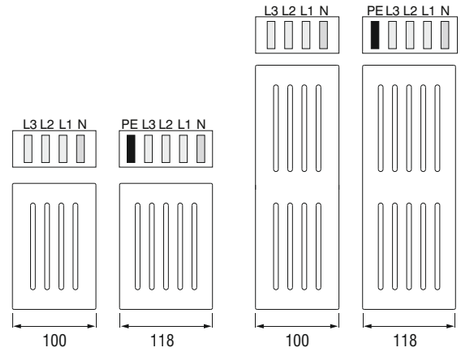
ELINECRC

▶▶ Technical Characteristics

Copper Conductor (Cu)

Rated Current	I_n	A	800	1000	1250	1600	2000	2500	3000	3200	3600	4000	5000	6300
Busbar Code			08	10	12	16	20	25	30	32	36	40	50	63
Standards	IEC 61439-6:2012 Ed.1 ; IEC 61439-1 Ed.2:2011, TS EN 61439-1: 2011													
Rated Isolation Voltage	Ui	V	1000											
Rated Operational Voltage	Ue	V	1000											
Rated Frequency	f	Hz	50											
Pollution Degree	III													
Protection Degree	IP68													
External Mechanical Impacts (IK Code)*	50J, greater than IK10													
Protection for Safety	Basic Protection (HD 60364-4-41, Clause A1)													
Rated Short-time Withstand Current (1s)	Icw	kA_{rms}	23	32	45	60	80	80	120	120	120	120	120	120
Rated Peak Withstand Current	Ipk	kA	48,3	67,2	94,5	132	176	176	264	264	264	264	264	264
Rated Short-time Withstand Current for Neutral Conductor (1s)	Icw	kA	13,8	19,2	27	36	48	48	72	72	72	72	72	72
Rated Peak Withstand Current for Neutral Conductor	Ipk	kA	27,6	38,4	56,7	75,6	100,8	100,8	158,4	158,4	158,4	158,4	158,4	158,4
Rated Short-time Withstand Current for PE Conductor (1s)	Icw	kA	13,8	19,2	27	36	48	48	72	72	72	72	72	72
Rated Peak Withstand Current for PE Conductor	Ipk	kA	27,6	38,4	56,7	75,6	100,8	100,8	158,4	158,4	158,4	158,4	158,4	158,4
MEAN PHASE CONDUCTOR CHARACTERISTICS AT RATED CURRENT In														
Resistance at a conductor temperature of 20 °C	R_{20}	mΩ/m	0,078	0,054	0,038	0,028	0,019	0,015	0,014	0,012	0,011	0,009	0,007	0,005
Resistance at an ambient air temperature of 35 °C	R	mΩ/m	0,100	0,070	0,048	0,035	0,023	0,019	0,018	0,016	0,014	0,012	0,009	0,006
Reactance (Independent from Temperature)	X	mΩ/m	0,069	0,056	0,045	0,033	0,028	0,022	0,019	0,017	0,016	0,014	0,012	0,009
Positive and negative sequence impedances at an ambient air temperature of 35 °C	Z	mΩ/m	0,121	0,090	0,066	0,048	0,036	0,029	0,026	0,023	0,021	0,018	0,015	0,011
Positive and negative sequence impedances at an ambient air temperature of 20 °C	Z_{20}	mΩ/m	0,104	0,078	0,059	0,043	0,033	0,026	0,023	0,021	0,019	0,017	0,014	0,010
Rated Power Loss at 35 °C		Watt	191,8	209,7	224,5	271,1	280,8	361,9	491,4	488,4	544,3	576,0	742,5	726,3
DC Resistance at a conductor temperature of 20 °C for Phases	R_{phdc}	mΩ/m	0,074	0,053	0,036	0,027	0,018	0,014	0,016	0,013	0,012	0,010	0,008	0,006
DC Resistance at a conductor temperature of 20 °C for Neutral	R_{Ndc}	mΩ/m	0,077	0,055	0,038	0,028	0,018	0,015	0,015	0,014	0,012	0,011	0,009	0,006
DC Resistance at a conductor temperature of 20 °C for PE	R_{PEdc}	mΩ/m	0,077	0,055	0,037	0,027	0,019	0,015	0,016	0,014	0,012	0,010	0,009	0,007
SECTIONS														
L1,L2,L3,N		mm^2	240	330	480	660	960	1200	1320	1500	1680	1920	2400	3600
PE (5 Conductors)		mm^2	240	330	480	660	960	1200	1320	1500	1920	1920	2400	3600
Conductor Cross Section		mmxmm	6x40	6x55	6x80	6x110	6x160	6x200	2(6x110)	2(6x125)	2(6x140)	2(6x160)	2(6x200)	3(6x200)
Busbar Weight (5 Conductors)		kg/m	35,6	43,4	55,6	70,3	95,3	114	139,4	156,5	173	200	226	336,1
