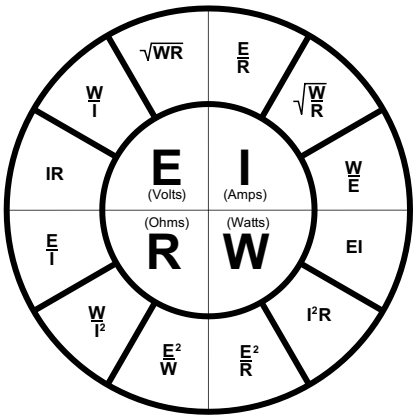
Reference Data

OHMS LAW

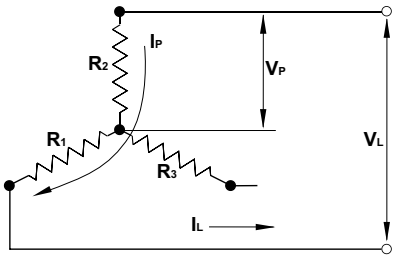
Wattage varies directly as ratio of voltages squared

$$W_2 = W_1 \times \left(\frac{E_2}{E_1}\right)^2$$

$$\text{3 Phase Amperes} = \frac{\text{Total Watts}}{\text{Volts X 1.732}}$$

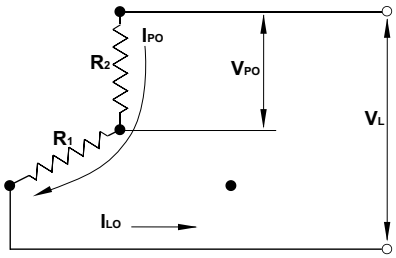


3-Phase Wye (Balanced Load)



$I_P = I_L$
$V_P = V_L/1.73$
$W_{WYE} = V_L^2/R = 3(V_P^2)/R$
$W_{WYE} = 1.73\ V_L I_L$

3-Phase Open Wye (No Neutral)



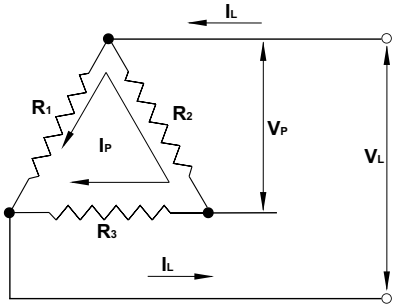
$I_P = I_{LO}$
$V_{PO} = V_L/2$
$W_{OWYE} = ½(V_L^2)/R$
$W_{OWYE} = 2(V_{PO}^2/R)$

DEFINATIONS

For Both Wye and Delta (Balanced Loads)

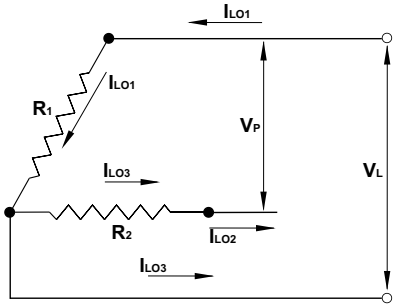
V_P = Phase voltage
V_L = Line voltage
I_P = Phase Current
R = R1 = R2 = R3 = Resistance of each branch
W = Wattage

3-Phase Delta (Balanced Load)



$I_P = I_L/1.73$
$V_P = V_L$
$W_{DELTA} = 3\ (V_L^2)/R$
$W_{DELTA} = 1.73\ V_L I_L$

3-Phase Open Delta



$V_P = V_L$
$I_{PO1} = I_{PO3} = I_{LO2}$
$I_{LO3} = 1.73\ I_{PO1}$
$W_{ODELTA} = 2\ (V_L^2/R)$

DEFINATIONS

Wye and Delta Equivalents

$W_{DELTA} = 3\ W_{WYE}$
$W_{ODELTA} = ⅔\ W_{DELTA}$
$W_{OWYE} = ½\ W_{WYE}$