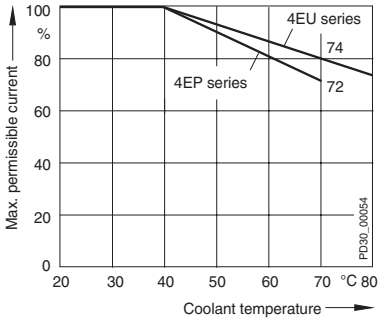
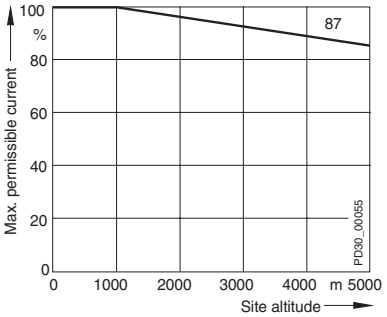
Deviations of rated values at site altitudes > 1000 m

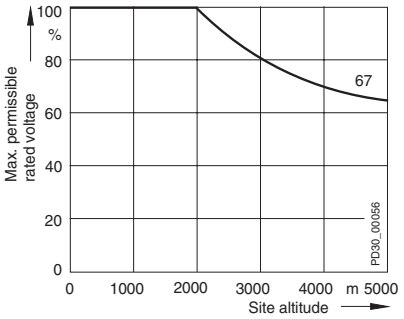
Reduction of the rated voltage and rated current, depending on the site altitude and coolant temperature



Deviation of the permissible direct current of rated direct current I_{dn}, or permissible alternating current of rated alternating current I_n (at coolant temperatures ≠ 40°C)
Characteristic curve 74 applies to reactors 4EU, 4ET, 4PK
Characteristic curve 72 applies to reactors 4EP, 4EM, 4EF11



Deviation of permissible direct current of rated direct current I_{dn}, or permissible alternating current of rated alternating current I_n (at site altitudes > 1000 m above sea level)



Reduction of rated voltage for insulation (at site altitudes > 2000 m above sea level)

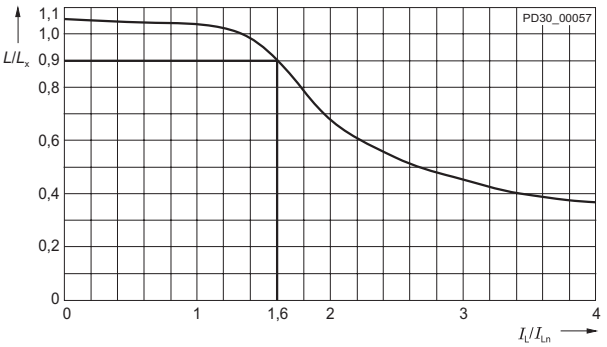
Inductance curve

Commutating reactors and mains reactors

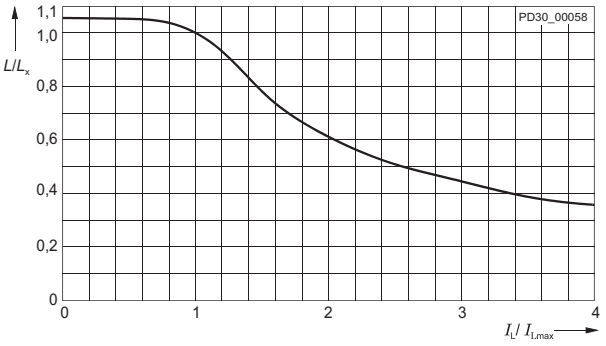
Commutating reactors and mains reactors differ greatly with regard to the inductance curve. The inductance is almost constant through to the rated current I_{Ln},

- Mains reactors still have 90% of their rated inductance at a 1.6-fold rated current I_{Ln}.
- Commutating reactors have a residual inductance of 60% at a 2.0-fold rated current I_{Ln}.

Typical inductance curves over the reactor current are shown in the following illustrations:



Typical curve of the inductance of a **mains reactor** over the reactor current



Typical curve of the inductance of a **commutating reactor** over the reactor current

Voltage drop ΔU or reference voltage drop u_D

In the case of **three-phase reactors**, the voltage drop ΔU per reactor phase when loaded with the maximum continuous thermal current I_{thmax} and line frequency f = 50 Hz or 60 Hz.

The percent voltage drop u_D can be calculated using the following formula:

For converter connection B6

$$u_D = \frac{\Delta U \times 100 \times \sqrt{3}}{U_N} \quad \text{in \%}$$

The inductance per reactor phase is as follows:

$$L_x = \frac{\Delta U}{I_{thmax} \times \omega}$$

$\omega = 2 \pi \times f$

with f = line frequency (50 Hz or 60 Hz)

Recommended supply voltage U_N, reference voltage drop u_D and insulation rating

The "Selection and ordering data" table specifies a recommended supply voltage U_N for the reactors. The percent voltage drops u_D assigned to the reactors apply to the relevant recommended supply voltage U_N.

The rated voltage for the insulation specified in the "Selection and ordering data" table also allows the use of reactors at voltages that deviate from the recommended supply voltage U_N, but that are smaller or the same as the rated voltage of the insulation. The reference voltage drop u_D then changes and can be calculated using the formula shown in the Section "Voltage drop ΔU or reference voltage drop u_D".

A reactor with the reference voltage drop u_D specified as a percent value has the same effect on the system as a transformer with the same u_K.