$\frac{\text{Volts x Amperes x Power Factor}}{1000}$$

Single-phase Amperes=

$$\frac{\text{746 x HP (Horsepower)}}{\text{Volts x Efficiency x Power Factor}}$$