



# Neutral Grounding Resistors



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Kawasan Industri Greenland - Kota Deltamas Jl. Greenland IV Blok AC No. 07 Cikarang pusat Bekasi - Indonesia 17530

www.bcp-group.co.id



# Neutral Grounding Resistors

## Protect Your Power Distribution Equipment With Neutral Grounding Resistors

Neutral Grounding Resistors are the most effective, common, economical and preferred method of grounding.

### Standards

The neutral grounding system's purpose is to protect life and property in the event of 50/60 Hz faults (short-circuit) and transient phenomena. Neutral Grounding Resistors are designed and tested in strict accordance with IEEE Standard 32-1972.



13.8 kV System, 8 kV Line to Neutral, 50 Ampere, 10 Second



13.8 kV System, 8 kV Line to Neutral, 400 Ampere, 10 Second



High Resistance Grounding System

- Designed and tested in accordance with IEEE Standard 32-1972
- All units triple insulated
- All stainless steel resistor elements and terminals

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# Neutral Grounding Resistors

### Typical Grounding Methods

- Ungrounded Systems
- Solidly Grounded Neutral Systems
- Resistance Grounded Systems

### Ungrounded System



Ungrounded System has no connection between the conductors and earth ground.

Under normal operating conditions this method is fine.

With fault conditions, damage to equipment can occur, and the fault may be difficult to locate.

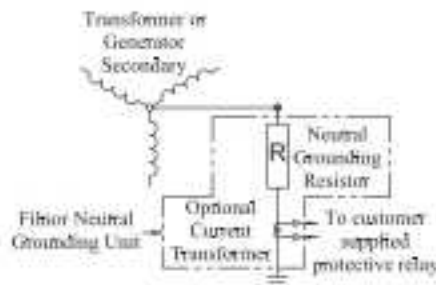
### Solidly Grounded System



A solidly Grounded System is one which the neutral point has been connected to earth ground with a conductor.

It lacks the current limiting ability of resistance grounding and extra protection for your equipment

### Grounding Through Resistor



Resistance Grounding is the most effective and preferred method.

It solves the problem of transient over voltages, which reduces equipment damage.

Limiting the fault current prevents equipment damage.

### Neutral Grounding Resistors

The most effective, common, economical and preferred method of grounding.

### Standards

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The standard establishes maximum allowable temperature ratings for neutral grounding devices for various duty cycles as follows:

DUTY CYCLE	MAX. TEMP. RISE ABOVE AMBIENT	TYPICAL CURRENT
Continuous	385° C	1 to 25 amps
Extended Time *	610° C	10 / 25 / 50 amps
60 Seconds or less	760° C	100 to 2000 amps

\* Defined as 10 minutes or greater, no more than 90 days total per year

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# Neutral Grounding Resistors

### Function

Neutral Grounding Resistors are used to protect power transformers, power generators and other associated equipment in your power systems against 50/60 Hz faults (short circuit) and transient phenomena (lightning).

### Specification

There are three parameters needed to specify the neutral grounding resistor.

1. Rated voltage line to neutral or system voltage
2. Rated fault current
3. Rated "time on" of the line to neutral voltage not exceeding the allowable temperature rise

### Range

- Rated current: from 1 amp to 5000 A
- Rated voltage: from 0.38 to 34.5kV
- Rated time: 1 sec to continuous time rating

### Testing & Quality

Neutral Grounding Resistors are designed, rated, manufactured and tested in strict compliance with IEEE-32-1972. Routine tests performed on each Neutral Grounding Resistor are measurement of resistance, high voltage power frequency, insulation measurement, aspect verification, dimensional control. Internal quality system has been developed and certified under ISO 9001 quality system.

### Construction

A standard unit includes the stainless steel resistor assembly plus all the required insulators, internal connections and hardware installed in a standard safety enclosure. Neutral Grounding Resistor units are completely assembled, prewired, and tested at our facility. For shipping all units are created for added protection and ease of handling.

### Enclosure Materials

- Solid overhung top slightly sloped to prevent standing water and will support heavy ice and snow.
- Removed eyebolts in all four corners for easy hoisting.
- Removable front and rear louvered covers for easy access for connection and inspection.
- Corrosion resistant nameplate provides complete ratings and manufacturers information.
- Mill galvanized for maximum protection.
- Bottom screening prevents the entry of birds and rodents while providing maximum cooling for the resistors.

### Enclosure Options

- Mill galvanized, aluminum, stainless steel and hot-dipped galvanized construction. Custom paint finish is available.
- Top or side mounted entrance bushing(s).
- Screened covers for indoor applications.
- Support stands for elevating the enclosure above ground.

### Options

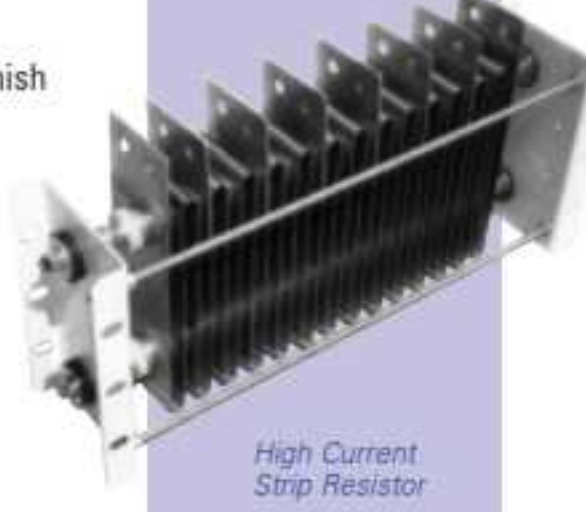
- Current or potential transformers mounted and prewired at our facility
- ON or OFF Load disconnecting switches



Grounding Transformer Cubicle



Helicoil Wire Wound Resistor used for low current applications.



High Current Strip Resistor

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