Summary

Serial No.	Type of converter	Load	Parameter
1.	1 ϕ half wave	R	$V_{o(av)} = \frac{V_m}{2\pi}(1+\cos\alpha)$
		RL	$V_{o(av)} = \frac{V_m}{2\pi}(\cos\alpha - \cos\beta)$
		RL with freewheeling diode	$V_{o(av)} = \frac{V_m}{2\pi}(1+\cos\alpha)$

2.	1 ϕ semi converter	R	$V_{o(av)} = \frac{V_m}{\pi}(1+\cos\alpha)$ $V_{o(rms)} = \left\{\frac{V_m^2}{2\pi}\left[\pi-\alpha+\frac{1}{2}\sin 2\alpha\right]\right\}^{\frac{1}{2}}$
		RL	$V_{o(av)} = \frac{V_m}{\pi}(1+\cos\alpha)$ $V_{o(rms)} = \left\{\frac{V_m^2}{2\pi}\left[\pi-\alpha+\frac{1}{2}\sin 2\alpha\right]\right\}^{\frac{1}{2}}$
		RL	$DF = \cos\frac{\alpha}{2}$ $PF = \sqrt{\frac{8}{\pi(\pi-\alpha)}}\cos^2\frac{\alpha}{2}$ $HF = \sqrt{\frac{\pi(\pi-\alpha)}{8\cos^2\frac{\alpha}{2}}-1}$
3.	1 ϕ full converter	R	$V_{o(av)} = \frac{V_m}{\pi}(1+\cos\alpha)$ $V_{o(rms)} = \left\{\frac{V_m^2}{2\pi}\left[\pi-\alpha+\frac{1}{2}\sin 2\alpha\right]\right\}^{\frac{1}{2}}$
		RL	$V_{o(av)} = \frac{2V_m}{\pi}\cos\alpha$ $V_{o(rms)} = \frac{V_m}{\sqrt{2}}$
		RL with freewheeling diode	$V_{o(av)} = \frac{V_m}{\pi}(1+\cos\alpha)$ $V_{o(rms)} = \left\{\frac{V_m^2}{2\pi}\left[\pi-\alpha+\frac{1}{2}\sin 2\alpha\right]\right\}^{\frac{1}{2}}$
		RL	$DF = \cos\alpha$ $PF = \frac{2\sqrt{2}}{\pi}\cos\alpha$ HF = 0.4834 or 48.34%
4.	3 ϕ halfwave converter	R	$V_{o(av)} = \frac{3\sqrt{3}V_m}{2\pi}\cos\alpha$ *for* $\alpha \le 30°$ $= \frac{3V_m}{2\pi}\left[1+\cos\left(\frac{\pi}{6}+\alpha\right)\right]$ *for* $\alpha > 30°$
		RL	$V_{o(av)} = \frac{3\sqrt{3}V_m}{2\pi}\cos\alpha$

5.	3 ϕ semiconverter	R, RL	$V_{o(av)} = \frac{3\sqrt{3}V_m}{2\pi}(1+\cos\alpha)$
6.	3 ϕ fullconverter	R	$V_{o(av)} = \frac{3\sqrt{3}V_m}{\pi}\cos\alpha$ *for* $\alpha \le 60°$ $V_{o(av)} = \frac{3\sqrt{3}V_m}{\pi}\left[1+\cos\left(\frac{\pi}{3}+\alpha\right)\right]$ *for* $\alpha > 60°$
		RL	$V_{o(av)} = \frac{3\sqrt{3}V_m}{\pi}\cos\alpha$
		RL - with freewheeling diode	$V_{o(av)}$ is same as that with R-load.
7.	1 ϕ dual converter	RL	$V_{o1(av)} = \frac{2V_m}{\pi}\cos\alpha_1$ $V_{o2(av)} = \frac{2V_m}{\pi}\cos\alpha_2$ $\alpha_1 + \alpha_2 = 180°$ $i_{cir} = \frac{2V_m}{\omega L_r}[\cos\omega t - \cos\alpha_1]$