f) If line inductance is 10 mH this will cause commutation. Output voltage loss per commutation Au = wLsId repeats itself every π/3 wt so Vout can be seen from formula 1.

metin içeren bir resim

Açıklama otomatik olarak oluşturuldu

formula 1

w = 100\*π, Ls = 10 mH, Vout = 500 V, Id = 3700/500 = 7.4 A, Vll,rms = √3\* Vln,rms, Vln,rms = 230V

so formula becomes 500 = (3√6/π)\*230\*cos(a) – 3\*100\* π\*10-2 \*7.4/π

cos(a) = (500 + 3\*100\* π\*10-2 \*7.4/π)/(3√6/π)\*230)

a = arccos((500 + 3\*100\* π\*10-2 \*7.4/π)/(3√6/π)\*230))

a = 13.92°. So lower activation angle required to reach same voltage.