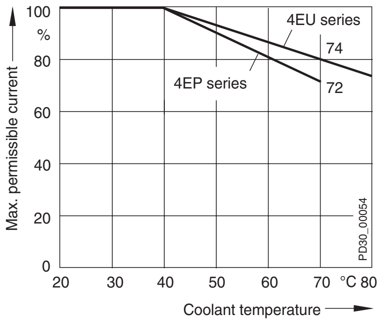
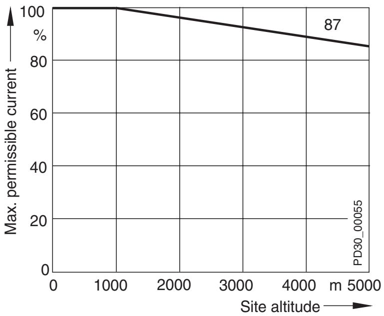
Deviations of rated values at site altitudes > 1000 m

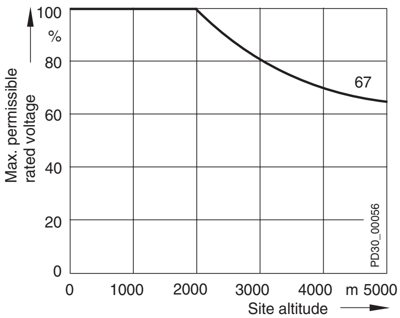
Reduction of the rated voltage and rated current, depending on the site altitude and coolant temperature



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)

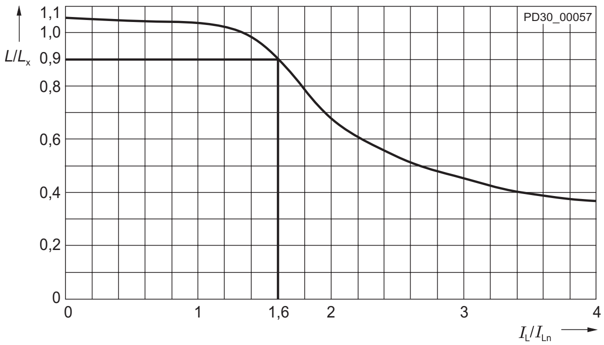
Inductance curve

Commutating reactors and mains reactors

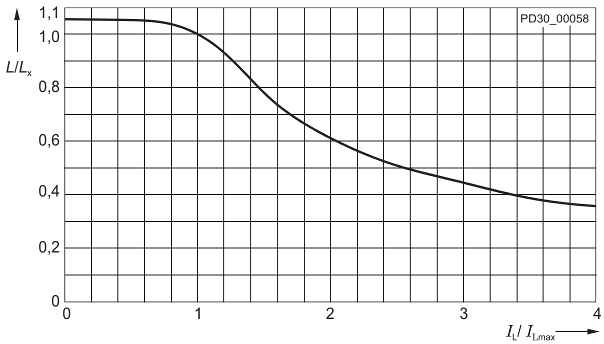
Commutating reactors and mains reactors differ greatly with regard to the inductance curve. The inductance is almost constant through to the rated current I_{Ln},

- 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:

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

$\omega = 2 \pi \times f$

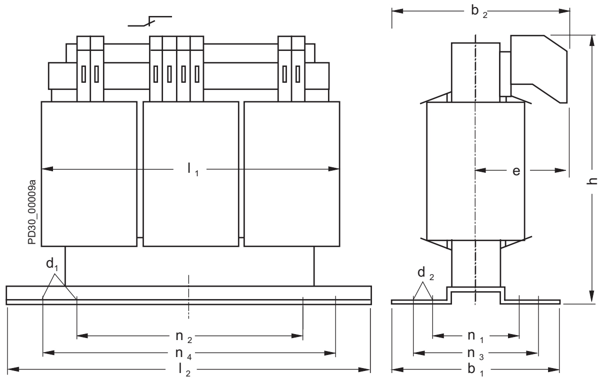
with f = line frequency (50 Hz or 60 Hz)

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.

