

Dry Type Transformers

General Information

Types QB, QMS, QL
600 Volts and Below

General Information

The complete family of transformers from GE provide quiet, reliable transformer operation.

All of the dry-type transformers through 1,000 kVA are UL listed under the requirements of Standard 5085 and 1561. In addition, each transformer meets the requirements of NEMA ST-20, 1992. Type IP, QB and QMS models are C-UL listed.

General-purpose transformers are rated 600 Volts and below for supplying appliance, lighting, and power loads from electrical distribution systems. Standard distribution voltages are 600, 480, and 240 Volts; standard load voltages are 480, 240, 208, and 120 Volts. The transformer is used to obtain the load voltage from the distribution voltage. Since no vaults are required for installation, these transformers can be located right at the load to provide the correct voltage for the application. This eliminates the need for long, costly, low-voltage feeders.

Construction

Types QB and QMS

Core and coils are contained within a NEMA 3R nonventilated weatherproof enclosure. Type QB and QMS units feature encapsulated core and coils.

Type QL

Units are enclosed in a NEMA 2 drip-proof painted metal enclosure with natural draft ventilation. The core-and-coil assembly is mounted on rubber isolation pads to reduce noise. Weathershield kits are available for conversion to a NEMA 3R enclosure suitable for outdoor service. NEMA 2 and NEMA 3R stainless steel (Type 316) enclosures are available up to 150kVA. To specify a stainless steel enclosure for an aluminum-wound transformer, substitute the letter "S" in the fifth character of the GE product number. For example, 9T10A1004 changes to 9T10S1004. For copper-wound transformers, substitute the letter "Z" in the fifth character of the GE product number. For example, 9T10C1004 changes to 9T10Z1004. **All QL model product numbers begin with 9T7, 9T8, or 9T1.**

Transformer taps compensate for high or low line voltages. Most standard QL units rated 15kVA through 300kVA and with a primary voltage of 240V or higher have six available voltage taps – four 2.5% taps below the nominal tap and two 2.5% taps above the nominal tap. This arrangement provides a 15% range of tap voltage adjustment. Transformers rated 500kVA and higher have four available voltage taps – two 2.5% taps above the nominal tap and two 2.5% taps below the nominal tap.

Temperature Class

Industry standards classify insulation systems in accordance with the rating system shown below.

Insulation System Classification			
Ambient	+ Winding Rise	+ Hot Spot	= Temp. Class
40°C	55°C	10°C	105°C
40°C	80°C	30°C	150°C
40°C	115°C	25°C	180°C
40°C	150°C	30°C	220°C

All standard, general-purpose, GE transformers meet all applicable NEMA, ANSI, UL, and IEEE standards.

The design life of transformers having different insulation systems is the same, since the allowable temperature rise of an insulation material system is predicated on a specified life for all insulation. The lower temperature systems are designed for the same life as higher temperature systems.

Sound Levels

All general-purpose transformers are as quiet, or quieter than required by NEMA ST-20. Average sound levels are warranted not to exceed the values listed for each load rating shown in the adjacent table. Sound characteristics vary between transformers of identical voltage and kVA rating. The range of variation may be 4 to 8 decibels.

These values apply only to specified test conditions because the characteristic of the installation can cause them to be higher under operating conditions. Where acoustical noise is deemed to be of unusual concern, proper steps should be taken during installation to minimize audible noise transmission.

Sound Levels (Decibels)¹ for 150°C Rise Models

kVA	Sound Levels
0 - 9	40
10 - 50	45
51 - 150	50
151 - 300	55
301 - 500	60

¹Measured per NEMA ST-20.



Dry Type Transformers

General Information

Types QB, QMS, QL
600 Volts and Below

Section 10

Termination

Improved termination spacing and wiring compartment room gives greater flexibility in selecting various UL listed connectors for either copper or aluminum cable.

Product Number Selection Instructions

1. Establish phase and frequency
2. Determine the primary voltage—the voltage presently available
3. Determine the secondary voltage—the voltage needed at the load
4. Determine the kVA load, allowing room for expansion
5. Using the facts determined in the four steps, locate the transformer model in the listings on the following pages.



