

General Electric Harmonic Mitigating Transformers

Code: HM



**For Non-Linear Load
(Harmonic Producing) Applications**
Three phase
34,500 Volts and below
U.L. Listed through 5000 kVA at 15kV

Range:
 5kVA to 5,000kVA
 Voltages thru 35,000 Volts
 Temperature rises: 115°C Standard, 80°C available



DIMENSION AND WEIGHT DATA							
KVA	Catalog Number*	Approx. Dimensions (Inches)*			Mounting		Weight (Lbs)
		Height	Weight	Depth	MW	MD	
Model HM-20 and HM-30							
15	HMxx15NC-6	31	24	16	22	11	280
30	HMxx30NC-6	31	24	16	22	11	390
45	HMxx45NC-6	37	30	20	28	15	530
75	HMxx75NC-6	42	36	24	33	22	800
112.5	HMxx112NC-6	48	48	30	45	28	1400
150	HMxx150NC-6	48	48	30	45	28	1700
225	HMxx225NC-6	60	56	36	52	34	2300
300	HMxx300NC-6	60	56	36	52	34	2850
500	HMxx500NC-6	60	56	36	52	34	3600

*** NOTE:**

For the "xx" in the catalog number, please insert a "20" for an HM-20 or "30" for an HM-30 transformer. Please consult with General Electric for kVA sizes greater than 500. Catalog numbers shown are 480 delta primary, 208Y/120 secondary. Other voltages available. All Information Subject to Change without Notice



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PRODUCT INFORMATION AND STANDARD FEATURES

The HM-20 and HM-30 style transformers have been specifically developed for use within distribution systems having a high density of non-linear loads, i.e. personal computers, video display terminals, fax machines, copiers, electronic high efficiency ballasts, UPS systems, variable speed drives, various electronic monitors. The nature of all these loads is non-linear; they only demand current during part of the cycle and/or change their impedance during the voltage cycle. These loads create harmonic currents, which in turn generate heat in the distribution equipment, neutral conductors and distribution transformers.

Numerous methods have been incorporated to deal with the effects of this phenomenon on the transformers in the circuit:

1. The transformer can be oversized. This not only results in a higher cost for the transformer initially, but a higher cost of operation for the life of the transformer. It's a classic case of treating the symptom not the cause.
2. The transformer can be specifically designed to withstand the effects of the harmonic currents generated by the loads. The K-rated transformer was developed to fulfill this task. Various K-ratings were established and described by the standards to deal with specific levels of harmonic currents. When properly applied, K-rated transformers provide a lower initial and operating cost. However, they can still be seen as simply a better method of treating the symptom.
3. The HM line of transformers incorporates design features that treat the causes of harmonic distortion. The secondary windings are configured to provide a phase shift with a low zero sequence impedance to provide a harmonic cancellation element. Double electrostatic shielding is provided to minimize the broadcast of harmonic distortions from either the primary or load side to the other. The result is a transformer that can continuously carry its rated load and perform with maximum efficiency with load profiles up to K-20 with the HM-20 model and K-30 with the HM-30 model.

Standard Features of the HM Series Transformers

- ✓ **Ratings** – Through 5000 KVA and 34.5 KV
- ✓ **Conductor and electrostatic shield material** – Copper
- ✓ **Temperature rise at full load** – 115° C above 40° C maximum ambient (80° C available)
- ✓ **Insulation system** – UL listed, Class R, 220° C insulation
- ✓ **Overload ability** – 15% Continuous
- ✓ **Zero Sequence Impedance and Reactance** – less than 0.95% and 0.3% respectively
- ✓ **Impregnation** – Vacuum Pressure Impregnated (VPI) using 100% solids epoxy resin
- ✓ **Electrostatic Shield** – Between primary and secondary windings and between windings and core
- ✓ **200% Rated Neutral**
- ✓ **Thermal Switches** – one per coil
- ✓ **Efficiency Rating** – Minimum 98%. Meets or exceeds Energy Star and NEMA TP-1 specifications
- ✓ **Temperature protection** – thermal switches provided in each coil
- ✓ **Harmonic Cancellation** – 3rd harmonic cancellation accomplished with secondary winding design, with effective treatment of higher harmonics
- ✓ **Enclosures** – NEMA-1 standard with an ANSI 61 gray, durable powder coat finish; NEMA-3R, 4 or 12 available
- ✓ **Dimensions** – See “Dimension Page” link. On request, smallest size will be maintained compatible with good wiring practices, custom dimensions are available
- ✓ **Surge Suppression** available
- ✓ **Manufactured in the United States**

Third party certification – UL, CSA labeled (CE label on request)

