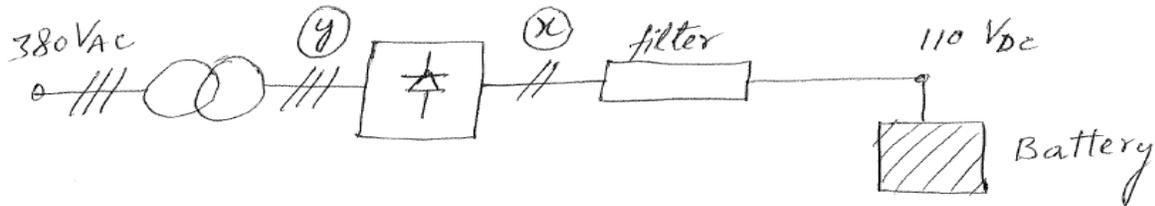


Battery Charger:

380 Vac (line to line rms)/110 Vdc, with 50 A DC current



I need to select transformer for this system.

$$\text{Output DC Power} = 110 \times 50 = 5.5 \text{ kVA}$$

Voltage

For bridge rectifier;

$$V_{sec} (rms) = \frac{V_{dc}}{1.35}$$

$$V_{dc} = \text{Regulated DC} + \text{Ripple voltage}$$

Let's assume 10% ripple;

$$V_{dc} = 110 + 11 = 121 \text{ V}$$

$$V_{sec} (rms) = \frac{121}{1.35} = 90 \text{ V}$$

Current

$$I_{dc} = 50 \text{ A}$$

For bridge rectifier;

$$I_{sec} (rms) = \sqrt{2} \times I_{dc} = 71 \text{ A}$$

Transformer VA:

$$VA = 90 \times 71 \times 1.1 \times 1.25 = 9 \text{ kVA}$$

$$VA = V_{sec} (rms) \times I_{sec} (rms) \times 1.1 \times 1.25 = 9 \text{ kVA}$$

(Where 1.1 is for 10 % design margin and 1.25 is for 75% transformer efficiency)

380 Vpri / 90 Vsec, 9 kVA transformer is needed!!