Type QB, .050 kVA-3 kVA, Single-Phase



Type QMS, 5 kVA-25 kVA, Single-Phase



Type QL, 15 kVA-250 kVA, Single-Phase, DOE 2016 Efficiency,
15 kVA-500 kVA, Three-Phase, DOE 2016 Efficiency



Dry Type Transformers

General Purpose

Three-Phase

DOE 2016 Product Number Nomenclature

Section 10

9T	1	0	A	100	1	G31
GE Standard						
1 = QL DOE 2016 Design						
Transformer Type						
0 = Standard, K1						
1 = K13						
2 = K20						
3 = K30						
4 = K4						
7 = Guard II/Servicenter						
8 = Spare Parts						
Coil Material						
A = Aluminum						
C = Copper						
kVA Rating						
1 = 15kVA						
2 = 30kVA						
3 = 45kVA						
4 = 75kVA						
5 = 112.5kVA						
6 = 150kVA						
7 = 225kVA						
8 = 300kVA						
9 = 500kVA						
Voltage Rating						
See Voltage Chart below						

Group Number	
No Group Number Shown = 150°C	G34 = 115°C, Electrostatic Shield†, -3dB
G02 = 150°C, -3dB	G35 = 115°C, -5dB
G03 = 150°C, Electrostatic Shield†	G36 = 115°C, Electrostatic Shield†, -5dB
G04 = 150°C, Electrostatic Shield†, -3dB	G39 = 115°C, Non-STD kVA
G05 = 150°C, -5dB	G40 = 115°C, Non-STD kVA
G06 = 150°C, Electrostatic Shield†, -5dB	G61 = 80°C
G09 = 150°C, Non-STD kVA	G62 = 80°C, -5dB
G10 = 150°C, Non-STD kVA	G63 = 80°C, Electrostatic Shield†
G29 = 140°C, 40°C amb	G64 = 80°C, Electrostatic Shield†, -3dB
G30 = 140°C, 50°C amb	G65 = 80°C, -5dB
G31 = 115°C	G66 = 80°C, Electrostatic Shield†, -5dB
G32 = 115°C, -3dB	G69 = 80°C, Non-STD kVA
G33 = 115°C, Electrostatic Shield†	G70 = 80°C, Non-STD kVA

†An Electrostatic Shield (also called a Guard I transformer) is a grounded, copper-foil barrier between the primary and secondary winding to reduce electrical noise. All K-Factor transformers contain an Electrostatic Shield.

3-Phase Common Voltages

Series	Primary Voltage	Secondary Voltage
100	480	208Y/120
101	480	220
102	480	220Y/127
103	480	208
104	480	230Y/133
105	480	240Y/139
106	480	380
107	480	380Y/219
108	480	400Y/231
109	480	415Y/240
110	480	480
111	480	575
112	480	600
113	480	440Y/254
114	480	600Y/346
115	480	440
116	480	230/115
117	480	480Y/277
118	480	240/120
119	480	240
121	480	220/110
123	480	400
124	480	460
125	480	420
126	480	230
127	480	575Y/332
129	480	460Y/266
131	208	240
132	208	240/120
133	208	480
134	208	480Y/277
135	208	380Y/219
136	208	230
137	208	575
138	208	460
139	208	400Y/231
140	208	208
141	208	230Y/133
142	208	380
143	208	220/110
144	208	220Y/127
145	208	208Y/120
146	208	400
147	208	315
148	208	600
149	208	460Y/266
150	208	220
151	208	230/115
152	208	415Y/240
153	240	480Y/277
154	240	480
155	240	400Y/231

Series	Primary Voltage	Secondary Voltage
157	240	575
158	240	460Y/266
159	240	240Y/139
160	240	600
161	240	208Y/120
162	240	380
163	240	440
164	240	240/120
165	240	380Y/219
166	220	380Y/219
167	220	400Y/231
168	220	240Y/139
169	220	220
170	220	208Y/120
171	220	480Y/277
172	220	440Y/254
173	220	480/240
174	220	480
175	220	415Y/240
176	380	220Y/127
177	380	480
178	380	220
179	380	208Y/120
180	380	415Y/240
181	380	240/120
184	380	480Y/277
185	380	380Y/219
186	380	230Y/133
187	380	240
188	440	220Y/127
189	440	480
190	440	208Y/120
191	440	380
192	440	380Y/219
193	440	400Y/231
194	440	575Y/332
195	440	240/120
196	440	480Y/277
197	440	240
198	230	460
199	230	400Y/231
200	230	400
201	230	480Y/277
202	230	208Y/120
203	230	480
204	400	230Y/133
205	400	380Y/219
206	400	480
207	400	220Y/127
209	400	400Y/231
210	400	208Y/120
211	400	208Y/120

