Base Calculation

```
clearvars
format shortEng

syms v_ln
vDc = (3*sqrt(6)/pi)*v_ln
```

```
vDc =
```

$$\frac{5267163335246927\, v_{\mathrm{ln}}}{2251799813685248}$$

```
maxDuty = 0.9
```

```
maxDuty =
   900.0000e-003
```

```
vDcWanted = 180/maxDuty
```

```
vDcWanted =
   200.0000e+000
```

```
vln = double(solve(vDc == vDcWanted))
```

```
vln =
    85.5033e+000
```

```
vll = vln*sqrt(3)
```

```
vll =
   148.0961e+000
```

```
% the line-to-neutral voltage must be adjusted to 77 V RMS
% this voltage will provide 133 V line-to-line and may be used to power a
% power brick (adapter) for the control circuitry
vPeak = vln*sqrt(2) % for diode selection
```

```
vPeak =
   120.9200e+000
```

```

prospEff = 0.6; % prospetive efficiency
prospPow = 2e3;
gridPow = prospPow/prospEff
```

```
gridPow =
     3.3333e+003
```

```
phaseCurr = gridPow/(3*vln)
```

```
phaseCurr =
    12.9949e+000
```

```
iDc = gridPow/vDcWanted
```

```
iDc =
    16.6667e+000
```

1 phi Rectifier For Control CCT

```
vAv_1phi = (2*sqrt(2)/pi)*vln
```

```
vAv_1phi =
    76.9800e+000
```