

VOC (Voice of Customer)

Three phase variable resistive load bank with 12kW maximum capacity and 10 variable step control.

SI no	Customer requirement	Input	Output
1	Step 1	3x 690 Ω resistors (90W rating)	250W, 0.35A
2	Step 2	3x 690 Ω resistors (90W rating)	250W, 0.35A
3	Step 3	3x 344 Ω resistors (175W rating)	500W, 0.70A
4	Step 4	3x 172 Ω resistors (500W rating)	1kW, 1.39A
5	Step 5	3x 172 Ω resistors (500W rating)	1kW, 1.39A
6	Step 6	3x 172 Ω resistors (500W rating)	1kW, 1.39A
7	Step 7	3x 86 Ω resistors (750W rating)	2kW, 2.78A
8	Step 8	3x 86 Ω resistors (750W rating)	2kW, 2.78A
9	Step 9	3x 86 Ω resistors (750W rating)	2kW, 2.78A
10	Step 10	3x 86 Ω resistors (750W rating)	2kW, 2.78A

Equal steps can also be triggered for the following loads.

Equal Steps	Load per Step	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
2	6000	1,2,3,4, 5,6,7	8,9,10				
3	4000	1,2,3,4, 5,6	7,8	9,10			
4	3000	1,2,3,7	4,8	5,9	6,10		
6	2000	1,2,3,4	5,6	7	8	9	10

Rated 3 phase voltage, $V_{\text{Line}} = 415\text{V}$, $V_{\text{phase}} = 239.60\text{ V}$

For star connected circuit,

$$V_{\text{phase}} = V_{\text{line}} / \sqrt{3}$$

$$I_{\text{line}} = I_{\text{Phase}}$$

$$R_{\text{Phase}} = V_{\text{Phase}} / I_{\text{phase}}$$

Sample calculation,

Load, $P = 1000\text{W}$, $V_{\text{Line}} = 415\text{V}$

$$V_{\text{phase}} = V_{\text{line}} / \sqrt{3} = 415/1.732 = 239.60\text{V}$$

$$P = V_{\text{line}} I_{\text{line}} \times \sqrt{3}$$

$$\Rightarrow I_{\text{line}} = I_{\text{phase}} = P / (V_{\text{line}} \times \sqrt{3}) = \mathbf{1.39A}$$

$$R_{\text{Phase}} = V_{\text{Phase}} / I_{\text{phase}} = 239.6/1.39 = \mathbf{172.37\Omega (\approx 172\Omega)}$$