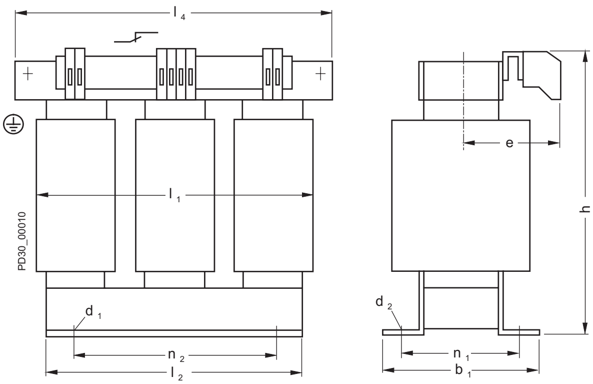


I_{eff} < 15 A: Terminal 4 mm^2
15 A < I_{eff} < 48 A: Terminal 10 mm^2

for user-defined arrangement of reactors

4EP37 to 4EP44

Type	b_1	b_2	d_1	d_2	d_3	e_{max}	h_{max}	$l_{1\,max}$	l_2	n_1	n_2	n_3	n_4
4EP37	73	97	5.8	11	M5	60	159	150	178	49	113	53	166
4EP38	88	111	5.8	11	M5	67	159	150	178	64	113	68	166
4EP39	99	112	7.0	13	M6	62	181	182	219	56	136	69	201
4EP40	119	132	7.0	13	M6	72	181	182	219	76	136	89	201
4EP43	107	120	7.0	13	M6	66	221	228	267	70	176	77	249
4EP44	131	145	7.0	13	M6	79	221	228	267	94	176	101	249

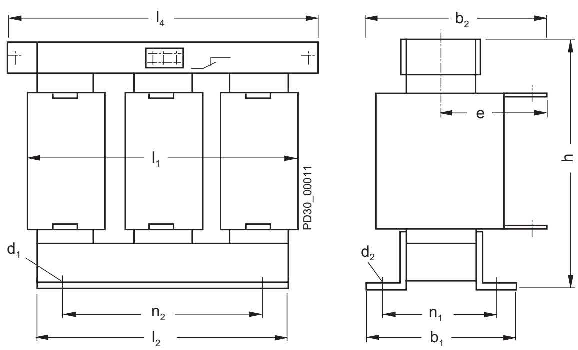


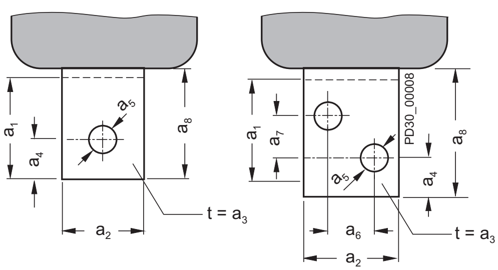
Version with terminal 10 mm^2

for arrangement of reactors on horizontal surfaces

4EU27

Type	b_1	b_2	d_1	d_2	d_3	e_{max}	h_{max}	$l_{1\,max}$	l_2	l_4	n_1	n_2
4EU27	162	189	10	18	M8	108	291	264	220	270	101	200





Version
up to 1000 A

Version
> 1000 A

4EU25 to 4EU39

Version with flat termination

for arrangement of reactors on horizontal surfaces

Type	b_1	b_2	d_1	d_2	d_3	e	h	l_1	l_2	l_4	n_1	n_2
4EU25	115	164	7	12	M6	103	210	225	190	–	94	176
4EU27	133	178	10	18	M8	121	248	260	220	270	101	200
4EU30	148	188	10	18	M8	137	269	295	250	300	118	224
4EU36	169	202	10	18	M8	142	321	357	300	350	138	264
4EU39	174	258	12	18	M10	171	385	405	350	410	141	316

Flat termination	a_1	a_2	a_3 Al	a_3 Cu	a_4	a_5	a_6	a_7	a_8 max
For 4EU25 to 4EU36 with flat terminations, for arrangement of reactors on horizontal surfaces									
< 50 kvar	20	20	4	3	10.0	7	–	–	34
> 50 kvar	20	20	4	3	10.0	9	–	–	34