Distribution-Transformer Loading for Delta and Open-Delta Secondaries

Four-Wire Delta Serving Combination 3Ø 3-wire and 1Ø 3-wire Loads

Page 2 —Preferred 3Ø Delta or Wye Primary {EPE707}
Page 4 —Open-Wye Primary / Open-Delta Secondary {EPE709}
Page 6 —3Ø Delta or Wye Primary / Delta Secondary {EPE711}
NOTES

Y - 120/208V or 277/480V Wye connected secondary, balanced single phase loads. See DSO 705, Page 2 of 2.

Δ - 120/240V Delta connected secondary, single phase load on one transformer.

NO SYMBOL INDICATES DELTA CONNECTED SECONDARY OR WYE CONNECTED SECONDARY.

EXAMPLE

1. Customer has 20 horsepower three phase motor and 20 KVA single phase lighting load. Move right from 20 horsepower mark and up from 20 KVA single phase mark. Intersection is in 25-10 area, meaning one 25 KV & one 10 KV transformer on Open Wye – Open Delta may be used with the single phase load connected to the 25 KVA transformer.

2. A 40 KVA three phase load with a 45 KVA single phase load may be served at 120/208V or 277/480V using 3 - 25 KVA transformers, or at 120/240V using 1 - 37.5 KVA and 2 - 25 KVA transformers.
THREE-PHASE LOAD KVA AT 0.80 P.F.

SINGLE-PHASE LOAD KVA AT 0.95 P.F. (125% MAX. LOADING)
NOTES

Use when combination other than "preferred" is necessary. See T.D. DSO 707

Use with care on three phase loads above 20 horsepower. See DSO 705. Page 1 of 2.

EXAMPLE

Customer has 60 KVA single phase load and 20 KVA three phase load, and cannot be served using the 3-25 KVA Y-Y connection shown on T.D. DSO 707. Moving up from the single phase-60 KVA mark and right from the three phase-20 KVA mark, the intersection is in the 75-10 area. Meaning a 75 KVA and a 10 KVA transformer or open wye-open delta can meet the demand.
NOTES

Use when combination other than "preferred" is necessary. See T. D. DSO 707

Primary neutral should be isolated.

14/24 KV banks should be fused at the transformers and the lateral take-off to minimize the ferro-resonance effect.

EXAMPLE

1. Customer has 30 KVA single phase load and 20 KVA three phase load, cannot be served for some reason by using the open bank shown on T. D. DSO 707, and a closed bank is required. Moving up from the single phase – 30 KVA mark and right from the three phase – 20 KVA mark, the intersection shows that 1 — 37.5 KVA and 2— 25 KVA transformers will meet the demand.