

The difference between THDV and P(%) is following.

THDV expresses the total amount of harmonics in the voltage (typically supply network voltage). THDV is consequence of non-harmonic current consumed from the network (by variable speed drives, switchover power supplies, etc.) and also depends on the network parameters, especially how powerful the network is (short-circuit ratio). THDV gives different values at different places in installation (cable impedance and another harmonic loads play role)

p(%) is the relative impedance and here is the explanation:

Imagine combination of detuned reactor and PFC capacitor as serial L-C circuit. This circuit has certain resonant frequency

$$f_R = \frac{1}{2 \cdot \pi \cdot \sqrt{L \cdot C}}$$

The ratio between line frequency (50Hz typically) and resonant frequency is tuning order n

$$n = \frac{f_R}{f}$$

LVR07250A40T is detuned reactor that is designed for use at 50Hz network and to work with tuning frequency $f_R=190\text{Hz}$ (hence tuning order $n=3.8$), could be combined for example with BLRBH339A407B48 25kVAr bank.

As you know, if you fed L-C circuit with resonant frequency, the voltage on L and voltage on C would be theoretically infinite, just 180 degrees shifted. This would surely destroy capacitors. That is the reason that detuned reactors are designed for combination with certain PFC capacitors in order the resonant frequency not to be multiple of 50Hz. Harmonics in the network are multiples of 50Hz and they could damage the capacitors.

Anyway, even if we supply our L-C circuit with 50Hz only, there should be slight increase in the voltage on capacitors and reactor. This increase of the voltage can be easily calculated using relative impedance p.

Relative impedance p depends on tuning order (in fact it tells us, how far is resonant frequency away from 50Hz):

$$p = \frac{1}{n^2} \quad \text{or} \quad p = \frac{1}{n^2} \cdot 100 \quad \text{if we express it in (\%)}$$

And voltage on capacitors will be then:

$$U_c = \frac{U_s}{1 - p}$$

Where U_s is supply voltage (typically 400V).

PFC capacitors must be selected for rated voltage U_c .