Series	Primary Voltage	Secondary Voltage
212	400	480Y/277
213	415	208Y/120
214	415	460
215	415	220Y/127
216	416	208Y/120
217	416	480Y/277
218	460	208Y/120
219	460	220
221	460	400Y/231
222	460	220Y/127
223	460	230
224	460	575Y/332
225	460	230Y/133
226	460	460Y/266
227	550	208Y/120
228	550	480Y/277
229	575	208Y/120
230	575	480Y/277
231	575	240Y/139
232	575	460
233	575	480
234	575	230Y/133
235	575	230
236	600	240/120
237	600	480
238	600	480Y/277
239	600	240
240	600	208Y/120
241	600	230Y/133
242	600	240Y/139
243	600	208
244	600	600Y/346
245	690	400Y/231
246	690	208Y/120
247	277	415Y/240
248	315	208Y/120
249	320	480Y/277
250	420	480Y/277
251	490	480Y/277
252	500	480Y/277



Dry Type Transformers

General Purpose

Aluminum

Three-Phase DOE 2016 Efficiency

Advantages

- Quiet performance
- No-weld design – an industry first
- Comprehensive factory testing assures quality
- Accessible mounting foot design speeds installation
- Lug kit and ground bar kit included up through 150kVA
- GE's exclusive wood crate packaging helps reduce shipping damage

Key Features

- Unique core and coil design makes QL transformers among the quietest available
- Core and coil assemblies are mounted on rubber isolation pads to reduce noise
- Bolted coil terminations are more reliable than welded terminations, and they eliminate weld failures and problems associated with welding and weld splatter
- Single-piece front/back is easily removable for service
- Accessible mounting flanges with front/back slotted mounting holes make installation easier
- 100% factory tested for shorts and coil integrity, current and loss, voltage, impedance and noise.
- NEMA 2 powder-coat drip-proof enclosure is standard. Weathershield kit is available for conversion to NEMA 3R outdoor.
- NEMA 3R stainless steel enclosure is available up to 150kVA. To specify a stainless steel enclosure, substitute an "S" in the fifth character in the GE catalog number. Example: 9T10A1004 changes to 9T10S1004.



Type QL Transformer

- Seismic qualified to the requirements of ASCE 7.05, IEEE-693-2005 and IBC-2012/CBC-2013
- Copper or aluminum windings
- Copper ground strap
- Robust packaging with top and side protection protects against shipping damage

Applications

- Commercial
- Industrial
- Motors
- Incandescent lighting
- Resistance heating
- Motor generators (without solid state drives)

Transformer Selection Guide

	Standard	Guard I	Guard II	Guard III	K-Factor (K=4)	K-Factor (K=13)	K-Factor (K=20)	K-Factor (K=50)	DIT	Service Center	TENV	Stainless Steel (Type 316) Enclosure
Motors	X	X			X							
Incandescent Lighting	X	X			X							
Resistance Heating	X	X			X							
Motor Generators (without solid state drives)	X	X			X							
HID Lighting					X							
Induction Heaters					X							
Welders					X							
UPS with optional input filtering					X							
PLC & Solid state controls					X							
Multiple receptacle circuits in health care facilities						X						
UPS without optional input filtering						X						
Production or assembly line equipment						X						
Schools & Classroom facilities						X						
Surge Suppression			X									
Office Buildings		X	X	X		X						
SCR Variable Speed Drives							X	X				
Circuits with exclusive data processing equipment			X	X		X	X					
Critical Care facilities			X	X		X	X					
Hospital Operating Rooms			X	X		X	X					
X-ray equipment			X	X		X	X					
Computer Installations			X	X		X	X					
Programmable Controllers			X	X		X	X					
Instrumentation			X	X		X	X					
AC or DC Variable Speed Drives									X			
Rectifier outputs									X			
Temporary Power										X		
Airborne contaminants or dust-laden environments (indoor and outdoor)											X	
Corrosive environments including water/wastewater and salt spray												X



