

## Technical Guide: Expected Power Factor Values

The Institute of Electrical and Electronics Engineers (IEEE), in *IEEE 141: Recommended Practice for Electric Power Distribution for Industrial Plants*, provides a general guideline of expected power factor values by both industry and operation type, (see tables 1 & 2).

75 - 80
76 - 80
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% Power Factor: By Industry

Cement	80 - 85
Chemical	65 - 75
Coal Mine	65 - 80
Clothing	35 - 60
Electroplating	65 - 70
Foundry	75 - 80
Forge	70 - 80
Hospital	75 - 80
Machine Manufacturing	60 - 65
Metal Worker	65 - 70
Office Building	80 - 90
Oil Field Pumping	40 - 60
Paint Manufacturing	55 - 65
Plastic	75 - 80
Stamping	60 - 70
Steelworks	65 - 80
Textile	65 - 75
Tool,die	60 - 65

## % Power Factor: By Operation

Air Compressor:	
External Motor	75 - 80
Hermetic Motor	50 - 80
Metal Working	
Arc Welding	35 - 60
Arc Welding w/ caps	70 - 80
Resistance Welding	40 - 60
Machining	40 - 65
Melting	
Arc Furnace	75 - 90
Inductance Furnace	100
Stamping	
Standard speed	60 - 70
High Speed	45 - 60
Spraying	60 - 65
Weaving	
Individual Drive	60
Multiple Drive	70
Brind	70-75
Tool,die	60 - 65

Table 1

Table 2

## Innovative Solutions for Clean, Reliable Power



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The actual power factor one can expect depends on several factors, including the type and quantity of the equipment installed and the manner in which it is operated.



Lightly loaded motors are a major contributor to an operation's low power factor. This is particularly evident in situations where you have multiple motors involved in a cycle processes. Motors used in compressors, conveyors, presses and the like are often sized for its heaviest possible load even though it may rarely operate under those conditions.

Operating with a low power factor results in poor electrical effeciency, power losses, transformer capacity constraints, equipment performance and higher utility costs.

Contact Southern Tier Technologies for a FREE power quality evaluation.

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