
Useful Life of Metal-Enclosed Switchgear

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We are frequently asked how long we expect metal-enclosed switchgear to last in service; what is the design life of our products. Other than the very complex procedures used in the nuclear industry, there is absolutely nothing in any industry standard that addresses this question, for the very good reason that there is no reasonable way to test the life of a piece of switchgear other than to put it into service and see how long it lasts. However, for the over 40 years that I've been in the industry, most manufacturers have rather consistently answered this question with an estimate of 30 to 40 years of useful service life. There are numerous installations of metal-enclosed switchgear which have been in service for 40 years or more.

Of course, to get this kind of service out of switchgear, there are a few ground rules you have to follow. Here are some of them.

- **Install it properly.** Make sure the foundation is level, and that the equipment has been set level on the foundation and properly secured. Check alignment of all disconnects and interlocks on drawout circuit breakers to make sure that they fit properly into the cell. Be sure all bus splices are assembled properly, with the right size splice plates and the right size and number of bolts, properly torqued, and insulated if insulation is required. Connect cables carefully. Check out all control wire connections.
- **Don't overheat it.** Heat is one of the two great enemies of electrical insulation. Don't overload the equipment in service. Make sure that ventilation is adequate, and that any filters or other ventilating openings in the switchgear are clean and that air flow is not restricted. If artificial cooling is required to keep the ambient temperature within limits (usually a maximum of 40°C), be sure it operates properly.
- **Keep it dry.** Moisture is the other great enemy of insulation. Make sure there are no leaks that will allow rain or other moisture to dampen the switchgear. For outdoor installations and indoor installations in damp climates, space heaters are recommended to deter condensation.
- **Take care of it.** The equipment should be inspected, cleaned, and lubricated on a regular schedule, and after any traumatic event, such as interrupting a major fault.

Treat your switchgear well, and it will last you a long time. Abuse it or neglect it, and it will die young.



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