Dry Type Transformers

General Purpose

Aluminum

Three-Phase DOE 2016 Efficiency

Section 10



Type QL Transformer

150°C Rise NEMA 2

Input Voltage	Output Voltage	kVA	Taps	Wiring Diagram No. ¹	Approx. Net Weight (Lbs)	Frame Size	Product Number
480 Volts Delta	208Y/120 Volts	15	(+2, -4 2.5%)	12	231	UX71A	9T10A1001
		30	(+2, -4 2.5%)	12	330	UX72A	9T10A1002
		45	(+2, -4 2.5%)	12	444	UX73A	9T10A1003
		75	(+2, -4 2.5%)	12	561	UY74A	9T10A1004
		112.5	(+2, -4 2.5%)	12	680	DY75A	9T10A1005
		150	(+2, -4 2.5%)	12	1030	DY76A	9T10A1006
		225	(+2, -4 2.5%)	12	1450	DY77A	9T10A1007
		300	(+2, -4 2.5%)	12	1670	DY78A	9T10A1008
		500	(+2, -2 2.5%)	12	2900	DX79A	9T10A1009

115°C Rise NEMA 2

Input Voltage	Output Voltage	kVA	Taps	Wiring Diagram No. ¹	Approx. Net Weight (Lbs)	Frame Size	Product Number
480 Volts Delta	208Y/120 Volts	15	(+2, -4 2.5%)	12	231	UX71A	9T10A1001G31
		30	(+2, -4 2.5%)	12	330	UX72A	9T10A1002G31
		45	(+2, -4 2.5%)	12	444	UX73A	9T10A1003G31
		75	(+2, -4 2.5%)	12	603	UX74A	9T10A1004G31
		112.5	(+2, -4 2.5%)	12	830	DX75A	9T10A1005G31
		150	(+2, -4 2.5%)	12	1250	DX76A	9T10A1006G31
		225	(+2, -4 2.5%)	12	1670	DX77A	9T10A1007G31
		300	(+2, -4 2.5%)	12	1985	DX78A	9T10A1008G31
		500	(+2, -2 2.5%)	12	2900	DX79A	9T10A1009G31

80°C Rise NEMA 2

Input Voltage	Output Voltage	kVA	Taps	Wiring Diagram No. ¹	Approx. Net Weight (Lbs)	Frame Size	Product Number
480 Volts Delta	208Y/120 Volts	15	(+2, -4 2.5%)	12	330	UX72A	9T10A1001G61
		30	(+2, -4 2.5%)	12	444	UX73A	9T10A1002G61
		45	(+2, -4 2.5%)	12	561	UY74A	9T10A1003G61
		75	(+2, -4 2.5%)	12	680	DY75A	9T10A1004G61
		112.5	(+2, -4 2.5%)	12	1030	DY76A	9T10A1005G61
		150	(+2, -4 2.5%)	12	1450	DY77A	9T10A1006G61
		225	(+2, -4 2.5%)	12	1985	DX78A	9T10A1007G61
		300	(+2, -2 2.5%)	12	2900	DX79A	9T10A1008G61

150°C Rise NEMA 2

Input Voltage	Output Voltage	kVA	Taps	Wiring Diagram No. ¹	Approx. Net Weight (Lbs)	Frame Size	Product Number
208 Volts Delta	208Y/120 Volts	15	(+2, -4 2.5%)	12	231	UX71A	9T10A1451
		30	(+2, -4 2.5%)	12	330	UX72A	9T10A1452
		45	(+2, -4 2.5%)	12	561	UY74A	9T10A1453
		75	(+2, -4 2.5%)	12	680	DY75A	9T10A1454
		112.5	(+2, -4 2.5%)	12	1030	DY76A	9T10A1455
		150	(+2, -4 2.5%)	12	1250	DX76A	9T10A1456
		225	(+2, -4 2.5%)	12	1670	DY78A	9T10A1457
		300	(+2, -2 2.5%)	12	2900	DX79A	9T10A1458

¹See page 10-45 for wiring diagrams.