MEAN FAULT-LOOP CHARACTERISTICS														
Zero-sequence Impedance														
Zero-sequence impedance at a conductor temperature of 20 °C	$Z_{(0)b20phN}$	mΩ/m	0,500	0,391	0,315	0,220	0,167	0,131	0,117	0,103	0,093	0,077	0,069	0,047
Zero-sequence impedance at a conductor temperature of 20 °C	$Z_{(0)b20phPE}$	mΩ/m	0,502	0,402	0,305	0,222	0,165	0,133	0,116	0,103	0,092	0,079	0,070	0,047
Zero-sequence impedance at an ambient temperature of 35 °C	$Z_{(0)bphN}$	mΩ/m	0,576	0,448	0,353	0,247	0,184	0,146	0,134	0,116	0,104	0,087	0,079	0,051
Zero-sequence impedance at an ambient temperature of 35 °C	$Z_{(0)bphPE}$	mΩ/m	0,578	0,461	0,341	0,250	0,183	0,148	0,133	0,116	0,103	0,089	0,078	0,052
Mean Resistances and Reactances														
Resistance at a conductor temperature of 20 °C	$R_{b20phph}$	mΩ/m	0,156	0,115	0,080	0,057	0,039	0,032	0,033	0,025	0,020	0,019	0,015	0,011
Resistance at a conductor temperature of 20 °C	R_{b20phN}	mΩ/m	0,160	0,118	0,086	0,059	0,041	0,034	0,035	0,026	0,021	0,020	0,016	0,013
Resistance at a conductor temperature of 20 °C	$R_{b20phPE}$	mΩ/m	0,161	0,119	0,083	0,059	0,041	0,034	0,034	0,026	0,021	0,020	0,016	0,013
Resistance at an ambient air temperature of 35 °C	R_{bphph}	mΩ/m	0,201	0,148	0,102	0,073	0,049	0,041	0,044	0,032	0,026	0,025	0,020	0,014
Resistance at an ambient air temperature of 35 °C	R_{bphN}	mΩ/m	0,205	0,153	0,110	0,076	0,051	0,043	0,046	0,033	0,028	0,027	0,021	0,016
Resistance at an ambient air temperature of 35 °C	R_{bphPE}	mΩ/m	0,206	0,153	0,106	0,076	0,052	0,043	0,045	0,034	0,028	0,026	0,021	0,016
Reactance (Independent from temperature)	X_{bphph}	mΩ/m	0,133	0,109	0,082	0,064	0,050	0,040	0,039	0,031	0,027	0,027	0,021	0,017
Reactance (Independent from temperature)	X_{bphN}	mΩ/m	0,175	0,144	0,119	0,091	0,071	0,062	0,056	0,045	0,039	0,038	0,031	0,025
Reactance (Independent from temperature)	X_{bphPE}	mΩ/m	0,175	0,147	0,117	0,092	0,071	0,059	0,054	0,046	0,041	0,037	0,032	0,027

Attention! The standard mounting of the Cast Resin busbar is with the conductors on edge.
This allows for the easy application of the resin at the joint.

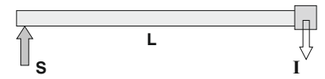


Voltage Drop Calculation

Generally Voltage drop of a busbar system can be calculated with the following formula.

$$\Delta U = \sqrt{3}.L.I.(R_1 .Cos\varphi + X_1.Sin\varphi)\ 10^{-3} [V]$$

ΔU = Voltage Drop (V)
L = Line Length (m)
I = Line Current or Load (A)
R_1 = Resistance (mΩ/m)
X_1 = Reactance (mΩ/m)
$Cos\varphi$ = Power Factor



S = Supply Point

(1)All phase conductor characteristics have been determined according to Annex BB of IEC 61439-6.

(2)Fault-loop zero-sequences impedances have been determined according to Annex CC of IEC 61439-6.

(3)Fault-loop resistances and reactances have been determined according to Annex DD of IEC 61439-6.

*IK10 corresponds to impact energy of 20J according to IEC 62262.

**Cast Resin Busbars are produced with a minimum of 3 conductors.